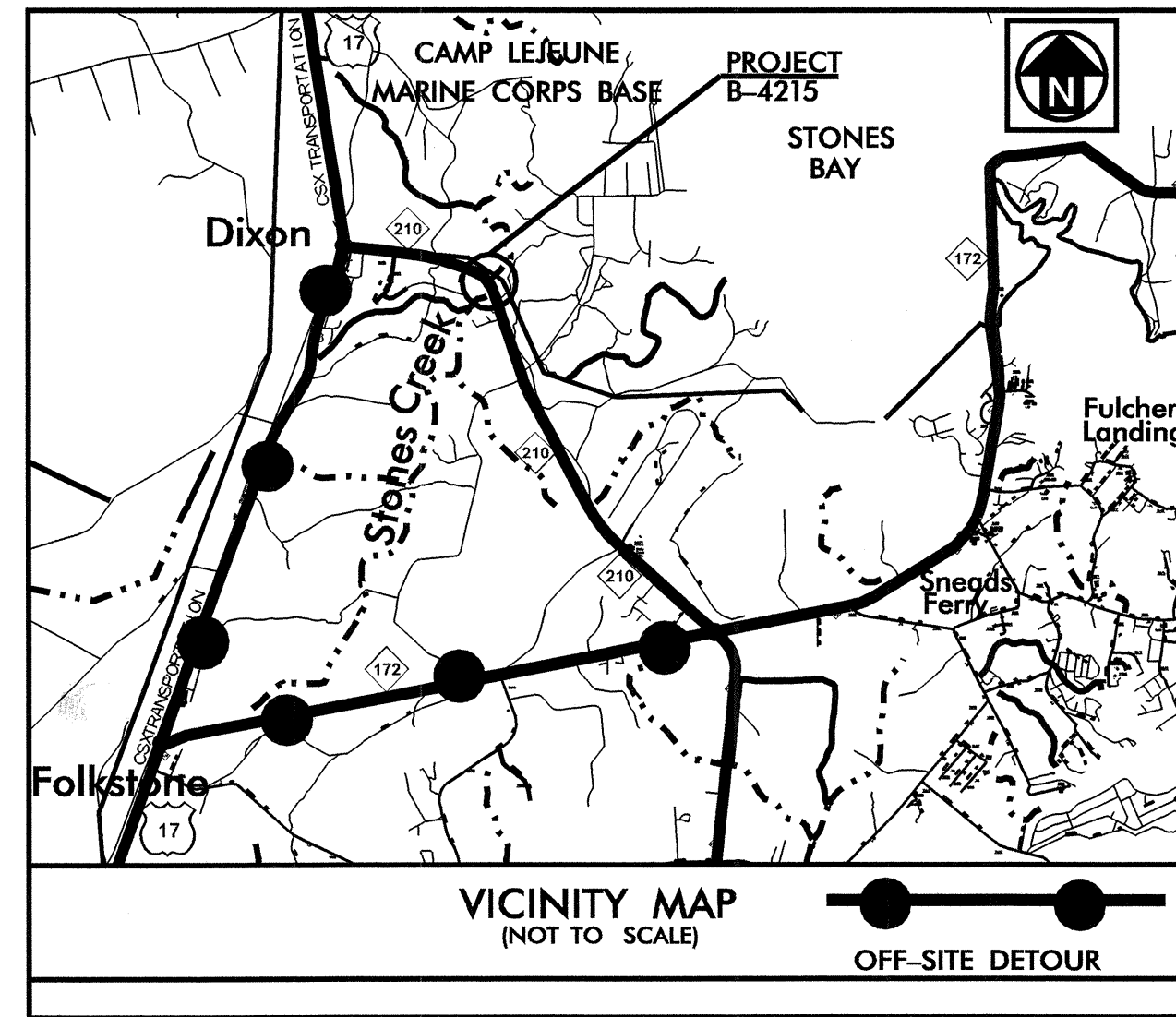


TIP PROJECT: B-4215

CONTRACT: C201482

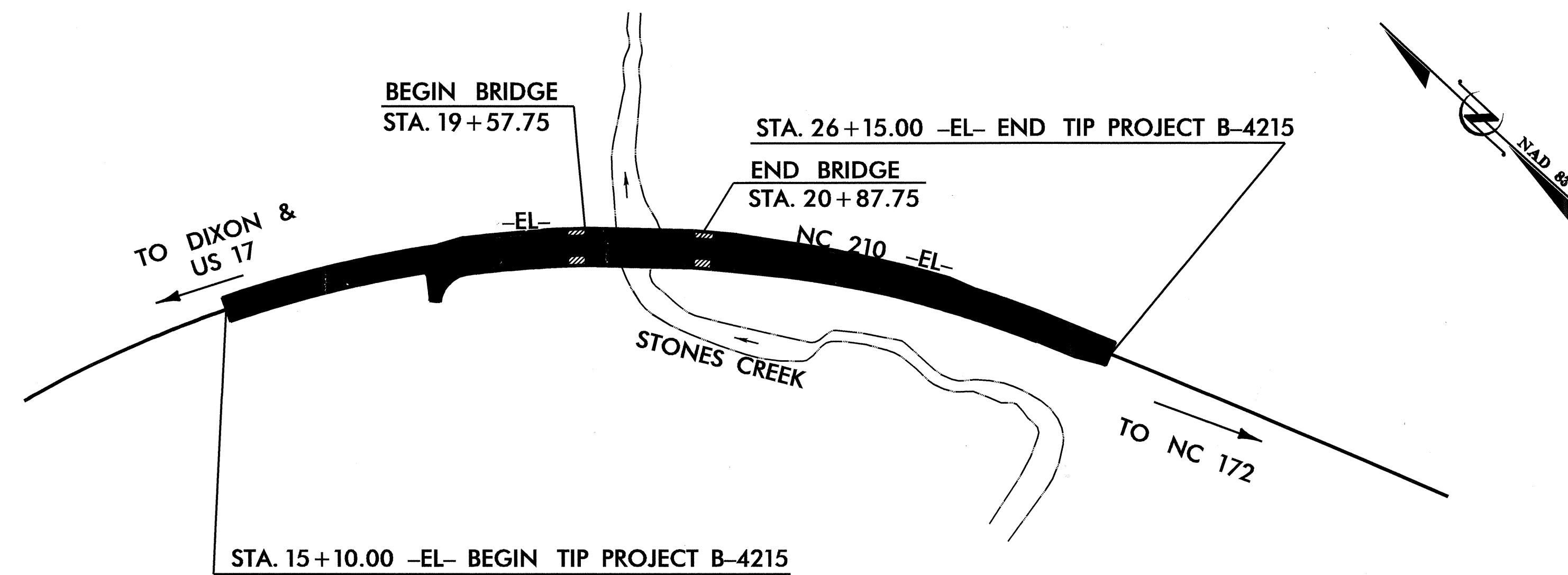


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ONSLOW COUNTY

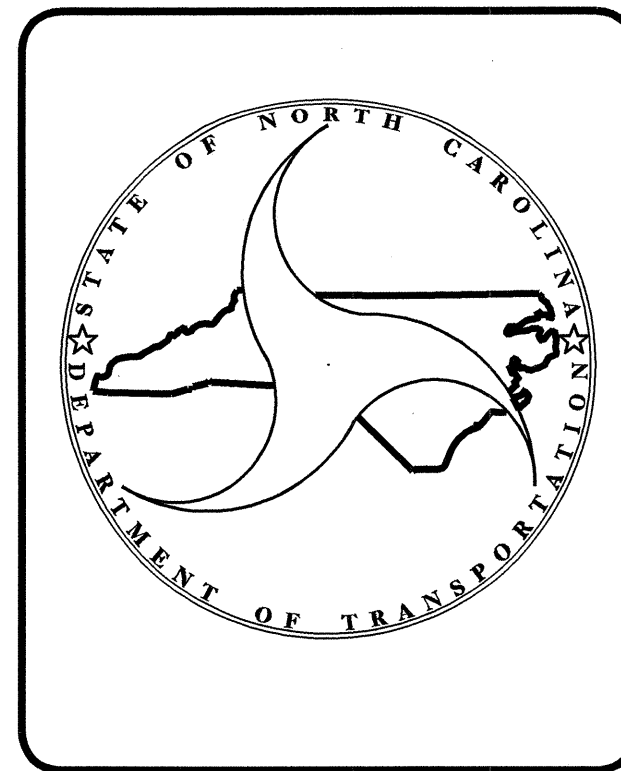
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4215		
WBS NO.	P.A. PROJ. NO.	DESCRIPTION	
33561.1.1	BRSTP-0210(3)	P.E.	
33561.2.1	BRSTP-0210(3)	R /W,UTL	
33561.3.1	BRSTP-0210(3)	CONST	

LOCATION: BRIDGE NO. 19 OVER STONES CREEK AND APPROACHES ON NC 210

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



STRUCTURE



DESIGN DATA

ADT 2006 = 9400
ADT 2026 = 17,300
DHV = 10%
D = 60%
* T = 7%
** V = 55 mph

Func Class = Maj Coll - Rural
* (Duals = 4% + TTST = 3%)
** Design Exception - Sight Distance

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4215 = 0.184 MILE

LENGTH STRUCTURE TIP PROJECT B-4215 = 0.025 MILE

TOTAL LENGTH TIP PROJECT B-4215 = 0.209 MILE

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh, NC 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
AUGUST 21, 2007

B. C. Hunt, PE
PROJECT ENGINEER

V. A. Patel, PE
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

G. Peretti 6-22-07
STATE BRIDGE DESIGN ENGINEER

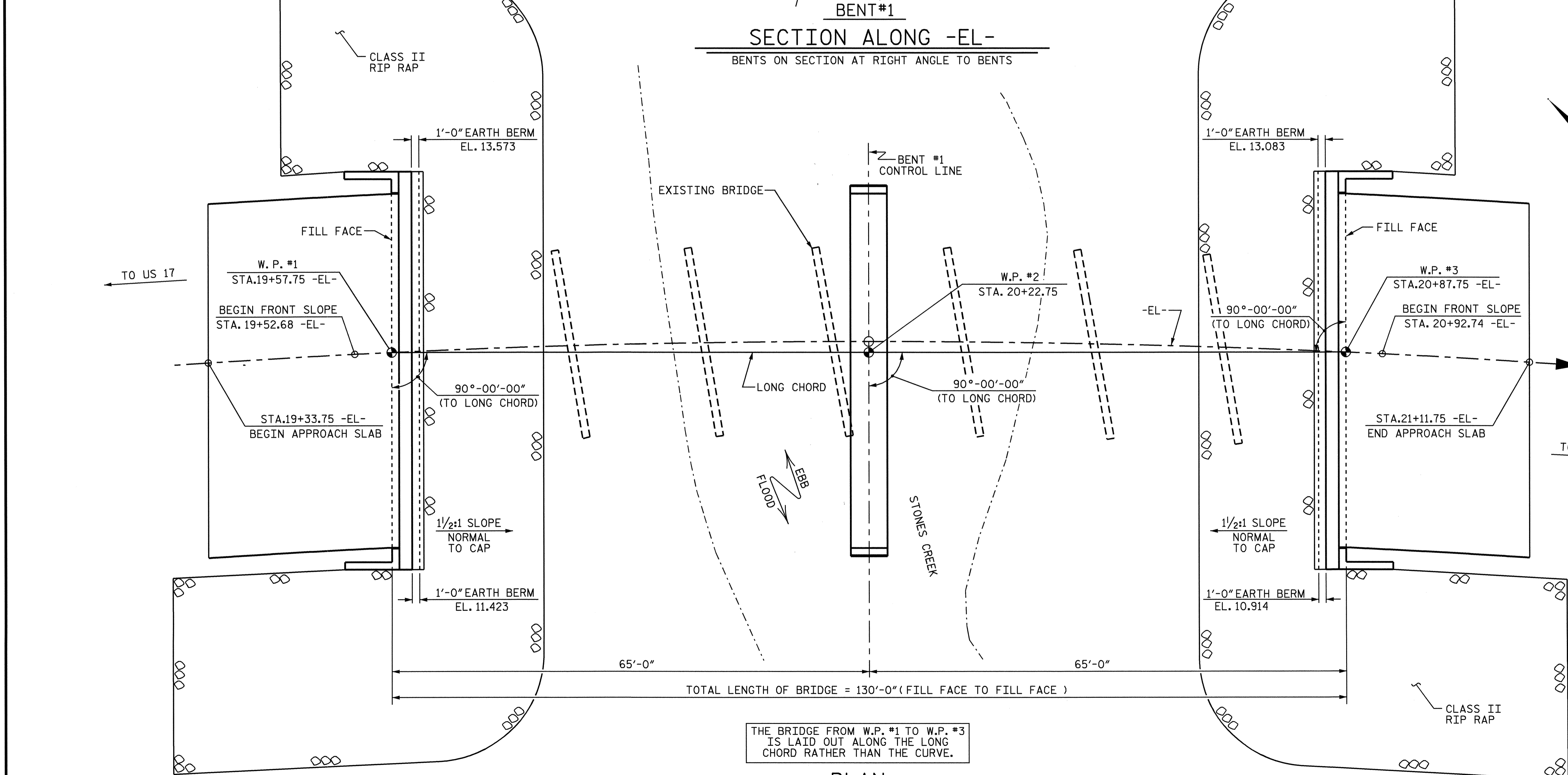
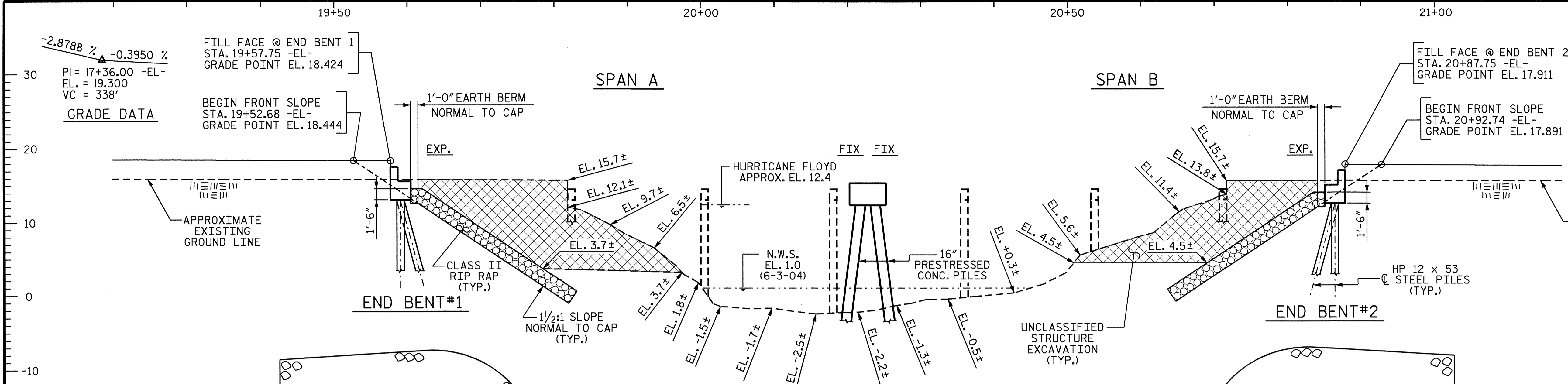
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

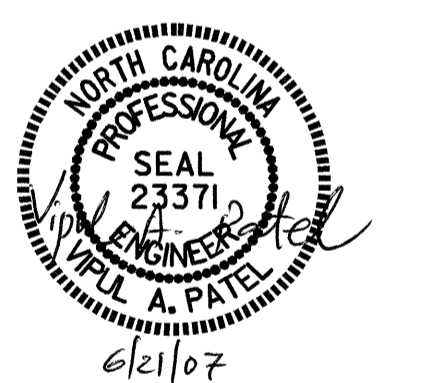
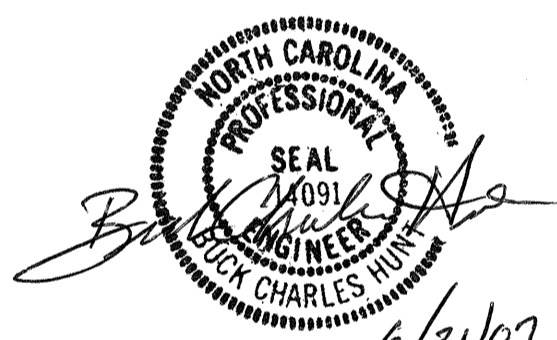
**DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED
DIVISION ADMINISTRATOR

DATE



-EL-
 P1Sta 19+46.03
 D = 52'-3" -58.6° (RT)
 D = 4° 00' 00.0"
 L = 1,313.32'
 T = 706.89'
 R = 1,432.39'
 SE = 04



PROJECT NO. B-4215
ONSLow COUNTY
 STATION: 20+22.75 -EL-

SHEET 1 OF 3 REPLACES BRIDGE #19

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL DRAWING
 FOR BRIDGE OVER
 STONES CREEK ON
 NC 210 BETWEEN
 US 17 AND NC 172**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			22

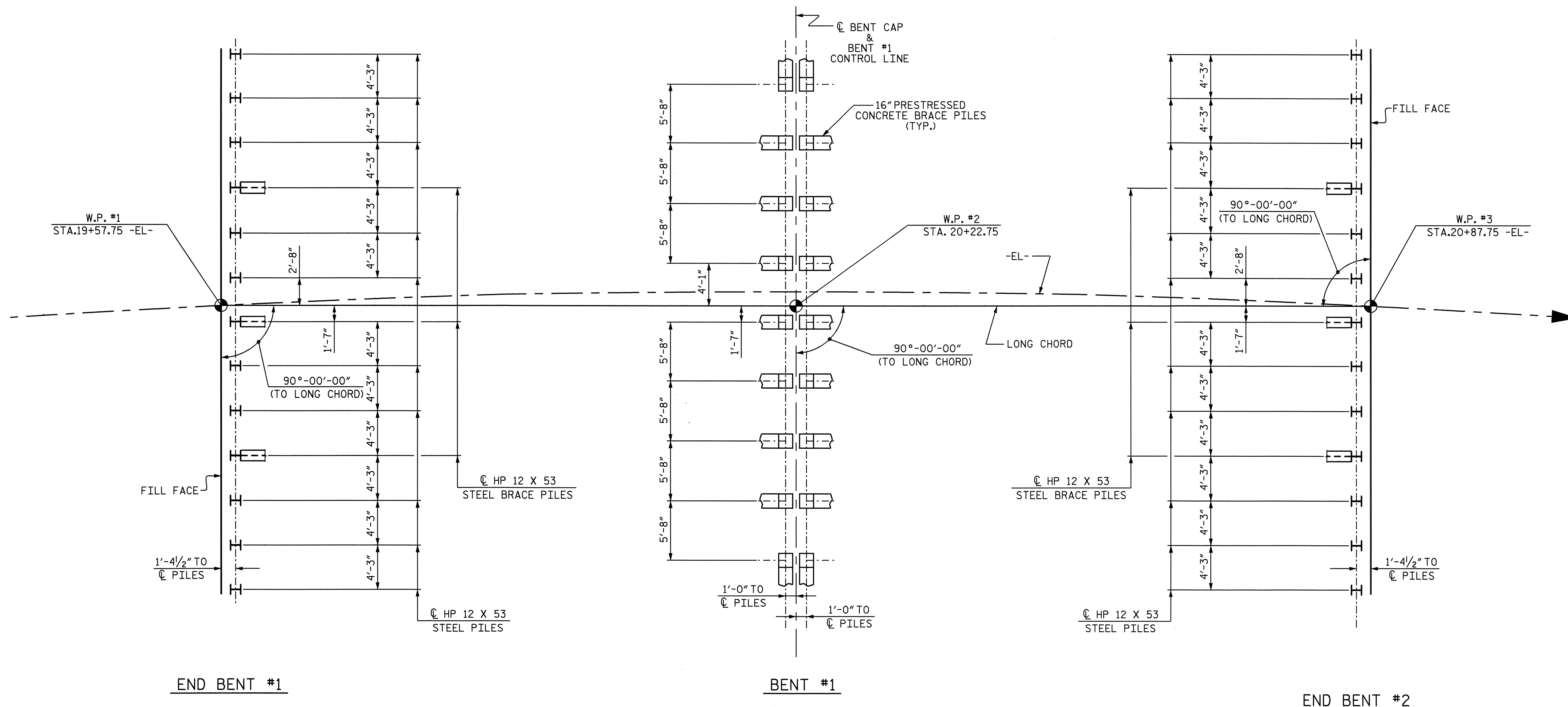
DRAWN BY : D.V. JOYNER DATE : 4-06
 CHECKED BY : R.L. CHESSON DATE : 4-06

21-JUN-2007 10:02
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 vpatel

THE BRIDGE FROM W.P. #1 TO W.P. #3
 IS LAID OUT ALONG THE LONG
 CHORD RATHER THAN THE CURVE.

PLAN

PILES NOT SHOWN IN PLAN VIEW FOR CLARITY



FOUNDATION LAYOUT

ALL PILES AT END BENTS ARE HP 12X53 AND ALL PILES AT THE BENT ARE 16" PRESTRESSED CONCRETE. END BENT BRACE PILES ARE BATTERED 3:12; BENT PILES ARE BATTERED 1/2:12; THE BENT CORNER PILES SHALL BE BATTERED IN THE TRANSVERSE DIRECTION. DIMENSIONS LOCATING PILES ARE TO THE CENTERLINE OF PILES.

NOTES

DRIVE PILES AT END BENT #1 AND END BENT #2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT #1 AND END BENT #2 IS 50 TONS PER PILE.

DRIVE PILES AT BENT #1 TO A REQUIRED BEARING CAPACITY OF 135 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO PLUS ANY ADDITIONAL CAPACITY TO ACCOUNT FOR DOWN DRAG OR NEGATIVE SKIN FRICTION AND SCOUR.

THE ALLOWABLE BEARING CAPACITY FOR PILES AT BENT #1 IS 60 TONS PER PILE.

DRIVE PILES AT BENT #1 TO A PRESTRESSED CONCRETE TIP ELEVATION NO HIGHER THAN -16.000.

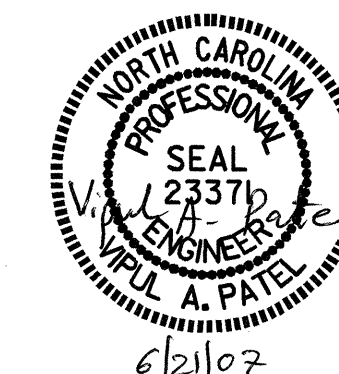
STEEL PILE TIPS ARE REQUIRED FOR PRESTRESSED CONCRETE PILES AT BENT #1. THE COST FOR STEEL PILE TIPS SHALL BE INCLUDED IN THE COST OF PRESTRESSED CONCRETE PILES.

THE SCOUR CRITICAL ELEVATION FOR BENT #1 IS ELEVATION -16.000. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING PILES WITH THE PILE DRIVING ANALYER (PDA) DURING DRIVING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. SEE PILE DRIVING ANALYER SPECIAL PROVISION.

PROJECT NO. B-4215
ONSLow COUNTY
 STATION: 20+22.75 -EL-

SHEET 2 OF 3



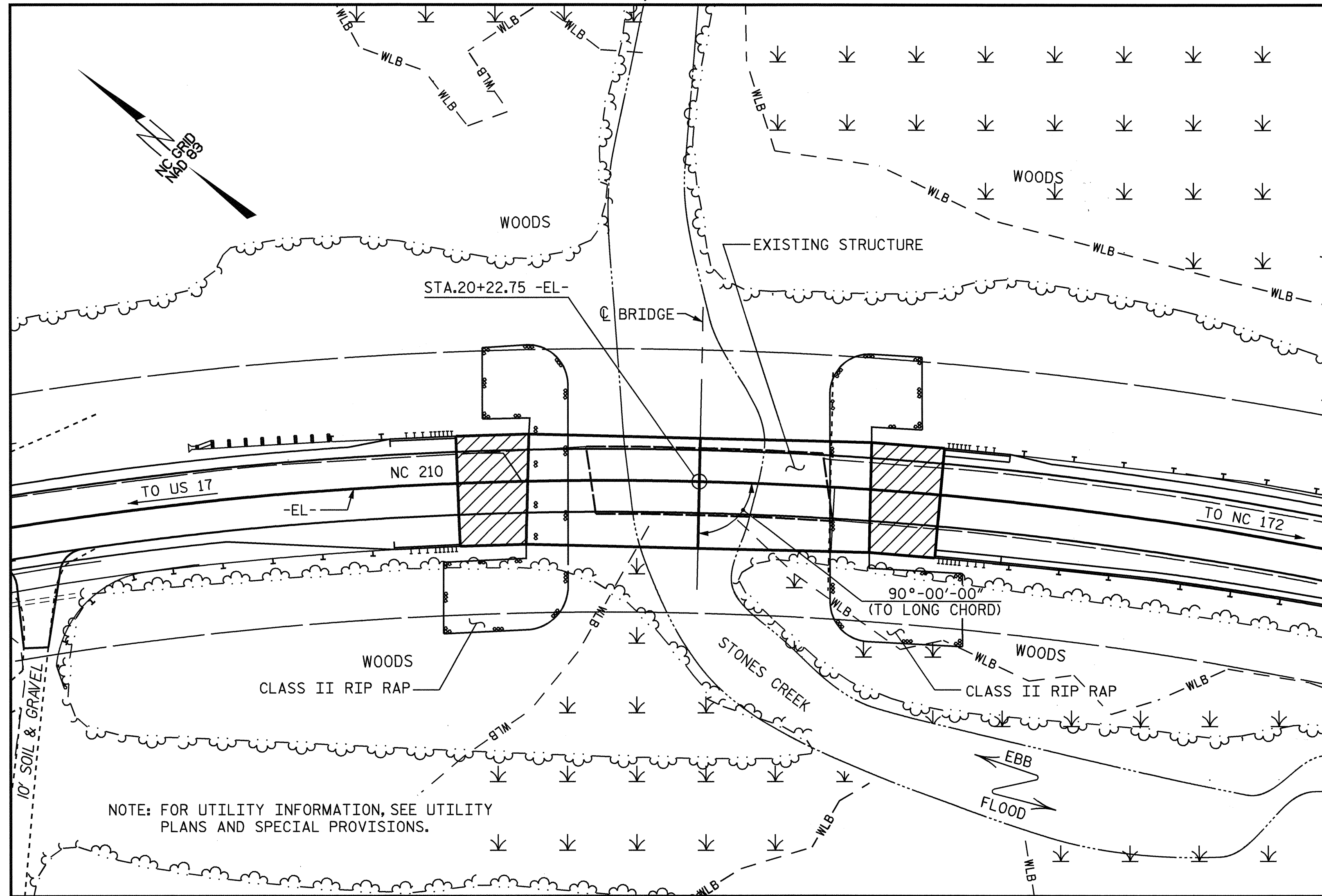
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 STONES CREEK ON
 NC 210 BETWEEN
 US 17 AND NC 172

REVISIONS						SHEET NO. S-2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 22
2			4			

DRAWN BY : D.V. JOYNER DATE : 4-06
 CHECKED BY : R.L. CHESSON DATE : 4-06

BM#1 RAILWAY SPIKE IN BASE OF 30" Ø OAK, 144.43 FT. LT. OF STA.14+24.78 -BL- EL. 5.300

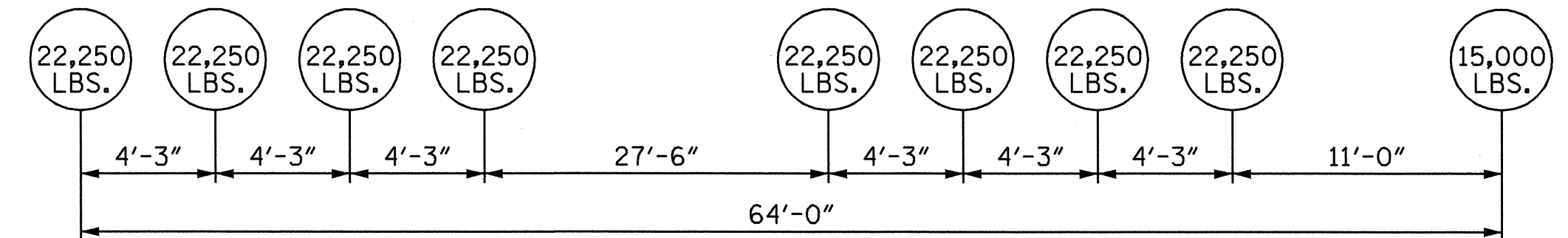


LOCATION SKETCH

NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

NOTES

THIS BRIDGE HAS BEEN DESIGNED FOR A LIVE LOAD CONFIGURATION AS SHOWN:



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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 5 SPANS (5 @ 17'-9") WITH A CLEAR ROADWAY WIDTH OF 25.9' (28' OUT TO OUT) AND HAVING A 1'-3" REINFORCED CONCRETE DECK SLAB SUPPORTED BY A SUBSTRUCTURE OF REINFORCED CONCRETE CAPS AND TIMBER PILES SHALL BE REMOVED. PILES FROM A PREVIOUS STRUCTURE LOCATED AT THIS SITE SHALL ALSO BE REMOVED AS DIRECTED BY THE ENGINEER. COST TO REMOVE THESE PILES SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR REMOVAL OF EXISTING STRUCTURE.

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

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

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 MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR UNCLASSIFIED STRUCTURE EXCAVATION.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, 'EVALUATING SCOUR AT BRIDGES', MAY, 2001.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A

CLASS AA CONCRETE SHALL BE USED IN ALL CAST IN PLACE END BENT AND BENT CAPS AND SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

ALL BAR SUPPORTS USED IN THE BARRIER RAIL, BENT CAPS, AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

PRESTRESSED CONCRETE BOX UNITS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

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

HYDRAULIC DATA

DESIGN DISCHARGE	1,100 CFS
FREQUENCY OF DESIGN FLOOD	50 YRS
DESIGN HIGH WATER ELEVATION	9.200
DRAINAGE AREA	6.6 SQ.MI.
BASIC DISCHARGE (Q100)	1,400 CFS
BASIC HIGH WATER ELEVATION	10.100

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	13,900 CFS
FREQUENCY OF OVERTOPPING FLOOD	500 YRS
OVERTOPPING FLOOD ELEVATION	17.660

TOTAL BILL OF MATERIAL

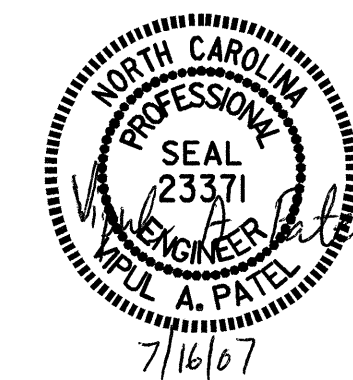
	REMOVAL OF EXISTING STRUCTURE	PDA TESTING	PDA ASSISTANCE	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS AA CONCRETE	BRIDGE APPROACH SLABS	EPOXY COATED REINFORCING STEEL	16" PRESTRESSED CONCRETE PILES	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	3'-0" X 2'-3" PRESTRESSED CONCRETE BOX BEAMS	
	LUMP SUM	EACH	EACH	CU. YDS.	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE					5722.00	7196		LUMP SUM				255.75			LUMP SUM	LUMP SUM	32	2,042.00
END BENT #1				800			19.4		3,292		13	715	320	356				
BENT #1		1	1				27.1		4,359	18	540							
END BENT #2				570			19.4		3,292		13	520	360	400				
TOTAL	LUMP SUM	1	1	1370	5722.00	7196	65.9	LUMP SUM	10,943	18	540	26	1235	756	LUMP SUM	LUMP SUM	32	2,042.00

PROJECT NO. B-4215
 ONSLOW COUNTY
 STATION: 20+22.75 -EL-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 STONES CREEK ON
 NC 210 BETWEEN
 US 17 AND NC 172



DRAWN BY: D.V. JOYNER DATE: 04-06
 CHECKED BY: R.L. CHESSON DATE: 04-06

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			22

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 BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT. THE 2 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOWELS AND THEN FILLED WITH GROUT.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS AND CONCRETE WEARING SURFACE SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL 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 VERTICAL 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.

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2" AT BENT NO. 1.

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE RAIL. THE COST OF THE REINFORCING STEEL CAST WITH THE CONCRETE WEARING SURFACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE WEARING SURFACE. FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

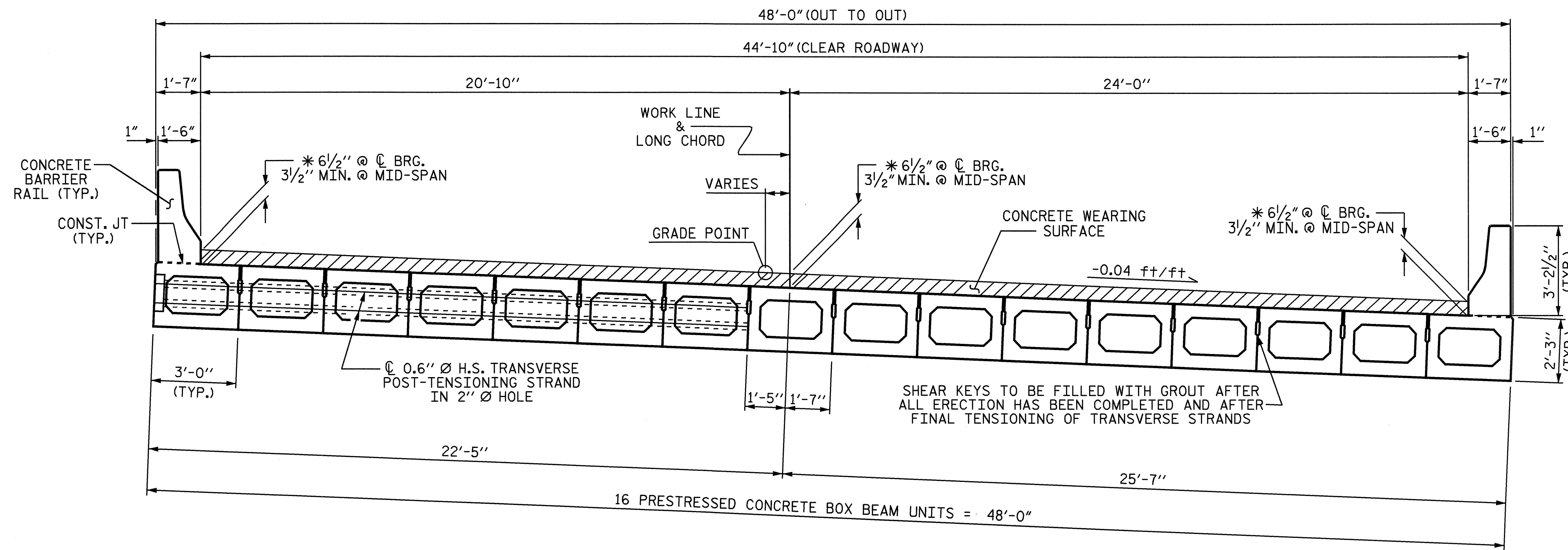
THE LOCATION OF THE VOID DRAINS MAY BE SHIFTED SLIGHTLY WHERE NECESSARY TO CLEAR PRESTRESSING STRANDS OR TRANSVERSE REINFORCING STEEL.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PRESTRESSED CONCRETE BOX UNITS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

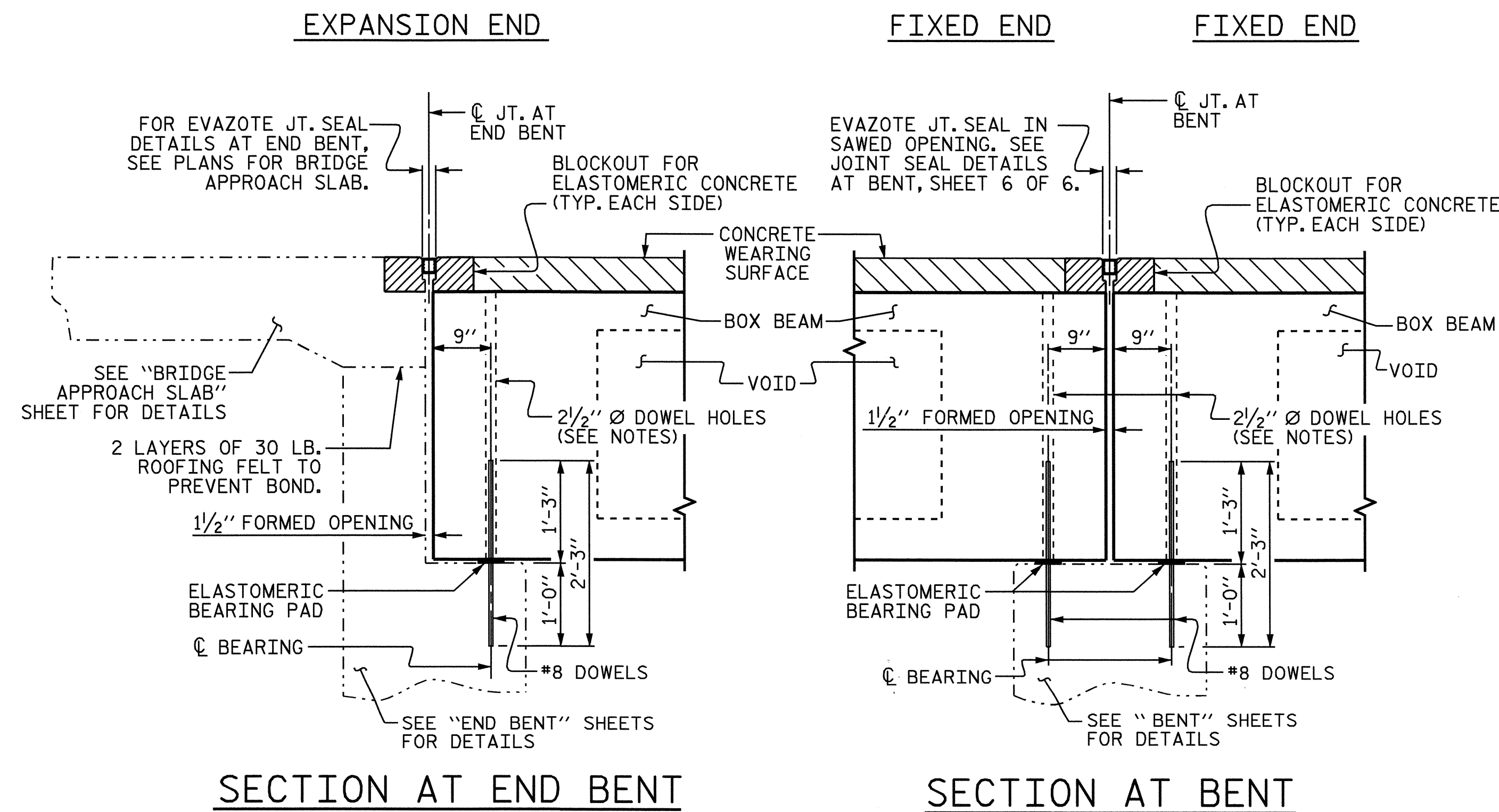
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.



TYPICAL SECTION

*BASED ON PREDICTED CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.

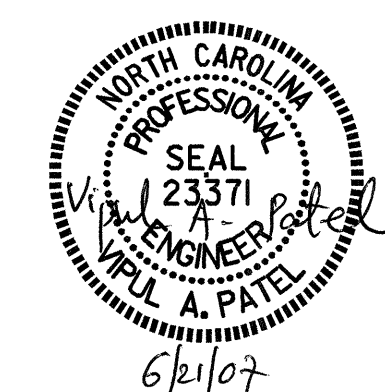


SECTION AT END BENT

SECTION AT BENT

PROJECT NO. B-4215
ONSLOW COUNTY
 STATION: 20+22.75 -EL-

SHEET 1 OF 6



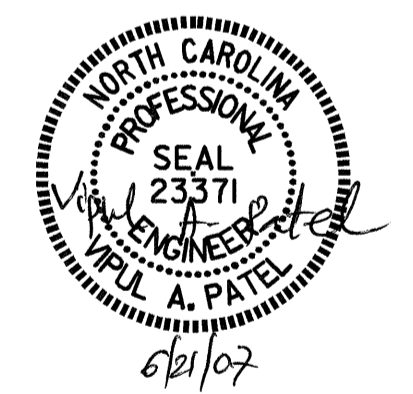
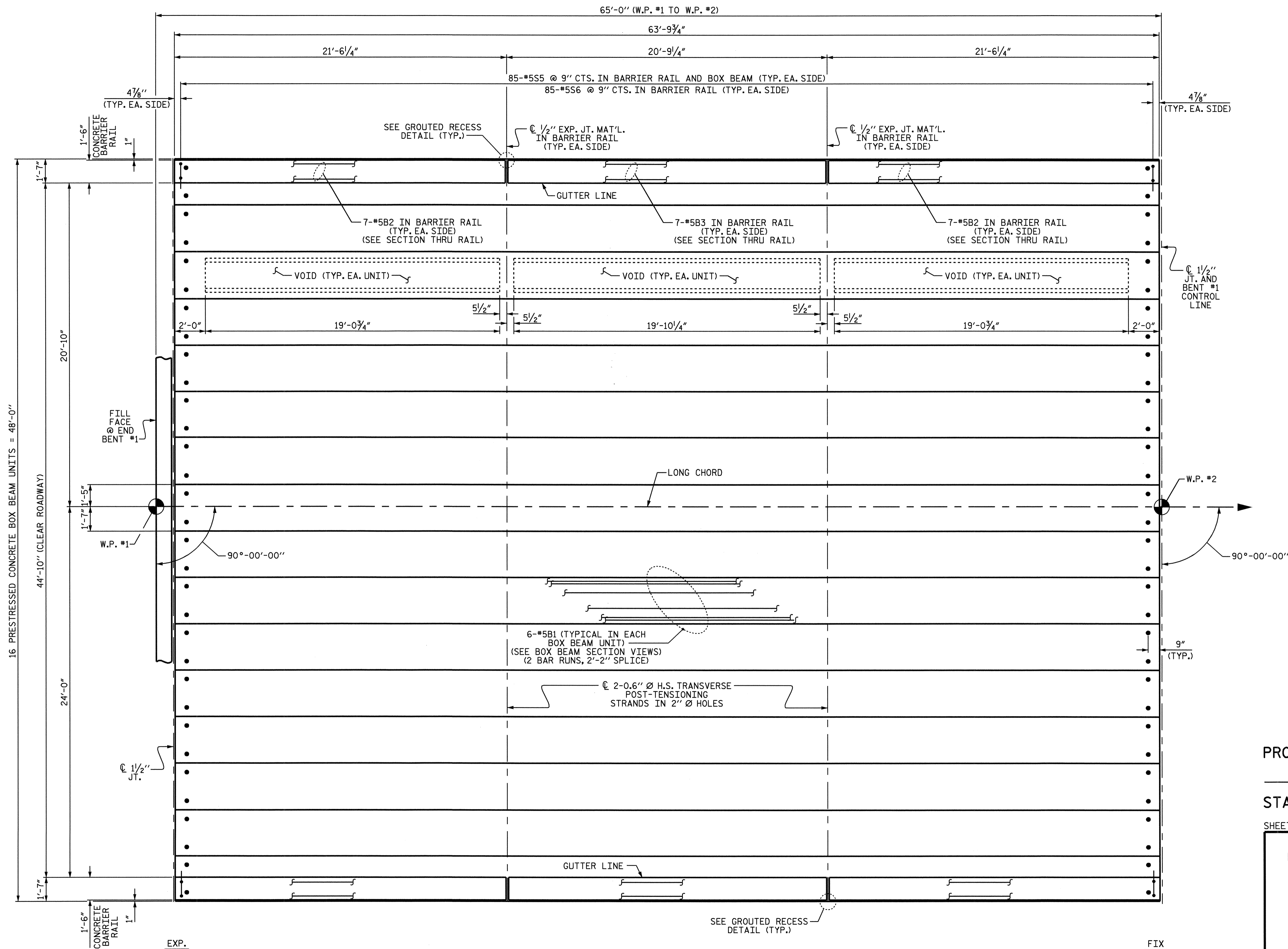
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-3"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

ASSEMBLED BY : J.P. ADAMS	DATE : 4/3/06
CHECKED BY : S.H. SOCKWELL	DATE : 4/20/06
DRAWN BY : TLA 5/05	ADDED 7/11/05R
CHECKED BY : GM 6/05	REV. 5/1/06 TLA/GM

21-JUN-2007 08:38
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 SDOMBROSKI

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			22

STD. NO. PCBB1



PROJECT NO. B-4215
ONslow COUNTY
 STATION: 20+22.75 -EL-

SHEET 2 OF 6

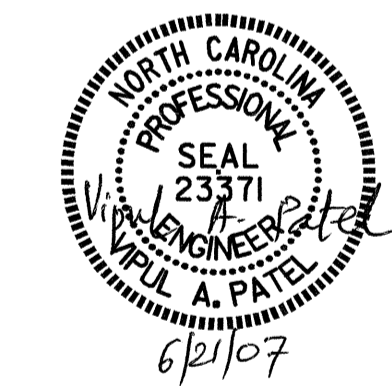
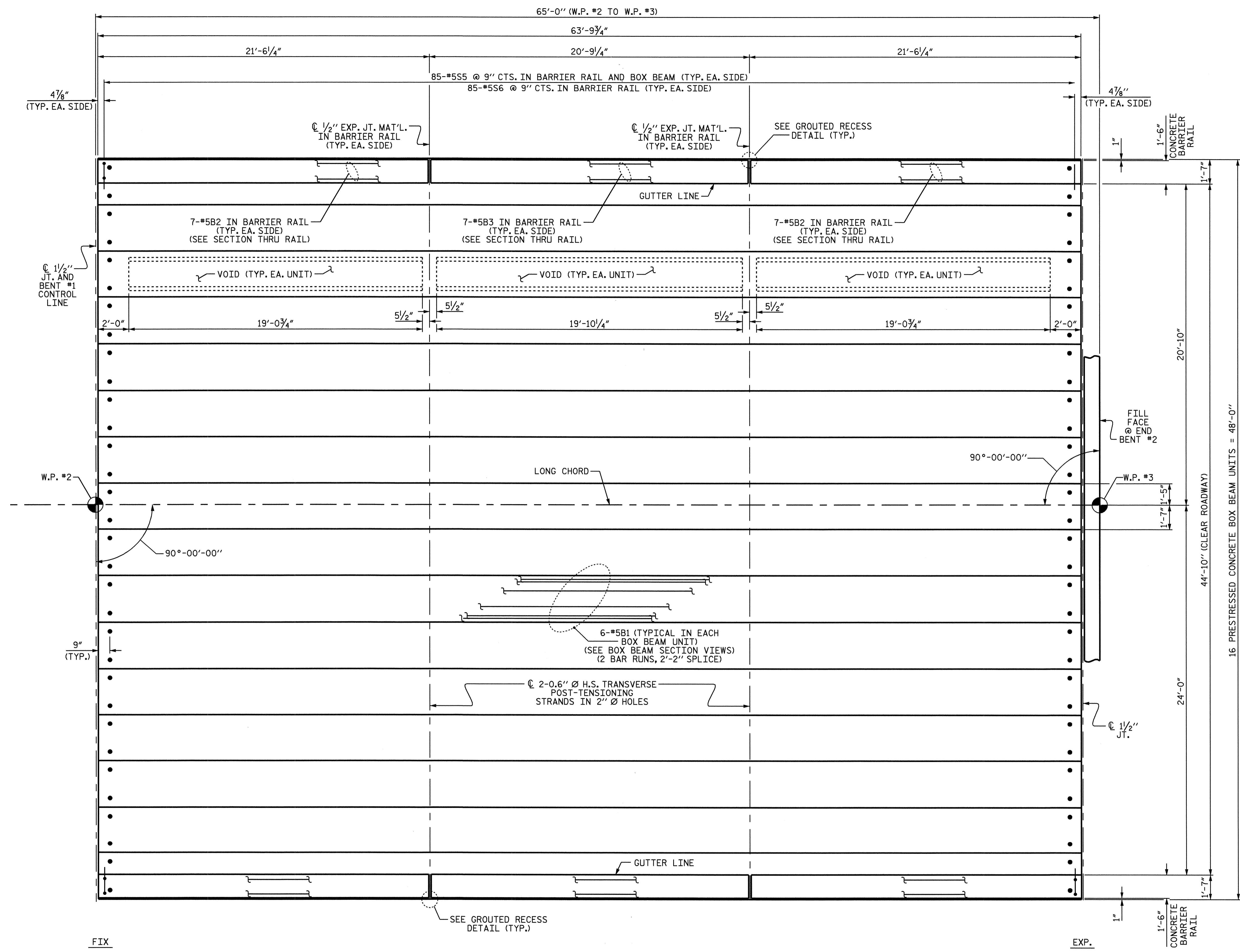
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN A

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			22

SPAN A

DRAWN BY : J.P. ADAMS DATE : 4/5/06
 CHECKED BY : S.H. SOCKWELL DATE : 4/20/06

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PROJECT NO. B-4215
 ONSLOW COUNTY
 STATION: 20+22.75 -EL-

SHEET 3 OF 6

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE

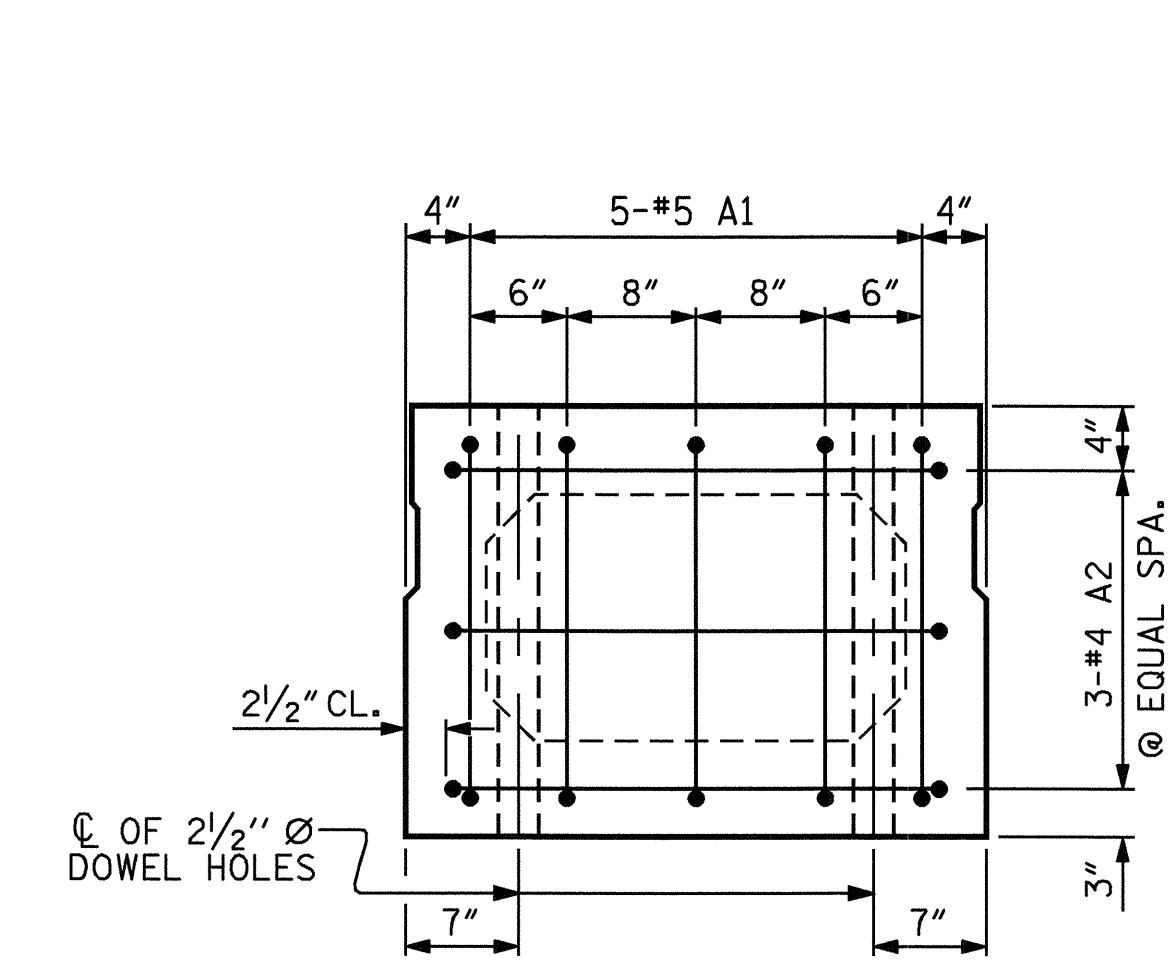
PLAN OF SPAN B

DRAWN BY : J.P. ADAMS DATE : 4/5/06
 CHECKED BY : S.H. SOCKWELL DATE : 4/20/06

SPAN B

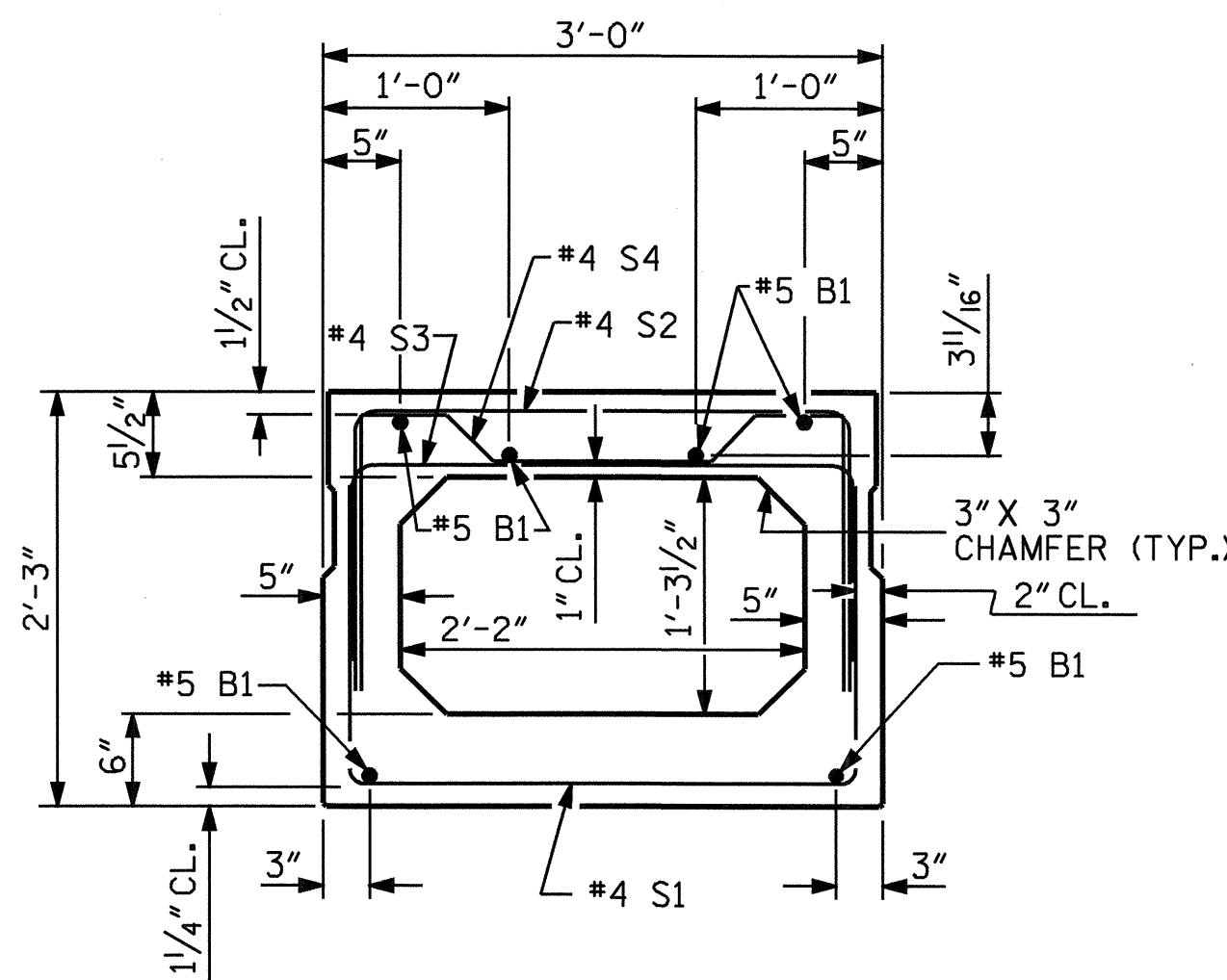
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			22

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 SDOMBROWSKI



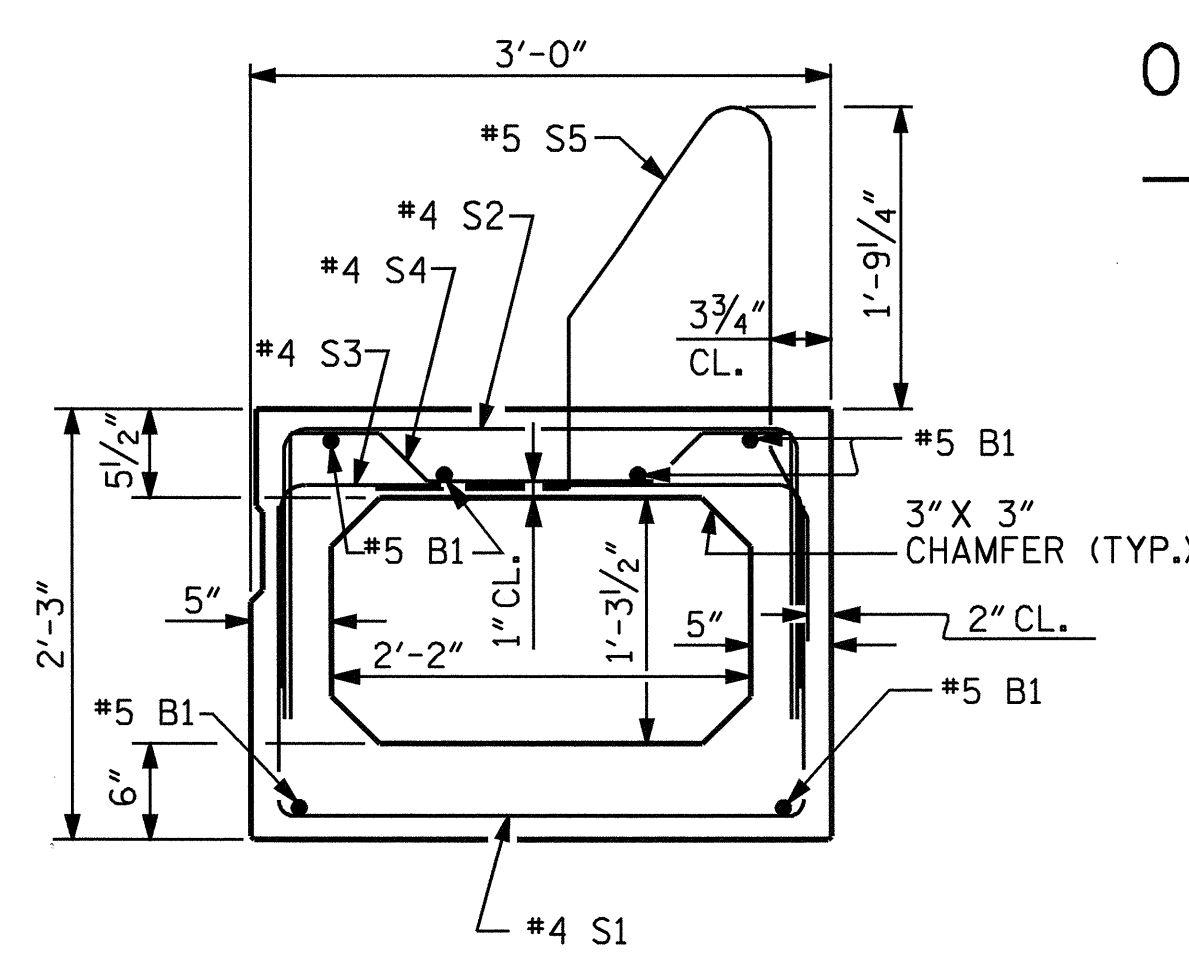
END ELEVATION

SHOWING PLACEMENT OF #5 & #4 "A" BARS AND LOCATION OF DOWEL HOLES. (INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION. STRAND LAYOUT NOT SHOWN.)



INTERIOR BOX BEAM SECTION

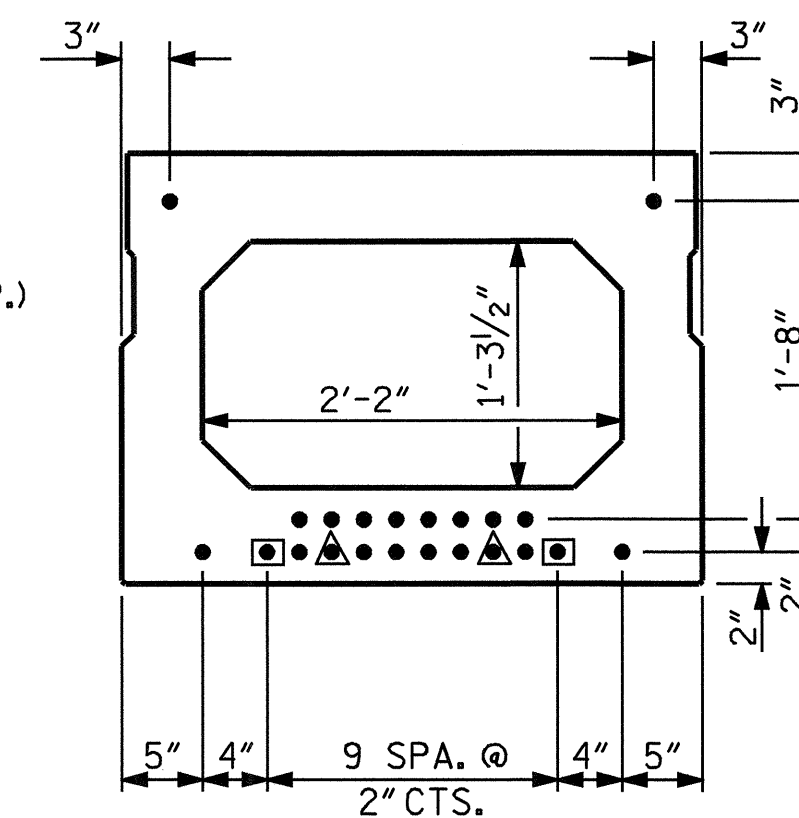
(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

(22 STRANDS REQUIRED)
(INTERIOR BOX BEAM SECTION SHOWN-EXTERIOR SECTION SIMILAR EXCEPT SHEAR KEY LOCATION)

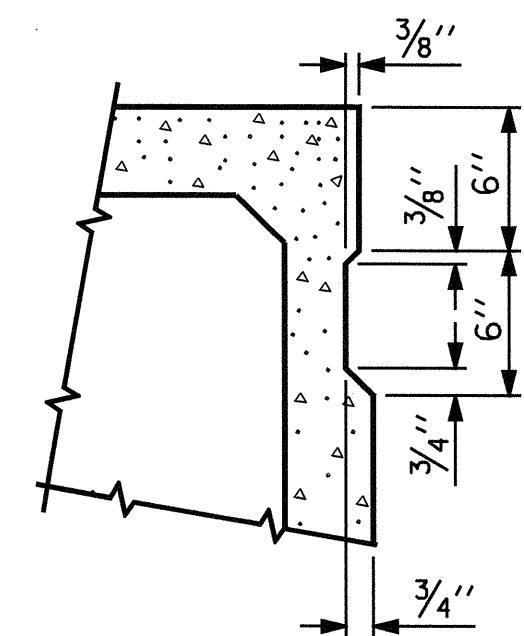
DEBONDING LEGEND

- FULLY BONDED STRANDS
- ◻ STRANDS DEBONDED FOR 8'-0" FROM END OF GIRDER
- ◻ STRANDS DEBONDED FOR 10'-0" FROM END OF GIRDER

BOND SHALL BE BROKEN ON STRANDS AS SHOWN FOR THE SPECIFIED LENGTH FROM EACH END OF THE BOX BEAM. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

GRADE 270 STRANDS

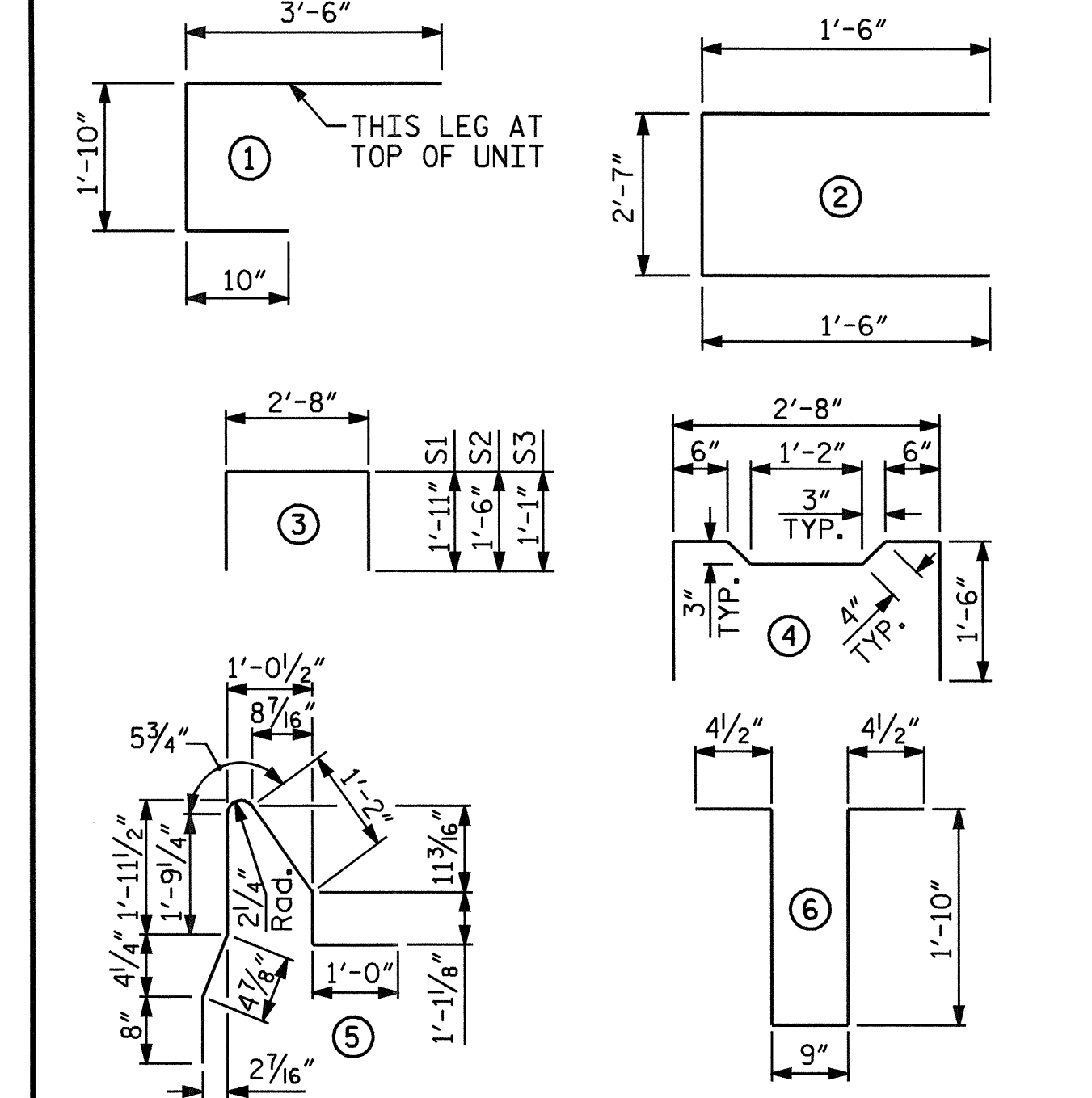
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR BOX BEAMS.

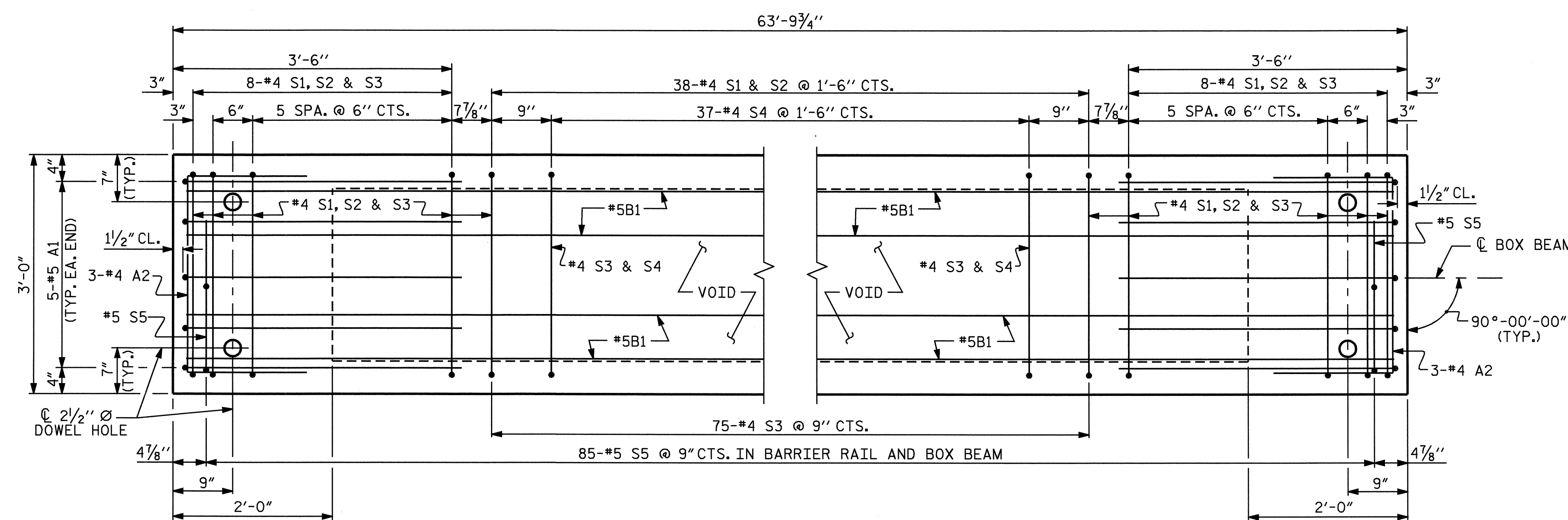
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
				LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-2"	64	6'-2"	64
A2	14	#4	2	5'-7"	52	5'-7"	52
B1	12	#5	STR	32'-10"	411	32'-10"	411
K1	6	#4	6	5'-2"	21	5'-2"	21
K2	4	#4	STR	2'-7"	7	2'-7"	7
S1	54	#4	3	6'-6"	234	6'-6"	234
S2	54	#4	3	5'-8"	204	5'-8"	204
S3	91	#4	3	4'-10"	294	4'-10"	294
S4	37	#4	4	5'-10"	144	5'-10"	144
*S5	85	#5	5	6'-7"	584	--	--
REINFORCING STEEL				1431 LBS.		1431 LBS.	
*EPOXY COATED REINF. STEEL				584 LBS.			
6500 P.S.I. CONCRETE				10 CU. YDS.		10 CU. YDS.	
0.6" Ø L.R. STRANDS				No. 22		No. 22	

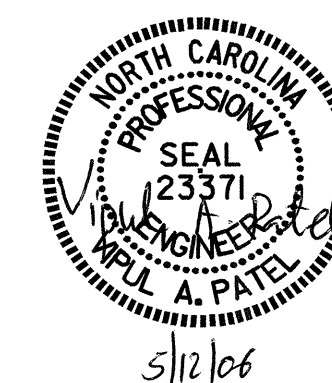


PLAN OF BOX BEAM

EXTERIOR UNIT SHOWN, INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S5 BARS. FOR LOCATION OF DIAPHRAGMS, SEE PLAN OF SPANS. FOR REINFORCING STEEL IN DIAPHRAGMS, SEE DIAPHRAGM DETAILS.

PROJECT NO. B-4215
ON SLOW COUNTY
STATION: 20+22.75 -EL-

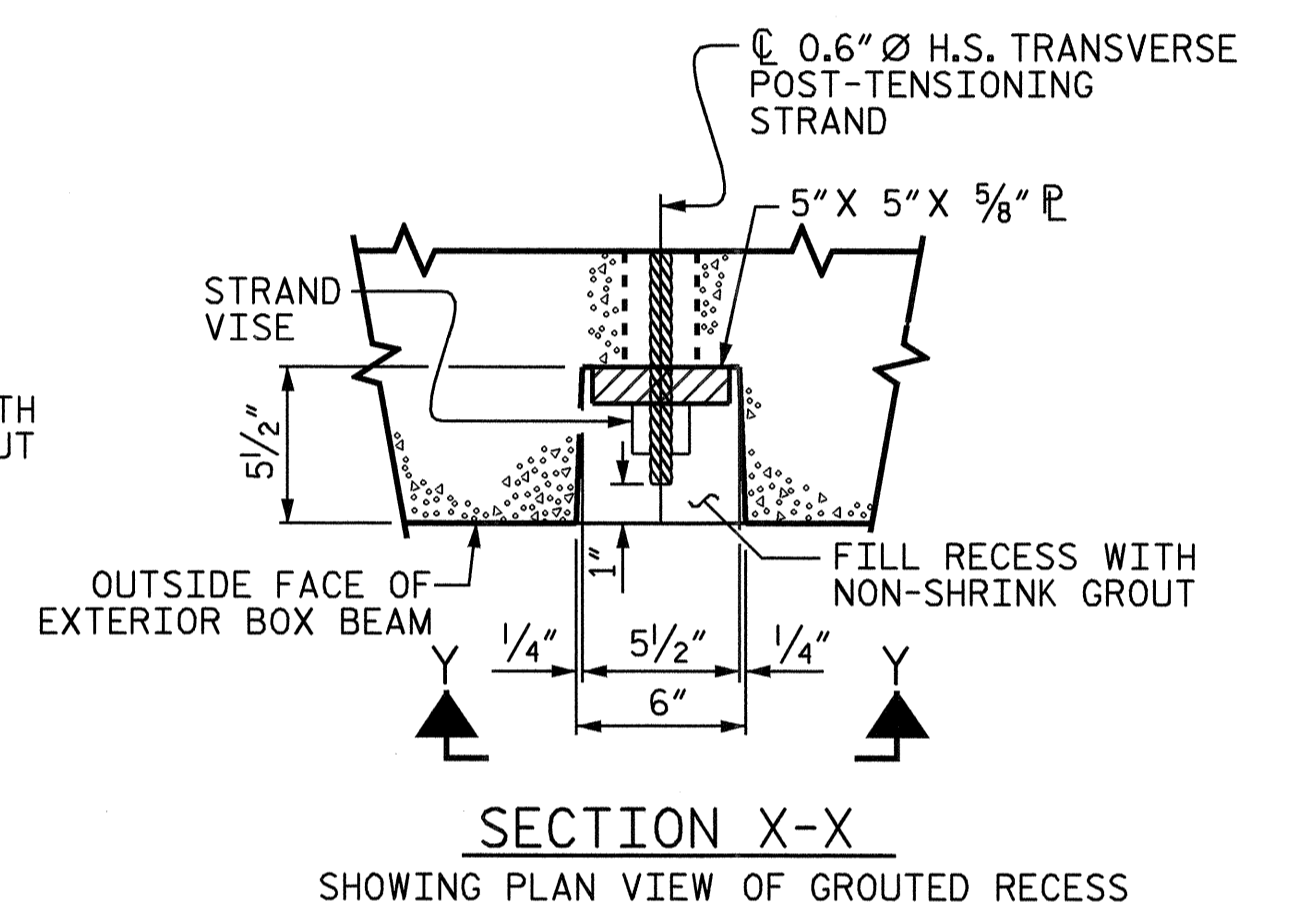
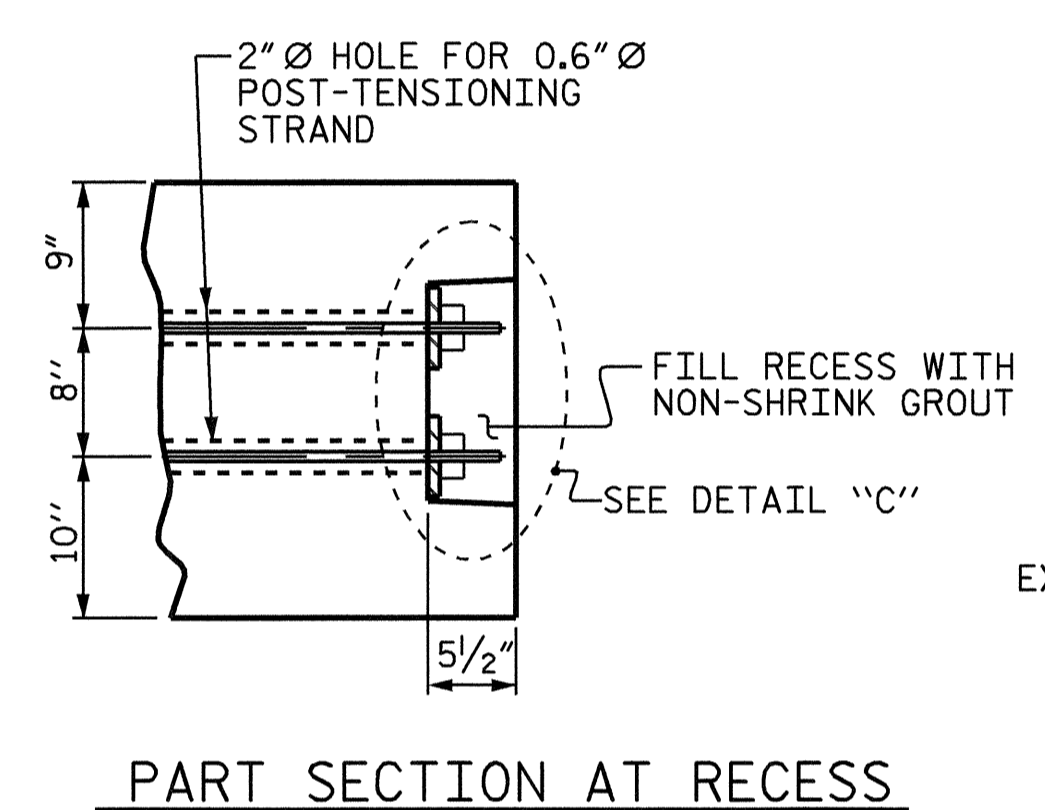
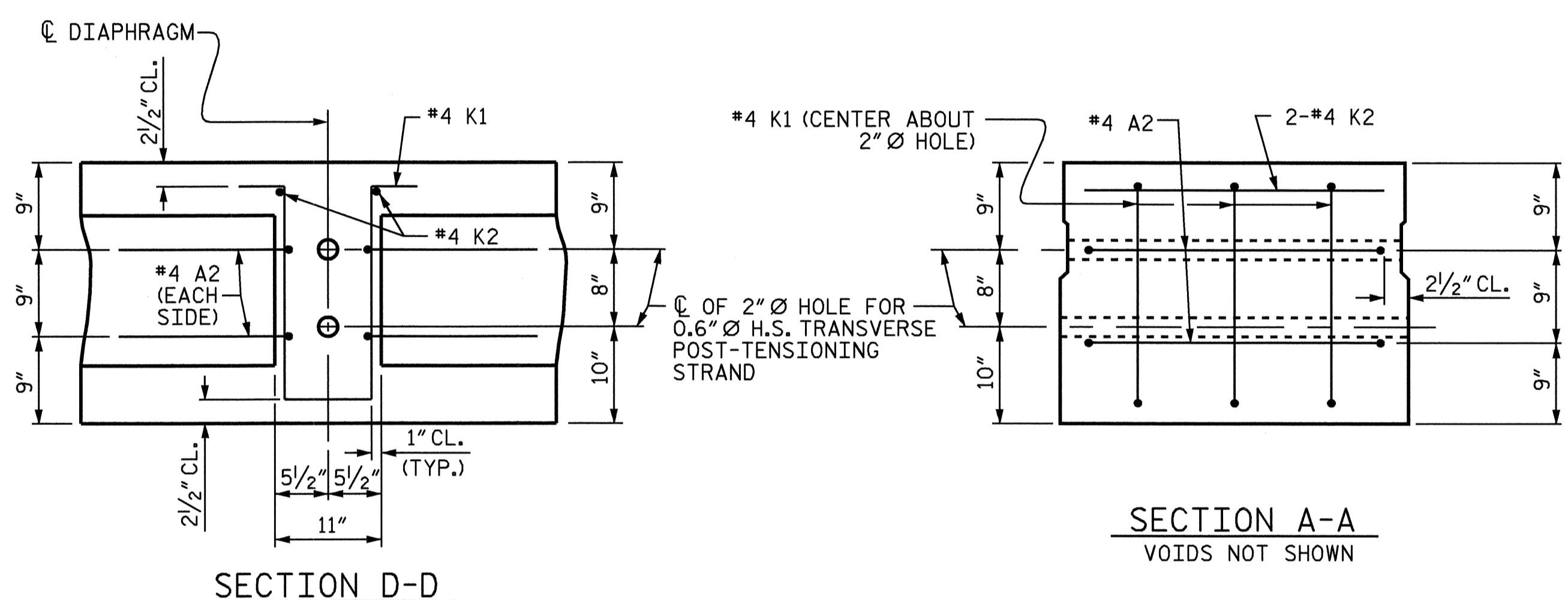
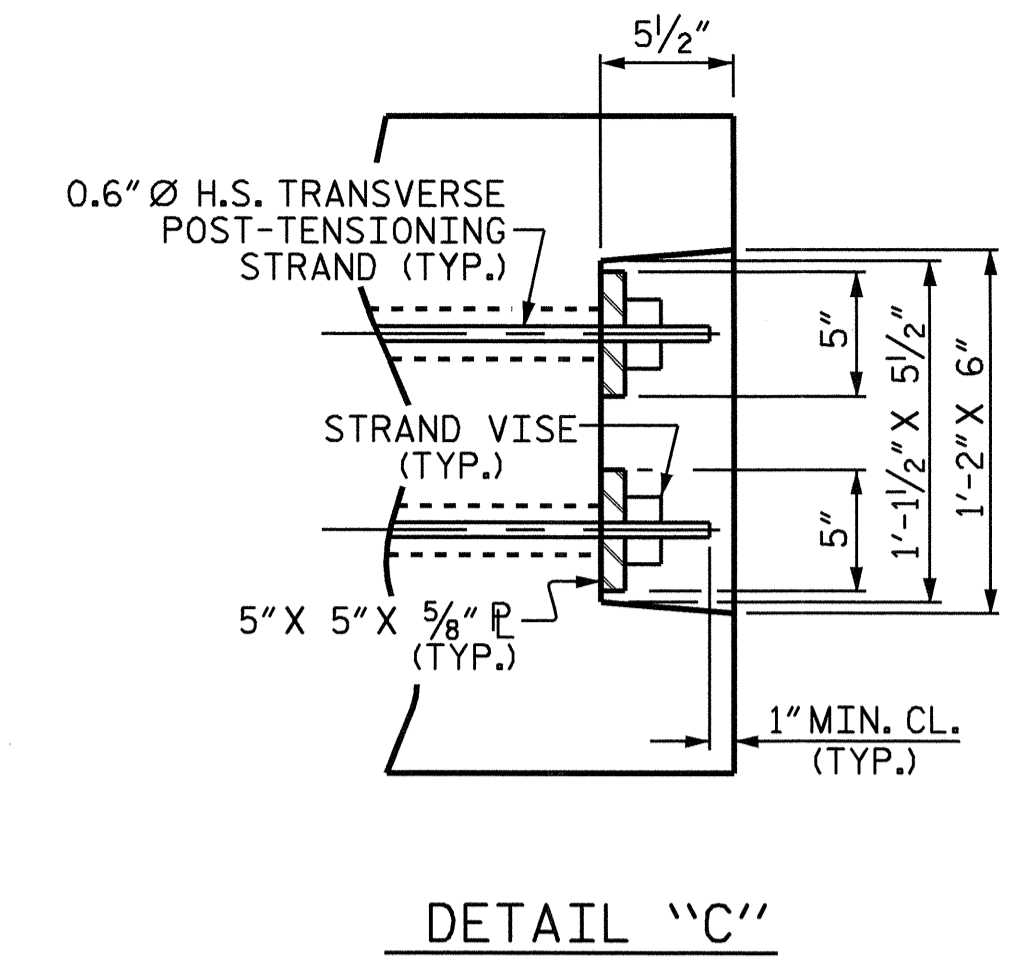
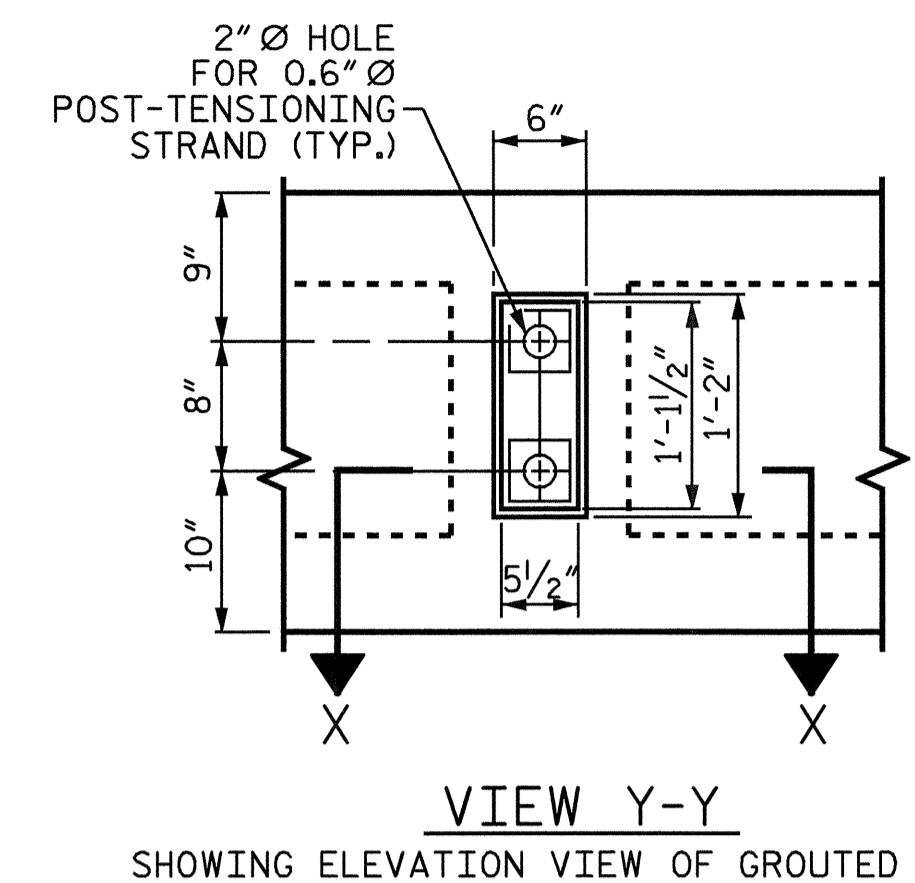
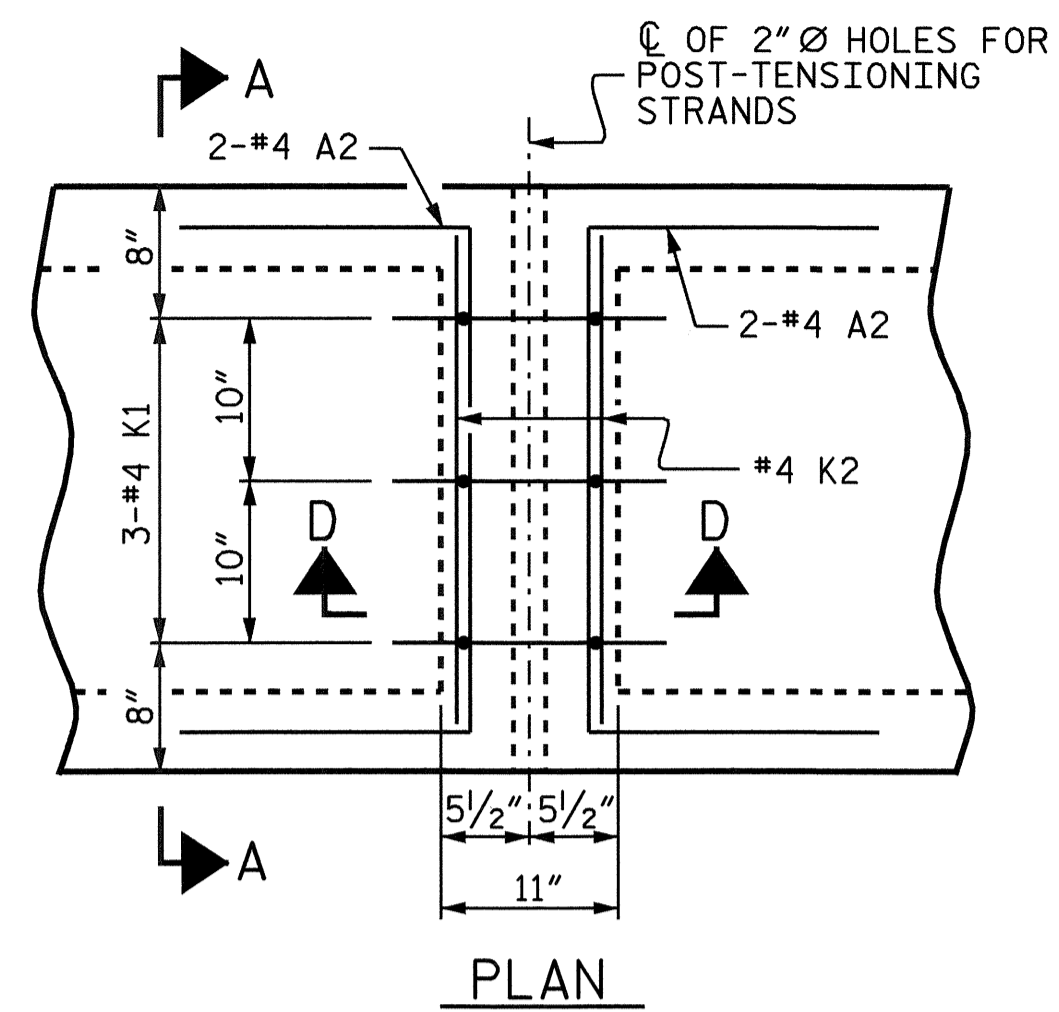
SHEET 4 OF 6



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT
SPAN "A" AND SPAN "B"

ASSEMBLED BY : J.P. ADAMS	DATE : 4/3/06
CHECKED BY : S.H. SOCKWELL	DATE : 4/20/06
DRAWN BY : TLA 5/05	ADDED 7/11/05
CHECKED BY : GM 6/05	

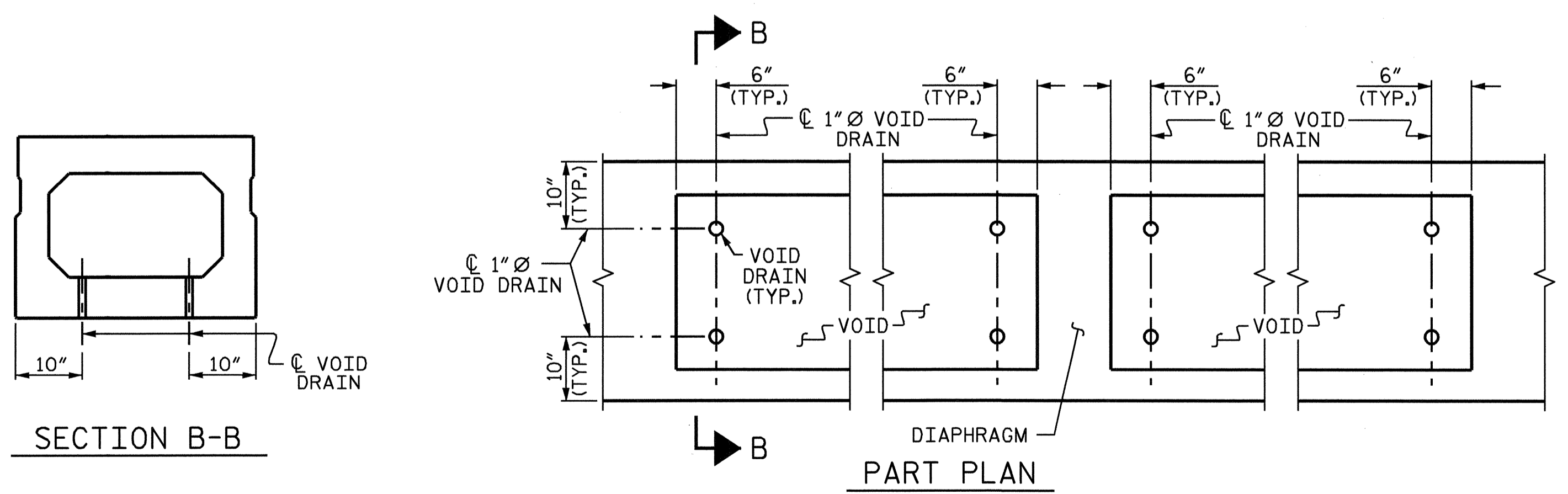
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			22



DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2" Ø HOLE.

GROUTED RECESS DETAIL AT END OF POST-TENSIONED STRANDS OF EXTERIOR BOX BEAM



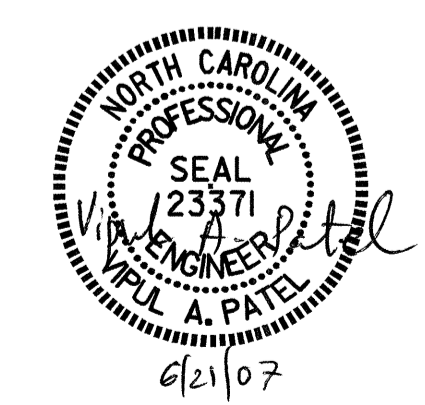
VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)

DEAD LOAD DEFLECTION AND CAMBER		
	3'-0" x 2'-3"	
	0.6" Ø L.R. STRAND	
	SPAN "A"	SPAN "B"
CAMBER (BEAM ALONE IN PLACE)	↑ 3/2"	↑ 3/2"
DEFLECTION DUE TO CONCRETE WEARING SURFACE	↓ 1/2"	↓ 1/2"
FINAL CAMBER	↑ 3"	↑ 3"

PROJECT NO. B-4215
 ONSLOW COUNTY
 STATION: 20+22.75 -EL-

SHEET 5 OF 6



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 2'-3"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT

ASSEMBLED BY : J.P. ADAMS	DATE : 4/3/06
CHECKED BY : S.H. SOCKWELL	DATE : 4/20/06
DRAWN BY : TLA 5/05	ADDED 7/11/05
CHECKED BY : GM 6/05	

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			22

NOTES

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

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.)

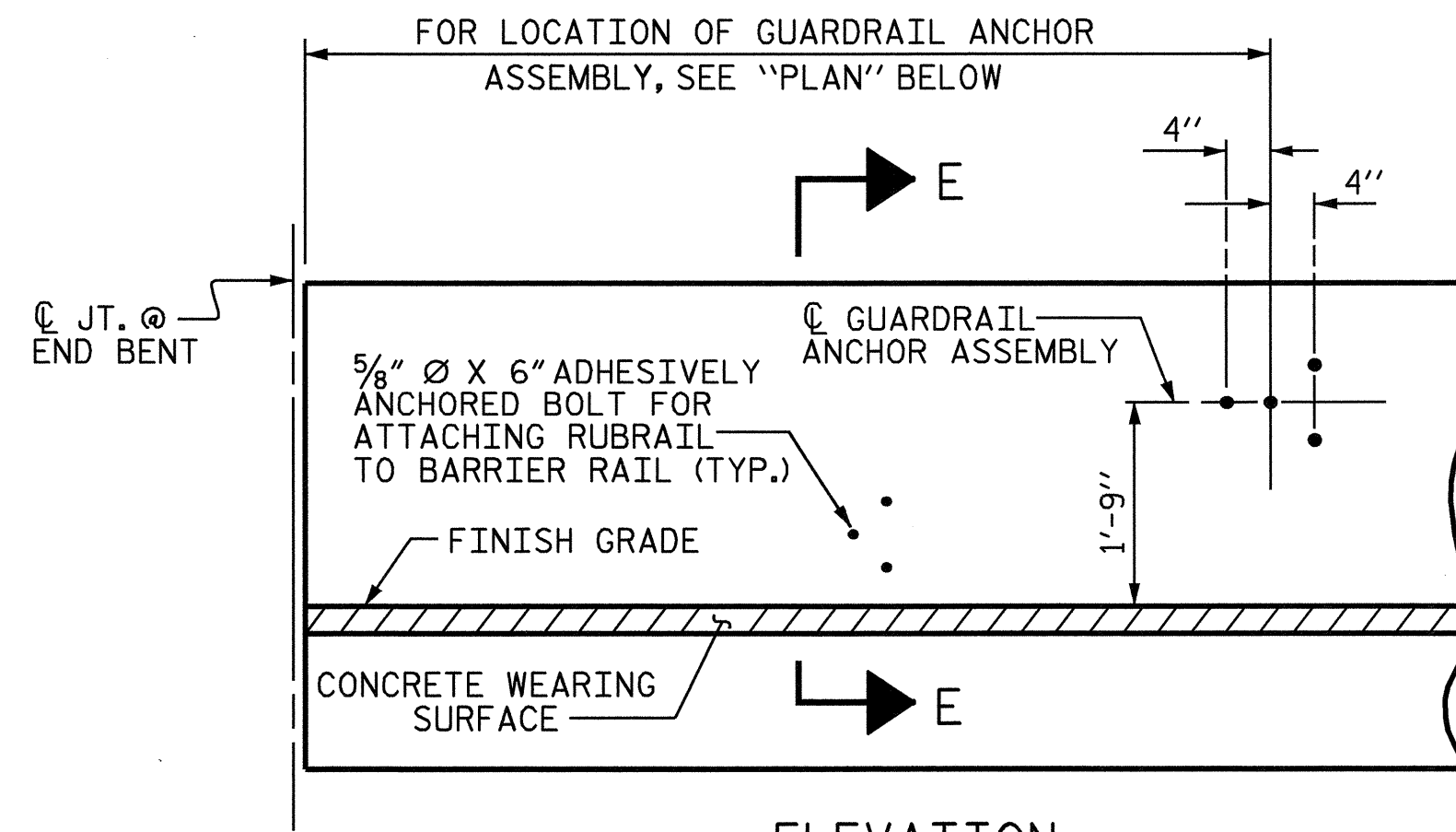
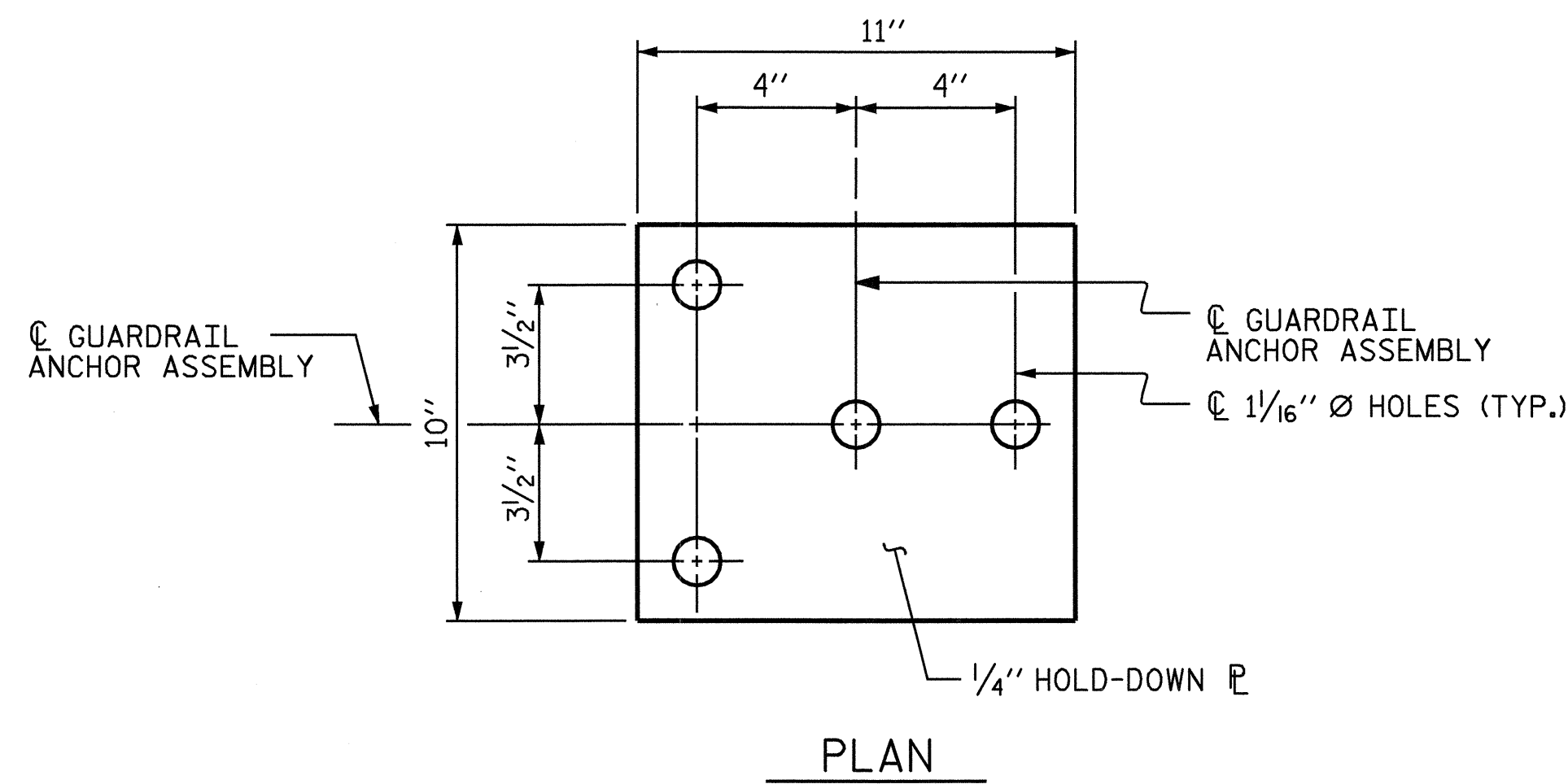
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

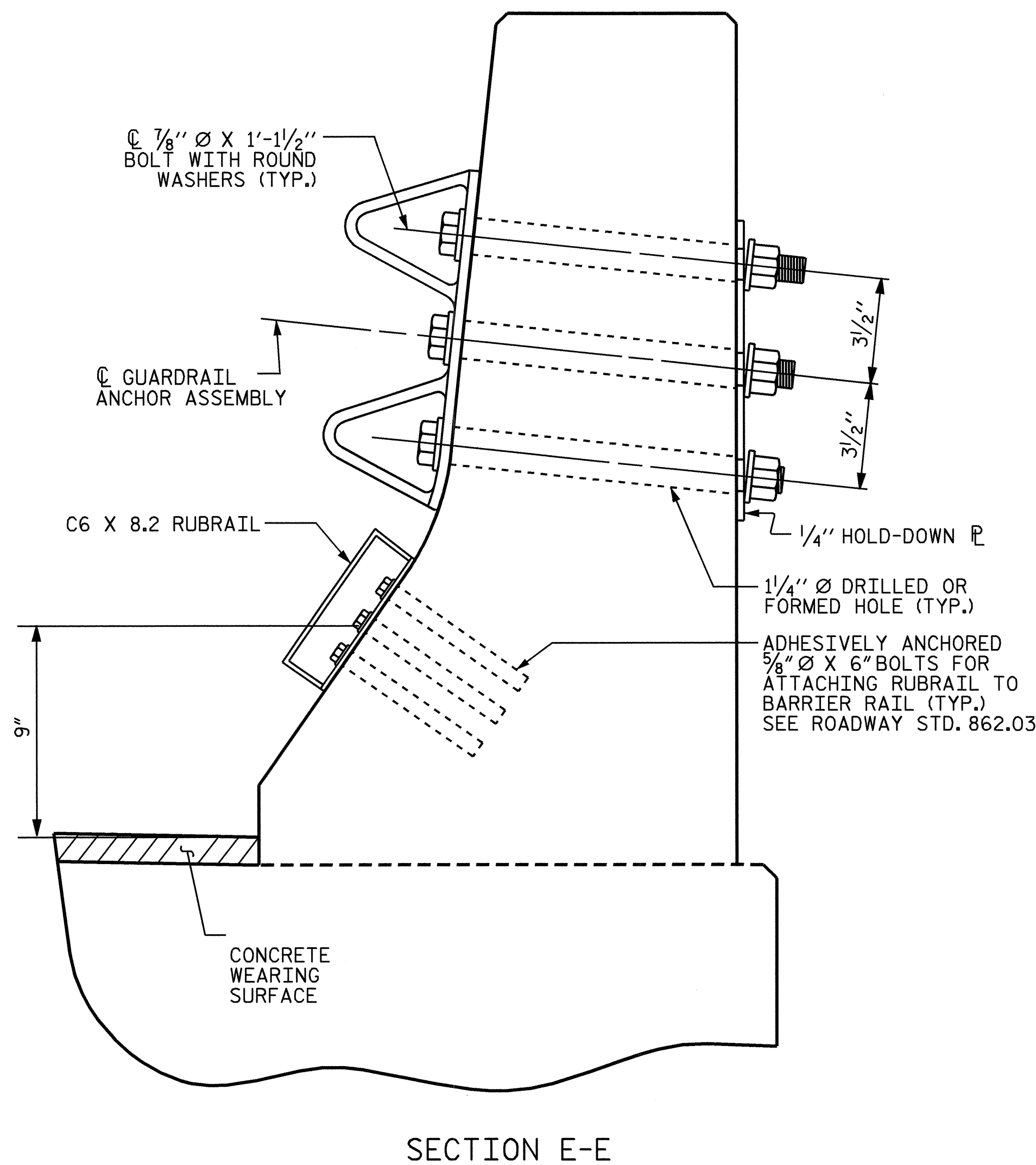
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

THE 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.

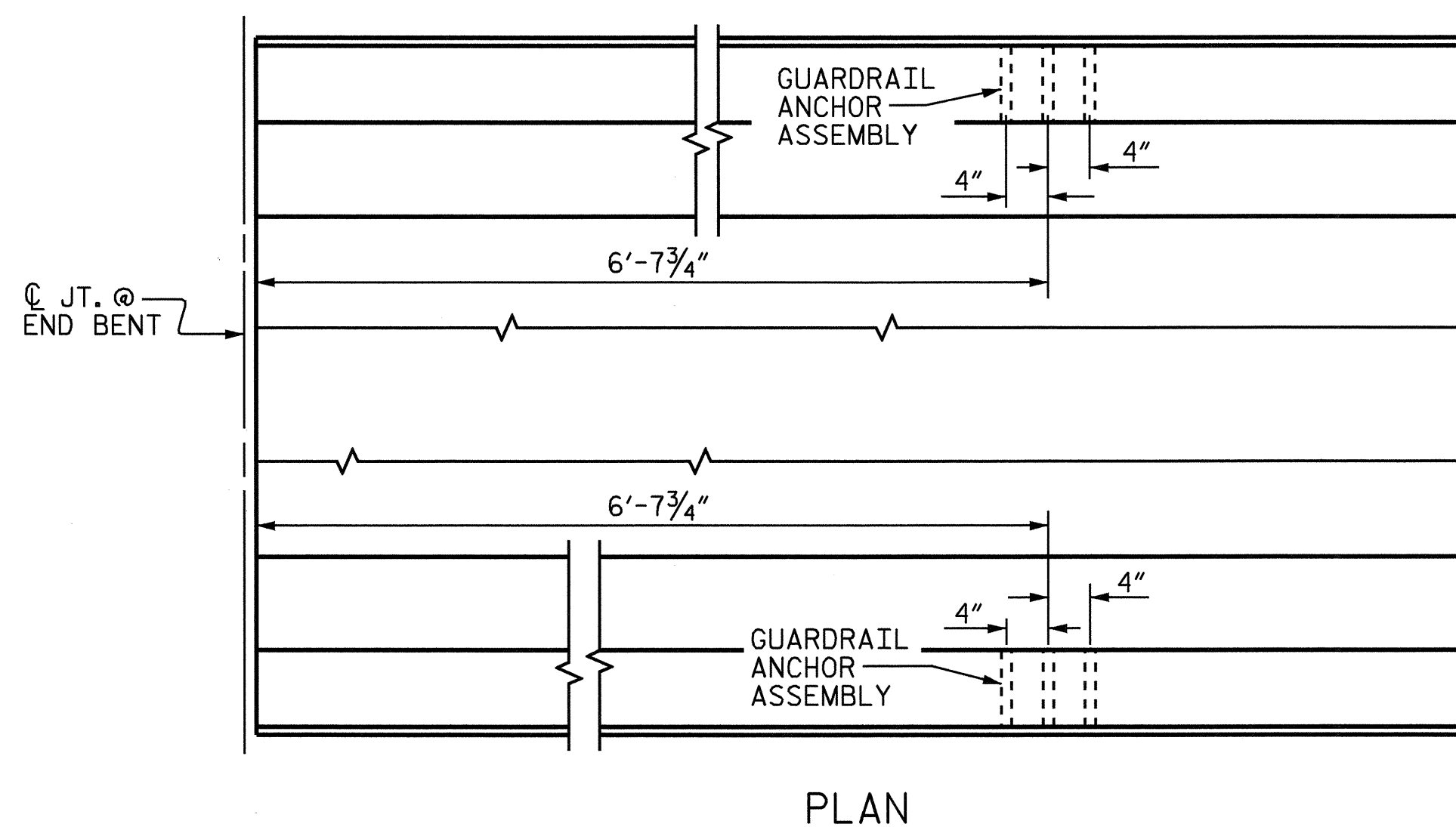
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" Ø X 6" BOLTS WITH WASHERS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03

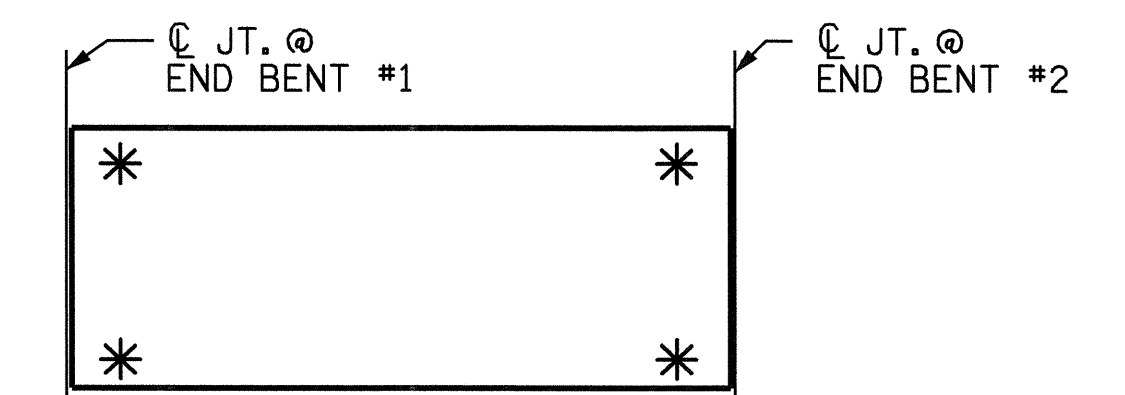


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

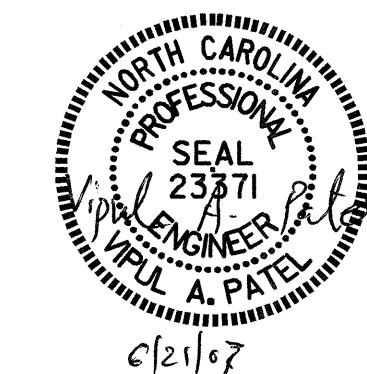
END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

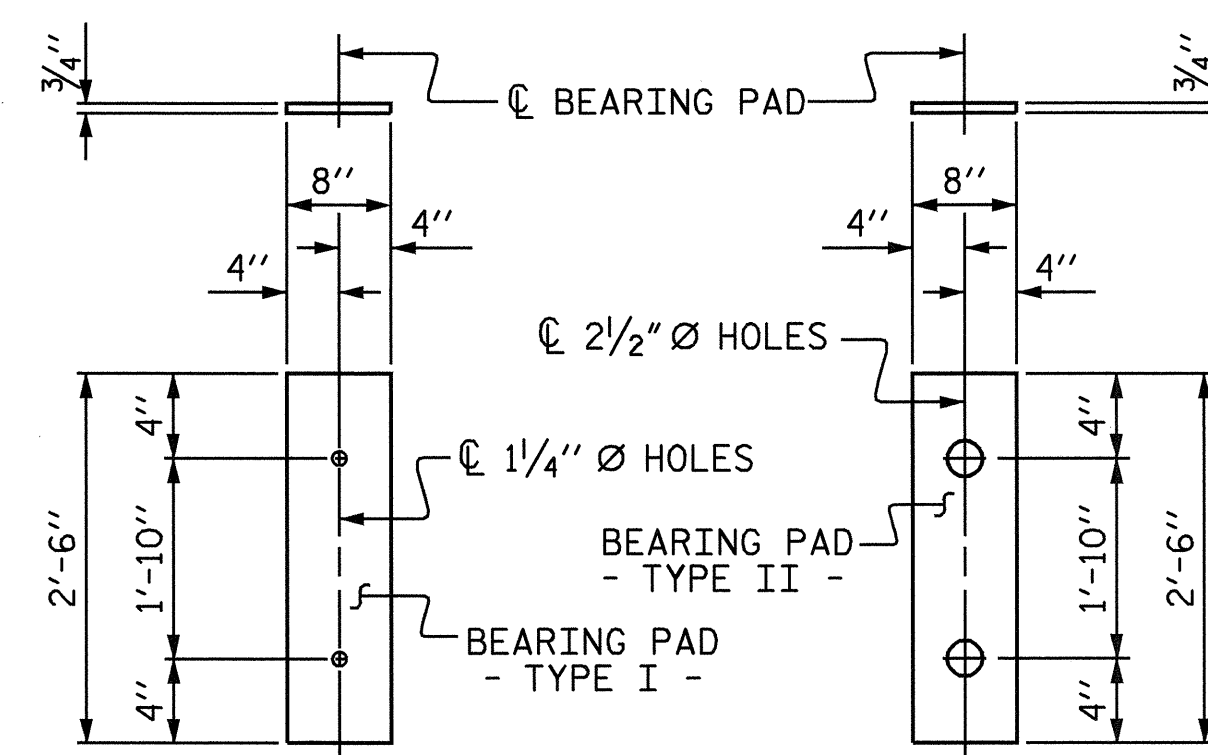
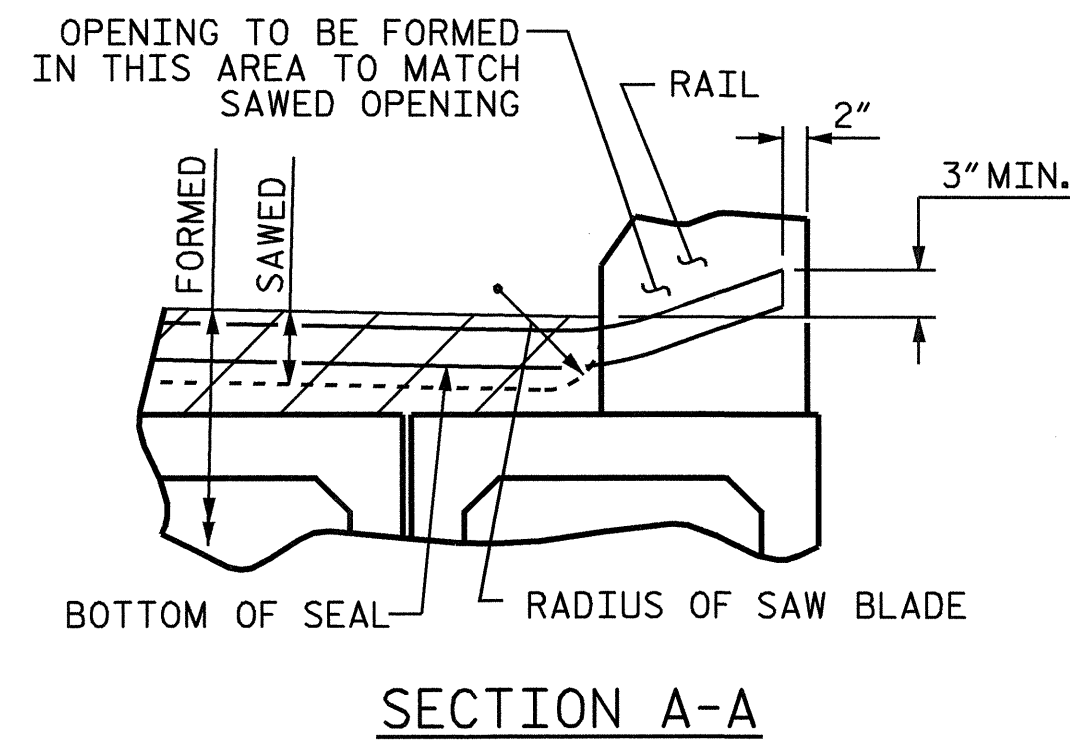
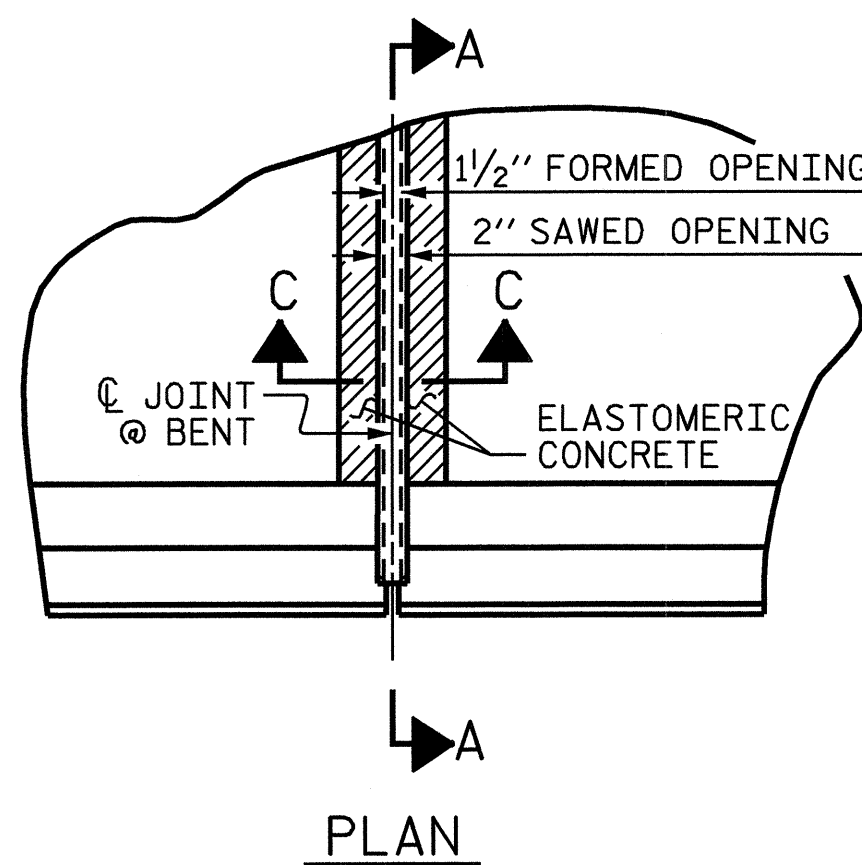
PROJECT NO. B-4215
 ONSLOW COUNTY
 STATION: 20+22.75 -EL-



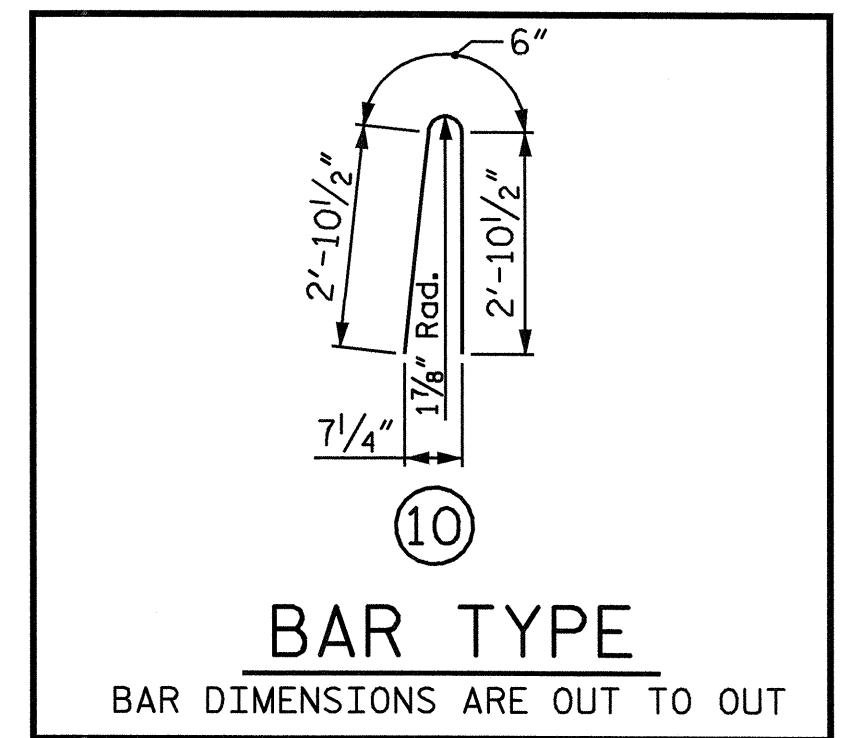
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 FOR BARRIER RAIL

ASSEMBLED BY : V.A. PATEL	DATE : 2/1/07
CHECKED BY : J.P. ADAMS	DATE : 2/19/07
DRAWN BY : TLA 5/06	ADDED 5/1/06
CHECKED BY : GM 5/06	

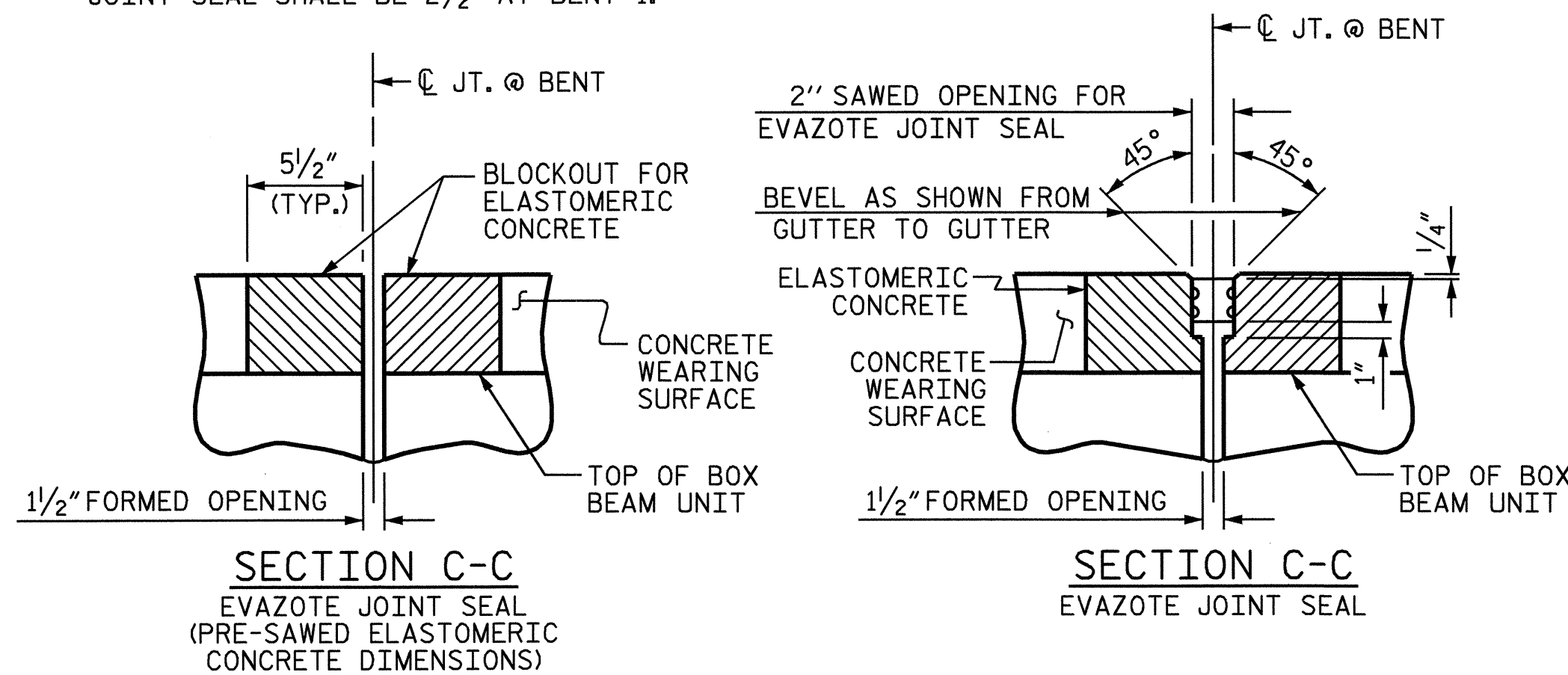
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			22



BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
SPAN A			
EXTERIOR	2	63'-9 3/4"	127'-7 1/2"
INTERIOR	14	63'-9 3/4"	893'-4 1/2"
SPAN B			
EXTERIOR	2	63'-9 3/4"	127'-7 1/2"
INTERIOR	14	63'-9 3/4"	893'-4 1/2"
TOTAL	32		2042'-0"



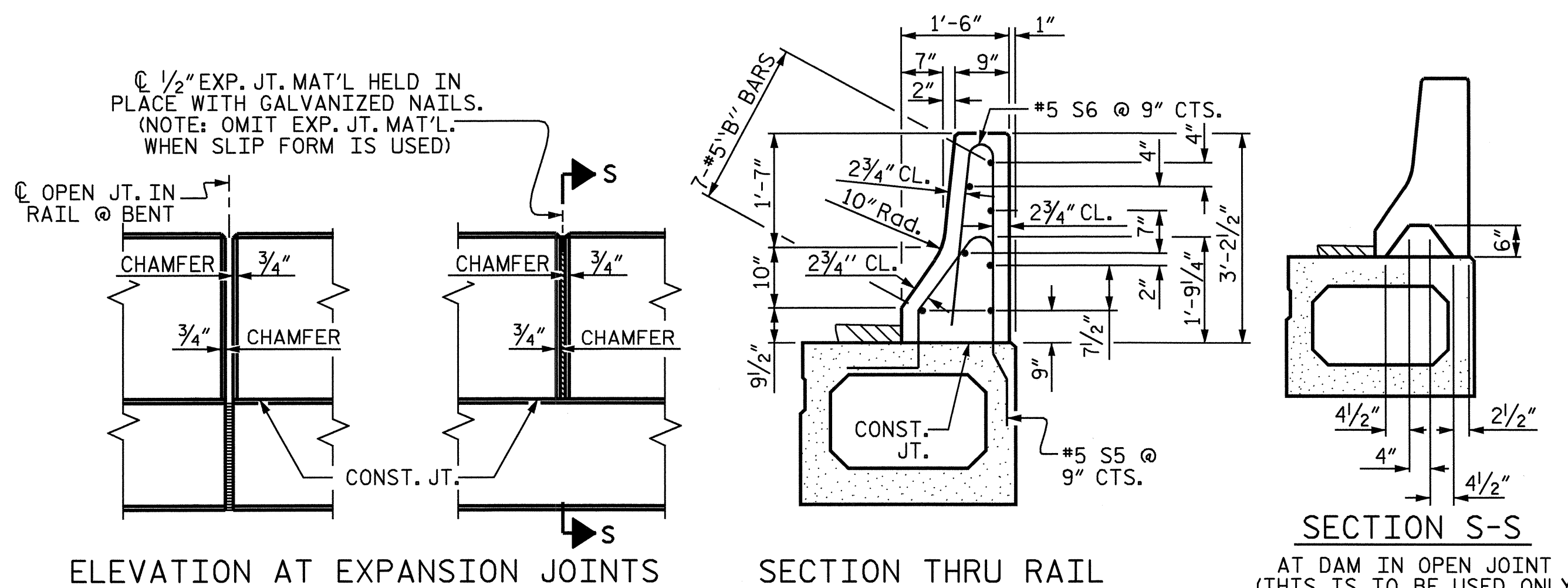
NOTE: FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.
THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2" AT BENT 1.



JOINT SEAL DETAILS AT BENT

ELASTOMERIC CONCRETE	
BENT NO.	ELASTOMERIC CONCRETE *** (CU. FT.)
1	22.3
TOTAL	22.3

*** BASED ON THE MINIMUM BLOCKOUT SHOWN.

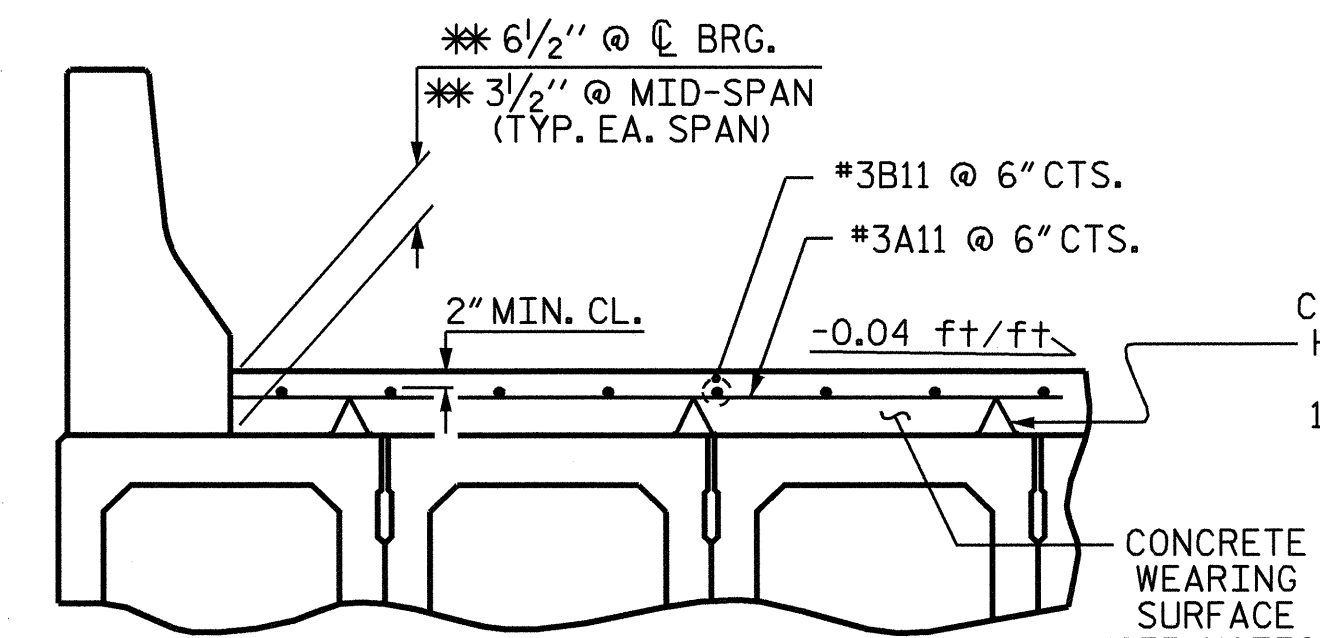


BARRIER RAIL DETAILS

FIXED END (TYPE I - 32 REQ'D)
EXPANSION END (TYPE II - 32 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS



REINFORCING FOR CONCRETE WEARING SURFACE
** BASED ON PREDICTED CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

BAR	BARS PER SPAN	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
SPAN A		SPAN B				
*B2	28	28	#5	STR	21'-2"	1236
*B3	14	14	#5	STR	20'-4"	594
*S6	170	170	#5	10	6'-3"	2216
			* EPOXY COATED REINFORCING STEEL 4046 LBS.			
			CLASS AA CONCRETE 33.3 CU.YDS.			
			TOTAL LIN. FT. OF CONCRETE BARRIER RAIL = 255'-9"			

GROOVING BRIDGE FLOORS

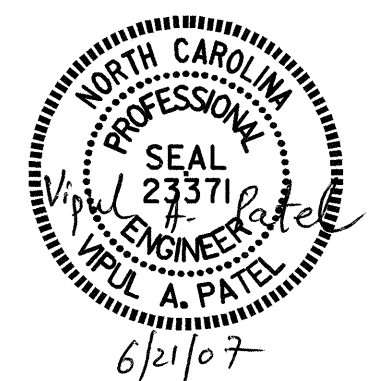
APPROACH SLABS	1974	SQ.FT.
BRIDGE DECK	5222	SQ.FT.
TOTAL	7196	SQ.FT.

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A11	504	#3	STR	22'-11"	4343
*B11	540	#3	STR	21'-8"	4399
		* EPOXY COATED REINFORCING STEEL		8742 LBS.	
		CONCRETE WEARING SURFACE		5722 SQ. FT.	

SPLICE LENGTH CHART

BAR SIZE	EPOXY COATED
#3	1'-3"



PROJECT NO. B-4215
ON SLOW COUNTY
STATION: 20+22.75 -EL-

SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 2'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS 22
2			4			

ASSEMBLED BY : J.P. ADAMS	DATE : 4/3/06
CHECKED BY : S.H. SOCKWELL	DATE : 4/20/06
DRAWN BY : TLA 5/05	ADDED 7/11/05R
CHECKED BY : GM 6/05	

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

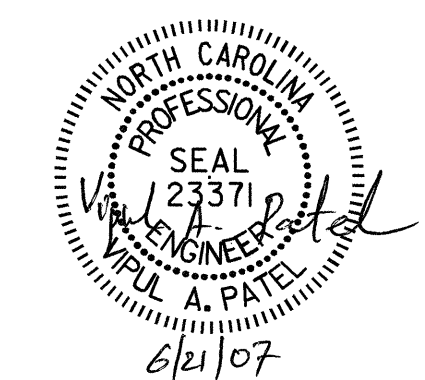
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

ALL BAR SUPPORTS USED IN THE END BENT CAP & ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE CONCRETE WEARING SURFACE AND THE APPROACH SLAB HAS BEEN SAWED AND AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

PILE No.	ELEV.
1	15.013
2	14.844
3	14.675
4	14.506
5	14.336
6	14.167
7	13.998
8	13.829
9	13.659
10	13.490
11	13.321
12	13.152
13	12.982



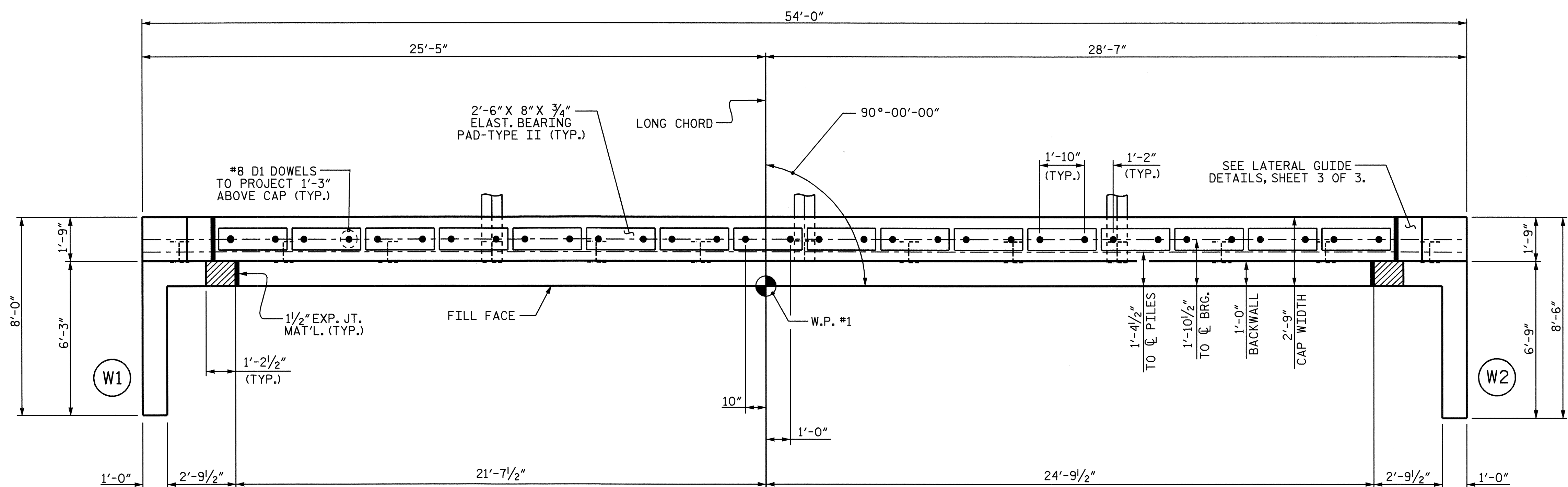
PROJECT NO. B-4215
ON SLOW COUNTY
 STATION: 20+22.75 -EL-

SHEET 1 OF 3

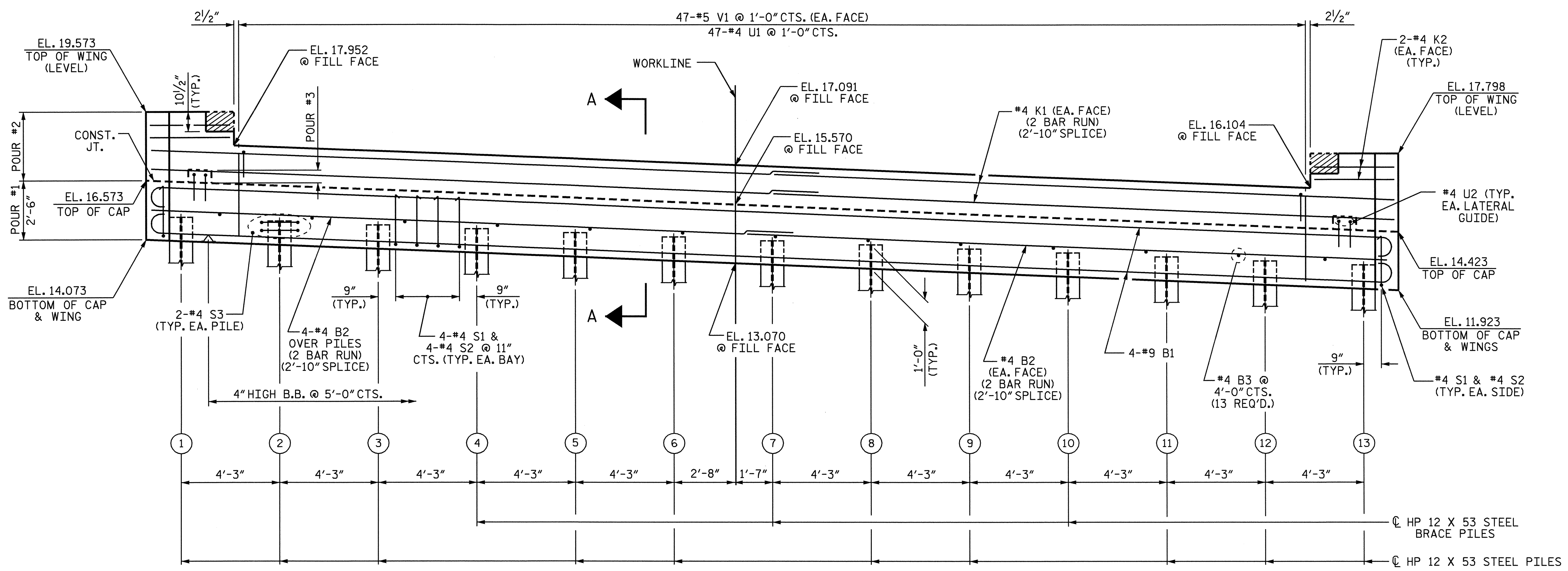
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT #1**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			22



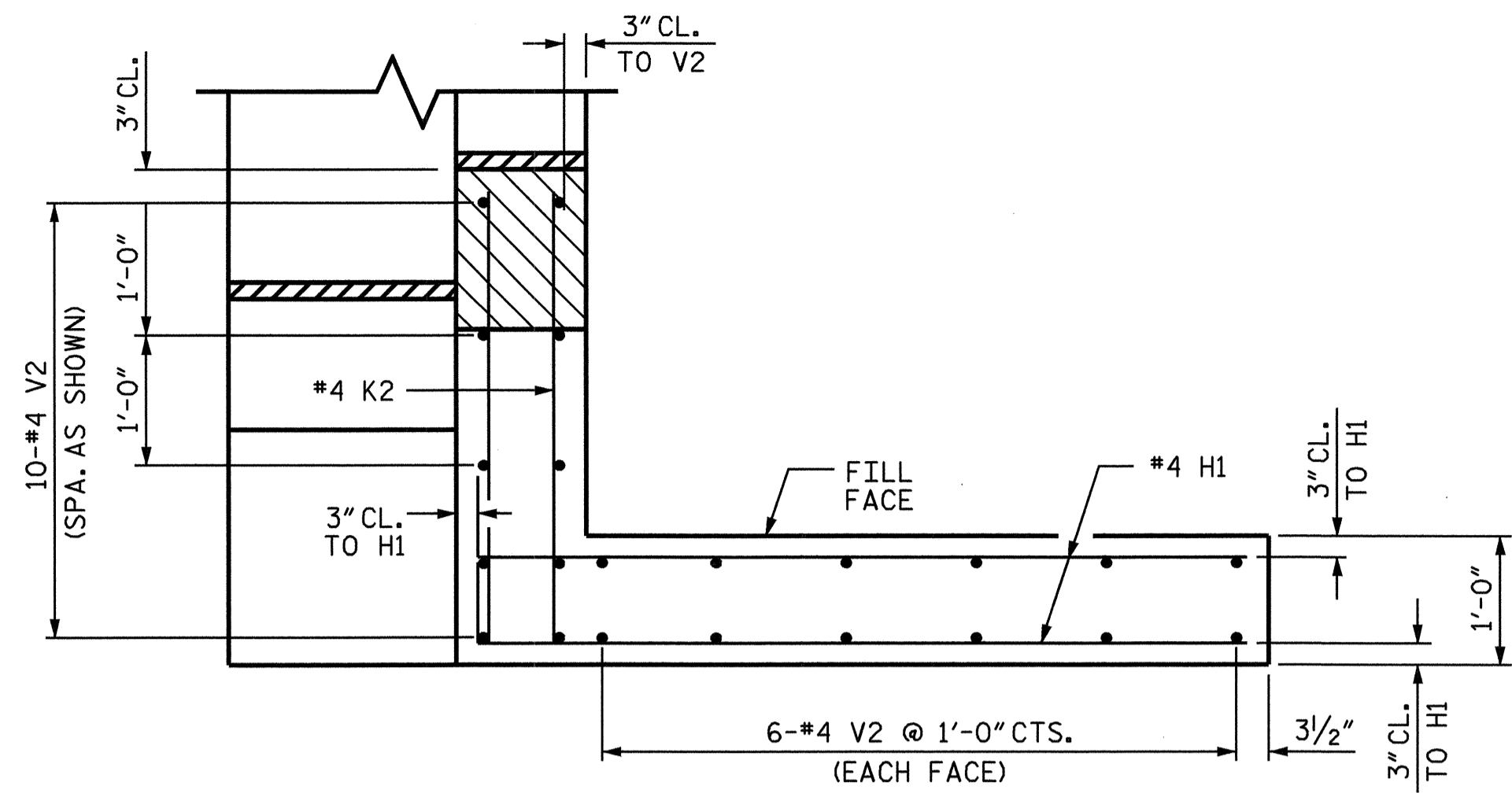
PLAN



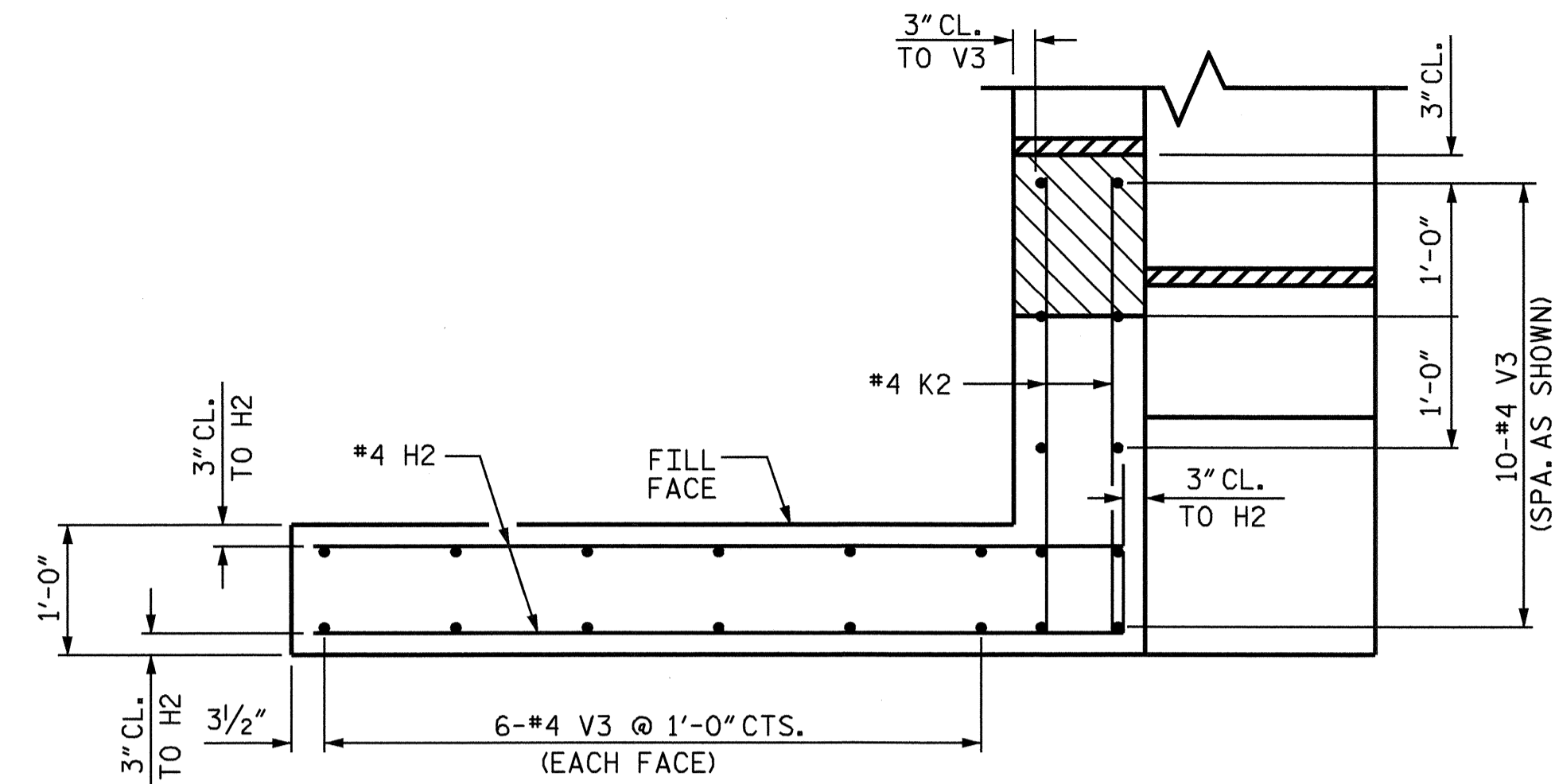
ELEVATION

DRAWN BY : M.K. BEARD DATE : 8/31/06
 CHECKED BY : J.P. ADAMS DATE : 9/12/06

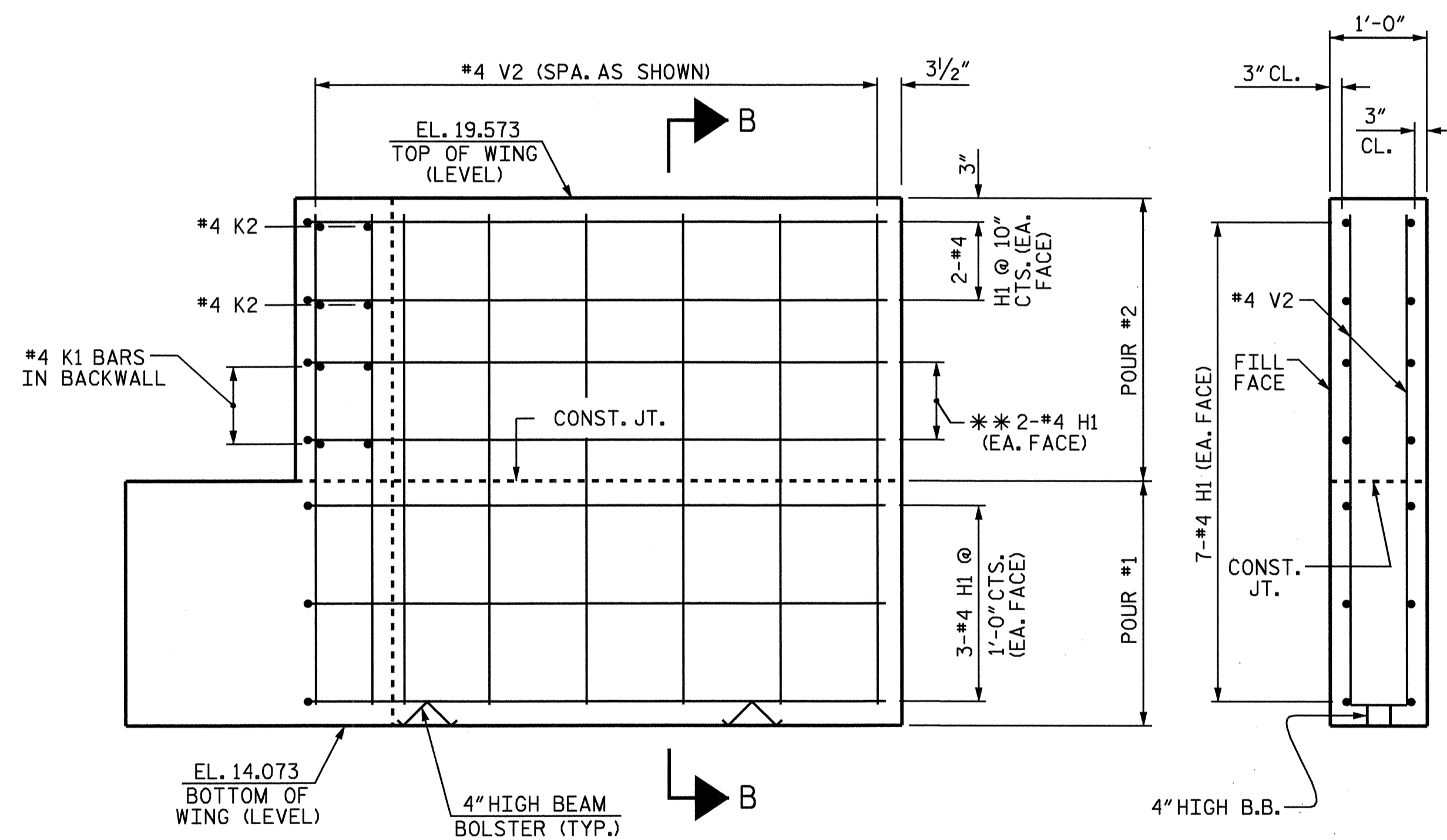
21-JUN-2007 08:01
 R:\Structures\B4215\Final Plans\B-4215.ed.Ebts.01.dgn
 kbeard



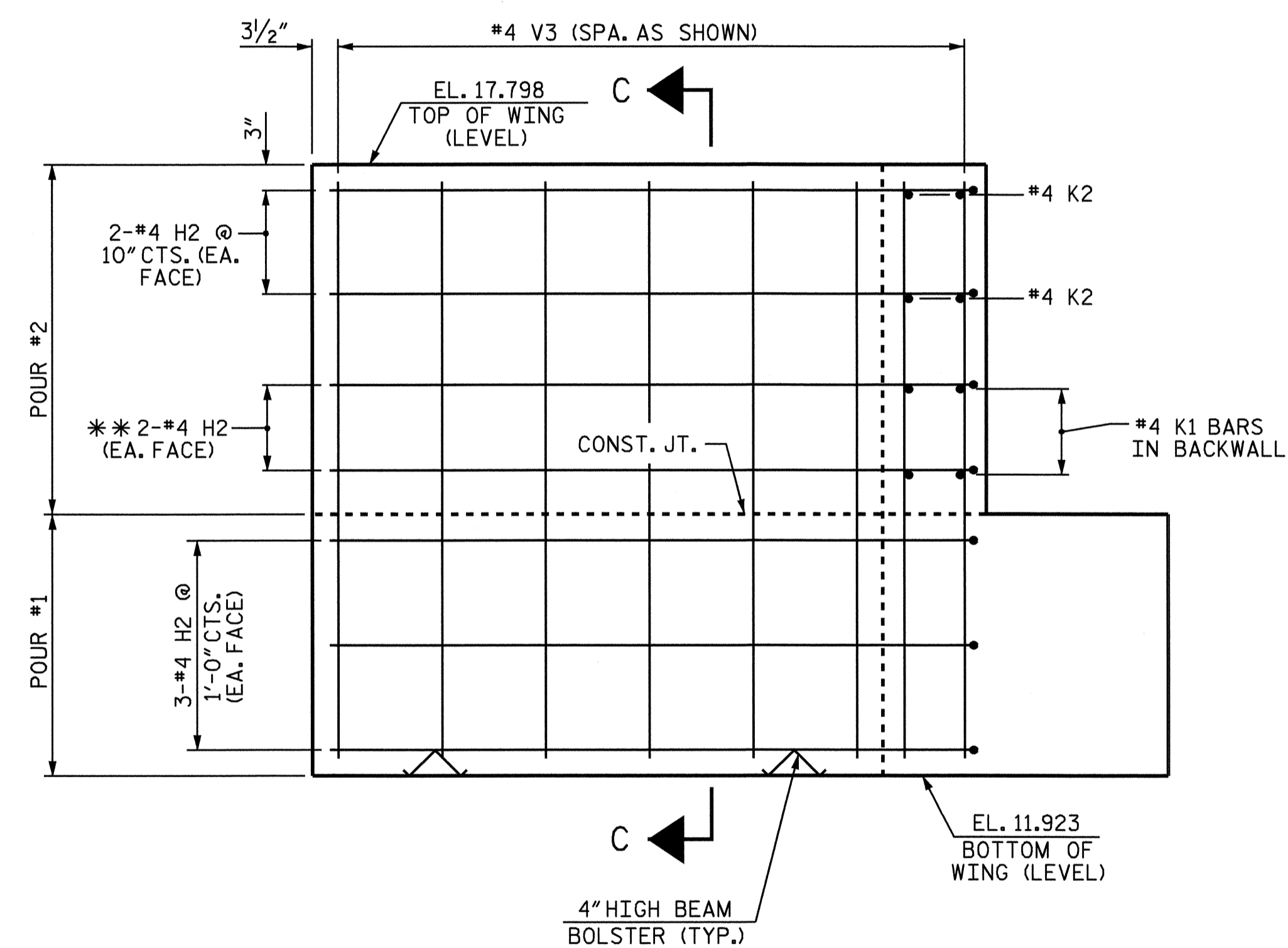
PLAN OF WING W1



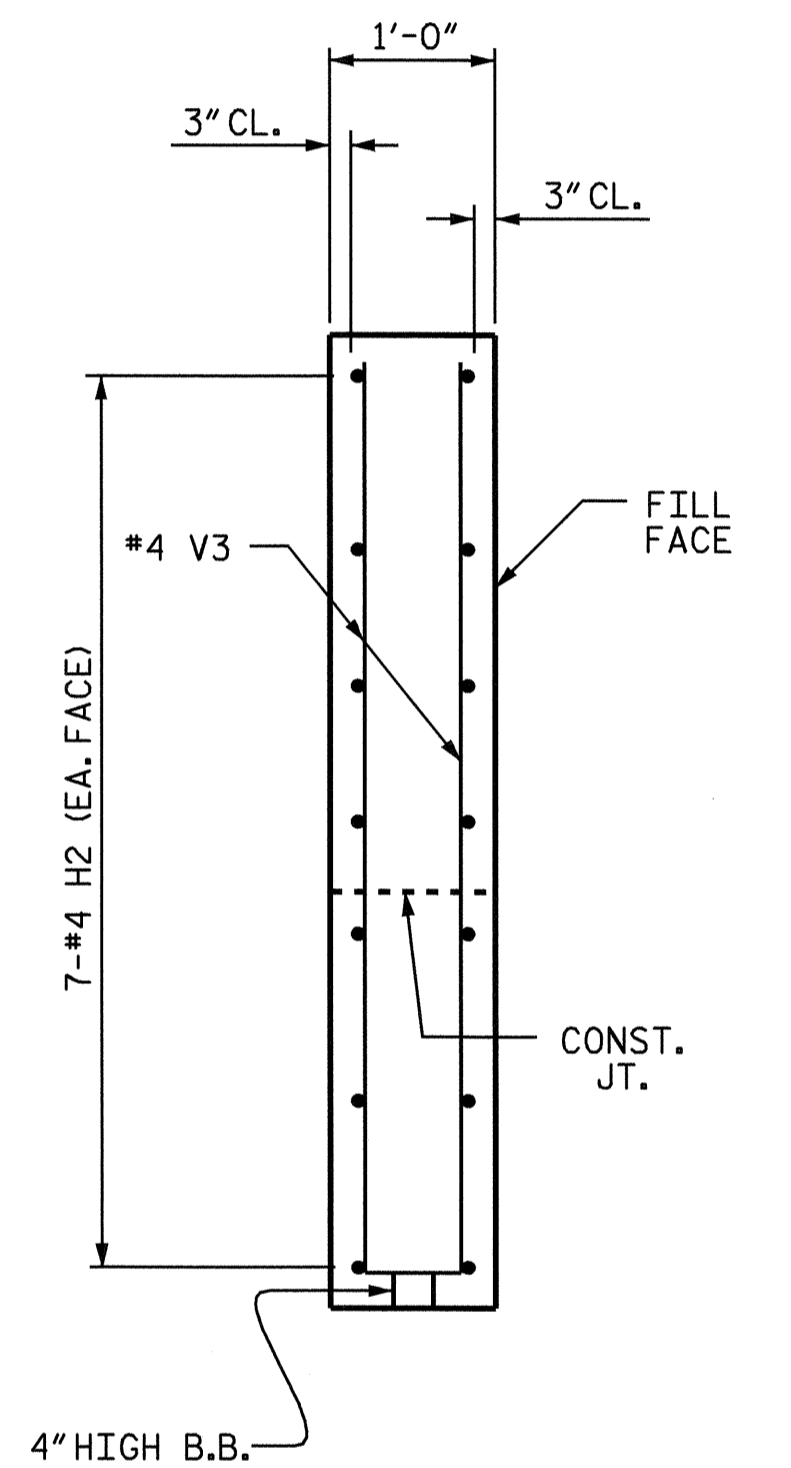
PLAN OF WING W2



ELEVATION OF WING W1



ELEVATION OF WING W2



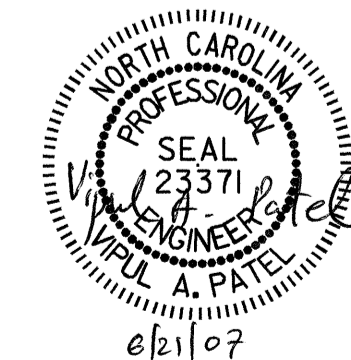
SECTION C-C

SECTION B-B

**BARS TO MATCH
#4 K1 BARS IN
BACKWALL

PROJECT NO. B-4215
ONSLOW COUNTY
STATION: 20+22.75 -EL-

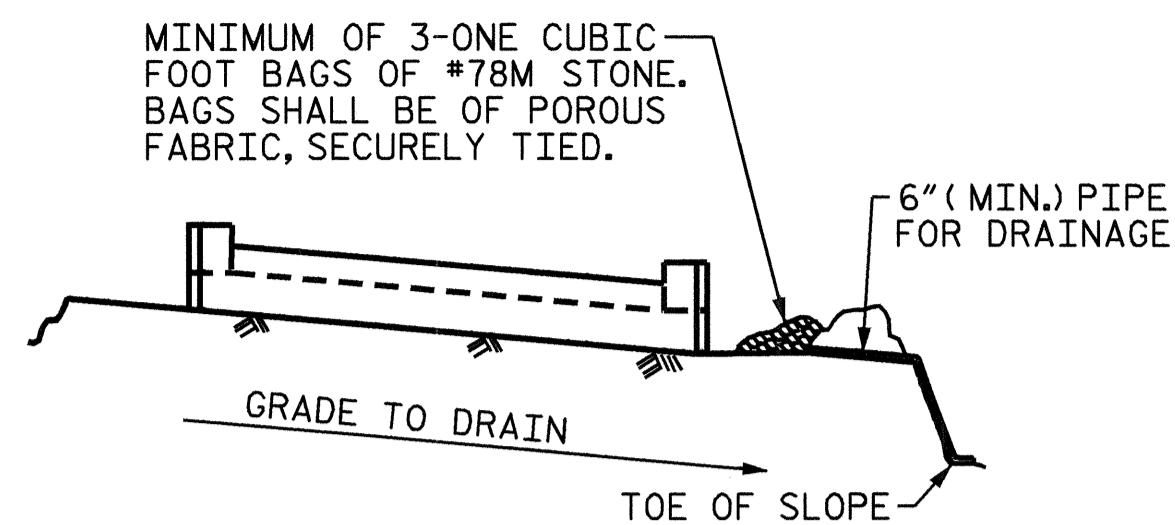
SHEET 2 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT #1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.	S-12
TOTAL SHEETS	22

DRAWN BY: M.K. BEARD DATE: 8/31/06
CHECKED BY: J.P. ADAMS DATE: 9/12/06

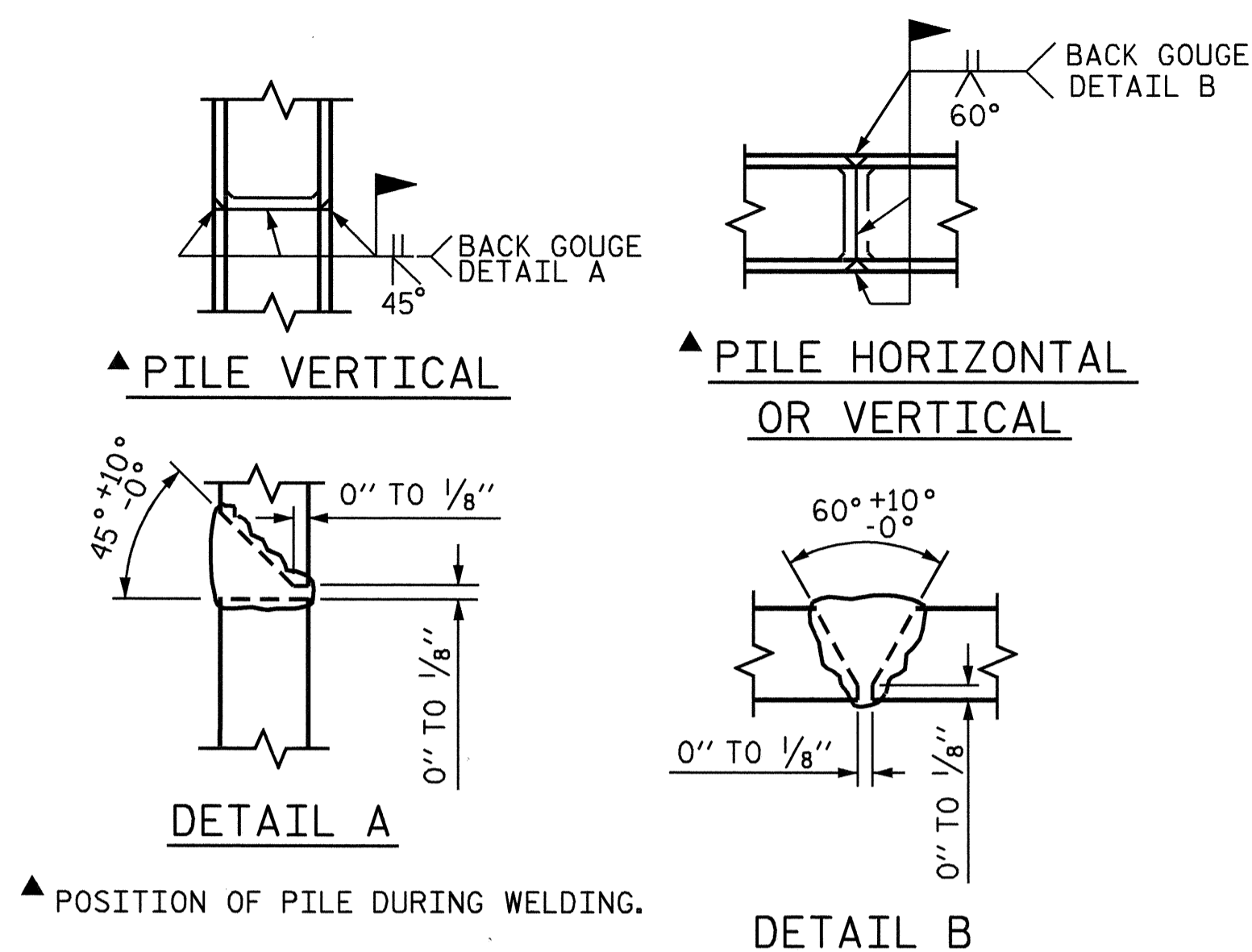


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

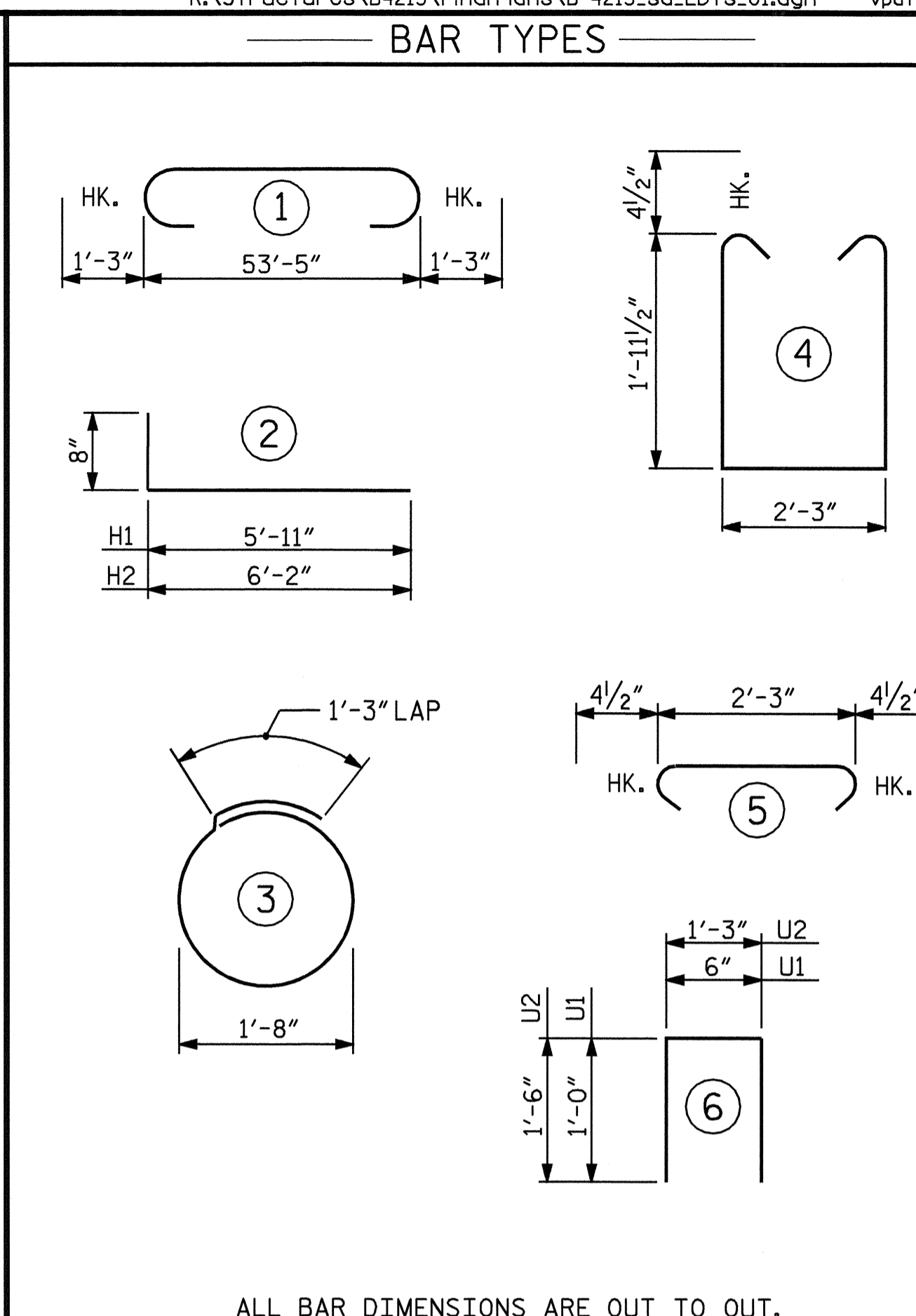
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETEIORATED AND LOST THEIR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

TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS



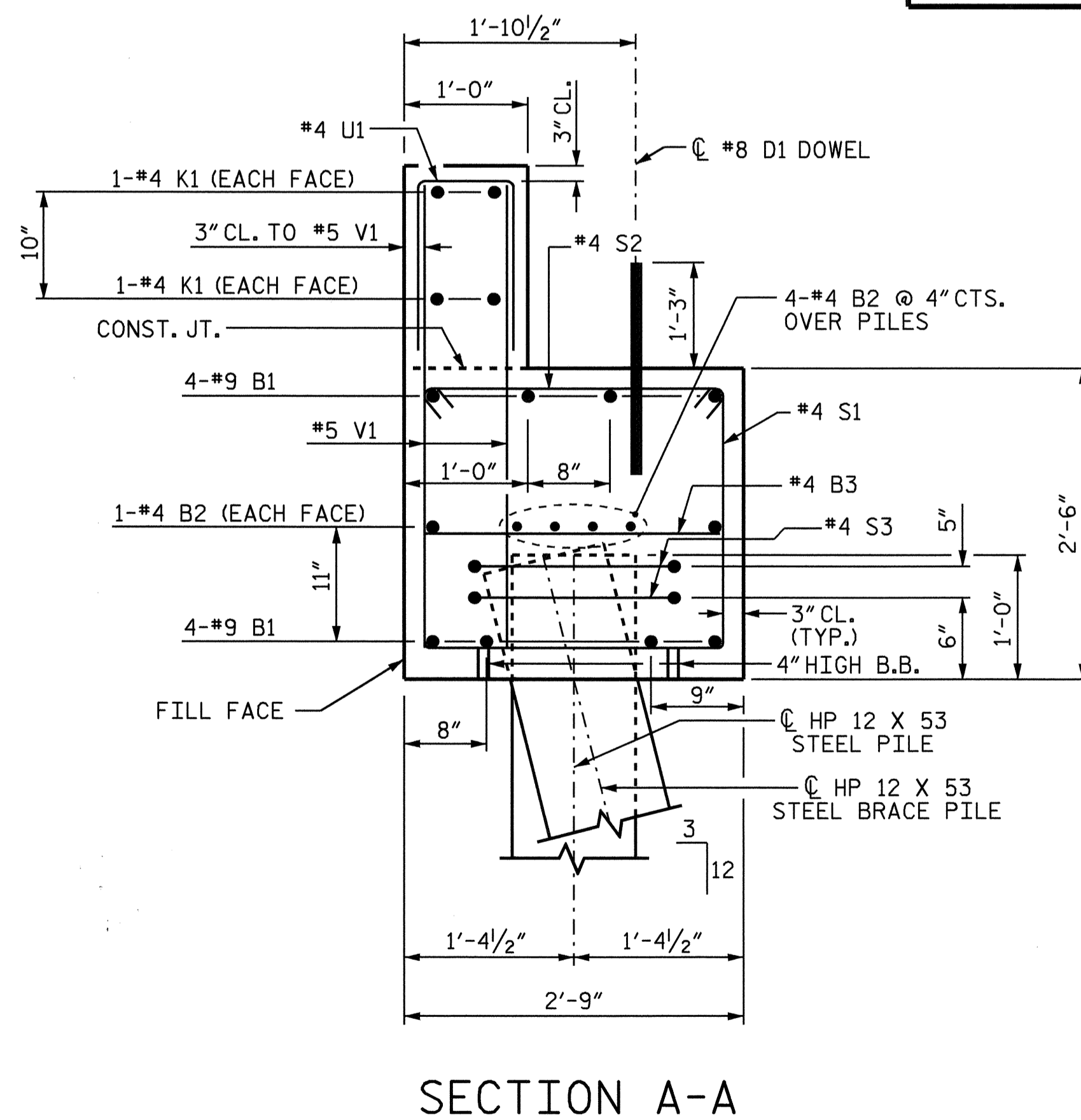
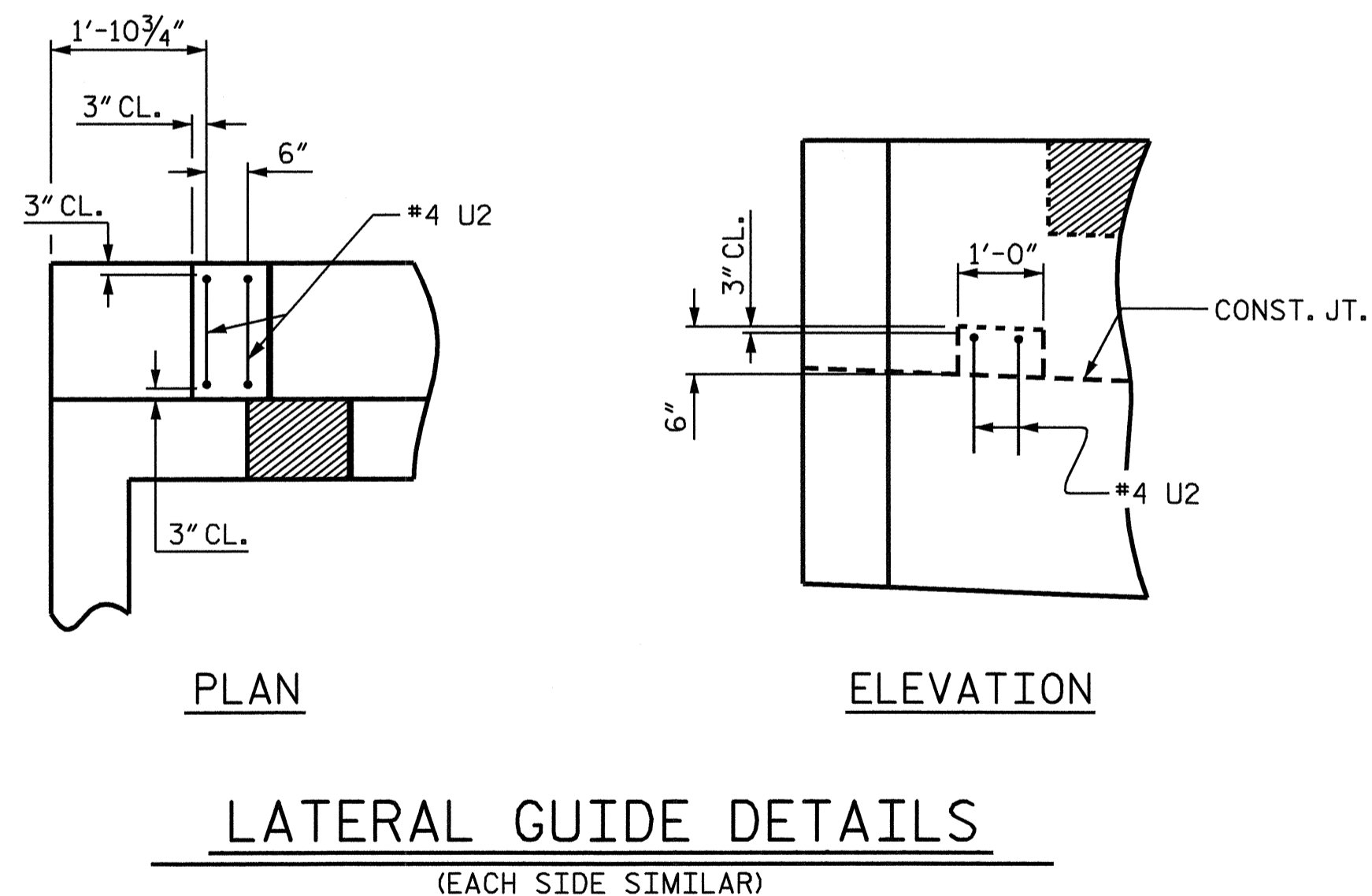
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	8	9	1	55'-11"	1521
*B2	12	4	STR	28'-2"	226
*B3	13	4	STR	2'-3"	20
*D1	32	8	STR	2'-3"	192
*H1	14	4	2	6'-7"	62
*H2	14	4	2	6'-10"	64
*K1	8	4	STR	28'-2"	151
*K2	8	4	STR	3'-5"	18
*S1	50	4	4	6'-11"	231
*S2	50	4	5	3'-0"	100
*S3	26	4	3	6'-6"	113
*U1	47	4	6	2'-6"	78
*U2	4	4	6	4'-3"	11
*V1	94	5	STR	3'-7"	351
*V2	22	4	STR	5'-0"	73
*V3	22	4	STR	5'-6"	81

* EPOXY COATED REINFORCING STEEL	LBS.	3292
CLASS AA CONCRETE	C.Y.	
POUR #1: CAP & LOWER PART OF WINGS		14.8
POUR #2: BACKWALL & UPPER PART OF WINGS		4.5
POUR #3: LATERAL GUIDE		0.1
TOTAL	C.Y.	= 19.4
HP 12 X 53 STEEL PILES		
No. 13		LIN. FT. 715



SECTION A-A

PROJECT NO. B-4215
ONslow COUNTY
 STATION: 20+22.75 -EL-
 SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #1

DRAWN BY: M.K. BEARD DATE: 8/31/06
 CHECKED BY: J.P. ADAMS DATE: 9/12/06

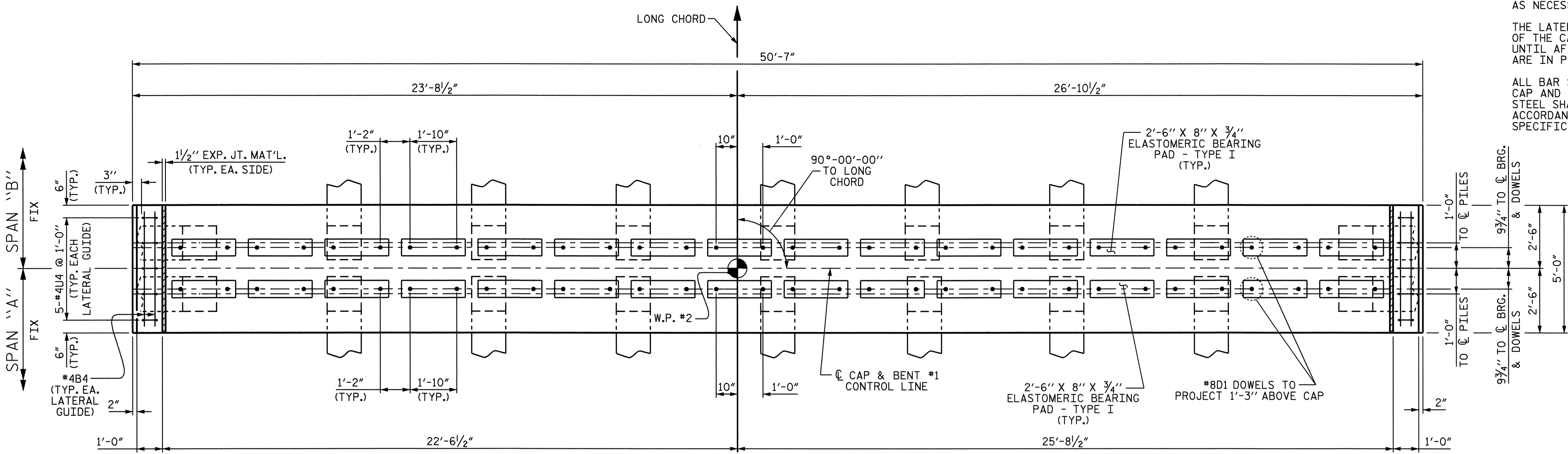
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			22

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

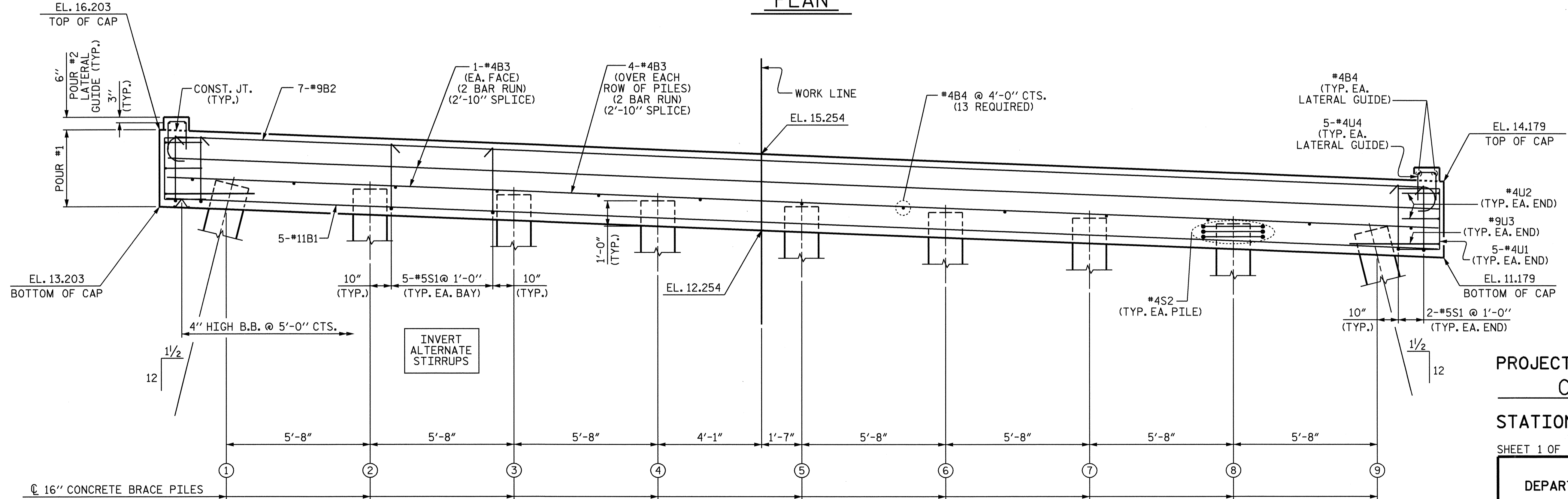
THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER BOX BEAM UNITS ARE IN PLACE.

ALL BAR SUPPORTS USED IN THE BENT CAP AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



PLAN

TOP OF PILE ELEVATIONS	
PILE NO.	ELEVATION
1	14.098
2	13.871
3	13.644
4	13.418
5	13.191
6	12.964
7	12.738
8	12.511
9	12.284



ELEVATION

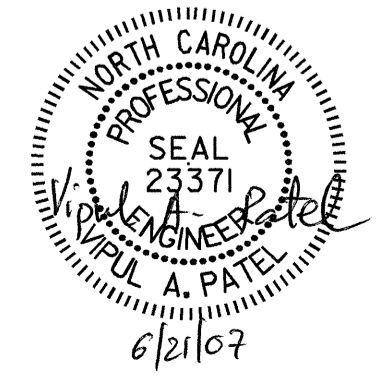
PROJECT NO. B-4215
ONSLOW COUNTY
 STATION: 20+22.75 -EL-

SHEET 1 OF 2

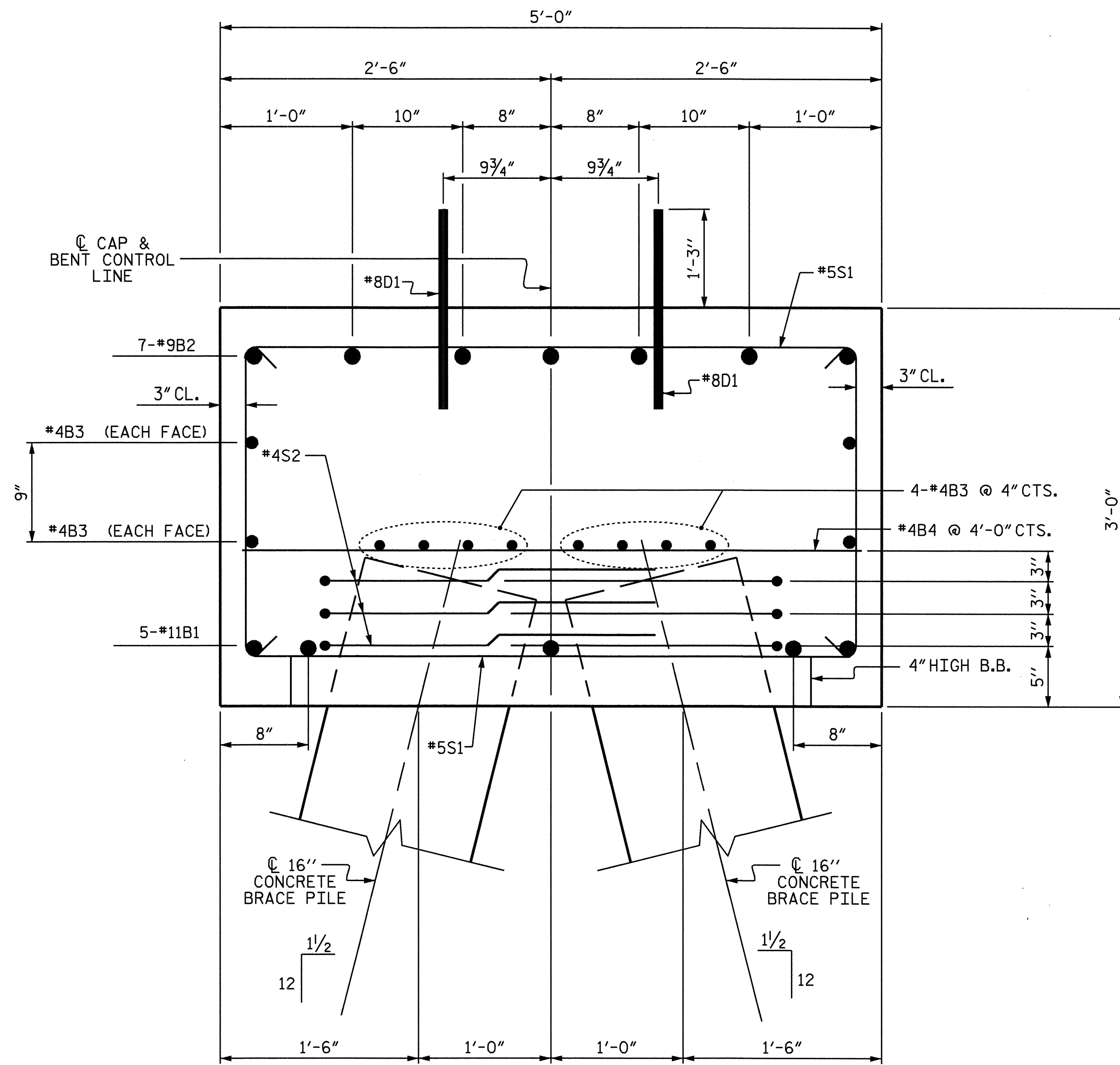
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #1

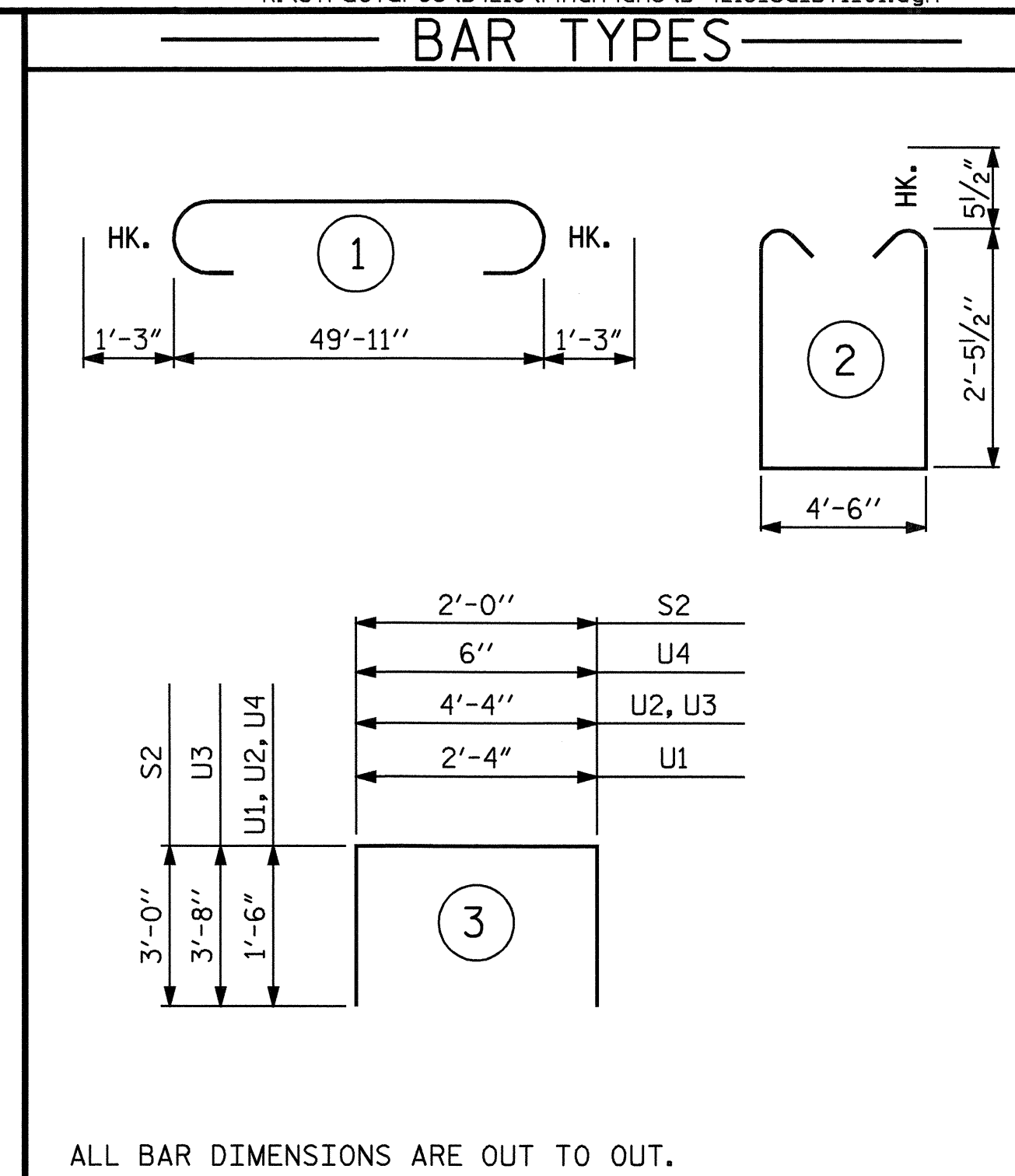
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14	
1			3			TOTAL SHEETS	
2			4			22	



DRAWN BY: J.P. ADAMS DATE: 1/12/06
 CHECKED BY: S.H. SOCKWELL DATE: 2/13/06



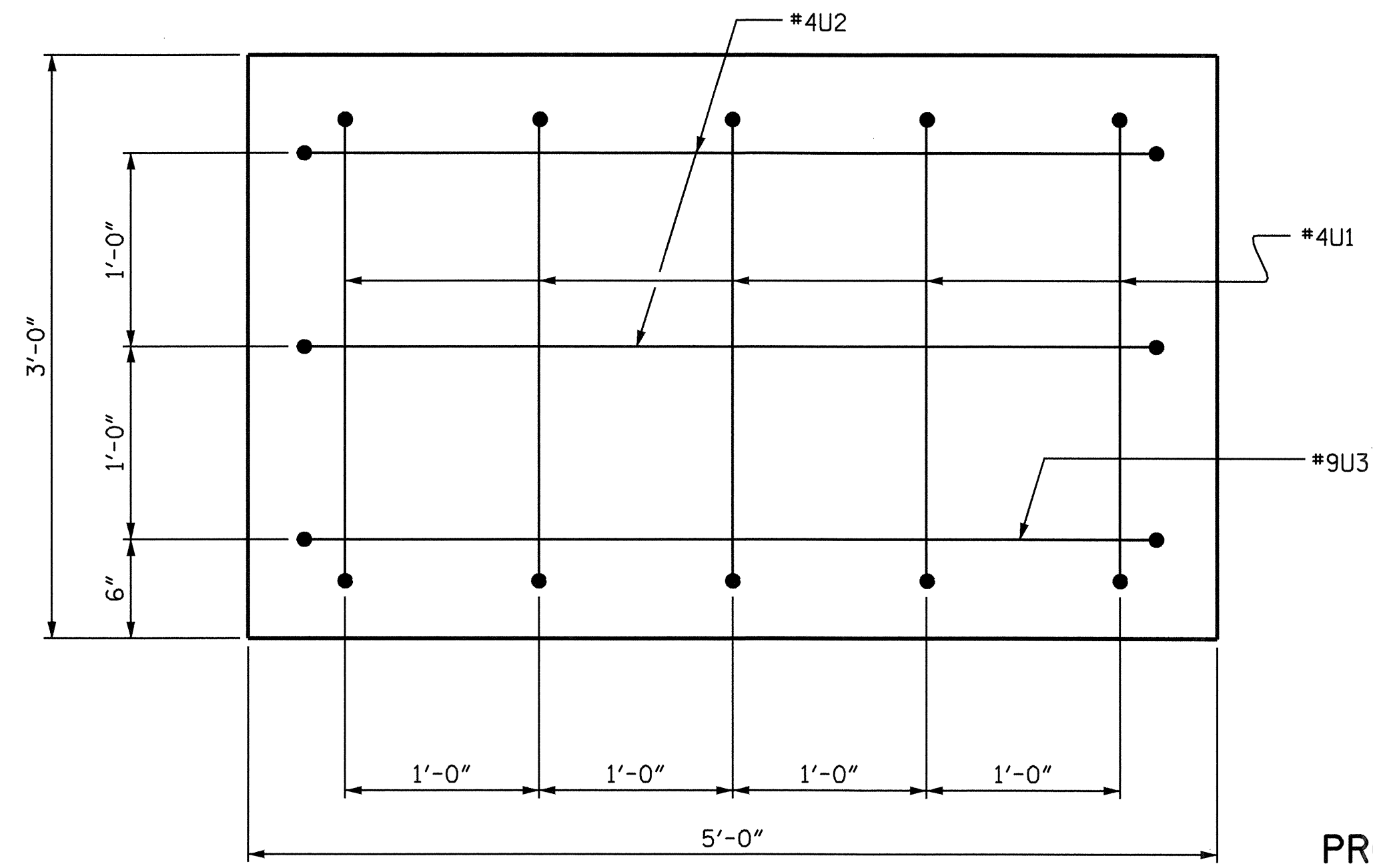
SECTION THRU CAP
(INVERT ALTERNATE STIRRUPS)



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	5	#11	STR	50'-1"	1330
* B2	7	#9	1	52'-5"	1248
* B3	24	#4	STR	26'-6"	425
* B4	17	#4	STR	4'-6"	51
* D1	64	#8	STR	2'-3"	384
* S1	44	#5	2	10'-4"	474
* S2	54	#4	3	8'-0"	289
* U1	10	#4	3	5'-4"	36
* U2	4	#4	3	7'-4"	20
* U3	2	#9	3	11'-8"	79
* U4	10	#4	3	3'-6"	23
* EPOXY COATED REINFORCING STEEL					= 4359 LBS
CLASS "AA" CONCRETE					
POUR #1 CAP					26.9 Cu. Yds.
POUR #2 LATERAL GUIDES					0.2 Cu Yds.
TOTAL					27.1 Cu Yds.
16" PRESTRESSED CONCRETE PILES					
NO. 18					540 FT.
PDA TESTING					1 EACH
PDA ASSISTANCE					1 EACH

NOTE: CONCRETE DISPLACED BY 16" PRESTRESSED CONCRETE PILES HAS BEEN DEDUCTED.



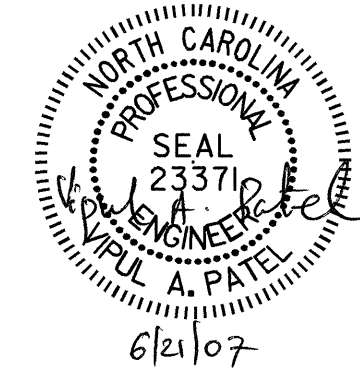
END VIEW

PROJECT NO. B-4215
ONSLOW COUNTY
STATION: 20+22.75 -EL-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT #1



DRAWN BY: J.P. ADAMS DATE: 1/12/06
CHECKED BY: S.H. SOCKWELL DATE: 2/13/06

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL	22
2			4			SHEETS	

NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

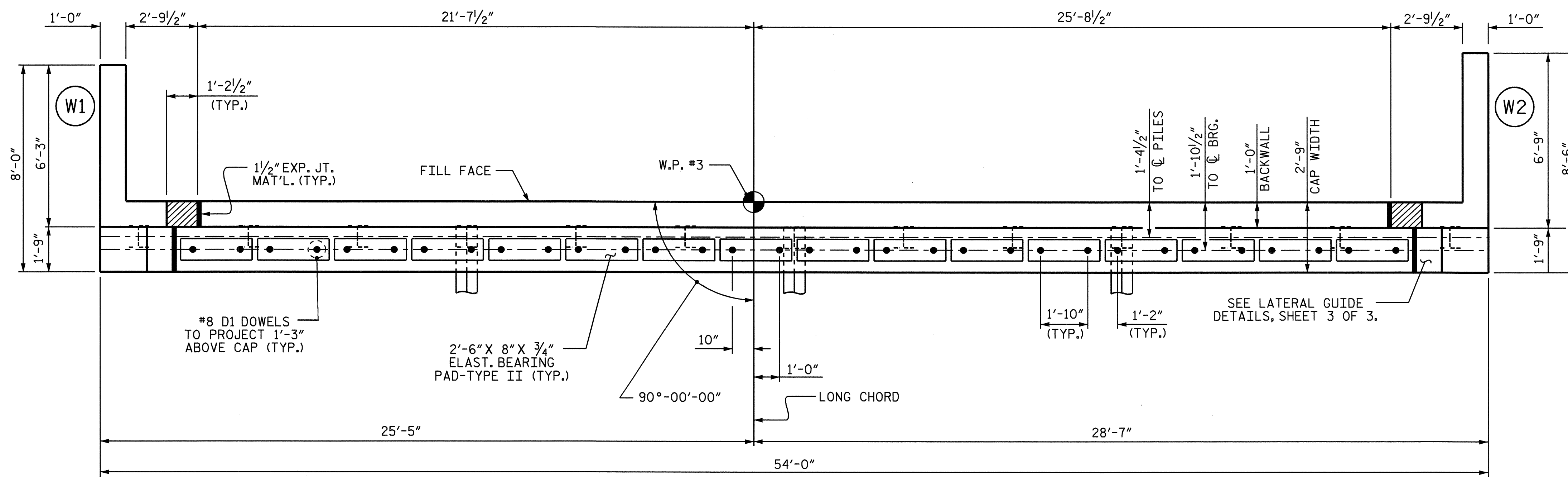
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS. SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

ALL BAR SUPPORTS USED IN THE END BENT CAP & ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

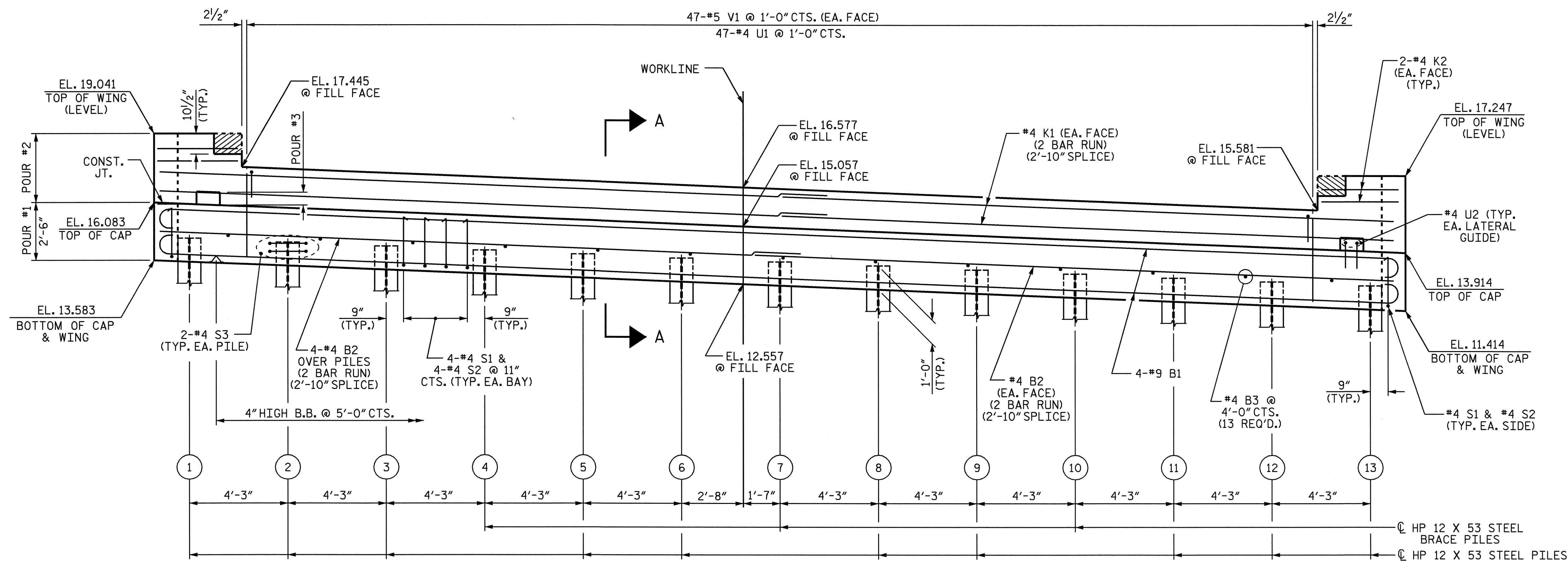
THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE JOINT BETWEEN THE CONCRETE WEARING SURFACE AND THE APPROACH SLAB HAS BEEN SAWED AND AFTER THE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

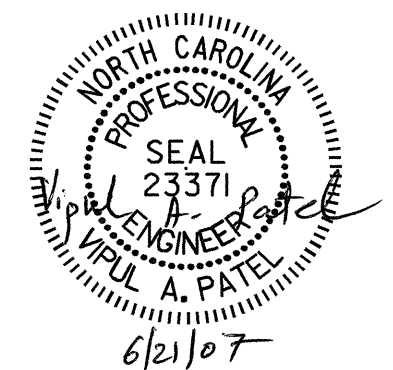
PILE No.	ELEV.
1	14.523
2	14.352
3	14.181
4	14.011
5	13.840
6	13.669
7	13.499
8	13.328
9	13.157
10	12.986
11	12.816
12	12.645
13	12.474



PLAN



ELEVATION



PROJECT NO. B-4215
ONSLow COUNTY
 STATION: 20+22.75 -EL-

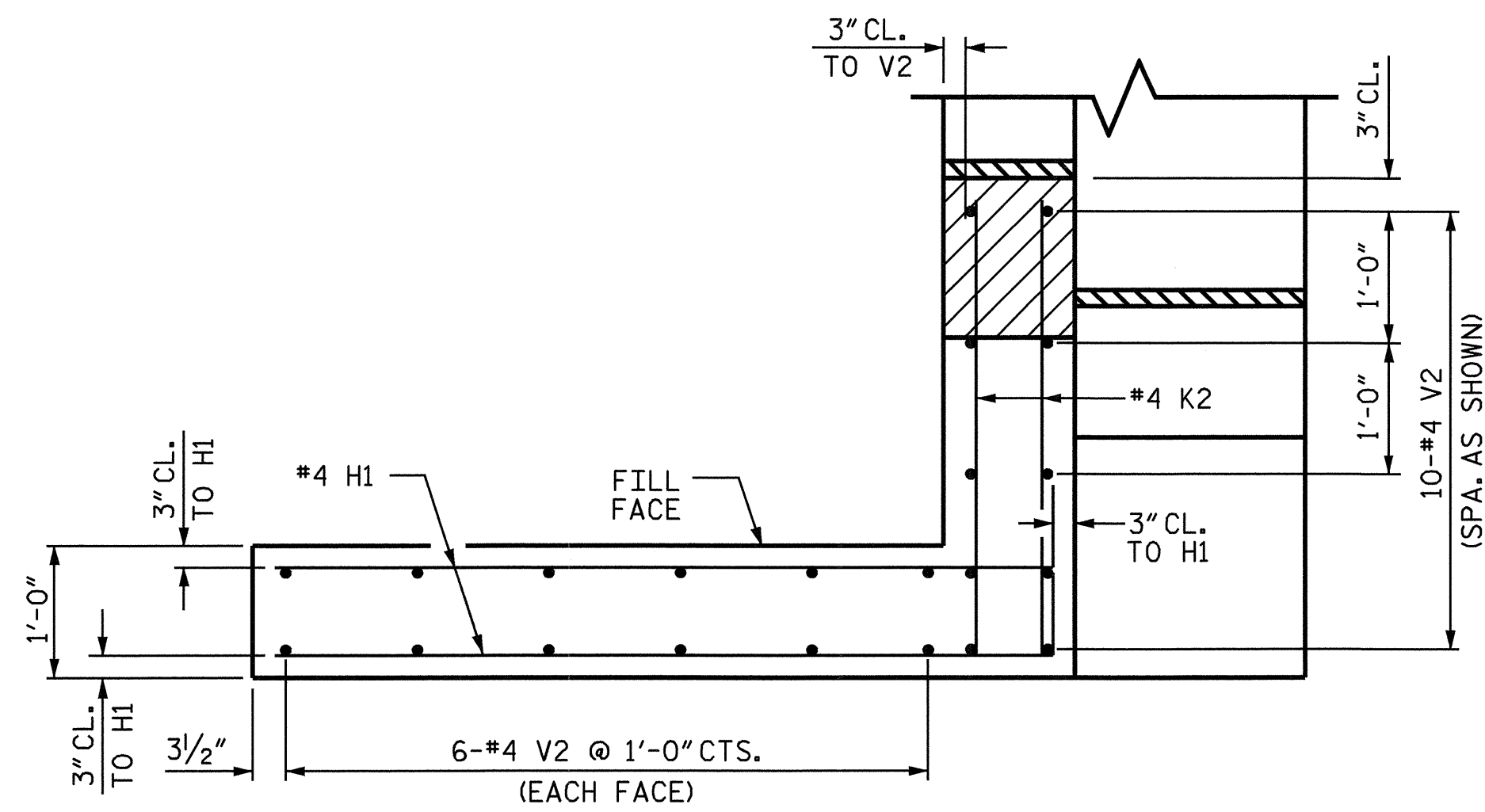
SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #2

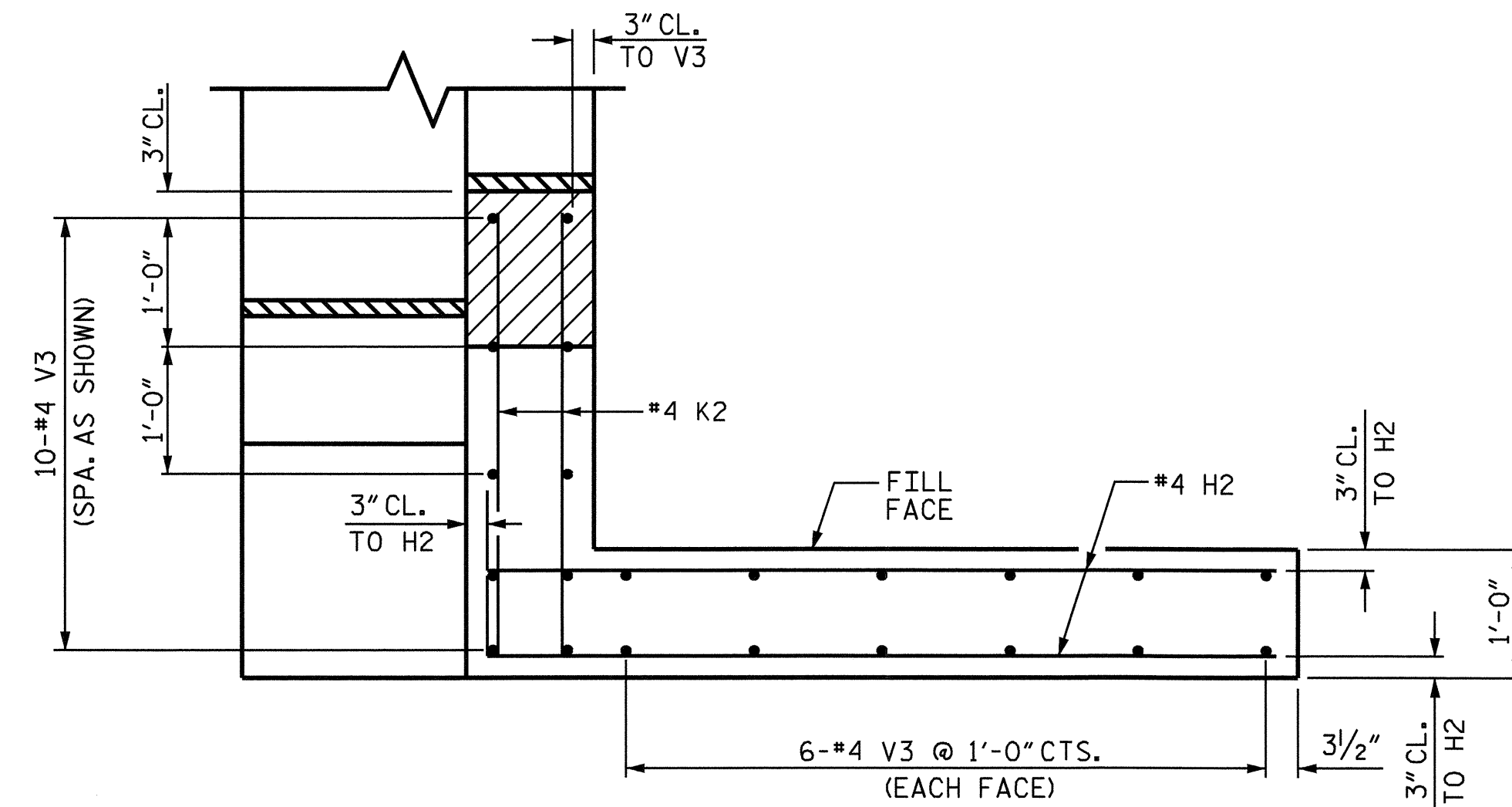
REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-16
2			4			TOTAL SHEETS 22

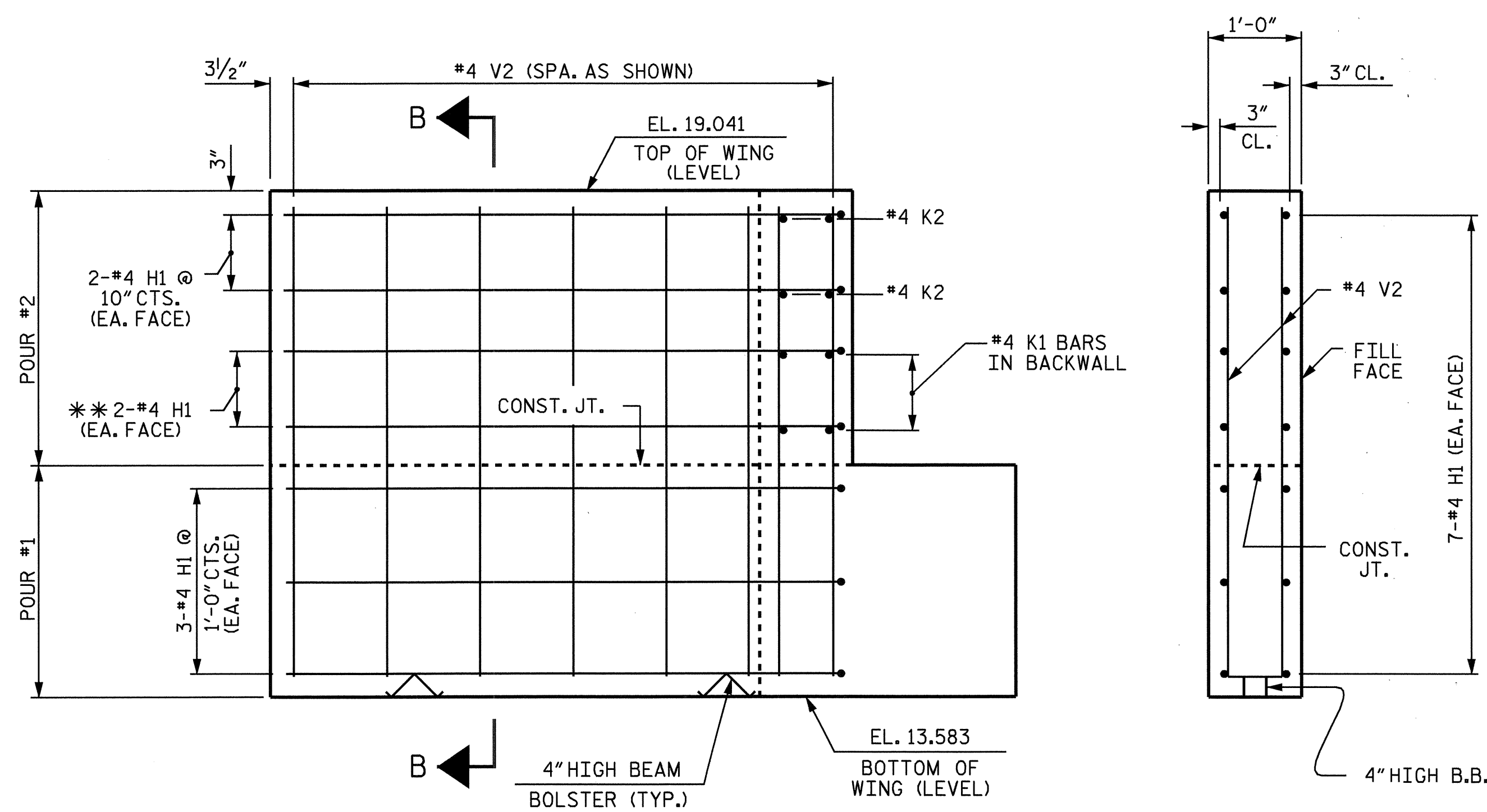
DRAWN BY: M.K. BEARD DATE: 9/5/06
 CHECKED BY: J.P. ADAMS DATE: 9/12/06



PLAN OF WING W1



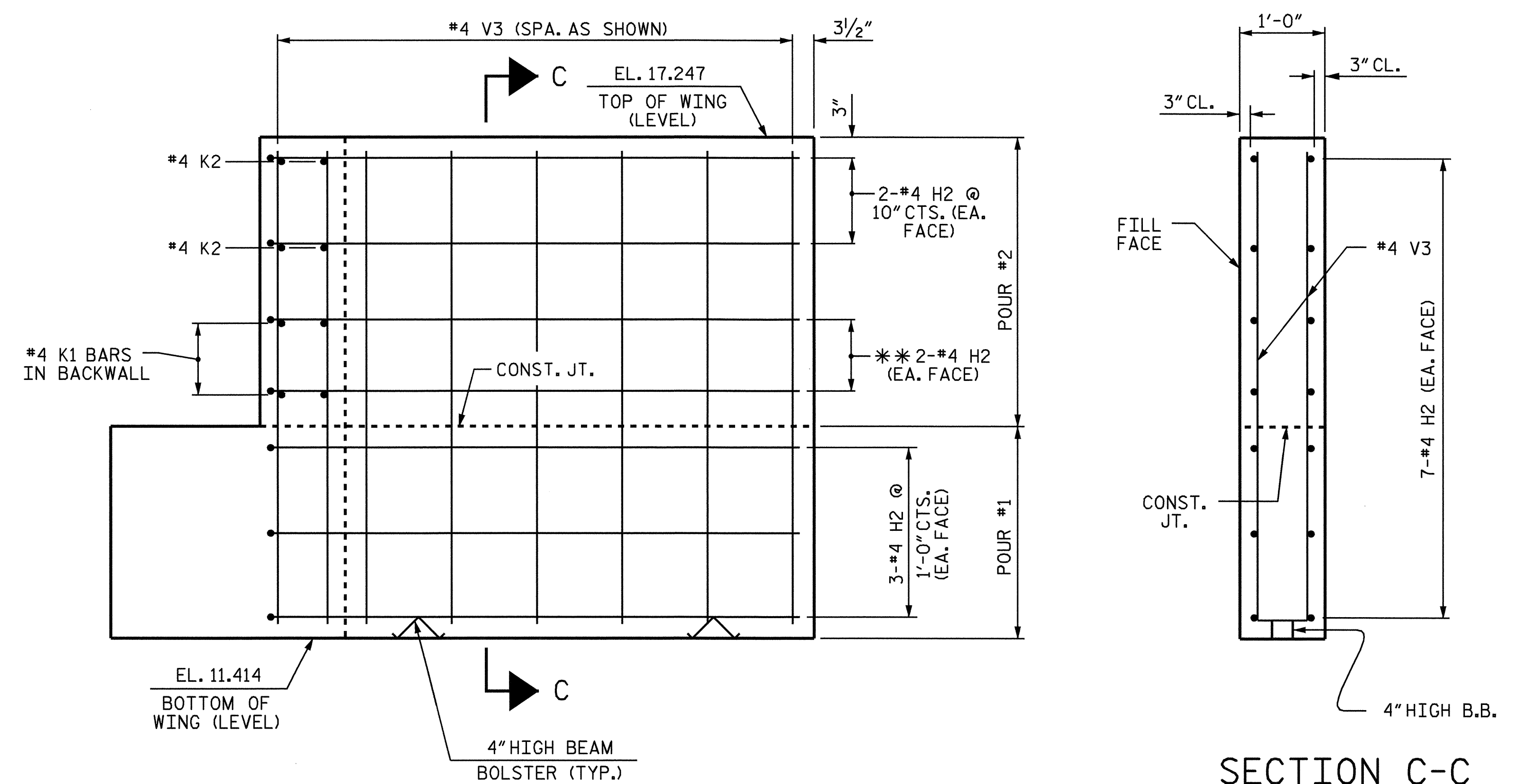
PLAN OF WING W2



ELEVATION OF WING W1

SECTION B-B

**BARS TO MATCH
#4 K1 BARS IN
BACKWALL

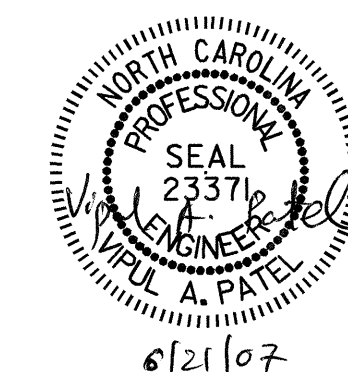


ELEVATION OF WING W2

SECTION C-C

PROJECT NO. B-4215
ONslow COUNTY
 STATION: 20+22.75 -EL-

SHEET 2 OF 3

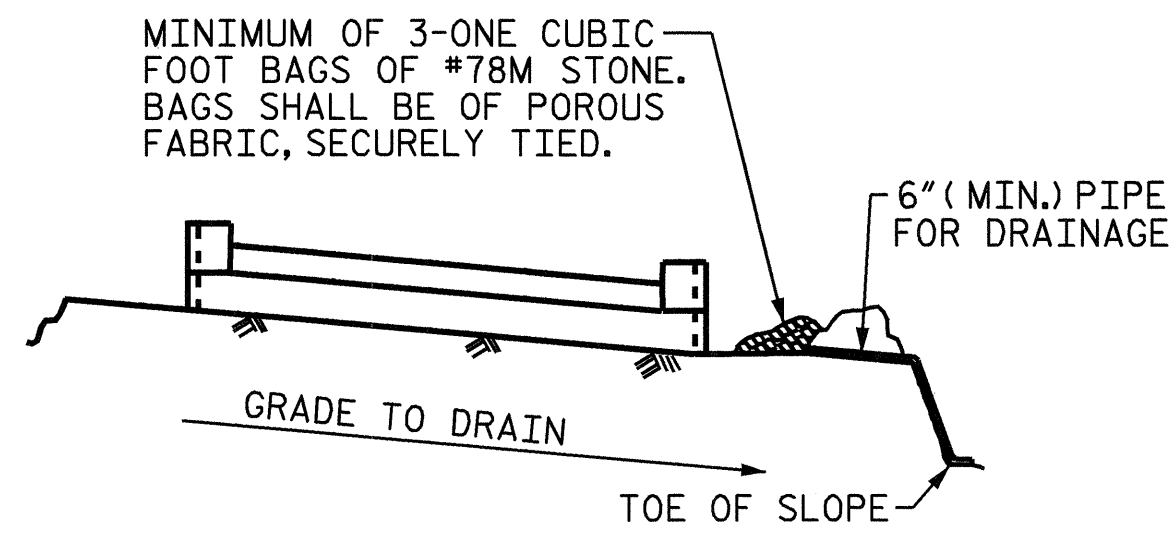


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			22

DRAWN BY: M.K. BEARD DATE: 9/5/06
 CHECKED BY: J.P. ADAMS DATE: 9/12/06

12-MAR-2007 14:17
 R:\Structures\B4215\Final Plans\B-4215.ed.Ebts.01.dgn
 kbeard

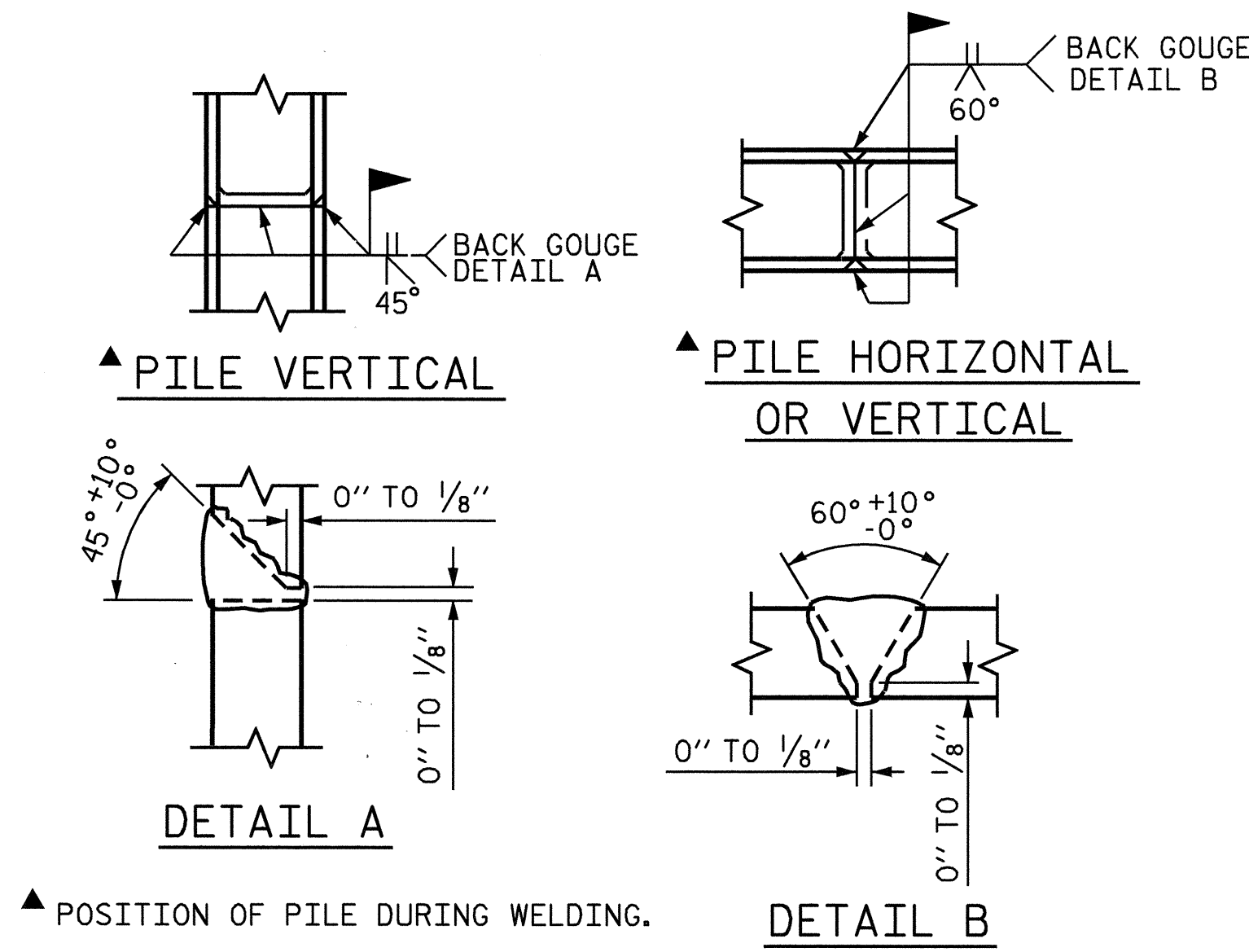


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

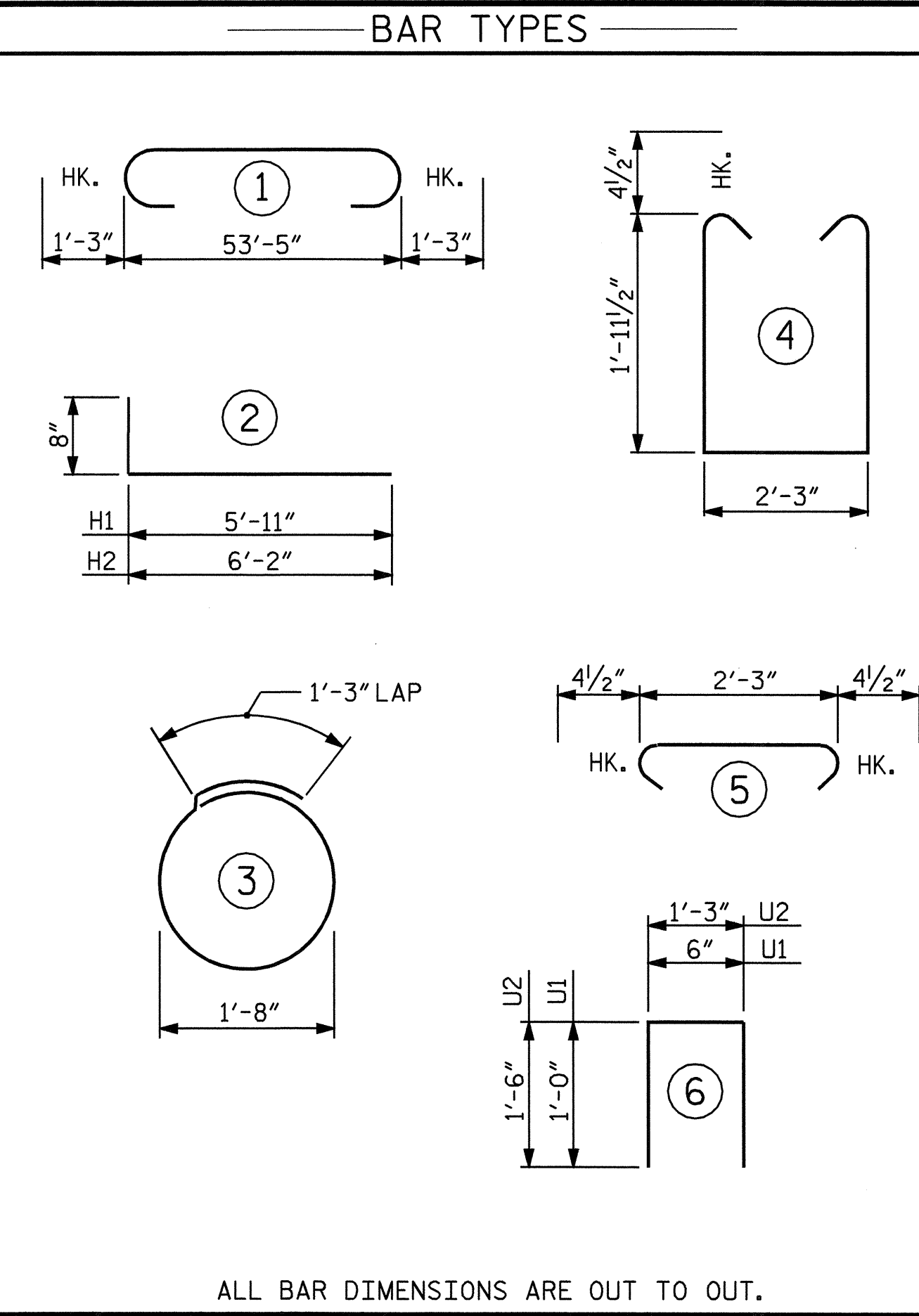
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

TEMPORARY DRAINAGE AT END BENT

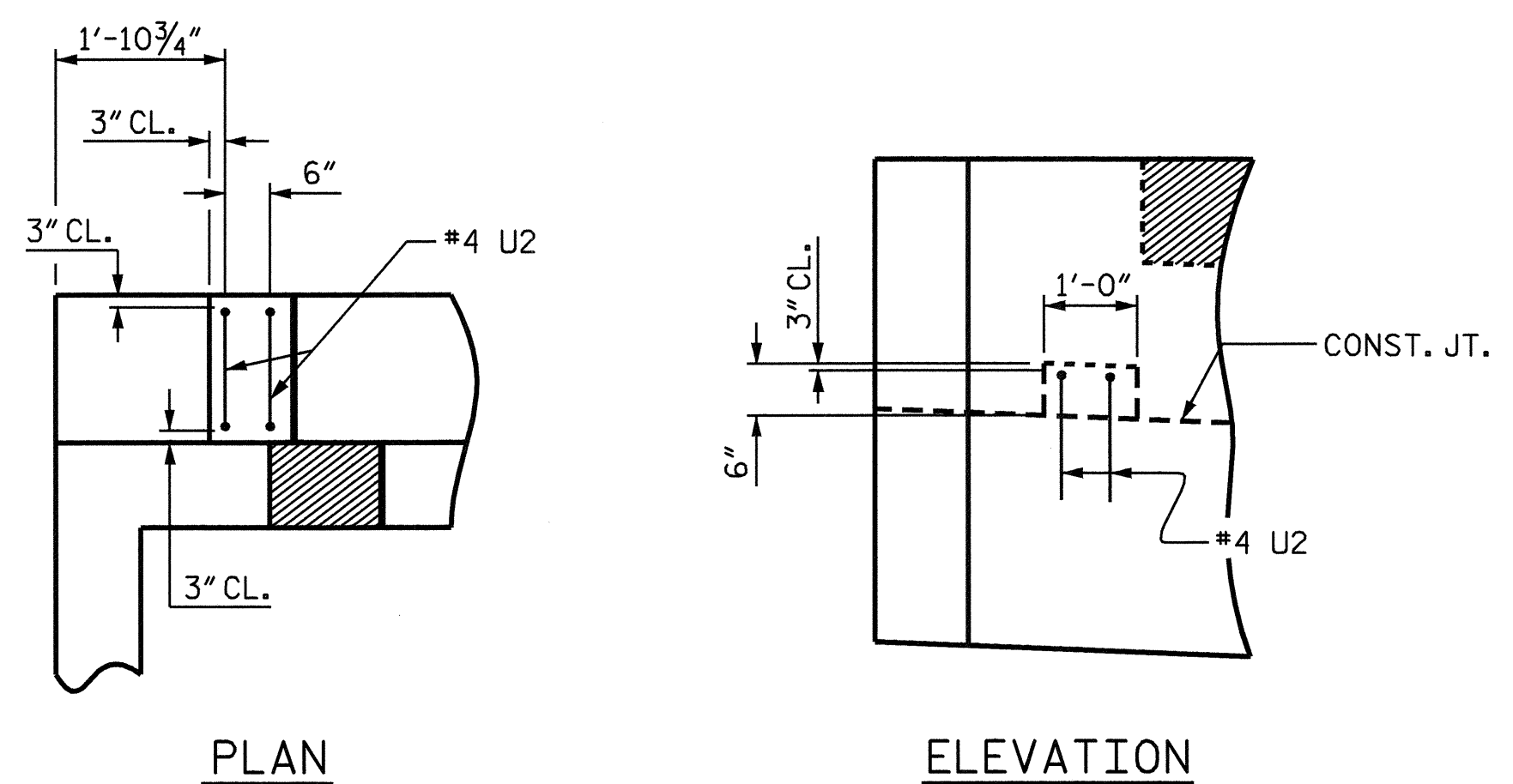


PILE SPLICE DETAILS

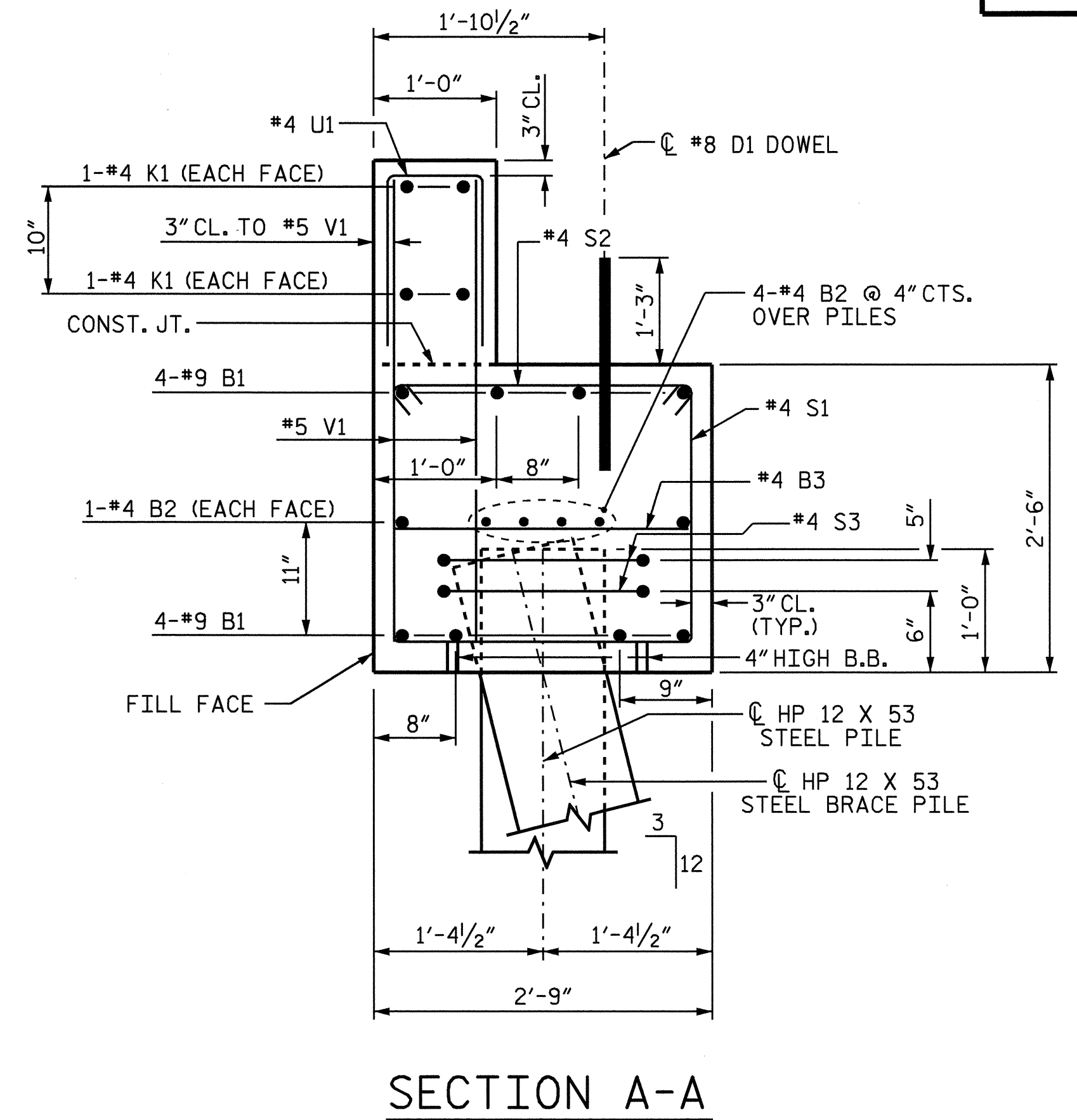


ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
END BENT #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	8	9	1	55'-11"	1521
*B2	12	4	STR	28'-2"	226
*B3	13	4	STR	2'-3"	20
*D1	32	8	STR	2'-3"	192
*H1	14	4	2	6'-7"	62
*H2	14	4	2	6'-10"	64
*K1	8	4	STR	28'-2"	151
*K2	8	4	STR	3'-5"	18
*S1	50	4	4	6'-11"	231
*S2	50	4	5	3'-0"	100
*S3	26	4	3	6'-6"	113
*U1	47	4	6	2'-6"	78
*U2	4	4	6	4'-3"	11
*V1	94	5	STR	3'-7"	351
*V2	22	4	STR	5'-0"	73
*V3	22	4	STR	5'-6"	81
* EPOXY COATED REINFORCING STEEL LBS.					3292
CLASS AA CONCRETE C.Y.					
POUR #1: CAP & LOWER PART OF WINGS					14.8
POUR #2: BACKWALL & UPPER PART OF WINGS					4.5
POUR #3: LATERAL GUIDE					0.1
TOTAL C.Y.					= 19.4
HP 12 X 53 STEEL PILES					
No. 13					LIN. FT. 520

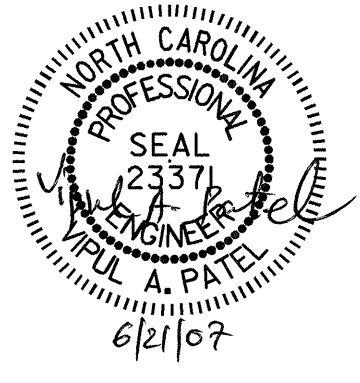


LATERAL GUIDE DETAILS
(EACH SIDE SIMILAR)



SECTION A-A

PROJECT NO. B-4215
ONSLOW COUNTY
 STATION: 20+22.75 -EL-
 SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT #2

DRAWN BY : M.K. BEARD DATE : 9/5/06
 CHECKED BY : J.P. ADAMS DATE : 9/12/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			22

NOTES

CONCRETE DESIGN DATA : $f'c = 5,000$ PSI ; $fc = 2,000$ PSI

IMPACT IN HANDLING = 50%

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE PILE SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 3,500 PSI.

IN DRIVING PILES, A METHOD APPROVED BY THE ENGINEER SHALL BE USED, WHEREBY THE HEAD OF THE PILE IS NOT DAMAGED.

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 TO BE INDICATED WITH A BLACK MARK 2" WIDE.

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 STANDARD SPECIFICATIONS.

THE CONTRACTOR SHALL USE THE FOLLOWING STRAND TYPE:

SIZE	GRADE	NUMBER OF STRANDS	AREA SQ. IN.	ULTIMATE STRENGTH LBS.	APPLIED PRESTRESS FORCE LBS.
1/2"	270 L.R.	8	0.153	41,300 PER STRAND	30,980 PER STRAND

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

IF STRAND STRESS IS RELIEVED BY BURNING, THE STRANDS SHALL BE BURNED IN OPPOSITE PAIRS AS INDICATED IN THE TYPICAL PATTERN SHOWN. FOR ANY NUMBER OF STRANDS BURN IN OPPOSITE PAIRS AND SYMMETRICAL ABOUT BOTH VERTICAL AND HORIZONTAL AXES. STRANDS 1-1 SHALL BE BURNED BEFORE 2-2, ETC. NOT MORE THAN 4 STRANDS, SAY 3-3 AND 4-4, MAY BE BURNED AT ANY ONE SECTION BEFORE THESE SAME PAIRS OF STRANDS ARE BURNED AT BOTH ENDS OF THE BED AND BETWEEN EACH PAIR OF PILES IN THE BED.

BUILD-UPS SHALL BE 'CLASS A' CONCRETE WITH 20% ADDITIONAL CEMENT. NO DRIVING OF THE BUILT-UP PILE WILL BE PERMITTED UNTIL THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 3,000 PSI AND UNTIL A PERIOD OF SEVEN DAYS HAS ELAPSED SINCE CASTING OF THE BUILD-UP.

PRESTRESSED CONCRETE PILES SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR.

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

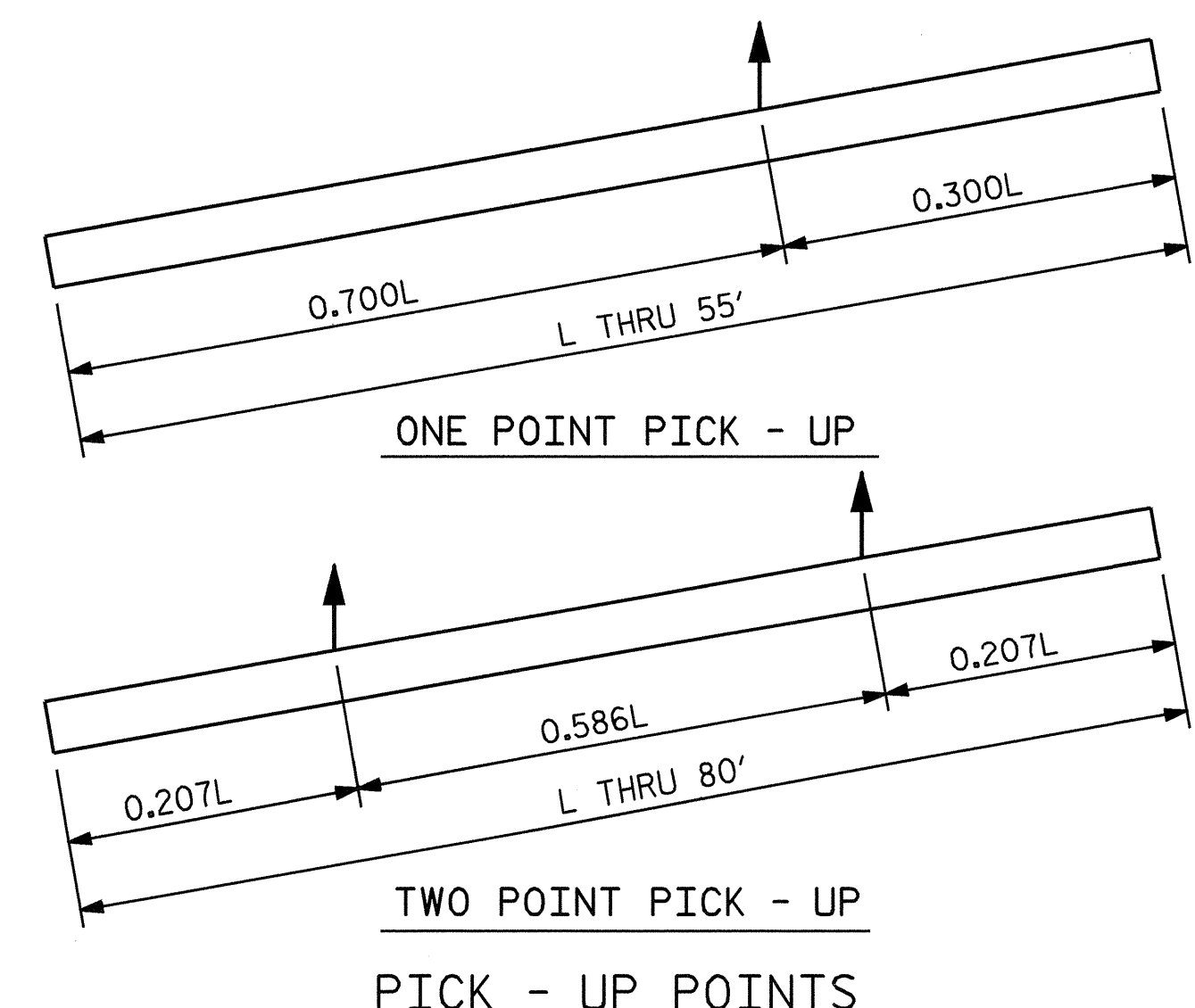
THE CONCRETE IN THE PILES OF BENT NO. 1 SHALL CONTAIN SILICA FUME. SILICA FUME SHALL BE SUBSTITUTED FOR 5% OF THE PORTLAND CEMENT BY WEIGHT. IF THE OPTION OF ARTICLE 1024-1 OF THE STANDARD SPECIFICATIONS TO PARTIALLY SUBSTITUTE CLASS F FLY ASH FOR PORTLAND CEMENT IS EXERCISED, THEN THE RATE OF FLY ASH 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-4215
ON SLOW COUNTY
 STATION: 20+22.75 -EL-

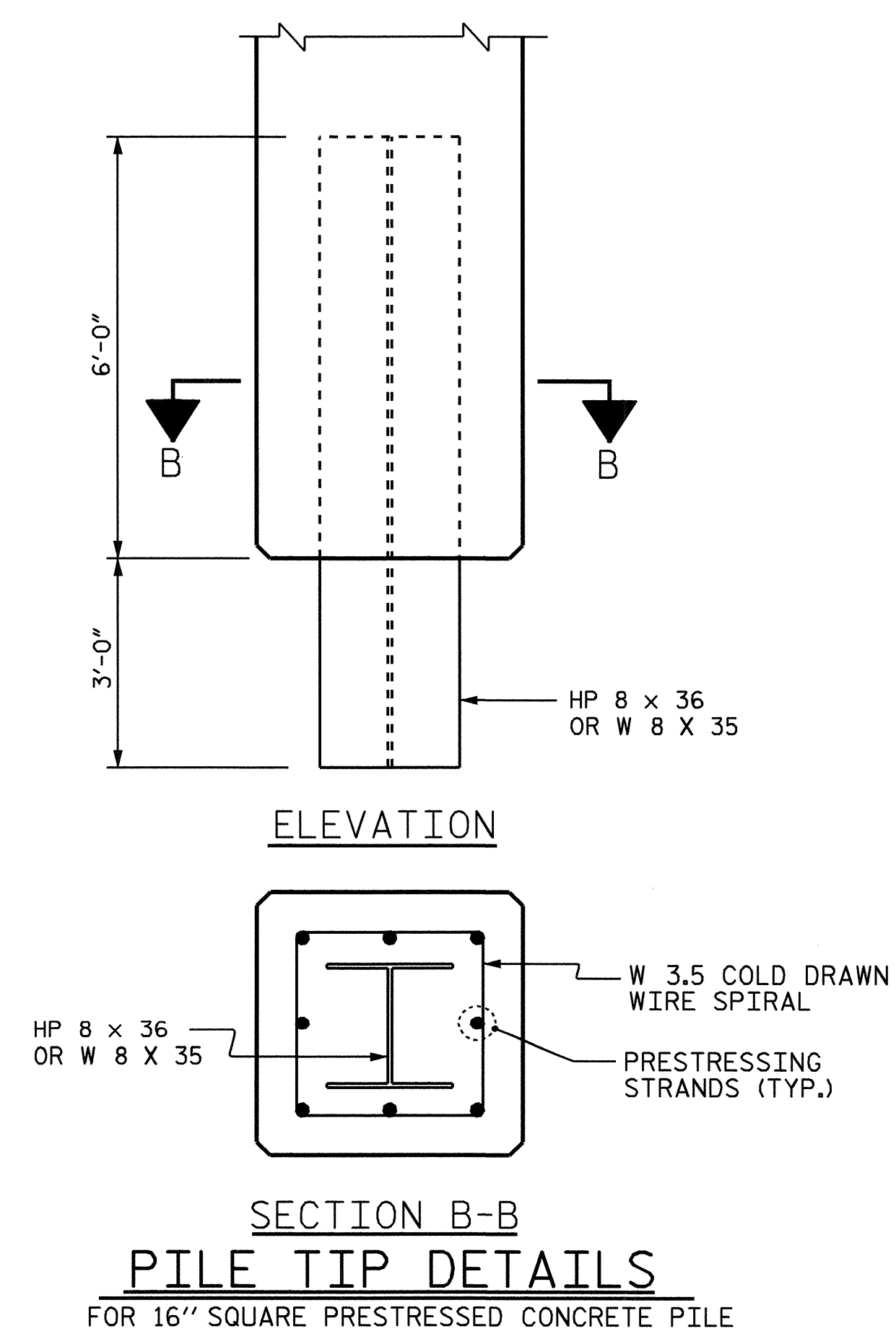
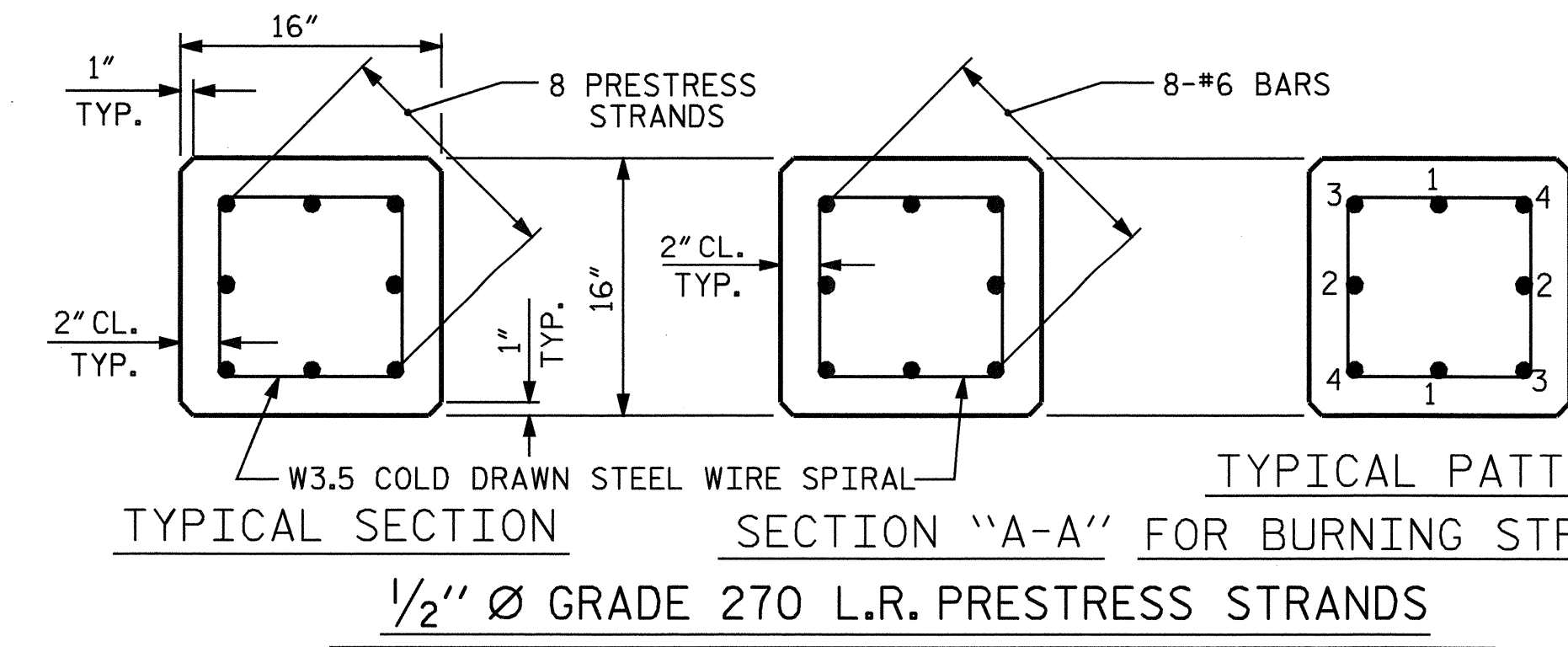
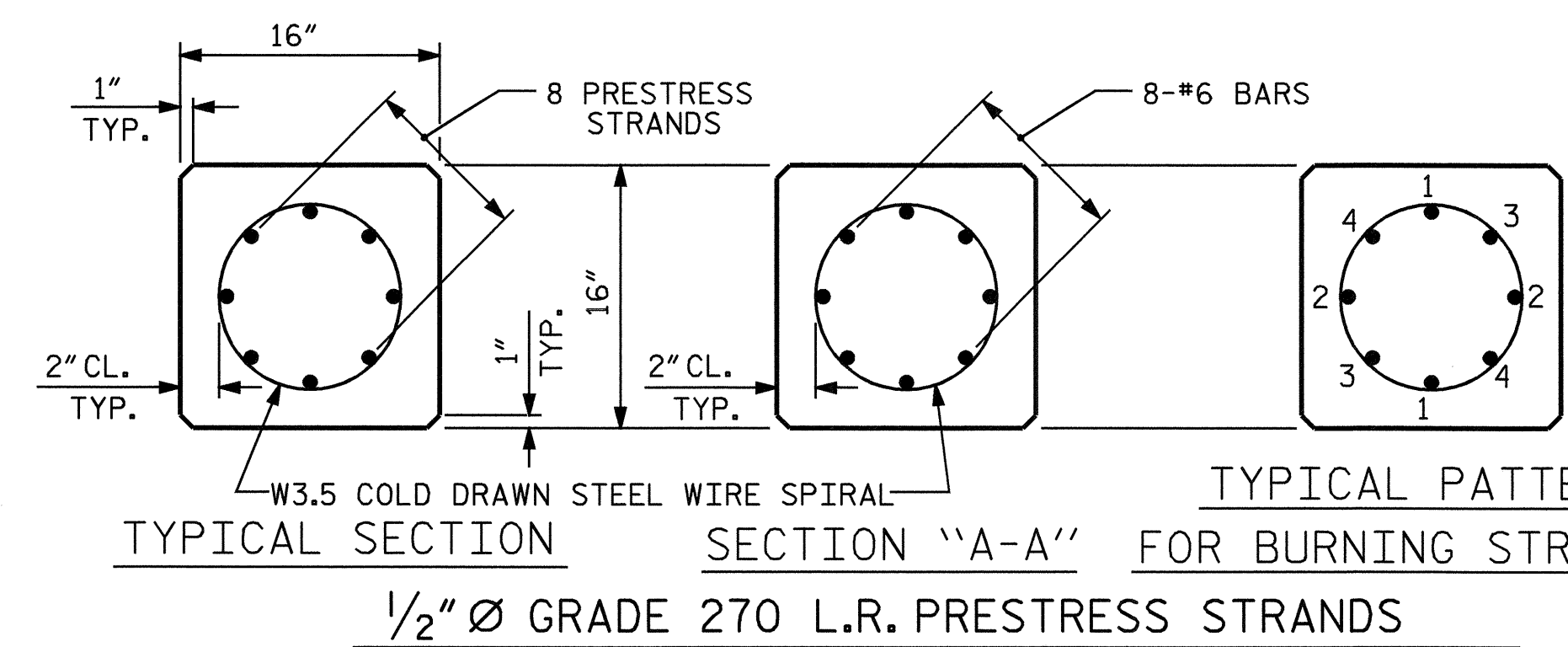
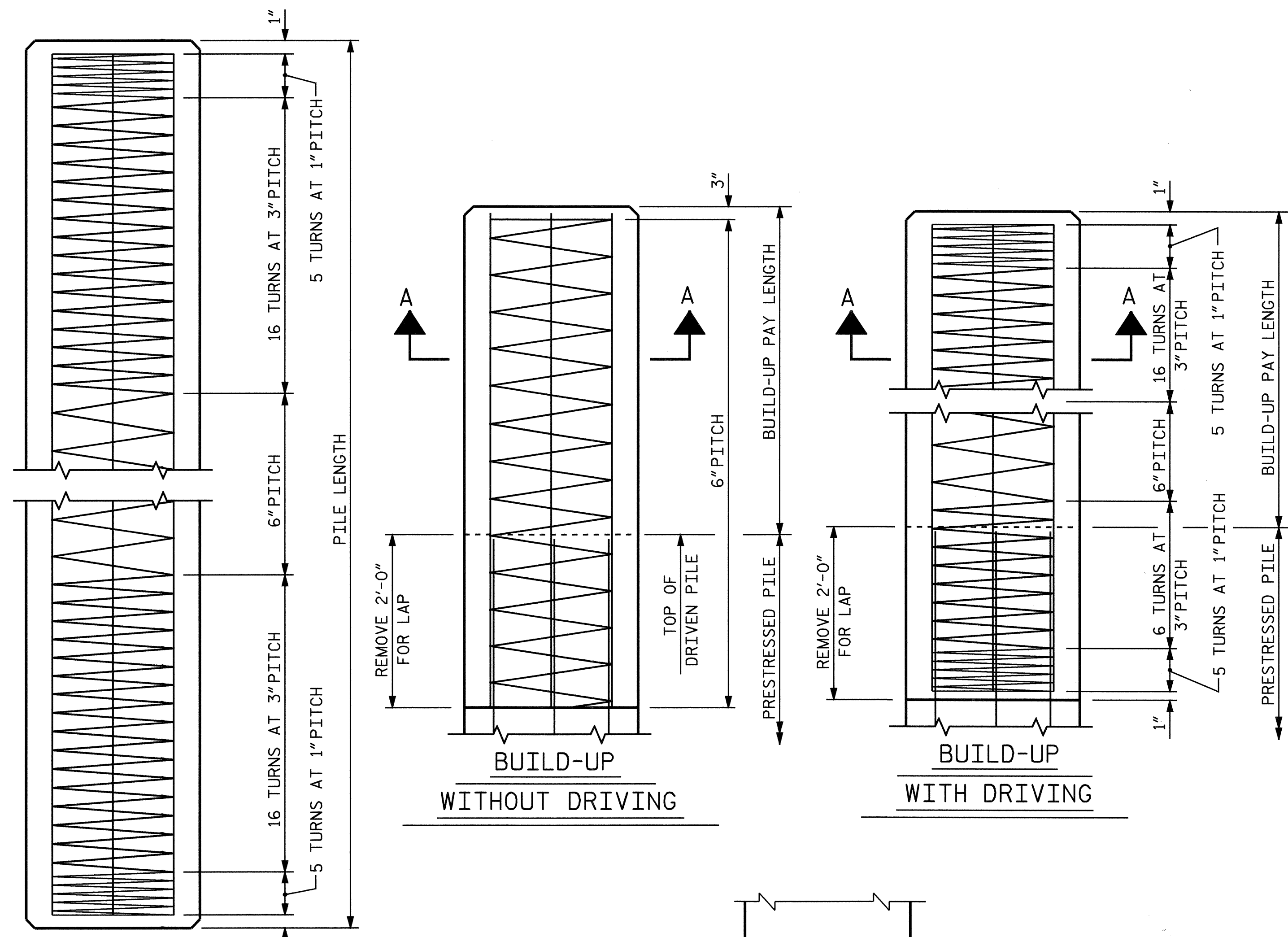
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 16" PRESTRESSED CONCRETE PILE					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.	S-19
TOTAL SHEETS	22

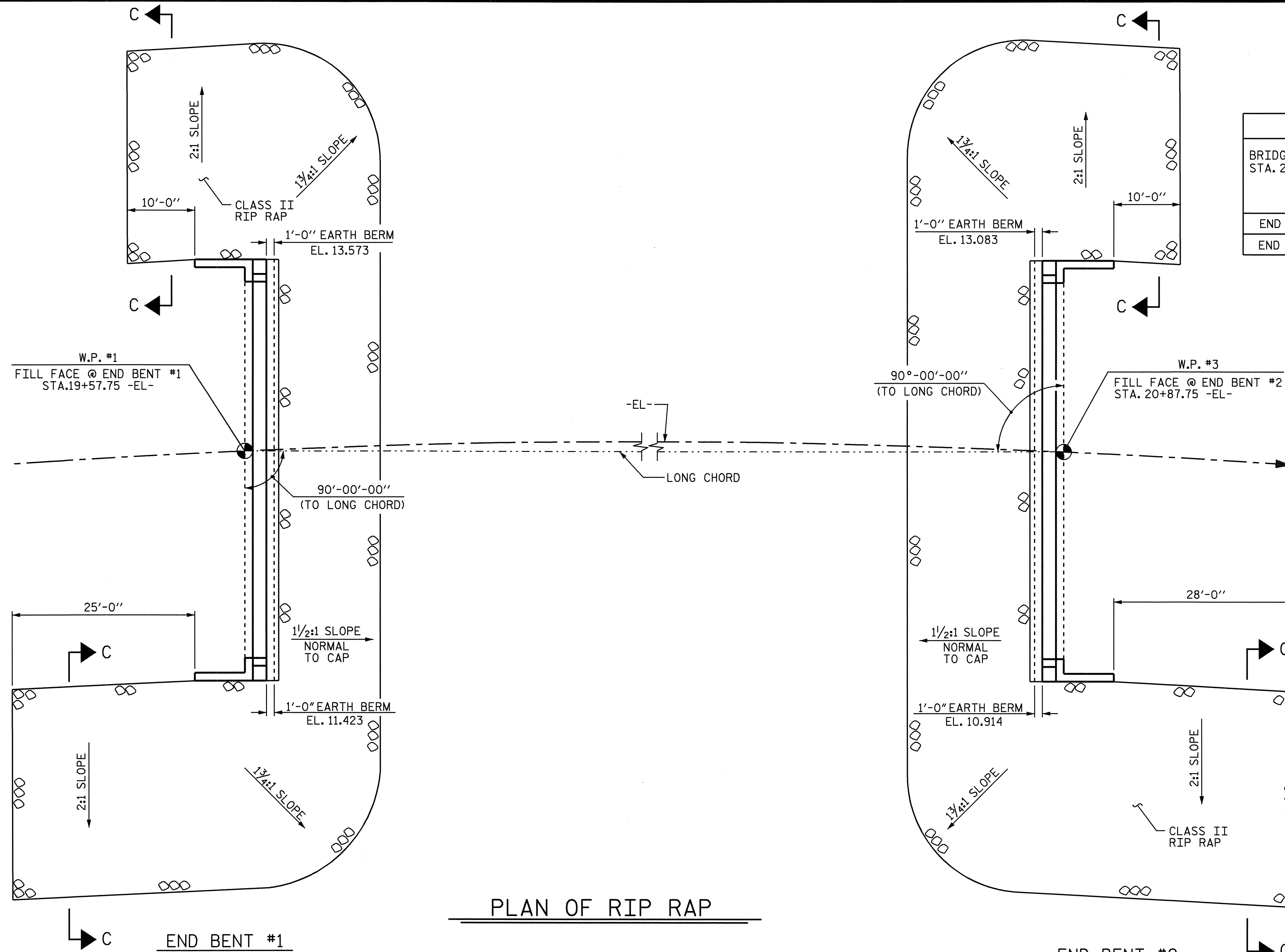


QUANTITIES FOR ONE 16" PRESTRESSED PILE

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"	1.63	3.31	7'-6"	17'-6"	5'-2"	14'-8"
30'-0"	1.96	3.97	9'-0"	21'-0"	6'-2 1/2"	17'-7"
35'-0"	2.29	4.63	10'-6"	24'-6"	7'-3"	20'-6"
40'-0"	2.61	5.29	12'-0"	28'-0"	8'-3 1/2"	23'-5"
45'-0"	2.94	5.95	13'-6"	31'-6"	9'-4"	26'-4"
50'-0"	3.27	6.61	15'-0"	35'-0"	10'-4"	29'-4"
55'-0"	3.59	7.28	16'-6"	38'-6"	11'-4 1/2"	32'-3"
60'-0"	3.92	7.94			12'-5"	35'-2"
65'-0"	4.25	8.60			13'-5 1/2"	38'-1"
70'-0"	4.57	9.26			14'-6"	41'-0"
75'-0"	4.90	9.92			15'-6 1/2"	43'-11"
80'-0"	5.23	10.58			16'-7"	46'-10"

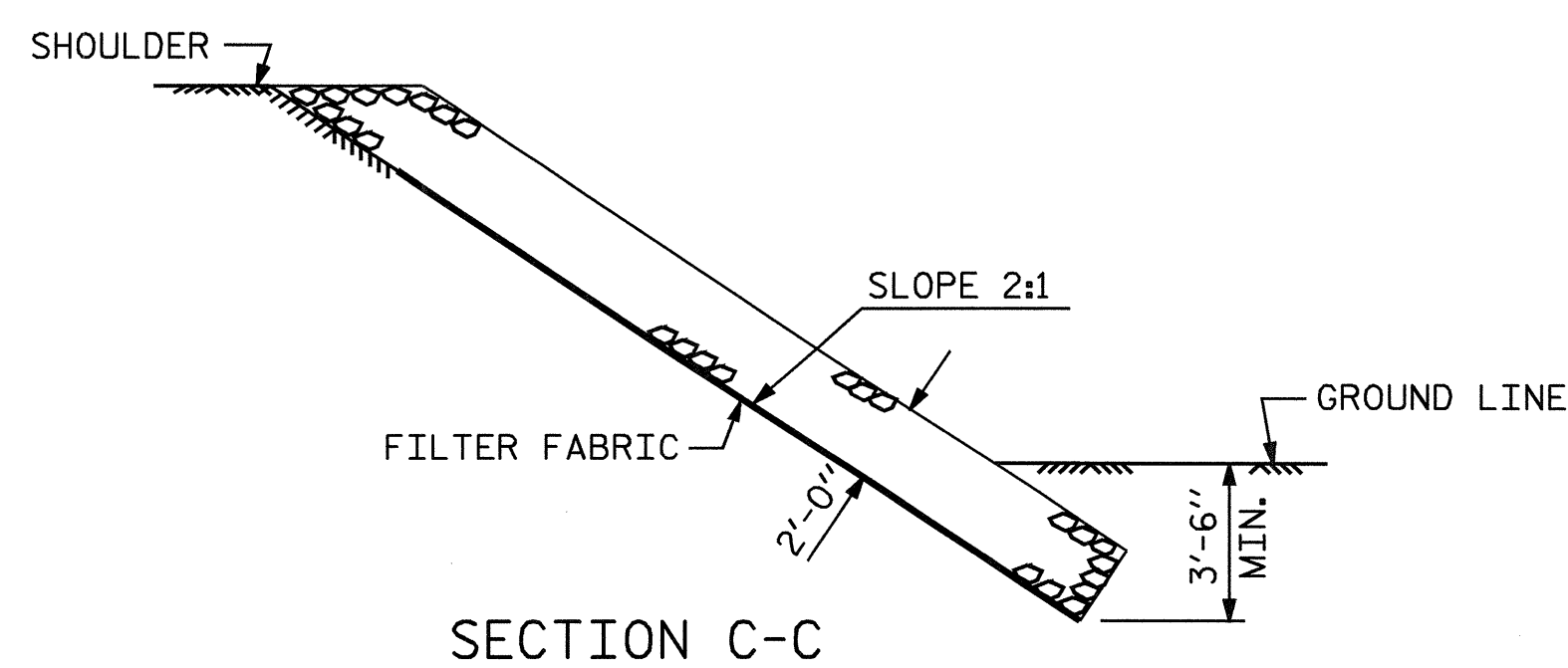


ASSEMBLED BY : J.P. ADAMS	DATE : 1/23/06
CHECKED BY : S.H. SOCKWELL	DATE : 2/13/06
DRAWN BY : RH 9/98	ADDED 12/2/98
CHECKED BY : LES 10/98	REV. 8/16/99RR RWW/LES

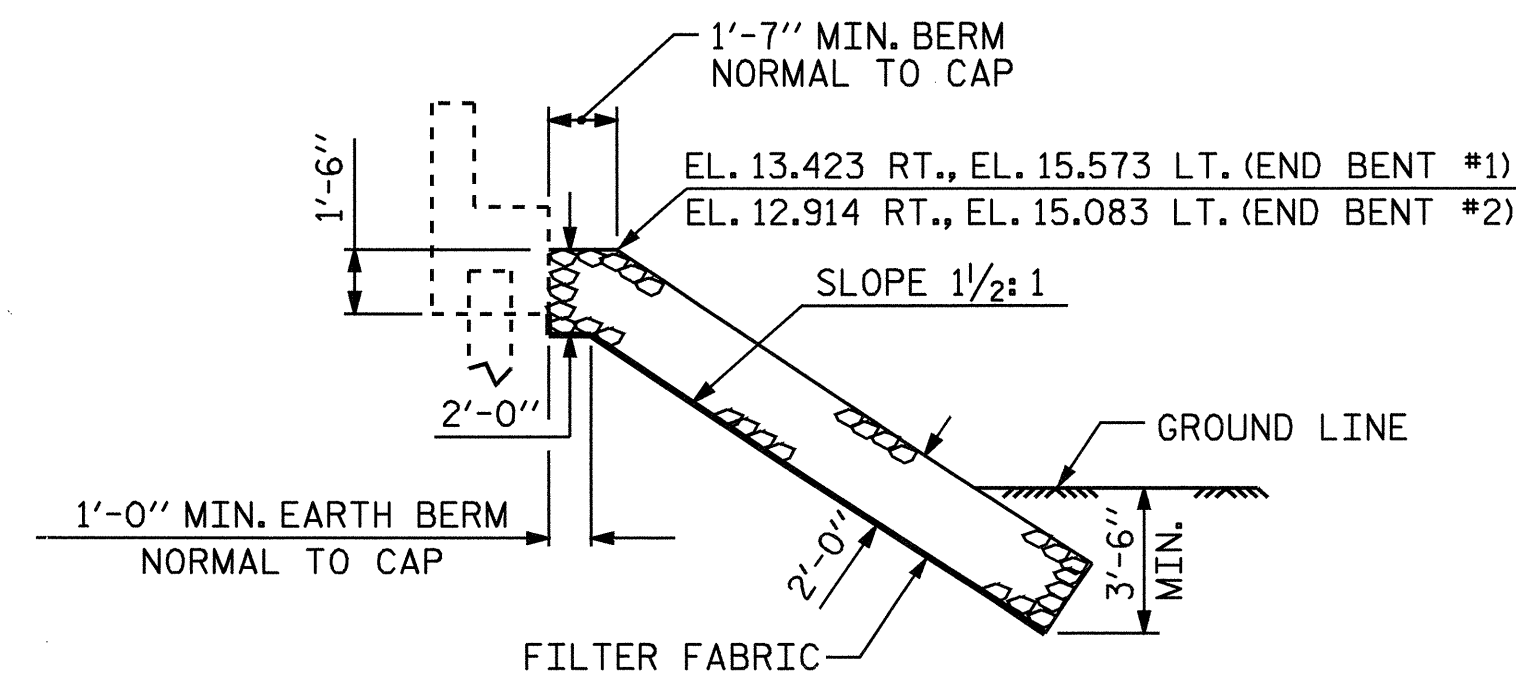


ESTIMATED QUANTITIES		
BRIDGE @ STA. 20+22.75 -EL-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	320	356
END BENT #2	360	400

PLAN OF RIP RAP

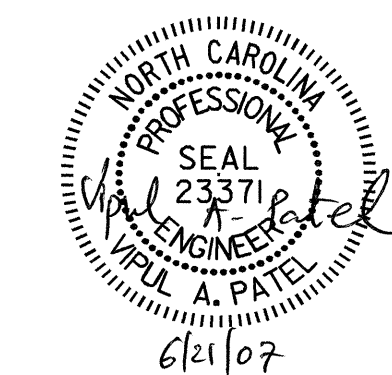


SECTION C-C



SECTION BERM RIP RAPPED

PROJECT NO. B-4215
ONslow COUNTY
 STATION: 20+22.75 -EL-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RIP RAP

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			22
2			4			

DRAWN BY : J.P. ADAMS DATE : 3/28/05
 CHECKED BY : M.K. BEARD DATE : 4/05

NOTES

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

FOR REINFORCED BRIDGE APPROACH FILL INCLUDING FABRIC, 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.

THE 6" COMP. A.B.C. SHALL EXTEND 10'-0" BEYOND THE END OF THE APPROACH SLAB AND 1'-0" OUTSIDE OF EACH EDGE OF SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

WITH EVAZOTE JOINT SEAL

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

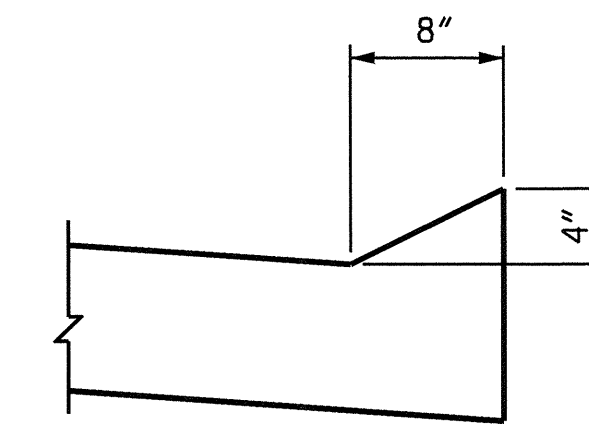
THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

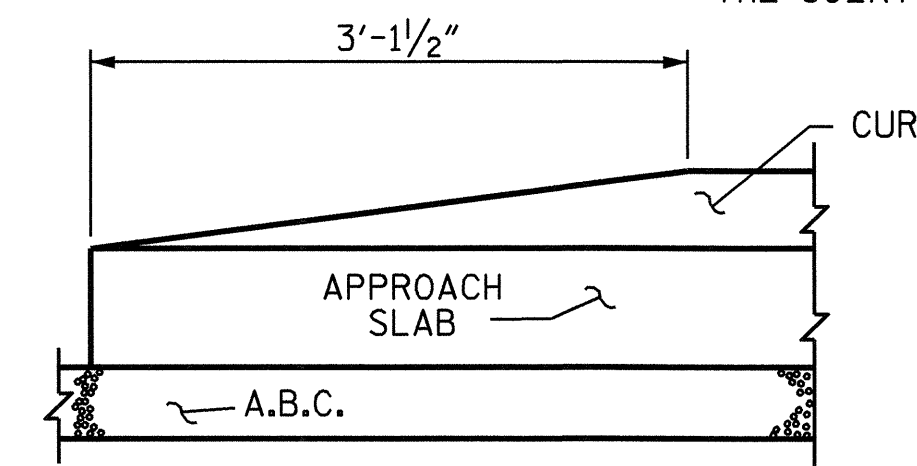
WITH CONCRETE WEARING SURFACE

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

THE JOINT SHALL BE SAWED AFTER THE CASTING OF THE BARRIER RAIL.



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER CURB DETAILS

BILL OF MATERIAL FOR ONE APPROACH SLAB (2 REQ'D)					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	100	#4	STR	23' -11"	1598
*B1	92	#5	STR	24'-0"	2303
*B2	92	#6	STR	24'-8"	3409
*EPOXY COATED REINFORCING STEEL				LBS.	7310
CLASS AA CONCRETE				C. Y.	43.5

SPlice LENGTH	
BAR SIZE	EPOXY COATED
#4	2'-0"

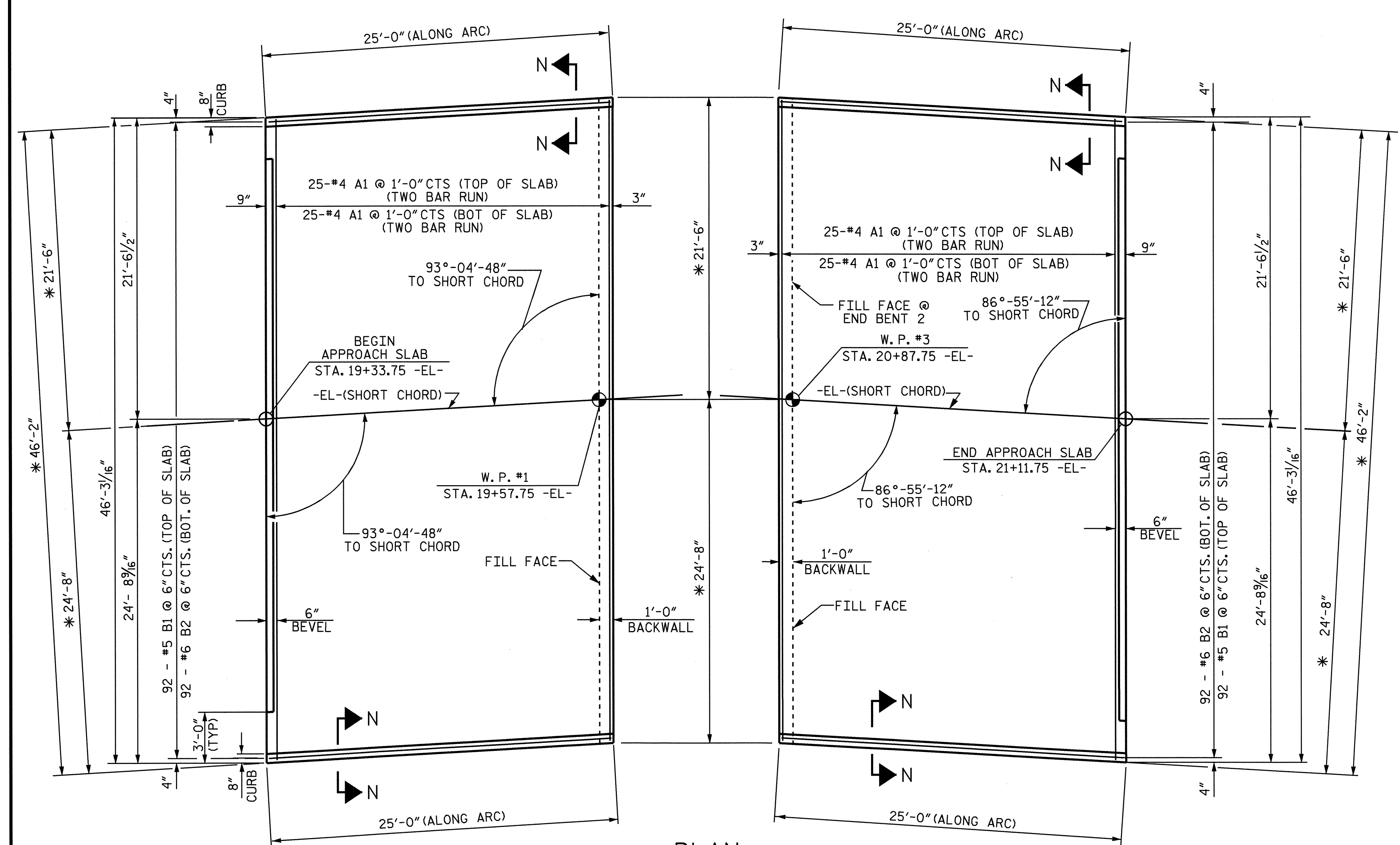


PROJECT NO. B-4215
ONSLOW COUNTY
 STATION: 20+22.75 -EL-

SHEET 1 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE BOX BEAM					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

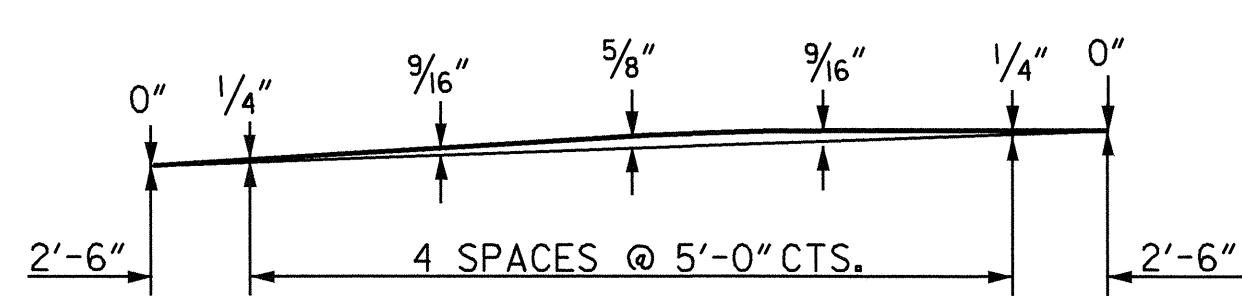
SHEET NO. S-21
 TOTAL SHEETS 22



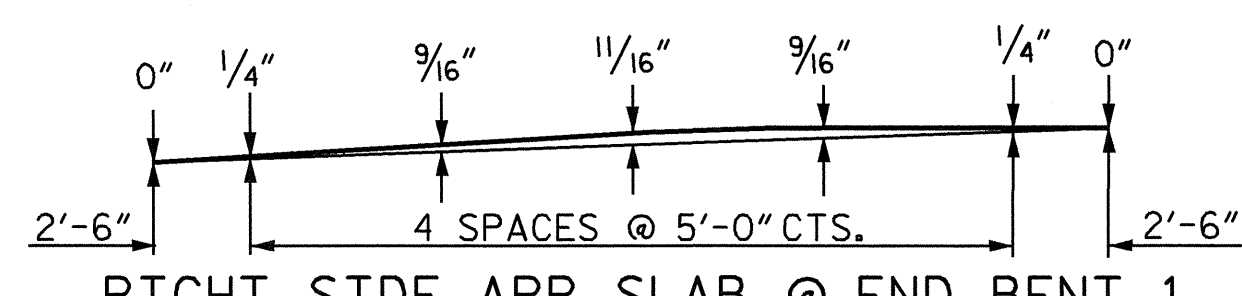
PLAN

* RADIAL DIMENSIONS

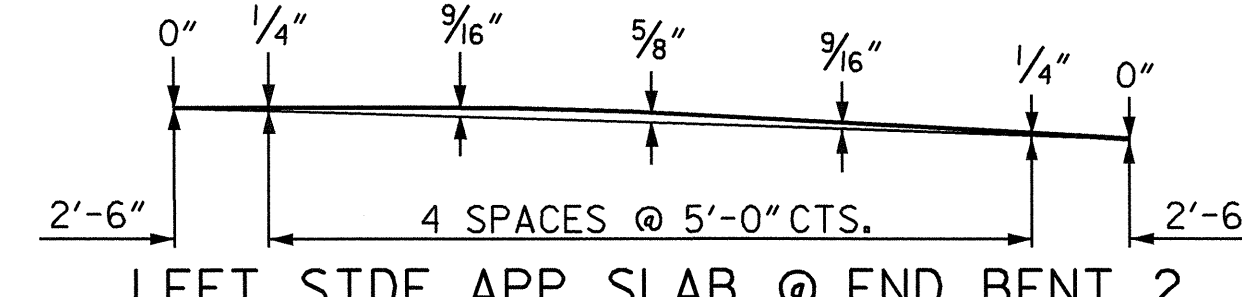
SEE JOINT SEAL DETAILS ON "BRIDGE APPROACH SLAB DETAILS" SHEET



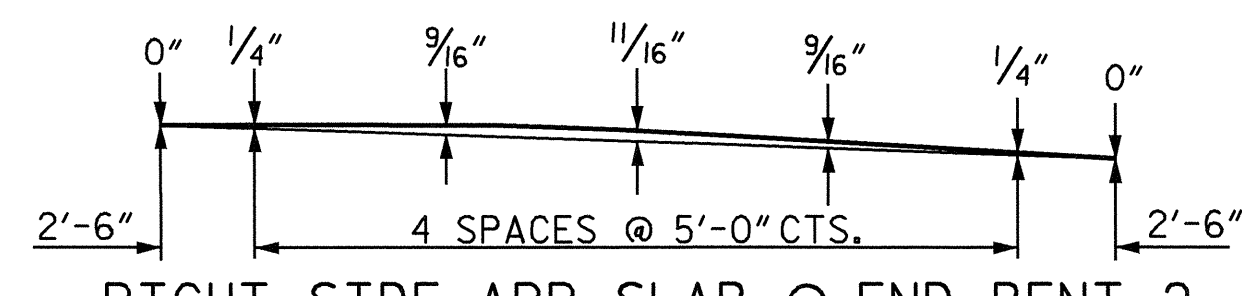
LEFT SIDE APP. SLAB @ END BENT 1



RIGHT SIDE APP. SLAB @ END BENT 1

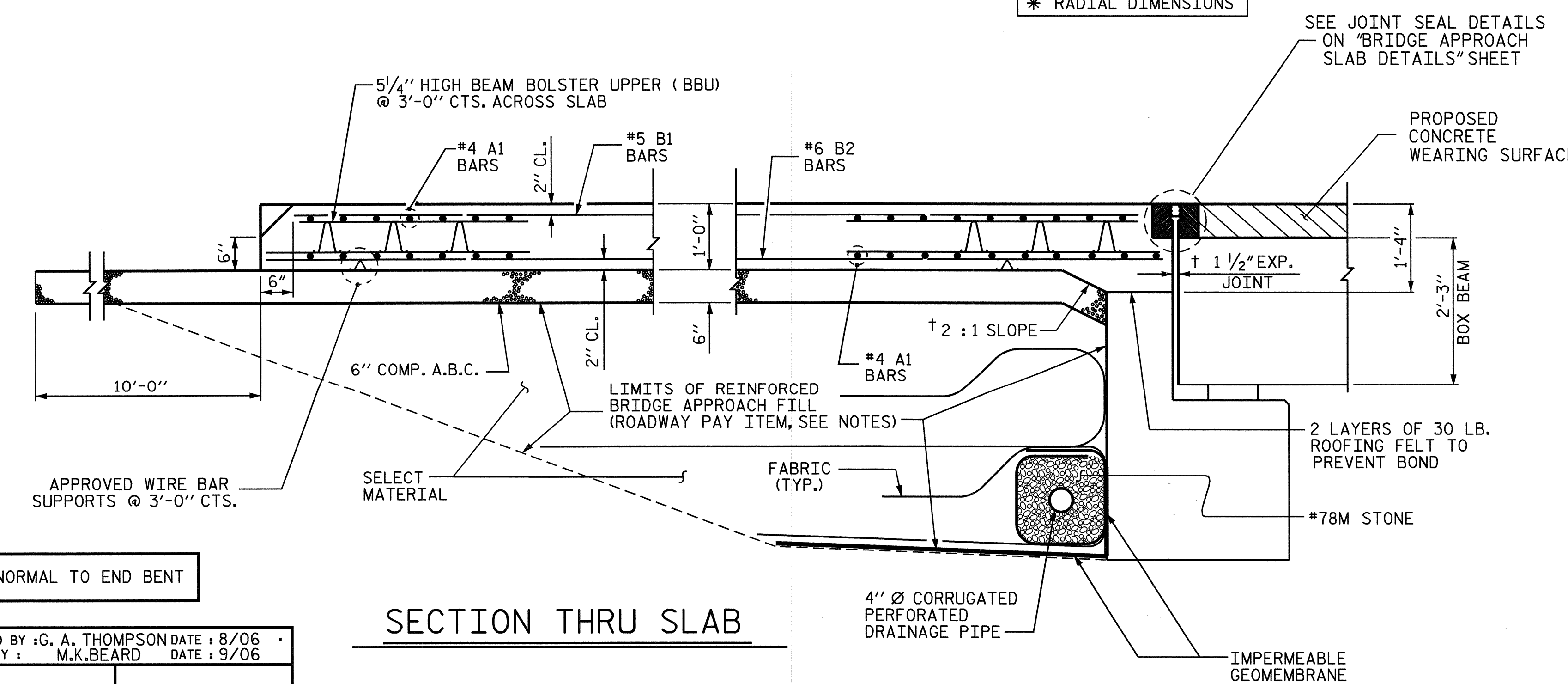


LEFT SIDE APP. SLAB @ END BENT 2



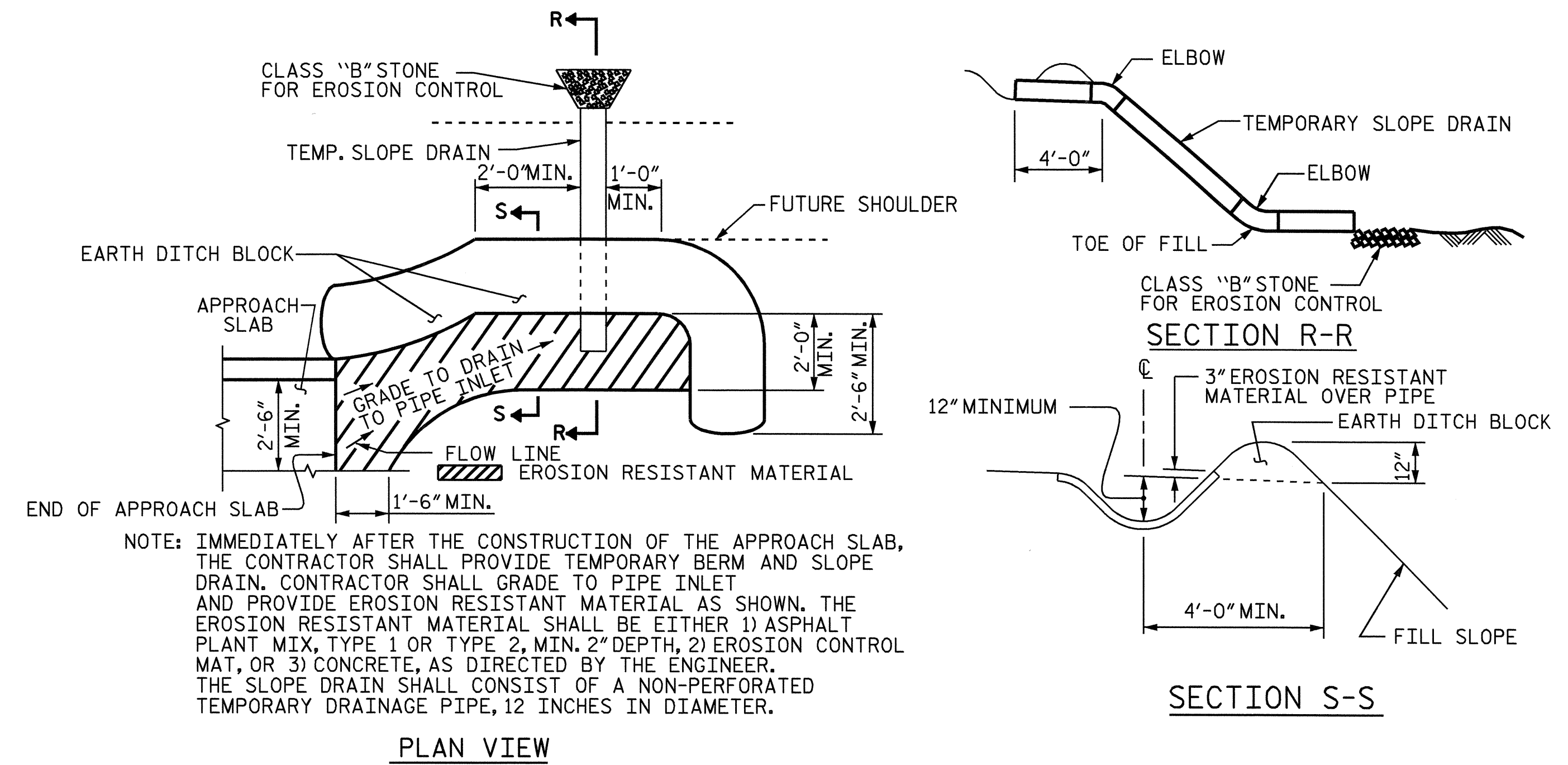
RIGHT SIDE APP. SLAB @ END BENT 2

ARC OFFSETS FOR APPROACH SLABS



SECTION THRU SLAB

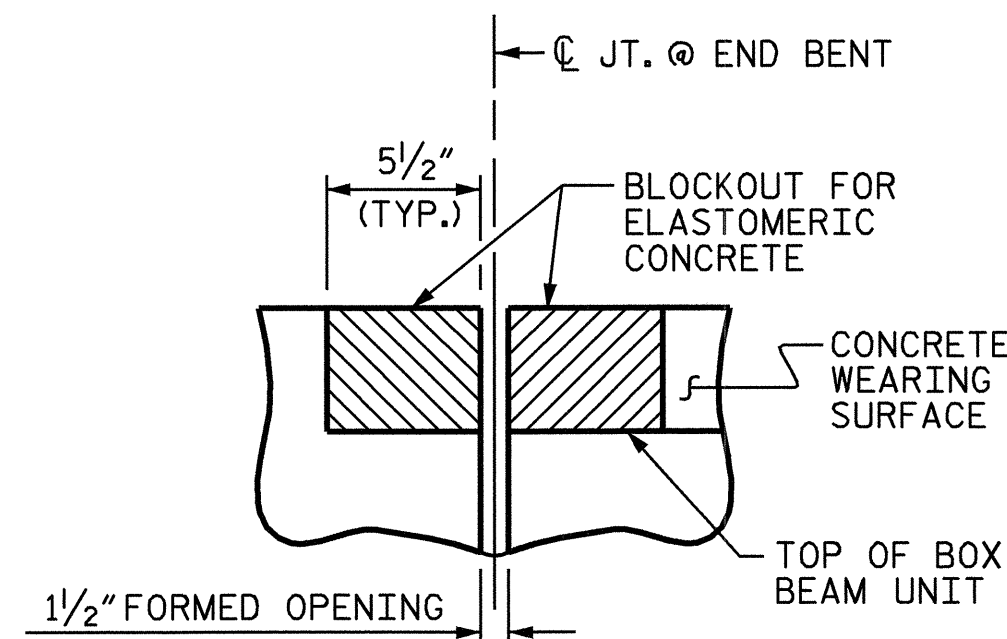
ASSEMBLED BY: G. A. THOMPSON DATE: 8/06
 CHECKED BY: M. K. BEARD DATE: 9/06



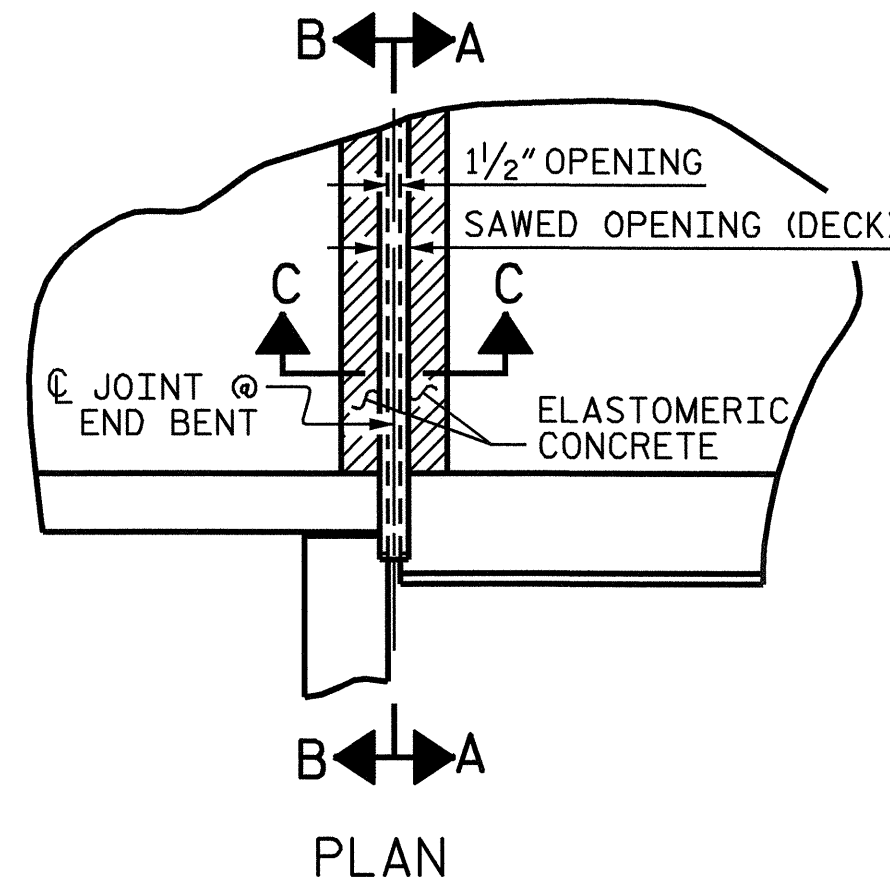
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

PLAN VIEW

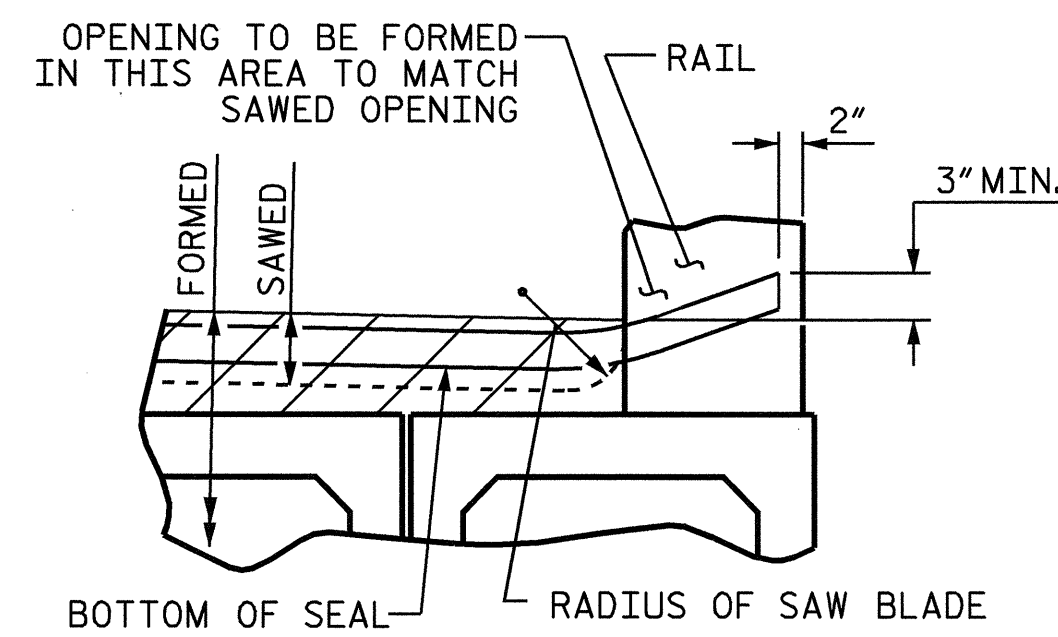
TEMPORARY BERM AND SLOPE DRAIN DETAILS



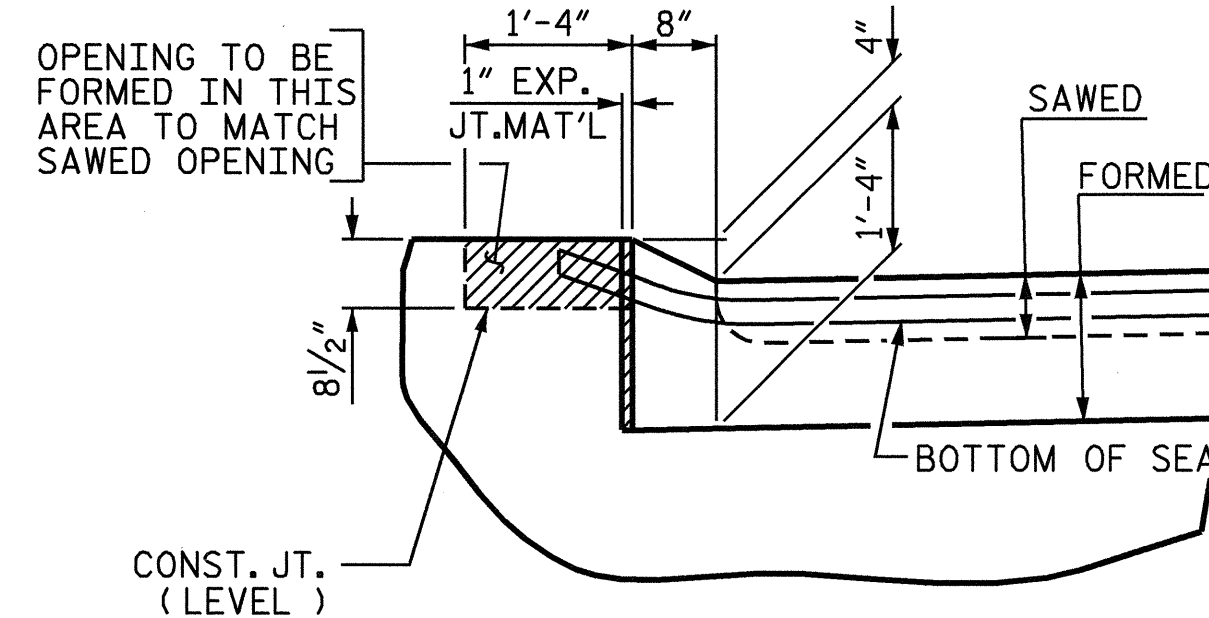
SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)



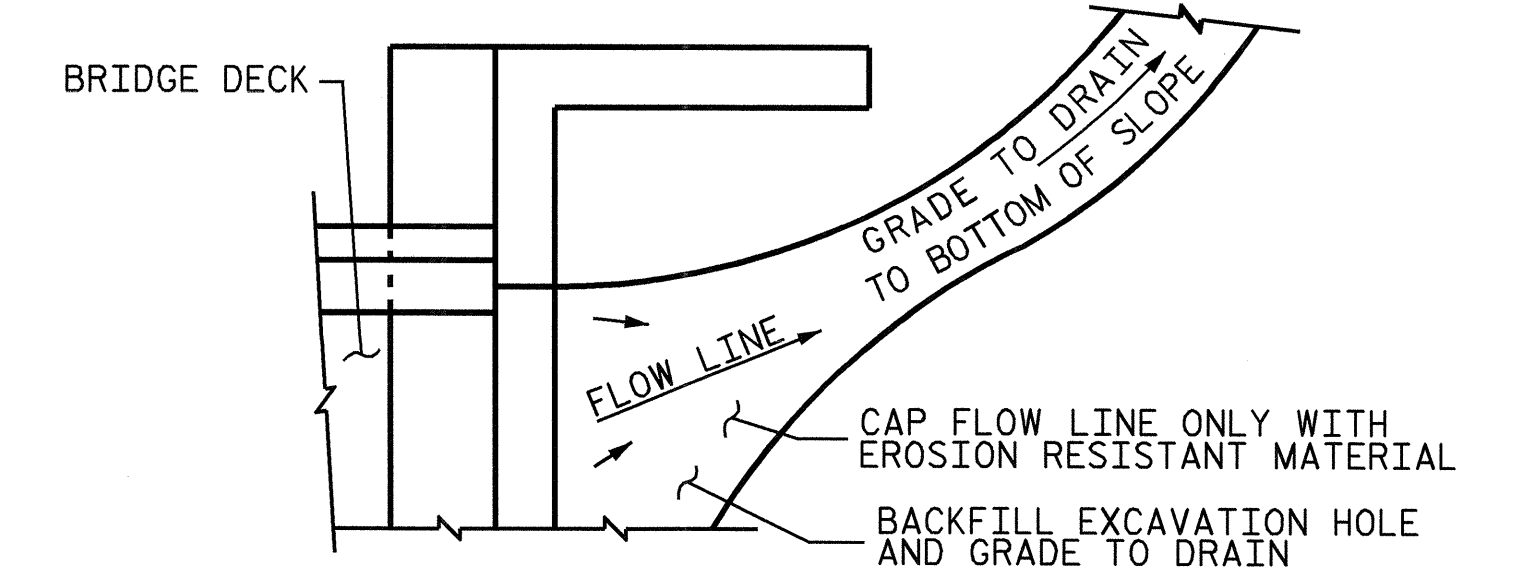
PLAN



SECTION A-A

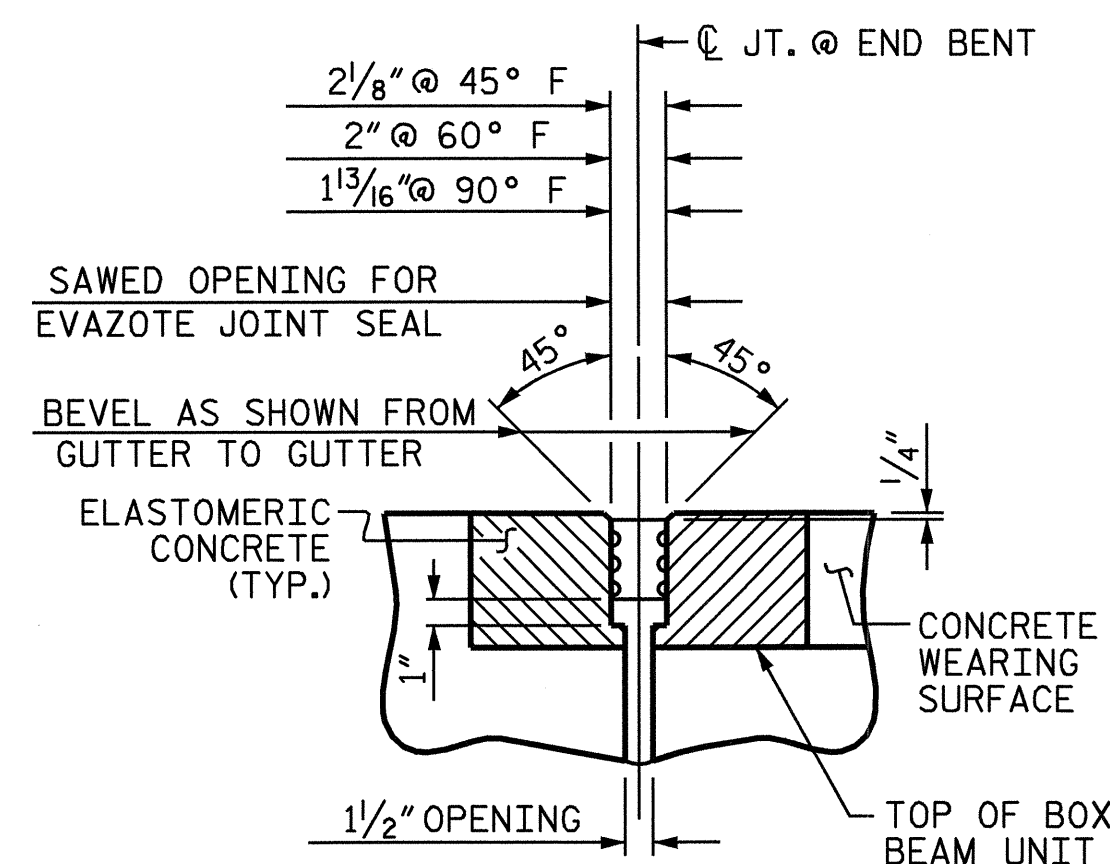


SECTION B-B



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 C-C
EVAZOTE JOINT SEAL

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	22.3
2	22.3
TOTAL	44.6

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

JOINT SEAL DETAILS @ END BENT

PROJECT NO. B-4215
ON SLOW COUNTY
 STATION: 20+22.75 -EL-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH
 SLAB DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			22



ASSEMBLED BY : G. A. THOMPSON DATE : 8/06
 CHECKED BY : M. K. BEARD DATE : 9/06
 DRAWN BY : FCJ 11/88 REV. 8/16/99 MAB/LES
 CHECKED BY : ARB 11/88 REV. 10/17/00 RWW/LES
 REV. 5/7/03 RWW/JTE

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 2002 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; CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP; AND CLASS S SHALL BE USED FOR UNDERWATER FOOTING SEALS.

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 WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. 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.

PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11.

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