09/08/99

TIP PROJECT: B-4125

CONTRACT: C201638

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

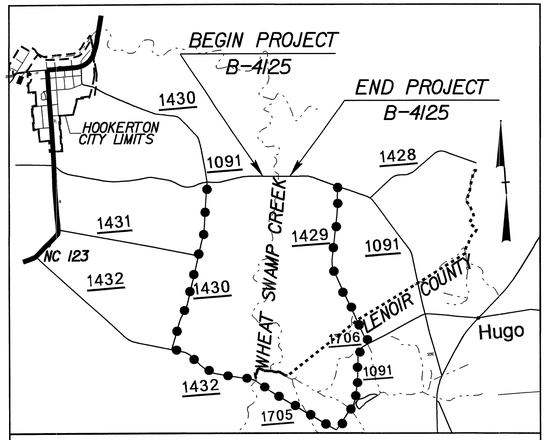
GREENE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4125		

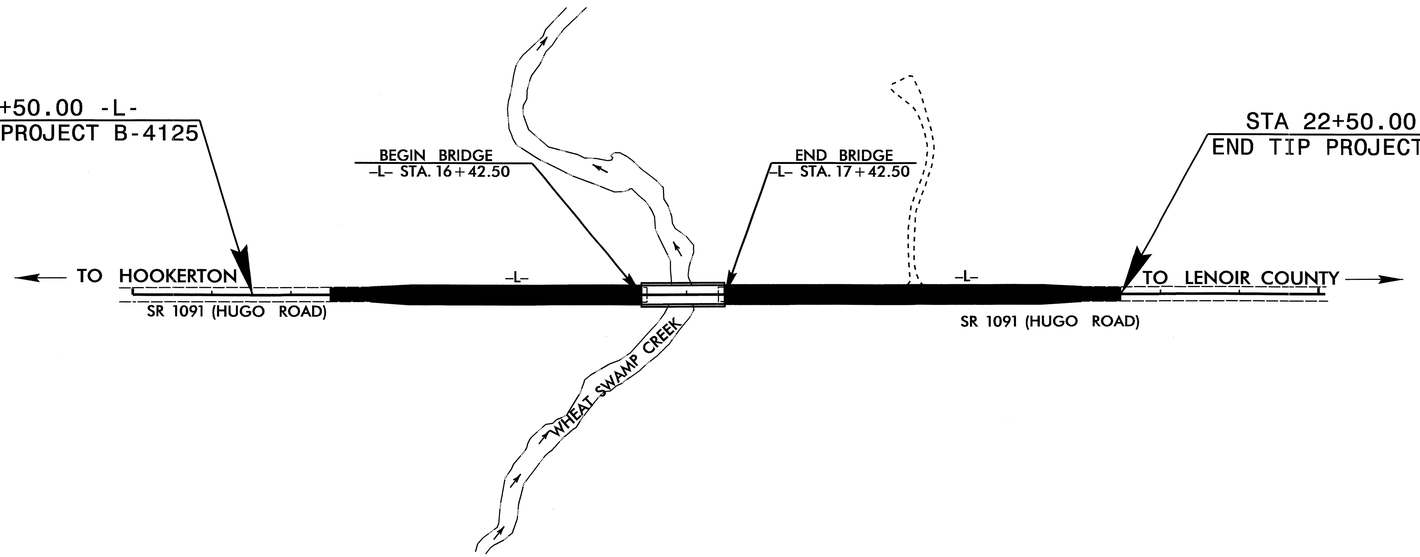
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33478.1.1	BRZ-1091(1)	P.E.
33478.2.1	BRZ-1091(1)	R/W, UTL
33478.3.1	BRZ-1091(1)	CONST

LOCATION: BRIDGE NO. 46 OVER WHEAT SWAMP CREEK ON SR 1091

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



VICINITY OF STATE PROJECT B-4125
DETOUR ROUTE



STRUCTURE

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

DESIGN DATA
ADT 2007 = 1560
ADT 2025 = 2500
DHV = 10 %
D = 60 %
T = 5 % *
V = 60 MPH
****TTST 3 % DUAL 2 %***
FUNC CLASS = RUR MNR COLL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4125 = 0.189 MILE
LENGTH STRUCTURE TIP PROJECT B-4125 = 0.019 MILE
TOTAL LENGTH TIP PROJECT B-4125 = 0.208 MILE

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 BIRCH RIDGE DR., RALEIGH, NC 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
FEBRUARY 16, 2010

B. C. HUNT, P.E.
PROJECT ENGINEER

V. A. PATEL, P.E.
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, NC 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR *DATE*

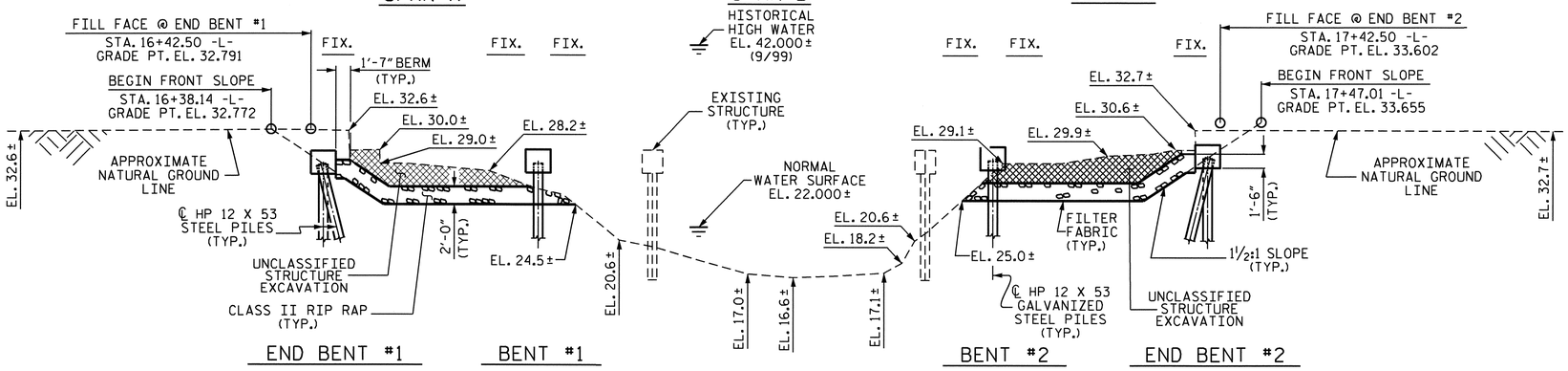
12-OCT-2009 11:10
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$$
jpadams

F.A. PROJECT: BRZ-1091(1)

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

40 30 20 10

SPAN A SPAN B SPAN C

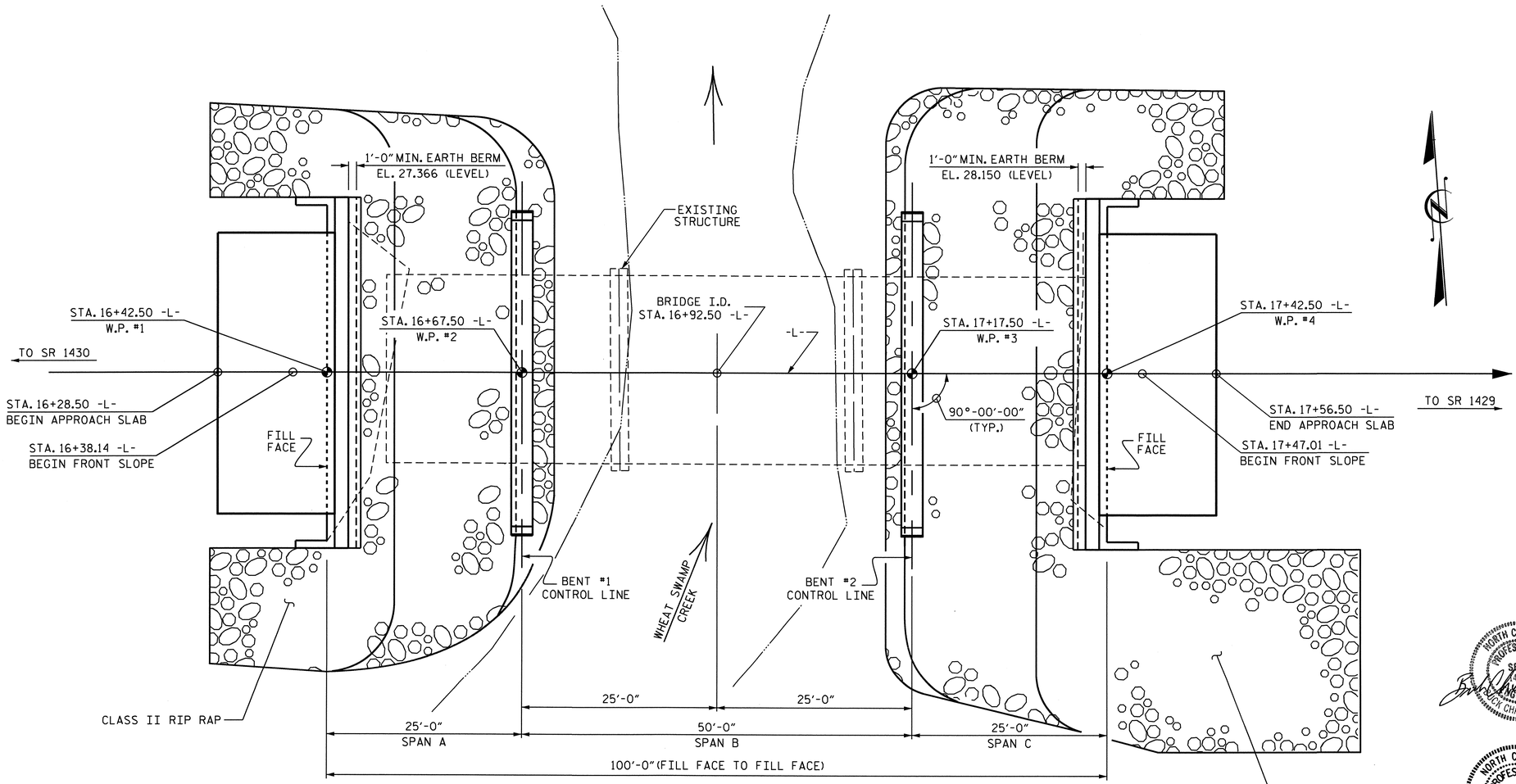


+0.2292% +3.8433%

GRADE DATA
P.I. = 18+62.00 -L-
EL. = 33.260
VC = 500'

SECTION ALONG -L-

(SECTIONS @ BENTS AND END BENTS ARE TAKEN AT RIGHT ANGLES)



PLAN

PILES NOT SHOWN IN PLAN VIEW FOR CLARITY

PROJECT NO. B-4125

GREENE COUNTY

STATION: 16+92.50 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 46

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER
WHEAT SWAMP CREEK ON
SR 1091 (HUGO RD) BETWEEN
SR 1430 AND SR 1429

NORTH CAROLINA PROFESSIONAL SEAL 24091 ENGINEER JACK CHARLES HUIE
12/22/09

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIMAL A. PATEL
12/22/09

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

DRAWN BY : S. DOMBROWSKI DATE : 9/06
CHECKED BY : R.G. EMERSON DATE : 10/06

22-DEC-2009 11:09
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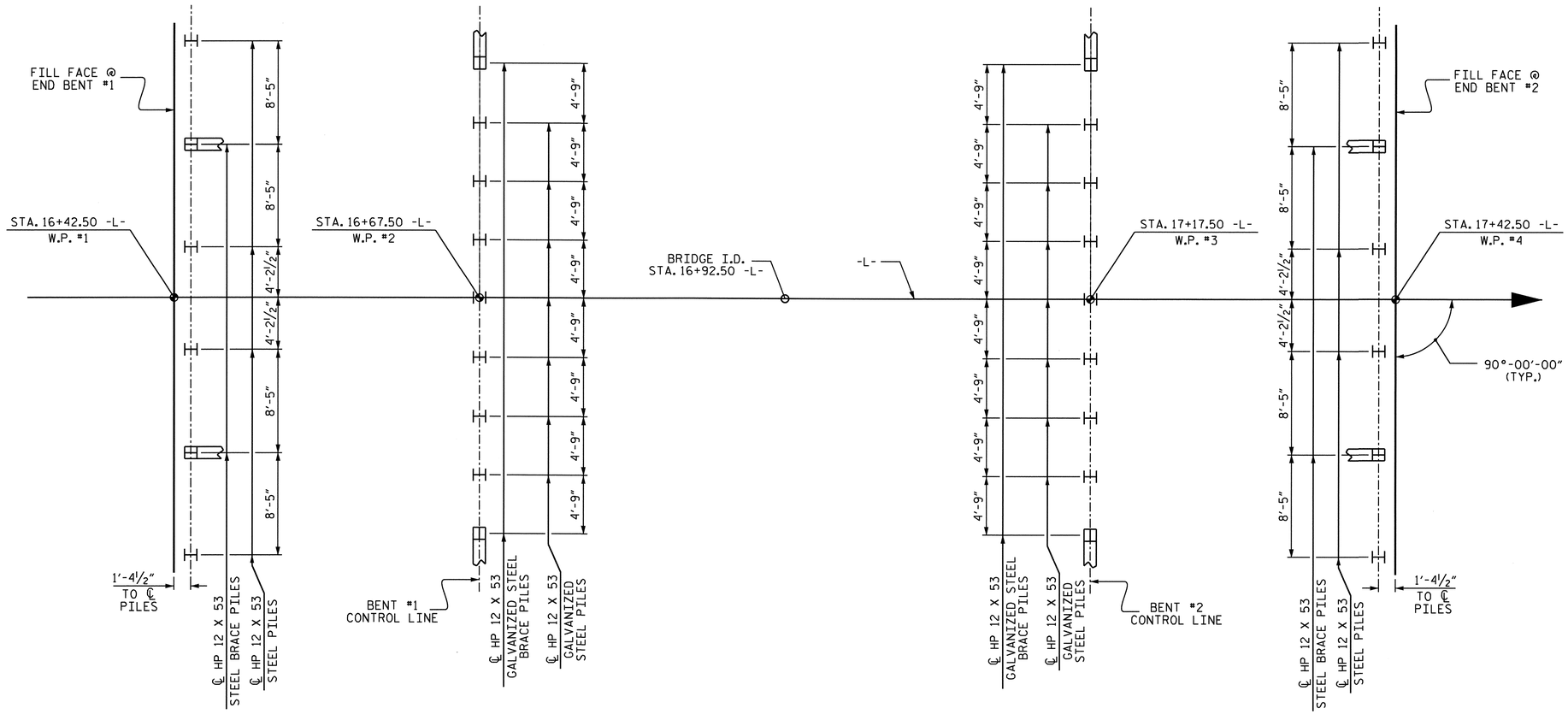
vpatel



FOUNDATION LAYOUT

END BENT BRACE PILES ARE BATTERED AT 3:12 WHERE SHOWN.
BENT BRACE PILES ARE BATTERED AT 1½:12 WHERE SHOWN.
DIMENSIONS LOCATING PILES ARE SHOWN 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 AND BENT #2 TO A REQUIRED BEARING CAPACITY OF 105 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 AND BENT #2 IS 50 TONS PER PILE.

DRIVE PILES AT BENT #1 AND BENT #2 TO A TIP ELEVATION NO HIGHER THAN -1.000.

STEEL PILE POINTS ARE REQUIRED FOR STEEL PILES AT BENT #1 AND BENT #2 SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

THE SCOUR CRITICAL ELEVATIONS FOR BENT #1 AND BENT #2 IS ELEVATION 12.000. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

PRE-DRILLING MAY BE REQUIRED TO INSTALL PILES AT BENT #2. PRE-DRILLING SHALL NOT EXTEND BELOW ELEVATION 3.500. SEE PRE-DRILLING OF PILES SPECIAL PROVISION.

DRAWN BY : S. DOMBROWSKI DATE : 9/06
CHECKED BY : R.G. EMERSON DATE : 10/06

22-DEC-2009 11:10
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vpatel

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIRAL A. PATEL
Viral A. Patel
12/22/09

PROJECT NO. B-4125
GREENE COUNTY
STATION: 16+92.50 -L-

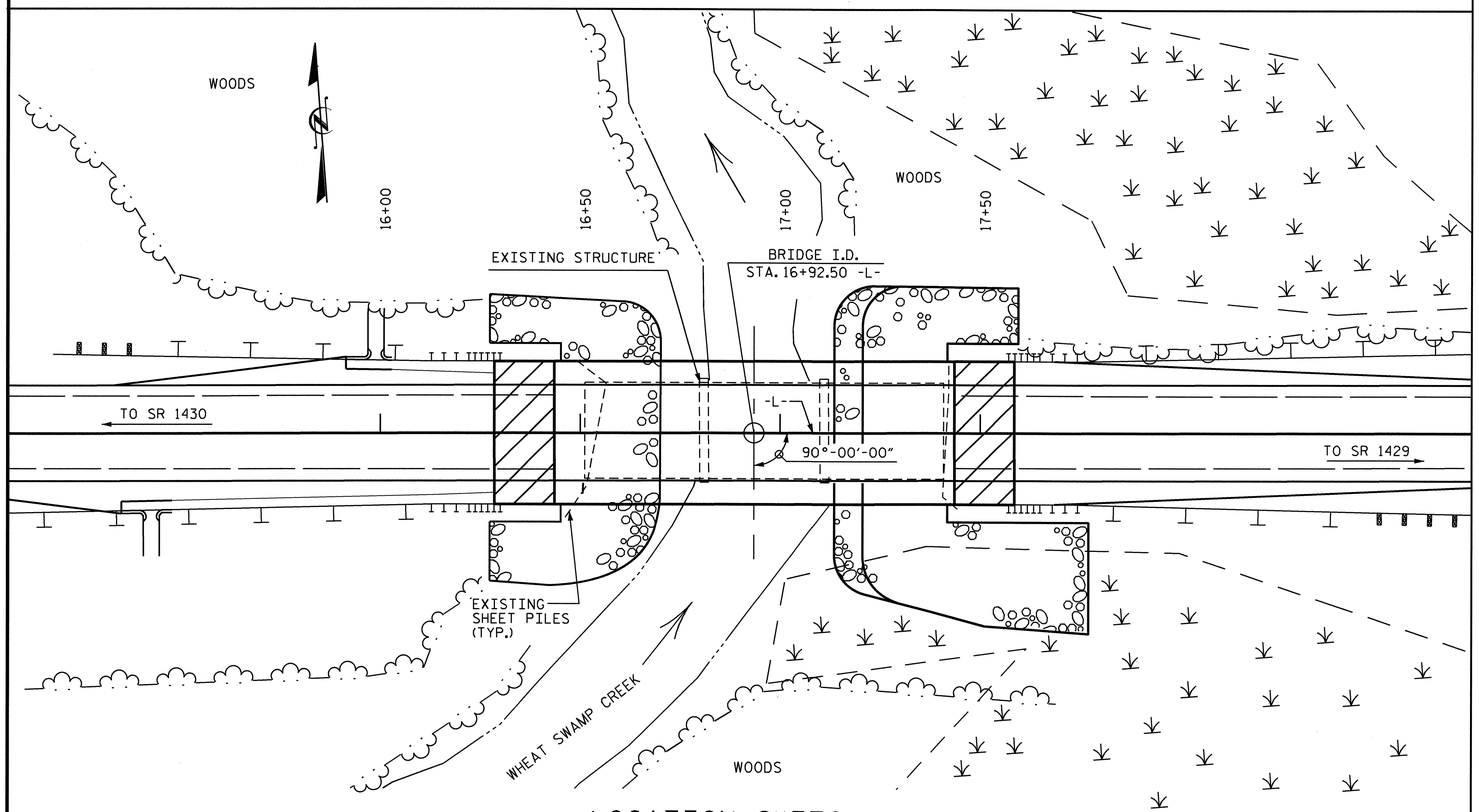
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER WHEAT SWAMP CREEK ON SR 1091 (HUGO RD) BETWEEN SR 1430 AND SR 1429

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

BENCH MARK IS A RAILROAD SPIKE SET IN 15"OAK 108.61' LT. AT STA. 15+13.57 -L- ELEV. = 32.910 NAVD 88



LOCATION SKETCH

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

NOTES

ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT CORED SLABS HAVE BEEN DESIGNED FOR HS25.

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 3 SPANS @ 30'-0" ON PRESTRESSED CONCRETE CHANNELS WITH A CLEAR ROADWAY WIDTH OF 24'-3" AND HAVING A SUBSTRUCTURE CONSISTING OF SHEET PILES, PRESTRESSED CONCRETE CAPS ON TIMBER PILES AT END BENTS 1 & 2 AND PRESTRESSED CONCRETE CAPS ON TIMBER PILES AND STEEL CRUTCH BENTS AT BENTS 1 & 2 AND LOCATED AT THE PROPOSED STRUCTURE SITE SHALL BE REMOVED. FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

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

THE 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. REMOVAL OF THE EXISTING CLASS B RIP RAP SHALL BE CONSIDERED A PART OF THE UNCLASSIFIED STRUCTURE EXCAVATION.

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

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

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.

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

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

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

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.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 16+92.50 -L-."

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		HP 12 X 53 GALVANIZED STEEL PILES		STEEL PILE POINTS	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS	
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	EACH	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.
SUPERSTRUCTURE				LUMP SUM							195.5			LUMP SUM	39	1267.51
END BENT NO. 1		LUMP SUM	14.7		2205	6	180					290	320			
BENT NO. 1			10.7		2028			9	270	9						
BENT NO. 2			10.7		2028			9	270	9						
END BENT NO. 2		LUMP SUM	14.7		2205	6	180					310	340			
TOTAL	LUMP SUM	LUMP SUM	50.8	LUMP SUM	8466	12	360	18	540	18	195.5	600	660	LUMP SUM	39	1267.51

HYDRAULIC DATA

DESIGN DISCHARGE	= 2,000 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 33.700
DRAINAGE AREA	= 27.2 SQ.MI.
BASIC DISCHARGE (Q100)	= 3,035 C.F.S.
BASIC HIGH WATER ELEVATION	= 36.200

OVERTOPPING DATA

OVERTOPPING DISCHARGE	= 1,600 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 10± YRS.
OVERTOPPING FLOOD ELEVATION	= 32.500

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
12/22/09

PROJECT NO. B-4125
GREENE COUNTY
STATION: 16+92.50 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER
WHEAT SWAMP CREEK ON
SR 1091 (HUGO RD) BETWEEN
SR 1430 AND SR 1429

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

DRAWN BY : S. DOMBROWSKI DATE : 9/06
CHECKED BY : R.G. EMERSON DATE : 10/06

22-DEC-2009 11:10
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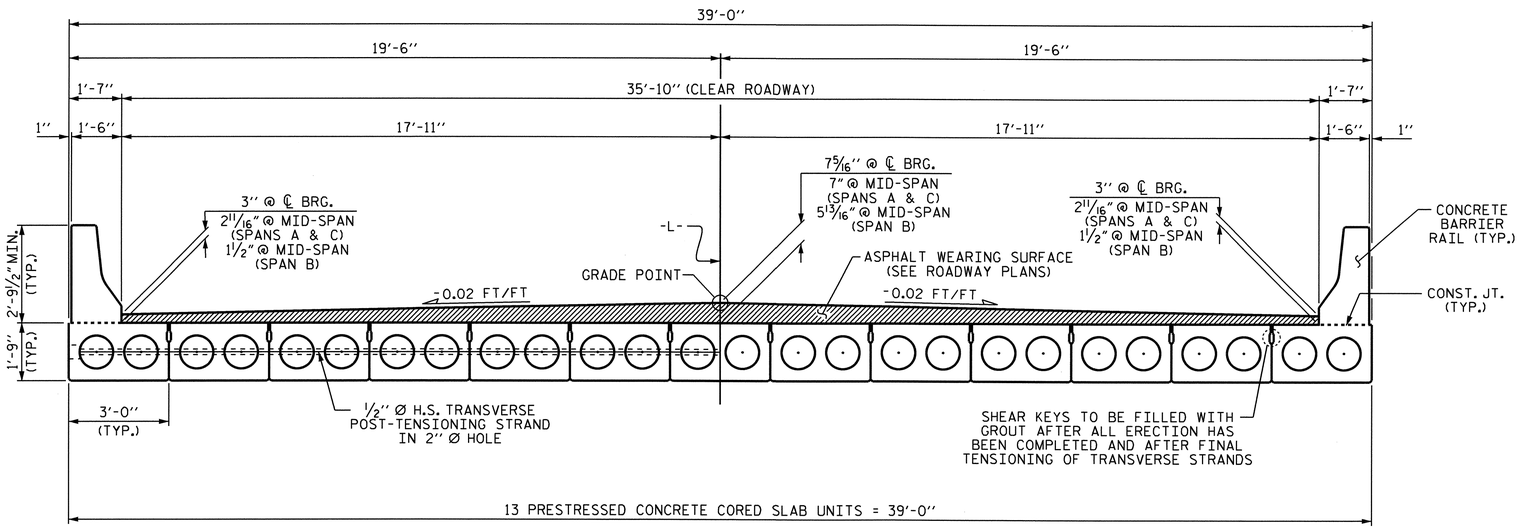
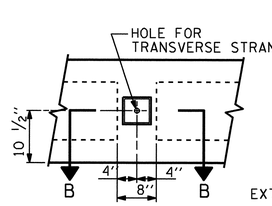
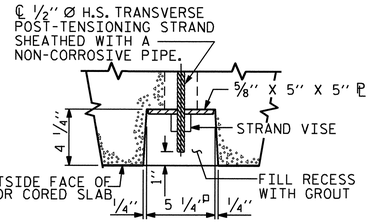


TYPICAL SECTION

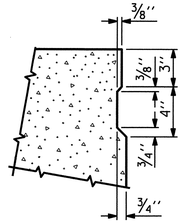


ELEVATION VIEW



SECTION B-B

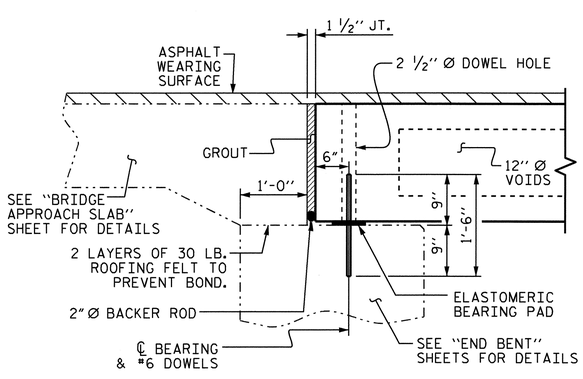
GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS



SHEAR KEY DETAIL

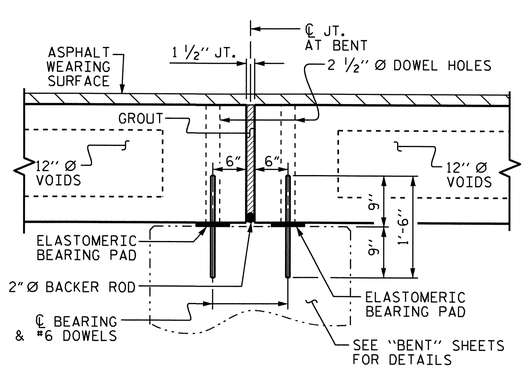
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

FIXED END

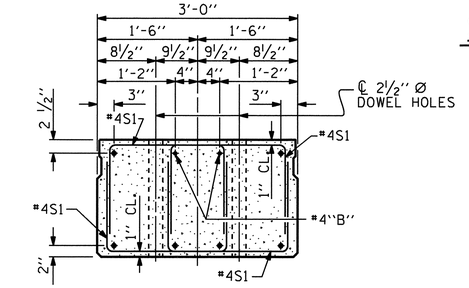


SECTION AT END BENT

FIXED END FIXED END

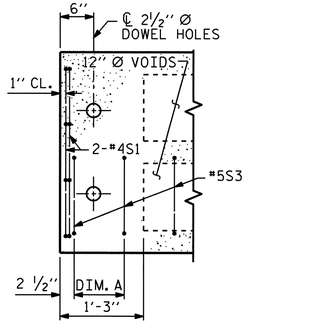


SECTION AT BENT



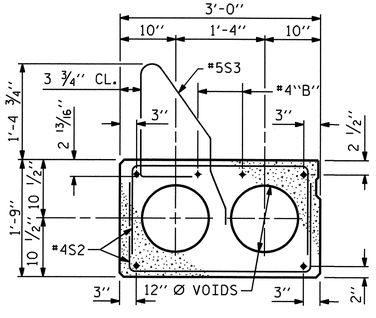
END ELEVATION

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



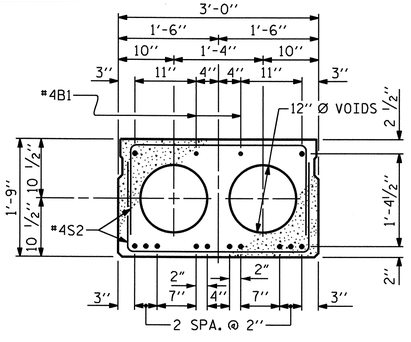
PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.
SEE "PARTIAL PLAN OF SPANS" FOR DIM. A.



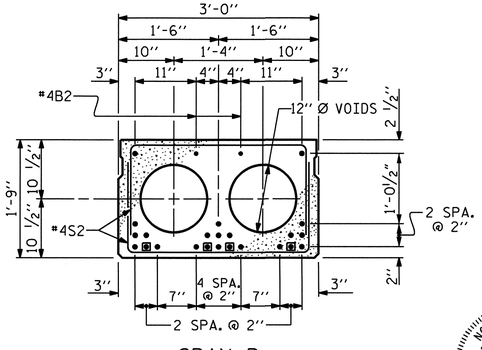
EXTERIOR SLAB SECTION

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



SPANS A & C
INTERIOR SLAB SECTION

1/2" Ø LOW RELAXATION STRAND LAYOUT



SPAN B
INTERIOR SLAB SECTION

1/2" Ø LOW RELAXATION STRAND LAYOUT

■ BONDS SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS ARTICLE 1078-7.

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
12/9/09

PROJECT NO. B-4125
GREENE COUNTY
STATION: 16+92.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT

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

ASSEMBLED BY : J.P. ADAMS		DATE : 9/25/06
CHECKED BY : S.H. SOCKWELL		DATE : 9/26/06
DRAWN BY : WJH 4/89	REV. 10/17/00	RWW/LES
CHECKED BY : FCJ 5/89	REV. 7/10/OIRR	RWW/LES
	REV. 5/1/06	TLA/GM

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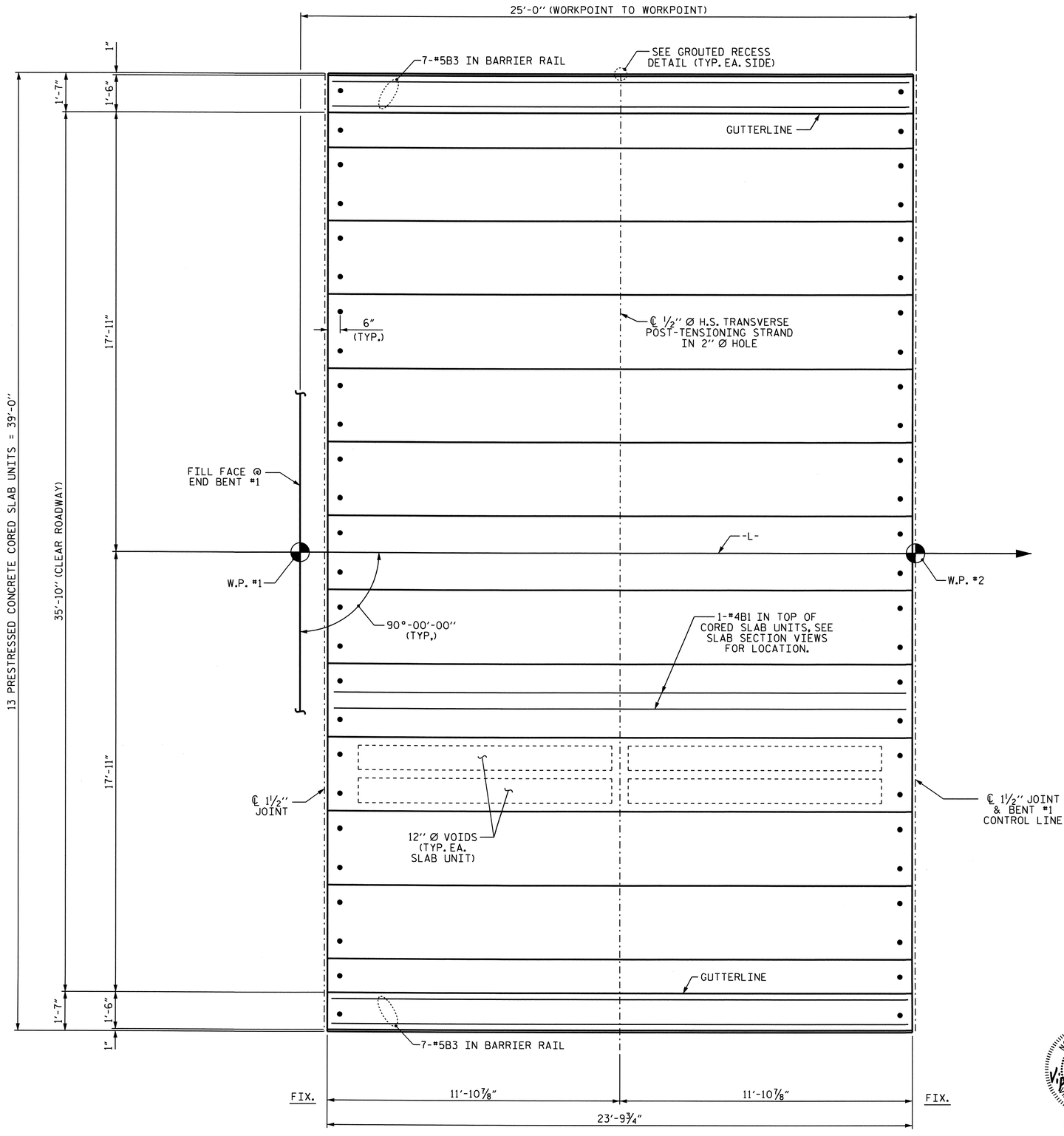
STD. No. PCS2



PLAN OF SPAN A

DRAWN BY : J.P. ADAMS DATE : 9/25/06
CHECKED BY : S.H. SOCKWELL DATE : 9/26/06

22-DEC-2009 11:08
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vpatel

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
Vipul A. Patel
12/22/09

PROJECT NO. B-4125
GREENE COUNTY
STATION: 16+92.50 -L-

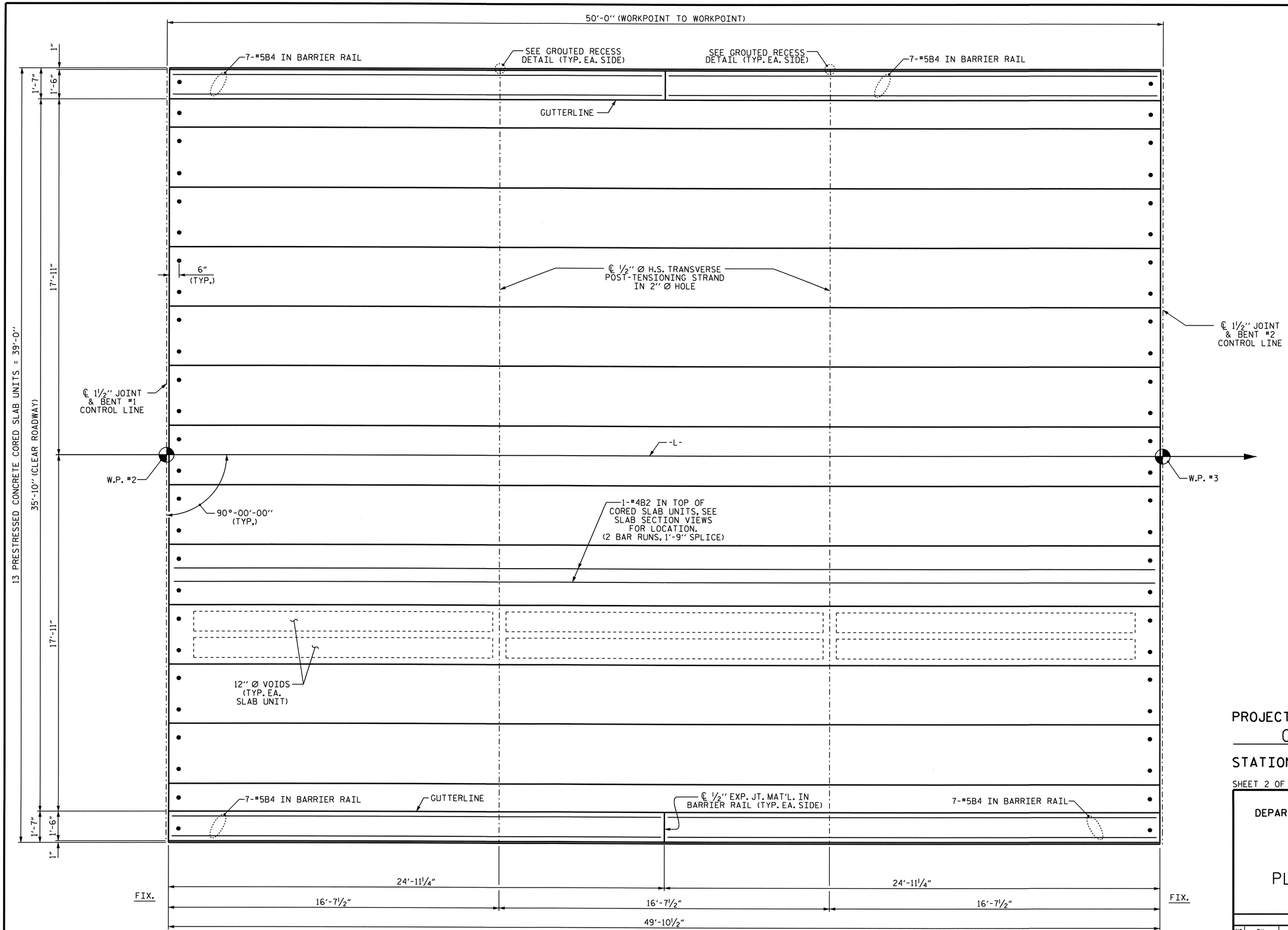
SHEET 1 OF 4

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			21



PLAN OF SPAN B

DRAWN BY : J.P. ADAMS DATE : 9/25/06
CHECKED BY : S.H. SOCKWELL DATE : 9/26/06

22-DEC-2009 11:08
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vpatel

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
Vipul A. Patel
12/22/09

PROJECT NO. B-4125
GREENE COUNTY
STATION: 16+92.50 -L-

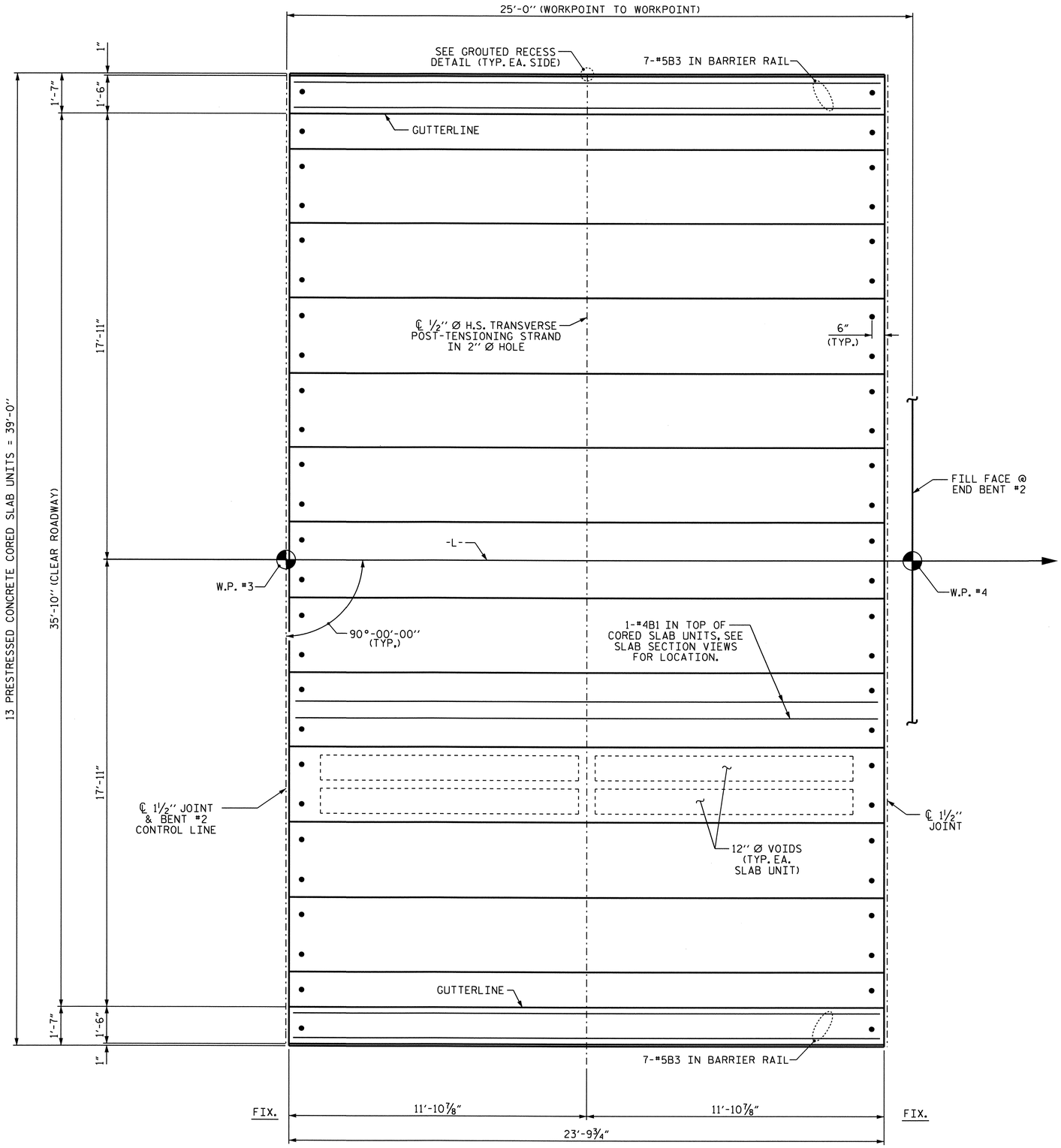
SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			21



PLAN OF SPAN C

DRAWN BY : J.P. ADAMS DATE : 9/25/06
CHECKED BY : S.H. SOCKWELL DATE : 9/26/06

22-DEC-2009 11:08
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vpatel

PROJECT NO. B-4125
GREENE COUNTY
STATION: 16+92.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

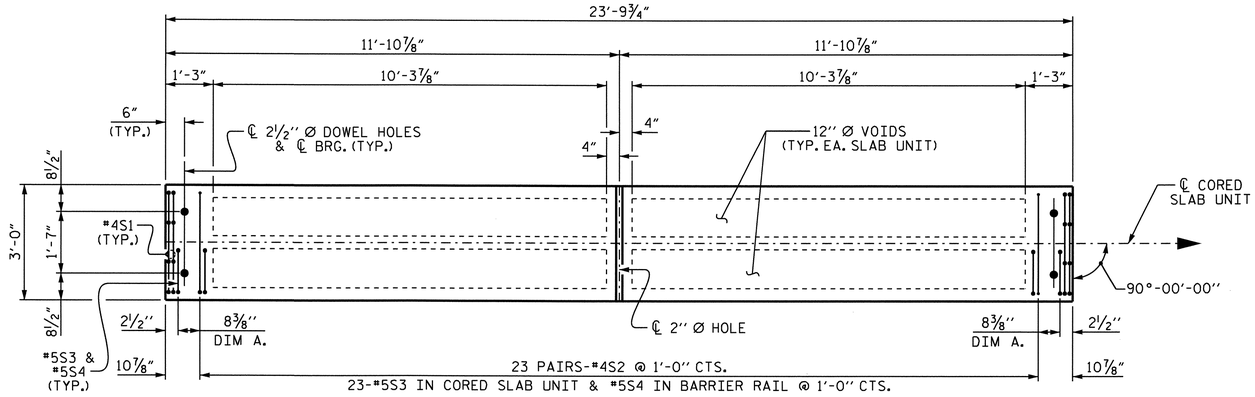
SUPERSTRUCTURE

PLAN OF SPAN C

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIRUL A. PATEL
Virul A. Patel
12/22/09

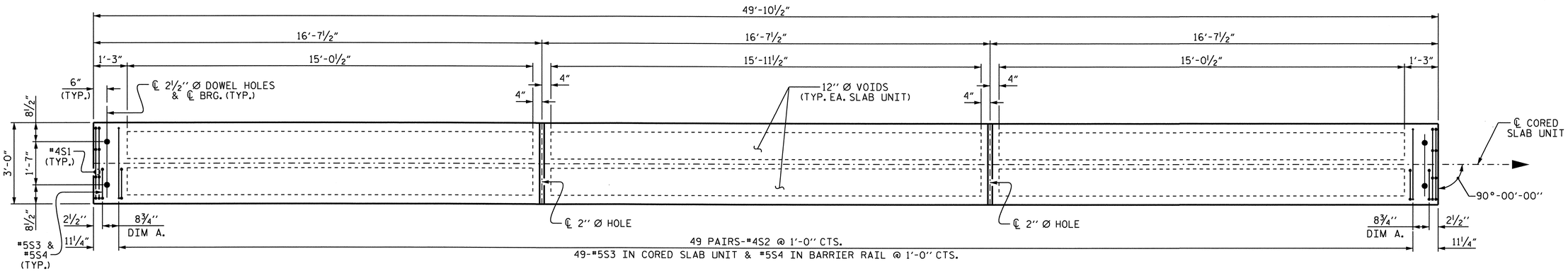
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-7
TOTAL SHEETS 21



PLAN OF EXTERIOR CORED SLAB UNIT - SPAN A & SPAN C

INTERIOR CORED SLAB UNIT SIMILAR EXCEPT OMIT #5S3 BARS.



PLAN OF EXTERIOR CORED SLAB UNIT - SPAN B

INTERIOR CORED SLAB UNIT SIMILAR EXCEPT OMIT #5S3 BARS.

PROJECT NO. B-4125

GREENE COUNTY

STATION: 16+92.50 -L-

SHEET 4 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL

Vipul A. Patel

12/22/09

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

CORED SLAB UNITS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : J.P. ADAMS DATE : 9/25/06

CHECKED BY : S.H. SOCKWELL DATE : 9/26/06

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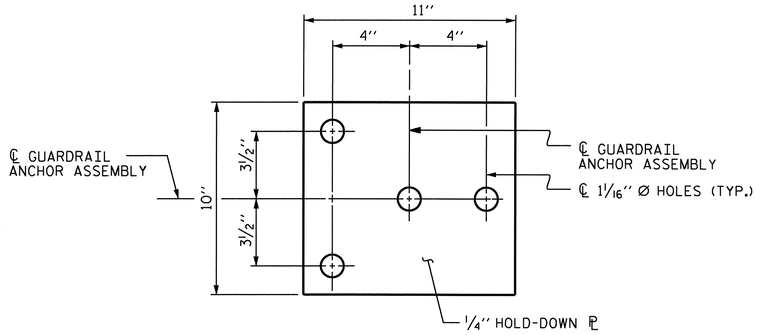
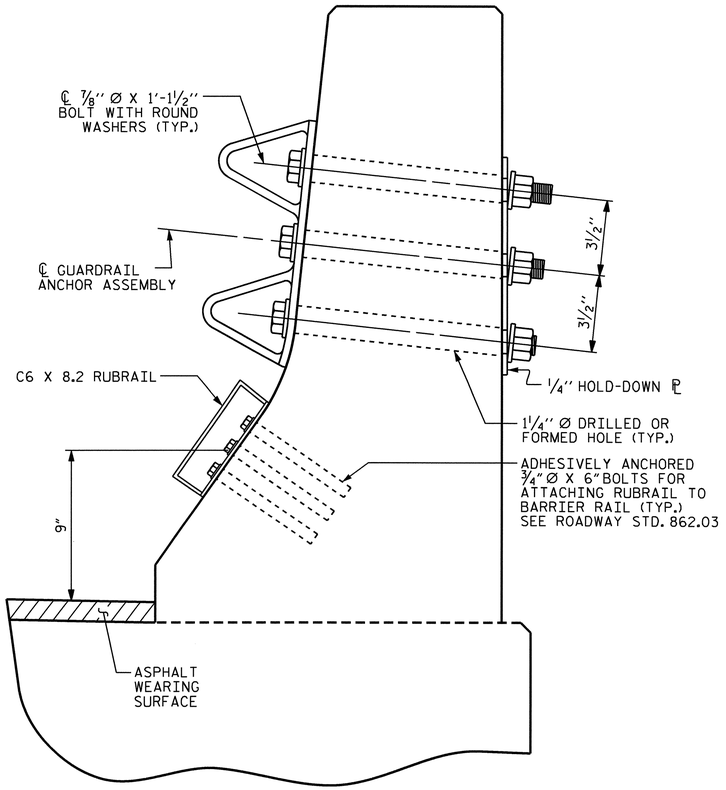
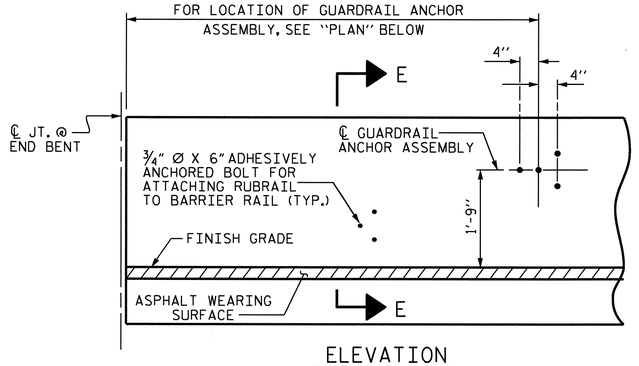


PLAN



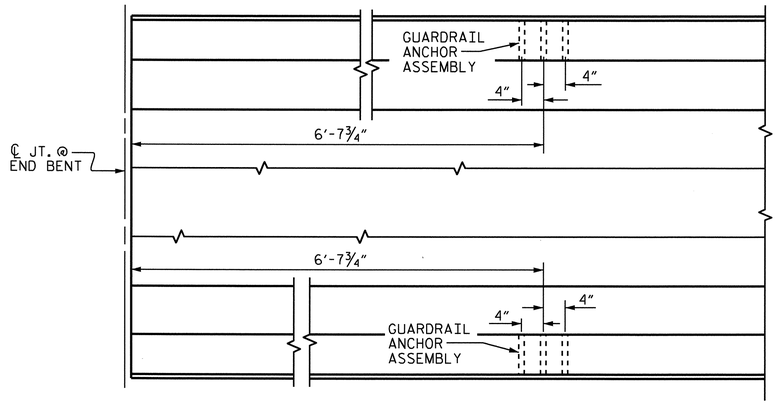
SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



ELEVATION

FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

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

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.)

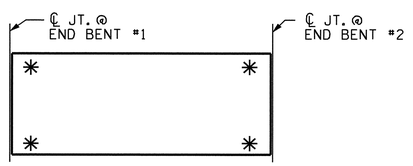
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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 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 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



SKETCH SHOWING POINTS OF ATTACHMENTS

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. B-4125

GREENE COUNTY

STATION: 16+92.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

GUARDRAIL ANCHORAGE FOR BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			21

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VISUL A. PATEL
12/22/09

STD. NO. GRA2

ASSEMBLED BY : S. DOMBROWSKI	DATE : 10/07
CHECKED BY : V.A. PATEL	DATE : 10/07
DRAWN BY : TLA 5/06	ADDED 5/11/06R KMM/GM
CHECKED BY : GM 5/06	

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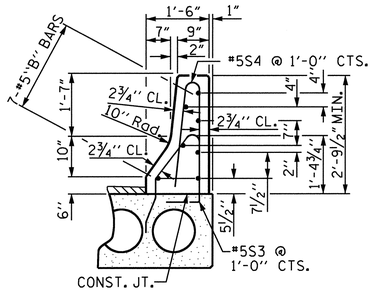
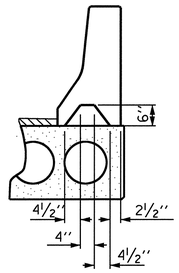
DEAD LOAD DEFLECTION AND CAMBER

	SPAN A & C	SPAN B
	1/2" Ø L.R. STRAND	1/2" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	3/8" ↑	2 1/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/16" ↓	3/8" ↓
FINAL CAMBER	5/16" ↑	1 11/16" ↑

** INCLUDES FUTURE WEARING SURFACE



SECTION THRU RAIL



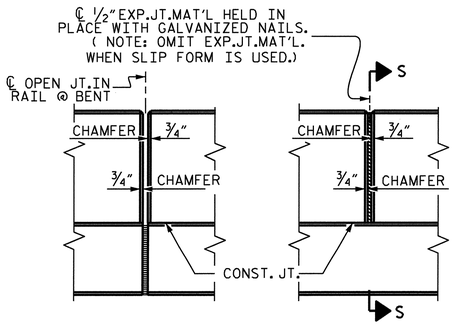
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

BILL OF MATERIAL FOR CONCRETE BARRIER RAIL

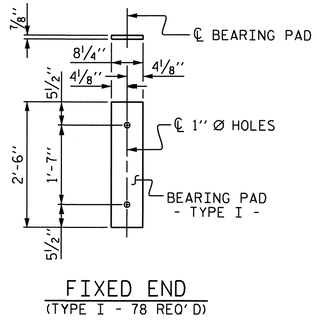
BAR	BARS PER SPAN				TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
	SPAN A	SPAN B	SPAN C						
* B3	14		14		28	#5	STR	23'-5"	684
* B4		28			28	#5	STR	24'-7"	718
* S4	50	102	50		202	#5	2	5'-8"	1194
* EPOXY COATED REINFORCING STEEL									2596 LBS.
CLASS AA CONCRETE									22.3 CU.YDS.
TOTAL LIN. FT. OF CONCRETE BARRIER RAIL									195.50 LIN. FT.

CORED SLABS REQUIRED

SPANS A & C	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	4	23'-9¾"	95.25
INTERIOR C.S.	22	23'-9¾"	523.88
TOTAL	26	23'-9¾"	619.13
SPAN B	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	49'-10½"	99.75
INTERIOR C.S.	11	49'-10½"	548.63
TOTAL	13	49'-10½"	648.38
TOTAL (SPAN A, B & C)	39		1267.51



ELEVATION AT EXPANSION JOINTS

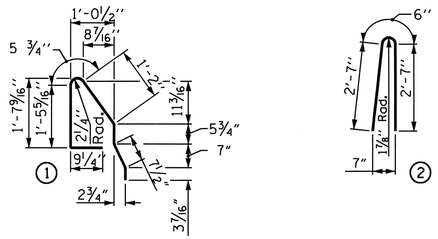


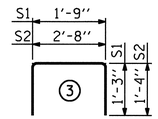
FIXED END
(TYPE I - 78 REQ'D)

ELASTOMERIC BEARING DETAILS

BARRIER RAIL DETAILS

BAR TYPES





ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

SPAN A & SPAN C				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	2	# 4	STR	23'-5"	31	23'-5"	31
S1	8	# 4	3	4'-3"	23	4'-3"	23
S2	46	# 4	3	5'-4"	164	5'-4"	164
* S3	25	# 5	1	5'-3"	137		
REINFORCING STEEL					218 LBS.		218 LBS.
* EPOXY COATED REINFORCING STEEL					137 LBS.		
5,000 P.S.I. CONCRETE					3.4 CU. YDS.		3.4 CU. YDS.
1/2" Ø L.R. STRANDS					No. 12		No. 12

SPAN B				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B2	4	# 4	STR	25'-8"	69	25'-8"	69
S1	8	# 4	3	4'-3"	23	4'-3"	23
S2	98	# 4	3	5'-4"	349	5'-4"	349
* S3	51	# 5	1	5'-3"	279		
REINFORCING STEEL					441 LBS.		441 LBS.
* EPOXY COATED REINFORCING STEEL					279 LBS.		
5,000 P.S.I. CONCRETE					7.0 CU. YDS.		7.0 CU. YDS.
1/2" Ø L.R. STRANDS					No. 23		No. 23

GRADE 270 STRANDS

	1/2" Ø L.R.
AREA (SQUARE INCHES)	0.153
ULTIMATE STRENGTH (LBS. PER STRAND)	41,300
APPLIED PRESTRESS (LBS. PER STRAND)	30,980

NOTES

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

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

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

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT.

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

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 GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
Vipul A. Patel
12/22/09

PROJECT NO. B-4125
GREENE COUNTY
STATION: 16+92.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT

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

ASSEMBLED BY : J.P. ADAMS	DATE : 9/25/06	
CHECKED BY : S.H. SOCKWELL	DATE : 9/26/06	
DRAWN BY : WJH 4/89	REV. 7/10/01	RWW/LES
CHECKED BY : FCJ 5/89	REV. 5/7/03RRR	RWW/JTE
	REV. 5/1/06	TLA/GM

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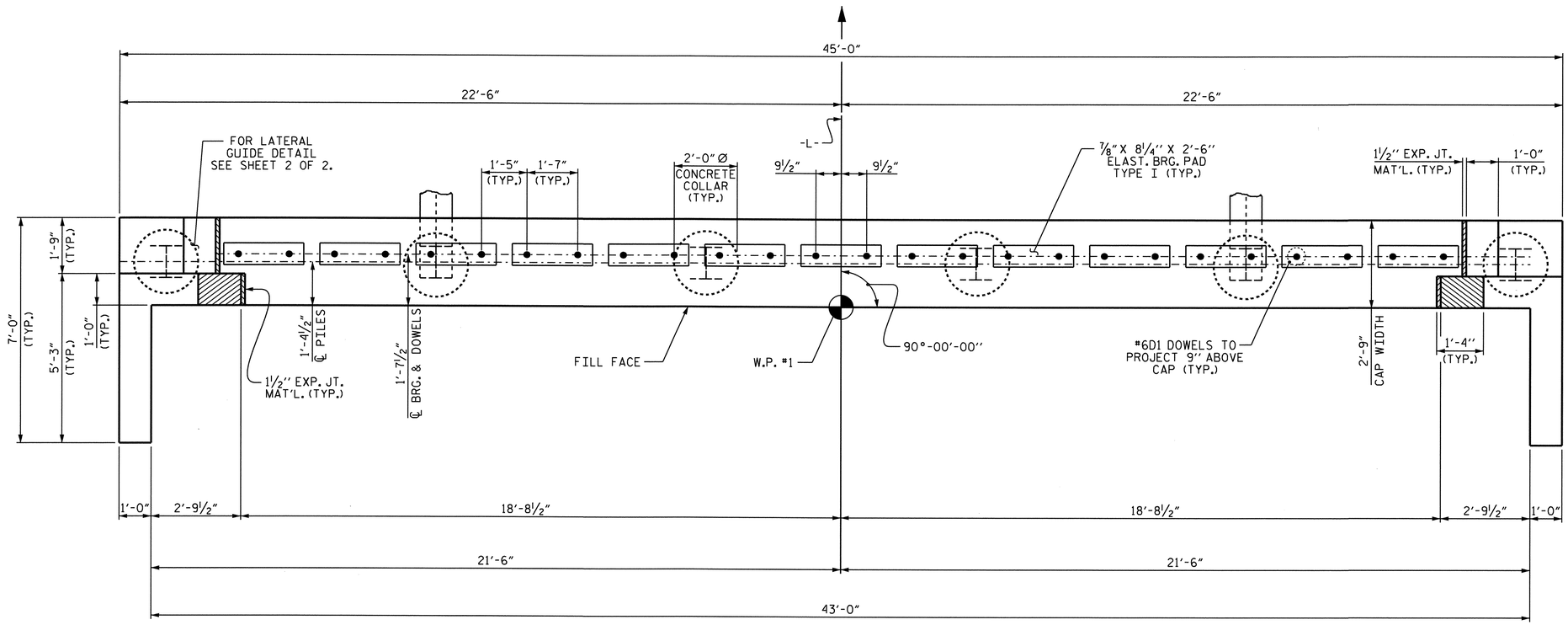
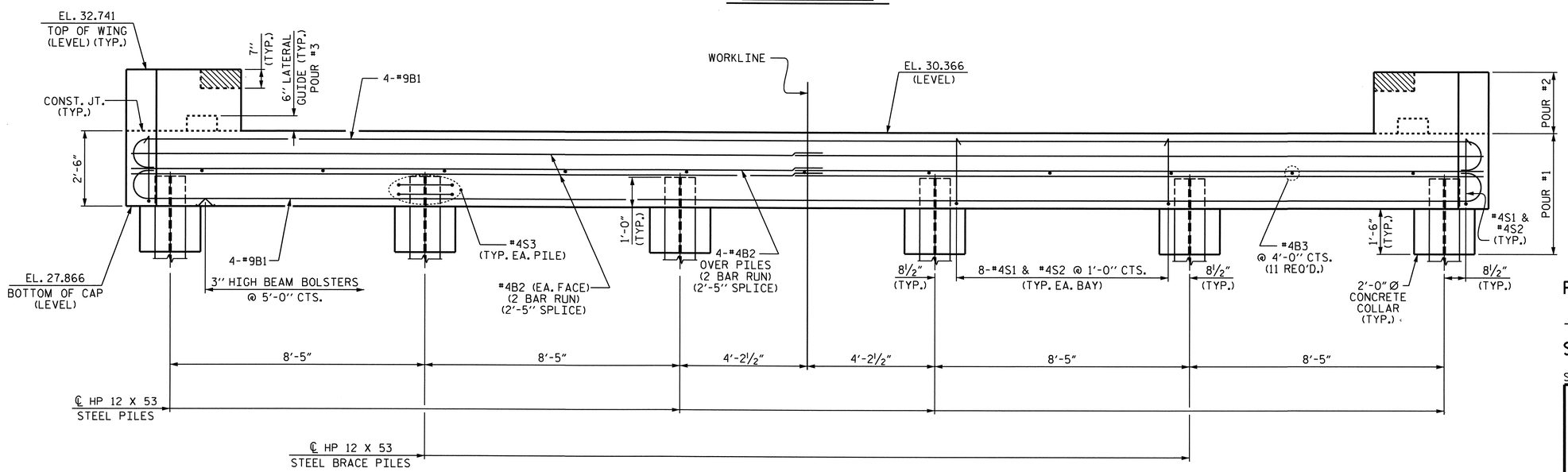


PLAN



ELEVATION

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.

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

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

PROJECT NO. B-4125

GREENE COUNTY

STATION: 16+92.50 -L-

SHEET 1 OF 2

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			21

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL

12/22/09

DRAWN BY : J.P. ADAMS DATE : 10/13/05
CHECKED BY : S.H. SOCKWELL DATE : 10/19/05

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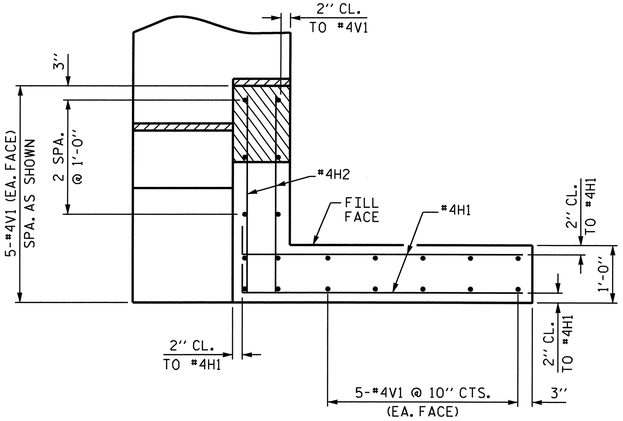
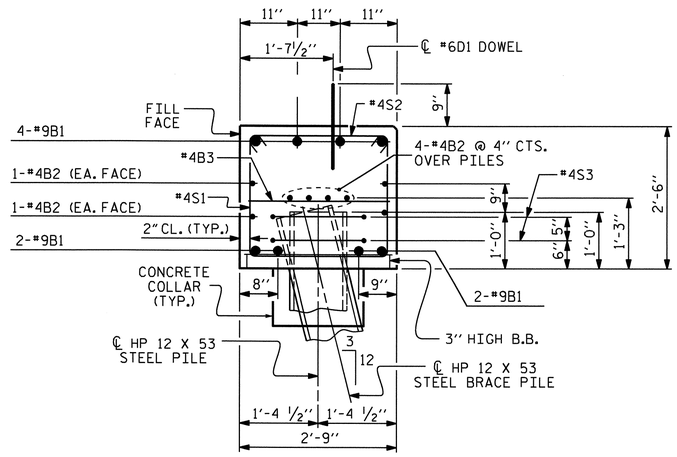
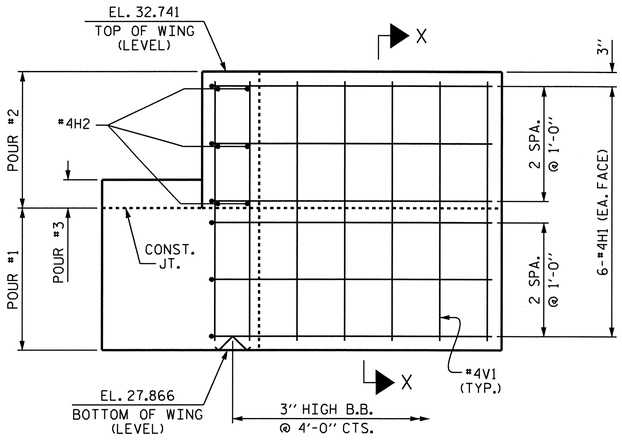


PLAN OF WING

LEFT WING SHOWN, RIGHT WING SIMILAR.

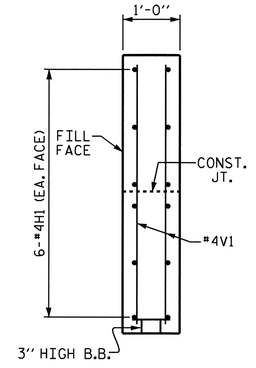


SECTION THRU CAP

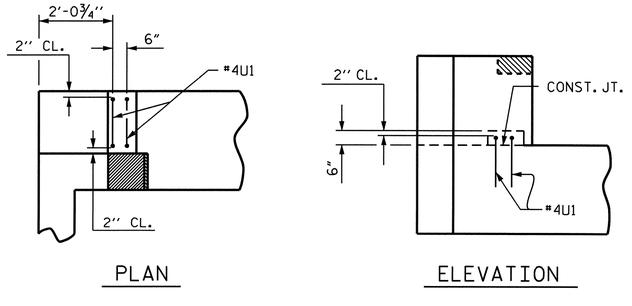


ELEVATION OF WING

LEFT WING SHOWN, RIGHT WING SIMILAR.



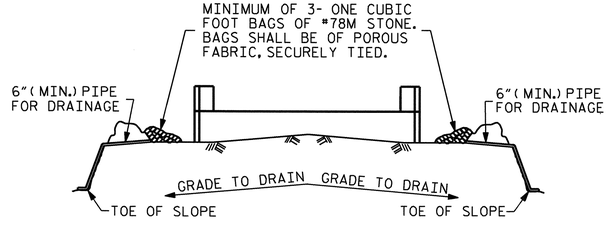
SECTION X-X



PLAN ELEVATION

LATERAL GUIDE DETAILS

(EACH END SIMILAR)



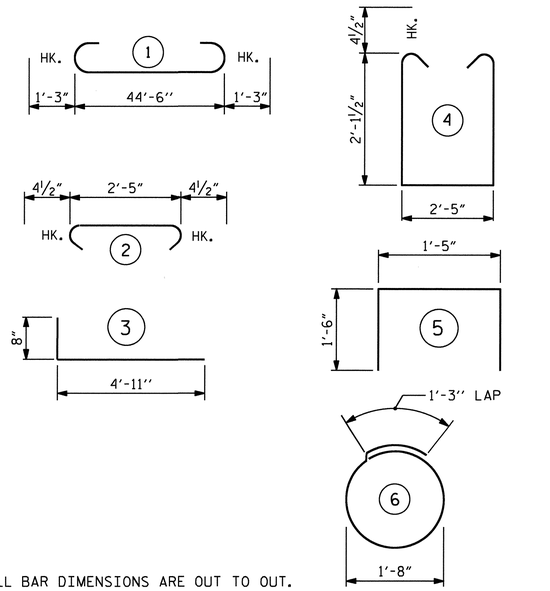
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	47'-0"	1278
B2	16	4	STR	23'-7"	252
B3	11	4	STR	2'-5"	18
D1	26	6	STR	1'-6"	59
H1	24	4	3	5'-7"	90
H2	12	4	STR	3'-5"	27
S1	42	4	4	7'-5"	208
S2	42	4	2	3'-2"	89
S3	12	4	6	6'-6"	52
U1	4	4	5	4'-5"	12
V1	40	4	STR	4'-6"	120

REINFORCING STEEL 2205 LBS

CLASS "A" CONCRETE BREAKDOWN

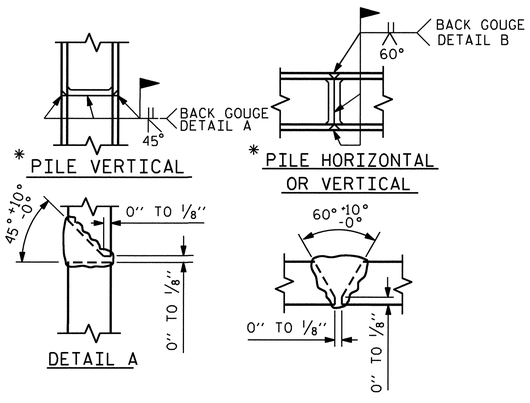
POUR #1 CAP, COLLARS & LOWER WINGS
CU. YDS. 13.2

POUR #2 UPPER WINGS
CU. YDS. 1.4

POUR #3 LATERAL GUIDES
CU. YDS. 0.1

CLASS "A" CONCRETE TOTAL
CU. YDS. 14.7

HP 12 X 53 STEEL PILES
NO. 6 180 LIN. FT.



*POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
12/22/09

PROJECT NO. B-4125
GREENE COUNTY
STATION: 16+92.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT #1

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

DRAWN BY : J.P. ADAMS DATE : 10/14/05
CHECKED BY : S.H. SOCKWELL DATE : 10/19/05

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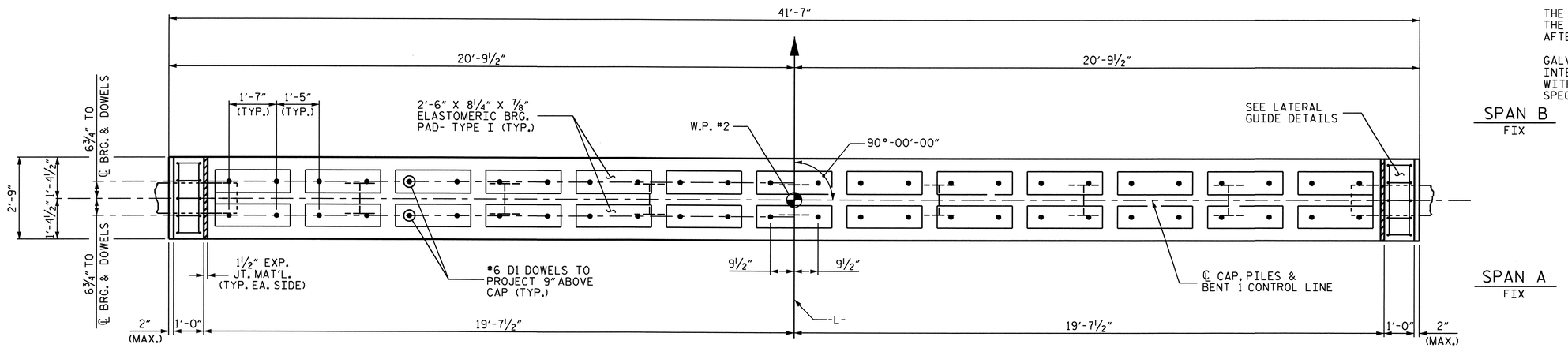
NOTES

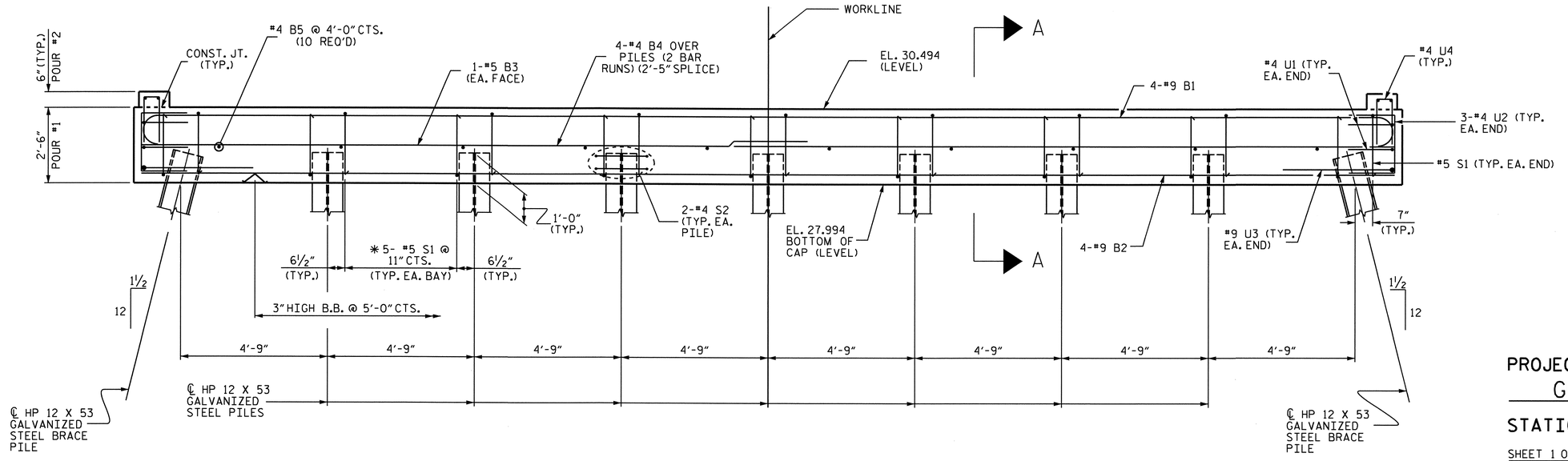
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

GALVANIZE THE FULL LENGTH OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



PLAN



ELEVATION

* INVERT ALTERNATE STIRRUPS

PROJECT NO. B-4125

GREENE COUNTY

STATION: 16+92.50 -L-

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-13
1			3			TOTAL SHEETS
2			4			21

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL

12/22/09

DRAWN BY : S. DOMBROWSKI DATE : 8/06
CHECKED BY : K.D. LAYNE DATE : 8/06

22-DEC-2009 11:06
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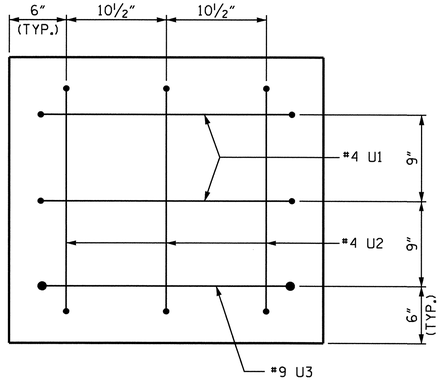
vpatel

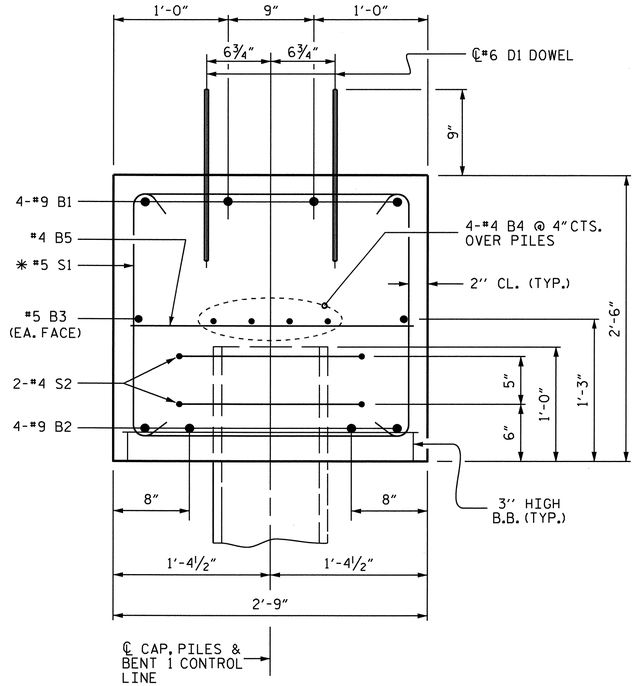


END VIEW

(TYP. EA. END)

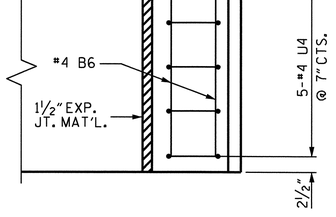
2" MIN. COVER FROM END OF CAP REQUIRED FOR ALL #4U1, #4U2 AND #9U3 BARS.

#4U1, #4U2 AND #4U3 BARS MAY BE SHIFTED UP TO 2" TO CLEAR "B" BARS

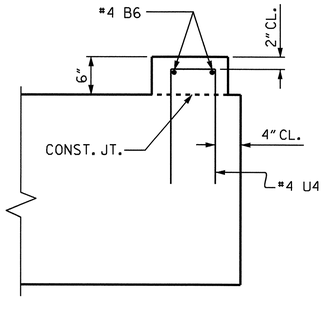


SECTION A-A

* INVERT ALTERNATE STIRRUPS



PLAN

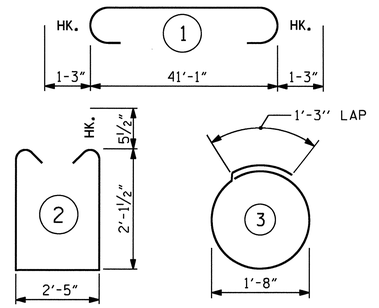


ELEVATION

LATERAL GUIDE DETAILS

(EACH END SIMILAR)

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL BENT #1

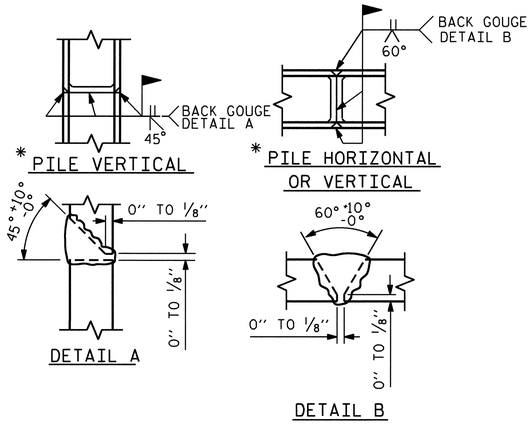
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	9	1	43'-7"	593
B2	4	9	STR	41'-3"	561
B3	2	5	STR	41'-3"	86
B4	8	4	STR	21'-10"	117
B5	10	4	STR	2'-5"	16
B6	4	4	STR	2'-5"	6
D1	52	6	STR	1'-6"	117
S1	42	5	2	7'-7"	332
S2	18	4	3	6'-6"	78
U1	4	4	4	5'-3"	14
U2	6	4	4	5'-0"	20
U3	2	9	4	9'-7"	65
U4	10	4	4	3'-6"	23
TOTAL REINFORCING STEEL LBS.					2028

CLASS A CONCRETE BREAKDOWN

POUR #1 (CAP)	10.6 C.Y.
POUR #2 (LAT. GUIDES)	0.1 C.Y.
TOTAL CLASS A CONCRETE	10.7 C.Y.

HP 12 X 53 GALVANIZED STEEL PILES NO. 9 270 LIN. FT.

STEEL PILE POINTS 9 EA.



PILE SPLICE DETAILS

*POSITION OF PILE DURING WELDING.

PROJECT NO. B-4125

GREENE COUNTY

STATION: 16+92.50 -L-

SHEET 2 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			21

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL

Vipul A. Patel

12/22/09

DRAWN BY : S. DOMBROWSKI DATE : 8/06
CHECKED BY : K.D. LAYNE DATE : 8/06

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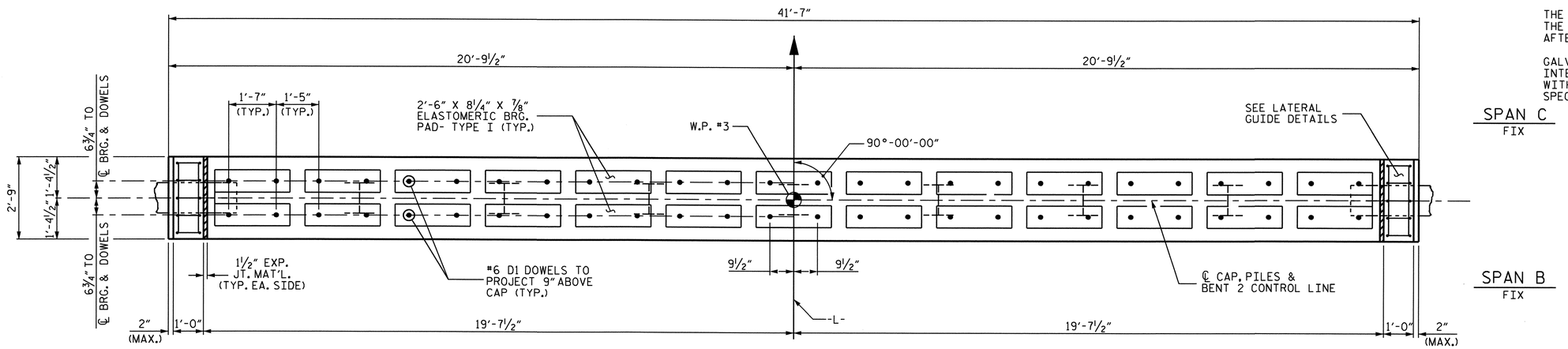
22-DEC-2009 11:06
vpatel

NOTES

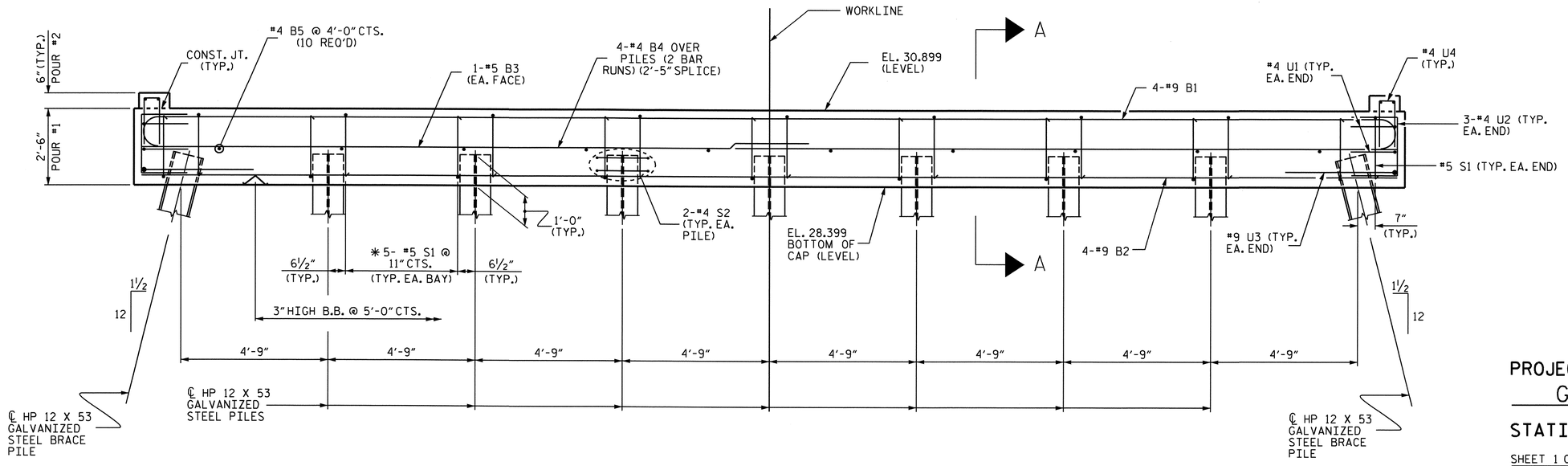
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

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

GALVANIZE THE FULL LENGTH OF EACH INTERIOR BENT PILE IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.



PLAN



ELEVATION

* INVERT ALTERNATE STIRRUPS

PROJECT NO. B-4125

GREENE COUNTY

STATION: 16+92.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

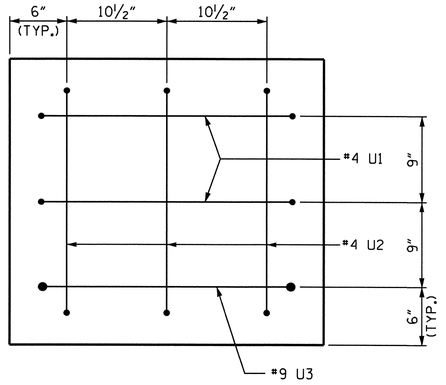
BENT #2

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
12/22/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : S. DOMBROWSKI DATE : 8/06
CHECKED BY : K.D. LAYNE DATE : 8/06

22-DEC-2009 11:06
r:\structures\b4125\final plans\b-4125_sd_bts.dgn
vpatel

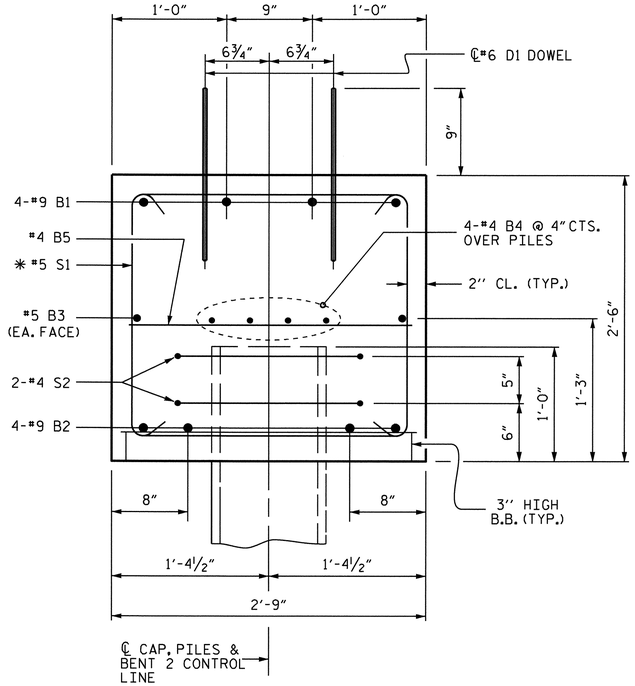


END VIEW

(TYP. EA. END)

2" MIN. COVER FROM END OF CAP REQUIRED FOR ALL #4U1, #4U2 AND #9U3 BARS.

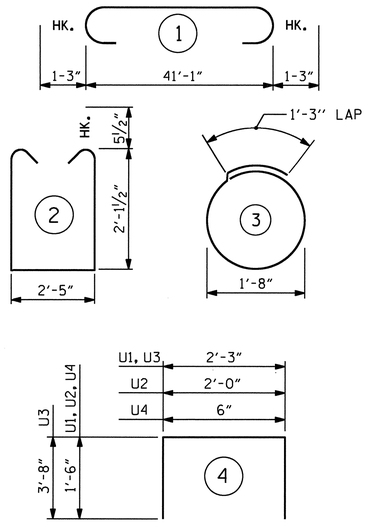
#4U1, #4U2 AND #4U3 BARS MAY BE SHIFTED UP TO 2" TO CLEAR "B" BARS



SECTION A-A

✱ INVERT ALTERNATE STIRRUPS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL BENT #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	4	9	1	43'-7"	593
B2	4	9	STR	41'-3"	561
B3	2	5	STR	41'-3"	86
B4	8	4	STR	21'-10"	117
B5	10	4	STR	2'-5"	16
B6	4	4	STR	2'-5"	6
D1	52	6	STR	1'-6"	117
S1	42	5	2	7'-7"	332
S2	18	4	3	6'-6"	78
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U3	2	9	4	9'-7"	65
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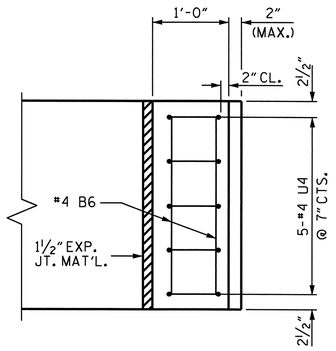
TOTAL REINFORCING STEEL LBS. 2028

CLASS A CONCRETE BREAKDOWN

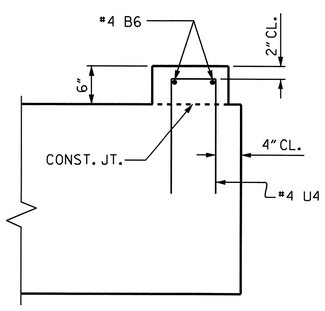
POUR #1 (CAP)	10.6 C.Y.
POUR #2 (LAT. GUIDES)	0.1 C.Y.
TOTAL CLASS A CONCRETE	10.7 C.Y.

HP 12 X 53 GALVANIZED STEEL PILES NO. 9 270 LIN. FT.

STEEL PILE POINTS 9 EA.



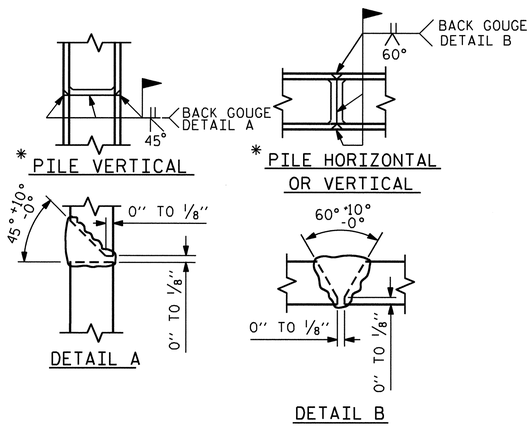
PLAN



ELEVATION

LATERAL GUIDE DETAILS

(EACH END SIMILAR)



PILE SPLICE DETAILS

✱ POSITION OF PILE DURING WELDING.

DRAWN BY : S. DOMBROWSKI DATE : 8/06
CHECKED BY : K.D. LAYNE DATE : 8/06

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22-DEC-2009 11:05
vpatel

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
12/22/09

PROJECT NO. B-4125
GREENE COUNTY
STATION: 16+92.50 -L-

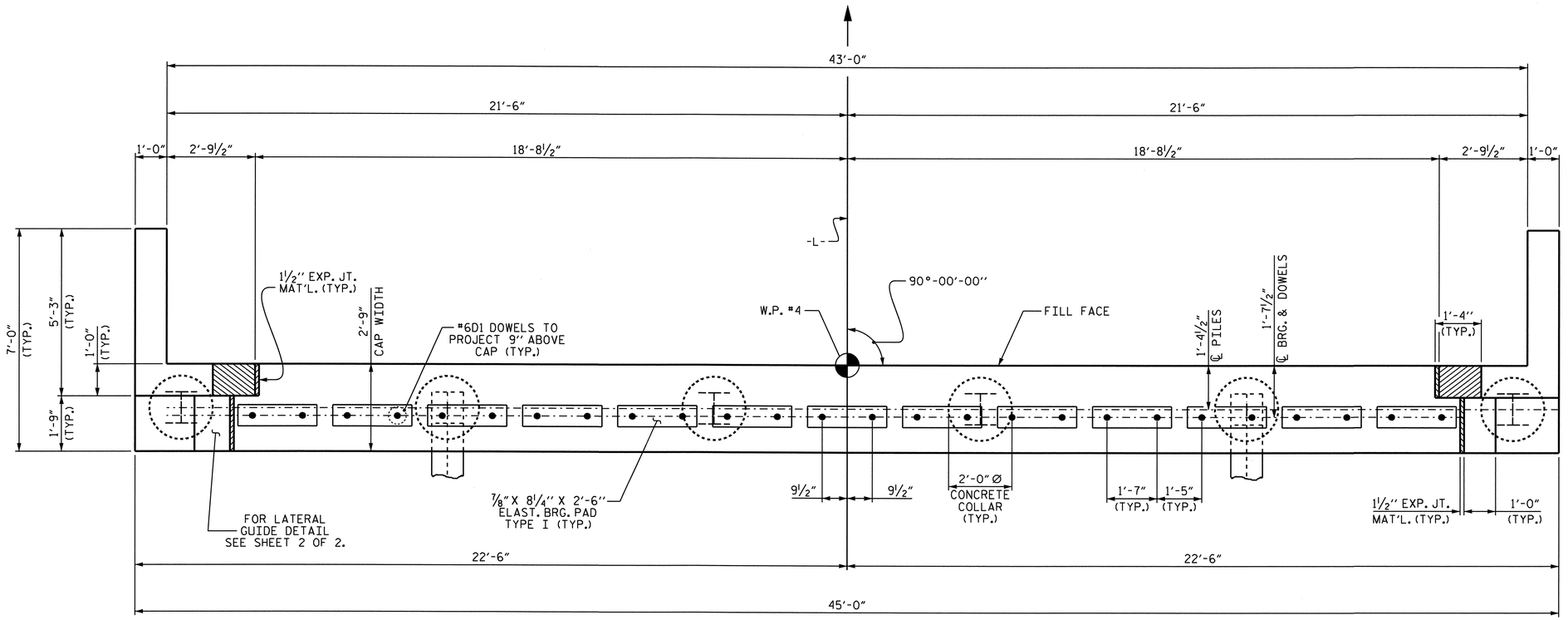
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

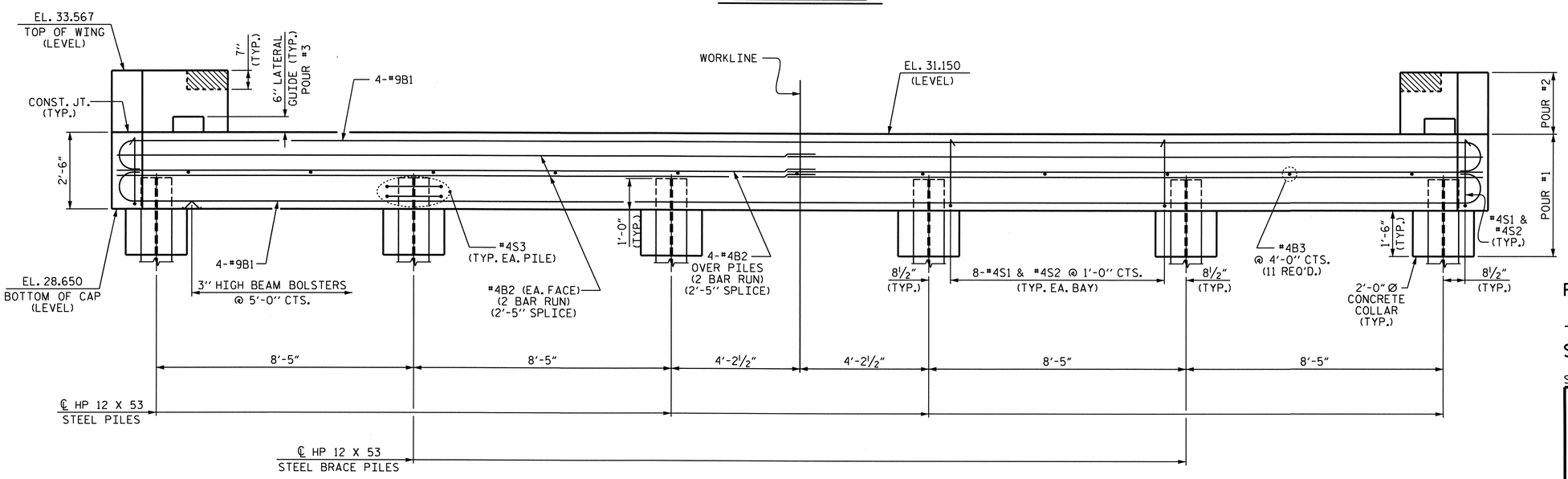
SUBSTRUCTURE

BENT #2

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



PLAN



ELEVATION

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.

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

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

PROJECT NO. B-4125

GREENE COUNTY

STATION: 16+92.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #2

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
12/22/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			21

DRAWN BY : J.P. ADAMS DATE : 10/13/05
CHECKED BY : S.H. SOCKWELL DATE : 10/19/05

22-DEC-2009 11:05
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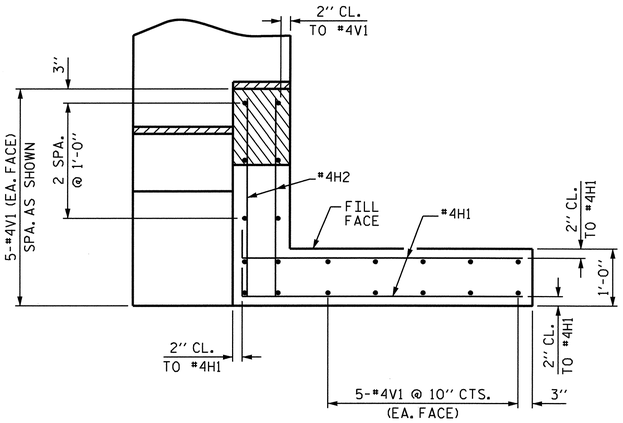
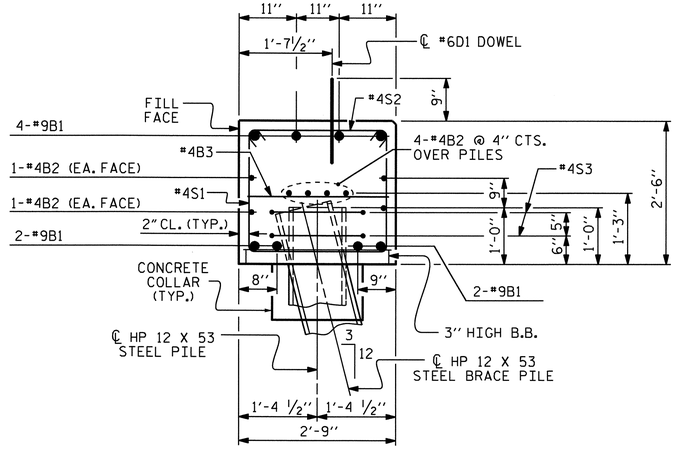
vpatel

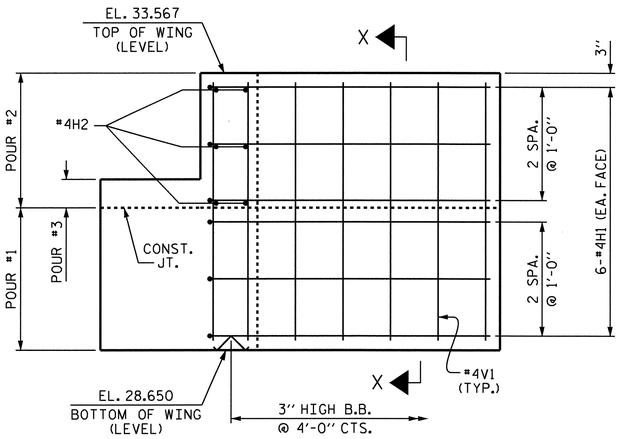


PLAN OF WING

RIGHT WING SHOWN, LEFT WING SIMILAR.

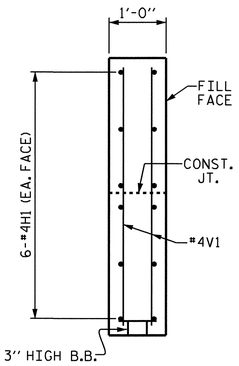


SECTION THRU CAP

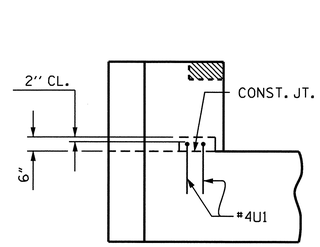


ELEVATION OF WING

RIGHT WING SHOWN, LEFT WING SIMILAR.



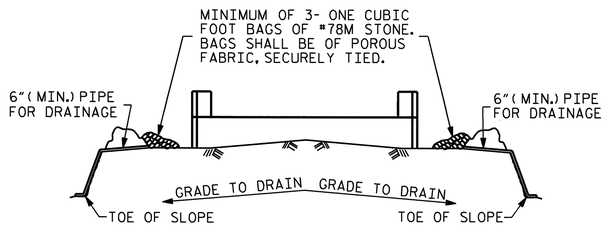
SECTION X-X



PLAN ELEVATION

LATERAL GUIDE DETAILS

(EACH END SIMILAR)



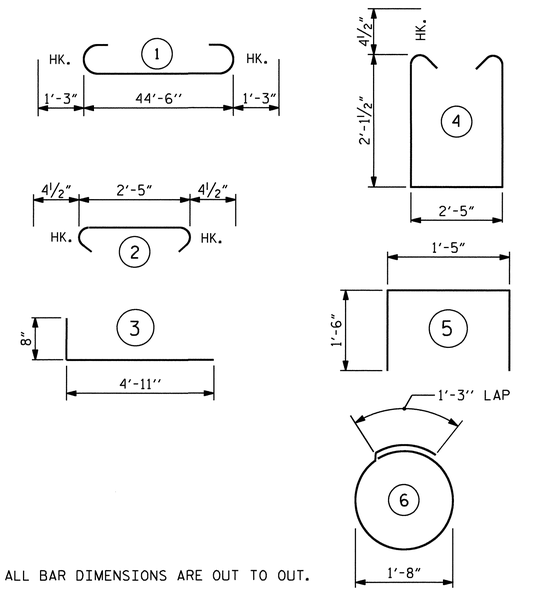
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	9	1	47'-0"	1278
B2	16	4	STR	23'-7"	252
B3	11	4	STR	2'-5"	18
D1	26	6	STR	1'-6"	59
H1	24	4	3	5'-7"	90
H2	12	4	STR	3'-5"	27
S1	42	4	4	7'-5"	208
S2	42	4	2	3'-2"	89
S3	12	4	6	6'-6"	52
U1	4	4	5	4'-5"	12
V1	40	4	STR	4'-6"	120

REINFORCING STEEL 2205 LBS

CLASS "A" CONCRETE BREAKDOWN

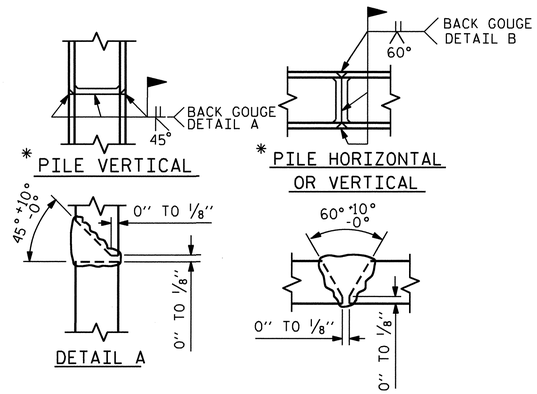
POUR #1 CAP, COLLAR & LOWER WINGS
CU. YDS. 13.2

POUR #2 UPPER WINGS
CU. YDS. 1.4

POUR #3 LATERAL GUIDES
CU. YDS. 0.1

CLASS "A" CONCRETE TOTAL
CU. YDS. 14.7

HP 12 X 53 STEEL PILES
NO. 6 180 LIN. FT.



* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 23371 ENGINEER VIPUL A. PATEL
12/22/09

PROJECT NO. B-4125
GREENE COUNTY
STATION: 16+92.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT #2

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

DRAWN BY : J.P. ADAMS DATE : 10/14/05
CHECKED BY : S.H. SOCKWELL DATE : 10/19/05

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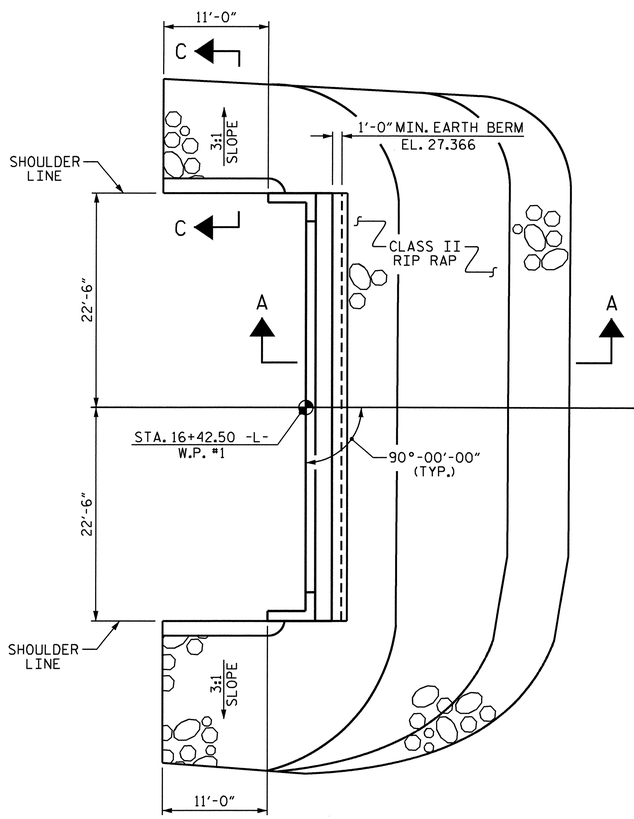
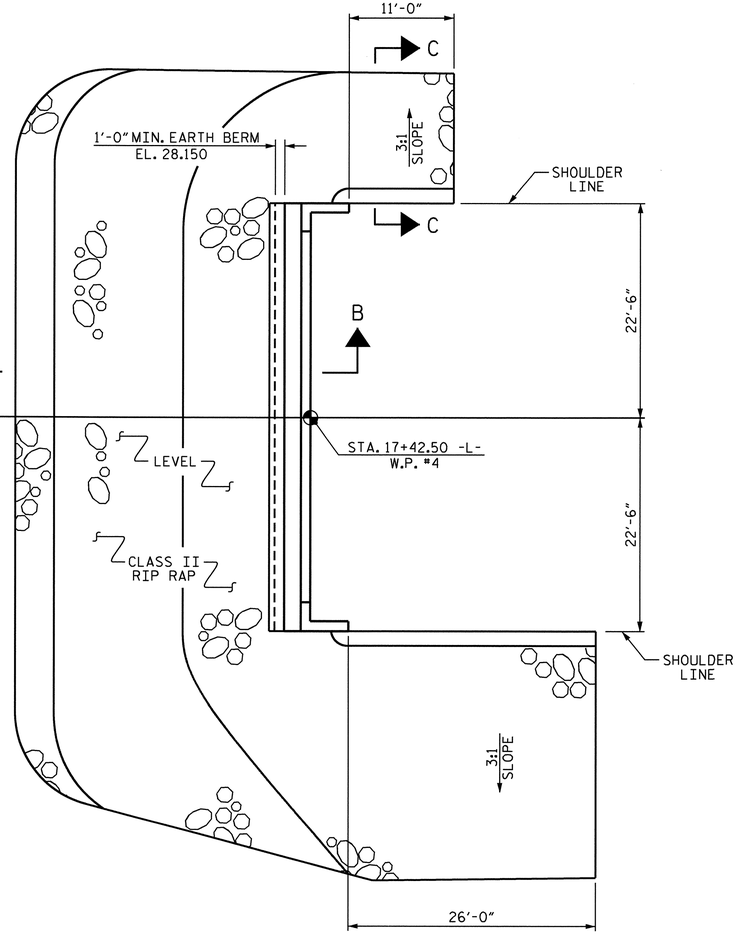
22-DEC-2009 11:05
vpatel



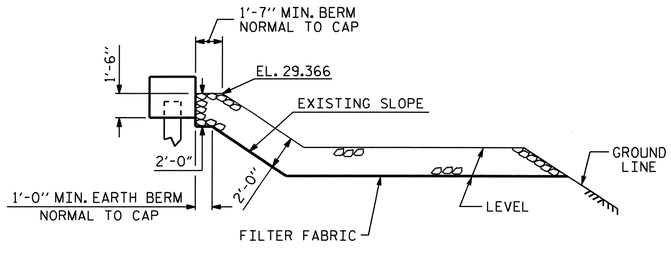
END BENT 1



END BENT 2

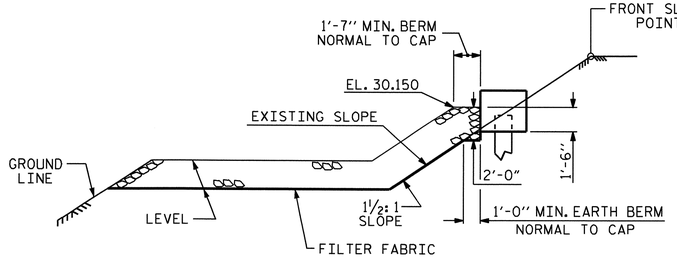
ESTIMATED QUANTITIES		
BRIDGE @ STA. 16+92.50 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	290	320
END BENT 2	310	340

PLAN OF RIP RAP

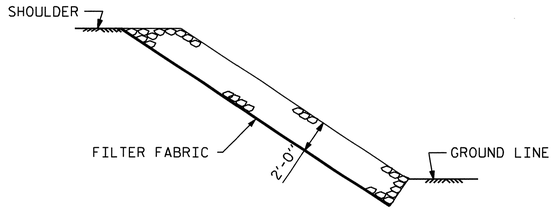


SECTION A-A

BERM RIP RAPPED



SECTION B-B



SECTION C-C

PROJECT NO. B-4125

GREENE COUNTY

STATION: 16+92.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS

ASSEMBLED BY : M.K. BEARD	DATE : 8/16/06
CHECKED BY : G.A. THOMPSON	DATE : 8/21/06
DRAWN BY : FCJ 2/88	REV. 8/16/99 RWW/LES
CHECKED BY : ARB 8/88	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

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

22-DEC-2009 11:03
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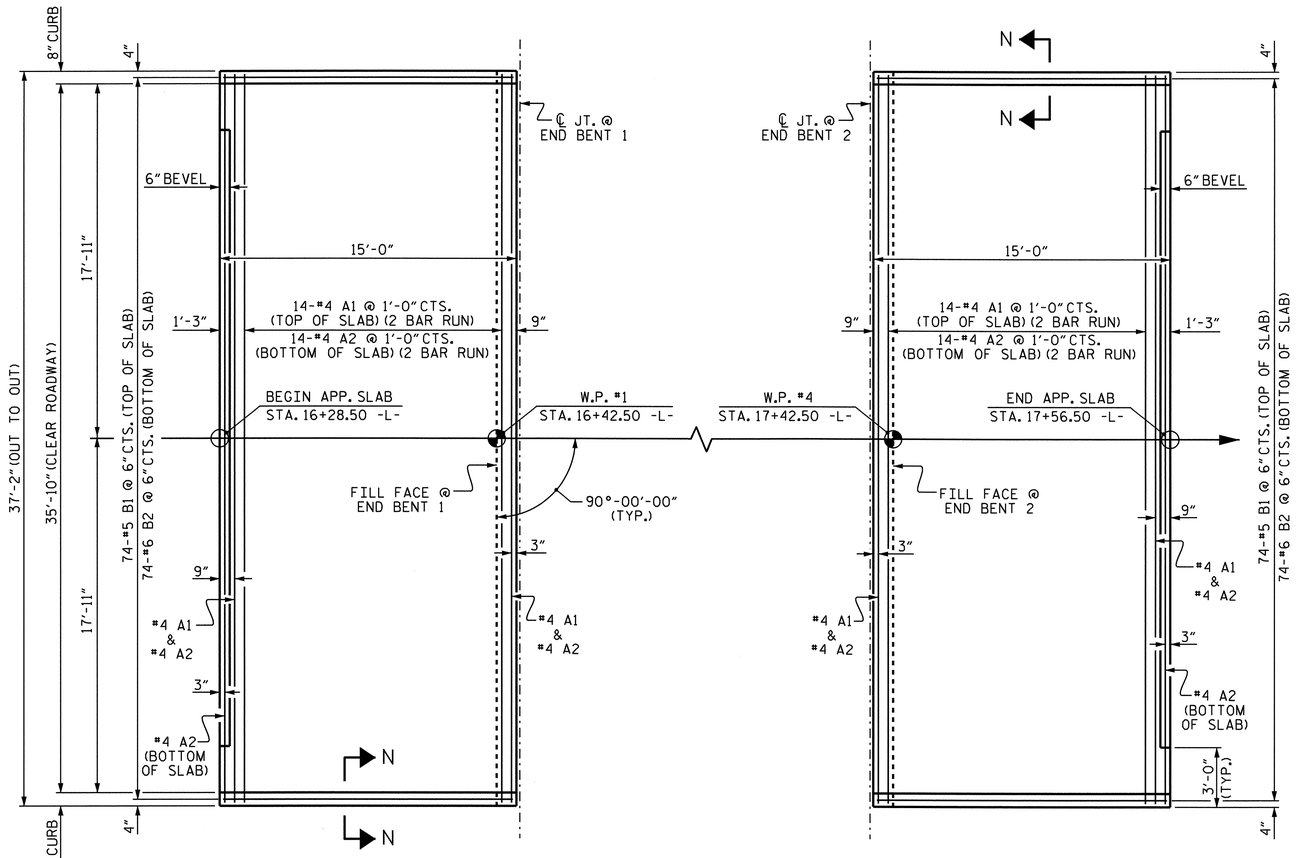
vpatel

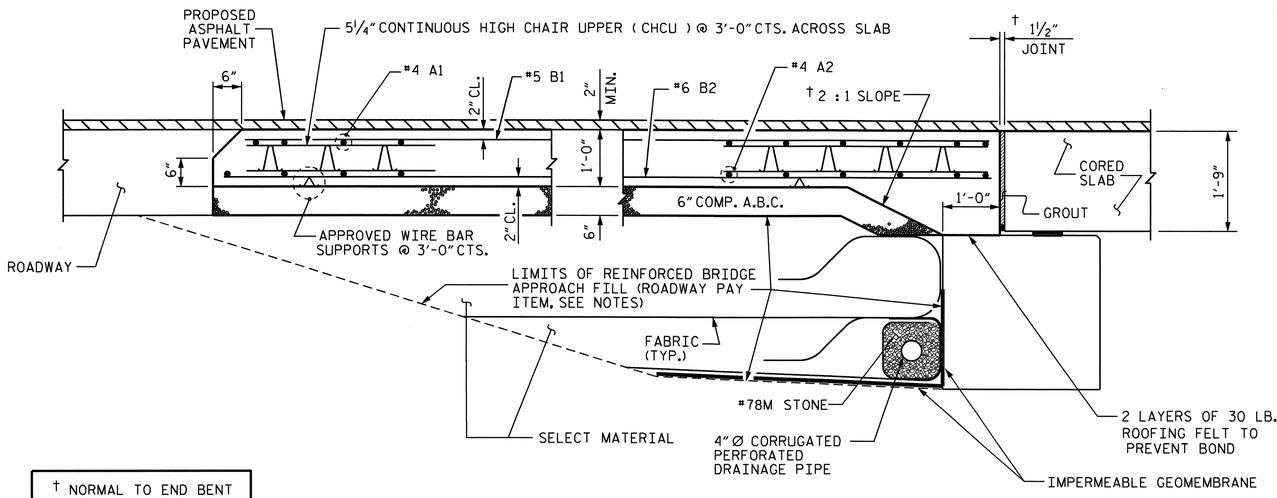
STD. NO. RR2



PLAN AT END BENT 1

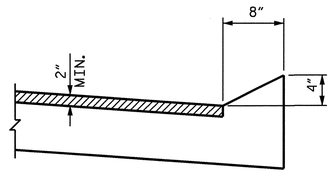
DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS.

PLAN AT END BENT 2

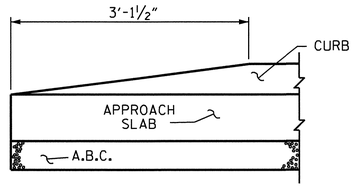


† NORMAL TO END BENT

SECTION THRU SLAB



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

NOTES

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 BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH 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 BE FLUSH WITH THE ROADWAY 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 BE FLUSH WITH THE ROADWAY 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.

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL

FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	32	#4	STR	19'- 5"	415
A2	34	#4	STR	19'- 3"	437
* B1	74	#5	STR	14'- 2"	1093
B2	74	#6	STR	14'- 8"	1630
REINFORCING STEEL				LBS.	2067
* EPOXY COATED REINFORCING STEEL				LBS.	1508
CLASS AA CONCRETE				C.Y.	23.0

REINFORCING STEEL SPLICE LENGTH

BAR SIZE	EPOXY-COATED	UN-COATED
#4	2'-0"	1'-9"

PROJECT NO. B-4125

GREENE COUNTY

STATION: 16+92.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB

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

STD. NO. BAS7

ASSEMBLED BY : M.K. BEARD	DATE : 9/6/06	
CHECKED BY : V. PATEL	DATE : 9/22/06	
DRAWN BY : FCJ 6/87	REV. 7/10/01	LES/RDR
CHECKED BY : EGA 6/87	REV. 5/7/03R	RWW/JTE
	REV. 5/1/06R	KMM/GM

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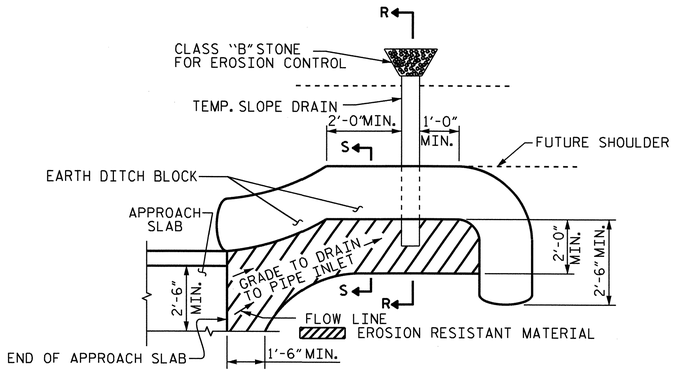
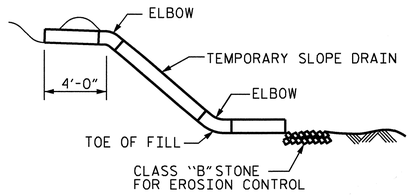
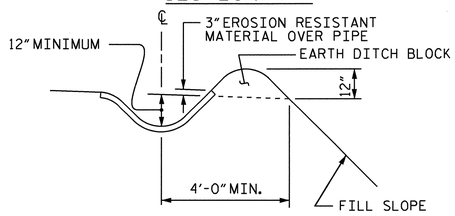


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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



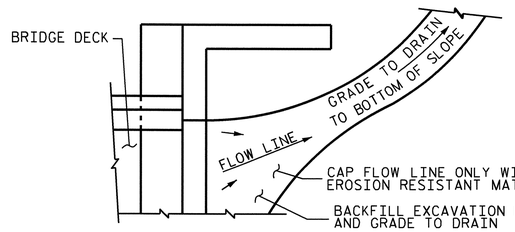
SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS 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

PROJECT NO. B-4125

GREENE COUNTY

STATION: 16+92.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

BRIDGE APPROACH SLAB DETAILS

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

STD. NO. BAS10

ASSEMBLED BY : M.K. BEARD		DATE : 9/6/06	
CHECKED BY : V. PATEL		DATE : 9/22/06	
DRAWN BY : FCJ	11/88	REV. 10/17/00	RWW/LES
CHECKED BY : ARB	11/88	REV. 5/7/03	RWW/JTE
		REV. 5/1/06	TLA/GM

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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 2006 "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. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN

REV. 6-16-95 EEM (W) RGW REV. 5-7-03 RWW (W) JTE
REV. 8-16-99 RWW (W) LES REV. 5-1-06 TLA (W) GM

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