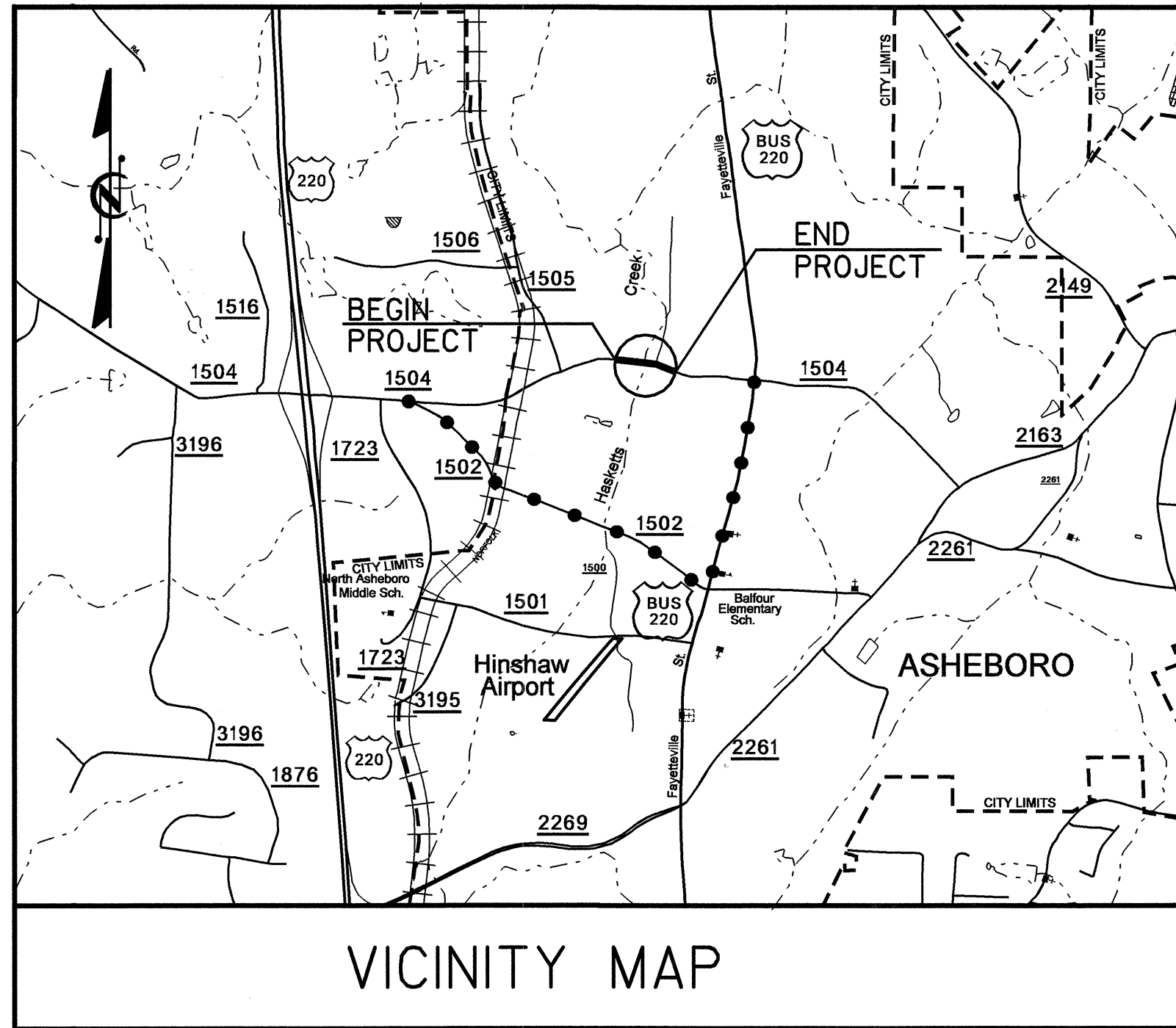


CONTRACT: C201680 TIP PROJECT: B-4243

STRUCTURE



●●●●● DENOTES OFF-SITE DETOUR

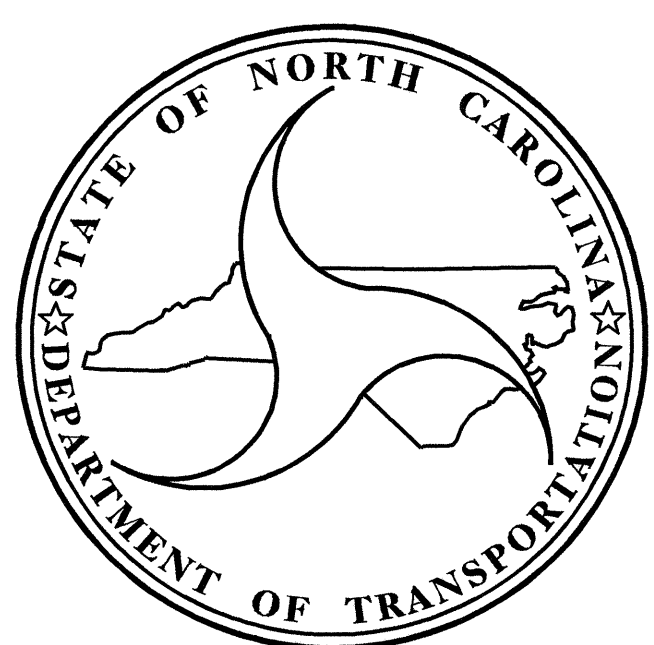
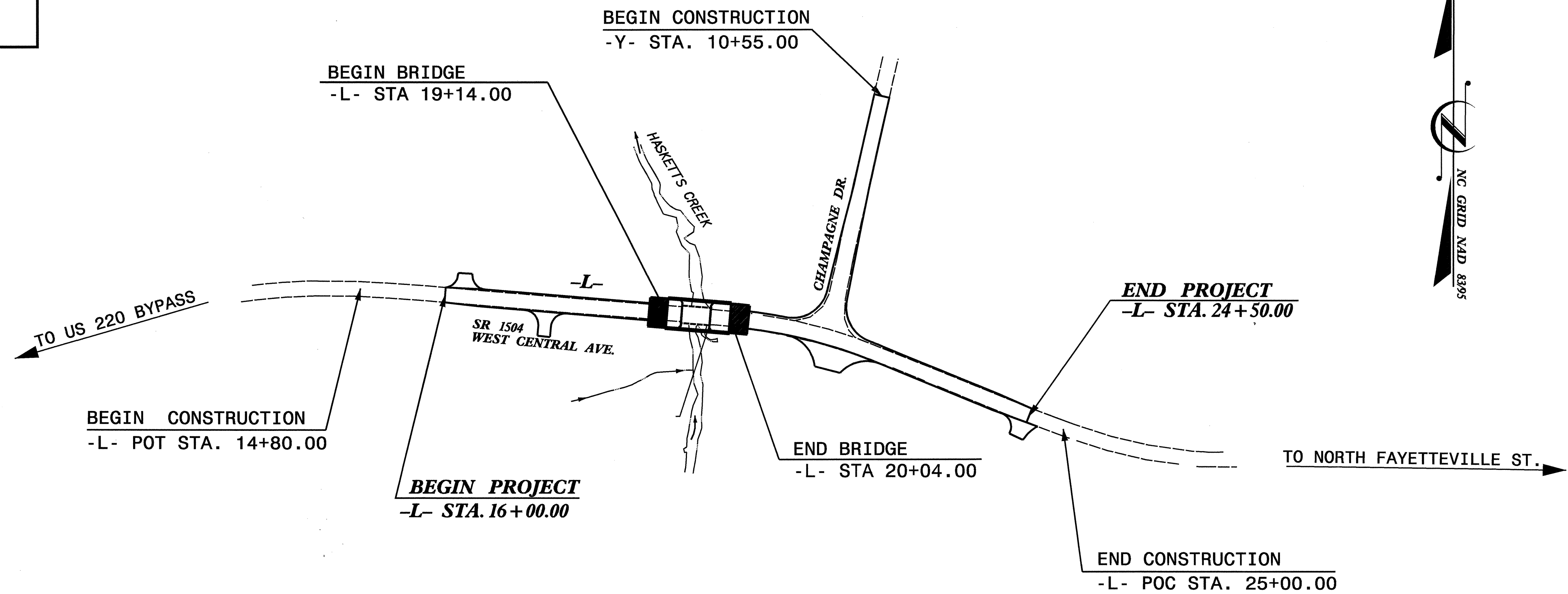
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

**LOCATION: BRIDGE NO. 71 OVER HASKETTS CREEK
ON SR 1504 IN ASHEBORO**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4243		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33586.1.1	BRSTP-1504(8)	P.E.	
33586.2.1	BRSTP-1504(8)	UTIL. & RW	
33586.3.1	BRSTP-1504(8)	CONST.	



DESIGN DATA

ADT (2007)= 6,870
ADT (2027)= 12,570
DHV = 12 %
D = 55 %
T = 3 %
V = 40 MPH
(TTST=1% + DUALS=2%)

PROJECT LENGTH

LENGTH ROADWAY OF F.A. PROJECT = 0.144 MI
LENGTH STRUCTURE OF F.A. PROJECT = 0.017 MI
TOTAL LENGTH OF STATE PROJECT = 0.161 MI

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE :
SEPTEMBER 18, 2007

J. C. FRYE, P.E.
PROJECT ENGINEER

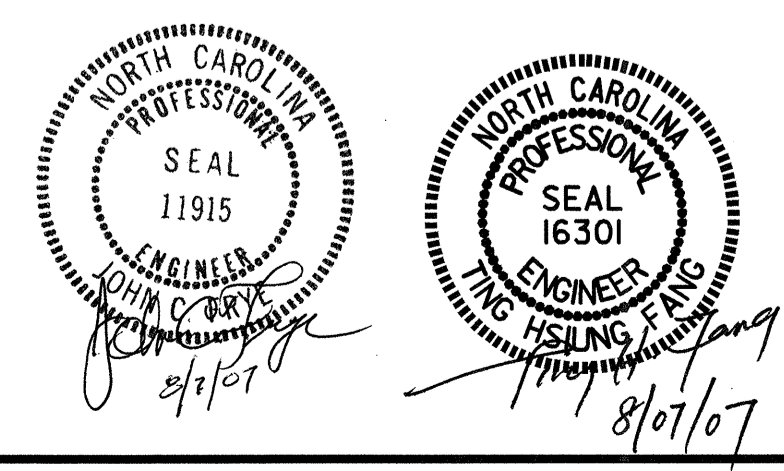
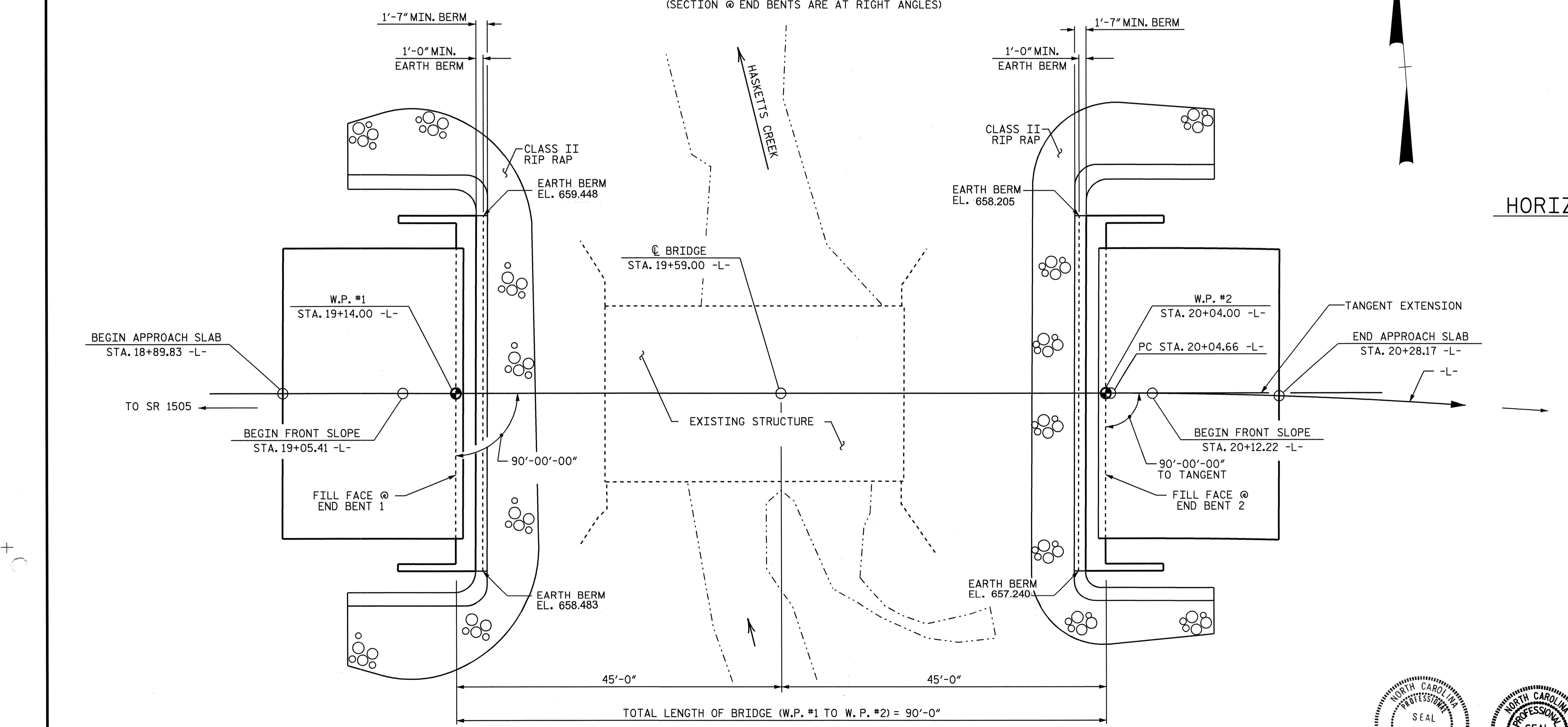
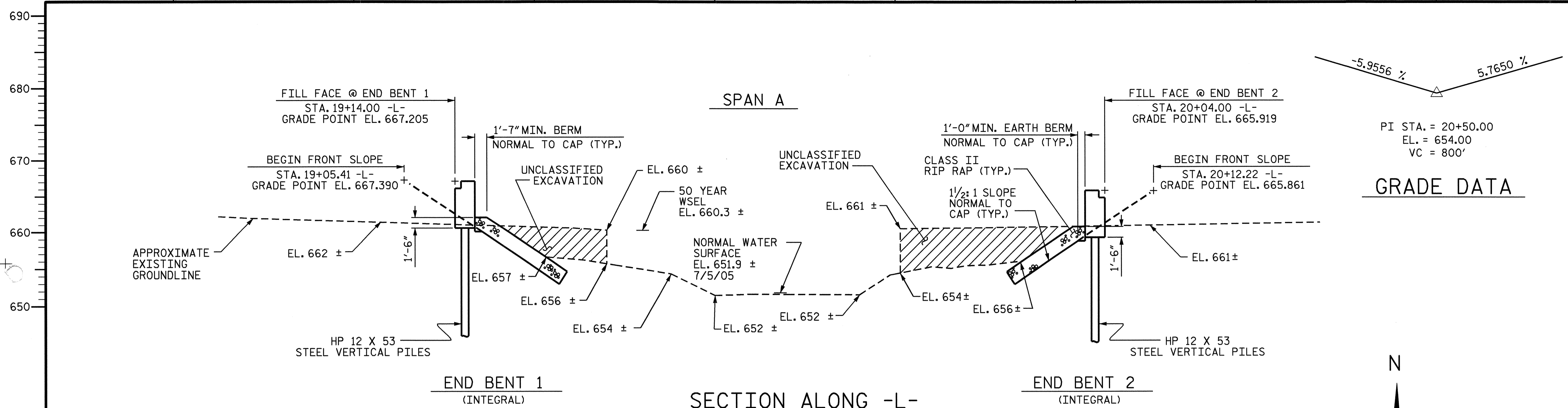
T. H. FANG, P.E.
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

APPROVED
DIVISION ADMINISTRATOR DATE



PROJECT NO. B-4243
 RANDOLPH COUNTY
 STATION: 19+59.00 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 71

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

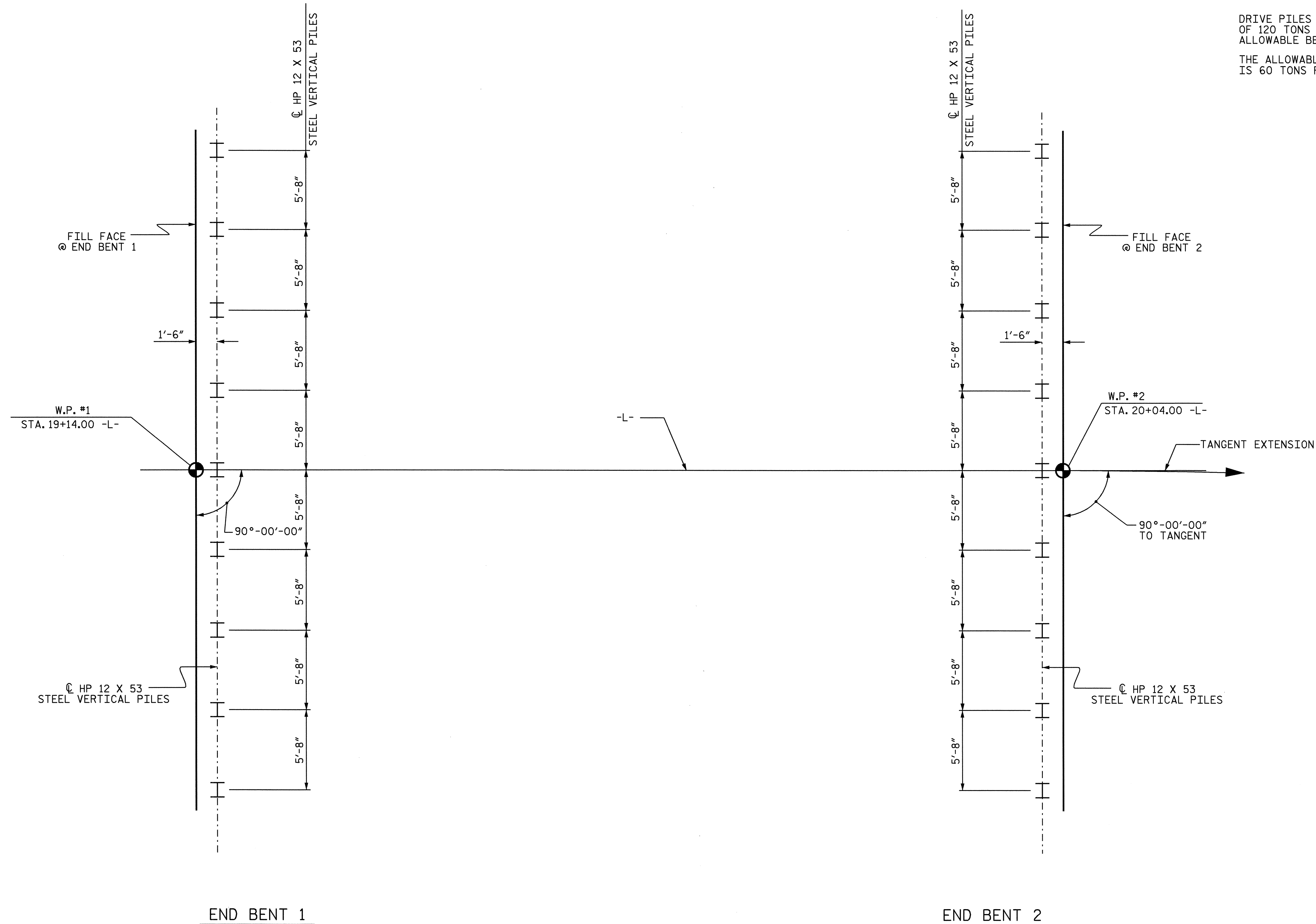
GENERAL DRAWING
 FOR BRIDGE OVER
 HASKETT'S CREEK
 ON SR 1504 BETWEEN
 SR 1505 AND US220 BUS

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

DRAWN BY: D. G. ELY DATE: 3/7/06
 CHECKED BY: J. C. FRYE DATE: 3/9/06

NOTES:

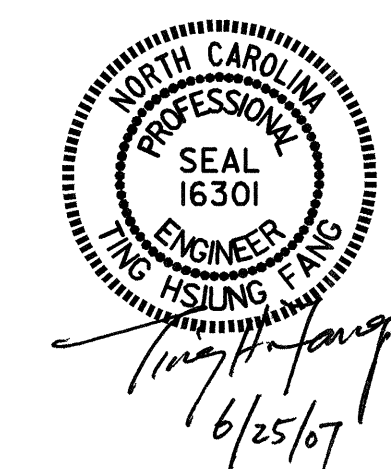
DRIVE PILES AT END BENTS NO.1 AND NO.2 TO A REQUIRED BEARING CAPACITY OF 120 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.
THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENTS NO.1 AND NO.2 IS 60 TONS PER PILE.



FOUNDATION LAYOUT
DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE
ORIENT PILES AS SHOWN

PROJECT NO. B-4243
RANDOLPH COUNTY
STATION: 19+59.00 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER
HASKETTS CREEK
ON SR 1504 BETWEEN
SR 1505 AND US 220 BUS

DRAWN BY : D. G. ELY DATE : 9/06
CHECKED BY : T. H. FANG DATE : 5/07

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

NOTES

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

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

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

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.

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

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 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.

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

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN AT 40'-6" CLEAR ROADWAY WIDTH AND CONCRETE DECK ON STEEL I-BEAMS; END BENTS: RC CAPS ON TIMBER PILES, CONCRETE ENCASED, TIMBER BULKHEADS AND LOCATED ON THE CENTERLINE OF PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET NO. S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE OF ROADWAY AT END BENTS 1 AND 2 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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.

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.

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 19+59.00 -L-."

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

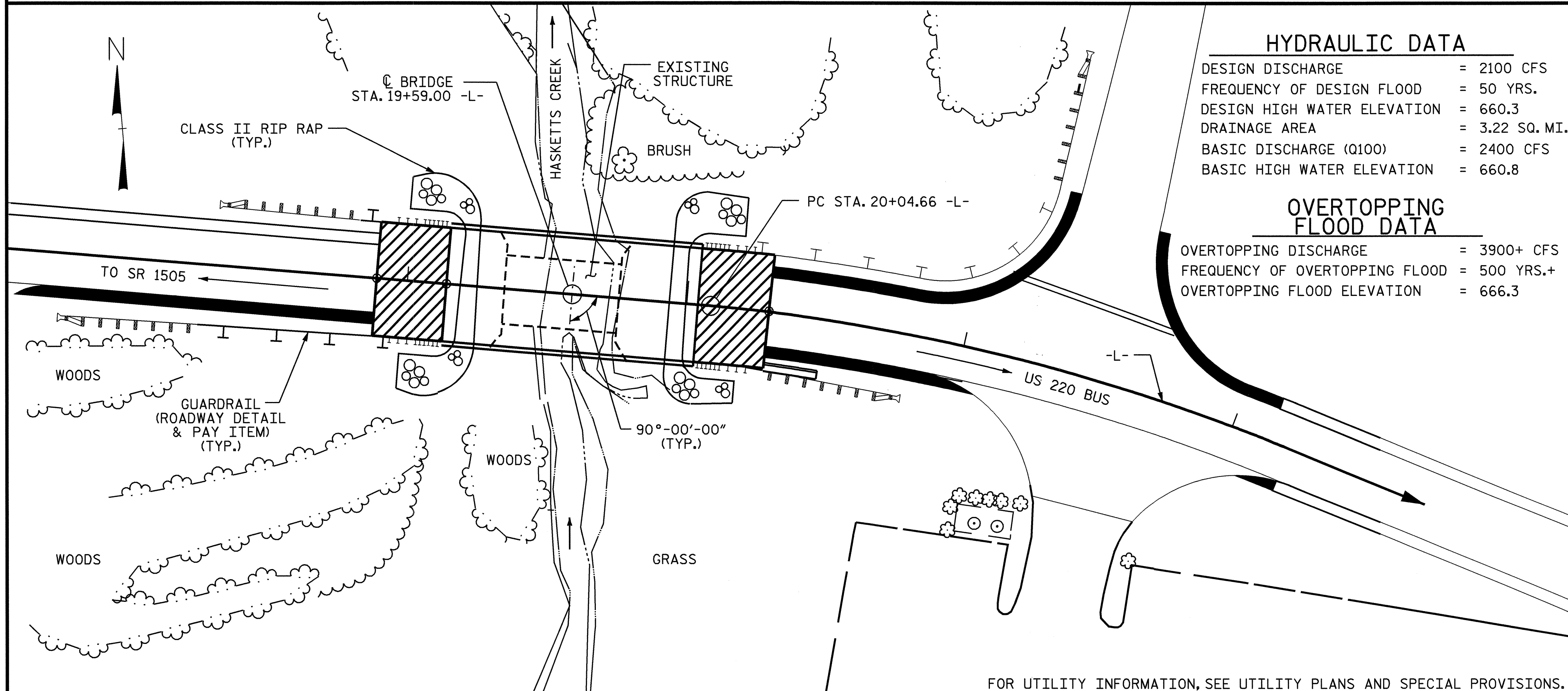
FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

BENCHMARK #2: -L- STA. 20+29.32, 147.44' RIGHT, RAILROAD SPIKE IN BASE OF TELEPHONE POLE, EL. 668.79'.



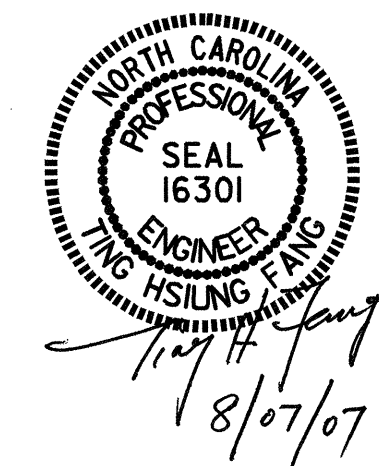
HYDRAULIC DATA

DESIGN DISCHARGE	= 2100 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YRS.
DESIGN HIGH WATER ELEVATION	= 660.3
DRAINAGE AREA	= 3.22 SQ. MI.
BASIC DISCHARGE (Q100)	= 2400 CFS
BASIC HIGH WATER ELEVATION	= 660.8

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 3900+ CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500 YRS.+
OVERTOPPING FLOOD ELEVATION	= 666.3

LOCATION SKETCH



TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	STRUCTURAL STEEL	HP 12 X 53 STEEL PILES		ONE BAR METAL RAIL	1'-0" X 1'-6" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	EVAZOTE JOINT SEALS
	LUMP SUM	LUMP SUM	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	APPROX. LBS.	NO.	LIN.FT.	LIN.FT.	LIN.FT.	TON	SQ. YDS.	LUMP SUM
SUPERSTRUCTURE			3,732	5047		LUMP SUM		104,000			161.67	176.67			LUMP SUM
END BENT 1					19.1		2748		9	180			145	160	
END BENT 2					19.1		2748		9	135			135	150	
TOTAL	LUMP SUM	LUMP SUM	3,732	5047	38.2	LUMP SUM	5496	104,000	18	315	161.67	176.67	280	310	LUMP SUM

DRAWN BY : D. G. ELY DATE : 9/06
 CHECKED BY : T. H. FANG DATE : 5/07

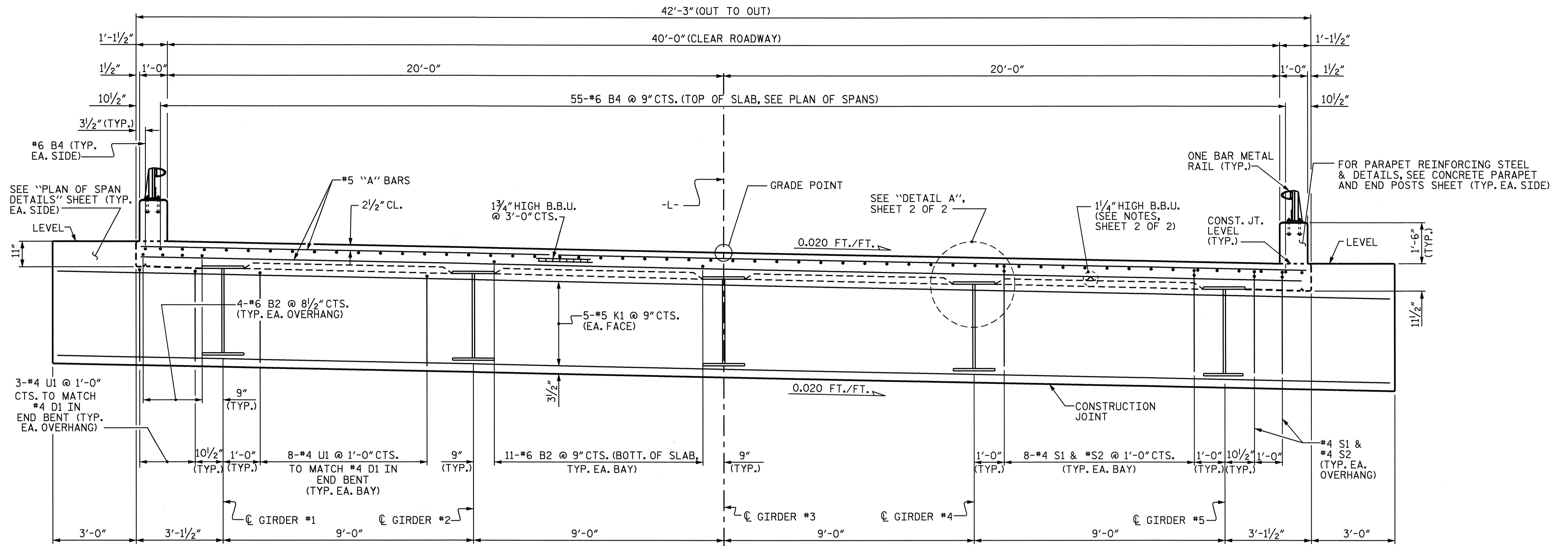
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PROJECT NO. B-4243
RANDOLPH COUNTY
 STATION: 19+59.00 -L-

SHEET 3 OF 3

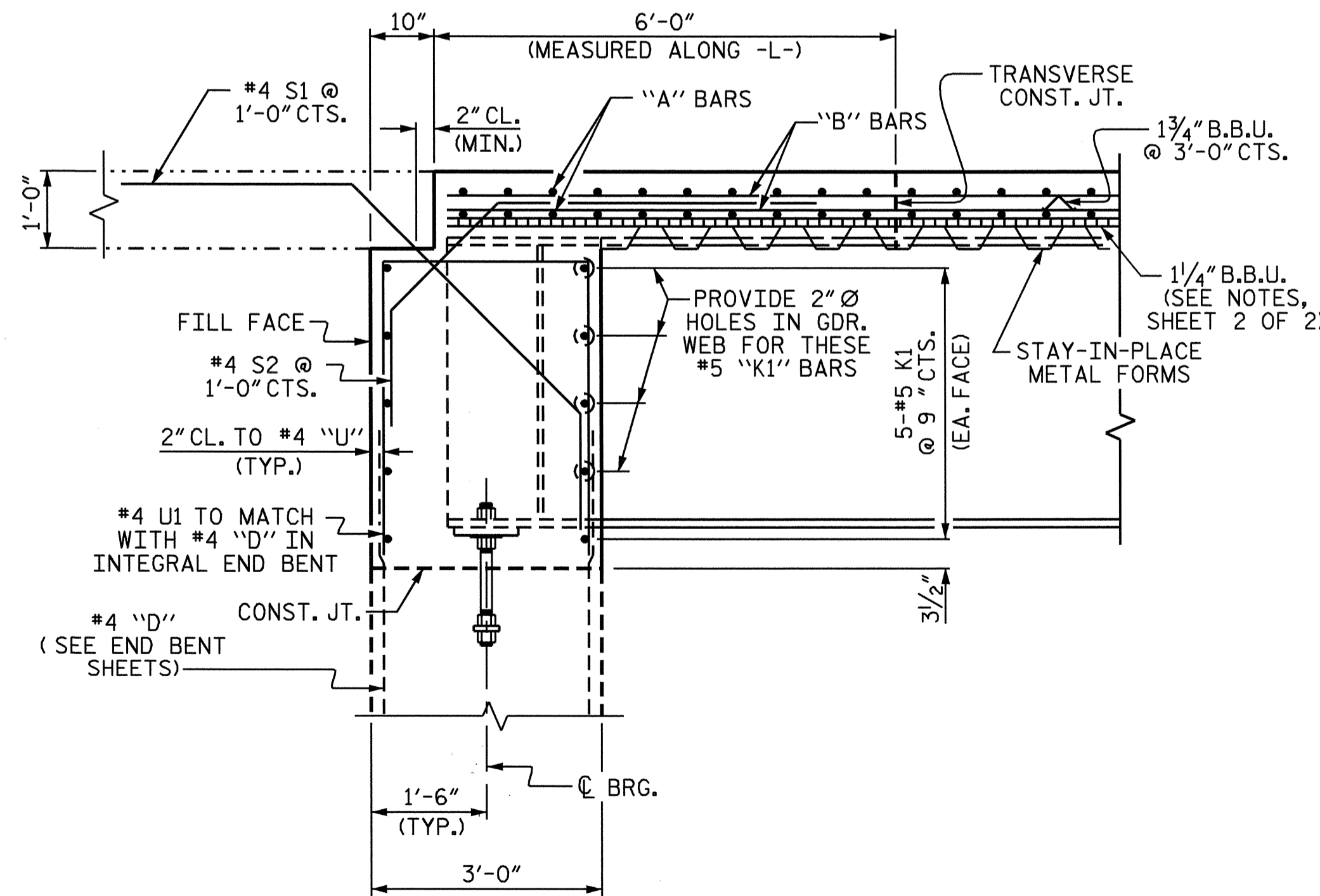
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL DRAWING
 FOR BRIDGE OVER
 HASKETTS CREEK
 ON SR 1504 BETWEEN
 SR 1505 AND US220 BUS**

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



TYPICAL SECTION

SHOWING ABUTMENT WALL AT END BENT.
APPROACH SLAB BLOCKOUT & WINGS NOT
SHOWN FOR CLARITY.



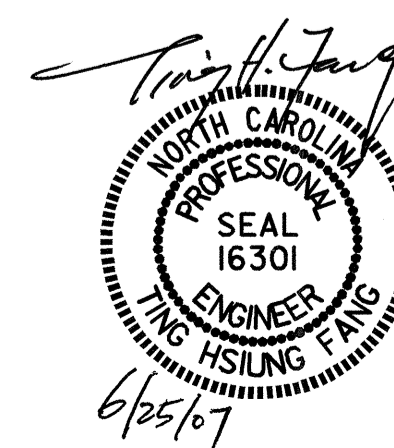
SECTION THROUGH ABUTMENT @ END BENT

PROJECT NO. B-4243
RANDOLPH COUNTY
STATION: 19+59.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTION

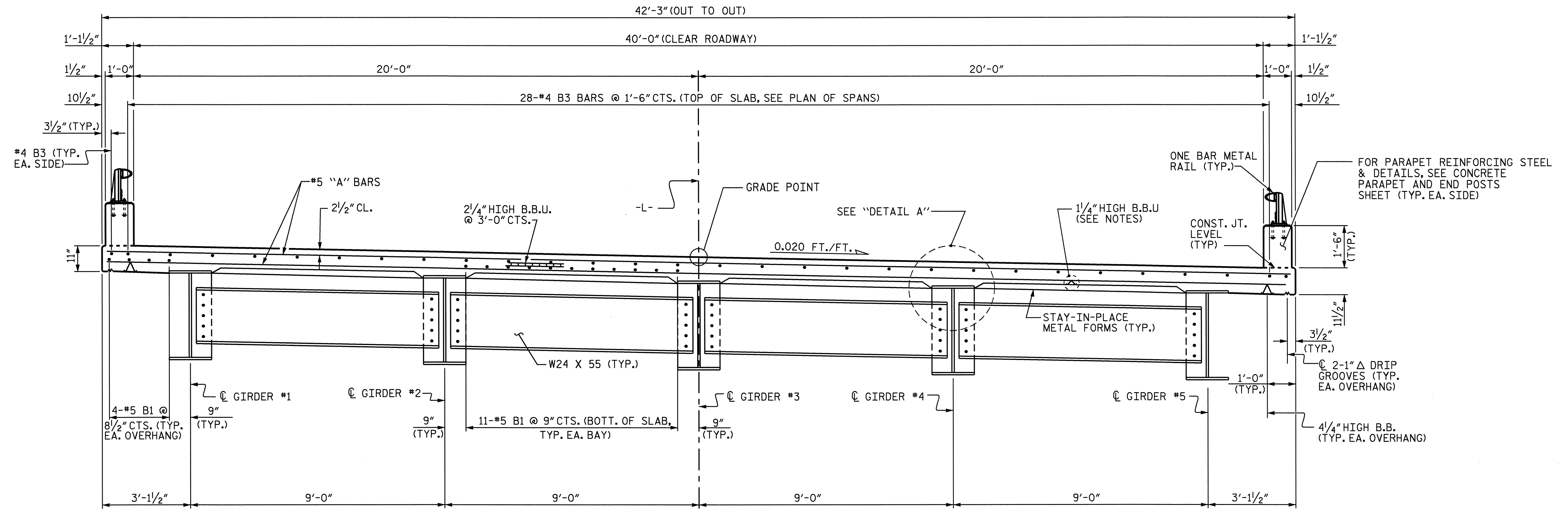


DRAWN BY: A.R.CHESSON DATE: 9-06
CHECKED BY: Q.T.NGUYEN DATE: 11-06

25-JUN-2007 09:06
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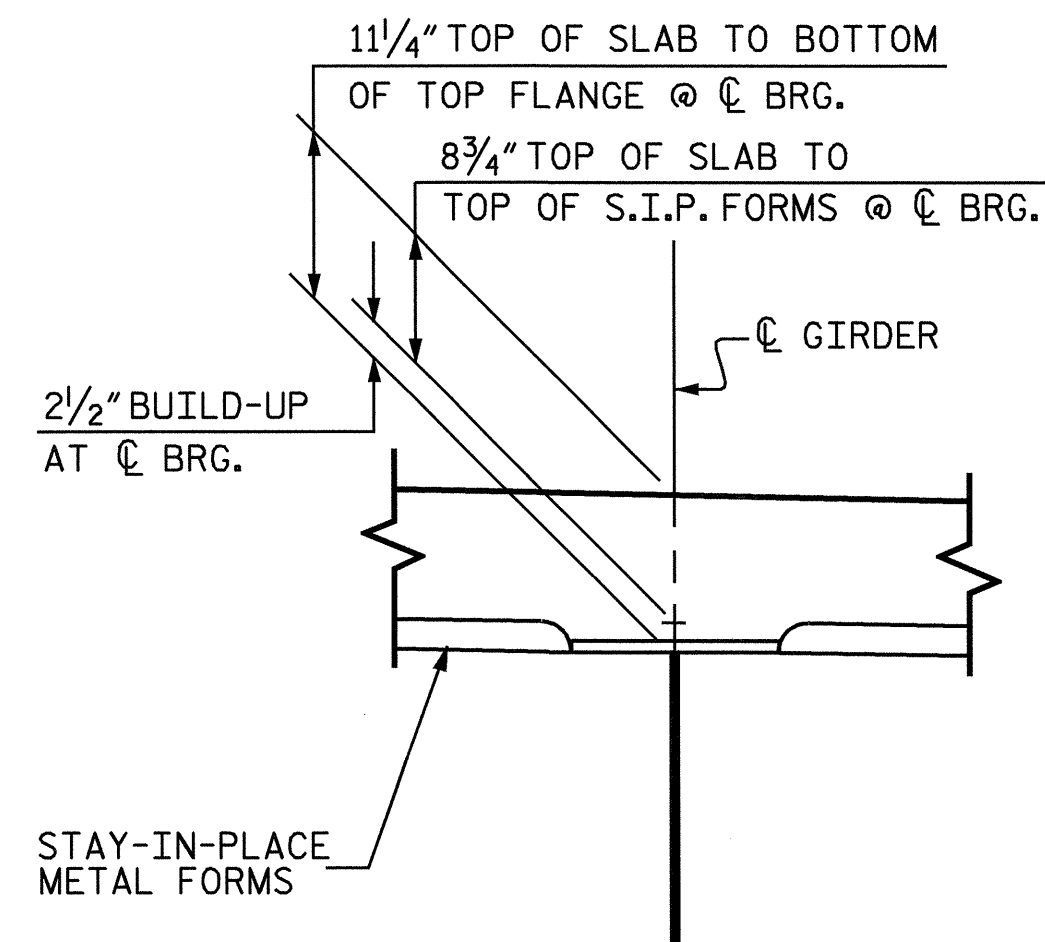
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			25

STR. #1



TYPICAL SECTION

(SHOWING INTERMEDIATE DIAPHRAGMS)



DETAIL A

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.

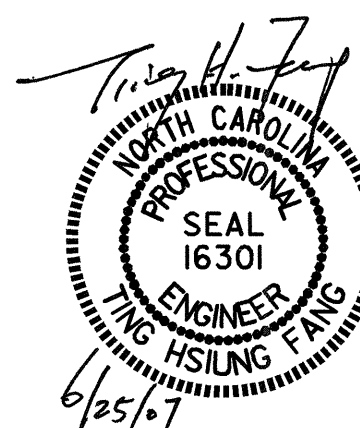
THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

PROJECT NO. B-4243
RANDOLPH COUNTY
STATION: 19+59.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTION



DRAWN BY: A.R.CHESSON DATE: 9-06
CHECKED BY: Q.T.NGUYEN DATE: 11-06

25-JUN-2007 09:06
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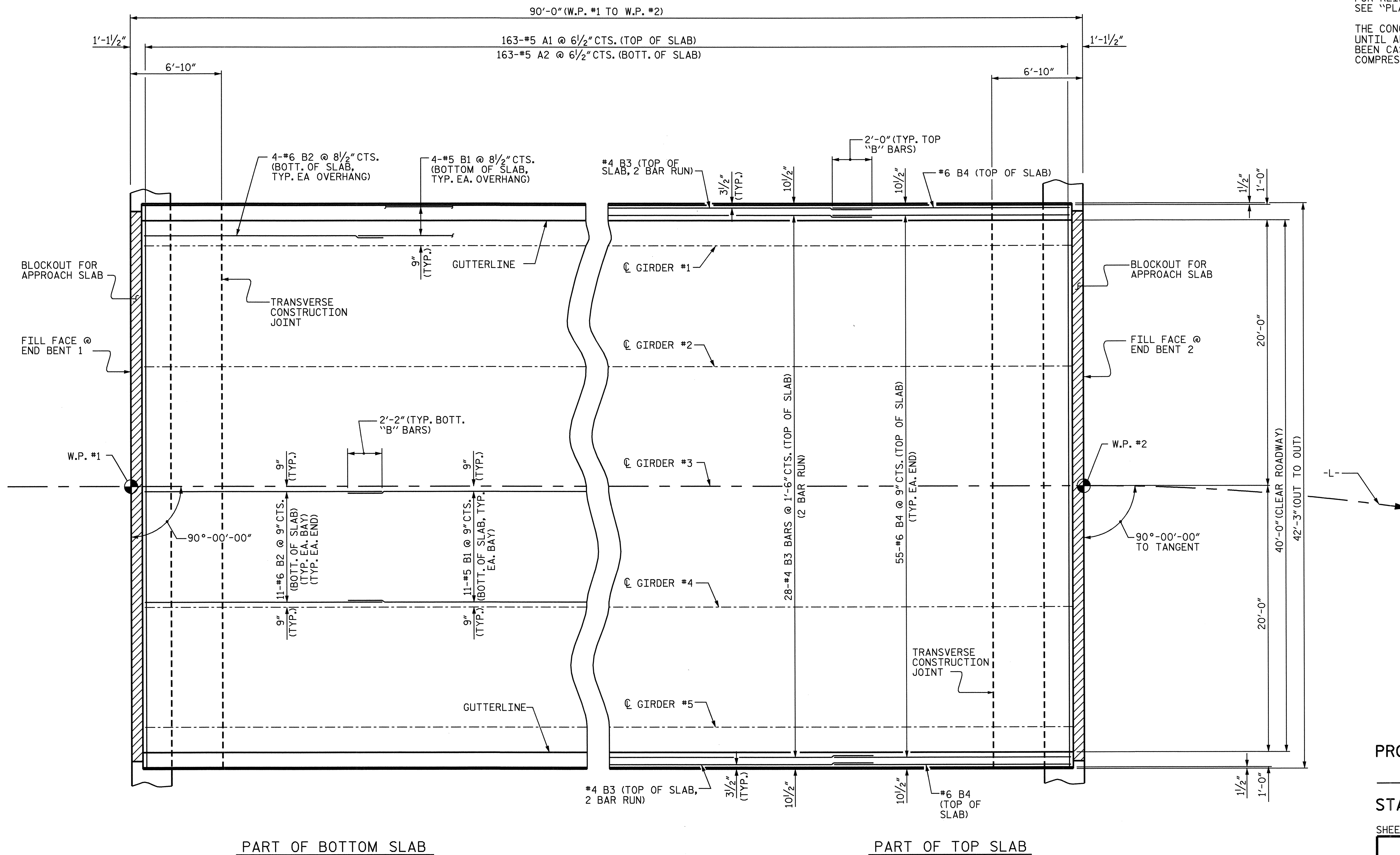
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			25

STR. #1

NOTES :

FOR REINFORCING STEEL IN ABUTMENTS, SEE "PLAN OF SPAN DETAILS" SHEETS.

THE CONCRETE PARAPET SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.



PART OF BOTTOM SLAB

PART OF TOP SLAB

PLAN OF SPAN A

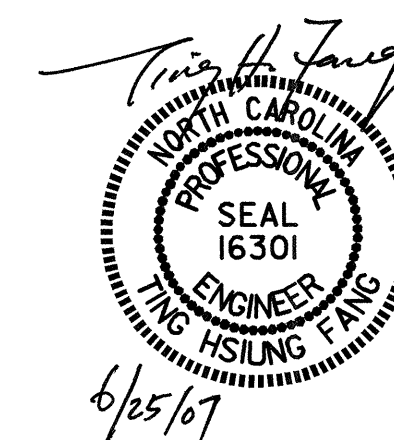
(SEE CONCRETE PARAPET END POST DETAILS FOR "S" BARS IN DECK SLAB)

PROJECT NO. B-4243
RANDOLPH COUNTY
 STATION: 19+59.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

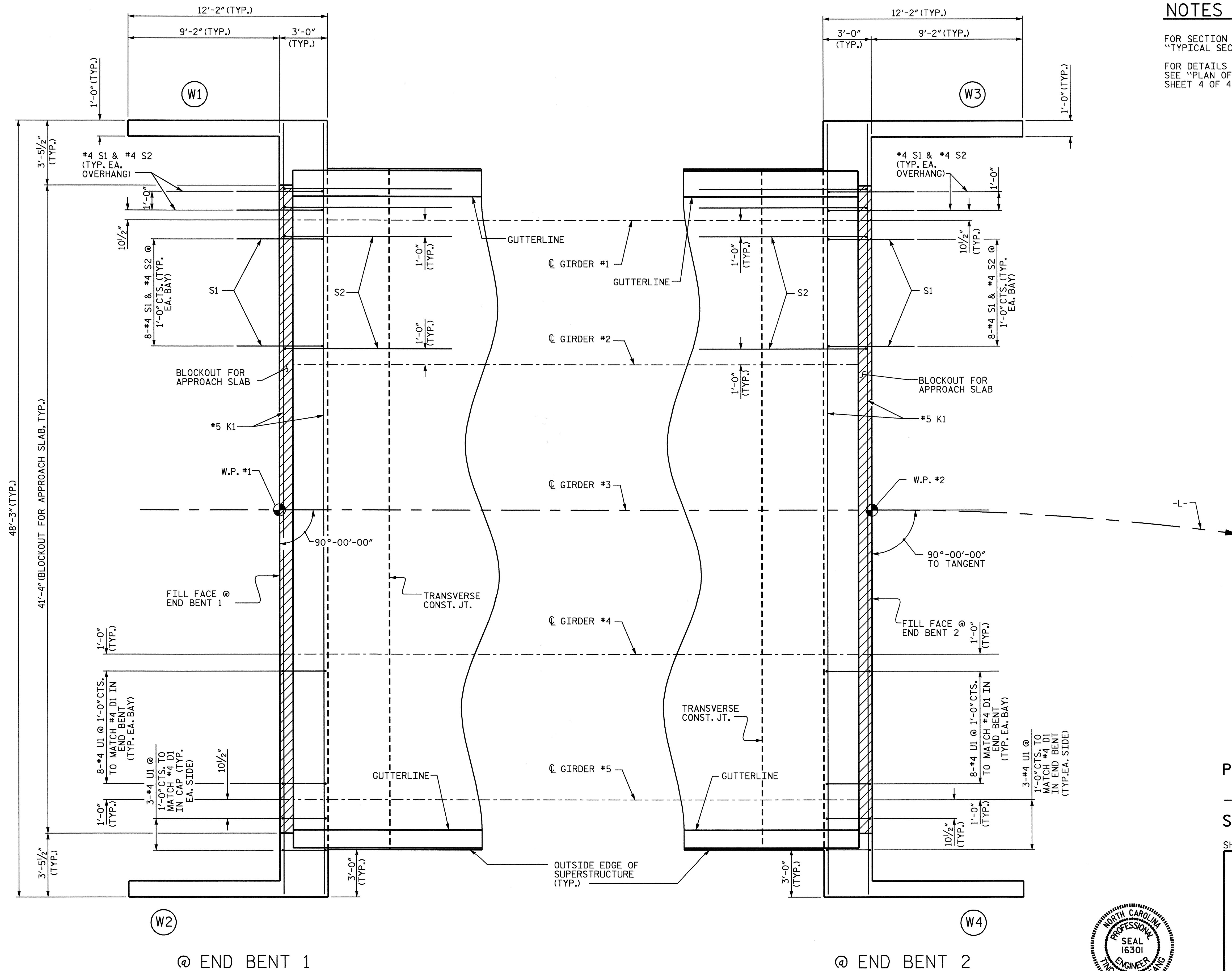
SUPERSTRUCTURE
 PLAN OF SPAN



DRAWN BY : A.R.CHESSON DATE : 10-06
 CHECKED BY : Q.T.NGUYEN DATE : 11-06

25-JUN-2007 09:06
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			25

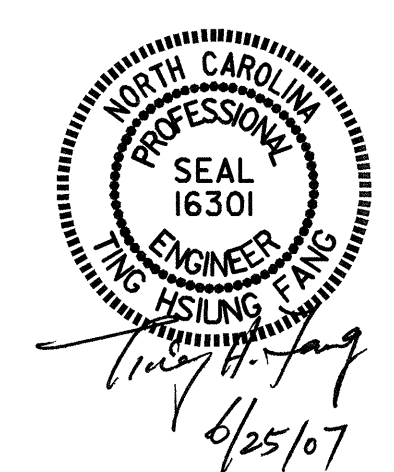


NOTES :

FOR SECTION THROUGH ABUTMENT, SEE "TYPICAL SECTION", SHEET 1 OF 2.
 FOR DETAILS AND REINFORCING STEEL IN WINGS, SEE "PLAN OF SPAN DETAILS" SHEET 3 OF 4 AND SHEET 4 OF 4.

PROJECT NO. B-4243
RANDOLPH COUNTY
 STATION: 19+59.00 -L-

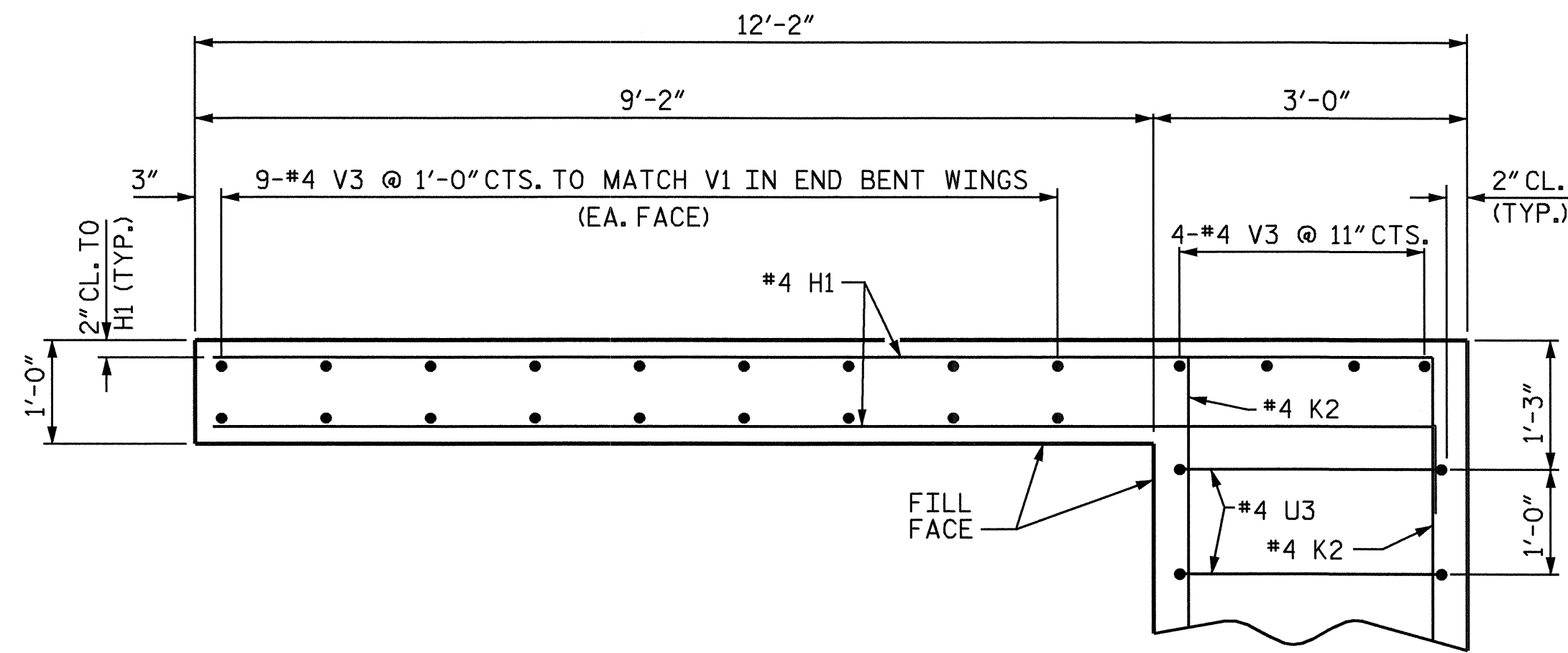
SHEET 2 OF 4
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN
 DETAILS



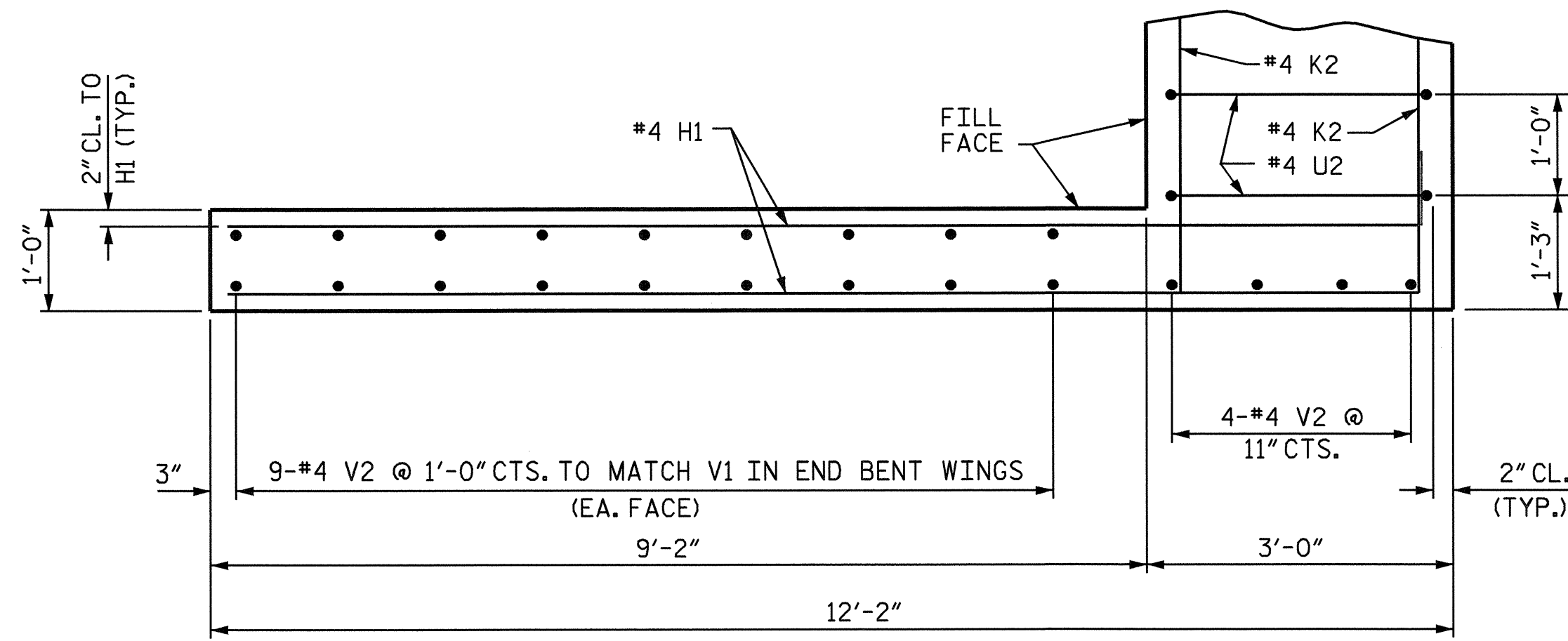
PLAN OF ABUTMENT WALLS

DRAWN BY: A.R.CHESSON DATE: 9-06
 CHECKED BY: Q.T.NGUYEN DATE: 11-06

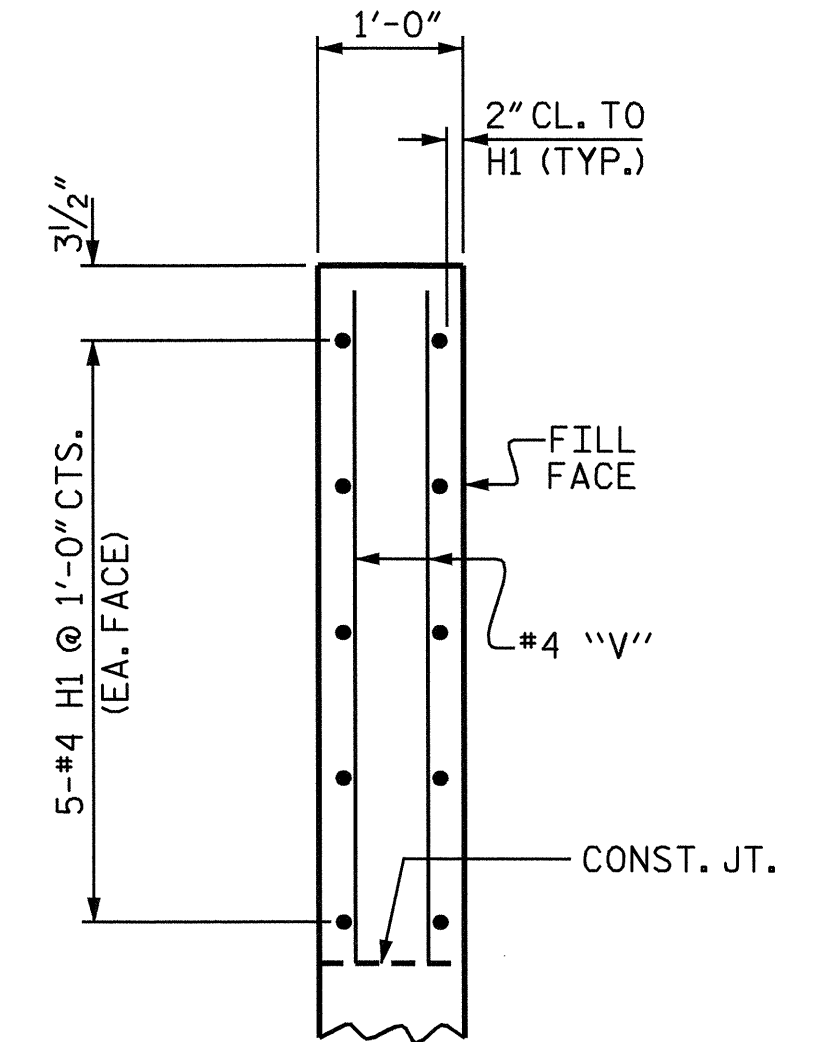
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			25



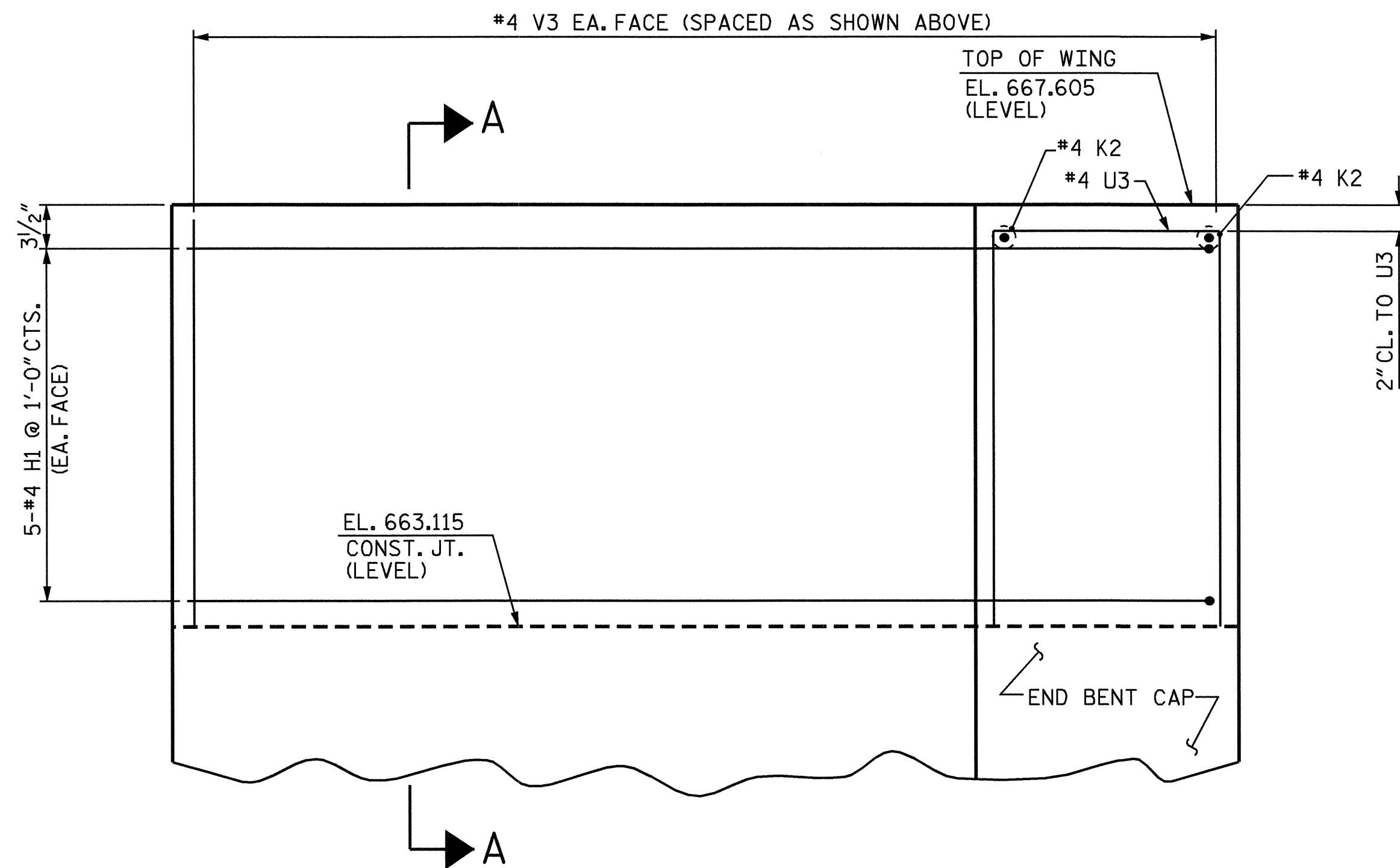
PLAN (W1)



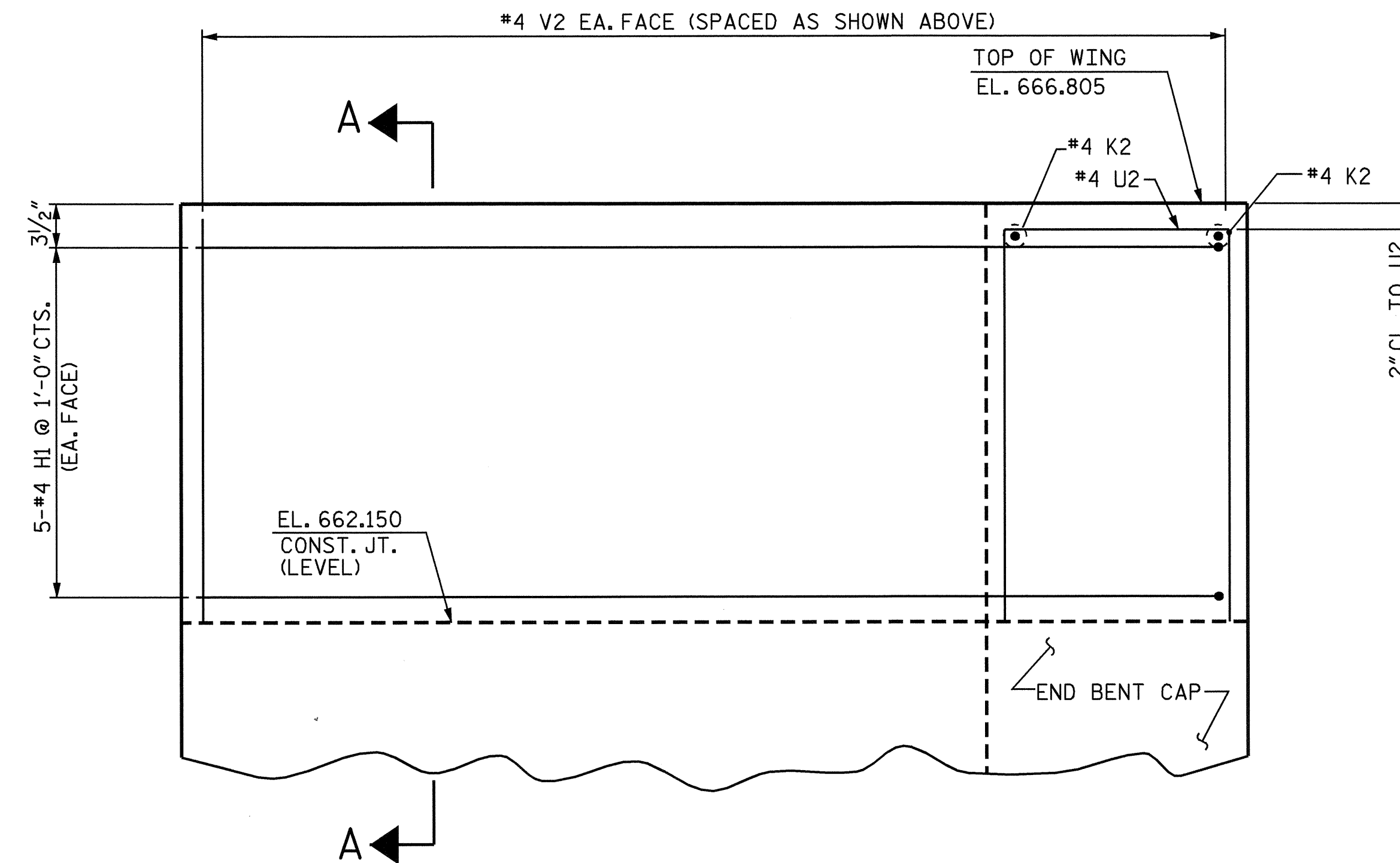
PLAN (W2)



SECTION A-A



ELEVATION (W1)



ELEVATION (W2)

ABUTMENT WINGS AT END BENT 1

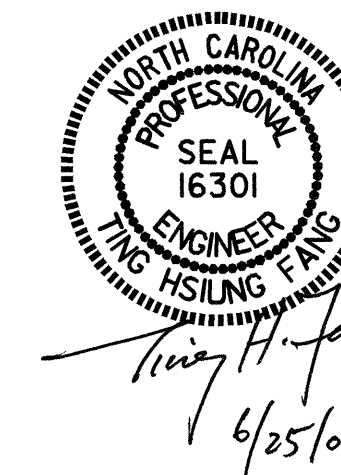
FOR END BENT REINFORCEMENT STEEL AND DETAILS, SEE "SUBSTRUCTURE END BENT #1" SHEETS

PROJECT NO. B-4243
 RANDOLPH COUNTY
 STATION: 19+59.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

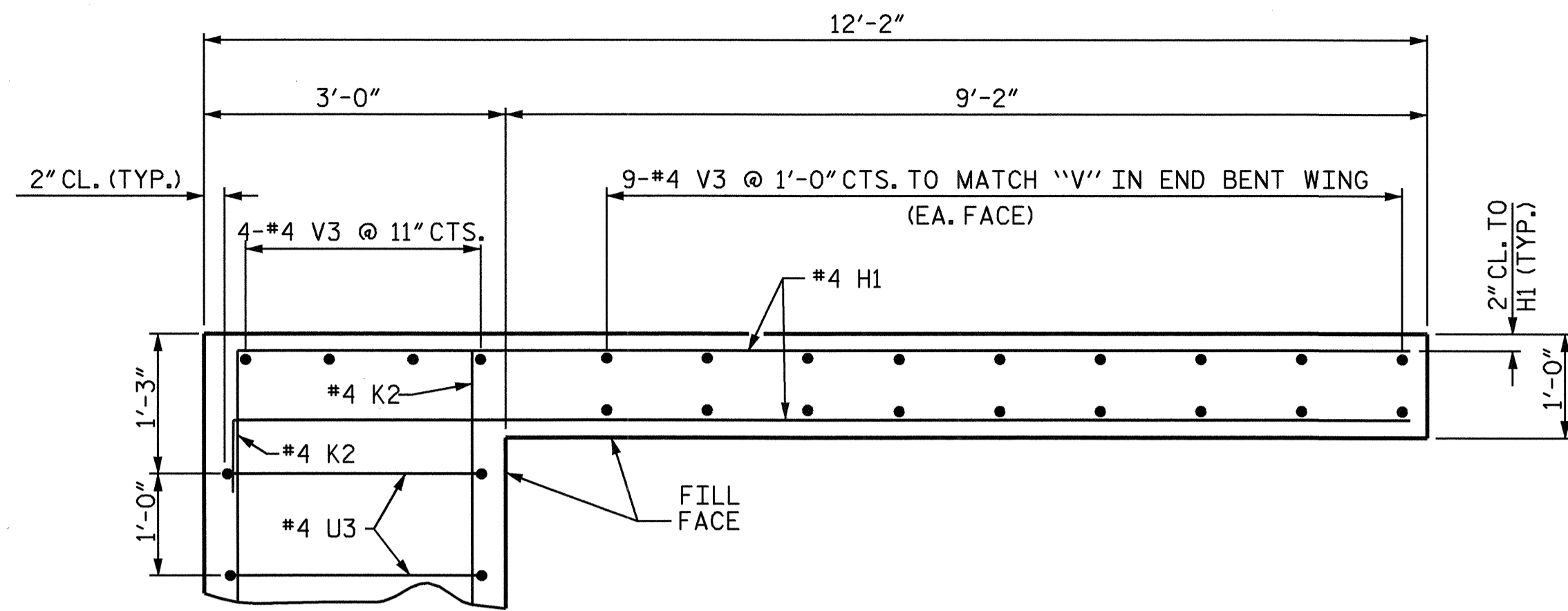
SUPERSTRUCTURE
 PLAN OF SPAN
 DETAILS



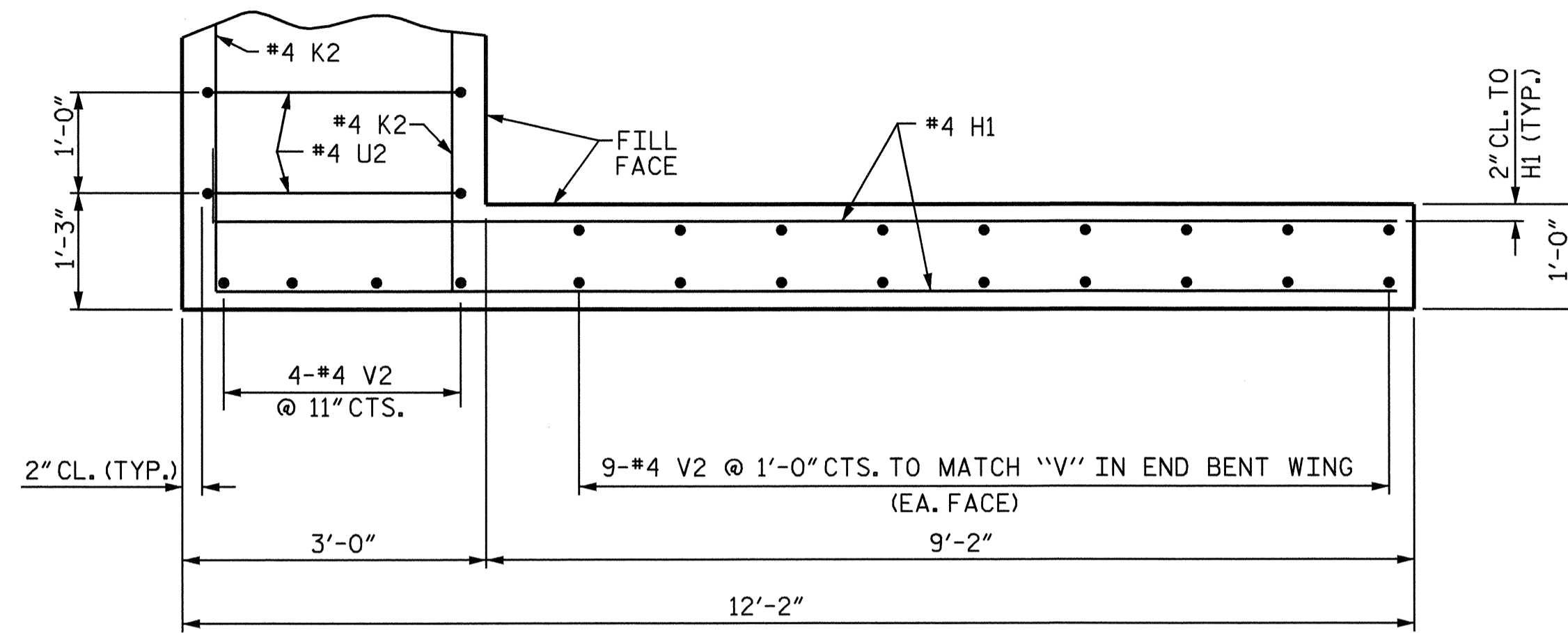
DRAWN BY: A.R.CHESSON DATE: 9-06
 CHECKED BY: Q.T.NGUYEN DATE: 11-06

25-JUN-2007 09:06
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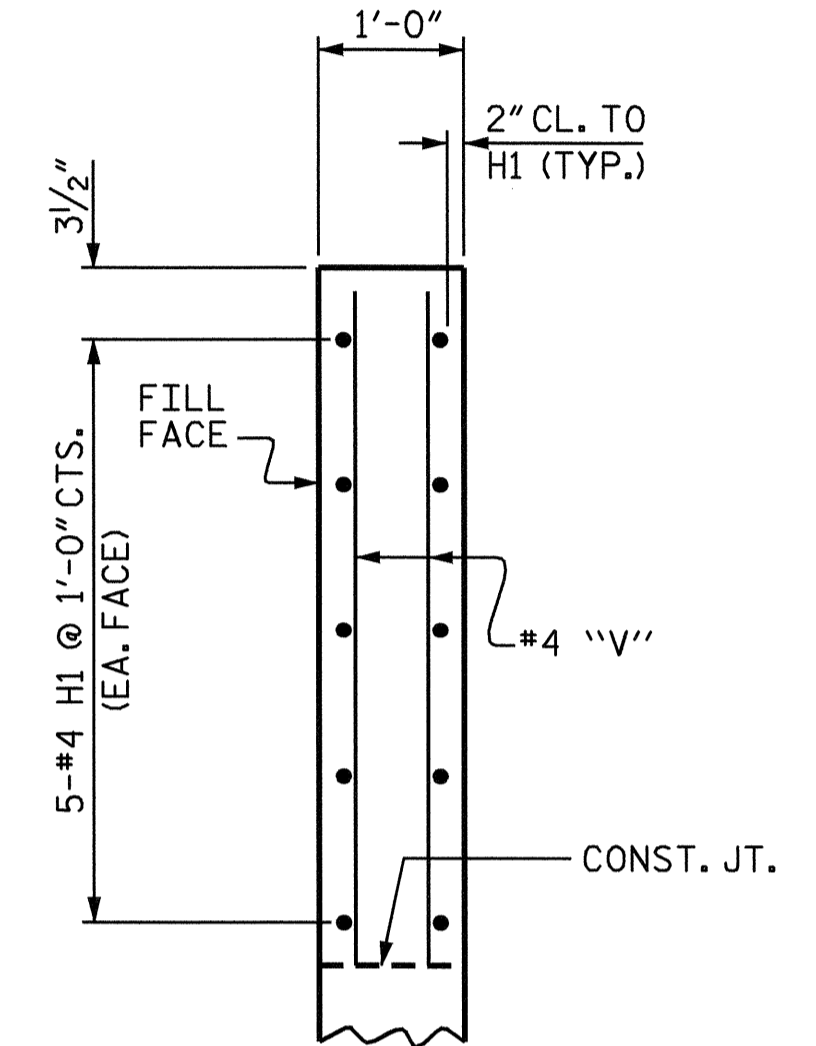
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS 25
2			4			



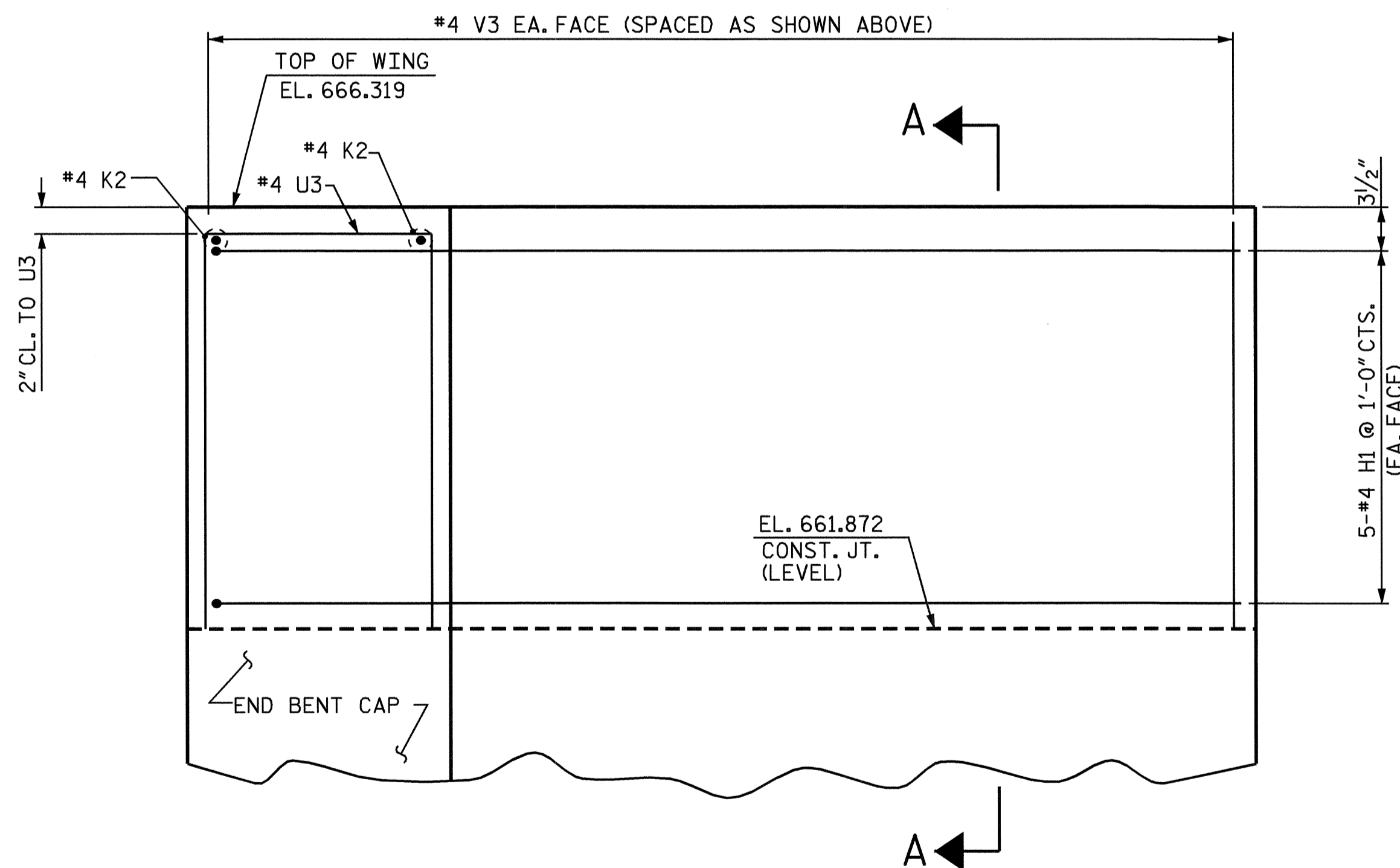
PLAN W3



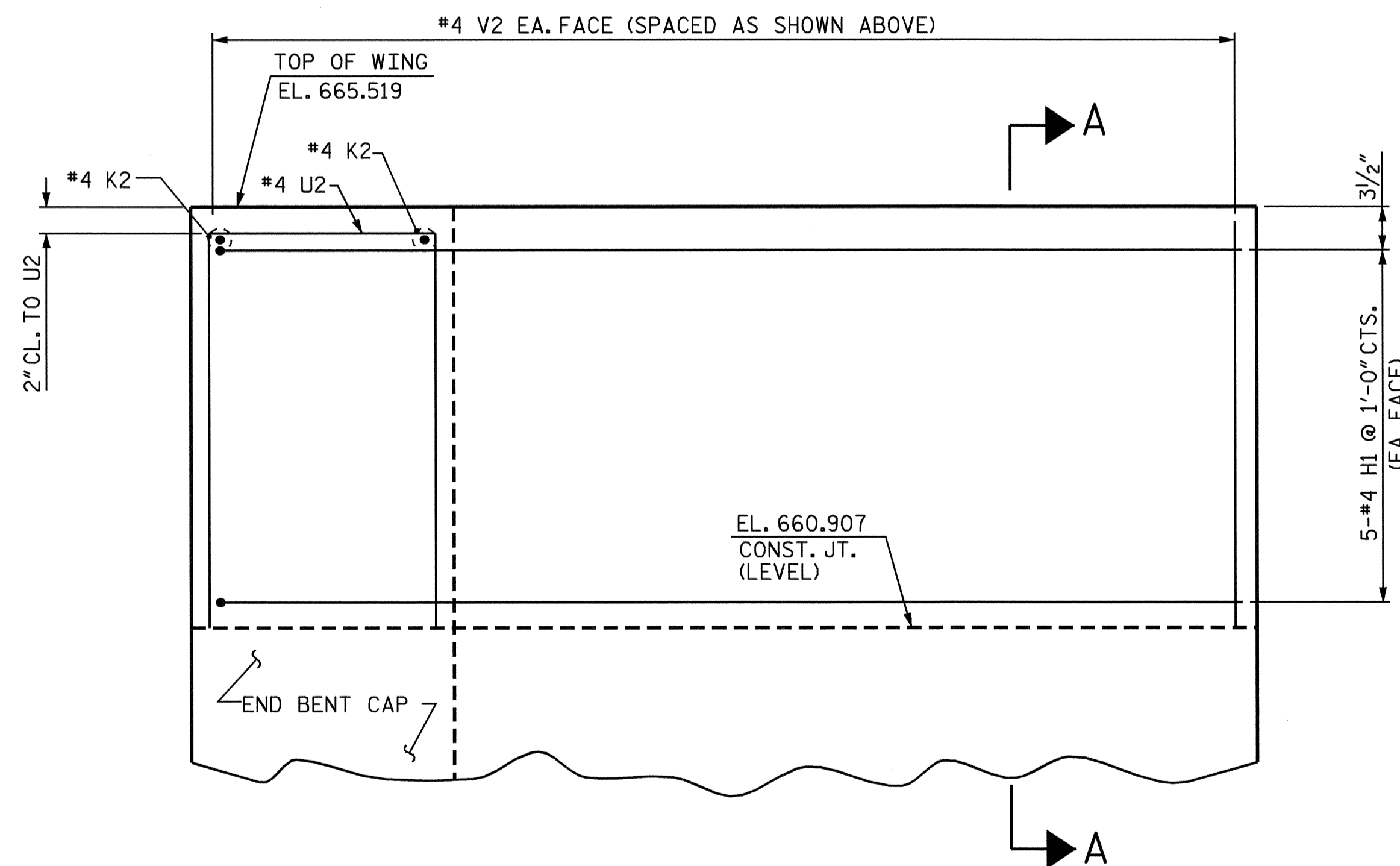
PLAN W4



SECTION A-A



ELEVATION W3



ELEVATION W4

ABUTMENT WINGS AT END BENT 2

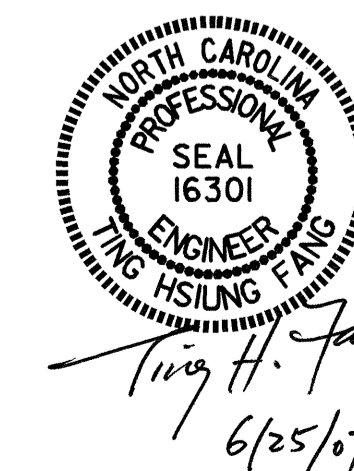
FOR END BENT REINFORCEMENT STEEL AND DETAILS, SEE "SUBSTRUCTURE END BENT #2" SHEETS

PROJECT NO. B-4243
 RANDOLPH COUNTY
 STATION: 19+59.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

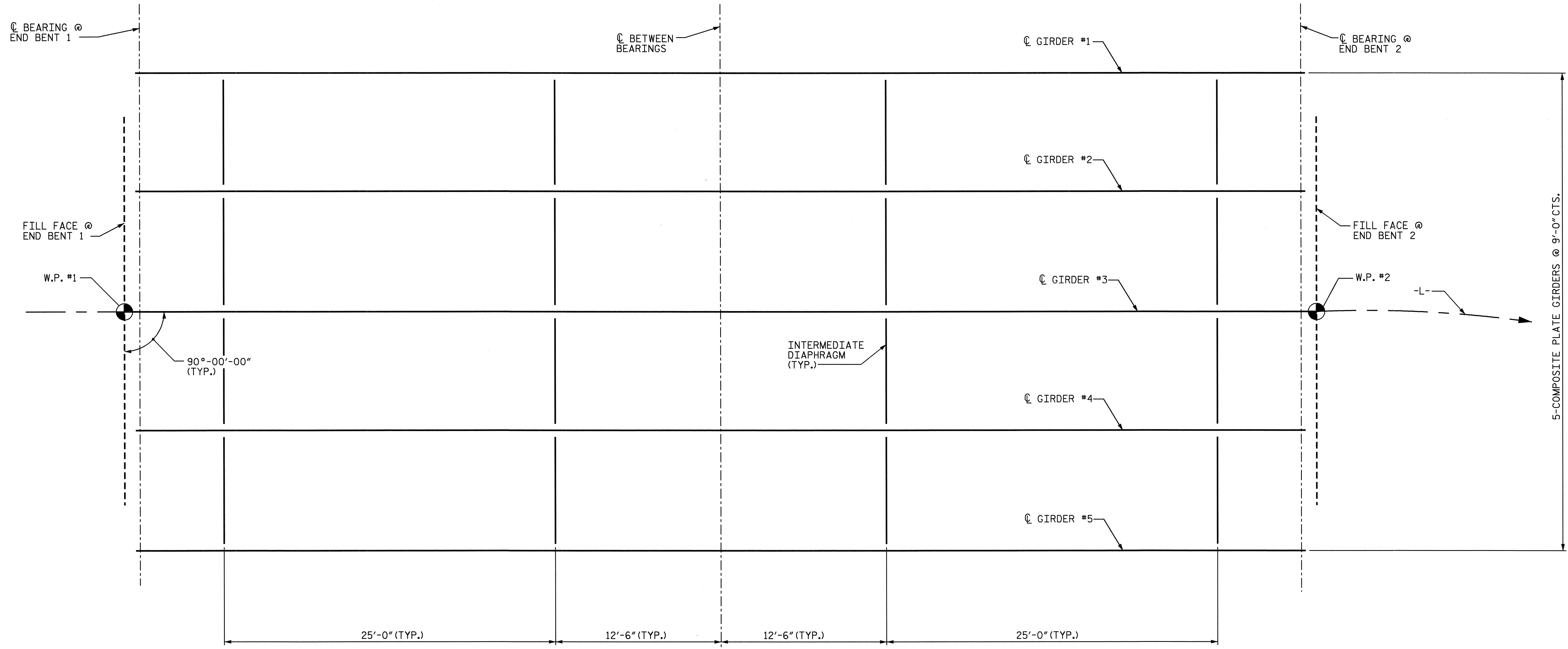
SUPERSTRUCTURE
 PLAN OF SPAN
 DETAILS



DRAWN BY: A.R.CHESSON DATE: 9-06
 CHECKED BY: Q.T.NGUYEN DATE: 11-06

25-JUN-2007 09:06
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			25



INTEGRAL
P1,P2

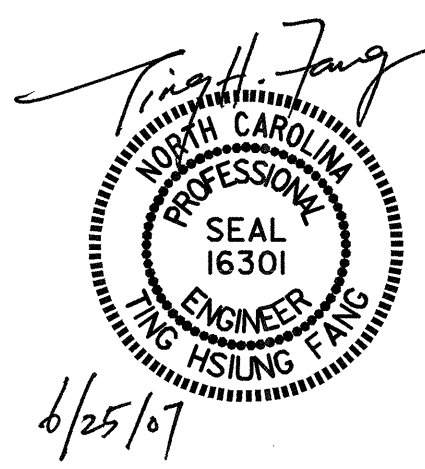
INTEGRAL
P1,P2

PROJECT NO. B-4243
RANDOLPH COUNTY
 STATION: 19+59.00 -L-

FRAMING PLAN

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 FRAMING PLAN



DRAWN BY: A.R.CHESSON DATE: 9-06
 CHECKED BY: Q.T.NGUYEN DATE: 11-06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS 25
2			4			25

NOTES :

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.

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

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

A CHARPY V-NOTCH TEST IS REQUIRED FOR WEB PLATES AND BOTTOM FLANGE PLATES FOR ALL GIRDERS AND IN ACCORDANCE WITH ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION. KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE, WEB OR FLANGE SHOP SPLICES.

END OF GIRDERS SHALL BE PLUMB.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

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

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

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

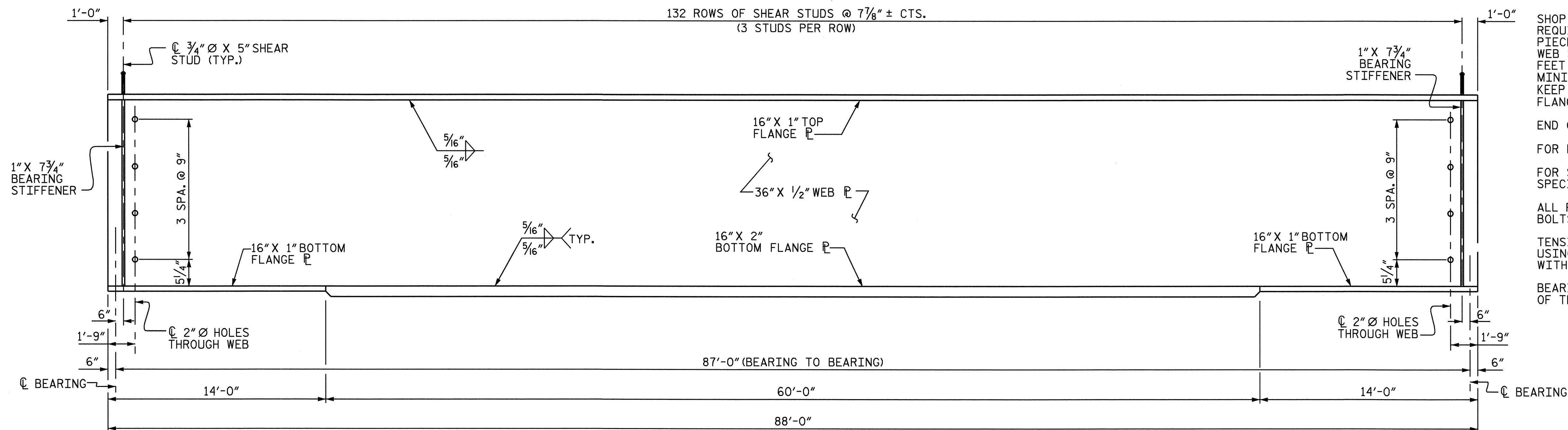
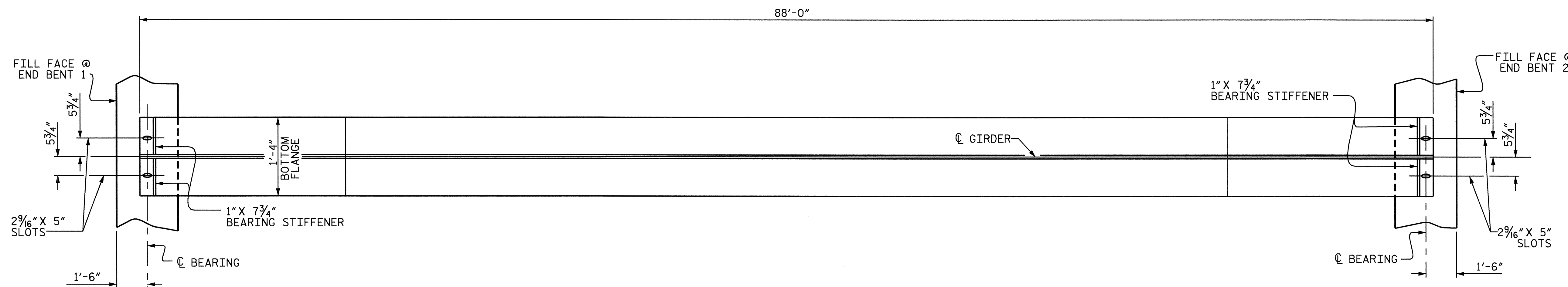
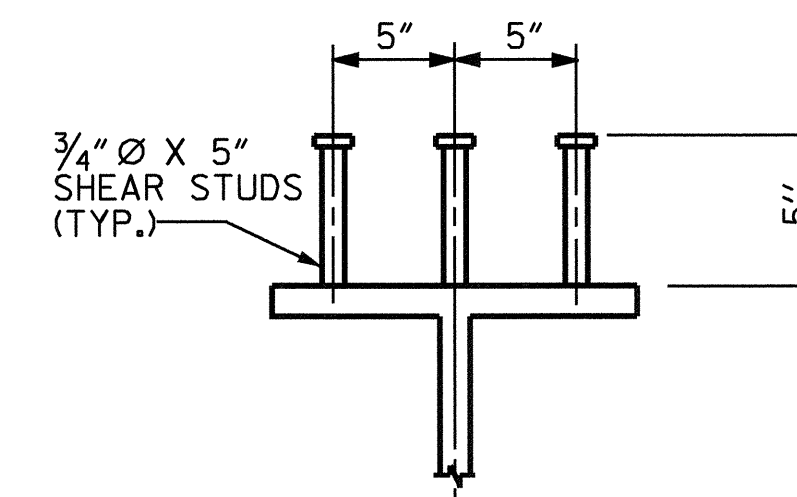


PLATE GIRDER ELEVATION



BOTTOM FLANGE DETAIL



SHEAR STUD DETAIL
(TYP. EA. GIRDER)

Professional Engineer Seal
 NORTH CAROLINA
 PROFESSIONAL
 SEAL
 16301
 TING HSILANG FANG
 8/07/07

PROJECT NO. B-4243
RANDOLPH COUNTY
 STATION: 19+59.00 -L-

SHEET 1 OF 2

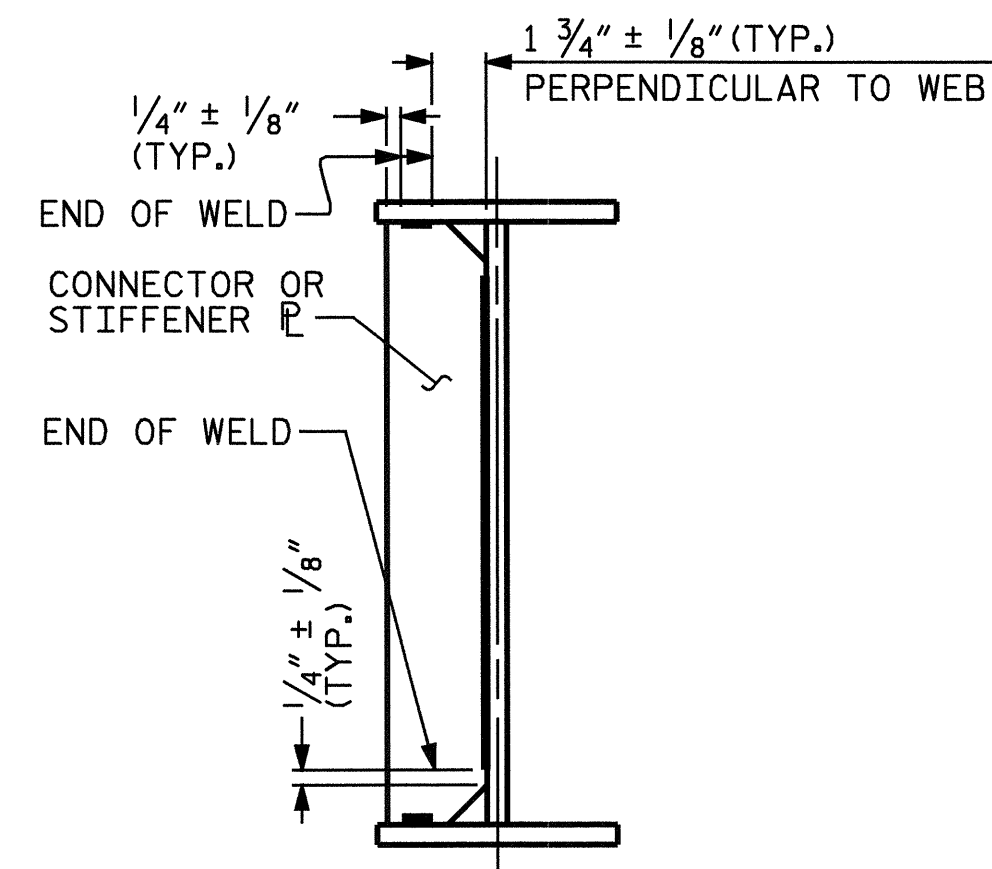
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			25

DRAWN BY : A.R.CHESSON DATE : 9-06
 CHECKED BY : Q.T.NGUYEN DATE : 11-06

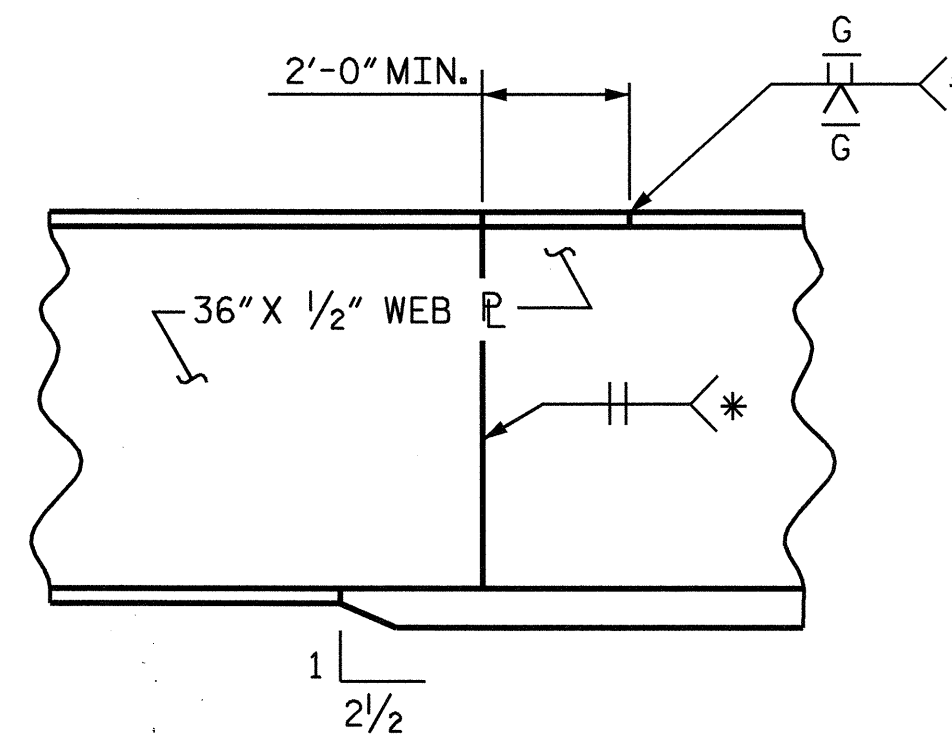
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																						
TENTH POINTS	INTERIOR GIRDERS											EXTERIOR GIRDERS										
	GIRDERS 2, 3 & 4											GIRDERS 1 & 5										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.016	0.029	0.040	0.047	0.049	0.047	0.040	0.029	0.016	0.000	0.000	0.016	0.029	0.040	0.047	0.049	0.047	0.040	0.029	0.016	0.000
*DEFLECTION DUE TO WEIGHT OF SLAB	0.000	0.055	0.131	0.191	0.229	0.242	0.229	0.191	0.131	0.055	0.000	0.000	0.048	0.118	0.173	0.208	0.219	0.208	0.173	0.118	0.048	0.000
DEFLECTION DUE TO WEIGHT OF PARAPET	0.000	0.003	0.006	0.008	0.009	0.009	0.009	0.008	0.006	0.003	0.000	0.000	0.003	0.006	0.008	0.010	0.010	0.010	0.008	0.006	0.003	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.074	0.166	0.239	0.284	0.300	0.284	0.239	0.166	0.074	0.000	0.000	0.067	0.153	0.221	0.264	0.278	0.264	0.221	0.153	0.067	0.000
REQUIRED CAMBER	0	1/8"	2"	2 7/8"	3 1/16"	3 5/8"	3 7/16"	2 7/8"	2"	7/8"	0	0	1 3/16"	1 13/16"	2 5/8"	3 3/16"	3 5/16"	3 3/16"	2 5/8"	1 13/16"	1 3/16"	0

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



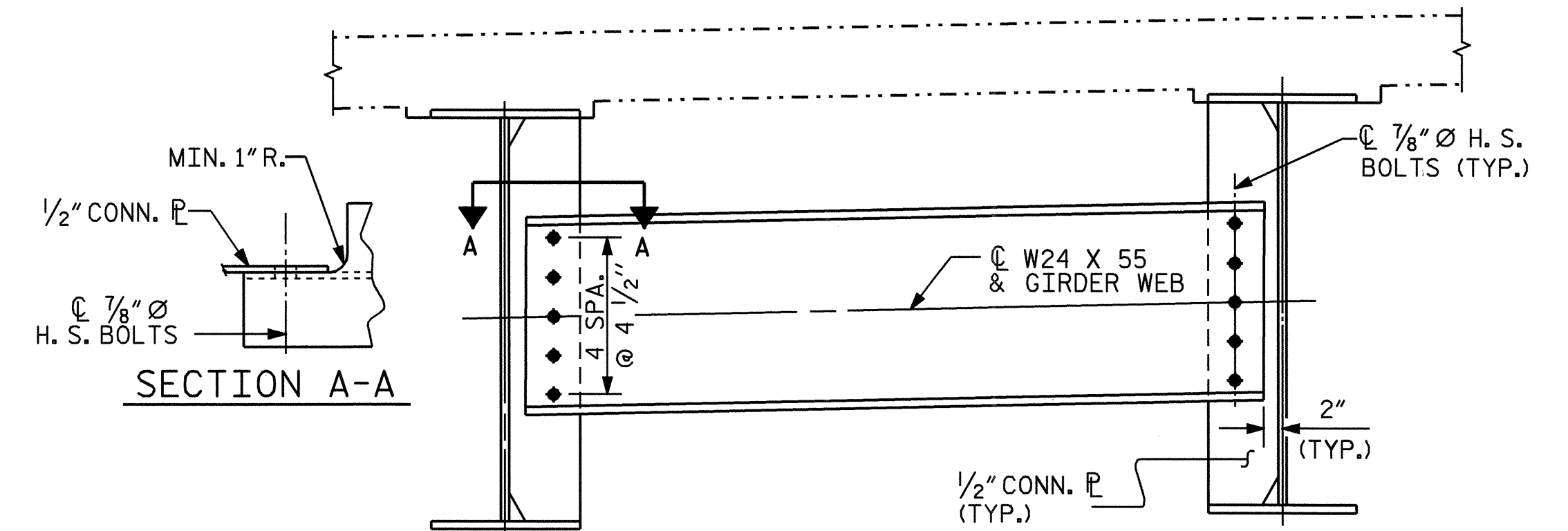
TYPICAL STIFFENER OR
CONNECTOR PLATE CONNECTIONS

WELD TERMINATION DETAILS

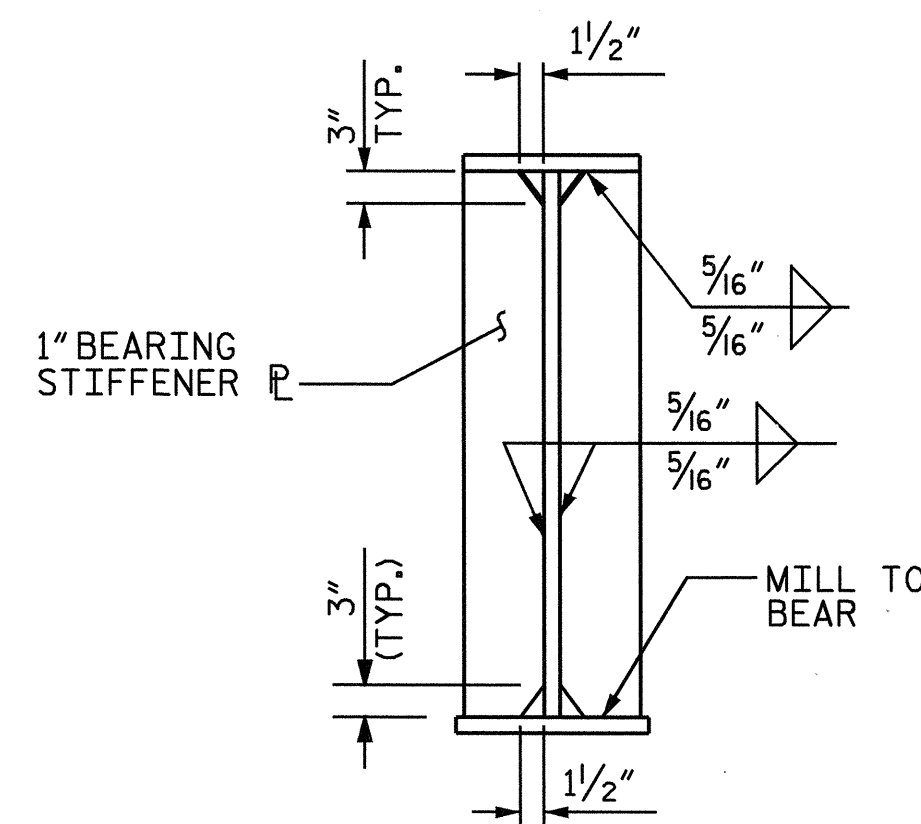


PERMISSIBLE SHOP FLANGE AND WEB SPLICE

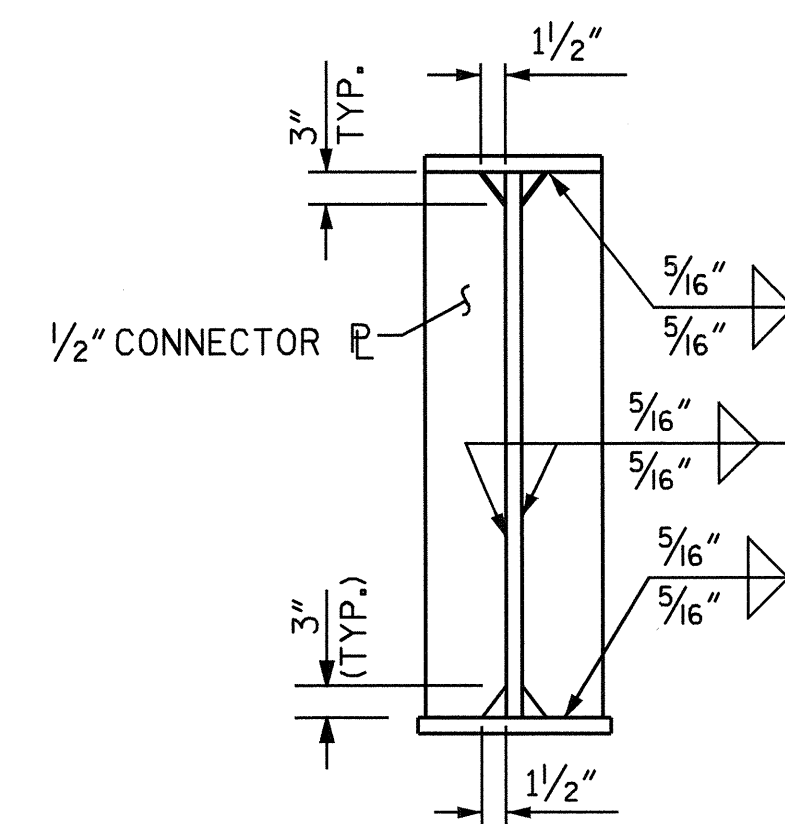
* GRIND SMOOTH AND FLUSH ON OUTSIDE OF EXTERIOR GIRDERS



TYPICAL INTERMEDIATE DIAPHRAGM



BEARING STIFFENER



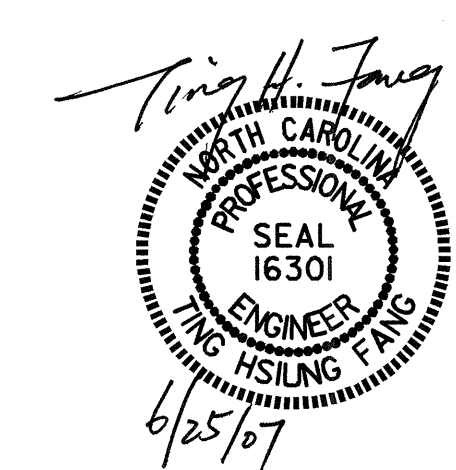
CONNECTOR PLATE DETAILS

PROJECT NO. B-4243
RANDOLPH COUNTY
STATION: 19+59.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
STRUCTURAL STEEL
DETAILS

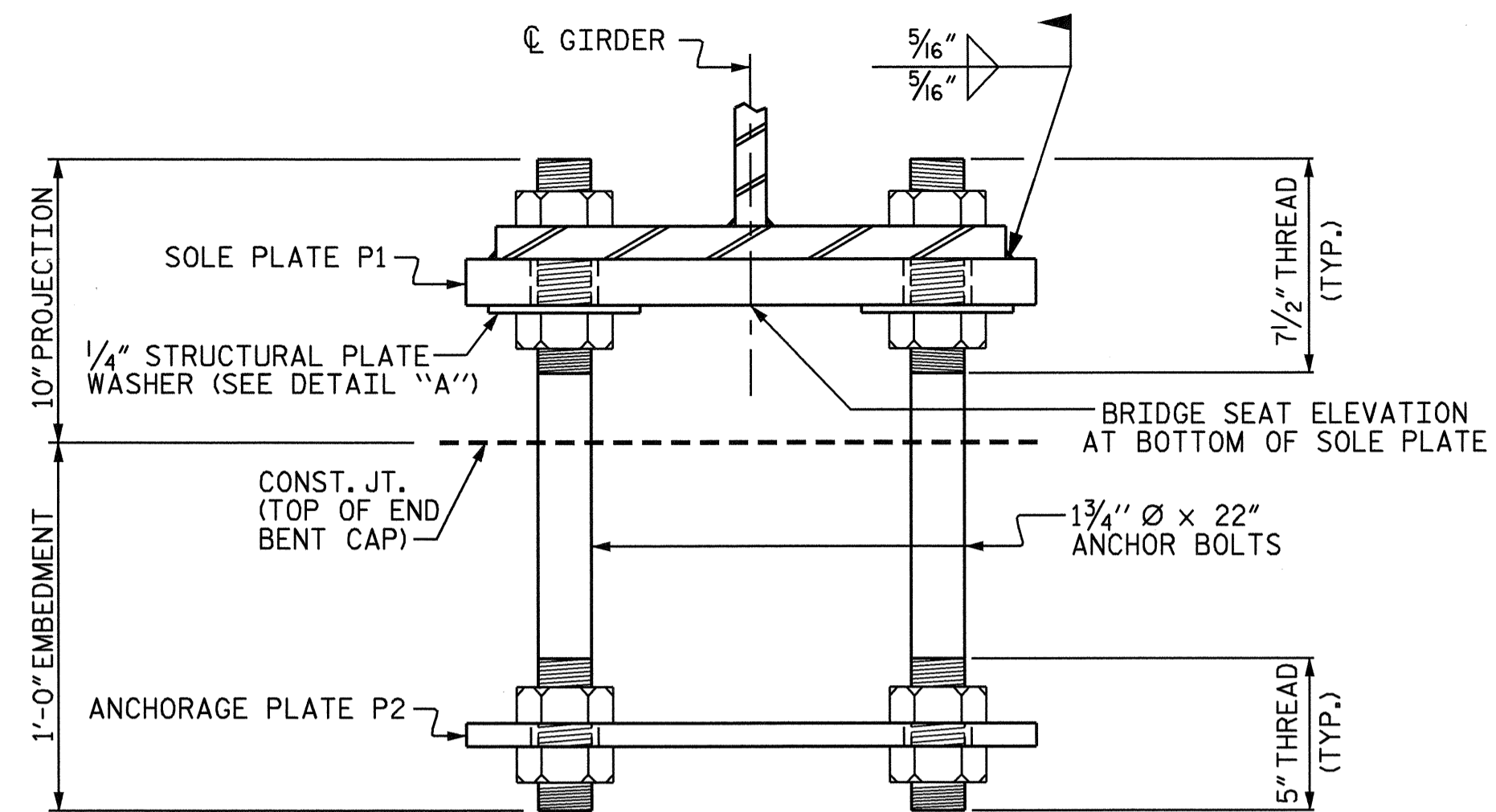


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12	
1			3			TOTAL SHEETS 25	
2			4			STR. #1	

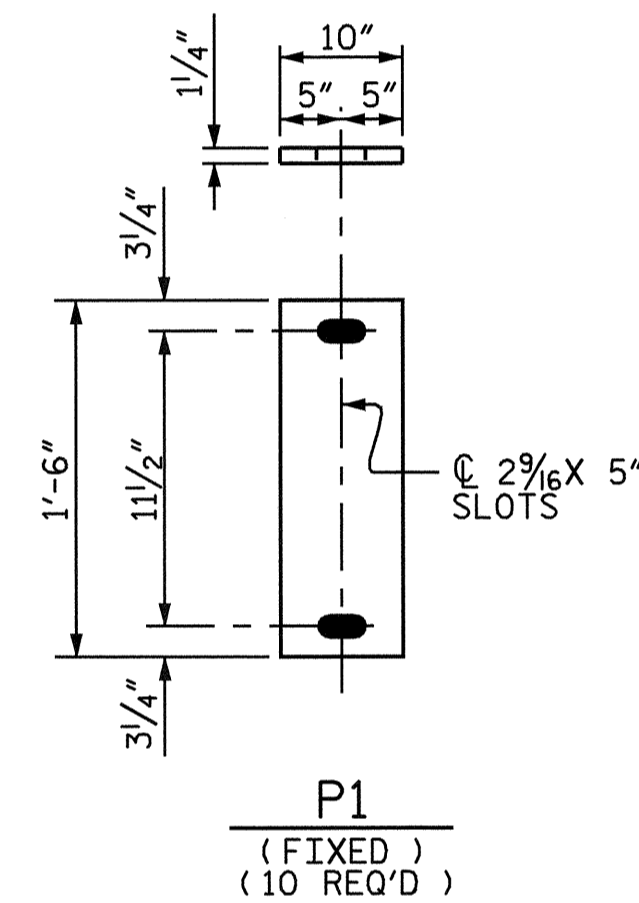
DRAWN BY: A.R.CHESSON DATE: 9-06
CHECKED BY: Q.T.NGUYEN DATE: 11-06

CONSTRUCTION SEQUENCE :

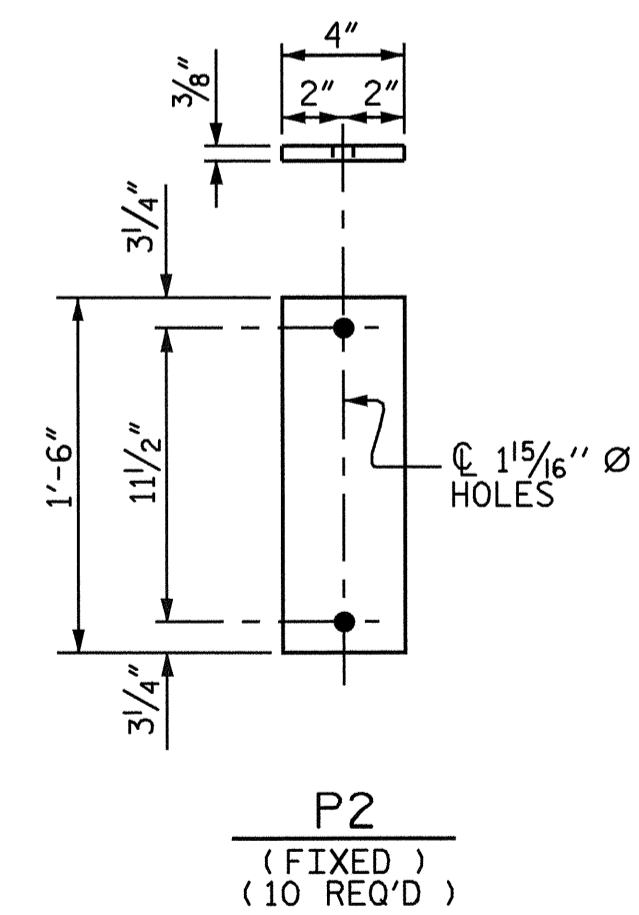
1. DRIVE STEEL PILES FOR END BENT 1 AND END BENT 2. COMPLETE POUR 1 OF END BENTS.
2. ONCE CONCRETE HAS ATTAINED THE REQUIRED STRENGTH, INSTALL NUT, WASHER AND SOLE PLATE ON ANCHOR BOLTS. ERECT GIRDERS AND ALIGN SOLE PLATES WITH HOLES IN FLANGES REGARDLESS OF TEMPERATURE AT TIME OF SETTING. SOLE PLATE SHOULD BE WELDED TO THE GIRDER FLANGE BEFORE FALSEWORK IS PLACED. ADJUST LOWER NUT TO SET GIRDER BEARING AT THE PROPER ELEVATION. INSTALL WASHER AND NUT ON TOP OF FLANGES. LEAVE TOP NUT LOOSE TO ALLOW FOR GIRDER END ROTATION AND TRANSLATION DURING DECK POURING SEQUENCE.
3. POUR BRIDGE DECK IN ACCORDANCE WITH THE POURING SEQUENCE OUTLINED ON THE "SUPERSTRUCTURE BILL OF MATERIAL" SHEET EXCEPT THE FINAL TWO POURS CONTAINING THE ABUTMENT. NOTE THAT THE FINAL TWO POURS CONTAINING THE WING WALLS AND ABUTMENT ARE PLACED WITH THE FINAL POURS OF THE BRIDGE DECK.
4. TIGHTEN ALL TOP NUTS 1/4 TURN PAST FINGER TIGHT. COMPLETE FINAL TWO DECK POURS WHICH INCLUDES THE ABUTMENT, DECK AND THE WING WALLS.
5. PLACE THE REINFORCED BRIDGE APPROACH FILL AND BACKFILL IN LIFTS UNTIL THE DESIRED SUBGRADE ELEVATION IS REACHED. CONSTRUCT SLEEPER SLABS.
6. POUR THE APPROACH SLABS STARTING AT THE END FURTHEST FROM THE BACK WALL AND PROGRESSING TOWARDS THE END BENT. POURS SHALL BE PERFORMED DURING THE MORNING HOURS TO MINIMIZE PLACING THE APPROACH SLAB IN TENSION FROM BRIDGE THERMAL MOVEMENTS.



FIXED
END VIEW



SOLE PLATE DETAILS



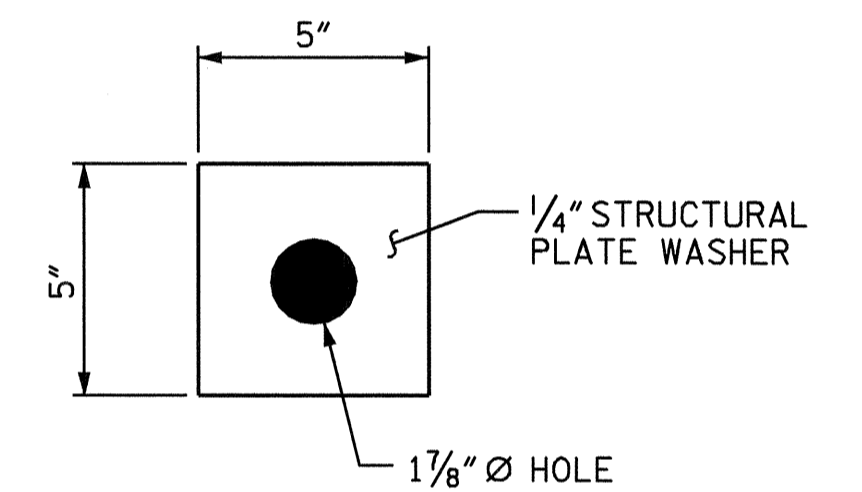
ANCHORAGE PLATE DETAILS

NOTES

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE 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 BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.



DETAIL A

PROJECT NO. B-4243
RANDOLPH COUNTY
 STATION: 19+59.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 BEARING DETAILS

Ting H. Fang
 NORTH CAROLINA
 PROFESSIONAL
 SEAL
 16301
 ENGINEER
 TING HSUNG FANG
 6/25/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS 25
2			4			

DRAWN BY : A.R.CHESSON DATE : 9-06
 CHECKED BY : Q.T.NGUYEN DATE : 11-06

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.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B221 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

MATERIALS 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 M111.

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 M111.

CLOSURE PLATES: CLOSURE PLATES SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

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.

MATERIAL FOR ANCHOR STUDS SHALL BE ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. STUDS TO BE EMBEDDED 7" IN CONCRETE. NUTS SHALL BE AMERICAN STANDARD FINISHED HEXAGON THICK, CLASS 2B THREAD, AND MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL. ANCHOR P SHALL BE AASHTO M270 GRADE 36.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 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.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

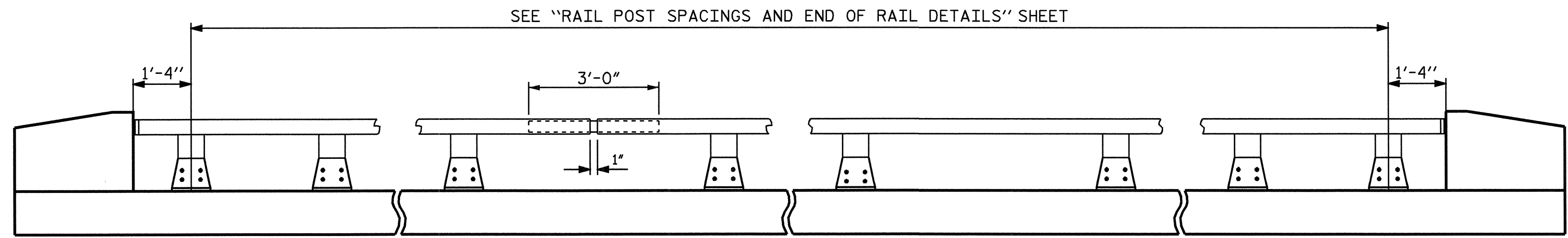
ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

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

THE CONTRACTOR, AT HIS OPTION, MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN LIEU OF THE ANCHOR ASSEMBLY. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS REQUIRED.

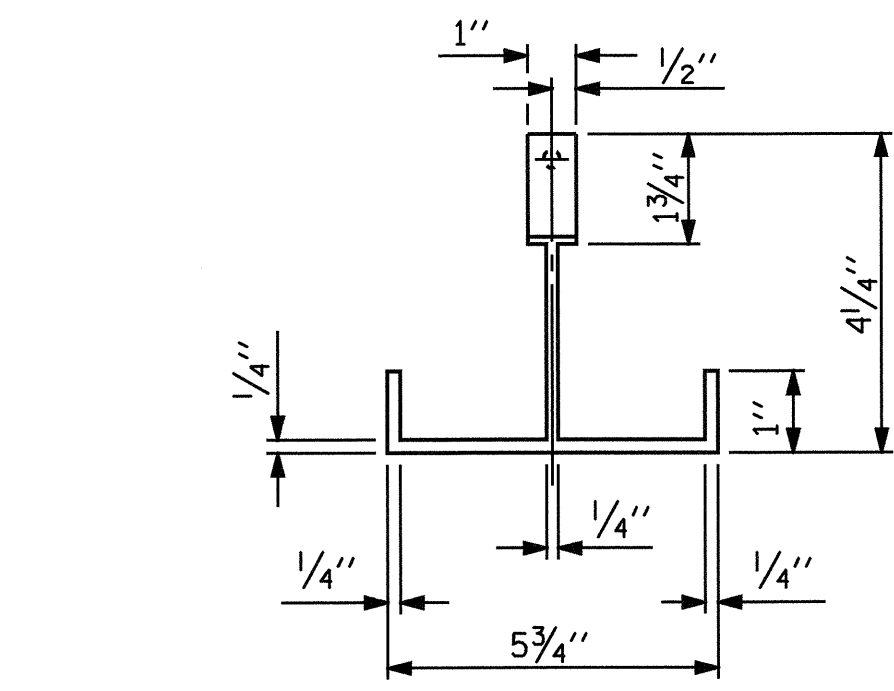
WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS, NUTS AND WASHERS SHALL MEET THE SAME REQUIREMENTS AS THE ANCHOR STUDS, NUTS AND WASHERS FOR USE WITH THE ANCHOR ASSEMBLY.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

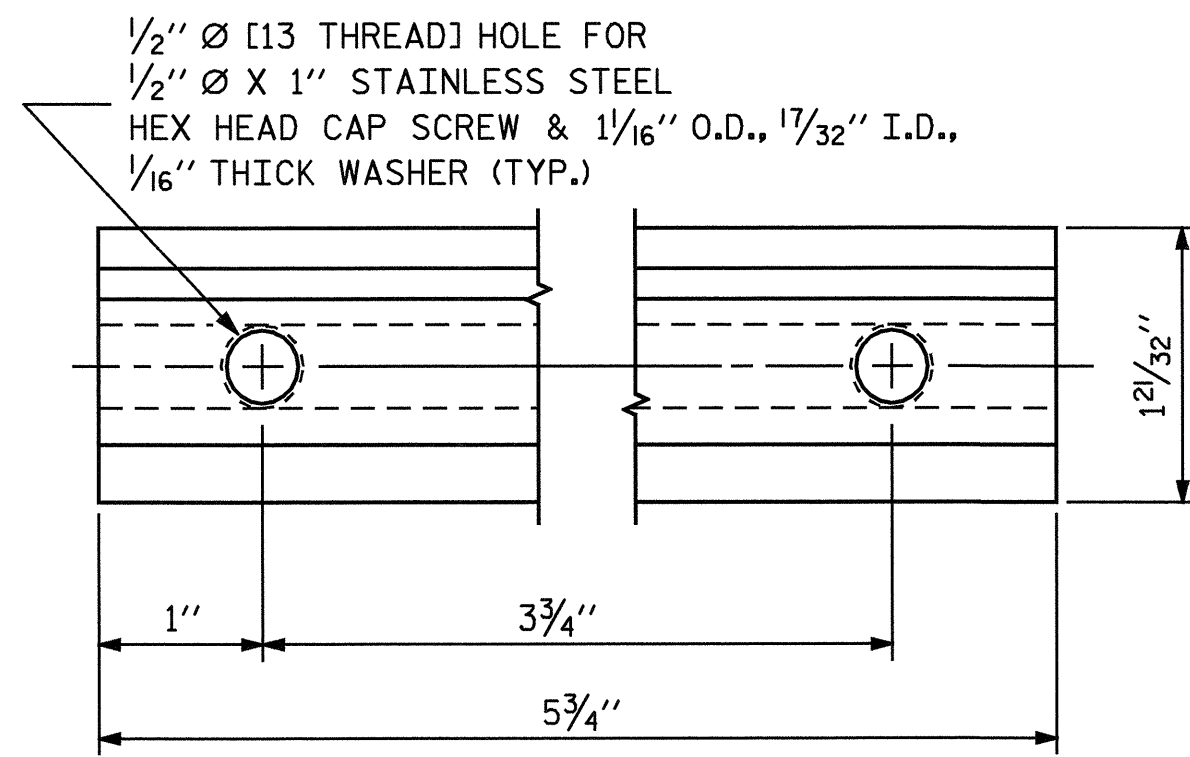


ELEVATION

NOTE:
FOR ATTACHMENT OF METAL RAIL TO END
POST, SEE SHEET 2 OF 2

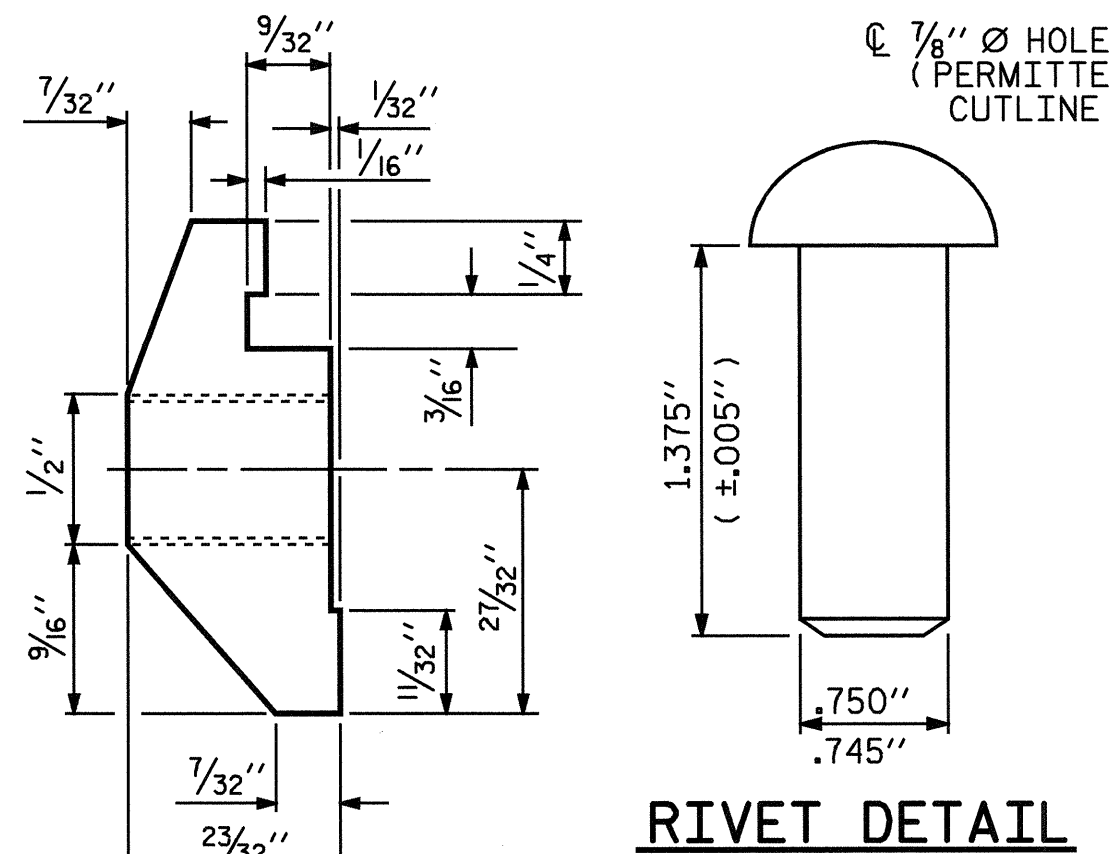


PLAN

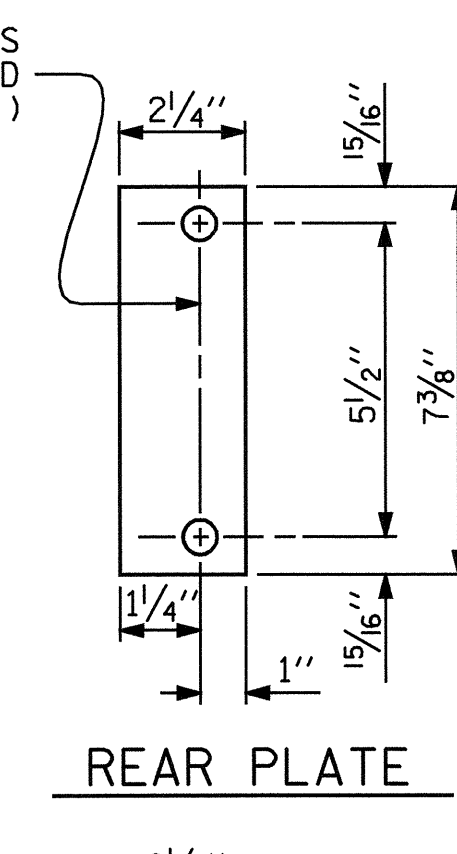


CLAMP BAR DETAIL

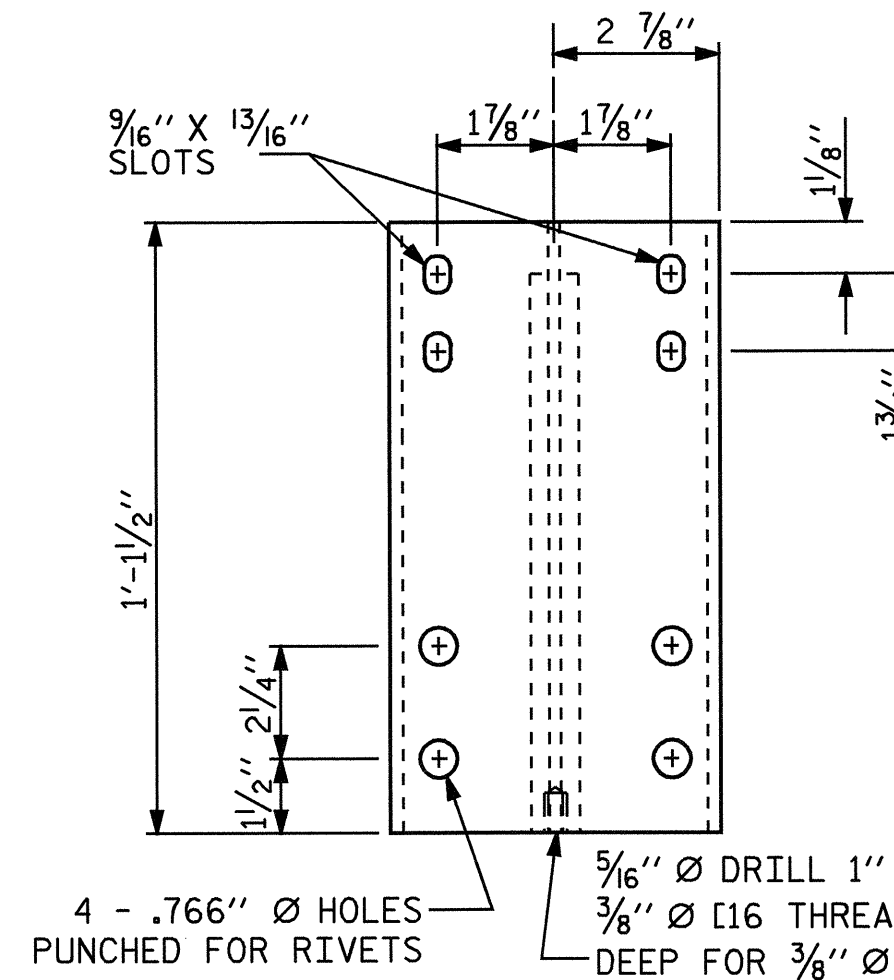
(2 REQUIRED PER POST)



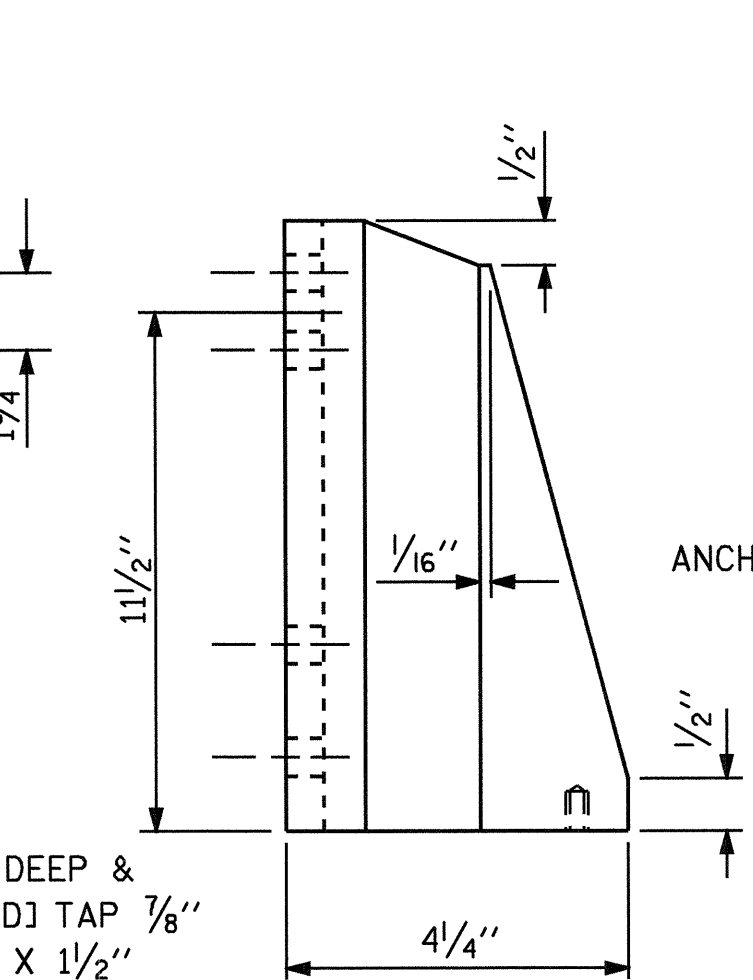
RIVET DETAIL



REAR PLATE

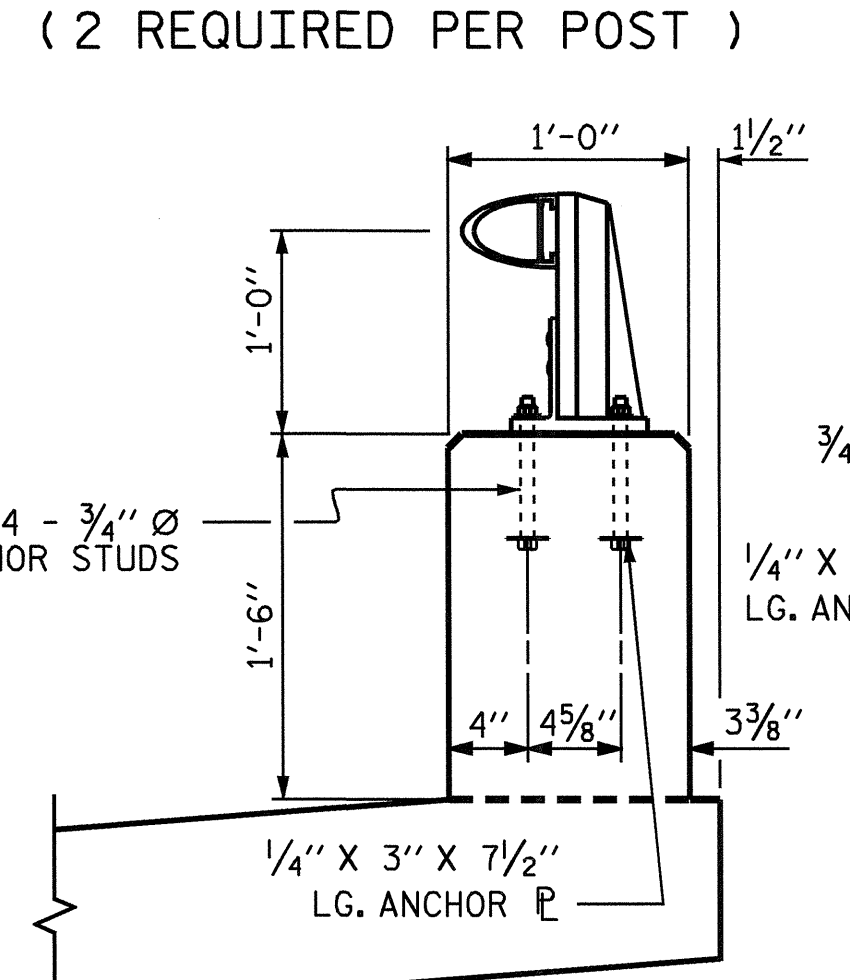


FRONT ELEVATION

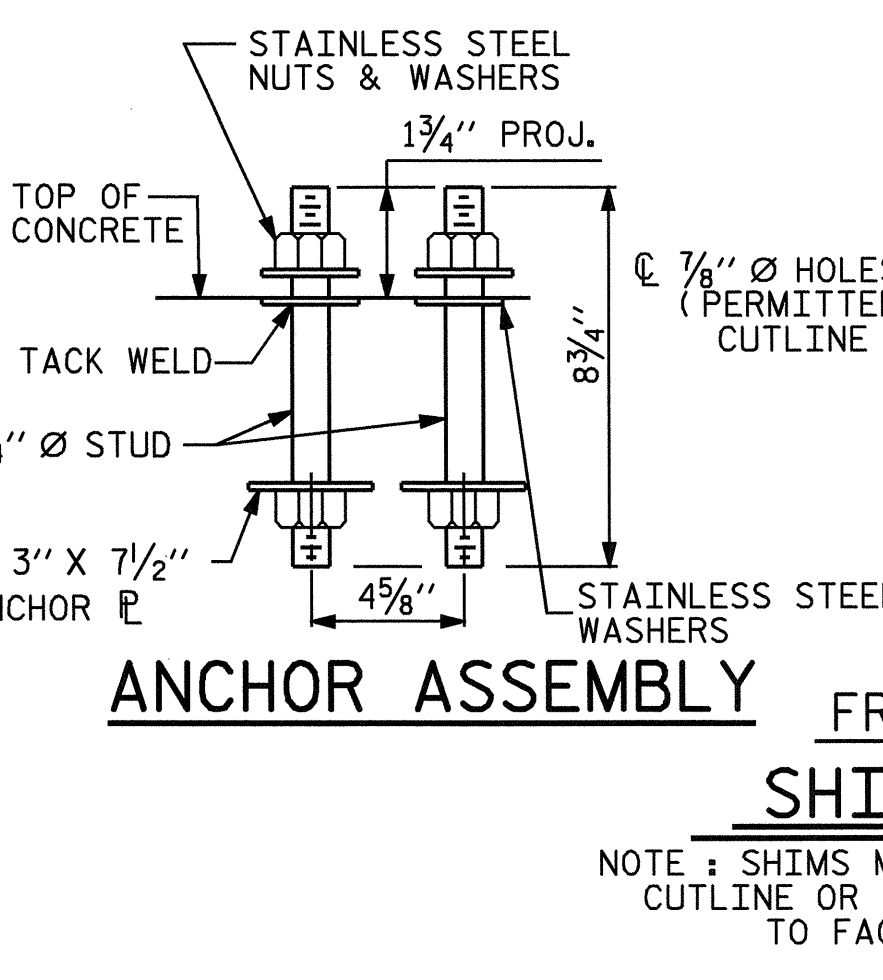


SIDE ELEVATION

DETAILS OF POST



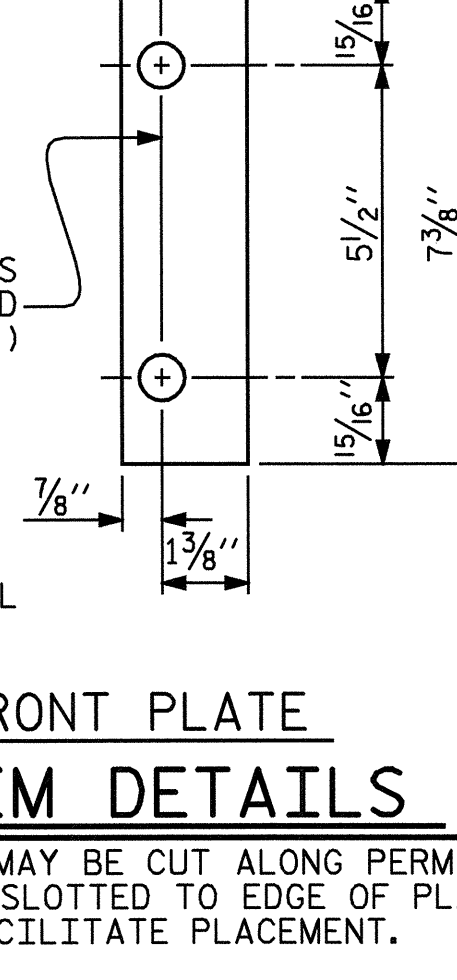
**SECTION THRU
PARAPET AND RAIL**



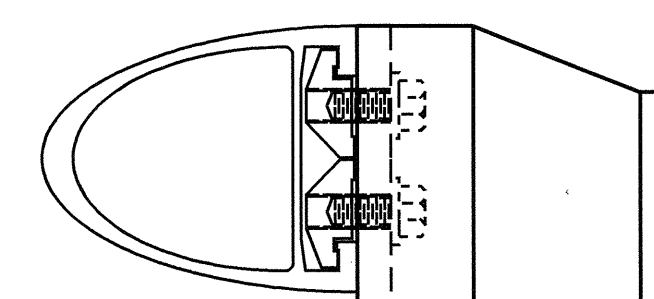
ANCHOR ASSEMBLY

SHIM DETAILS

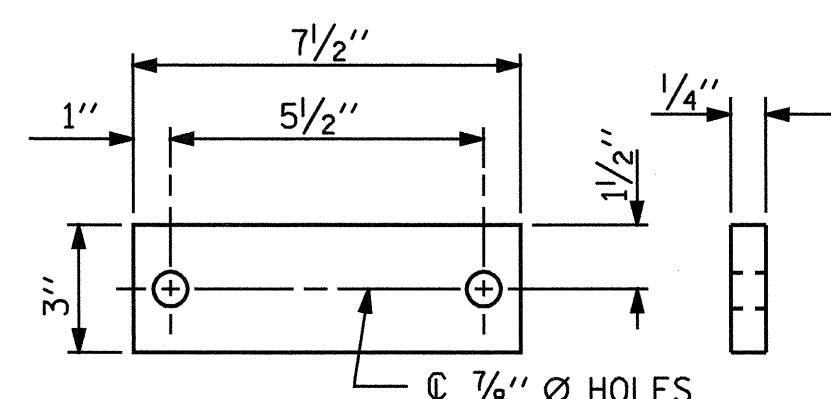
NOTE: SHIMS MAY BE CUT ALONG PERMITTED
OUTLINE OR SLOTTED TO EDGE OF PLATE
TO FACILITATE PLACEMENT.



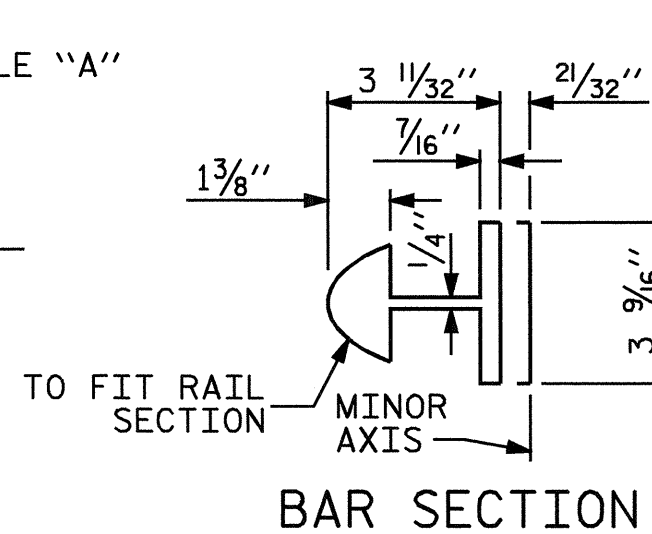
FRONT PLATE



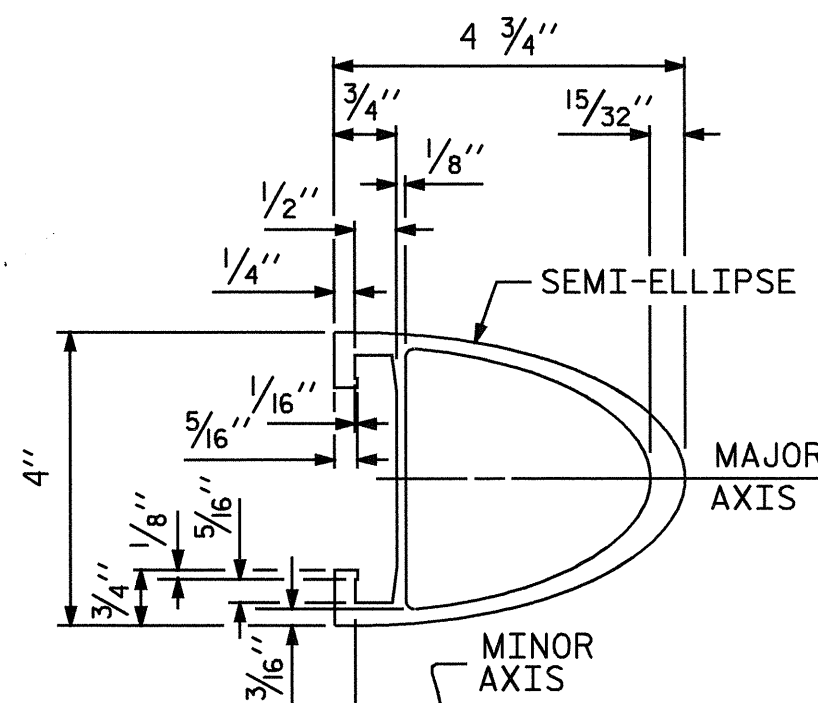
CLAMP & RAIL ASSEMBLY



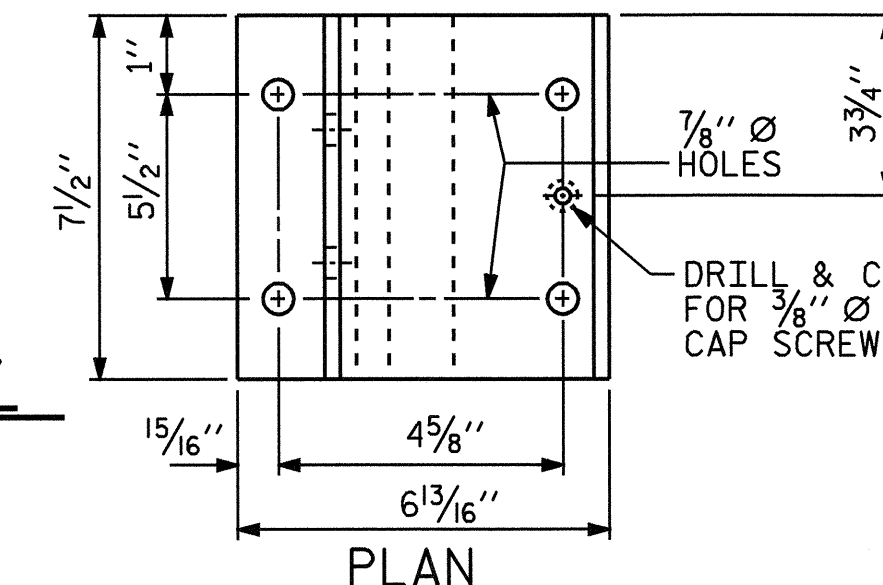
ANCHOR PLATE



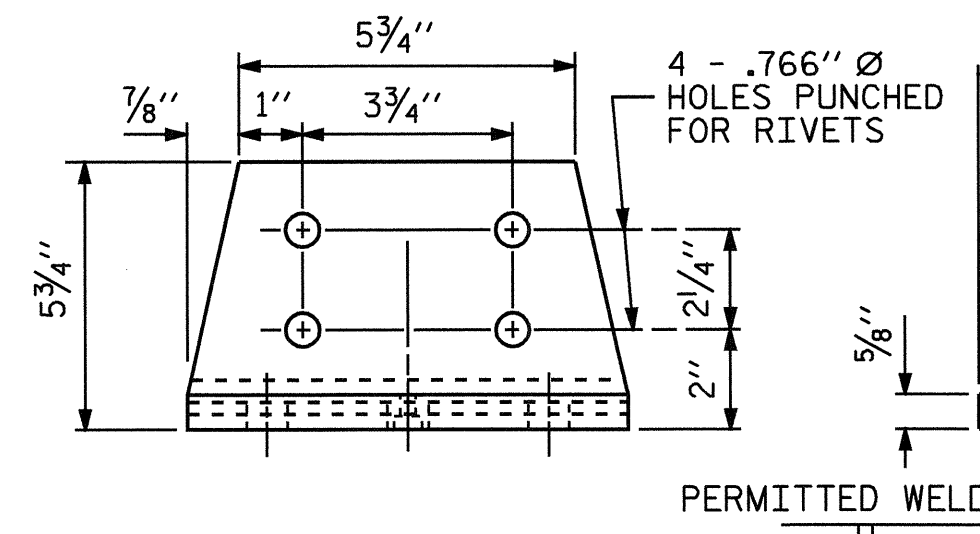
BAR SECTION



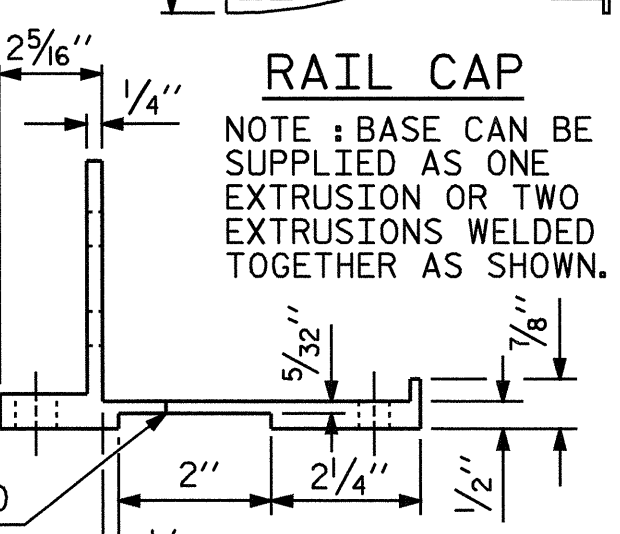
RAIL SECTION



PLAN

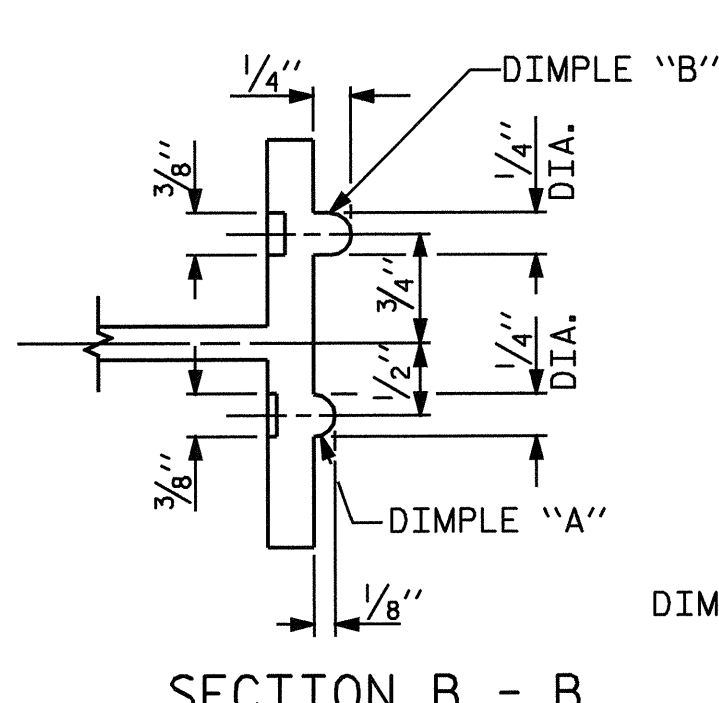


FRONT ELEVATION

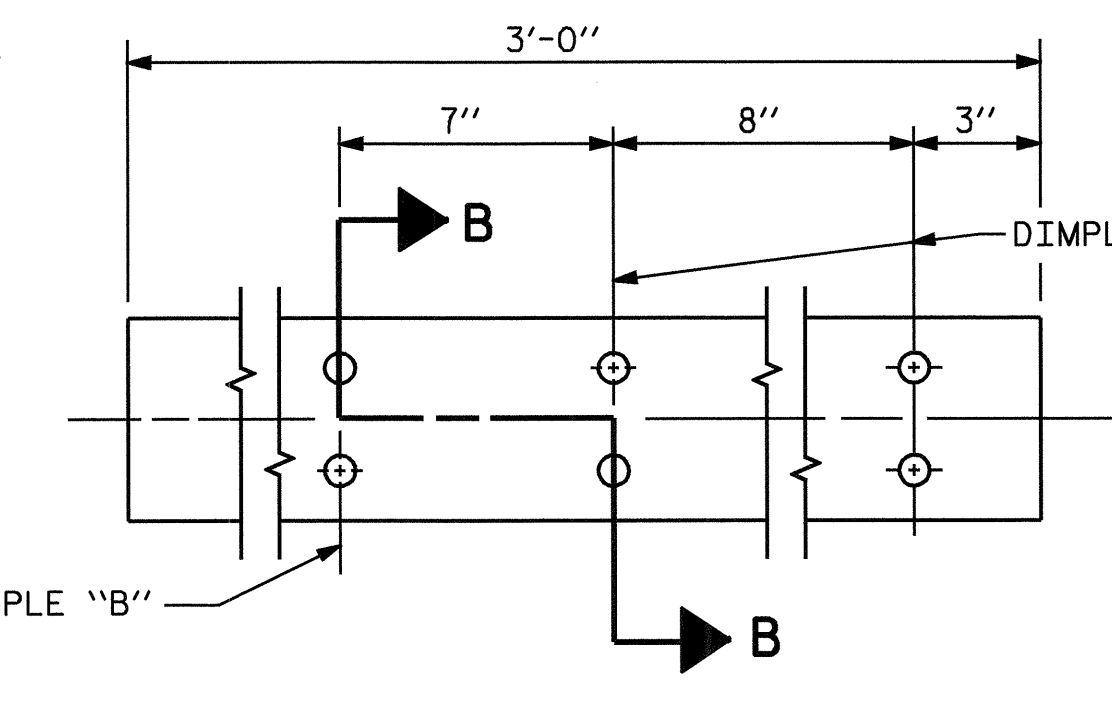


SIDE ELEVATION

POST BASE DETAILS

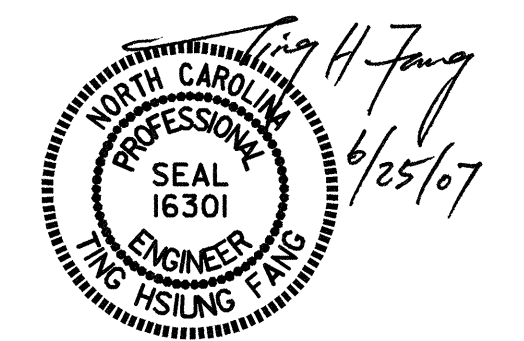


SECTION B - B



EXPANSION BAR DETAILS

PAY LENGTH = 161.67 LIN. FT.



PROJECT NO. B-4243
RANDOLPH COUNTY
STATION: 19+59.00 -L-

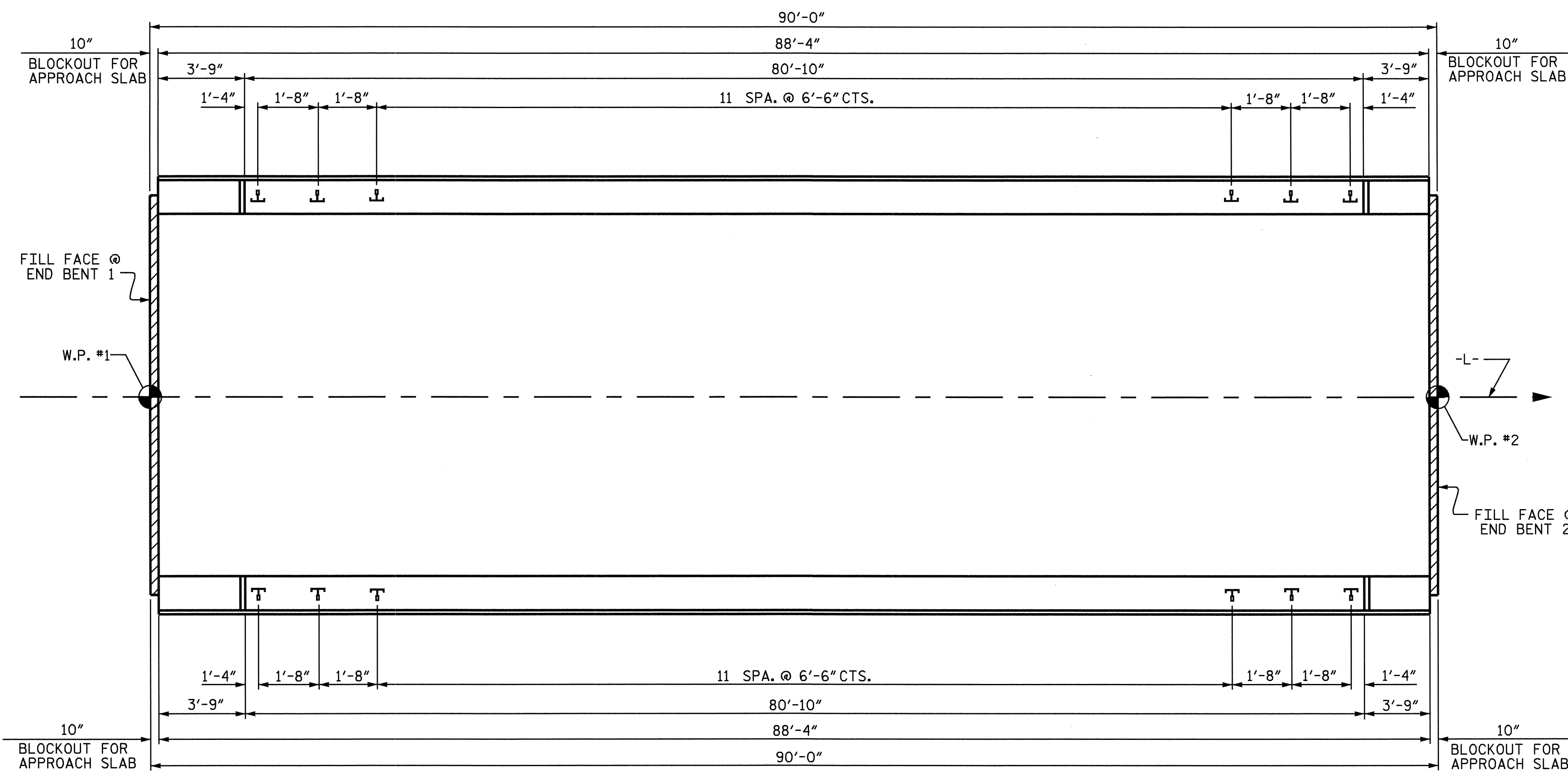
SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-14
STANDARD						TOTAL SHEETS 25
1 BAR METAL RAIL						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

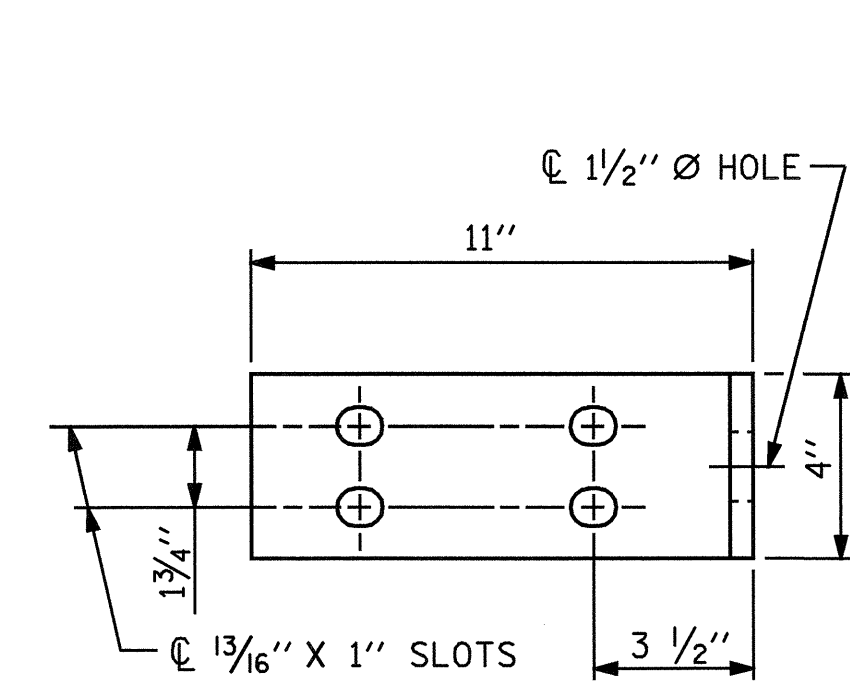
STD. NO. BMR1

STR. #1

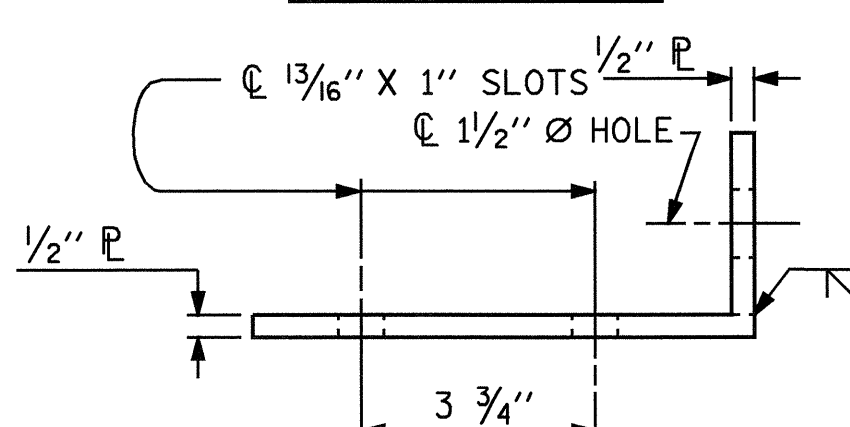
ASSEMBLED BY: A.R.CHESSON	DATE: 9-06
CHECKED BY: Q.T.NGUYEN	DATE: 11-06
DRAWN BY: FCJ 1/88	REV. 10/17/00 LES/RDR
CHECKED BY: CRK 3/89	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM



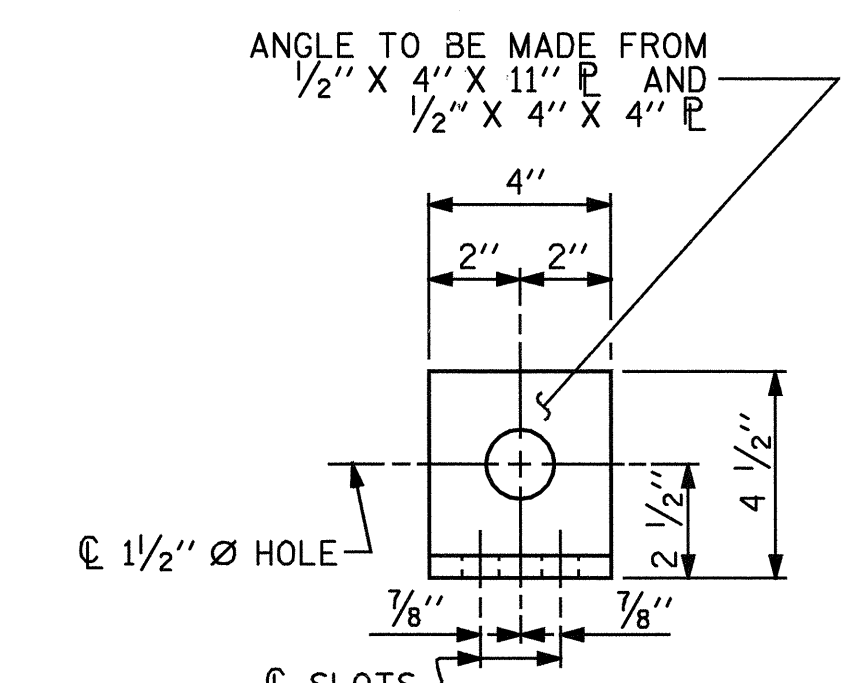
PLAN OF RAIL POST SPACINGS



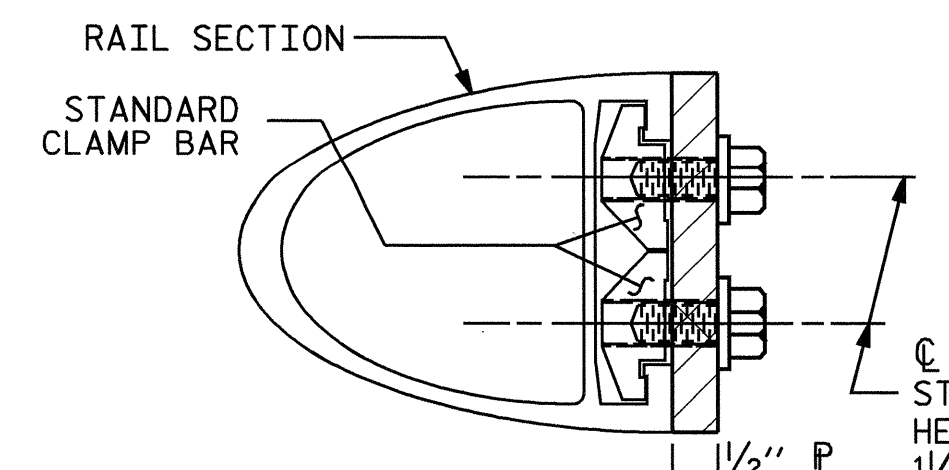
ELEVATION



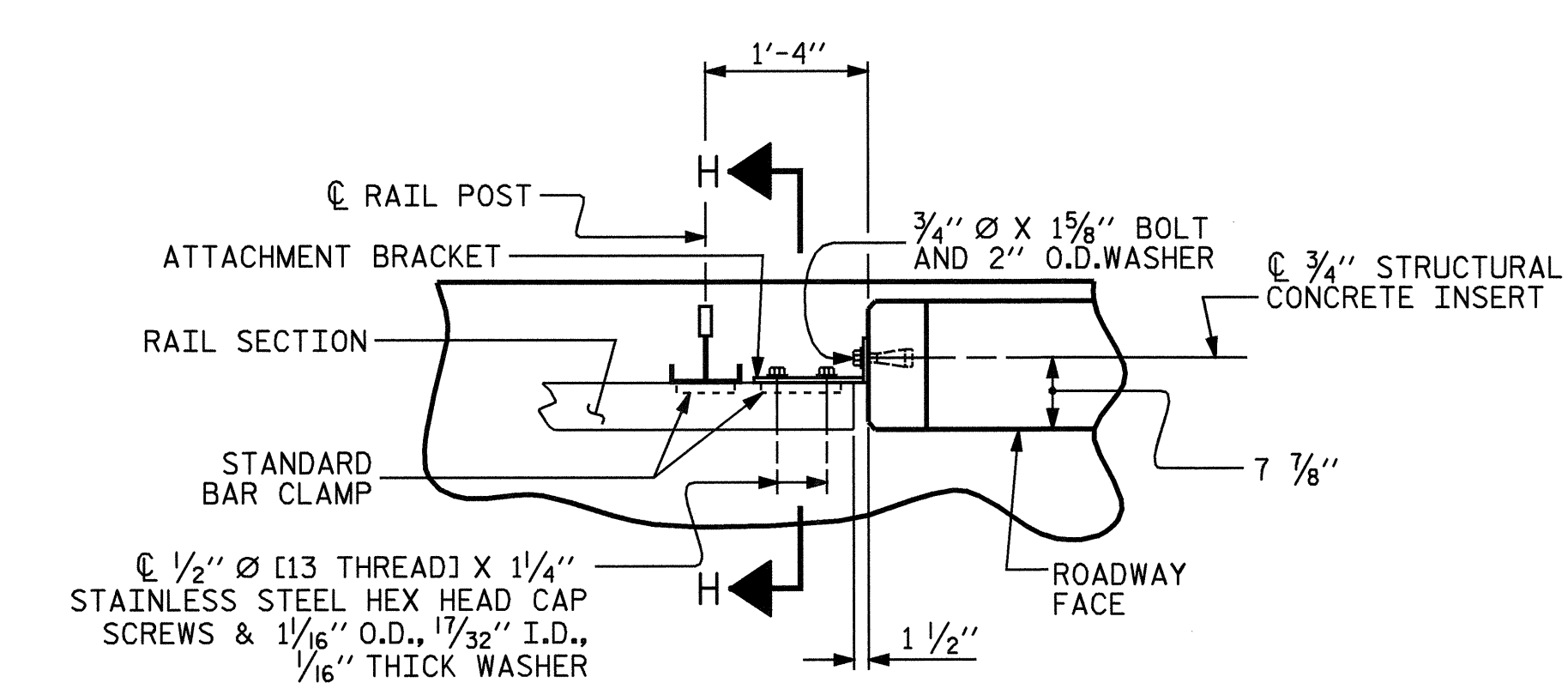
TOP VIEW



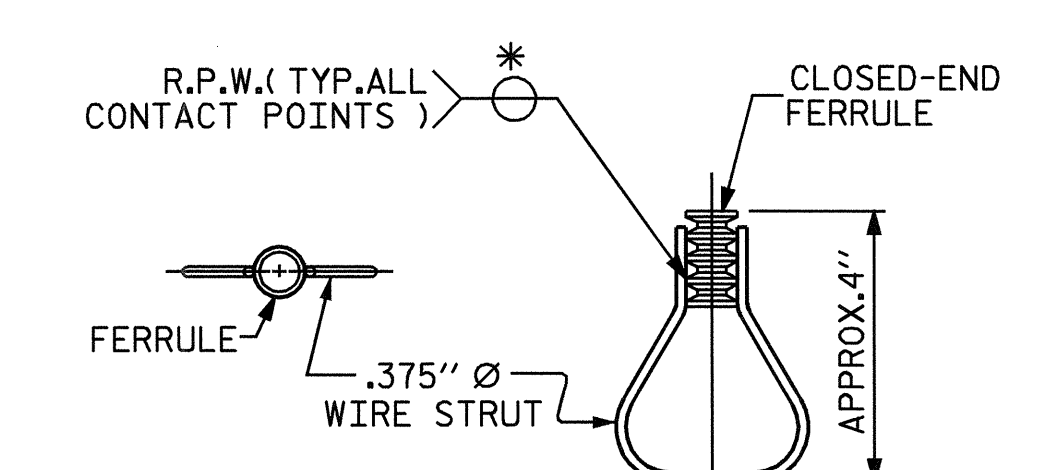
END VIEW



SECTION H-H



PLAN - RAIL AND END POST



STRUCTURAL CONCRETE INSERT

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

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 5/8" 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 5/8" 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 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" 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.

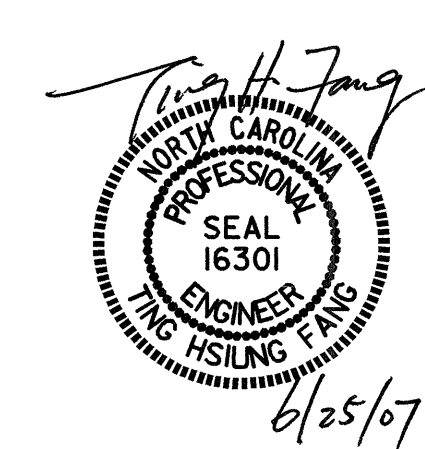
THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

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 5/8" 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 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

DETAILS FOR ATTACHING METAL RAIL TO END POST

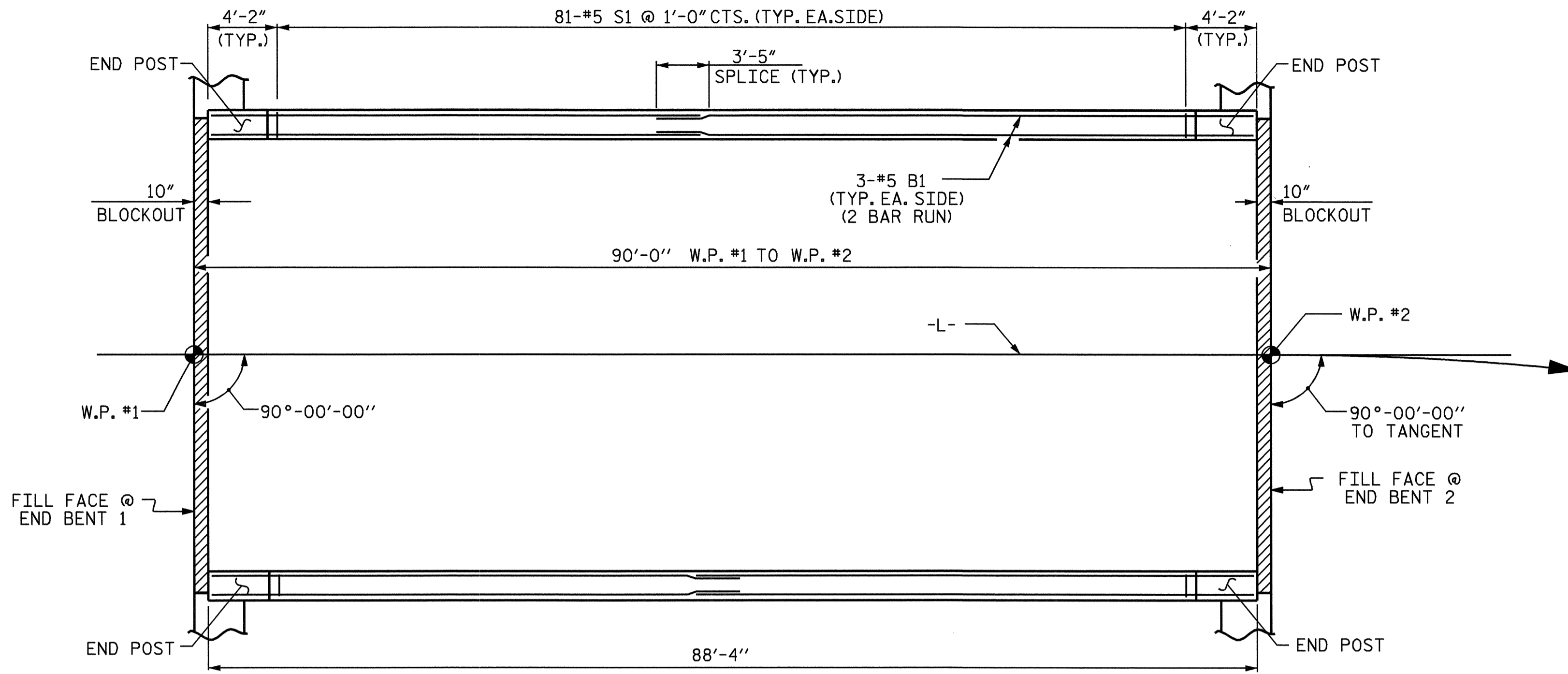
ASSEMBLED BY : A.R.CHESSON	DATE : 9-06
CHECKED BY : Q.T.NGUYEN	DATE : 11-06
DRAWN BY : FCJ 1/88	REV. 10/17/00 LES/RDR
CHECKED BY : CRK 3/89	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM



PROJECT NO. B-4243
RANDOLPH COUNTY
 STATION: 19+59.00 -L-

SHEET 2 OF 2

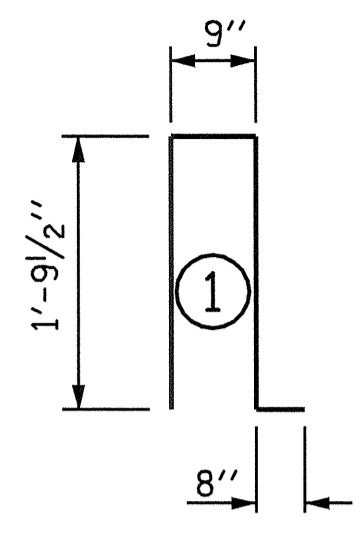
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-15
RAIL POST SPACINGS AND END OF RAIL DETAILS FOR ONE BAR METAL RAILS						
REVISIONS						TOTAL SHEETS 25
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			



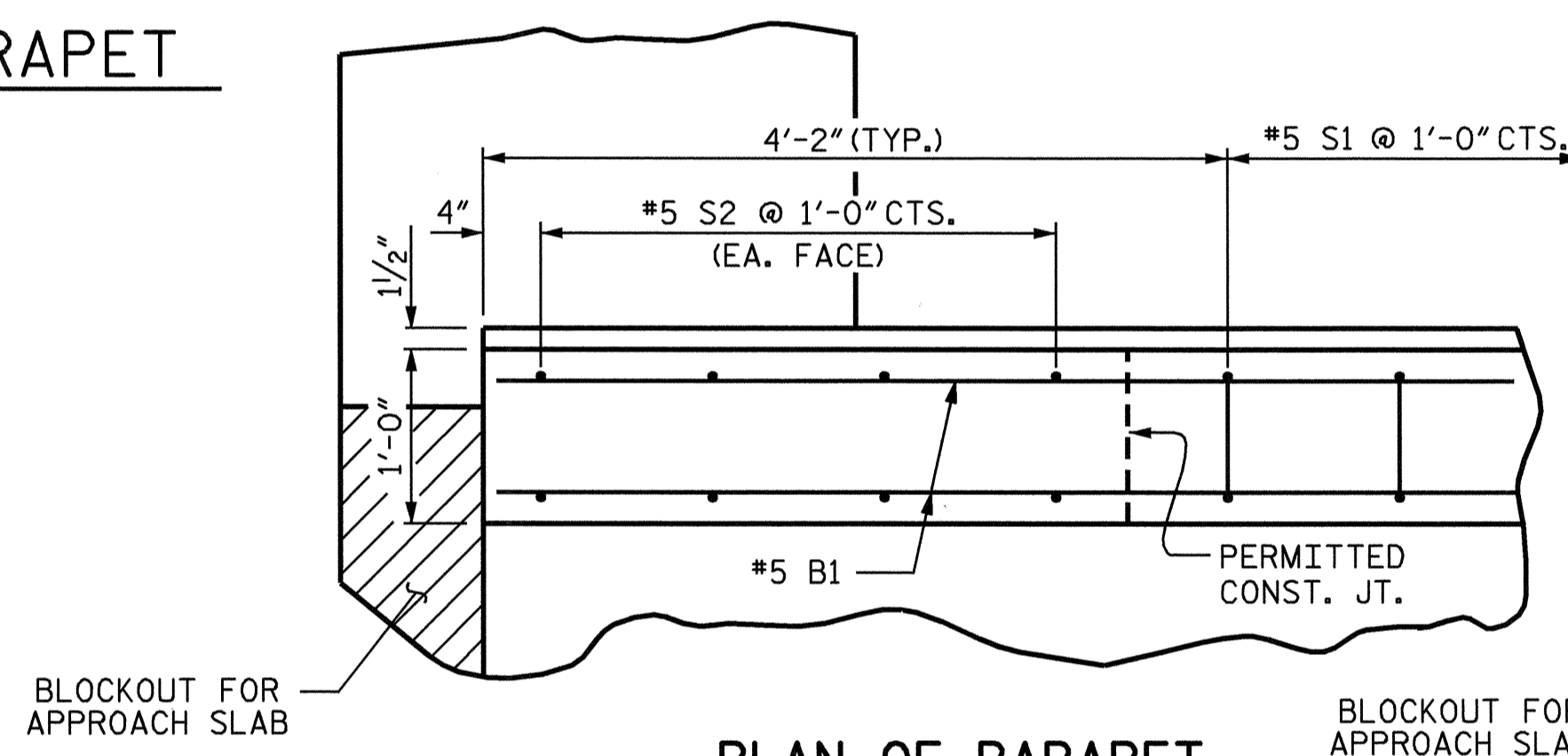
PLAN OF PARAPET

NOTES:
 ALL REINFORCING STEEL IN PARAPETS AND END POSTS SHALL BE EXPOXY COATED.
 FOR DETAIL OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAIL" SHEET.
 THE #5 S2 BARS SHALL BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM AFTER SAWING THE JOINT. THE YIELD LOAD OF THE #5 S2 BARS IS 18.6 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

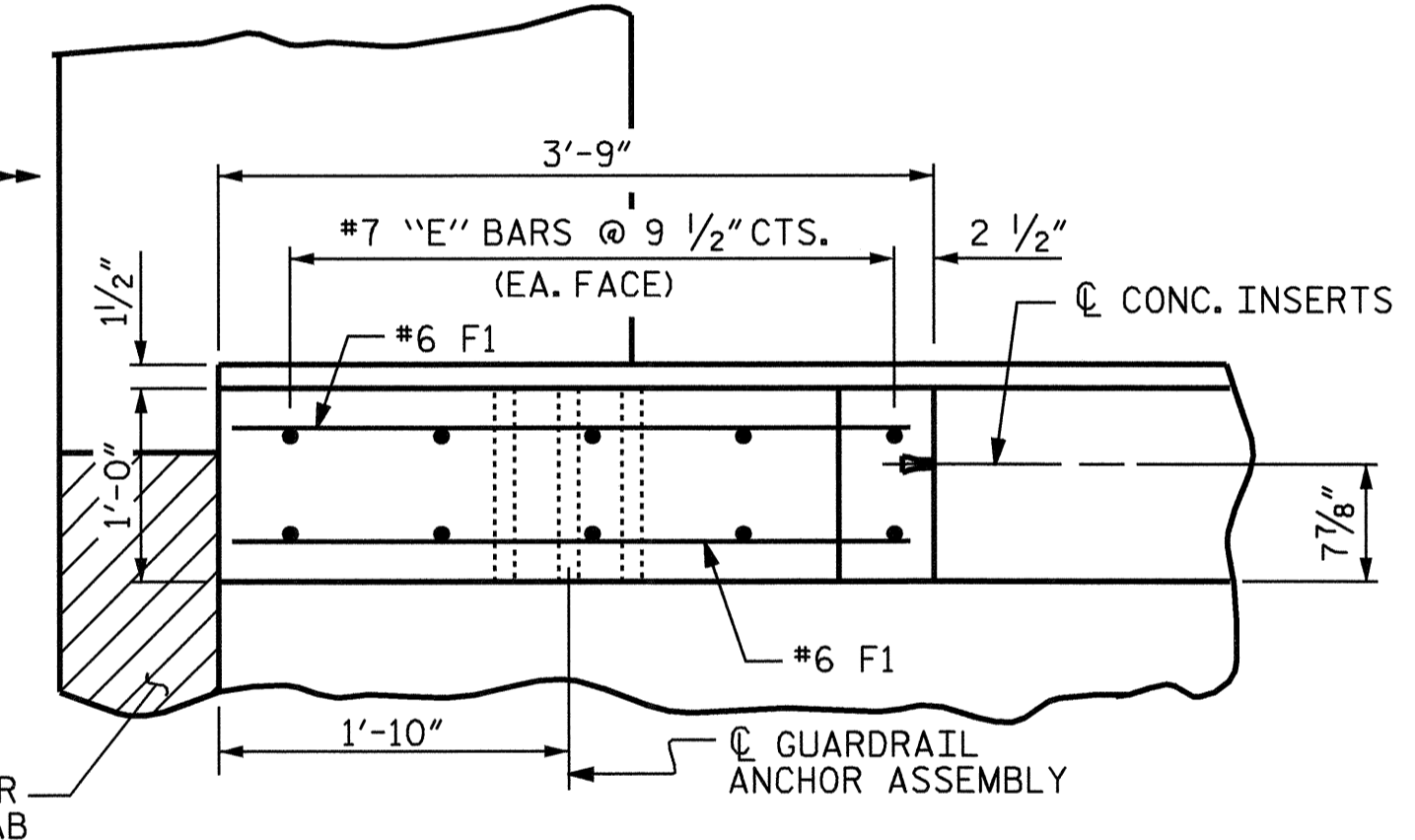
BAR TYPE		BILL OF MATERIAL				
		FOR 2 PARAPETS		AND 4 END POSTS		
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
* B1	24	#5	STR	45'-8"	1143	
* E1	8	#7	STR	2'-0"	33	
* E2	8	#7	STR	2'-2"	35	
* E3	8	#7	STR	2'-4"	38	
* E4	8	#7	STR	2'-6"	41	
* E5	8	#7	STR	2'-7"	42	
* F1	16	#6	STR	3'-5"	82	
* S1	162	#5	1	5'-0"	845	
* S2	32	#5	STR	2'-0"	67	
* EPOXY COATED REINFORCING STEEL					2326	LBS.
CLASS AA CONCRETE						
CONCRETE PARAPET				9.0	CU. YDS.	
END POSTS				1.4	CU. YDS.	
TOTAL				10.4	CU. YDS.	
CONCRETE PARAPET				176.67	LIN. FT.	



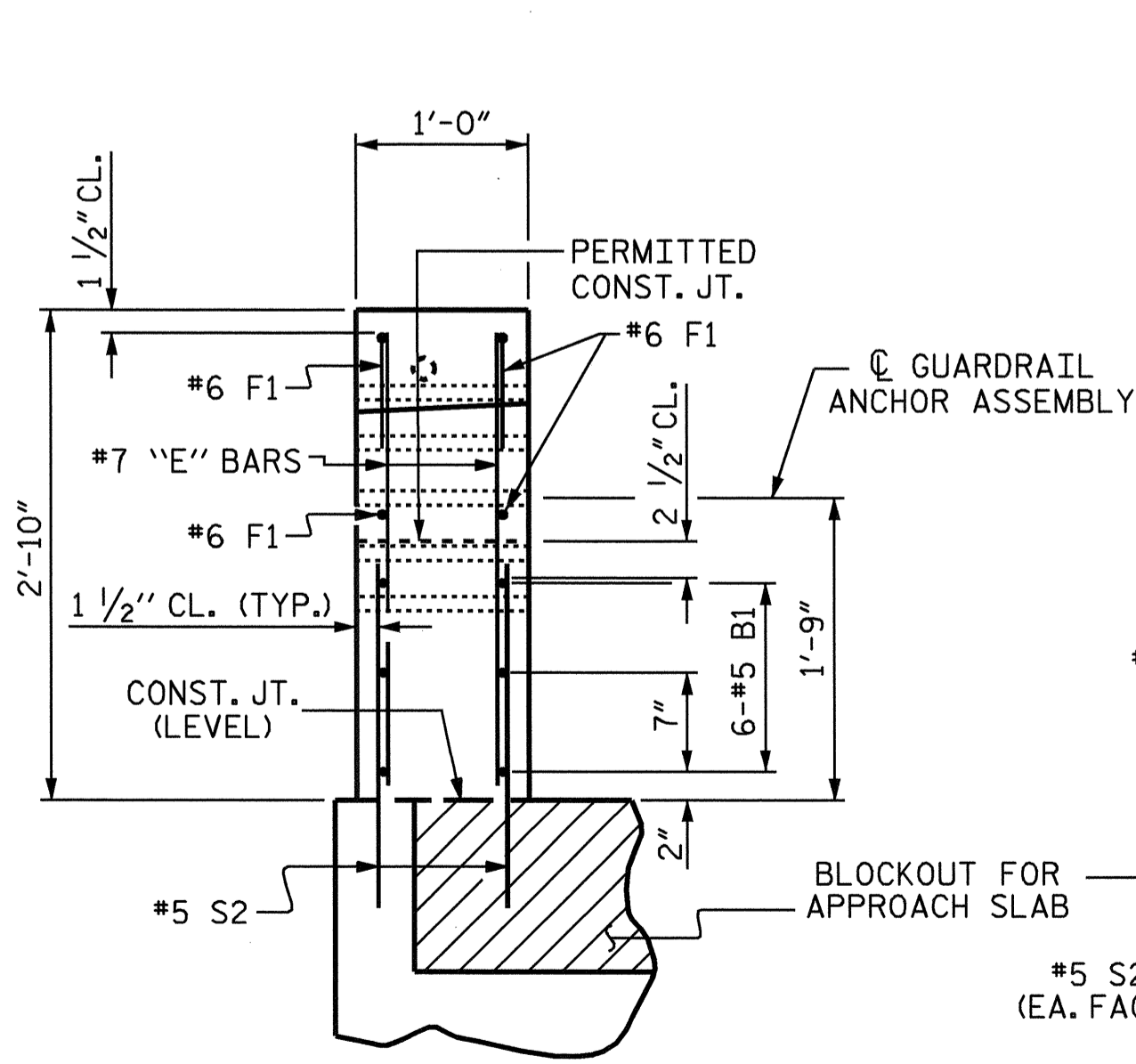
BAR DIMENSIONS ARE OUT TO OUT



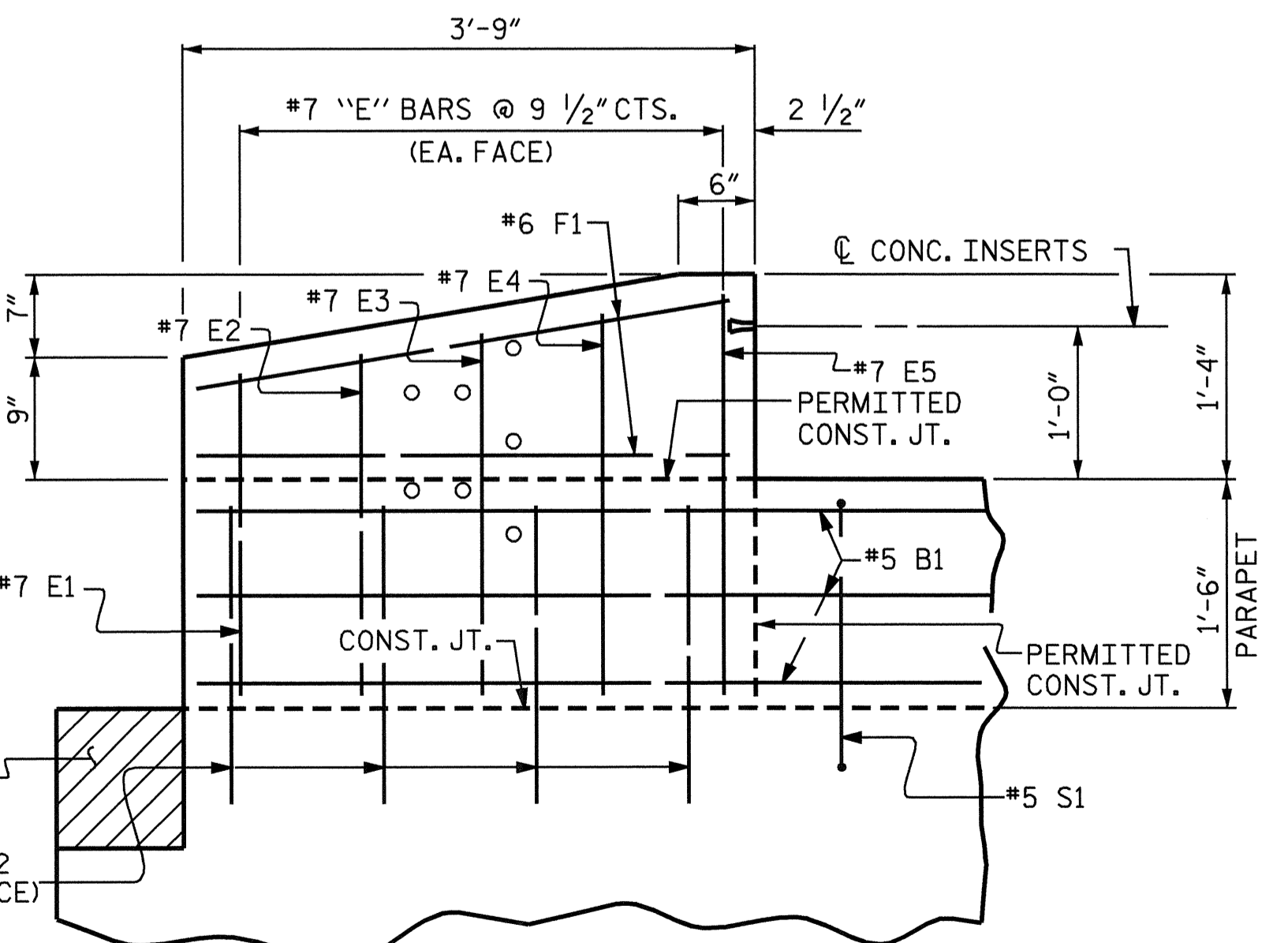
PLAN OF PARAPET



PLAN OF END POST

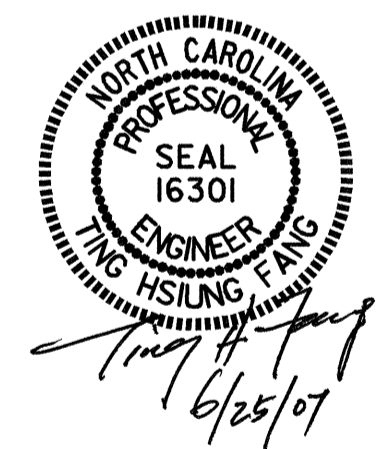


END VIEW



ELEVATION

PARAPET AND END POST FOR ONE BAR RAIL



PROJECT NO. B-4243
RANDOLPH COUNTY
 STATION: 19+59.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 1'-0" X 1'-6"
 CONCRETE PARAPET
 AND END POSTS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS 25
2			4			

DRAWN BY: A.R.CHESSON DATE: 5/07
 CHECKED BY: T.H.FANG DATE: 5/07

25-JUN-2007 08:04
 G:\STRUCTURE\B4243\FINAL\B4243_04.DGN
 qtnguyen

NOTES

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

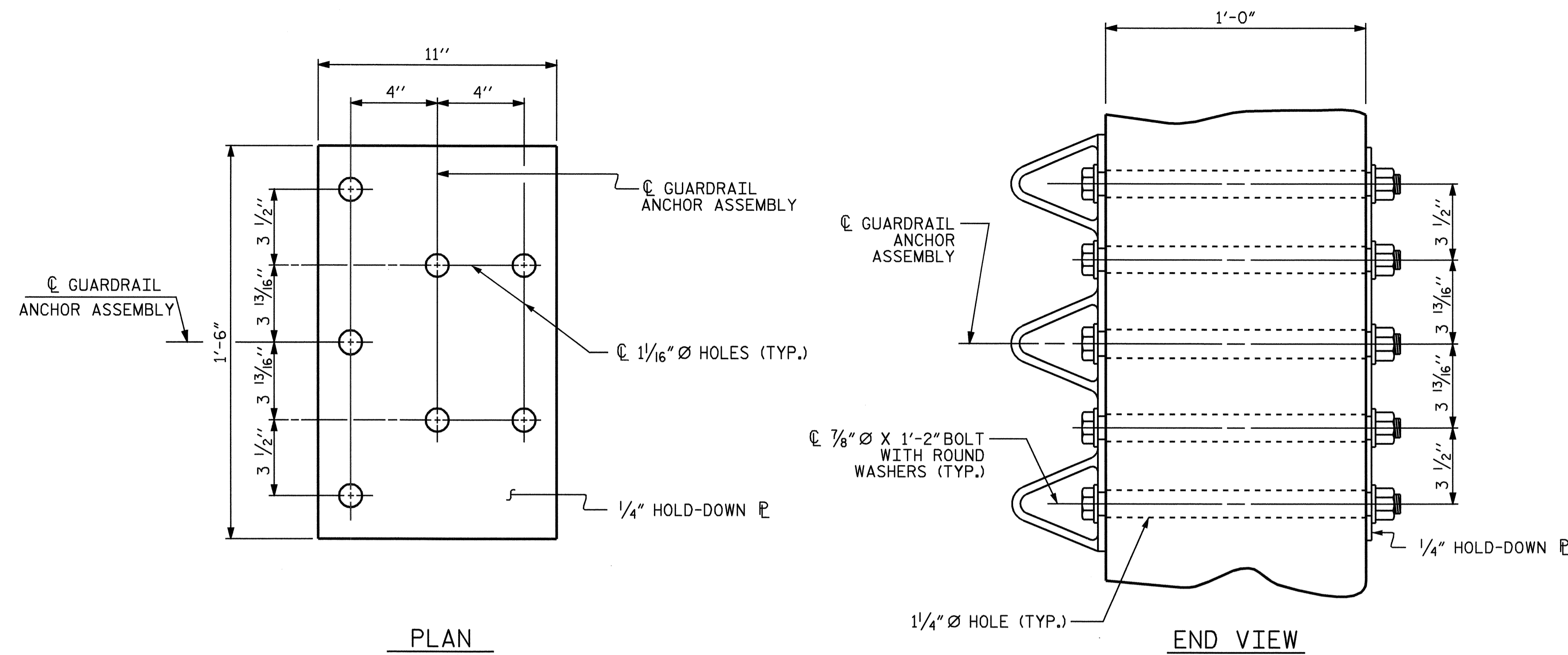
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS.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

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

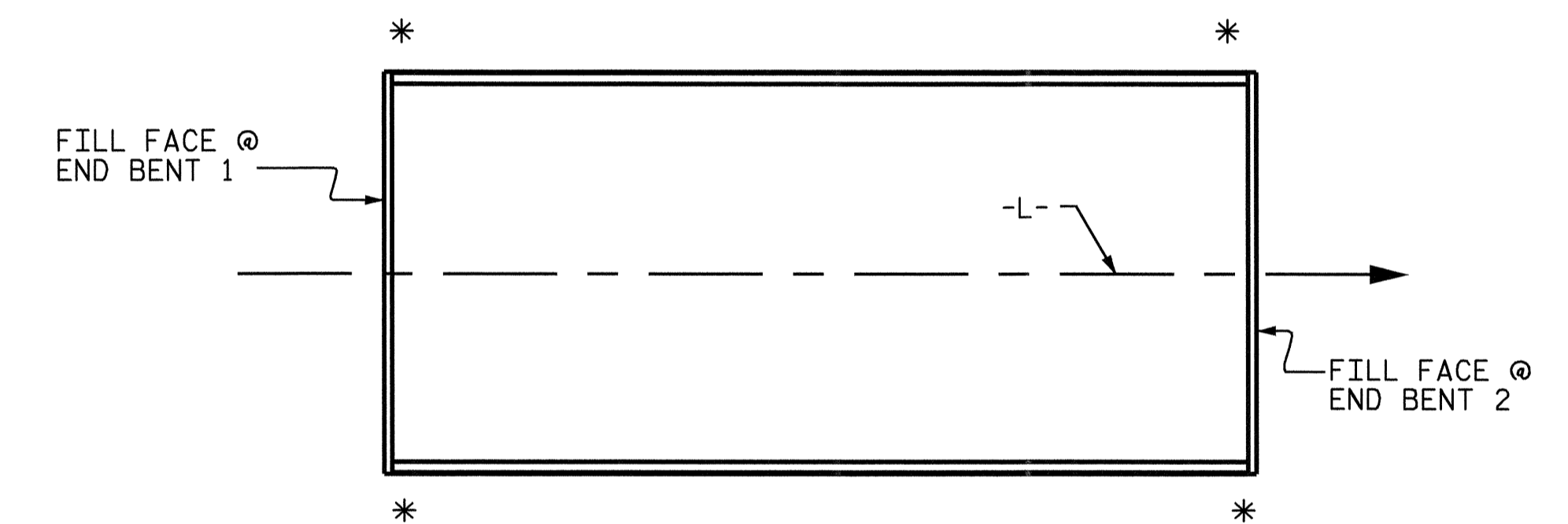
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

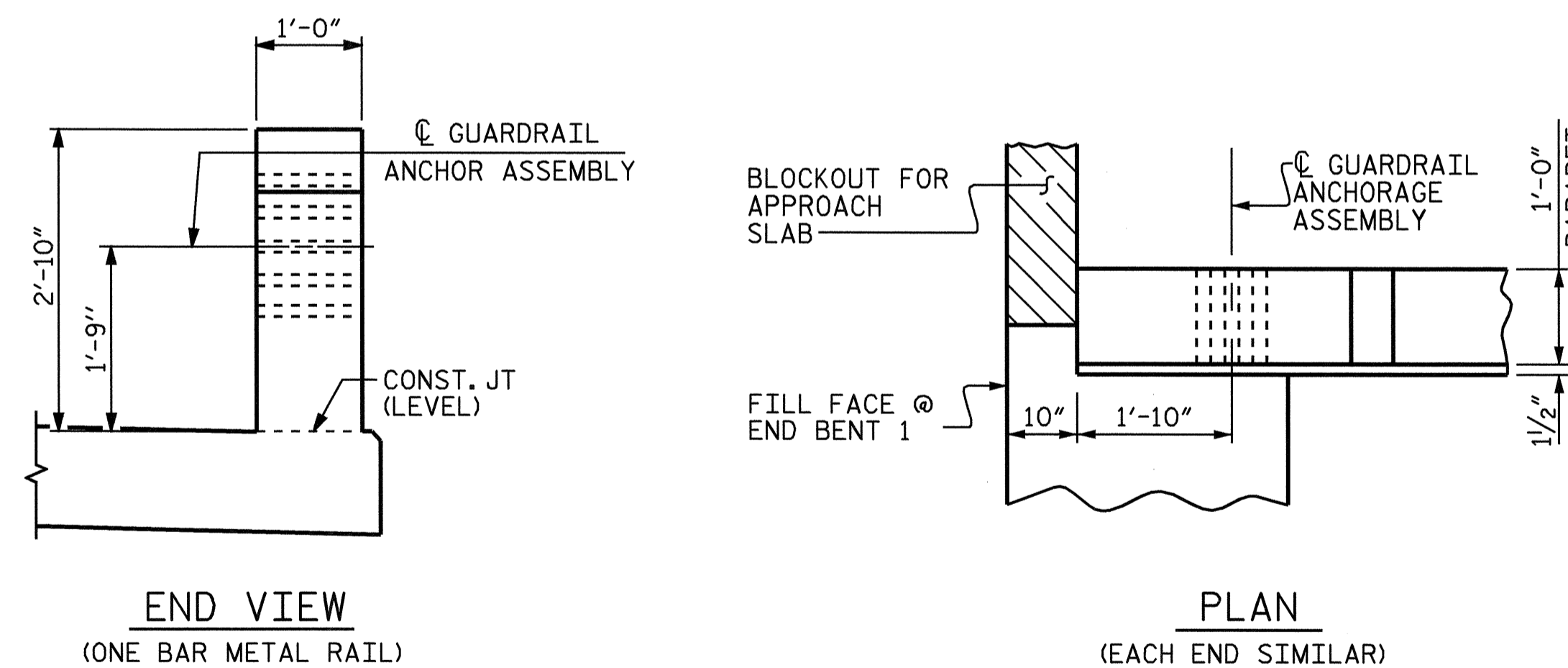
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



GUARDRAIL ANCHOR ASSEMBLY DETAILS



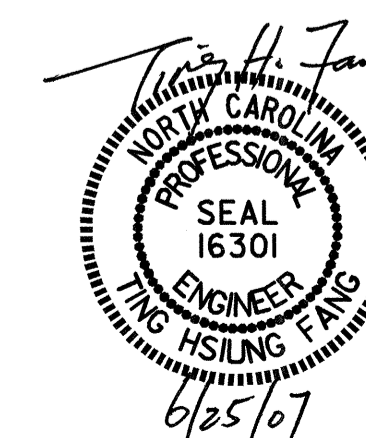
SKETCH SHOWING POINTS OF ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

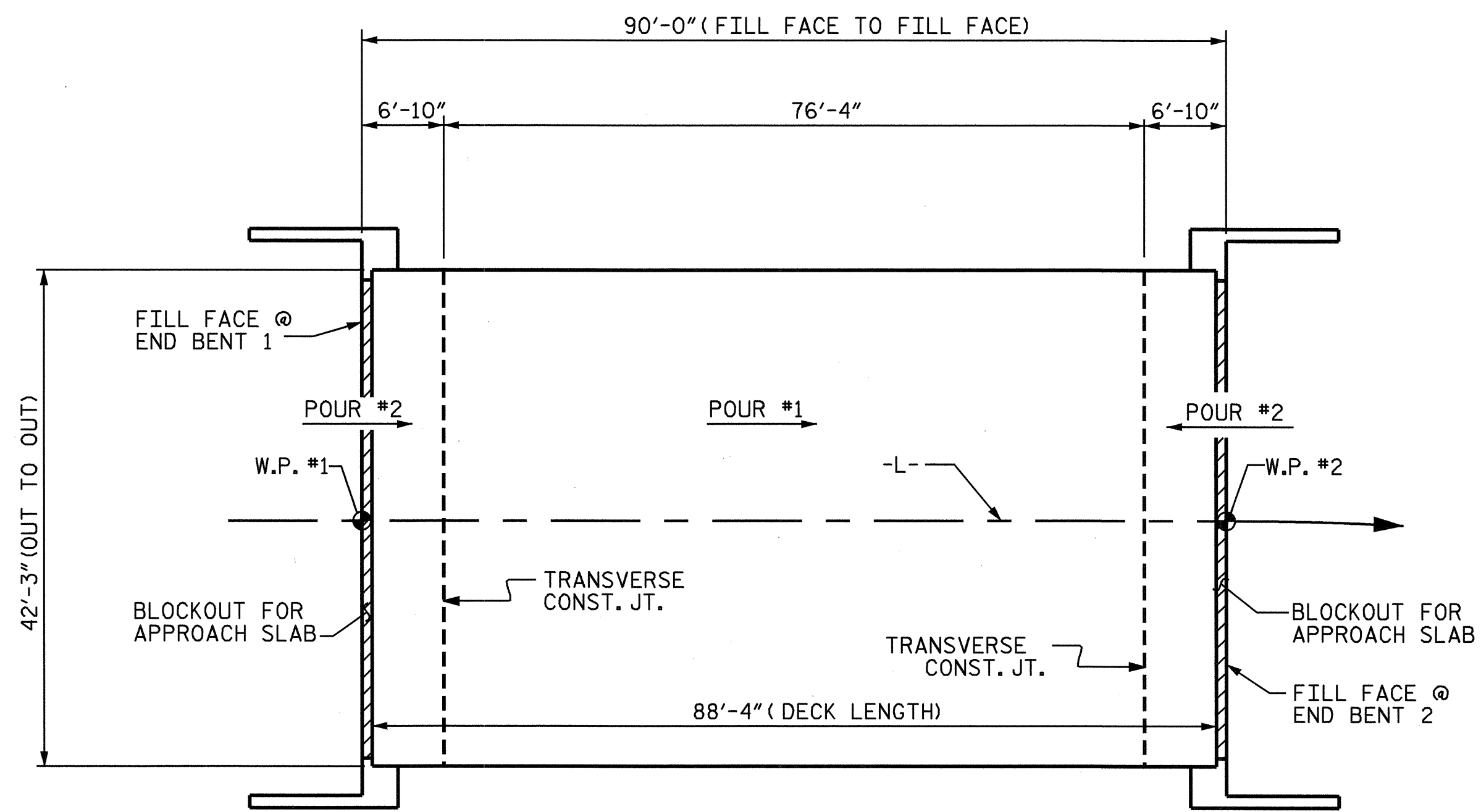
PROJECT NO. B-4243
RANDOLPH COUNTY
 STATION: 19+59.00 -L-

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

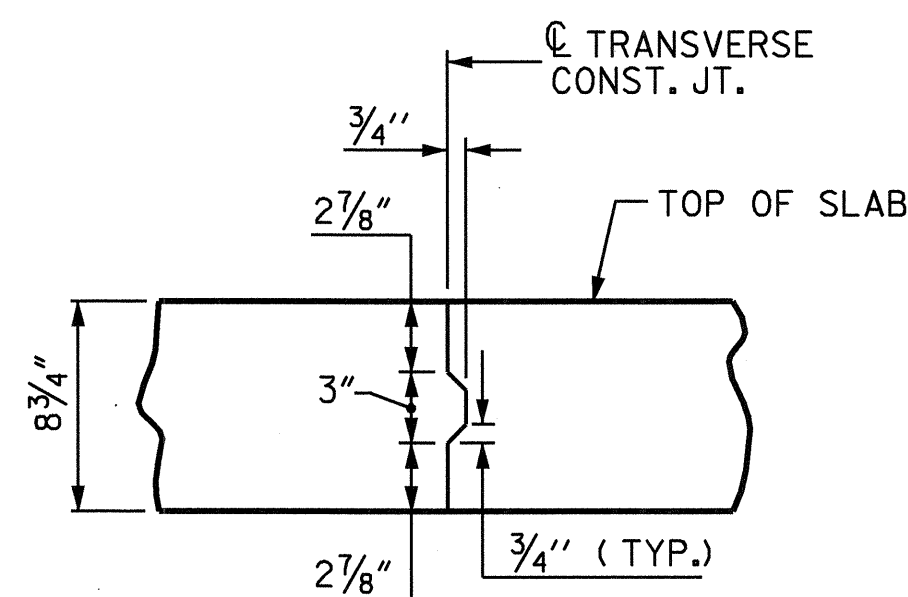


ASSEMBLED BY : A.R.CHESSON	DATE : 9-06
CHECKED BY : Q.T.NGUYEN	DATE : 11-06
DRAWN BY : EEM 6/94	REV. 10/17/00 RWW/LES
CHECKED BY : RGW 6/94	REV. 5/1/03 RWW/JTE
	REV. 5/1/06 TLA/GM

REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			25



LAYOUT FOR COMPUTING AREA
OF REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 3,732)



**TRANSVERSE CONSTRUCTION JOINT
DETAIL**

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

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

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

GROOVING BRIDGE FLOORS

APPROACH SLABS	1,791	SQ.FT.
BRIDGE DECK	3,256	SQ.FT.
TOTAL	5,047	SQ.FT.

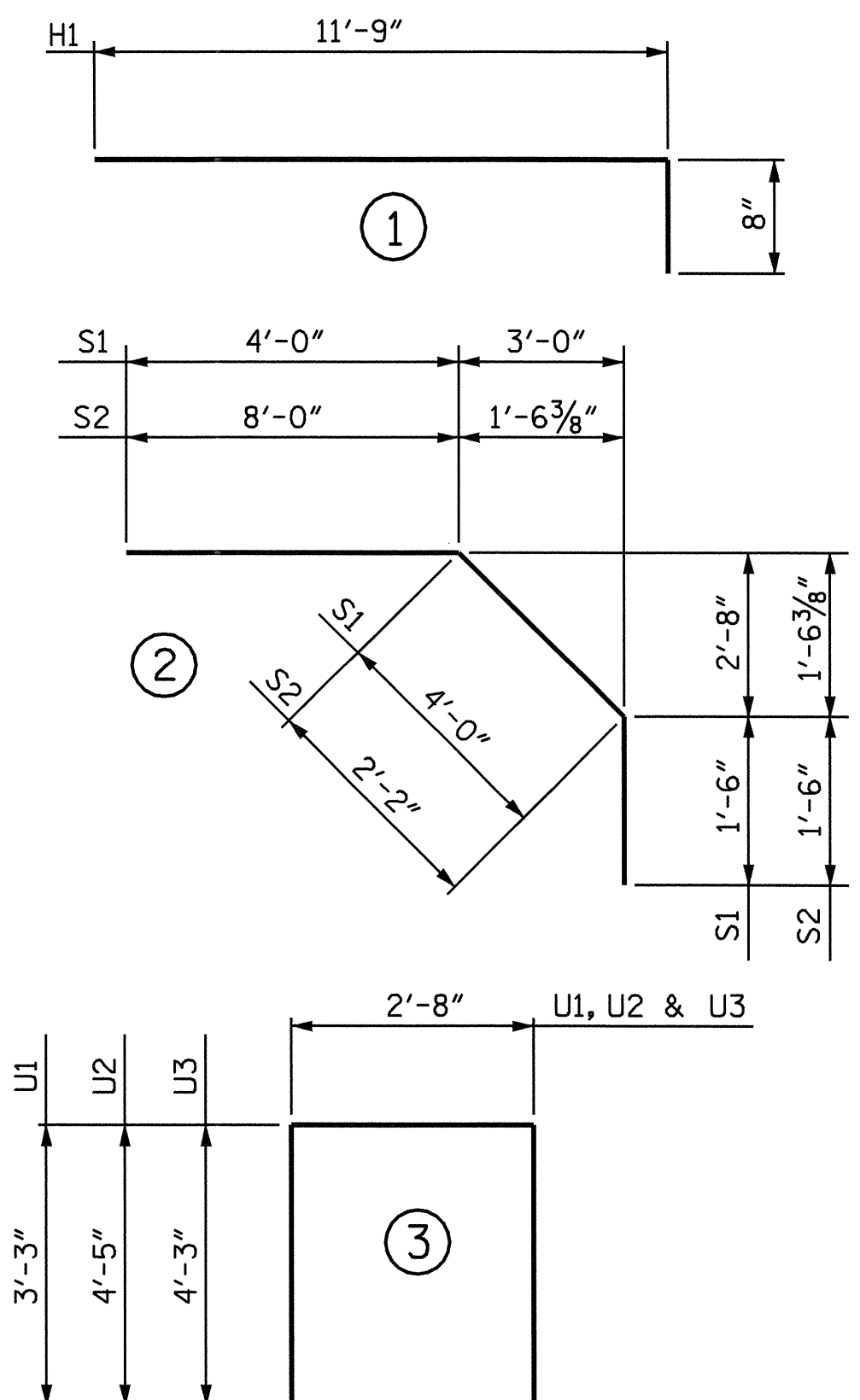
BILL OF MATERIAL

SPAN A

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	163	#5	STR	41'-11"	7126
A2	163	#5	STR	41'-11"	7126
B1	52	#5	STR	56'-4"	3055
B2	104	#6	STR	18'-0"	2812
* B3	60	#4	STR	29'-0"	1162
* B4	114	#6	STR	18'-0"	3082
H1	40	#4	1	12'-5"	332
K1	20	#5	STR	47'-11"	1000
K2	8	#4	STR	3'-1"	26
* S1	72	#4	2	9'-6"	457
* S2	72	#4	2	11'-8"	561
U1	76	#4	3	9'-2"	465
U2	4	#4	3	11'-6"	31
U3	4	#4	3	11'-2"	30
V2	44	#4	STR	4'-5"	130
V3	44	#4	STR	4'-3"	125

REINFORCING STEEL = 15,132 LBS
* EPOXY COATED REINF. STEEL = 12,388 LBS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

	CLASS AA CONCRETE (CU.YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
SPAN A		15,132	12,388
POUR #1	89.8		
POUR #2	15.4		
TOTALS	105.2	15,132	12,388

PROJECT NO. B-4243
RANDOLPH COUNTY
STATION: 19+59.00 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
SUPERSTRUCTURE
BILL OF MATERIAL

ASSEMBLED BY : A.R.CHESSON	DATE : 10-06
CHECKED BY : Q.T.NGUYEN	DATE : 11-06
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

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

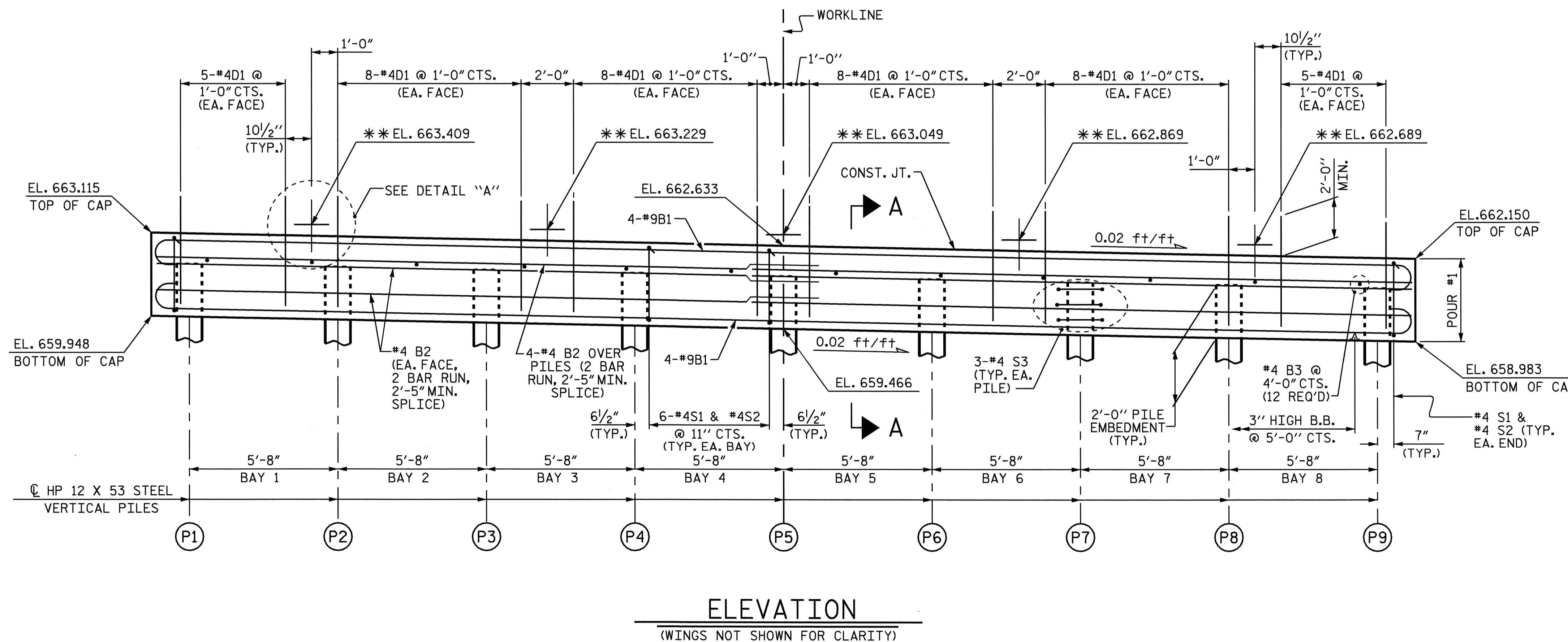
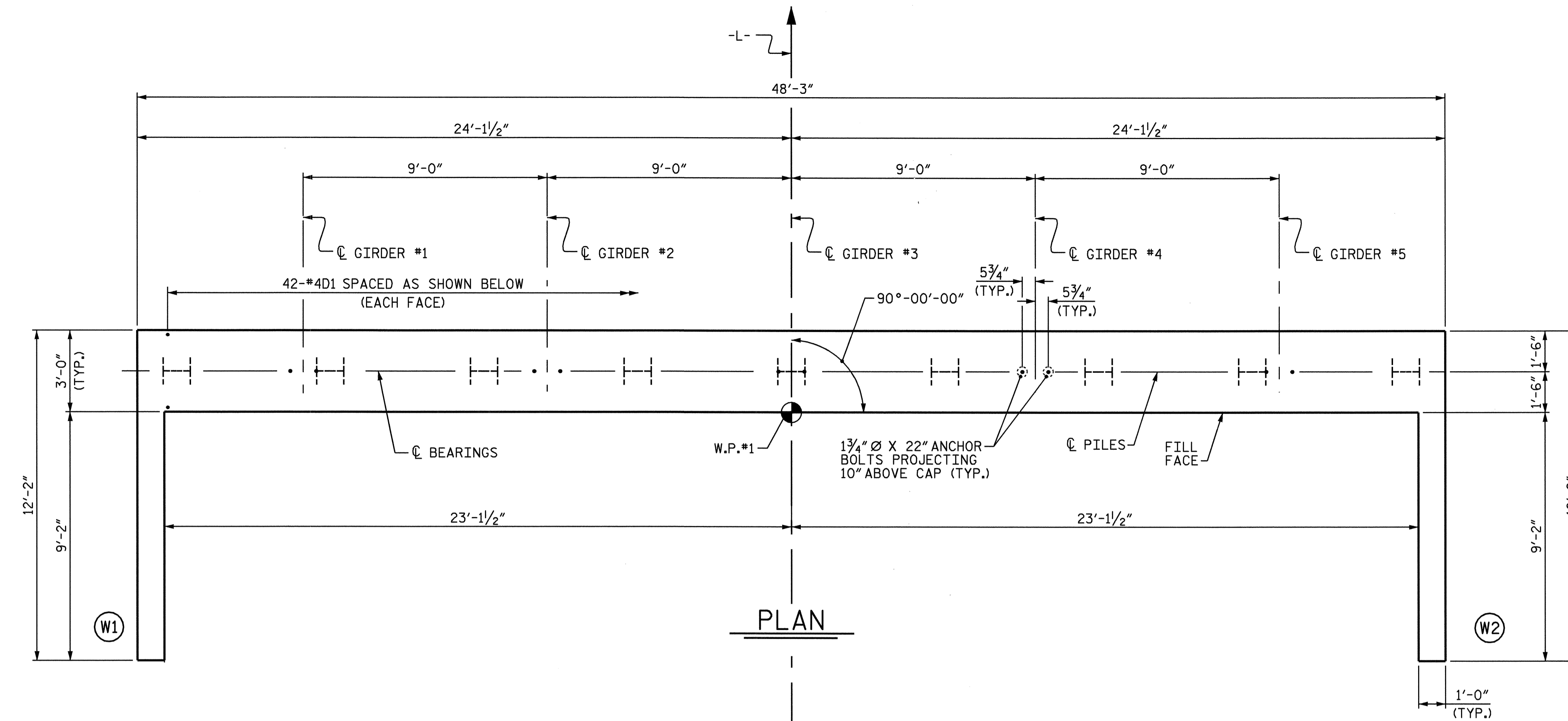
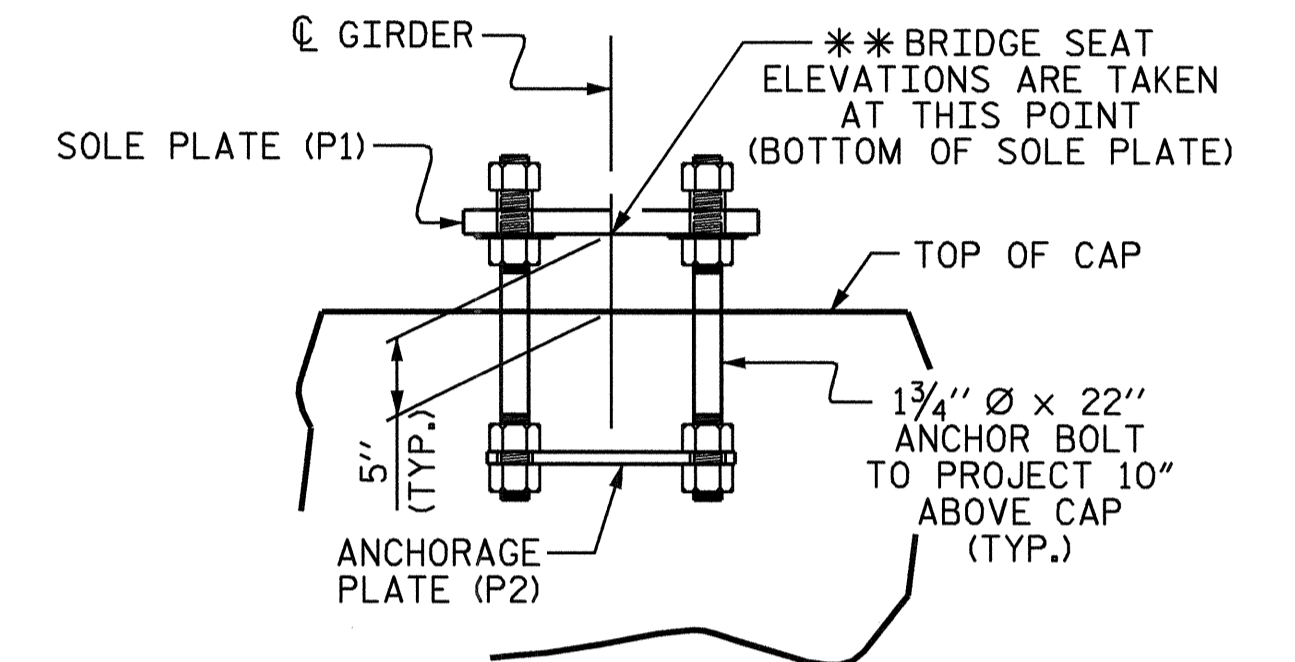
NOTES

STIRRUPS AND #4 B2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

FOR PILE SPLICE DETAILS, SEE END BENT 1, SHEET 2 OF 2.

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

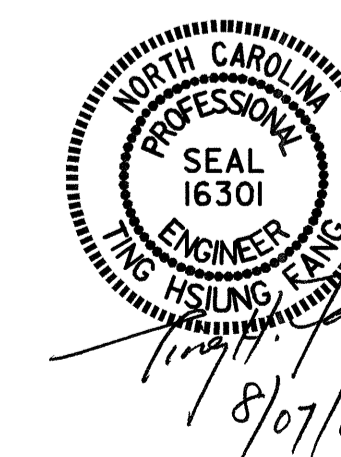
SEE SUPERSTRUCTURE SHEETS FOR ABUTMENT DETAILS.



TOP OF PILE ELEVATIONS	
PILE	ELEVATION
(P1)	661.919
(P2)	661.806
(P3)	661.692
(P4)	661.579
(P5)	661.466
(P6)	661.352
(P7)	661.239
(P8)	661.126
(P9)	661.012

PROJECT NO. B-4243
RANDOLPH COUNTY
STATION: 19+59.00 -L-

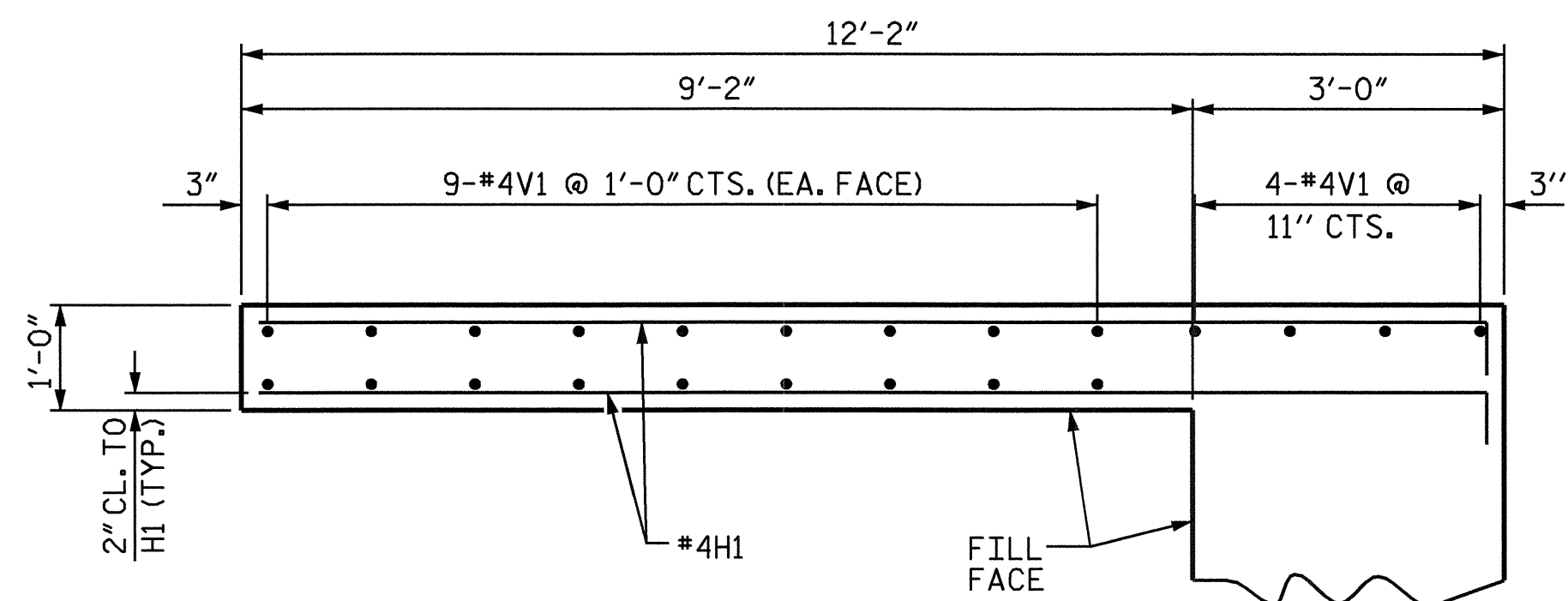
SHEET 1 OF 2



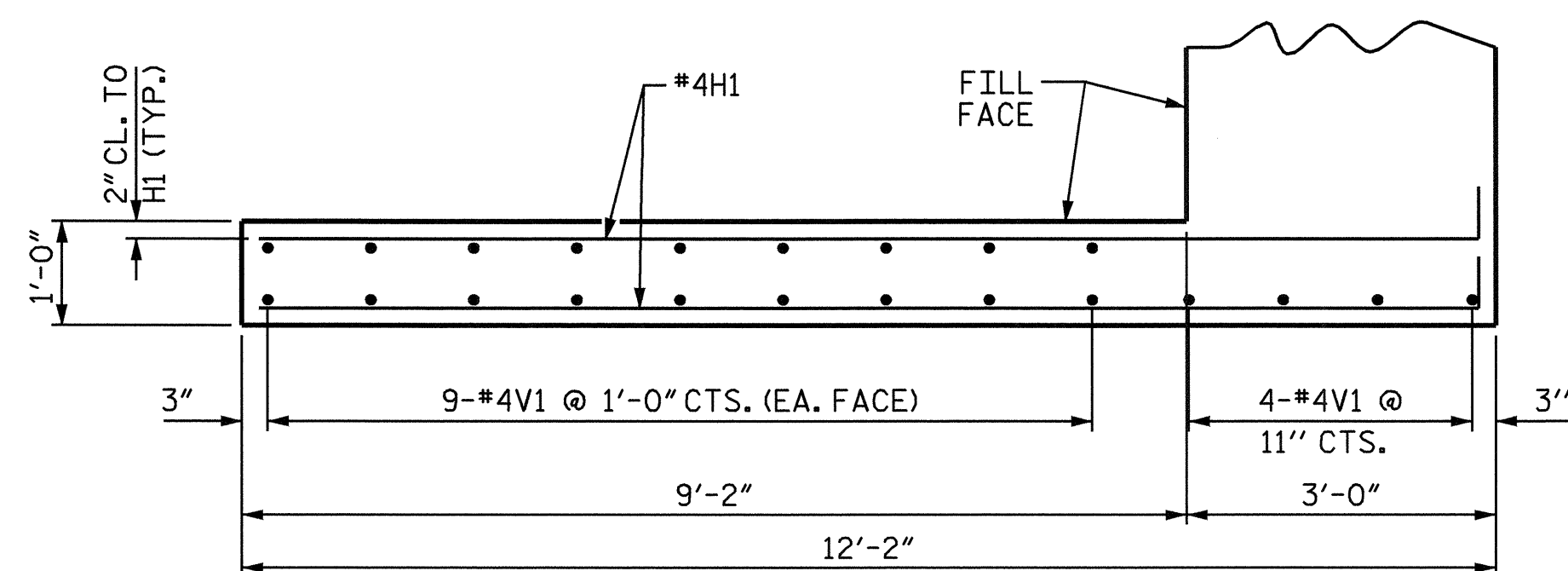
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT 1
INTEGRAL

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19	
1			3			TOTAL SHEETS	
2			4			25	

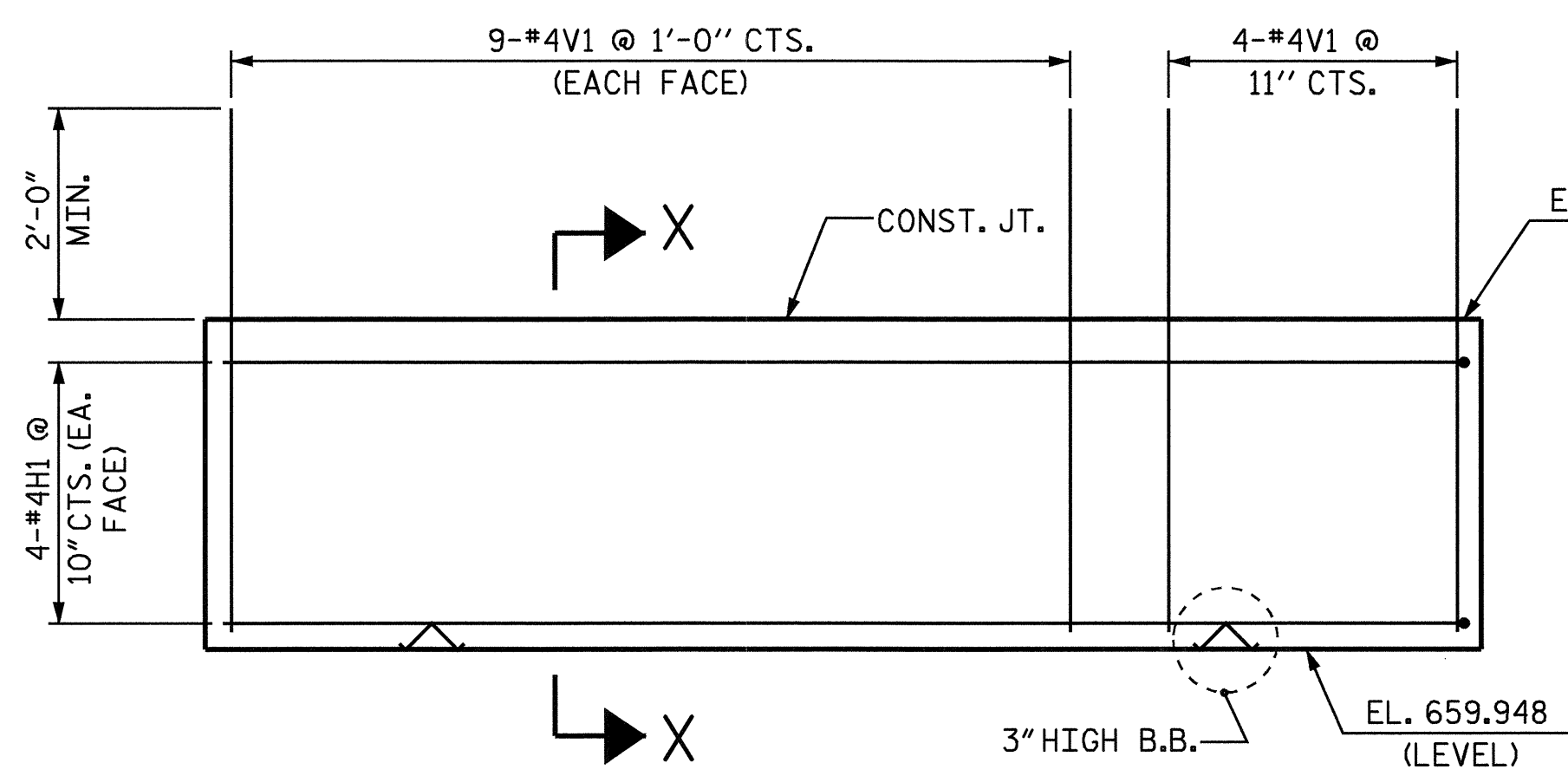
DRAWN BY: A.R.CHESSON/JPA DATE: 10-06
CHECKED BY: Q.T. NGUYEN DATE: 11-06



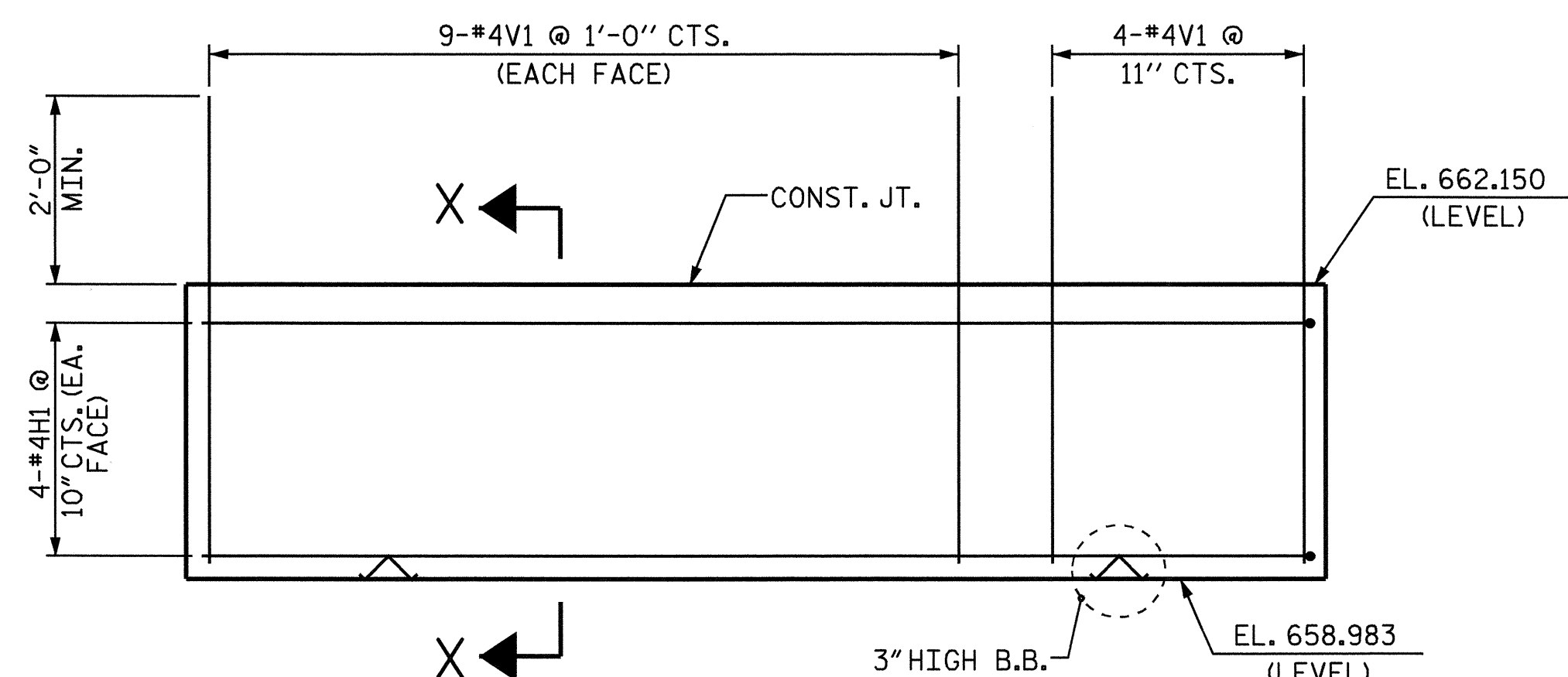
PLAN OF WING (W1)



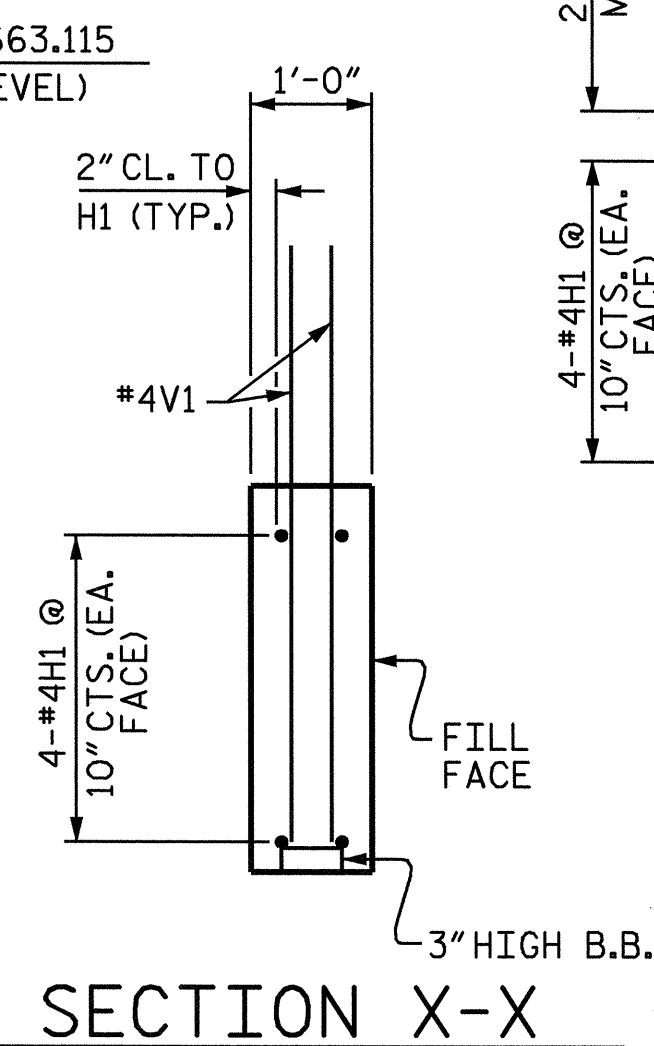
PLAN OF WING (W2)



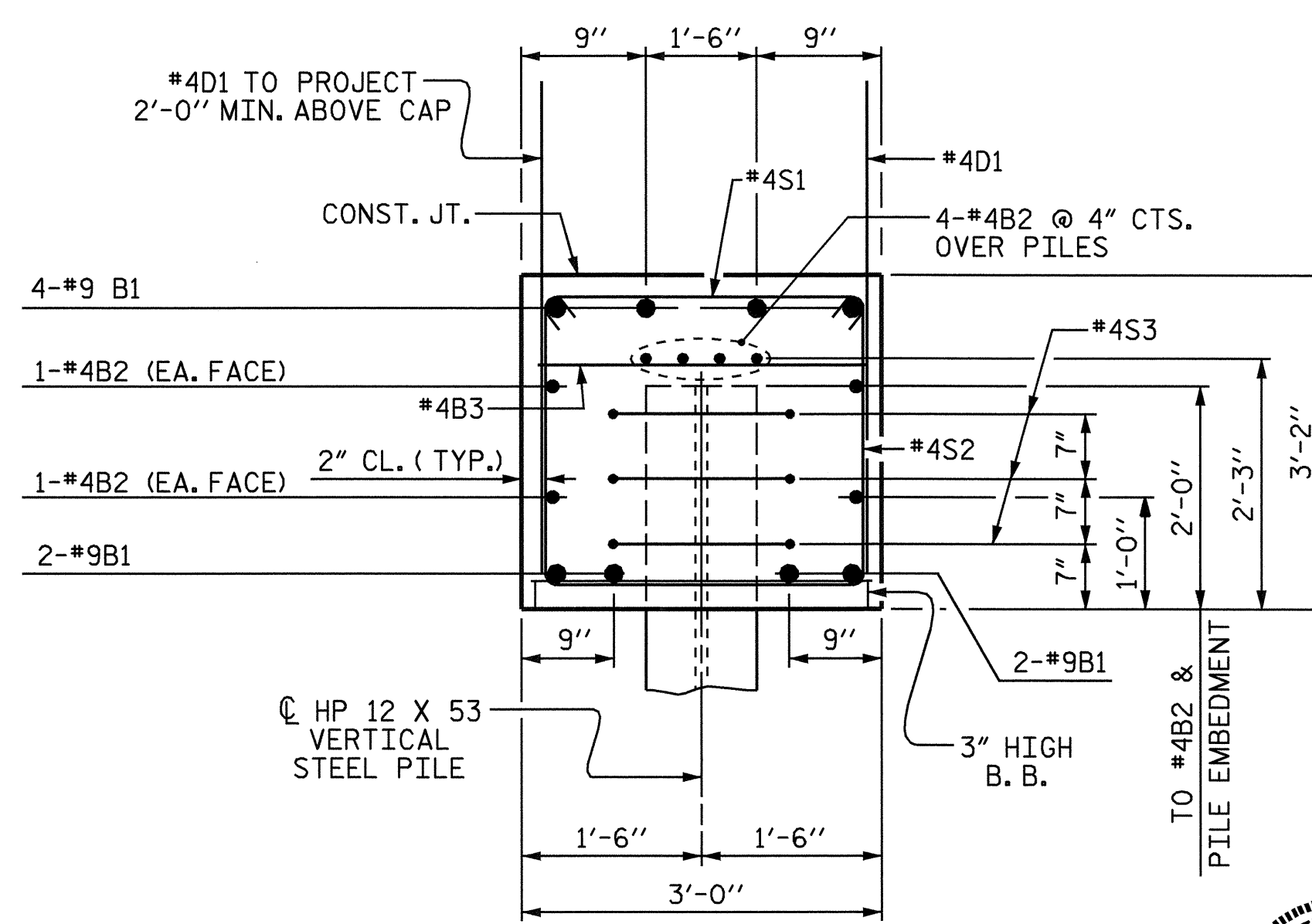
ELEVATION OF WING (W1)



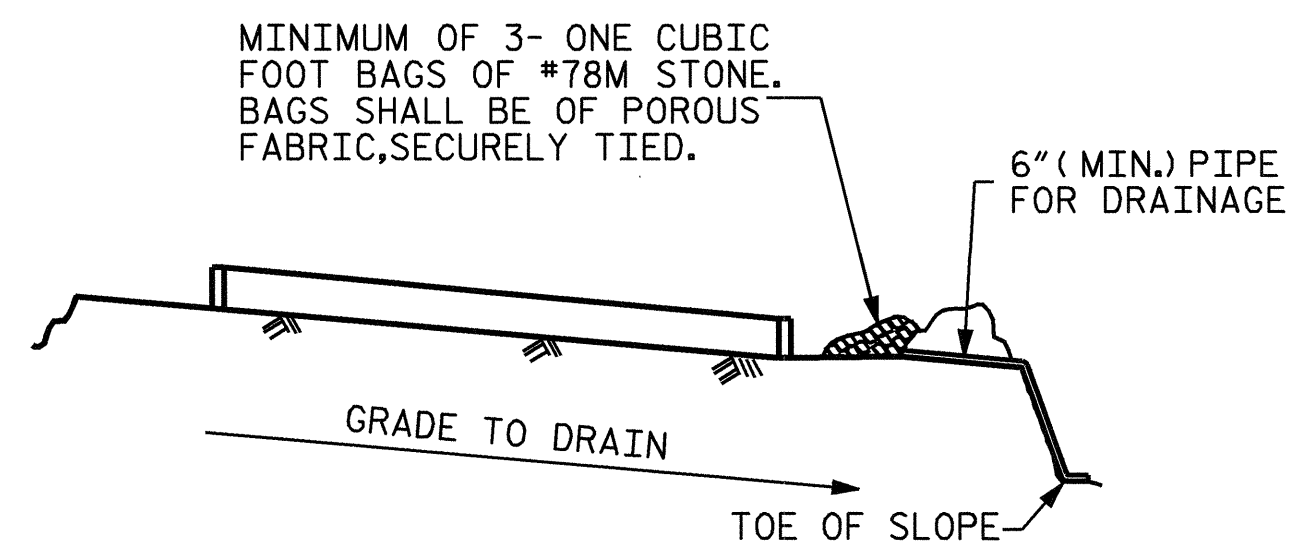
ELEVATION OF WING (W2)



SECTION X-X



SECTION A-A



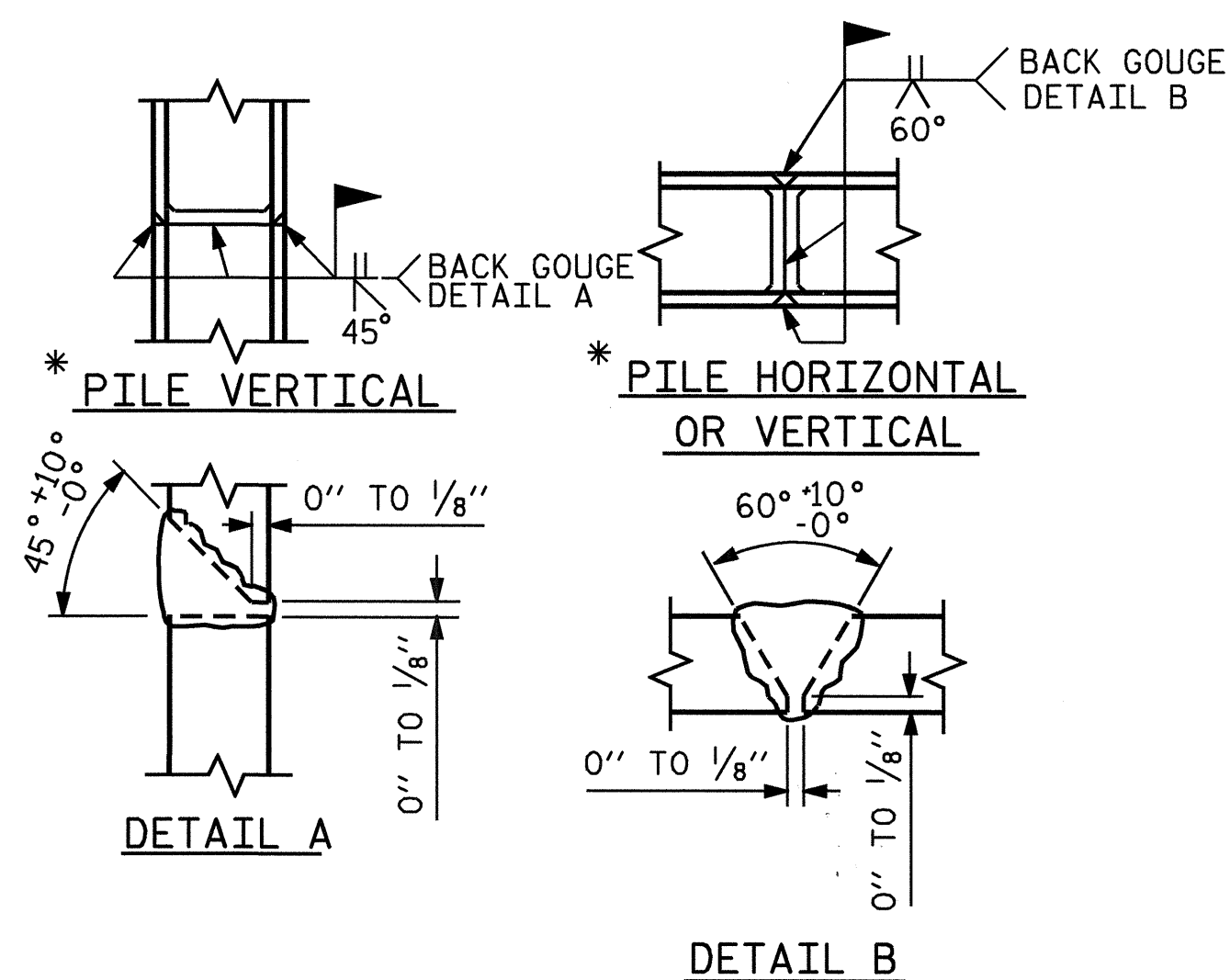
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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

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

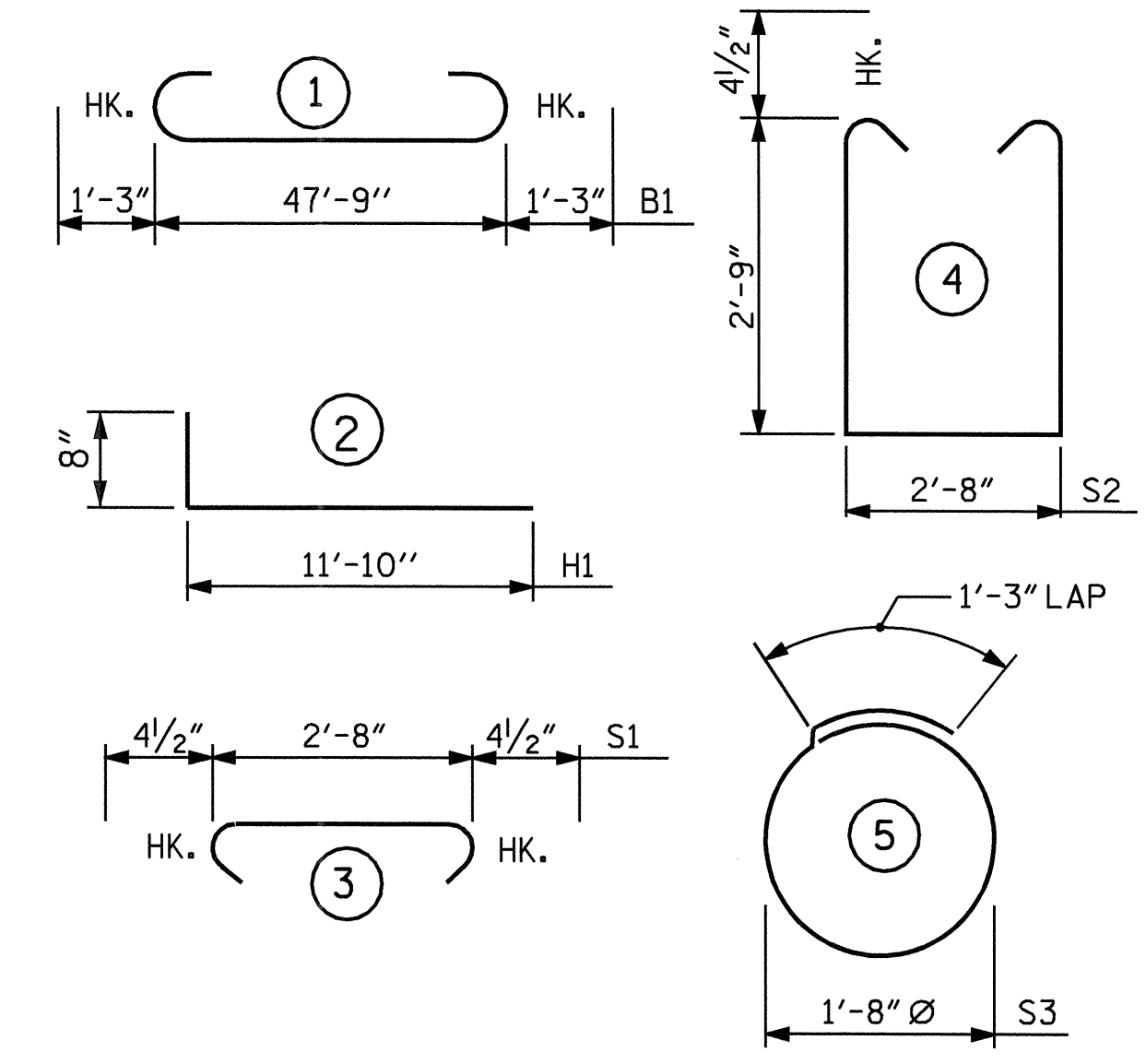
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	50'-3"	1367
B2	16	#4	STR	25'-2"	269
B3	12	#4	STR	2'-8"	21
D1	84	#4	STR	5'-0"	281
H1	16	#4	2	12'-6"	134
S1	50	#4	3	3'-5"	114
S2	50	#4	4	8'-11"	298
S3	27	#4	5	6'-6"	117
V1	44	#4	STR	5'-0"	147

REINFORCING STEEL = 2748 LBS

CLASS A CONCRETE QUANTITIES :

POUR #1 (CAP & WINGS) 19.1 C.Y.

HP 12 X 53 STEEL PILES :

No. 9 180 LIN. FT.

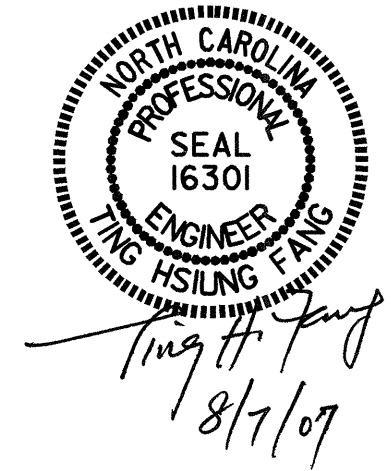
PROJECT NO. B-4243
 RANDOLPH COUNTY
 STATION: 19+59.00 -L-

SHEET 2 OF 2

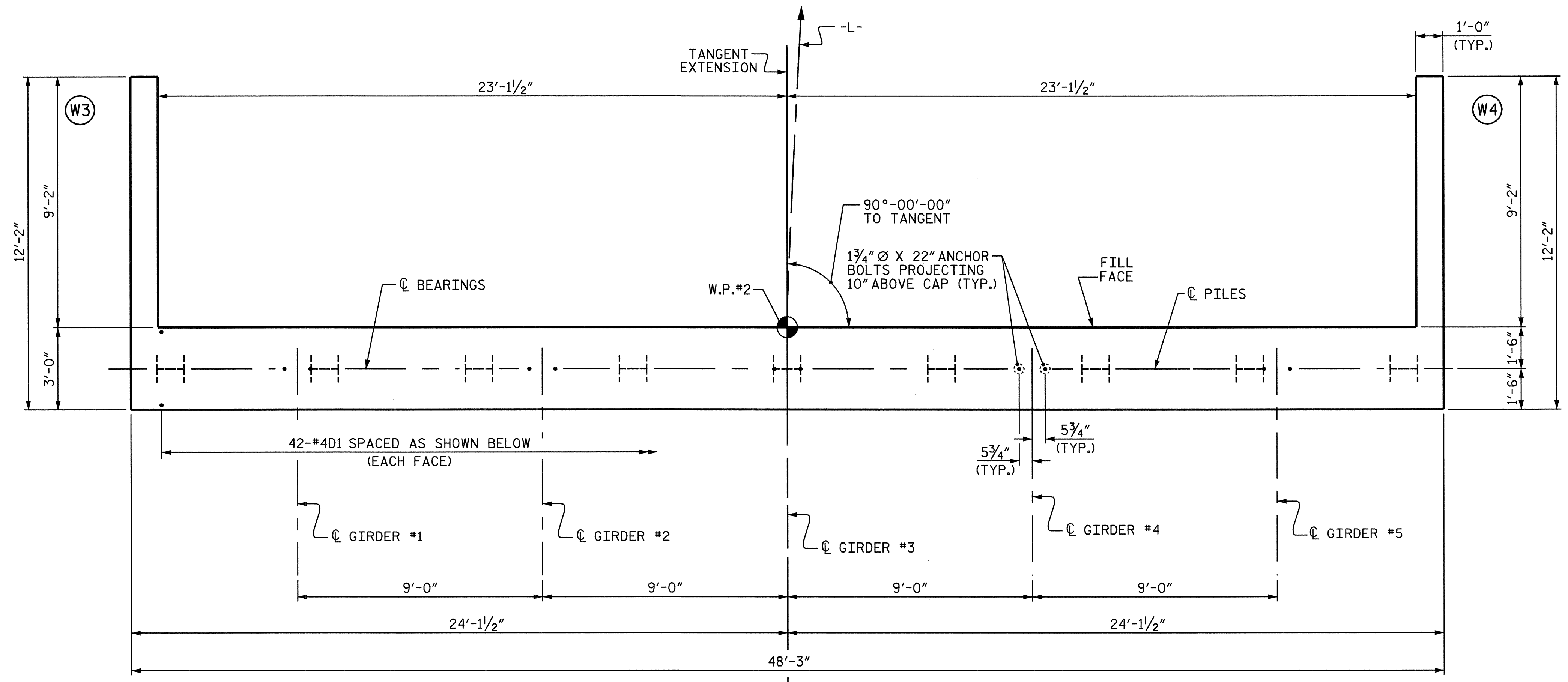
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1
 INTEGRAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			25



DRAWN BY : A.R.CHESSON/JPA DATE : 10-06
 CHECKED BY : Q.T. NGUYEN DATE : 11-06



PLAN

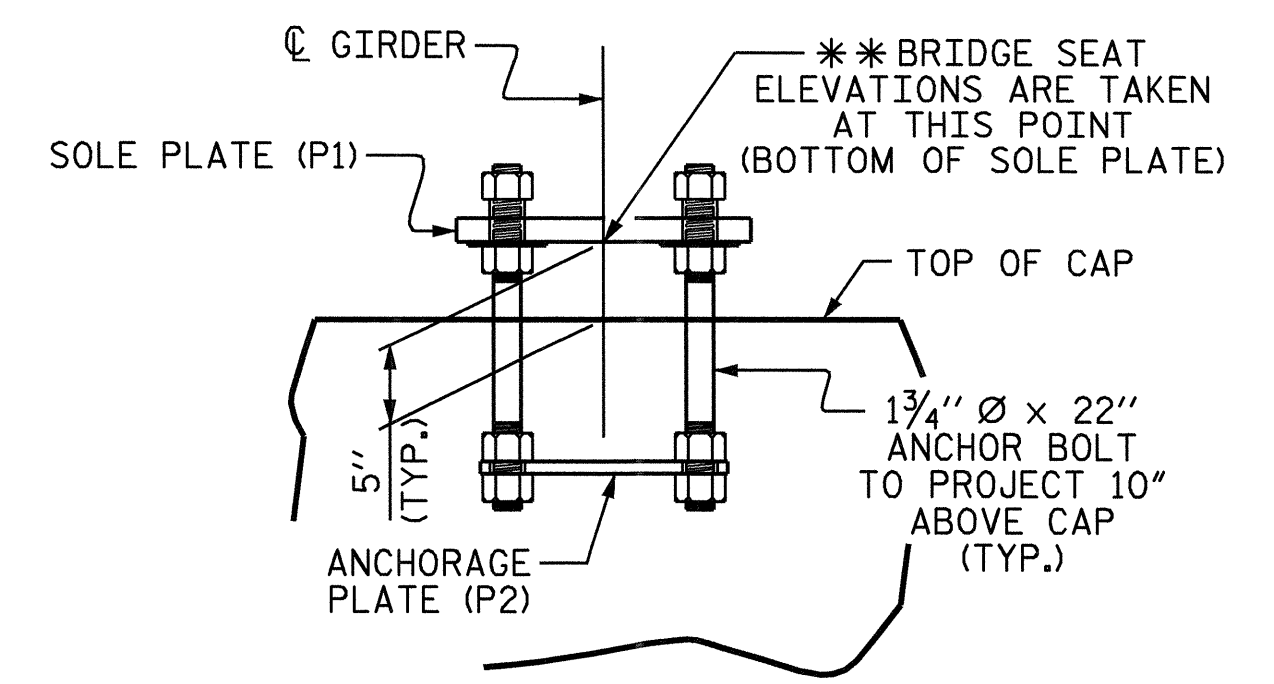
NOTES

STIRRUPS AND #4 B2 BARS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

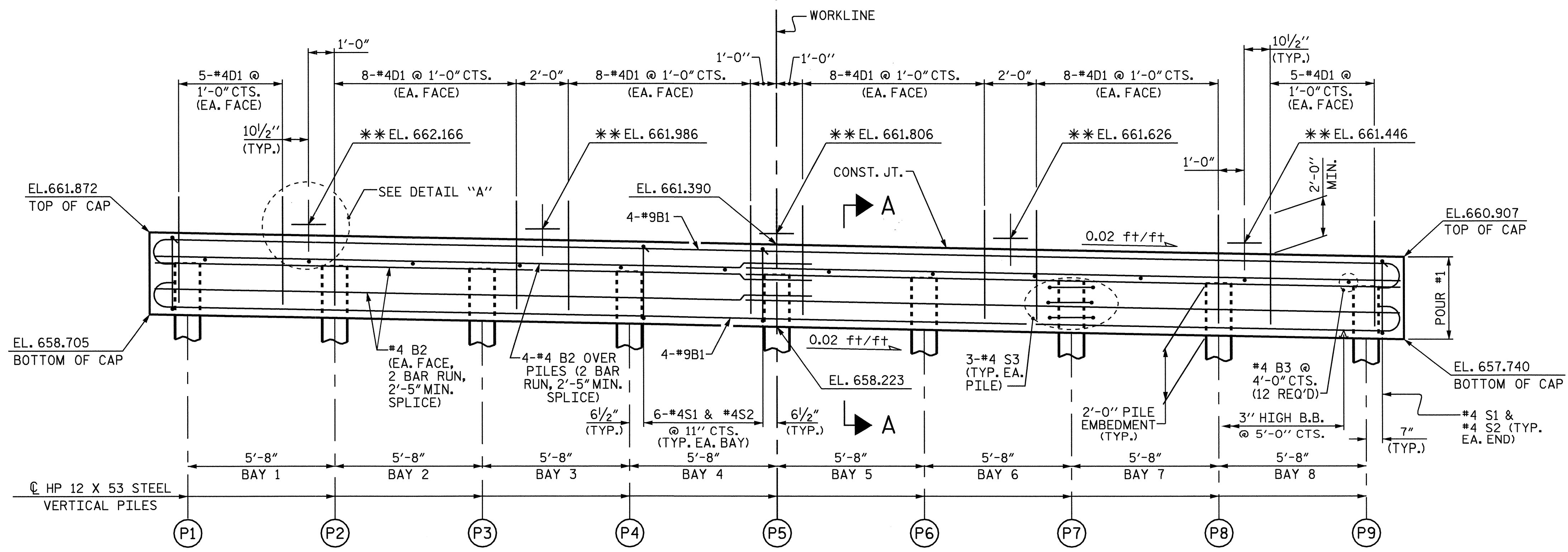
FOR PILE SPLICE DETAILS, SEE END BENT 1, SHEET 2 OF 2.

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

SEE SUPERSTRUCTURE SHEETS FOR ABUTMENT DETAILS.



DETAIL "A"
(TYP. EA. BEARING)
(FOR DETAILS, SEE BEARING DETAILS SHEET)

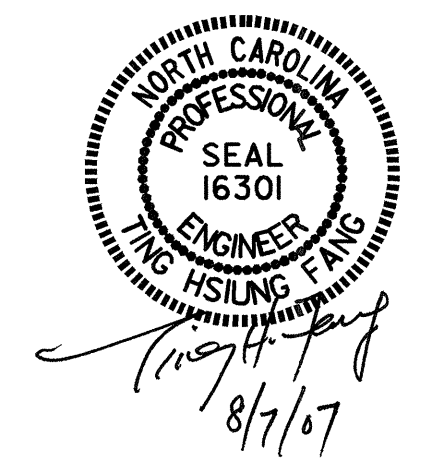


ELEVATION
(WINGS NOT SHOWN FOR CLARITY)

TOP OF PILE ELEVATIONS	
PILE	ELEVATION
(P1)	660.676
(P2)	660.563
(P3)	660.450
(P4)	660.336
(P5)	660.223
(P6)	660.109
(P7)	659.996
(P8)	659.883
(P9)	659.769

PROJECT NO. B-4243
RANDOLPH COUNTY
 STATION: 19+59.00 -L-

SHEET 1 OF 2



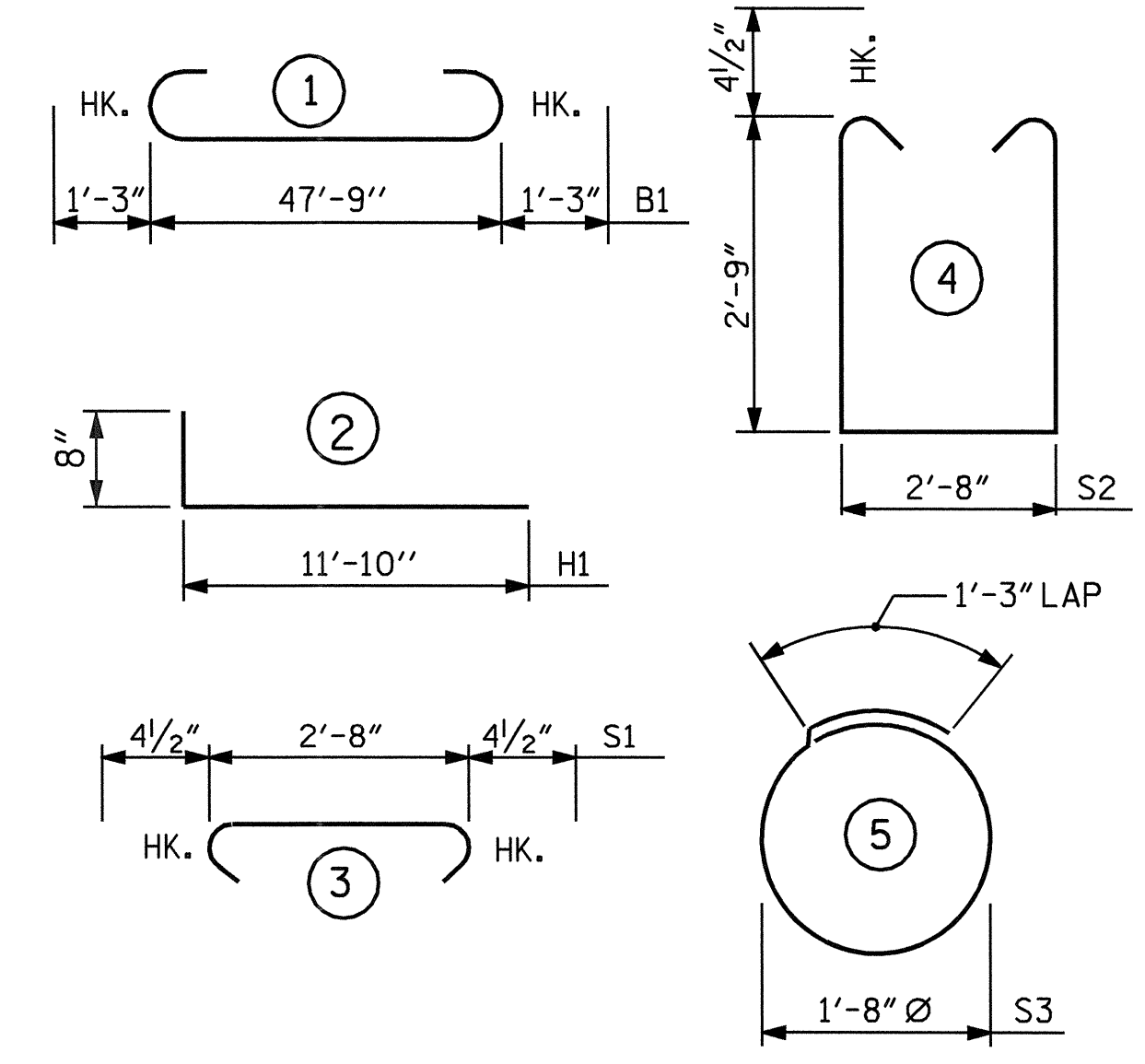
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 2
 INTEGRAL

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21	
1			3			TOTAL SHEETS	25
2			4				

DRAWN BY : A.R.CHESSON/JPA DATE : 10-06
 CHECKED BY : Q.T.NGUYEN DATE : 11-06

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	50'-3"	1367
B2	16	#4	STR	25'-2"	269
B3	12	#4	STR	2'-8"	21
D1	84	#4	STR	5'-0"	281
H1	16	#4	2	12'-6"	134
S1	50	#4	3	3'-5"	114
S2	50	#4	4	8'-11"	298
S3	27	#4	5	6'-6"	117
V1	44	#4	STR	5'-0"	147
REINFORCING STEEL					= 2748 LBS

CLASS A CONCRETE QUANTITIES :
POUR #1 (CAP & WINGS) 19.1 C.Y.

HP 12 X 53 STEEL PILES :
No. 9 135 LIN. FT.

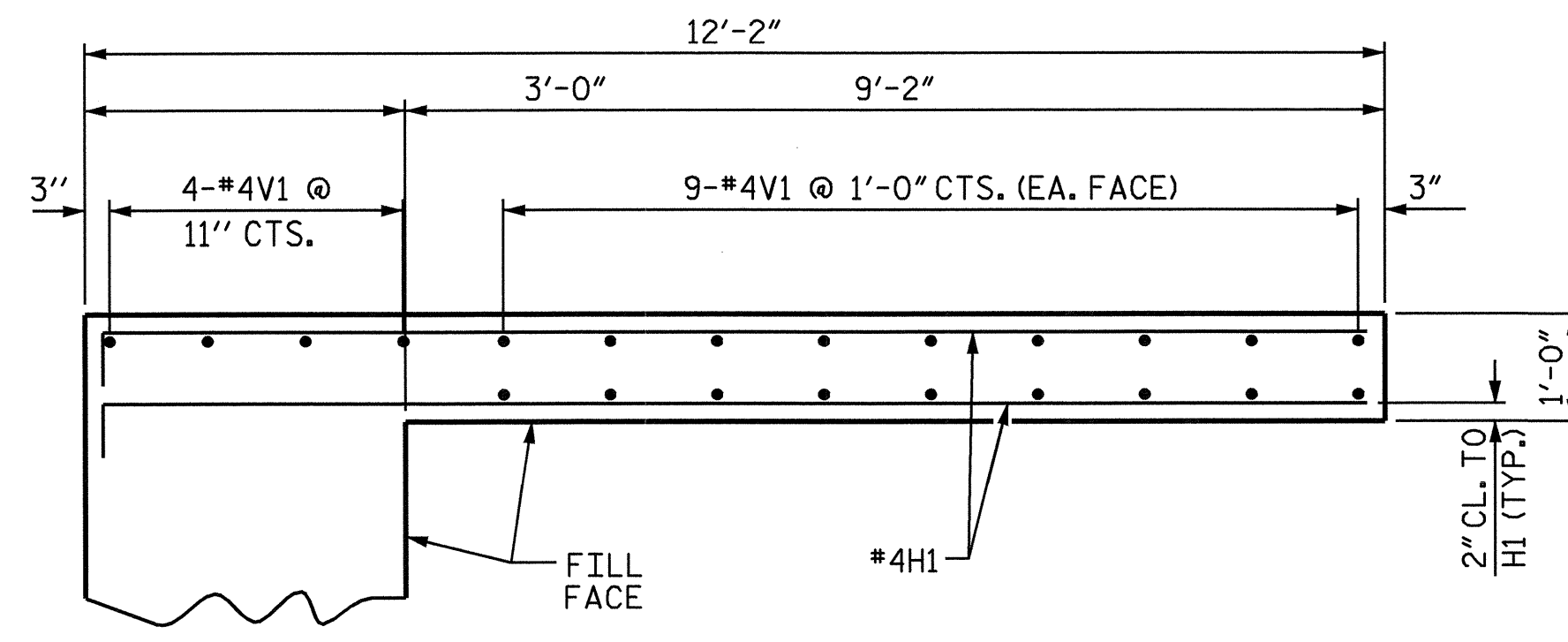
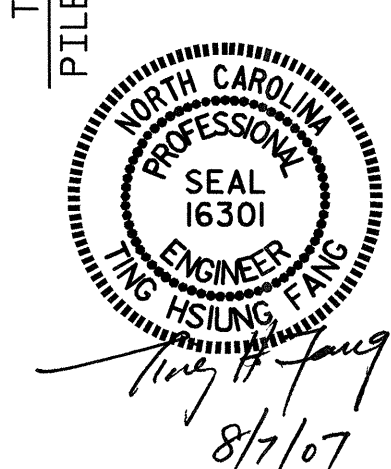
PROJECT NO. B-4243
RANDOLPH COUNTY
STATION: 19+59.00 -L-

SHEET 2 OF 2

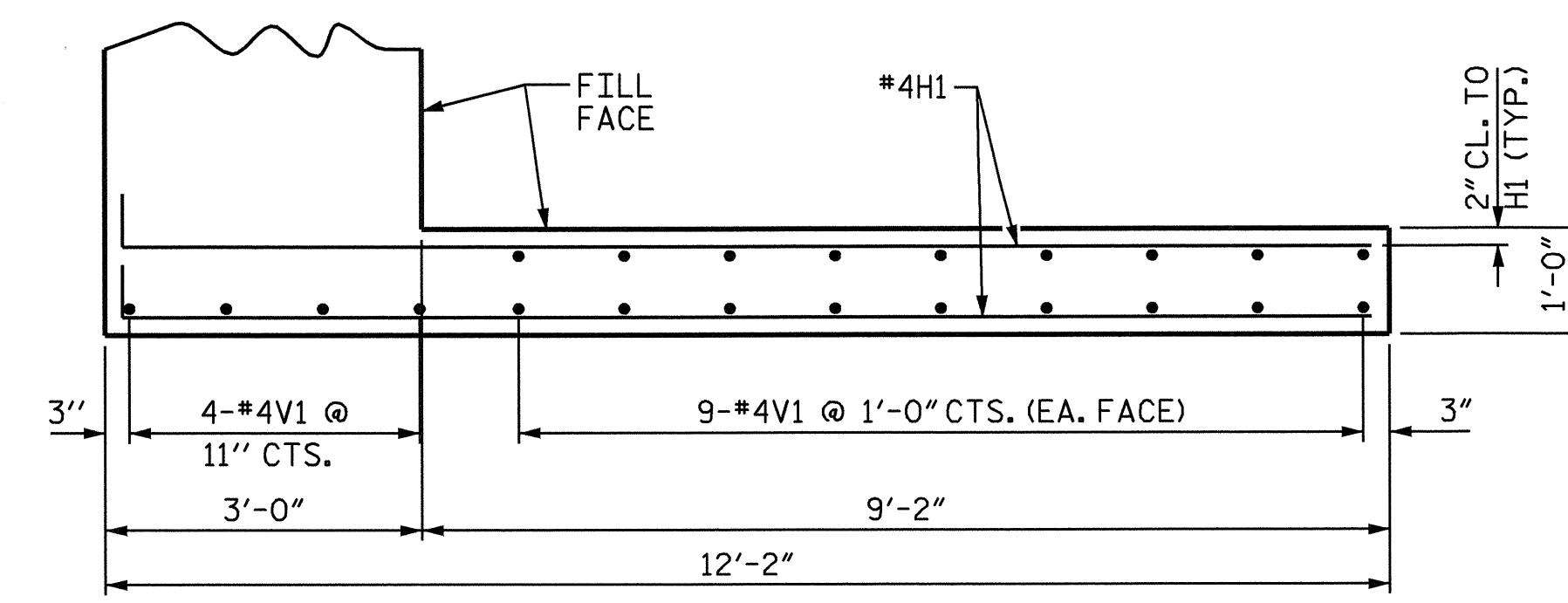
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2
INTEGRAL

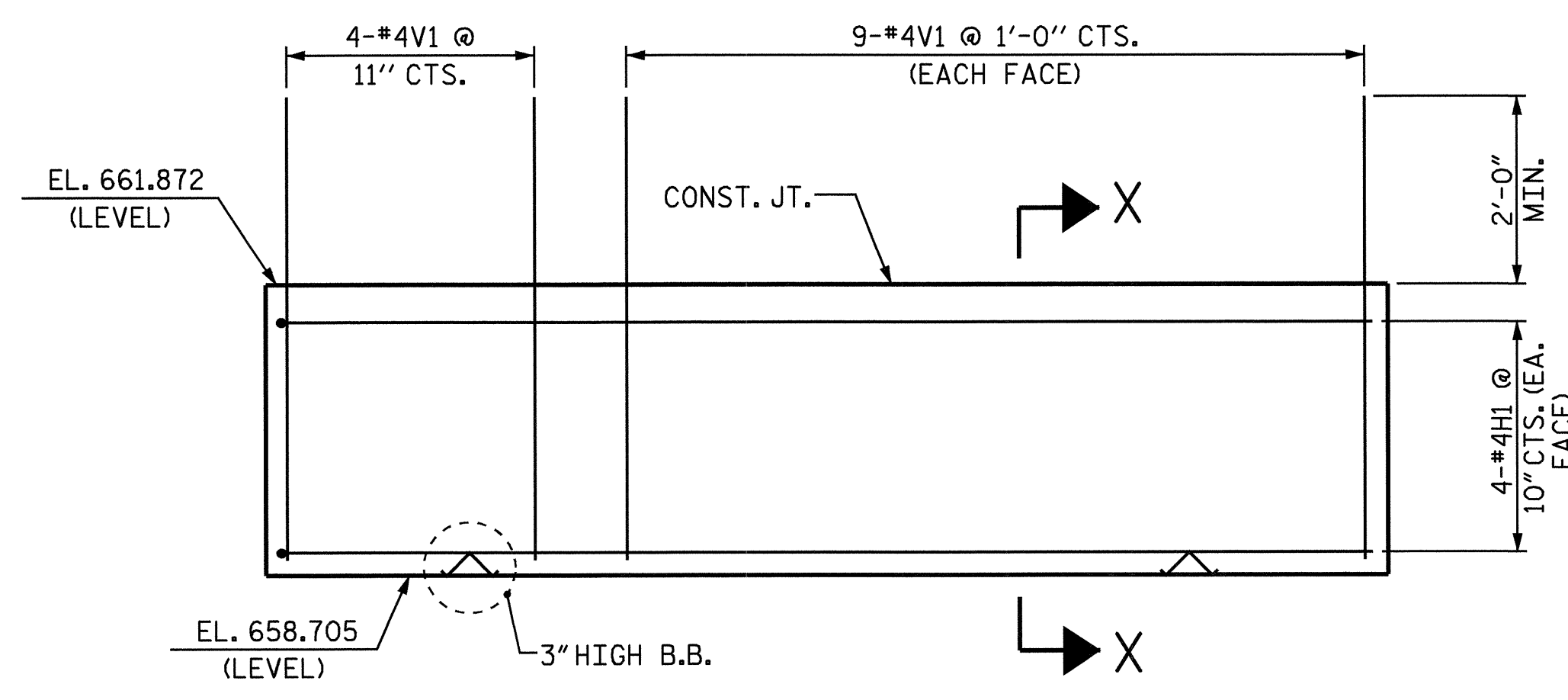
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS 25
2			4			



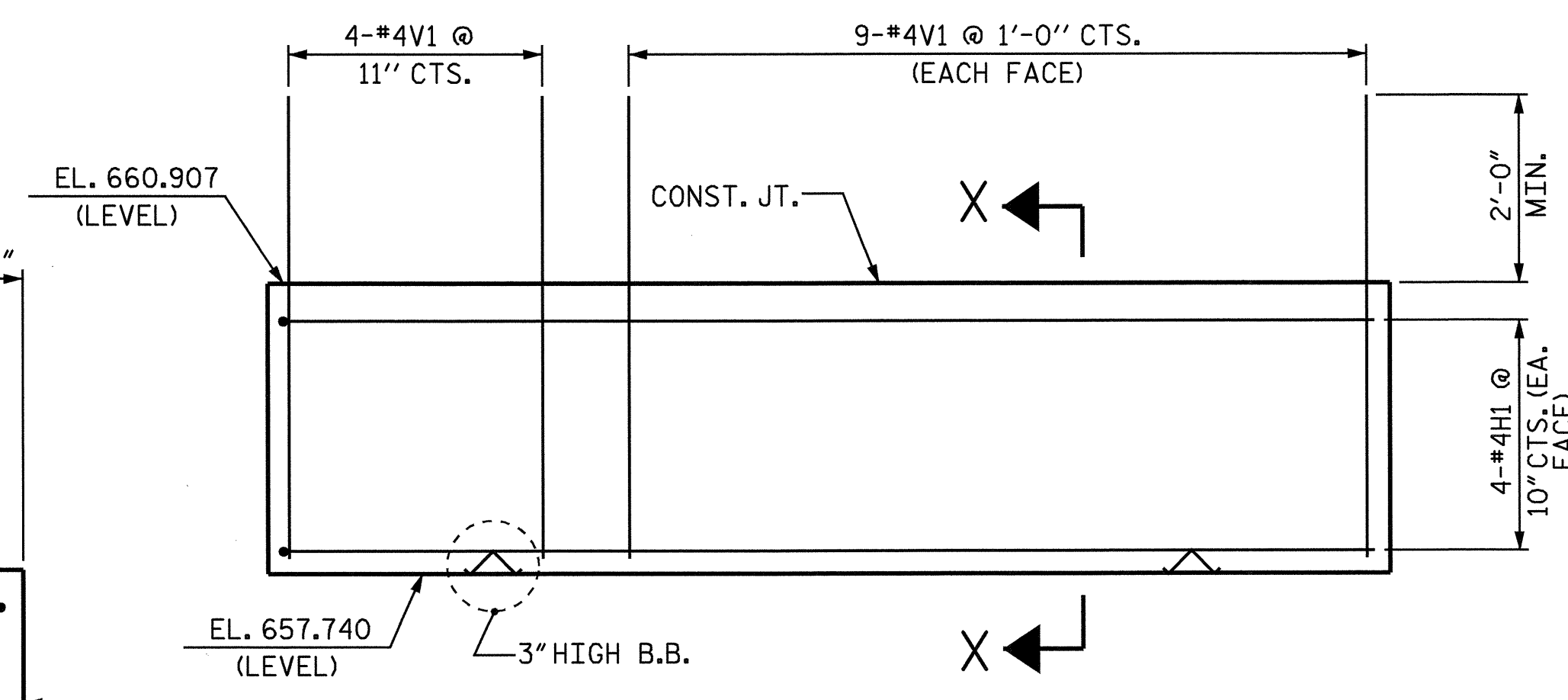
PLAN OF WING (W3)



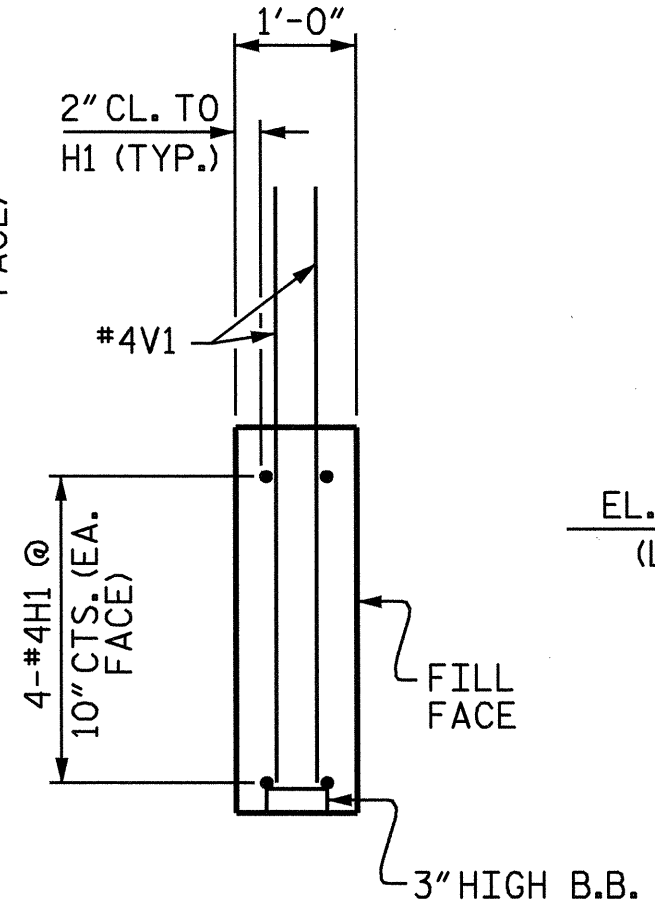
PLAN OF WING (W4)



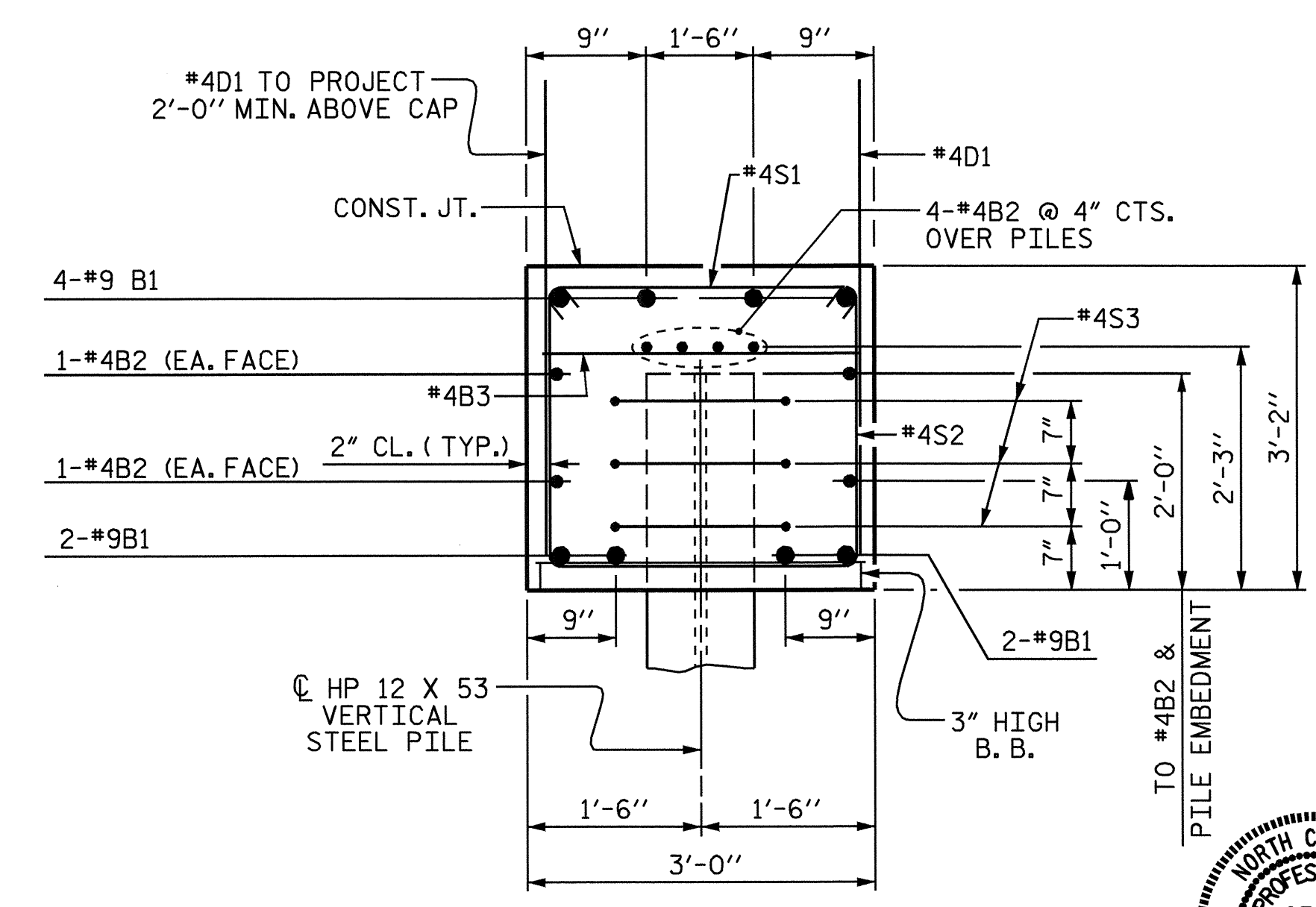
ELEVATION OF WING (W3)



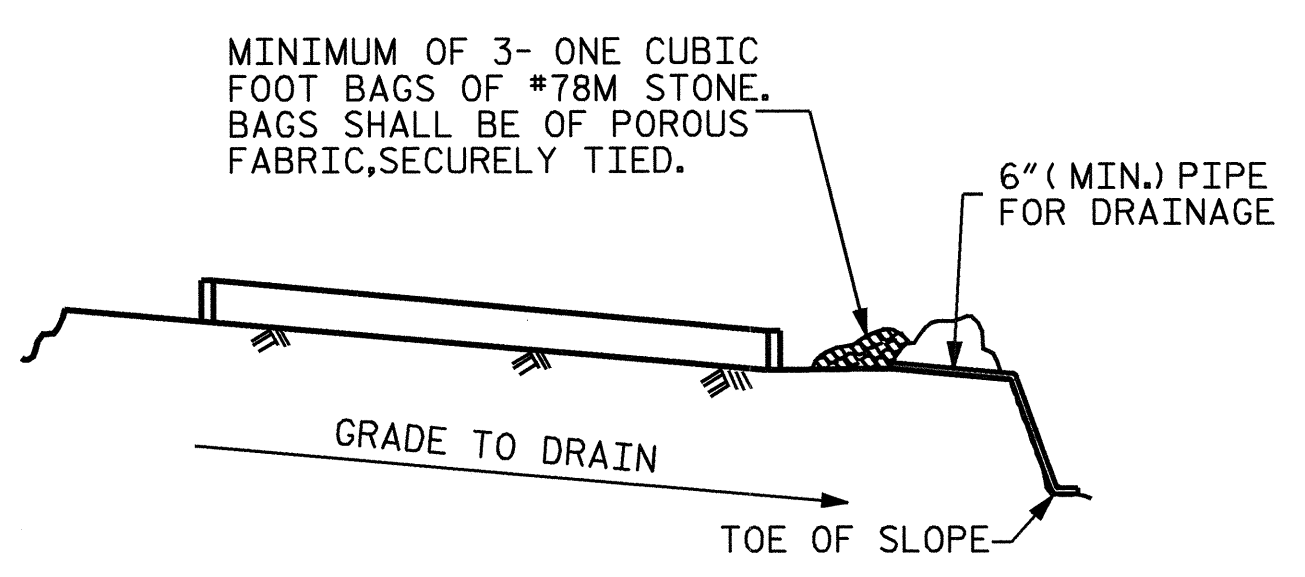
ELEVATION OF WING (W4)



SECTION X-X



SECTION A-A

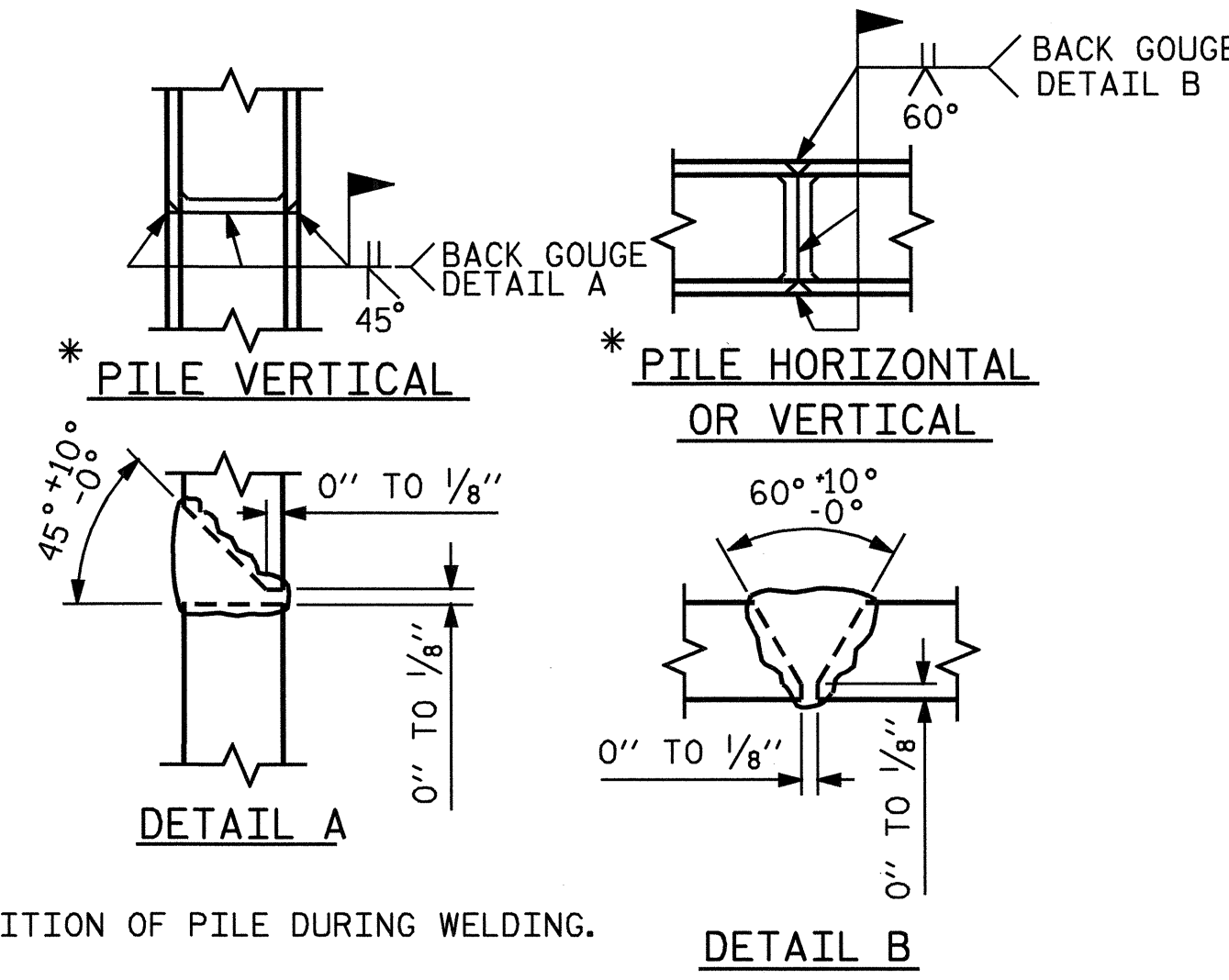


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

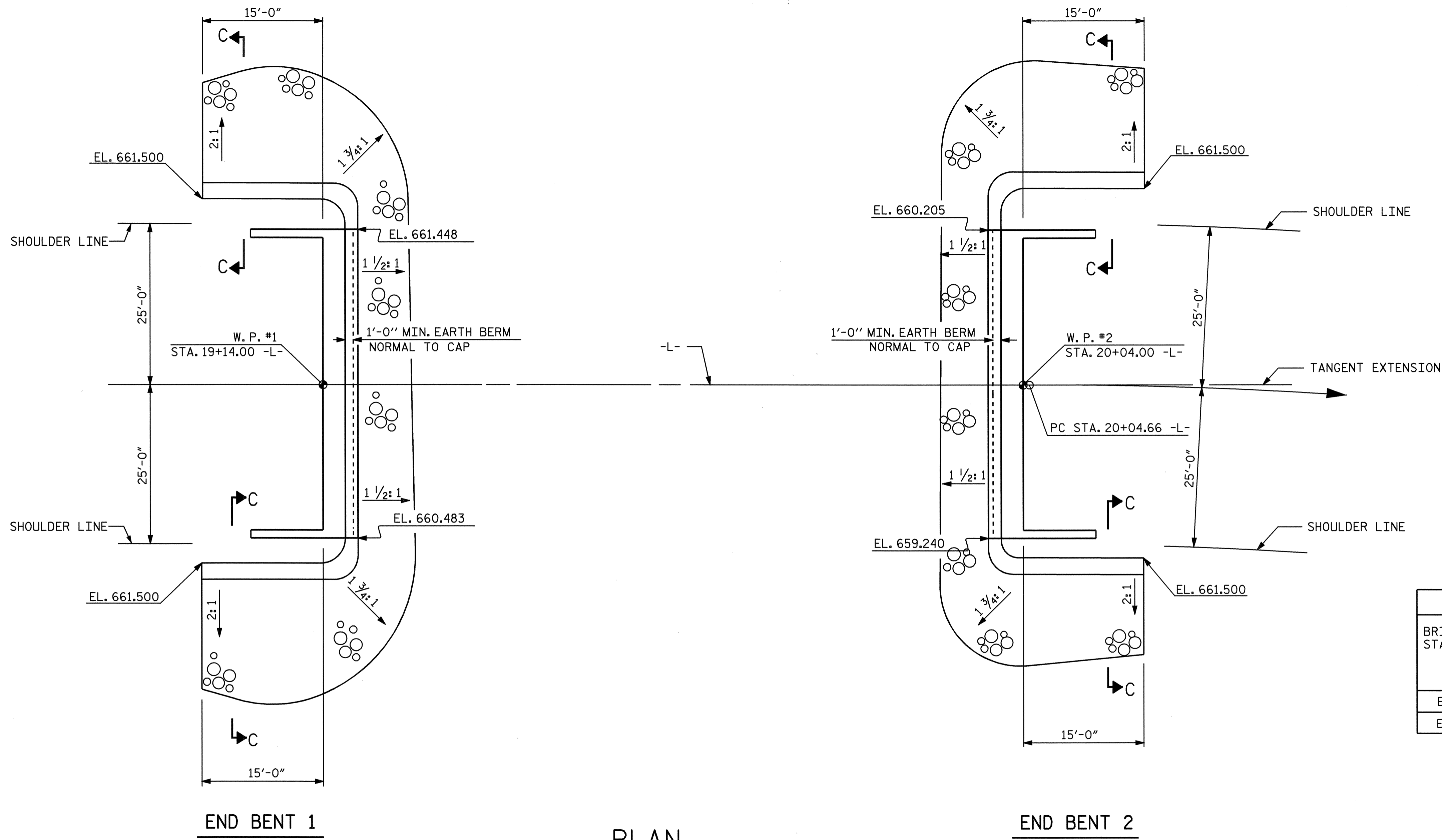
TEMPORARY DRAINAGE AT END BENT



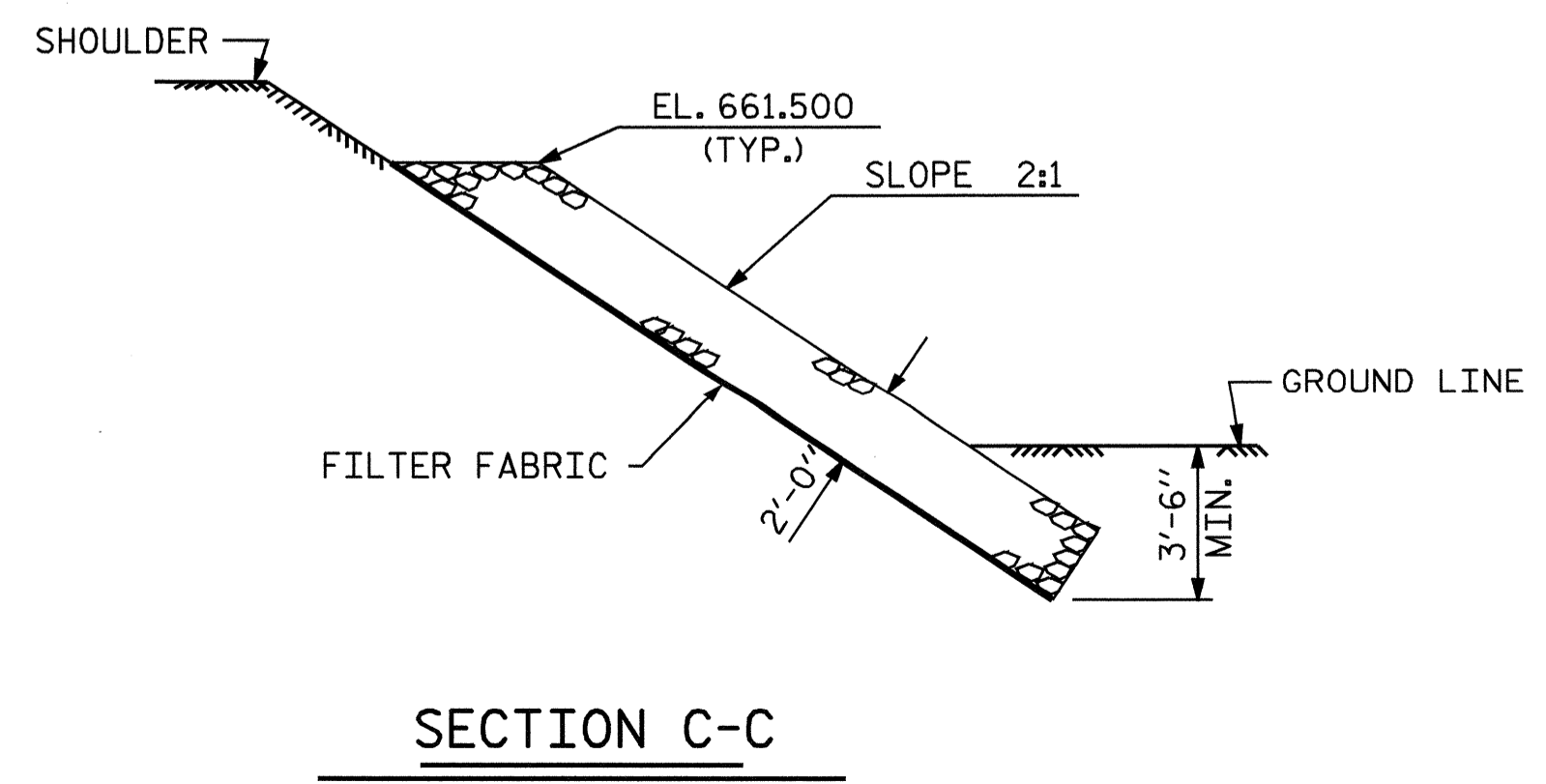
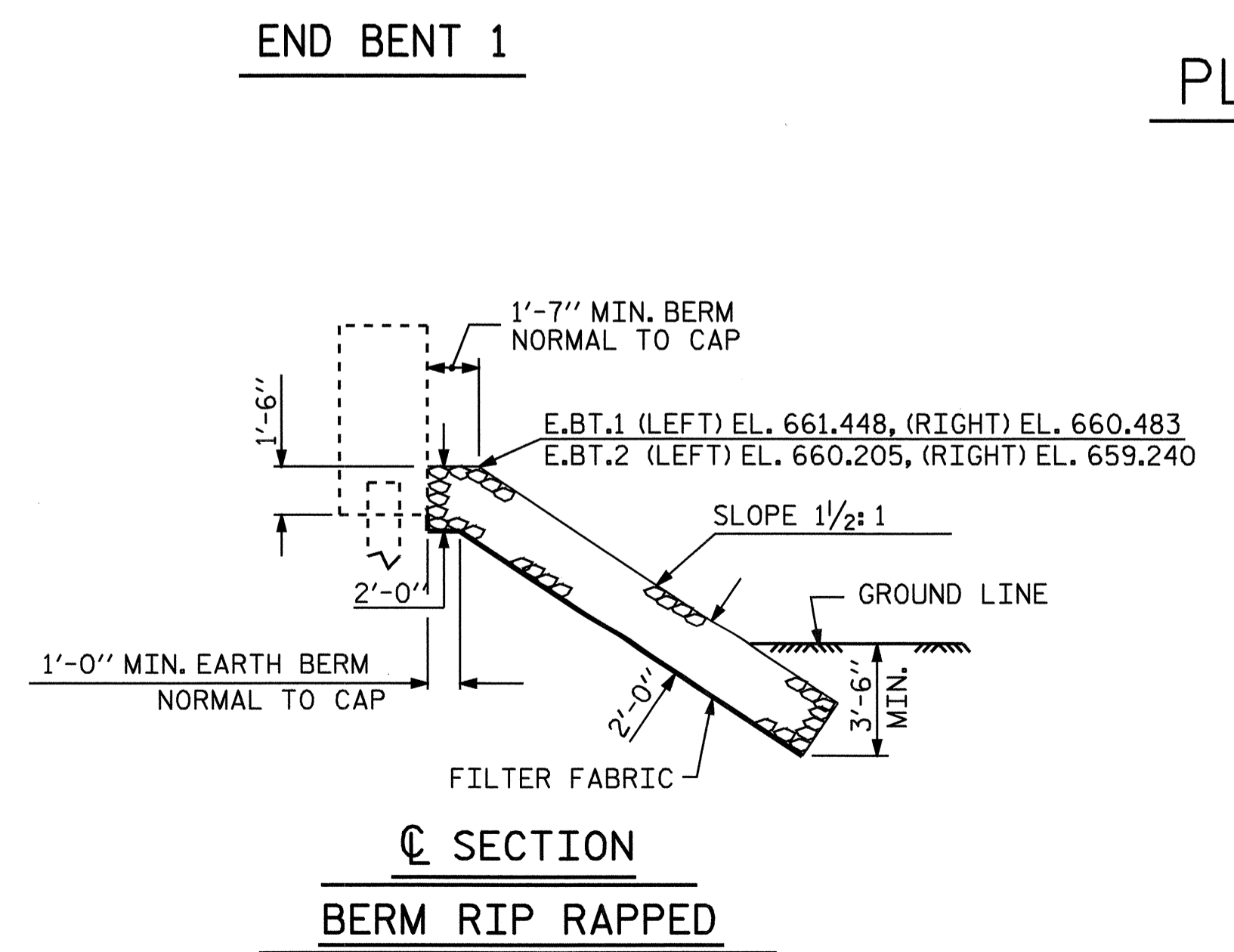
PILE SPLICE DETAILS

* POSITION OF PILE DURING WELDING.

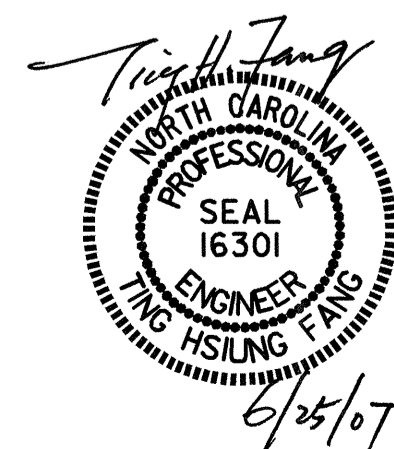
DRAWN BY : A.R.CHESSON/JPA DATE : 10-06
CHECKED BY : Q.T. NGUYEN DATE : 11-06



ESTIMATED QUANTITIES		
BRIDGE @ STA. 19+59.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	145	160
END BENT 2	135	150



PROJECT NO. B-4243
 RANDOLPH COUNTY
 STATION: 19+59.00 -L-

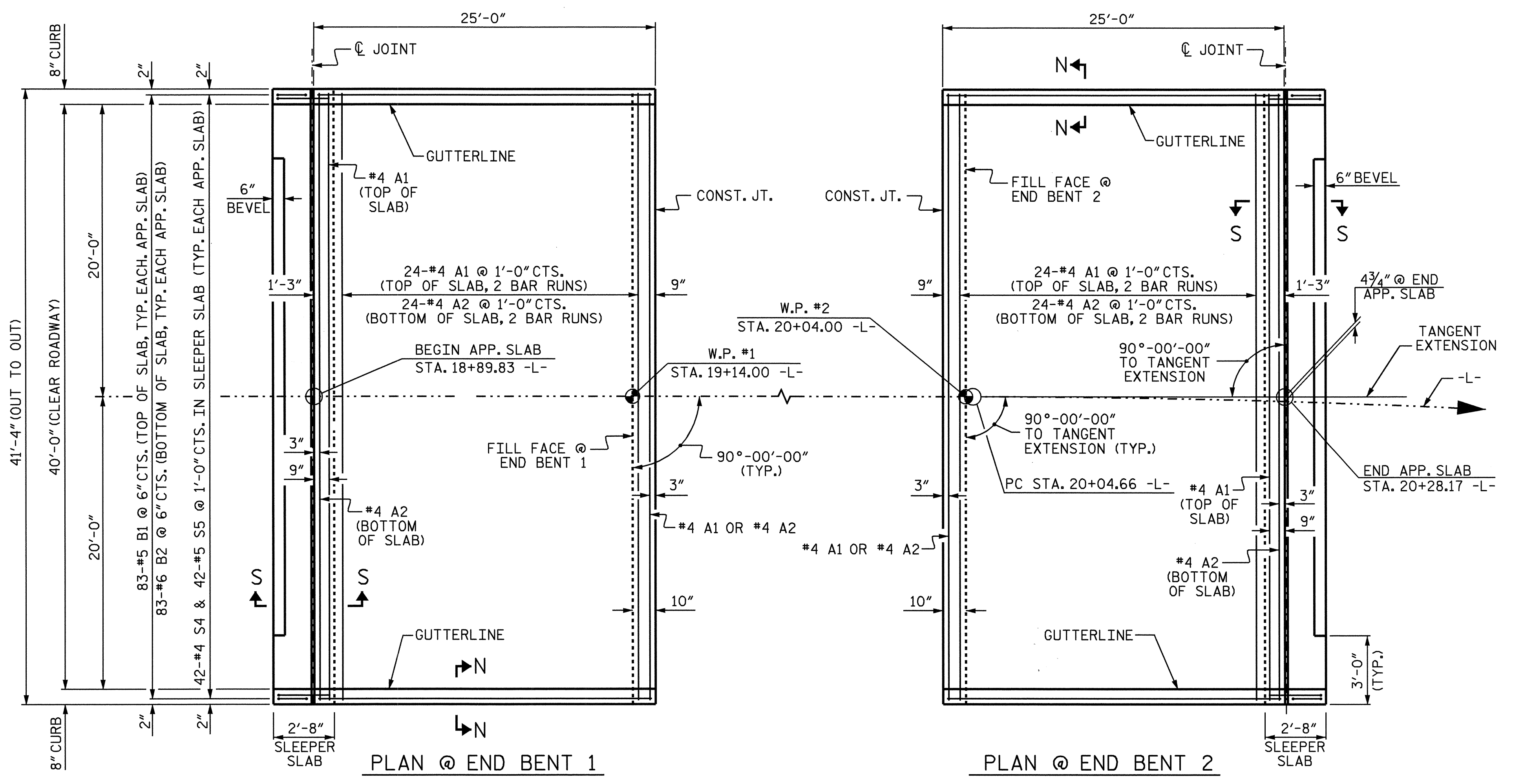


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
— RIP RAP DETAILS —					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

ASSEMBLED BY : D. G. ELY DATE : 10/06
 CHECKED BY : T. H. FANG DATE : 5/07
 DRAWN BY : FCJ 2/88
 CHECKED BY : ARB 8/88

REV. 8/16/99 RWW/LES
 REV. 10/17/00 RWW/LES
 REV. 5/1/06 TLA/GM

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PLAN OF APPROACH SLABS

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

NOTES

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

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

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

THE 6" COMP. A.B.C. SHALL EXTEND 10'-0" BEYOND THE END OF THE APPROACH SLAB AND 1'-0" OUTSIDE OF EACH EDGE OF 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 EXTEND 1'-0" BEYOND THE END OF 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 EXTEND 1'-0" BEYOND THE END OF 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 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 TYPE SL LOW MODULUS SILICONE SEALANT.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQUIRED)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	66	#4	STR	21'-6"	948
A2	52	#4	STR	21'-5"	744
* B1	83	#5	STR	24'-0"	2,078
B2	83	#6	STR	24'-6"	3,054
* S4	42	#4	1	4'-1"	115
S5	42	#5	2	3'-0"	131

REINFORCING STEEL LBS. 3,930

* EPOXY COATED REINFORCING STEEL LBS. 3,140

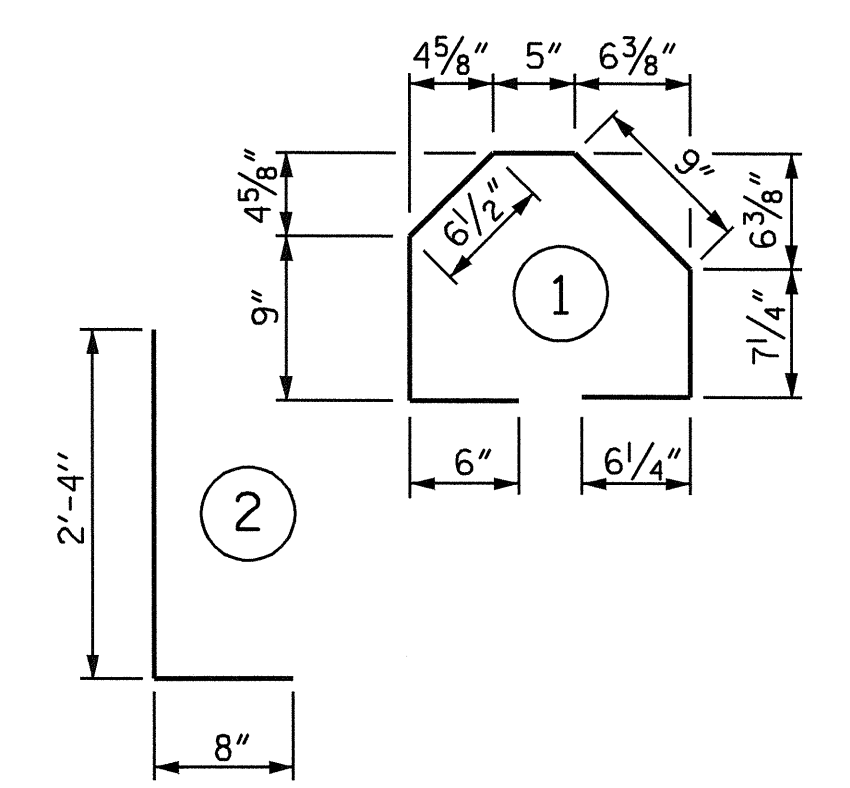
CLASS AA CONCRETE

POUR #1 - SLAB & CURB 38.2 C.Y.

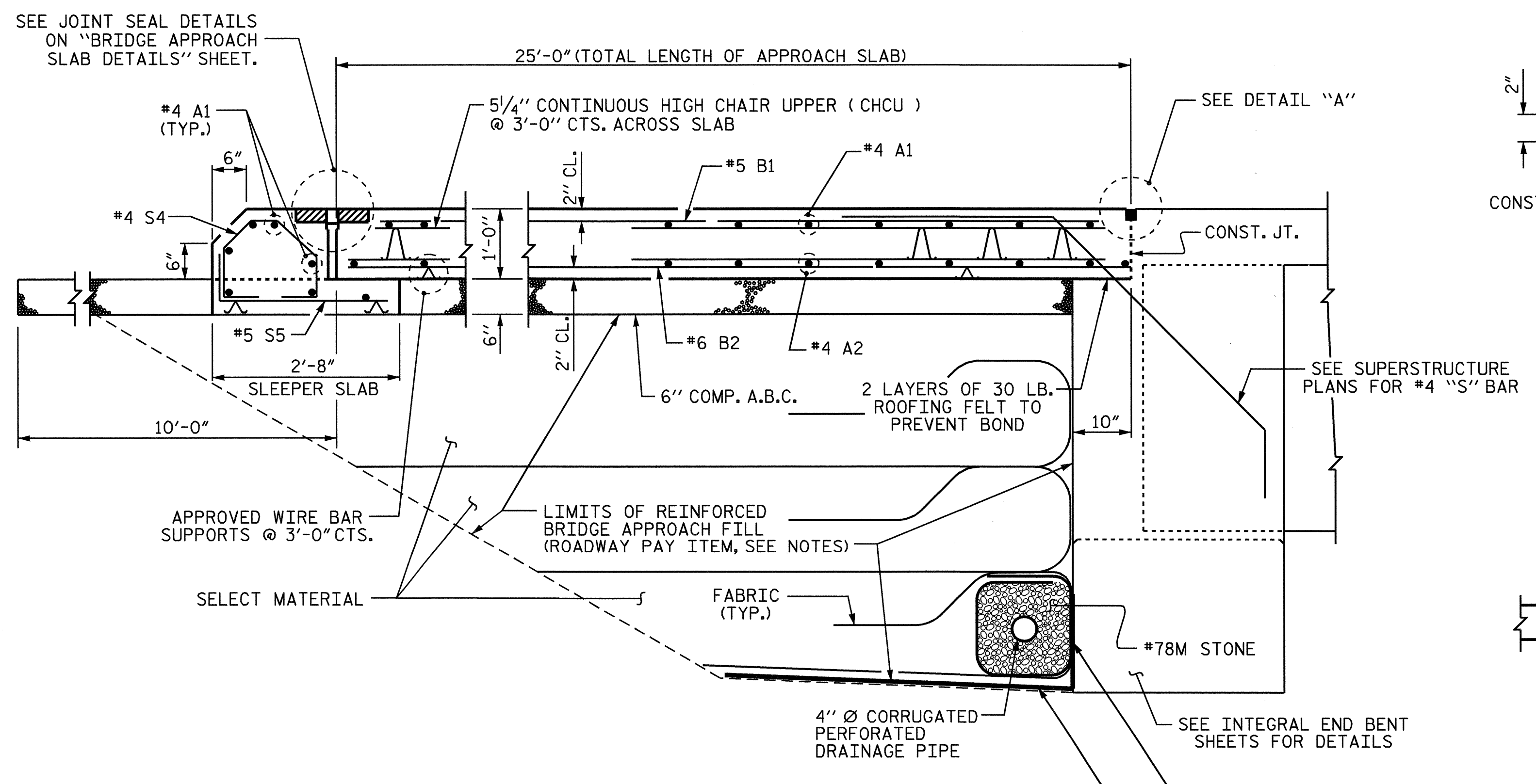
POUR #2 - SLEEPER SLAB 3.2 C.Y.

TOTAL 41.4 C.Y.

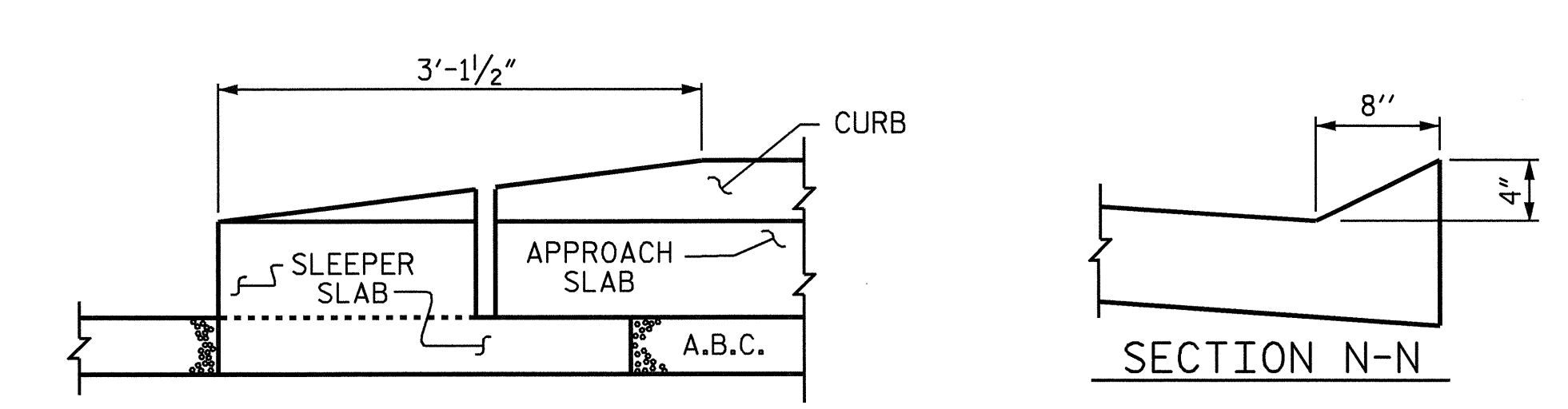
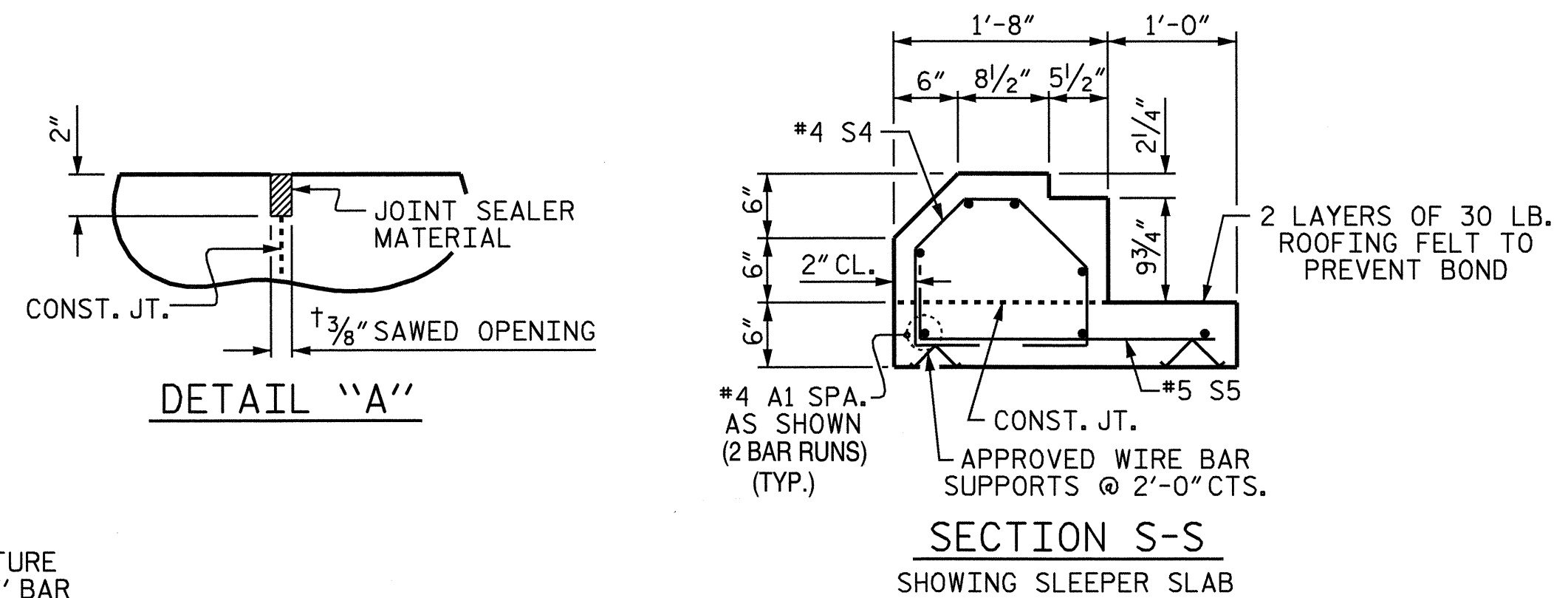
BAR TYPES



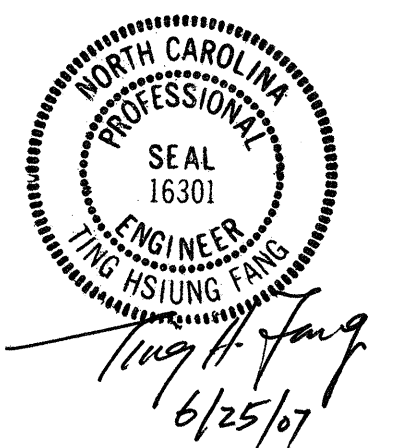
ALL BAR DIMENSIONS ARE OUT TO OUT.



SECTION THRU SLAB



END OF CURB WITHOUT SHOULDER BERM GUTTER



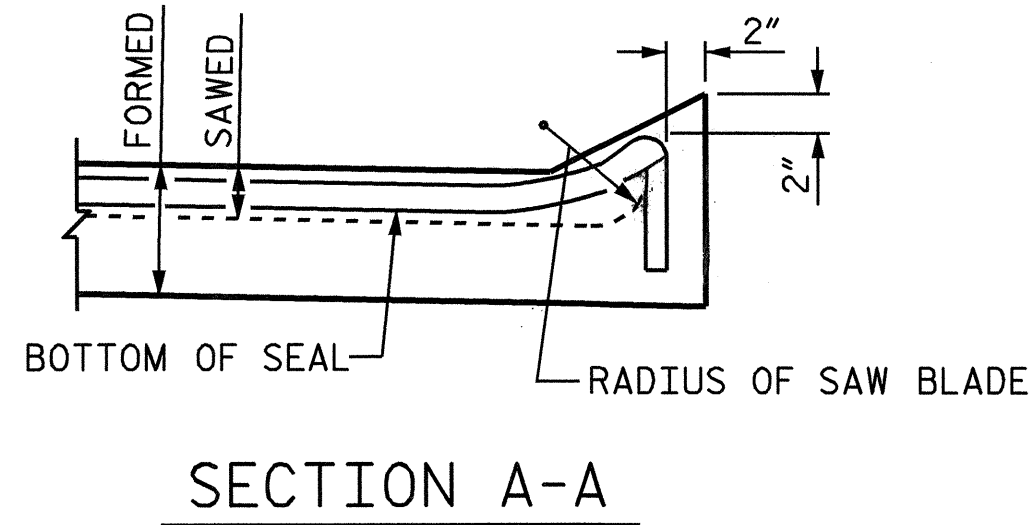
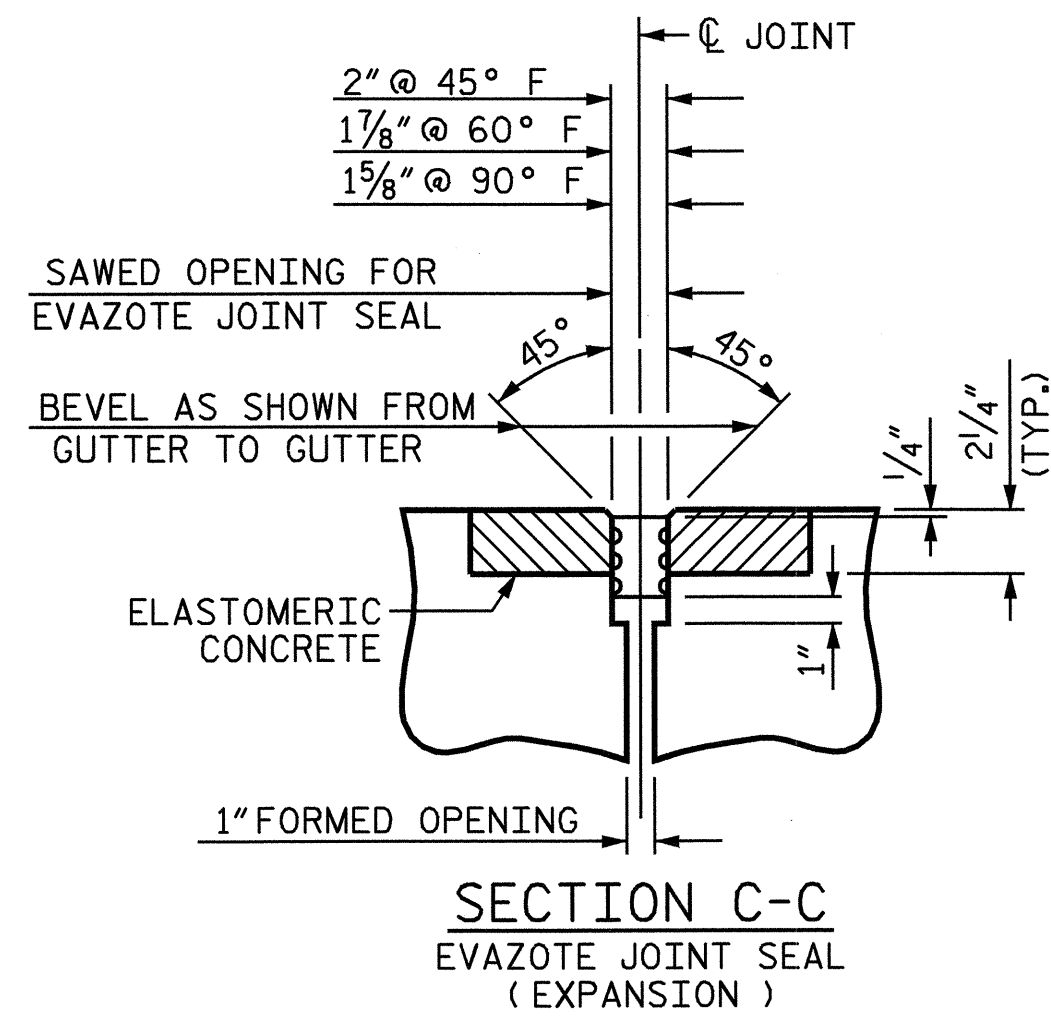
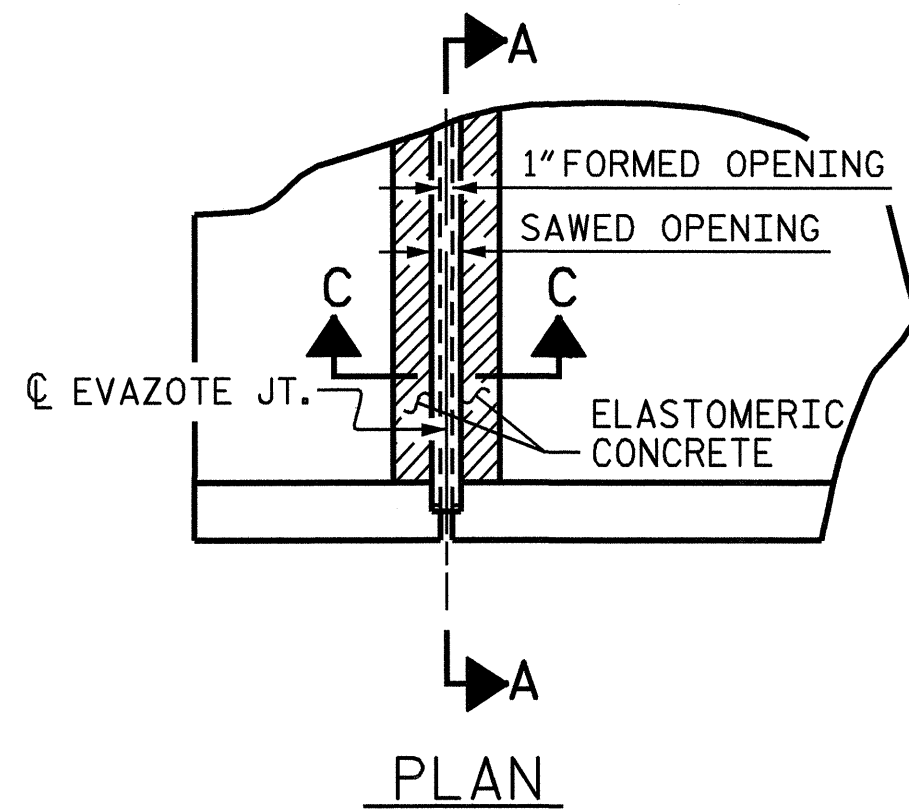
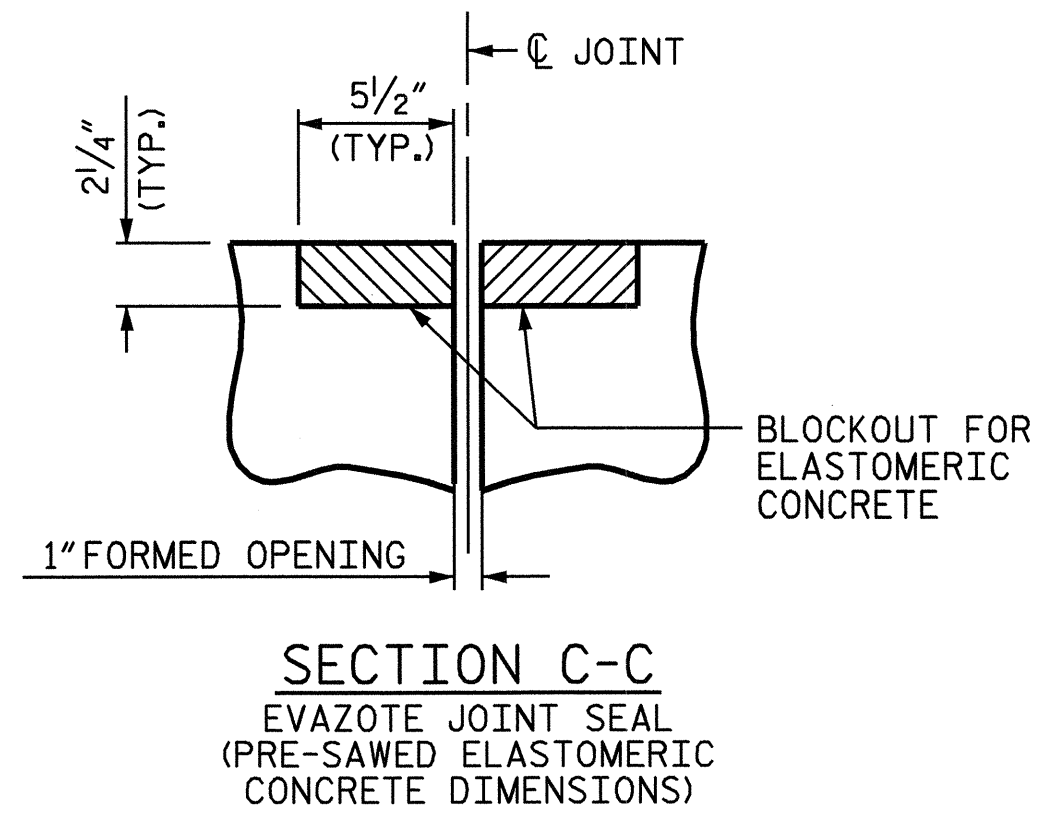
PROJECT NO. B-4243
 RANDOLPH COUNTY
 STATION: 19+59.00 -L-

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-24
1			3			TOTAL SHEETS 25
2			4			

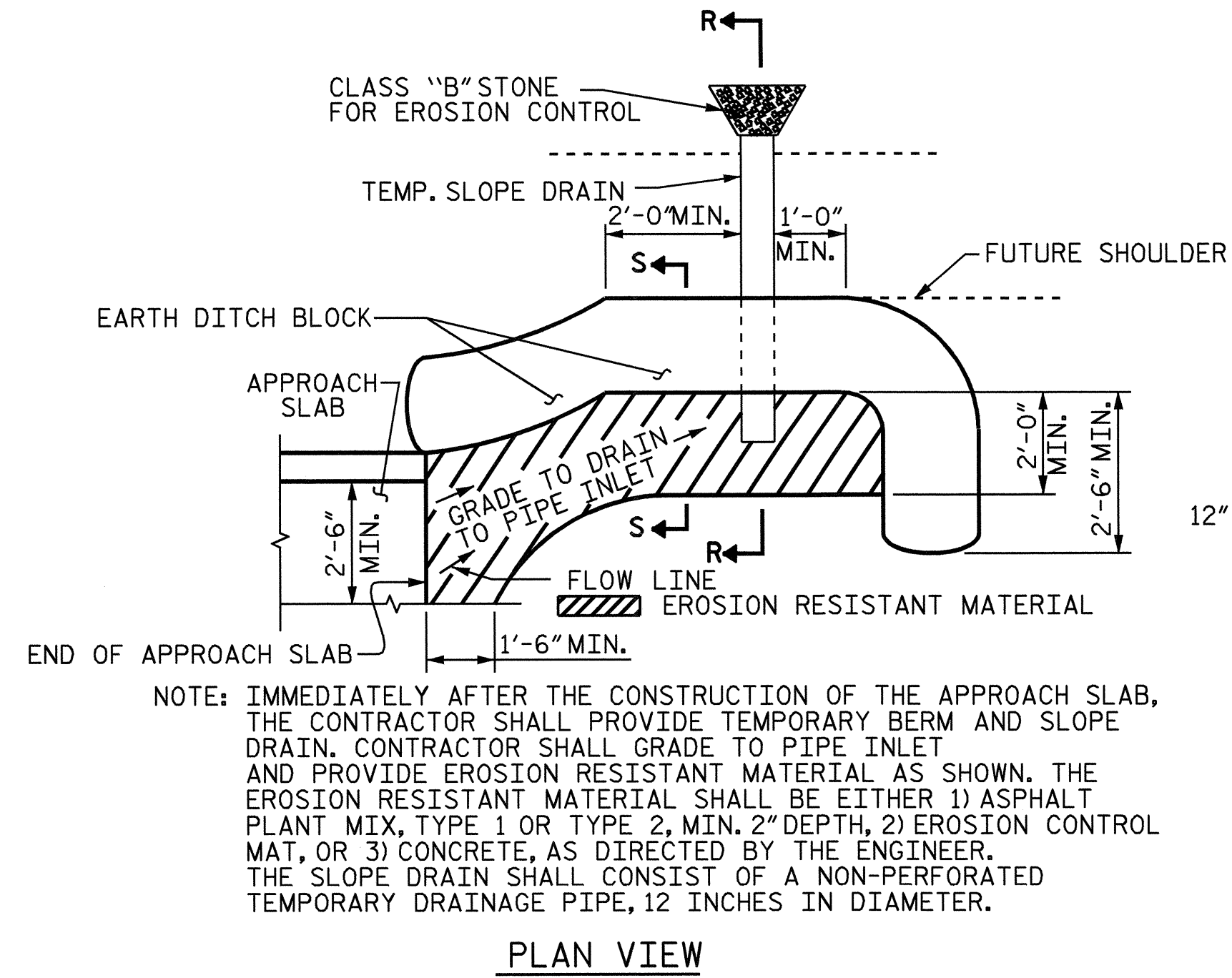
ASSEMBLED BY: A.R.CHESSON DATE: 10-06
 CHECKED BY: Q.T.NGUYEN DATE: 11-06
 DRAWN BY: TLA 10/05 ADDED 5/1/06
 CHECKED BY: GM 5/06



JOINT SEAL DETAILS

ELASTOMERIC CONCRETE	
APPROACH SLAB NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	6.9
2	6.9
TOTAL	13.8

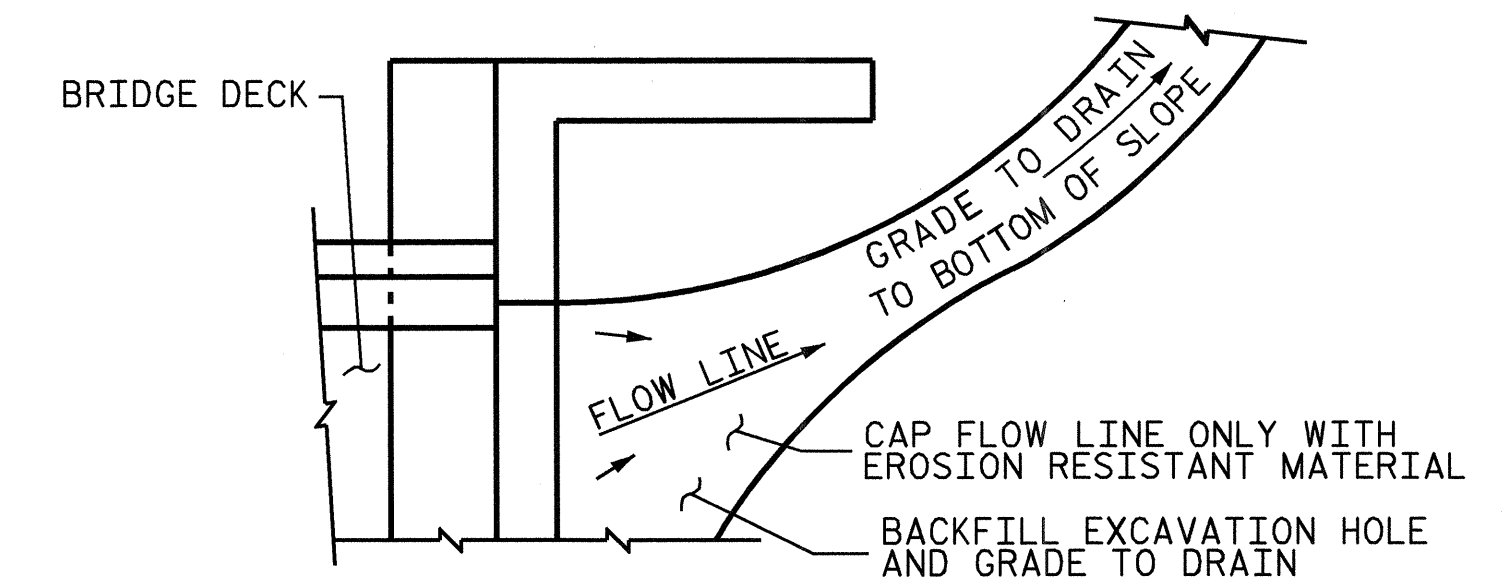
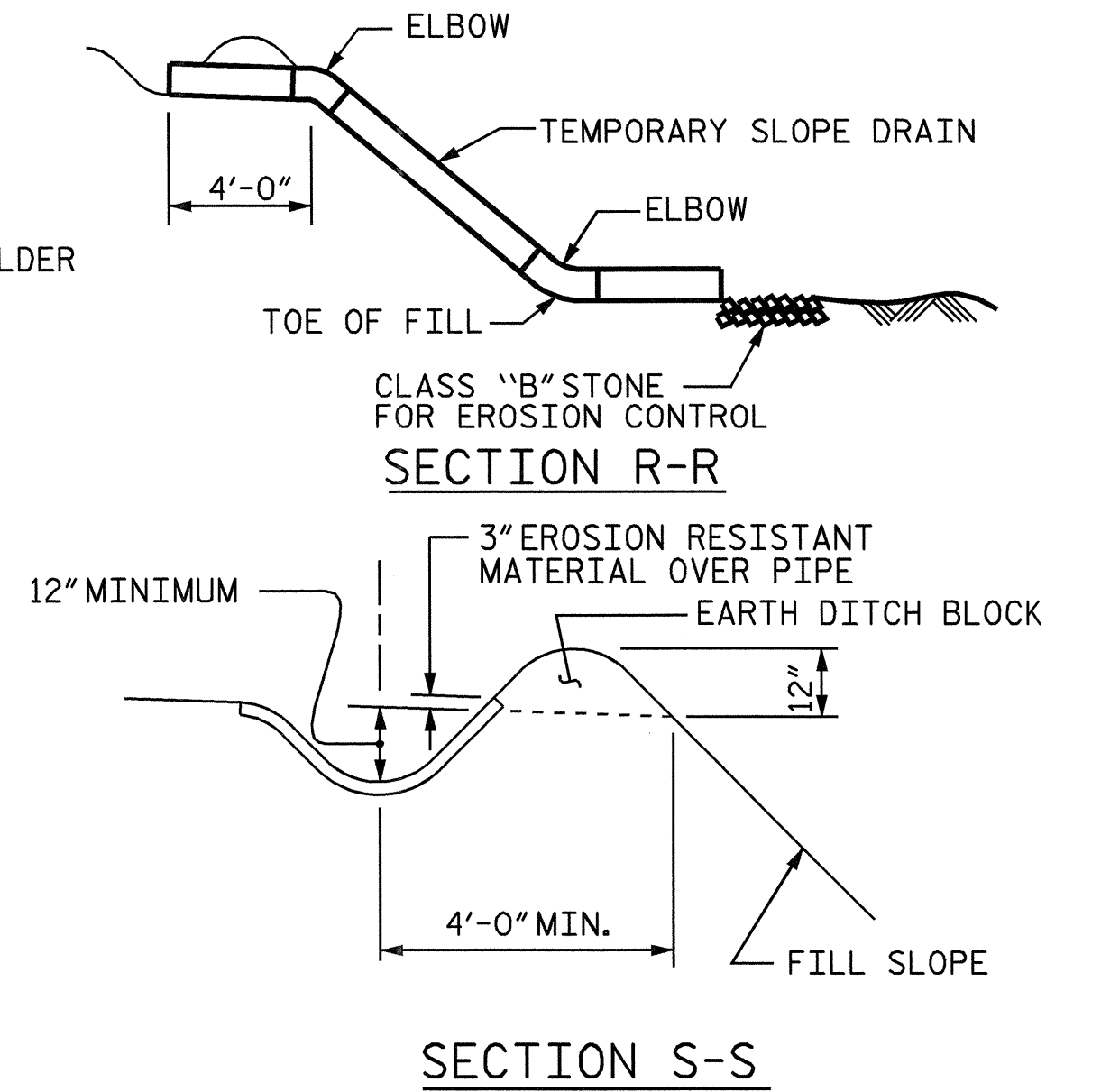
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



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-4243
 RANDOLPH COUNTY
 STATION: 19+59.00 -L-

SHEET 2 OF 2



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

ASSEMBLED BY : A.R.CHESSON	DATE : 10-06
CHECKED BY : Q.T.NGUYEN	DATE : 11-06
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06 TLA/GM

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. FINISHES 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.

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