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TIP NO: 17BP.14.R.24

CONTRACT: DN00157

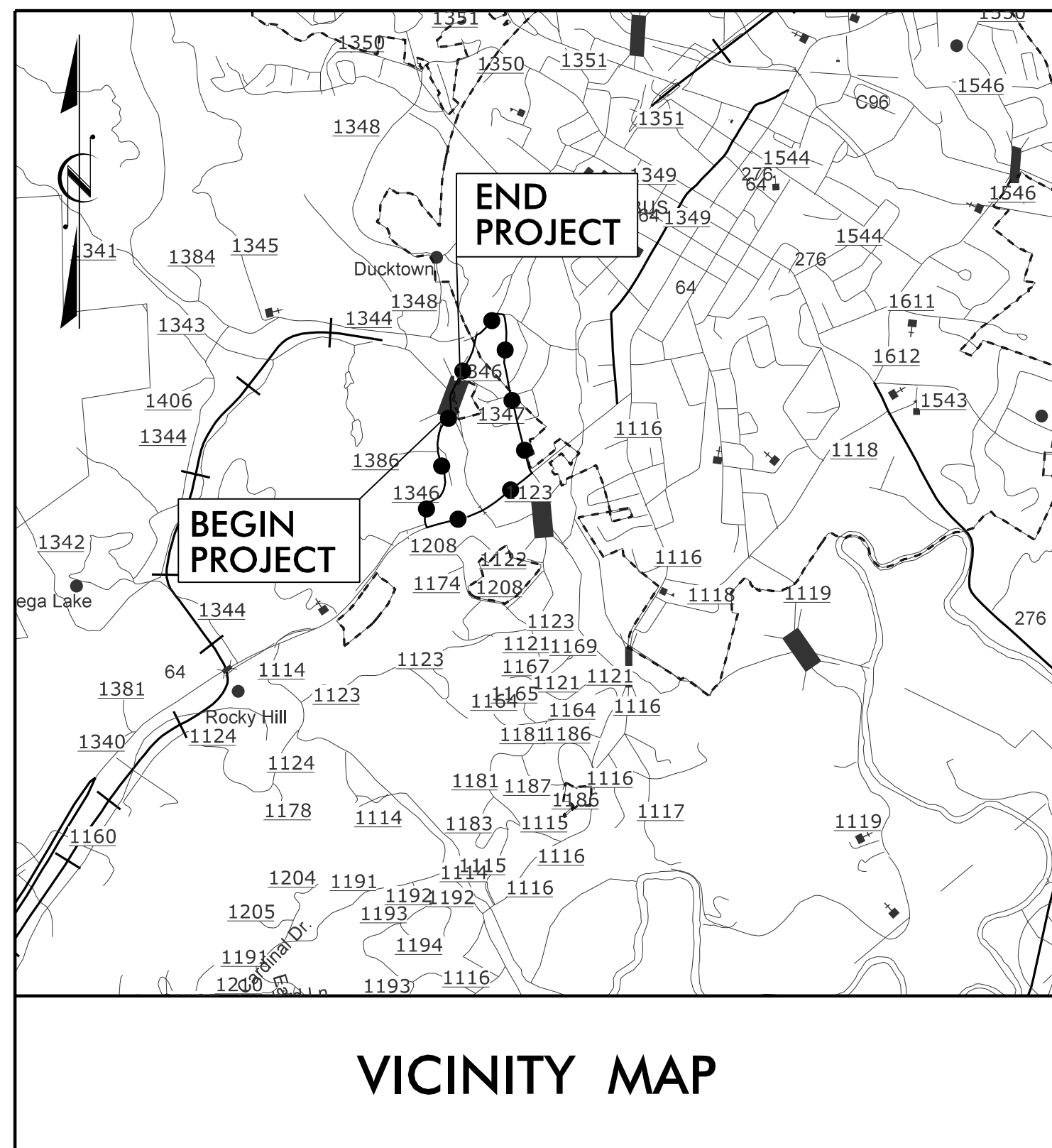
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSYLVANIA COUNTY

LOCATION: BRIDGE NO. 113 ON SR 1346 (NICHOLSON CREEK ROAD)
OVER NICHOLSON CREEK

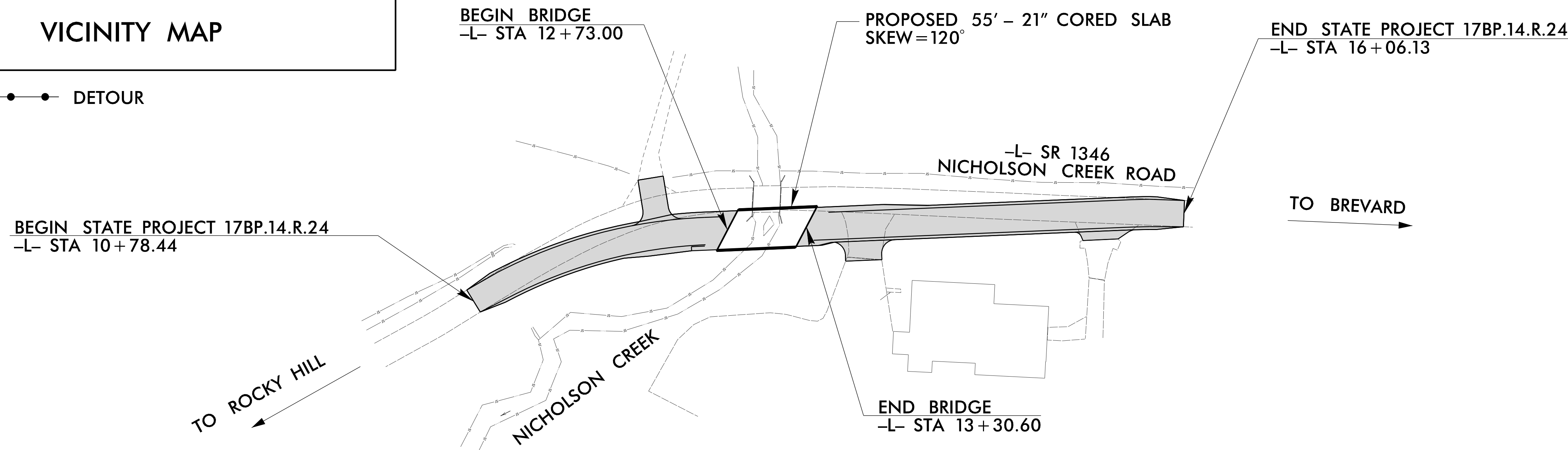
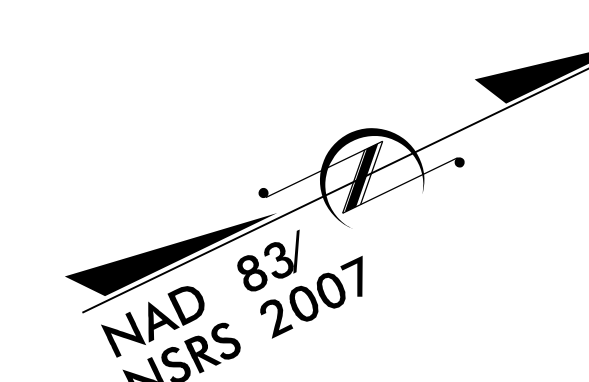
TYPE OF WORK: PAVING, GRADING, GUARDRAIL, DRAINAGE
AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.14.R.24	S	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.14.R.24		PE	
17BP.14.R.24		ROW & UTIL	
17BP.14.R.24		CONST.	



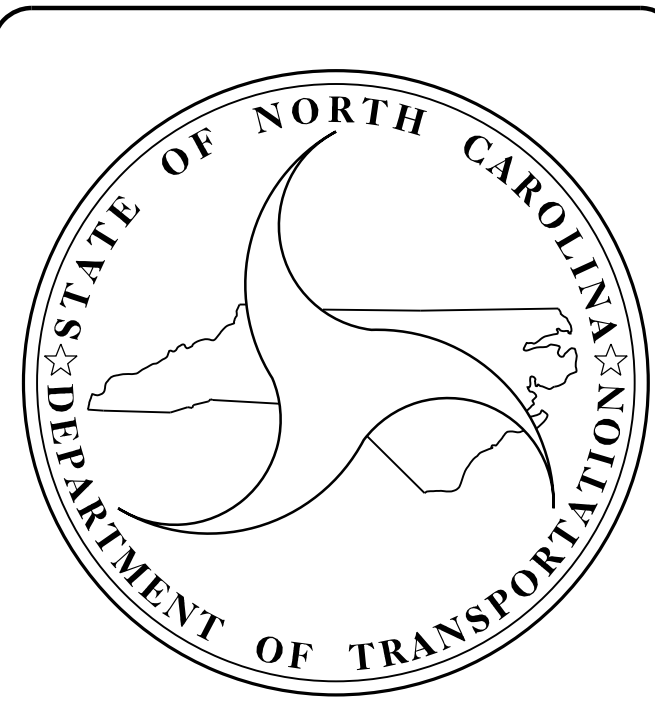
VICINITY MAP

● ● ● ● DETOUR



STRUCTURE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2013	=	1,160
ADT 2033	=	2,150
DHV	=	N/A %
D	=	N/A %
T	=	6 % *
V	=	30 MPH
* TTST	=	N/A DUAL 6%
FUNC CLASS = LOCAL		
SUBREGIONAL TIER		

PROJECT LENGTH

LENGTH ROADWAY OF PROJECT 17BP.14.R.24	=	0.089 mi.
LENGTH STRUCTURE OF PROJECT 17BP.14.R.24	=	0.011 mi.
TOTAL LENGTH OF STATE PROJECT 17BP.14.R.24	=	0.100 mi.

Prepared for NCDOT in the Office of:

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA - 27609
(919) 781-4625 VOICE (919) 781-4868 FAX
NC License NO.: F-0105

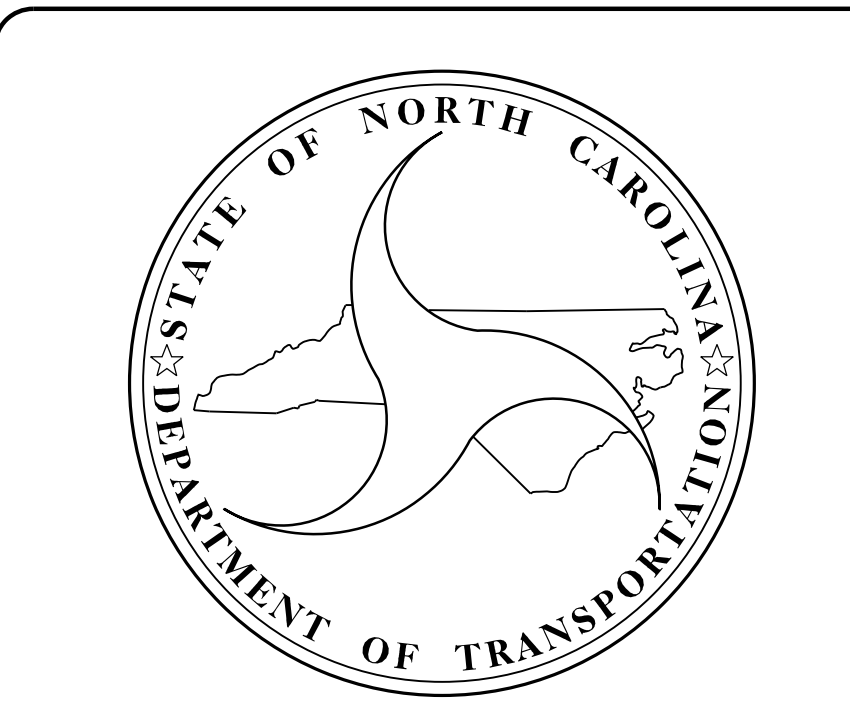
2012 STANDARD SPECIFICATIONS

LETTING DATE :
2017

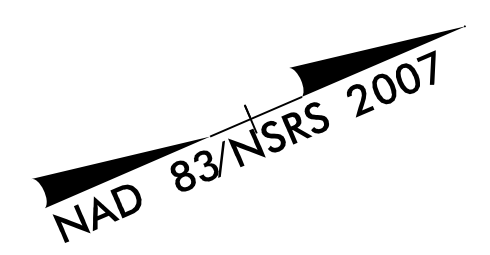
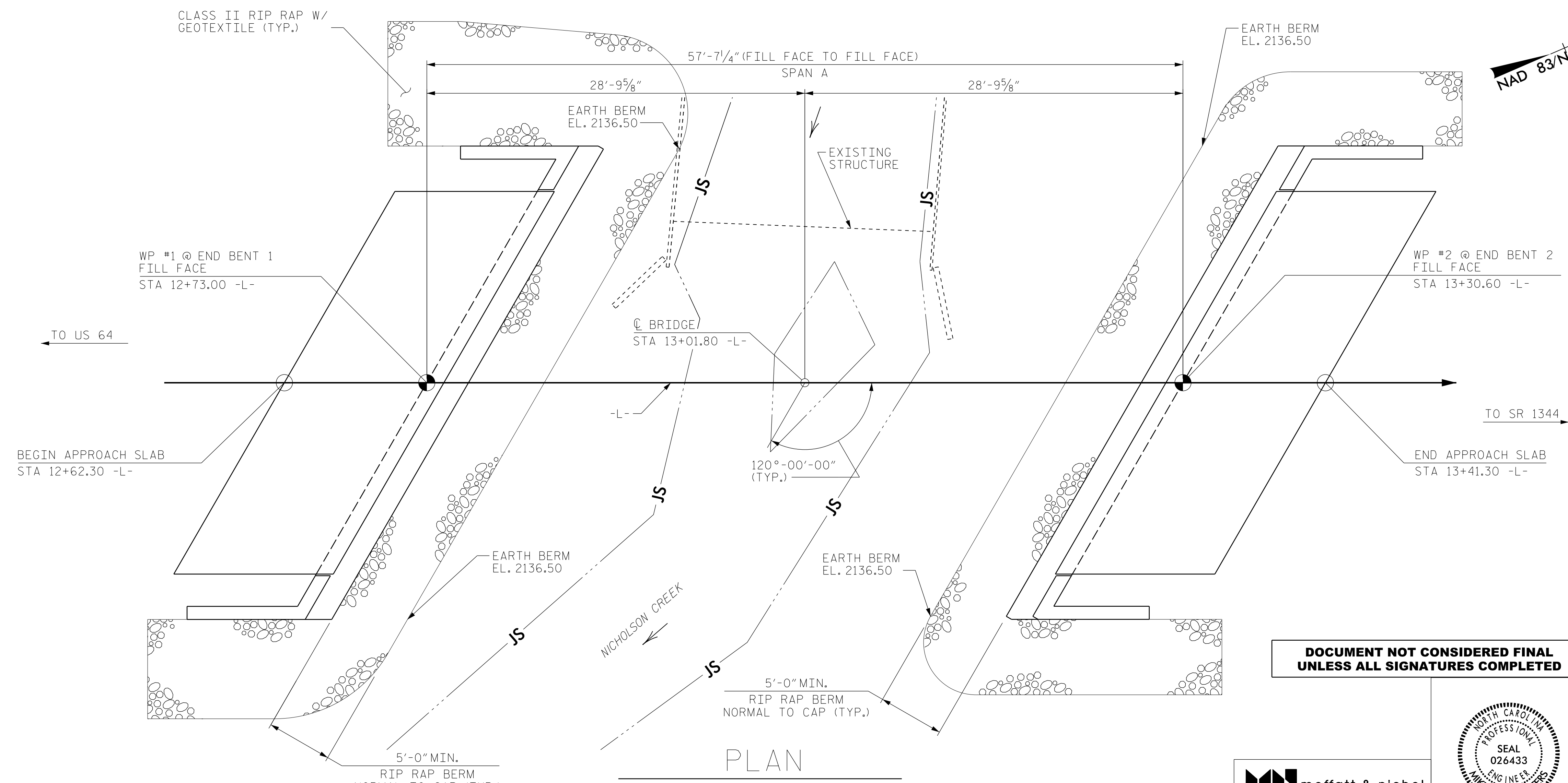
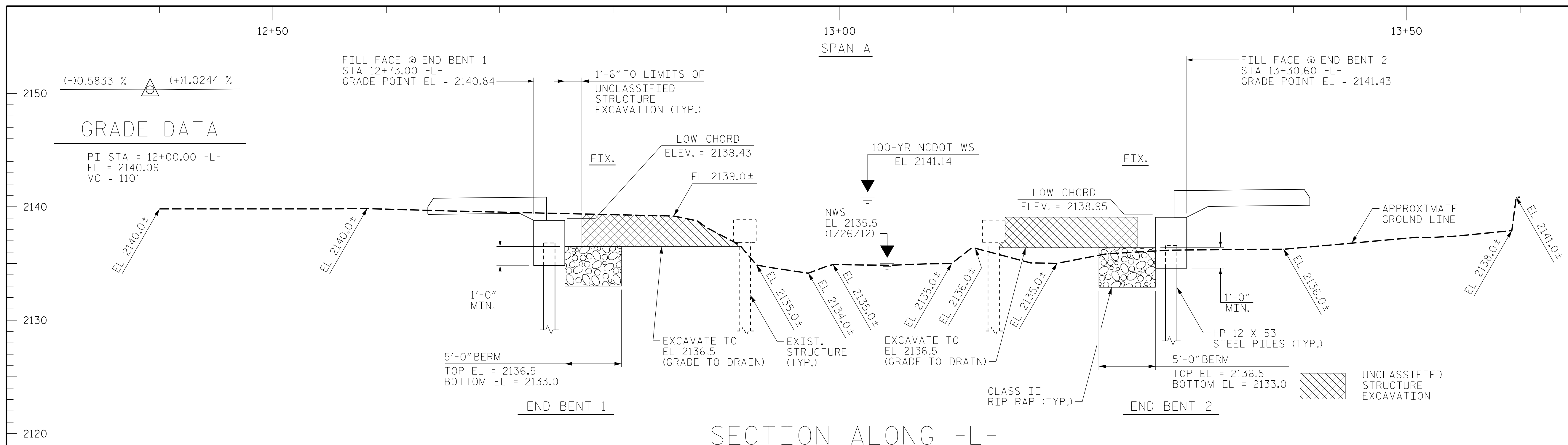
TIM REID, P.E.
PROJECT ENGINEER

MIKELE WINTERS, P.E.
PROJECT DESIGN ENGINEER

STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610



5/26/2017
P:\Structures\870113.str_tsh.dgn
thuffman



I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. 17BP.14.R.24
TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-
 SHEET 1 OF 3 REPLACES BRIDGE No. 113

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



moffatt & nichol
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 NC License NO.: F-0105

DRAWN BY : P. JACOB DATE : 08/2015
 CHECKED BY : M. WINTERS DATE : 08/2015
 DESIGN ENGINEER OF RECORD : M. WINTERS DATE : 10/2015

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
FOR BRIDGE ON SR 1346 OVER NICHOLSON CREEK BETWEEN US 64 AND SR 1344					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.	S-1
TOTAL SHEETS	14

FOUNDATION NOTES:

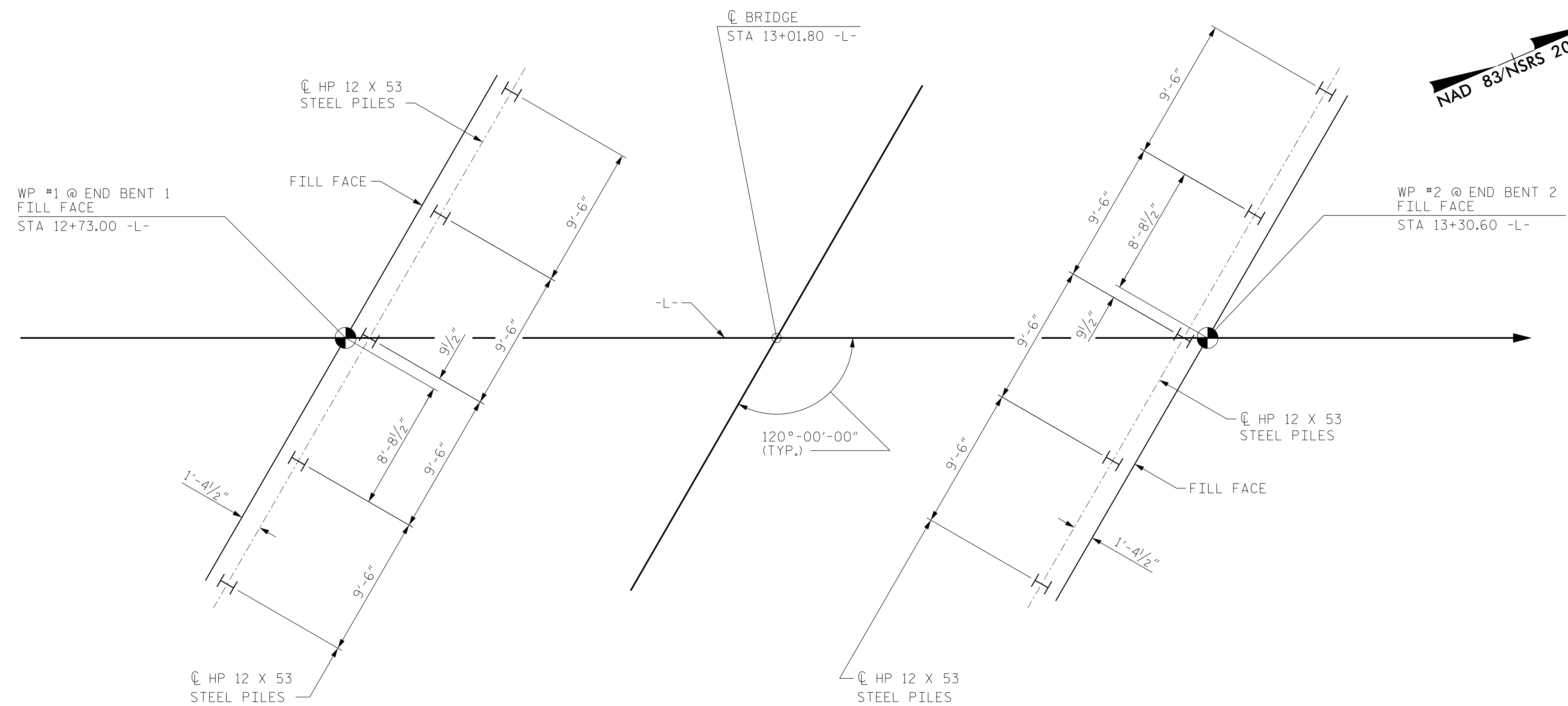
FOR PILES SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.1 AND END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 AND END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE.

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

IT HAS BEEN ESTIMATED THAT A HAMMER WITH AN EQUIVALENT RATED ENERGY IN THE RANGE OF 40,000 FT-LBS PER BLOW WILL BE REQUIRED TO DRIVE PILES AT END BENTS NO.1 AND 2. THIS ESTIMATED ENERGY RANGE DOES NOT RELEASE THE CONTRACTOR FROM PROVIDING DRIVING EQUIPMENT IN ACCORDANCE WITH SUBARTICLE 450-3(D)(2) OF THE STANDARD SPECIFICATIONS.



END BENT 1

END BENT 2

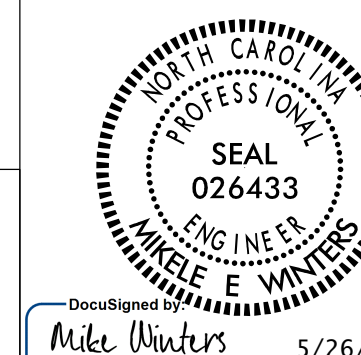
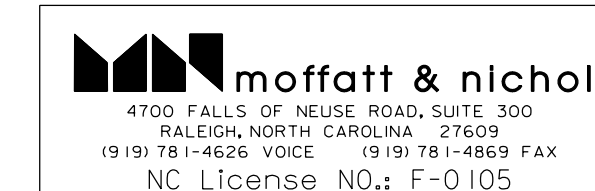
FOUNDATION LAYOUT

(DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE)

PROJECT NO. 17BP.14.R.24
TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-

SHEET 2 OF 3

**DOCUMENT NOT CONSIDERED FINAL
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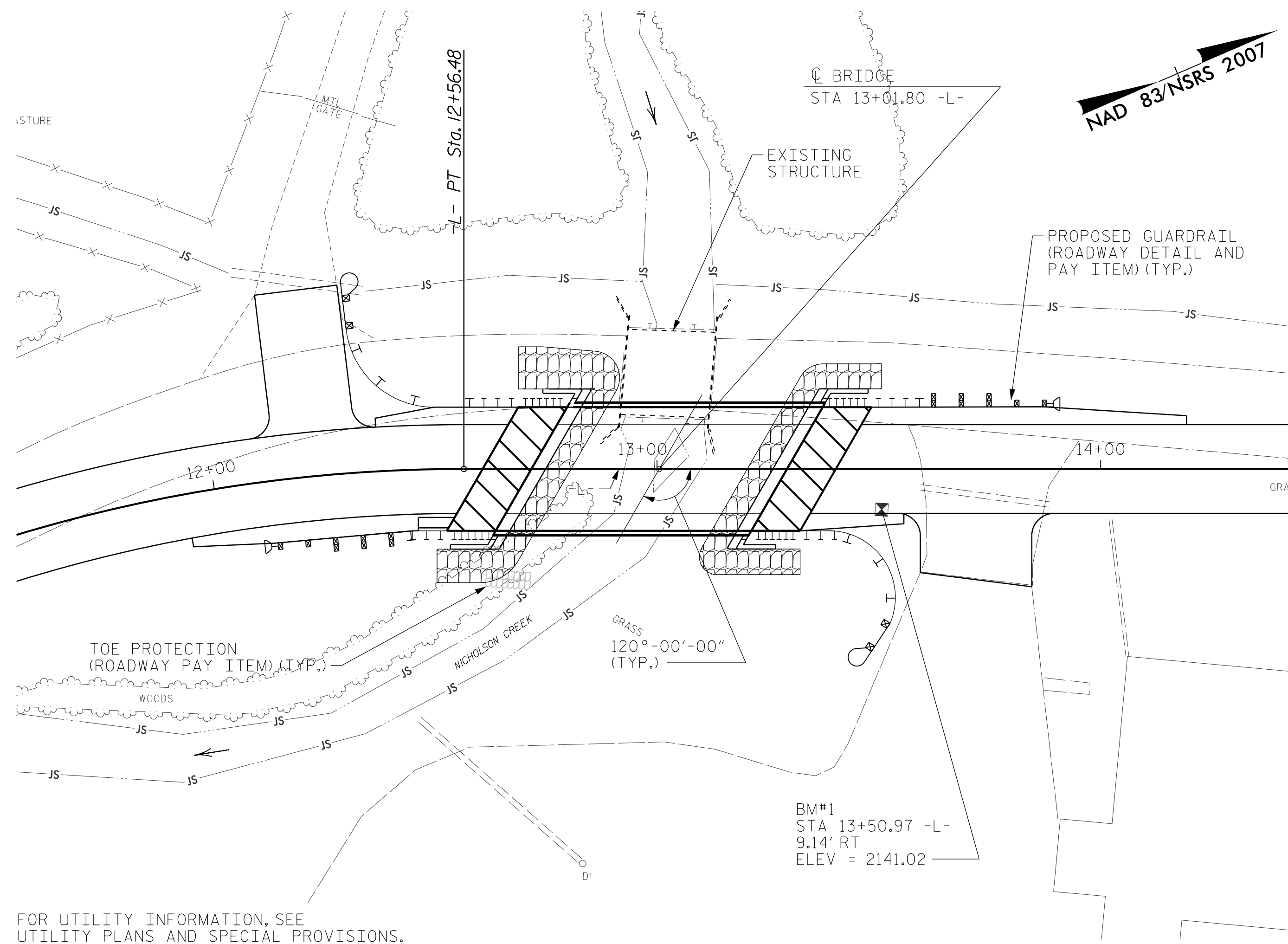


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE ON SR 1346
 OVER NICHOLSON CREEK
 BETWEEN US 64 AND SR 1344

DRAWN BY : P. JACOB DATE : 08/2015
 CHECKED BY : M. WINTERS DATE : 08/2015
 DESIGN ENGINEER OF RECORD : M. WINTERS DATE : 10/2015

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

BM#1: RR SPIKE IN POWER POLE AT STA 13+50.97 -L-; 9.14' RT, EL 2141.02



FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 900 CFS
FREQUENCY OF DESIGN DISCHARGE	= 25-YR
DESIGN HIGH WATER ELEVATION	= 2139.7
DRAINAGE AREA	= 3.1 SQ MI
BASE DISCHARGE (NCDOT Q100)	= 1300 CFS
BASE HIGH WATER ELEVATION	= 2141.29

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1000 CFS
FREQUENCY OF OVERTOPPING	= 25 YR+
OVERTOPPING ELEVATION	= 2140.6
OVERTOPPING OCCURS AT STA 11+63.85 -L-	

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.
 THE EXISTING STRUCTURE CONSISTING OF ONE SPAN, 1 @ 20'-4" AND A CLEAR ROADWAY WIDTH OF 19'-1" AND A TIMBER FLOOR/JOISTS ON TIMBER CAPS AND POSTS AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL FOR 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.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET S-1 SHALL BE EXCAVATED FOR A DISTANCE OF 25 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

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 THE DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

AT THE CONTRACTOR'S OPTION, PRESTRESSED CONCRETE END BENT AND BENT CAPS MAY BE SUBSTITUTED IN PLACE OF THE CAST-IN-PLACE CAPS. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER TO RECEIVE REVISED PLANS AND DETAILS FROM THE STRUCTURES MANAGEMENT UNIT. THE REDESIGN AND ANY ADDITIONAL MATERIALS NEEDED WILL BE AT NO ADDITIONAL COST TO THE CONTRACTOR.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND DEMOLITION ACTIVITIES, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILE	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLABS		ASBESTOS ASSESSMENT
	LUMP SUM	LUMP SUM	CU.YDS.	LUMP SUM	LBS.	EACH	NO.	LIN.FT.	EACH	LIN.FT.	TONS	SQ. YD.	LUMP SUM	NO.		LUMP SUM
SUPERSTRUCTURE				LUMP SUM						110.29			LUMP SUM	10		
END BENT NO.1		LUMP SUM	22.4		2736	5	5	163	5		79	88				
END BENT NO.2		LUMP SUM	24.8		2790	5	5	200	5		71	79				
TOTAL	LUMP SUM	LUMP SUM	47.2	LUMP SUM	5526	10	10	363	10	110.29	150	167	LUMP SUM	10		LUMP SUM

PROJECT NO. 17BP.14.R.24
TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-

SHEET 3 OF 3

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DocuSigned by:
 Mike Winters
 5/26/2017

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1346
 OVER NICHOLSON CREEK
 BETWEEN US 64 AND SR 1344

REVISIONS

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

SHEET NO.
 S-3
 TOTAL SHEETS
 14

DRAWN BY : P. JACOB DATE : 08/2015
 CHECKED BY : M. WINTERS DATE : 08/2015
 DESIGN ENGINEER OF RECORD : M. WINTERS DATE : 10/2015

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	1	1.163	--	1.75	0.249	1.36	55'	EL	26.923	0.659	1.21	55'	EL	10.769	0.80	0.249	1.16	55'	EL	26.923		
	HL-93(0pr)	N/A	--	1.564	--	1.35	0.249	1.76	55'	EL	26.923	0.659	1.56	55'	EL	10.769	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.424	51.265	1.75	0.249	1.7	55'	EL	26.923	0.659	1.42	55'	EL	10.769	0.80	0.249	1.46	55'	EL	26.923		
	HS-20(0pr)	36.000	--	1.846	66.455	1.35	0.249	2.2	55'	EL	26.923	0.659	1.85	55'	EL	10.769	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.057	41.264	1.4	0.249	4.46	55'	EL	26.923	0.659	3.96	55'	EL	10.769	0.80	0.249	3.06	55'	EL	26.923	
		SNGARBS2	20.000	--	2.374	47.473	1.4	0.249	3.46	55'	EL	26.923	0.659	2.9	55'	EL	10.769	0.80	0.249	2.37	55'	EL	26.923	
		SNAGRIS2	22.000	--	2.291	50.392	1.4	0.249	3.34	55'	EL	26.923	0.659	2.72	55'	EL	10.769	0.80	0.249	2.29	55'	EL	26.923	
		SNCOTTS3	27.250	--	1.524	41.521	1.4	0.249	2.22	55'	EL	26.923	0.659	1.98	55'	EL	10.769	0.80	0.249	1.52	55'	EL	26.923	
		SNAGGRS4	34.925	--	1.31	45.74	1.4	0.249	1.91	55'	EL	26.923	0.659	1.71	55'	EL	10.769	0.80	0.249	1.31	55'	EL	26.923	
		SNS5A	35.550	--	1.278	45.439	1.4	0.249	1.86	55'	EL	26.923	0.659	1.76	55'	EL	10.769	0.80	0.249	1.28	55'	EL	26.923	
		SNS6A	39.950	--	1.189	47.481	1.4	0.249	1.73	55'	EL	26.923	0.659	1.63	55'	EL	10.769	0.80	0.249	1.19	55'	EL	26.923	
	TTST	SNS7B	42.000	--	1.132	47.562	1.4	0.249	1.65	55'	EL	26.923	0.659	1.64	55'	EL	10.769	0.80	0.249	1.13	55'	EL	26.923	
		TNAGRIT3	33.000	--	1.454	47.984	1.4	0.249	2.12	55'	EL	26.923	0.659	1.92	55'	EL	10.769	0.80	0.249	1.45	55'	EL	26.923	
		TNT4A	33.075	--	1.465	48.451	1.4	0.249	2.14	55'	EL	26.923	0.659	1.85	55'	EL	10.769	0.80	0.249	1.46	55'	EL	26.923	
		TNT6A	41.600	--	1.213	50.478	1.4	0.249	1.77	55'	EL	26.923	0.659	1.81	55'	EL	10.769	0.80	0.249	1.21	55'	EL	26.923	
		TNT7A	42.000	--	1.228	51.576	1.4	0.249	1.79	55'	EL	26.923	0.659	1.67	55'	EL	10.769	0.80	0.249	1.23	55'	EL	26.923	
		TNT7B	42.000	--	1.282	53.827	1.4	0.249	1.87	55'	EL	26.923	0.659	1.58	55'	EL	10.769	0.80	0.249	1.28	55'	EL	26.923	
		TNAGRIT4	43.000	--	1.213	52.158	1.4	0.249	1.77	55'	EL	26.923	0.659	1.52	55'	EL	10.769	0.80	0.249	1.21	55'	EL	26.923	
TNAGT5A	45.000	--	1.136	51.134	1.4	0.249	1.66	55'	EL	26.923	0.659	1.55	55'	EL	10.769	0.80	0.249	1.14	55'	EL	26.923			
TNAGT5B	45.000	3	1.116	50.224	1.4	0.249	1.63	55'	EL	26.923	0.659	1.44	55'	EL	10.769	0.80	0.249	1.12	55'	EL	26.923			

LOAD FACTORS:

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

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)

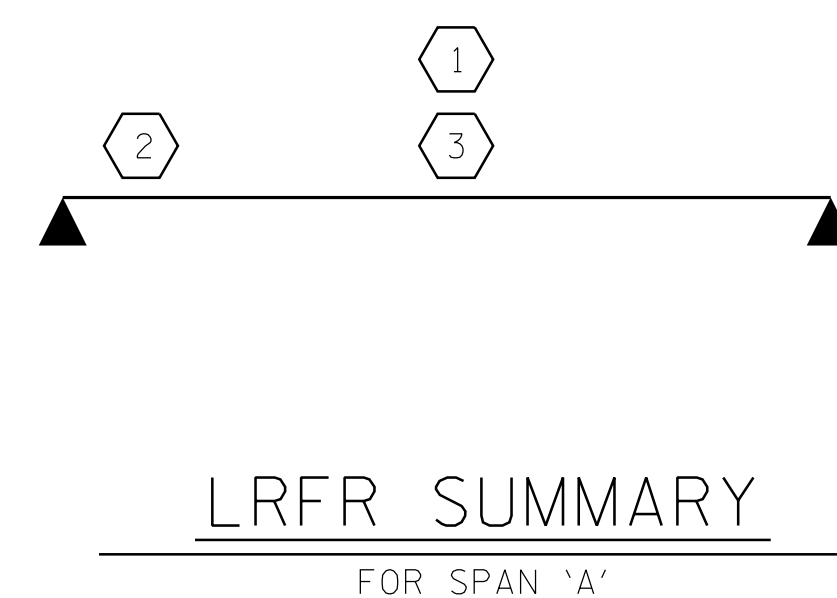
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



PROJECT NO. 17BP.14.R.24
TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-

ASSEMBLED BY: P. JACOB DATE: 08/2015
 CHECKED BY: M. WINTERS DATE: 08/2015
 DESIGN ENGINEER OF RECORD: M. WINTERS DATE: 08/2015

DRAWN BY: CVC 6/10
 CHECKED BY: DNS 6/10

5/26/2017
 P:\1658-05\CADD\870113\Structures\870113_LRFR.dgn
 thuffman

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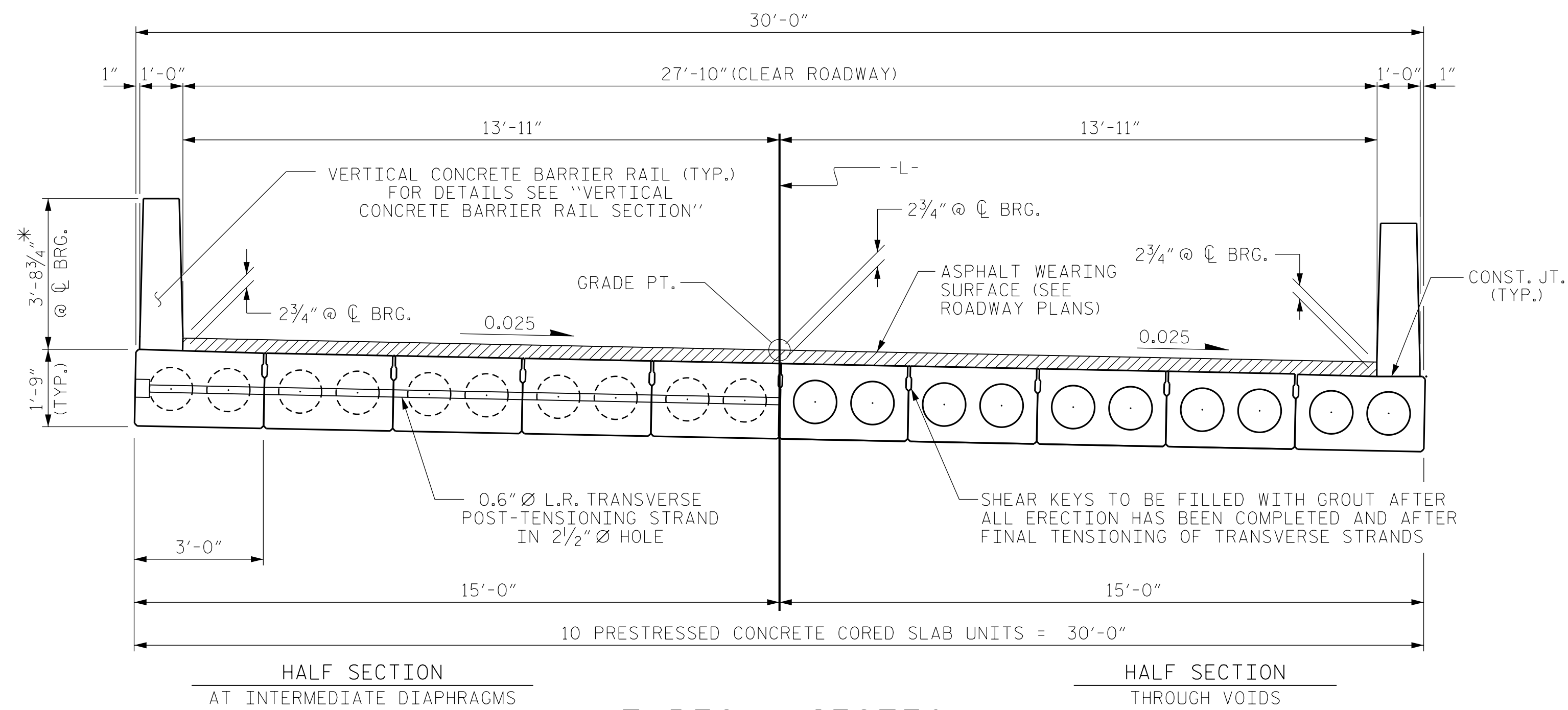


DocuSigned by:
 Mike Winters 5/26/2017

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 LRFR SUMMARY FOR
 55' CORED SLAB UNIT
 120° SKEW
 (NON-INTERSTATE TRAFFIC)

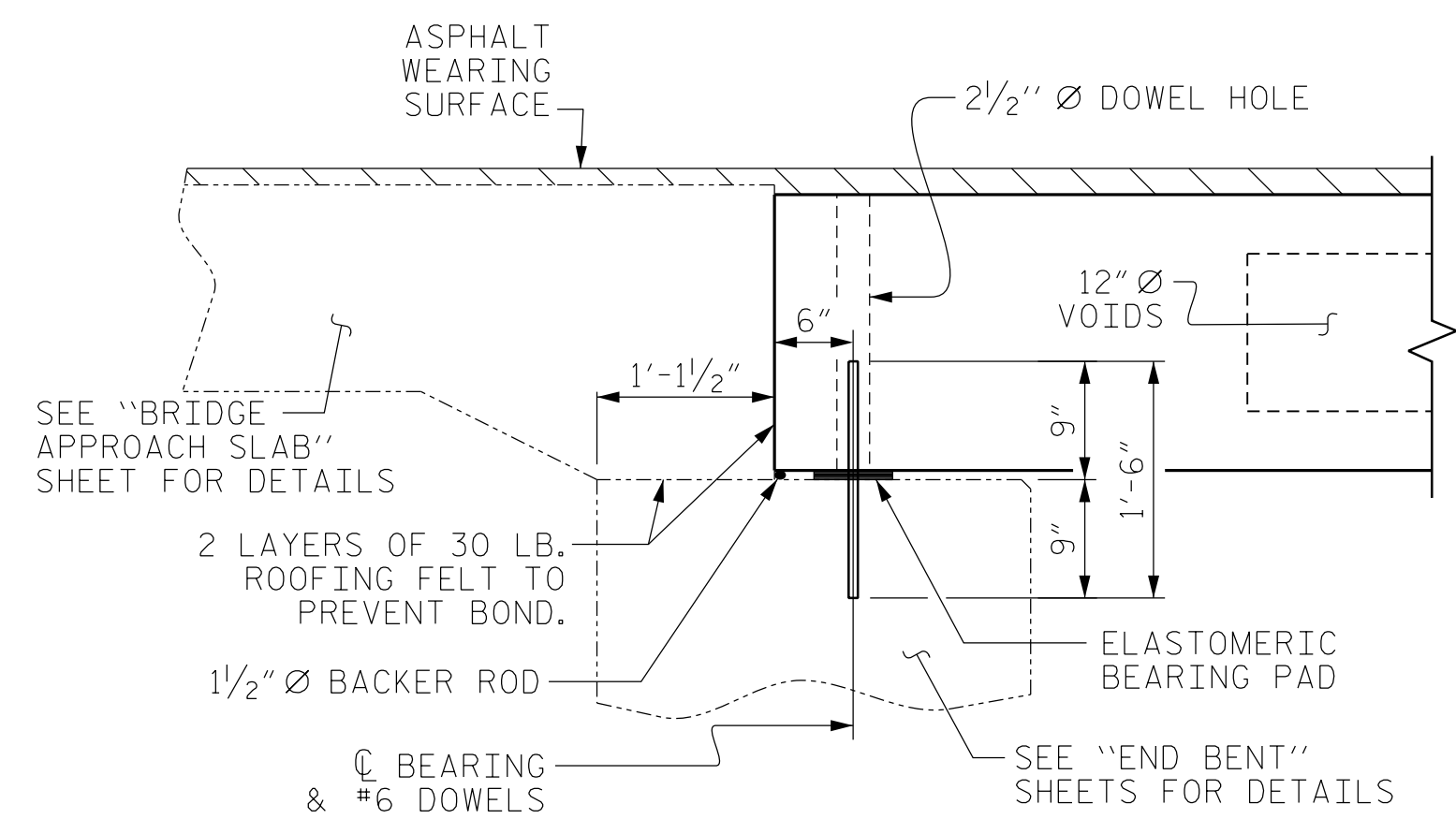
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			14

STD. NO. 21LRFR1_60&120S_55L

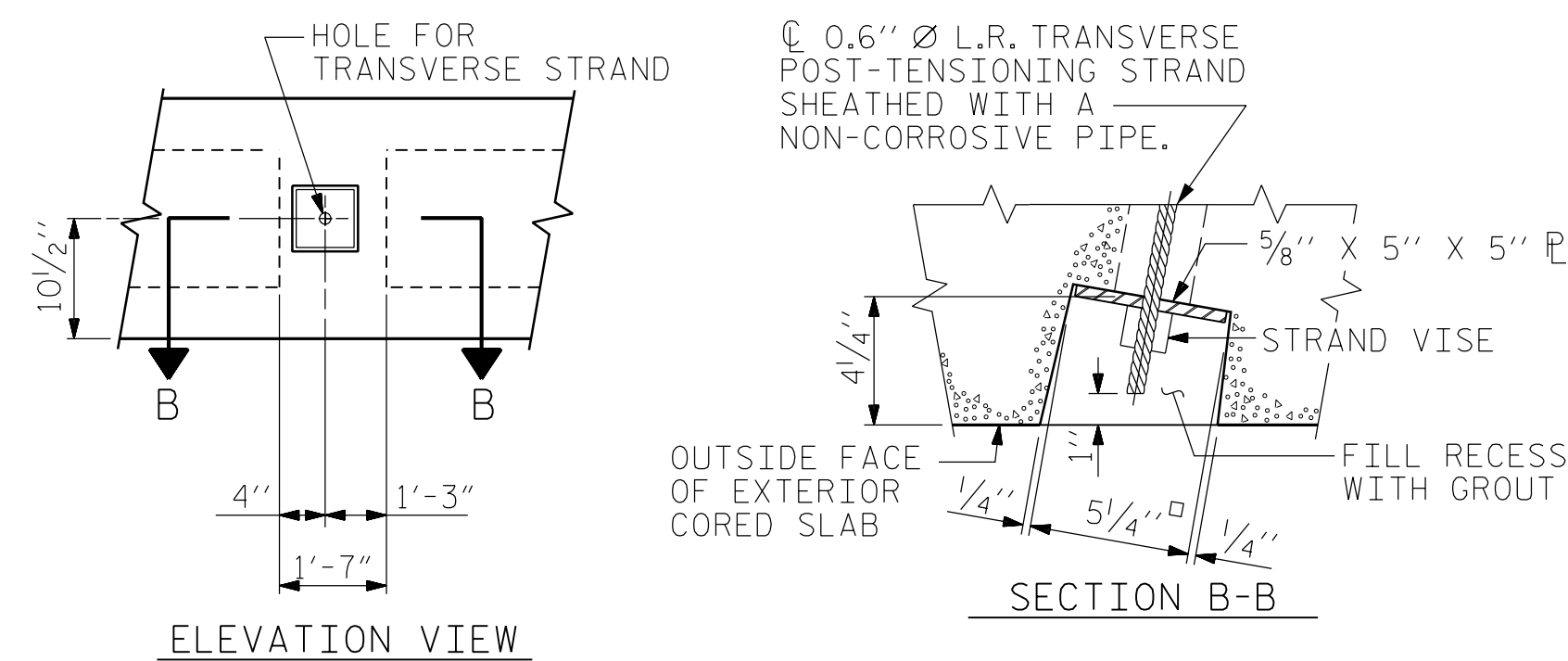


* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

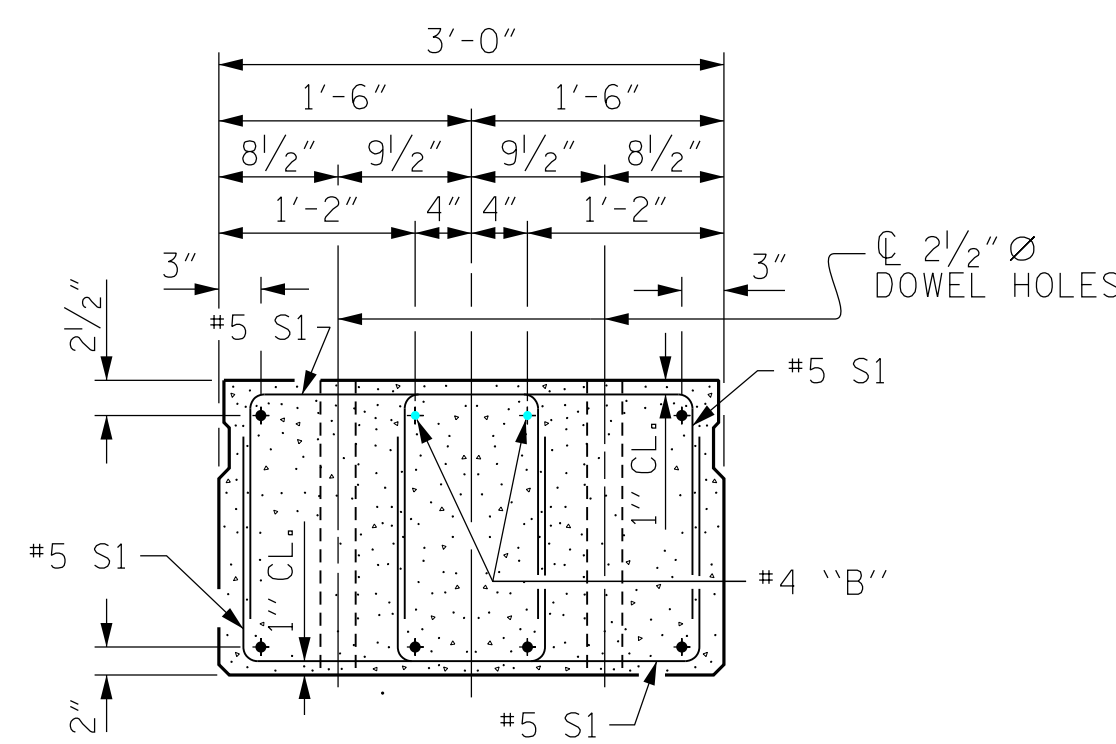
FIXED END



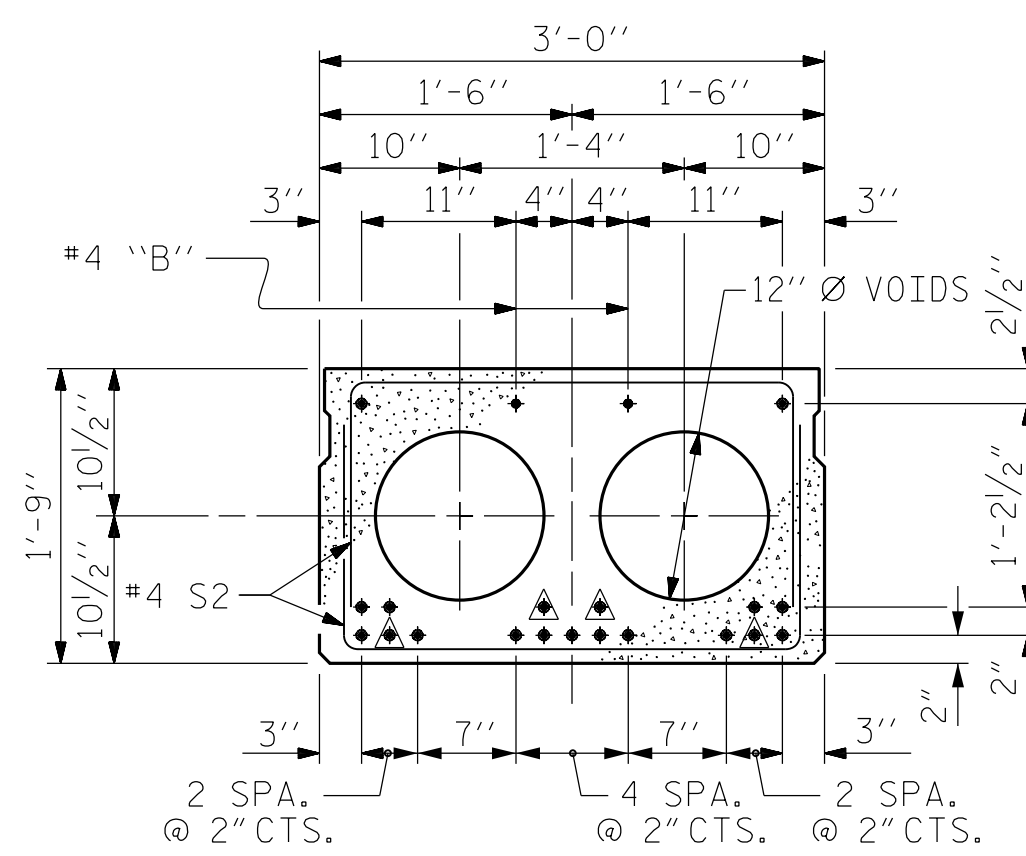
SECTION AT END BENT



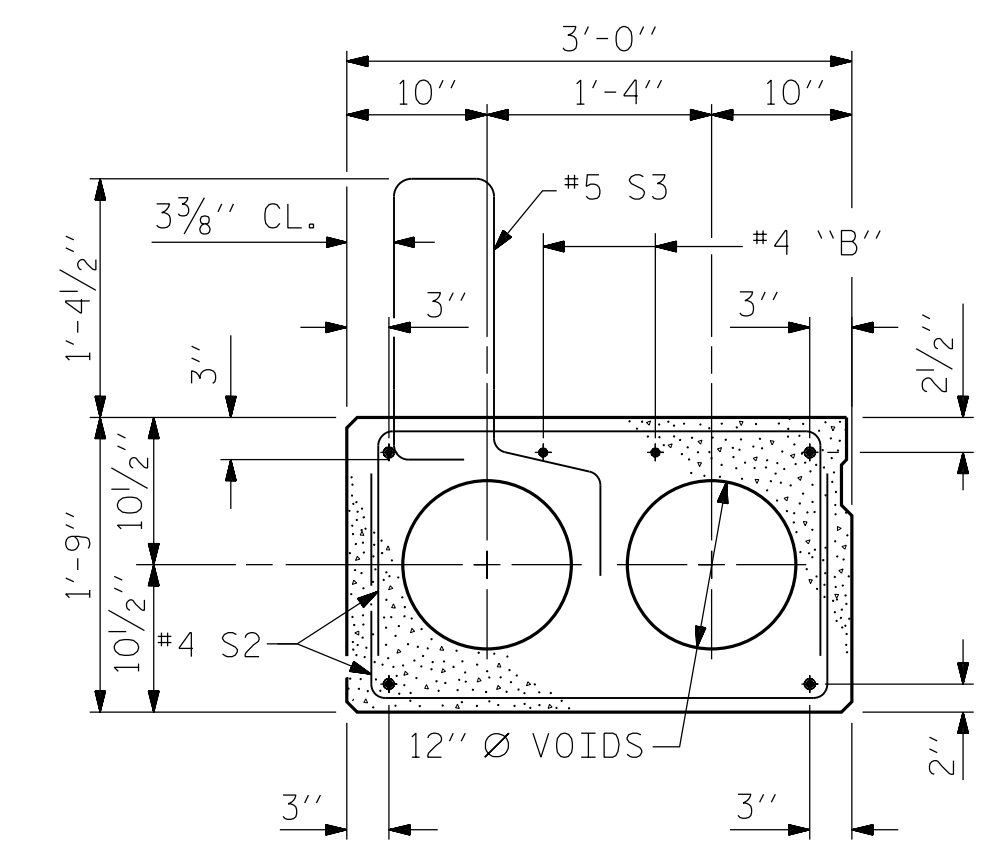
GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



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



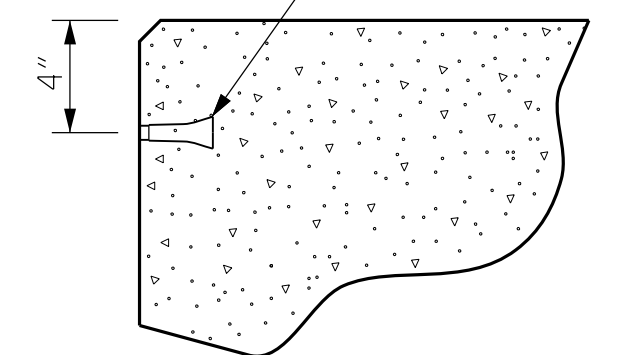
0.6" Ø LOW RELAXATION STRAND LAYOUT



▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND

PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.

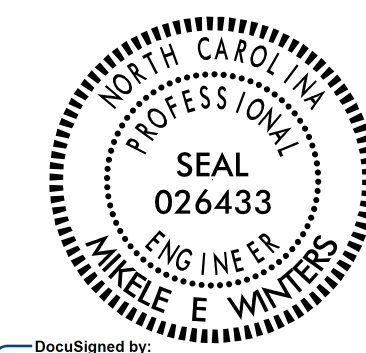


PROJECT NO. 17BP.14.R.24
 TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 120° SKEW

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

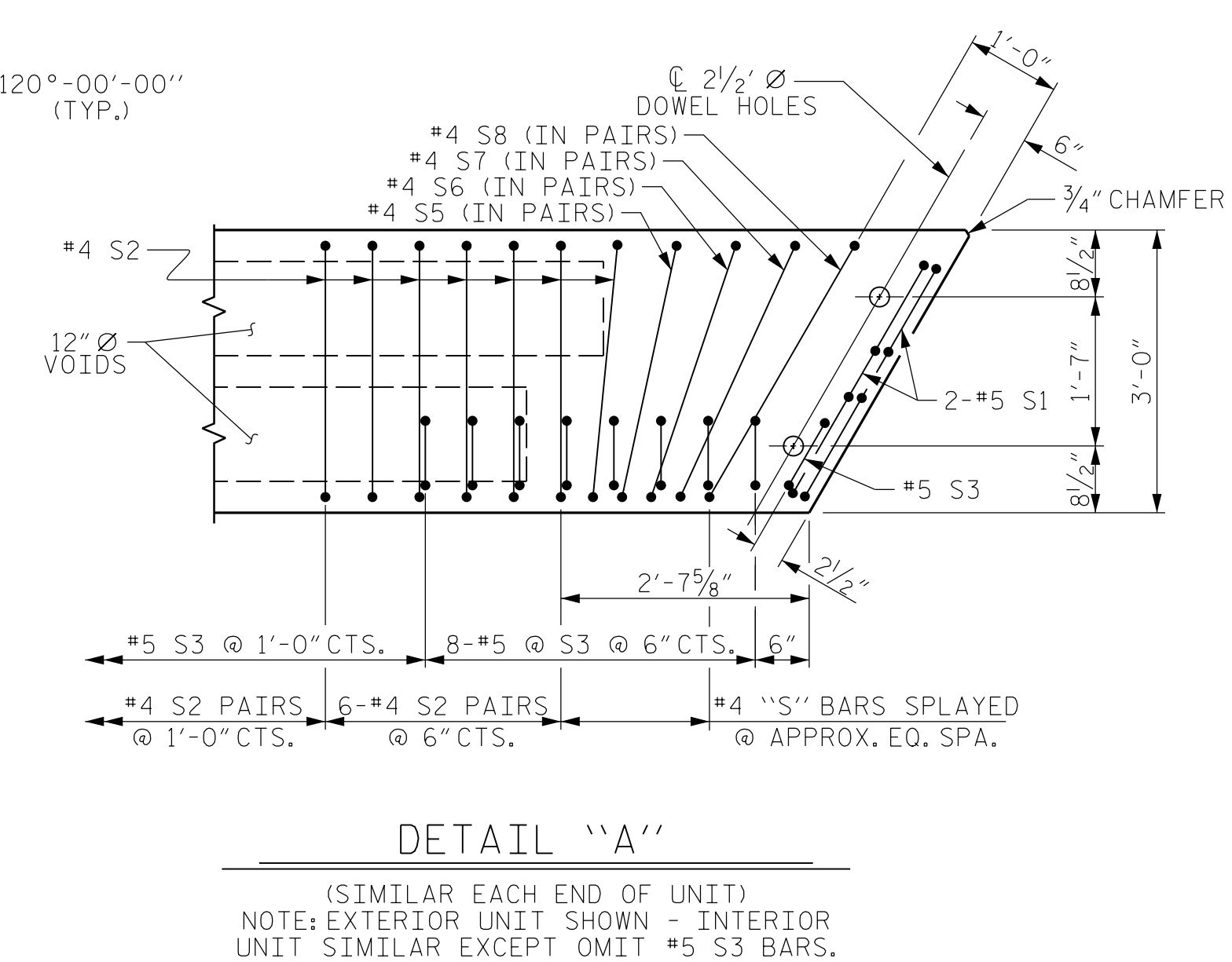
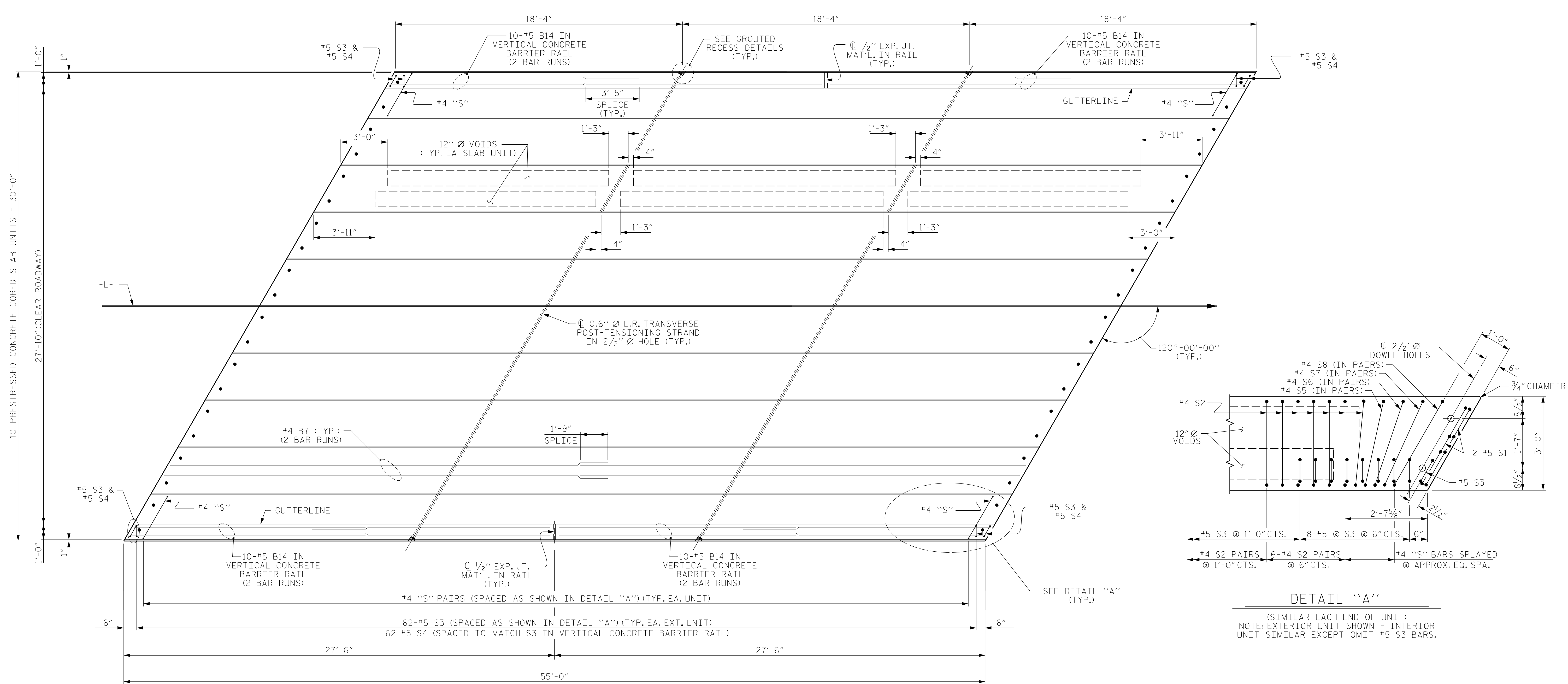


moffatt & nichol
 4700 FALLS OF NEUSE ROAD, SUITE 300
 RALEIGH, NORTH CAROLINA 27609
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 NC License NO.: F-0105

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY: P. JACOB DATE: 08/2015
 CHECKED BY: M. WINTERS DATE: 08/2015
 DESIGN ENGINEER OF RECORD: M. WINTERS DATE: 10/2015

DRAWN BY: DGE 5/09
 CHECKED BY: BCH 6/09
 REV. 8/14 MAA/TMG



PLAN OF UNIT

PROJECT NO. 17BP.14.R.24
 TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-

SHEET 2 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 55' UNIT
 27'-10" CLEAR ROADWAY
 120° SKEW

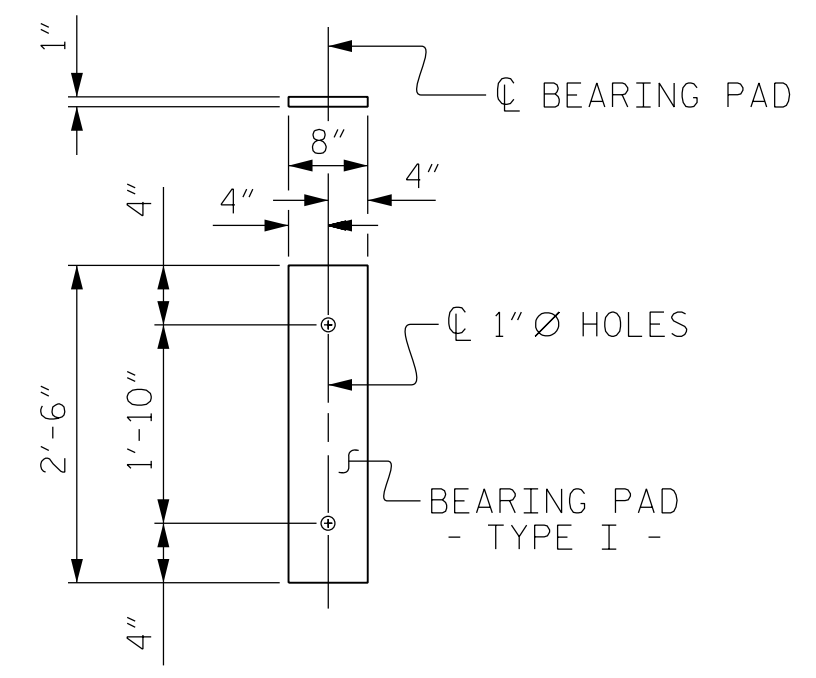
ASSEMBLED BY: P. JACOB	DATE: 08/2015
CHECKED BY: M. WINTERS	DATE: 08/2015
DESIGN ENGINEER OF RECORD: M. WINTERS	DATE: 08/2015
DRAWN BY: DGE 3/09	REV. 12/5/11 MAA/AAC
CHECKED BY: BCH 3/09	REV. 8/14 MAA/TMG

**DOCUMENT NOT CONSIDERED FINAL
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			14



FIXED END
(TYPE I - 20 REQ'D)

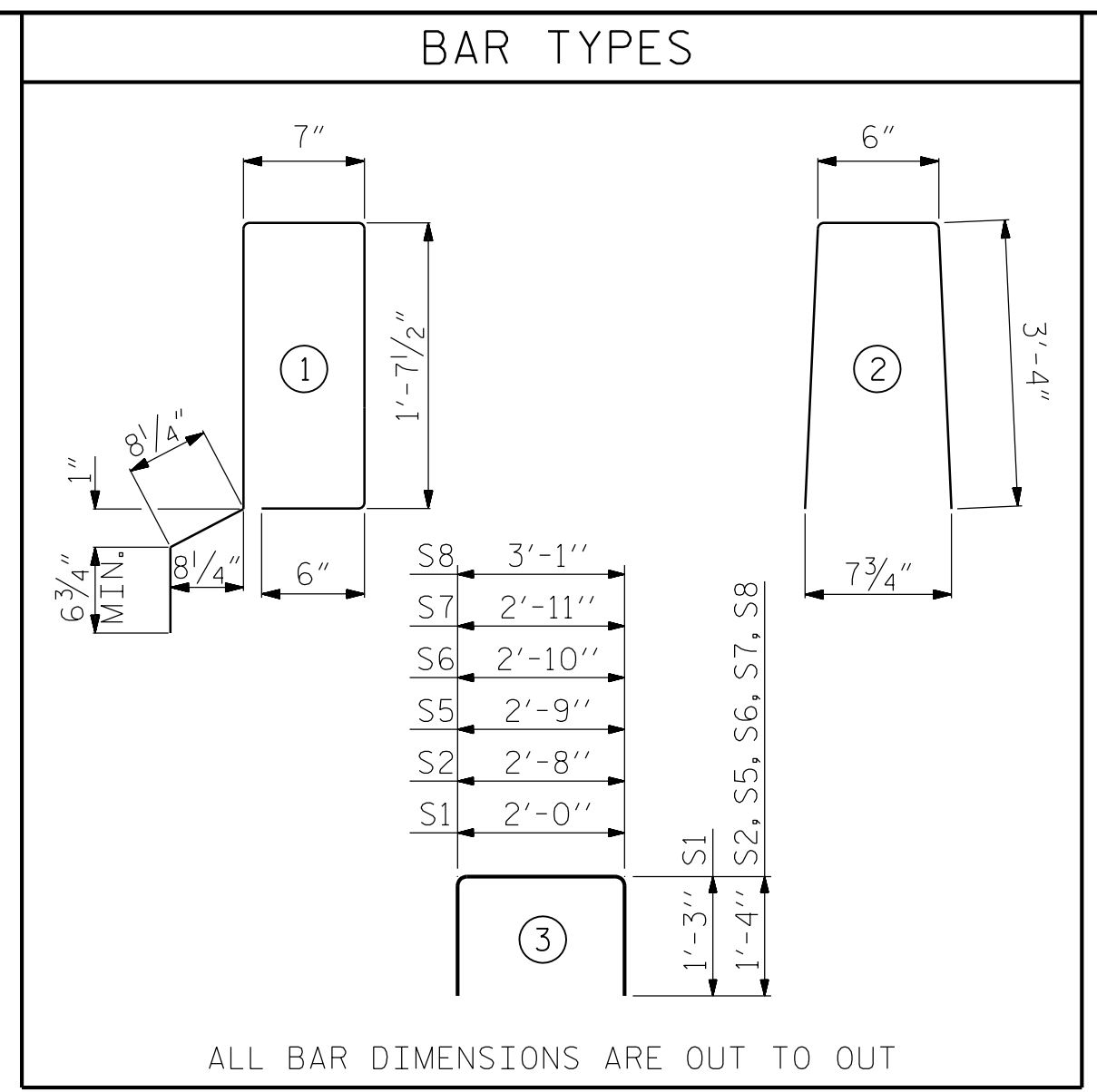
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
55' UNIT			
EXTERIOR C.S.	2	55'-0"	110'-0"
INTERIOR C.S.	8	55'-0"	440'-0"
TOTAL	10	-	550'-0"

DEAD LOAD DEFLECTION AND CAMBER	
55' CORED SLAB UNIT	3'-0" x 1'-9"
	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/8" ↓
FINAL CAMBER	1/8" ↑

** INCLUDES FUTURE WEARING SURFACE



ALL BAR DIMENSIONS ARE OUT TO OUT

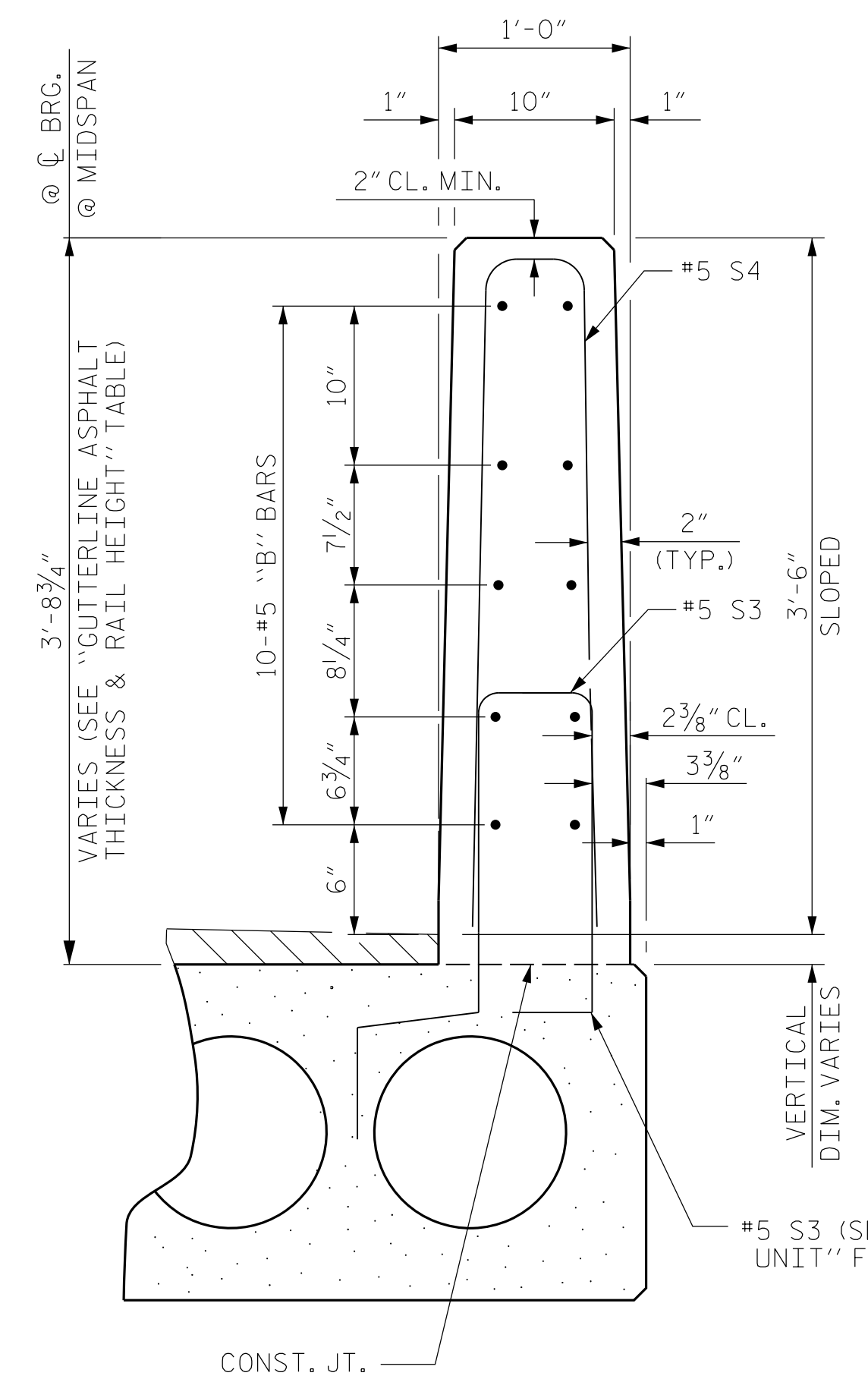
NOTES

- ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.
- RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.
- THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.
- THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER, SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.
- WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX 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.
- ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.
- PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
55' UNIT	1 5/8"	3'-7 5/8"

BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT							
BAR NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT	
B7	4	#4 STR	28'-3"	75	28'-3"	75	
S1	8	#5 3	4'-6"	38	4'-6"	38	
S2	112	#4 3	5'-4"	399	5'-4"	399	
*S3	64	#5 1	5'-7"	373			
S5	4	#4 3	5'-5"	14	5'-5"	14	
S6	4	#4 3	5'-6"	15	5'-6"	15	
S7	4	#4 3	5'-7"	15	5'-7"	15	
S8	4	#4 3	5'-9"	15	5'-9"	15	
REINFORCING STEEL				LBS.	571	571	
*EPOXY COATED REINFORCING STEEL				LBS.	373		
6500 P.S.I. CONCRETE				CU. YDS.	8.0	8.0	
0.6" Ø L.R. STRANDS				No.	19	19	

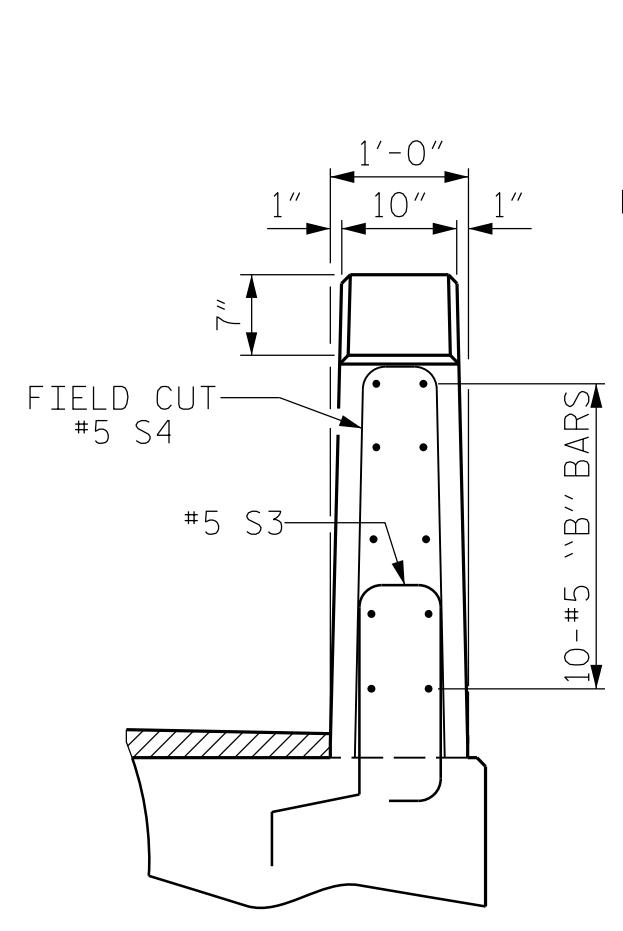
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
55' UNIT						
*B14	80	80	#5	STR	15'-6"	1293
*S4	128	128	#5	2	7'-2"	957
*EPOXY COATED REINFORCING STEEL					LBS.	2250
CLASS AA CONCRETE					CU. YDS.	14.1
TOTAL VERTICAL CONCRETE BARRIER RAIL					LN. FT.	110.29



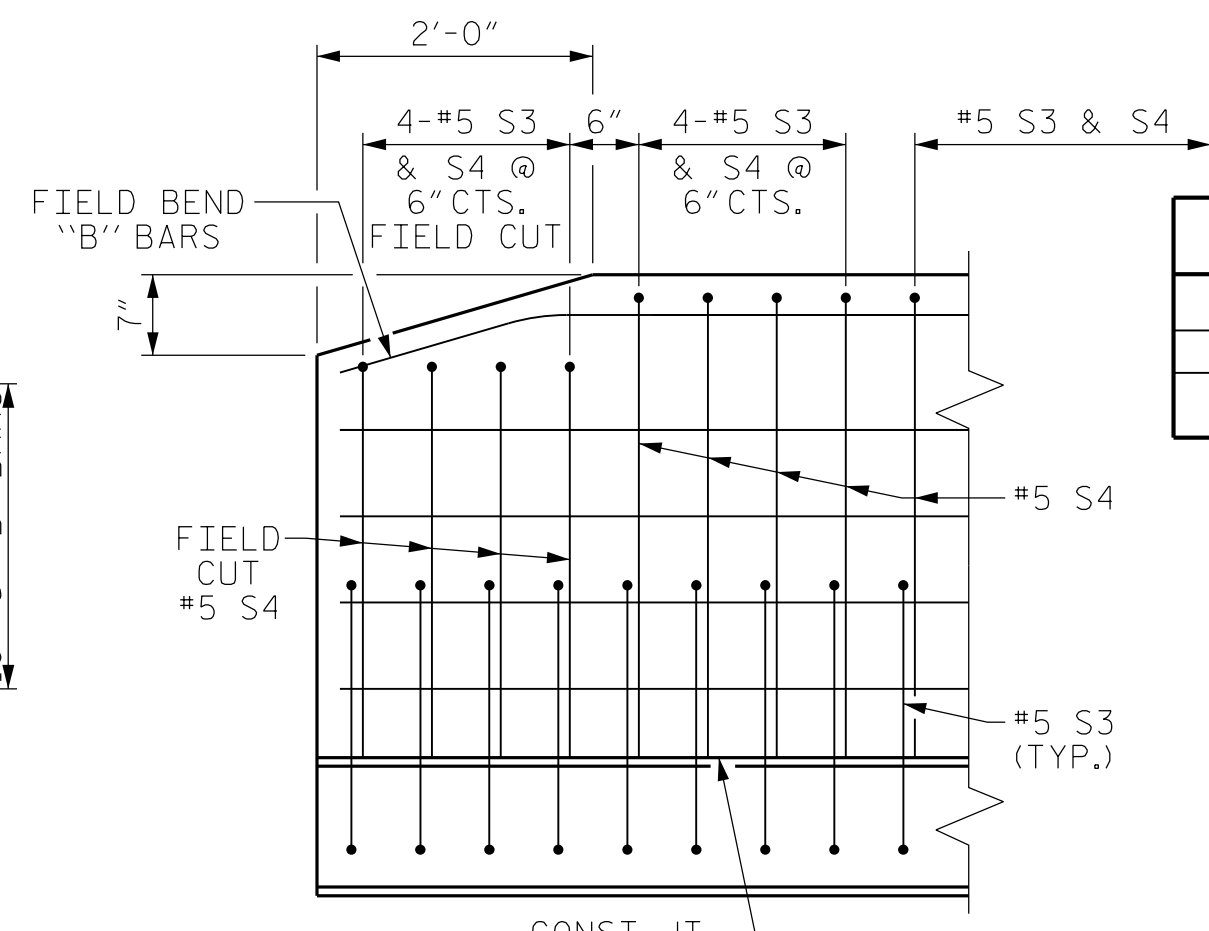
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

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



END VIEW



SIDE VIEW

END OF RAIL DETAILS

CONCRETE RELEASE STRENGTH	
UNIT	PSI
55' UNIT	4900

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 17BP.14.R.24
TRANSYLVANIA COUNTY
STATION: 13+01.80 -L-

SHEET 3 OF 3

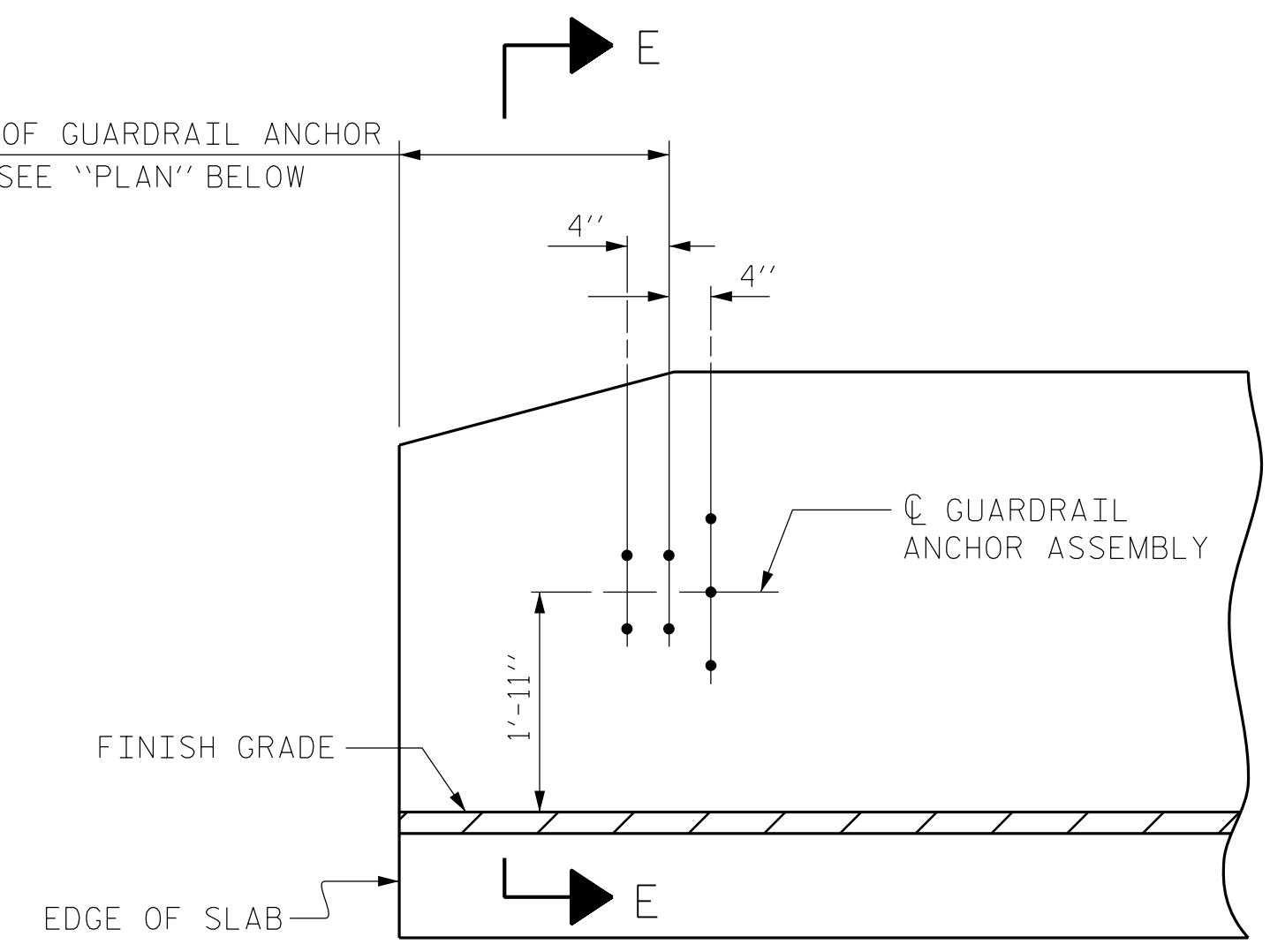
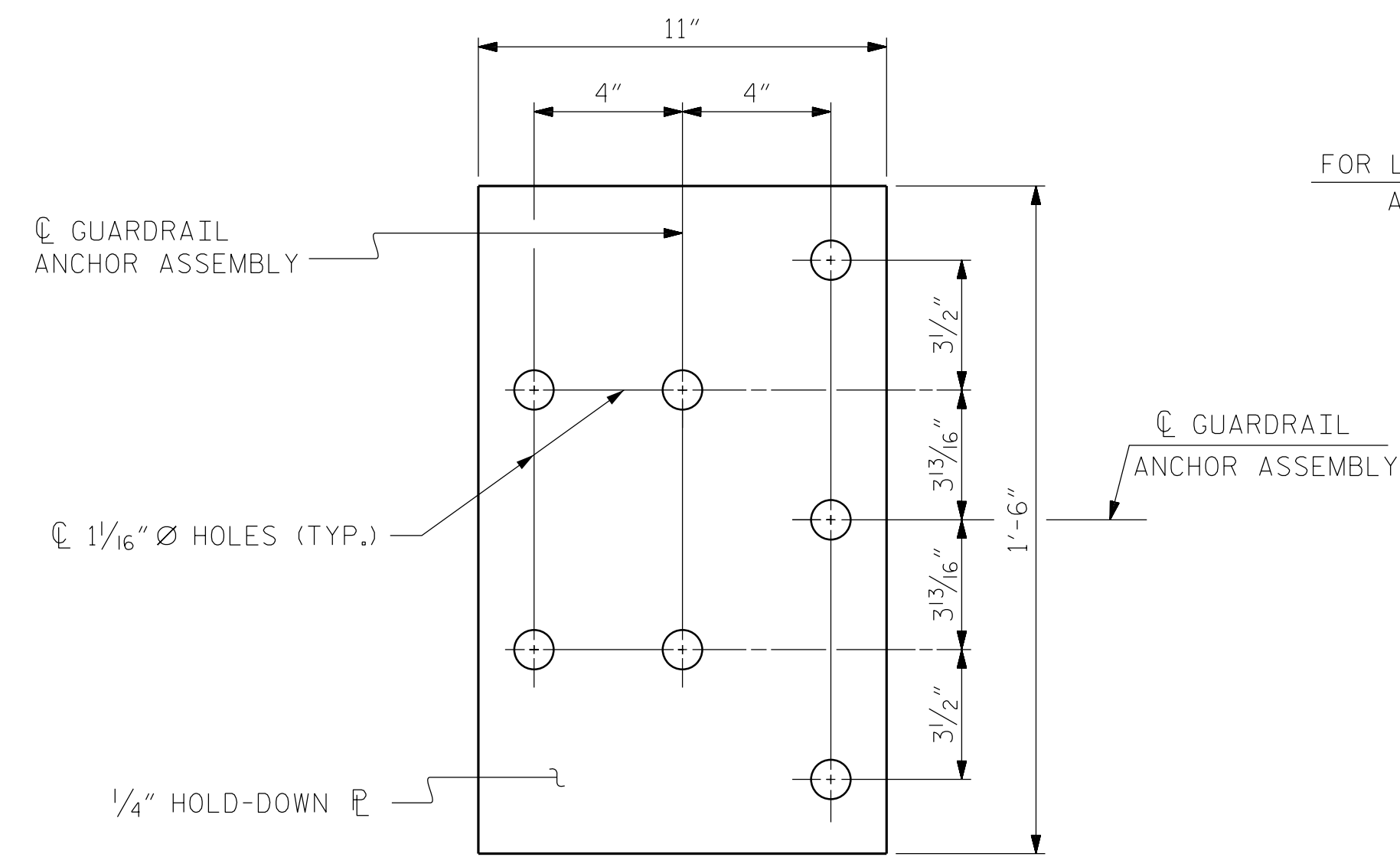
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
120° SKEW



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS 14
2			4			

ASSEMBLED BY: P. JACOB	DATE: 08/2015
CHECKED BY: M. WINTERS	DATE: 08/2015
DESIGN ENGINEER OF RECORD: M. WINTERS	DATE: 08/2015
DRAWN BY: DGE 5/09	REV. 11/14
CHECKED BY: BCH 6/09	MAA/TMG

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(919) 781-4626 VOICE (919) 781-4869 FAX
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FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW

NOTES

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

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

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

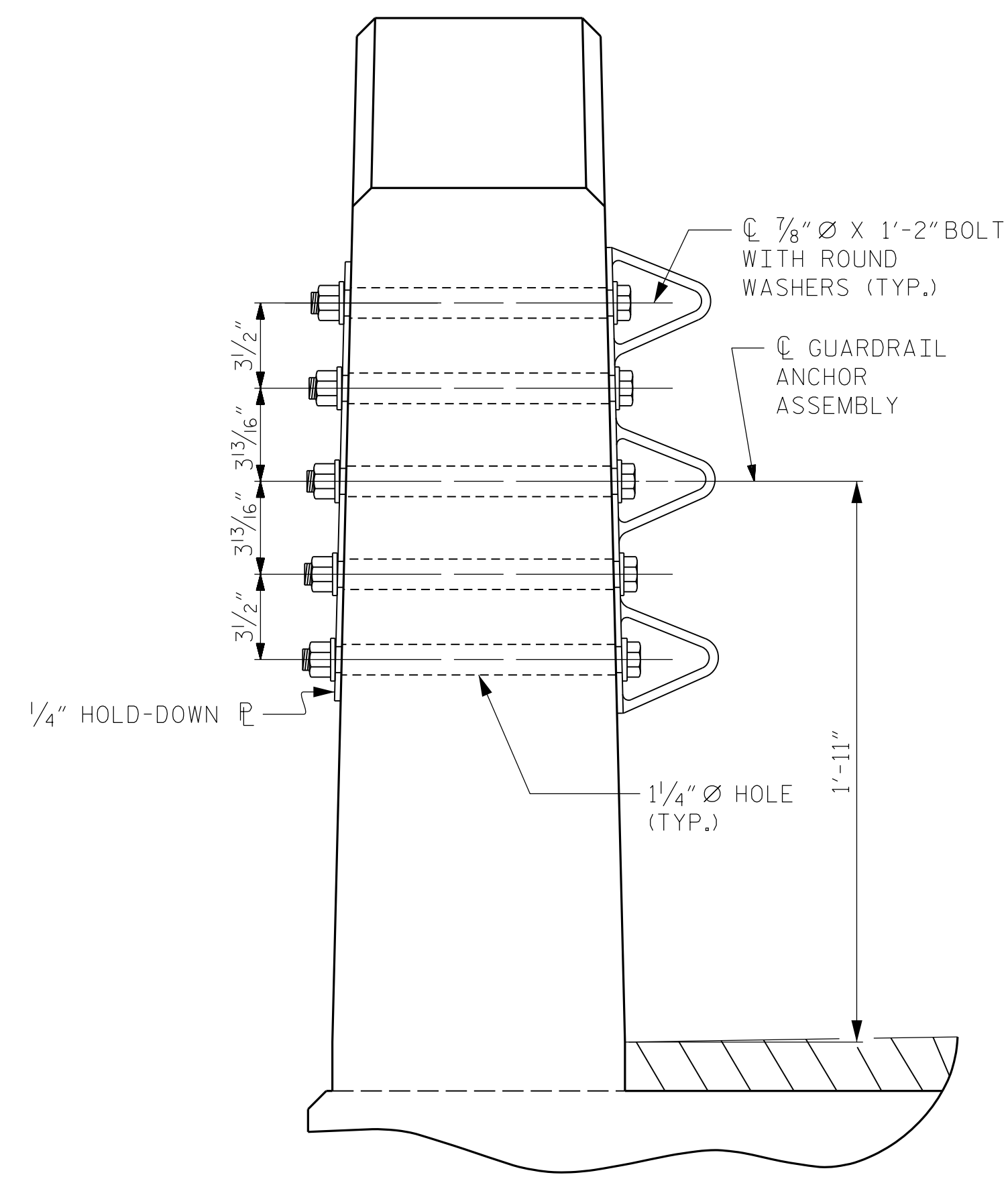
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

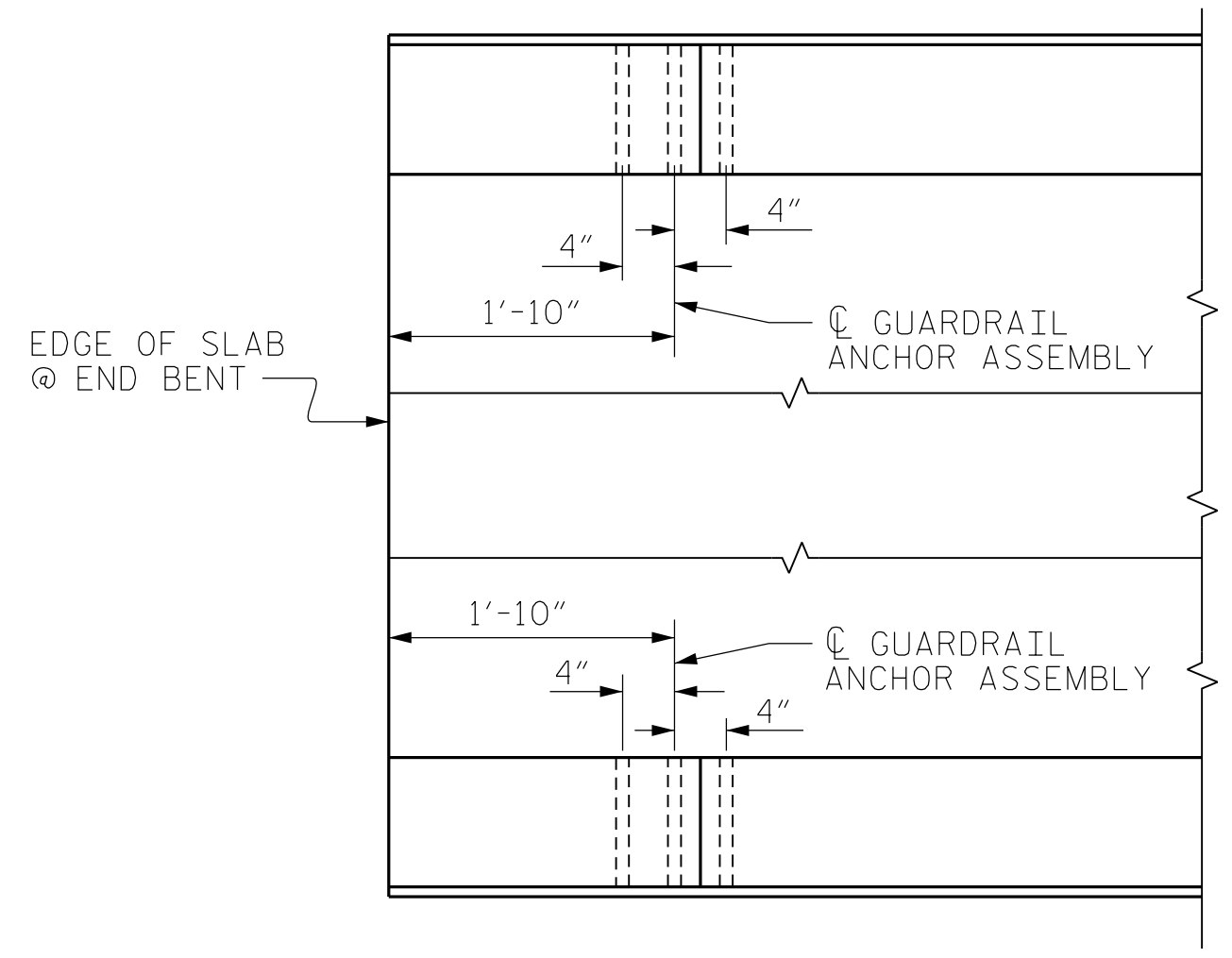
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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.



GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT 1 SHOWN, END BENT 2 SIMILAR.



* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 17BP.14.R.24
 TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-

ASSEMBLED BY : C. POWELL	DATE : 10/2014
CHECKED BY : M. WINTERS	DATE : 10/2014
DESIGN ENGINEER OF RECORD : M. WINTERS	DATE : 08/2015
DRAWN BY : MAA 5/10	REV. 12/5/11 MAA/GM
CHECKED BY : GM 5/10	REV. 6/13 MAA/GM
	REV. 1/15 MAA/GM

5/26/2017
 P:\1698-05\CADD\870113\Structures\870113.gra3.12.dgn
 thuffman

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STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

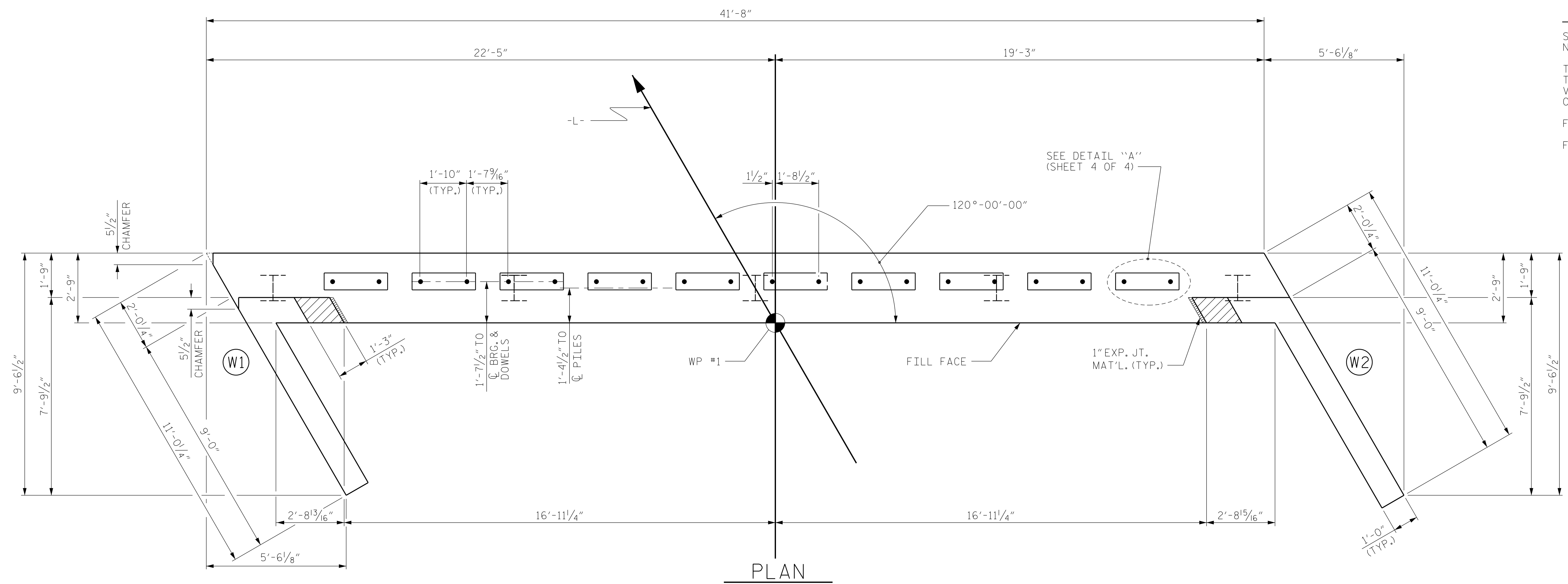
STANDARD
 GUARDRAIL ANCHORAGE
 FOR VERTICAL CONCRETE
 BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			14

STD. NO. GRA3

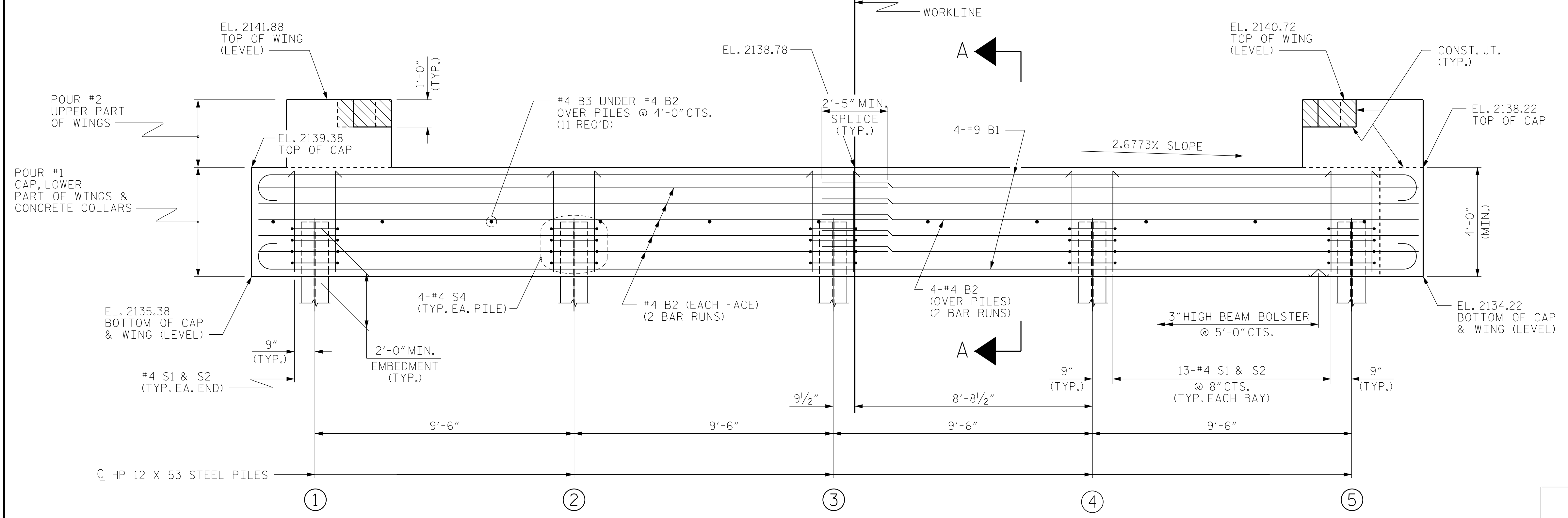
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
 FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.
 FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

TOP OF PILE ELEVATIONS	
①	2137.32
②	2137.07
③	2136.81
④	2136.56
⑤	2136.30



ELEVATION

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PROJECT NO. 17BP.14.R.24
TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

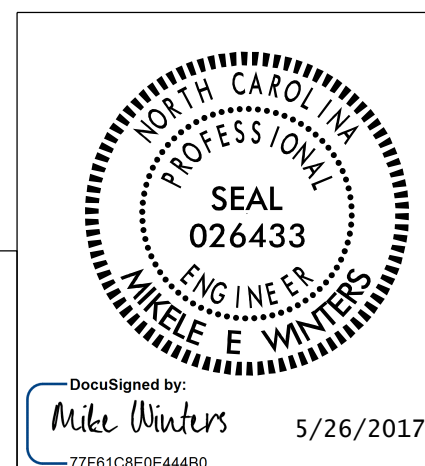
SUBSTRUCTURE
 END BENT No. 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			14

ASSEMBLED BY : P. JACOB DATE : 08/2015
 CHECKED BY : M. WINTERS DATE : 08/2015
 DESIGN ENGINEER OF RECORD : M. WINTERS DATE : 10/2015
 DRAWN BY : WJH 12/11
 CHECKED BY : AAC 12/11
 REV. 4/15 MAA/TMG

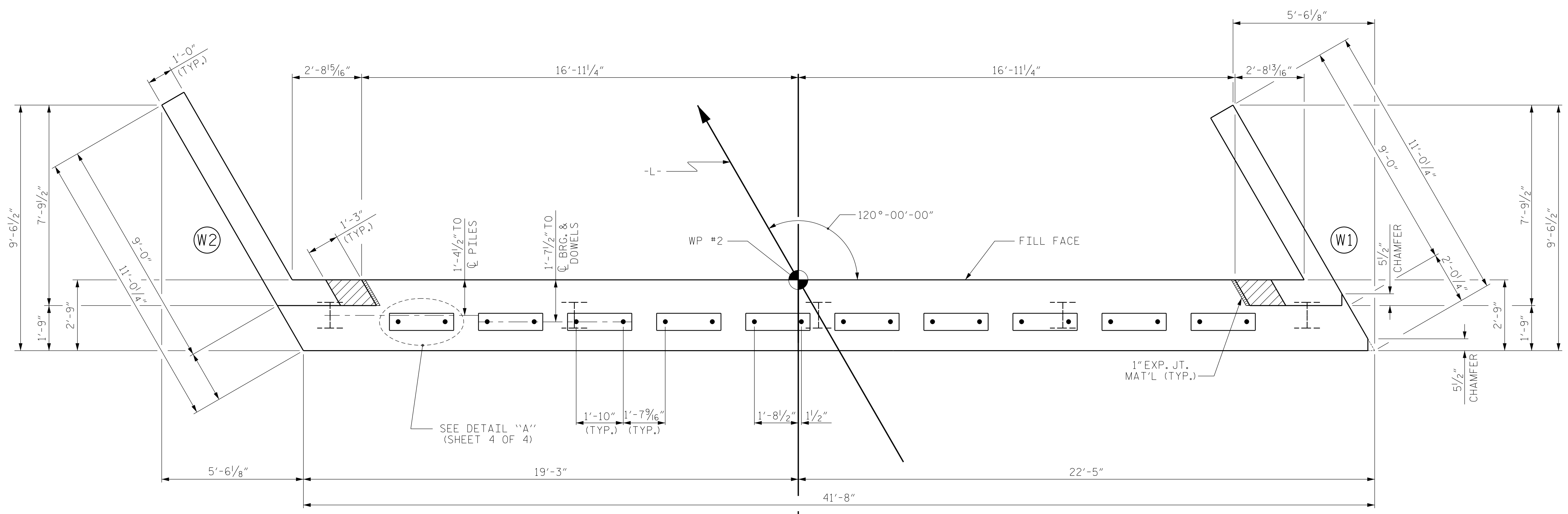
WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

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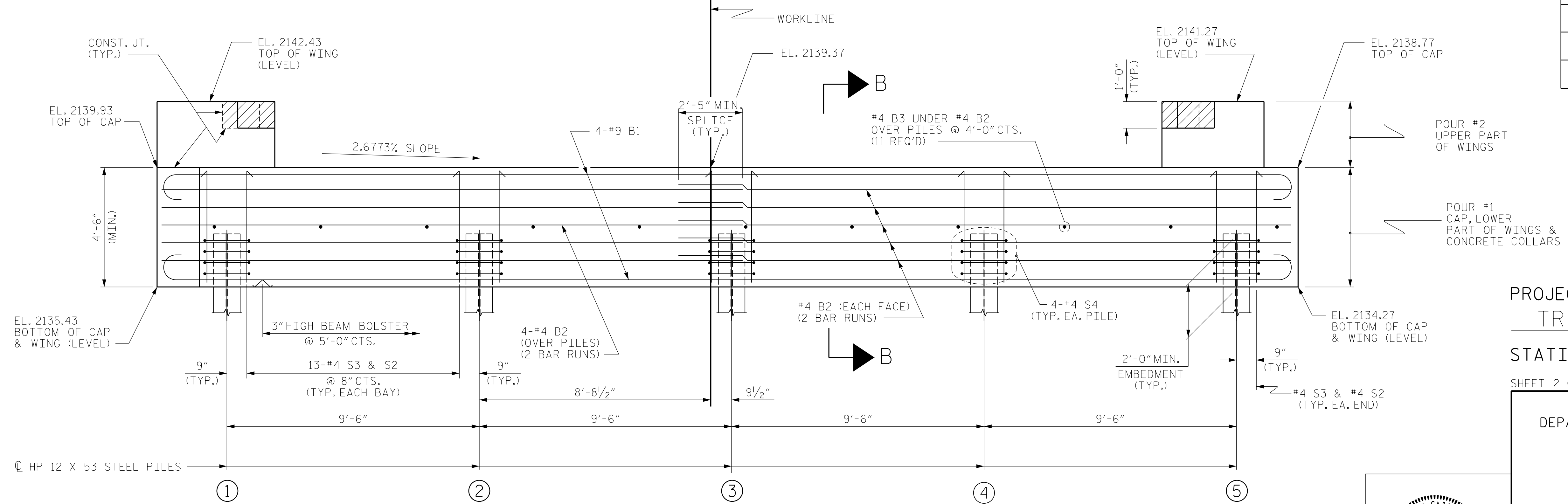
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
 THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
 FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.
 FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

TOP OF PILE ELEVATIONS	
①	2137.37
②	2137.12
③	2136.86
④	2136.61
⑤	2136.36



ELEVATION

PROJECT NO. 17BP.14.R.24
 TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 2

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DRAWN BY: P. JACOB DATE: 08/2015
 CHECKED BY: M. WINTERS DATE: 08/2015
 DESIGN ENGINEER OF RECORD: M. WINTERS DATE: 08/2015

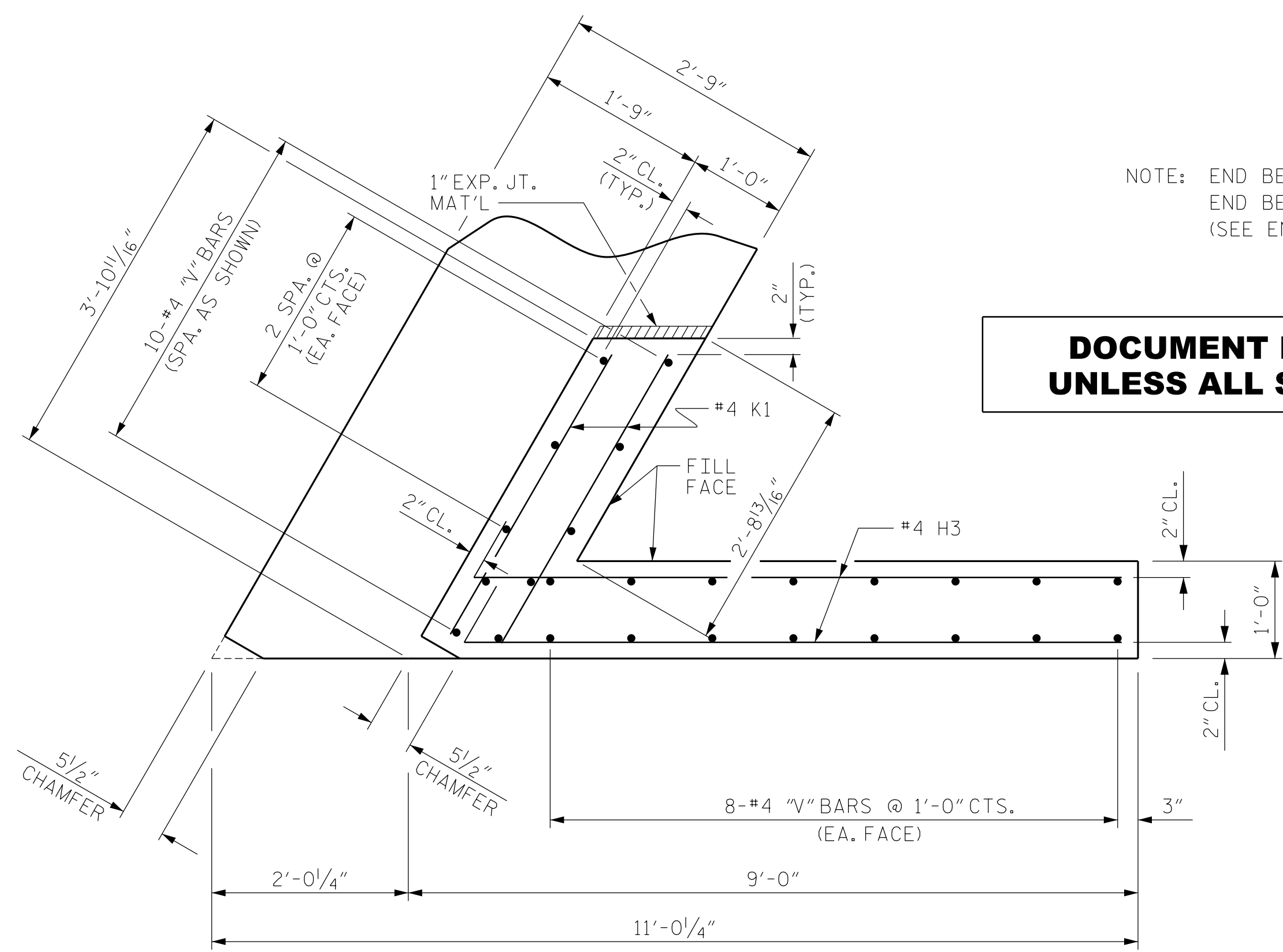
WINGS NOT SHOWN FOR CLARITY.
 FOR SECTION A-A, SEE SHEET 4 OF 4.
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

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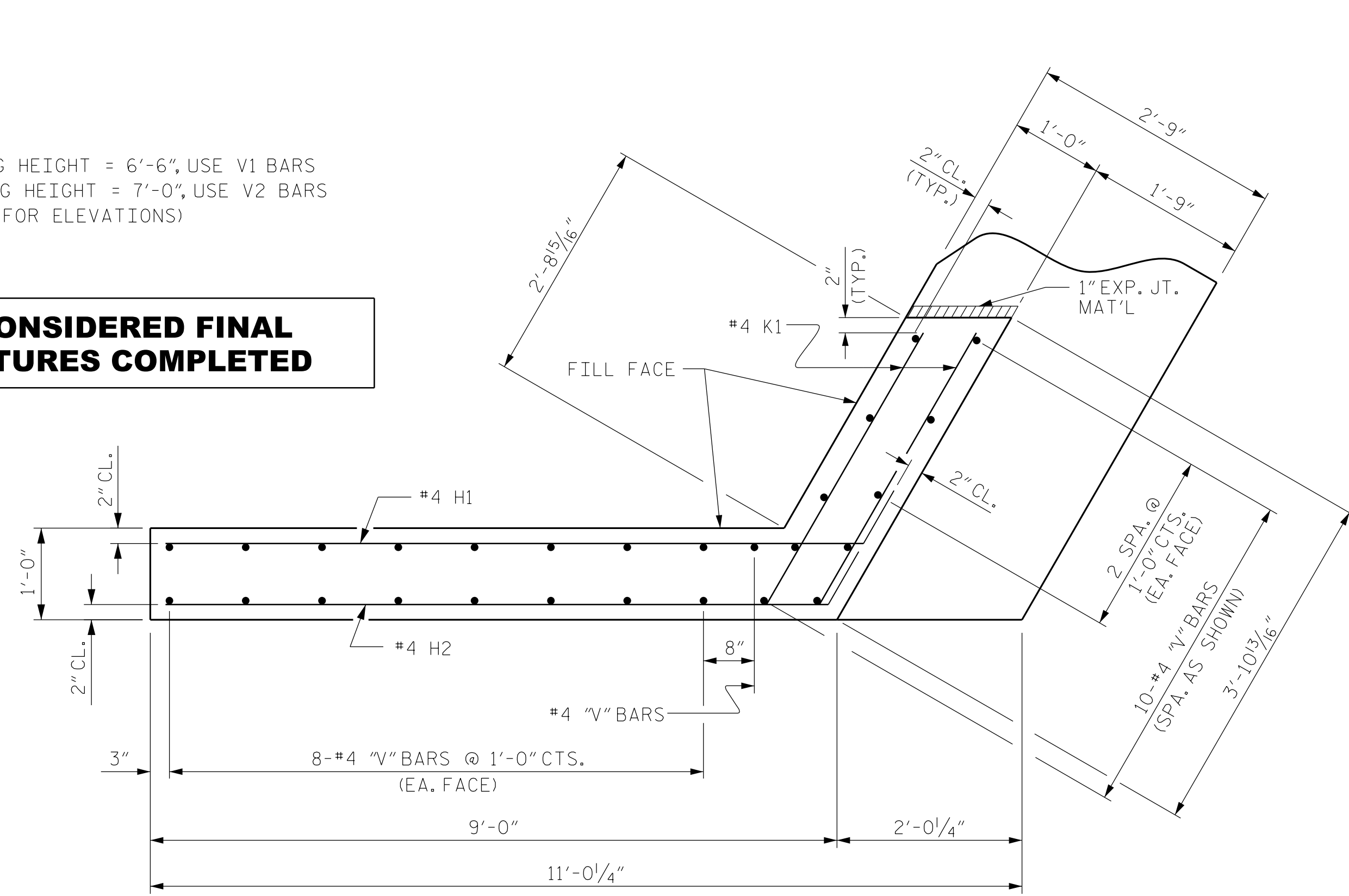
REVISIONS						SHEET NO. S-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 14
2			4			

NOTE: END BENT 1 WING HEIGHT = 6'-6", USE V1 BARS
 END BENT 2 WING HEIGHT = 7'-0", USE V2 BARS
 (SEE END BENTS FOR ELEVATIONS)

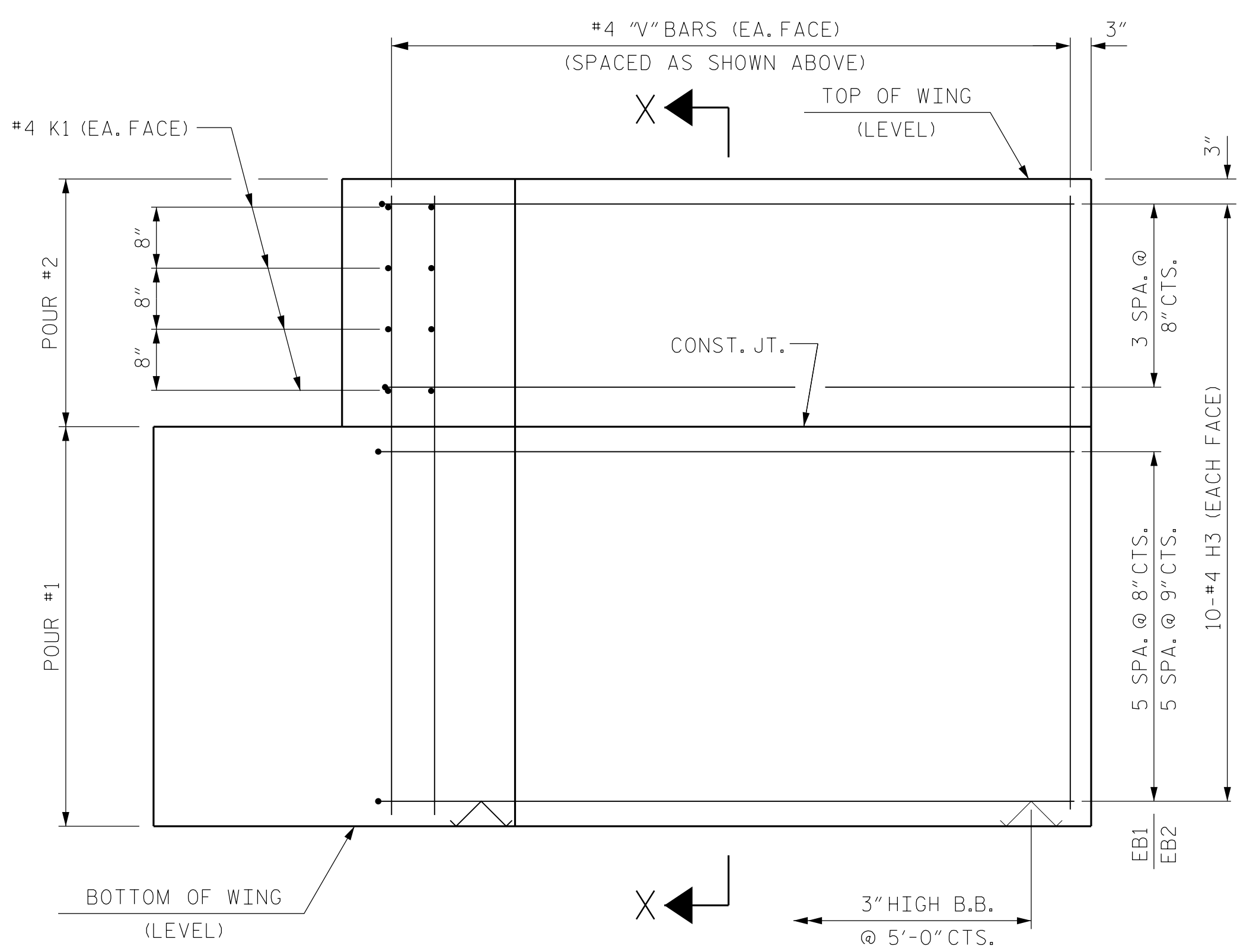
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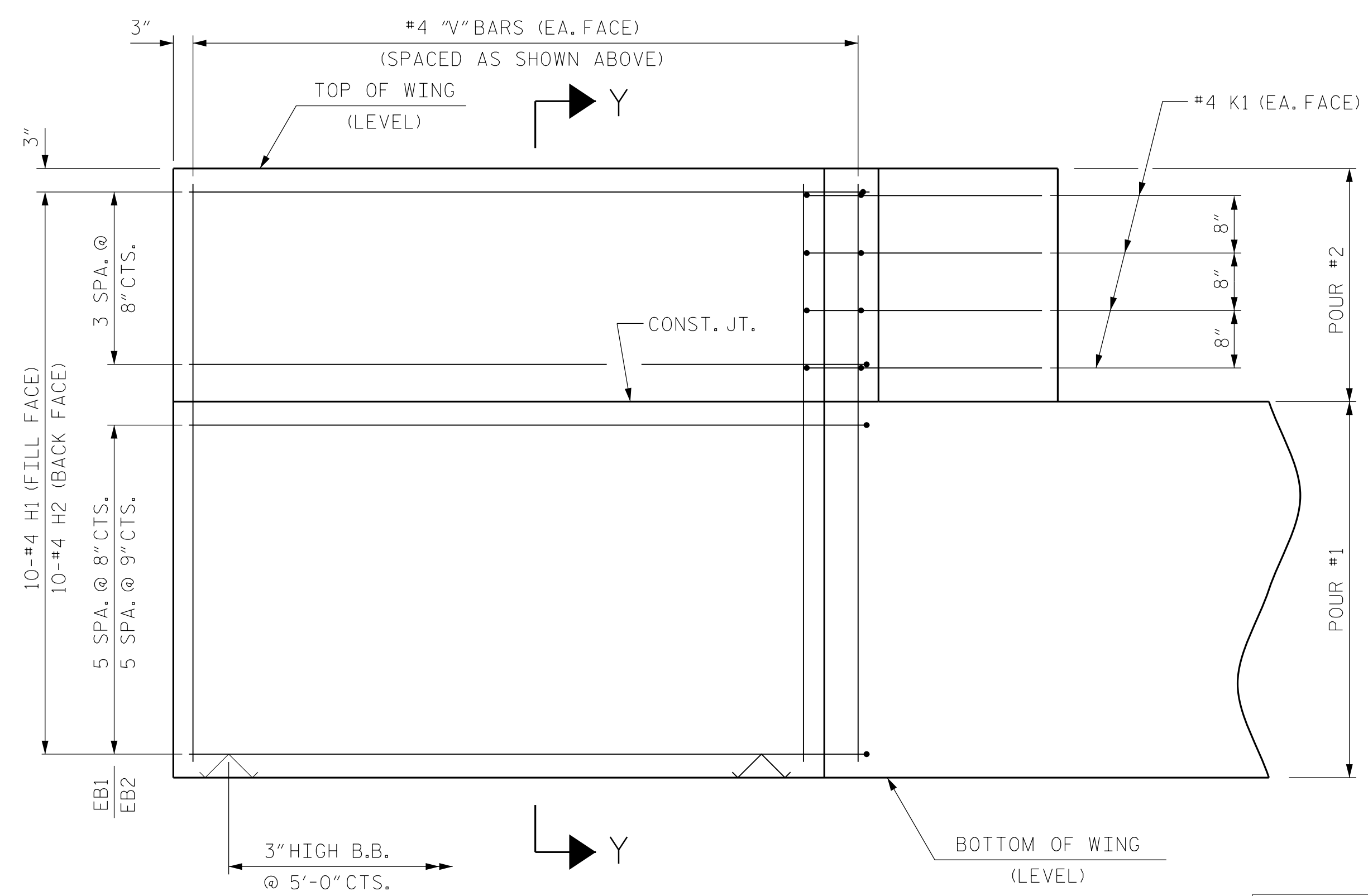
PLAN OF WING (W1)



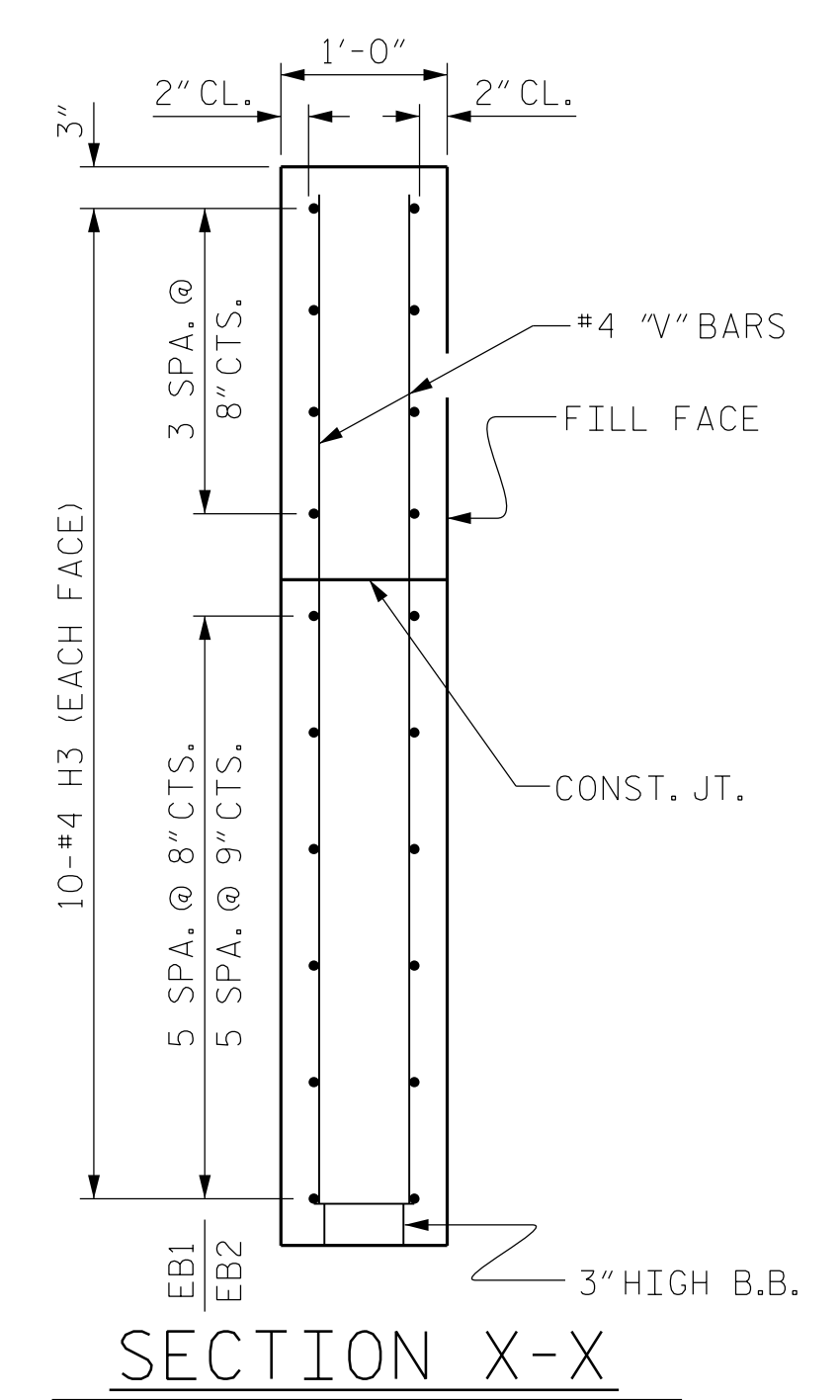
PLAN OF WING (W2)



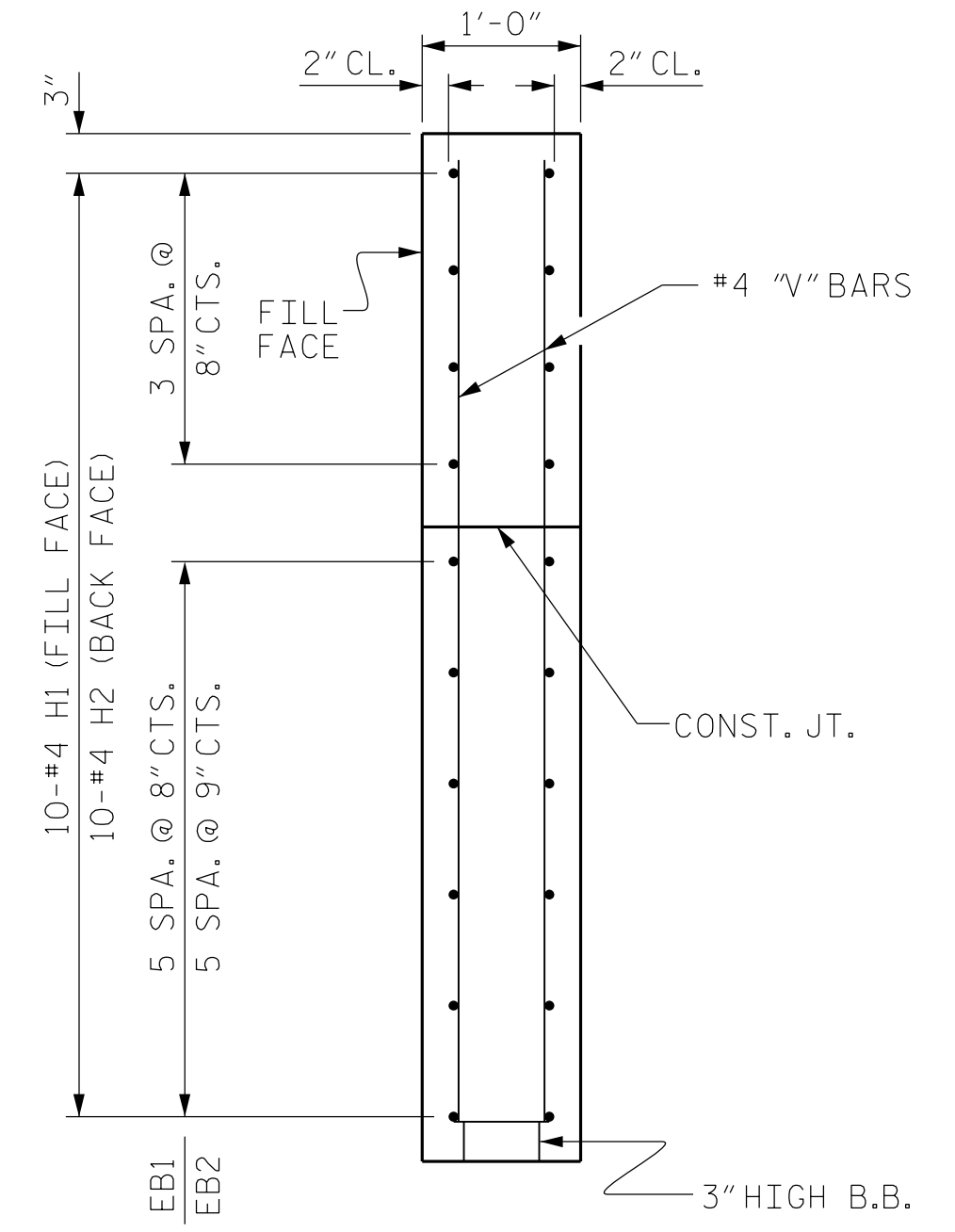
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



SECTION Y-Y

PROJECT NO. 17BP.14.R.24
 TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

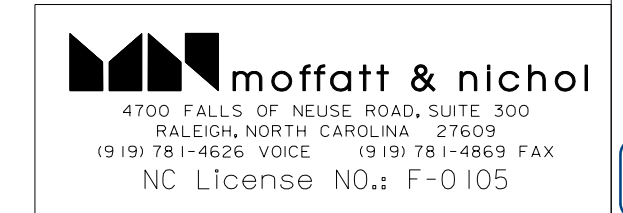
SUBSTRUCTURE
 END BENT
 WING DETAILS

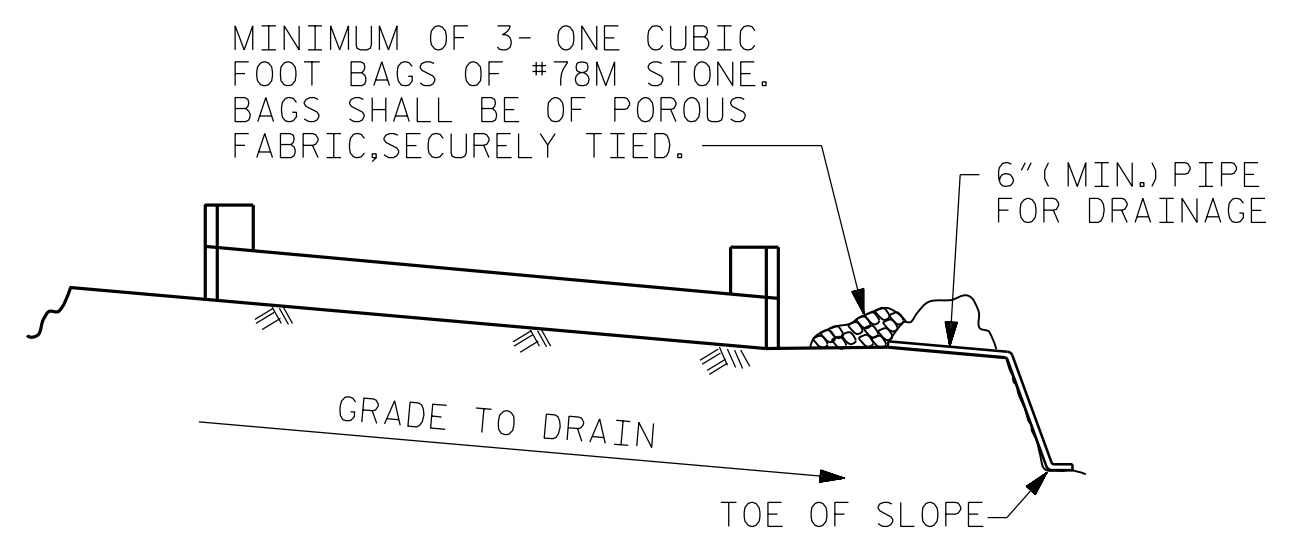
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS	14
2			4				

ASSEMBLED BY : P. JACOB DATE : 08/2015
 CHECKED BY : M. WINTERS DATE : 08/2015
 DESIGN ENGINEER OF RECORD : M. WINTERS DATE : 08/2015

DRAWN BY : WJH 12/11
 CHECKED BY : AAC 12/11

REV. 4/15 MAA/TMG





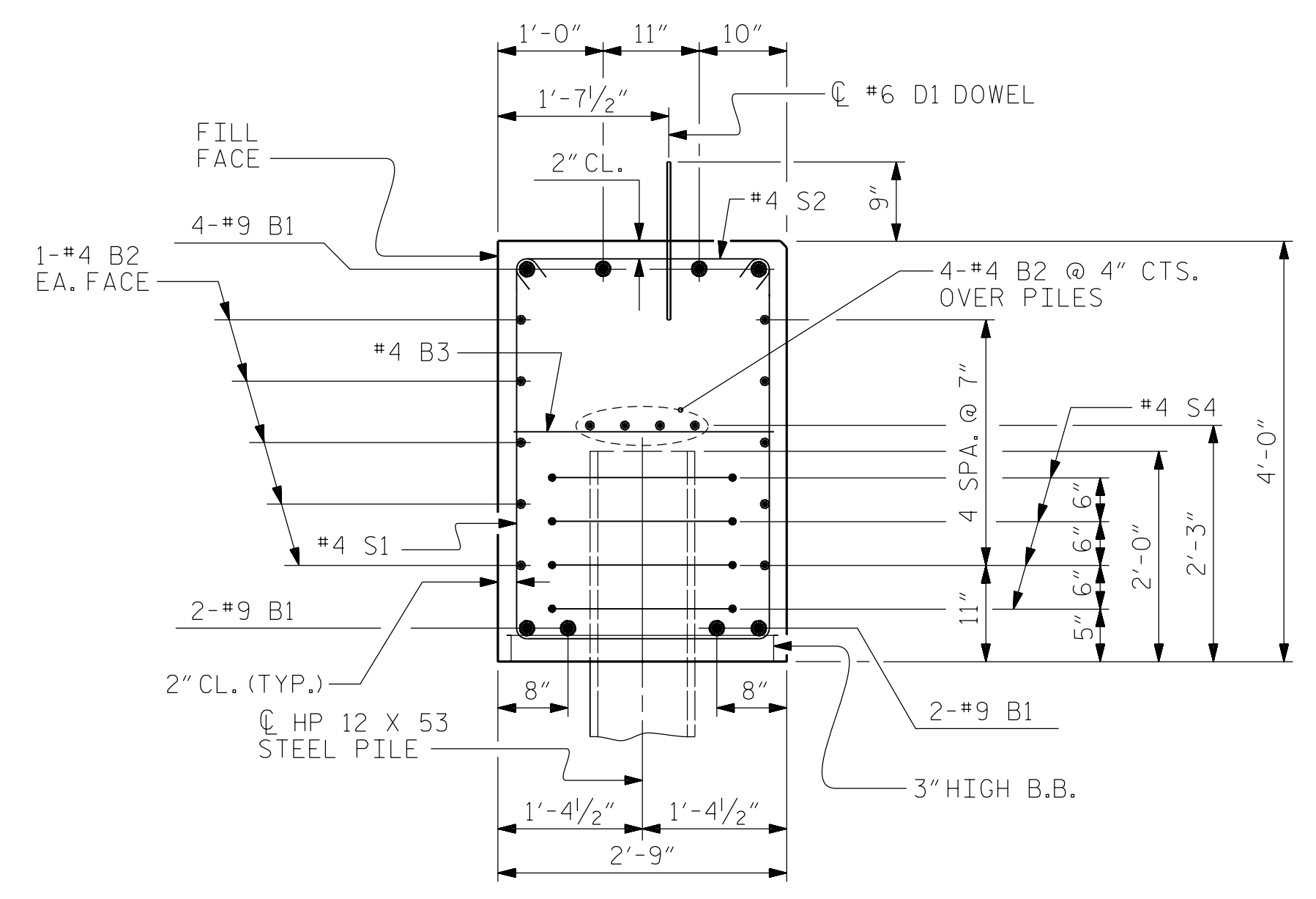
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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.

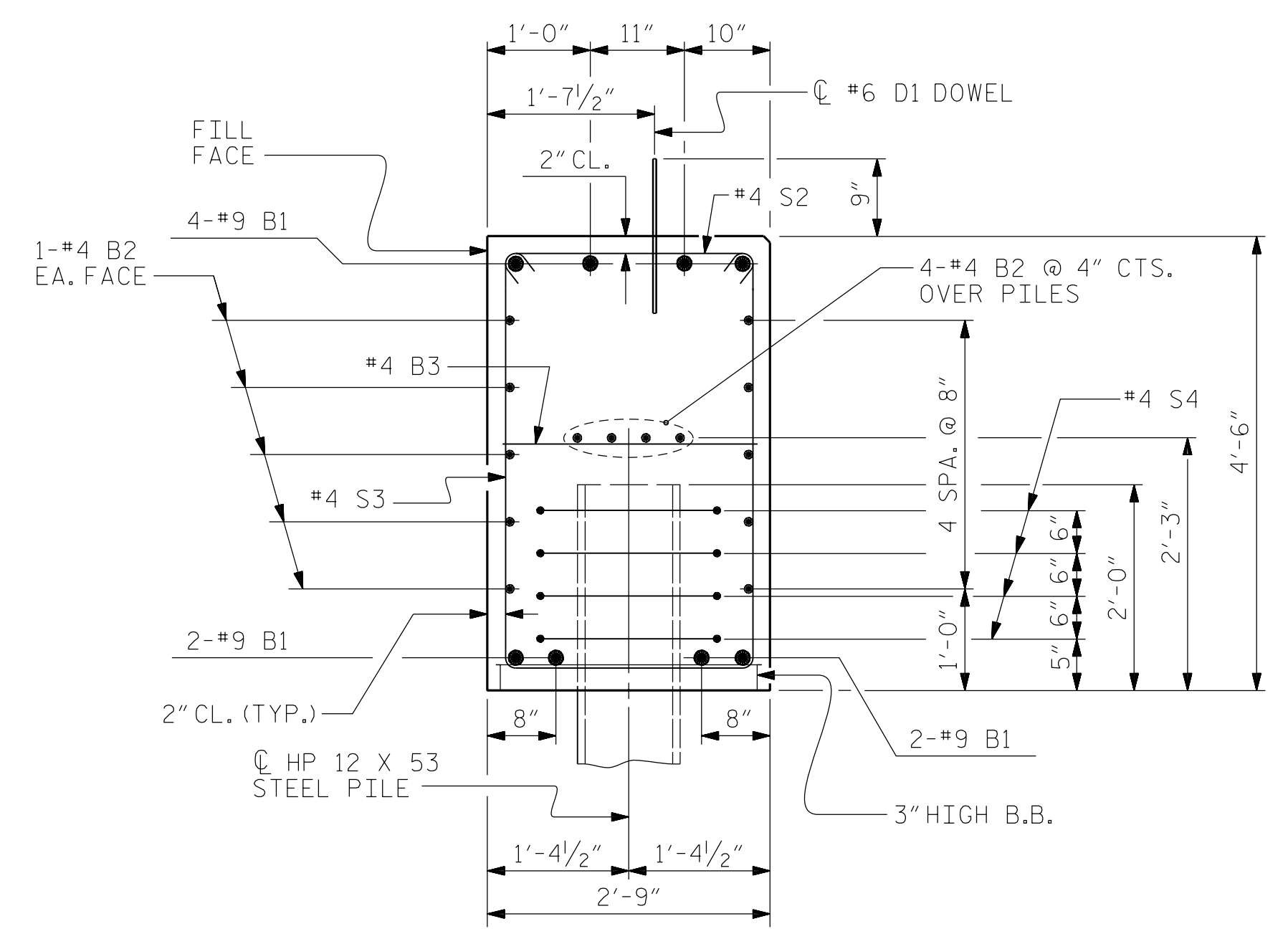
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



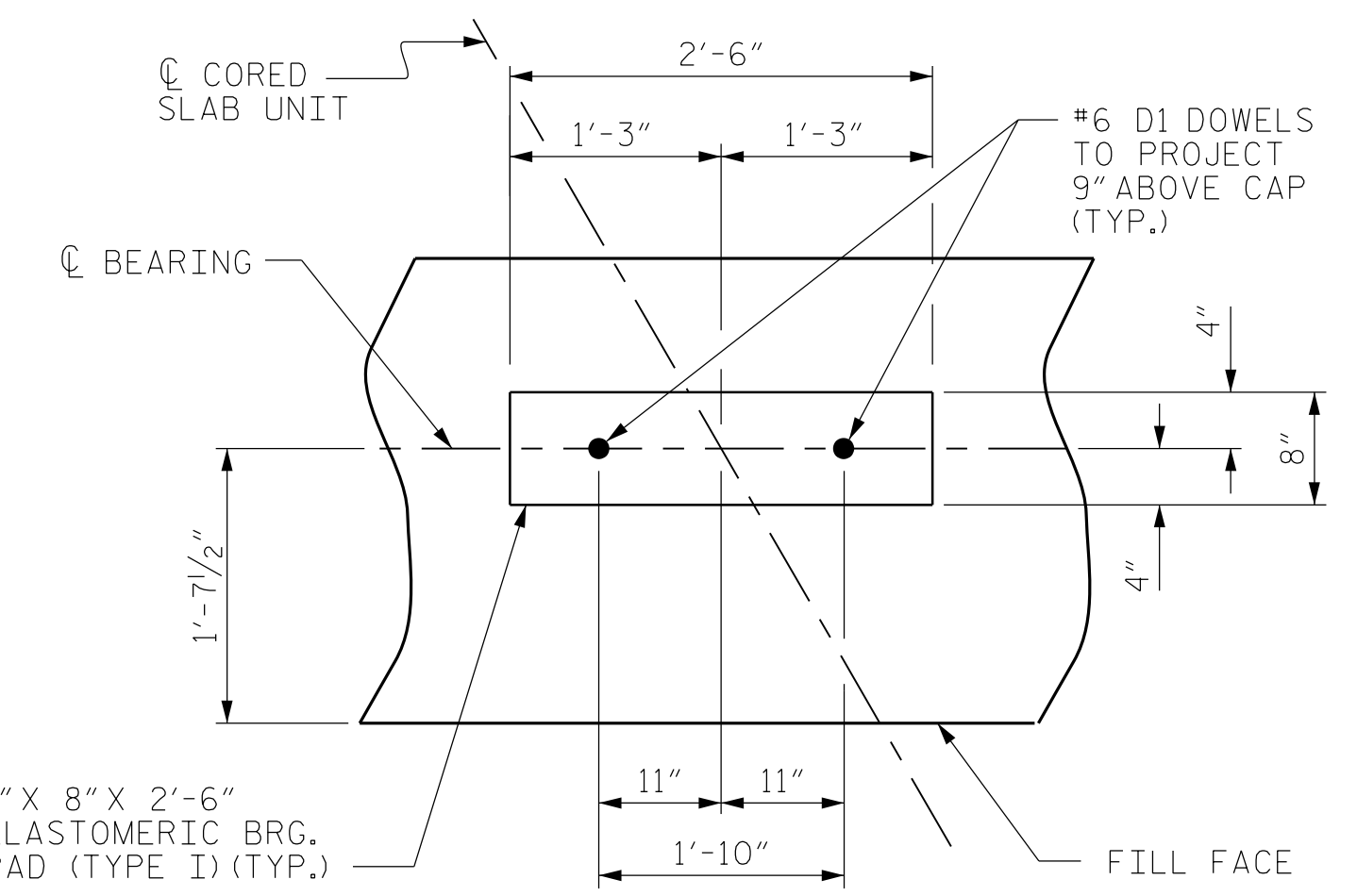
SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



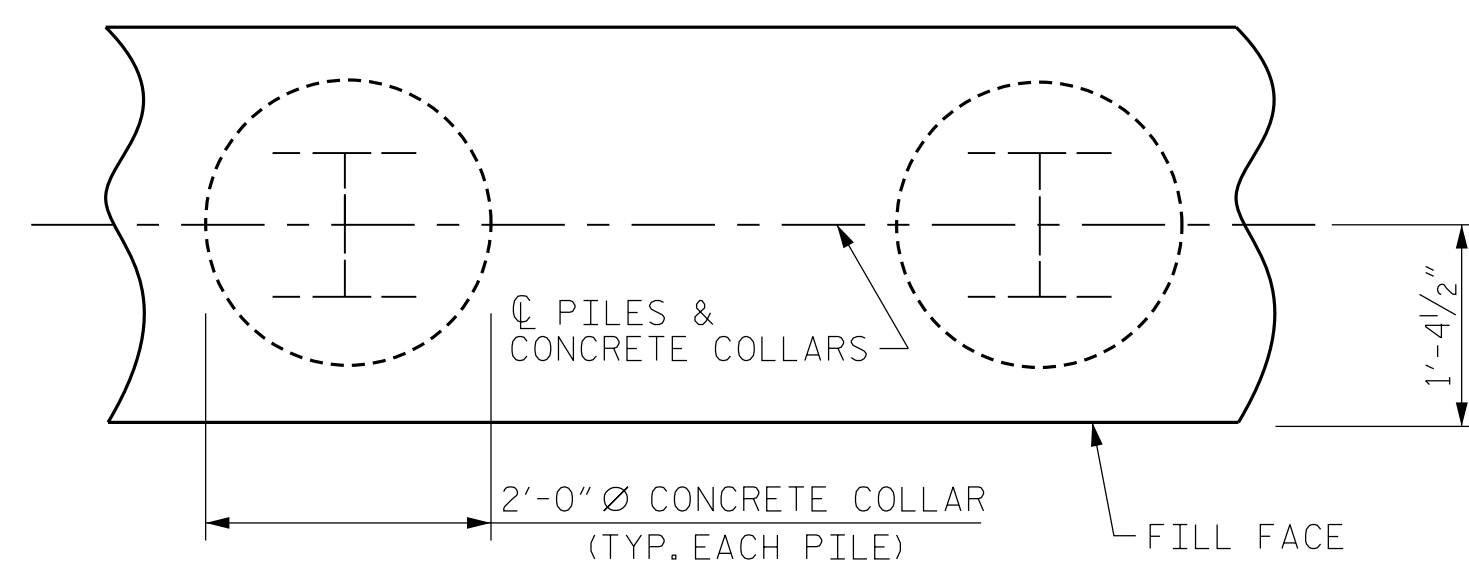
SECTION B-B

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

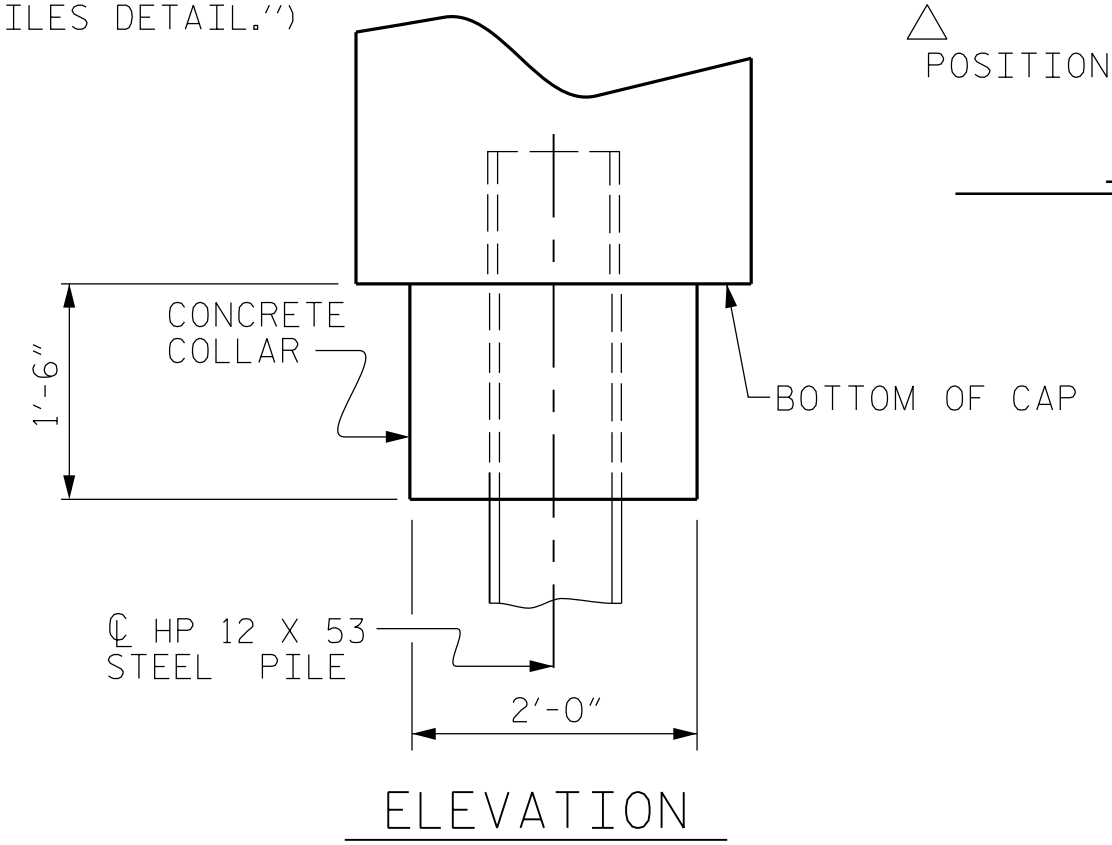


DETAIL "A"

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



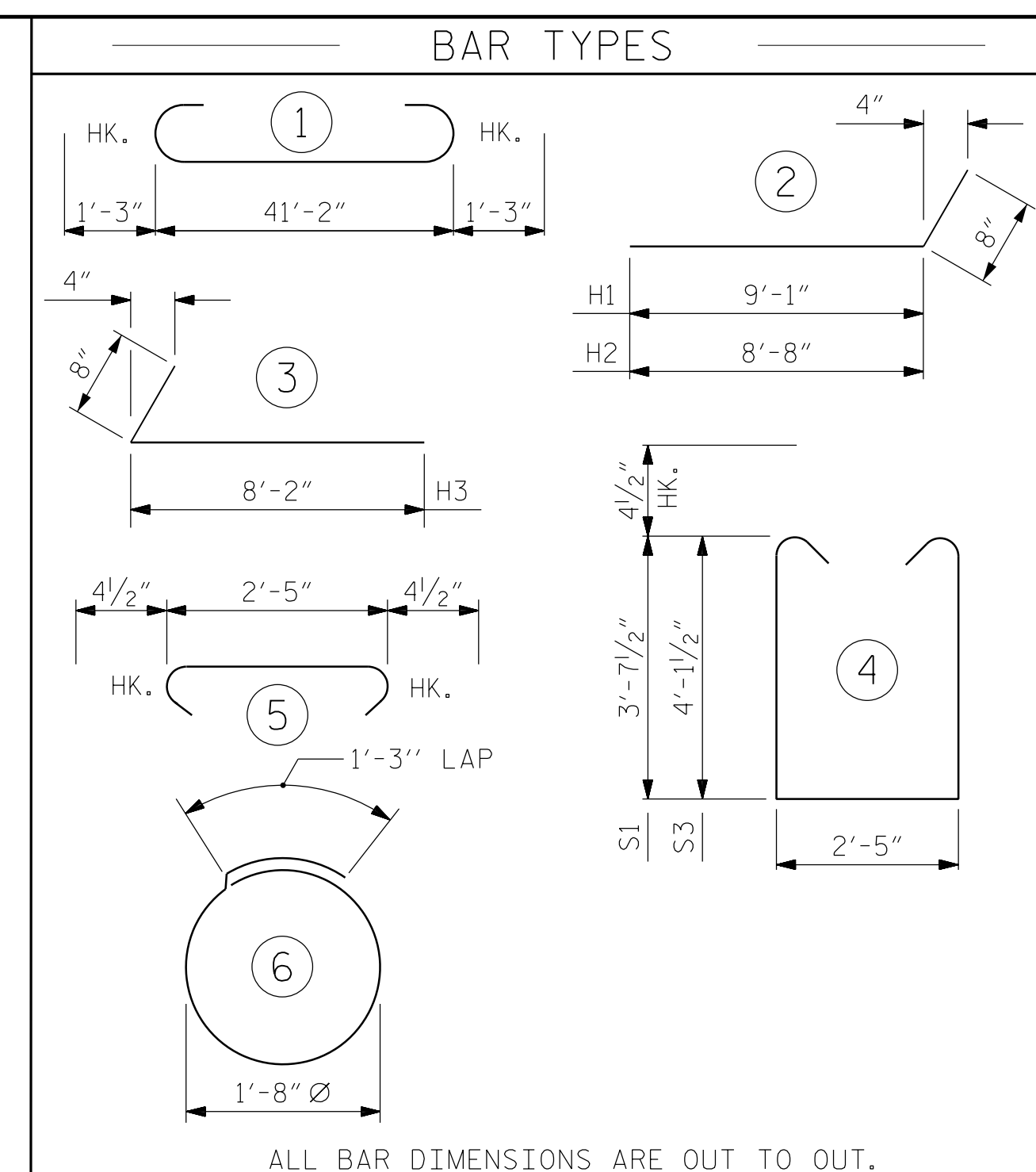
PLAN



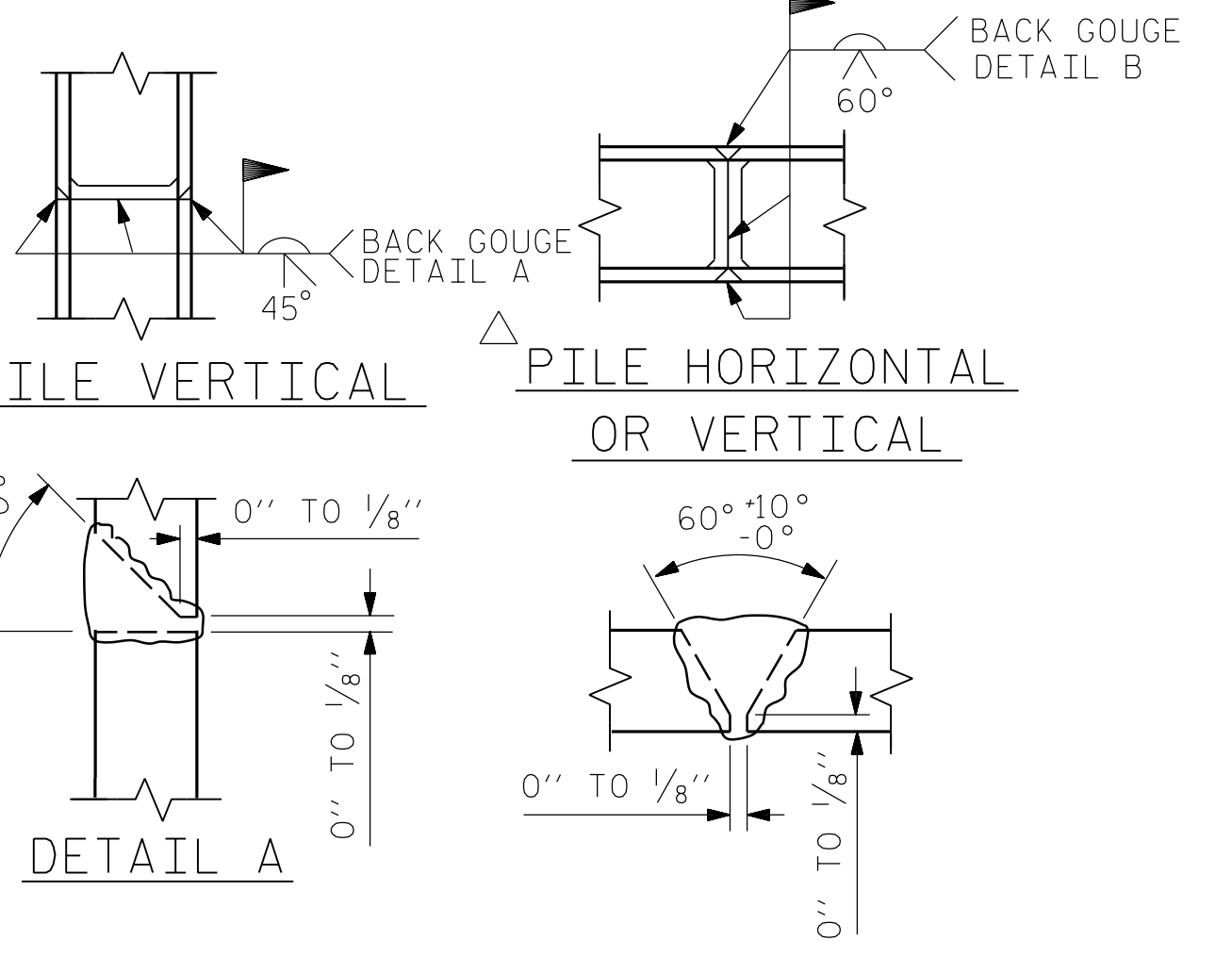
ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)



END BENT No. 1		END BENT No. 2	
HP 12 X 53 STEEL PILES	NO: 5	HP 12 X 53 STEEL PILES	NO: 5
LIN. FT.= 163		LIN. FT.= 200	
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES		PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	
5 EACH		5 EACH	



PILE SPLICE DETAILS

BILL OF MATERIAL FOR END BENT No. 1					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	43'-8"	1188
B2	28	#4	STR	21'-11"	410
B3	11	#4	STR	2'-5"	18
D1	20	#6	STR	1'-6"	45
H1	10	#4	2	9'-9"	65
H2	10	#4	2	9'-4"	62
H3	20	#4	3	8'-10"	118
K1	16	#4	STR	3'-3"	35
S1	54	#4	4	10'-5"	376
S2	54	#4	5	3'-2"	114
S4	20	#4	6	6'-6"	87
V1	53	#4	STR	6'-2"	218
REINFORCING STEEL					2736 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					20.2 C.Y.
POUR #2 UPPER PART OF WINGS					2.2 C.Y.
TOTAL CLASS A CONCRETE					22.4 C.Y.

FOR END BENT No. 2					
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	43'-8"	1188
B2	28	#4	STR	21'-11"	410
B3	11	#4	STR	2'-5"	18
D1	20	#6	STR	1'-6"	45
H1	10	#4	2	9'-9"	65
H2	10	#4	2	9'-4"	62
H3	20	#4	3	8'-10"	118
K1	16	#4	STR	3'-3"	35
S2	54	#4	5	3'-2"	114
S3	54	#4	4	11'-5"	412
S4	20	#4	6	6'-6"	87
V2	53	#4	STR	6'-8"	236
REINFORCING STEEL					2790 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					22.6 C.Y.
POUR #2 UPPER PART OF WINGS					2.2 C.Y.
TOTAL CLASS A CONCRETE					24.8 C.Y.

PROJECT NO. 17BP.14.R.24
 TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT No. 1 & 2
 DETAILS

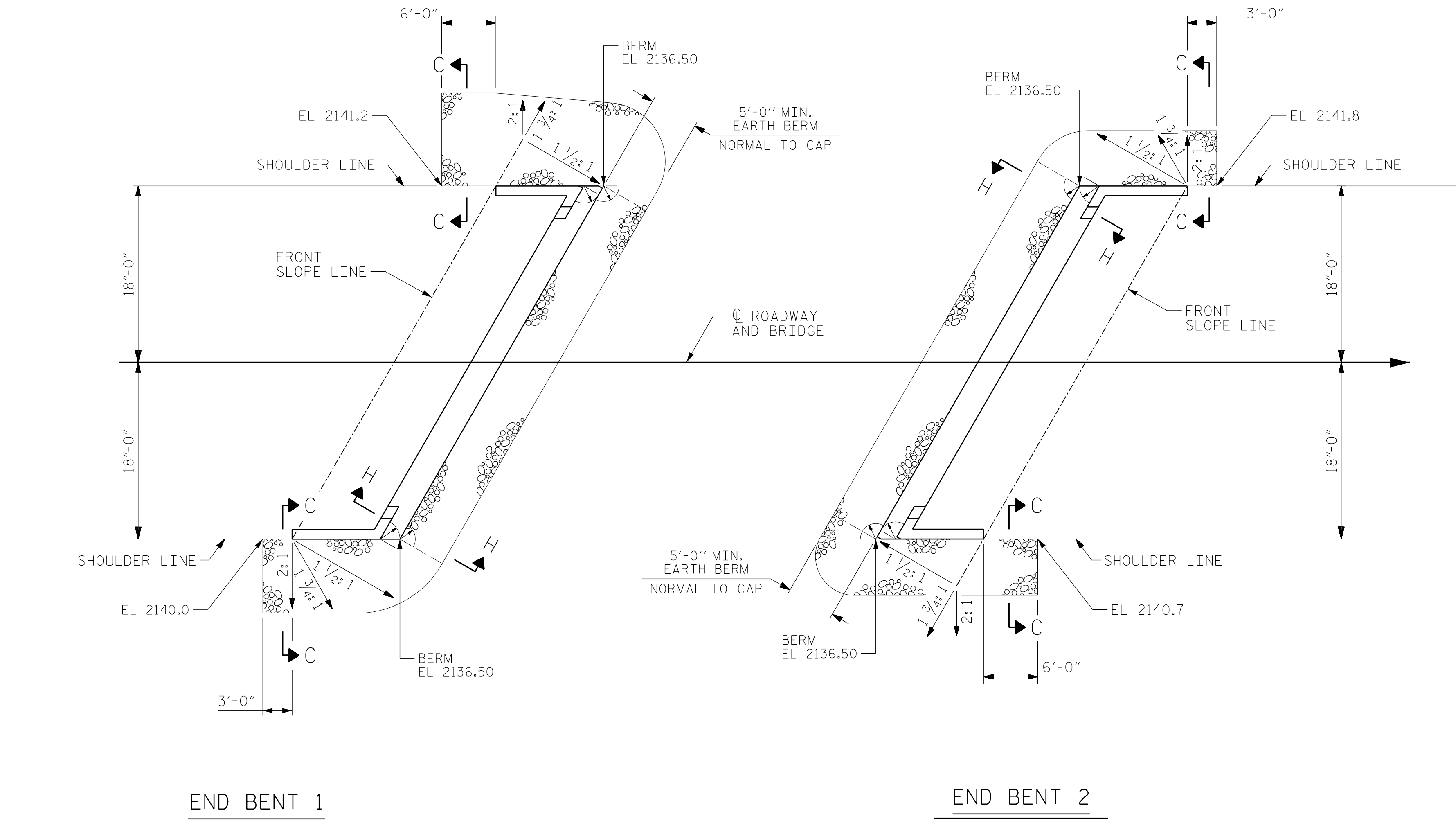
**DOCUMENT NOT CONSIDERED FINAL
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moffatt & nichol
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 RALEIGH, NORTH CAROLINA 27609
 (919) 781-4626 VOICE (919) 781-4869 FAX
 NC License NO.: F-0105

DocuSigned by:
 Mike Winters
 5/26/2017

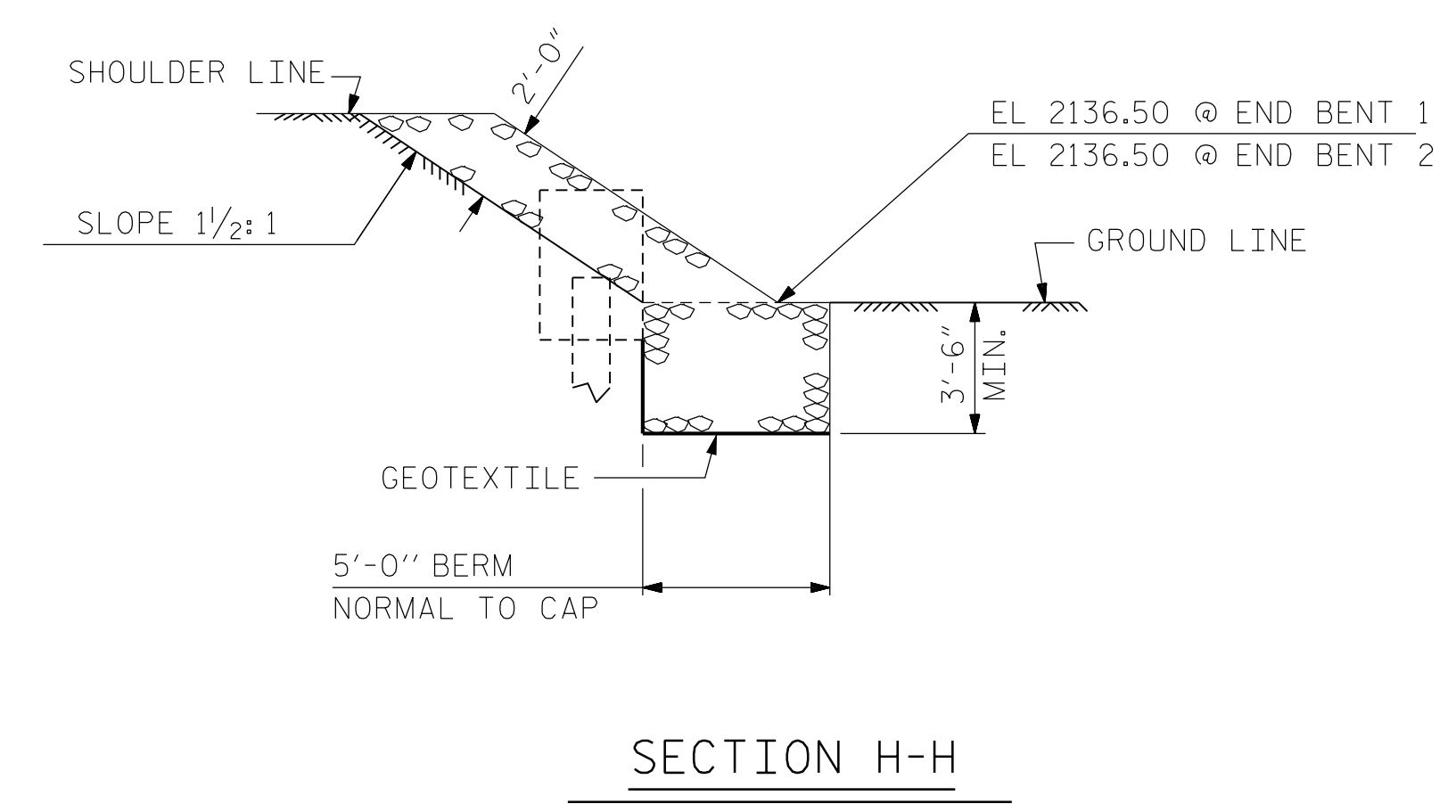
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12	
1			3			TOTAL SHEETS	14
2			4				

DRAWN BY : P. JACOB DATE : 08/2015
 CHECKED BY : M. WINTERS DATE : 08/2015
 DESIGN ENGINEER OF RECORD : M. WINTERS DATE : 08/2015

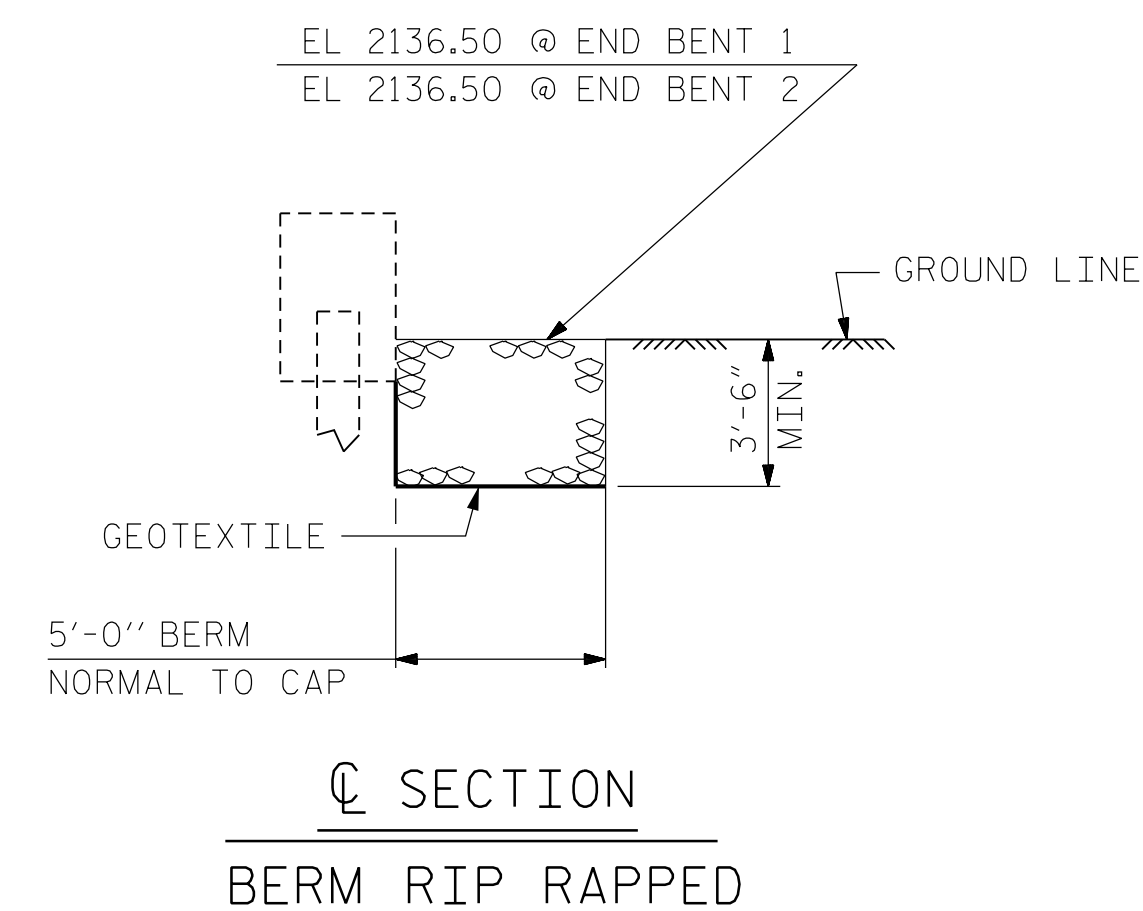


ESTIMATED QUANTITIES		
BRIDGE @ STA 13+01.80 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	79	88
END BENT 2	71	79

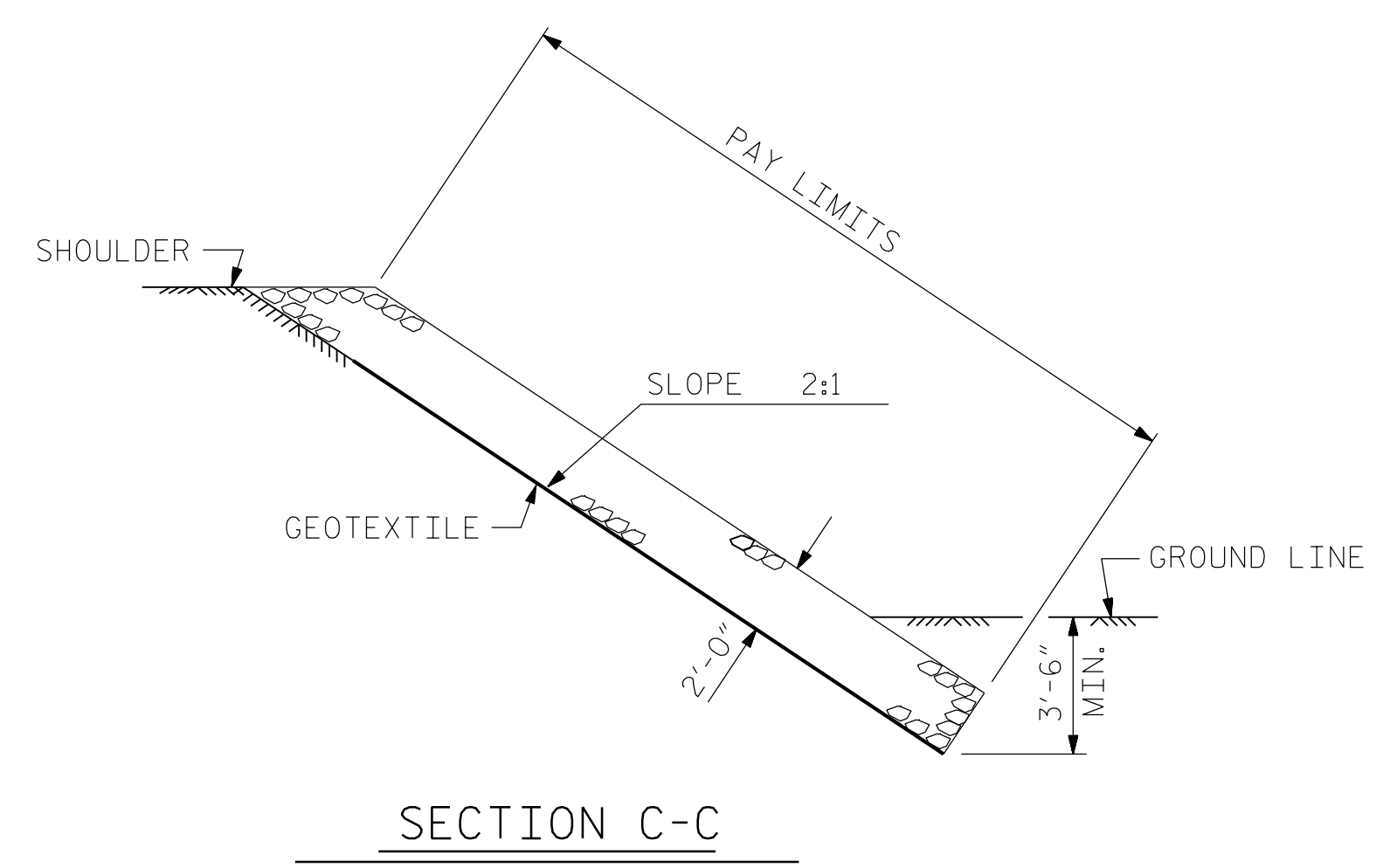
PLAN OF RIP RAP



SECTION H-H



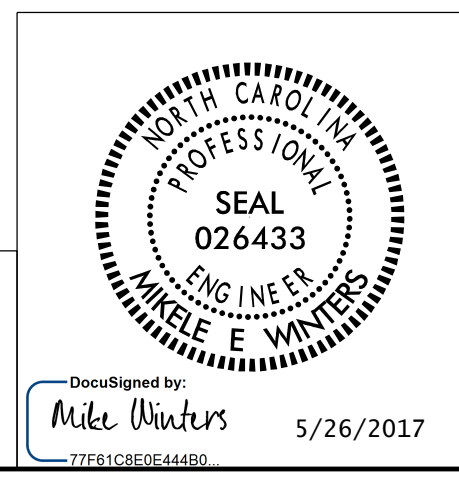
SECTION C-C



SECTION C-C

PROJECT NO. 17BP.14.R.24
TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-

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

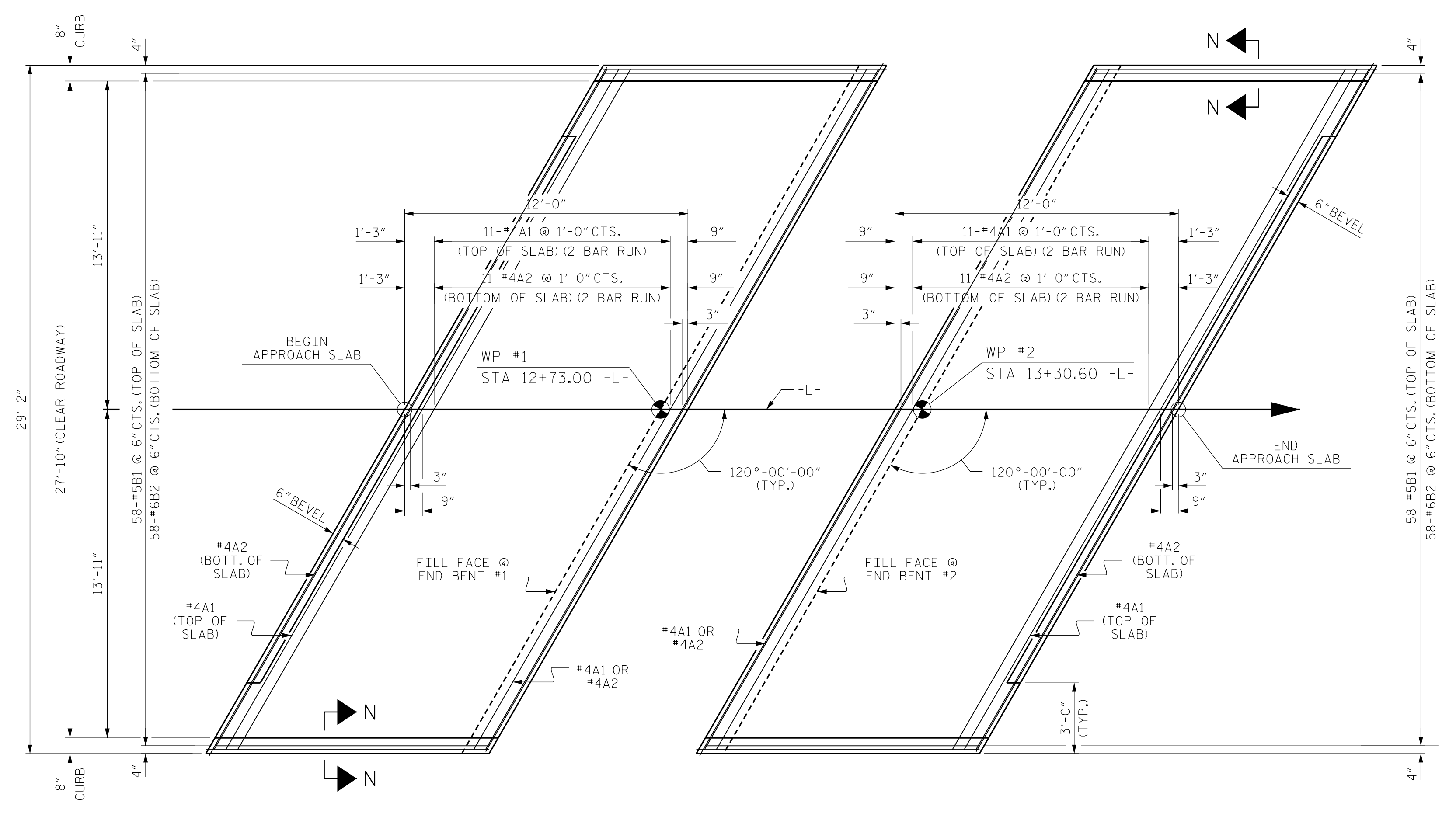


ASSEMBLED BY : <u>C. POWELL</u>	DATE : <u>10/2014</u>
CHECKED BY : <u>M. WINTERS</u>	DATE : <u>10/2014</u>
DESIGN ENGINEER OF RECORD : <u>M. WINTERS</u>	DATE : <u>10/2015</u>
DRAWN BY : REK 1/84	REV. 5/1/06R TLA/GM
CHECKED BY : RDU 1/84	REV. 10/1/11 MAA/GM
	REV. 12/2/11 MAA/GM

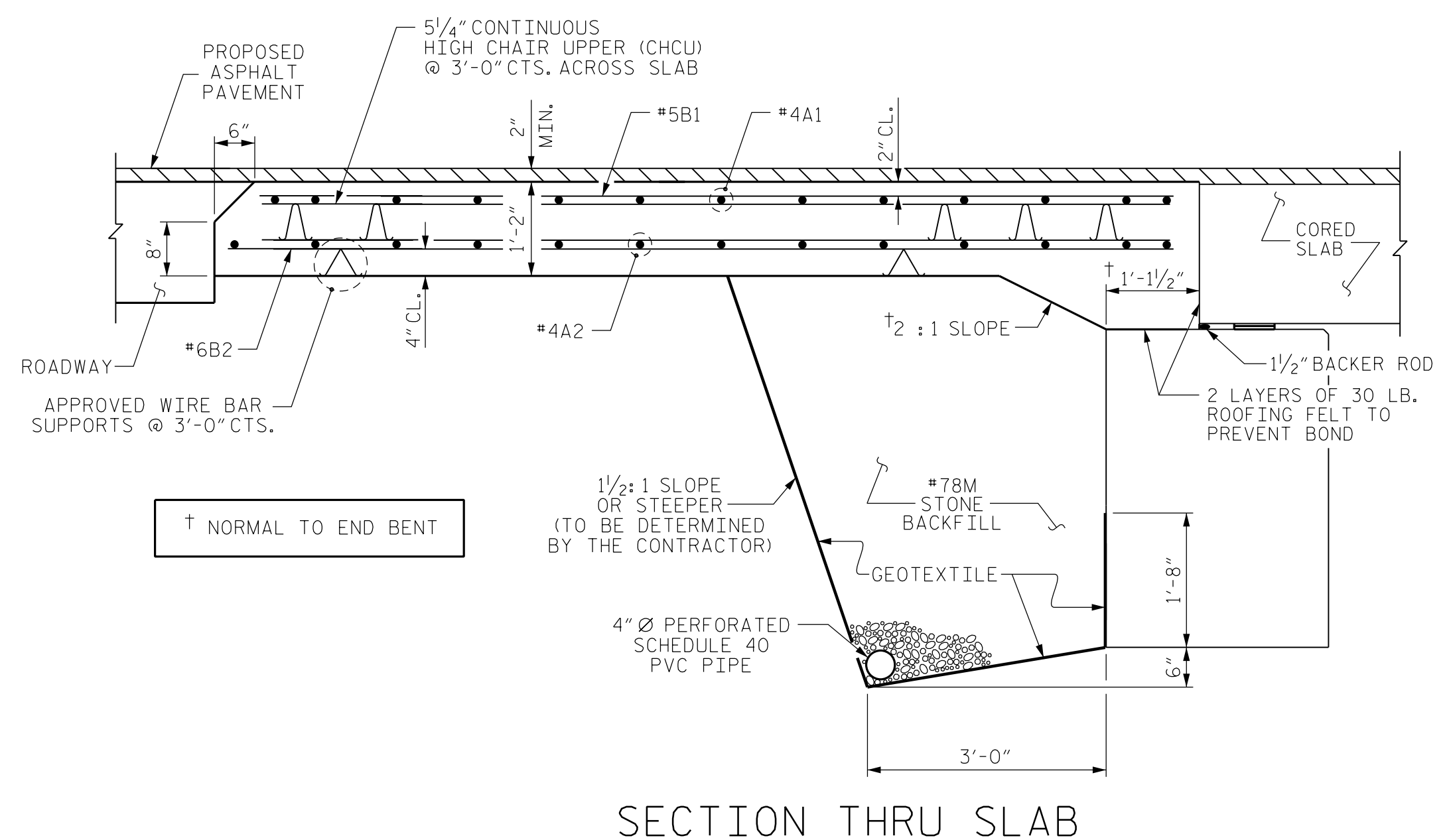
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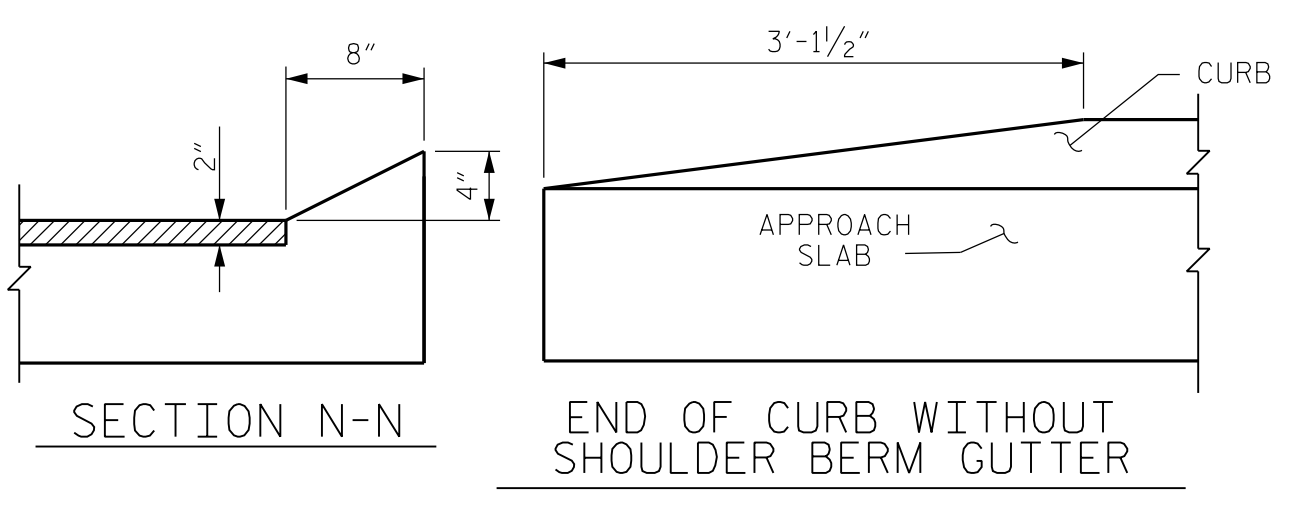
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			14
2			4			



PLAN @ END BENT #1 PLAN @ END BENT #2
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB



CURB DETAILS

SPlice LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

NOTES

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

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

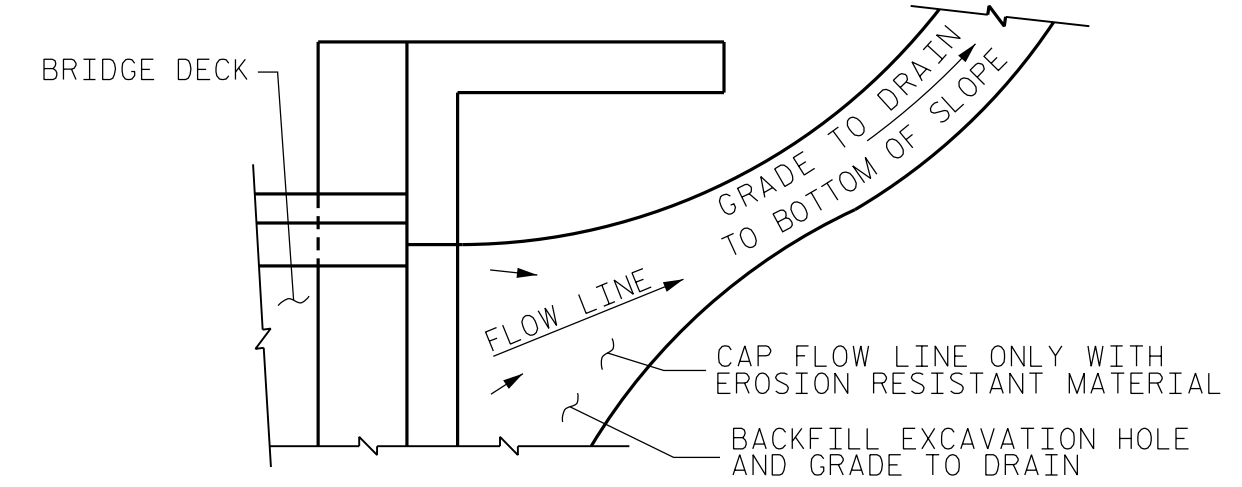
#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#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. PIPE OUTFALL NEEDS TO BE ABOVE THE WATER SURFACE ELEVATION.

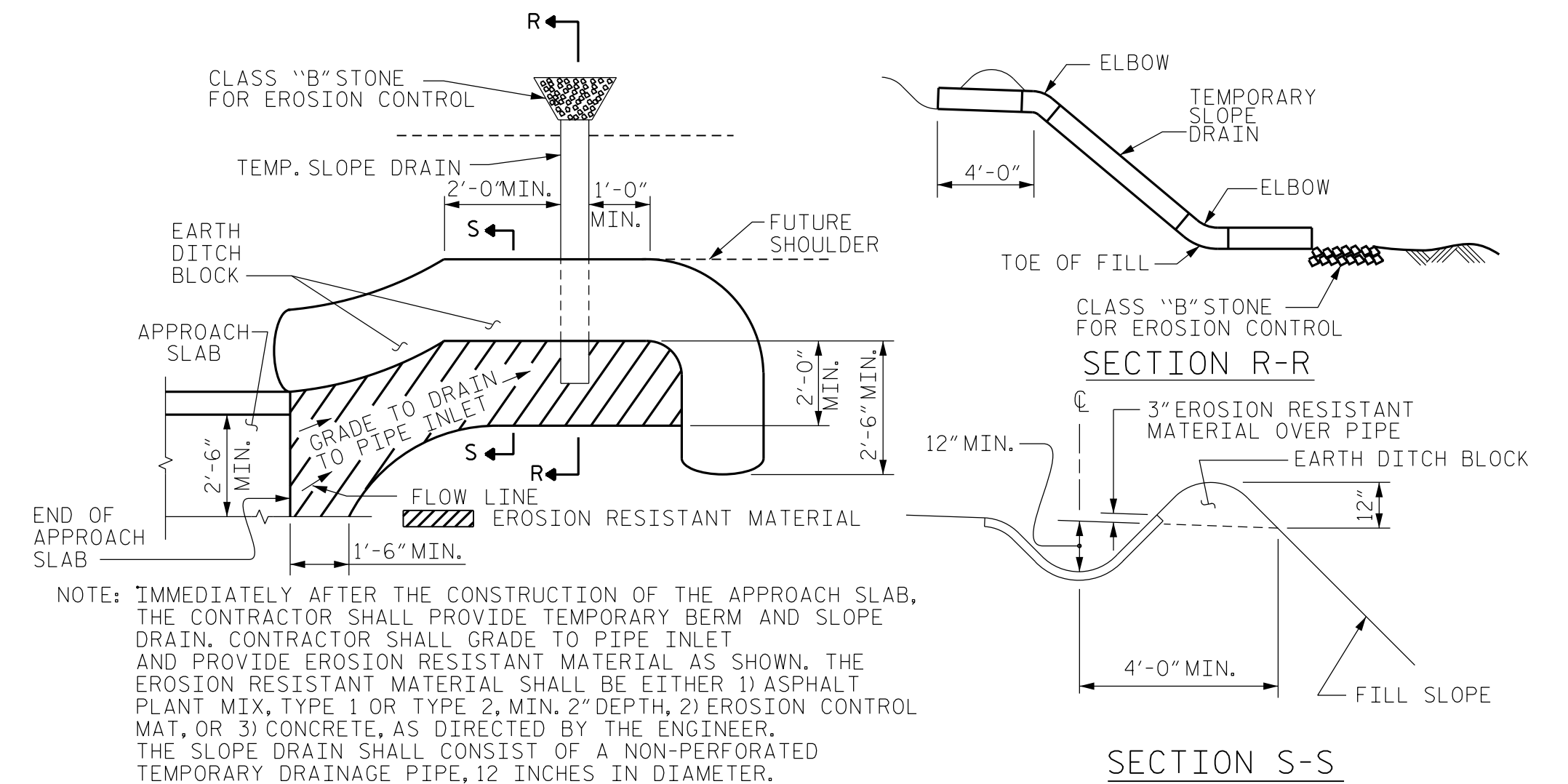
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT 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



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)

BILL OF MATERIAL						
APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	17'-8"	307	
A2	26	#4	STR	17'-7"	305	
*B1	58	#5	STR	11'-1"	67Q	
B2	58	#6	STR	11'-7"	1009	
REINFORCING STEEL					LBS.	1314
*EPOXY COATED REINFORCING STEEL					LBS.	977
CLASS AA CONCRETE					C. Y.	16.9

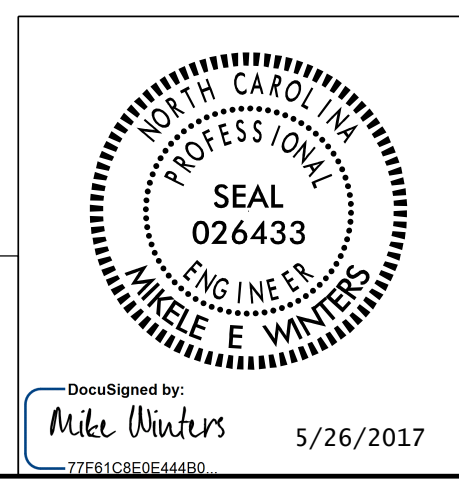
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	17'-8"	307	
A2	26	#4	STR	17'-7"	305	
*B1	58	#5	STR	11'-1"	67Q	
B2	58	#6	STR	11'-7"	1009	
REINFORCING STEEL					LBS.	1314
*EPOXY COATED REINFORCING STEEL					LBS.	977
CLASS AA CONCRETE					C. Y.	16.9

ASSEMBLED BY : P. JACOB DATE : 09/2015
 CHECKED BY : M. WINTERS DATE : 09/2015
 DESIGN ENGINEER OF RECORD : M. WINTERS DATE : 09/2015
 DRAWN BY : SHS/MAA 5-09 REV. 9-15 MAA/TMG
 CHECKED BY : BCH 5-09

5/26/2017
 P:\1658-05\CADD\870113\Structures\870113.APP.SLAB.1.dgn
 thuffman

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PROJECT NO. 17BP.14.R.24
 TRANSYLVANIA COUNTY
 STATION: 13+01.80 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT (SUB-REGIONAL TIER) 120° SKEW					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 14

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 2012 "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