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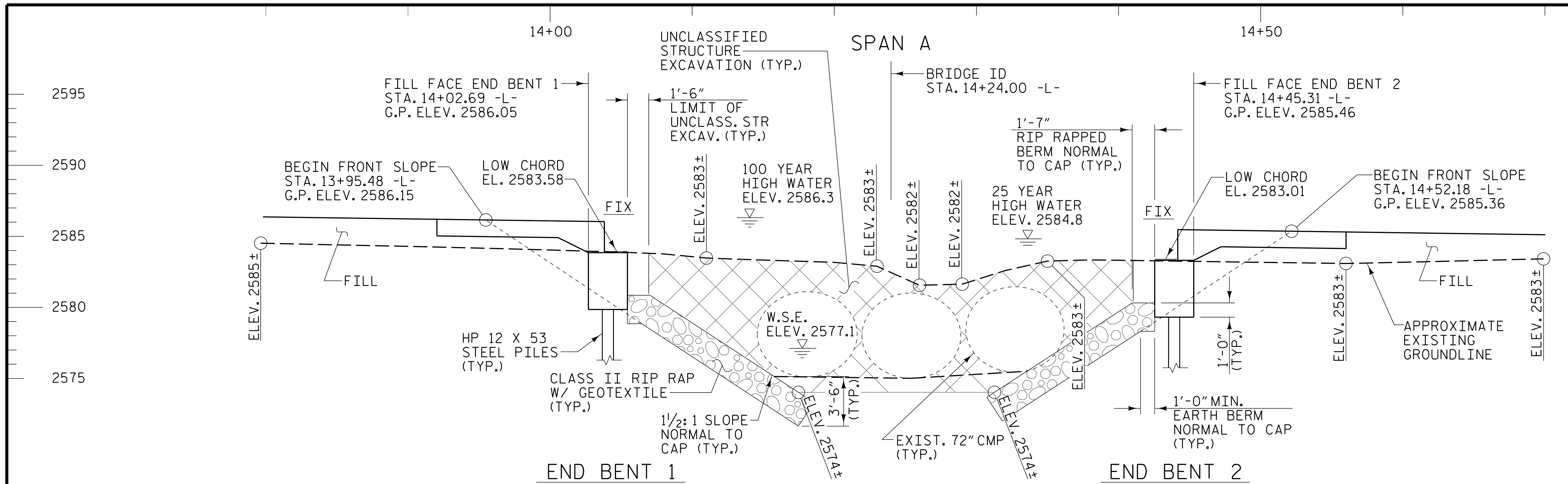


SECTION ALONG -L-

(SECTIONS AT END BENTS ARE TAKEN AT RIGHT ANGLES)

PI = 12+70.00	PI = 15+29.00
EL = 2587.90'	EL = 2584.29'
VC = 90'	VC = 122'
(-)3.2889% (-)1.3938%	(-)1.3938% (+)3.2459%

GRADE DATA
-L- (SR 1835)

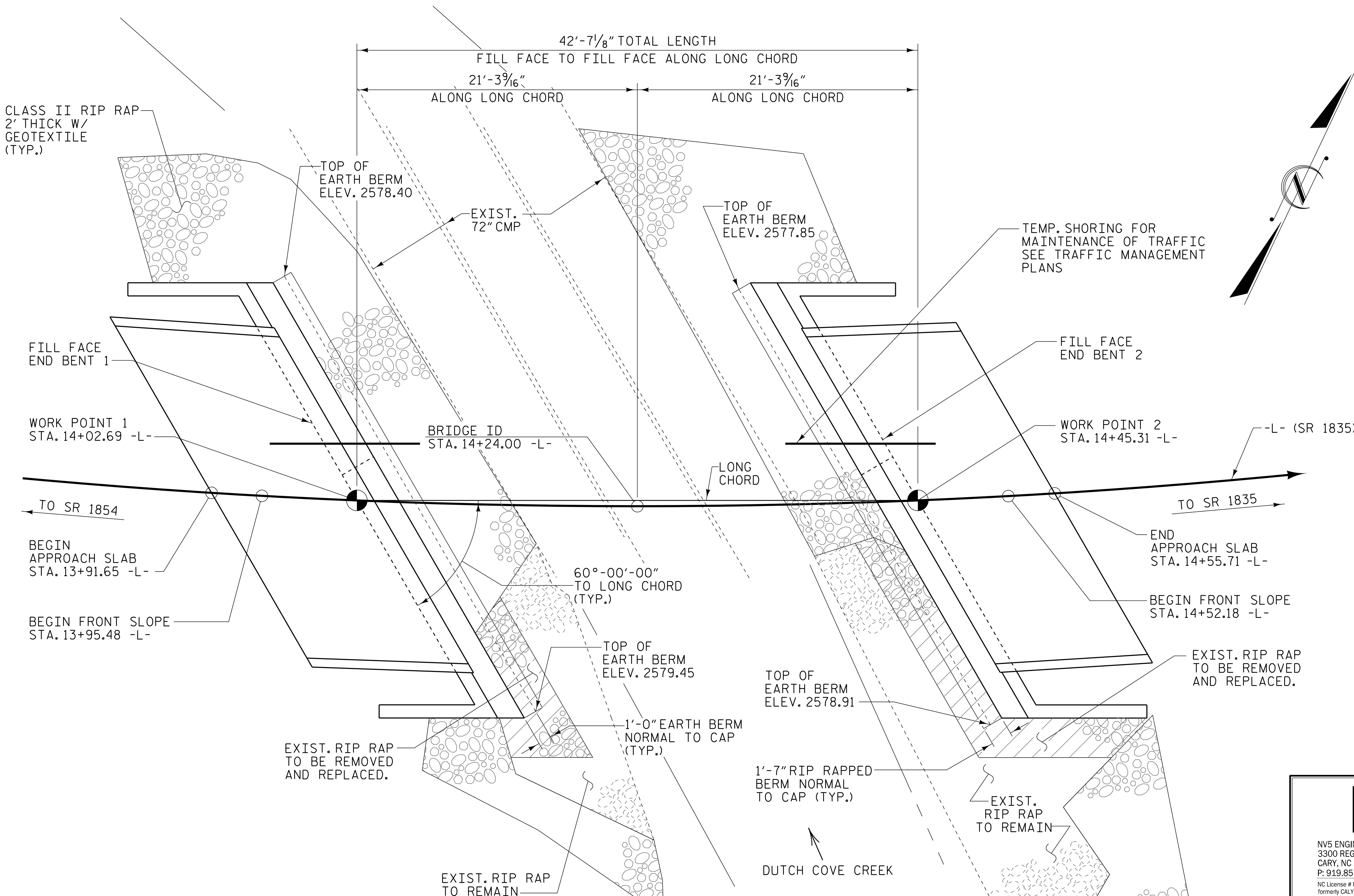
HYDRAULIC DATA:

DESIGN DISCHARGE -	1500 CFS
FREQUENCY OF DESIGN FLOOD -	25 YEAR
DESIGN HIGH WATER ELEVATION -	2584.8 FT.
DRAINAGE AREA -	6.1 SQ. MI.
BASE DISCHARGE (Q 100) -	2100 CFS
BASE HIGH WATER ELEVATION -	2586.3 FT.

OVERTOPPING DATA:

OVERTOPPING DISCHARGE -	1640 CFS
FREQUENCY OF OVERTOPPING-	25+ YEAR
OVERTOPPING FLOOD ELEVATION -	2585.2 FT.

OVERTOPPING OCCURS AT -L- STA. 15+06 RT, SHOULDER PT.



PLAN

PILES NOT SHOWN FOR CLARITY

P.I. STA. 14+57.37
△ = 23°-53'-42.4" (LT)
D = 11°-07'-31.4"
L = 214.78'
T = 108.97'
R = 515.00'
-HORIZONTAL CURVE DATA-
-L-

PROJECT NO. BP14.R004
HAYWOOD COUNTY
STATION: 14+24.00 -L-

SHEET 1 OF 2 REPLACES BRIDGE NO. 382

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE ON SR 1835
OVER DUTCH COVE CREEK
BETWEEN SR 1854 & SR 1835

24'-10" CLEAR ROADWAY - 60° SKEW

PLANS PREPARED BY:
NV5
NV5 ENGINEERS & CONSULTANTS, INC.
3300 REGENCY PARKWAY, SUITE 100
CARY, NC 27518
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NC License # F-1333
formerly CALYX Engineers & Consultants

NORTH CAROLINA PROFESSIONAL SEAL 19661 ENGINEER
3/15/2022

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

REVISIONS

SHEET NO. S-1
TOTAL SHEETS 21

DRAWN BY :	W. B. ALLEN	DATE :	11/21
CHECKED BY :	L. K. AUSTIN	DATE :	12/21
DESIGN ENGINEER OF RECORD:	L. K. AUSTIN	DATE :	12/21

SUMMARY OF PILE INFORMATION/INSTALLATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Resistance per Pile TONS	Pile Cut-Off (Top of Pile) Elevation FT	Estimated Pile Length per Pile FT	Scour Critical Elevation FT	Driven Piles			Predrilling for Piles*			Drilled-In Piles		
					Min Pile Tip (Tip No Higher Than) Elev FT	Required Driving Resistance (RDR)** per Pile TONS	Total Pile Redrives Quantity EACH	Predrilling Length per Pile Lin FT	Predrilling Elevation (Elev Not To Predrill Below) FT	Maximum Predrilling Dia INCHES	Pile Excavation (Bottom of Hole) Elev FT	Pile Exc Not In Soil per Pile Lin FT	Pile Exc In Soil per Pile Lin FT
End Bent 1, Piles 1-3	66	See Substructure Plans	12								2570.0	5.0	5.0
End Bent 1, Piles 4-5	66		11								2571.0	5.0	4.0
End Bent 2, Piles 1-2	66		7								2574.5	5.0	0.0
End Bent 2, Pile 3	66		9								2572.5	6.0	1.0
End Bent 2, Piles 4-5	66		11								2571.5	6.0	3.0

*Predrilling for Piles is required for end bents/bents with a predrilling length and at the Contractor's option for end bents/bents with predrilling information but no predrilling length.

$$^{**}RDR = \frac{Factored\ Resistance + Factored\ Downdrag\ Load + Factored\ Dead\ Load}{Dynamic\ Resistance\ Factor} + Nominal\ Downdrag\ Resistance + \frac{Nominal\ Scour\ Resistance}{Scour\ Resistance\ Factor}$$

SUMMARY OF PDA/PILE ORDER LENGTHS

(Blank entries indicate item is not applicable to structure)

Pile Driving Analyzer (PDA)				Pile Order Lengths	
End Bent/ Bent No	PDA Testing Required? YES or MAYBE	PDA Test Pile Length FT	Total PDA Testing Quantity EACH	End Bent/ Bent No(s)	Pile Order Length Basis* EST or PDA
				End Bent 1	EST
				End Bent 2	EST

*EST = Pile order lengths from estimated pile lengths; PDA = Pile order lengths based on PDA testing. For groups of end bents/bents with pile order lengths based on PDA testing, the first end bent/bent no. listed for each group is the representative end bent/bent with the PDA.

PILE DESIGN INFORMATION

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Factored Axial Load per Pile TONS	Factored Downdrag Load per Pile TONS	Factored Dead Load* per Pile TONS	Dynamic Resistance Factor	Nominal Downdrag Resistance per Pile TONS	Nominal Scour Resistance per Pile TONS	Scour Resistance Factor (Default = 1.00)
End Bent 1, Piles 1-5	66						
End Bent 2, Piles 1-5	66						

*Factored Dead Load is factored weight of pile above the ground line.

SUMMARY OF PILE ACCESSORIES

(Blank entries indicate item is not applicable to structure)

End Bent/ Bent No, Pile(s) #-# (e.g., "Bent 1, Piles 1-5")	Pipe Pile Plates Required? YES or MAYBE	Steel Pile Points			Steel Pile Tips Required? YES
		Pipe Pile Cutting Shoes Required? YES	Pipe Pile Conical Points Required? YES	H-Pile Points Required? YES	
End Bent 1, Piles 1-5					
End Bent 1, Piles 1-5					
TOTAL QTY:					

PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

NOTES:

1. The Pile Foundation Tables are based on the bridge substructure design and foundation recommendations sealed by a North Carolina Professional Engineer (Matthew J. Alexander 040231) on 12-08-2021.
2. Total Pile Driving Equipment Setup quantity (not shown in Pile Foundation Tables) equals the number of driven piles, i.e., the number of piles with a Required Driving Resistance.
3. The Engineer will determine the need for PDA Testing and Pipe Pile Plates when PDAs or plates may be required.
4. For piles, see Piles Provision and Section 450 of The Standard Specifications.
5. Fill holes for pile excavation at End Bent No. 1 and End Bent No. 2 with concrete.
6. Extend pile excavations at End Bent No. 1 and End Bent No. 2 a minimum of 5 feet into crystalline rock.

NORTH CAROLINA PROFESSIONAL SEAL 19661 ENGINEER L. KEVIN AUSTIN

DocuSigned by: L. Kevin Austin ABD1616E6C8A42C...

3/15/2022

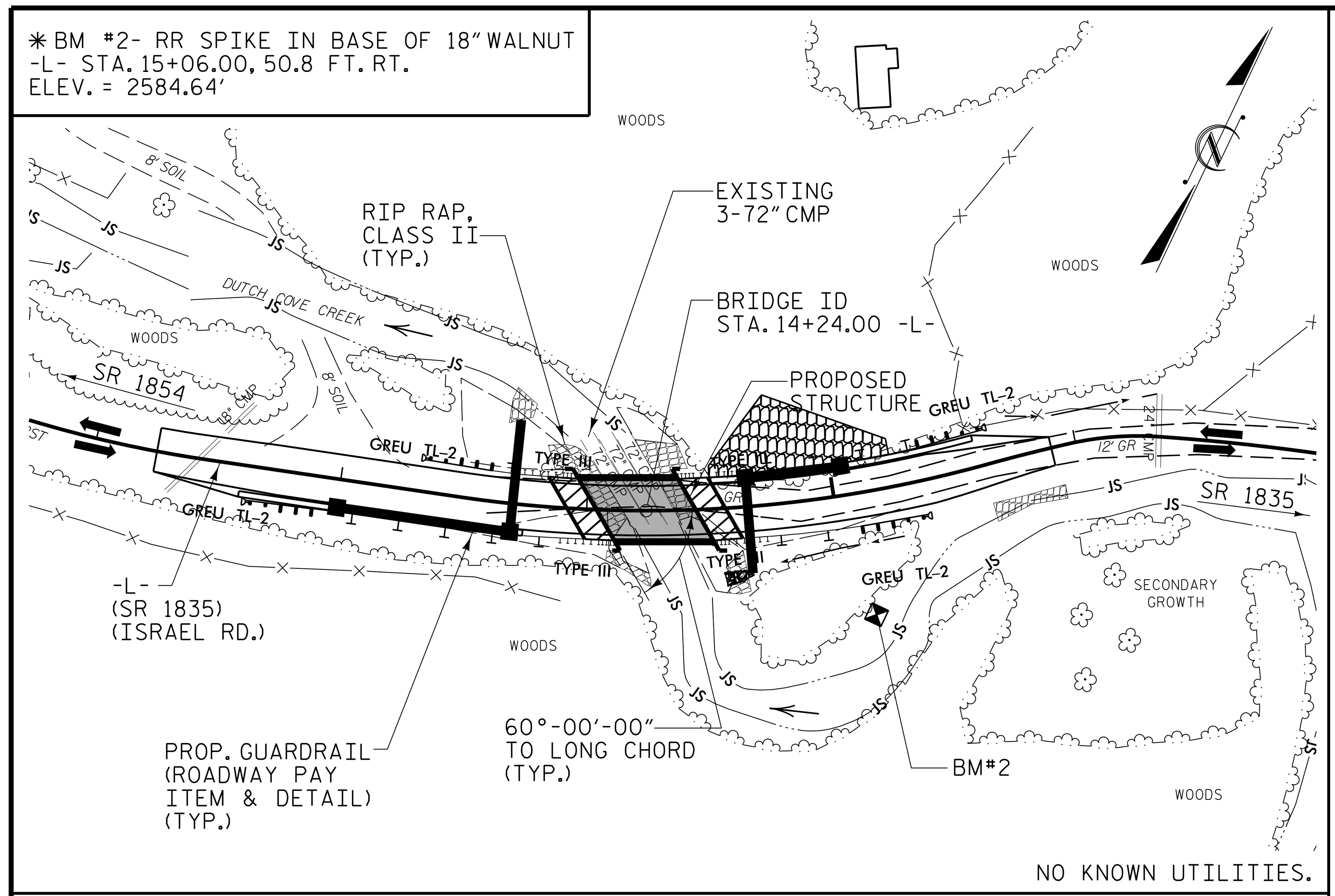
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE FOUNDATION TABLES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			21



LOCATION SKETCH

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 EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

THE MATERIAL SHOWN ON SHEET 1 OF 2 IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A MAX. DISTANCE OF 29 FT. LT. AND 19 FT. RT. OF CENTERLINE ROADWAY AT END BENT 1 AND 32 FT. LT. AND 25 FT. RT. OF CENTERLINE ROADWAY AT END BENT 2 AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

DIVISION 14 WOULD LIKE TO SALVAGE THE THREE 72" CMPs. PLEASE CONTACT MATT WILLIAMS AT 828-734-7058 OR mhwilliams@ncdot.gov TO ARRANGE FOR DELIVERY OF THE PIPES TO THE DIVISION 14 MAINTENANCE YARD.

REMOVAL OF THE THREE 72" CMPs IS A ROADWAY PAY ITEM.

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.

NO DECK DRAINS REQUIRED.

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

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

TOTAL BILL OF MATERIAL

	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	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		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	
	LIN. FT.	LIN. FT.	LUMP SUM	CU. YARDS	LUMP SUM	LBS.	EACH	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YARDS	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE					LUMP SUM					80.29			LUMP SUM	9	360.00
END BENT 1	23	25	LUMP SUM	20.9		2571	5	5	58		63	70			
END BENT 2	7	28	LUMP SUM	20.9		2571	5	5	45		67	74			
TOTAL	30	53	LUMP SUM	41.8	LUMP SUM	5142	10	10	103	80.29	130	144	LUMP SUM	9	360.00

PLANS PREPARED BY:
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NC License # F-1333
formerly CALYX Engineers & Consultants

PROJECT NO. BP14.R004
HAYWOOD COUNTY
STATION: 14+24.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE ON SR 1835
OVER DUTCH COVE CREEK
BETWEEN SR 1854 & SR 1835

24'-10" CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			21

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19661 L. KEVIN AUSTIN
3/15/2022

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : W. B. ALLEN DATE : 11/21
CHECKED BY : L. K. AUSTIN DATE : 12/21
DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 12/21

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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	1.352	--	1.75	0.252	1.95	40′	EL	19.423	0.653	**1.35**	40′	EL	**7.769**	0.80	0.252	1.72	40′	EL	19.423	
		HL-93(Opr)	N/A	--	1.753	--	1.35	0.252	2.52	40′	EL	19.423	0.653	1.75	40′	EL	7.769	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.544	55.583	1.75	0.252	2.45	40′	EL	19.423	0.653	**1.54**	40′	EL	**7.769**	0.80	0.252	2.14	40′	EL	19.423	
		HS-20(Opr)	36.000	--	2.001	72.053	1.35	0.252	3.17	40′	EL	19.423	0.653	2	40′	EL	7.769	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.929	53.037	1.4	0.252	5.64	40′	EL	19.423	0.653	3.93	40′	EL	7.769	0.80	0.252	3.99	40′	EL	19.423	
		SNGARBS2	20.000	--	2.985	59.708	1.4	0.252	4.63	40′	EL	15.538	0.653	2.99	40′	EL	7.769	0.80	0.252	3.28	40′	EL	19.423	
		SNAGRIS2	22.000	--	2.852	62.746	1.4	0.252	4.53	40′	EL	15.538	0.653	2.85	40′	EL	7.769	0.80	0.252	3.23	40′	EL	15.538	
		SNCOTTS3	27.250	--	1.98	53.947	1.4	0.252	2.82	40′	EL	19.423	0.653	1.98	40′	EL	7.769	0.80	0.252	1.99	40′	EL	19.423	
		SNAGGRS4	34.925	--	1.782	62.222	1.4	0.252	2.54	40′	EL	19.423	0.653	1.78	40′	EL	7.769	0.80	0.252	1.79	40′	EL	19.423	
		SNS5A	35.550	--	1.746	62.059	1.4	0.252	2.47	40′	EL	19.423	0.653	1.89	40′	EL	7.769	0.80	0.252	1.75	40′	EL	19.423	
		SNS6A	39.950	--	1.662	66.381	1.4	0.252	2.35	40′	EL	19.423	0.653	1.79	40′	EL	7.769	0.80	0.252	1.66	40′	EL	19.423	
		SNS7B	42.000	--	1.585	66.556	1.4	0.252	2.24	40′	EL	19.423	0.653	1.86	40′	EL	7.769	0.80	0.252	1.58	40′	EL	19.423	
	TTST	TNAGRIT3	33.000	--	2.045	67.476	1.4	0.252	2.89	40′	EL	19.423	0.653	2.07	40′	EL	7.769	0.80	0.252	2.04	40′	EL	19.423	
		TNT4A	33.075	--	1.951	64.52	1.4	0.252	2.93	40′	EL	19.423	0.653	1.95	40′	EL	7.769	0.80	0.252	2.07	40′	EL	19.423	
		TNT6A	41.600	--	1.757	73.106	1.4	0.252	2.49	40′	EL	19.423	0.653	1.91	40′	EL	7.769	0.80	0.252	1.76	40′	EL	19.423	
		TNT7A	42.000	--	1.795	75.386	1.4	0.252	2.55	40′	EL	19.423	0.653	1.79	40′	EL	7.769	0.80	0.252	1.80	40′	EL	19.423	
		TNT7B	42.000	--	1.729	72.638	1.4	0.252	2.61	40′	EL	19.423	0.653	1.73	40′	EL	7.769	0.80	0.252	1.84	40′	EL	19.423	
		TNAGRIT4	43.000	--	1.661	71.441	1.4	0.252	2.53	40′	EL	15.538	0.653	1.66	40′	EL	7.769	0.80	0.252	1.79	40′	EL	19.423	
		TNAGT5A	45.000	--	1.659	74.644	1.4	0.252	2.35	40′	EL	19.423	0.653	1.77	40′	EL	7.769	0.80	0.252	1.66	40′	EL	19.423	
		TNAGT5B	45.000	3	1.568	70.561	1.4	0.252	2.28	40′	EL	19.423	0.653	**1.57**	40′	EL	**7.769**	0.80	0.252	1.61	40′	EL	19.423	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	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

⟨1⟩
⟨2⟩
⟨3⟩

LRFR SUMMARY

FOR SPAN 'A'

PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

PLANS PREPARED BY:

NV5

NV5 ENGINEERS & CONSULTANTS, INC.
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THIS STANDARD DRAWING REVIEWED & ADOPTED FOR USE AT THE REFERENCED LOCATION BY THE UNDERSIGNED:

NORTH CAROLINA PROFESSIONAL SEAL 19661 ENGINEER

Docusigned by: L. Kevin Austin ABD1616E8888888

3/15/2022

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR 40′ CORED SLAB UNIT 60° SKEW

(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			21

STD. NO. 21LRFR1_60&120S_40L

ASSEMBLED BY : W. B. ALLEN DATE : 11/21
CHECKED BY : L. K. AUSTIN DATE : 12/21

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

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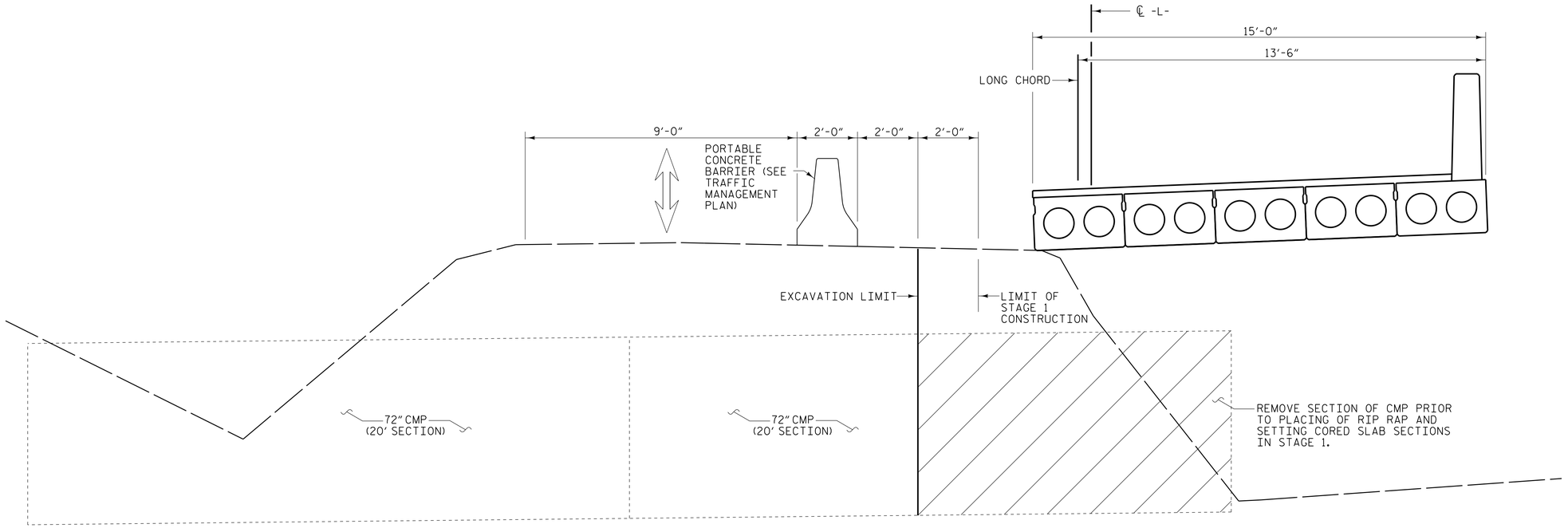
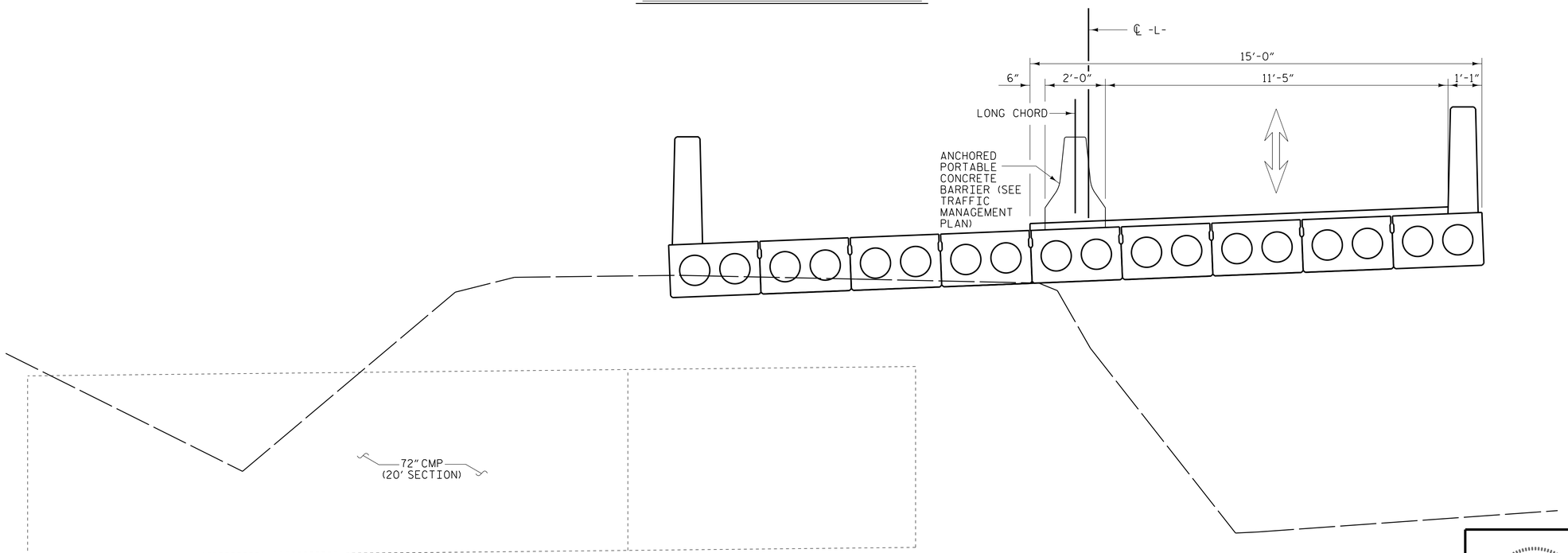


STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION

PLANS PREPARED BY:
NV5
NV5 ENGINEERS & CONSULTANTS, INC.
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PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONSTRUCTION STAGING

24'-10" CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			21

NORTH CAROLINA PROFESSIONAL SEAL 19661 ENGINEER LAKEVIN AUSTIN
DocuSigned by: L. Kevin Austin
3/15/2022

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DRAWN BY : W. B. ALLEN DATE : 12/21
CHECKED BY : L. K. AUSTIN DATE : 12/21
DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 12/21

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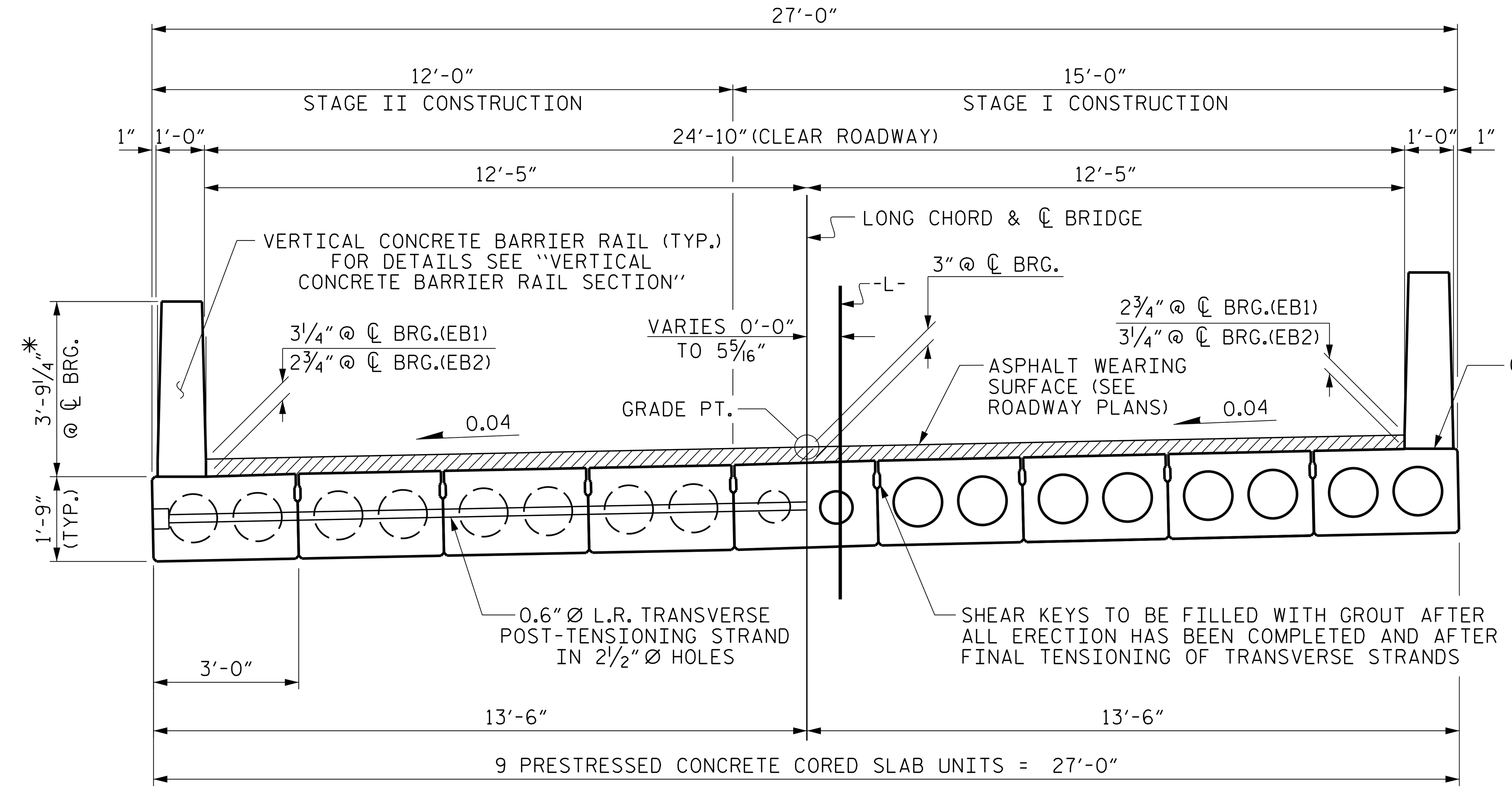
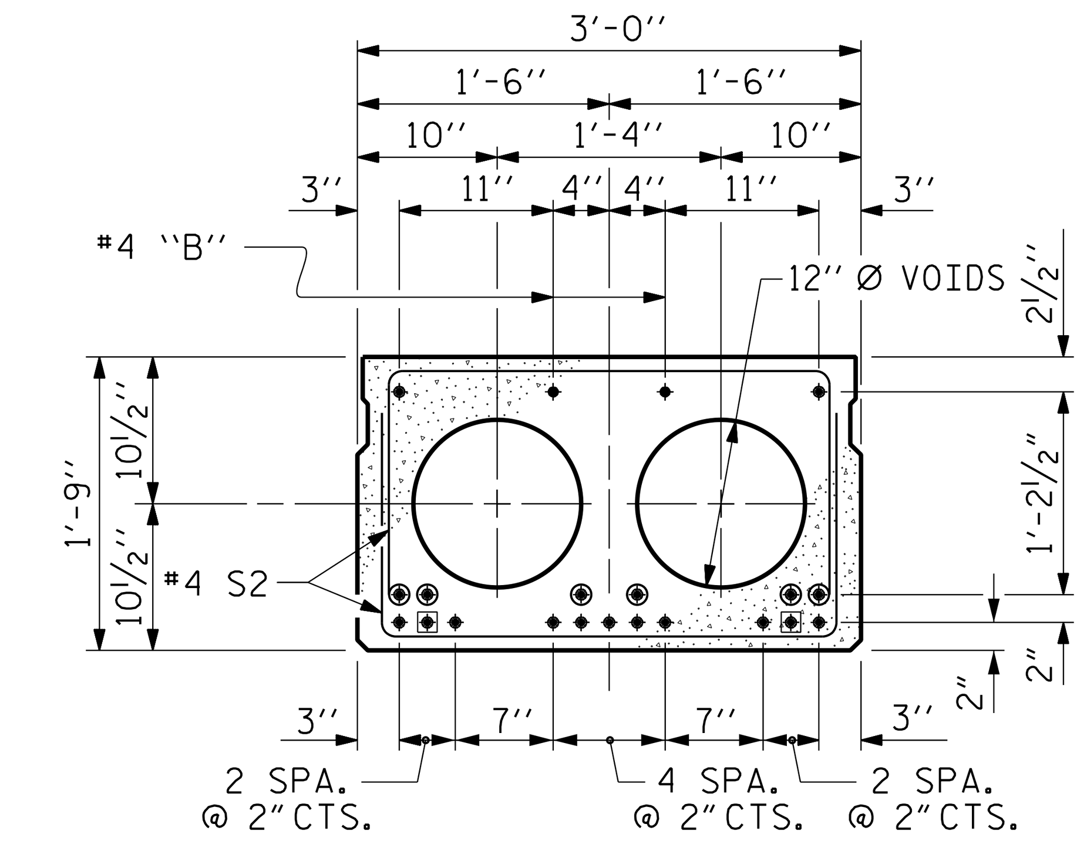


HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

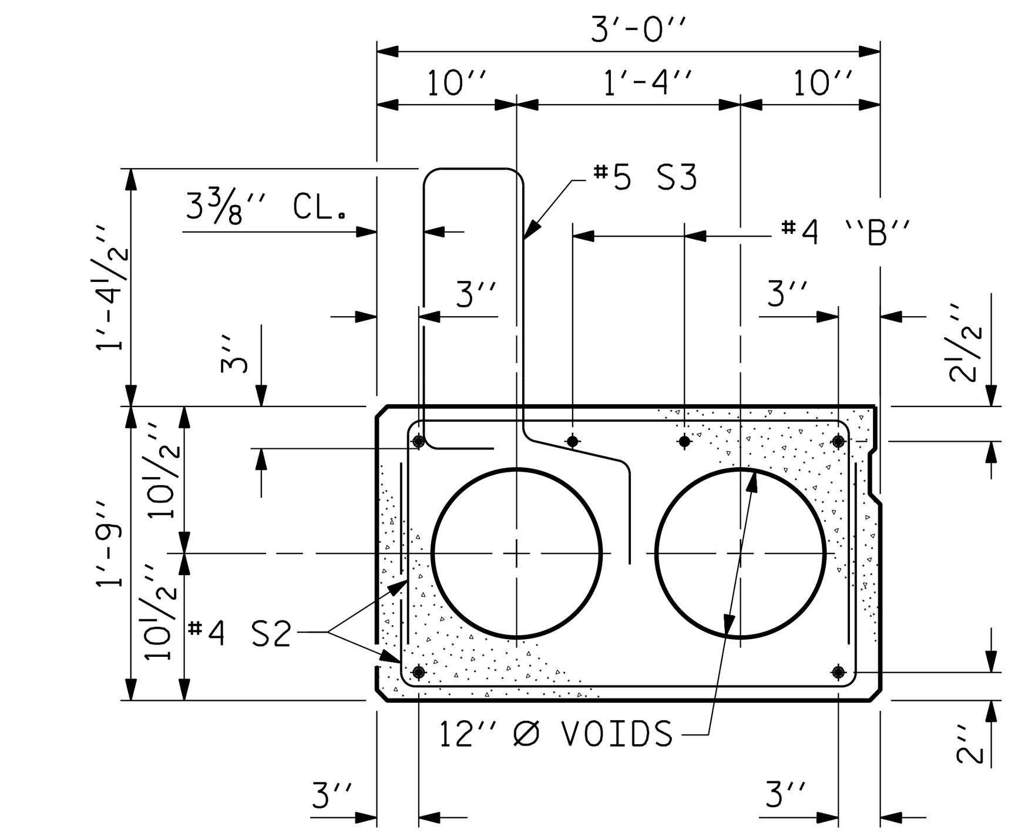
TYPICAL SECTION

* - 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.



INTERIOR SLAB SECTION (40' UNIT)

(13 STRANDS REQUIRED)
(CORED SLAB UNITS 2 THRU 4 & CORED SLABS UNITS 6 THRU 8)



EXT. SLAB SECTION

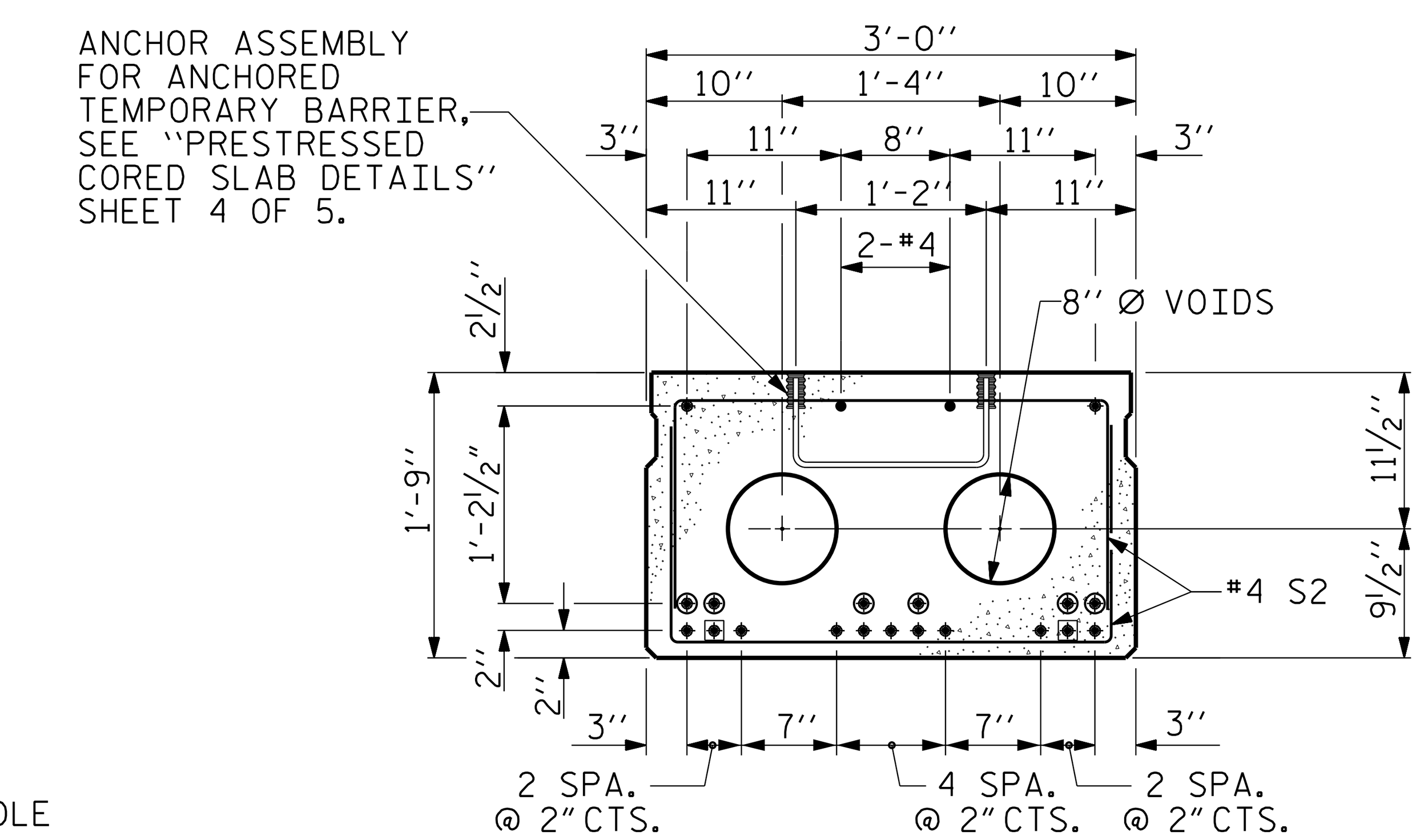
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)
(CORED SLAB UNITS 1 & 9)

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.

BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-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

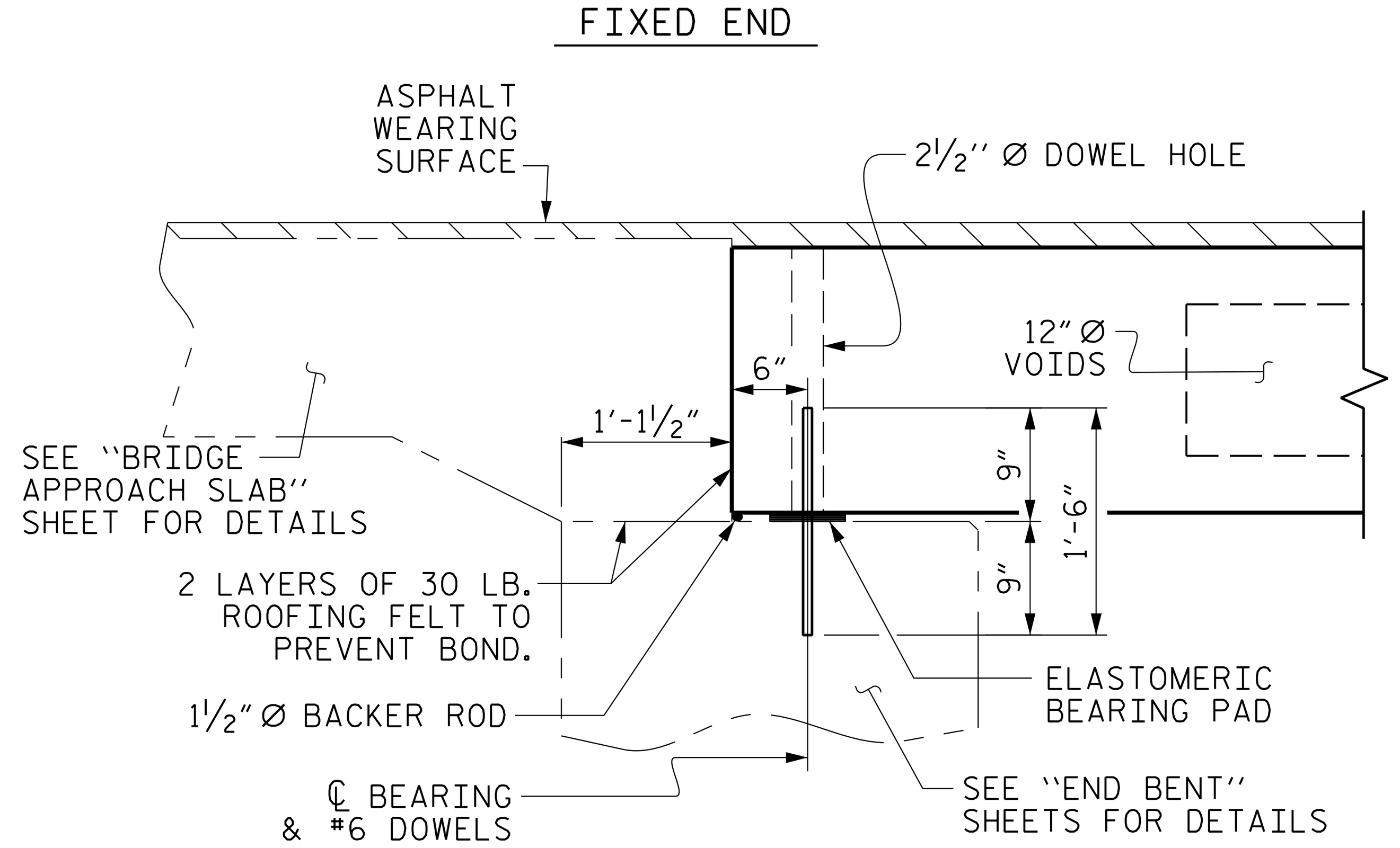


INTERIOR SLAB SECTION (40' UNIT)

(13 STRANDS REQUIRED)
(CORED SLAB UNIT 5)

0.6" Ø LOW RELAXATION STRAND LAYOUT

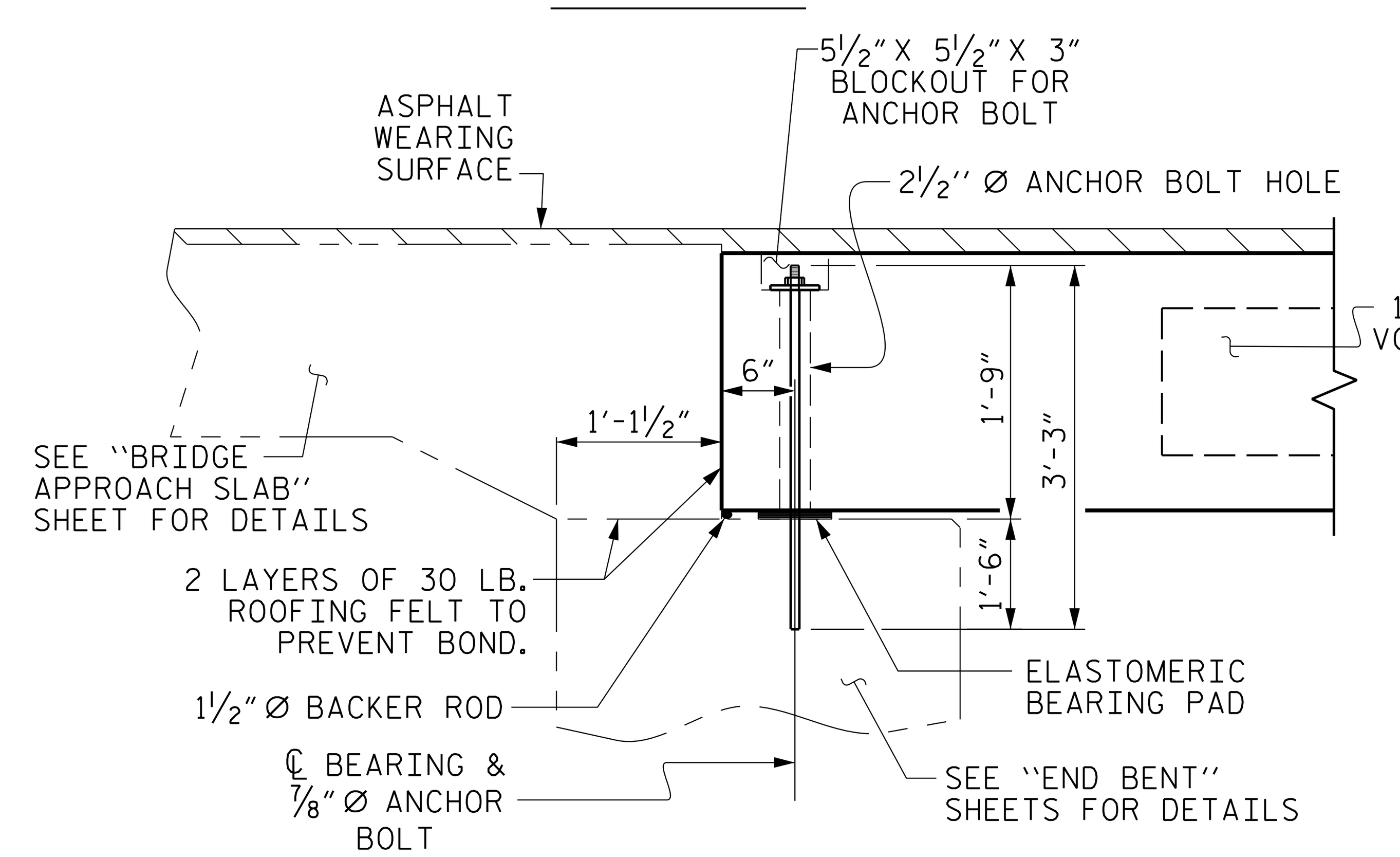
FIXED END



SECTION AT END BENT

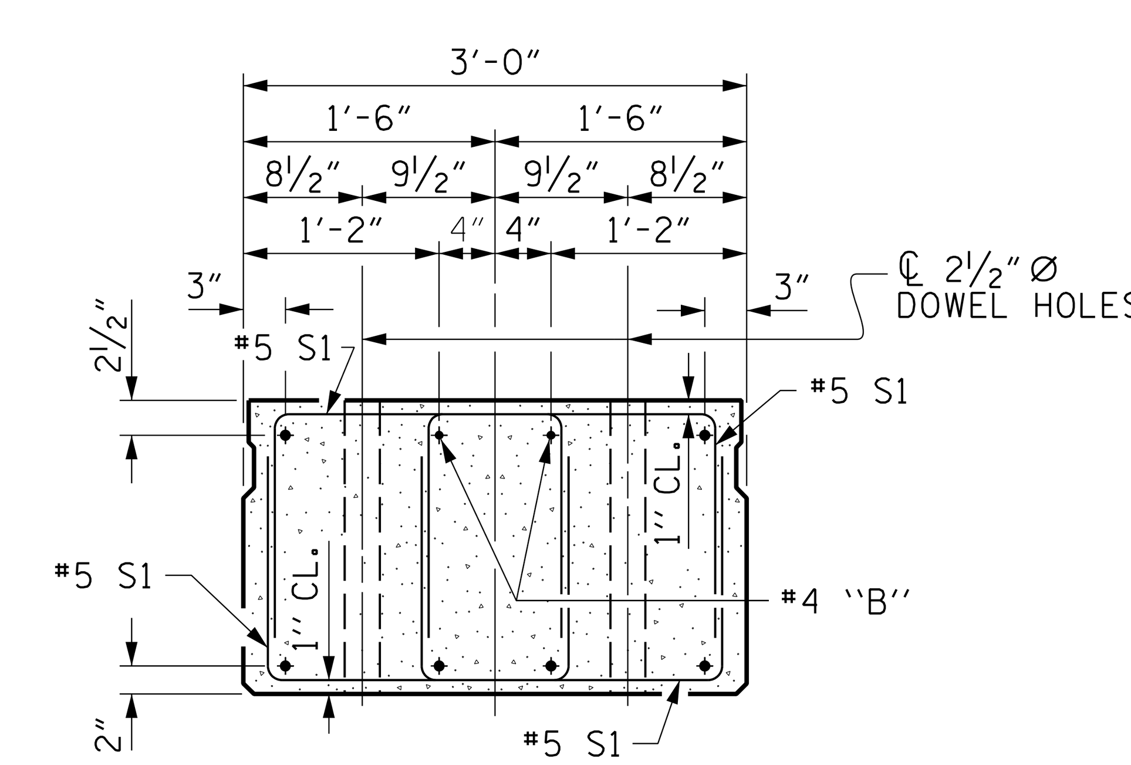
(CORED SLABS 2 - 8)

FIXED END



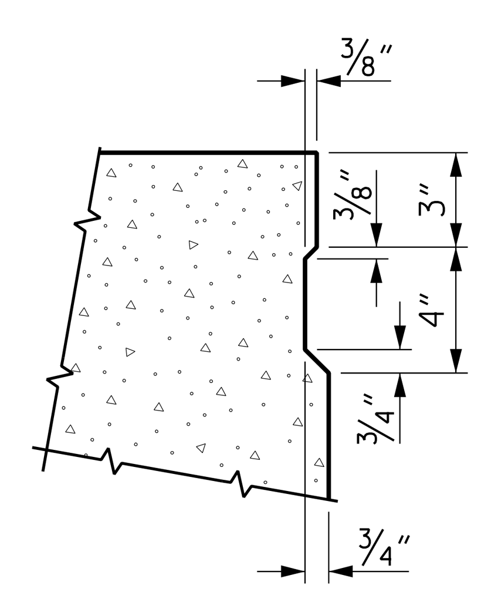
SECTION AT END BENT

(CORED SLABS 1 & 9)



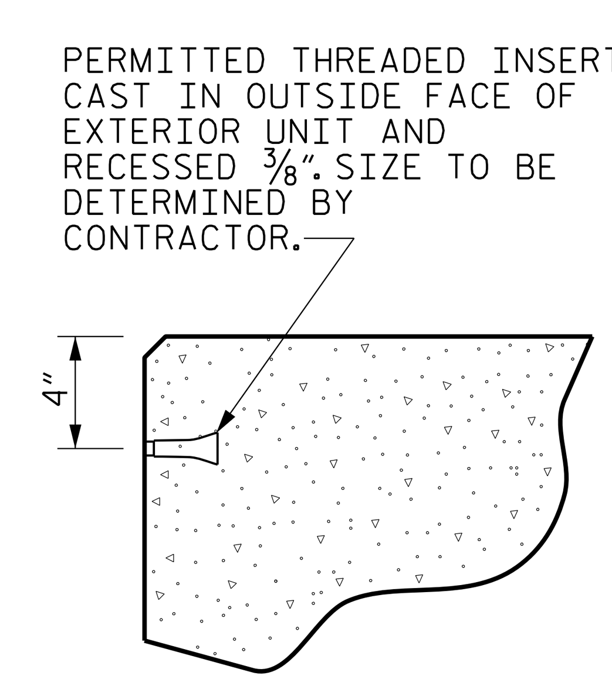
END ELEVATION

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.



THREADED INSERT DETAIL

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3300 REGENCY PARKWAY, SUITE 100
CARY, NC 27518
P: 919.851.1912 www.NV5.com
NC License # F-1333
formerly CALYX Engineers & Consultants

PROJECT NO. BP14.R004
HAYWOOD COUNTY
STATION: 14+24.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 60° SKEW

24'-10" CLEAR ROADWAY - 60° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 19661 ENGINEER L. KEVIN AUSTIN
3/15/2022

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1			3			
2			4			

SHEET NO. S-6
TOTAL SHEETS 21

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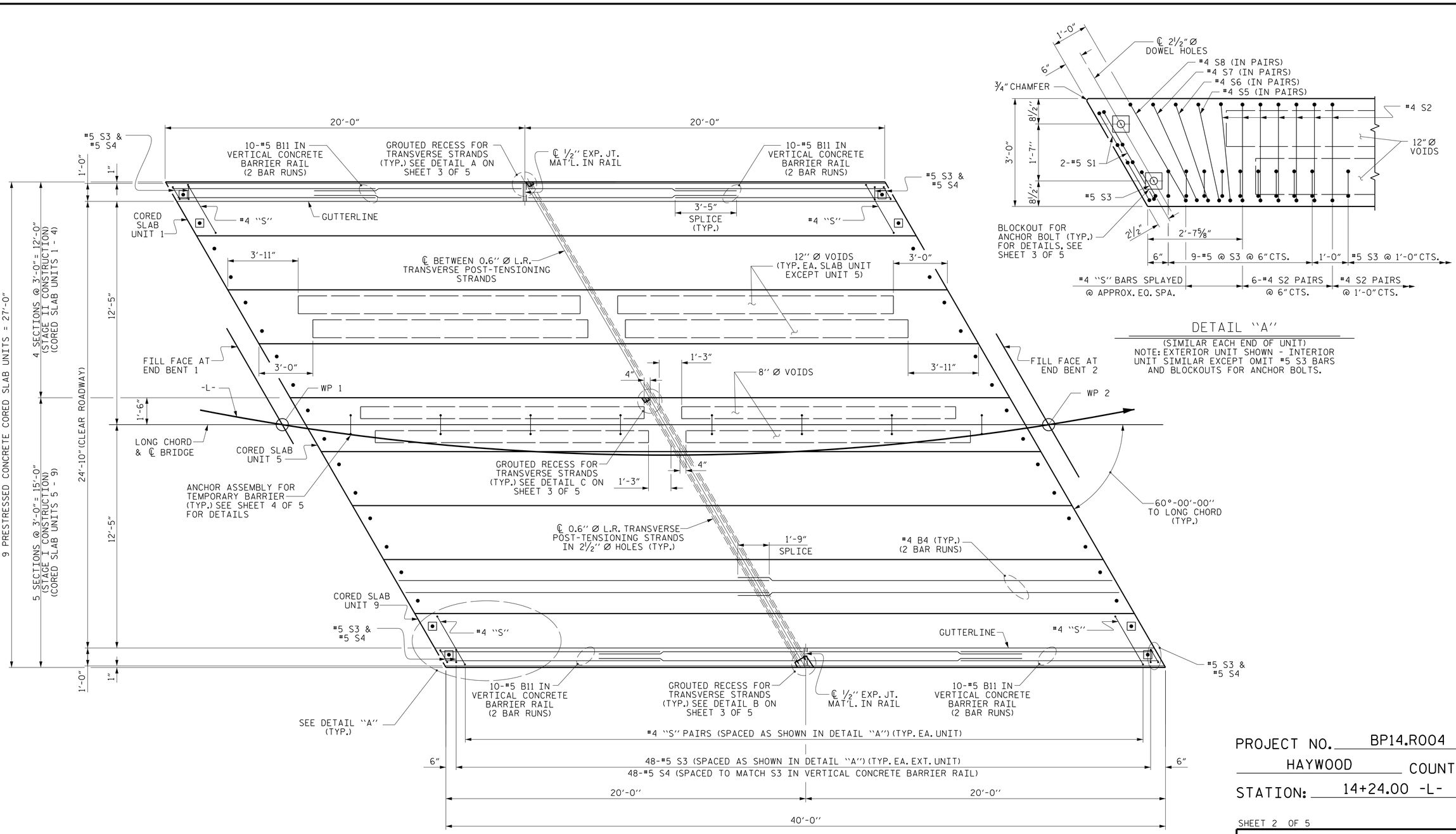

DETAIL "A"

(SIMILAR EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS AND BLOCKOUTS FOR ANCHOR BOLTS.

PLAN OF UNIT

PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF 40' UNIT 24'-10" CLEAR ROADWAY 60° SKEW

24'-10" CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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NORTH CAROLINA PROFESSIONAL SEAL 19661 ENGINEER L. Kevin Austin
ABID161655
3/15/2022

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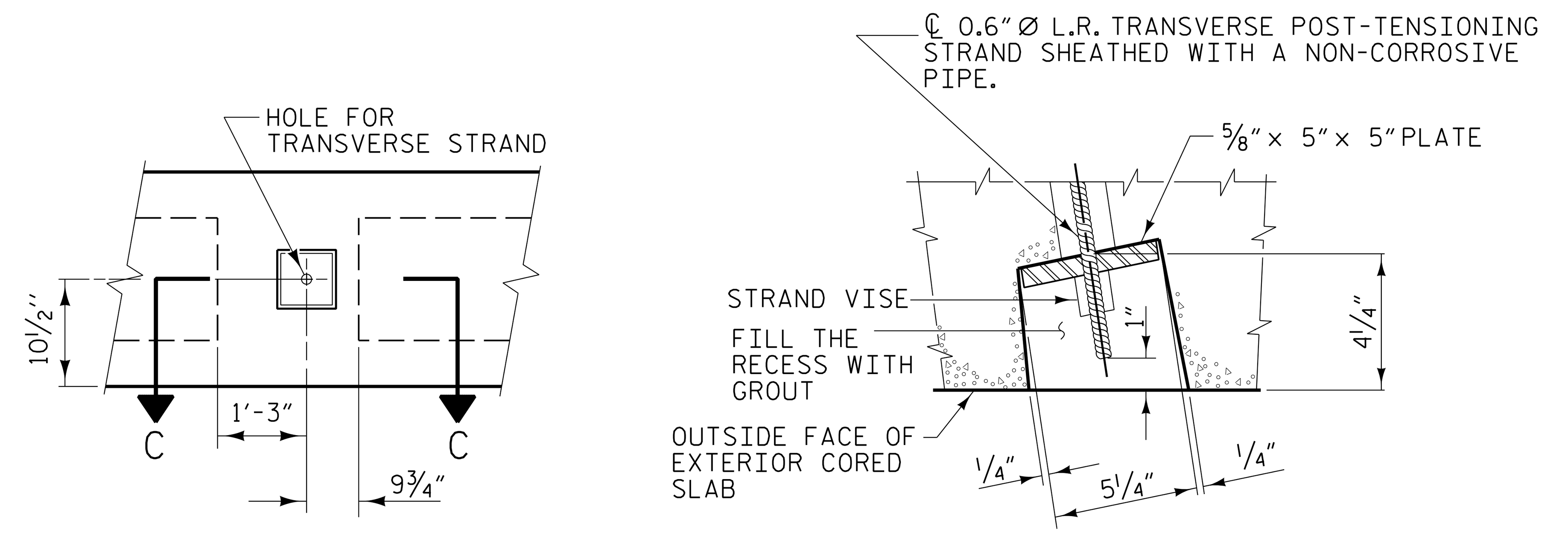
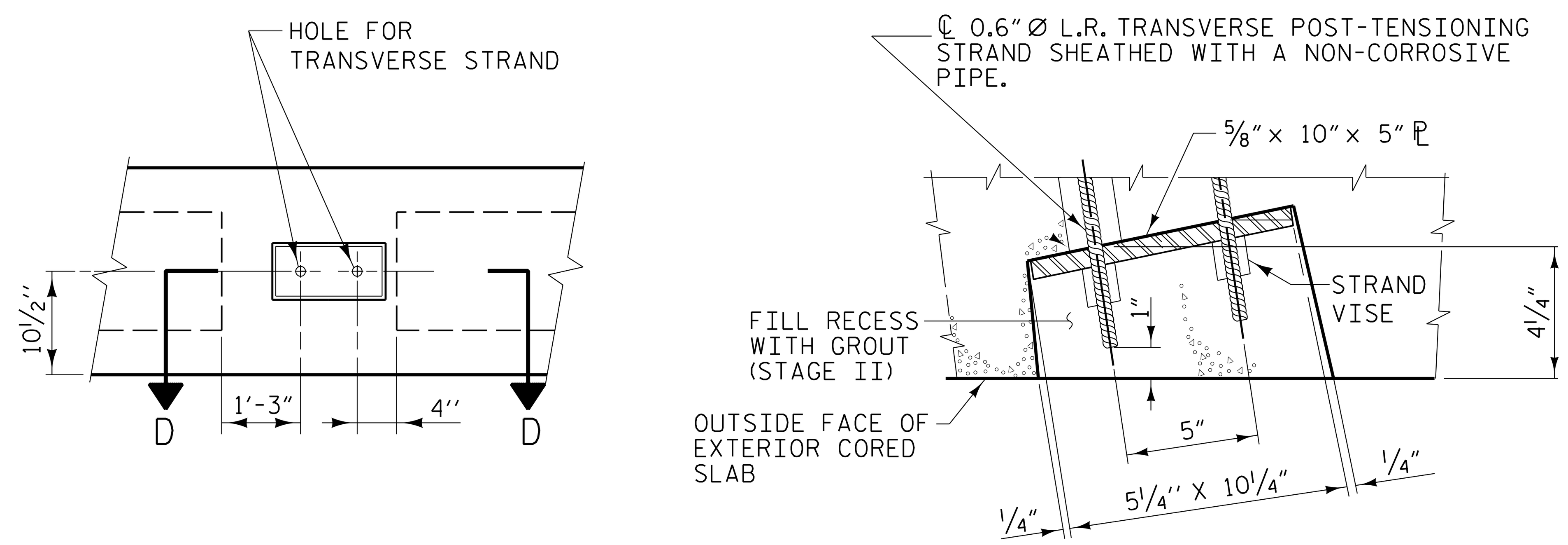


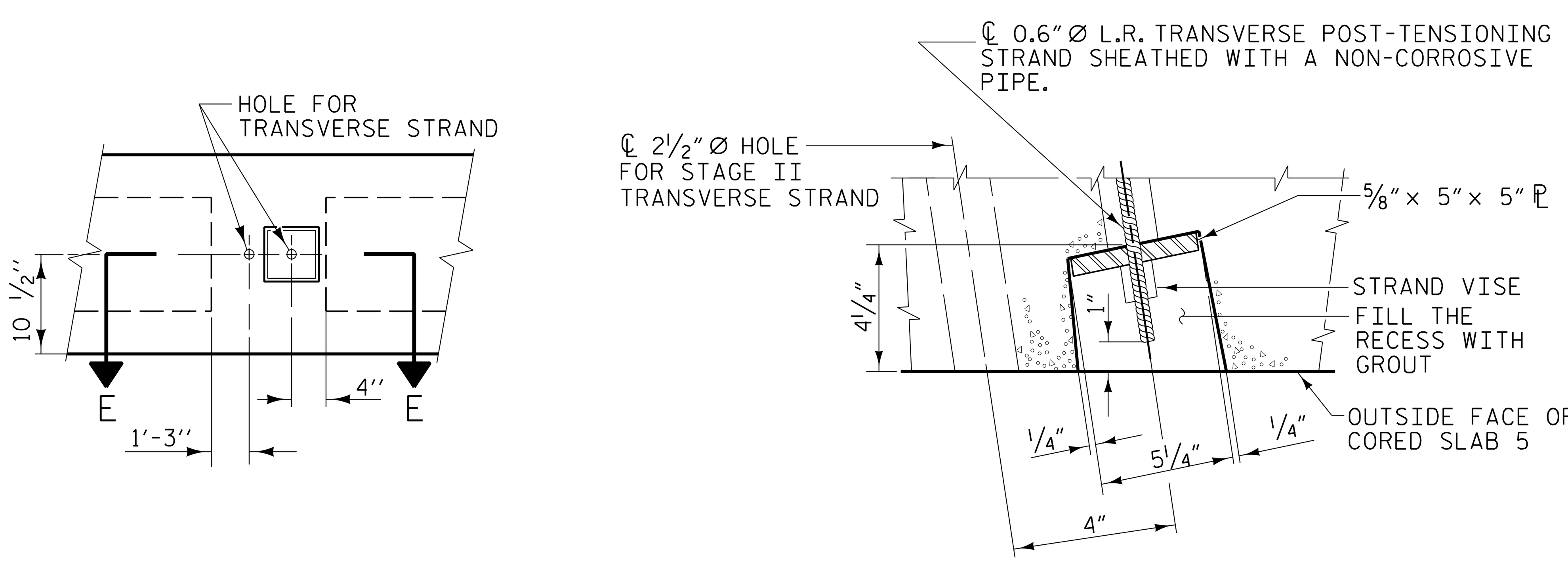
ELEVATION   SECTION C-C

DETAIL A
GROUTED RECESS AT END OF POST-TENSIONED STRAND
(CORED SLAB UNIT 1)



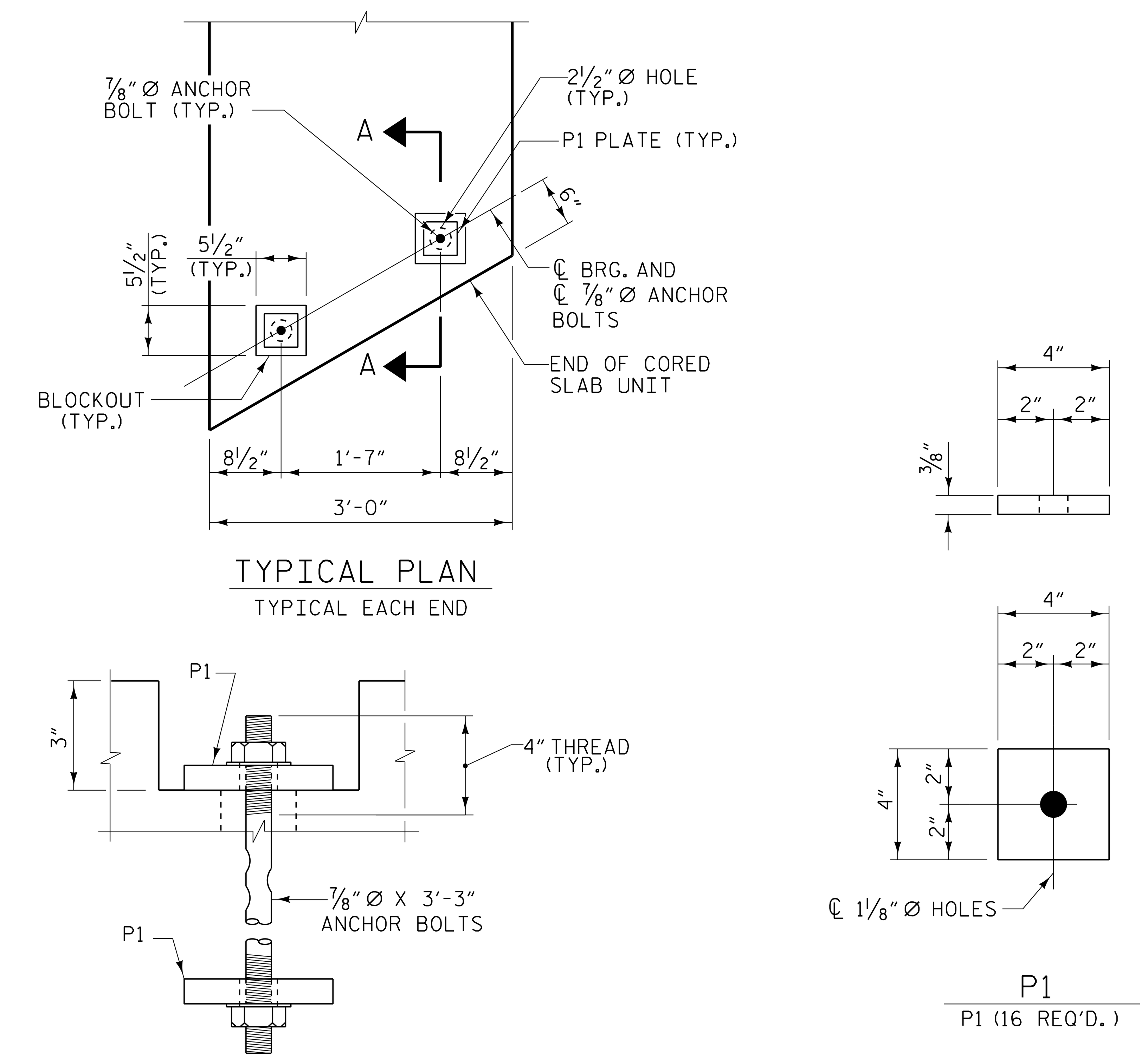
ELEVATION   SECTION D-D

DETAIL B
GROUTED RECESS AT END OF POST-TENSIONED STRAND
(CORED SLAB UNIT 9)



ELEVATION   SECTION D-D

DETAIL C
GROUTED RECESS AT END OF POST-TENSIONED STRAND
(CORED SLAB UNIT 5)



BLOCKOUT DETAIL FOR ANCHOR BOLTS

PROJECT NO. BP14.R004
HAYWOOD COUNTY
STATION: 14+24.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRESTRESSED CORED SLAB DETAILS

24'-10" CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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NORTH CAROLINA PROFESSIONAL SEAL 19661 ENGINEER
3/15/2022

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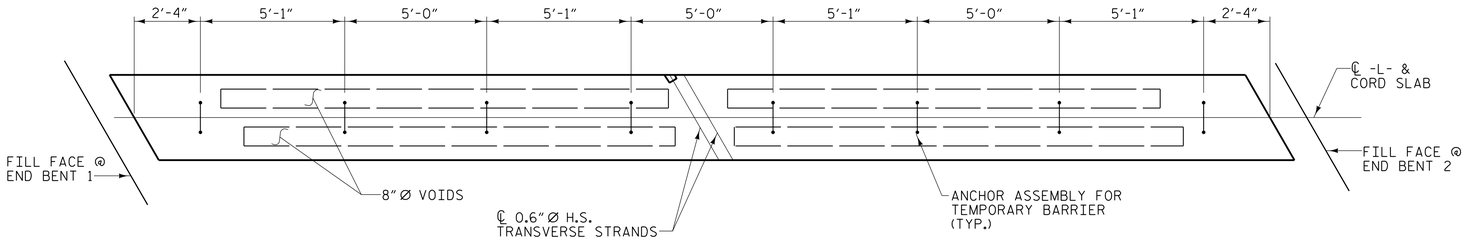


SPAN A

ANCHOR ASSEMBLY LAYOUT FOR CORED SLAB UNIT 5

NOTES

THE ANCHOR ASSEMBLY FOR TEMPORARY BARRIER SHALL CONSIST OF THE FOLLOWING COMPONENTS :

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2½".

B. 2 - ⅞'' Ø X 1'-0'' ANCHOR BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. ANCHOR BOLTS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE ⅞'' Ø X 1'-0'' GALVANIZED ANCHOR BOLTS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUT SHOWN IN THE ANCHOR ASSEMBLY DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.

ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

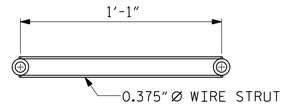
THE COST OF THE ANCHOR ASSEMBLY COMPLETE IN PLACE, SHALL BE INCLUDED, IN THE UNIT CONTRACT PRICE BID FOR 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS.

FERRULES TO BE PLUGGED DURING CASTING OF THE CORED SLAB UNITS AS RECOMMENDED BY THE MANUFACTURER.

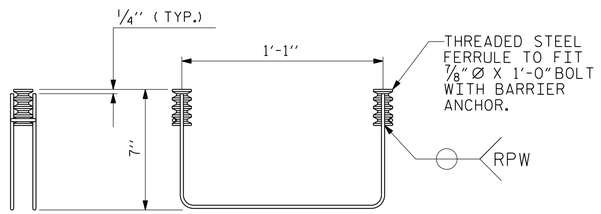
AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

FOR 4" X 3¼" X ½" BARRIER WASHER TO BE USED WITH ANCHOR ASSEMBLY, SEE NCDOT ROADWAY STD. 1170.01.

PAYMENT FOR ANCHORED TEMPORARY BARRIER AND BARRIER WASHER ARE INCLUDED IN TRAFFIC CONTROL PAY ITEMS, SEE TRAFFIC MANAGEMENT PLANS.



PLAN

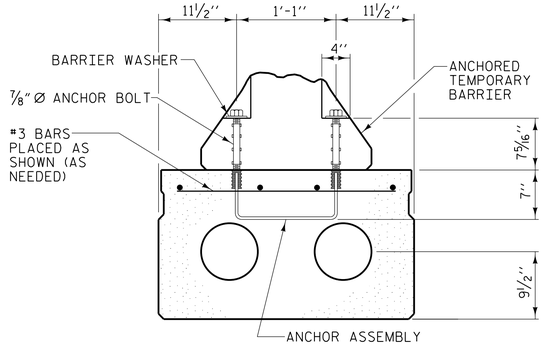


SIDE VIEW ELEVATION

MINIMUM LENGTH OF THREADS IN INSERT (FERRULE): 2½''

ANCHOR ASSEMBLY FOR TEMPORARY BARRIER

(8 ASSEMBLIES REQUIRED)



CORED SLAB UNIT 5

(SHOWING PLACEMENT OF ANCHOR ASSEMBLY)

THE #3 BARS ARE INCIDENTAL AND THEIR COST SHALL BE INCLUDED IN THE PRICE BID FOR THE PRESTRESSED CONCRETE CORED SLAB.

PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRESTRESSED CORED SLAB DETAILS

24'-10" CLEAR ROADWAY - 60° SKEW

PLANS PREPARED BY:

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3/15/2022

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2			4			21

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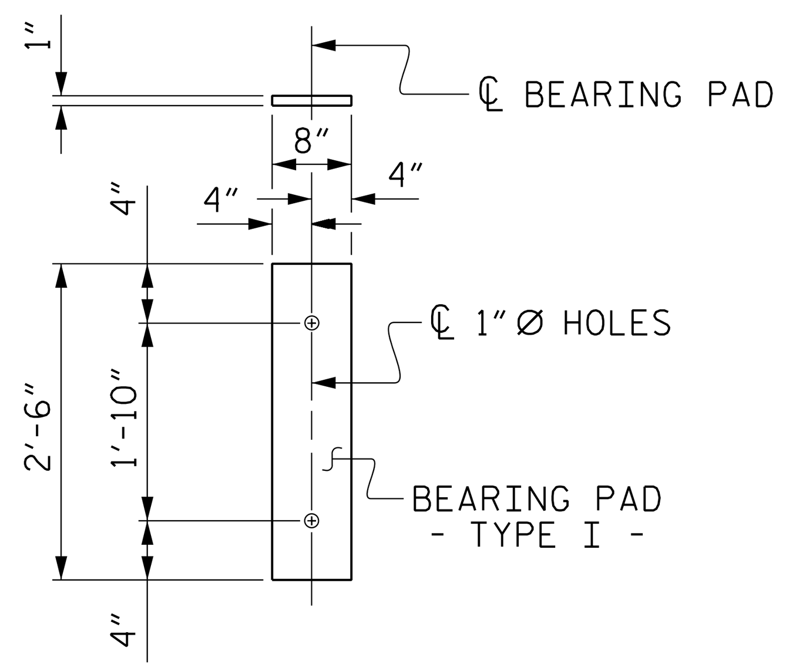


FIXED END
(TYPE I - 18 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL

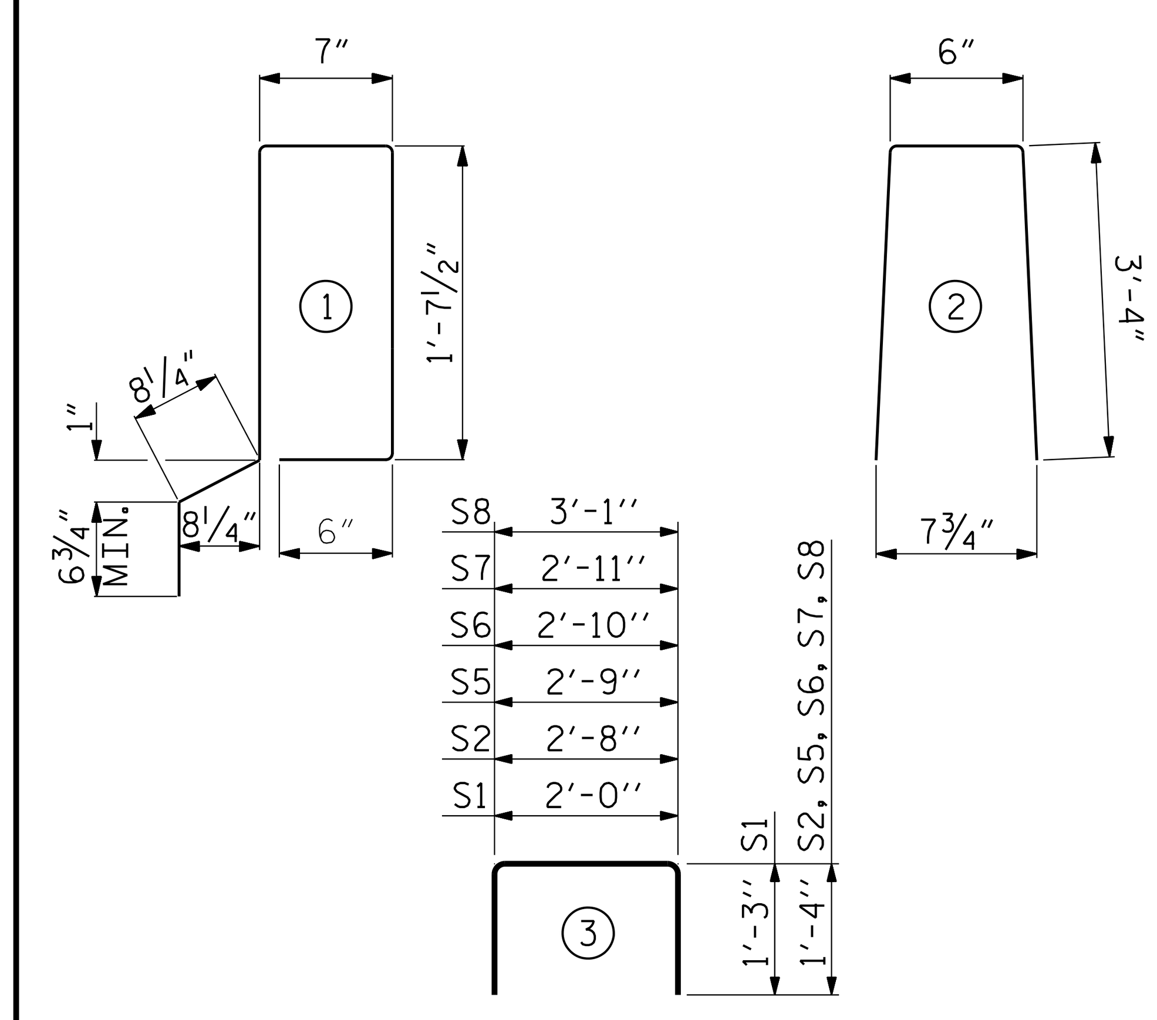
BAR	BARS PER PAIR OF EXTERIOR UNITS 40' UNIT	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
∗B11	80	80	#5	STR	11'-9"	980
∗ S4	100	100	#5	2	7'-2"	747
∗EPOXY COATED REINFORCING STEEL			LBS.			1727
CLASS AA CONCRETE			CU.YDS.			10.2
TOTAL VERTICAL CONCRETE BARRIER RAIL			LN.FT.			80.29

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" × 1'-9"
40' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	7/8" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD∗∗	1/8" ↓
FINAL CAMBER	3/4" ↑

∗∗ INCLUDES FUTURE WEARING SURFACE

BAR TYPES



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 2½" 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.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, ½" 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 BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

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.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

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

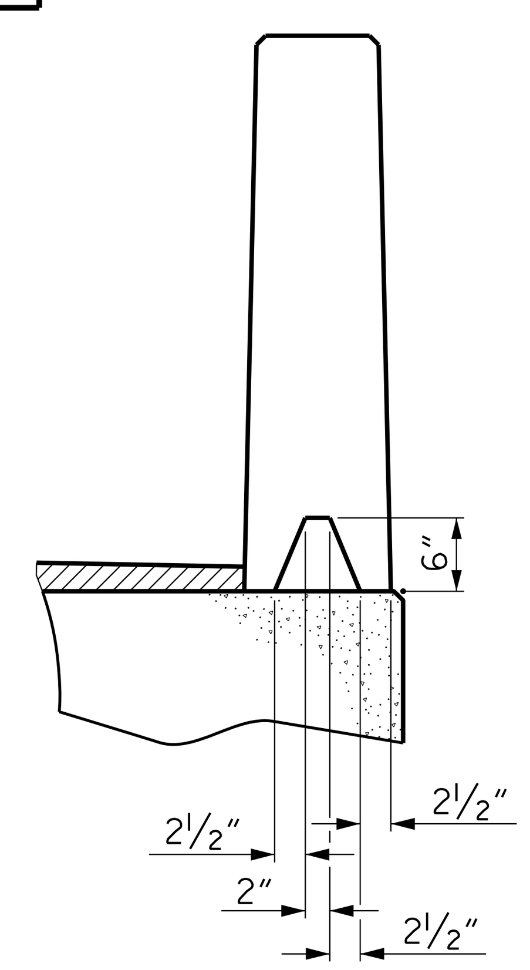
PAYMENT FOR ANCHOR BOLTS, NUTS, WASHERS AND HOLD-DOWN PLATES SHALL BE INCLUDED IN THE CORED SLAB PAY ITEM.

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS @ MID-SPAN	RAIL HEIGHT @ MID-SPAN
40' UNITS	2"	3'-8"

BILL OF MATERIAL FOR ONE 40' CORED SLAB UNIT

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B4	4	#4	STR	20'-9"	55	20'-9"	55
S1	8	#5	3	4'-6"	38	4'-6"	38
S2	82	#4	3	5'-4"	292	5'-4"	292
∗ S3	50	#5	1	5'-7"	291		
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.			444		444
∗EPOXY COATED REINFORCING STEEL		LBS.			291		
5000 P.S.I. CONCRETE		CU. YDS.			5.9		5.9
0.6" Ø L.R. STRANDS		No.			13		13



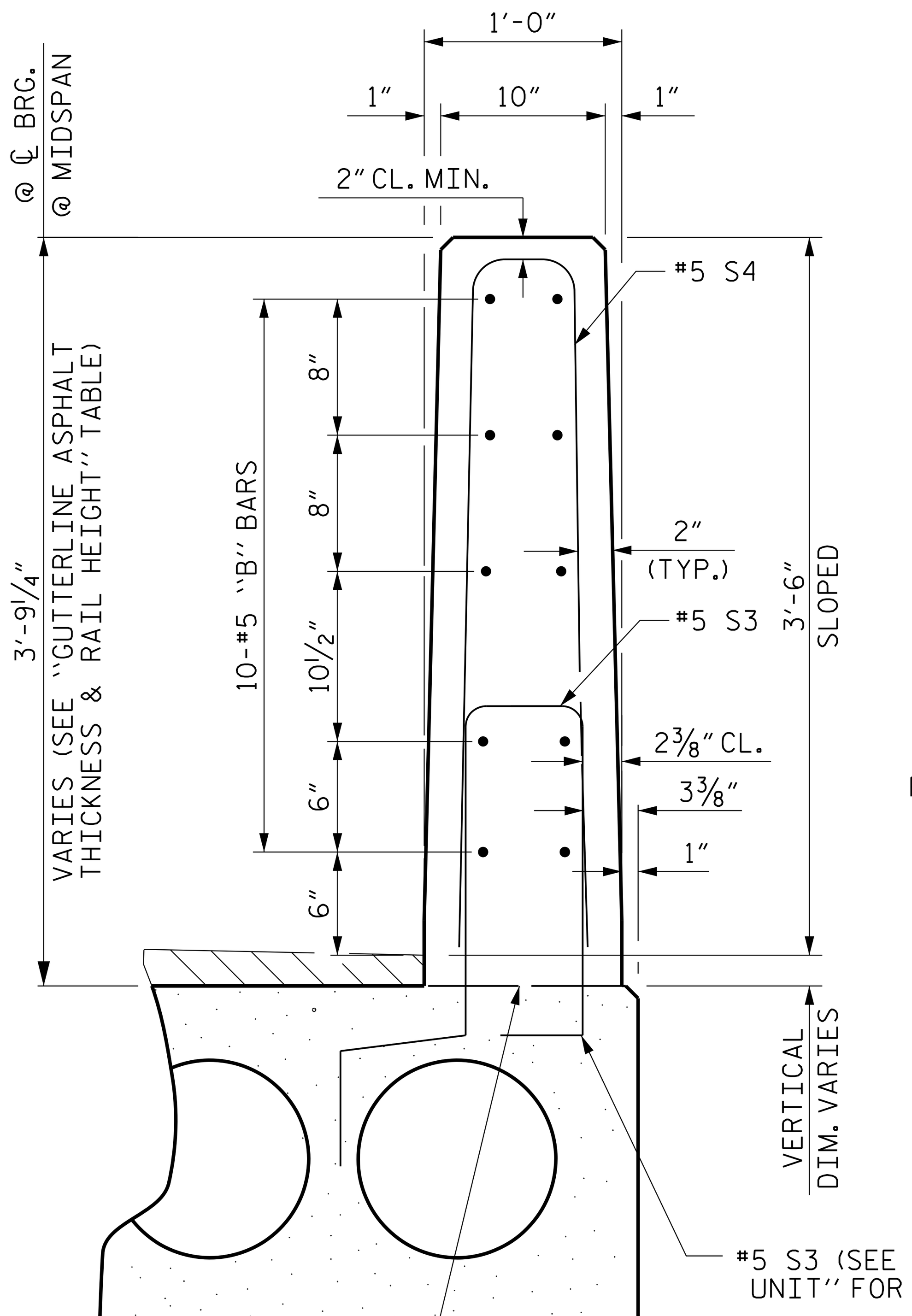
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

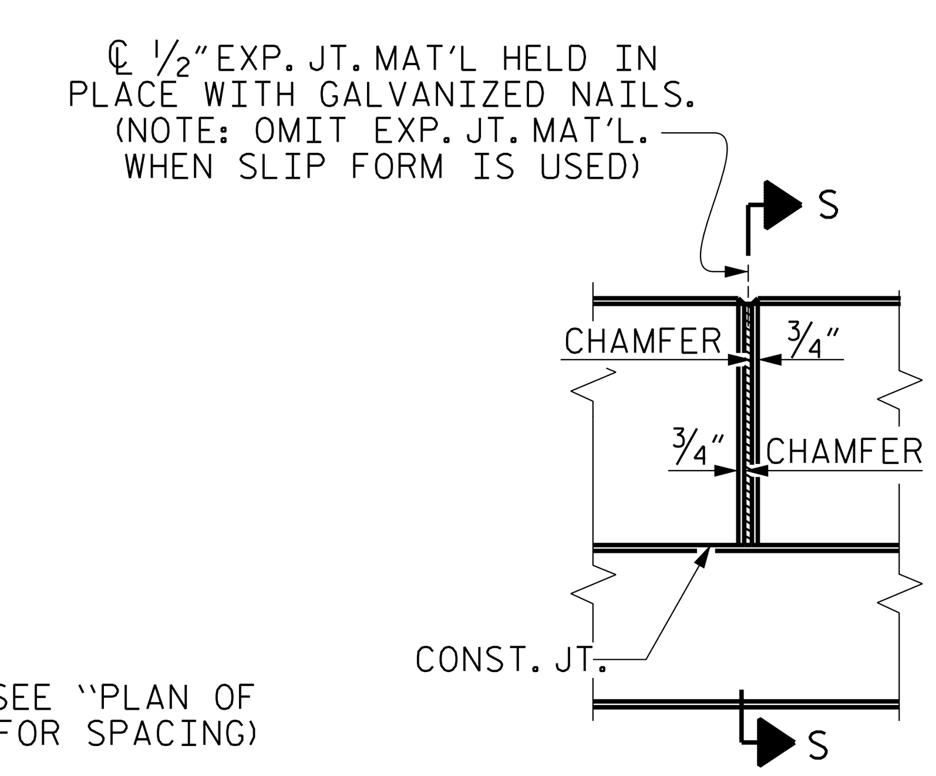
GRADE 270 STRANDS

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

CONCRETE RELEASE STRENGTH

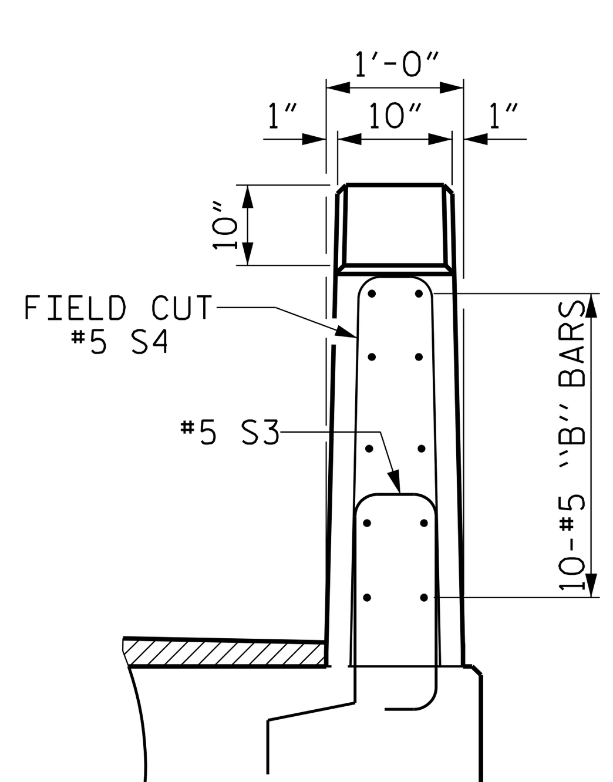
UNIT	PSI
40' UNITS	4000



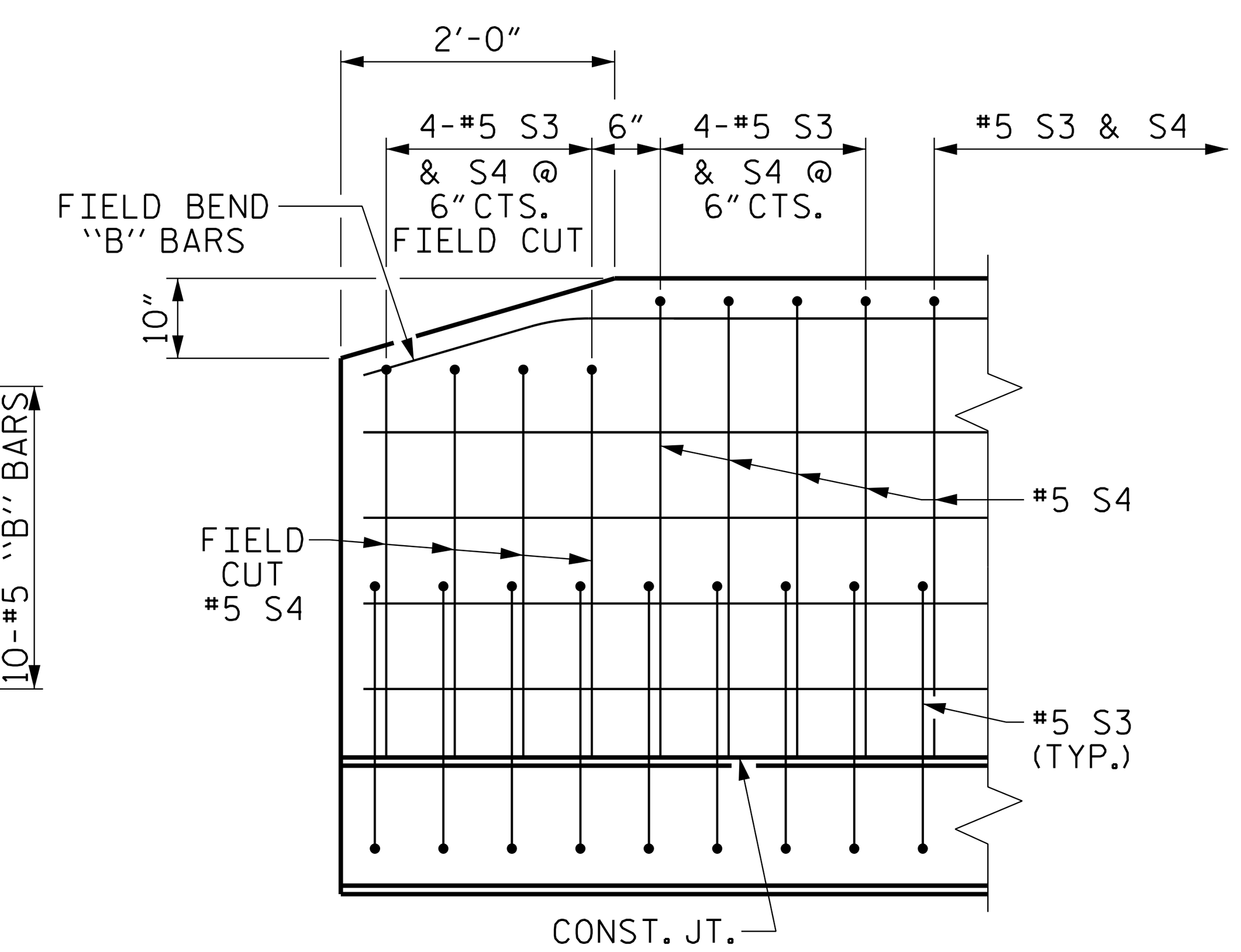


ELEVATION AT EXPANSION JOINTS

VERTICAL CONCRETE BARRIER RAIL SECTION



END VIEW



SIDE VIEW

END OF RAIL DETAILS

CORED SLABS REQUIRED

STAGE 1	NUMBER	LENGTH	TOTAL LENGTH
40' UNIT			
EXTERIOR C.S.	1	40'-0"	40'-0"
INTERIOR C.S.	4	40'-0"	160'-0"
TOTAL	5		200'-0"
STAGE 2	NUMBER	LENGTH	TOTAL LENGTH
40' UNIT			
EXTERIOR C.S.	1	40'-0"	40'-0"
INTERIOR C.S.	3	40'-0"	120'-0"
TOTAL	4		160'-0"

PROJECT NO. BP14.R004
HAYWOOD COUNTY
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SHEET 5 OF 5

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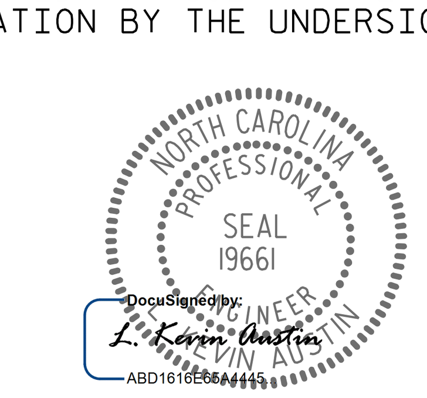

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

3'-0" X 1'-9"
PRESTRESSED CONCRETE
CORED SLAB UNIT
60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			21

ASSEMBLED BY :	W. B. ALLEN	DATE :	11/21
CHECKED BY :	L. K. AUSTIN	DATE :	12/21
DRAWN BY : DGE 5/09		REV. 5/18	MAA/THC
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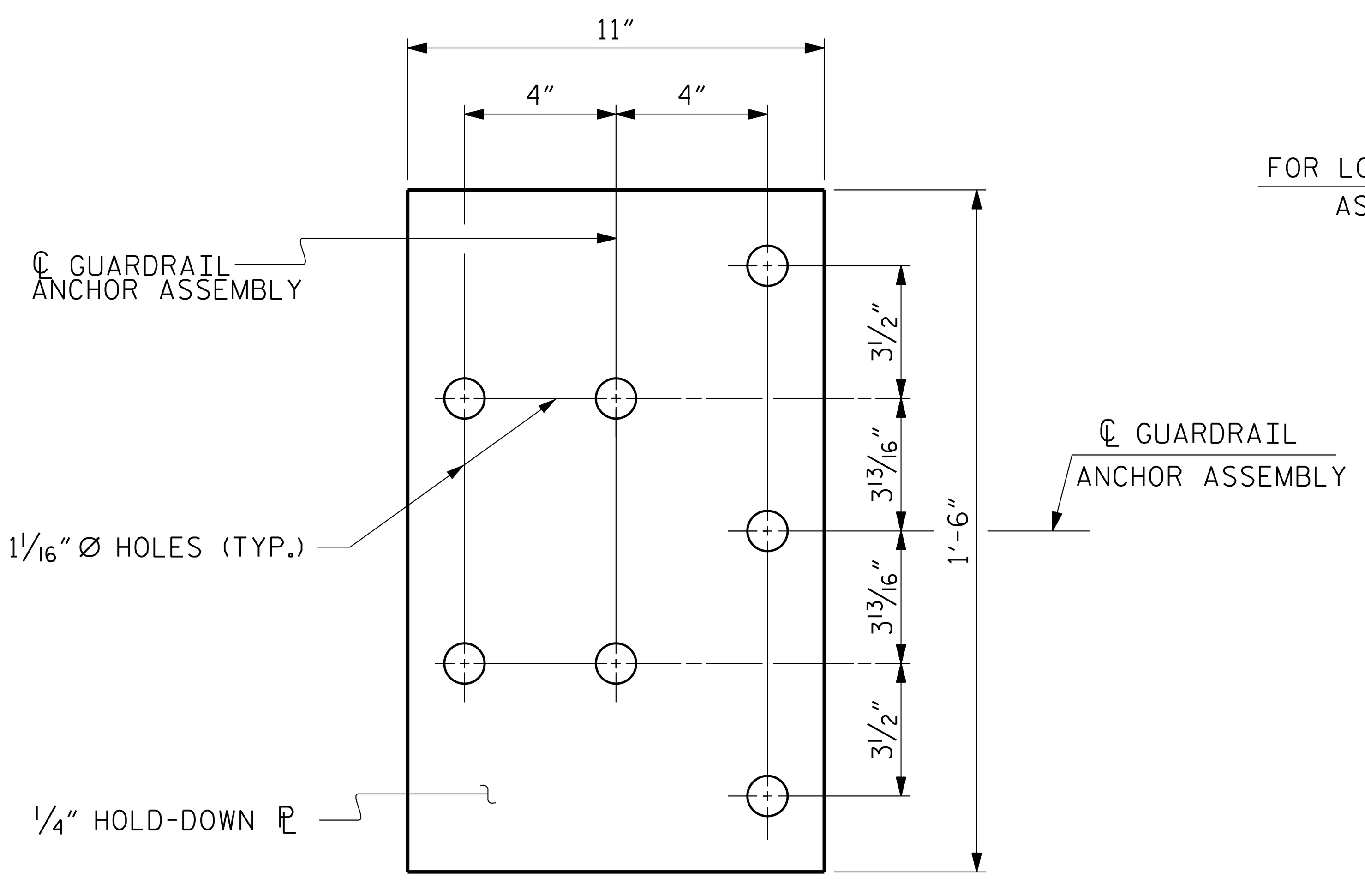
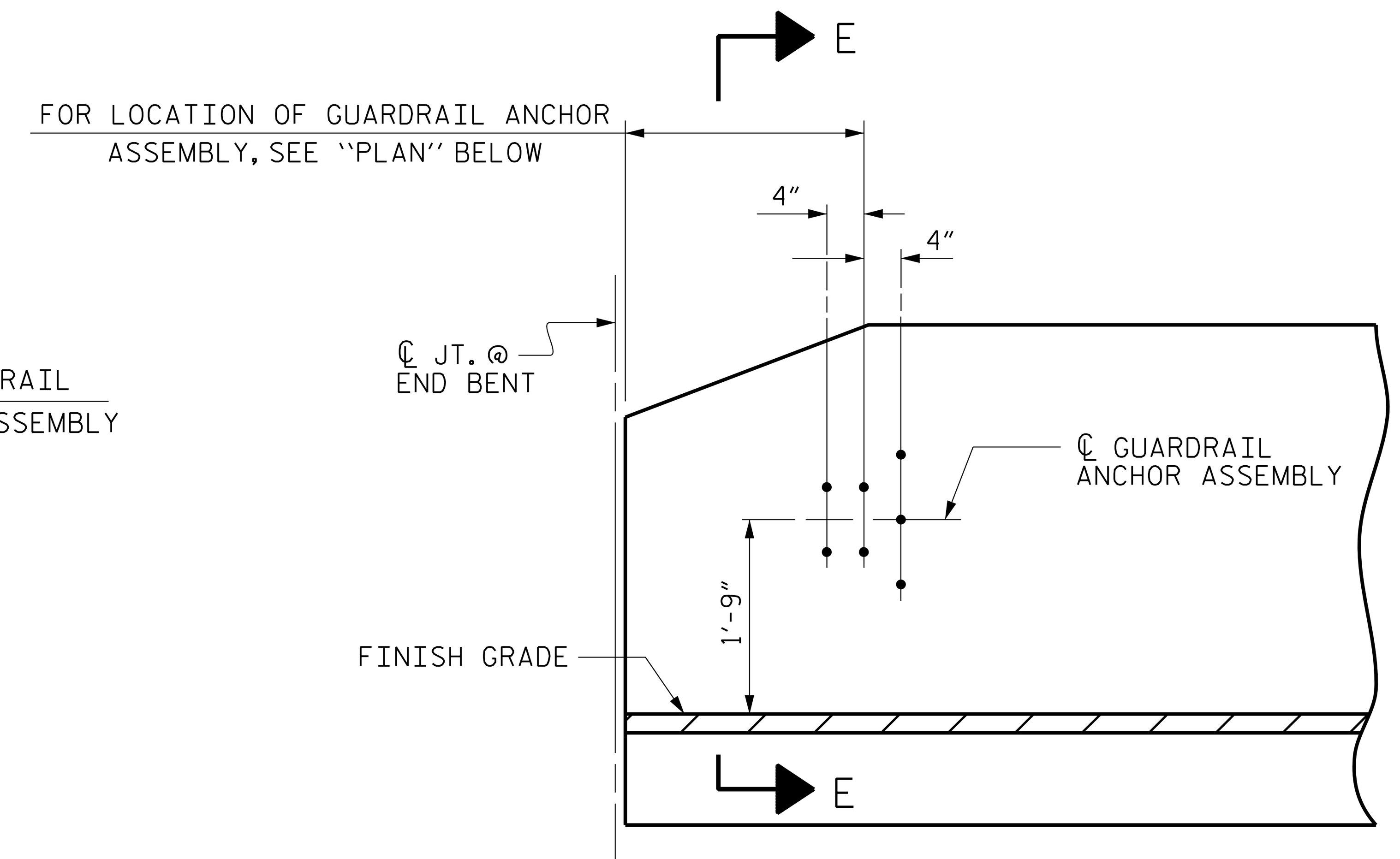


PLAN



ELEVATION

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.)

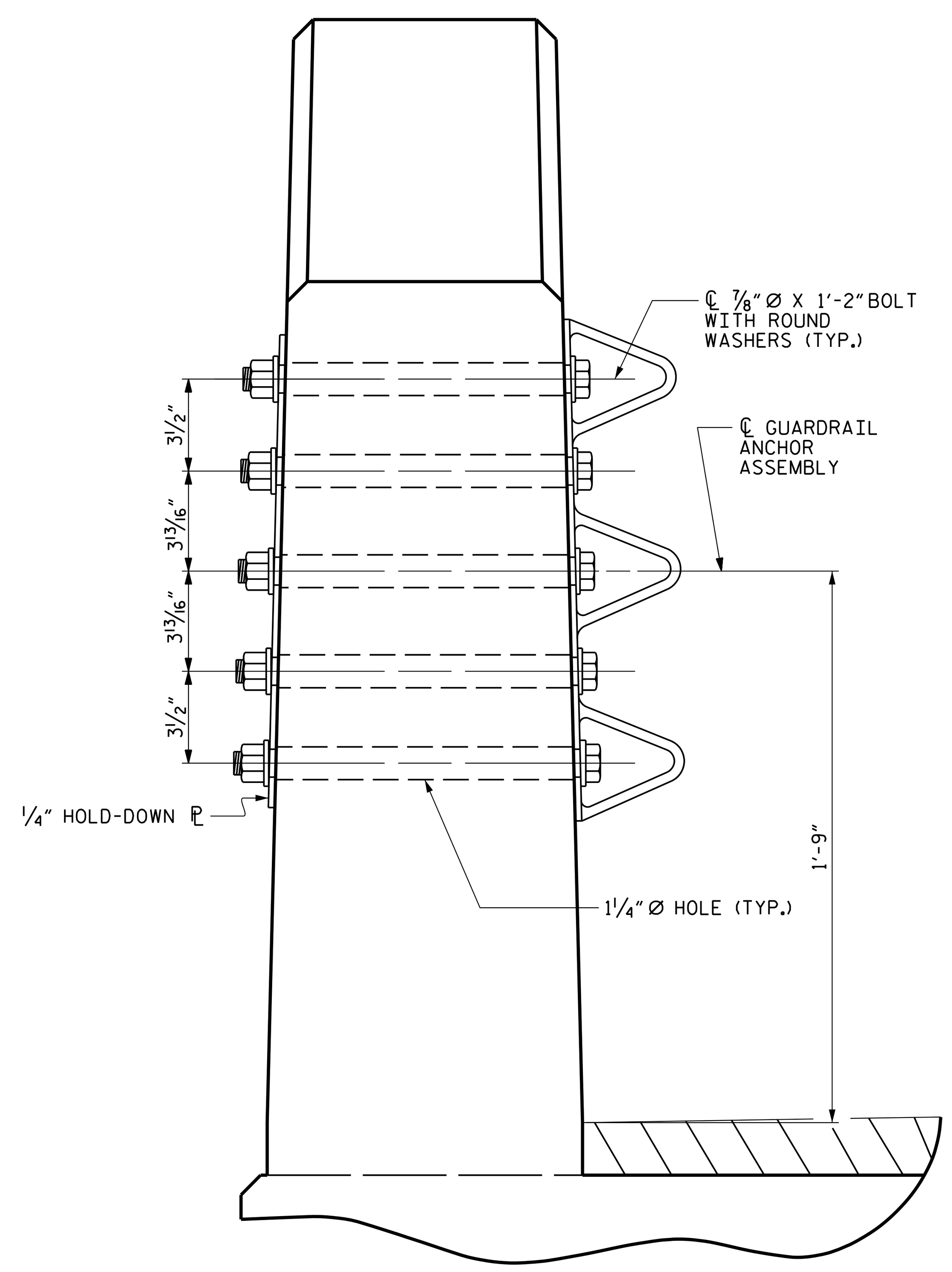
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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.

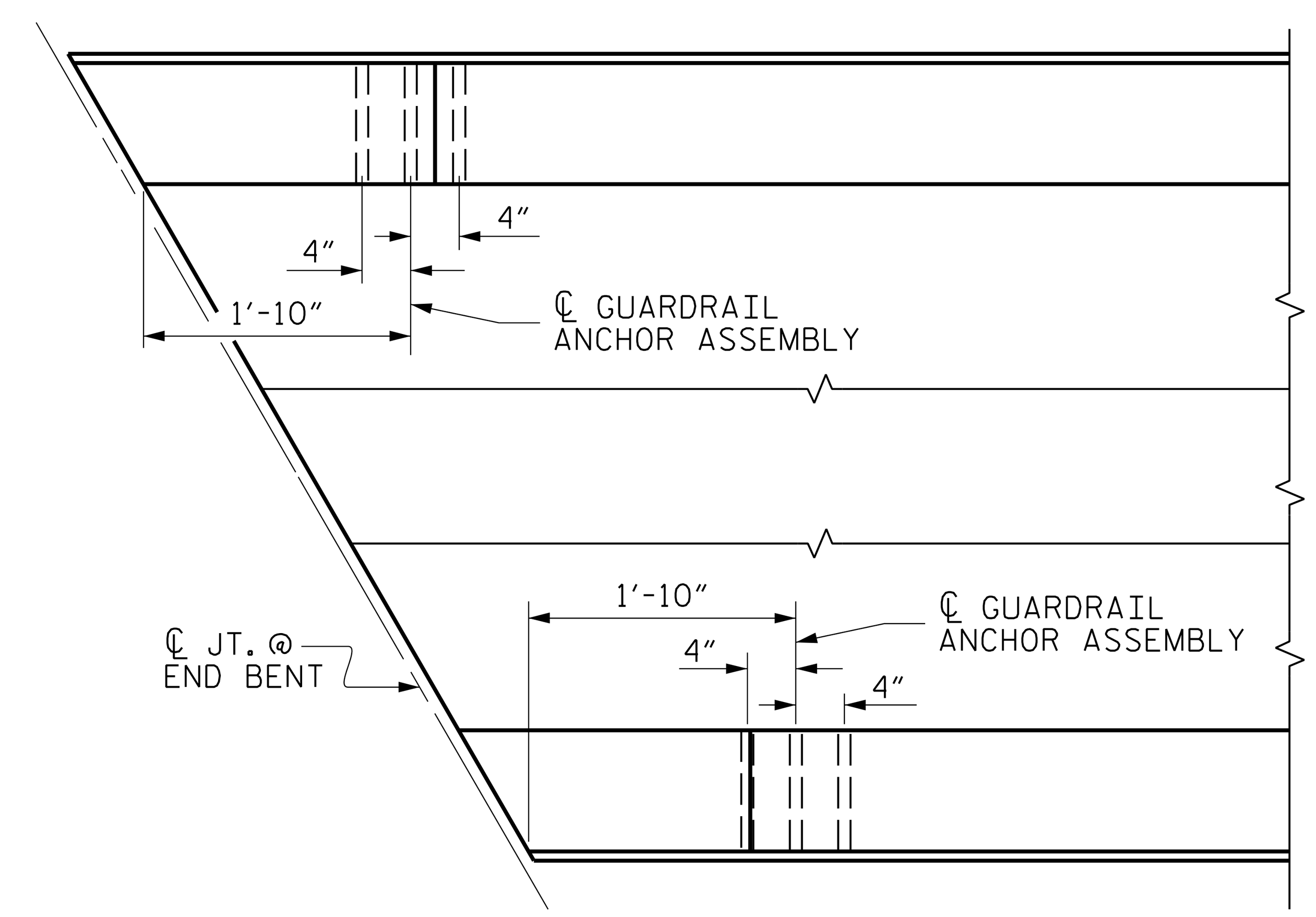
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

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.



SECTION E-E

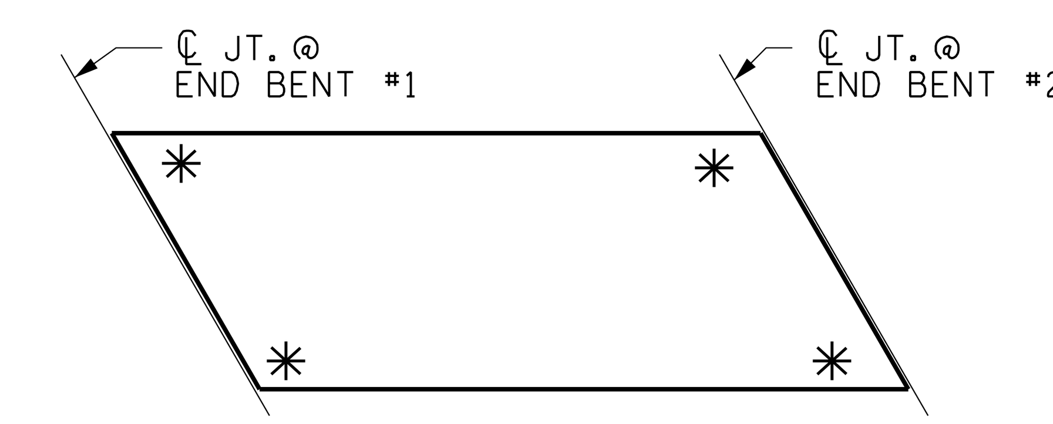
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

ASSEMBLED BY : W. B. ALLEN	DATE : 11/21
CHECKED BY : L. K. AUSTIN	DATE : 12/21

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

PLANS PREPARED BY:

NV5

NV5 ENGINEERS & CONSULTANTS, INC.
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CARY, NC 27518
P: 919.851.1912 www.NV5.com
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THIS STANDARD DRAWING REVIEWED & ADOPTED FOR USE AT THE REFERENCED LOCATION BY THE UNDERSIGNED:

NORTH CAROLINA PROFESSIONAL SEAL 19661 ENGINEER L. KEVIN AUSTIN

DocuSigned by: L. Kevin Austin

3/15/2022

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAIL

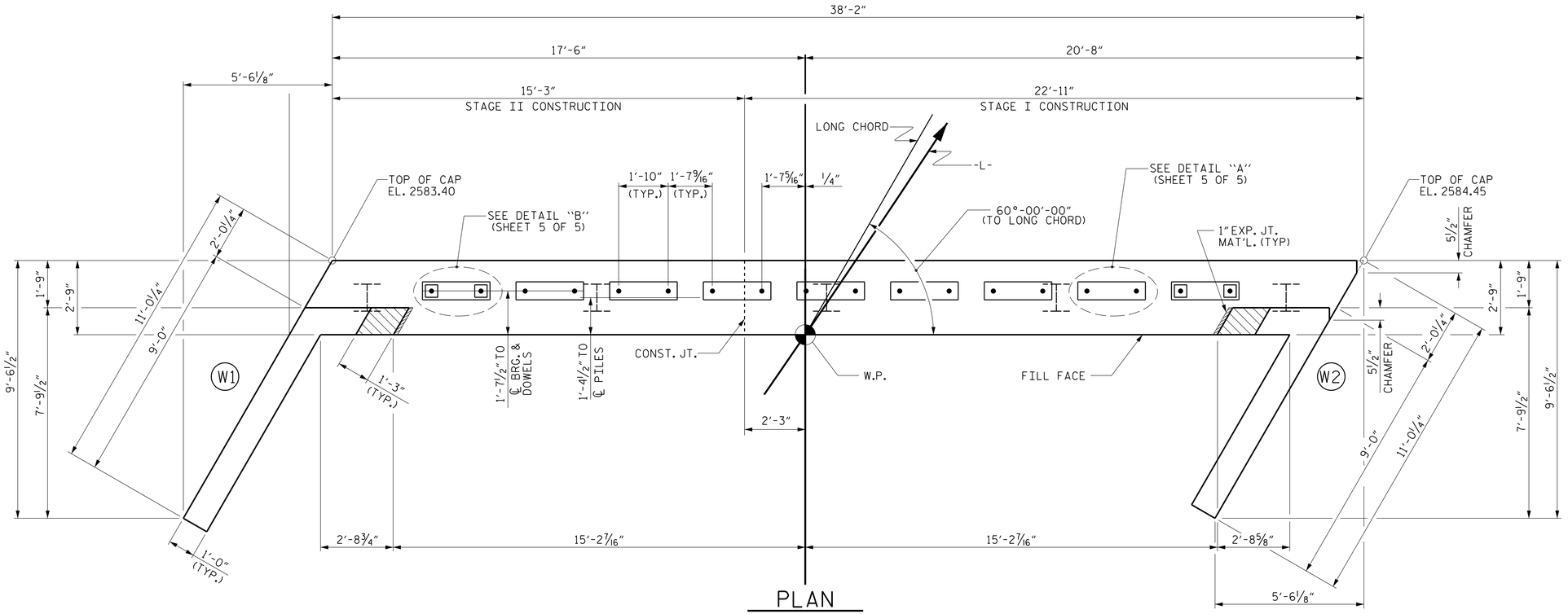
REVISIONS

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

SHEET NO. S-11

TOTAL SHEETS 21

(SHT 1b) STD. NO. GRA3



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A & B-B, SEE SHEET 4 OF 5.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 5 OF 5.

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 5.

FOR WING DETAILS, SEE SHEET 3 OF 5.

TOP OF PILE ELEVATIONS	
1	2581.54
2	2581.77
3	2582.00
4	2582.24
5	2582.48

PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

SHEET 1 OF 5

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1

24′-10″CLEAR ROADWAY - 60° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			21

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NORTH CAROLINA PROFESSIONAL SEAL 19661 ENGINEER LEVIN AUSTIN
Docusigned by: L. Levin Austin
3/15/2022

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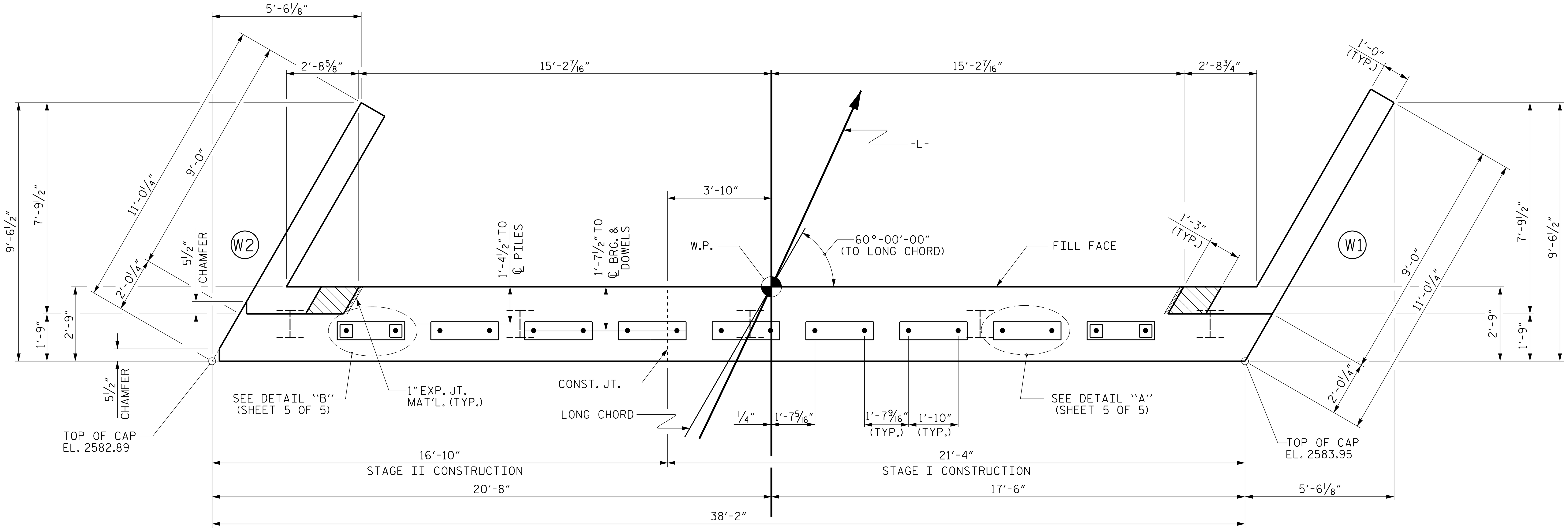
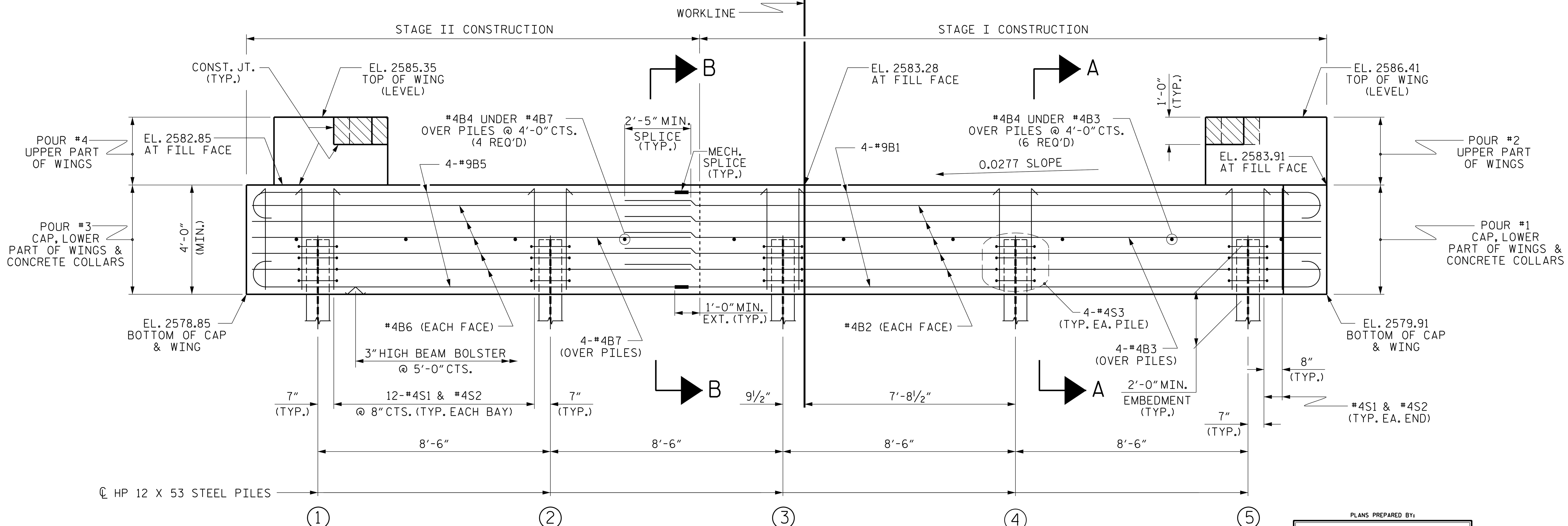


PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A & B-B, SEE SHEET 5 OF 5.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 5 OF 5.

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 5.

FOR WING DETAILS, SEE SHEET 3 OF 5.

TOP OF PILE ELEVATIONS	
1	2580.99
2	2581.22
3	2581.46
4	2581.69
5	2581.93

PROJECT NO. BP14.R004
HAYWOOD COUNTY
STATION: 14+24.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2
24'-10" CLEAR ROADWAY - 60° SKEW

REVISIONS							SHEET NO. S-13
NO.	BY:	DATE:	NO.	BY:	DATE:		TOTAL SHEETS 21
1			3				
2			4				

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WING DETAILS

PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT
WING DETAILS

24'-10" CLEAR ROADWAY - 60° SKEW

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3/15/2022

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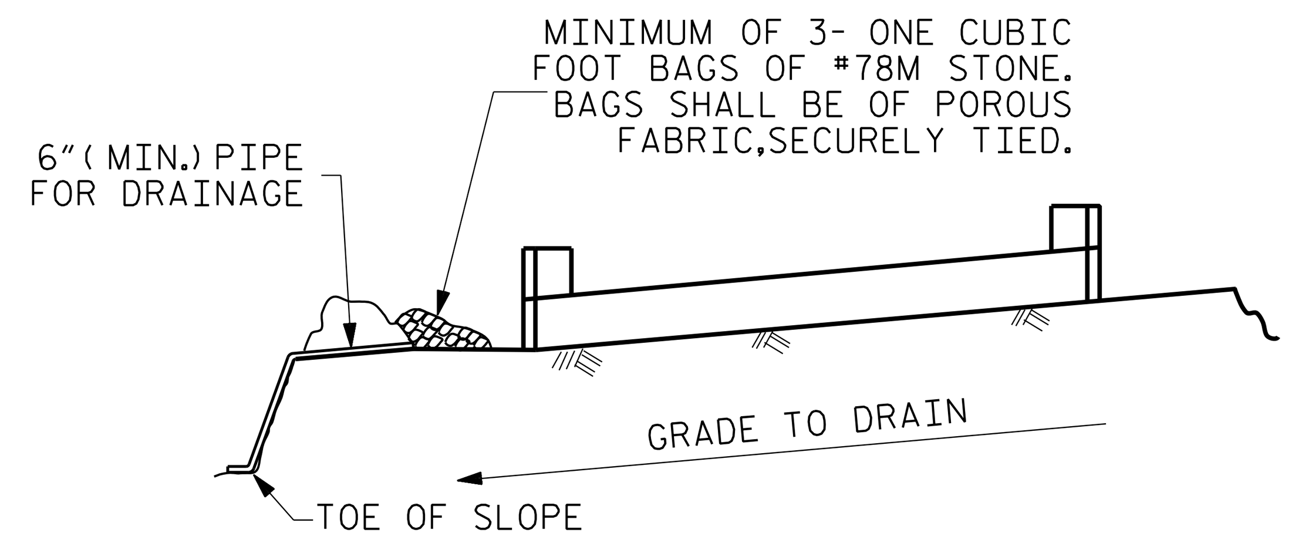
2			4		

SHEET NO. S-14

TOTAL SHEETS 21

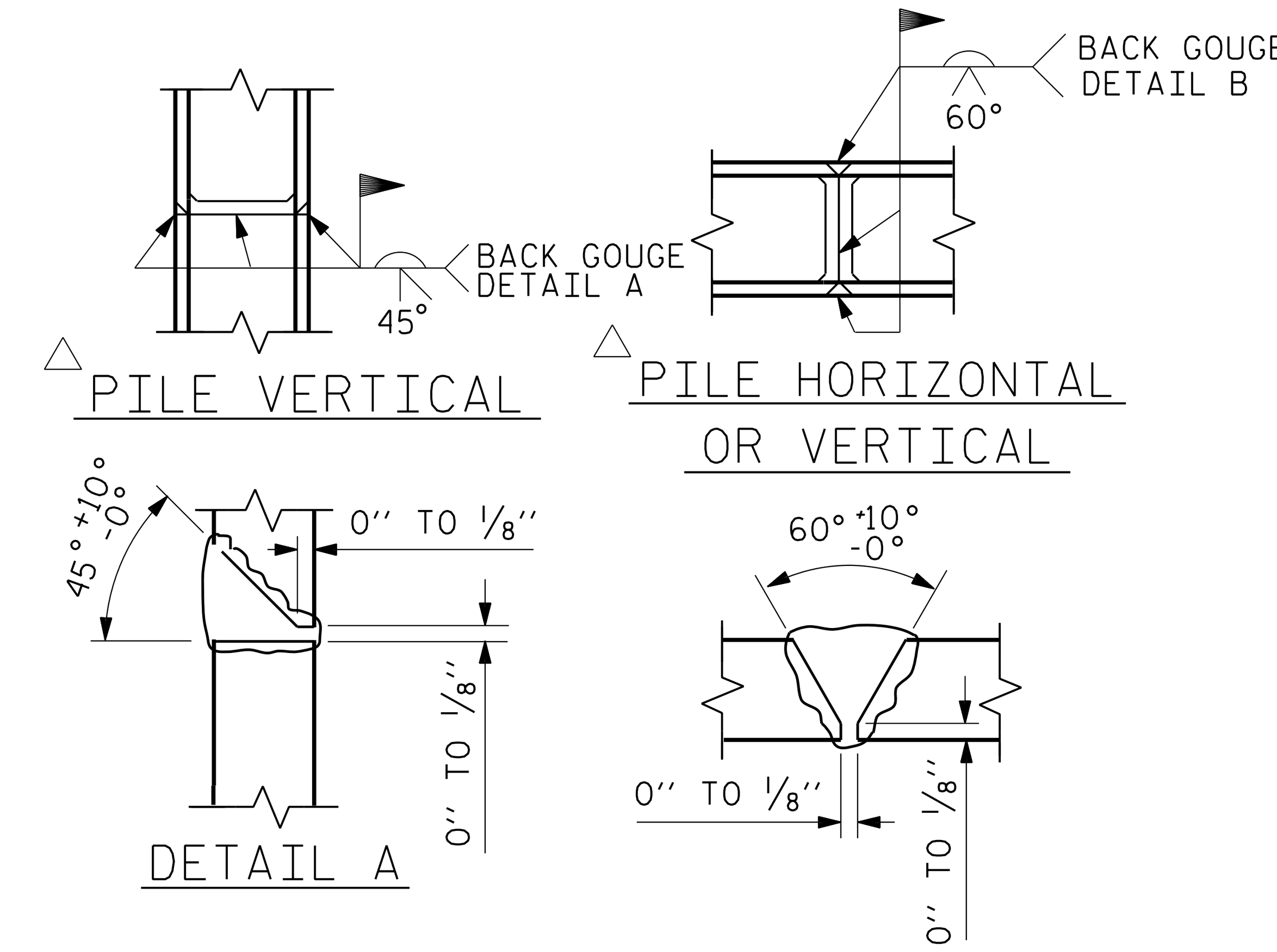


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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.

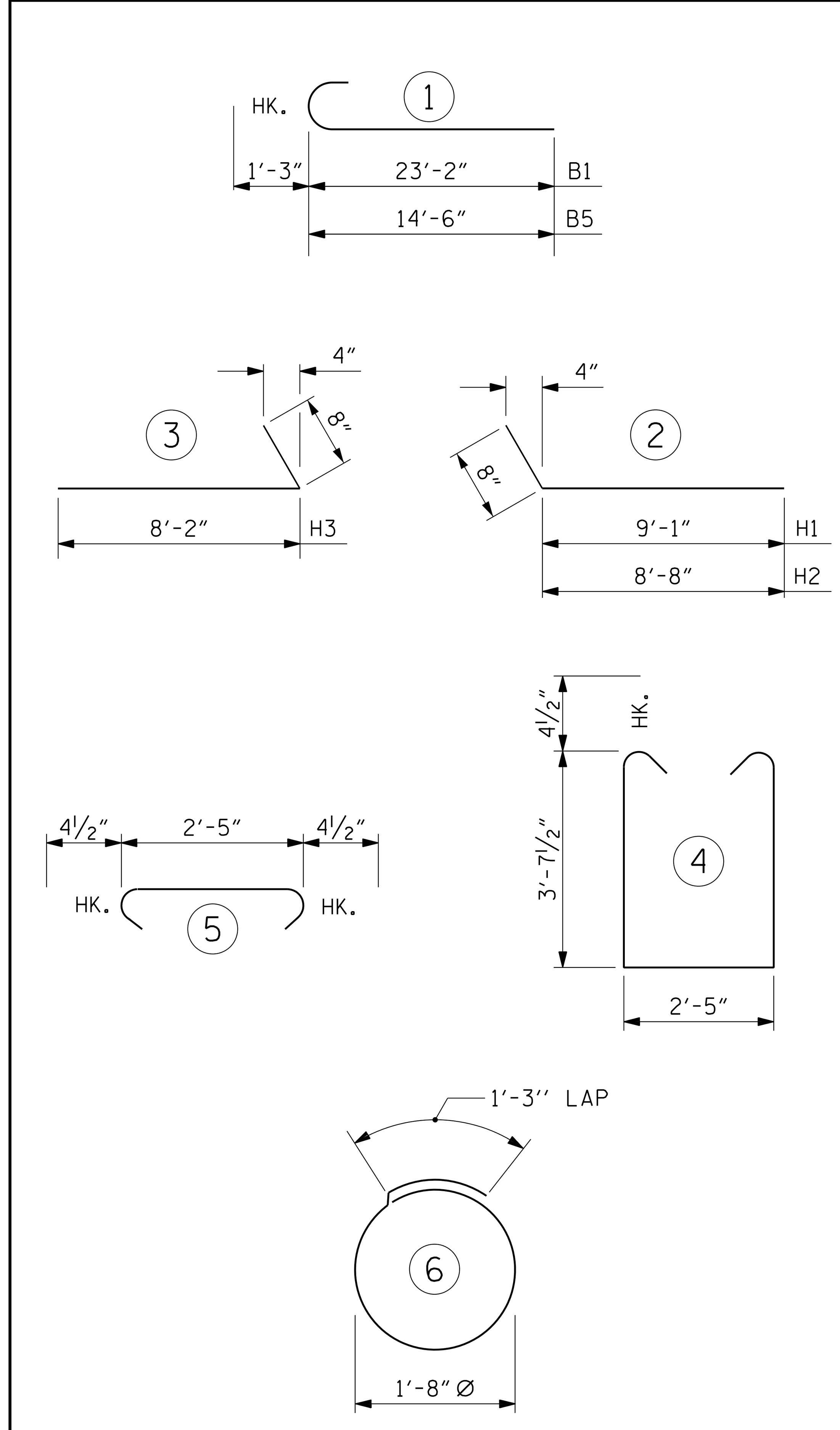
TEMPORARY DRAINAGE AT END BENT



△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL
END BENT No.1

STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	24'-5"	664
B2	10	#4	STR	25'-1"	168
B3	4	#4	STR	24'-10"	66
B4	6	#4	STR	2'-5"	10
D1	8	#6	STR	1'-6"	18
H3	20	#4	3	8'-10"	118
K1	8	#4	STR	3'-3"	17
S1	30	#4	4	10'-5"	209
S2	30	#4	5	3'-2"	63
S3	12	#4	6	6'-6"	52
V1	26	#4	STR	6'-2"	107

REINFORCING STEEL 1492 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1	CAP, LOWER PART OF WING & COLLARS	11.2 C.Y.
POUR #2	UPPER PART OF WING	1.1 C.Y.
TOTAL CLASS A CONCRETE		12.3 C.Y.

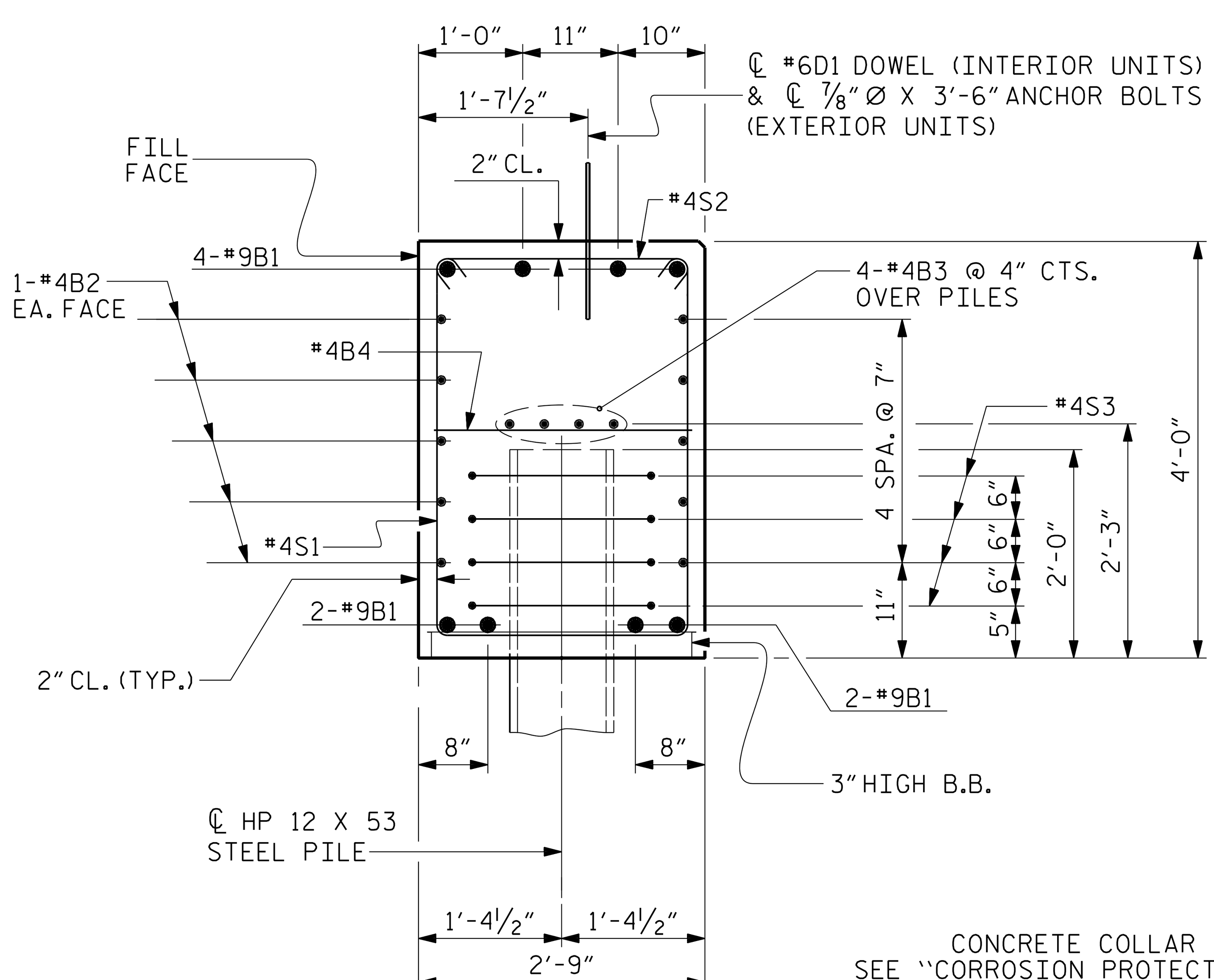
STAGE II

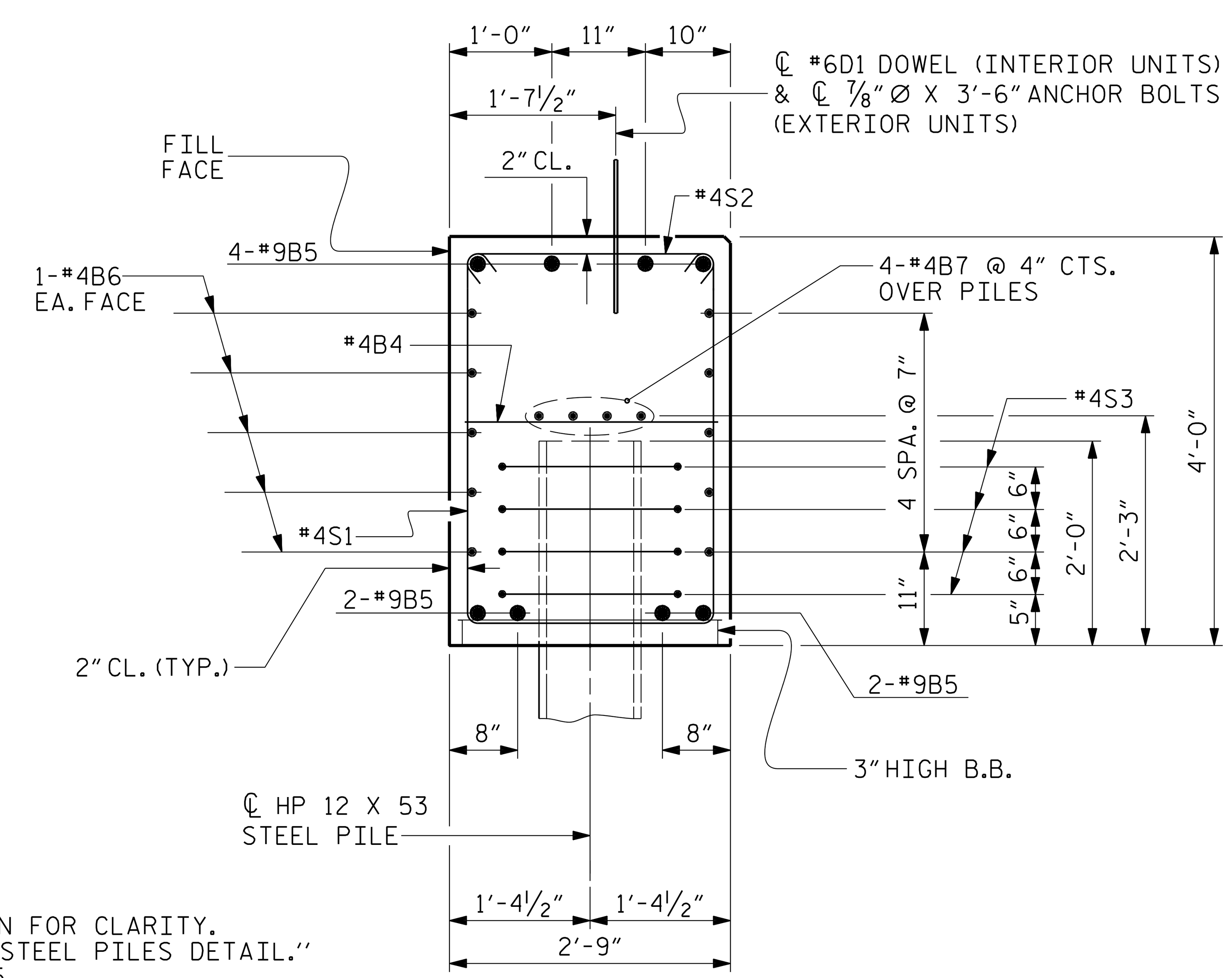
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B4	4	#4	STR	2'-5"	6
B5	8	#9	1	15'-9"	428
B6	10	#4	STR	15'-0"	100
B7	4	#4	STR	15'-3"	41
D1	6	#6	STR	1'-6"	14
H1	10	#4	2	9'-9"	65
H2	10	#4	2	9'-4"	62
K1	8	#4	STR	3'-3"	17
S1	22	#4	4	10'-5"	153
S2	22	#4	5	3'-2"	47
S3	8	#4	6	6'-6"	35
V1	27	#4	STR	6'-2"	111

REINFORCING STEEL 1079 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #3	CAP, LOWER PART OF WING & COLLARS	7.5 C.Y.
POUR #4	UPPER PART OF WING	1.1 C.Y.
TOTAL CLASS A CONCRETE		8.6 C.Y.





SECTION A-A
STAGE I CONSTRUCTION

CONCRETE COLLAR NOT SHOWN FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL." SHEET 5 OF 5

SECTION B-B
STAGE II CONSTRUCTION

PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT No. 1 DETAILS

24'-10" CLEAR ROADWAY - 60° SKEW

REVISIONS

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

SHEET NO. S-15
TOTAL SHEETS 21

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19661 L. KEVIN AUSTIN
3/15/2022

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CHECKED BY :	L. K. AUSTIN	DATE :	12/21
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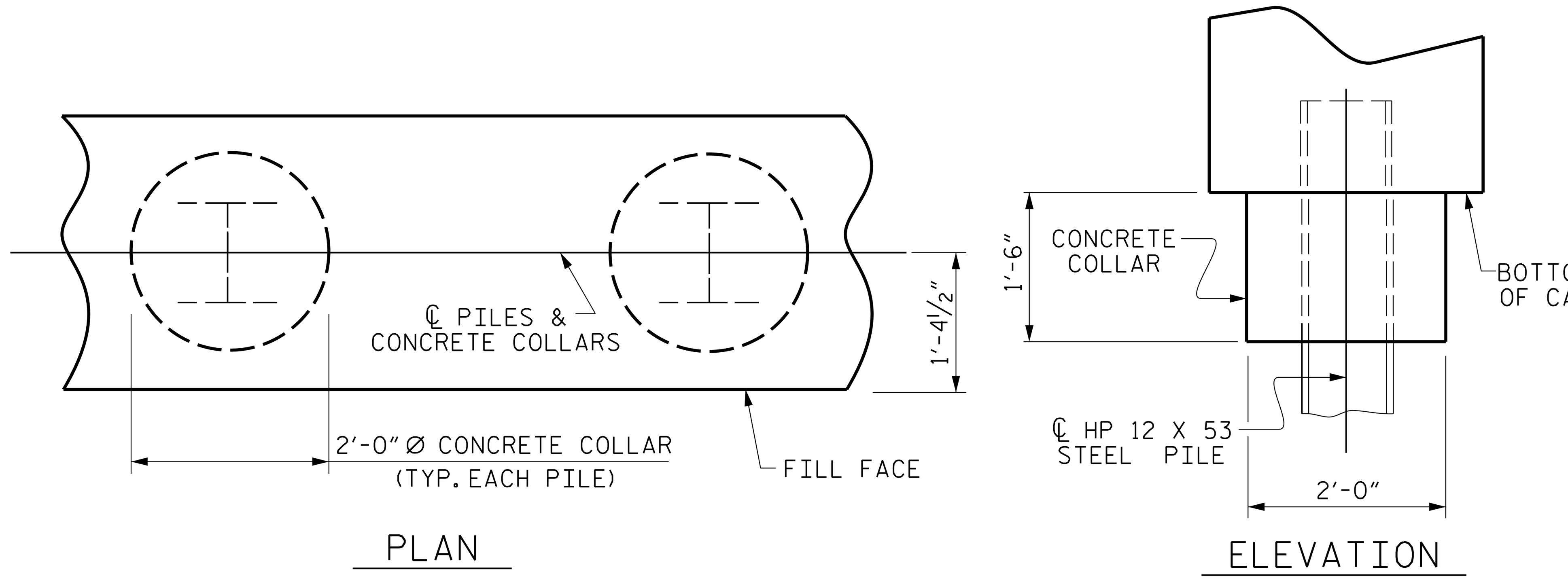
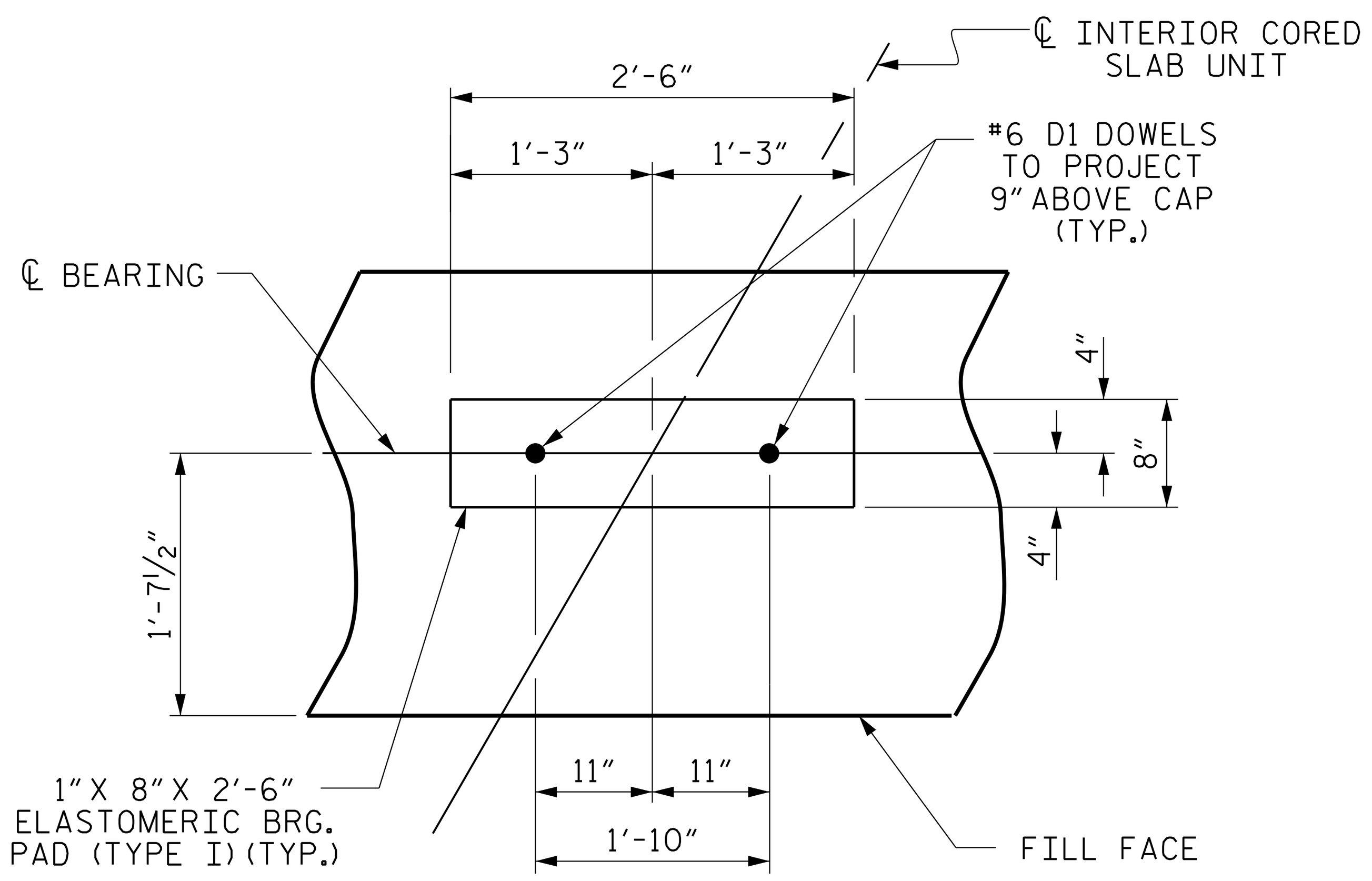


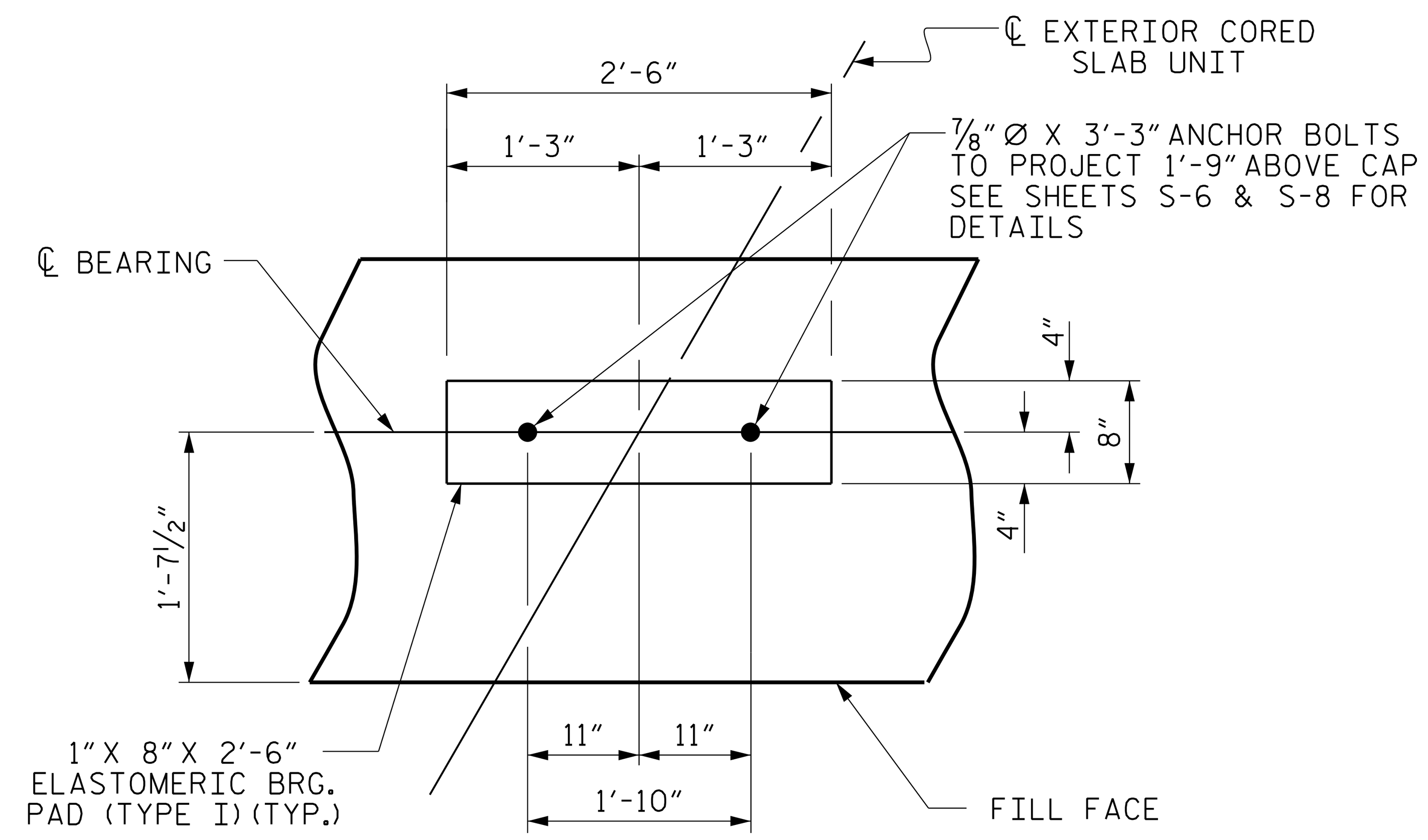
CORROSION PROTECTION FOR STEEL PILES DETAIL

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



DETAIL "A"

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



DETAIL "B"

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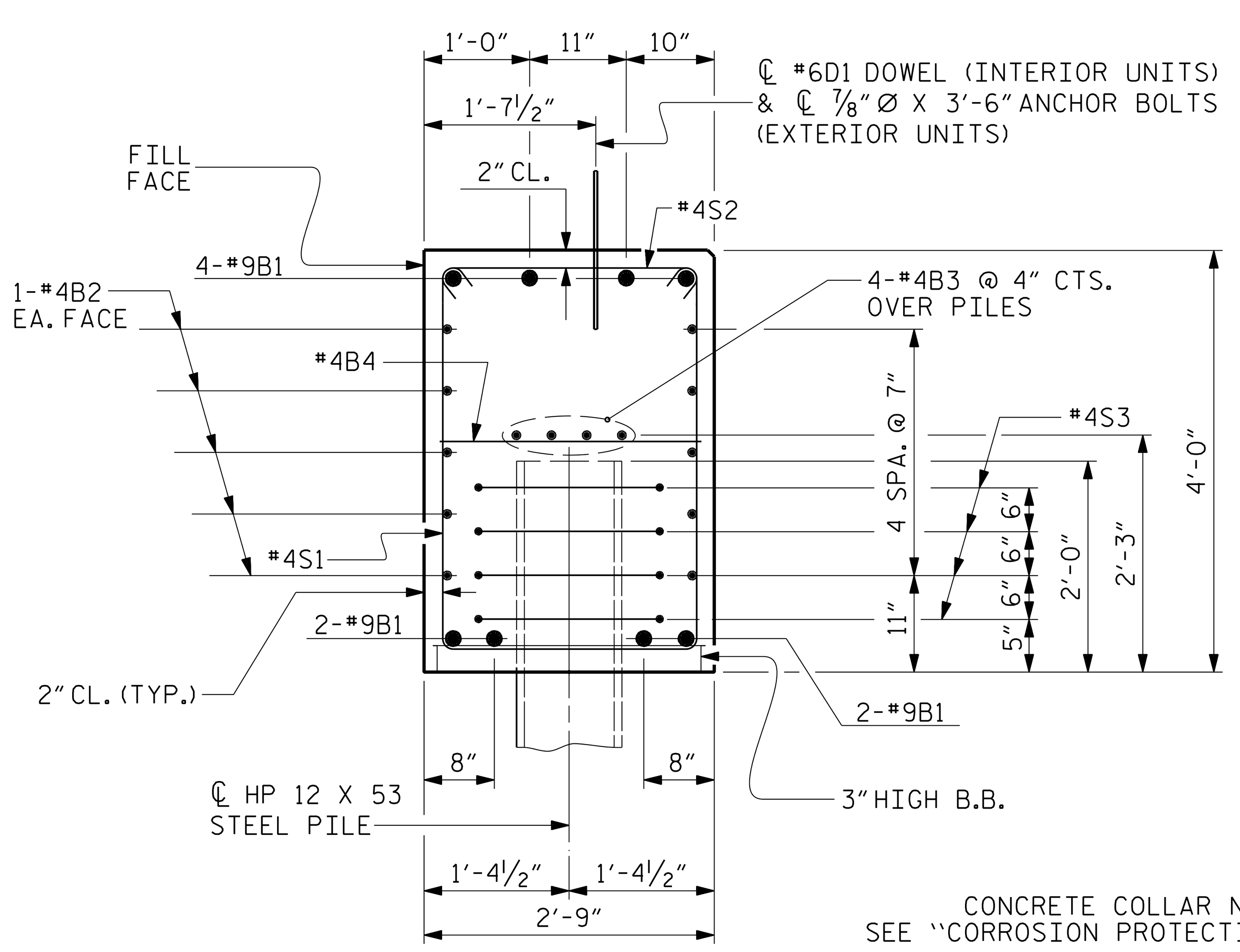
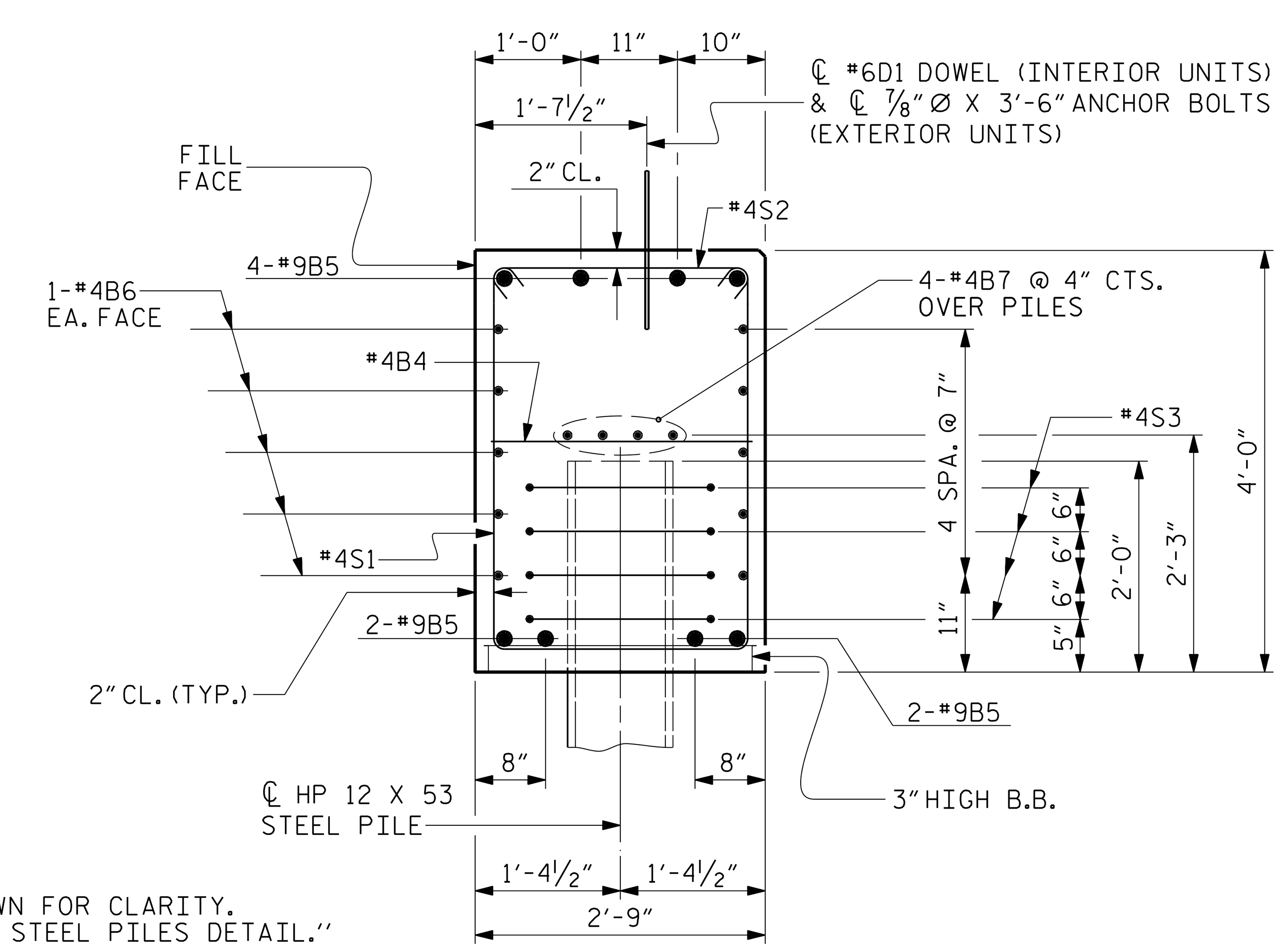


SECTION A-A

STAGE I CONSTRUCTION

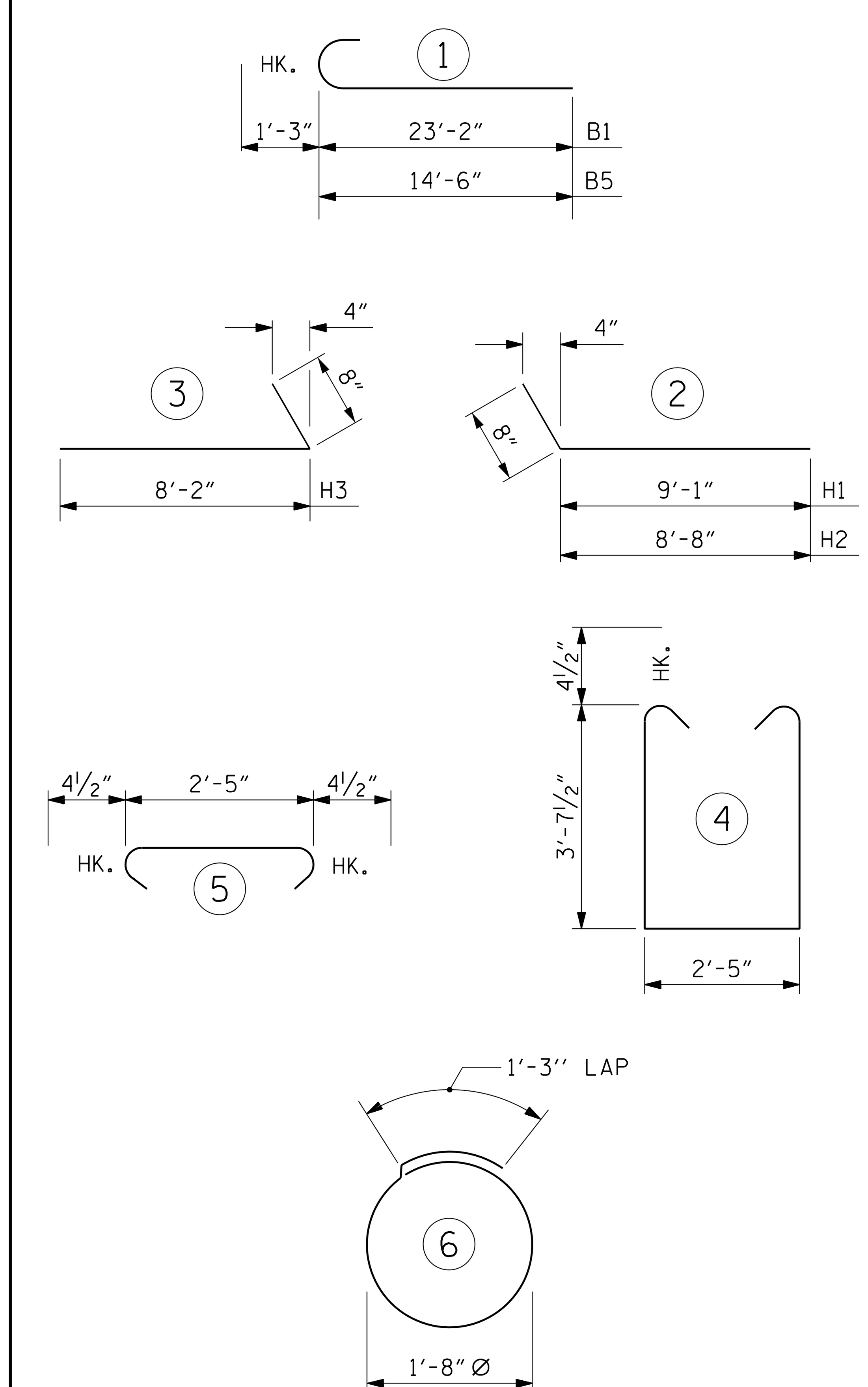
CONCRETE COLLAR NOT SHOWN FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL."



SECTION B-B

STAGE II CONSTRUCTION

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT No. 2

STAGE I

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	24'-5"	664
B2	10	#4	STR	25'-1"	168
B3	4	#4	STR	24'-10"	66
B4	6	#4	STR	2'-5"	10
D1	8	#6	STR	1'-6"	18
H1	10	#4	2	9'-9"	65
H2	10	#4	2	9'-4"	62
K1	8	#4	STR	3'-3"	17
S1	30	#4	4	10'-5"	209
S2	30	#4	5	3'-2"	63
S3	12	#4	6	6'-6"	52
V1	27	#4	STR	6'-2"	111

REINFORCING STEEL 1505 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #1	CAP, LOWER PART OF WING & COLLARS	10.5 C.Y.
POUR #2	UPPER PART OF WING	1.1 C.Y.
TOTAL CLASS A CONCRETE		11.6 C.Y.

STAGE II

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B4	4	#4	STR	2'-5"	6
B5	8	#9	1	15'-9"	428
B6	10	#4	STR	15'-0"	100
B7	4	#4	STR	15'-3"	41
D1	6	#6	STR	1'-6"	14
H3	20	#4	3	8'-10"	118
K1	8	#4	STR	3'-3"	17
S1	22	#4	4	10'-5"	153
S2	22	#4	5	3'-2"	47
S3	8	#4	6	6'-6"	35
V1	26	#4	STR	6'-2"	107

REINFORCING STEEL 1066 LBS.

CLASS A CONCRETE BREAKDOWN

POUR #3	CAP, LOWER PART OF WING & COLLARS	8.2 C.Y.
POUR #4	UPPER PART OF WING	1.1 C.Y.
TOTAL CLASS A CONCRETE		9.3 C.Y.

PROJECT NO. BP14.R004
HAYWOOD COUNTY
STATION: 14+24.00 -L-

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19661
L. Kevin Austin
3/15/2022

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT No. 2
DETAILS
24'-10" CLEAR ROADWAY - 60° SKEW

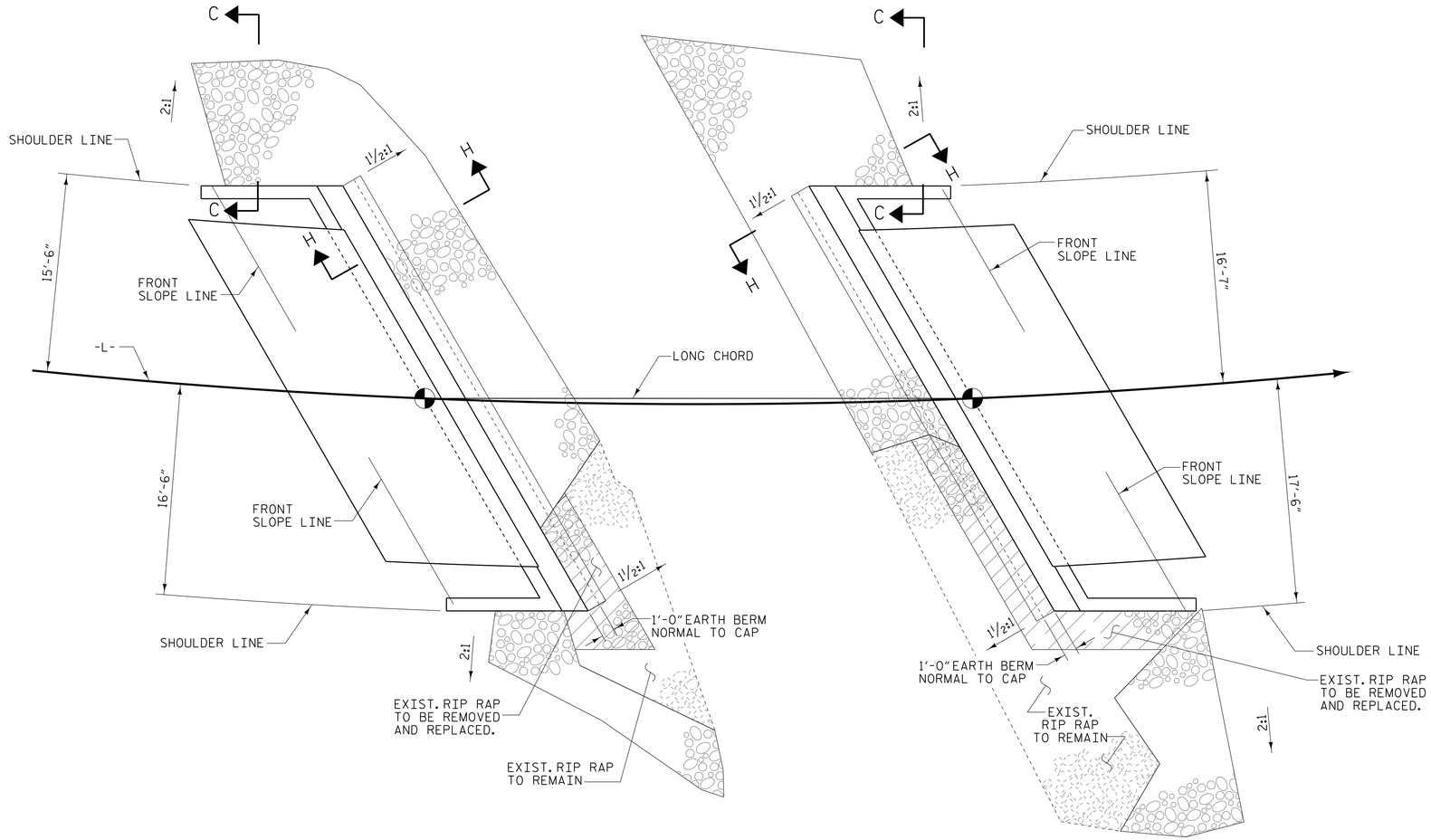
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : W. B. ALLEN DATE : 12/21
CHECKED BY : L. K. AUSTIN DATE : 12/21
DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 12/21

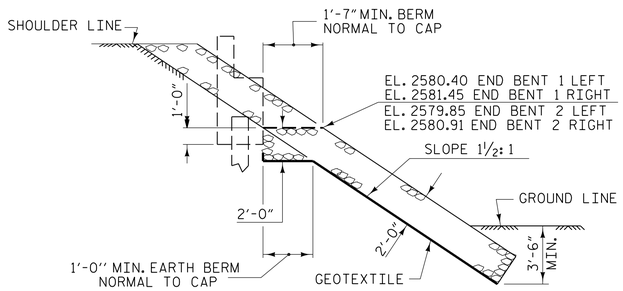
NOTES :

FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

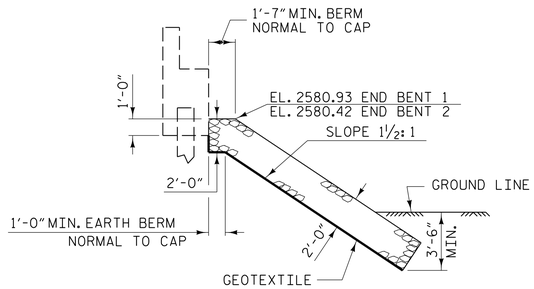
ESTIMATED QUANTITIES		
BRIDGE @ STA. 14+24.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	63	70
END BENT 2	67	74



PLAN

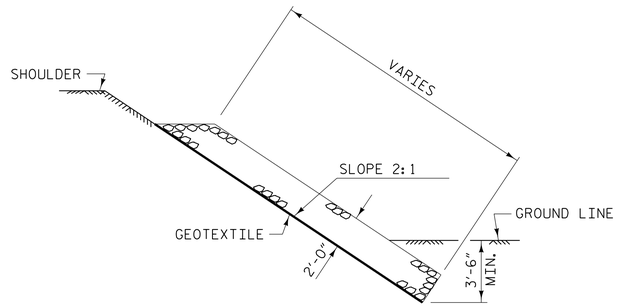


SECTION H-H



℄ SECTION

BERM RIP RAPPED



SECTION C-C

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PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS

24'-10" CLEAR ROADWAY - 60° SKEW

NORTH CAROLINA PROFESSIONAL SEAL 19661 ENGINEER L. KEVIN AUSTIN
Docusigned by: L. Kevin Austin
ASD16E...
3/15/2022

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1			3			TOTAL SHEETS
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DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 12/21

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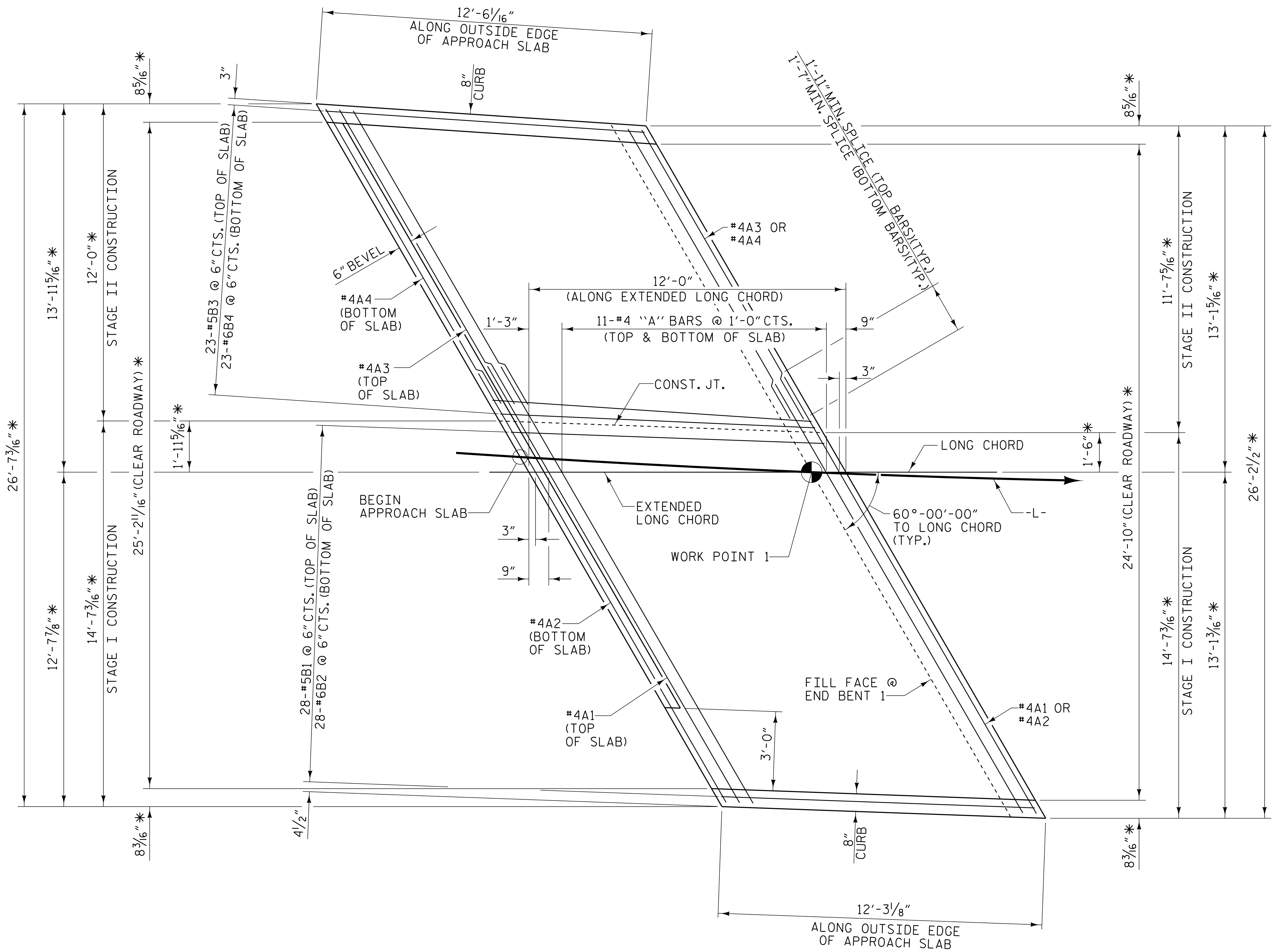

PLAN @ END BENT 1

✳ DIMENSIONS ARE PERPENDICULAR TO THE LONG CHORD OR EXTENDED LONG CHORD

PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF BRIDGE APPROACH SLAB

24'-10" CLEAR ROADWAY - 60° SKEW

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-18
1			3					TOTAL SHEETS
2			4					21

PLANS PREPARED BY:

NV5

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19661 L. KEVIN AUSTIN

DocuSigned by: L. Kevin Austin
3/15/2022

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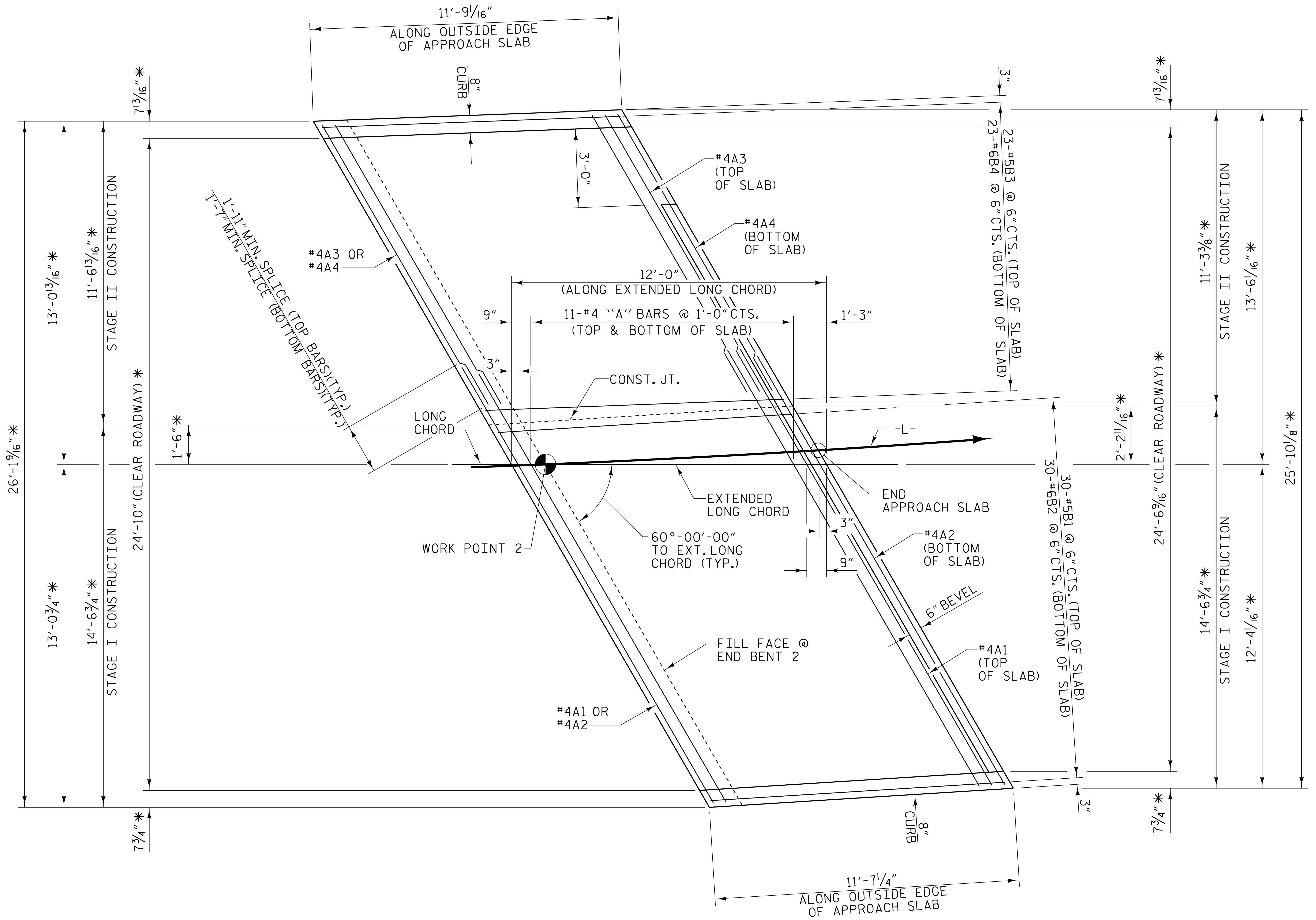
DRAWN BY :	W. B. ALLEN	DATE :	12/21
CHECKED BY :	L. K. AUSTIN	DATE :	12/21
DESIGN ENGINEER OF RECORD:	L. K. AUSTIN	DATE :	12/21



PLAN @ END BENT 2

* DIMENSIONS ARE PERPENDICULAR TO THE LONG CHORD OR EXTENDED LONG CHORD

PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF BRIDGE APPROACH SLAB

24'-10" CLEAR ROADWAY - 60° SKEW

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-19
1			3					TOTAL SHEETS
2			4					21

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NORTH CAROLINA PROFESSIONAL SEAL 19661 ENGINEER KEVIN AUSTIN
3/15/2022

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DRAWN BY : W. B. ALLEN DATE : 12/21
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DESIGN ENGINEER OF RECORD: L. K. AUSTIN DATE : 12/21

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NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

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

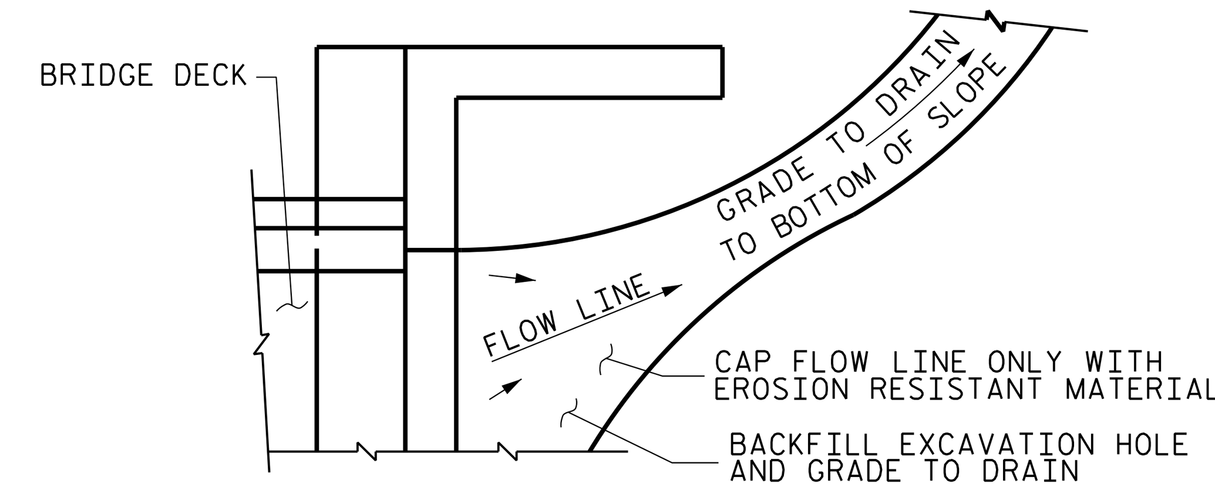
SELECT MATERIAL BACKFILL (#67 WASHED STONE & CLASS II RIP RAP) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS.

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

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.

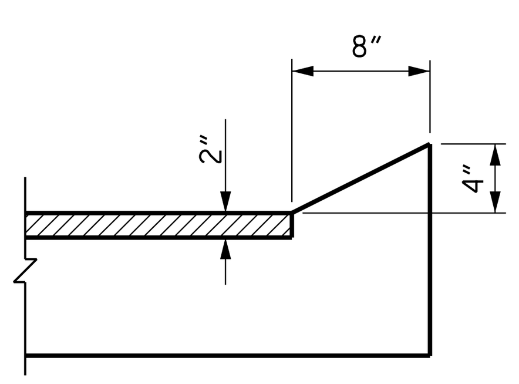
APPROACH SLAB GROOVING IS NOT REQUIRED.

FOR PLAN VIEWS SEE SHEET 1 OF 3 AND SHEET 2 OF 3



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.

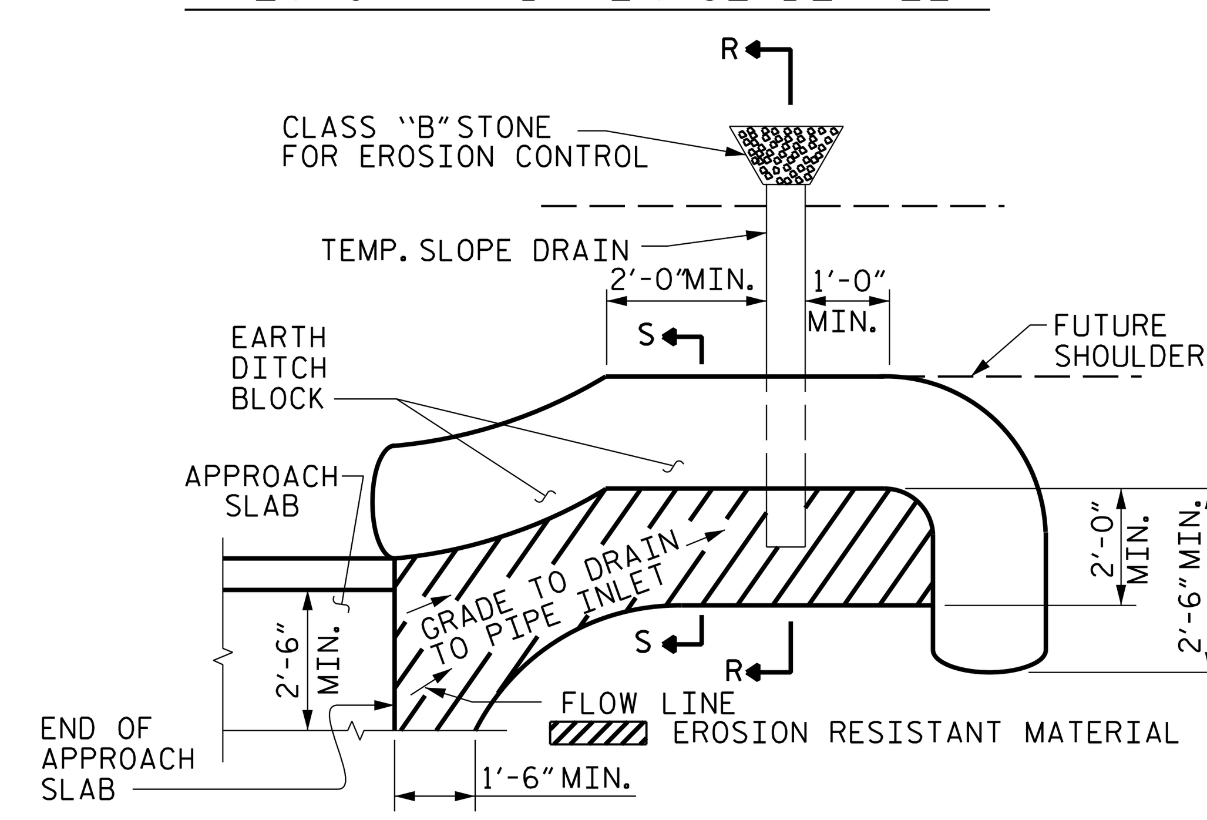
TEMPORARY DRAINAGE DETAIL

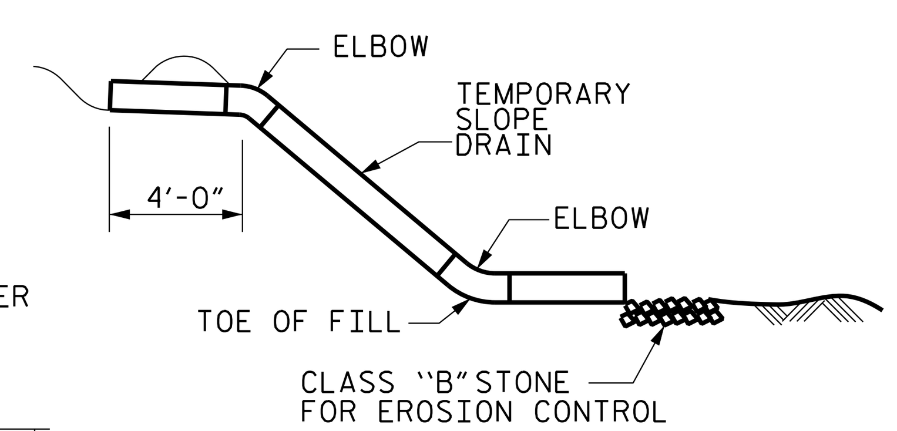


SECTION N-N

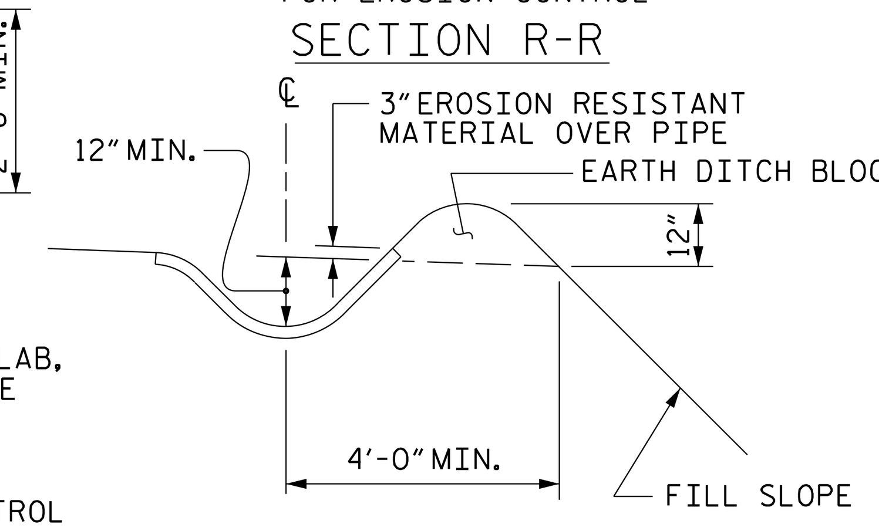
CURB DETAILS

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"





SECTION R-R



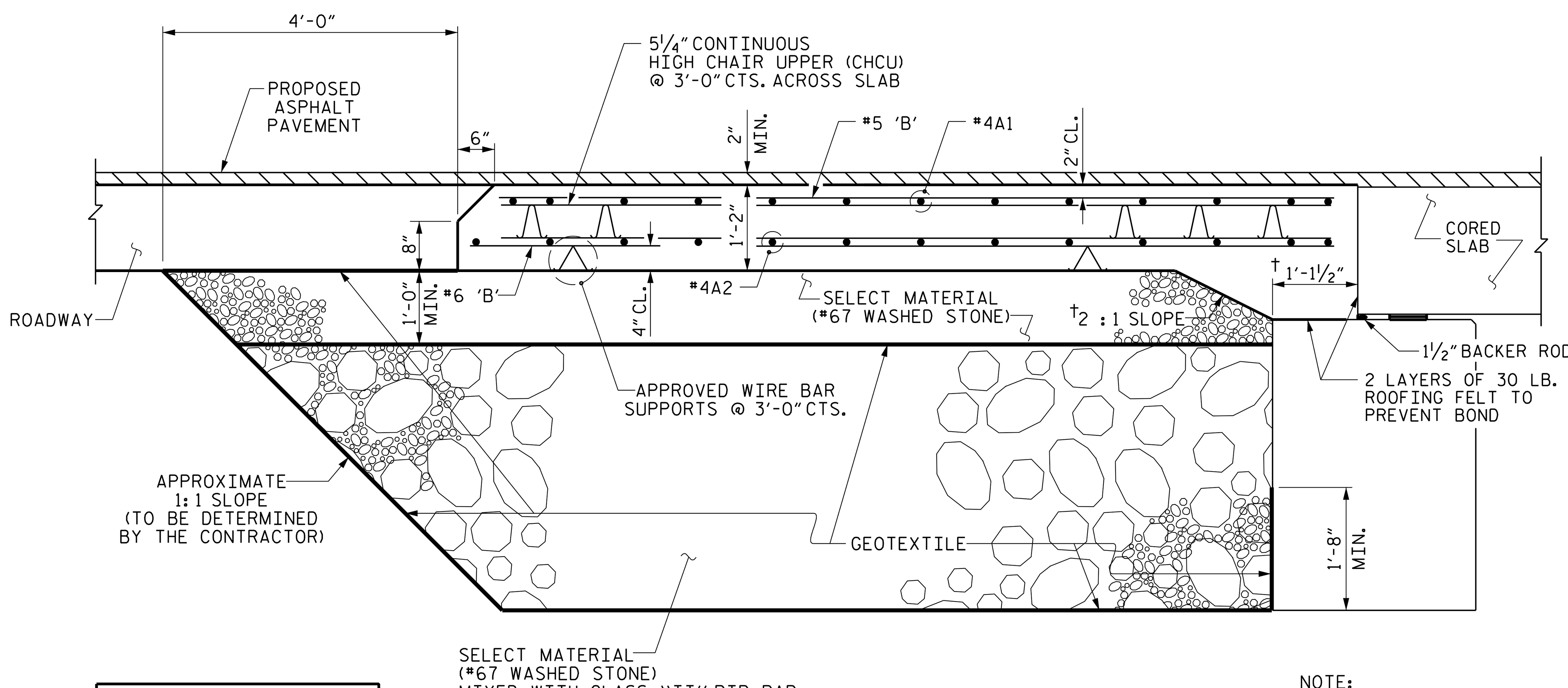
SECTION S-S

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)



† NORMAL TO END BENT

NOTE:

DO NOT PLACE CLASS II RIP RAP IN AREAS WHERE GUARDRAIL POSTS WILL BE PLACED.

SECTION THRU SLAB

BILL OF MATERIAL

APPROACH SLAB AT EB #1

(STAGE I)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	19'-3"	167
A2	13	#4	STR	18'-11"	164
* B1	28	#5	STR	11'-4"	331
B2	28	#6	STR	11'-10"	498
REINFORCING STEEL				LBS.	662
* EPOXY COATED REINFORCING STEEL				LBS.	498
CLASS AA CONC.				C. Y.	8.3

(STAGE II)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A3	13	#4	STR	13'-0"	113
A4	13	#4	STR	13'-0"	113
* B3	23	#5	STR	11'-6"	276
B4	23	#6	STR	12'-0"	415
REINFORCING STEEL				LBS.	528
* EPOXY COATED REINFORCING STEEL				LBS.	389
CLASS AA CONC.				C. Y.	6.9

APPROACH SLAB AT EB #2

(STAGE I)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	13	#4	STR	19'-2"	166
A2	13	#4	STR	18'-10"	164
* B1	30	#5	STR	10'-8"	334
B2	30	#6	STR	11'-2"	503
REINFORCING STEEL				LBS.	667
* EPOXY COATED REINFORCING STEEL				LBS.	500
CLASS AA CONC.				C. Y.	8.4

(STAGE II)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A3	13	#4	STR	12'-7"	109
A4	13	#4	STR	12'-7"	109
* B3	23	#5	STR	10'-10"	260
B4	23	#6	STR	11'-4"	392
REINFORCING STEEL				LBS.	501
* EPOXY COATED REINFORCING STEEL				LBS.	369
CLASS AA CONC.				C. Y.	6.8

PROJECT NO. BP14.R004

HAYWOOD COUNTY

STATION: 14+24.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT

60° SKEW

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-20
1			3					TOTAL SHEETS
2			4					21

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THIS STANDARD DRAWING REVIEWED & ADOPTED FOR USE AT THE REFERENCED LOCATION BY THE UNDERSIGNED:

NORTH CAROLINA PROFESSIONAL SEAL 19661 ENGINEER

DocuSigned by: L. Kevin Austin
ABD16186E89A448...
3/16/2022

PLANS PREPARED BY:
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ASSEMBLED BY :	W. B. ALLEN	DATE :	11/21
CHECKED BY :	L. K. AUSTIN	DATE :	12/21
DRAWN BY : SHS/MAA 5-09		REV. 12-17	MAA/THC
CHECKED BY : BCH 5-09		REV. 08-19	BNB/THC

STD. NO. BAS_27_60S

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 ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" 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 ¼" 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 ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞" Ø STUDS FOR 4 - ¾" 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. 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.

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REV. 6-16-95 EEM (V) RGW REV. 5-7-03 RWW (V) JTE REV. 10-1-11 MAA (V) GM
REV. 8-16-99 RWW (V) LES REV. 5-1-06 TLA (V) GM REV. 12-17 MAA (V) THC

ENGLISH

JANUARY, 1990

STD. NO. SN