

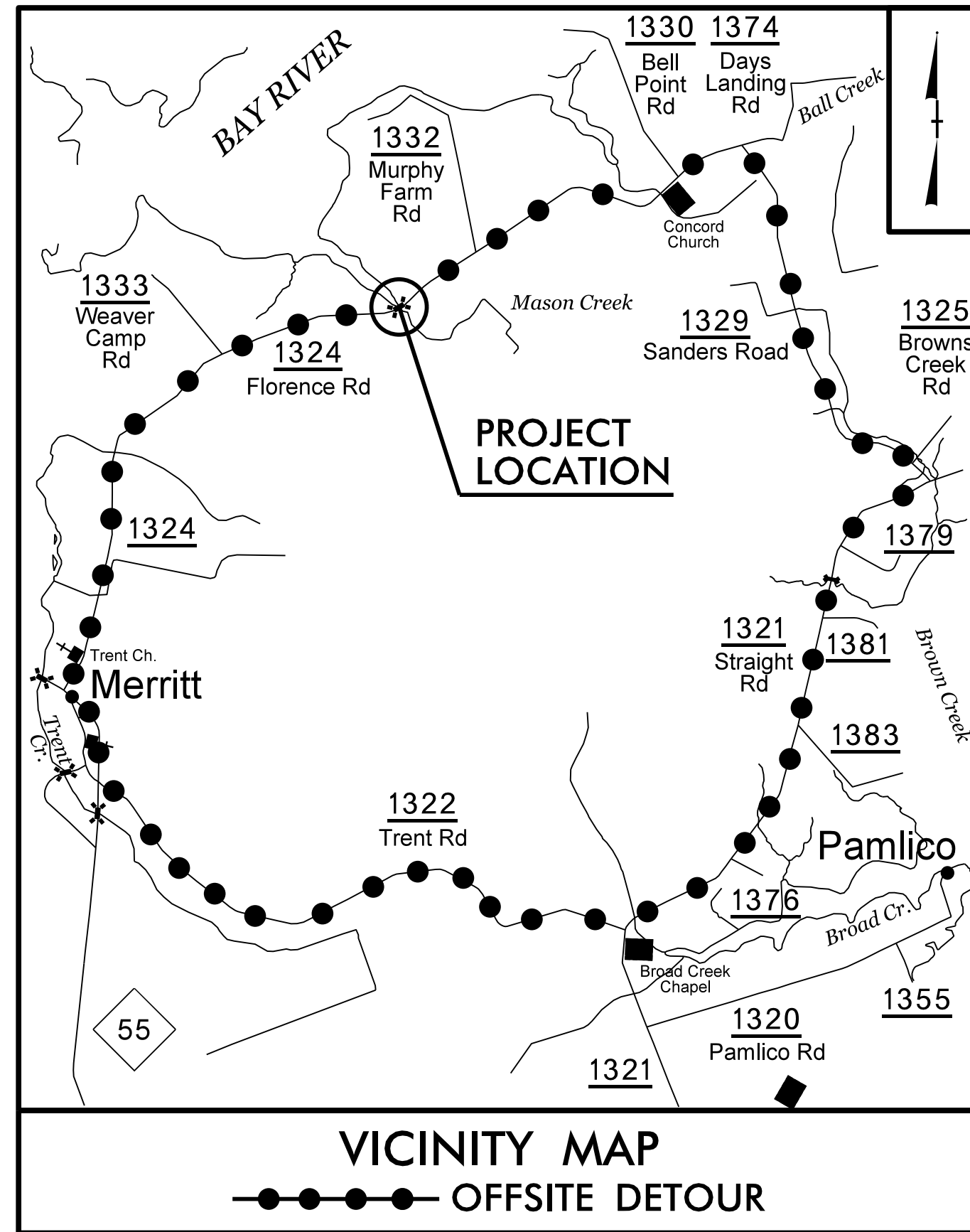
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TIP PROJECT: B-4598

CONTRACT: C203936

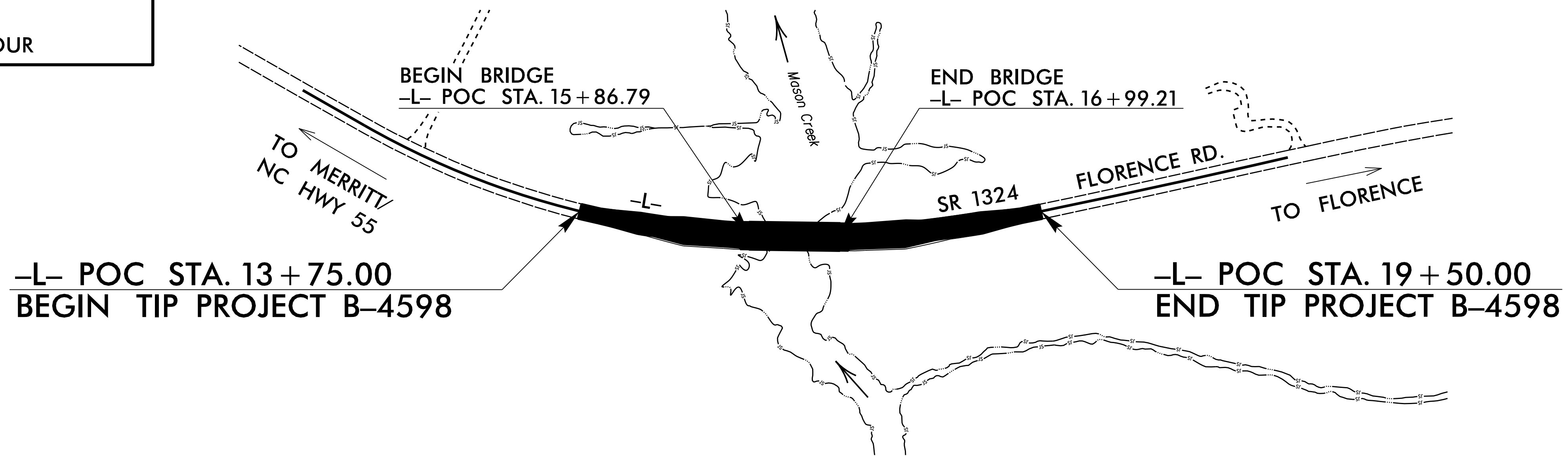
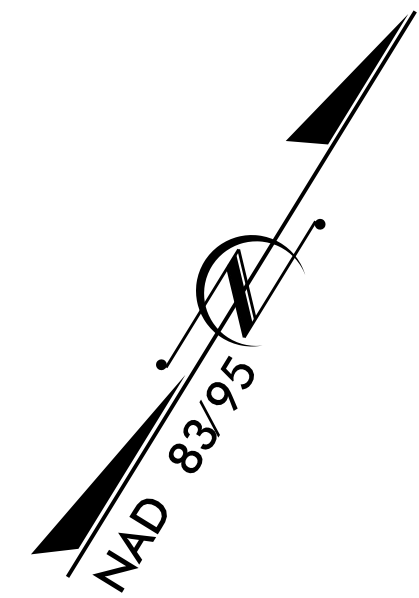


STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
PAMLICO COUNTY

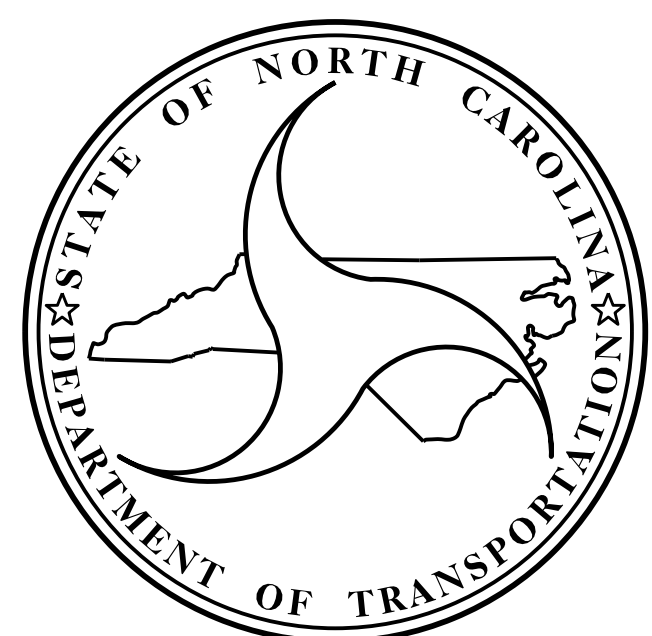
**LOCATION: REPLACE BRIDGE 16 OVER MASON CREEK
 ON SR 1324 (FLORENCE RD.)**

TYPE OF WORK: GRADING, DRAINAGE, STRUCTURE AND PAVING

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4598	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
38426.1.2	BRZ-1324(5)	P.E.	
38426.2.1		RW, UTL.	
38426.3.1		CONST.	



STRUCTURE



DESIGN DATA

ADT 2017	=	1065
ADT 2037	=	1326
DHV	=	10 %
D	=	55 %
T	=	10 % *
V	=	60 MPH
* (TTST 1%, DUAL 9%)		
FUNC CLASS = RURAL LOCAL		
SUB-REGIONAL TIER DESIGN		

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4598	=	0.088 MILES
LENGTH STRUCTURE TIP PROJECT B-4598	=	0.021 MILES
<hr/>		
TOTAL LENGTH TIP PROJECT B-4598	=	0.109 MILES

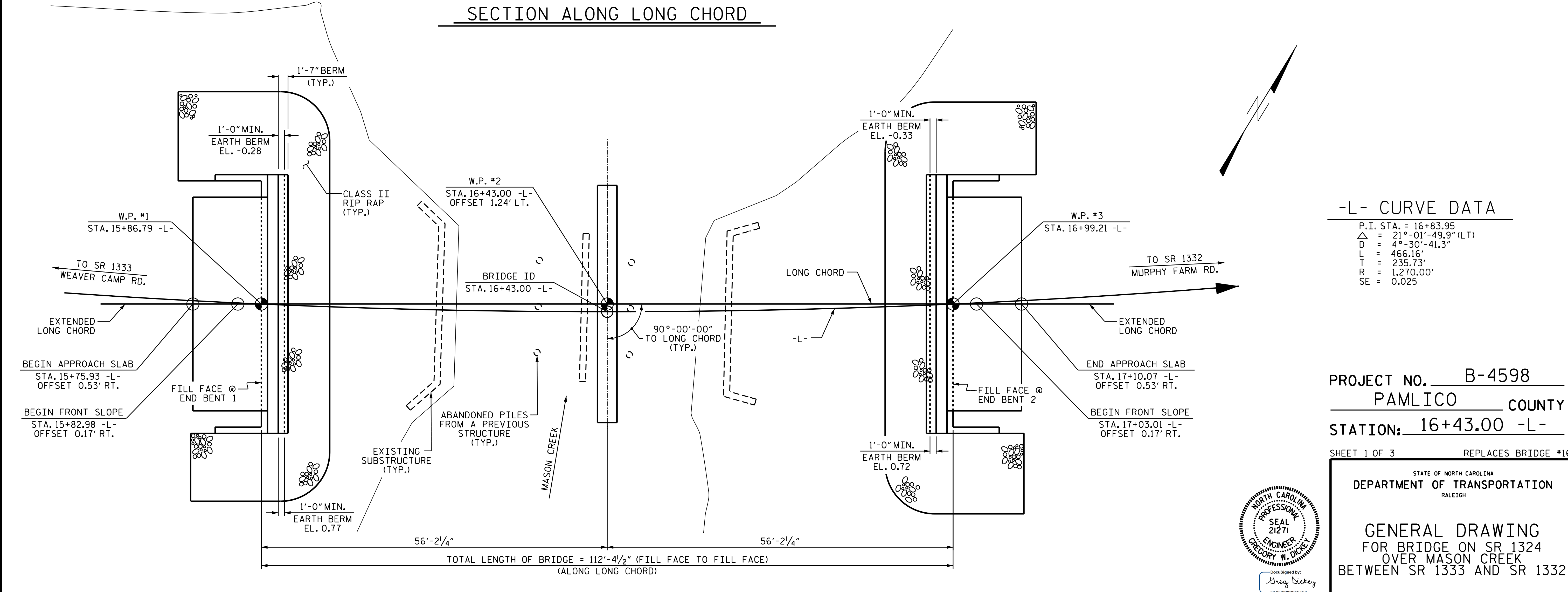
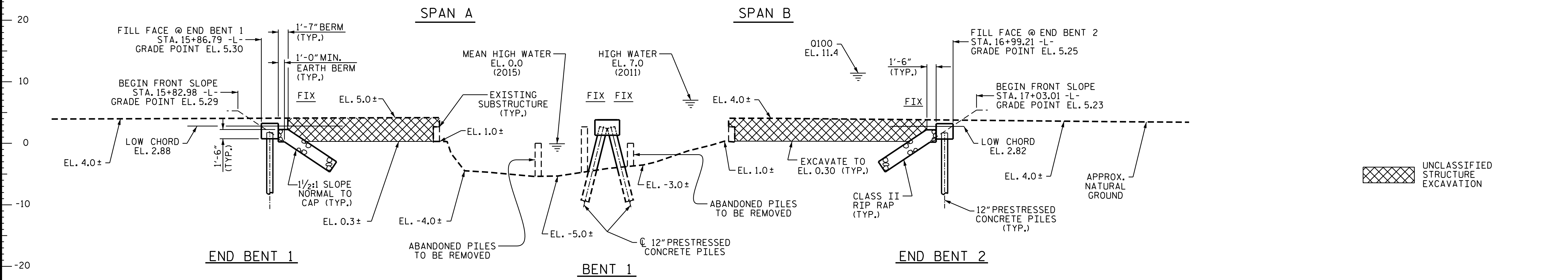
Prepared In the Office of:
DIVISION OF HIGHWAYS
 STRUCTURES MANAGEMENT UNIT
 1000 BIRCH RIDGE DR.
 RALEIGH, N.C. 27610

2012 STANDARD SPECIFICATIONS

LETTING DATE : JUNE 20, 2017	G. W. DICKEY, P.E. <small>PROJECT ENGINEER</small>
--	--

15+50 16+00 16+50 17+00 17+50

0.6417% Δ -0.7026%
GRADE DATA
 PI = 16+40.00 -L-
 EL. 5.73
 VC = 210.00'



-L- CURVE DATA

P.I. STA. = 16+83.95
 Δ = 21°-01'-49.9" (LT)
 D = 4°-30'-41.3"
 L = 466.16'
 T = 235.73'
 R = 1,270.00'
 SE = 0.025

PROJECT NO. B-4598
 PAMLICO COUNTY
 STATION: 16+43.00 -L-
 SHEET 1 OF 3 REPLACES BRIDGE #16

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

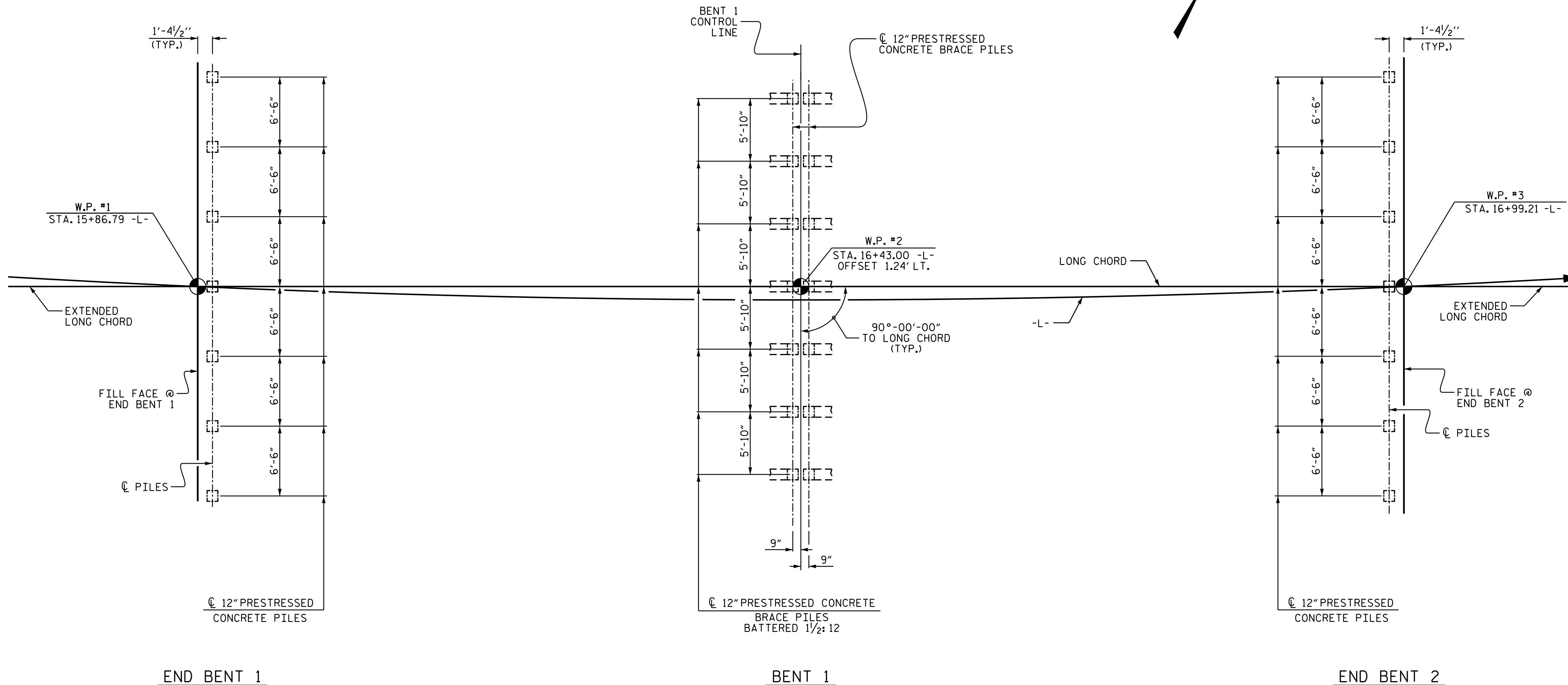
GENERAL DRAWING
 FOR BRIDGE ON SR 1324
 OVER MASON CREEK
 BETWEEN SR 1333 AND SR 1332



DRAWN BY : William J. Parker DATE : 04/16
 CHECKED BY : A. Sarsengul DATE : 09/16
 DESIGN ENGINEER OF RECORD: M.M. Ahmed DATE : 08/16

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

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



FOUNDATION LAYOUT

NOTES:

FOR PILES, SEE GEOTECHNICAL SPECIAL PROVISIONS AND SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE.

DRIVE PILES AT END BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE.

PILES AT BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 65 TONS PER PILE.

DRIVE PILES AT BENT NO.1 TO A REQUIRED DRIVING RESISTANCE OF 95 TONS PER PILE. THIS REQUIRED DRIVING RESISTANCE INCLUDES ADDITIONAL RESISTANCE FOR SCOUR.

STEEL PILE TIPS ARE REQUIRED FOR PRESTRESSED CONCRETE PILES AT BENT NO.1. FOR STEEL PILE TIPS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS -23.2 FT. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING THE FIRST PRODUCTION PILE WITH THE PDA DURING DRIVING, RESTRIKING, OR REDRIVING IS REQUIRED AT BENT NO.1 OR 2. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

TESTING THE FIRST PRODUCTION PILE WITH THE PDA DURING DRIVING, RESTRIKING, OR REDRIVING IS REQUIRED AT BENT NO.1. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

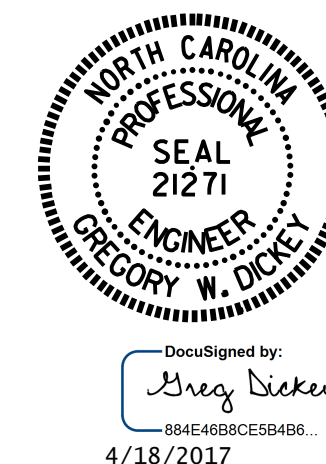
PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 75 TONS PER PILE.

DRIVE PILES AT END BENT NO.2 TO A REQUIRED DRIVING RESISTANCE OF 100 TONS PER PILE.

DRIVE PILES AT BENT NO.1 TO A PRESTRESSED CONCRETE PILE TIP ELEVATION NO HIGHER THAN -23 FT.

DRAWN BY : M. M. AHMED DATE : 10/19/16
 CHECKED BY : P. K. NEWTON DATE : 2/4/17

18-APR-2017 11:57
 Y:\Structures\Plans\Backup_File\B-4598.SMU_Final_Plans_680016.dgn
 gdickey



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-

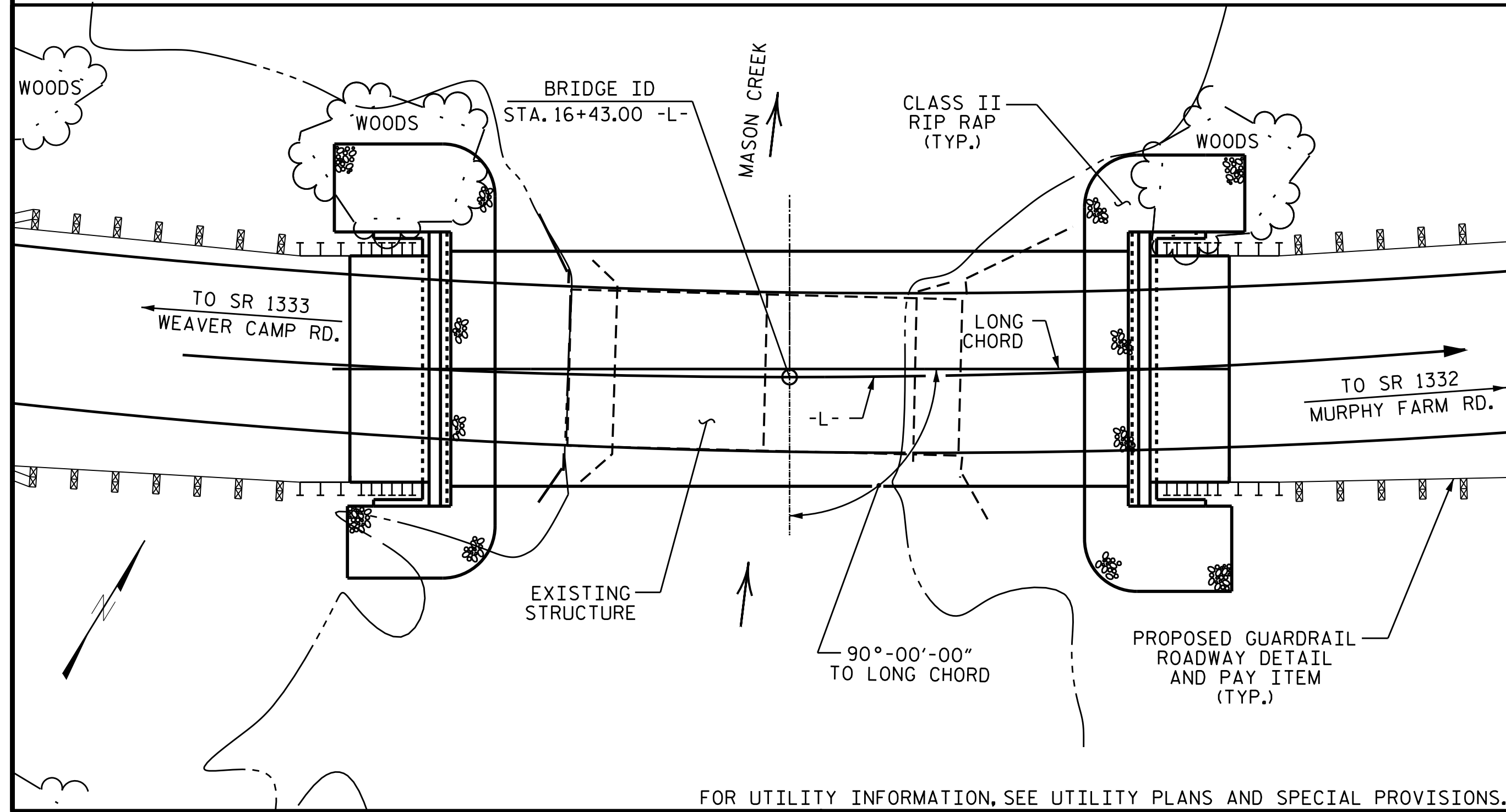
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1324
 OVER MASON CREEK
 BETWEEN SR 1333 & SR 1332

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

BENCH MARK #1: RAILROAD SPIKE IN POWER POLE, 37.95' RT. OF STA. 14+60.00 -L-, EL. 2.33



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 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.

CLASS AA CONCRETE SHALL BE USED IN ALL CAST-IN-PLACE END BENTS AND BENT PILE CAPS, AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL BAR SUPPORTS USED IN THE BARRIER RAILS, PRESTRESSED CONCRETE CORED SLAB UNITS, END BENTS, BENT CAPS, PRESTRESSED CONCRETE PILES, AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CONCRETE IN THE END BENTS, BENT CAPS, AND PRESTRESSED CONCRETE PILES SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB OF CEMENT. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 2 SPANS OF PRESTRESSED CONCRETE CHANNELS @ 30'-7" WITH A CLEAR ROADWAY WIDTH OF 24'-1" WITH AN ASPHALT WEARING SURFACE ON PRESTRESSED CONCRETE BENT AND END BENTS ON TIMBER PILES SHALL BE REMOVED. EXISTING PILES FROM A PREVIOUS BRIDGE SHALL ALSO BE REMOVED AND INCLUDED WITH THE LUMP SUM PAY ITEM FOR "REMOVAL OF EXISTING STRUCTURE." SEE SPECIAL PROVISIONS.

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

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE 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 PLANS.

THE EFFECTS OF THE HORIZONTAL CURVE SHALL BE NEGLECTED IN THE CONSTRUCTION OF THIS BRIDGE. THIS BRIDGE SHALL BE CONSTRUCTED ALONG THE LONG CHORD BETWEEN THE WORK POINTS AT THE FILL FACES AND ITS EXTENSIONS.

THIS STRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR CORROSIVE SITE.

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

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS AA CONCRETE	BRIDGE APPROACH SLABS	EPOXY COATED REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP FOR 12" PRESTRESSED CONCRETE PILES	12" PRESTRESSED CONCRETE PILES	PILE REDRIVES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	ASBESTOS ASSESSMENT
	LUMP SUM	EACH	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	EACH	NO. LIN. FT.	NO.	LIN. FT.	TONS	SQ.YDS.	LUMP SUM	NO. LIN. FT.	LUMP SUM
SUPERSTRUCTURE					LUMP SUM					220.50			LUMP SUM	24 1320.0	
END BENT NO. 1			LUMP SUM	13.4		2168	7	7 210	4		120	135			
BENT NO. 1				17.7		3320	14	14 420	14						
END BENT NO. 2			LUMP SUM	13.4		2168	7	7 210	4		120	135			
TOTAL	LUMP SUM	2	LUMP SUM	44.5	LUMP SUM	7656	28	28 840	22	220.50	240	270	LUMP SUM	24 1320.0	LUMP SUM

HYDRAULIC DATA

DESIGN DISCHARGE = ----- CFS.

FREQUENCY OF DESIGN FLOOD = <5 YRS.

DESIGN HIGH WATER ELEVATION = -----

DRAINAGE AREA = 1.6 SQ. MI.

BASE DISCHARGE (Q100) = ----- CFS.

BASE HIGH WATER ELEVATION = 11.4

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 5,800 CFS.

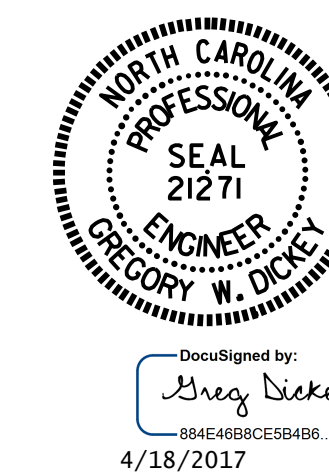
FREQUENCY OF OVERTOPPING FLOOD = <5 YRS.

OVERTOPPING FLOOD ELEVATION = 3.7

OVERTOPPING LOCATION OCCURS AT RIGHT EDGE OF PAVEMENT AT STA. 11+03.00 -L-

PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 1324
 OVER MASON CREEK
 BETWEEN SR 1333
 AND SR 1332

DRAWN BY: William J. Parker DATE: 04/16
 CHECKED BY: A. Suresingh DATE: 09/16
 DESIGN ENGINEER OF RECORD: M.M. Ahmad DATE: 08/16

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

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	1.055	--	1.75	0.275	1.23	55'	EL	27	0.523	1.23	55'	EL	5.4	0.80	0.275	1.05	55'	EL	27		
	HL-93(0pr)	N/A	--	1.591	--	1.35	0.275	1.59	55'	EL	27	0.523	1.59	55'	EL	5.4	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	2	1.322	47.585	1.75	0.275	1.54	55'	EL	27	0.523	1.47	55'	EL	5.4	0.80	0.275	1.32	55'	EL	27		
	HS-20(0pr)	36.000	--	1.9	68.396	1.35	0.275	1.99	55'	EL	27	0.523	1.9	55'	EL	5.4	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.776	37.476	1.4	0.275	4.04	55'	EL	27	0.523	4.17	55'	EL	5.4	0.80	0.275	2.78	55'	EL	27	
		SNGARBS2	20.000	--	2.155	43.095	1.4	0.275	3.14	55'	EL	27	0.523	3.02	55'	EL	5.4	0.80	0.275	2.15	55'	EL	27	
		SNAGRIS2	22.000	--	2.079	45.734	1.4	0.275	3.03	55'	EL	27	0.523	2.83	55'	EL	5.4	0.80	0.275	2.08	55'	EL	27	
		SNCOTTS3	27.250	--	1.384	37.708	1.4	0.275	2.01	55'	EL	27	0.523	2.09	55'	EL	5.4	0.80	0.275	1.38	55'	EL	27	
		SNAGGRS4	34.925	--	1.189	41.527	1.4	0.275	1.73	55'	EL	27	0.523	1.77	55'	EL	5.4	0.80	0.275	1.19	55'	EL	27	
		SNS5A	35.550	--	1.16	41.255	1.4	0.275	1.69	55'	EL	27	0.523	1.82	55'	EL	5.4	0.80	0.275	1.16	55'	EL	27	
		SNS6A	39.950	--	1.079	43.102	1.4	0.275	1.57	55'	EL	27	0.523	1.68	55'	EL	5.4	0.80	0.275	1.08	55'	EL	27	
	SNS7B	42.000	--	1.028	43.175	1.4	0.275	1.5	55'	EL	27	0.523	1.67	55'	EL	5.4	0.80	0.275	1.03	55'	EL	27		
	TTST	TNAGRIT3	33.000	--	1.32	43.556	1.4	0.275	1.92	55'	EL	27	0.523	1.98	55'	EL	5.4	0.80	0.275	1.32	55'	EL	27	
		TNT4A	33.075	--	1.33	43.979	1.4	0.275	1.94	55'	EL	27	0.523	1.91	55'	EL	5.4	0.80	0.275	1.33	55'	EL	27	
		TNT6A	41.600	--	1.101	45.811	1.4	0.275	1.6	55'	EL	27	0.523	1.83	55'	EL	5.4	0.80	0.275	1.10	55'	EL	27	
		TNT7A	42.000	--	1.114	46.804	1.4	0.275	1.62	55'	EL	27	0.523	1.71	55'	EL	5.4	0.80	0.275	1.11	55'	EL	27	
		TNT7B	42.000	--	1.163	48.848	1.4	0.275	1.69	55'	EL	27	0.523	1.62	55'	EL	5.4	0.80	0.275	1.16	55'	EL	27	
		TNAGRIT4	43.000	--	1.101	47.33	1.4	0.275	1.6	55'	EL	27	0.523	1.56	55'	EL	5.4	0.80	0.275	1.10	55'	EL	27	
TNAGT5A		45.000	--	1.031	46.405	1.4	0.275	1.5	55'	EL	27	0.523	1.58	55'	EL	5.4	0.80	0.275	1.03	55'	EL	27		
TNAGT5B	45.000	3	1.013	45.582	1.4	0.275	1.47	55'	EL	27	0.523	1.48	55'	EL	5.4	0.80	0.275	1.01	55'	EL	27			

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)

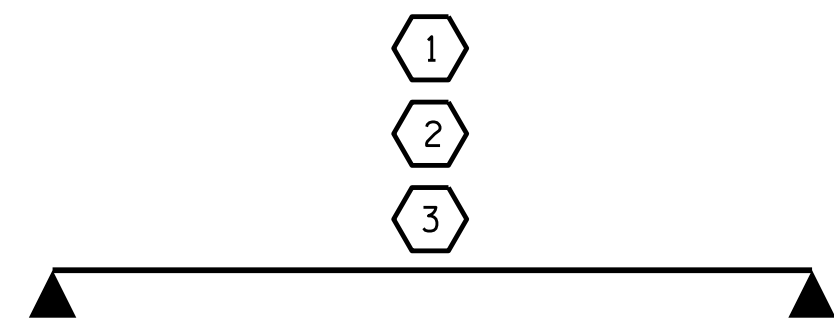
2 DESIGN LOAD RATING (HS-20)

3 LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

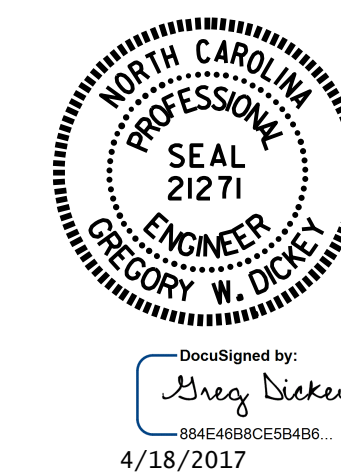
GIRDER LOCATION

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



LRFR SUMMARY

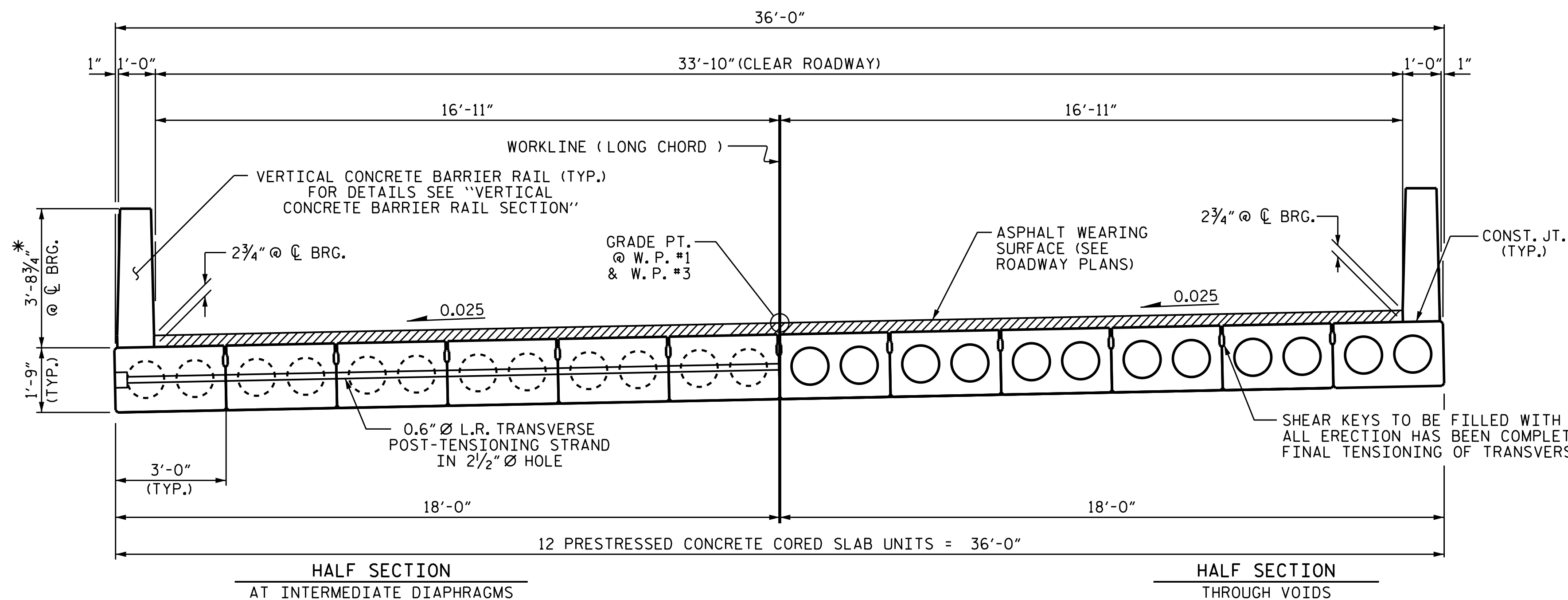
PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-4
STANDARD LRFR SUMMARY FOR 55' CORED SLAB UNIT 90° SKEW (NON-INTERSTATE TRAFFIC)						TOTAL SHEETS 18
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

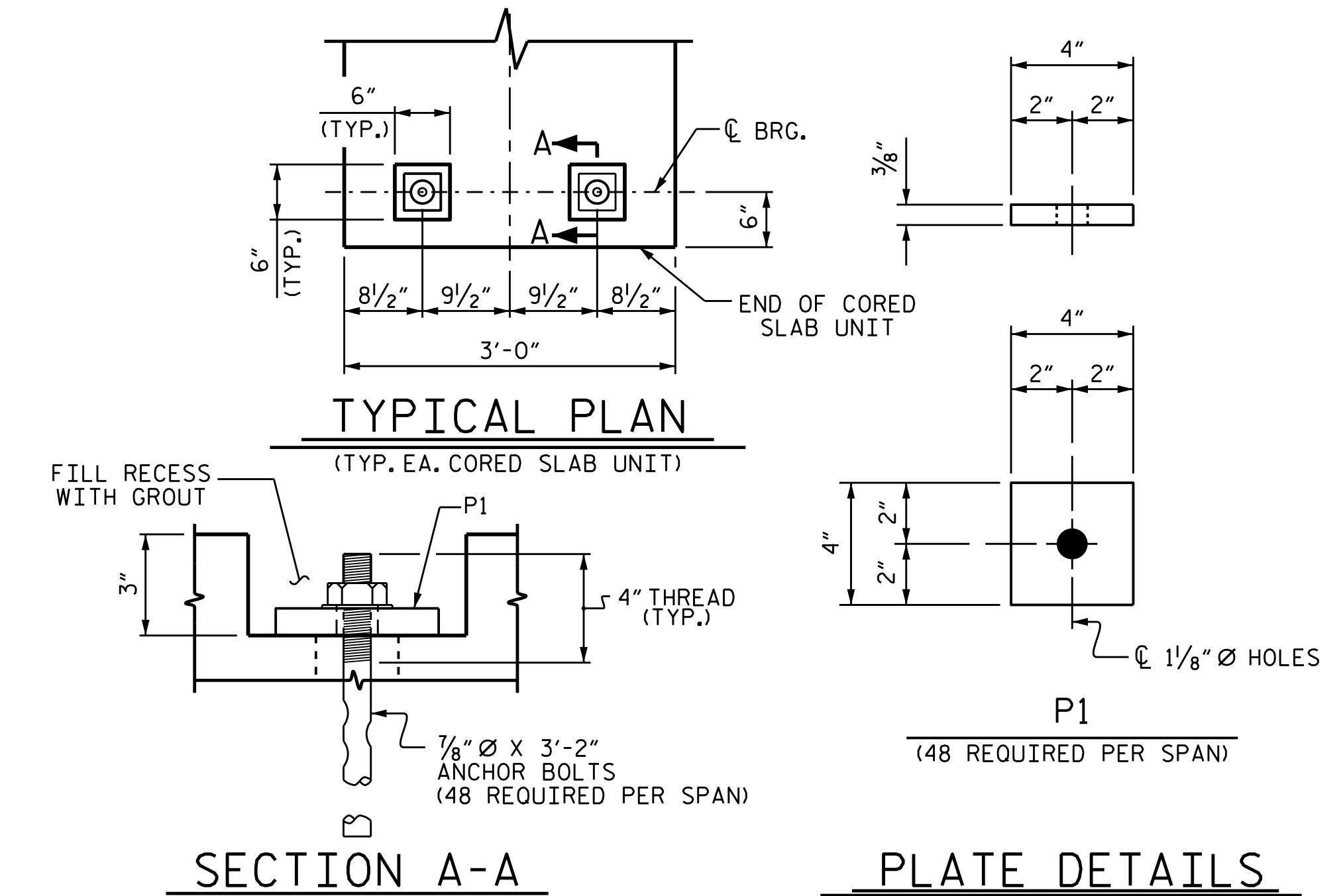
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

ASSEMBLED BY : M.M. AHMED	DATE : 3/30/16
CHECKED BY : A. SORSENGINH	DATE : 9/20/16
DRAWN BY : CVC	6/10
CHECKED BY : DNS	6/10



TYPICAL SECTION

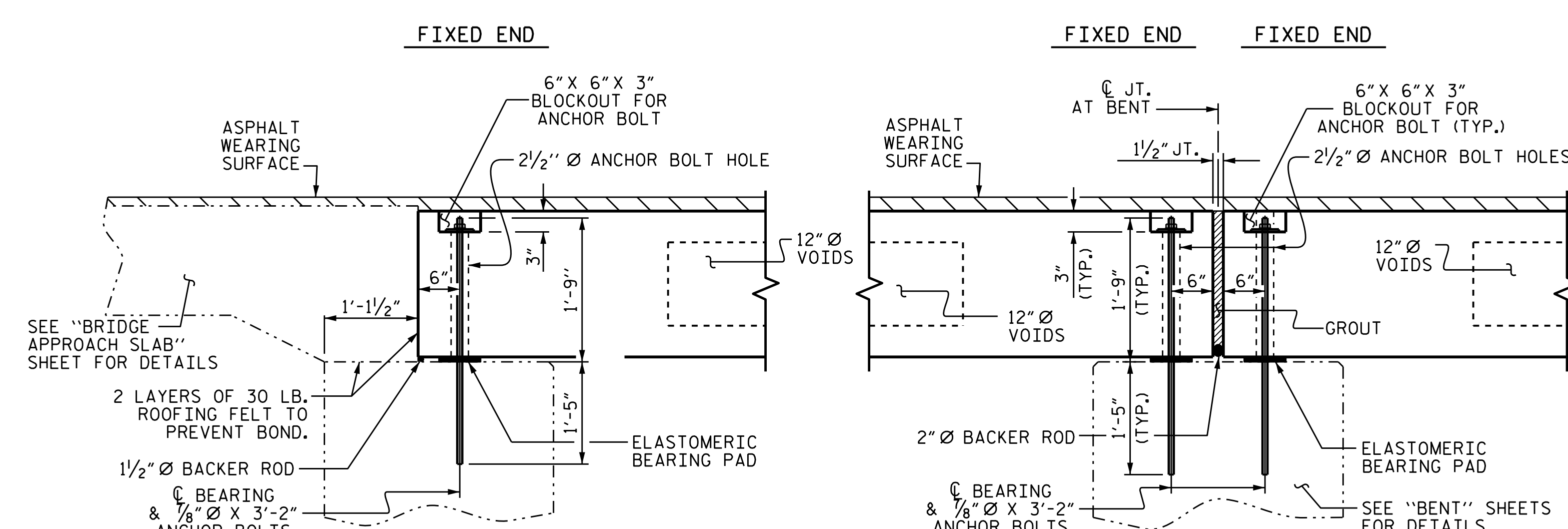
* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



SECTION A-A

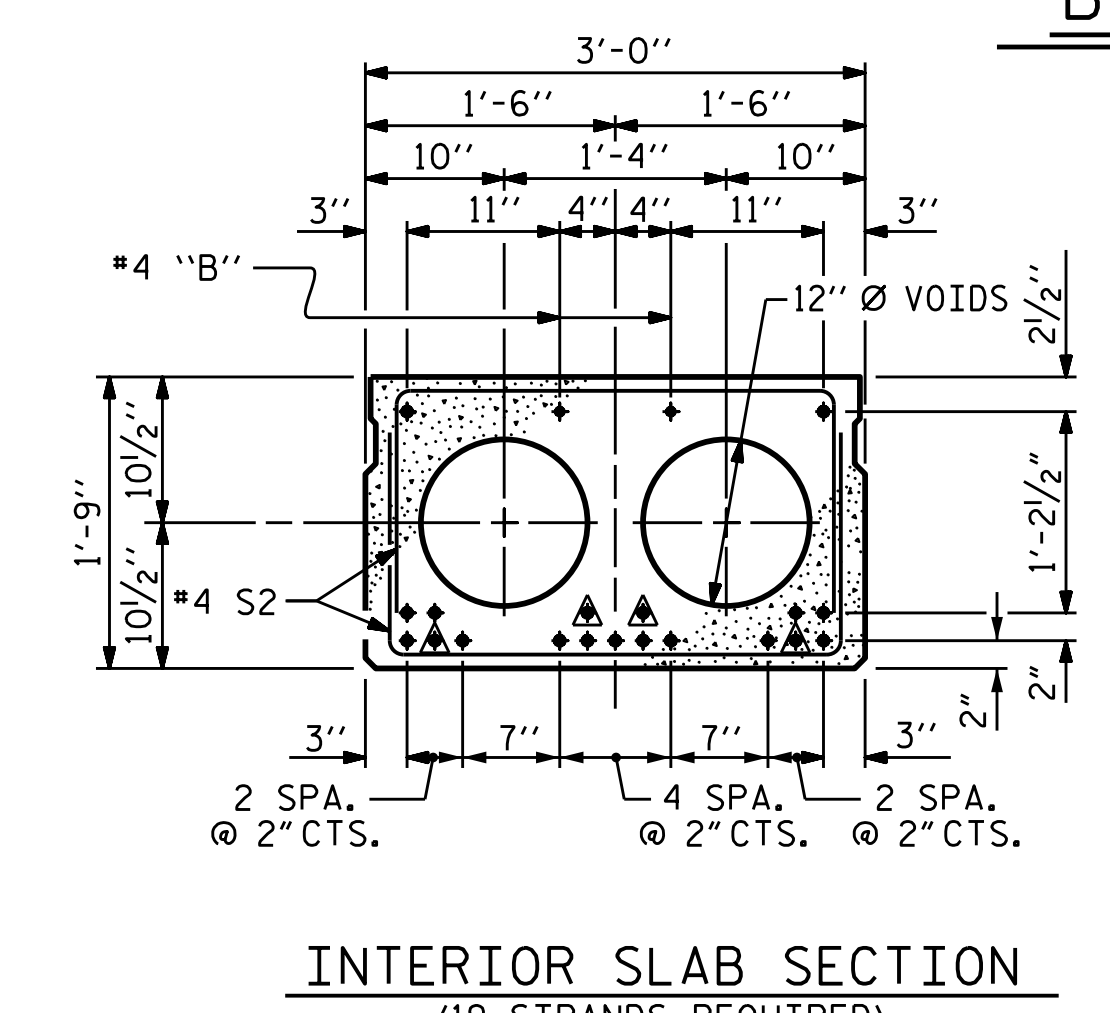
PLATE DETAILS

BLOCKOUT DETAIL FOR ANCHOR BOLTS

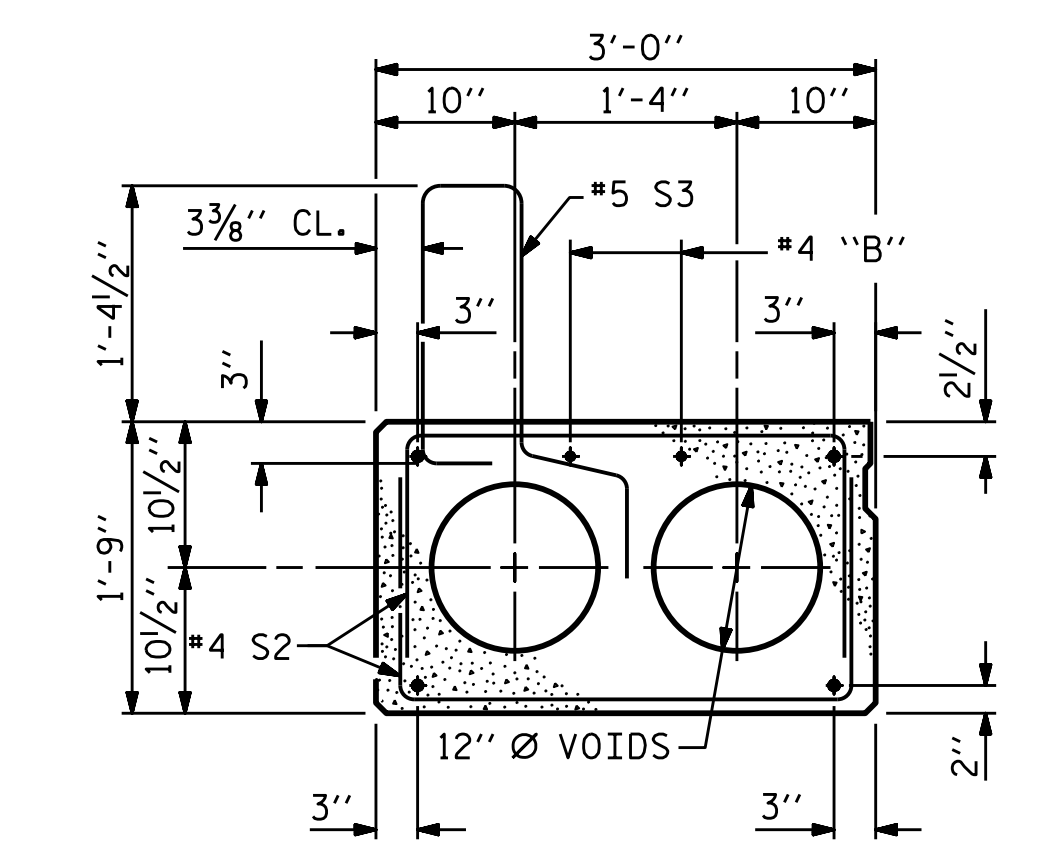


SECTION AT END BENT

SECTION AT BENT



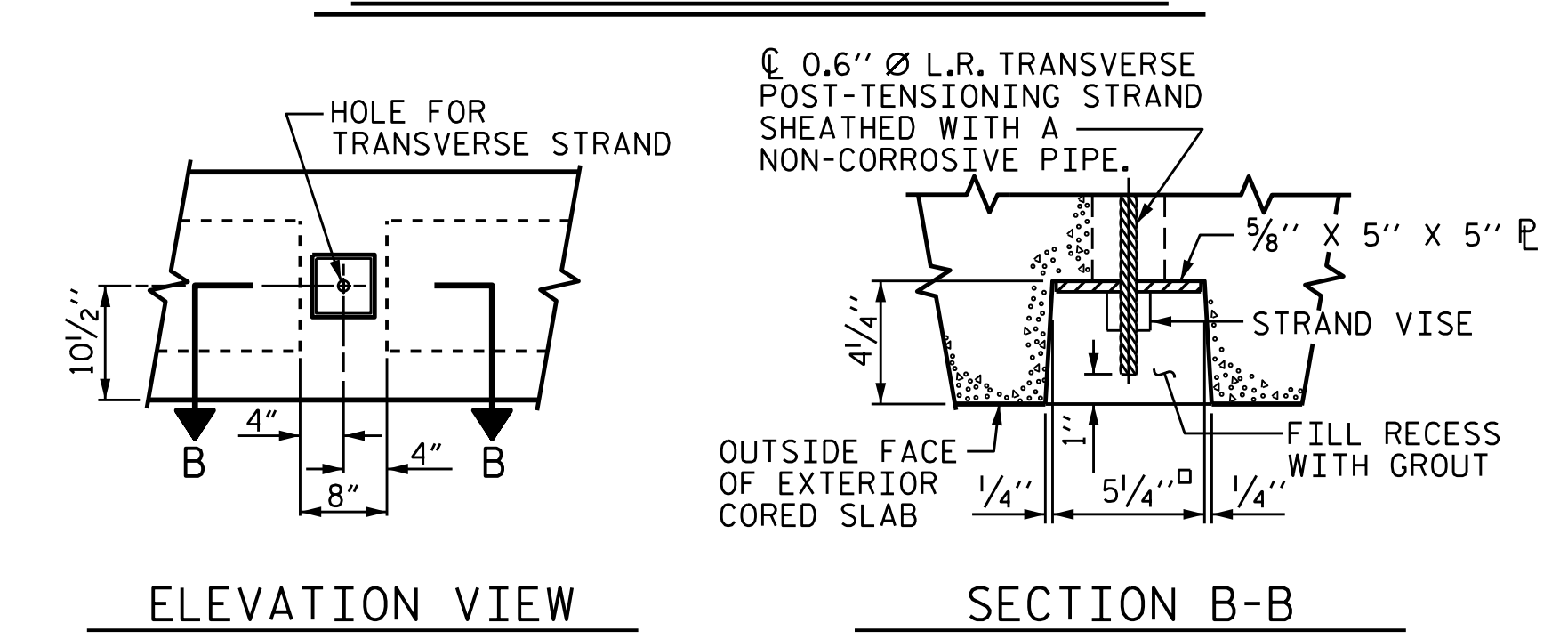
INTERIOR SLAB SECTION (19 STRANDS REQUIRED)



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

0.6" Ø LOW RELAXATION STRAND LAYOUT

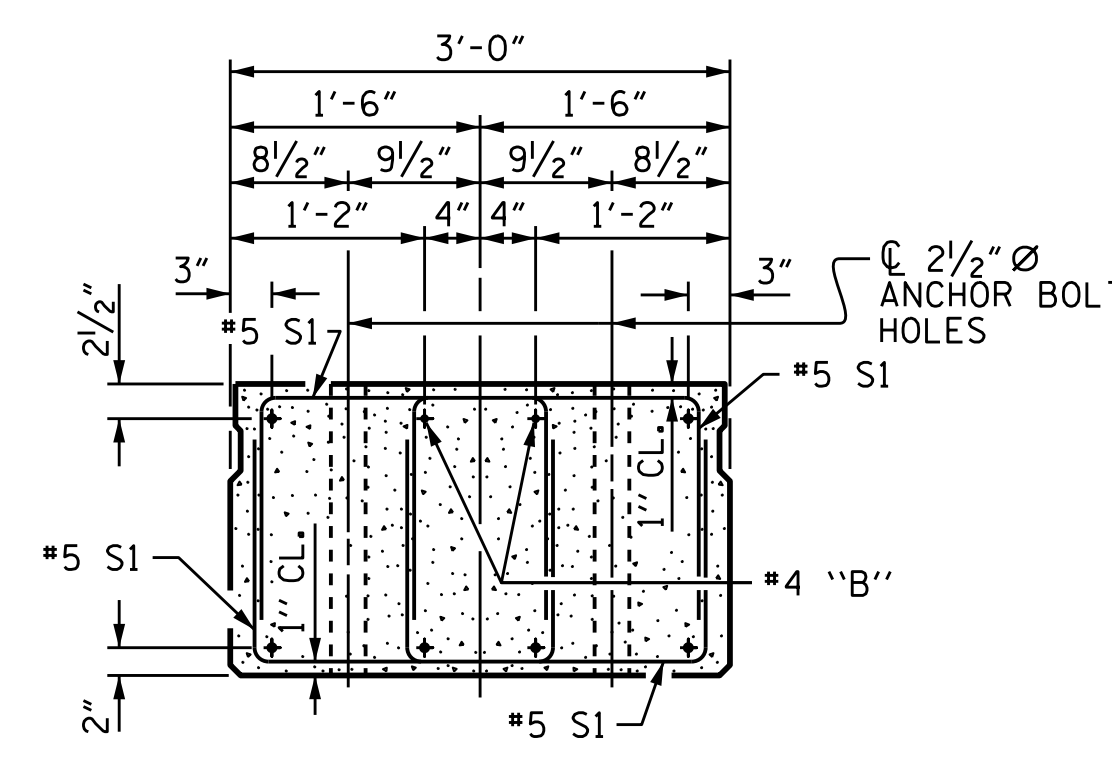
▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.



ELEVATION VIEW

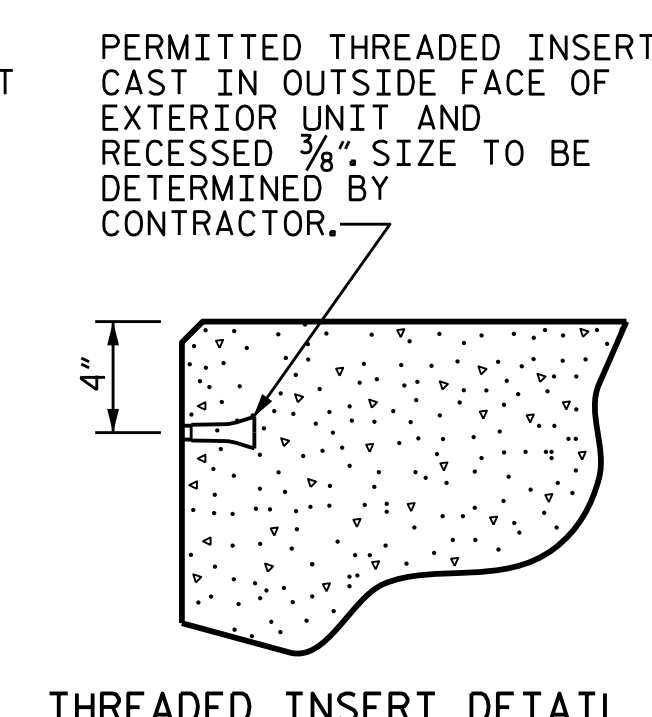
SECTION B-B

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

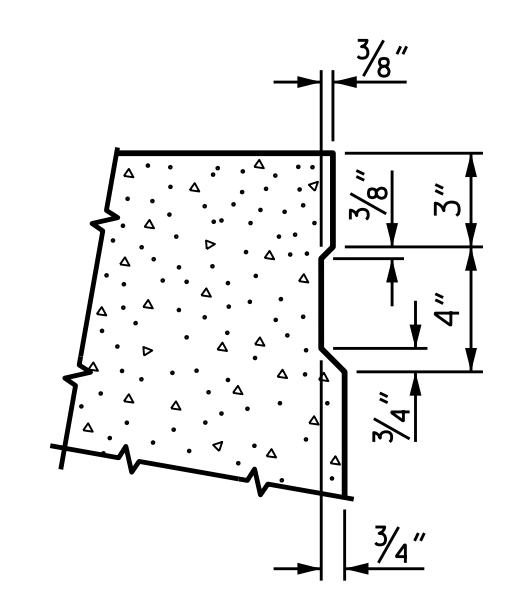


END ELEVATION

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

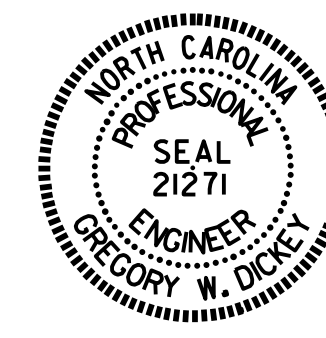


THREADED INSERT DETAIL



SHEAR KEY DETAIL

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



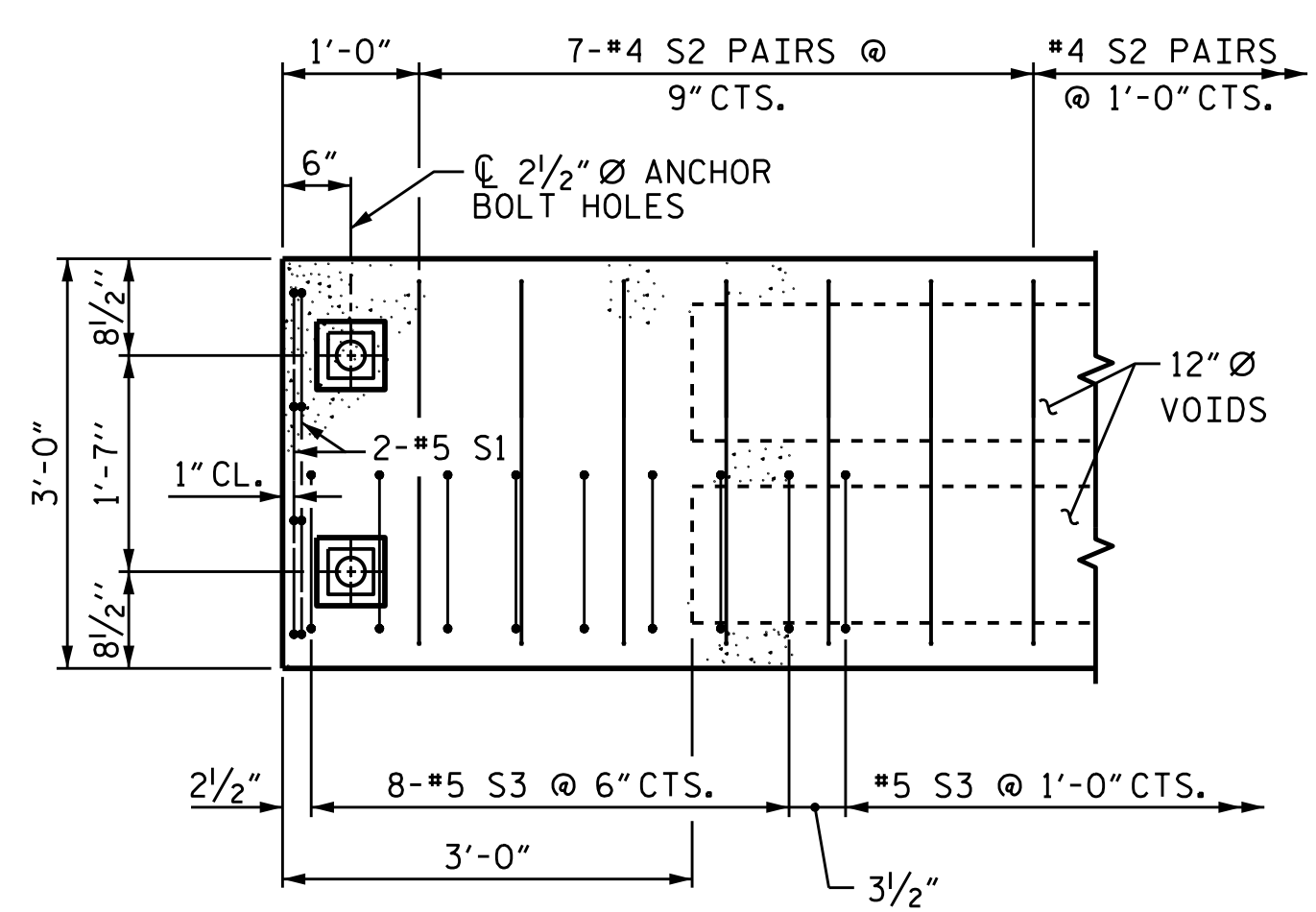
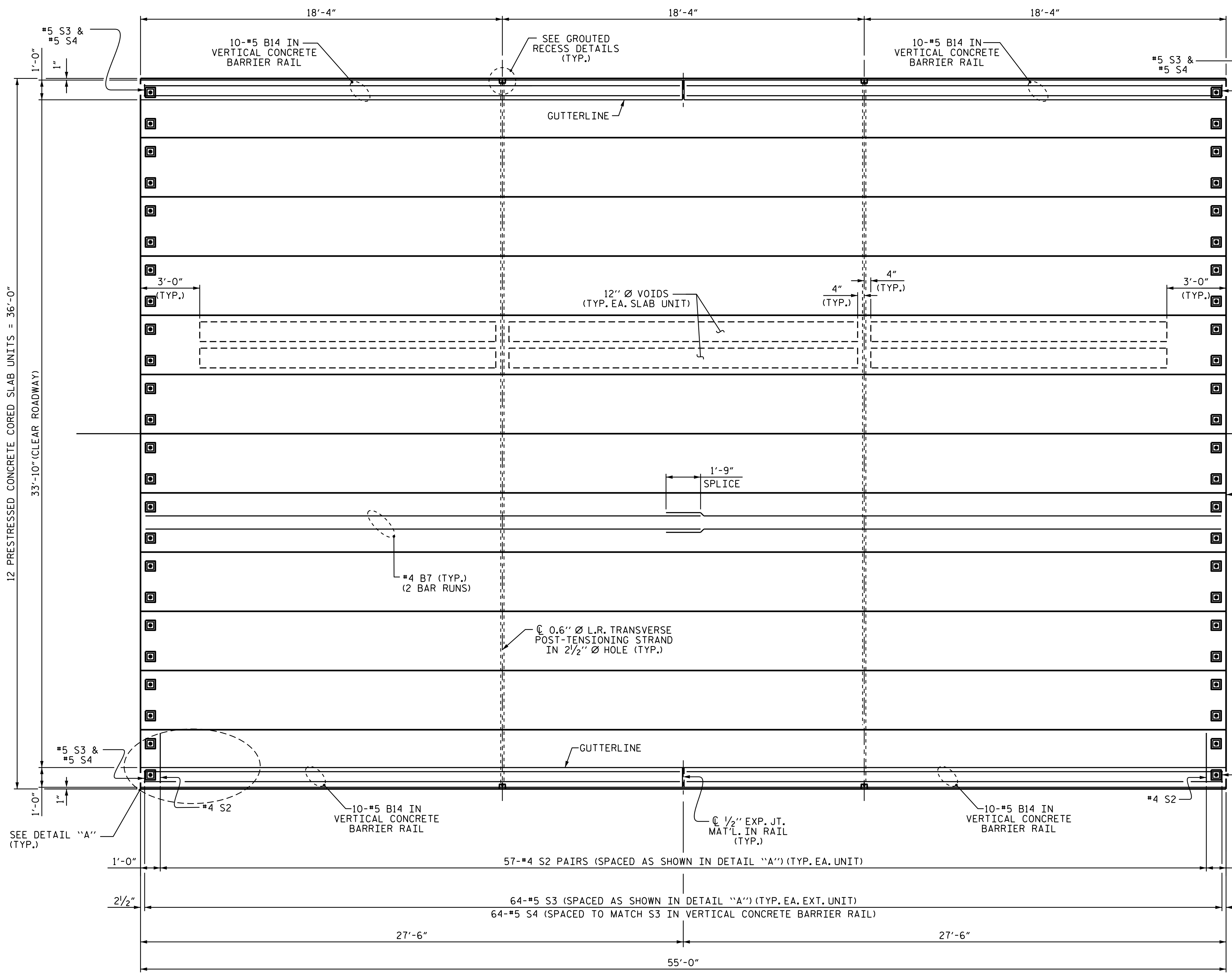
PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW

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

ASSEMBLED BY : M.M. AHMED	DATE : 8/31/16
CHECKED BY : A. SORSENGINH	DATE : 9/20/16
DRAWN BY : DGE	5/09
CHECKED BY : BCH	6/09
REV. 9/14	MAA/TMG



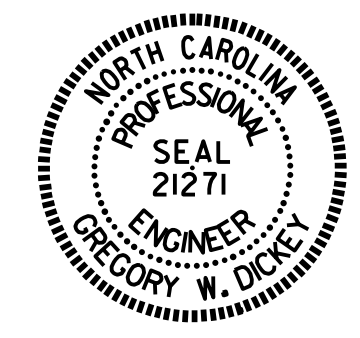
DETAIL "A"
 (TYPICAL EACH END OF UNIT)
 NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

LONG CHORD
 90°-00'-00" TO LONG CHORD

PLAN OF UNIT

PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-

SHEET 2 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 PLAN OF 55' UNIT
 33'-10" CLEAR ROADWAY
 90° SKEW

ASSEMBLED BY : M.M. AHMED	DATE : 8/31/16
CHECKED BY : A. SORSENGINH	DATE : 9/20/16
DRAWN BY : DGE 5/09	REV. 12/5/11 MAA/AAC
CHECKED BY : BCH 6/09	REV. 8/14 MAA/TMG

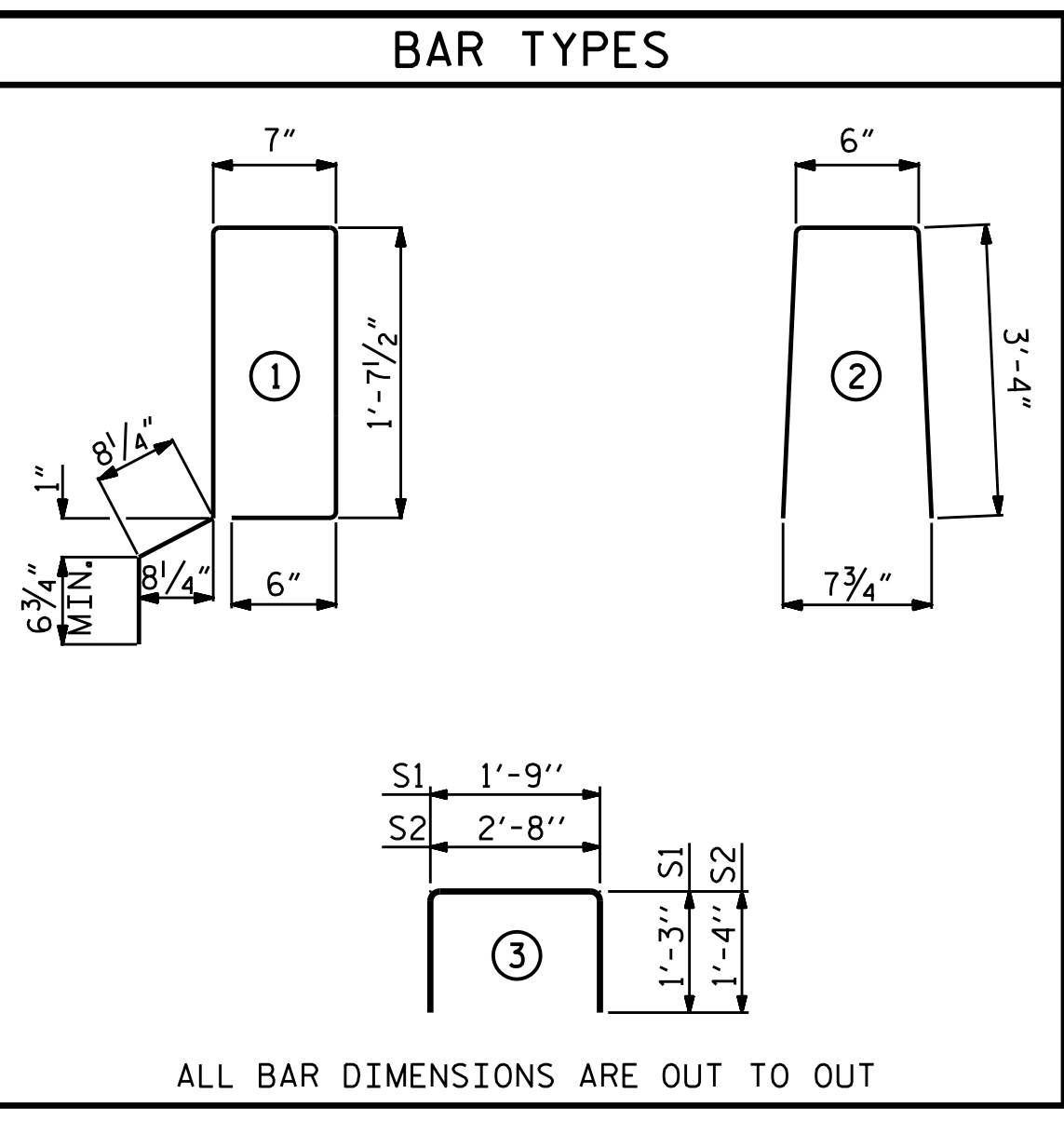
DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS 18
2			4			

18-APR-2017 11:57
 Y:\Structures\Plans\Backup_File\B-4598.SMU_Final Plans_680016.dgn
 gdickey

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL						
BAR	BARS PER PAIR OF EXTERIOR UNITS	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
55' UNIT						
*B14	40	80	#5	STR	27'-1"	2260
*S4	128	256	#5	2	7'-2"	1914
* EPOXY COATED REINFORCING STEEL						LBS. 4174
CLASS AA CONCRETE						CU.YDS. 28.2
TOTAL VERTICAL CONCRETE BARRIER RAIL						LN.FT. 220.50

CONCRETE RELEASE STRENGTH	
UNIT	PSI
55' UNITS	4900



NOTES

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

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

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

THE 2 1/2" Ø ANCHOR BOLT HOLES AND BLOCKOUTS 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, 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 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.

PRESTRESSED CONCRETE CORED SLAB UNITS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

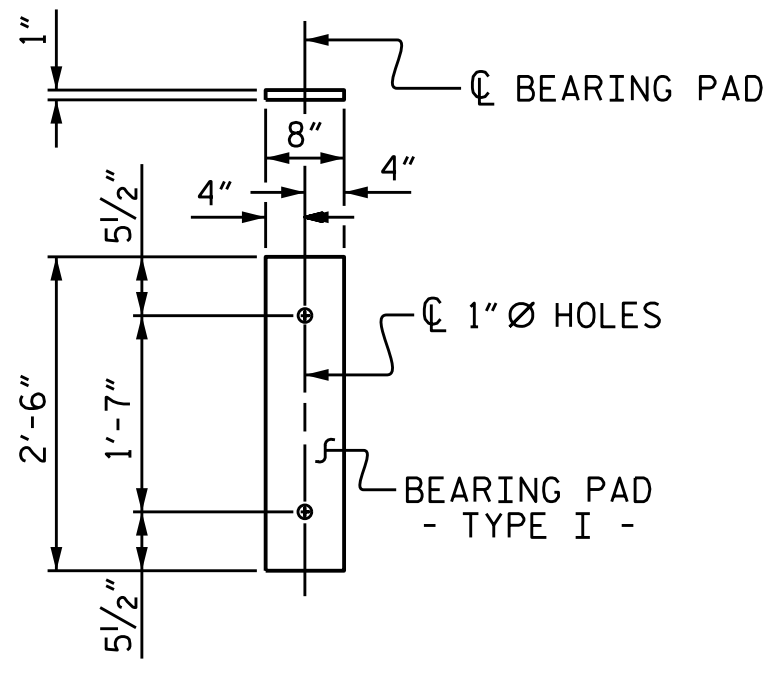
PRESTRESSED CONCRETE CORED SLAB UNITS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL BAR SUPPORTS USED IN THE PRESTRESSED CONCRETE CORED SLAB UNITS AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE PLATES "P1", ANCHOR BOLTS, NUTS, AND WASHERS SHALL BE INCLUDED IN THE PAY ITEM FOR PRESTRESSED CONCRETE CORED SLAB UNITS.

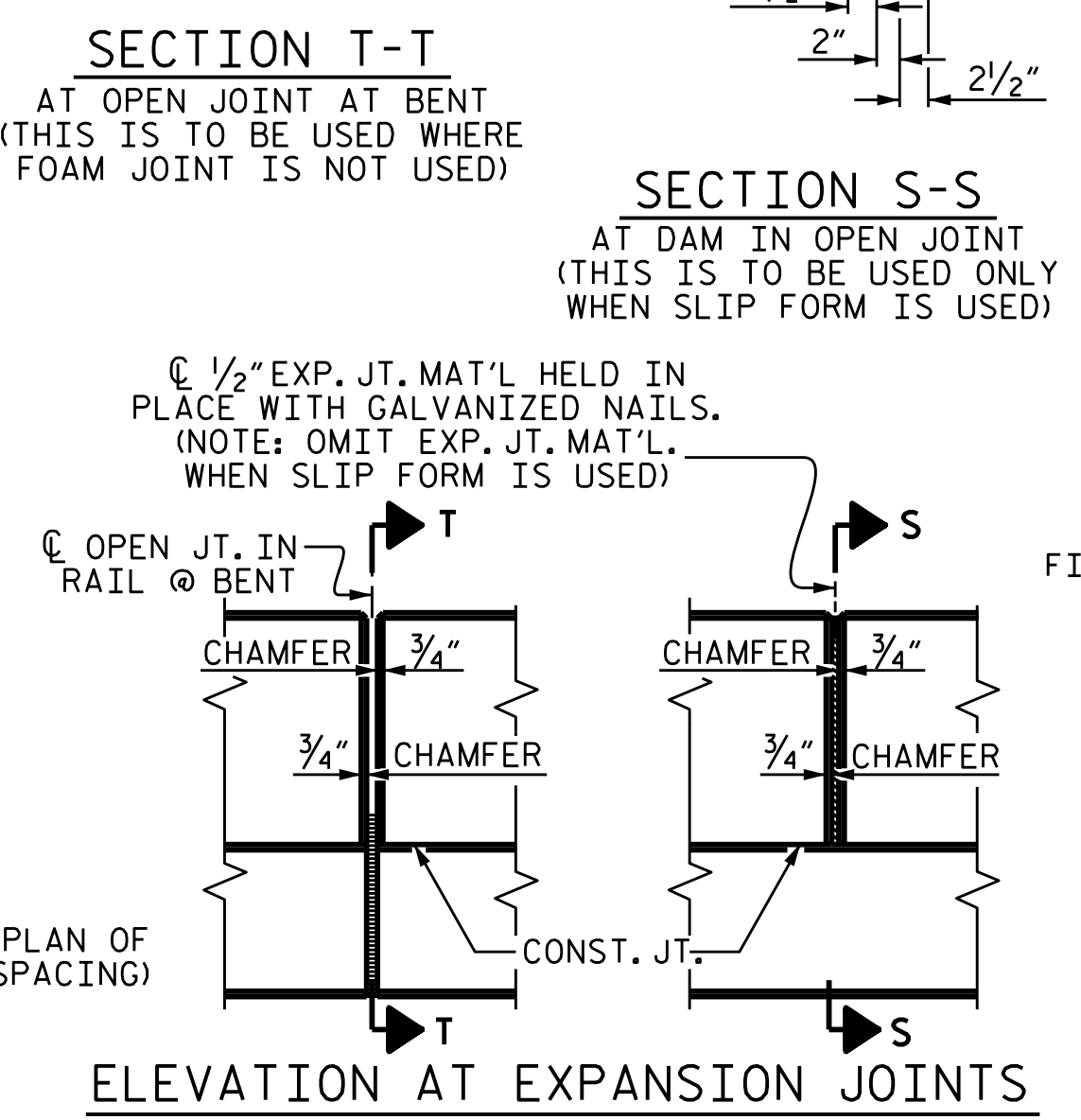
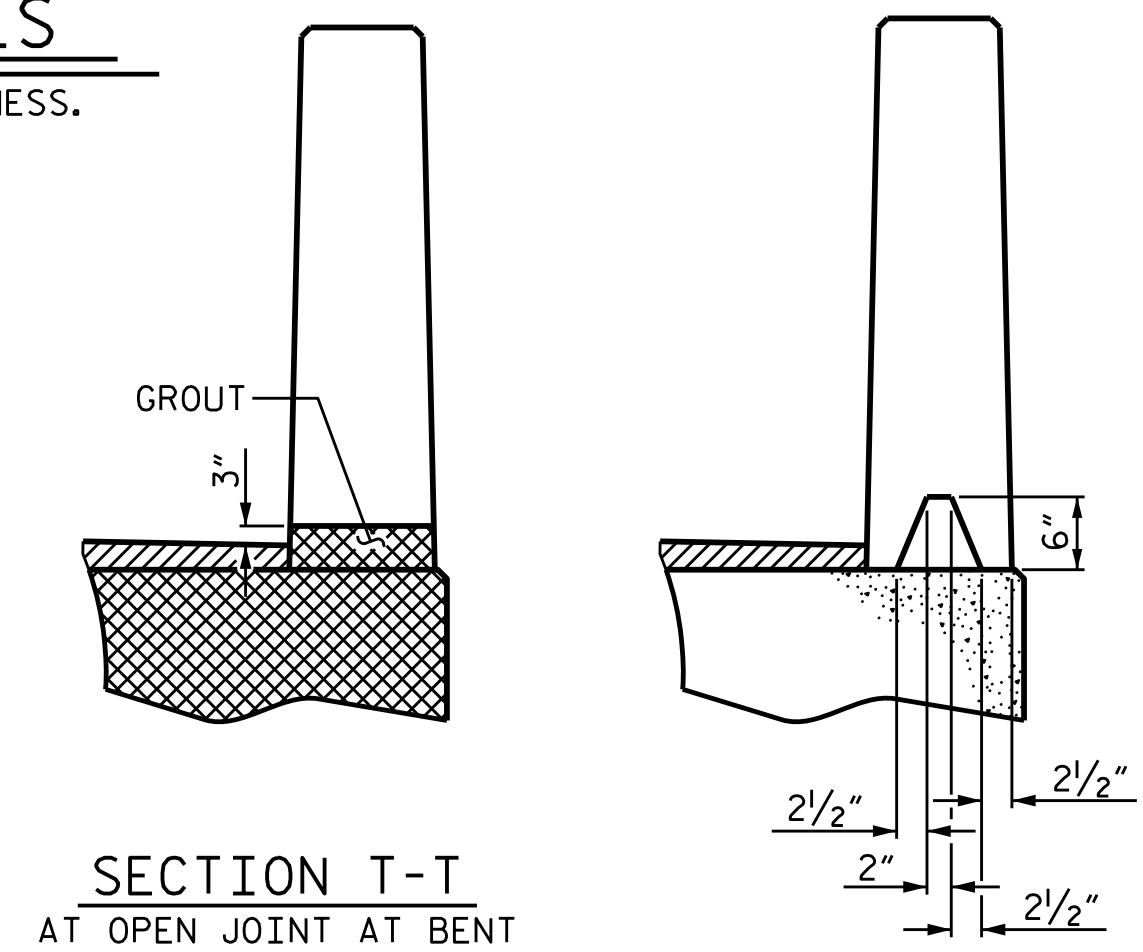
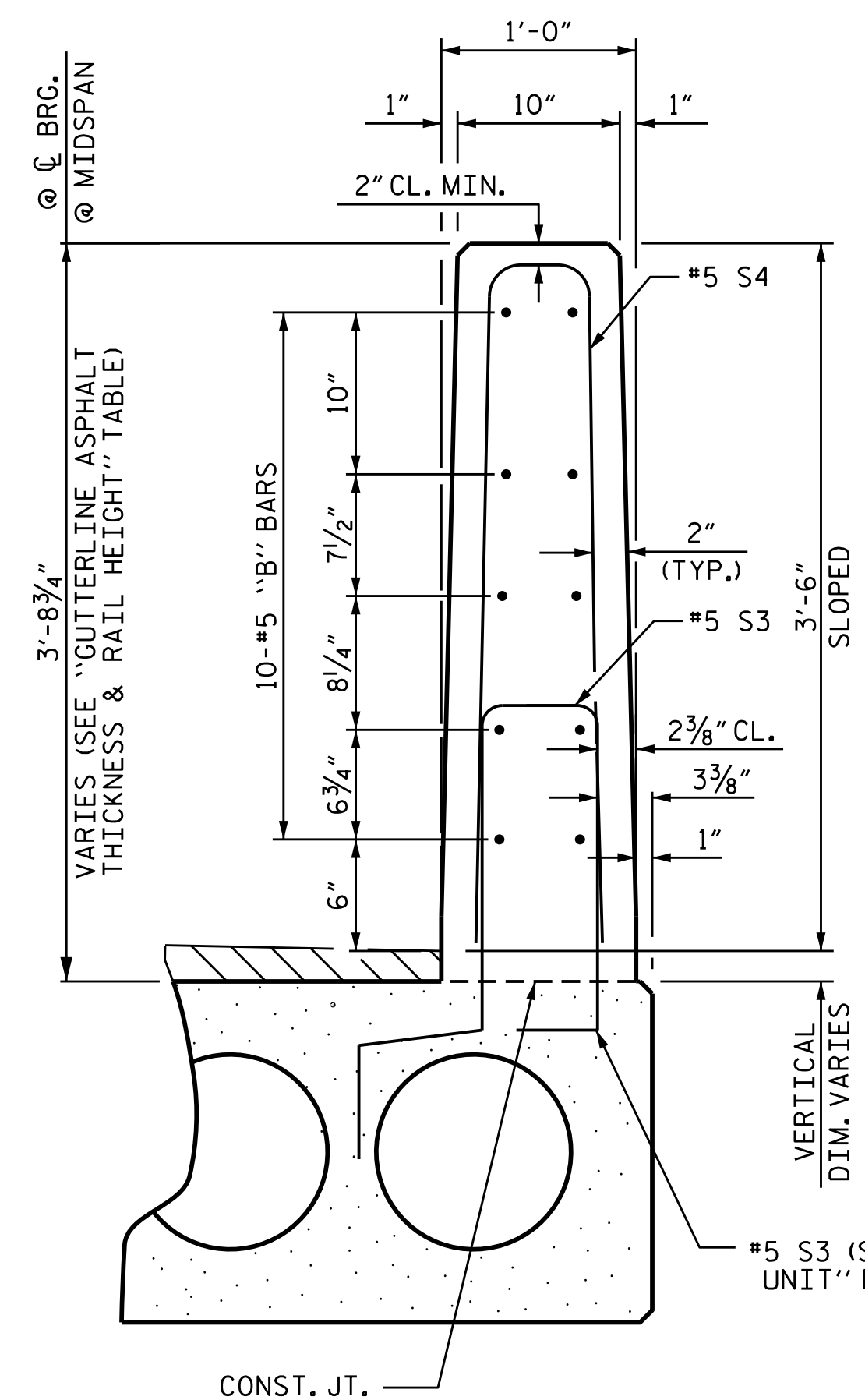
ANCHOR BOLTS, NUTS, WASHERS AND PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT								
				EXTERIOR UNIT		INTERIOR UNIT		
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT	
*B7	4	#4	STR	28'-3"	75	28'-3"	75	
*S1	8	#5	3	4'-3"	35	4'-3"	35	
*S2	114	#4	3	5'-4"	406	5'-4"	406	
*S3	64	#5	1	5'-7"	373			
* EPOXY COATED REINFORCING STEEL					LBS. 889		516	
6500 P.S.I. CONCRETE					CU. YDS. 7.8		7.8	
0.6" Ø L.R. STRANDS					No. 19		19	



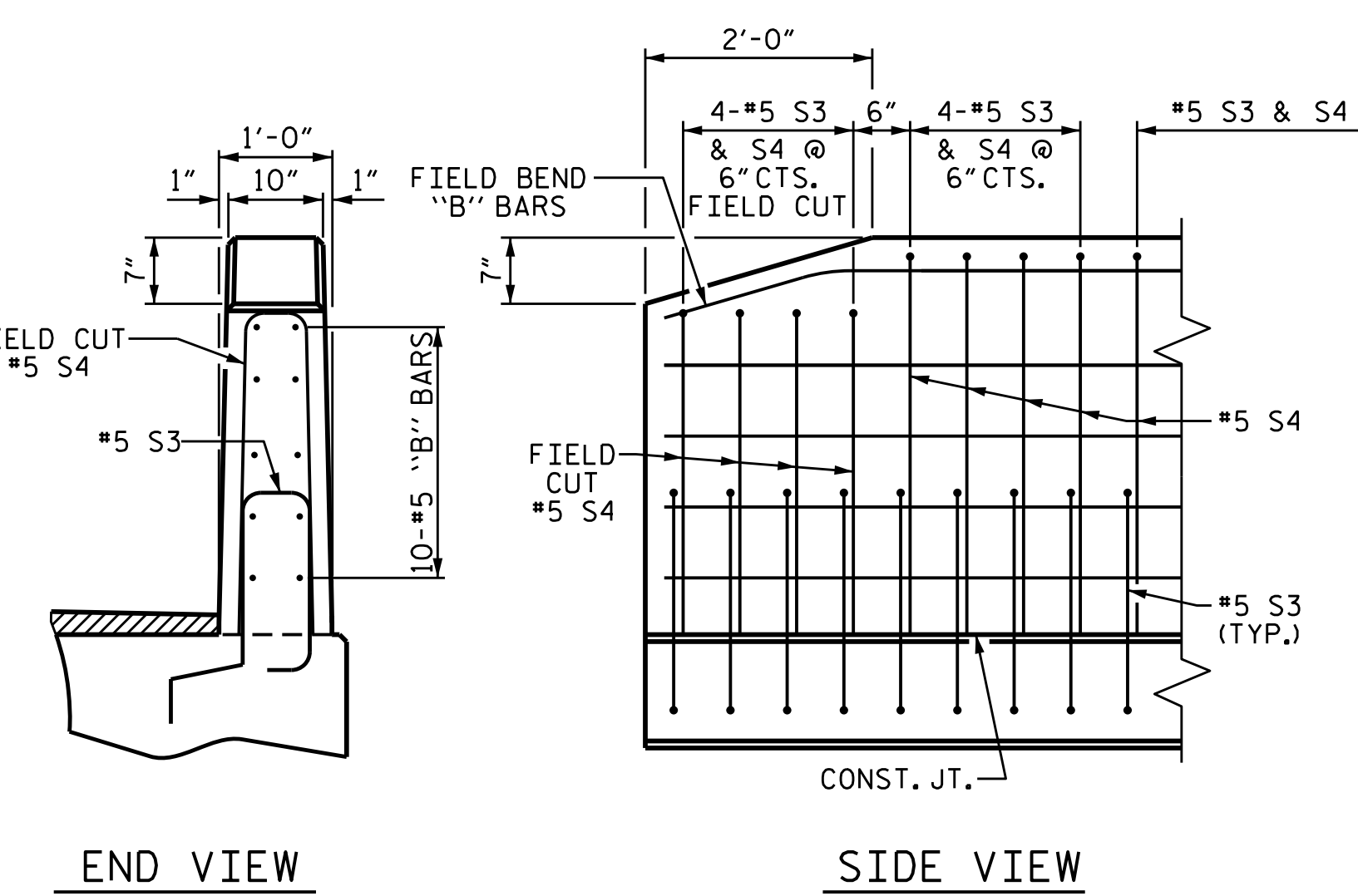
ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.



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

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

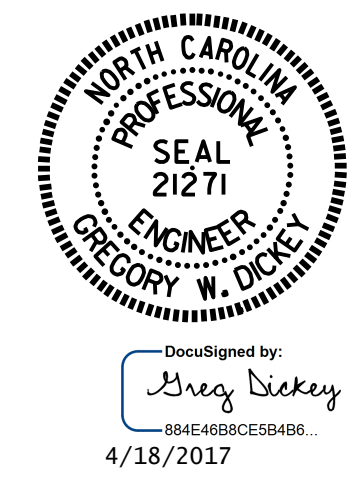


CORED SLABS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
55' UNIT			
EXTERIOR C.S.	4	55'-0"	220'-0"
INTERIOR C.S.	20	55'-0"	1100'-0"
TOTAL	24		1320'-0"

PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW



ASSEMBLED BY : M.M. AHMED DATE : 8/31/16
 CHECKED BY : A. SORSENGINH DATE : 9/20/16
 DRAWN BY : DGE 5/09
 CHECKED BY : BCH 6/09
 REV. 11/14 MAA/TMC

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS 18
2			4			

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.)

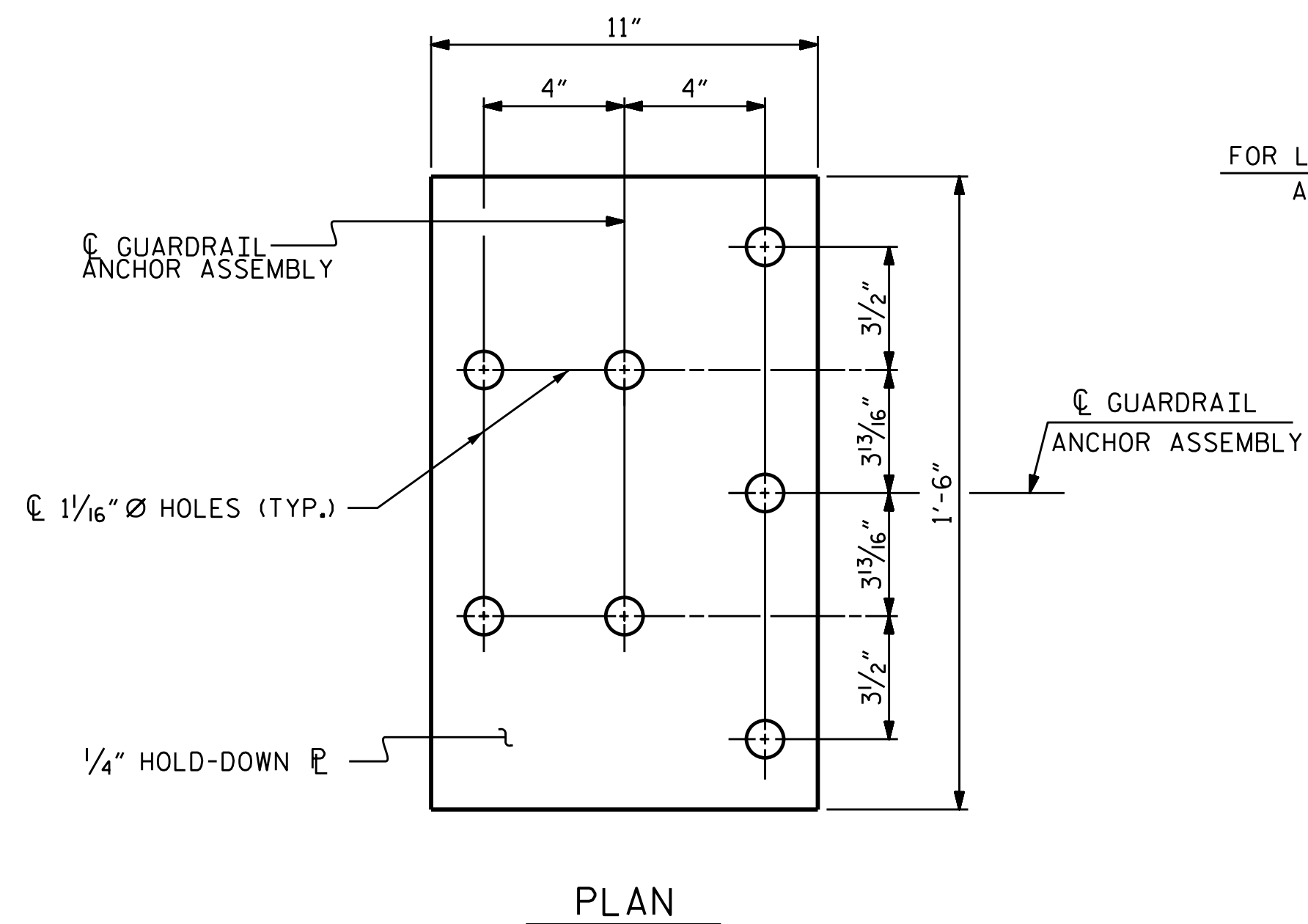
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

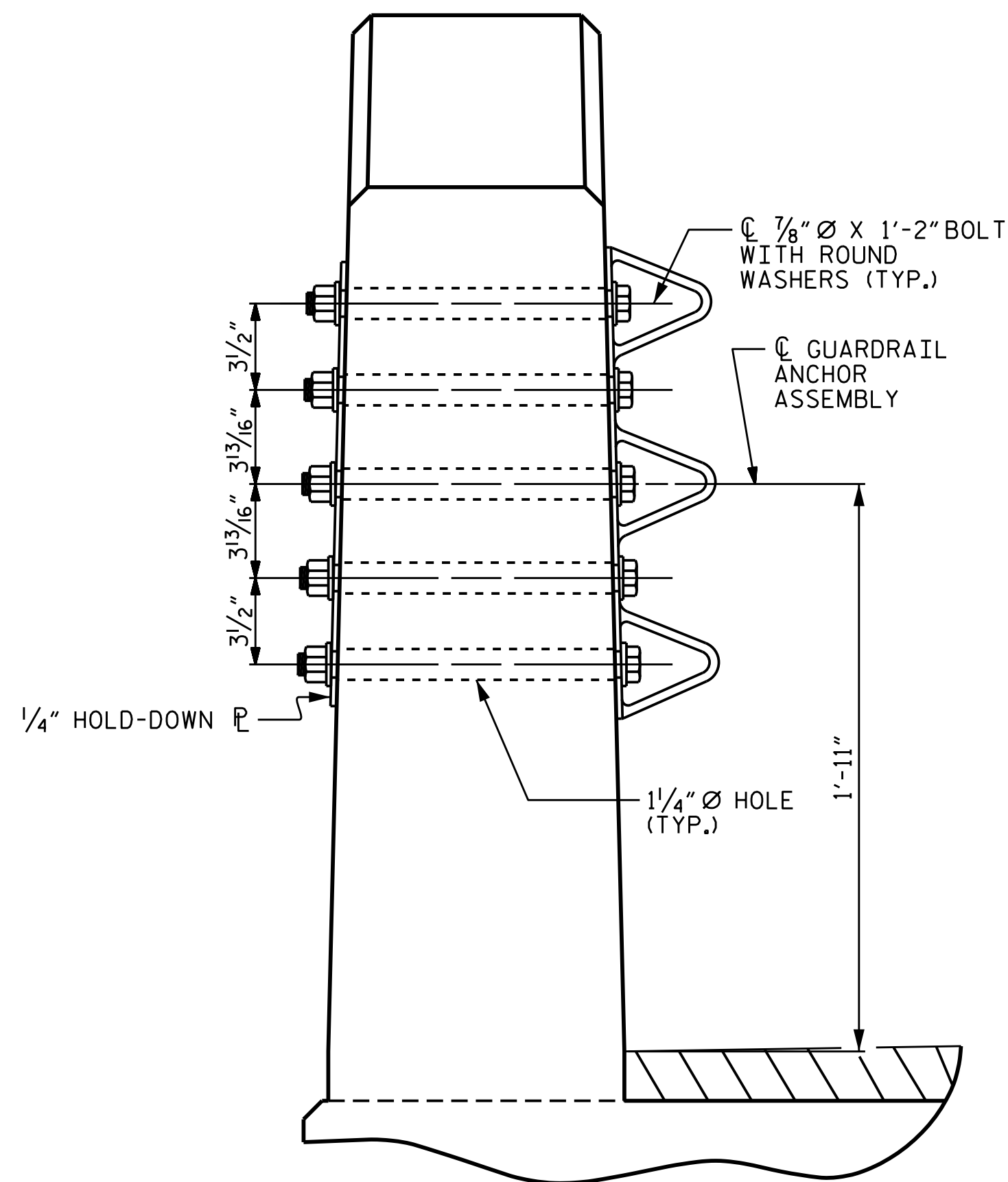
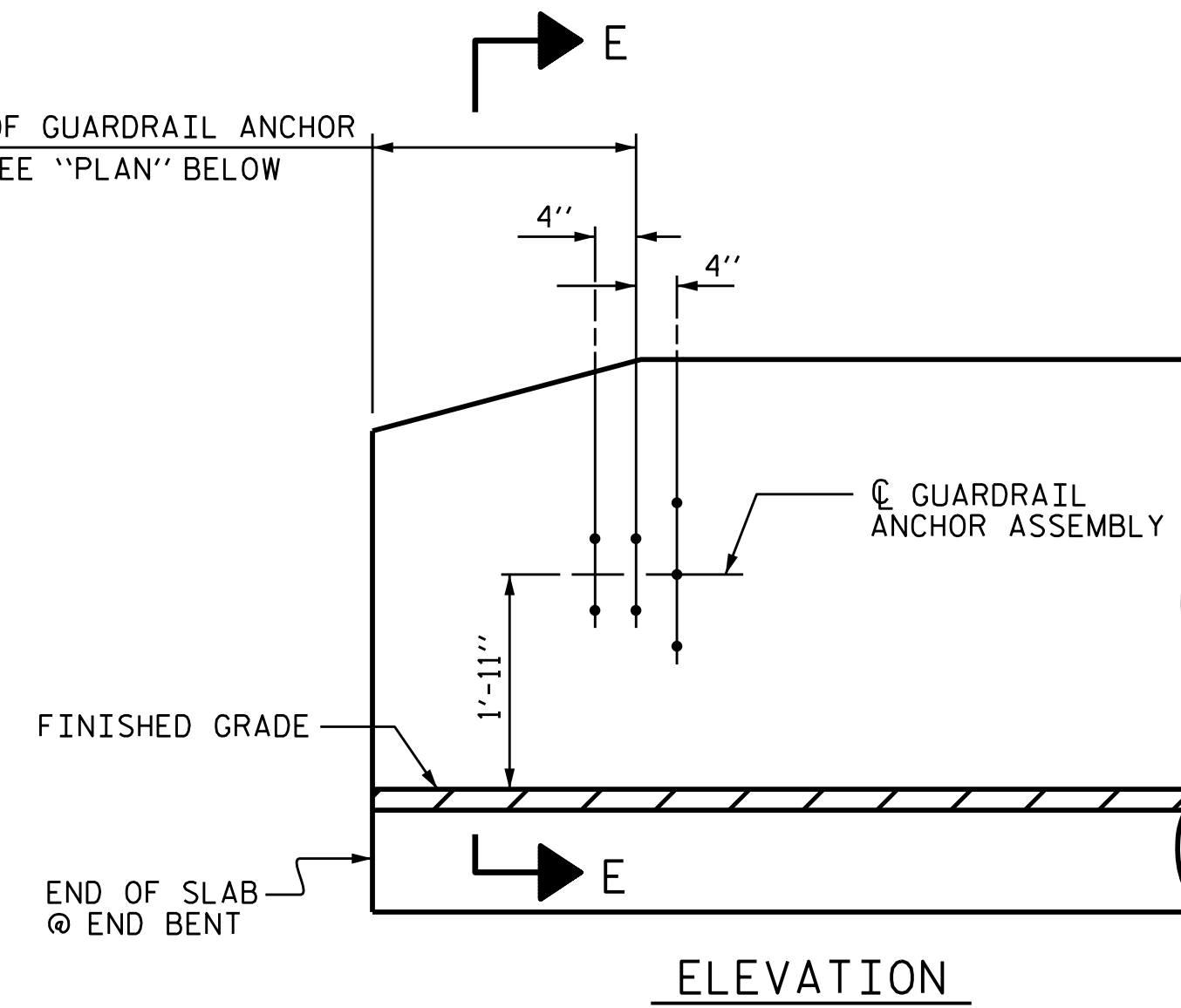
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

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.

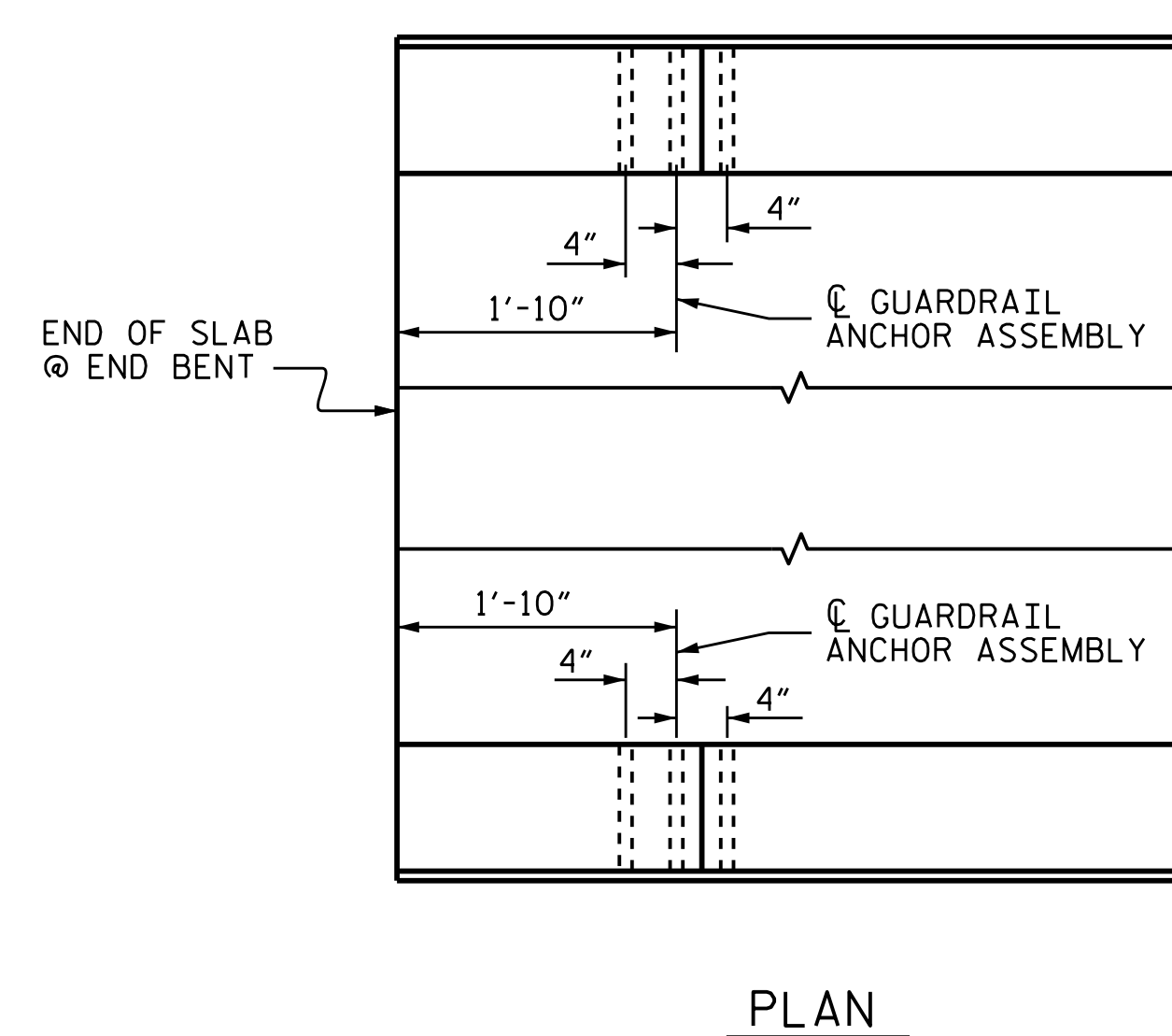


FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



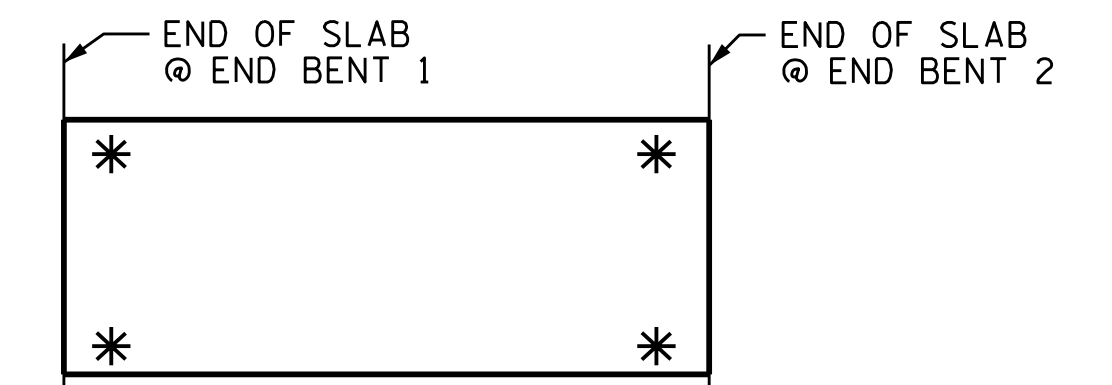
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

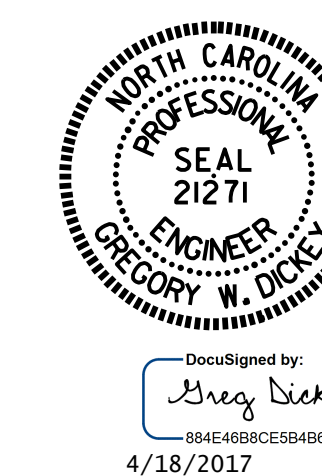
END BENT 1 SHOWN, END BENT 2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-



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

ASSEMBLED BY : M. M. AHMED	DATE : 3/31/16
CHECKED BY : P. K. NEWTON	DATE : 2/1/17
DRAWN BY : MAA 5/10	REV. 12/5/11 MAA/GM
CHECKED BY : GM 5/10	REV. 6/13 MAA/GM
	REV. 1/15 MAA/TMG

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REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	18
1			3			S-8
2			4			

NOTES

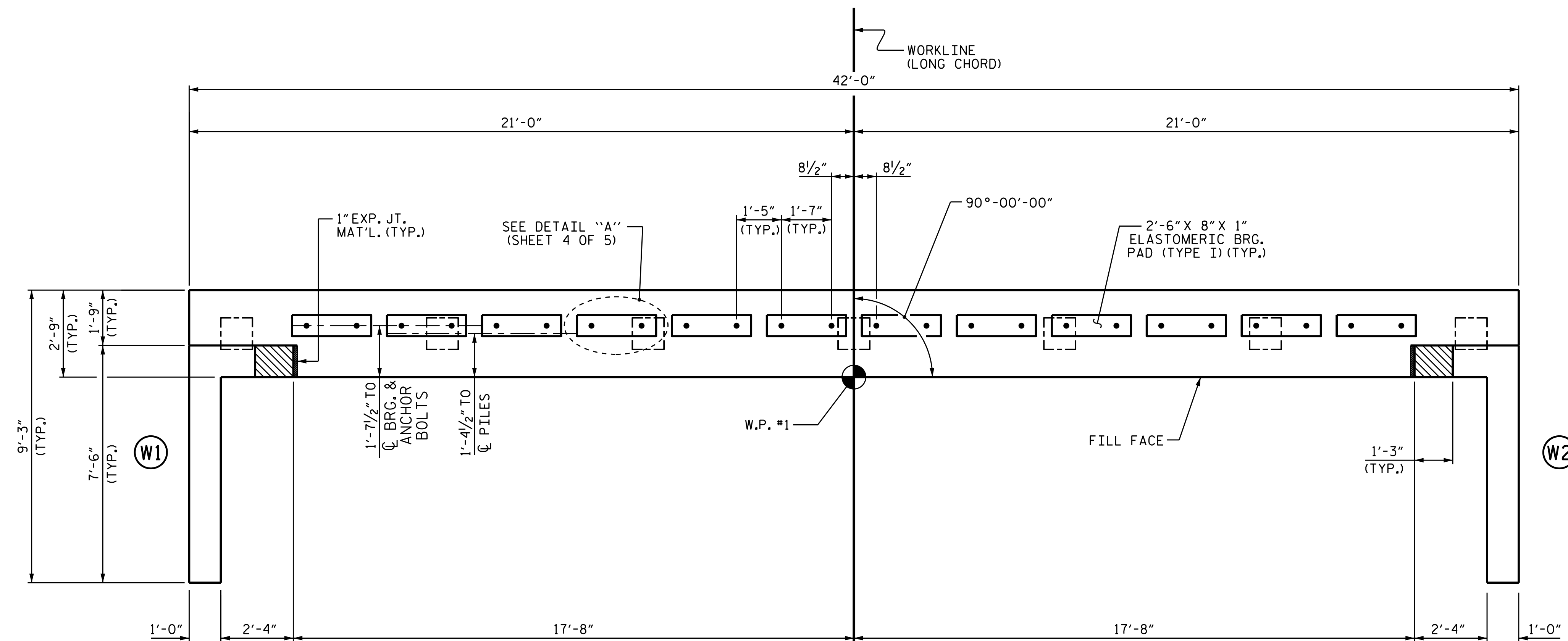
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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 WING DETAILS, SEE SHEET 3 OF 5.

FOR PRESTRESSED CONCRETE PILE DETAILS, SEE SHEET 5 OF 5.

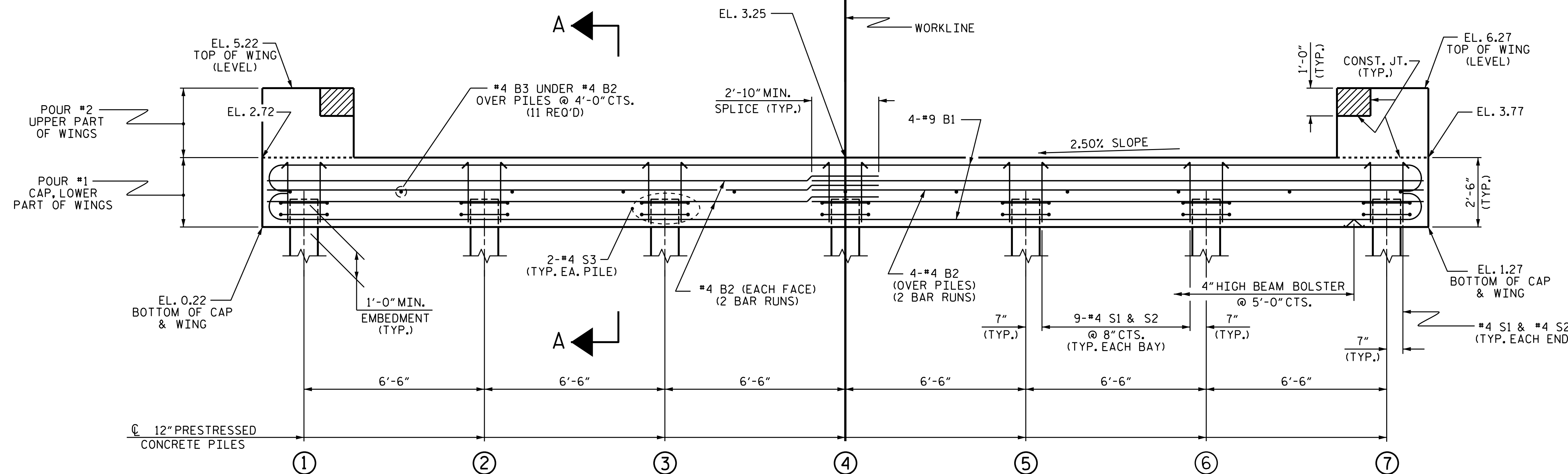
INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WINGWALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WINGWALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.



PLAN

TOP OF PILE ELEVATIONS

①	1.25
②	1.42
③	1.58
④	1.74
⑤	1.91
⑥	2.07
⑦	2.23



ELEVATION

WINGS NOT SHOWN FOR CLARITY. FOR SECTION A-A, SEE SHEET 4 OF 5.

PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 1



DocuSigned by:
 Greg Dickey
 0046499CE58496
 4/18/2017

ASSEMBLED BY : M.M. AHMED	DATE : 9/1/16
CHECKED BY : A. SORSENGINH	DATE : 9/20/16
DRAWN BY : DGE 01/10	REV. 4/15
CHECKED BY : MKT 01/10	MAA/TMG

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS 18
2			4			

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

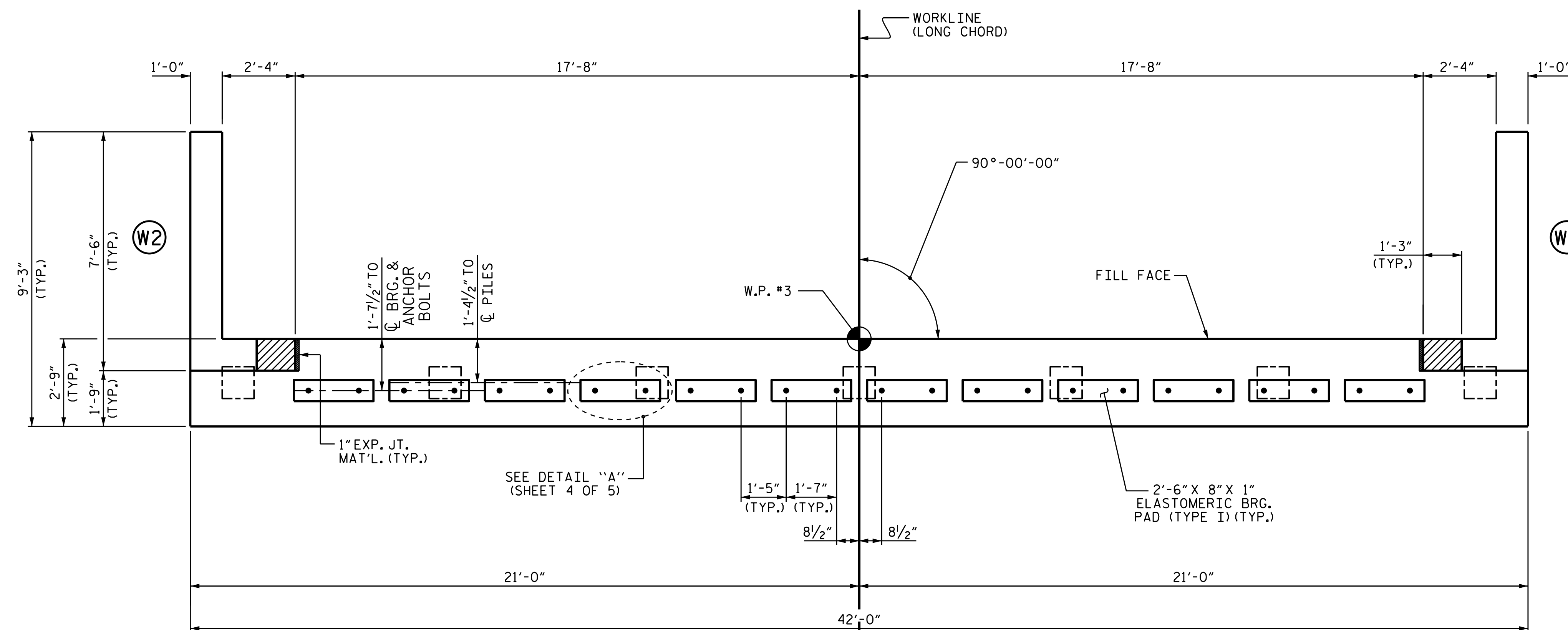
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR WING DETAILS, SEE SHEET 3 OF 5.

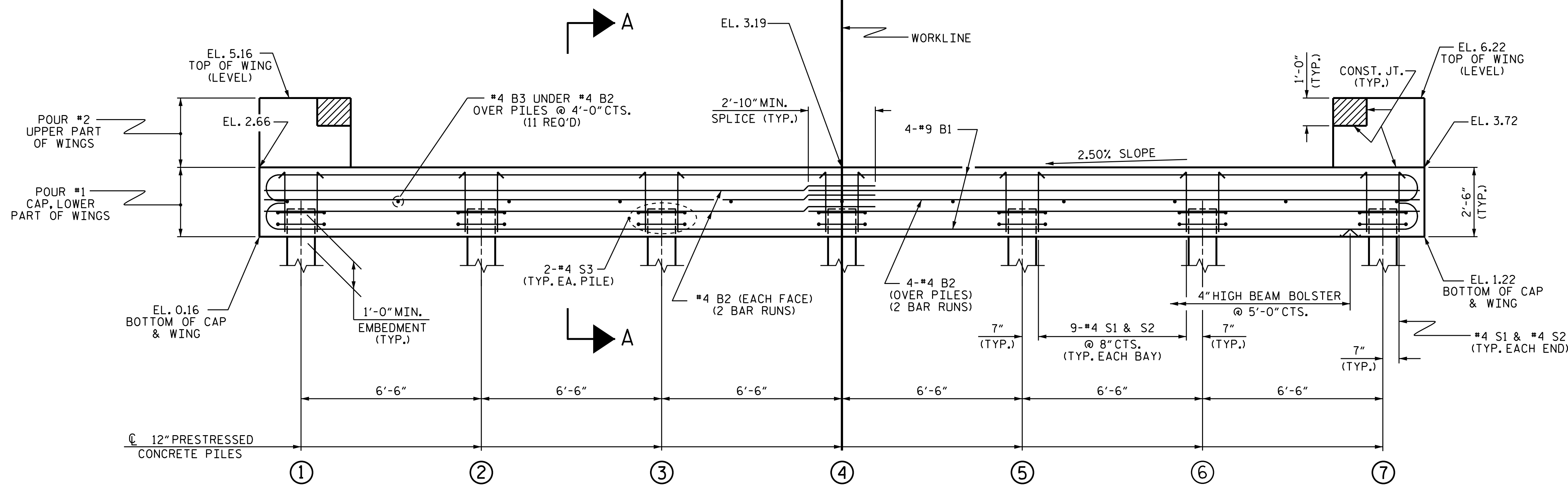
FOR PRESTRESSED CONCRETE PILE DETAILS, SEE SHEET 5 OF 5.

INSTALL THE 4" DIA. DRAIN PIPE THROUGH THE WINGWALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WINGWALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

TOP OF PILE ELEVATIONS	
①	1.20
②	1.36
③	1.53
④	1.69
⑤	1.85
⑥	2.02
⑦	2.18



PLAN



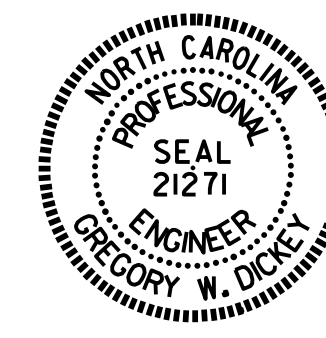
ELEVATION
WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 5.

PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT No. 2

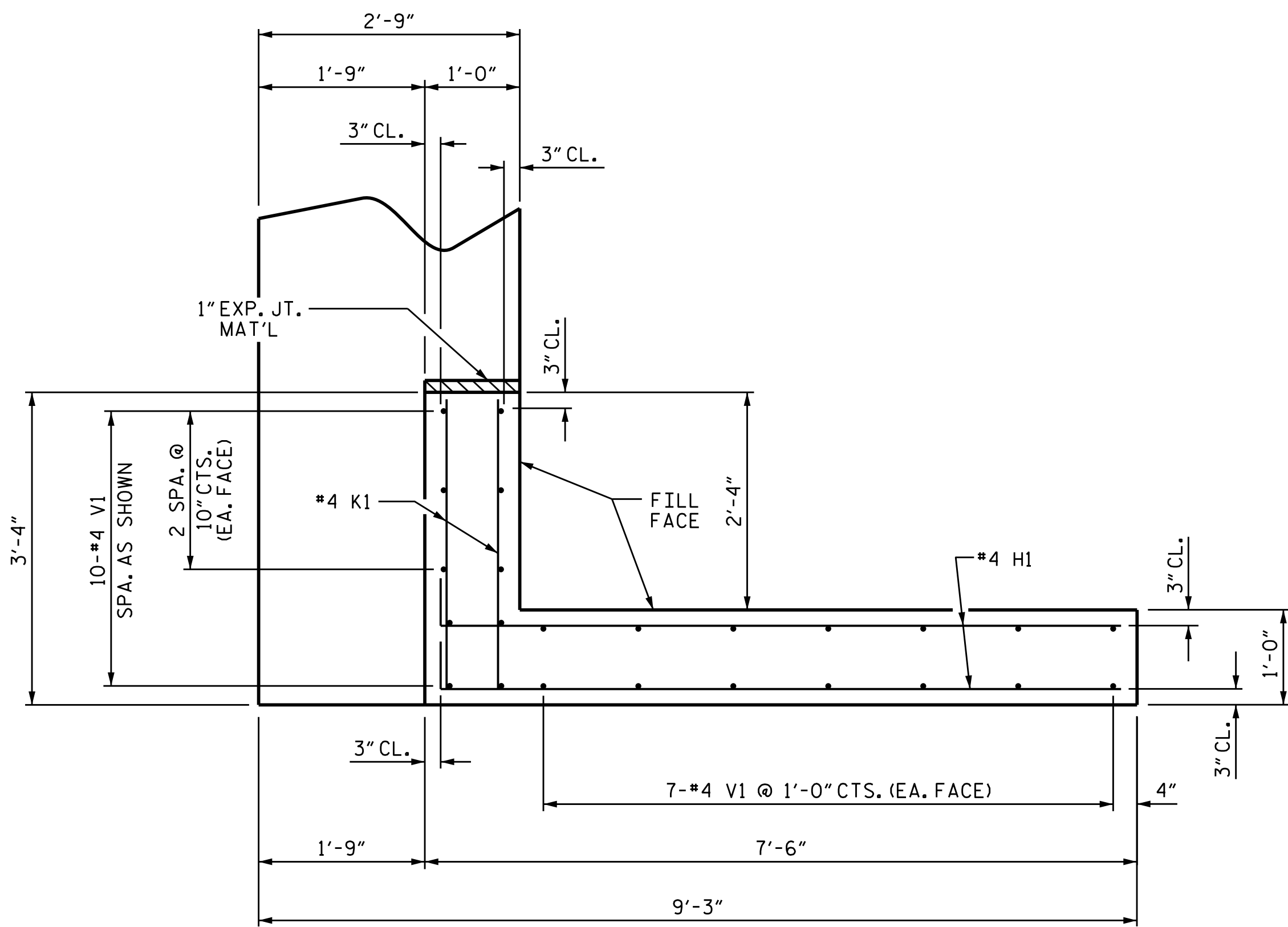


DocuSigned by:
 Greg Dickey
 0046499CE58496
 4/18/2017

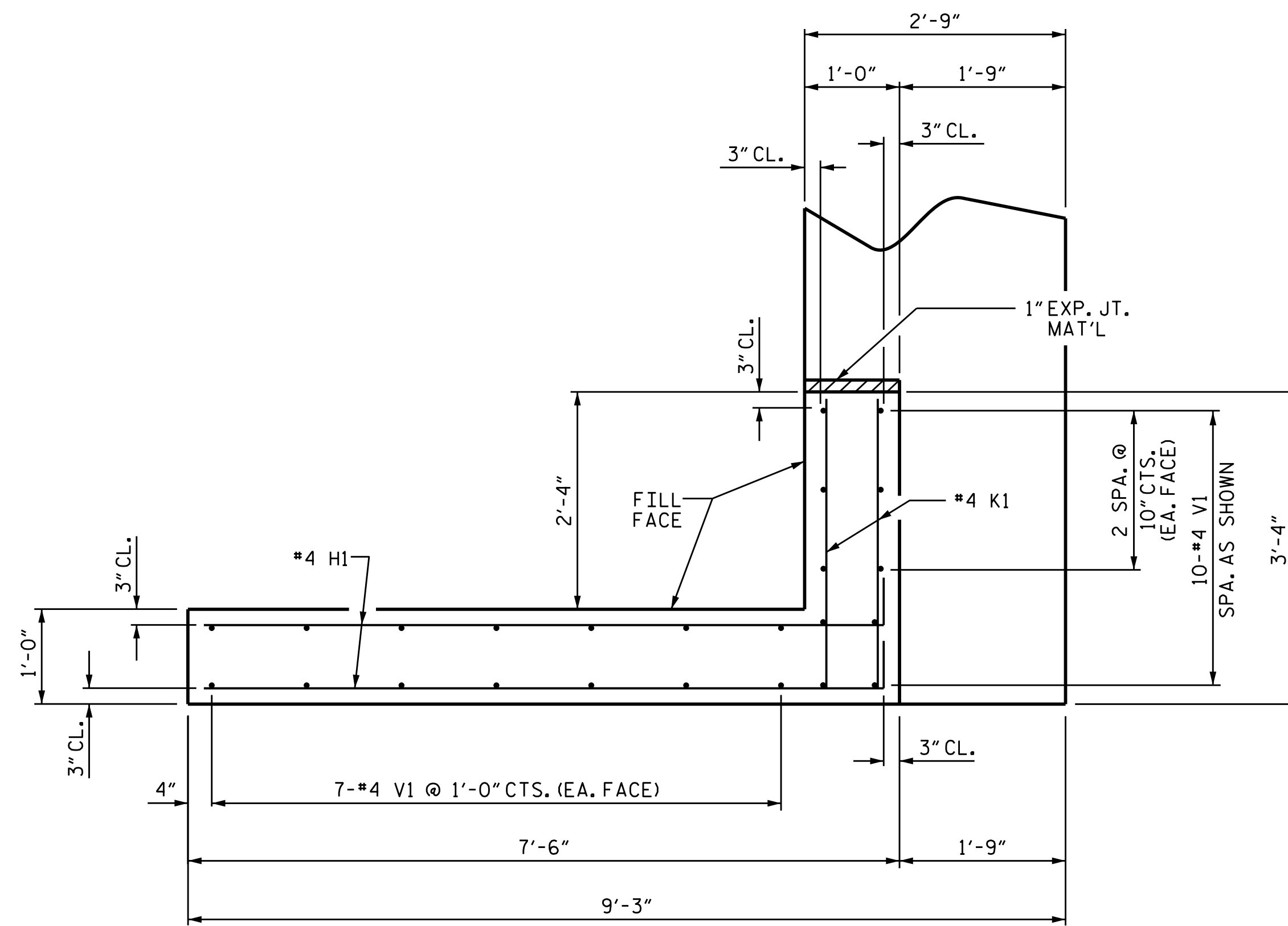
ASSEMBLED BY : M.M. AHMED	DATE : 9/1/16
CHECKED BY : A. SORSENGINH	DATE : 9/20/16
DRAWN BY : DGE 01/10	REV. 4/15
CHECKED BY : MKT 01/10	MAA/TMG

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 SIGNATURES COMPLETED

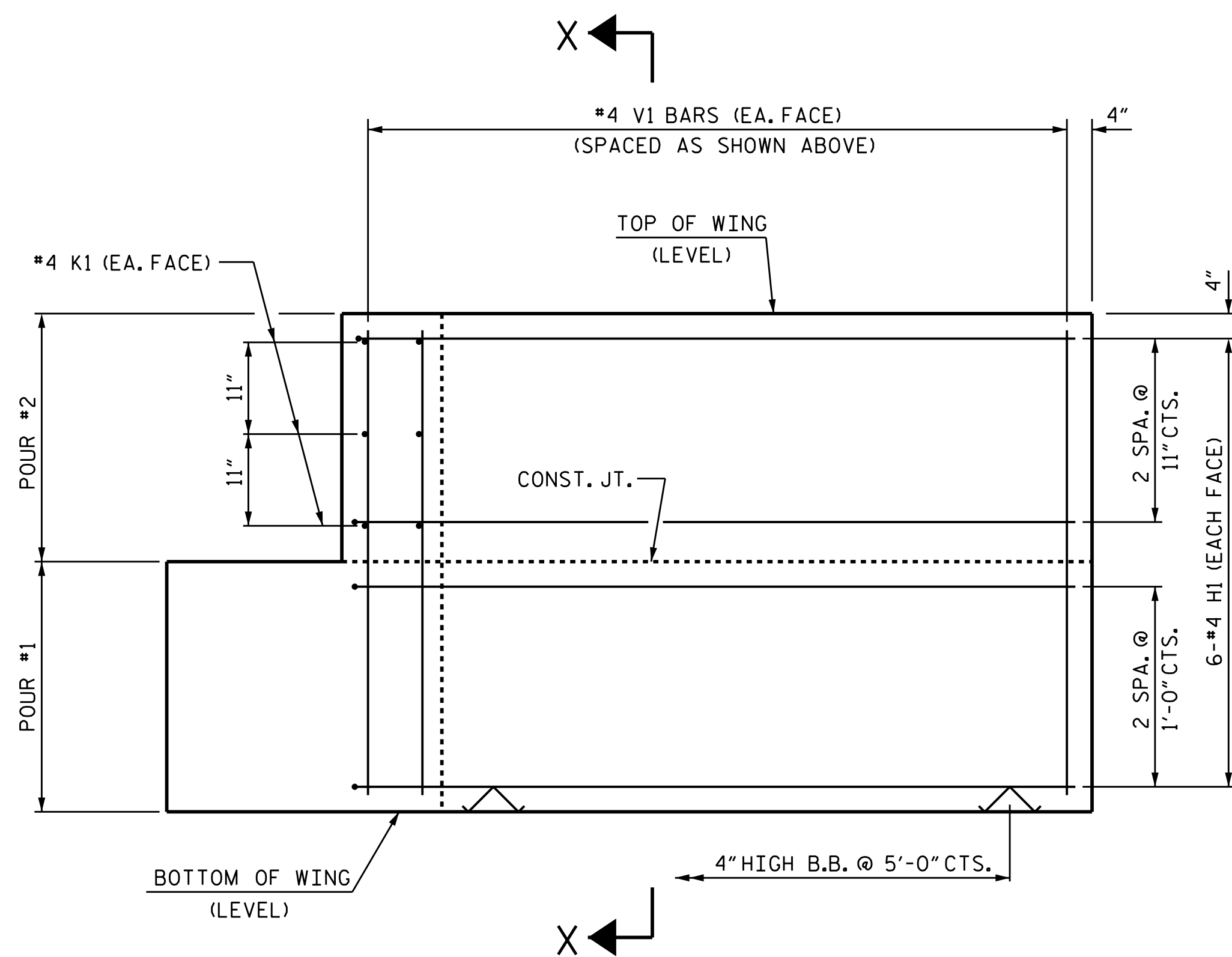
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS 18
2			4			



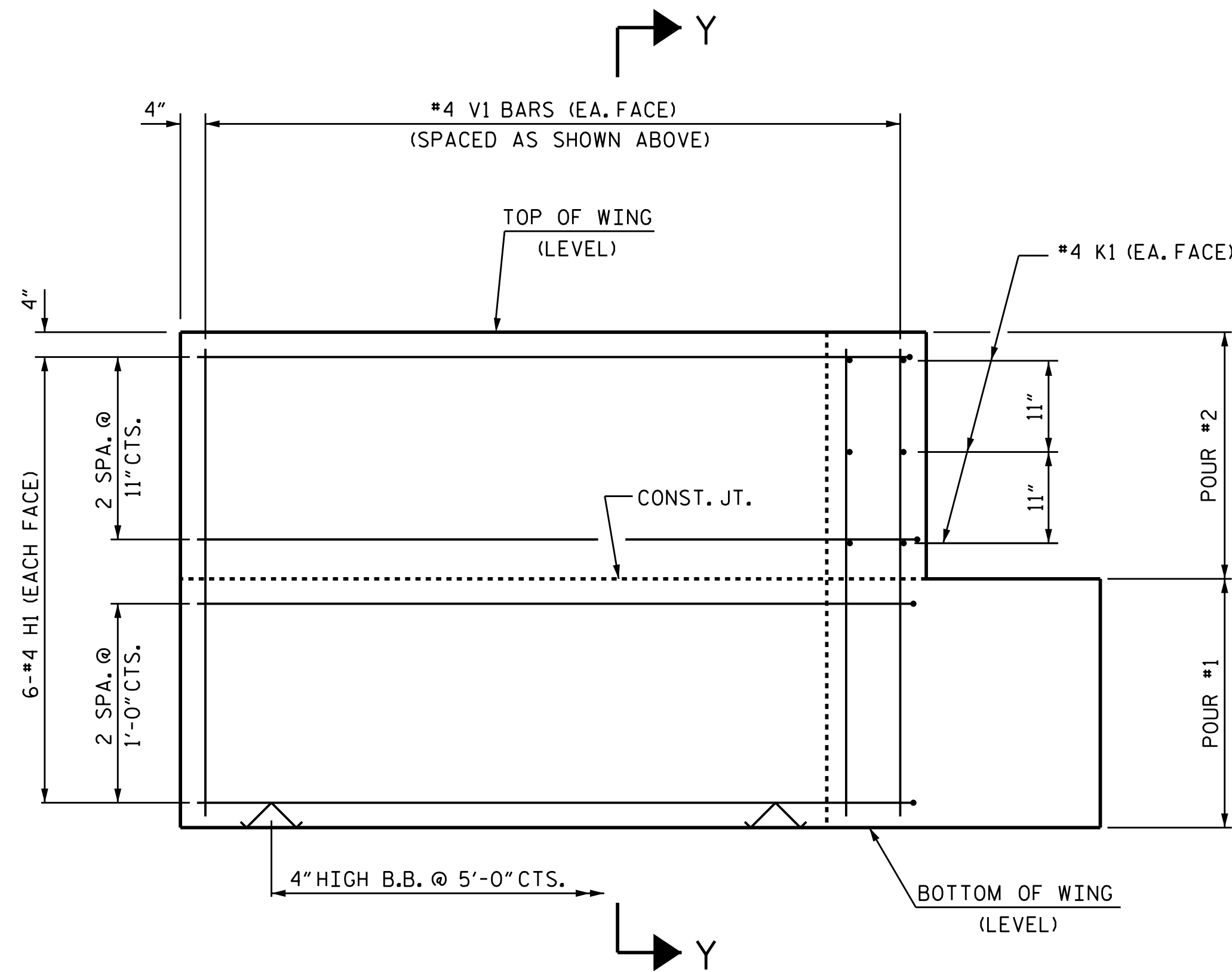
PLAN OF WING (W1)



PLAN OF WING (W2)

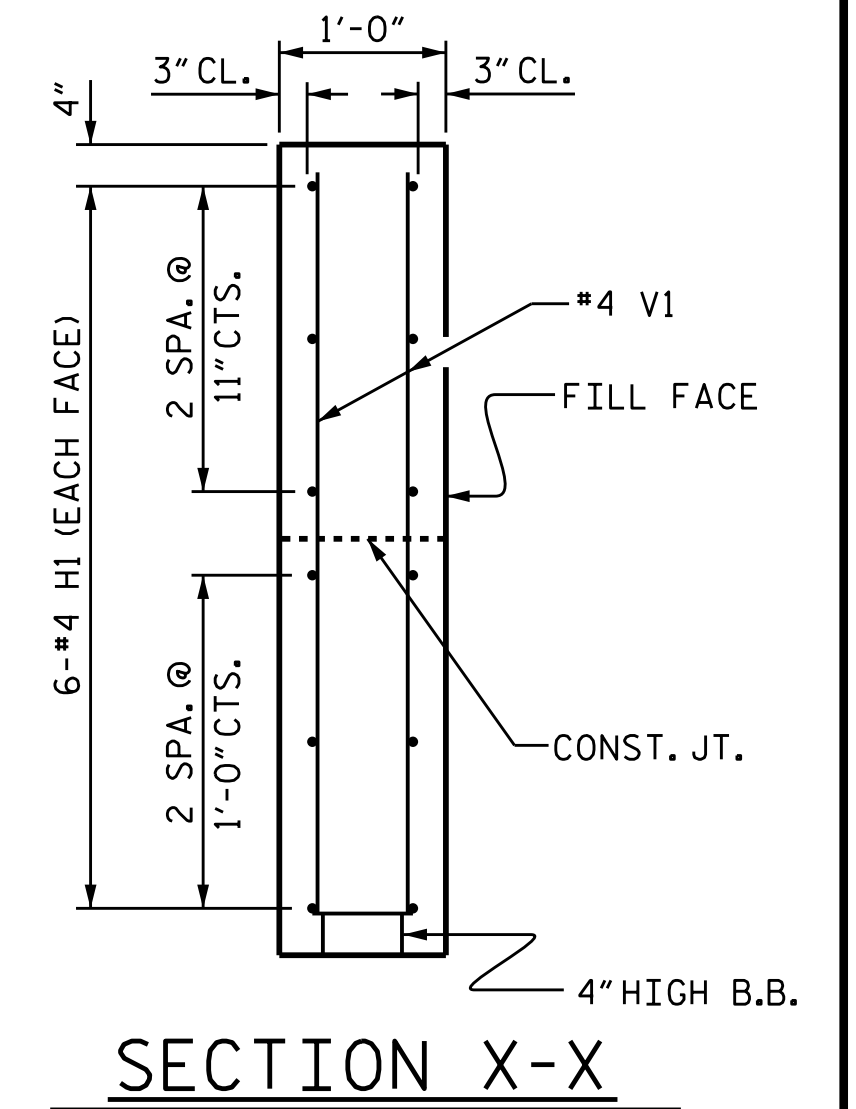


ELEVATION OF WING (W1)

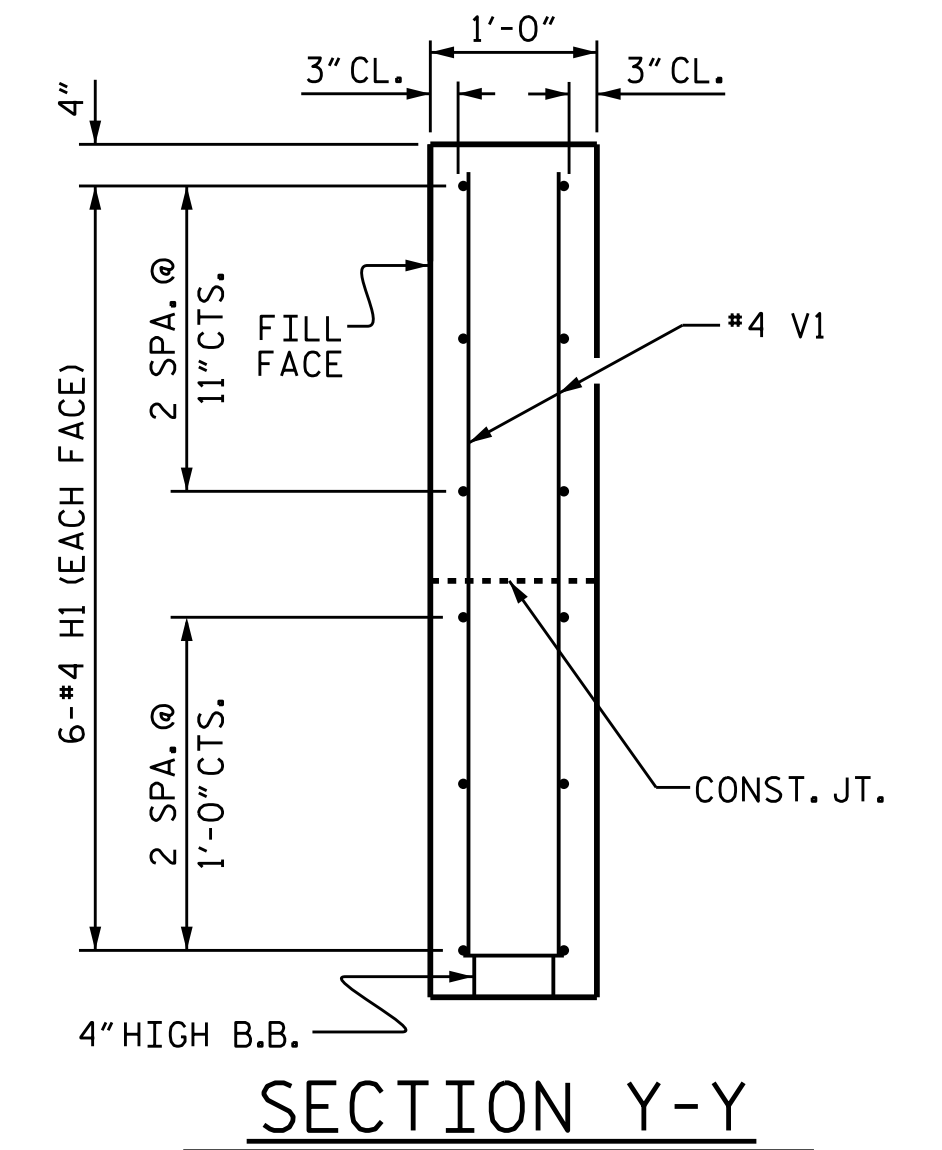


ELEVATION OF WING (W2)

WING DETAILS



SECTION X-X



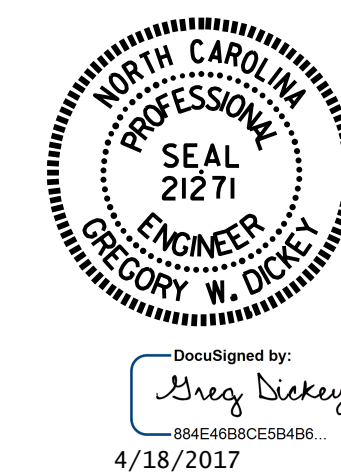
SECTION Y-Y

PROJECT NO. B-4598
 PAMLICO COUNTY
 STATION: 16+43.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

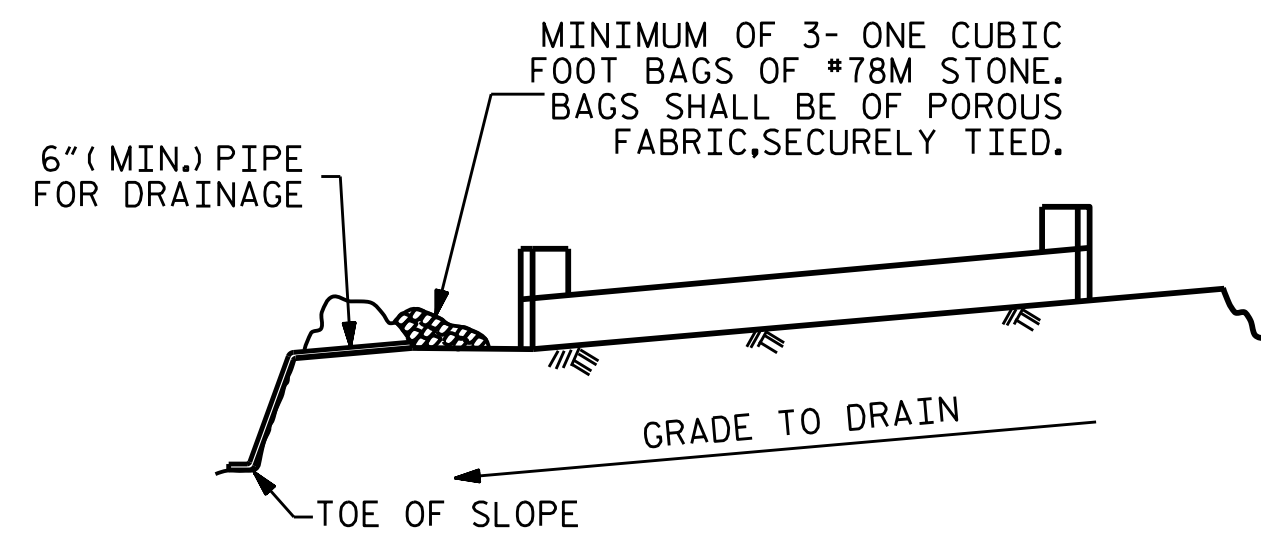
SUBSTRUCTURE
 END BENT
 WING DETAILS



ASSEMBLED BY : M.M. AHMED DATE : 4/1/16
 CHECKED BY : A. SORSENGINH DATE : 9/20/16
 DRAWN BY : DGE 02/10
 CHECKED BY : MKT 02/10 REV. 4/15 MAA/TMG

DOCUMENT NOT CONSIDERED
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 SIGNATURES COMPLETED

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS 18	
2			4				

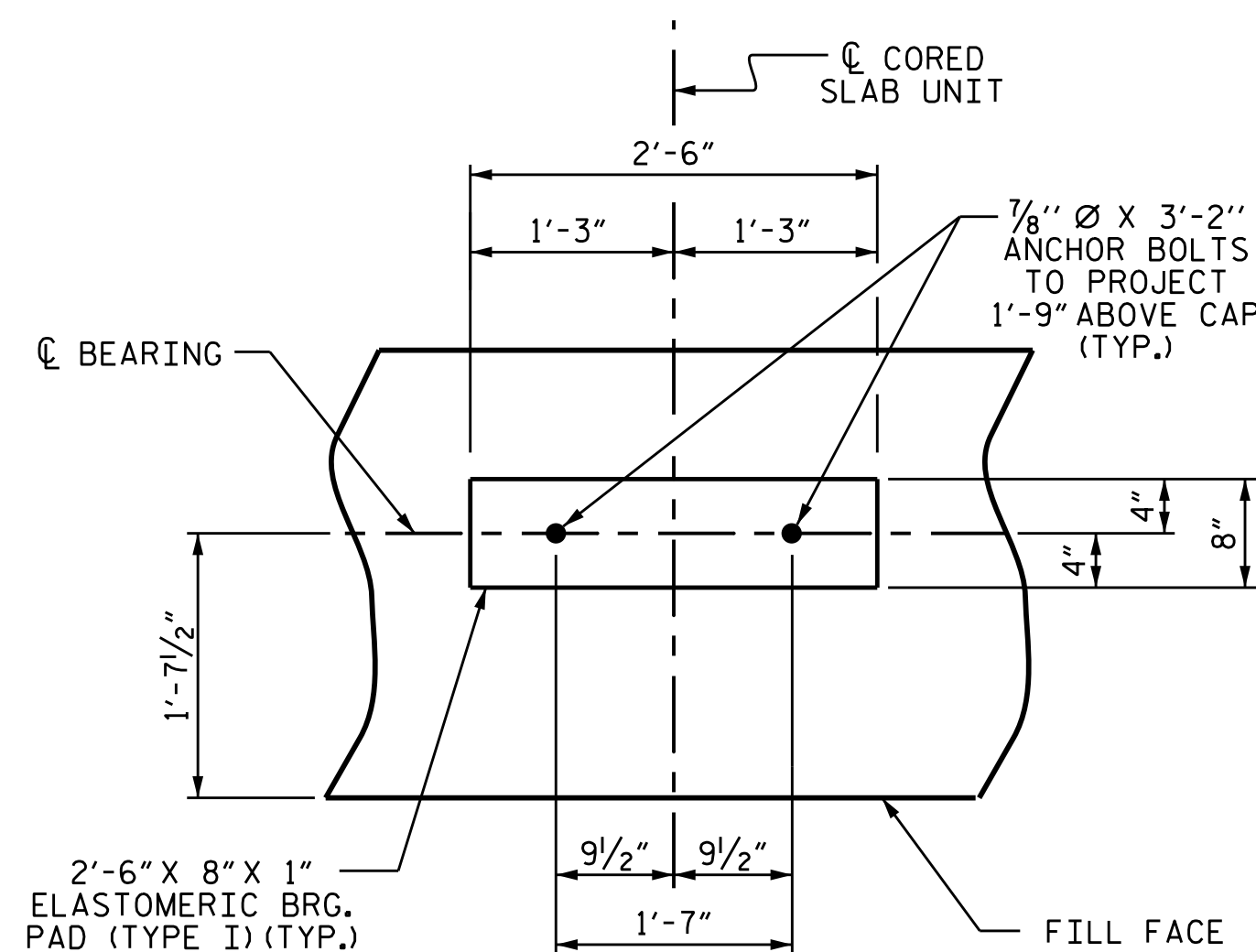


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

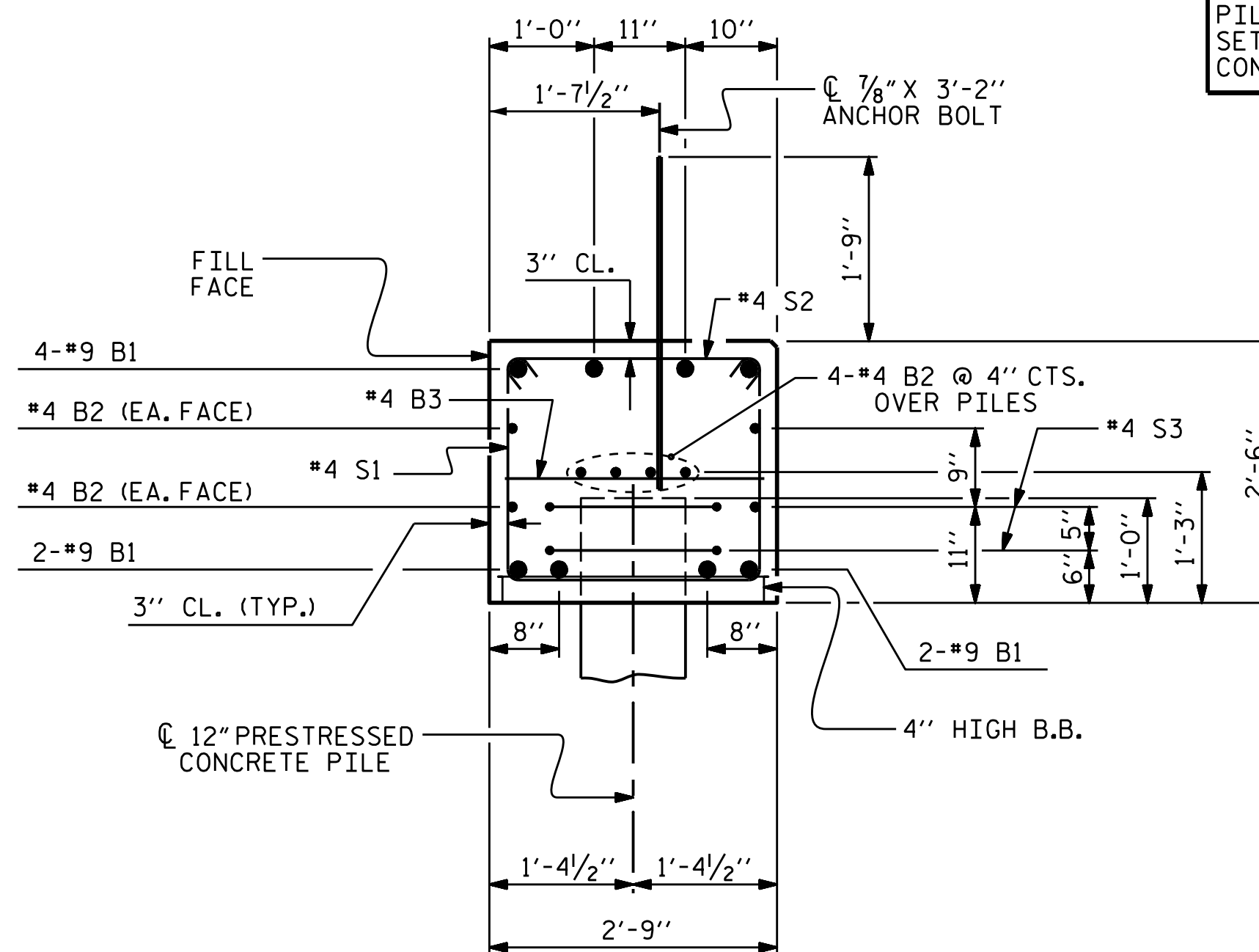
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

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



SECTION A-A

BAR TYPES		BILL OF MATERIAL FOR ONE END BENT				
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT		
*B1	#9	1	43'-10"	1192		
*B2	#4	STR	22'-2"	237		
*B3	#4	STR	2'-3"	17		
*H1	#4	2	7'-8"	123		
*K1	#4	STR	2'-10"	23		
*S1	#4	3	6'-11"	259		
*S2	#4	4	3'-0"	112		
*S3	#4	5	6'-6"	61		
*V1	#4	STR	4'-6"	144		
				*EPOXY COATED REINFORCING STEEL (FOR ONE END BENT) 2168 LBS.		
				CLASS AA CONCRETE BREAKDOWN (FOR ONE END BENT)		
POUR #1			CAP & LOWER PART OF WINGS	11.6	C.Y.	
POUR #2			UPPER PART OF WINGS	1.8	C.Y.	
				TOTAL CLASS AA CONCRETE ▲ 13.4 C.Y.		

END BENT No. 1	END BENT No. 2
12" PRESTRESSED CONCRETE PILES NO: 7 LIN. FT. = 210	12" PRESTRESSED CONCRETE PILES NO: 7 LIN. FT. = 210
PILE REDRIVES 4 EA.	PILE REDRIVES 4 EA.
PILE DRIVING EQUIPMENT SETUP FOR 12" PRESTRESSED CONCRETE PILES 7 EA.	PILE DRIVING EQUIPMENT SETUP FOR 12" PRESTRESSED CONCRETE PILES 7 EA.

- ▲ CONCRETE DISPLACED BY THE 12" PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED FROM THE CONCRETE QUANTITY.
- THE WATER/CEMENT RATIO FOR CONCRETE PILES SHALL NOT EXCEED 0.40.
- ALL BAR SUPPORTS USED IN THE END BENTS, PRESTRESSED CONCRETE PILES, AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- THE CONCRETE IN THE END BENTS, INCLUDING THE PRESTRESSED CONCRETE PILES, SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- THE CONCRETE IN THE END BENTS, INCLUDING THE PRESTRESSED CONCRETE PILES, SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

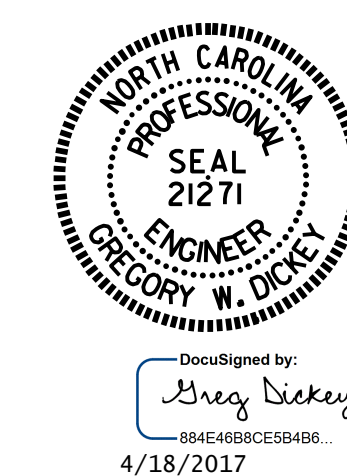
PROJECT NO. B-4598
 PAMLICO COUNTY
 STATION: 16+43.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE

END BENT No. 1 & 2
 DETAILS

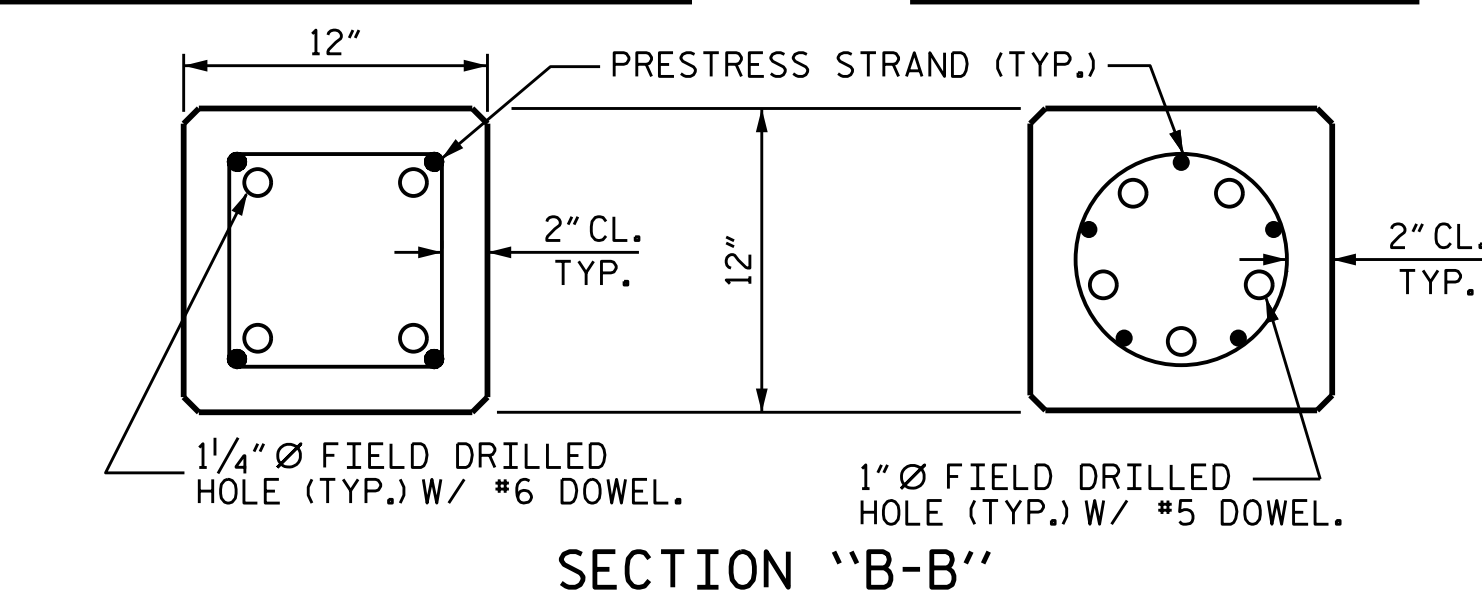
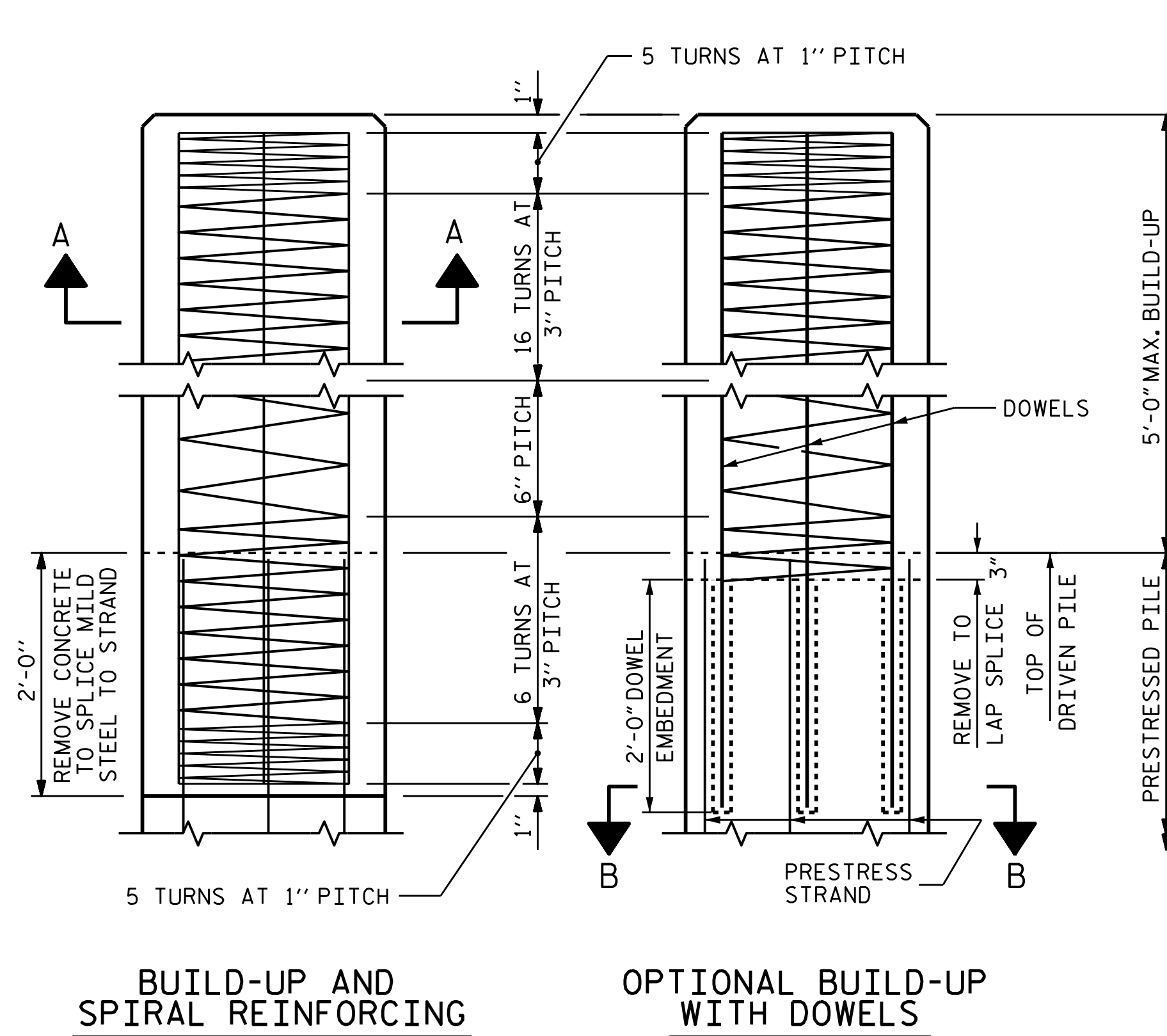
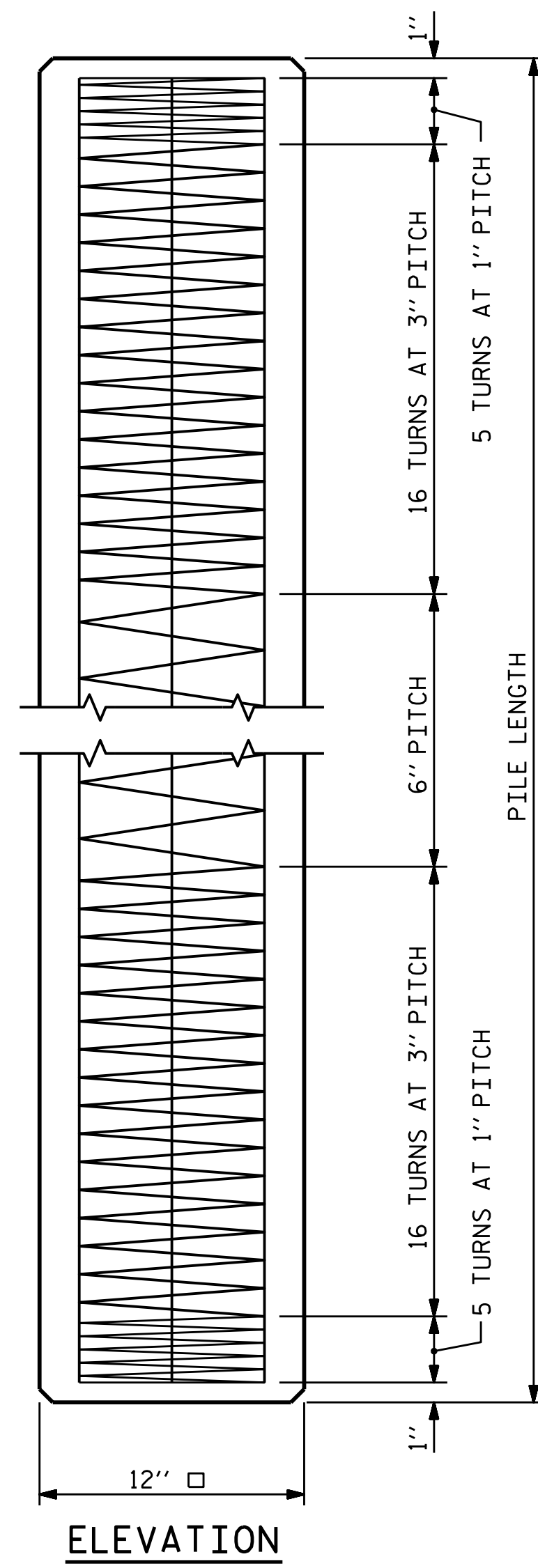


ASSEMBLED BY: M.M. AHMED DATE: 9/1/16
 CHECKED BY: A. SORSENGINH DATE: 9/20/16
 DRAWN BY: DGE 12/09
 CHECKED BY: MKT 01/10 REV. 11/14 MAA/TMG

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

TOTAL SHEETS 18

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED



(AT THE CONTRACTOR'S OPTION, PILE BUILD-UP MAY BE CONSTRUCTED WITH DOWELS.)

DOWEL INSTALLATION FOR OPTIONAL BUILD-UP

GROUT COMPRESSIVE STRENGTH: $f'c = 5,000$ PSI

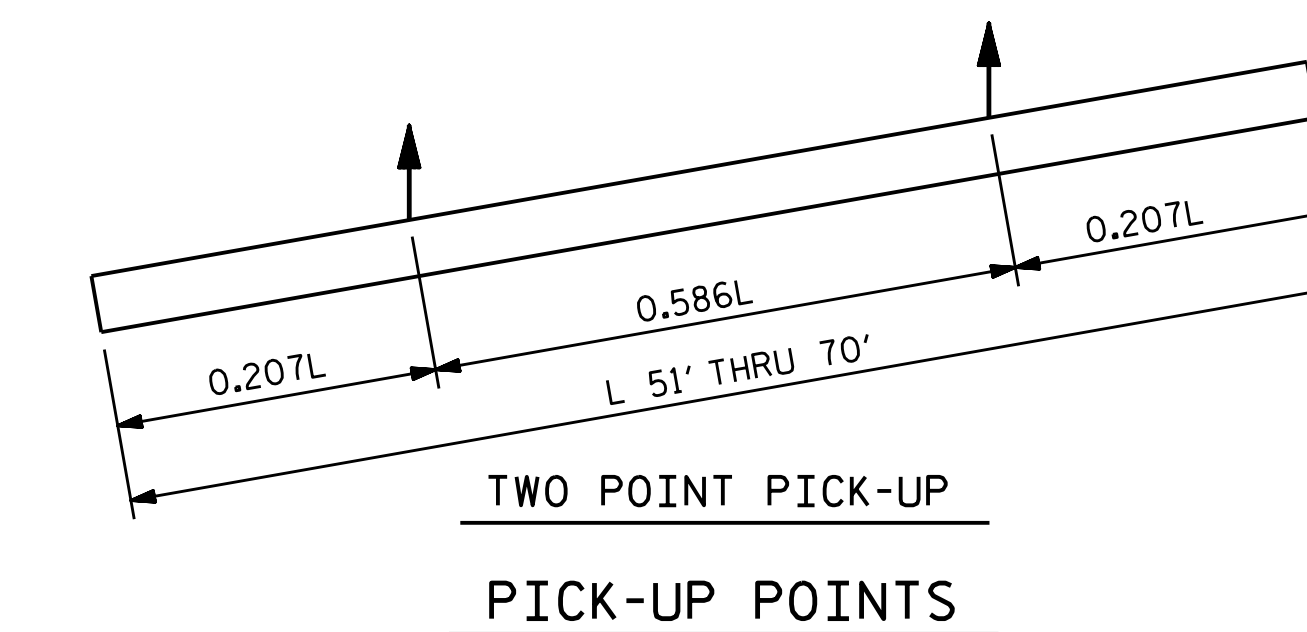
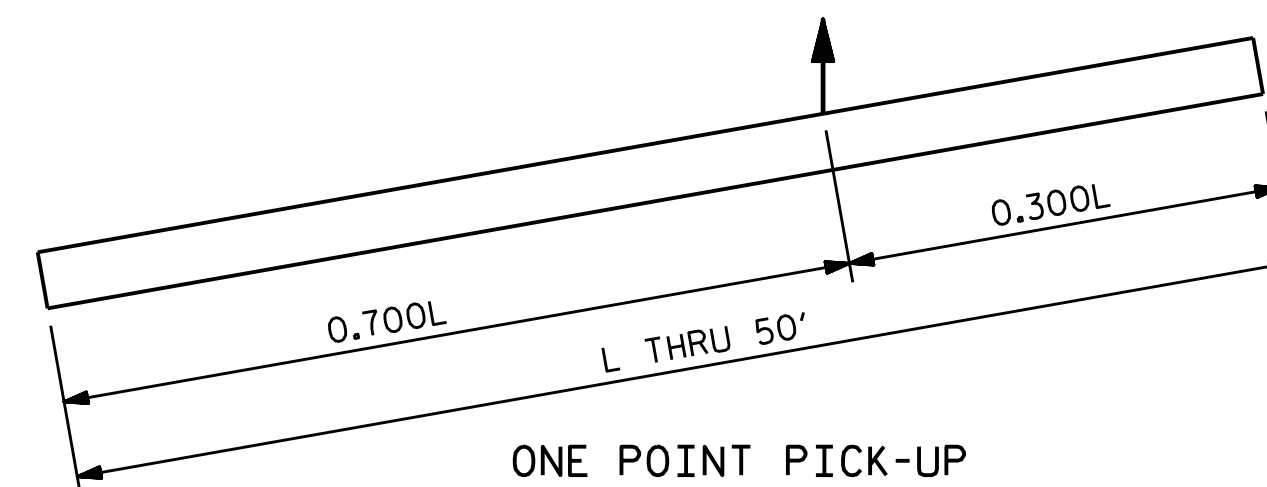
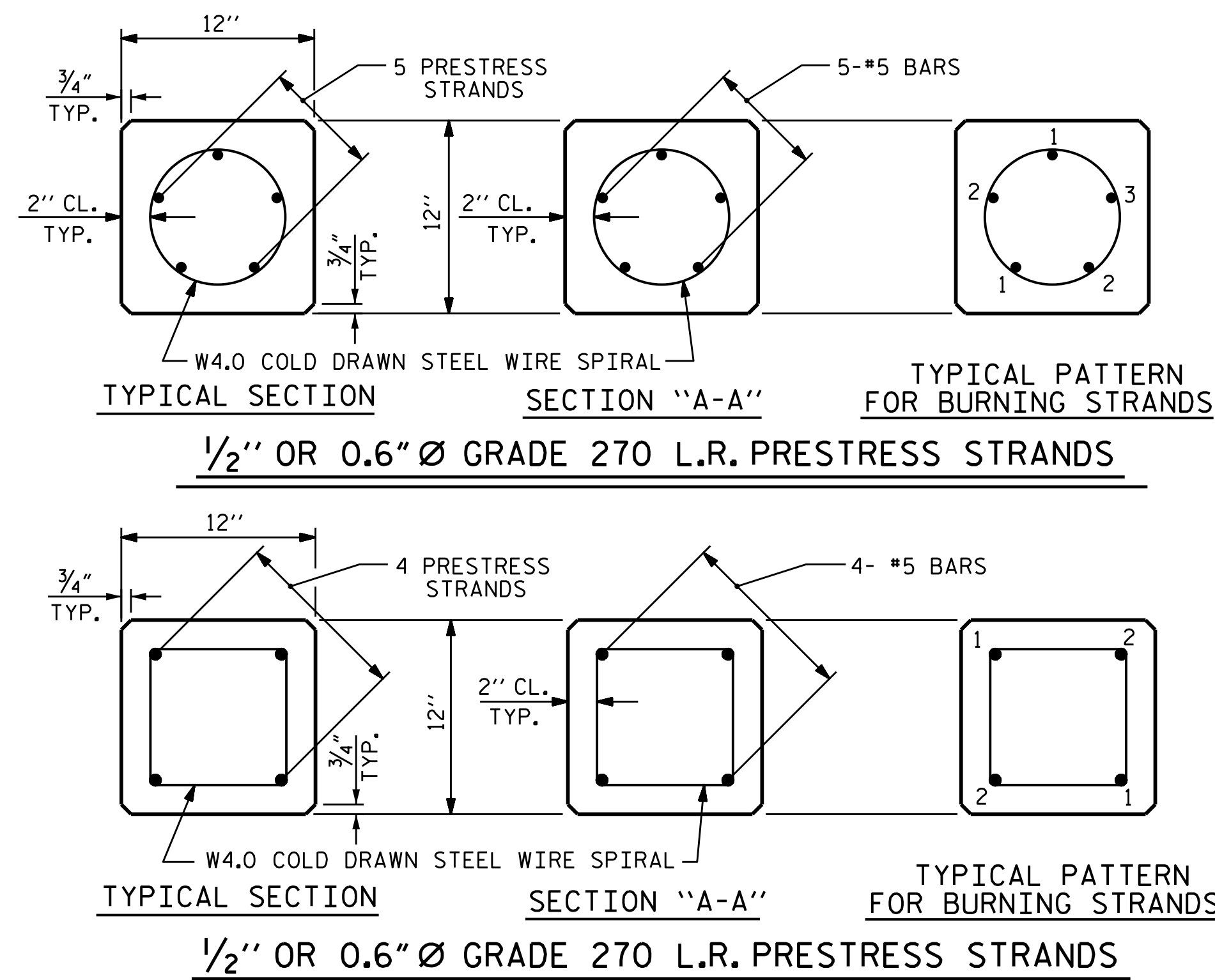
BEFORE DRILLING DOWEL HOLES, REMOVE THE UPPER 3" OF CONCRETE FROM THE TOP OF THE PILE WITHOUT DAMAGE TO THE REINFORCING STEEL. THE REMOVAL PLANE SHOULD BE NORMAL TO THE EDGE OF THE PILE.

DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN 1/2" CLEAR TO ALL EXISTING PRESTRESSING STRANDS IN THE CONCRETE PILE.

FIELD DRILLED HOLES SHALL BE CLEAN AND FREE OF ANY OBSTRUCTIONS BEFORE GROUTING OF DOWELS. DOWEL BARS SHALL BE INSTALLED AND GROUTED WITH AN APPROVED NON-SHRINK GROUT.

THE SPIRAL REINFORCING IN ALL BUILD-UPS SHALL BE W4.0 COLD DRAWN WIRE WHICH SHALL BE SECURED TO THE LONGITUDINAL REINFORCEMENT TO MAINTAIN PITCH.

THE SPIRAL REINFORCING IN THE BUILD-UP AND THE PRESTRESSED CONCRETE PILE SHALL BE SPLICED BY OVERLAPPING A MIN. OF ONE TURN.



NOTES FOR CORROSION PROTECTION

QUANTITIES FOR ONE 12" PRESTRESSED PILE						
LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE POINT PICK-UP		TWO POINT PICK-UP	
			0.300L	0.700L	0.207L	0.586L
25'-0"	0.91	1.85	7'-6"	17'-6"		
30'-0"	1.10	2.22	9'-0"	21'-0"		
35'-0"	1.28	2.59	10'-6"	24'-6"		
40'-0"	1.46	2.96	12'-0"	28'-0"		
45'-0"	1.64	3.33	13'-6"	31'-6"		
50'-0"	1.83	3.72	15'-0"	35'-0"		
55'-0"	2.01	4.09			11'-4 1/2"	32'-3"
60'-0"	2.19	4.46			12'-5"	35'-2"
65'-0"	2.38	4.81			13'-5 1/2"	38'-1"
70'-0"	2.57	5.18			14'-6"	41'-0"

NOTES

PRESTRESSED CONCRETE STRENGTH : $f'c = 7,500$ PSI

BUILD-UP CONCRETE STRENGTH : $f'c = 7,500$ PSI

STRAND DATA:

SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
1/2"	270 L.R.	0.153	41,300# PER STRAND	30,980# PER STRAND
0.6"	270 L.R.	0.217	58,600# PER STRAND	43,940# PER STRAND

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS CONFORMING TO AASHTO M203. STRAND SAMPLING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

AT THE CONTRACTOR'S OPTION, 1/2" OR 0.6" STRANDS MAY BE USED IN EITHER THE 4 OR 5 STRAND CONFIGURATION SHOWN IN THE TYPICAL SECTION DETAIL. MIXING OF STRAND SIZE IS NOT ALLOWED.

THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.

TRANSFER THE LOAD FROM THE ANCHORAGES TO THE PILE AFTER THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.

IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN PAIRS, EXCEPT WHERE 5 STRANDS ARE USED, THE LAST STRAND MAY BE BURNED SINGLY ACCORDING TO BURNING PATTERNS SHOWN. NOT MORE THAN 4 STRANDS MAY BE BURNED AT ANY ONE SECTION BEFORE THE SAME STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.

WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS ARE TO BE INDICATED WITH A 2" WIDE BLACK MARK.

DRIVE PILES USING A METHOD APPROVED BY THE ENGINEER, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

DRIVING OF THE BUILT-UP PILE WILL NOT BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 5,000 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

THE WATER/CEMENT RATIO FOR PRESTRESSED CONCRETE PILES SHALL NOT EXCEED 0.40.

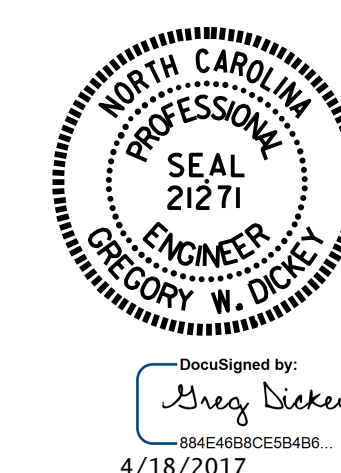
ALL BAR SUPPORTS USED IN THE PRESTRESSED CONCRETE PILES, AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRESTRESSED CONCRETE PILES SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE CONCRETE IN THE PRESTRESSED CONCRETE PILES SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH SUBSTITUTION SHALL BE REDUCED TO 1.0 LB OF FLY ASH PER 1.0 LB. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS.

PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-

SHEET 5 OF 5



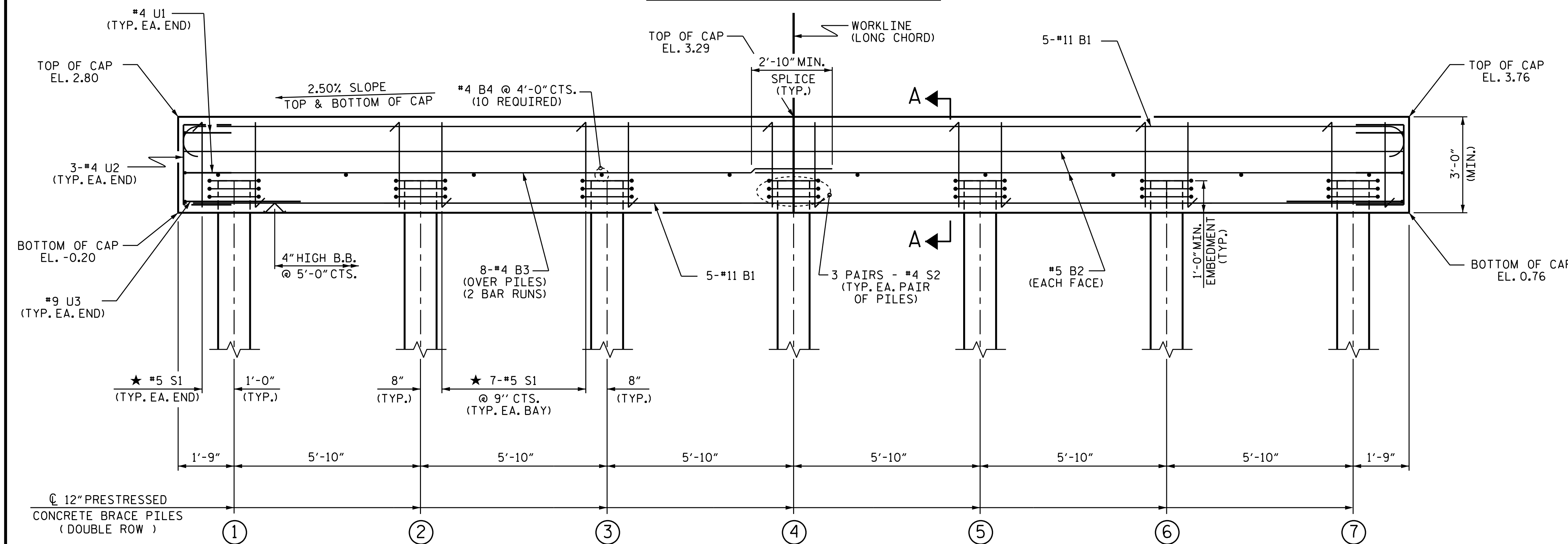
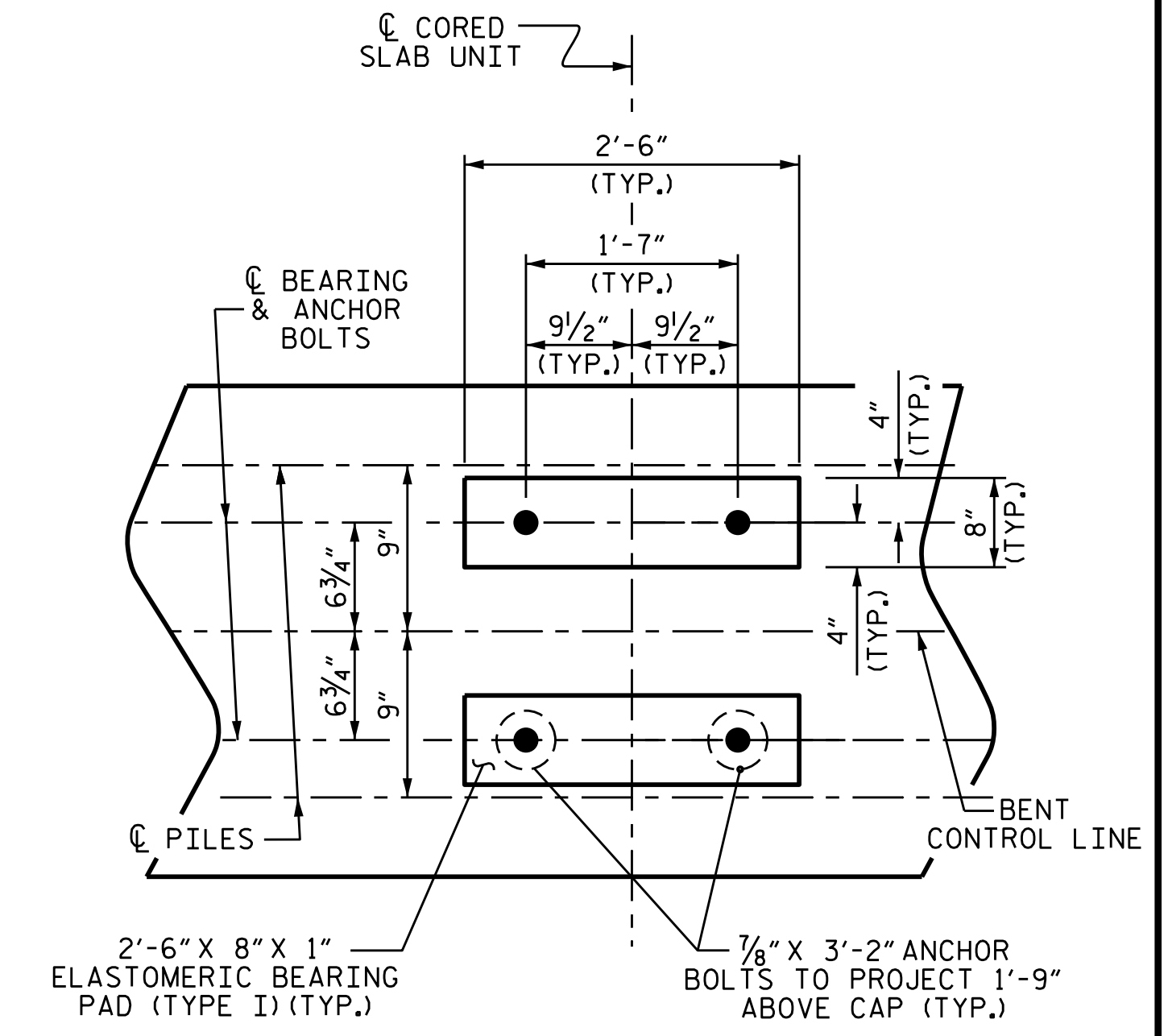
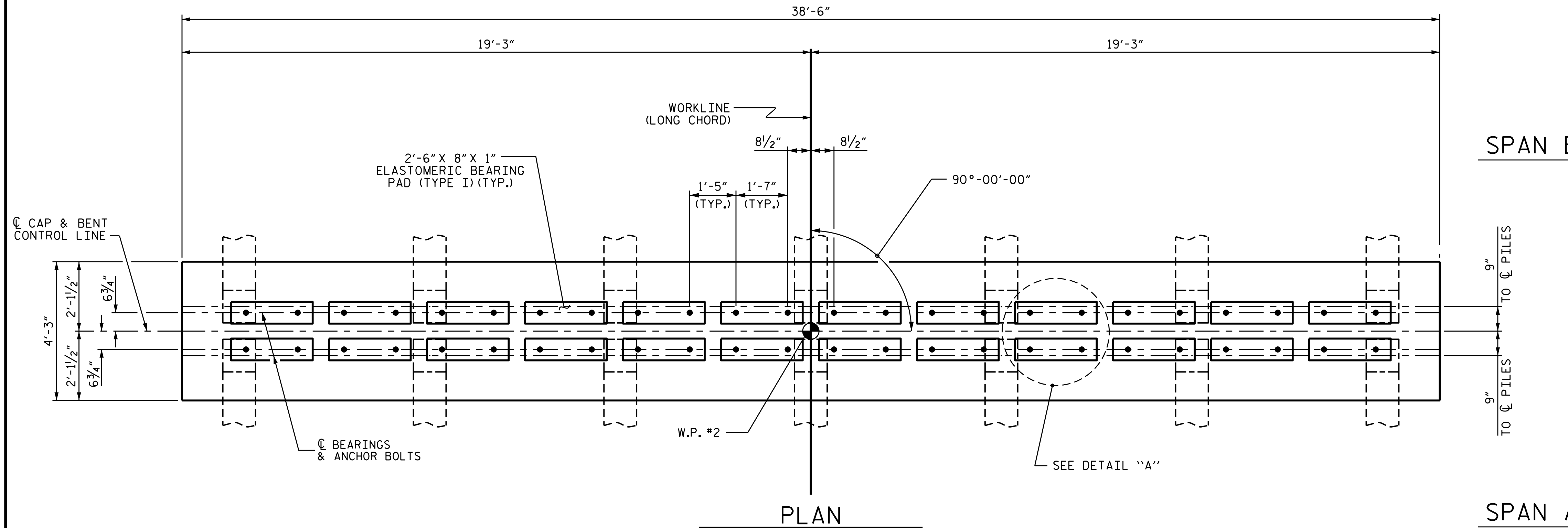
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 12" PRESTRESSED CONCRETE PILE END BENT No. 1 & 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

ASSEMBLED BY : M.M. AHMED	DATE : 9/1/16
CHECKED BY : A. SORSENGINH	DATE : 9/20/16
DRAWN BY : FCJ 7/88	REV. 11/30/10 WMC/GM
CHECKED BY : CRK 3/89	REV. 10/1/11 MAA/GM
	REV. 12/14 MAA/TMG

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
 ★INVERT ALTERNATE STIRRUPS.
 FOR PRESTRESSED CONCRETE PILE DETAILS, SEE SHEET 3 OF 3.



TOP OF PILE ELEVATIONS

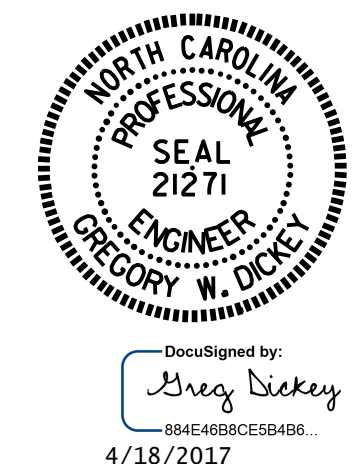
①	0.85
②	0.99
③	1.14
④	1.28
⑤	1.43
⑥	1.57
⑦	1.72

PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

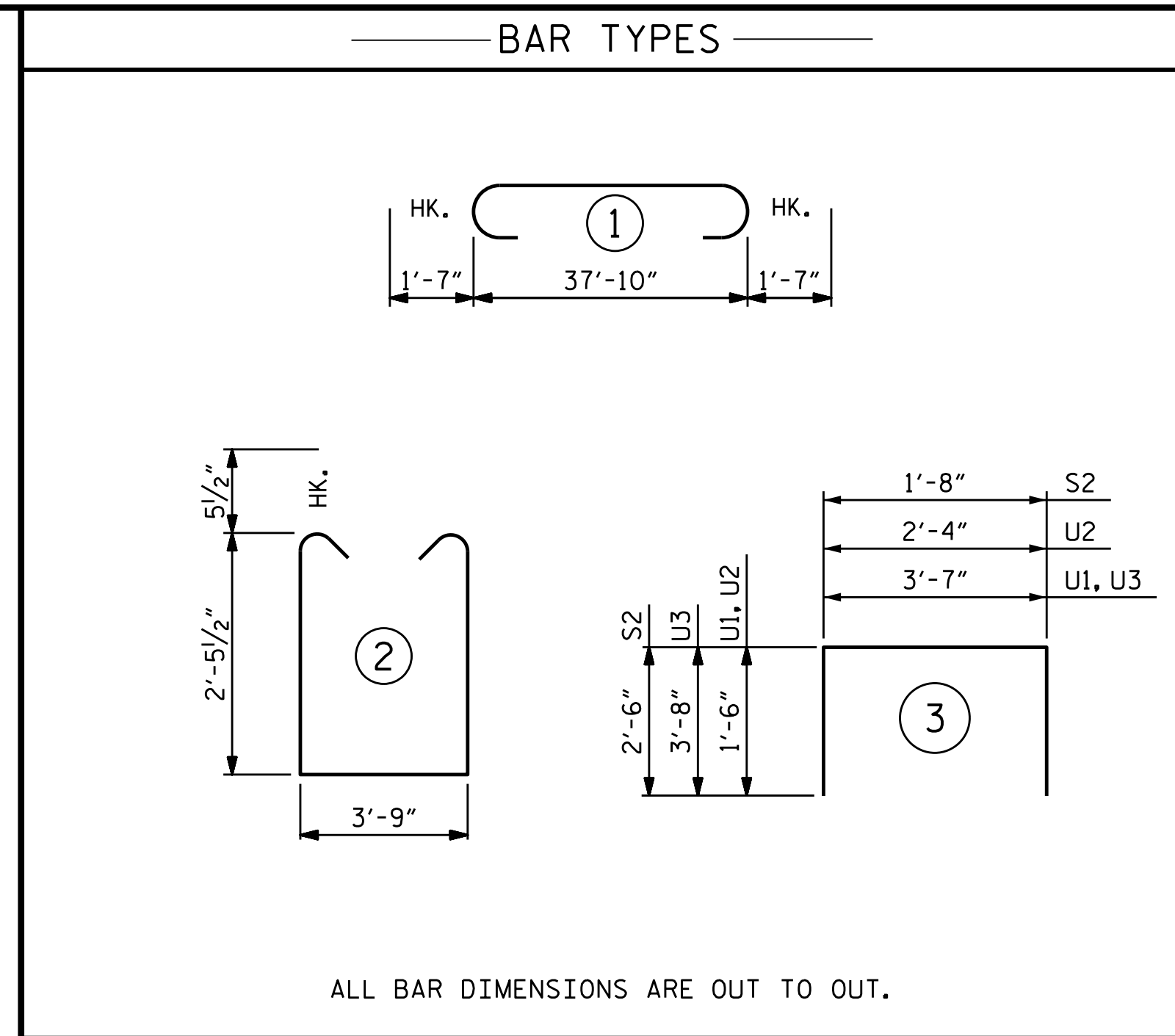
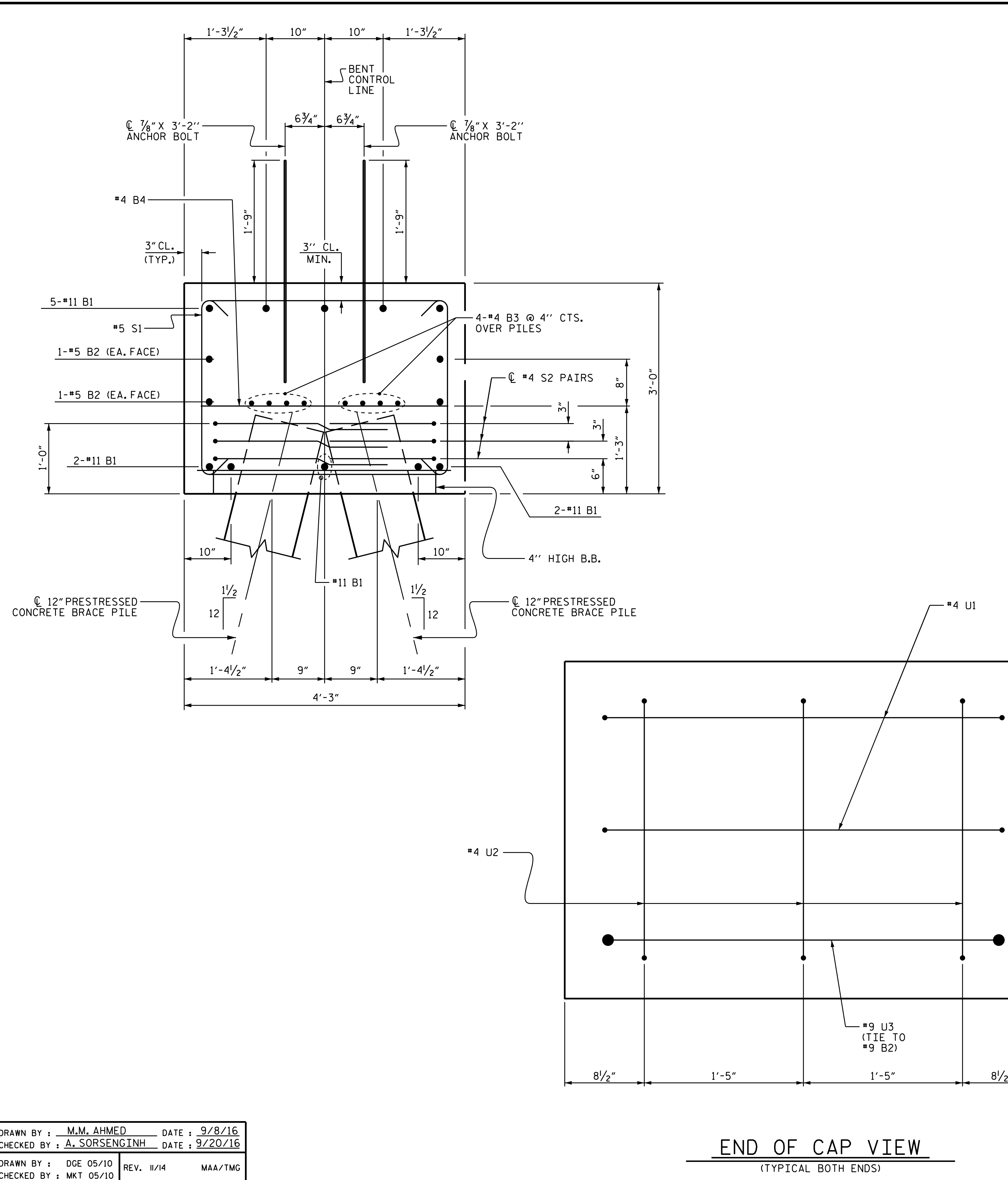
SUBSTRUCTURE
 BENT No. 1



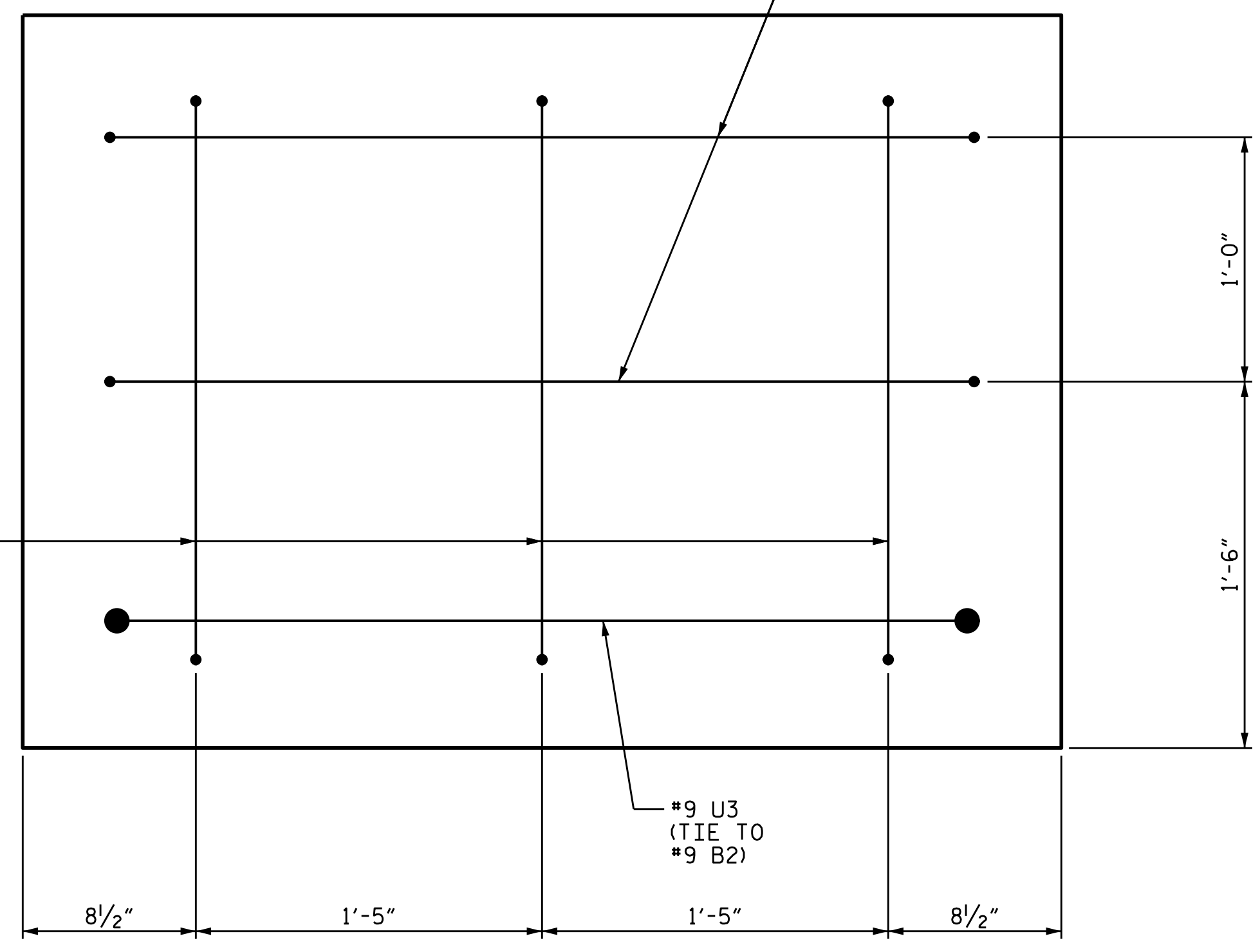
ASSEMBLED BY : M.M. AHMED DATE : 9/6/16
 CHECKED BY : A. SORSENGINH DATE : 9/20/16
 DRAWN BY : DGE 06/10
 CHECKED BY : MKT 06/10
 REV. 11/14 MAA/TMG

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS 18
2			4			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

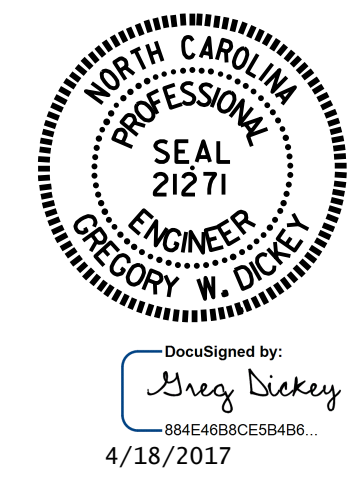


BILL OF MATERIAL					
BENT No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	10	#11	1	41'-0"	2178
* B2	4	#5	STR	38'-0"	159
* B3	16	#4	STR	20'-5"	218
* B4	10	#4	STR	3'-9"	25
* S1	44	#5	2	9'-7"	440
* S2	42	#4	3	6'-8"	187
* U1	4	#4	3	6'-7"	18
* U2	6	#4	3	5'-4"	21
* U3	2	#9	3	10'-11"	74
*EPOXY COATED REINFORCING STEEL					3320 LBS
TOTAL CLASS AA CONCRETE					▲ 17.7 C.Y.
12" PRESTRESSED CONCRETE PILES					
No. 14					LIN. FT. 420
PILE REDRIVES					14 EA.
PILE DRIVING EQUIPMENT SETUP FOR 12" PRESTRESSED CONCRETE PILES					14 EA.



DRAWN BY : M.M. AHMED DATE : 9/8/16
 CHECKED BY : A. SORSENGINH DATE : 9/20/16
 DRAWN BY : DGE 05/10 REV. 11/14 MAA/TMG
 CHECKED BY : MKT 05/10

END OF CAP VIEW
(TYPICAL BOTH ENDS)

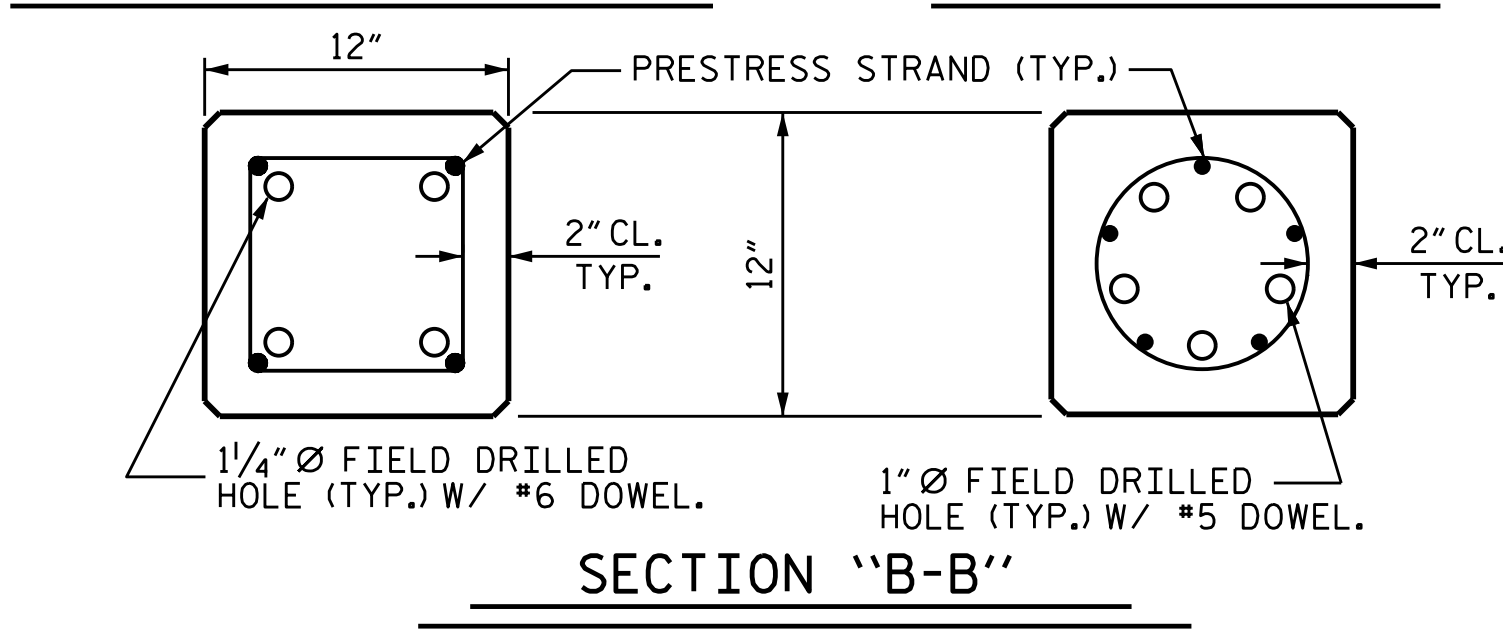
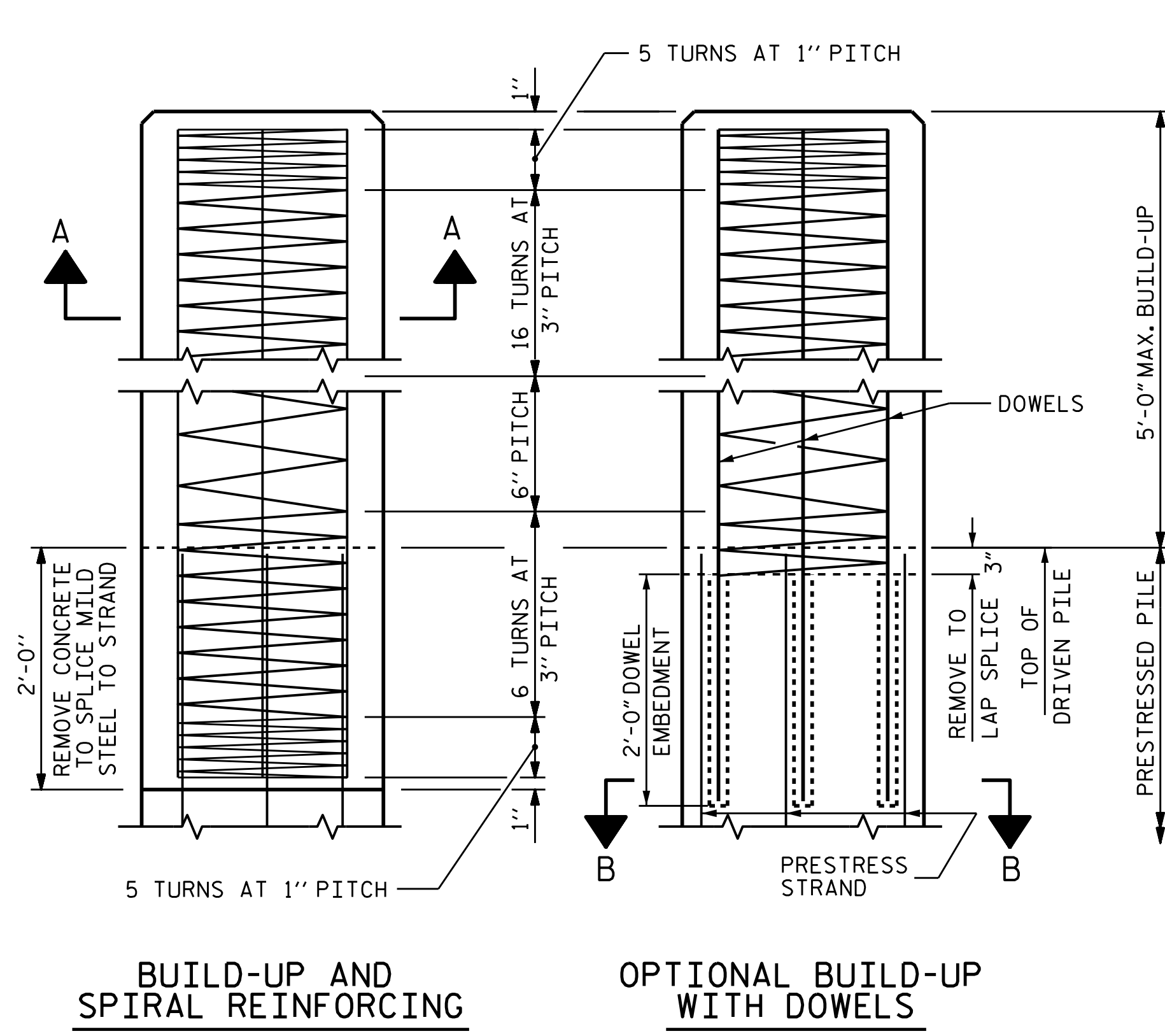
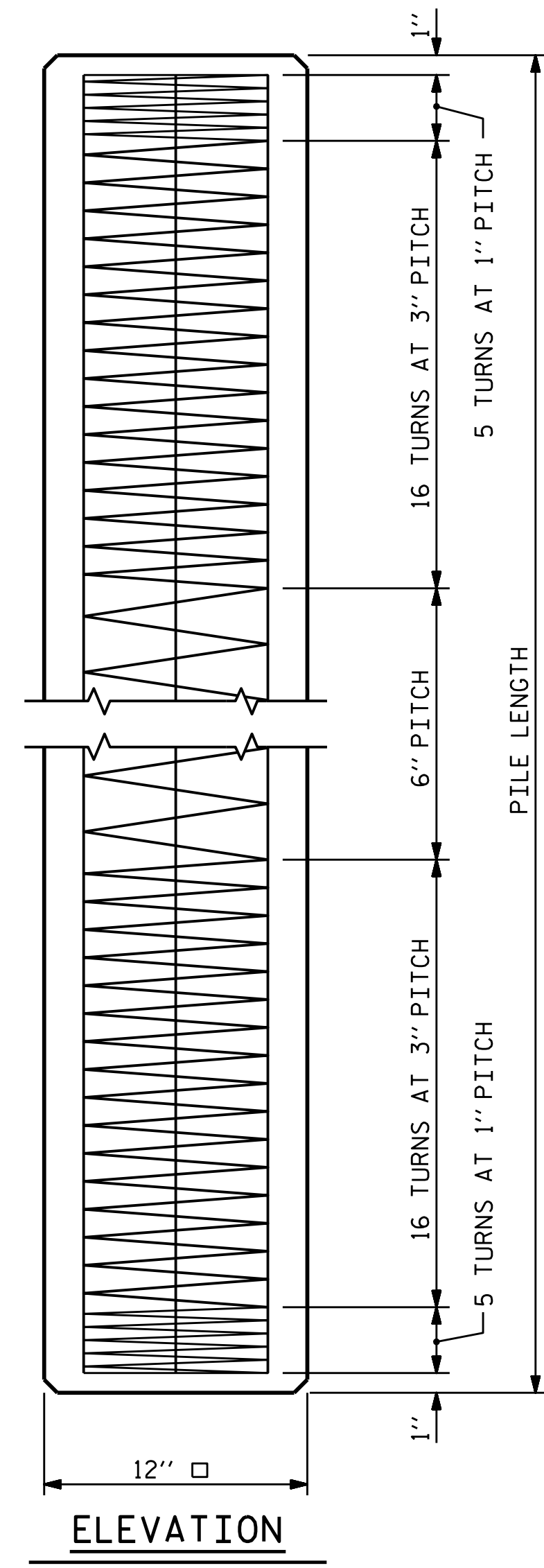


PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-

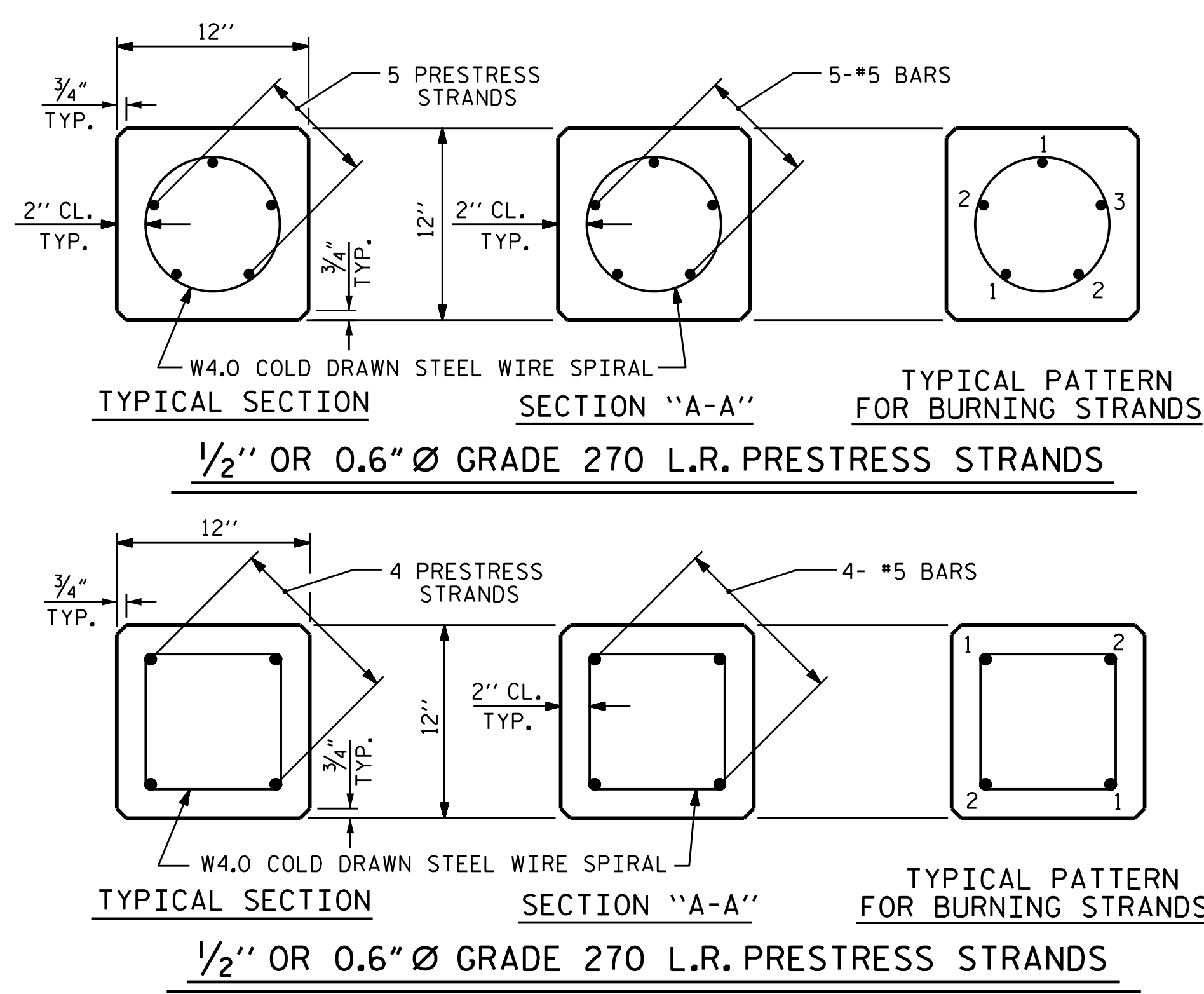
SHEET 2 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT No. 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-15 TOTAL SHEETS 18

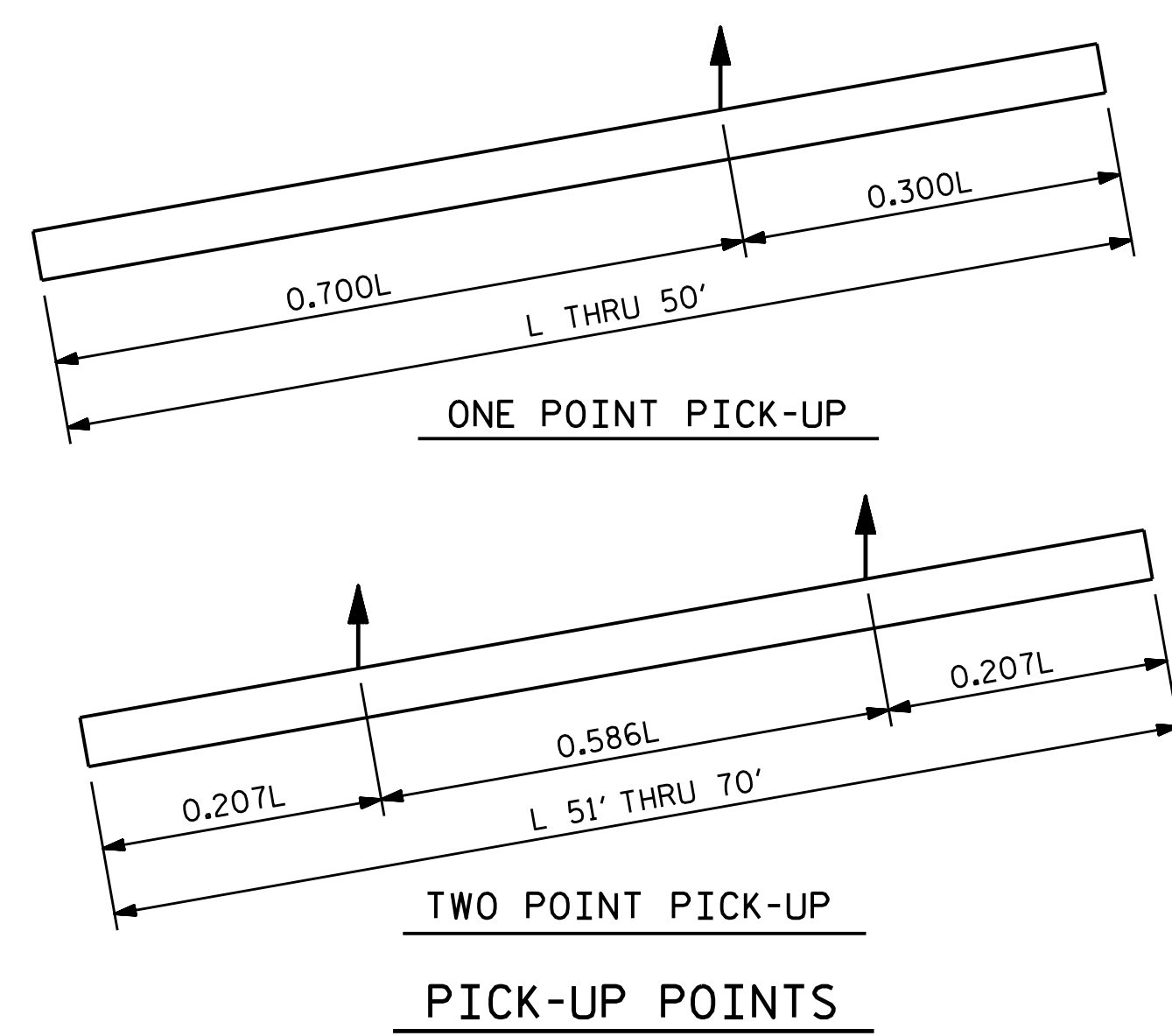
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



(AT THE CONTRACTOR'S OPTION, PILE BUILD-UP MAY BE CONSTRUCTED WITH DOWELS.)

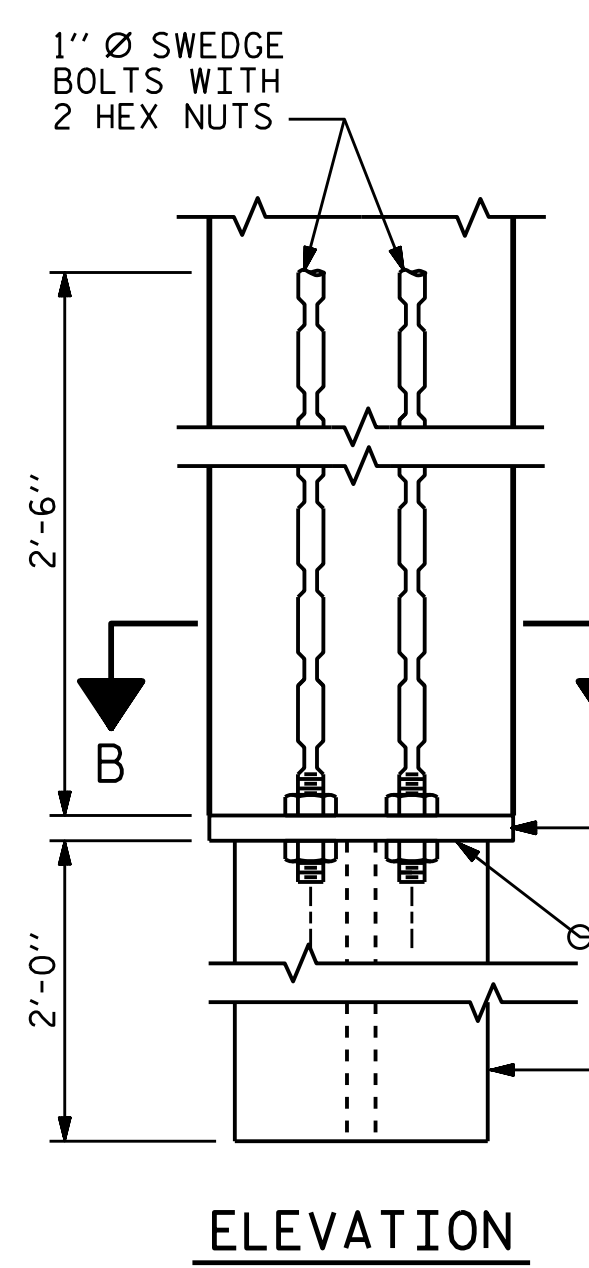


SEE SHEET S-13 FOR NOTES FOR CORROSION PROTECTION.

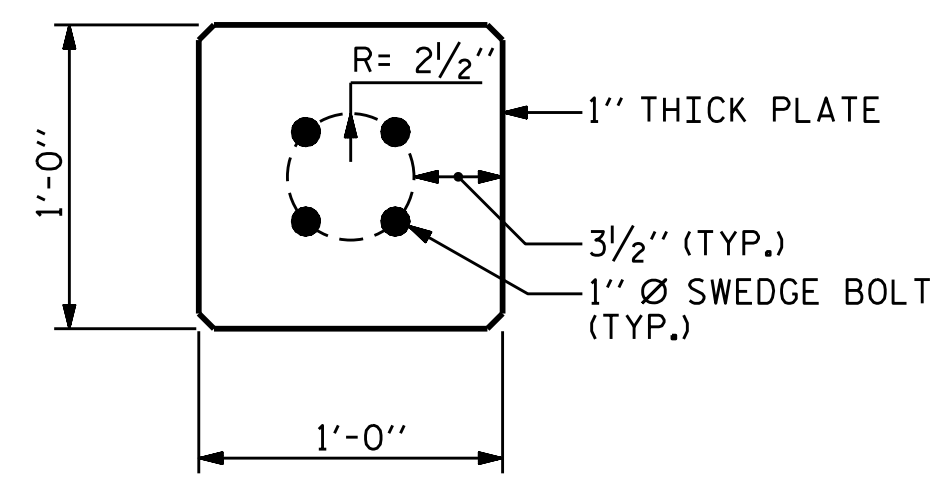


QUANTITIES FOR ONE 12" PRESTRESSED PILE						
LENGTH	CONCRETE CU. YDS.	PILE WT. TONS	ONE POINT PICK-UP		TWO POINT PICK-UP	
			0.300L	0.700L	0.207L	0.586L
25'-0"	0.91	1.85	7'-6"	17'-6"		
30'-0"	1.10	2.22	9'-0"	21'-0"		
35'-0"	1.28	2.59	10'-6"	24'-6"		
40'-0"	1.46	2.96	12'-0"	28'-0"		
45'-0"	1.64	3.33	13'-6"	31'-6"		
50'-0"	1.83	3.72	15'-0"	35'-0"		
55'-0"	2.01	4.09			11'-4 1/2"	32'-3"
60'-0"	2.19	4.46			12'-5"	35'-2"
65'-0"	2.38	4.81			13'-5 1/2"	38'-1"
70'-0"	2.57	5.18			14'-6"	41'-0"

STEEL PILE TIP DETAILS



NOTES
 PLATE AND SWEDGE BOLTS SHALL MEET THE REQUIREMENTS OF AASHTO M270 GRADE 36.
 THREADS OF THE SWEDGE BOLTS SHALL BE BURRED AT THE FACE OF THE NUT.
 PILE SHALL BE CAST WITH SWEDGE BOLTS AND PLATE IN PLACE.
 FOR SPIRAL REINFORCING AND PRESTRESSING STRAND DETAILS, SEE STANDARD 12" PRESTRESSED CONCRETE PILE ELEVATION AND TYPICAL SECTION.
 * EXCEPT AS NOTED BELOW, THE HP 10 X 57 SECTION SHALL BE WELDED TO THE STEEL PLATE AFTER STRAND STRESS IS RELIEVED. THE HP 10 X 57 SECTION MAY BE WELDED IN THE PRESTRESSER'S YARD OR IN THE FIELD, WHEN A CIRCULAR STRAND PATTERN AS SHOWN ON THE PLANS IS USED, THE CONTRACTOR, AT HIS OPTION, MAY WELD THE HP 10 X 57 SECTION TO THE STEEL PLATE AT THE FABRICATION PLANT PRIOR TO PLACING THE CONCRETE. THE FLANGES OF THE HP SECTION SHALL BE PARALLEL TO THE EDGES OF THE STEEL PLATE AND CONCRETE PILE.



SECTION B-B
(HOLES FOR STRANDS NOT SHOWN)

ASSEMBLED BY : M. M. AHMED	DATE : 9/6/16
CHECKED BY : P. K. NEWTON	DATE : 2/1/17
DRAWN BY : FCJ 7/88	REV. 11/30/10 WMC/GM
CHECKED BY : CRK 3/89	REV. 10/1/11 MAA/GM
	REV. 12/14 MAA/TMG

NOTES
 PRESTRESSED CONCRETE STRENGTH : $f'_c = 7,500$ PSI
 BUILD-UP CONCRETE STRENGTH : $f'_c = 7,500$ PSI
 STRAND DATA:

SIZE	GRADE	AREA	ULTIMATE STRENGTH	APPLIED PRESTRESS FORCE
1/2"	270 L.R.	0.153	41,300# PER STRAND	30,980# PER STRAND
0.6"	270 L.R.	0.217	58,600# PER STRAND	43,940# PER STRAND

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW-RELAXATION GRADE 270 STRANDS CONFORMING TO AASHTO M203. STRAND SAMPLING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
 AT THE CONTRACTOR'S OPTION, 1/2" OR 0.6" STRANDS MAY BE USED IN EITHER THE 4 OR 5 STRAND CONFIGURATION SHOWN IN THE TYPICAL SECTION DETAIL. MIXING OF STRAND SIZE IS NOT ALLOWED.
 THE SLIP-FORM METHOD OF CASTING PILES WILL NOT BE PERMITTED.
 TRANSFER THE LOAD FROM THE ANCHORAGES TO THE PILE AFTER THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.
 IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN PAIRS, EXCEPT WHERE 5 STRANDS ARE USED, THE LAST STRAND MAY BE BURNED SINGLY ACCORDING TO BURNING PATTERNS SHOWN. NOT MORE THAN 4 STRANDS MAY BE BURNED AT ANY ONE SECTION BEFORE THE SAME STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.
 PROPOSED DEVICES FOR LIFTING PILES, RECESS DETAILS, AND PATCHING MATERIAL SHALL BE DETAILED IN SHOP DRAWINGS. AFTER ATTACHMENTS HAVE BEEN REMOVED, OPENINGS SHALL BE REPAIRED SUCH THAT THE APPEARANCE OF THE PILE IS UNIFORM.
 WHERE CAST-IN-PLACE LIFTING DEVICES ARE NOT USED, PICK-UP POINTS ARE TO BE INDICATED WITH A 2" WIDE BLACK MARK.
 DRIVE PILES USING A METHOD APPROVED BY THE ENGINEER, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.
 DRIVING OF THE BUILT-UP PILE WILL NOT BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 5,000 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

DOWEL INSTALLATION FOR OPTIONAL BUILD-UP

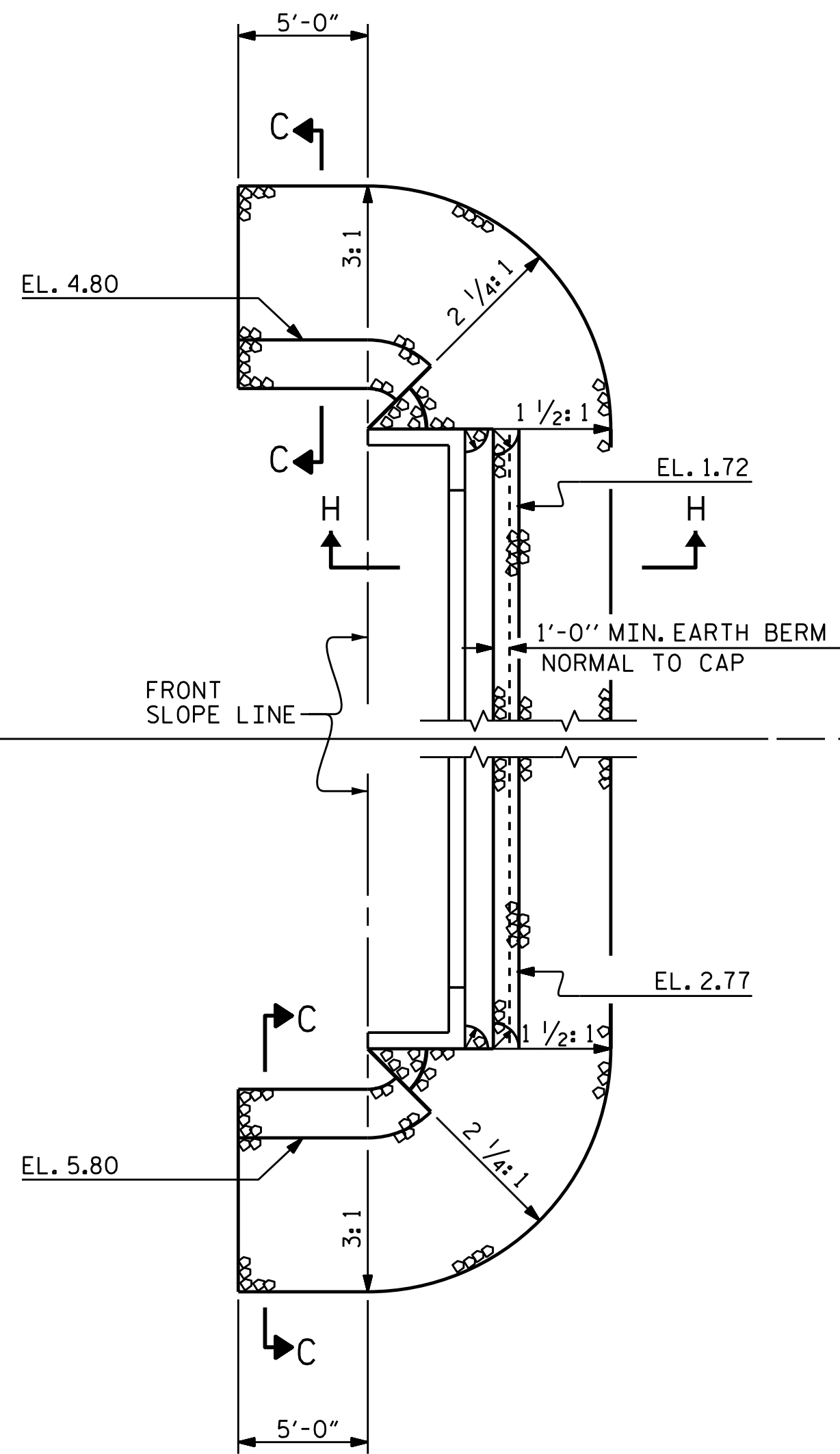
GROUT COMPRESSIVE STRENGTH: $f'_c = 5,000$ PSI
 BEFORE DRILLING DOWEL HOLES, REMOVE THE UPPER 3" OF CONCRETE FROM THE TOP OF THE PILE WITHOUT DAMAGE TO THE REINFORCING STEEL. THE REMOVAL PLANE SHOULD BE NORMAL TO THE EDGE OF THE PILE.
 DOWEL HOLES SHALL BE POSITIONED TO MAINTAIN 1/2" CLEAR TO ALL EXISTING PRESTRESSING STRANDS IN THE CONCRETE PILE.
 FIELD DRILLED HOLES SHALL BE CLEAN AND FREE OF ANY OBSTRUCTIONS BEFORE GROUTING OF DOWELS. DOWEL BARS SHALL BE INSTALLED AND GROUTED WITH AN APPROVED NON-SHRINK GROUT.
 THE SPIRAL REINFORCING IN ALL BUILD-UPS SHALL BE W4.0 COLD DRAWN WIRE WHICH SHALL BE SECURED TO THE LONGITUDINAL REINFORCEMENT TO MAINTAIN PITCH.
 THE SPIRAL REINFORCING IN THE BUILD-UP AND THE PRESTRESSED CONCRETE PILE SHALL BE SPLICED BY OVERLAPPING A MIN. OF ONE TURN.

PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-

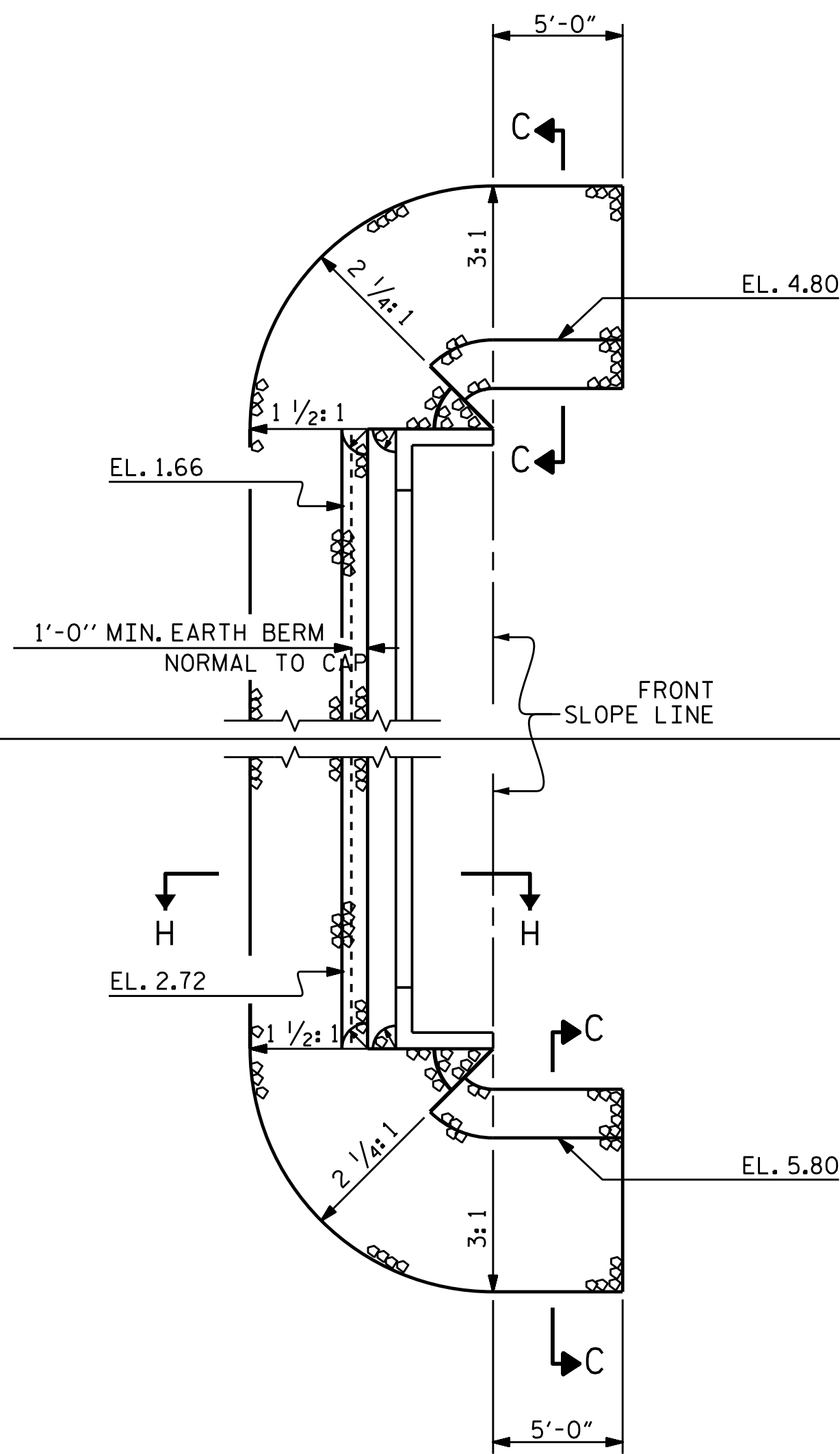


REVISIONS						SHEET NO. S-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

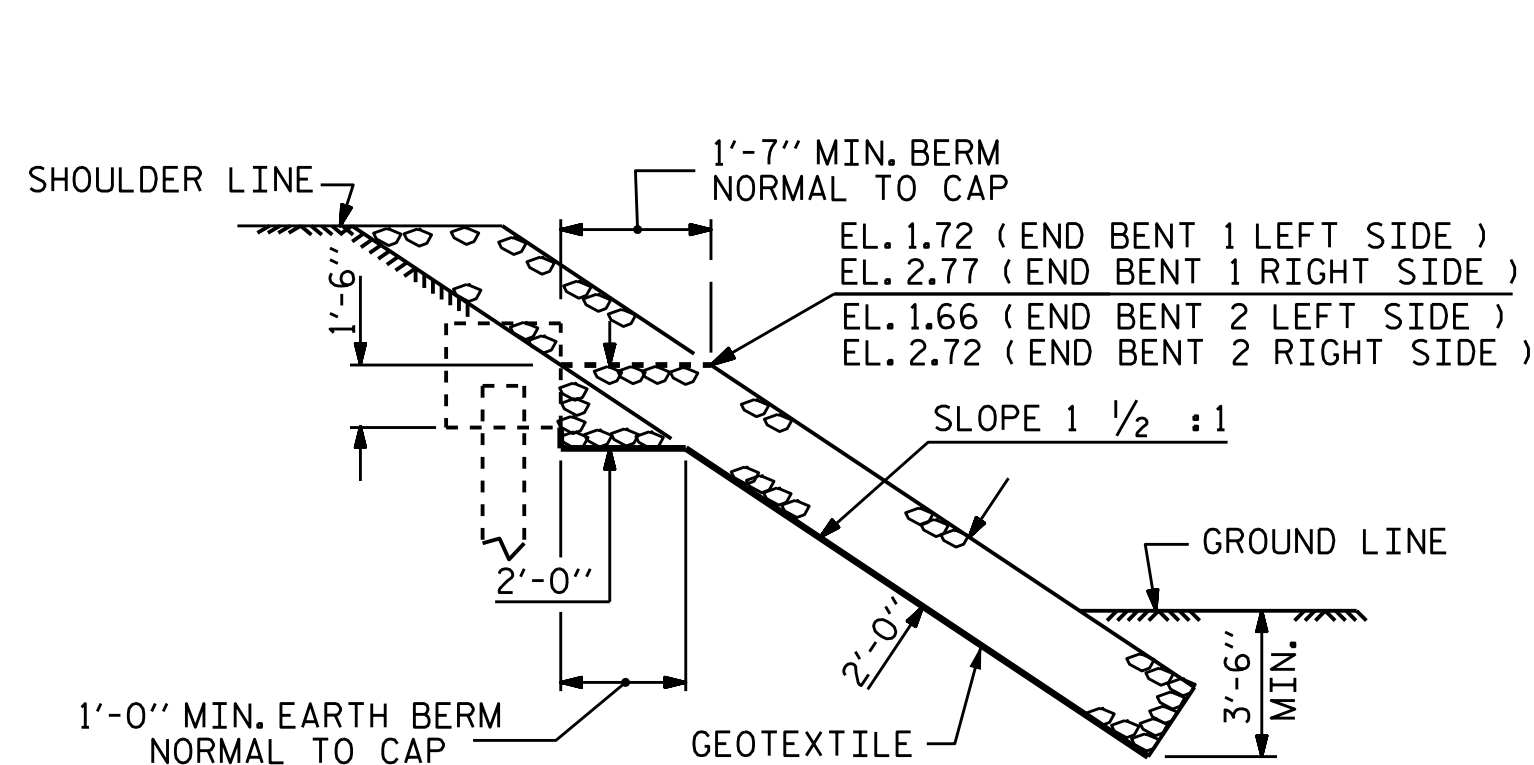


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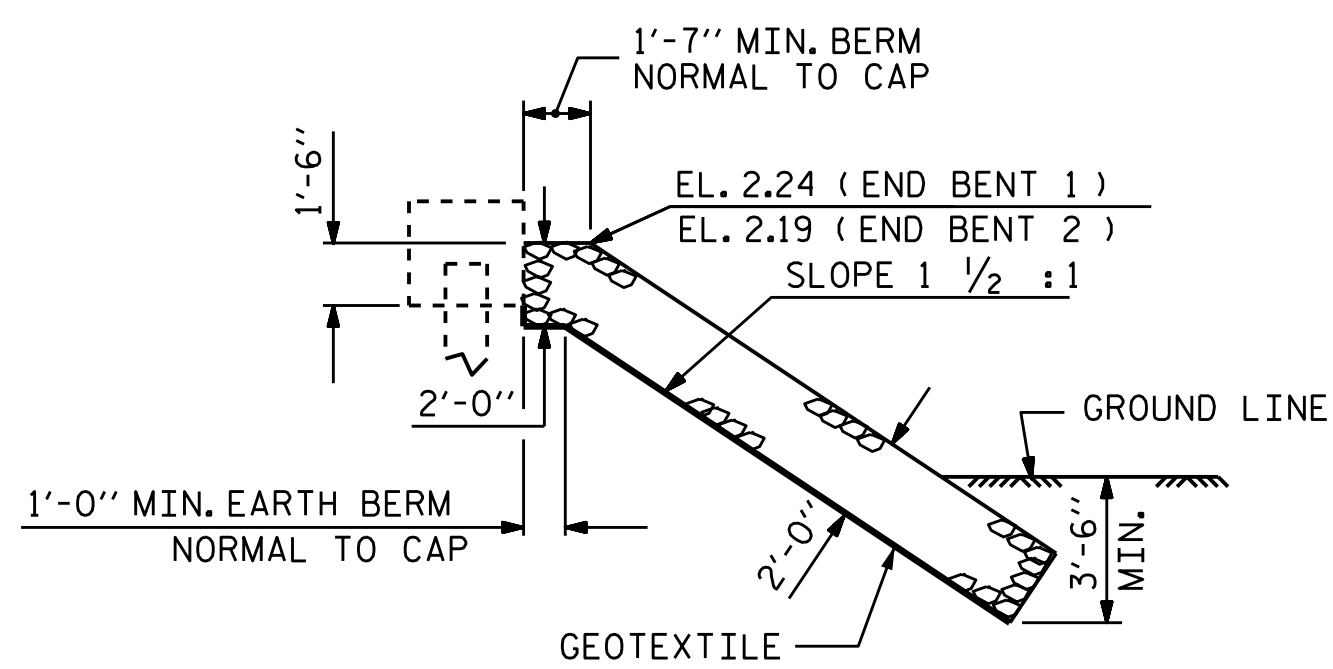


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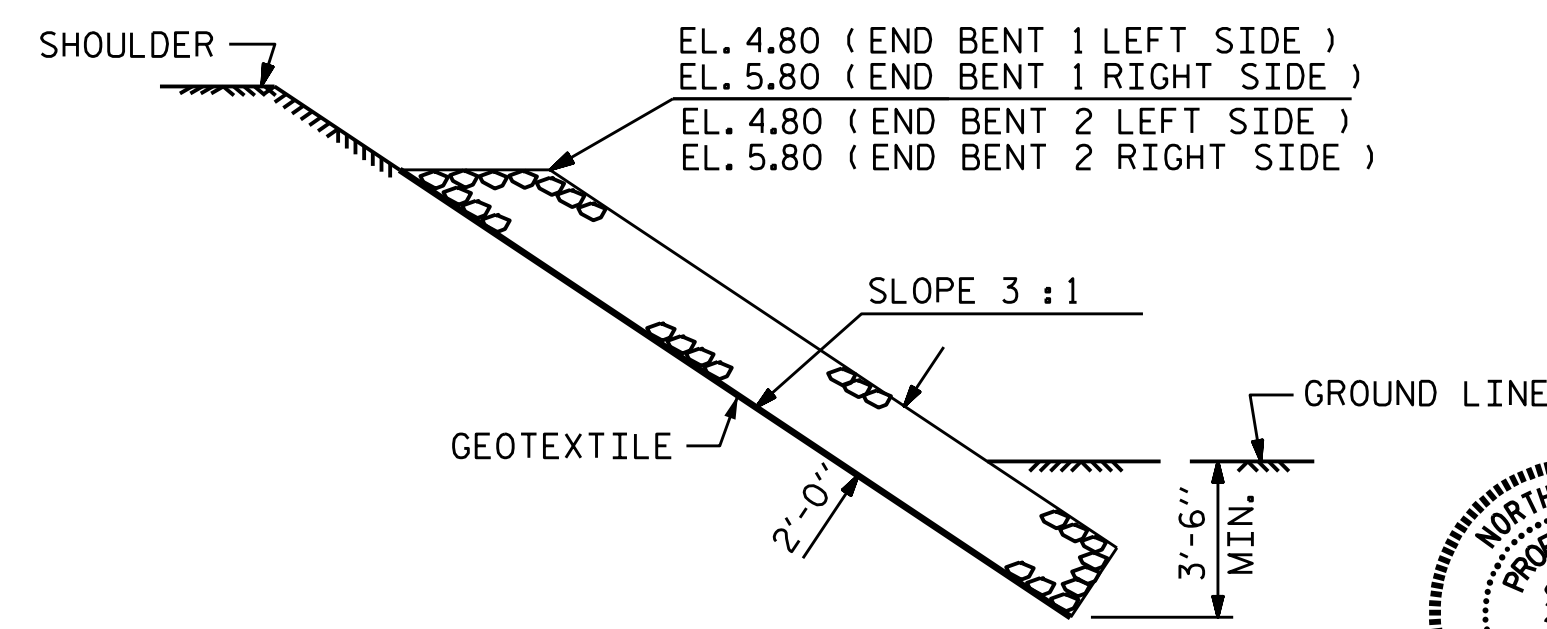
ESTIMATED QUANTITIES		
BRIDGE @ STA. 16+43.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	120	135
END BENT 2	120	135



SECTION H-H



**SECTION C-C
BERM RIP RAPPED**



SECTION C-C

PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-



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

ASSEMBLED BY : M.M. AHMED DATE : 9/1/16
 CHECKED BY : A. SORSENGIN DATE : 9/20/16
 DRAWN BY : REK 1/84 REV. 5/1/06R TLA/GM
 CHECKED BY : ROU 1/84 REV. 10/1/11 MAA/GM
 REV. 12/21/11 MAA/GM

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

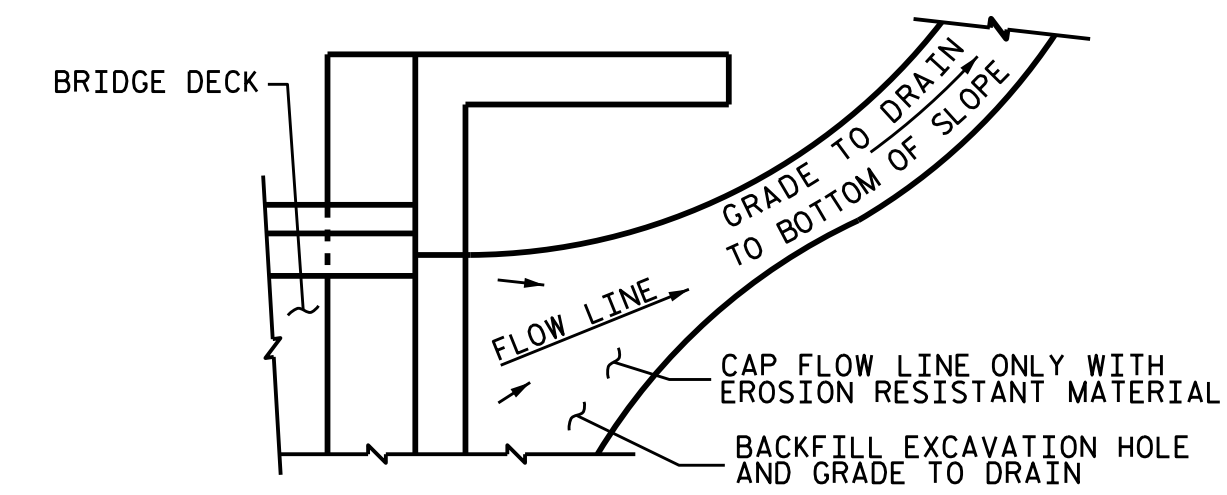
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17	
1			3			TOTAL SHEETS	
2			4			18	

NOTES

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, IMPERMEABLE GEOMEMBRANE, 4" Ø DRAINAGE PIPE, #78M STONE, AND SELECT MATERIAL, SEE ROADWAY PLANS.

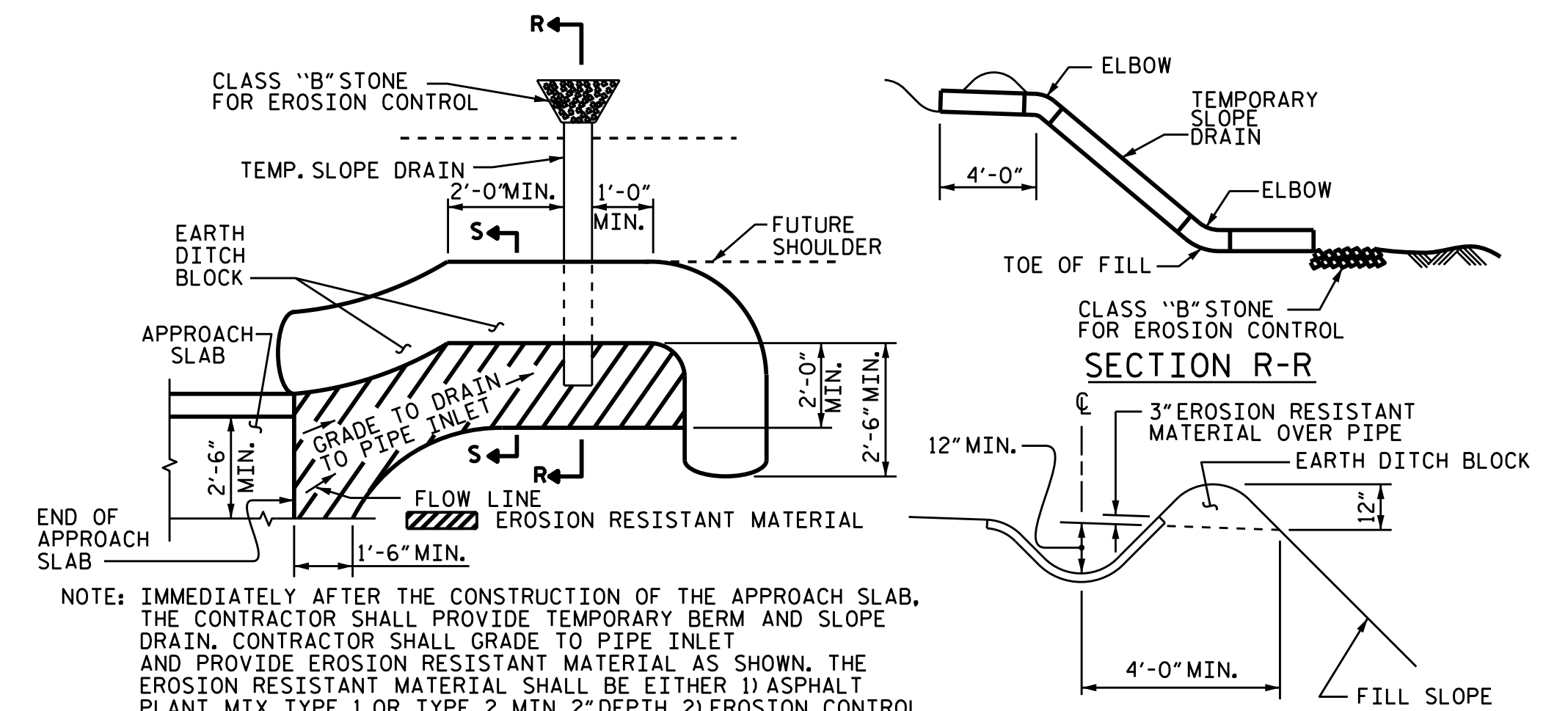
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



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

TEMPORARY DRAINAGE DETAIL

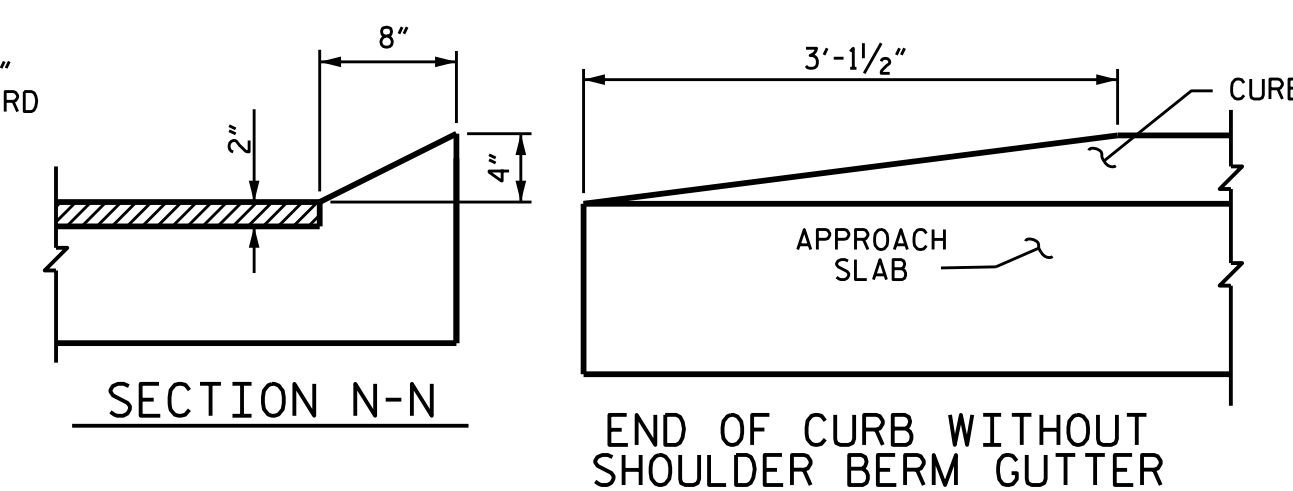


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



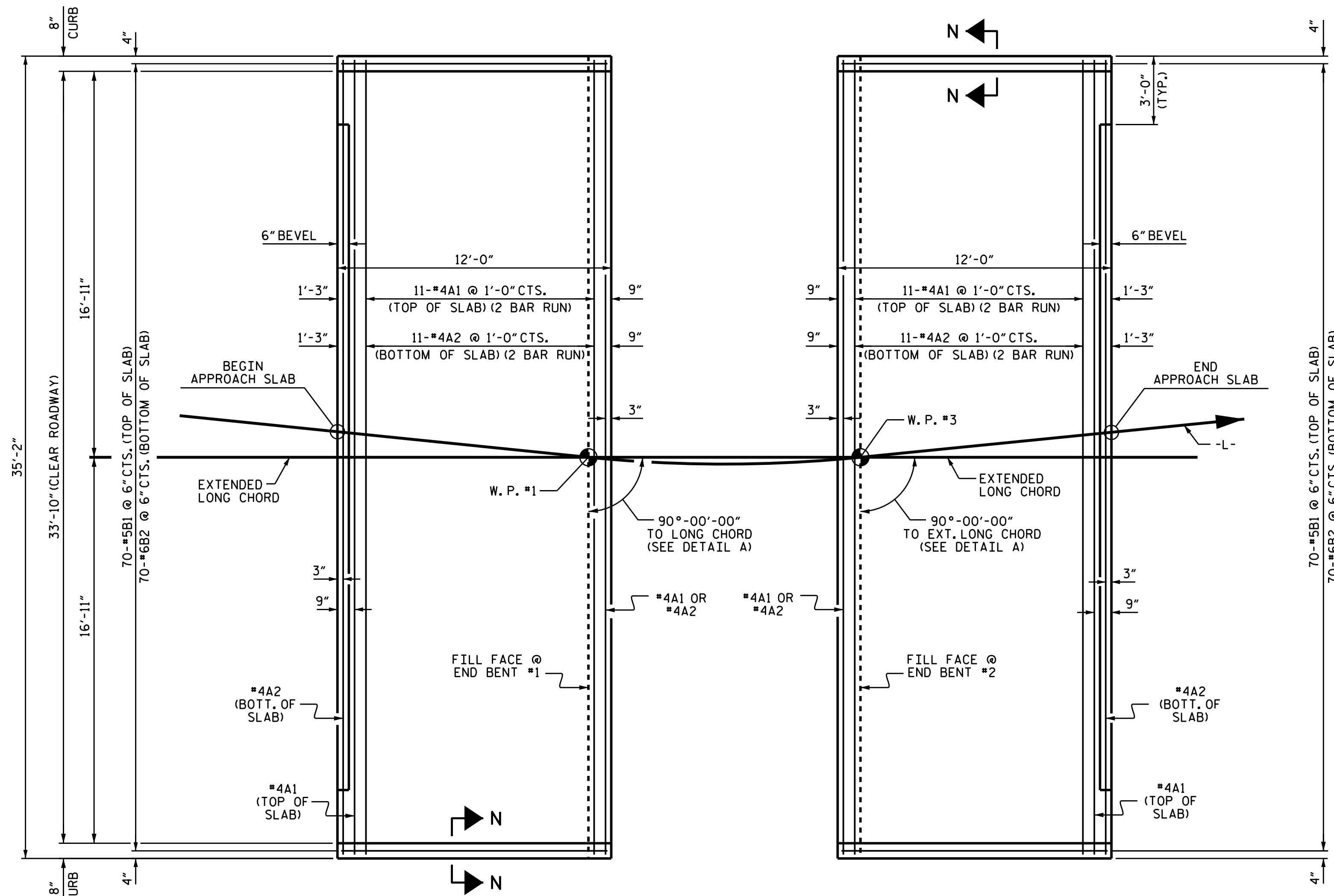
CURB DETAILS

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

BILL OF MATERIAL

APPROACH SLAB AT EB #1						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	18'-6"	321	
*A2	26	#4	STR	18'-4"	318	
*B1	70	#5	STR	11'-2"	815	
*B2	70	#6	STR	11'-8"	1227	
* EPOXY COATED REINFORCING STEEL					LBS.	2681
CLASS AA CONCRETE					C. Y.	20.1

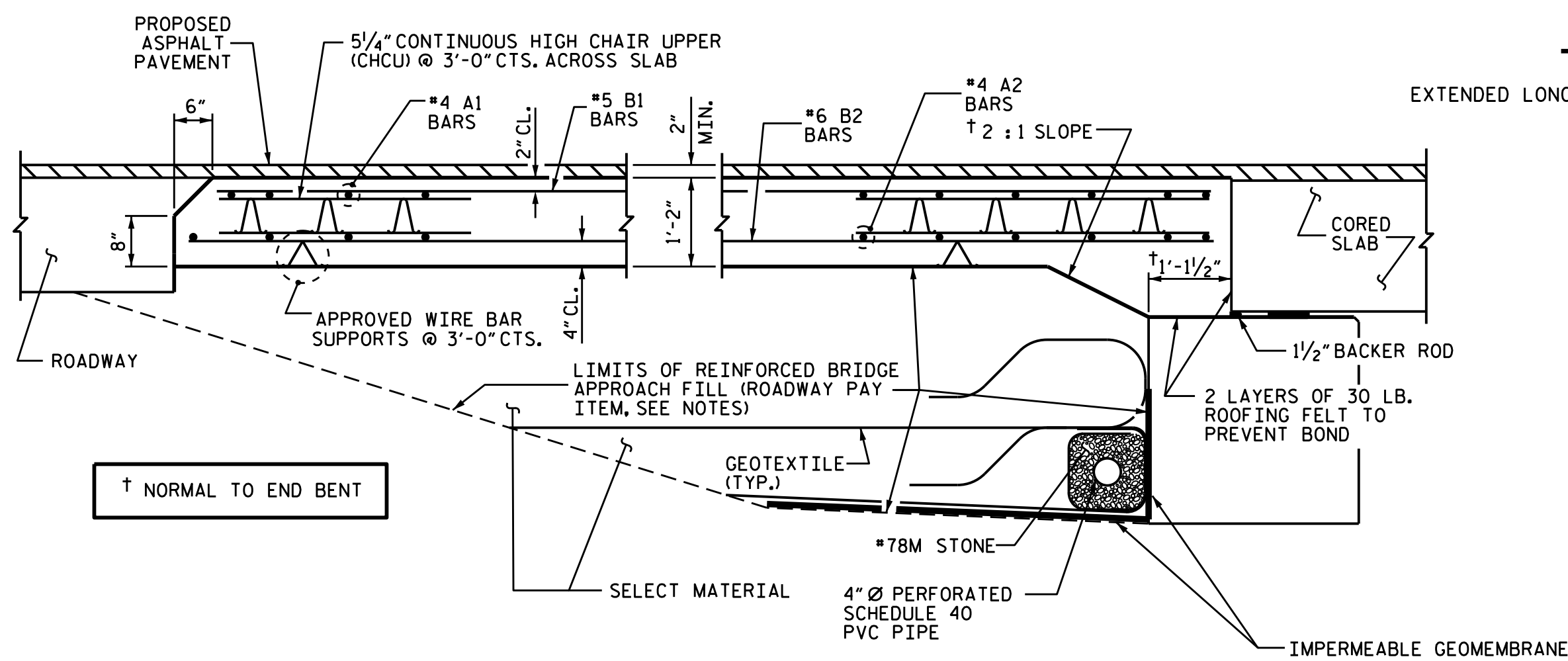
APPROACH SLAB AT EB #2						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*A1	26	#4	STR	18'-6"	321	
*A2	26	#4	STR	18'-4"	318	
*B1	70	#5	STR	11'-2"	815	
*B2	70	#6	STR	11'-8"	1227	
* EPOXY COATED REINFORCING STEEL					LBS.	2681
CLASS AA CONCRETE					C. Y.	20.1



PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

ASSEMBLED BY : M.M. AHMED DATE : 9/1/16
 CHECKED BY : A. SORSENGINH DATE : 9/20/16
 DRAWN BY : SHS/MAA 5-09
 CHECKED BY : BCH 5-09

REV. 9-15 MAA/TMG

18-APR-2017 11:57
 Y:\Structures\Plans\Backup_File\B-4598.SMU_Final Plans_680016.dgn
 gdckey



Designed by: *Greg Dickey*
 4/18/2017
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. B-4598
PAMLICO COUNTY
 STATION: 16+43.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 CORED SLAB UNIT

90° SKEW

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

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.
ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.
IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.
DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.
WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".
EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.
WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.
METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN