

NOTES

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 185 TONS. INSTALL PILES AT END BENT NO.1 TO A TIP ELEVATION NO HIGHER THAN EL. 1185.

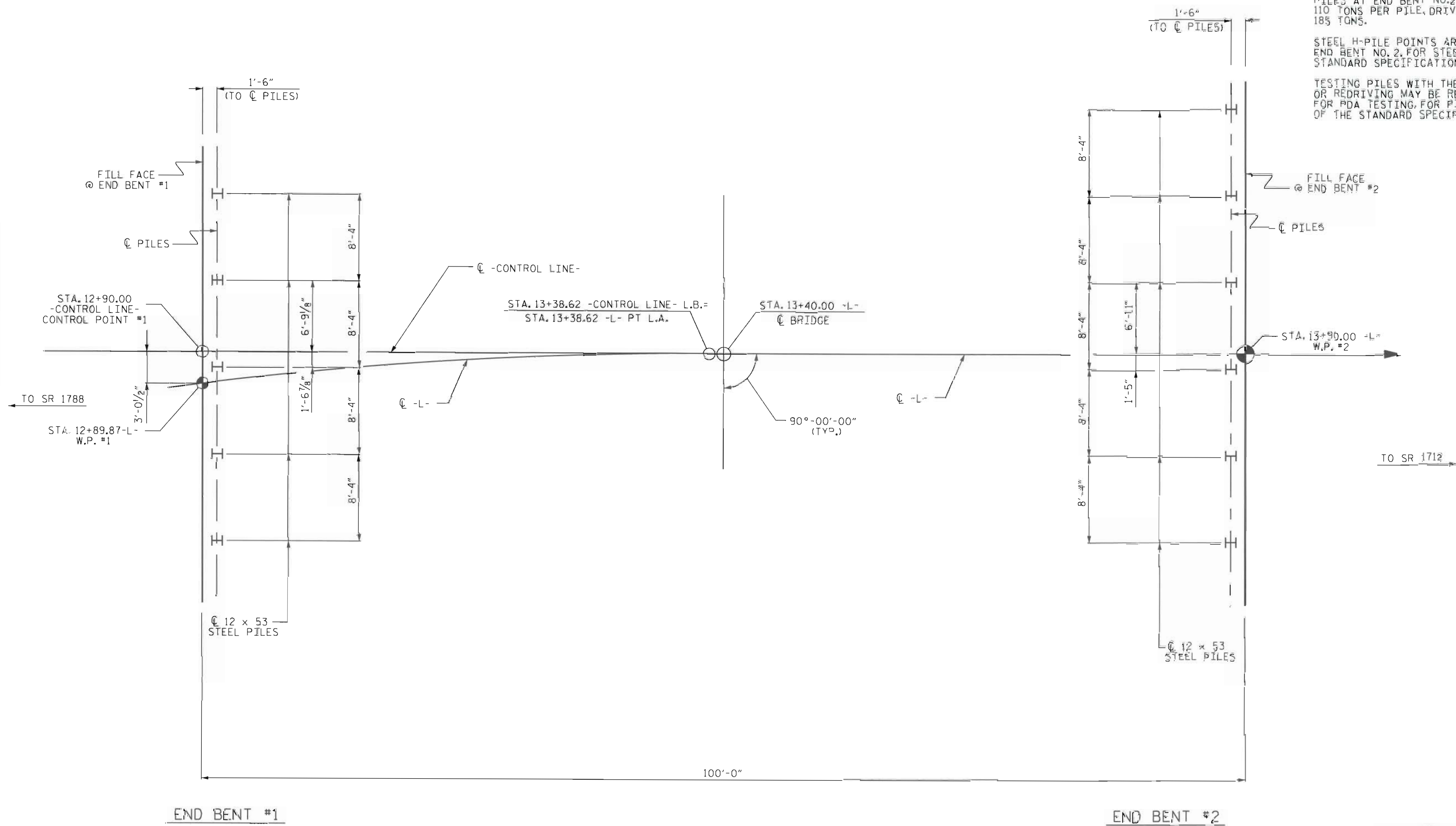
PILE EXCAVATION MAY BE REQUIRED TO INSTALL PILES AT END BENT NO.1. IF REQUIRED, EXCAVATION HOLES AT PILE LOCATIONS TO EL. 1192. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

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

PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 185 TONS.

STEEL H-PILE POINTS ARE REQUIRED FOR H-PILES AT END BENT NO.1 AND END BENT NO.2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING PILES WITH THE PILE DRIVING ANALYZER (PDA) DURING DRIVING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PILE DRIVING ANALYZER, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.



FOUNDATION LAYOUT
DIMENSIONS LOCATING PILES ARE TO PILE CENTERLINE.

PROJECT NO. BD-5111G
CALDWELL COUNTY
STATION: 13+40.00 -L-

SHEET 2 OF 4
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER
MOUNTAIN RUN
ON SR 1722 BETWEEN
SR 1712 & SR 1788



DRAWN BY : D.A. DAVENPORT DATE : 05/06/11
CHECKED BY : D.A. GLADDEN DATE : 05/25/11

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

BENCH MARK: *BL-2 PK NAIL, STA. 13+87.21 -L-, 21.80' RT.; ELEV. 1208.450, DATUM NAVD 88

NOTES

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.

FOR FALSEWORK & FORMWORK, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE, SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE EXISTING STRUCTURE CONSISTING OF 1 @ 17'-0", 1 @ 35'-0" AND 1 @ 16'-4" I-BEAM & STEEL GIRDER, SIMPLE SPANS; WITH A 15'-8" CLEAR ROADWAY WIDTH AND TIMBER FLOOR WITH 1.5" AWS ON TIMBER CAPS WITH TIMBER PILES AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE FURTHER DETERIORATE, THIS LOAD LIMITATION MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. SEE SPECIAL PROVISIONS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

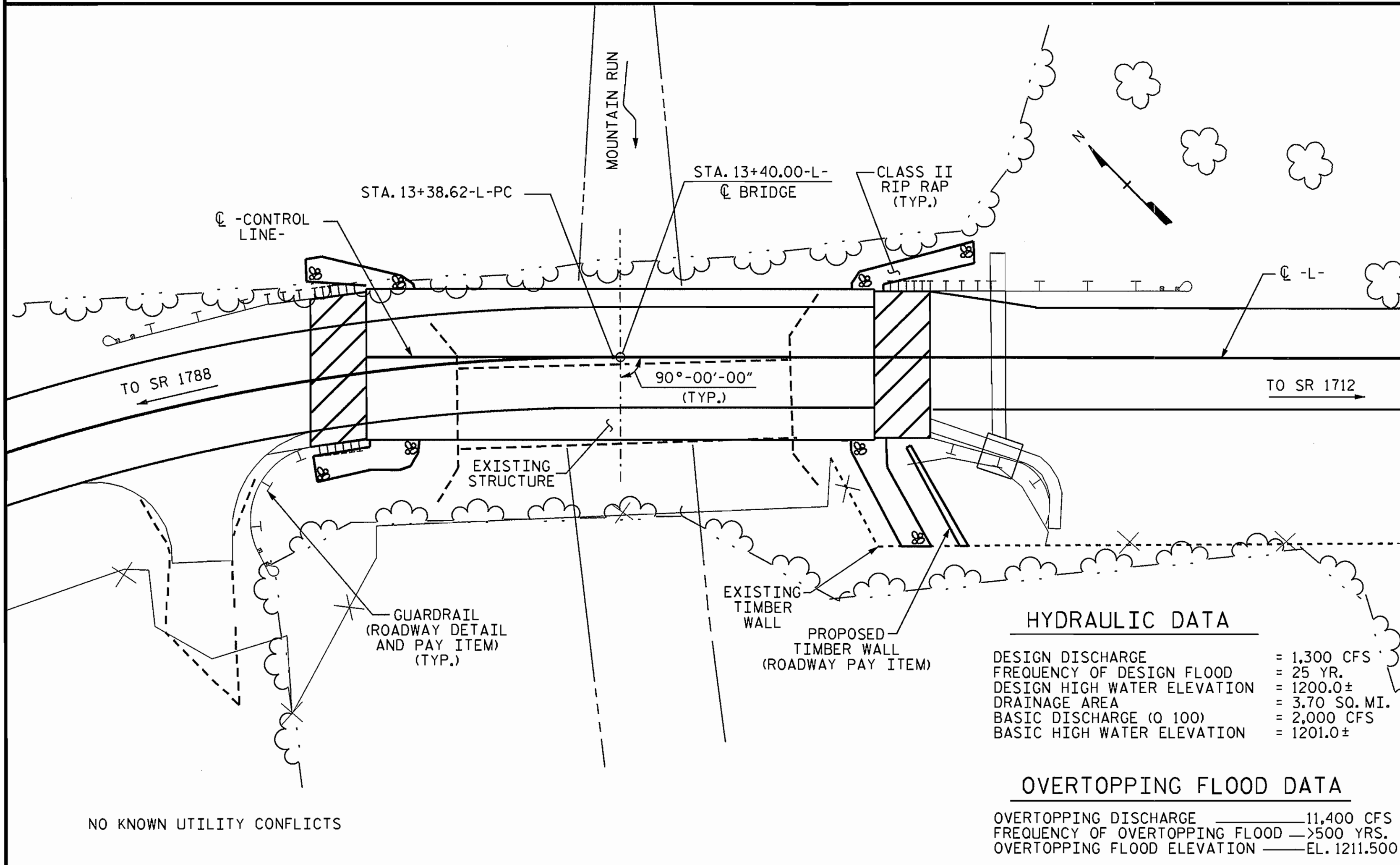
REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+40.00-L-".

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 36 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

END BENT #1 IS LOCATED ON THE EXTENDED BACK TANGENT OF THE -L- LINE FROM THE PT ON THE BRIDGE.

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. PAYMENT FOR THE SAMPLES OF REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.



HYDRAULIC DATA

DESIGN DISCHARGE	= 1,300 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YR.
DESIGN HIGH WATER ELEVATION	= 1200.0±
DRAINAGE AREA	= 3.70 SQ. MI.
BASIC DISCHARGE (Q 100)	= 2,000 CFS
BASIC HIGH WATER ELEVATION	= 1201.0±

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	11,400 CFS
FREQUENCY OF OVERTOPPING FLOOD	>500 YRS.
OVERTOPPING FLOOD ELEVATION	EL. 1211.500

LOCATION SKETCH

TOTAL BILL OF MATERIAL

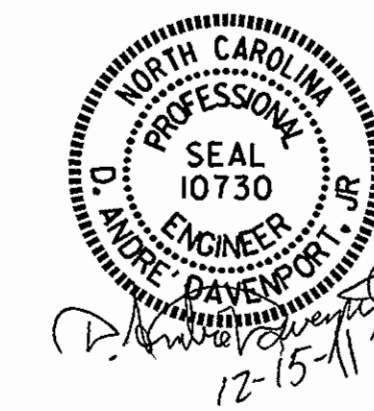
	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES	STEEL PILE POINTS	PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 3'-3" PRESTRESSED CONCRETE BOX BEAMS
	LUMP SUM	LIN.FT.	LIN.FT.	EA.	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO., LIN.FT.	EACH	EA.	LIN.FT.	TONS	SO. YDS.	LUMP SUM	LIN.FT.
SUPERSTRUCTURE												195.50				977.50
END BENT NO. 1		24.8	22.2			16.3		2435	5 200	5	5		85	95		
END BENT NO. 2						16.3		2452	5 150	5			85	95		
TOTAL	LUMP SUM	24.8	22.2	1	LUMP SUM	32.6	LUMP SUM	4887	10 350	10	5	195.50	170	190	LUMP SUM	977.50

PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 MOUNTAIN RUN
 ON SR 1722 BETWEEN
 SR 1712 & SR 1788



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

DRAWN BY: D.A. DAVENPORT DATE: 05/06/11
 CHECKED BY: D.A. GLADDEN DATE: 05/25/11

LOAD FACTORS:

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

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						LIVELOAD FACTORS	MOMENT					SHEAR					LIVELOAD FACTORS	MOMENT						
							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)		DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.05	--	1.75	0.273	1.05	A	EL	48.375	0.49	1.21	A	EL	4.838	0.80	0.273	1.05	A	EL	48.375		
	HL-93(Opr)	N/A	--	1.36	--	1.35	0.273	1.36	A	EL	48.375	0.49	1.57	A	EL	4.838	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.45	52.285	1.75	0.273	1.45	A	EL	48.375	0.49	1.62	A	EL	4.838	0.80	0.273	1.46	A	EL	48.375		
	HS-20(Opr)	36.000	--	1.88	67.777	1.35	0.273	1.88	A	EL	48.375	0.49	2.1	A	EL	4.838	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.45	46.542	1.4	0.273	4.29	A	EL	48.375	0.49	5	A	EL	4.838	0.80	0.273	3.45	A	EL	48.375	
		SNGARBS2	20.000	--	2.50	50.019	1.4	0.273	3.11	A	EL	48.375	0.49	3.5	A	EL	4.838	0.80	0.273	2.50	A	EL	48.375	
		SNAGRIS2	22.000	--	2.34	51.5	1.4	0.273	2.91	A	EL	48.375	0.49	3.23	A	EL	4.838	0.80	0.273	2.34	A	EL	48.375	
		SNCOTTS3	27.250	--	1.71	46.695	1.4	0.273	2.13	A	EL	48.375	0.49	2.49	A	EL	4.838	0.80	0.273	1.71	A	EL	48.375	
		SNAGGRS4	34.925	--	1.41	49.095	1.4	0.273	1.75	A	EL	48.375	0.49	2.03	A	EL	4.838	0.80	0.273	1.41	A	EL	48.375	
		SNS5A	35.550	--	1.38	48.931	1.4	0.273	1.71	A	EL	48.375	0.49	2.03	A	EL	4.838	0.80	0.273	1.38	A	EL	48.375	
		SNS6A	39.950	--	1.25	50.023	1.4	0.273	1.56	A	EL	48.375	0.49	1.84	A	EL	4.838	0.80	0.273	1.25	A	EL	48.375	
		SNS7B	42.000	--	1.19	50.065	1.4	0.273	1.48	A	EL	48.375	0.49	1.79	A	EL	4.838	0.80	0.273	1.19	A	EL	48.375	
	TTST	TNAGRIT3	33.000	--	1.52	50.284	1.4	0.273	1.9	A	EL	48.375	0.49	2.2	A	EL	4.838	0.80	0.273	1.52	A	EL	48.375	
		TNT4A	33.075	--	1.53	50.525	1.4	0.273	1.9	A	EL	48.375	0.49	2.16	A	EL	4.838	0.80	0.273	1.53	A	EL	48.375	
		TNT6A	41.600	--	1.24	51.542	1.4	0.273	1.54	A	EL	48.375	0.49	1.87	A	EL	4.838	0.80	0.273	1.24	A	EL	48.375	
		TNT7A	42.000	--	1.24	52.075	1.4	0.273	1.54	A	EL	48.375	0.49	1.84	A	EL	4.838	0.80	0.273	1.24	A	EL	48.375	
		TNT7B	42.000	--	1.27	53.332	1.4	0.273	1.58	A	EL	48.375	0.49	1.76	A	EL	4.838	0.80	0.273	1.27	A	EL	48.375	
		TNAGRIT4	43.000	--	1.22	52.353	1.4	0.273	1.52	A	EL	48.375	0.49	1.71	A	EL	4.838	0.80	0.273	1.22	A	EL	48.375	
		TNACT5A	45.000	--	1.15	51.862	1.4	0.273	1.44	A	EL	48.375	0.49	1.68	A	EL	4.838	0.80	0.273	1.15	A	EL	48.375	
		TNACT5B	45.000	3	1.14	51.417	1.4	0.273	1.42	A	EL	48.375	0.49	1.63	A	EL	4.838	0.80	0.273	1.14	A	EL	48.375	

NOTES:

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

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

COMMENTS:

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

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

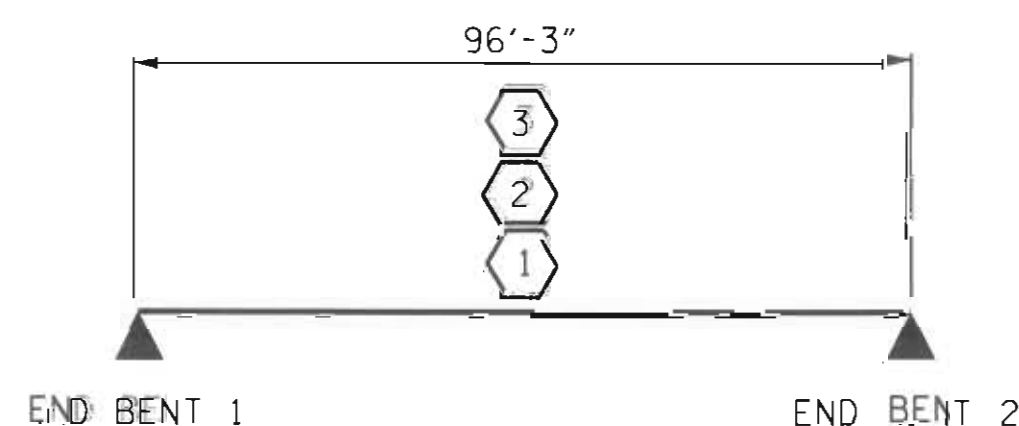
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

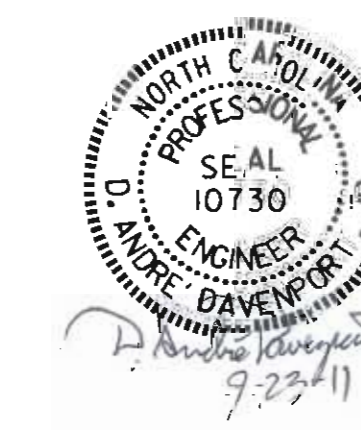
I = INTERIOR GIRDER
 EL = EXTERIOR LEFT GIRDER
 ER = EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00-L-

SHEET 4 OF 4



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

ASSEMBLED BY: D.A. DAVENPORT DATE: 05/05/11
 CHECKED BY: D.A. GLADDEN DATE: 05/25/11
 DRAWN BY: MAA 1/08 REV. 11/12/08R MAA/GM
 CHECKED BY: GM/DI 2/08

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

NOTES

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

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

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH 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.

PRESTRESSED CONCRETE BOX BEAM ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5600 PSI.

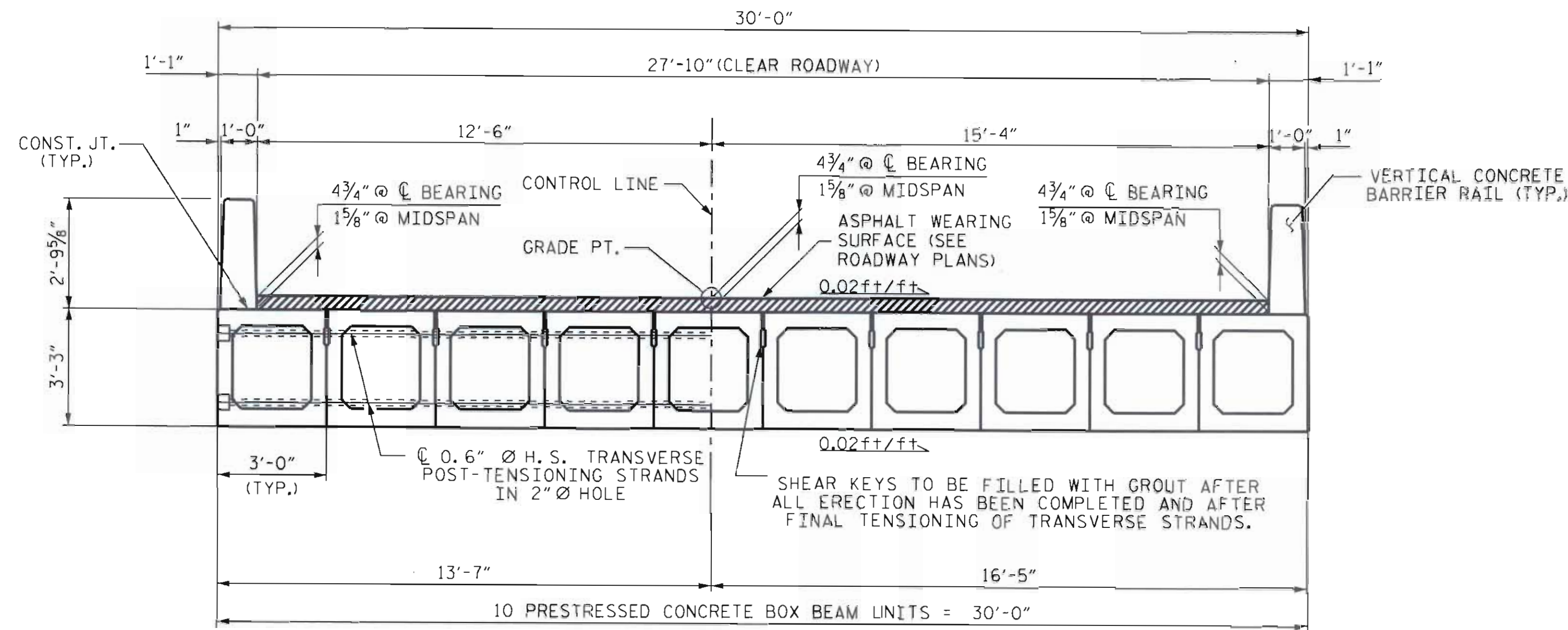
ALL REINFORCING STEEL IN VERTICAL RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE VERTICAL RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN VERTICAL RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF VERTICAL RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

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

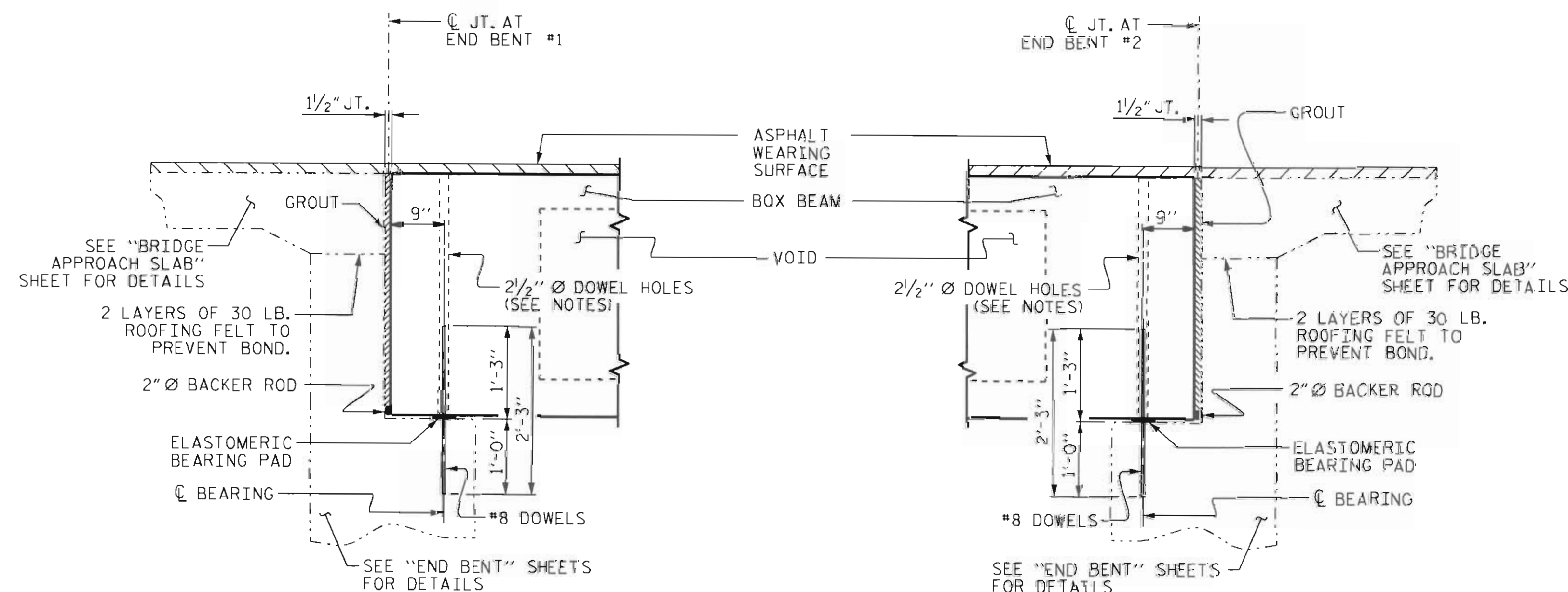


TYPICAL SECTION

THE MINIMUM HEIGHT OF THE VERTICAL RAIL IS SHOWN. THE HEIGHT OF THE VERTICAL RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.

FIXED END

FIXED END



SECTION AT END BENT #1

SECTION AT END BENT #2

PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

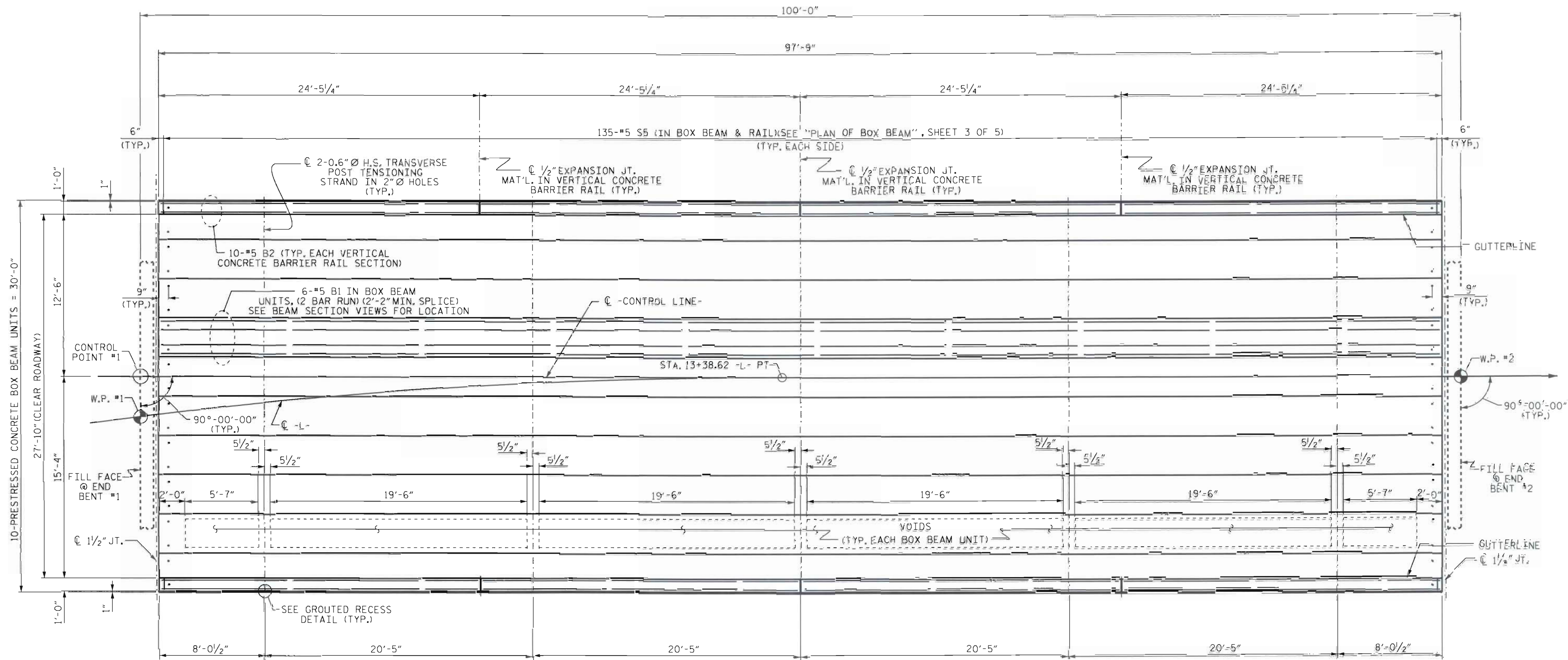
3'-0" X 3'-3"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT



ASSEMBLED BY : D.A. DAVENPORT DATE : 05/05/11
 CHECKED BY : D.A. GLADDEN DATE : 05/25/11
 DRAWN BY : TLA 5/05
 CHECKED BY : GM 6/05
 ADDED 7/11/05R
 REV. 5/1/06R KMM/GM

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-5
1			3			TOTAL SHEETS
2			4			19

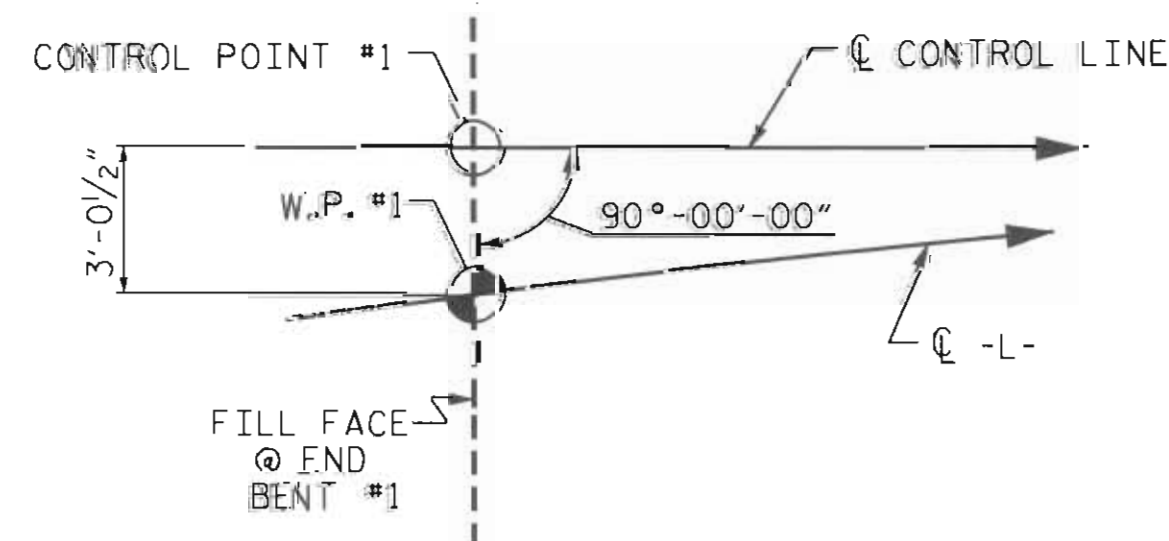
STD. NO. PCBBI



PLAN OF SPAN A

FIX. (E1)

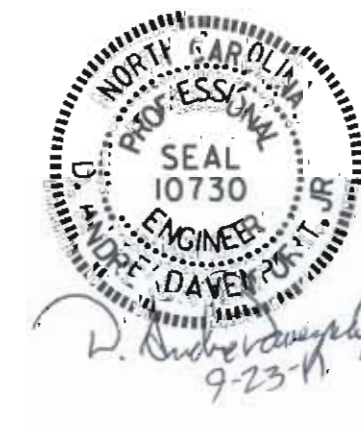
FIX. (E1)



DETAIL AT END BENT #1

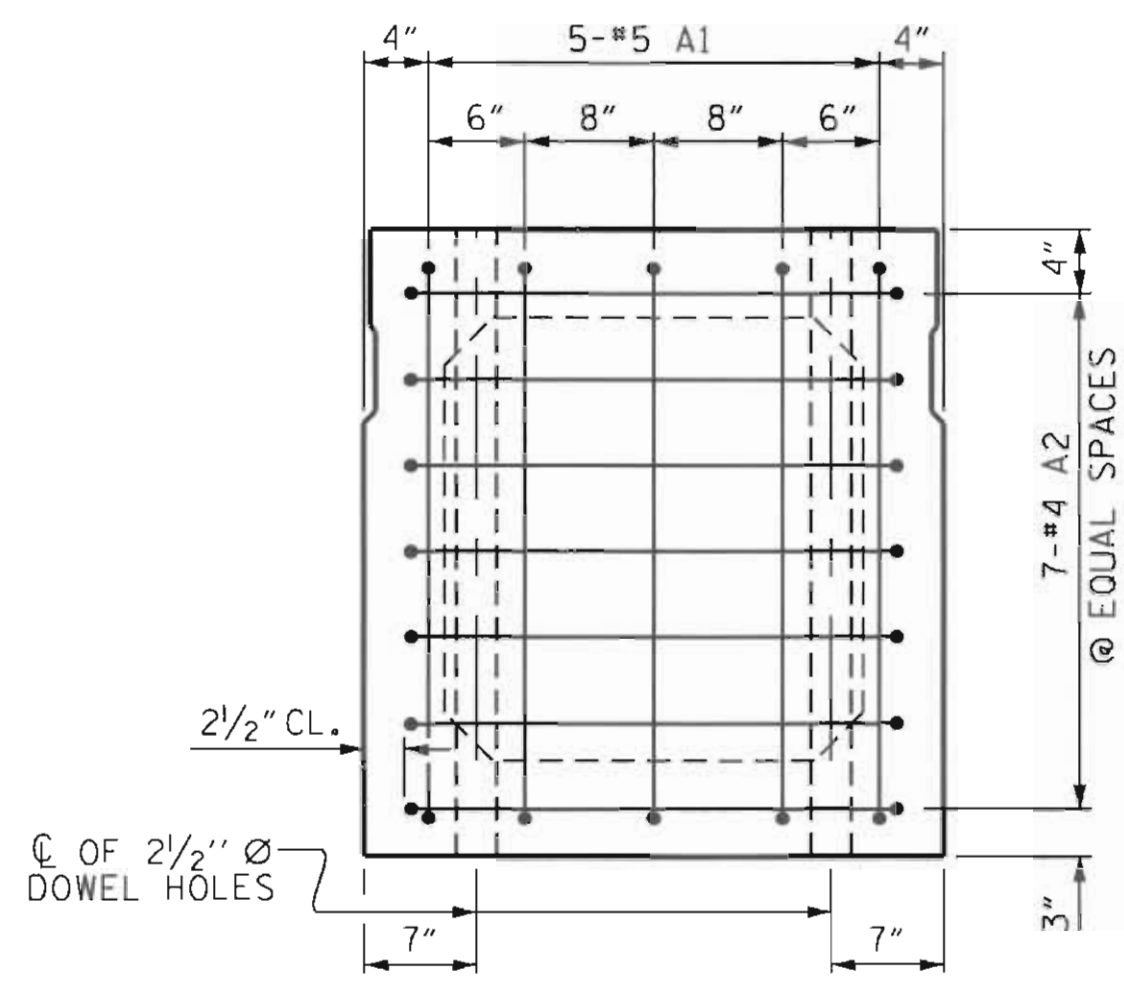
PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00 -L-
 SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" x 3'-3"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT



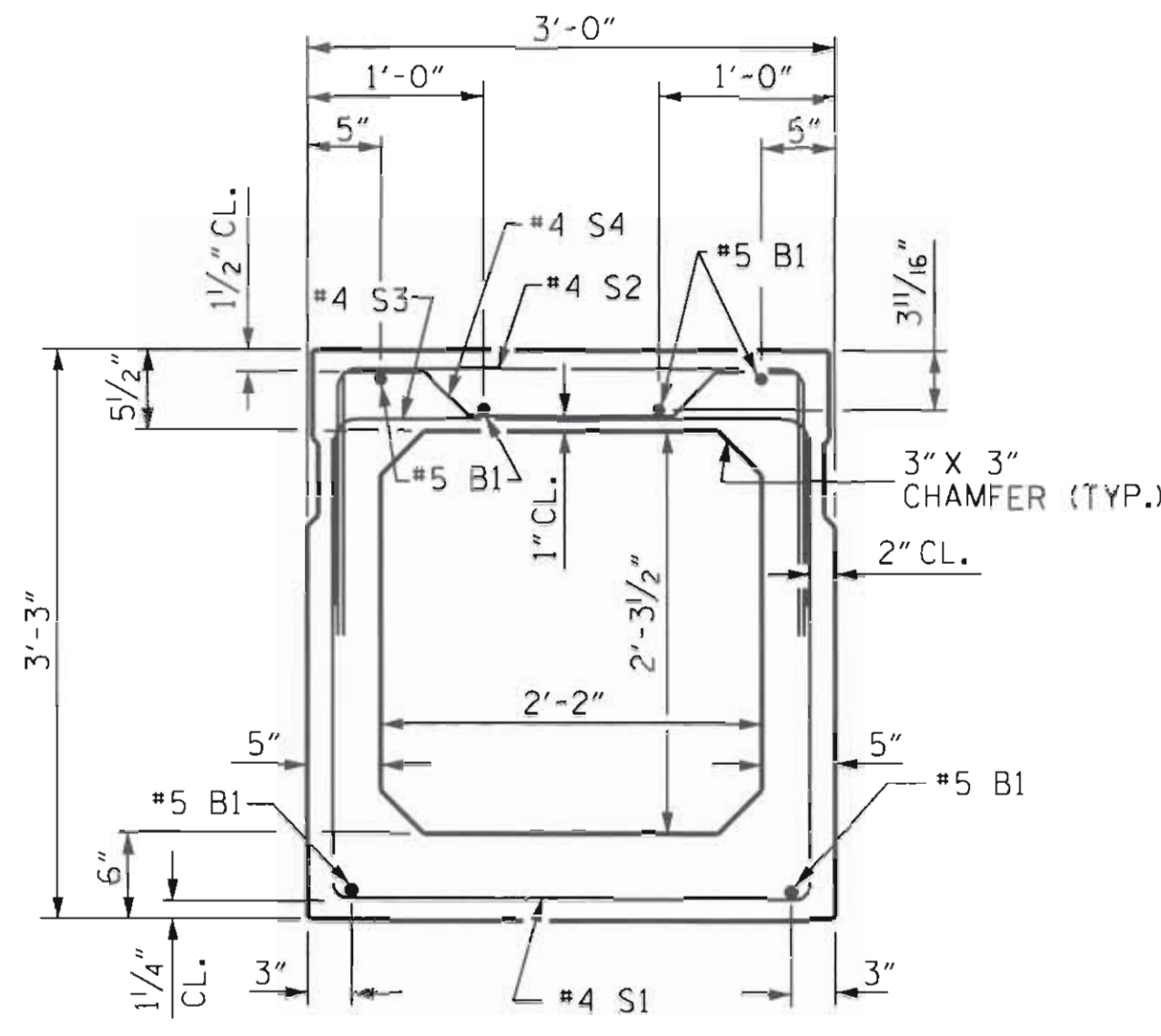
DRAWN BY: D.A. DAVENPORT DATE: 05/06/11
 CHECKED BY: D.A. GLADDEN DATE: 05/25/11

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-6
1			3			TOTAL SHEETS
2			4			19

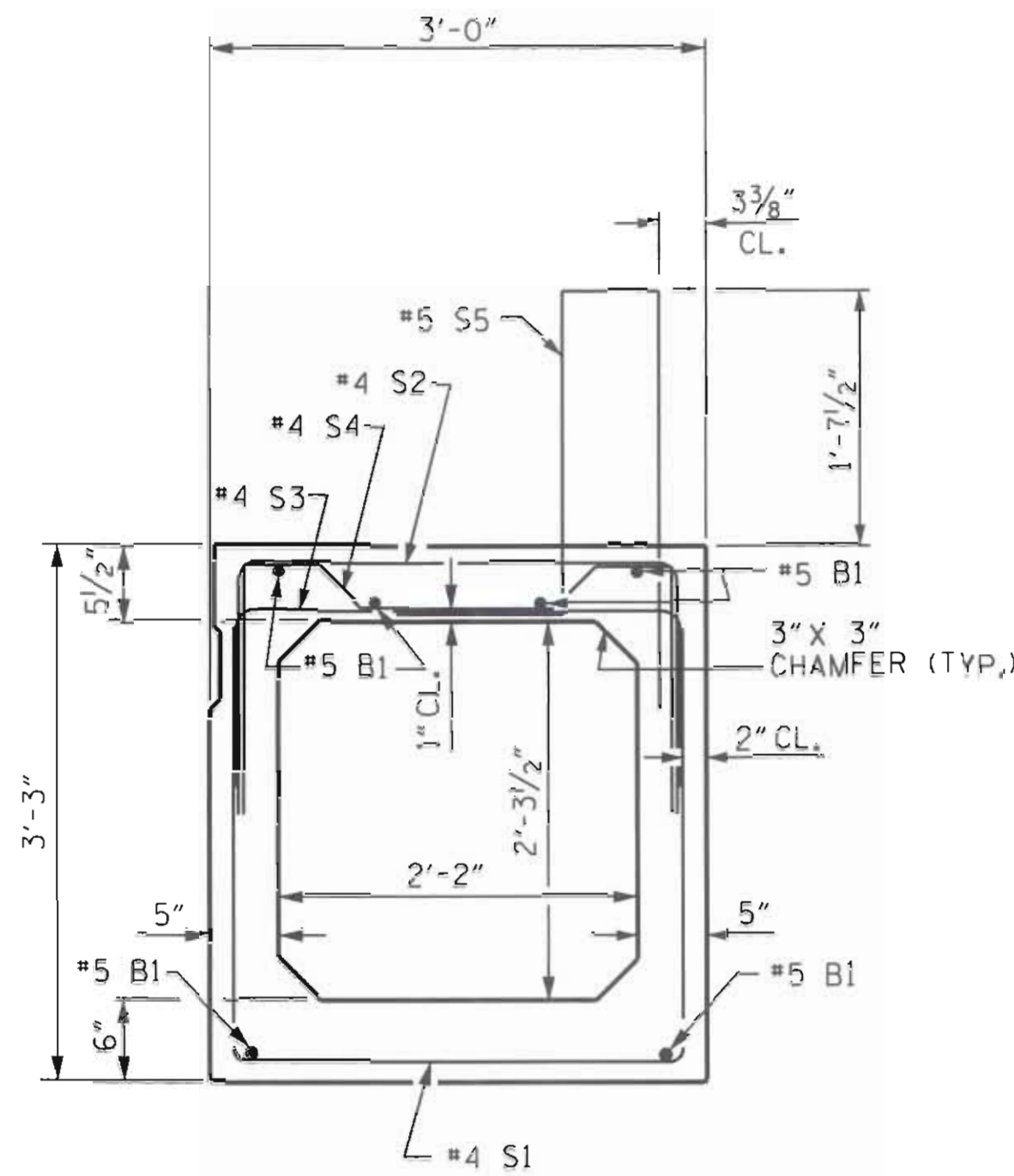


END ELEVATION

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

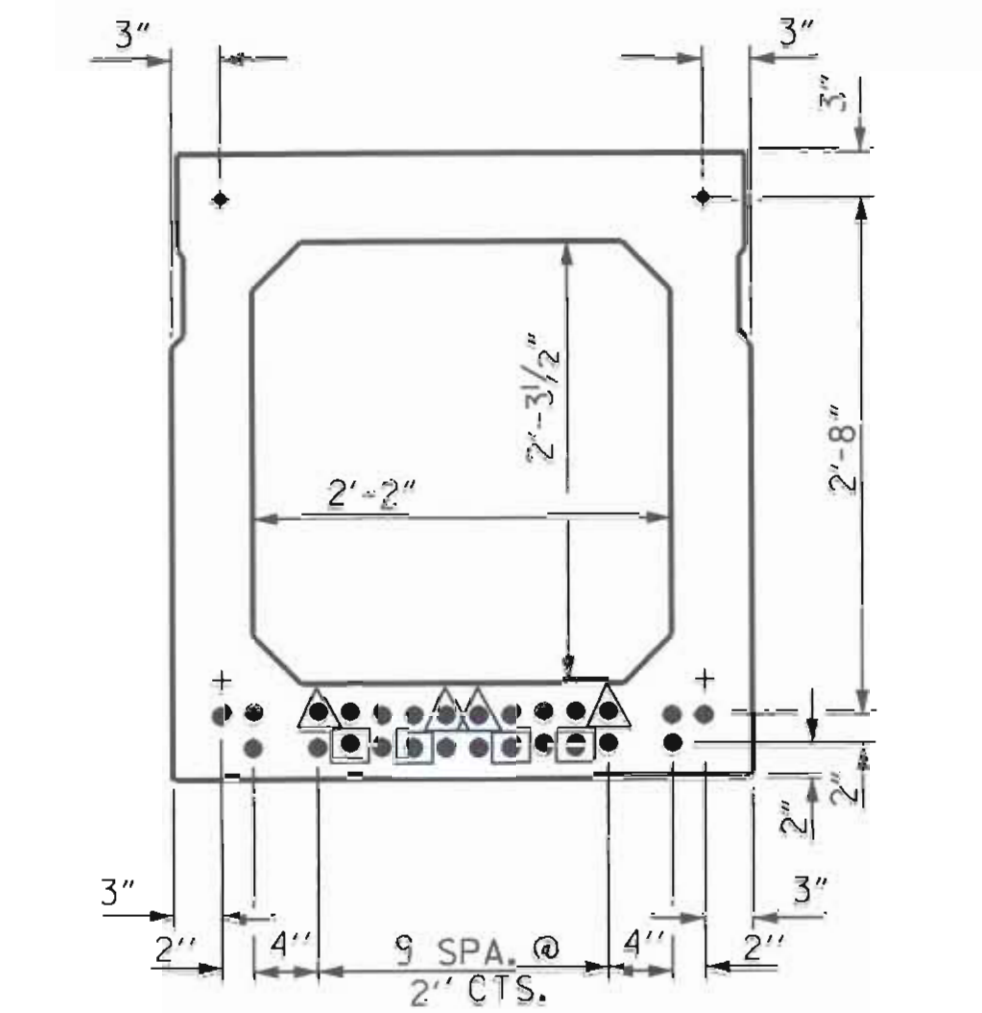


INTERIOR BOX BEAM SECTION
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION
(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



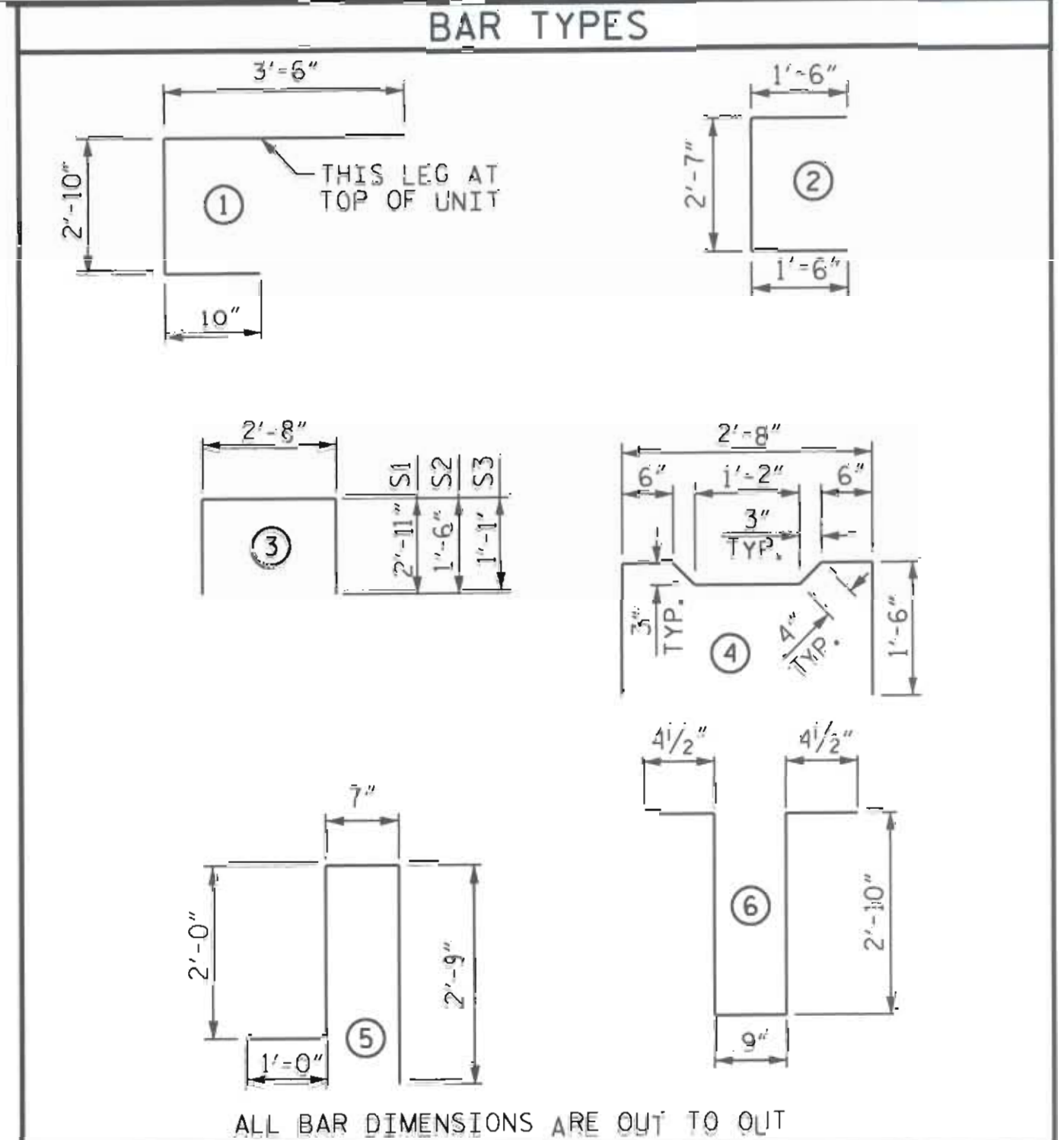
TYPICAL STRAND LOCATION
(28 STRANDS REQUIRED)
(INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION)

DEBONDING LEGEND

- FULLY BONDED STRANDS
- ⊙ STRANDS DEBONDED FOR 12'-9" FROM END OF GIRDER
- ▲ STRANDS DEBONDED FOR 4'-9" FROM END OF GIRDER

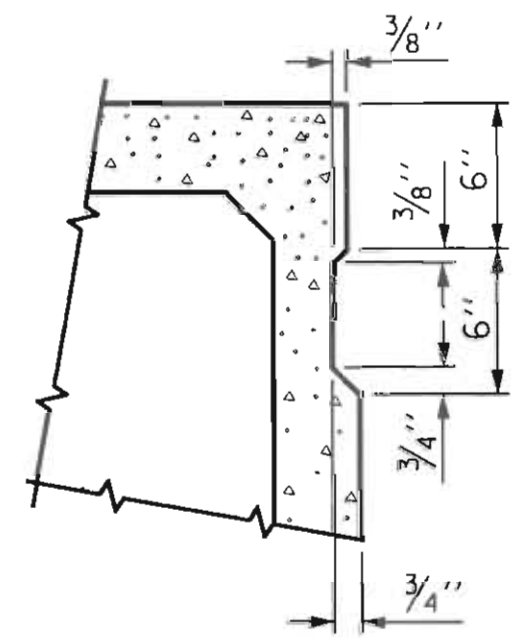
BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

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



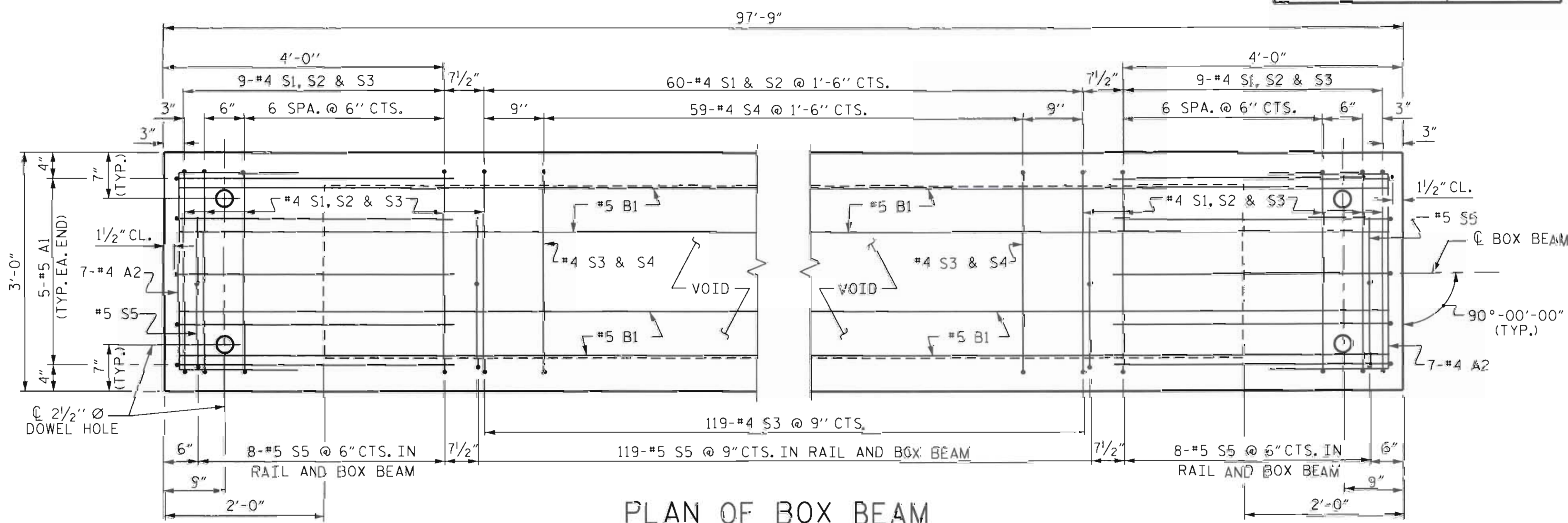
BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	7'-2"	75	7'-2"	75
A2	44	#4	2	5'-7"	164	5'-7"	164
B1	12	#5	STR	49'-10"	624	49'-10"	624
K1	15	#4	6	7'-2"	72	7'-2"	72
K2	10	#4	STR	2'-7"	17	2'-7"	17
S1	78	#4	3	8'-6"	443	8'-6"	443
S2	78	#4	3	5'-8"	295	5'-8"	295
S3	137	#4	3	4'-10"	442	4'-10"	442
S4	59	#4	4	5'-10"	230	5'-10"	230
*S5	135	#5	5	6'-4"	892		
REINFORCING STEEL				2362	LBS.	2362	LBS.
*EPOXY COATED REINF. STEEL				892			
6100 P.S.I. CONCRETE				19.2	CU. YDS.	19.0	CU. YDS.
0.6" Ø L.R. STRANDS				No.	28	No.	28



SHEAR KEY DETAIL

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



PLAN OF BOX BEAM

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

ASSEMBLED BY : D.A. DAVENPORT DATE : 05/06/11
 CHECKED BY : D.A. GLADDEN DATE : 05/25/11
 DRAWN BY : TLA 5/05
 CHECKED BY : CM 6/05

ADDED 7/11/05
 REV. 5/1/06 TLA/GM

23-SEP-2011 09:46
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 oodavenport

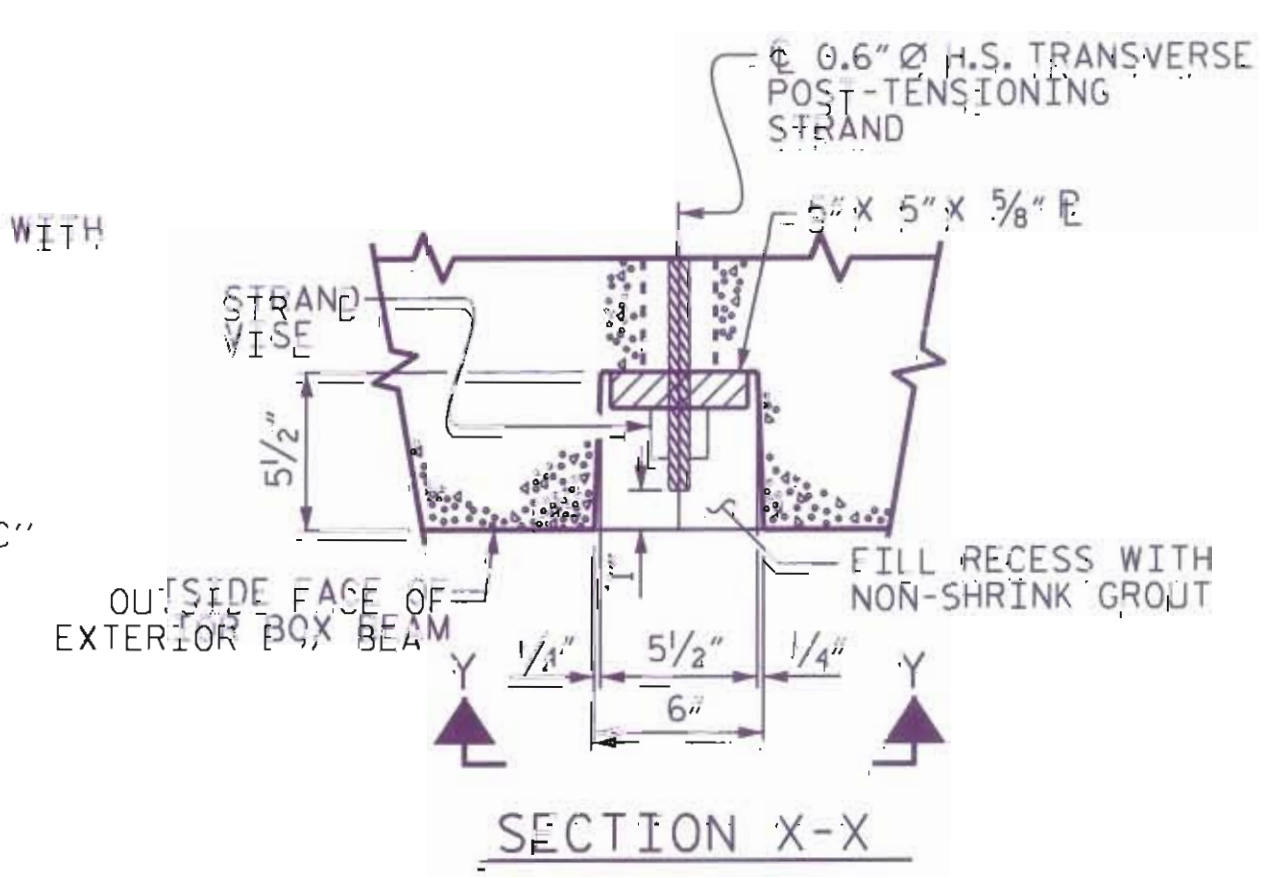
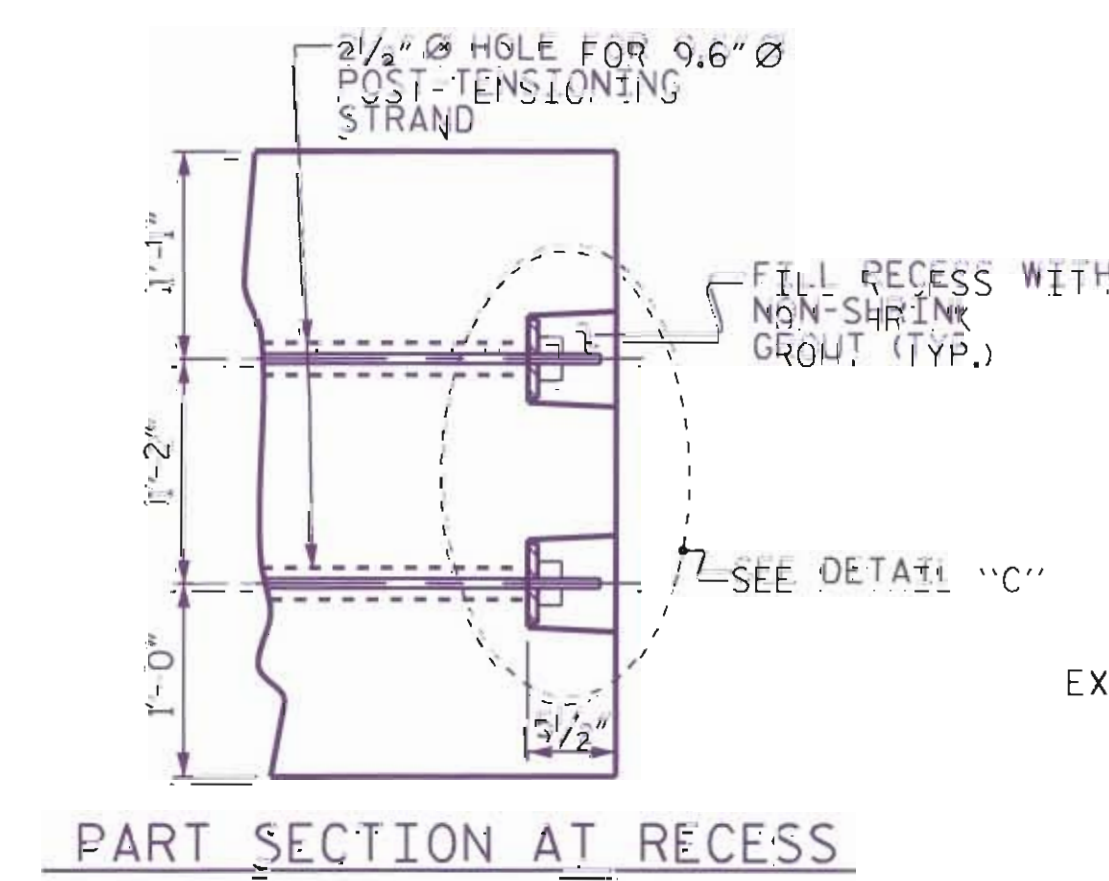
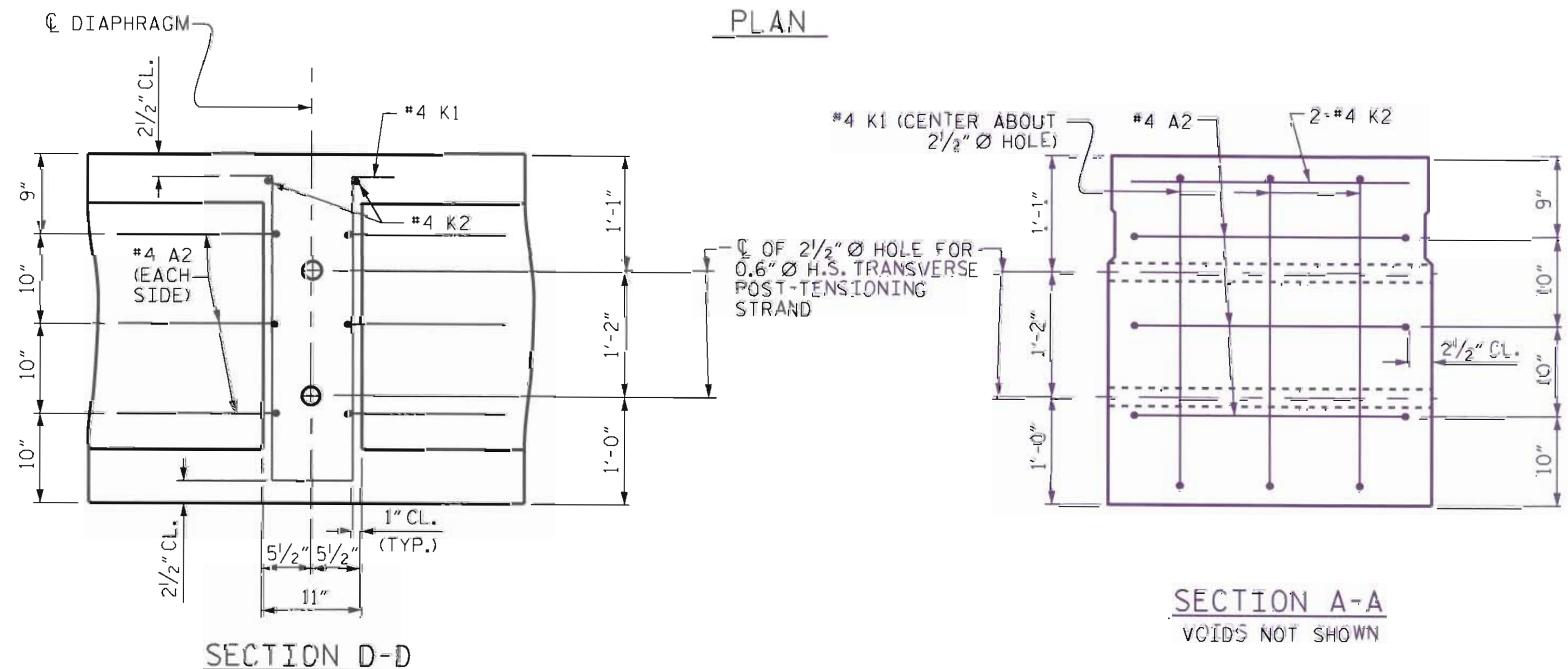
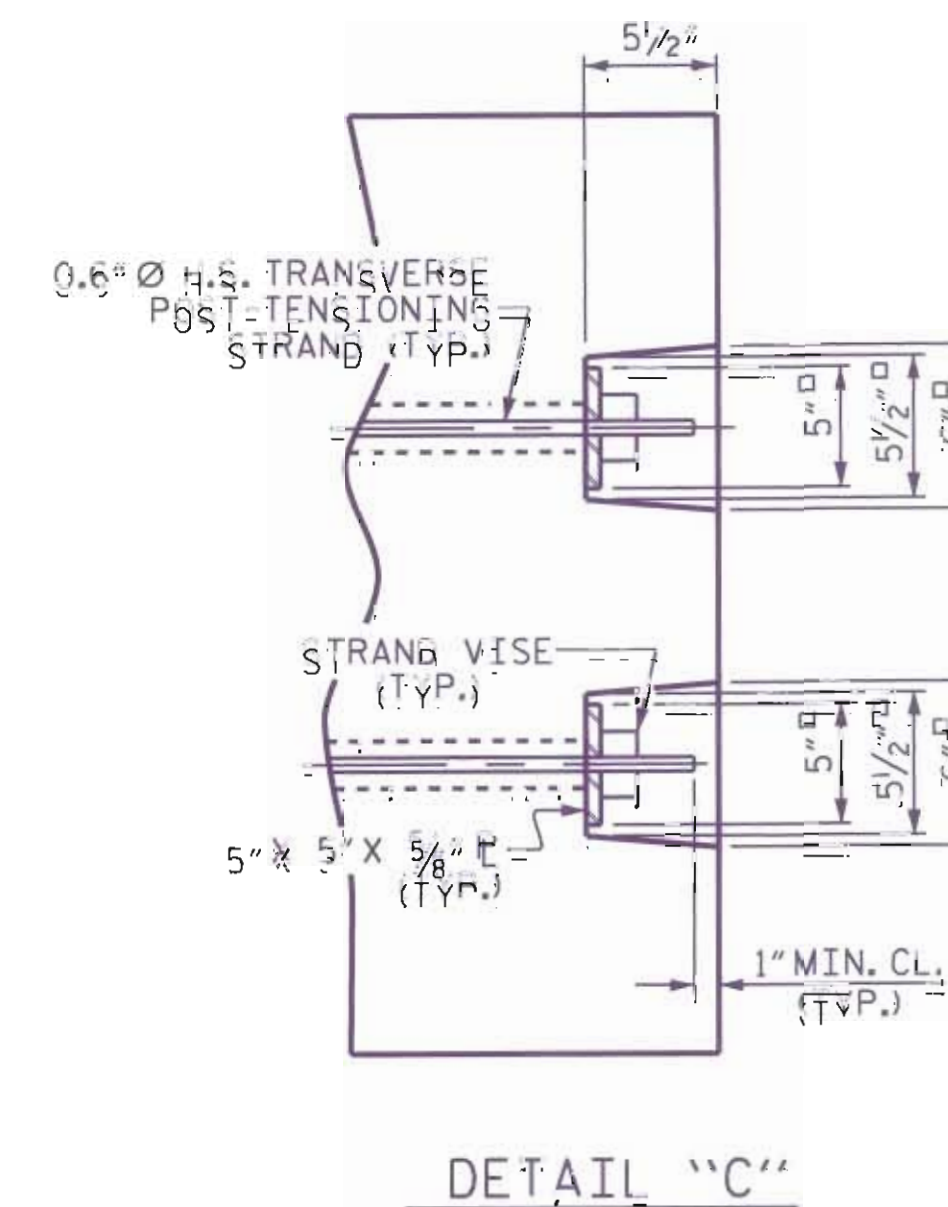
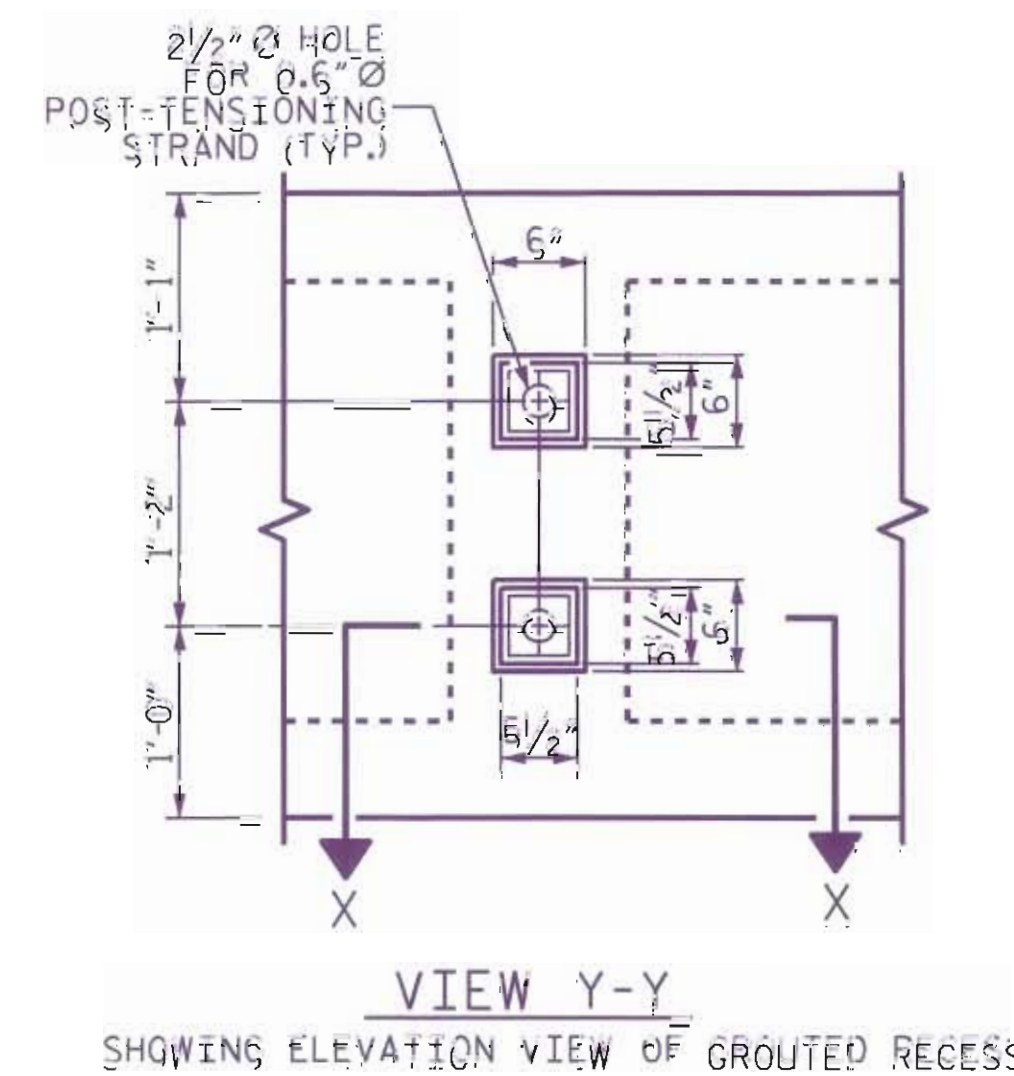
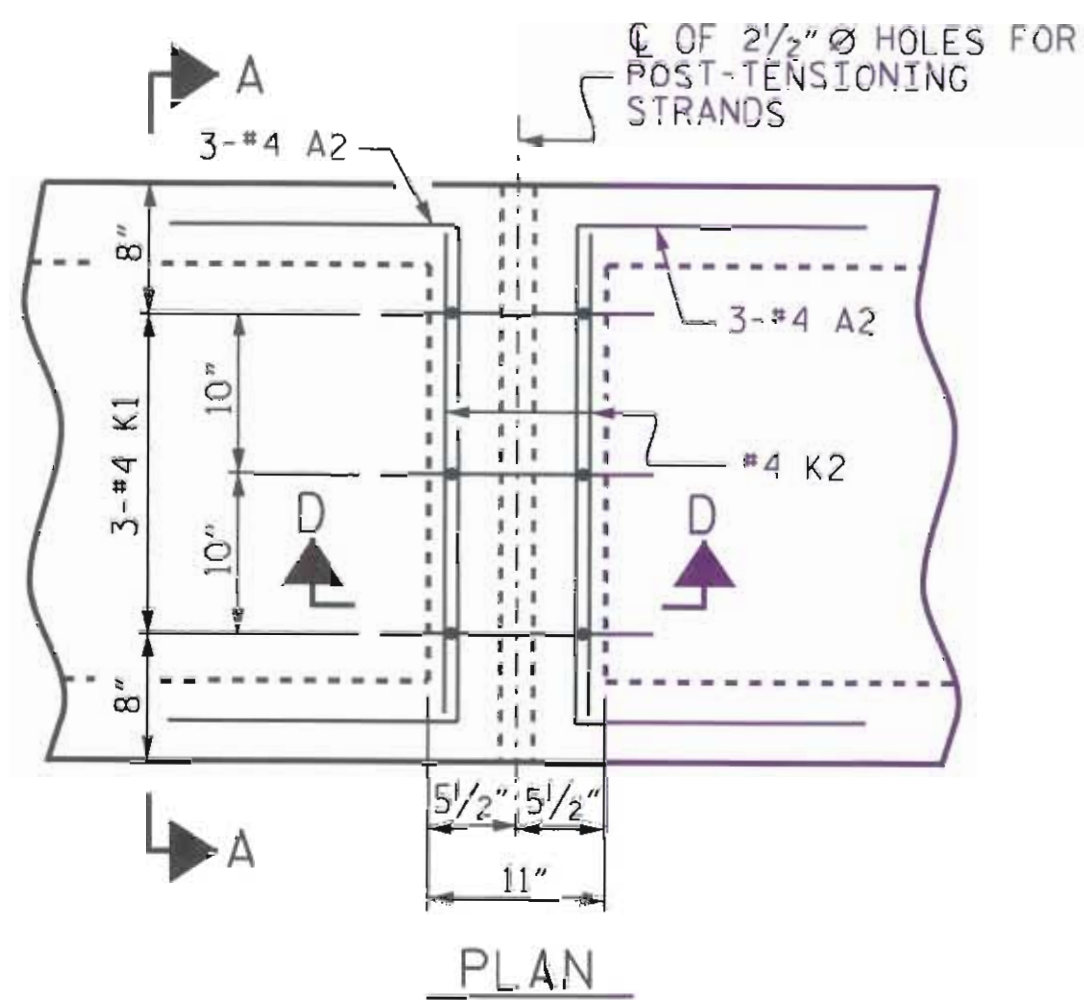


PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00 -L-
 SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 STANDARD
 3'-0" X 3'-3"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT
 SPAN "A"

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

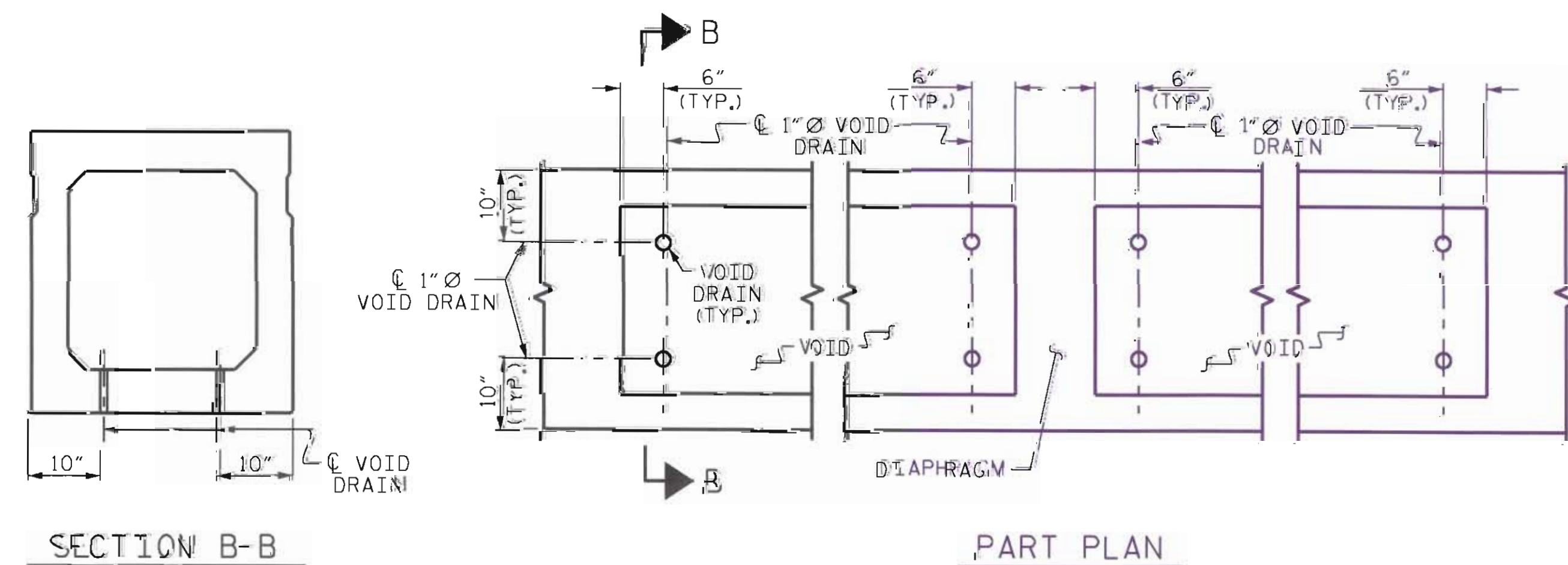
(SHT 1C) STD. NO. PCBB4



DOUBLE DIAPHRAGM DETAILS

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

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



VOID DRAIN DETAILS

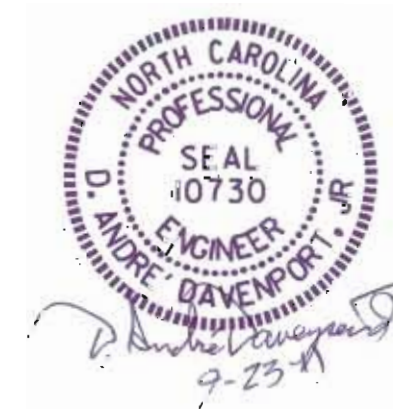
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

DEAD LOAD DEFLECTION AND CAMBER	
Span	3'-0" x 3'-3"
Strands	0.6" Ø L.S. STRANDS
Camber (Beam Alone in Place)	↑ 4/8"
Deflection due to concrete wearing surface	↓ 1"
Final Camber	↑ 3/8"

PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00 -L-

SHEET 4 OF 5

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

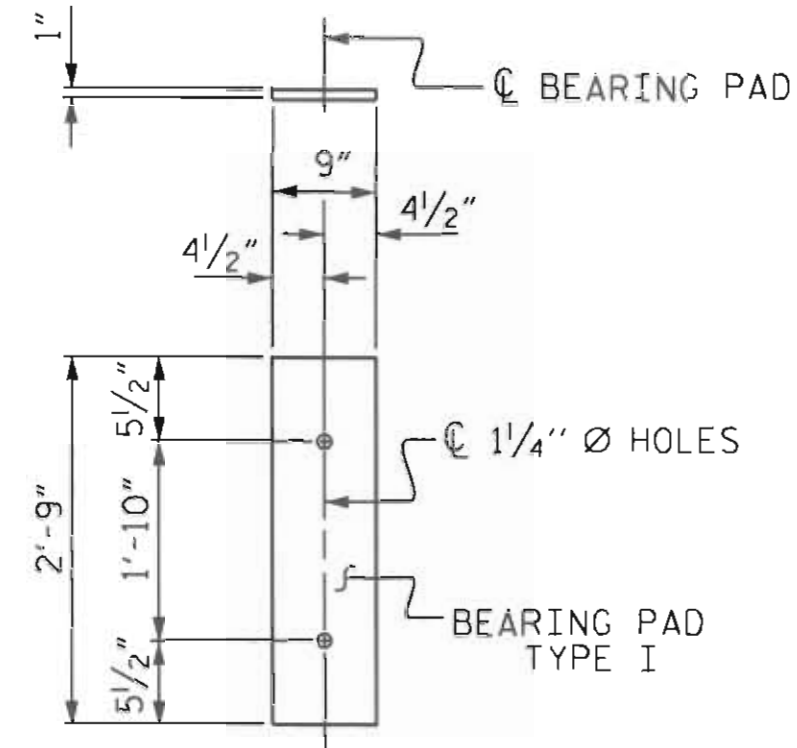


REVISIONS					SHEET NO.
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

TOTAL SHEETS 19

ASSEMBLED BY: D.A. DAVENPORT DATE: 05/06/11
 CHECKED BY: D.A. GLADDEN DATE: 05/25/11
 DRAWN BY: TJA 5/05
 CHECKED BY: GM 6/05

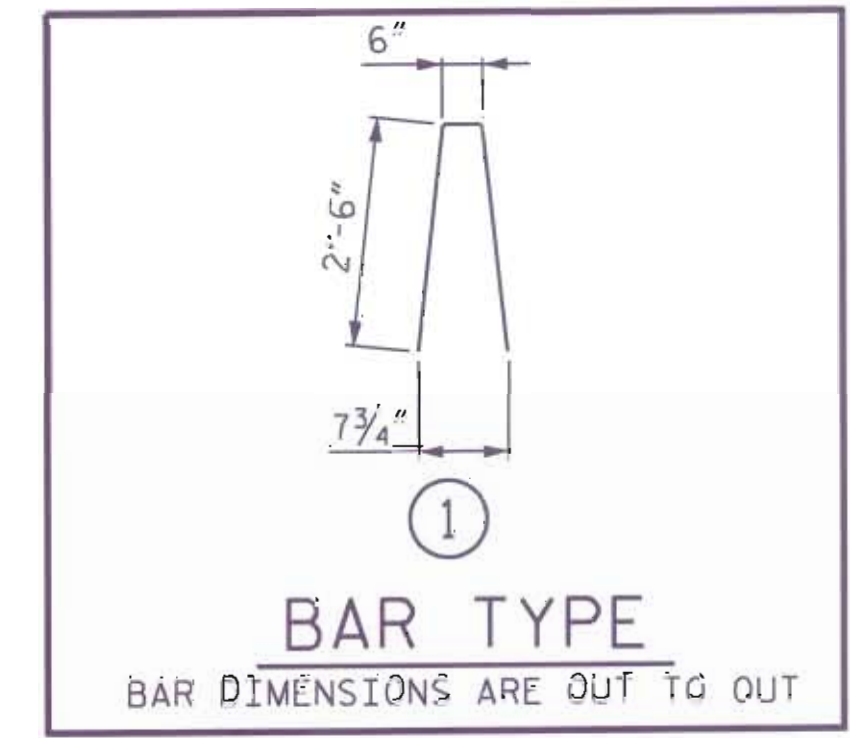
ADDED 7/11/05
 REV. 5/11/06 TJA/GM



FIXED END (E1)
(TYPE I - 20 REQ'D)

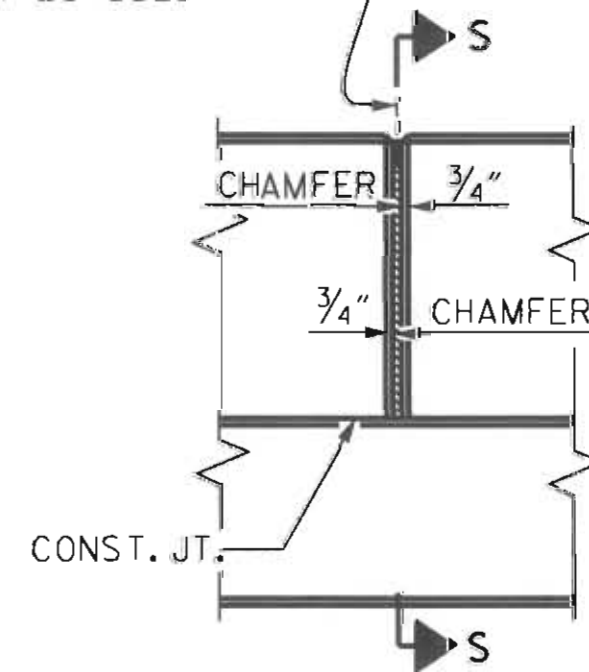
ELASTOMERIC BEARING DETAILS
(60 DUROMETER)

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL					
BAR	BARS PER SPAN	SIZE	TYPE	LENGTH	WEIGHT
*B2	80	#5	STR	24'-0"	2003
*S6	270	#5	1	5'-6"	1549
* EPOXY COATED REINFORCING STEEL				LBS.	3552
CLASS AA CONCRETE				CU.YDS.	19.4
TOTAL LIN. FT. OF CONCRETE VERTICAL RAIL					195.500

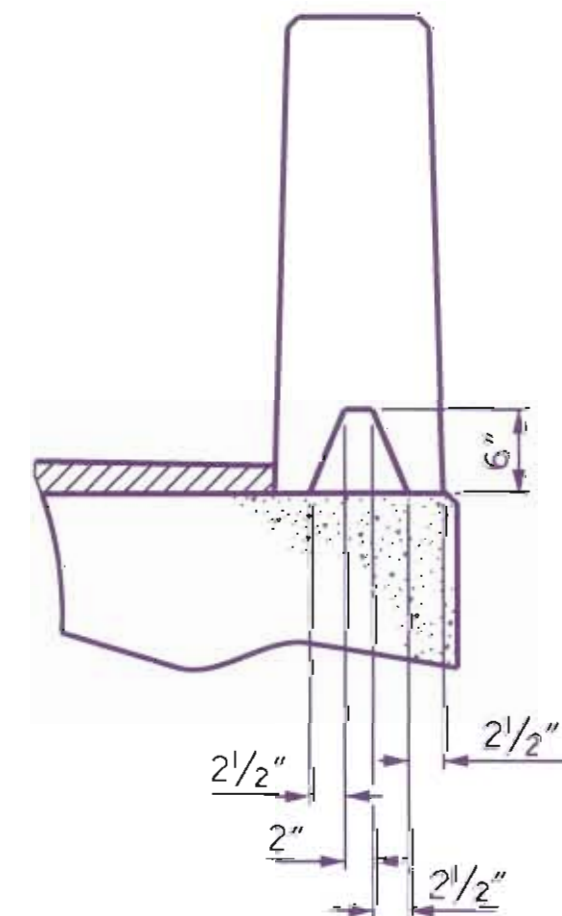


BOX BEAM UNITS REQUIRED		
NUMBER	LENGTH	TOTAL LENGTH
10	97'-9"	977'-6"

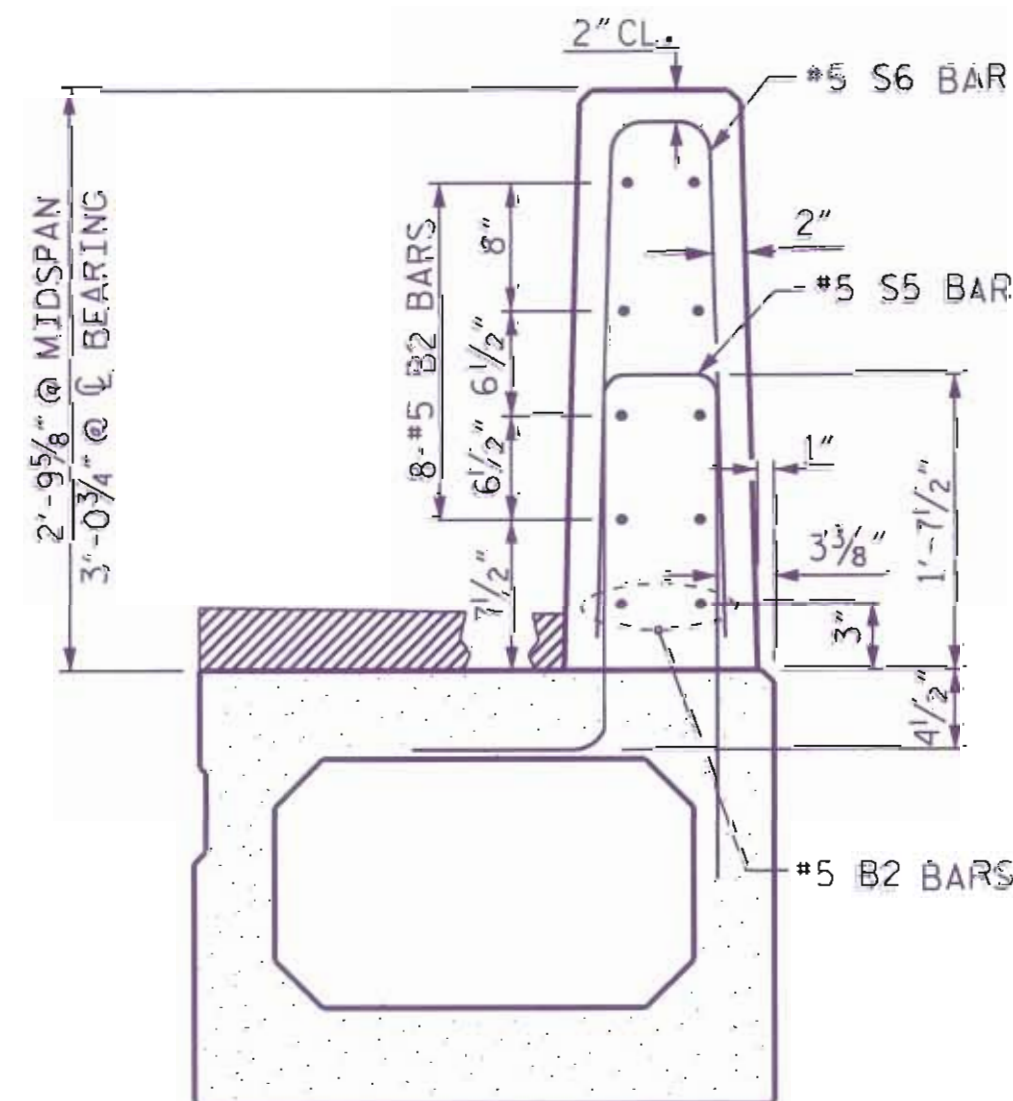
1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



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



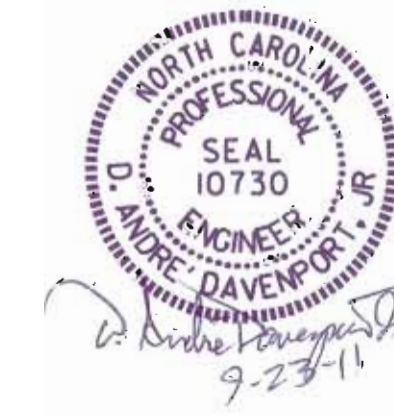
SECTION THRU RAIL

BARRIER RAIL DETAILS

PROJECT NO. BD-5111G
CALDWELL COUNTY
STATION: 13+40.00 -L-
SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 3'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT



ASSEMBLED BY : D.A. DAVENPORT	DATE : 05/06/11
CHECKED BY : D.A. GLADDEN	DATE : 05/25/11
DRAWN BY : TLA	3/05
CHECKED BY :	ADDED

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-9
1			3			TOTAL SHEETS
2			4			19

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 3/8" 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 3/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

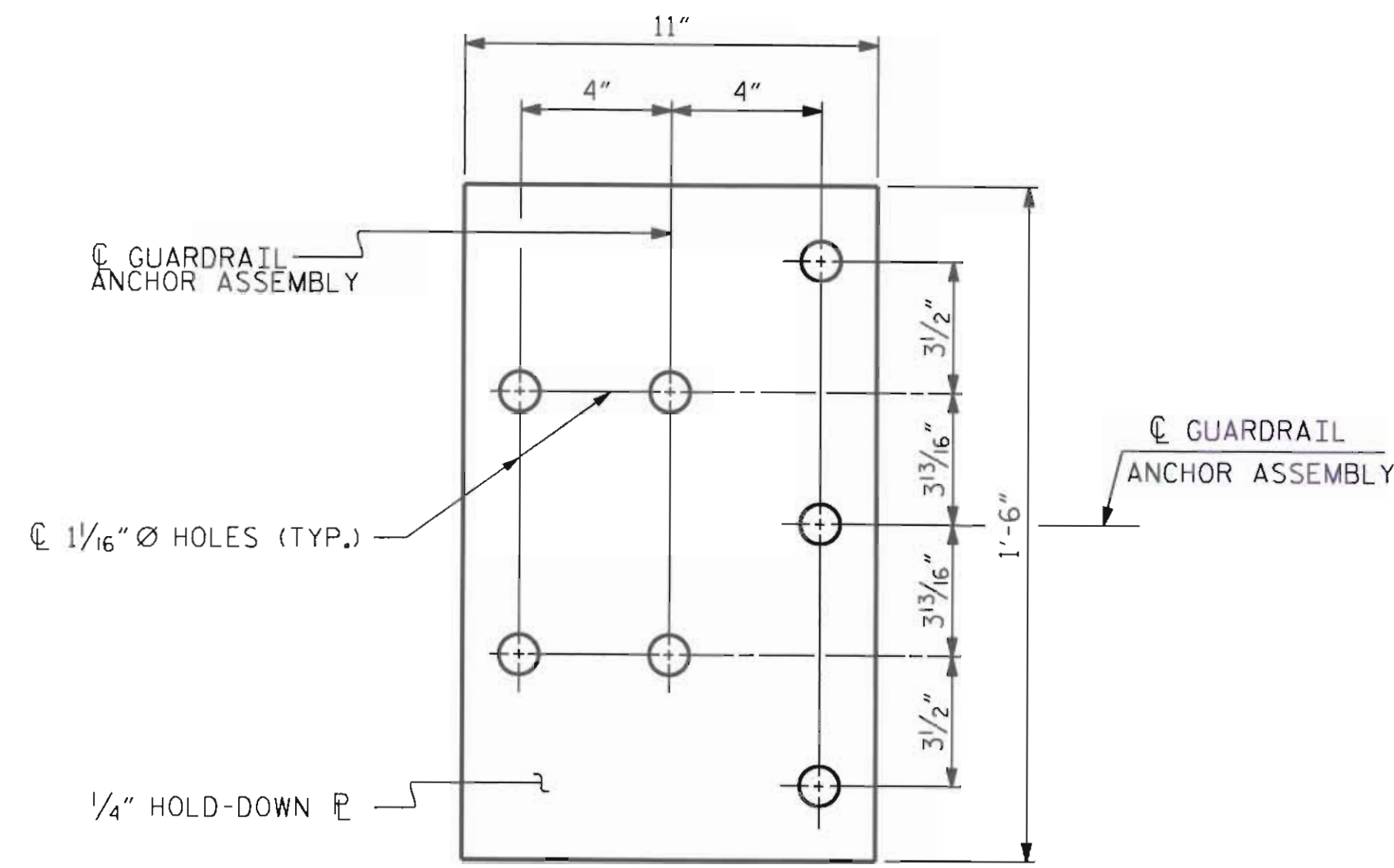
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

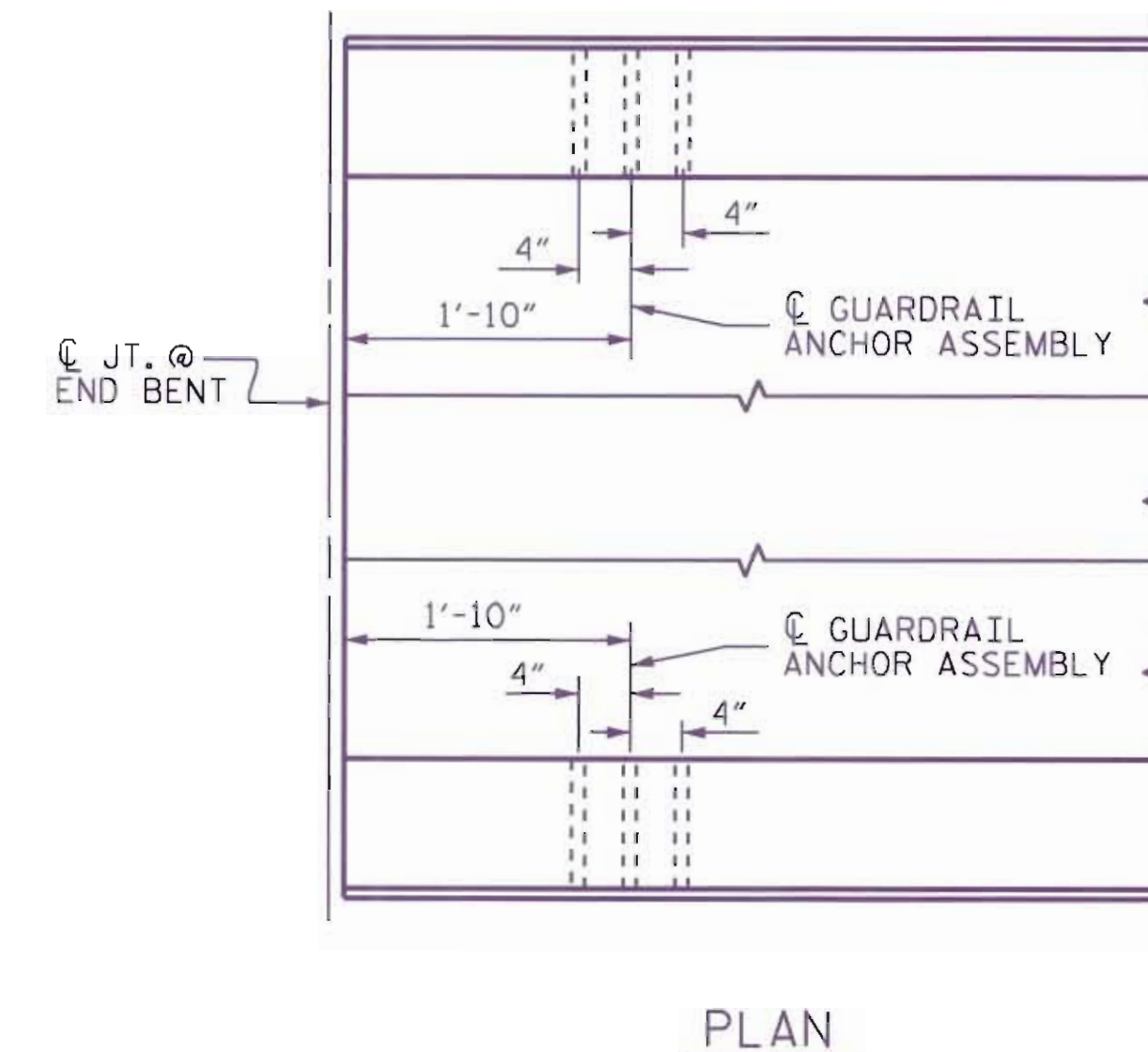
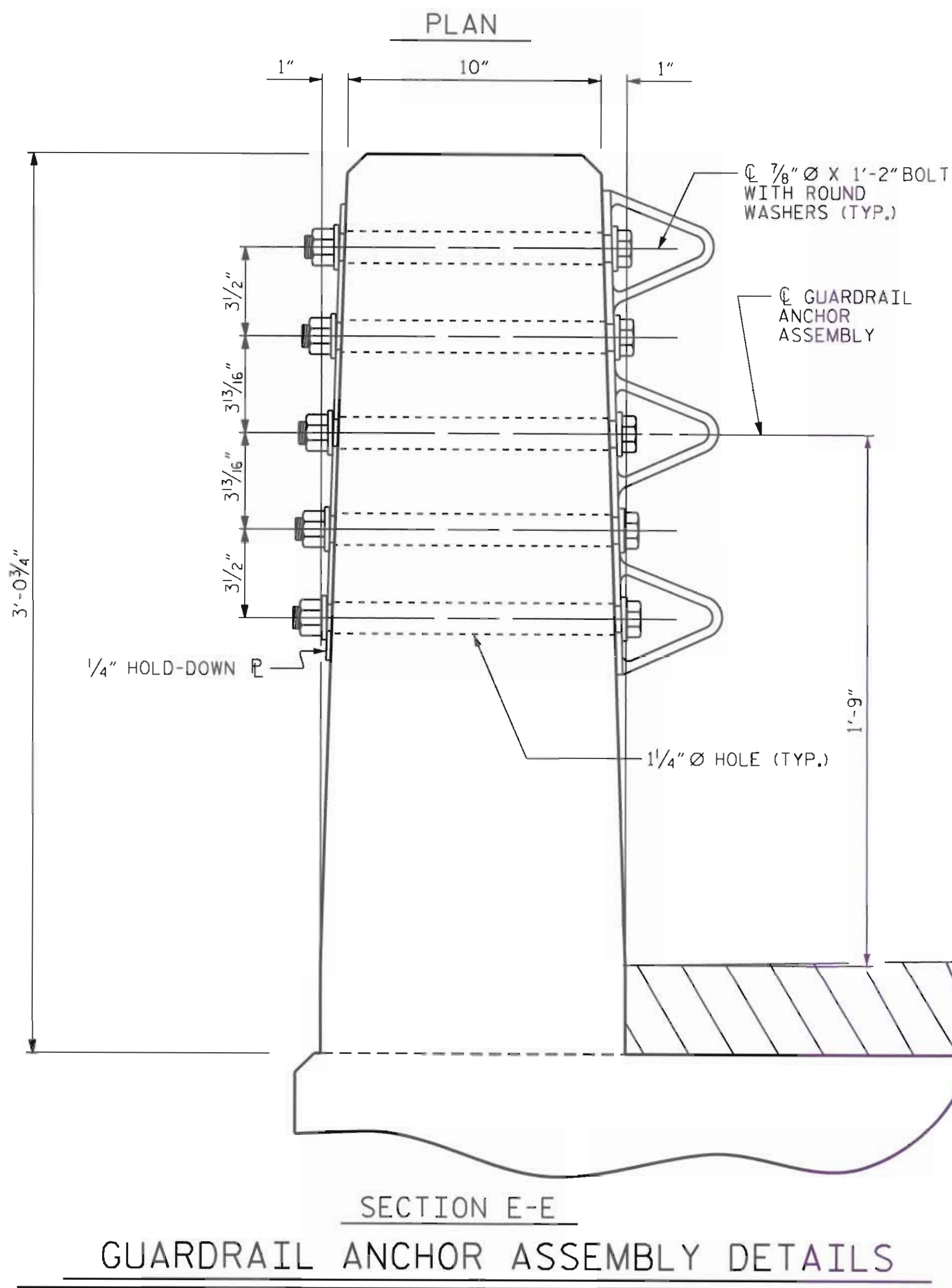
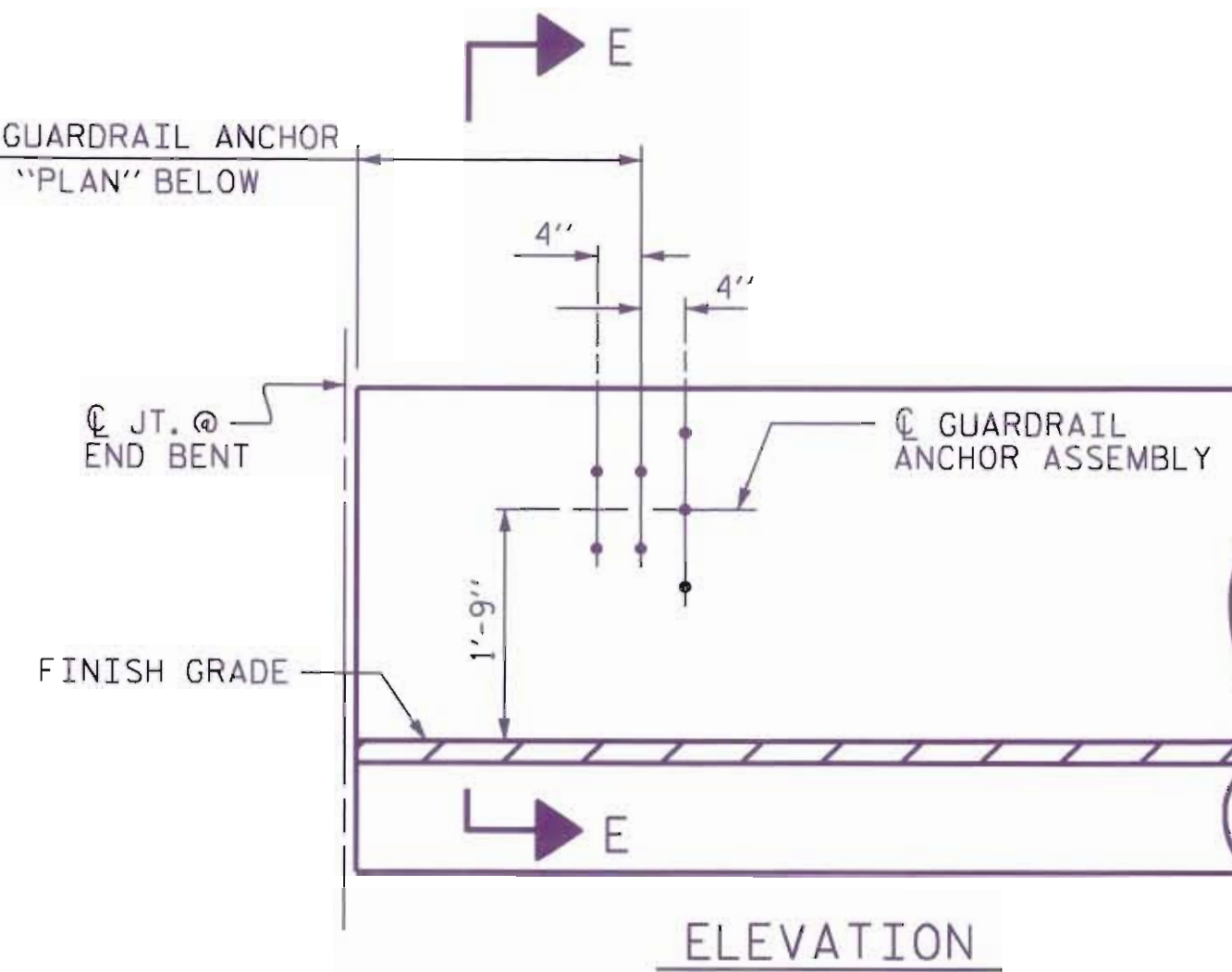
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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.

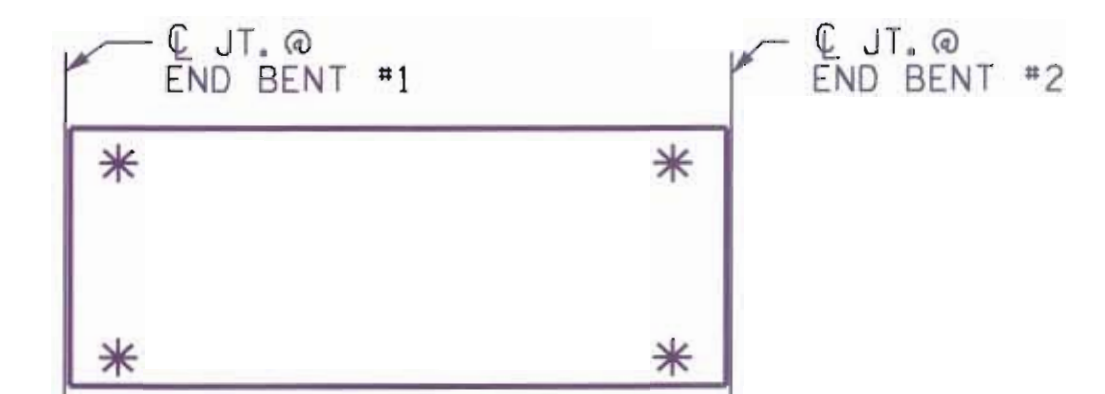


FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



LOCATION OF ANCHORS FOR GUARDRAIL

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

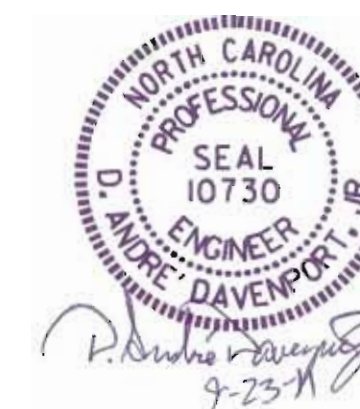


SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00 -L-

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



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

(SHT 1) STD. NO. GRA3

ASSEMBLED BY : D.A. DAVENPORT DATE : 05/06/11
 CHECKED BY : D.A. GLADDEN DATE : 05/25/11
 DRAWN BY : MAA 5/10 ADDED 5/6/10
 CHECKED BY : GM 5/10

23-SEP-2011 09:47
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 qdavenport

NOTES

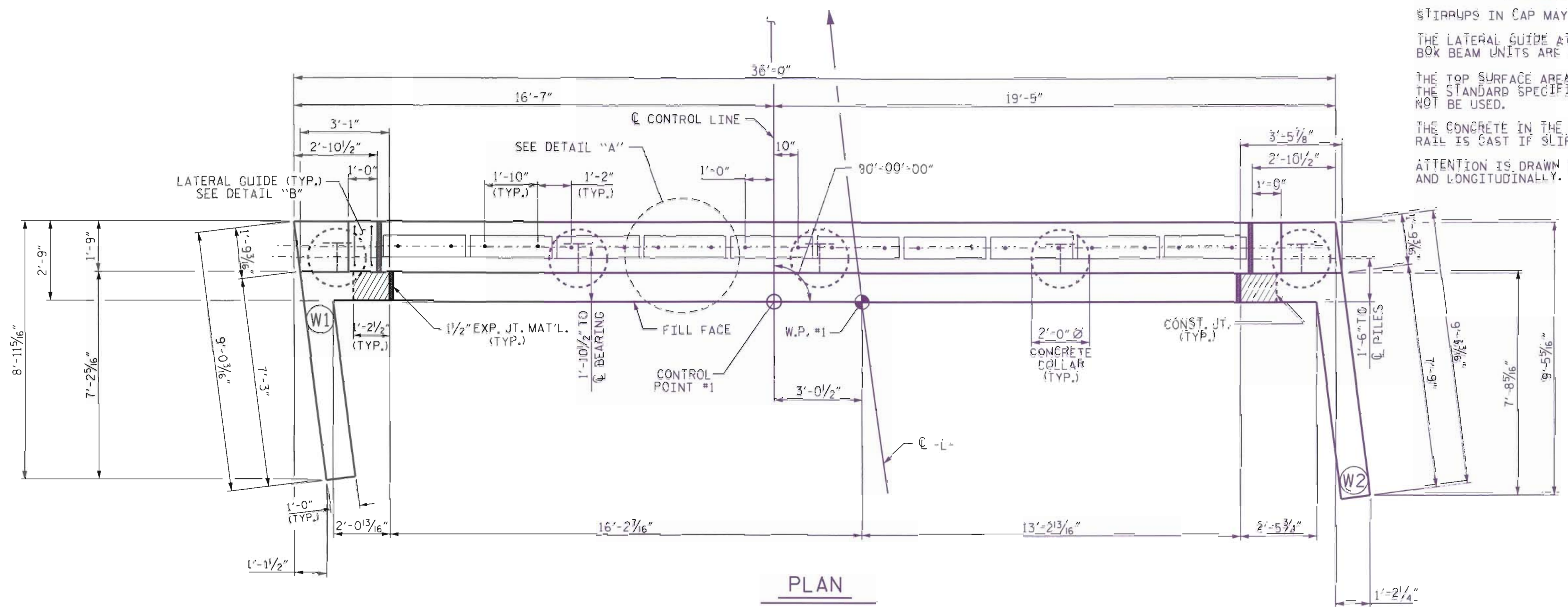
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

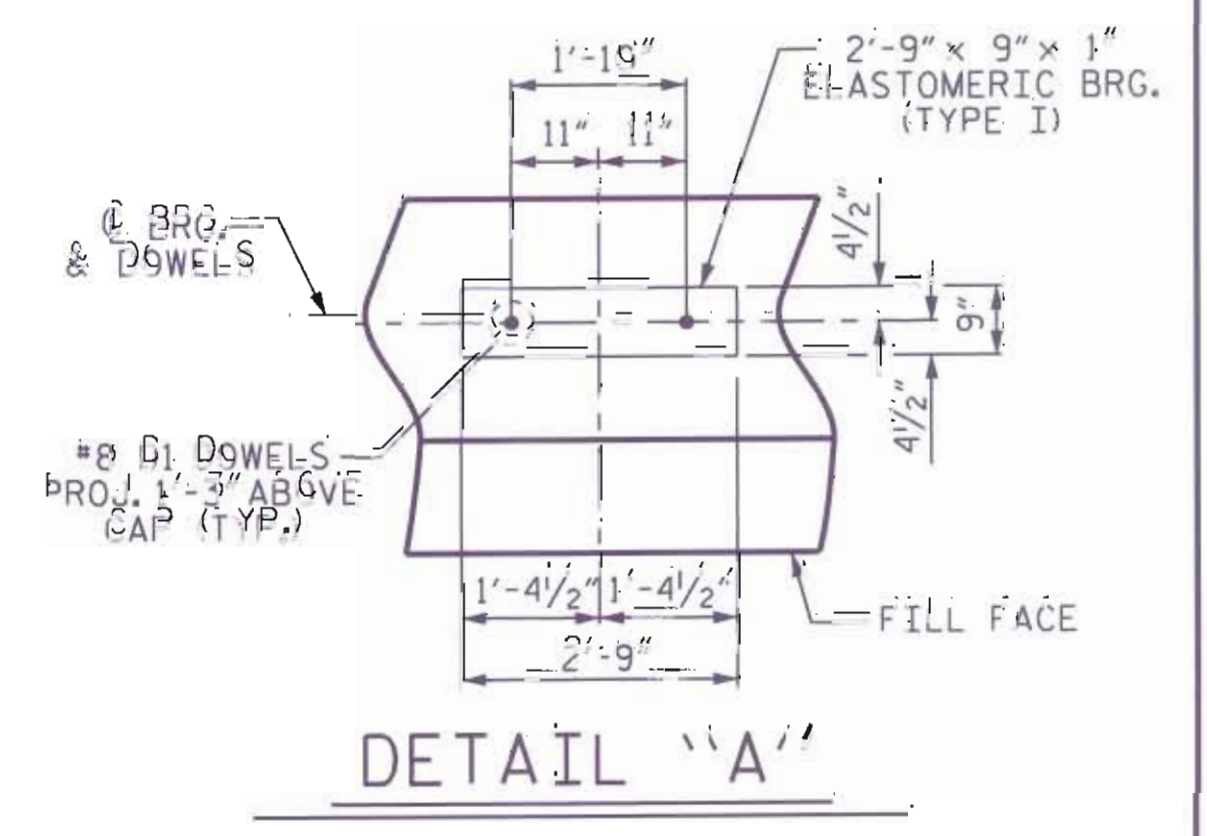
THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL RAIL IS CAST IF SLIP FORMING IS USED.

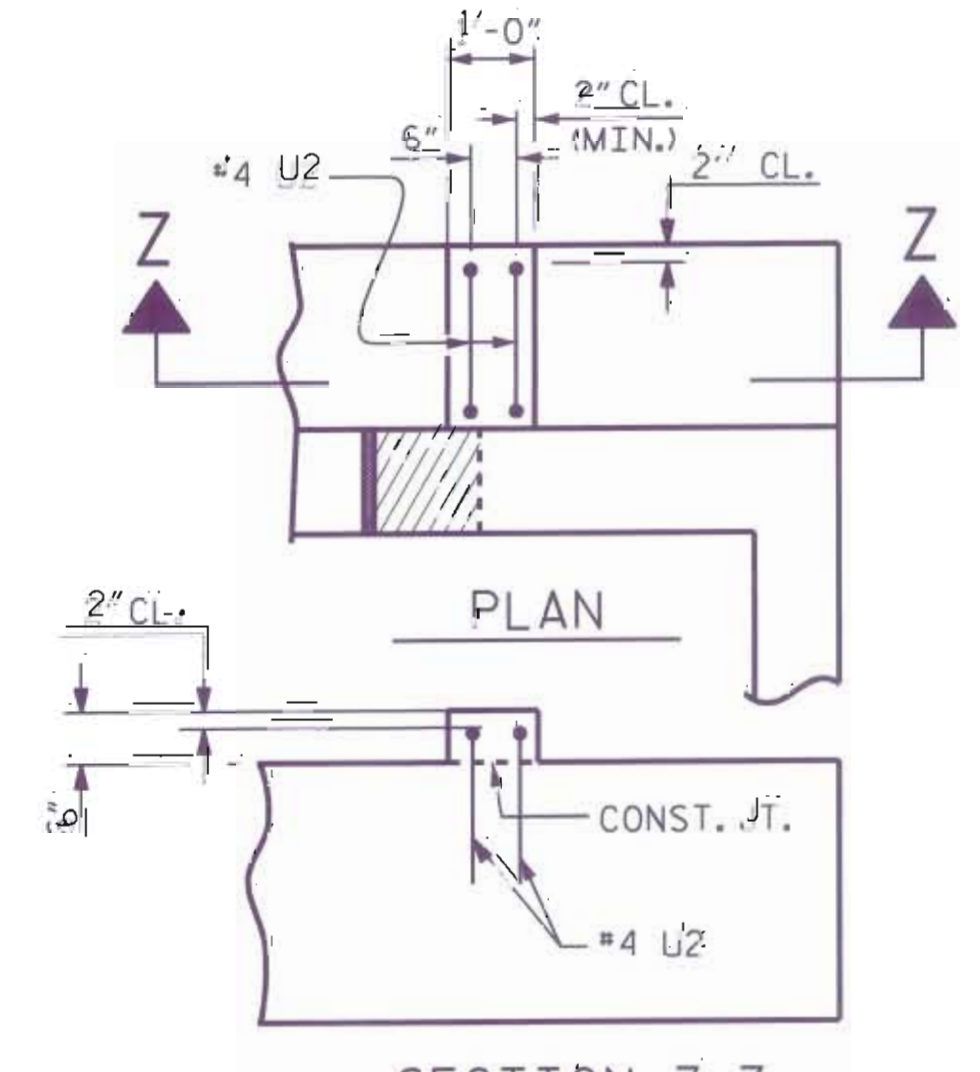
ATTENTION IS DRAWN TO THE FACT THAT THE TOP OF THE CAP IS SLOPED TRANSVERSELY AND LONGITUDINALLY.



PLAN



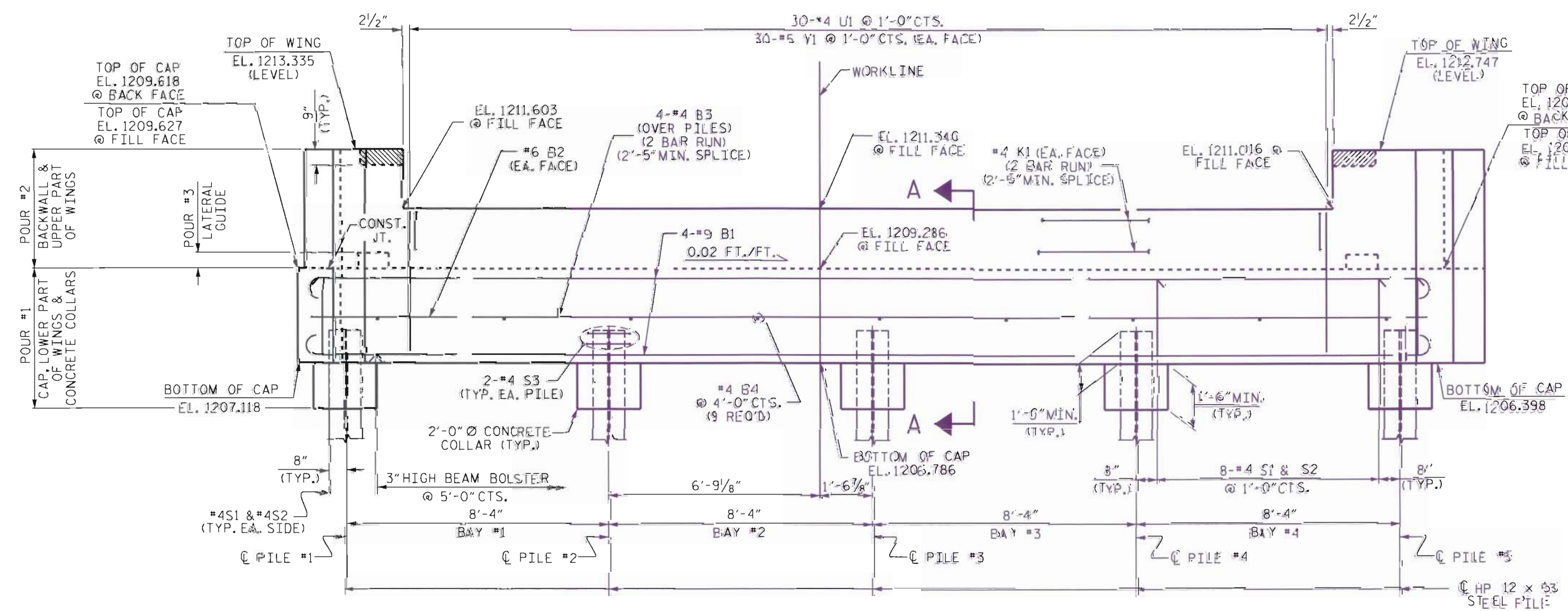
DETAIL "A"



SECTION Z-Z

DETAIL "B"

PILE #	ELEVATION
PILE #1	1208.098
PILE #2	1207.932
PILE #3	1207.769
PILE #4	1207.598
PILE #5	1207.432



ELEVATION

PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00 -L-

SHEET 1 OF 3

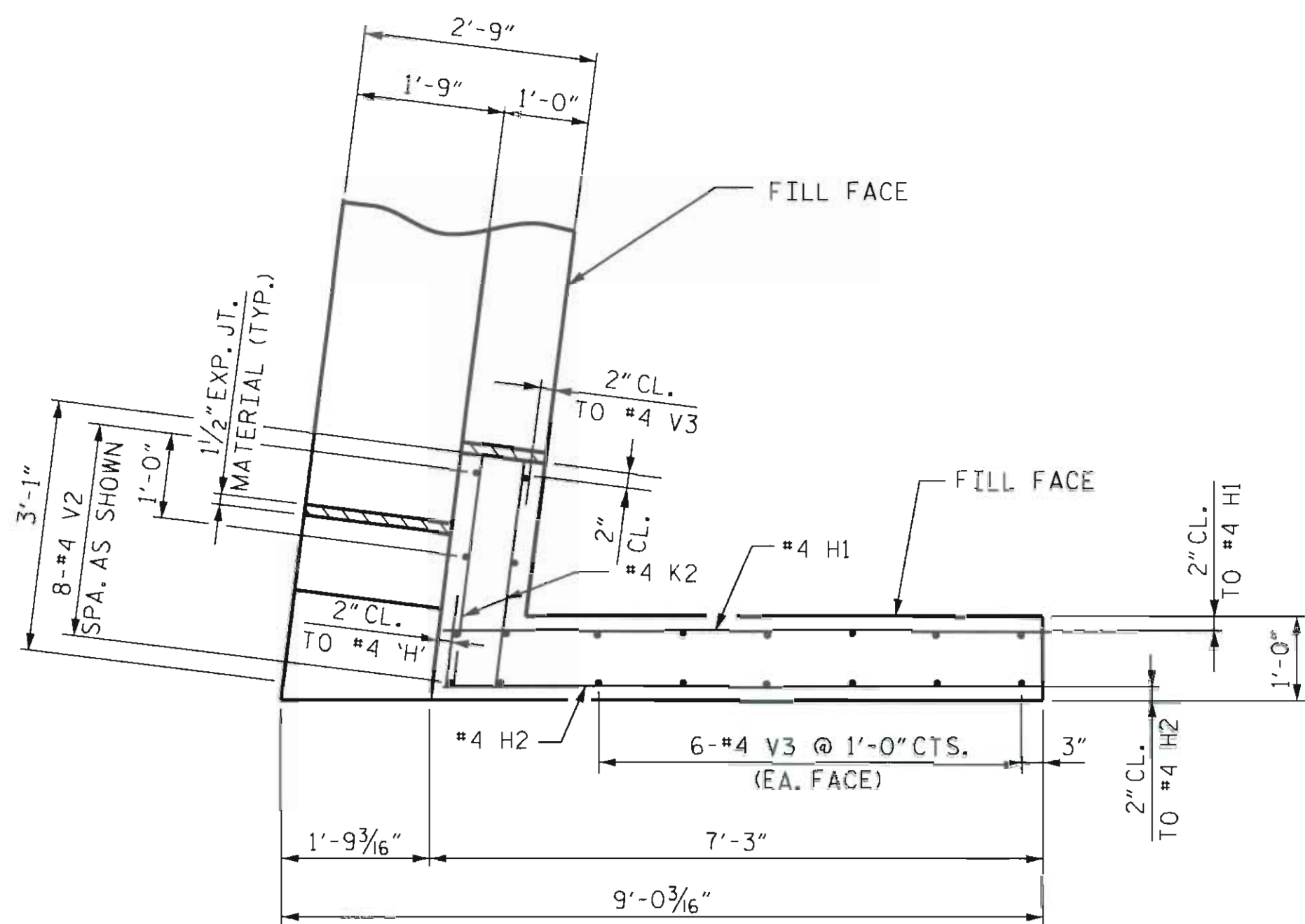


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

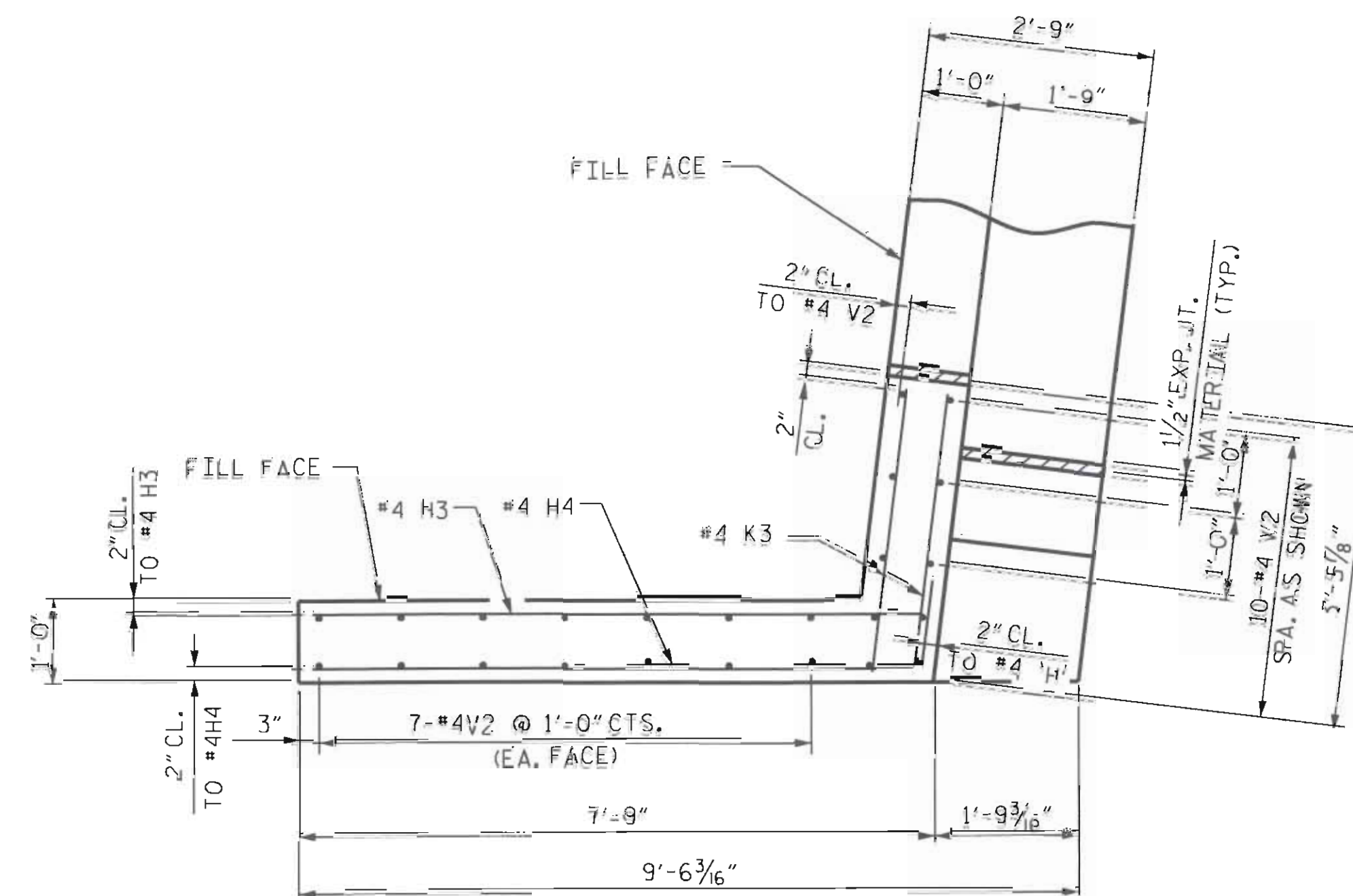
**SUBSTRUCTURE
 END BENT #1**

REV'SIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-11
1			3			TOTAL SHEETS
2			4			19

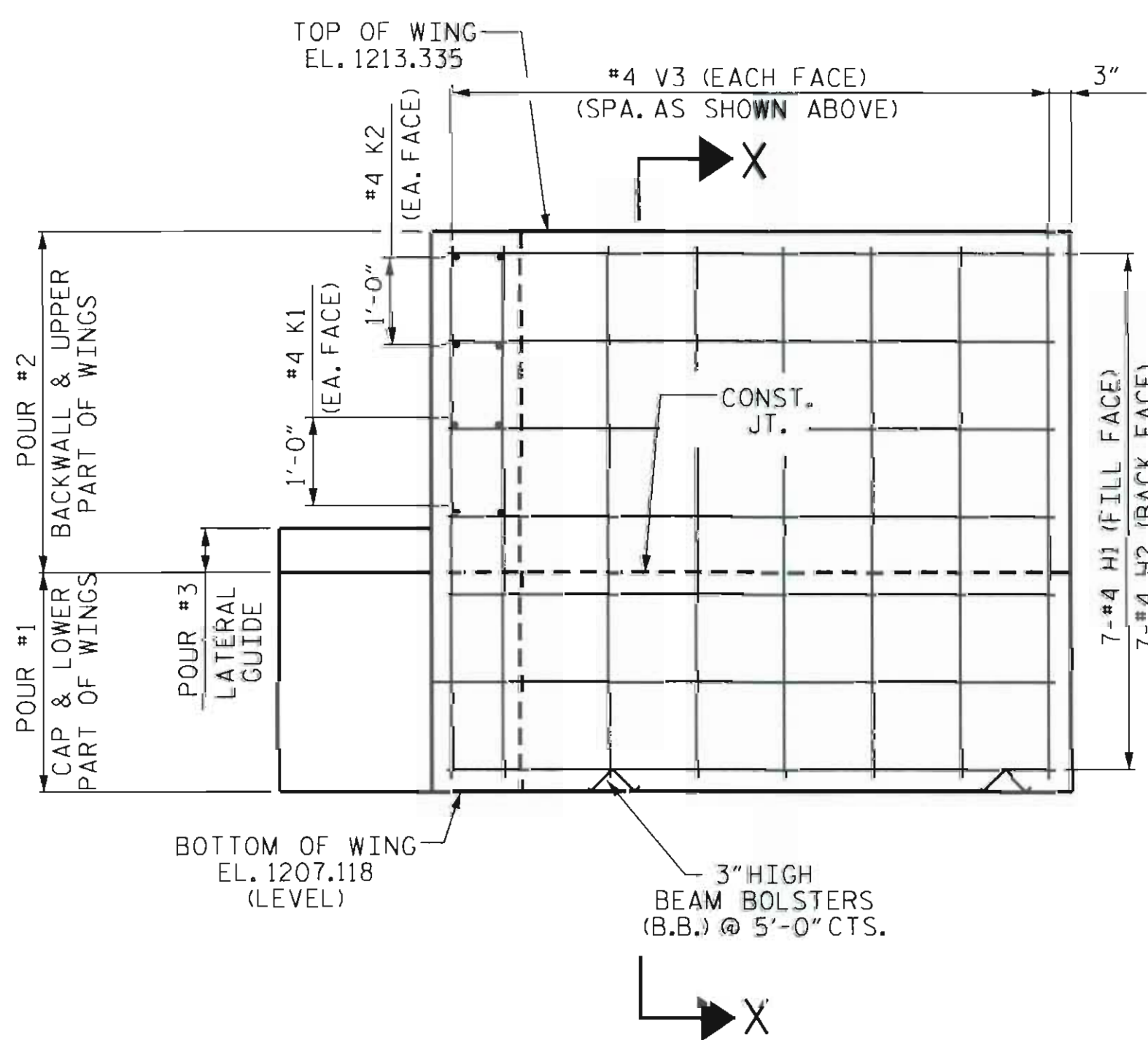
DRAWN BY: D.A. DAVENPORT DATE: 05/11/11
 CHECKED BY: D.A. GLADDEN DATE: 05/25/11



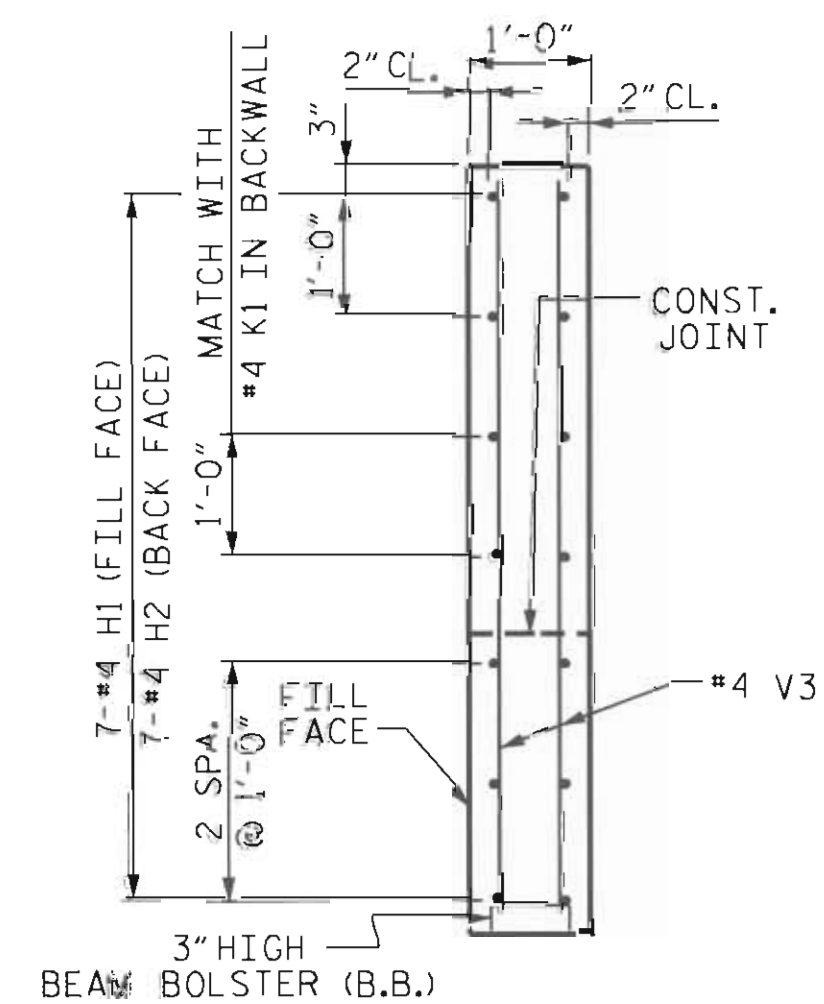
PLAN OF LEFT WING (W1)



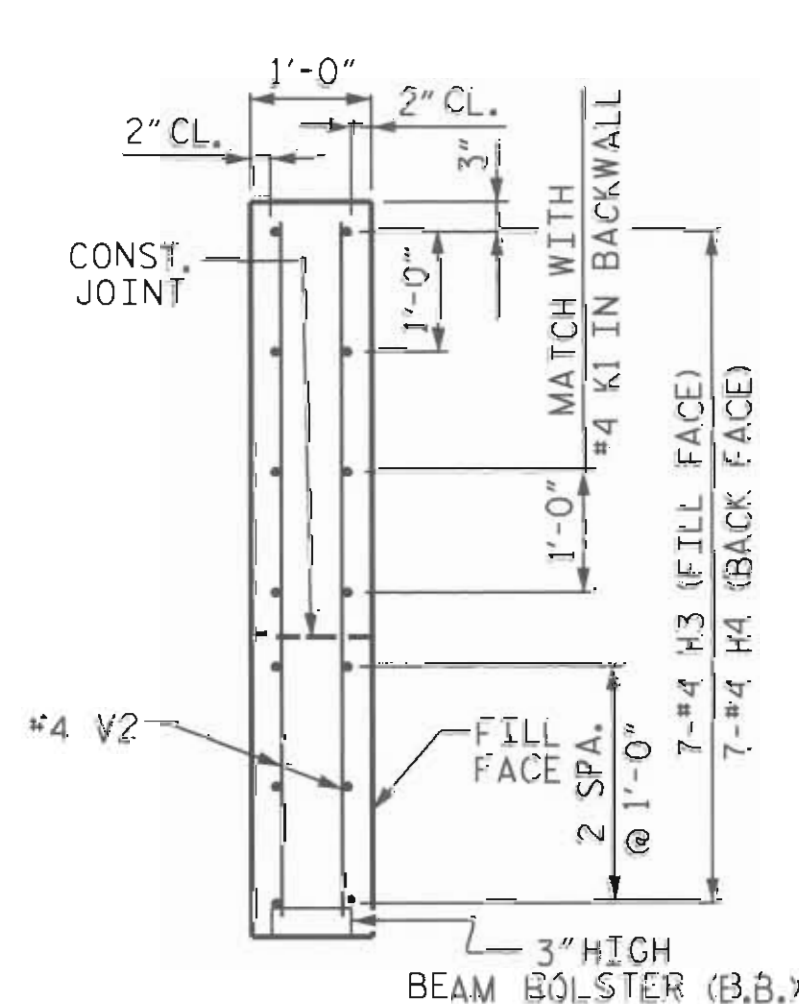
PLAN OF RIGHT WING (W2)



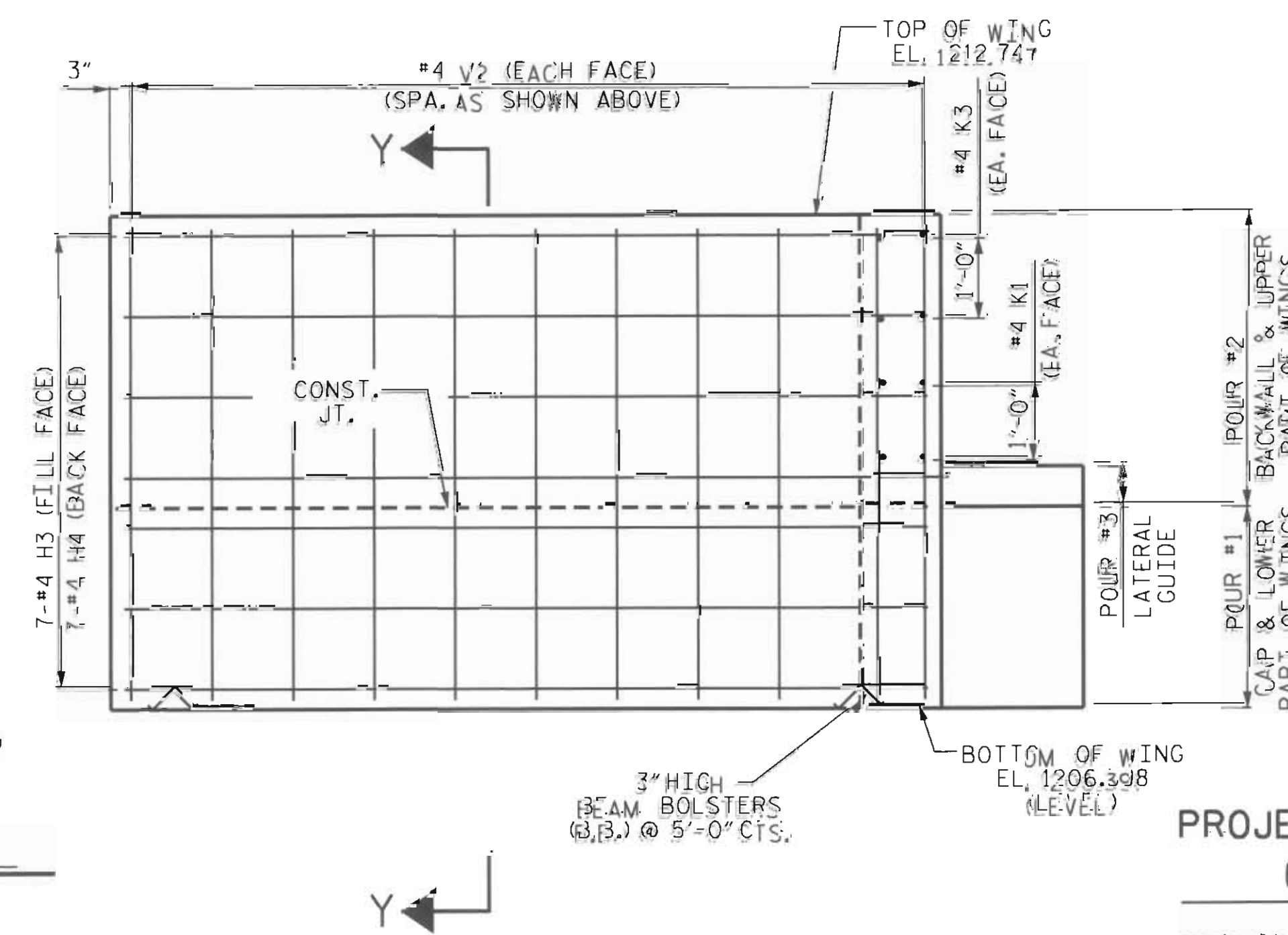
ELEVATION OF LEFT WING (W1)



SECTION X-X



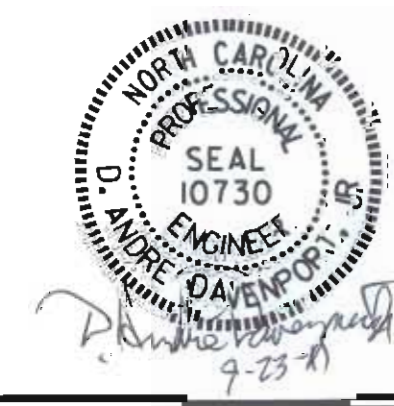
SECTION Y-Y



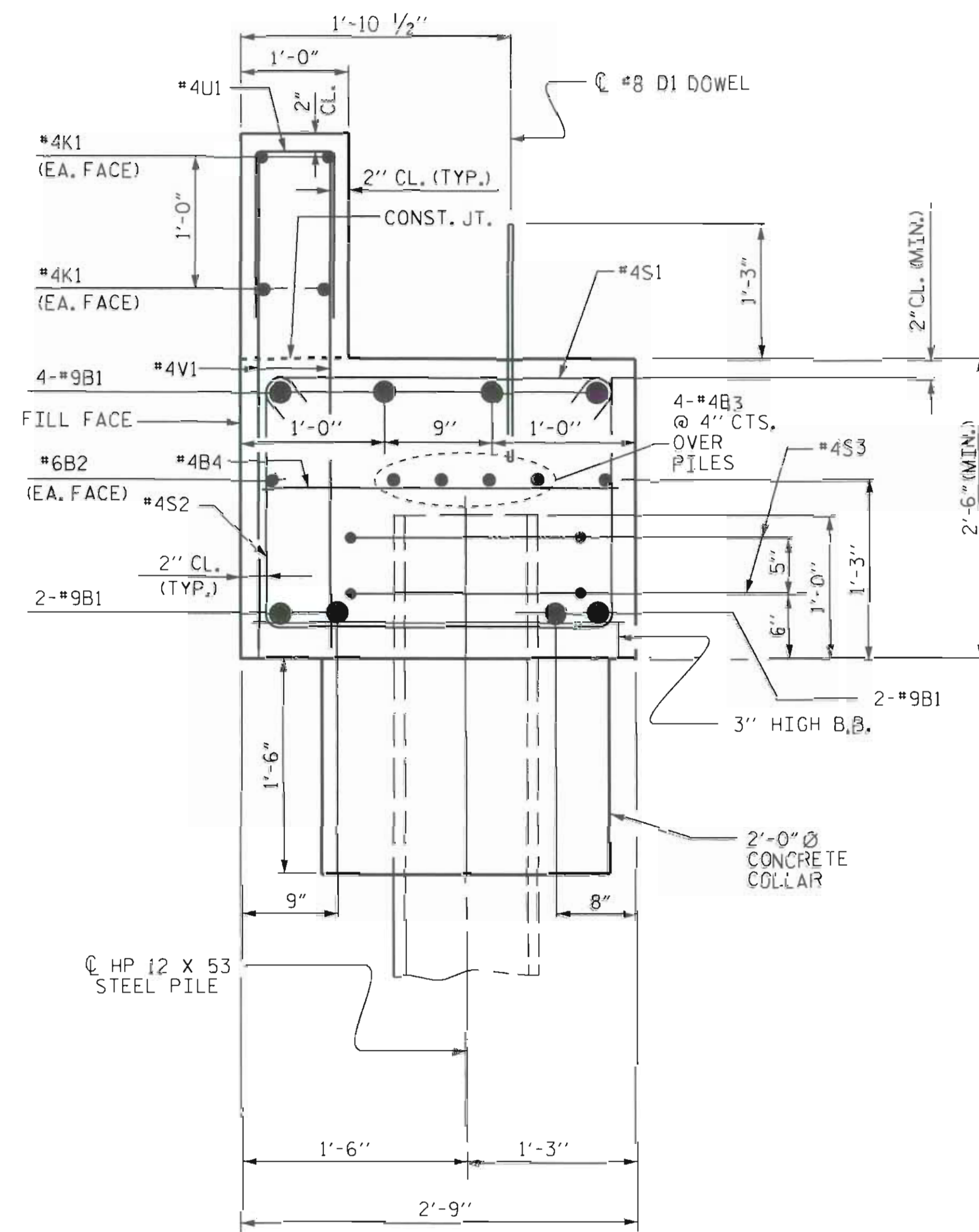
ELEVATION OF RIGHT WING (W2)

PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00 -L-
 SHEET 2 OF 3

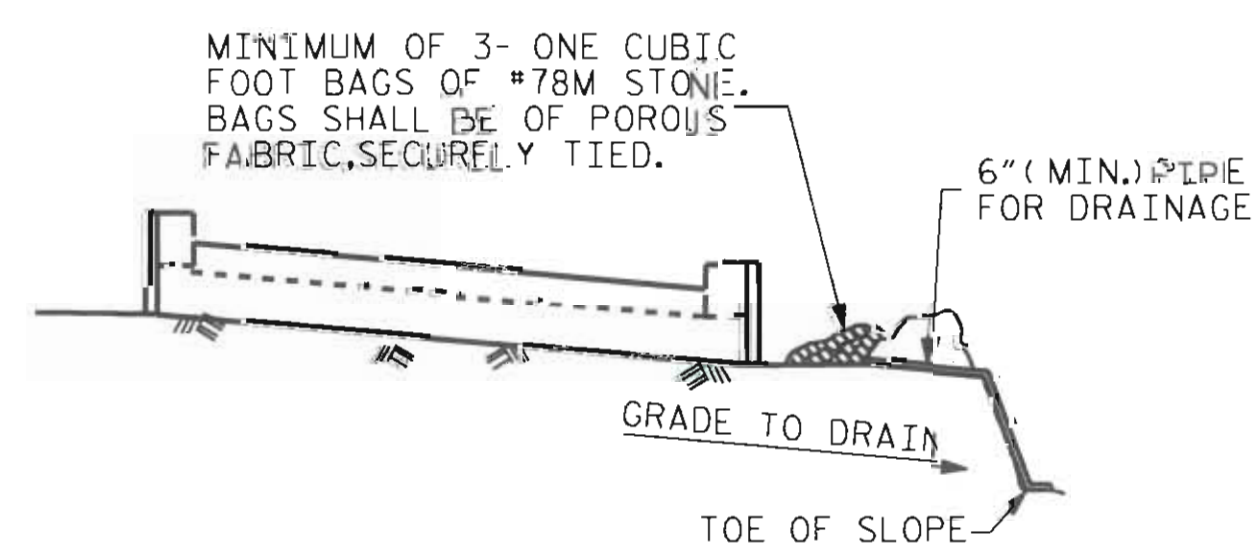
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				
SUBSTRUCTURE END BENT #1				
REVISIONS				
NO.	BY	DATE	BY	DATE
1			3	
2			4	
				SHEET NO. S-12
				TOTAL SHEETS 19



DRAWN BY: D.A. DAVENPORT DATE: 05/12/11
 CHECKED BY: D.A. GLADDEN DATE: 05/25/11



SECTION A-A



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

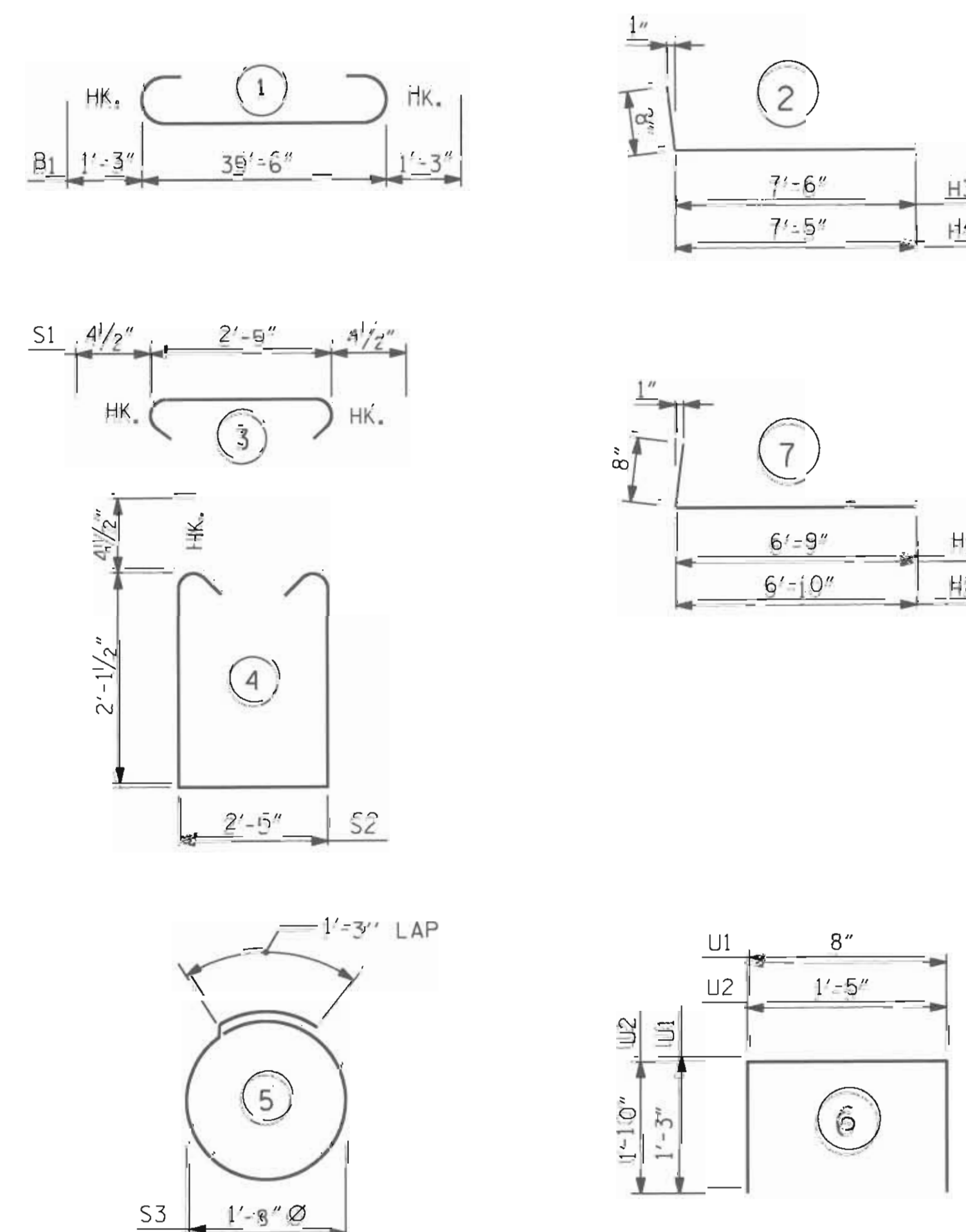
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETEIORATED AND LOST THEIR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

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

TEMPORARY DRAINAGE AT END BENT

DRAWN BY: D.A. DAVENPORT DATE: 05/16/11
 CHECKED BY: D.A. GLADDEN DATE: 05/25/11

BAR TYPE



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

FOR END BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	38'-0"	1034
B2	2	#6	STR	35'-8"	107
B3	8	#4	STR	19'-1"	102
B4	9	#4	STR	2'-5"	15
D1	20	#8	STR	2'-3"	120
H1	7	#4	7	7'-5"	35
H2	7	#4	7	7'-6"	35
H3	7	#4	2	8'-2"	38
H4	7	#4	2	8'-1"	38
K1	8	#4	STR	19'-1"	102
K2	4	#4	STR	2'-7"	7
K3	4	#4	STR	3'-1"	8
S1	34	#4	3	3'-2"	72
S2	34	#4	4	7'-5"	166
S3	10	#4	5	6'-6"	43
U1	30	#4	6	3'-2"	63
U2	4	#4	6	5'-1"	14
V1	60	#5	STR	4'-2"	261
V2	24	#4	STR	6'-8"	96
V3	20	#4	STR	6'-9"	77

REINFORCING STEEL = 2435 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1	CAP, CONCRETE COLLARS & LOWER PART OF WINGS	C.Y.	11.2
POUR #2	UPPER PART OF WINGS & BACKWALL	C.Y.	5.0
POUR #3	LATERAL GUIDES	C.Y.	0.1
TOTAL CLASS A CONCRETE		C.Y.	16.3

HP 12 X 53 STEEL PILES NO. 5 LIN. FT. 200

STEEL PILE POINTS EACH NO. 5

PILE EXCAVATION IN SOIL LIN. FT. 24.8

PILE EXCAVATION NOT IN SOIL LIN. FT. 22.2

PROJECT NO. BD-5111G

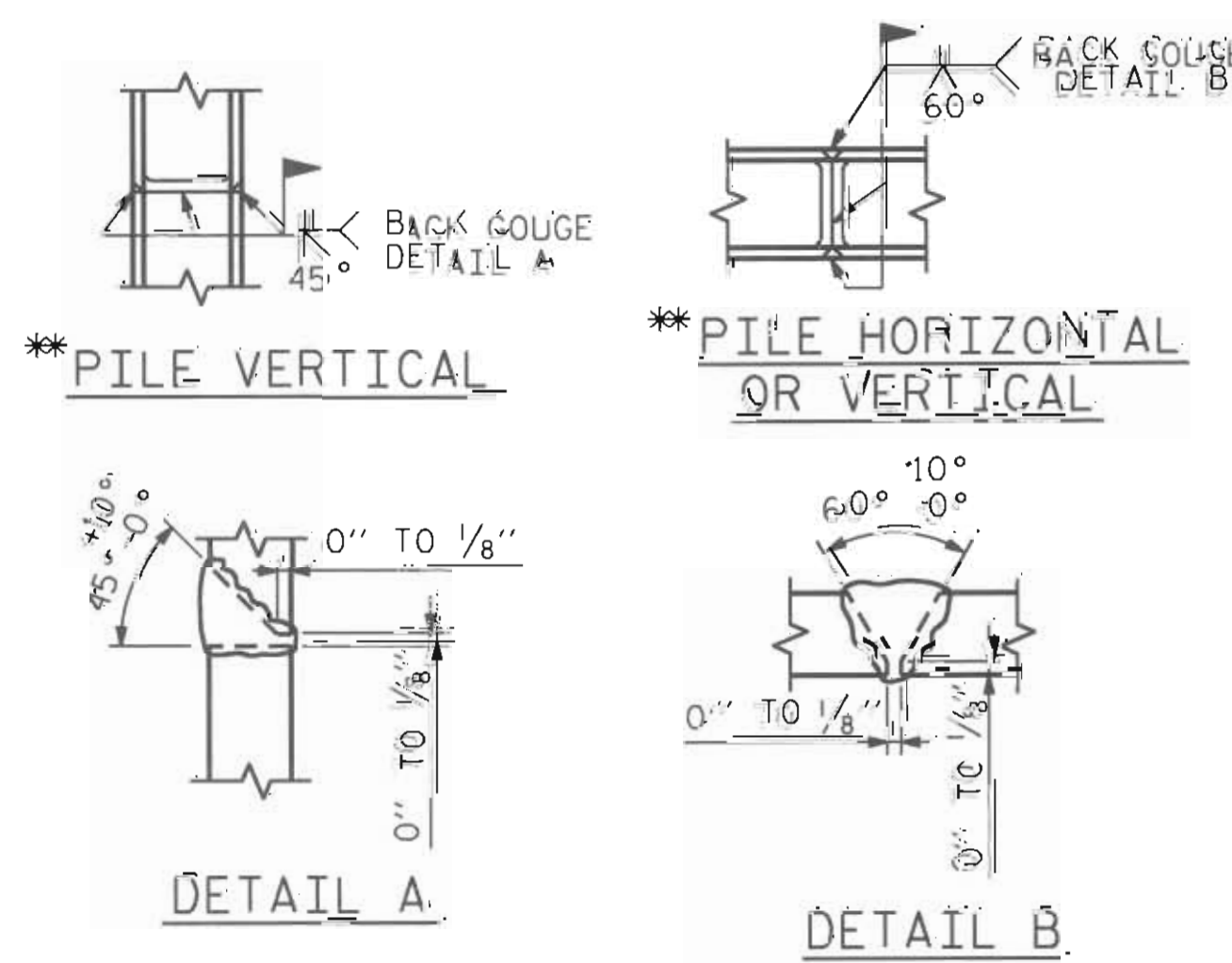
CALDWELL COUNTY

STATION: 13+40.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT #1**



**PILE VERTICAL

**PILE HORIZONTAL OR VERTICAL

DETAIL A.

DETAIL B.

** POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



REVISIONS

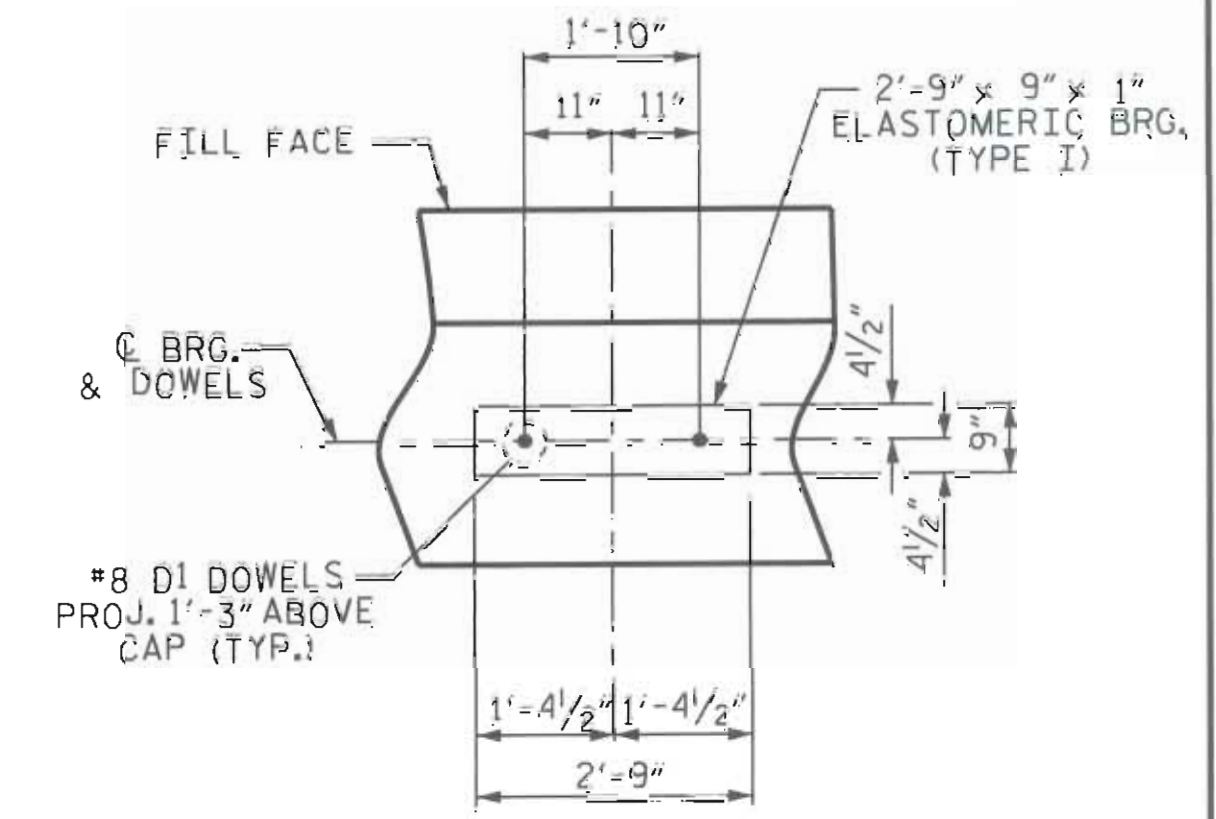
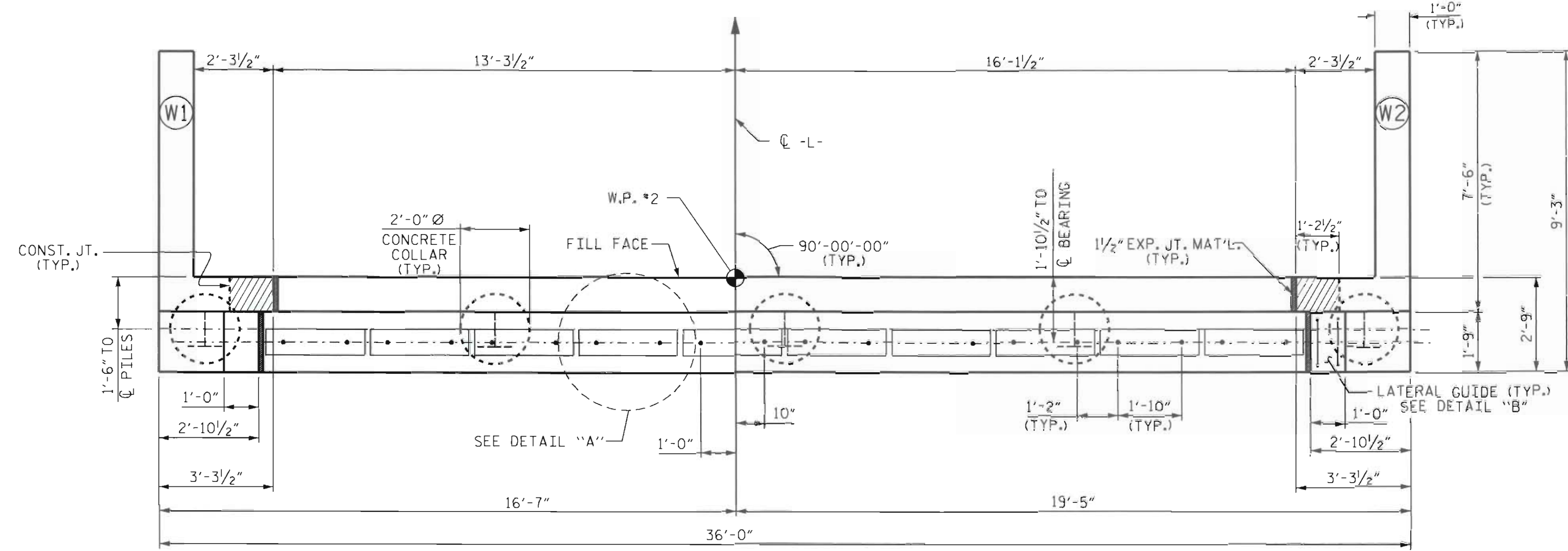
NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

SHEET NO. S-13

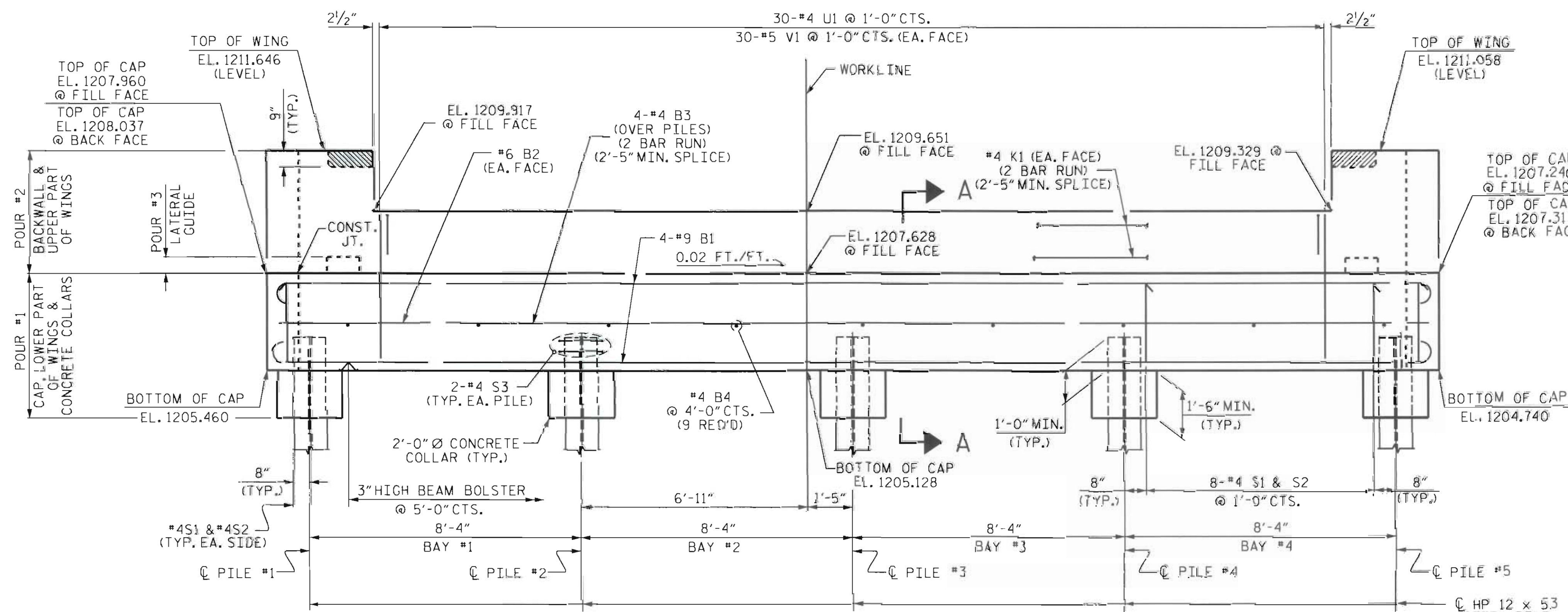
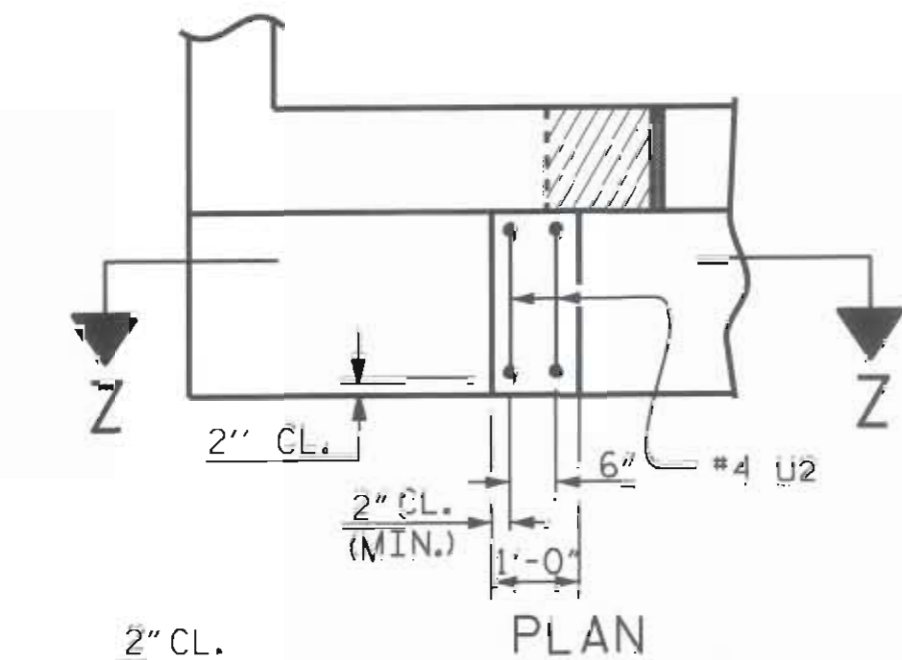
TOTAL SHEETS 19

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER THE BOX BEAM UNITS ARE IN PLACE.
 THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL RAIL IS CAST IF SLIP FORMING IS USED.
 ATTENTION IS DRAWN TO THE FACT THAT THE TOP OF THE CAP IS SLOPED TRANSVERSELY AND LONGITUDINALLY.



PILE #	ELEVATION
PILE #1	1206.443
PILE #2	1206.277
PILE #3	1206.110
PILE #4	1205.943
PILE #5	1205.777



DETAIL "B"

PROJECT NO. BD-511G
 CALDWELL COUNTY
 STATION: 13+40.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

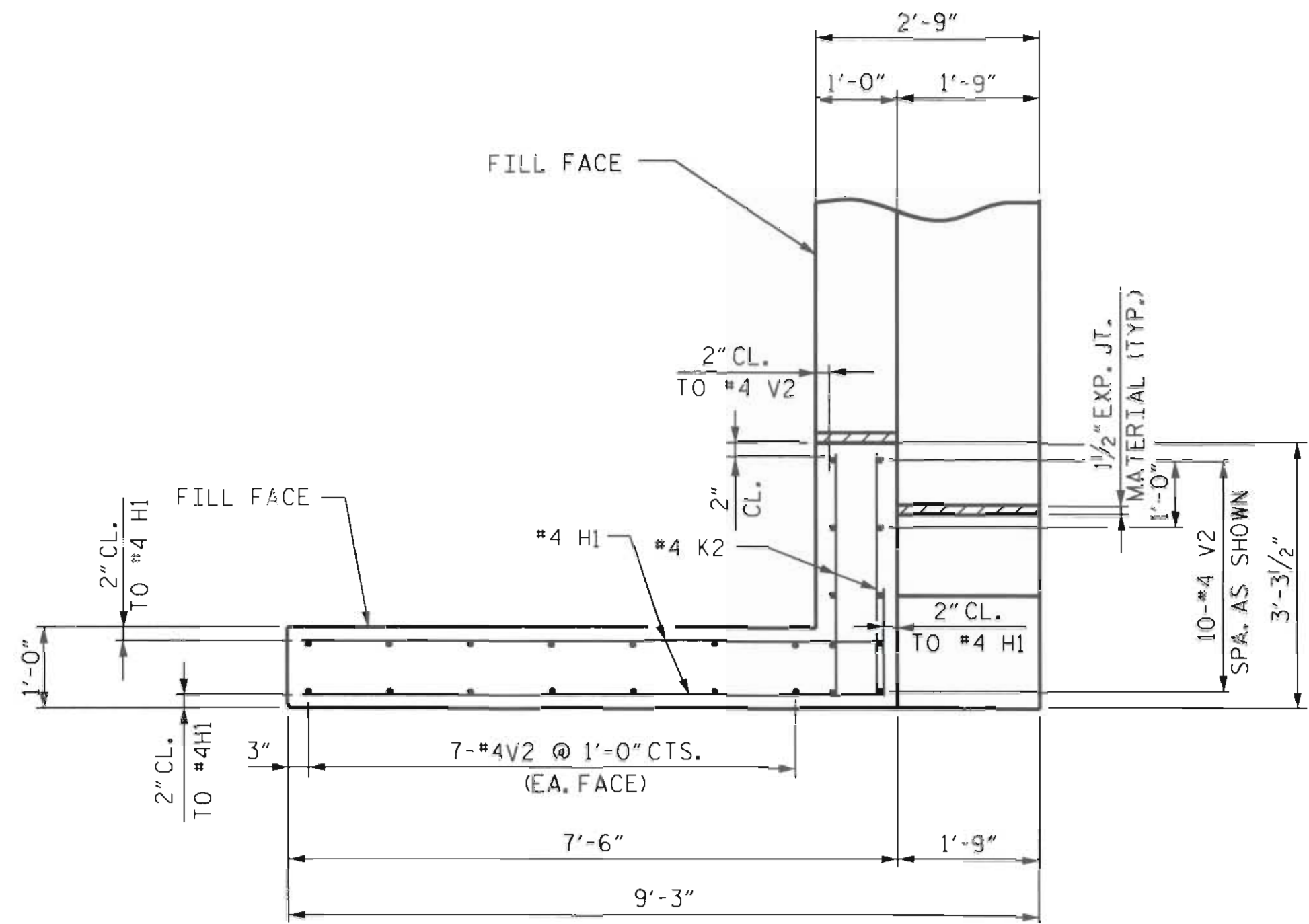
**SUBSTRUCTURE
 END BENT #2**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			19

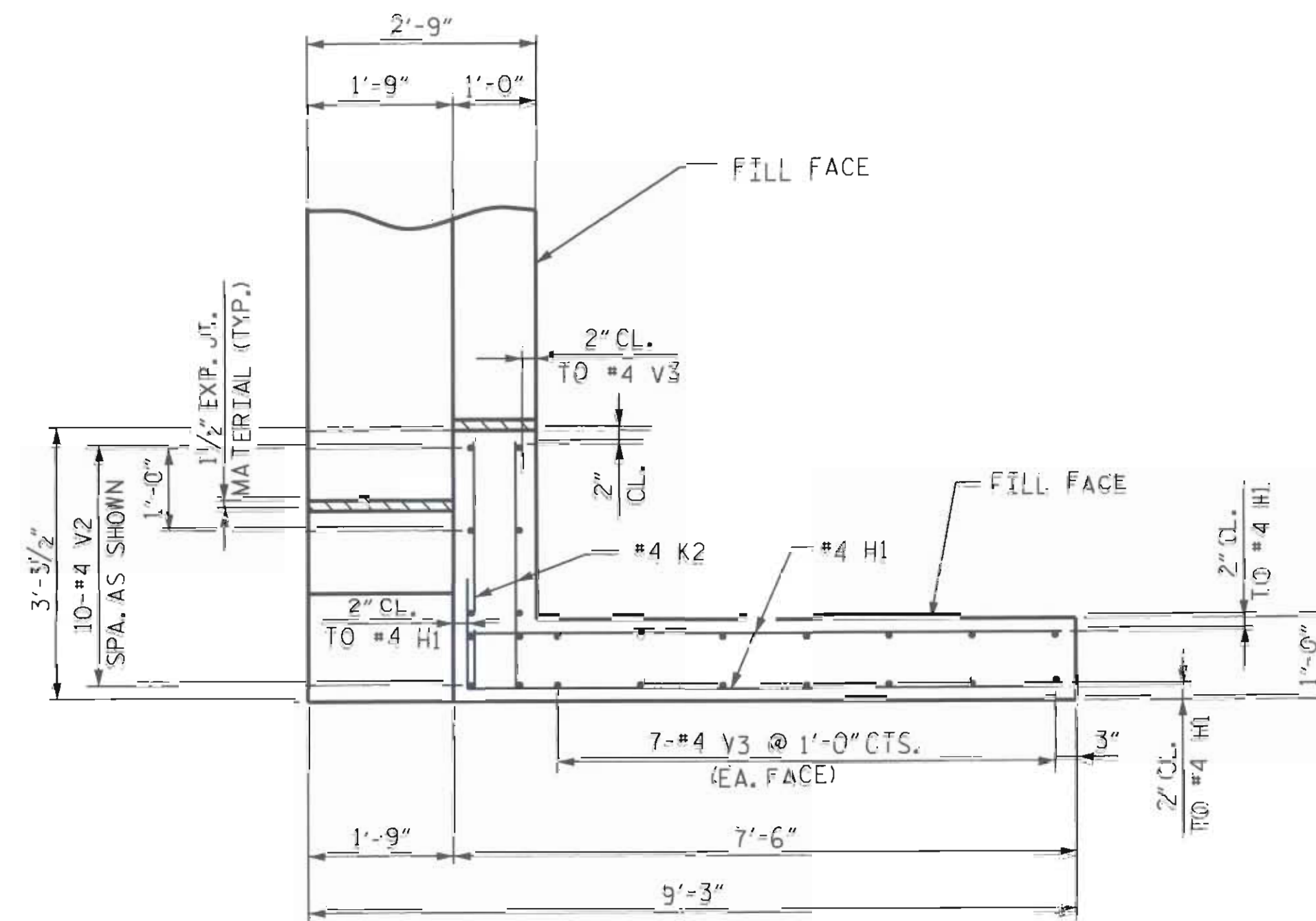
DRAWN BY: D.A. DAVENPORT DATE: 05/12/11
 CHECKED BY: D.A. GLADDEN DATE: 05/25/11

23-SEP-2011 09:48
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 dcdavenport

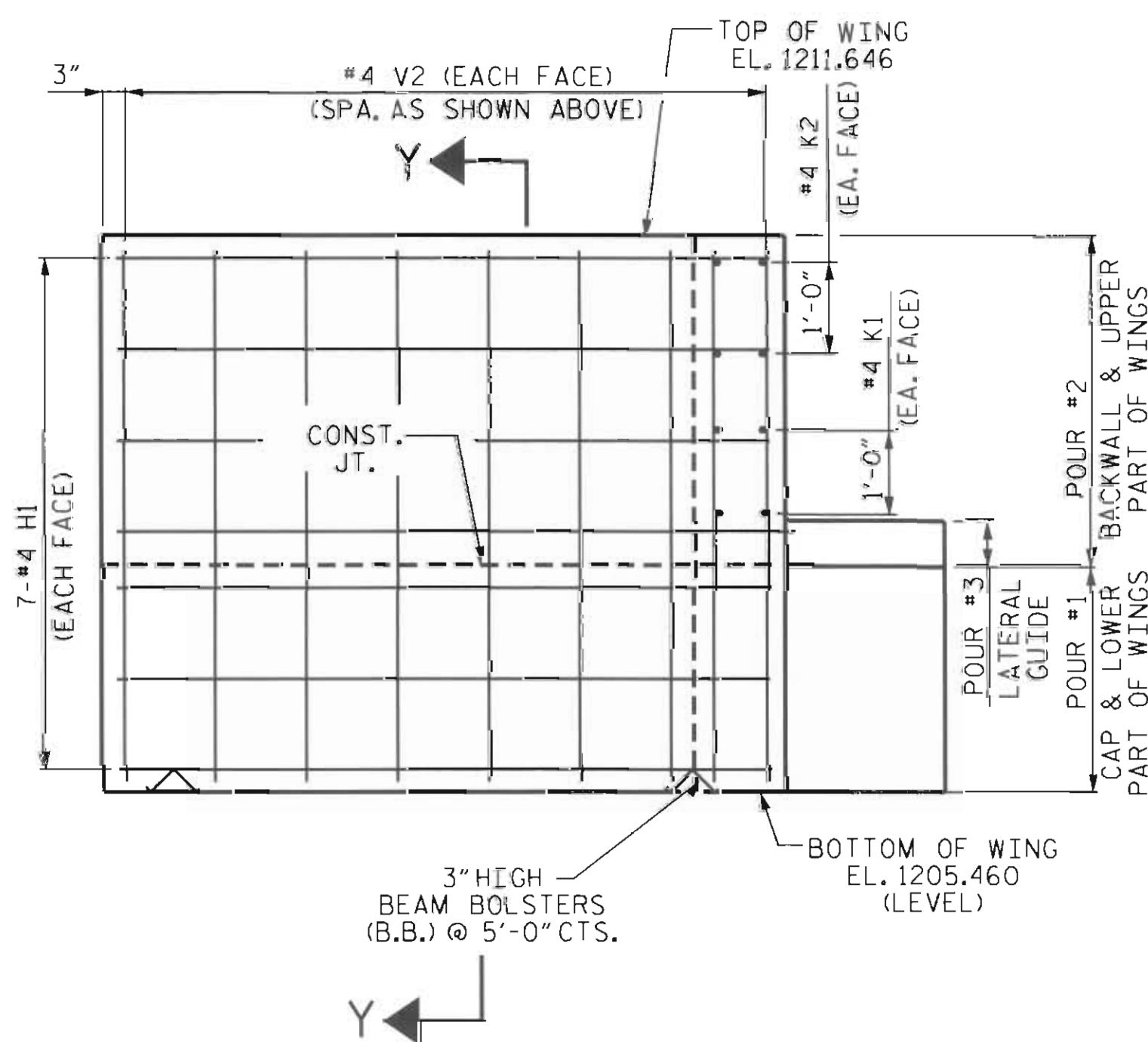




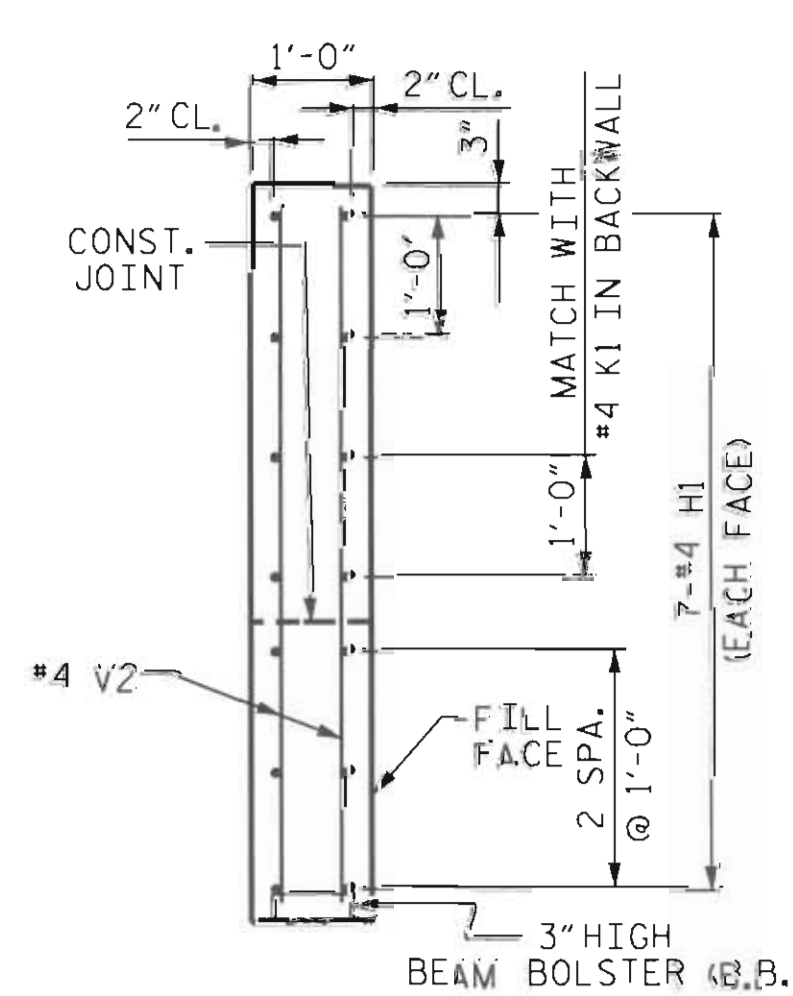
PLAN OF LEFT WING (W1)



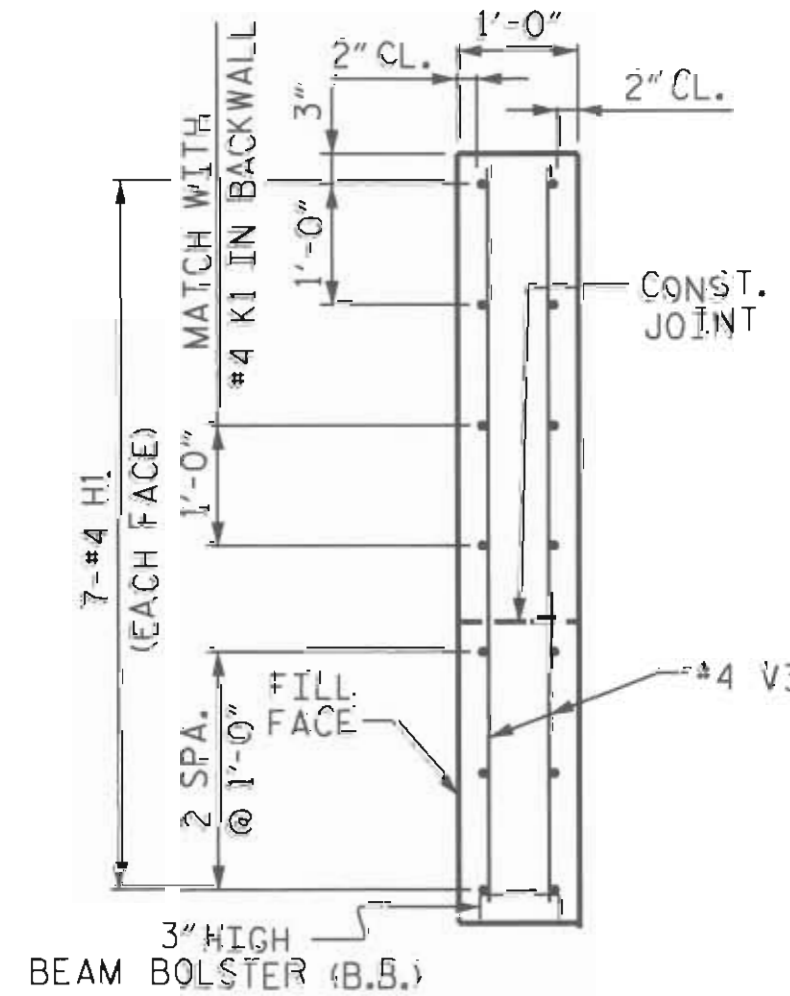
PLAN OF RIGHT WING (W2)



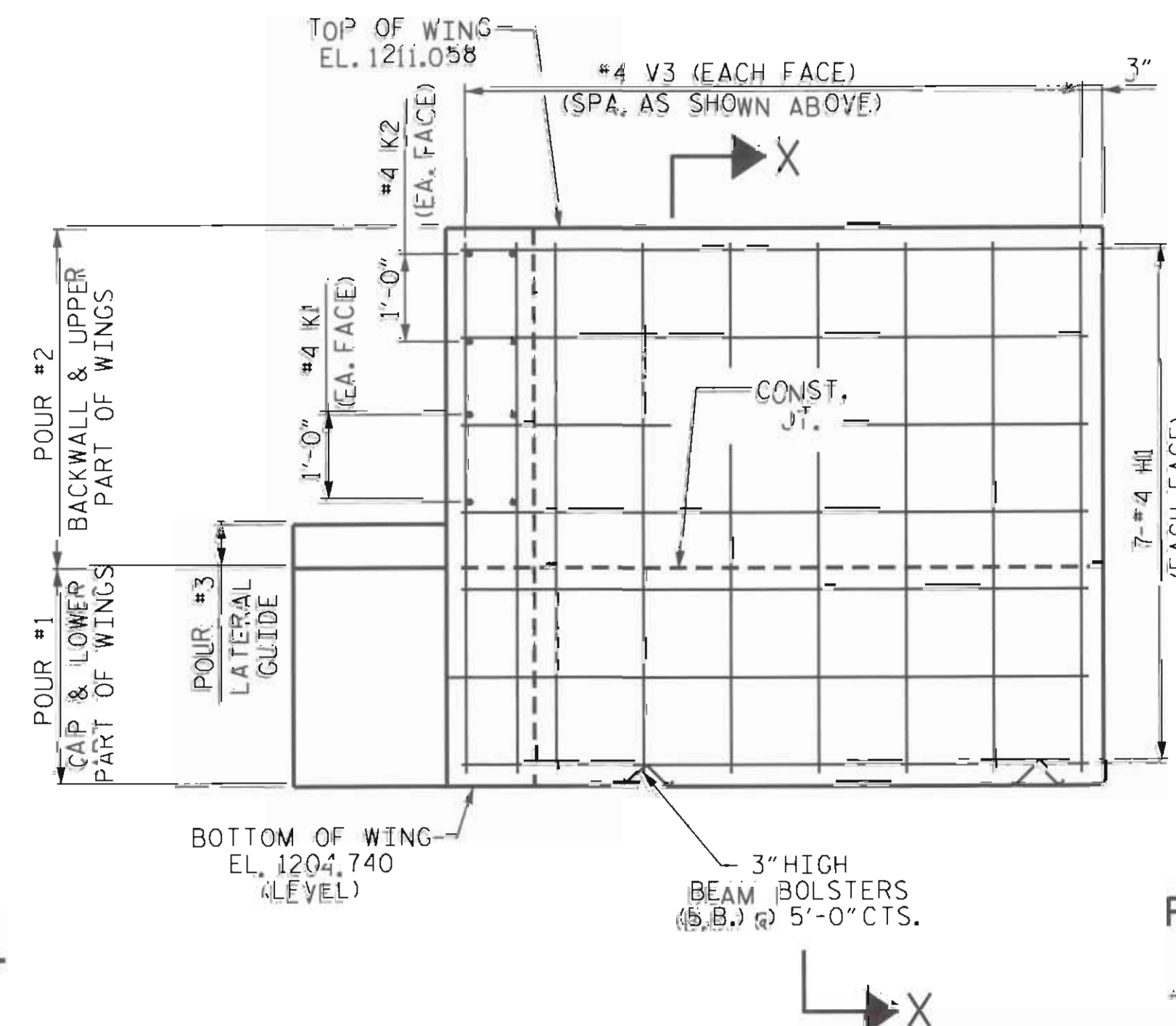
ELEVATION OF LEFT WING (W1)



SECTION Y-Y



SECTION X-X



ELEVATION OF RIGHT WING (W2)

PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00 -L-

SHEET 2 OF 3

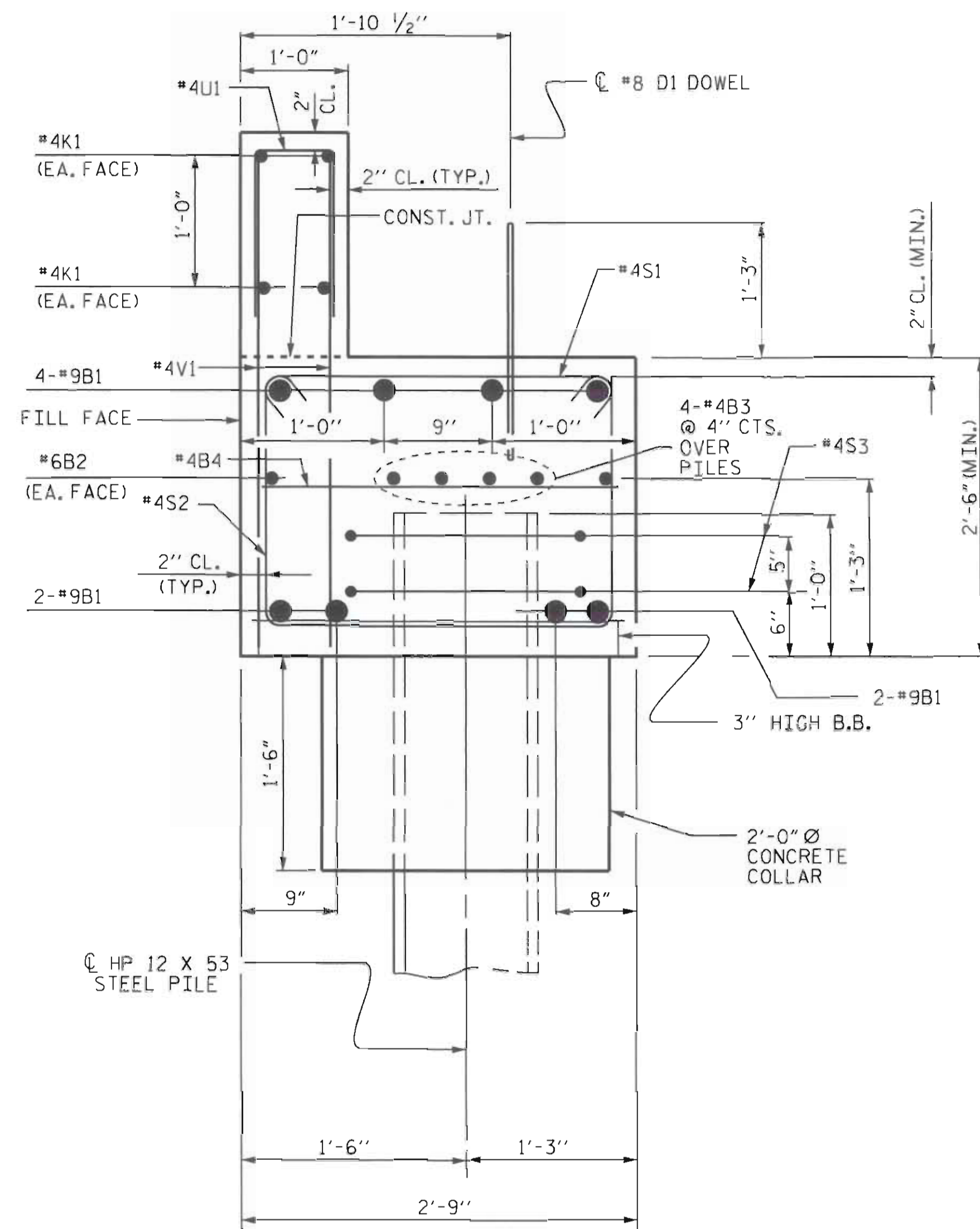
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #2

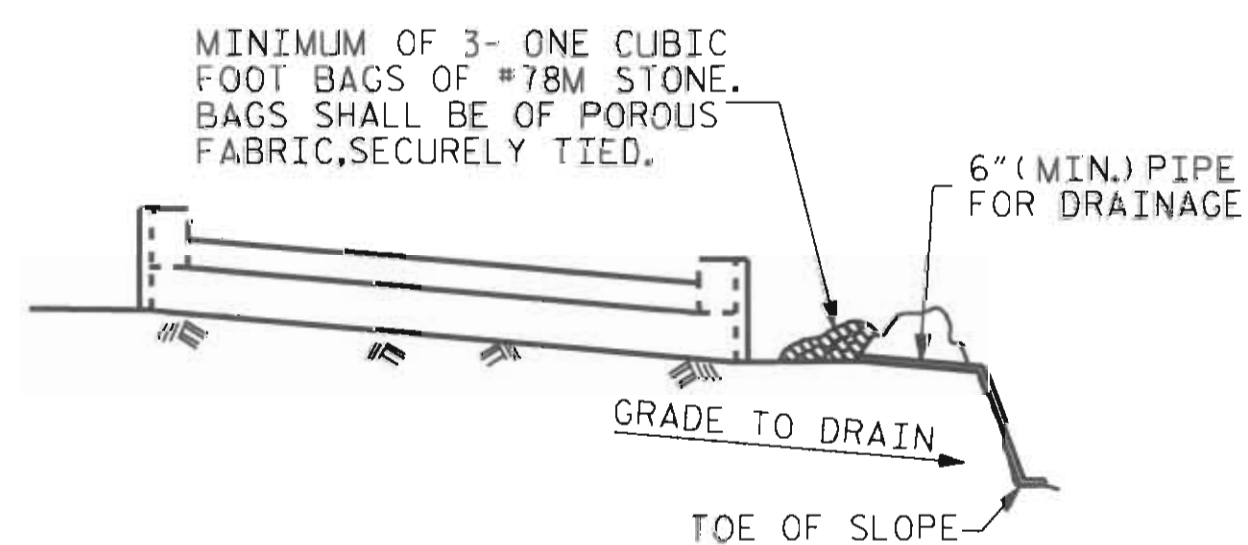


DRAWN BY: D.A. DAVENPORT DATE: 05/12/11
 CHECKED BY: D.A. GLADDEN DATE: 05/25/11

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



SECTION A-A

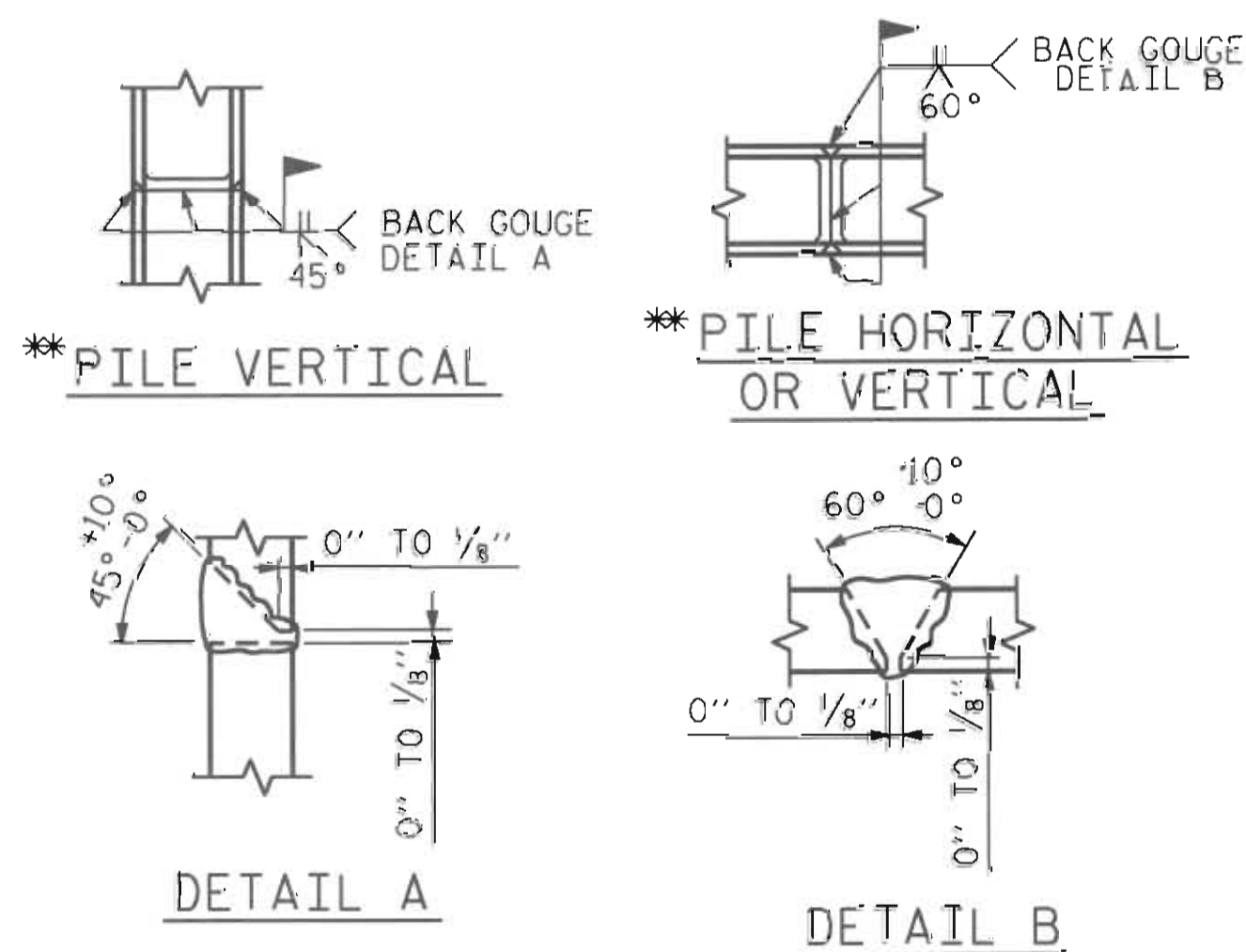


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

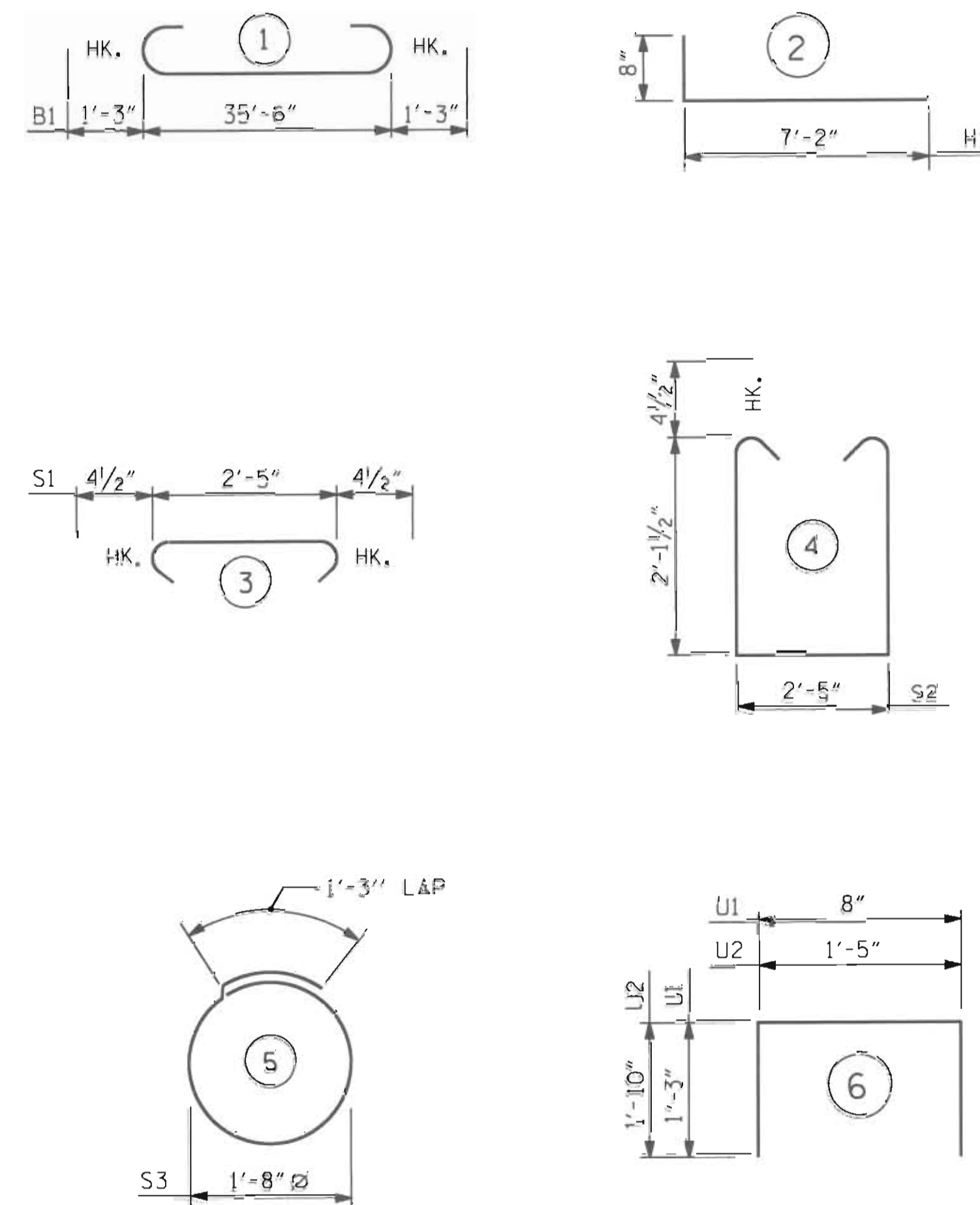
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



** POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR END BENT #2

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	#8		38'-0"	1034
B2	#6	STR	35'-8"	107
B3	#4	STR	19'-1"	102
B4	#4	STR	2'-5"	15
D1	#8	STR	2'-3"	120
H1	#4	2	7'-10"	147
K1	#4	STR	19'-1"	102
K2	#4	STR	2'-11"	16
S1	#4	3	3'-2"	72
S2	#4	4	7'-5"	168
S3	#4	5	6'-6"	43
U1	#4	6	3'-2"	63
U2	#4	6	5'-1"	14
V1	#5	STR	4'-2"	261
V2	#4	STR	5'-9"	92
V3	#4	STR	6'-0"	96
REINFORCING STEEL				= 2452 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1	CAP, CONCRETE COLLARS & LOWER PART OF WINGS	C.Y.	11.2
POUR #2	UPPER PART OF WINGS & BACKWALL	C.Y.	5.0
POUR #3	LATERAL GUIDES	C.Y.	0.1
TOTAL CLASS A CONCRETE		C.Y.	16.3

HP 12 X 53 STEEL PILES	NO. 5	LIN. FT.	150
------------------------	-------	----------	-----

STEEL PILE POINTS	EACH	NO. 5
-------------------	------	-------

PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00 -L-
 SHEET 3 OF 3

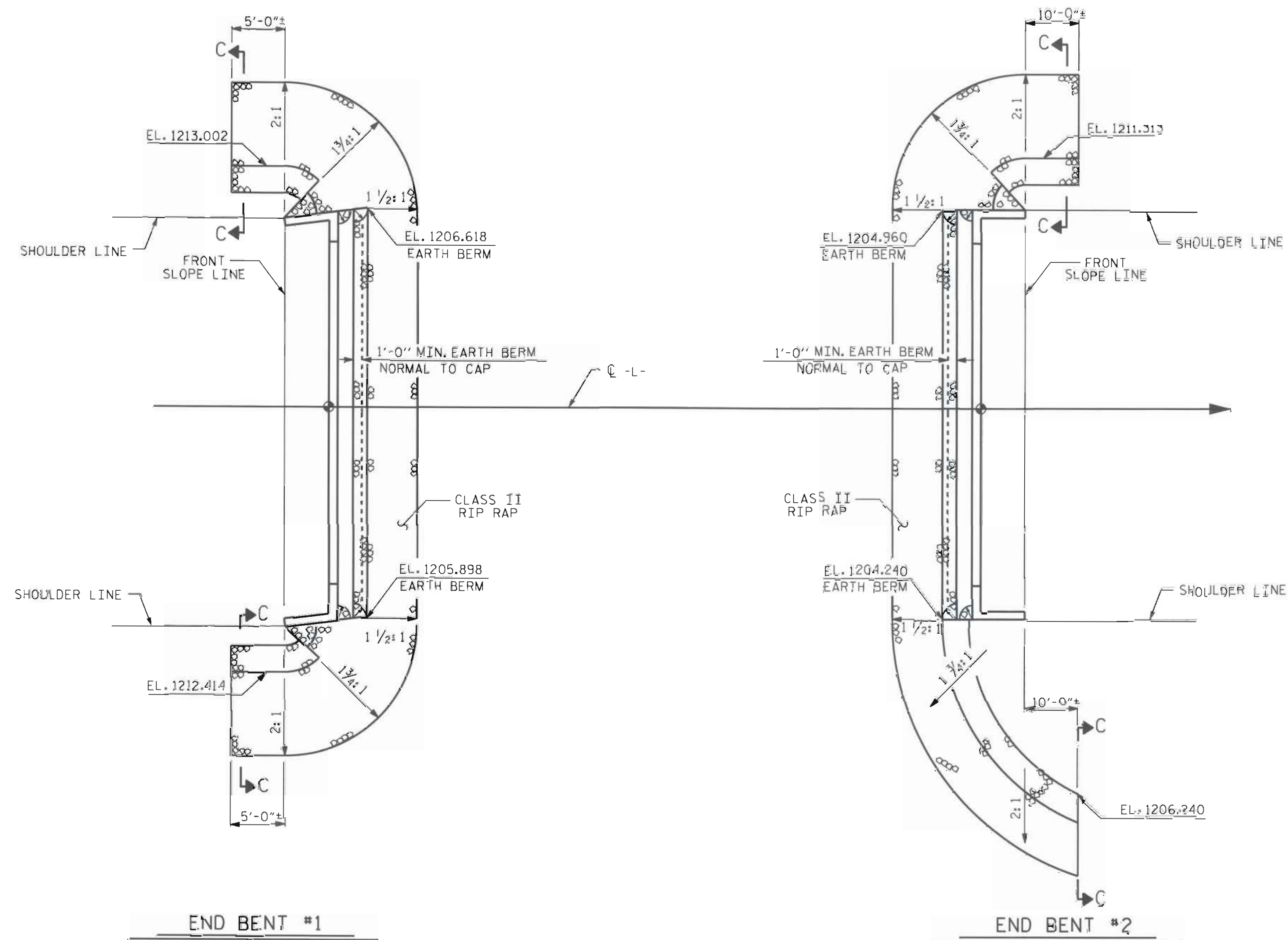
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
END BENT #2



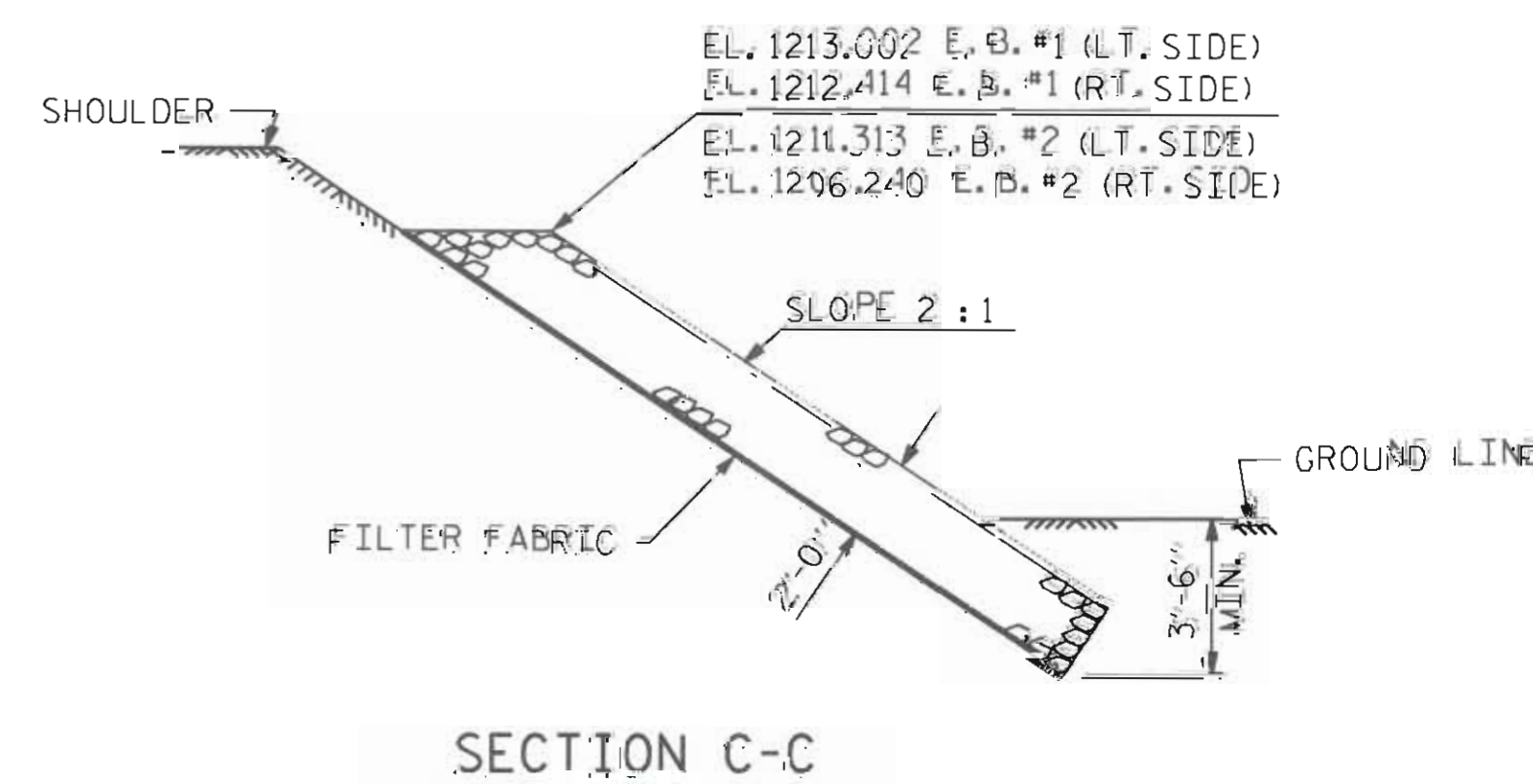
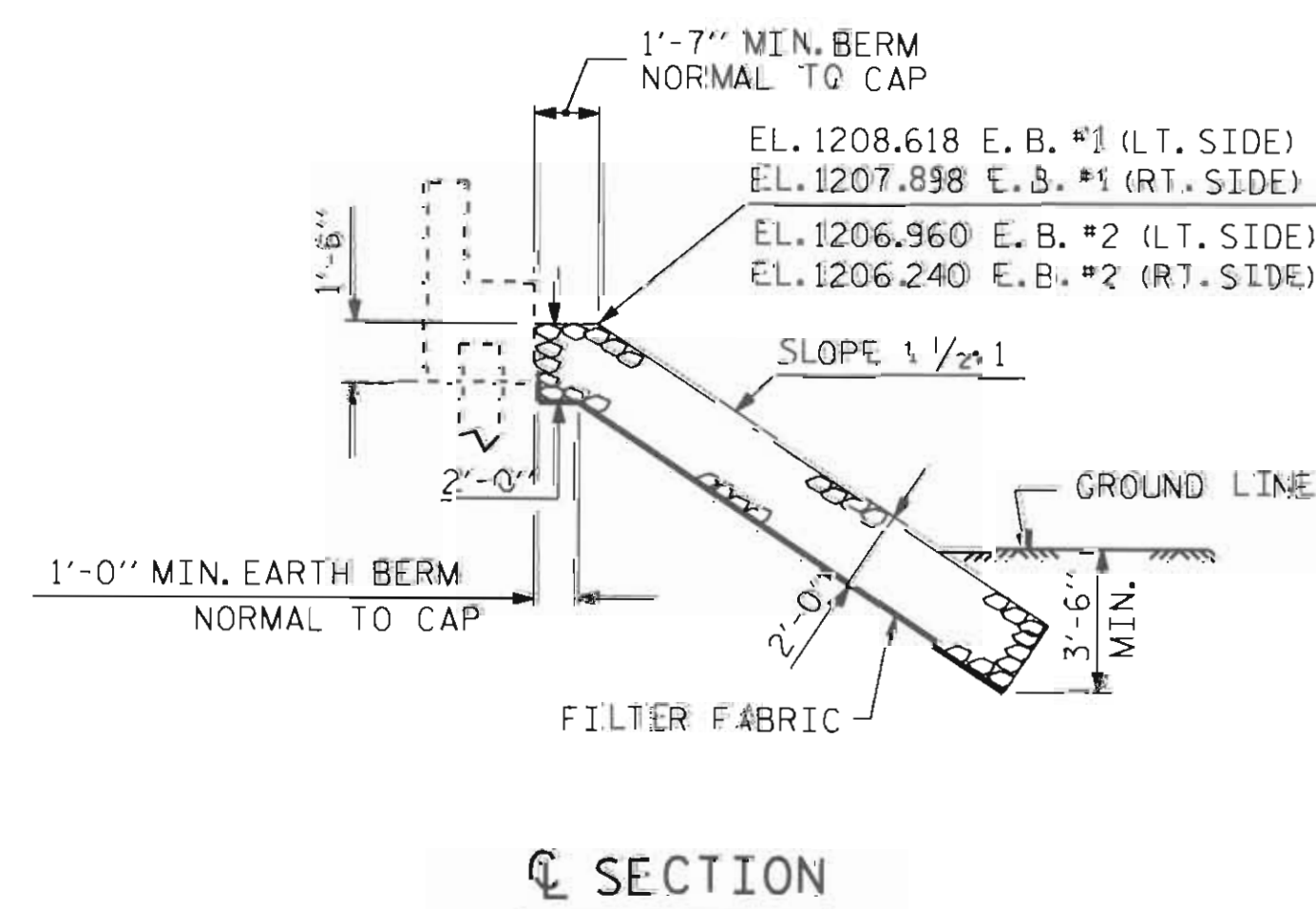
REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-16
1			3			TOTAL SHEETS 19
2			4			

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.



ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+40.00 -L-	RIp RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	85	95
END BENT 2	85	95
TOTAL	170	190

PLAN



BERM RIP RAPPED

PROJECT NO. BD-5111G
CALDWELL COUNTY
STATION: 13+40.00 -L-

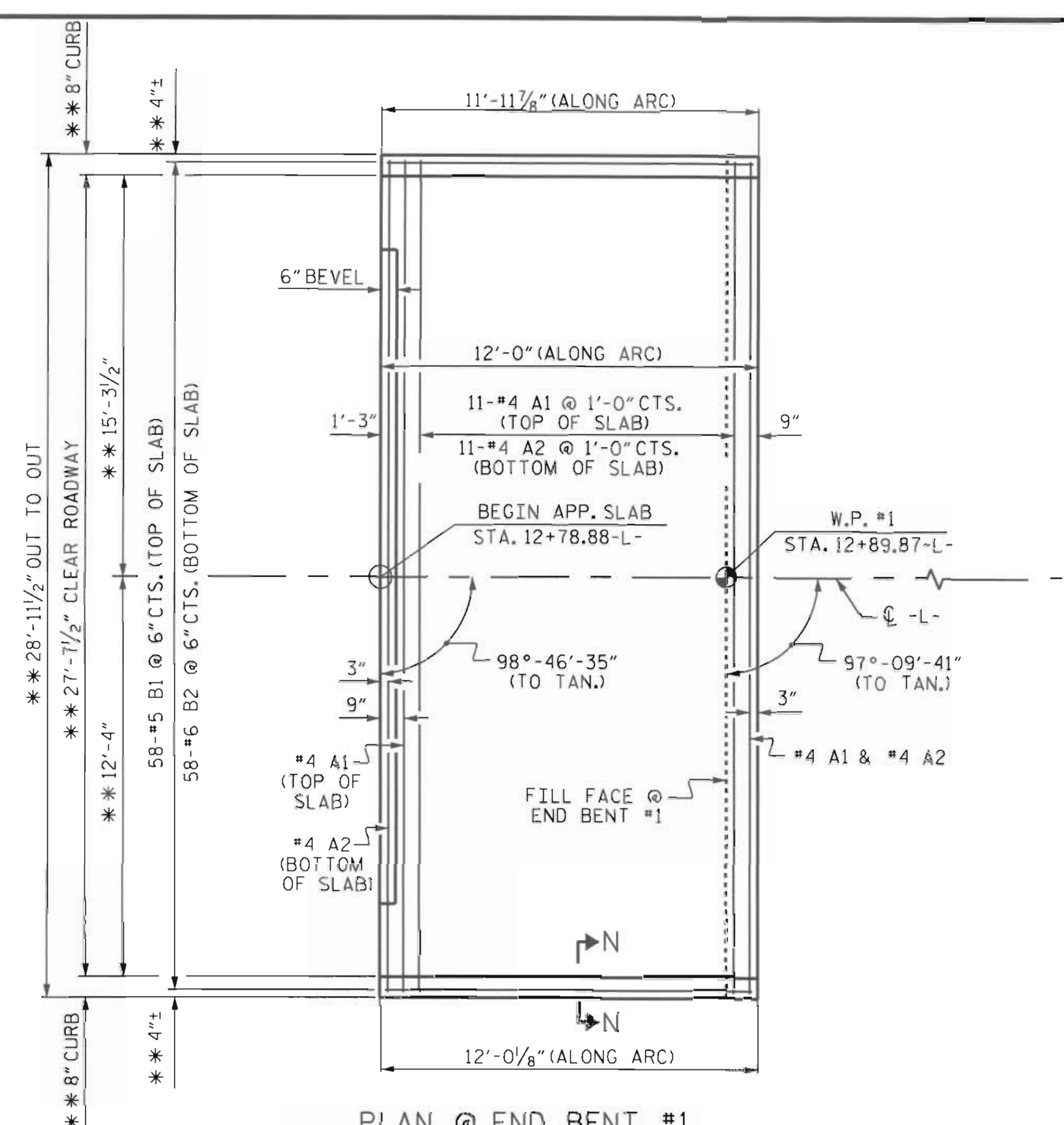
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
— RIP RAP DETAILS —



ASSEMBLED BY : D.A. DAVENPORT DATE : 05/16/11
CHECKED BY : D.A. GLADDEN DATE : 05/25/11
DRAWN BY : FCJ 2/88
CHECKED BY : ARB 8/88

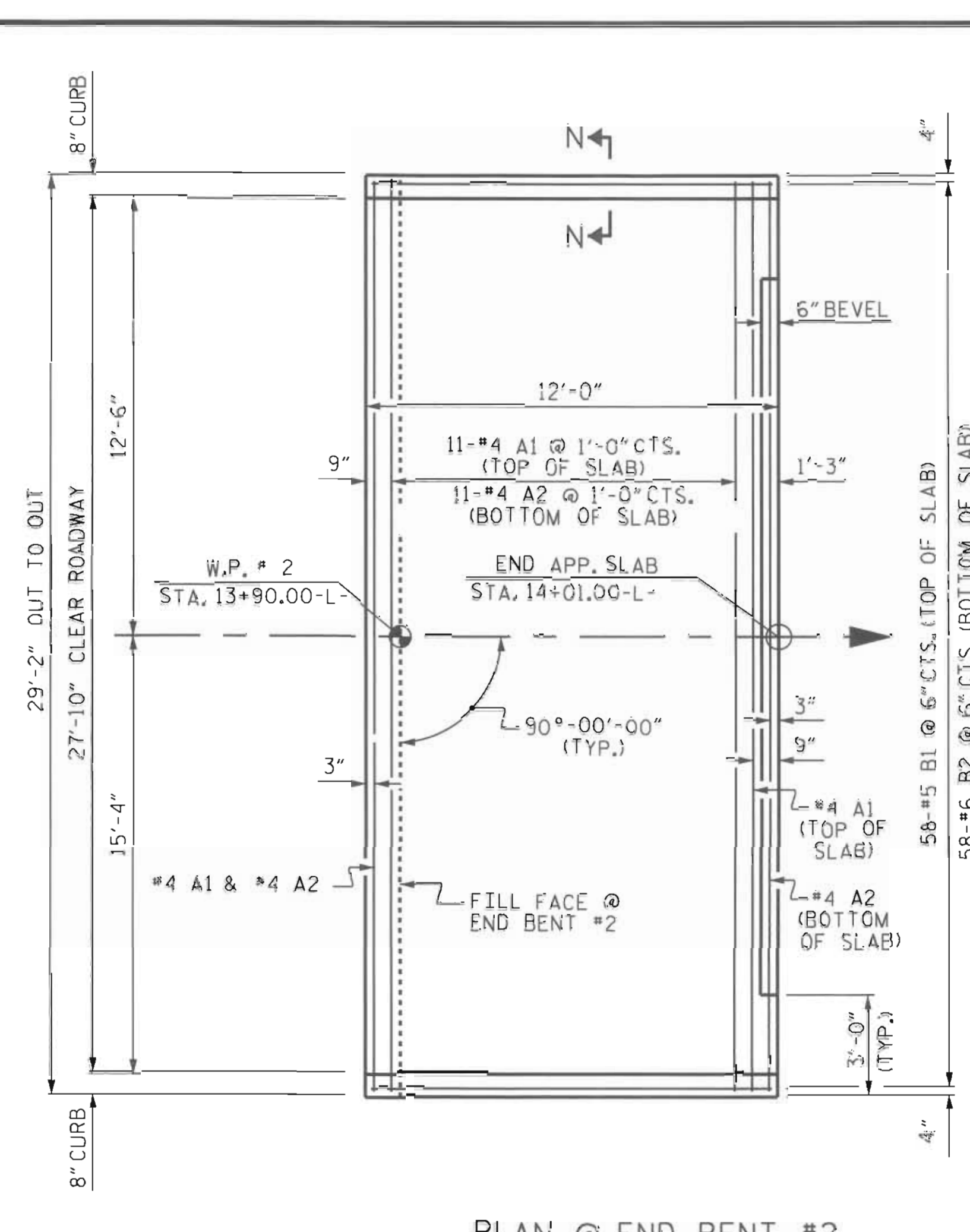
REV. 7/17/98 REK/RWW
REV. 8/16/99 RWW/LES
REV. 10/17/00 RWW/LES

REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 13
2			4			

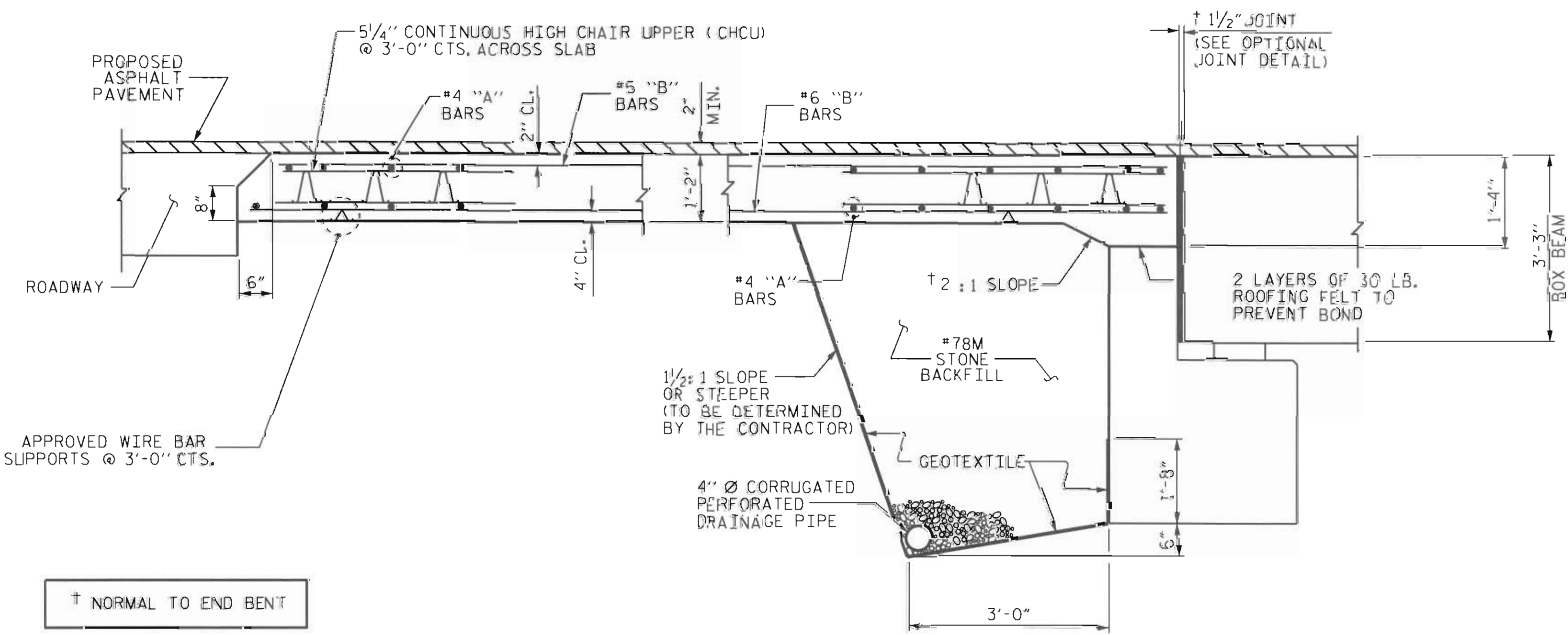


PLAN @ END BENT #1

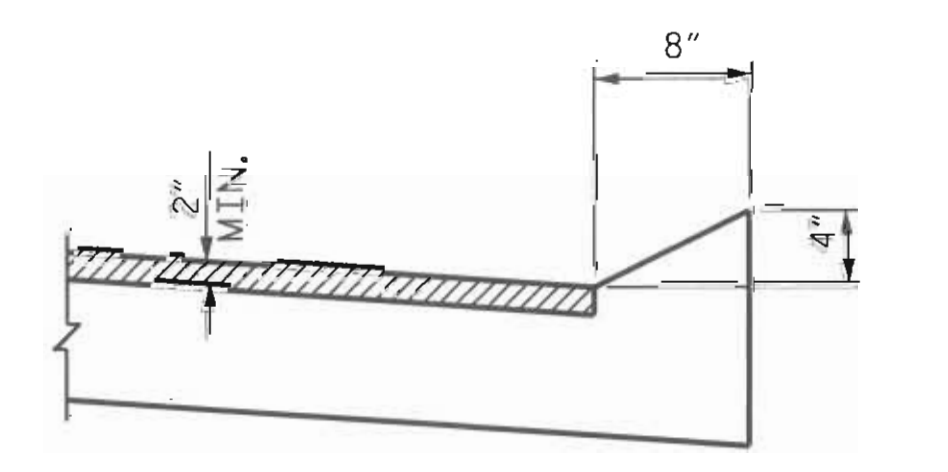
** DIMENSIONS ARE TO CIRCLES CONCENTRIC WITH CENTERLINE OF SURVEY.



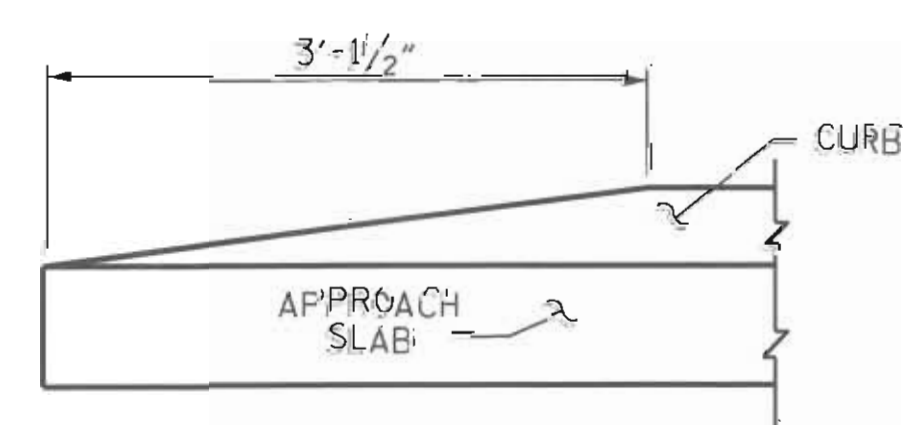
PLAN @ END BENT #2



SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER, BERM, GUTTER

CURB DETAILS

NOTES

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

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

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

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

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

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

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

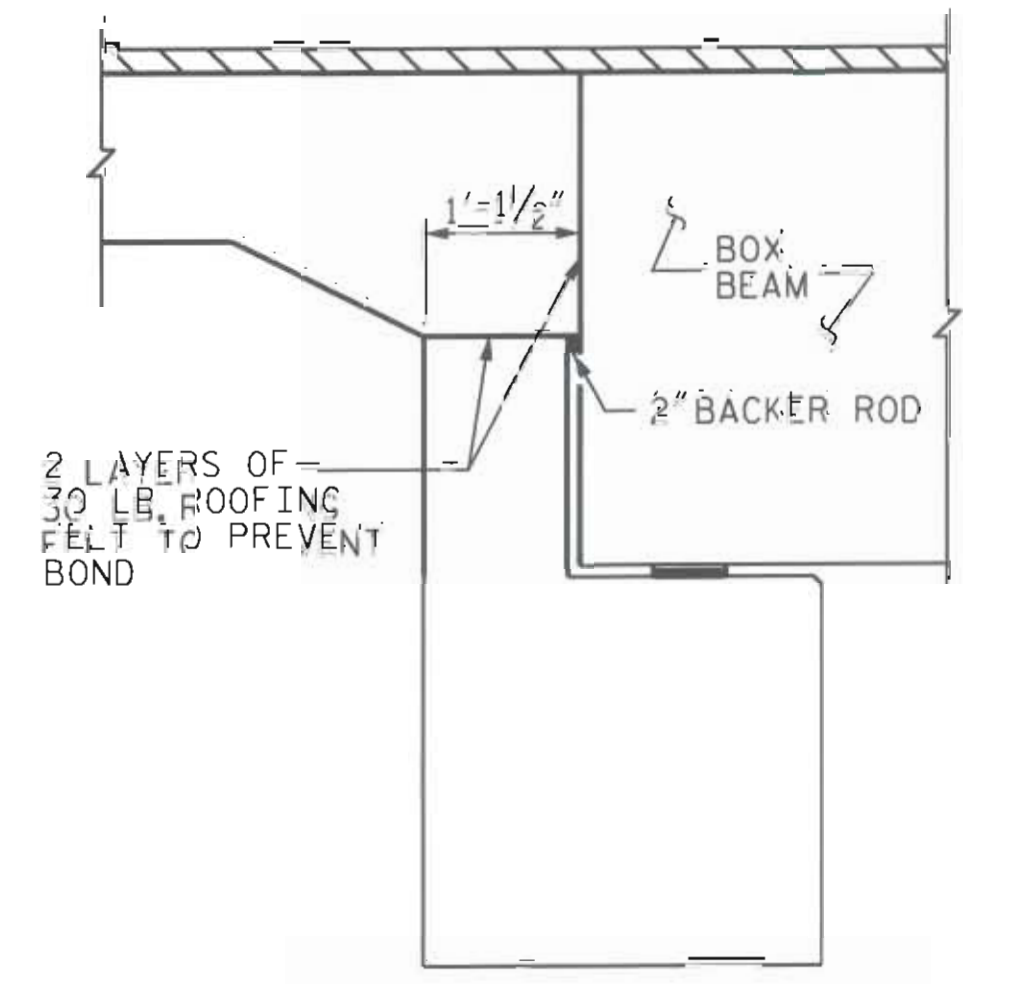
FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE BOX BEAM UNIT" SHEETS AND "OPTIONAL JOINT DETAIL."

APPROACH SLAB GROOVING IS NOT REQUIRED.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

THE CONTRACTOR HAS THE OPTION TO OMIT GROUT BETWEEN THE APPROACH SLAB AND THE BOX BEAM UNITS AND POUR THE APPROACH SLAB DIRECTLY AGAINST THE BOX BEAM UNITS. SEE "OPTIONAL JOINT DETAIL".

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
*B1	58	#5	STR	11'-3"	681
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL					LBS. 1266
*EPOXY COATED REINFORCING STEEL					LBS. 931
CLASS AA CONCRETE					C.Y. 13.7
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
*B1	58	#5	STR	11'-3"	681
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL					LBS. 1266
*EPOXY COATED REINFORCING STEEL					LBS. 931
CLASS AA CONCRETE					C.Y. 13.7



OPTIONAL JOINT DETAIL

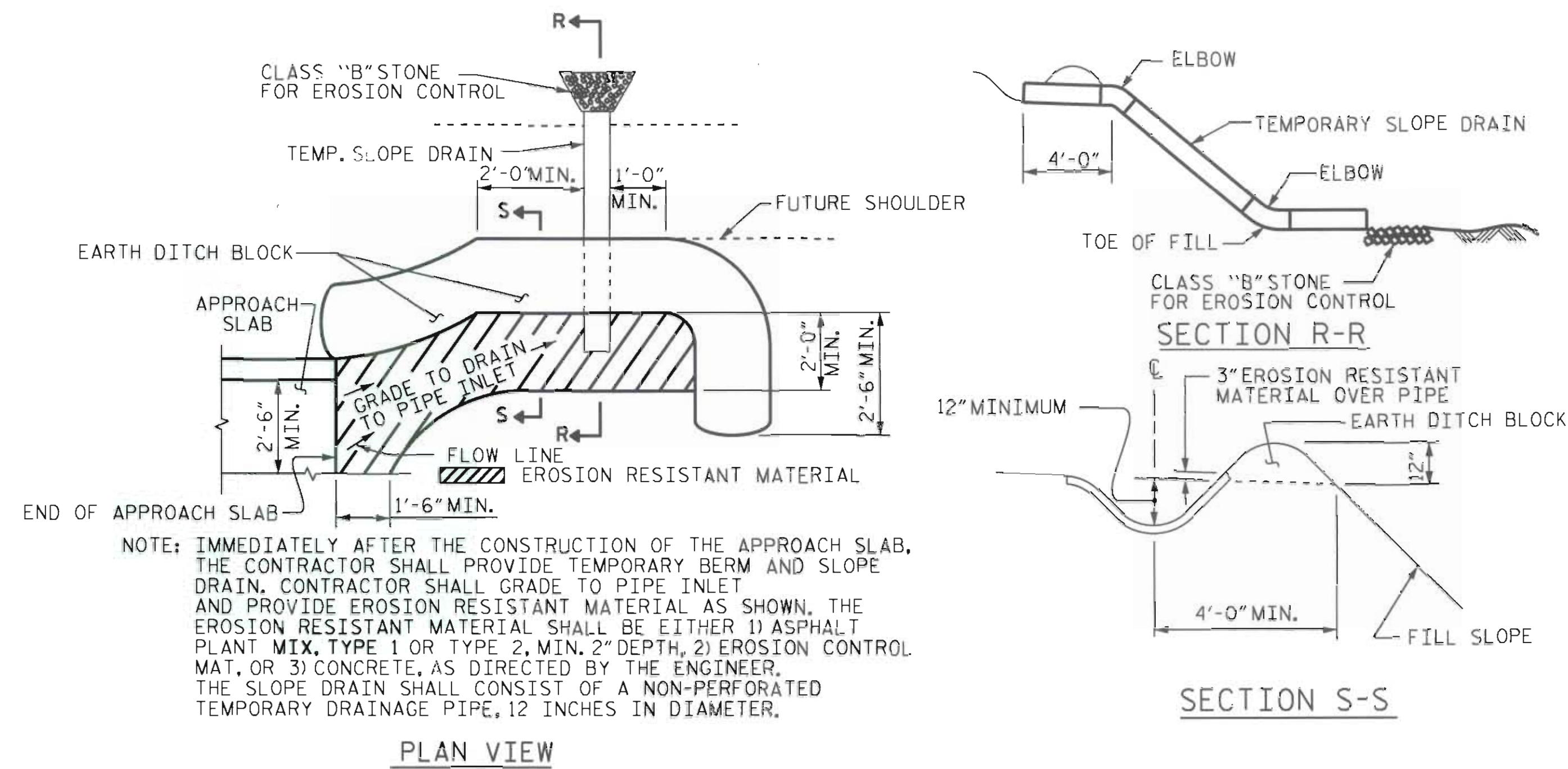
PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00-L-
 SHEET 1 OF 2

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

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	5-18
1			3			TOTAL SHEETS 19
2			4			



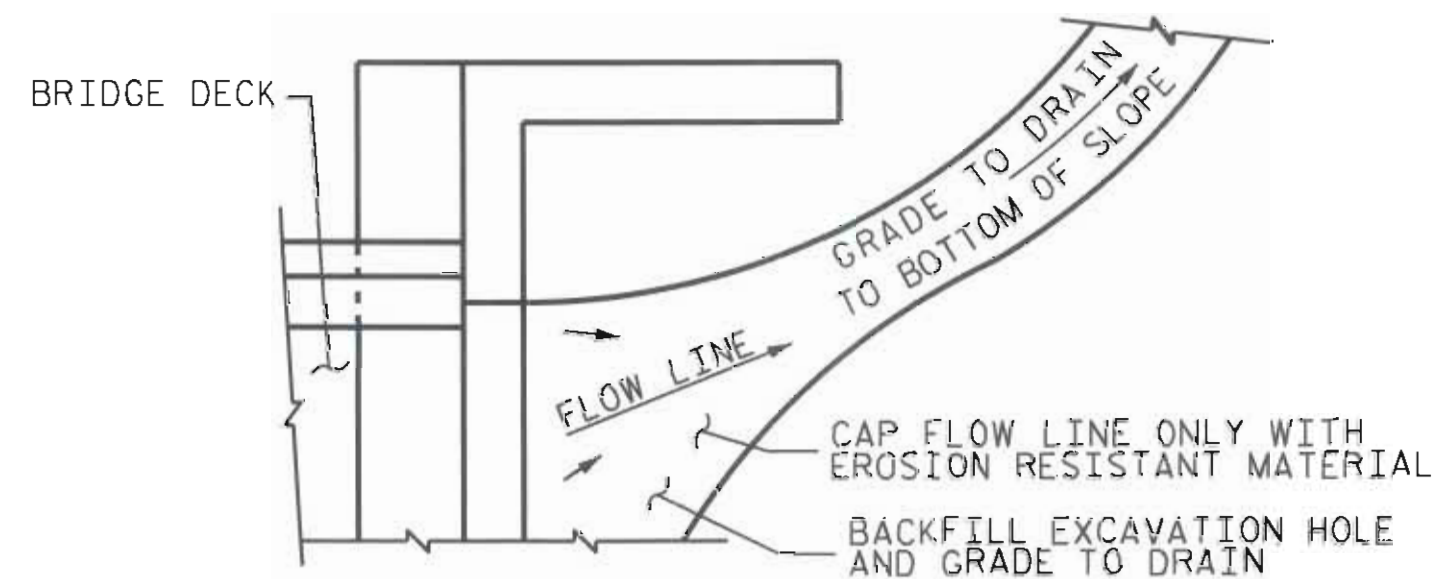
ASSEMBLED BY: D.A. DAVENPORT DATE: 05/16/11
 CHECKED BY: D.A. GLADDEN DATE: 05/25/11
 DRAWN BY: KMM 3-08
 CHECKED BY: GM 3-08



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL

PROJECT NO. BD-5111G
CALDWELL COUNTY
 STATION: 13+40.00-L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE APPROACH
 SLAB DETAILS**



ASSEMBLED BY : D.A. DAVENPORT	DATE : 05/16/11
CHECKED BY : D.A. GLADDEN	DATE : 05/25/11
DRAWN BY : FCJ	11/88
CHECKED BY : ARB	11/88
REV. 10/17/00	RWW/LES
REV. 5/7/03	RWW/JTE
REV. 5/1/06RR	MAA/KMM

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-19
1			3			TOTAL SHEETS
2			4			19

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.

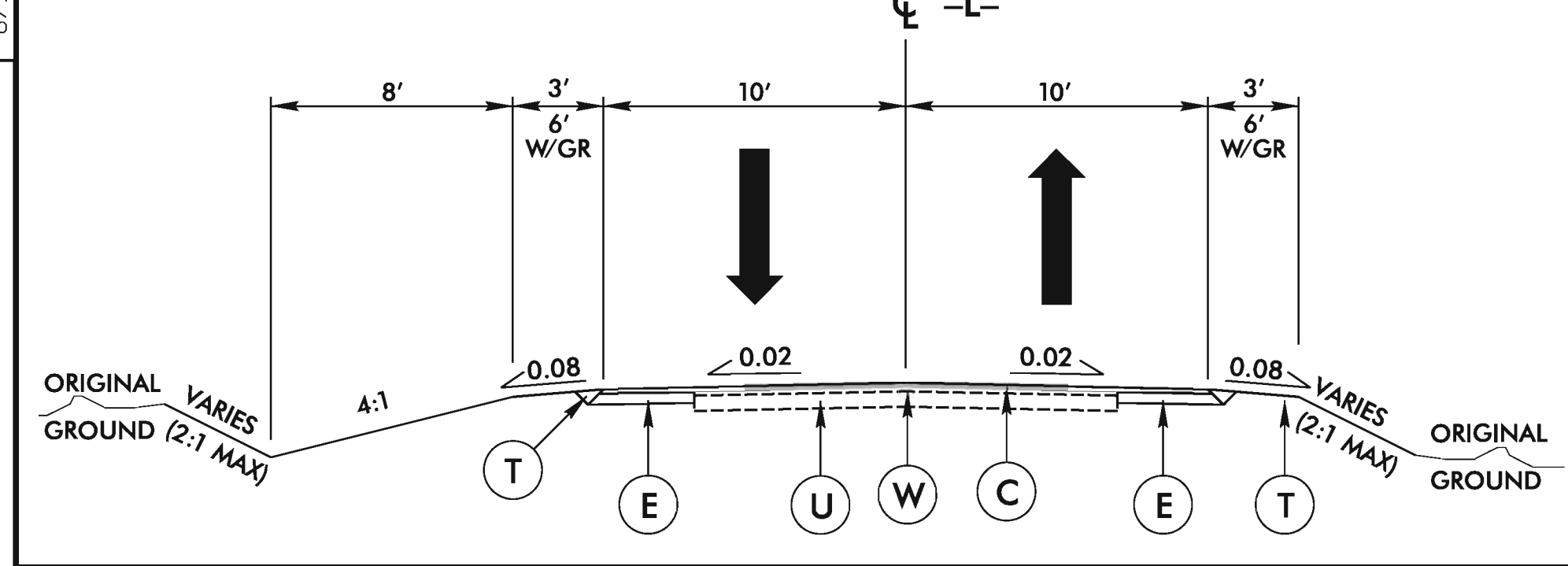
ENGLISH

JANUARY, 1990

STD. NO. SN

8/17/99

TYPICAL SECTION



PAVEMENT SCHEDULE	
C	1 1/2" SURFACE COURSE, TYPE SF9.5A
E	5 1/2" BASE COURSE, TYPE B25.0B
T	EARTH MATERIAL
U	EXISTING PAVEMENT.
W	WEDGING

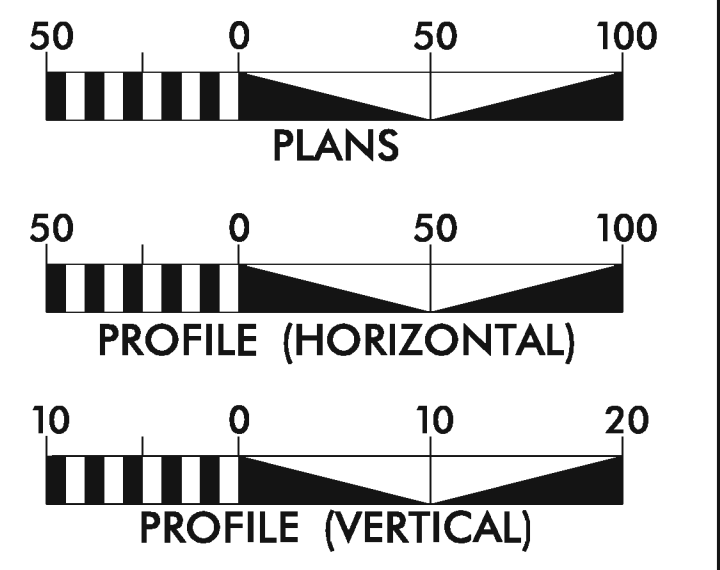
PI Sta 12+10.3
 $\Delta = 39' 22" 58.7" (RT)$
 $D = 14' 41" 28.4"$
 $L = 268.07'$
 $T = 139.57'$
 $R = 390.00'$
 $SE = 6\%$
 $V = 33\text{mph}$

PI Sta 15+99.72
 $\Delta = 8' 45' 22.5" (LT)$
 $D = 6' 21' 58.3"$
 $L = 137.54'$
 $T = 68.91'$
 $R = 900.00'$

NAD 83/NSRS 2007

PROJECT REFERENCE NO. BD-5111G	SHEET NO. RDY-1
RW SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	SEAL 23982 STEPHEN E. ROBERTS
	SEAL 23090 LUKE B. BURNETT

GRAPHIC SCALES



DESIGN SPEED = 40 mph
 ADT = 350 (2007)

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-2"

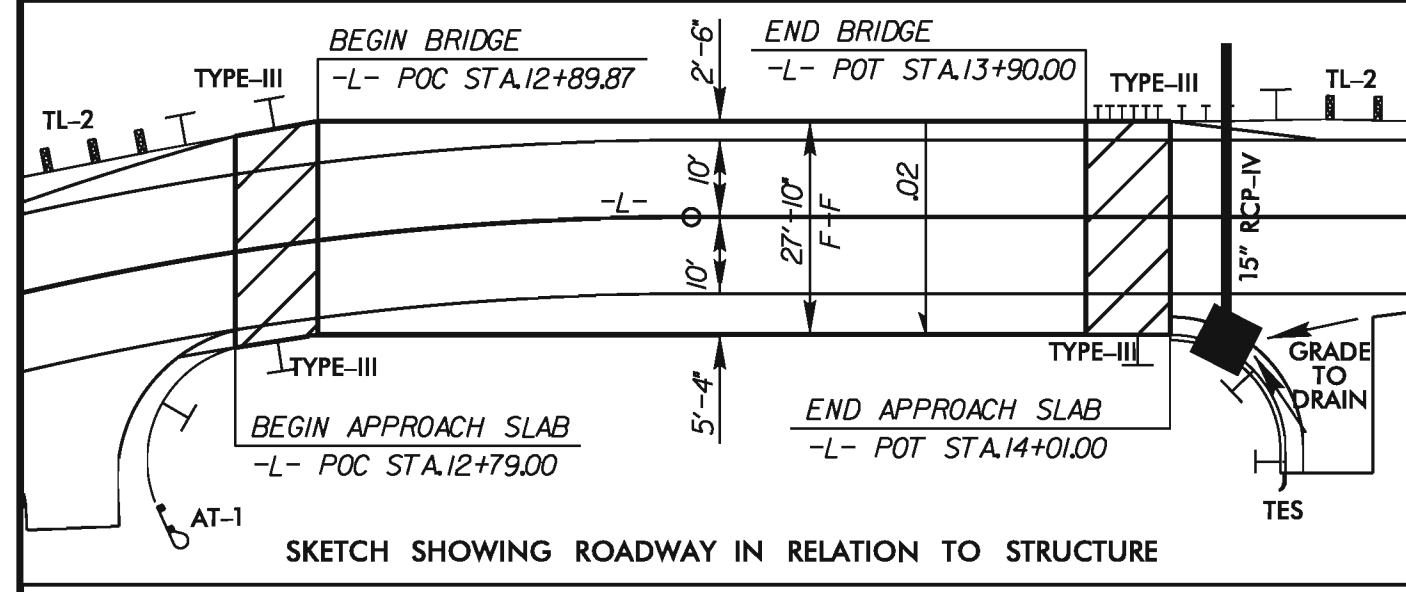
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 793,007.05(ft) EASTING: 1,284,184.25(ft) ELEVATION: 1,208.45(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998848634

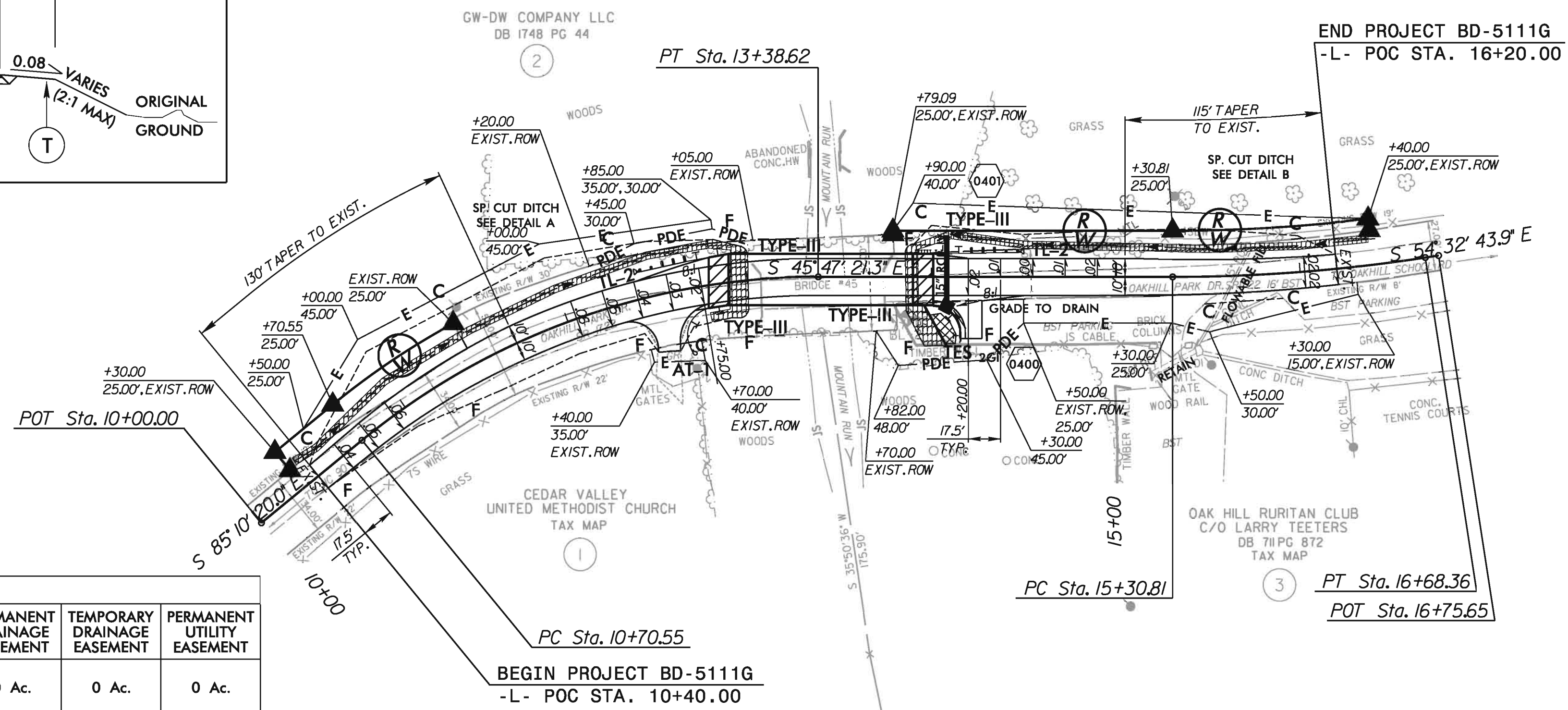
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO -L- STATION 10+00.00 IS N 63°26'08.29" W 367.89(ft)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES THE VERTICAL DATUM IS BASED ON MONUMENT "BL-2" (NAVD 88).

REVISIONS
 REVISED GUARDRAIL SHOULDER BERM CUTTER & DRAINAGE AT 14+10 RT +/- & REVISED DITCH GRADE 14+00 TO 14+50 LT (02/22/12)
 CHANGED ROW TO PDE 13+70 TO 14+50 RT & UPDATED ROW AREA TABLE (02/22/12)
 ADDED CROSS REFERENCE NOTE TO STRUCTURE PLANS (02/22/12)

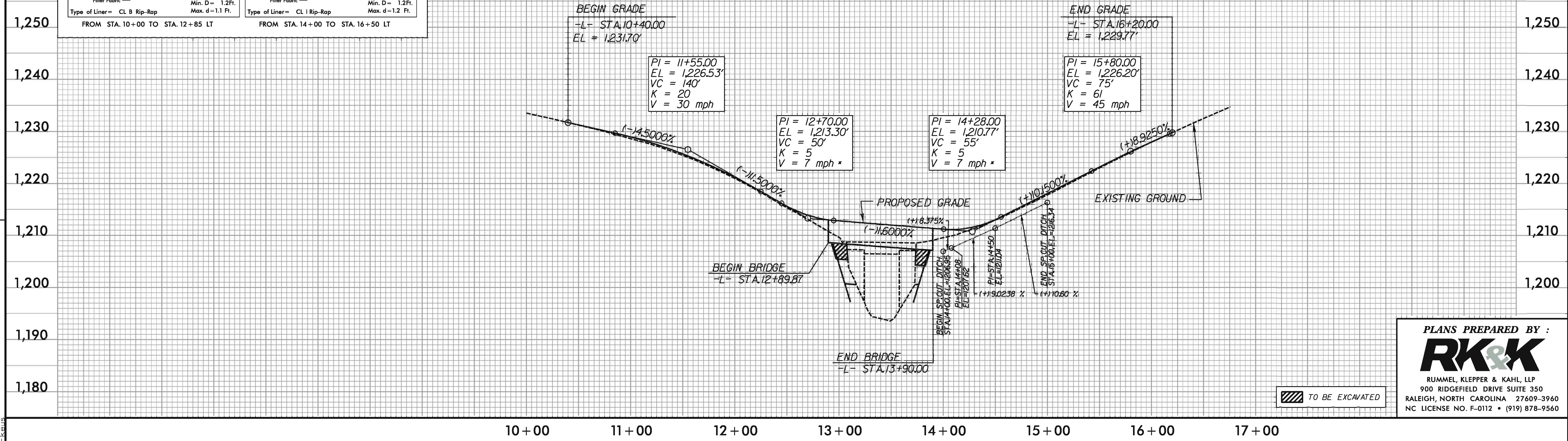
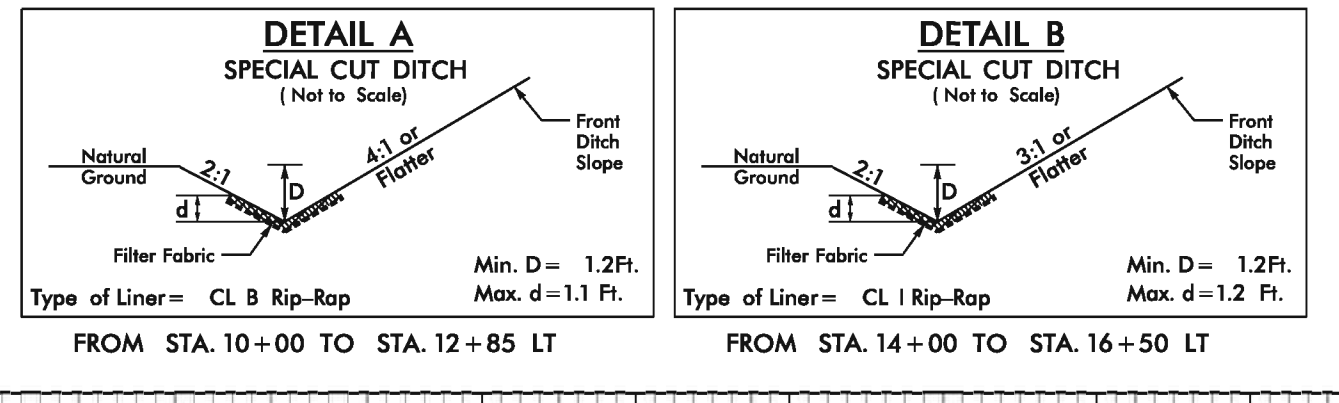


RIGHT-OF-WAY AREAS									
PARCEL #	PROPERTY OWNER'S NAME	TOTAL AREA	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	CONSTRUCTION EASEMENT	PERMANENT DRAINAGE EASEMENT	TEMPORARY DRAINAGE EASEMENT	PERMANENT UTILITY EASEMENT
1	CEDOR VALLEY UNITED METHODIST CHURCH	N/A	0 Ac.	N/A	N/A	254 SF	0 Ac.	0 Ac.	0 Ac.
2	GW-DW COMPANY LLC	N/A	4,055 SF	N/A	N/A	0.13 Ac.	429 SF	0 Ac.	0 Ac.
3	OAK HILL RURITAN CLUB CO LARRY TEETERS	N/A	0 Ac.	N/A	N/A	2,515 SF	2,155 SF	0 Ac.	0 Ac.



SEE SHEET S-1 FOR NOTES ABOUT TYING CONSTRUCTION TO EXISTING TIMBER WALL.

* DESIGN EXCEPTION REQUIRED



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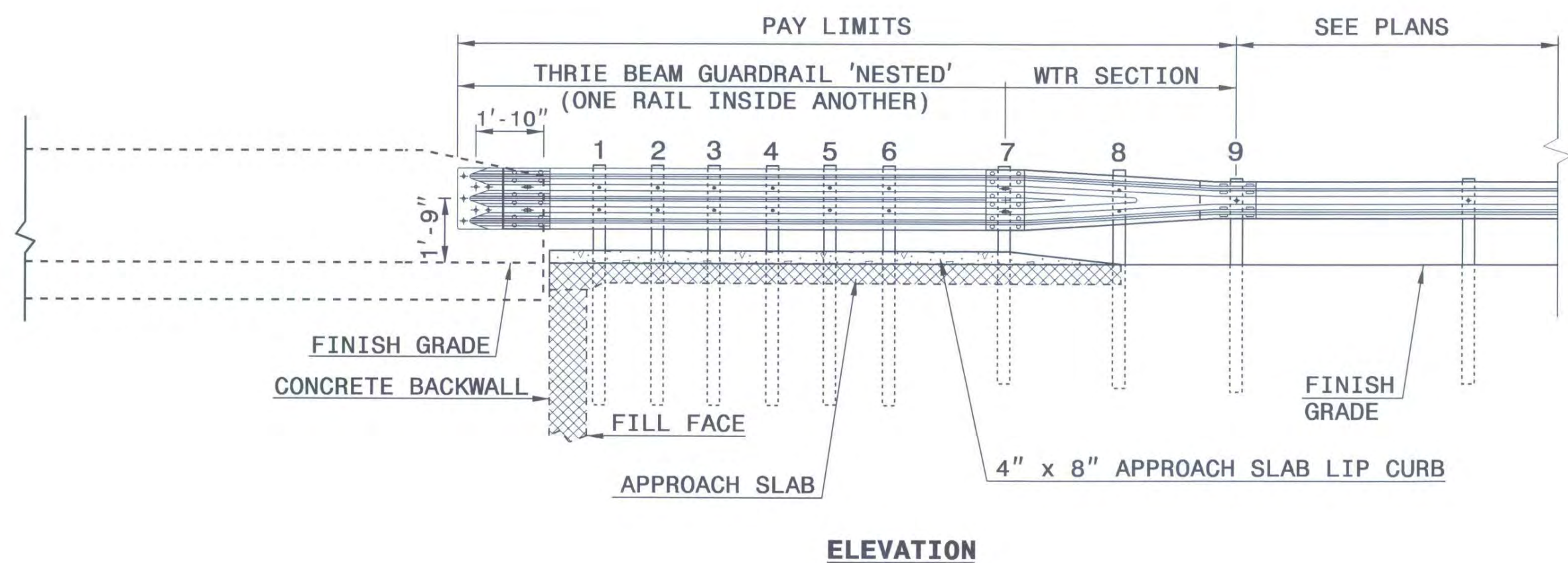
TO BE EXCAVATED

2/22/2012
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 E:\Users\psh04

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
**TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT**

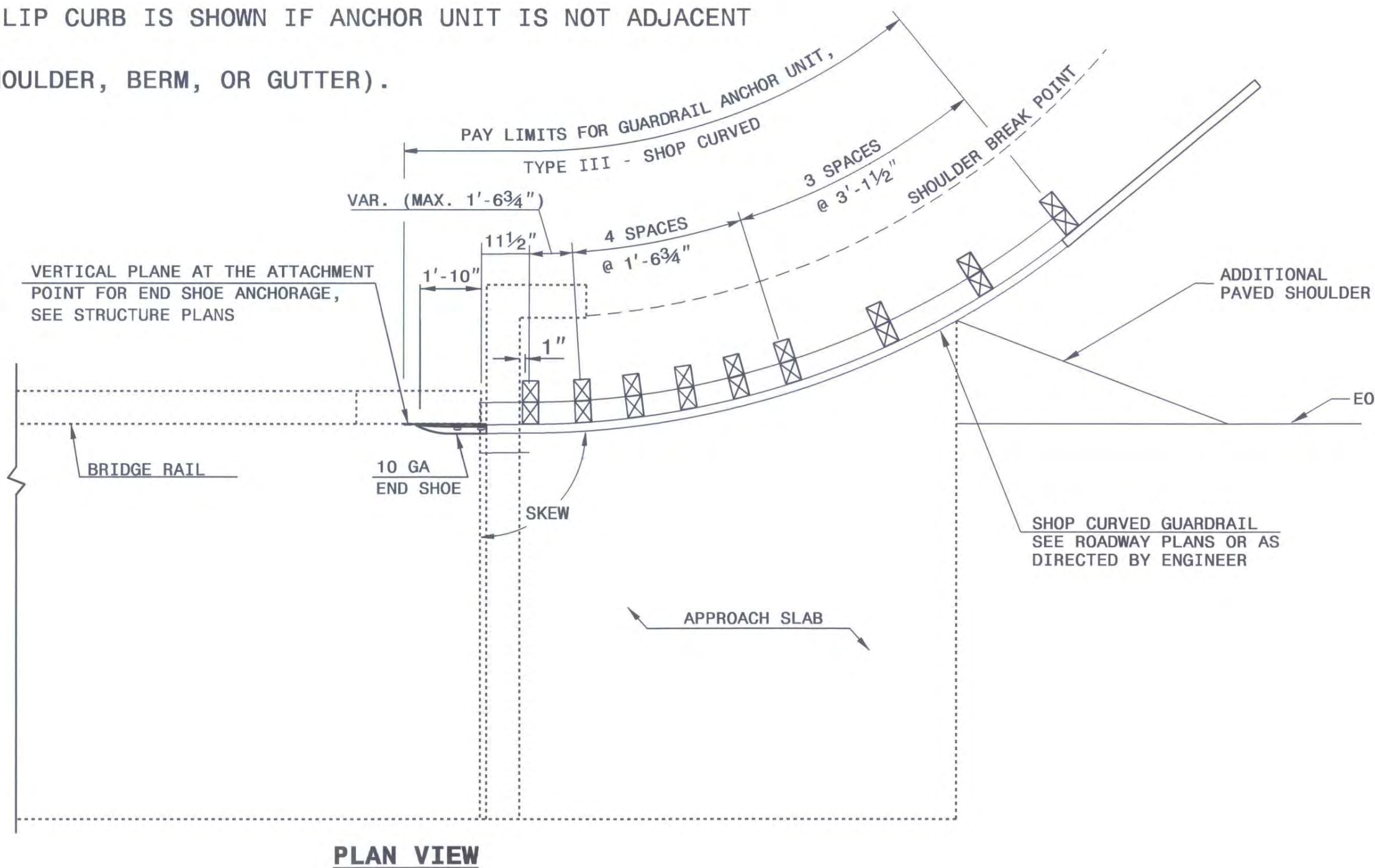
SHEET 1 OF 1
TYPE III SC



SEE ROADWAY PLANS FOR END TREATMENT

NOTE:

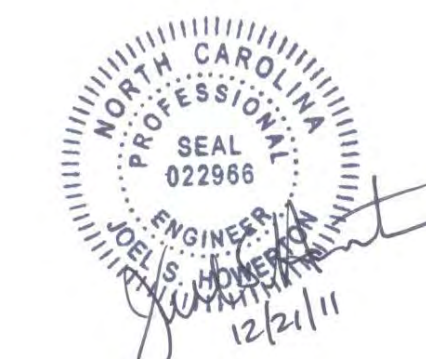
- **POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- *THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
- SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
- MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
- USE NO STEEL POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
- LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
- SEE STANDARD 862.03 SHEET 4 FOR POST SECTIONS 1 THRU 9.



**GUARDRAIL ANCHOR UNIT, TYPE III - SHOP CURVED
FOR ATTACHMENT TO RAIL ON BRIDGE**

ENGLISH DETAIL DRAWING FOR
**TYPE III - SHOP CURVED
STRUCTURE ANCHOR UNIT**

SHEET 1 OF 1
TYPE III SC



**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: E.E.Ward	DATE: 4-4-02
MODIFIED BY: T.S.Spell	DATE: 5-29-09
CHECKED BY:	DATE:
FILE SPEC.: ward:\usr\details\stand\862stds\typeiiiisc.dgn	

21-DEC-2011 11:41
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\$\$\$USERNAME\$\$\$

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STATE PROJECT REFERENCE NO.	SHEET NO.
BD-5111G	TCP-1

**PLAN FOR PROPOSED
TRAFFIC CONTROL, MARKING & DELINEATION
CALDWELL COUNTY**

BD-5111G

TIP PROJECT:

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT-N.C. DEPARTMENT OF TRANSPORTATION-RALEIGH, N.C., DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

PROJECT PHASING

PHASE I

STEP 1: USING ROADWAY STANDARD DRAWING NUMBER 1101.04, SHEET 1 OF 1, STATE FORCES TO INSTALL ALL ADVANCE WARNING SIGNS FOR DETOUR, KEEPING SIGNS COVERED, (SEE ROADWAY STANDARD DRAWING NO. 1101.03, SHEETS 1 OF 9 AND 2 OF 9).

WORKING IN A CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK IN PHASE I, STEP 2.

STEP 2: CLOSE SR 1722, (OAKHILL PARK DR.) TO TRAFFIC, UNCOVER ALL ADVANCE WARNING SIGNS FOR ROAD CLOSURE AND SHIFT TRAFFIC TO TEMPORARY DETOUR.

STEP 3: DISMANTLE AND REMOVE EXISTING BRIDGE OVER BUSSELS CREEK.

STEP 4: COMPLETE CONSTRUCTION OF PROPOSED STRUCTURE, APPROACH ROADWAY WIDENING AND PAVING, (SEE ROADWAY PLANS).

STEP 5: STATE FORCES TO PLACE FINAL PAVEMENT MARKINGS, (PAINT) ON SR 1722, (OAKHILL PARK DR.).

WORKING IN A CONTINUOUS MANNER, COMPLETE THE FOLLOWING WORK IN PHASE I, STEP 6.

STEP 6: USING ROADWAY STANDARD DRAWING NO. 1101.04, SHEET 1 OF 1, REMOVE ALL ADVANCE WARNING SIGNS FOR ROAD CLOSURE, ALL TRAFFIC CONTROL DEVICES AND OPEN SR 1722, (OAKHILL PARK DR.) TO TRAFFIC.

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	QUANTITY BREAKDOWN	PAY ITEM	TOTAL QUANTITY
PAVEMENT MARKING LINES				
PA	WHITE EDGLINE 2X	2320 LF	PAINT (4")	TOTAL 4640 LF
PI	YELLOW DOUBLE CENTER 2X	2320 LF		
2X = TWO APPLICATIONS				

PROJECT NOTES

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATIONS.

SIGNING

B) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

STATE FORCES WILL PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS, UNLESS OTHERWISE NOTED.

C) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

D) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

E) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

F) STATE FORCES TO INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE AS FOLLOWS:

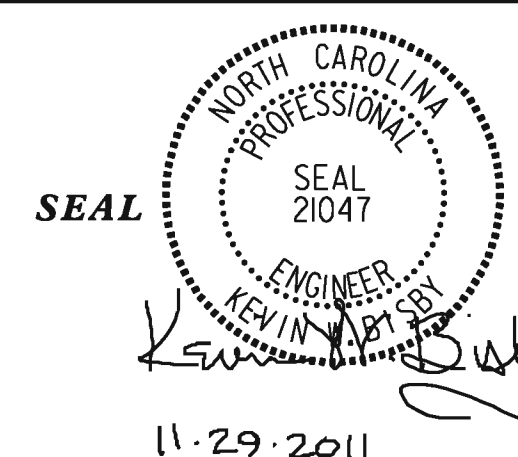
ROAD NAME	MARKING
1. SR 1722 (OAKHILL PARK DR.)	PAINT

G) STATE FORCES TO PLACE AT LEAST TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE ON NEW ASPHALT PAVEMENT. PLACE ADDITIONAL APPLICATIONS OF PAINT UPON SUFFICIENT DRYING TIME, AS DETERMINED BY THE ENGINEER.

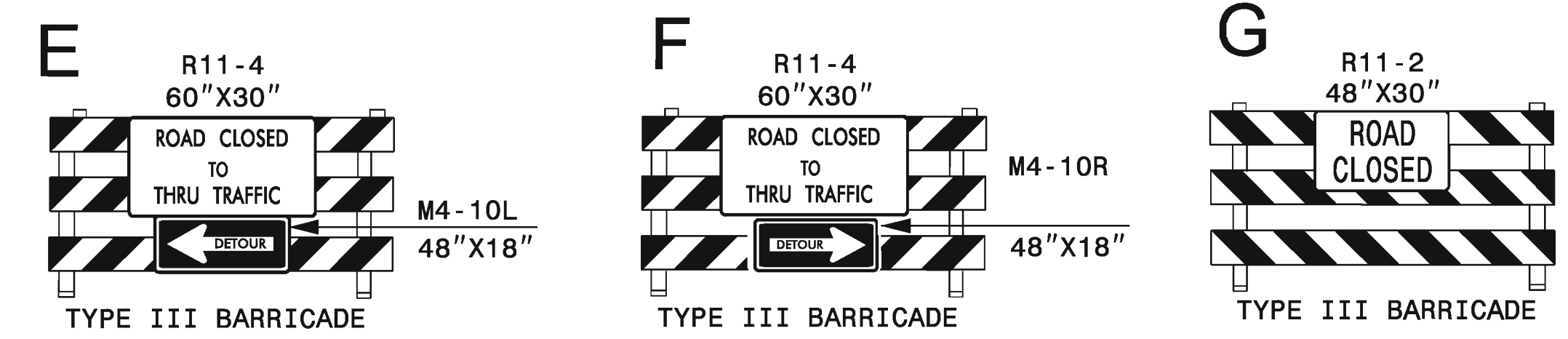
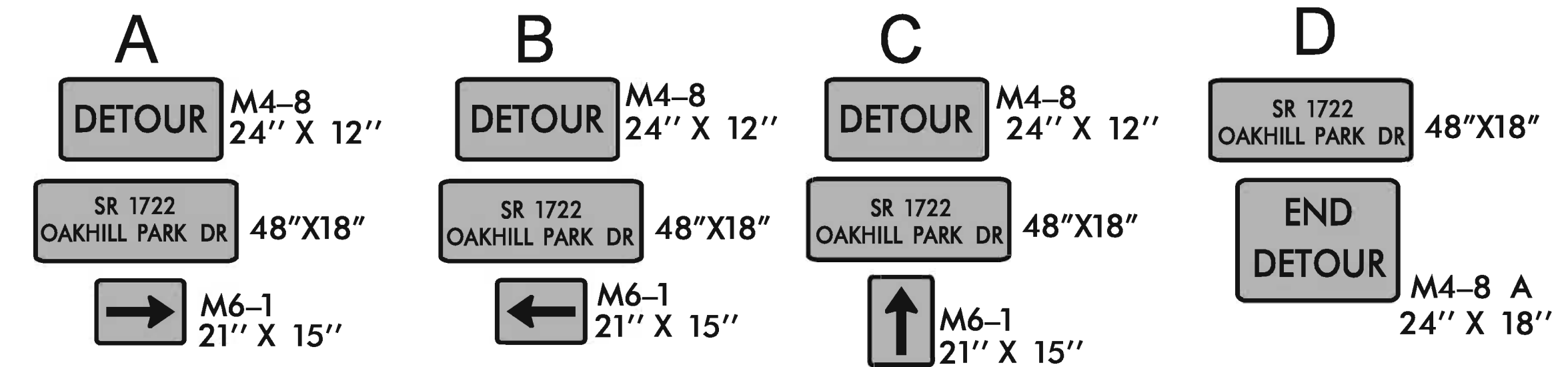
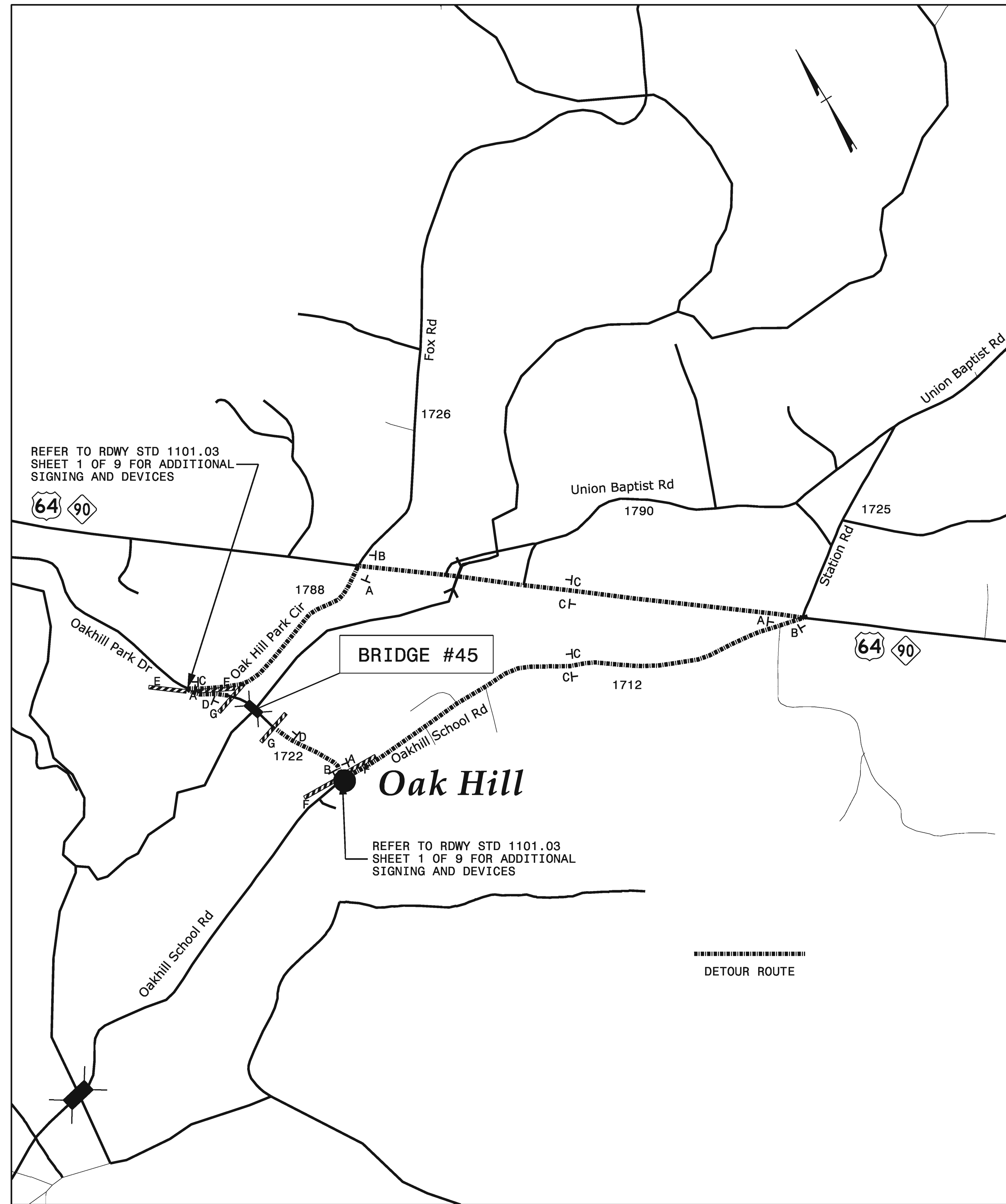
LOCAL NOTES

1. CONTRATOR TO MAINTAIN ACCESS TO ALL DRIVEWAYS, WITHIN THE PROJECT LIMITS AT ALL TIMES.

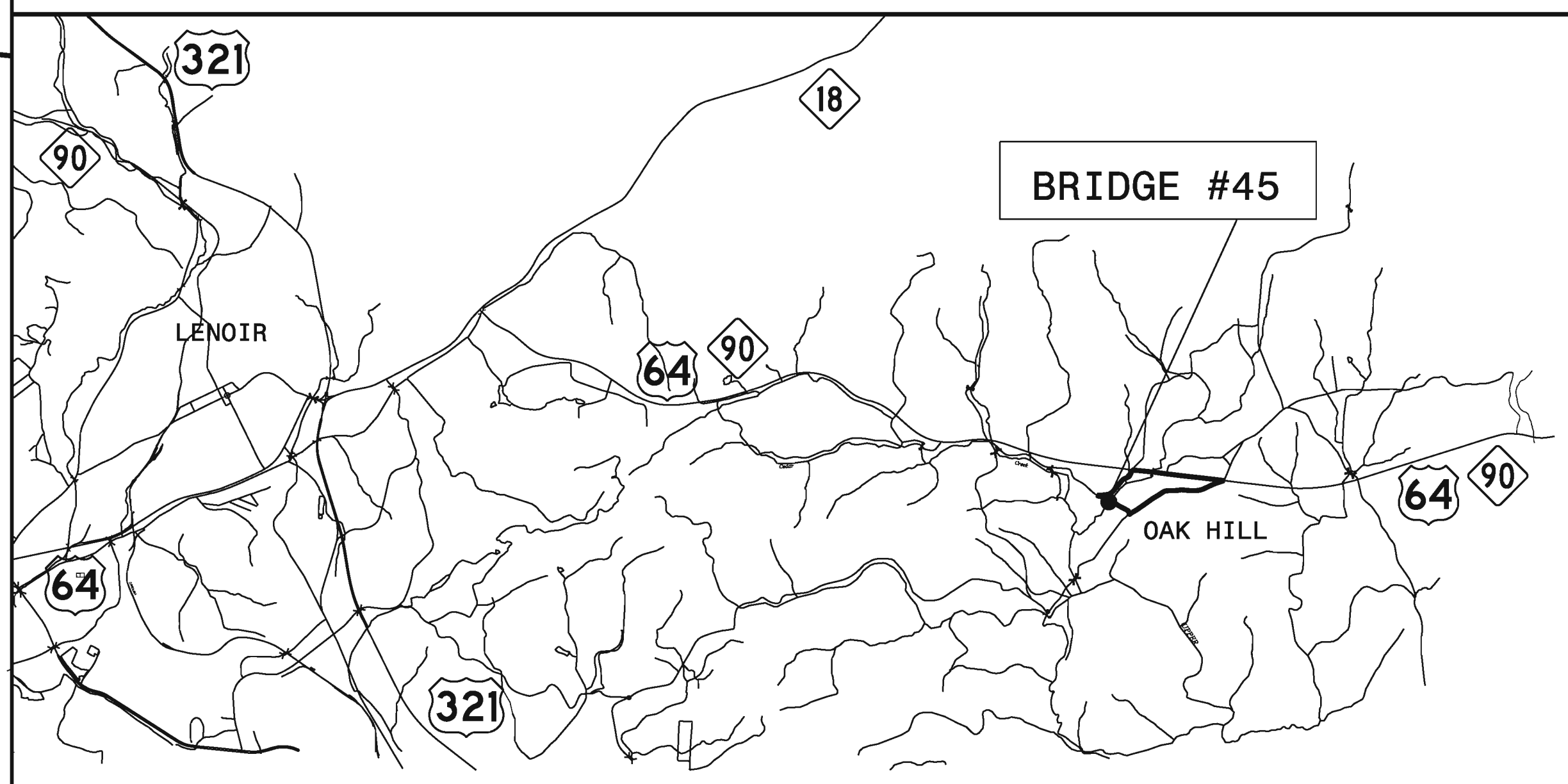
PLANS PREPARED BY :
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FOR
DIVISION OF HIGHWAYS



K. W. BISBY, PE **TRAFFIC CONTROL ENGINEER**
M. A. COLE **TRAFFIC CONTROL PROJECT DESIGN ENGINEER**



VICINITY MAP



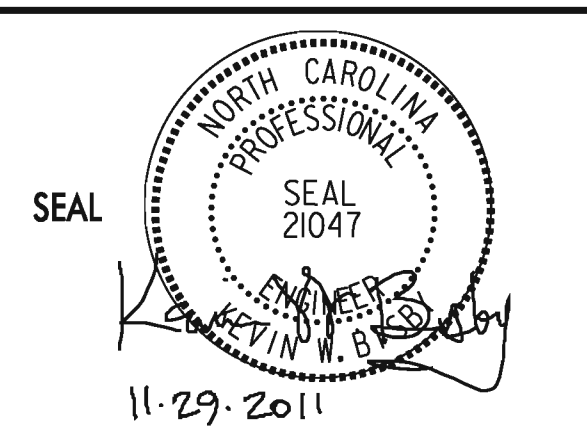
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FOR
 DIVISION OF HIGHWAYS



SR 1722 OAKHILL PARK DR. OFF-SITE DETOUR

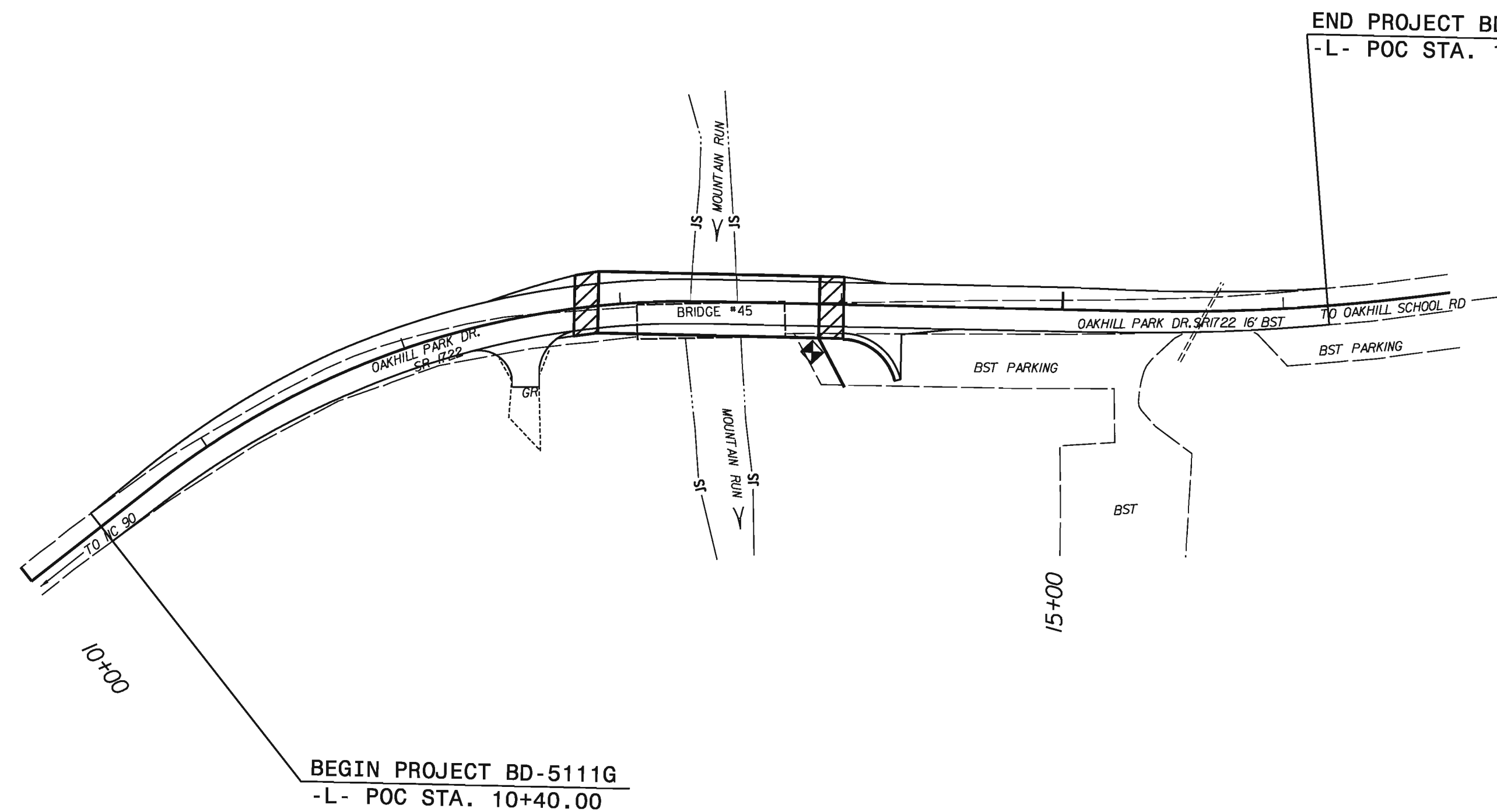
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DATE:	05/2011		
DWG. BY:	MAC		
DESIGN BY:	MAC		
REVIEWED BY:	KWB		

TIP PROJECT: BD-5111G

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

CALDWELL COUNTY

BRIDGE NO. 45 ON SR 1722 OVER MOUNTAIN RUN



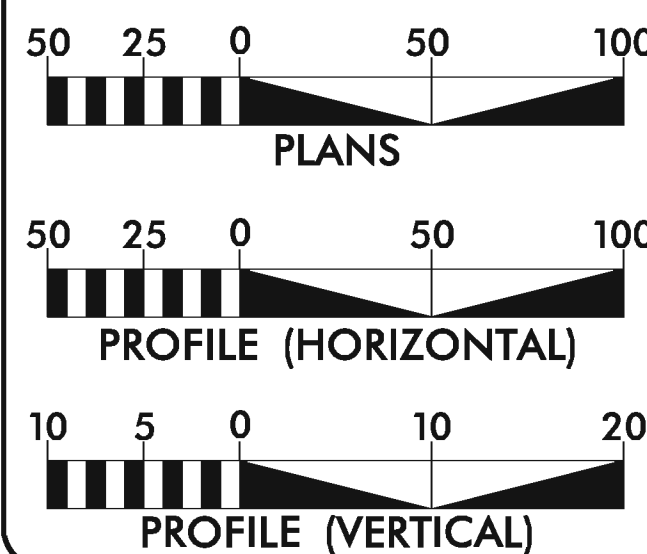
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BD-5111G	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	
1630.05	Temporary Diversion	
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	
1632.02	Type B	
1632.03	Type C	
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.

GRAPHIC SCALES



Stephen E. Roberts, P.E.
ROADWAY DESIGN ENGINEER

Audrey B. Burnette, P.E.
HYDRAULICS ENGINEER

Audrey B. Burnette, P.E.
EROSION CONTROL DESIGN ENGINEER

431
LEVEL IIIA CERTIFICATION NUMBER



RUMMEL, KLEPPER & KAHL, LLP
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RALEIGH, NORTH CAROLINA 27609
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560

DIVISION OF HIGHWAYS

2012 STANDARD SPECIFICATIONS

LETTING DATE:

B. Keith Skinner, P.E.
PROJECT ENGINEER

Stephen E. Roberts, P.E.
PROJECT DESIGN ENGINEER

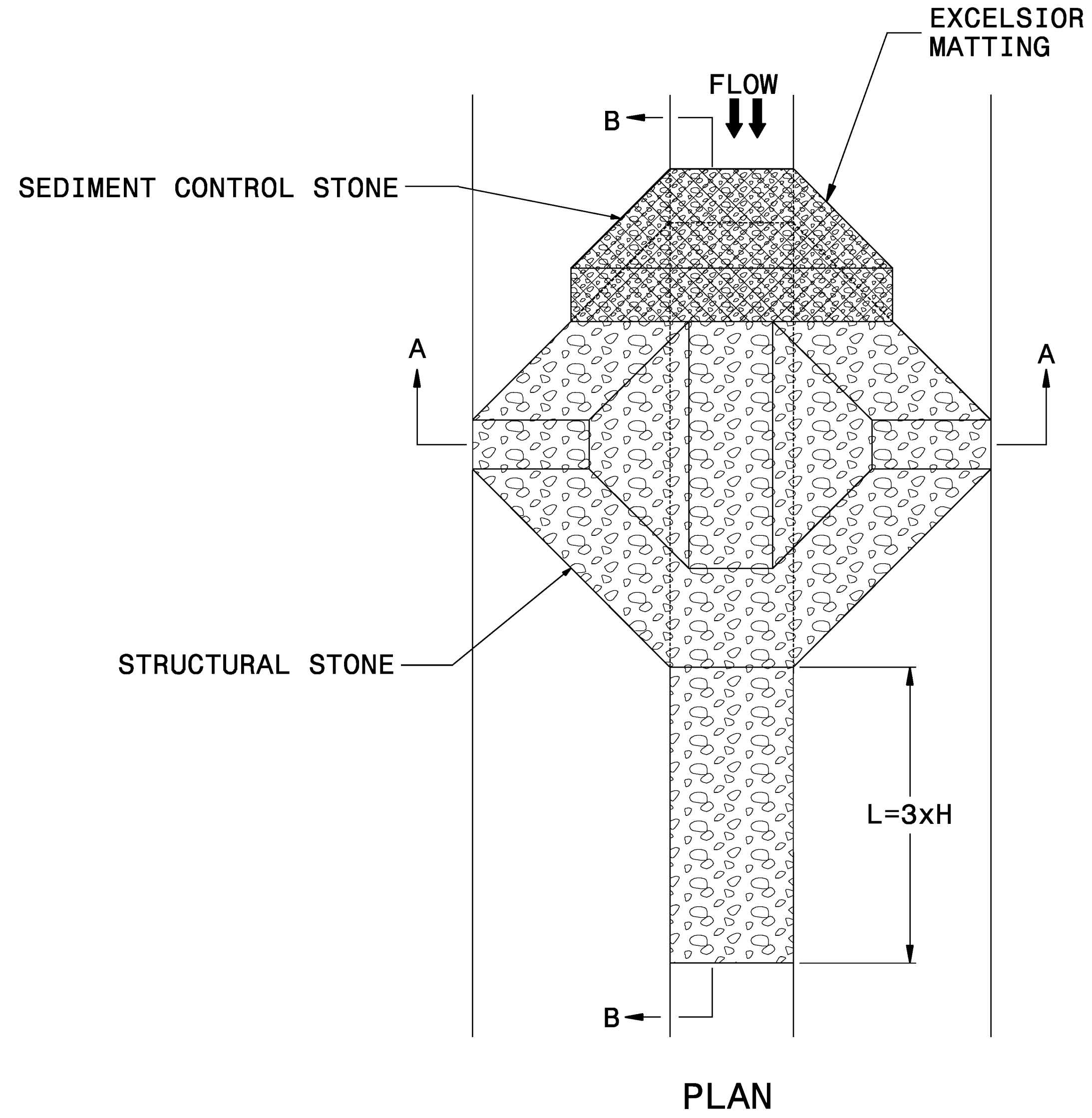
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

- 1605.01 Temporary Silt Fence
- 1606.01 Special Sediment Control Fence
- 1632.01 Rock Inlet Sediment Trap Type A
- 1633.01 Temporary Rock Silt Check Type A

PROJECT REFERENCE NO. <i>BD-5111G</i>	SHEET NO. <i>EC-2</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)

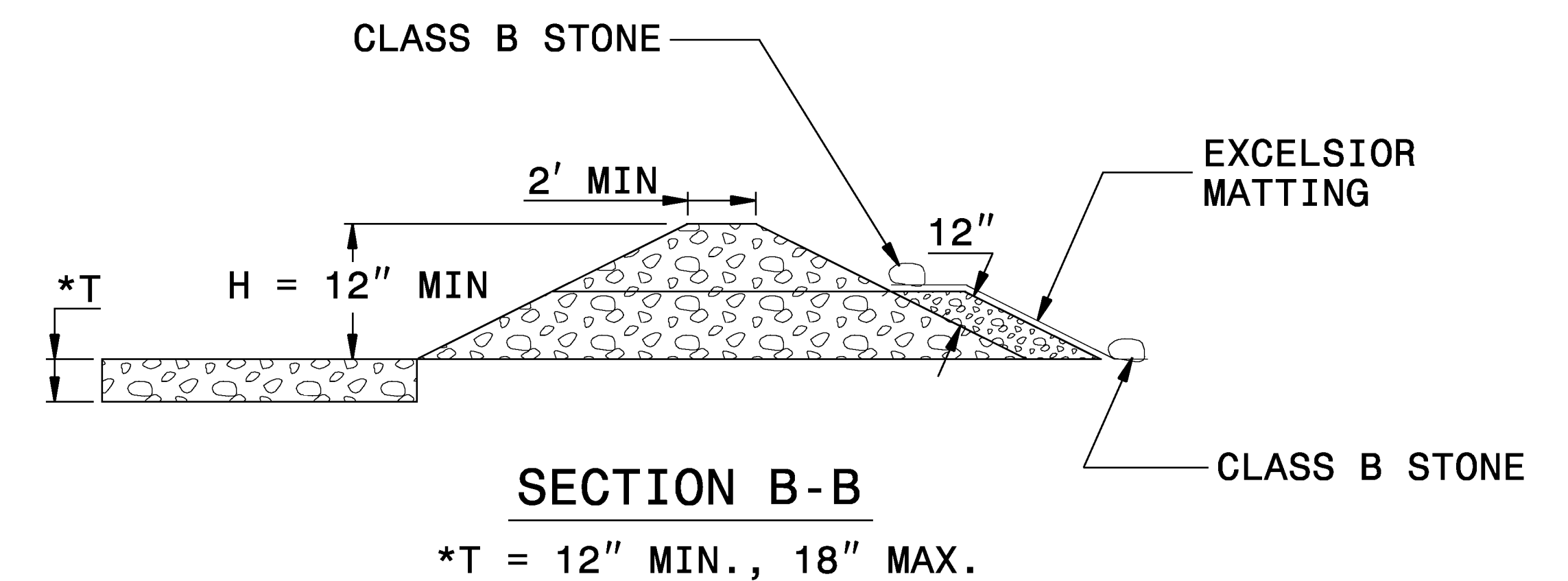
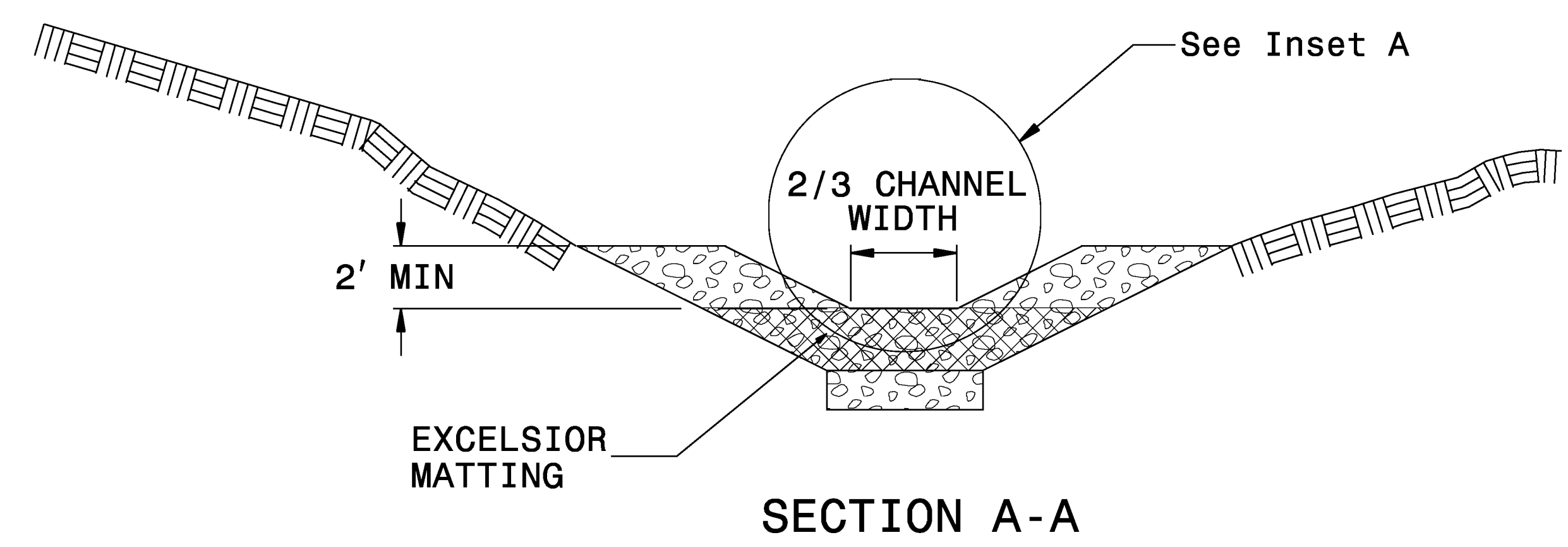
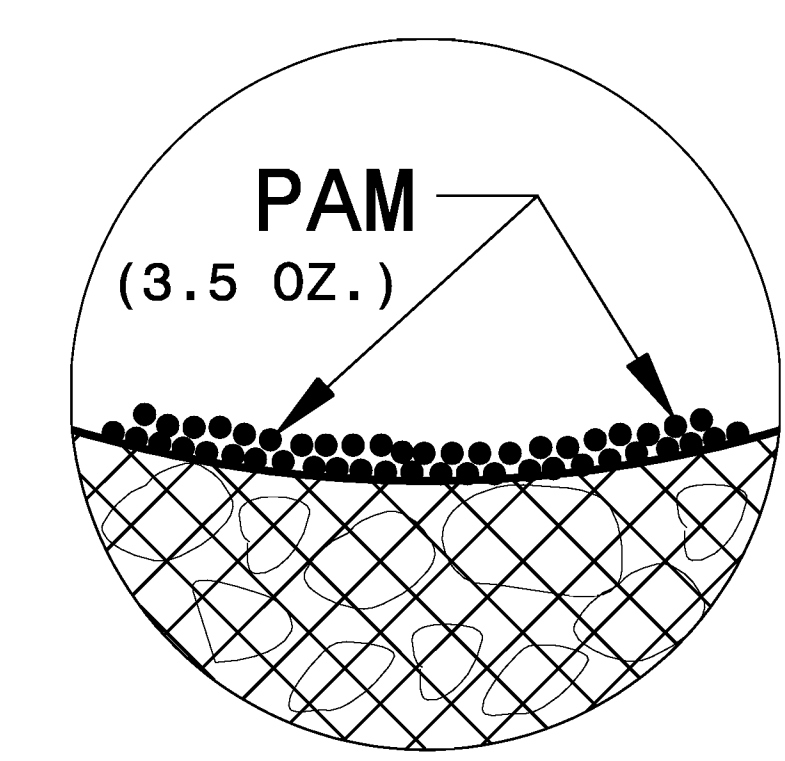


NOTES

USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

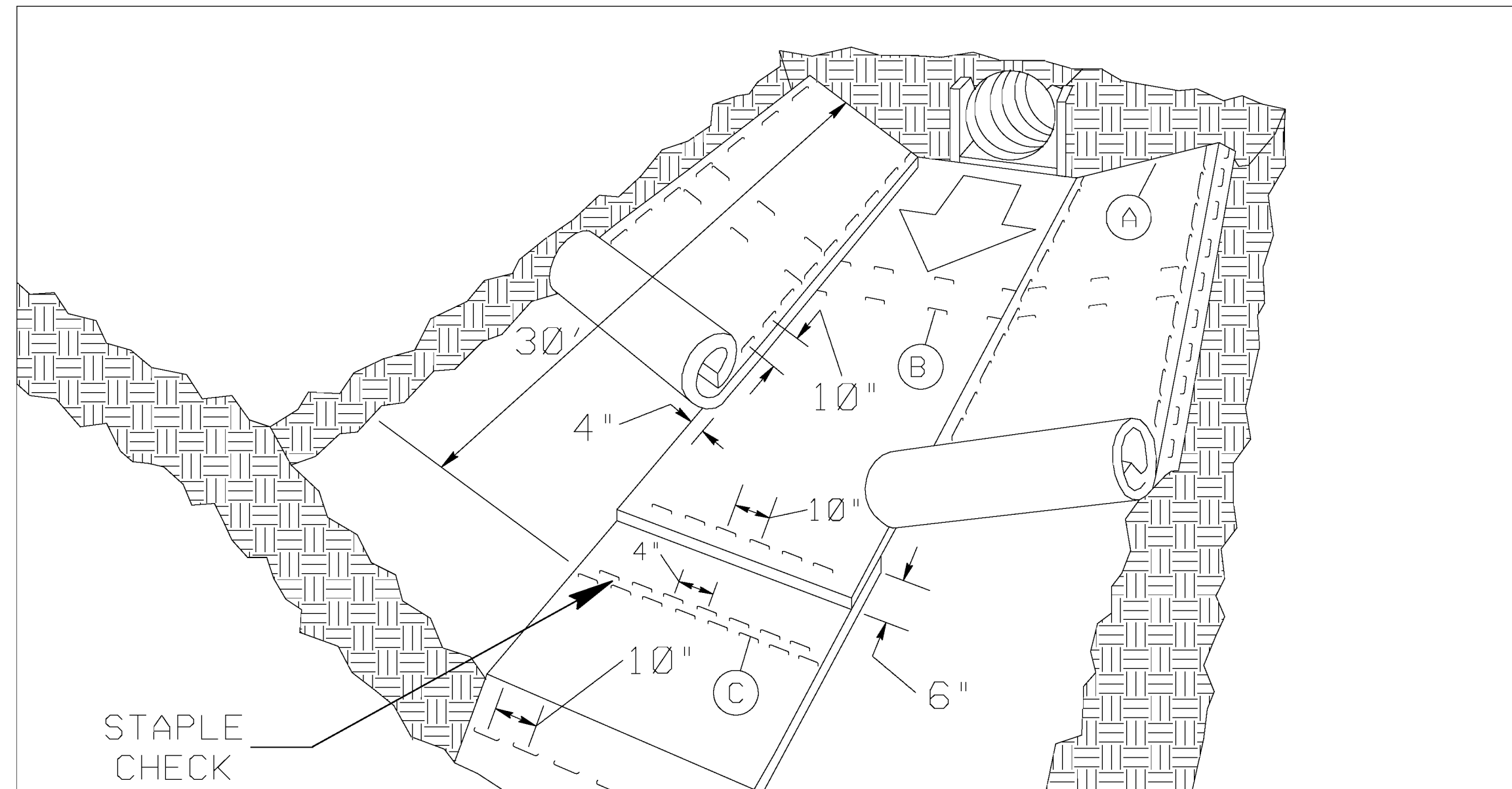
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



NOT TO SCALE

PROJECT REFERENCE NO. <i>BD-5111G</i>	SHEET NO. <i>EC-3</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

MATTING INSTALLATION DETAIL



MATTING IN DITCHES

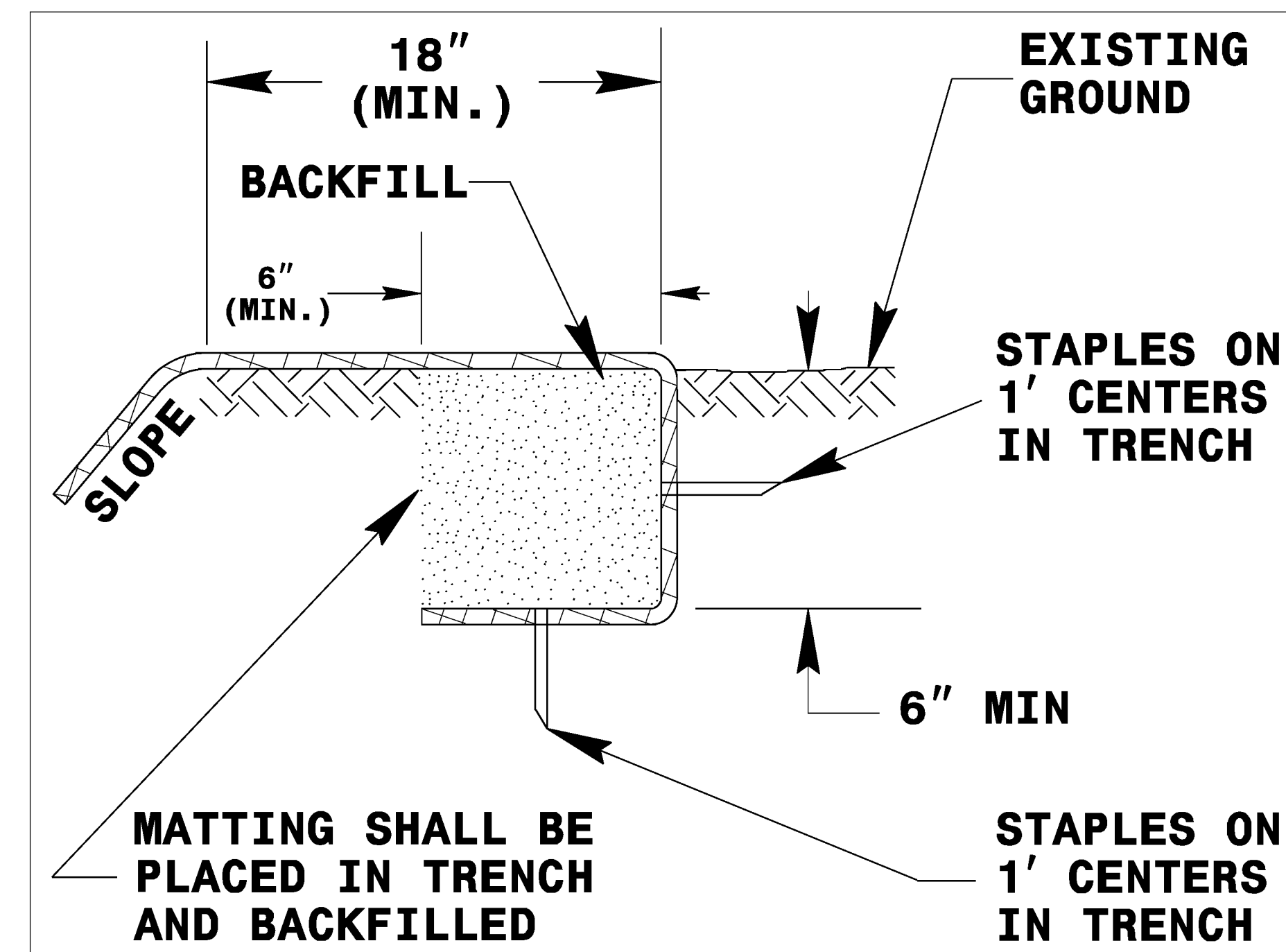
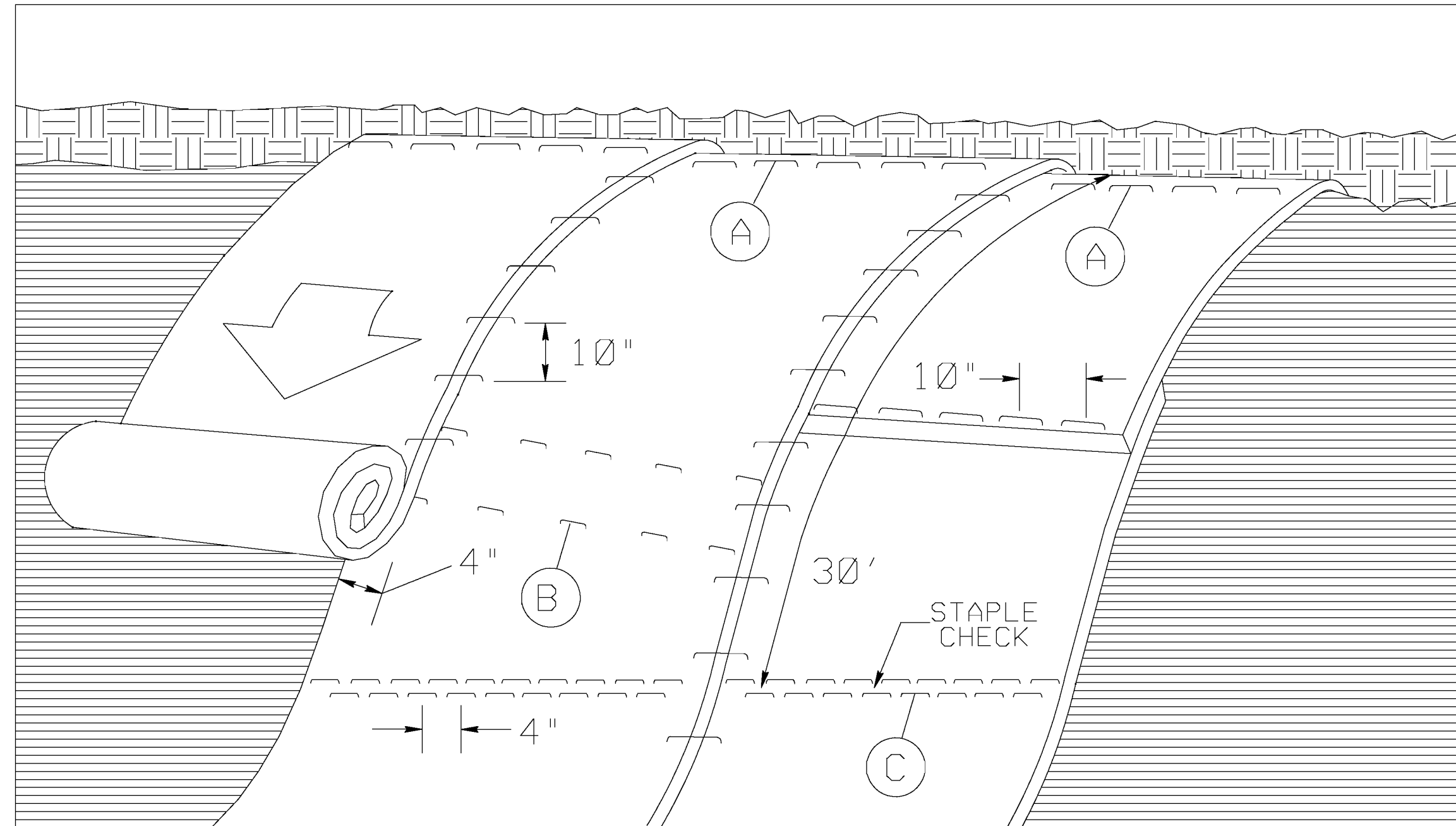


DIAGRAM (A)



MATTING ON SLOPES

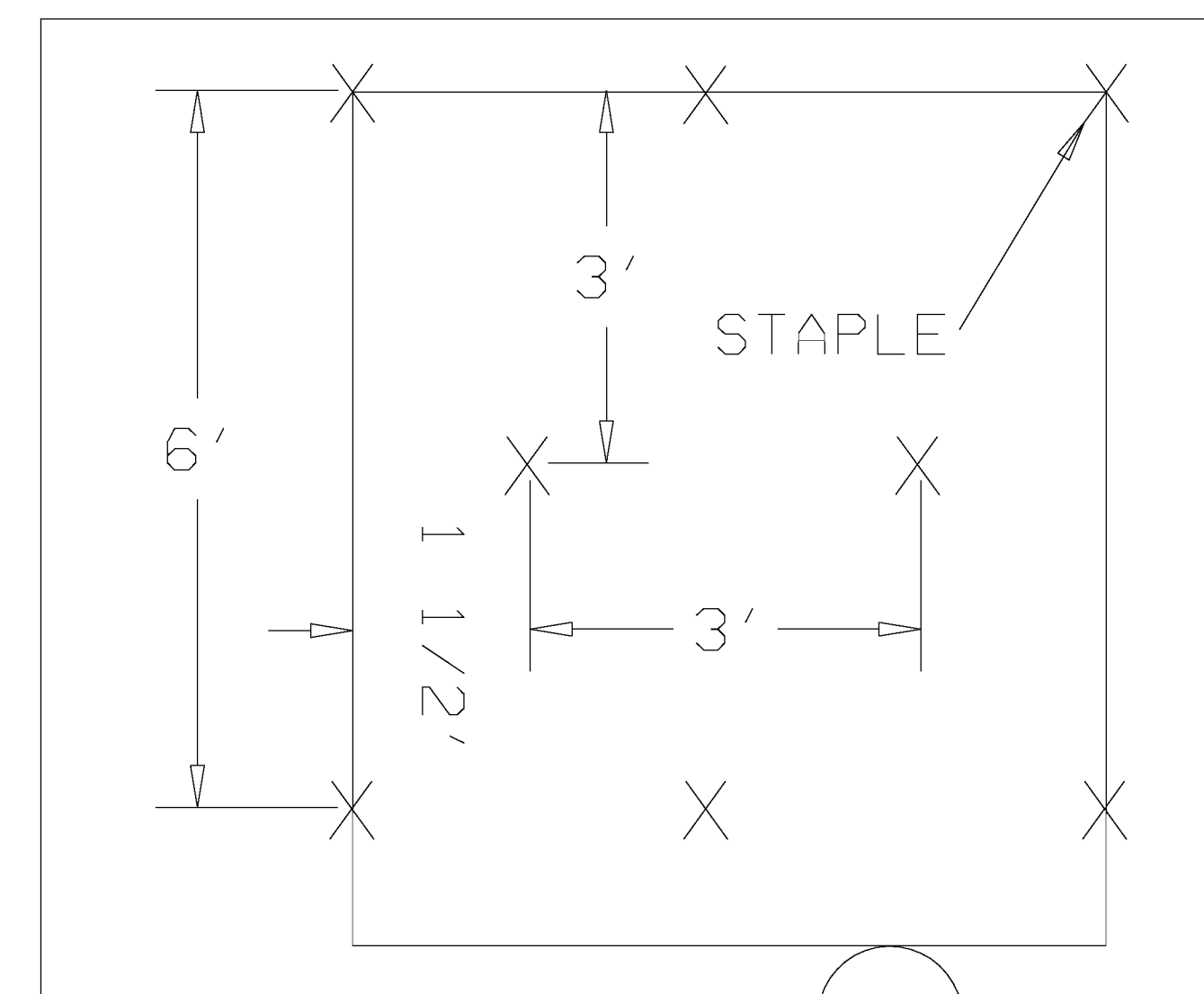


DIAGRAM B

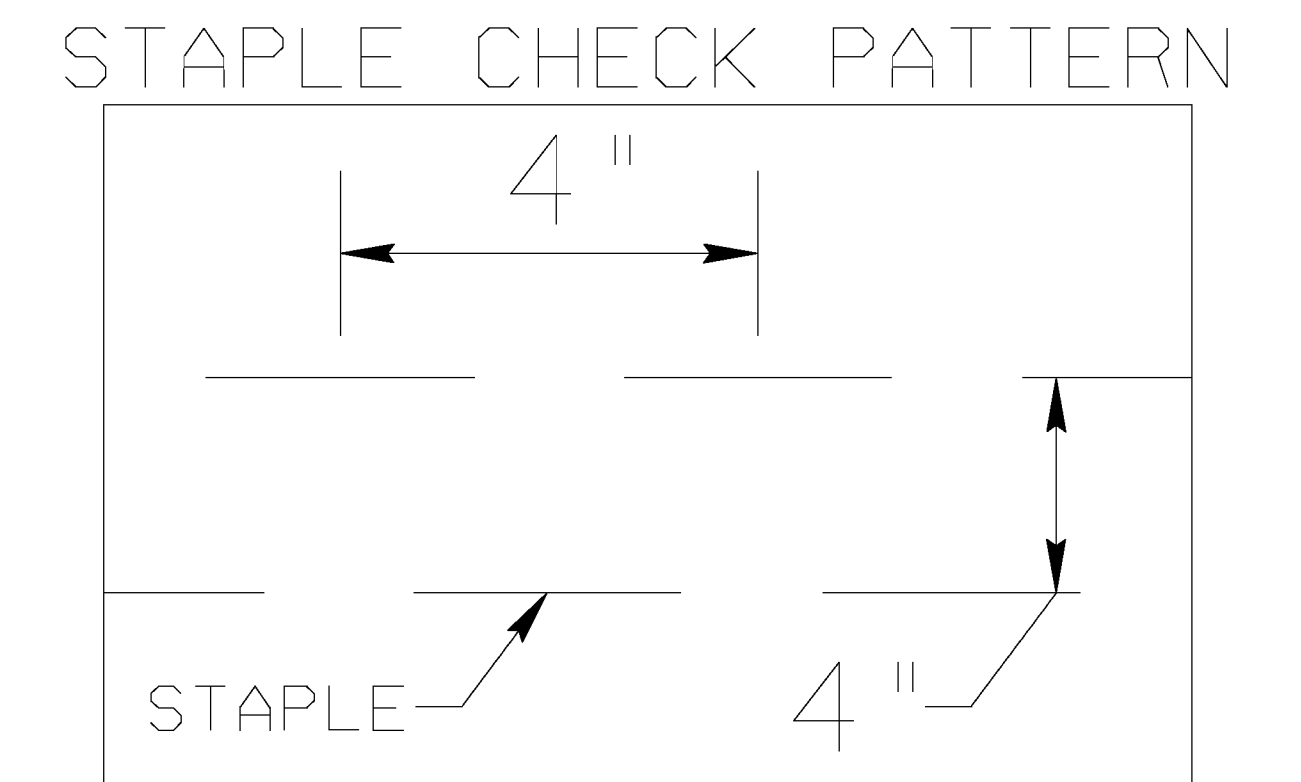


DIAGRAM (C)

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.

STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

NOT TO SCALE

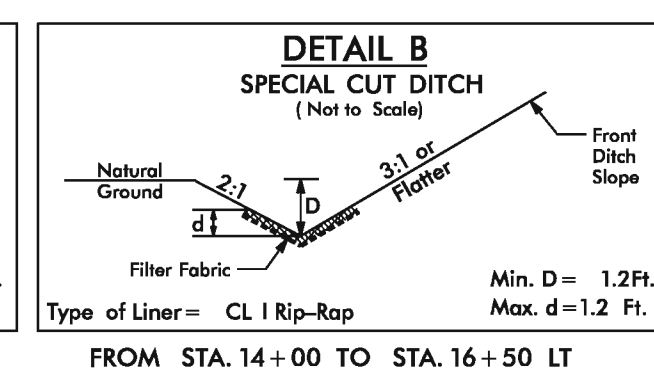
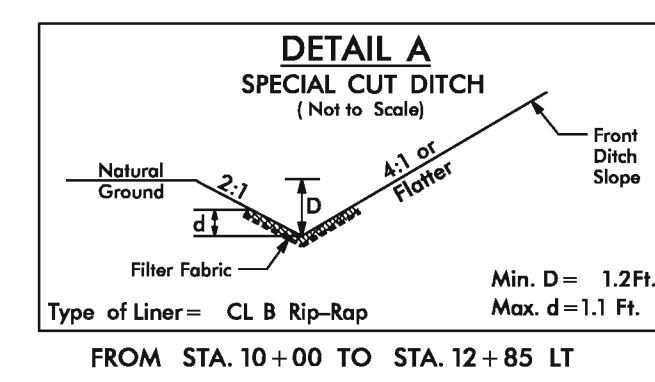
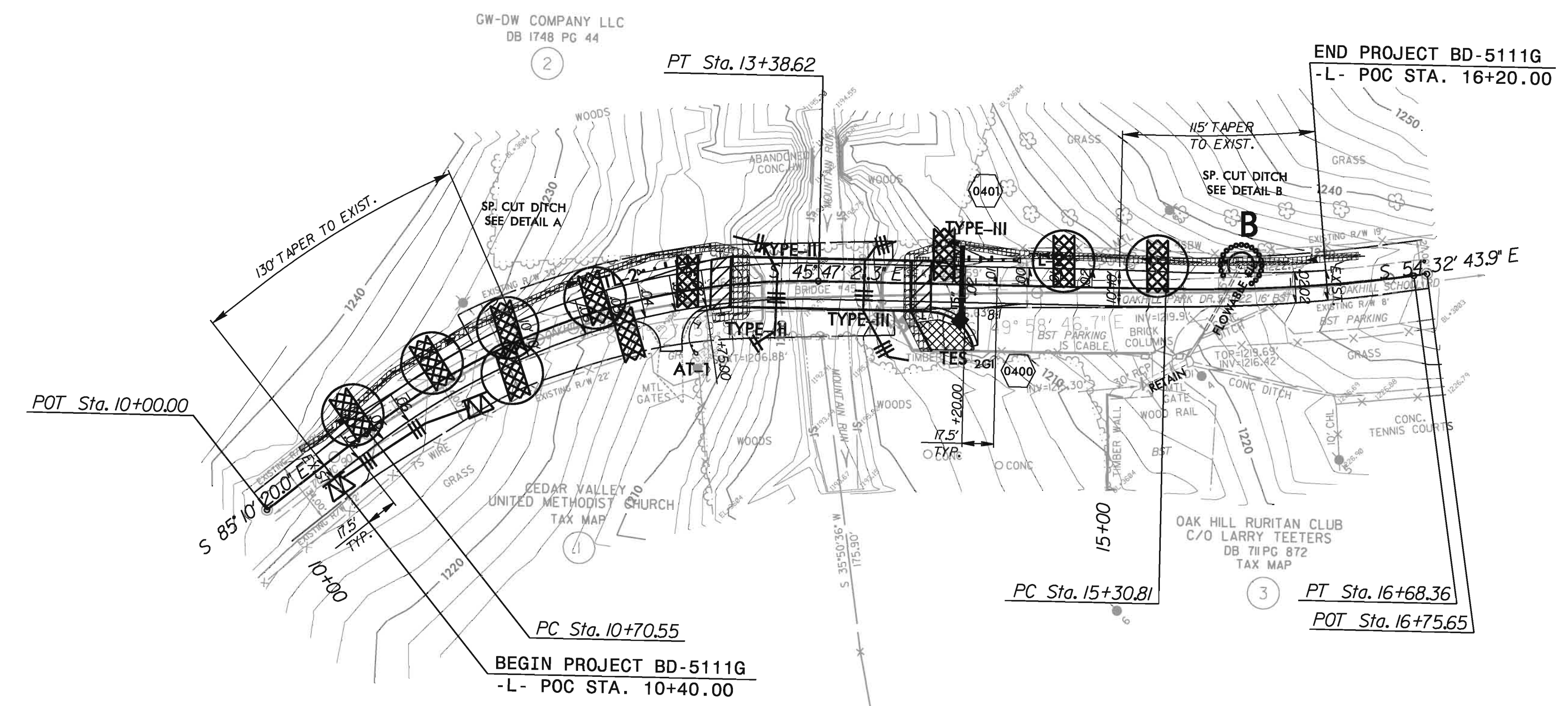
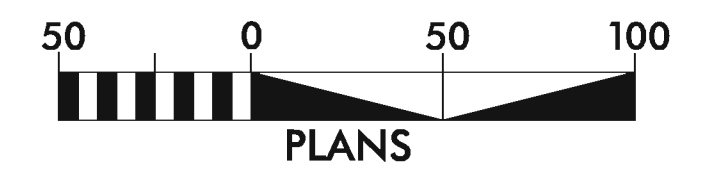
PROJECT REFERENCE NO.	SHEET NO.
BD-5111G	EC-4
RW SHEET NO.	
EROSION CONTROL DESIGN ENGINEER	

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

GRAPHIC SCALES



PLANS PREPARED BY :

RK&K

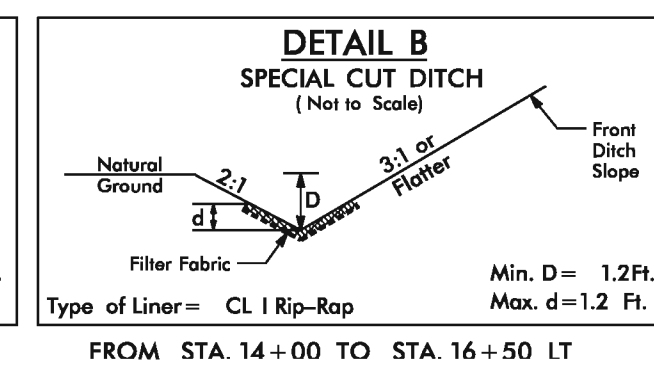
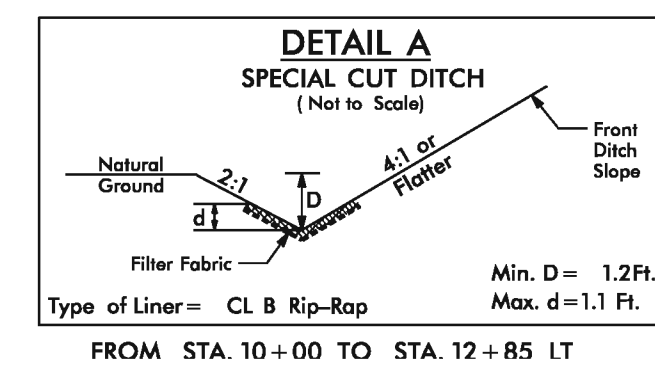
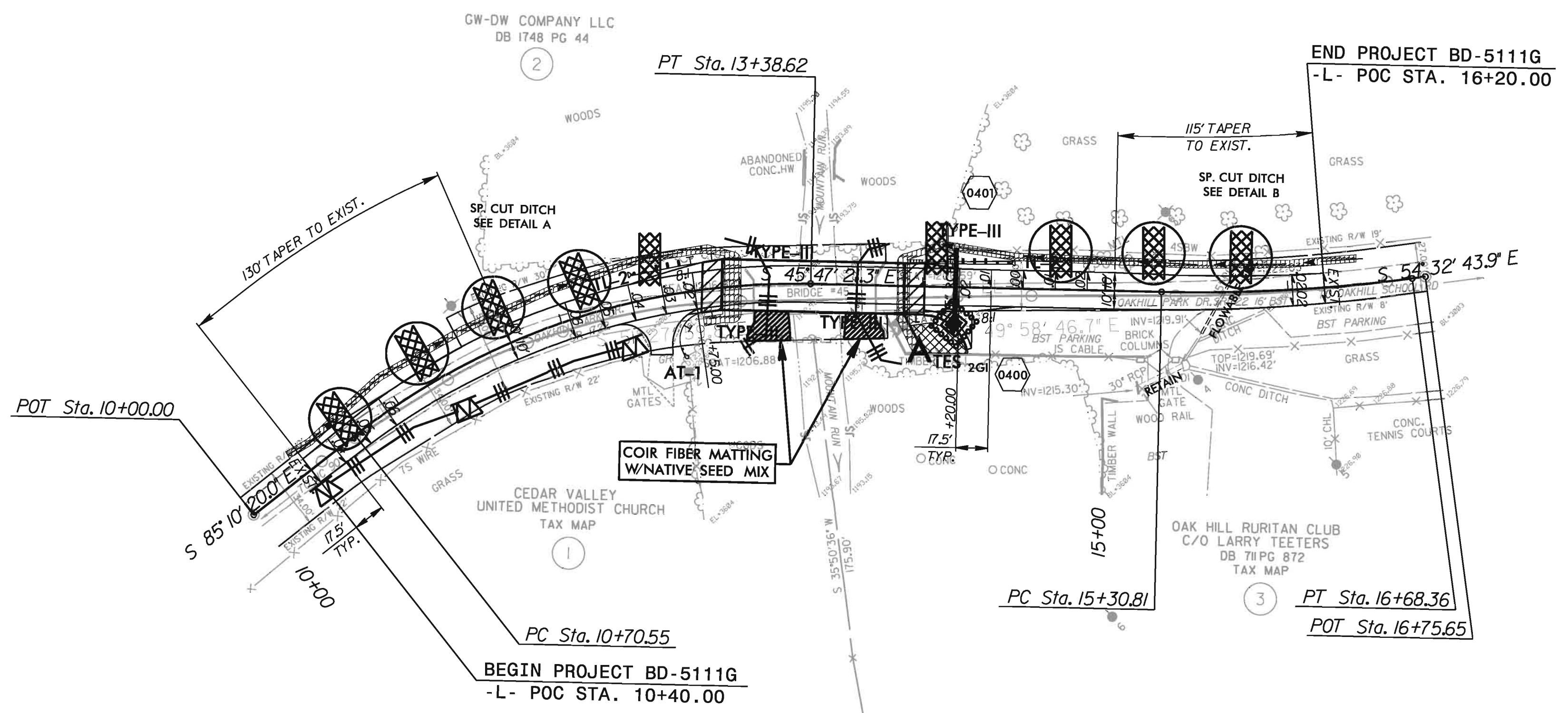
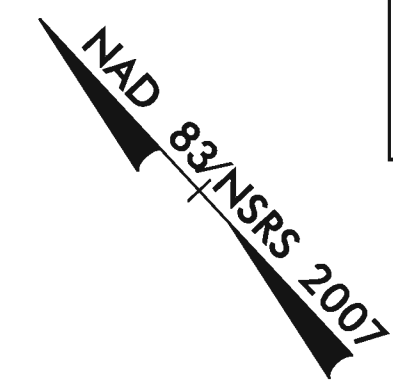
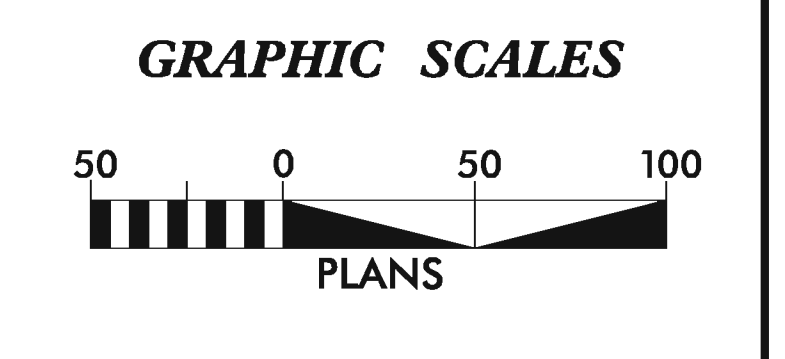
RUMMEL, KLEPPER & KAHL, LLP
900 RIDGEFIELD DRIVE SUITE 350
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Place Matting for Erosion Control
on Slope as Work Allows.

FINAL EROSION
CONTROL FOR
CONSTRUCTION SHEET 4

PROJECT REFERENCE NO.	SHEET NO.
BD-5111G	EC-5
R/W SHEET NO.	
EROSION CONTROL DESIGN ENGINEER	



PLANS PREPARED BY :

RK&K

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RALEIGH, NORTH CAROLINA 27609-3960
NC LICENSE NO. F-0112 • (919) 878-9560

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09/08/99

See Sheet 1-A For Index of Sheets

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

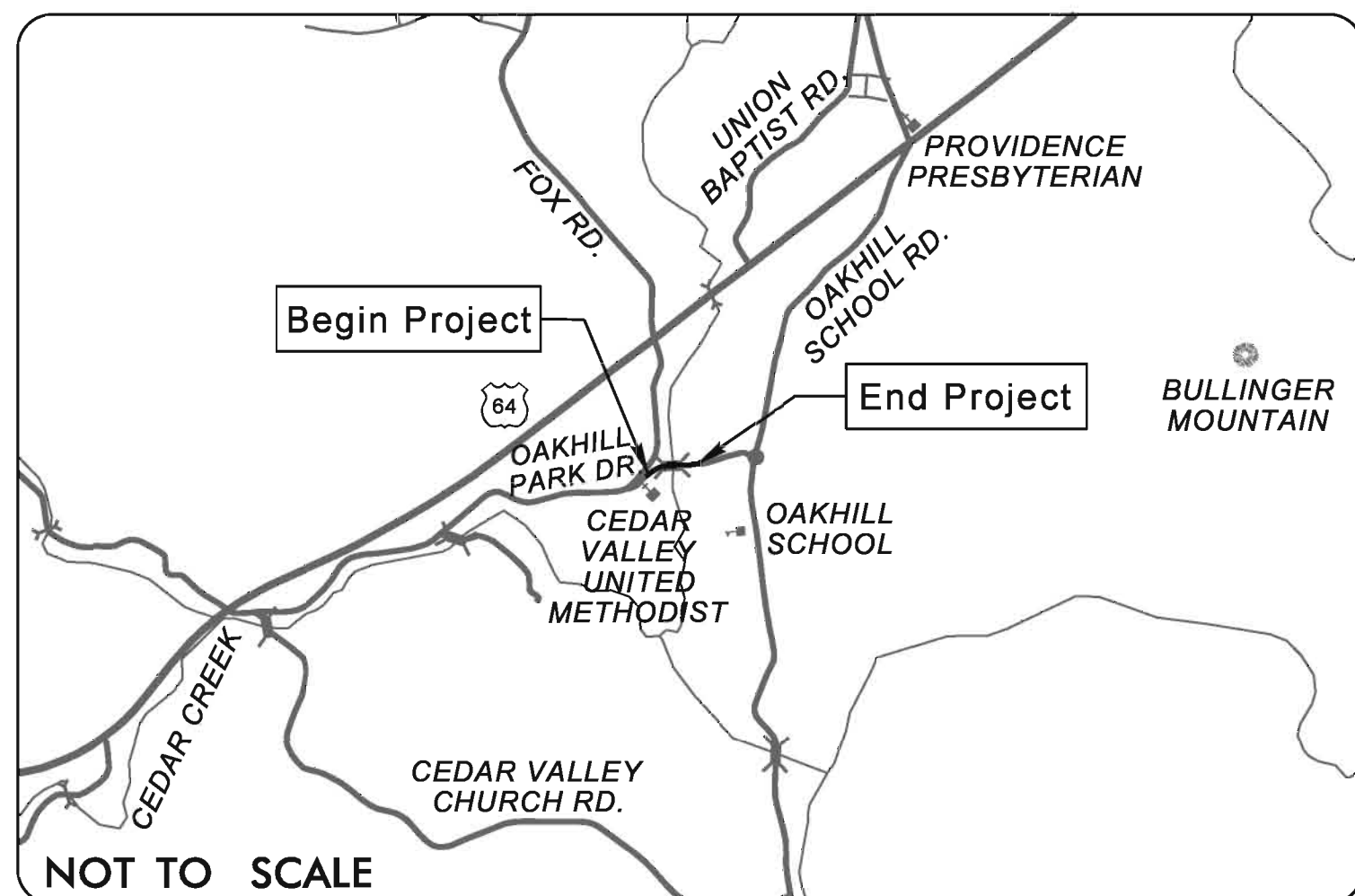
CALDWELL COUNTY

LOCATION: SR 1722 (OAKHILL PARK DR.) OVER MOUNTAIN RUN

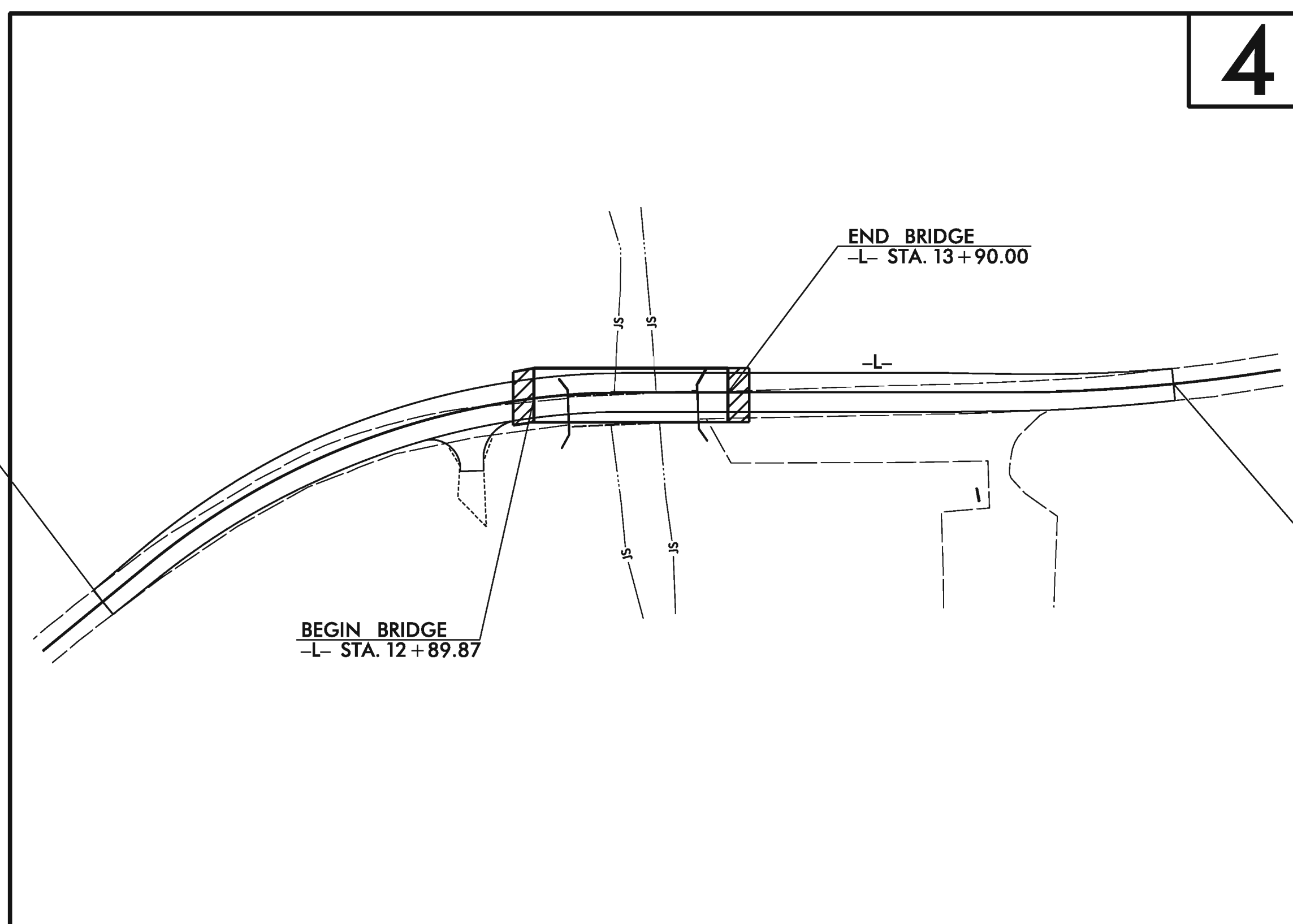
TYPE OF WORK: UTILITIES BY OTHERS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.		UO-1	2
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
45357.1.7	BRZ-1722(4)	PE	
45357.2.7		RW	
45357.3.7		CONSTRUCTION	

TIP PROJECT: BD-5111G



BEGIN PROJECT BD-5111G
-L- STA. 10 + 40.00



END PROJECT BD-5111G
-L- STA. 16 + 20.00

NAD 83/NSRS 2007

CONTRACT:

GRAPHIC SCALES



DESIGN DATA

DESIGN SPEED = 40 mph
ADT = 350 (2007)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITIES BY OTHERS PLAN SHEETS

UTILITY OWNERS ON PROJECT

- (1) BLUE RIDGE EMC- POWER
- (2) AT&T TELEPHONE - TELEPHONE
- (3) CHARTER COMMUNICATIONS - CATV



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NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560

12/15/2011
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UTILITIES BY OTHERS

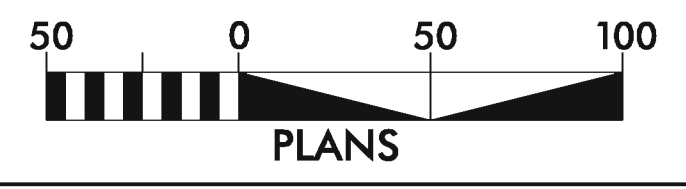
NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS.

PLANS PREPARED BY :



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900 RIDGEFIELD DRIVE SUITE 350
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GRAPHIC SCALES



NOTE:
CALL X
FOR LOCATES.

CONTACT: X X
O: XXX-XXX-XXXX
C: XXX-XXX-XXXX

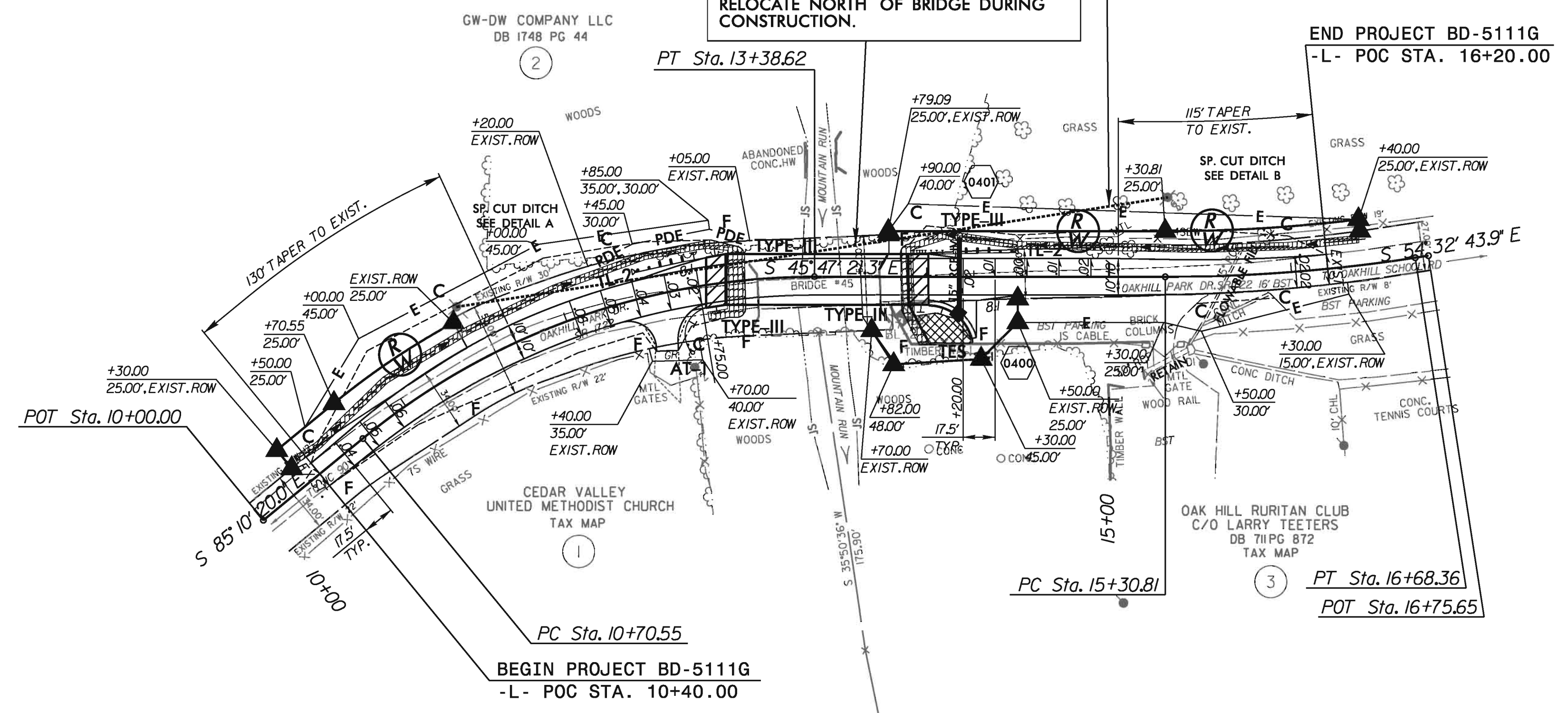
NAD 83/NSRS 2007

BLUE RIDGE EMC WILL DE-ENERGIZE POWER BETWEEN POLES GIVE BLUE RIDGE A 72 HOUR NOTICE.

-L-

PI Sta 12+10.13	PI Sta 15+99.72
$\Delta = 39^{\circ} 22' 58.7''$ (RT)	$\Delta = 8^{\circ} 45' 22.5''$ (LT)
$D = 14^{\circ} 41' 28.4''$	$D = 6^{\circ} 21' 58.3''$
$L = 268.07'$	$L = 137.54'$
$T = 139.57'$	$T = 68.91'$
$R = 390.00'$	$R = 900.00'$
$SE = 6\%$	
$V = 33\text{mph}$	

AT&T AND CHARTER COMMUNICATIONS WILL USE AERIAL SLACK TO TEMPORARILY RELOCATE NORTH OF BRIDGE DURING CONSTRUCTION.



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL-2" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 793,007.05(ft) EASTING: 1,284,184.25(ft) ELEVATION: 1,208.45(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998848634 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-2" TO -L- STATION 10+00.00 IS N 63°26'08.29" W 367.89(ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES THE VERTICAL DATUM IS BASED ON MONUMENT "BL-2" (NAVD 88).

UTILITY OWNERS ON PROJECT

X - POWER
X - TELEPHONE

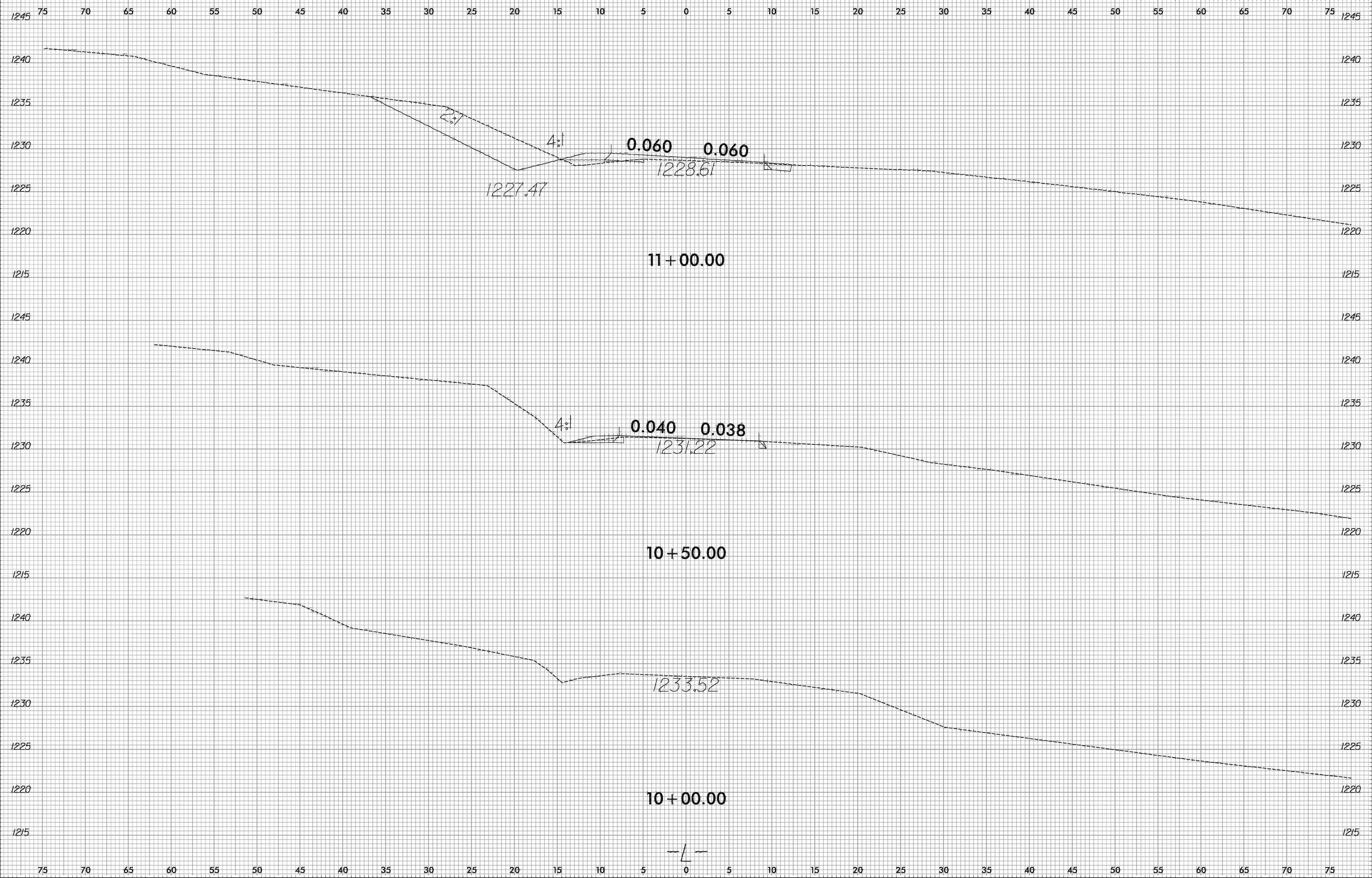
8/17/99

12/15/2011
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8/23/99



PROJ. REFERENCE NO.	SHEET NO.
BD-5111G	X-1

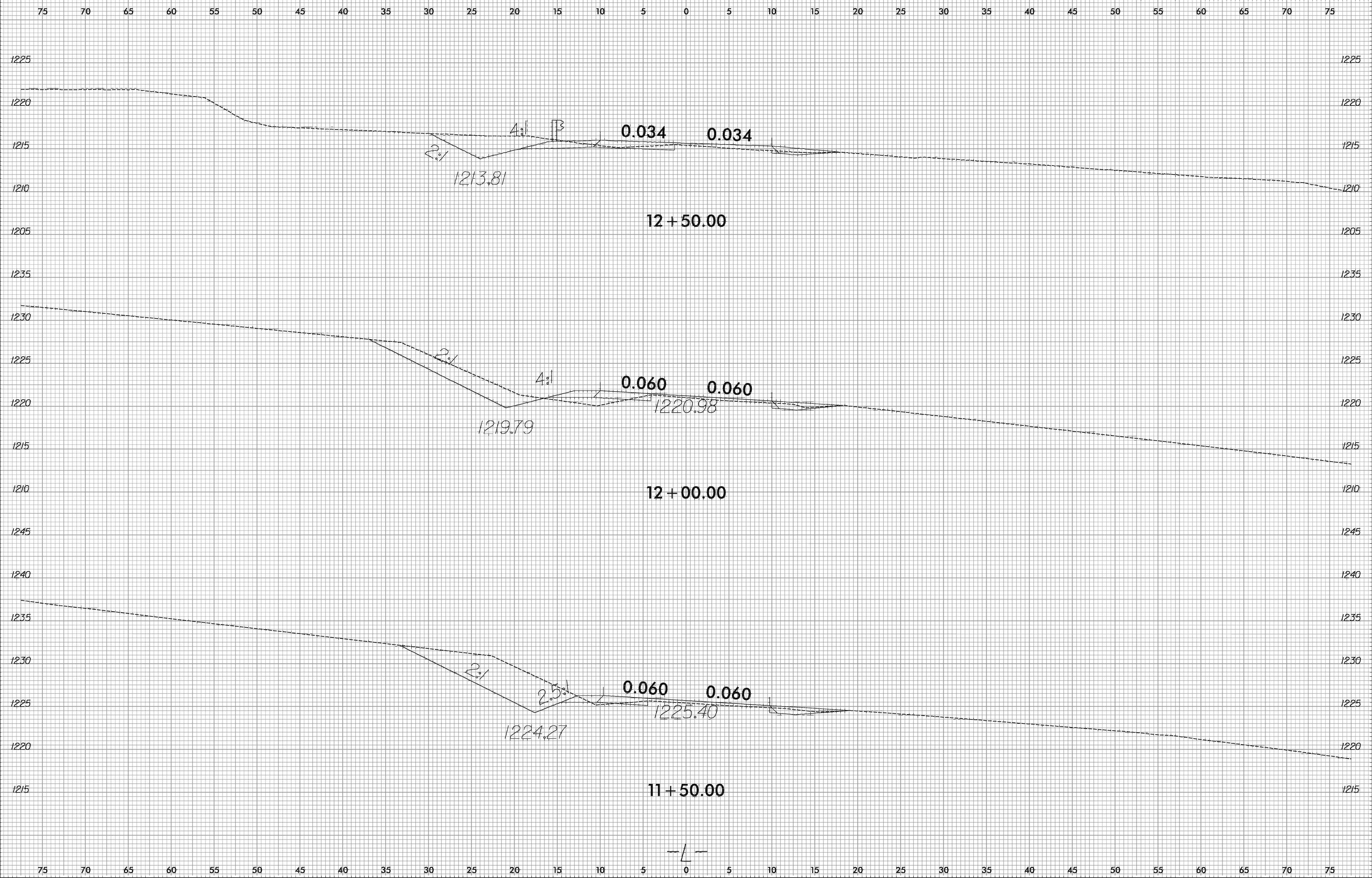


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 mgh

8/23/99



PROJ. REFERENCE NO.	SHEET NO.
BD-5111G	X-2



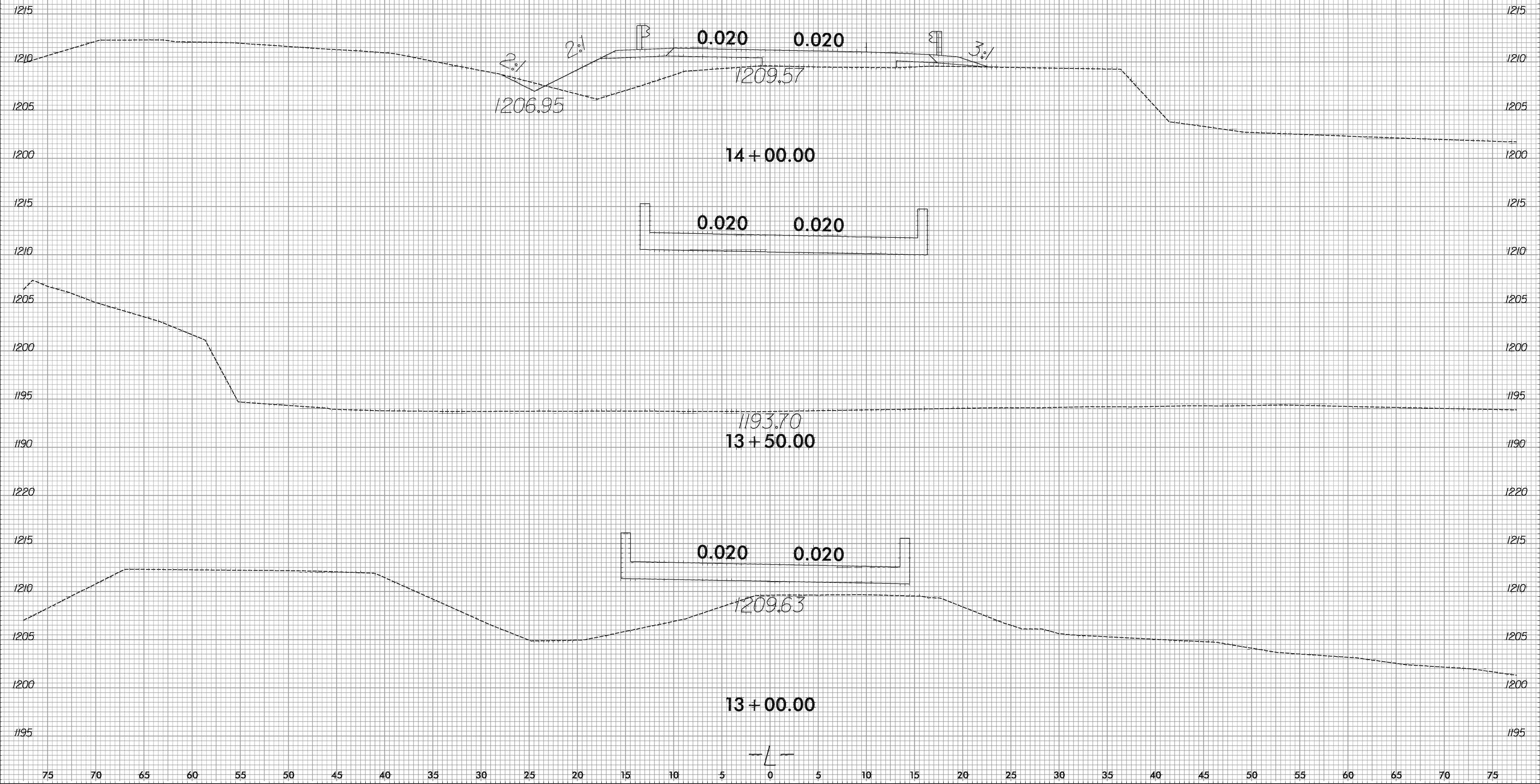
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8/23/99



PROJ. REFERENCE NO.	SHEET NO.
BD-5111G	X-3

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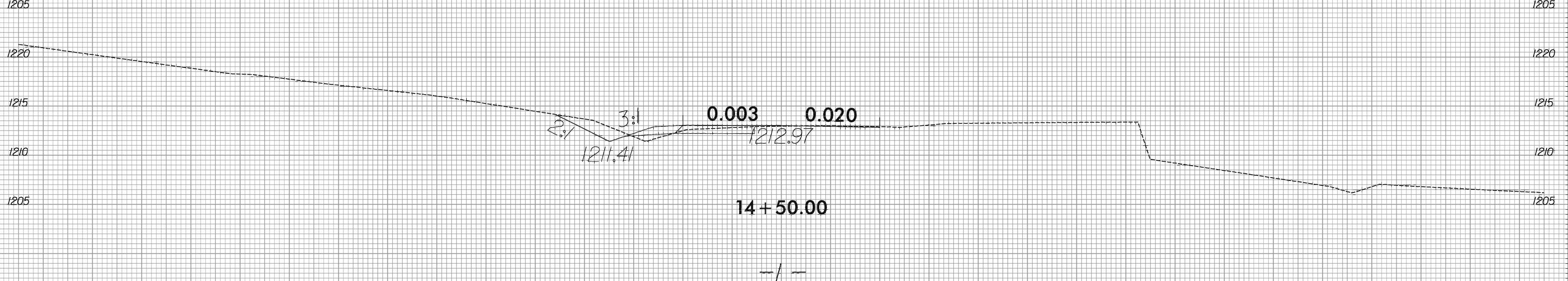
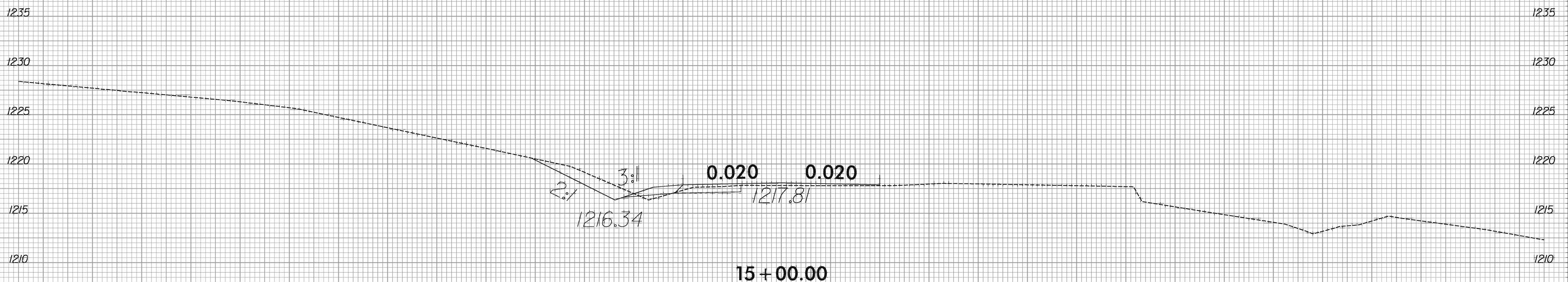
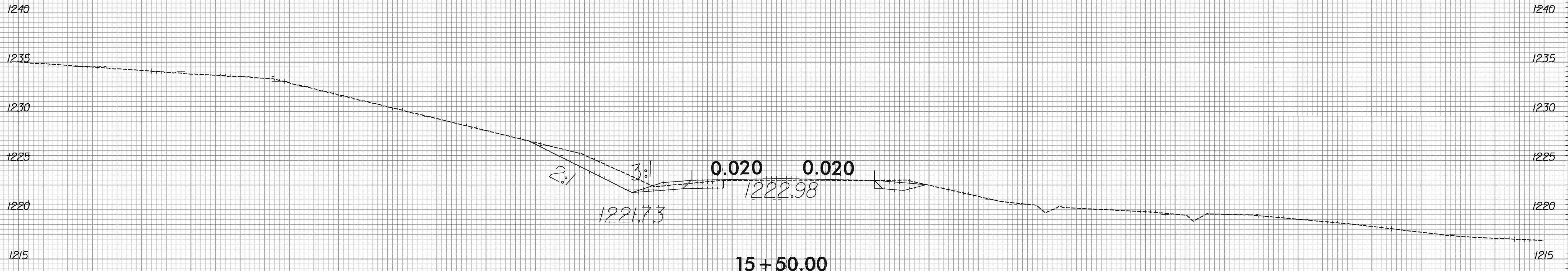
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 8/23/99

8/23/99



PROJ. REFERENCE NO.	SHEET NO.
BD-5111G	X-4

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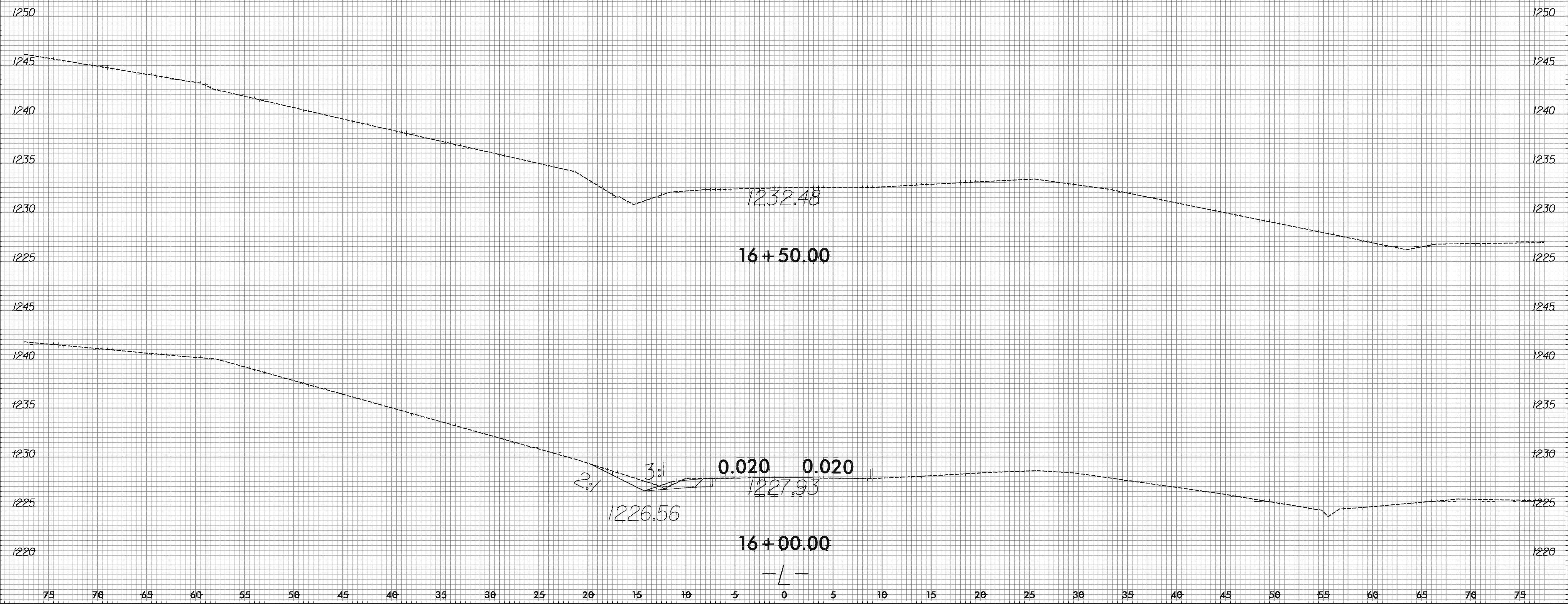
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8/23/99



PROJ. REFERENCE NO.	SHEET NO.
BD-5111G	X-5

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