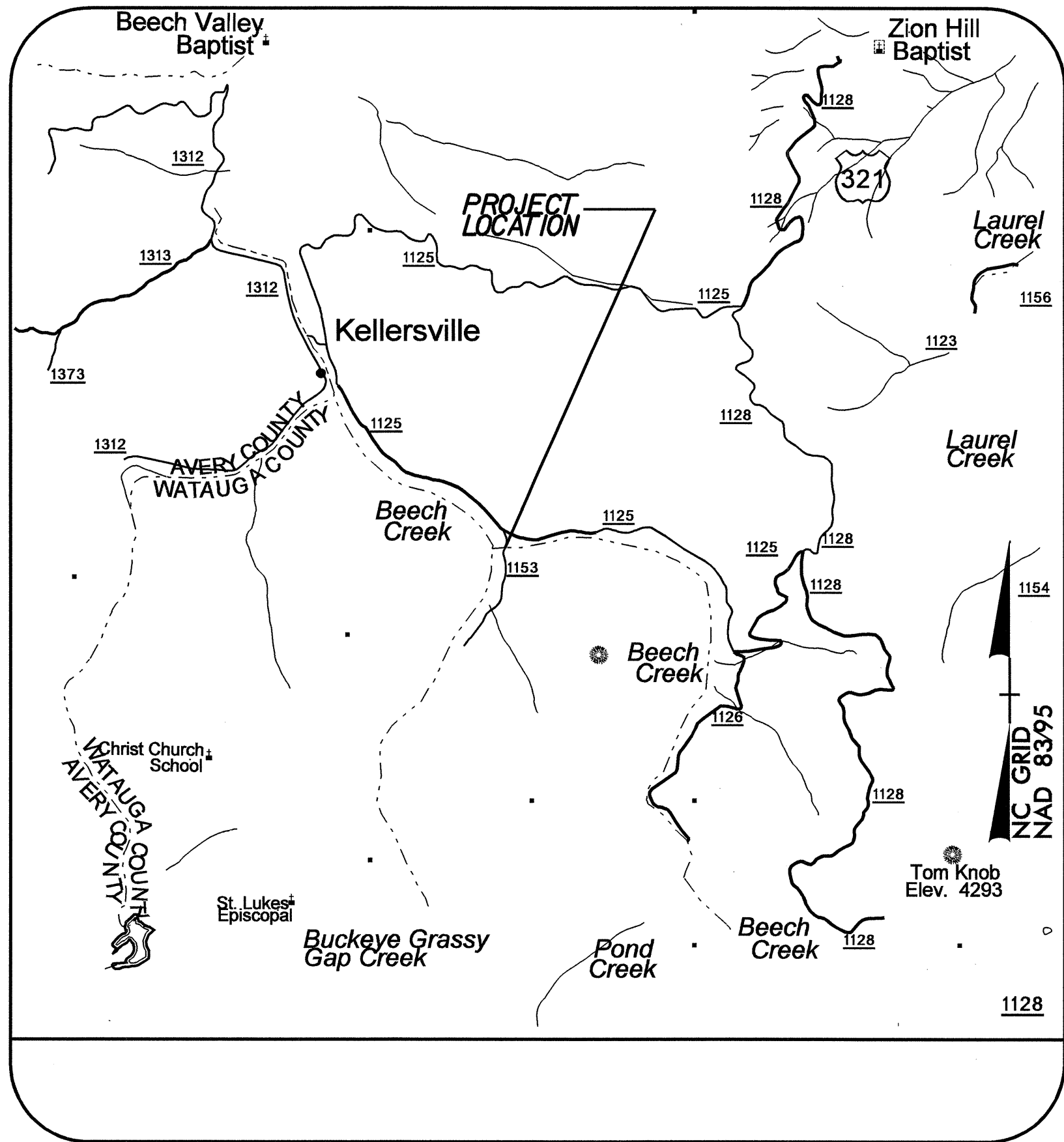


CONTRACT: 201809 TIP PROJECT: B-4316

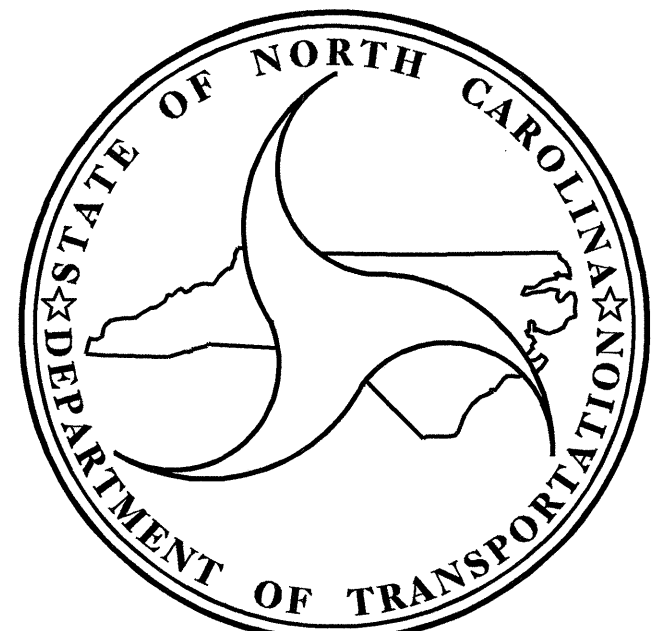
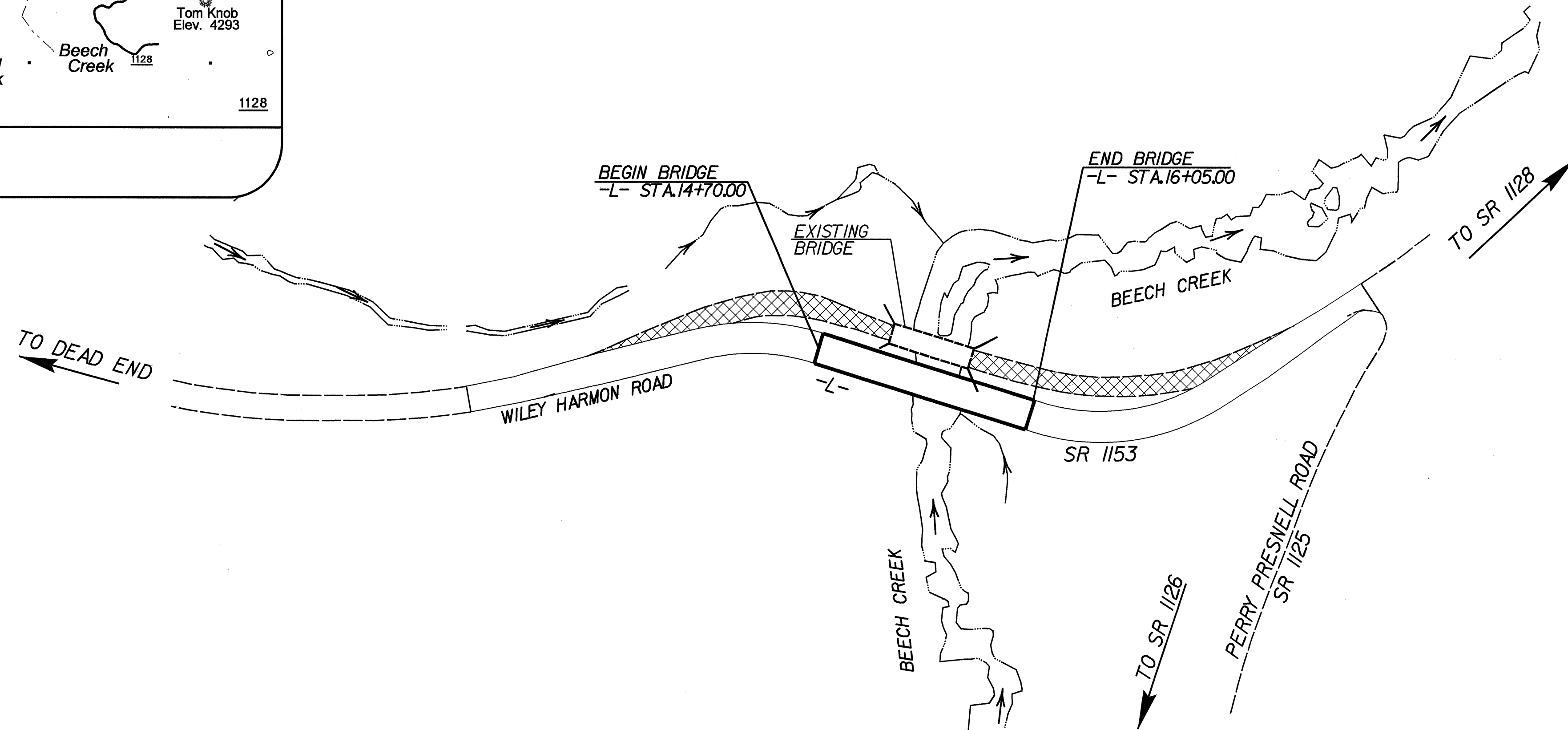
STRUCTURE



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
WATAUGA COUNTY

LOCATION: BRIDGE NO. 320 OVER BEECH CREEK ON SR 1153
TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4316		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33653.1.1	BRZ-1153(6)	P.E.	
33653.2.1	BRZ-1153(6)	UTIL. & RW	
33653.3.1	BRZ-1153(6)	CONST.	



DESIGN DATA

ADT 2009 = 160
ADT 2029 = 335
DHV = 12 %
D = 55 %
T = 3 % *
V = 30 MPH
* TTST 1% DUAL 2%

FUNC. CLASS = LOCAL

PROJECT LENGTH

LENGTH ROADWAY OF F.A. PROJECT = 0.130 MI
LENGTH STRUCTURE OF F.A. PROJECT = 0.026 MI
TOTAL LENGTH OF STATE PROJECT = 0.156 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE :
March 17, 2009

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

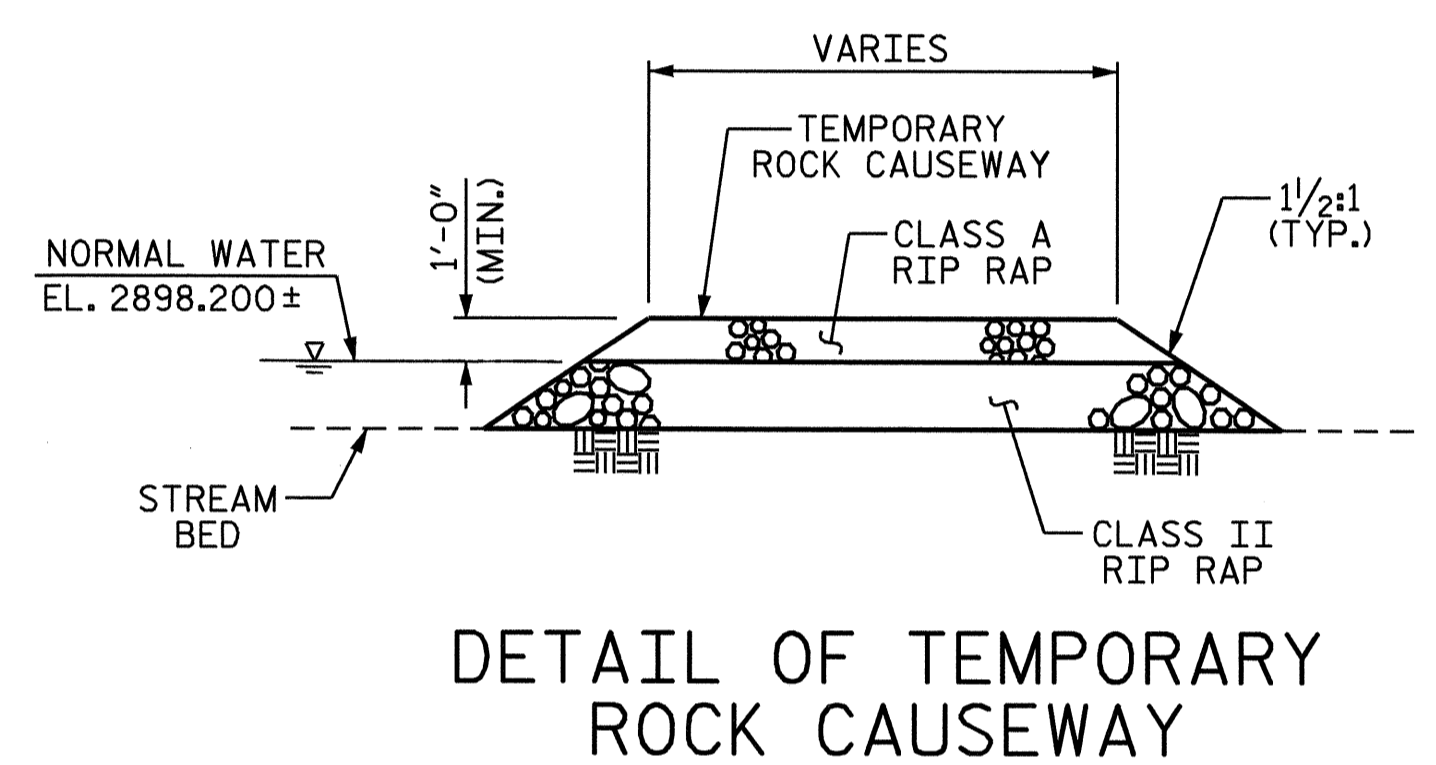
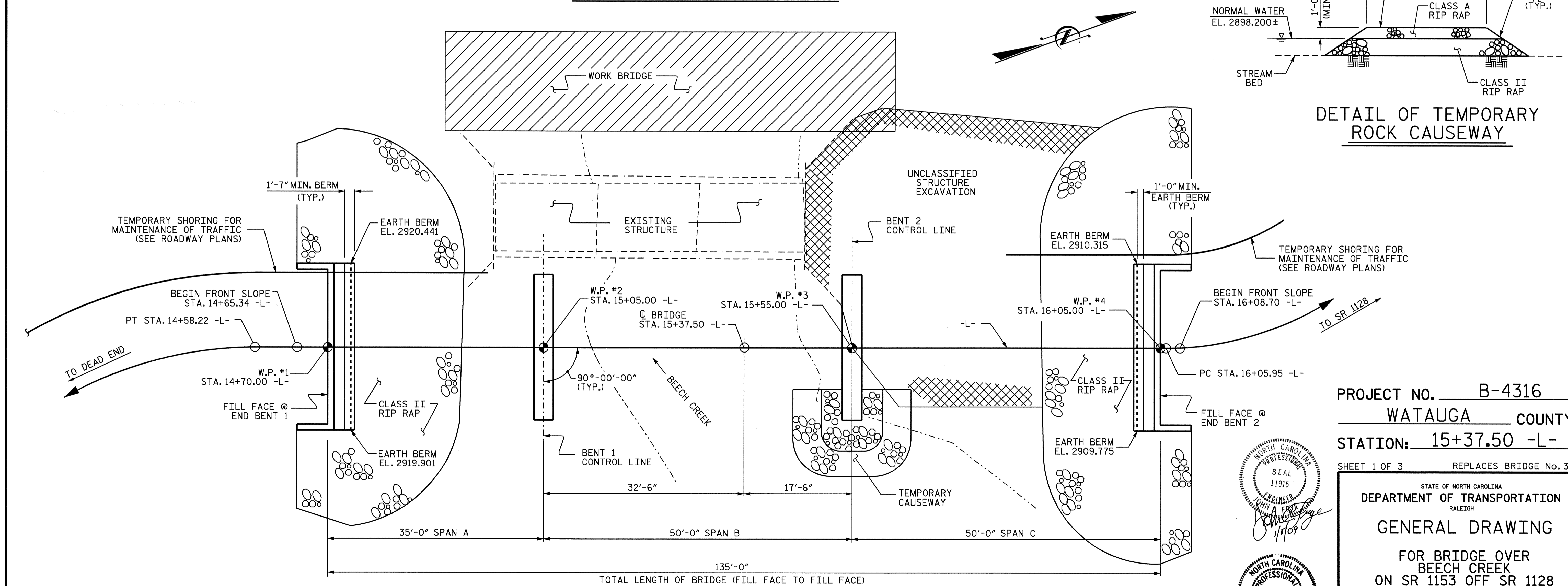
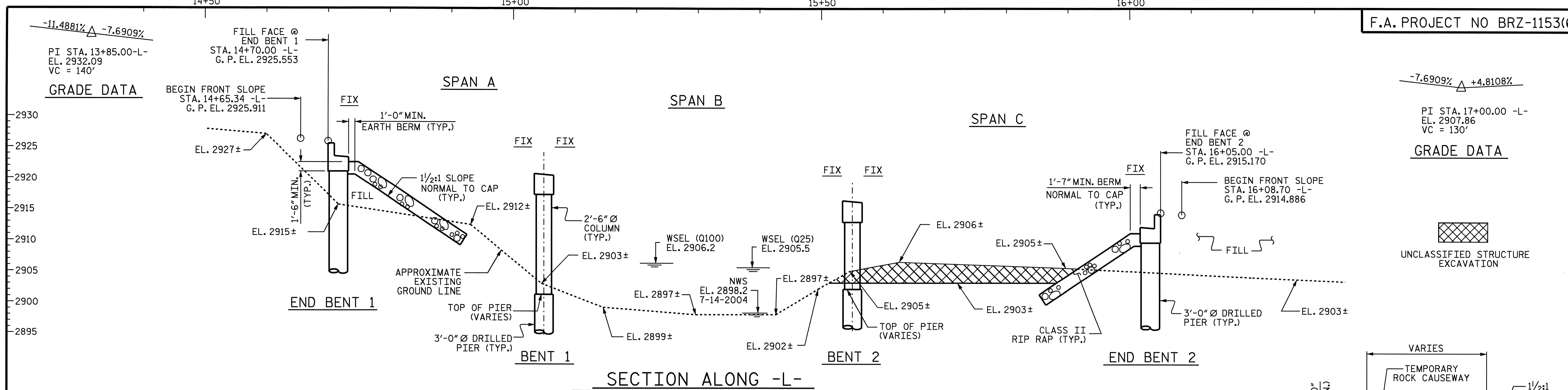
T. H. FANG, P.E.
PROJECT DESIGN ENGINEER

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

APPROVED _____
DIVISION ADMINISTRATOR DATE _____



PLAN
(DRILLED PIERS NOT SHOWN IN PLAN VIEW FOR CLARITY)

DRAWN BY : H. B. SHAH DATE : 12/17/07
 CHECKED BY : T. H. FANG DATE : 11/10/08

PROJECT NO. B-4316
WATAUGA COUNTY
 STATION: 15+37.50 -L-
 SHEET 1 OF 3 REPLACES BRIDGE No. 320

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 BEECH CREEK
 ON SR 1153 OFF SR 1128

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

31-DEC-2008 11:43
 Q:\B4316\Structures\Final Plans\B-4316_sd.gdgn
 sdombrowski

NOTES

DRILLED PIERS AT END BENT 1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 105 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 20 TSF.

DRILLED PIERS AT BENTS 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 195 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 25 TSF.

DRILLED PIERS AT END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 125 TONS PER PIER. CHECK FIELD CONDITIONS FOR THE REQUIRED TIP RESISTANCE OF 20 TSF.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 1. DO NOT EXTEND CASING BELOW ELEVATION 2890 FT. (LEFT) OR BELOW ELEVATION 2884 (RIGHT) WITHOUT APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.

PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT 2. DO NOT EXTEND CASING BELOW ELEVATION 2883 FT. (LEFT) OR BELOW ELEVATION 2890 (RIGHT) WITHOUT APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING.

INSTALL DRILLED PIERS AT END BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 2883 FT. AND SATISFY THE REQUIRED TIP RESISTANCE.

INSTALL DRILLED PIERS AT BENT 1 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 2884 FT. (LEFT) OR 2878 FT. (RIGHT) AND SATISFY THE REQUIRED TIP RESISTANCE.

INSTALL DRILLED PIERS AT BENT 2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 2878 FT. (LEFT) OR 2882 FT. (RIGHT) AND SATISFY THE REQUIRED TIP RESISTANCE.

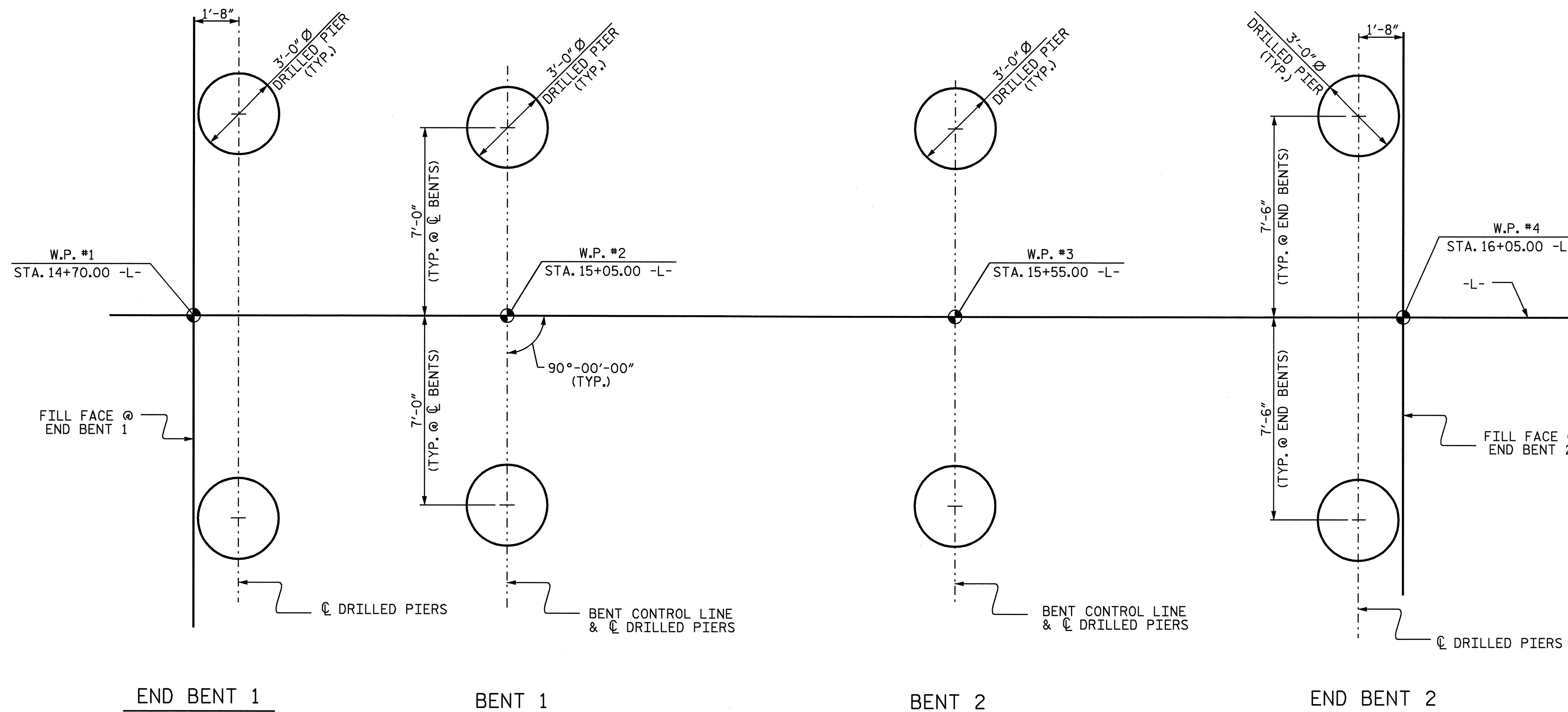
INSTALL DRILLED PIERS AT END BENT 2 THAT EXTEND TO AN ELEVATION NO HIGHER THAN 2892 FT. AND SATISFY THE REQUIRED TIP RESISTANCE.

THE SCOUR CRITICAL ELEVATION FOR BENT 2 IS ELEVATION 2894 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

SID INSPECTIONS MAY BE REQUIRED FOR DRILLED PIERS. THE ENGINEER WILL DETERMINE THE NEED FOR SID INSPECTIONS.

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

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

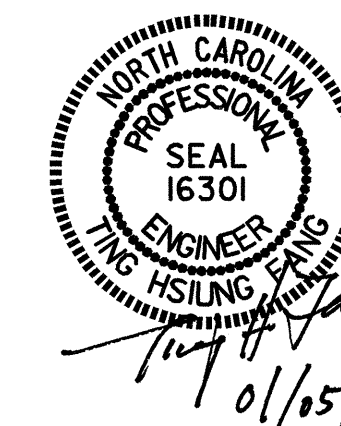


FOUNDATION LAYOUT

DIMENSIONS LOCATING DRILLED PIERS ARE SHOWN TO THE DRILLED PIER CENTERLINE

PROJECT NO. B-4316
WATAUGA COUNTY
 STATION: 15+37.50 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER
 BEECH CREEK
 ON SR 1153 OFF SR 1125

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

DRAWN BY : J.L. WALTON DATE : 6/06
 CHECKED BY : T. H. FANG DATE : 10/08

TOTAL BILL OF MATERIAL

	CONST. MAINT. & REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	3'-0" Ø DRILLED PIERS IN SOIL	3'-0" Ø DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIERS	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	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	
	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	EA.	EA.	C. Y	CU. YDS.	LBS.	LBS.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE												266			LUMP SUM	21	930.23
END BENT 1			66.5	9					12.3	6223	1398		140	155			
BENT 1			23.75	18	30				14.4	5233	1287						
BENT 2			23.75	20	31				13.1	5009	1186						
END BENT 2			19.5	18					12.3	4244	718		150	165			
TOTAL	LUMP SUM	LUMP SUM	133.5	65	61	1	1	550	52.1	20,709	4589	266	290	320	LUMP SUM	21	930.23

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

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

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 REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN FOR SEISMIC PERFORMANCE ZONE 1.

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

IN AS MUCH 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 15+37.50 -L-".

AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF 3 SPANS: 1 @ 16'-10", 1 @ 16'-8" & 1 @ 17'-2", 11'-2" CLEAR ROADWAY WIDTH AND A TIMBER FLOOR ON STEEL FLOOR BEAMS; SUBSTRUCTURE CONSISTING OF TIMBER CAPS ON TIMBER POSTS, & CONCRETE SILLS AND LOCATED 25 FEET DOWNSTREAM OF THE PROPOSED STRUCTURE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISIONS.

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 STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 40 FT. LEFT SIDE, 10 FT. RIGHT SIDE AT END BENT 2 OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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.

FOR CONSTRUCTION MAINTENANCE & REMOVAL OF TEMPORARY ACCESS, SEE SPECIAL PROVISION.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

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

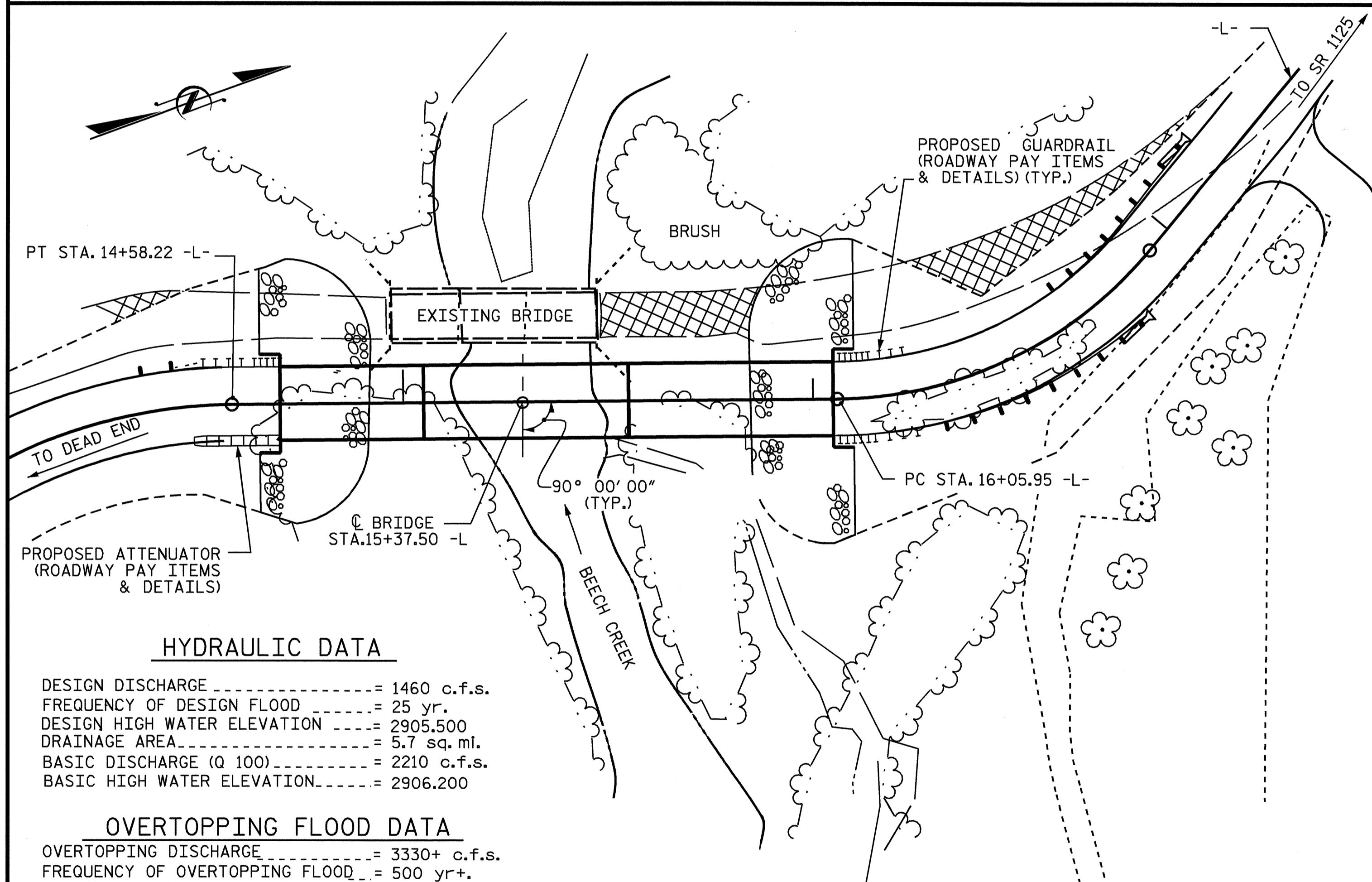
FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR TEMPORARY SHORING PAY ITEM, SEE ROADWAY PLANS.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.

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 15+37.50 -L-.

FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

BM#2 : 8" SPIKE IN ROOT OF A 12" POPLAR, 115' LEFT OF STA. 15+36.00 -L-, EL. 2900.32



HYDRAULIC DATA

DESIGN DISCHARGE = 1460 c.f.s.
 FREQUENCY OF DESIGN FLOOD = 25 yr.
 DESIGN HIGH WATER ELEVATION = 2905.500
 DRAINAGE AREA = 5.7 sq. mi.
 BASIC DISCHARGE (Q 100) = 2210 c.f.s.
 BASIC HIGH WATER ELEVATION = 2906.200

OVERTOPPING FLOOD DATA

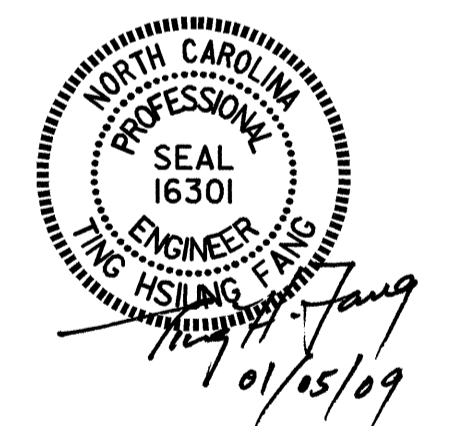
OVERTOPPING DISCHARGE = 3330+ c.f.s.
 FREQUENCY OF OVERTOPPING FLOOD = 500 yr+
 OVERTOPPING FLOOD ELEVATION = 2909.800

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

DRAWN BY : HARISH SHAH DATE : 12/07
 CHECKED BY : T. H. FANG DATE : 10/08

31-BEC-2008 11+42
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 gdombrowski



PROJECT NO. B-4316
WATAUGA COUNTY
 STATION: 15+37.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER
 BEECH CREEK
 ON SR 1153 OFF SR 1125

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

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD FACTORS:

LIMIT STATE	γ_{DC}	γ_{DW}
STRENGTH I	1.25	1.50
SERVICE III	1.00	1.00

NOTES:

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

MINIMUM RATING FACTORS FOR LEGAL LOAD RATING ARE BASED ON THE STRENGTH I LIMIT STATE.

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

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 (%L)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN NUMBER	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN NUMBER	DISTANCE FROM LEFT END OF SPAN (FT)	LIVE-LOAD FACTORS (%L)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN NUMBER		DISTANCE FROM LEFT END OF SPAN (FT)
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.04	--	1.75	0.273	1.05	B	24.438	0.531	1.04	B	9.775	0.80	0.273	1.10	B	24.438	
	HL-93 (OPERATING)	N/A		1.35	--	1.35	0.273	1.36	B	24.438	0.531	1.35	B	9.775	N/A	--	--	--	--	
	HS-20 (INVENTORY)	36.00	2	1.09	39.24	1.80	0.273	1.63	B	24.438	0.531	1.55	B	9.775	1.00	0.273	1.09	B	24.438	
	HS-20 (OPERATING)	36.00		2.07	74.52	1.35	0.273	2.17	B	24.438	0.531	2.07	B	9.775	N/A	--	--	--	--	
LEGAL LOAD RATING	SNSH	13.50		3.31	29.97	1.80	0.273	3.31	B	24.438	0.564	3.36	A	1.641	1.00	0.273	2.22	B	24.438	
	SNGAR BS2	20.00		2.53	35.00	1.80	0.273	2.61	B	24.438	0.531	2.53	B	9.775	1.00	0.273	1.75	B	24.438	
	SNCOT TS3	25.50		1.80	30.86	1.80	0.273	1.80	B	24.438	0.564	1.86	A	1.641	1.00	0.273	1.21	B	24.438	
	SNS3A	27.03		1.73	31.35	1.80	0.273	1.73	B	24.438	0.564	1.80	A	1.641	1.00	0.273	1.16	B	24.438	
	SNAG GRS4	34.93		1.43	33.53	1.80	0.273	1.43	B	24.438	0.531	1.49	B	9.775	1.00	0.273	0.96	B	24.438	
	SNS5A	35.55		1.40	33.42	1.80	0.273	1.40	B	24.438	0.531	1.54	B	9.775	1.00	0.273	0.94	B	24.438	
	SNS6A	39.95		1.31	35.16	1.80	0.273	1.31	B	24.438	0.531	1.42	B	9.775	1.00	0.273	0.88	B	24.438	
	SNS7B	42.00	3	1.25	35.28	1.80	0.273	1.25	B	24.438	0.531	1.43	B	9.775	1.00	0.273	0.84	B	24.438	
	TNT4A	33.08		1.61	35.73	1.80	0.273	1.62	B	24.438	0.531	1.61	B	9.775	1.00	0.273	1.08	B	24.438	
	TNT5B	37.20		1.43	35.71	1.80	0.273	1.43	B	24.438	0.531	1.55	B	9.775	1.00	0.273	0.96	B	24.438	
	TNAG RIT4	38.00		1.95	52.82	1.80	0.273	2.07	B	24.438	0.531	1.95	B	9.775	1.00	0.273	1.39	B	24.438	
	TNT6A	41.60		1.35	37.44	1.80	0.273	1.35	B	24.438	0.531	1.56	B	9.775	1.00	0.273	0.90	B	24.438	
	TNT7A	42.00		1.37	38.64	1.80	0.273	1.37	B	24.438	0.531	1.45	B	9.775	1.00	0.273	0.92	B	24.438	
	TNT7B	42.00		1.37	40.32	1.80	0.273	1.43	B	24.438	0.531	1.37	B	9.775	1.00	0.273	0.96	B	24.438	
TNAG T5A	45.00		1.67	51.30	1.80	0.273	1.70	B	24.438	0.531	1.67	B	9.775	1.00	0.273	1.14	B	24.438		
TNAG T5B	45.00		1.77	58.95	1.80	0.273	1.95	B	24.438	0.531	1.77	B	9.775	1.00	0.273	1.31	B	24.438		

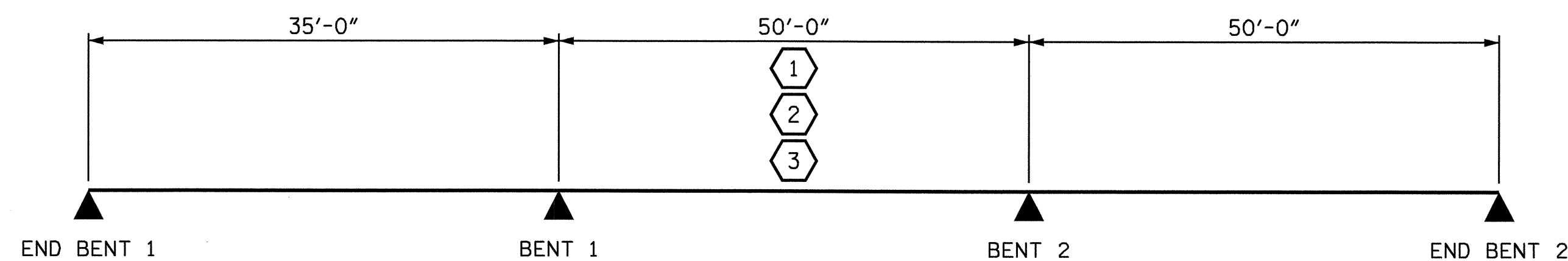
CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93) **

2 DESIGN LOAD RATING (HS-20) **

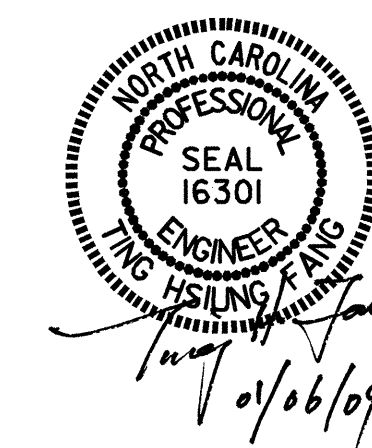
3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE



LRFR SUMMARY

PROJECT NO. B-4316
WATAUGA COUNTY
 STATION: 15+37.50 -L-

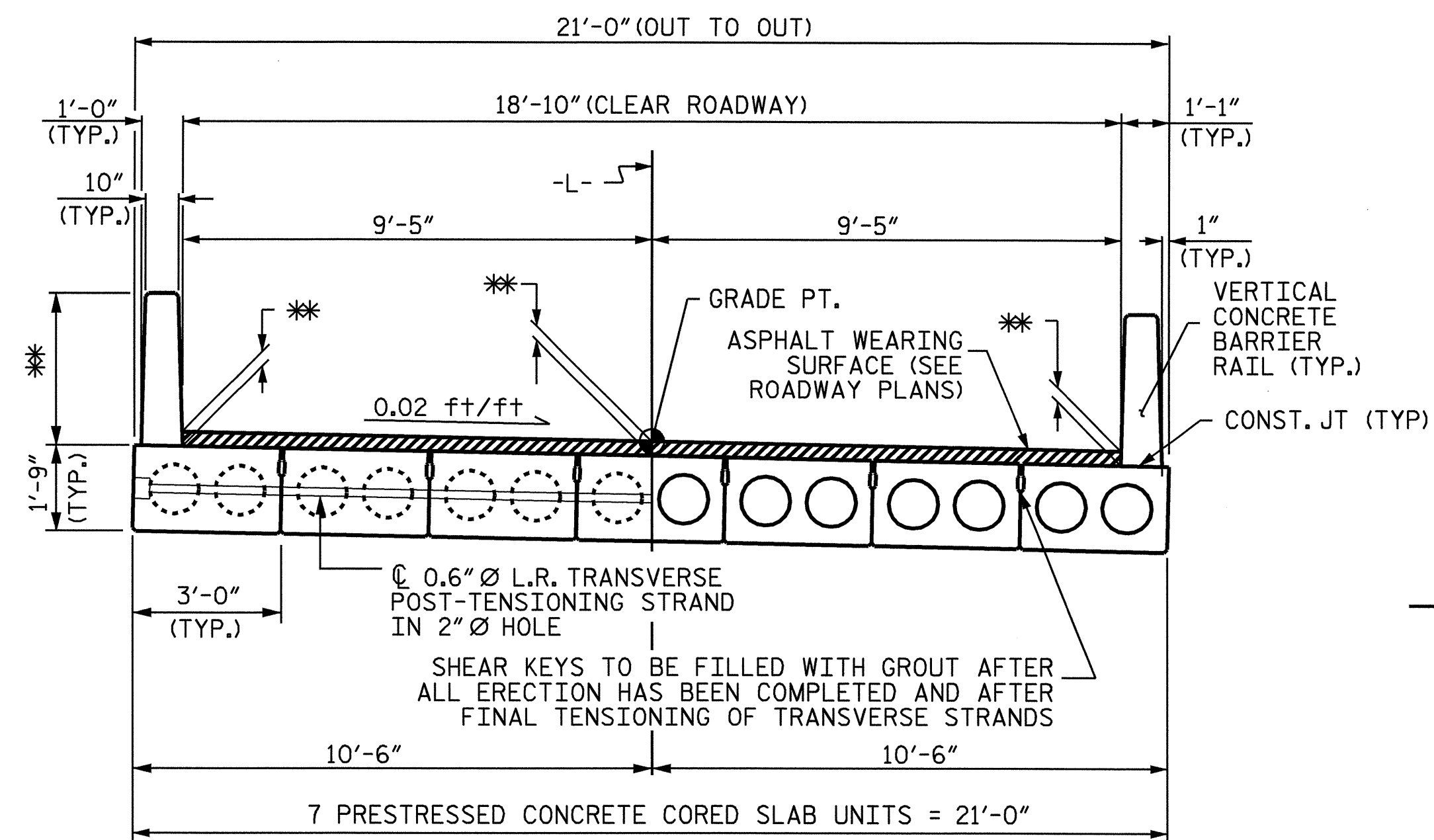


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

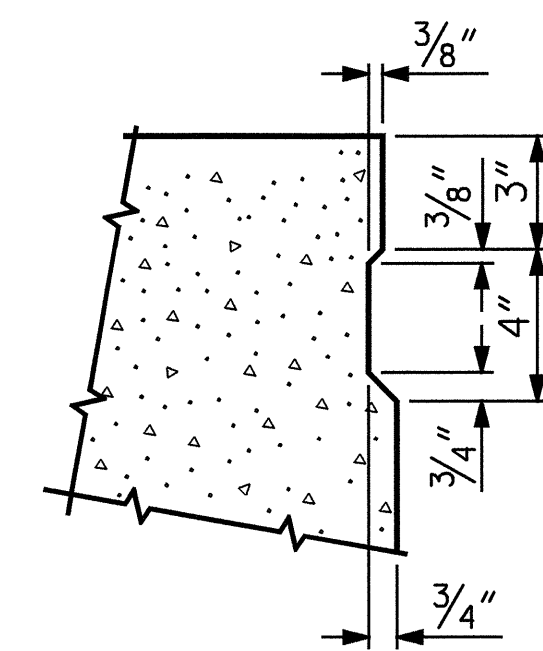
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			19

ASSEMBLED BY : S. DOMBROWSKI DATE : 10/24/08
 CHECKED BY : T. H. FANG DATE : 11/17/08
 DRAWN BY : MAA 1/08
 CHECKED BY : GM/DI 2/08



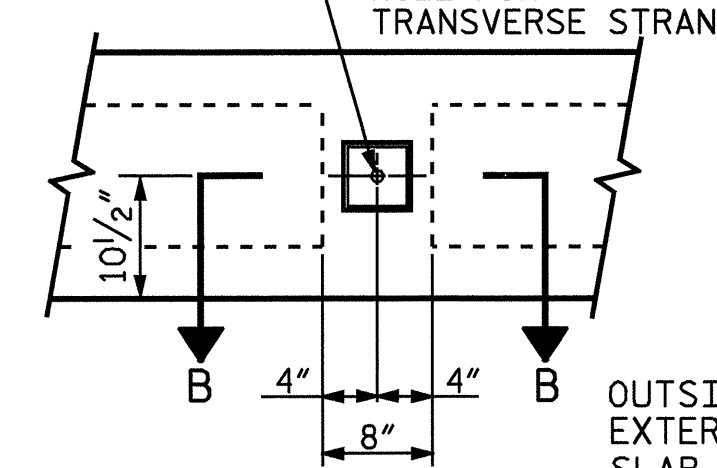
TYPICAL SECTION

* SEE TABLES FOR DIMENSIONS.

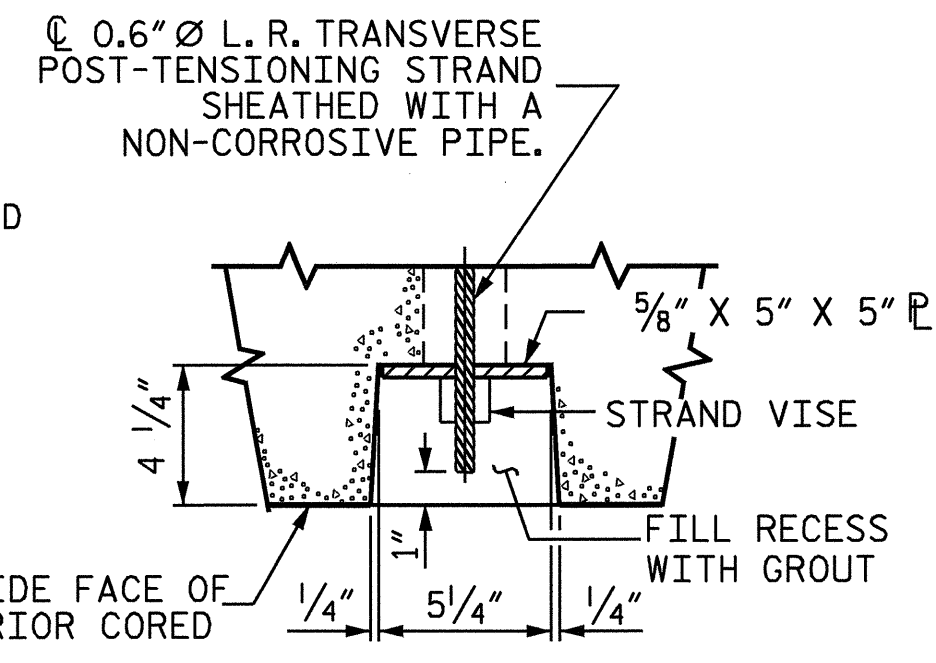


SHEAR KEY DETAIL

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

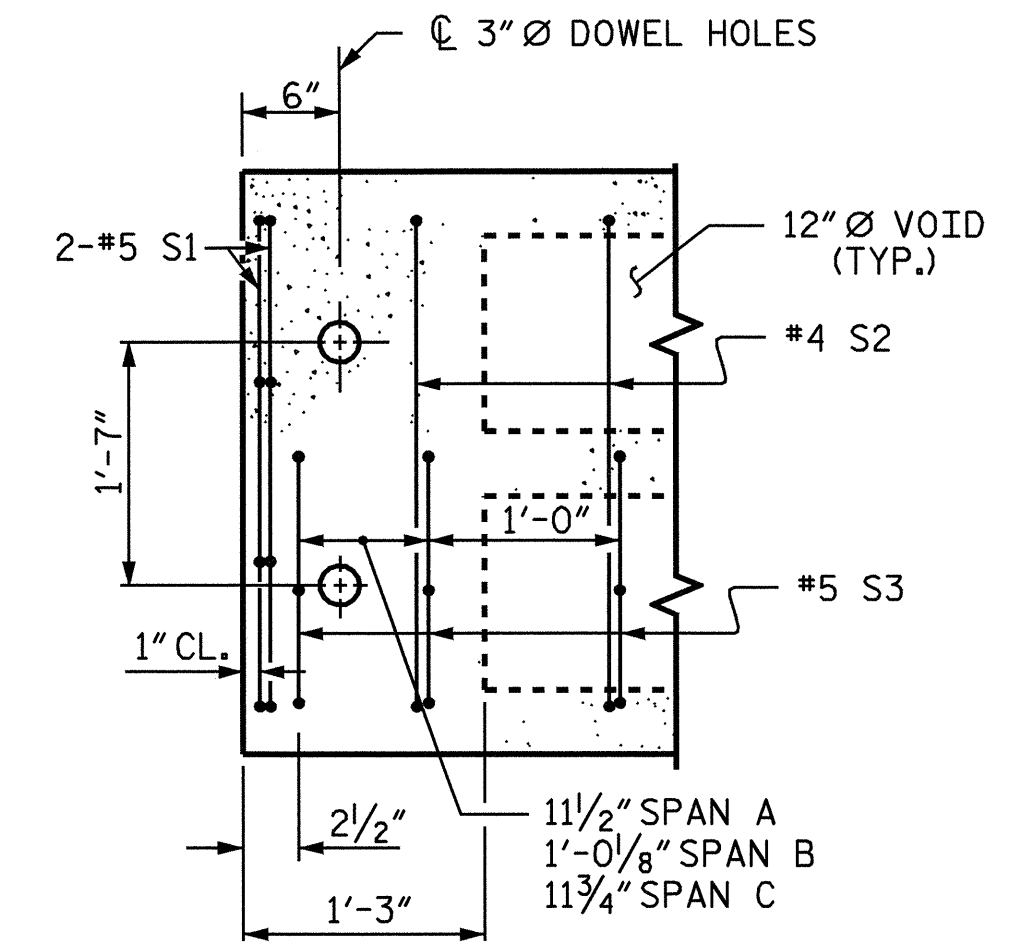


ELEVATION VIEW



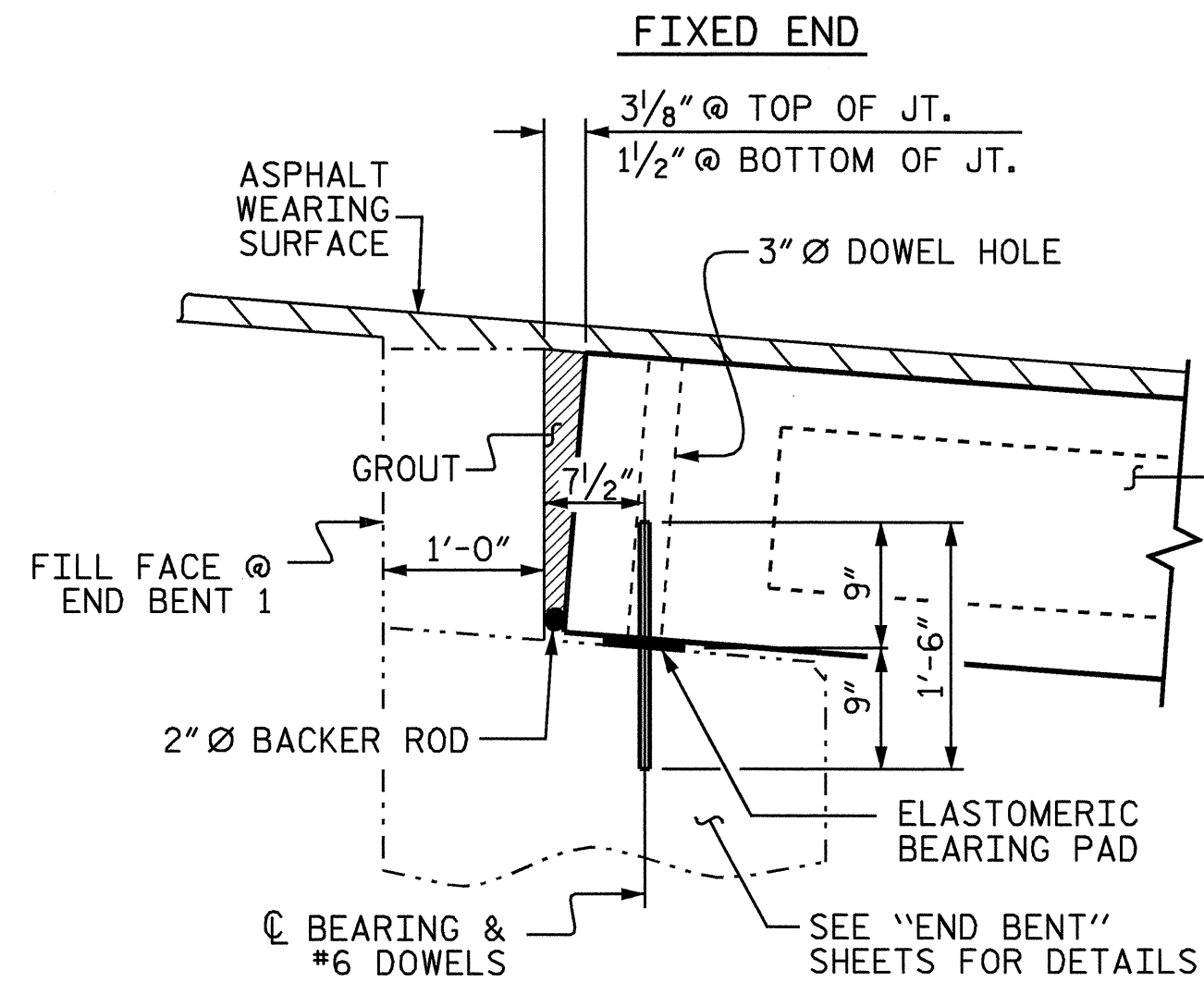
SECTION B-B

GROUTED RECESS @ END OF POST-TENSIONED STRAND CORED SLABS

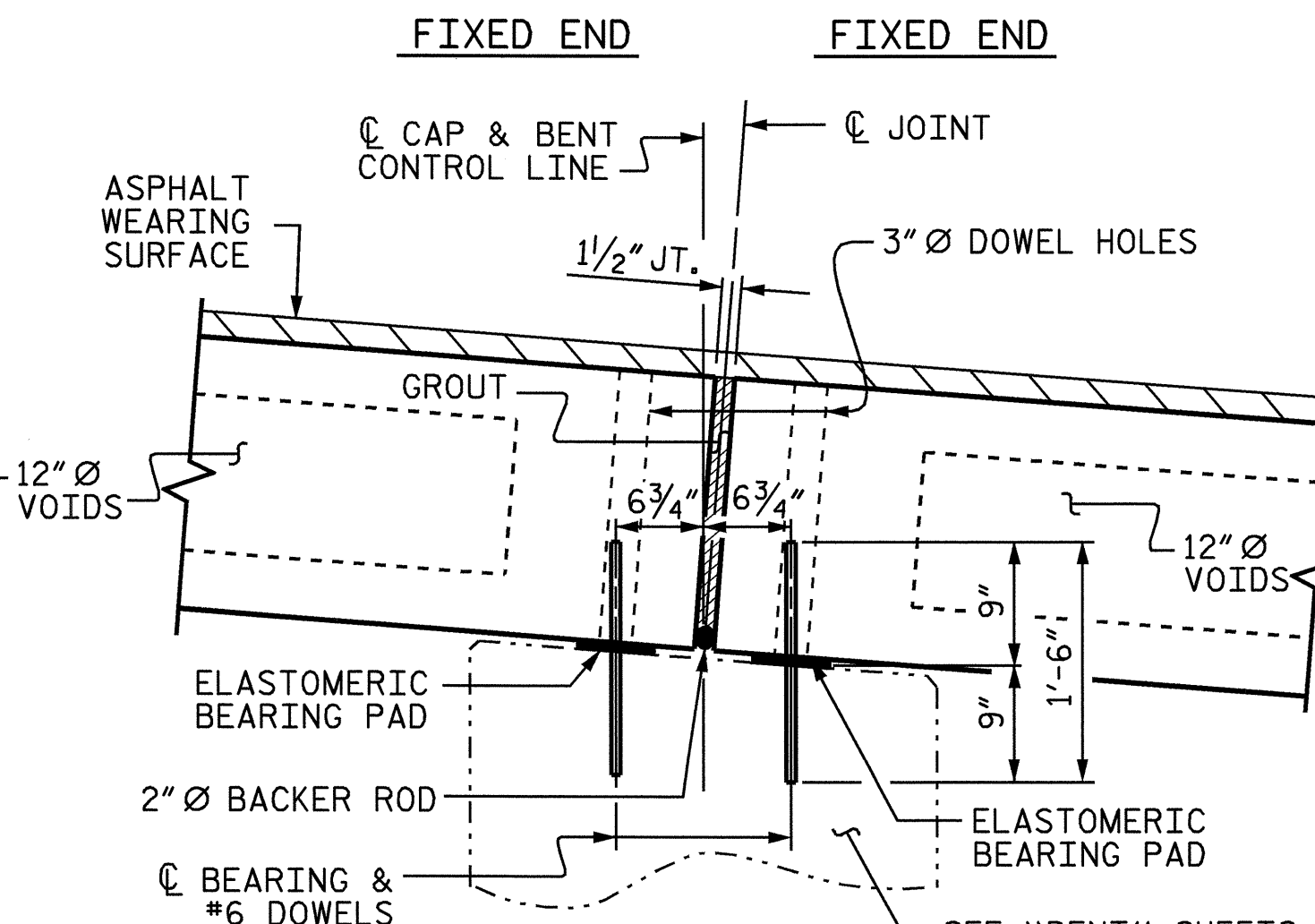


PART PLAN-EXTERIOR SECTION

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

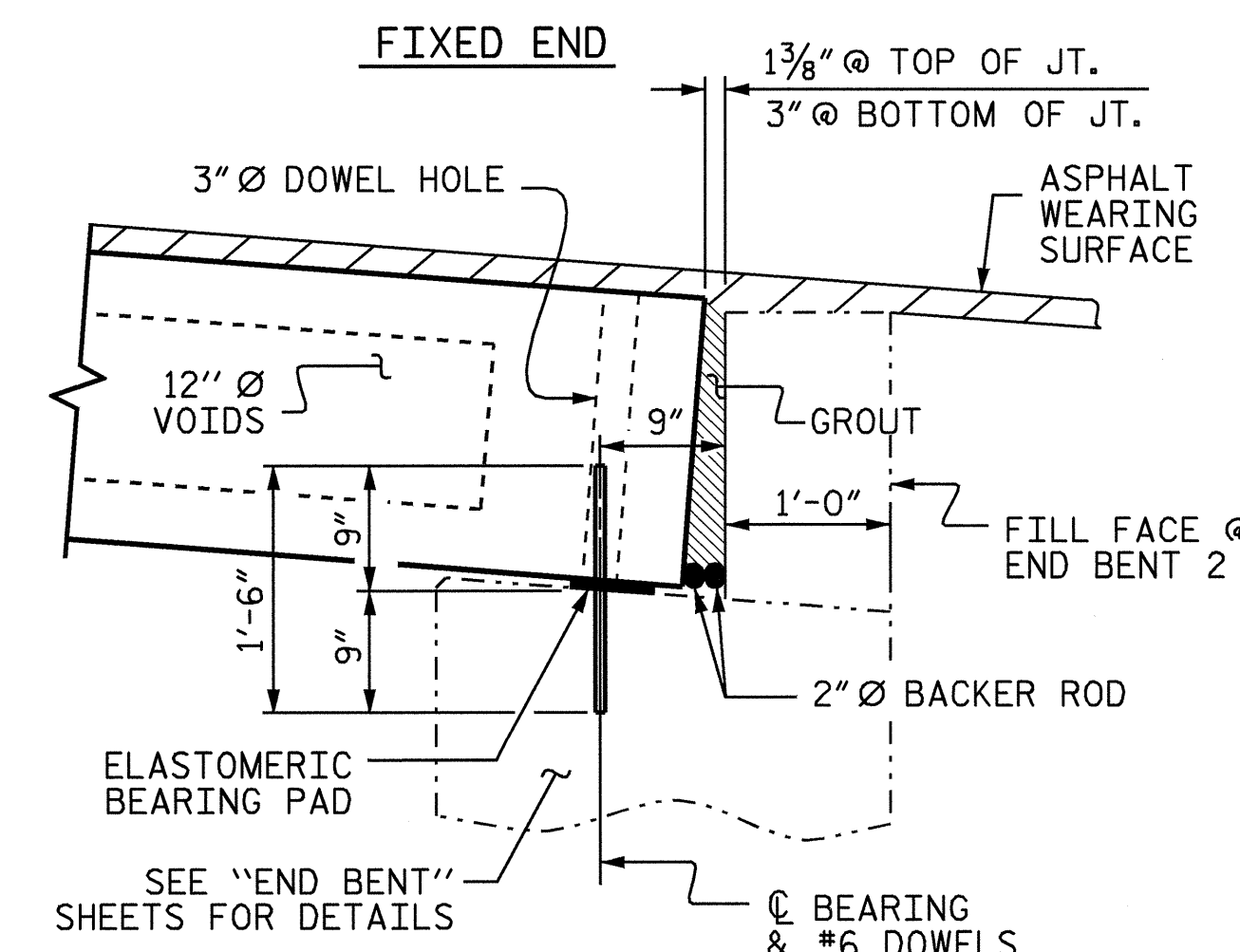


SECTION AT END BENT 1



SECTION AT BENT

FOR LOCATION OF 3" DOWEL HOLES, SEE "PLAN OF SPAN" SHEET. ALL #6 DOWELS ARE PLUMB.



SECTION AT END BENT 2

ASPHALT WEARING SURFACE THICKNESS TABLE

BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.

SPAN	** AT @ BEARINGS	** AT MID-SPAN
A	3 1/2"	2 3/4"
B	3 1/2"	1 3/4"
C	3 1/2"	1 7/8"

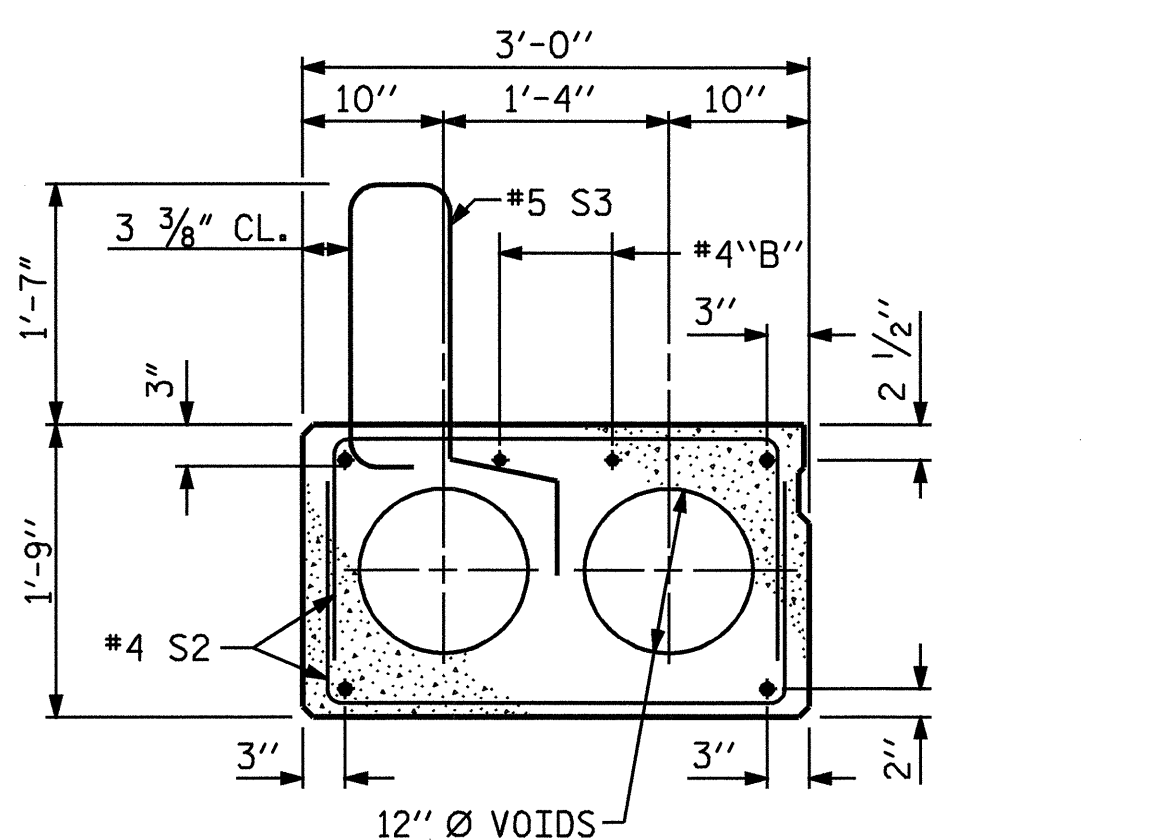
NOTE: THICKNESS VARIES BETWEEN @ BEARING AND MID-SPAN FOR ALL SPANS.

RAIL HEIGHT TABLE

BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.

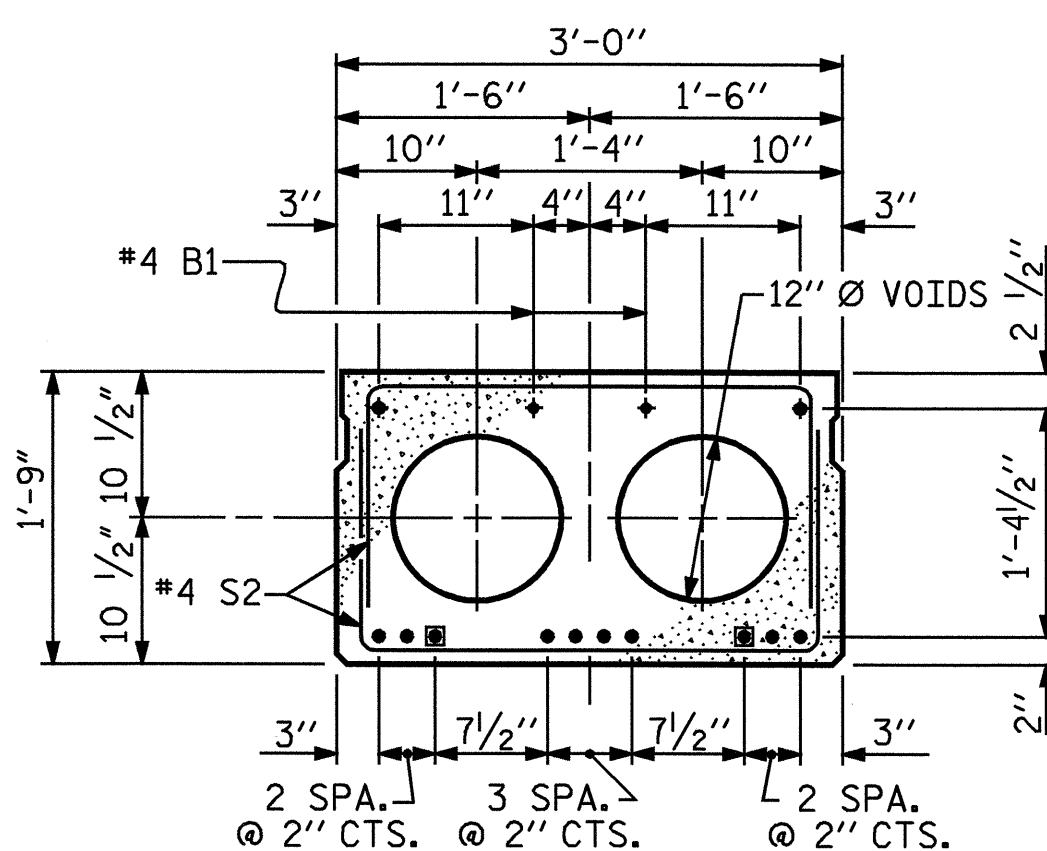
SPAN	** AT @ BEARINGS	** AT MID-SPAN
A	2'-11 1/2"	2'-10 3/4"
B	2'-11 1/2"	2'-9 3/4"
C	2'-11 1/2"	2'-9 7/8"

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.



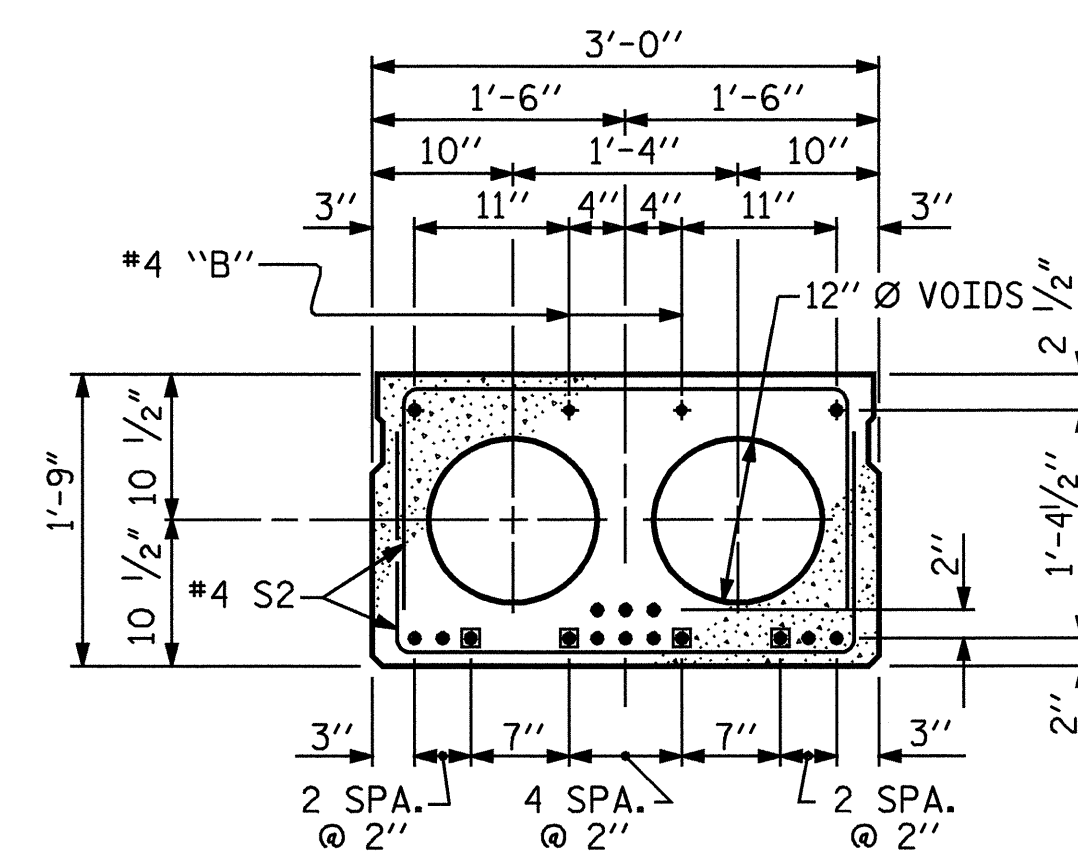
EXTERIOR SLAB SECTION

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



INTERIOR SLAB SECTION

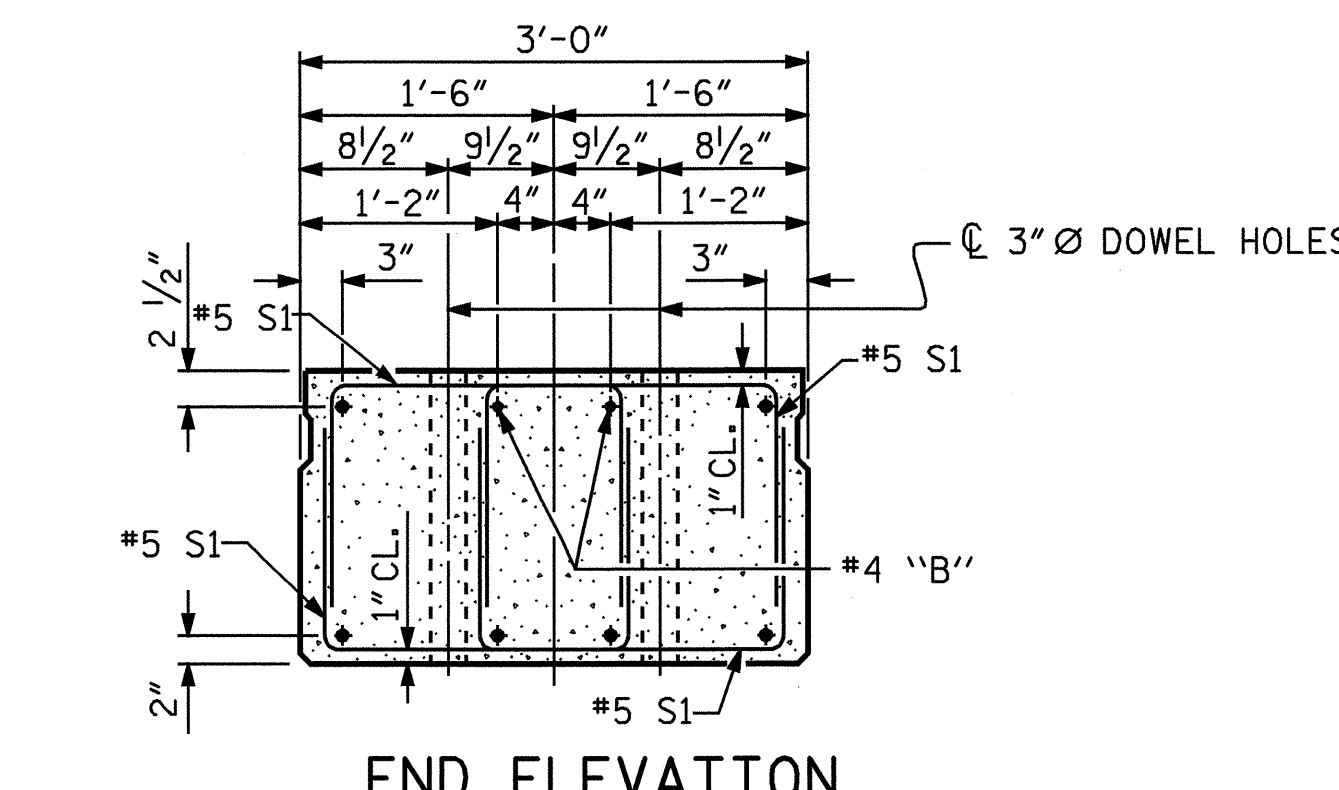
(12 STRANDS, 2 SHEATHED) (SPAN A)



INTERIOR SLAB SECTION

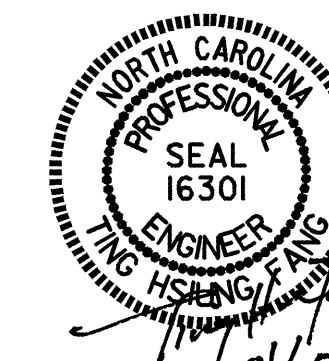
(16 STRANDS, 4 SHEATHED) (SPAN B & C)

0.6" Ø LOW RELAXATION STRAND LAYOUT



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.



PROJECT NO. B-4316
WATAUGA COUNTY
 STATION: 15+37.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD

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

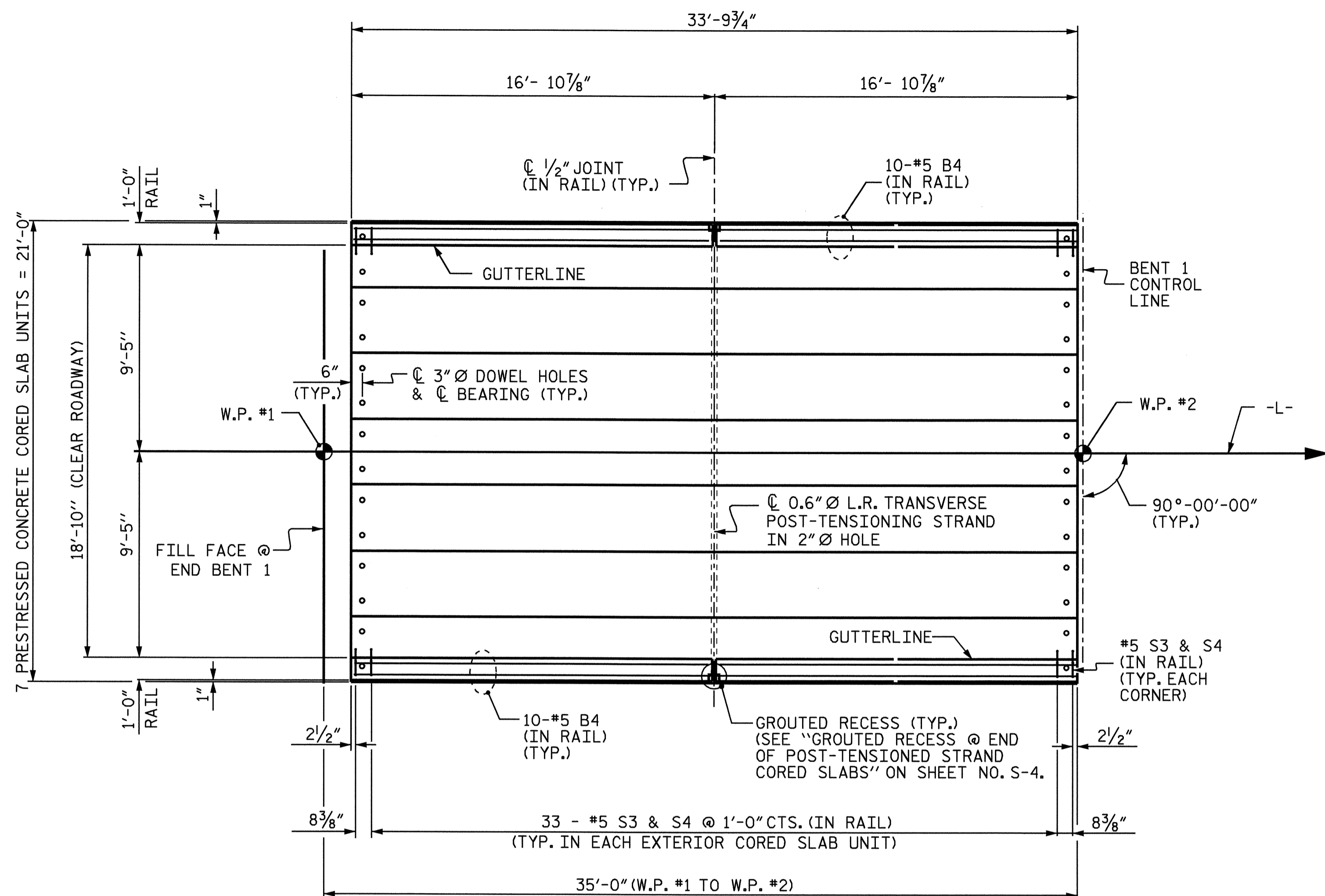
ASSEMBLED BY : Z. H. BROWN	DATE : 8/22/08
CHECKED BY : TING FANG	DATE : 10/22/08
DRAWN BY : WJH 4/89	REV. 10/17/00 RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/01RR RWW/LES
	REV. 5/1/06 TLA/GM

BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT IN SPAN A AND 6'-0" IN SPANS B & C. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

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

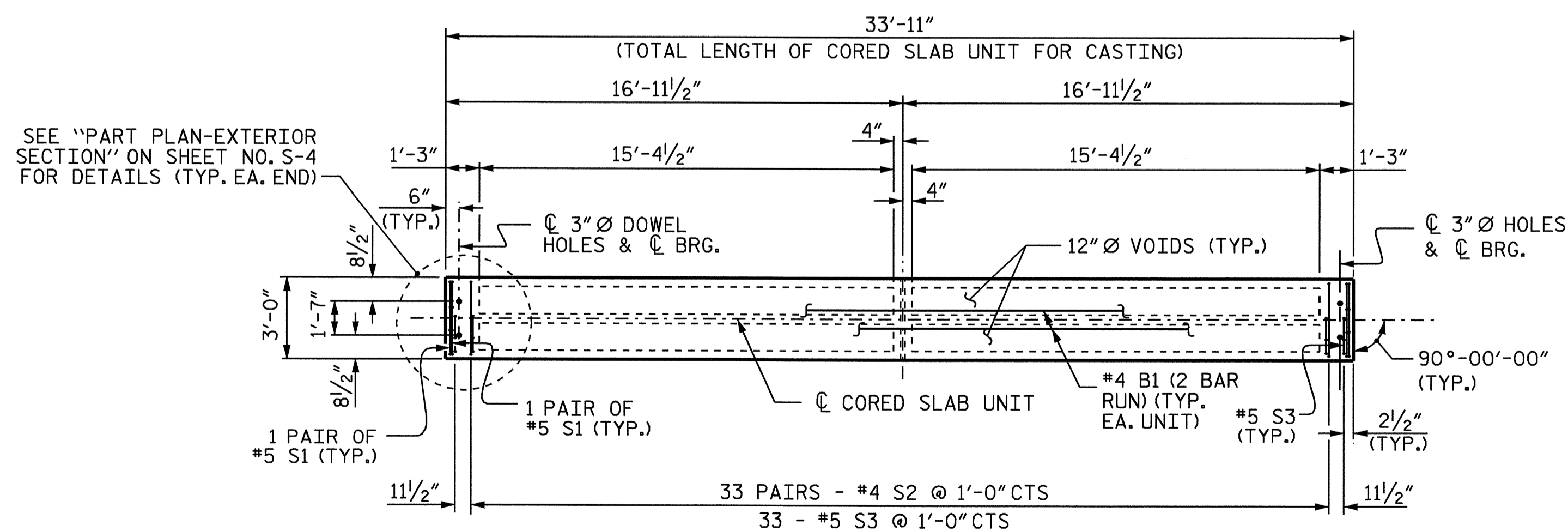
S-5
 TOTAL SHEETS
 19

STD. NO. PCS2



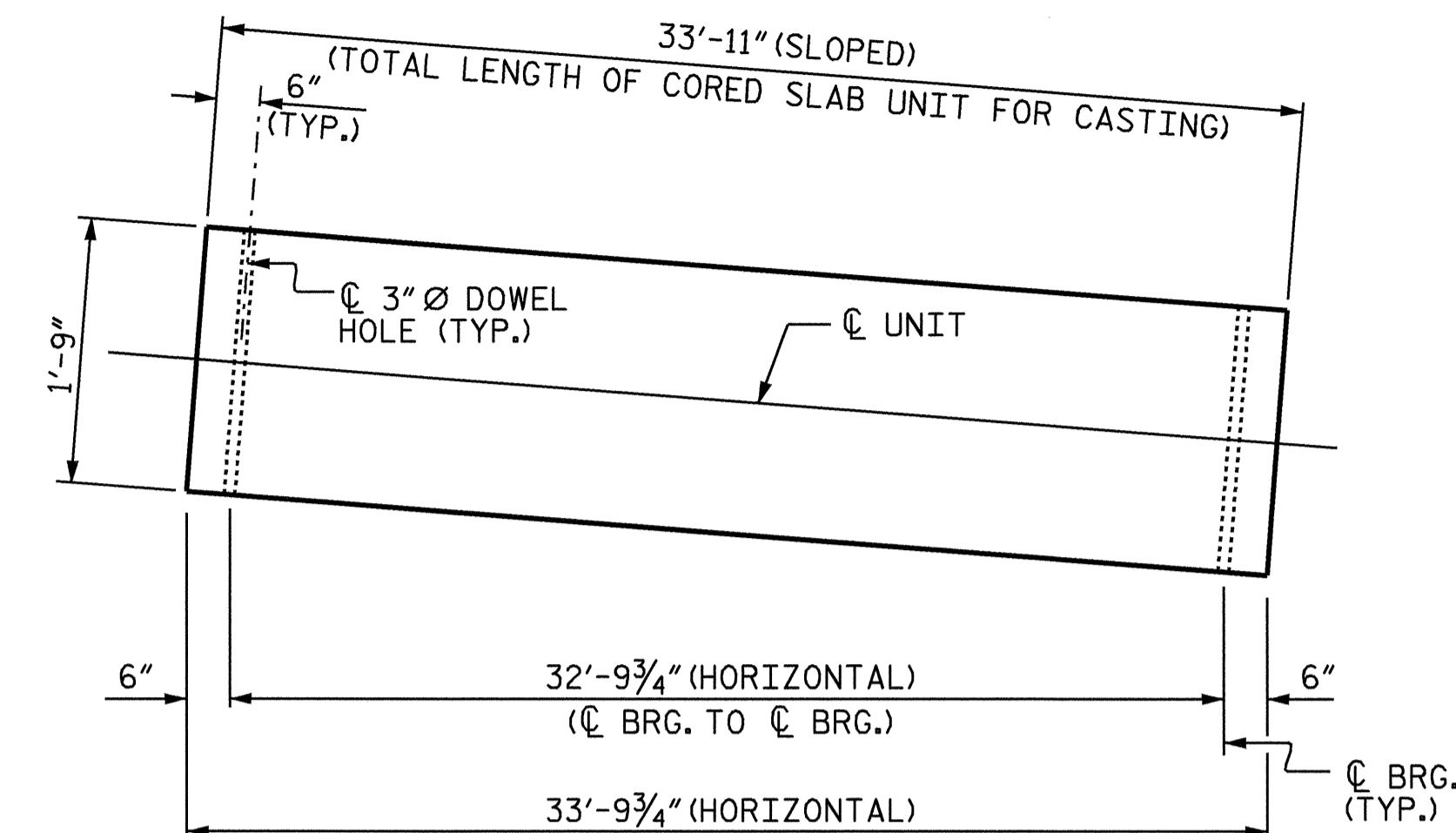
PLAN OF SPAN A

ALL DIMENSIONS SHOWN ARE HORIZONTAL DISTANCE



PLAN OF EXTERIOR CORED SLAB UNIT

PLAN FOR INTERIOR CORED SLAB IDENTICAL EXCEPT OMIT #5 S3 BARS.
ALL DIMENSIONS ARE FOR CASTING OF THE CORED SLAB UNIT.



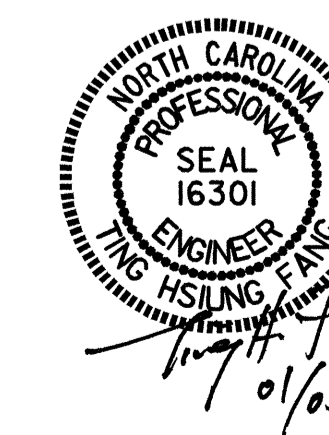
ELEVATION

CORED SLAB UNIT DIMENSIONS

PROJECT NO. B-4316
WATAUGA COUNTY
 STATION: 15+37.50 -L-

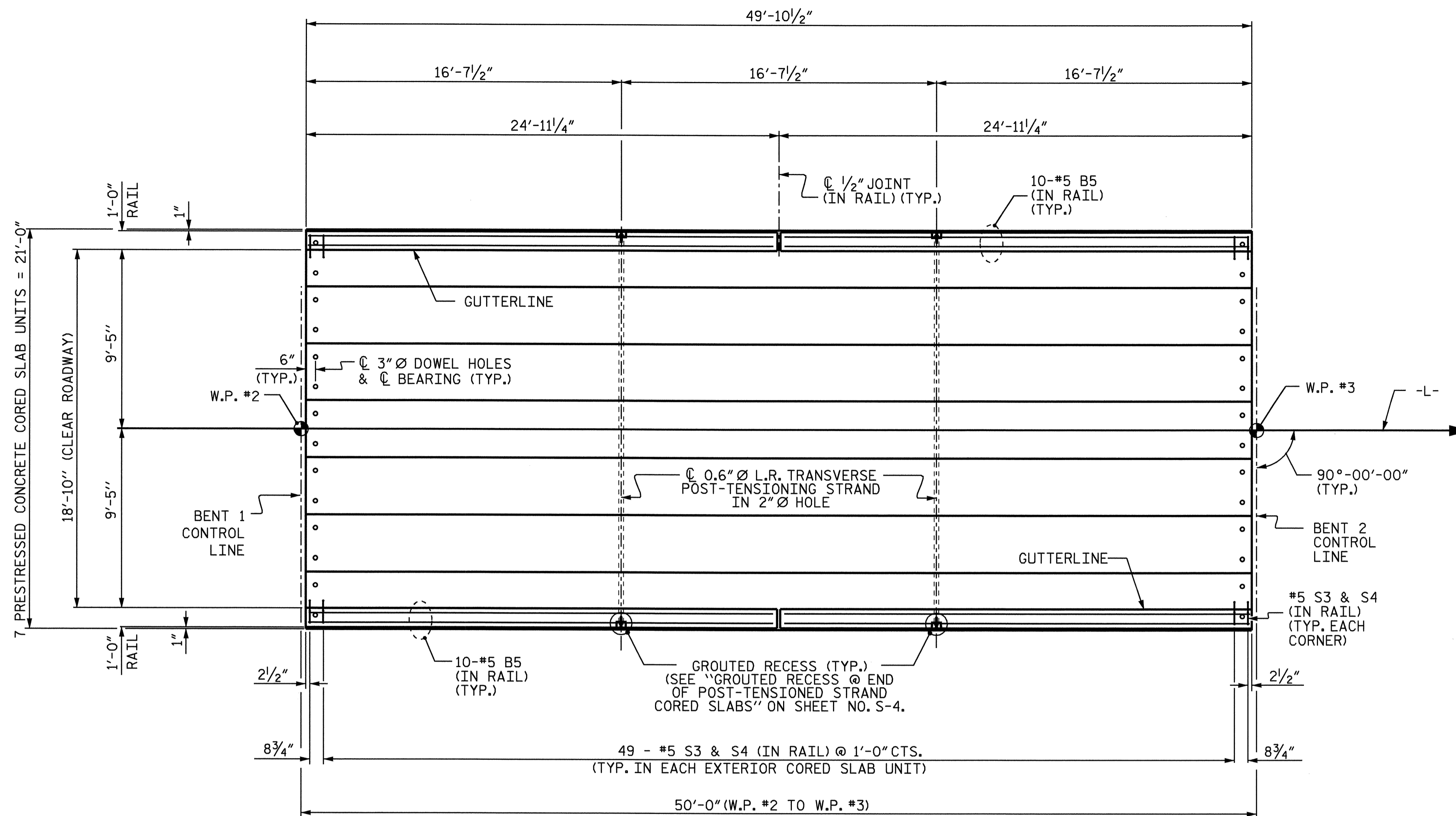
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN
 SPAN A

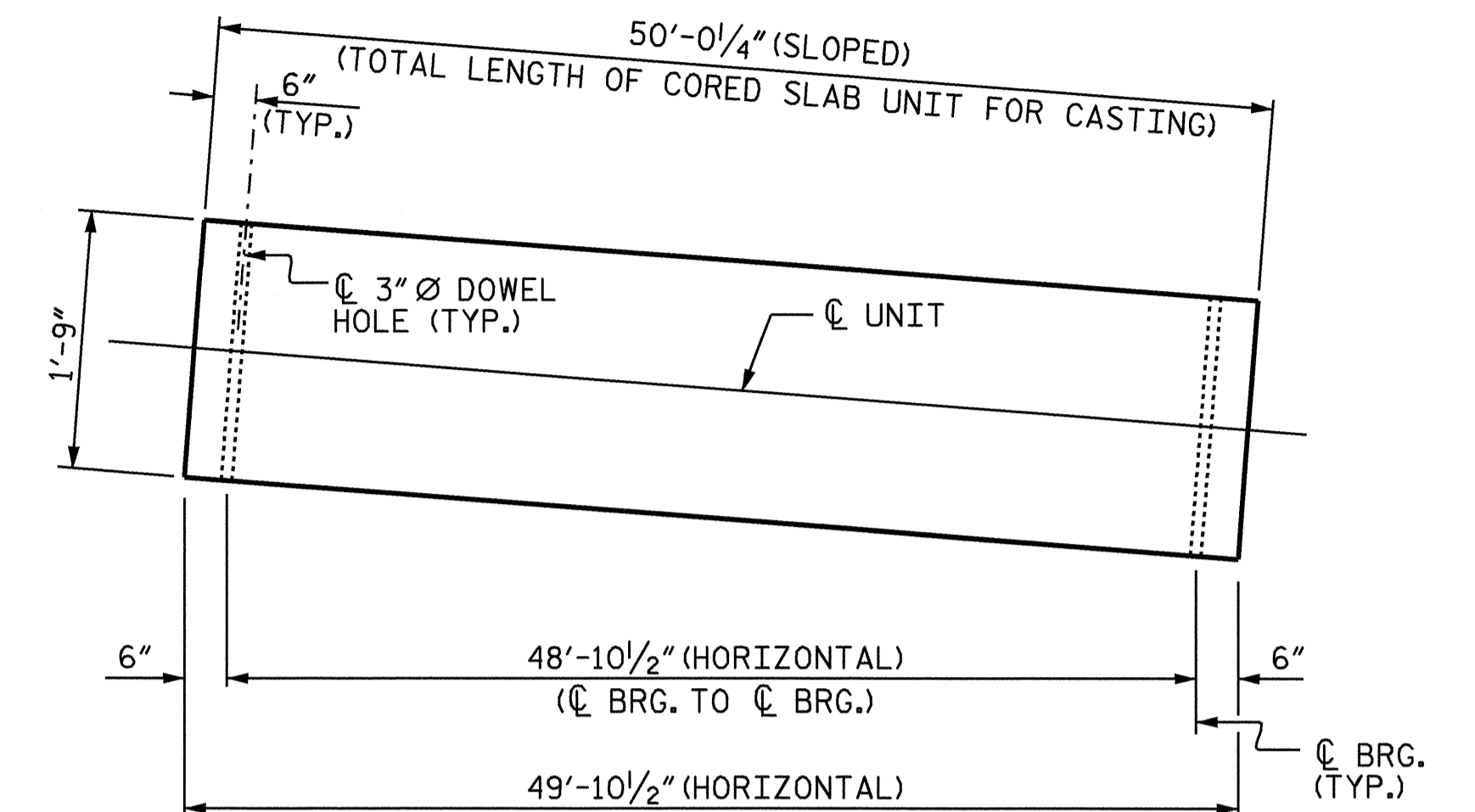


DRAWN BY: Z. H. BROWN DATE: 8/22/08
 CHECKED BY: T. H. FANG DATE: 10/22/08

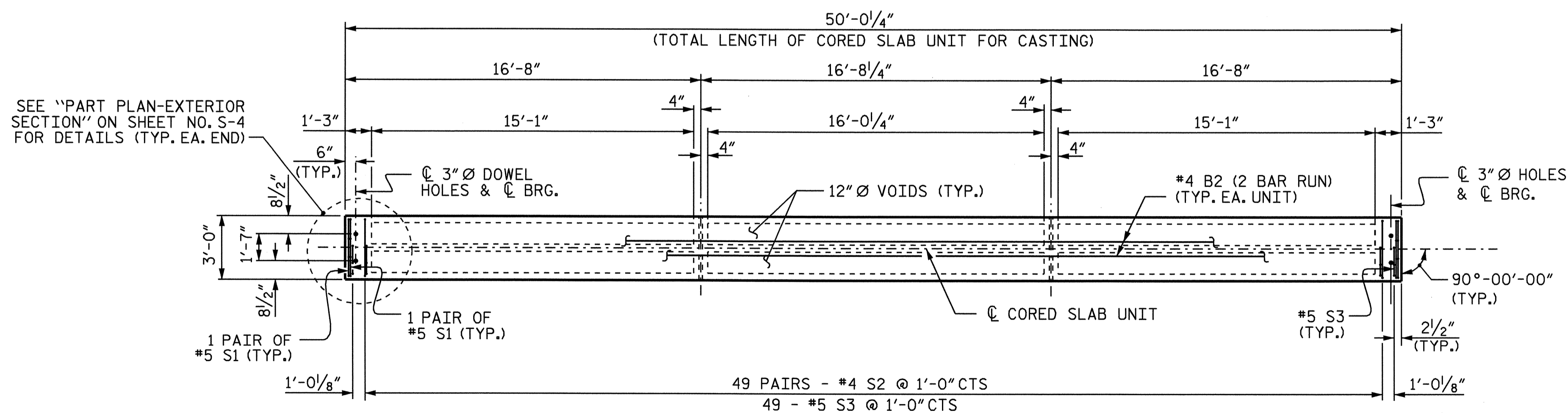
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			19



PLAN OF SPAN B
ALL DIMENSIONS SHOWN ARE HORIZONTAL DISTANCE



ELEVATION
CORED SLAB UNIT DIMENSIONS

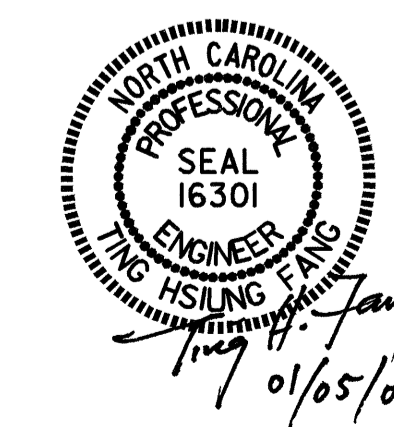


PLAN OF EXTERIOR CORED SLAB UNIT
PLAN FOR INTERIOR CORED SLAB IDENTICAL EXCEPT OMIT #5 S3 BARS.
ALL DIMENSIONS ARE FOR CASTING OF THE CORED SLAB UNIT.

PROJECT NO. B-4316
WATAUGA COUNTY
STATION: 15+37.50 -L-

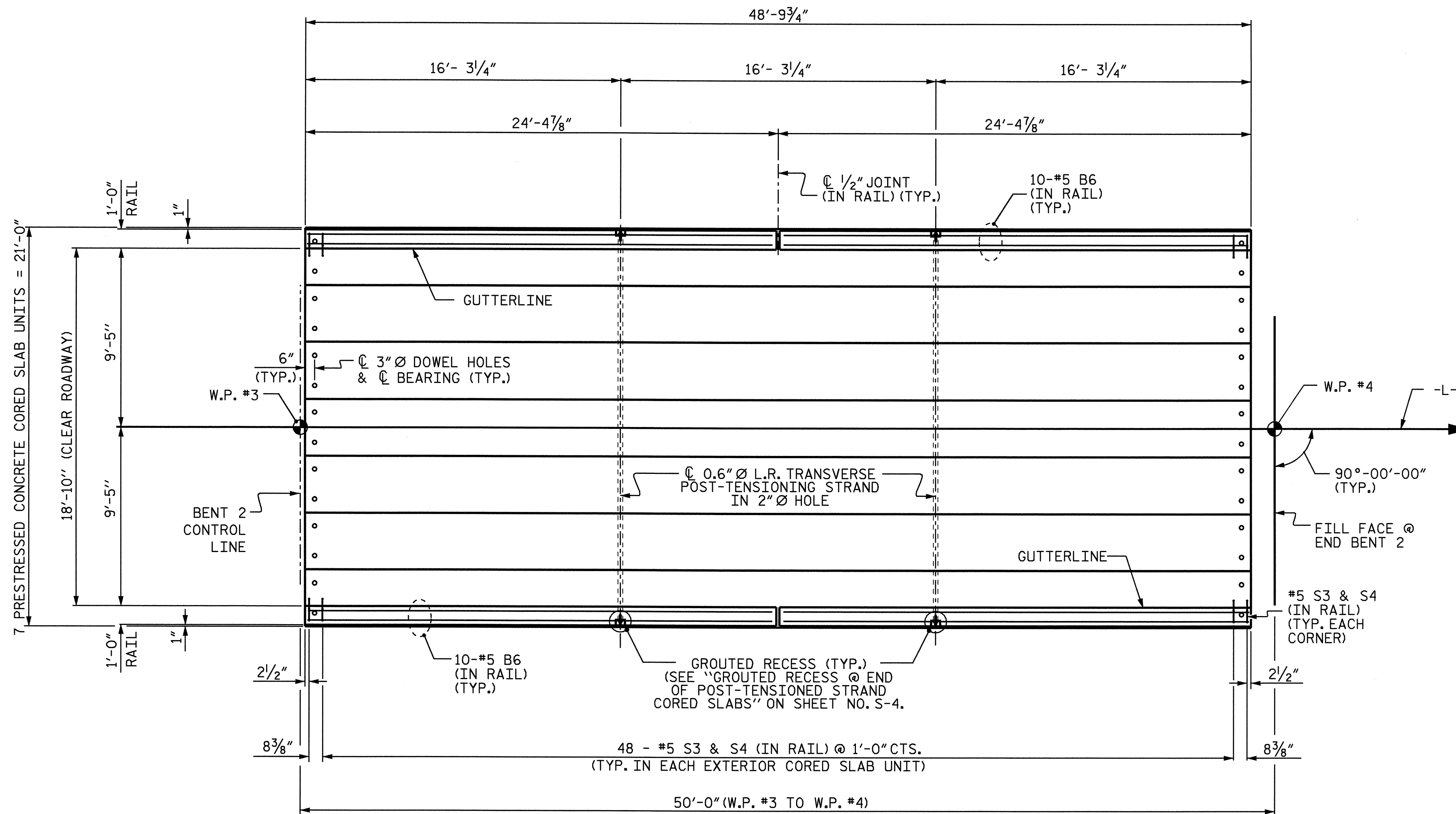
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN
SPAN B

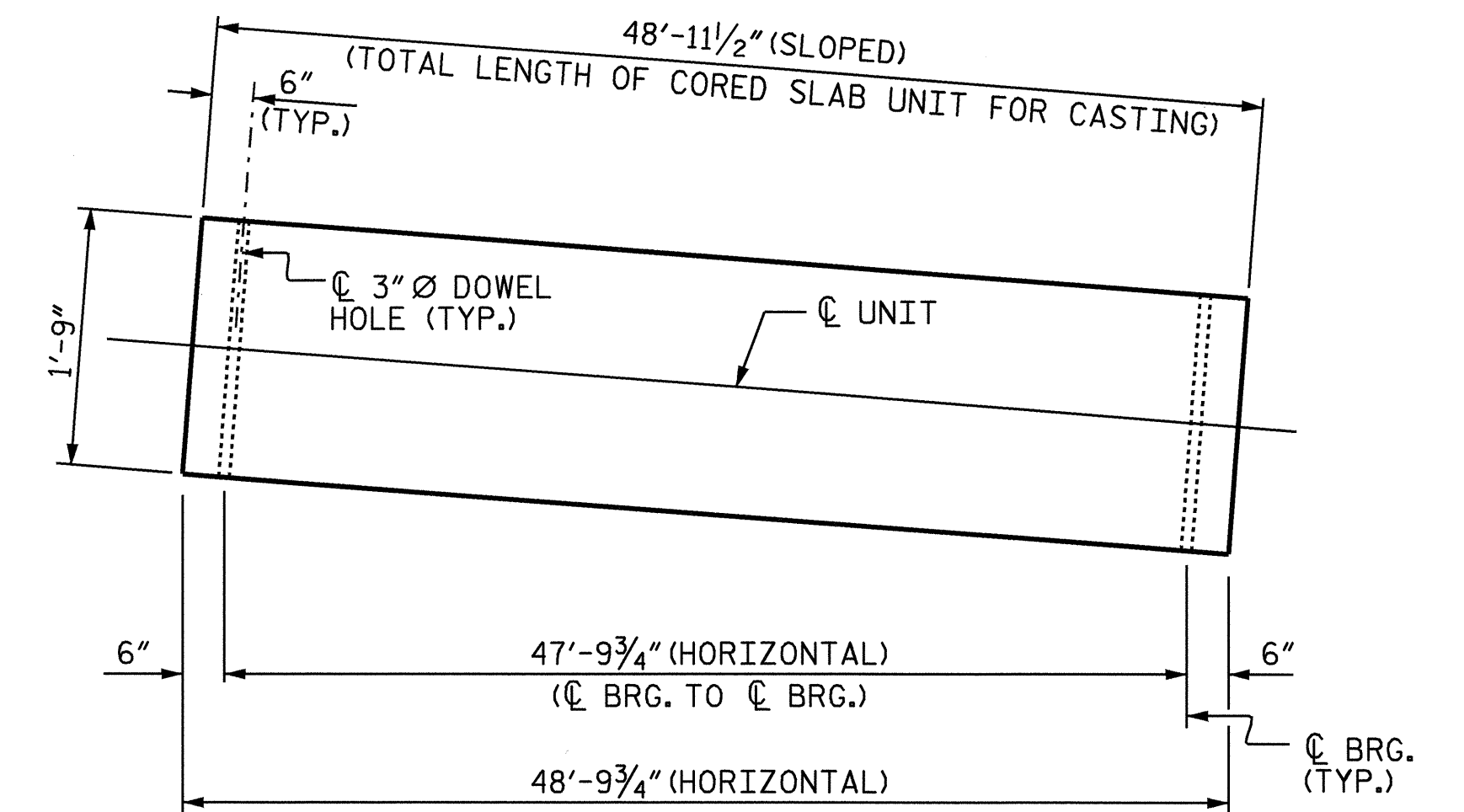


DRAWN BY: Z. H. BROWN DATE: 8/22/08
CHECKED BY: T. H. FANG DATE: 10/22/08

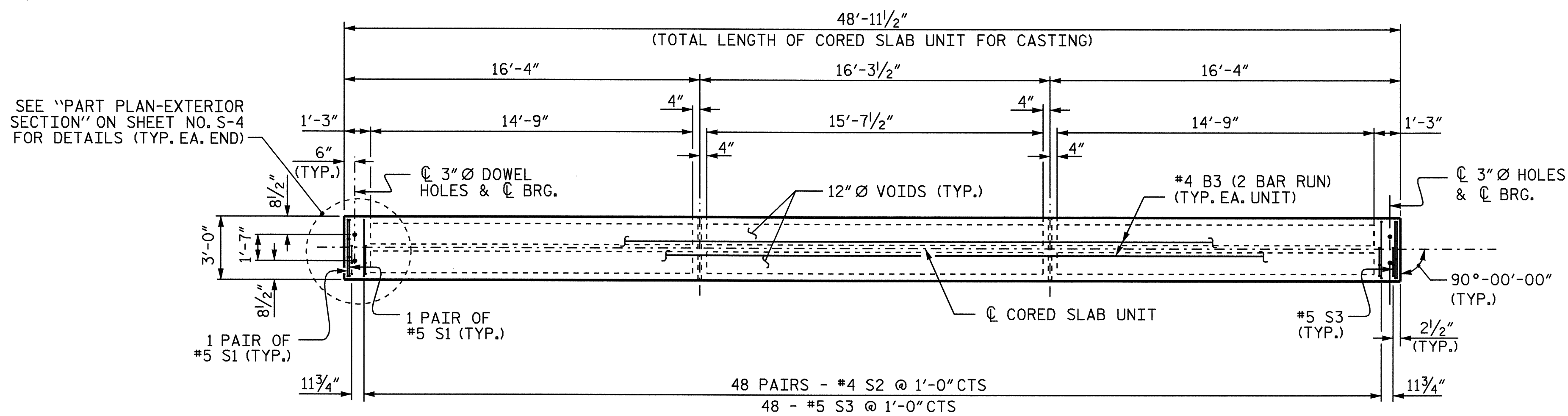
REVISIONS						SHEET NO. S-7
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			



PLAN OF SPAN C
ALL DIMENSIONS SHOWN ARE HORIZONTAL DISTANCE



ELEVATION
CORED SLAB UNIT DIMENSIONS

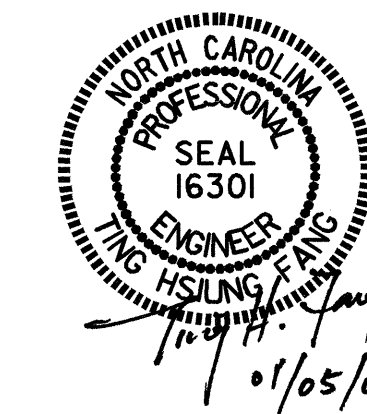


PLAN OF EXTERIOR CORED SLAB UNIT
PLAN FOR INTERIOR CORED SLAB IDENTICAL EXCEPT OMIT #5 S3 BARS.
ALL DIMENSIONS ARE FOR CASTING OF THE CORED SLAB UNIT.

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WATAUGA COUNTY
STATION: 15+37.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PLAN OF SPAN
SPAN C



DRAWN BY: Z. H. BROWN DATE: 8/22/08
CHECKED BY: T. H. FANG DATE: 10/22/08

REVISIONS						SHEET NO. S-8 TOTAL SHEETS 19
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

NOTES

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

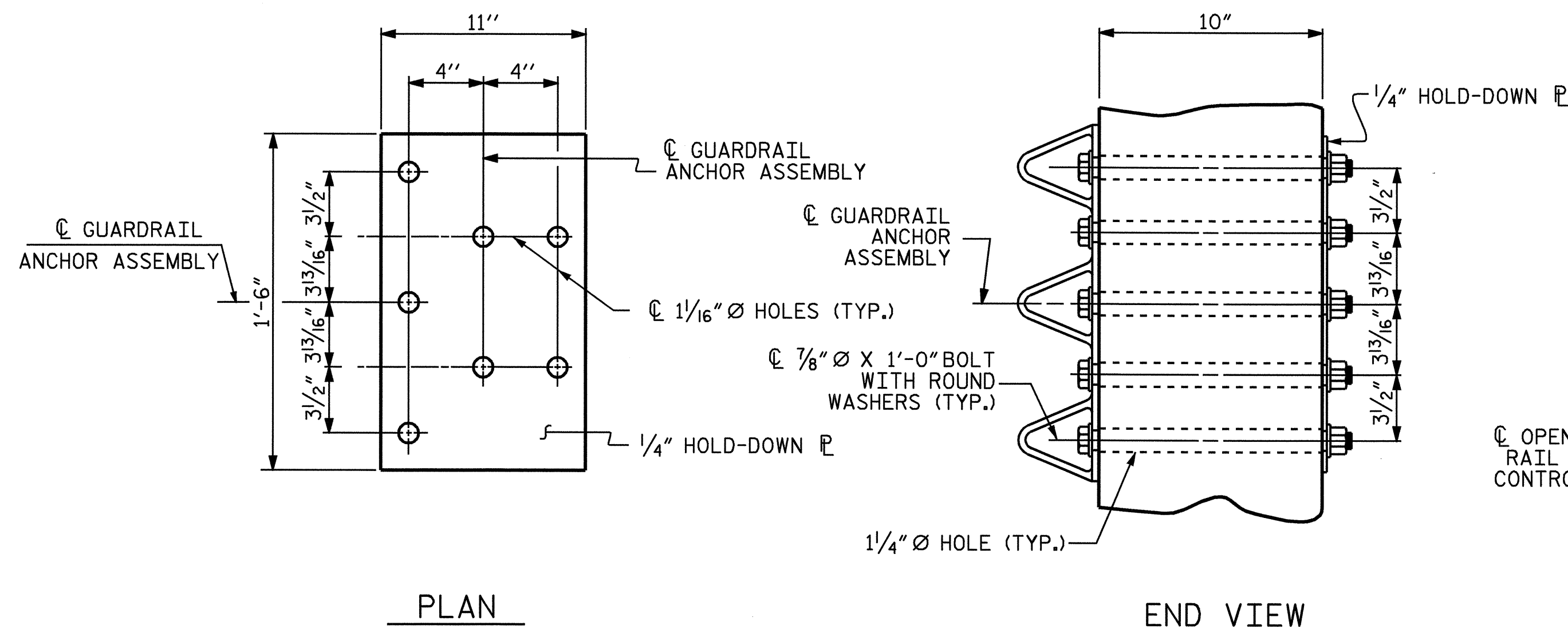
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

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

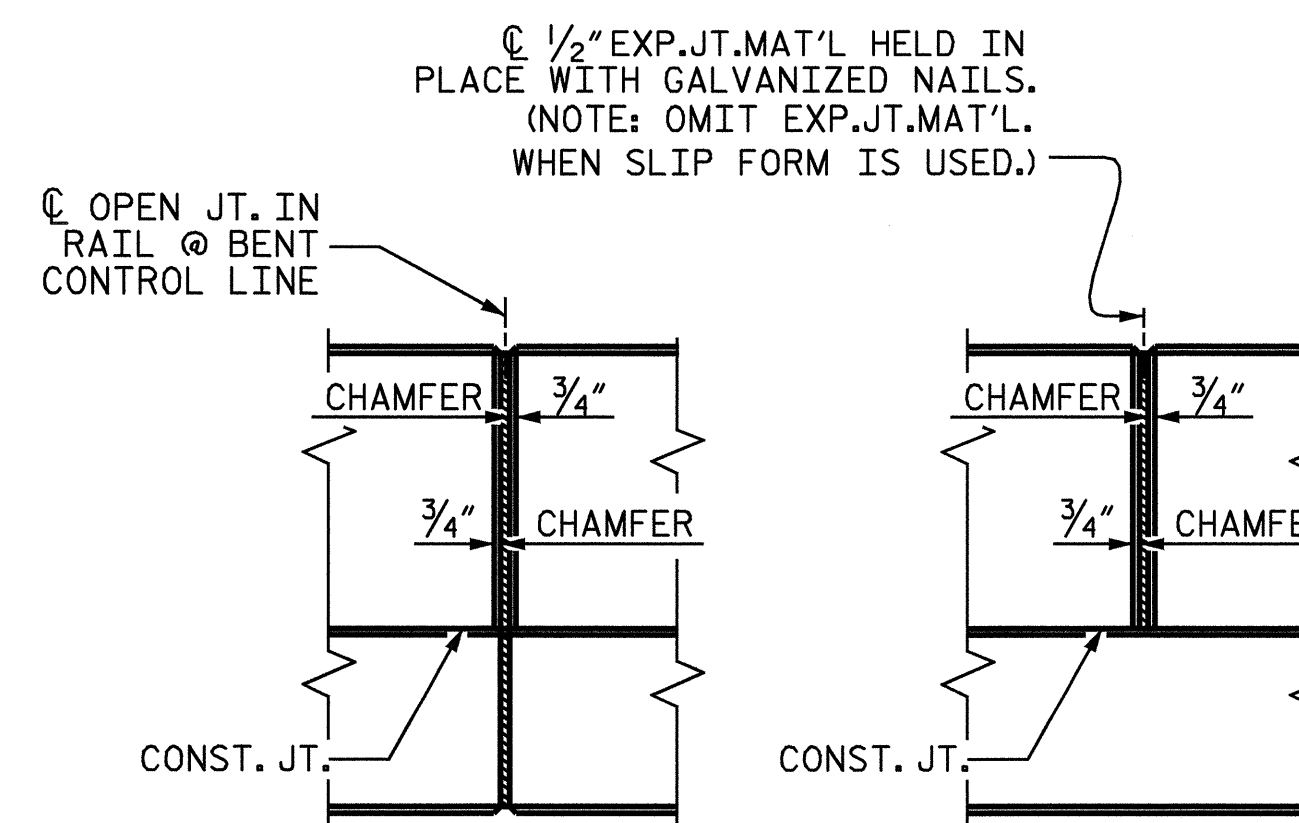
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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.

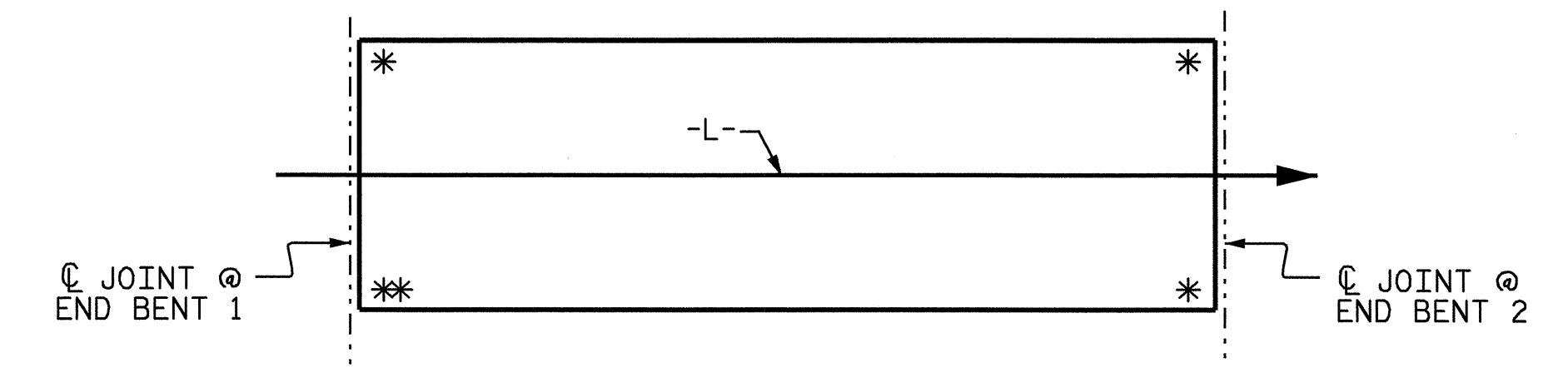
FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.



PLAN
END VIEW
GUARDRAIL ANCHOR ASSEMBLY DETAILS

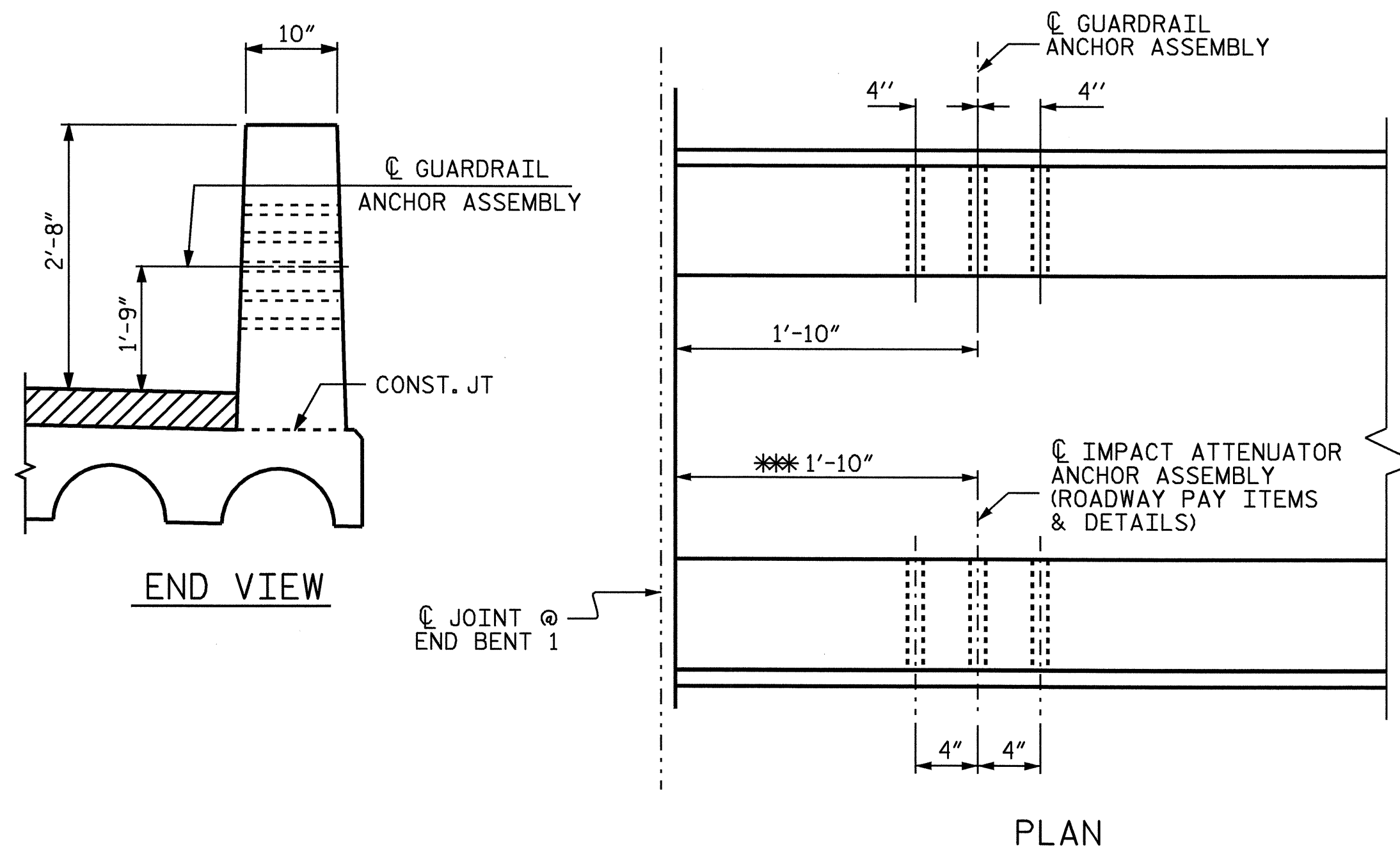


ELEVATION AT EXPANSION JOINTS



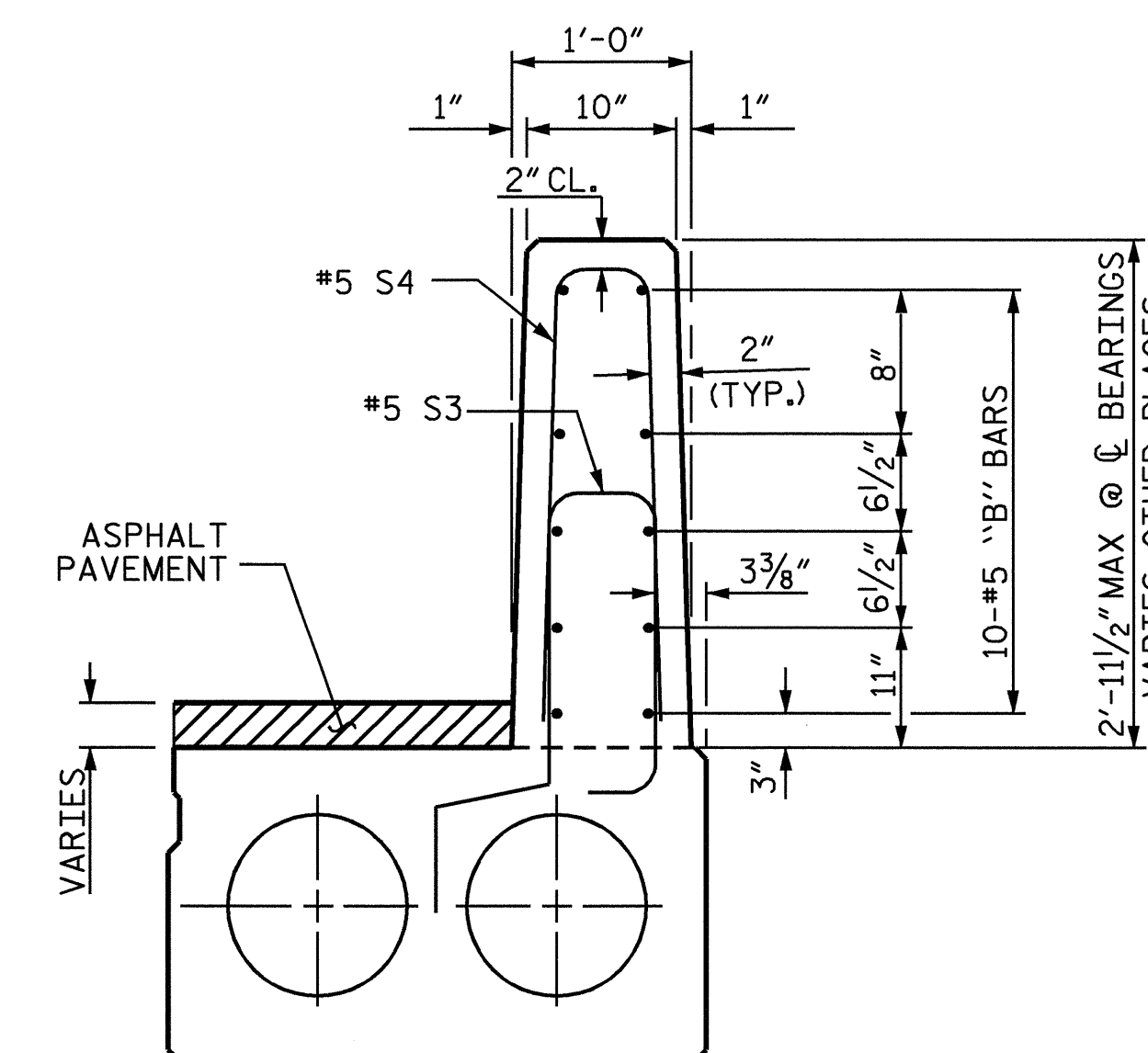
SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT
** LOCATION OF IMPACT ATTENUATOR ATTACHMENT



END VIEW
PLAN
LOCATION OF GUARDRAIL ANCHOR

** DIMENSION MAY BE ADJUSTED IN THE FIELD UPON APPROVAL BY THE ENGINEER.
END BENT 1 SHOWN, END BENT 2 SIMILAR.

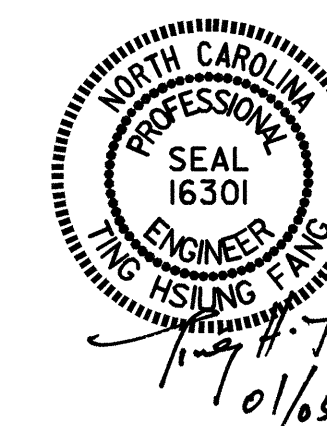


SECTION THRU RAIL

VERTICAL CONCRETE BARRIER RAIL DETAILS

FOR PLAN VIEW OF VERTICAL CONCRETE BARRIER RAIL, SEE "PLAN OF SPAN" SHEETS.

PROJECT NO. B-4316
WATAUGA COUNTY
STATION: 15+19.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-9
VERTICAL CONCRETE BARRIER RAIL AND GUARDRAIL ANCHORAGE DETAILS						
REVISIONS						TOTAL SHEETS 19
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

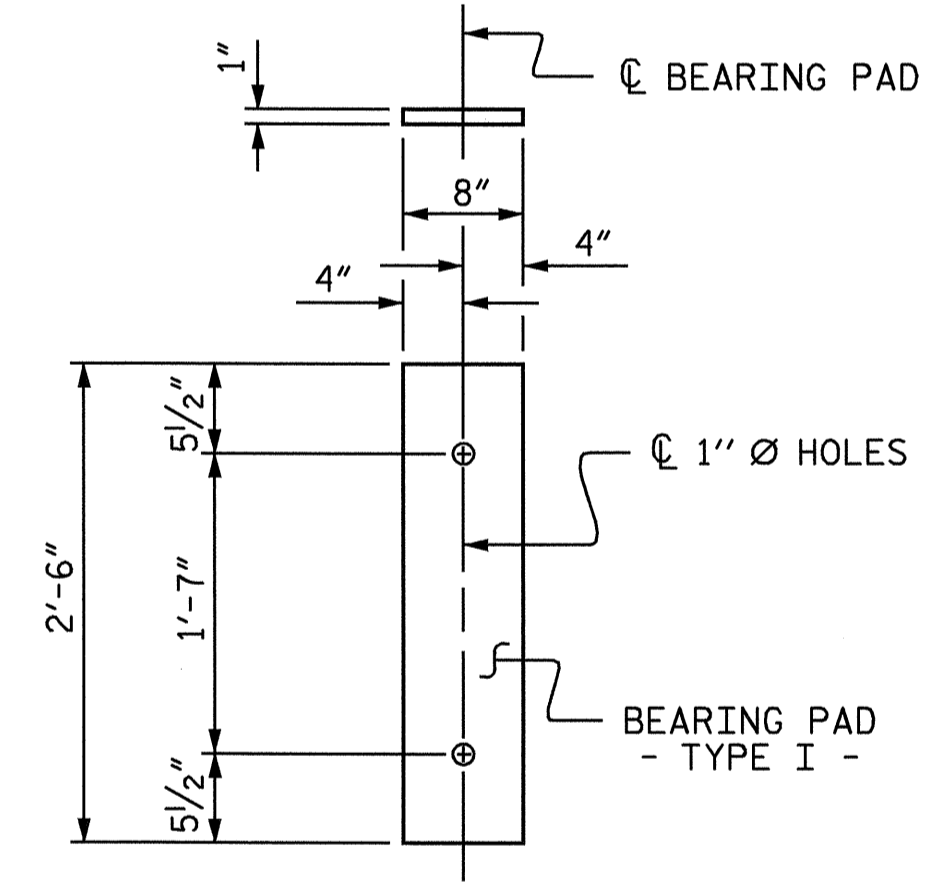
ASSEMBLED BY : H. B. SHAH	DATE: 8-08
CHECKED BY : T. H. FANG	DATE: 10-08
DRAWN BY : EEM 6/94	REV. 8/16/99 RWW/LES
CHECKED BY : RGW 6/94	REV. 10/17/00 RWW/LES
	REV. 5/7/03 RWW/JTE

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL							
BAR	NUMBER PER SPAN			SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C				
*B4	40			#5	STR	16'-6"	688
*B5		40		#5	STR	24'-7"	1,026
*B6			40	#5	STR	24'-0"	1,001
*S4	70	102	100	#5	3	5'-9"	1,632
* EPOXY COATED REINFORCING STEEL						4,347	LBS.
CLASS AA CONCRETE						26.72	CU. YDS.
TOTAL LN. FT. OF VERTICAL CONCRETE BARRIER RAIL						266.0	LIN. FT.

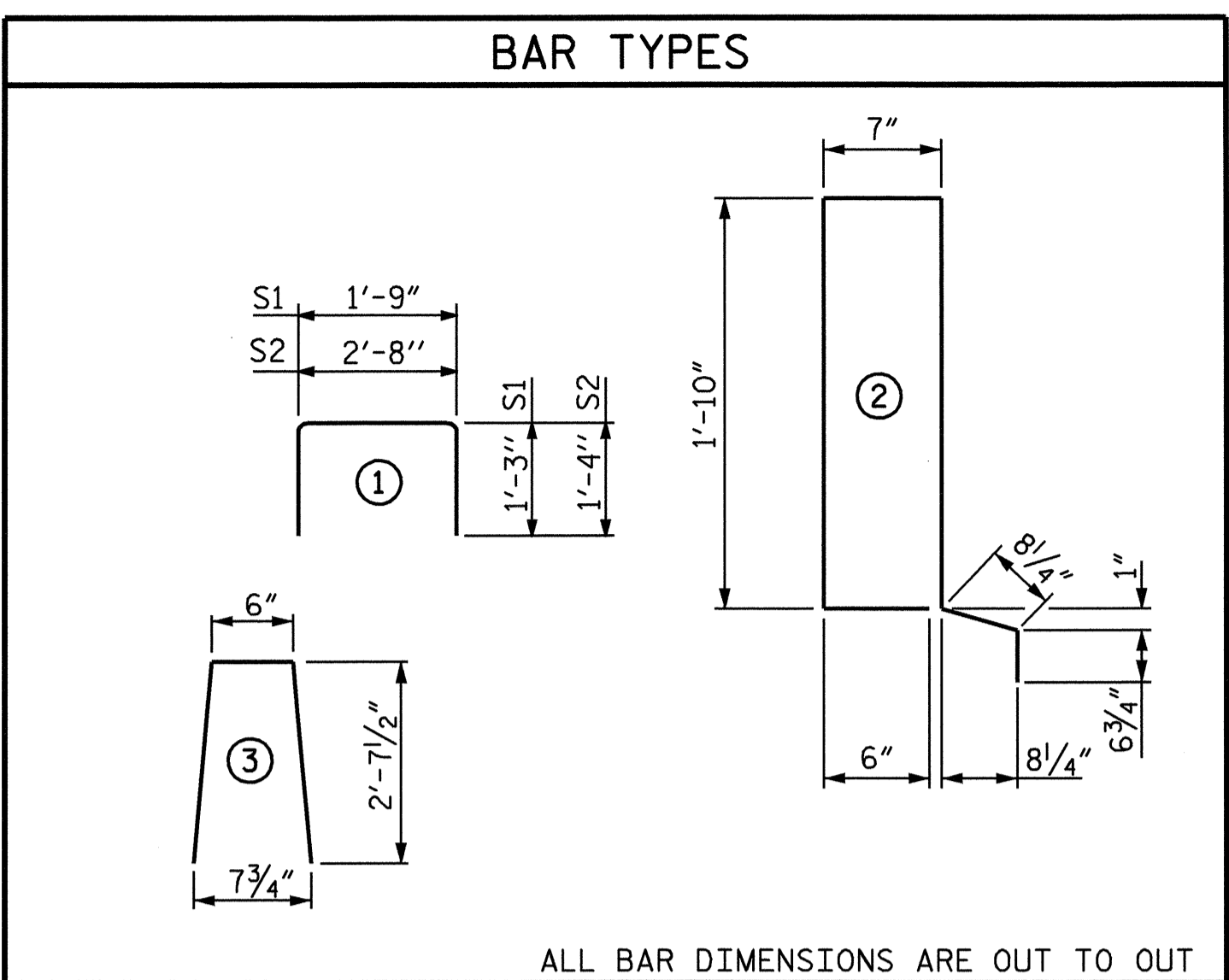
DEAD LOAD DEFLECTION AND CAMBER			
	SPAN A	SPAN B	SPAN C
CAMBER (SLAB ALONE IN PLACE)	7/8" ↑	2 1/16" ↑	2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	1/8" ↓	3/8" ↓	3/8" ↓
FINAL CAMBER	3/4" ↑	1 1/16" ↑	1 5/8" ↑

** INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED				
SPAN A				
UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH	
EXTERIOR	2	33'-10 5/16"	67'-9 7/8"	
INTERIOR	5	33'-10 5/16"	169'-6 11/16"	
TOTAL	7	33'-10 5/16"	237'-4 9/16"	
SPAN B				
UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH	
EXTERIOR	2	50'-0 1/4"	100'-0 1/2"	
INTERIOR	5	50'-0 1/4"	250'-1 1/4"	
TOTAL	7	50'-0 1/4"	350'-1 3/4"	
SPAN C				
UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH	
EXTERIOR	2	48'-11 1/2"	97'-11"	
INTERIOR	5	48'-11 1/2"	244'-9 1/2"	
TOTAL	7	48'-11 1/2"	342'-8 1/2"	
TOTAL CORED SLAB UNITS NO. 21 930'-2 13/16" LIN. FT.				



FIXED END
(TYPE I - 42 REQ'D)
ELASTOMERIC BEARING DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB UNIT							
SPAN A							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR	17'-8"	47	17'-8"	47
S1	8	#5	1	4'-3"	35	4'-3"	35
S2	66	#4	1	5'-4"	235	5'-4"	235
* S3	35	#5	2	6'-0"	219		
REINFORCING STEEL				317 LBS.		317 LBS.	
* EPOXY COATED REINFORCING STEEL				219 LBS.			
5000 P.S.I. CONCRETE				4.8 CU. YDS.		4.8 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 12			

SPAN B							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B2	4	#4	STR	25'-9"	69	25'-9"	69
S1	8	#5	1	4'-3"	35	4'-6"	35
S2	98	#4	1	5'-4"	349	5'-4"	349
* S3	51	#5	2	6'-0"	319		
REINFORCING STEEL				453 LBS.		453 LBS.	
* EPOXY COATED REINFORCING STEEL				319 LBS.			
5000 P.S.I. CONCRETE				7.0 CU. YDS.		7.0 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 16			

SPAN C							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B3	4	#4	STR	25'-3"	67	25'-3"	67
S1	8	#5	1	4'-3"	35	4'-3"	35
S2	96	#4	1	5'-4"	342	5'-4"	342
* S3	50	#5	2	6'-0"	313		
REINFORCING STEEL				444 LBS.		444 LBS.	
* EPOXY COATED REINFORCING STEEL				313 LBS.			
5000 P.S.I. CONCRETE				6.8 CU. YDS.		6.8 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 16			

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 3" 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 SIDWAYS. 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.

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

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

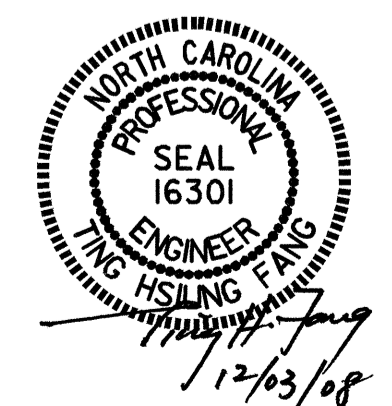
PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

SPLICE LENGTH CHART	
BAR SIZE	SPLICE LENGTH
#4	2'-5"

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

PROJECT NO. B-4316
WATAUGA COUNTY
 STATION: 15+37.50 -L-



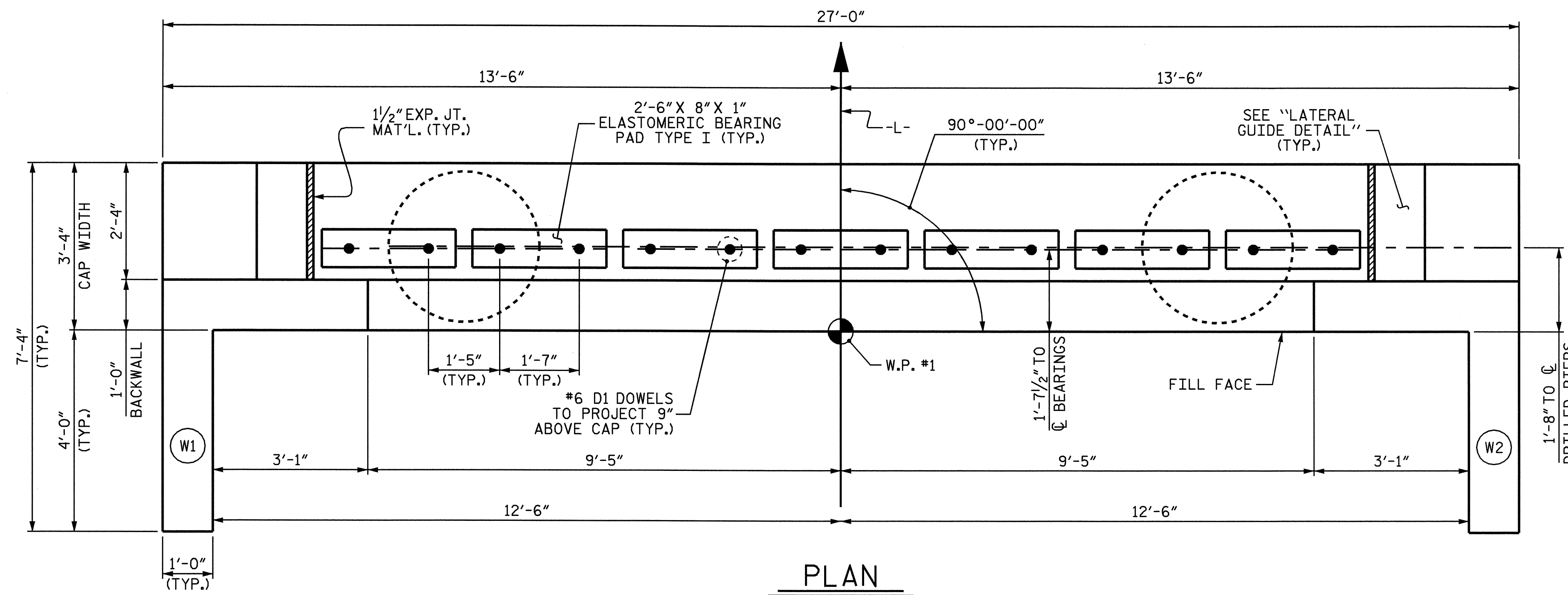
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 BILL OF MATERIAL

REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			

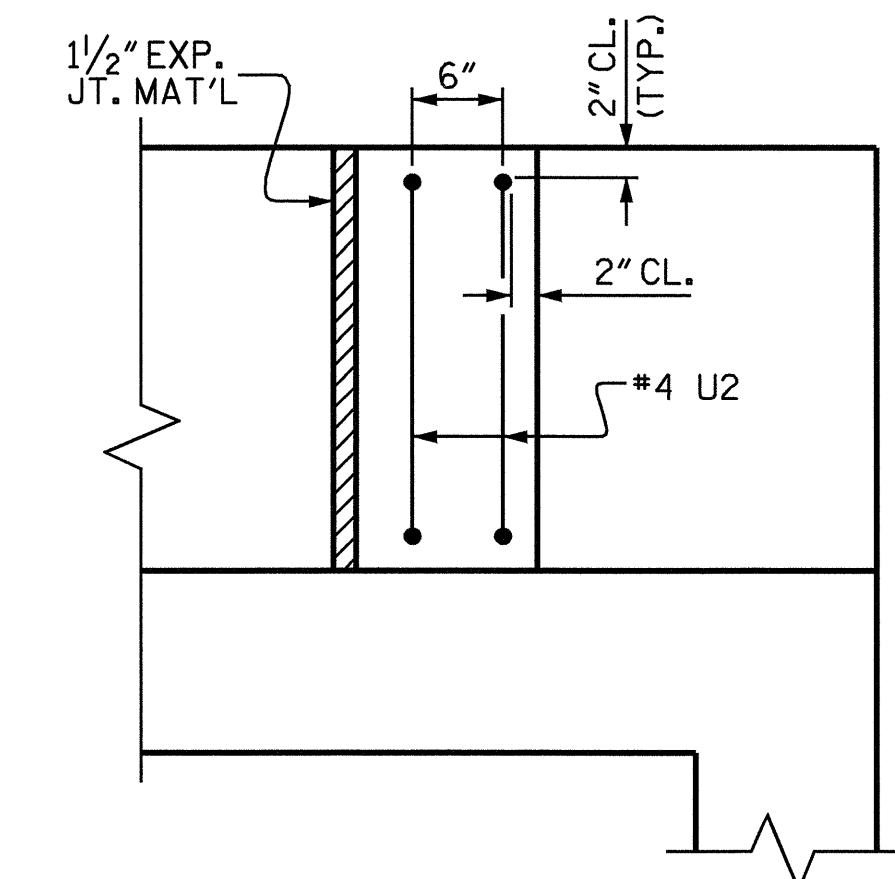
ASSEMBLED BY : HARISH SHAH DATE : 8/14/08
 CHECKED BY : T.H. FANG DATE : 08/15/08
 DRAWN BY : WJH 4/89 REV. 7/10/01 RWW/LES
 CHECKED BY : FCJ 5/89 REV. 5/7/03RRR RWW/JTE
 REV. 5/1/06 TLA/GM

NOTES

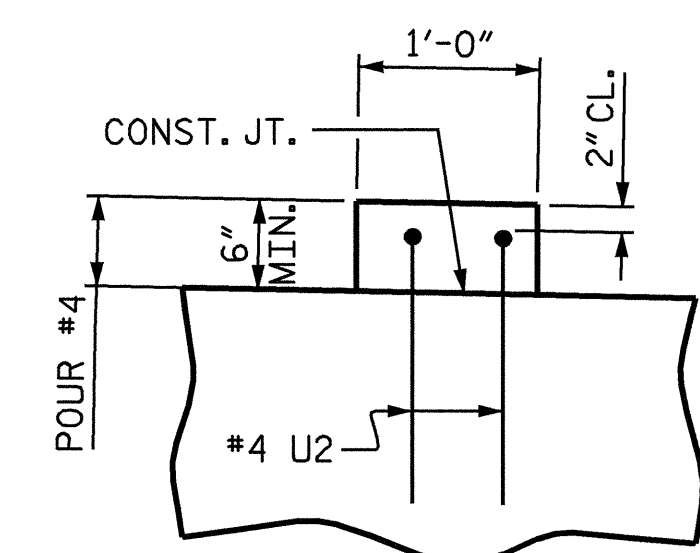
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE CORED SLAB UNITS ARE IN PLACE.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.
- HOOKS ON "M" 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".
- SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.



PLAN

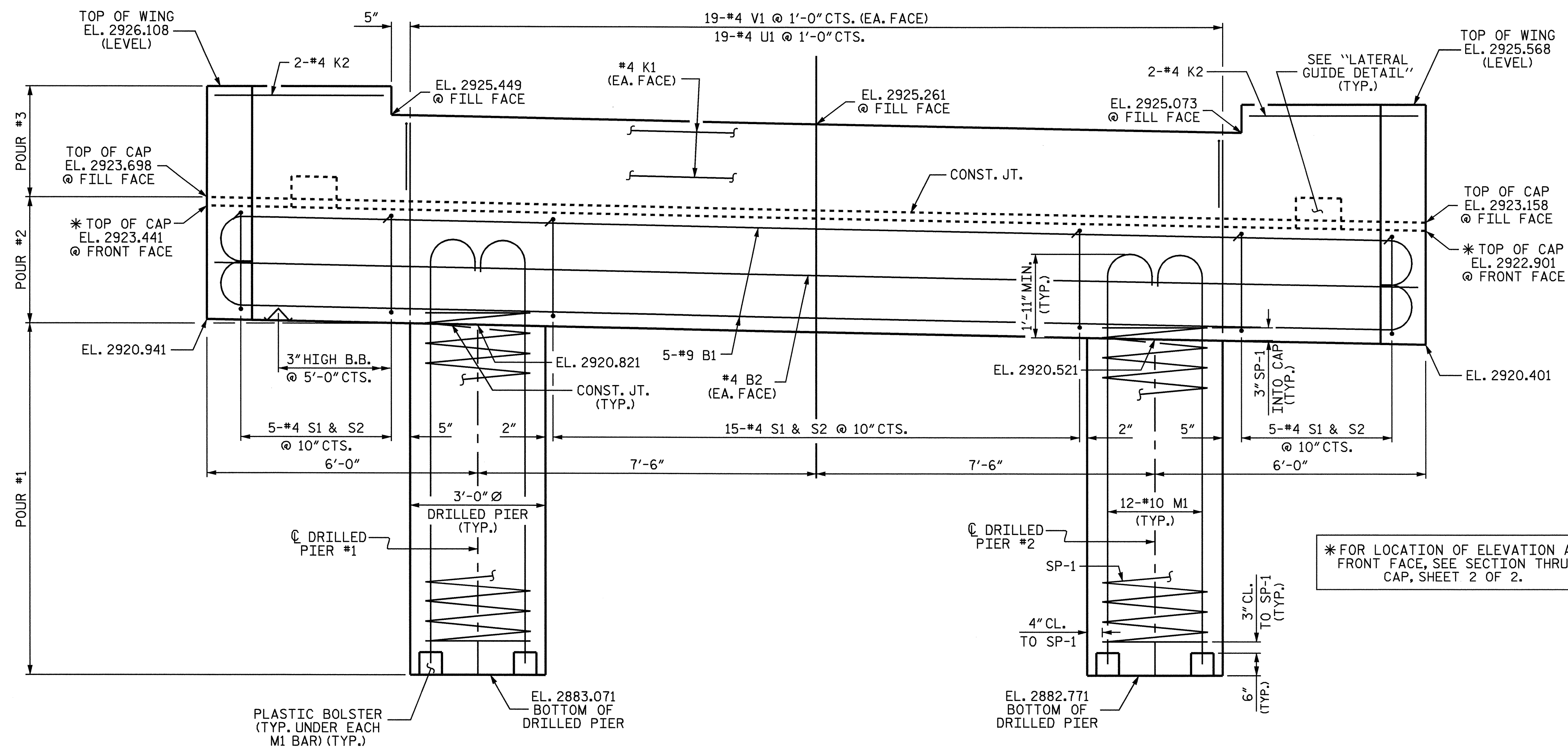


PLAN



ELEVATION

LATERAL GUIDE DETAILS



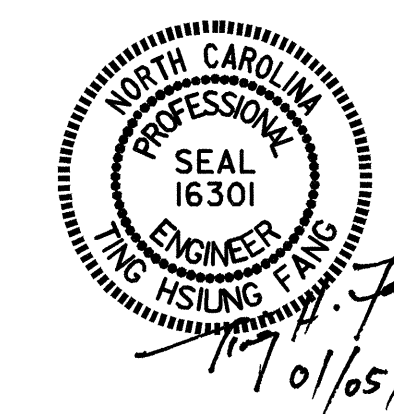
ELEVATION

REINFORCING STEEL IS IDENTICAL FOR EACH DRILLED PIER

*FOR LOCATION OF ELEVATION AT FRONT FACE, SEE SECTION THRU CAP, SHEET 2 OF 2.

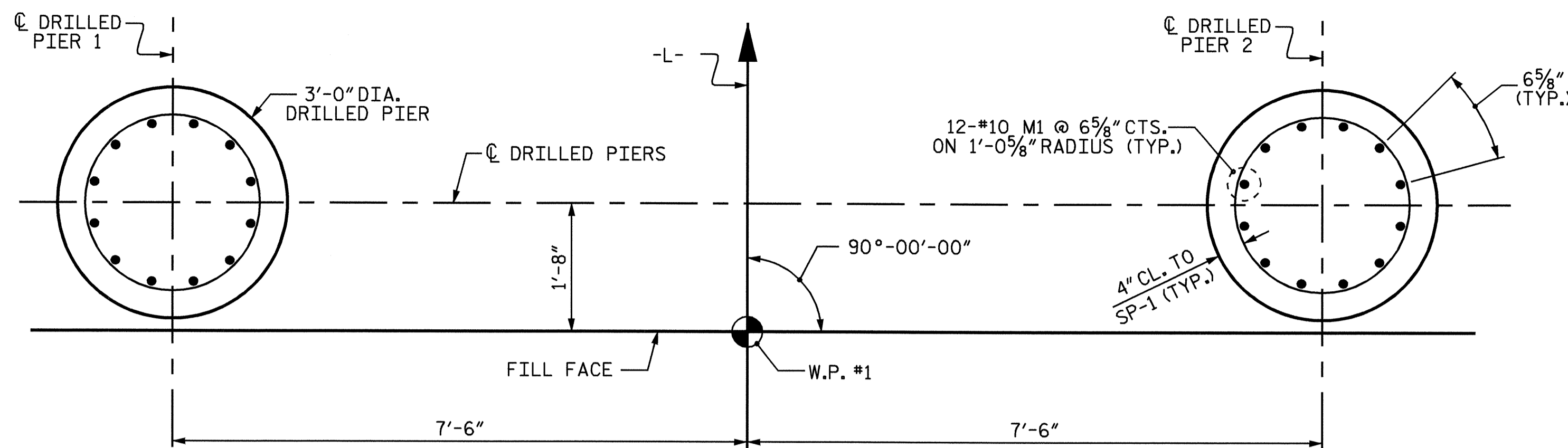
PROJECT NO. B-4316
WATAUGA COUNTY
 STATION: 15+37.50 -L-

SHEET 1 OF 2



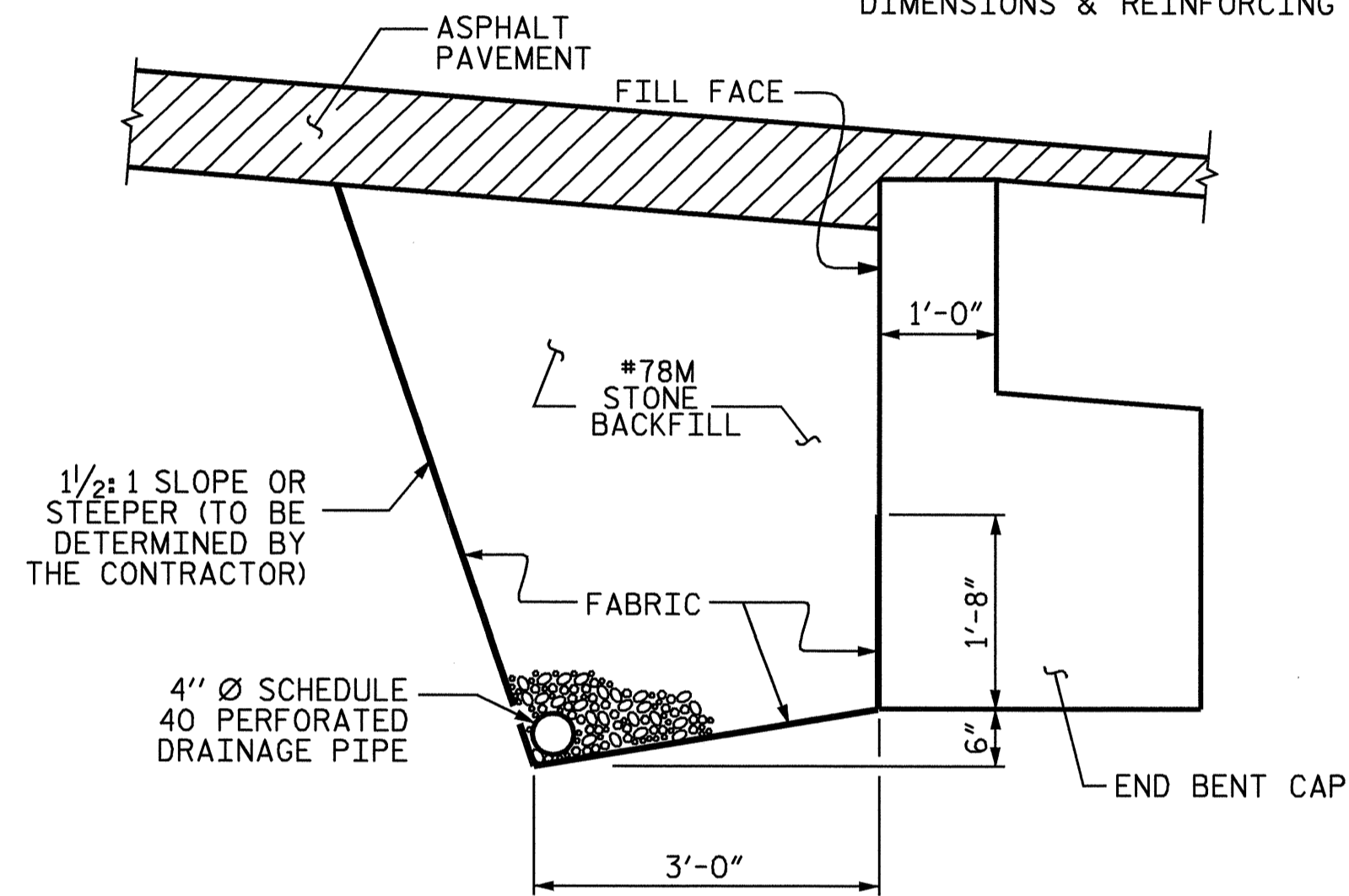
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-11
SUBSTRUCTURE						
END BENT 1						TOTAL SHEETS 19
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY : S. DOMBROWSKI DATE : 9/5/08
 CHECKED BY : T. H. FANG DATE : 11/5/08



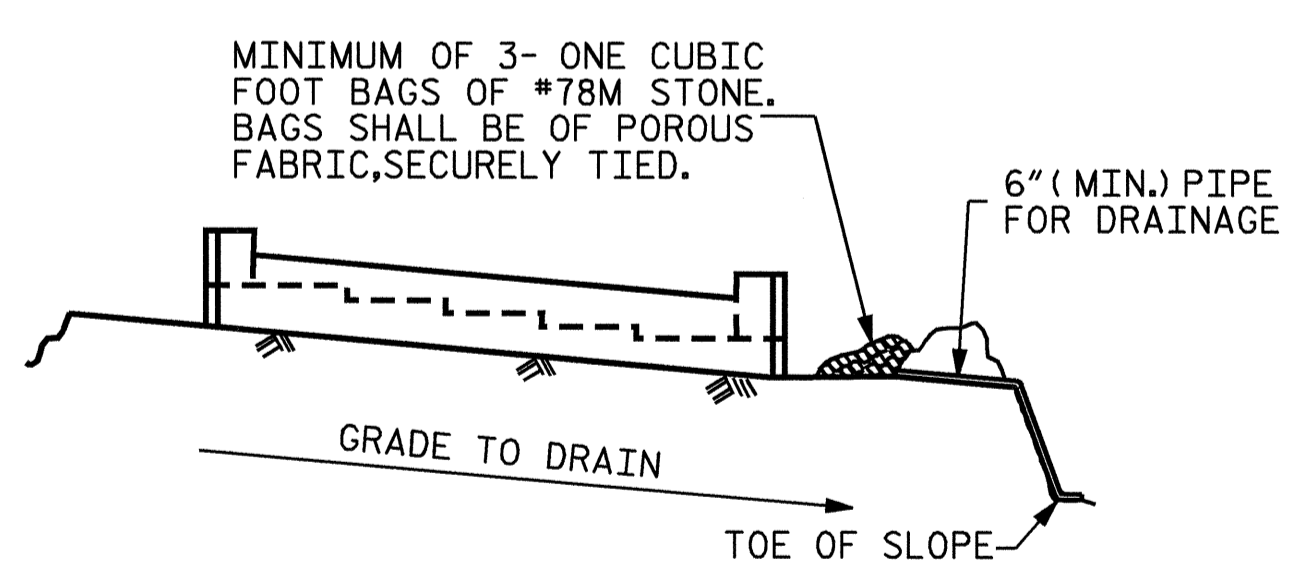
PLAN OF DRILLED PIERS

DIMENSIONS & REINFORCING STEELS ARE TYPICAL FOR EACH DRILLED PIER



BACK FILL DETAILS

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

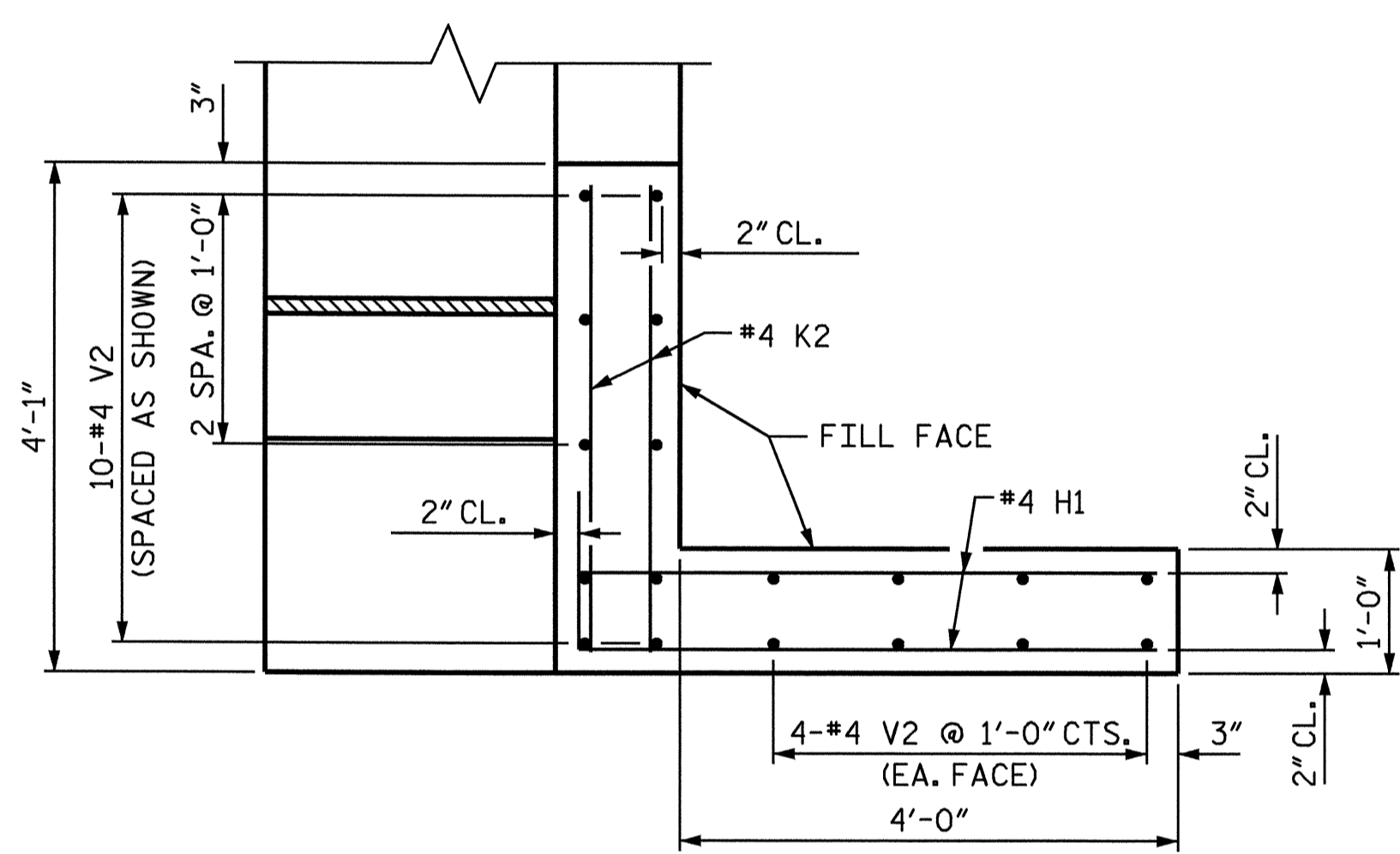


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

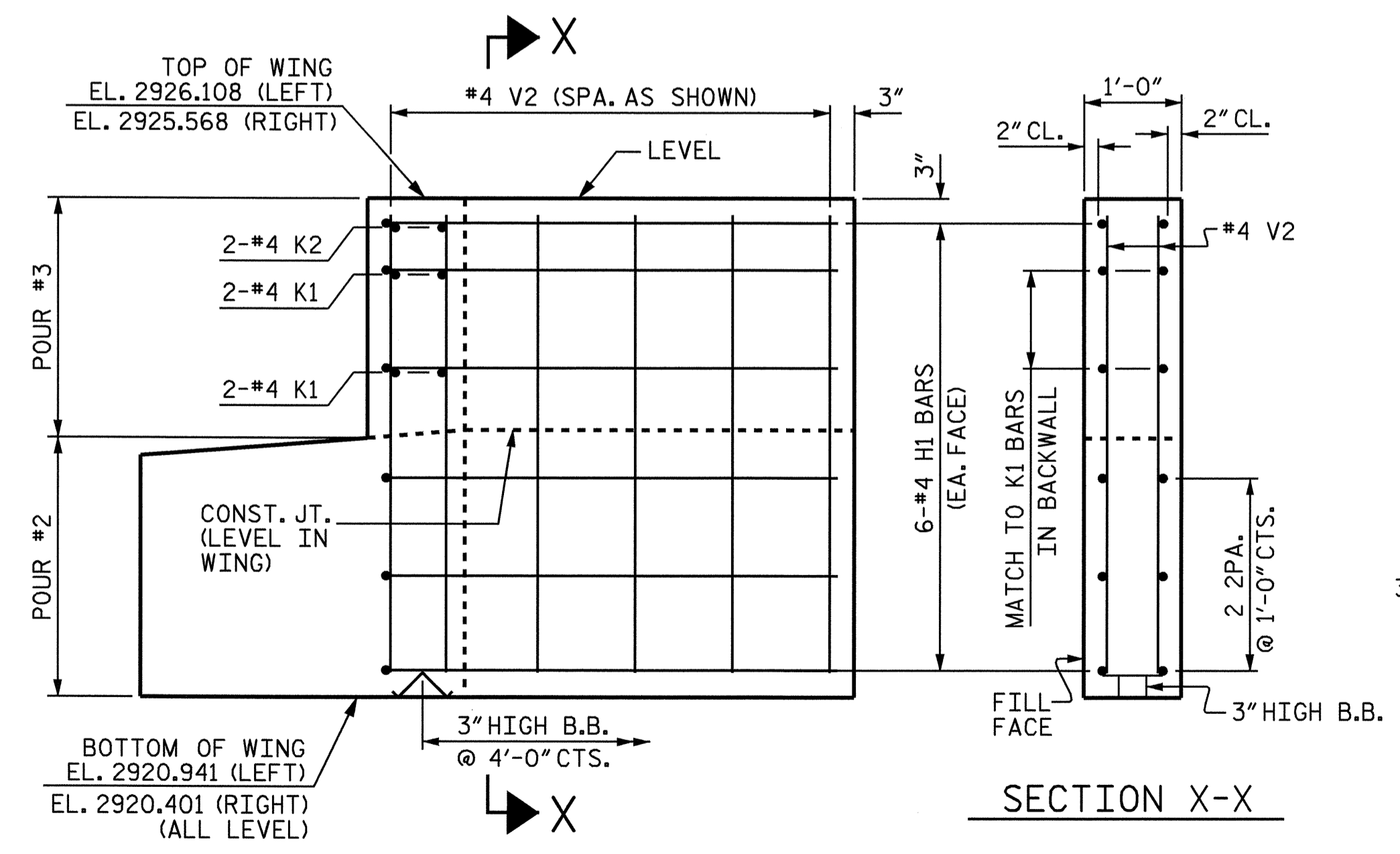
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



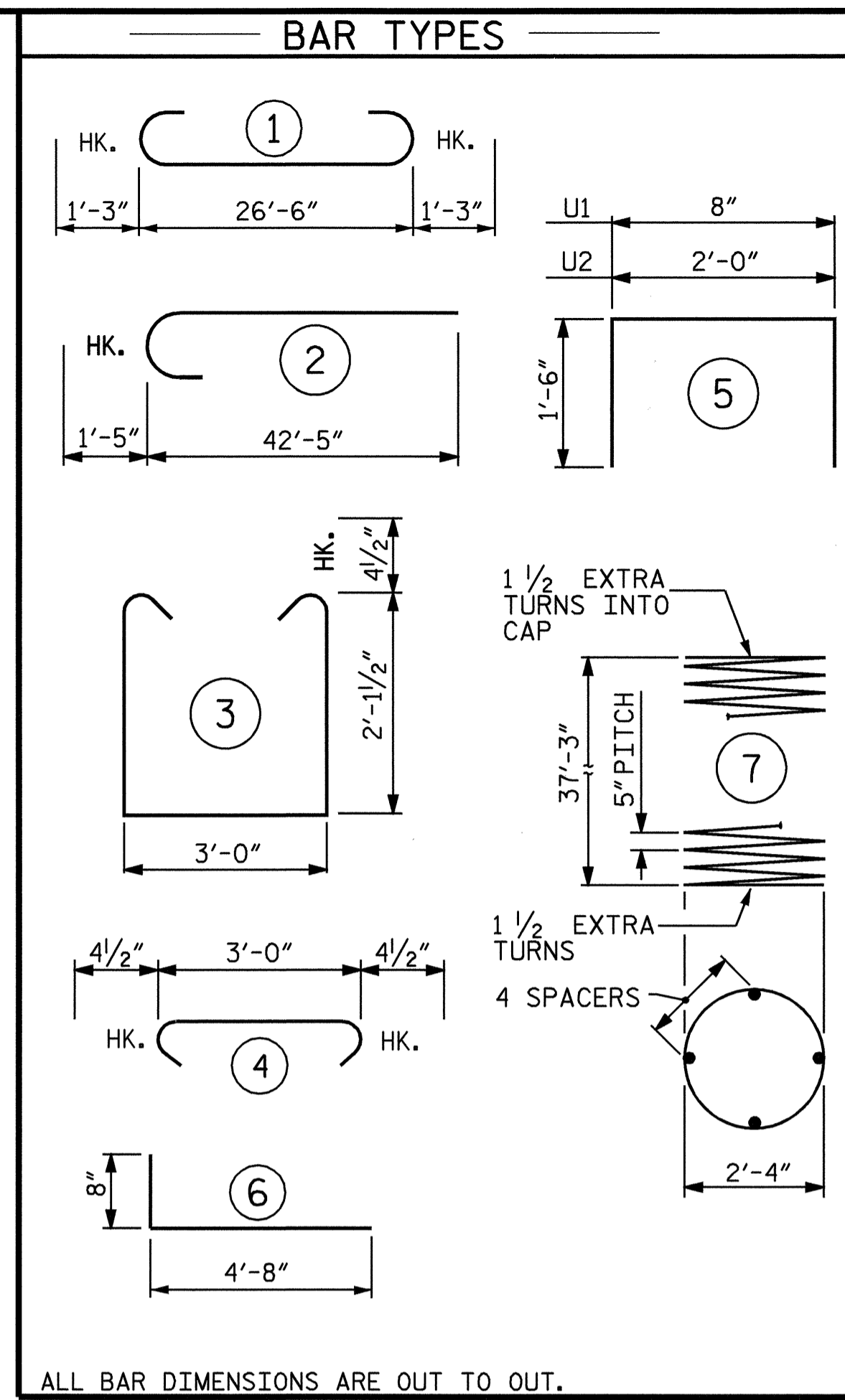
PLAN



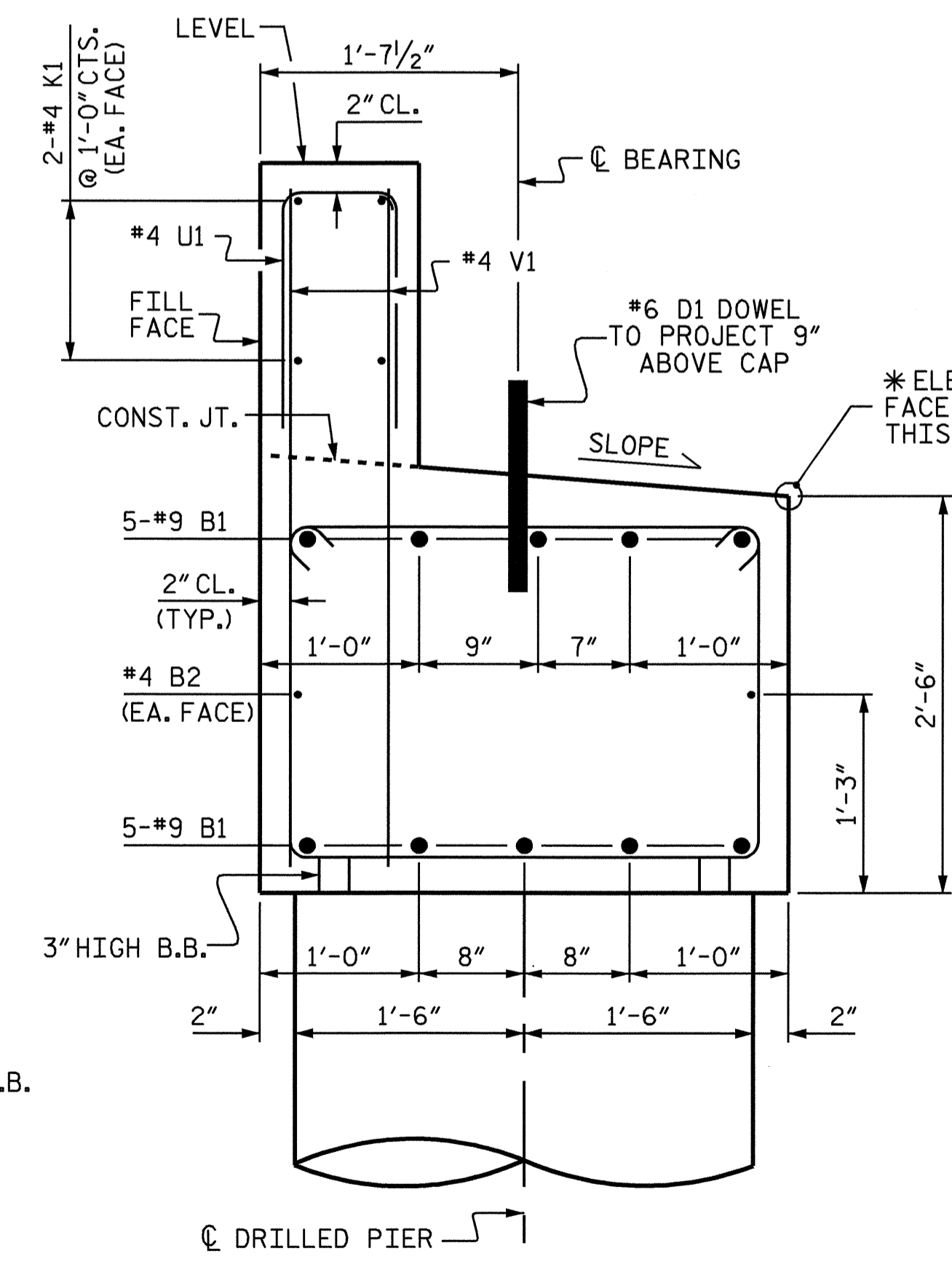
ELEVATION

WINGWALL DETAILS

WING (W1) SHOWN, (W2) SIMILAR



ALL BAR DIMENSIONS ARE OUT TO OUT.

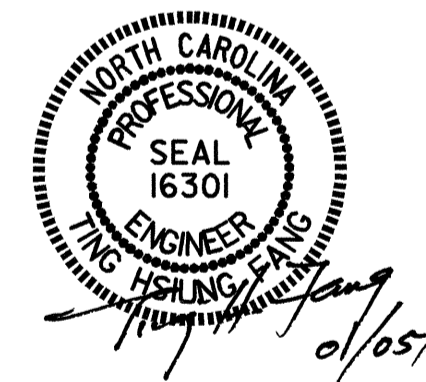


SECTION THRU CAP

BILL OF MATERIAL					
END BENT 1					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9	1	29'-0"	986
B2	2	#4	STR.	26'-8"	36
D1	14	#6	STR.	1'-6"	32
H1	24	#4	6	5'-4"	86
K1	4	#4	STR.	26'-8"	71
K2	4	#4	STR.	3'-9"	10
M1	24	#10	2	43'-10"	4527
S1	25	#4	3	8'-0"	134
S2	25	#4	4	3'-9"	63
U1	19	#4	5	3'-8"	47
U2	4	#4	5	5'-0"	13
V1	38	#4	STR.	4'-2"	106
V2	36	#4	STR.	4'-8"	112
REINFORCING STEEL				6223 LBS.	
SP-1	2	**	7	670'-4"	1398
TOTAL SPIRAL COLUMN REINFORCING STEEL				1398 LBS.	
CLASS A CONCRETE BREAKDOWN:					
POUR #2 (CAP & LOWER WINGS)				9.5 C.Y.	
POUR #3 (UPPER WINGS & BACKWALL)				2.7 C.Y.	
POUR #4 (LATERAL GUIDES)				0.1 C.Y.	
TOTAL CLASS A CONCRETE:				12.3 C.Y.	
3'-0" Ø DRILLED PIER QUANTITIES					
DRILLED PIER CONCRETE:					
POUR #1 (DRILLED PIERS)				19.8 C.Y.	
3'-0" DIA. DRILLED PIERS IN SOIL				66.5 LIN.FT.	
3'-0" DIA. DRILLED PIERS NOT IN SOIL				9.0 LIN.FT.	
CSL TUBES:				322 LIN.FT.	

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

* ELEVATIONS @ FRONT FACE ARE TAKEN AT THIS LOCATION



PROJECT NO. B-4316
 WATAUGA COUNTY
 STATION: 15+37.50 -L-

SHEET 2 OF 2

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

REVISIONS						SHEET NO. S-12
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			

DRAWN BY : S. DOMBROWSKI DATE : 9/5/08
 CHECKED BY : T. H. FANG DATE : 11/5/08

NOTES

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

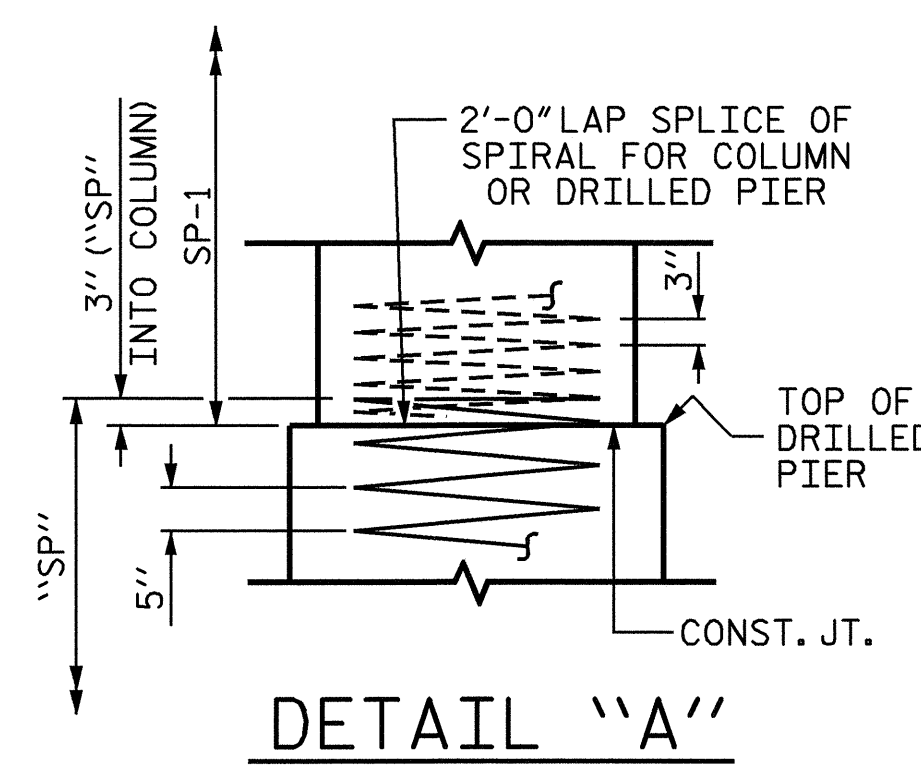
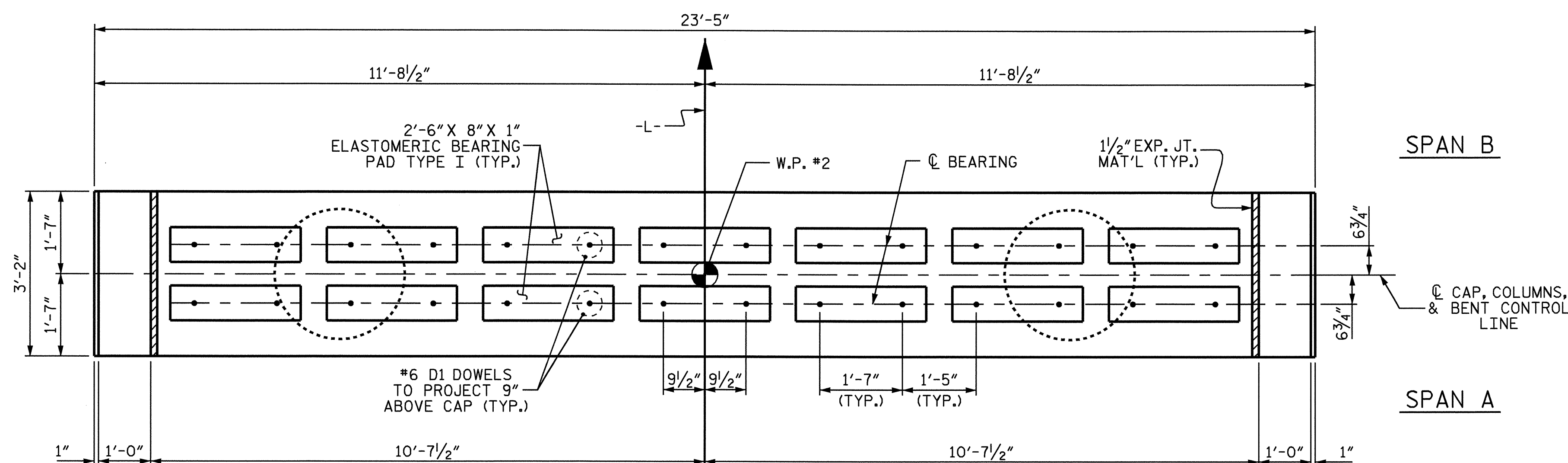
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

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

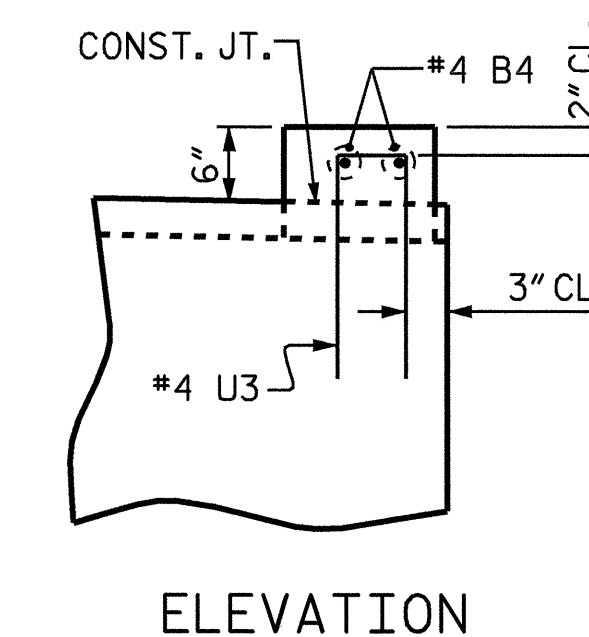
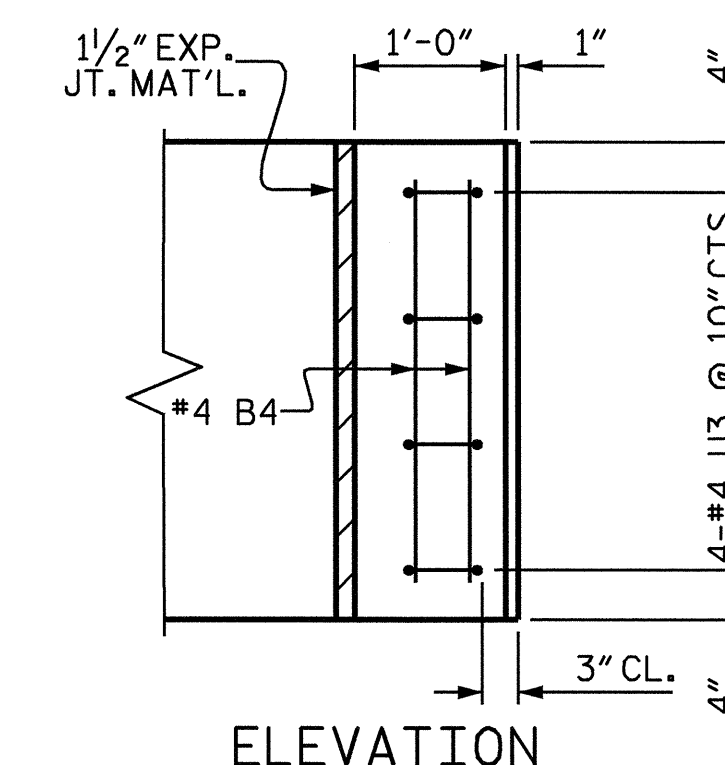
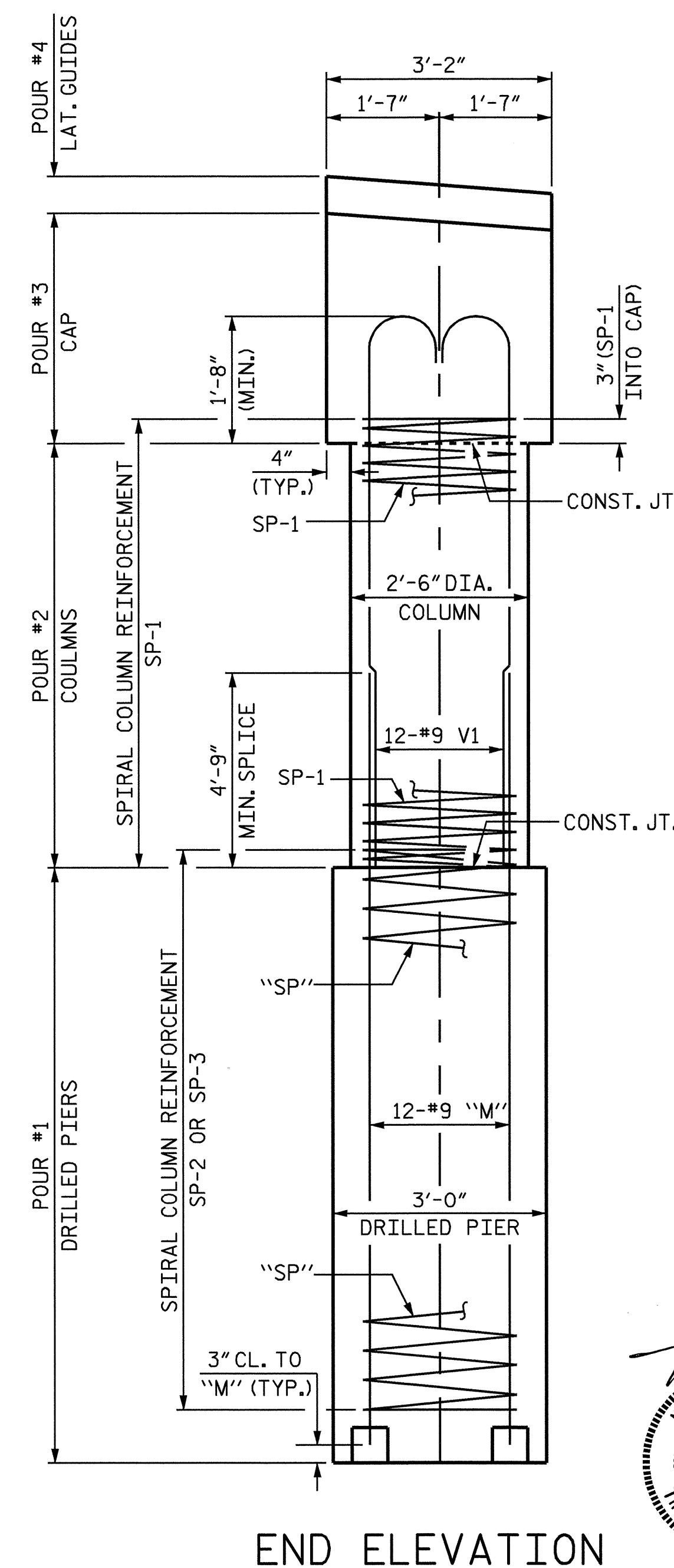
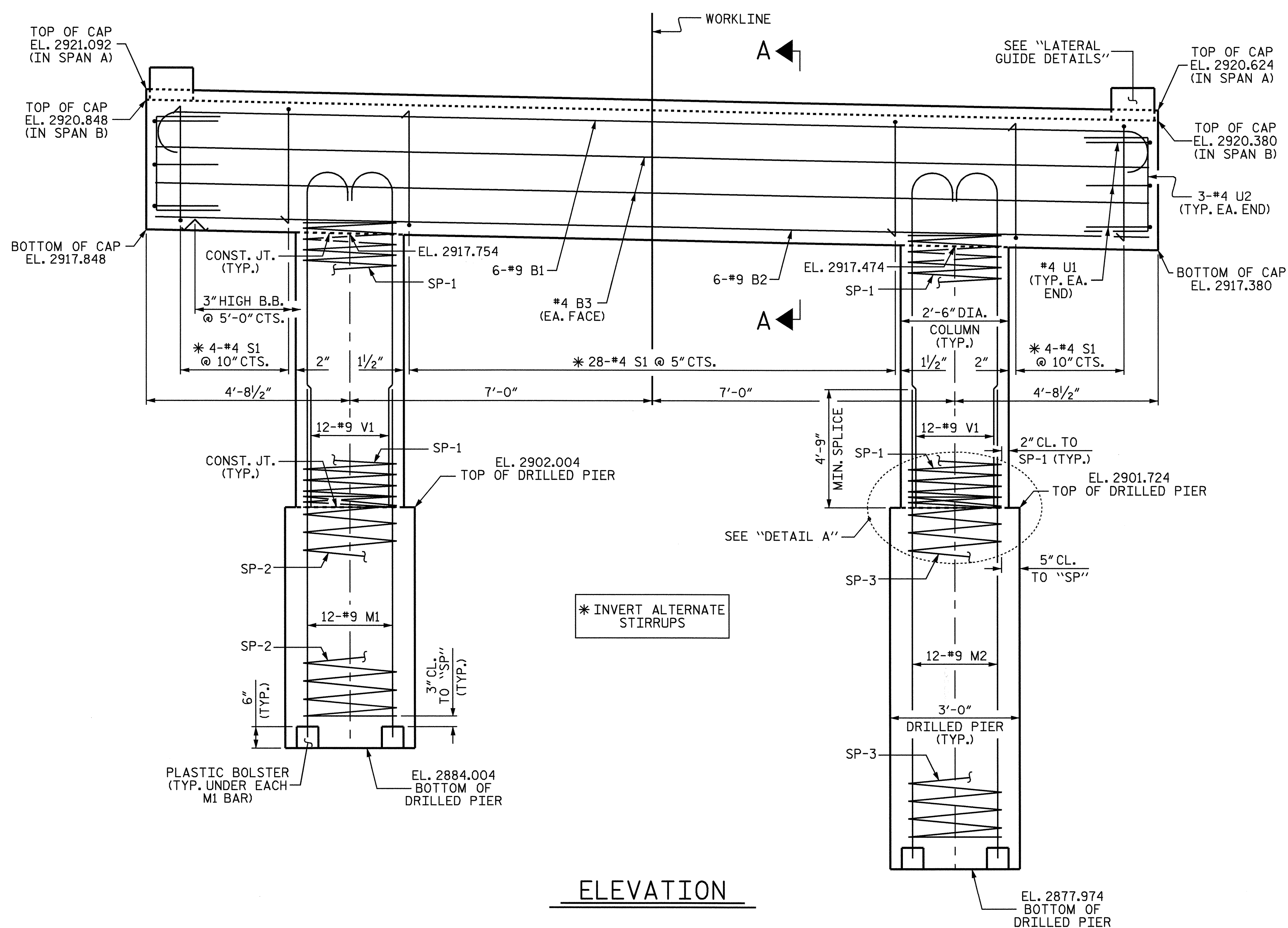
THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.



PLAN



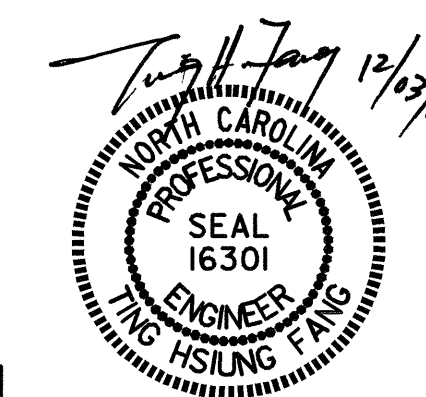
LATERAL GUIDE DETAILS

PROJECT NO. B-4316
 WATAUGA COUNTY
 STATION: 15+37.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE

BENT 1

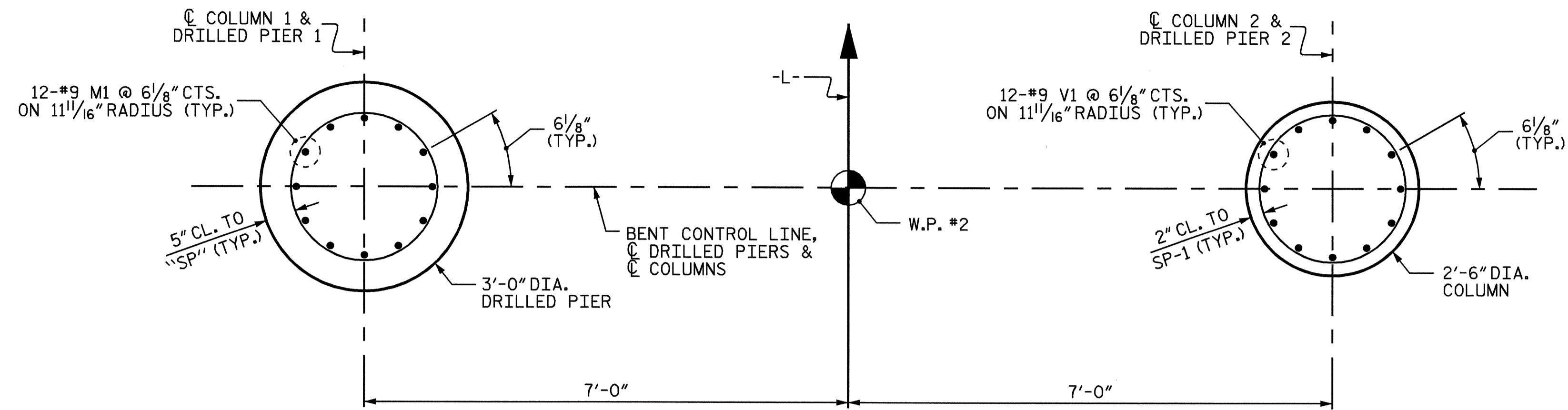


DRAWN BY: S. DOMBROWSKI DATE: 10/23/08
 CHECKED BY: T.H. FANG DATE: 11/6/08

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 sdombrowski

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-13
1			3			TOTAL SHEETS
2			4			19

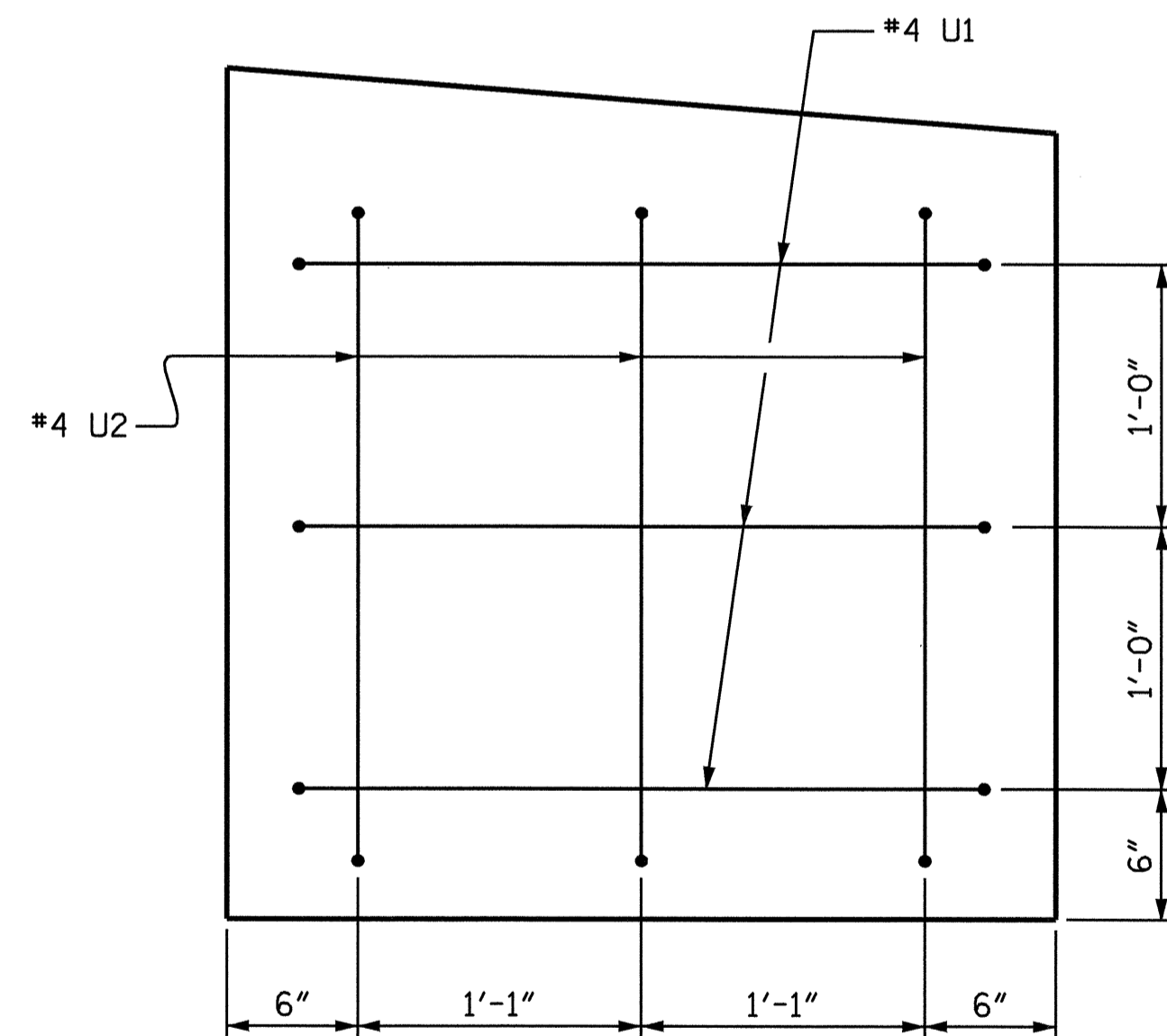
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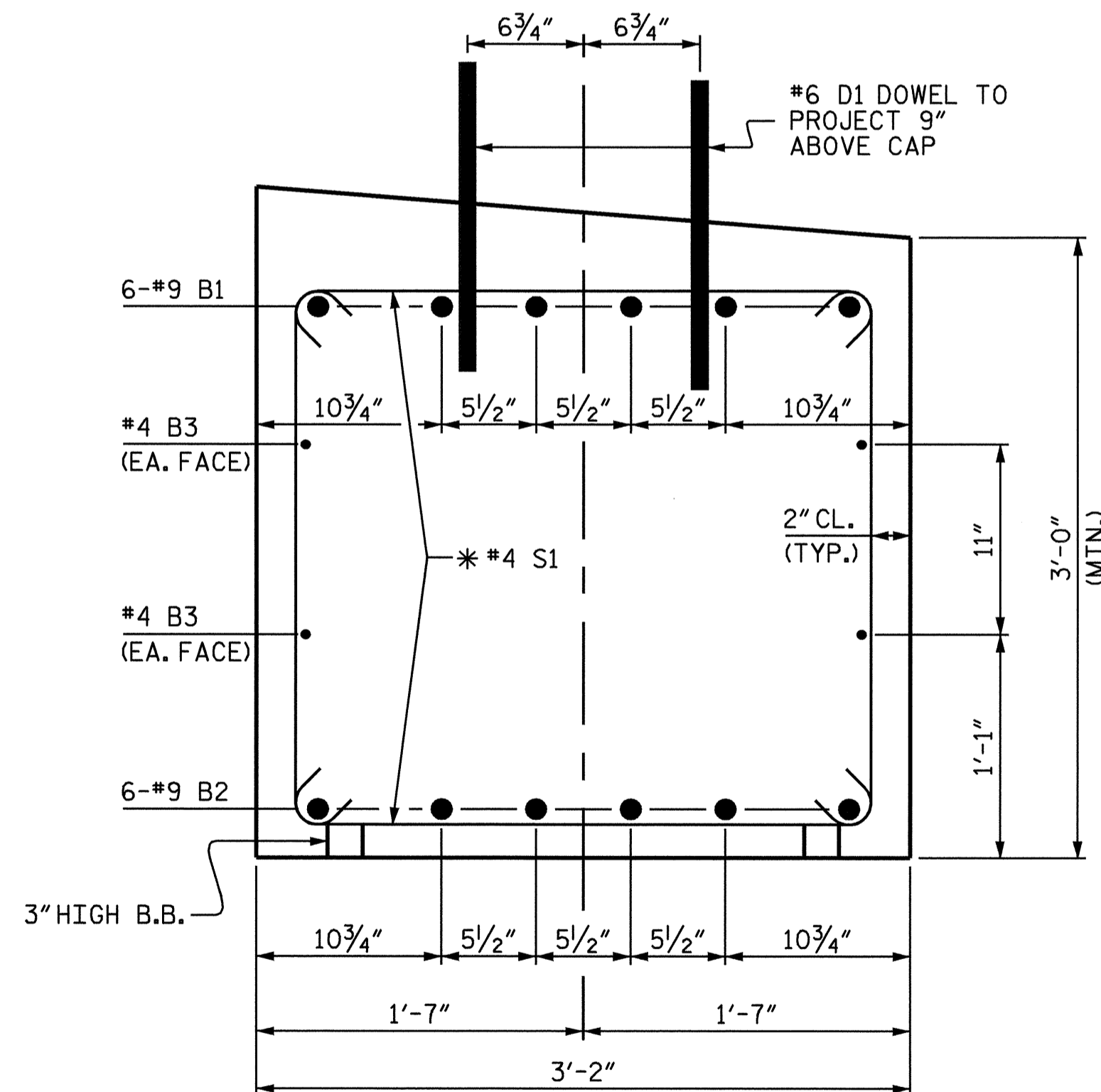
PARTIAL PLAN OF DRILLED PIERS

PARTIAL PLAN OF COLUMNS

PLAN OF COLUMNS & DRILLED PIERS



END VIEW
(TYP. EA. END)



SECTION A-A
* INVERT ALTERNATE STIRRUPS

BILL OF MATERIAL					
BENT 1					
BAR	NO.	SIZE	TYPE	WEIGHT	
B1	6	#9	1	25'-5"	519
B2	6	#9	STR.	23'-1"	471
B3	4	#4	STR.	23'-1"	62
B4	4	#4	STR.	2'-10"	8
D1	28	#6	STR.	1'-6"	63
M1	12	#9	STR.	25'-6"	1040
M2	12	#9	STR.	31'-3"	1275
S1	36	#4	3	8'-8"	208
U1	6	#4	4	5'-8"	23
U2	6	#4	4	5'-6"	22
U3	8	#4	4	3'-6"	19
V1	24	#9	2	18'-8"	1523
REINFORCING STEEL				5233 LBS.	
SP-1	2	***	5	439'-7"	587
SP-2	1	***	6	289'-7"	302
SP-3	1	***	6	381'-5"	398
TOTAL SPIRAL COLUMN REINFORCING STEEL				1287 LBS.	
CLASS A CONCRETE BREAKDOWN:					
POUR #2 (COLUMNS)				5.7 C.Y.	
POUR #3 (CAP)				8.6 C.Y.	
POUR #4 (LATERAL GUIDES)				0.1 C.Y.	
TOTAL CLASS A CONCRETE:				14.4 C.Y.	
3'-0" Ø DRILLED PIER QUANTITIES					
DRILLED PIER CONCRETE: POUR #1 (DRILLED PIERS)				11.0 C.Y.	
3'-0" DIA. DRILLED PIERS IN SOIL				23.75 LIN.FT.	
3'-0" DIA. DRILLED PIERS NOT IN SOIL				18 LIN.FT.	
PERMANENT STEEL CASING FOR 3'-0" DIA. DRILLED PIER				30 LIN.FT.	
CSL TUBES:				187 LIN.FT.	

BAR TYPES	
1	22'-11" (HK. 1'-3" ends)
2	17'-5" (HK. 1'-3" ends)
3	2'-10" (HK. 4 1/2" ends)
4	1'-6" (HK. 1'-6" ends)
5	16'-0" (3" PITCH)
6	17'-6" (5" PITCH)

1 1/2 EXTRA TURNS INTO CAP

1 1/2 EXTRA TURNS

4 SPACERS

4 SPACERS

2'-2" (width of pier/cap)

ALL BAR DIMENSIONS ARE OUT TO OUT.

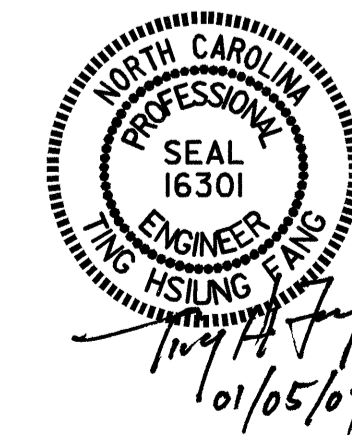
** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

*** THE SP-2 AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

PROJECT NO. B-4316
WATAUGA COUNTY
 STATION: 15+37.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT 1



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 CHECKED BY: T.H. FANG DATE: 10/6/08

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 sdombrowski

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

TOTAL SHEETS 19

NOTES

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

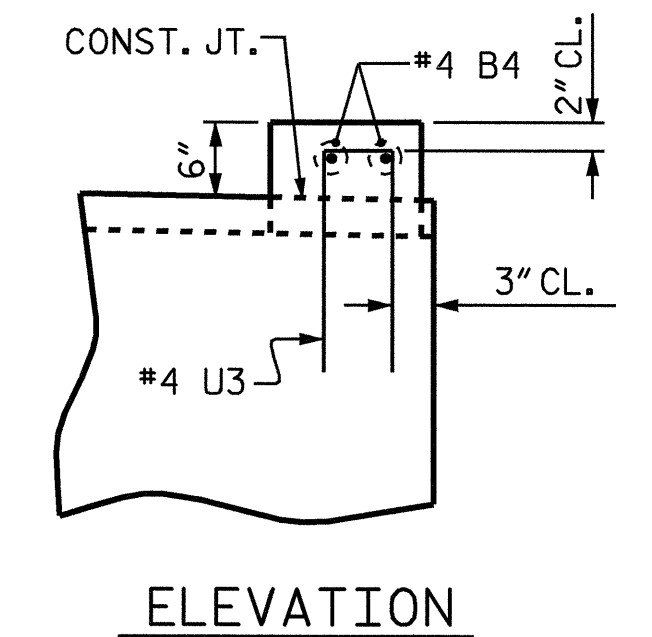
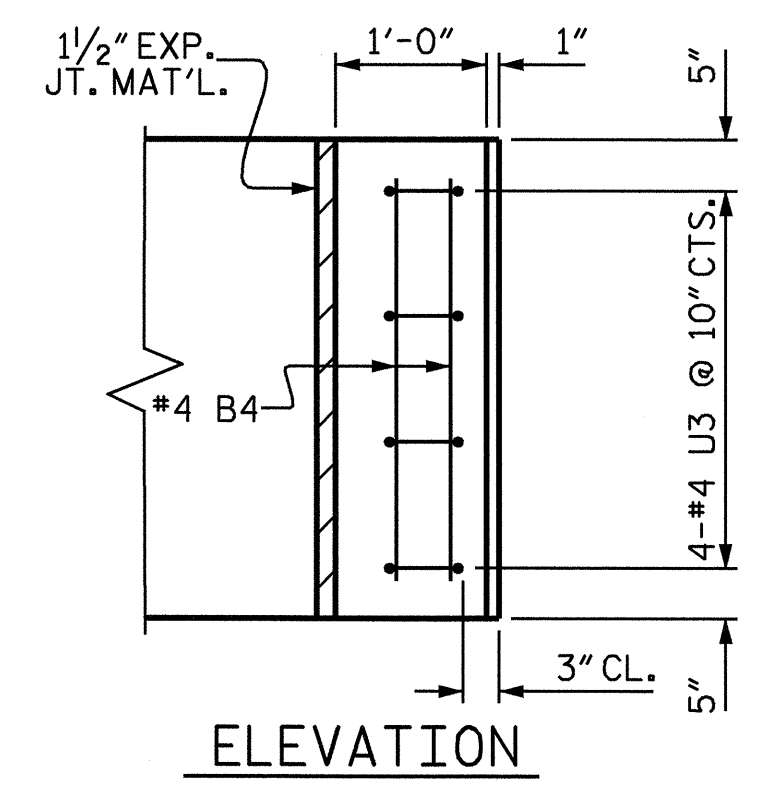
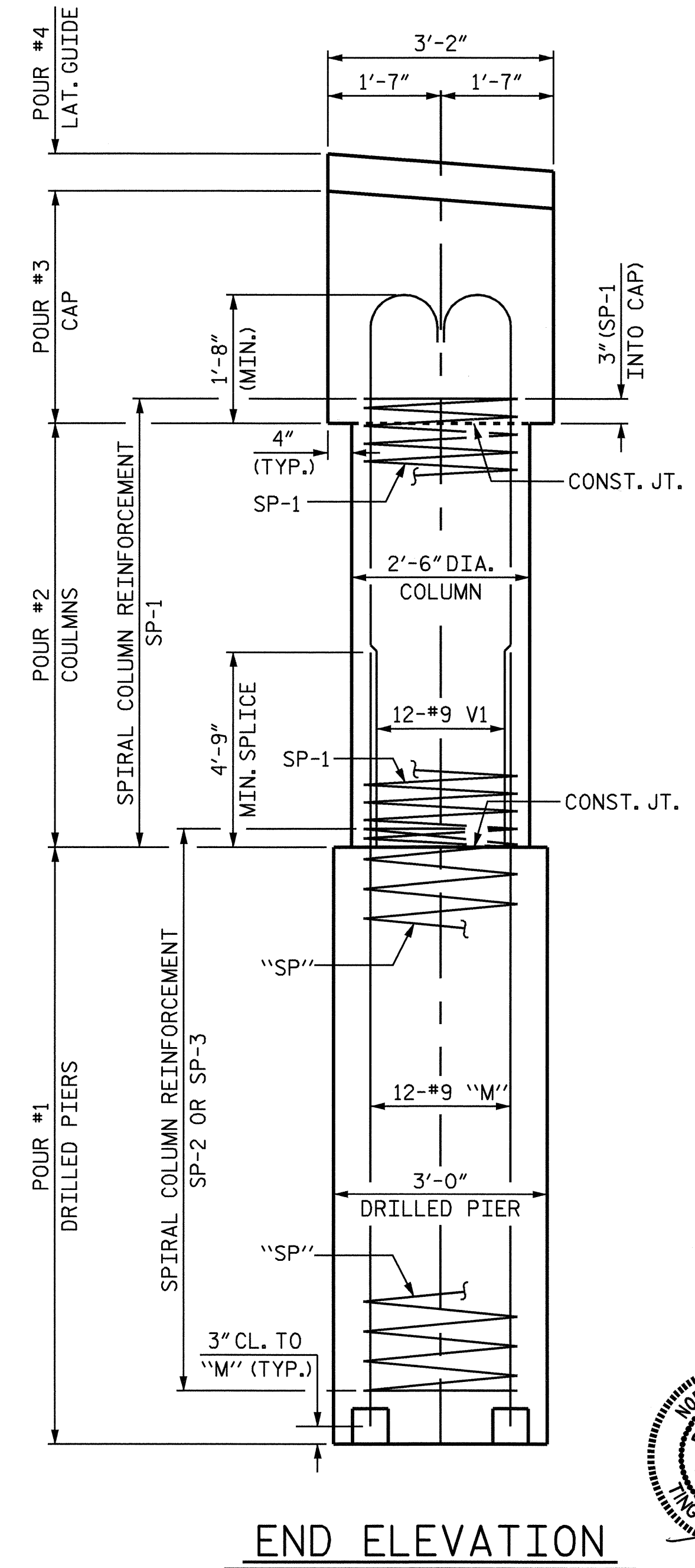
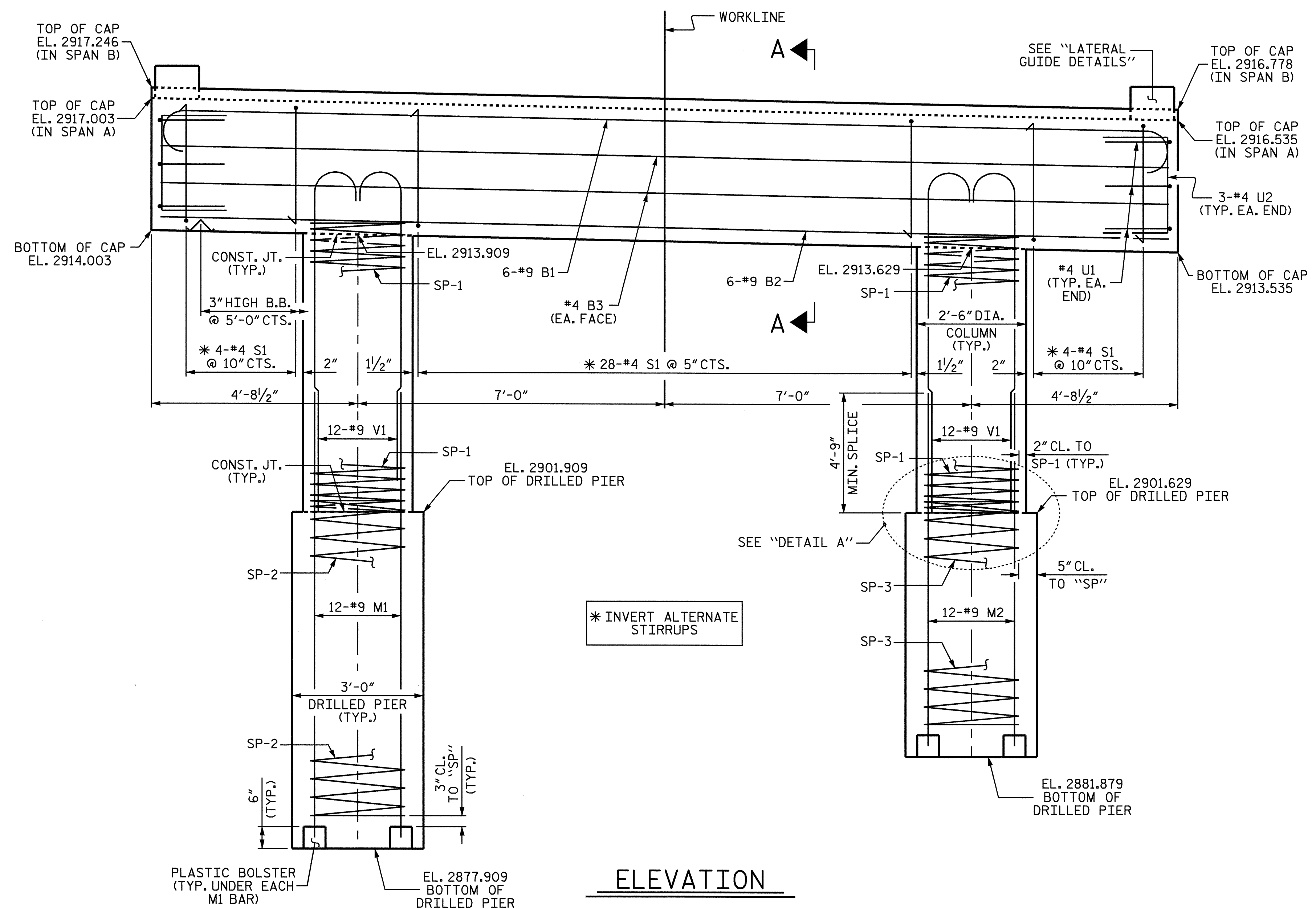
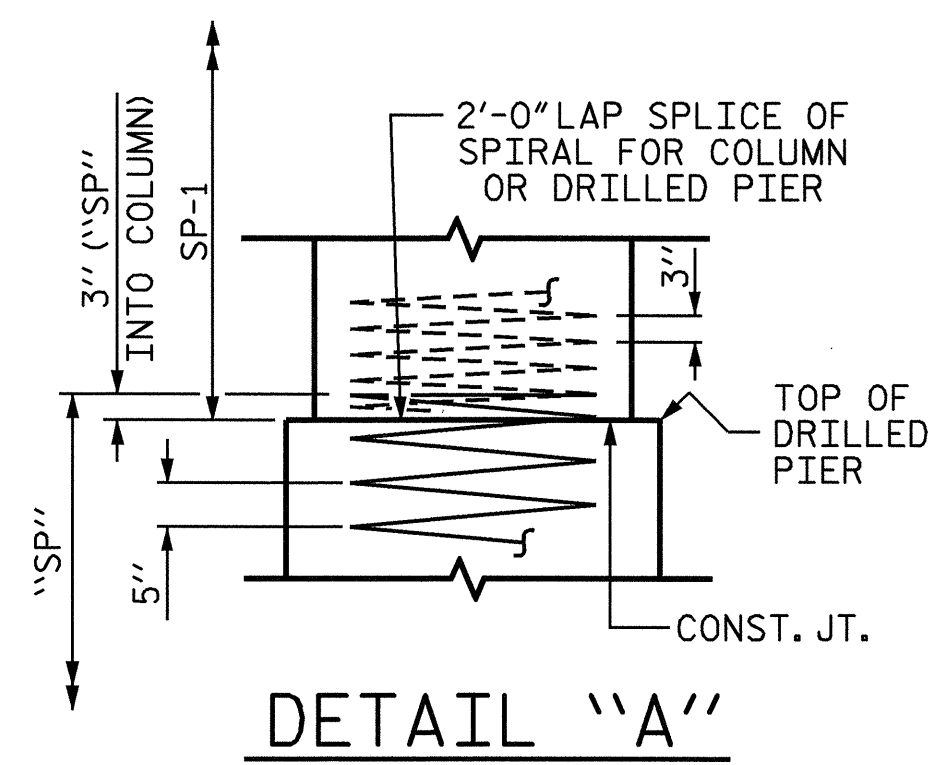
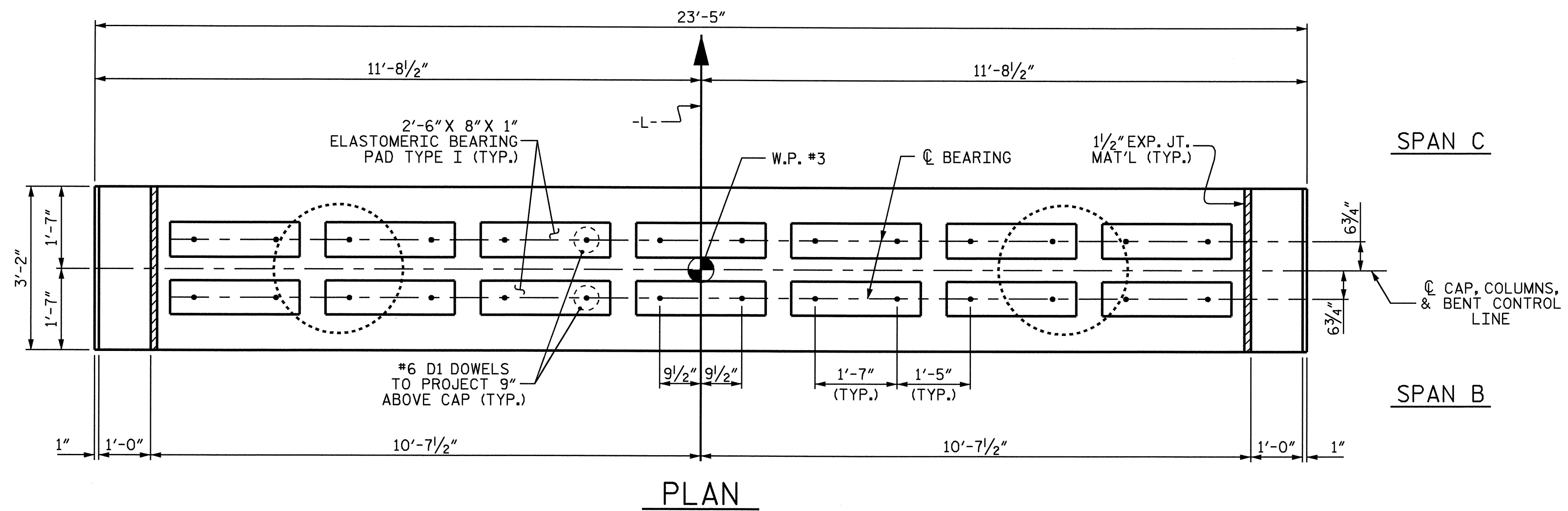
HOOKS ON "V" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

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.

SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.

THE LOCATION OF THE CONSTRUCTION JOINT IN THE DRILLED PIERS IS BASED ON AN APPROXIMATE GROUND LINE ELEVATION. IF THE CONSTRUCTION JOINT IS ABOVE THE ACTUAL GROUND LINE ELEVATION, THE CONTRACTOR SHALL PLACE THE CONSTRUCTION JOINT 1 FT. BELOW THE GROUND LINE.



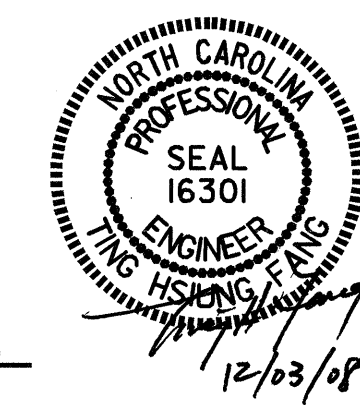
LATERAL GUIDE DETAILS

PROJECT NO. B-4316
WATAUGA COUNTY
 STATION: 15+37.50 -L-

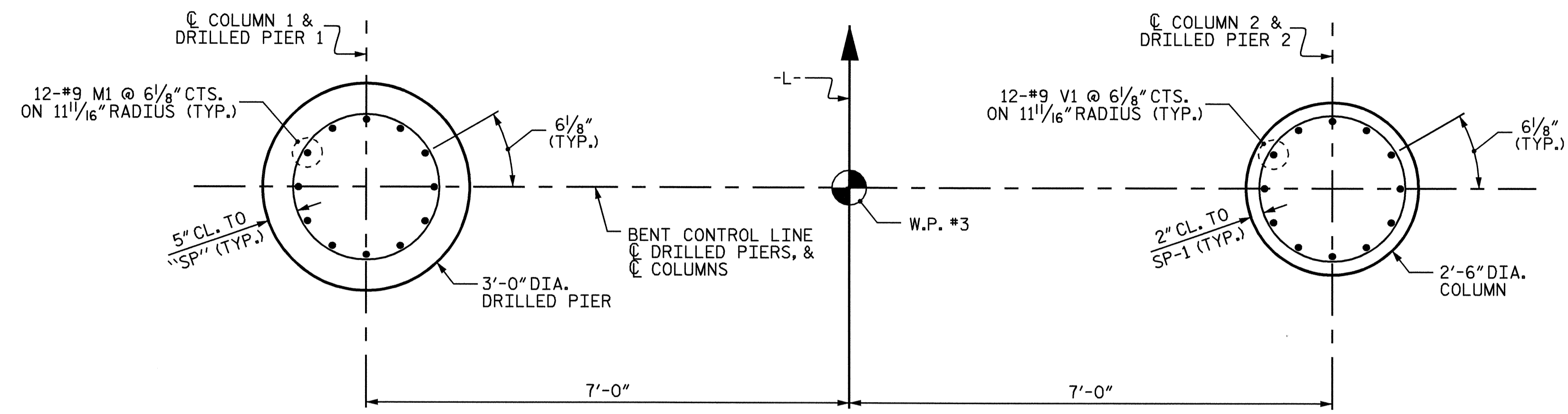
SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
BENT 2

REVISIONS						SHEET NO. S-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			



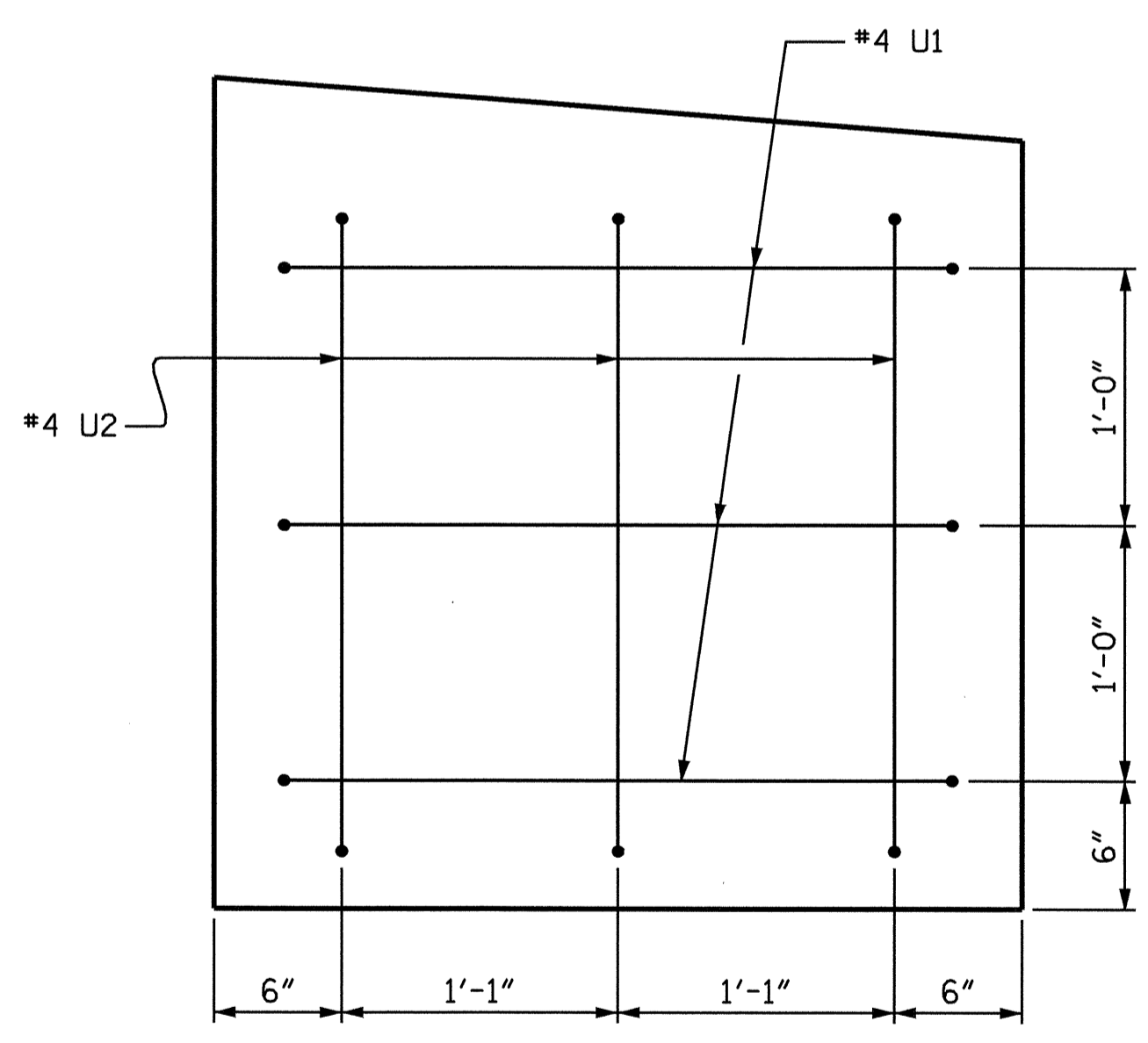
DRAWN BY : S. DOMBROWSKI DATE : 10/23/08
 CHECKED BY : T.H. FANG DATE : 11/6/08



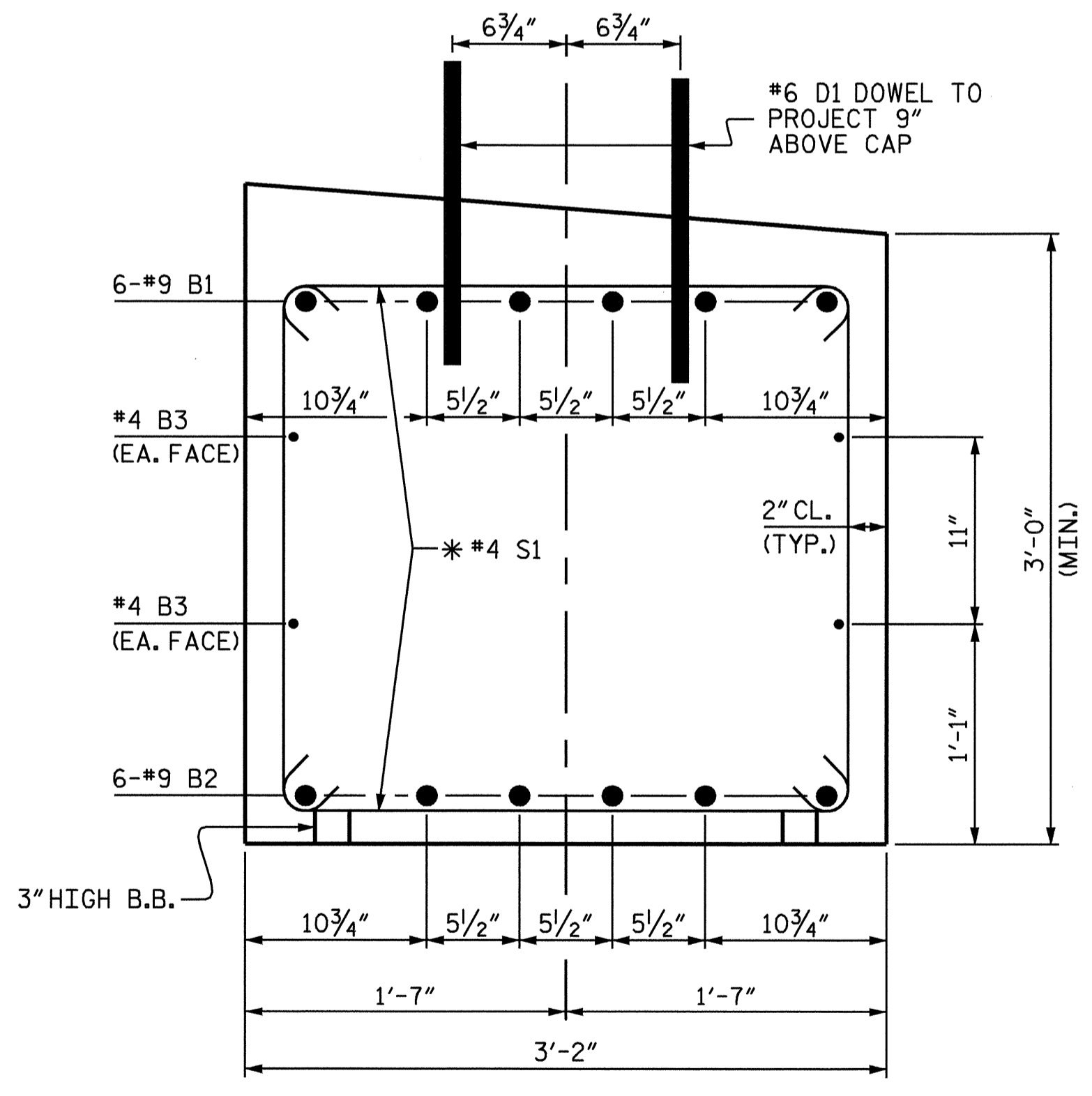
PARTIAL PLAN OF DRILLED PIERS

PARTIAL PLAN OF COLUMNS

PLAN OF COLUMNS & DRILLED PIERS



END VIEW
(TYP. EA. END)



SECTION A-A
* INVERT ALTERNATE STIRRUPS

BILL OF MATERIAL					
BENT 2					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	#9		25'-5"	519	
B2	#9	STR.	23'-1"	471	
B3	#4	STR.	23'-1"	62	
B4	#4	STR.	2'-10"	8	
D1	#6	STR.	1'-6"	63	
M1	#9	STR.	31'-6"	1285	
M2	#9	STR.	27'-3"	1112	
S1	#4	3	8'-8"	208	
U1	#4	4	5'-8"	23	
U2	#4	4	5'-6"	22	
U3	#4	4	3'-6"	19	
V1	#9	2	14'-11"	1217	
REINFORCING STEEL				5009 LBS.	
SP-1	2	***	5	339'-5"	453
SP-2	1	***	6	385'-5"	402
SP-3	1	***	6	317'-7"	331
TOTAL SPIRAL COLUMN REINFORCING STEEL				1186 LBS.	
CLASS A CONCRETE BREAKDOWN:					
POUR #2 (COLUMNS)			4.4	C.Y.	
POUR #3 (CAP)			8.6	C.Y.	
POUR #4 (LATERAL GUIDES)			0.1	C.Y.	
TOTAL CLASS A CONCRETE:			13.1	C.Y.	
3'-0" Ø DRILLED PIER QUANTITIES					
DRILLED PIER CONCRETE: POUR #1 (DRILLED PIERS)			11.5	C.Y.	
3'-0" DIA. DRILLED PIERS IN SOIL			23.75	LIN.FT.	
3'-0" DIA. DRILLED PIERS NOT IN SOIL			20.0	LIN.FT.	
PERMANENT STEEL CASING FOR 3'-0" DIA. DRILLED PIER			31	LIN.FT.	
CSL TUBES:			195	LIN.FT.	

BAR TYPES	
1	22'-11" (HK. 1'-3" each end)
2	13'-8" (HK. 1'-3" each end)
3	2'-10" (HK. 4 1/2" each end)
4	2'-8" (U1), 2'-6" (U2), 6" (U3)
5	12'-3" (3" PITCH)
6	23'-6" (5" PITCH), 19'-3" (5" PITCH)

1 1/2 EXTRA TURNS INTO CAP (for bars 5 and 6)

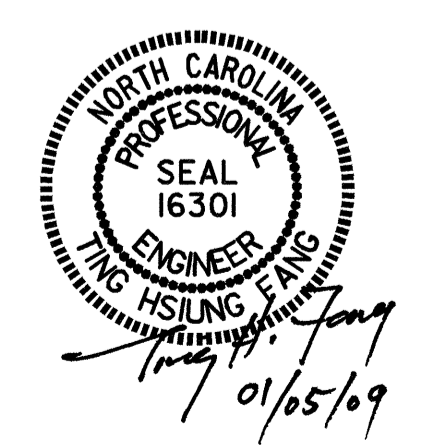
4 SPACERS (for bars 5 and 6)

ALL BAR DIMENSIONS ARE OUT TO OUT.

** THE SP-1 SPIRAL REINFORCING STEEL SHALL BE W20 OR D-20 COLD DRAWN WIRE OR #4 PLAIN OR DEFORMED BAR.

*** THE SP-2 AND SP-3 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.

PROJECT NO. B-4316
WATAUGA COUNTY
 STATION: 15+37.50 -L-
 SHEET 2 OF 2

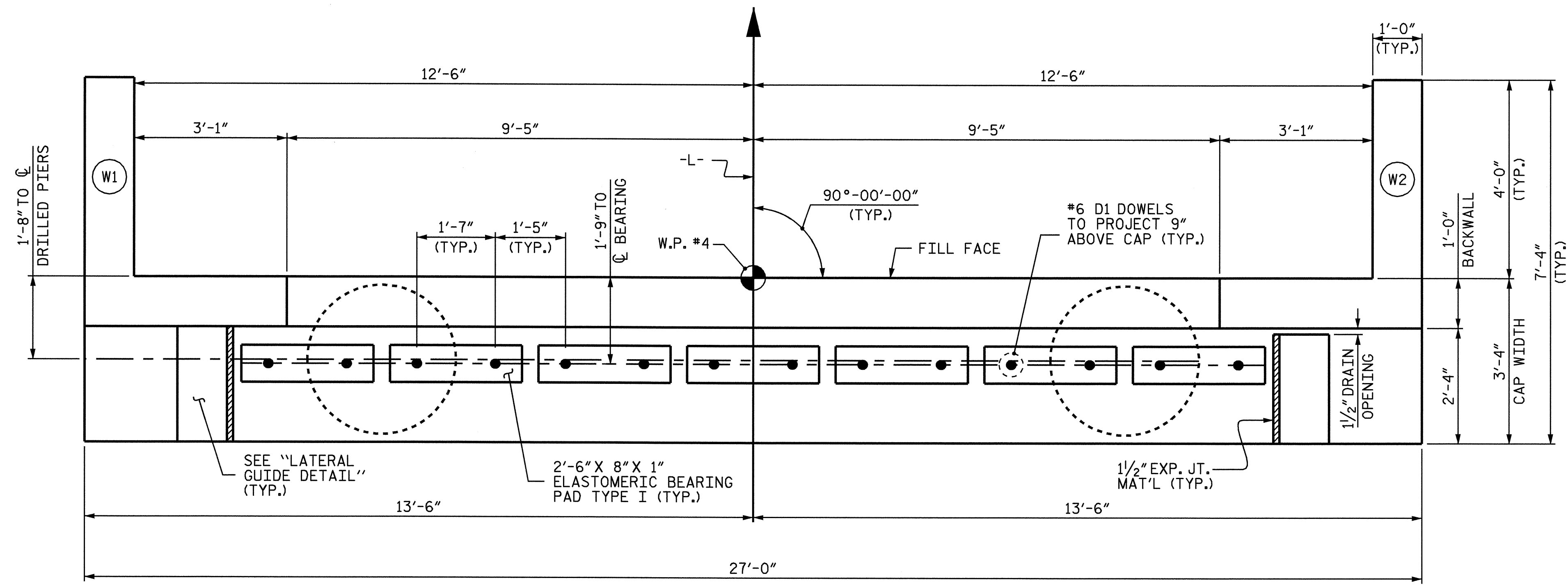


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 19

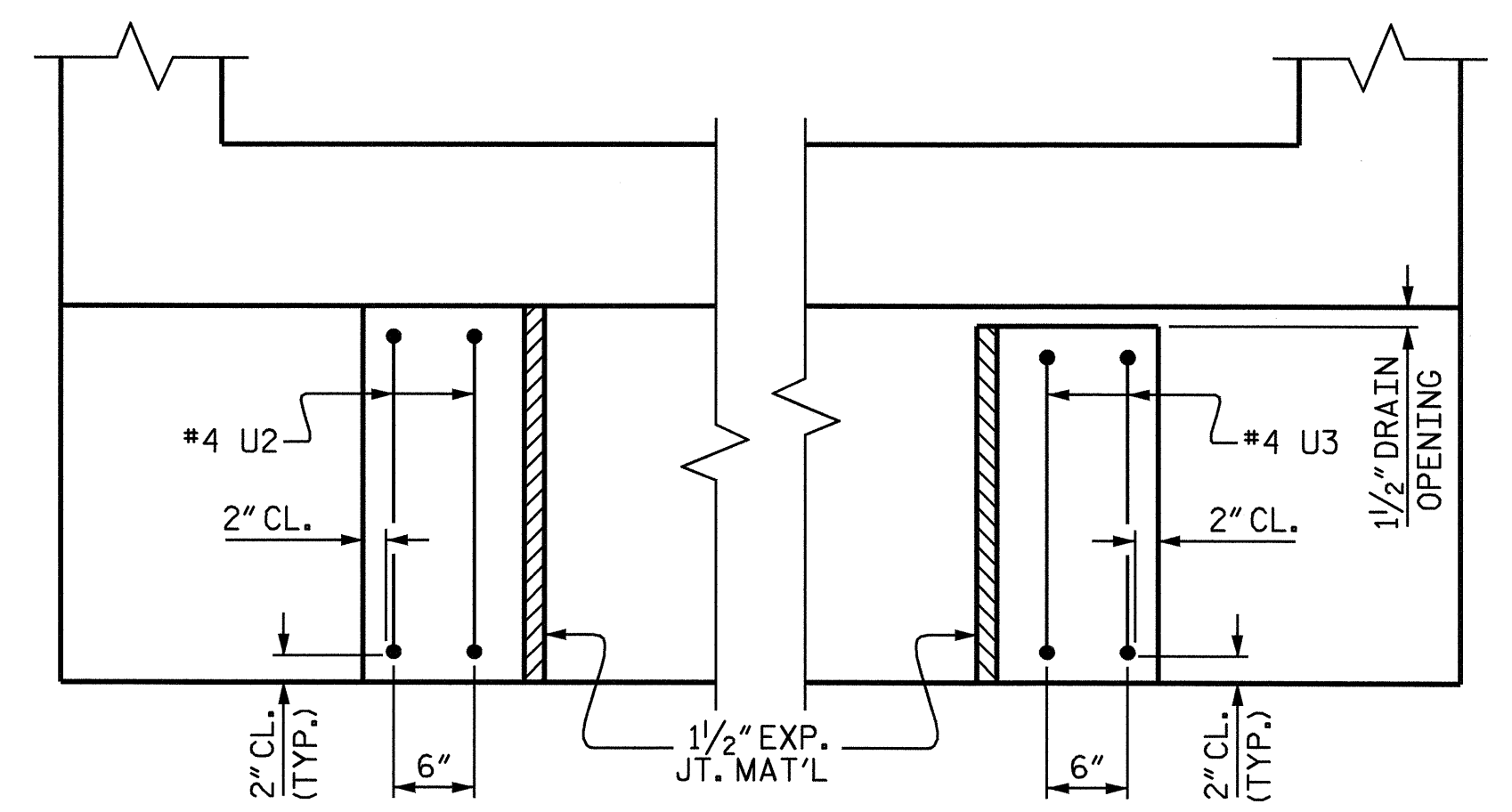
DRAWN BY: S. DOMBROWSKI DATE: 10/23/08
 CHECKED BY: T.H. FANG DATE: 10/6/08

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 CORED SLAB UNITS ARE IN PLACE.
 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.
 HOOKS ON "M" 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".
 SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.

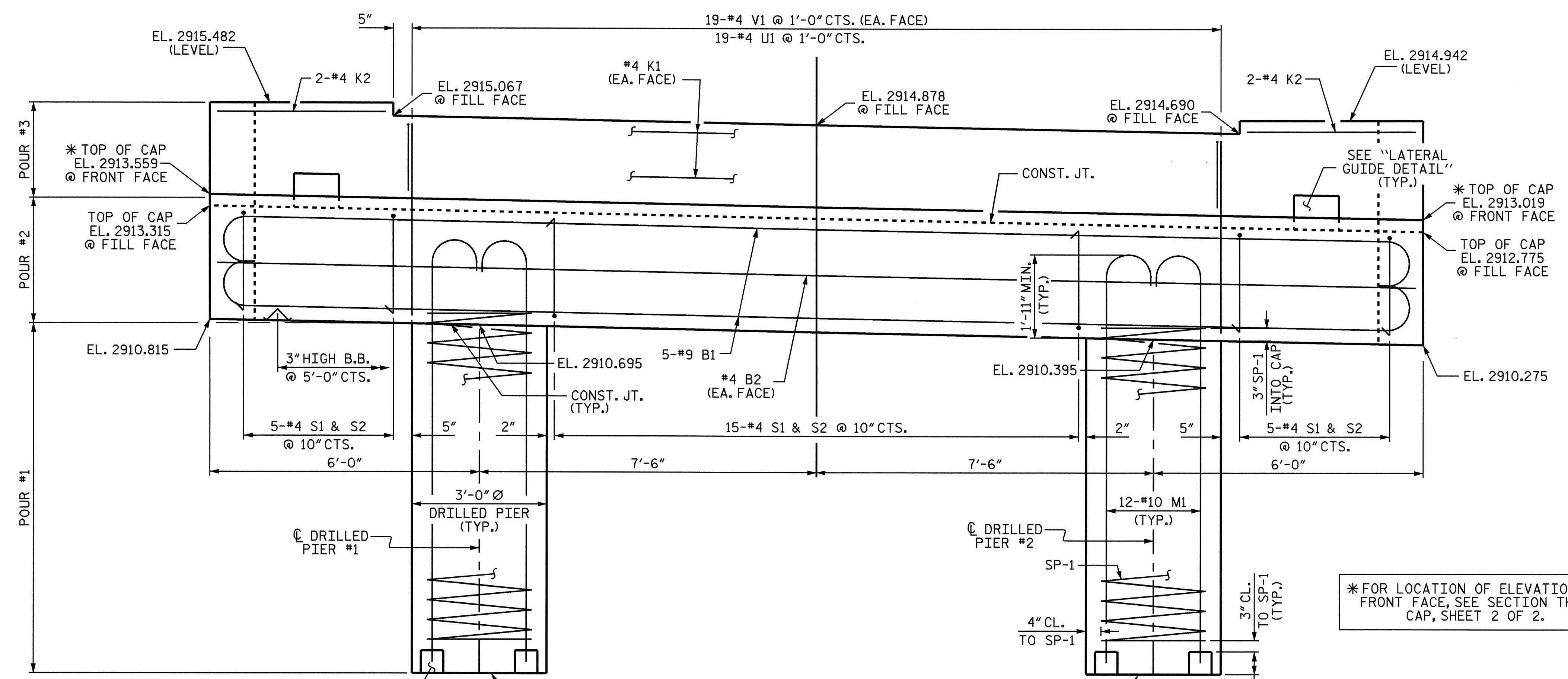


PLAN



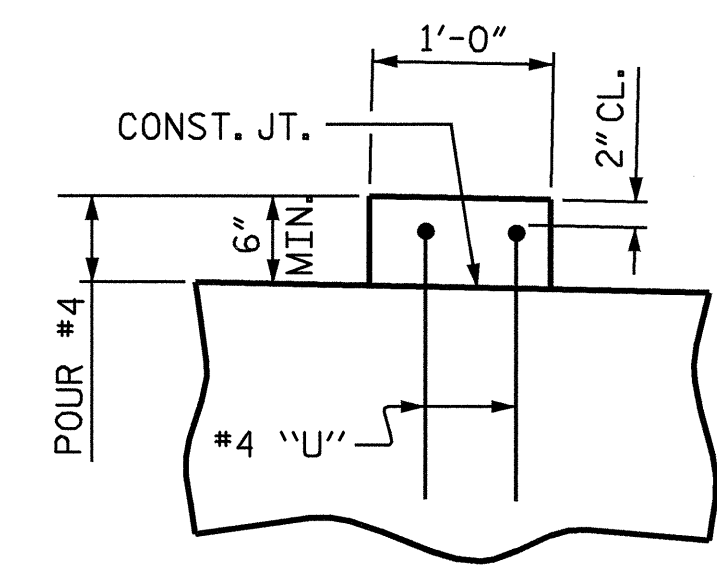
PLAN @ WING W1

PLAN @ WING W2



ELEVATION

REINFORCING STEEL IS IDENTICAL FOR EACH DRILLED PIER



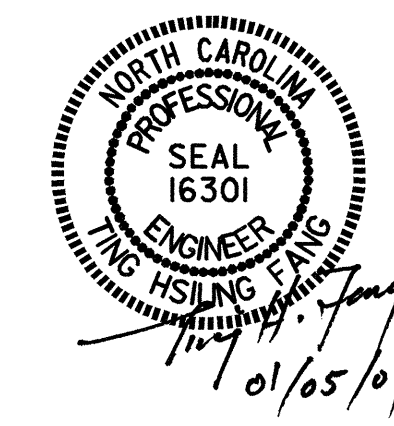
ELEVATION

LATERAL GUIDE DETAILS

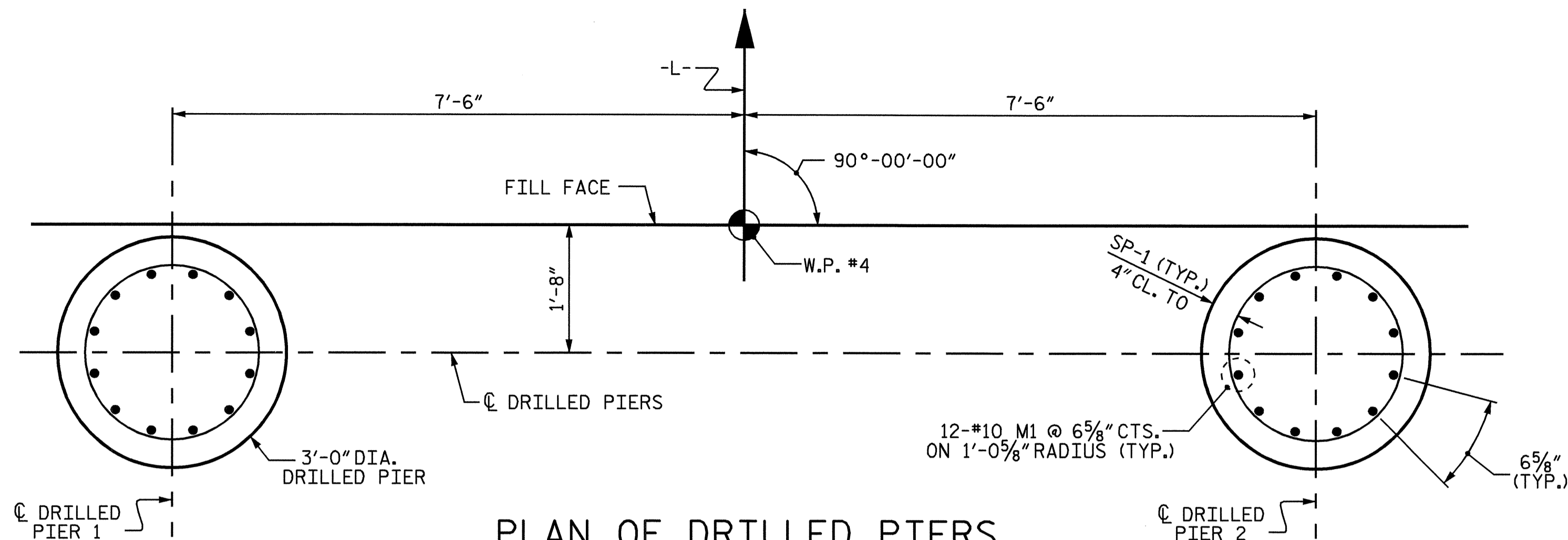
PROJECT NO. B-4316
WATAUGA COUNTY
 STATION: 15+37.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
SUBSTRUCTURE					
END BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					19

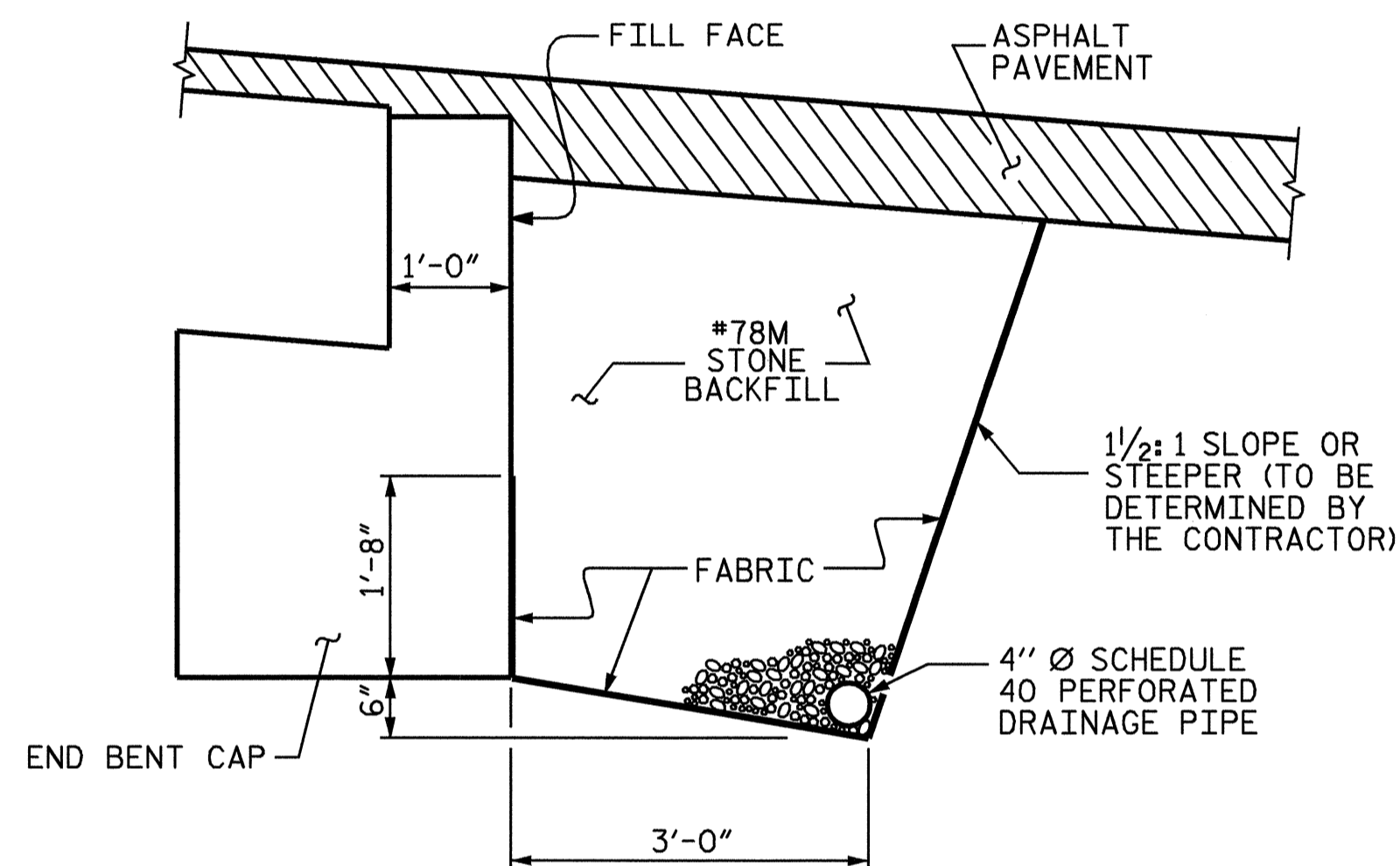


DRAWN BY: S. DOMBROWSKI DATE: 9/5/08
 CHECKED BY: T. H. FANG DATE: 11/5/08



PLAN OF DRILLED PIERS

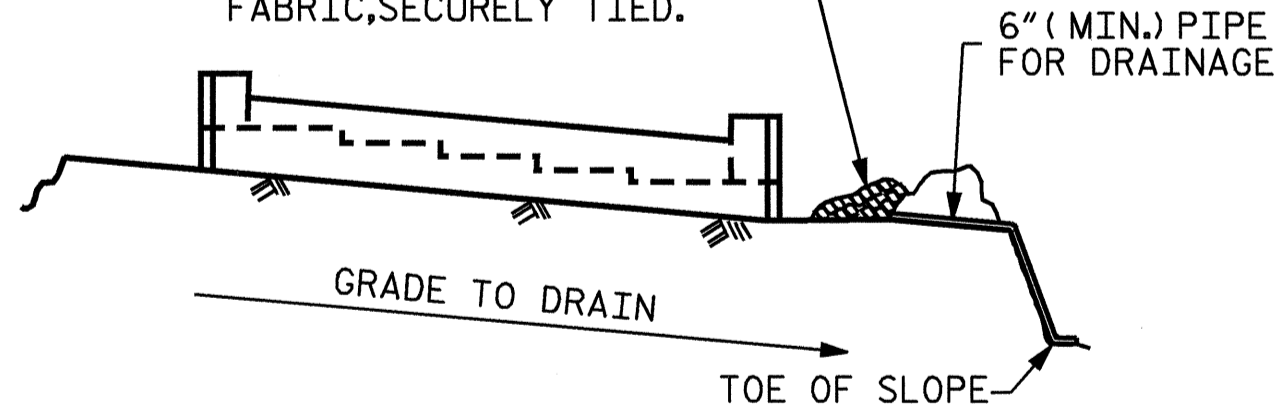
DIMENSIONS & REINFORCING STEELS ARE TYPICAL FOR EACH DRILLED PIER



BACK FILL DETAILS

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

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

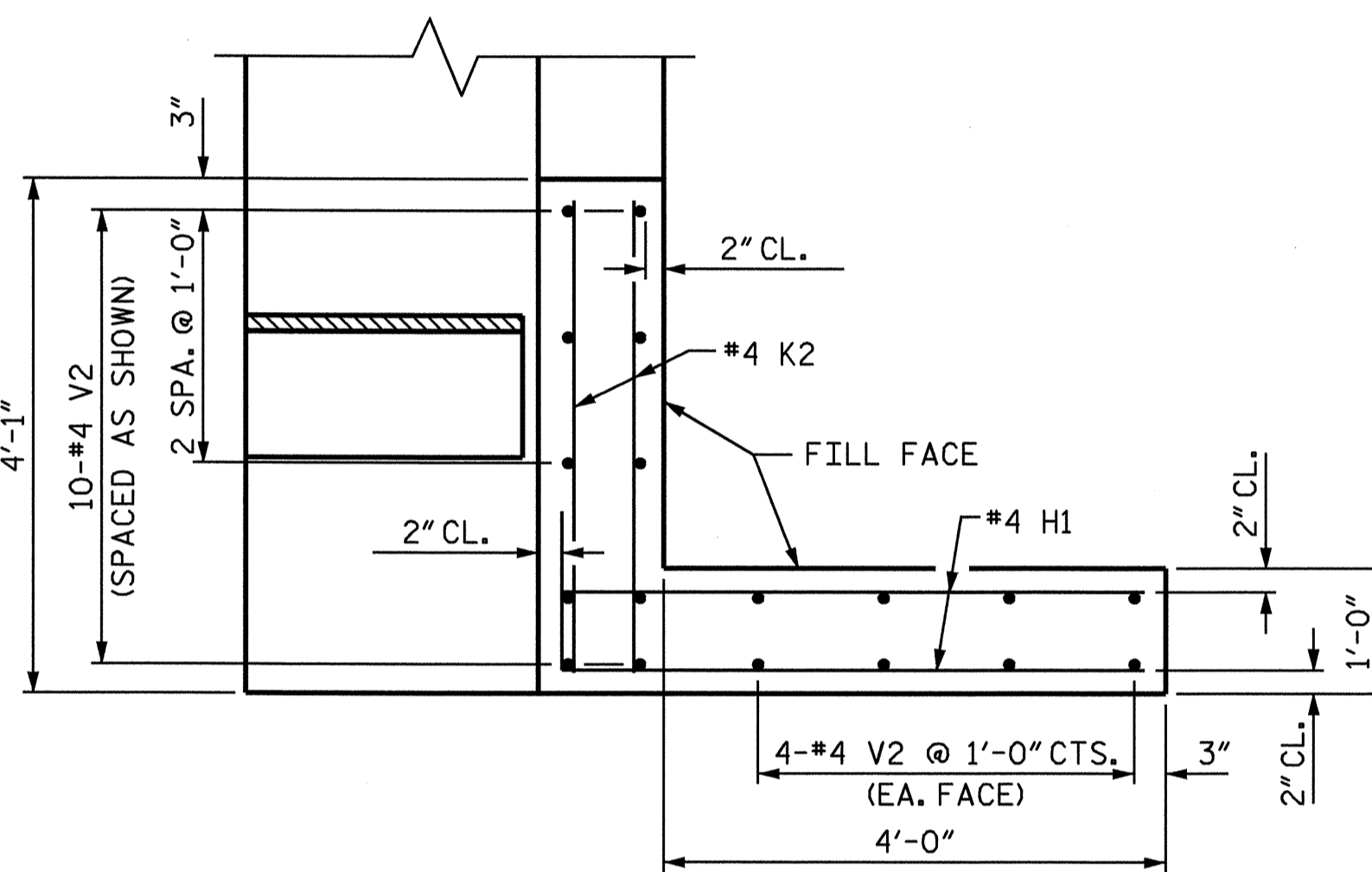


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

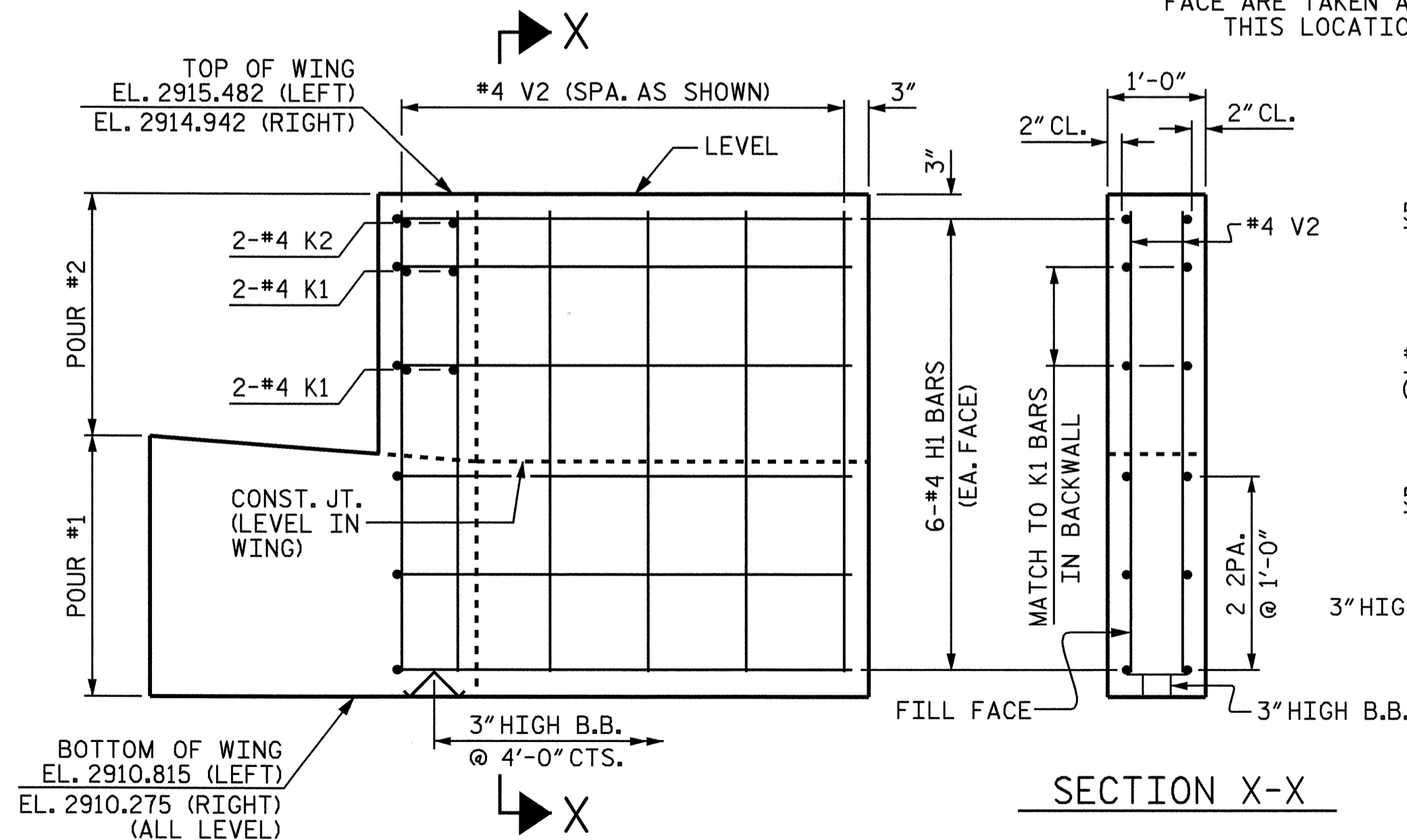
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT



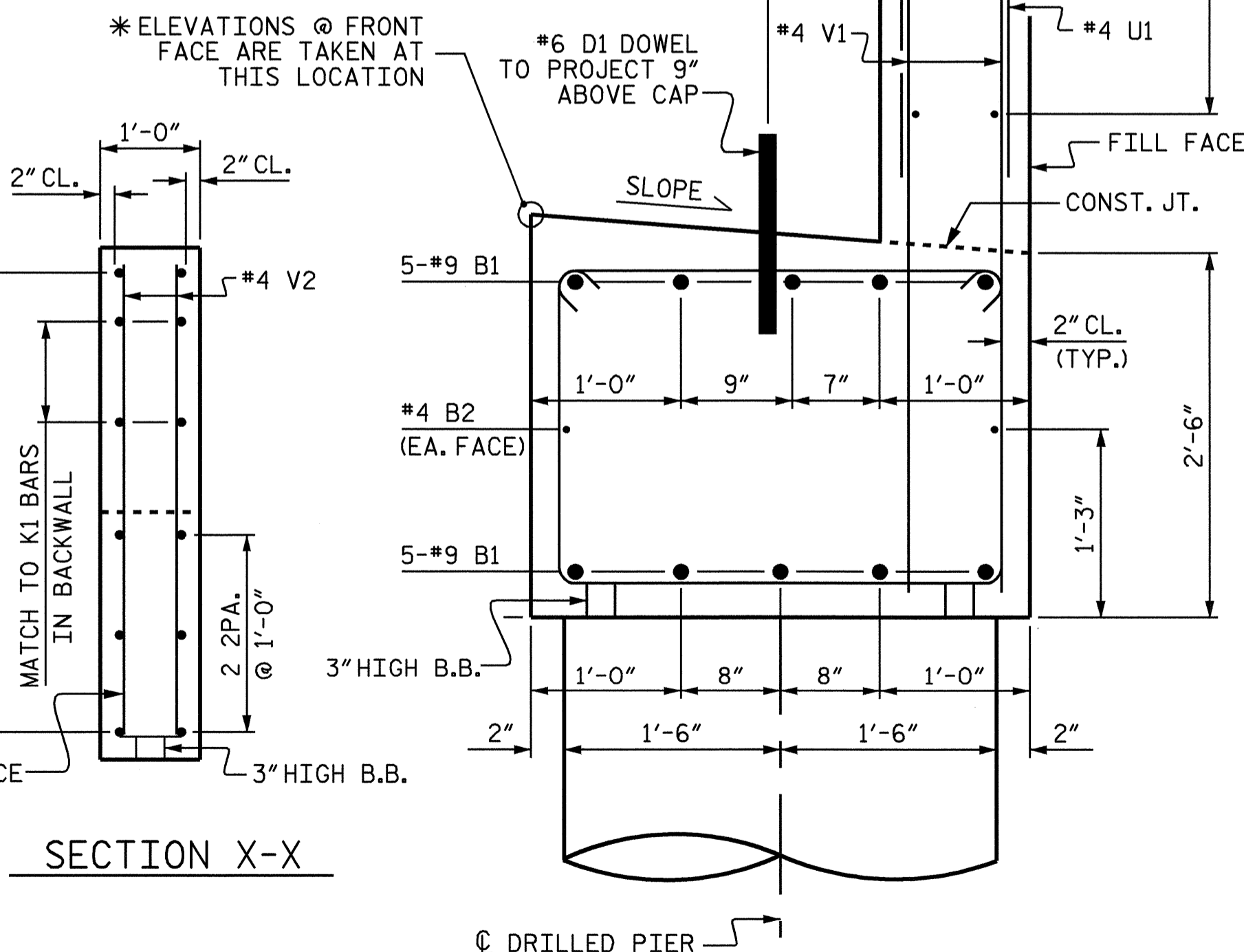
PLAN



ELEVATION

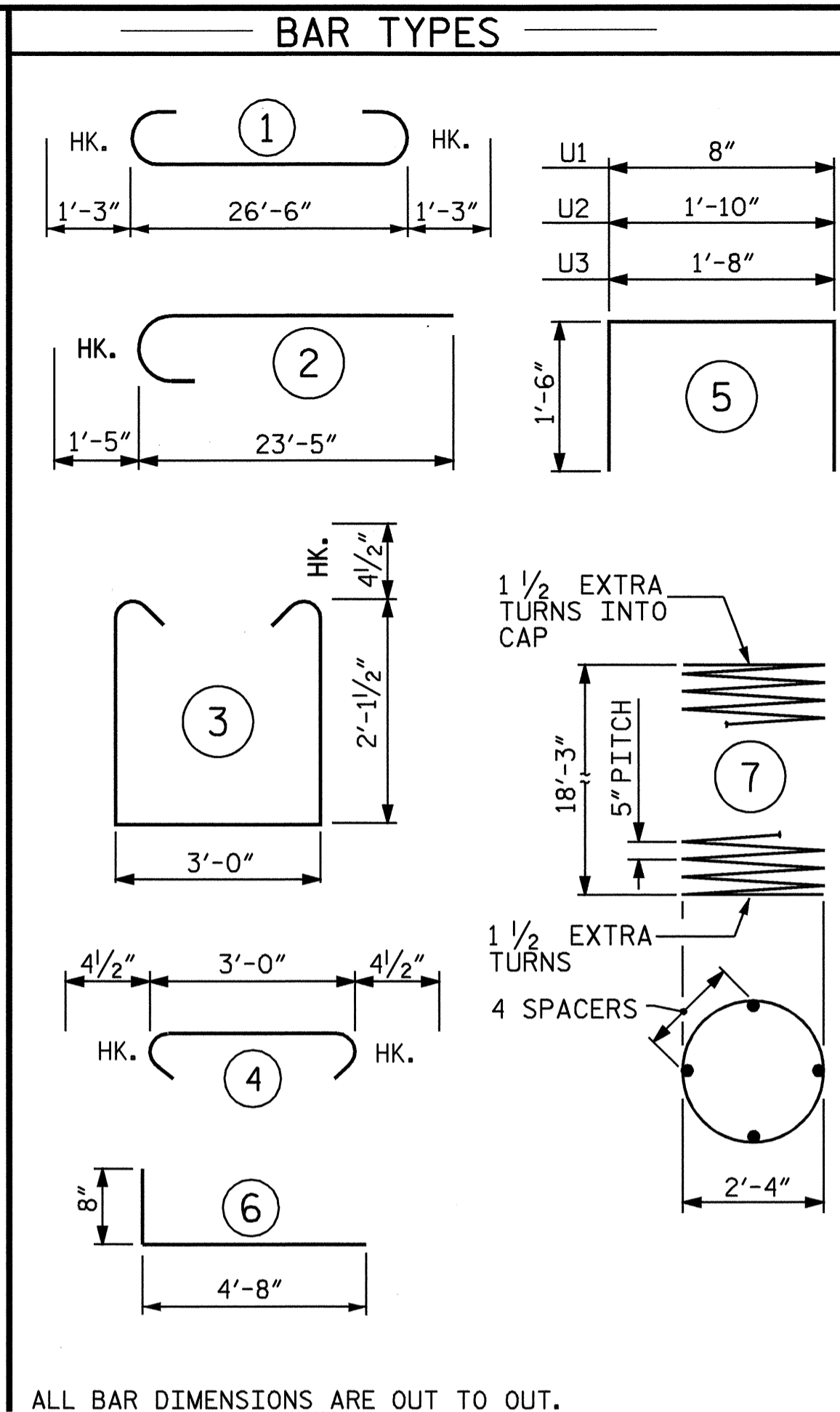
WINGWALL DETAILS

WING (W2) SHOWN, (W1) SIMILAR



SECTION THRU CAP

ALL BAR DIMENSIONS ARE OUT TO OUT.



BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#9		29'-0"	986
B2	2	#4	STR.	26'-8"	36
D1	14	#6	STR.	1'-6"	32
H1	24	#4		5'-4"	86
K1	4	#4	STR.	26'-8"	71
K2	4	#4	STR.	3'-9"	10
M1	24	#10		24'-10"	2565
S1	25	#4		8'-0"	134
S2	25	#4		3'-9"	63
U1	19	#4		3'-8"	47
U2	2	#4		4'-10"	6
U3	2	#4		4'-8"	6
V1	38	#4	STR.	4'-0"	102
V2	36	#4	STR.	4'-2"	100

REINFORCING STEEL 4244 LBS.

SP-1 2 * 7 343'-9" 718

TOTAL SPIRAL COLUMN REINFORCING STEEL 718

CLASS A CONCRETE BREAKDOWN:
 POUR #2 (CAP & LOWER WINGS) 9.5 C.Y.
 POUR #3 (UPPER WINGS & BACKWALL) 2.7 C.Y.
 POUR #4 (LATERAL GUIDES) 0.1 C.Y.
 TOTAL CLASS A CONCRETE: 12.3 C.Y.

3'-0" Ø DRILLED PIER QUANTITIES

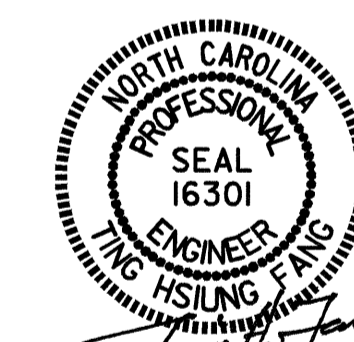
DRILLED PIER CONCRETE: POUR #1 (DRILLED PIERS) 19.8 C.Y.

3'-0" DIA. DRILLED PIERS IN SOIL 19.5 LIN.FT.

3'-0" DIA. DRILLED PIERS NOT IN SOIL 18.0 LIN.FT.

CSL TUBES: 170 LIN.FT.

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



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 WATAUGA COUNTY
 STATION: 15+37.50 -L-

SHEET 2 OF 2

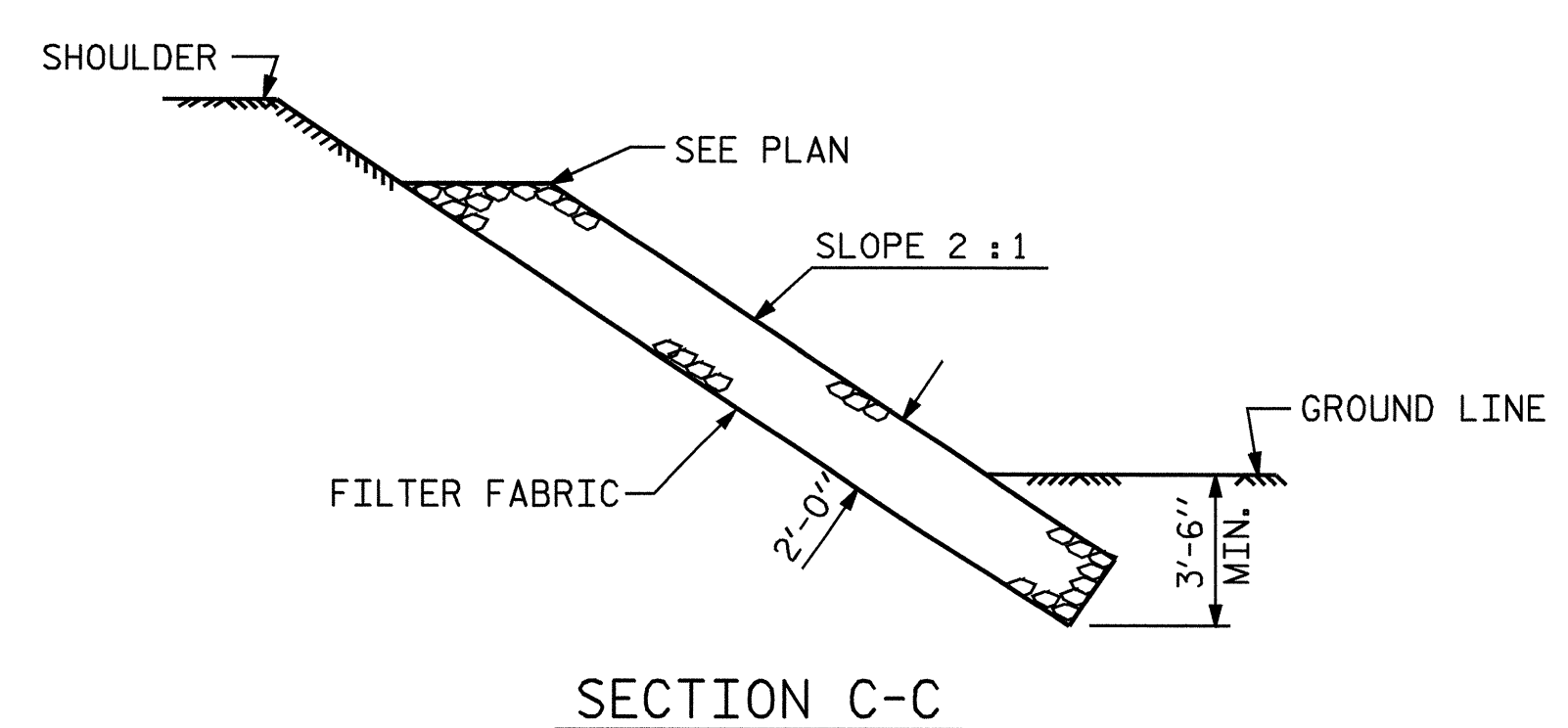
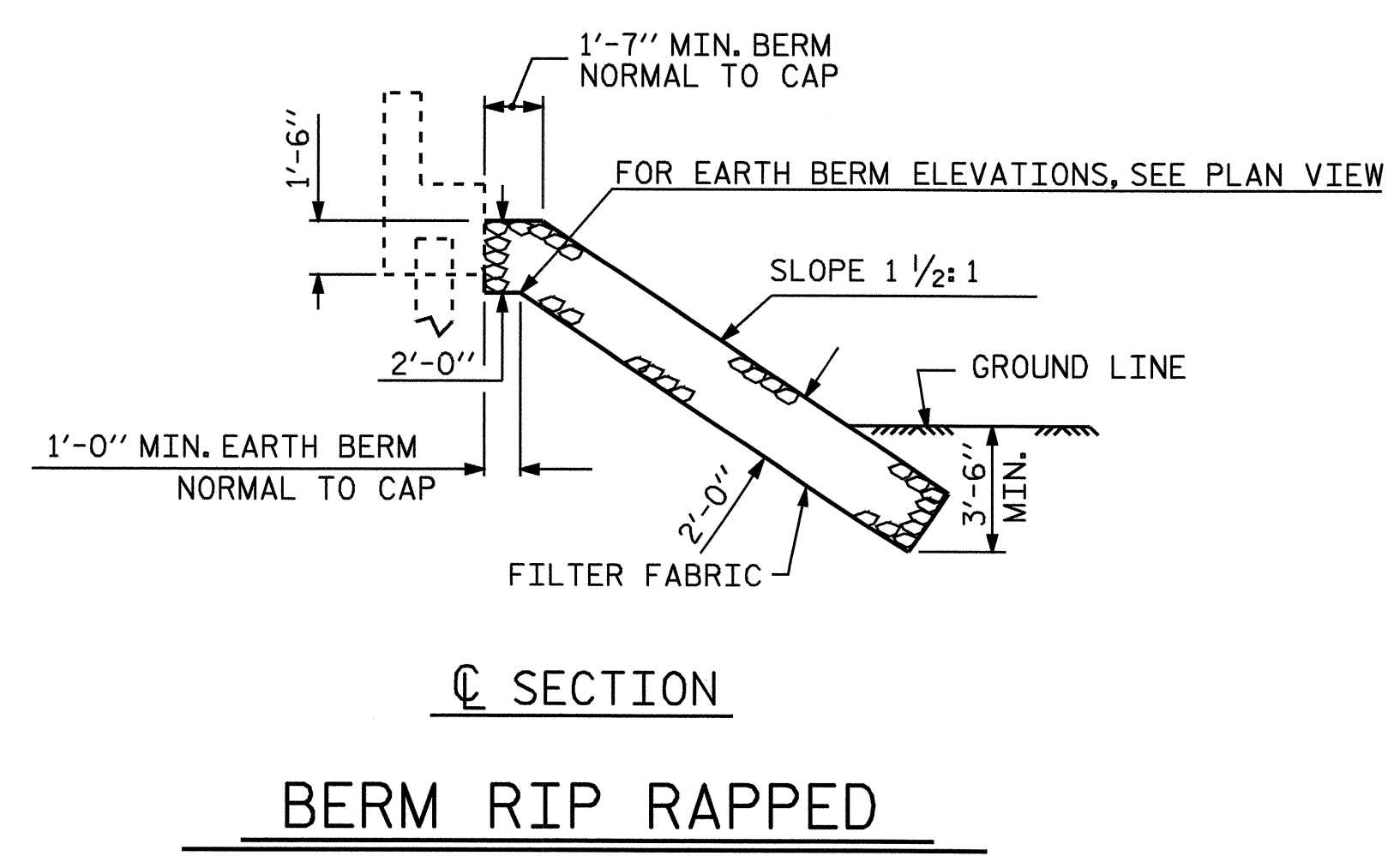
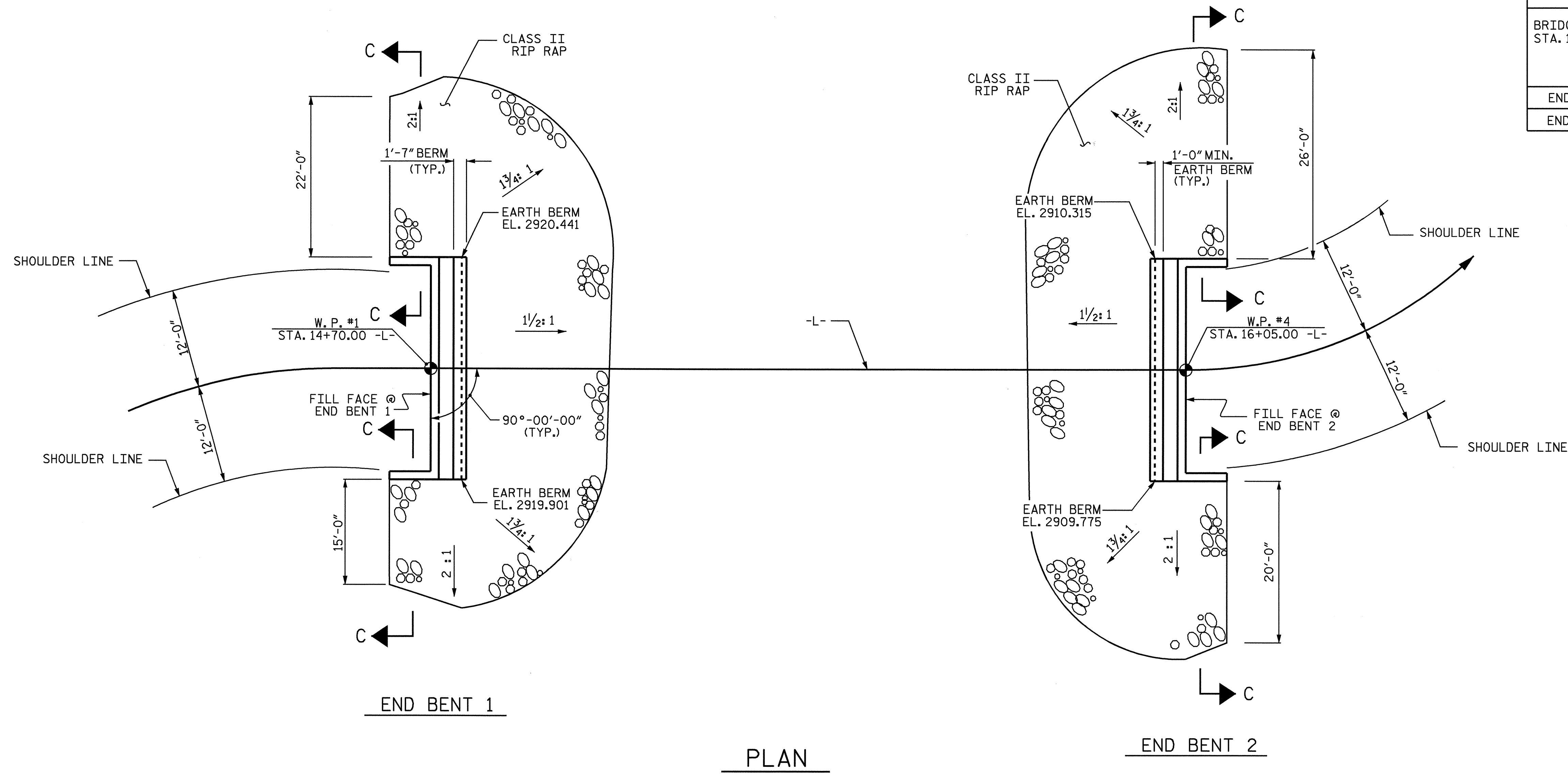
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

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

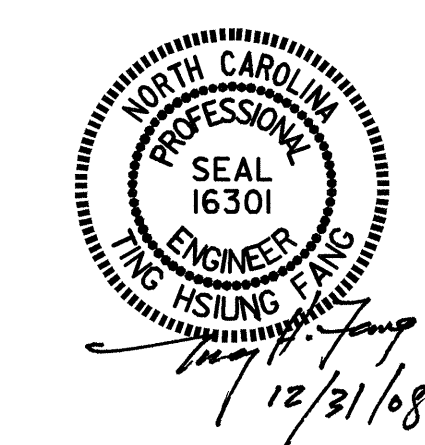
TOTAL SHEETS 19

DRAWN BY: S. DOMBROWSKI DATE: 9/5/08
 CHECKED BY: T. H. FANG DATE: 11/5/08

ESTIMATED QUANTITIES		
BRIDGE @ STA. 15+37.50 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	140	155
END BENT 2	150	165



PROJECT NO. B-4316
WATAUGA COUNTY
STATION: 15+37.50 -L-



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

ASSEMBLED BY : HARISH SHAH	DATE : 11-08
CHECKED BY : TING FANG	DATE : 11-08
DRAWN BY : FCJ 2/88	REV. 7/17/98 REK/RWW
CHECKED BY : ARB 8/88	REV. 8/16/99 RWW/LES
	REV. 10/17/00 RWW/LES

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

31-DEC-2008 11:42
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sombrowski

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