

TIP PROJECT: B-4008

CONTRACT: C201922

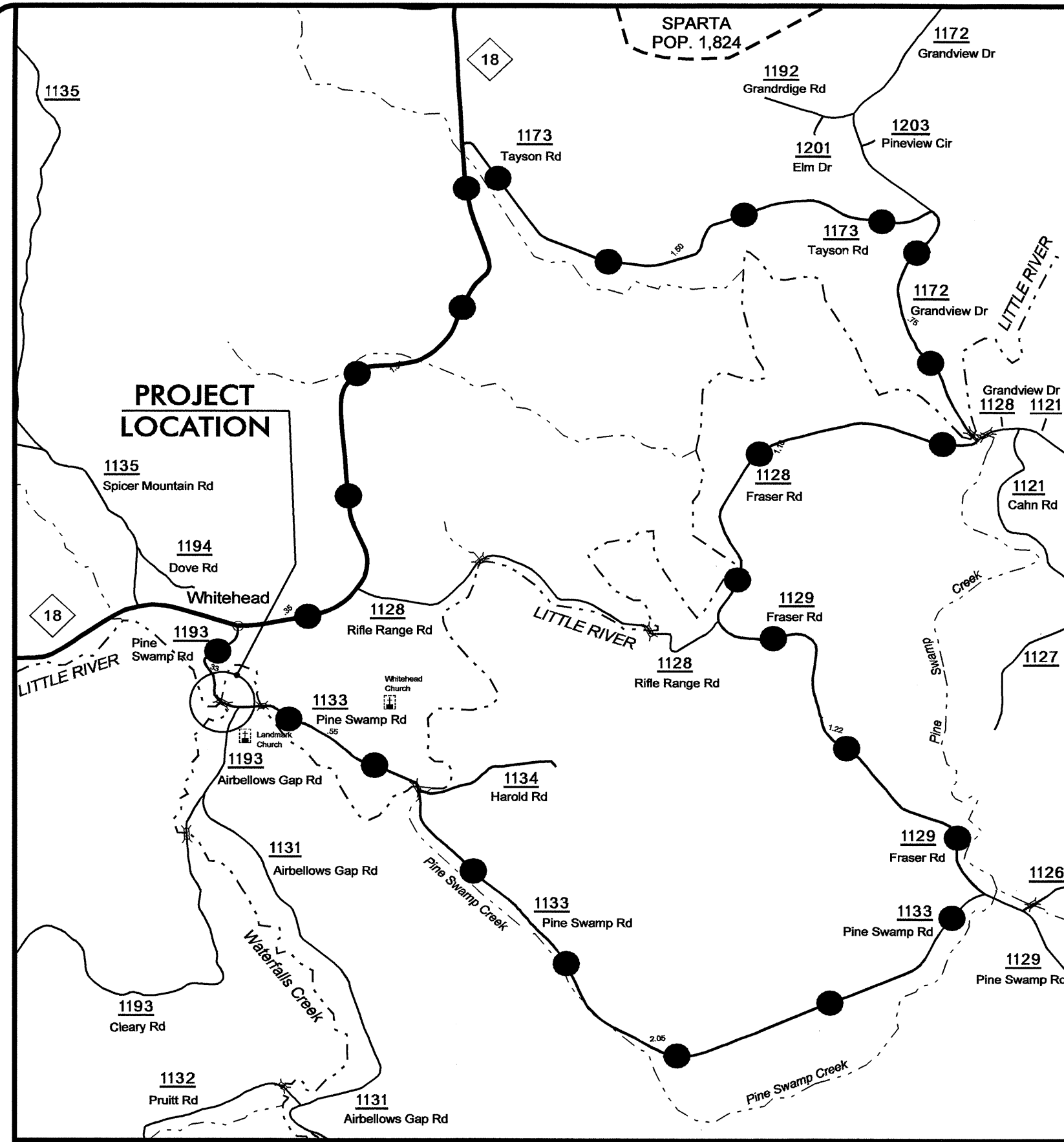
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ALLEGHANY COUNTY

**LOCATION: BRIDGE NO. 39 OVER LITTLE RIVER
ON SR 1193 (PINE SWAMP ROAD)**

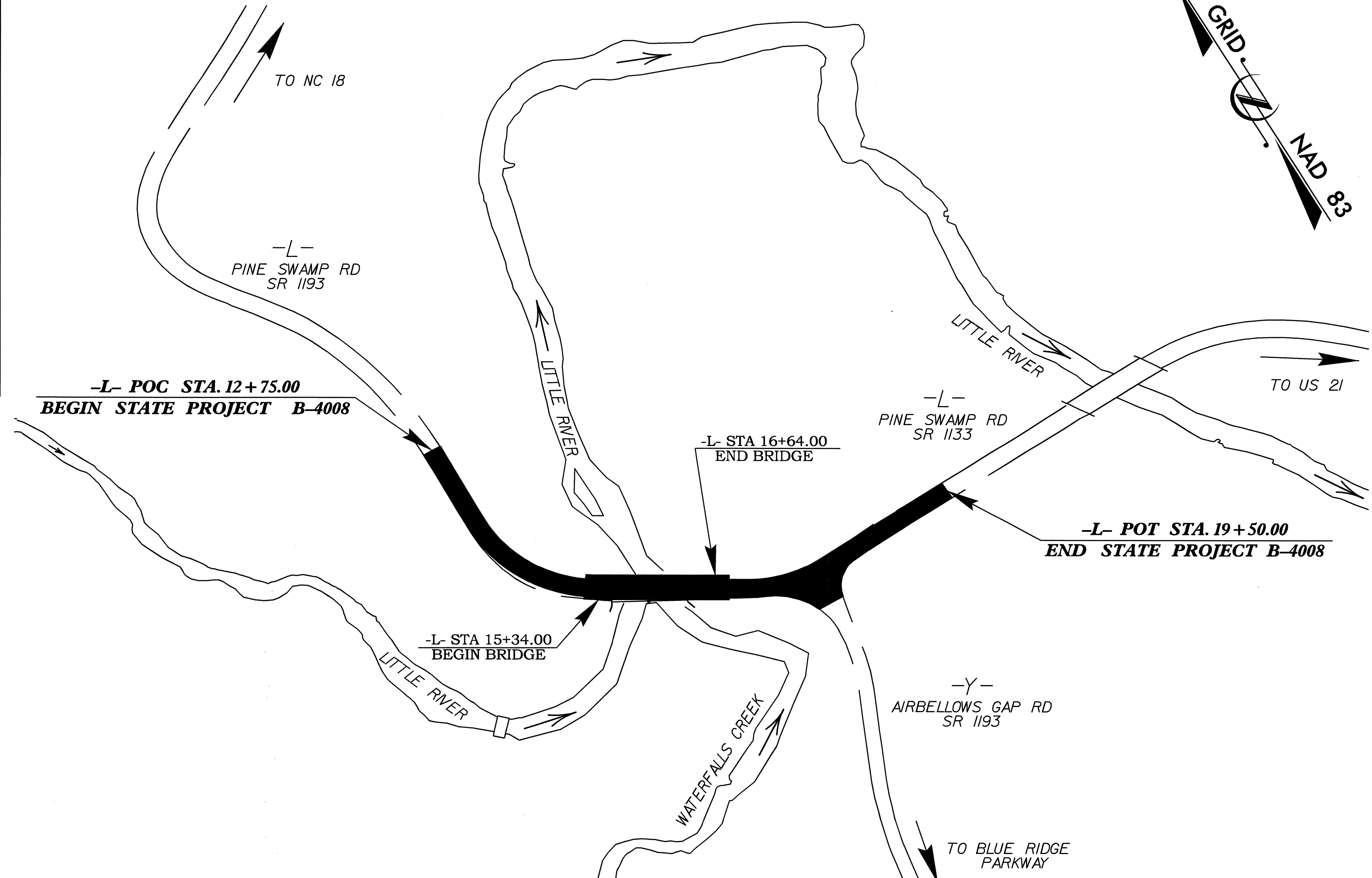
**TYPE OF WORK: GRADING, DRAINAGE, PAVING,
STRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4008		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33376.1.1	BRZ-1193(6)	P. E.	
33376.2.1	BRZ-1193(6)	R/W, UTILITIES	
33376.3.1	BRZ-1193(6)	CONST.	

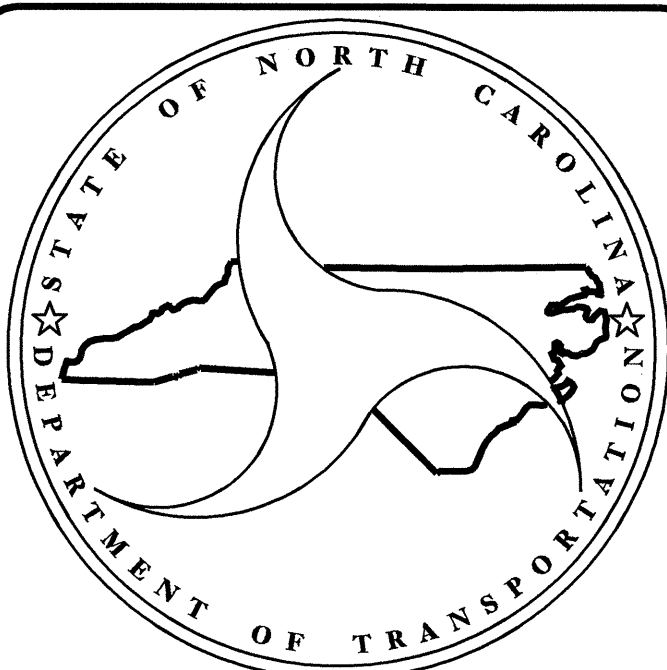


VICINITY MAP

DETOUR ROUTE ●—●



STRUCTURE



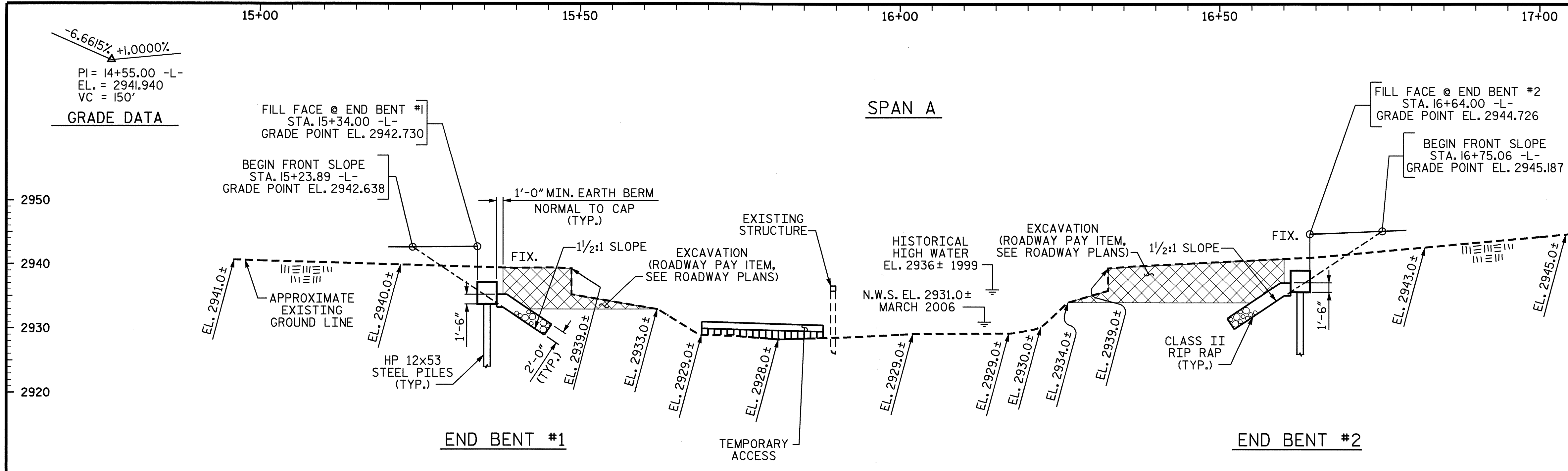
DESIGN DATA	
ADT 2008	= 580
ADT 2028	= 840
DHV	= 10 %
D	= 60 %
T	= 3 % *
V	= 20 MPH
* TTST 1%	DUAL 2%

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT B-4008	= 0.103 MI.
LENGTH STRUCTURES TIP PROJECT B-4008	= 0.025 MI.
TOTAL LENGTH TIP PROJECT B-4008	= 0.128 MI.

Prepared In the Office of: DIVISION OF HIGHWAYS	
2006 STANDARD SPECIFICATIONS	
LETTING DATE: SEPTEMBER 16, 2008	B. C. HUNT, P. E. PROJECT ENGINEER
	T. G. PAYNE, P. E. PROJECT DESIGN ENGINEER

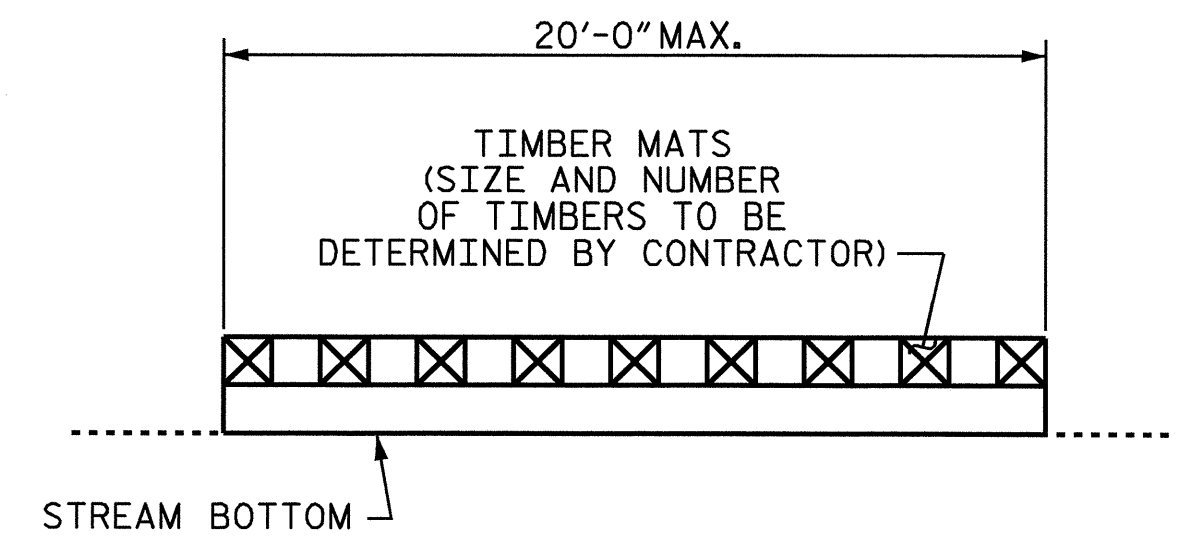
STRUCTURE DESIGN
1000 Birch Ridge Dr. Raleigh NC, 27610

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA	
	P.E.
STATE DESIGN ENGINEER	
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED DIVISION ADMINISTRATOR	DATE

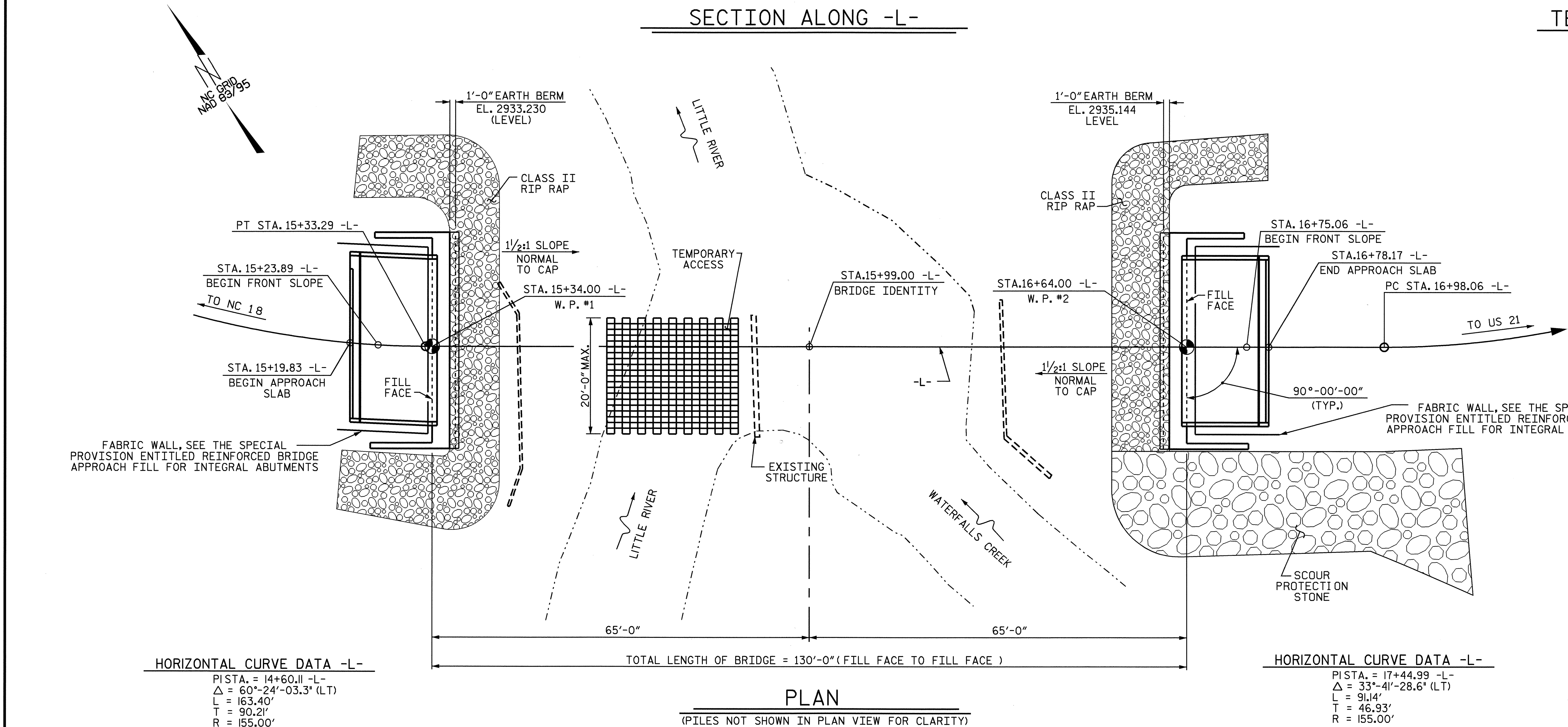


GRADE DATA
 +1.0000% +6.8000%
 PI = 16+65.00 -L-
 EL. = 2944.040
 VC = 100'

GRADE DATA
 -6.6615% +1.0000%
 PI = 14+55.00 -L-
 EL. = 2941.940
 VC = 150'



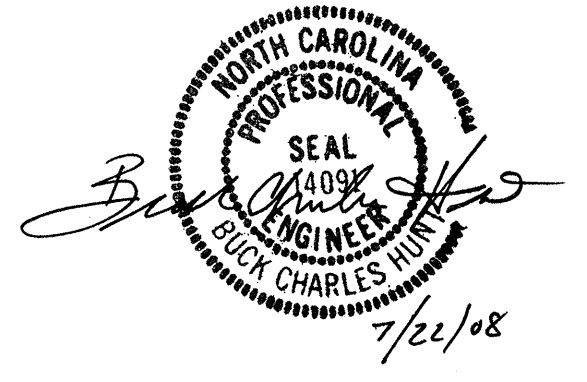
TEMPORARY ACCESS
 SEE SPECIAL PROVISIONS



HORIZONTAL CURVE DATA -L-
 P.I. STA. = 14+60.11 -L-
 $\Delta = 60^\circ-24'-03.3''$ (LT)
 L = 163.40'
 T = 90.21'
 R = 155.00'

HORIZONTAL CURVE DATA -L-
 P.I. STA. = 17+44.99 -L-
 $\Delta = 33^\circ-41'-28.6''$ (LT)
 L = 91.14'
 T = 46.93'
 R = 155.00'

PLAN
 (PILES NOT SHOWN IN PLAN VIEW FOR CLARITY)

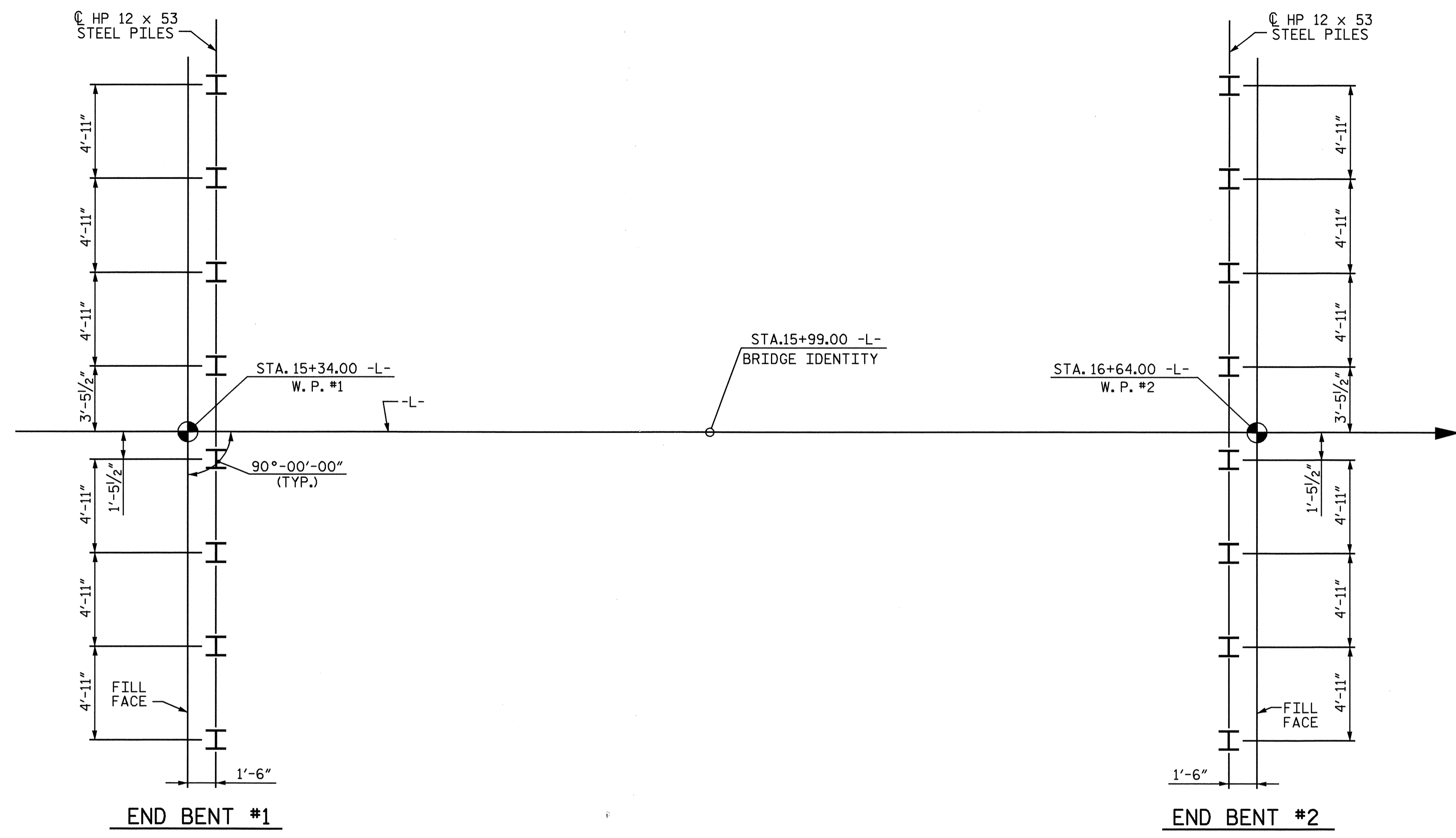


PROJECT NO. B-4008
 ALLEGHANY COUNTY
 STATION: 15+99.00 -L-
 SHEET 1 OF 3 REPLACES BRIDGE #39

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 LITTLE RIVER ON
 SR 1193 (PINE SWAMP RD.)
 BETWEEN
 NC 18 & SR 1193

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

DRAWN BY: KEITH D. LAYNE DATE: 1/28/08
 CHECKED BY: R. G. EMERSON DATE: 04-08



FOUNDATION LAYOUT

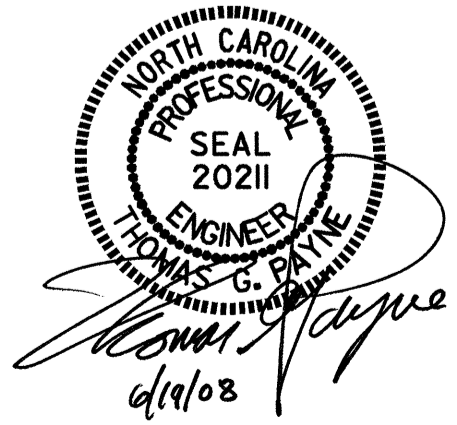
DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE.

FOUNDATION NOTES

DRIVE PILES FOR END BENTS #1 AND #2 TO A REQUIRED MINIMUM 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 BENTS #1 AND #2 IS 60 TONS PER PILE.

PROJECT NO. B-4008
ALLEGHANY COUNTY
 STATION: STA. 15+99.00 -L-

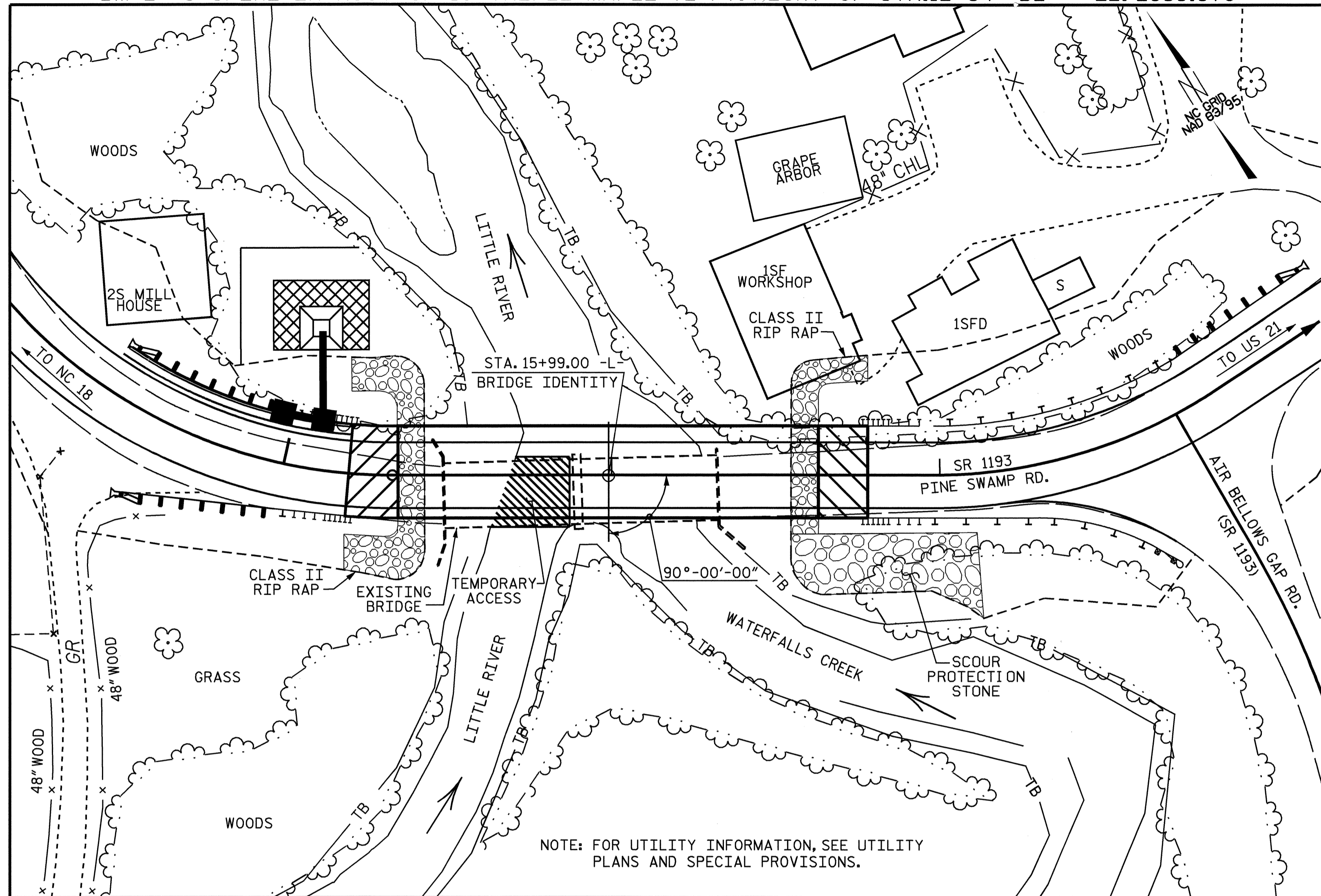
SHEET 2 OF 3



STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
GENERAL DRAWING					
FOR BRIDGE OVER					
LITTLE RIVER ON					
SR 1193 (PINE SWAMP RD.)					
BETWEEN					
NC 18 & SR 1193					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					26

DRAWN BY : KEITH D. LAYNE DATE : 1/28/08
 CHECKED BY : R. G. EMERSON DATE : 04-08

BM#2 8" SPIKE IN ROOT OF 10" TRIPLE MAPLE 72 FT. RIGHT OF STA.12+84 -BL- EL. 2933.870



LOCATION SKETCH

NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

NOTES

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT THE GIRDERS HAVE BEEN DESIGNED FOR HS 25.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO 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.

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

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.

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

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS (1 @ 42'-8" AND 1 @ 40'-9") WITH AN ASPHALT WEARING SURFACE ON A TIMBER DECK OF 19.1 FT. ON REINFORCED CONCRETE ABUTMENTS AT END BENTS AND TIMBER CAP AND TIMBER PILES ON A CONCRETE SILL AT THE INTERIOR BENT AND LOCATED AT THE PROPOSED SITE SHALL BE REMOVED.

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 ON SHEET 1 OF 3 (SECTION ALONG -L-) SHALL BE EXCAVATED FOR A DISTANCE OF 25 FEET EITHER SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. PAYMENT IS INCLUDED IN THE ROADWAY PAY ITEM "LUMP SUM GRADING."

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 SPICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS, SEE SPECIAL PROVISIONS.

FOR SCOUR PROTECTION STONE, SEE SPECIAL PROVISIONS.

FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE SPECIAL PROVISION ENTITLED REINFORCED BRIDGE APPROACH FILL FOR INTEGRAL ABUTMENTS.

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.

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".

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.

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.

HYDRAULIC DATA

DESIGN DISCHARGE	3,100 CFS
FREQUENCY OF DESIGN FLOOD	25 YR
DESIGN HIGH WATER ELEVATION	2937.500
DRAINAGE AREA	12.3 SQ. MI.
BASIC DISCHARGE (Q100)	4,600 CFS
BASIC HIGH WATER ELEVATION	2938.600

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	10,000 CFS
FREQUENCY OF OVERTOPPING FLOOD	500+ YR
OVERTOPPING FLOOD ELEVATION	2942.600

TOTAL BILL OF MATERIAL

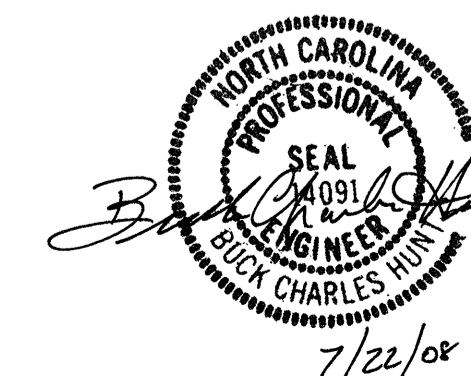
	CONSTRUCTION MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	STRUCTURAL STEEL (APPROX.)	HP 12x53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	EVAZOTE JOINT SEALS	SCOUR PROTECTION STONE	REINFORCED BRIDGE APPROACH FILL FOR INTEGRAL ABUTMENTS
	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	TONS	LUMP SUM
SUPERSTRUCTURE			4063	3844		LUMP SUM		174300		256.67			LUMP SUM		
END BENT #1					16.5		2758		8	160	152	168			
END BENT #2					16.5		2764		8	80	96	273		150	
TOTAL	LUMP SUM	LUMP SUM	4063	3844	33.0	LUMP SUM	5522	174300	16	240	256.67	248	441	LUMP SUM	150

PROJECT NO. B-4008
 ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

SHEET 3 OF 3

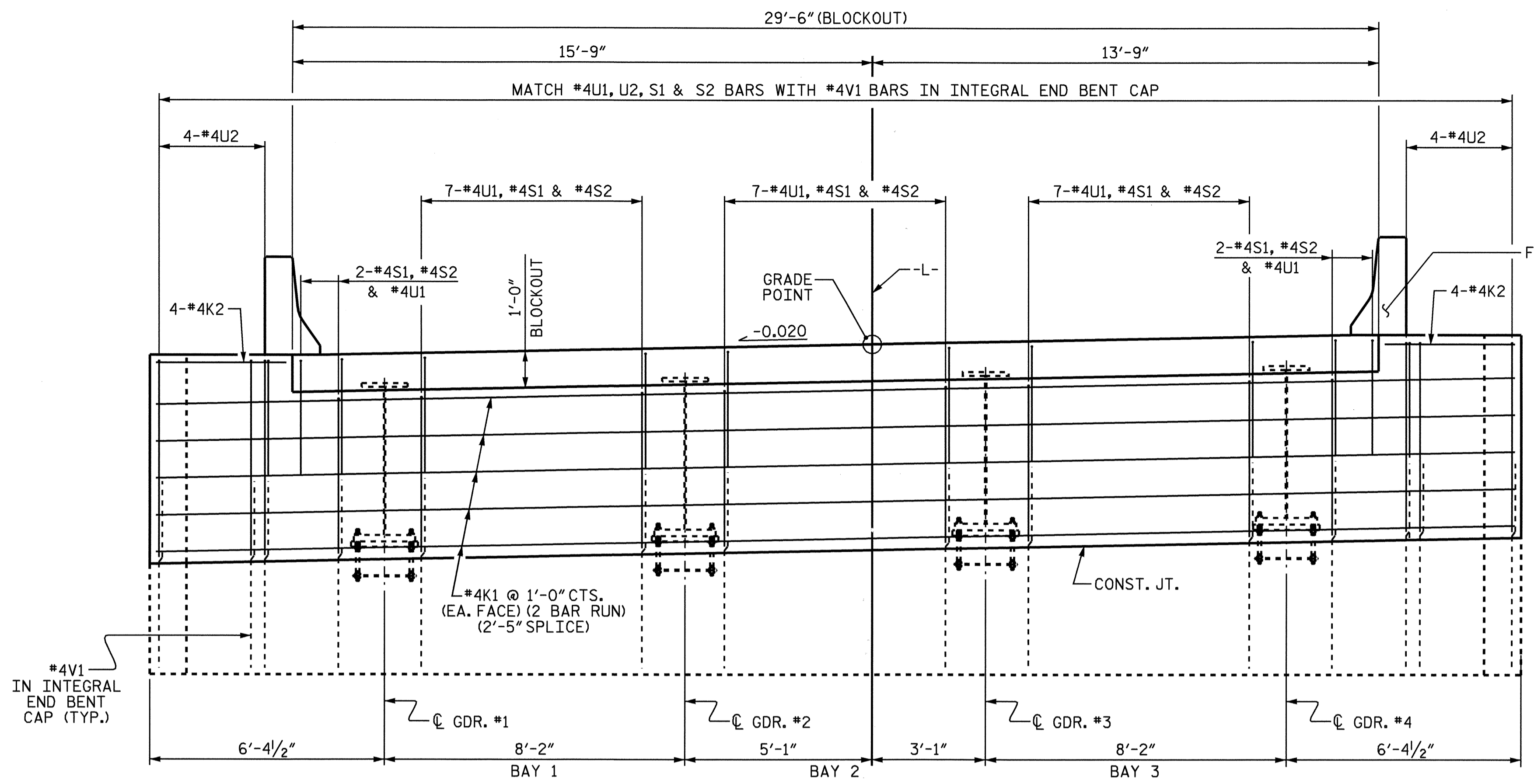
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 LITTLE RIVER ON
 SR 1193 (PINE SWAMP RD.)
 BETWEEN
 NC 18 & SR 1193



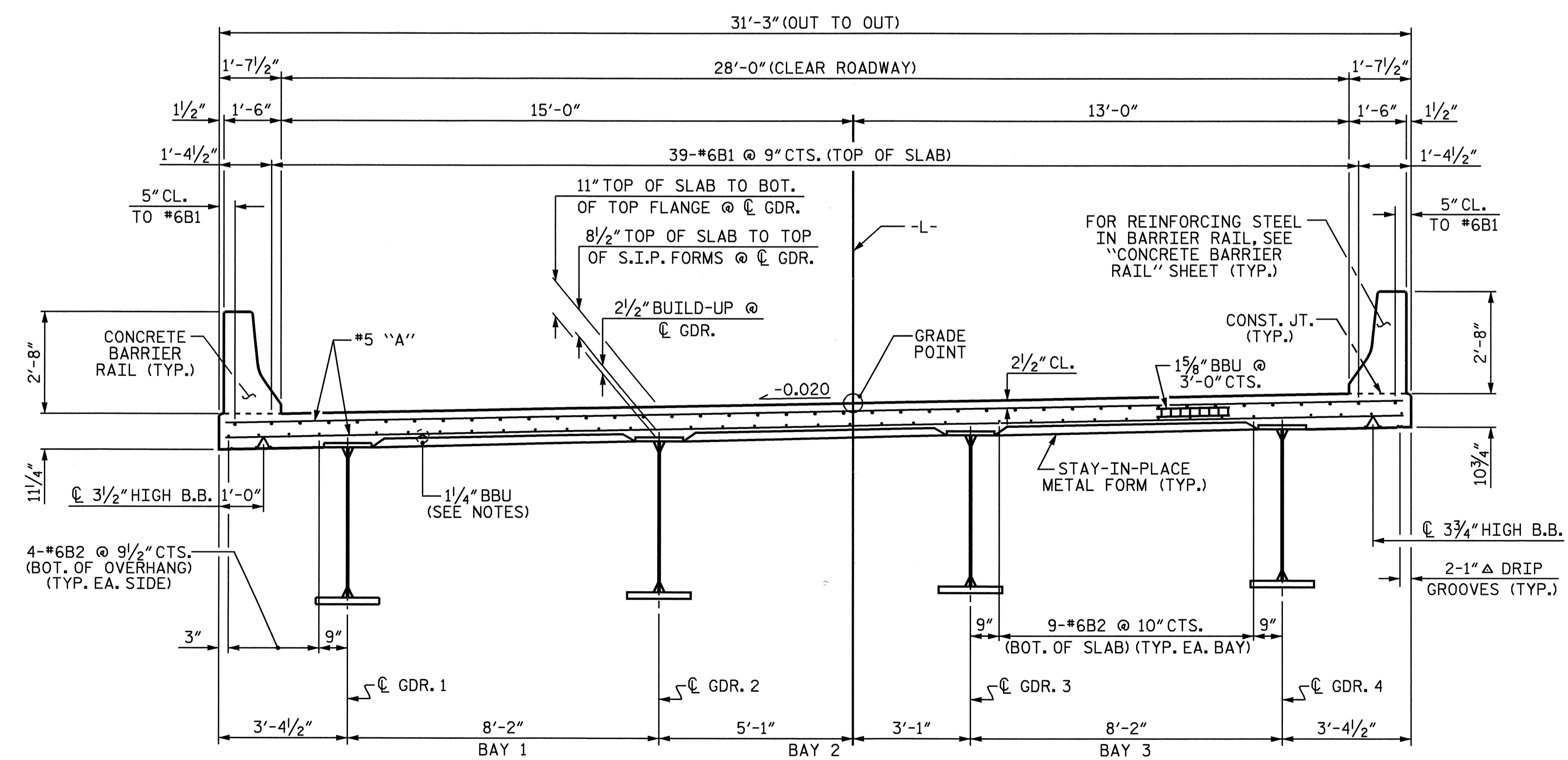
DRAWN BY: KEITH D. LAYNE DATE: 1/28/08
 CHECKED BY: R. G. EMERSON DATE: 04-08

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



TYPICAL SECTION @ INTEGRAL END BENT

DECK REINFORCEMENT NOT SHOWN FOR CLARITY



TYPICAL SECTION @ INTEGRAL END BENT

(SHOWING DECK REINFORCEMENT, REINFORCEMENT IN ABUTMENT NOT SHOWN FOR CLARITY)

NOTES

PROVIDE 1 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.

METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO BEAM OR GIRDER FLANGES IN THE ZONES REQUIRING CHURPY V-NOTCH TEST. SEE STRUCTURAL STEEL DETAIL SHEETS.

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

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

STRUCTURAL STEEL ERECTION SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED.

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.

FOR REINFORCING STEEL IN BARRIER RAIL, SEE "CONCRETE BARRIER RAIL" SHEET (TYP.)

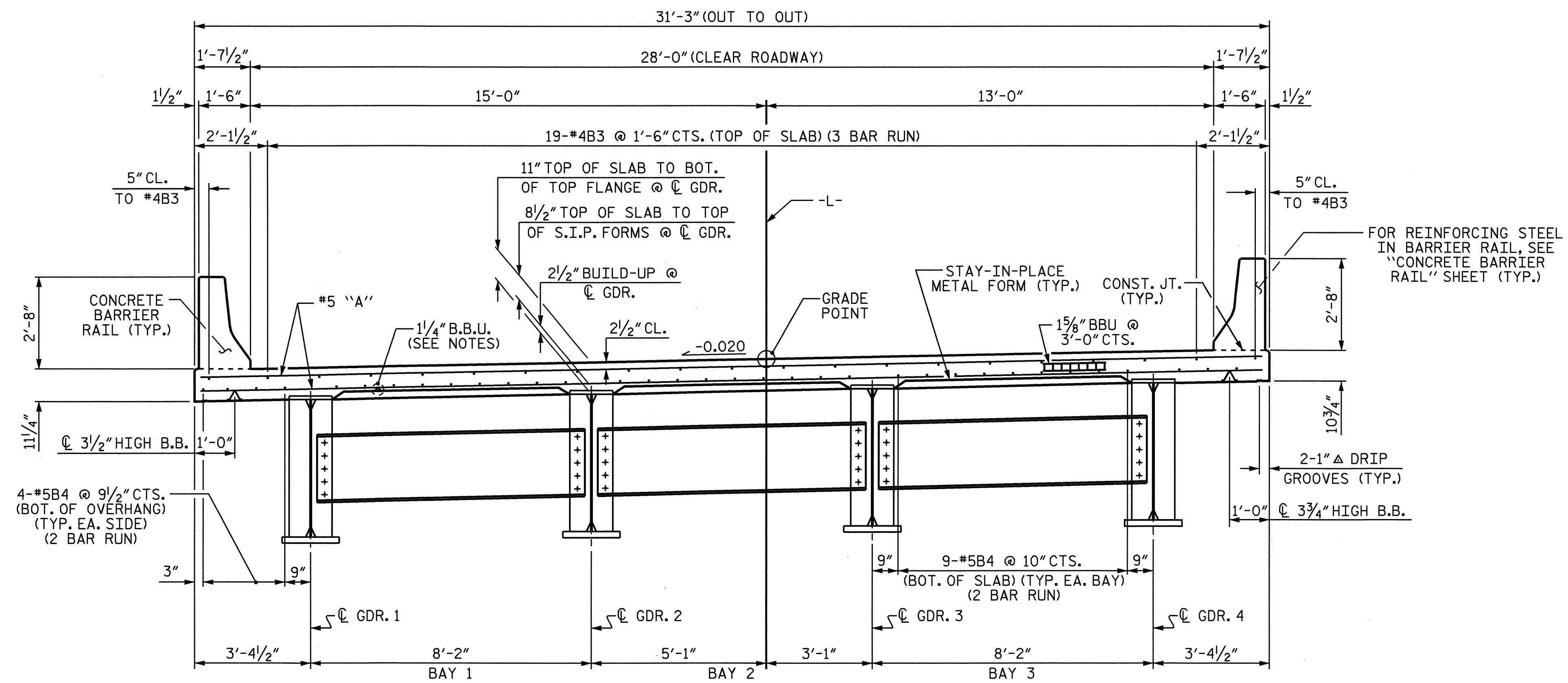
PROJECT NO. B-4008
ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

SHEET 1 OF 2

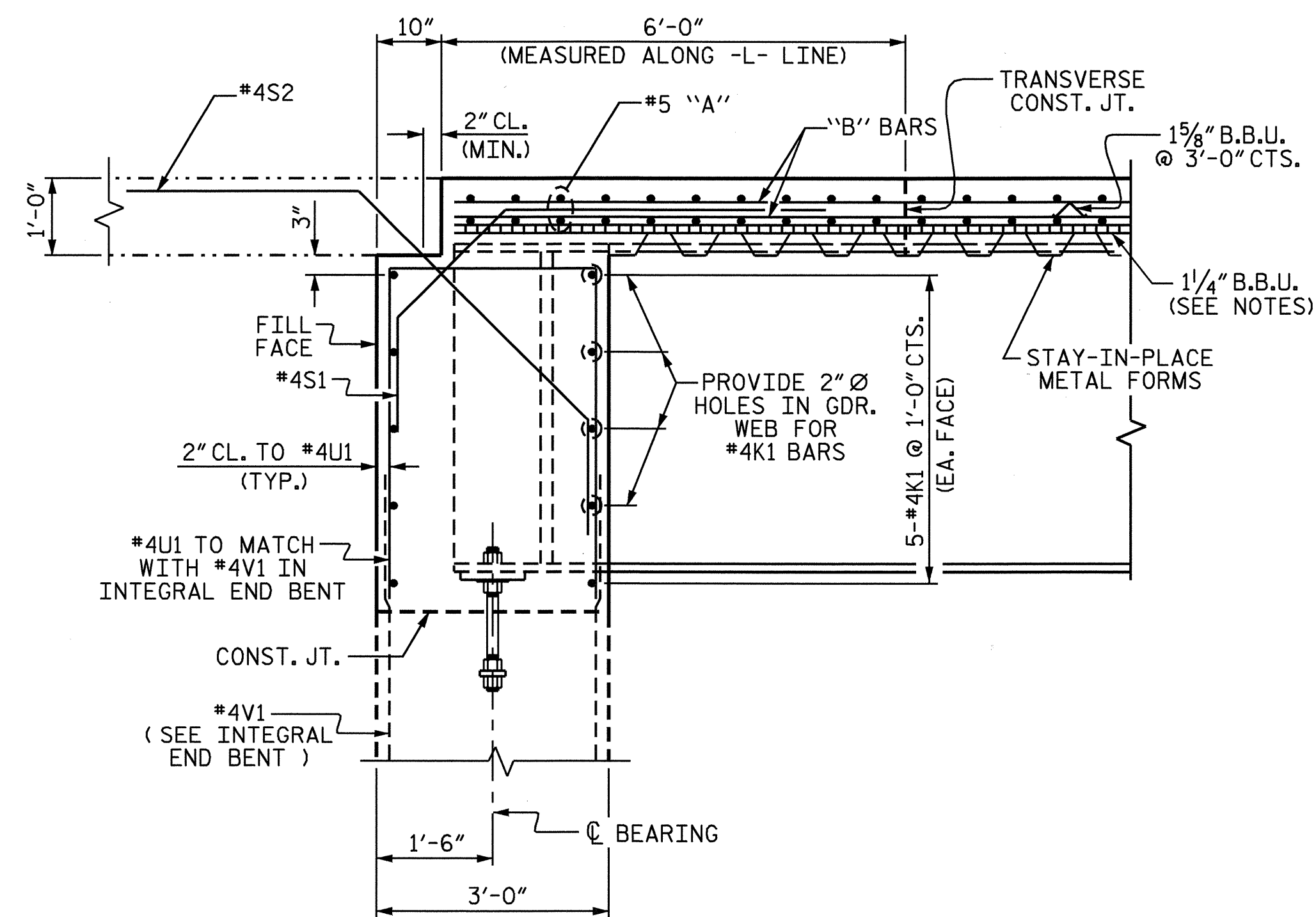


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-4
SUPERSTRUCTURE TYPICAL SECTION						
REVISIONS						TOTAL SHEETS 26
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

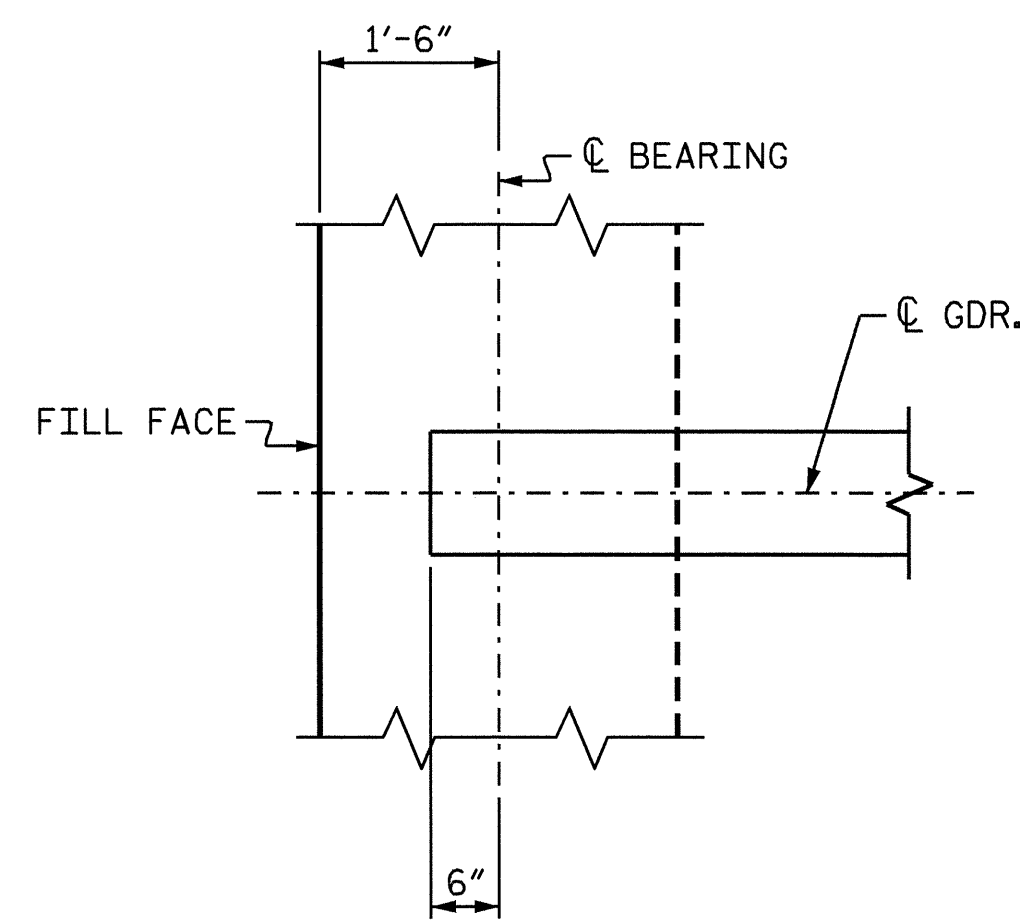
DRAWN BY : M.K. BEARD DATE : 08/22/07
 CHECKED BY : K.D. LAYNE DATE : 10/07



TYPICAL SECTION @ INTERMEDIATE DIAPHRAGM



SECTION THRU INTEGRAL END BENT



PLAN OF BEAM @ INTEGRAL END BENT #1

END BENT #1 SHOWN, END BENT #2 SIMILAR

PROJECT NO. B-4008
 ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

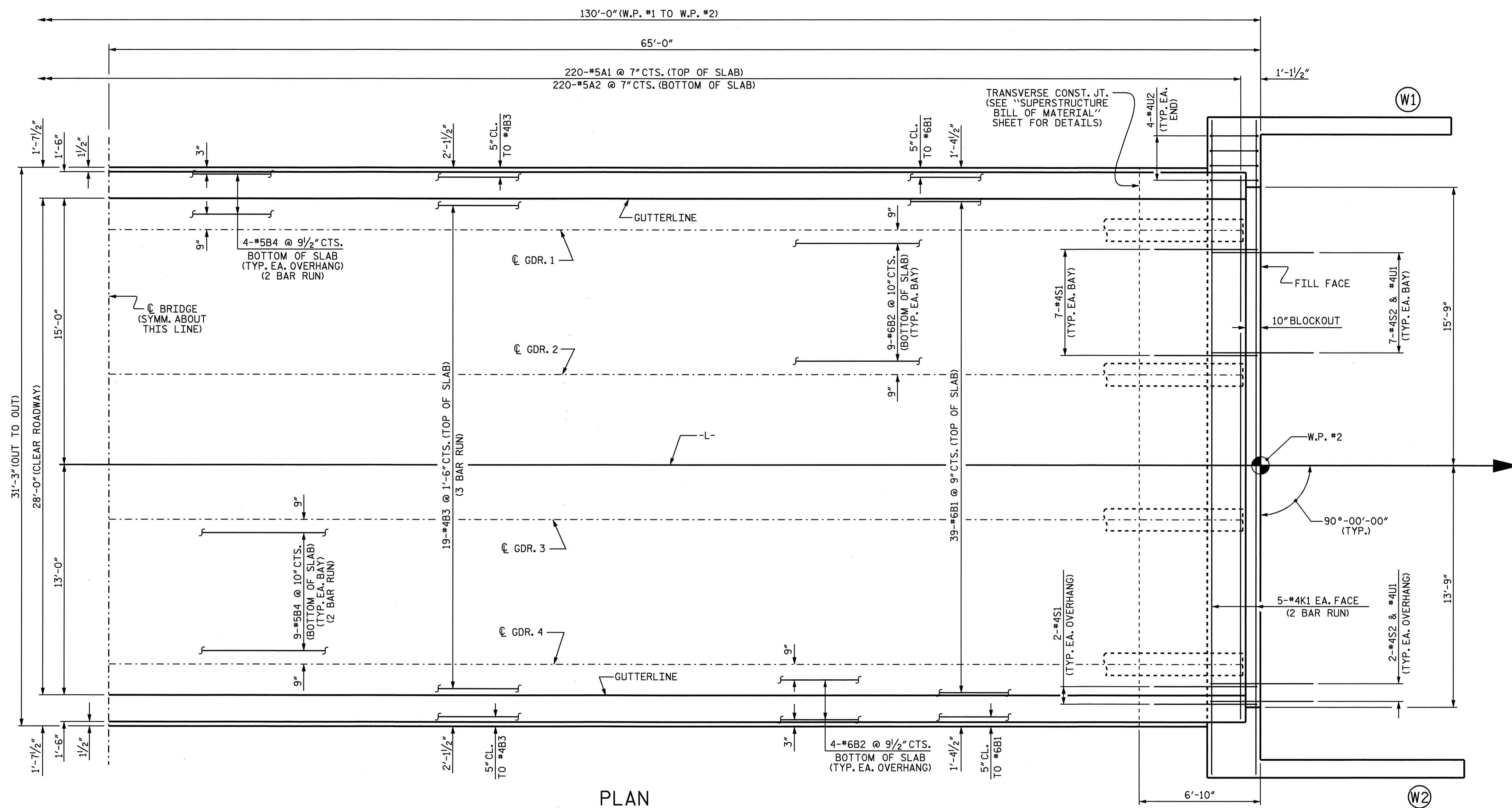
SUPERSTRUCTURE
 TYPICAL SECTION



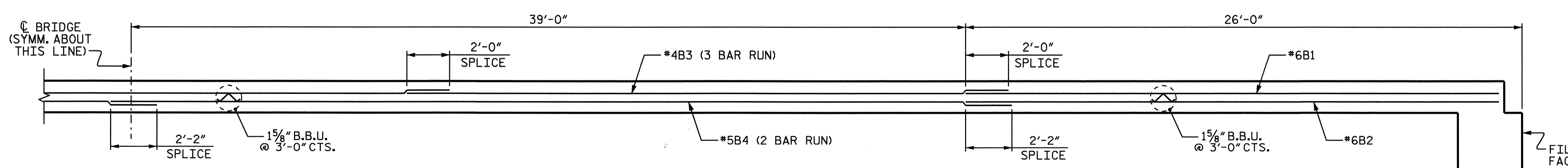
DRAWN BY : M.K. BEARD DATE : 08/22/07
 CHECKED BY : K.D. LAYNE DATE : 10/07

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-5
2			4			26



PLAN



SCHEMATIC DIAGRAM OF SLAB

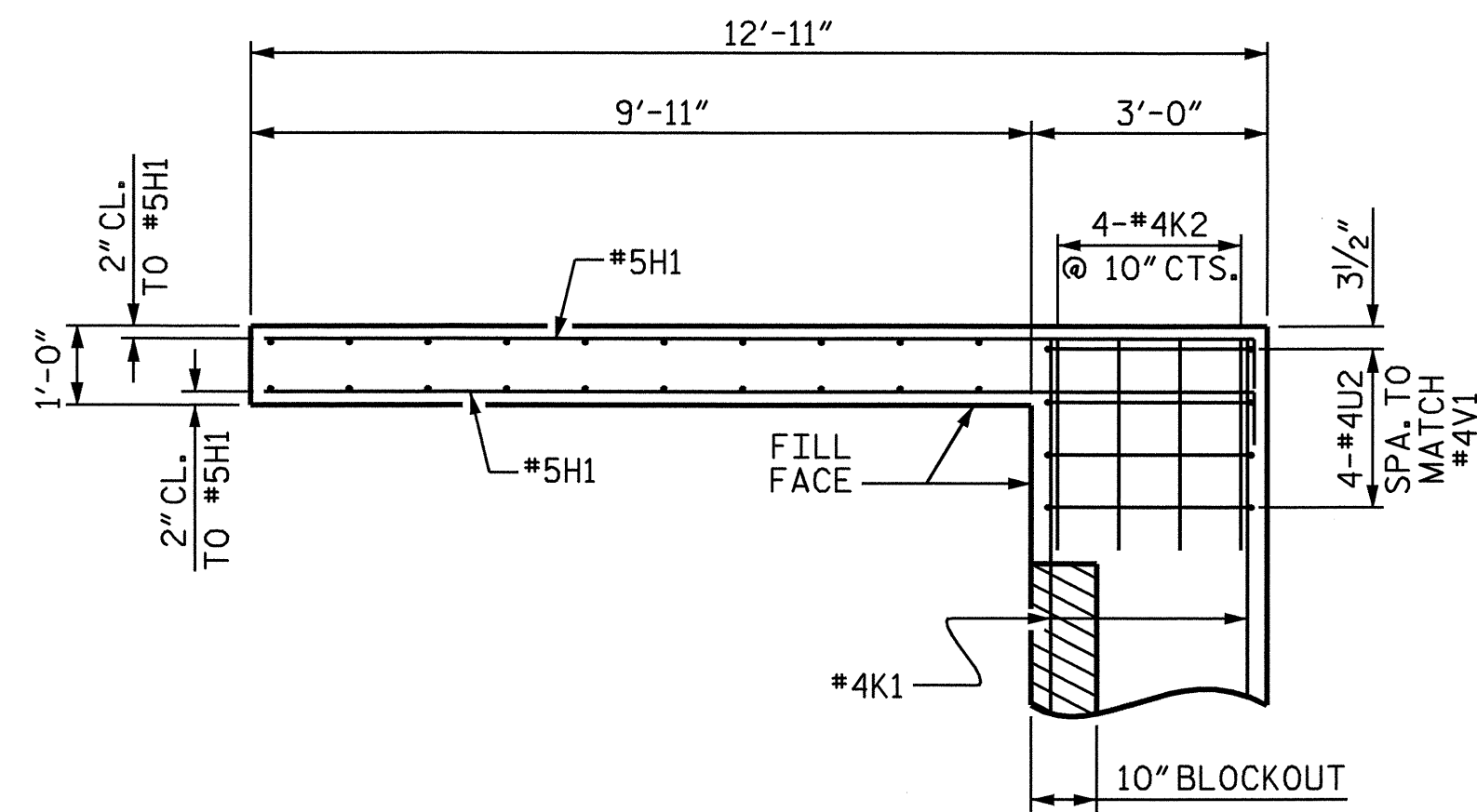
PROJECT NO. B-4008
ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-6
					TOTAL SHEETS 26

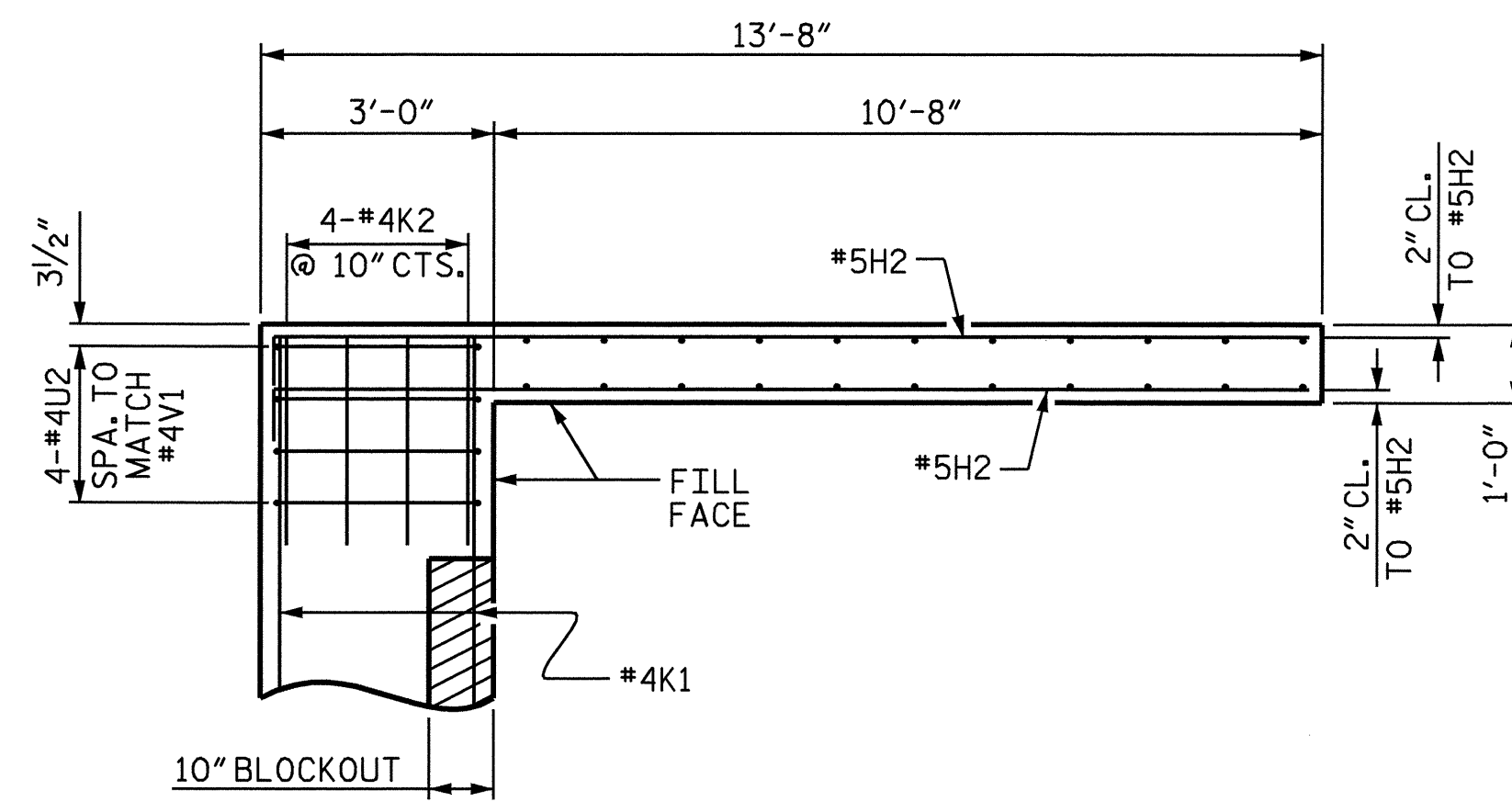


DRAWN BY : M.K. BEARD DATE : 09/13/07
 CHECKED BY : K.D. LAYNE DATE : 10/07

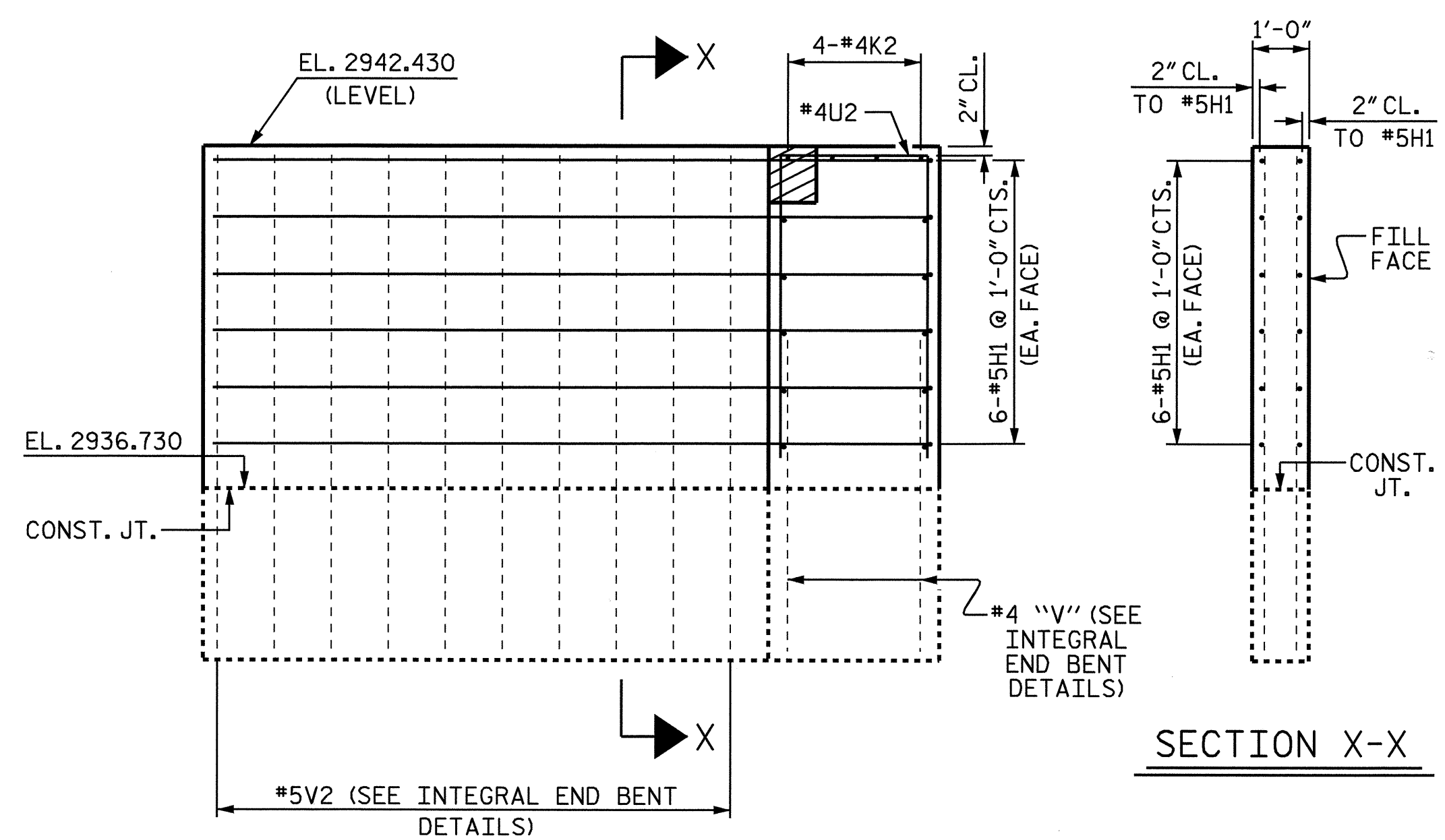
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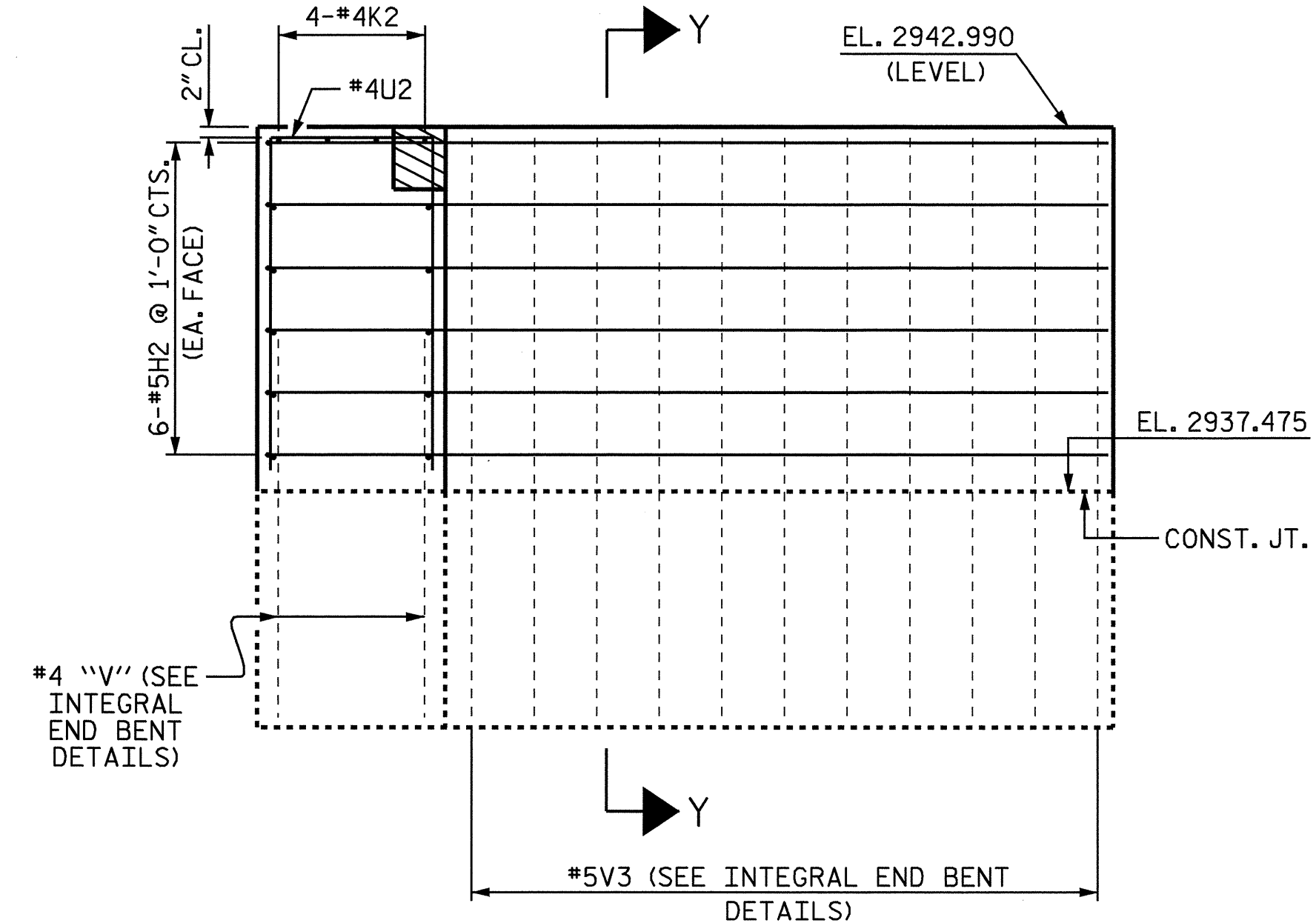
PLAN OF WING (W1)



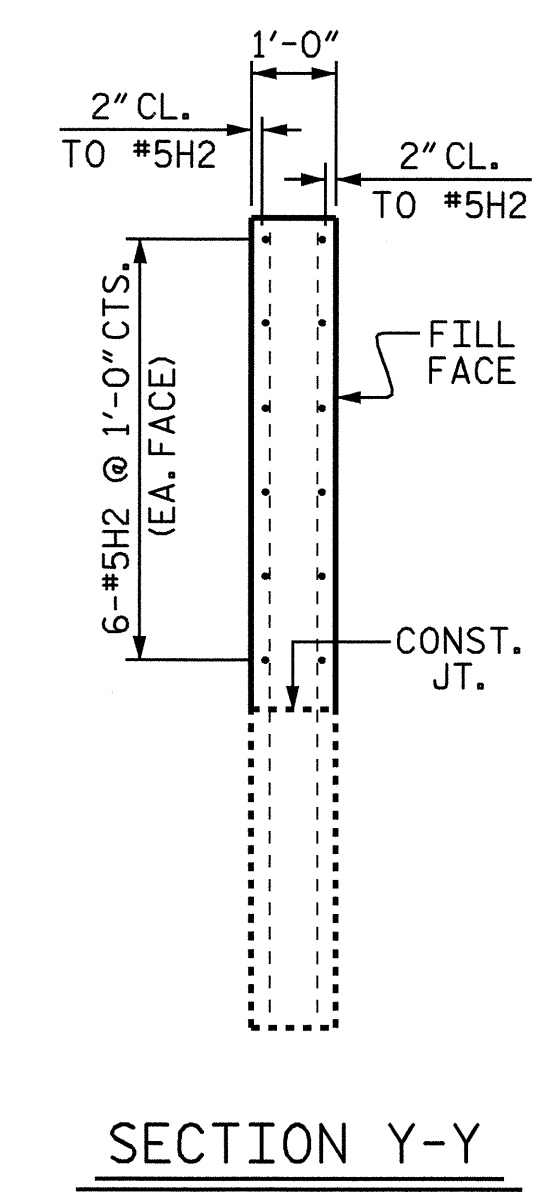
PLAN OF WING (W2)



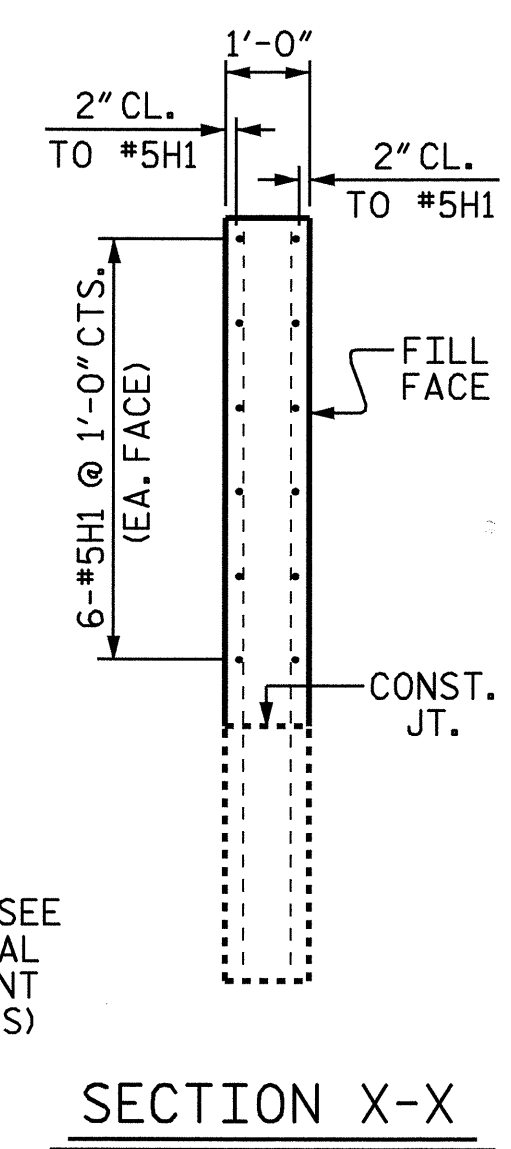
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

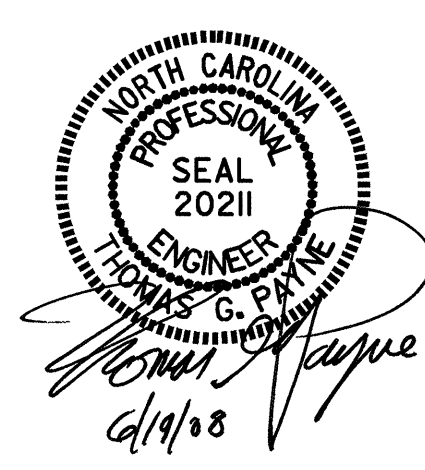


SECTION Y-Y



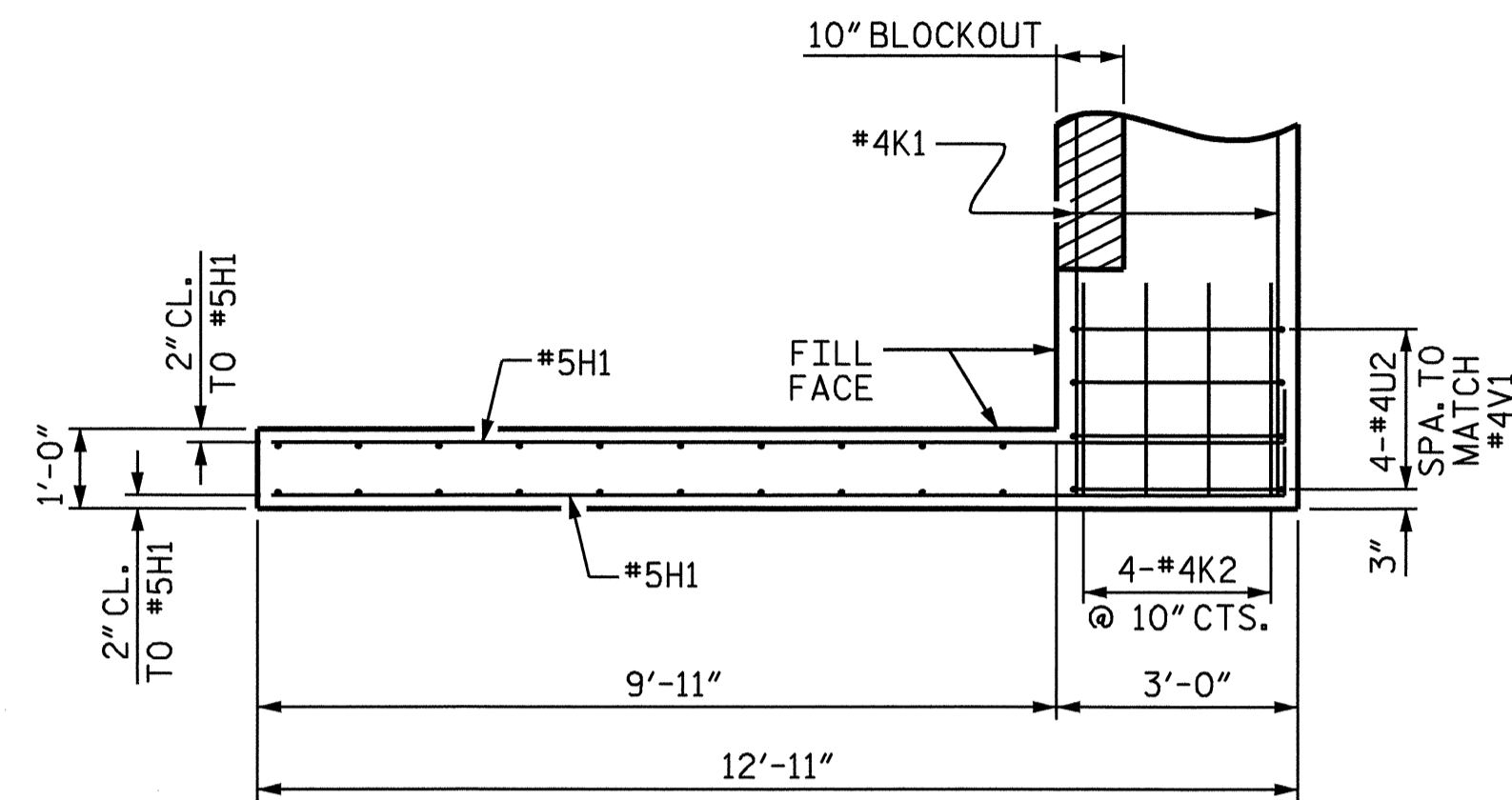
SECTION X-X

PROJECT NO. B-4008
 ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

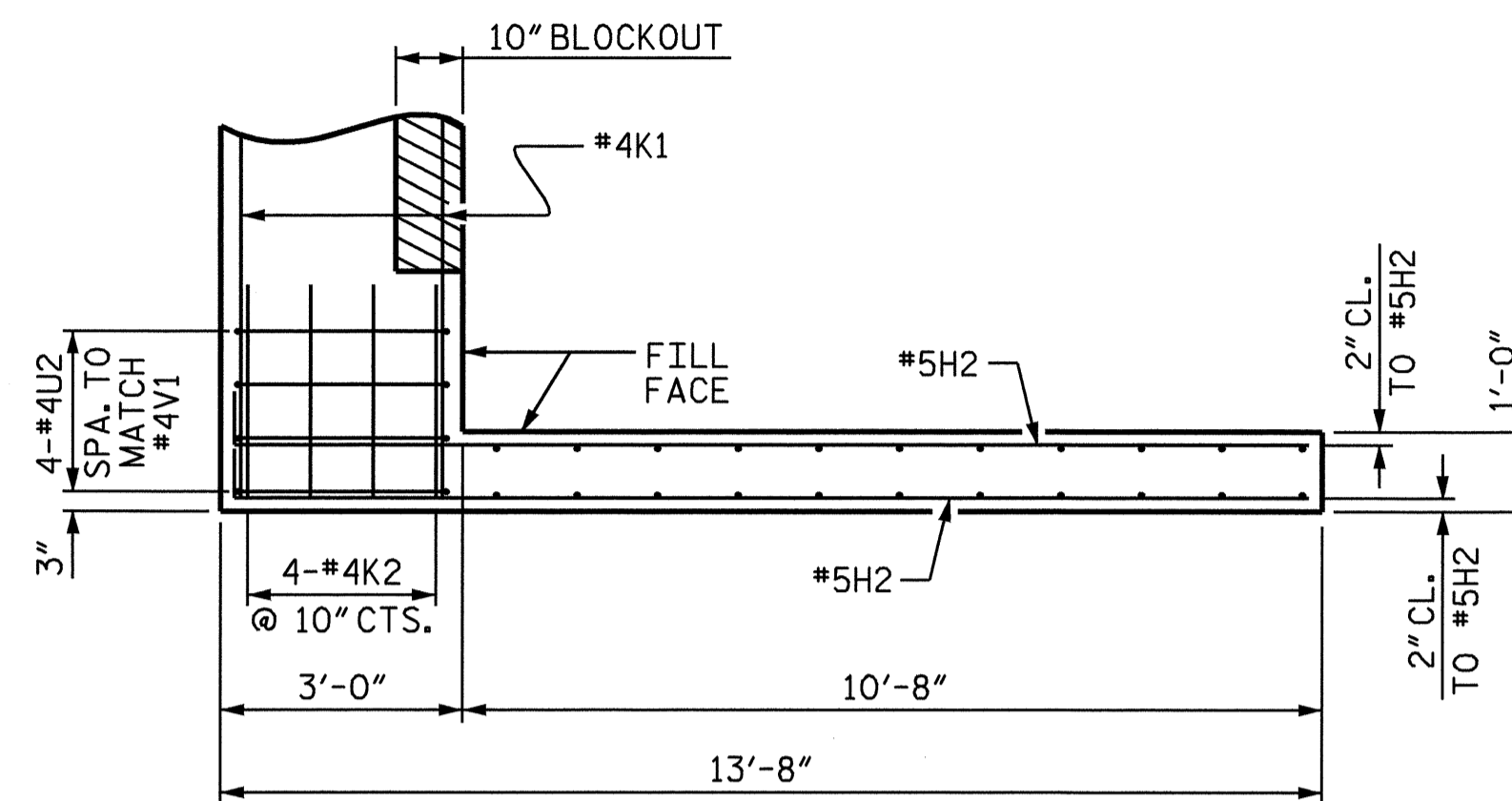


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE					
TOP OF WINGS @ INTEGRAL END BENT #1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-7					TOTAL SHEETS 26

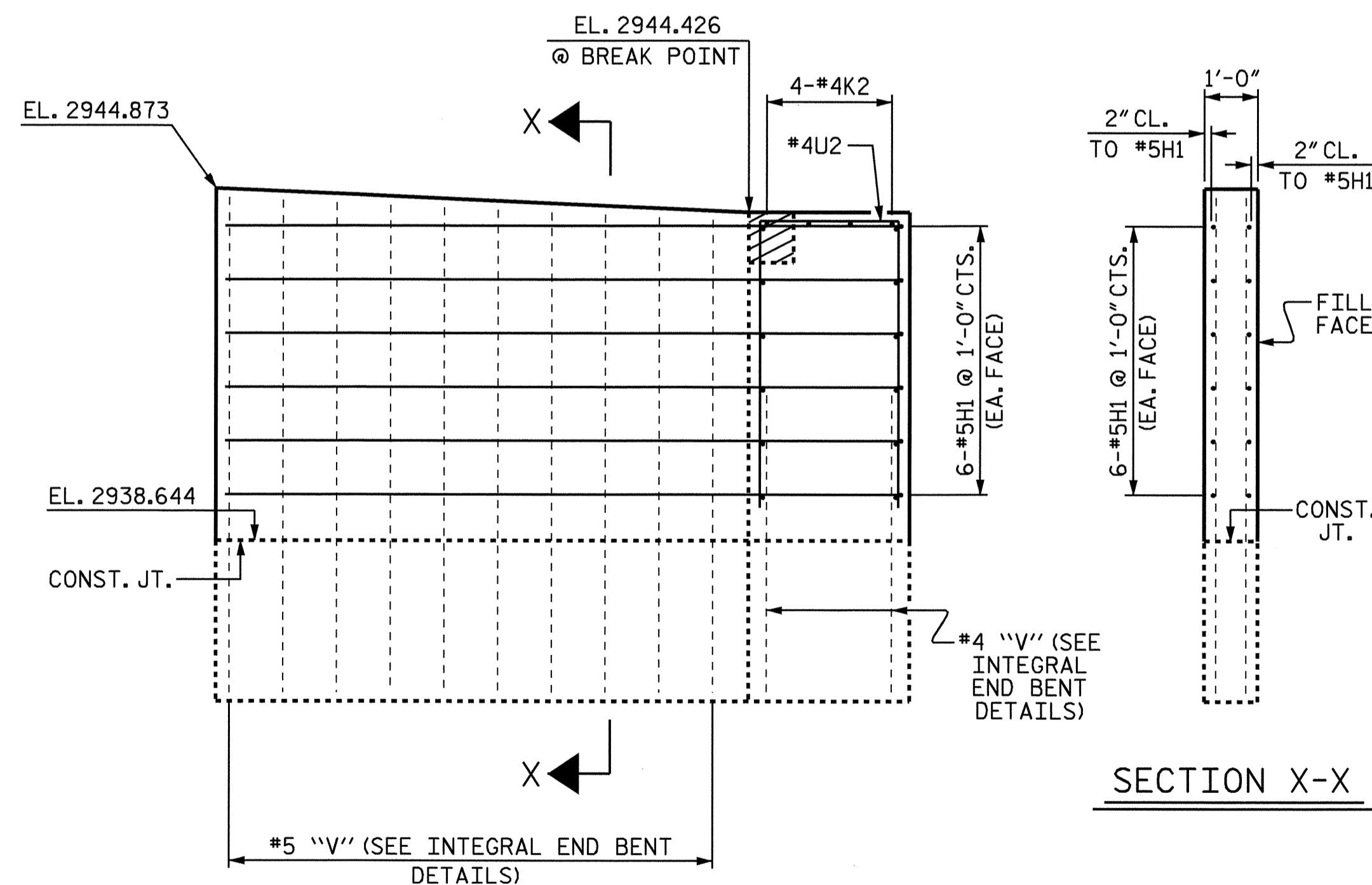
DRAWN BY: M.K. BEARD DATE: 9/13/07
 CHECKED BY: K.D. LAYNE DATE: 10/07



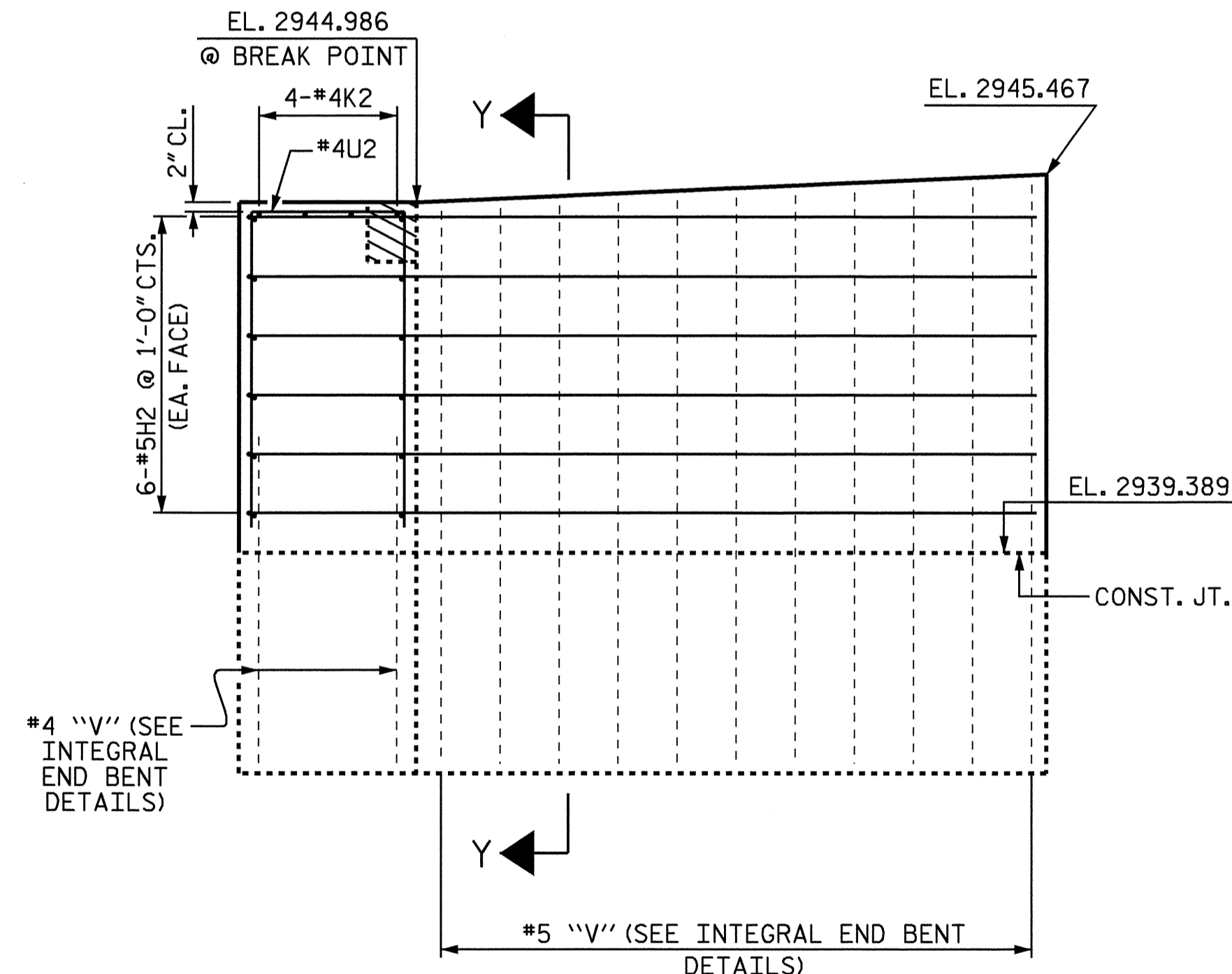
PLAN OF WING (W1)



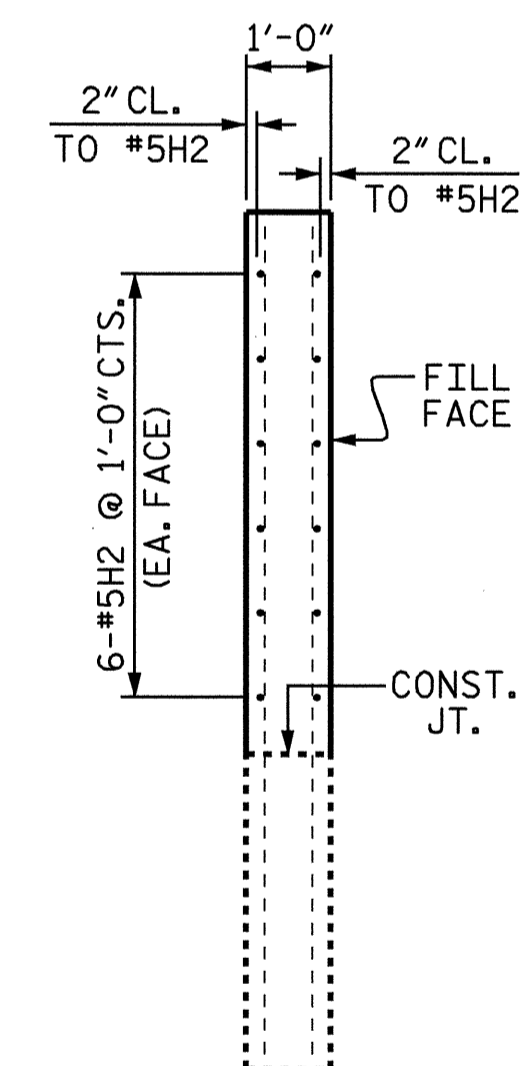
PLAN OF WING (W2)



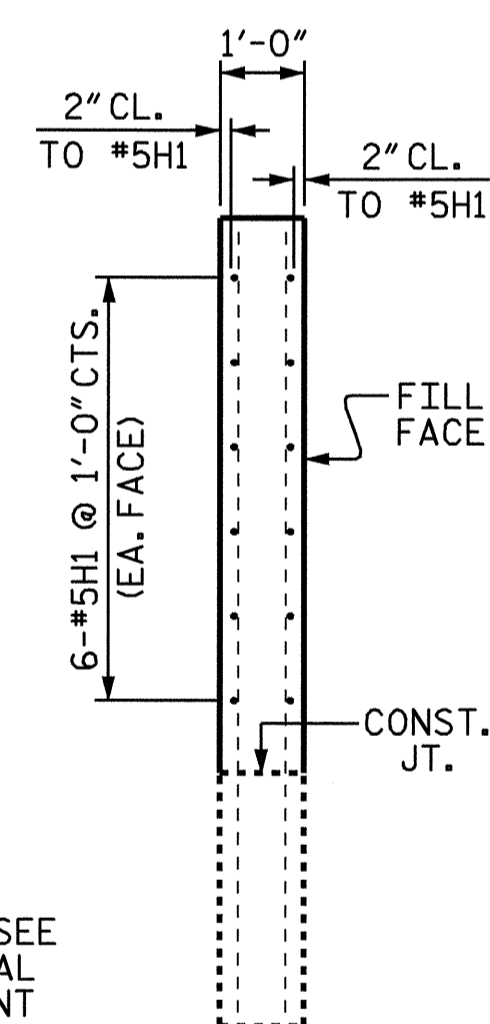
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION Y-Y



SECTION X-X

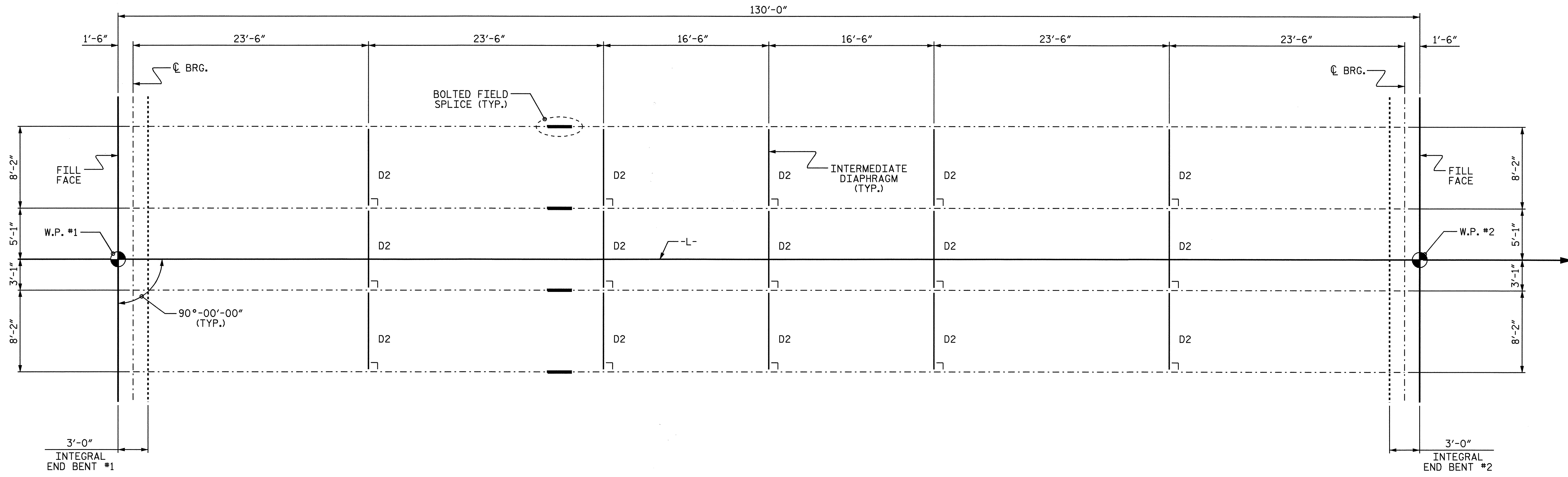
PROJECT NO. B-4008
 ALLEGHANY COUNTY
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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 TOP OF WINGS
 @ INTEGRAL END
 BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			26

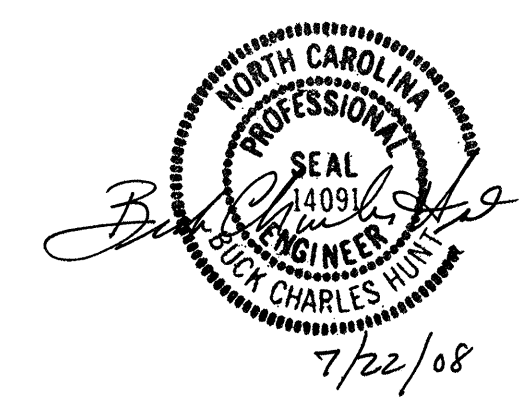
DRAWN BY : M.K. BEARD DATE : 9/13/07
 CHECKED BY : K.D. LAYNE DATE : 10/07



FRAMING PLAN

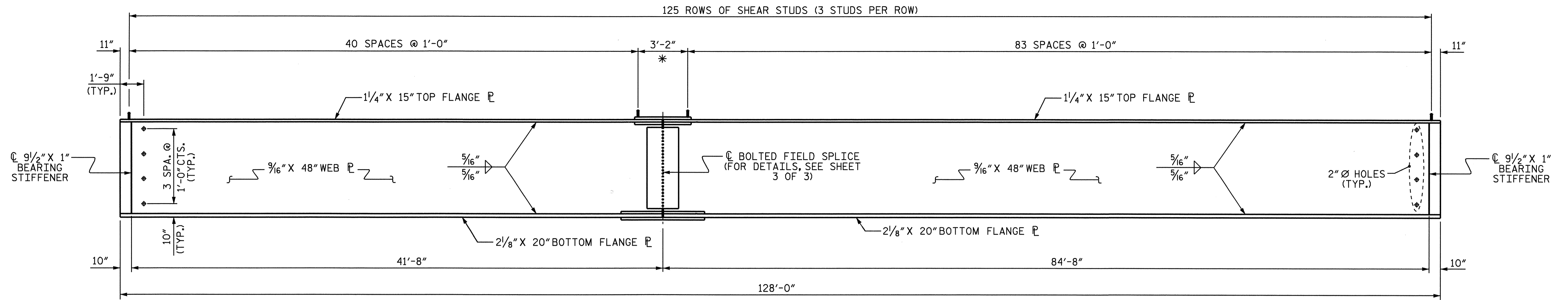
PROJECT NO. B-4008
ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 FRAMING PLAN



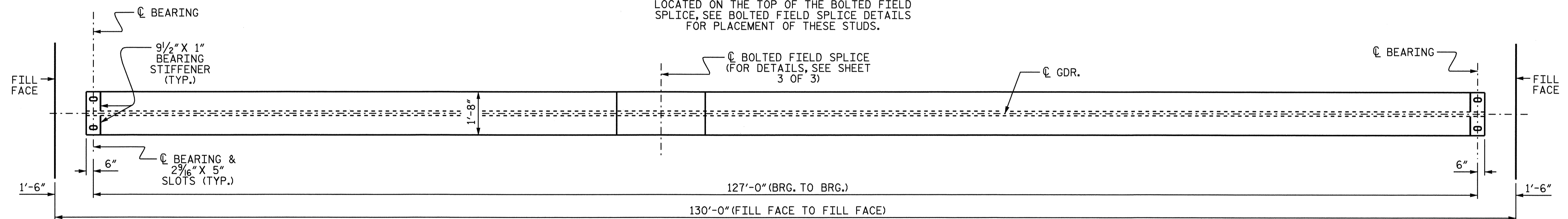
DRAWN BY : M.K. BEARD DATE : 09/17/07
 CHECKED BY : K.D. LAYNE DATE : 10/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-9
2			4			TOTAL SHEETS 26

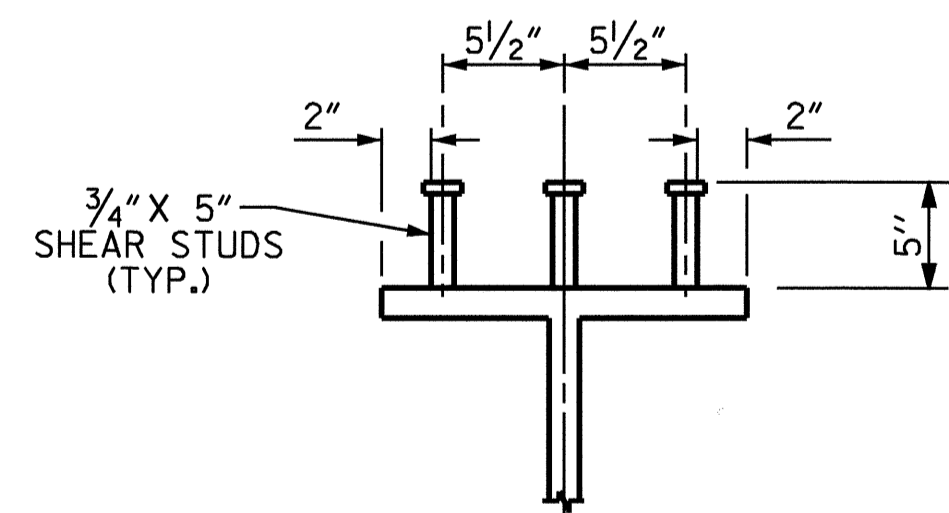


GIRDER ELEVATION

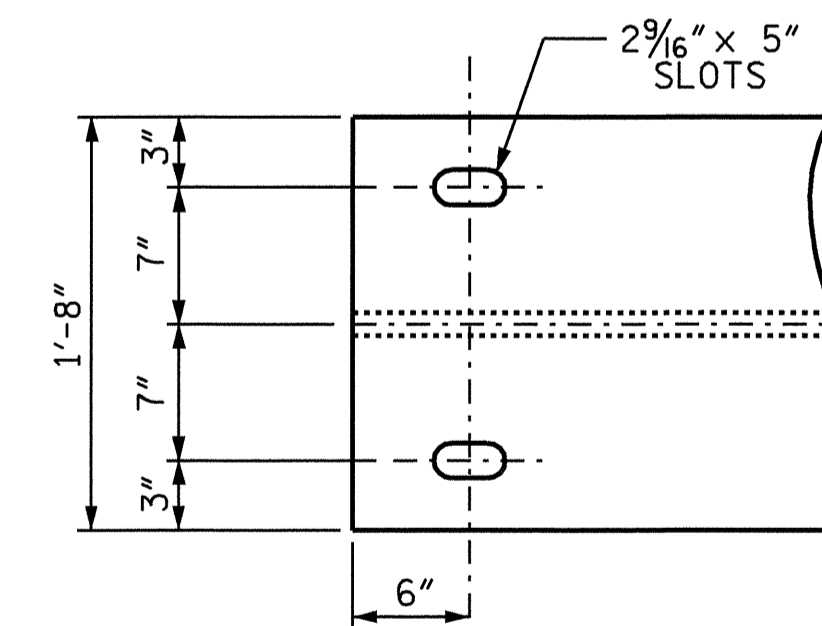
* 5 ADDITIONAL ROWS OF SHEAR STUDS ARE LOCATED ON THE TOP OF THE BOLTED FIELD SPLICE, SEE BOLTED FIELD SPLICE DETAILS FOR PLACEMENT OF THESE STUDS.



BOTTOM OF FLANGE DETAIL



SHEAR STUD DETAILS

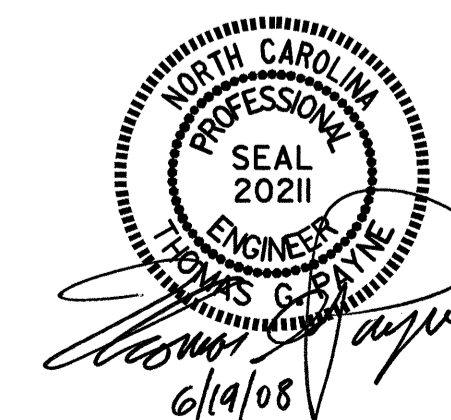


PARTIAL BOTTOM FLANGE DETAIL

PROJECT NO. B-4008
ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

SHEET 1 OF 3

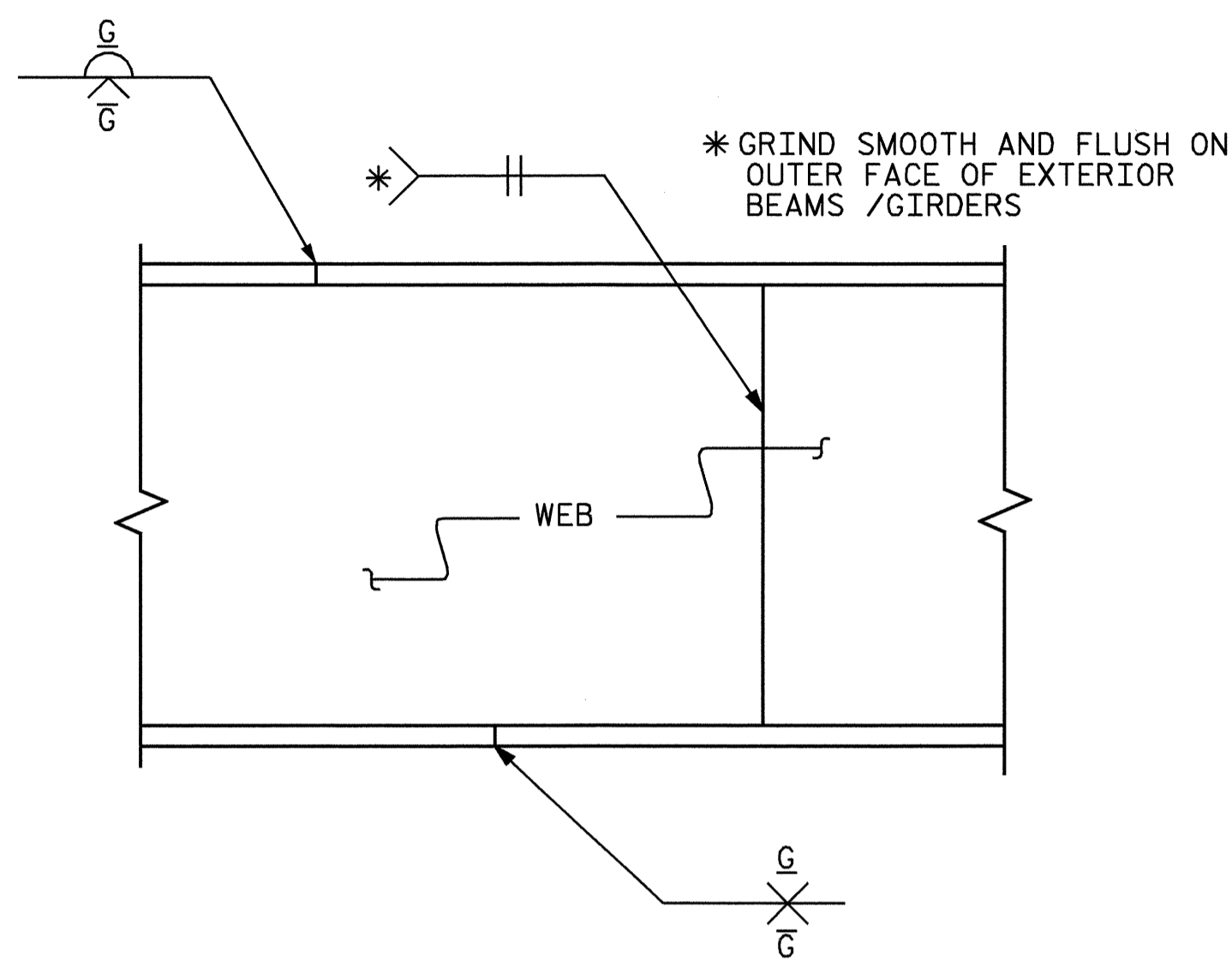
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS



DRAWN BY: M.K. BEARD DATE: 9/19/07
 CHECKED BY: K.D. LAYNE DATE: 10/07

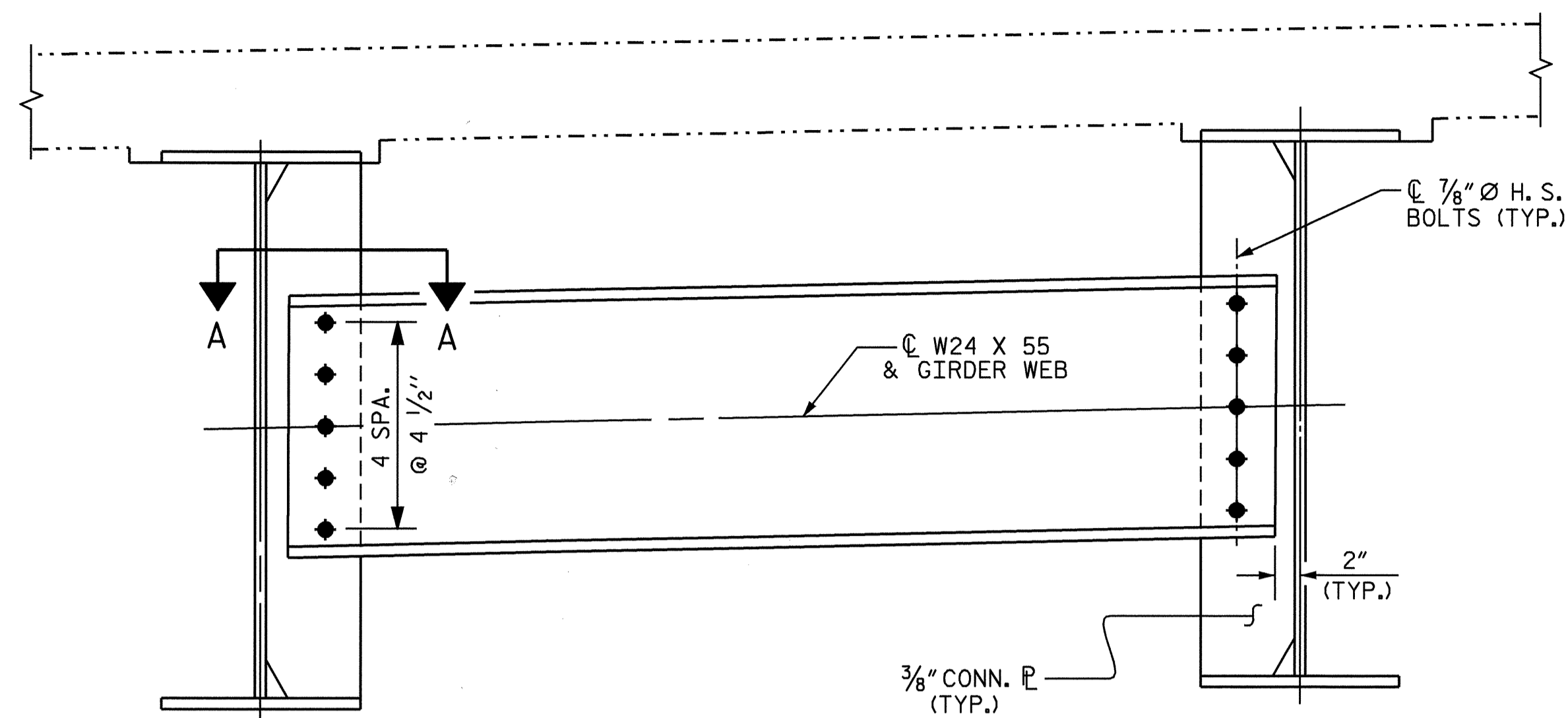
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			26
2			4			

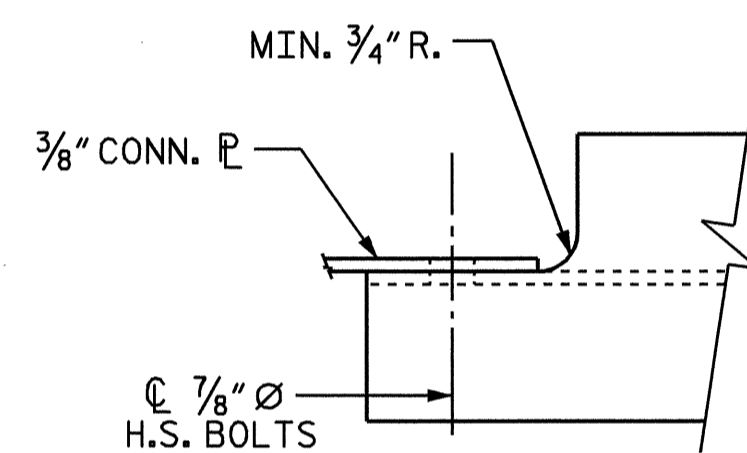


ELEVATION

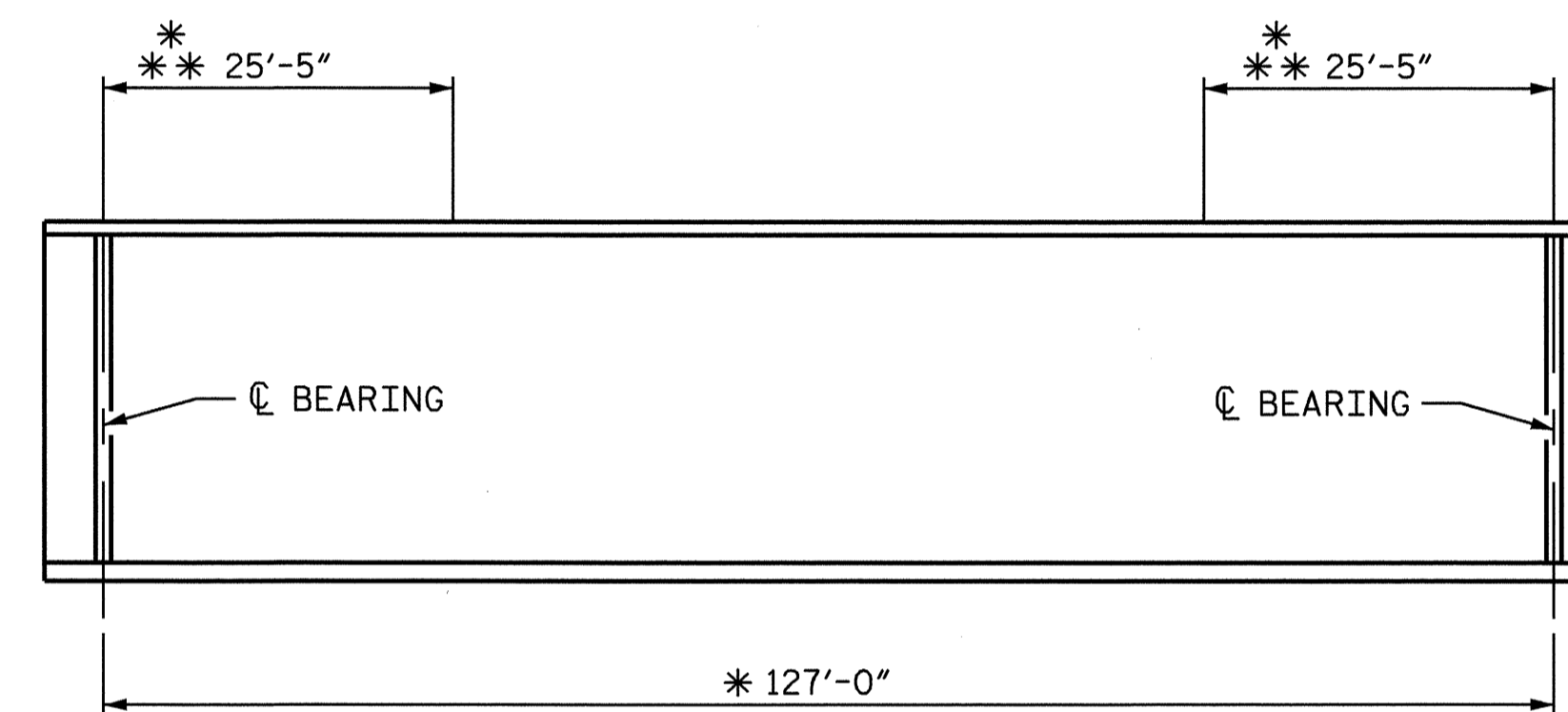
TYPICAL FLANGE AND WEB BUTT JOINT



INTERMEDIATE DIAPHRAGM (D2)



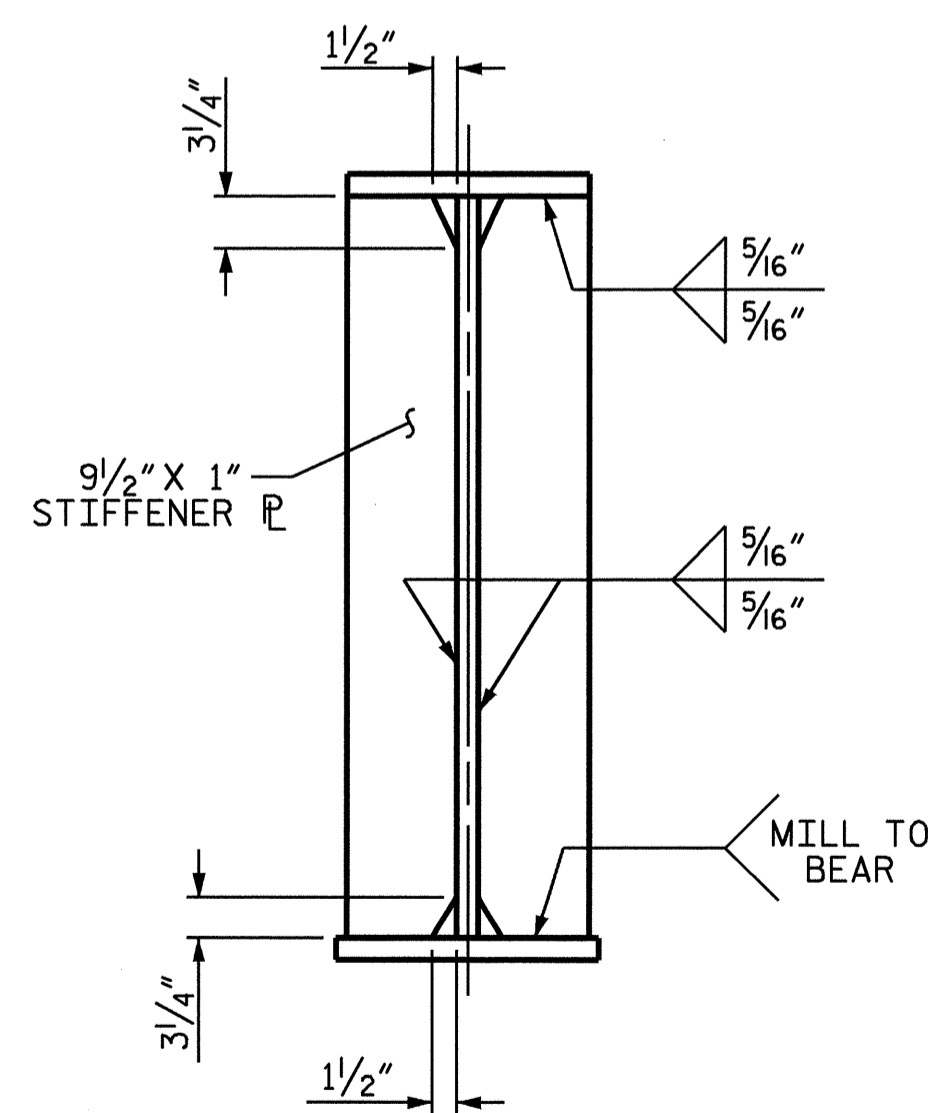
SECTION A-A



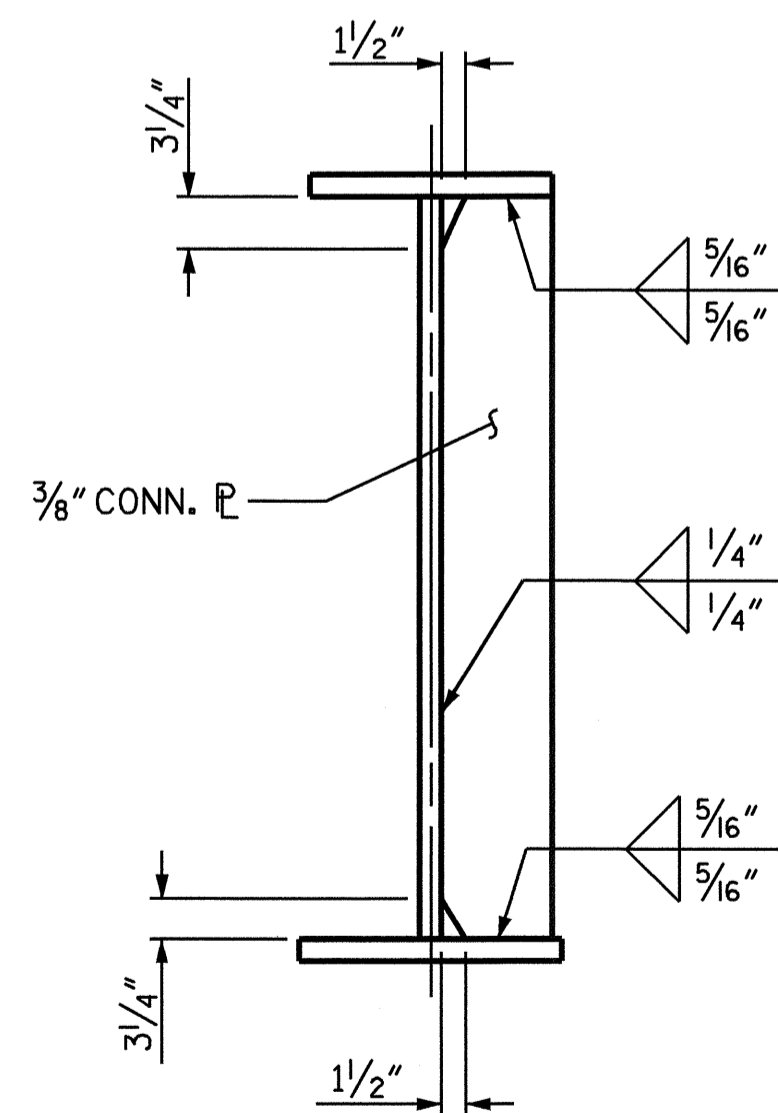
CHARPY V-NOTCH TEST FOR GIRDERS

* CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS, ALL WEB PLATES AND ALL 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.

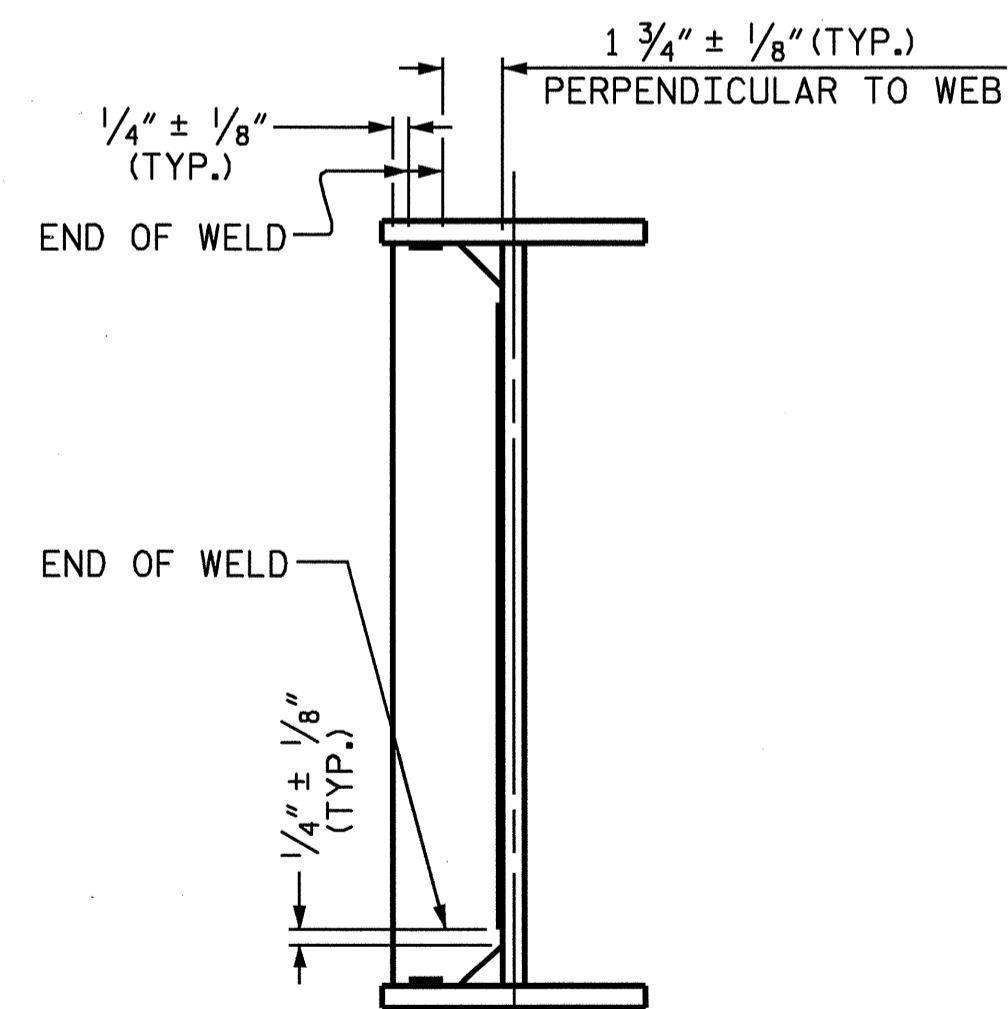
** NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION.



BEARING STIFFENER



CONNECTOR PLATE DETAIL



TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS

WELD TERMINATION DETAILS

NOTES

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 7/8" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

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 OR MAXIMUM DEAD LOAD DEFLECTION NOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS. KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES.

STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

END OF GIRDERS SHALL BE PLUMB.

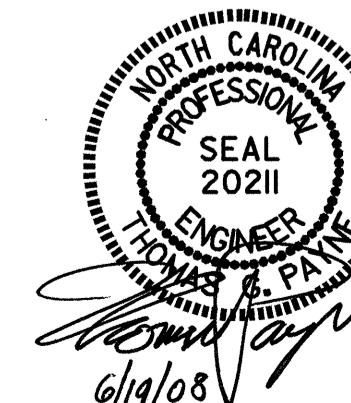
ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-10 OF THE STANDARD SPECIFICATIONS.

DRAWN BY : M.K. BEARD DATE : 09/20/07
 CHECKED BY : K.D. LAYNE DATE : 10/07

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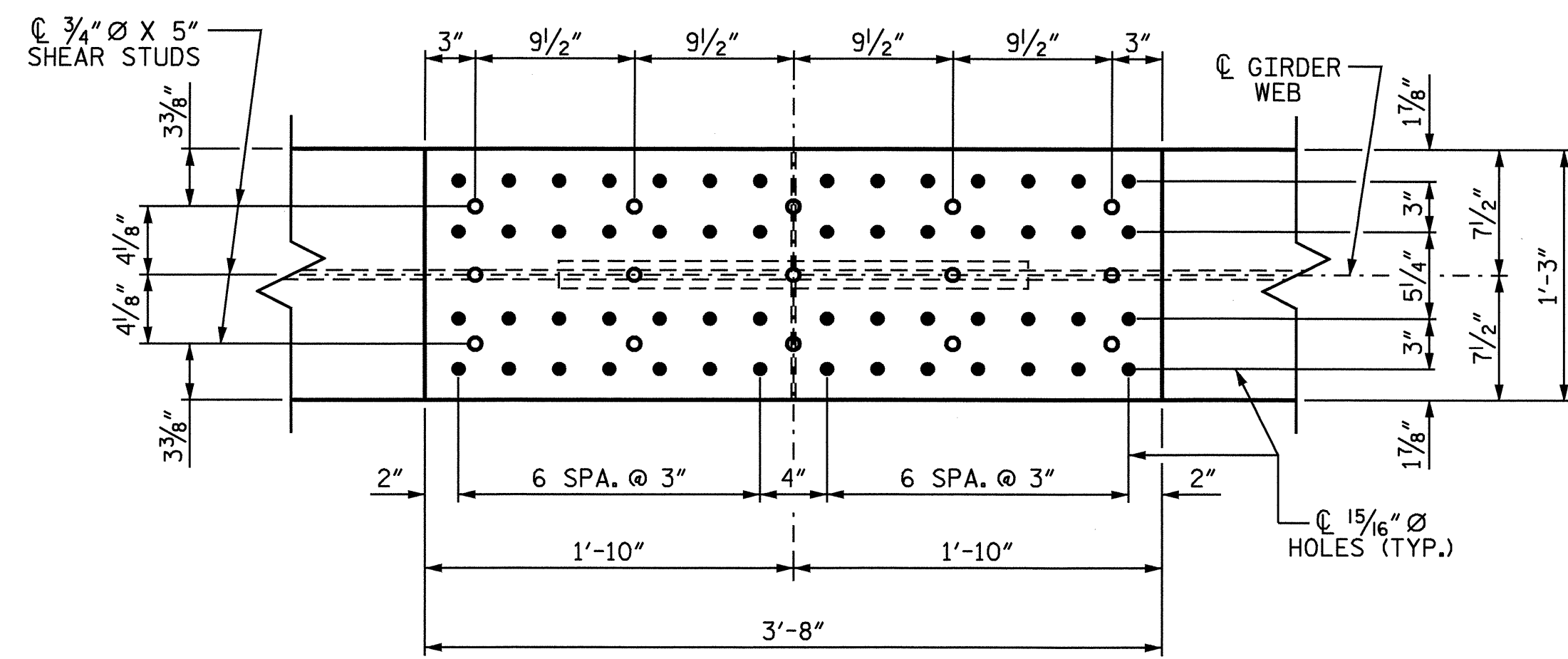
PROJECT NO. B-4008
 ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

SHEET 2 OF 3

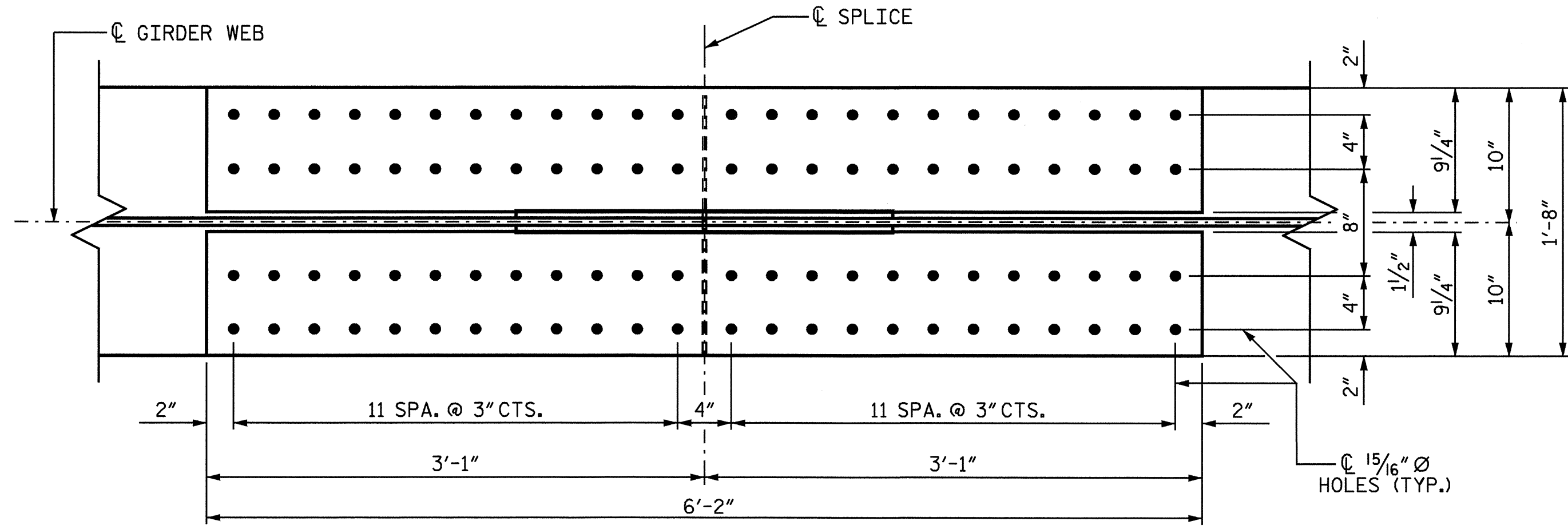
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			26

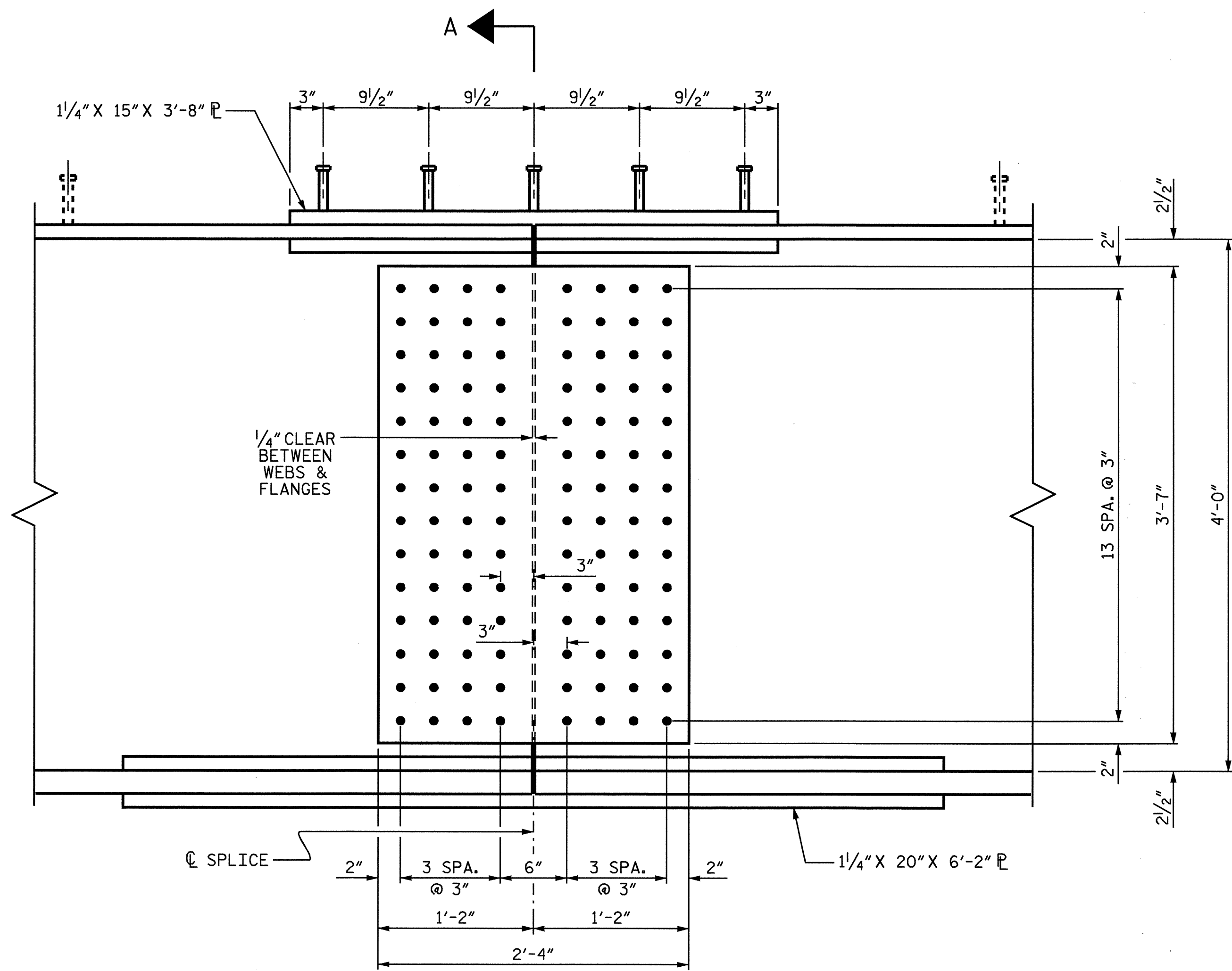
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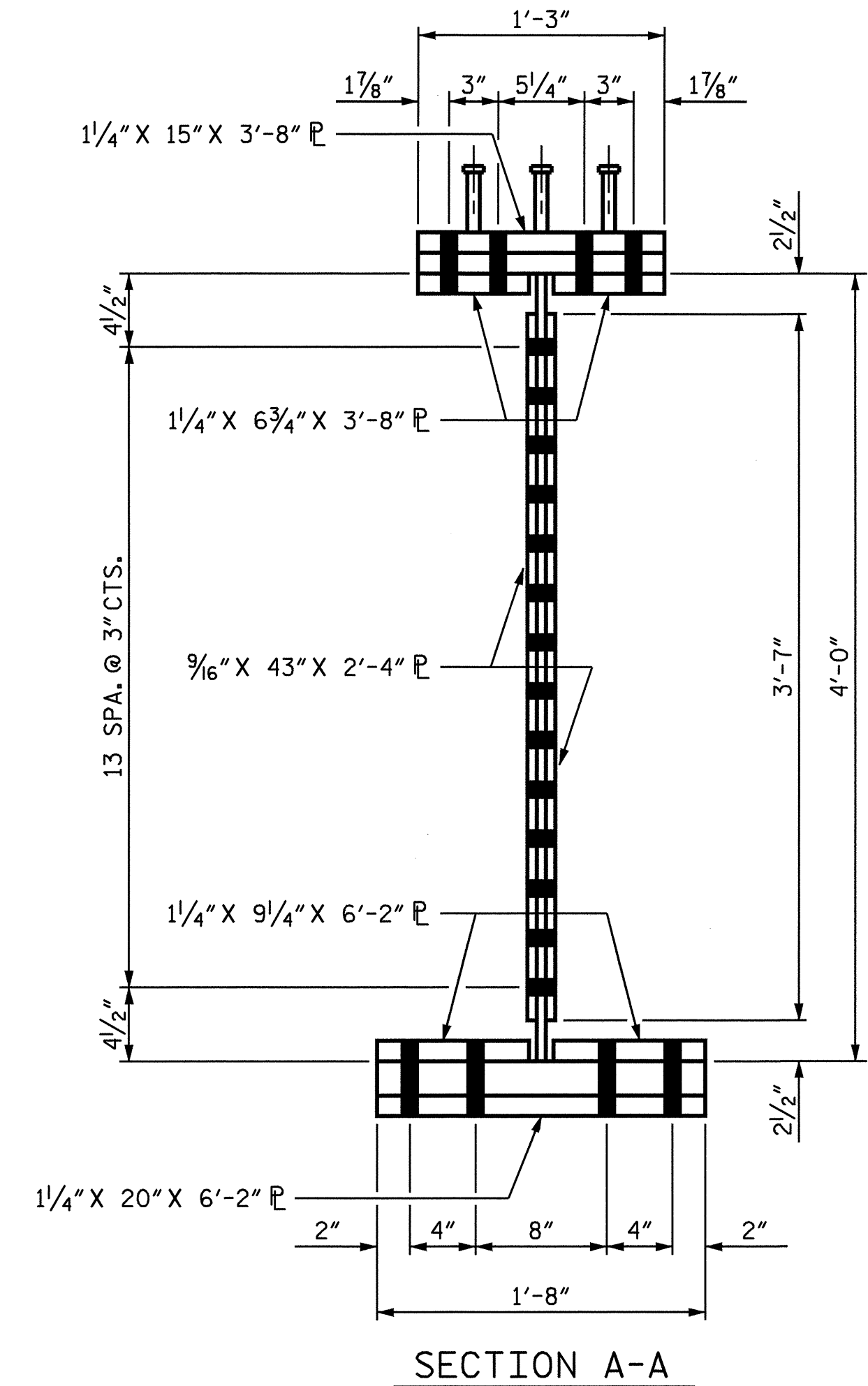
PLAN (TOP OF TOP FLANGE)



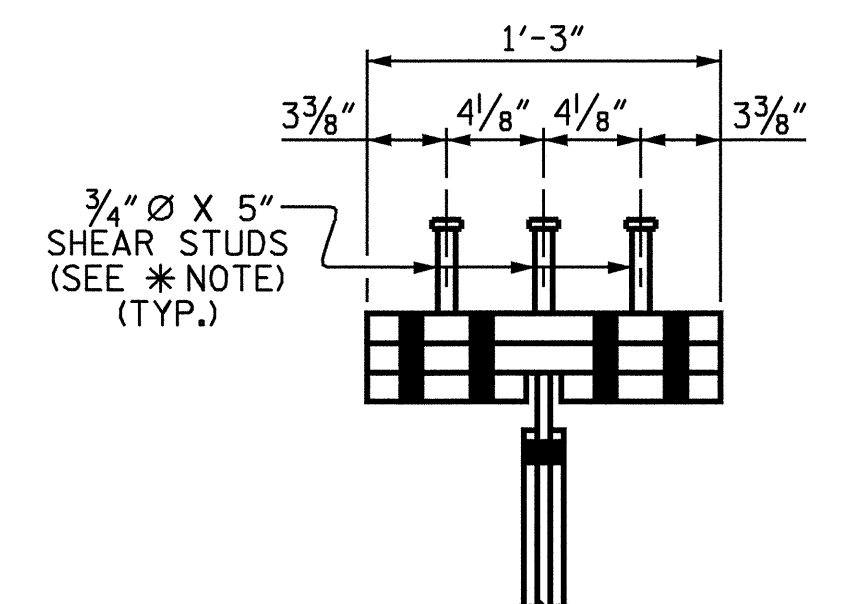
PLAN (TOP OF BOTTOM FLANGE)



ELEVATION



SECTION A-A



SHEAR STUD DETAIL FOR TOP FLANGE SPLICE PLATE

* NOTE: SHEAR STUDS ARE TO BE WELDED ON TOP OF PLATE BEFORE FIELD ASSEMBLY.

BOLTED FIELD SPLICE DETAILS

PROJECT NO. B-4008
 ALLEGHANY COUNTY
 STATION: 15+99.00 -L-
 SHEET 3 OF 3

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



DRAWN BY: M.K. BEARD DATE: 09/19/07
 CHECKED BY: K.D. LAYNE DATE: 10/07

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

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DEAD LOAD DEFLECTION TABLE FOR EXTERIOR GIRDERS 1 & 4																					
SPAN A																					
TWENTIETH POINTS	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	-0.025	-0.049	-0.071	-0.092	-0.110	-0.126	-0.138	-0.147	-0.153	-0.155	-0.153	-0.147	-0.138	-0.126	-0.110	-0.092	-0.071	-0.049	-0.025	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	-0.088	-0.158	-0.224	-0.284	-0.338	-0.383	-0.420	-0.446	-0.462	-0.468	-0.462	-0.446	-0.420	-0.383	-0.338	-0.284	-0.224	-0.158	-0.088	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	-0.008	-0.016	-0.024	-0.030	-0.036	-0.042	-0.046	-0.049	-0.051	-0.051	-0.051	-0.049	-0.046	-0.042	-0.036	-0.030	-0.024	-0.016	-0.008	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	-0.121	-0.223	-0.319	-0.406	-0.484	-0.551	-0.604	-0.642	-0.666	-0.674	-0.666	-0.642	-0.604	-0.551	-0.484	-0.406	-0.319	-0.223	-0.121	0.000
VERTICAL CURVE ORDINATE	0.000	-0.033	-0.065	-0.098	-0.131	-0.164	-0.196	-0.229	-0.262	-0.294	-0.327	-0.360	-0.393	-0.423	-0.432	-0.419	-0.382	-0.321	-0.238	-0.131	0.000
ORDINATE DUE TO SUPERELEVATION	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
REQUIRED CAMBER	0	1/16	1/8	25/64	35/64	37/64	41/64	41/64	43/64	47/64	43/64	31/64	3	23/64	17/64	13/64	5/64	0	-3/64	-1/8	0

* 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).

SIGN CONVENTION FOR DEAD LOAD DEFLECTION TABLE $\begin{matrix} + \\ \updownarrow \\ 0 \\ \downarrow \\ - \end{matrix}$

DEAD LOAD DEFLECTION TABLE FOR INTERIOR GIRDERS 2 & 3																					
SPAN A																					
TWENTIETH POINTS	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	-0.025	-0.049	-0.071	-0.092	-0.110	-0.126	-0.138	-0.147	-0.153	-0.155	-0.153	-0.147	-0.138	-0.126	-0.110	-0.092	-0.071	-0.049	-0.025	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	-0.087	-0.156	-0.221	-0.281	-0.333	-0.378	-0.414	-0.440	-0.456	-0.461	-0.456	-0.440	-0.414	-0.378	-0.333	-0.281	-0.221	-0.156	-0.087	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	-0.008	-0.016	-0.023	-0.030	-0.035	-0.040	-0.044	-0.047	-0.049	-0.050	-0.049	-0.047	-0.044	-0.040	-0.035	-0.030	-0.023	-0.016	-0.008	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	-0.120	-0.221	-0.315	-0.403	-0.478	-0.544	-0.596	-0.634	-0.658	-0.666	-0.658	-0.634	-0.596	-0.544	-0.478	-0.403	-0.315	-0.221	-0.120	0.000
VERTICAL CURVE ORDINATE	0.000	-0.033	-0.065	-0.098	-0.131	-0.164	-0.196	-0.229	-0.262	-0.294	-0.327	-0.360	-0.393	-0.423	-0.432	-0.419	-0.382	-0.321	-0.238	-0.131	0.000
ORDINATE DUE TO SUPERELEVATION	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
REQUIRED CAMBER	0	1/16	1/8	25/64	31/64	33/64	43/64	43/64	47/64	43/64	41/64	39/64	27/64	21/64	15/64	11/64	1/4	-1/16	-3/64	-1/8	0

* 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).

SIGN CONVENTION FOR DEAD LOAD DEFLECTION TABLE $\begin{matrix} + \\ \updownarrow \\ 0 \\ \downarrow \\ - \end{matrix}$

PROJECT NO. B-4008
ALLEGHANY COUNTY
STATION: 15+99.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE DEAD LOAD DEFLECTIONS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					26
					S-13

DRAWN BY : M.K. BEARD DATE : 10/3/07
CHECKED BY : K.D. LAYNE DATE : 10/07

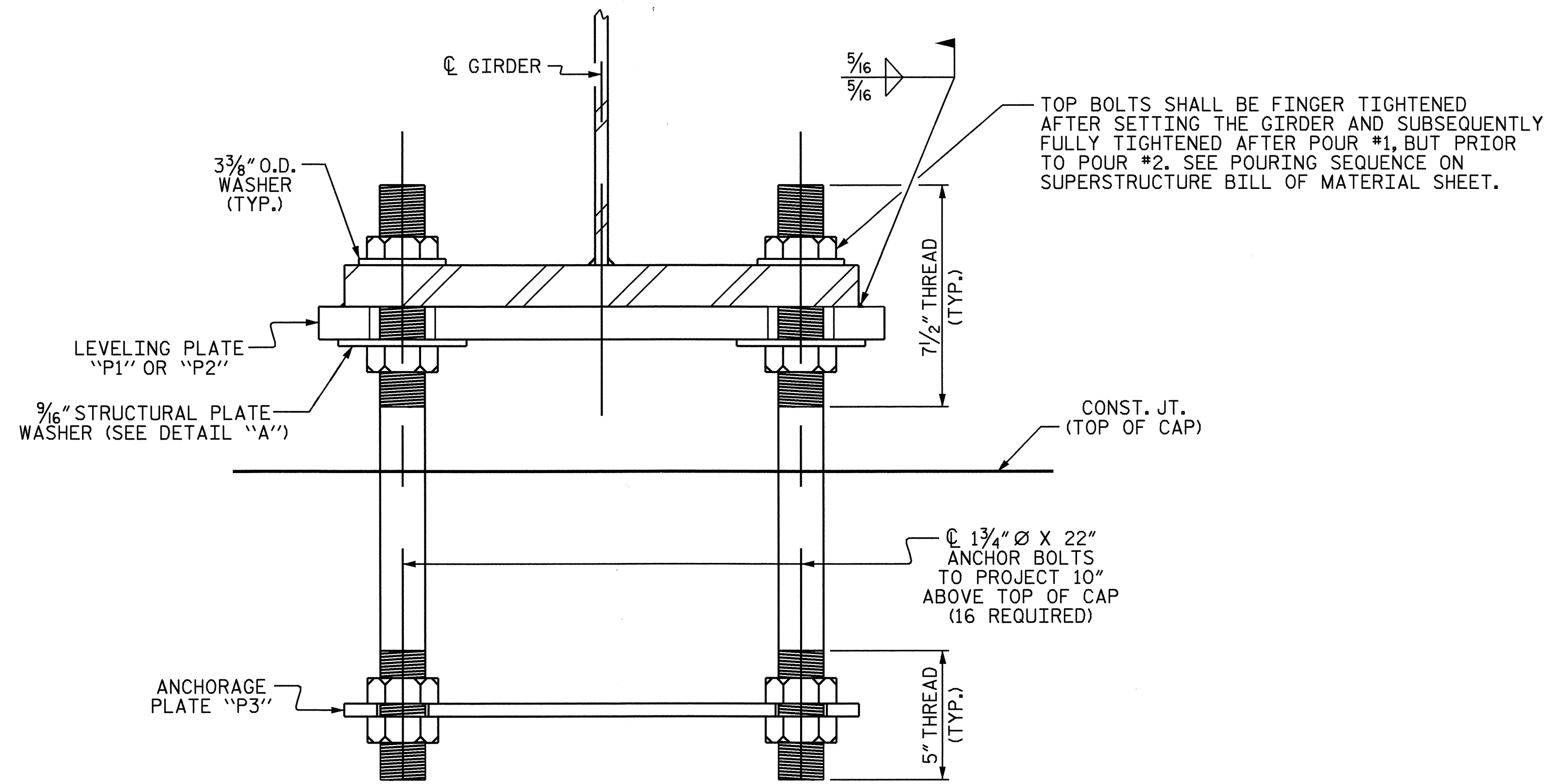
NOTES

STRUCTURAL PLATE WASHERS SHALL BE AASHTO M270 GRADE 50W.

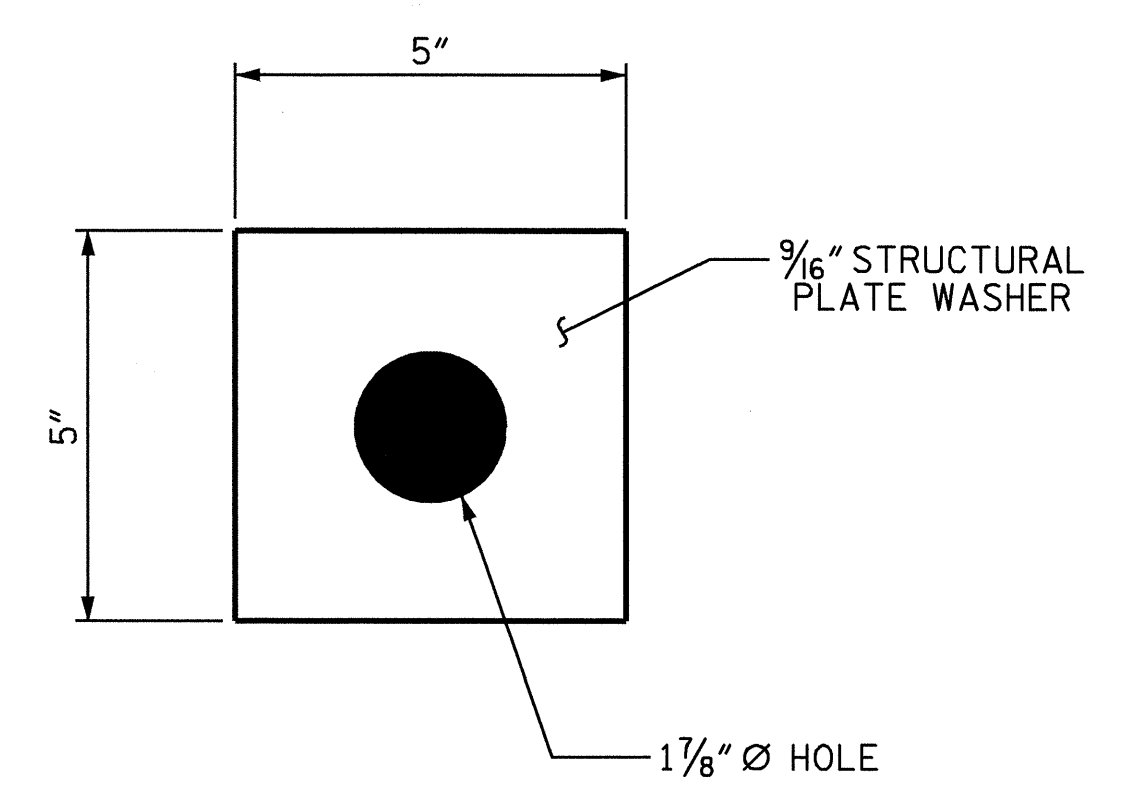
LEVELING PLATES AND ANCHORAGE PLATES SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

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.

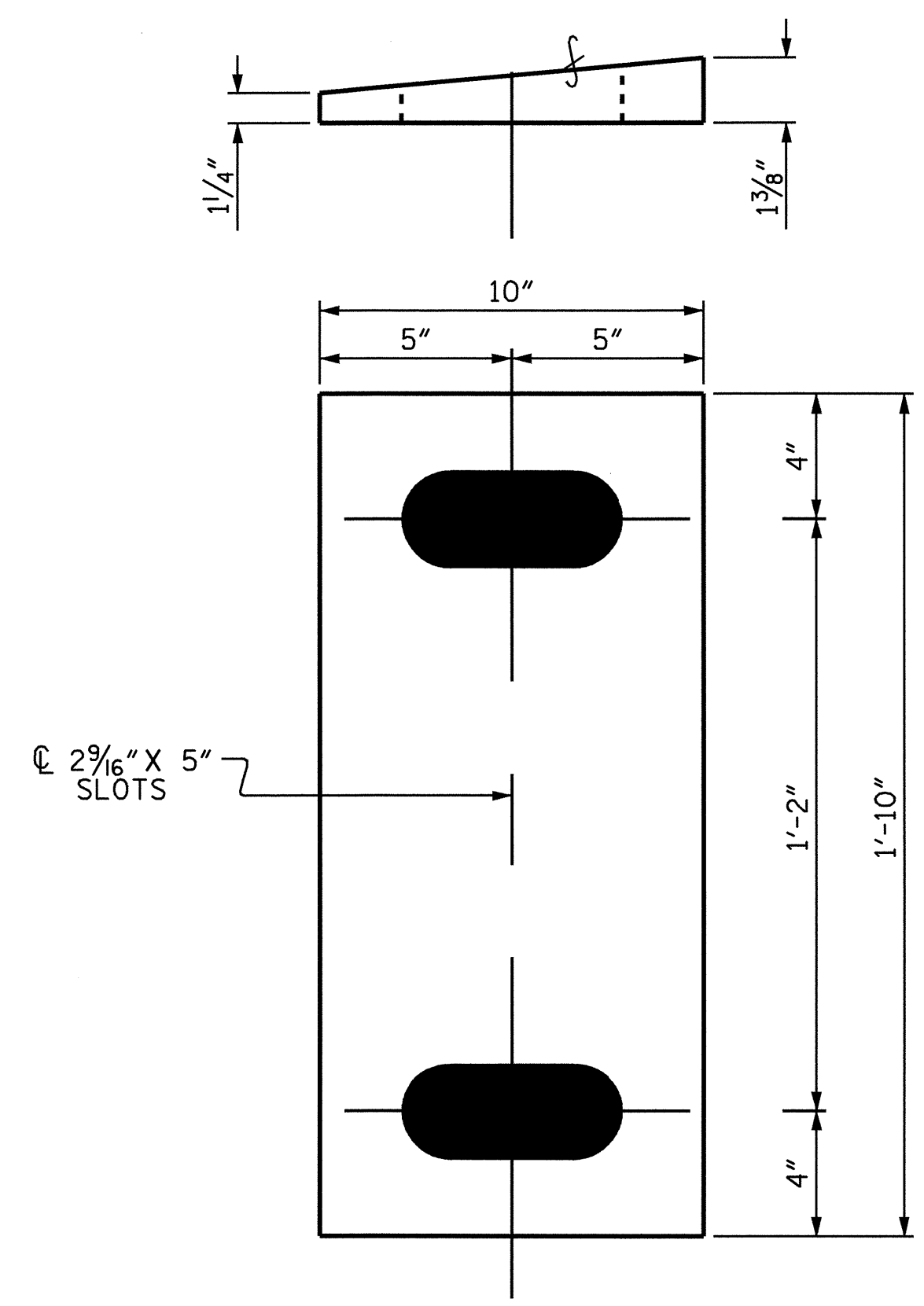
ALL SURFACES OF LEVELING PLATES SHALL BE SMOOTH AND STRAIGHT.



END VIEW

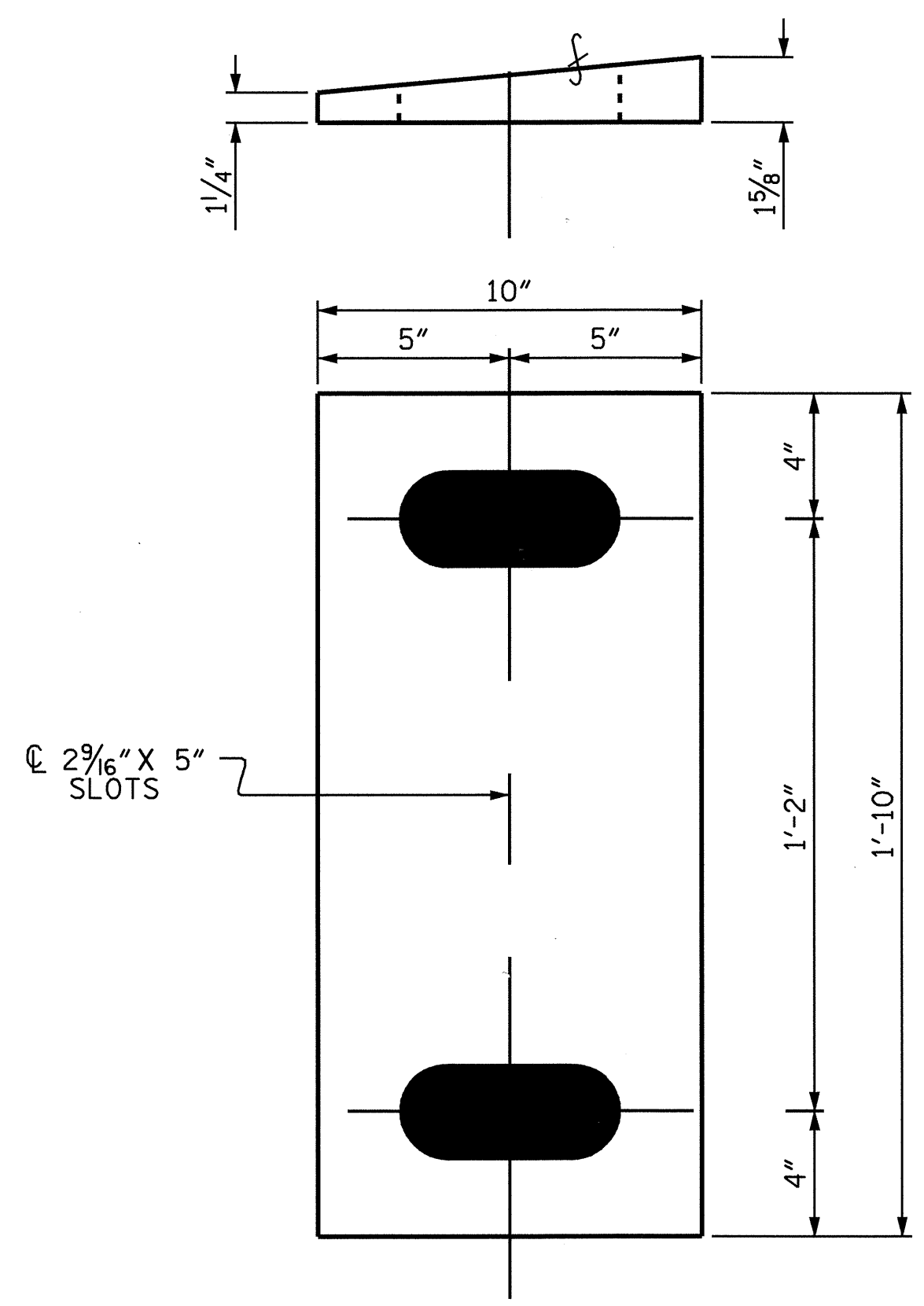


DETAIL "A"
(16 REQUIRED)



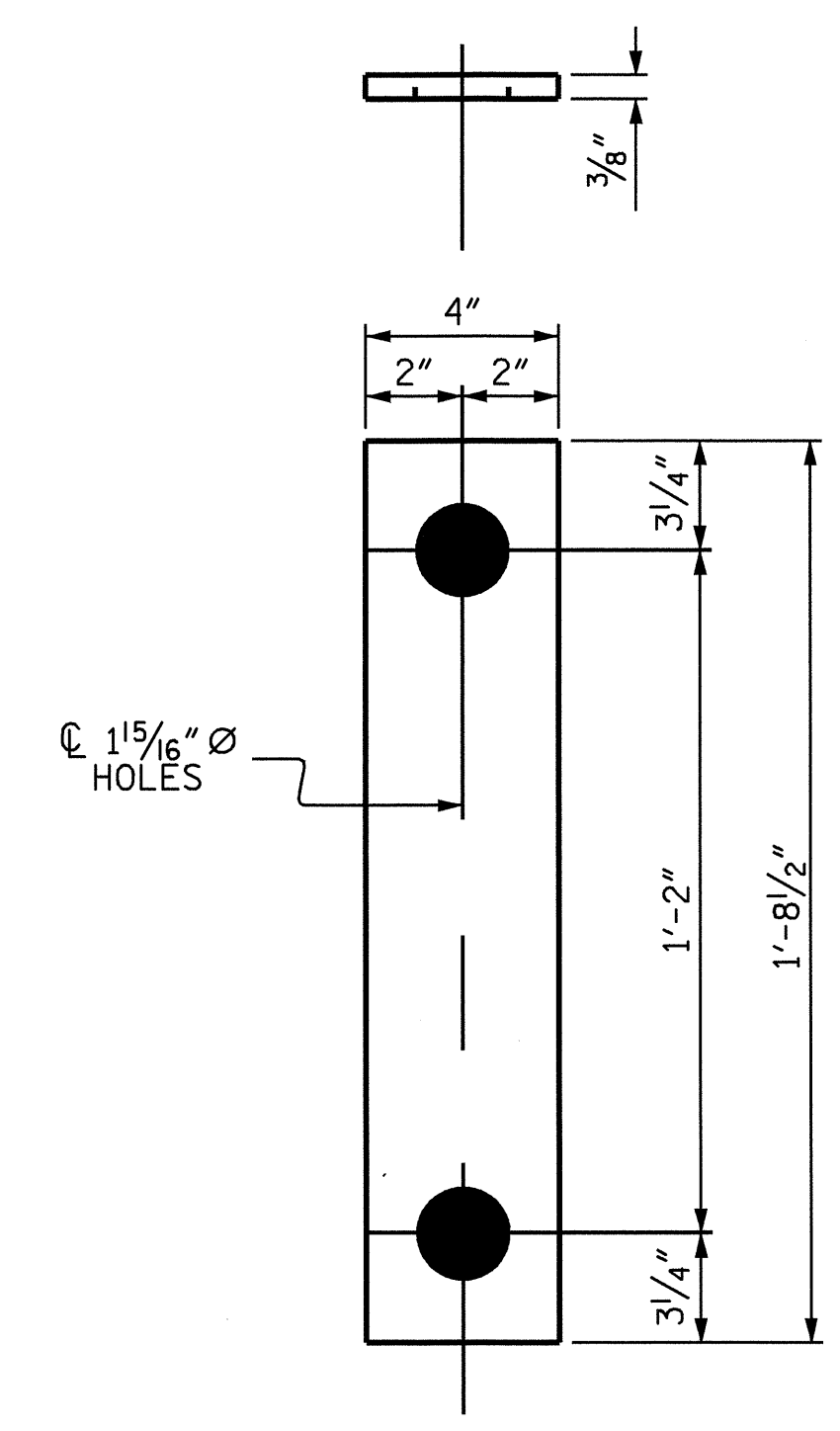
LEVELING PLATE (P1)

@ END BENT #1
(4 REQUIRED)



LEVELING PLATE (P2)

@ END BENT #2
(4 REQUIRED)



ANCHORAGE PLATE (P3)

(8 REQUIRED)

PROJECT NO. B-4008
ALLEGHANY COUNTY
STATION: 15+99.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
LEVELING PLATE
DETAILS



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			26

DRAWN BY : M.K. BEARD DATE : 09/18/07
CHECKED BY : K.D. LAYNE DATE : 10/07

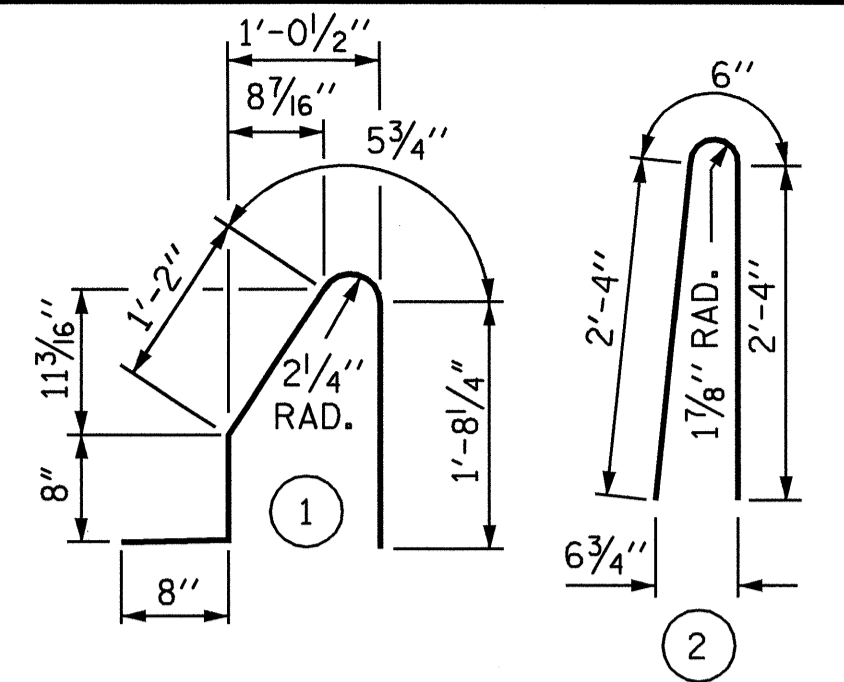
NOTES

THE BARRIER RAIL SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE 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.

BAR TYPES



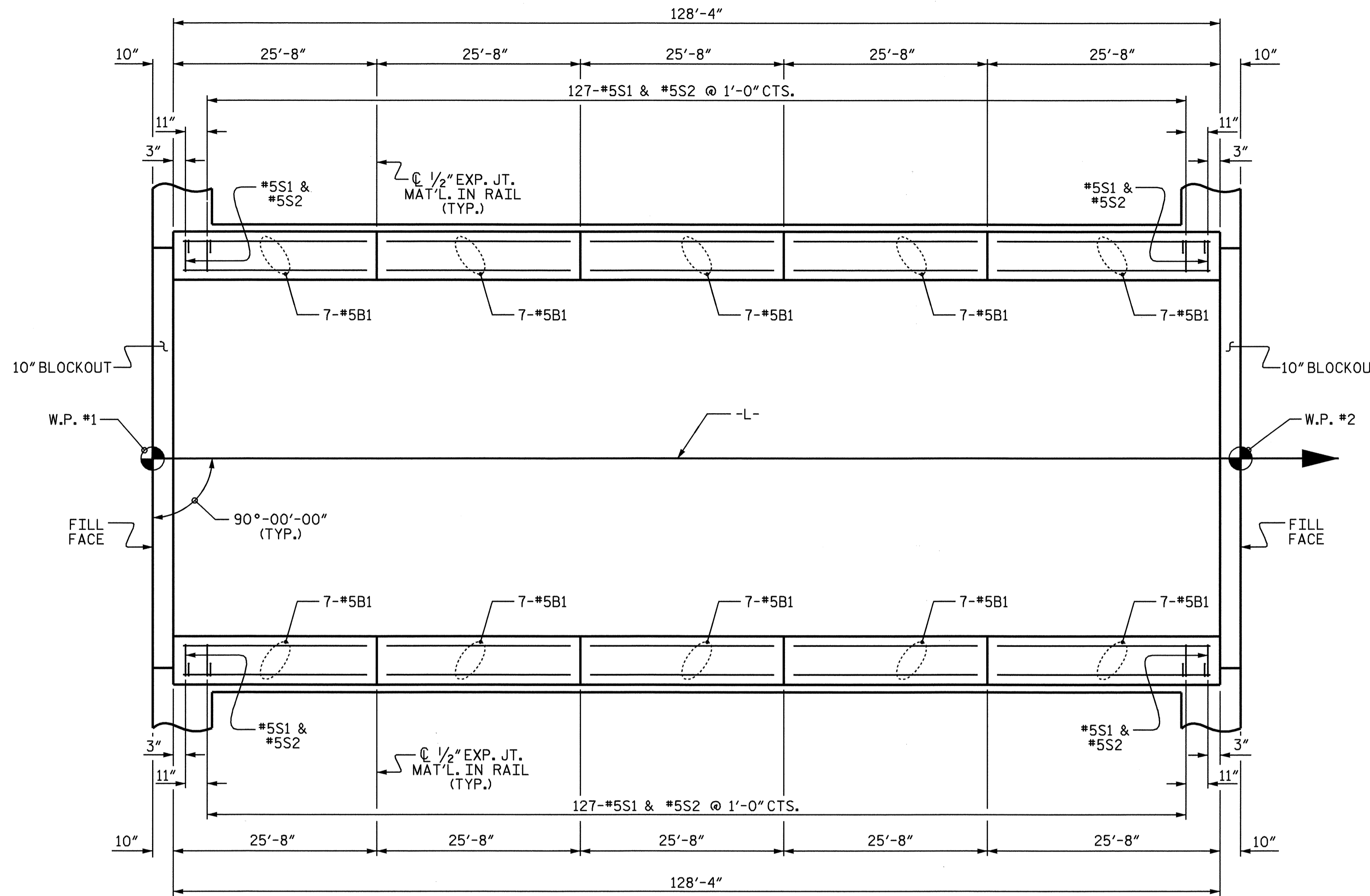
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

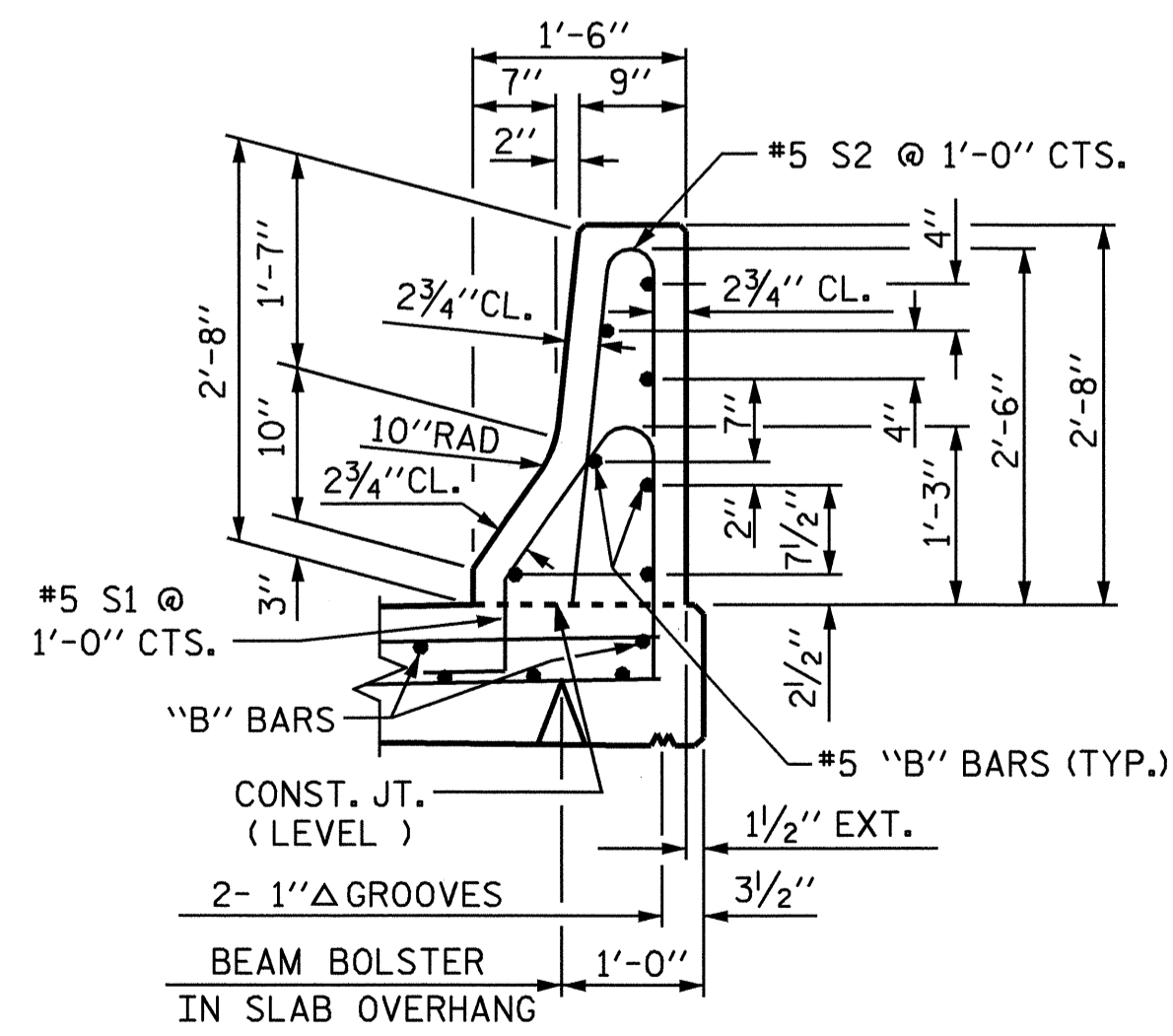
FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	70	#5	STR	25'-3"	1844
* S1	258	#5	1	4'-8"	1256
* S2	258	#5	2	5'-2"	1390

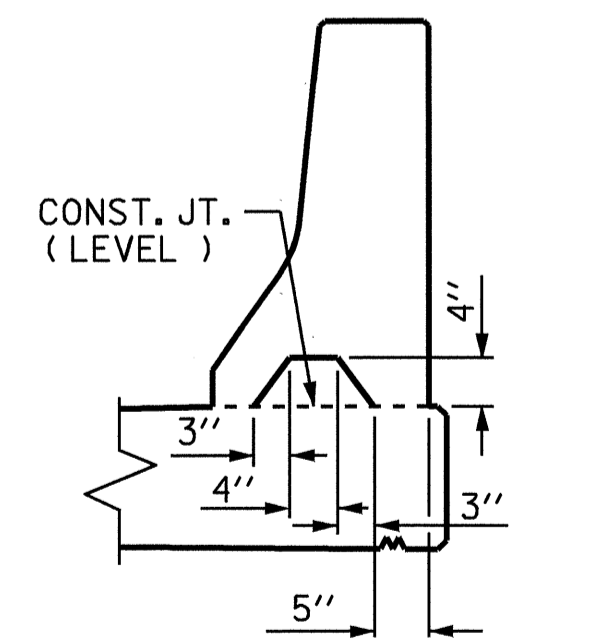
* EPOXY COATED REINFORCING STEEL 4490 LBS.
 CLASS AA CONCRETE 25.7 CU. YDS.
 CONCRETE BARRIER RAIL 256.67 LIN. FT.



PLAN

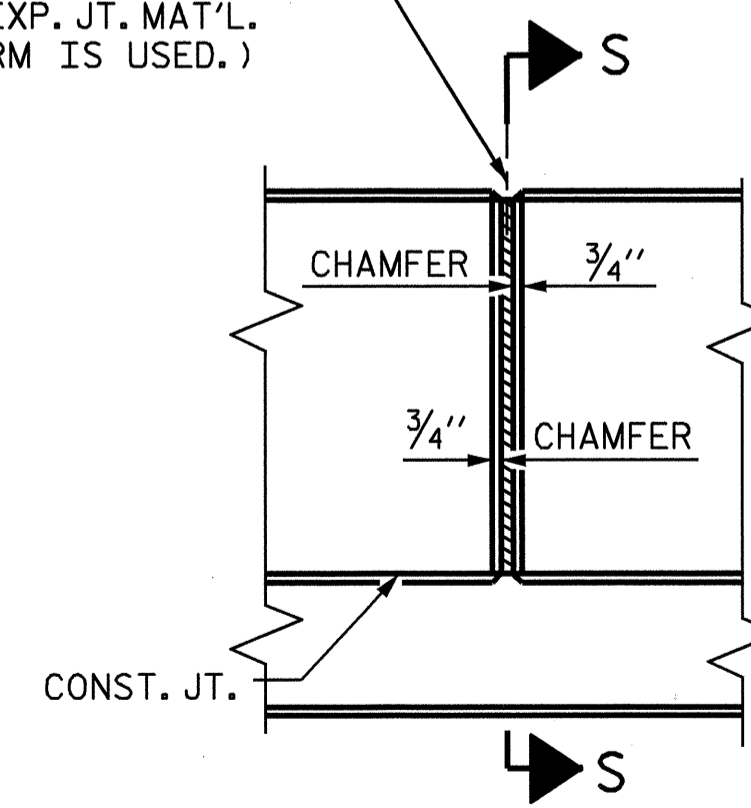


**SECTION THRU RAIL
 END OF RAIL DETAILS**

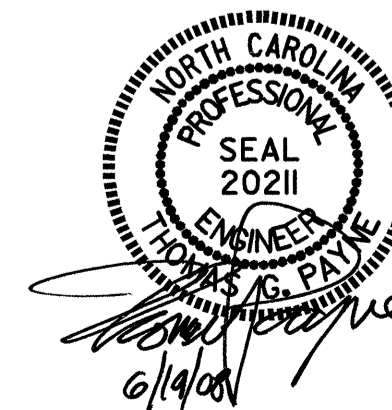


**SECTION S-S
 AT DAM IN OPEN JOINT
 (THIS IS TO BE USED ONLY
 WHEN SLIP FORM IS USED)**

1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS.
 (NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED.)



**ELEVATION AT EXPANSION JOINTS
 BARRIER RAIL DETAILS**



PROJECT NO. B-4008
ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			26

ASSEMBLED BY : M.K. BEARD	DATE : 09/24/07
CHECKED BY : K.D. LAYNE	DATE : 10/07
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 - 7/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

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

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

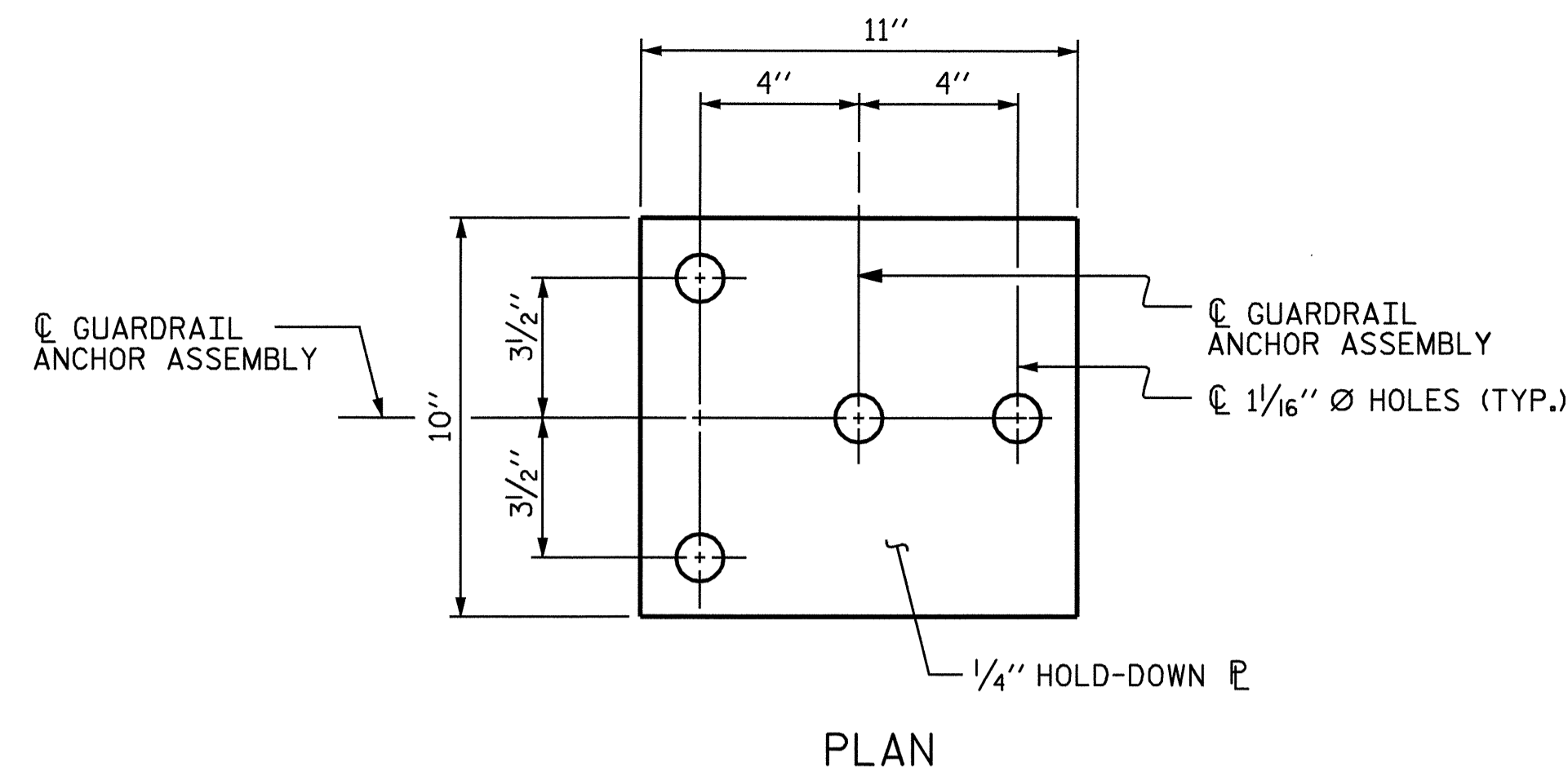
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

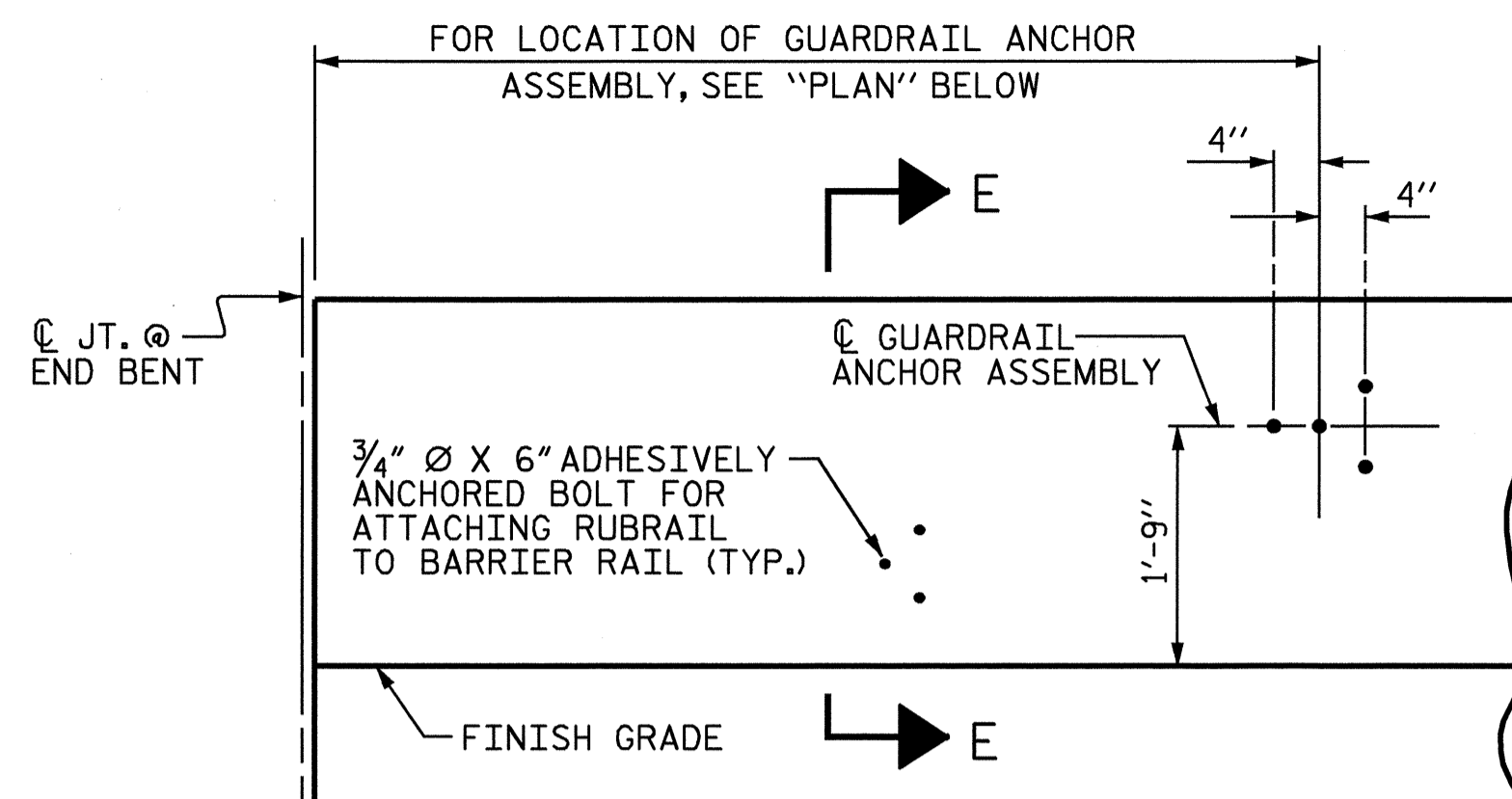
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE 1 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.

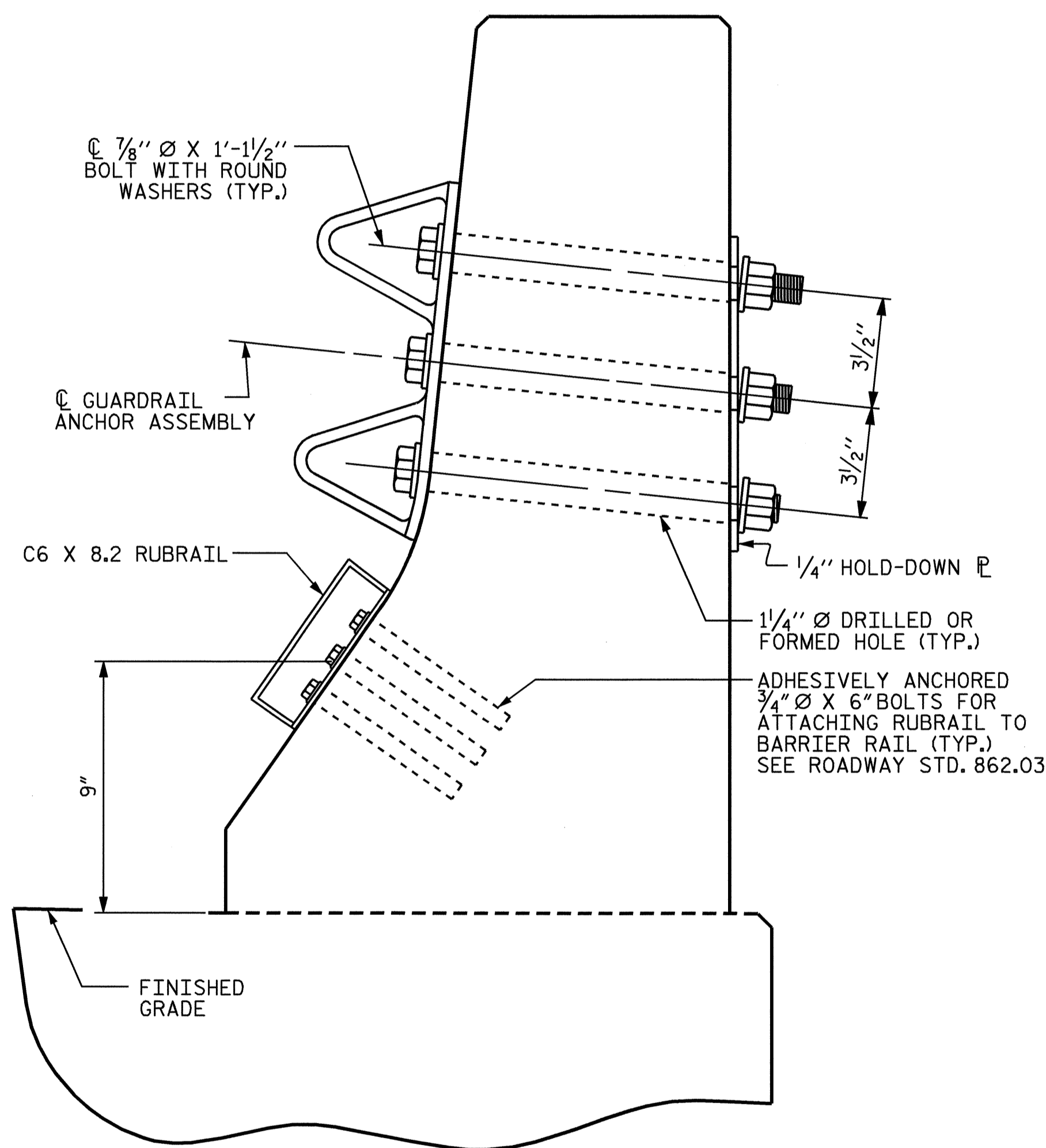


PLAN



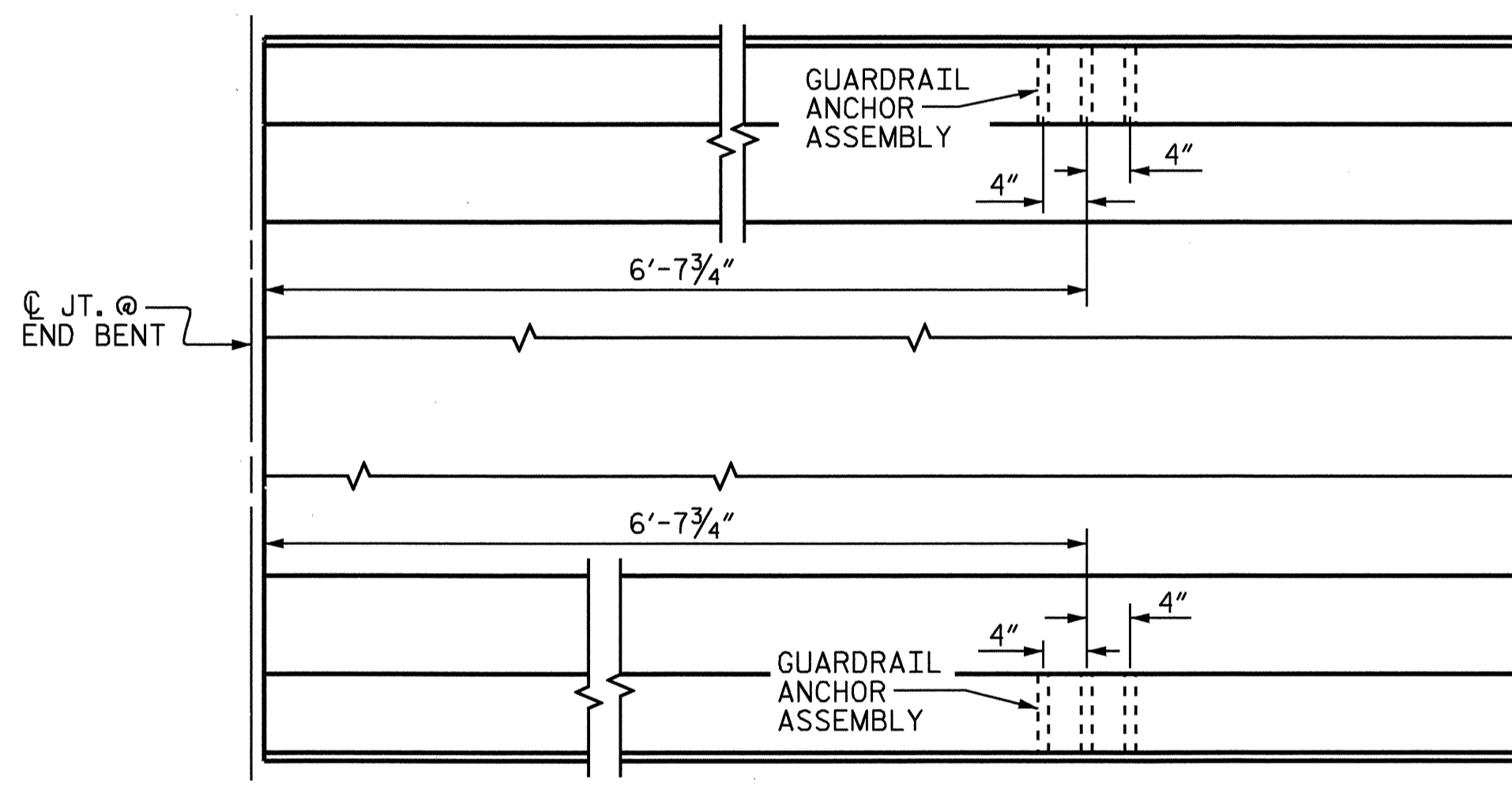
ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E

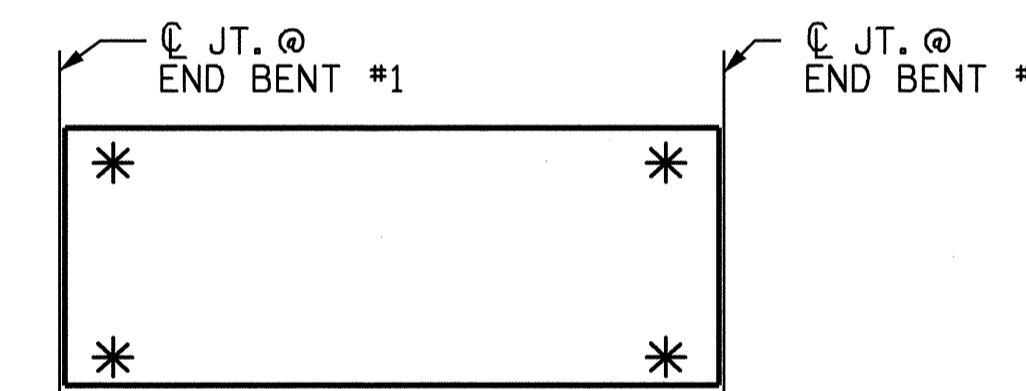
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

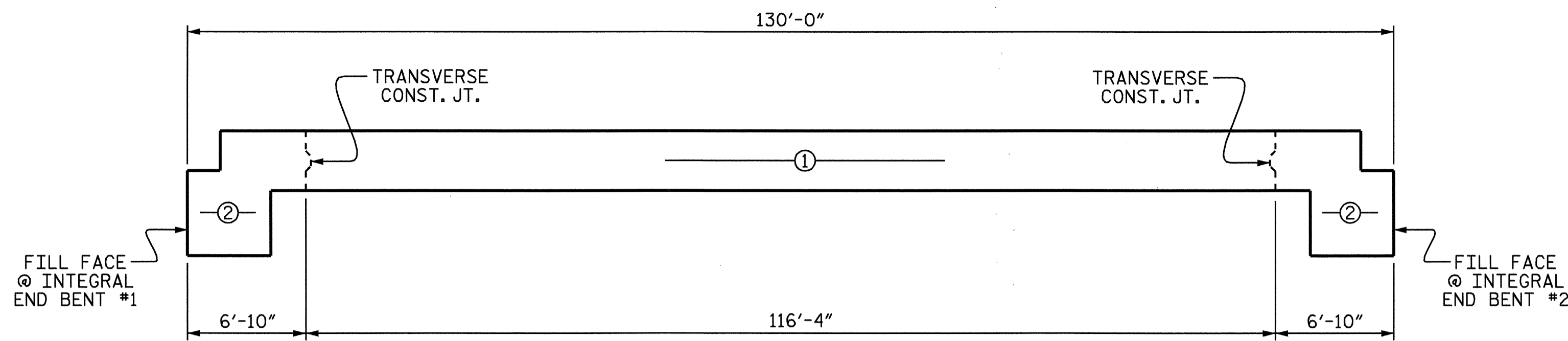
PROJECT NO. B-4008
ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

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

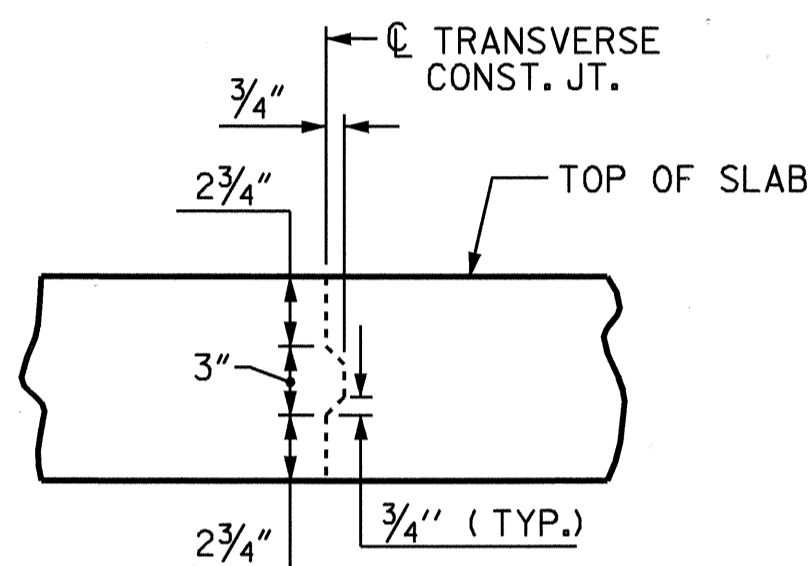


ASSEMBLED BY : M.K. BEARD	DATE : 10/3/07
CHECKED BY : K.D. LAYNE	DATE : 10/07
DRAWN BY : TLA 5/06	ADDED 5/1/06R KMM/GM
CHECKED BY : GM 5/06	

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



POURING SEQUENCE

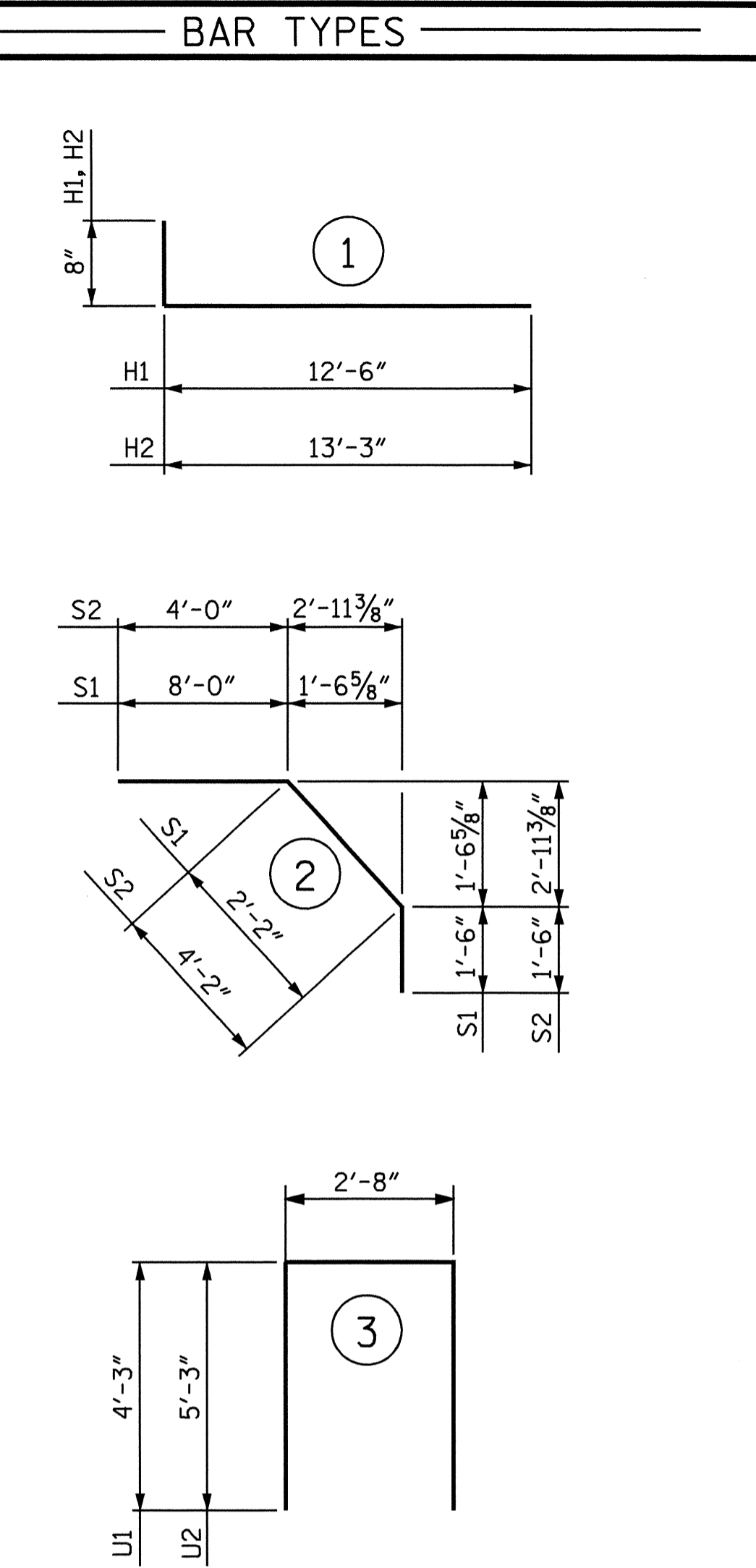


TRANSVERSE CONSTRUCTION JOINT DETAIL

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

BILL OF MATERIAL						
BAR	No.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	220	#5	STR	30'-11"	7094	
A2	220	#5	STR	30'-11"	7094	
*B1	82	#6	STR	25'-0"	3079	
B2	70	#6	STR	25'-0"	2629	
*B3	63	#4	STR	28'-8"	1206	
B4	70	#5	STR	42'-3"	3085	
H1	24	#5	1	13'-2"	330	
H2	24	#5	1	13'-11"	348	
K1	40	#4	STR	19'-8"	525	
K2	16	#4	STR	3'-6"	37	
*S1	50	#4	2	11'-8"	390	
*S2	50	#4	2	9'-8"	323	
U1	50	#4	3	11'-2"	373	
U2	16	#4	3	13'-2"	141	
REINFORCING STEEL					14562 LBS.	
*EPOXY COATED REINFORCING STEEL					12092 LBS.	

GROOVING BRIDGE FLOORS	
APPROACH SLABS	644 SQ.FT.
BRIDGE DECK	3200 SQ.FT.
TOTAL	3844 SQ.FT.



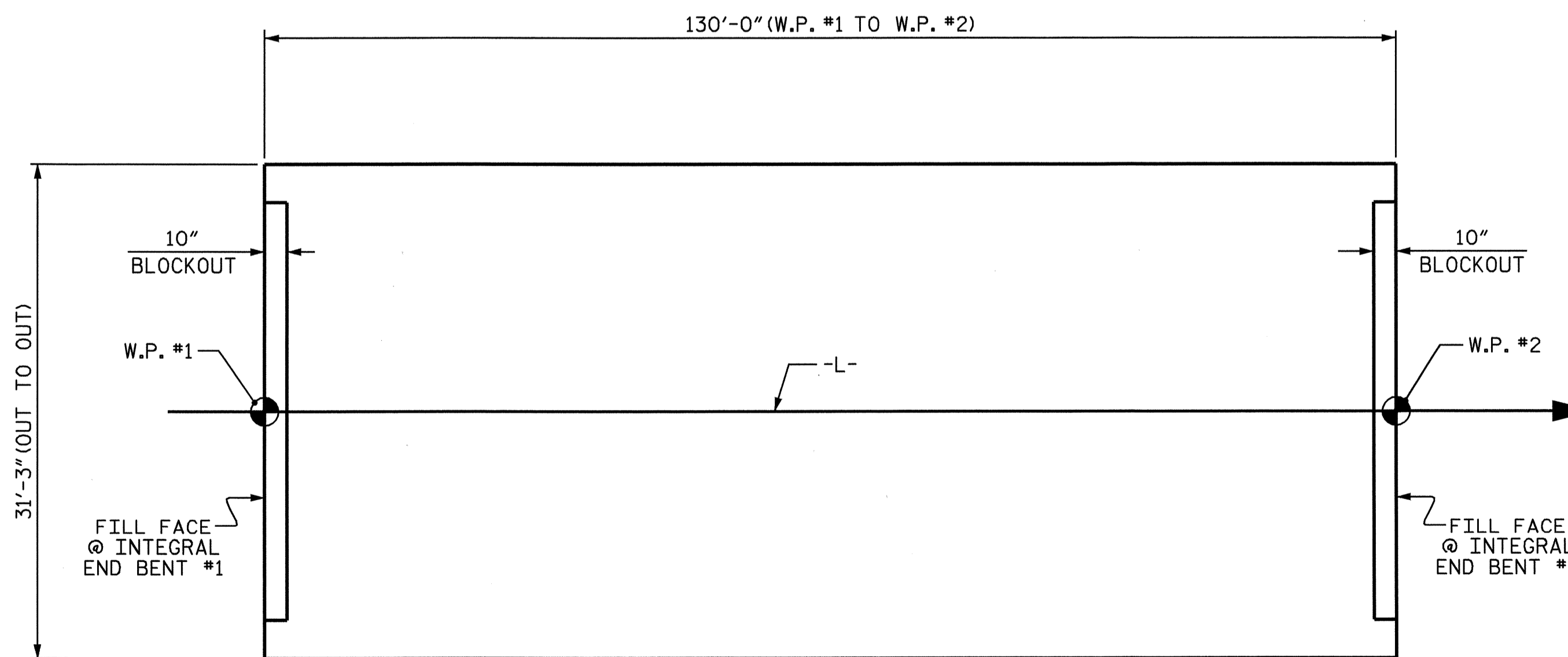
ALL BAR DIMENSIONS ARE OUT TO OUT

SUPERSTRUCTURE BILL OF MATERIAL

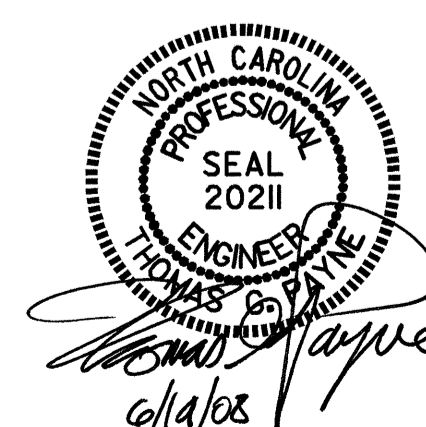
	CLASS AA CONCRETE (CU.YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
POUR 1	111.4		
POUR 2	60.5		
TOTALS**	171.9	14562	12092

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

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"			



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 4063)

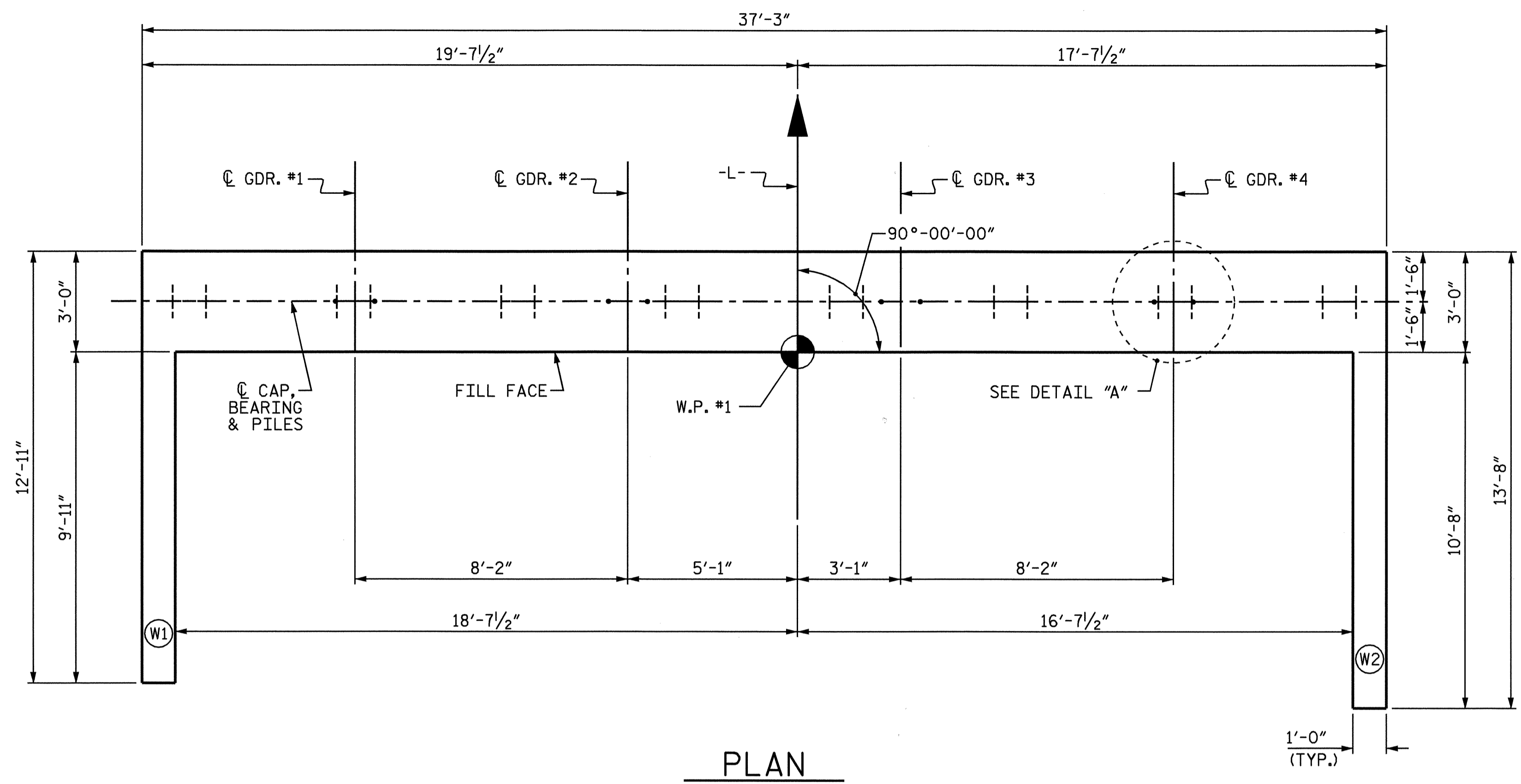


PROJECT NO. B-4008
ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

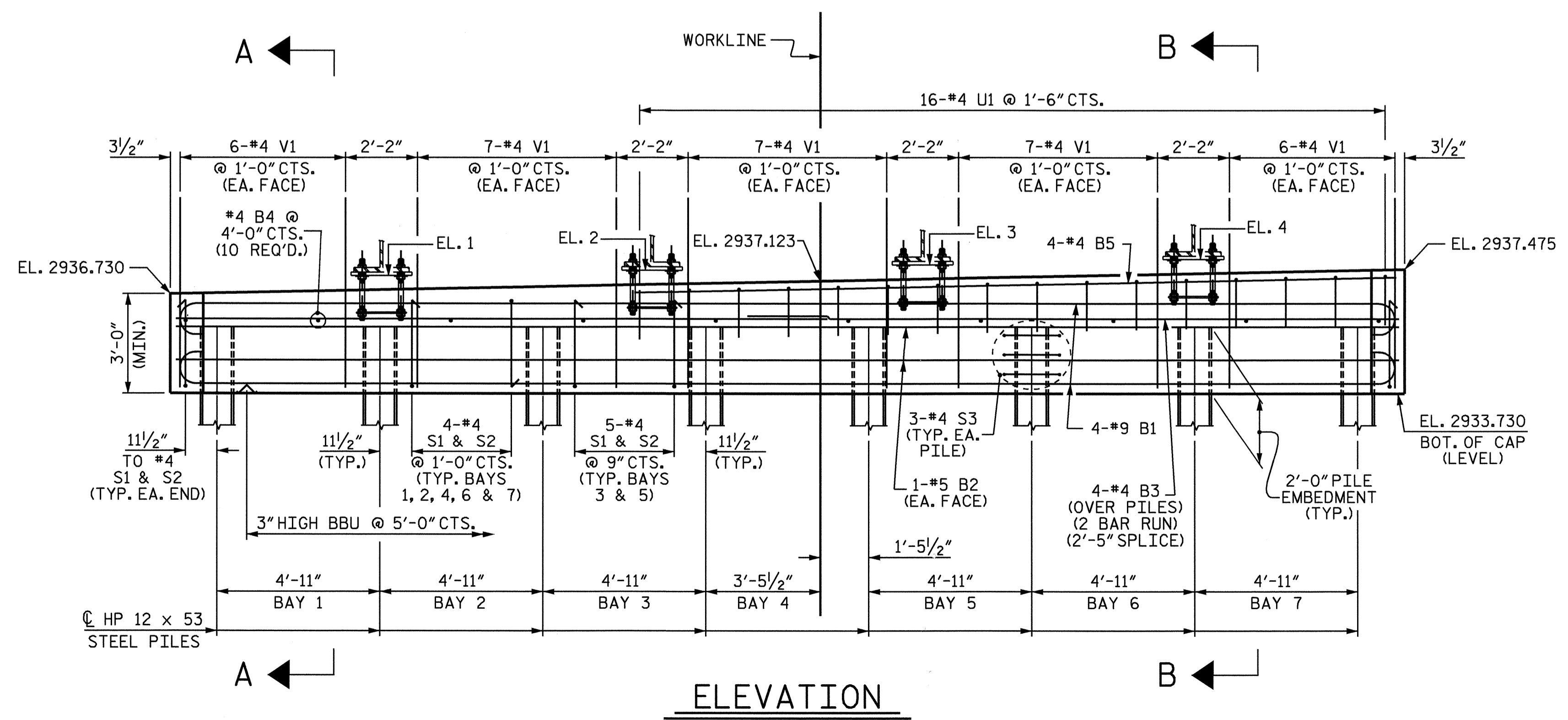
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 SUPERSTRUCTURE
 BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-17
2			4			TOTAL SHEETS 26

ASSEMBLED BY : M.K. BEARD	DATE : 09/26/07
CHECKED BY : K.D. LAYNE	DATE : 10/07
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



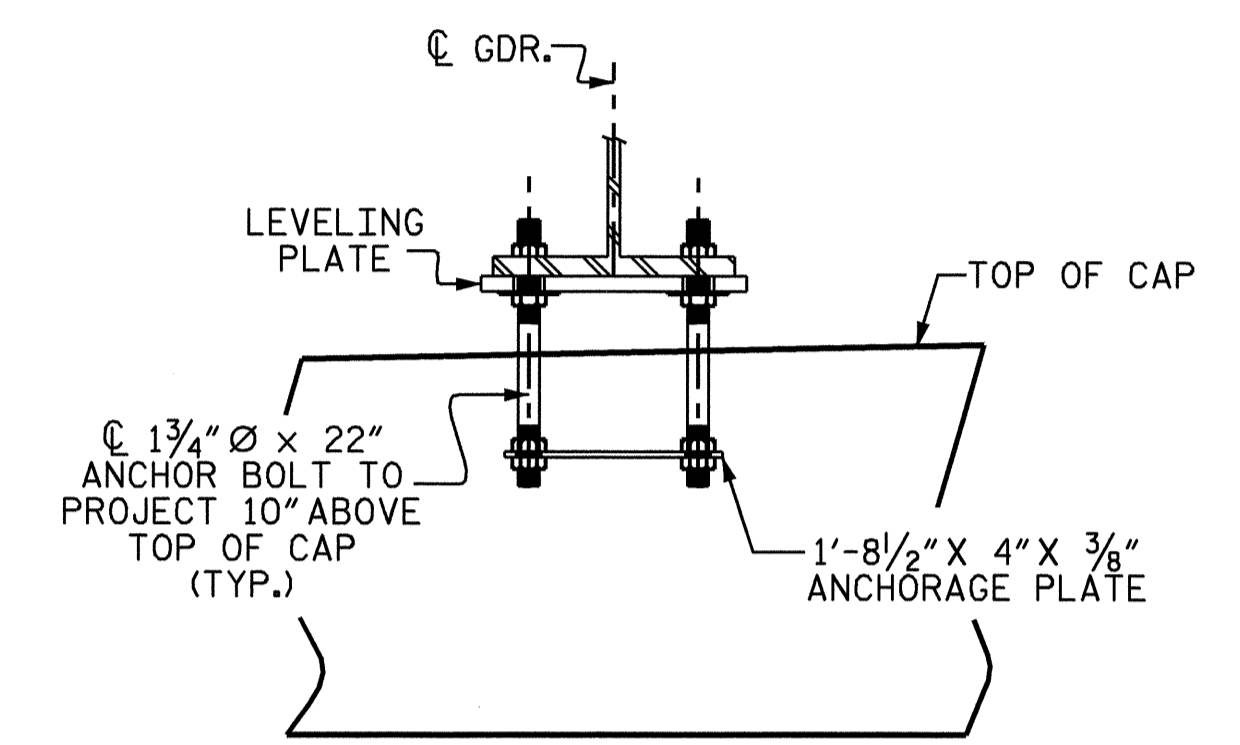
PLAN



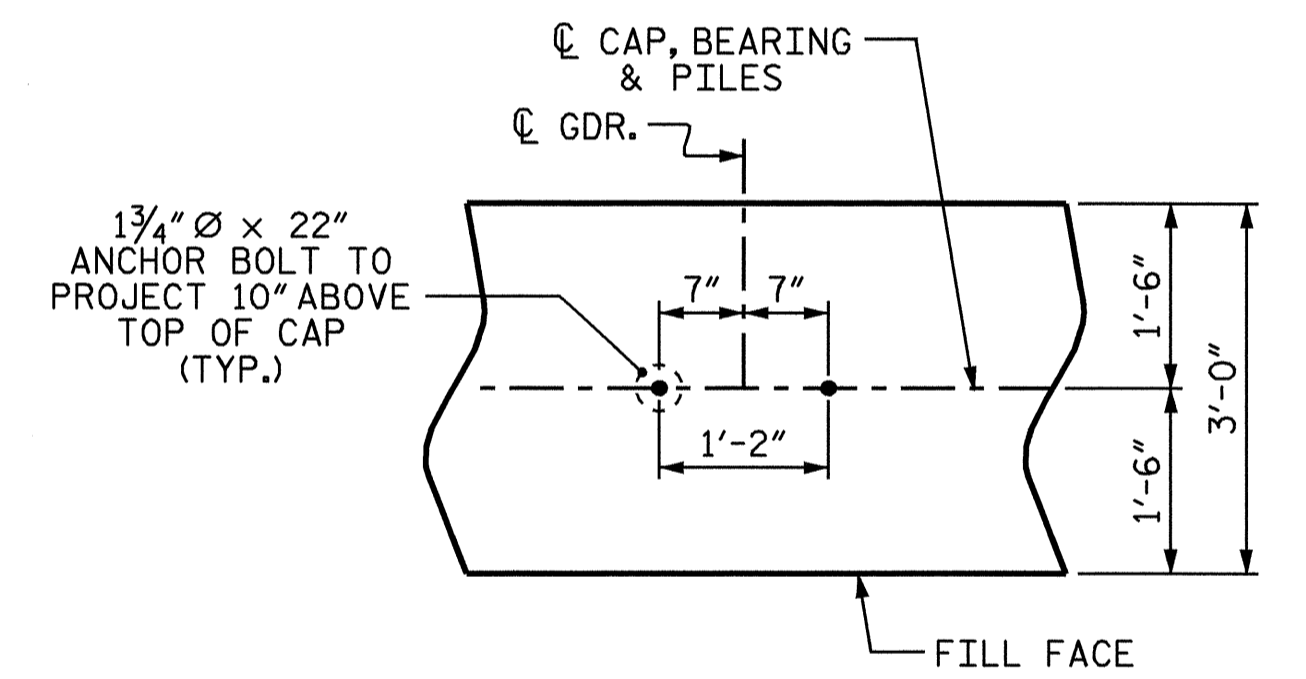
ELEVATION

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
SEE SUPERSTRUCTURE SHEETS FOR UPPER PART OF INTEGRAL END BENT DETAILS.



ELEVATION VIEW



PLAN VIEW

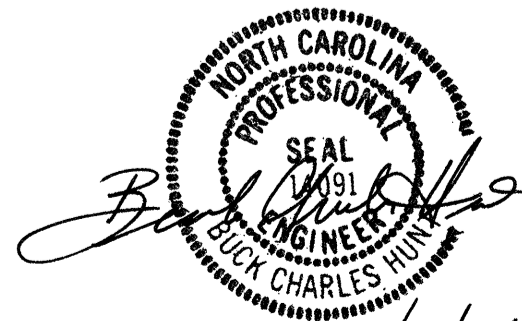
DETAIL "A"

PROJECT NO. B-4008
ALLEGHANY COUNTY
STATION: 15+99.00 -L-

SHEET 1 OF 3

EL. 1	2937.277
EL. 2	2937.440
EL. 3	2937.604
EL. 4	2937.767

ELEVATIONS SHOWN ARE TO BOTTOM OF LEVELING PLATE



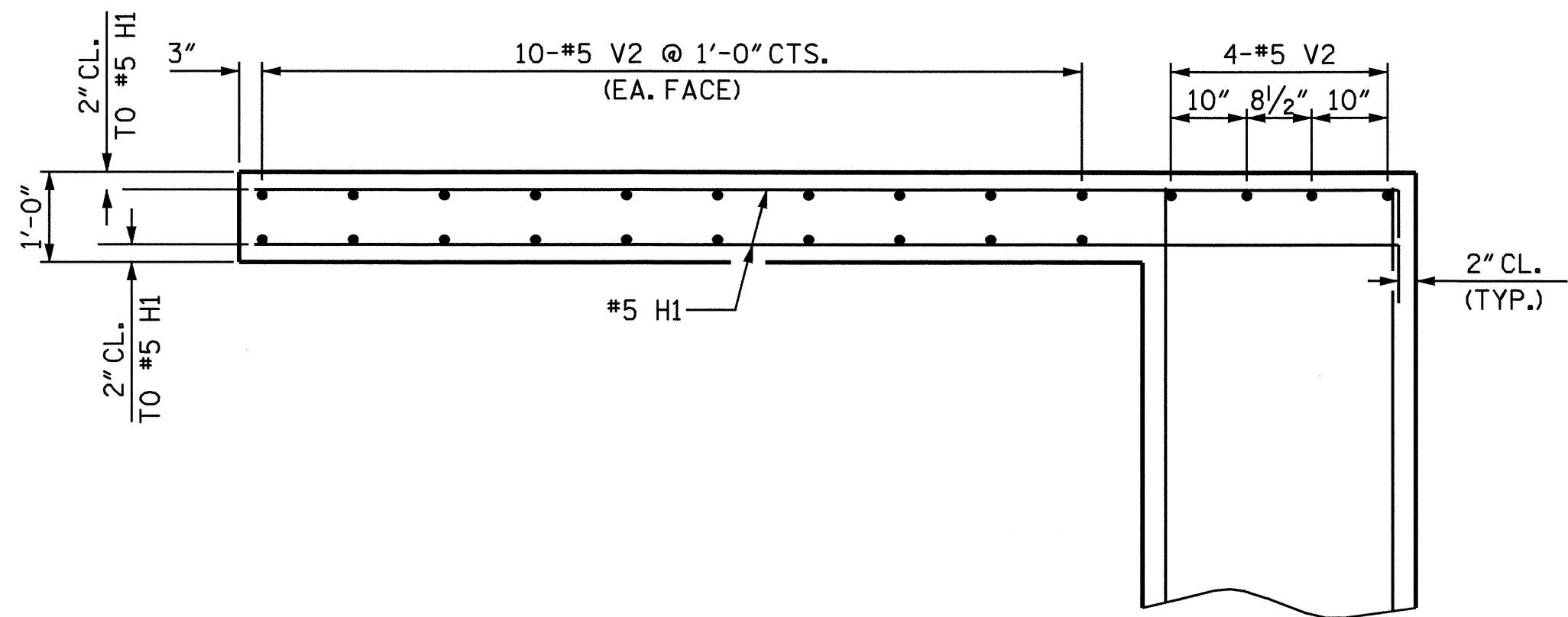
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
INTEGRAL
END BENT #1

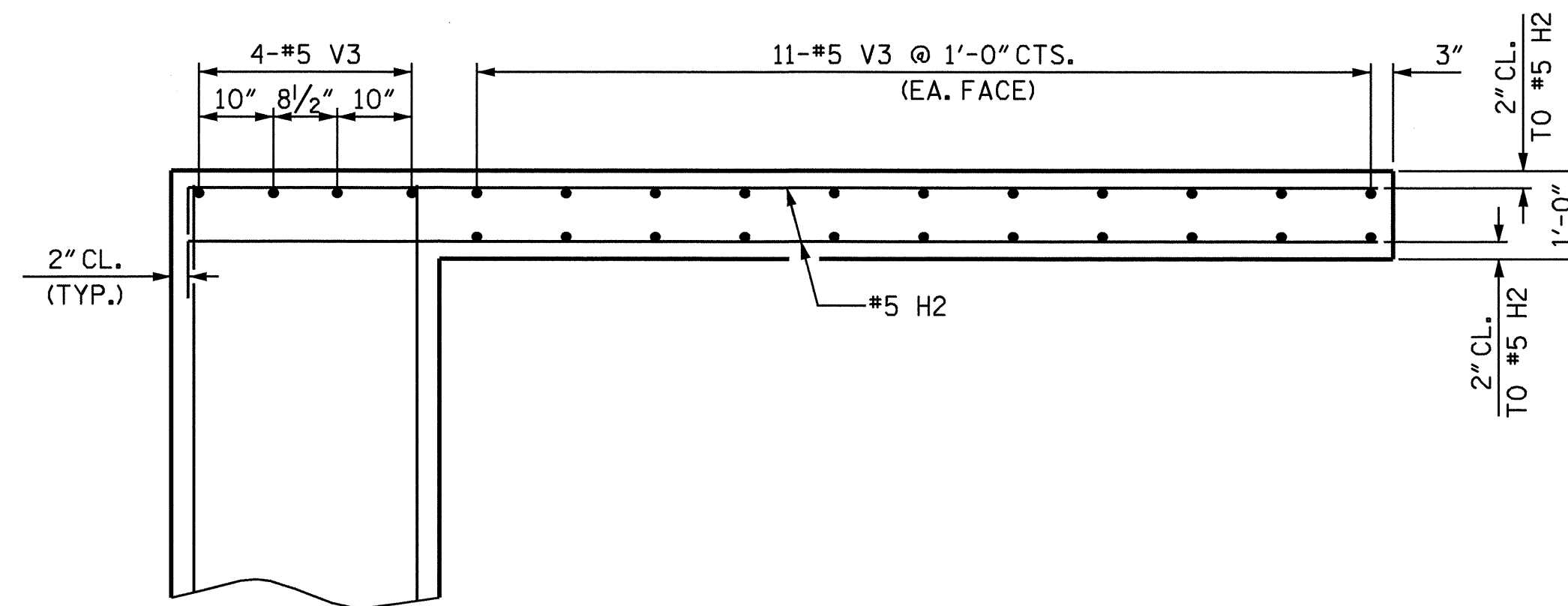
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			26

DRAWN BY : S. DOMBROWSKI DATE : 10/07
CHECKED BY : K.D. LAYNE DATE : 1/08

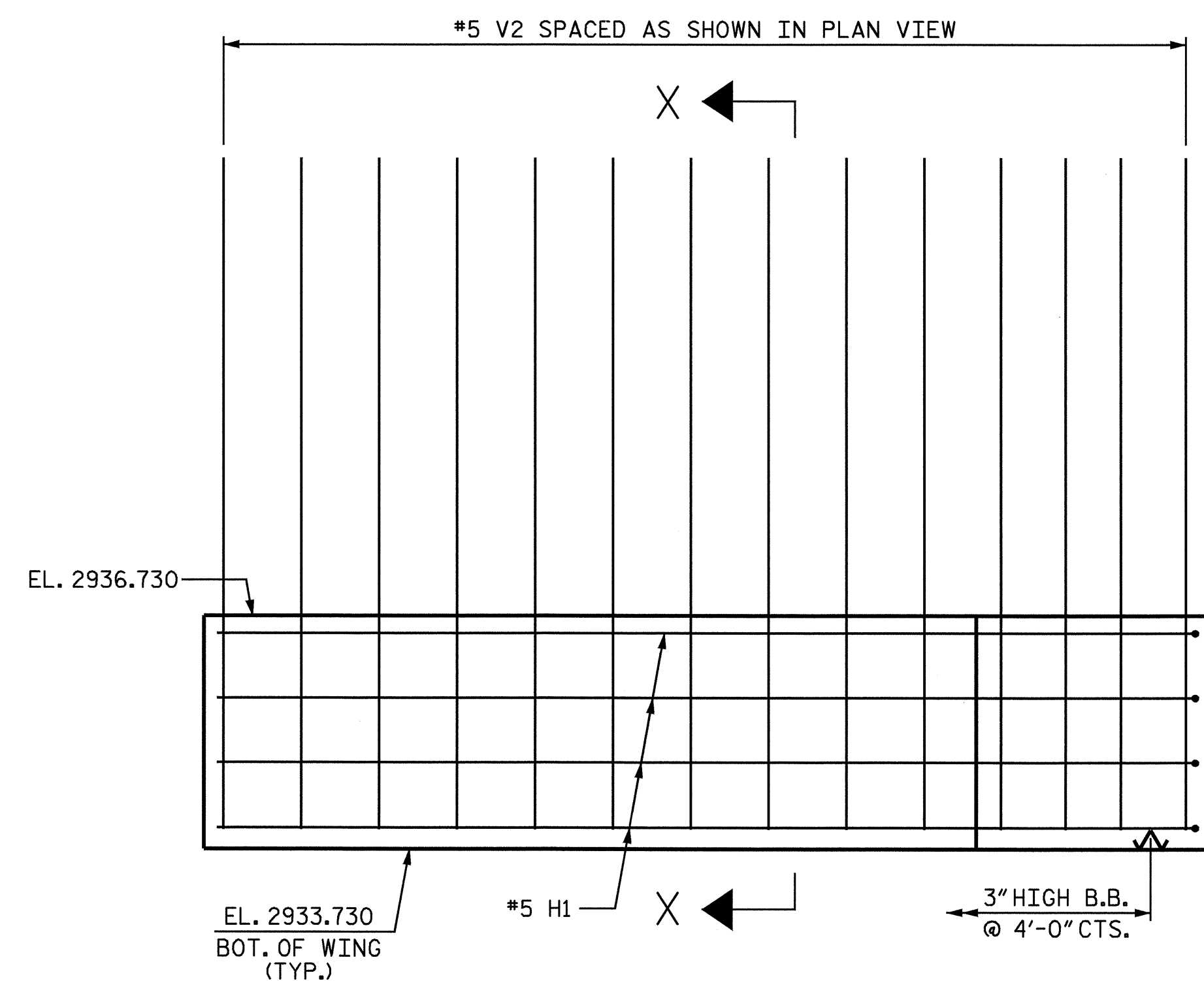
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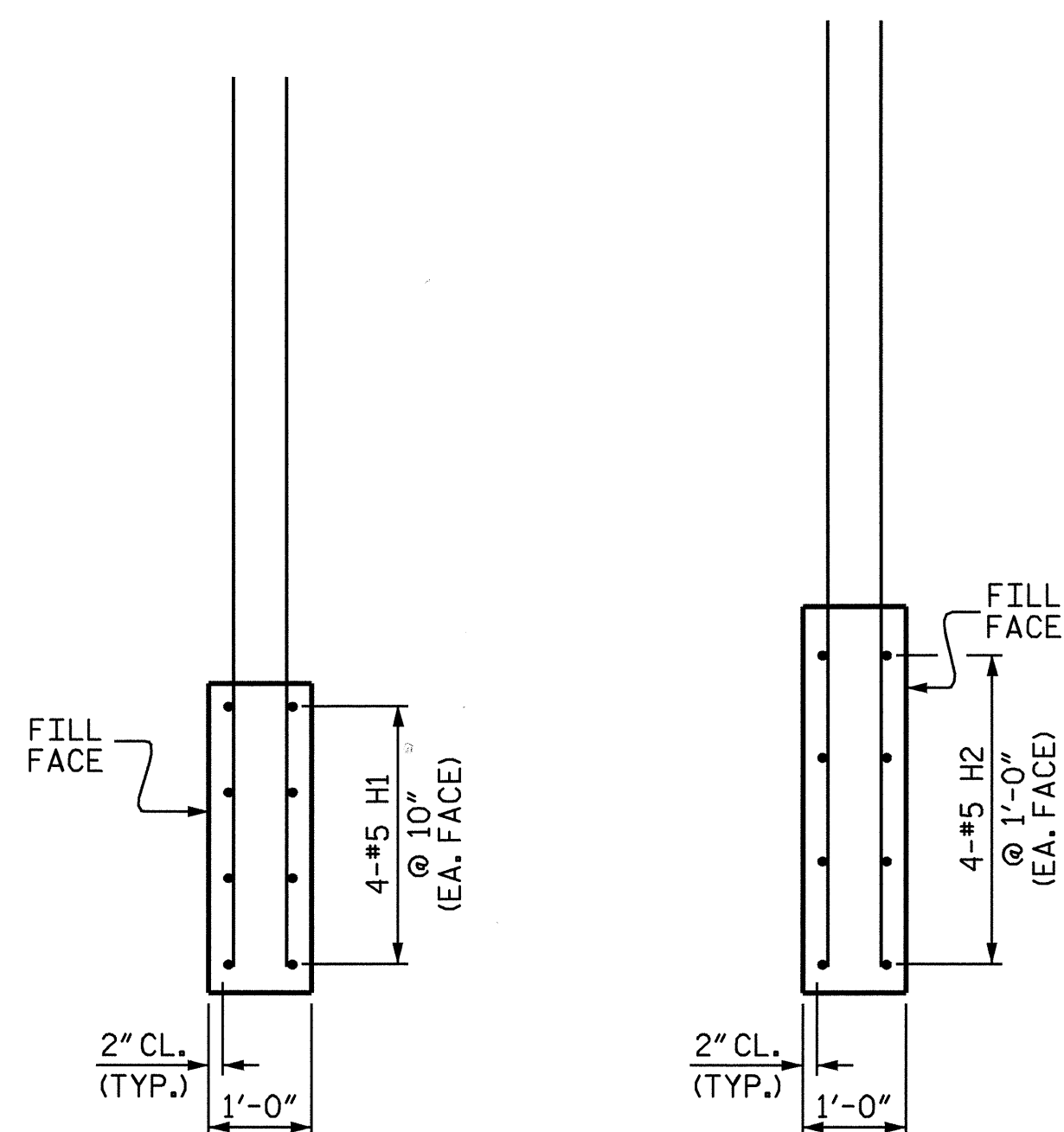
PLAN OF LEFT WING W1



PLAN OF RIGHT WING W2

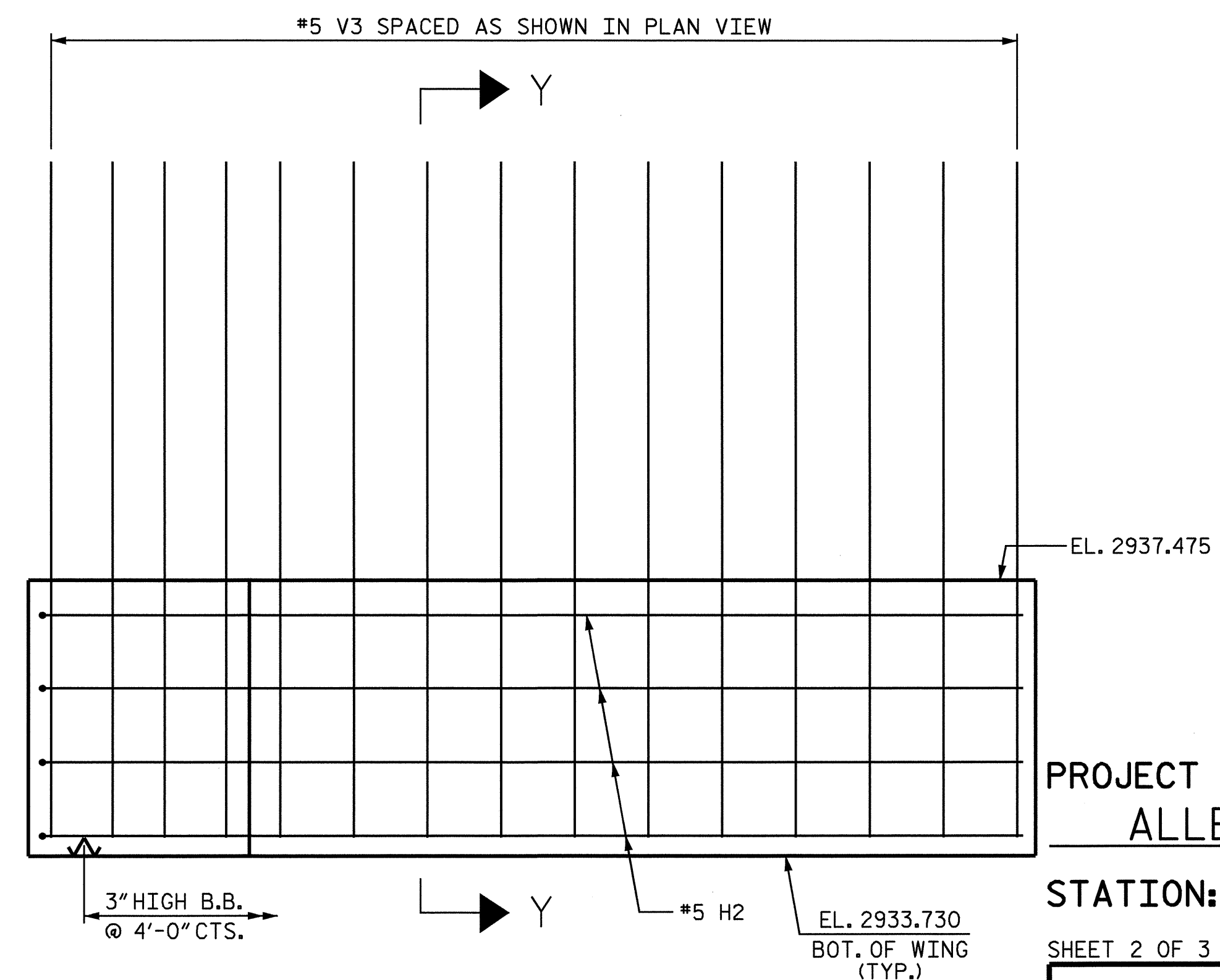


ELEVATION OF LEFT WING W1



SECTION X-X

SECTION Y-Y



ELEVATION OF RIGHT WING W2

NOTE: THE UPPER PORTION OF THE WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. FOR DETAILS AND REINFORCING STEEL, SEE SUPERSTRUCTURE DETAILS.

PROJECT NO. B-4008
ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

SHEET 2 OF 3

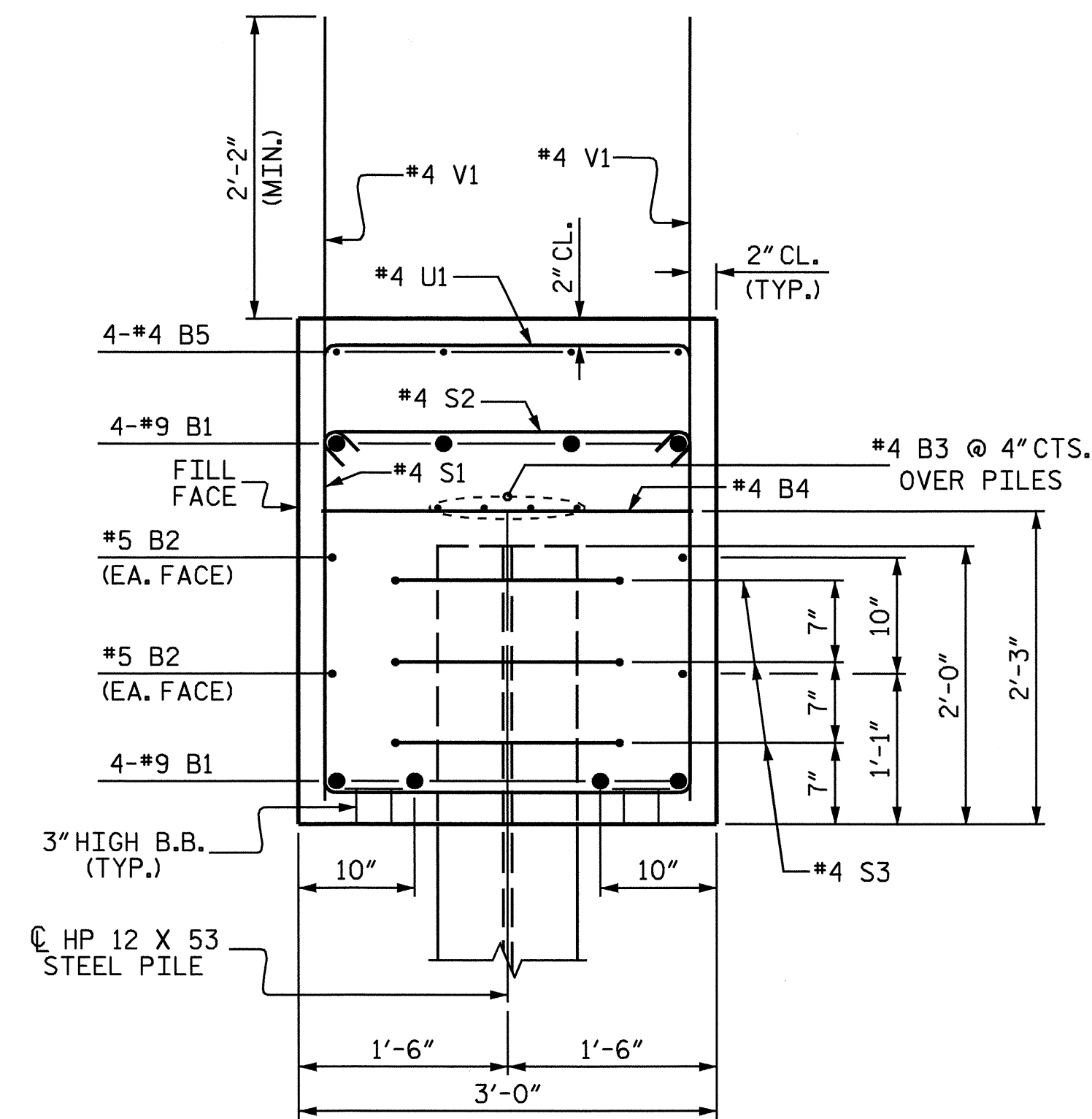
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL
 END BENT #1

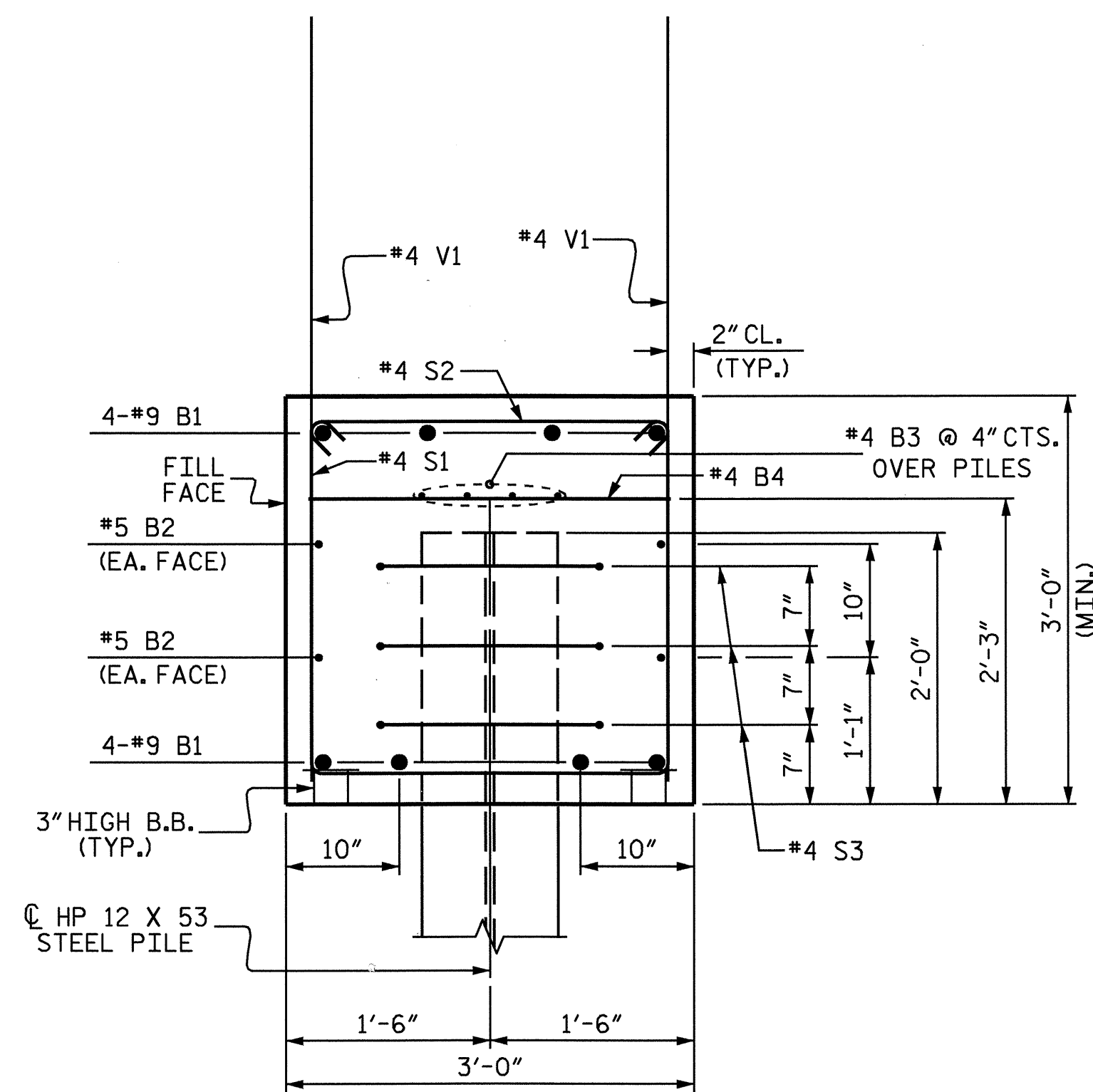


DRAWN BY : S. DOMBROWSKI DATE : 10/07
 CHECKED BY : K.D. LAYNE DATE : 1/08

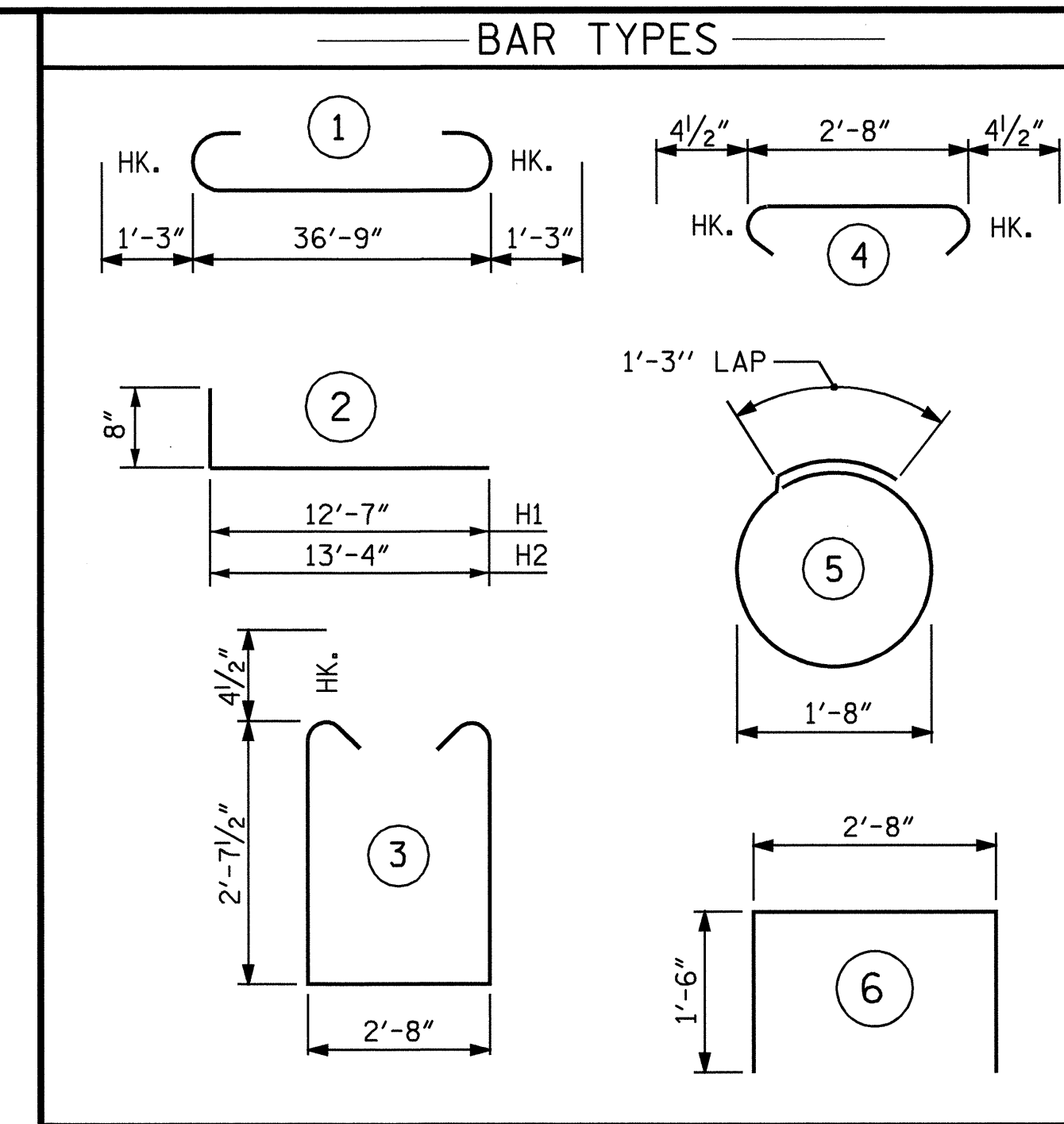
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			26



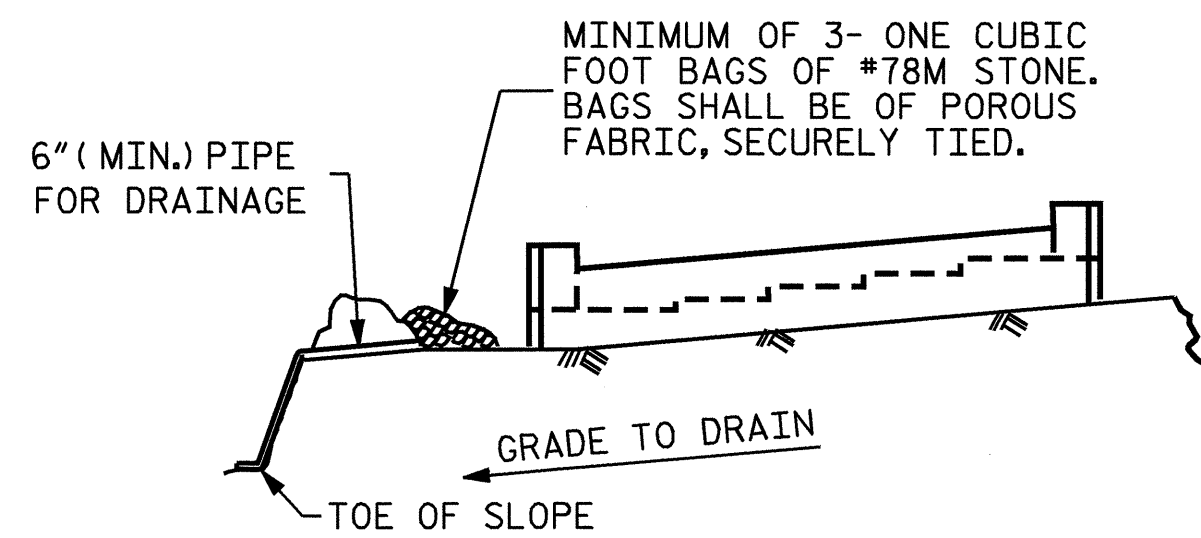
SECTION B-B



SECTION A-A



BILL OF MATERIAL					
INTEGRAL END BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	39'-3"	1068
B2	4	#5	STR	36'-11"	154
B3	8	#4	STR	19'-8"	105
B4	10	#4	STR	2'-8"	18
B5	4	#4	STR	23'-0"	61
H1	8	#5	2	13'-3"	111
H2	8	#5	2	14'-0"	117
S1	32	#4	3	8'-8"	185
S2	32	#4	4	3'-5"	73
S3	24	#4	5	6'-6"	104
U1	16	#4	6	5'-8"	61
V1	66	#4	STR	5'-9"	254
V2	24	#5	STR	8'-3"	207
V3	26	#5	STR	8'-10"	240
REINFORCING STEEL				LBS	2758
CLASS 'A' CONCRETE					16.5 C.Y.
HP 12 X 53 STEEL PILES					160 LIN. FT.
NO. 8					

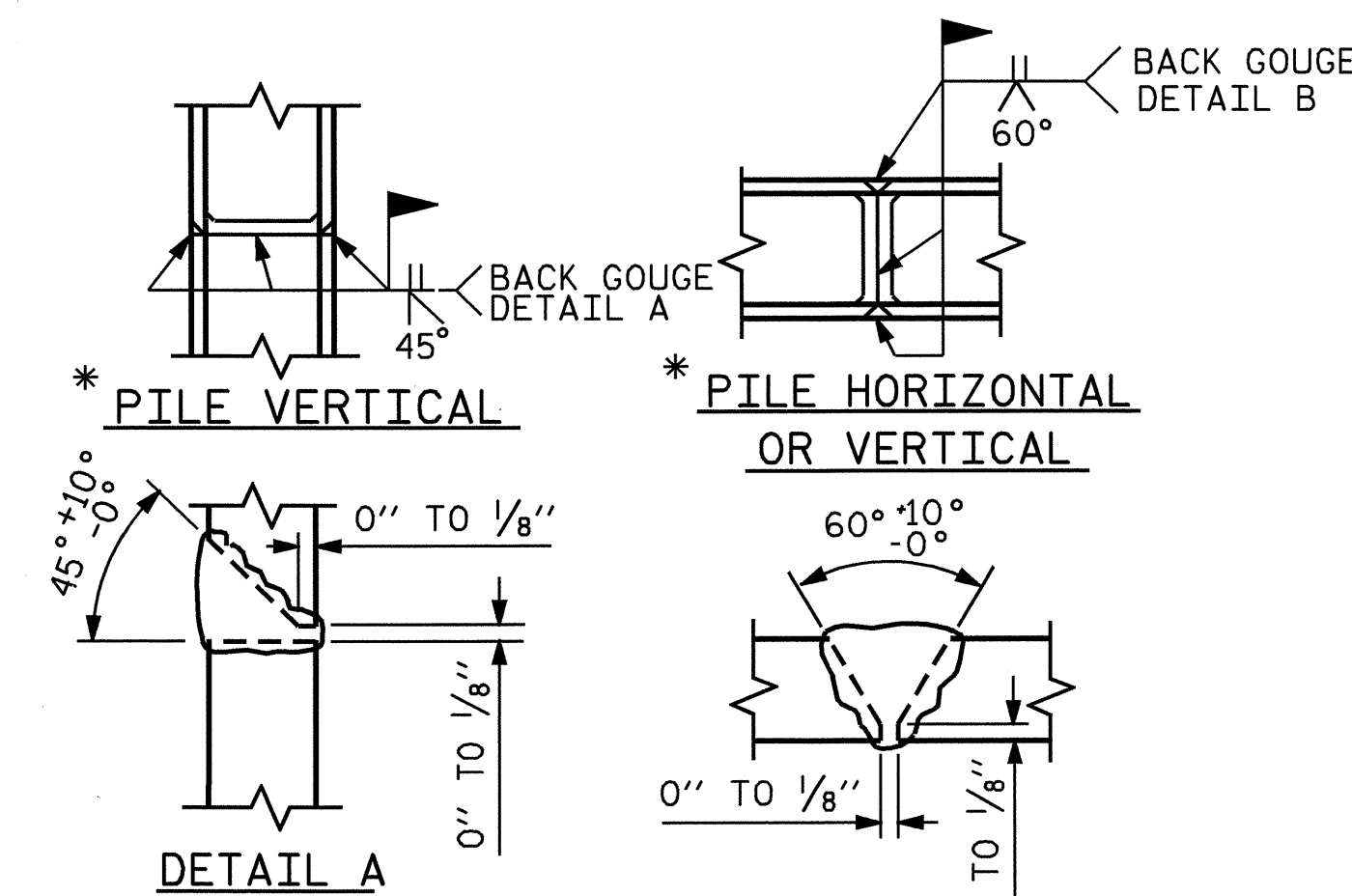


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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 DETEIORATED 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



* POSITION OF PILE DURING WELDING. **DETAIL B**

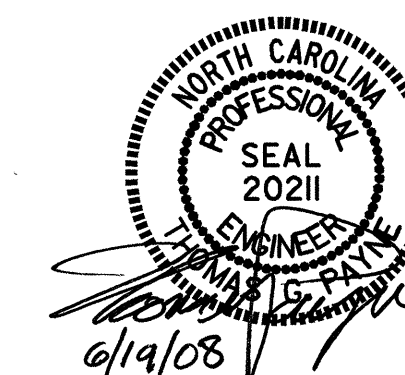
PILE SPLICE DETAILS

PROJECT NO. B-4008
ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL
 END BENT #1

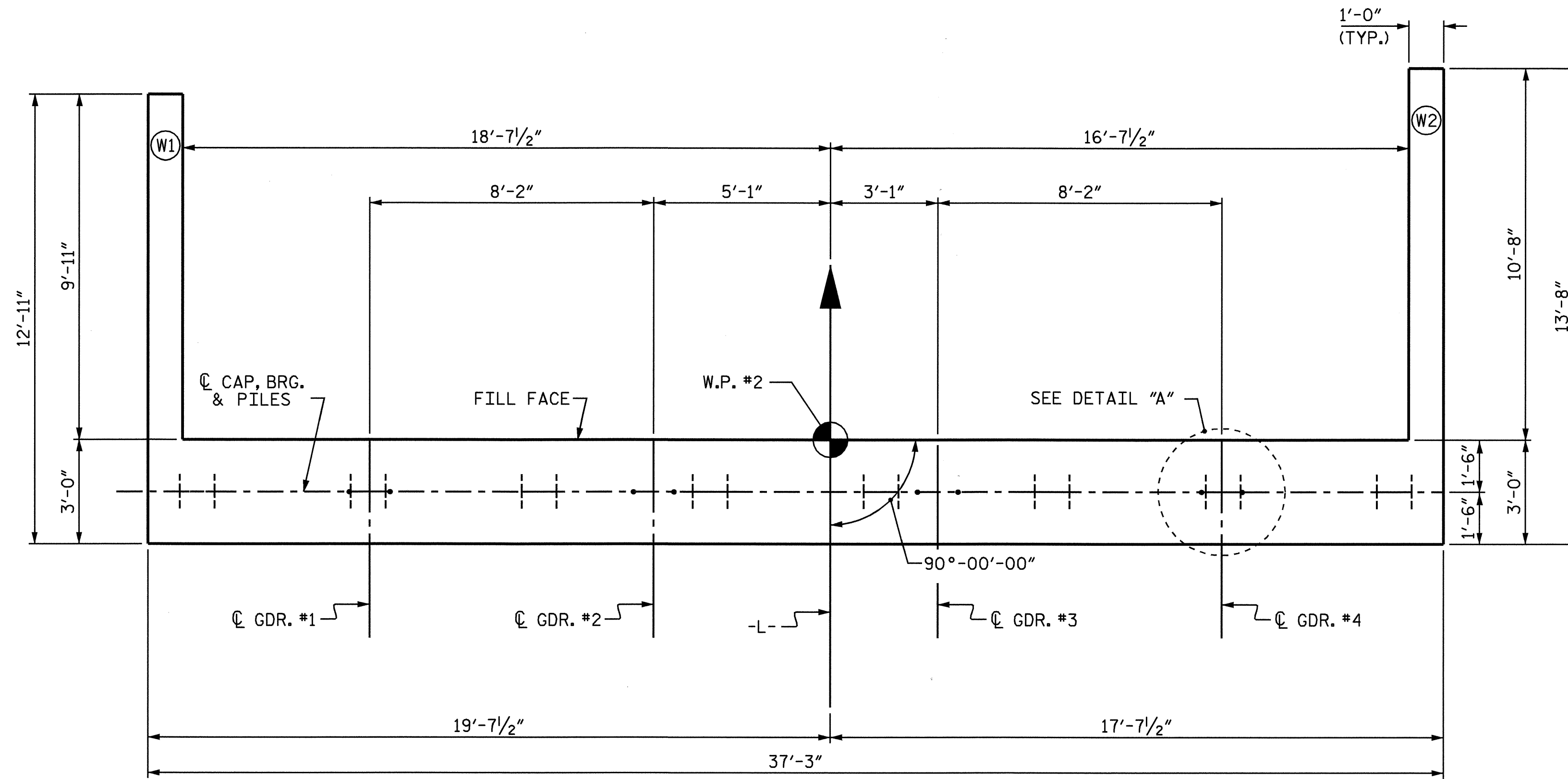


DRAWN BY : S. DOMBROWSKI DATE : 10/07
 CHECKED BY : K.D. LAYNE DATE : 1/08

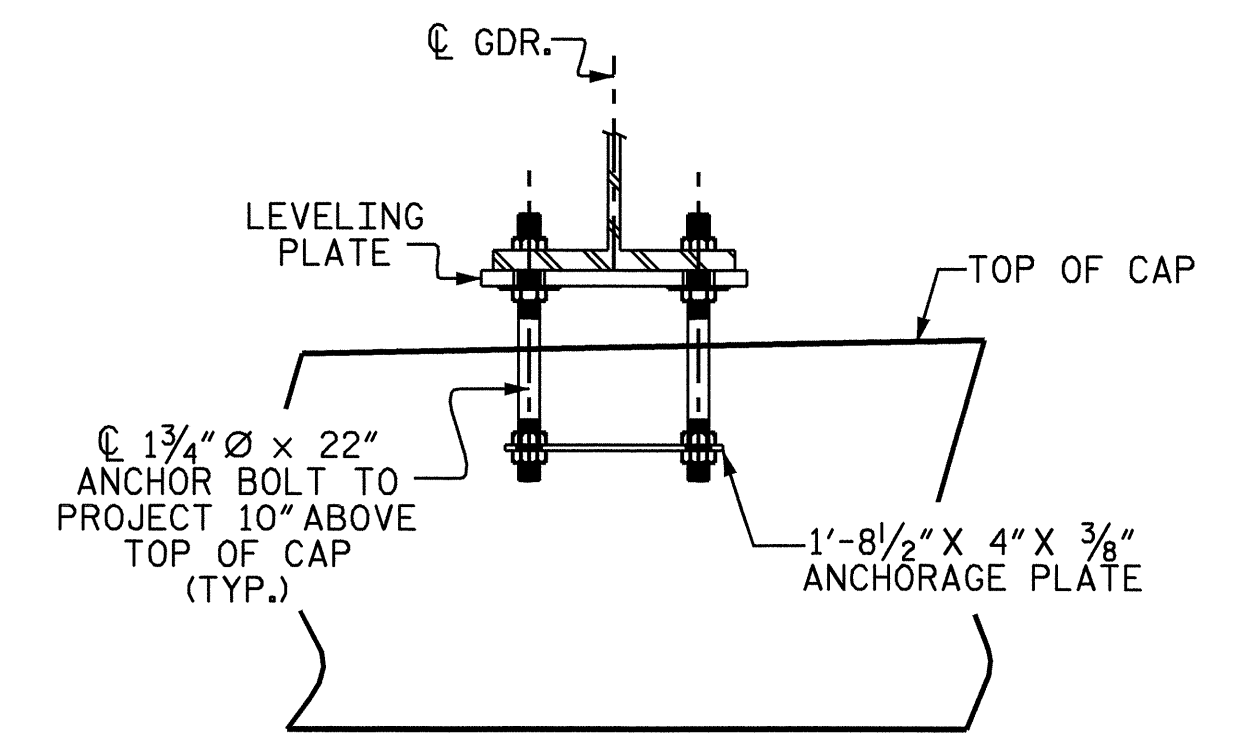
REVISIONS						SHEET NO. S-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 26
2			4			

NOTES

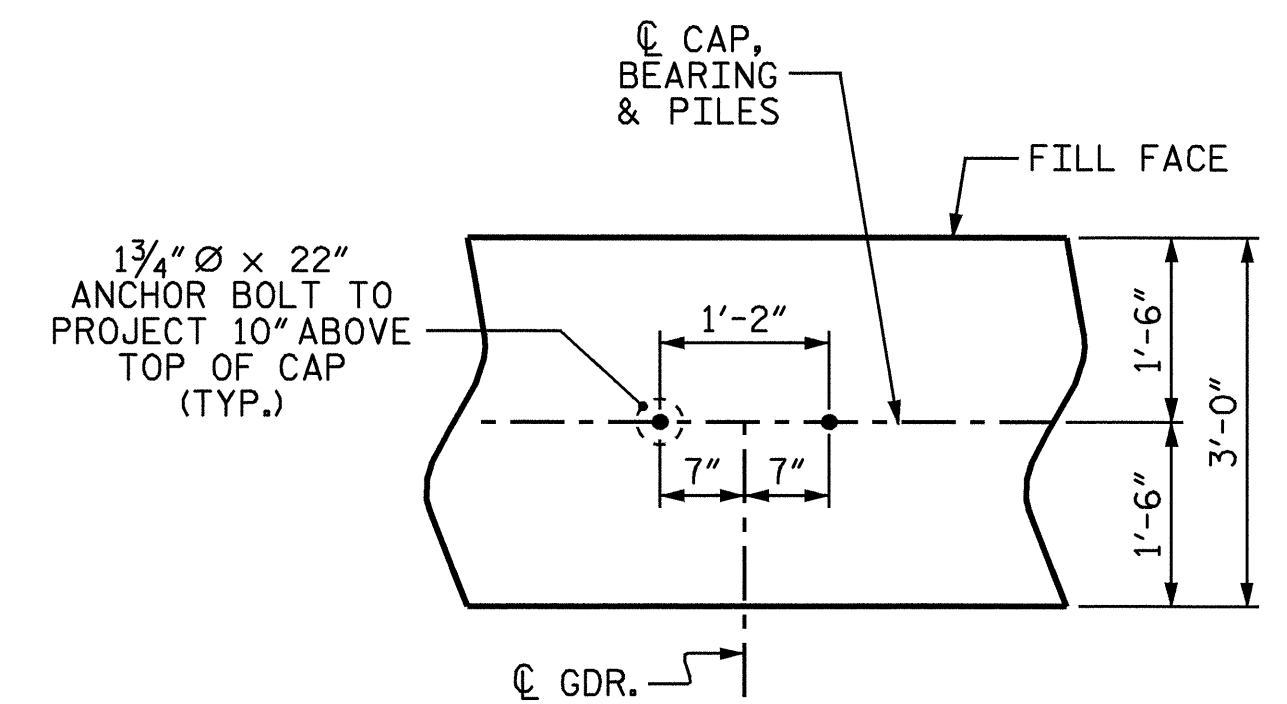
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
SEE SUPERSTRUCTURE SHEETS FOR UPPER PART OF INTEGRAL END BENT DETAILS.



PLAN

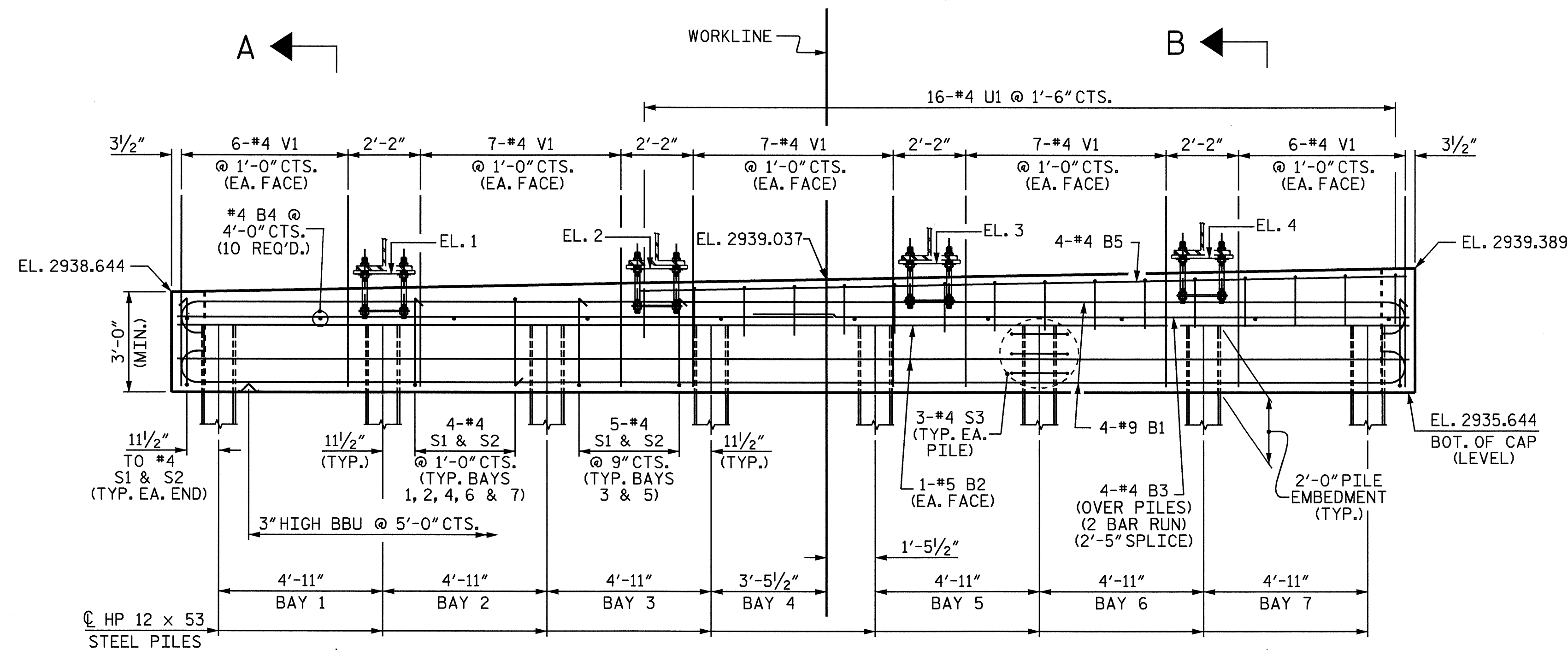


ELEVATION VIEW



PLAN VIEW

DETAIL "A"



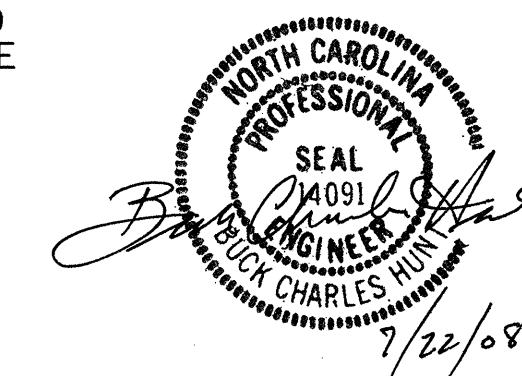
ELEVATION

EL. 1	2939.191
EL. 2	2939.354
EL. 3	2939.517
EL. 4	2939.681

ELEVATIONS SHOWN ARE TO BOTTOM OF LEVELING PLATE

PROJECT NO. B-4008
ALLEGHANY COUNTY
STATION: 15+99.00 -L-

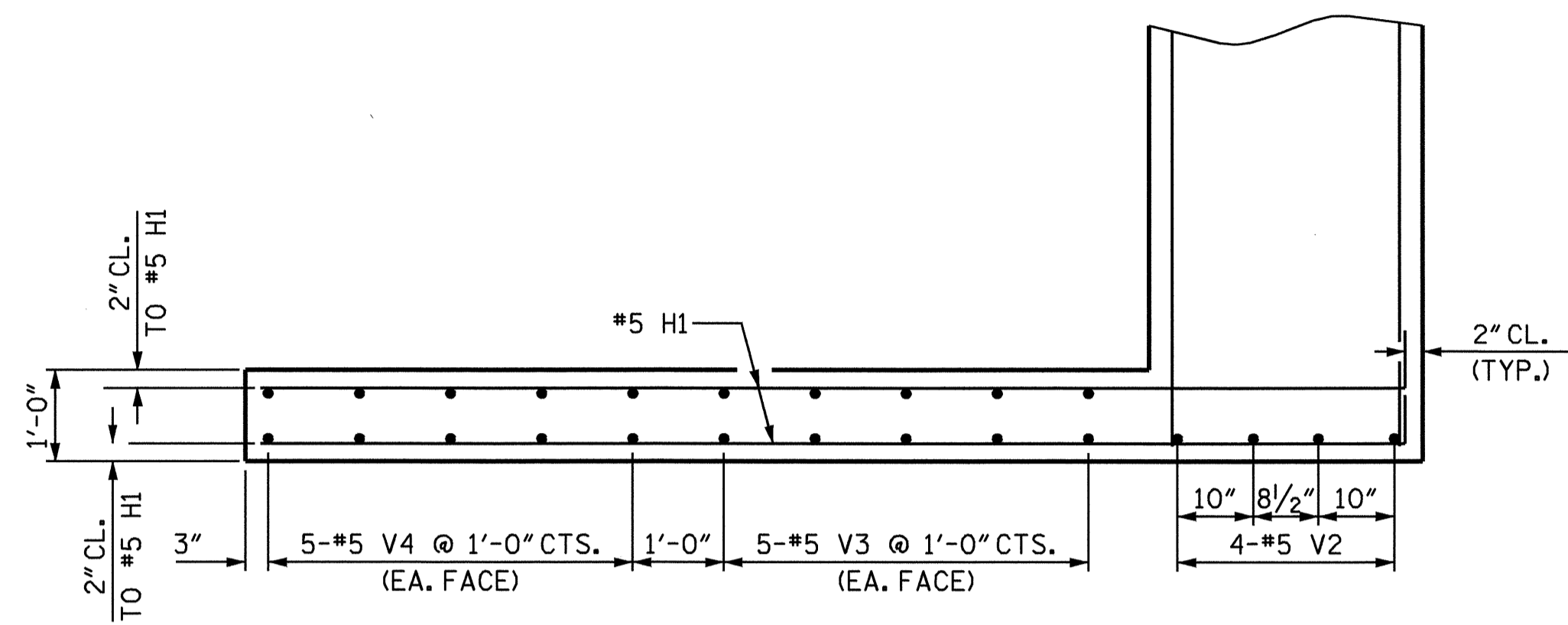
SHEET 1 OF 3



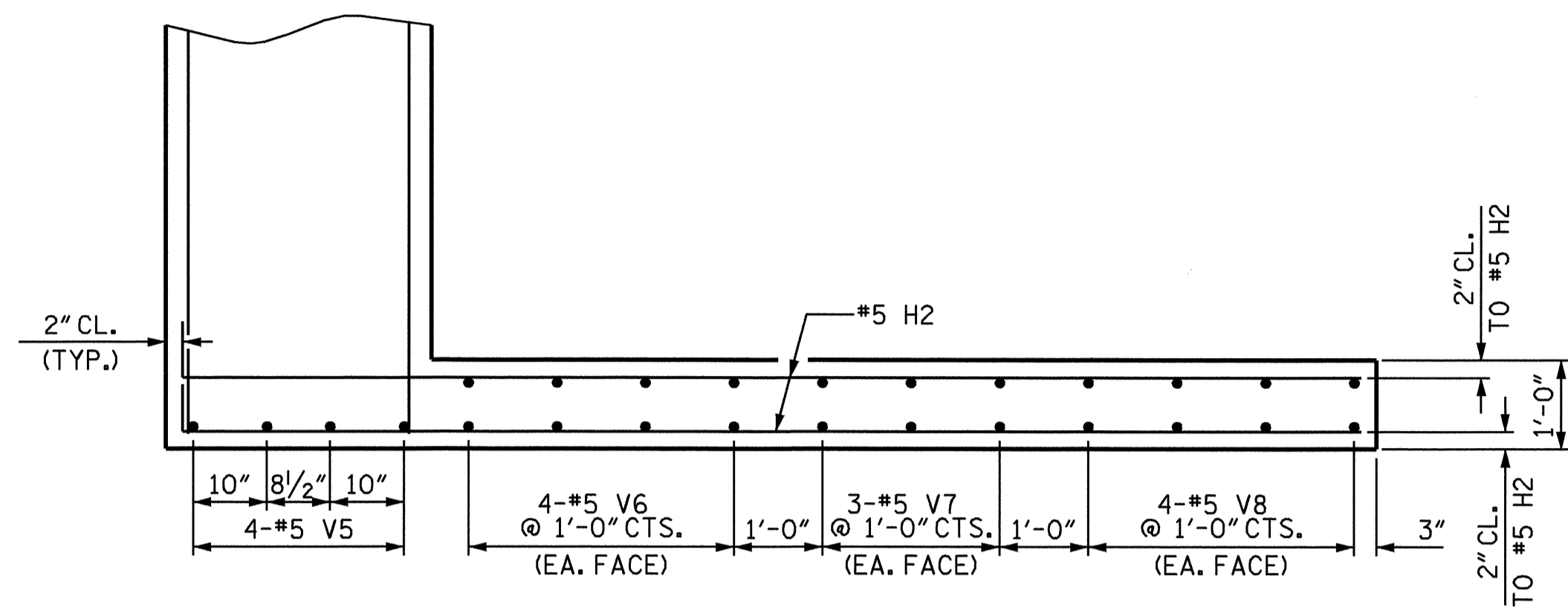
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
INTEGRAL
END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			26

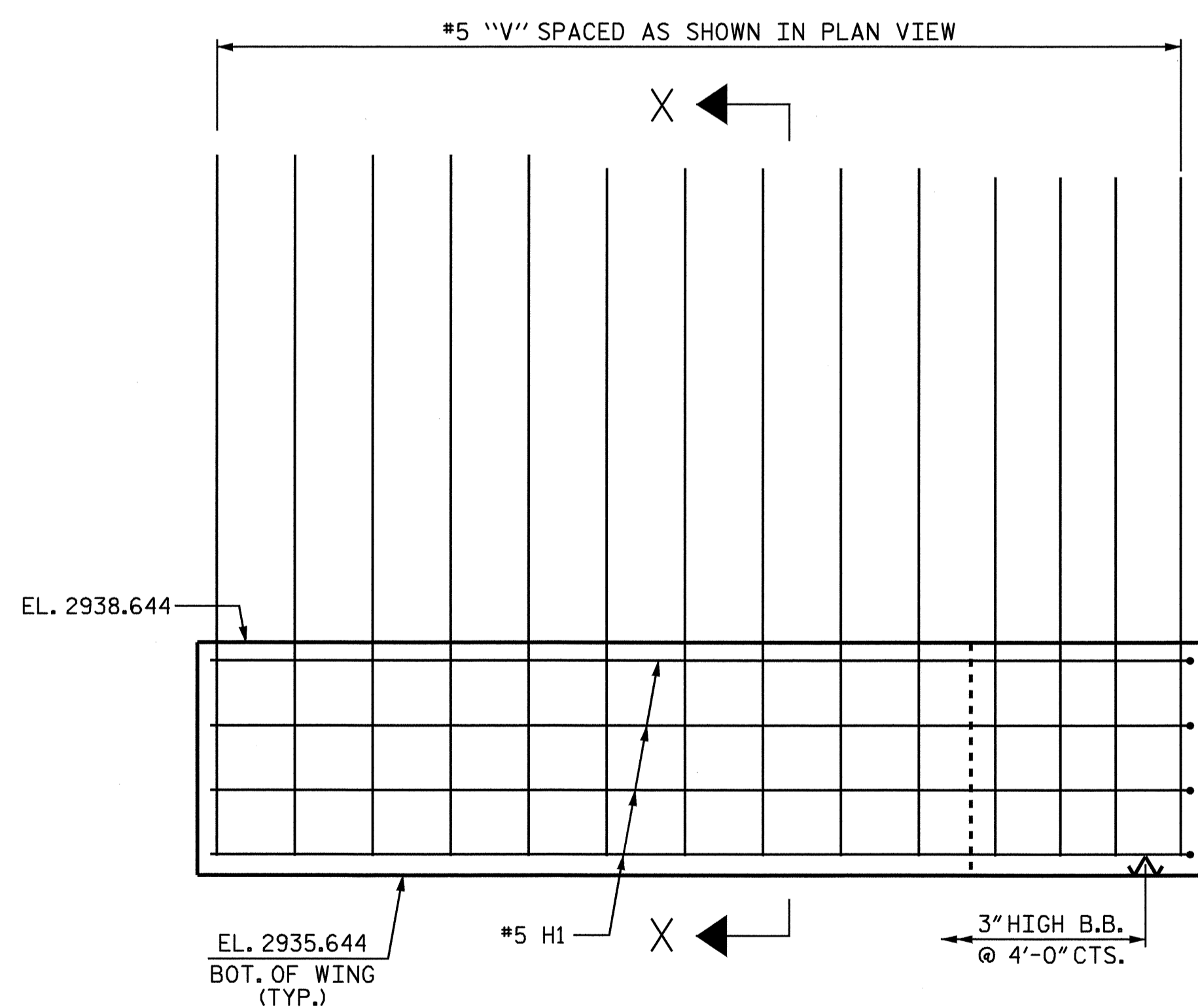
DRAWN BY : S. DOMBROWSKI DATE : 10/07
CHECKED BY : K.D. LAYNE DATE : 1/08



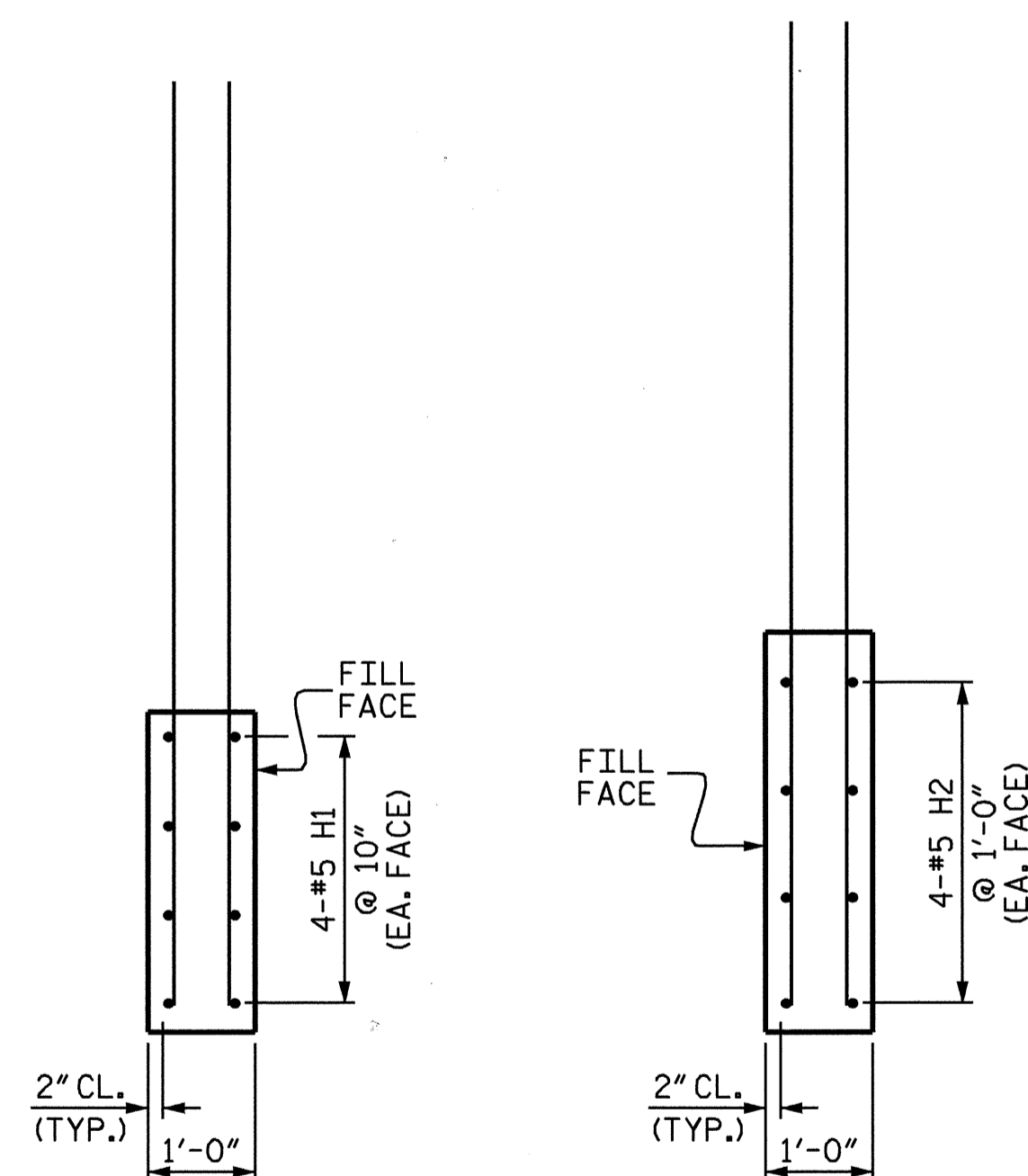
PLAN OF LEFT WING W1



PLAN OF RIGHT WING W2

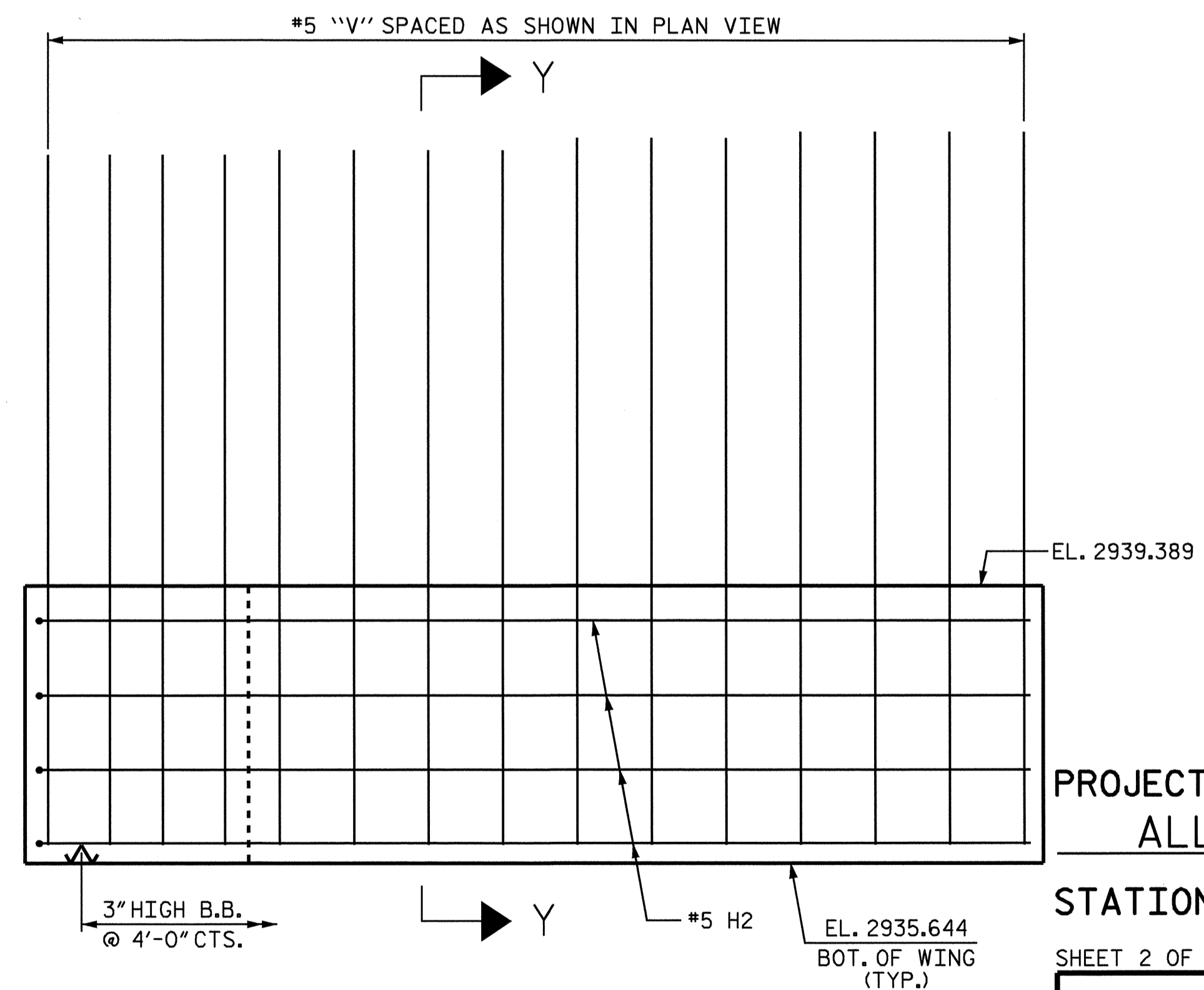


ELEVATION OF LEFT WING W1



SECTION X-X

SECTION Y-Y



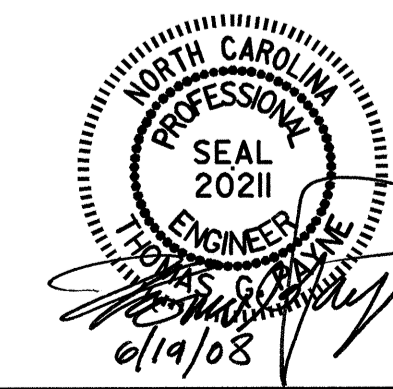
ELEVATION OF RIGHT WING W2

NOTE: THE UPPER PORTION OF THE WINGS SHALL BE POURED WITH THE SUPERSTRUCTURE. FOR DETAILS AND REINFORCING STEEL, SEE SUPERSTRUCTURE DETAILS.

PROJECT NO. B-4008
ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

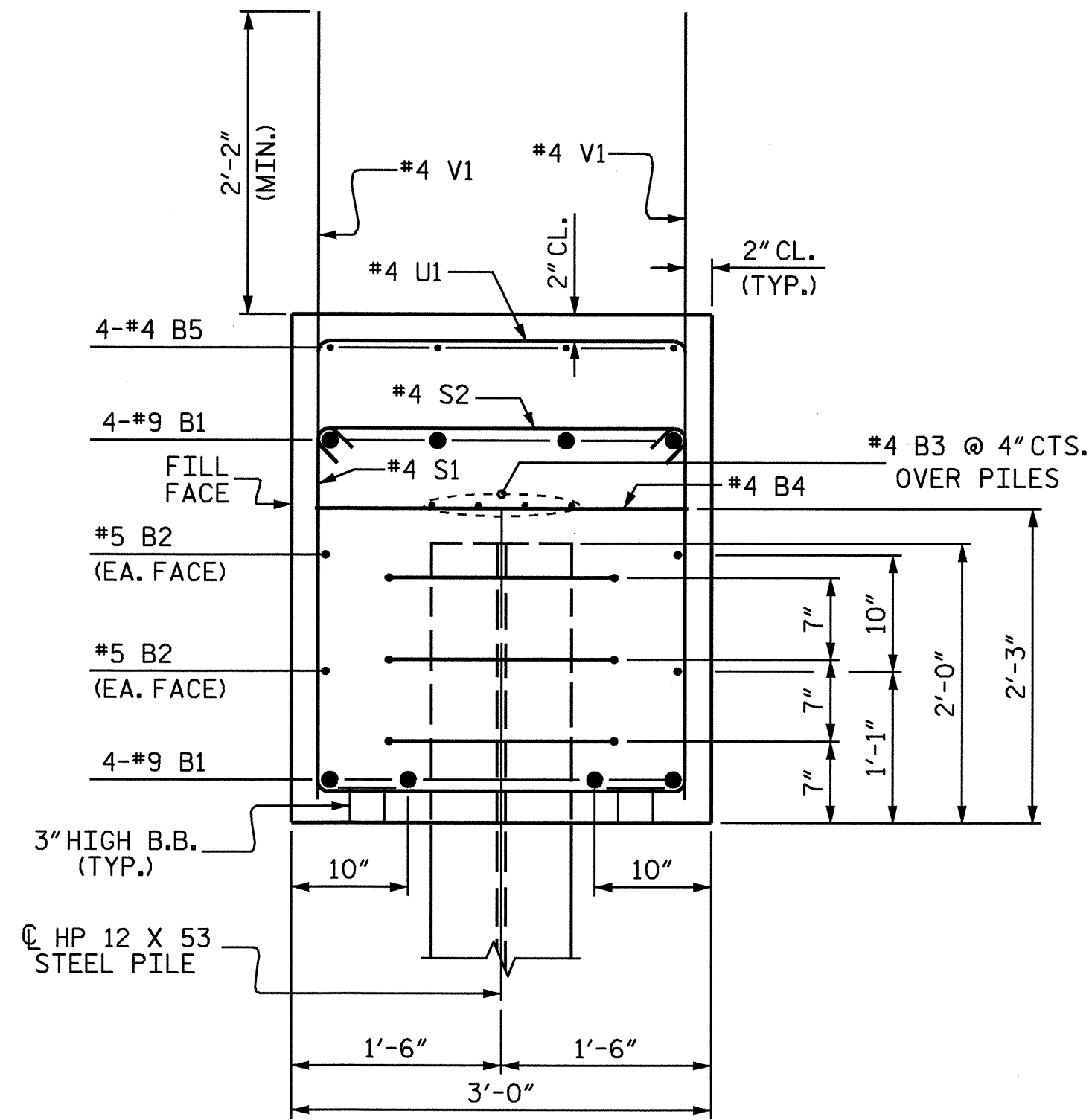
SHEET 2 OF 3

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

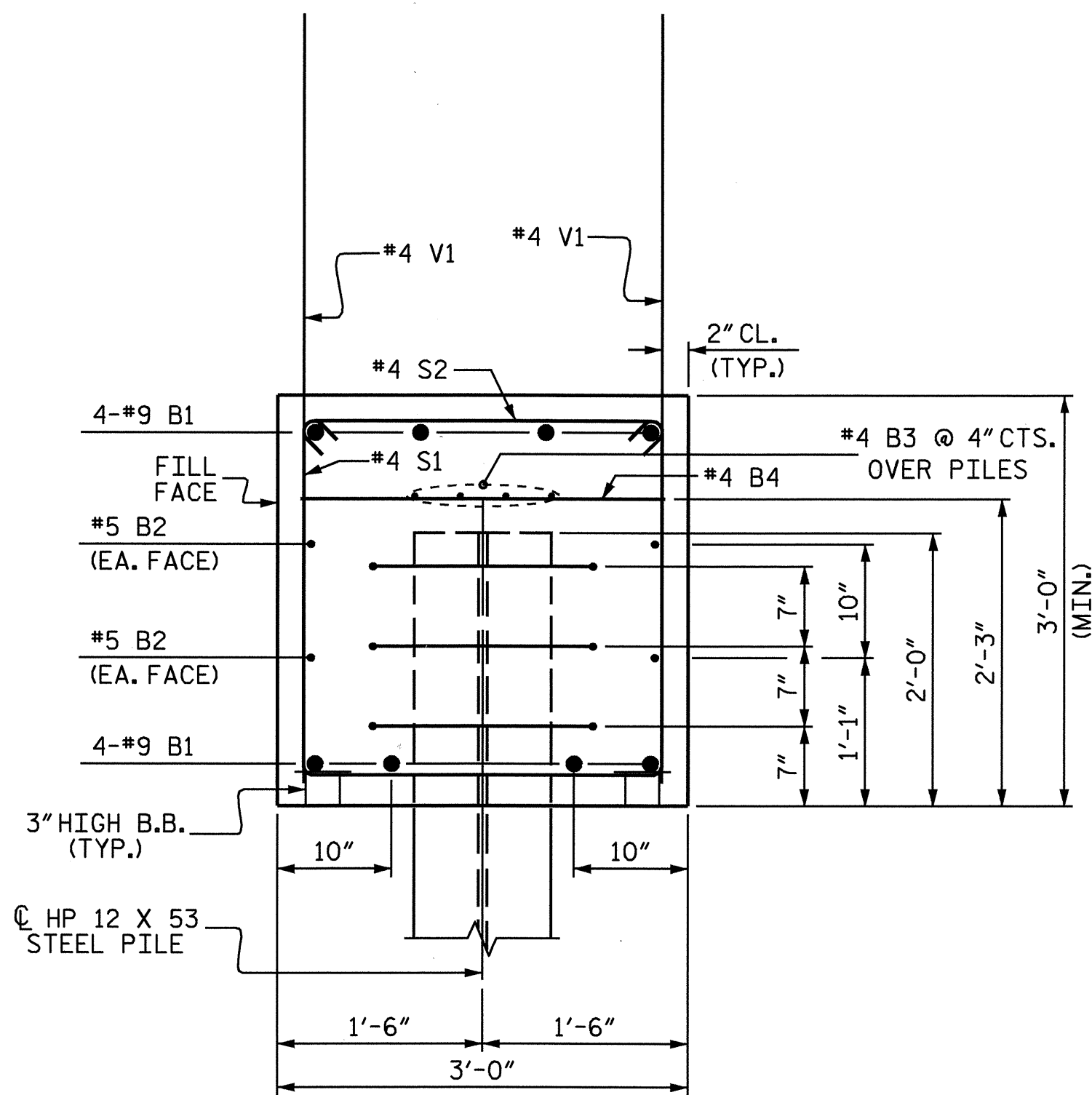


DRAWN BY : S. DOMBROWSKI DATE : 10/07
 CHECKED BY : K.D. LAYNE DATE : 1/08

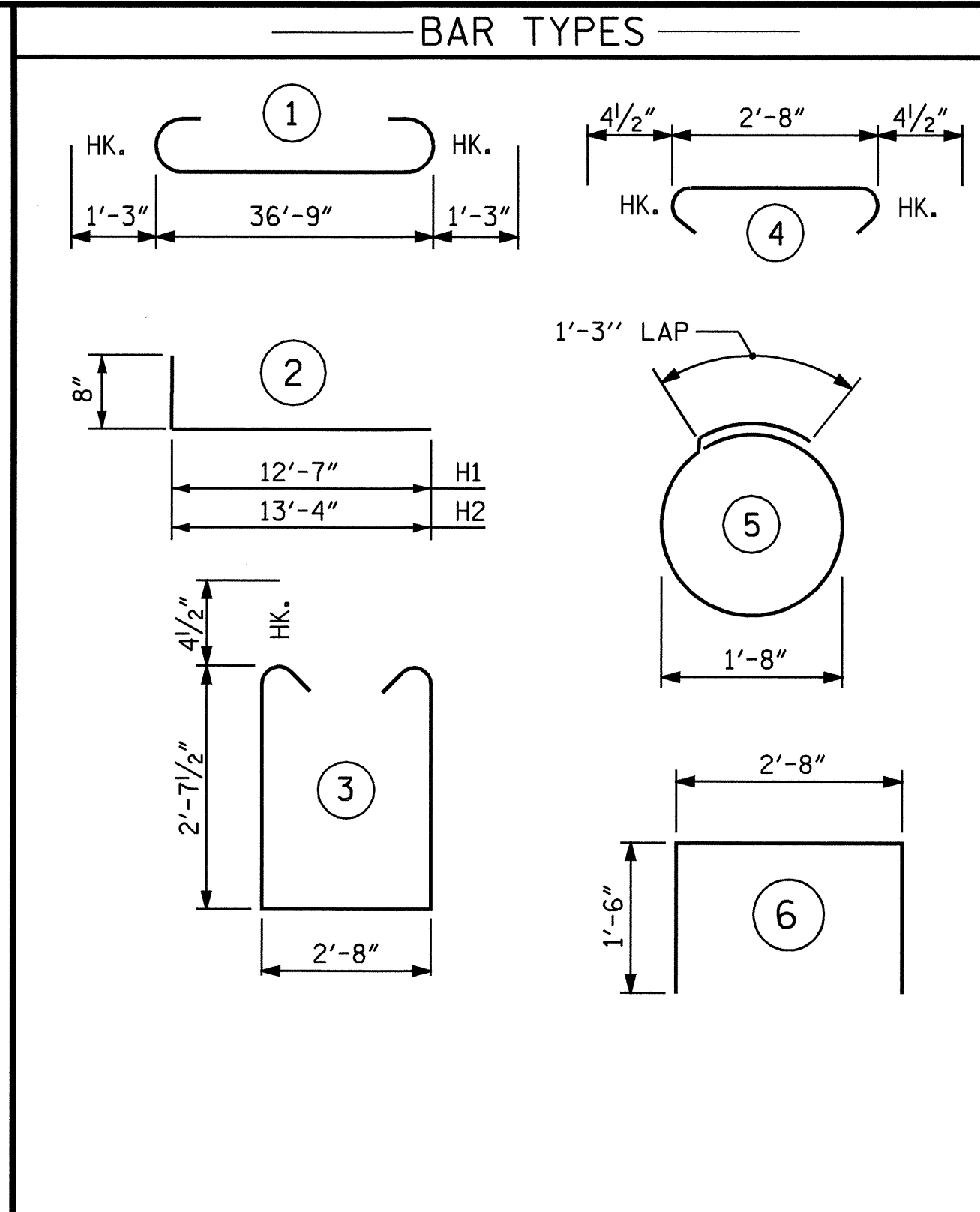
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22	
1			3			TOTAL	26
2			4			SHEETS	



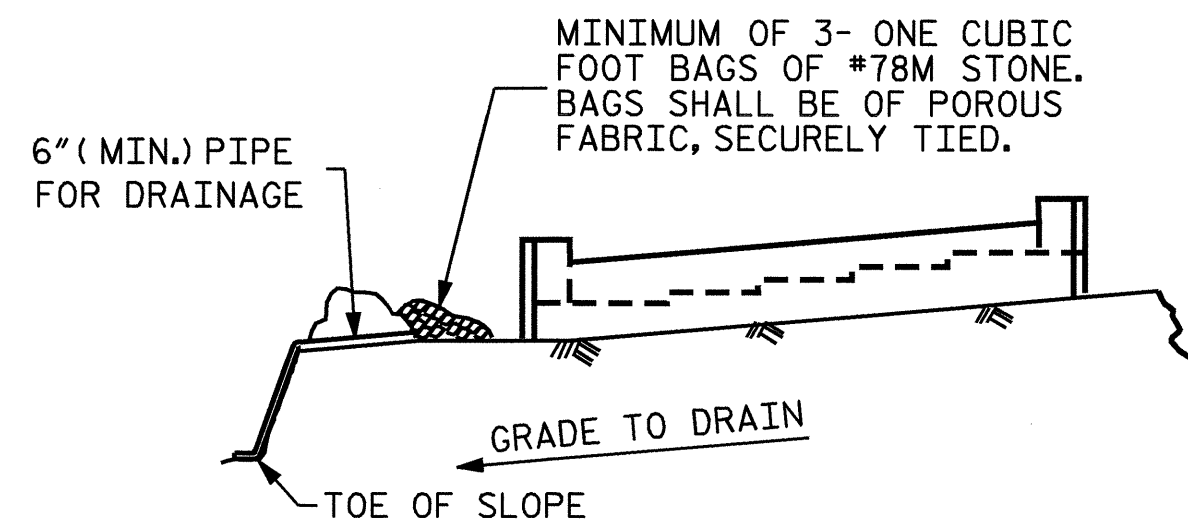
SECTION B-B



SECTION A-A



BILL OF MATERIAL					
INTEGRAL END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	39'-3"	1068
B2	4	#5	STR	36'-11"	154
B3	8	#4	STR	19'-8"	105
B4	10	#4	STR	2'-8"	18
B5	4	#4	STR	23'-0"	61
H1	8	#5	2	13'-3"	111
H2	8	#5	2	14'-0"	117
S1	32	#4	3	8'-8"	185
S2	32	#4	4	3'-5"	73
S3	24	#4	5	6'-6"	104
U1	16	#4	6	5'-8"	61
V1	66	#4	STR	5'-9"	254
V2	4	#5	STR	8'-4"	35
V3	10	#5	STR	8'-6"	85
V4	10	#5	STR	8'-8"	87
V5	4	#5	STR	8'-11"	37
V6	8	#5	STR	9'-0"	75
V7	6	#5	STR	9'-2"	57
V8	8	#5	STR	9'-3"	77
REINFORCING STEEL				LBS	2764
CLASS 'A' CONCRETE					16.5 C.Y.
HP 12 X 53 STEEL PILES					80 LIN. FT.
NO. 8					



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.

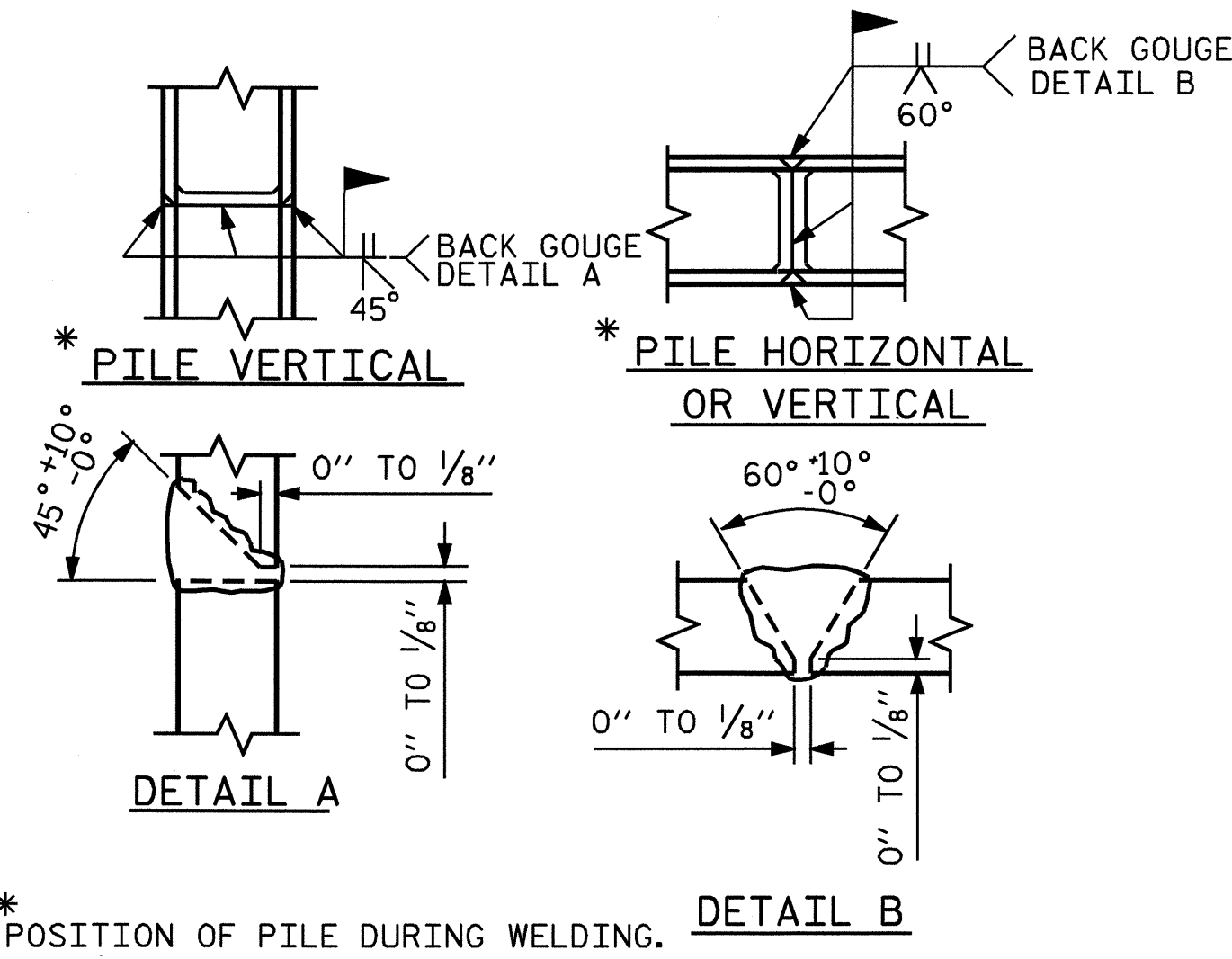
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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TEMPORARY DRAINAGE AT END BENT

DRAWN BY : S. DOMBROWSKI DATE : 10/07
 CHECKED BY : K.D. LAYNE DATE : 1/08

18-JUN-2008 09:42
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 kbear



PILE SPLICE DETAILS

PROJECT NO. B-4008
 ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

SHEET 3 OF 3

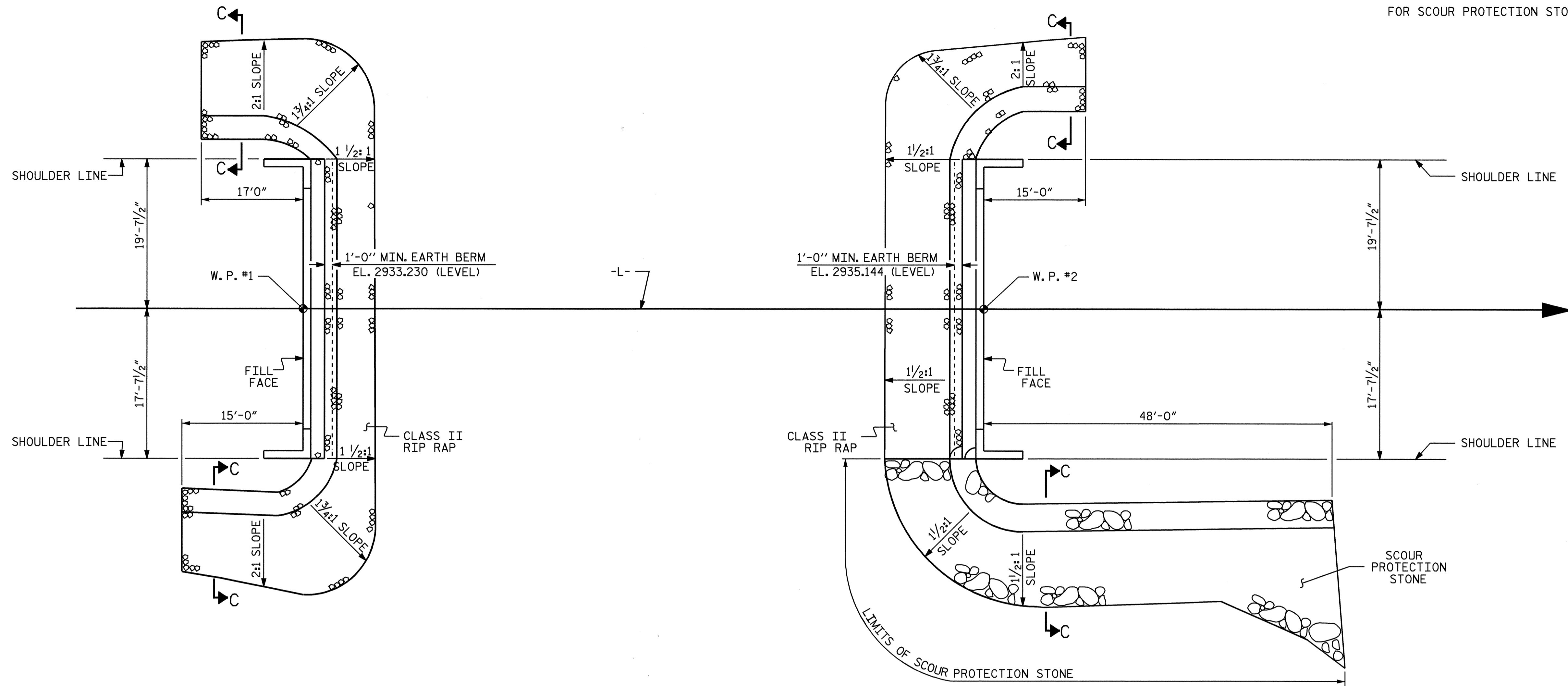
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 INTEGRAL END BENT #2



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			26

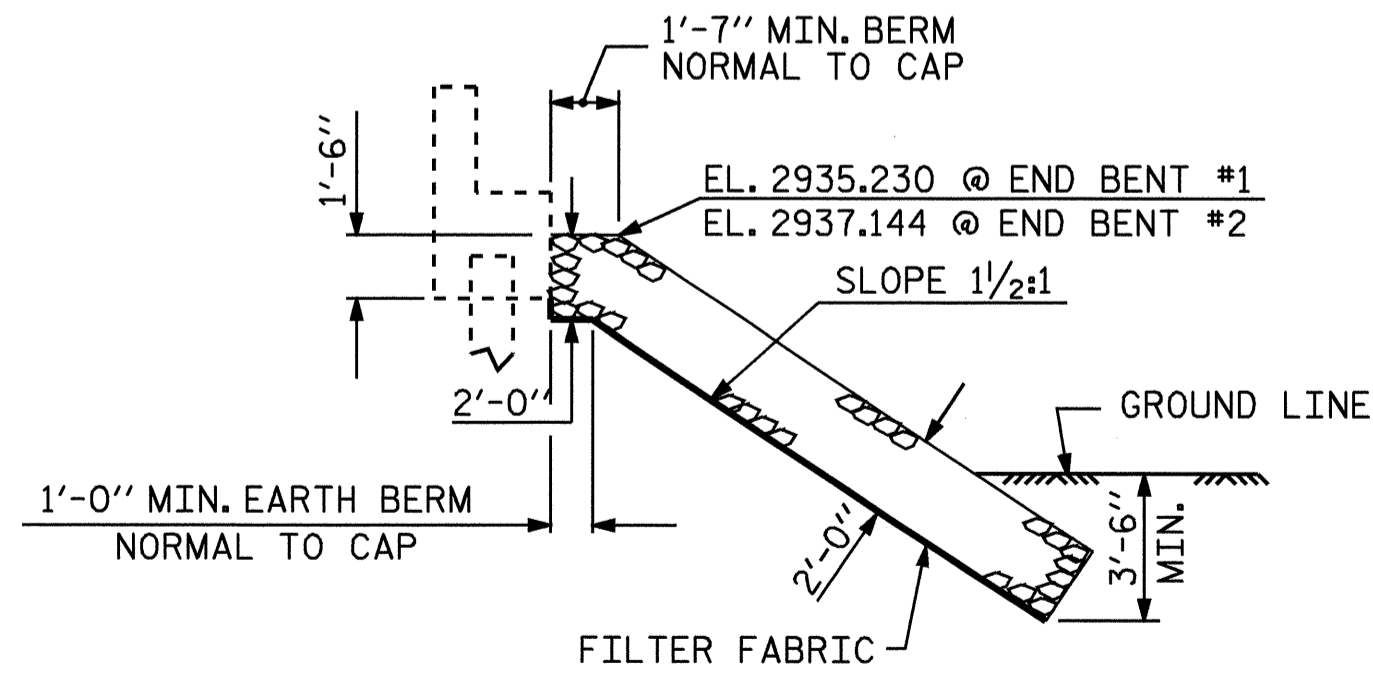
NOTES :
FOR SCOUR PROTECTION STONE, SEE SPECIAL PROVISIONS.



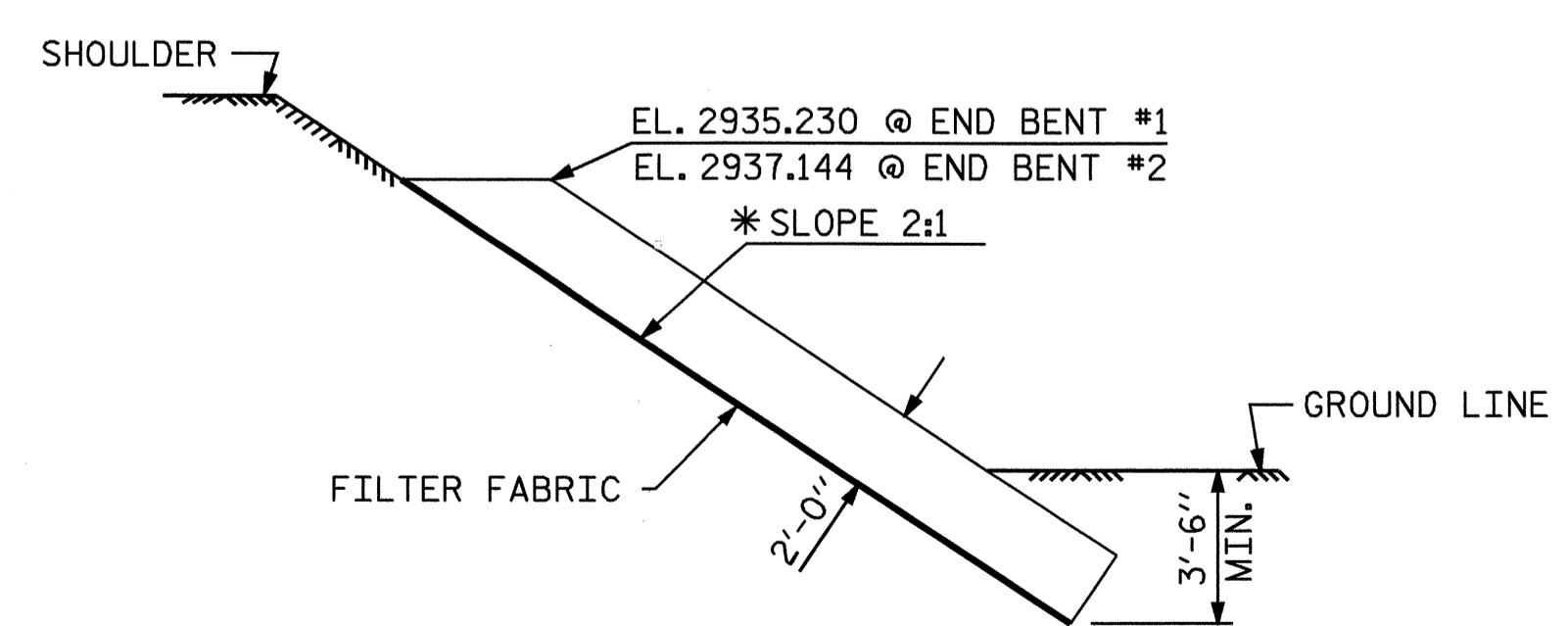
PLAN OF RIP RAP

ESTIMATED QUANTITIES FOR CLASS II RIP RAP		
BRIDGE @ STA. 15+99.00 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	152	168
END BENT #2	96	106

ESTIMATED QUANTITIES FOR SCOUR PROTECTION STONE		
BRIDGE @ STA. 15+99.00 -L-	SCOUR PROTECTION STONE	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #2	150	167



SECTION BERM RIP RAPPED

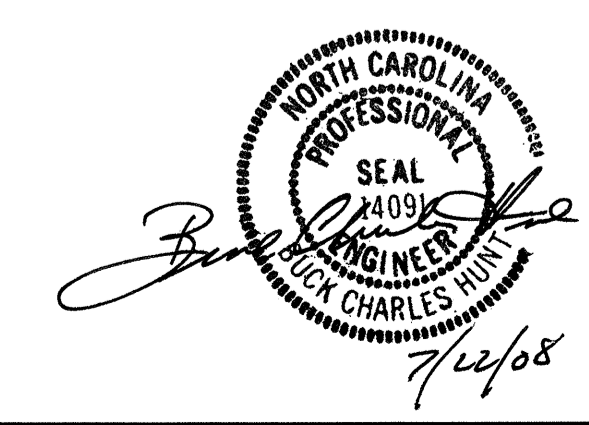


SECTION C-C
* USE 1/2:1 SLOPE AT END BENT No. 2 RIGHT SIDE

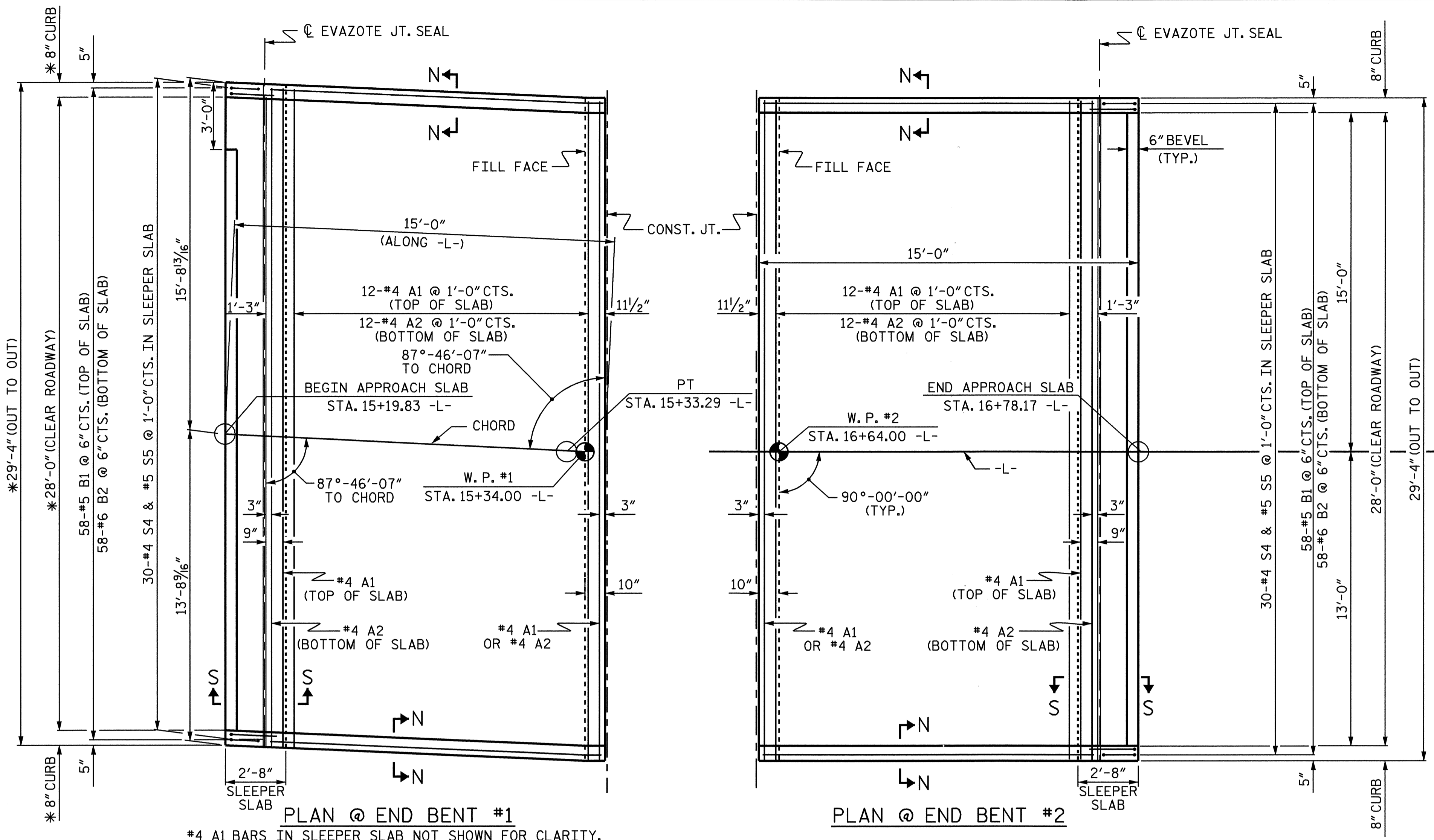
PROJECT NO. B-4008
ALLEGHANY COUNTY
STATION: 15+99.00 -L-

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			26



ASSEMBLED BY : R. G. EMERSON DATE : 05/07
CHECKED BY : T. G. PAYNE DATE : 11/07
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



NOTES

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

FOR REINFORCED BRIDGE APPROACH FILL, SEE THE SPECIAL PROVISION ENTITLED REINFORCED BRIDGE APPROACH FILL FOR INTEGRAL ABUTMENTS.

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 $3\frac{3}{16}$ ".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

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

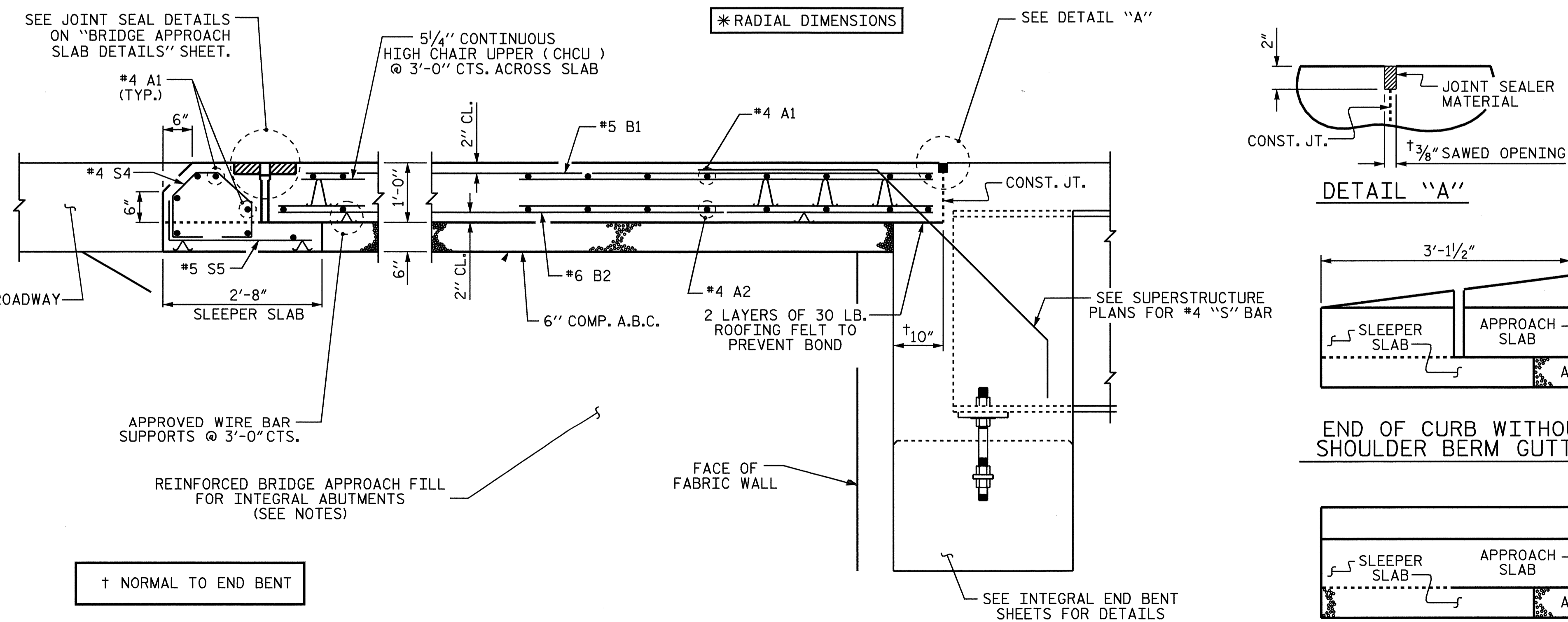
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	21	#4	STR	29'-0"	407
A2	14	#4	STR	29'-0"	271
*B1	58	#5	STR	12'-5"	751
B2	58	#6	STR	12'-10"	1118
*S4	30	#4	1	3'-11"	78
S5	30	#5	2	2'-11"	91
REINFORCING STEEL					LBS. 1480
* EPOXY COATED REINFORCING STEEL					LBS. 1236
CLASS AA CONCRETE					
POUR #1 - SLAB & CURB					C. Y. 14.4
POUR #2 - SLEEPER SLAB					C. Y. 3.0
TOTAL					C. Y. 17.4

BAR TYPES

SPICE CHART

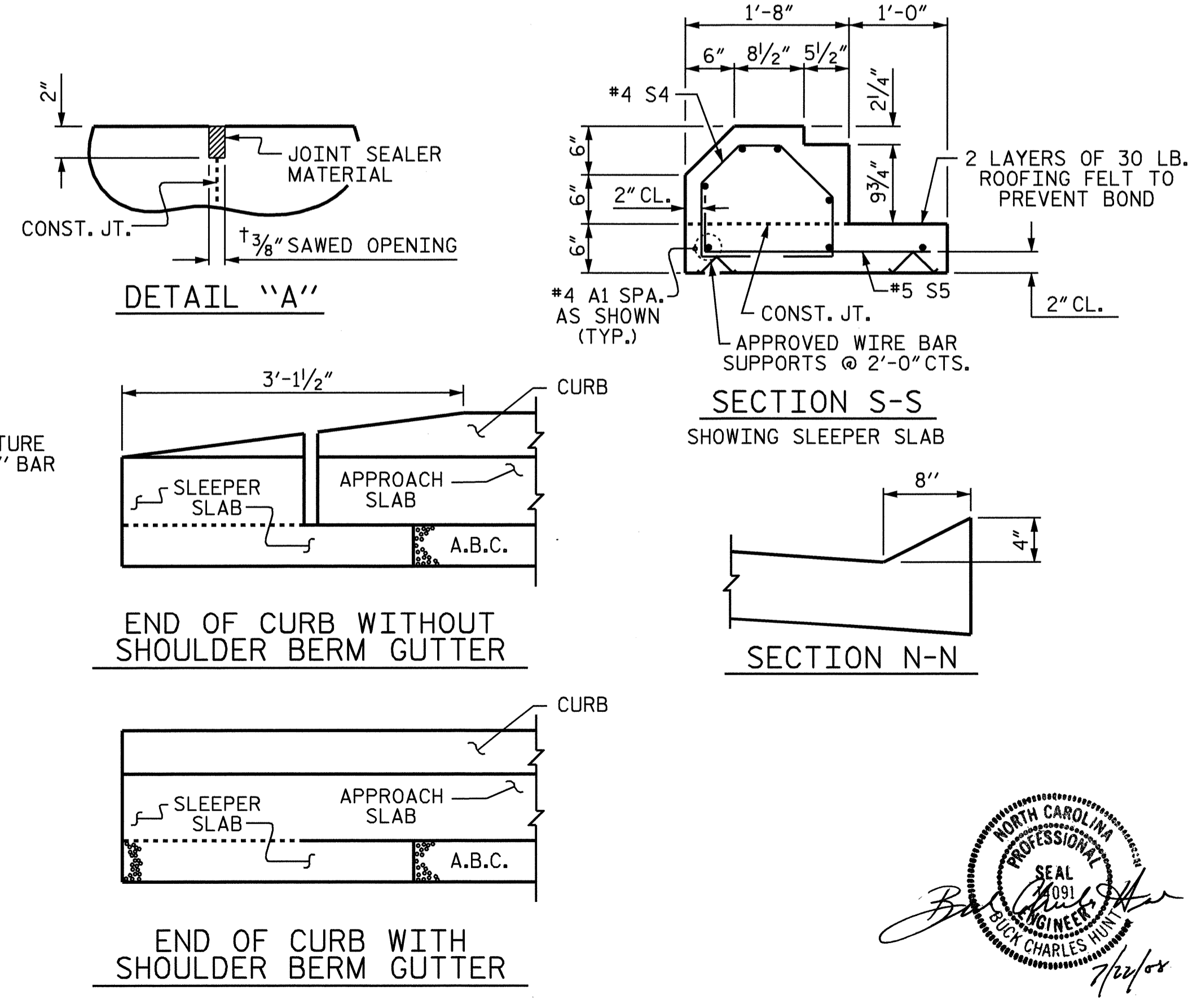
BAR	LENGTH
*4 A1	2'-0"
*4 A2	1'-9"

ALL BAR DIMENSIONS ARE OUT TO OUT



ASSEMBLED BY: R. G. EMERSON DATE: 08/07
 CHECKED BY: M. K. BEARD DATE: 11/07
 DRAWN BY: TLA 10/05
 CHECKED BY: GM 5/06

SECTION THRU SLAB



PROJECT NO. **B-4008**
ALLEGHANY COUNTY
 STATION: **15+99.00 -L-**

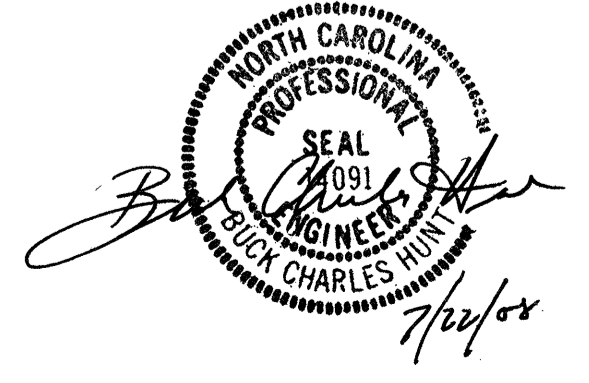
SHEET 1 OF 2

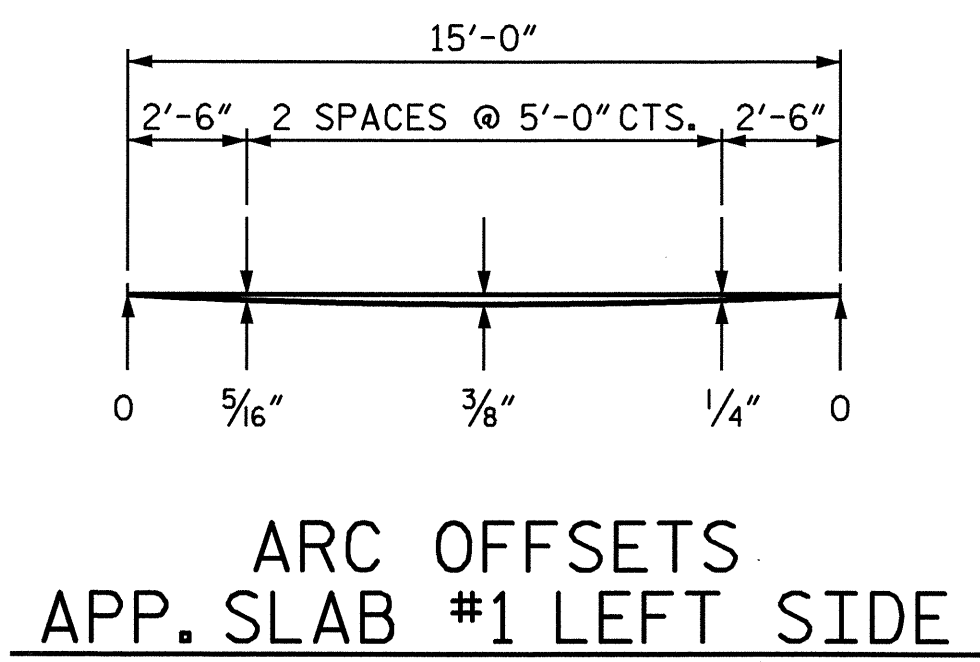
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

BRIDGE APPROACH SLAB FOR INTEGRAL ABUTMENT

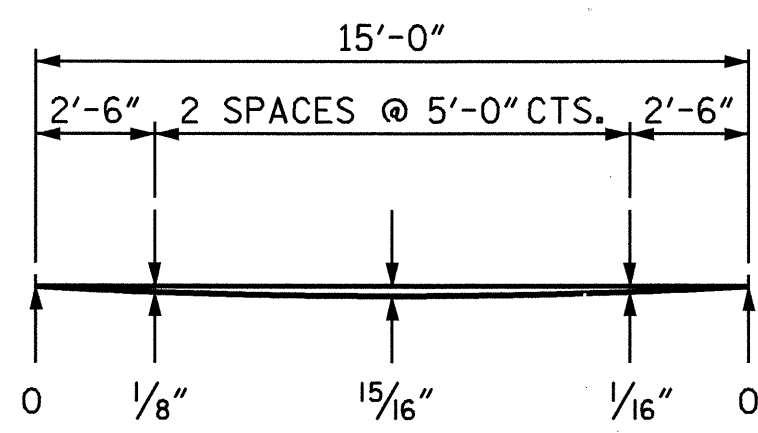
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS 26
2			4			





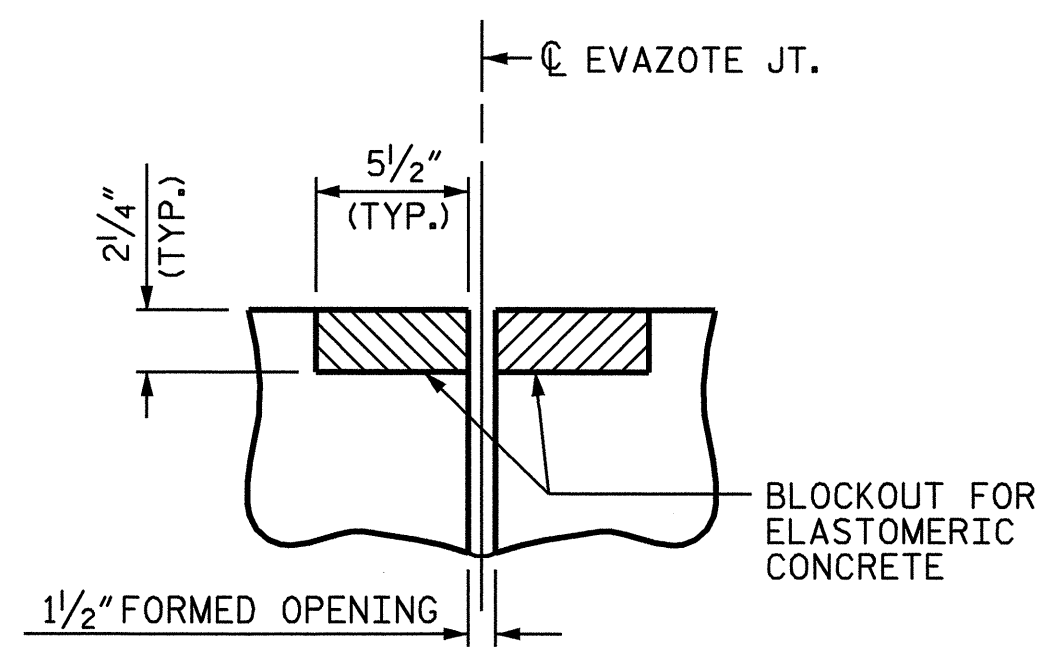
**ARC OFFSETS
APP. SLAB #1 LEFT SIDE**

NOTE: CHORD LENGTHS ARE ALONG OUTSIDE EDGE AT INTERSECTION OF BEGINNING OF FACE OF APPROACH SLAB.

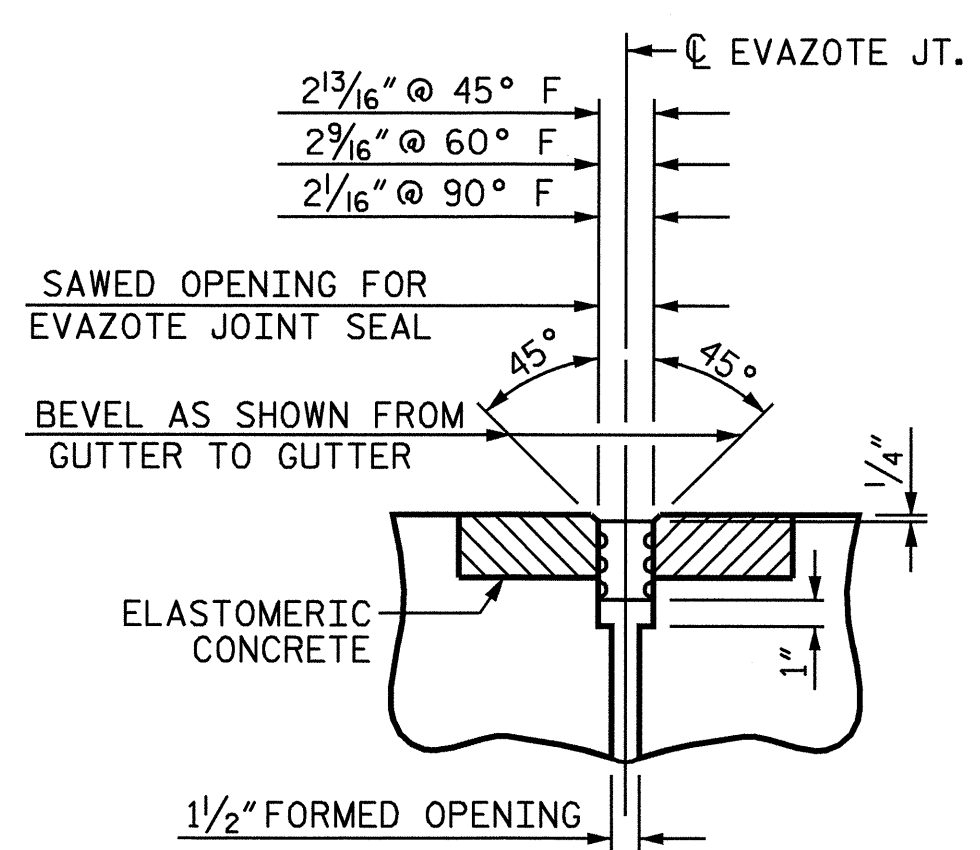


**ARC OFFSETS
APP. SLAB #1 RIGHT SIDE**

NOTE: CHORD LENGTHS ARE ALONG OUTSIDE EDGE AT INTERSECTION OF BEGINNING OF FACE OF APPROACH SLAB.



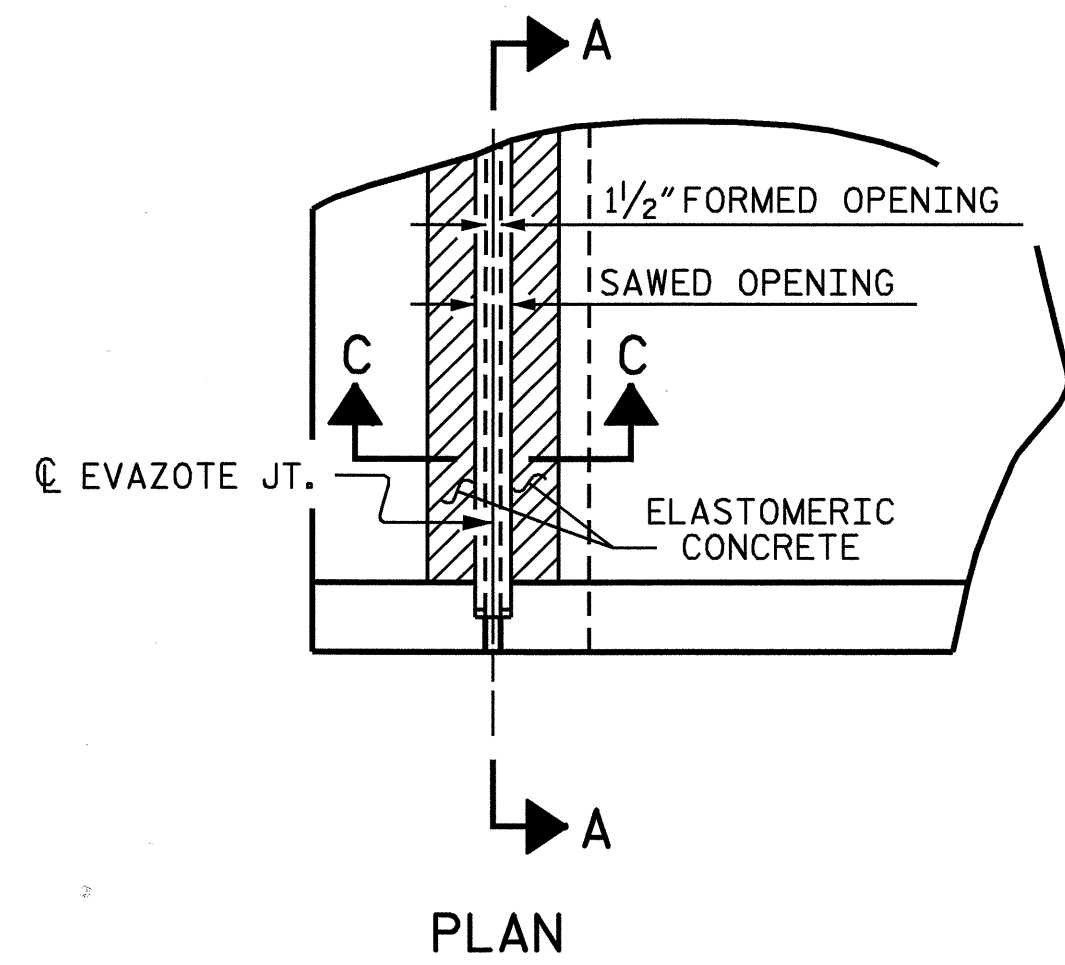
**SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS)**



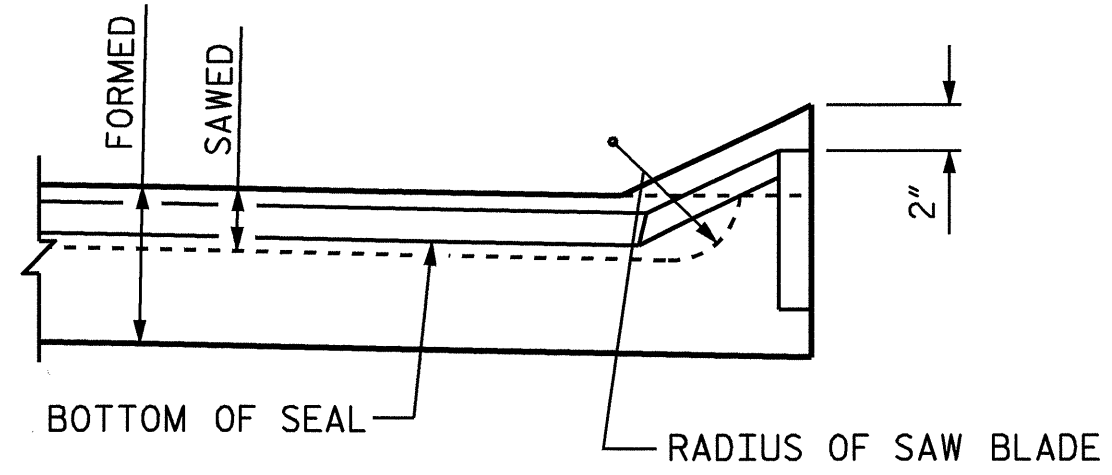
**SECTION C-C
EVAZOTE JOINT SEAL**

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

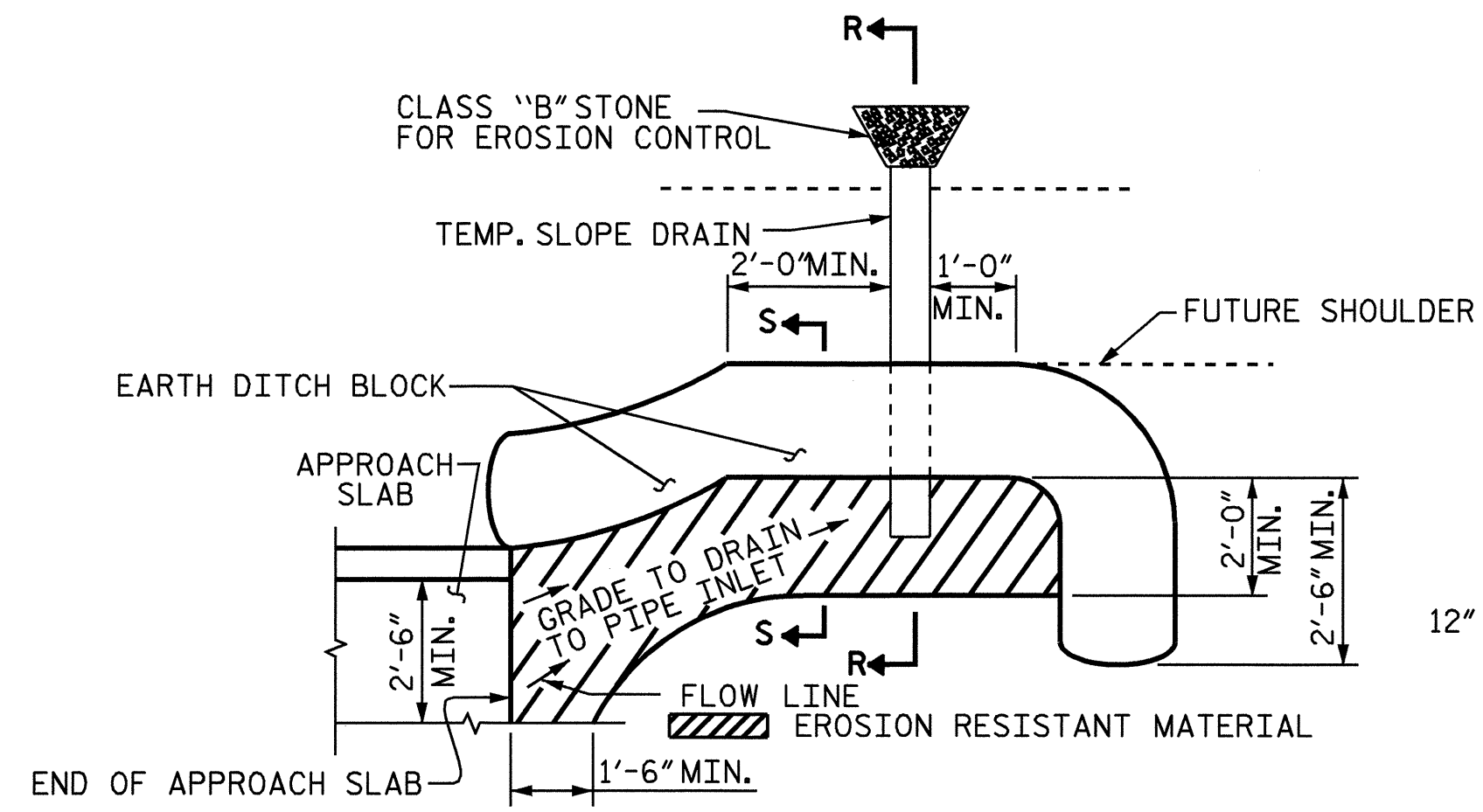
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



PLAN

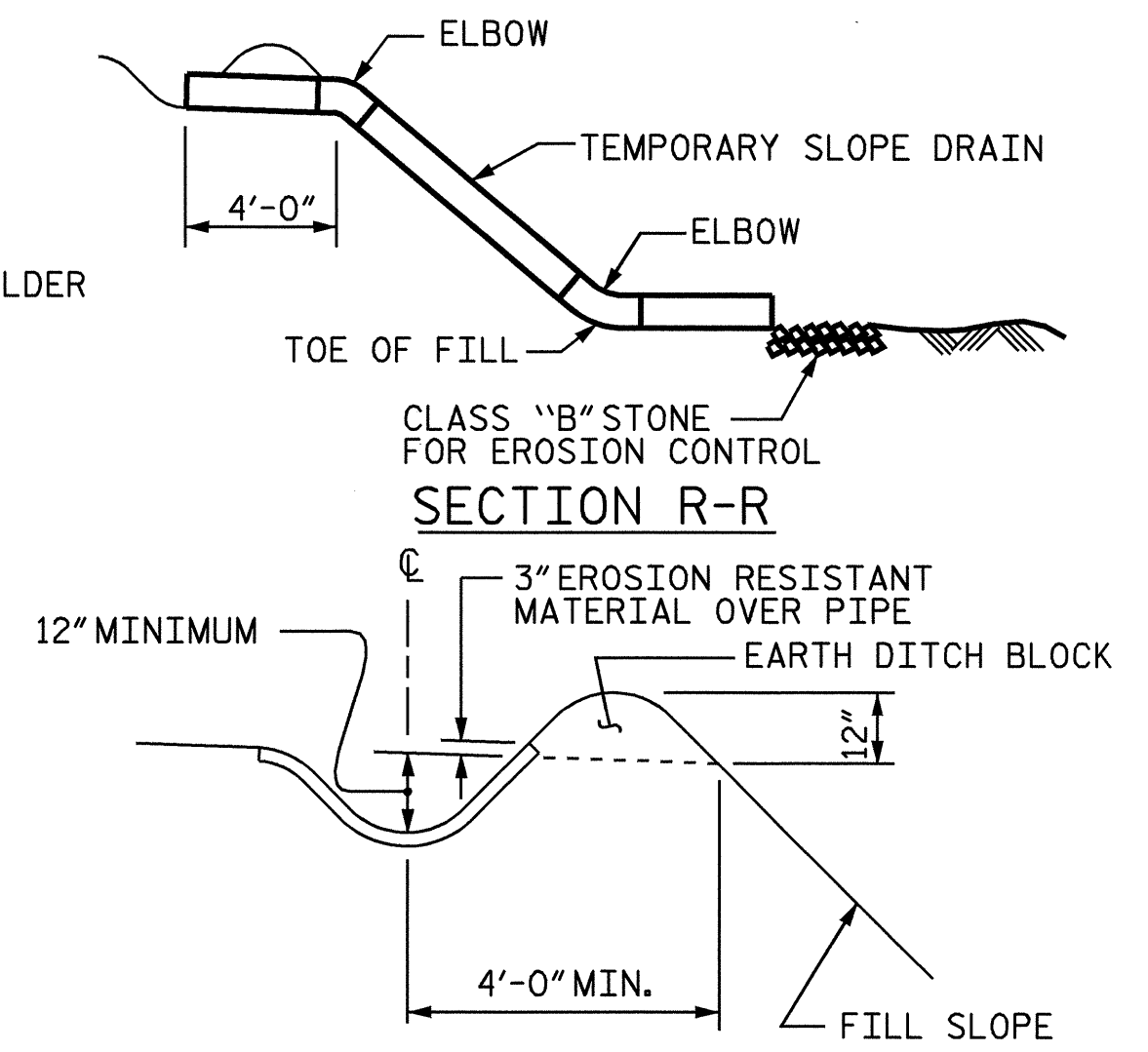


SECTION A-A



PLAN VIEW

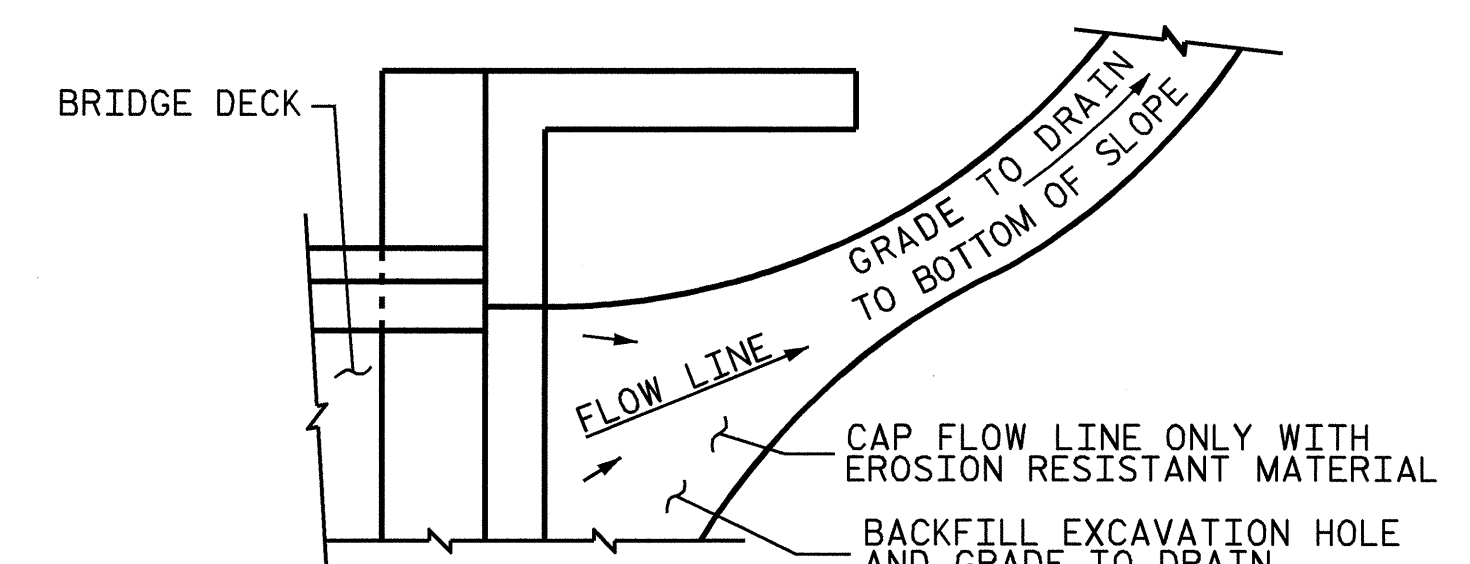
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



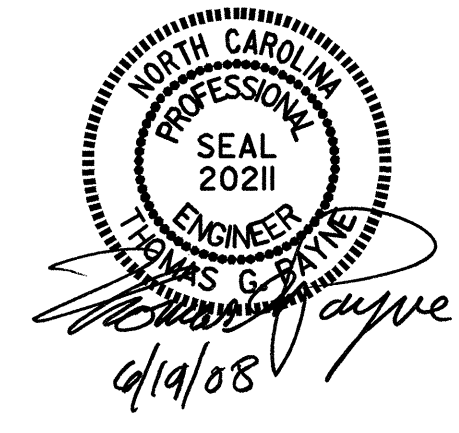
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT 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-4008
ALLEGHANY COUNTY
 STATION: 15+99.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. 26
STANDARD BRIDGE APPROACH SLAB DETAILS						
REVISIONS						TOTAL SHEETS 26
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



ASSEMBLED BY: R. G. EMERSON	DATE: 08/07
CHECKED BY: M. K. BEARD	DATE: 11/07
DRAWN BY: FCJ 11/88	REV. 10/17/00 RWW/LJS
CHECKED BY: ARB 11/88	REV. 5/1/03 RWW/JTE
	REV. 5/1/06R MAA/KMM

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