

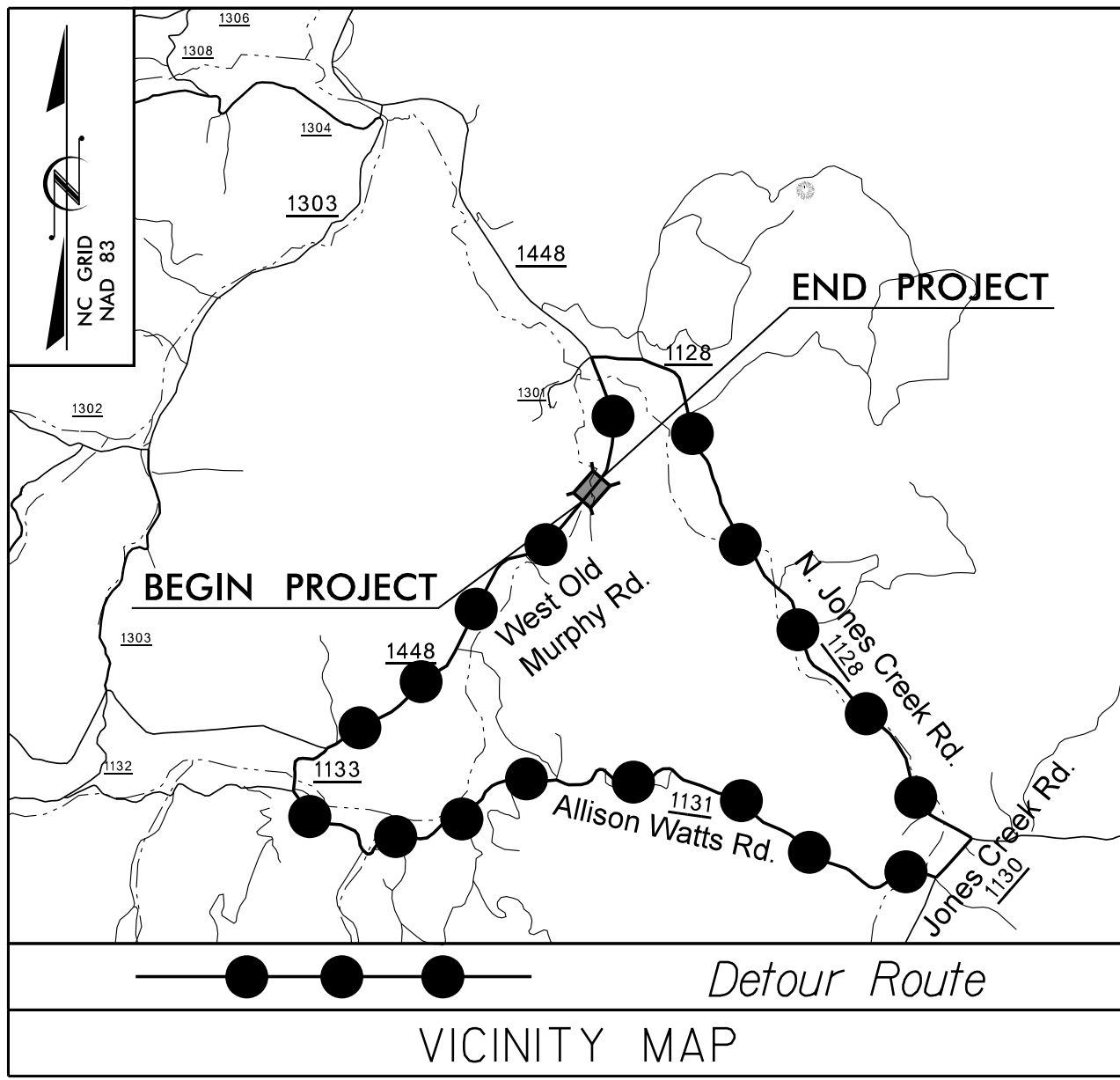
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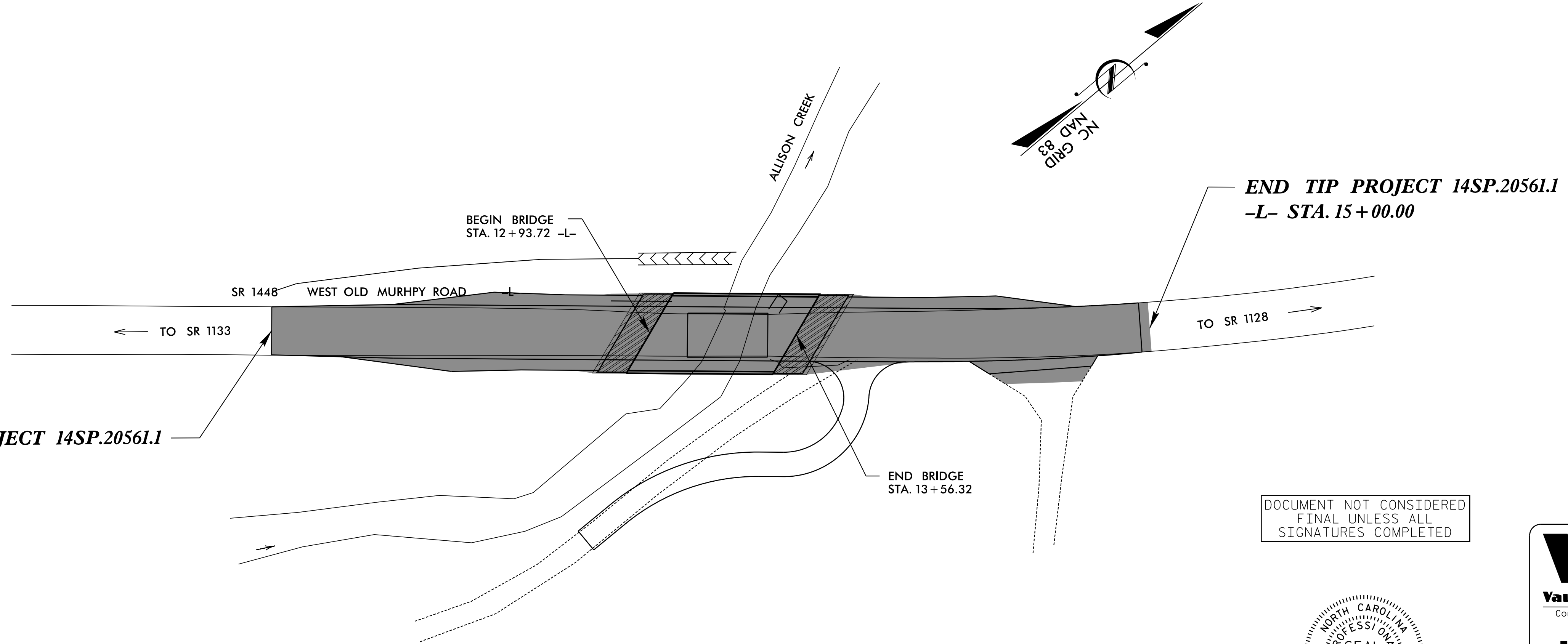
**CONTRACT: DN00132**      **TIP NO: 14SP.20561.1**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	14SP.20561.1		
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
14SP.20561.1	N/A	PE	
14SP.20561.1	N/A	R/W	
14SP.20561.1	N/A	CONST.	



STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
**MACON COUNTY**

**LOCATION: BRIDGE NO. 343 OVER ALLISON CREEK  
 ON SR 1448 (WEST OLD MURPHY ROAD)**



STRUCTURE

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

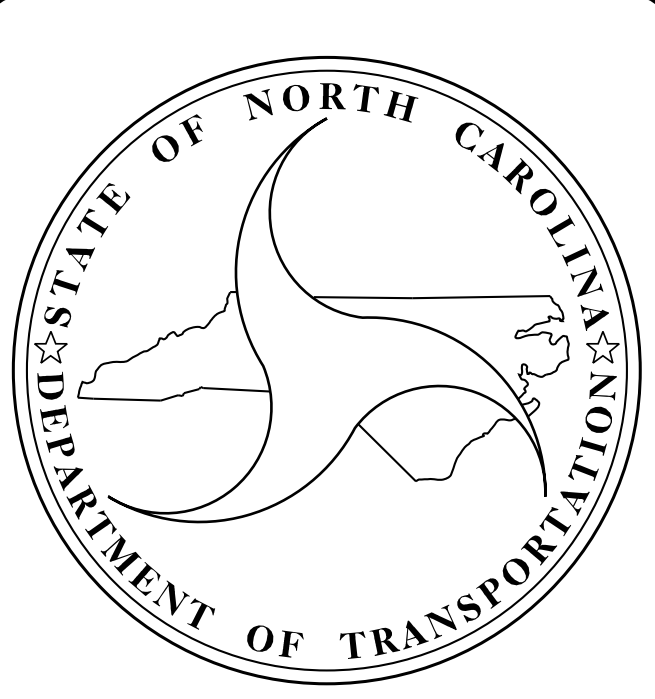


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Consulting Engineers

Asheville, North Carolina  
828-253-2796

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- Tri-Cities, TN 423-467-8401
- Knoxville, TN 865-546-5800
- Spartanburg, SC 864-574-4775
- Charleston, SC 843-974-5650
- Middlesboro, KY 606-248-6600
- Raleigh, NC 919-977-9455
- Charlotte, NC 704-357-0488
- Atlanta, GA 770-627-3509

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**DESIGN DATA**

ADT 2011 = 590  
 ADT 2031 = 880  
 T = 7%  
 V = 55 MPH  
 FUNC CLASS = MINOR  
 LOCAL COLLECTOR  
 SUBREGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT 14SP.20561.1 = 0.056 MI  
 LENGTH STRUCTURE TIP PROJECT 14SP.20561.1 = 0.012 MI  
 TOTAL LENGTH OF TIP PROJECT 14SP.20561.1 = 0.068 MI

Prepared in the Office of:  
**VAUGHN & MELTON**  
 1318-F PATTON AVE.  
 ASHEVILLE, NC, 28806

FOR THE NORTH CAROLINA DIVISION OF HIGHWAYS

---

2018 STANDARD SPECIFICATIONS

**LETTING DATE :**  
 FEBRUARY 8, 2022

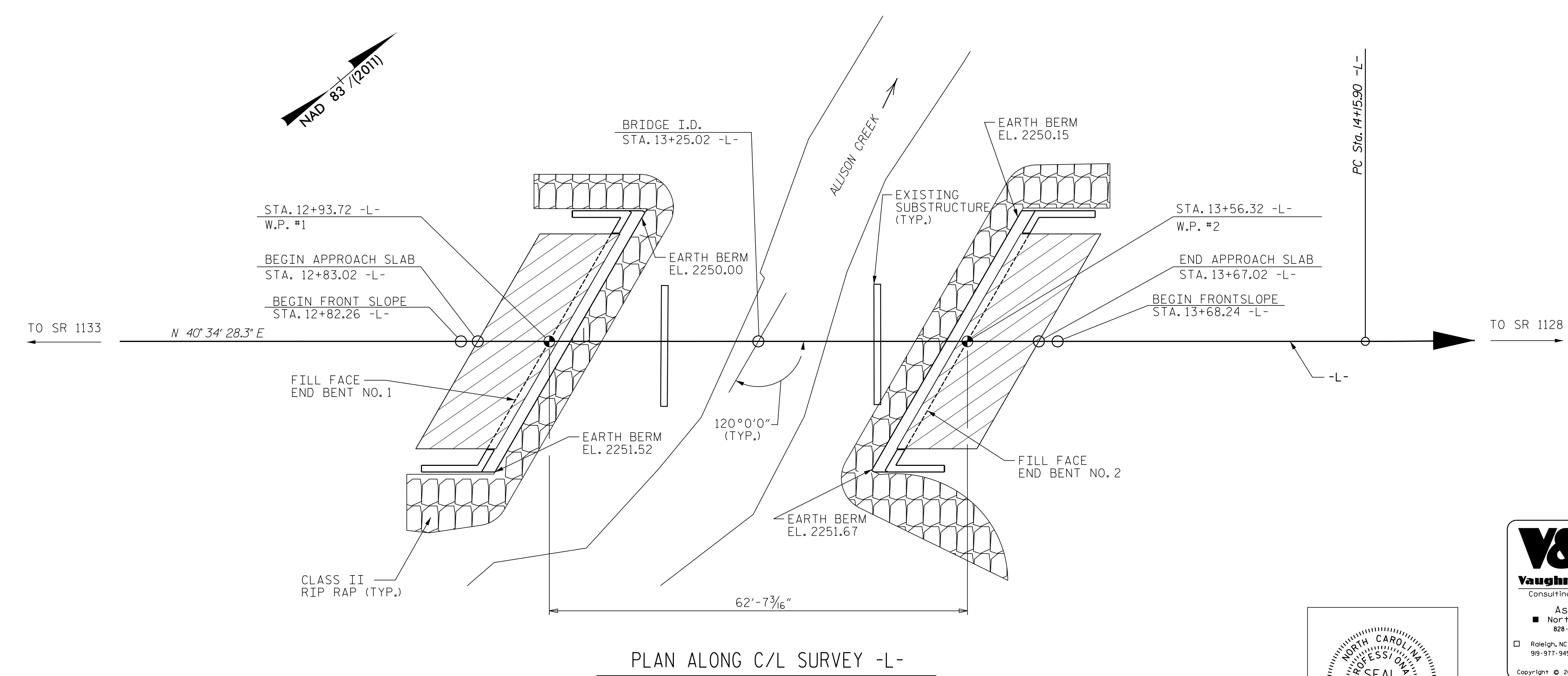
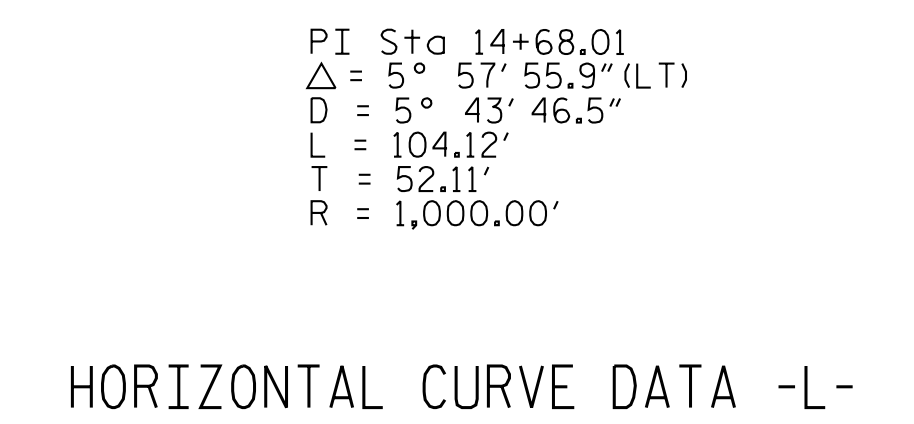
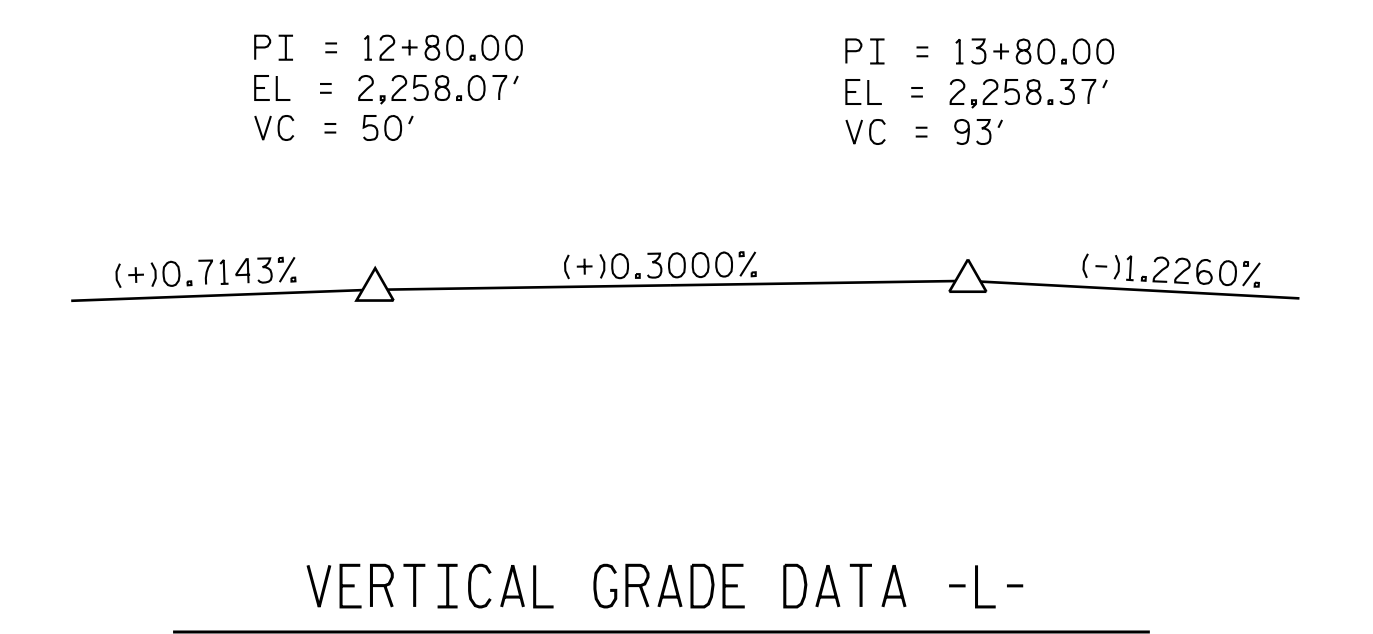
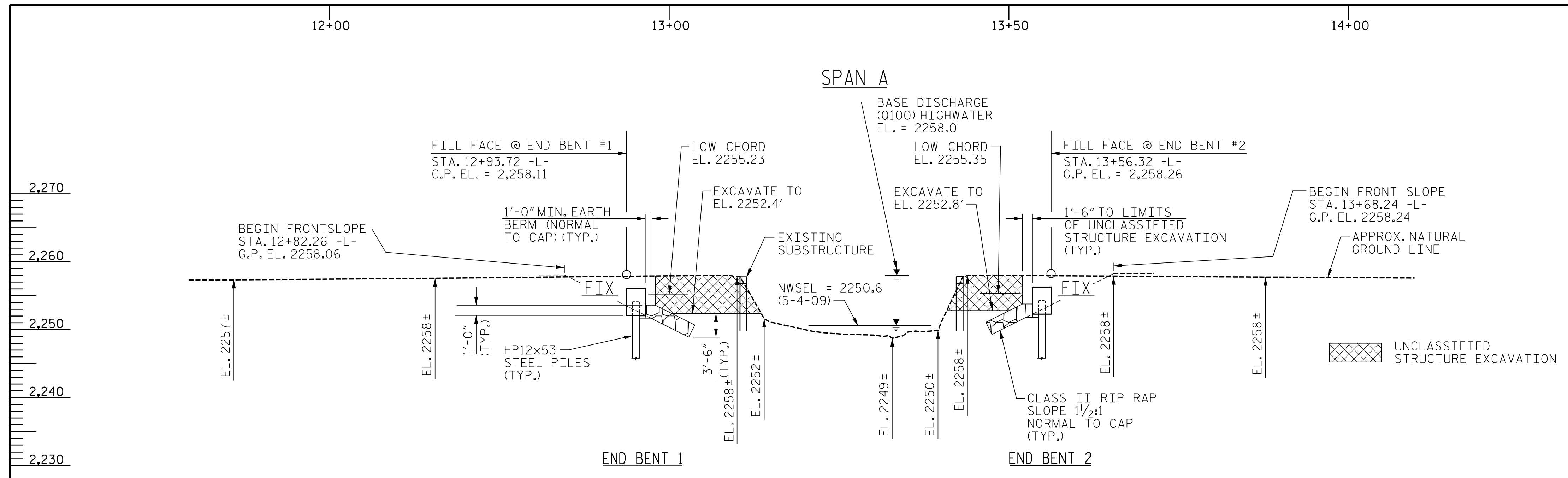
**HARDY L. WILLIS, PE**  
 PROJECT ENGINEER  


---

**JASON E. BARTLEY, EI**  
 PROJECT DESIGN ENGINEER

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

**DIVISION OF HIGHWAYS**  
 STATE OF NORTH CAROLINA



I HEREBY CERTIFY THAT THESE PLANS ARE THE AS-BUILT PLANS.

PROJECT NO. 14SP.20561.1  
 MACON COUNTY  
 STATION: 13+25.02 -L-  
 SHEET 1 OF 2 REPLACES BRIDGE NO. 343

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 Atlanta, GA 770-627-3509

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGE OVER ALLISON CREEK  
 ON SR 1448 BETWEEN  
 SR 1133 AND SR 1128

NOTES:  
 END BENTS ARE PARALLEL.  
 PILES NOT SHOWN IN PLAN VIEW FOR CLARITY.  
 CORED SLABS PARALLEL TO C SURVEY -L-.

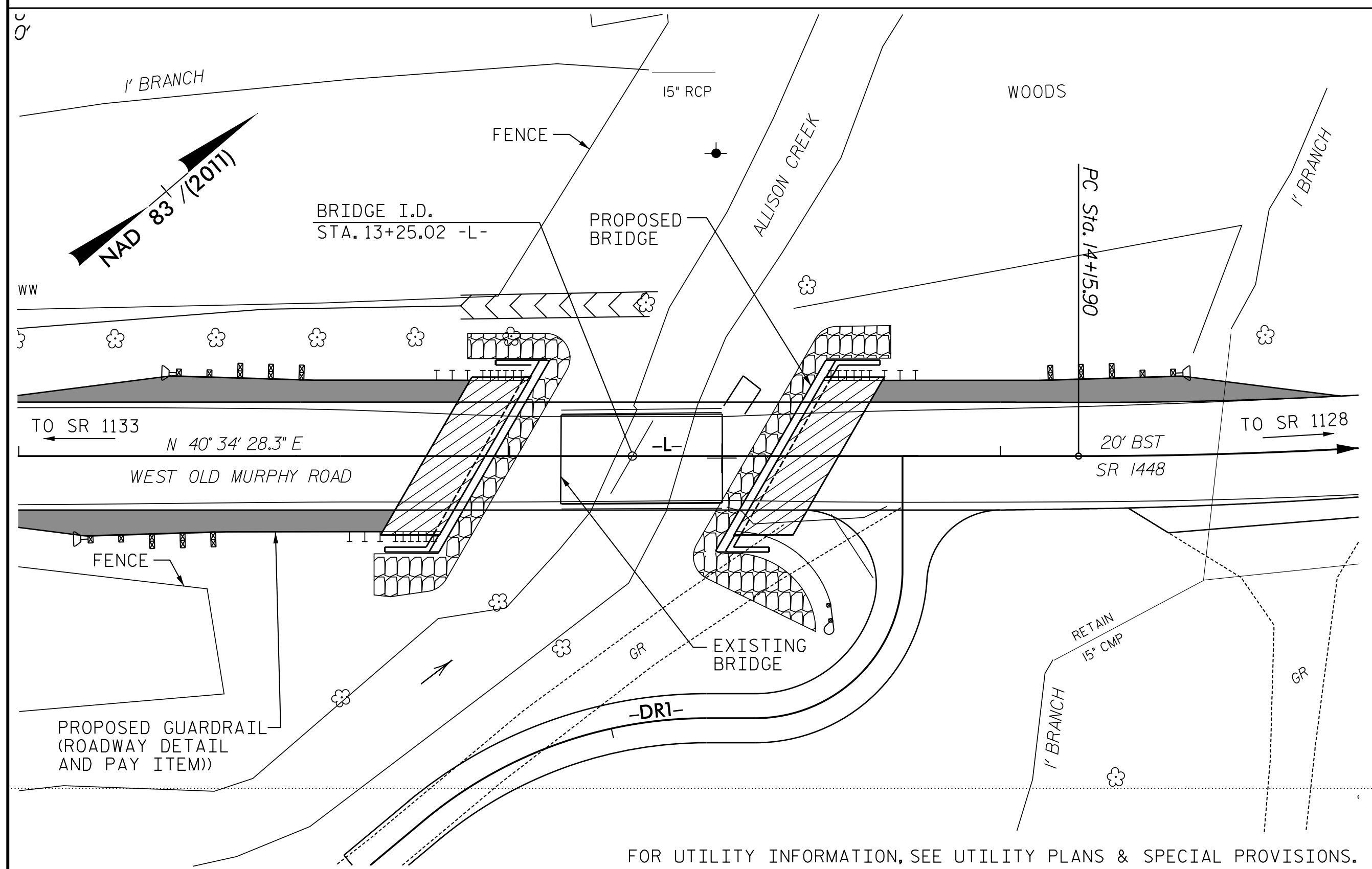
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DSG. ENG. OF RECORD.: JEB DATE: 7/16  
 DWN. BY: MAF DATE: 7/16  
 CHKD. BY: HLW DATE: 7/16

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



BM-1 N 527433.17 E 662544.42 -L- STA.9+92.11 23.55' LT ELEV=2258.12 8" SPIKE IN BASE OF 15" PINE



LOCATION SKETCH

**GENERAL 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 A SINGLE SPAN, 32'-0" LONG REINFORCED CONCRETE DECK ON STEEL I- BEAMS, 21'-1" WIDE, ON REINFORCED CONCRETE ABUTMENTS, AND LOCATED AT THE PROPOSED STRUCTURE, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.  
 REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.  
 THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.  
 THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18- EVALUATING SCOUR AT BRIDGES."  
 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.

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+25.02."  
 FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

**FOUNDATION NOTES:**

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.  
 PILES AT END BENT NO.1 & END BENT 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 80 TONS PER PILE.  
 DRIVE PILES AT END BENT NO.1 & END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 135 TONS PER PILE.  
 STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1 & END BENT NO.2. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.  
 DRILLED IN PILES ARE REQUIRED FOR END BENT NO.1 (RT). EXCAVATE HOLES AT PILE LOCATIONS TO A MINIMUM ELEVATION OF 2236.5 FT. FOR PILE EXCAVATIONS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.  
 CONCRETE OR GROUT IS REQUIRED TO FILL HOLES FOR PILE EXCAVATIONS AT END BENT NO.1.  
 TESTING PILES WITH THE PDA DURING DRIVING, RESTRIKING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA 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.

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 CAST-IN-PLACE. 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.

**HYDRAULIC DATA**

DESIGN DISCHARGE	= 1400 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 2257.2 FT
BASE DISCHARGE	= 2000 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 2258.02 FT

**OVERTOPPING FLOOD DATA**

OVERTOPPING DISCHARGE	= 1610 CFS
OVERTOPPING FREQUENCY	= 25 + YRS
OVERTOPPING ELEVATION	= 2257.5 FT

DRAINAGE AREA	5.9 SQ. MI.
W.S. ELEVATION @ DATE OF SURVEY	2250.6' 5/4/09

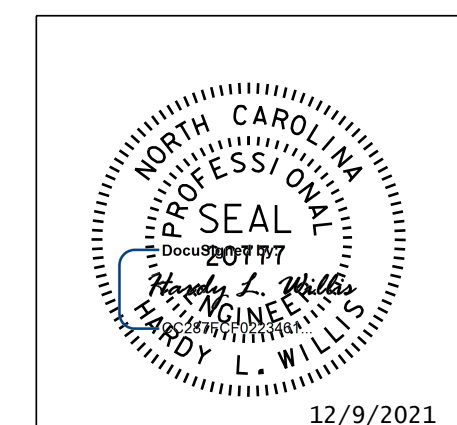
**TOTAL BILL OF MATERIAL**

	REMOVAL OF EXISTING STRUCTURE	ASBESTOS ASSESSMENT	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	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 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT		
											NO.	LIN. FT.						NO.	LIN. FT.	
SUPERSTRUCTURE	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	EA.	LUMP SUM	CU. YARDS	LUMP SUM	LBS.	EACH	NO.	LIN. FT.	EACH	LIN. FT.	TONS	SQ. YARDS	LUMP SUM	LUMP SUM	NO.	LIN. FT.
END BENT 1			35.0	45.0		LUMP SUM	24.3		2923	7	7	154	7		61.0	46.0				
END BENT 2						LUMP SUM	24.3		2923	7	7	154	7		65.0	53.0				
TOTAL	LUMP SUM	LUMP SUM	35.0	45.0	1	LUMP SUM	48.6	LUMP SUM	5846	14	14	308	14	120.29	126.0	99.0	LUMP SUM	LUMP SUM	11	660.0

PROJECT NO. 14SP.20561.1  
MACON COUNTY  
 STATION: 13+25.02 -L-

SHEET 2 OF 2

**V&M**  
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DSG. ENG. OF RECORD.: JEB DATE: 7/16  
 DWN. BY: MAF DATE: 7/16  
 CHKD. BY: HLW DATE: 7/16

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE OVER ALLISON CREEK  
 ON SR 1448 BETWEEN  
 SR 1133 AND SR 1128

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

SHEET NO. S-2  
 TOTAL SHEETS 13



## 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(Inn)	N/A	①	1.47	--	1.75	0.204	1.60	60'	EL	29.5	0.651	<b>1.47</b>	60'	EL	<b>1.77</b>	0.80	0.204	2.52	60'	EL	29.5		
	HL-93(OPr)	N/A	--	1.91	--	1.35	0.204	2.08	60'	EL	29.5	0.651	1.91	60'	EL	1.77	0.80	0.204	--	60'	EL	29.5		
	HS-20(Inn)	36.00	②	1.81	65.048	1.75	0.204	2.03	60'	EL	29.5	0.651	<b>1.81</b>	60'	EL	<b>1.77</b>	0.80	0.204	3.19	60'	EL	29.5		
	HS-20(OPr)	36.00	--	2.34	84.321	1.35	0.204	2.63	60'	EL	29.5	0.651	2.34	60'	EL	1.77	0.80	0.204	--	60'	EL	29.5		
LEGAL LOAD RATING	SV	SNSH	13.50	--	5.27	71.099	1.40	0.204	5.44	60'	EL	29.5	0.651	5.27	60'	EL	1.77	0.80	0.204	6.86	60'	EL	29.5	
		SNGARBS2	20.00	--	3.78	75.688	1.40	0.204	4.17	60'	EL	29.5	0.651	3.78	60'	EL	1.77	0.80	0.204	5.25	60'	EL	29.5	
		SNAGRIS2	22.00	--	3.53	77.601	1.40	0.204	4.02	60'	EL	29.5	0.651	3.53	60'	EL	1.77	0.80	0.204	5.04	60'	EL	29.5	
		SNCOTTS3	27.25	--	2.64	71.923	1.40	0.204	2.72	60'	EL	29.5	0.651	2.64	60'	EL	1.77	0.80	0.204	3.42	60'	EL	29.5	
		SNAGGRS4	34.93	--	2.21	77.204	1.40	0.204	2.31	60'	EL	29.5	0.651	2.21	60'	EL	1.77	0.80	0.204	2.91	60'	EL	29.5	
		SNS5A	35.55	--	2.25	79.978	1.40	0.204	2.26	60'	EL	29.5	0.651	2.25	60'	EL	1.77	0.80	0.204	2.84	60'	EL	29.5	
		SNS6A	39.95	--	2.08	83.013	1.40	0.204	2.10	60'	EL	29.5	0.651	2.08	60'	EL	1.77	0.80	0.204	2.65	60'	EL	29.5	
	TTST	TNAGRIT3	33.00	--	2.45	80.759	1.40	0.204	2.55	60'	EL	29.5	0.651	2.45	60'	EL	1.77	0.80	0.204	3.21	60'	EL	29.5	
		TNT4A	33.08	--	2.38	78.586	1.40	0.204	2.58	60'	EL	29.5	0.651	2.38	60'	EL	1.77	0.80	0.204	3.24	60'	EL	29.5	
		TNT6A	41.60	--	2.12	88.195	1.40	0.204	2.12	60'	EL	29.5	0.651	2.19	60'	EL	1.77	0.80	0.204	2.67	60'	EL	29.5	
		TNT7A	42.00	--	2.11	88.725	1.40	0.204	2.15	60'	EL	29.5	0.651	2.11	60'	EL	1.77	0.80	0.204	2.70	60'	EL	29.5	
		TNT7B	42.00	--	1.98	83.189	1.40	0.204	2.23	60'	EL	29.5	0.651	1.98	60'	EL	1.77	0.80	0.204	2.81	60'	EL	29.5	
		TNAGRIT4	43.00	--	1.91	82.316	1.40	0.204	2.11	60'	EL	29.5	0.651	1.91	60'	EL	1.77	0.80	0.204	2.66	60'	EL	29.5	
		TNAGT5A	45.00	--	1.91	86.145	1.40	0.204	1.99	60'	EL	29.5	0.651	1.91	60'	EL	1.77	0.80	0.204	2.49	60'	EL	29.5	
TNAGT5B	45.00	③	1.82	81.762	1.40	0.204	1.95	60'	EL	29.5	0.651	<b>1.82</b>	60'	EL	<b>1.77</b>	0.80	0.204	2.46	60'	EL	29.5			

**LOAD FACTORS:**

DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{DC}$	$\gamma_{DW}$
	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)

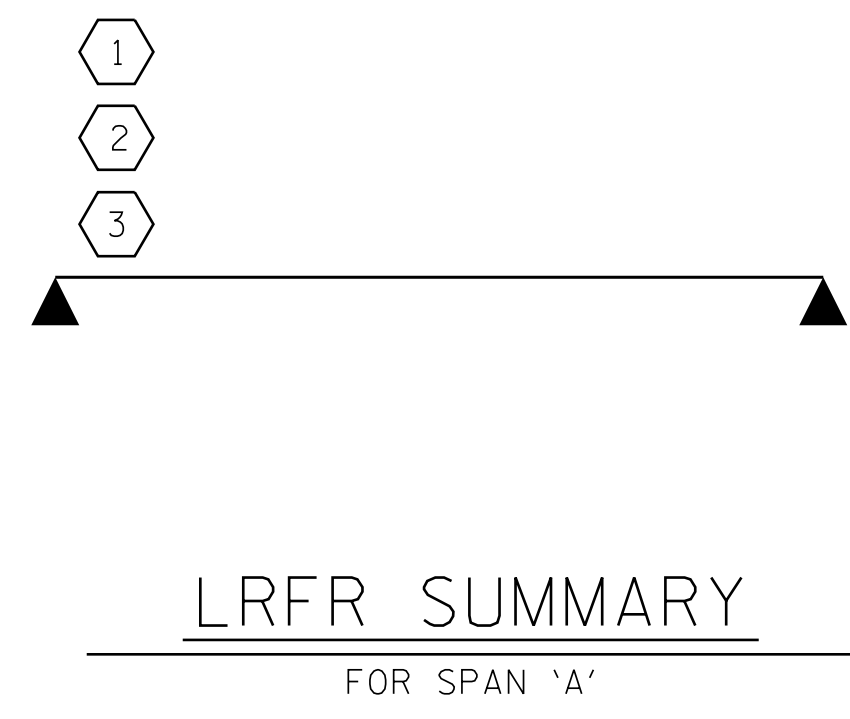
③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

---

GIRDER LOCATION

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



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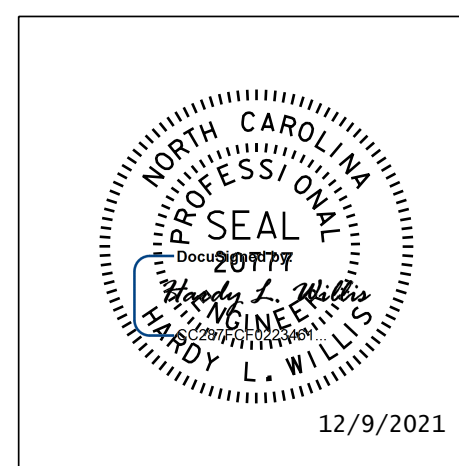
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PROJECT NO. 14SP.20561.1  
MACON COUNTY  
 STATION: 13+25.02 -L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

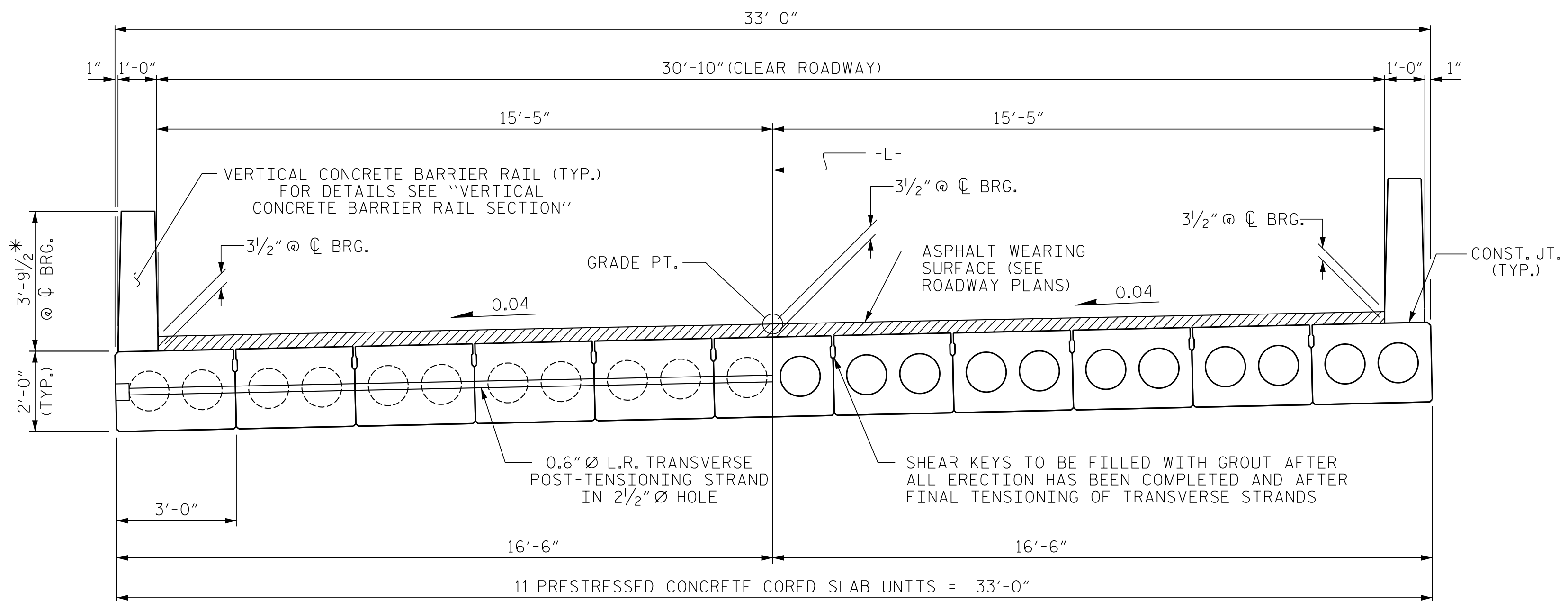
LRFR SUMMARY FOR  
60' CORED SLAB UNIT  
120° SKEW  
(NON-INTERSTATE TRAFFIC)

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



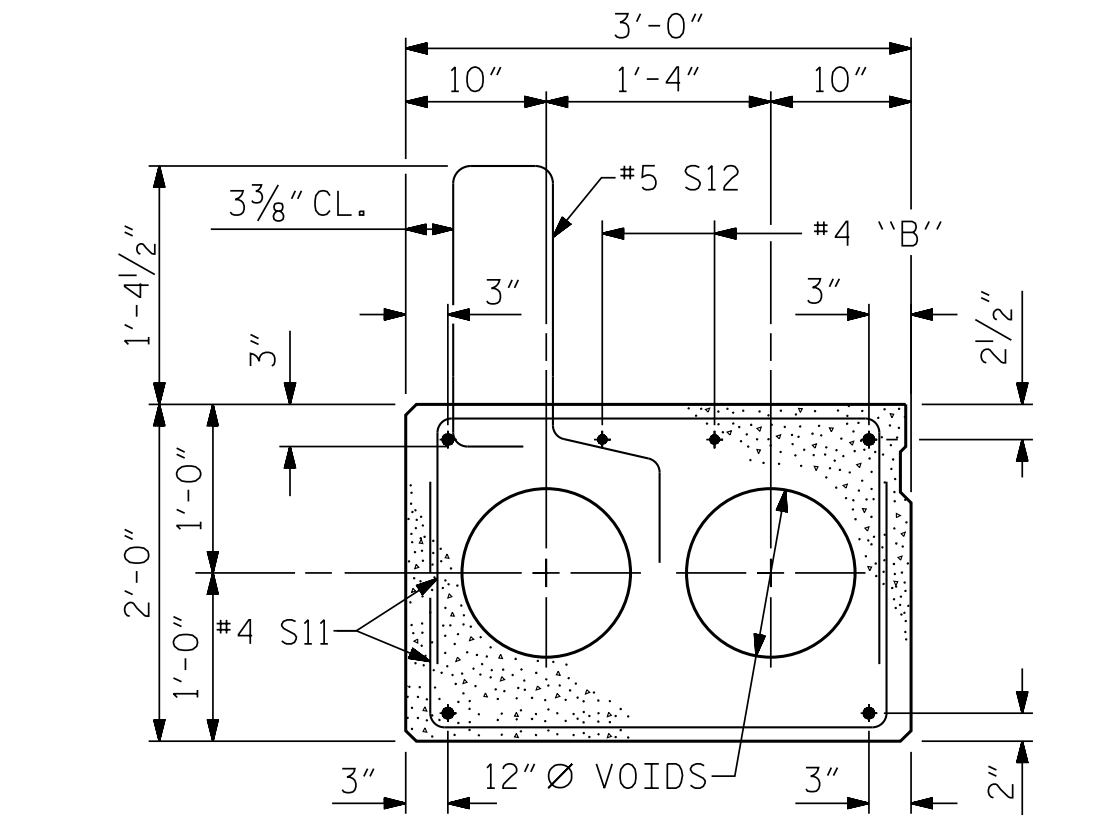
DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

ENGINEER OF RECORD: JEB  
 ASSEMBLED BY: MAF  
 CHECKED BY: HLW  
 DATE: 7/16  
 DATE: 7/16  
 DRAWN BY: CVC 6/10  
 CHECKED BY: DNS 6/10

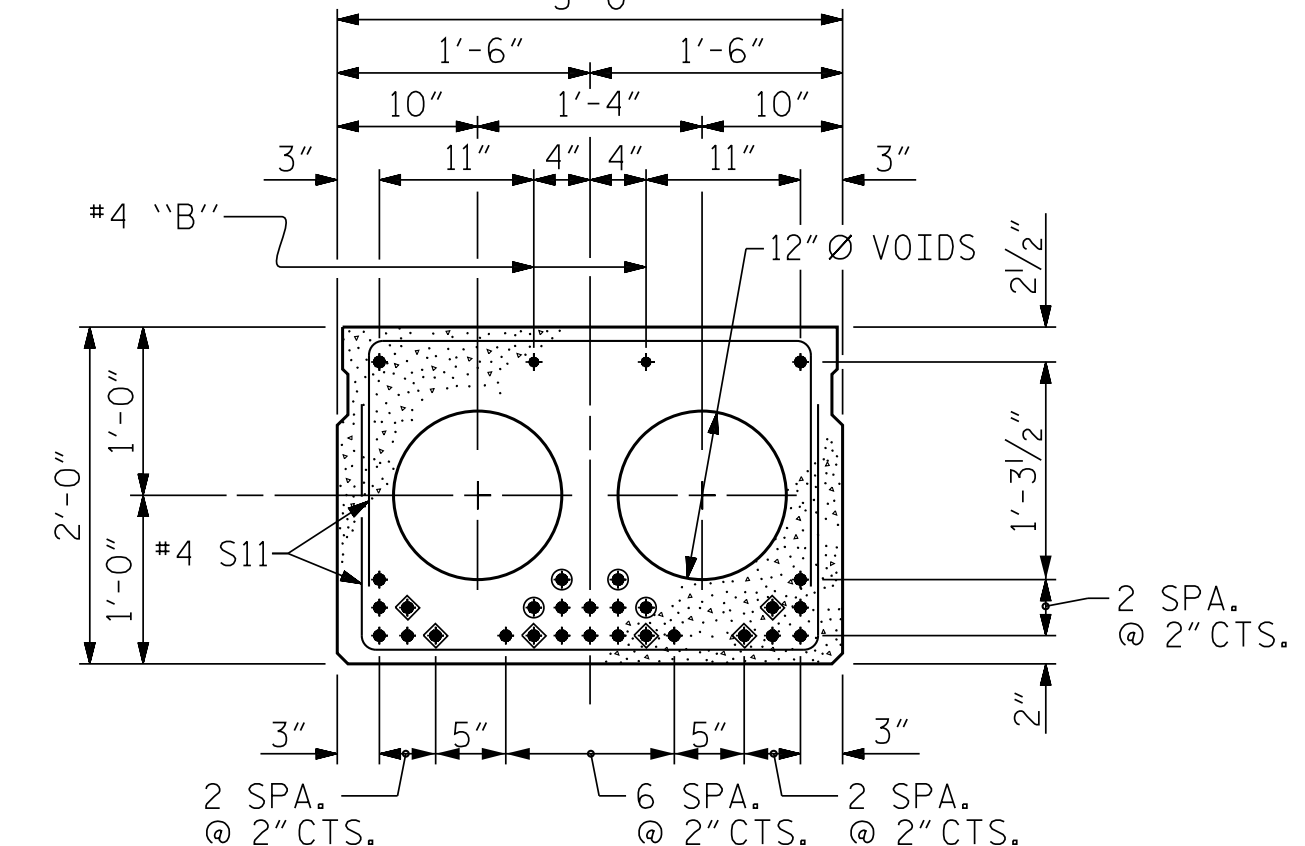


HALF SECTION AT INTERMEDIATE DIAPHRAGMS **TYPICAL SECTION** HALF SECTION THROUGH VOIDS

\* - 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.



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

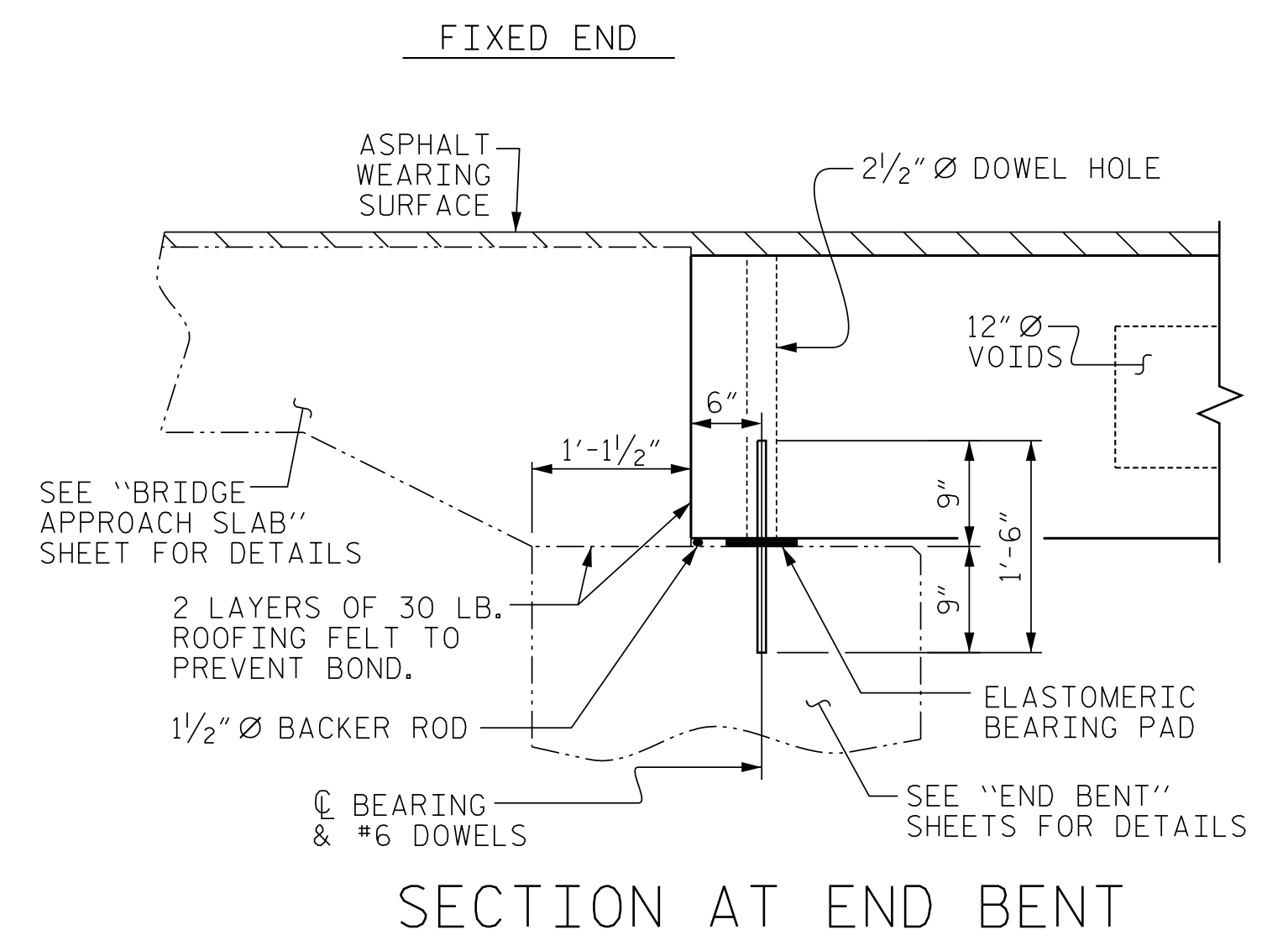


**INTERIOR SLAB SECTION (60' UNIT)**  
(24 STRANDS REQUIRED)

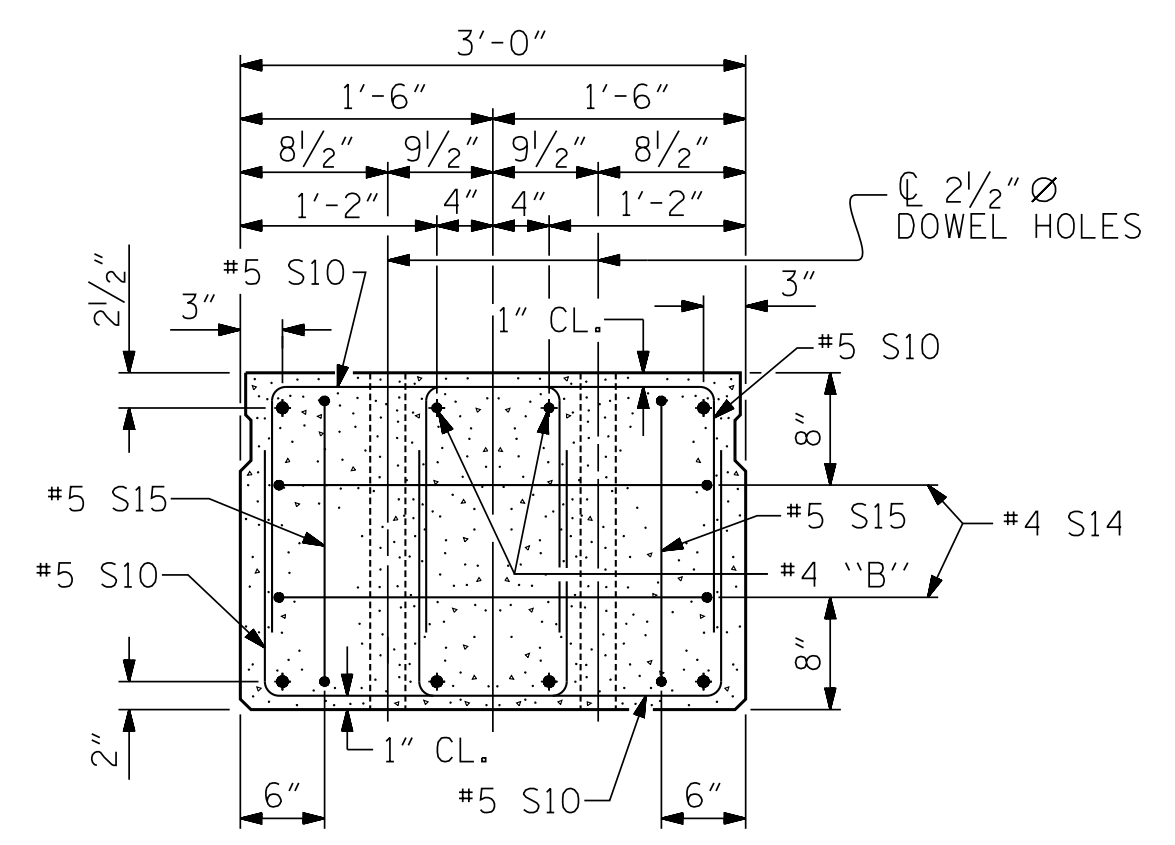
**0.6" Ø LOW RELAXATION STRAND LAYOUT**

- ◆ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 16'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

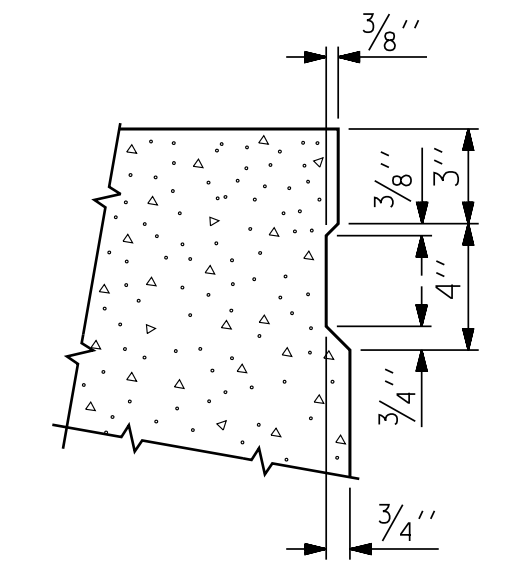
**DEBONDING LEGEND**



**SECTION AT END BENT**

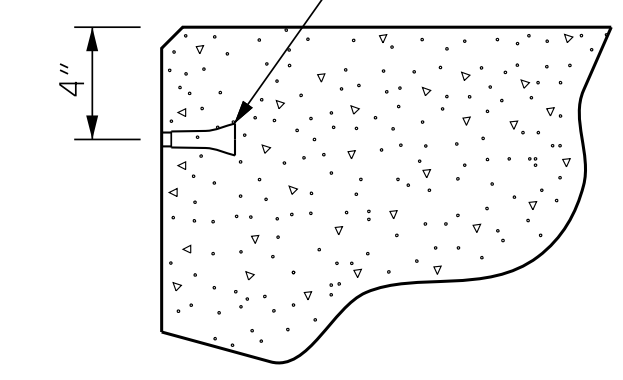


**END ELEVATION**  
SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

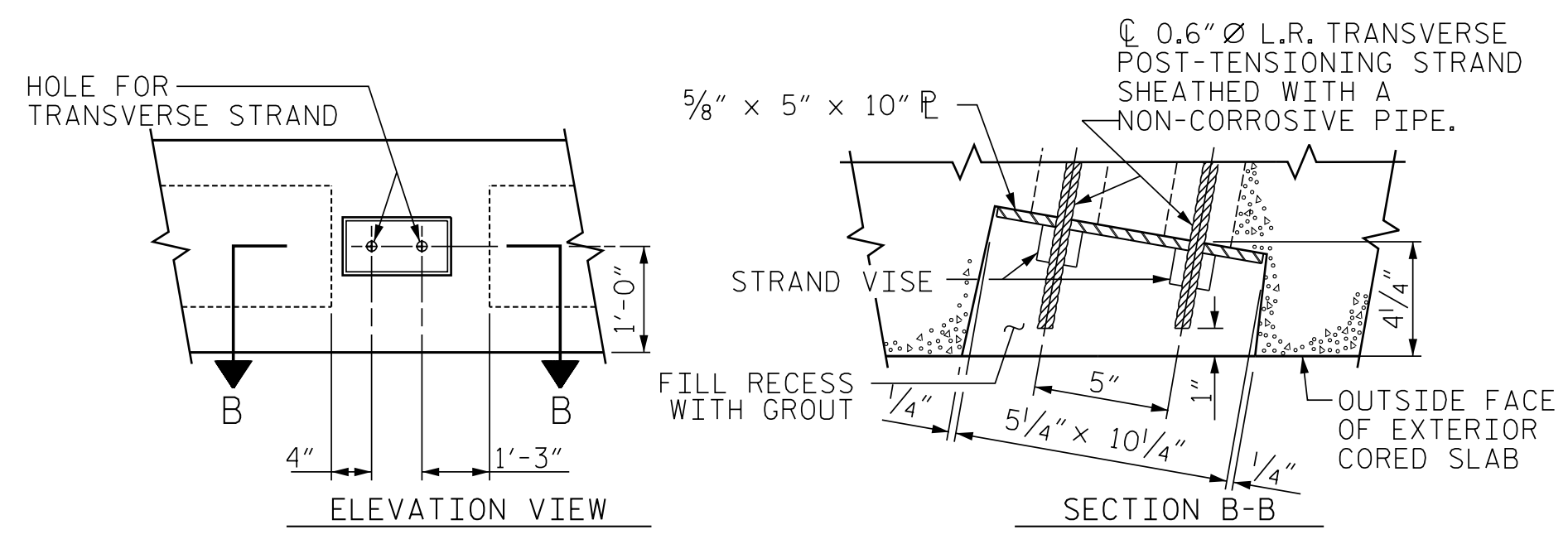


**SHEAR KEY DETAIL**  
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

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



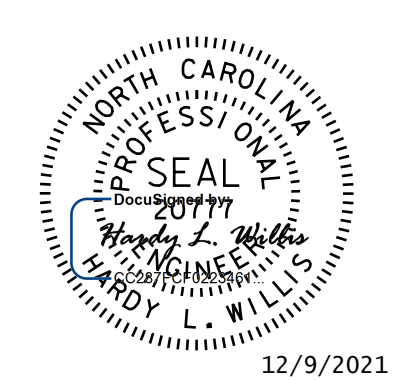
**THREADED INSERT DETAIL**



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

ENGINEER OF RECORD: JEB	DATE: 7/16
ASSEMBLED BY: MAF	DATE: 7/16
CHECKED BY: HLW	
DRAWN BY: MAA 6/10	REV. 9/14 MAA/TMG
CHECKED BY: MKT 7/10	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

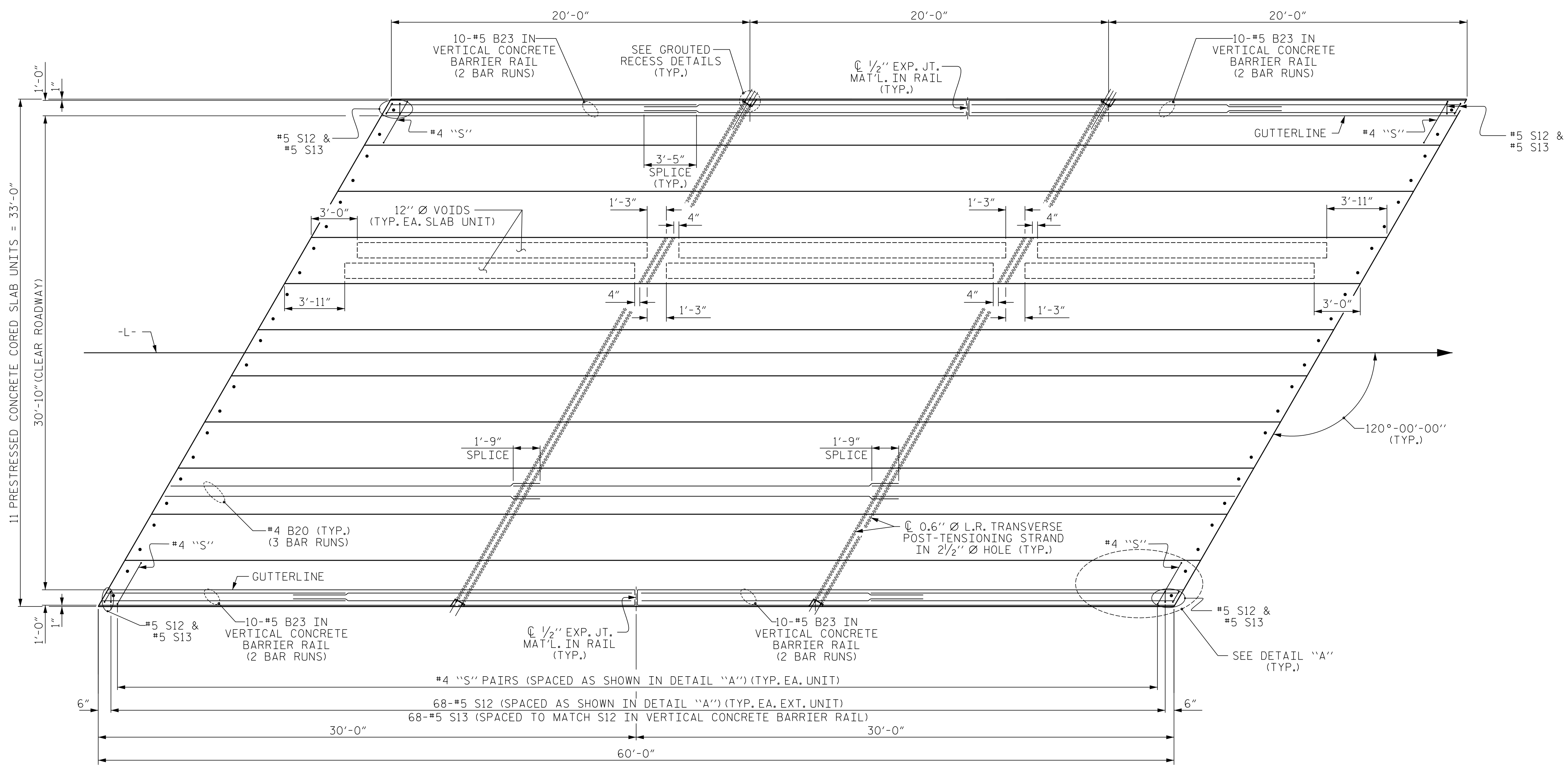


PROJECT NO. 14SP.20561.1  
MACON COUNTY  
STATION: 13+25.02 -L-

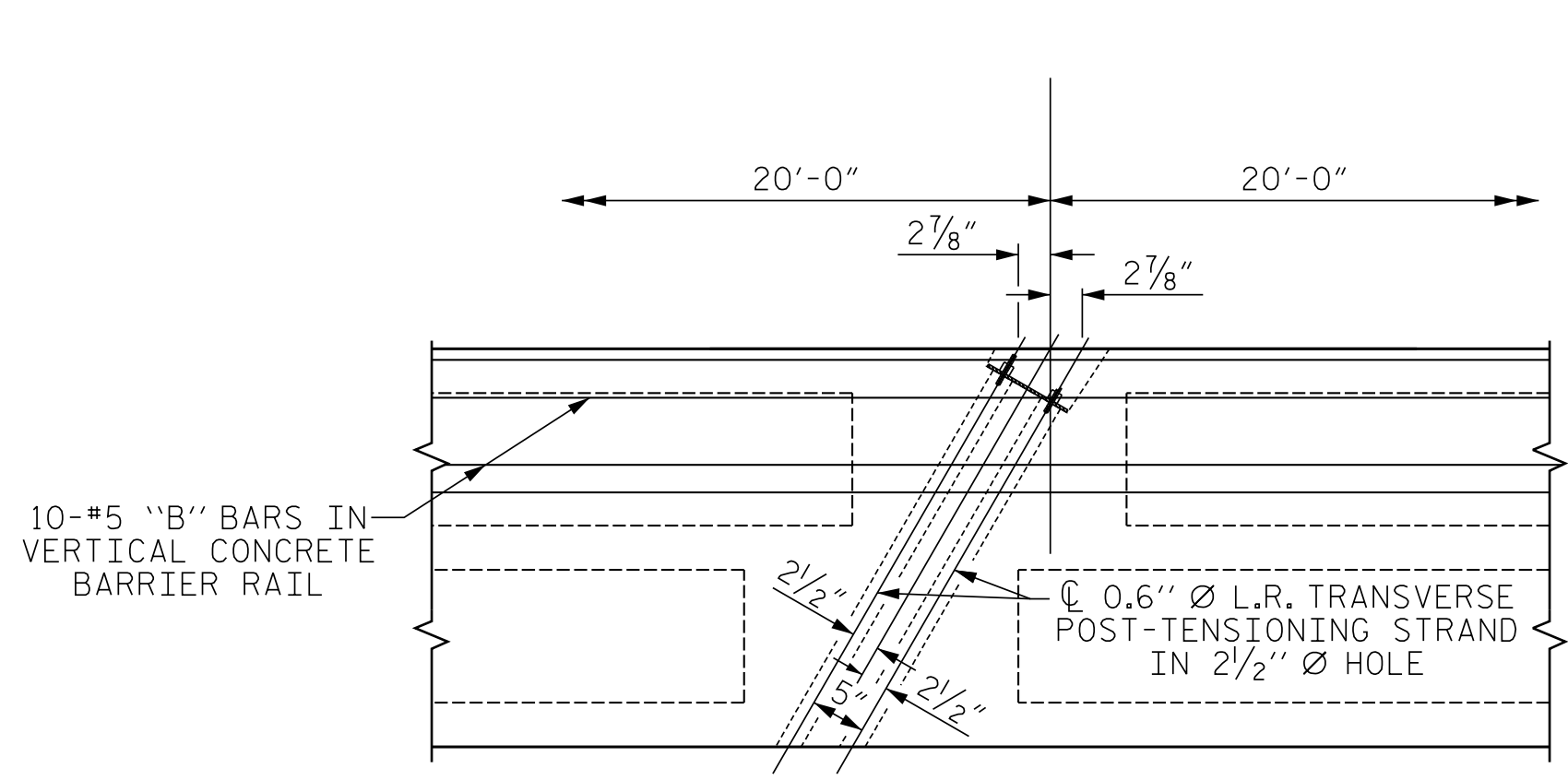
SHEET 1 OF 3  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
3'-0" X 2'-0"  
PRESTRESSED CONCRETE  
CORED SLAB UNIT

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



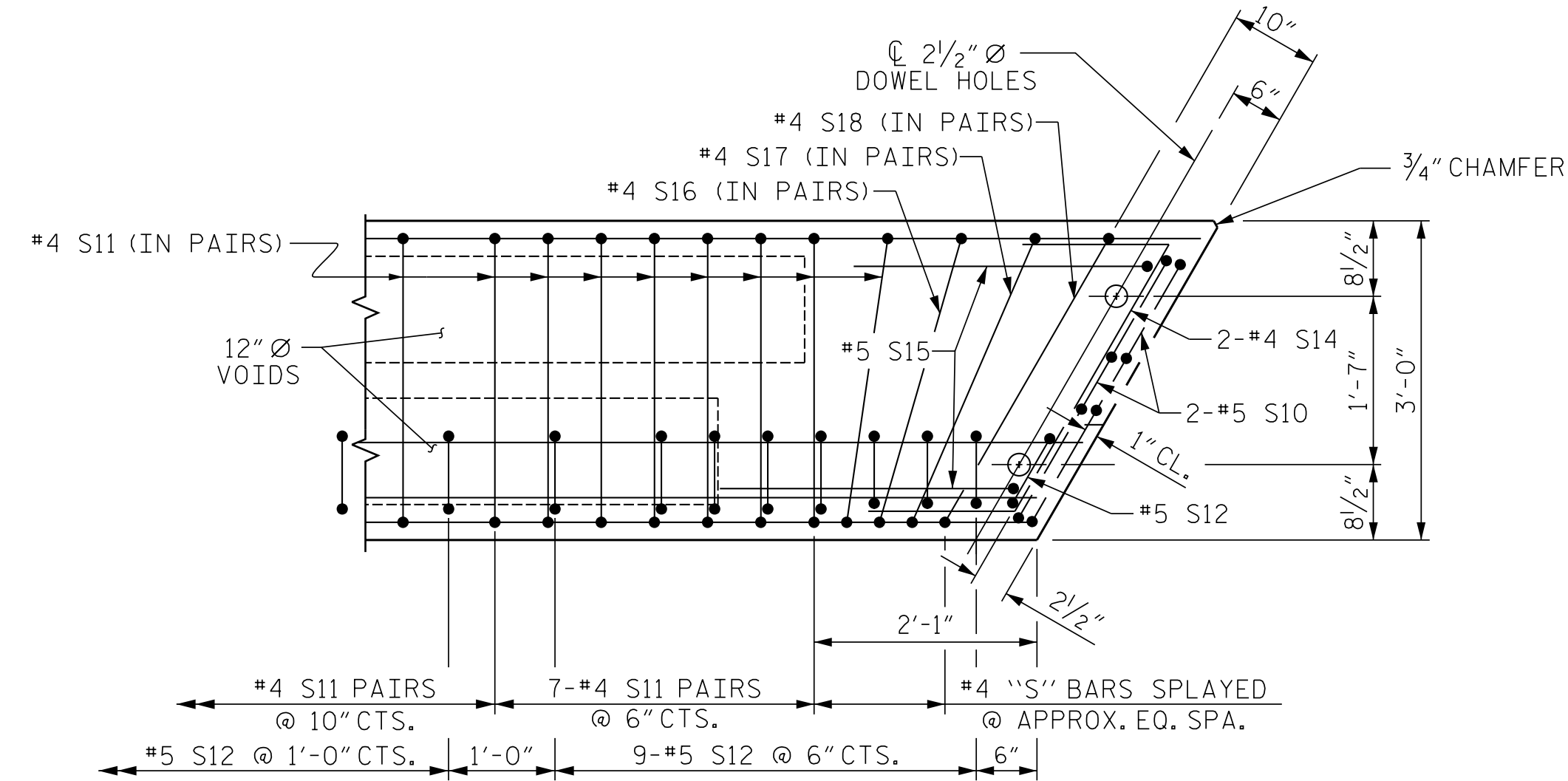


PLAN OF UNIT



DETAIL "B"

#4 S11 BARS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUDED RECESS AND 2 1/2" Ø TRANSVERSE POST-TENSIONING STRAND HOLES



DETAIL "A"

(SIMILAR EACH END OF UNIT)  
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S12 BARS.

PROJECT NO. 14SP.20561.1  
MACON COUNTY  
STATION: 13+25.02 -L-

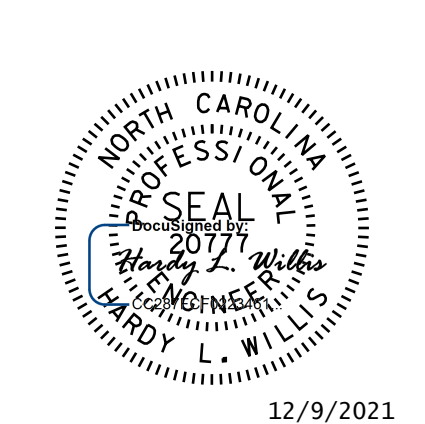
SHEET 2 OF 3

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

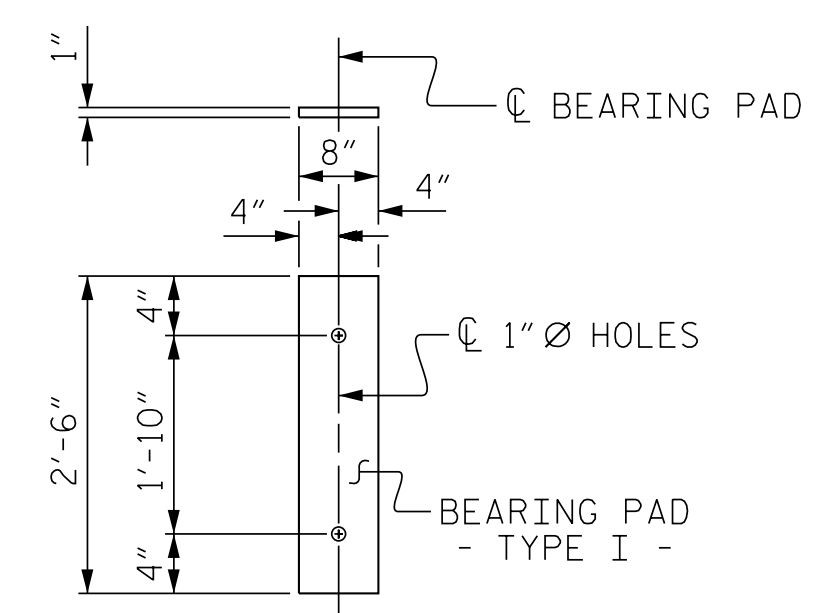
PLAN OF 60' UNIT  
30'-10" CLEAR ROADWAY  
120° SKEW

ENGINEER OF RECORD:	JEB	DATE:	7/16
ASSEMBLED BY:	MAF	DATE:	7/16
CHECKED BY:	HLW		
DRAWN BY:	MAA 6/10	REV. 12/5/11	MAA/AAC
CHECKED BY:	MKT 7/10	REV. 8/14	MAA/TMG

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SIGNATURES COMPLETED



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			13



FIXED END  
(TYPE I - 22 REQ'D)

### ELASTOMERIC BEARING DETAILS

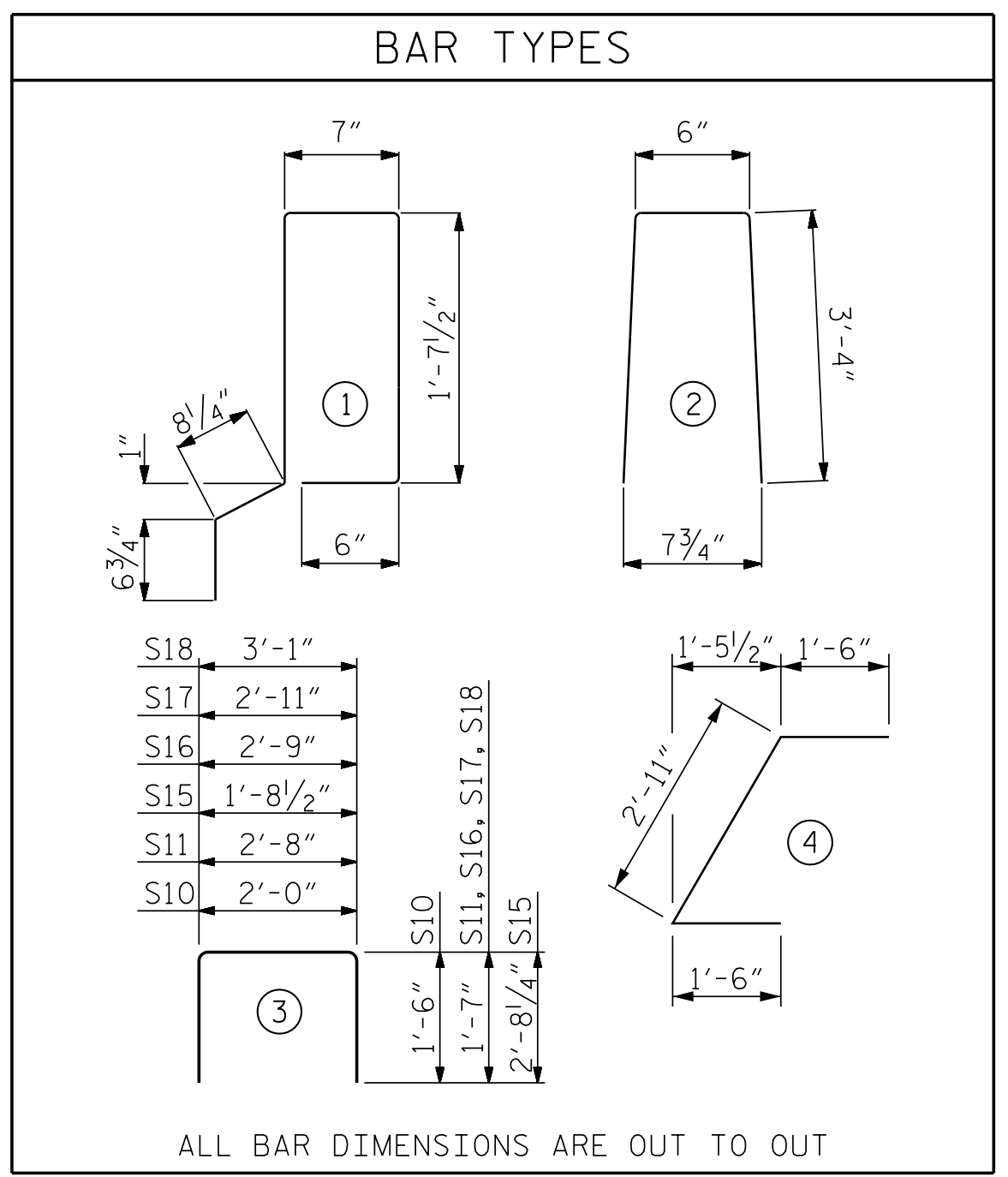
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
60' UNIT			
EXTERIOR C.S.	2	60'-0"	120
INTERIOR C.S.	9	60'-0"	540
TOTAL	11		660

BILL OF MATERIAL FOR ONE 60' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
B20	6	#4	STR	21'-2"	85	21'-2"	85
S10	8	#5	3	5'-0"	42	5'-0"	42
S11	146	#4	3	5'-10"	569	5'-10"	569
*S12	70	#5	1	5'-7"	408		
S14	4	#4	4	5'-11"	16	5'-11"	16
S15	4	#5	3	7'-1"	30	7'-1"	30
S16	4	#4	3	5'-11"	16	5'-11"	16
S17	4	#4	3	6'-1"	16	6'-1"	16
S18	4	#4	3	6'-3"	17	6'-3"	17
REINFORCING STEEL				LBS.	791	791	
*EPOXY COATED REINFORCING STEEL				LBS.	408		
6000 P.S.I. CONCRETE				CU. YDS.	10.4	10.4	
0.6" Ø L.R. STRANDS				No.	24	24	

DEAD LOAD DEFLECTION AND CAMBER	
60' CORED SLAB UNIT	3'-0" x 2'-0" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1 7/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/2" ↓
FINAL CAMBER	1 3/8" ↑

\*\* INCLUDES FUTURE WEARING SURFACE



### 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.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

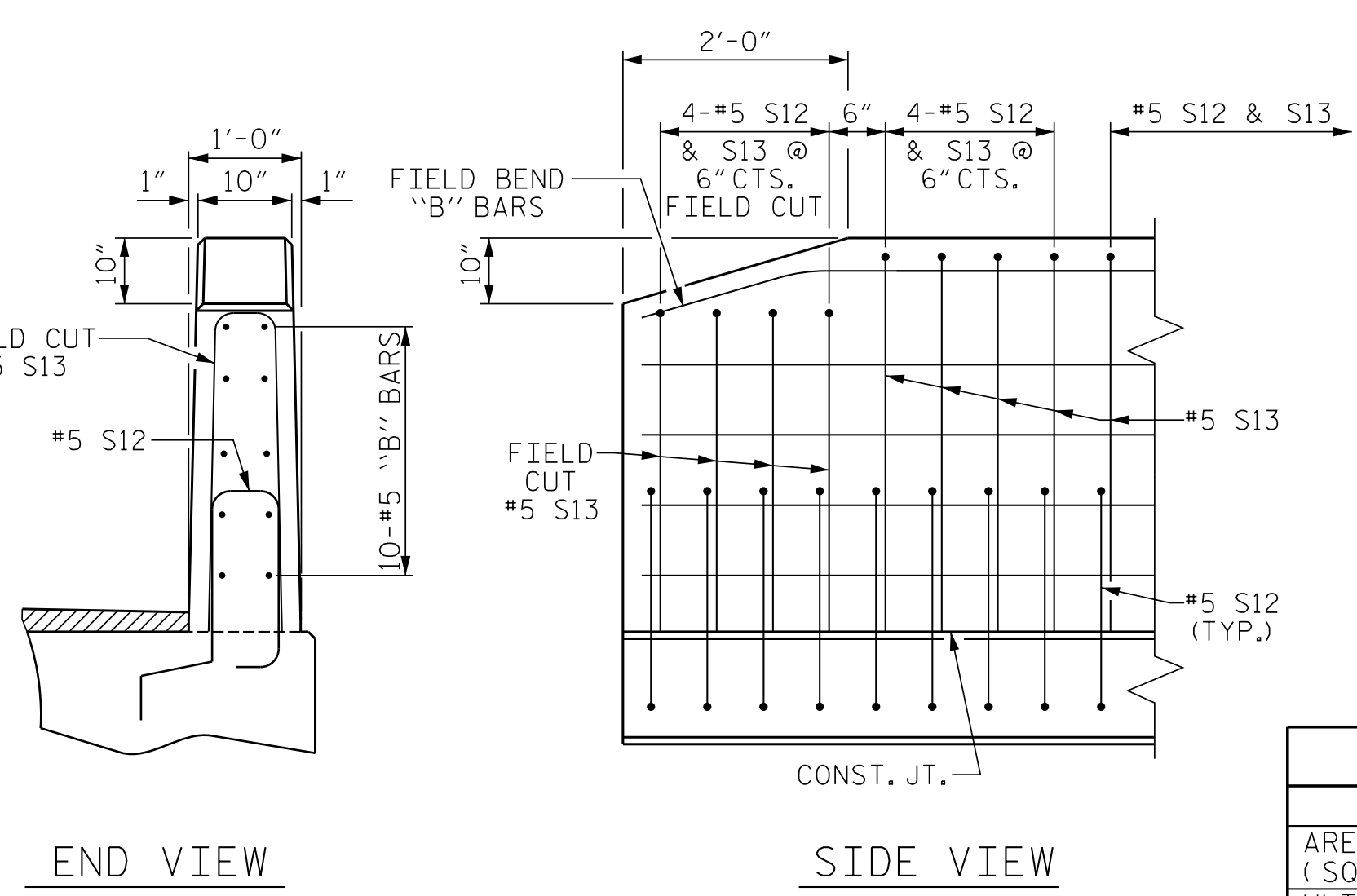
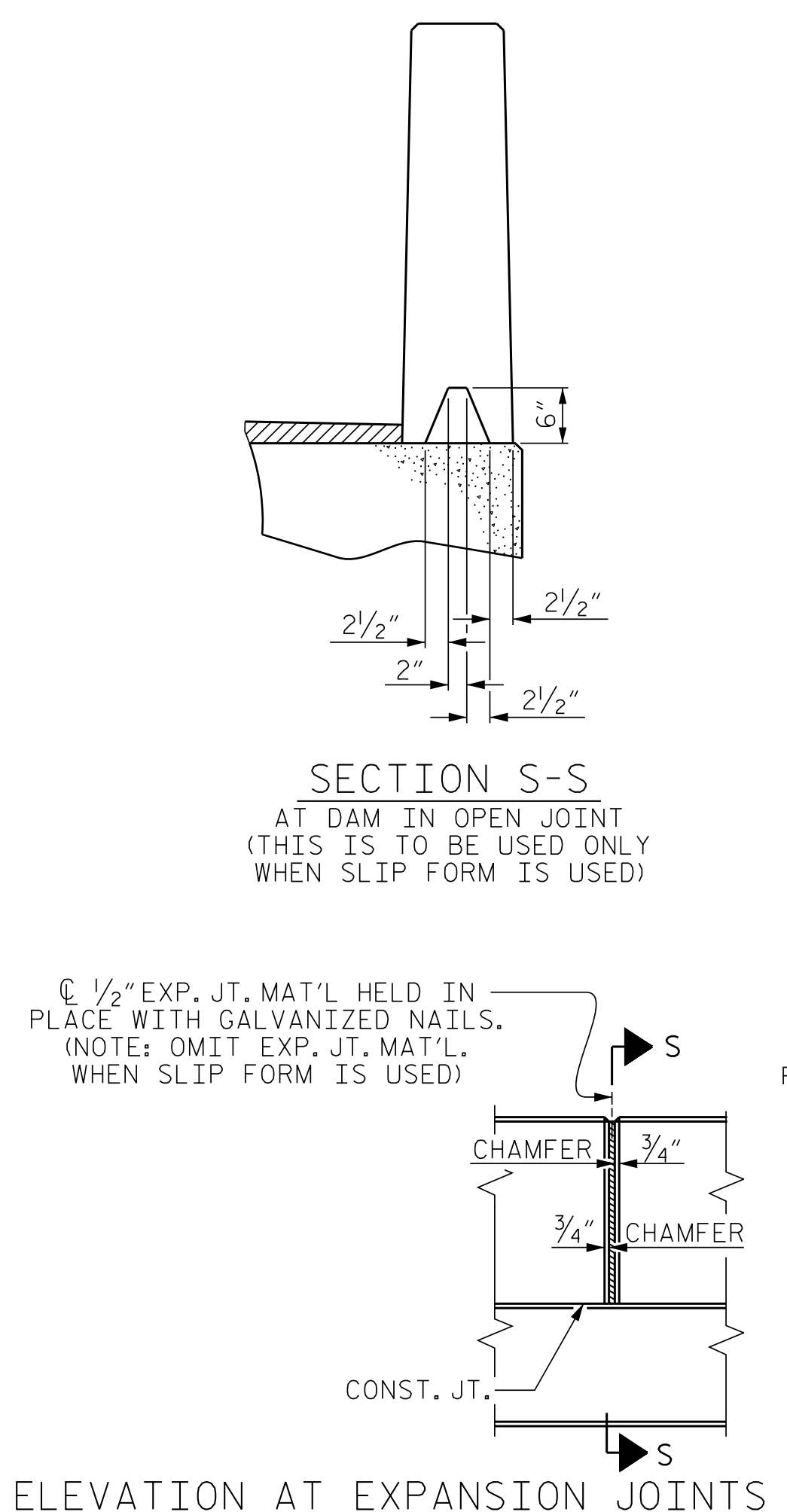
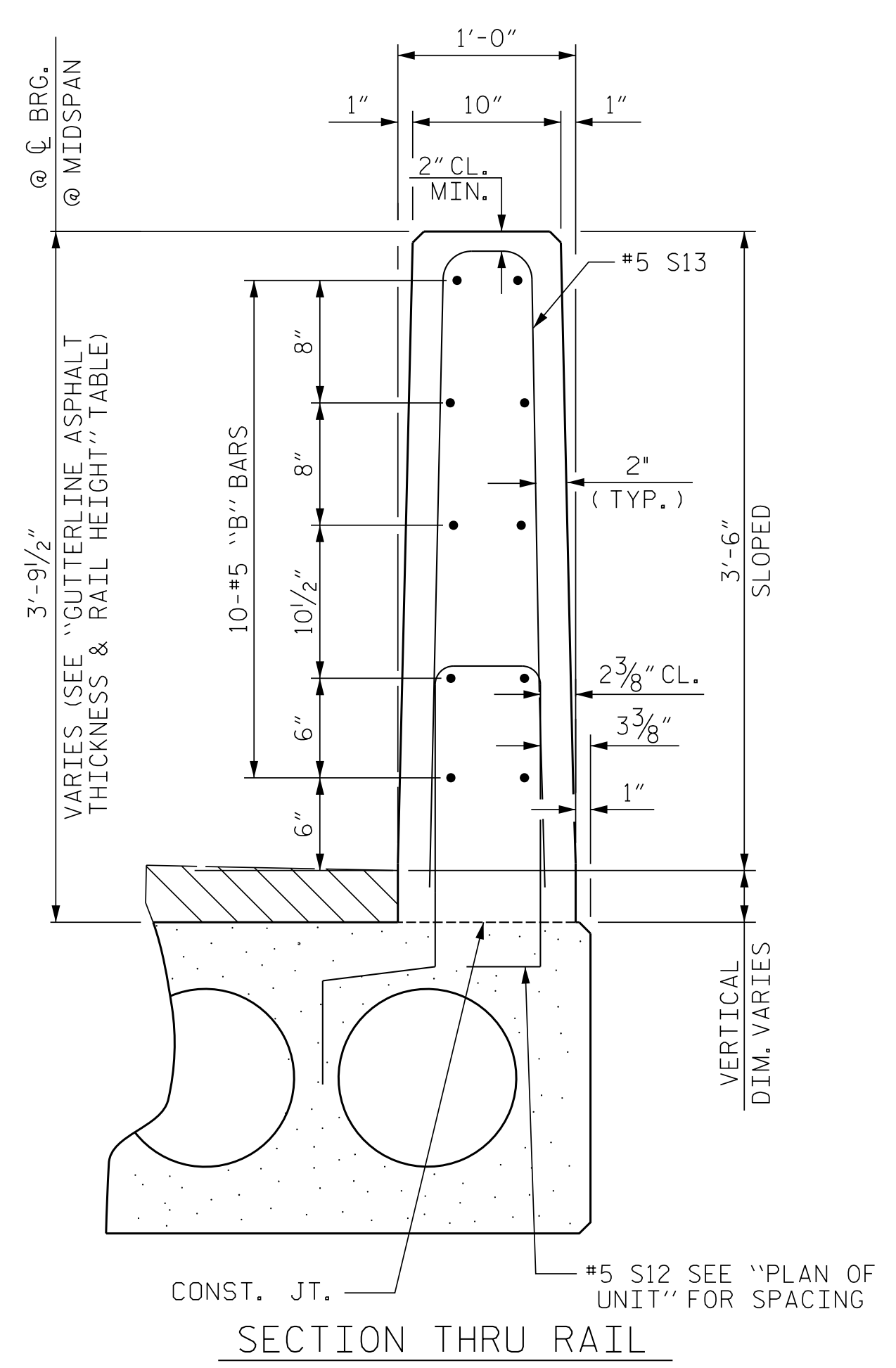
ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

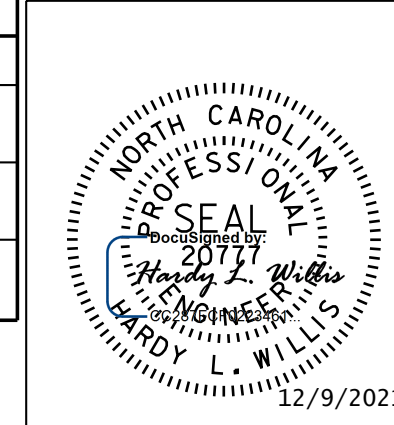
BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
60' UNIT						
*B23	80	80	#5	STR	16'-11"	1412
*S13	140	140	#5	2	7'-2"	1046
*EPOXY COATED REINFORCING STEEL					LBS.	2458
CLASS AA CONCRETE					CU. YDS.	15.5
TOTAL VERTICAL CONCRETE BARRIER RAIL					LN. FT.	120.29

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
60' UNITS	2 1/8"	3'-8 1/8"



CONCRETE RELEASE STRENGTH	
UNIT	PSI
60' UNITS	4800

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



PROJECT NO. 14SP.20561.1  
 MACON COUNTY  
 STATION: 13+25.02 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

STANDARD  
 3'-0" X 2'-0"  
 PRESTRESSED CONCRETE  
 CORED SLAB UNIT

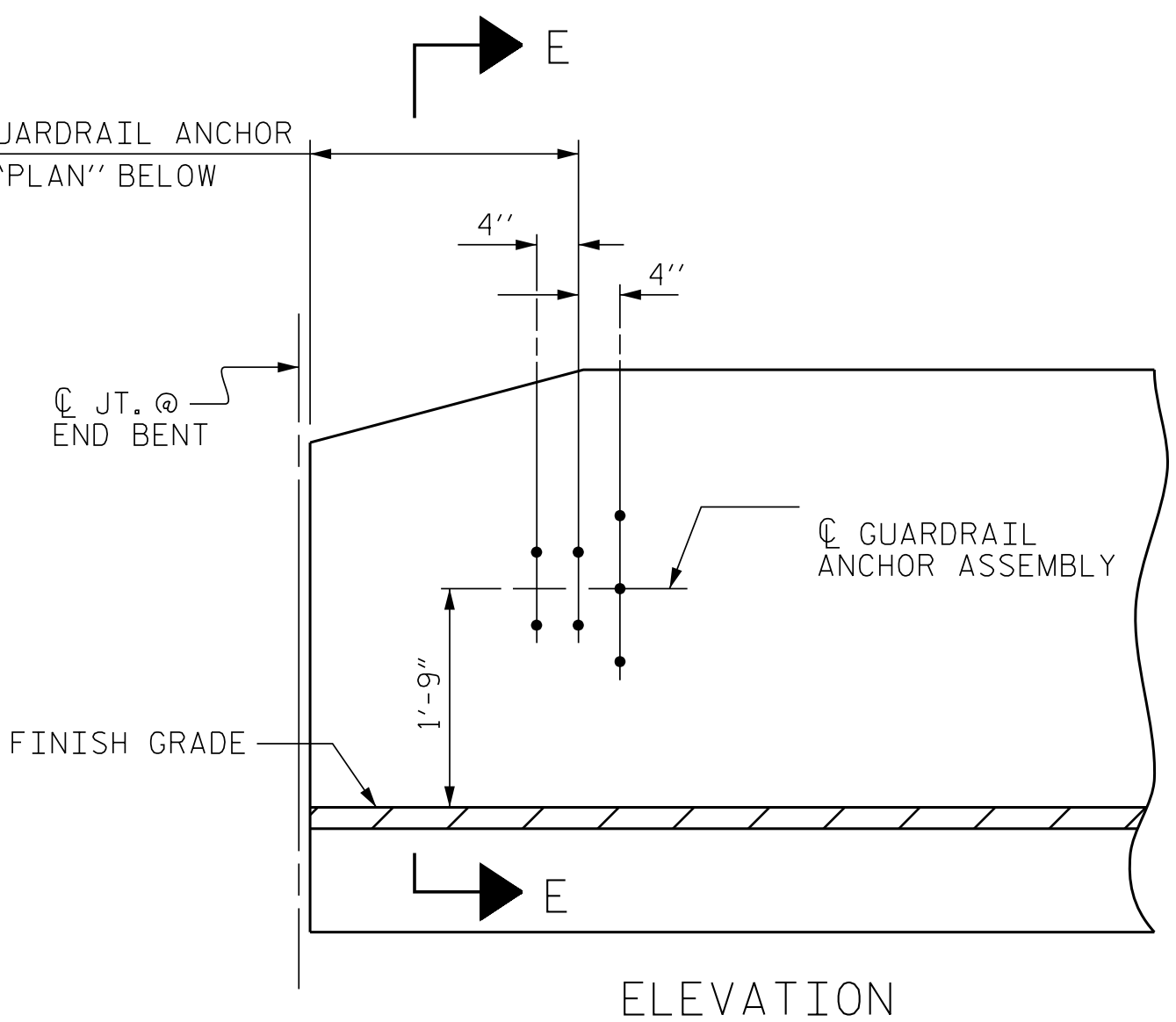
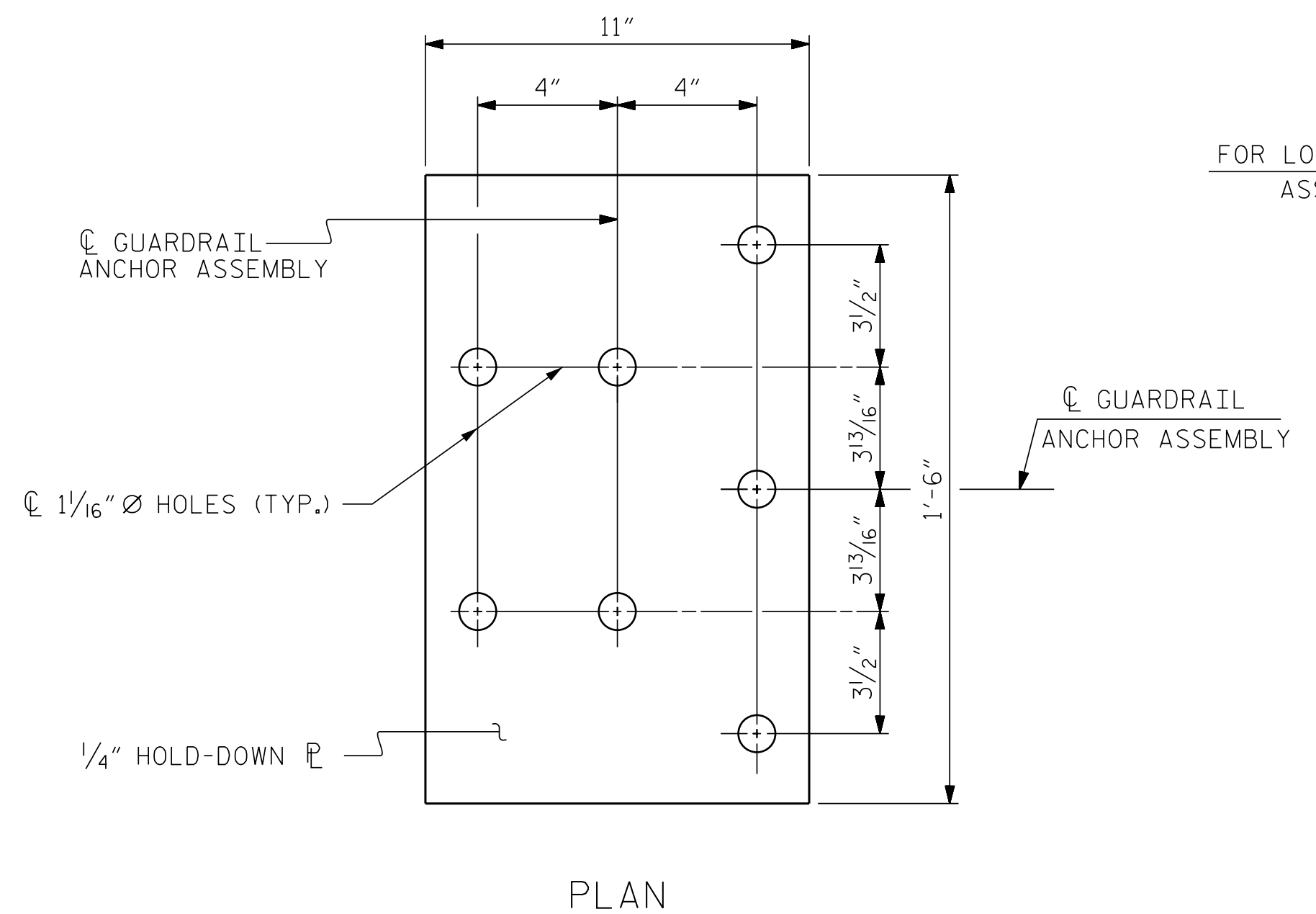
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS 13
2			4			

ENGINEER OF RECORD: JEB  
 ASSEMBLED BY: MAF DATE: 7/16  
 CHECKED BY: HLW DATE: 7/16

DRAWN BY: MAA 6/10  
 CHECKED BY: MKT 7/10

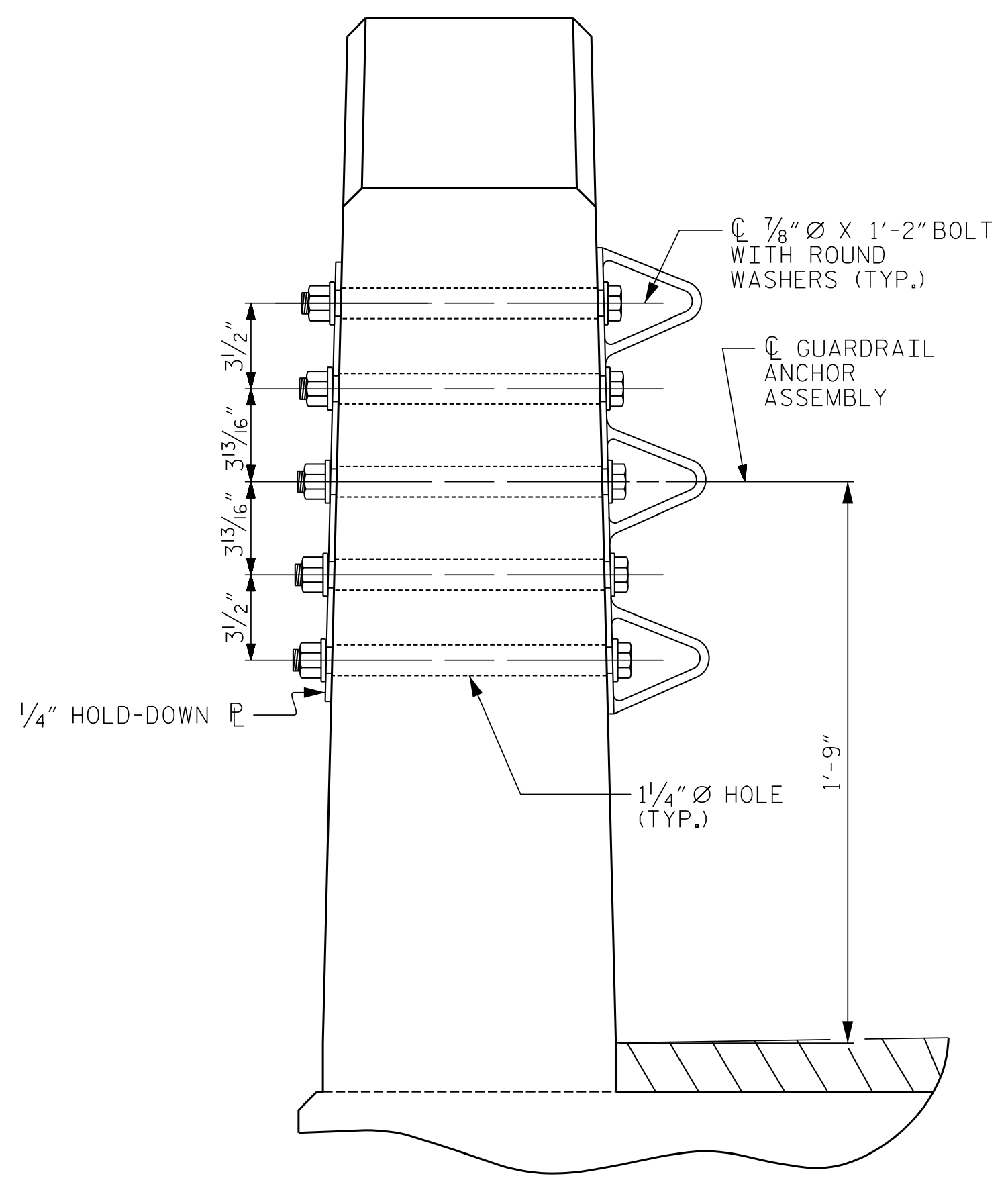
REV. 5/18 MAA/THC



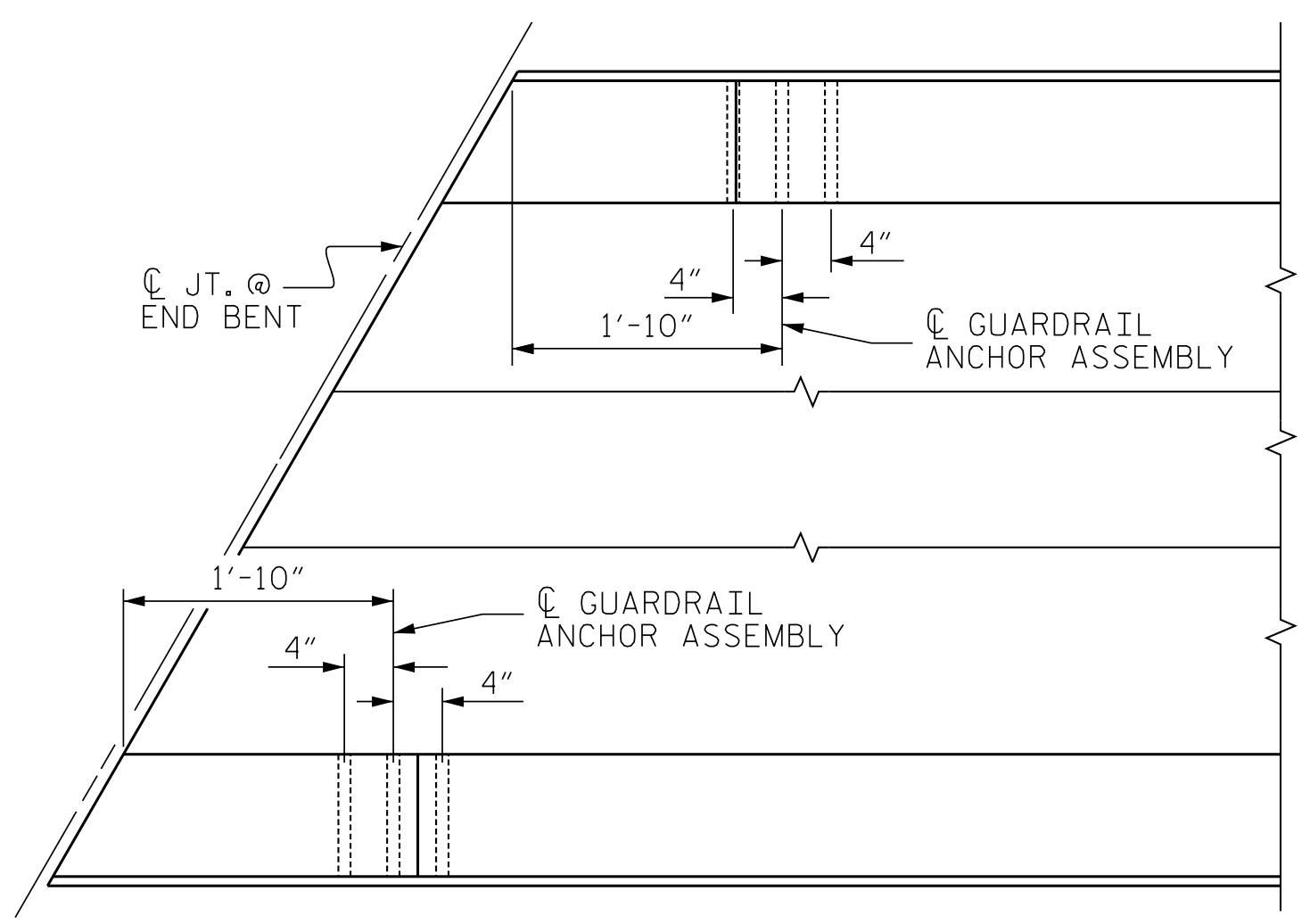


PLAN

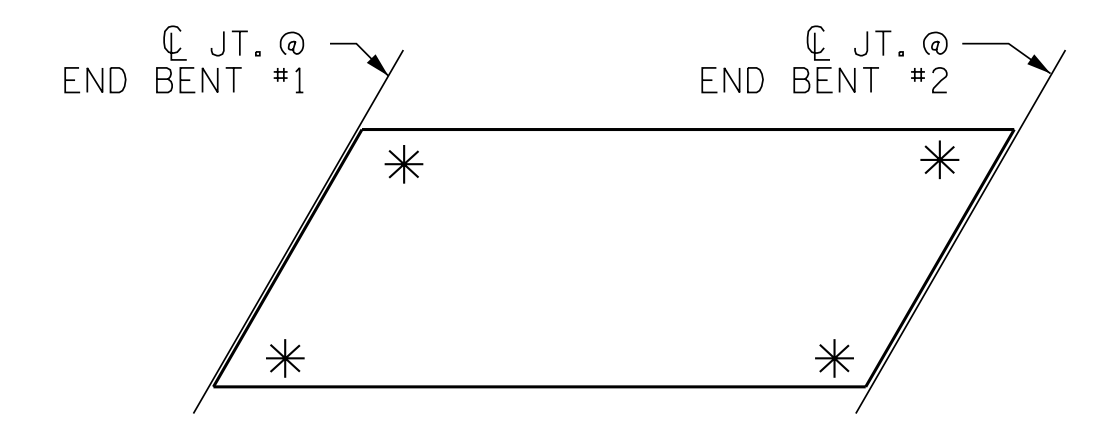
ELEVATION



SECTION E-E  
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN  
LOCATION OF ANCHORS FOR GUARDRAIL  
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT  
\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

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.

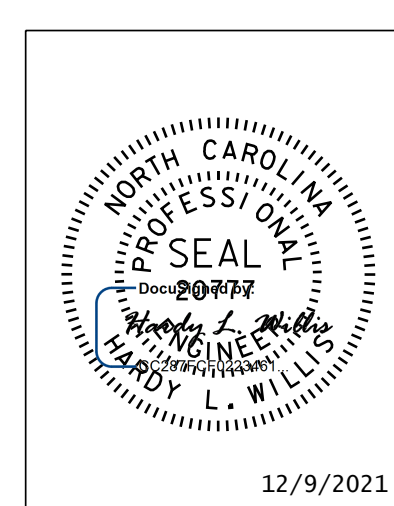
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

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.

PROJECT NO. 14SP.20561.1  
MACON COUNTY  
STATION: 13+25.02 -L-



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

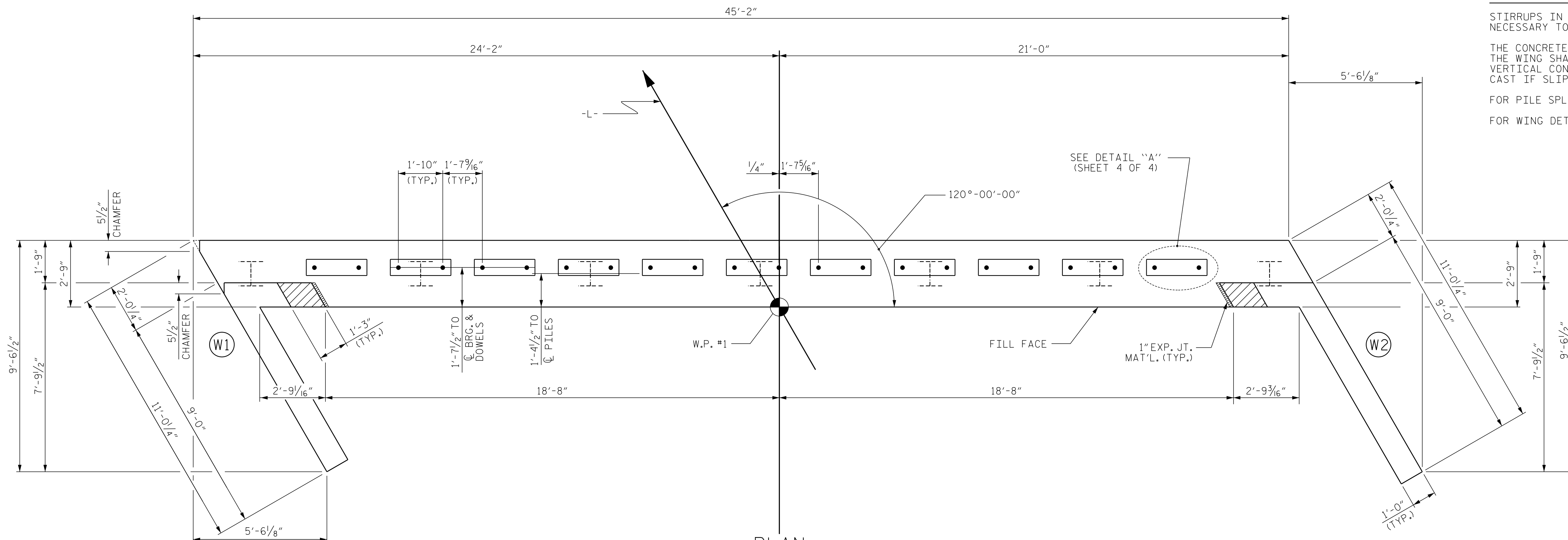
ENGINEER OF RECORD : JEB	DATE : 7/16
ASSEMBLED BY : MAF	DATE : 7/16
CHECKED BY : HLW	
DRAWN BY : MAA 5/10	REV. 1/15 MAA/TMG
CHECKED BY : GM 5/10	REV. 12/17 MAA/THC
	REV. 5/18 MAA/THC

NO.	BY:	DATE:	REVISIONS			SHEET NO.
			NO.	BY:	DATE:	
1			3			S-7
2			4			TOTAL SHEETS 13

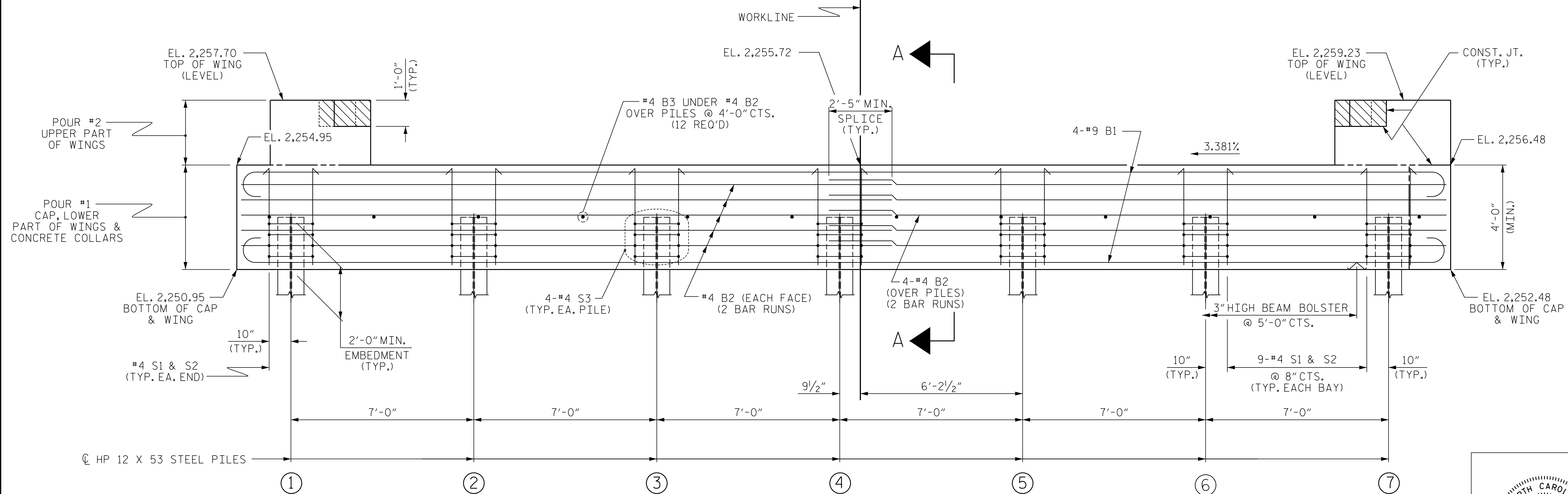
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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



ELEVATION

TOP OF PILE ELEVATIONS	
①	2253.01
②	2253.25
③	2253.49
④	2253.73
⑤	2253.97
⑥	2254.21
⑦	2254.45

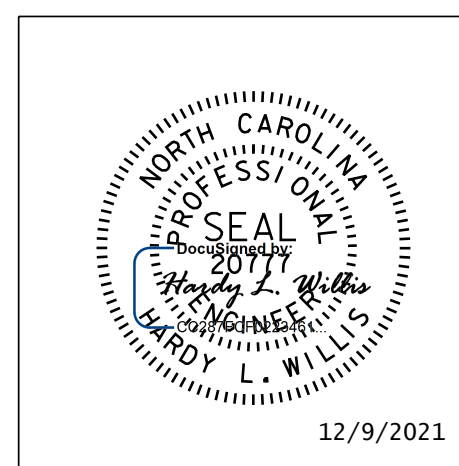
PROJECT NO. 14SP.20561.1  
 MACON COUNTY  
 STATION: 13+25.02 -L-

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-8
1			3			TOTAL SHEETS
2			4			13



ENGINEER OF RECORD : JEB  
 ASSEMBLED BY : MAF DATE : 7/16  
 CHECKED BY : HLW DATE : 7/16  
 DRAWN BY : WJH 12/11 REV. 4/15 MAA/TMG  
 CHECKED BY : AAC 12/11

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.

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED



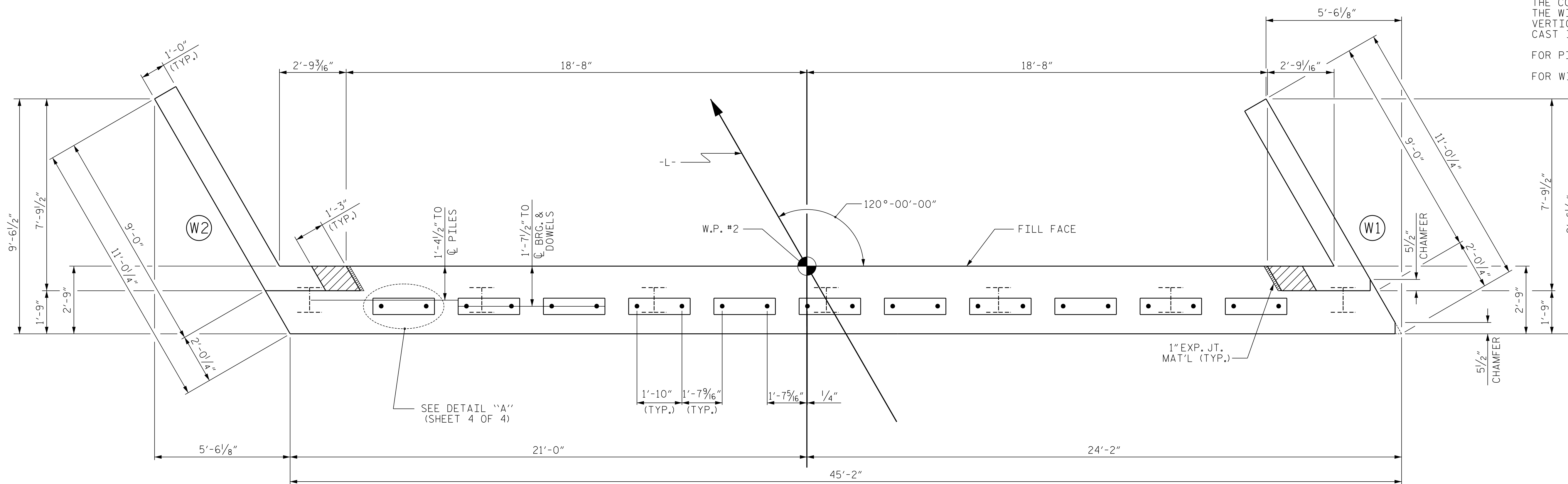
NOTES

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.

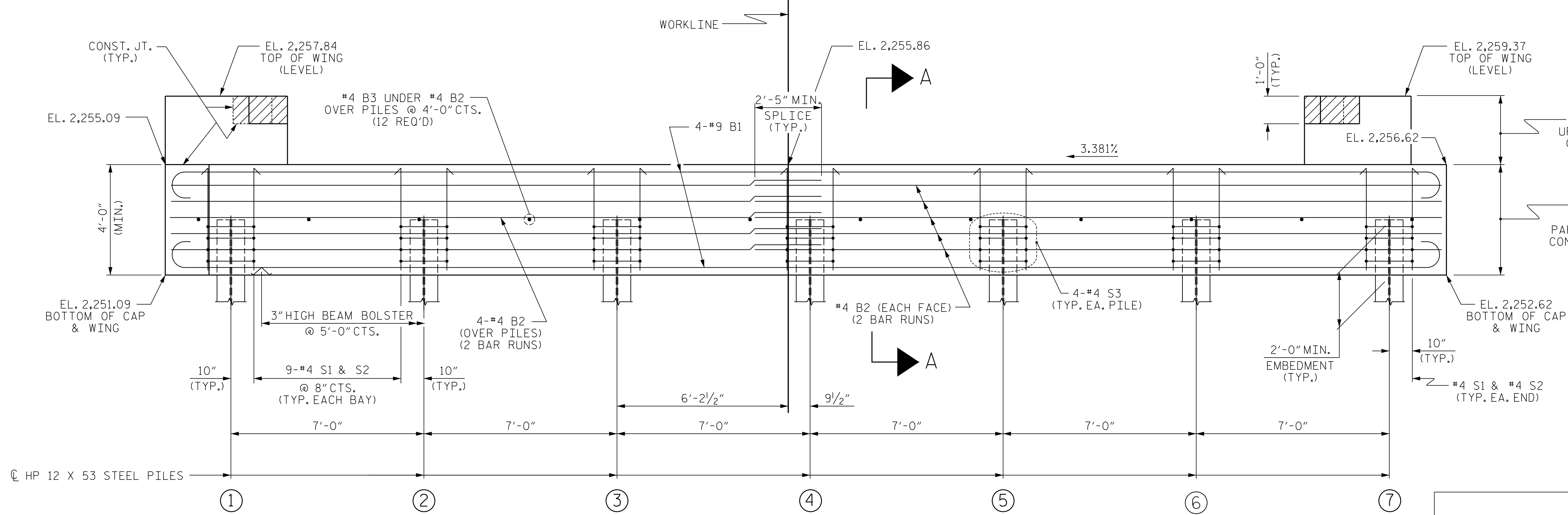
FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.



PLAN

TOP OF PILE ELEVATIONS	
①	2,253.15
②	2,253.39
③	2,253.63
④	2,253.87
⑤	2,254.11
⑥	2,254.35
⑦	2,254.59



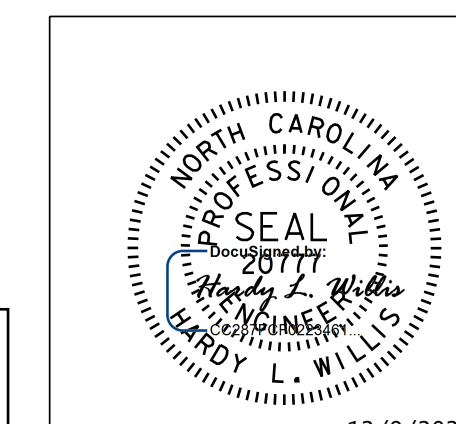
ELEVATION

PROJECT NO. 14SP.20561.1  
 MACON COUNTY  
 STATION: 13+25.02 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT No. 2

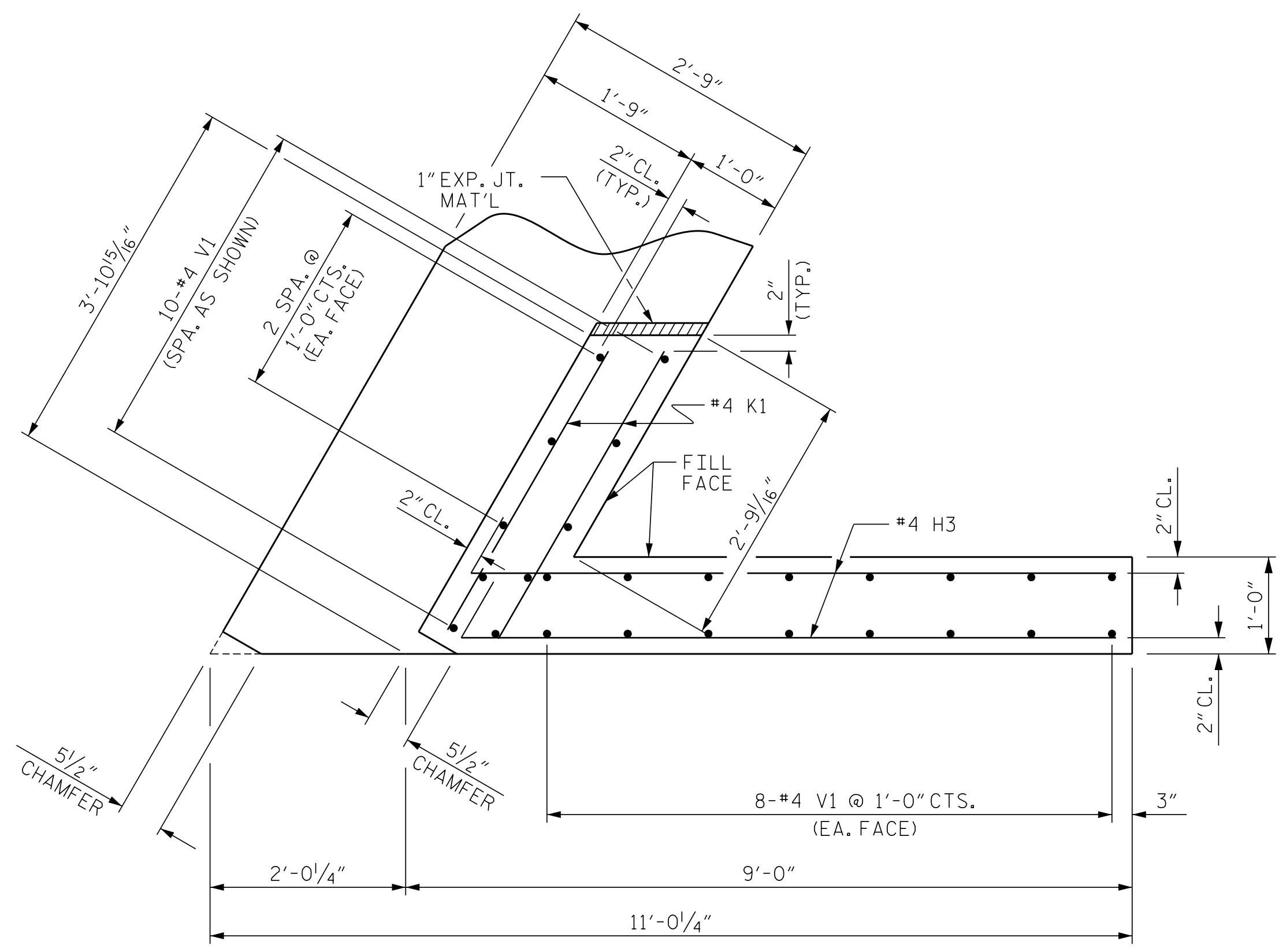


ENGINEER OF RECORD : JEB  
 ASSEMBLED BY : MAF  
 CHECKED BY : HLW  
 DATE : 7/16  
 DATE : 7/16  
 DRAWN BY : WJH 12/11  
 CHECKED BY : AAC 12/11  
 REV. 4/15  
 MAA/TMG

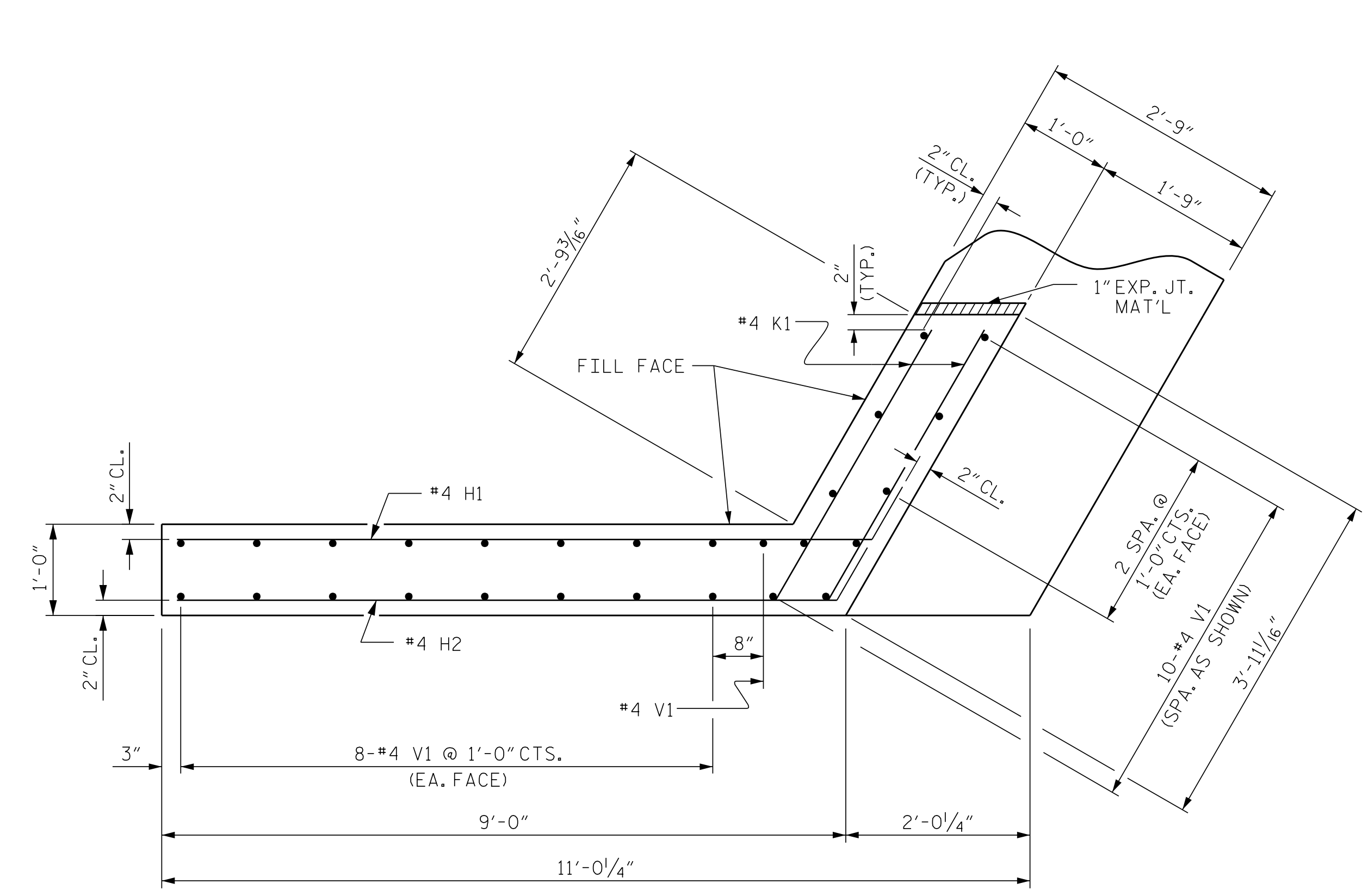
WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A, SEE SHEET 4 OF 4.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

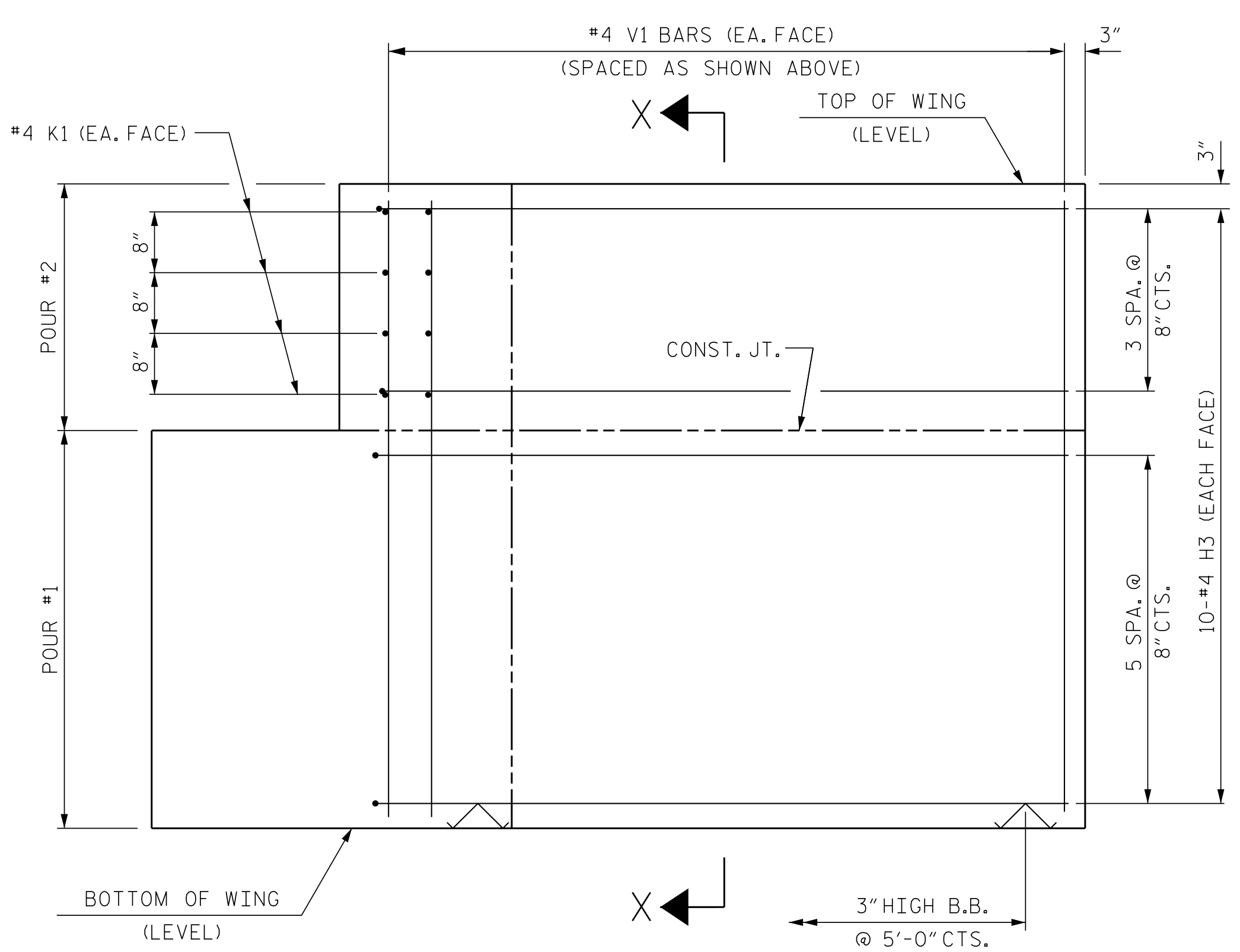
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			13



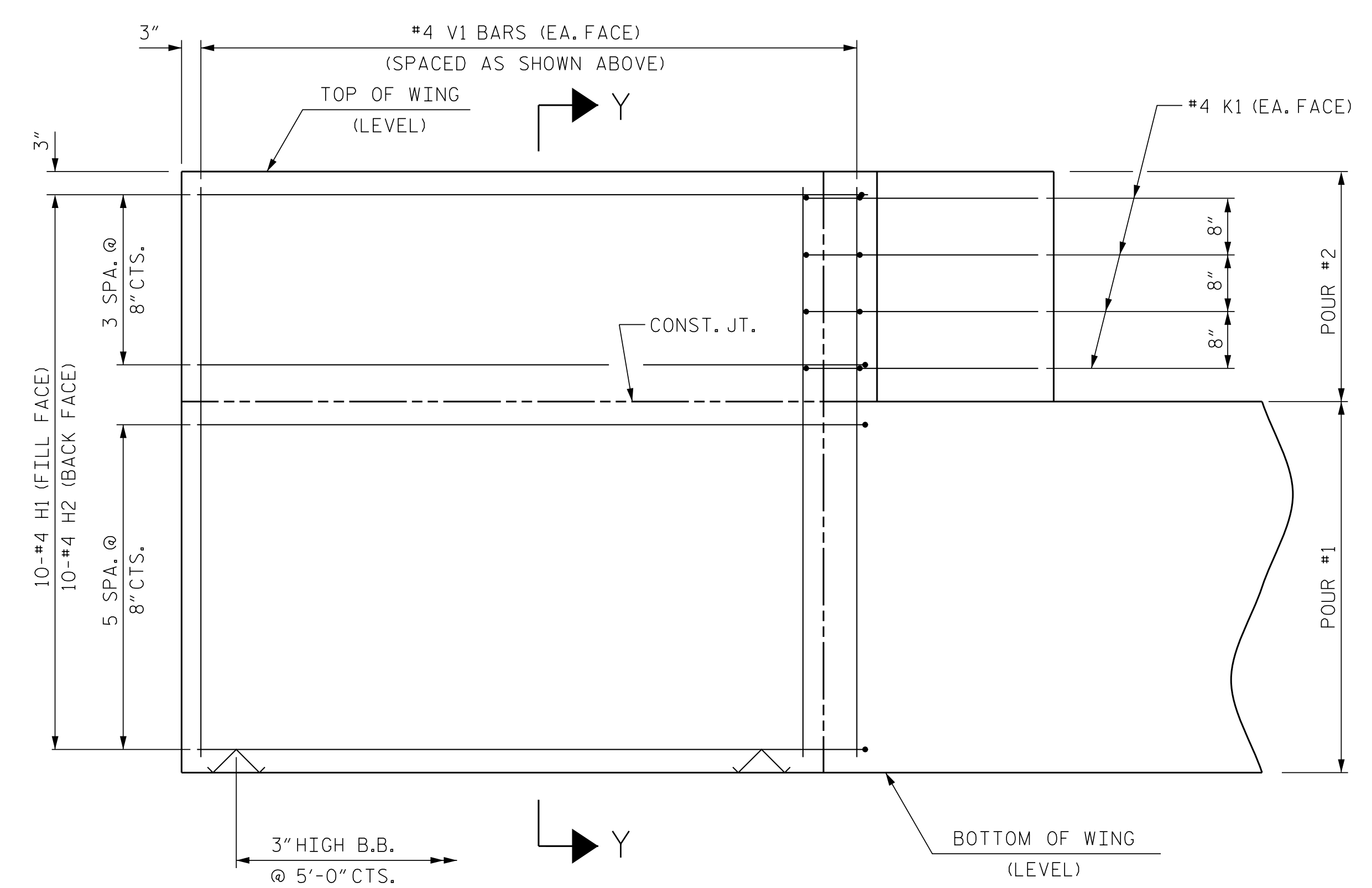
PLAN OF WING (W1)



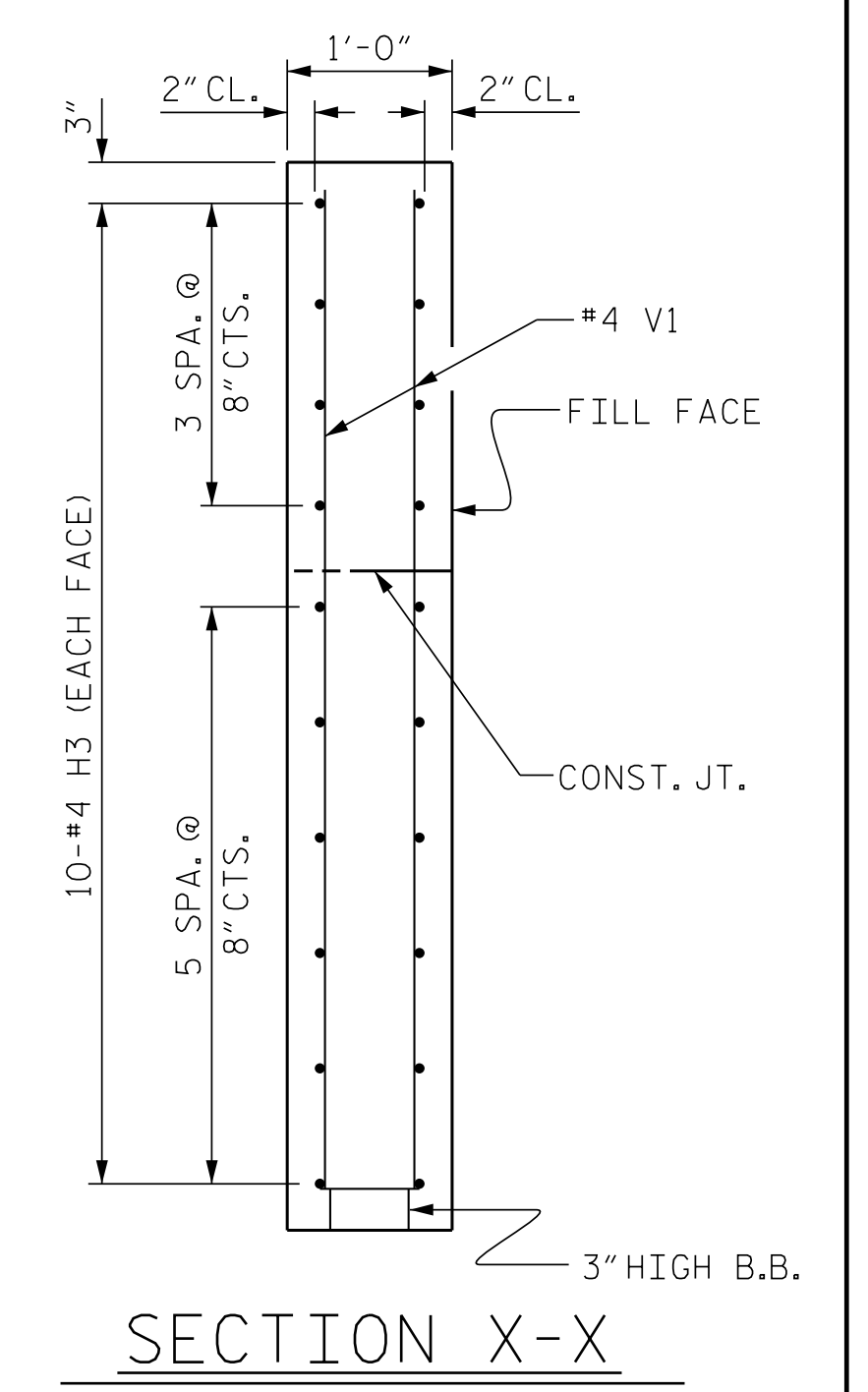
PLAN OF WING (W2)



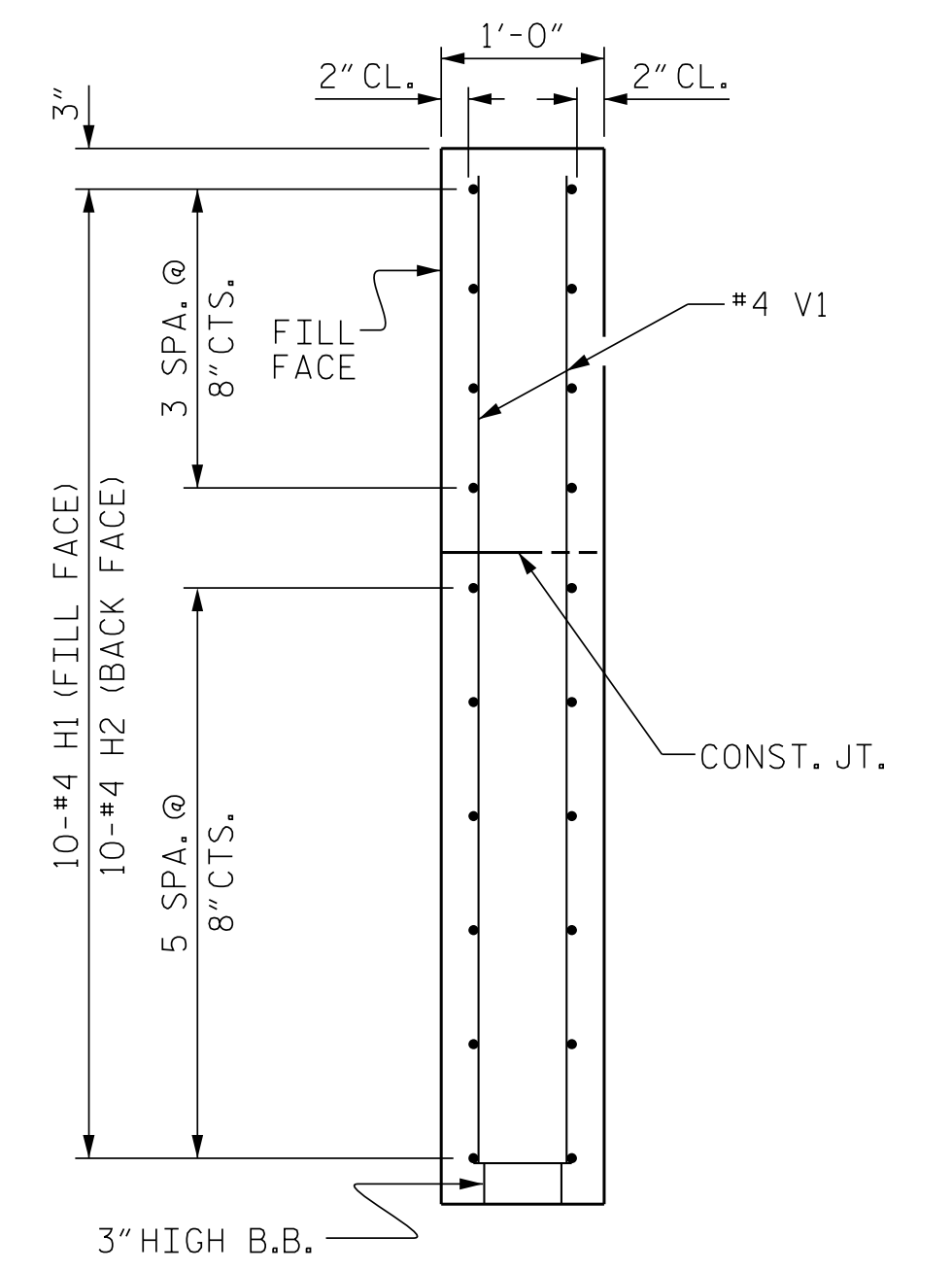
ELEVATION OF WING (W1)



ELEVATION OF WING (W2)



SECTION X-X



SECTION Y-Y

PROJECT NO. 14SP.20561.1  
 MACON COUNTY  
 STATION: 13+25.02 -L-

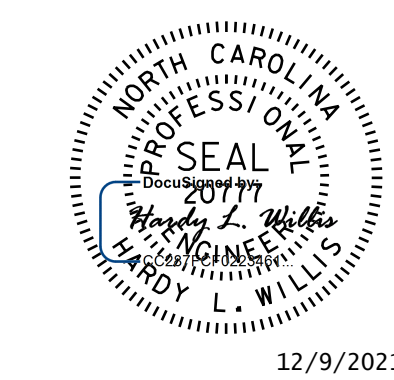
SHEET 3 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-10
SUBSTRUCTURE END BENT WING DETAILS						
REVISIONS						TOTAL SHEETS 13
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

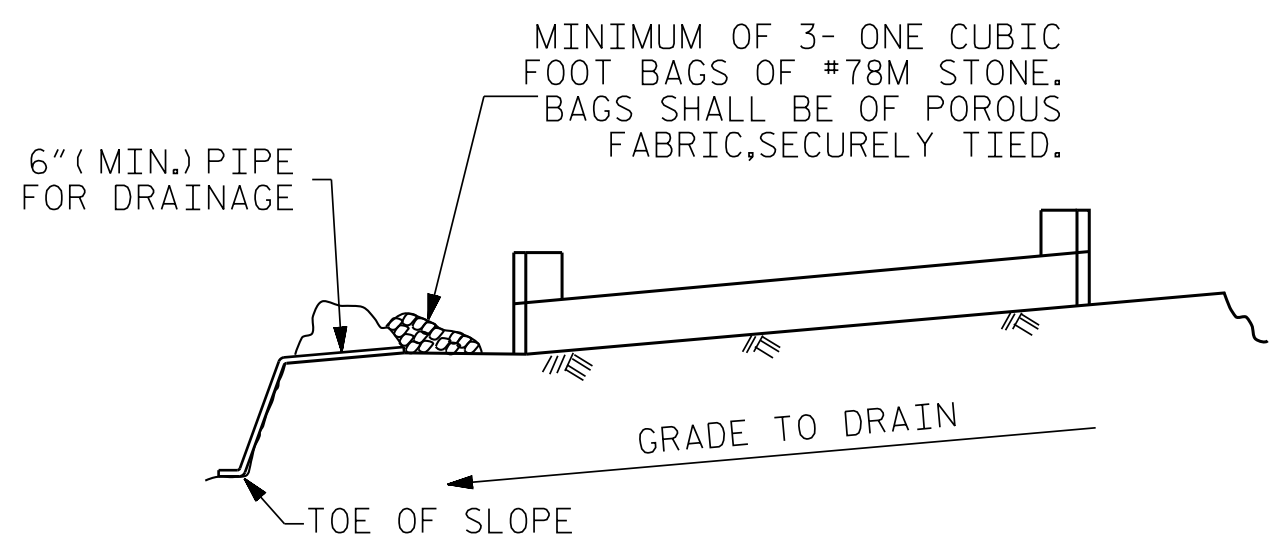
ENGINEER OF RECORD : JEB	DATE : 7/16
ASSEMBLED BY : MAF	DATE : 7/16
CHECKED BY : HLW	
DRAWN BY : WJH 12/11	REV. 4/15
CHECKED BY : AAC 12/11	MAA/TMG

WING DETAILS

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED





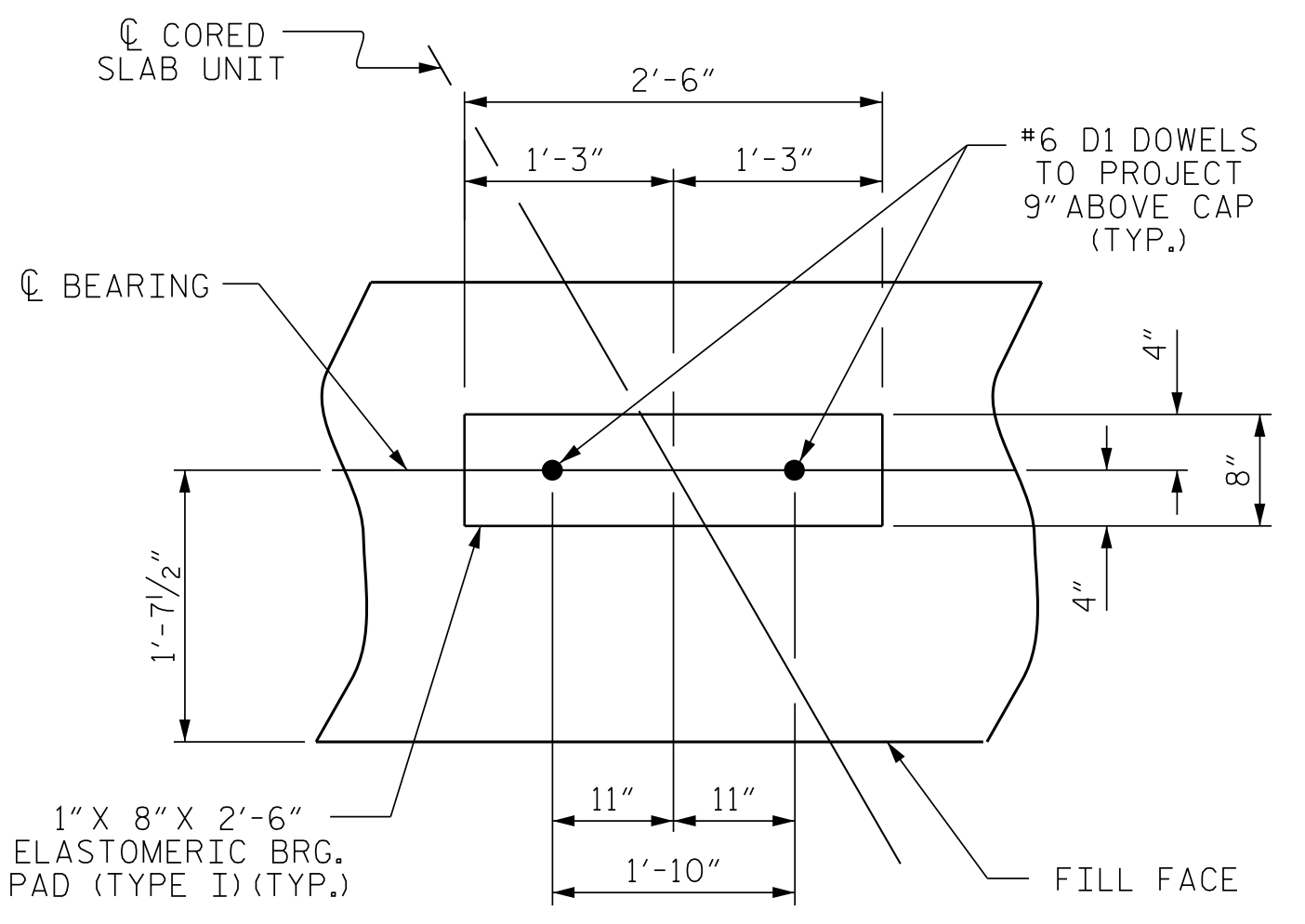


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

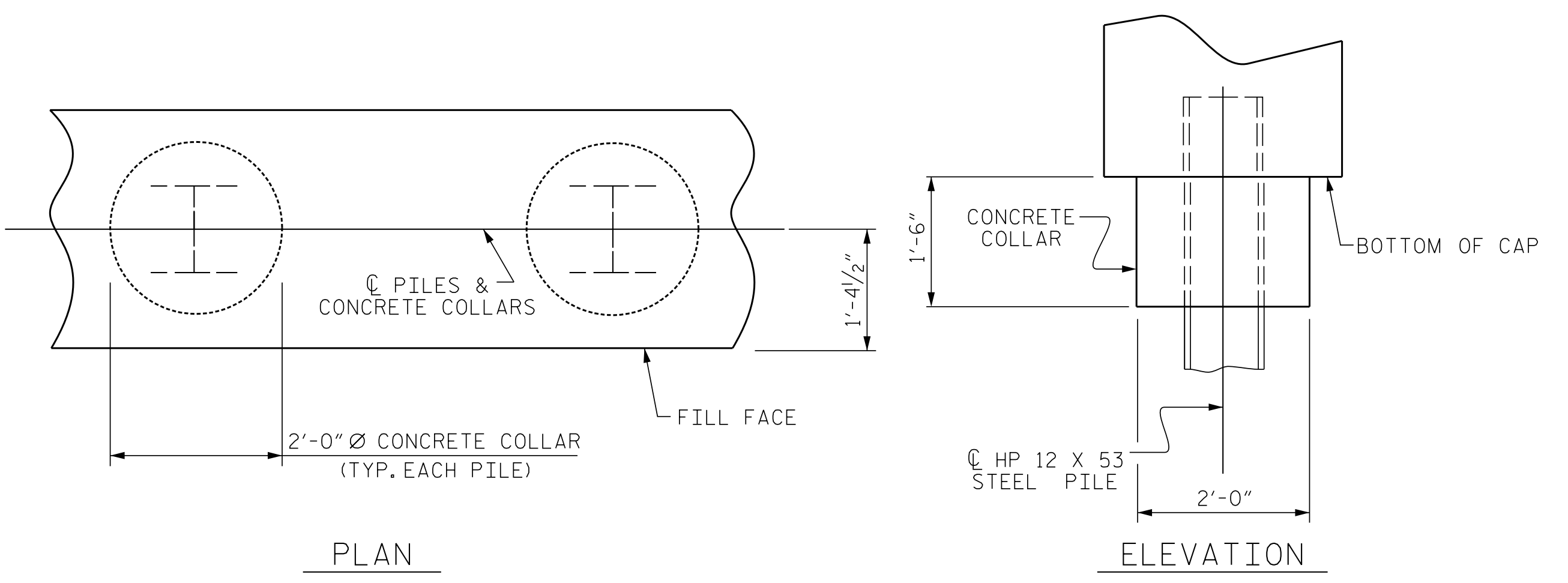
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

**TEMPORARY DRAINAGE AT END BENT**



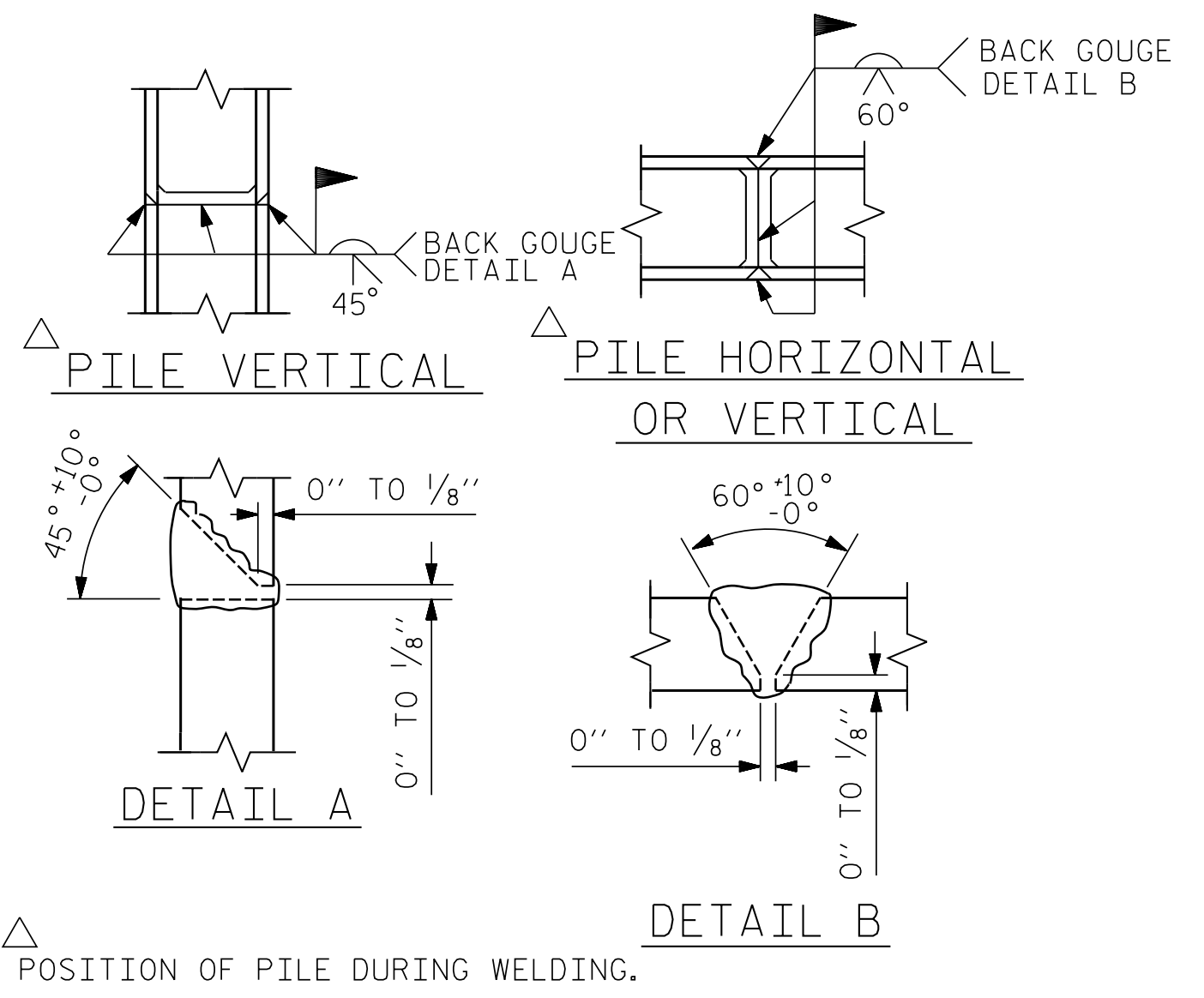
**DETAIL "A"**

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

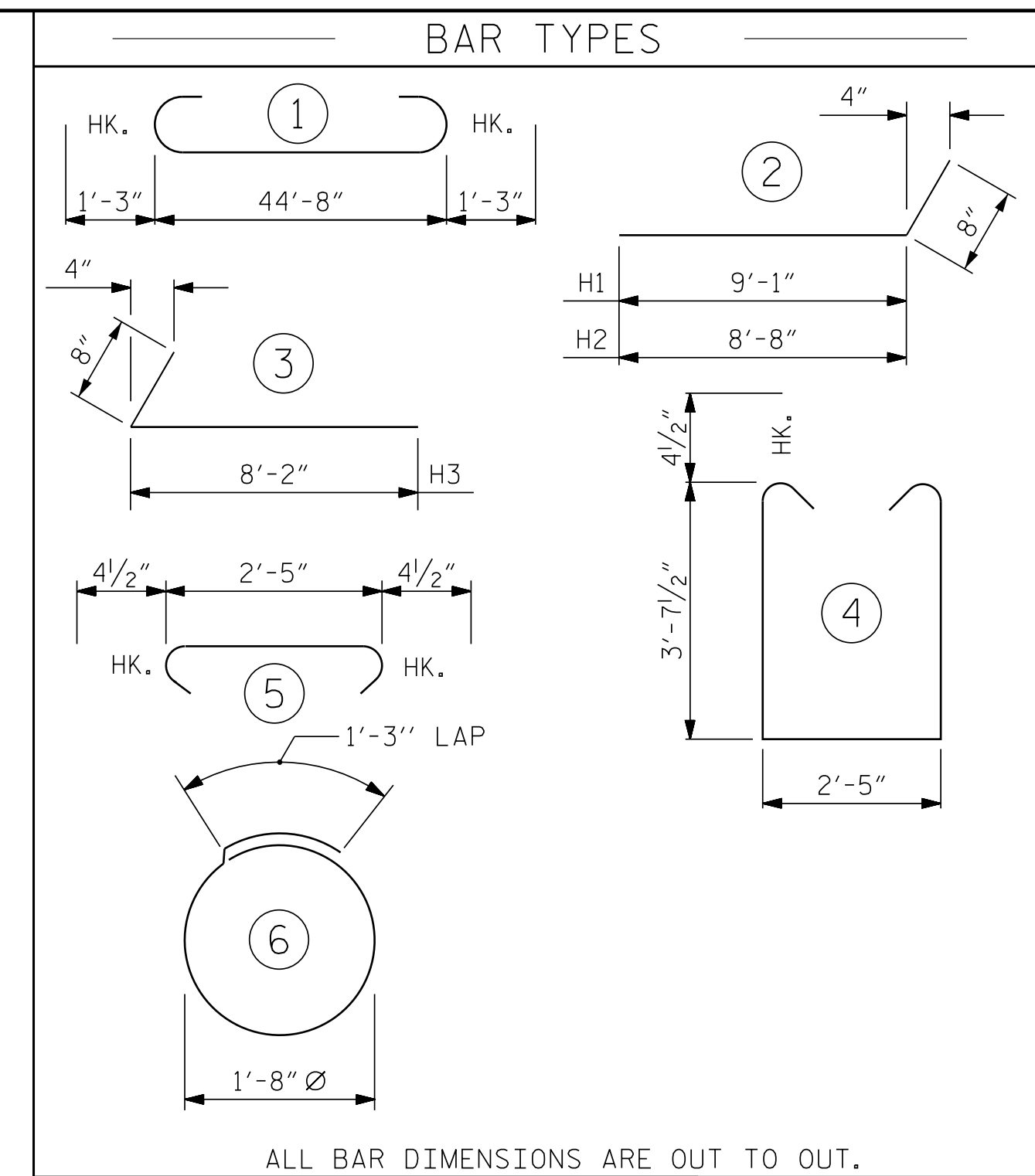


**CORROSION PROTECTION FOR STEEL PILES DETAIL**

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

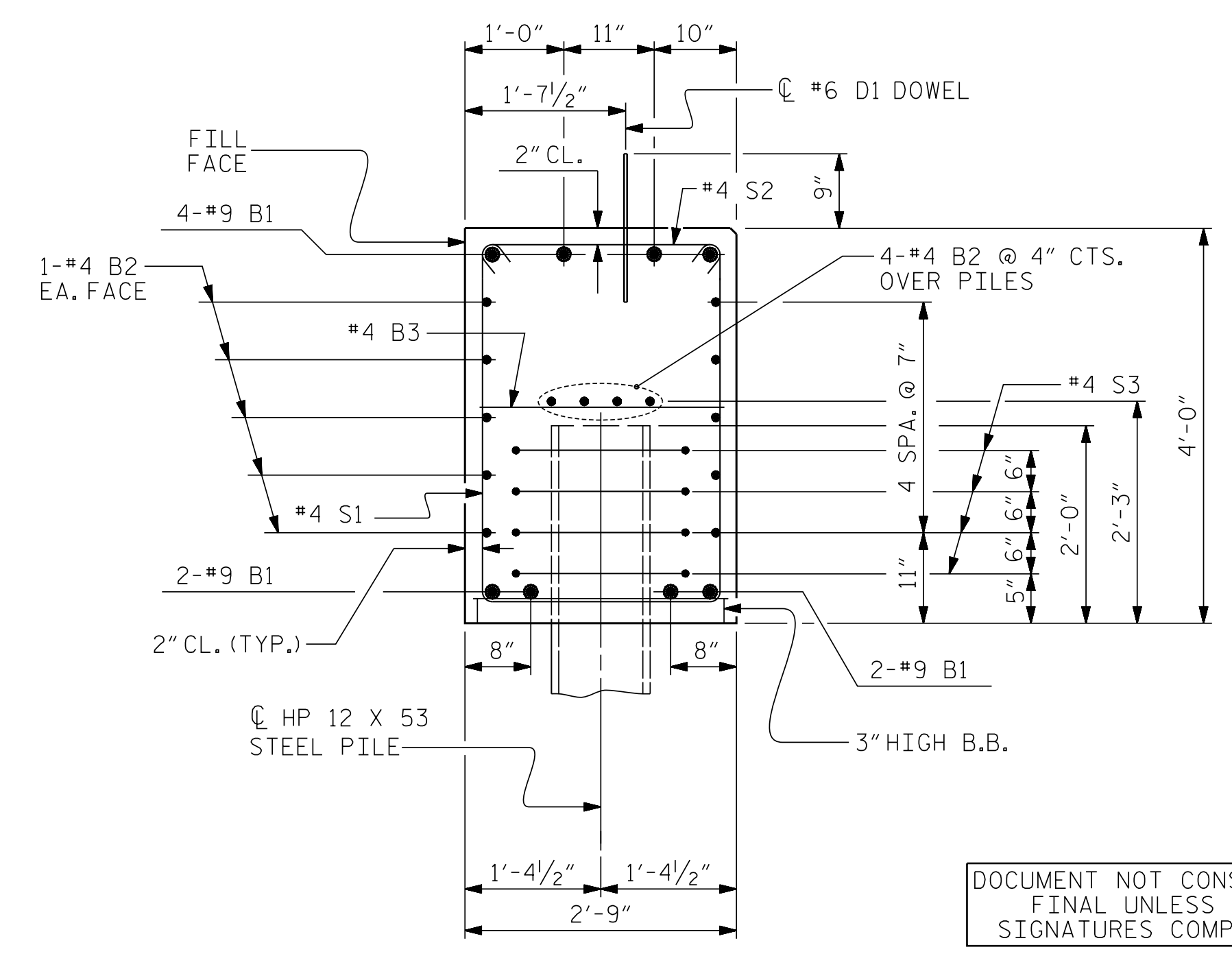


**PILE SPLICE DETAILS**



END BENT No. 1		END BENT No. 2	
PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	NO: 7	PILE DRIVING EQUIPMENT SETUP FOR HP 12 X 53 STEEL PILES	NO: 7
HP 12 X 53 STEEL PILES	NO: 7 LIN. FT.= 154	HP 12 X 53 STEEL PILES	NO: 7 LIN. FT.= 154
STEEL PILE POINTS	NO: 7	STEEL PILE POINTS	NO: 7
PILE EXCAVATION IN SOIL	35 LIN. FT.		
PILE EXCAVATION NOT IN SOIL	45 LIN. FT.		

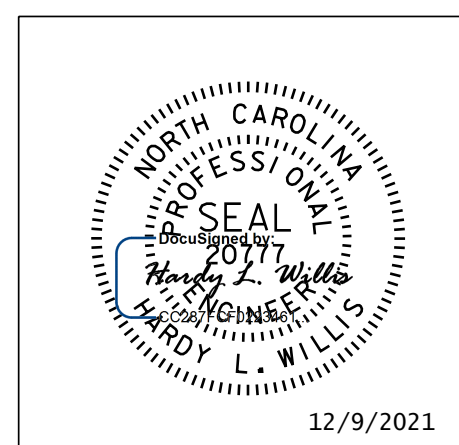
BILL OF MATERIAL FOR ONE END BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		47'-2"	1283
B2	28	#4	STR	23'-8"	443
B3	12	#4	STR	2'-5"	19
D1	22	#6	STR	1'-6"	50
H1	10	#4		9'-9"	65
H2	10	#4		9'-4"	62
H3	20	#4		8'-10"	118
K1	16	#4	STR	3'-3"	35
S1	56	#4		10'-5"	390
S2	56	#4		3'-2"	118
S3	28	#4		6'-6"	122
V1	53	#4	STR	6'-2"	218
REINFORCING STEEL (FOR ONE END BENT)					2923 LBS.
CLASS A CONCRETE BREAKDOWN (FOR ONE END BENT)					
POUR #1 CAP, LOWER PART OF WINGS & COLLARS					21.9 C.Y.
POUR #2 UPPER PART OF WINGS					2.4 C.Y.
TOTAL CLASS A CONCRETE					24.3 C.Y.



**SECTION A-A**

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



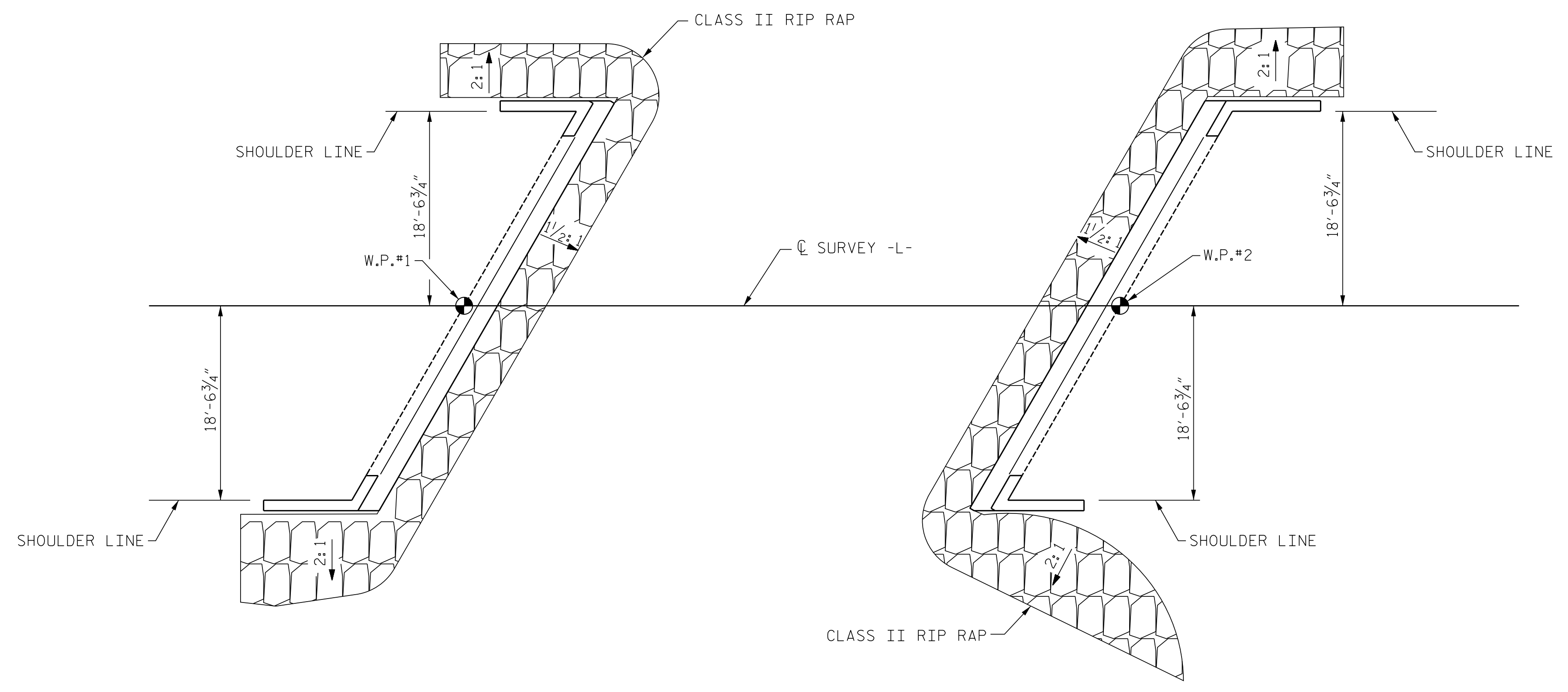
PROJECT NO. 14SP.20561.1  
MACON COUNTY  
STATION: 13+25.02 -L-

SHEET 4 OF 4  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUBSTRUCTURE  
END BENT No. 1 & 2  
DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS 13
2			4			

ENGINEER OF RECORD : JEB	DATE : 7/16
ASSEMBLED BY : MAF	DATE : 7/16
CHECKED BY : HLW	
DRAWN BY : WJH 12/11	REV. 4/17 MAA/THC
CHECKED BY : AAC 12/11	

NOTES :  
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

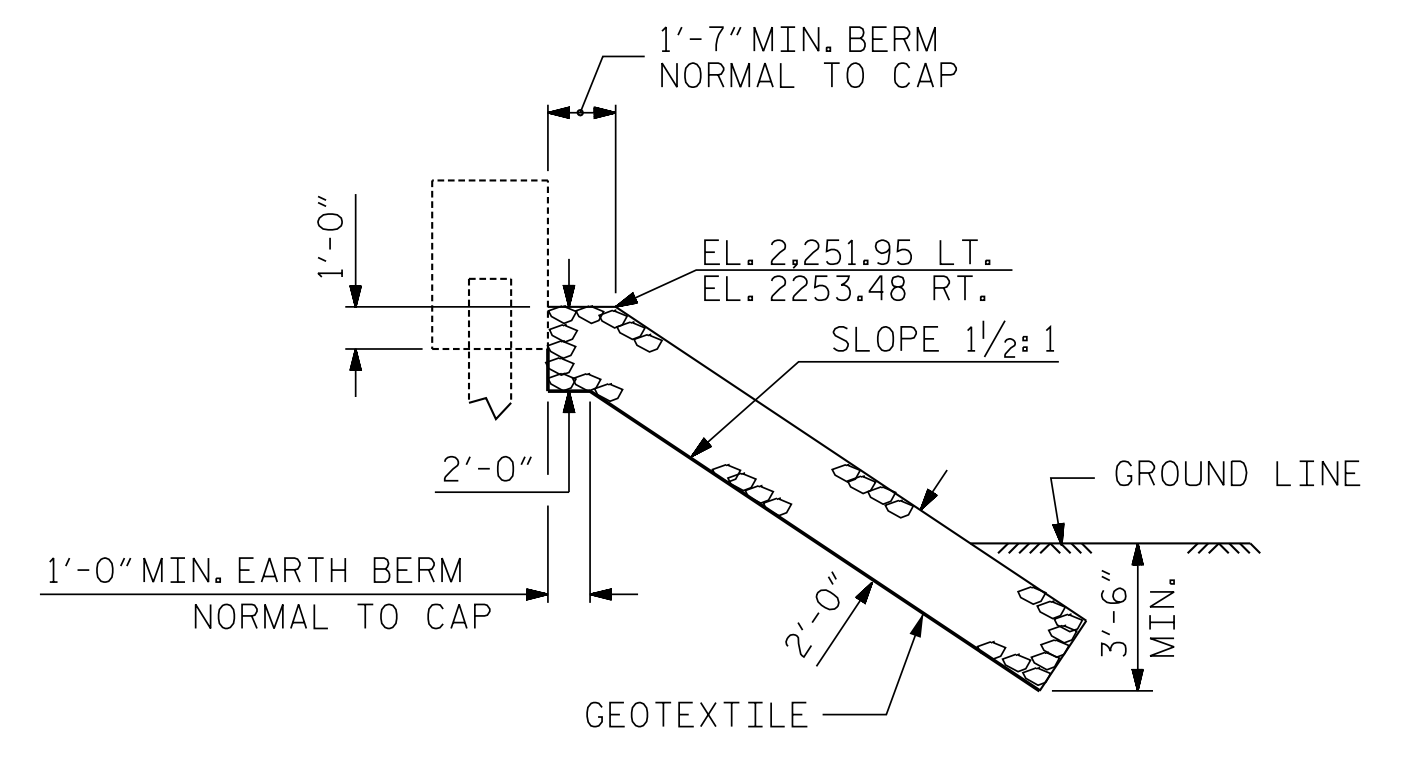


END BENT #1

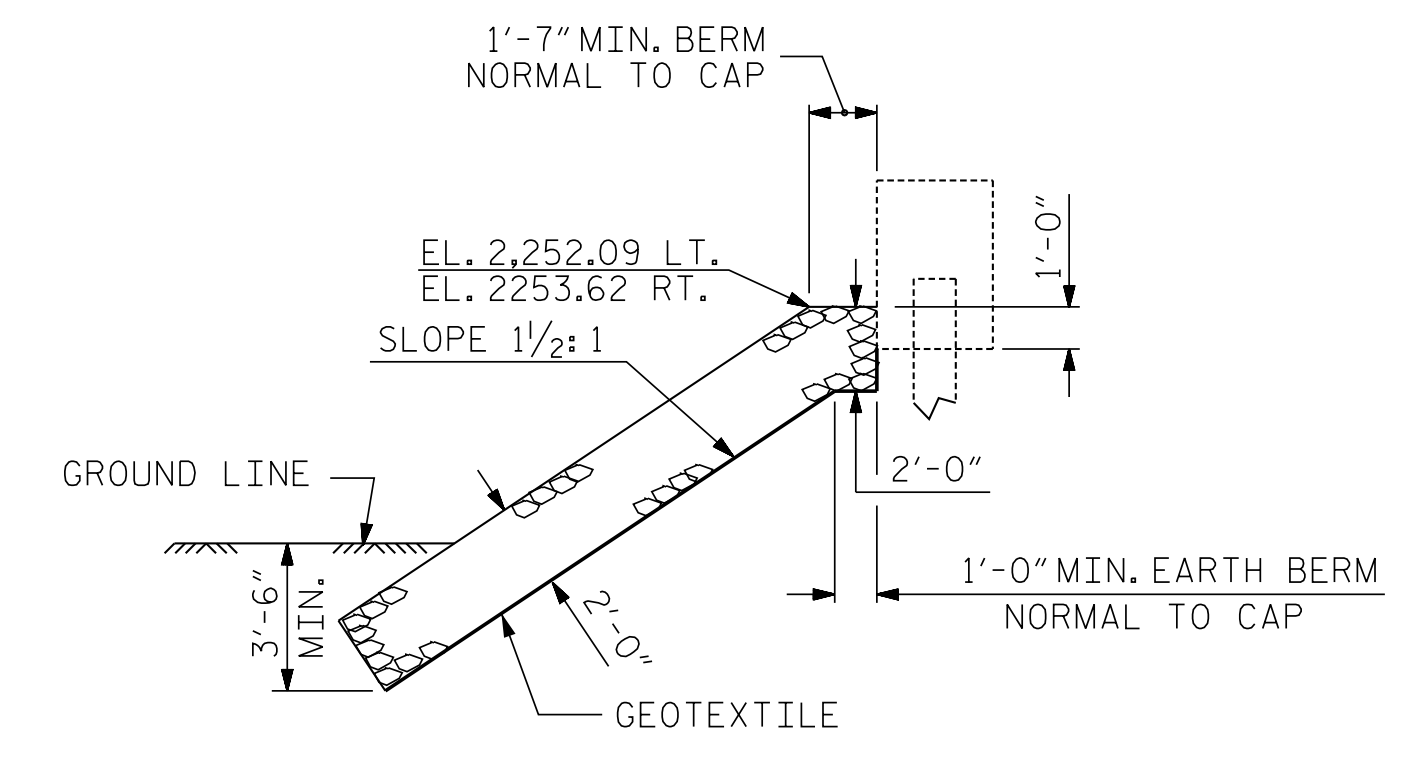
END BENT #2

PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+25.02 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	61	46
END BENT 2	65	53



SECTION  
BERM RIP RAPPED  
END BENT NO. 1



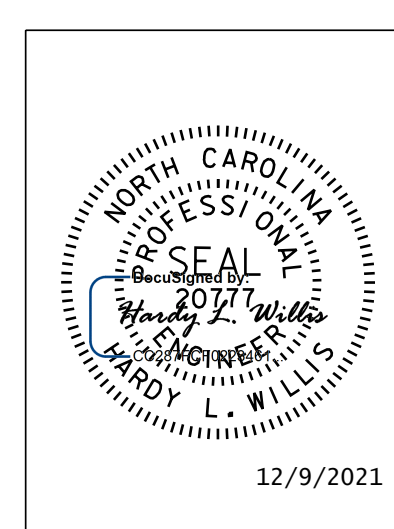
SECTION  
BERM RIP RAPPED  
END BENT NO. 2

**V&M**  
Vaughn & Melton  
Consulting Engineers  
Asheville, North Carolina  
828-253-2796

Boone, NC 828-355-9933  
 Tri-Cities, TN 423-467-8401  
 Knoxville, TN 865-546-5800  
 Spartanburg, SC 864-574-4775  
 Charleston, SC 843-974-5650  
 Middlesboro, KY 606-248-6600  
 Raleigh, NC 919-977-9455  
 Charlotte, NC 704-357-0488  
 Atlanta, GA 770-627-3509

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PROJECT NO. 14SP.20561.1  
MACON COUNTY  
STATION: 13+25.02 -L-



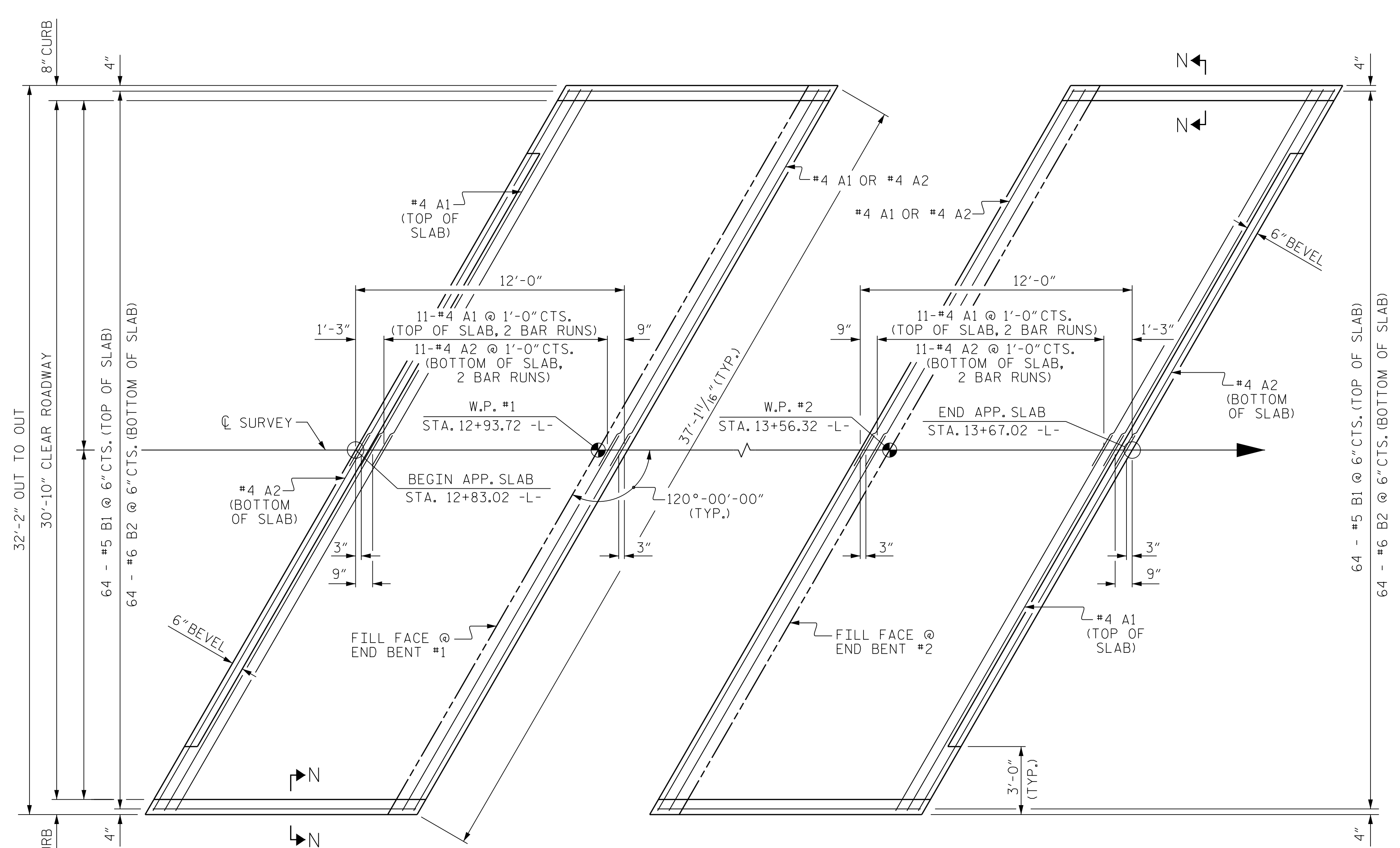
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
RIP RAP DETAILS

ENGINEER OF RECORD : JEB	DATE : 7/16	MAA/GM
ASSEMBLED BY : MAF	DATE : 7/16	MAA/GM
CHECKED BY : HLW		MAA/THC
DRAWN BY : REK 1/84	REV. 10/1/11	MAA/GM
CHECKED BY : RDU 1/84	REV. 12/21/11	MAA/GM
	REV. 12/17	MAA/THC

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

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

**NOTES**

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

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

SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

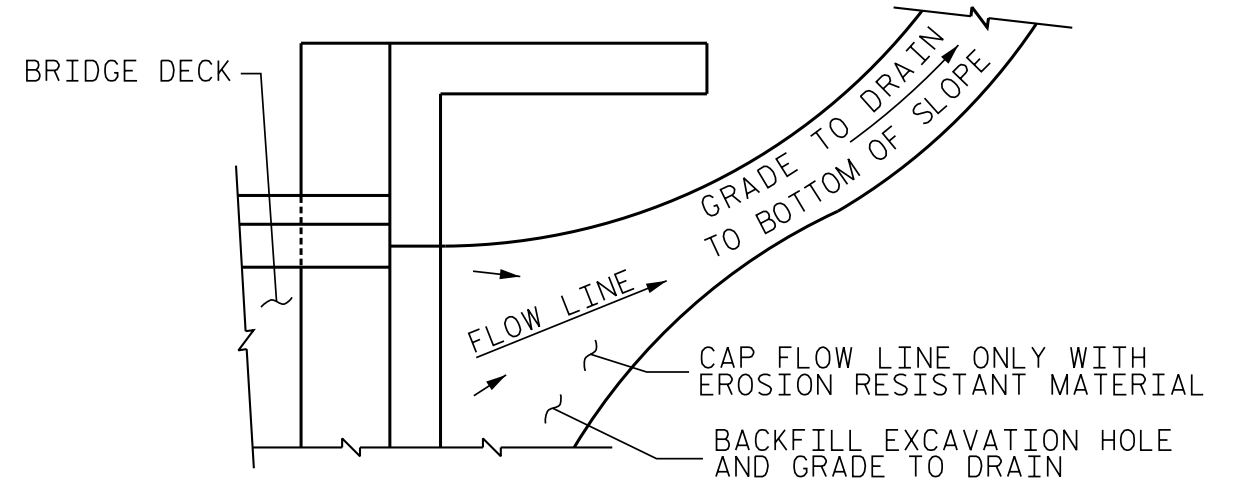
SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

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.

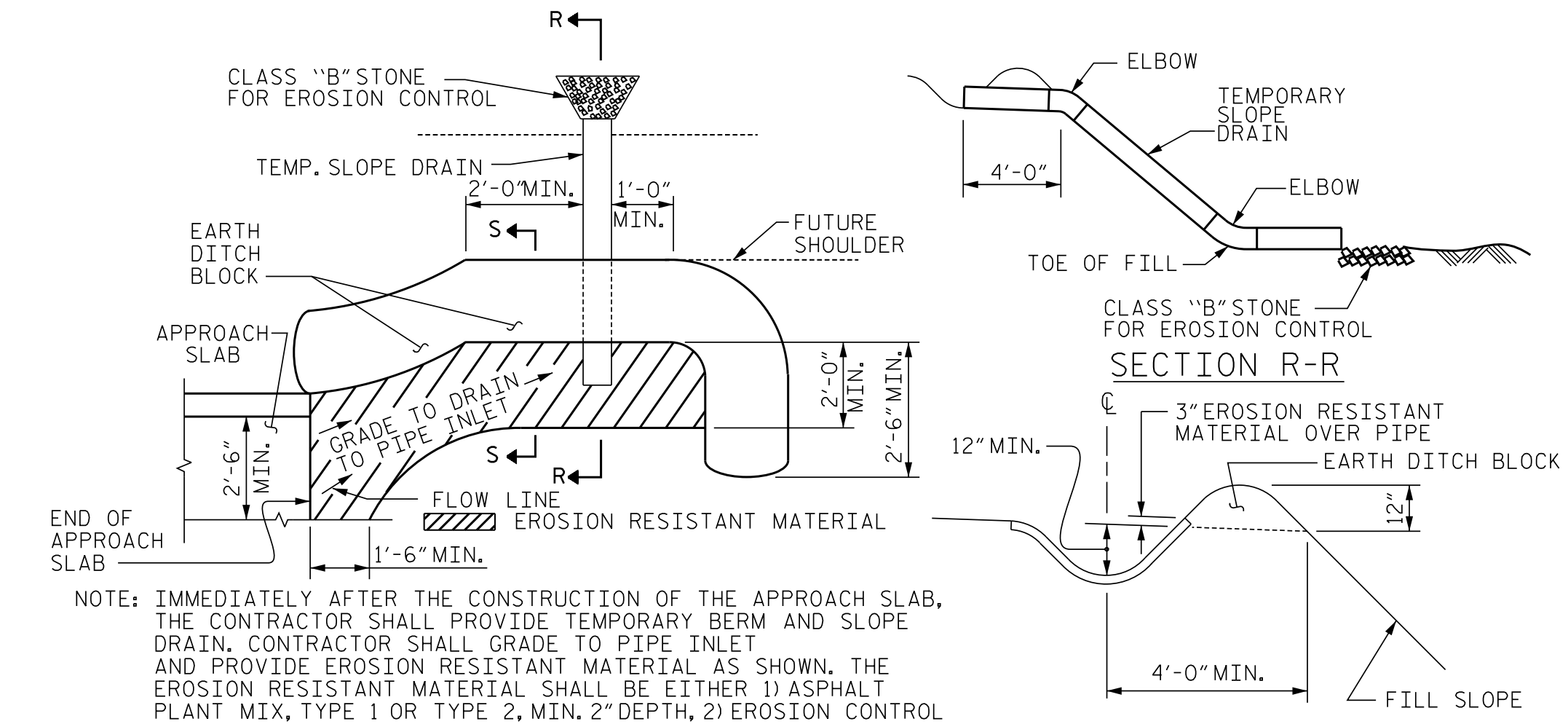
APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL					
APPROACH SLAB AT EB #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	19'-5"	337
A2	26	#4	STR	19'-4"	336
*B1	64	#5	STR	11'-1"	740
B2	64	#6	STR	11'-7"	1,113
REINFORCING STEEL				LBS.	1,449
*EPOXY COATED REINFORCING STEEL				LBS.	1,077
CLASS AA CONCRETE				C. Y.	19.8
APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	26	#4	STR	19'-5"	337
A2	26	#4	STR	19'-4"	336
*B1	64	#5	STR	11'-1"	740
B2	64	#6	STR	11'-7"	1,113
REINFORCING STEEL				LBS.	1,449
*EPOXY COATED REINFORCING STEEL				LBS.	1,077
CLASS AA CONCRETE				C. Y.	19.8



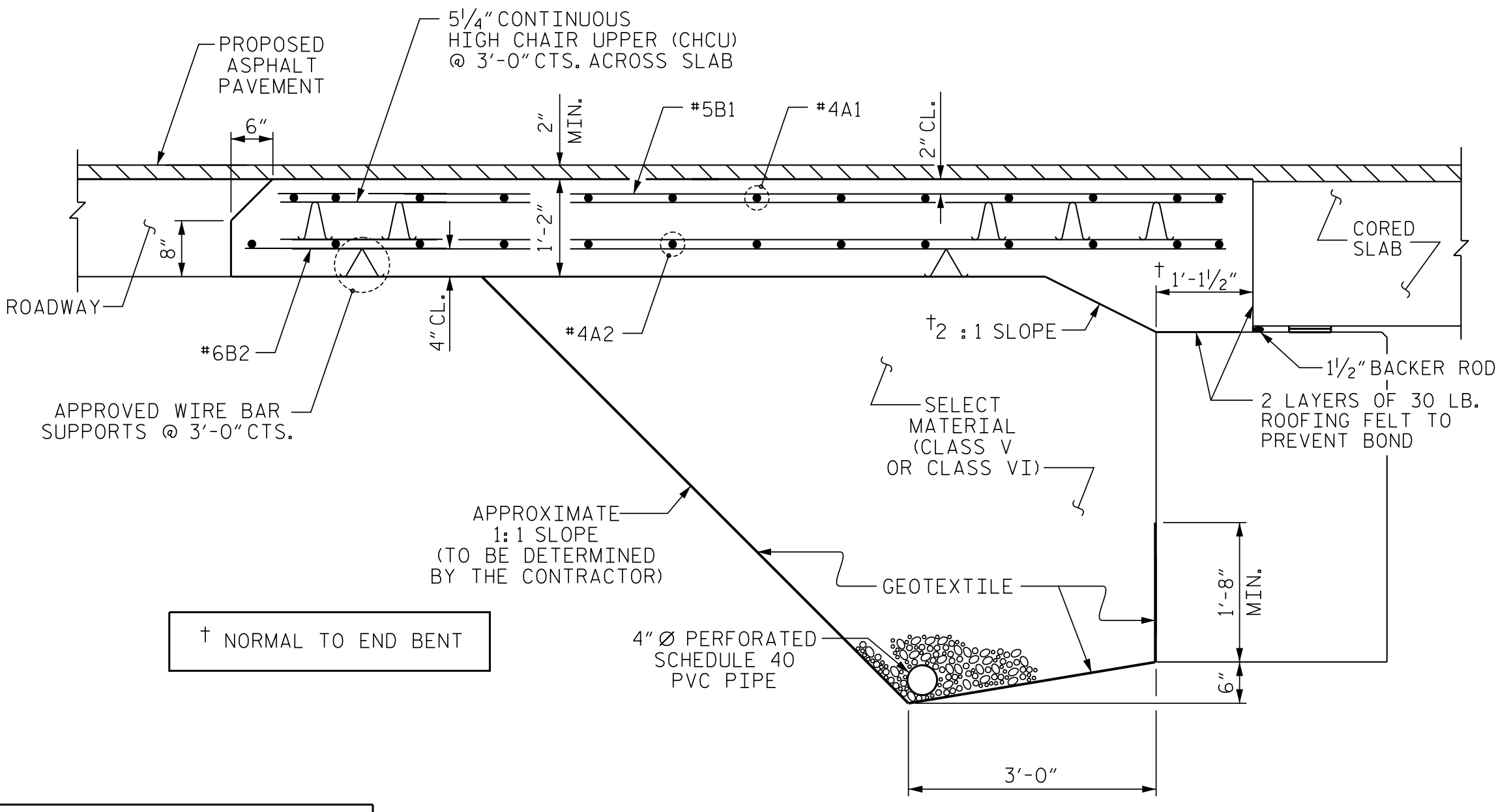
**NOTE:** IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL

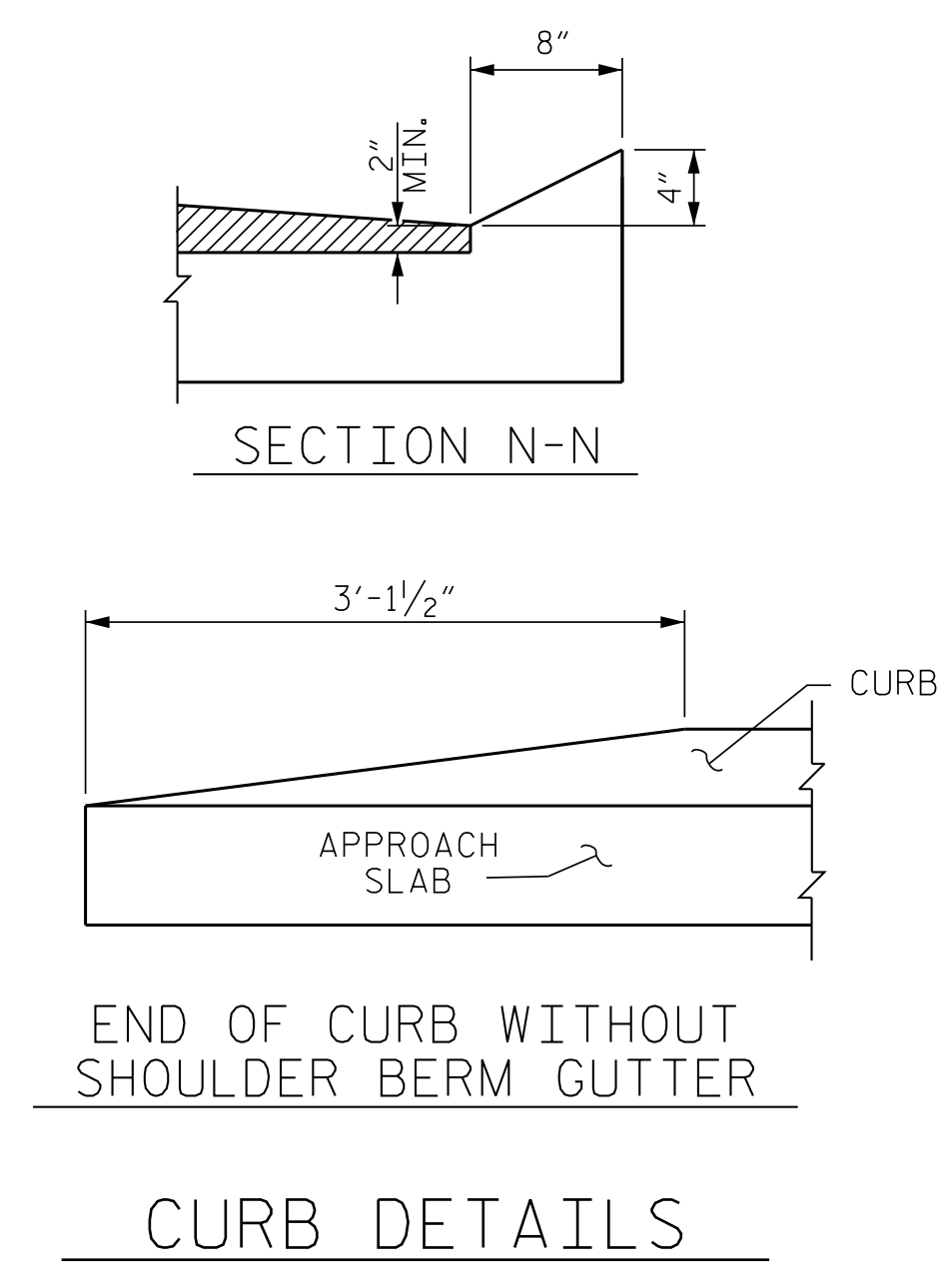


**NOTE:** IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2,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

PLAN VIEW  
 TEMPORARY BERM AND SLOPE DRAIN DETAILS  
 (TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

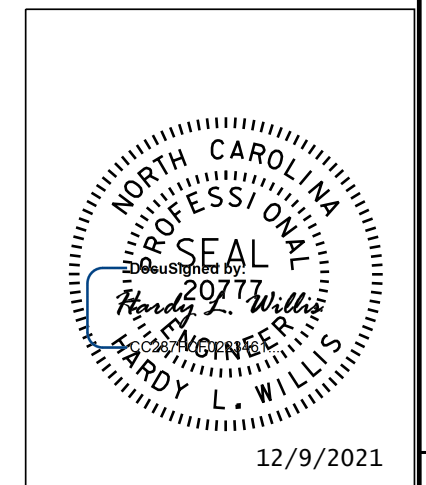


SECTION THRU SLAB  
 (TYPE II - MODIFIED APPROACH FILL)



CURB DETAILS

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



PROJECT NO. 14SP.20561.1  
 MACON COUNTY  
 STATION: 13+25.02 -L-

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

ENGINEER OF RECORD: JEB  
 ASSEMBLED BY: MAF  
 CHECKED BY: HLW  
 DATE: 7/16  
 DATE: 7/16

DRAWN BY: SHS/MAA 5-09  
 CHECKED BY: BCH 5-09

REV. 12-17  
 REV. 08-19

MAA/THC  
 BNB/THC

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

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

## 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 2018 "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  $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO  $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A  $\frac{1}{4}$ " 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  $\frac{1}{4}$ " 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  $\frac{7}{8}$ "  $\emptyset$  SHEAR STUDS FOR THE  $\frac{3}{4}$ "  $\emptyset$  STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF  $\frac{7}{8}$ "  $\emptyset$  STUDS ALONG THE BEAM AS SHOWN FOR  $\frac{3}{4}$ "  $\emptyset$  STUDS BASED ON THE RATIO OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  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  $\frac{3}{16}$ " 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  $\frac{1}{16}$ " 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. FINS 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