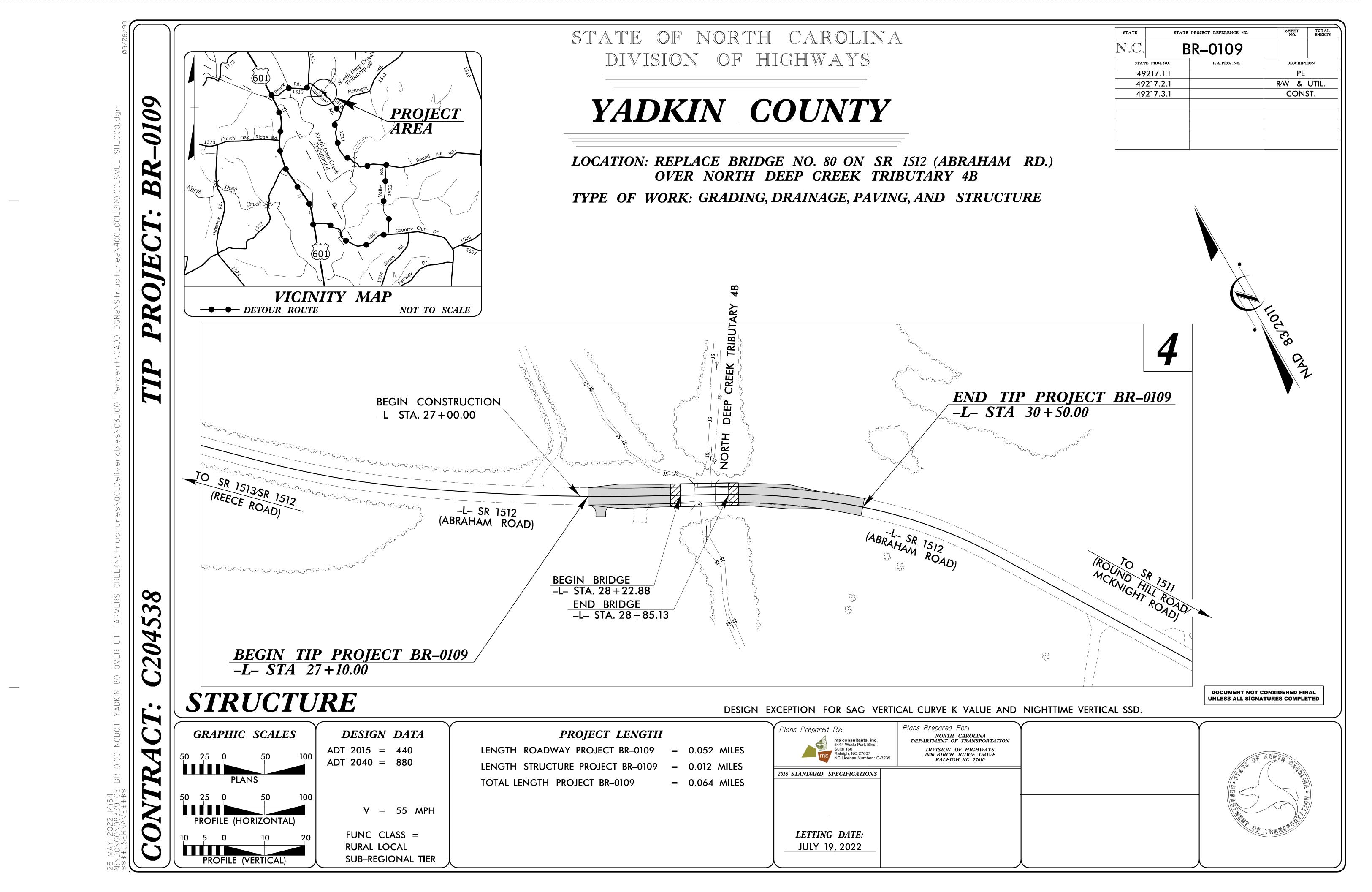
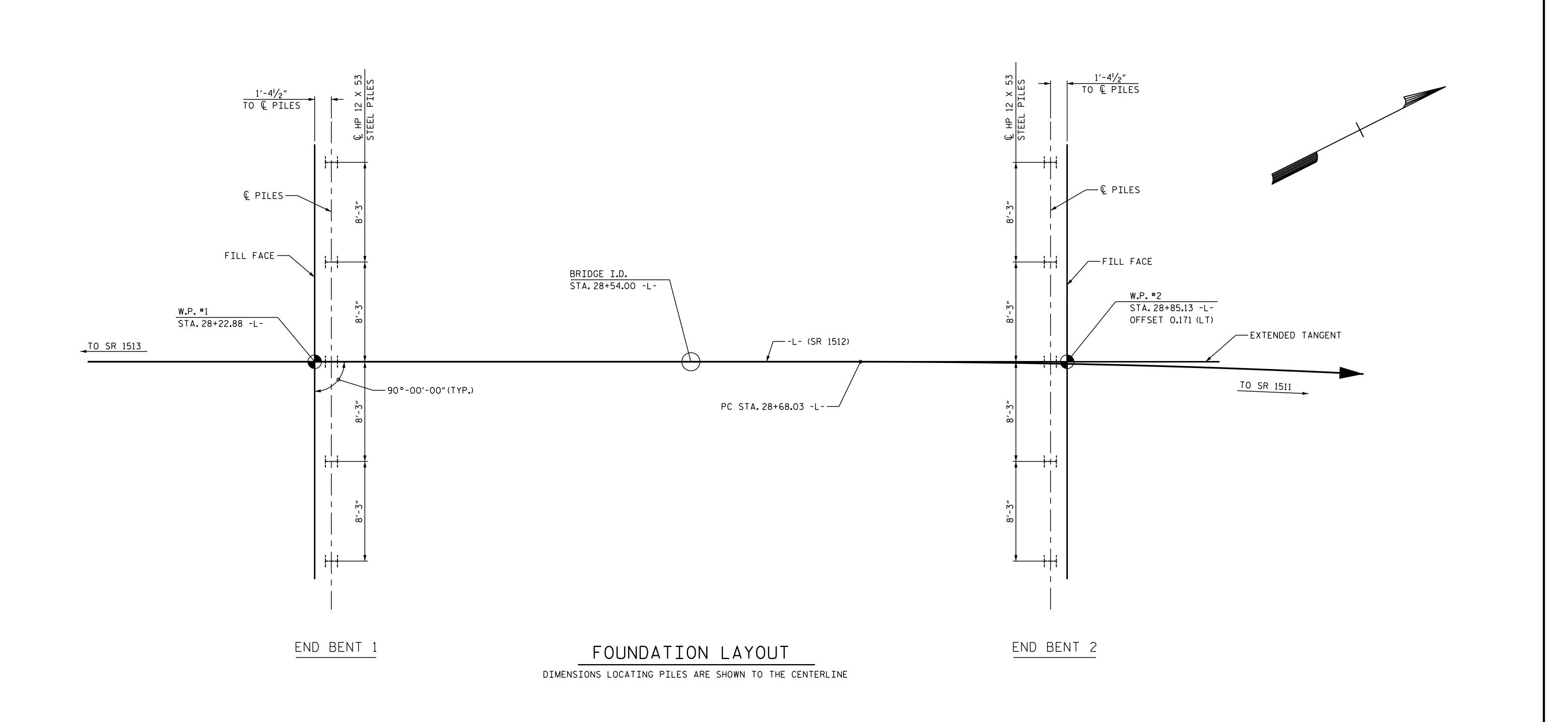
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<u>NOTES</u>

PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE. DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE. PILES AT END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE. DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.

J.M. KEPICH DATE : 03/20 CHECKED BY : L.M. SAMPLES __ DATE : <u>05/2</u>1 DESIGN ENGINEER OF RECORD : L.M. SAMPLES DATE : 05/21

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS

ms consultants, inc. 5444 Wade Park Blvd. Suite 160 Raleigh, NC 27607 NC License Number : C-3239

PROJECT NO. BR-0109 YADKIN COUNTY STATION: 28+54.00 -L-

SHEET 2 OF 3

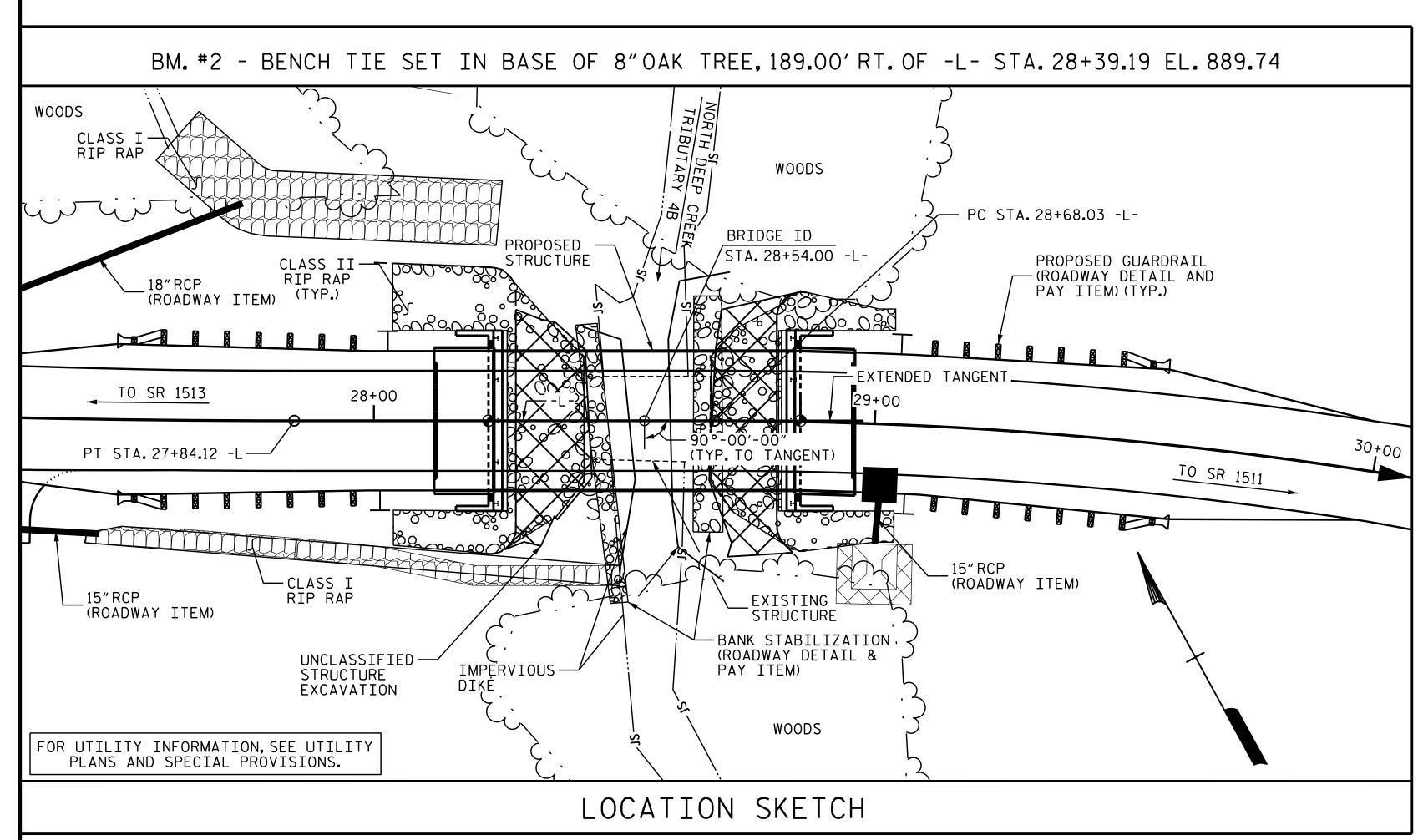
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RALEIGH

FOUNDATION LAYOUT

BRIDGE 80 ON SR 1512 OVER NORTH DEEP CREEK TRIBUTARY 4B BETWEEN SR1513 AND SR1511

	SHEET NO.				
BY:	DATE:	NO.	BY:	DATE:	S-02
		3			TOTAL SHEETS
		4			14

+



NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH 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 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 28+54.00 -L-."

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 22 FT LEFT AND 25 FT RIGHT OF CENTERLINE ROADWAY AT END BENT NO.1 AND A DISTANCE OF 25 FT LEFT AND 27 FT RIGHT OF CENTERLINE ROADWAY AT END BENT NO.2 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.

FOR FIBER OPTIC CONDUIT SYSTEM, SEE SPECIAL PROVISIONS.

THE EXISTING STRUCTURE CONSISTING OF A SINGLE 24'-0" SPAN WITH A CLEAR ROADWAY WIDTH OF 19.25' AND TIMBER DECK SUPPORTED BY STEEL GIRDERS ON TIMBER CAPS AND PILES LOCATED AT THE PROPOSED STRUCTURE SITE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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.

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.

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

FOR EROSION CONTROL MEASURES. SEE EROSION CONTROL

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

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

> PROJECT NO. BR-0109 YADKIN COUNTY 28+54.00 -L-STATION:

SHEET 3 OF 3

M SAM

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

GENERAL DRAWING

BRIDGE 80 ON SR 1512 OVER NORTH DEEP CREEK TRIBUTARY 4B BETWEEN SR1513 AND SR1511

SHEET NO. REVISIONS S-03 NO. BY: NO. BY: DATE: DATE: TOTAL SHEETS

HYDRAULIC DATA

= 690 C.F.S DESIGN DISCHARGE FREQUENCY OF DESIGN DISCHARGE = 25 YRS. DESIGN HIGH WATER ELEVATION = 893.0 DRAINAGE AREA = 1.5 SQ. MI. BASE DISCHARGE (0100) = 990 C.F.S. BASE HIGH WATER ELEVATION = 894.1

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 2,450 C.F.S. = 500(+) YRS.FREQUENCY OF OVERTOPPING FLOOD OVERTOPPING FLOOD ELEVATION SAG LOCATION AT -L- STA. 28+99 EOP LEFT

J.M. KEPICH DATE : 04/20 DRAWN BY : _ DATE : <u>05/21</u> L.M. SAMPLES DESIGN ENGINEER OF RECORD : L.M. SAMPLES DATE : 05/21

ms consultants, inc. 5444 Wade Park Blvd. Suite 160

Raleigh, NC 27607

NC License Number: C-3239

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

								STRENGTH I LIMIT STATE							SERVICE III LIMIT STATE									
										MOMENT	,	_			SHEAR						MOMENT	,		
LEVEL		WEIGHT (W) (TONS) CONTROLLING LOAD RATING MINIMUM		MINIMUM RATING FACTORS (RF)	(RF) TONS = W X RF	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)	COMMENT NUMBER	
		HL-93(Inv)	N/A	1	1.33		1.75	0.275	1.33	60′	EL	29.5	0.52	1.33	60′	EL	5.9	0.80	0.275	1.37	60′	EL	29 . 5	
DESIGN		HL-93(0pr)	N/A		1.725		1.35	0.275	1.73	60′	EL	29.5	0.52	1.72	60′	EL	5.9	N/A						
LOAD RATING		HS-20(Inv)	36.000	2	1.601	57 . 643	1.75	0.275	1.69	60′	EL	29.5	0.52	1.6	60′	EL	5.9	0.80	0.275	1.74	60′	EL	29.5	
NATING		HS-20(0pr)	36.000		2.076	74.723	1.35	0.275	2.19	60′	EL	29.5	0.52	2.08	60′	EL	5.9	N/A						
		SNSH	13.500		3.745	50.557	1.4	0.275	4.55	60′	EL	29.5	0.52	4.63	60′	EL	5 . 9	0.80	0.275	3.74	60′	EL	29.5	
		SNGARBS2	20.000		2.867	57.338	1.4	0.275	3.48	60′	EL	29.5	0.52	3.33	60′	EL	5.9	0.80	0.275	2.87	60′	EL	29.5	
		SNAGRIS2	22.000		2.748	60.46	1.4	0.275	3.34	60′	EL	29.5	0.52	3.11	60′	EL	5 . 9	0.80	0.275	2.75	60′	EL	29.5	
		SNCOTTS3	27.250		1.866	50.841	1.4	0.275	2.27	60′	EL	29.5	0.52	2.31	60′	EL	5.9	0.80	0.275	1.87	60′	EL	29.5	
	NS	SNAGGRS4	34.925		1.588	55.465	1.4	0.275	1.93	60′	EL	29.5	0.52	1.95	60′	EL	5 . 9	0.80	0.275	1.59	60′	EL	29.5	
		SNS5A	35 . 550		1 . 551	55.139	1.4	0.275	1.89	60′	EL	29.5	0.52	1.99	60′	EL	5.9	0.80	0.275	1.55	60′	EL	29.5	
		SNS6A	39 . 950		1.435	57 . 347	1.4	0.275	1.74	60′	EL	29.5	0.52	1.83	60′	EL	5.9	0.80	0.275	1.44	60′	EL	29.5	
LEGAL		SNS7B	42.000		1.367	57.434	1.4	0.275	1.66	60′	EL	29.5	0.52	1.81	60′	EL	5.9	0.80	0.275	1.37	60′	EL	29.5	
LOAD RATING		TNAGRIT3	33.000		1.754	57 . 887	1.4	0.275	2.13	60′	EL	29.5	0.52	2.17	60′	EL	5.9	0.80	0.275	1.75	60′	EL	29.5	
MATINO		TNT4A	33.075		1.765	58.389	1.4	0.275	2.15	60′	EL	29.5	0.52	2.1	60′	EL	5.9	0.80	0.275	1.77	60′	EL	29.5	
		TNT6A	41.600		1.456	60 . 551	1.4	0.275	1.77	60′	EL	29.5	0.52	1.96	60′	EL	5.9	0.80	0.275	1.46	60′	EL	29.5	
	IST	TNT7A	42.000		1.469	61.714	1.4	0.275	1.79	60′	EL	29.5	0.52	1.88	60′	EL	5.9	0.80	0.275	1.47	60′	EL	29.5	
		TNT7B	42.000		1.535	64.463	1.4	0.275	1.87	60′	EL	29.5	0.52	1.76	60′	EL	5.9	0.80	0.275	1.53	60′	EL	29.5	
		TNAGRIT4	43.000		1.45	62 . 329	1.4	0.275	1.76	60′	EL	29.5	0.52	1.7	60′	EL	5.9	0.80	0.275	1.45	60′	EL	29 . 5	
		TNAGT5A	45.000		1.361	61.247	1.4	0.275	1 . 65	60′	EL	29.5	0.52	1.71	60′	EL	5.9	0.80	0 . 275	1.36	60′	EL	29 . 5	
		TNAGT5B	45.000	3	1.34	60.282	1.4	0.275	1.63	60′	EL	29.5	0.52	1.61	60′	EL	5.9	0.80	0.275	1.34	60′	EL	29.5	

LOAD FACTORS:

DES	IGN	LIMIT STATE	γ_{DC}	$\gamma_{\sf DW}$
LO RAT		STRENGTH I	1.25	1.50
FAC1	FACTORS	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:

- (#) 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. BR-0109 YADKIN STATION: 28+54.00 -L-

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
RALEIGH STANDARD LRFR SUMMARY FOR 60'CORED SLAB UNIT 90° SKEW

____ COUNTY

(NON-INTERSTATE TRAFFIC)

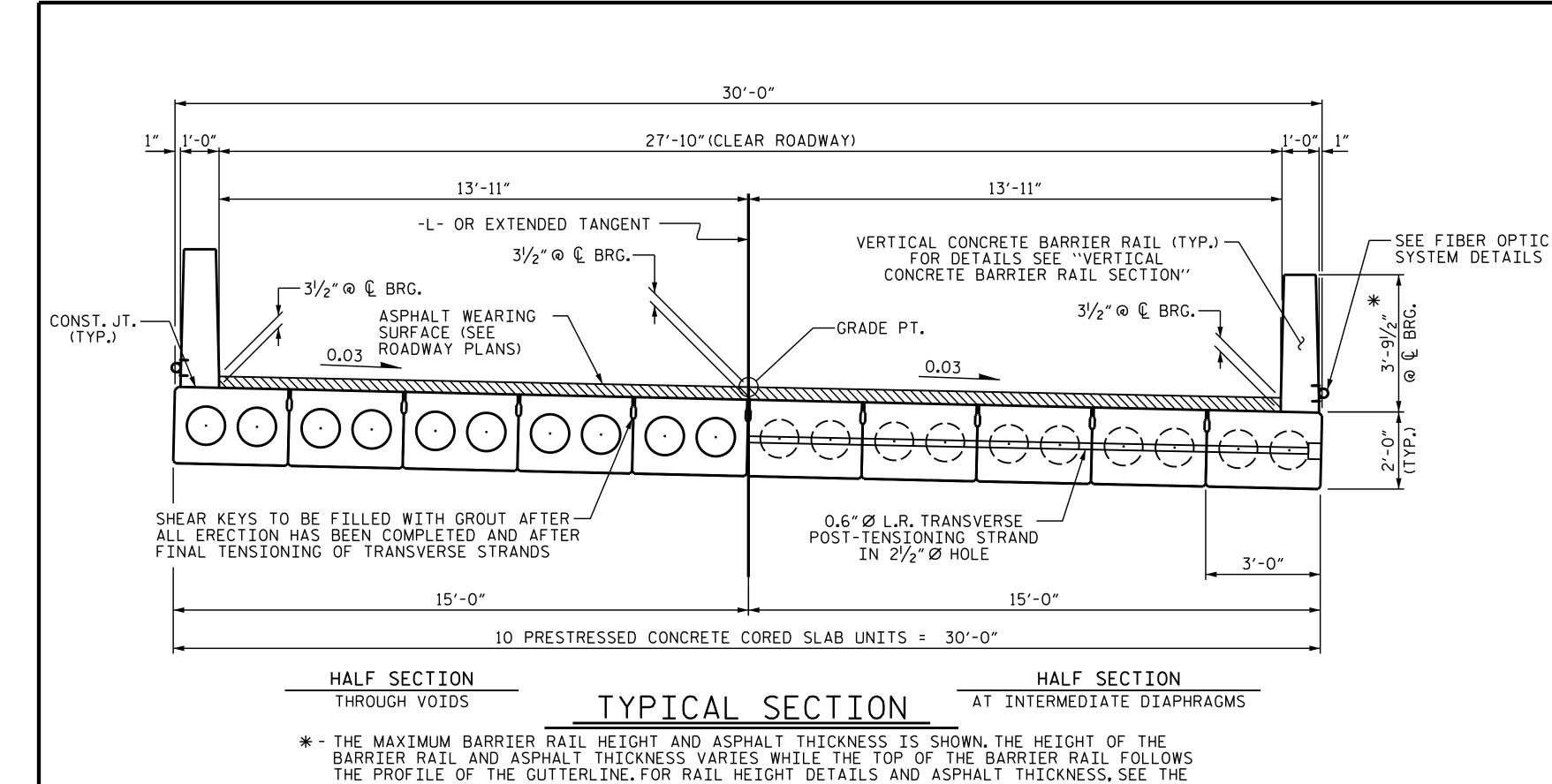
REVISIONS SHEET NO. NO. BY: S-04 NO. BY: DATE: DATE:

59'-0"(BRG. TO BRG.) LRFR SUMMARY

FOR SPAN 'A'

ASSEMBLED BY : J.M. KEPICH CHECKED BY : L.M. SAMPLES DATE: 04/20 DATE: 05/21 DRAWN BY : CVC 6/10 CHECKED BY : DNS 6/10

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2'-6"±

5'-0" MAX. SPC.

ELEVATION

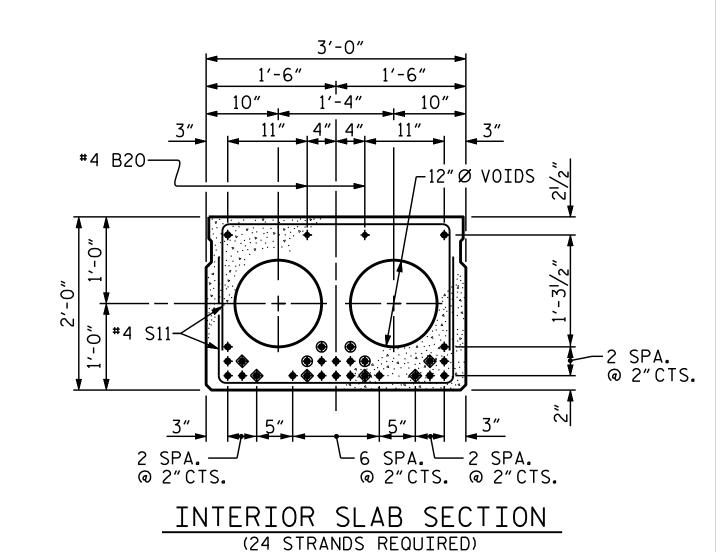
3'-0" 1'-6" – € 2½″Ø DOWEL HOLES 4" 4". 1'-2" #5 S15-−**#**5 S15 #5 S10~

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.

- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 12'-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



3'-0"

1'-4"

~#5 S12

12″Ø VOIDS^{/}

EXTERIOR SLAB SECTION

(FOR PRESTRESSED STRAND LAYOUT, SEE

INTERIOR SLAB SECTION.)

3¾"CL.

10"

0.6" Ø LOW RELAXATION STRAND LAYOUT

FOR 2-HOLE STRAPS 1/4" x 21/4" GALV. —— CONCRETE ANCHORS $2\frac{1}{2}$ " 15 GAUGE ZINC COATED EPOXIED INTO 2-HOLE STRAP CONCRETE @ 5'-0" MAX. CTS. - € 2-HOLE STRAPS - © 2½″Ø PVC PIPE (SCHEDULE 80) AND CONCRETE ANCHORS 1'-0" ------ $-2\frac{1}{2}$ Ø PVC PIPE (SCHEDULE 80) CAP ENDS OF ---2½"ØPVCPIPE

SECTION AT END BENT

"VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.

 $\sim 2^{1/2}$ Ø DOWEL HOLE

12″Ø→ r----

ELASTOMERIC BEARING PAD

SHEETS FOR DETAILS

SEE "END BENT"

voios 🕌

ASPHALT —

WEARING SURFACE

SEE "BRIDGE APPROACH SLAB"

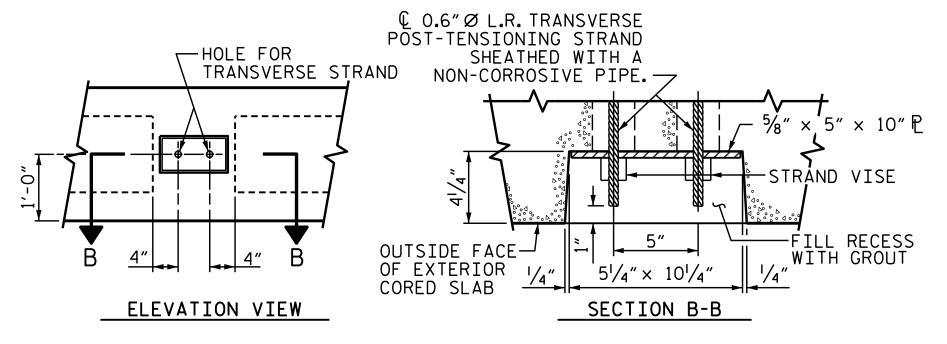
SHEET FOR DETAILS

2 LAYERS OF 30 LB.-ROOFING FELT TO

11/2" Ø BACKER ROD -

PREVENT BOND.

& #6 DOWELS



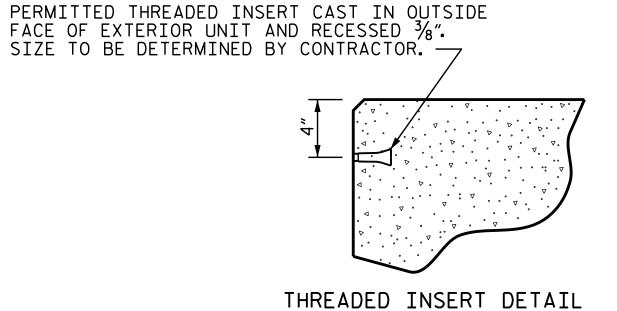
1'-11/2"

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

__ DATE : <u>04/20</u> CHECKED BY : L.M. SAMPLES __ DATE : <u>05/2</u>1 DRAWN BY # MAA 6/10 CHECKED BY # MKT 7/10 REV. 8/14 MAA/TMG

FIBER OPTIC CONDUIT SYSTEM DETAILS

21/2" Ø SCHEDULE 80 PVC PIPE ATTACHED TO THE BACK OF BOTH RAILS FOR FUTURE FIBER OPTIC CABLE.



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PROJECT NO. BR-0109 YADKIN COUNTY 28+54.00 -L-

STATION:

SHEET 1 of 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD

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

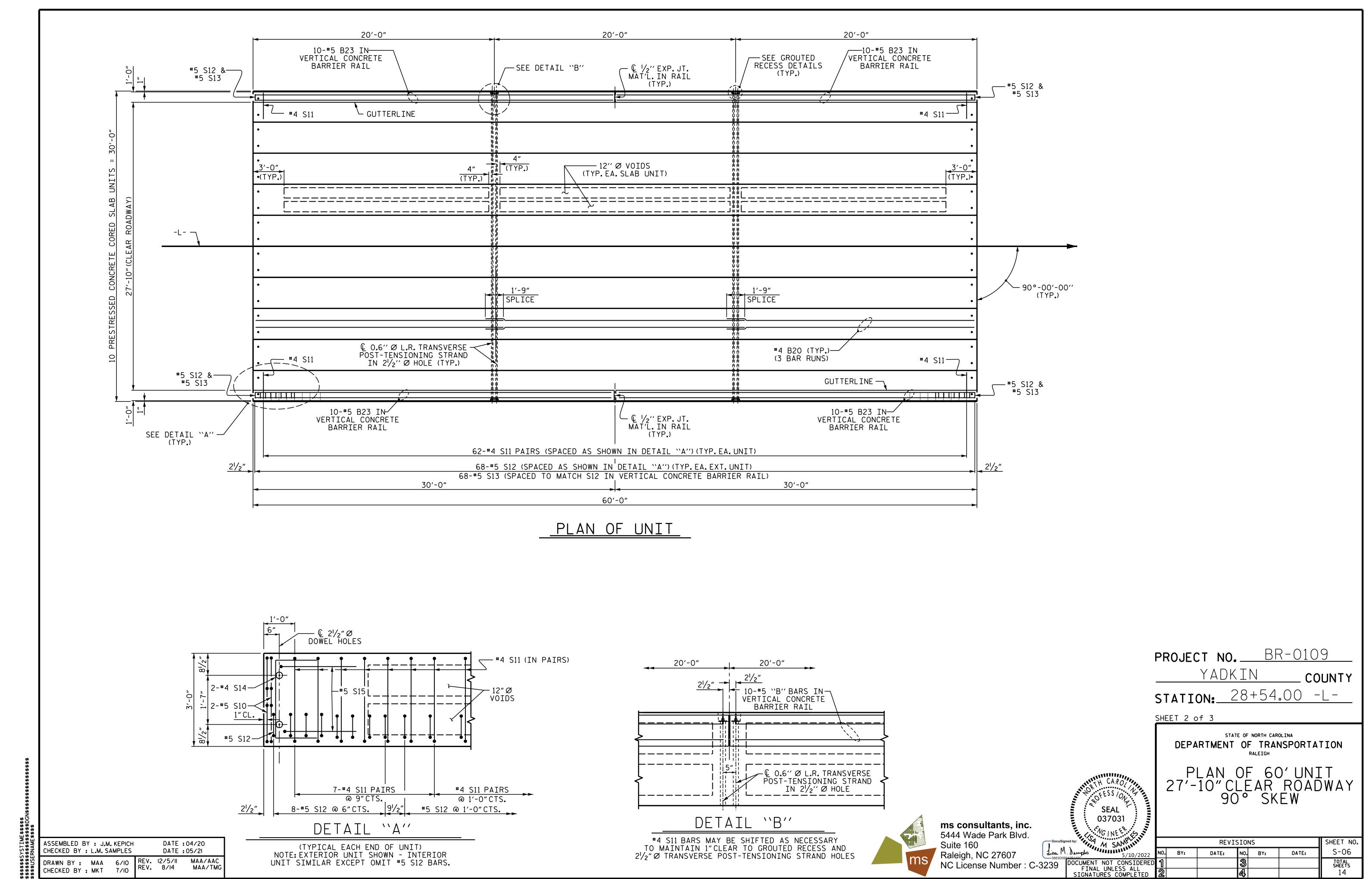
REVISIONS SHEET NO. NO. BY: S-05 DATE: DATE: BY: TOTAL SHEETS

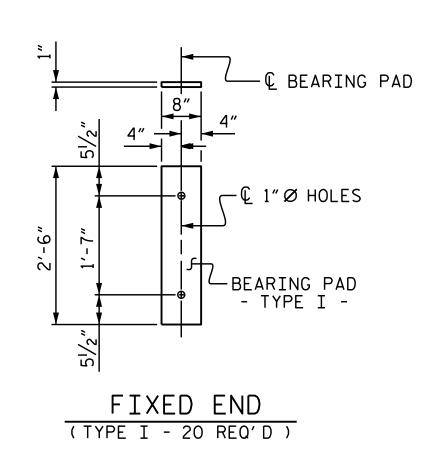
SECTION

SHEAR KEY DETAIL

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

+





ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

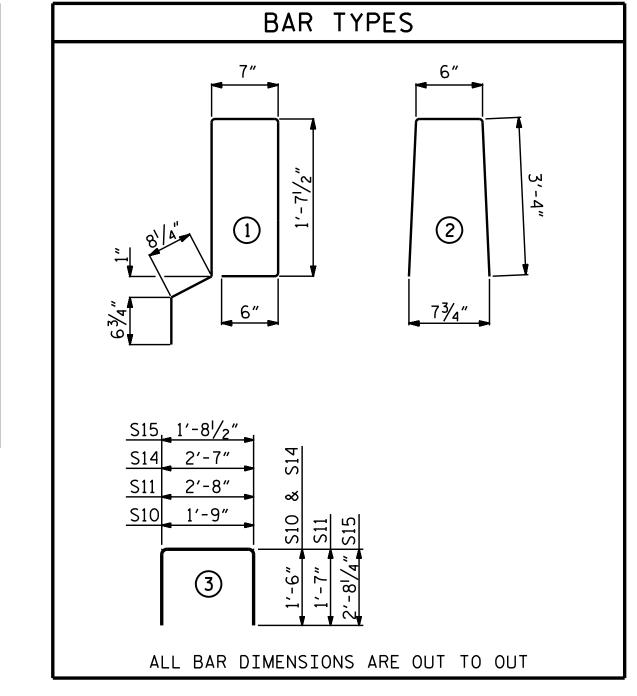
GUTTERLINE AS	PHALT THICKNESS & RAI	L HEIGHT		
	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN		
60' UNITS	21/8"	3'-81/8"		

BILL OF MATERIAL FOR ONE 60' CORED SLAB UNIT									
EXTERIOR UNIT INTERIOR UNIT									
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT		
B20	6	#4	STR	21'-2"	85	21'-2"	85		
S10	8	# 5	3	4'-9"	40	4'-9"	40		
S11	124	#4	3	5′-10″	483	5′-10″	483		
* S12	68	# 5	1	5′-7″	396				
S14	4	#4	3	5′-7″	15	5′-7″	15		
S15	4	# 5	3	7′-1″	30	7'-1"	30		
REINFO	ORCING :	STEEL	LBS	S.	653		653		
	Y COATE								
REINFORCING STEEL LBS. 396									
6000 P.S.I. CONCRETE CU. YDS. 10.2 10.2									
0.6"Ø	L.R. STR	ANDS	No).	24		24		

CORED SLABS REQUIRED								
	NUMBER	LENGTH	TOTAL LENGTH					
60' UNIT								
EXTERIOR C.S.	2	60'-0"	120'-0"					
INTERIOR C.S.	8	60'-0"	480′-0″					
TOTAL	10		600'-0"					

21/2"

21/2"



BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL BARS PER PAIR OF EXTERIOR UNITS TOTAL NO. | SIZE | TYPE | LENGTH| WEIGHT 60' UNIT **∗**B23 #5 | STR | 29'-7" | 1234 40 40 1017 ***** S13 136 136 #5 7′-2″ * EPOXY COATED REINFORCING STEEL 2251 LBS. CLASS AA CONCRETE 15.5 CU.YDS TOTAL VERTICAL CONCRETE BARRIER RAIL LN. FT. 120.25

DEAD LOAD DEFLECTION AN	ND CAMBER
	3'-0" × 2'-0"
60'CORED SLAB UNIT	0.6″Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	17⁄8″ ੈ
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	!/ ₂ " ♦
FINAL CAMBER	13⁄8″ ♠

** INCLUDES FUTURE WEARING SURFACE

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

STAINLESS STEEL THE	READED INSERTS MAY BE	USED AS AN ALTERNATE.
	ADED INSERTS SHALL BE ING REMOVAL OF THE FA	GROUTED BY THE CONTRACTOR

IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-O"CENTERS AND GALVANIZED

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

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE

THE 21/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE

ALL REINFORCING STEEL IN VERTICAL CONCRETE BARRIER RAILS SHALL

GROOVED CONTRACTION JOINTS, $\frac{1}{2}$ " IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION

JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF

CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT

THE #4 S11 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1"

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO

MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF

TRANSVERSE POST TENSIONING STRANDS IN THE DIAPHRAGM.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT

SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT

SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE

SPECIFICATIONS.

BE EPOXY COATED.

10 FEET IN LENGTH.

CLEAR TO THE GROUTED RECESS.

ENDS.

ALLOWED.

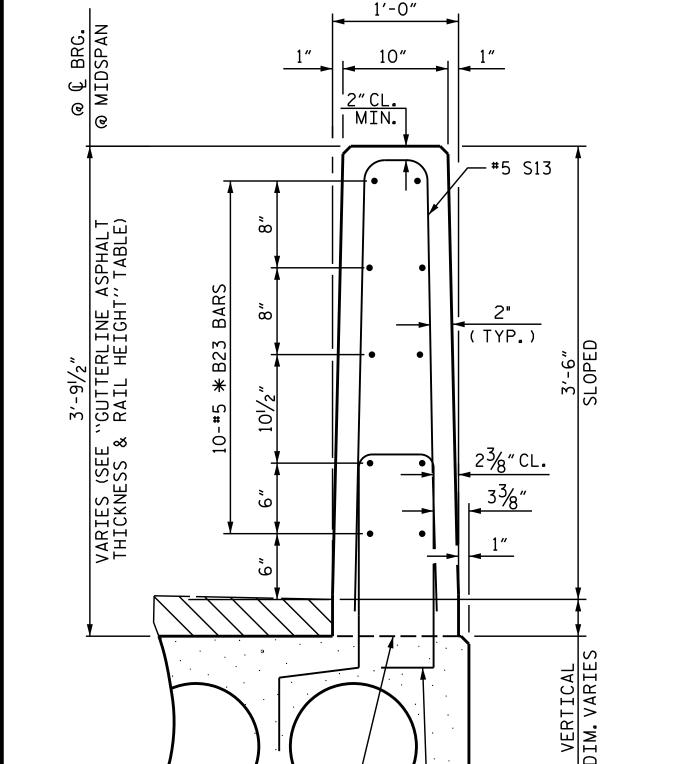
PRESTRESSED CONCRETE CORED SLABS.

"CONCRETE RELEASE STRENGTH" TABLE.

TENSIONING OF THE STRANDS.

FILLED WITH NON-SHRINK GROUT.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.



CONST. JT. ——

ASSEMBLED BY : J.M. KEPICH

CHECKED BY : L.M. SAMPLES

DRAWN BY: MAA 6/10

CHECKED BY : MKT 7/10 REV. 5/18

SECTION THRU RAIL

MAA/THC

DATE :04/20

DATE :05/21

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) CONST. JT. ELEVATION AT EXPANSION JOINTS

2'-0" 4-#5 S12 6" 4-#5 S12 #5 S12 & S13 & S13 @ & S13 @ 6"CTS. . 10" FIELD BEND-*B23 BARS 6"CTS. \|FIELD CUT| FIELD CUT-#5 S13 FIELD-CUT #5 S13 CONST. JT.

60' UNITS

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PSI

4800

CONCRETE RELEASE STRENGTH

PROJECT NO. BR-0109 <u>YADKIN</u> COUNTY STATION: 28+54.00 -L-

SHEET 3 of 3

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

SHEET NO REVISIONS S-07 NO. BY: DATE: DATE: BY: TOTAL SHEETS

VERTICAL CONCRETE BARRIER RAIL DETAILS

#5 S12 SEE "PLAN OF UNIT" FOR SPACING

END OF RAIL DETAILS

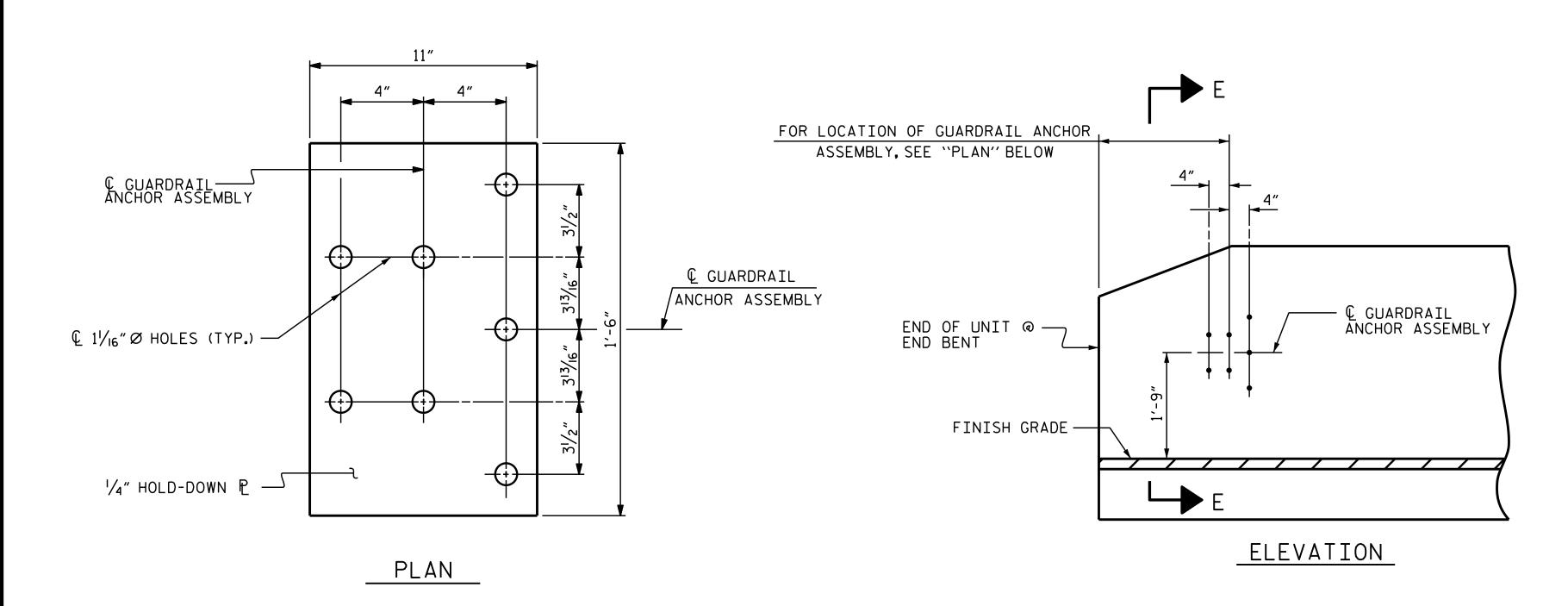
END VIEW

SIDE VIEW

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UNIT

STD. NO. 24PCS3_30_90S



NOTES

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

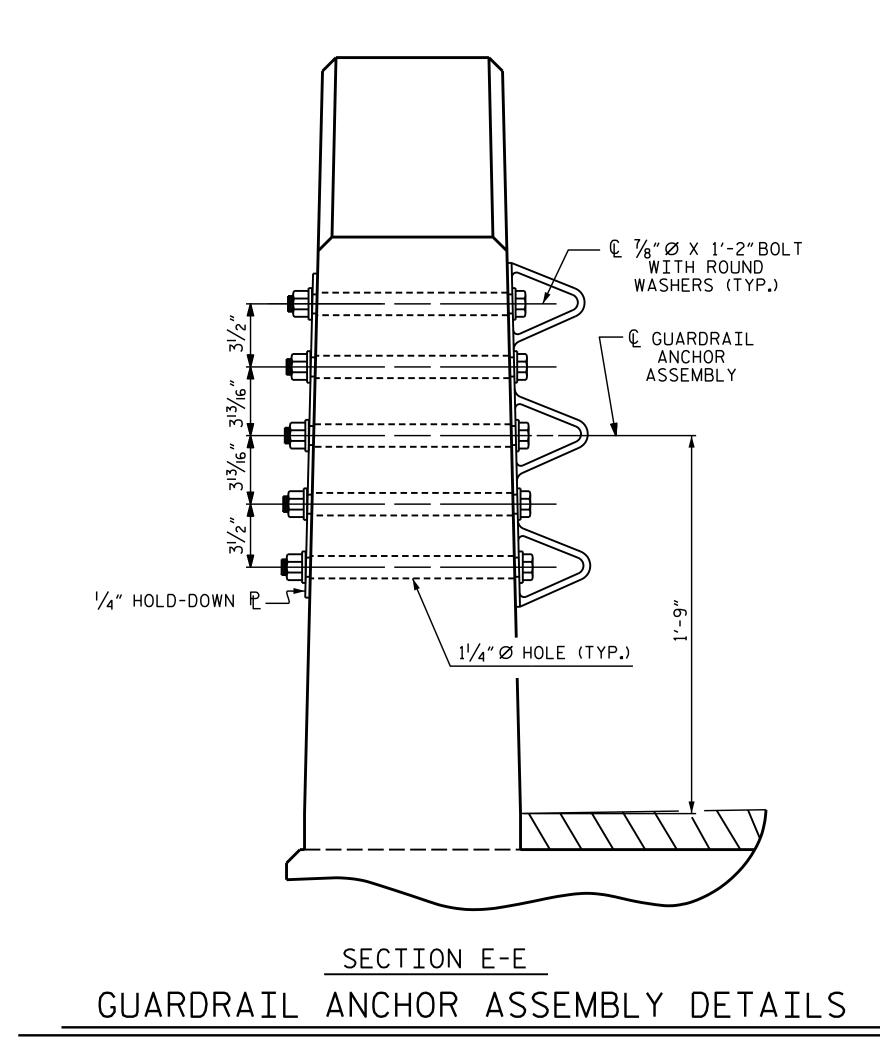
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

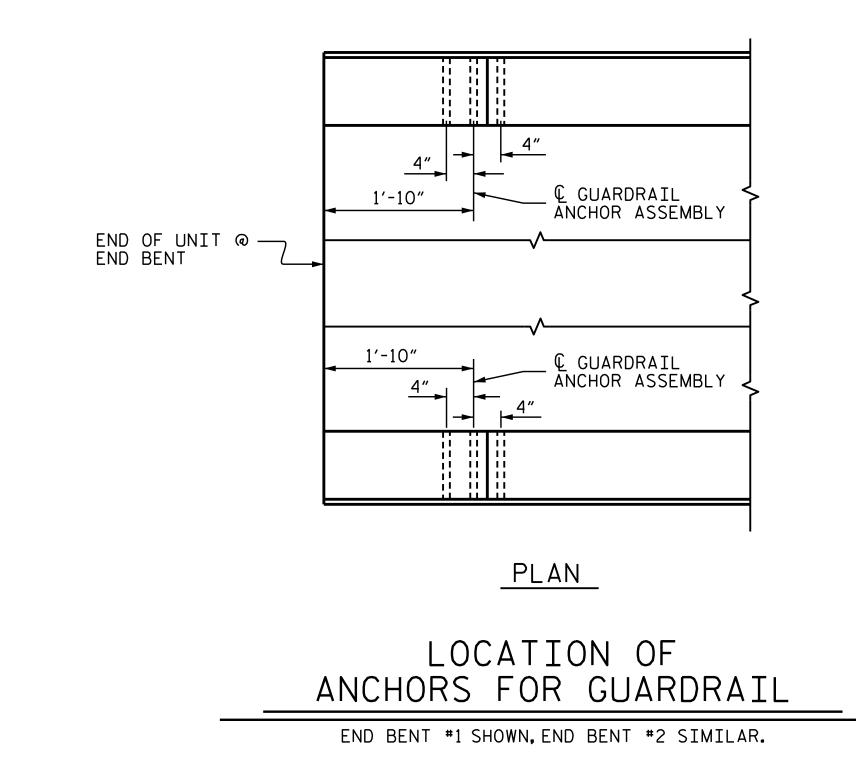
AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

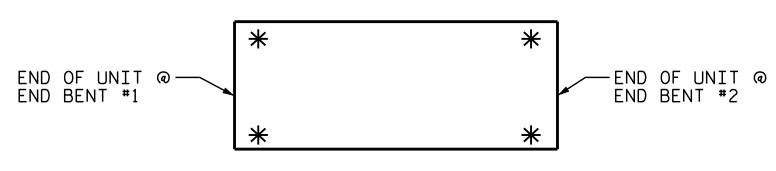
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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

THE 1 $\frac{1}{4}$ " 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.







SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BR-0109 YADKIN COUNTY

STATION: 28+54.00 -L-

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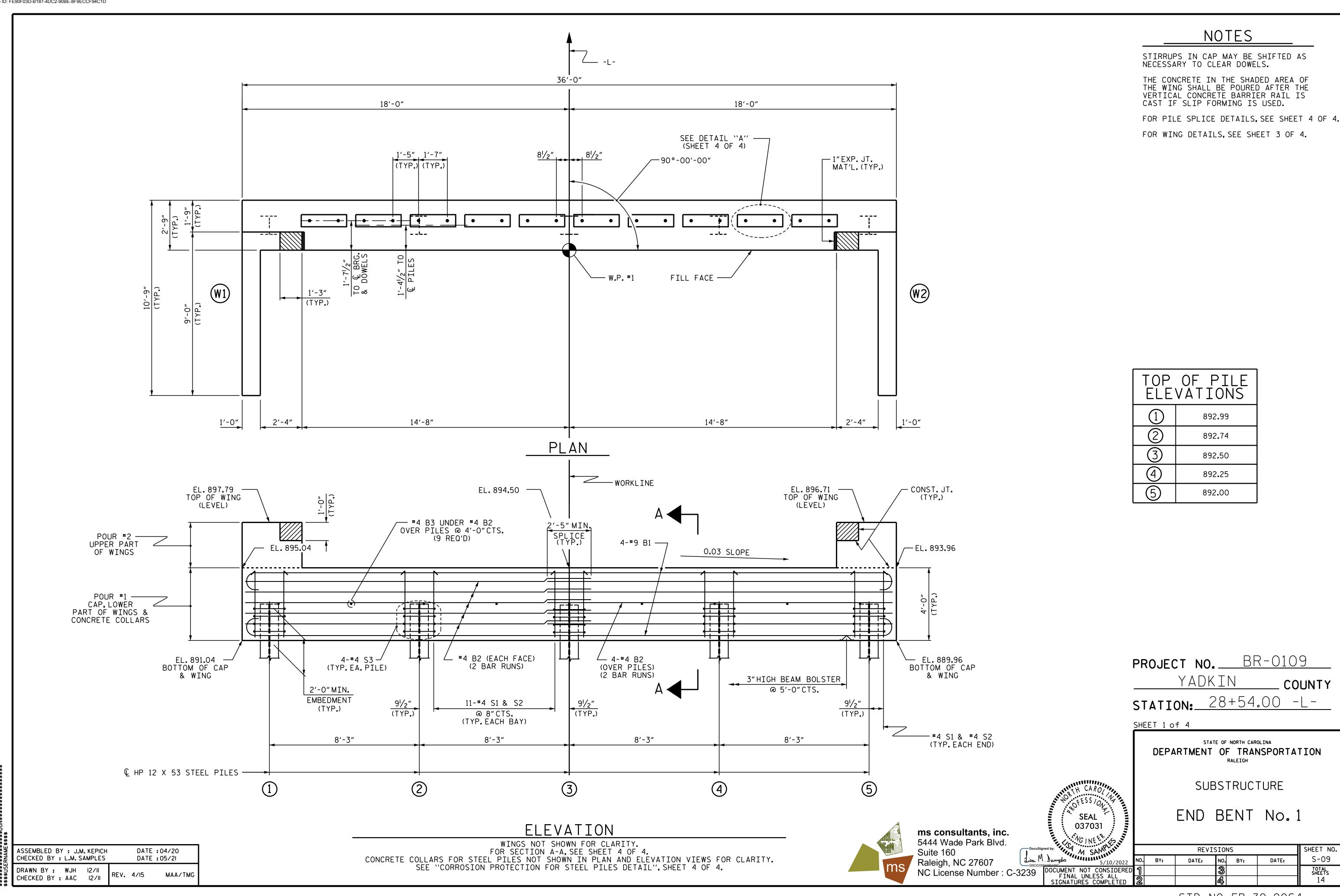
Suite 160

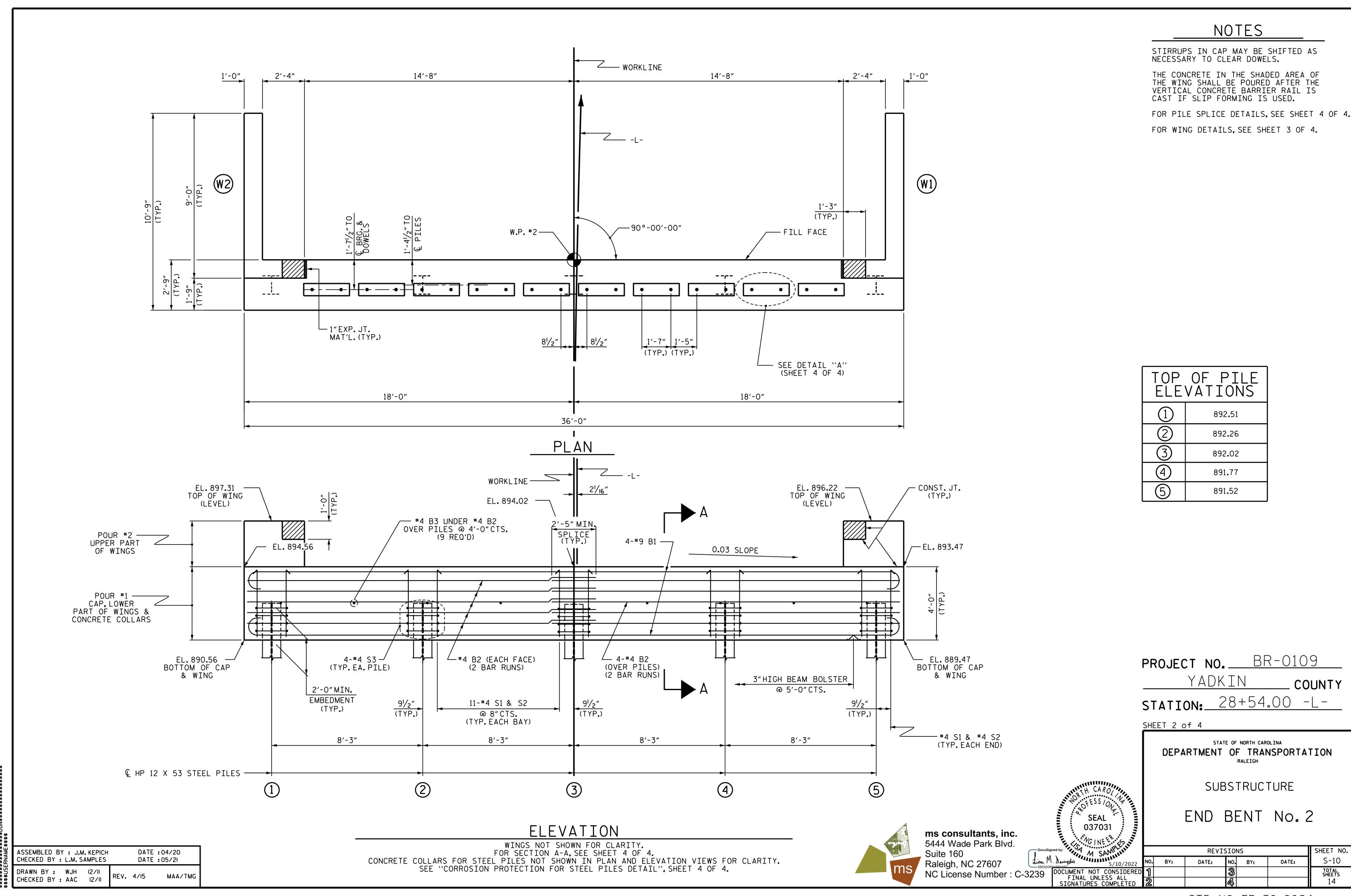
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STANDARD

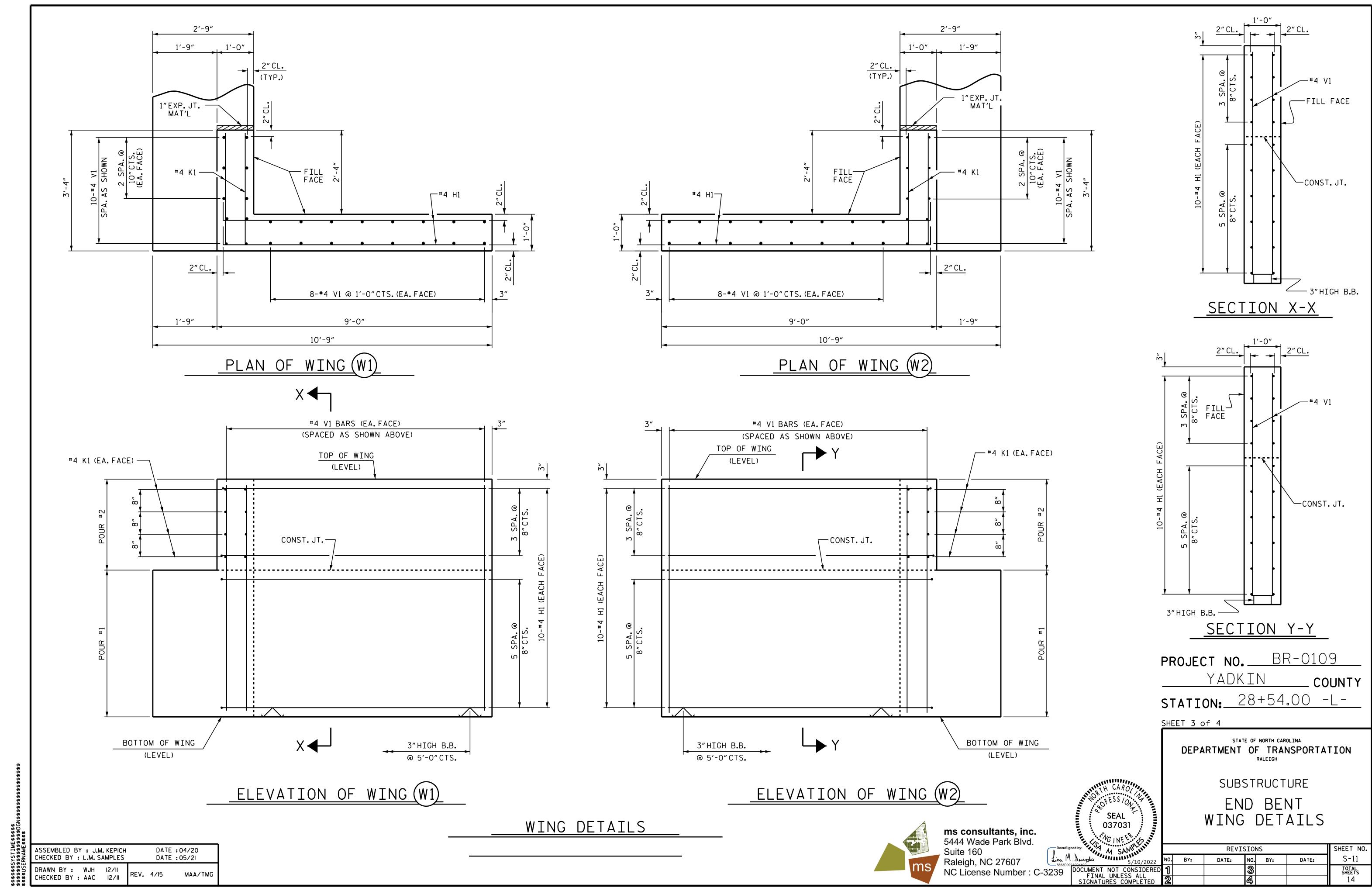
GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL

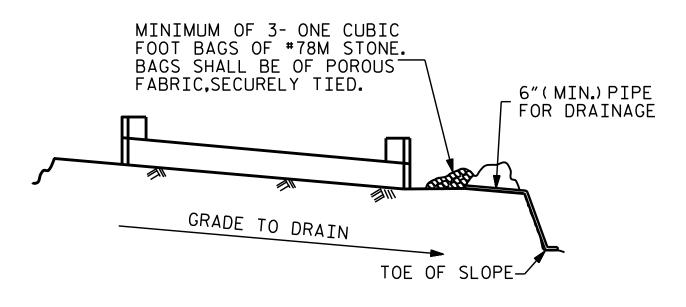
SHEET NO. REVISIONS S-08 NO. BY: BY: DATE: DATE:

ASSEMBLED BY : J.M. KEPICH CHECKED BY : L.M. SAMPLES DATE : 04/20 DATE : 05/21 DRAWN BY : MAA 5/10 MAA/THC CHECKED BY : GM 5/10







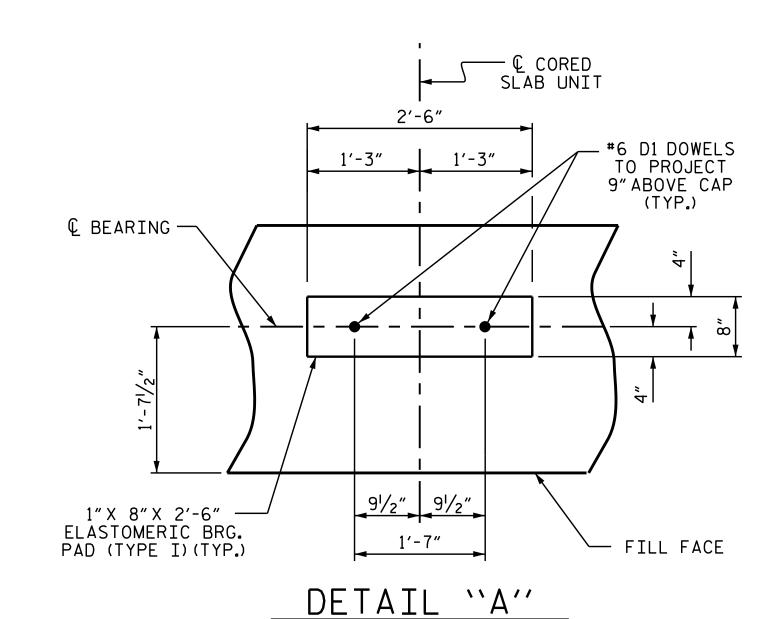


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

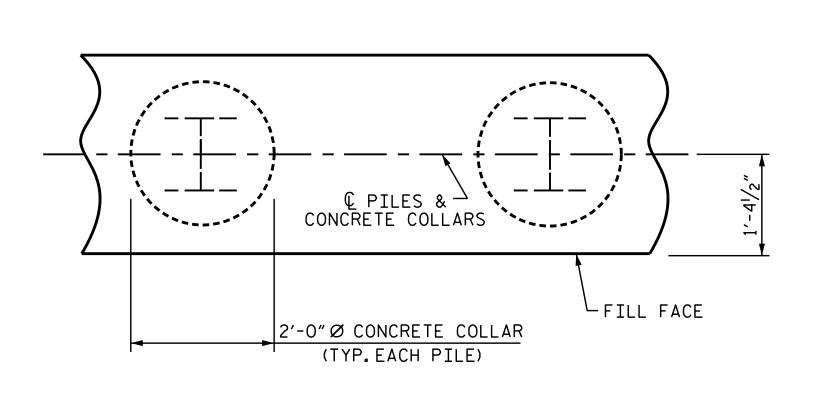
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETER-MINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

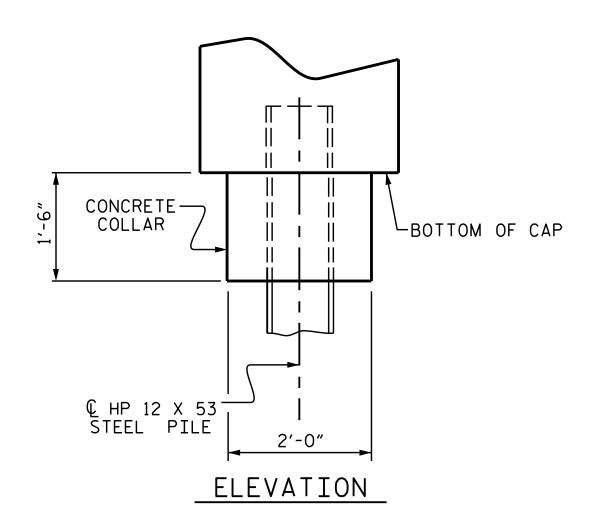
TEMPORARY DRAINAGE AT END BENT



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



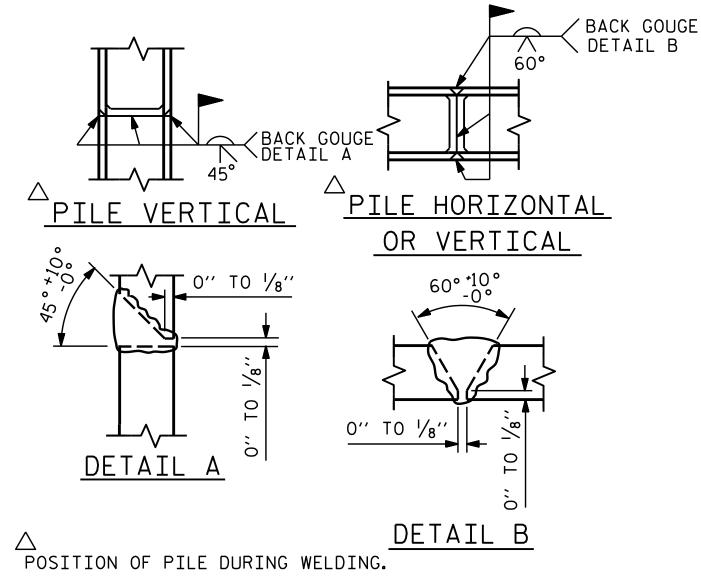
__PLAN



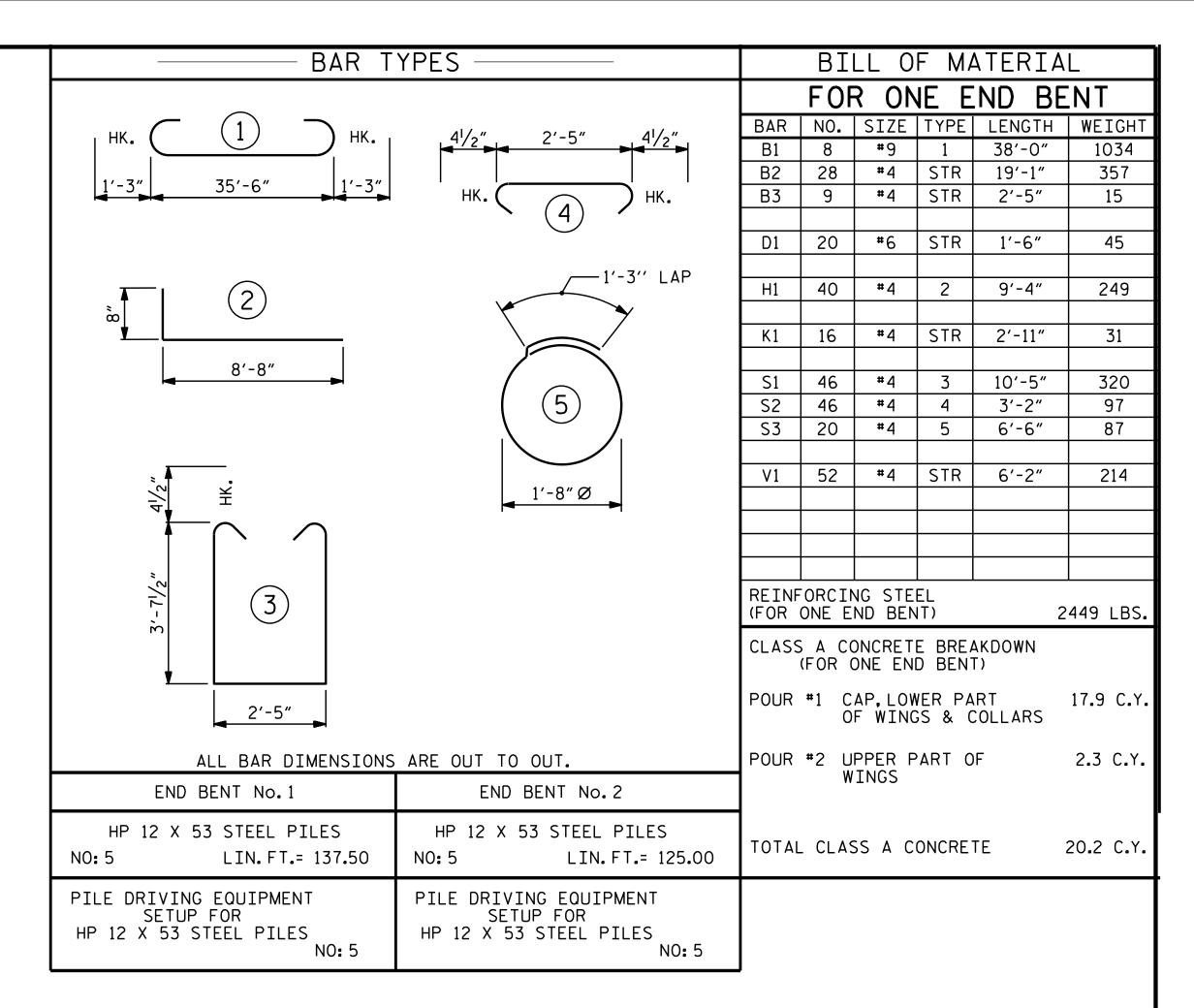
CORROSION PROTECTION FOR STEEL PILES DETAIL

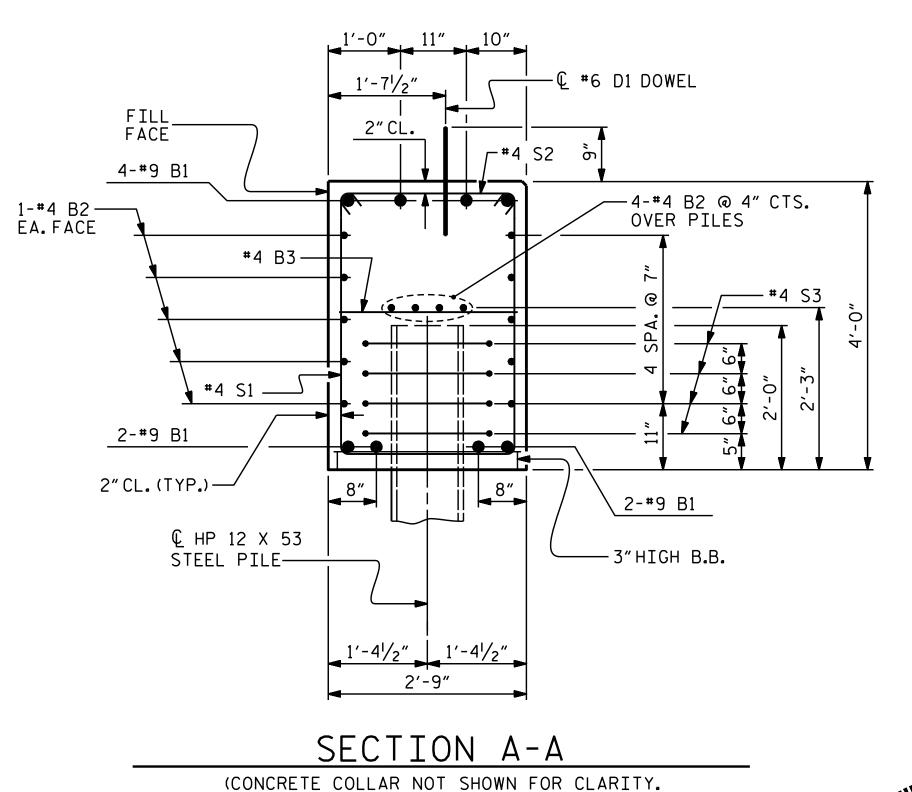
(END BENT No. 1 SHOWN, END BENT No. 2 SIMILAR BY ROTATION)

ASSEMBLED BY : J.N. S CHECKED BY : L.M. S				: 04/20 : 05/2I
DRAWN BY: WJH CHECKED BY: AAC	2/ 2/	REV.	4/17	MAA/THC



PILE SPLICE DETAILS





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

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PROJECT NO. BR-0109 YADKIN COUNTY 28+54.00 -L-STATION:

SHEET 4 of 4

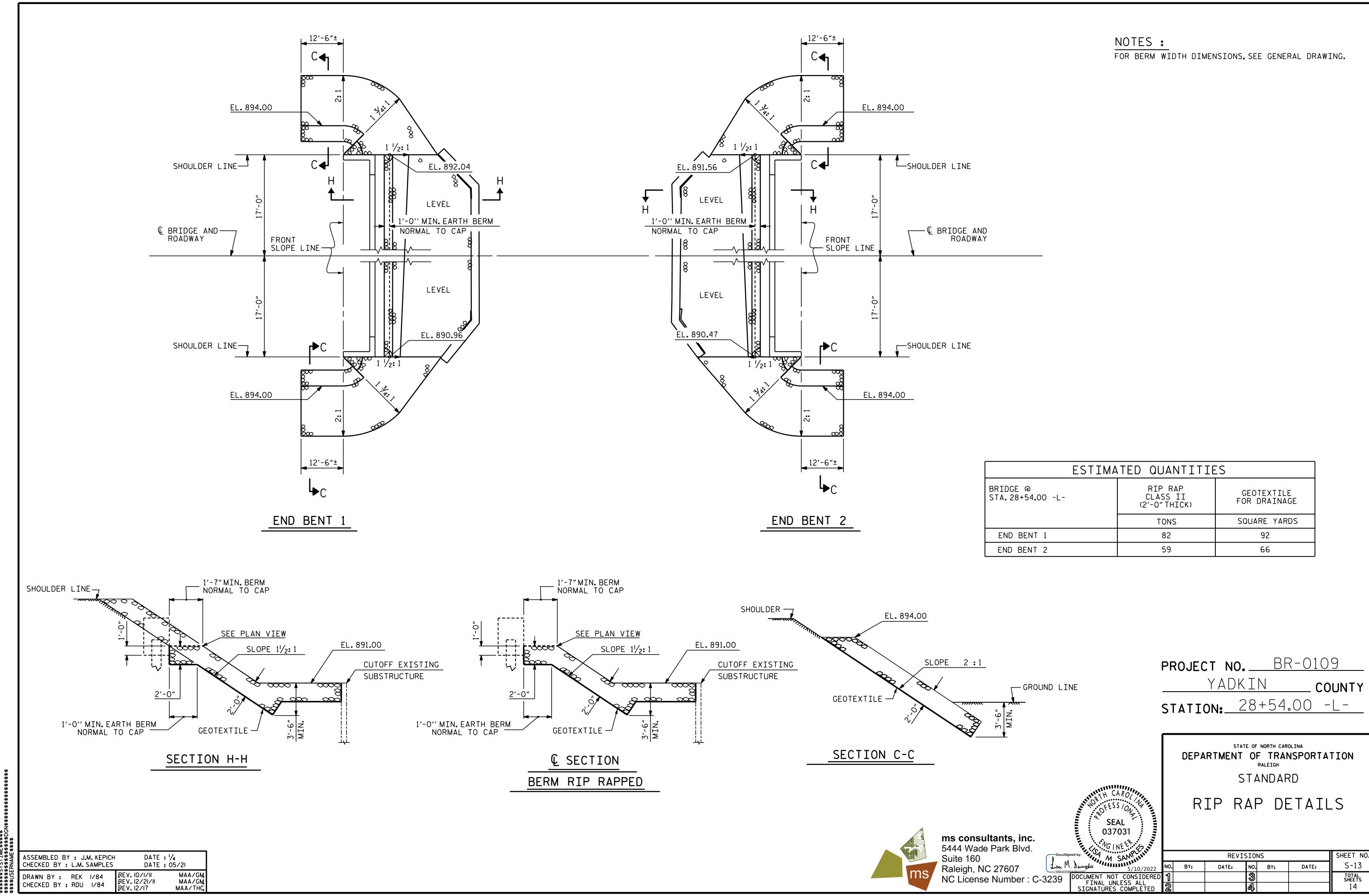
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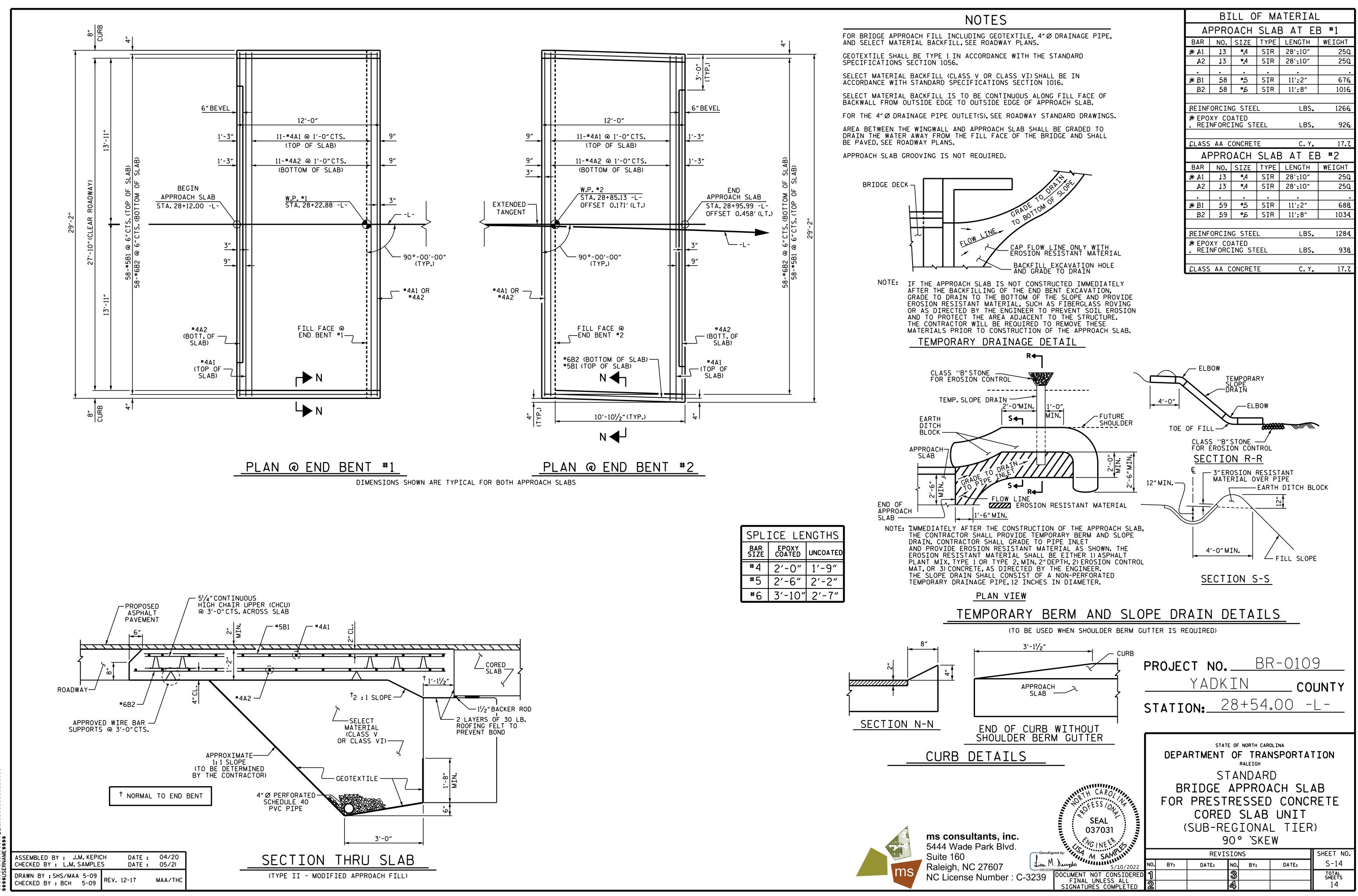
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SUBSTRUCTURE

END BENT No.1 & 2 DETAILS

SHEET NO. REVISIONS NO. BY: S-12 BY: DATE: DATE: TOTAL SHEETS





STANDARD NOTES

DESIGN DATA:

---- A.A.S.H.T.O. (CURRENT) SPECIFICATIONS 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 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. ---- 30 LBS.PER CU.FT. EQUIVALENT FLUID PRESSURE OF EARTH

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.

(MINIMUM)

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 11/2" 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 $\frac{7}{8}$ " Ø SHEAR STUDS FOR THE $\frac{7}{4}$ " Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " Ø STUDS FOR 4 - $\frac{7}{4}$ " Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " Ø STUDS ALONG THE BEAM AS SHOWN FOR $\frac{7}{4}$ " Ø STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " Ø STUDS FOR 4 - $\frac{7}{4}$ " Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

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. 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