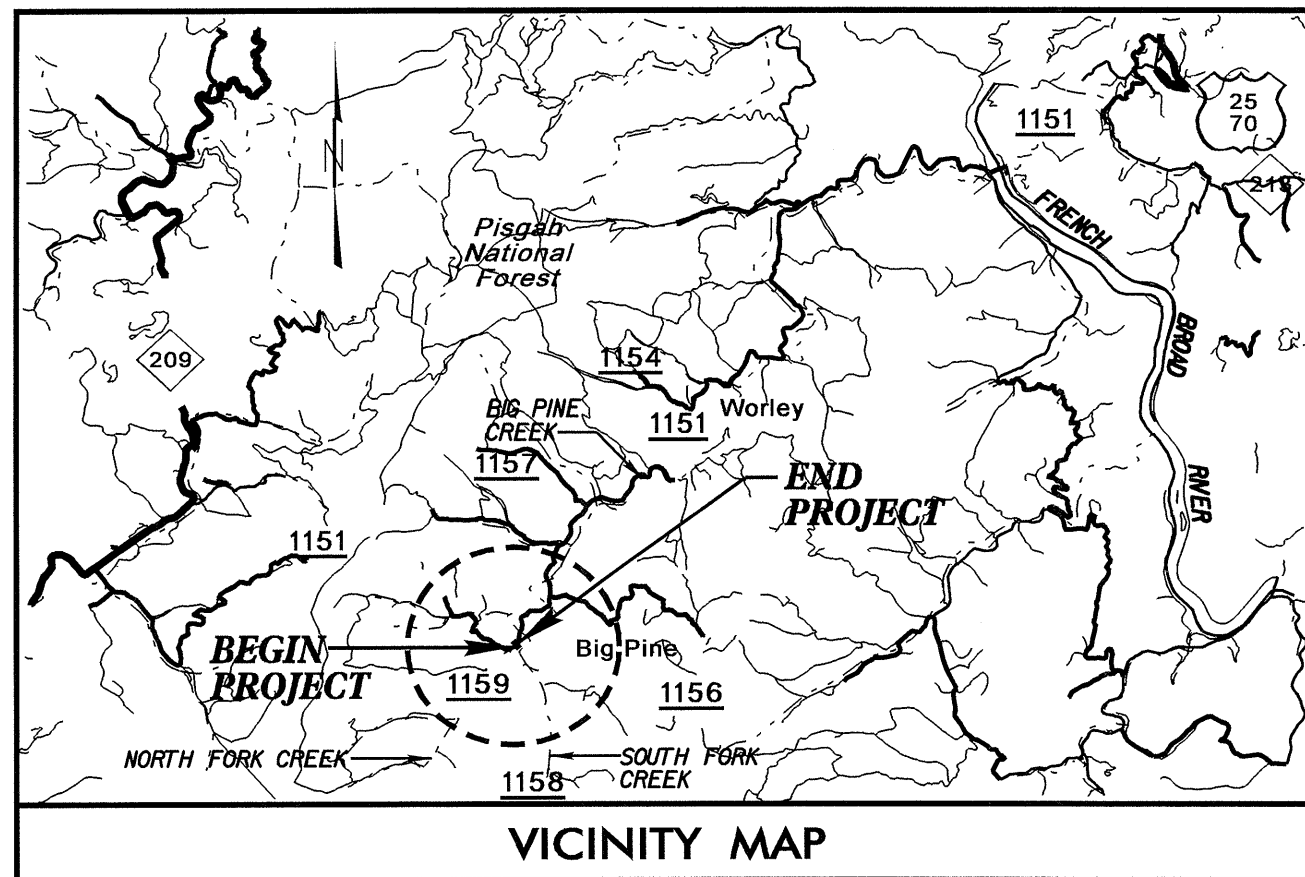


CONTRACT: C202227 TIP PROJECT: B-3869

STRUCTURE

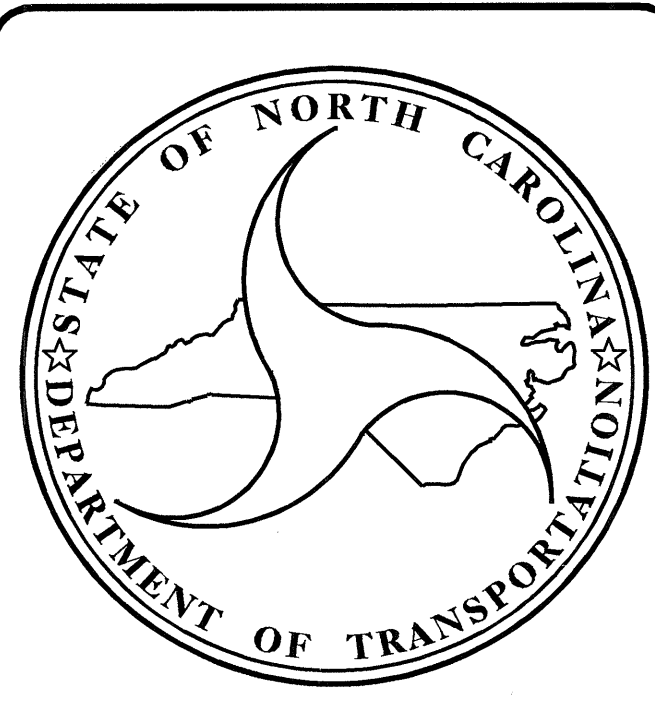
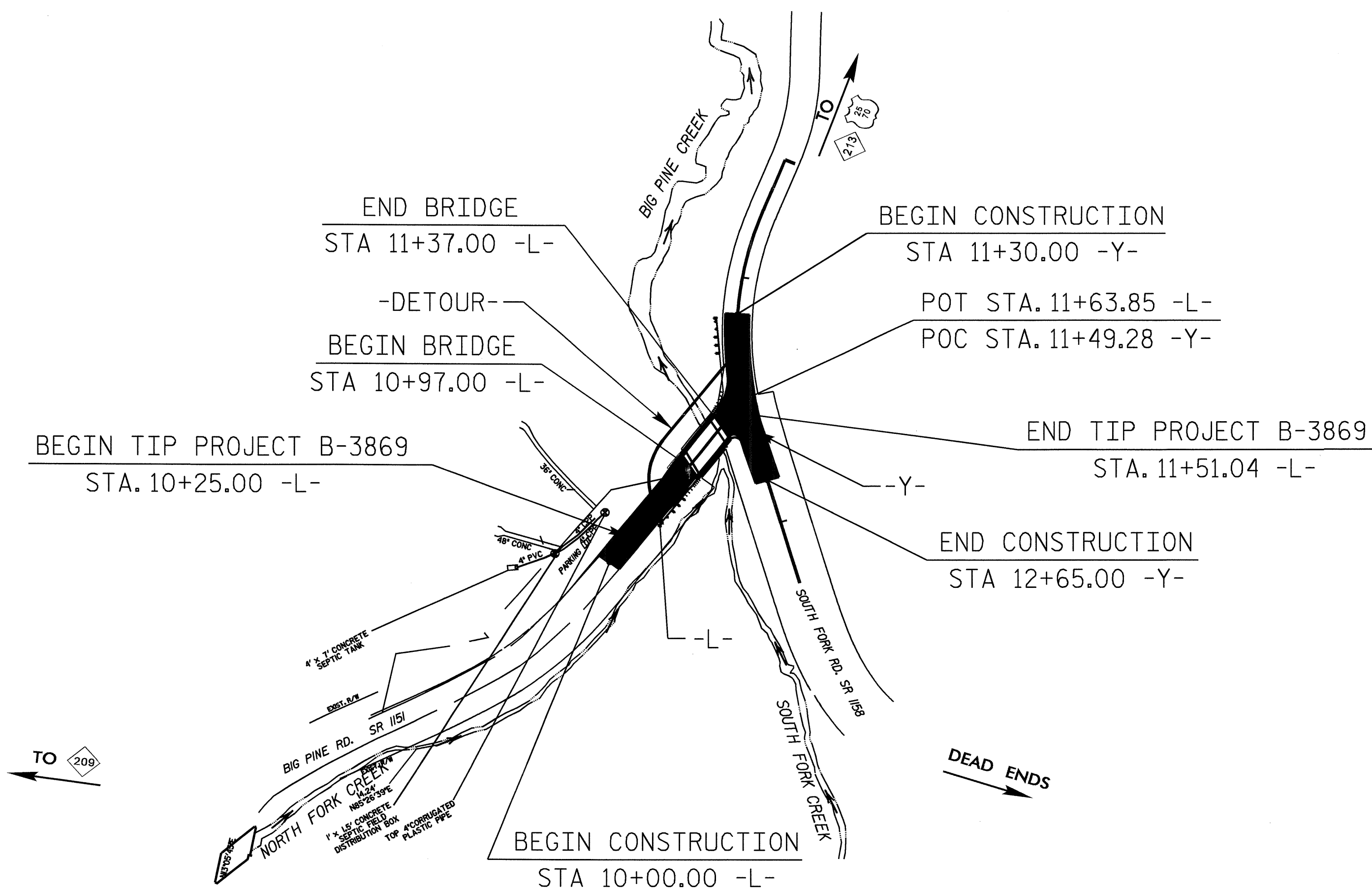


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
MADISON COUNTY

**LOCATION: REPLACE BRIDGE No. 146 OVER
BIG PINE CREEK ON SR 1151**

**TYPE OF WORK: GRADING, PAVING, STRUCTURE, TRAFFIC CONTROL
AND PAVEMENT MARKING PLANS**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3869		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33314.1.1	BRSTP-1151(3)	PREL.	
33314.2.2	BRSTP-1151(3)	R/W & UTIL	
33314.3.1	BRSTP-1151(3)	CONST.	



DESIGN DATA

ADT 2009 =	190
ADT 2029 =	250
DHV =	10 %
D =	60 %
T =	3 % *
V =	30 MPH**
* TTST 1	DUAL 2

CLASSIFICATION:
RURAL MAJOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-3869 =	0.016 MILE
LENGTH STRUCTURE TIP PROJECT B-3869 =	0.008 MILE
TOTAL LENGTH TIP PROJECT B-3869 =	0.024 MILE

Prepared In the Office of:
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

<p>LETTING DATE : JANUARY 19, 2010</p>	<p style="text-align: center;">Q.H. NGUYEN, P.E. <small>PROJECT ENGINEER</small></p> <hr/> <p style="text-align: center;">J.R. DUGGINS, JR., P.E. <small>PROJECT DESIGN ENGINEER</small></p>
---	--

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

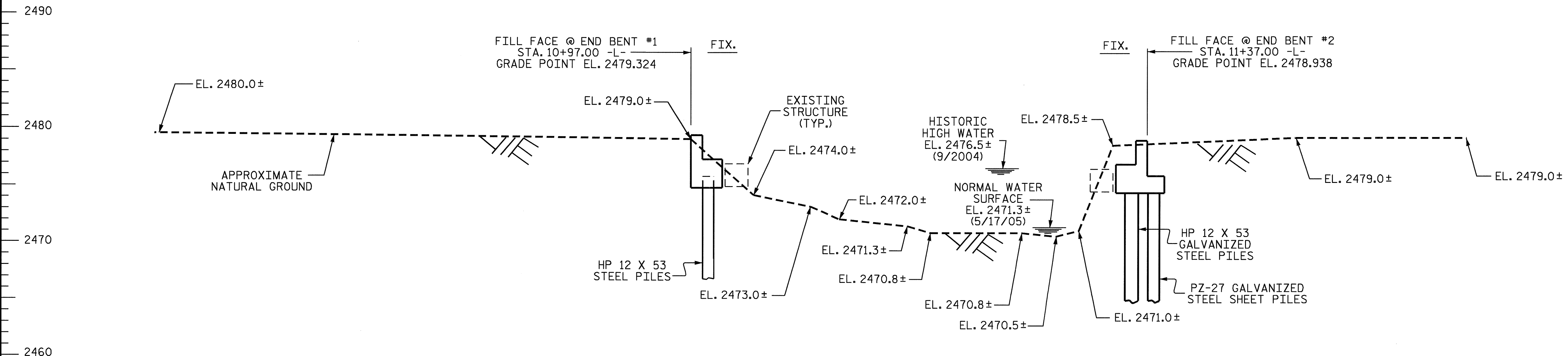
10+50

11+00

11+50

-0.9664%
GRADE DATA
 BEGIN GRADE = 10+25.00
 EL = 2,480.02

SPAN A

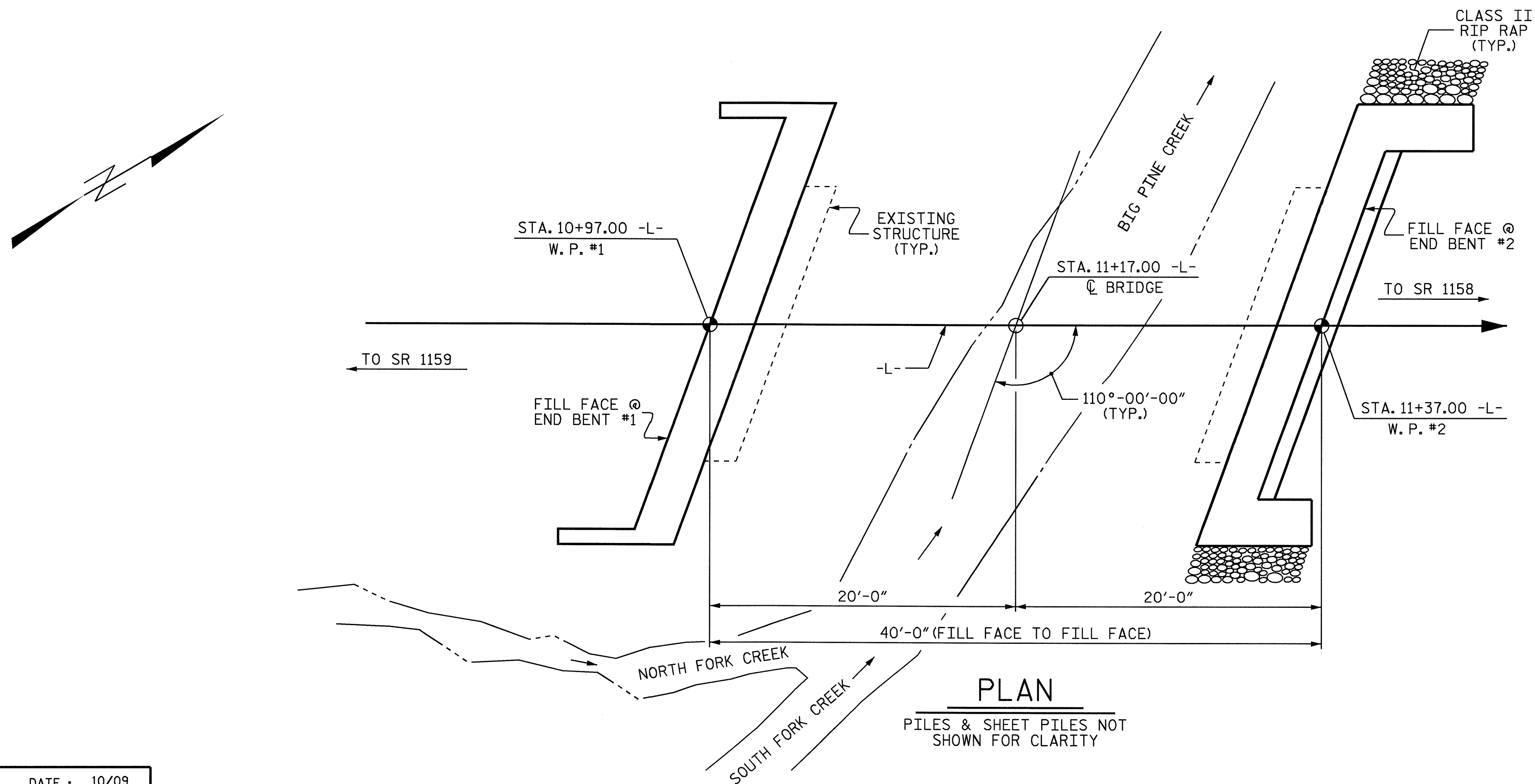


END BENT #1

SECTION ALONG -L-

END BENT #2

(SECTIONS AT END BENTS ARE TAKEN AT RIGHT ANGLES)

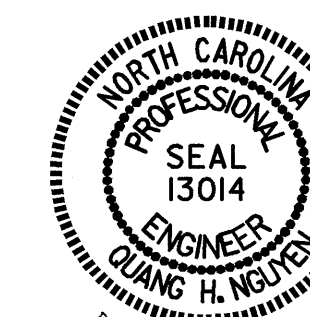


PROJECT NO. B-3869
MADISON COUNTY
 STATION: 11+17.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 146

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1151
 (BIG PINE ROAD)
 OVER BIG PINE CREEK
 BETWEEN SR 1159 AND
 SR 1158



Quang H. Nguyen 11-30-09
 John R. Duggins 11/30/09

REVISIONS

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

SHEET NO.	S-1
TOTAL SHEETS	16

DRAWN BY : A. SORSENGINH DATE : 10/09
 CHECKED BY : J.R. DUGGINS DATE : 10/09

NOTES

FOR PILES, SEE PILES SPECIAL PROVISIONS.

PILES AT END BENT NO. 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 60 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE.

PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT NO. 1. EXCAVATE HOLES TO ELEVATION 2461.0 FT. (LT.), 2467.0 (RT.). FOR PILE EXCAVATION, SEE PILES SPECIAL PROVISION.

CONCRETE IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION AT END BENT NO. 1.

PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 125 TONS PER PILE.

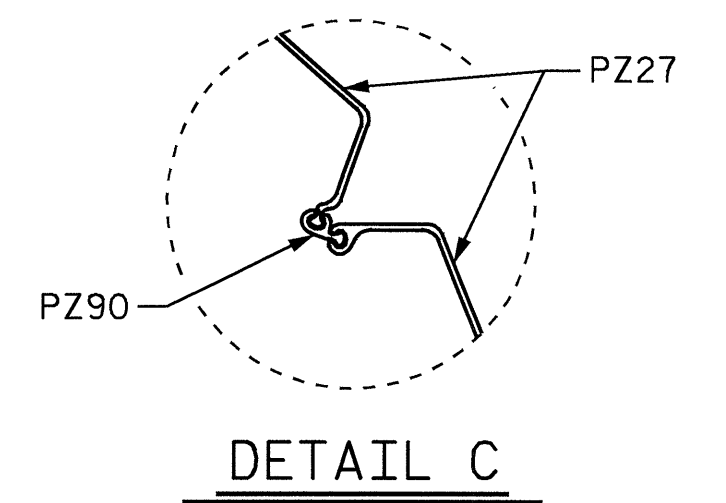
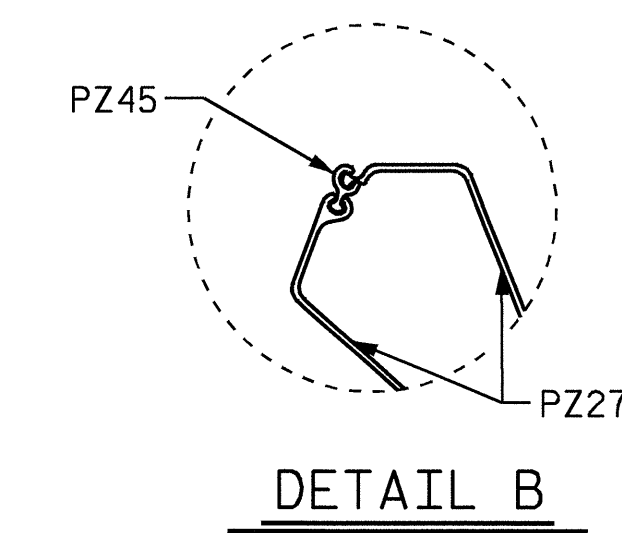
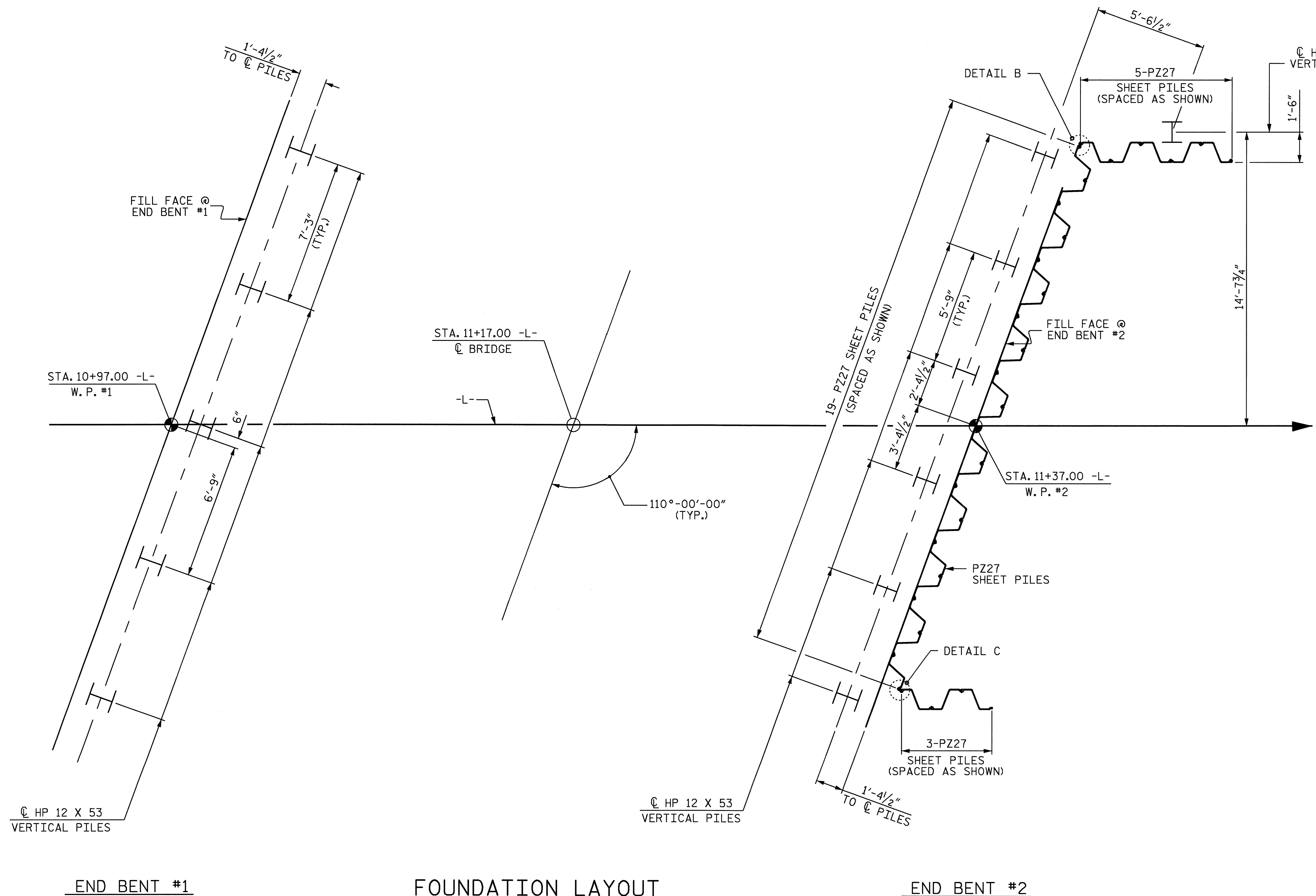
PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT NO. 2. EXCAVATE HOLES TO ELEVATION 2465.0 FT. (LT.), 2460.0 (RT.). FOR PILE EXCAVATION, SEE PILES SPECIAL PROVISION.

CONCRETE IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION AT END BENT NO. 2.

THE DESIGN SCOUR ELEVATION FOR END BENT NO. 2 IS 2471.5 FT.

SHEET PILES ARE TO BE INSTALLED TO REFUSAL ELEVATION AT END BENT NO. 2.

FOR 18" STEEL SHEET PILES, SEE SPECIAL PROVISIONS.

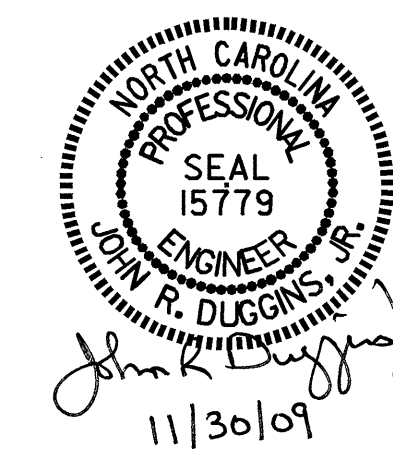


PROJECT NO. B-3869
MADISON COUNTY
 STATION: 11+17.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1151
 (BIG PINE ROAD)
 OVER BIG PINE CREEK
 BETWEEN SR 1159 AND
 SR 1158

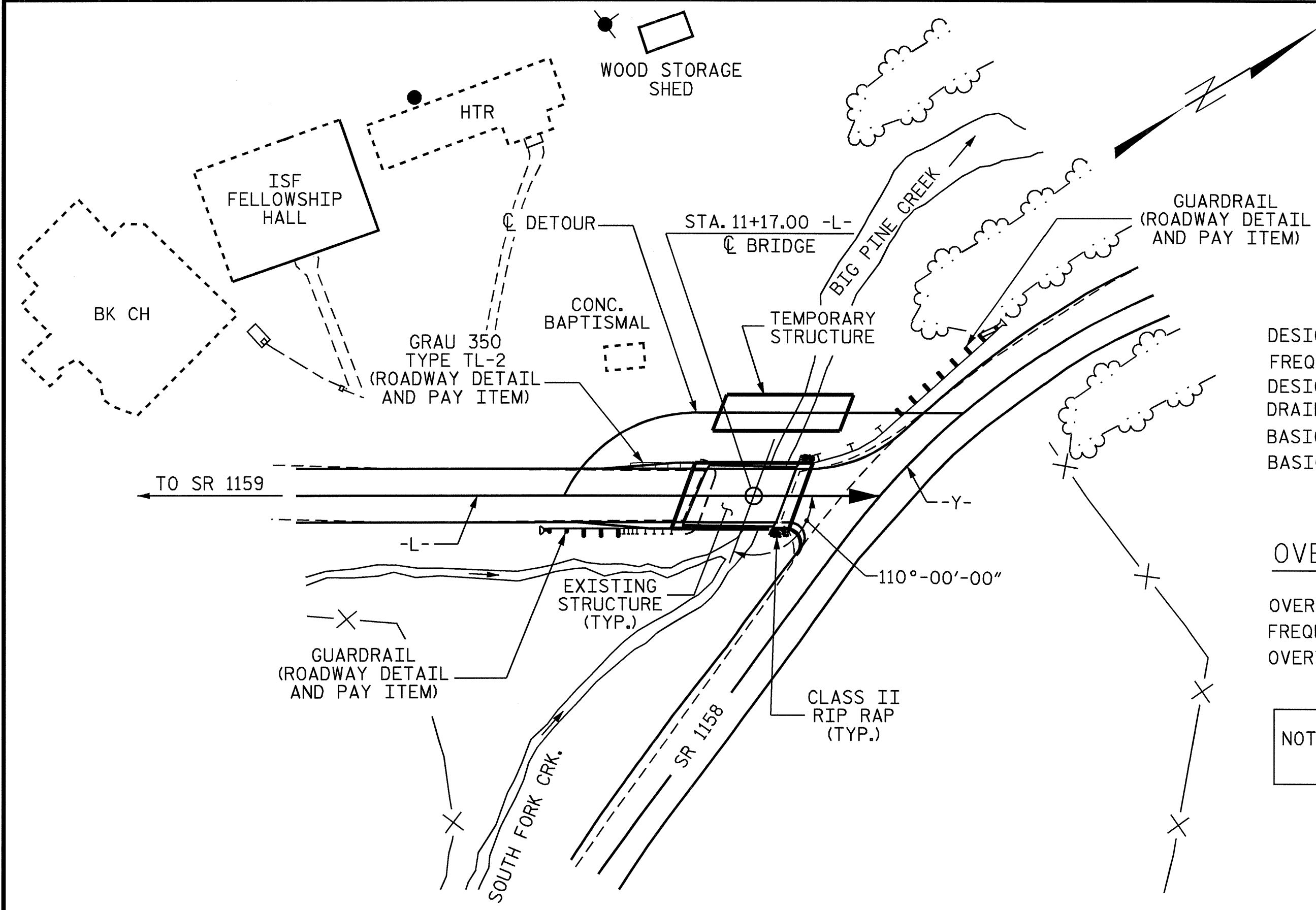


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			16

DRAWN BY : A. SORSENGINH DATE : 10/09
 CHECKED BY : D. HODGE DATE : 10/09

BENCH MARK 2: 8" NAIL IN 38" WHITE OAK TREE AT STA. 13+18.00 -L-, 97' LEFT, EL. 2474.58, NAVD 1988

NOTES



HYDRAULIC DATA

DESIGN DISCHARGE = 1,180 CFS.
 FREQUENCY OF DESIGN FLOOD = 10 YRS.
 DESIGN HIGH WATER ELEVATION = 2477.900
 DRAINAGE AREA = 5.08 SQ. MI.
 BASIC DISCHARGE (Q100) = 2,450 CFS.
 BASIC HIGH WATER ELEVATION = 2481.500

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 1,775 CFS.
 FREQUENCY OF OVERTOPPING FLOOD = 25+ YRS.
 OVERTOPPING FLOOD ELEVATION = 2478.800

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

LOCATION SKETCH

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 30'-8" WITH AN ASPHALT WEARING SURFACE OVER A TIMBER DECK ON A STEEL I-BEAM SUPERSTRUCTURE AND A CLEAR ROADWAY WIDTH OF 19'-2" ON A SUBSTRUCTURE CONSISTING OF TIMBER CAPS ON TIMBER POST AND SILLS END BENTS AND LOCATED AT THE PROPOSED STRUCTURE LOCATION SHALL BE REMOVED, SEE SPECIAL PROVISIONS FOR REMOVAL OF EXISTING STRUCTURE.

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.

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

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

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR SEISMIC DESIGN FOR SEISMIC PERFORMANCE ZONE 1.

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 11+17.00 -L-".

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE, SEE SPECIAL PROVISION.

FOR CURING CONCRETE, SEE SPECIAL PROVISION.

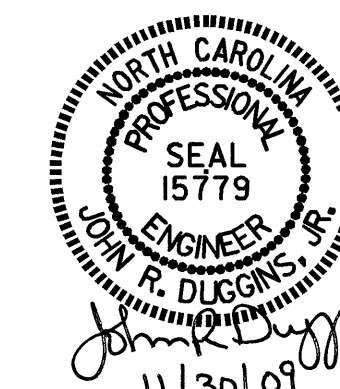
FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISION.

TOTAL BILL OF MATERIAL

	CONSTRUCTION MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	CLASS A CONCRETE	REINFORCING STEEL	HP 12 X 53 STEEL PILES		HP 12 X 53 GALVANIZED STEEL PILES		VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		18" GALVANIZED STEEL SHEET PILES
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	CU. YDS.	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS	LUMP SUM	NO.	LIN. FT.	SQ. FT.
SUPERSTRUCTURE	LUMP SUM	LUMP SUM									75.21			LUMP SUM	8	300.83	
END BENT NO. 1			50	25	14.4	1991	5	75									
END BENT NO. 2			70	35	16.2	2227			7	105		35	39				345
TOTAL	LUMP SUM	LUMP SUM	120	60	30.6	4218	5	75	7	105	75.21	35	39	LUMP SUM	8	300.83	345

PROJECT NO. B-3869
MADISON COUNTY
 STATION: 11+17.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1151
 (BIG PINE ROAD)
 OVER BIG PINE CREEK
 BETWEEN SR 1159 AND
 SR 1158

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

DRAWN BY : A. SORSENGINH DATE : 10/09
 CHECKED BY : JR. DUGGINS DATE : 10/09

LOAD FACTORS:

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

	YEAR	ADTT
CURRENT	2009	4
FUTURE	2009	5

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.

LOAD AND RESISTANCE FACTOR RATING (LRFR) 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							
						LIVE-LOAD FACTORS (%LL)	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)	LIVE-LOAD FACTORS (%LL)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.15	--	1.75	0.278	1.42	A	ER	18.271	0.555	1.50	A	ER	1.827	0.80	0.278	1.15	A	ER	18.271	
	HL-93 (OPERATING)	N/A		1.50	--	1.35	0.278	1.84	A	ER	18.271	0.555	1.50	A	ER	1.827	N/A	--	--	--	--	--	
	HS-20 (INVENTORY)	36.000	2	1.18	42.48	1.80	0.278	1.77	A	ER	14.617	0.555	1.68	A	ER	1.827	1.00	0.278	1.18	A	ER	18.271	
	HS-20 (OPERATING)	36.000		1.68	60.62	1.35	0.278	2.36	A	ER	14.617	0.555	1.68	A	ER	1.827	N/A	--	--	--	--	--	--
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.65	35.78	1.40	0.278	3.17	A	ER	18.271	0.555	3.55	A	ER	1.827	0.80	0.278	2.65	A	ER	18.271
		SNGARBS2	20.000		2.23	44.50	1.40	0.278	2.64	A	ER	14.617	0.555	2.66	A	ER	1.827	0.80	0.278	2.23	A	ER	18.271
		SNAGRIS2	22.000		2.20	48.40	1.40	0.278	2.60	A	ER	14.617	0.555	2.52	A	ER	1.827	0.80	0.278	2.20	A	ER	18.271
		SNCOTTS3	27.250		1.33	36.11	1.40	0.278	1.59	A	ER	18.271	0.555	1.78	A	ER	1.827	0.80	0.278	1.33	A	ER	18.271
		SNAGRS4	34.925		1.20	41.91	1.40	0.278	1.45	A	ER	18.271	0.555	1.58	A	ER	1.827	0.80	0.278	1.20	A	ER	18.271
		SNS5A	35.550		1.18	41.77	1.40	0.278	1.41	A	ER	18.271	0.555	1.65	A	ER	1.827	0.80	0.278	1.18	A	ER	18.271
		SNS6A	39.950		1.13	44.44	1.40	0.278	1.35	A	ER	18.271	0.555	1.55	A	ER	1.827	0.80	0.278	1.13	A	ER	18.271
		SNS7B	42.000	3	1.08	45.15	1.40	0.278	1.28	A	ER	18.271	0.555	1.59	A	ER	1.827	0.80	0.278	1.08	A	ER	18.271
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.39	45.79	1.40	0.278	1.66	A	ER	18.271	0.555	1.81	A	ER	1.827	0.80	0.278	1.39	A	ER	18.271
		TNT4A	33.075		1.40	46.31	1.40	0.278	1.68	A	ER	18.271	0.555	1.72	A	ER	1.827	0.80	0.278	1.40	A	ER	18.271
		TNT6A	41.600		1.20	49.92	1.40	0.278	1.44	A	ER	18.271	0.555	1.69	A	ER	1.827	0.80	0.278	1.20	A	ER	18.271
		TNT7A	42.000		1.24	51.98	1.40	0.278	1.48	A	ER	18.271	0.555	1.56	A	ER	1.827	0.80	0.278	1.24	A	ER	18.271
		TNT7B	42.000		1.24	51.98	1.40	0.278	1.49	A	ER	18.271	0.555	1.51	A	ER	1.827	0.80	0.278	1.24	A	ER	18.271
		TNAGRIT4	43.000		1.23	52.68	1.40	0.278	1.46	A	ER	18.271	0.555	1.44	A	ER	1.827	0.80	0.278	1.23	A	ER	18.271
		TNAGT5A	45.000		1.14	51.19	1.40	0.278	1.36	A	ER	18.271	0.555	1.51	A	ER	1.827	0.80	0.278	1.14	A	ER	18.271
TNAGT5B	45.000		1.10	49.50	1.40	0.278	1.32	A	ER	18.271	0.555	1.37	A	ER	1.827	0.80	0.278	1.10	A	ER	18.271		

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

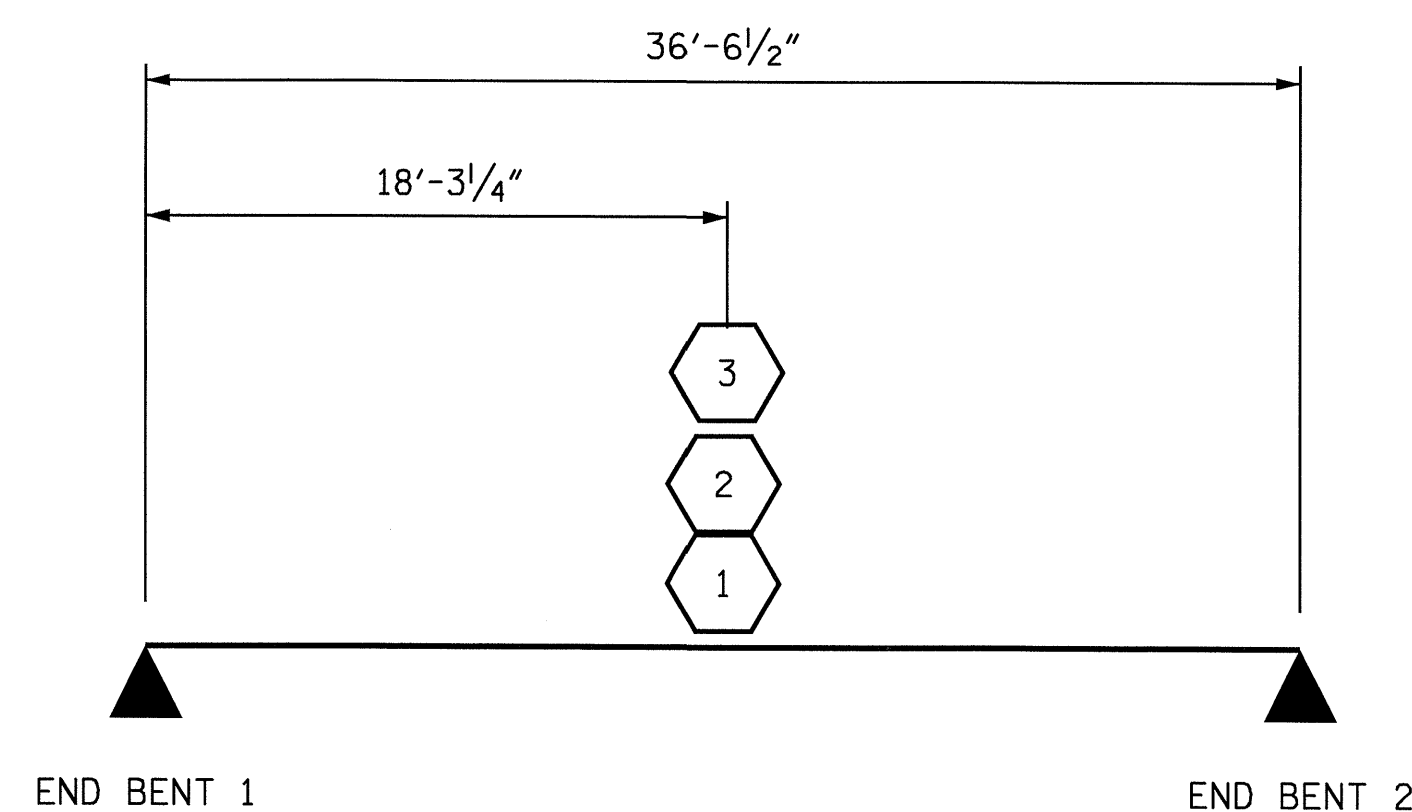
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



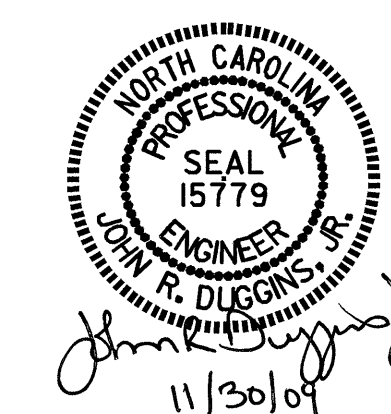
LRFR SUMMARY

PROJECT NO. B-3869
MADISON COUNTY
 STATION: 11+17.00 -L-

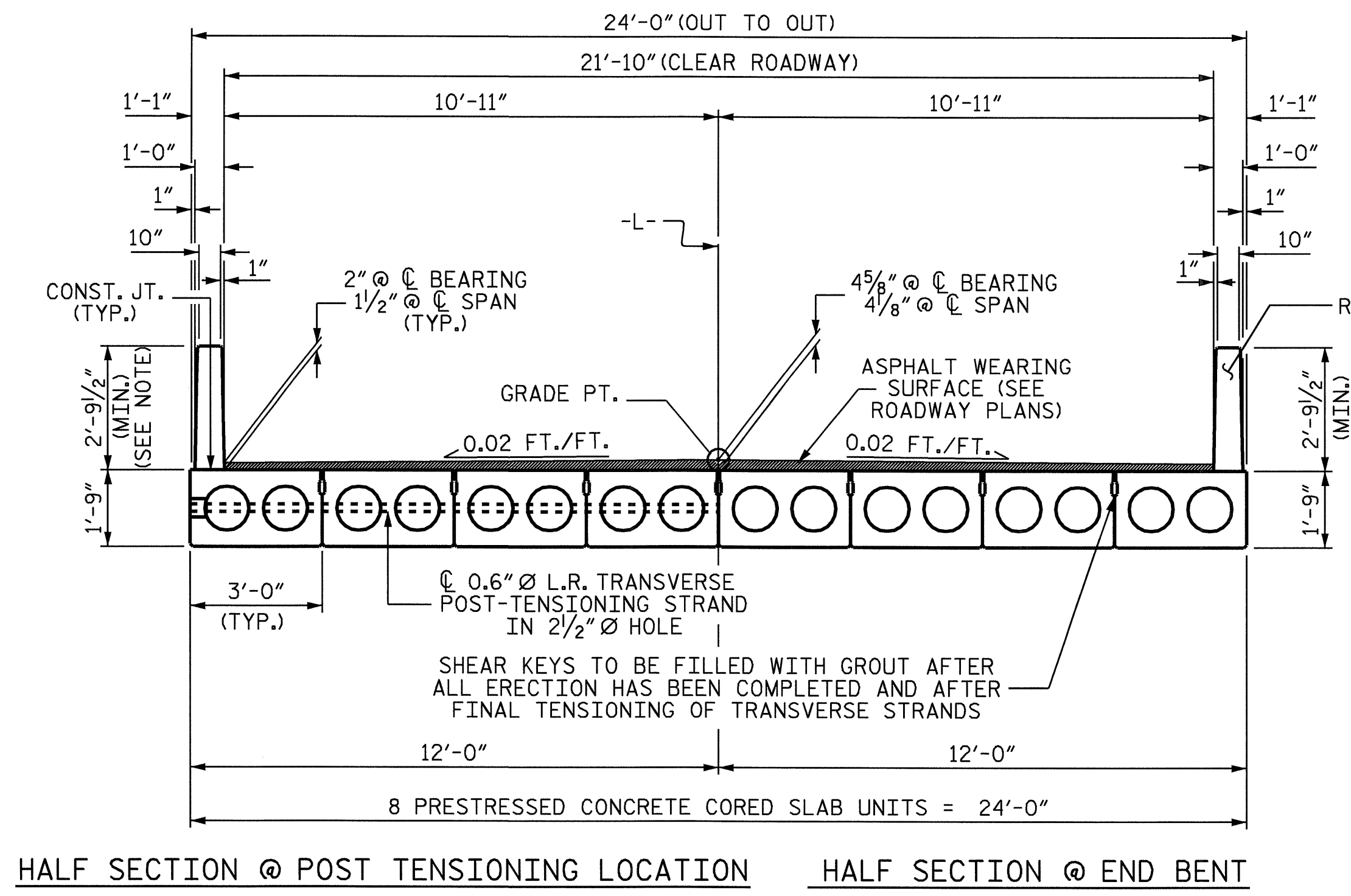
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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			16



ASSEMBLED BY : A. SORSENGINH DATE : 10/09
 CHECKED BY : J.R. DUGGINS DATE : 10/09
 DRAWN BY : MAA 1/08 REV. 11/12/08RR MAA/GM
 CHECKED BY : GM/DI 2/08

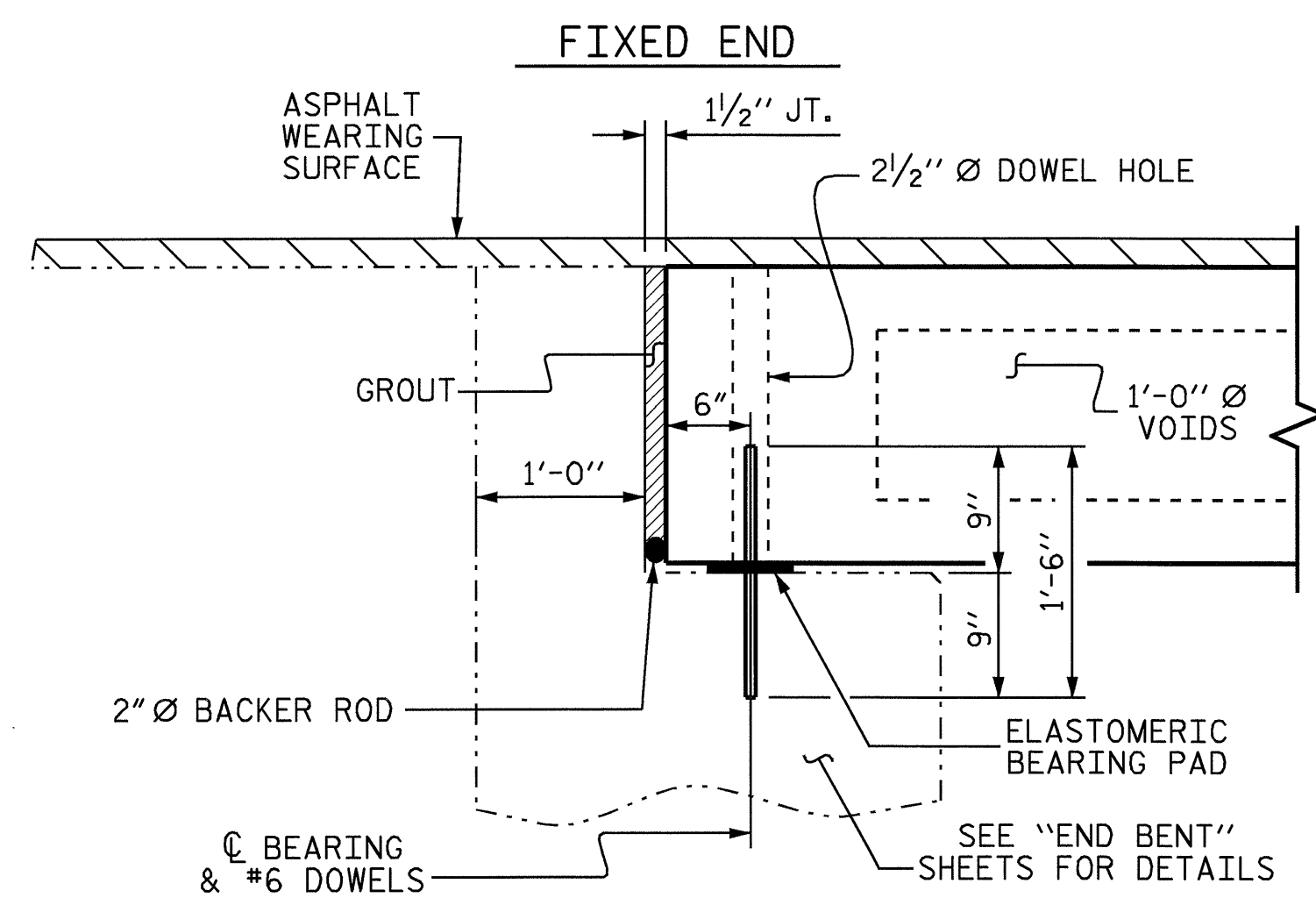


VERTICAL CONCRETE BARRIER RAIL, FOR REINFORCING STEEL & DETAILS SEE SHEET 4 OF 4 (TYP.)

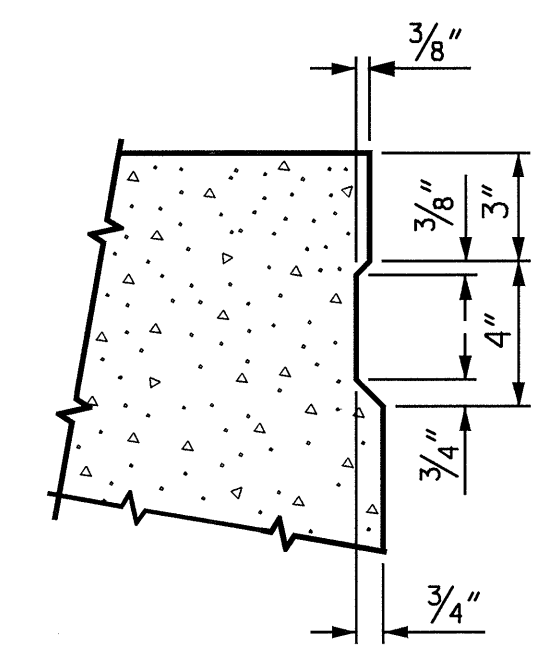
NOTE: THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.

HALF SECTION @ POST TENSIONING LOCATION HALF SECTION @ END BENT

TYPICAL SECTION

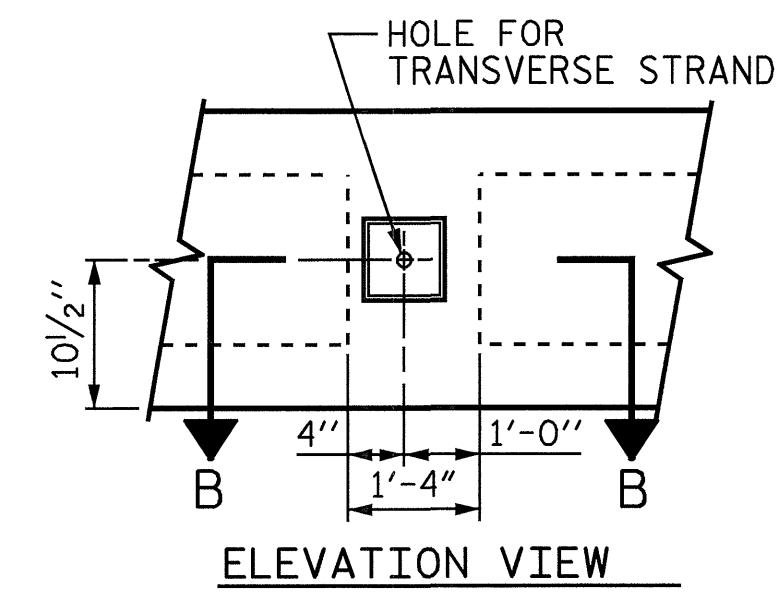


SECTION AT END BENT

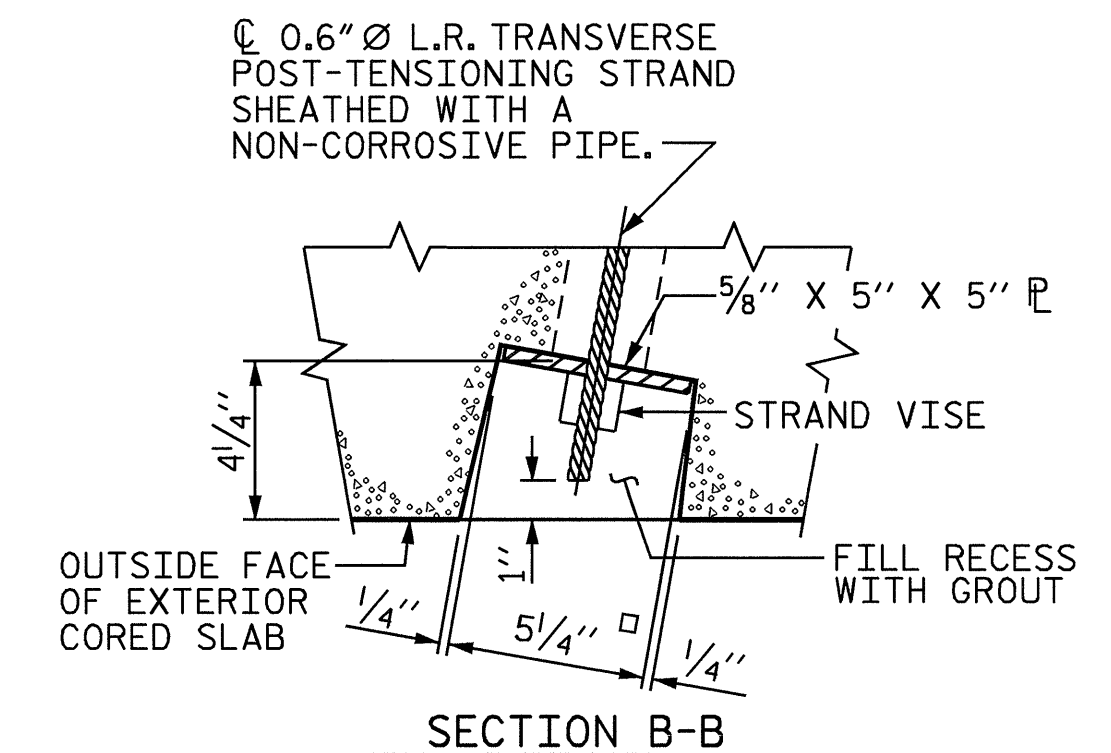


SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

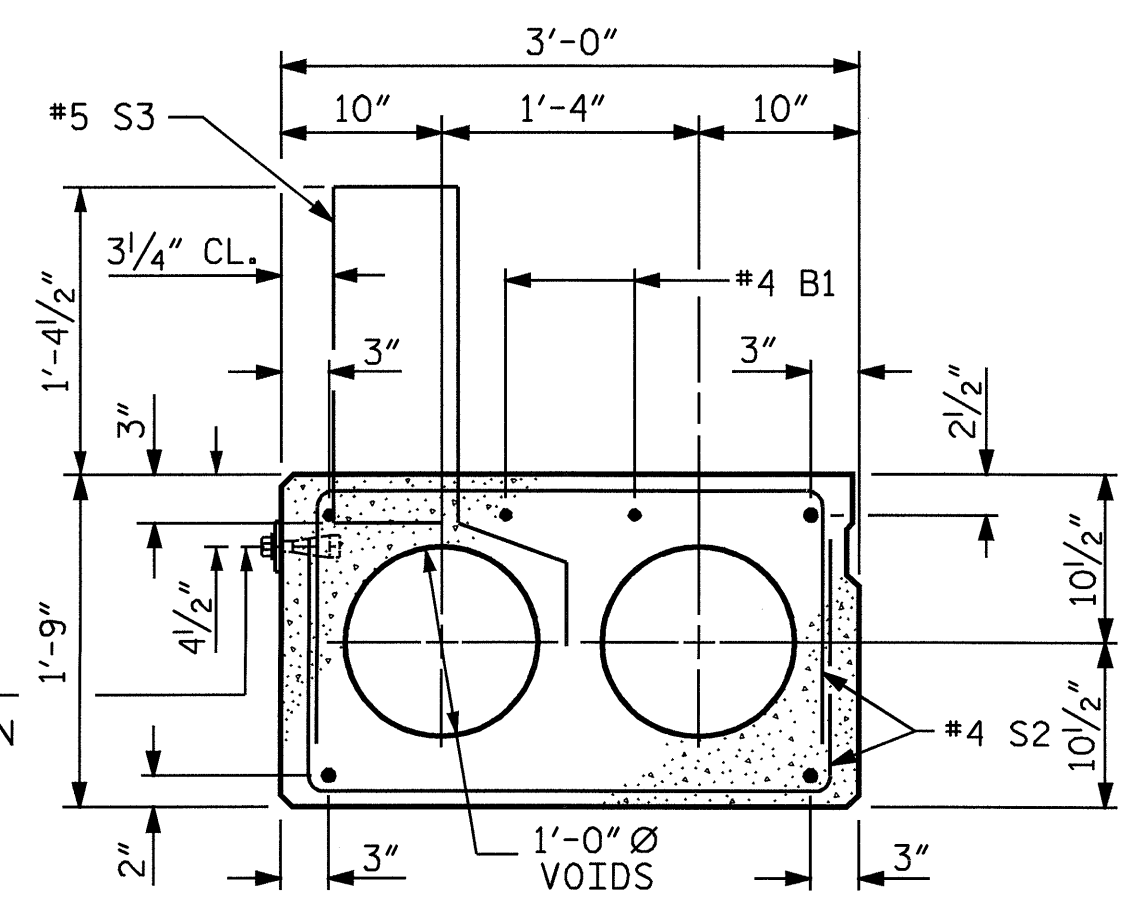


ELEVATION VIEW



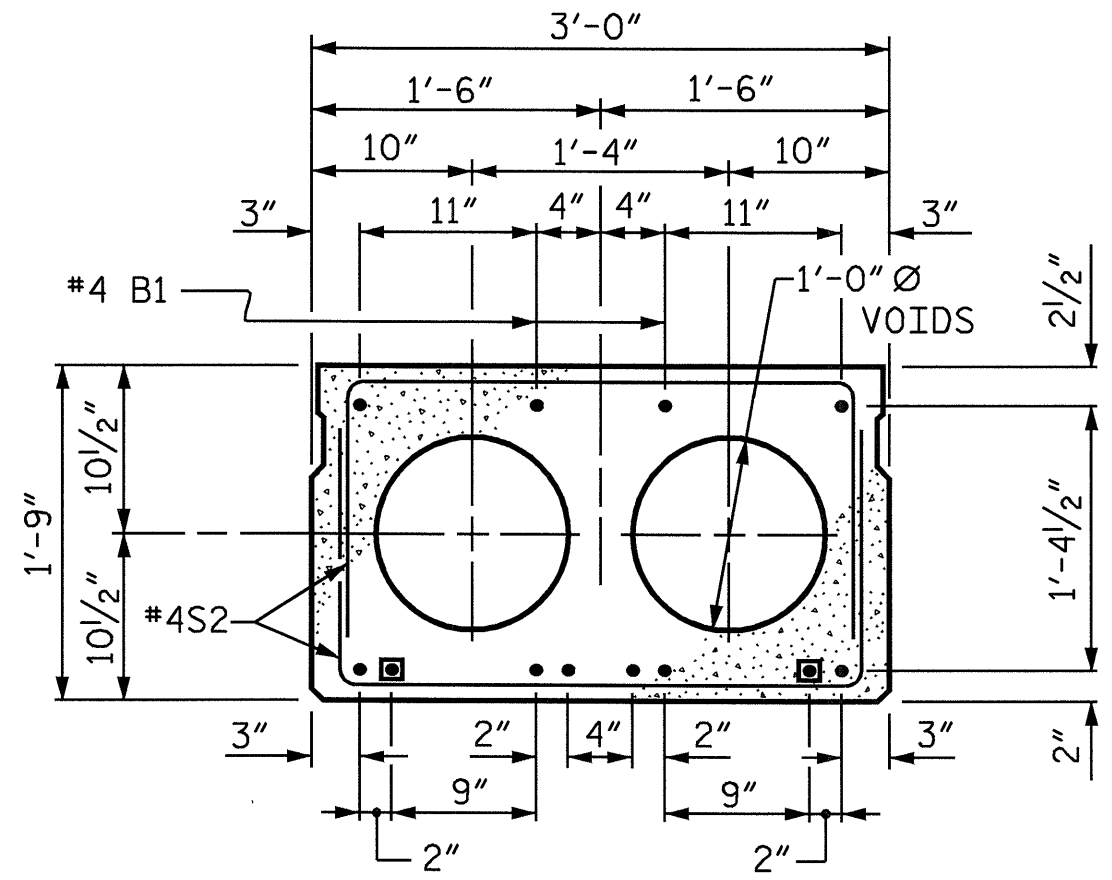
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



EXTERIOR SLAB SECTION

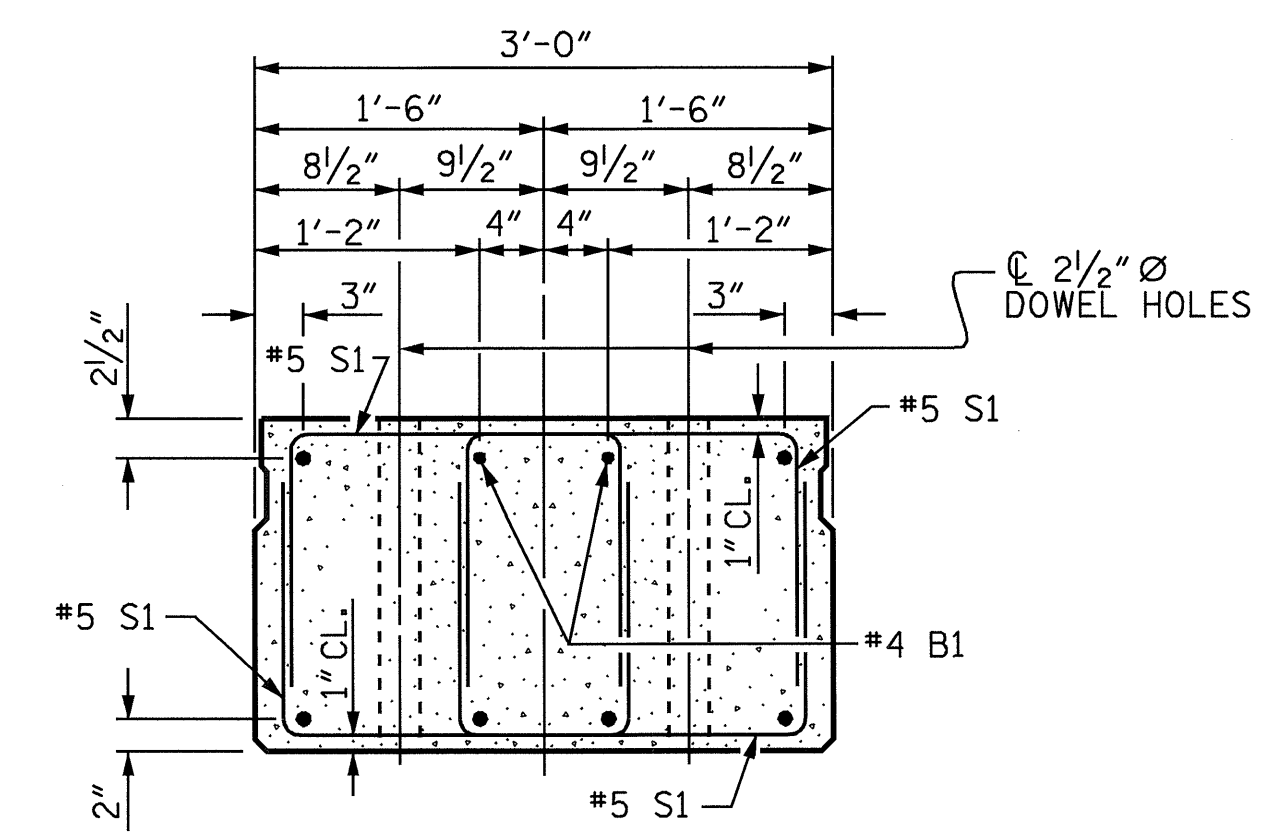
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION

0.6" Ø LOW RELAXATION STRAND LAYOUT

□ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.

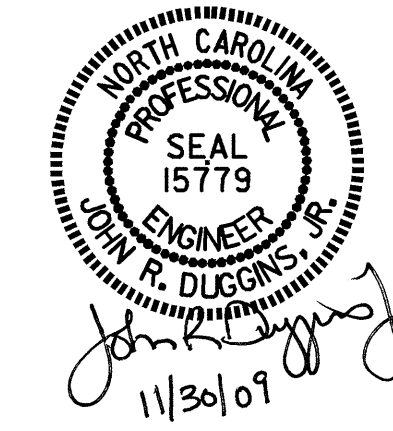
3/4" Ø BOLTS WITH WASHERS IN APPROVED CONCRETE INSERTS CAST IN CORED SLAB UNIT AT 10'-0" SPACING. (SEE NOTES, SHEET 4 OF 4)

PROJECT NO. B-3869
MADISON COUNTY
 STATION: 11+17.00 -L-

SHEET 1 OF 4

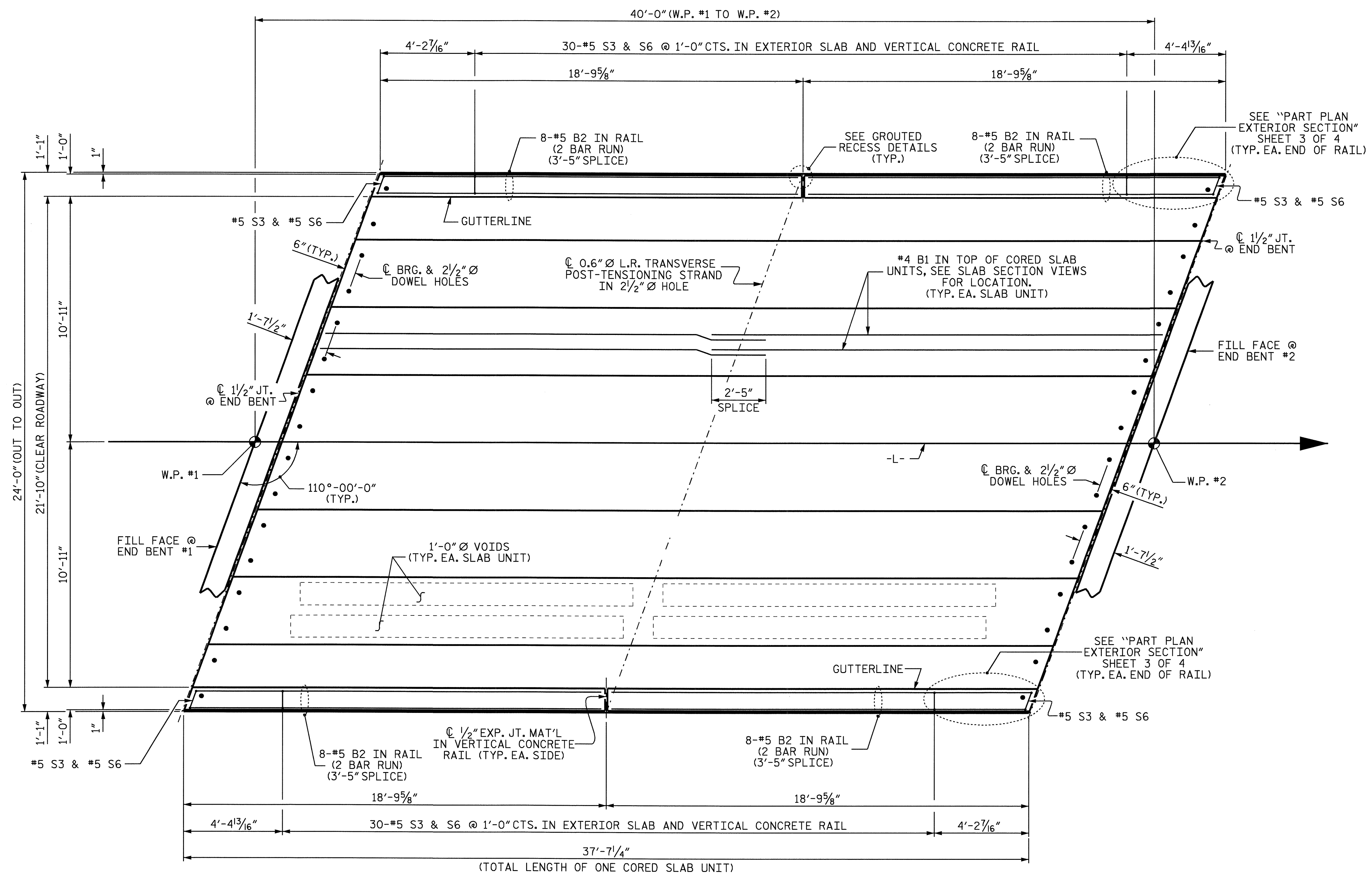
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			16

DRAWN BY : A. SORSENGINH DATE : 12/11/08
 CHECKED BY : M. POOLE DATE : 12/08



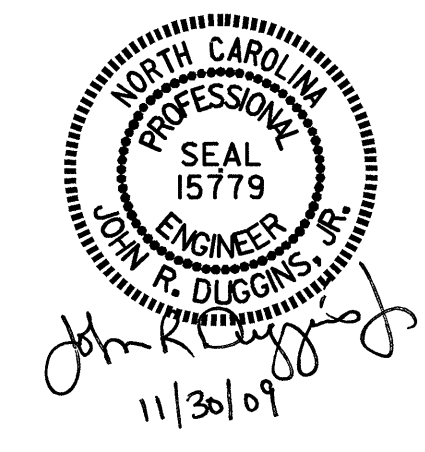
PLAN OF SPAN A

PROJECT NO. B-3869
MADISON COUNTY
 STATION: 11+17.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

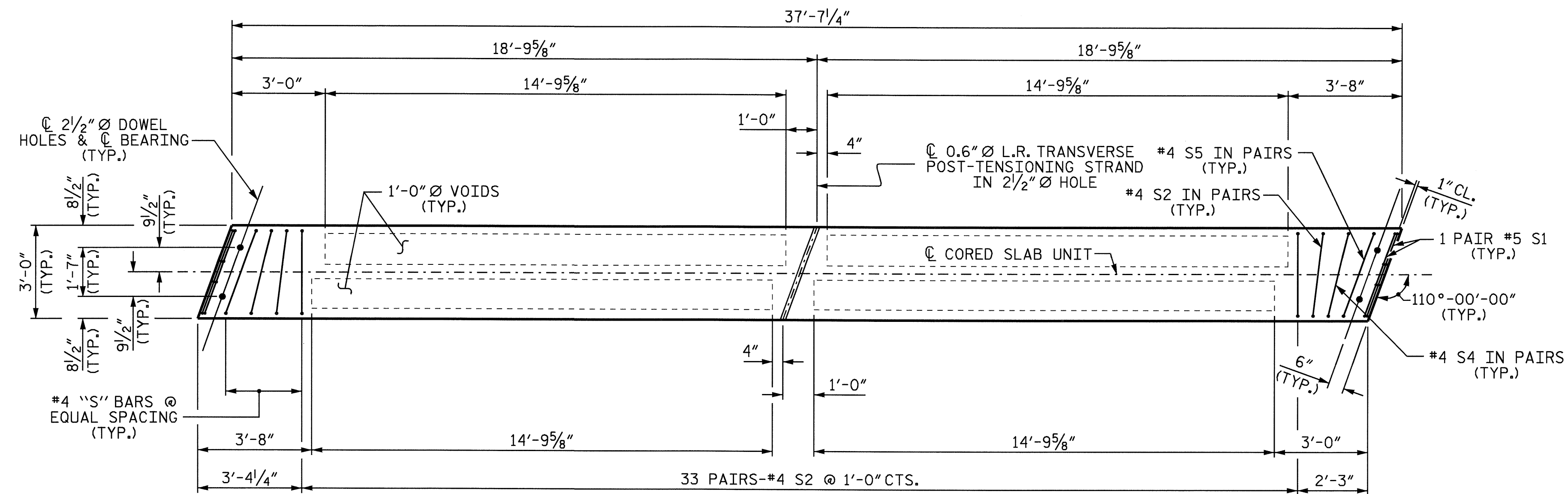
**SUPERSTRUCTURE
 PLAN OF SPAN A**

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

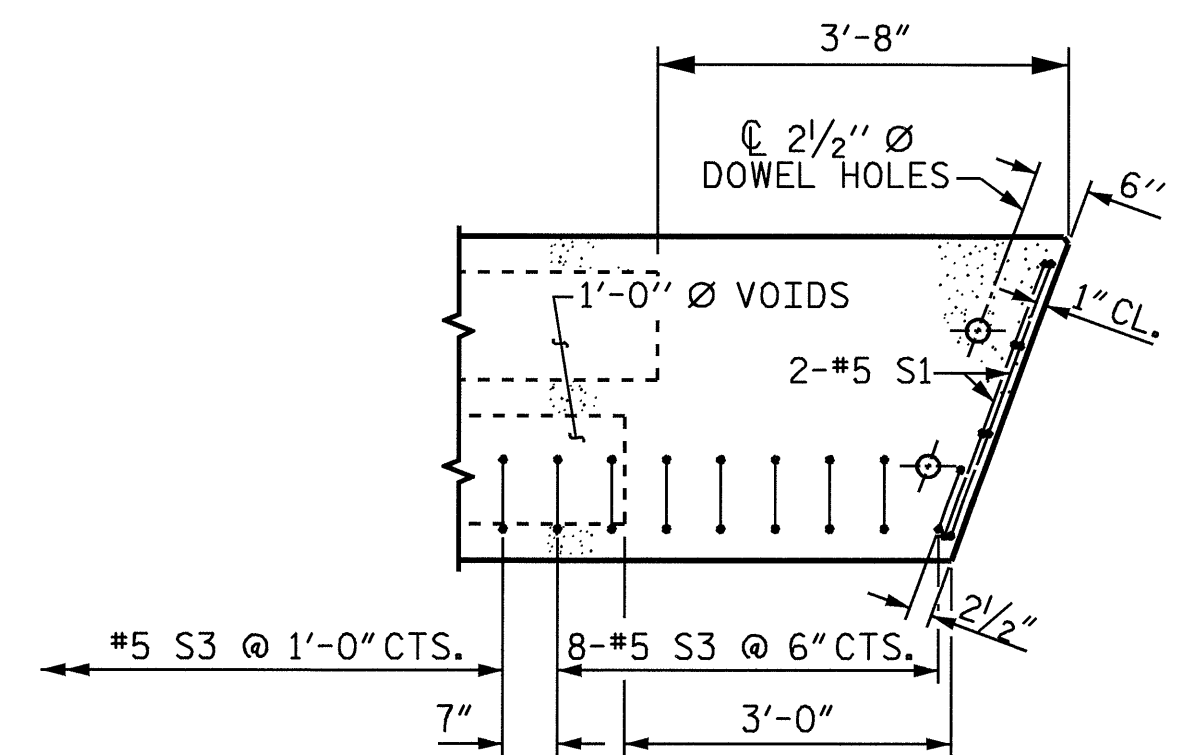


DRAWN BY : A. SORSENGINH DATE : 12/1/08
 CHECKED BY : M. POOLE DATE : 12/08

30-NOV-2009 14:39
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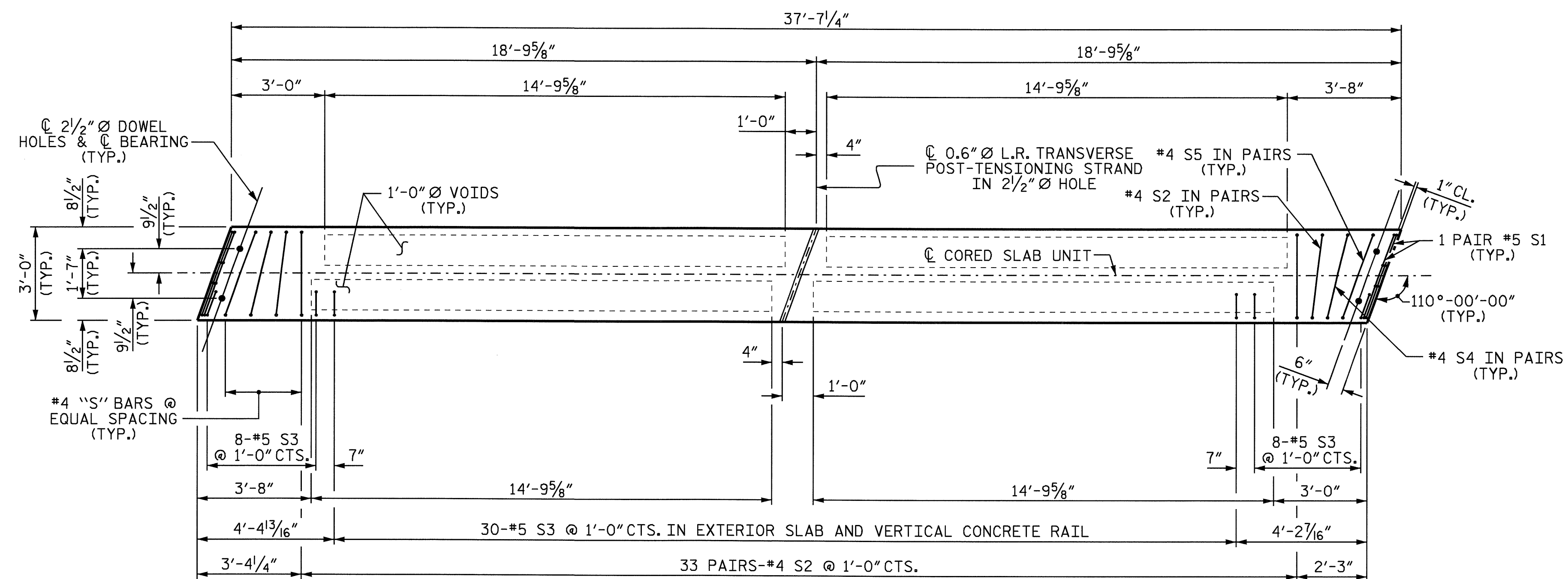


PLAN OF INTERIOR SLAB - SPAN A

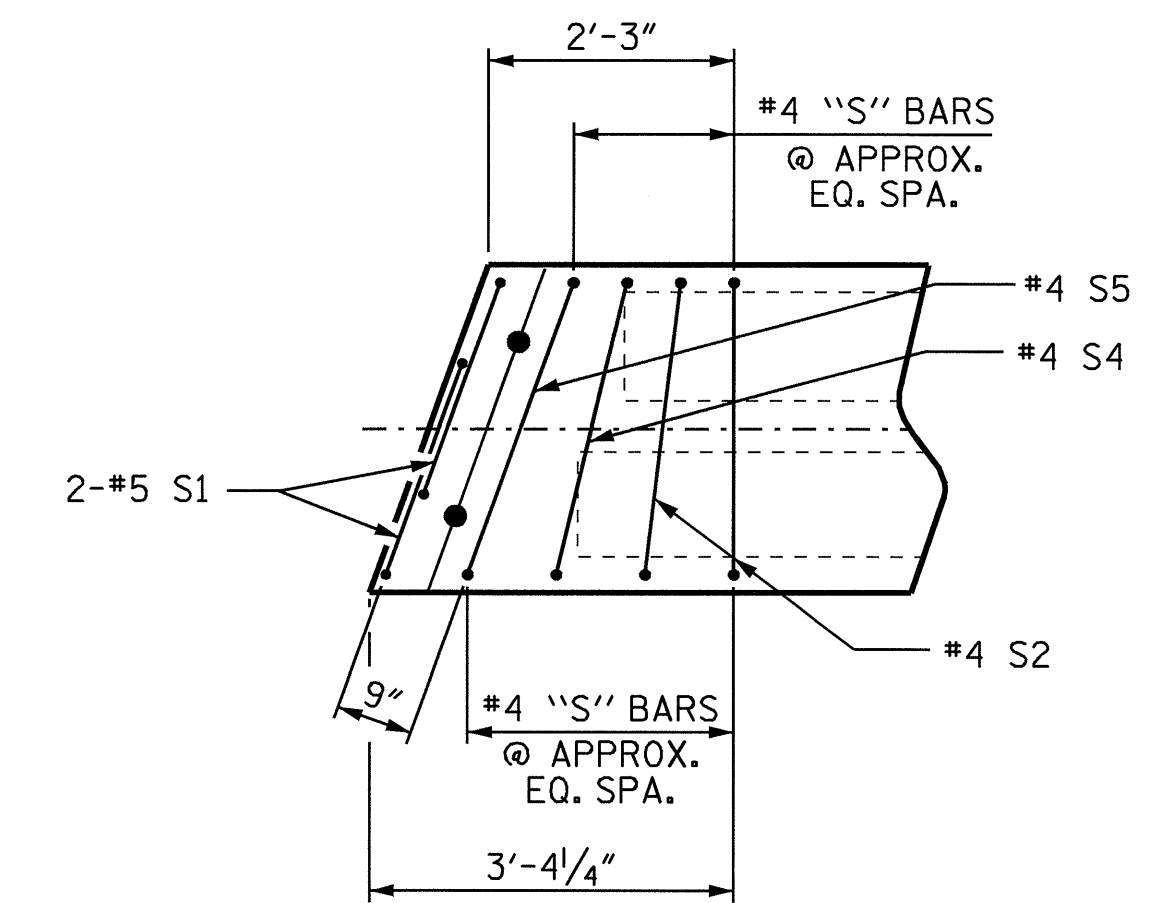


PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS



PLAN OF EXTERIOR SLAB - SPAN A



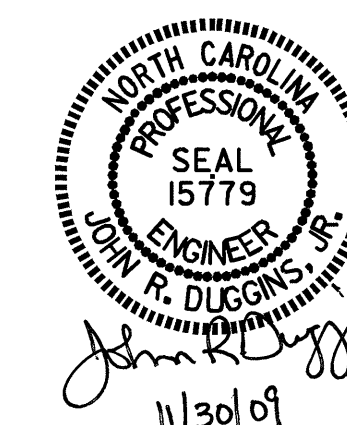
PARTIAL PLAN END OF CORED SLAB UNIT

PROJECT NO. B-3869
MADISON COUNTY
 STATION: 11+17.00 -L-
 SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			16

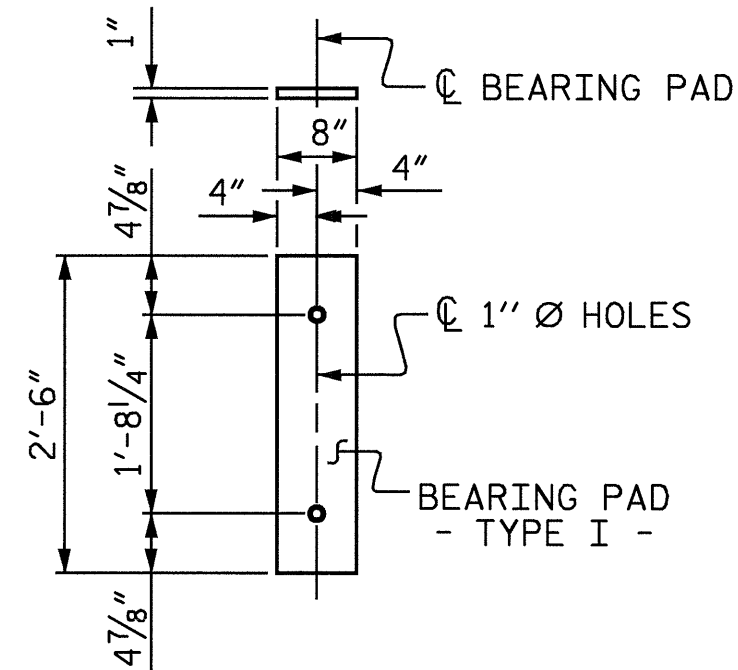


DRAWN BY : A. SORSENGINH DATE : 12/1/08
 CHECKED BY : M. POOLE DATE : 12/08

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

DEAD LOAD DEFLECTION AND CAMBER	
SPAN A	
	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	5/8"
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	1/8"
FINAL CAMBER	1/2"

** INCLUDED FUTURE WEARING SURFACE

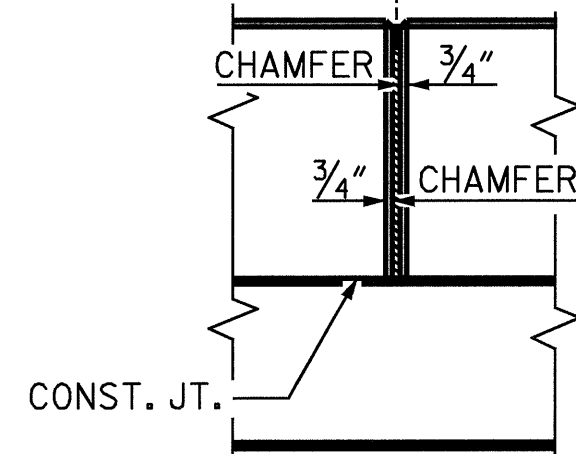


FIXED END
(TYPE I - 16 REQ'D)

ELASTOMERIC BEARING DETAILS

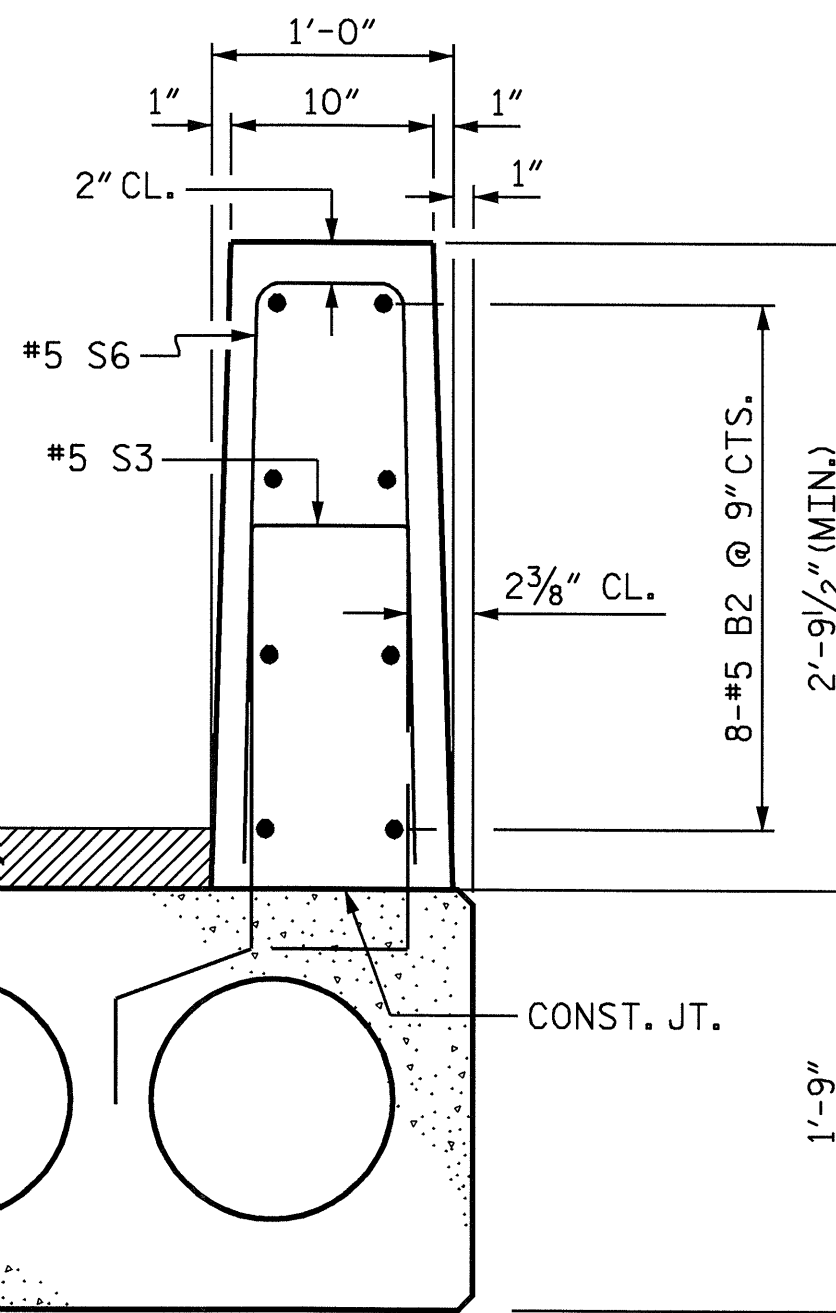
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS

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



ELEVATION AT EXPANSION JOINTS

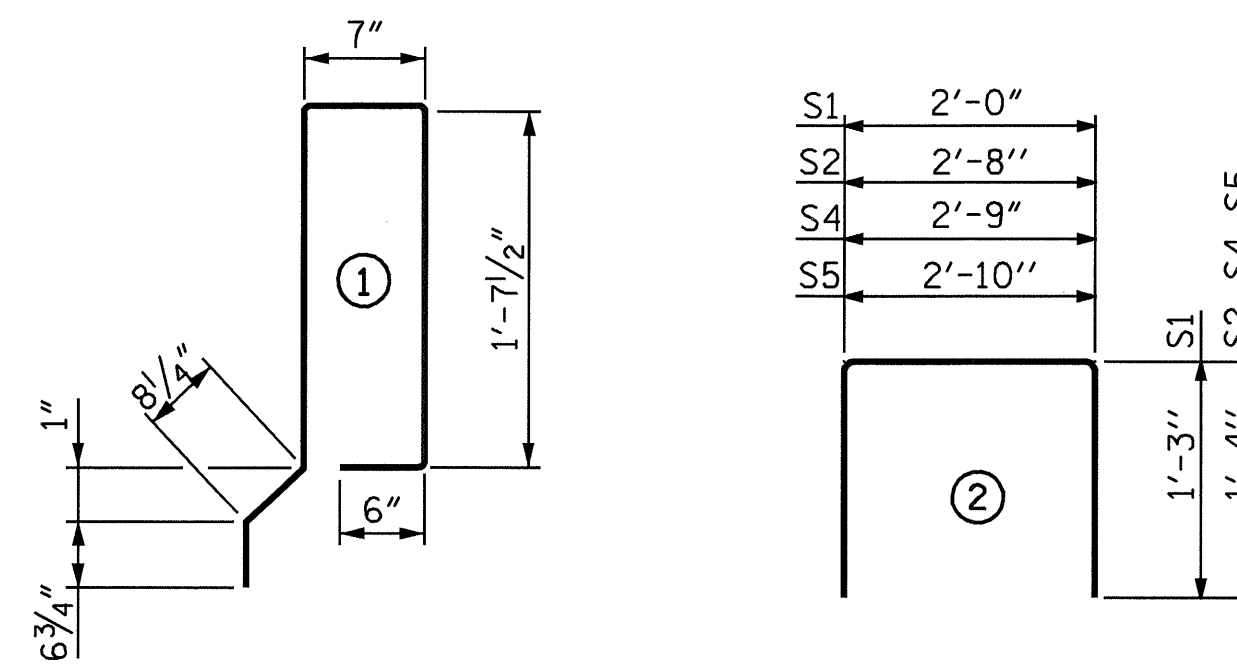
ASPHALT WEARING SURFACE



SECTION VIEW

VERTICAL CONCRETE RAIL DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	19'-8"	53	19'-8"	53
S1	8	#5	2	4'-6"	38	4'-6"	38
S2	70	#4	2	5'-4"	249	5'-4"	249
* S3	46	#5	1	5'-7"	268		
S4	4	#4	2	5'-5"	14	5'-5"	14
S5	4	#4	2	5'-6"	15	5'-6"	15
REINFORCING STEEL				LBS.	369		369
* EPOXY COATED REINFORCING STEEL				LBS.	268		
5,000 P.S.I. CONCRETE				CU. YDS.	5.6		5.5
0.6" Ø L.R. STRANDS				No.	10		10

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR CONCRETE RAIL

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
* B2	64	#5	STR	11'-1"	740
* S6	92	#5	3	5'-6"	528
* EPOXY COATED REINFORCING STEEL				LBS.	1268
CLASS AA CONCRETE				CU. YDS.	7.1
TOTAL LIN. FT. OF VERTICAL CONC. RAIL					75.21

CORED SLABS REQUIRED

SPAN A			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	37'-7 1/4"	75'-2 1/2"
INTERIOR C.S.	6	37'-7 1/4"	225'-7 1/2"
SUBTOTAL	8		300'-10"

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 CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

ALL REINFORCING STEEL IN VERTICAL CONCRETE RAIL SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE STRANDS SHALL BE 0.6" Ø AND TENSIONED TO 43,950 POUNDS.

CONCRETE INSERTS SHALL HAVE A MINIMUM WORKING LOAD SHEAR CAPACITY OF 2.5 KIPS.

THE 3/4" DIA. BOLTS, WASHERS AND CONCRETE INSERTS SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

THE BOLTS, WASHERS AND CONCRETE INSERTS ARE PROVIDED AS AN OPTION FOR THE CONTRACTOR TO ATTACH MATERIALS PREVENTING DEBRIS FROM DROPPING INTO THE WATER DURING CONSTRUCTION OF THE VERTICAL CONCRETE BARRIER RAIL.

UPON COMPLETION OF THE BRIDGE CONSTRUCTION, THE 3/4" DIA. BOLTS AND WASHER SHALL BE REMOVED AND THE CONCRETE INSERTS SHALL BE GROUTED.

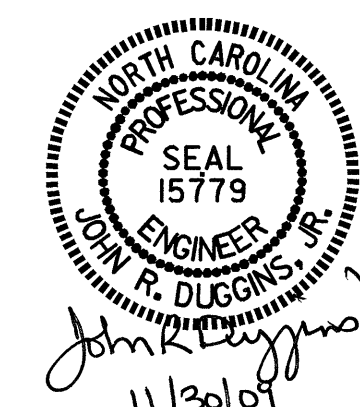
THE COST OF THE CONCRETE INSERTS IN THE EXTERIOR CORED SLAB UNITS TO BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

PROJECT NO. B-3869
MADISON COUNTY
STATION: 11+17.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-9"
PRESTRESSED
CONCRETE CORED
SLAB UNIT



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS	
2			4			16	

STD. NO. PCS3

ASSEMBLED BY :	A. SORSENGINH	DATE :	12-2-08
CHECKED BY :	M. POOLE	DATE :	1/09
DRAWN BY :	WJH 4/89	REV. 10/17/00	RWW/LES
CHECKED BY :	FCJ 5/89	REV. 7/10/01	RWW/LES
		REV. 5/7/03	RWW/JTE

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.

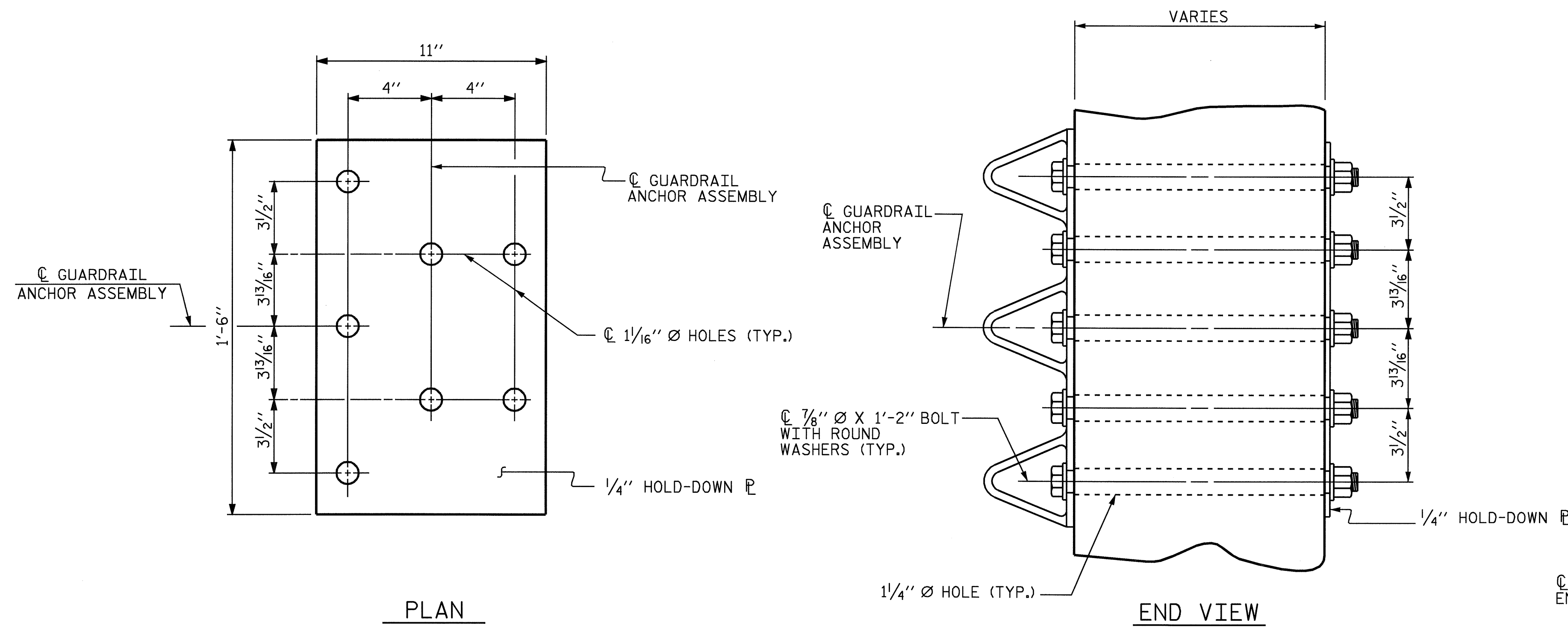
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. 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 BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

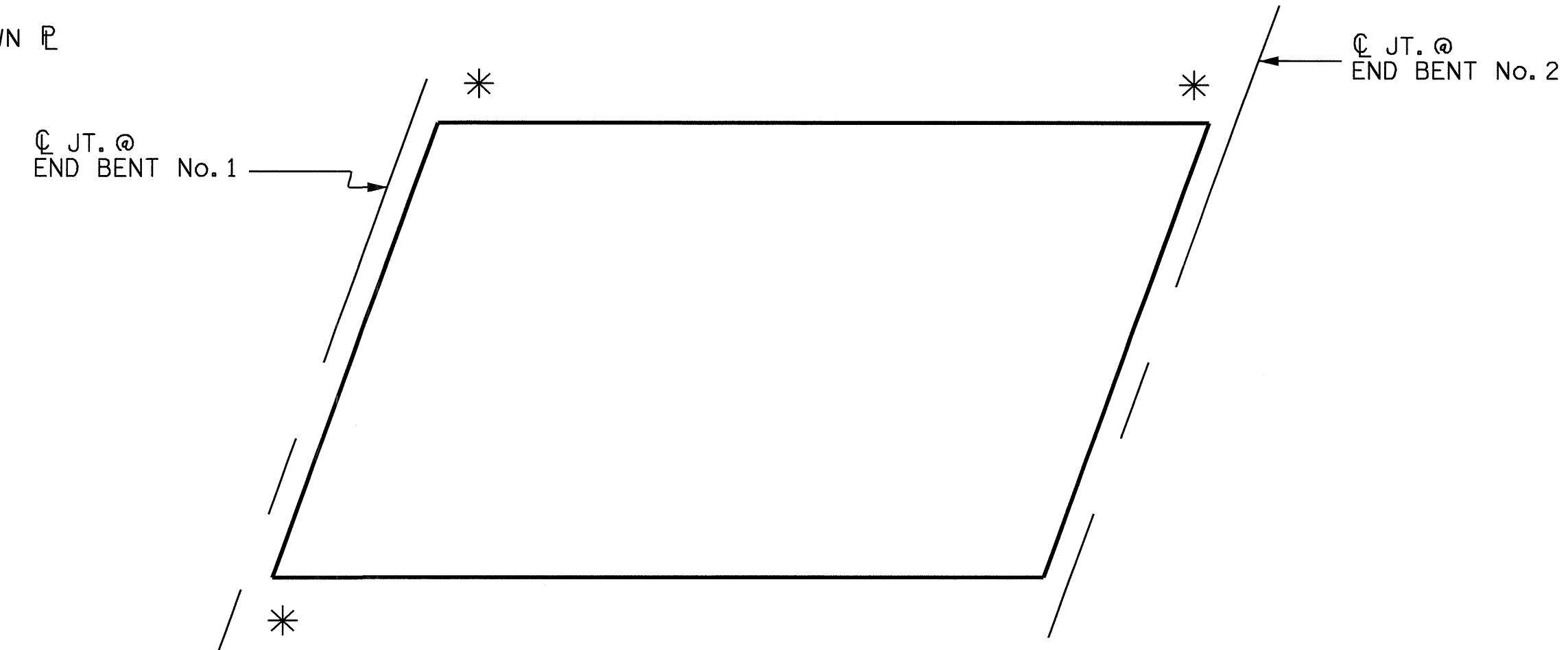
THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



PLAN

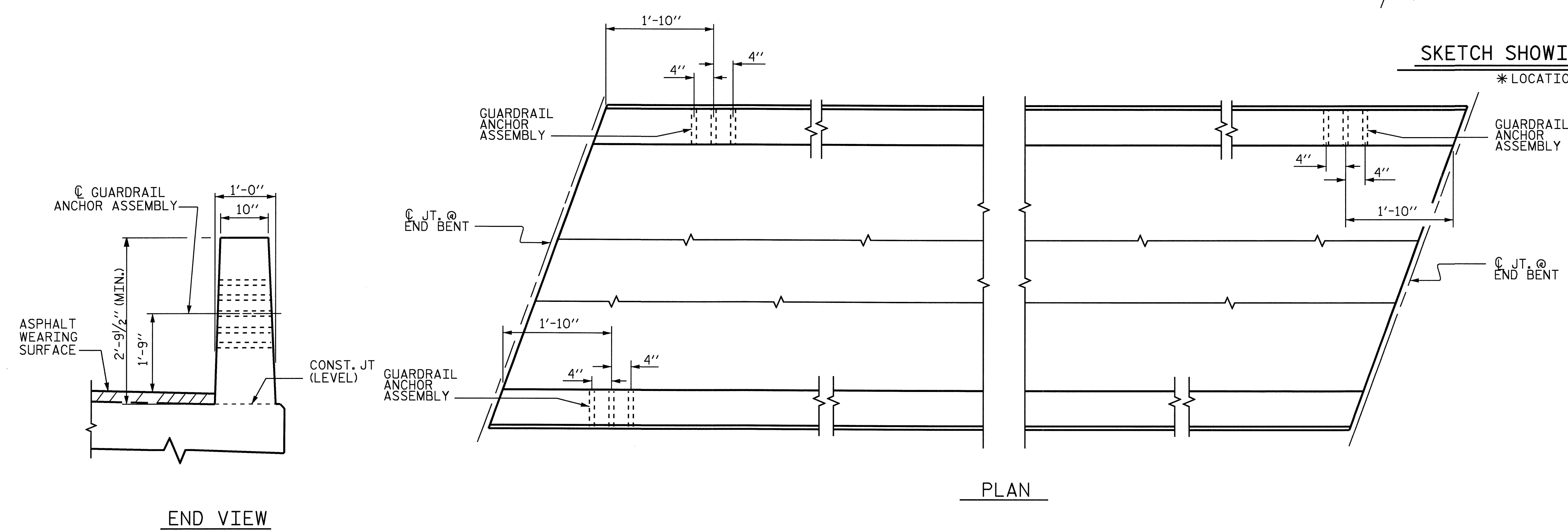
END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS



SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT

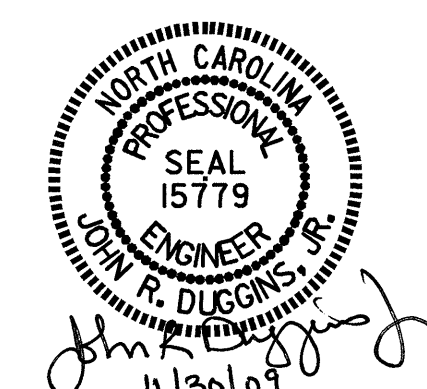


END VIEW

PLAN

LOCATION OF GUARDRAIL ANCHOR AT END POST

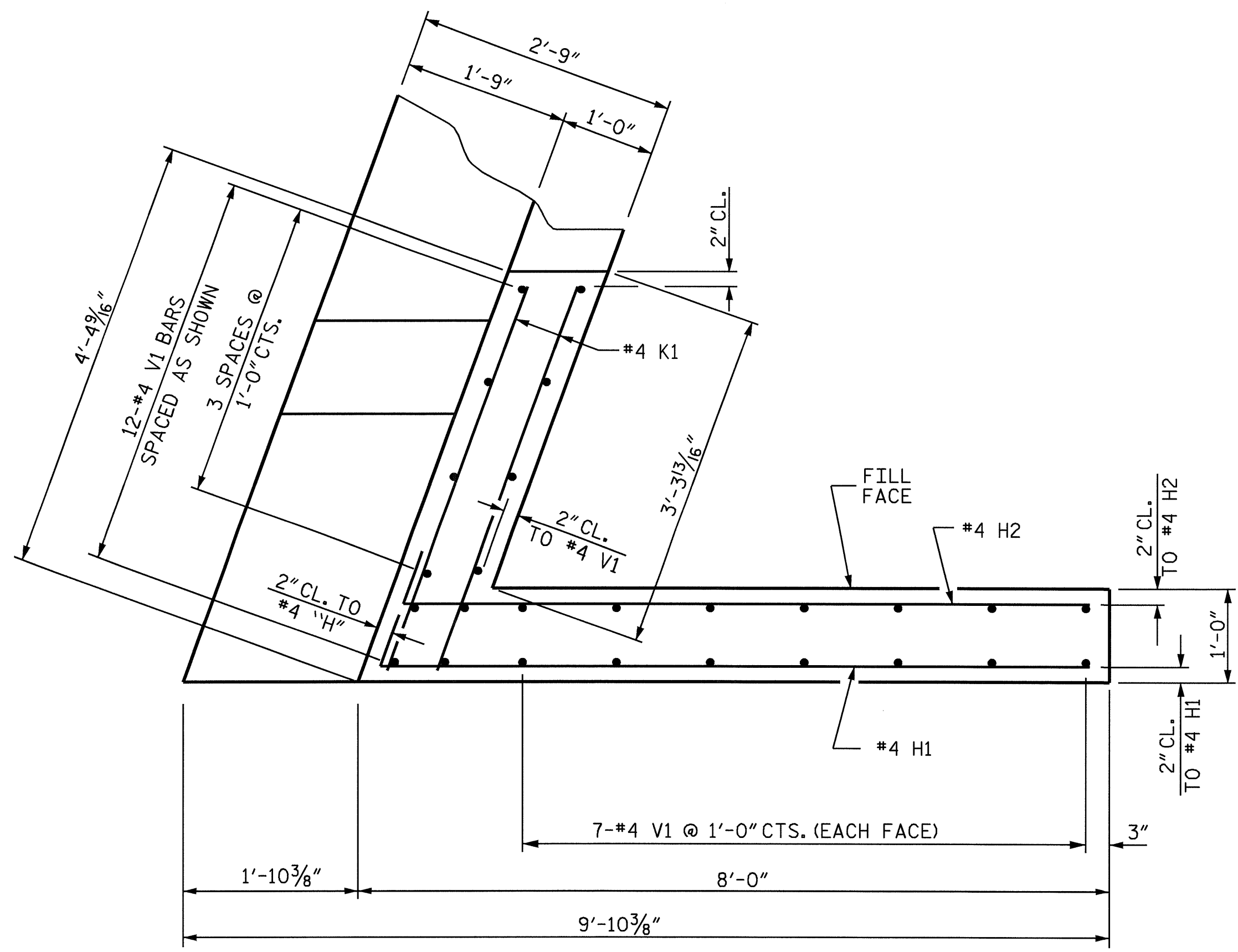
PROJECT NO. B-3869
MADISON COUNTY
 STATION: 11+17.00 -L-



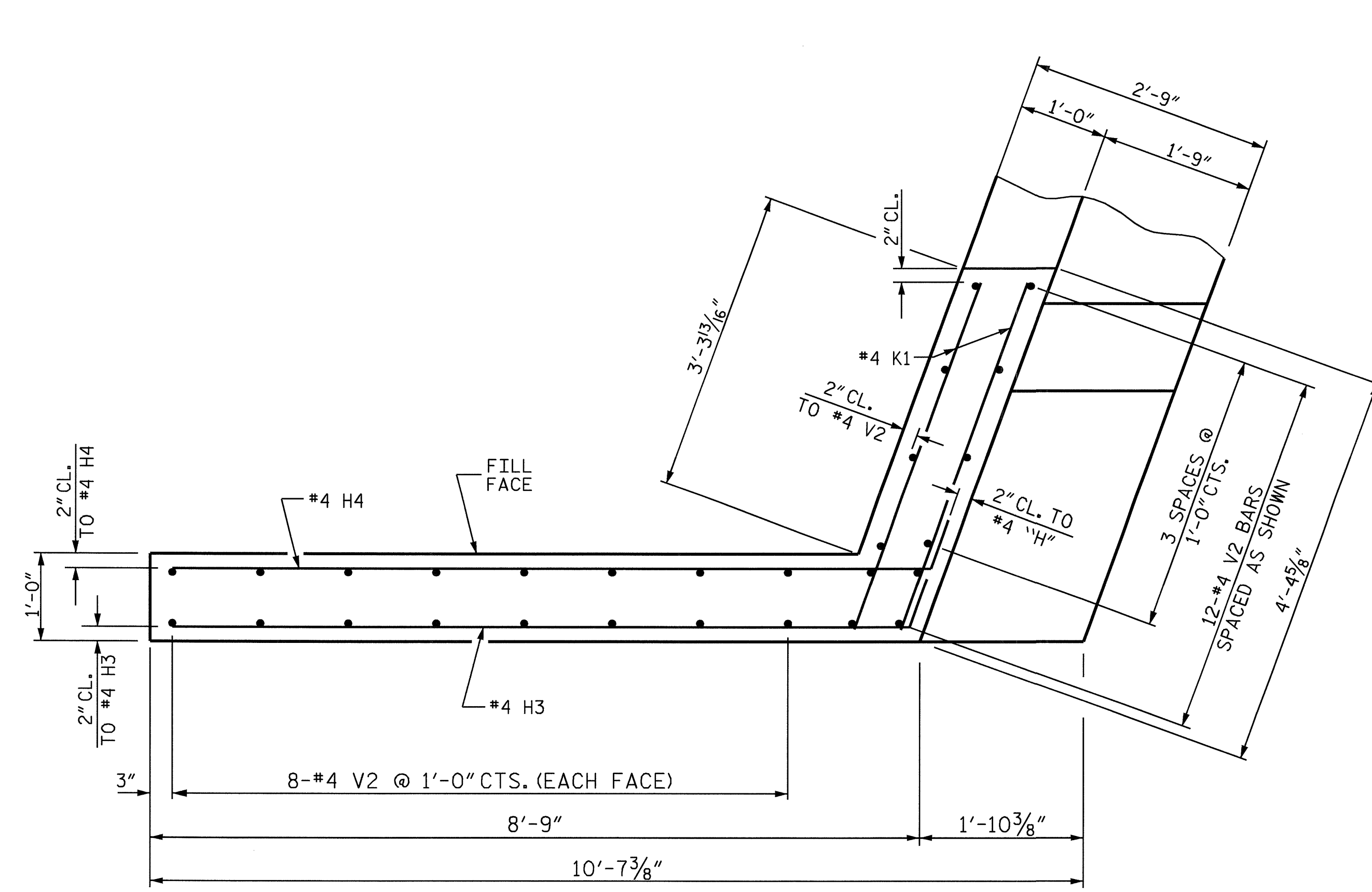
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GUARDRAIL ANCHORAGE
 DETAILS FOR
 VERTICAL CONCRETE
 BARRIER RAILS

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9	
1			3			TOTAL SHEETS	
2			4			16	

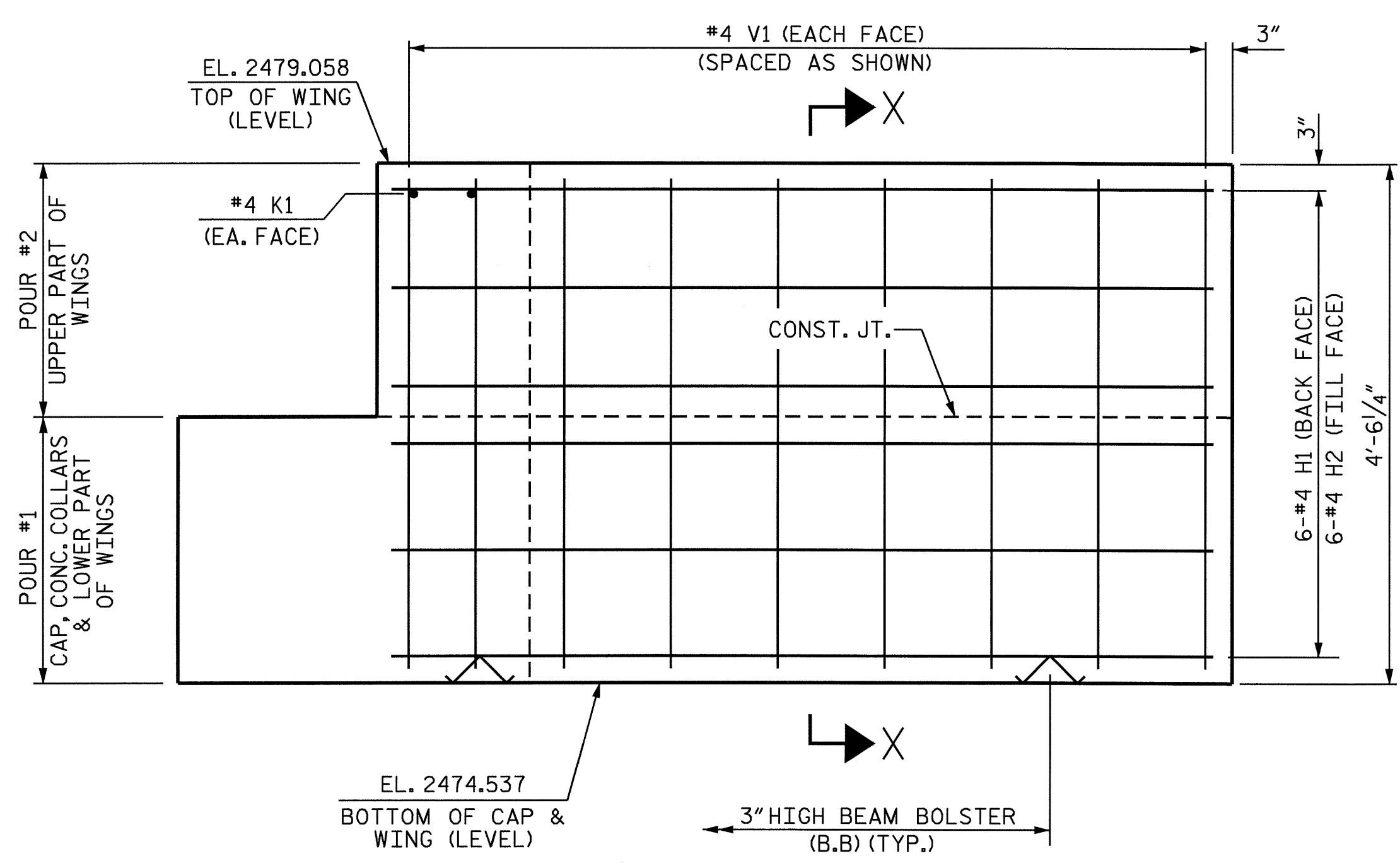
DRAWN BY : D. HODGE DATE : 10/09
 CHECKED BY : J. R. DUGGINS DATE : 10/09



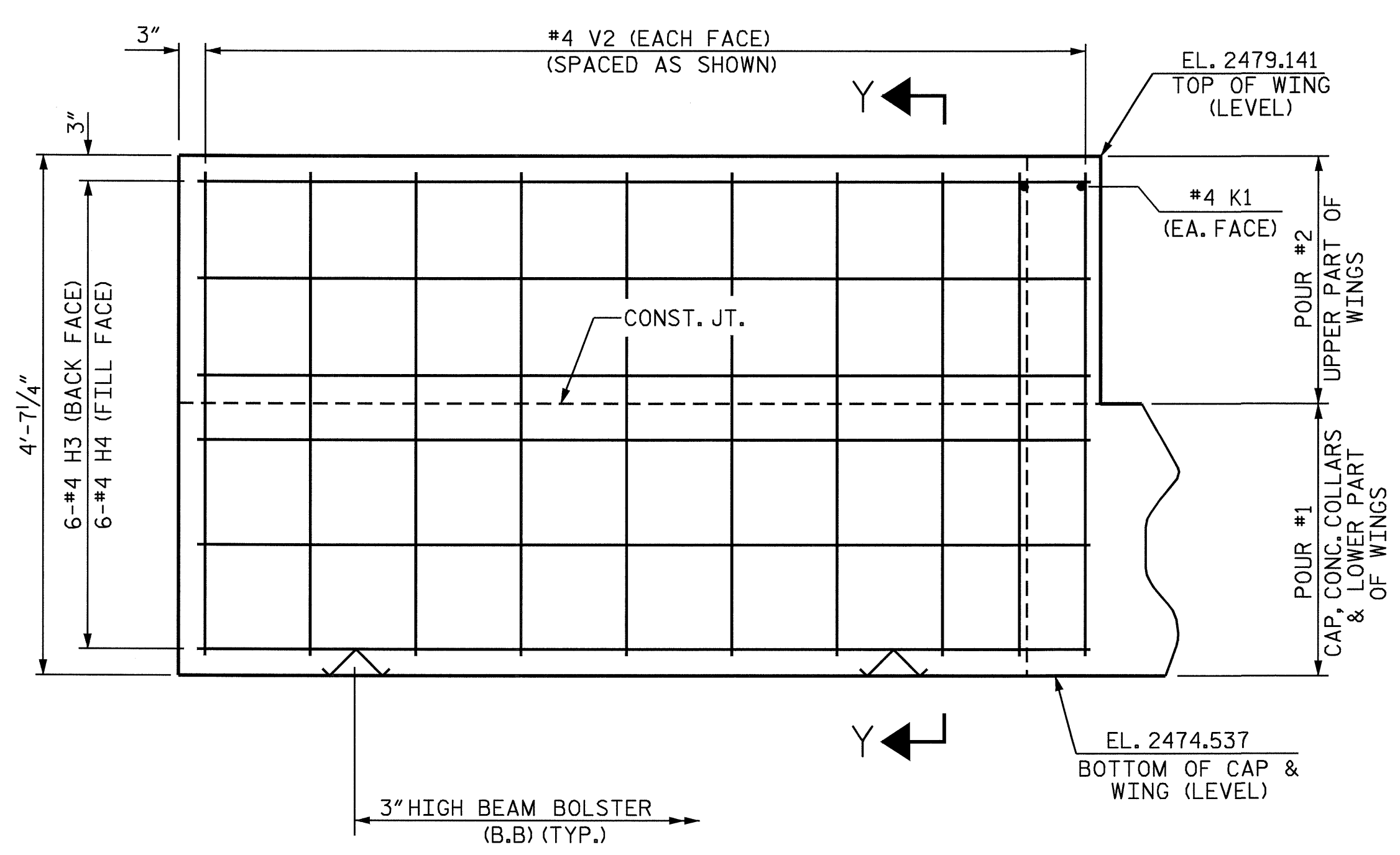
PLAN OF LEFT WING (W1)



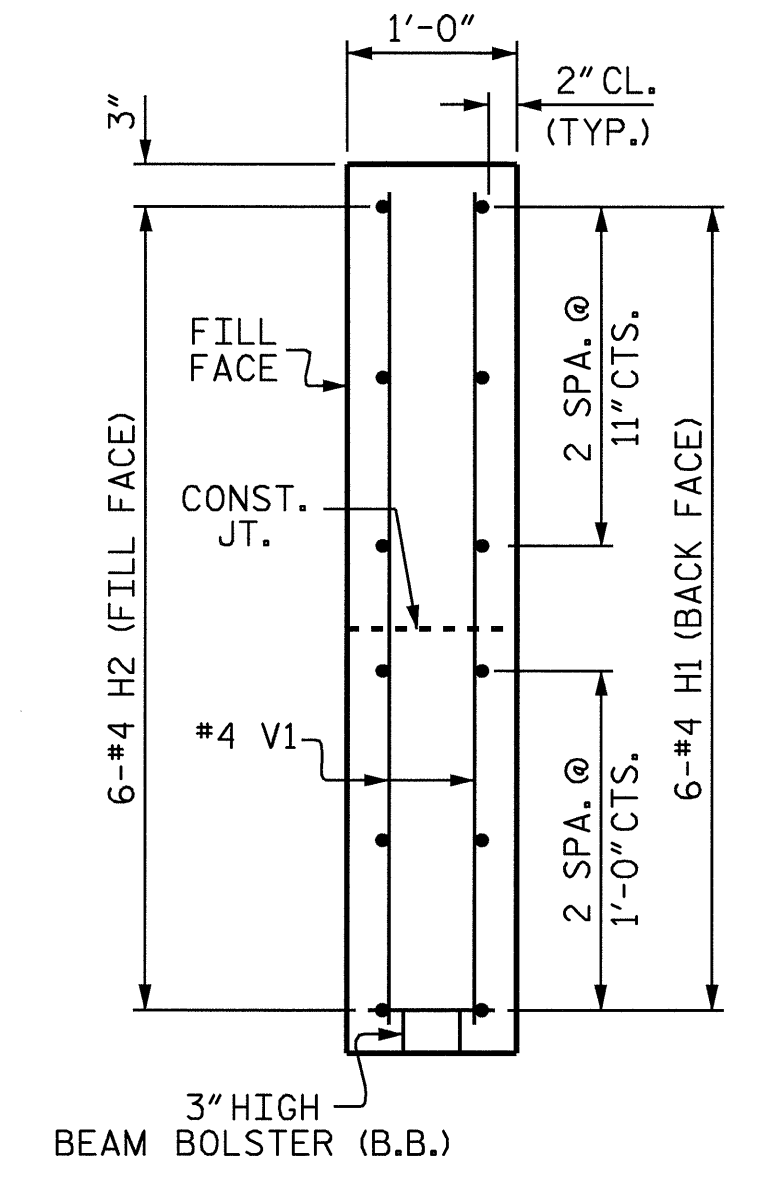
PLAN OF RIGHT WING (W2)



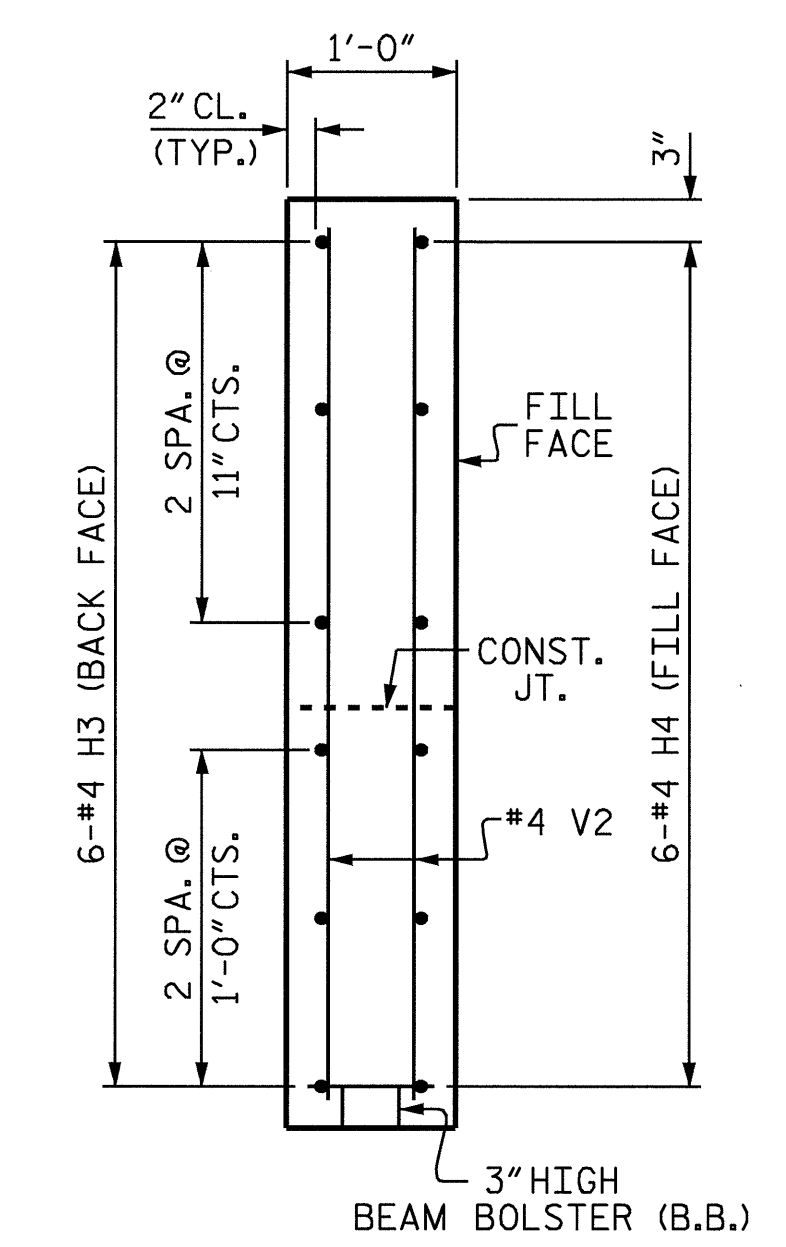
ELEVATION OF LEFT WING (W1)



ELEVATION OF RIGHT WING (W2)



SECTION X-X



SECTION Y-Y

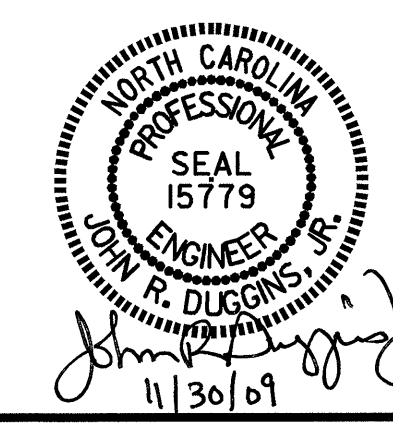
PROJECT NO. B-3869
 MADISON COUNTY
 STATION: 11+17.00 -L-

SHEET 2 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

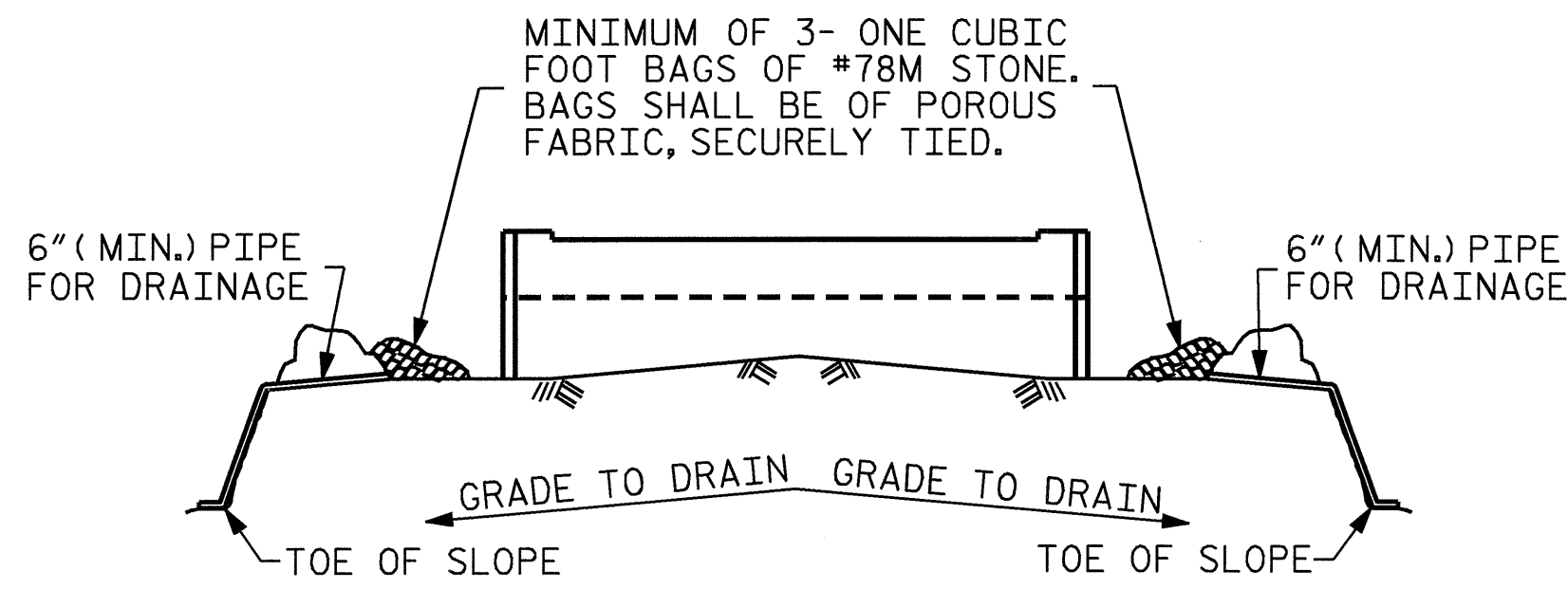
SUBSTRUCTURE
 END BENT #1

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS	
2			4			16	

DRAWN BY: J. LAMBERT/A.S. DATE: 8/09
 CHECKED BY: D. HODGE DATE: 10/09



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 dahodge

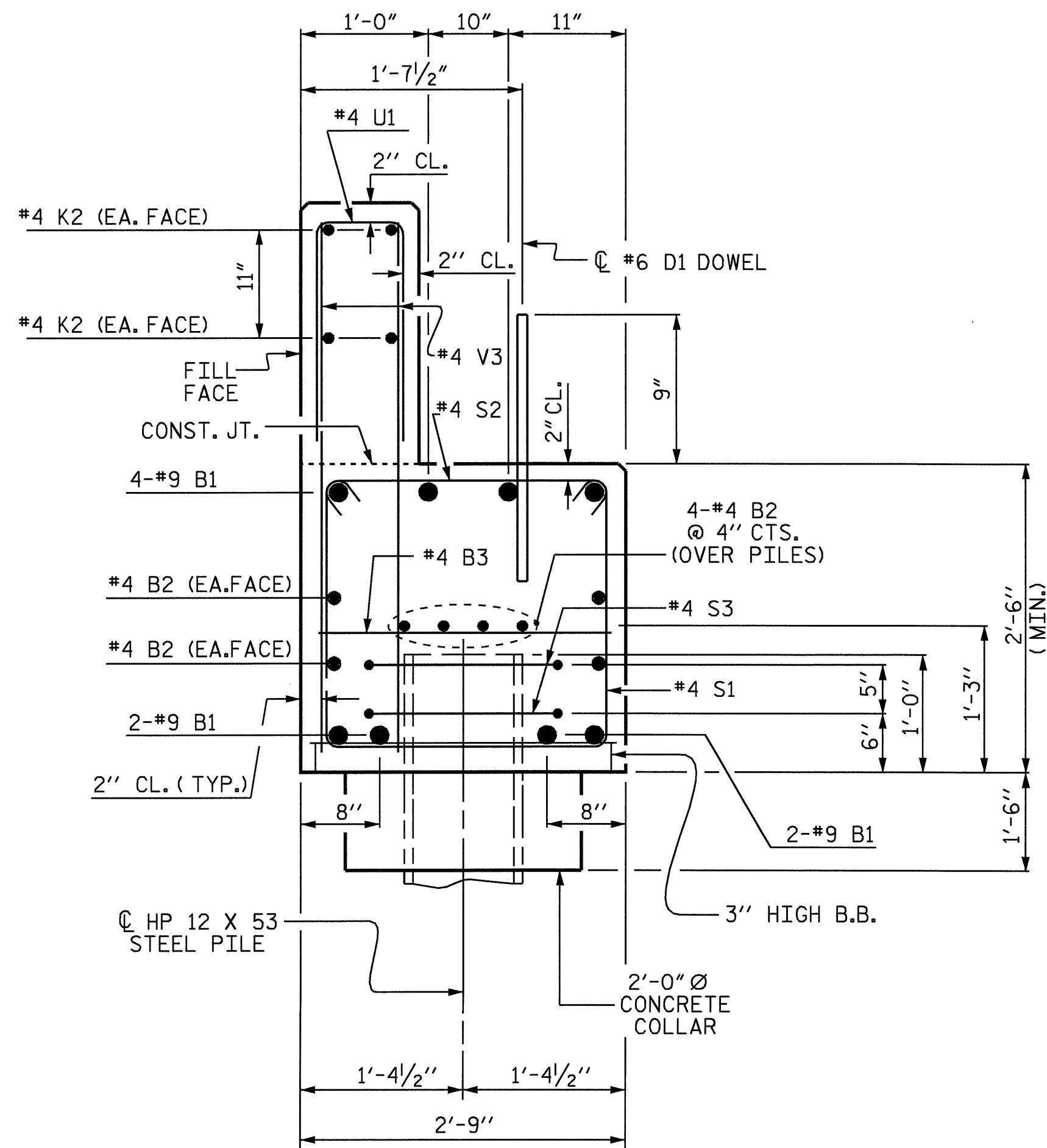


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

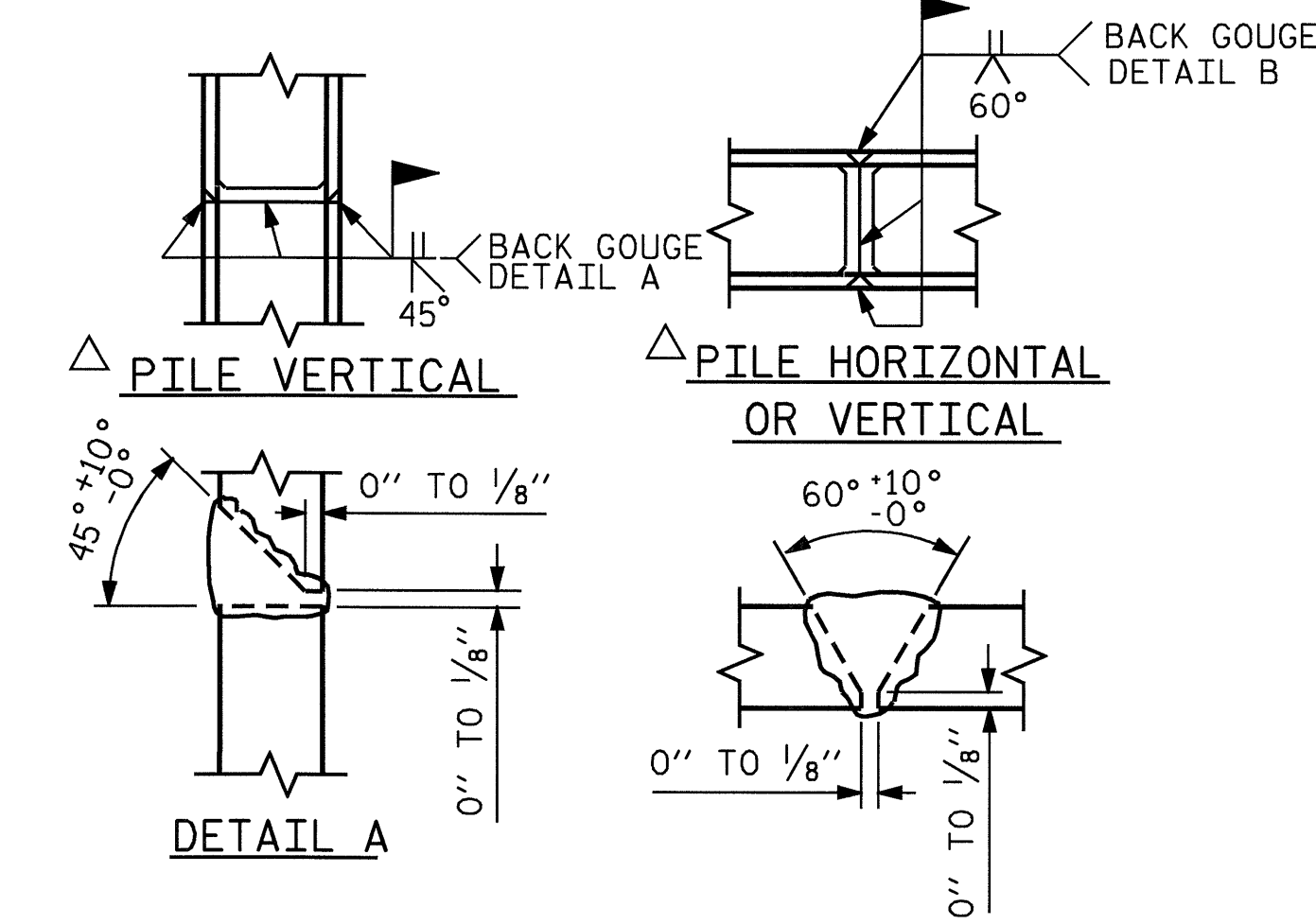
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

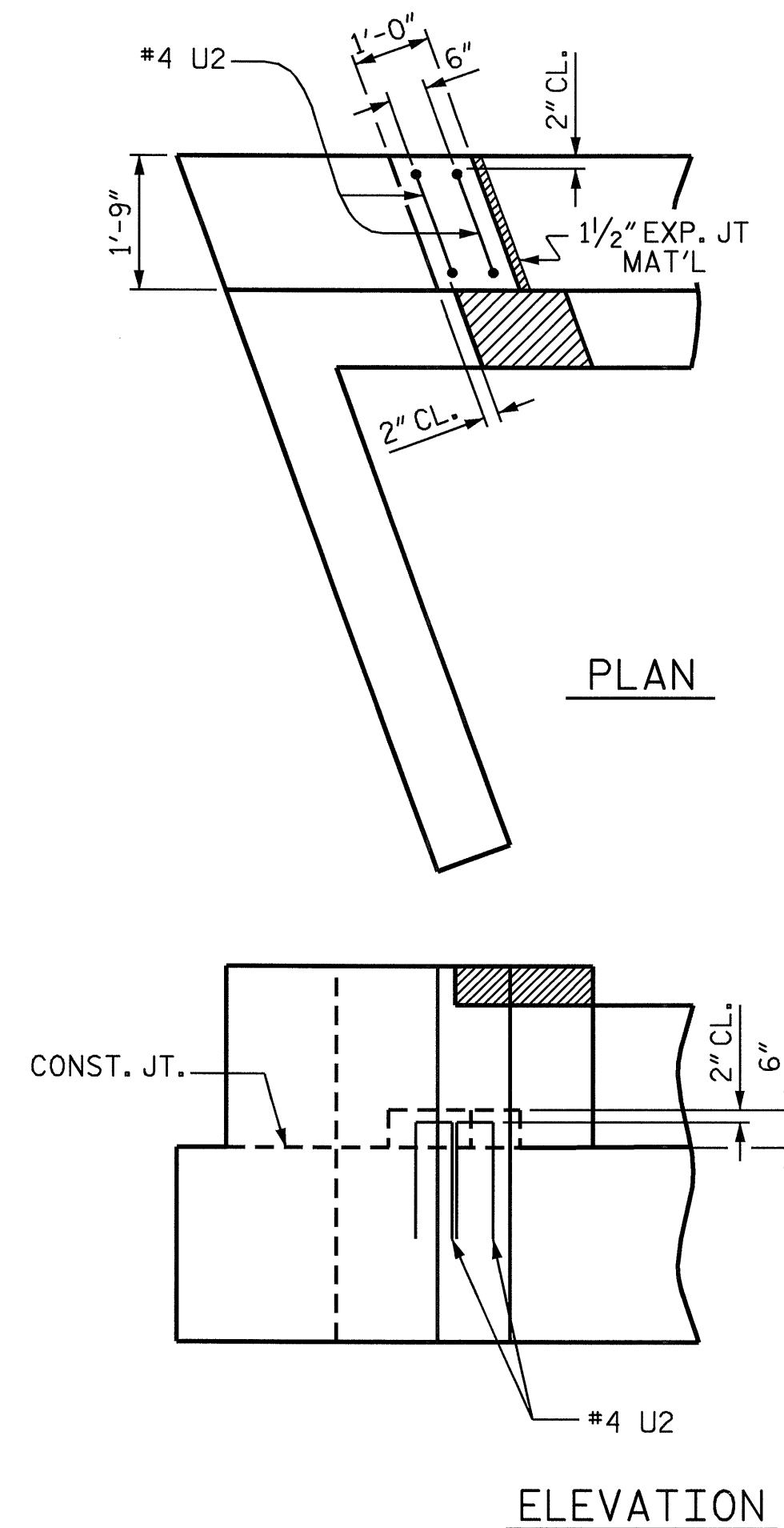
TEMPORARY DRAINAGE AT END BENT



SECTION THRU CAP



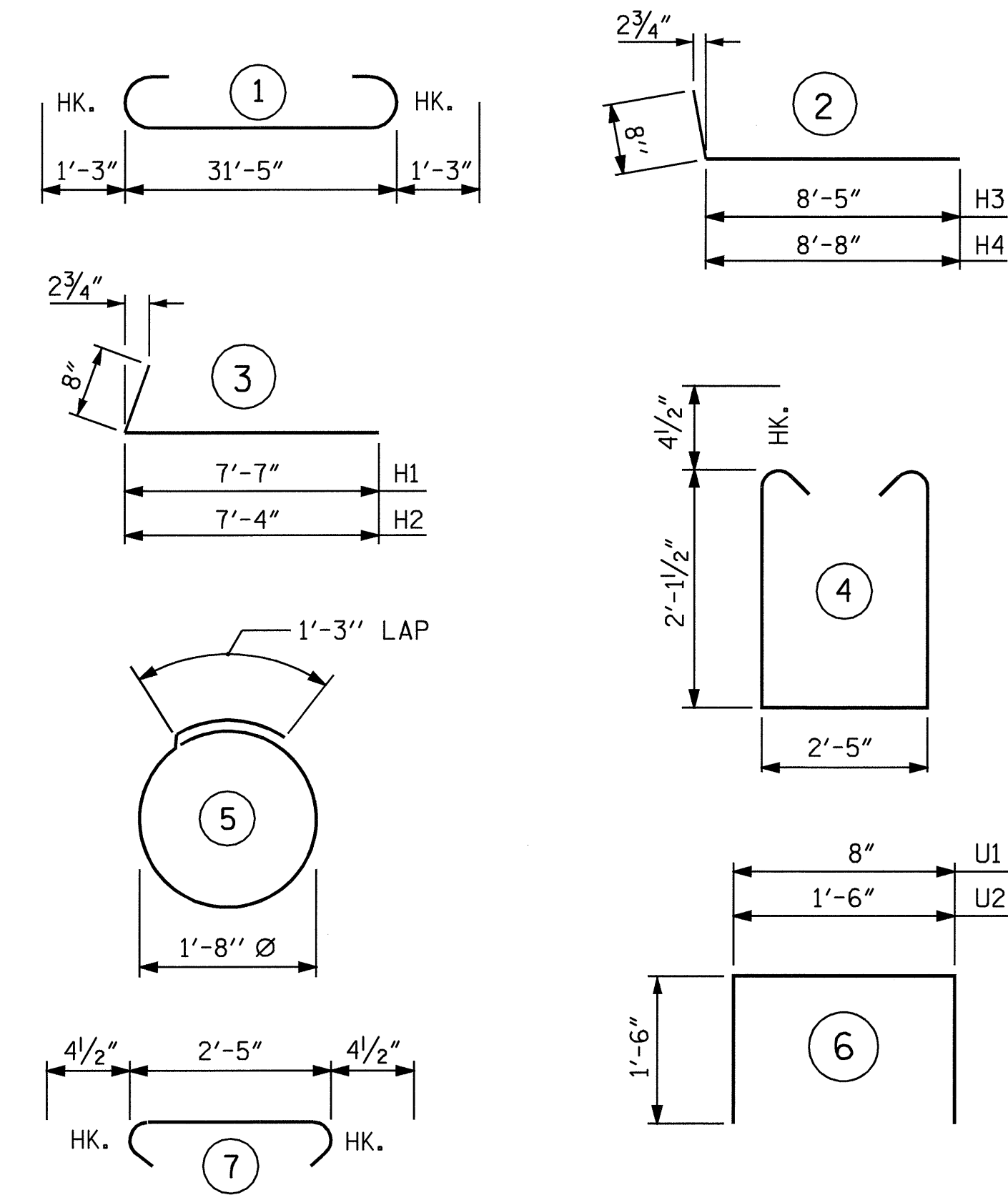
PILE SPLICE DETAILS



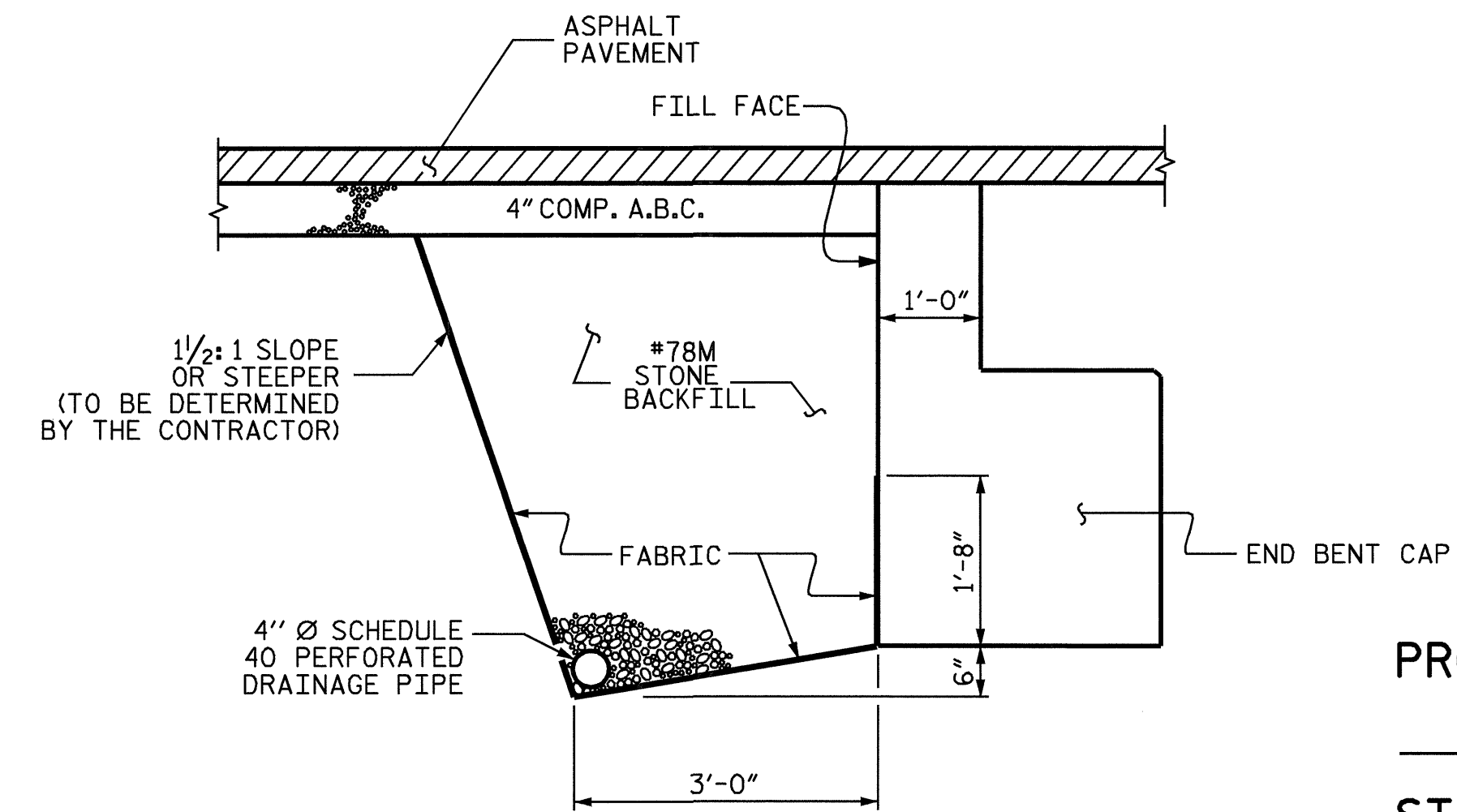
LATERAL GUIDE

(EACH END SIMILAR)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.



BACK FILL DETAILS

BILL OF MATERIAL

END BENT NO. 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	33'-11"	923
B2	16	4	STR	17'-0"	182
B3	8	4	STR	2'-5"	13
D1	16	6	STR	1'-6"	36
K1	4	4	STR	4'-0"	11
K2	8	4	STR	17'-0"	91
H1	6	4	3	8'-3"	33
H2	6	4	3	8'-0"	32
H3	6	4	2	9'-1"	36
H4	6	4	2	9'-4"	37
S1	30	4	4	7'-5"	149
S2	30	4	7	3'-2"	63
S3	10	4	5	6'-6"	43
U1	23	4	6	3'-8"	56
U2	4	4	6	4'-6"	12
V1	26	4	STR	4'-2"	72
V2	28	4	STR	4'-3"	79
V3	46	4	STR	4'-0"	123

REINFORCING STEEL	1991 LBS
CLASS A CONCRETE BREAKDOWN :	
POUR #1 (CAP, CONC. COLLARS & LOWER WINGS)	10.6 C. Y.
POUR #2 (BACKWALL & UPPER WINGS)	3.7 C. Y.
POUR #3 (LATERAL GUIDES)	0.1 C. Y.
TOTAL	14.4 C. Y.

HP 12 X 53 STEEL PILES	
NO. 5 LIN. FEET	75

PILE EXCAVATION QUANTITIES	
PILE EXCAVATION IN SOIL	50 LIN. FT.
PILE EXCAVATION NOT IN SOIL	25 LIN. FT.

PROJECT NO. B-3869
MADISON COUNTY
 STATION: 11+17.00 -L-

SHEET 3 OF 3

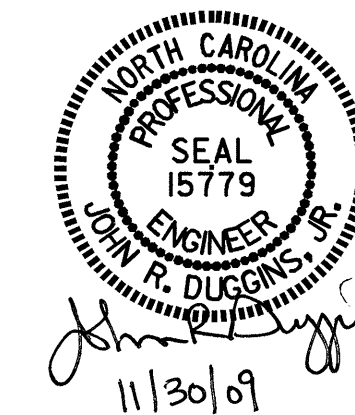
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT #1**

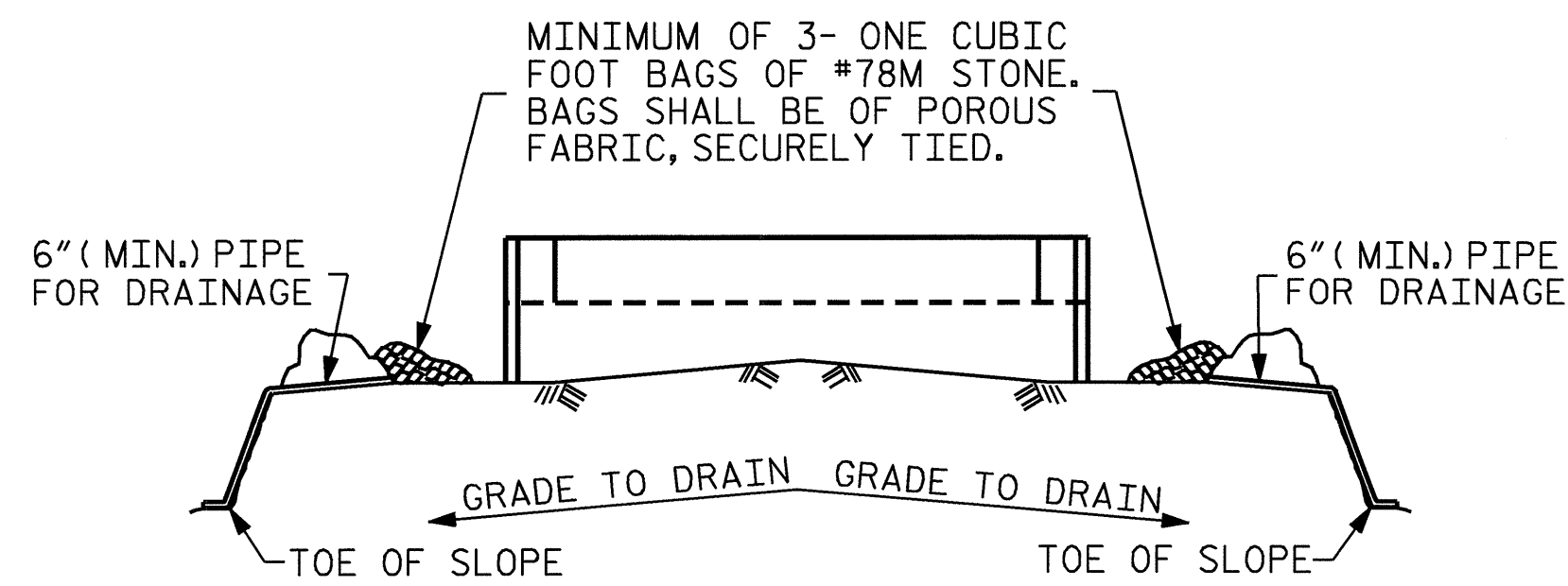
REVISIONS

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

SHEET NO.	S-12
TOTAL SHEETS	16



DRAWN BY : J.LAMBERT/A.S. DATE : 8/09
 CHECKED BY : D.HODGE DATE : 10/09

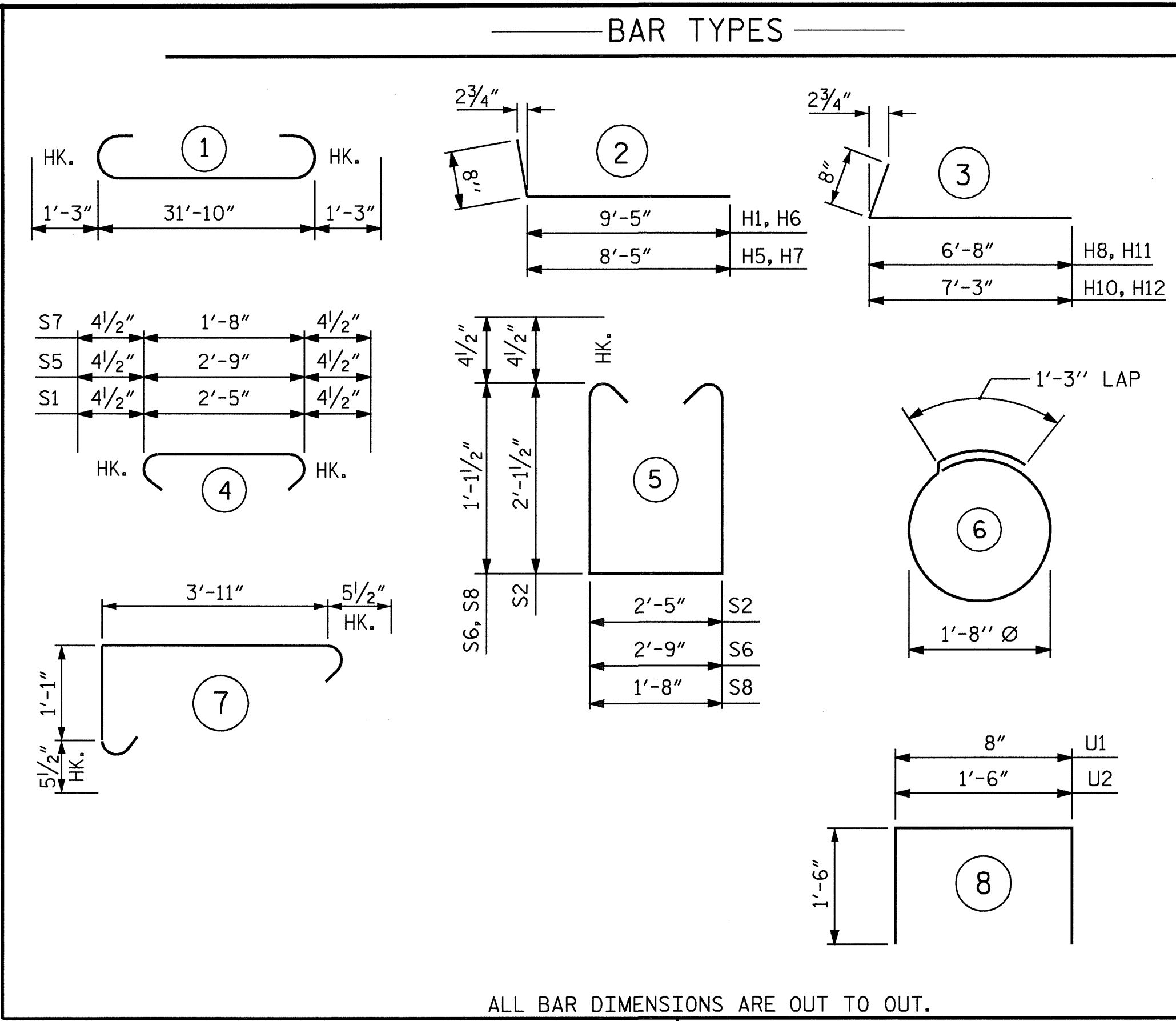
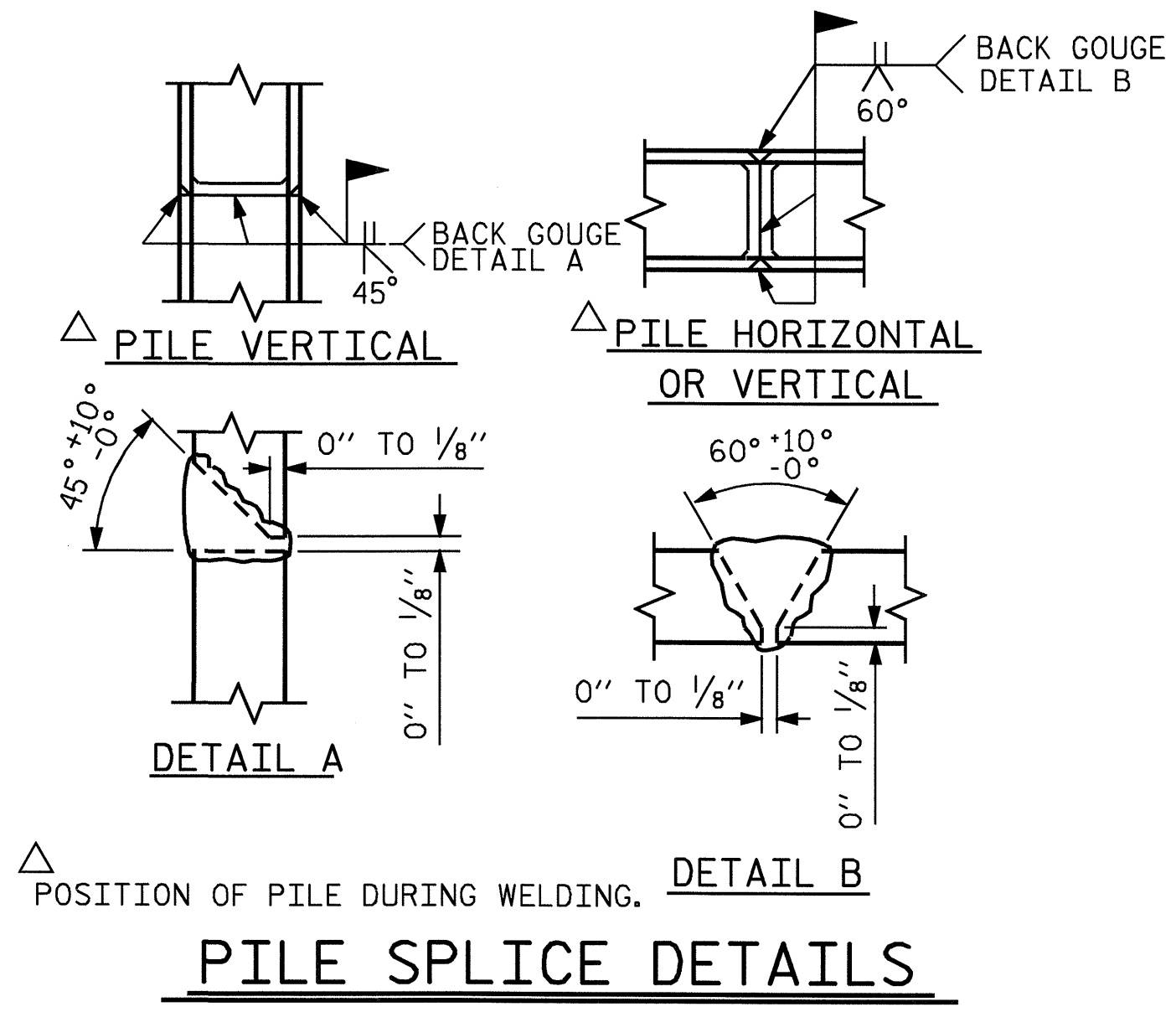
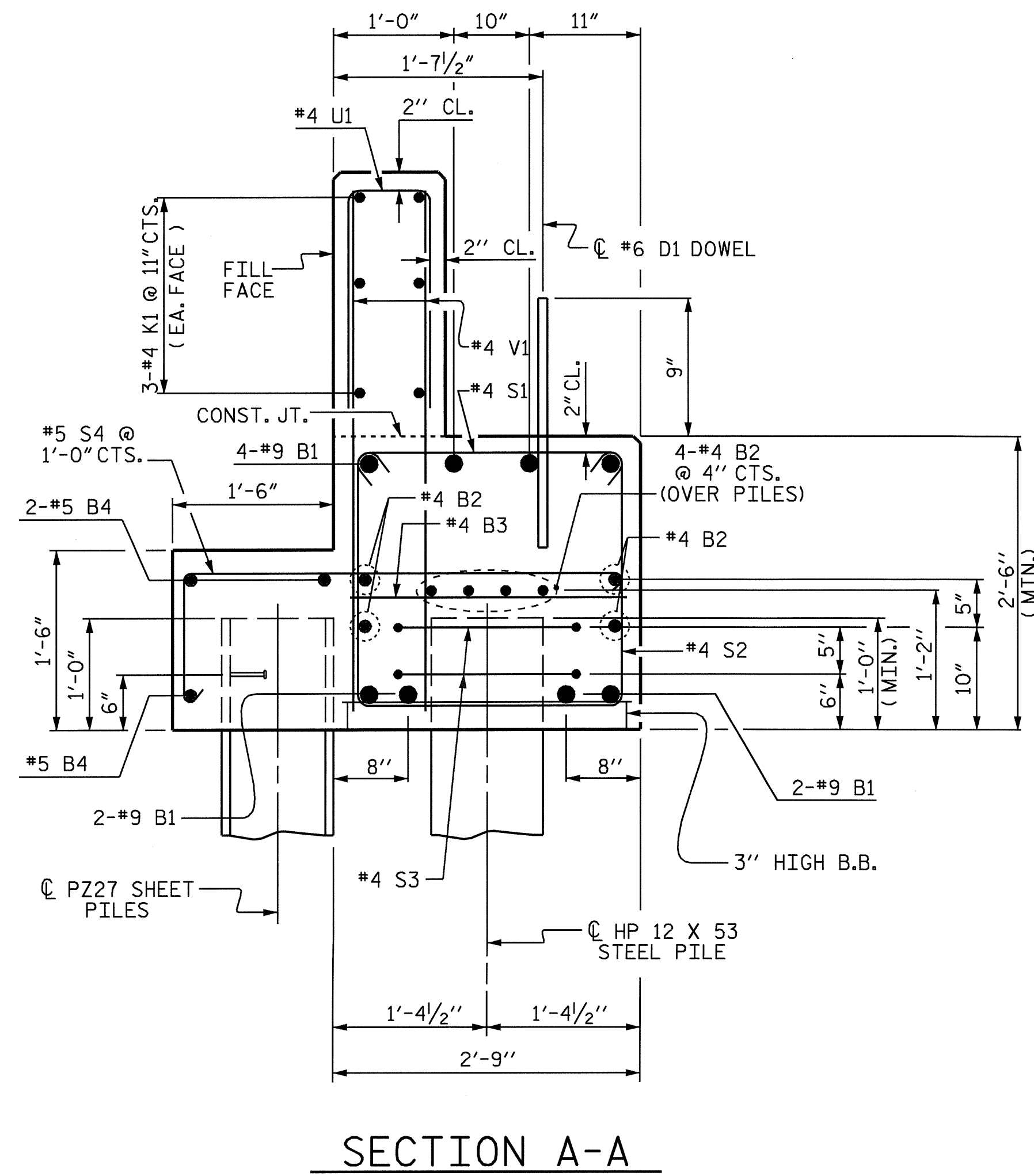


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



ALL BAR DIMENSIONS ARE OUT TO OUT.

18" STEEL GALVANIZED SHEET PILES

NO. PZ27 = 27

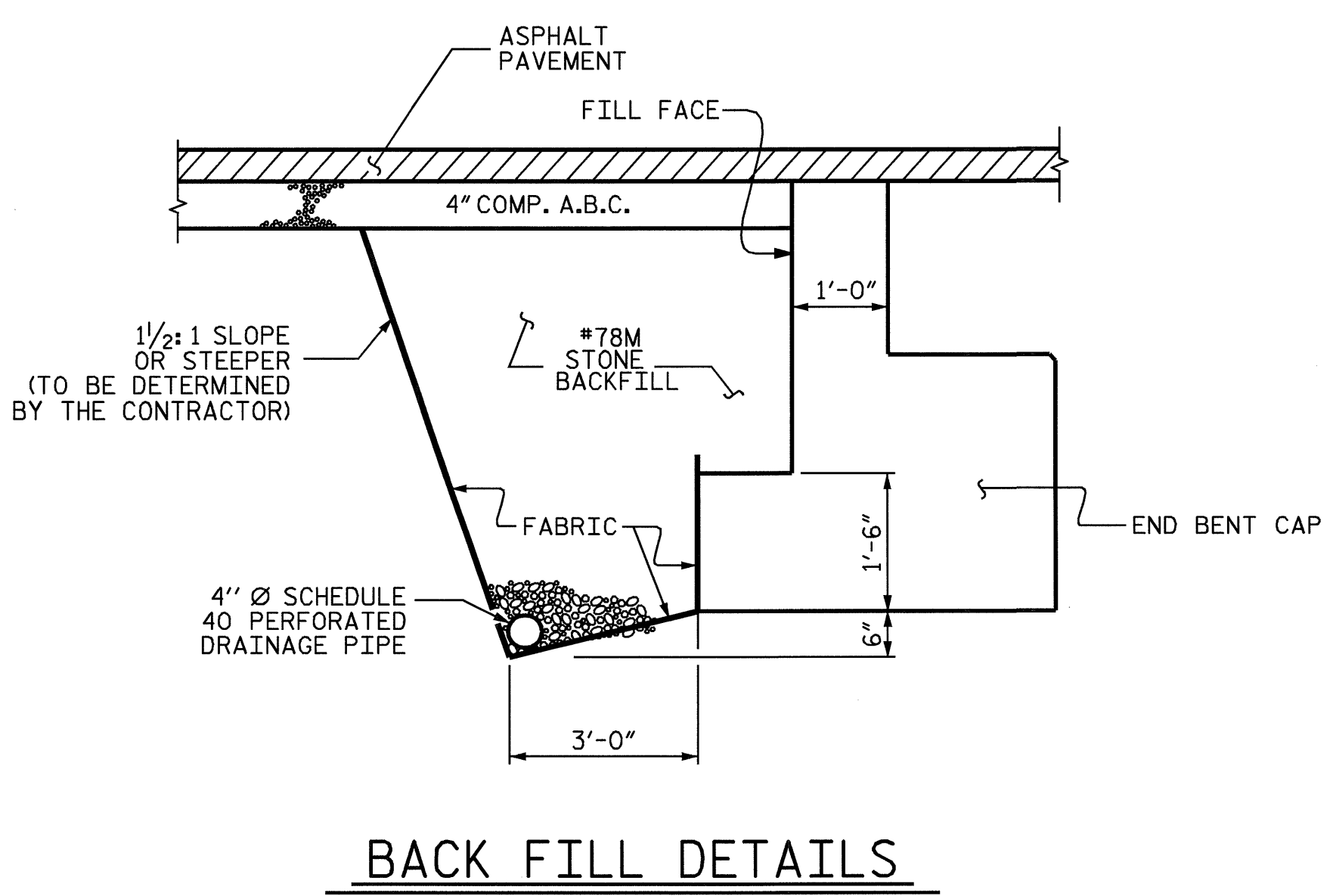
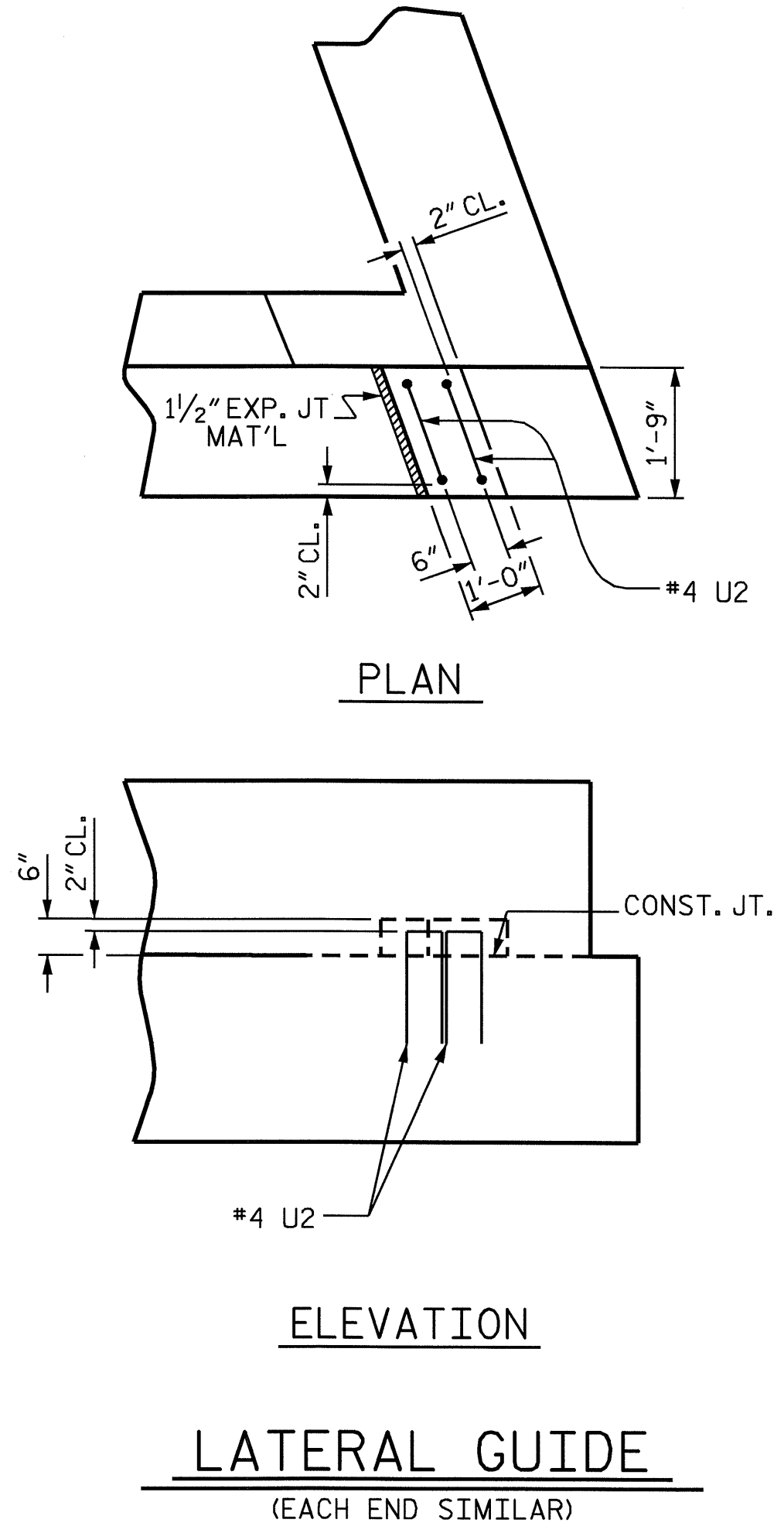
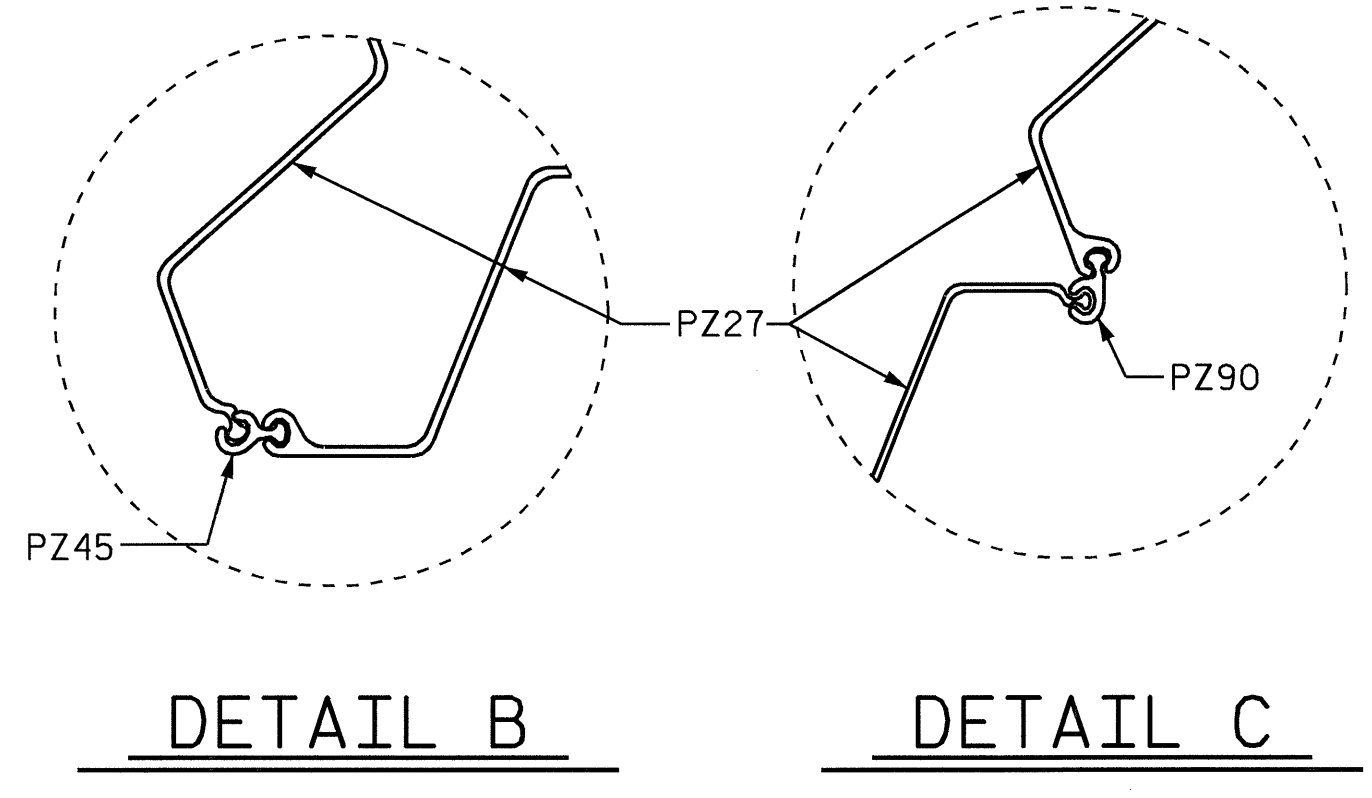
NO. PZ45 = 1

NO. PZ90 = 1

TOTAL NO. = 29 SQ. FT. = 345

PILE EXCAVATION QUANTITIES

PILE EXCAVATION IN SOIL	70 LIN. FT.
PILE EXCAVATION NOT IN SOIL	35 LIN. FT.



BILL OF MATERIAL					
END BENT NO. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	34'-4"	934
B2	16	4	STR	17'-3"	184
B3	8	4	STR	2'-5"	13
B4	3	5	STR	26'-6"	83
D1	16	6	STR	1'-6"	36
K1	12	4	STR	17'-3"	138
H1	1	4	2	10'-1"	7
H2	1	4	STR	9'-2"	6
H3	1	4	STR	8'-11"	6
H4	1	4	STR	8'-8"	6
H5	1	4	2	9'-1"	6
H6	1	6	2	10'-1"	15
H7	1	6	2	9'-1"	14
H8	1	4	3	7'-4"	5
H9	1	4	STR	7'-0"	5
H10	1	4	3	7'-11"	5
H11	1	6	3	7'-4"	11
H12	1	6	3	7'-11"	12
S1	28	4	4	3'-2"	59
S2	28	4	5	7'-5"	139
S3	12	4	6	6'-6"	52
S4	27	5	7	5'-11"	167
S5	9	4	4	3'-6"	21
S6	9	4	5	5'-9"	35
S7	7	4	4	2'-5"	11
S8	7	4	5	4'-8"	22
U1	23	4	8	3'-8"	56
U2	4	4	8	4'-6"	12
V1	64	4	STR	3'-11"	167
REINFORCING STEEL					2227 LBS
CLASS A CONCRETE BREAKDOWN:					
POUR #1 CAP				11.4 C.Y.	
POUR #2 BACKWALL, WINGS AND COPING				4.7 C.Y.	
POUR #3 LATERAL GUIDES				0.1 C.Y.	
TOTAL				16.2 C.Y.	
HP 12 X 53 GALVANIZED STEEL PILES NO. 7					105 LIN. FEET

PROJECT NO. B-3869

MADISON COUNTY

STATION: 11+17.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA

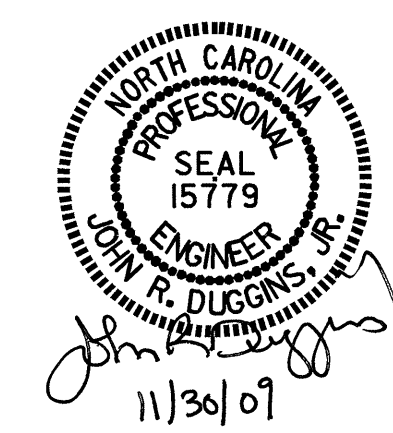
DEPARTMENT OF TRANSPORTATION

RALEIGH

SUBSTRUCTURE

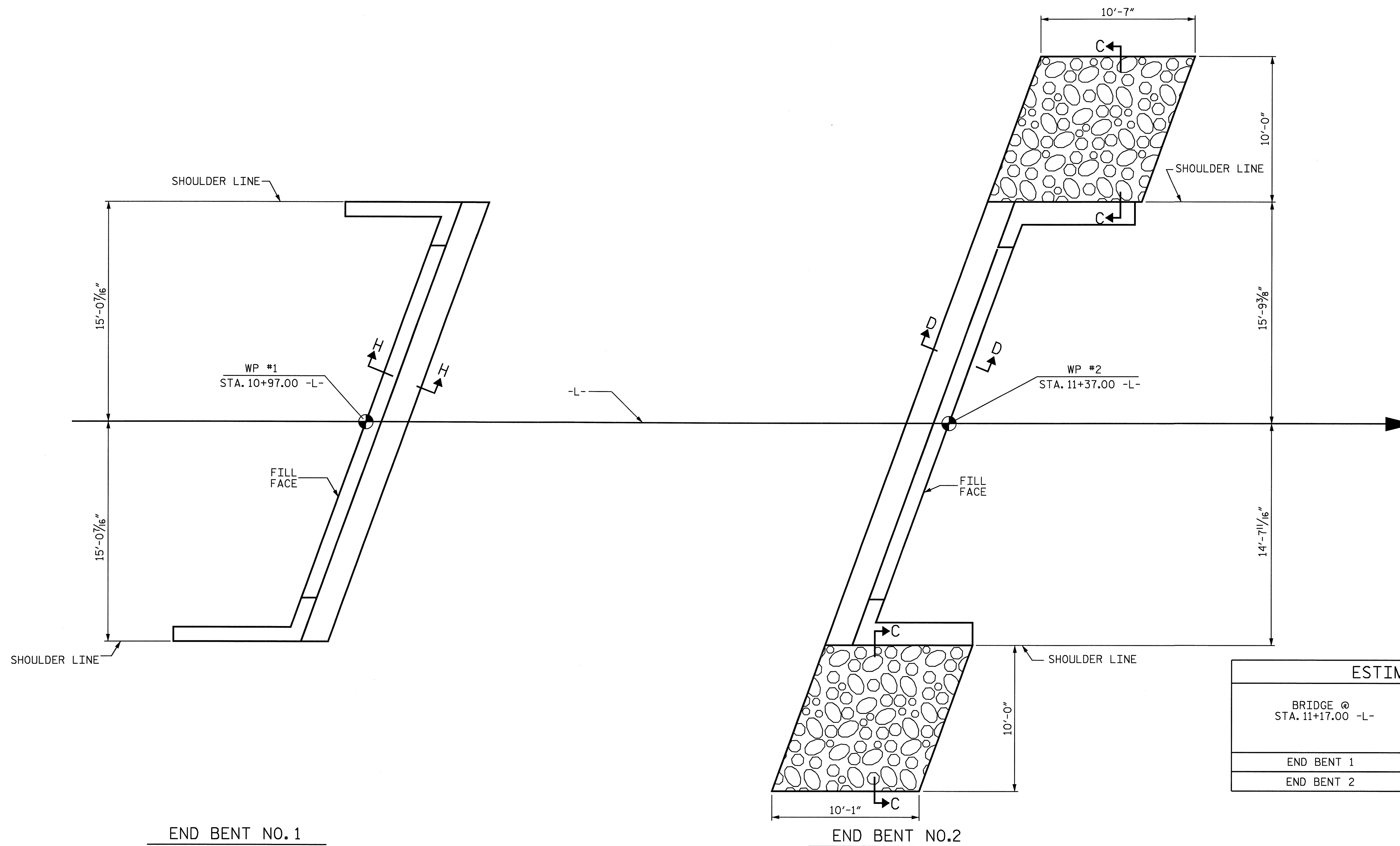
END BENT #2

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



DRAWN BY: J. LAMBERT/A.S. DATE: 8/09

CHECKED BY: D. HODGE DATE: 10/09

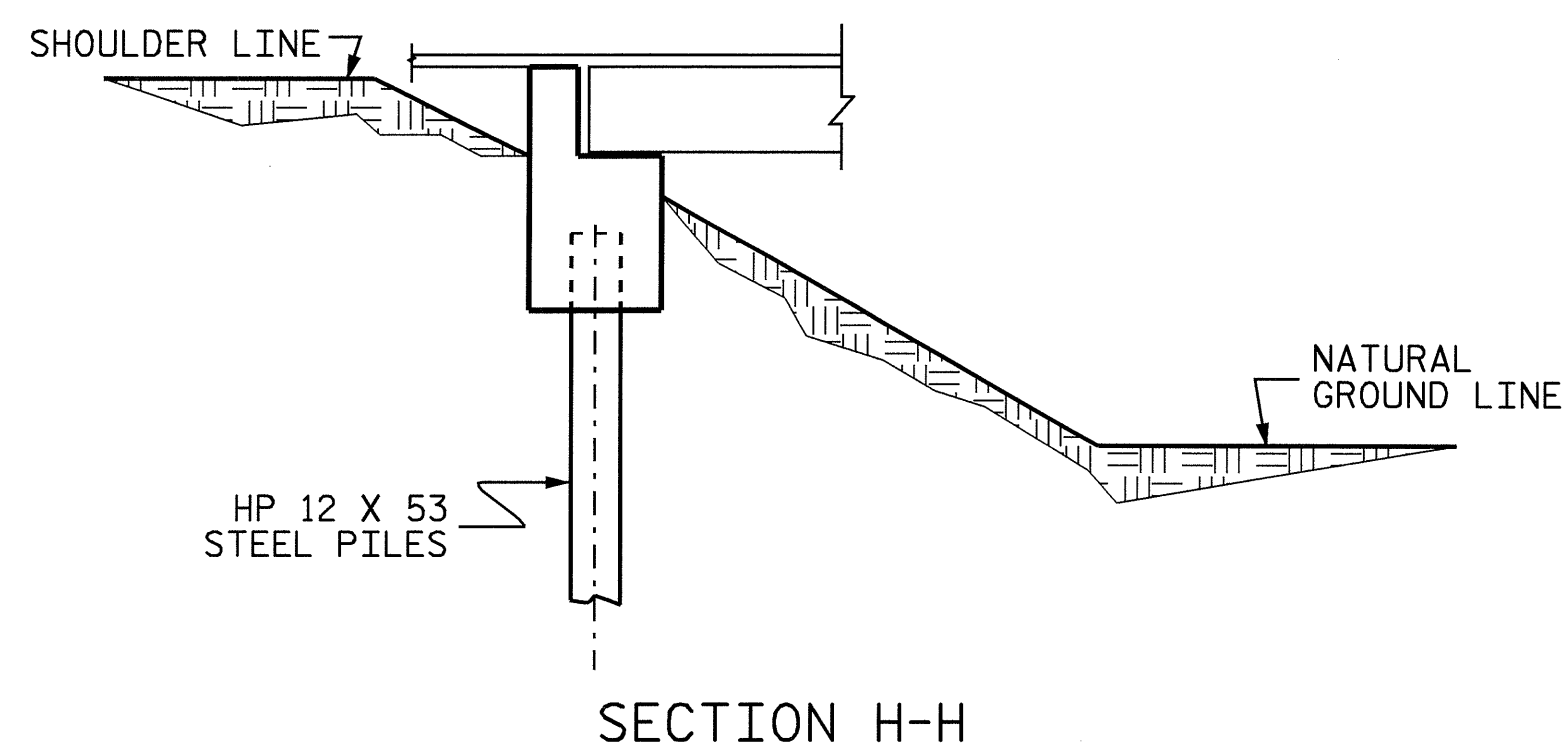


ESTIMATED QUANTITIES		
BRIDGE @ STA. 11+17.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	0	0
END BENT 2	35	39

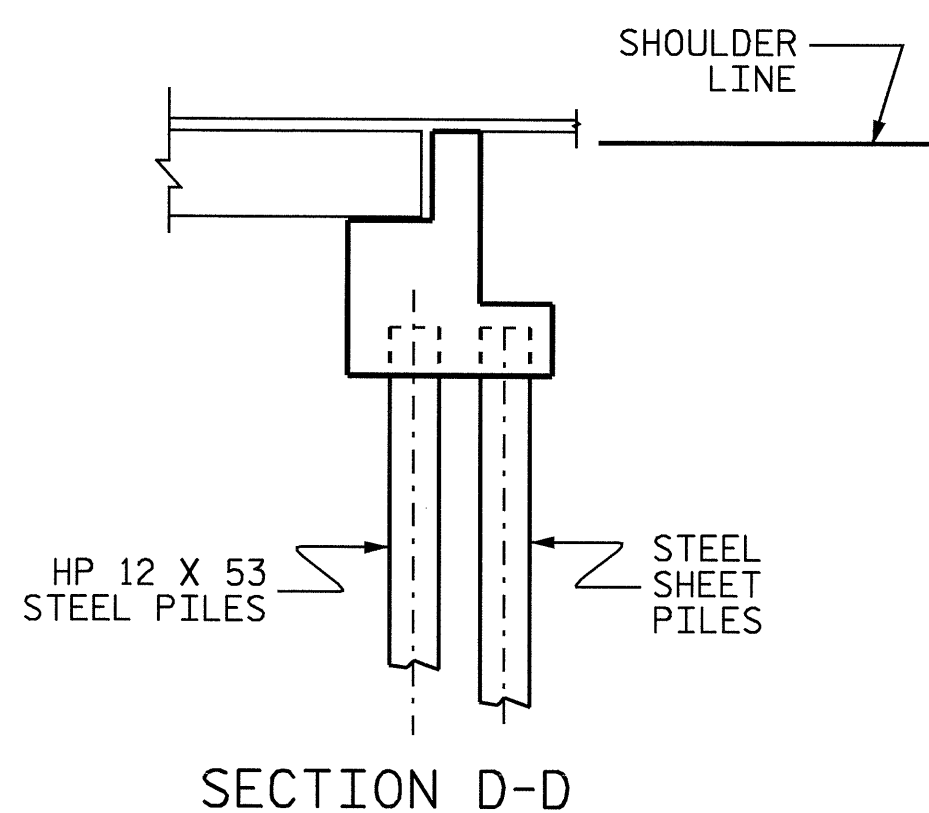
END BENT NO.1

END BENT NO.2

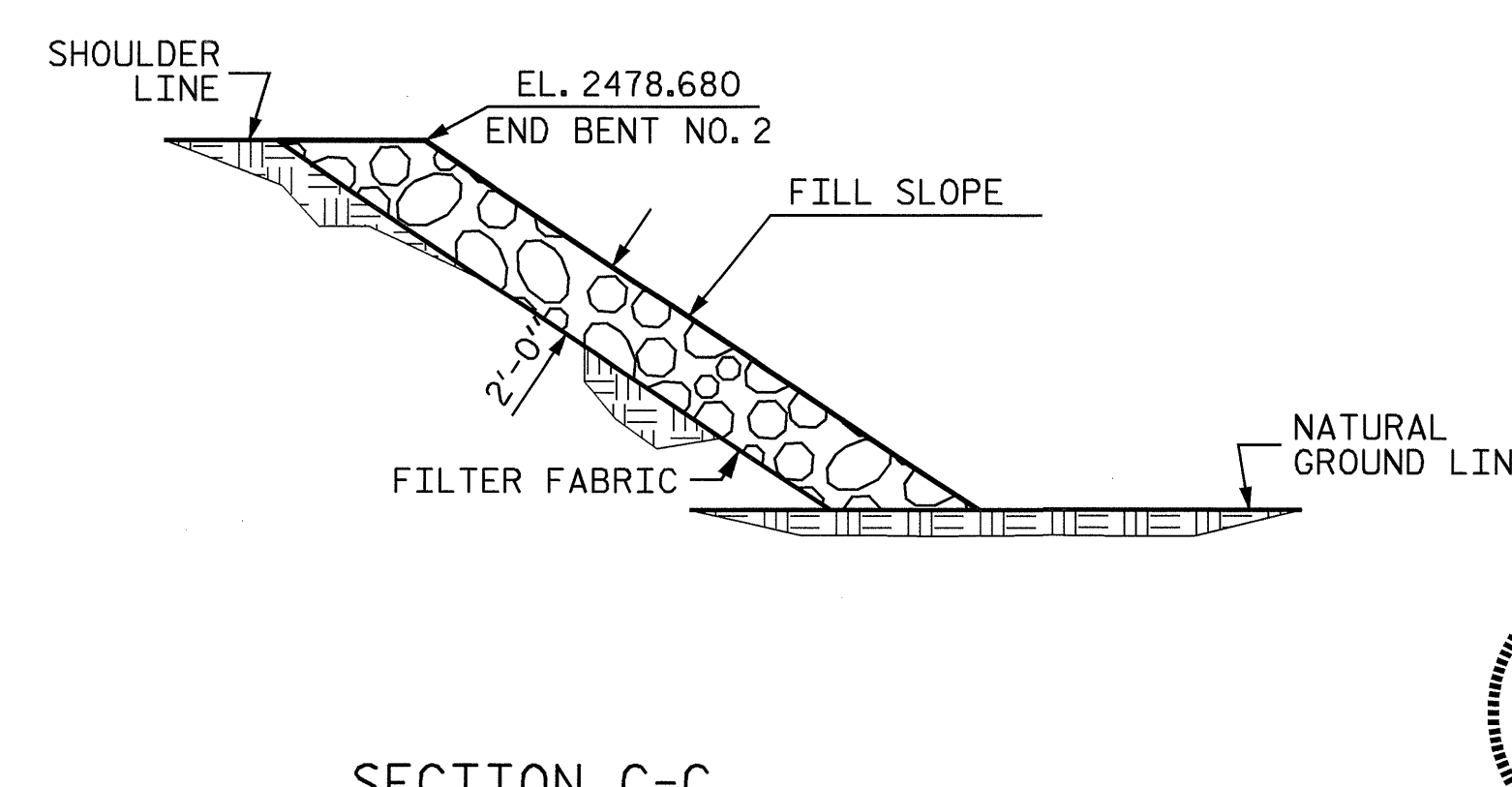
PLAN



SECTION H-H



SECTION D-D

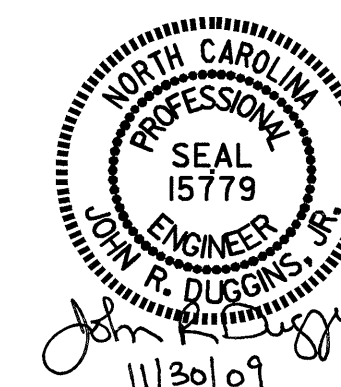


SECTION C-C

PROJECT NO. B-3869
MADISON COUNTY
 STATION: 11+17.00-L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RIP RAP DETAILS



ASSEMBLED BY : A.L. FIGUEROA DATE : 9-29-09
 CHECKED BY : J.R. DUGGINS DATE : 10-15-09

30-NOV-2009 14:42
 r:\structures\b3869\final plans\b-3869_sd.14.sp.dgn
 dsorsenglh

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

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 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. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN