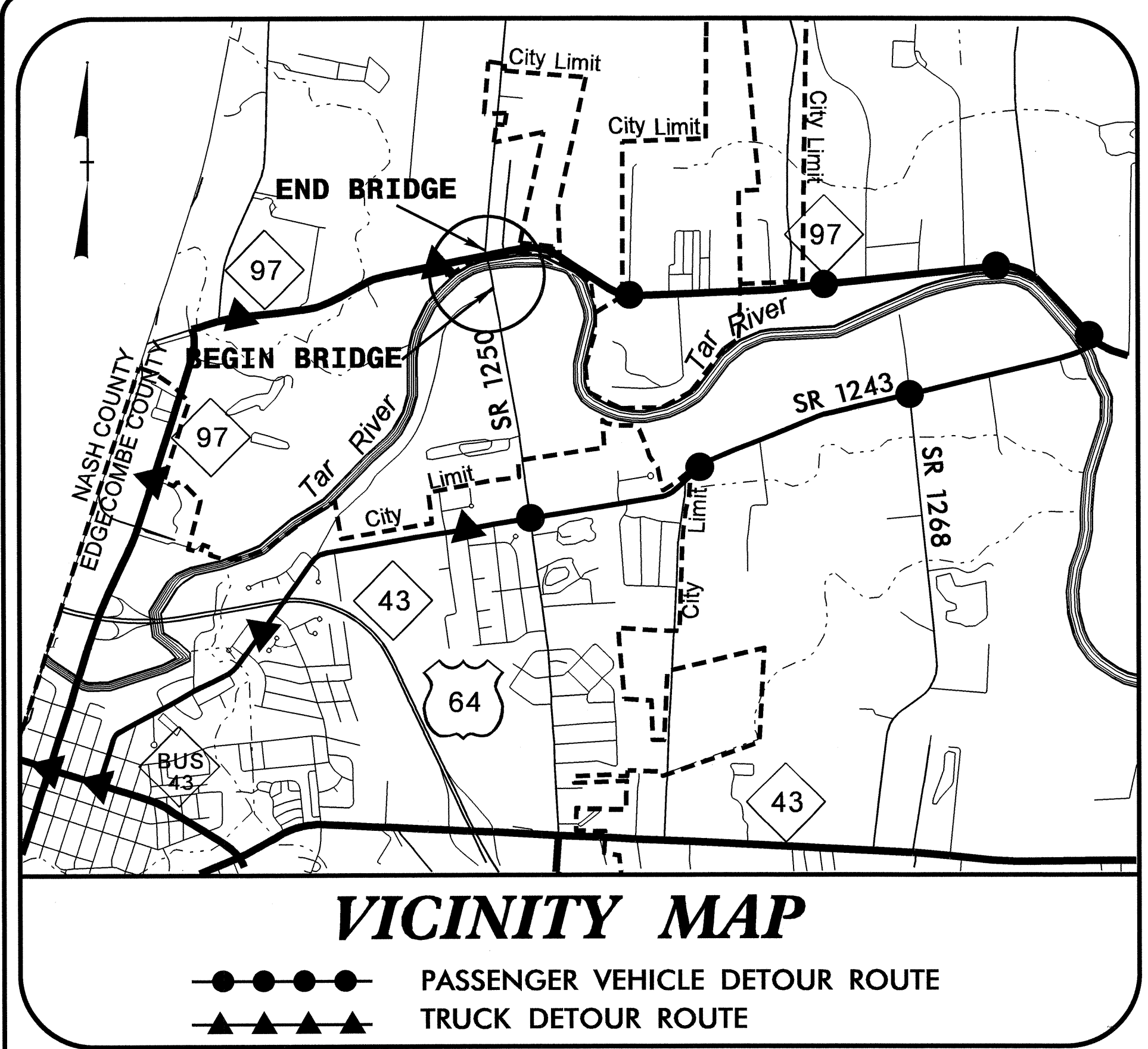


CONTRACT: C202730 TIP PROJECT: B-4503



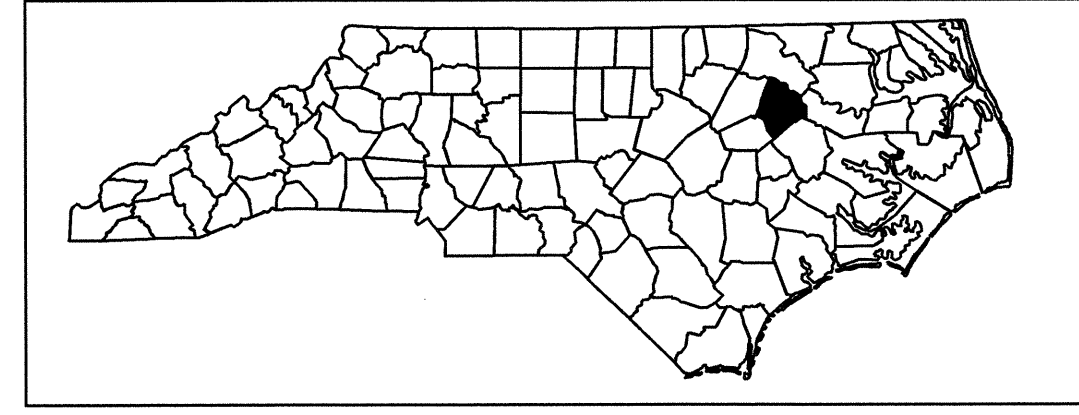
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

EDGECOMBE COUNTY

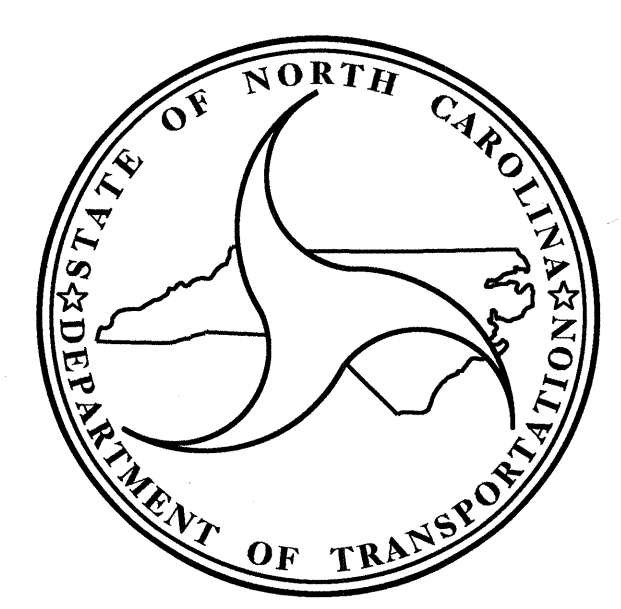
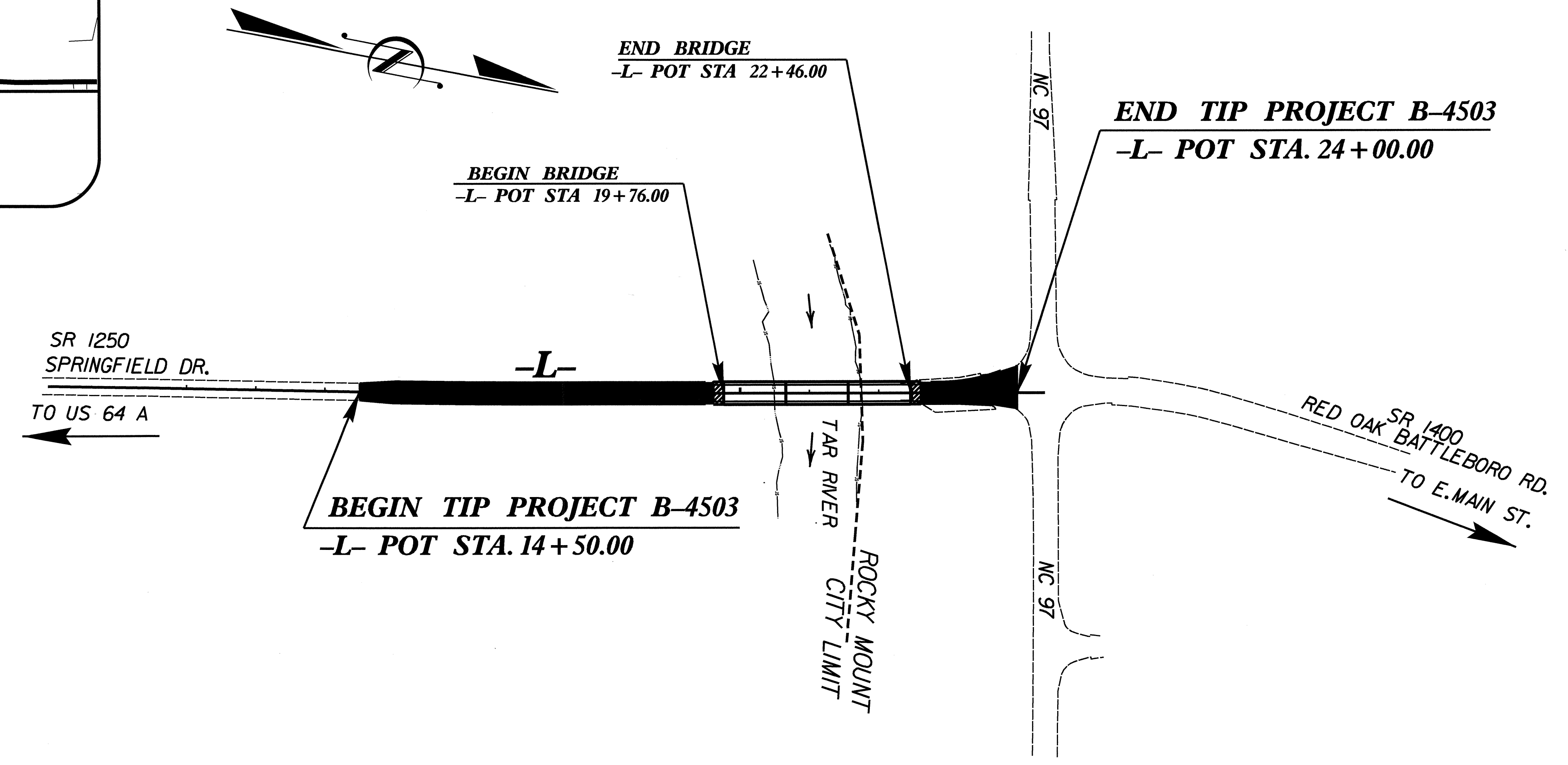
**LOCATION : BRIDGE NO. 7 OVER THE TAR RIVER
ON SR 1250 (SPRINGFIELD DR.)**

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4503		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33734.1.1	BRSTP-1250 (2)	PE	
33734.2.1	BRSTP-1250 (2)	RW & UTIL.	
33734.3.1	BRSTP-1250 (2)	CONST.	



STRUCTURE



DESIGN DATA

ADT 2010 =	5,300
ADT 2030 =	9,500
DHV =	10
D =	60 %
T =	6 % *
V =	60 MPH
* TTST 2% DUAL 4 %	
FUNC. CLASS =	RURAL LOCAL

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-4503 =	0.129 MI.
LENGTH OF STRUCTURE TIP PROJECT B-4503 =	0.051 MI.
TOTAL LENGTH OF TIP PROJECT B-4503 =	0.180 MI.

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 BIRCH RIDGE DR. RALEIGH, NC 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
January 17, 2012

N. N. BULLOCK, PE
PROJECT ENGINEER

A. K. PASCHAL, PE
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

STATE DESIGN ENGINEER

**DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**

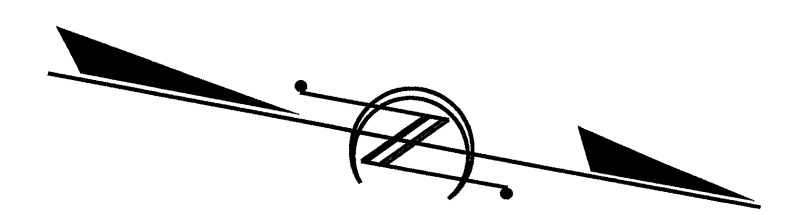
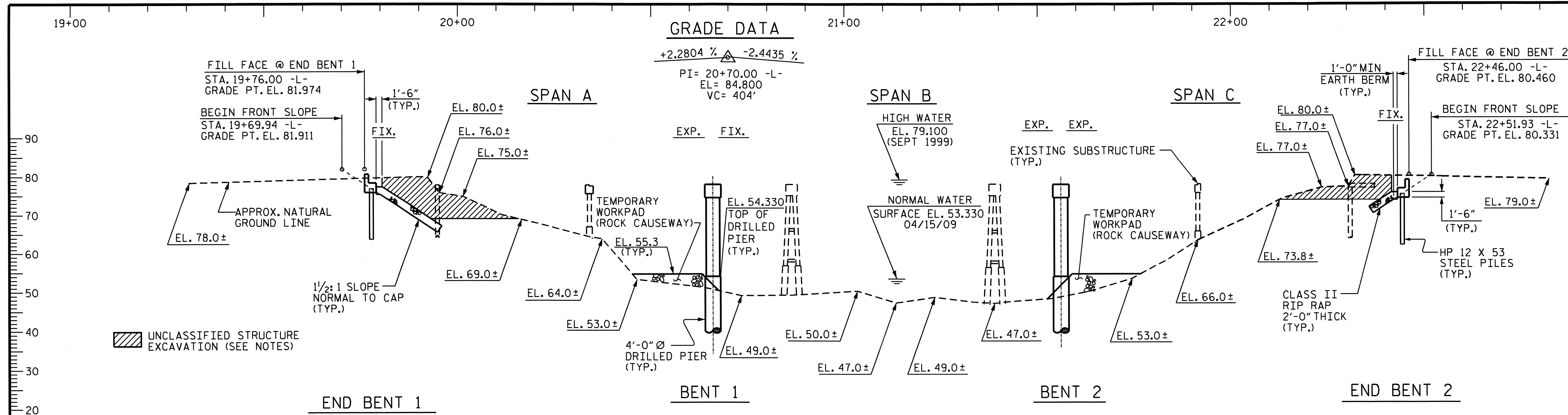
APPROVED DIVISION ADMINISTRATOR

P.E. DATE

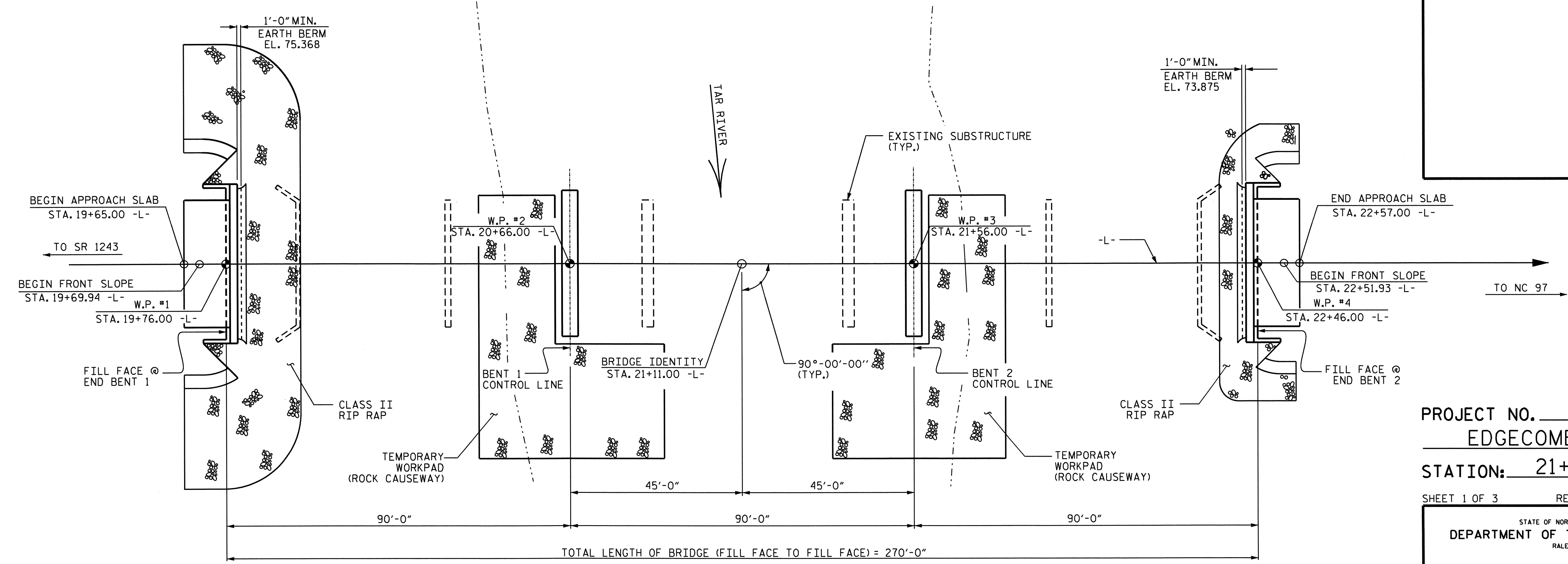
15-SEP-2011 10:32
RA:Structures\Final Plans\B-4503.sd. rsh.dgn
jshawk

GRADE DATA

+2.2804 % Δ -2.4435 %
 PI= 20+70.00 -L-
 EL= 84.800
 VC= 404'



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS



PLAN
 PILES AND DRILLED PIERS NOT SHOWN IN PLAN FOR CLARITY

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-
 SHEET 1 OF 3 REPLACES BRIDGE NO. 7

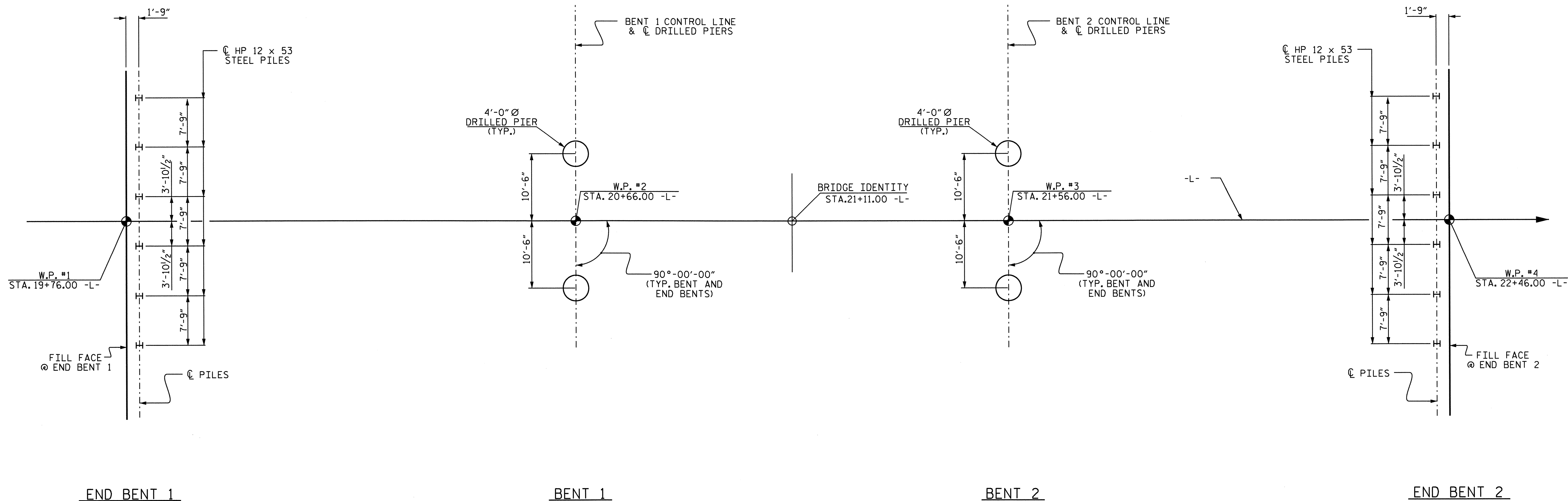
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 TAR RIVER
 ON SR 1250 BETWEEN
 SR 1243 AND NC 97

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

DRAWN BY : J.G. KHARVA DATE : 05/23/11
 CHECKED BY : J.D. HAWK DATE : 06/20/11

Professional Engineer Seal for North Carolina, No. 12929, dated 9/20/11.



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO CENTERLINE OF PILES.
 DIMENSIONS LOCATING DRILLED PIERS ARE SHOWN TO CENTERLINE OF DRILLED PIER.

FOUNDATION NOTES

FOR PILES, SEE SPECIAL PROVISIONS.

PILES AT END BENT 1 & END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 130 TONS PER PILE.

DRIVE PILES AT END BENT 1 & END BENT 2 TO A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

DRILLED PIERS AT BENT 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 635 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 90 TSF.

PERMANENT STEEL CASING ARE REQUIRED FOR DRILLED PIERS AT BENT 1 AND BENT 2. DO NOT EXTEND PERMANENT CASING BELOW ELEVATION 35 FT. FOR BOTH BENT 1 AND BENT 2 WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

INSTALL PERMANENT STEEL CASING AT BENT 1 AND BENT 2 BY VIBRATING, SCREWING OR DRIVING PERMANENT CASINGS BEFORE EXCAVATING OR DISTURBING ANY MATERIAL BELOW ELEVATION 39 FT.

INSTALL DRILLED PIERS AT BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN -2 FT. AND SATISFY THE REQUIRED TIP RESISTANCE.

INSTALL DRILLED PIERS AT BENT 2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 15 FT. (LEFT AND ELEVATION 5 FT. (RIGHT) AND SATISFY THE REQUIRED TIP RESISTANCE.

THE SCOUR CRITICAL ELEVATION FOR BOTH BENTS 1 AND 2 IS ELEVATION 36 FT. SCOUR CRITICAL ELEVATION ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

SPT TESTING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1 OR BENT 2.

DO NOT DEWATER DRILLED PIER EXCAVATIONS AT BENT 1 AND BENT 2. CLEAN THE BOTTOM OF EXCAVATIONS WITH A SUBMERSIBLE PUMP OR AND AIRLIFT. WET PLACEMENT OF CONCRETE IS REQUIRED.

SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1 OR BENT 2. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS.

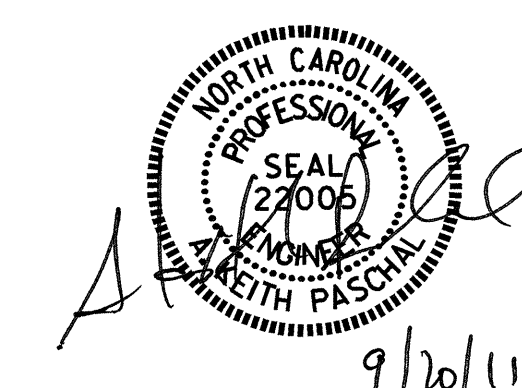
CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1 OR BENT 2. THE ENGINEER WILL BE DETERMINE THE NEED FOR CSL TESTING. FOR CROSSHOLE SONIC LOGGING, SEE DRILLED PIER SPECIAL PROVISIONS.

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 TAR RIVER
 ON SR 1250 BETWEEN
 SR 1243 AND NC 97



DRAWN BY : J. G. KHARVA DATE : 5/23/11
 CHECKED BY : J. D. HAWK DATE : 6/20/11

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

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE, AND REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	4'-0" Ø DRILLED PIERS	PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIER	SID INSPECTION	SPT TESTING	CSL TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 x 53 STEEL PILES	TWO BAR METAL RAIL	1'-2" x 2'-7 3/4" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 2'-9" PRESTRESSED CONCRETE BOX BEAMS		
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	EACH	EACH	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	LIN. FT.	LIN. FT.	TONS	SO. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE										LUMP SUM				520.50	535.50				LUMP SUM	36	3210.0
END BENT 1								LUMP SUM	18.4		3012		6	360		307	341				
BENT 1			112.67	38.67					41.1		17121	3869									
BENT 2			88.67	38.67					40.8		14570	4175									
END BENT 2								LUMP SUM	18.4		3012		6	330		93	103				
TOTAL	LUMP SUM	LUMP SUM	201.34	77.34	2	2	1	LUMP SUM	118.7	LUMP SUM	37715	8044	12	690	520.50	535.50	400	444	LUMP SUM	36	3210.0

NOTES

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.

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

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THE EXISTING STRUCTURE CONSISTING OF 5 (1 @ 40'-0", 3 @ 52'-6", 1 @ 40'-0") REINFORCED CONCRETE DECK ON STEEL I-BEAM SPANS WITH A CLEAR ROADWAY WIDTH OF 24'-0" SUPPORTED BY REINFORCED CONCRETE END BENTS AND BENTS ON STEEL PILES AND LOCATED AT THE PROPOSED STRUCTURE 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 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 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. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 35 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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 21+11.00-L".

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 21+11.00 -L-.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE PAVEMENT MARKING PLANS AND SHALL PROVIDE FOR BICYCLES.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

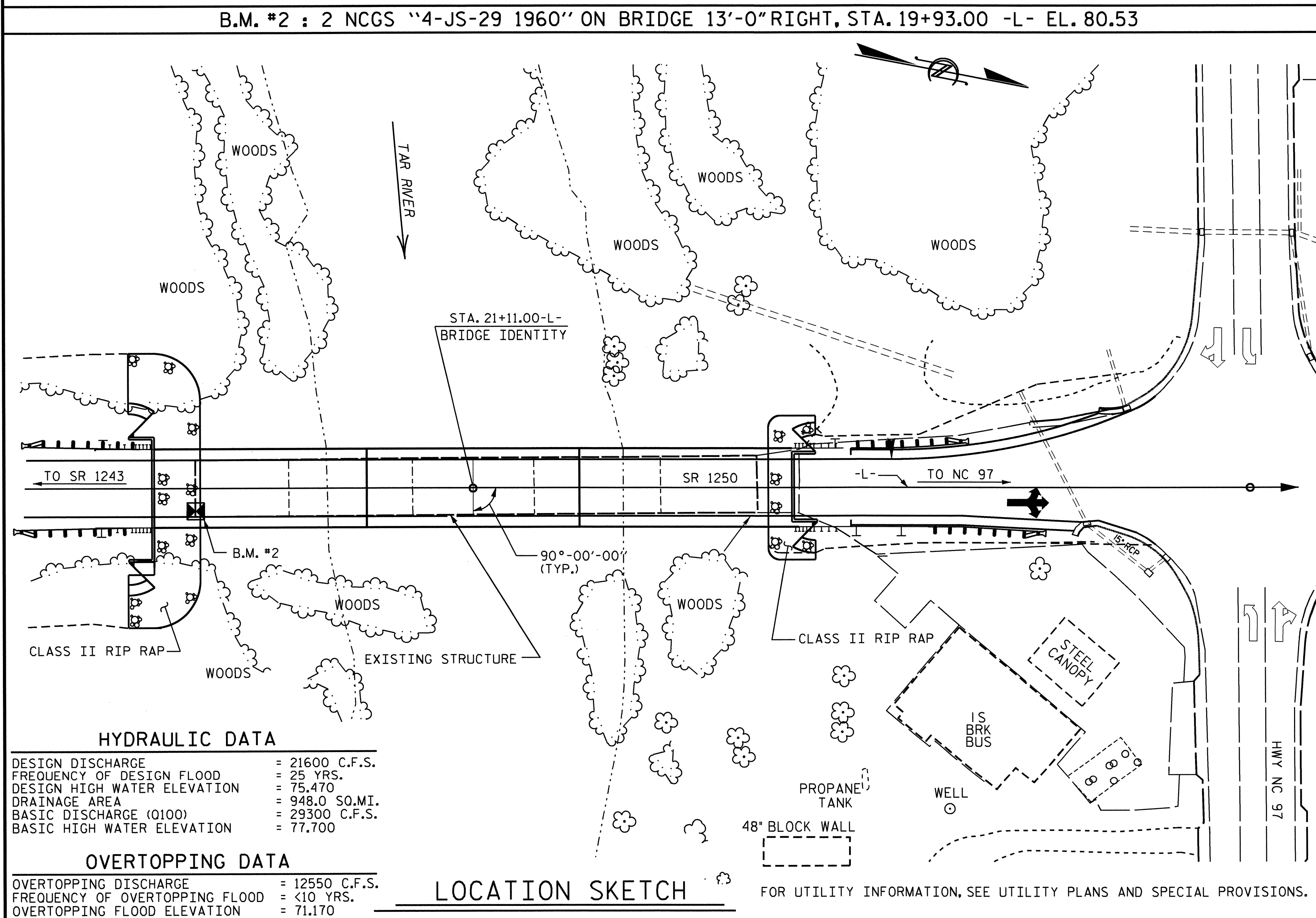
FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

B.M. #2 : 2 NCGS "4-JS-29 1960" ON BRIDGE 13'-0" RIGHT, STA. 19+93.00 -L- EL. 80.53



HYDRAULIC DATA

DESIGN DISCHARGE	= 21600 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 75.470
DRAINAGE AREA	= 948.0 SQ.MI.
BASIC DISCHARGE (Q100)	= 29300 C.F.S.
BASIC HIGH WATER ELEVATION	= 77.700

OVERTOPPING DATA

OVERTOPPING DISCHARGE	= 12550 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= <10 YRS.
OVERTOPPING FLOOD ELEVATION	= 71.170

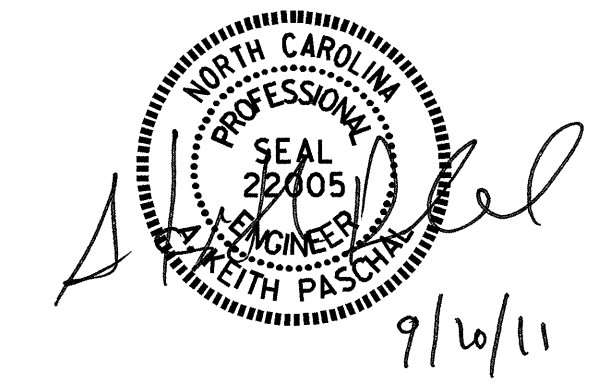
LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

PROJECT NO. B-4503
EDGECOMBE COUNTY
 STATION: 21+11.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 TAR RIVER
 ON SR 1250 BETWEEN
 SR 1243 AND NC 97



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

DRAWN BY : J.G. KHARVA DATE : 6/23/09
 CHECKED BY : J.D. HAWK DATE : 6/20/11

LOAD FACTORS:

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

LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																								
LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE						COMMENT NUMBER		
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(InV)	N/A	1	1.033	--	1.75	0.268	1.22	B	EL	44.188	0.49	1.04	B	EL	4.419	0.80	0.268	1.03	B	EL	44.188		
	HL-93(0pr)	N/A	--	1.348	--	1.35	0.268	1.58	B	EL	44.188	0.49	1.35	B	EL	4.419	N/A	--	--	--	--	--		
	HS-20(InV)	36.000	2	1.362	49.047	1.75	0.268	1.65	B	EL	44.188	0.49	1.36	B	EL	4.419	0.80	0.268	1.40	B	EL	44.188		
	HS-20(0pr)	36.000	--	1.766	63.580	1.35	0.268	2.14	B	EL	44.188	0.49	1.77	B	EL	4.419	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.275	44.218	1.4	0.268	4.82	B	EL	44.188	0.49	4.17	B	EL	4.419	0.80	0.268	3.28	B	EL	44.188	
		SNGARBS2	20.000	--	2.394	47.881	1.4	0.268	3.52	B	EL	44.188	0.49	2.93	B	EL	4.419	0.80	0.268	2.39	B	EL	44.188	
		SNAGRIS2	22.000	--	2.248	49.458	1.4	0.268	3.31	B	EL	44.188	0.49	2.70	B	EL	4.419	0.80	0.268	2.25	B	EL	44.188	
		SNCOTTS3	27.250	--	1.629	44.378	1.4	0.268	2.40	B	EL	44.188	0.49	2.08	B	EL	4.419	0.80	0.268	1.63	B	EL	44.188	
		SNAGGRS4	34.925	--	1.343	46.902	1.4	0.268	1.98	B	EL	44.188	0.49	1.70	B	EL	4.419	0.80	0.268	1.34	B	EL	44.188	
		SNS5A	35.550	--	1.314	46.730	1.4	0.268	1.93	B	EL	44.188	0.49	1.71	B	EL	4.419	0.80	0.268	1.31	B	EL	44.188	
		SNS6A	39.950	--	1.199	47.885	1.4	0.268	1.76	B	EL	44.188	0.49	1.55	B	EL	4.419	0.80	0.268	1.20	B	EL	44.188	
	SNS7B	42.000	--	1.141	47.930	1.4	0.268	1.68	B	EL	44.188	0.49	1.51	B	EL	4.419	0.80	0.268	1.14	B	EL	44.188		
	TTST	TNAGRIT3	33.000	--	1.459	48.163	1.4	0.268	2.15	B	EL	44.188	0.49	1.85	B	EL	4.419	0.80	0.268	1.46	B	EL	44.188	
		TNT4A	33.075	--	1.464	48.419	1.4	0.268	2.15	B	EL	44.188	0.49	1.81	B	EL	4.419	0.80	0.268	1.46	B	EL	44.188	
		TNT6A	41.600	--	1.190	49.503	1.4	0.268	1.75	B	EL	44.188	0.49	1.58	B	EL	4.419	0.80	0.268	1.19	B	EL	44.188	
		TNT7A	42.000	--	1.192	50.074	1.4	0.268	1.75	B	EL	44.188	0.49	1.56	B	EL	4.419	0.80	0.268	1.19	B	EL	44.188	
		TNT7B	42.000	--	1.224	51.424	1.4	0.268	1.8	B	EL	44.188	0.49	1.48	B	EL	4.419	0.80	0.268	1.22	B	EL	44.188	
		TNAGRIT4	43.000	--	1.171	50.372	1.4	0.268	1.72	B	EL	44.188	0.49	1.44	B	EL	4.419	0.80	0.268	1.17	B	EL	44.188	
TNAGT5A		45.000	--	1.108	49.846	1.4	0.268	1.63	B	EL	44.188	0.49	1.41	B	EL	4.419	0.80	0.268	1.11	B	EL	44.188		
TNAGT5B	45.000	3	1.097	49.370	1.4	0.268	1.61	B	EL	44.188	0.49	1.37	B	EL	4.419	0.80	0.268	1.10	B	EL	44.188			

NOTES:

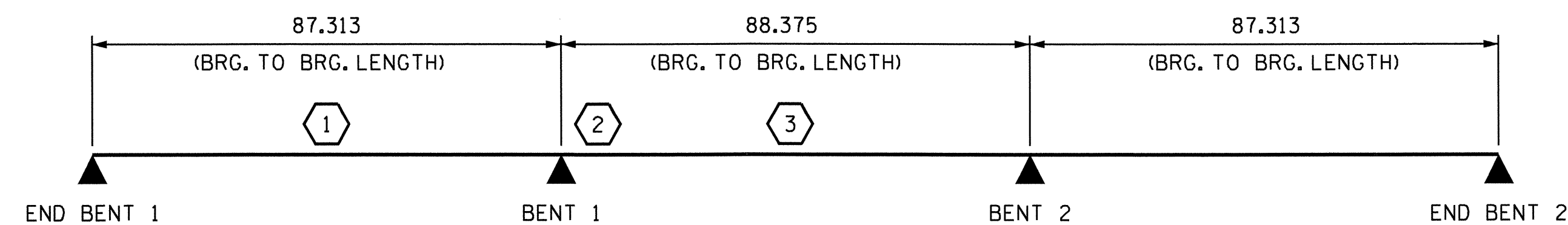
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

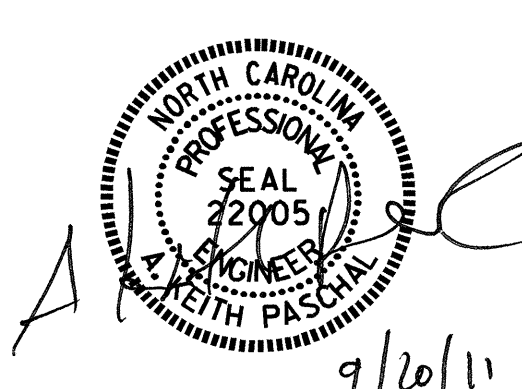
- 1.
- 2.
- 3.
- 4.

#	CONTROLLING LOAD RATING
1	DESIGN LOAD RATING (HL-93)
2	DESIGN LOAD RATING (HS-20)
3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	
GIRDER LOCATION	
I - INTERIOR GIRDER	
EL - EXTERIOR LEFT GIRDER	
ER - EXTERIOR RIGHT GIRDER	



LRFR SUMMARY

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-



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

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

ASSEMBLED BY : J. MYA	DATE : 6-10-11
CHECKED BY : J. G. KHARVA	DATE : 6-13-11
DRAWN BY : MAA 1/08	REV. 11/12/08R MAA/GM
CHECKED BY : GM/DI 2/08	

NOTES

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

ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH GROUT. THE 2 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOWELS AND THEN FILLED WITH GROUT.

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 6000 PSI.

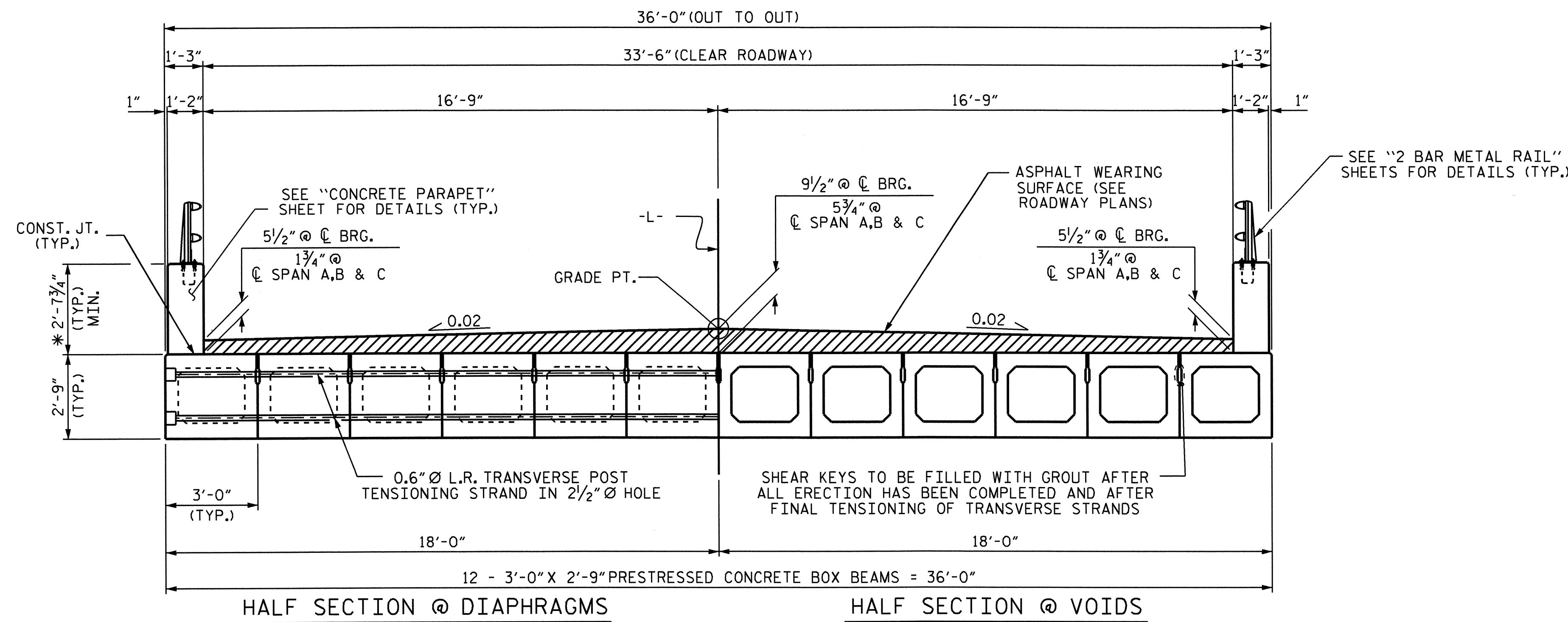
ALL REINFORCING STEEL IN CONCRETE PARAPET SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

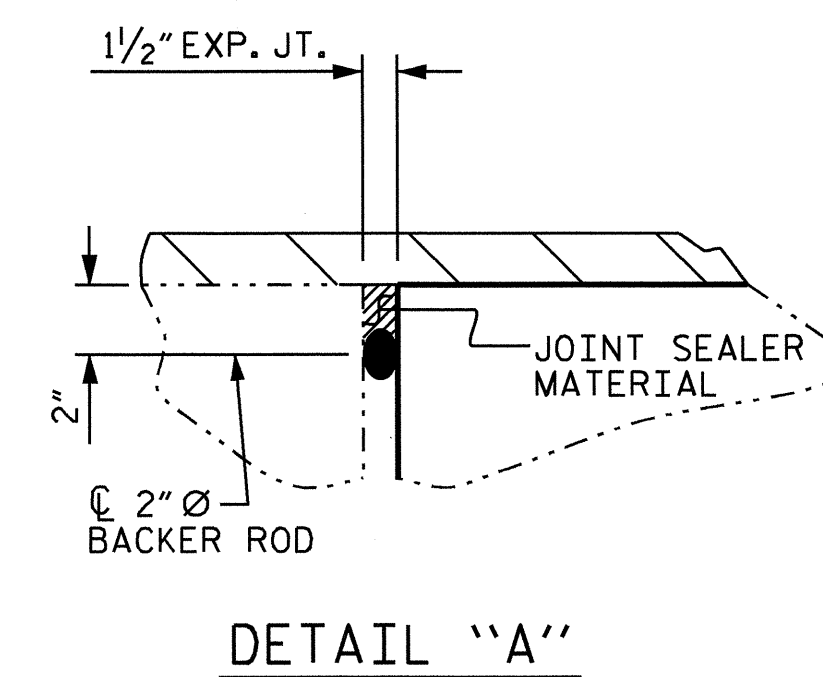
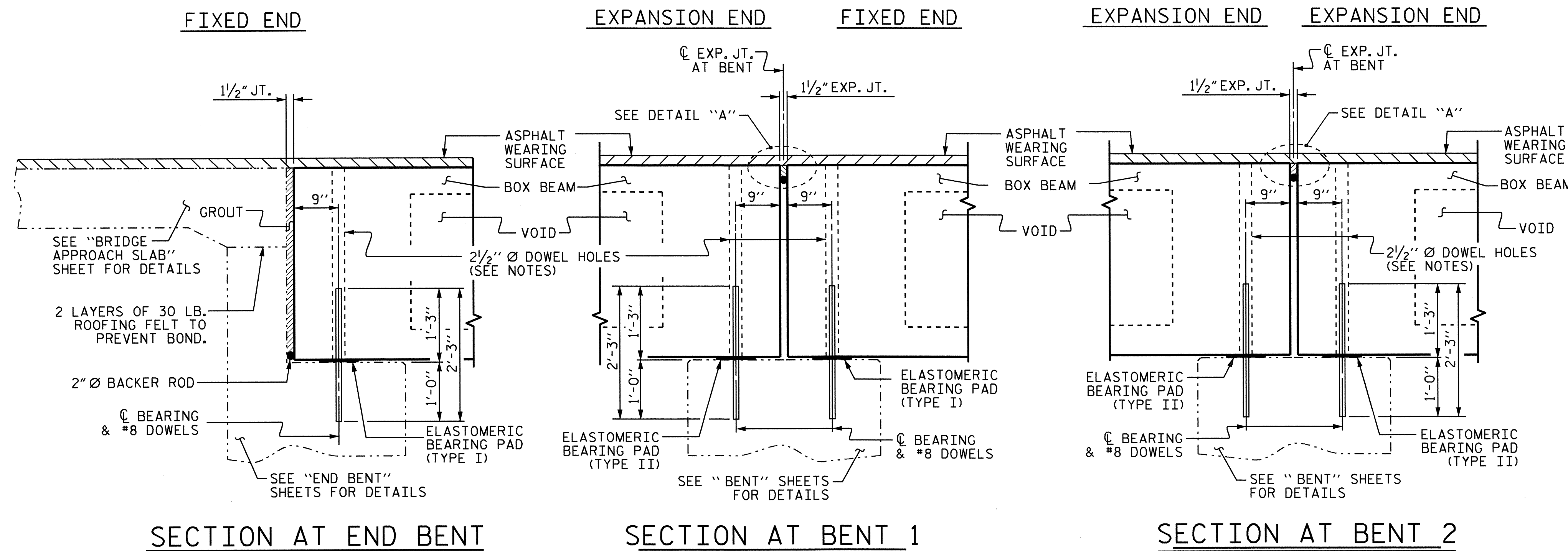
VERTICAL GROOVED CONTRACTION JOINTS 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FEET TO 10 FEET BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED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

THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.



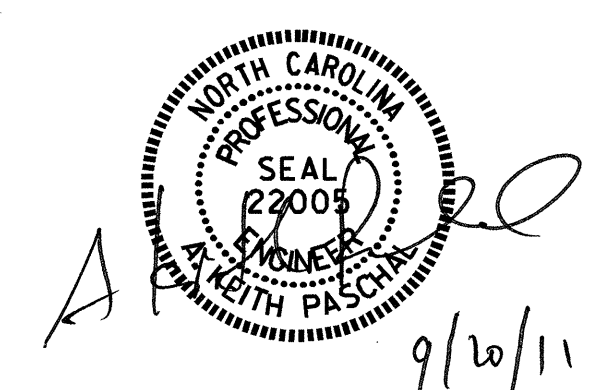
TYPICAL SECTION

* THE MINIMUM HEIGHT OF THE PARAPET IS SHOWN. THE HEIGHT OF THE PARAPET VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE



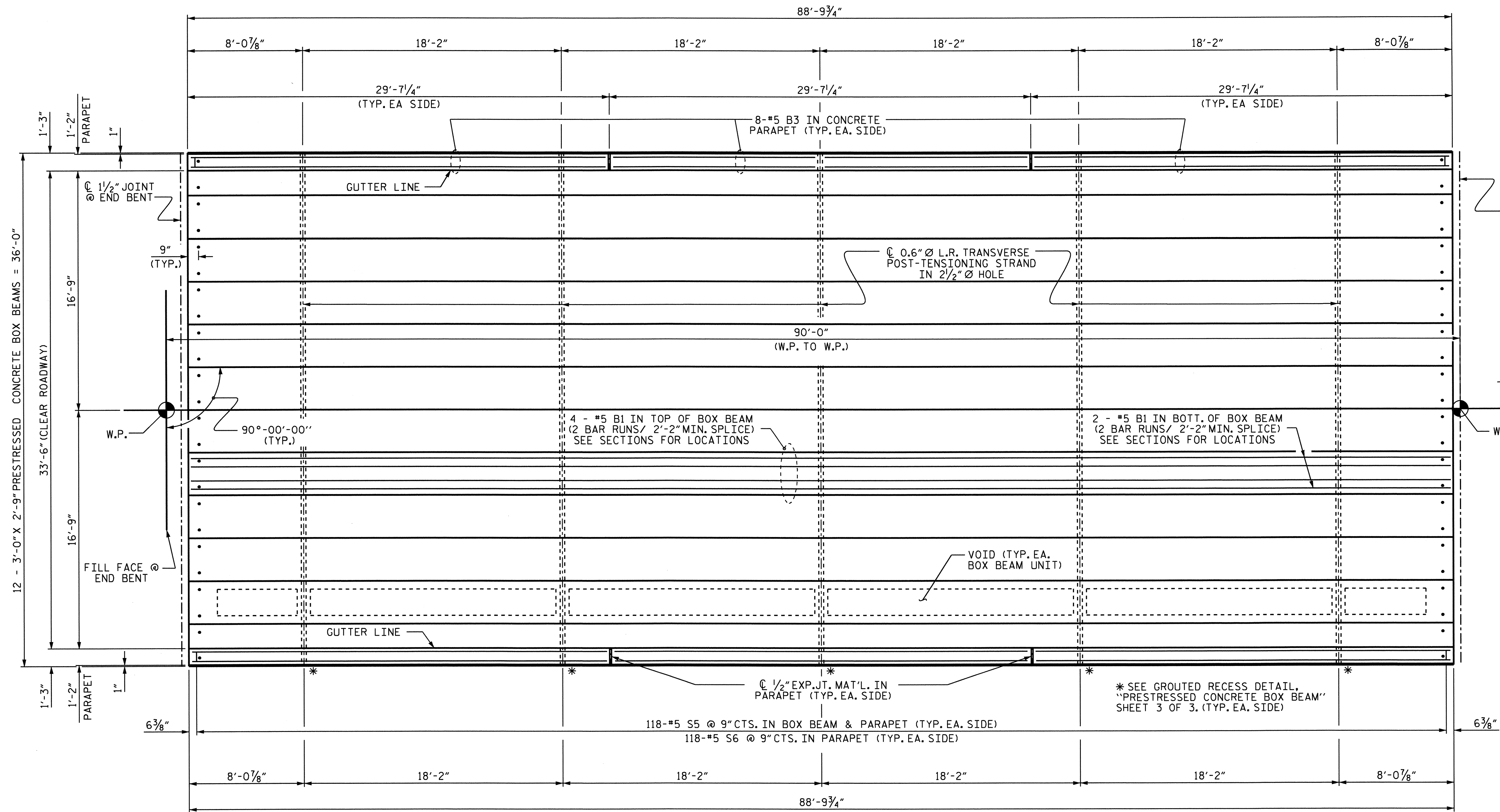
PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT



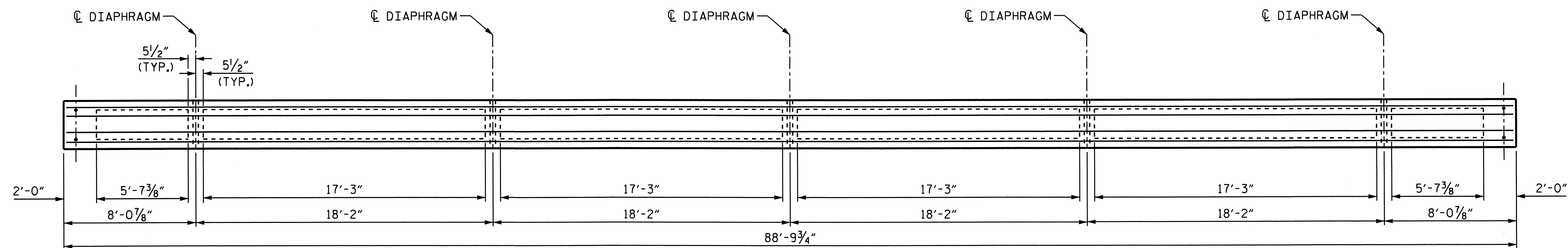
ASSEMBLED BY : M. E. FOWLER	DATE : 5/1/11
CHECKED BY : J. D. HAWK	DATE : 6/1/11
DRAWN BY : TLA 5/05	ADDED 7/11/05R
CHECKED BY : GM 6/05	REV. 5/11/06R KMM/GM

REVISIONS						SHEET NO. S-5
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			24



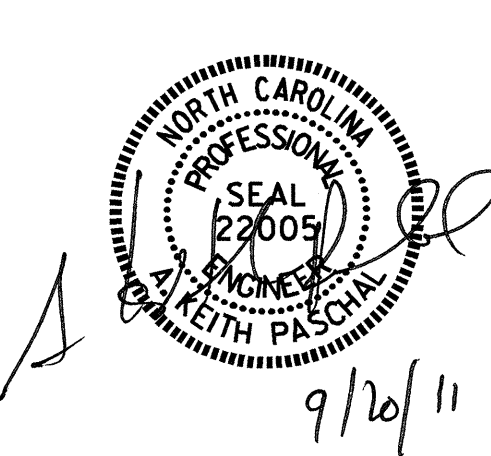
PLAN OF SPAN A

(FOR ADDITIONAL REINFORCING STEEL IN THE BOX BEAM UNITS, SEE "3'-0\"/>



PLAN OF BOX BEAM - SPAN A

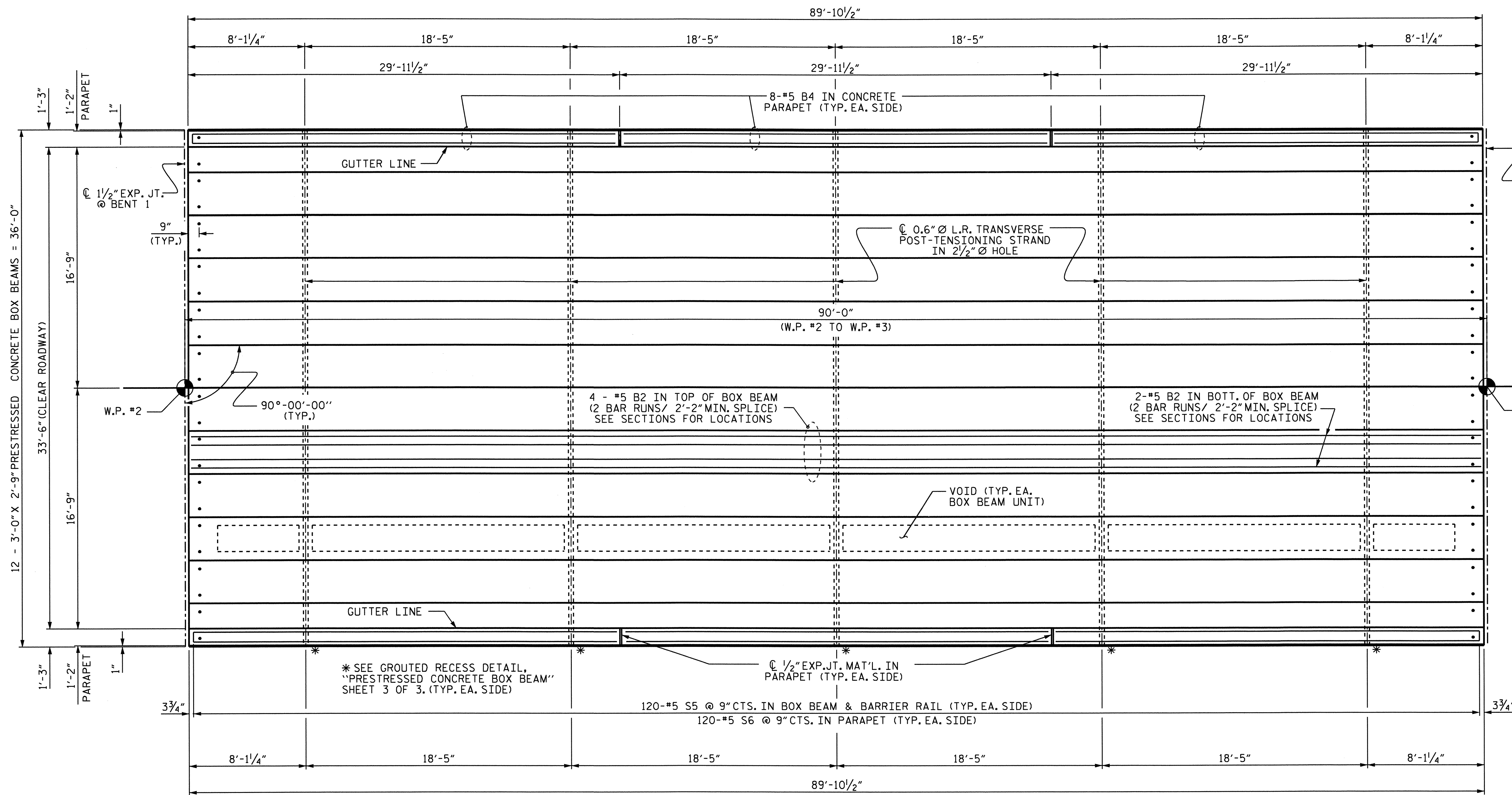
(SHOWING LOCATION OF VOIDS AND DIAPHRAGMS)



PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

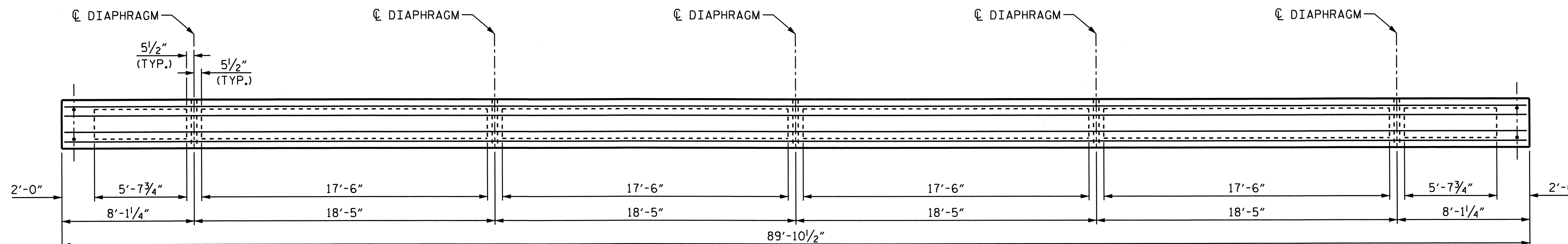
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPANS A & C					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-6 TOTAL SHEETS 24

DRAWN BY : M. E. FOWLER DATE : 5/1/11
 CHECKED BY : J. D. HAWK DATE : 6/1/11



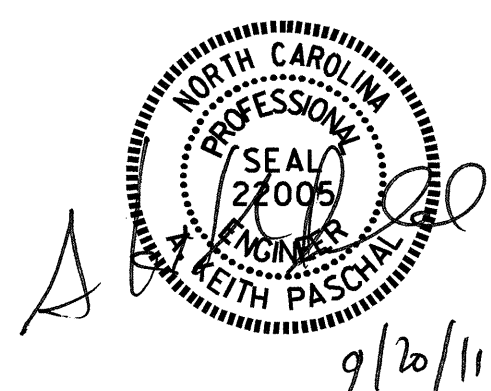
PLAN OF SPAN B

(FOR ADDITIONAL REINFORCING STEEL IN THE BOX BEAM UNITS, SEE "3'-0" X 2'-9" PRESTRESSED BOX BEAM UNIT SHEETS)



PLAN OF BOX BEAM - SPAN B

(SHOWING LOCATION OF VOIDS AND DIAPHRAGMS)



PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

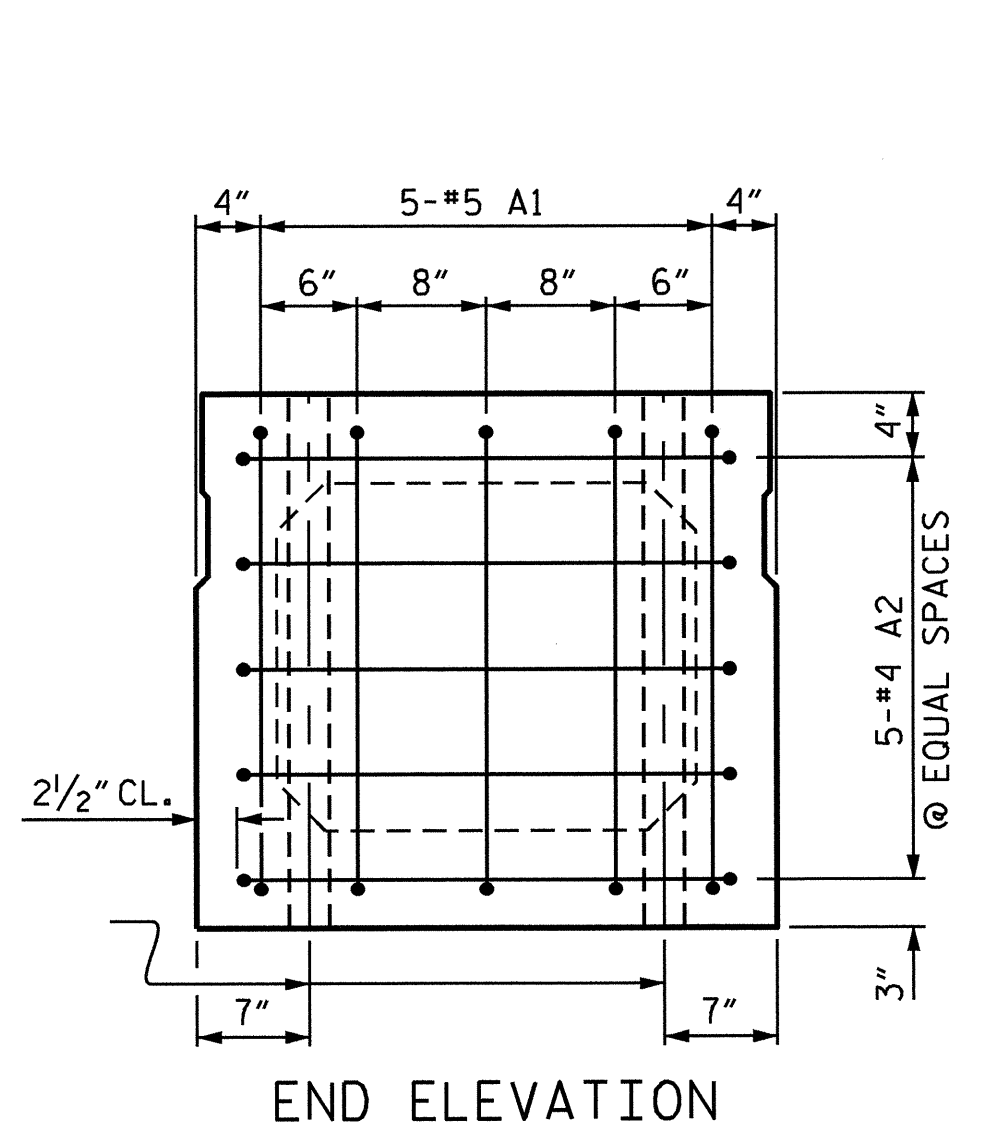
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 PLAN OF SPAN B**

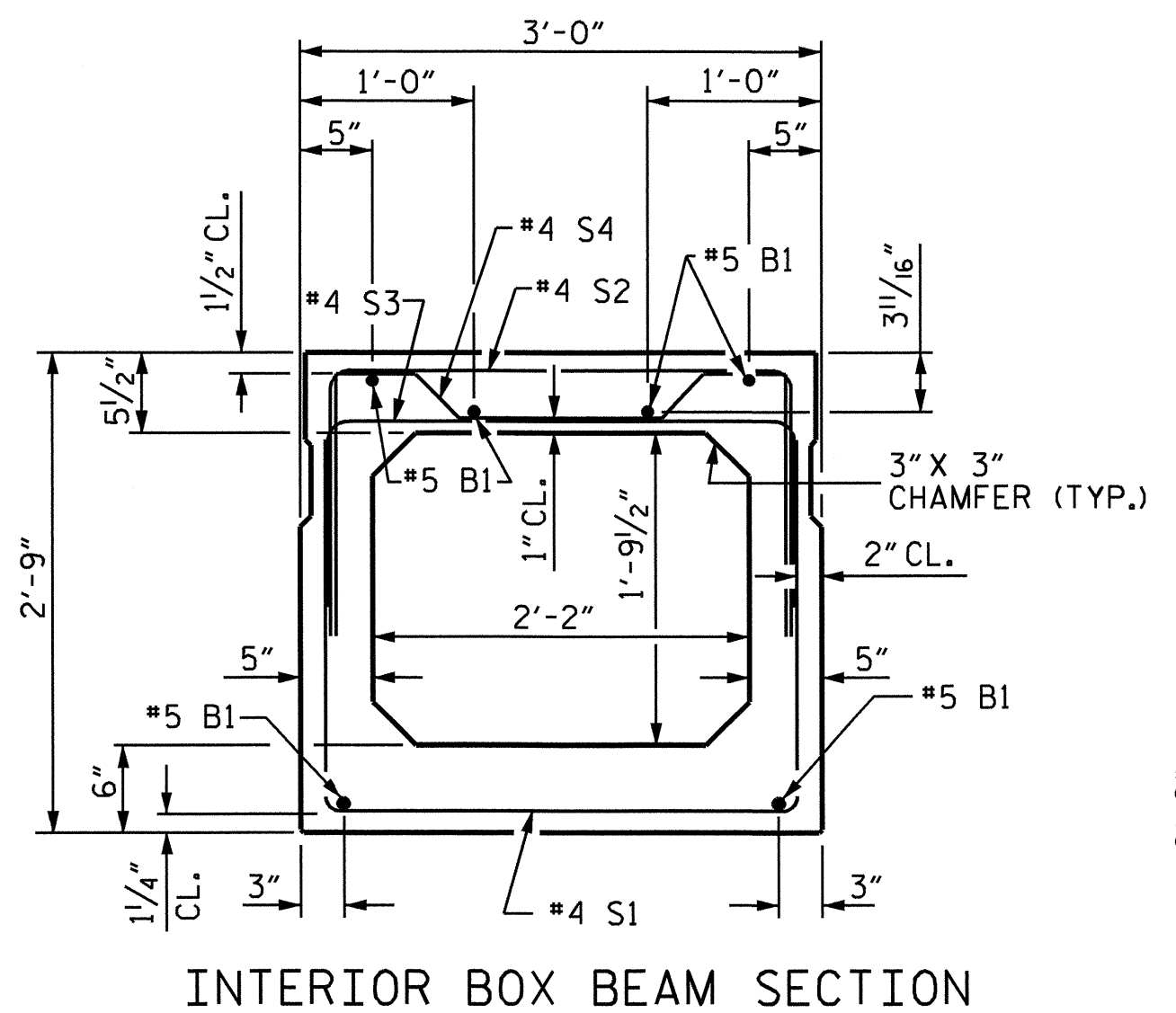
DRAWN BY : M. E. FOWLER DATE : 5/1/11
 CHECKED BY : J. D. HAWK DATE : 6/1/11

19-SEP-2011 08:25
 R:\Structures\Final Plans\B4503.SD.BX.dgn
 jdhawk

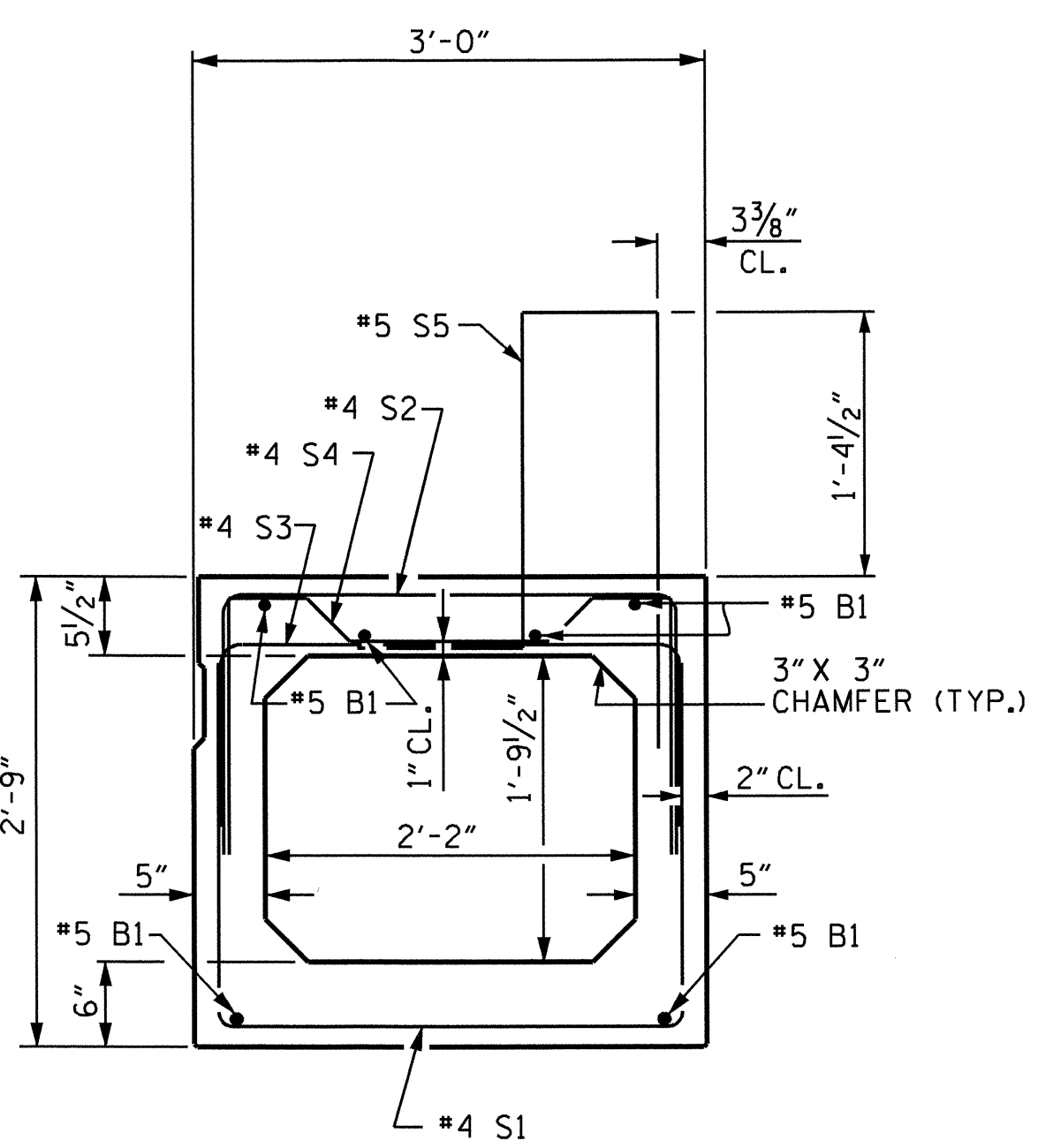
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7	
1			3			TOTAL SHEETS	24
2			4				



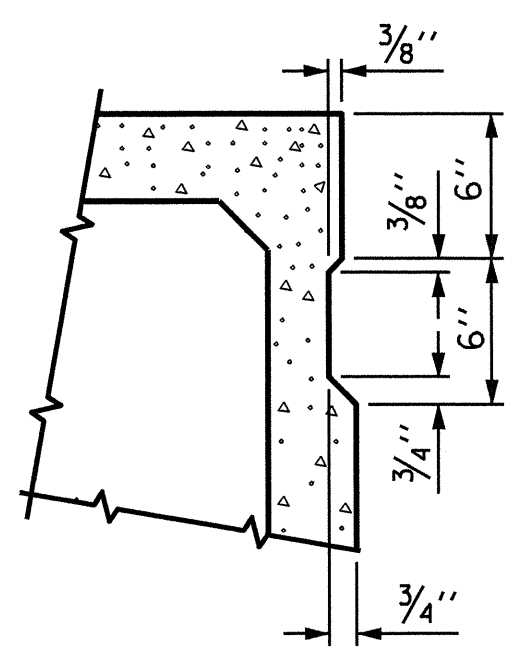
END ELEVATION
 SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



INTERIOR BOX BEAM SECTION
 (STRAND LAYOUT NOT SHOWN)



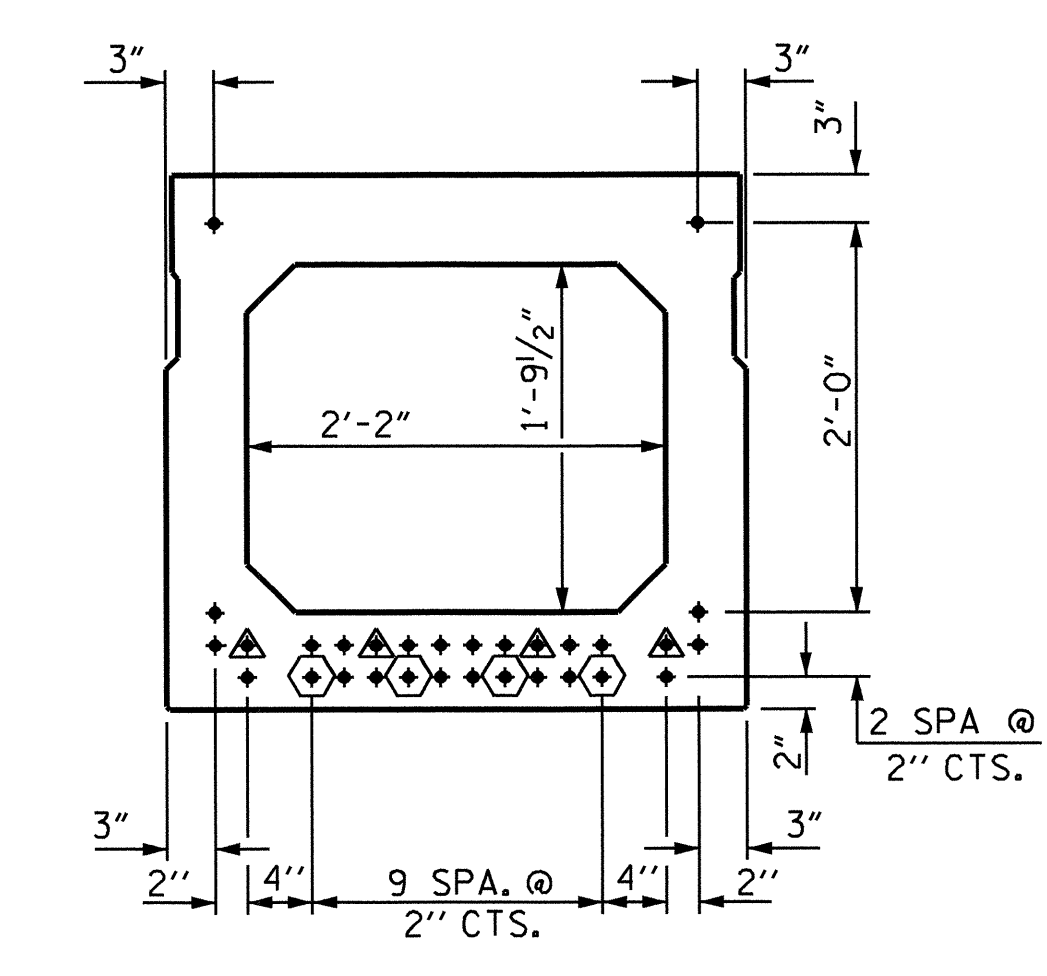
EXTERIOR BOX BEAM SECTION
 (STRAND LAYOUT NOT SHOWN)



SHEAR KEY DETAIL
 NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.

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

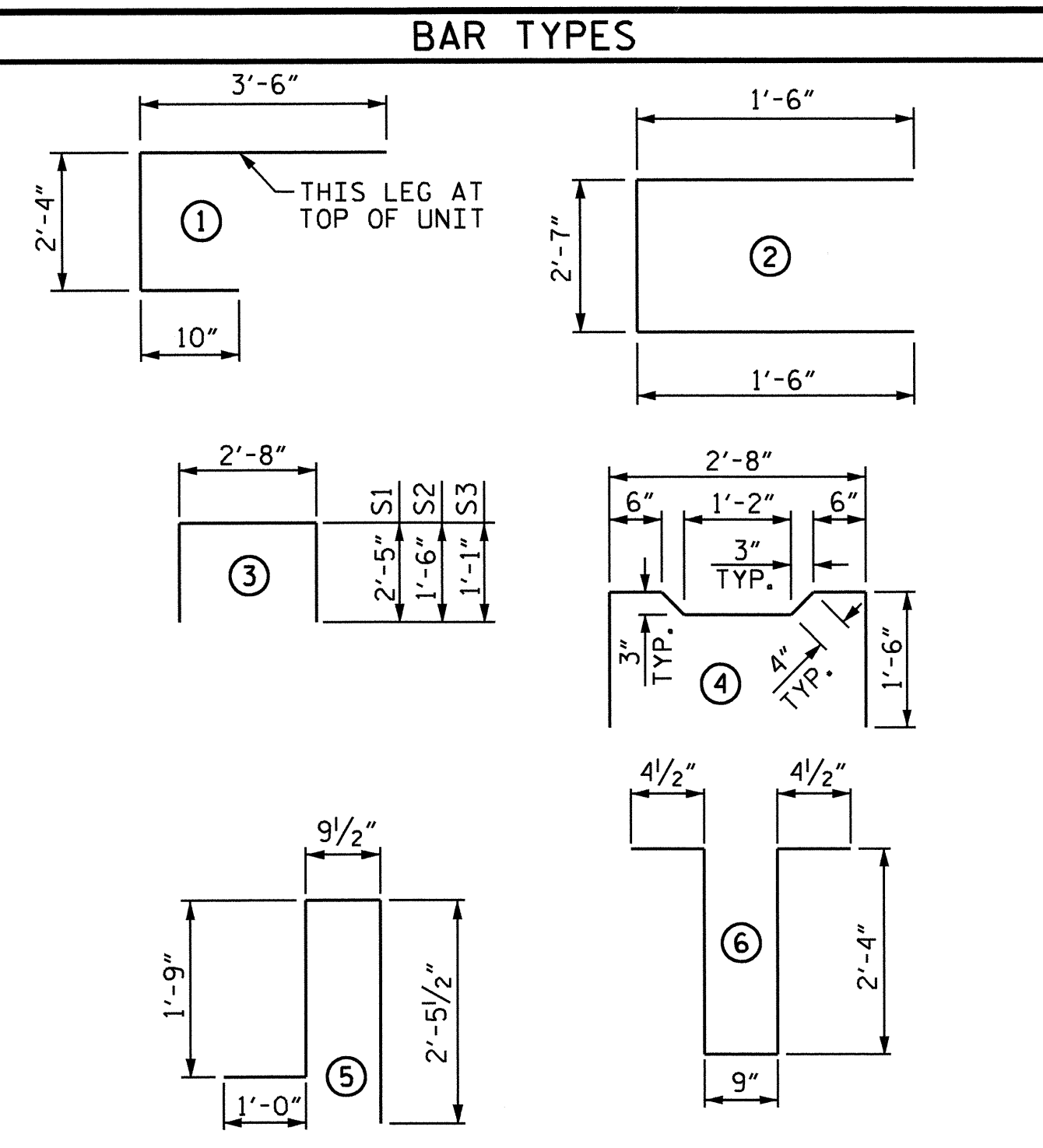
0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION
 (30 STRANDS REQUIRED)
 (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION)

DEBONDING LEGEND

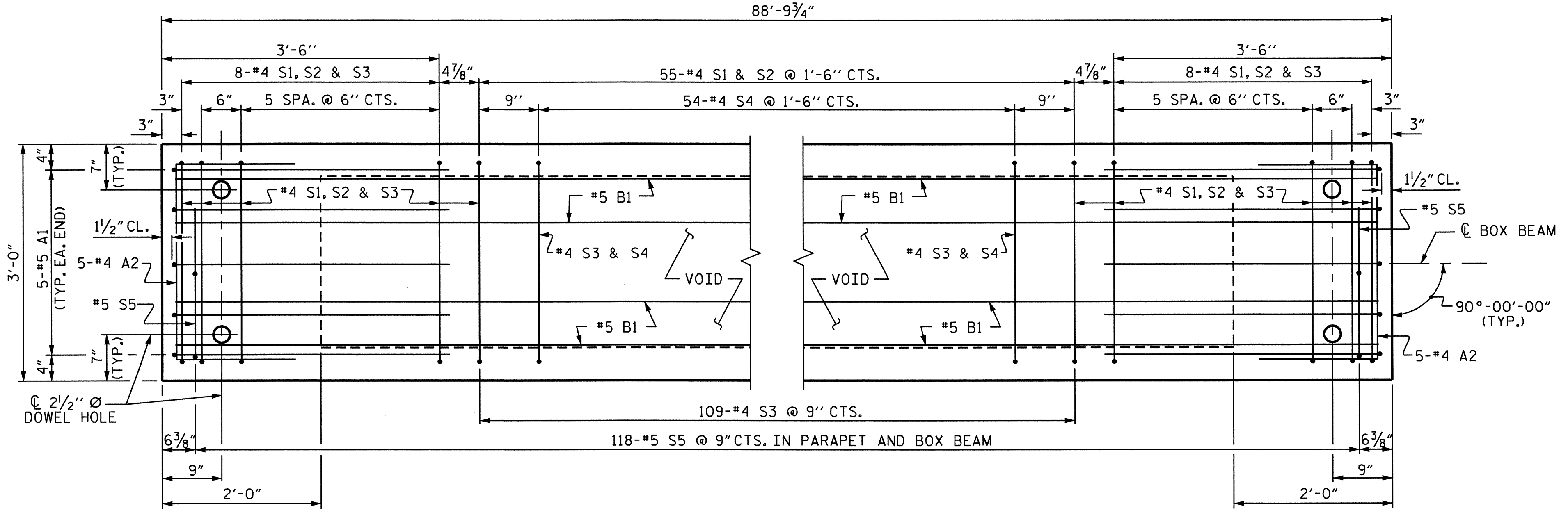
- FULLY BONDED STRANDS
 - ⊙ 4'-0" DEBONDED
 - ⊕ 12'-0" DEBONDED
- BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.



BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
			LENGTH	WEIGHT	LENGTH	WEIGHT
A1	#5	1	6'-8"	70	6'-8"	70
A2	#4	2	5'-7"	149	5'-7"	149
B1	#5	STR	45'-4"	567	45'-4"	567
K1	#4	6	6'-2"	62	6'-2"	62
K2	#4	STR	2'-7"	17	2'-7"	17
S1	#4	3	7'-6"	356	7'-6"	356
S2	#4	3	5'-8"	269	5'-8"	269
S3	#4	3	4'-10"	405	4'-10"	405
S4	#4	4	5'-10"	210	5'-10"	210
*S5	#5	5	6'-0"	738	--	--

REINFORCING STEEL	2105 LBS.	2105 LBS.
*EPOXY COATED REINF. STEEL	738 LBS.	
7500 P.S.I. CONCRETE	15.8 CU. YDS.	15.7 CU. YDS.
0.6" Ø L.R. STRANDS	No. 30	No. 30

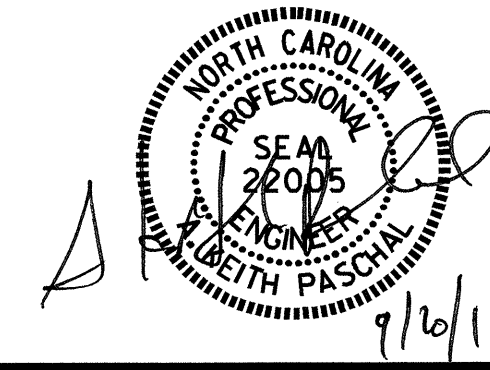


PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE PLAN OF SPANS. FOR REINFORCING STEEL IN DIAPHRAGMS, SEE DIAPHRAGM DETAILS.

ASSEMBLED BY : M. E. FOWLER	DATE : 5/1/11
CHECKED BY : J. D. HAWK	DATE : 6/1/11
DRAWN BY : TLA	5/05
CHECKED BY : GM	6/05
ADDED	7/11/05
REV.	5/1/06
	TLA/GM

15-SEP-2011 10:29
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 jdhawk

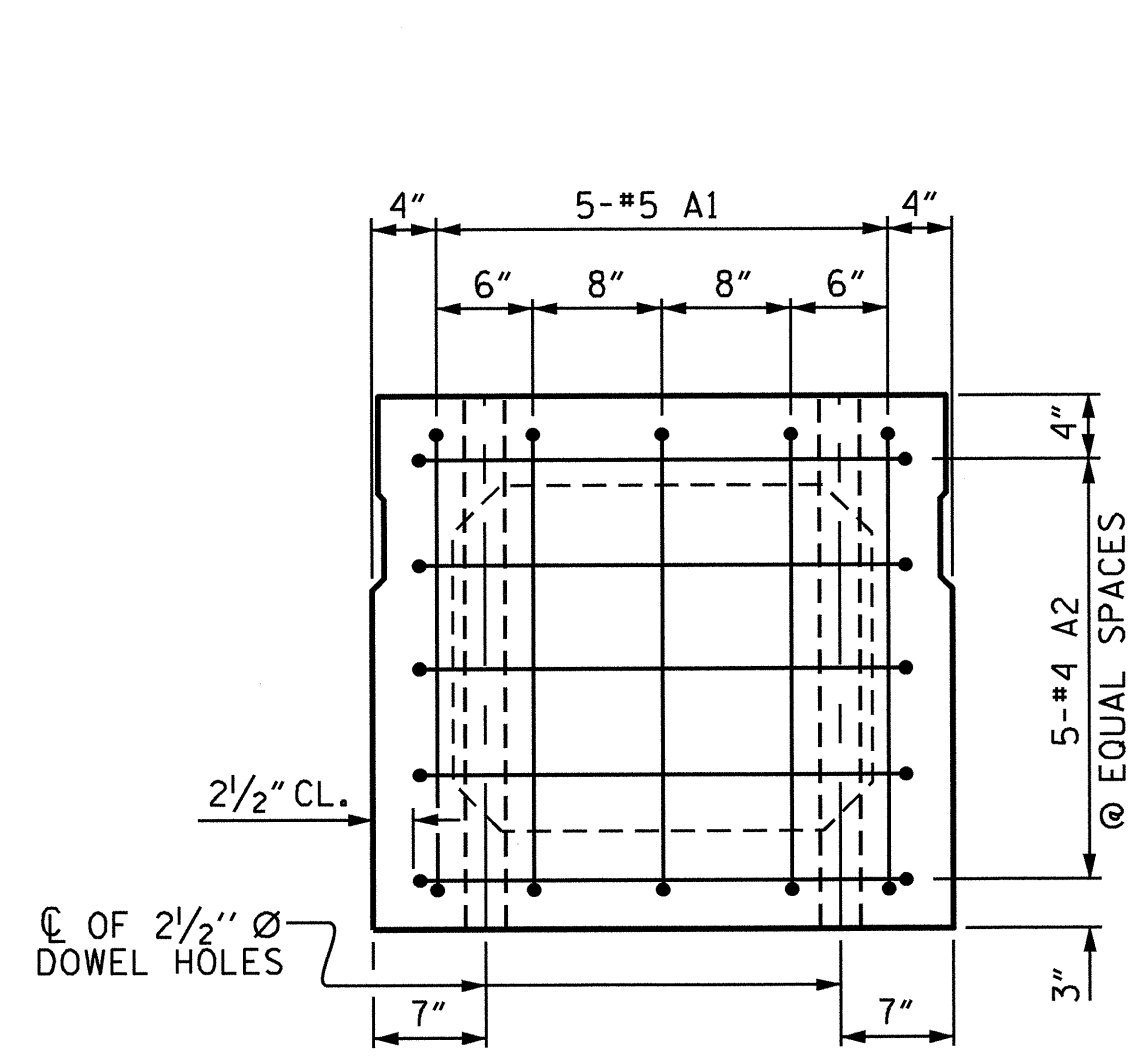


PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 1 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT
 SPAN A & C

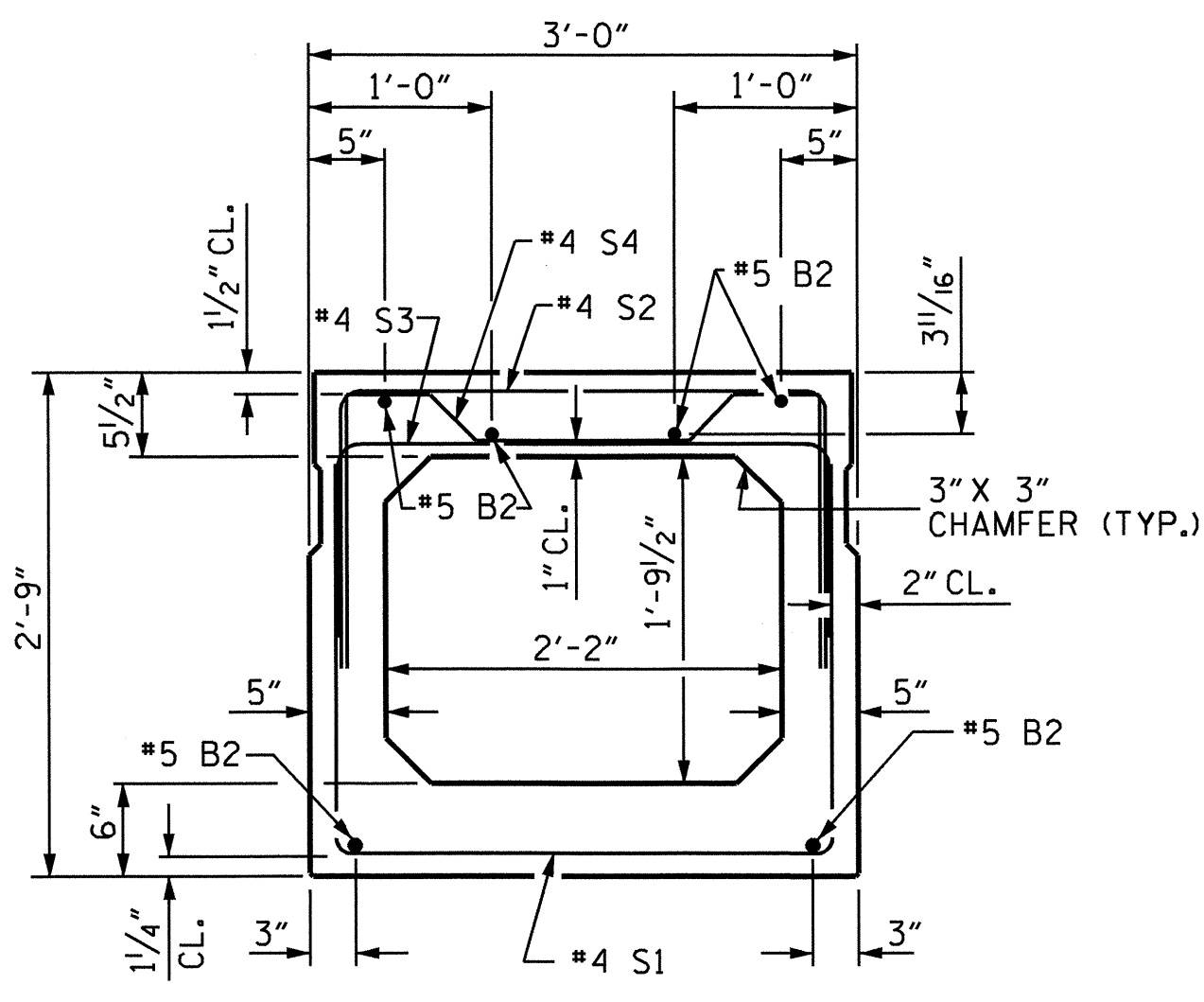
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			24

(SHT 1B) STD. NO. PCB44



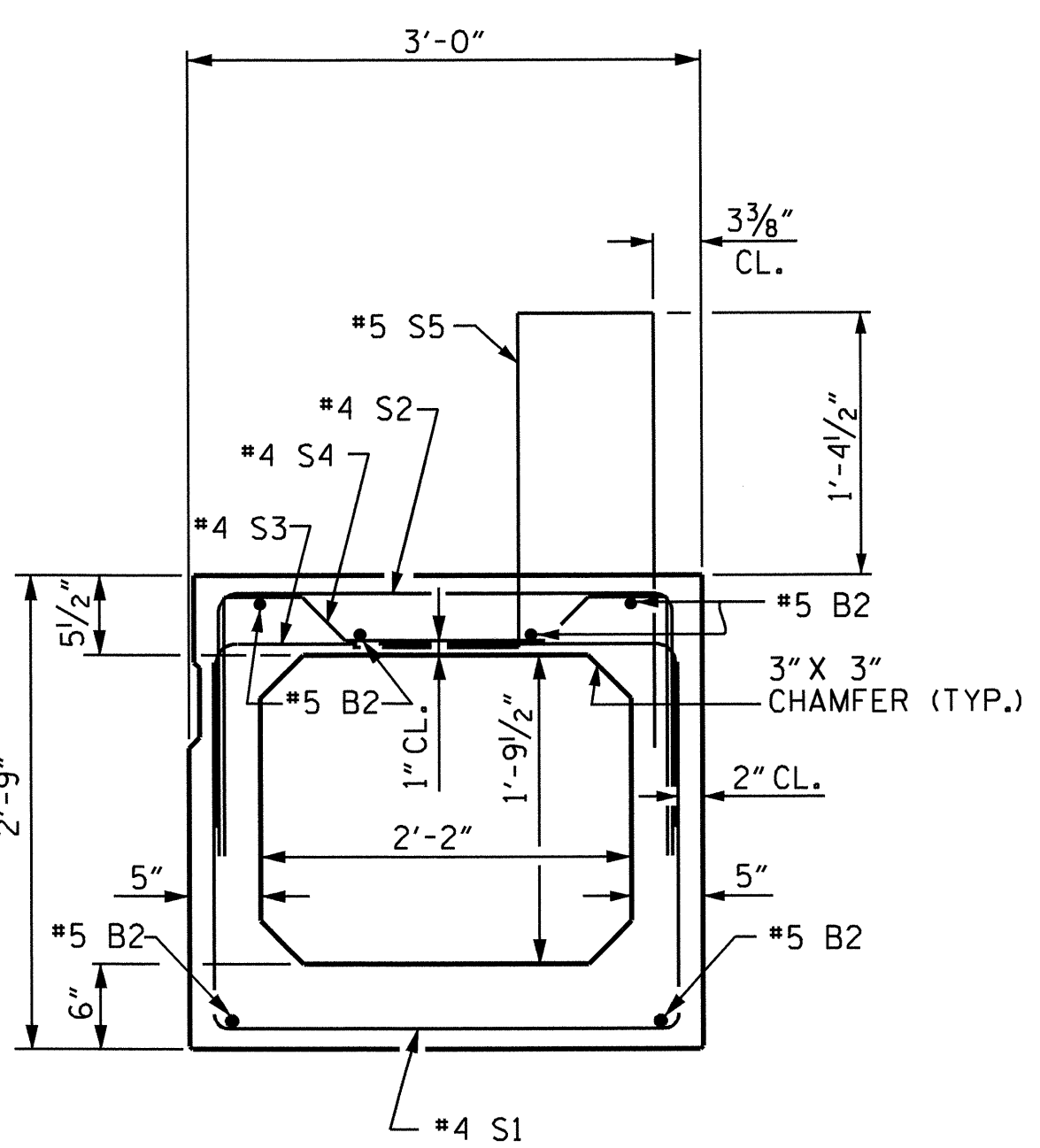
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



INTERIOR BOX BEAM SECTION

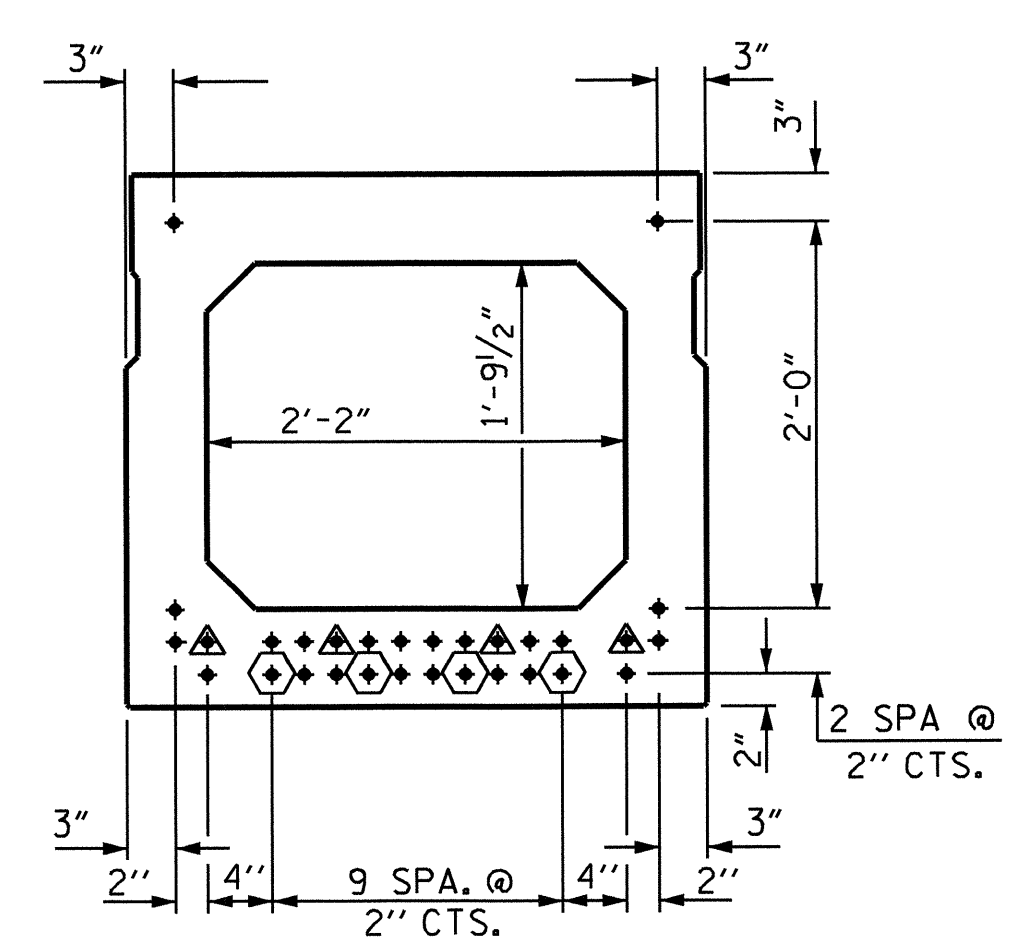
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



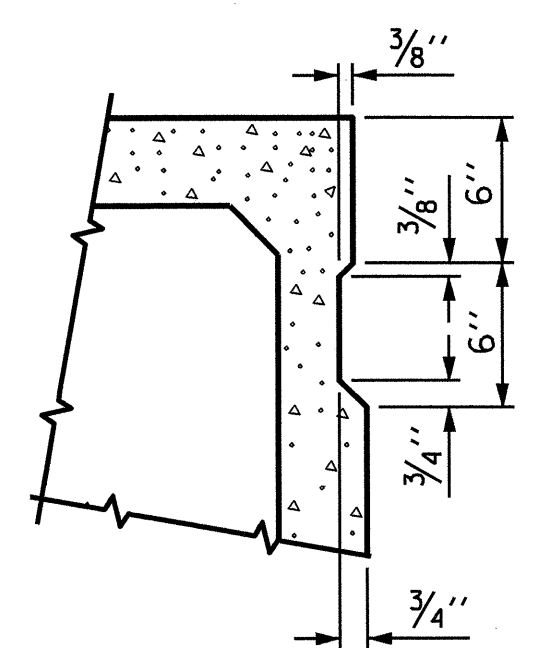
TYPICAL STRAND LOCATION

(30 STRANDS REQUIRED)
(INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION)

DEBONDING LEGEND

- FULLY BONDED STRANDS
 - ▲ 4'-0" DEBONDED
 - ◊ 12'-0" DEBONDED
- BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

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



SHEAR KEY DETAIL

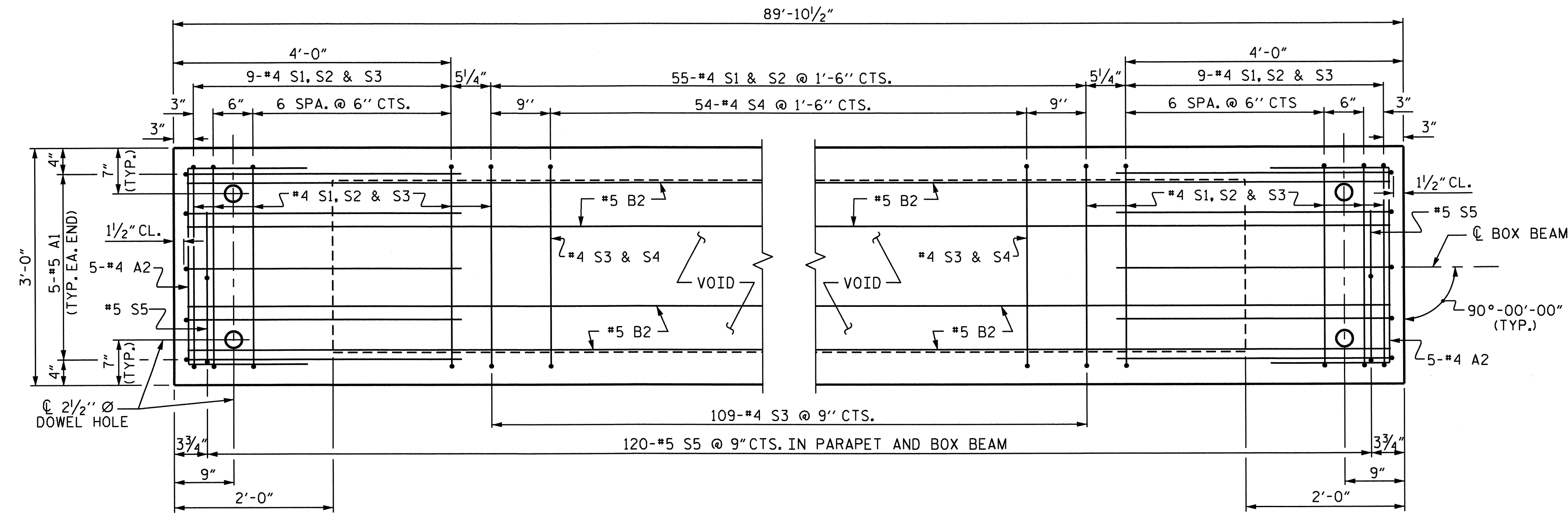
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

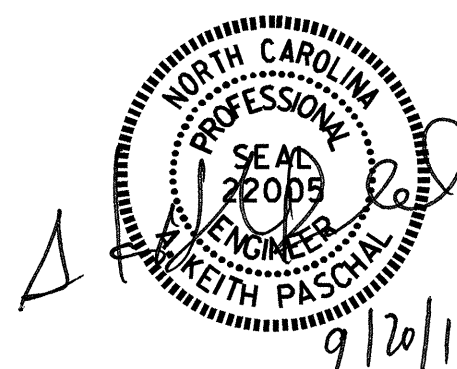
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	40	#4	2	5'-7"	149	5'-7"	149
B2	12	#5	STR	45'-11"	575	45'-11"	575
K1	15	#4	6	6'-2"	62	6'-2"	62
K2	10	#4	STR	2'-7"	17	2'-7"	17
S1	73	#4	3	7'-6"	366	7'-6"	366
S2	73	#4	3	5'-8"	276	5'-8"	276
S3	127	#4	3	4'-10"	410	4'-10"	410
S4	54	#4	4	5'-10"	210	5'-10"	210
*S5	120	#5	5	6'-0"	751	--	--
REINFORCING STEEL				2135 LBS.		2135 LBS.	
* EPOXY COATED REINF. STEEL				751 LBS.			
7500 P.S.I. CONCRETE				16.0 CU. YDS.		15.9 CU. YDS.	
0.6" Ø L.R. STRANDS				No.	30	No.	30



PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE PLAN OF SPANS. FOR REINFORCING STEEL IN DIAPHRAGMS, SEE DIAPHRAGM DETAILS.

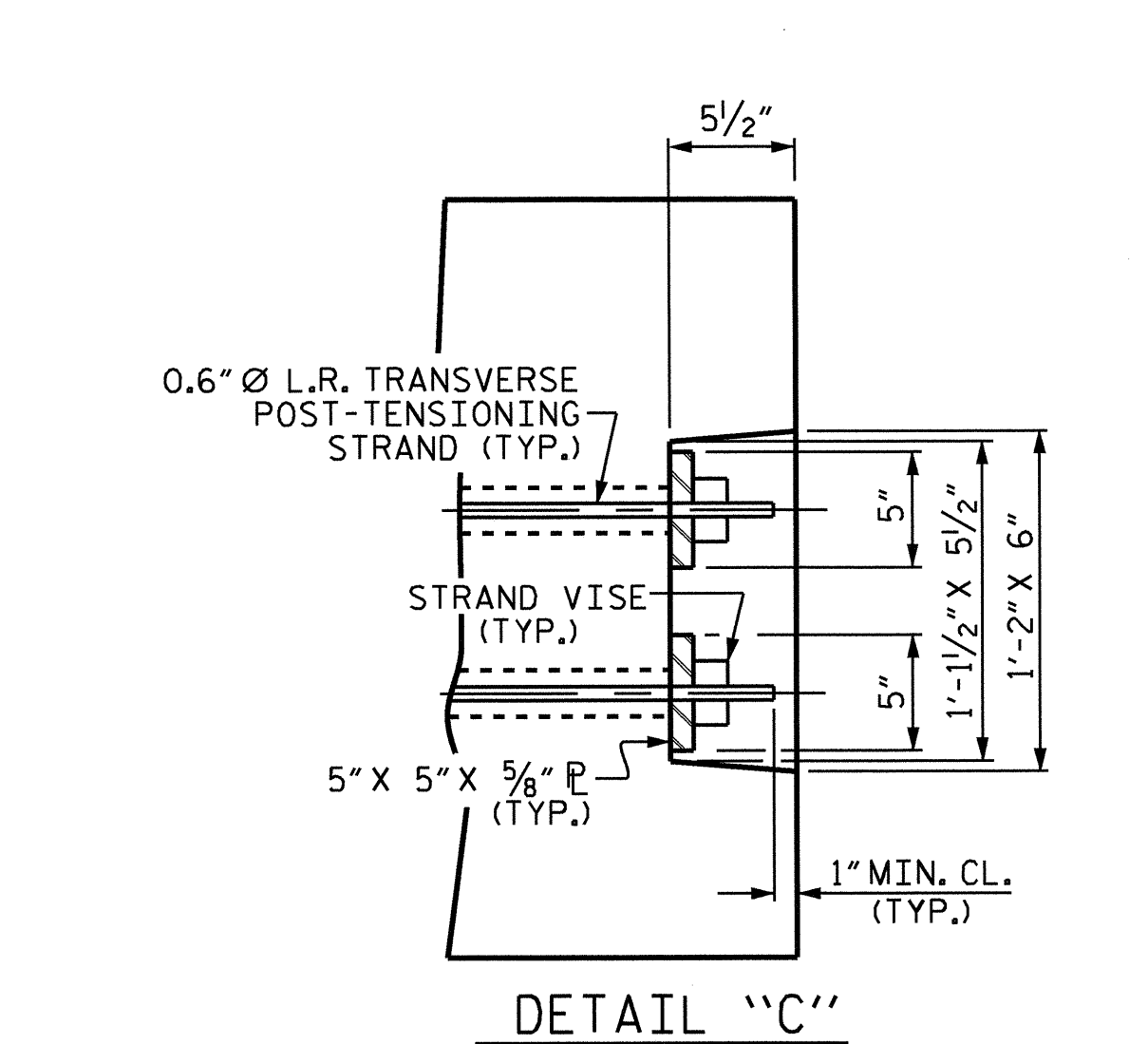
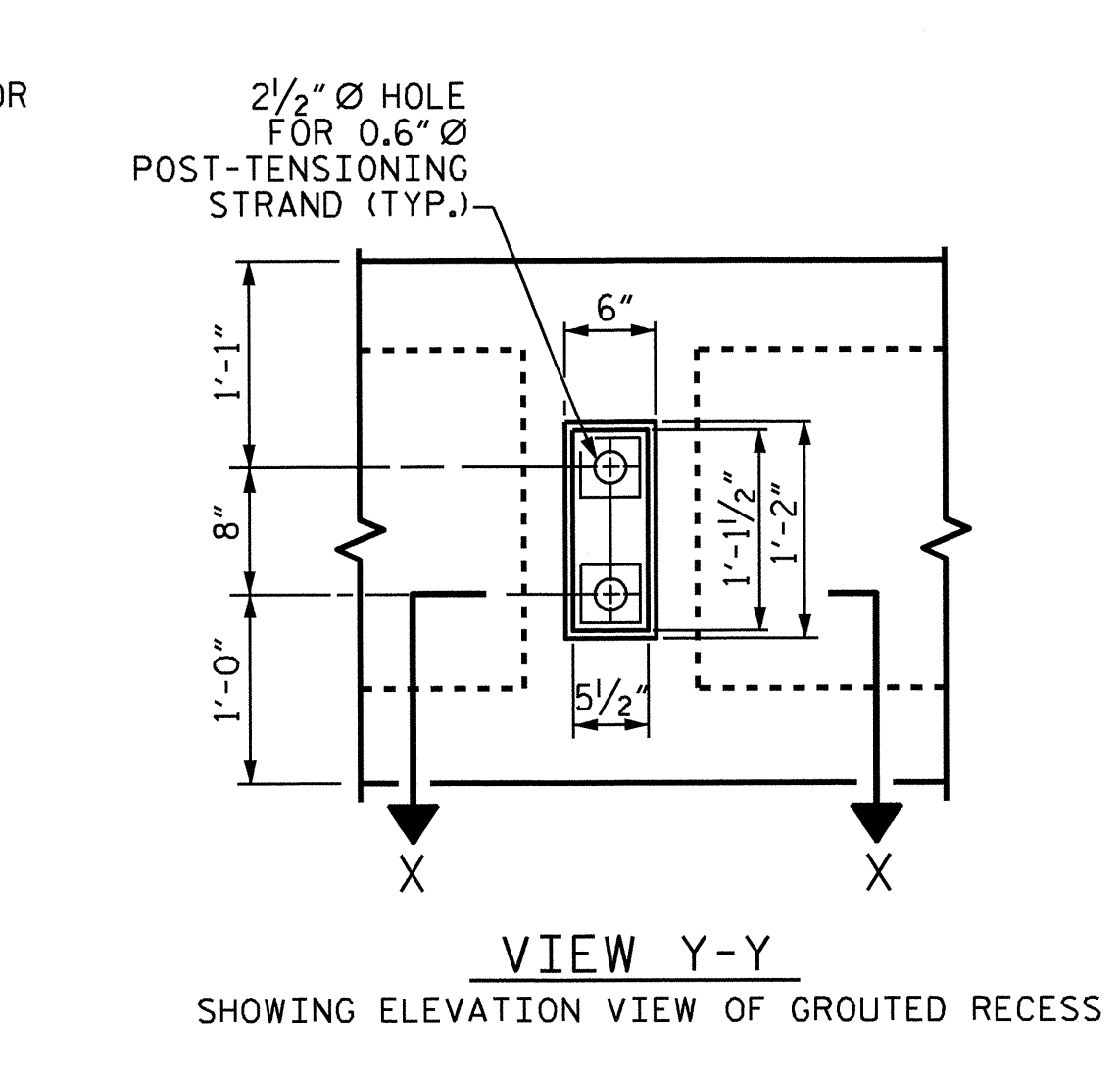
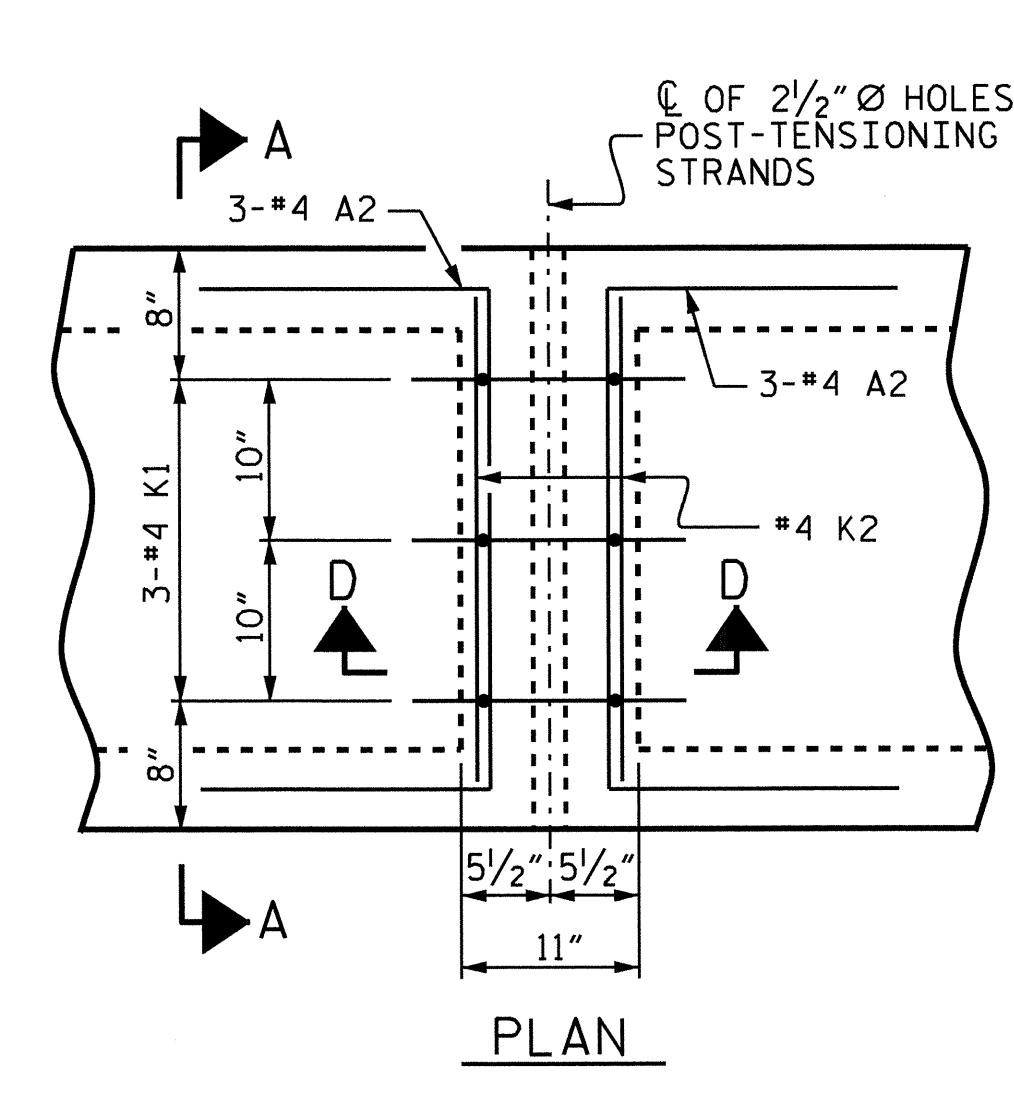
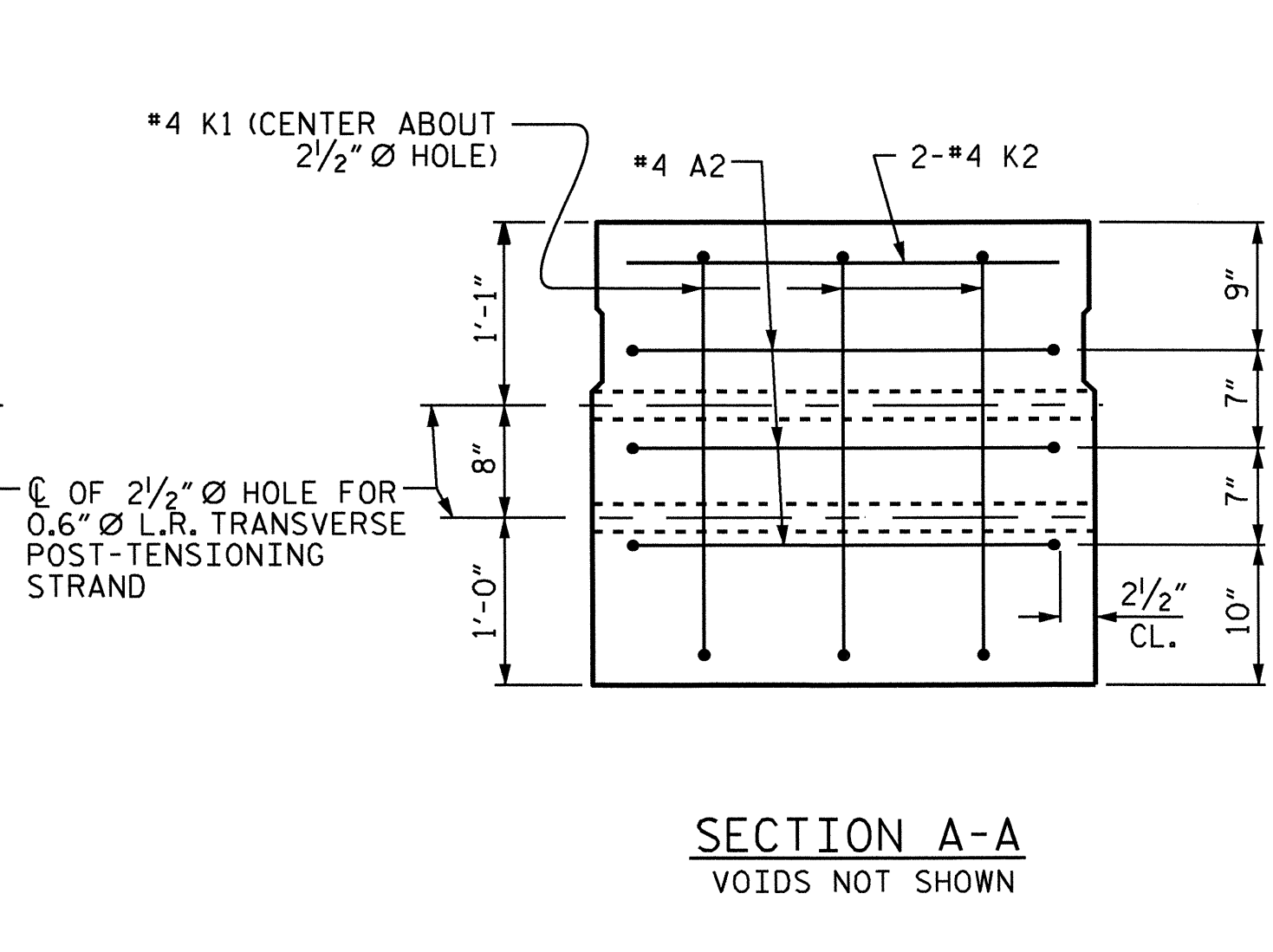
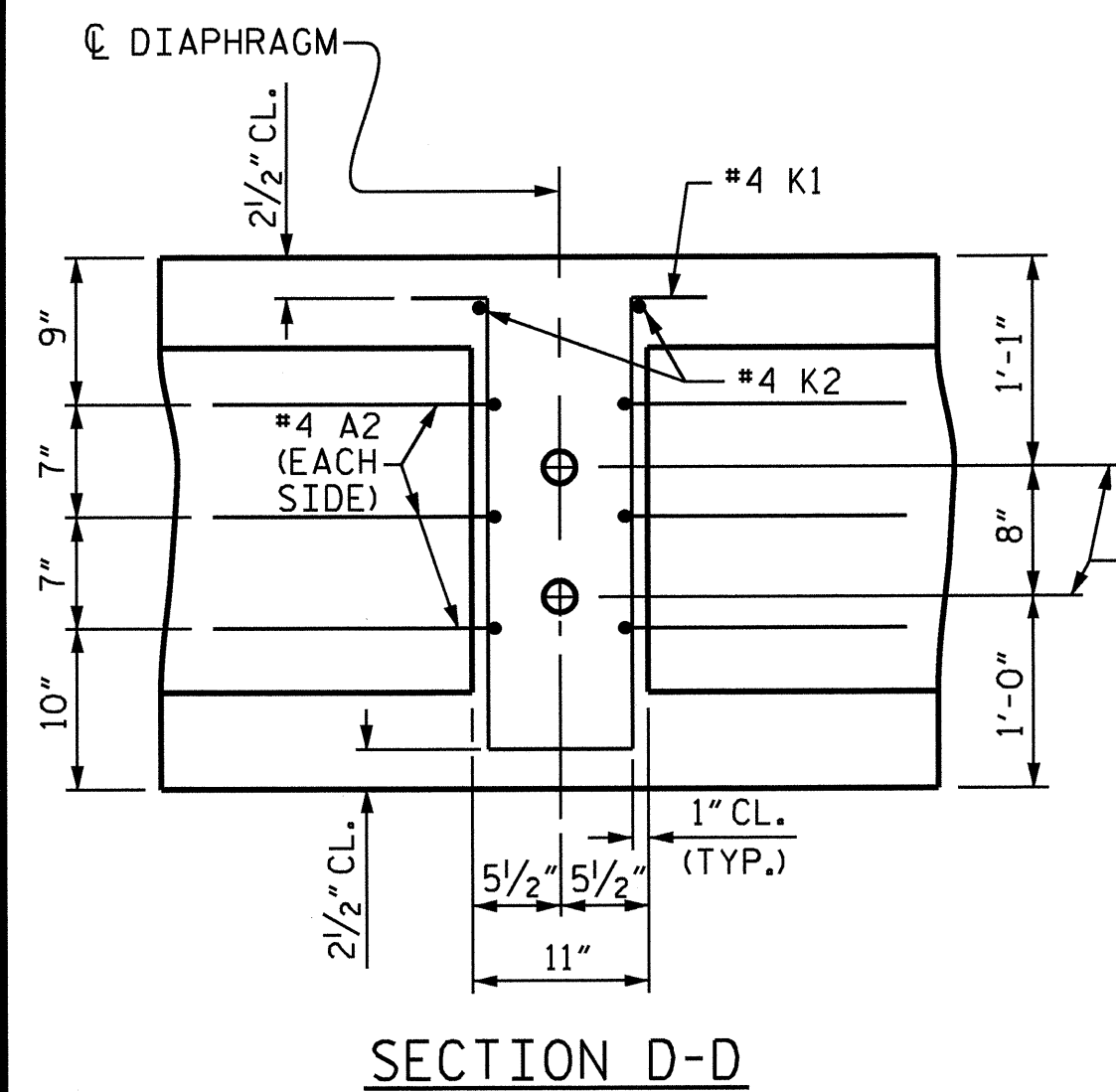
ASSEMBLED BY : M. E. FOWLER	DATE : 5/1/11
CHECKED BY : J. D. HAWK	DATE : 6/1/11
DRAWN BY : TLA 5/05	ADDED 7/11/05
CHECKED BY : GM 6/05	REV. 5/1/06 TLA/GM



PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-
 SHEET 2 OF 3

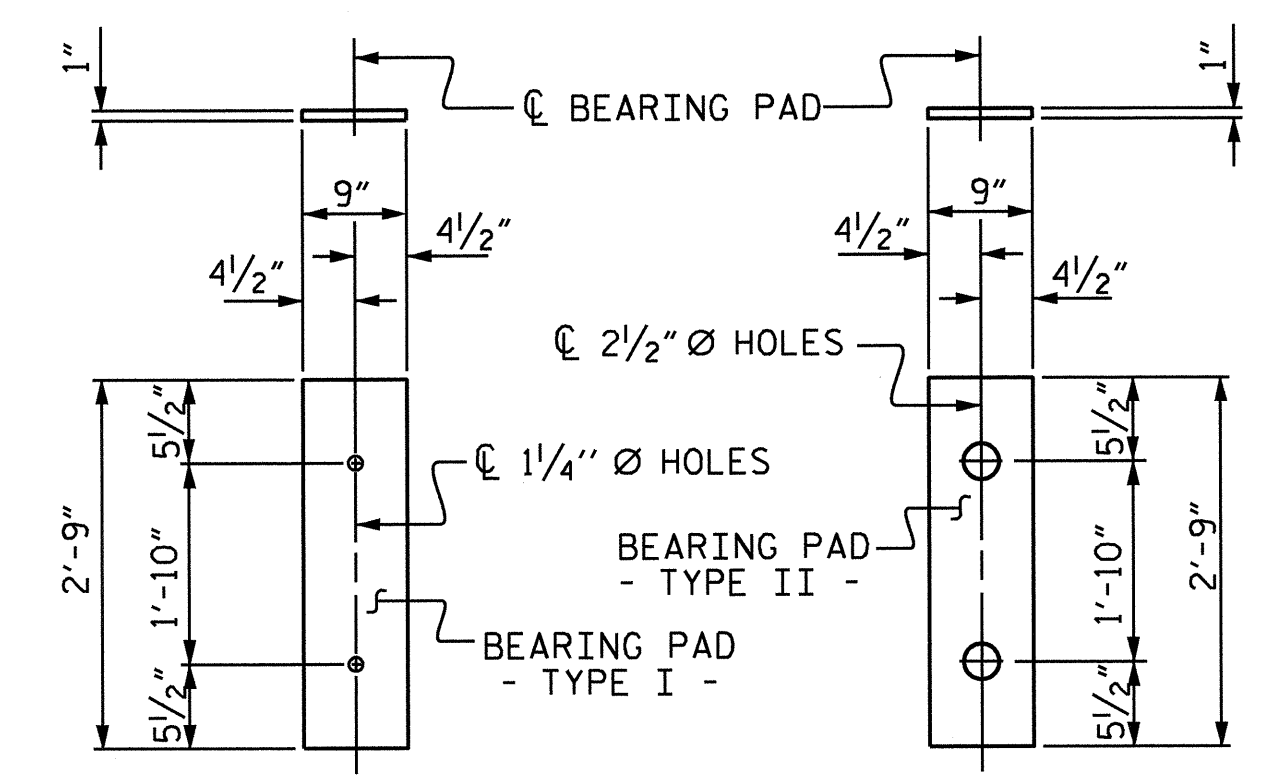
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT
 SPAN B

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

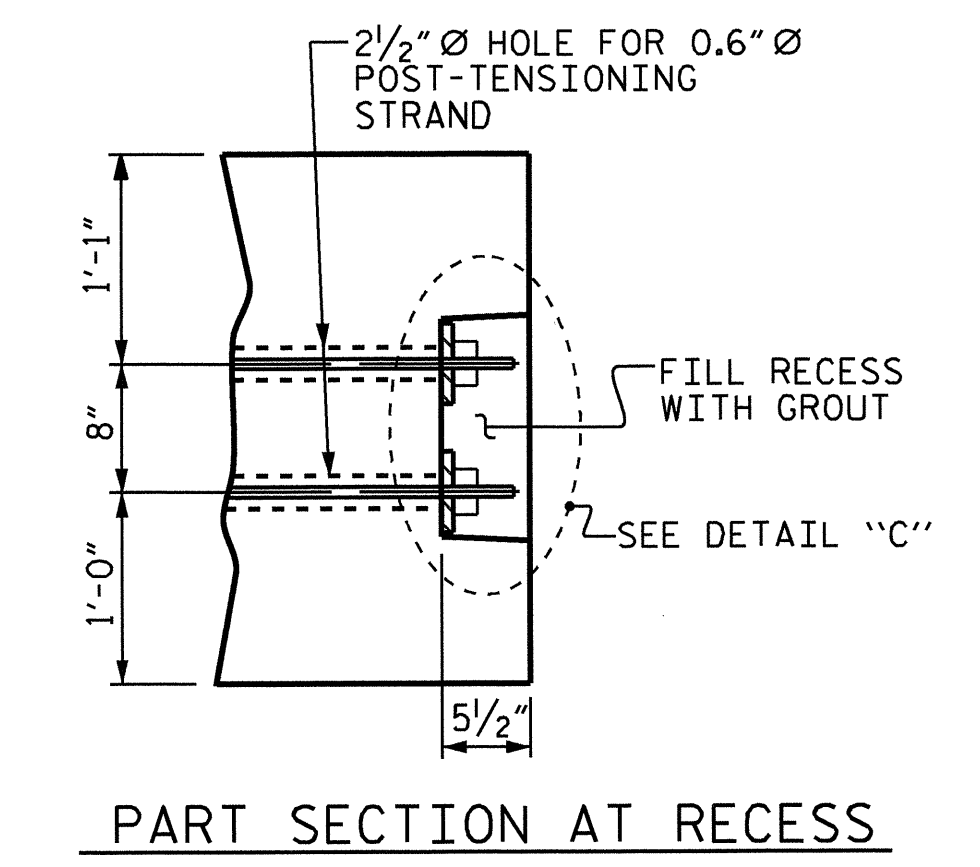


DOUBLE DIAPHRAGM DETAILS

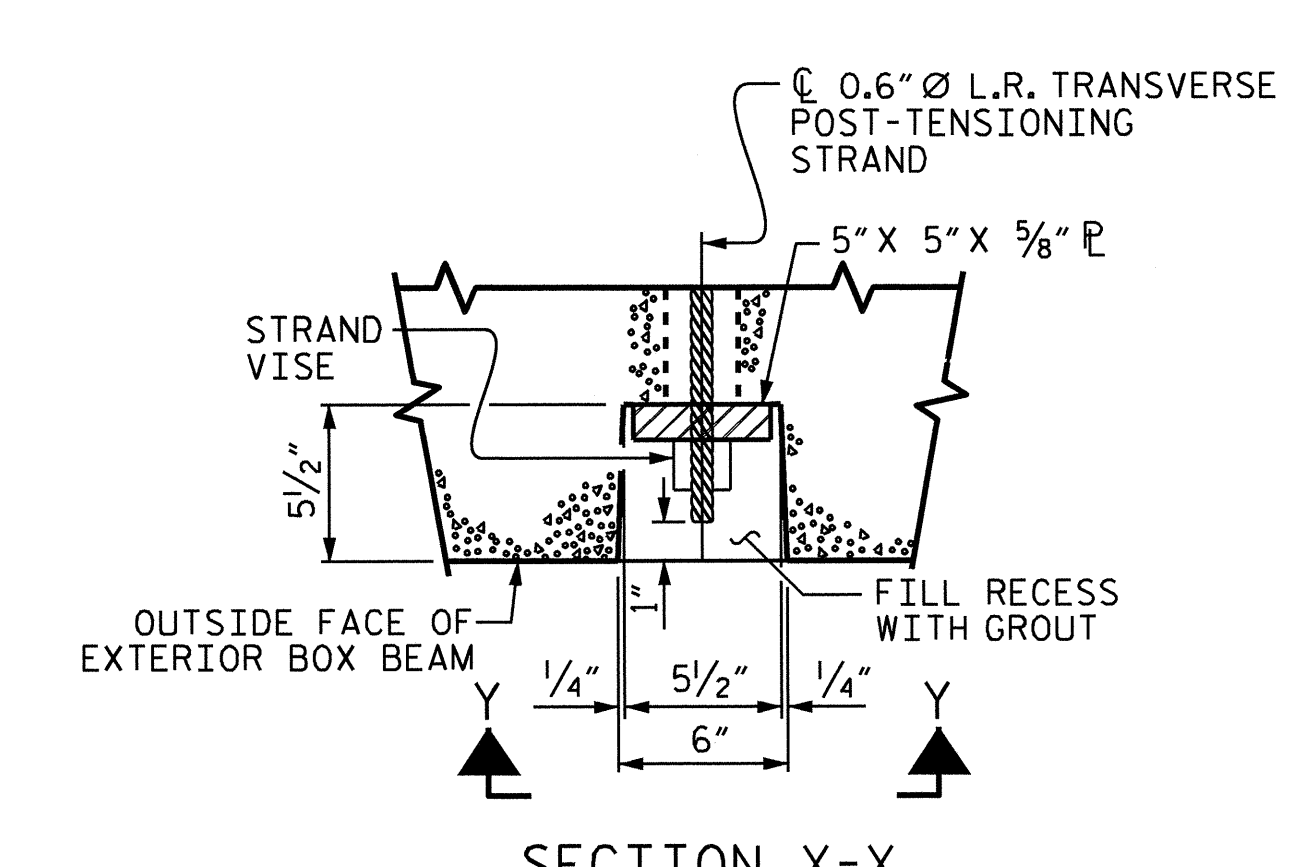
#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2 1/2" Ø HOLE.



ELASTOMERIC BEARING DETAILS
(60 DUROMETER HARDNESS)

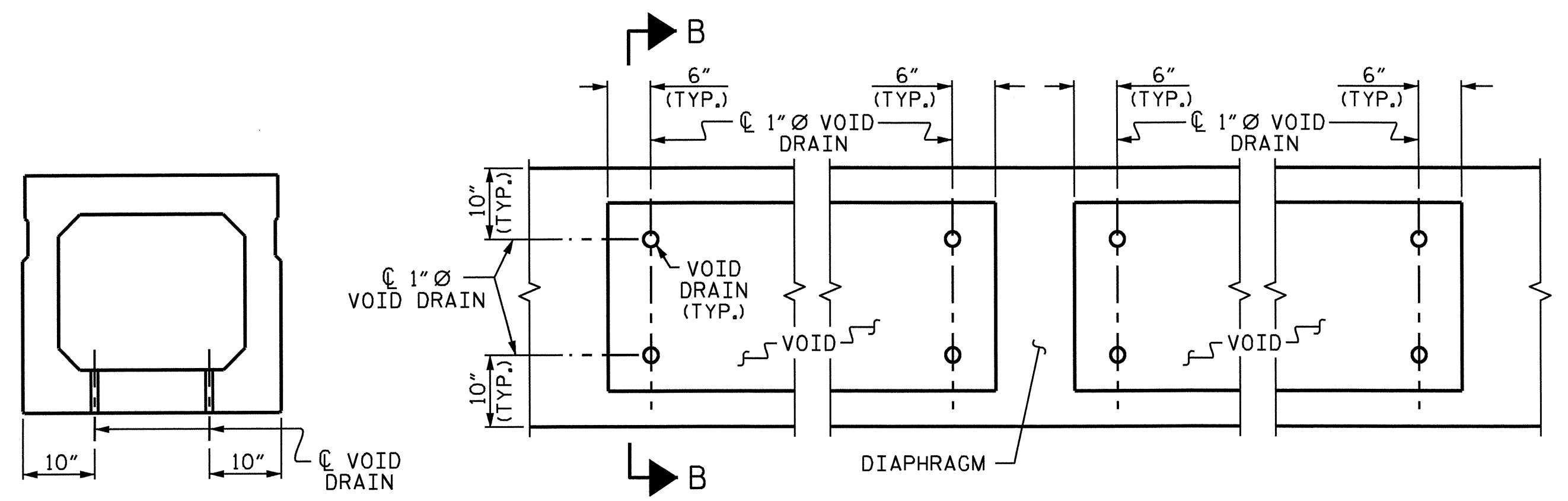


PART SECTION AT RECESS



SECTION X-X
SHOWING PLAN VIEW OF GROUTED RECESS

GROUTED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM



VOID DRAIN DETAILS
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

DEAD LOAD DEFLECTION AND CAMBER			
3'-0" x 2'-9"			
0.6" Ø L.R. STRAND			
	SPAN A	SPAN B	SPAN C
CAMBER (BEAM ALONE IN PLACE) ↓	4 13/16"	4 13/16"	4 13/16"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	1 1/4"	1 5/16"	1 1/4"
FINAL CAMBER ↑	3 3/16"	3 1/2"	3 3/16"

** INCLUDES FUTURE ASPHALT WEARING SURFACE

BOX BEAM UNITS REQUIRED					
	EXTERIOR	INTERIOR	TOTAL	LENGTH	TOTAL LENGTH
SPAN A	2	10	12	88'-9 3/4"	1065'-9"
SPAN B	2	10	12	89'-10 1/2"	1078'-6"
SPAN C	2	10	12	88'-9 3/4"	1065'-9"
TOTAL	6	30	36		3210'-0"

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

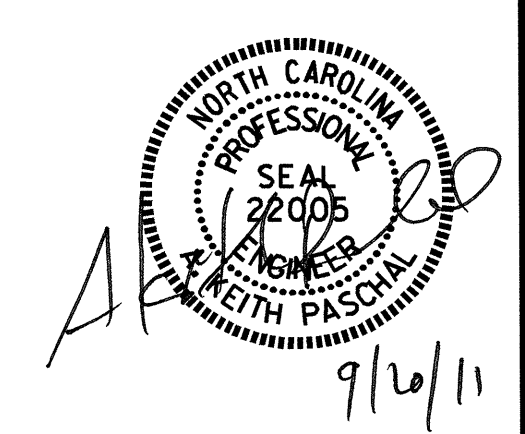
SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

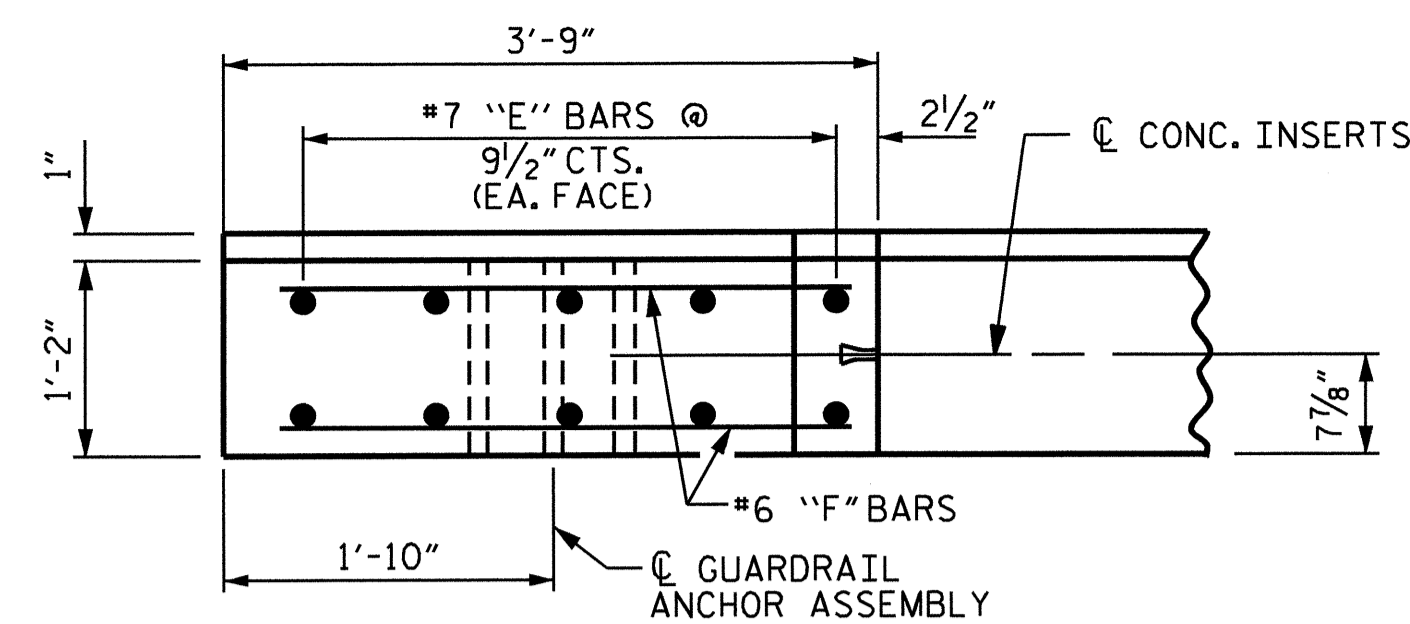
STANDARD
 3'-0" X 2'-9"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

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

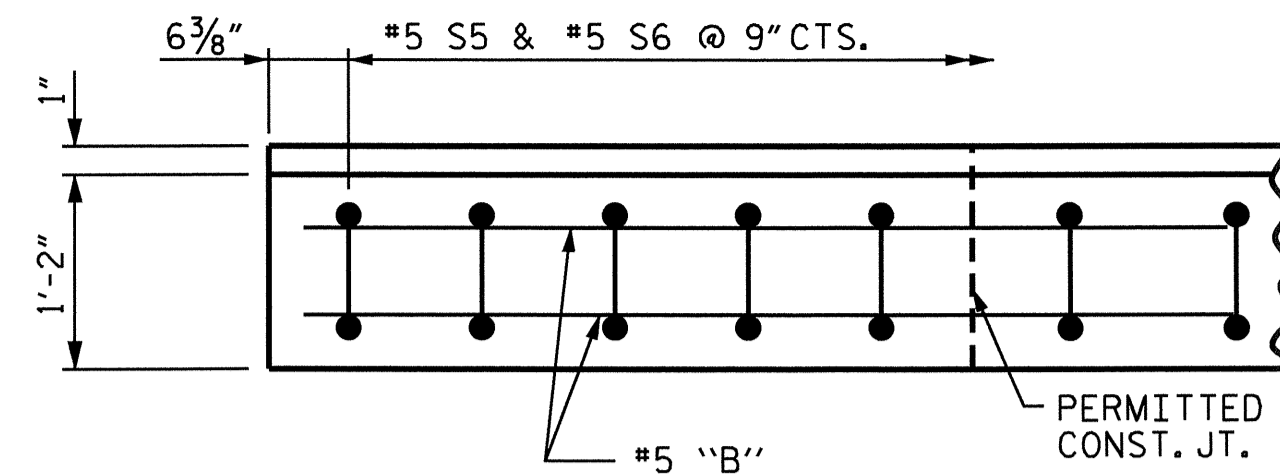
SHEET NO. **S-10**
 TOTAL SHEETS **24**



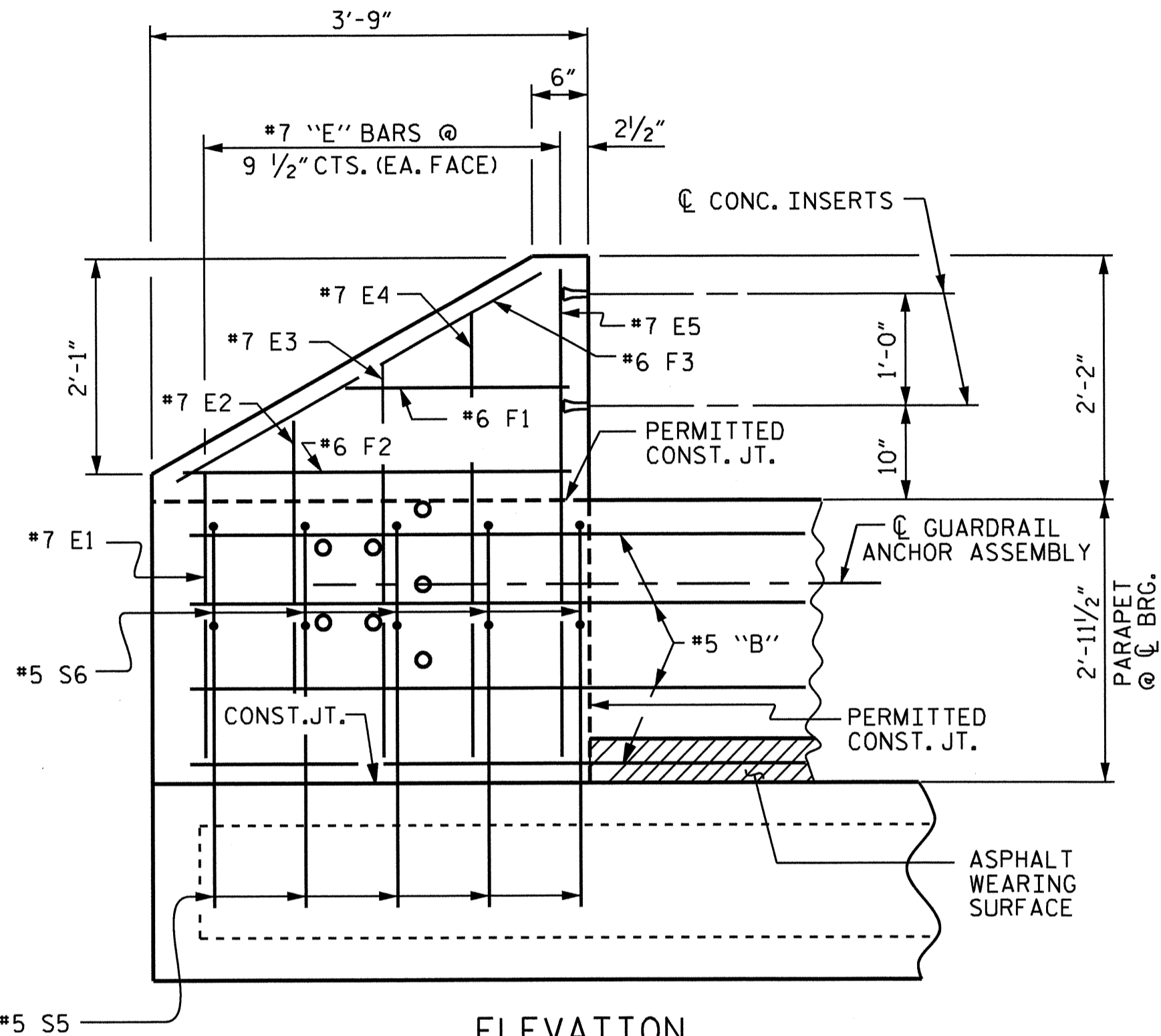
ASSEMBLED BY : M. E. FOWLER DATE : 5/1/11
 CHECKED BY : J. D. HAWK DATE : 6/1/11
 DRAWN BY : TLA 5/05
 CHECKED BY : GM 6/05



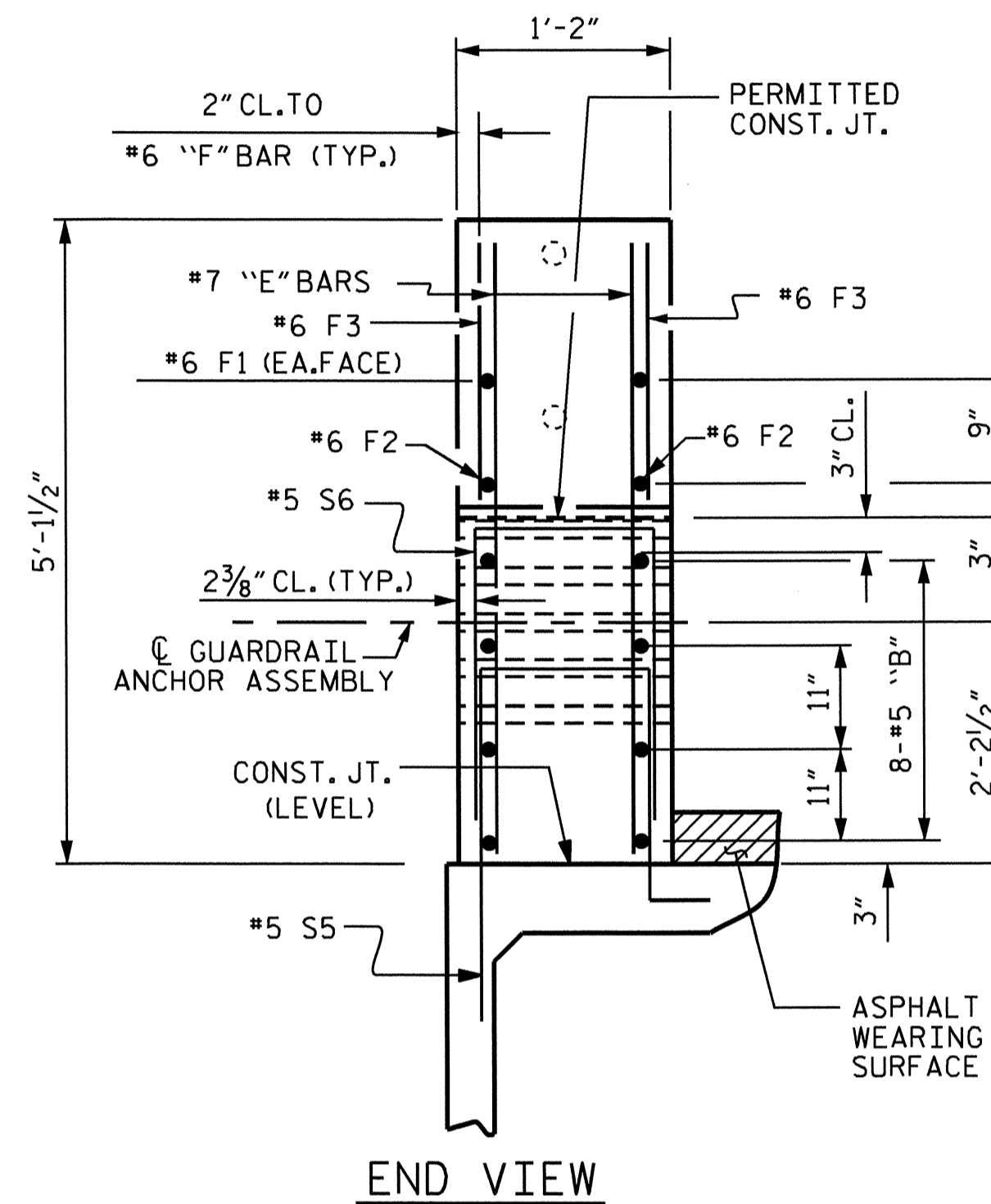
PLAN OF END POST



PLAN OF PARAPET

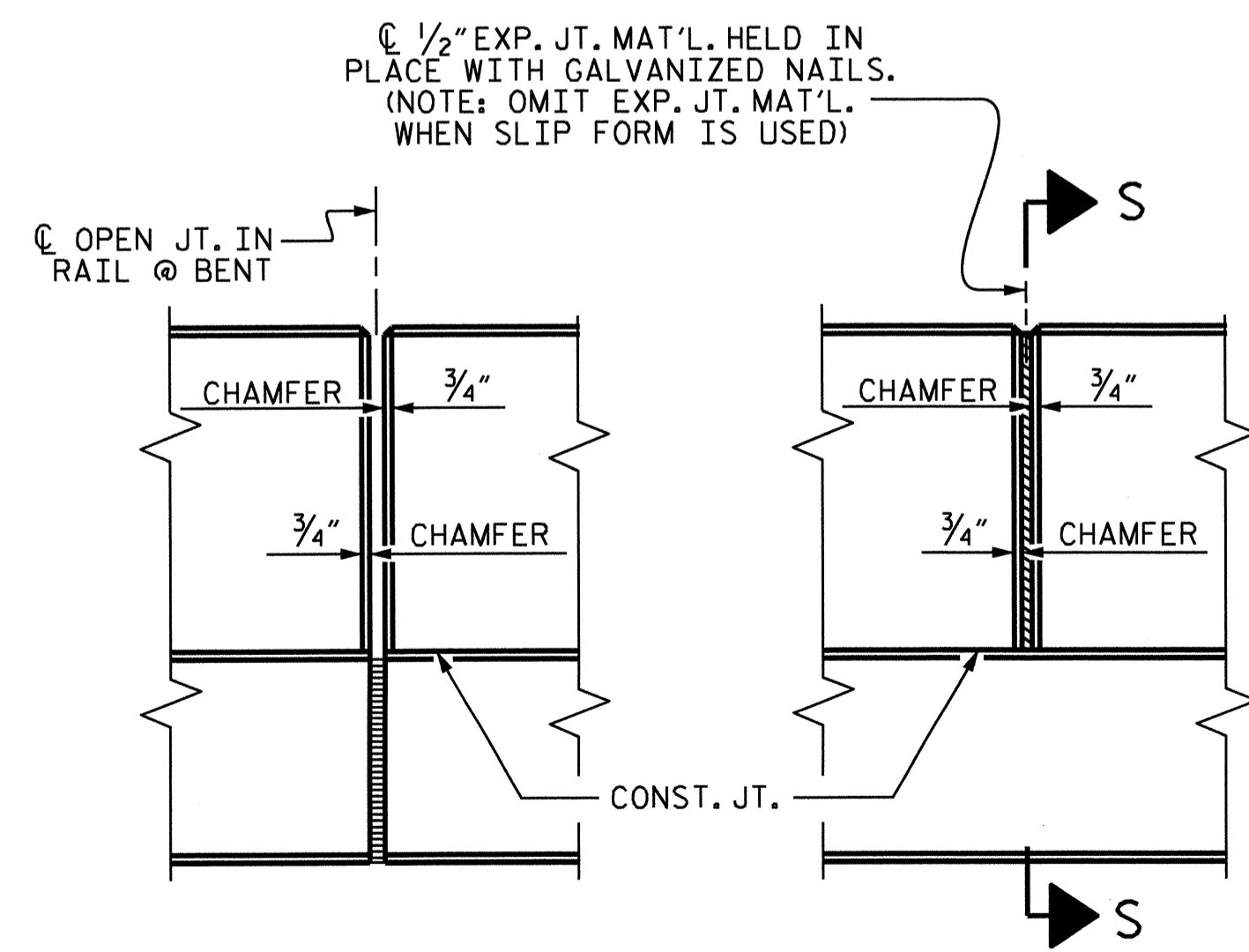


ELEVATION

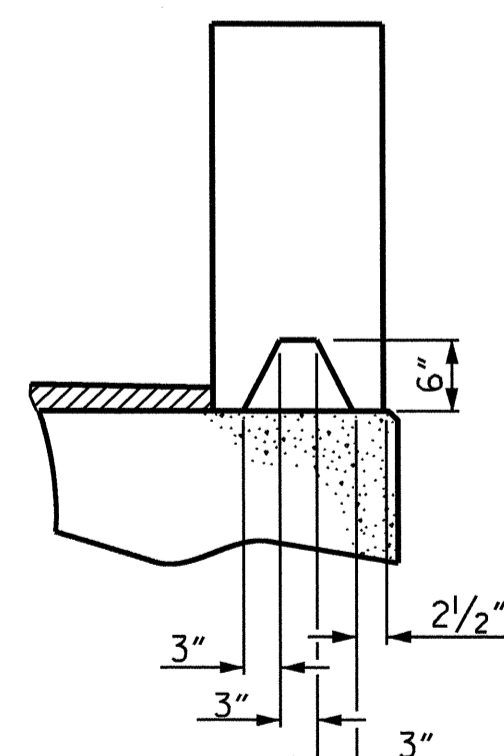


END VIEW

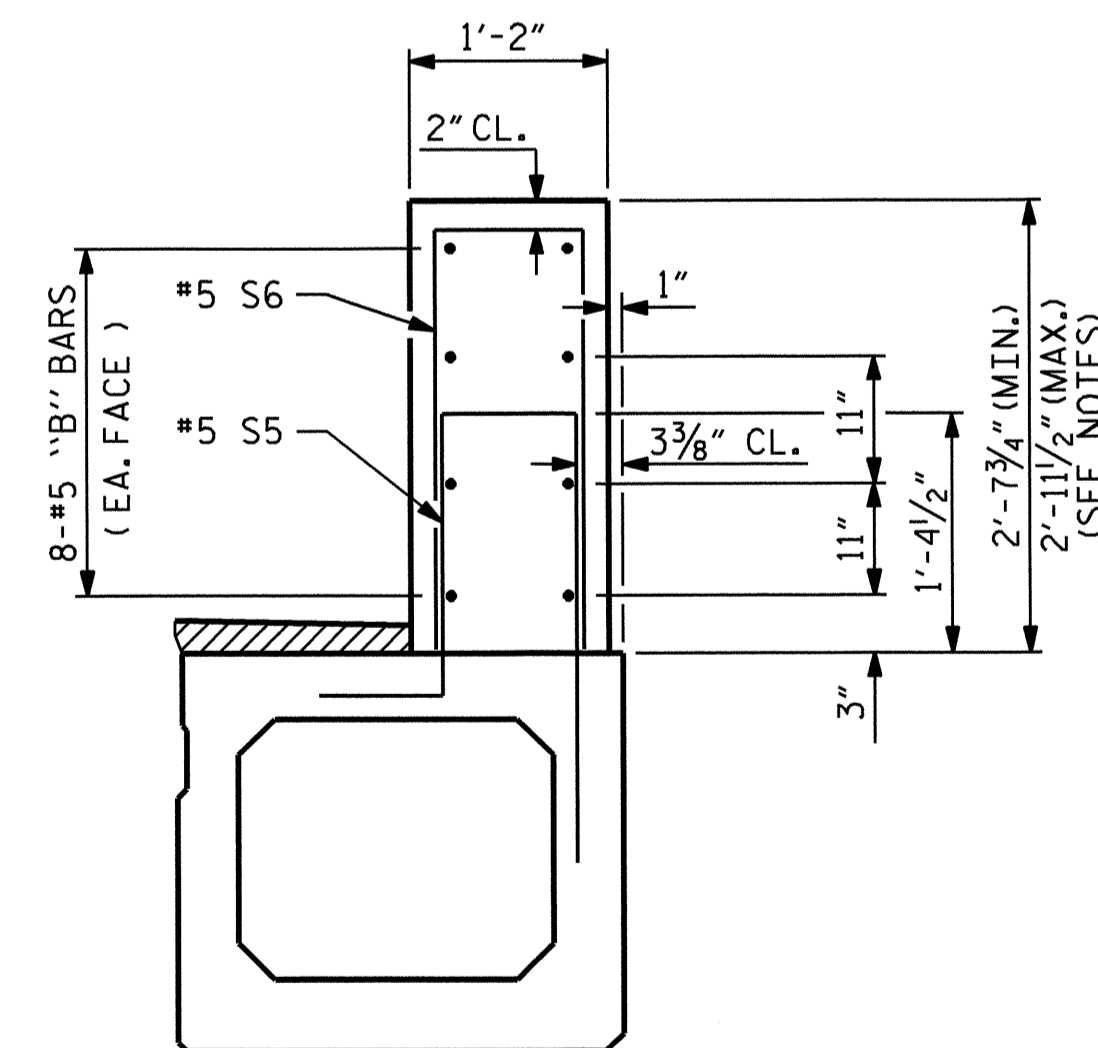
PARAPET AND END POST FOR TWO-BAR RAIL



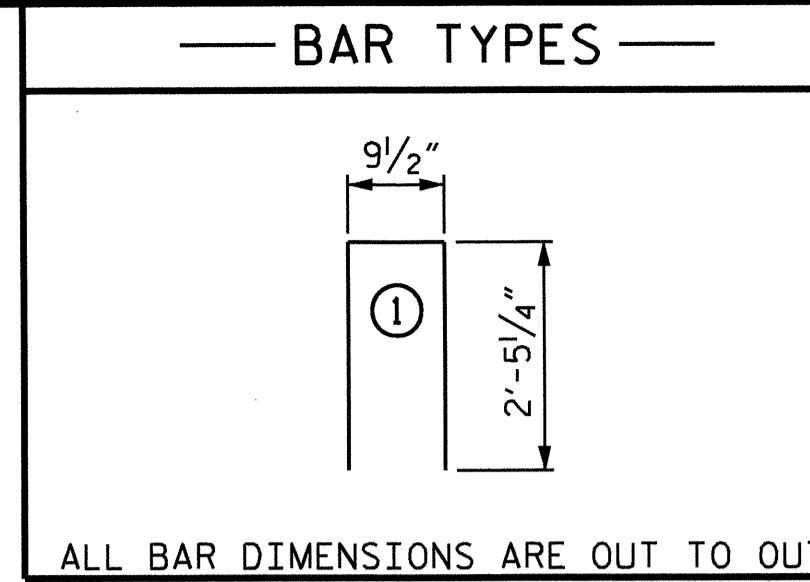
ELEVATION AT EXPANSION JOINTS



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



TWO BAR METAL
RAIL PARAPET SECTION



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR
PARAPET AND END POSTS

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B3	96	#5	STR	29'-3"	2929
*B4	48	#5	STR	29'-7"	1481
*E1	8	#7	STR	2'-11"	48
*E2	8	#7	STR	3'-5"	56
*E3	8	#7	STR	3'-11"	64
*E4	8	#7	STR	4'-5"	72
*E5	8	#7	STR	4'-9"	78
*F1	8	#6	STR	1'-11"	23
*F2	8	#6	STR	3'-1"	37
*F3	8	#6	STR	3'-7"	43
*S6	712	#6	STR	5'-8"	4208
* EPOXY COATED REINFORCING STEEL					9039 LBS.
CLASS AA CONCRETE					64.8 CU.YDS.
CONCRETE PARAPET					535.50 LIN. FT.

NOTES

- ALL REINFORCING STEEL IN THE PARAPETS AND END POSTS SHALL BE EPOXY COATED.
- FOR DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET 4 OF 5 AND "GUARDRAIL ANCHORAGE DETAILS" SHEET 5 OF 5.
- *5 S5 BARS ARE INCLUDED IN THE BILL OF MATERIAL FOR CORED SLAB UNITS.
- 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. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.
- THE HEIGHT OF THE PARAPET VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE.
- THE 1/2" EXPANSION JOINT IN THE PARAPET MAY BE SHIFTED SLIGHTLY IN ORDER TO MAINTAIN A 2" MINIMUM CLEARANCE TO THE #5 S5 & #5 S6 BARS.
- FOR REINFORCING STEEL LAYOUT, SEE PLAN OF SPANS.

PROJECT NO. B-4503
EDGEcombe COUNTY
STATION: 21+11.00 -L-
SHEET 1 OF 5

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE CONCRETE PARAPET AND PARAPET END POST DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-11
					TOTAL SHEETS 24

9/20/11
A. Keith Paschall
PROFESSIONAL SEAL
22005
CIVIL ENGINEER
NORTH CAROLINA

DRAWN BY: M. E. FOWLER DATE: 10/8/09
CHECKED BY: J. D. HAWK DATE: 06-01-11

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 B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

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

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

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

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

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

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

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

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

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

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

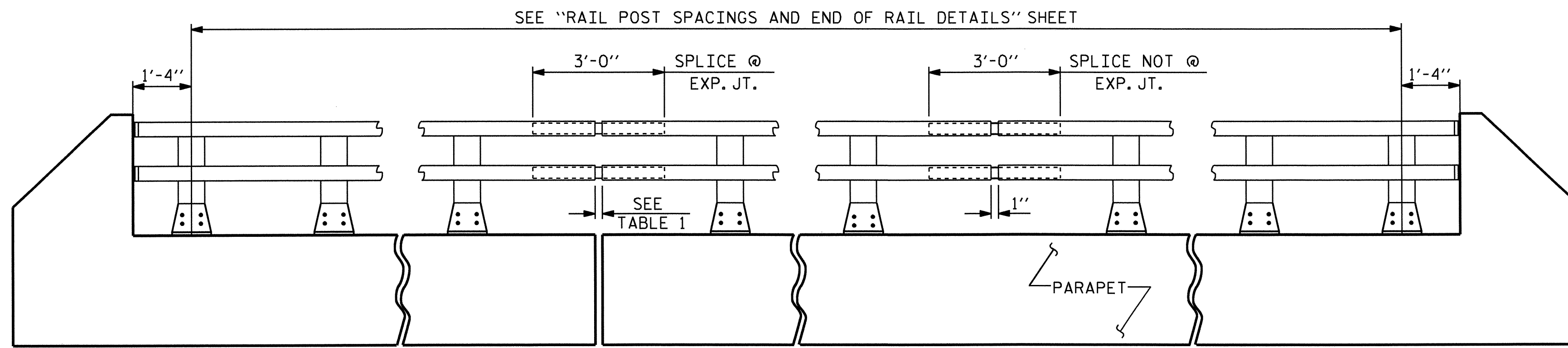
TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

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

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

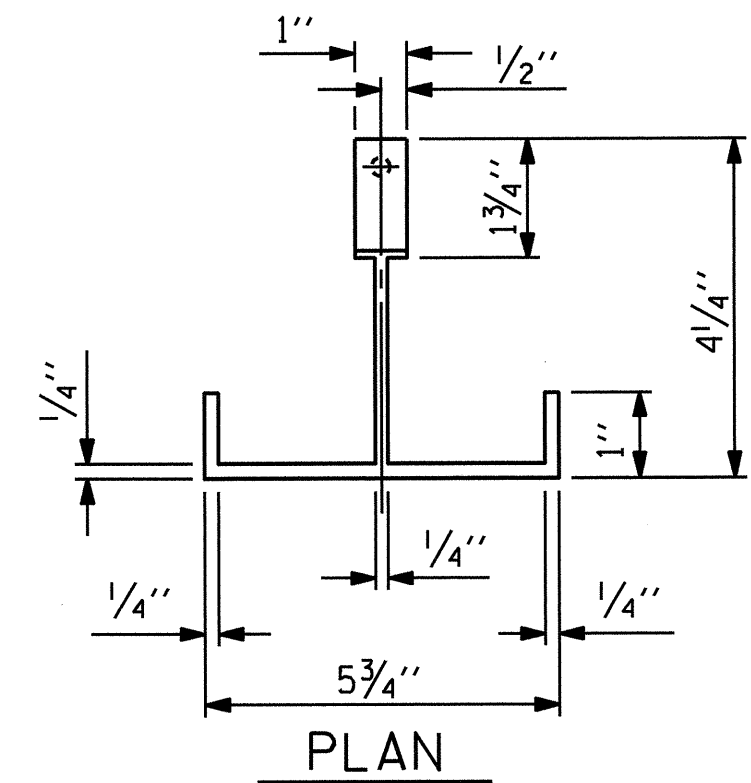
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR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



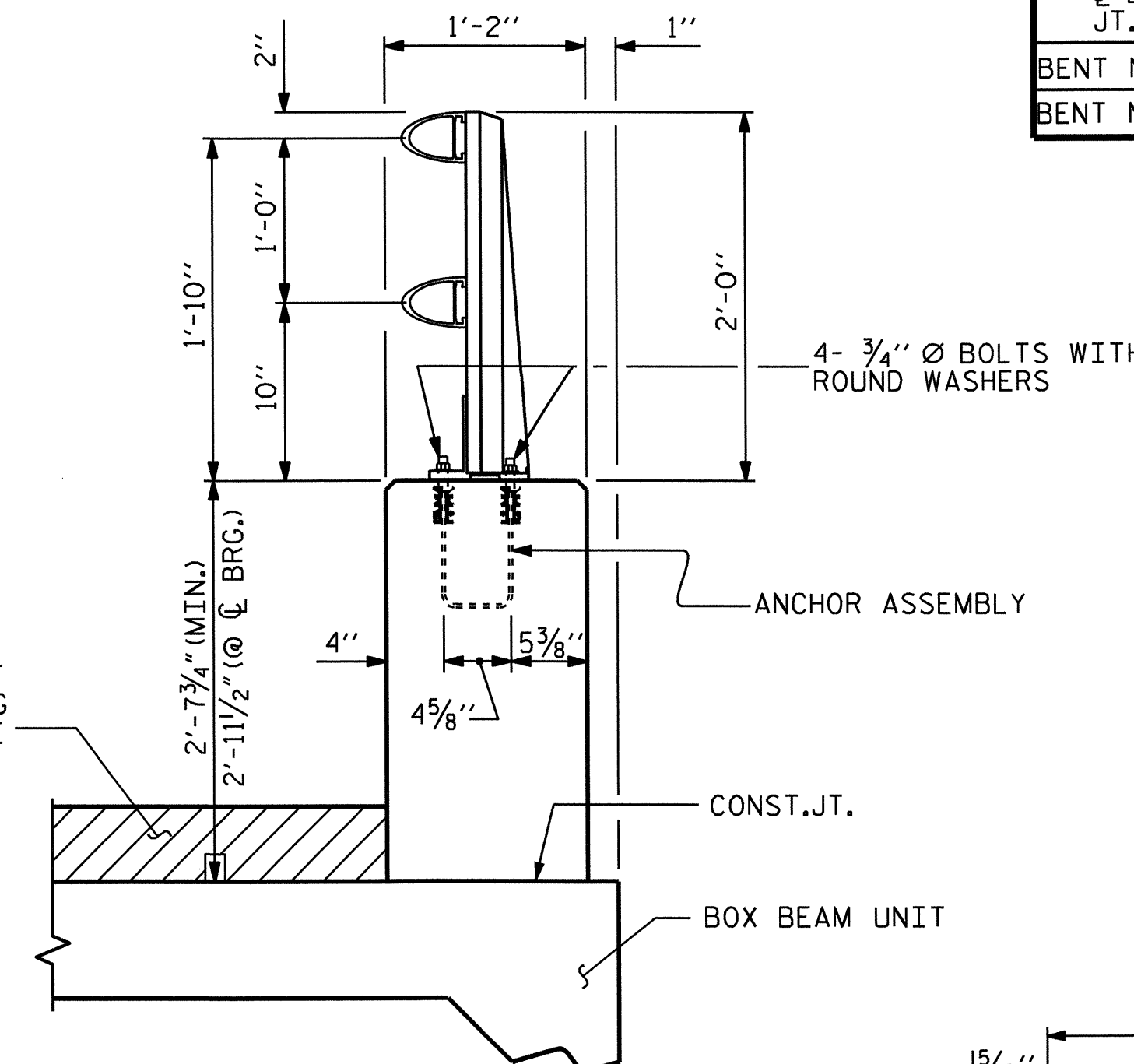
ELEVATION

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

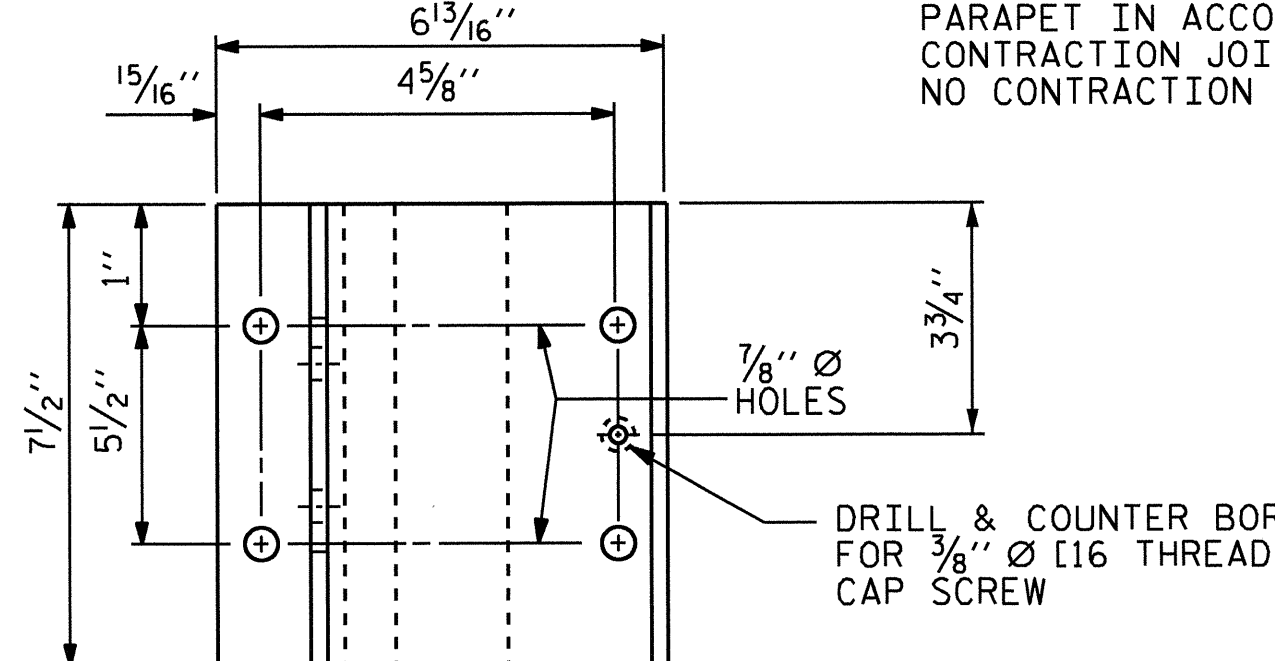
TABLE 1	
EXP. JT. @	RAIL OPENING
BENT No. 1	1 1/2"
BENT No. 2	1 1/2"



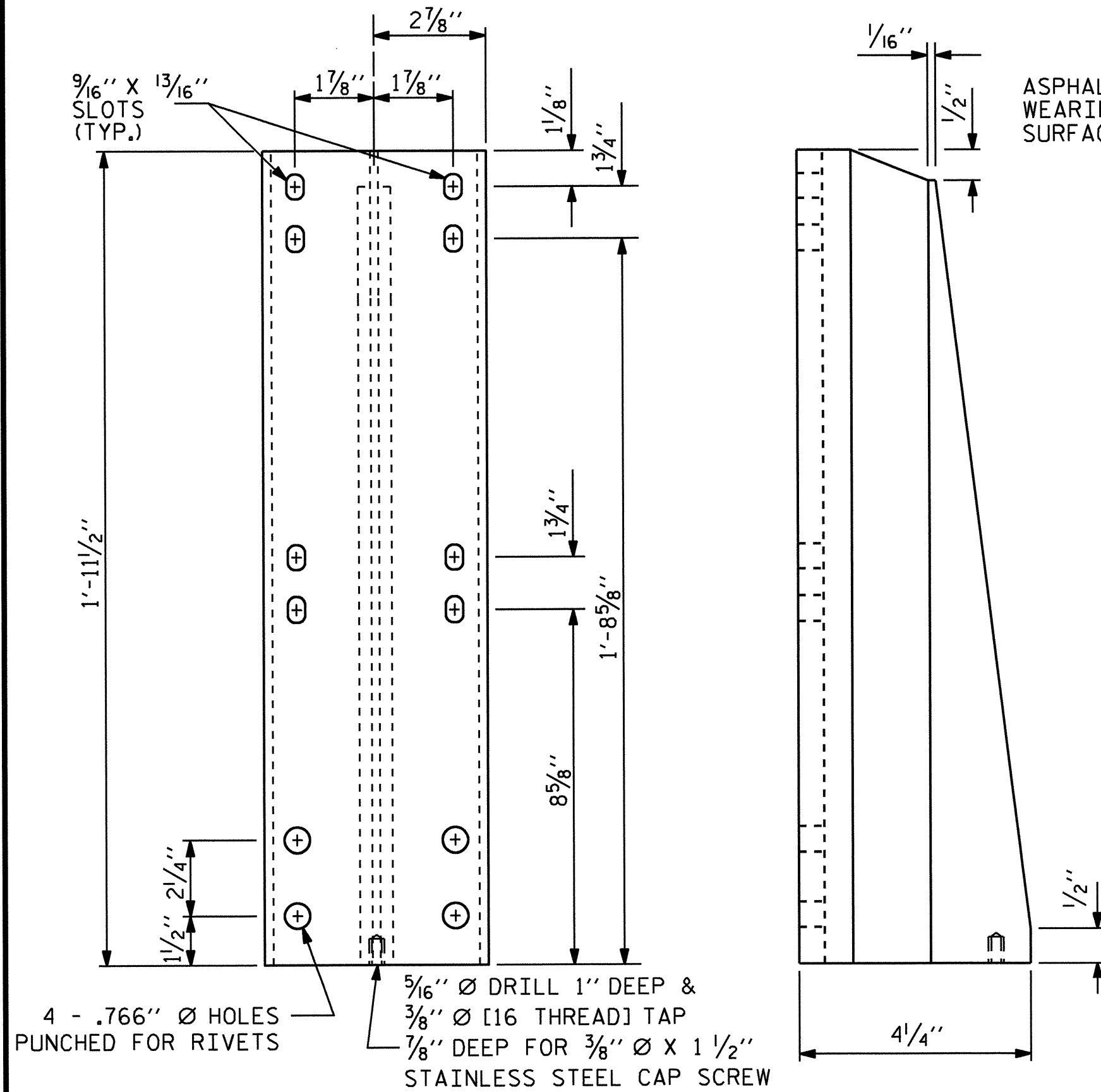
PLAN



SECTION THRU PARAPET AND RAIL



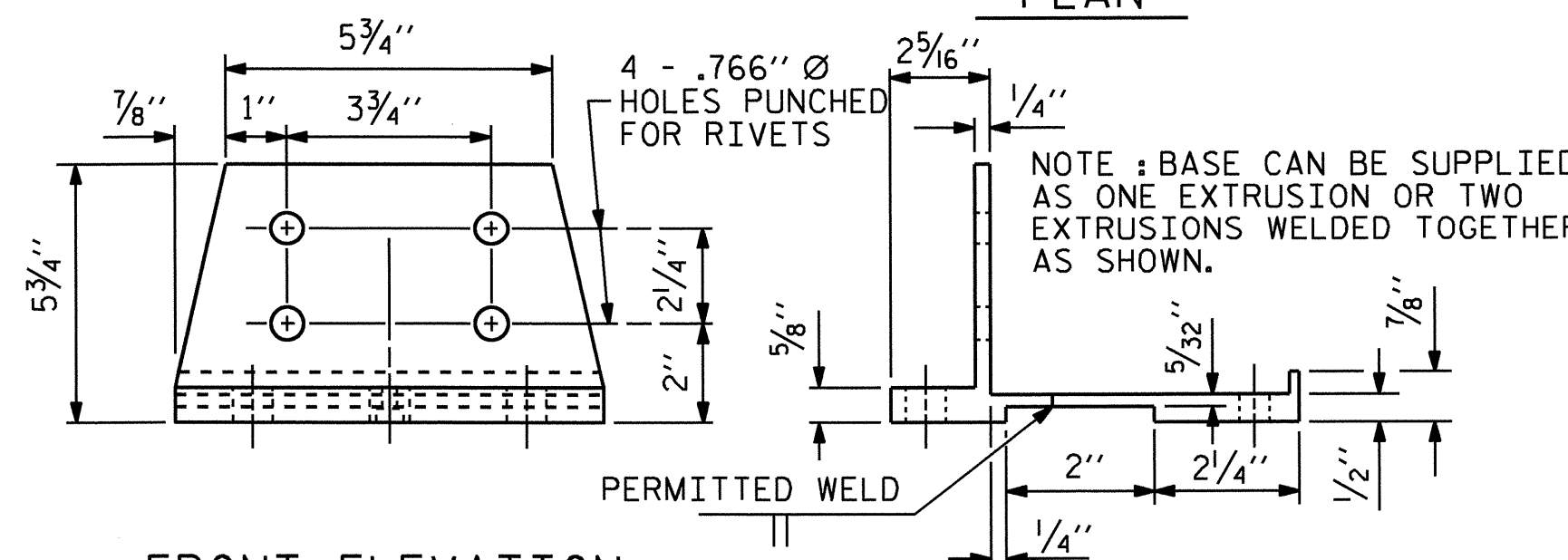
PAY LENGTH = 520.50 LIN. FT.



FRONT ELEVATION

SIDE ELEVATION

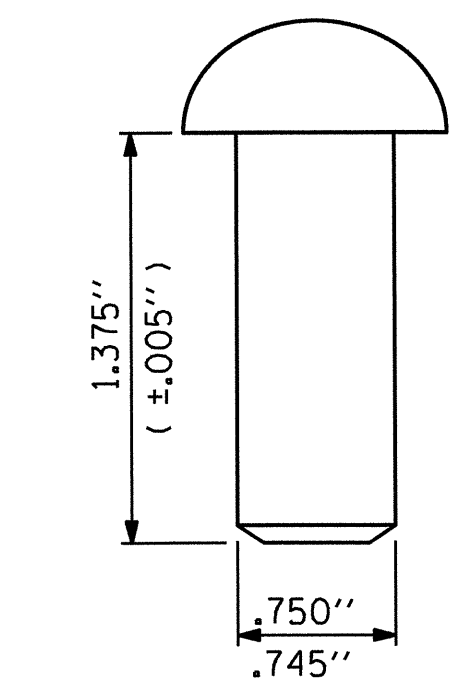
DETAILS OF POST



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL

ASSEMBLED BY : M. E. FOWLER	DATE : 5/1/11
CHECKED BY : J. D. HAWK	DATE : 6/1/11
DRAWN BY : EEM 6/94	REV. 10/17/00 LES/RDR
CHECKED BY : RGW 6/94	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM

15-JUL-2011 08:41 R:\Structures\Final Plans\B4503_SD_2MR.dgn jdhawk

PROJECT NO. B-4503
 EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD						S-12
2 BAR METAL RAIL						TOTAL SHEETS
						24
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

STD. NO. BMR3

NOTES

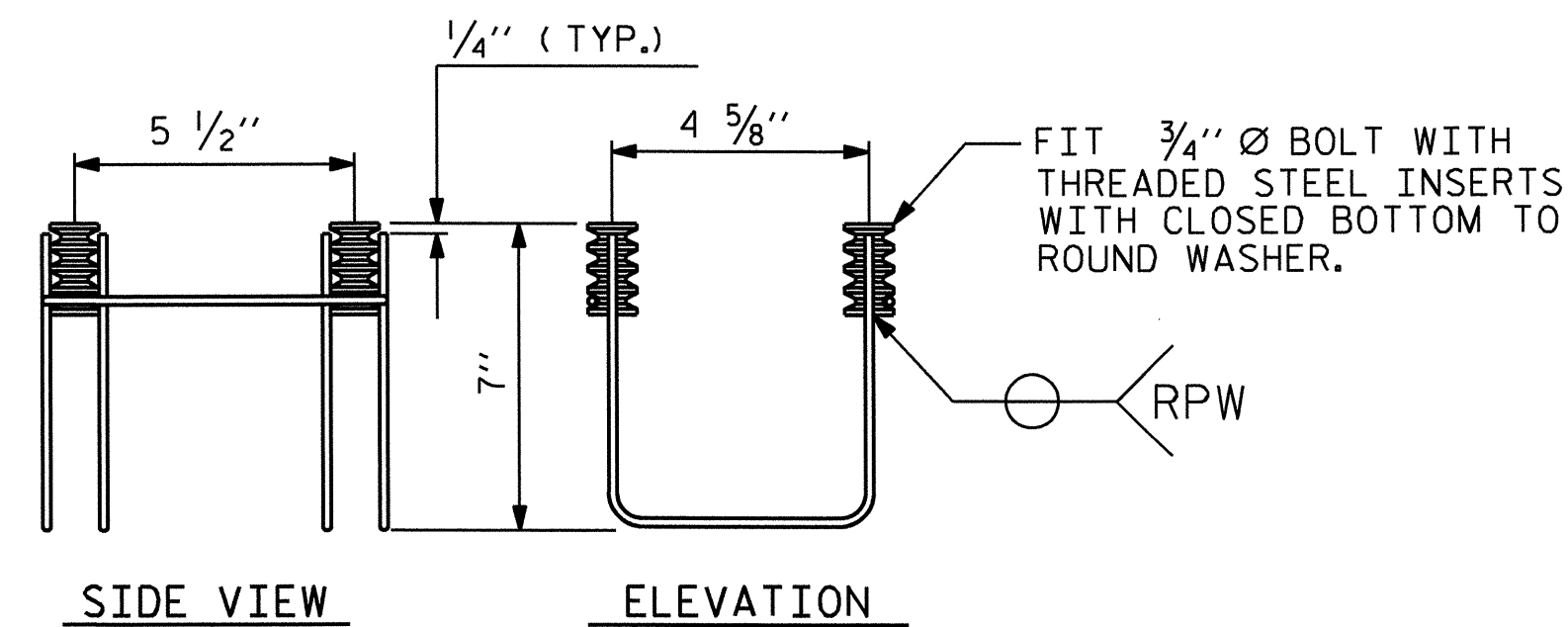
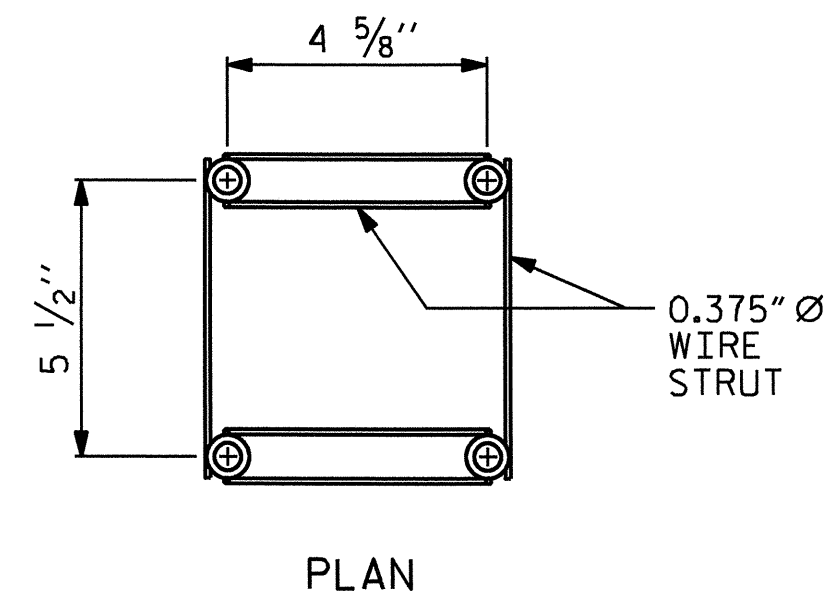
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

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

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

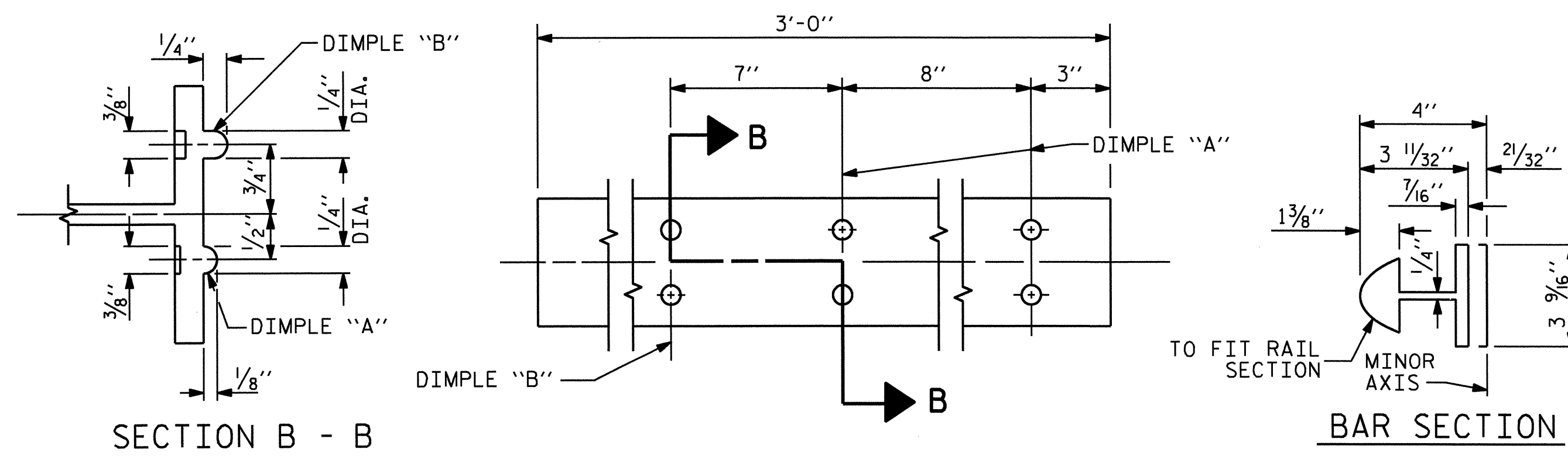
THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

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

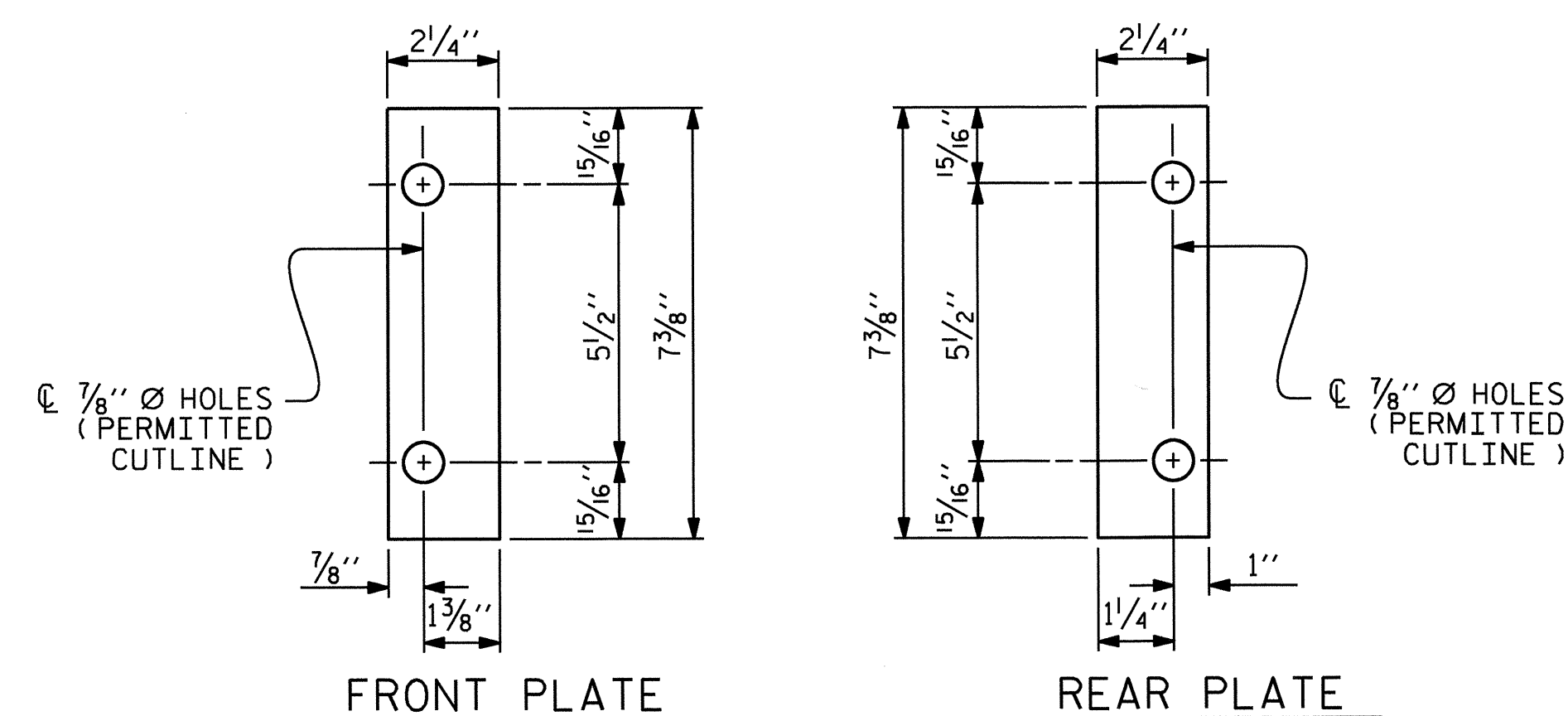


4-BOLT METAL RAIL ANCHOR ASSEMBLY

(86 ASSEMBLIES REQUIRED)

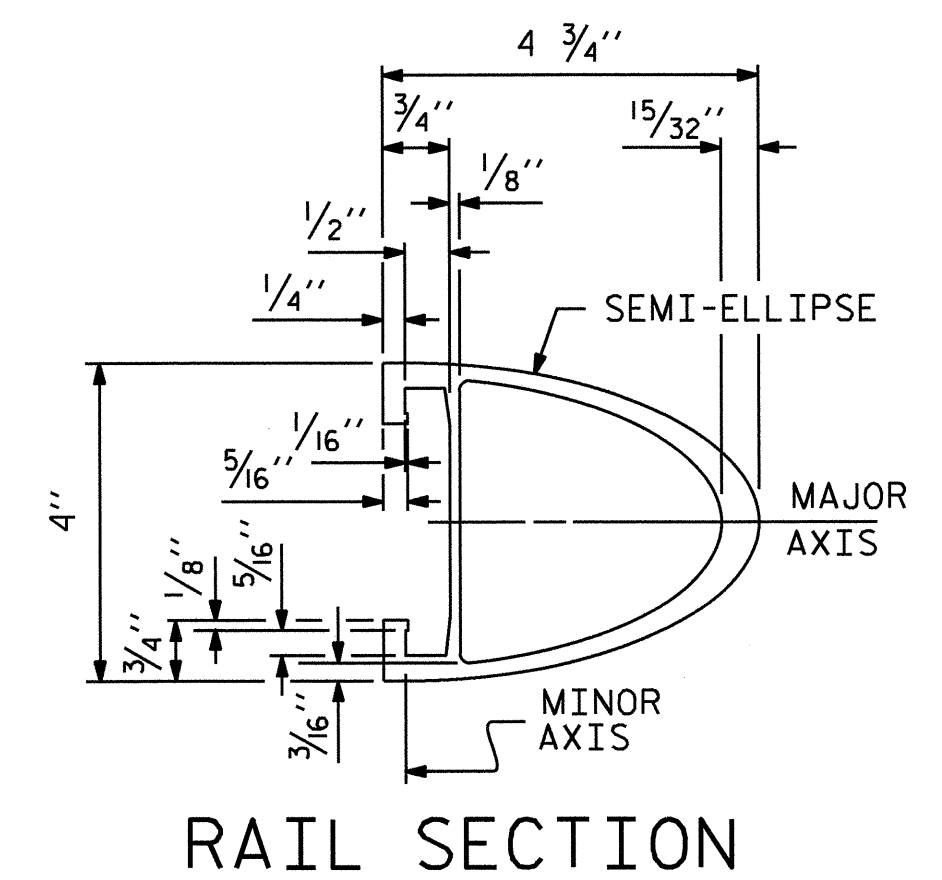


EXPANSION BAR DETAILS

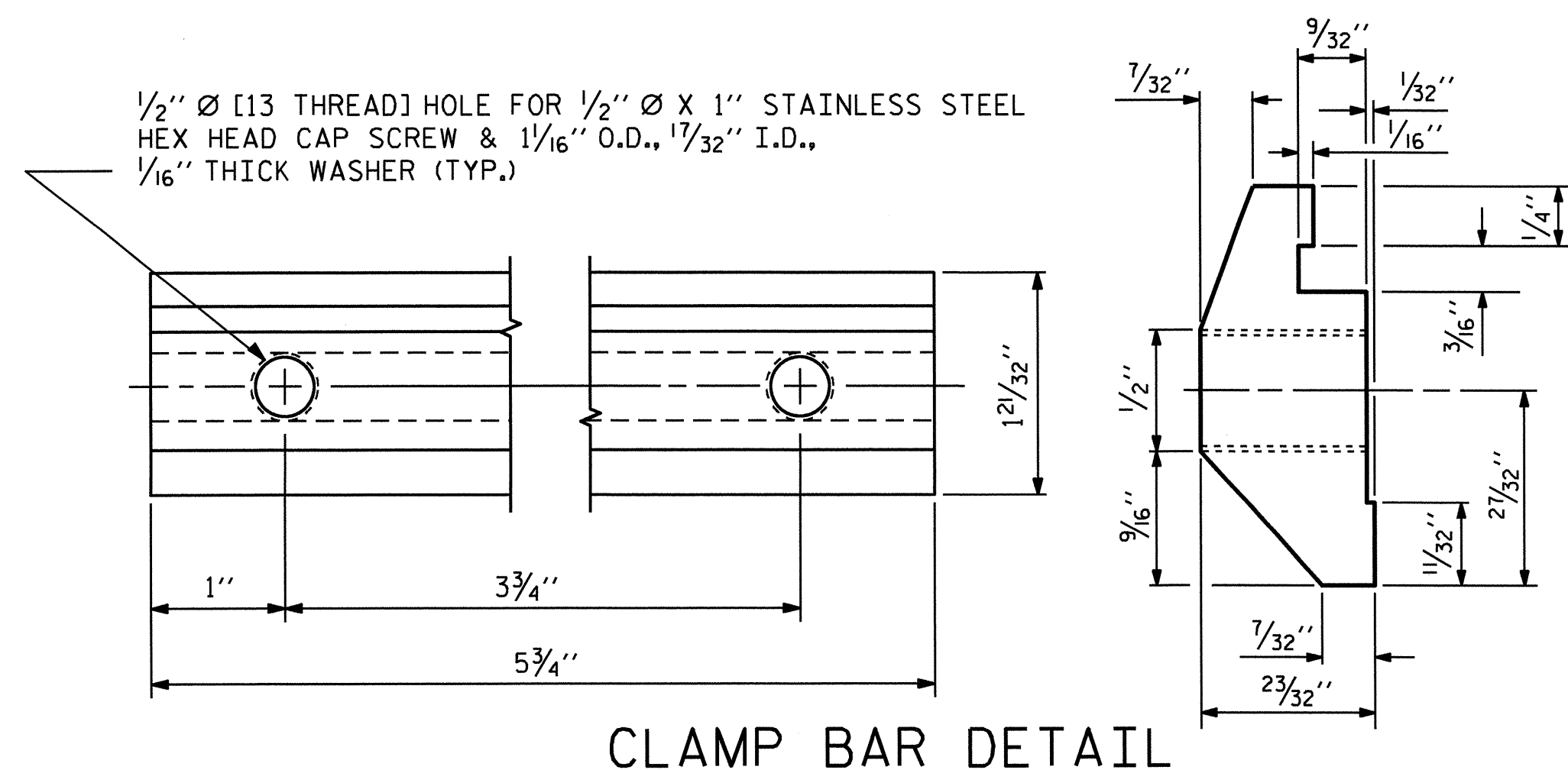


SHIM DETAILS

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

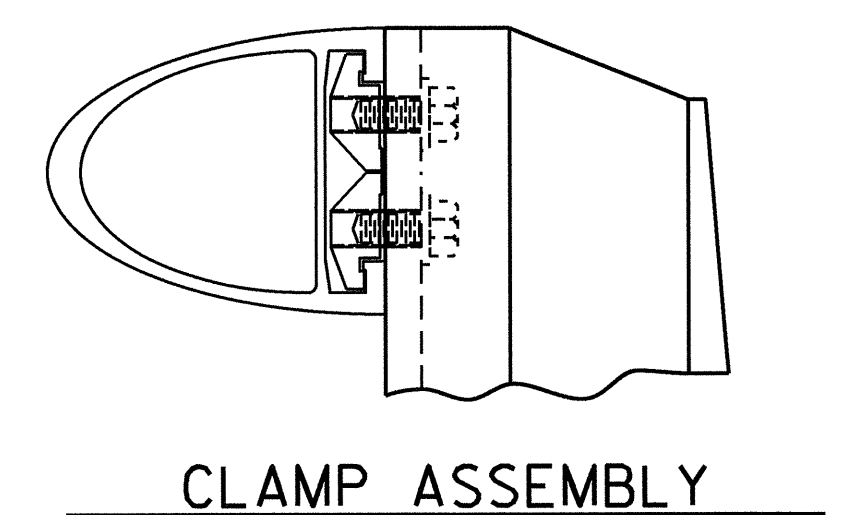


RAIL SECTION

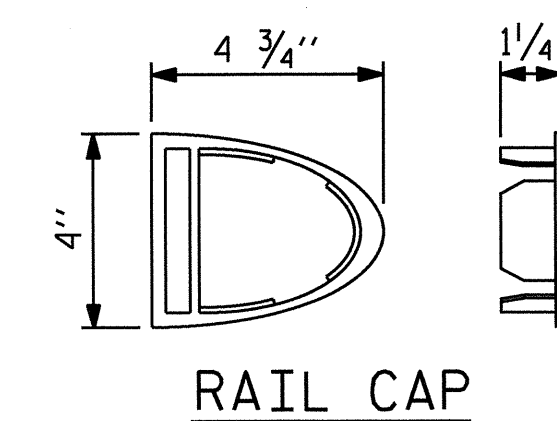


CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY



RAIL CAP

PROJECT NO. B-4503
 EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD

2 BAR METAL RAIL



ASSEMBLED BY : M. E. FOWLER	DATE : 10/3/09
CHECKED BY : J. D. HAWK	DATE : 6/1/11
DRAWN BY : EEM 6/94	REV. 2/6/97 EEM/RGW
CHECKED BY : RGW 6/94	REV. 8/16/99 MAB/LKS
	REV. 5/1/06R KMM/GM

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

S-13
 TOTAL SHEETS
 24

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 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:

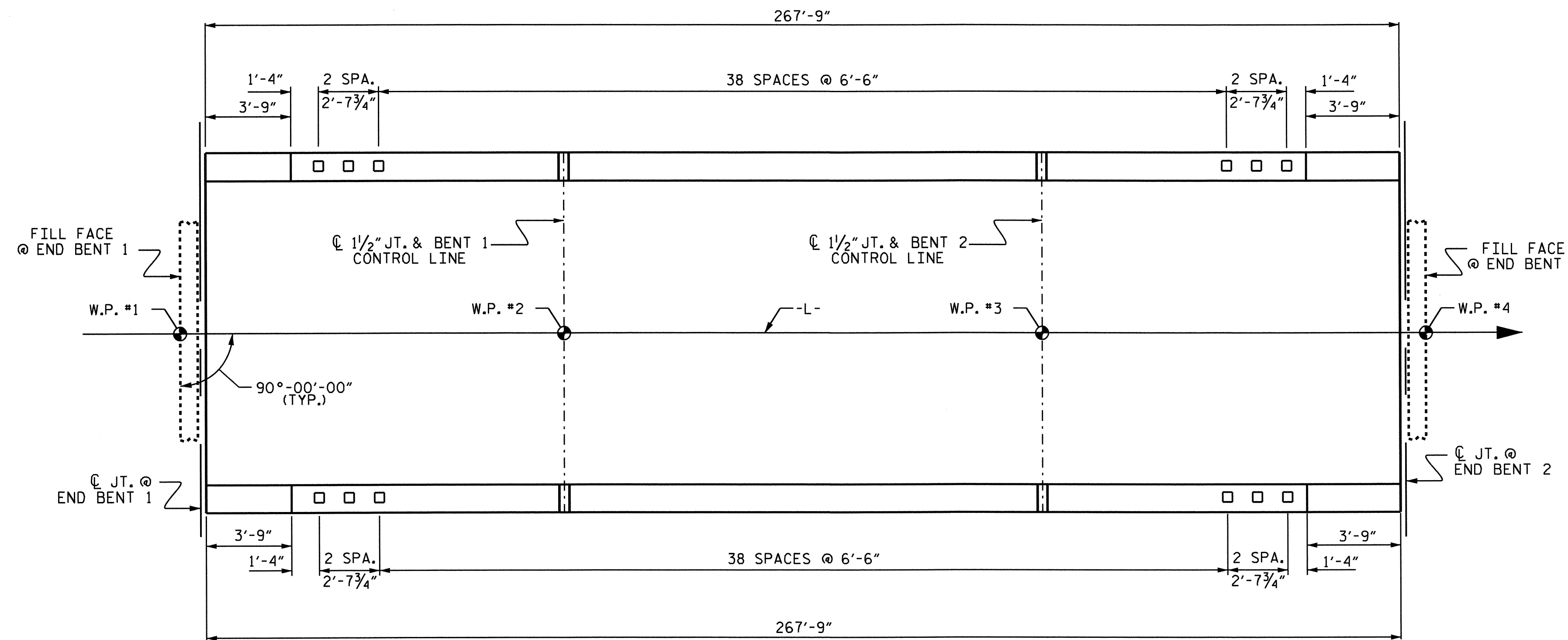
- A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
- B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE 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.

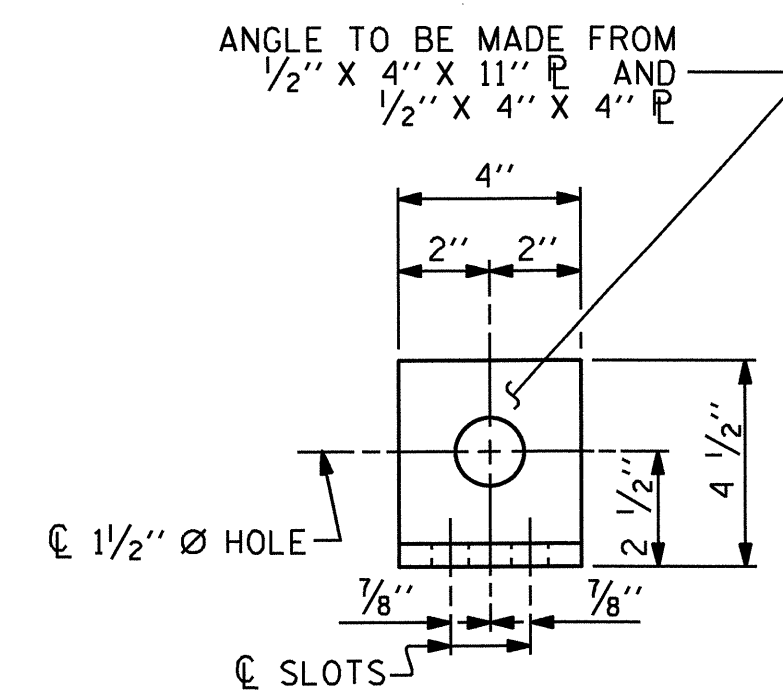
THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

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.

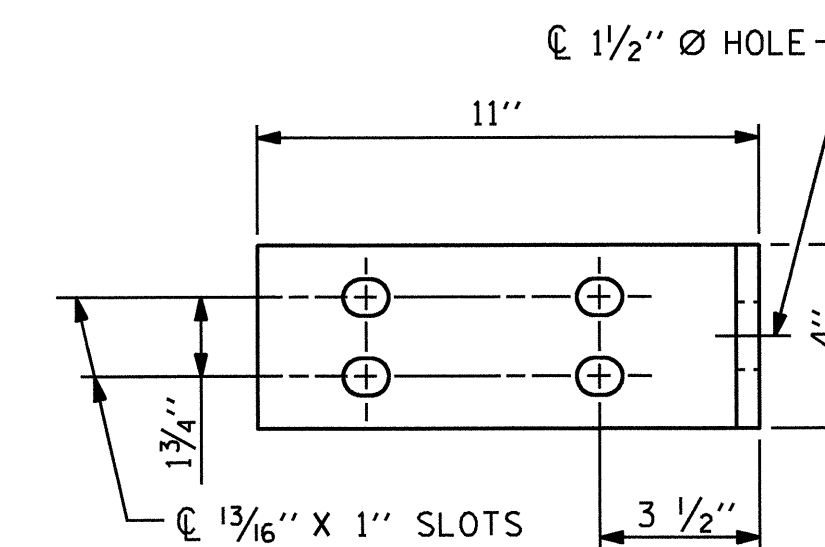
THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT 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.



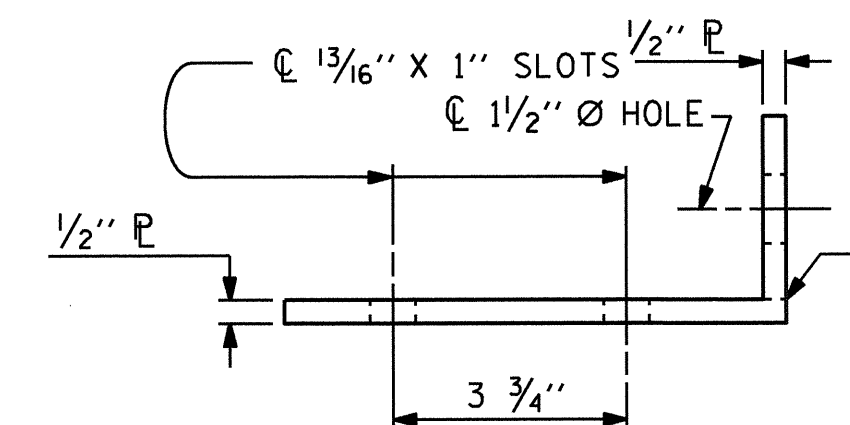
PLAN OF RAIL POST SPACINGS



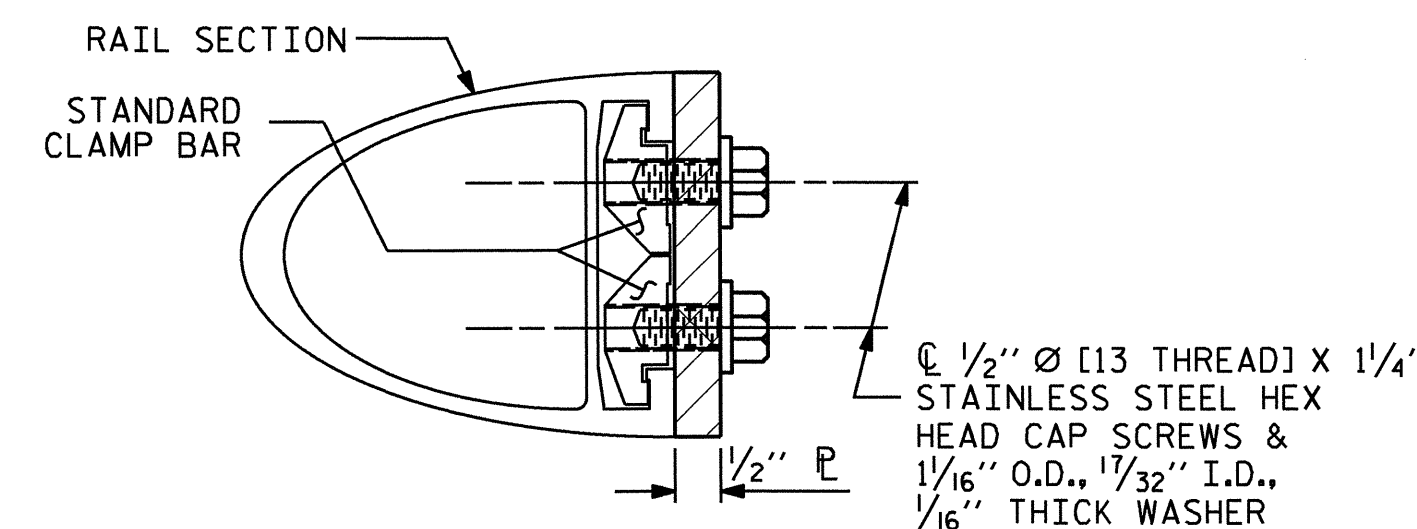
END VIEW (FIX AND EXP.)



ELEVATION



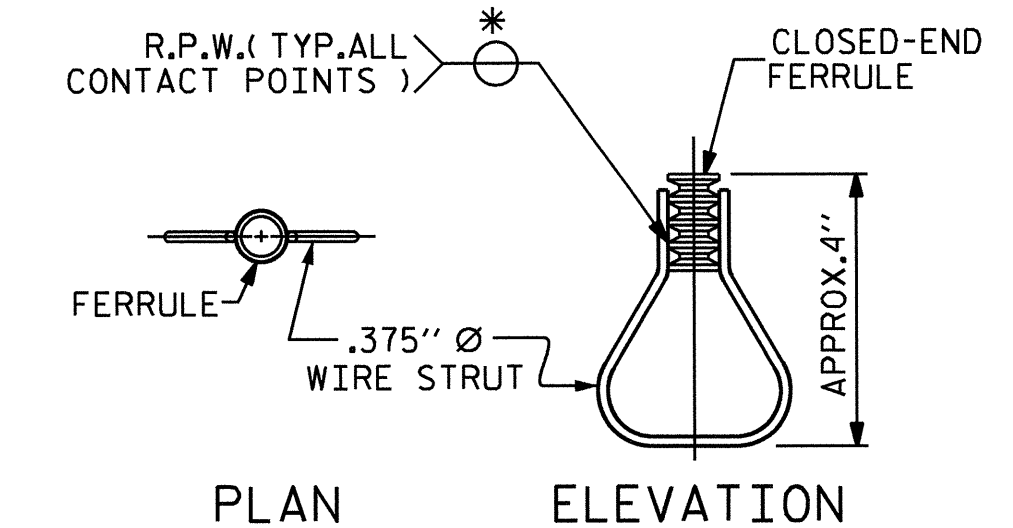
TOP VIEW



SECTION H-H (FIX)

FIXED

DETAILS FOR ATTACHING METAL RAIL TO END POST



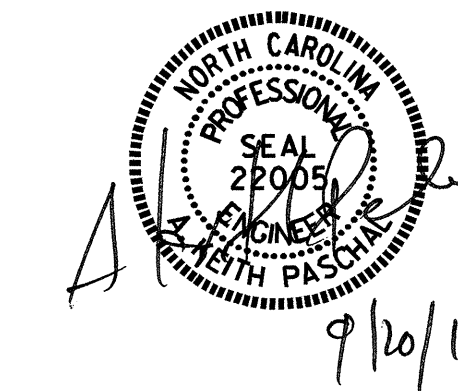
PLAN ELEVATION
STRUCTURAL CONCRETE INSERT

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

PROJECT NO. B-4503
EDGEcombe COUNTY
STATION: 21+11.00 -L-

SHEET 4 OF 5

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



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

ASSEMBLED BY : M. E. FOWLER	DATE : 5/31/11
CHECKED BY : J. D. HAWK	DATE : 06/01/11
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

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 M11.

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.

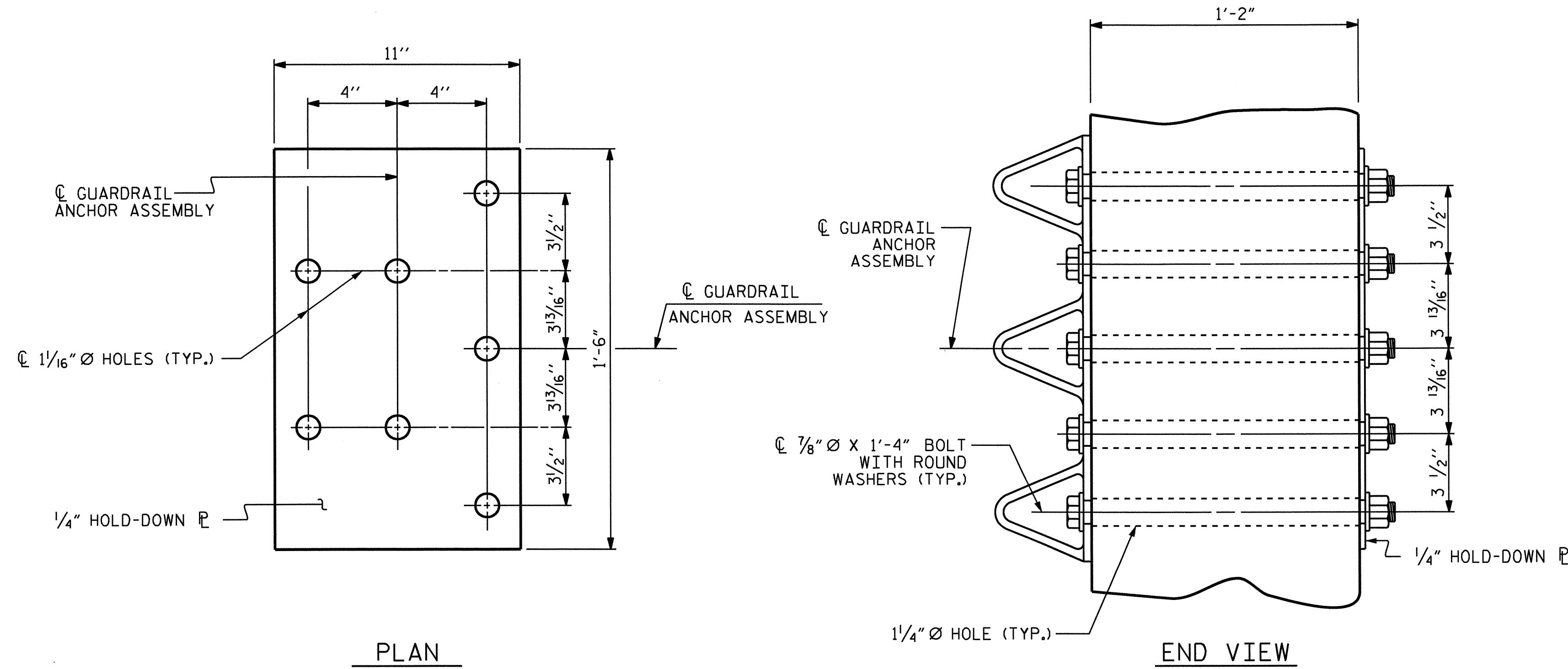
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

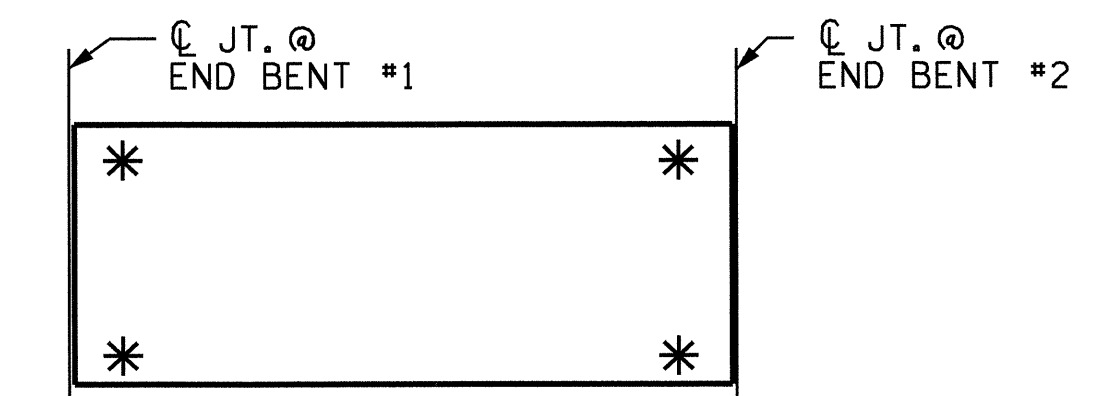
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

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

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

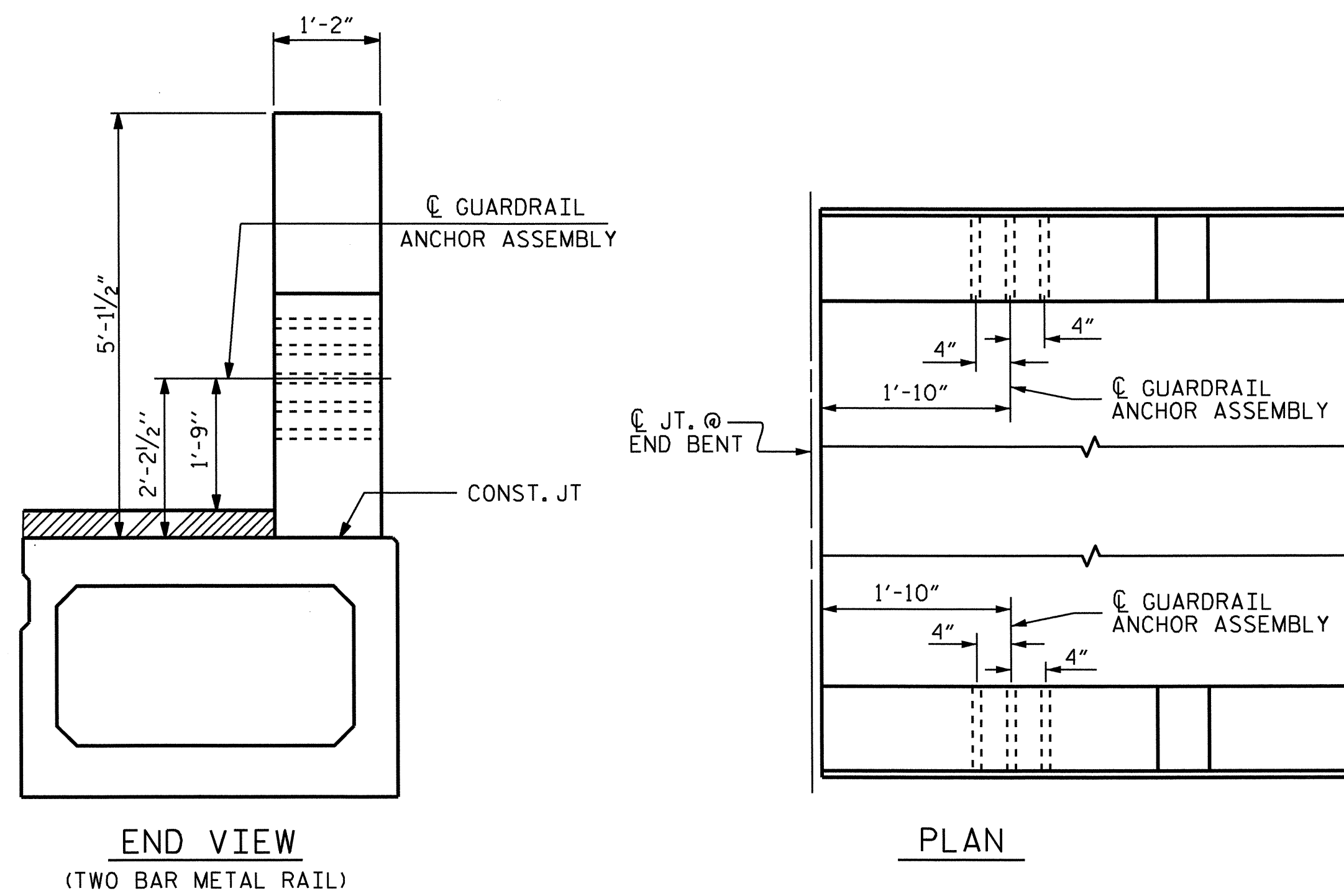


GUARDRAIL ANCHOR ASSEMBLY DETAILS



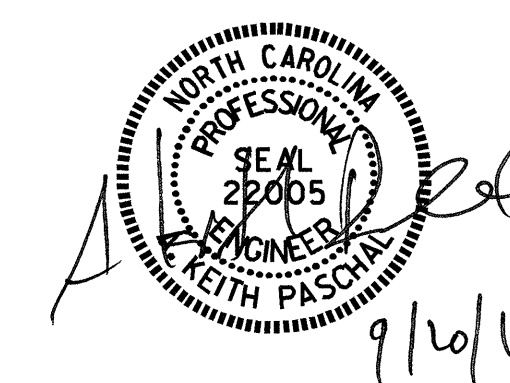
SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



LOCATION OF GUARDRAIL ANCHOR AT END POST

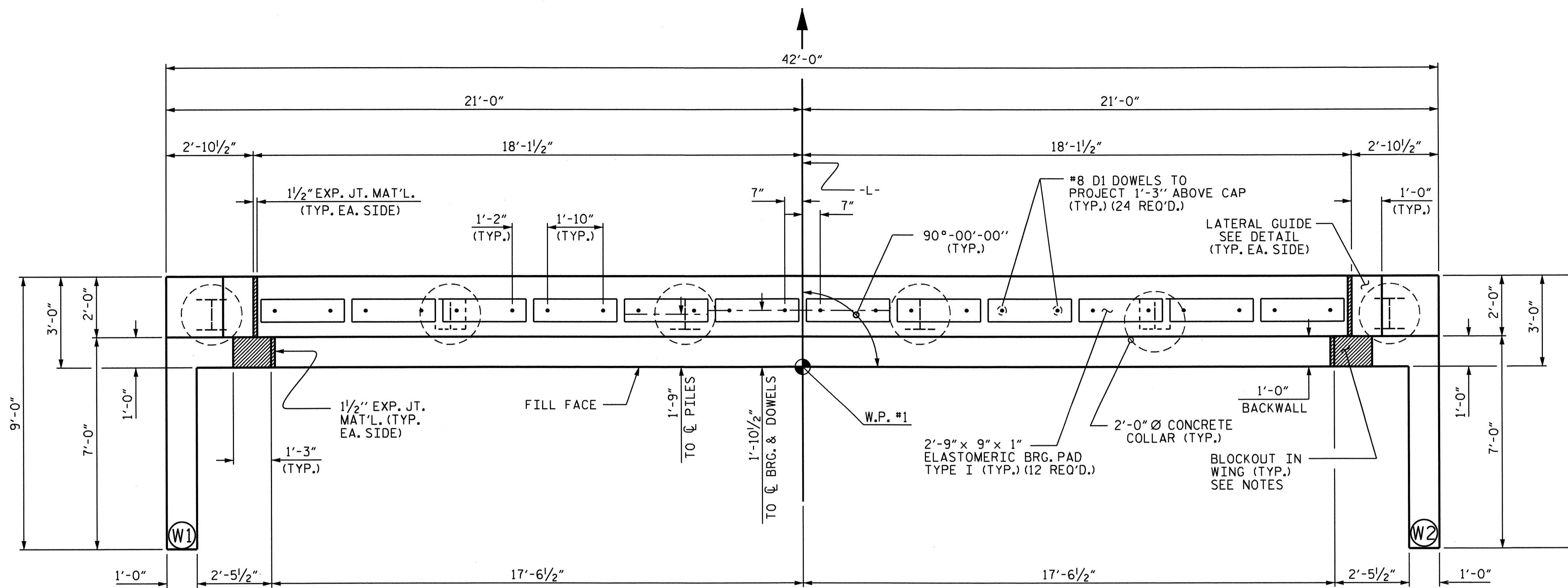
PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-
 SHEET 5 OF 5



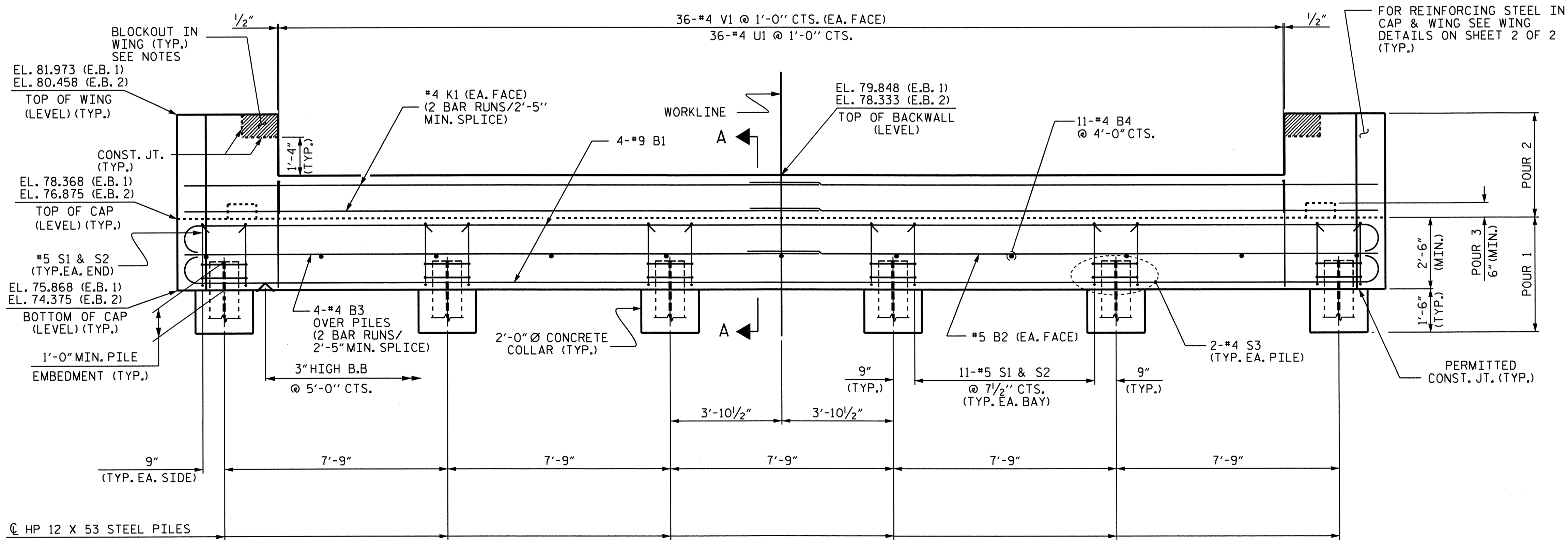
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS

ASSEMBLED BY : M. E. FLOWER	DATE : 10-03-09
CHECKED BY : J. D. HAWK	DATE : 06-01-11
DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	

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



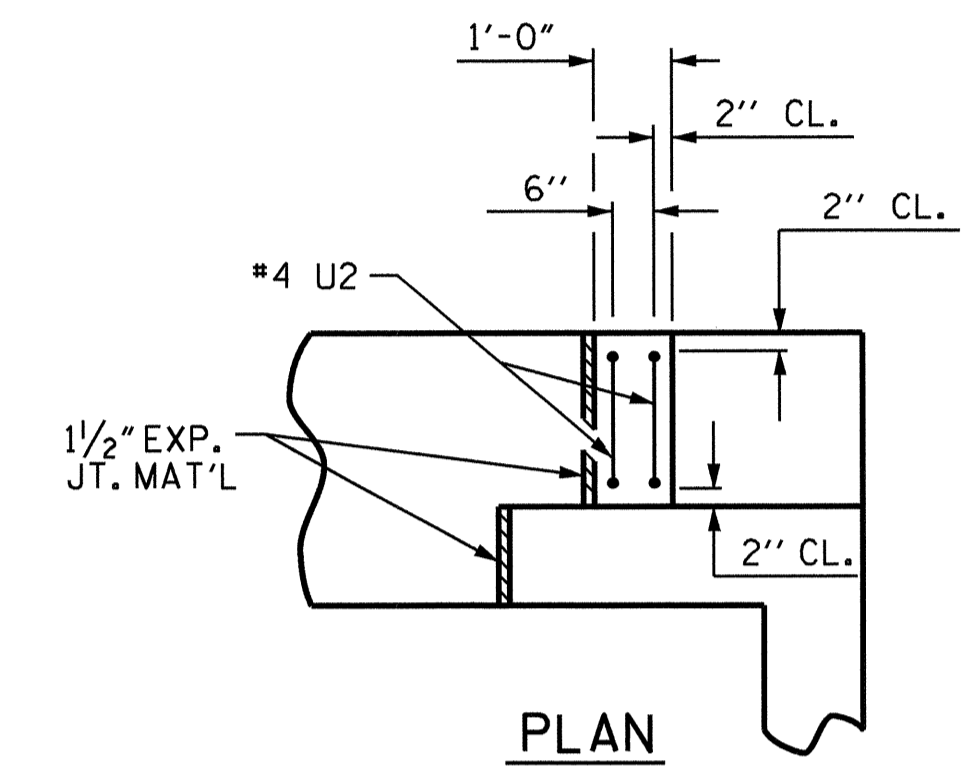
PLAN
(END BENT 1 SHOWN, END BENT 2 SIMILAR)



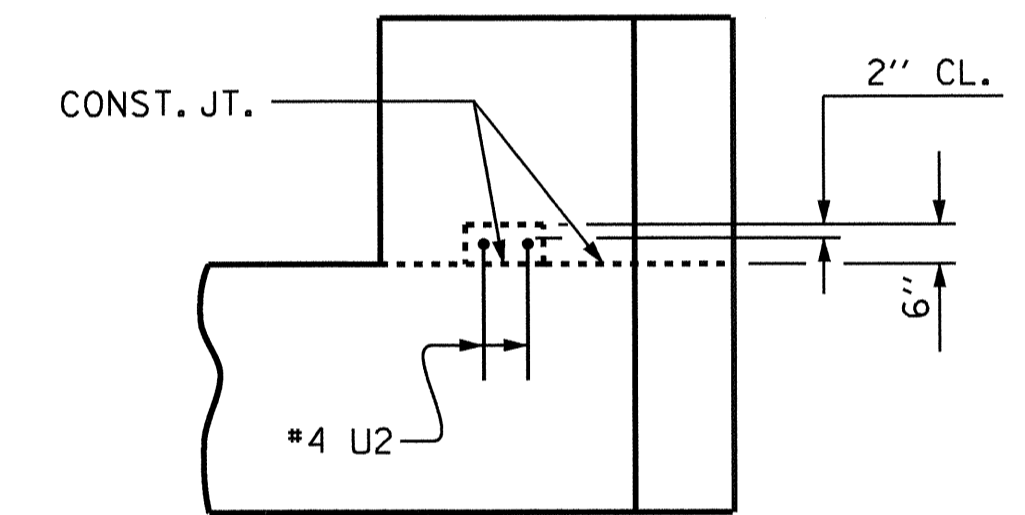
ELEVATION
(END BENT 1 SHOWN, END BENT 2 SIMILAR)

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE BOX BEAM UNITS ARE IN PLACE.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET IS CAST IF SLIP FORMING IS USED.
 THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDES IF APPROVED BY THE ENGINEER.



PLAN



ELEVATION

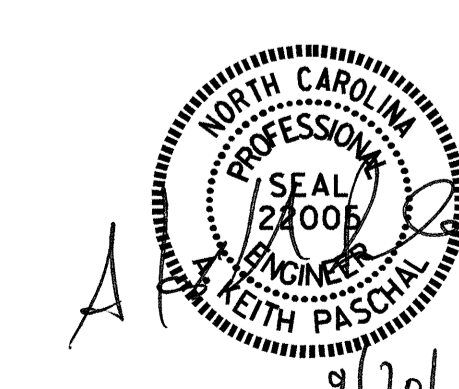
LATERAL GUIDE DETAIL
(RIGHT SIDE SHOWN, LEFT SIDE SIMILAR)

PROJECT NO. B-4503
 EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

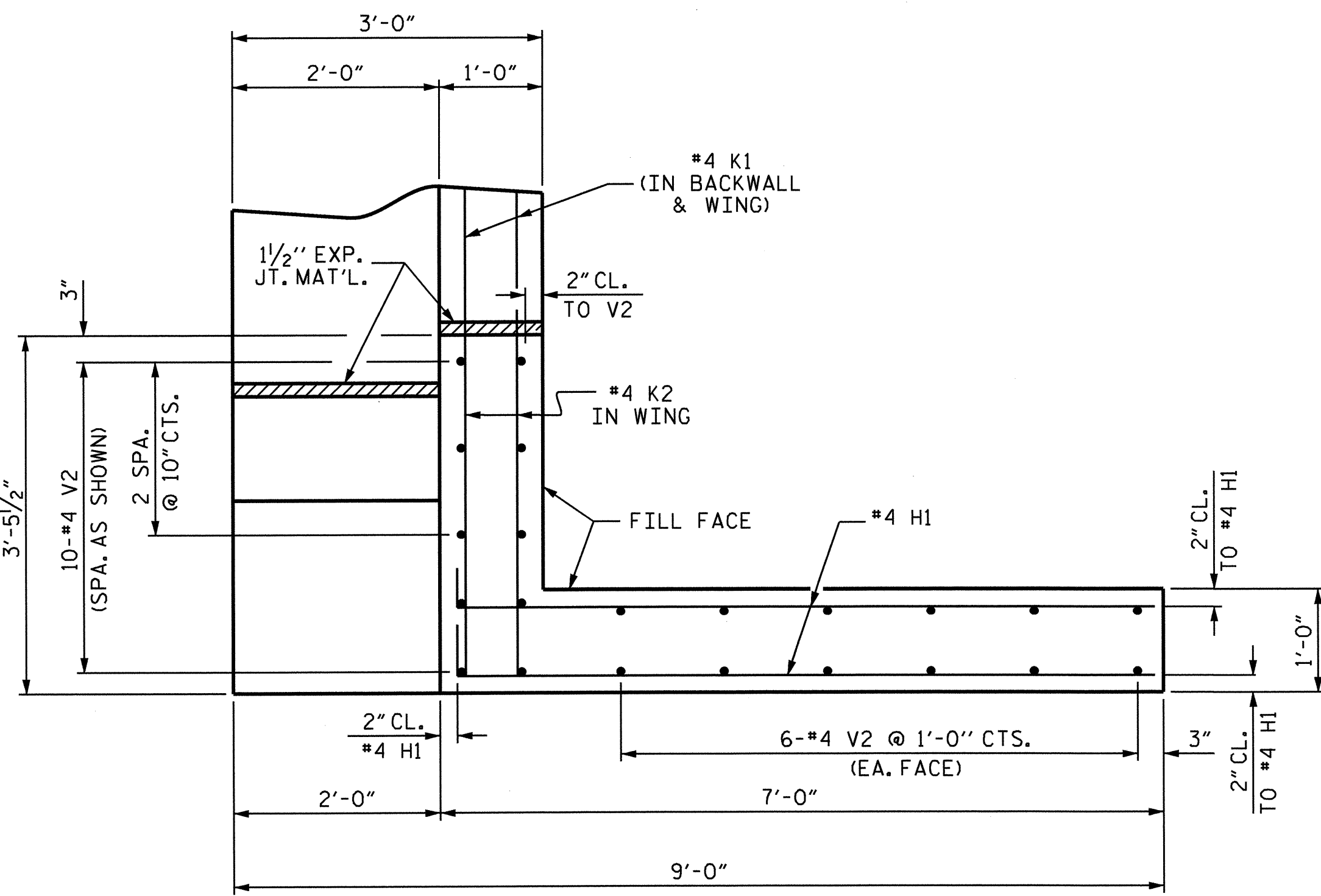
SUBSTRUCTURE
 END BENT 1 & 2



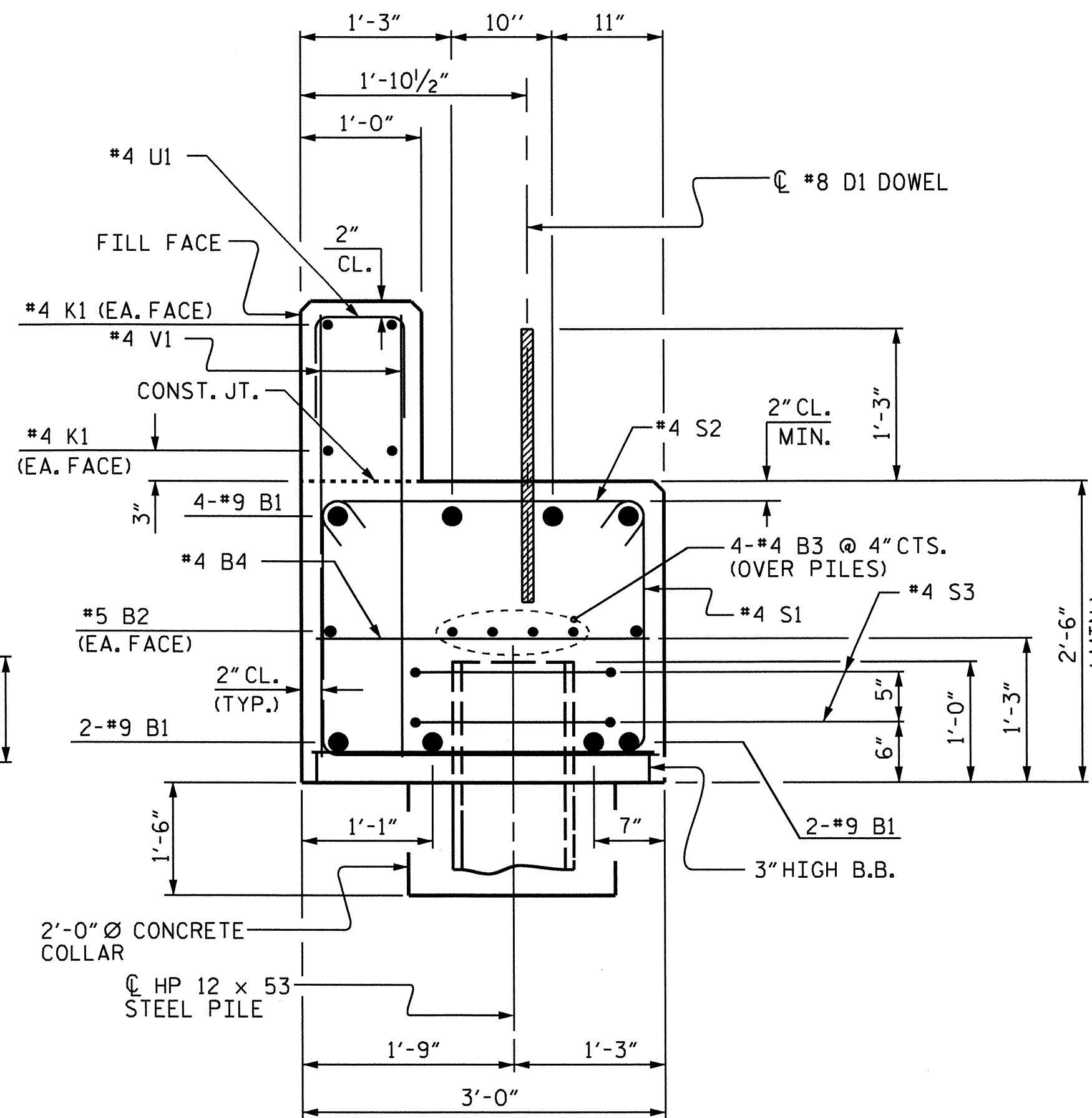
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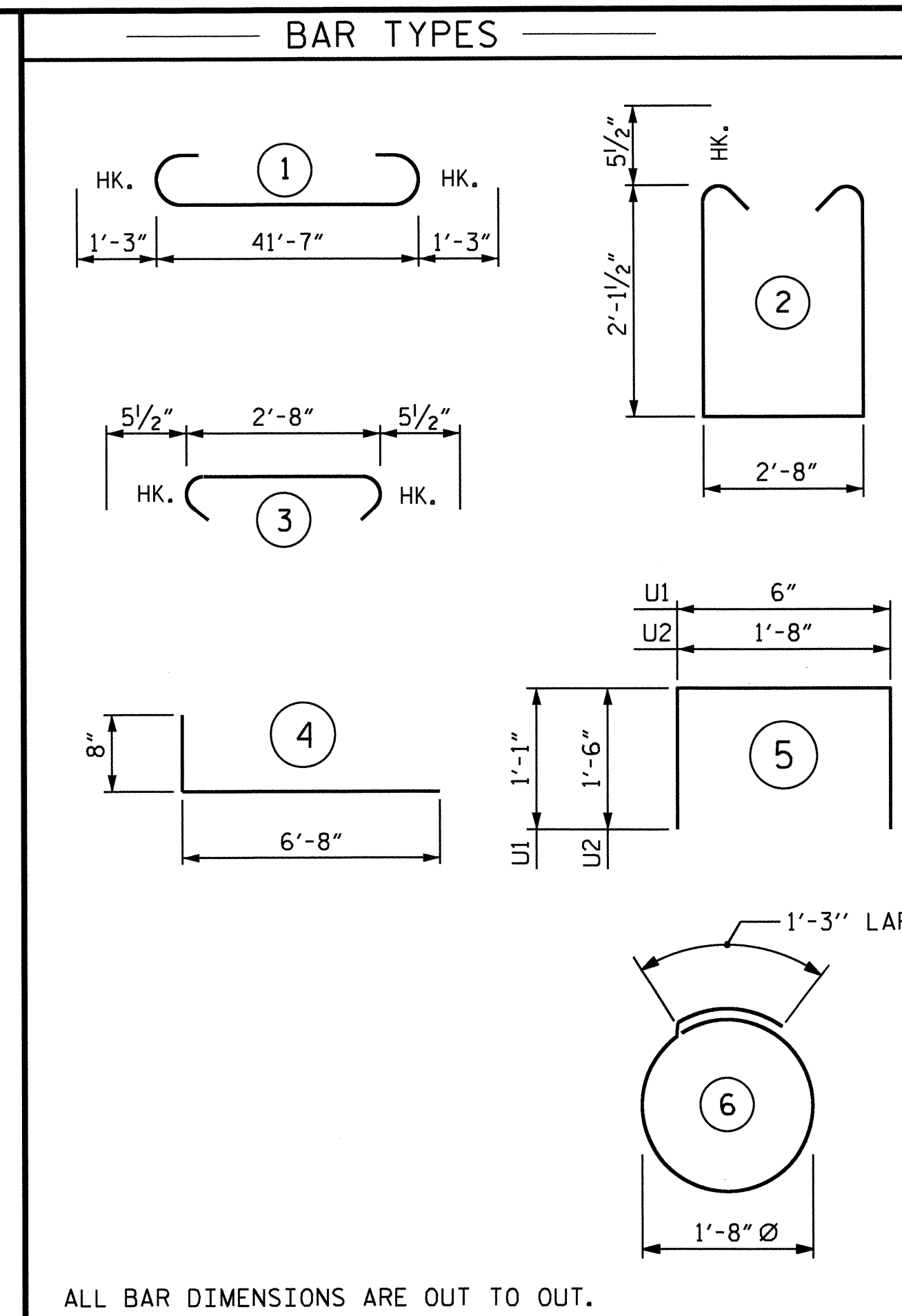
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-16	
1			3			TOTAL SHEETS	24
2			4				



PLAN OF WING - W1
(WING 1 SHOWN WING 2 SIMILAR)

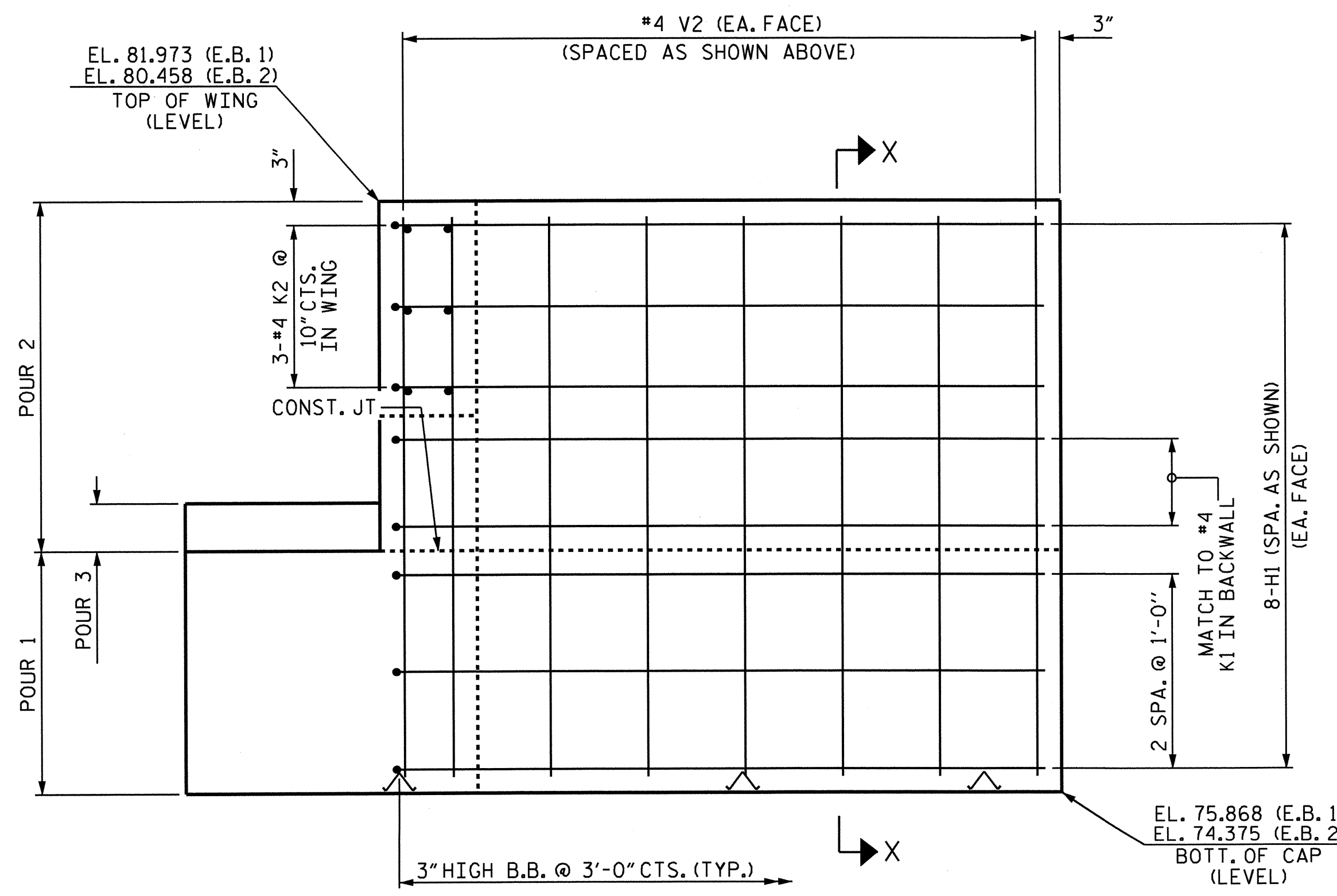


SECTION A-A

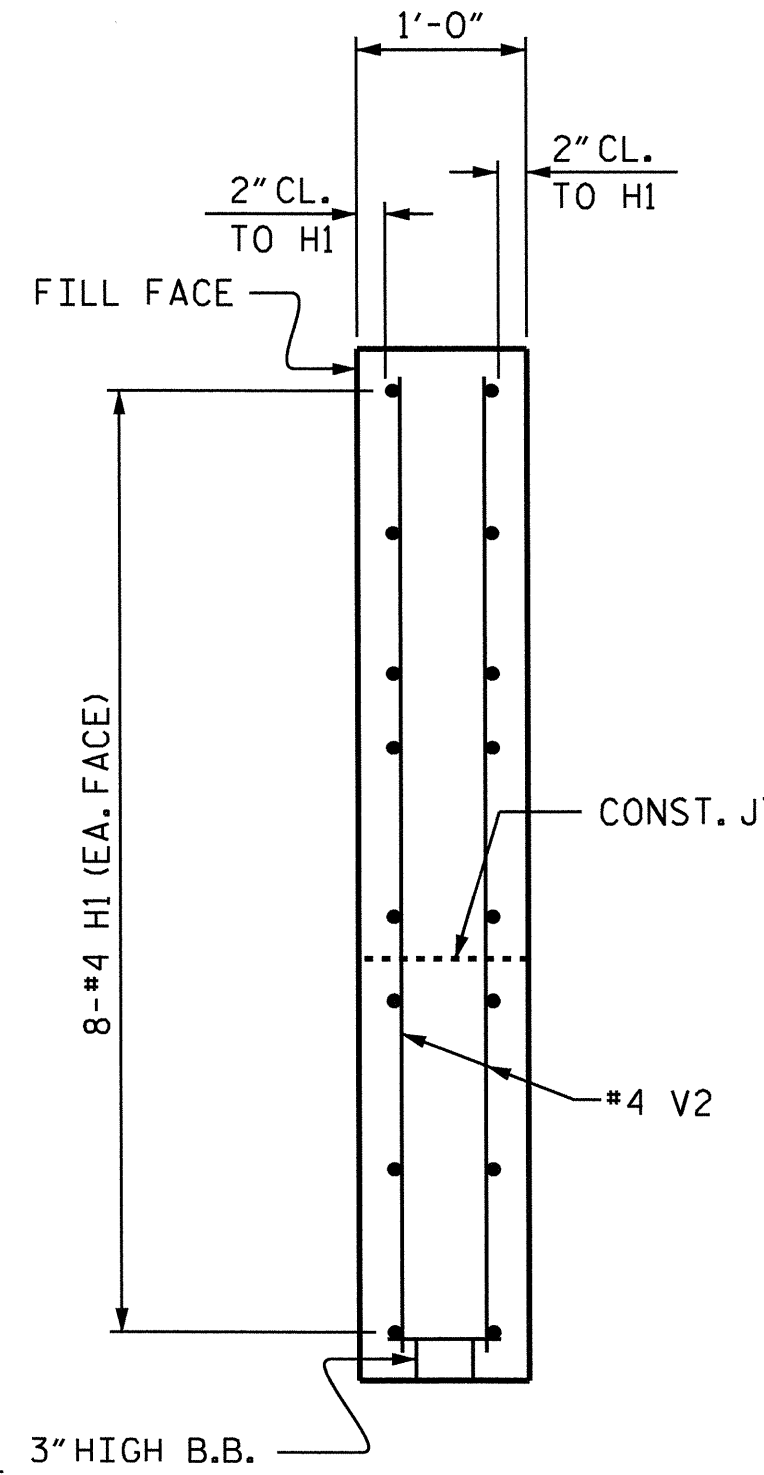


ALL BAR DIMENSIONS ARE OUT TO OUT.

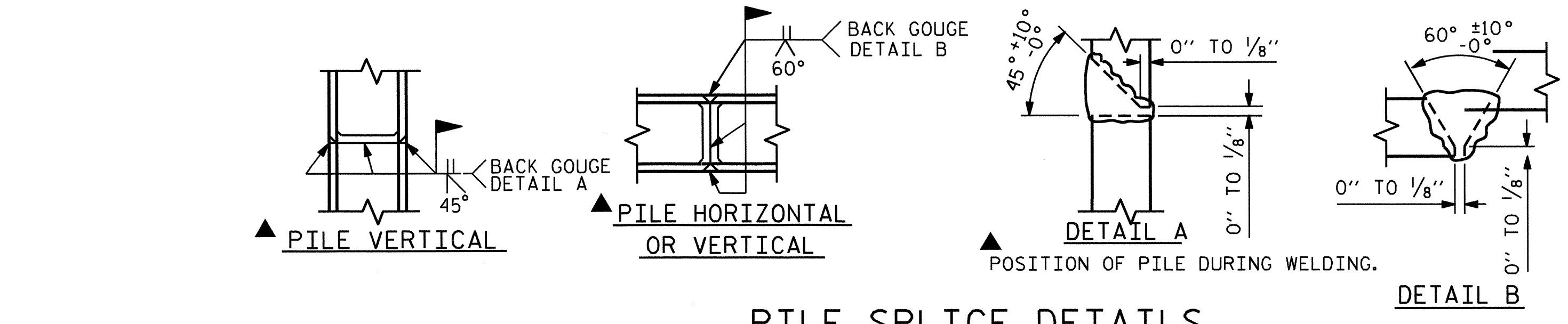
BILL OF MATERIAL					
FOR ONE END BENT (2 REQ'D.)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		44'-1"	1199
B2	2	#5	STR	41'-8"	87
B3	8	#4	STR	22'-1"	118
B4	11	#4	STR	2'-8"	20
D1	24	#8	STR	2'-3"	144
H1	32	#4	4	7'-4"	157
K1	8	#4	STR	22'-1"	118
K2	12	#4	STR	3'-1"	25
S1	57	#5	2	7'-10"	466
S2	57	#5	3	3'-7"	213
S3	12	#4	6	6'-6"	52
U1	36	#4	5	2'-8"	64
U2	4	#4	5	4'-8"	12
V1	72	#4	STR	3'-6"	168
V2	44	#4	STR	5'-9"	169
REINFORCING STEEL				LBS.	3012
CLASS A CONCRETE BREAKDOWN					
POUR 1 (CAP, CONCRETE COLLARS, & LOWER PART OF WINGS) 13.8 CU. YDS.					
POUR 2 (BACKWALL & UPPER PART OF WINGS) 4.5 CU. YDS.					
POUR 3 (LATERAL GUIDES) 0.1 CU. YDS.					
TOTAL				CU. YDS.	18.4
HP 12 x 53 STEEL PILES					
END BENT 1 No. : 6				360 LIN.FT.	
END BENT 2 No. : 6				330 LIN.FT.	



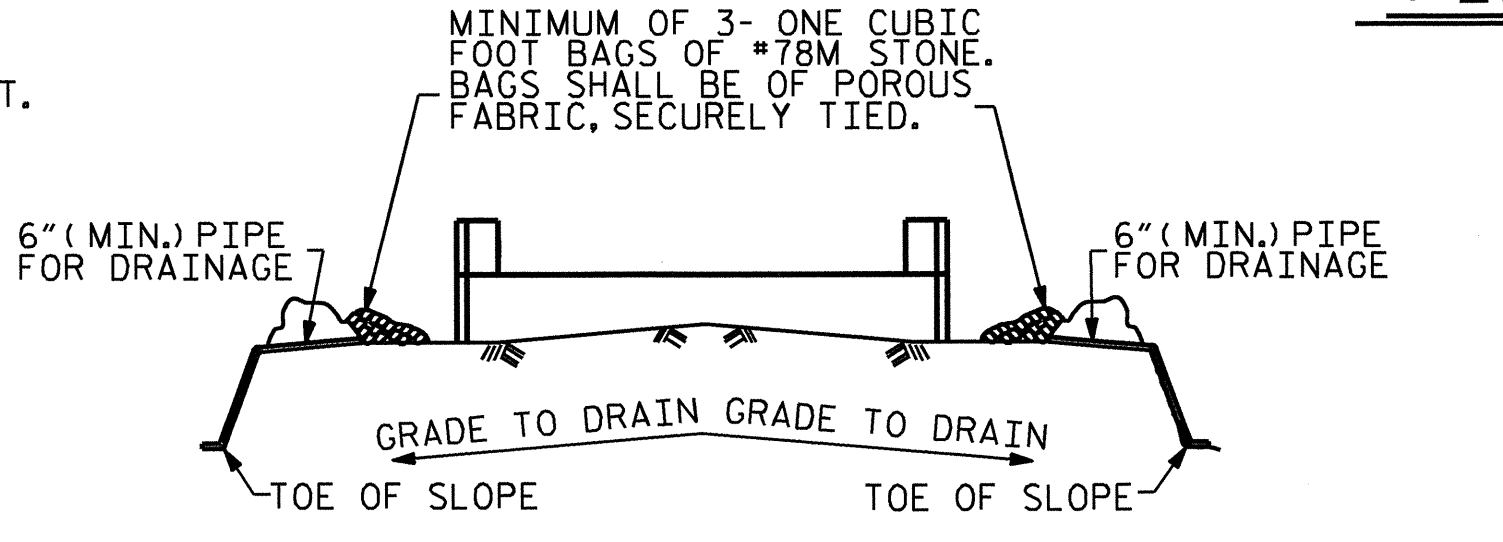
ELEVATION OF WING - W1
(WING 1 SHOWN, WING 2 SIMILAR)



SECTION X-X



PILE SPLICE DETAILS



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

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

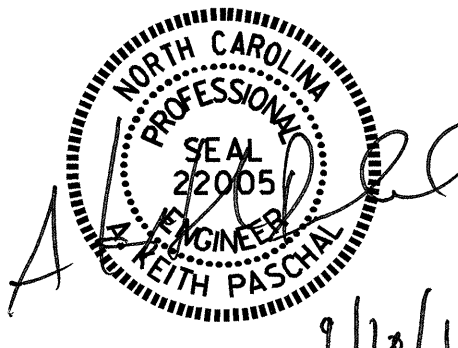
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THE WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

PROJECT NO. B-4503
EDGECOMBE COUNTY
 STATION: 21+11.00 -L-
 SHEET 2 OF 2

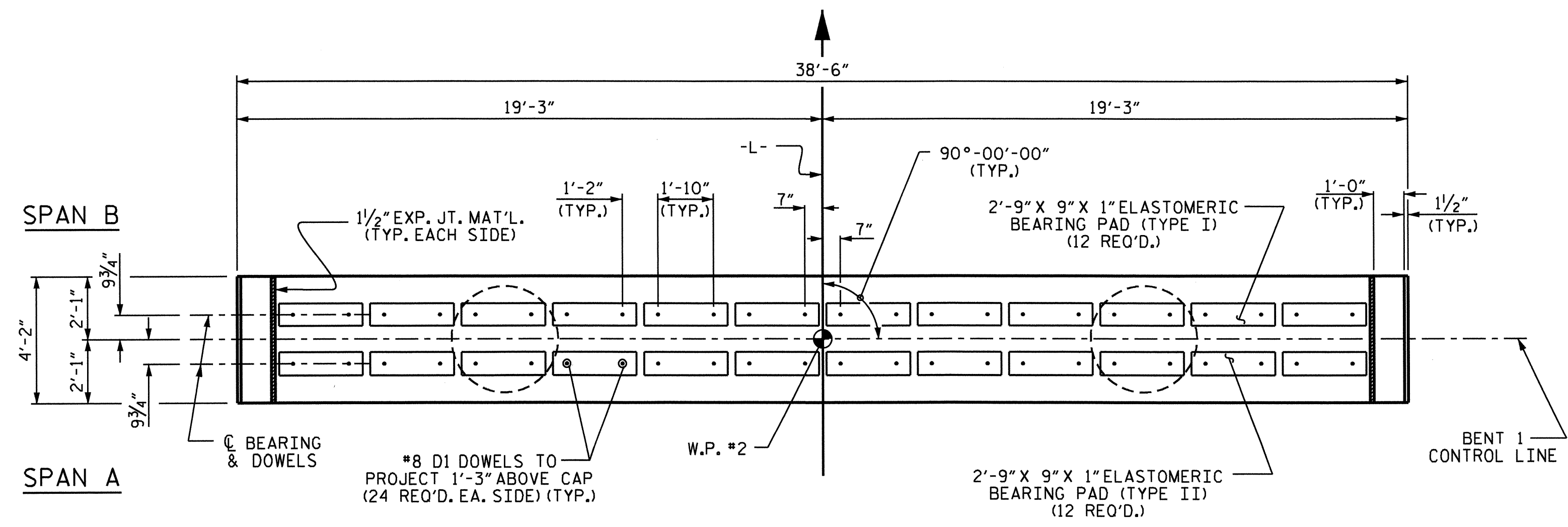
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1 & 2

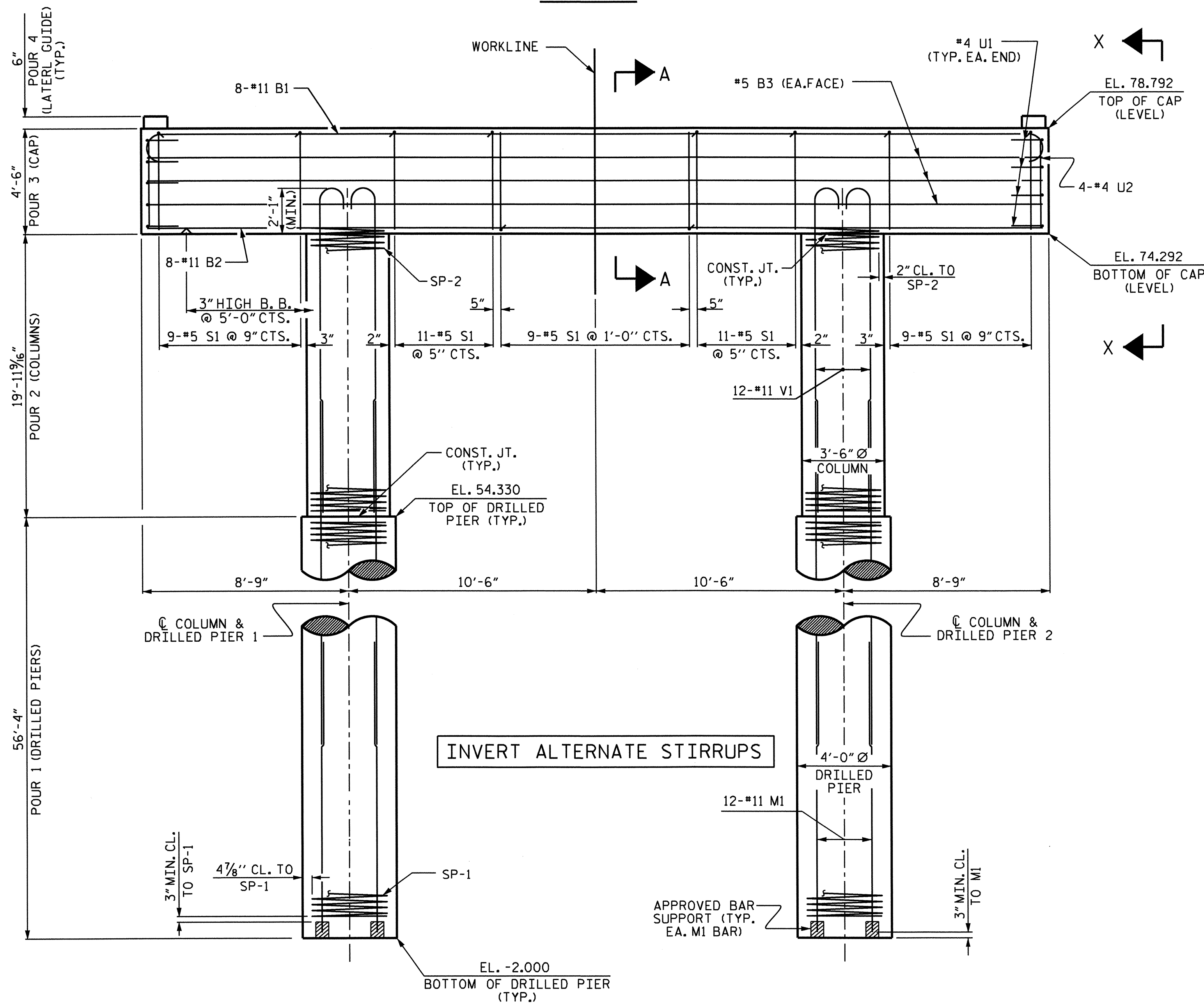


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NO.	BY:	DATE:	NO.	BY:	DATE:	S-17	
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 CHECKED BY: J. MYA DATE: 5/18/11

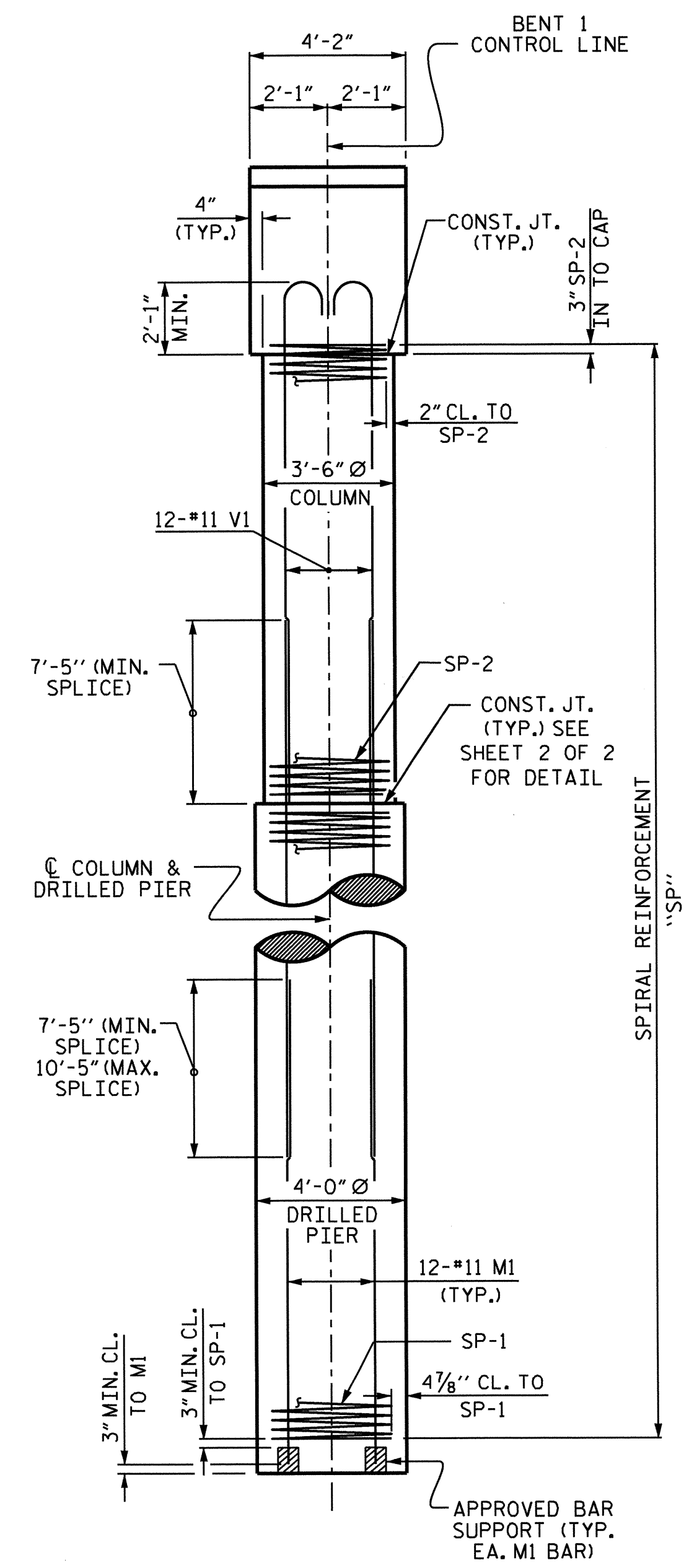


PLAN



ELEVATION

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL DRILLED PIERS AND COLUMNS)

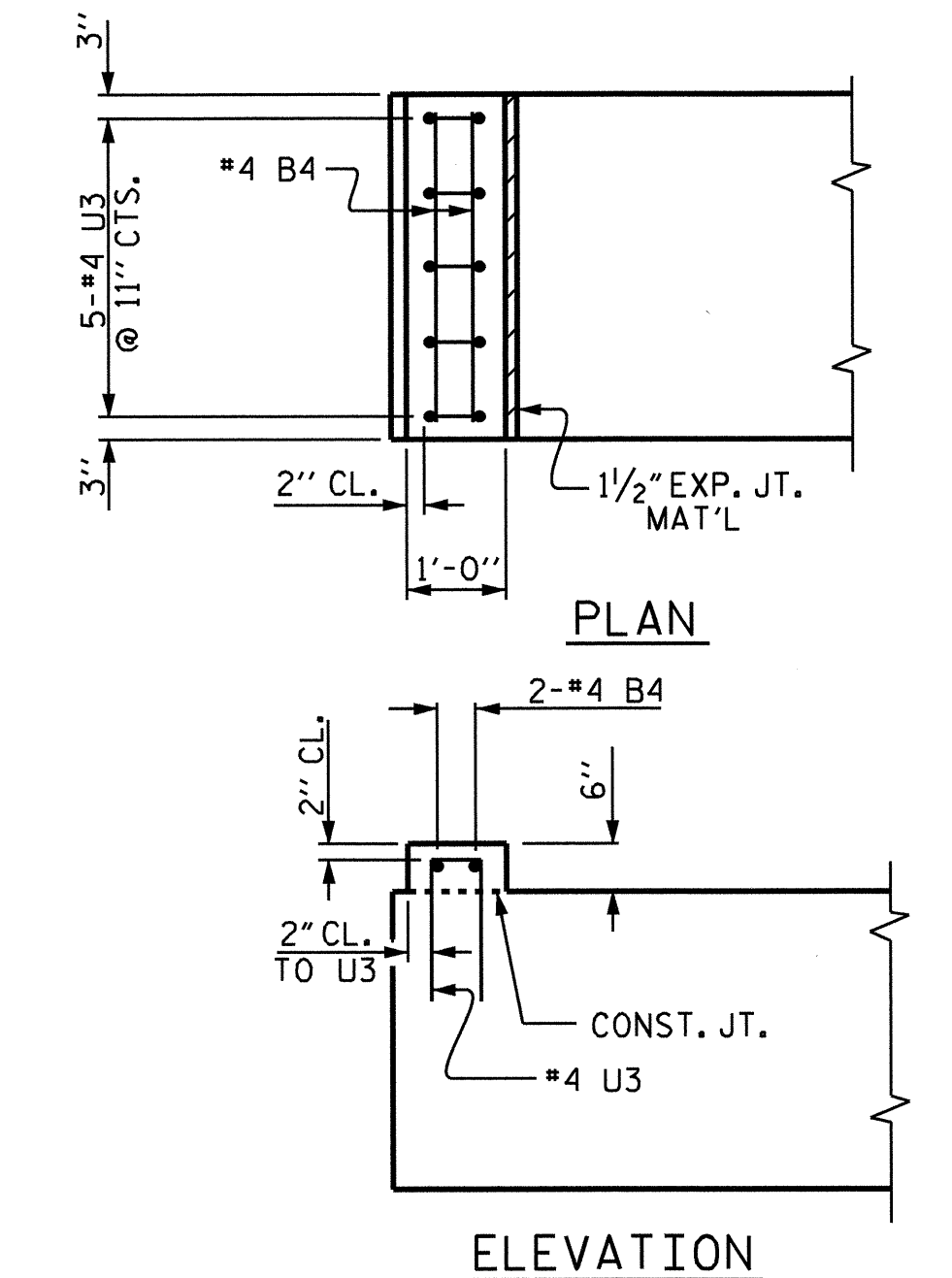


END ELEVATION

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL DRILLED PIERS AND COLUMNS)

NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.
- ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
- THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE BOX BEAM UNITS ARE IN PLACE.
- THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDES IF APPROVED BY THE ENGINEER.



LATERAL GUIDE DETAIL

(LEFT SIDE SHOWN, RIGHT SIDE SIMILAR)

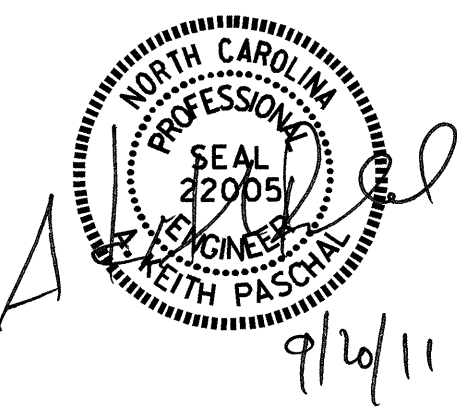
PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 1 OF 2

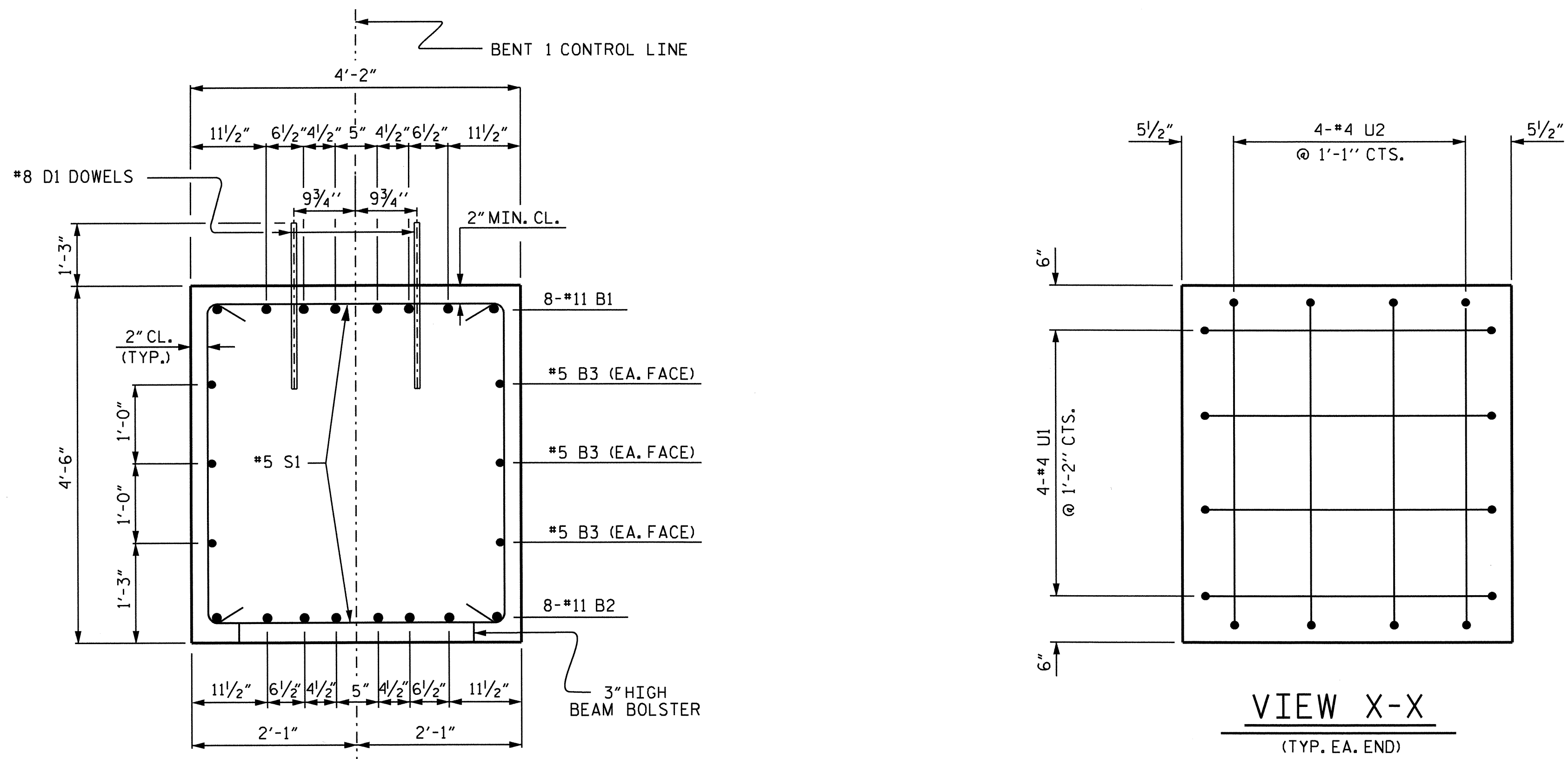
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 BENT 1**

REVISIONS						SHEET NO.
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2			4			24

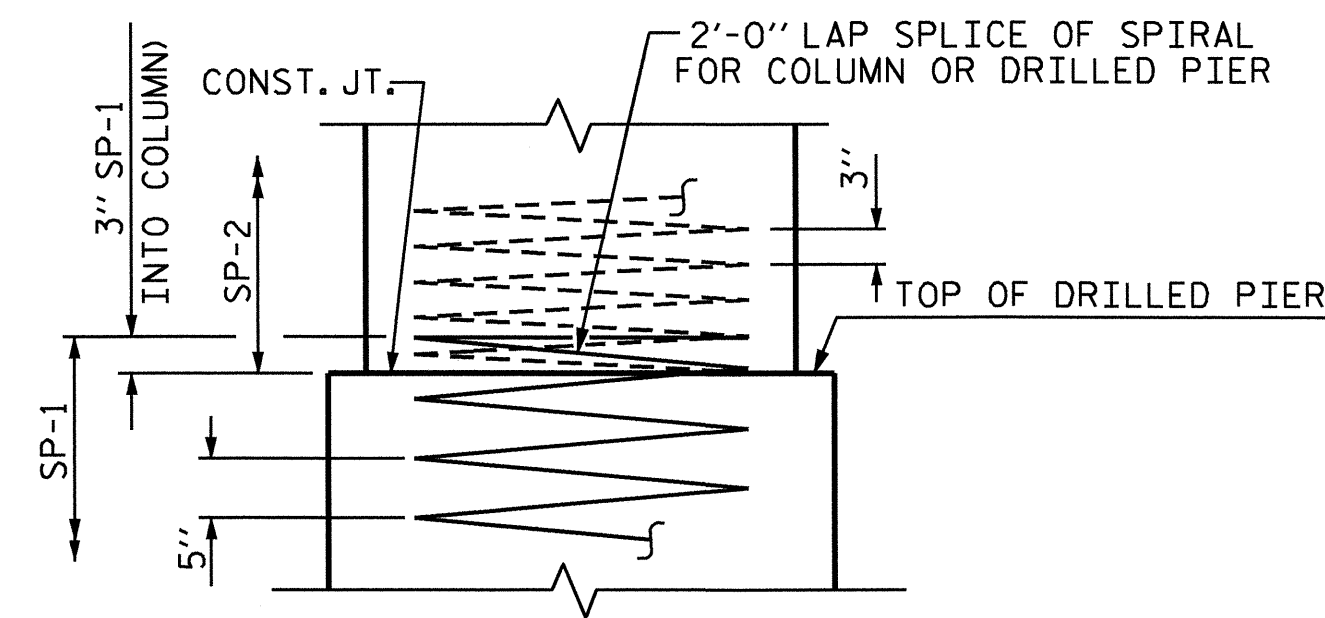


DRAWN BY : J. G. KHARVA DATE : 6/06/11
 CHECKED BY : J. MYA DATE : 6/10/11

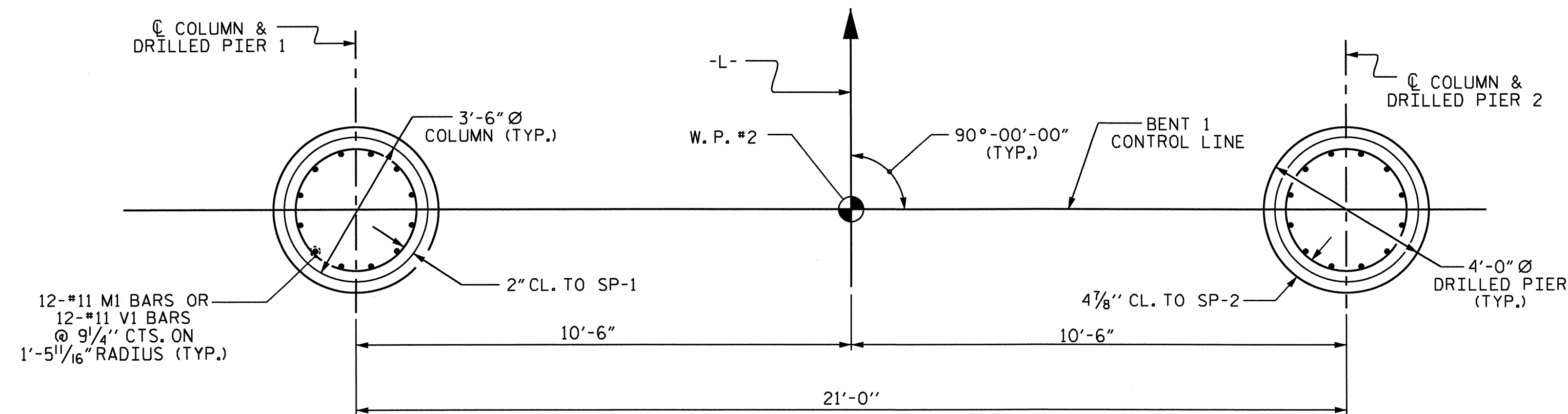


SECTION A-A

VIEW X-X
(TYP. EA. END)

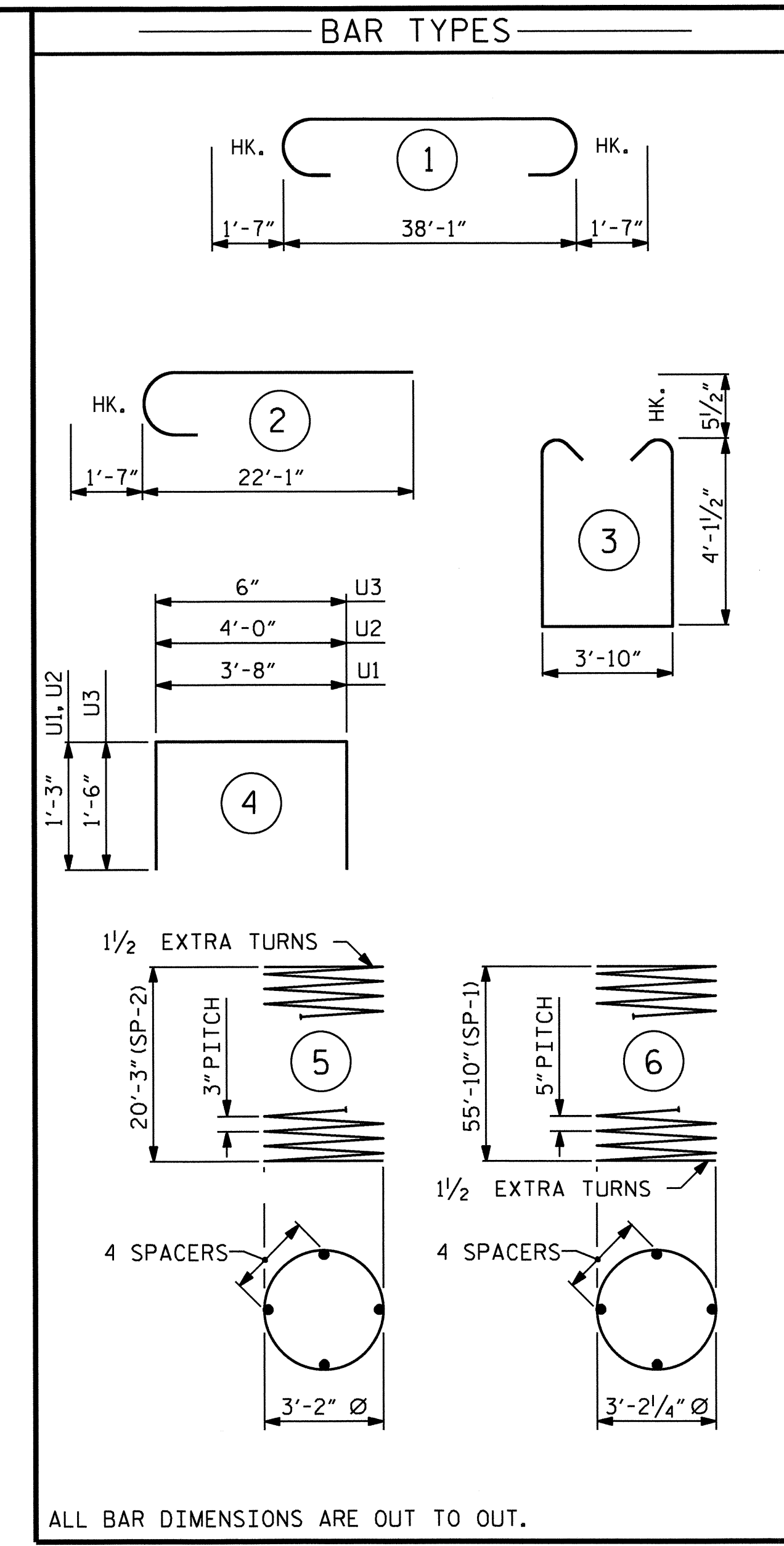


CONSTRUCTION JOINT DETAIL



PLAN OF COLUMNS AND DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL DRILLED PIERS AND COLUMNS)



ALL BAR DIMENSIONS ARE OUT TO OUT.

- ** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.
- * THE SP-2 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.
- ▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

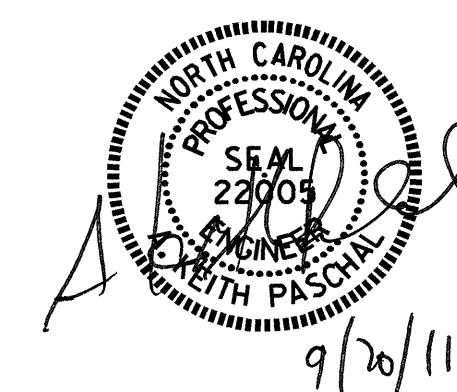
BILL OF MATERIAL

BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#11	1	41'-3"	1753
B2	8	#11	STR	38'-2"	1622
B3	6	#5	STR	38'-2"	239
B4	4	#4	STR	3'-10"	10
D1	48	#8	STR	2'-3"	288
M1	48	#11	STR	37'-0"	9436
S1	49	#5	3	13'-0"	664
U1	8	#4	4	6'-2"	33
U2	8	#4	4	6'-6"	35
U3	10	#4	4	3'-6"	23
V1	24	#11	2	23'-8"	3018
REINFORCING STEEL				=	17121 LBS.
SP-1	2	**	6	1335'-11"	2787
SP-2	2	*	5	810'-3"	1082
SPIRAL COLUMN REINFORCING STEEL				=	3869 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR 2 (COLUMNS)				14.2 C.Y.	
POUR 3 (CAP)				26.7 C.Y.	
POUR 4 (LATERAL GUIDES)				0.2 C.Y.	
TOTAL				41.1 C.Y.	
DRILLED PIERS					
DRILLED PIER CONCRETE					
POUR 1 (DRILLED PIERS)				52.4 C.Y.	
4'-0" Ø DRILLED PIERS				112.67 LIN. FT.	
PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIERS				LIN. FT. = 38.67	
▲ CSL TUBES				LIN. FT. = 470.67	

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

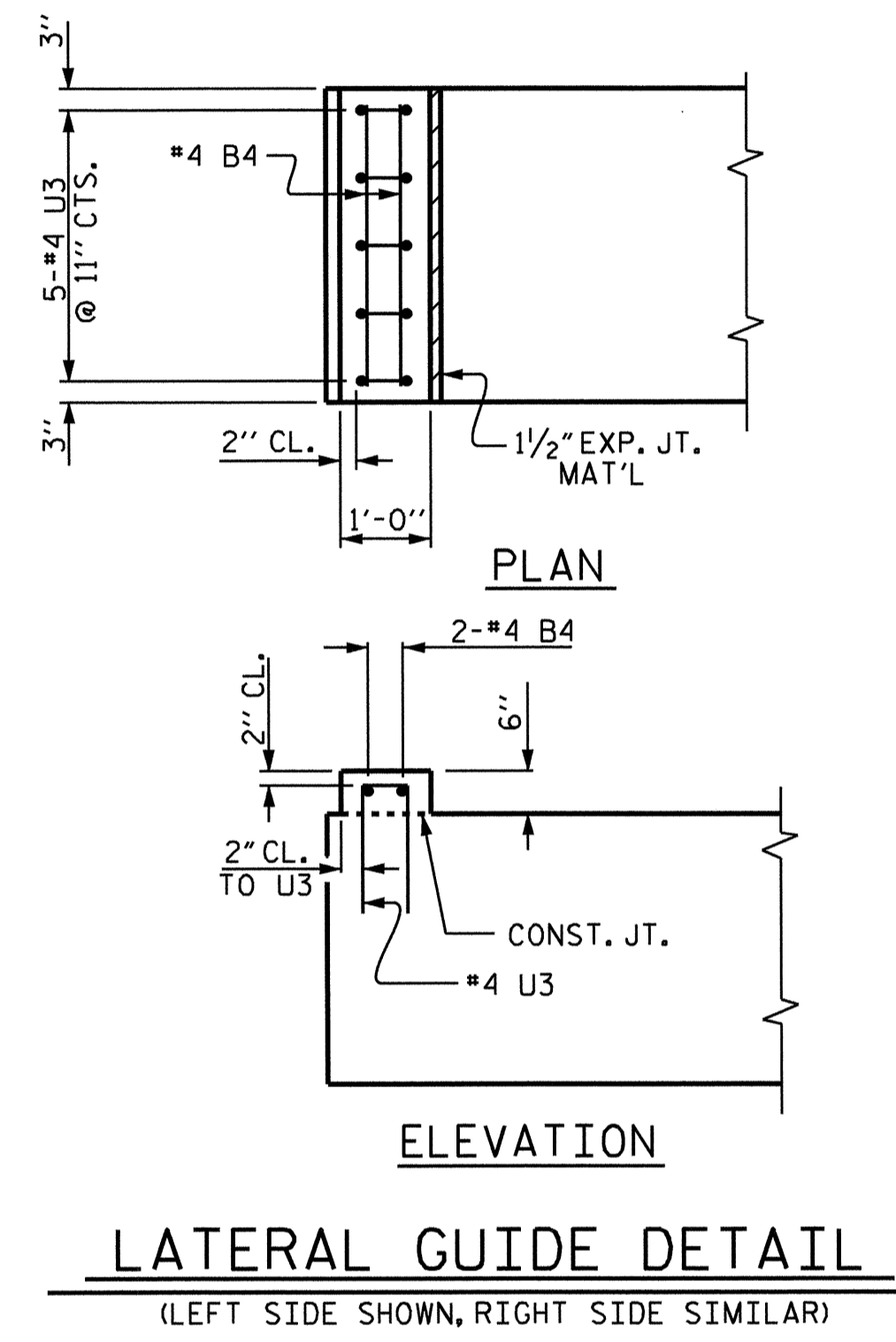
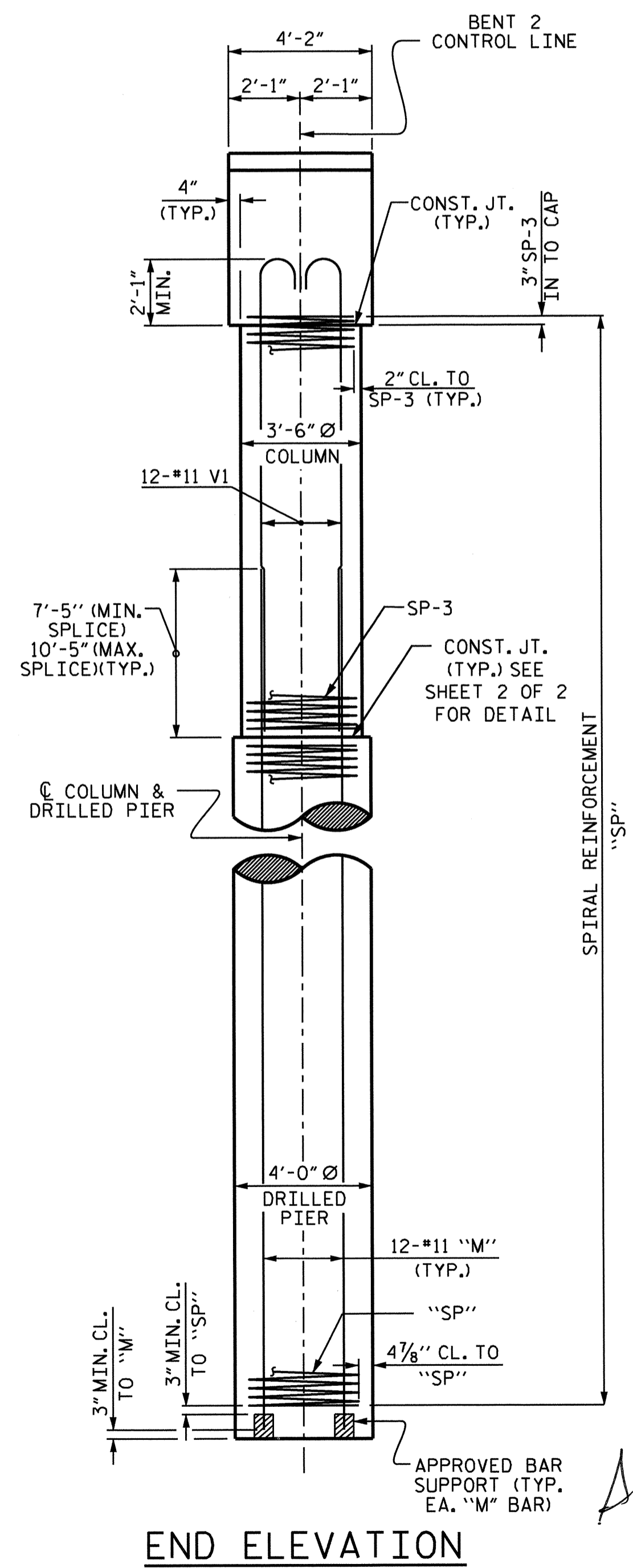
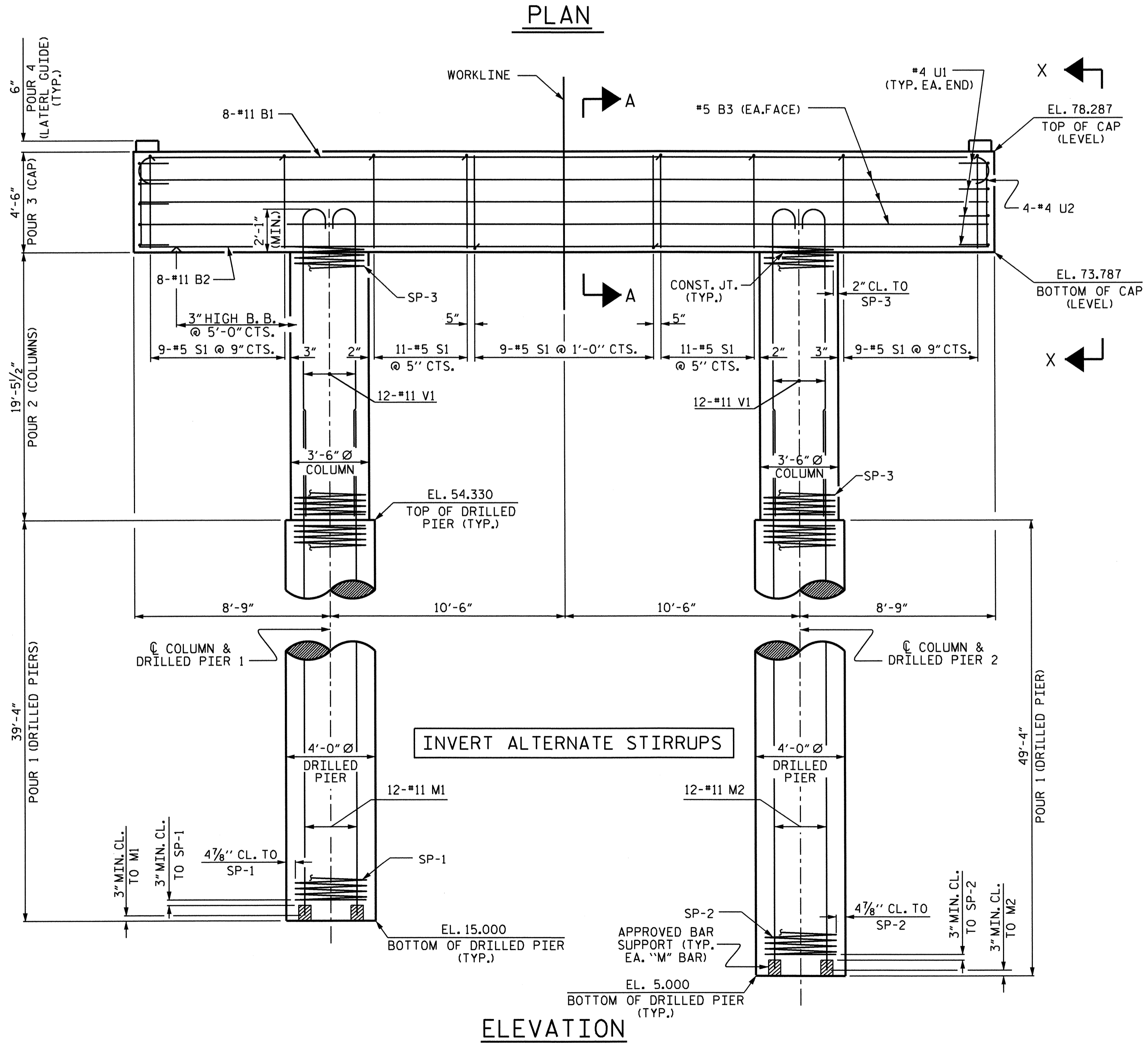
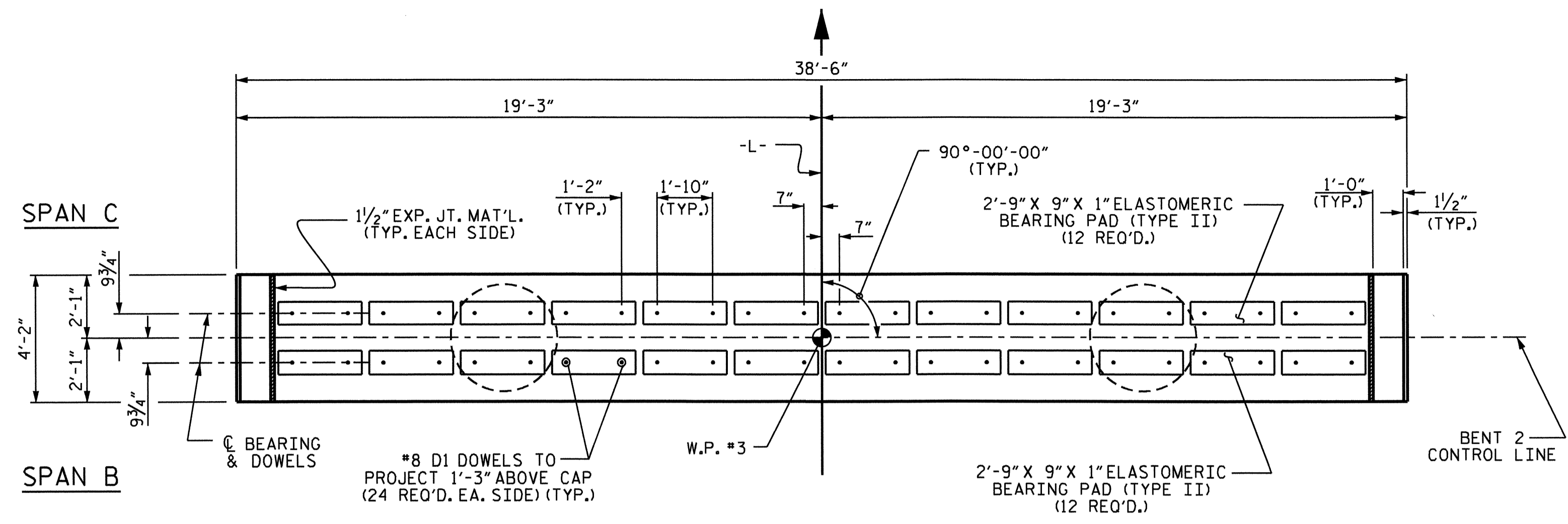
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 1



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			24

DRAWN BY: J. G. KHARVA DATE: 6/07/11
 CHECKED BY: J. MYA DATE: 6/10/11



NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL".

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE BOX BEAM SLAB UNITS ARE IN PLACE.

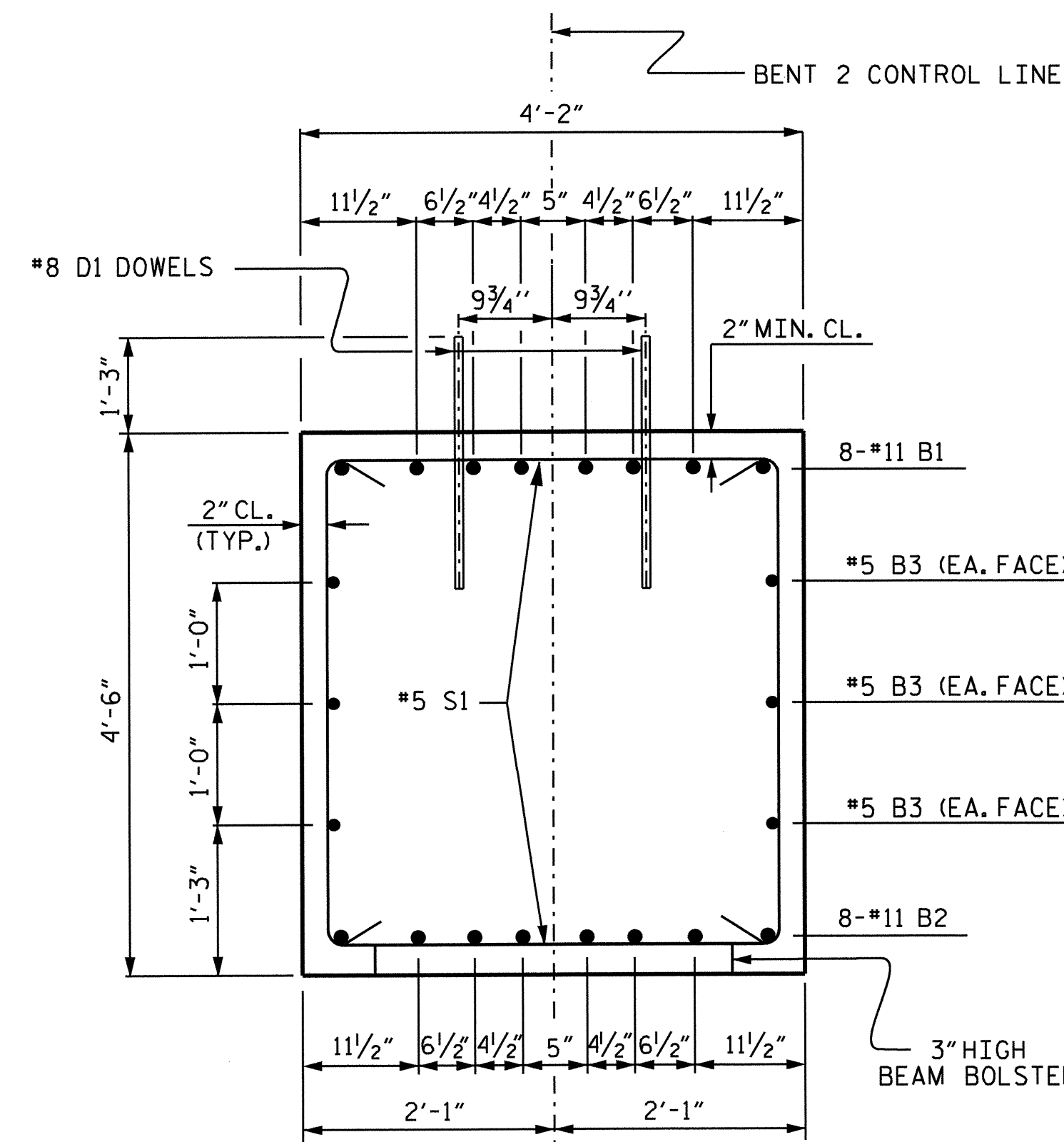
THE CONTRACTOR HAS THE OPTION TO OMIT THE LATERAL GUIDES IF APPROVED BY THE ENGINEER.

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-
 SHEET 1 OF 2

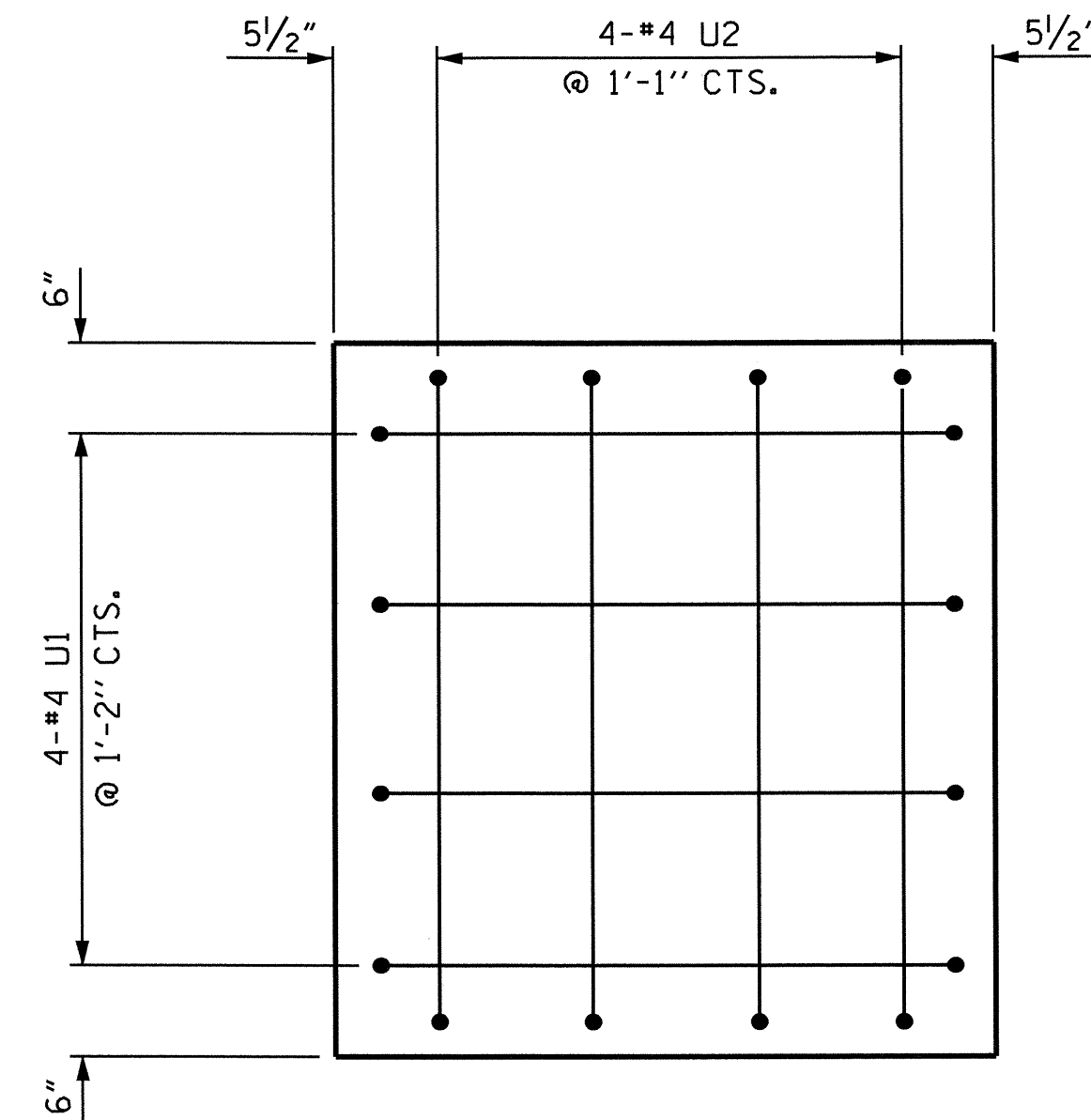
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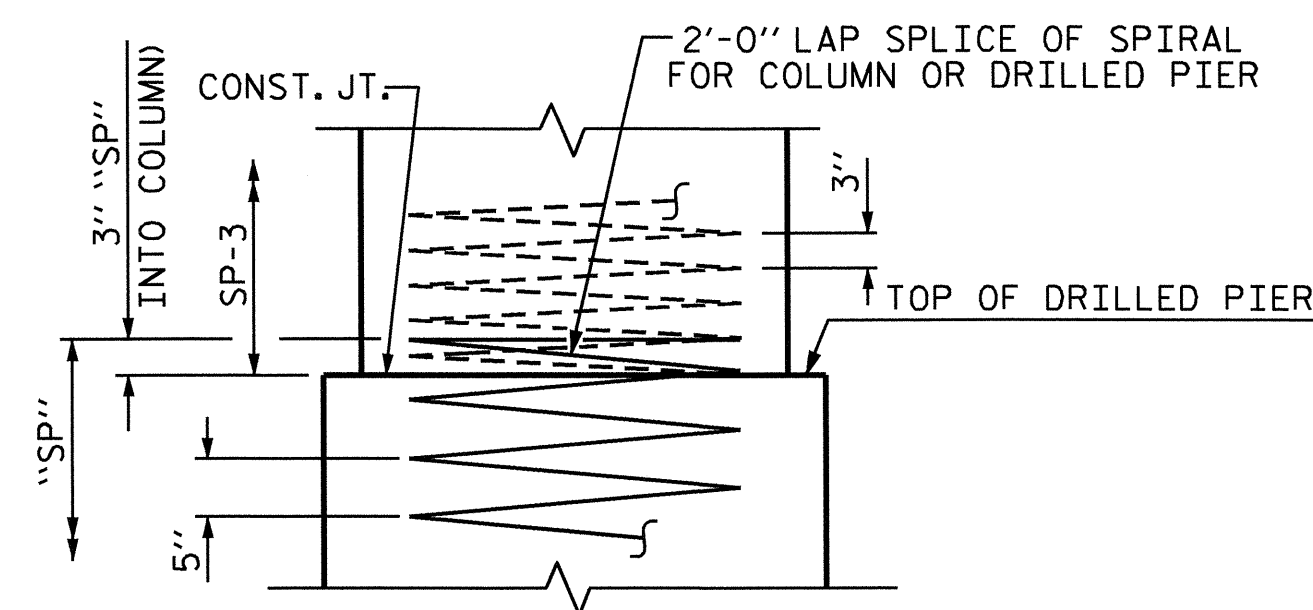
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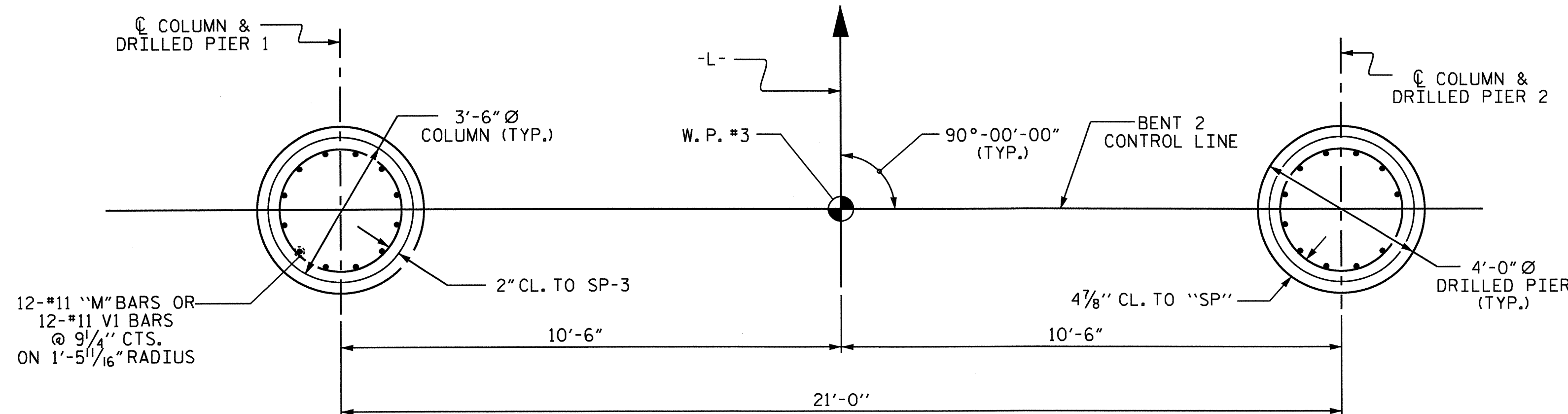
SECTION A-A



VIEW X-X
(TYP. EA. END)



CONSTRUCTION JOINT DETAIL



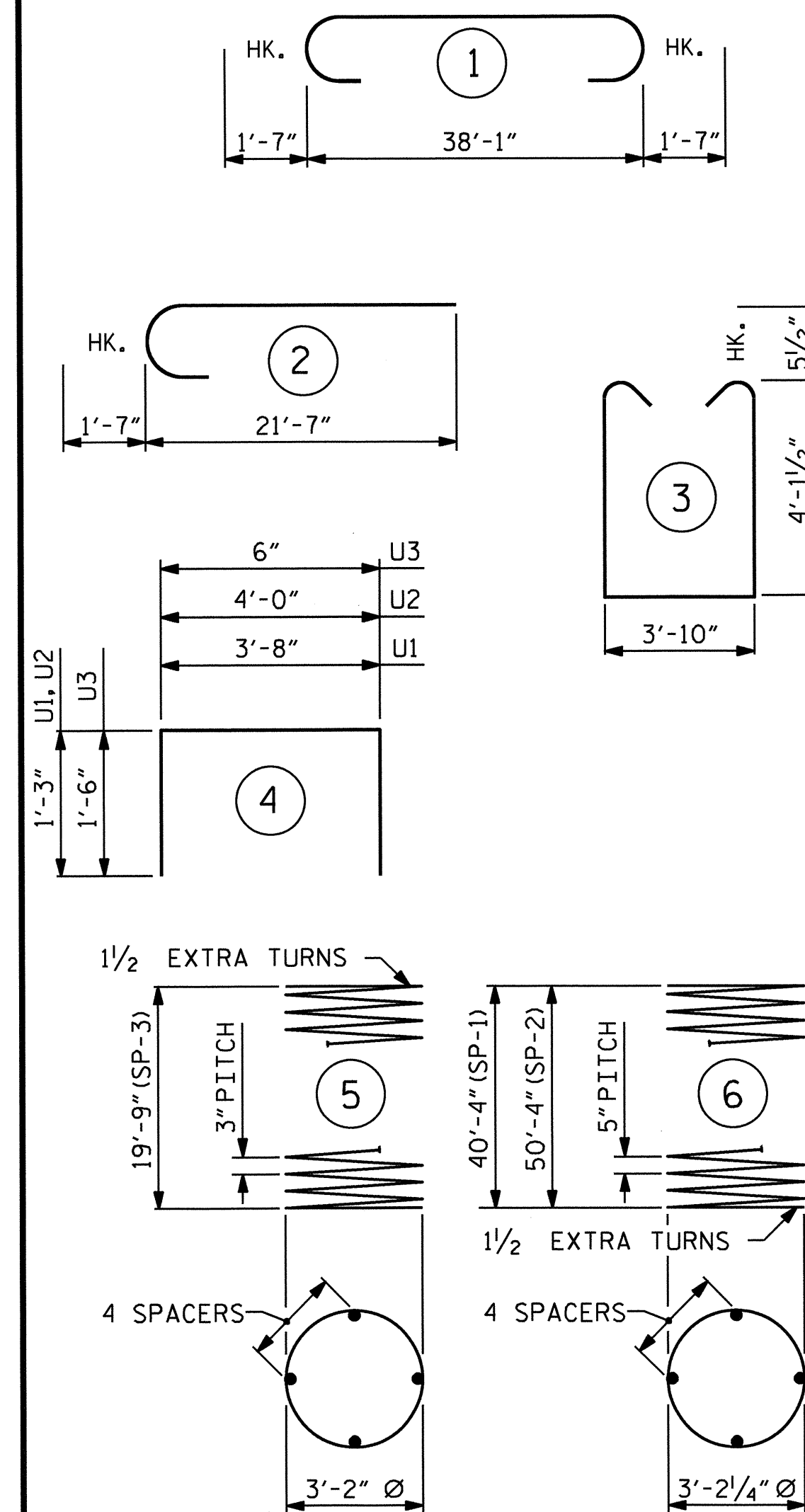
PLAN OF COLUMNS AND DRILLED PIERS

(REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL DRILLED PIERS AND COLUMNS EXCEPT WHERE NOTED)

DRAWN BY: J. G. KHARVA DATE: 6/07/11
CHECKED BY: J. MYA DATE: 6/10/11

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jghawk

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

** THE SP-1 & SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

* THE SP-3 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

▲ NO SEPARATE PAYMENT WILL BE MADE FOR CSL TUBES. CSL TUBES WILL BE INCLUDED IN THE UNIT BID PRICE FOR DRILLED PIERS.

BILL OF MATERIAL

BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#11	STR	41'-3"	1753
B2	8	#11	STR	38'-2"	1622
B3	6	#5	STR	38'-2"	239
B4	4	#4	STR	3'-10"	10
D1	48	#8	STR	2'-3"	288
M1	12	#11	STR	49'-6"	3156
M2	12	#11	STR	59'-6"	3793
S1	49	#5	3	13'-0"	664
U1	8	#4	4	6'-2"	33
U2	8	#4	4	6'-6"	35
U3	10	#4	4	3'-6"	23
V1	24	#11	2	23'-2"	2954

REINFORCING STEEL = 14570 LBS.

SP-1	1	**	6	1207'-9"	2519
SP-2	1	**	6	971'-2"	1013
SP-3	2	*	5	481'-6"	643

SPIRAL COLUMN REINFORCING STEEL = 4175 LBS.

CLASS A CONCRETE BREAKDOWN	
POUR #2 (COLUMNS)	13.9 C.Y.
POUR #3 (CAP)	26.7 C.Y.
POUR #4 (LATERAL GUIDES)	0.2 C.Y.
TOTAL	40.8 C.Y.

DRILLED PIERS

DRILLED PIER CONCRETE
POUR #1 (DRILLED PIERS) 41.3 C.Y.

4'-0" Ø DRILLED PIERS 88.67 LIN. FT.

PERMANENT STEEL CASING FOR 4'-0" Ø DRILLED PIERS LIN. FT. = 38.67

▲ CSL TUBES LIN. FT. = 374.67

PROJECT NO. B-4503

EDGEcombe COUNTY

STATION: 21+11.00 -L-

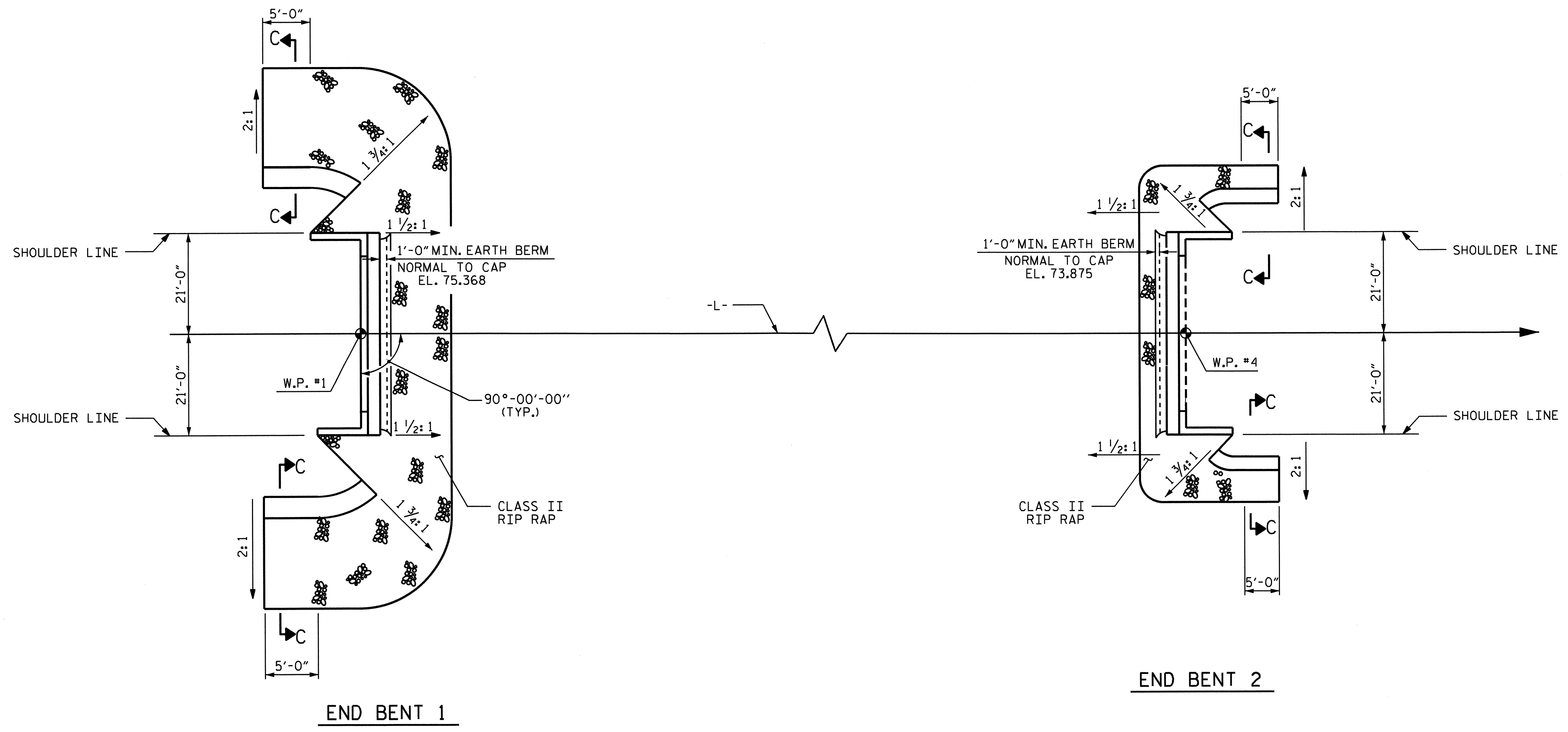
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 2

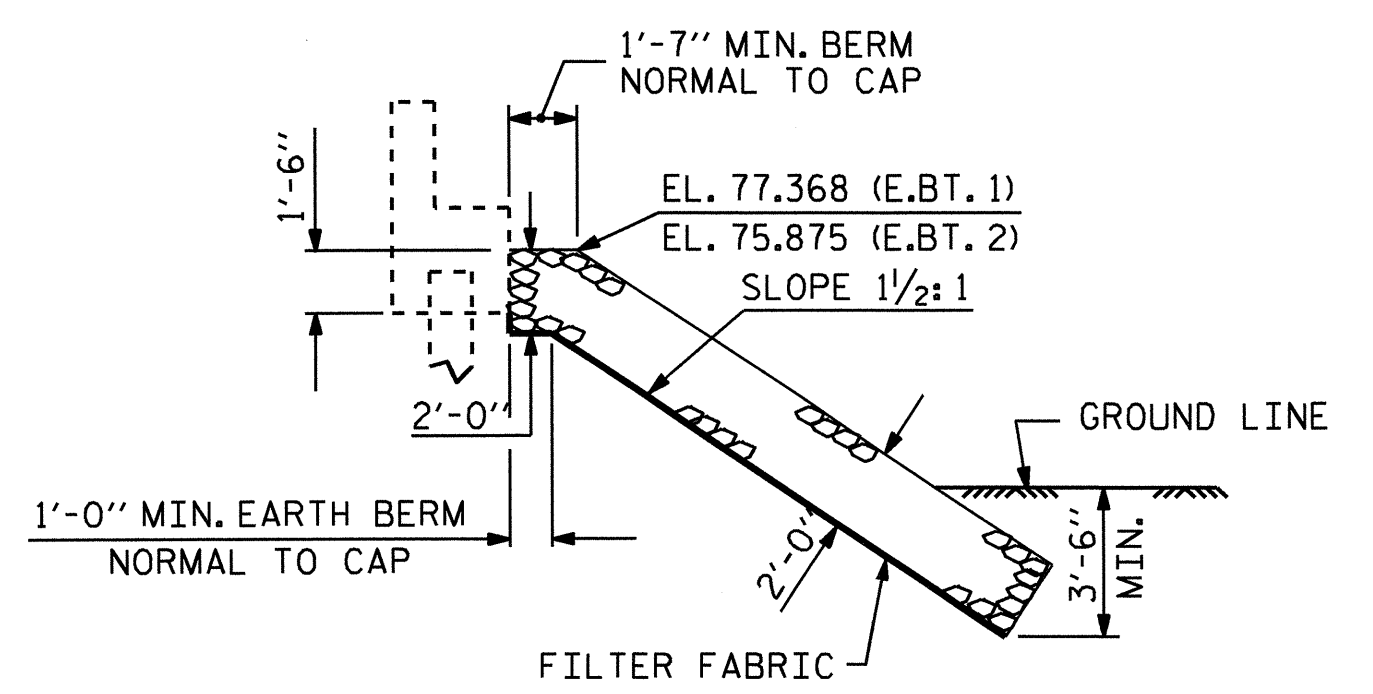


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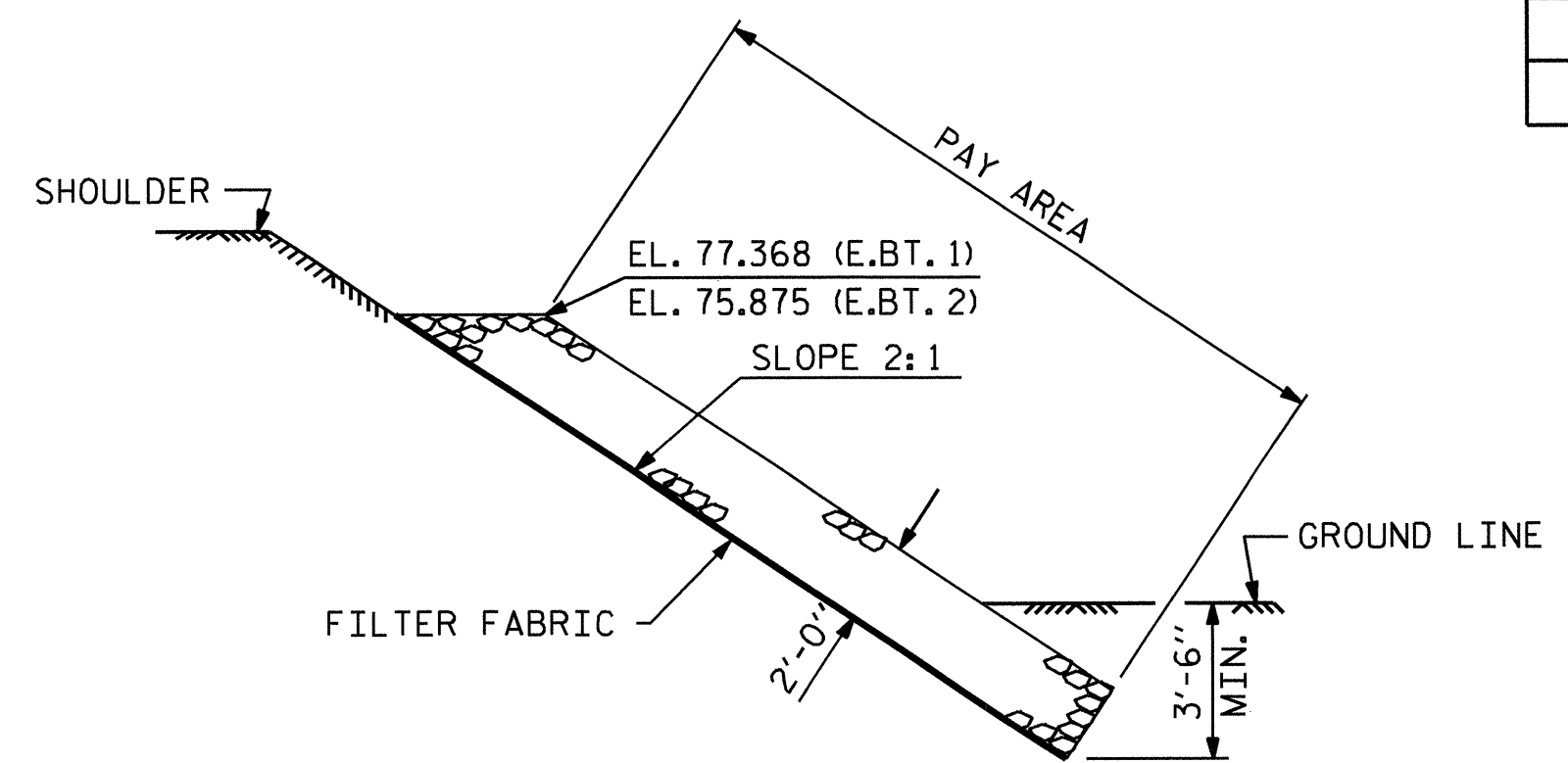


PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 21+11.00 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	307	341
END BENT 2	93	103
TOTAL	400	444

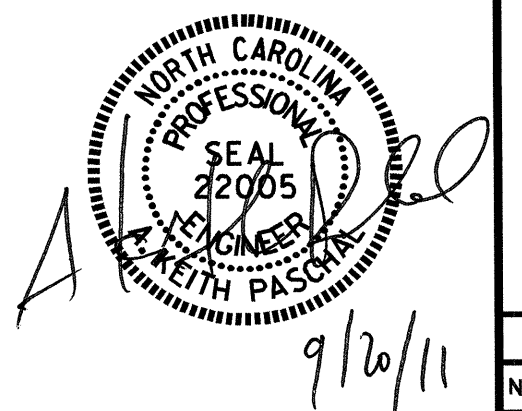


SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-



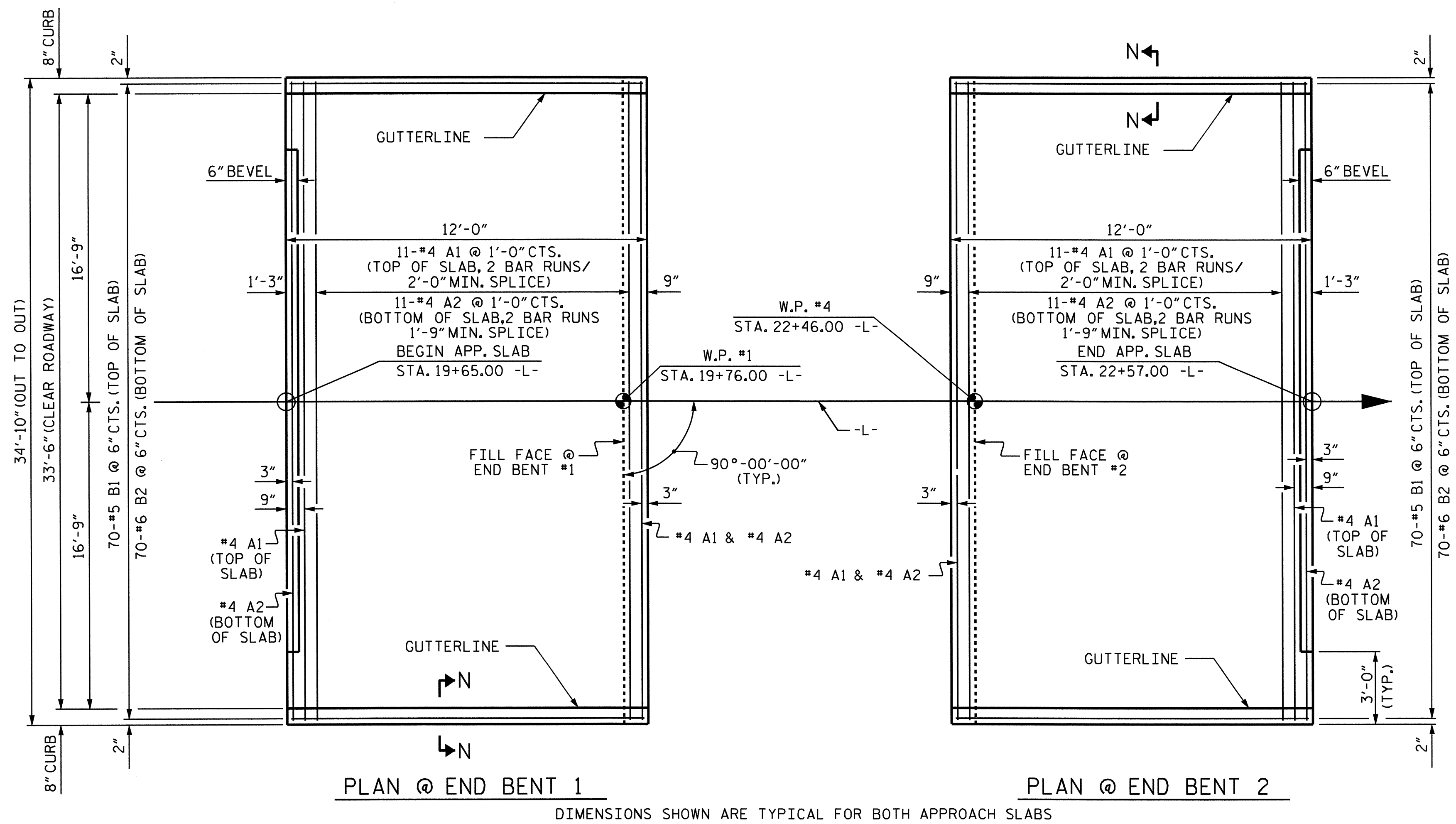
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 RIP RAP DETAILS

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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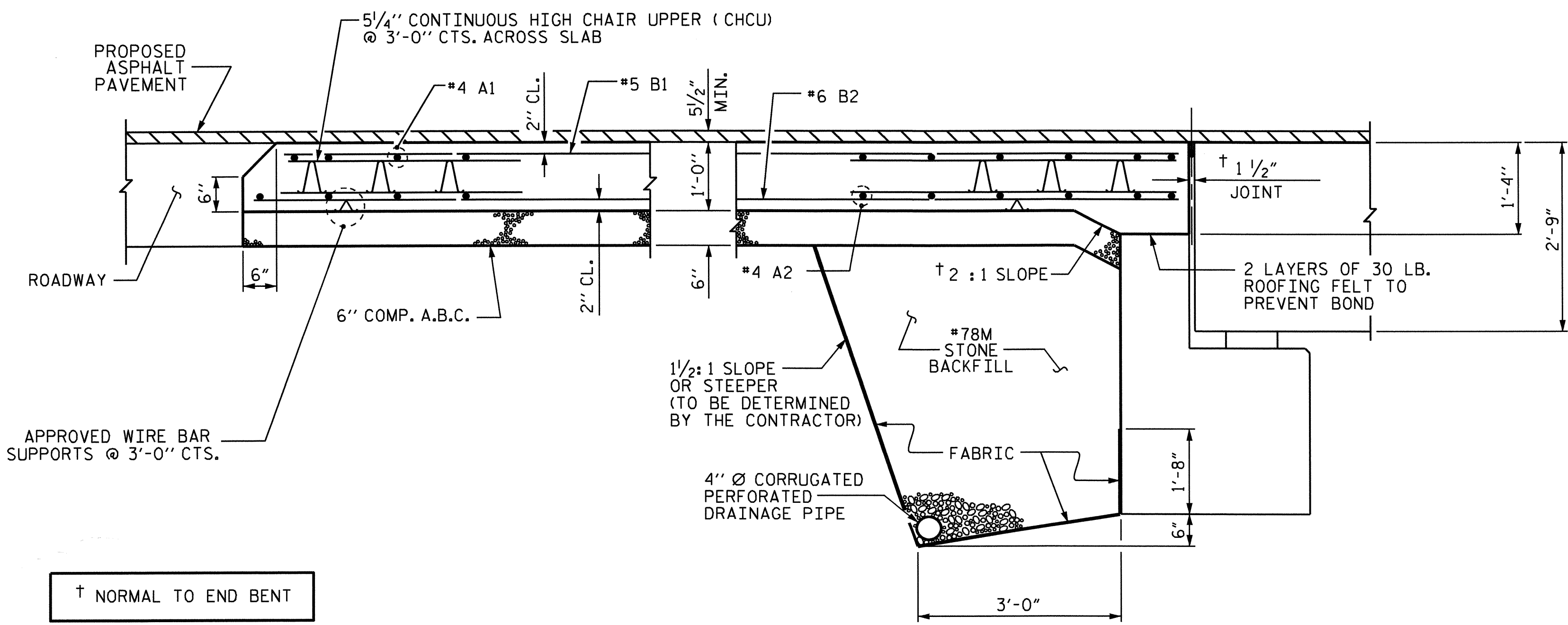
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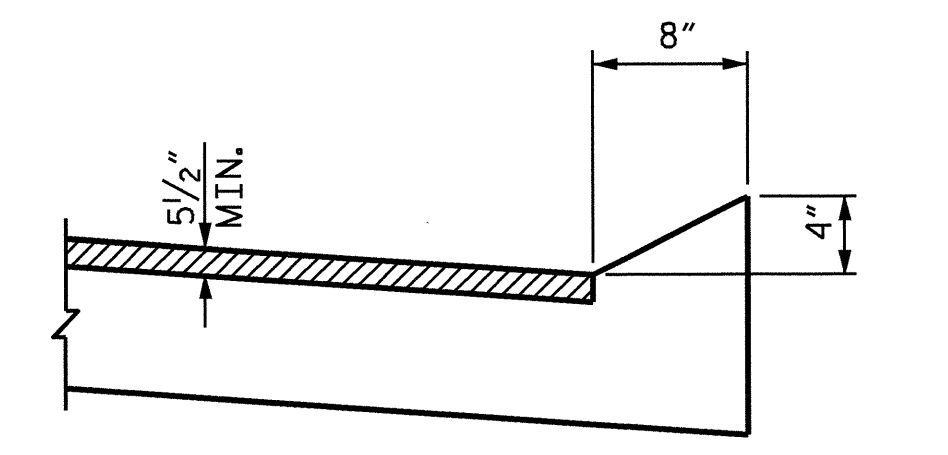


PLAN @ END BENT 1
PLAN @ END BENT 2

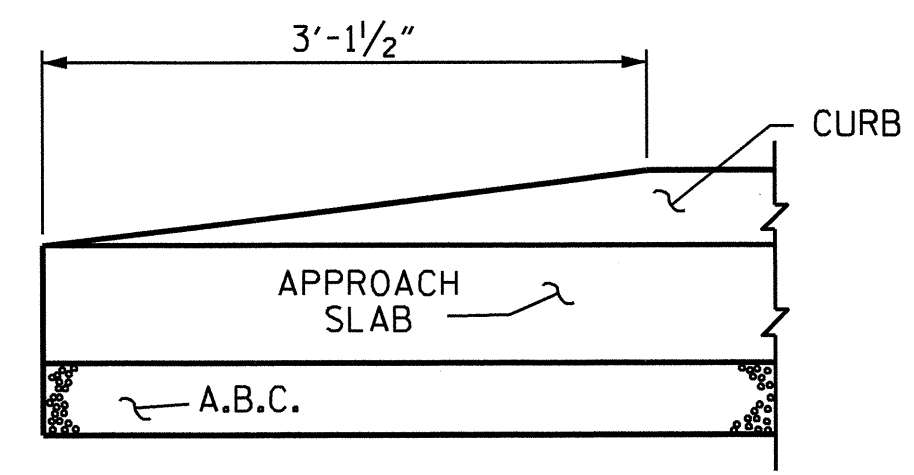
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER
(OMIT TAPER WHEN SHOULDER BERM GUTTER IS REQUIRED)
CURB DETAILS

NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

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 ROADWAY END OF THE APPROACH 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 ROADWAY END OF THE APPROACH 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 ROADWAY END OF THE APPROACH 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.

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE BOX BEAM UNIT" SHEETS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL

FOR ONE APPROACH SLAB
(2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	18'-3"	317
A2	26	#4	STR	18'-2"	316
*B1	70	#5	STR	11'-4"	827
B2	70	#6	STR	11'-8"	1227

REINFORCING STEEL LBS. 1543

*EPOXY COATED REINFORCING STEEL LBS. 1144

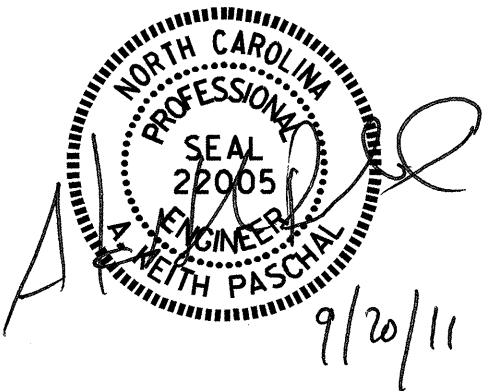
CLASS AA CONCRETE C. Y. 16.0

PROJECT NO. B-4503
EDGEcombe COUNTY
STATION: 21+11.00 -L-

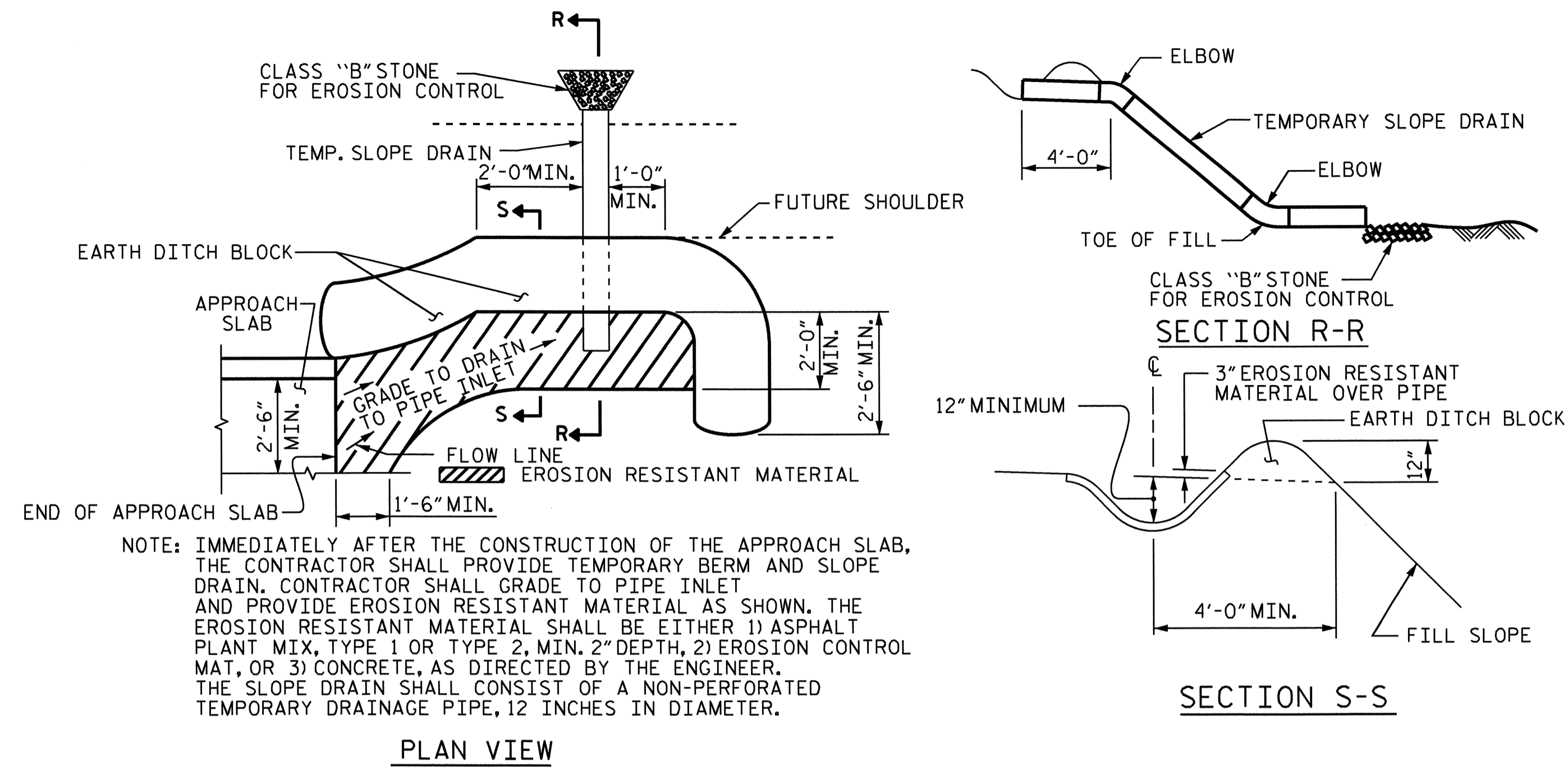
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
BOX BEAM UNIT
(SUB-REGIONAL TIER)

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23	
1			3			TOTAL SHEETS	24
2			4				



ASSEMBLED BY : M. E. FOWLER DATE : 9/3/10
CHECKED BY : J. D. HAWK DATE : 5/1/11
DRAWN BY : KMM 3-08
CHECKED BY : GM 3-08

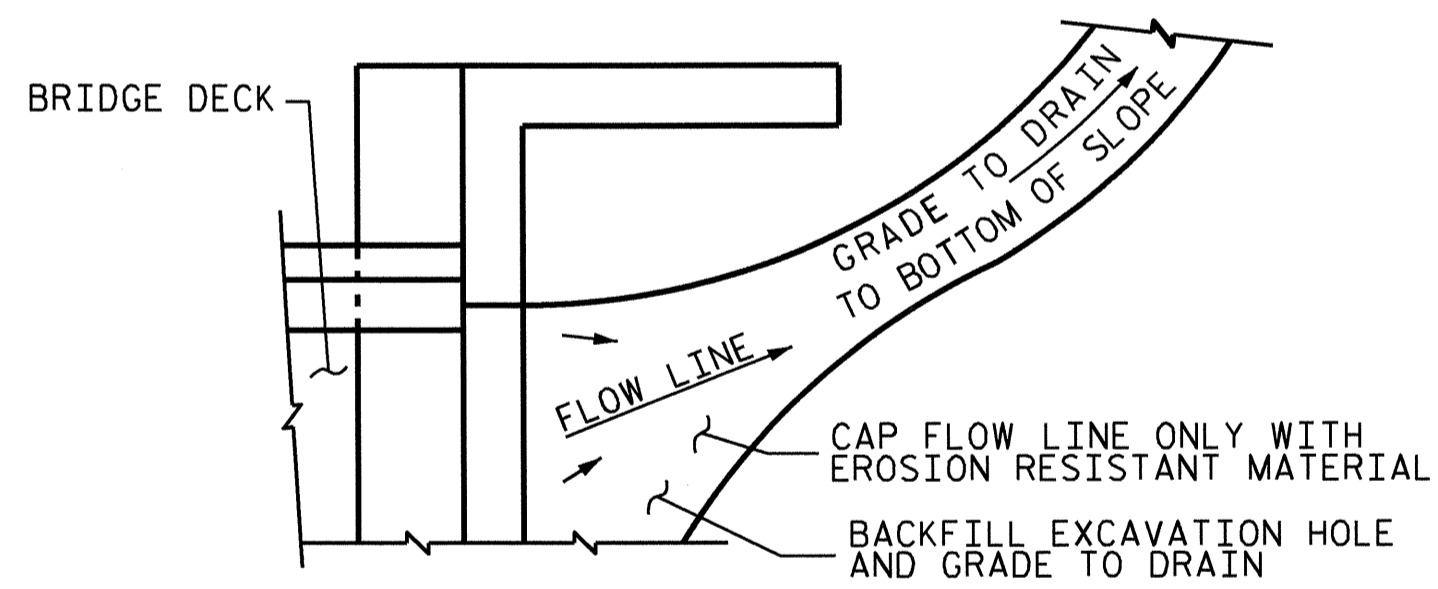


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW

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-4503
EDGEcombe COUNTY
 STATION: 21+11.00 -L-

SHEET 2 OF 2



STATE OF NORTH CAROLINA						SHEET NO. S-24
DEPARTMENT OF TRANSPORTATION RALEIGH						
STANDARD						
BRIDGE APPROACH SLAB DETAILS						
REVISIONS						TOTAL SHEETS 24
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY : M. E. FOWLER	DATE : 9/3/10
CHECKED BY : J. D. HAWK	DATE : 5/1/11
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06R MAA/KMM

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 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. 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.

ENGLISH

JANUARY, 1990

STD. NO. SN