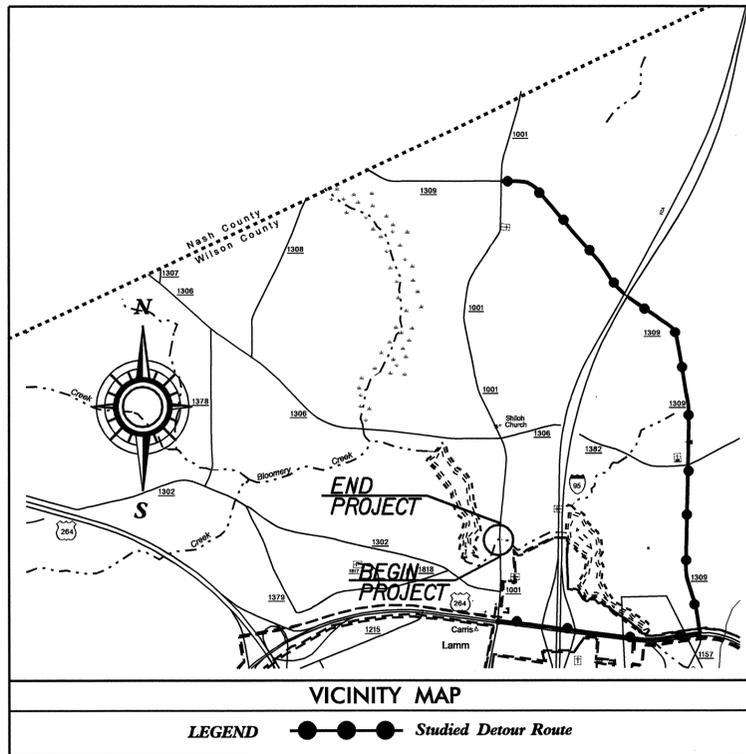


CONTRACT: C201714 TIP PROJECT: B-4326

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4326		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33663.1.1	BRZ-1001(27)	P.E.	
33663.2.1	BRZ-1001(27)	R/W	
33663.3.1	BRZ-1001(27)	CONST.	

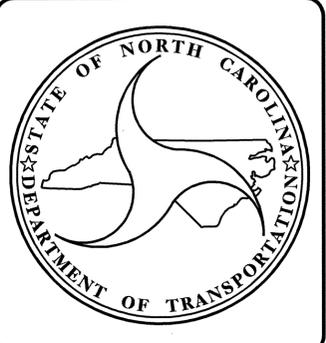
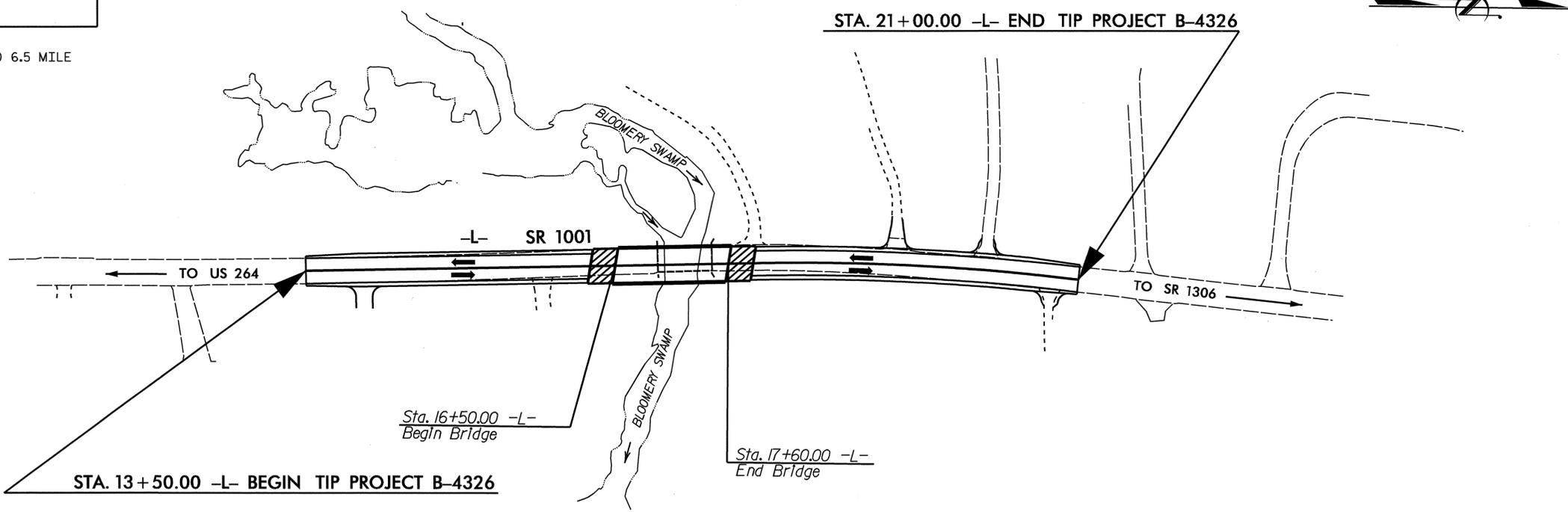
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
WILSON COUNTY

LOCATION: BRIDGE NO. 79 OVER BLOOMERY SWAMP ON SR 1001
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE



NEAREST SHIPPING POINT: WILSON ON NORTHWESTERN RAILROAD 6.5 MILE FROM BRIDGE.

STRUCTURE



DESIGN DATA

ADT 2007 =	3100
ADT 2030 =	5400
DHV =	10 %
D =	60 %
T =	5 % *
V =	50 MPH
FUNC. CLASS =	RURAL MINOR COLLECTOR
* TTST	3 % DUAL 2 %

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4326 =	0.121 MI
LENGTH STRUCTURE TIP PROJECT B-4326 =	0.021 MI
TOTAL LENGTH TIP PROJECT B-4326 =	0.142 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
2006 STANDARD SPECIFICATIONS

LETTING DATE :
November 20, 2007

J.M. BAILEY, PE
PROJECT ENGINEER

B.D. KLAPPENBACH, PE
PROJECT DESIGN ENGINEER

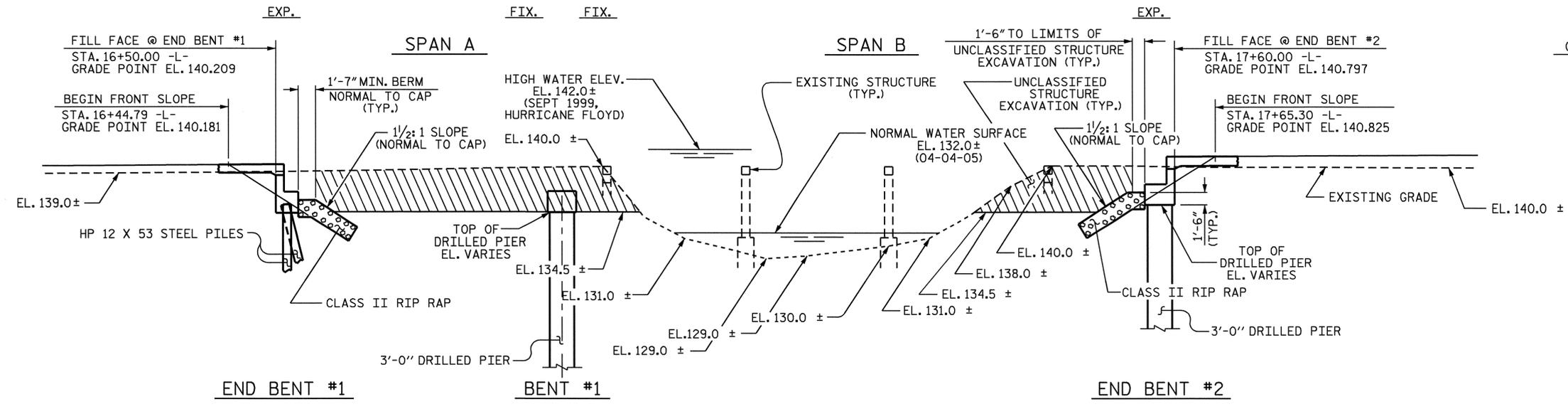
STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE _____
DIVISION ADMINISTRATOR

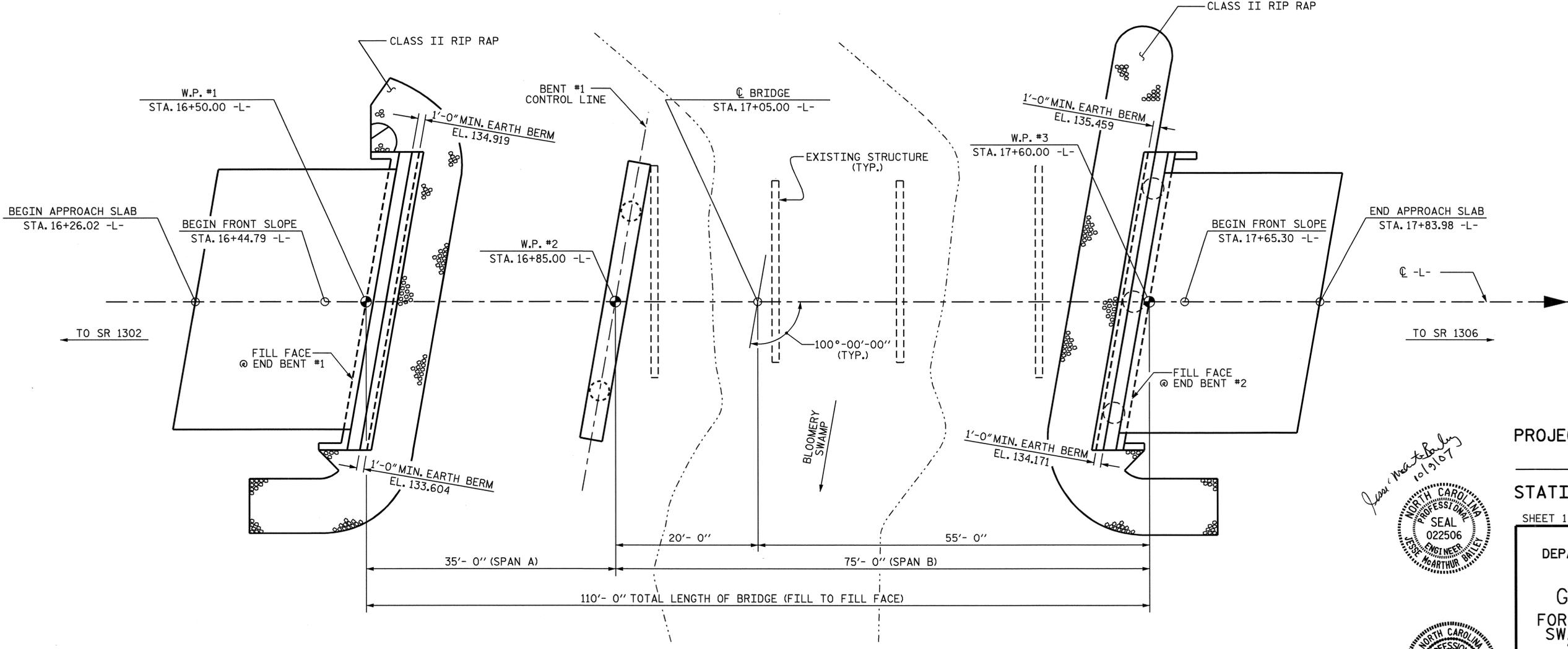
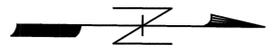


(+).05346% (+).0450%

PI = 19+04.67 -L-
EL. = 141.570
VC = 200'

GRADE DATA

SECTION ALONG C-L-
(BENTS ON SECTION AT RIGHT ANGLES TO BENTS)



PLAN

PILES ARE NOT SHOWN FOR CLARITY

James M. ...
10/9/07

D. Klapp ...
10-7-07

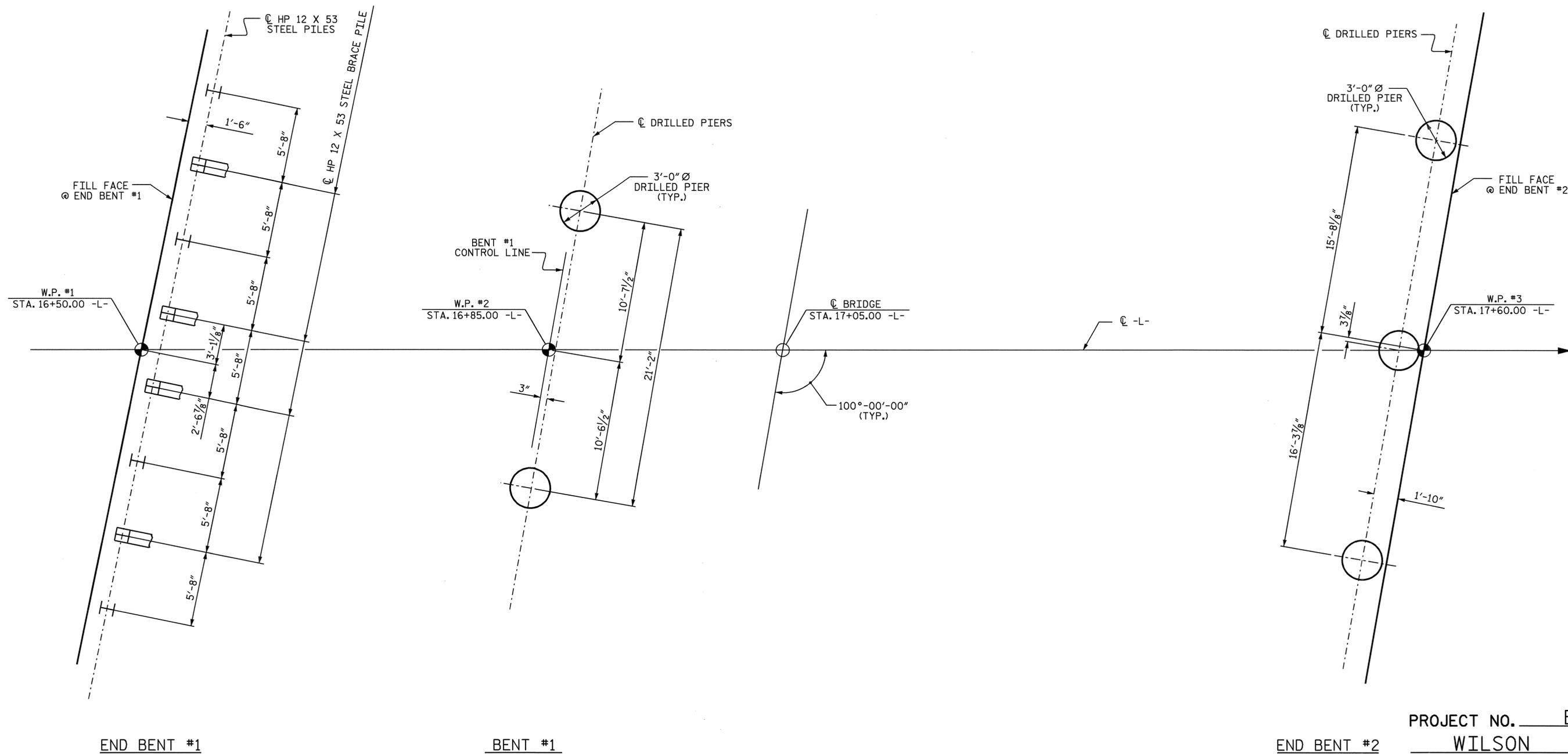
PROJECT NO. B-4326
WILSON COUNTY
STATION: 17+05.00 -L-
SHEET 1 OF 3 REPLACES BRIDGE #79

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER BLOOMERY
SWAMP ON SR 1001 BETWEEN
SR 1302 AND SR 1306

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1	
1			3			TOTAL SHEETS 28	
2			4				

DRAWN BY: D. A. GLADDEN/M.G.S. DATE: 9-7-05
CHECKED BY: A. SORSENGINH DATE: 3-16-07



PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-

SHEET 2 OF 3

FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE.
 BRACE PILES AT END BENT #1 ARE BATTERED 3 : 12.
 THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT
 THE BENT CONTROL LINE IS OFFSET FROM THE
 CENTERLINE CAP AND DRILLED PIER.

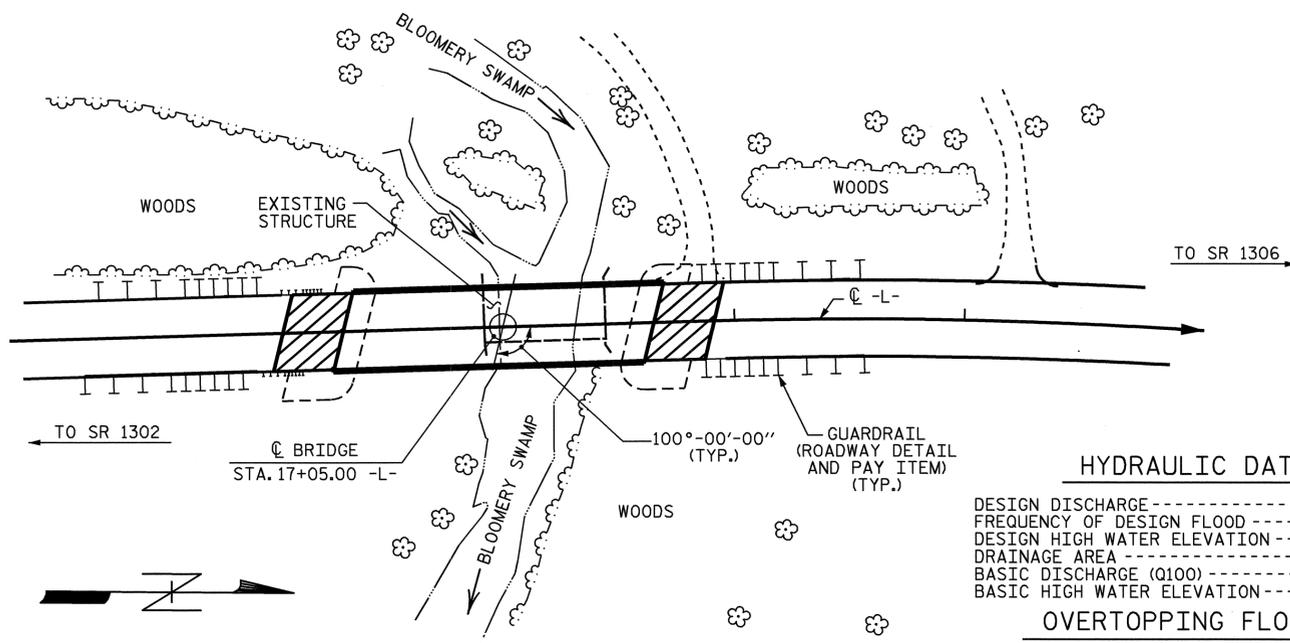
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING FOR
BRIDGE OVER BLOOMERY
SWAMP ON SR 1001 BETWEEN
SR 1302 AND SR 1306



DRAWN BY : M. G. SHAIKH DATE : 2-26-07
 CHECKED BY : A. SORSENGINH DATE : 3-16-07

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2	
1			3			TOTAL SHEETS 28	
2			4				

BENCH MARK: RAILROAD SPIKE IN BASE OF 20" Ø CYPRESS, 43.00' RT., STA. 15+05.12 -L-, EL. 27.71



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	1960 C.F.S.
FREQUENCY OF DESIGN FLOOD	50 YEAR
DESIGN HIGH WATER ELEVATION	138.660
DRAINAGE AREA	14.3 SQ. MI.
BASIC DISCHARGE (Q100)	2510 C.F.S.
BASIC HIGH WATER ELEVATION	139.770
OVERTOPPING FLOOD DATA	
OVERTOPPING DISCHARGE	2510± C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	100± YEAR
OVERTOPPING FLOOD ELEVATION	139.800

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

NOTES

- ASSUMED LIVE LOAD = HS20 OR ALTERNATE LOADING, EXCEPT THAT BOX BEAM UNITS 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 1 @ 17'-0", 1 @ 17'-0" AND 1 @ 17'-9" CONCRETE DECK ON TIMBER JOISTS ON TIMBER CAPS ON TIMBER PILES WITH A CLEAR ROADWAY WIDTH OF 24'-0" AND LOCATED AT THE PROPOSED SITE, SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT.
- 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 ON SHEET S1 SHALL BE EXCAVATED FOR A DISTANCE OF 30'-0" 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.
- 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.
- 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.
- 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 SPICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.
- DRIVE PILES AT END BENT NO.1 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 NO.1 IS 50 TONS PER PILE.
- DRILLED PIERS AT BENT NO.1 HAVE BEEN DESIGNED FOR BOTH SKIN FRICTION AND TIP BEARING. THE REQUIRED TIP BEARING CAPACITY IS 45 TSF.
- DRILLED PIERS FOR BENT NO.1 HAVE BEEN DESIGNED FOR AN APPLIED LOAD OF 244 TONS EACH AT THE TOP OF THE COLUMN.
- PERMANENT STEEL CASING MAY BE REQUIRED FOR DRILLED PIERS AT BENT NO.1. IF REQUIRED, DO NOT EXTEND THE CASING BELOW ELEVATION 128.0 FT. WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE ENGINEER WILL DETERMINE THE NEED FOR PERMANENT STEEL CASING. SEE DRILLED PIERS SPECIAL PROVISIONS.
- DRILLED PIER NO.1 AT BENT NO.1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 115.0 FT. AND SATISFY THE REQUIRED TIP BEARING CAPACITY.
- DRILLED PIER NO.2 AT BENT NO.1 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 116.0 FT. AND SATISFY THE REQUIRED TIP BEARING CAPACITY.
- THE SCOUR CRITICAL ELEVATION FOR BENT NO.1 IS ELEVATION 122.0 FT. THE SCOUR CRITICAL ELEVATION IS FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.
- THE DRILLED PIERS AT END BENT NO.2 HAVE BEEN DESIGNED FOR BOTH SKIN FRICTION AND TIP BEARING. THE REQUIRED TIP BEARING CAPACITY OF 45 TSF.
- DRILLED PIERS AT END BENT NO.2 ARE DESIGNED FOR AN APPLIED LOAD OF 185 TONS EACH AT THE TOP OF THE COLUMN.
- PERMANENT STEEL CASING IS NOT REQUIRED FOR DRILLED PIERS AT END BENT NO.2.
- DRILLED PIER NO.1 AT END BENT NO.2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 124.0 FT. AND SATISFY THE REQUIRED TIP BEARING CAPACITY.
- DRILLED PIER NO.2 AND DRILLED PIER NO.3 AT END BENT NO.2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 120.0 FT. AND SATISFY THE REQUIRED TIP BEARING CAPACITY.
- FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.
- SPT TESTING IS NOT REQUIRED TO DETERMINE THE TIP BEARING CAPACITY OF THE DRILLED PIERS AT BENT NO.1 AND END BENT NO.2.
- SID INSPECTIONS MAY BE REQUIRED TO DETERMINE THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENT NO.1 AND END BENT NO.2.
- CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS AT BENT NO.1 AND END BENT NO.2. SEE SPECIAL PROVISION FOR CROSSHOLE SONIC LOGGING.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	3'-0" DIA. DRILLED PIERS IN SOIL	3'-0" DIA. DRILLED PIERS NOT IN SOIL	PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIER	SID INSPECTION	CROSSHOLE SONIC LOGGING	UNCLASSIFIED STRUCTURE EXCAVATION
	LUMP SUM	LIN.FT.	LIN.FT.	LIN.FT.	EACH	EACH	CU.YDS.
SUPERSTRUCTURE							
END BENT 1							360
BENT 1		23.9	14.0	12.9	1	1	
END BENT 2		23.0	19.0		1	1	145
TOTAL	LUMP SUM	46.9	33.0	12.9	2	2	505

TOTAL BILL OF MATERIAL

	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	HP 12 x 53 STEEL PILES	2 BAR METAL RAIL	1'-2" X 3'-1/4" CONCRETE PARAPET	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	
	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM	LIN.FT.	
SUPERSTRUCTURE	3608	4723						200.02	215.17					1291.00	
END BENT 1			15.1		2806	708	8	80.00		80	89				
BENT 1			16.4		5286	708				100	110				
END BENT 2			19.8		6278	814									
TOTAL	3608	4723	51.3	LUMP SUM	14370	1522	8	80.00	200.02	215.17	180	199	LUMP SUM	LUMP SUM	1291.00

PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER BLOOMERY SWAMP ON SR 1001 BETWEEN SR 1302 AND SR 1306



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS 28
2			4			

DRAWN BY: D. A. GLADDEN/M.G.S DATE: 9-7-05
 CHECKED BY: A. SORSENGINH DATE: 3-16-07

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 SLAB SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOWELS AND THEN FILLED WITH GROUT.

IN SPAN A, 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 4000 PSI.

IN SPAN B, 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 5200 PSI.

ALL REINFORCING STEEL IN PARAPET 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.

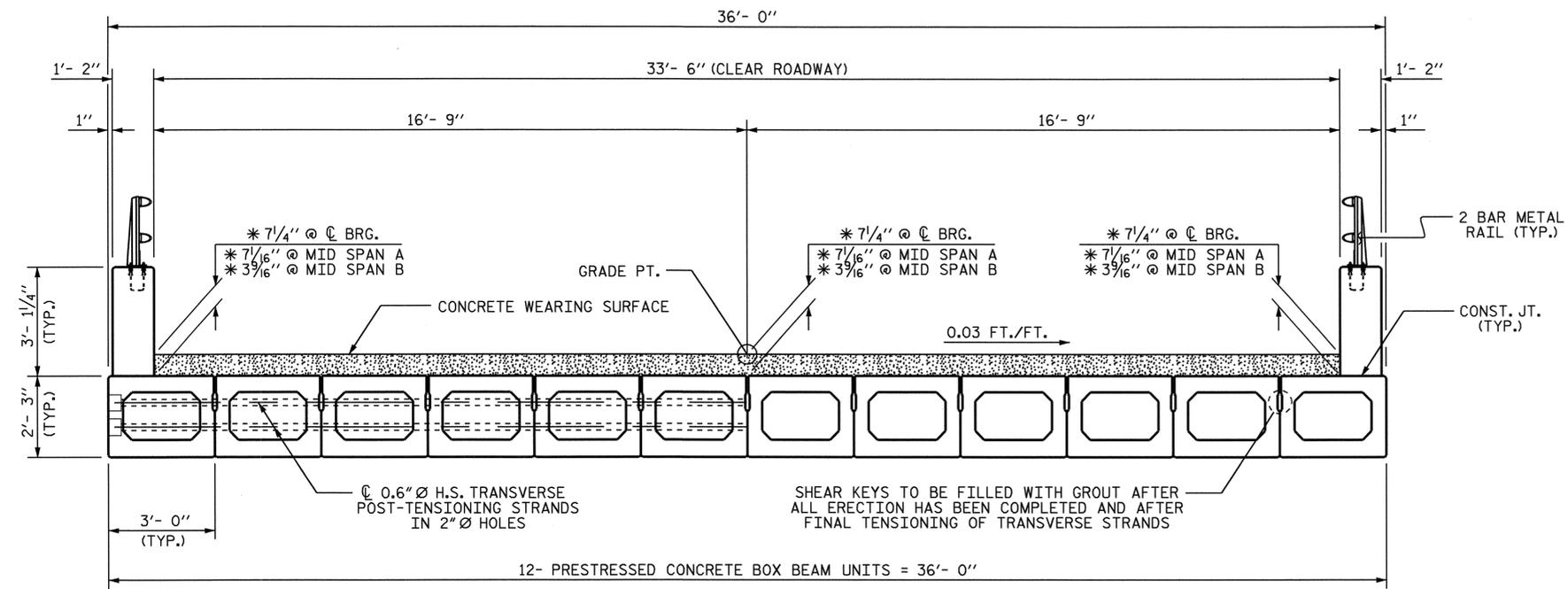
FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

PLACEMENT OF THE CONCRETE WEARING SURFACE SHALL OCCUR AFTER CASTING THE CONCRETE PARAPET. 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.

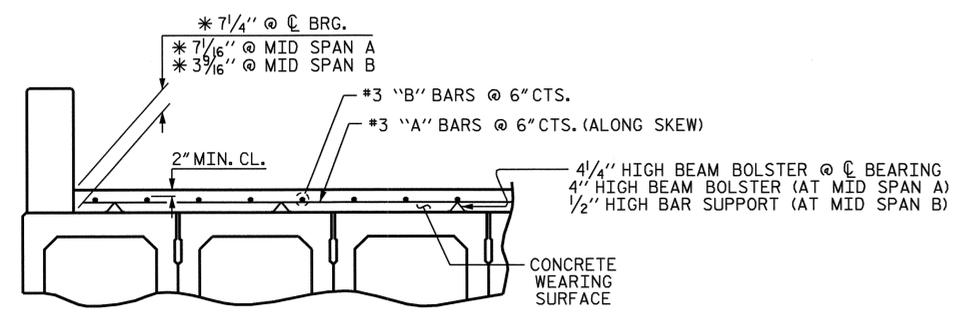
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

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



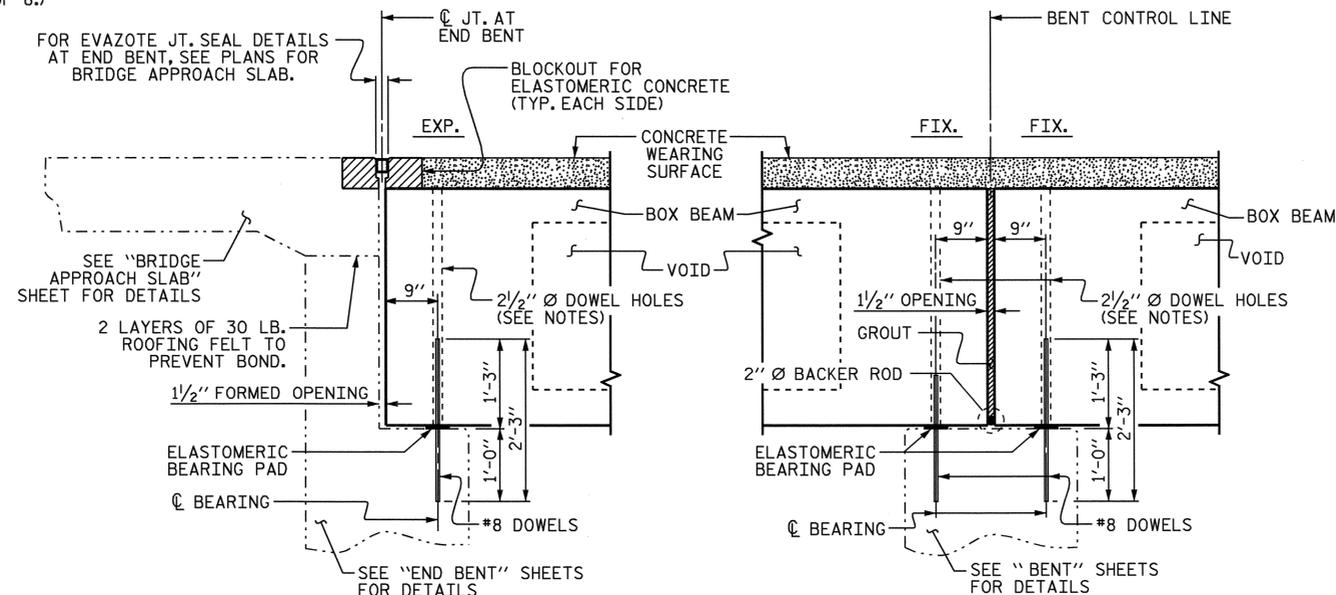
TYPICAL SECTION

*BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS.



REINFORCING FOR CONCRETE WEARING SURFACE

(SEE "REINFORCING FOR CONCRETE WEARING SURFACE" SHEET 4 OF 8.)



SECTION AT END BENT

SECTION AT BENT

PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-

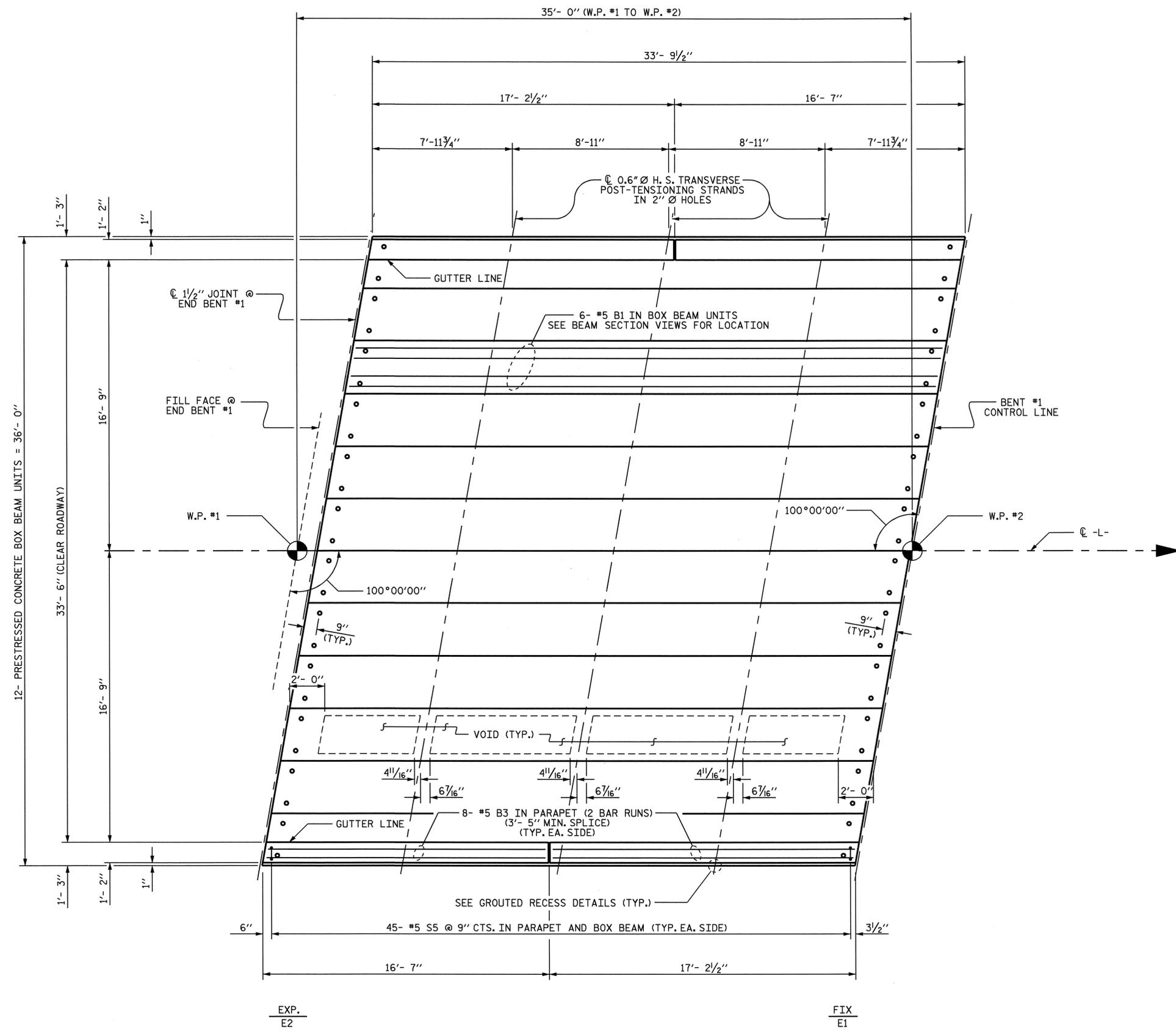
SHEET 1 OF 8

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



ASSEMBLED BY : D. A. GLADDEN	DATE : 9-12-05
CHECKED BY : M. G. SHAIKH	DATE : 9-19-06
DRAWN BY : TLA	5/05
CHECKED BY : GM	6/05
ADDED	7/11/05R

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			28



PLAN OF SPAN A

PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-

SHEET 2 OF 8

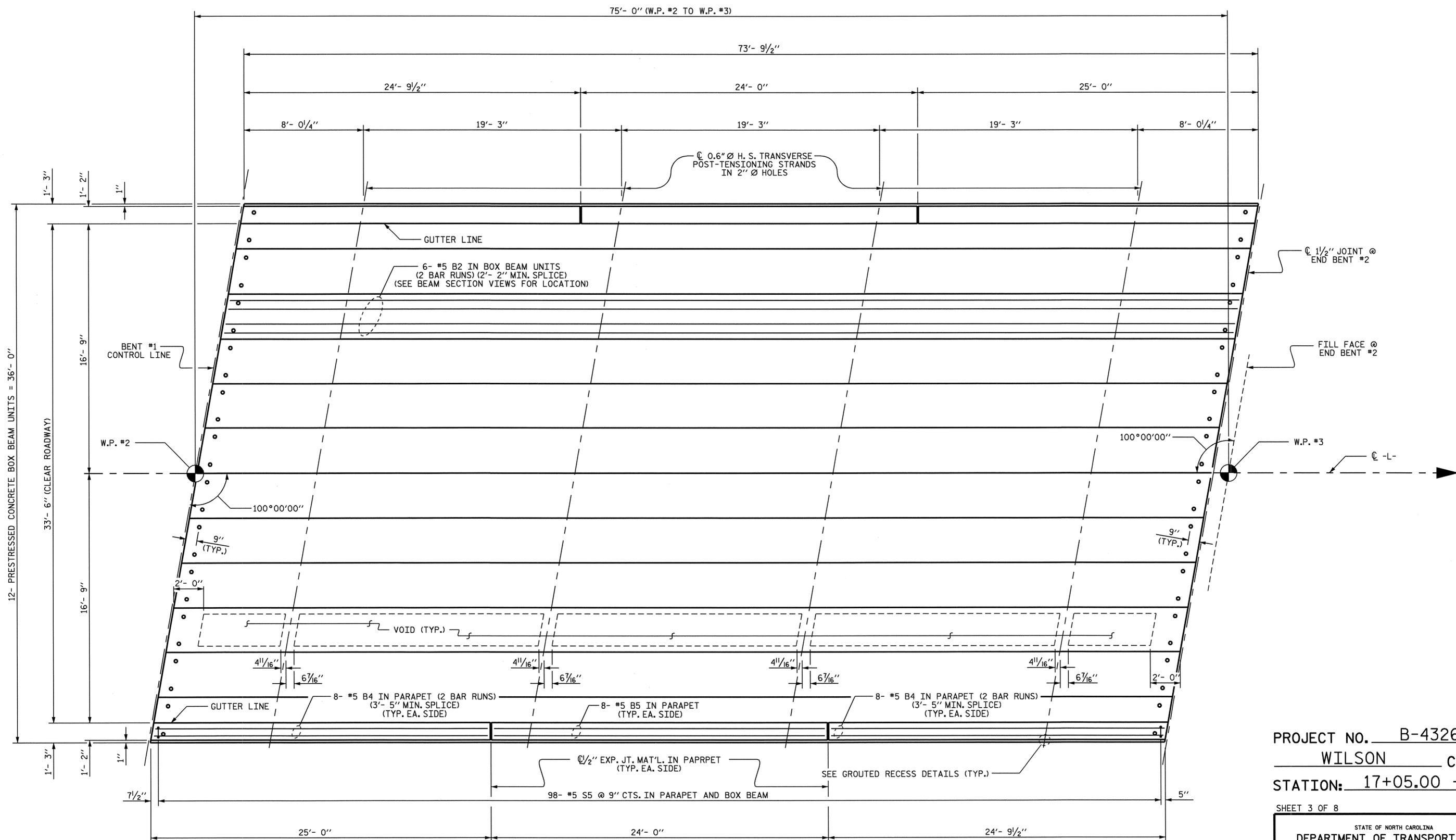
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 2'-3"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT
 PLAN OF SPAN A



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5	
1			3			TOTAL SHEETS	
2			4			28	

DRAWN BY : D. A. GLADDEN DATE : 9-14-05
 CHECKED BY : M. G. SHAIKH DATE : 9-19-06

08-OCT-2007 11:43
 r:\structure\17\final\B4326.dgn
 dgladden



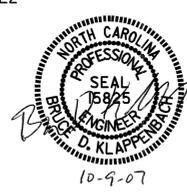
PLAN OF SPAN B

PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-

SHEET 3 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

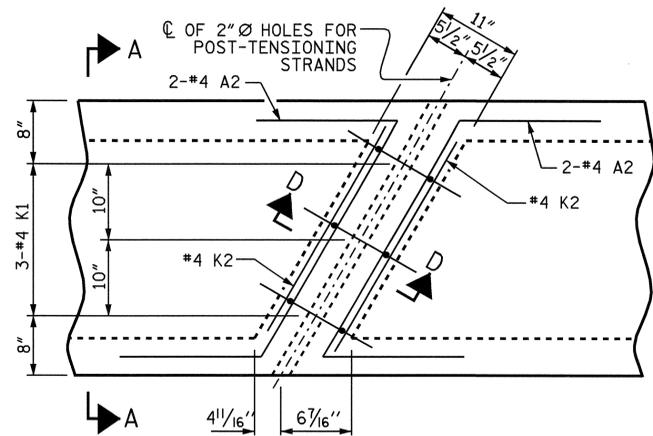
3'-0" X 2'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT
PLAN OF SPAN B



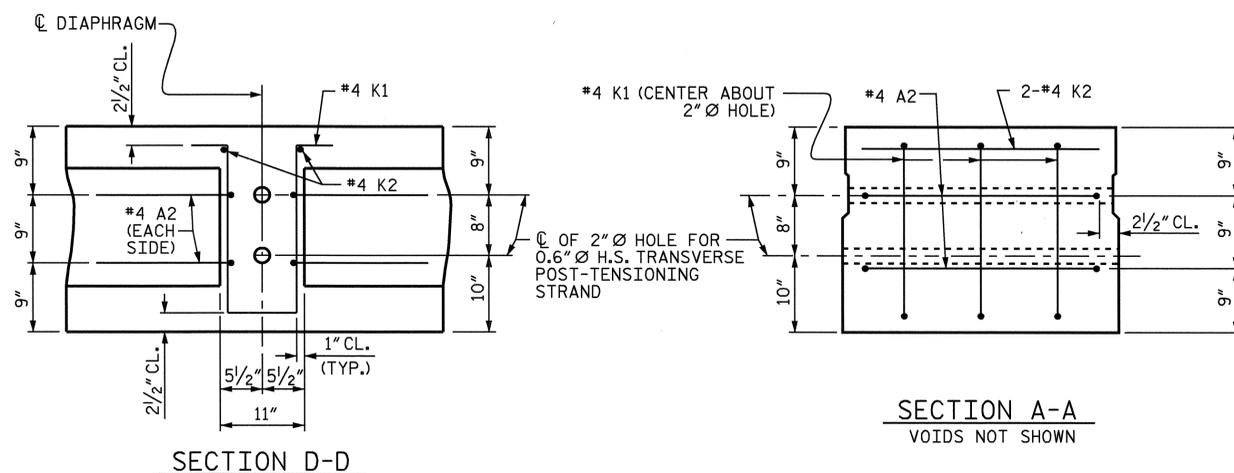
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			28

DRAWN BY : D. A. GLADDEN DATE : 9-14-05
 CHECKED BY : M. G. SHAIKH DATE : 9-19-06

08-OCT-2007 11:44
 P:\Structure\17\17a\Nb4326.dgn
 dgladden



PLAN

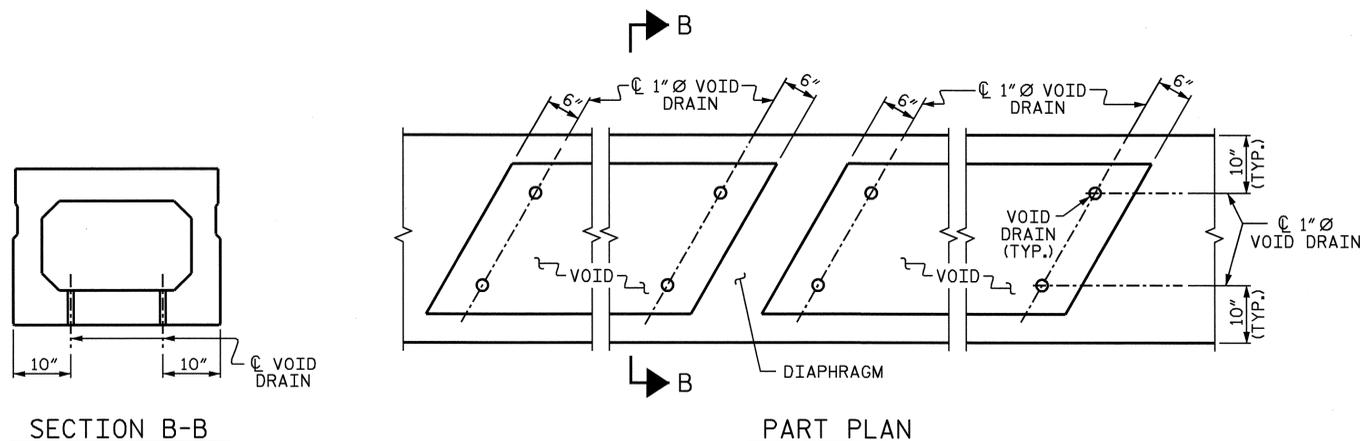


SECTION D-D

SECTION A-A
VOIDS NOT SHOWN

DOUBLE DIAPHRAGM DETAILS

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

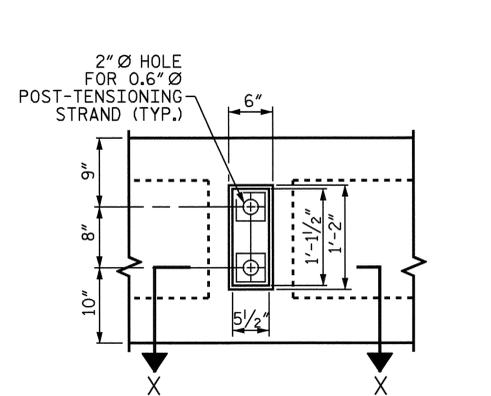


SECTION B-B

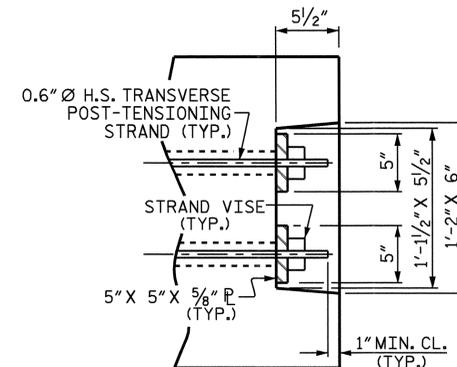
PART PLAN

VOID DRAIN DETAILS

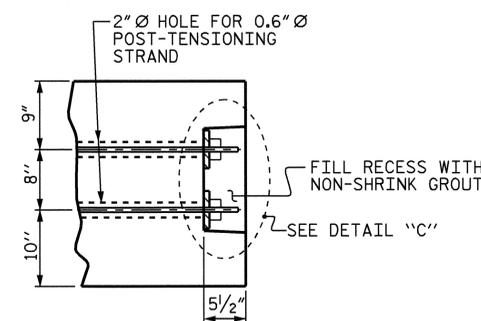
(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)



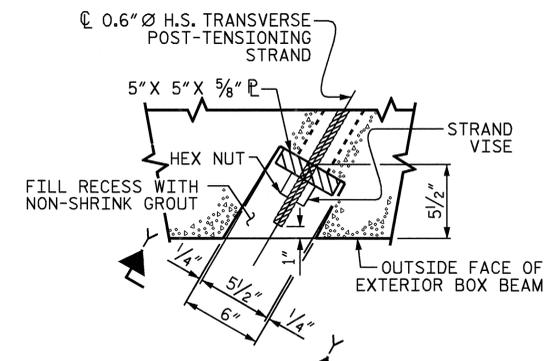
VIEW Y-Y
SHOWING ELEVATION VIEW OF GROUTED RECESS



DETAIL "C"



PART SECTION AT RECESS



SECTION X-X
SHOWING PLAN VIEW OF GROUTED RECESS

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

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)	1/4"	4/4"
DEFLECTION DUE TO CONCRETE WEARING SURFACE	1/16"	7/16"
FINAL CAMBER	3/16"	3 11/16"

PROJECT NO. B-4326
WILSON COUNTY
STATION: 17+05.00 -L-

SHEET 7 OF 8



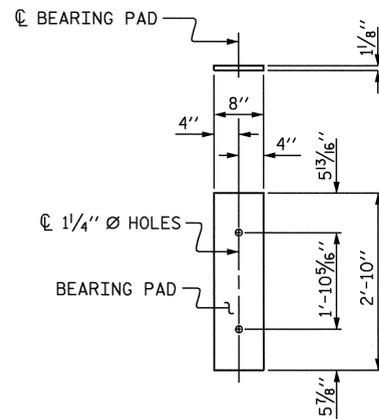
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
3'-0" X 2'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT

ASSEMBLED BY : D. A. GLADDEN DATE : 9-13-05
CHECKED BY : M. G. SHAIKH DATE : 9-19-06
DRAWN BY : TLA 5/05 ADDED 7/11/05
CHECKED BY : GM 6/05

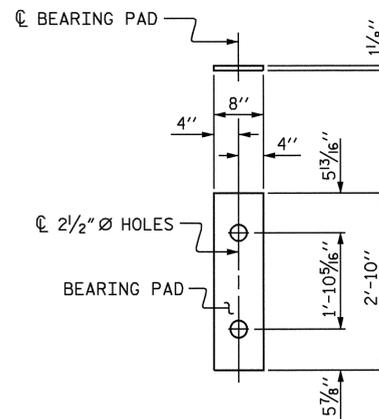
30-AUG-2007 07:04
R:\STRUCT\agladden\MICROS\B4326\B4326_02.DGN
agladden

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS 28
2			4			

STD. NO. PCBB3



FIXED END (E1)
(TYPE I - 24 REQ'D)
(60 DUROMETER)



EXPANSION END (E2)
(TYPE II - 24 REQ'D)
(60 DUROMETER)

ELASTOMERIC BEARING DETAILS

REINFORCING BAR SCHEDULE FOR CONCRETE WEARING SURFACE					
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
* A3	426	#3	STR	17'- 7"	2816
* B6	268	#3	STR	28'- 0"	2822
* B7	66	#4	STR	20'- 0"	882
* EPOXY COATED REINFORCING STEEL 6520 LBS.					

BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
SPAN A (EXTERIOR)	2	33'- 9 1/2"	67'- 7"
SPAN A (INTERIOR)	10	33'- 9 1/2"	337'-11"
SPAN B (EXTERIOR)	2	73'- 9 1/2"	147'- 7"
SPAN B (INTERIOR)	10	73'- 9 1/2"	737'-11"
TOTAL	24	—	1291'- 0"

GROOVING BRIDGE FLOORS		
APPROACH SLABS	1476	SQ.FT.
BRIDGE DECK	3247	SQ.FT.
TOTAL	4723	SQ.FT.

CONCRETE WEARING SURFACE	
SQ. FT.	= 3608

PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-

SHEET 8 OF 8

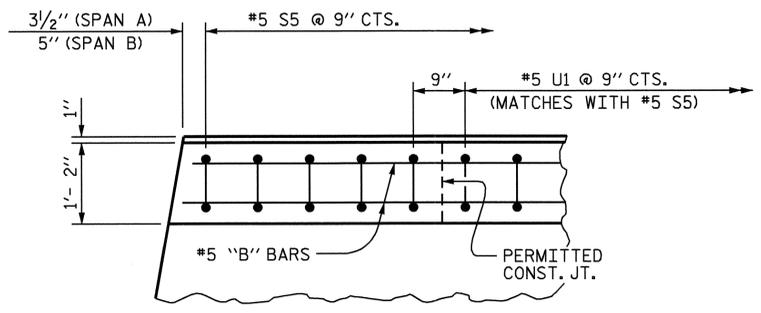


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

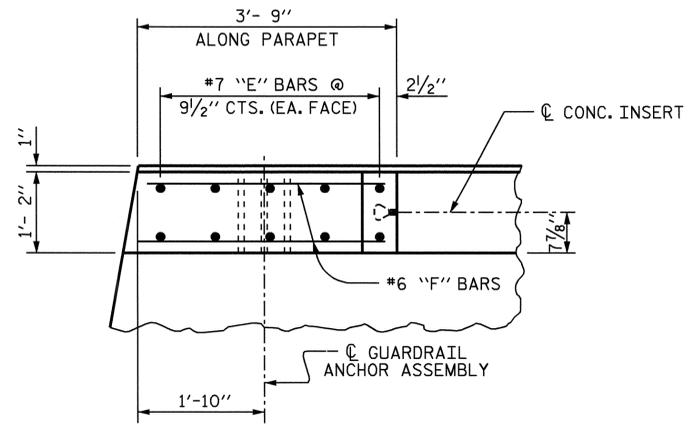
3'-0" X 2'-3"
 PRESTRESSED CONCRETE
 BOX BEAM UNIT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS 28
2			4			

ASSEMBLED BY : D. A. GLADDEN DATE : 9-13-05
 CHECKED BY : M. G. SHAIKH DATE : 9-19-06
 DRAWN BY : TLA 5/05 ADDED 7/11/05
 CHECKED BY : GM 6/05



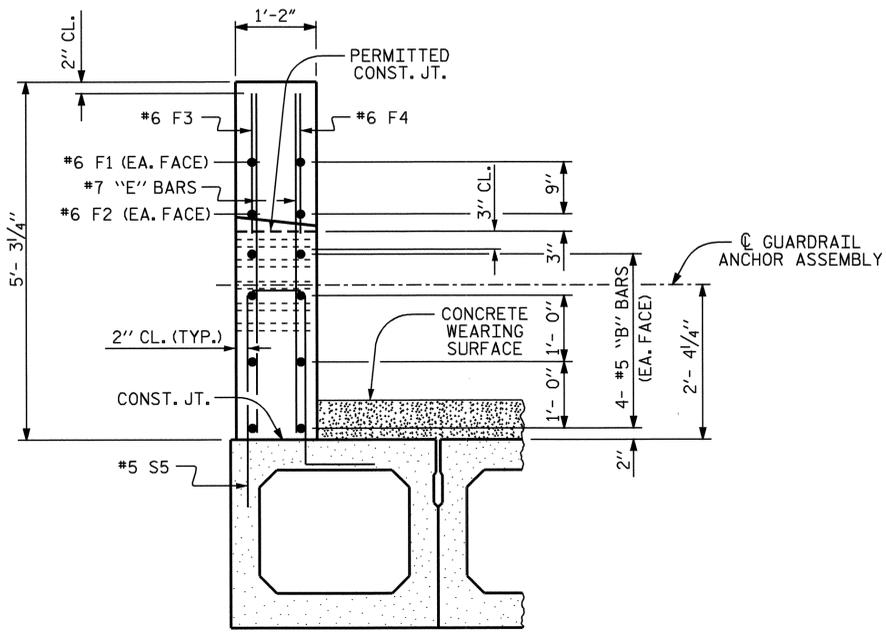
PLAN OF PARAPET



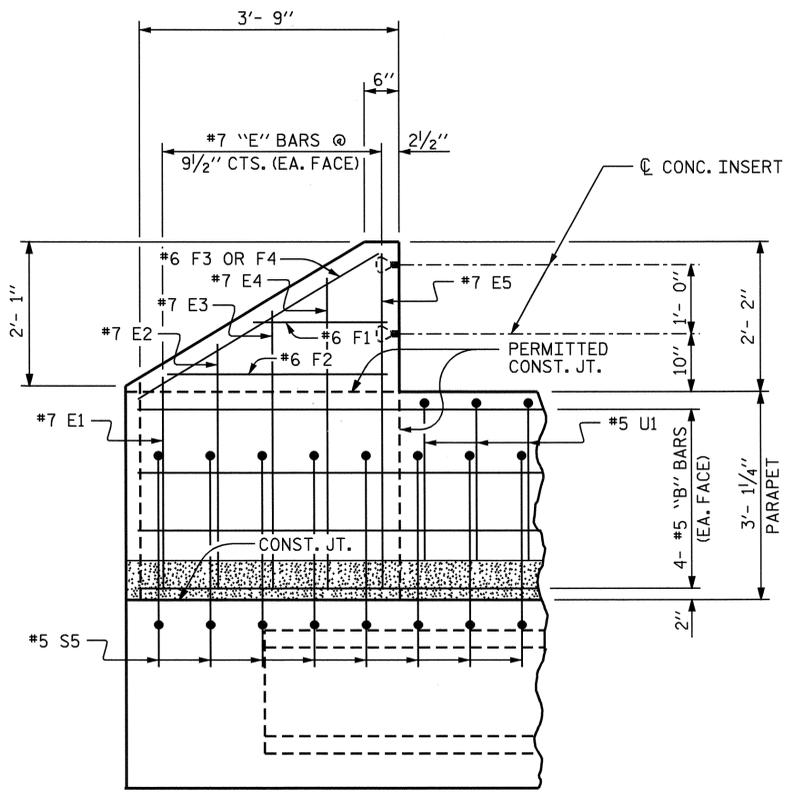
PLAN OF END POST

BAR TYPE		BILL OF MATERIAL				
FOR CONCRETE PARAPET AND END POSTS						
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
*B3	64	#5	STR	10'- 3"	684	
*B4	64	#5	STR	14'- 0"	935	
*B5	16	#5	STR	23'- 8"	395	
*E1	8	#7	STR	3'- 1"	50	
*E2	8	#7	STR	3'- 7"	59	
*E3	8	#7	STR	4'- 1"	67	
*E4	8	#7	STR	4'- 6"	74	
*E5	8	#7	STR	4'-11"	80	
*F1	8	#6	STR	1'-11"	23	
*F2	8	#6	STR	3'- 2"	38	
*F3	4	#6	STR	3'-11"	24	
*F4	4	#6	STR	4'- 0"	24	
*U1	266	#5	10	5'- 9"	1595	
* EPOXY COATED REINFORCING STEEL					4048	
CLASS AA CONCRETE					29.7 CU. YD.	
1'- 2" x 3'- 1/4" CONCRETE PARAPET					215.17 LIN. FT.	

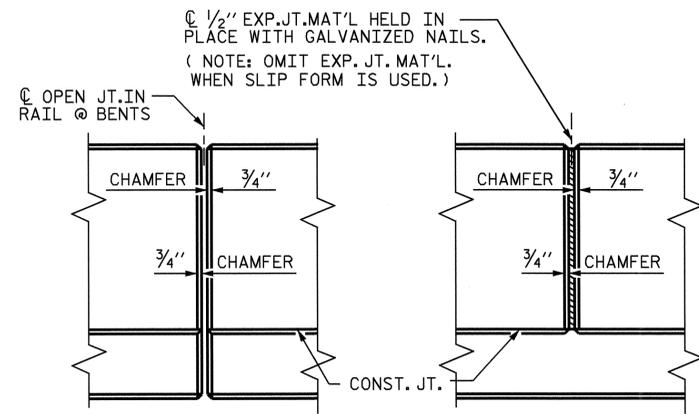
BAR DIMENSIONS ARE OUT TO OUT.



END VIEW



ELEVATION



ELEVATION AT EXPANSION JOINTS
PARAPET DETAILS

PROJECT NO. B-4326
WILSON COUNTY
STATION: 17+05.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
3'-0" X 2'-3"
PRESTRESSED CONCRETE
BOX BEAM UNIT
(PARAPET & END POST DETAILS)



DRAWN BY : D. A. GLADDEN DATE : 11-3-05
CHECKED BY : M. G. SHAIKH DATE : 9-19-06

08-OCT-2007 11:47
r:\structure\1\final\b4326.dgn
dgladden

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS 28
2			4			

NOTES

AT THE CONTRACTOR'S OPTION, METAL RAIL MAY BE EITHER ALUMINUM OR GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS FOR THE ALTERNATE MATERIALS; HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO USE THE SAME RAIL MATERIAL ON ALL STRUCTURES ON THE PROJECT FOR WHICH METAL RAIL IS DESIGNATED.

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6. MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

THE BASE OF RAIL POSTS, OR ANY OTHER ALUMINUM SURFACE IN CONTACT WITH CONCRETE SHALL BE THOROUGHLY COATED WITH AN ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.

MATERIAL FOR SHIMS TO BE ASTM B209 ALLOY 6061-T6.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, RAILS, EXPANSION BARS AND CLAMP BARS: AASHTO M270 GRADE 36 STRUCTURAL STEEL - GALVANIZED TO AASHTO M111.

RIVETS: RIVETS SHALL MEET THE REQUIREMENTS OF ASTM A502 FOR GRADE 1 RIVETS.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

SHIMS: SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

RAIL CAPS: RAIL CAPS SHALL MEET THE REQUIREMENTS OF ASTM A570 FOR GRADE 33 OR A611 FOR GRADE C AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE SHEET S-15.

CAP SCREWS SHALL BE ASTM F593 ALLOY 305 STAINLESS STEEL. WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

METHOD OF MEASUREMENT FOR METAL RAILS: FOR LENGTH OF METAL RAILS TO BE PAID FOR, SEE THE STANDARD SPECIFICATIONS.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

MINOR VARIATIONS IN DETAILS OF METAL RAIL WILL BE CONSIDERED. DETAILS OF SUCH VARIATIONS, IF DESIRED, SHALL BE SUBMITTED FOR APPROVAL.

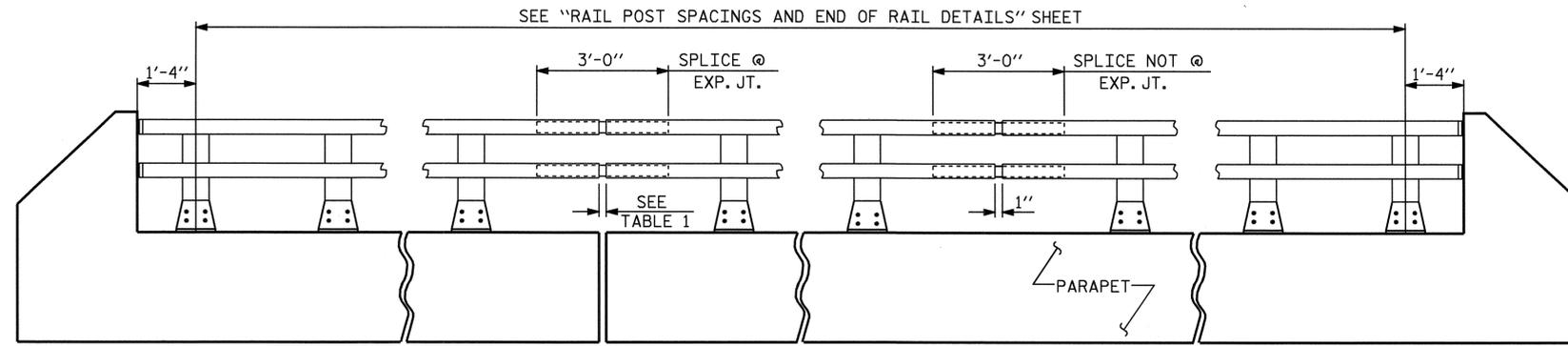
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINT SHALL BE LOCATED AT A SPACING OF 8FT. TO 10FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

PAY LENGTH = 200.02 LIN. FT.

PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-

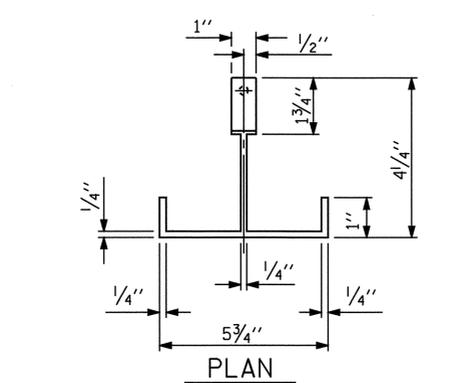
SHEET 1 OF 2

STATE OF NORTH CAROLINA					
DEPARTMENT OF TRANSPORTATION					
RALEIGH					
STANDARD					
2 BAR METAL RAIL					
JUNE 1994					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					28

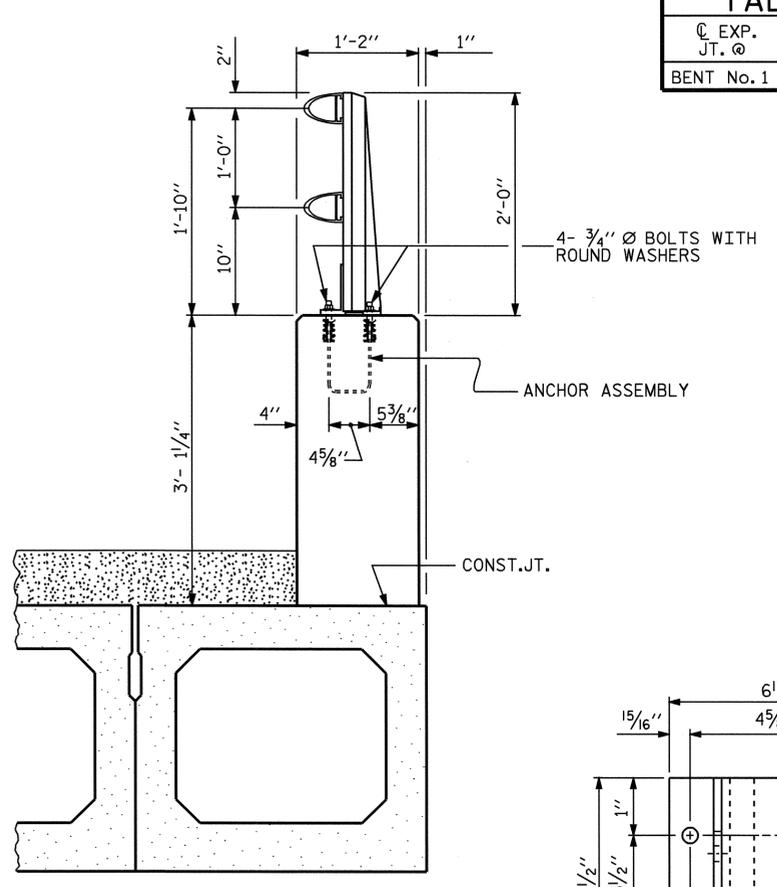


ELEVATION

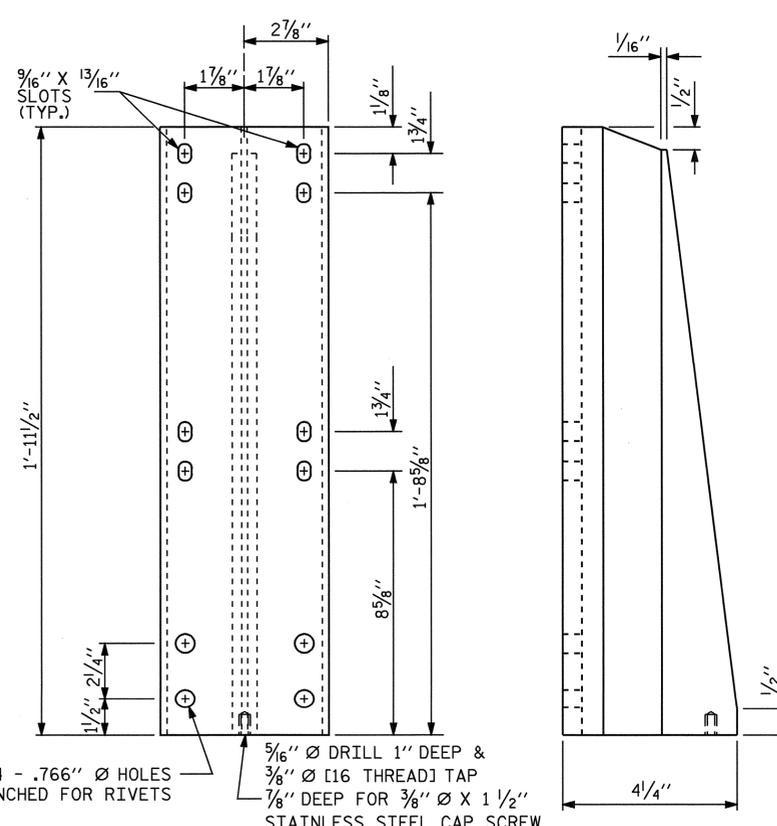
NOTE: FOR ATTACHMENT OF METAL RAIL TO END POST, SEE SHEET S-15.



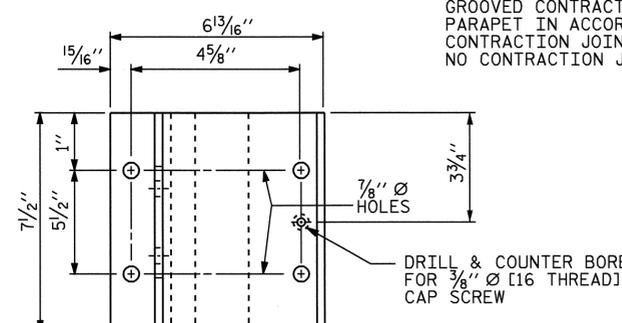
PLAN



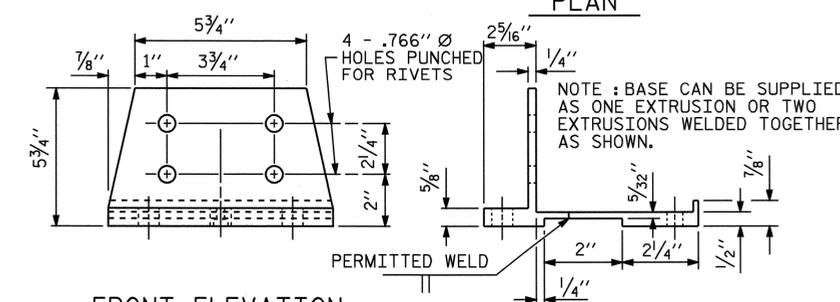
SECTION THRU PARAPET AND RAIL



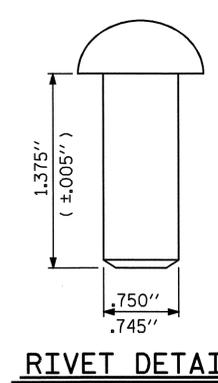
FRONT ELEVATION SIDE ELEVATION
DETAILS OF POST



PLAN



FRONT ELEVATION SIDE ELEVATION
POST BASE DETAILS



RIVET DETAIL

ASSEMBLED BY: D. A. GLADDEN DATE: 10-20-05
 CHECKED BY: M. G. SHAIKH DATE: 9-19-06
 DRAWN BY: EEM 6/94 REV. 8/16/99 RWW/LES
 CHECKED BY: RGW 6/94 REV. 10/17/00 LES/RDR
 REV. 5/7/03R RWW/JTE

NOTES

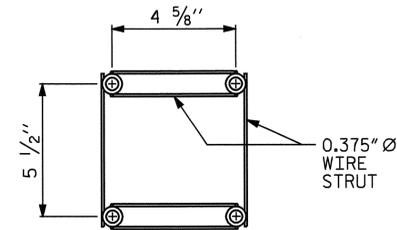
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

THE STRUCTURAL CONCRETE ANCHOR ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS :

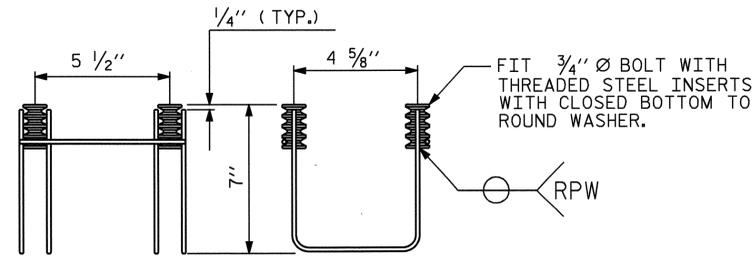
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS 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.
- C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE ANCHOR BOLTS IS TEN KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS.

WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY SHALL BE MADE FROM ALLOY 304 STAINLESS STEEL.



PLAN



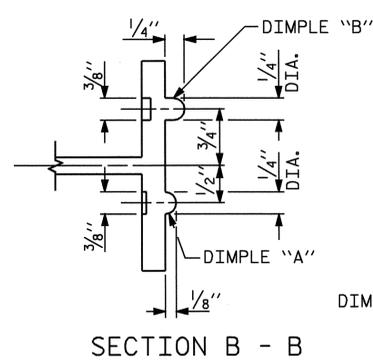
SIDE VIEW

ELEVATION

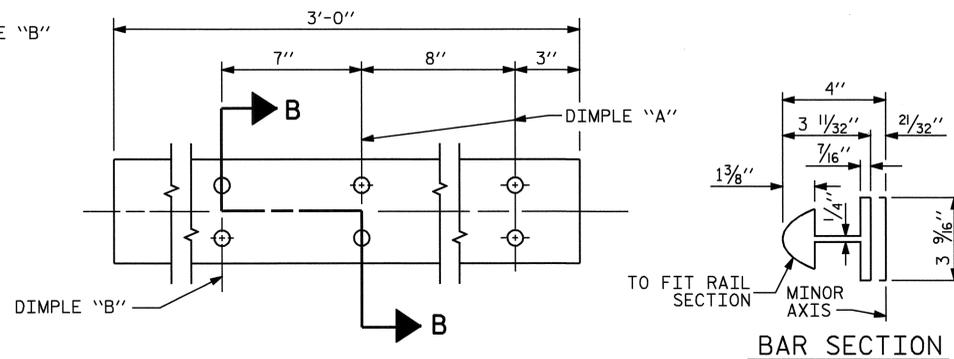
MINIMUM LENGTH OF THREADS IN INSERT (FERRULE) : 1 3/4"

4-BOLT METAL RAIL ANCHOR ASSEMBLY

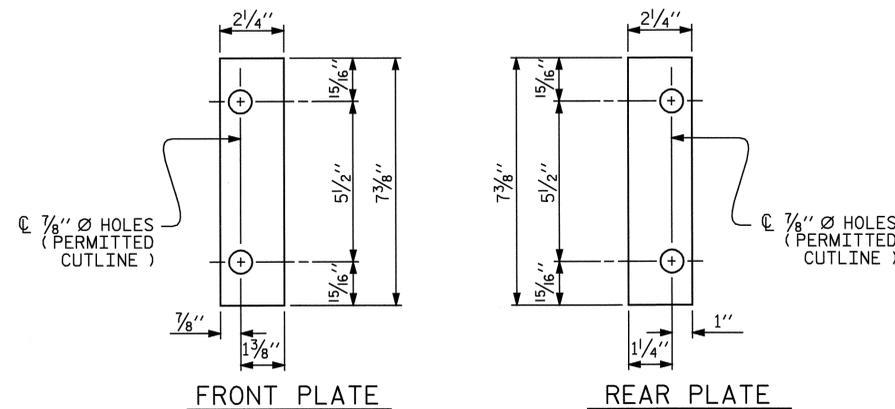
(34 ASSEMBLIES REQUIRED)



SECTION B - B



EXPANSION BAR DETAILS

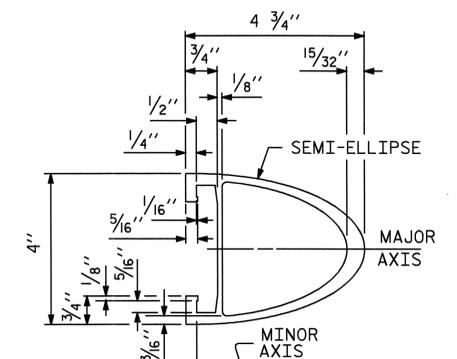


FRONT PLATE

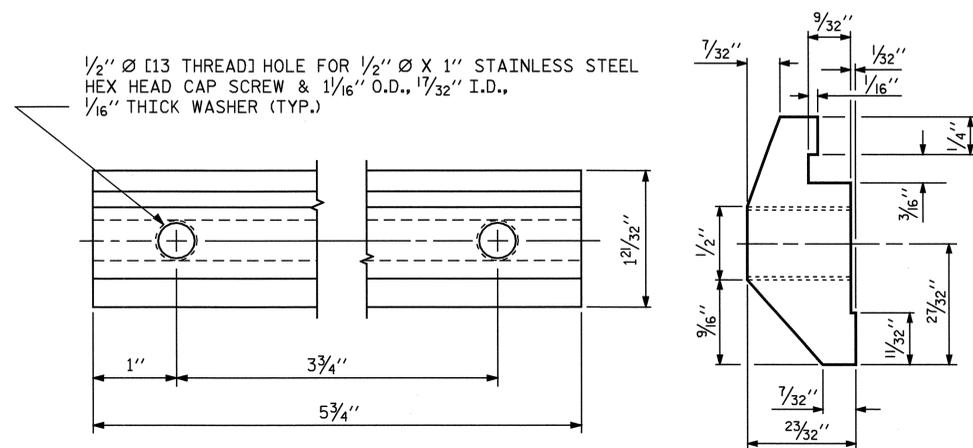
REAR PLATE

SHIM DETAILS

NOTE : SHIMS MAY BE CUT ALONG PERMITTED CUTLINE OR SLOTTED TO EDGE OF PLATE TO FACILITATE PLACEMENT.

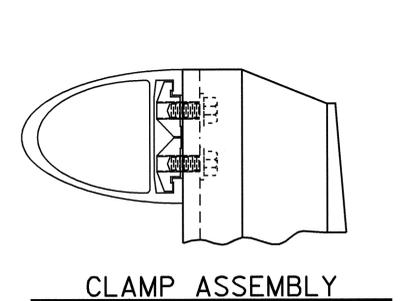


RAIL SECTION

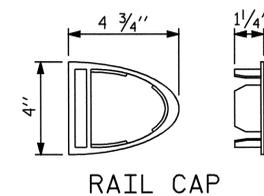


CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY



RAIL CAP

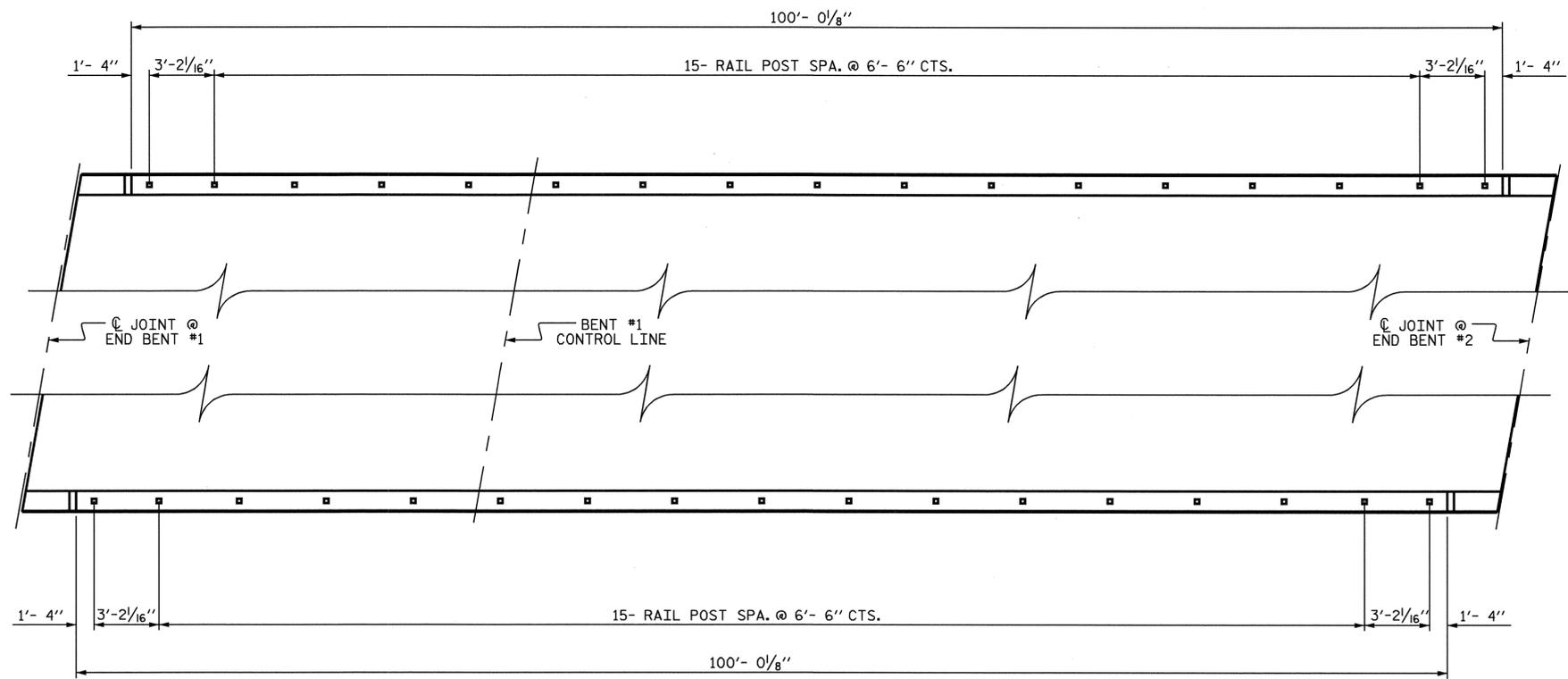
PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-

SHEET 2 OF 2

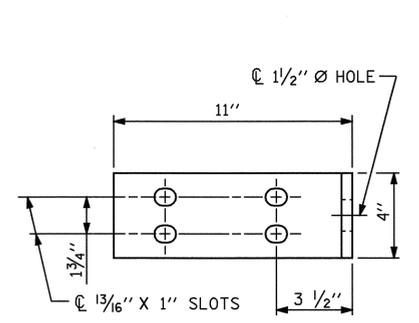
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD					
2 BAR METAL RAIL					
JUNE 1994					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-14					TOTAL SHEETS 28



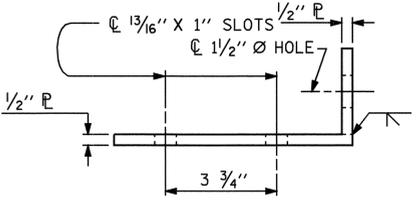
ASSEMBLED BY : D. A. GLADDEN	DATE : 10-20-05
CHECKED BY : M. G. SHAIKH	DATE : 9-19-06
DRAWN BY : EEM 6/94	REV. 2/6/97 EEM/RGW
CHECKED BY : RGW 6/94	REV. 8/16/99 MAB/LES
	REV. 5/7/03 RWW/JTE



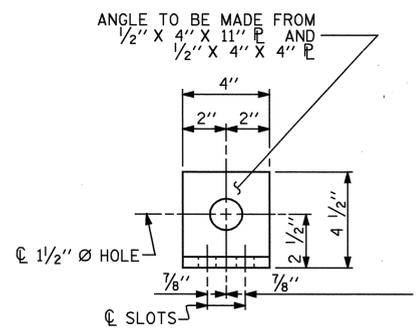
PLAN OF RAIL POST SPACINGS



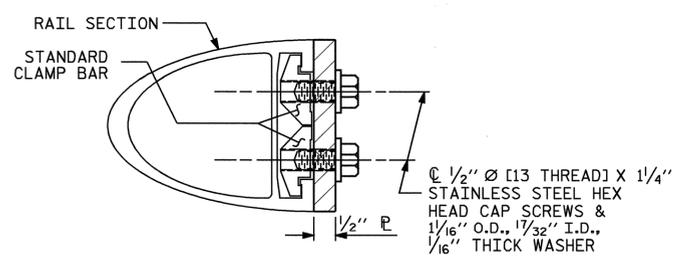
ELEVATION



TOP VIEW



END VIEW

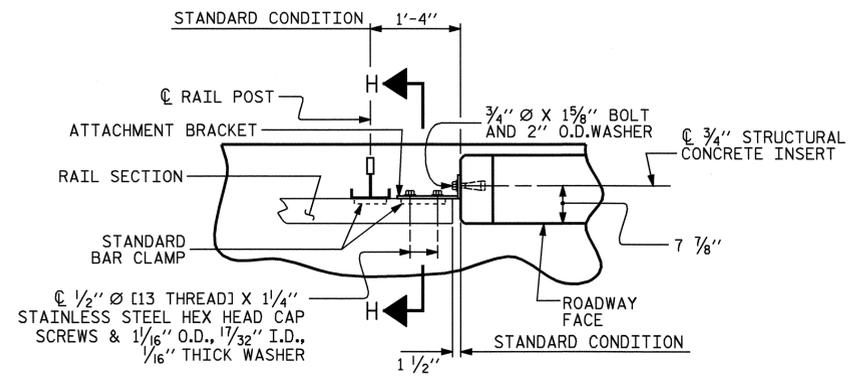


SECTION H-H

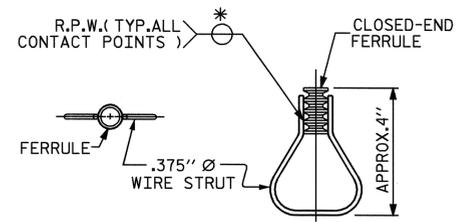
DETAILS FOR ATTACHING METAL RAIL TO END POST

- NOTES**
STRUCTURAL CONCRETE INSERT
- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 1/2".
 - 1 - 3/4" Ø X 1 5/8" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 1 5/8" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 - WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

- NOTES**
METAL RAIL TO END POST CONNECTION
- THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 - 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" Ø X 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" Ø X 1 5/8" BOLT SHALL HAVE N. C. THREADS.
 - CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°.
 - STANDARD CLAMP BARS (SEE METAL RAIL SHEET).
 - 1/2" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.
- THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.
- THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.
- THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.
- THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" Ø X 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" Ø X 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" Ø X 1 5/8" BOLT SHALL APPLY TO THE 3/4" Ø X 6 1/2" BOLT. SEE SPECIAL PROVISIONS FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PLAN - RAIL AND END POST

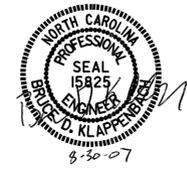


PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

RAIL POST SPACINGS AND END OF RAIL DETAILS
 FOR TWO BAR METAL RAIL

DECEMBER 1988

REVISIONS						SHEET NO. S-15
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 28
2			4			

ASSEMBLED BY : <u>D. A. GLADDEN</u> DATE : <u>10-20-05</u>
CHECKED BY : <u>M. G. SHAIKH</u> DATE : <u>9-19-06</u>
DRAWN BY : FCJ 1/88 REV. 8/16/99 RWW/LES
CHECKED BY : CRK 3/89 REV. 10/17/00 LES/RDR
REV. 5/7/03 RWW/JTE

NOTES

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

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

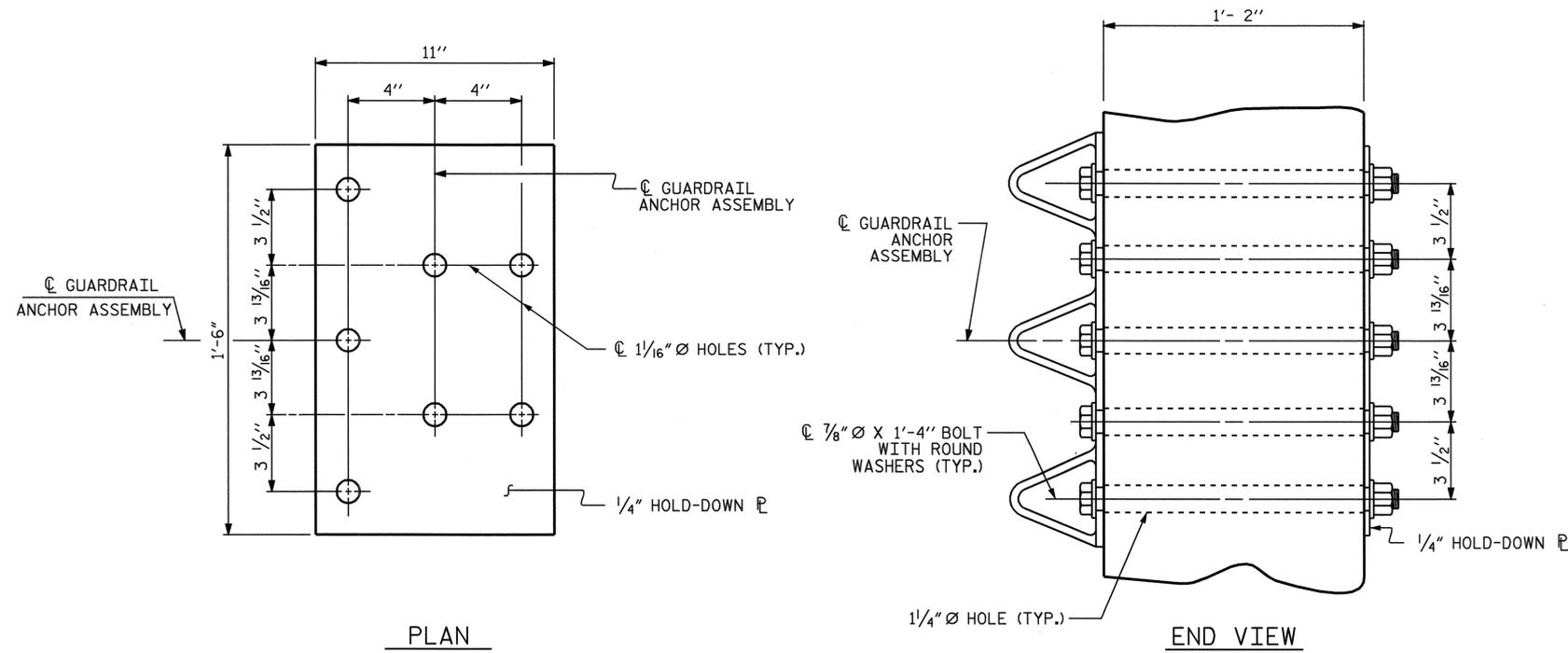
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

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

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

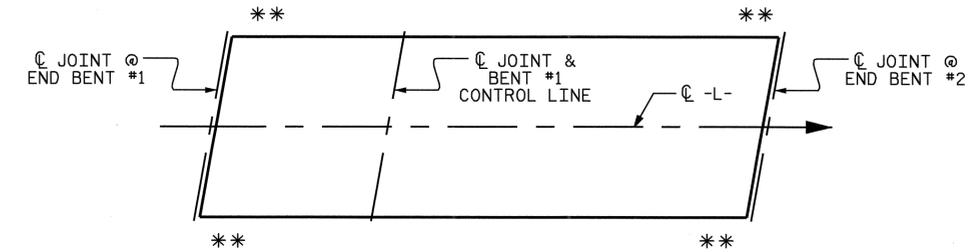
THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



PLAN

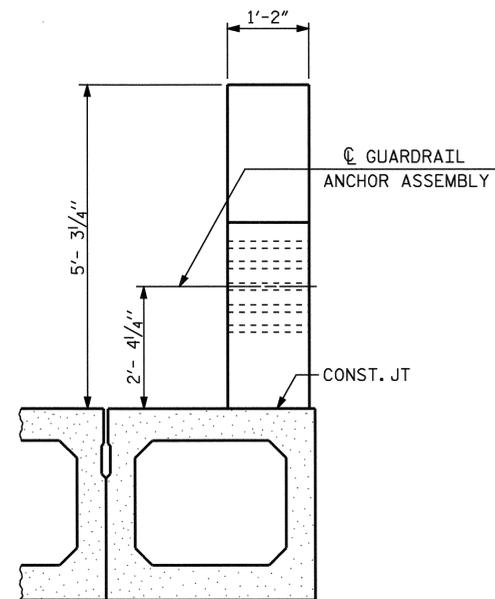
END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS

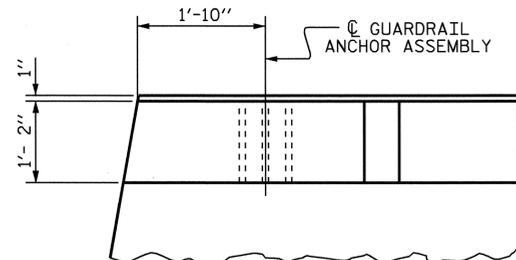


SKETCH SHOWING POINTS OF ATTACHMENT

** LOCATION OF GUARDRAIL ATTACHMENT



END VIEW
(TWO BAR METAL RAIL)



PLAN

LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 GUARDRAIL ANCHORAGE
 DETAILS
 FOR METAL RAILS

JUNE 1994

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16	
1			3			TOTAL SHEETS	
2			4			28	

ASSEMBLED BY :	D. A. GLADDEN	DATE :	10-20-05
CHECKED BY :	M. G. SHAIKH	DATE :	9-19-06
DRAWN BY :	EEM 6/94	REV. 8/16/99	RWW/LES
CHECKED BY :	RGW 6/94	REV. 10/17/00	RWW/LES
		REV. 5/7/03	RWW/JTE

NOTES

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

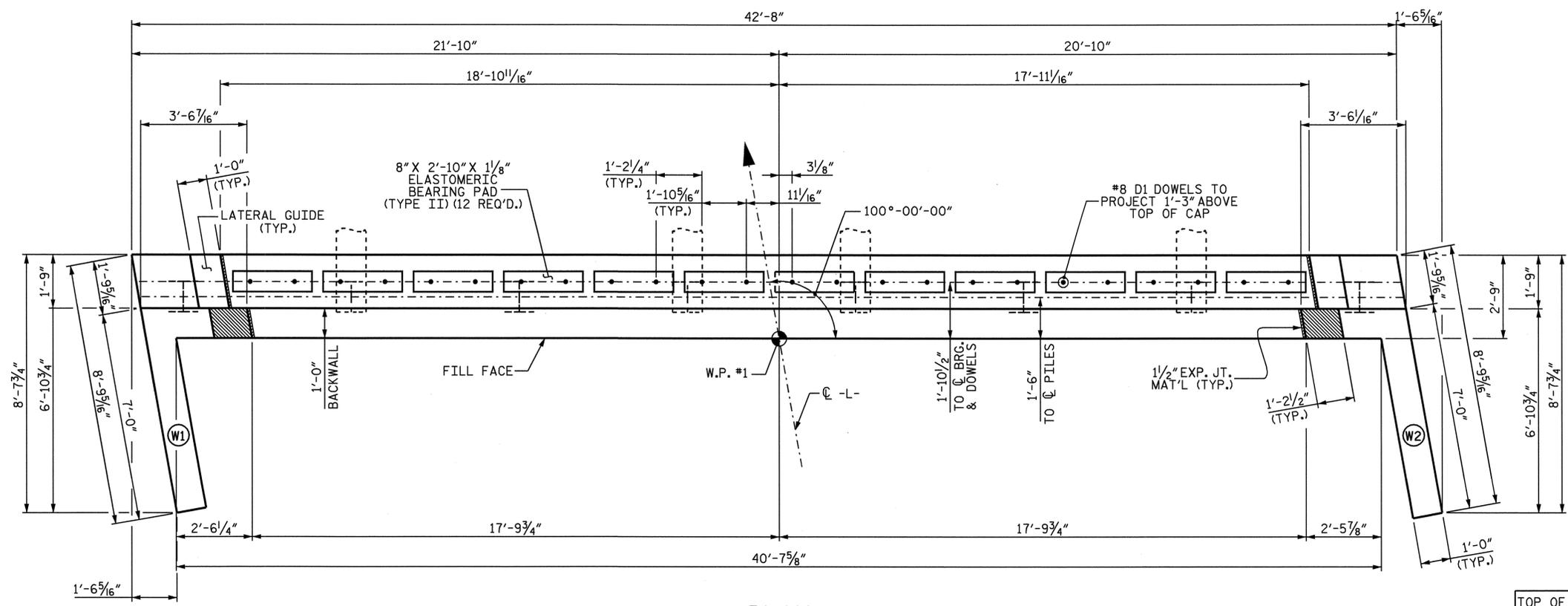
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING WALL AS REQUIRED FOR REINFORCED BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS. REINFORCING STEEL IN THE WING WALL MAY BE SHIFTED AS NECESSARY TO CLEAR THE DRAIN PIPE.

BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.

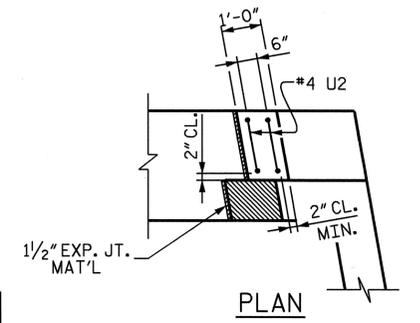
THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT THE MEMBRANE CURING COMPOUND METHOD SHALL NOT BE USED.

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

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE PARAPET AND END POST ARE CAST IF SLIP FORMING IS USED.



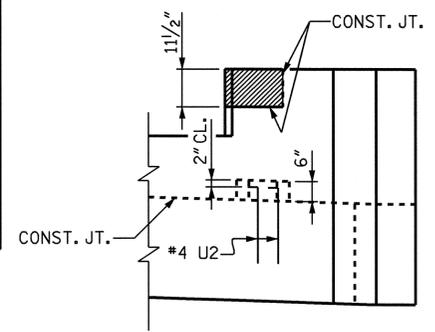
PLAN



PLAN

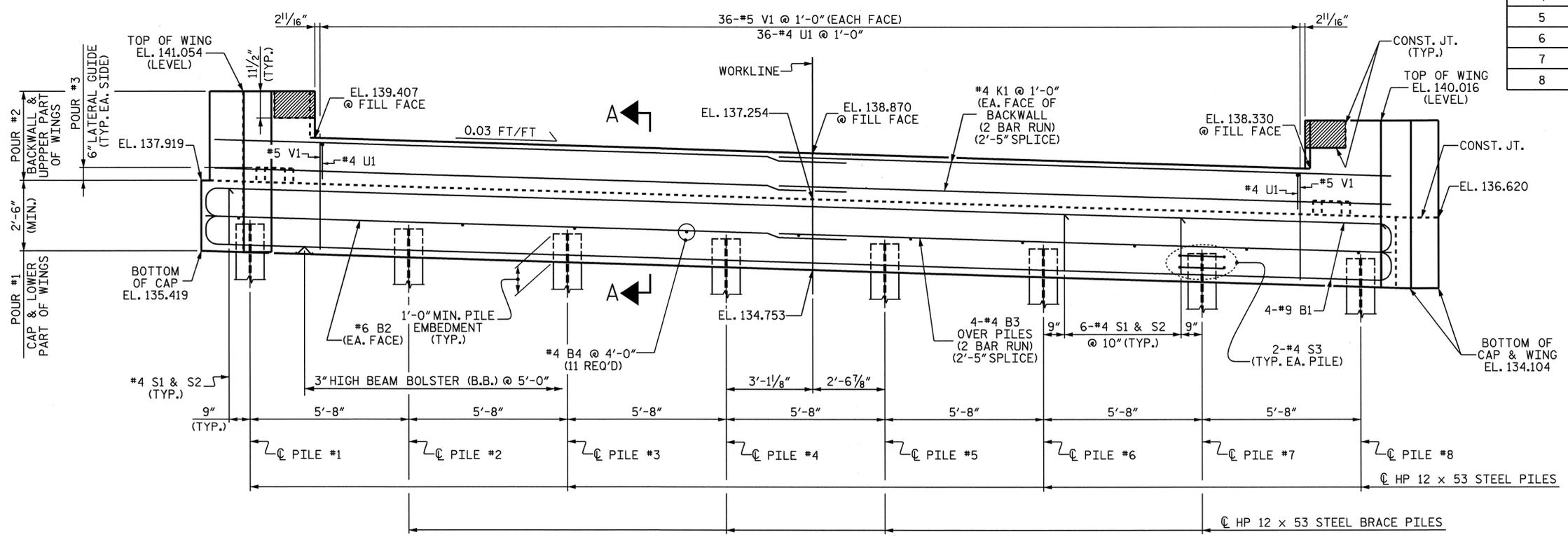
TOP OF PILE ELEVATIONS

PILE NO.	ELEVATIONS
1	136.388
2	136.213
3	136.038
4	135.864
5	135.689
6	135.515
7	135.340
8	135.165



ELEVATION

LATERAL GUIDE DETAILS
(EACH END SIMILAR)



ELEVATION

PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

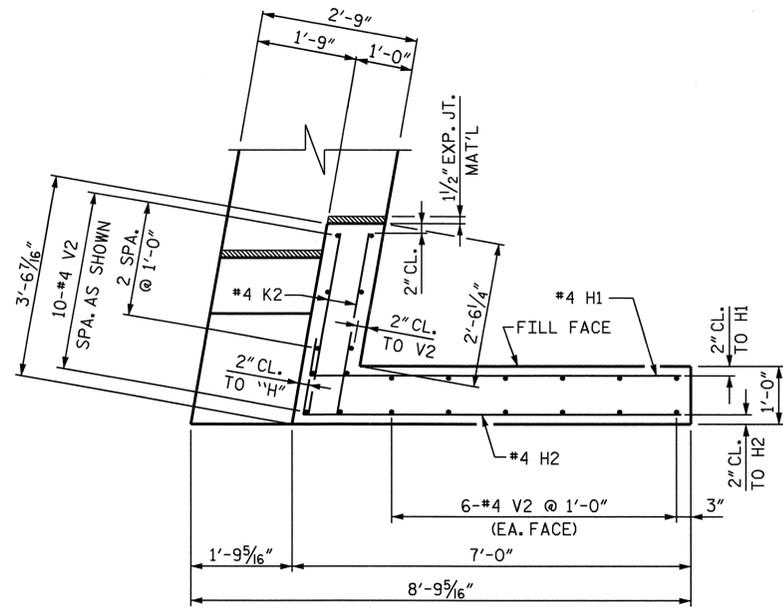
**SUBSTRUCTURE
 END BENT #1**

REVISIONS						SHEET NO. S-17
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 28
2			4			

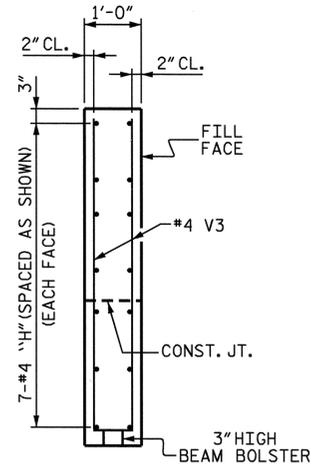


DRAWN BY: A. SORSENGINH DATE: 2/5/07
 CHECKED BY: SH. SOCKWELL DATE: 3/1/07

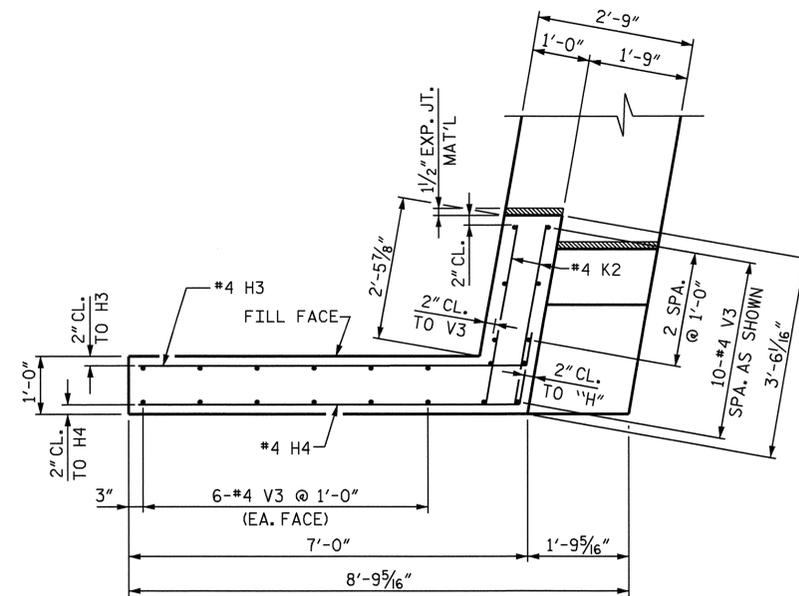
30-AUG-2007 15:33
 R:\Structures\asorsenginh\B-4326.ed.E*.dgn
 asorsenginh



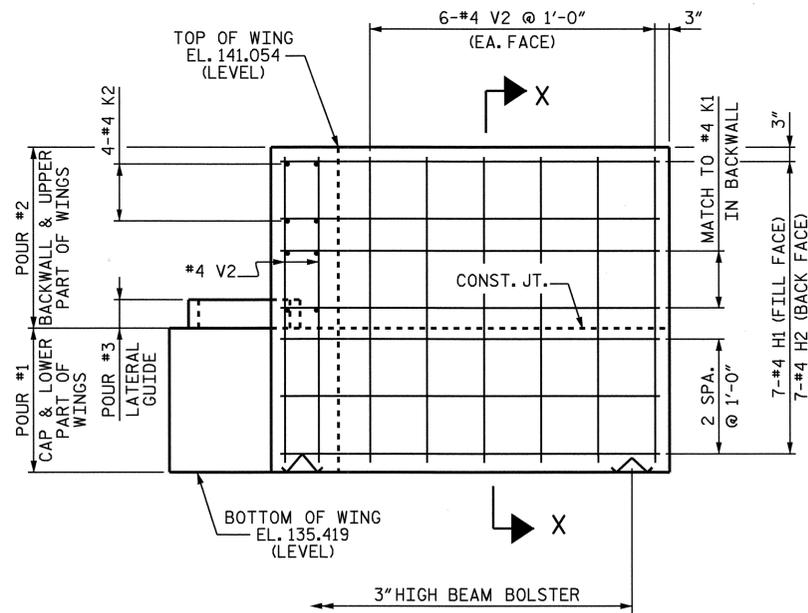
PLAN OF LEFT WING (W1)



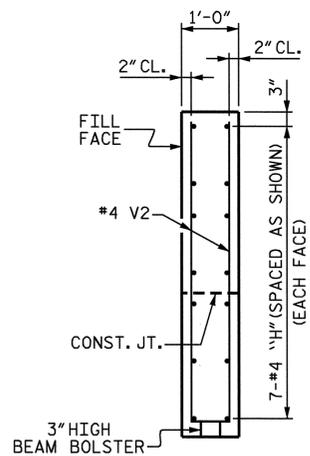
SECTION Y-Y



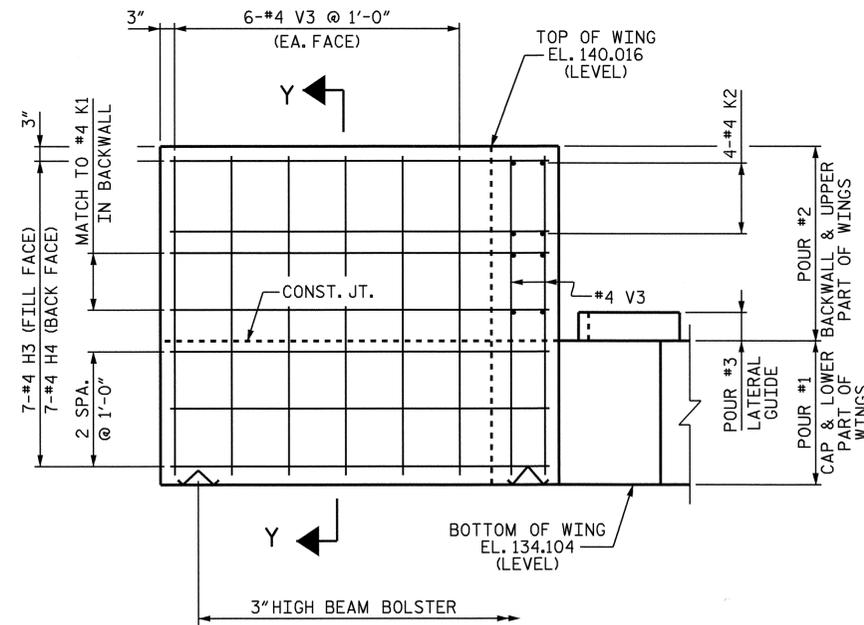
PLAN OF RIGHT WING (W2)



ELEVATION OF LEFT WING (W1)



SECTION X-X



ELEVATION OF RIGHT WING (W2)

DRAWN BY : A. SORSENGINH DATE : 2/8/07
 CHECKED BY : SH. SOCKWELL DATE : 3/1/07

27-AUG-2007 09:59
 R:\Structures\asorsenginh\B-4326.sd.E*.dgn
 asorsenginh



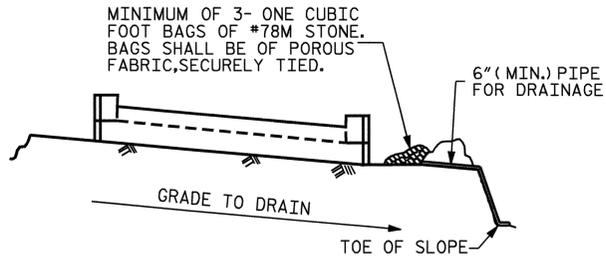
PROJECT NO. B-4326
 WILSON COUNTY
 STATION: 17+05.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	TOTAL SHEETS
1			3			28
2			4			28

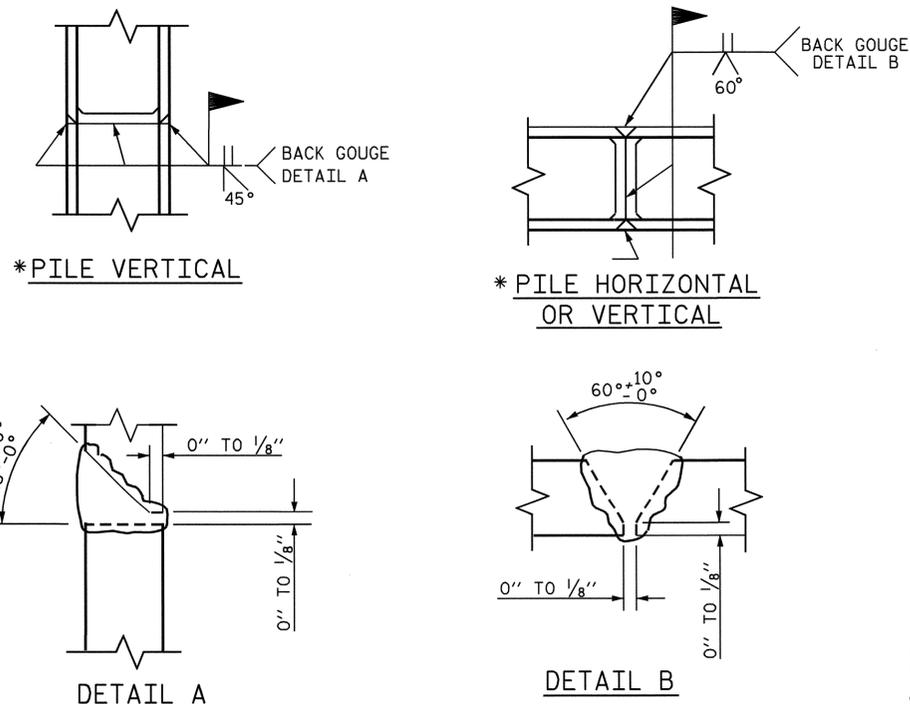
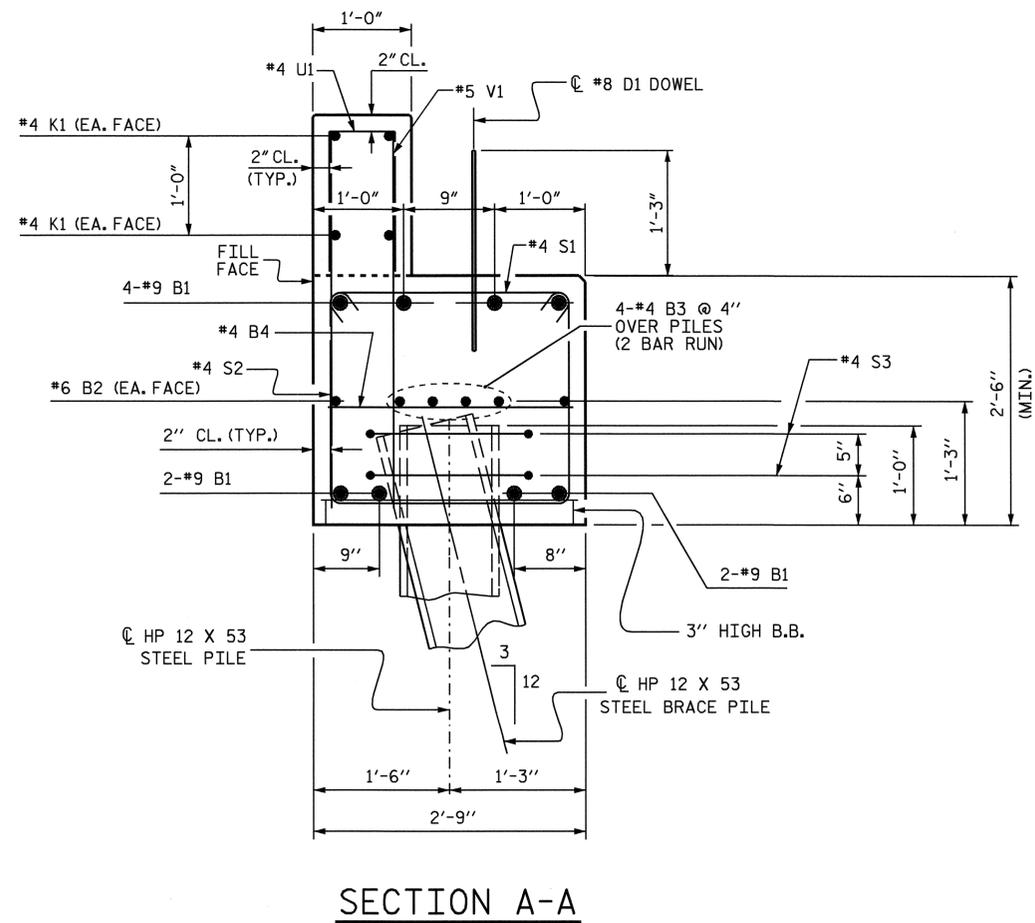


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

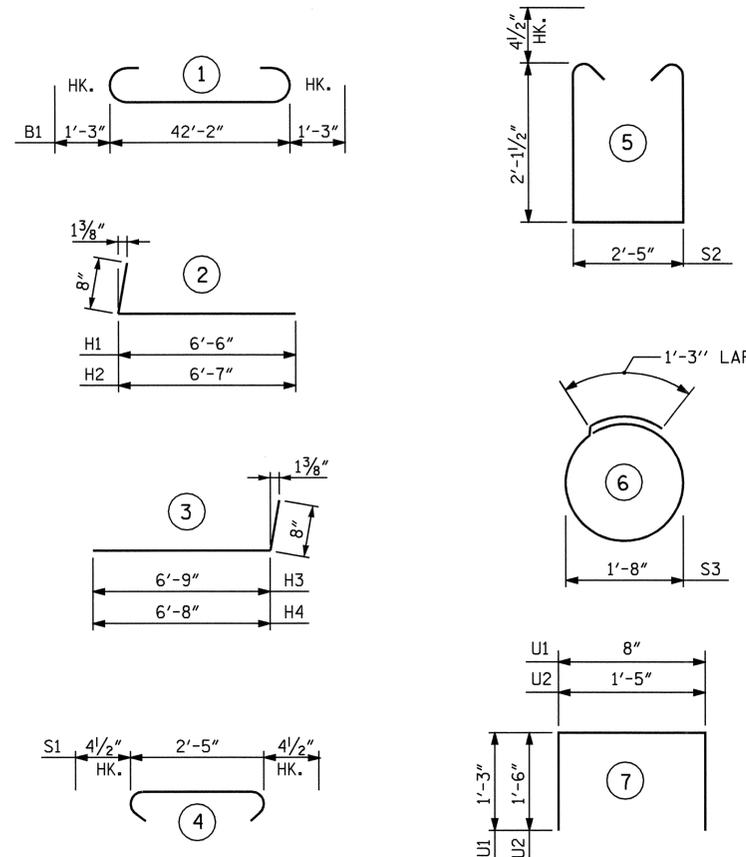
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR 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		44'-8"	1215
B2	2	#6	STR.	42'-4"	127
B3	8	#4	STR.	22'-5"	120
B4	11	#4	STR.	2'-5"	18
D1	24	#8	STR.	2'-3"	144
H1	7	#4	2	7'-2"	34
H2	7	#4	2	7'-3"	34
H3	7	#4	3	7'-5"	35
H4	7	#4	3	7'-4"	34
K1	8	#4	STR.	22'-5"	120
K2	8	#4	STR.	3'-2"	17
S1	44	#4	4	3'-2"	93
S2	44	#4	5	7'-5"	218
S3	16	#4	6	6'-6"	69
U1	36	#4	7	3'-2"	76
U2	4	#4	7	4'-5"	12
V1	72	#5	STR.	3'-9"	282
V2	22	#4	STR.	5'-3"	77
V3	22	#4	STR.	5'-6"	81
REINFORCING STEEL					= 2806 LBS
CLASS A CONCRETE BREAKDOWN					
POUR #1 (CAP AND LOWER PART OF WINGS)					
C.Y.					11.4
POUR #2 (BACKWALL & UPPER PART OF WINGS)					
C.Y.					3.6
POUR #3 (LATERAL GUIDES)					
C.Y.					0.1
TOTAL CLASS A CONCRETE					15.1
C.Y.					
HP 12 X 53 STEEL PILES					
NO. 8				LIN. FT.	80

PROJECT NO. B-4326
 WILSON COUNTY
 STATION: 17+05.00 -L-

SHEET 3 OF 3

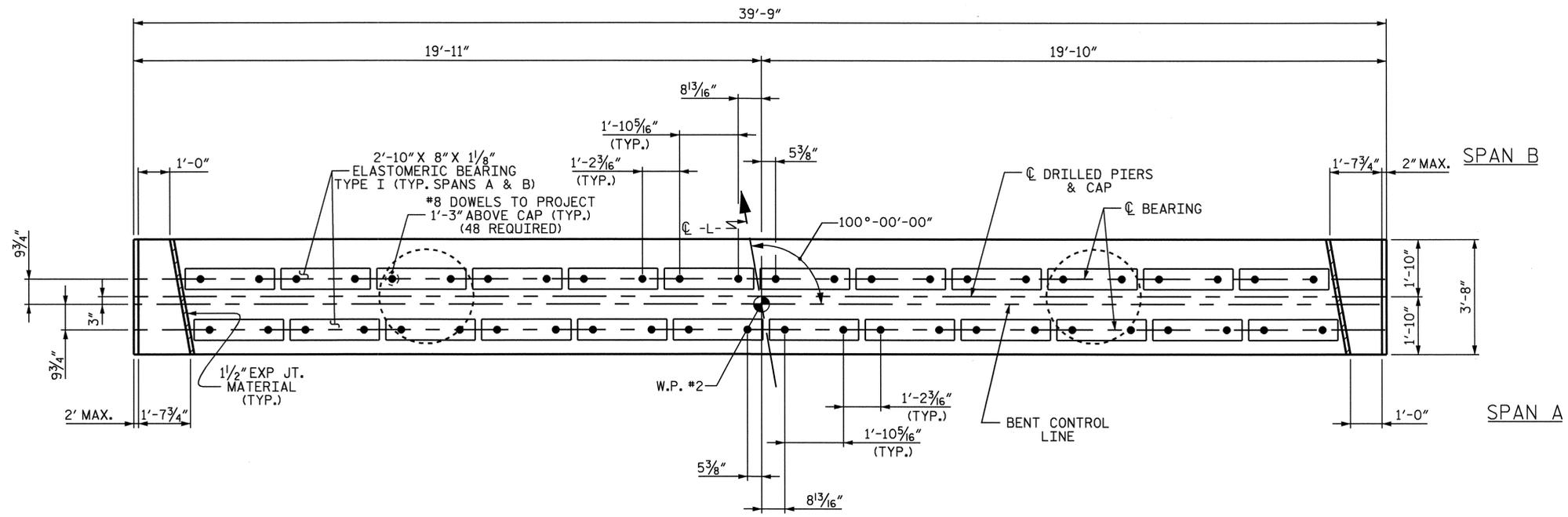
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1

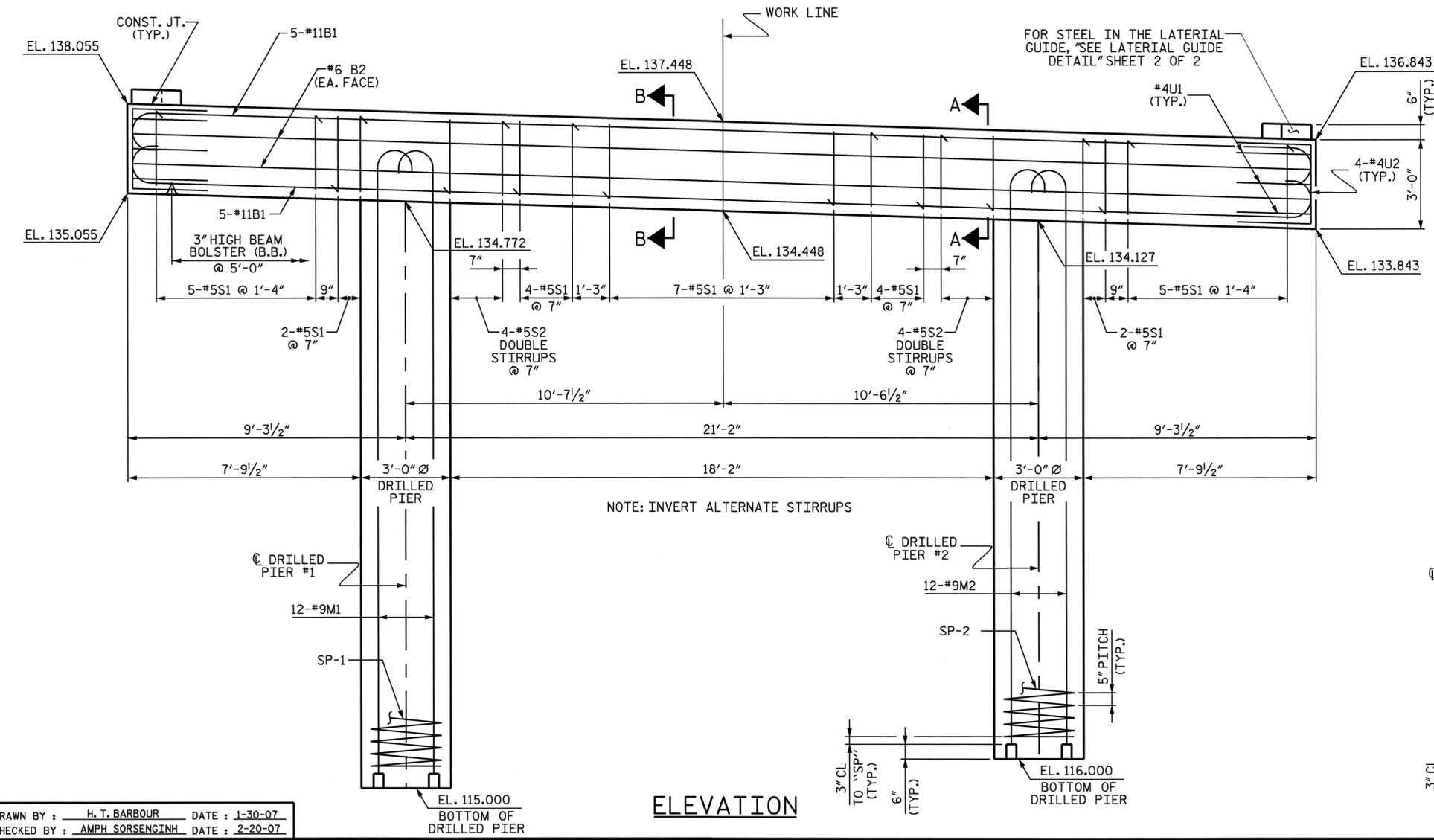


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			28

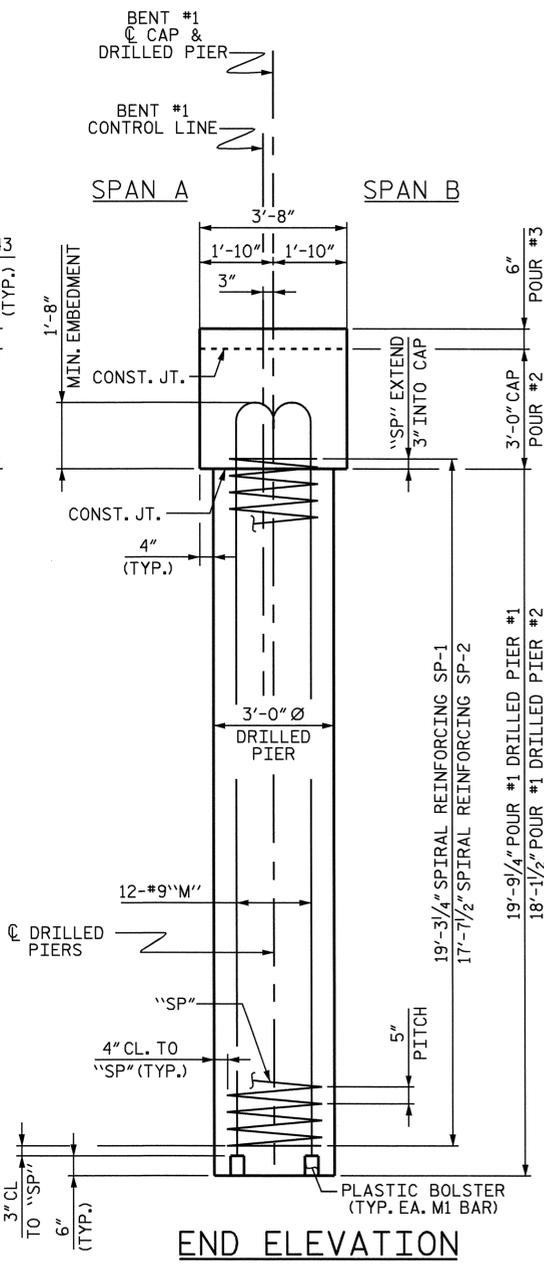
DRAWN BY: A. SORSENGINH DATE: 2/9/07
 CHECKED BY: SH. SOCKWELL DATE: 3/1/07



PLAN



ELEVATION



NOTES

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

HOOKS ON "M" BARS MAY BE TURNED AS NECESSARY FOR PLACING REINFORCING STEEL.

ALL STEEL IN THE DRILLED PIERS IS INCLUDED IN THE PAY ITEMS FOR "REINFORCING STEEL" AND "SPIRAL COLUMN REINFORCING STEEL."

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE LONGITUDINAL REINFORCEMENT FOR THE DRILLED PIERS IS DETAILED WITH 3 FEET OF EXTRA LENGTH.

SPLICING OF THE LONGITUDINAL BARS IN THE DRILLED PIER WILL NOT BE PERMITTED.

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

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE BENT CONTROL LINE IS OFFSET FROM THE CENTERLINE CAP & DRILLED PIER.



PROJECT NO. B-4326
 WILSON COUNTY
 STATION: 17+05.00-L-

SHEET 1 OF 2

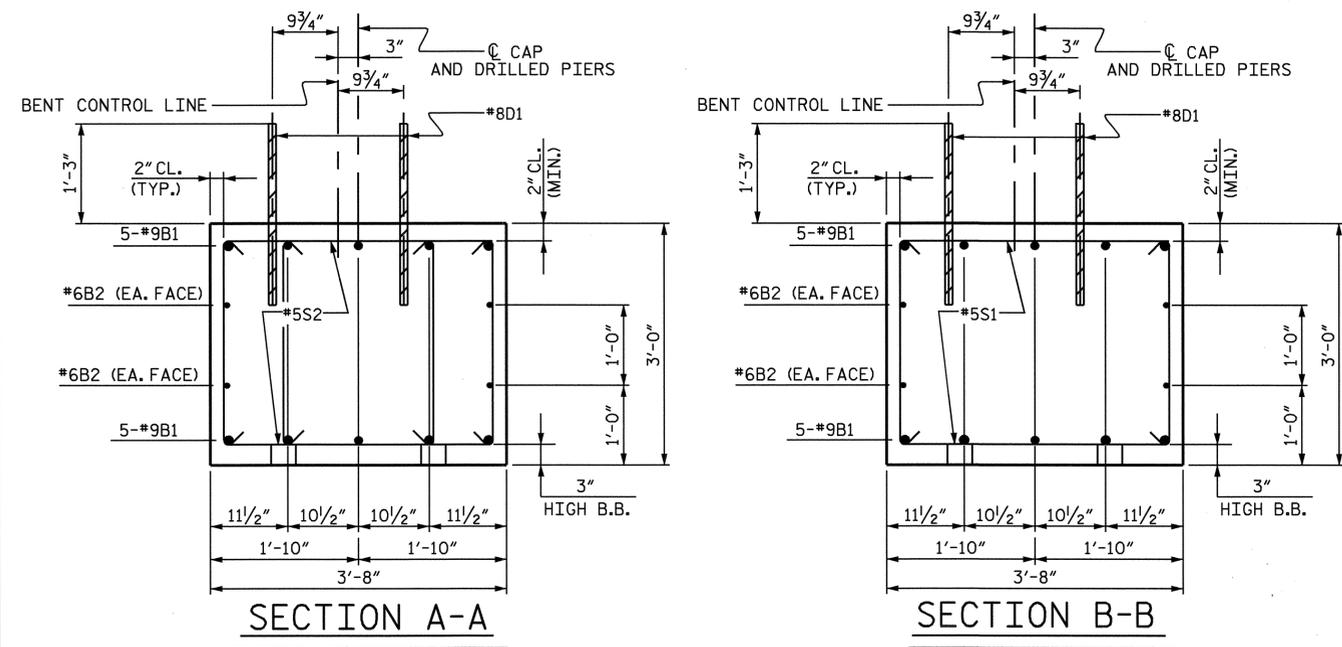
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 BENT #1

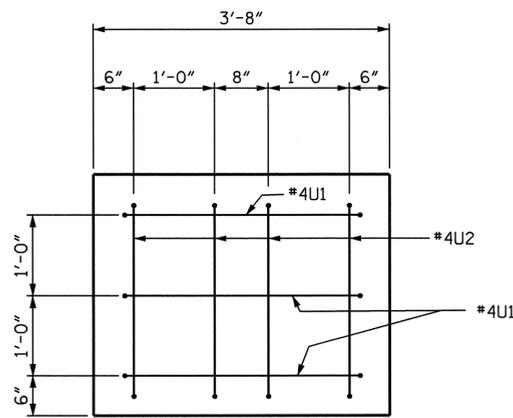
SHEET NO. S-20	
TOTAL SHEETS 28	

DRAWN BY: H. T. BARBOUR DATE: 1-30-07
 CHECKED BY: AMPH. SORSENGINH DATE: 2-20-07



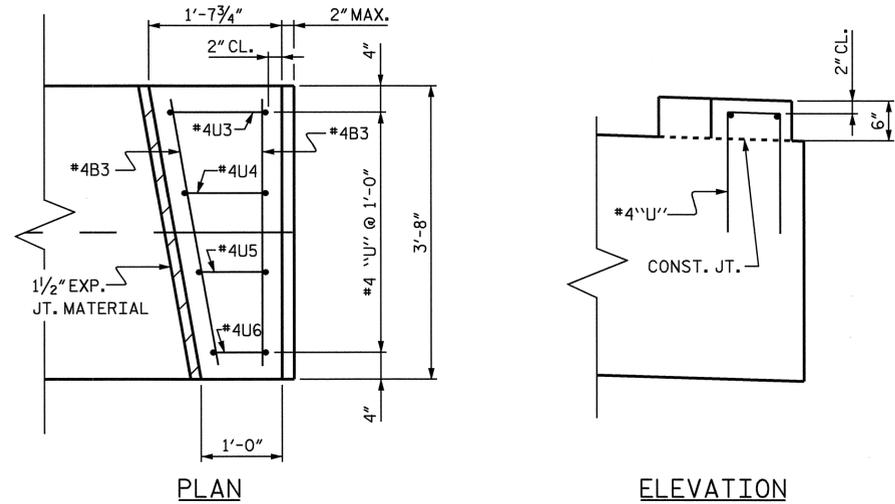
SECTION A-A

SECTION B-B



RIGHT END VIEW

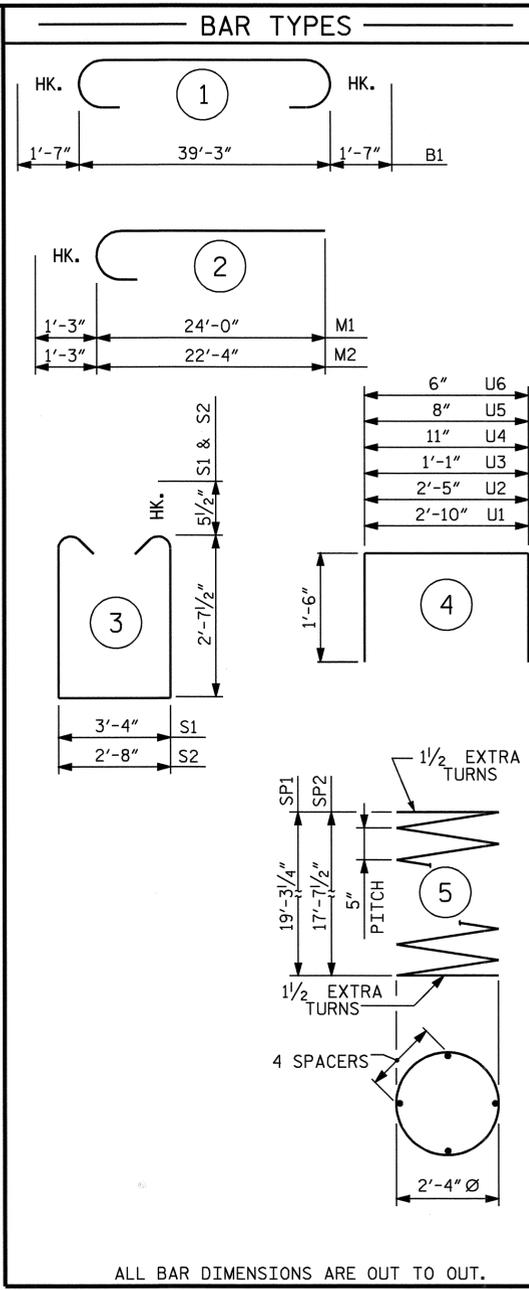
2" MIN. CONCRETE COVER FROM END OF CAP REQUIRED FOR ALL #4"U" BARS.
 #4"U" BARS MAY BE SHIFTED UP TO 2" TO CLEAR "B" BARS.



PLAN

ELEVATION

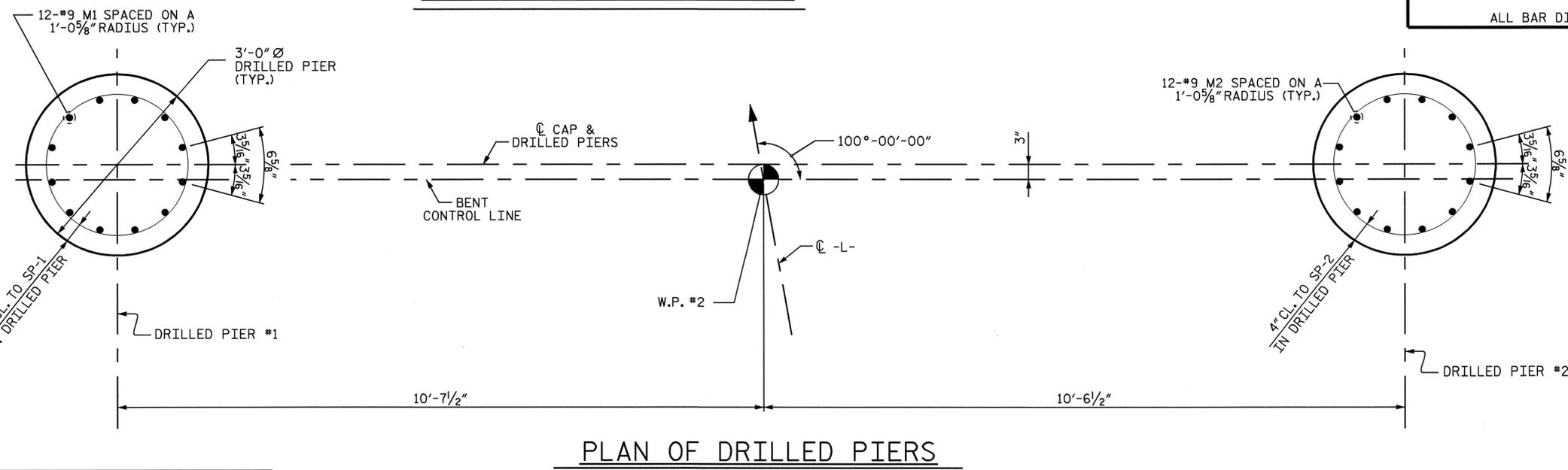
LATERAL GUIDE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL					
BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	10	#11		42'-5"	2254
B2	4	#6	STR.	39'-5"	237
B3	4	#4	STR.	3'-4"	9
D1	48	#8	STR.	2'-3"	288
M1	12	#9		25'-3"	1030
M2	12	#9		23'-7"	962
S1	29	#5		9'-6"	287
S2	16	#5		8'-10"	147
U1	6	#4		5'-10"	23
U2	8	#4		5'-5"	29
U3	2	#4		4'-1"	5
U4	2	#4		3'-11"	5
U5	2	#4		3'-8"	5
U6	2	#4		3'-6"	5
REINFORCING STEEL (LBS.)					5286
SP-1	1	*	5	352'-10"	368
SP-2	1	*	5	325'-11"	340
SPIRAL COLUMN REINFORCING STEEL (LBS.)					708
CLASS A CONCRETE					
POUR #2 (CAP)					16.2 C.Y.
POUR #3 (LATERAL GUIDES)					0.2 C.Y.
TOTAL					16.4 C.Y.
DRILLED PIERS					
DRILLED PIER CONCRETE (CU. YARDS)					
POUR #1 (DRILLED PIERS)					9.9 C.Y.
3'-0" Ø DRILLED PIERS IN SOIL					23.9 FT.
3'-0" Ø DRILLED PIERS NOT IN SOIL					14.0 FT.
SID INSPECTION					1 EACH
CROSSHOLE SONIC LOGGING CSL TUBES					1 EACH 171.6 FT.
PERMANENT STEEL CASING FOR 3'-0" Ø DRILLED PIERS					12.9 FT.

* THE SP-1 & SP-2 SPIRAL REINFORCING STEEL SHALL BE W31 OR D-31 COLD DRAWN WIRE OR #5 PLAIN OR DEFORMED BAR.



PLAN OF DRILLED PIERS

DRAWN BY : H. T. BARBOUR DATE : 1-30-07
 CHECKED BY : AMPH SORSENGINH DATE : 2-20-07

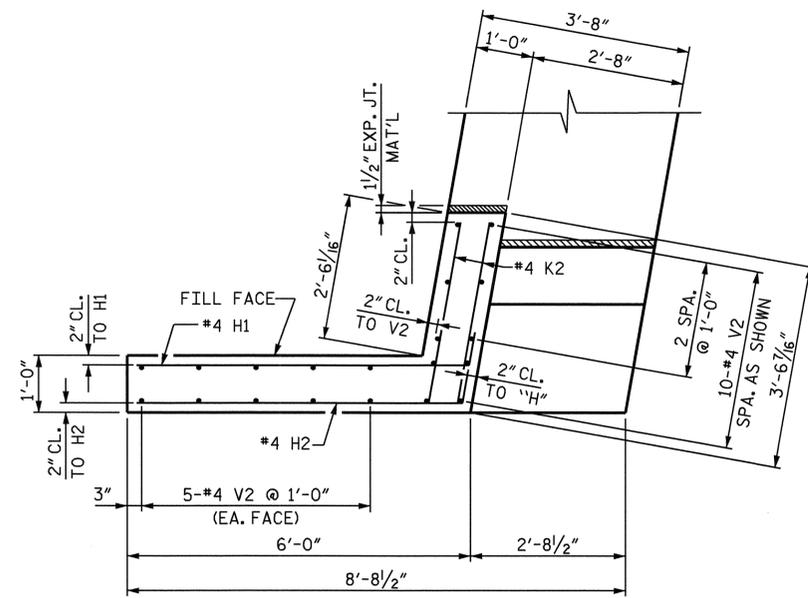
30-AUG-2007 15:02
 Z:\Structures\Tbarbour\B-4326.sd.B*.dgn
 tbarbour

PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00-L-
 SHEET 2 OF 2

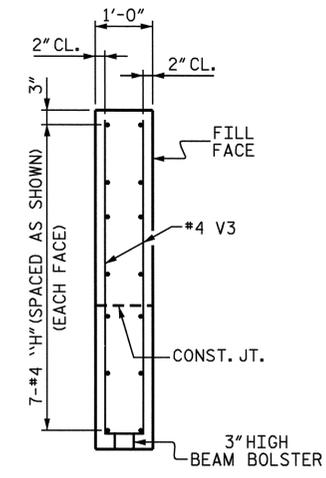


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE BENT #1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

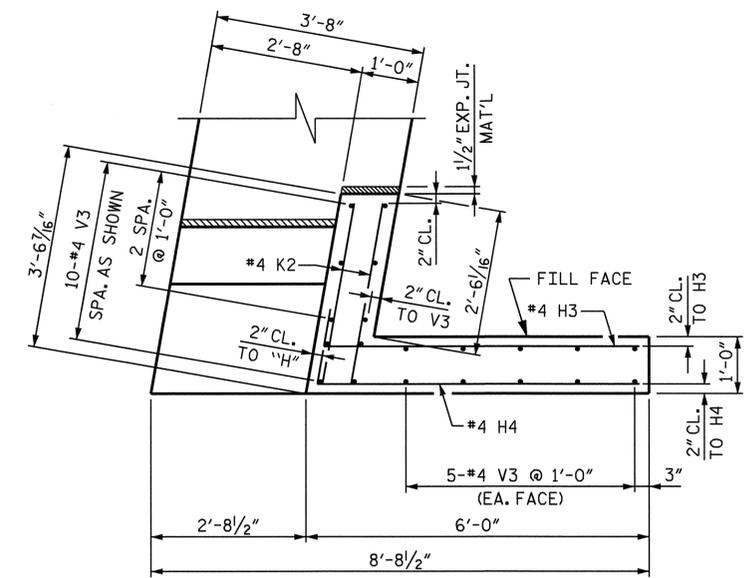
SHEET NO. S-21
TOTAL SHEETS 28



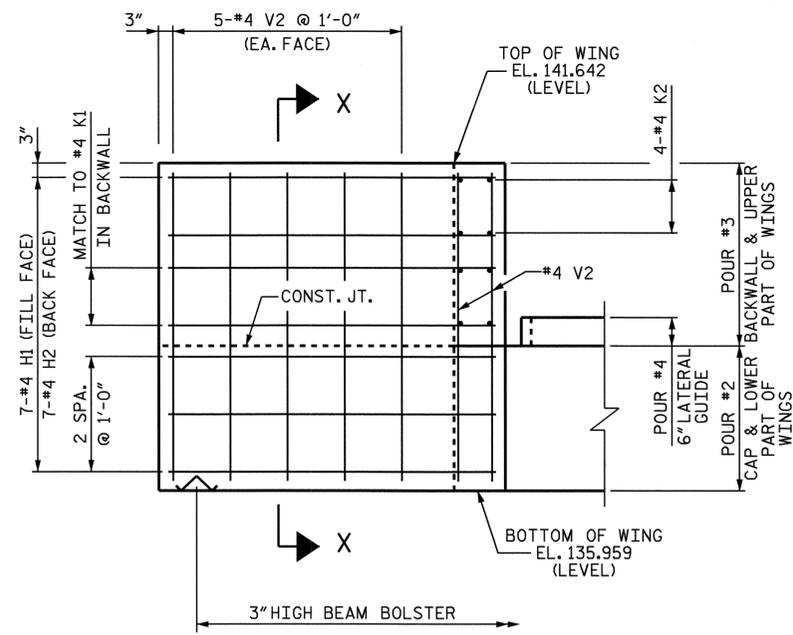
PLAN OF LEFT WING (W1)



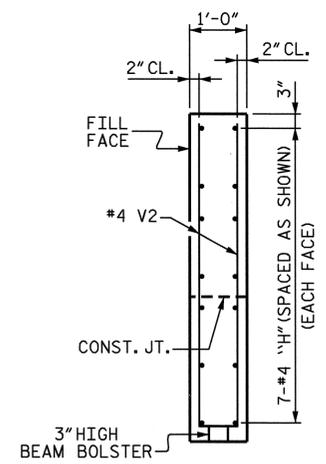
SECTION Y-Y



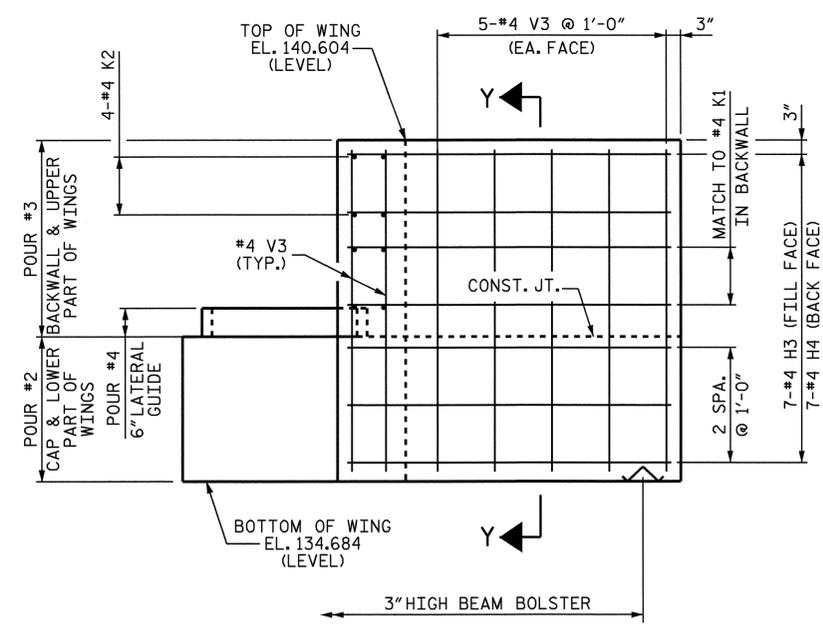
PLAN OF RIGHT WING (W2)



ELEVATION OF LEFT WING (W1)



SECTION X-X



ELEVATION OF RIGHT WING (W2)

PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

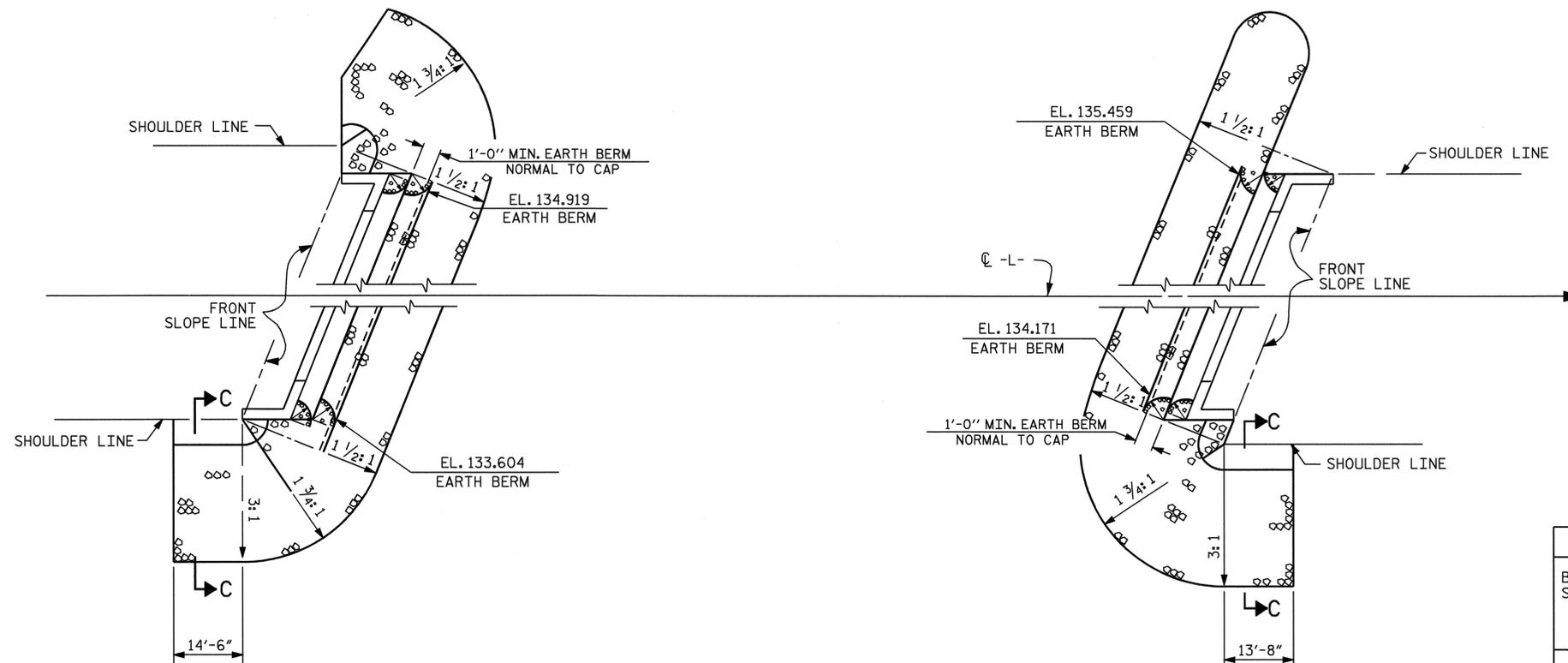
SUBSTRUCTURE
 END BENT #2

REVISIONS						SHEET NO. S-23
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 28
2			4			



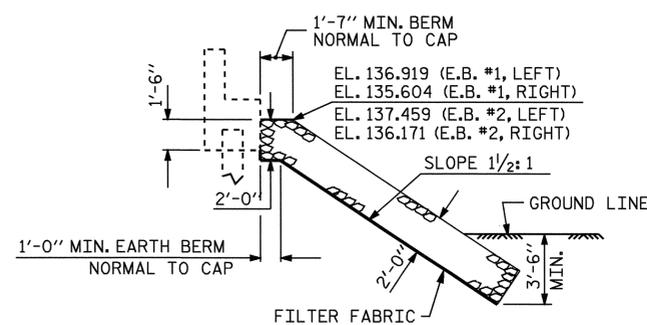
DRAWN BY : A. SORSENGINH DATE : 2/14/07
 CHECKED BY : SH. SOCKWELL DATE : 3/1/07

NOTES :
FOR BERM WIDTH DIMENSIONS, SEE GENERAL DRAWING.

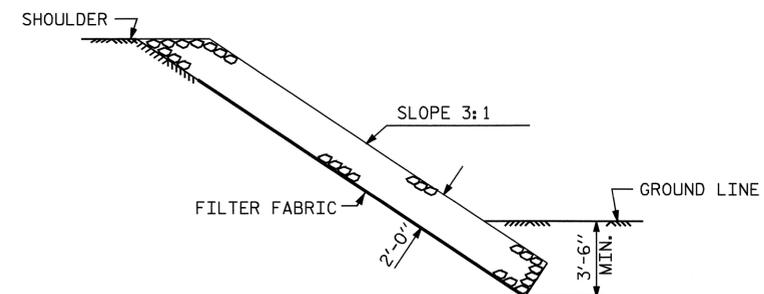


BERM RIP RAPPED

ESTIMATED QUANTITIES		
BRIDGE @ STA. 17+05.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	80	89
END BENT 2	100	110



SECTION C-C
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4326
WILSON COUNTY
STATION: 17+05.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-25
STANDARD = RIP RAP DETAILS =						TOTAL SHEETS 28
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY : C.R. YARBROUGH DATE : 10/06
CHECKED BY : A. SORSENGINH DATE : 05/07
DRAWN BY : REK 1/84 REV. 8/16/99 RWW/LES
CHECKED BY : RDU 1/84 REV. 10/17/00 RWW/LES
REV. 5/1/06 TLA/GM

08-OCT-2007 11:05
R:\Structures\1\final\B-4326_sd_RR.dgn
cyarbrough

SKEW > 90° STD. NO. RR3

NOTES

APPROACH SLABS 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 PARAPET AND END POST.

BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	50	#4	STR	18'- 7"	621
A2	52	#4	STR	18'- 5"	640
* B1	70	#5	STR	23'- 8"	1728
B2	70	#6	STR	24'- 7"	2585

REINFORCING STEEL	LBS.	3225
* EPOXY COATED REINFORCING STEEL	LBS.	2349

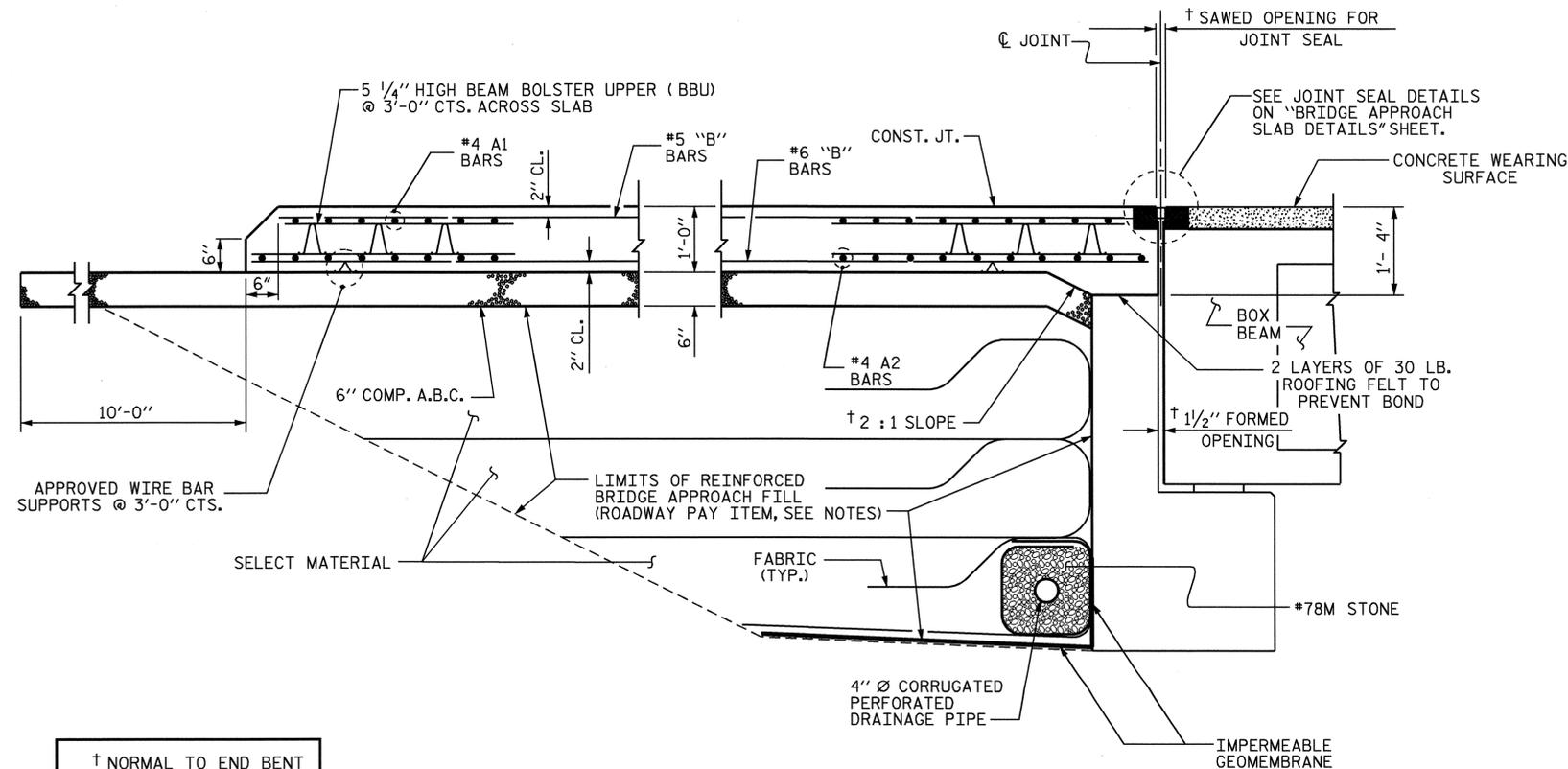
CLASS AA CONCRETE	C. Y.	32.9
-------------------	-------	------

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	50	#4	STR	18'- 7"	621
A2	52	#4	STR	18'- 5"	640
* B1	70	#5	STR	24'- 3"	1728
B2	70	#6	STR	24'- 7"	2585

REINFORCING STEEL	LBS.	3225
* EPOXY COATED REINFORCING STEEL	LBS.	2349

CLASS AA CONCRETE	C. Y.	32.9
-------------------	-------	------



SECTION THRU SLAB

PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 BOX BEAM

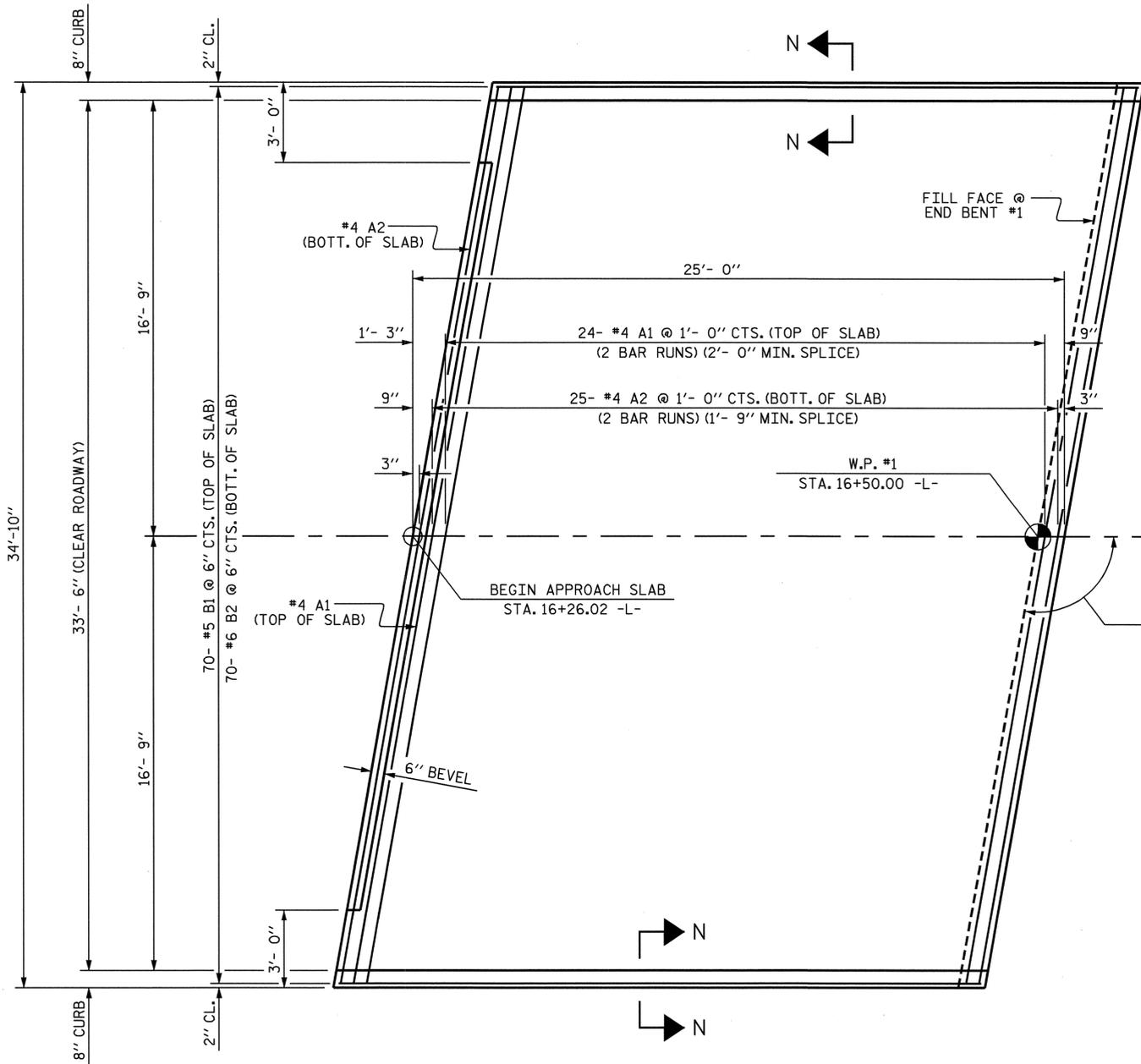


ASSEMBLED BY : D. A. GLADDEN DATE : 4-10-06
 CHECKED BY : H. T. BARBOUR DATE : 5-30-07
 DRAWN BY : LES 8/01 REV. 5/7/03R RWW/JTE
 CHECKED BY : RDR 8/01

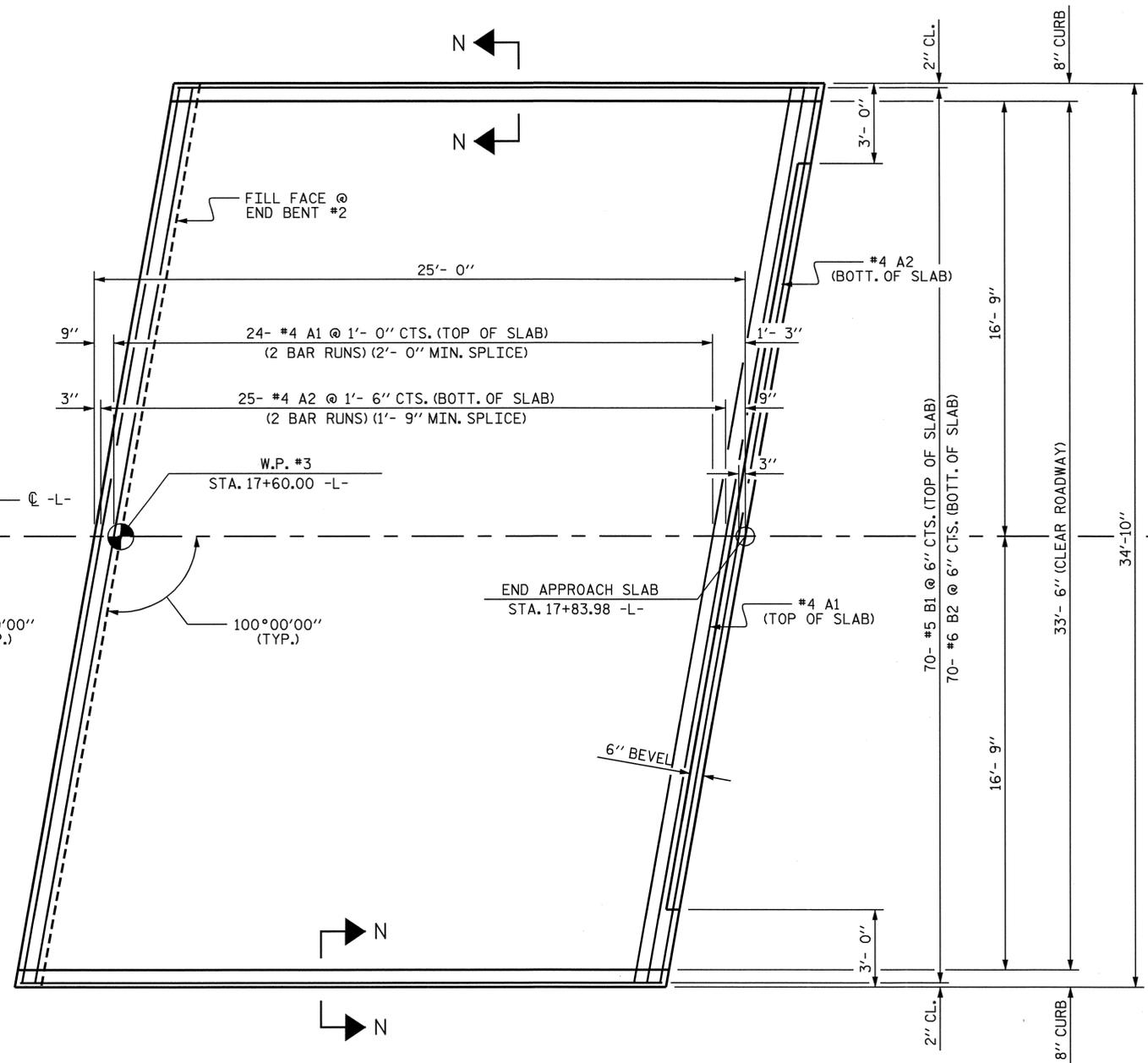
08-OCT-2007 12:27
 r:\structure\final\b4326.dgn
 dgladden

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS 28
2			4			

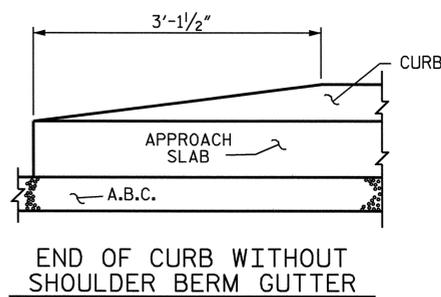
STD. NO. BAS5



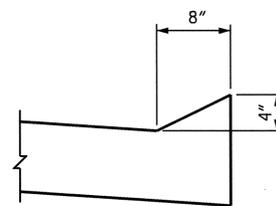
PLAN ON APPROACH SLAB @ END BENT #1



PLAN ON APPROACH SLAB @ END BENT #2



END OF CURB WITHOUT SHOULDER BERM GUTTER



SECTION N-N

CURB DETAILS



PROJECT NO. B-4326
 WILSON COUNTY
 STATION: 17+05.00 -L-

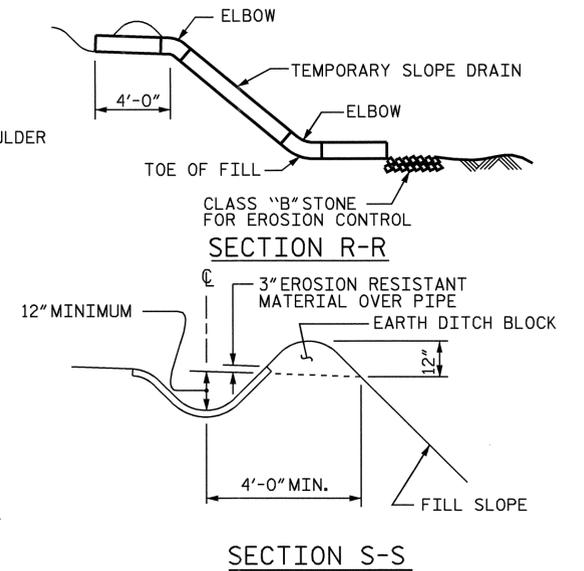
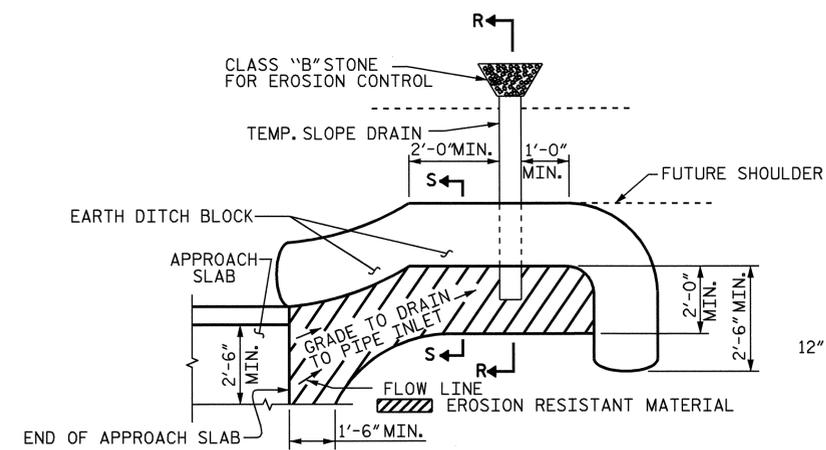
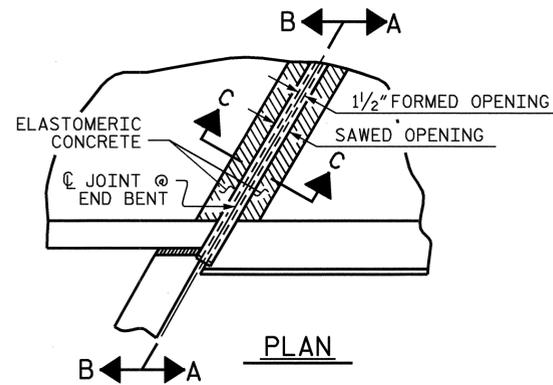
SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB
 FOR PRESTRESSED CONCRETE
 BOX BEAM

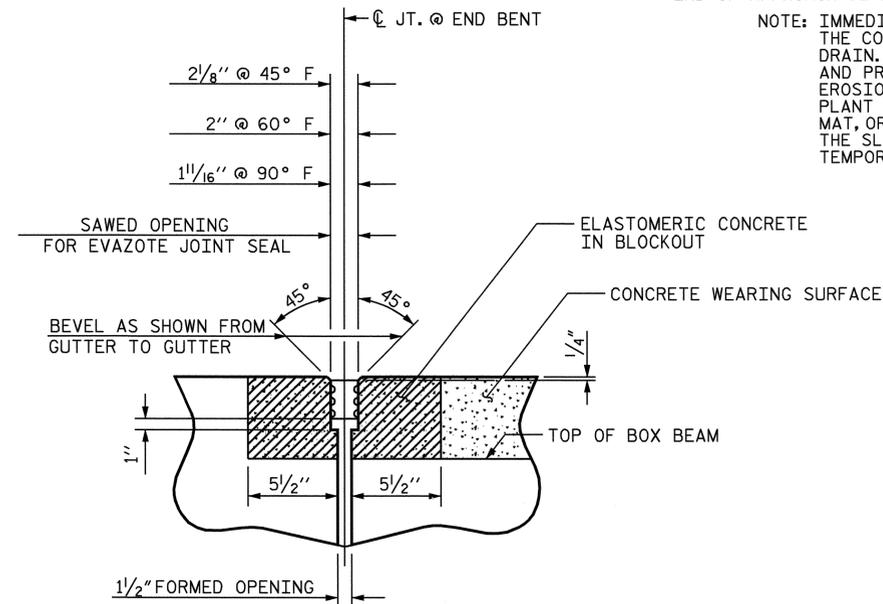
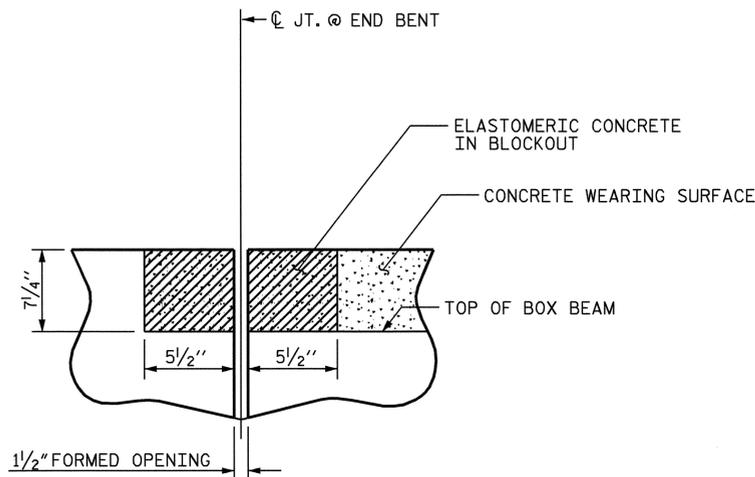
ASSEMBLED BY : D. A. GLADDEN DATE : 4-10-06
 CHECKED BY : H. T. BARBOUR DATE : 5-30-07

REVISIONS						1988	
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.	
1			3			S-27	
2			4			TOTAL SHEETS 28	



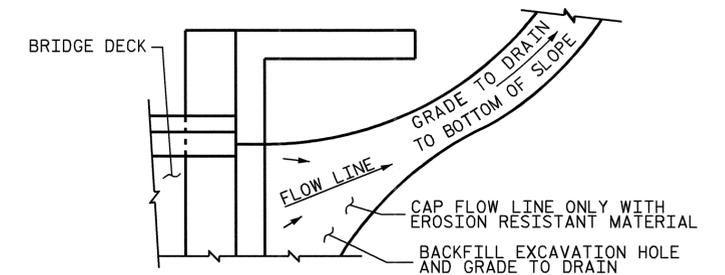
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

TEMPORARY BERM AND SLOPE DRAIN DETAILS



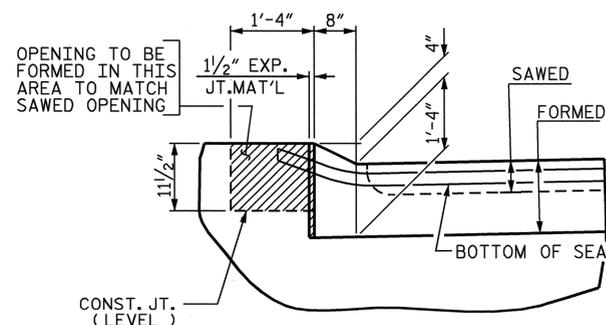
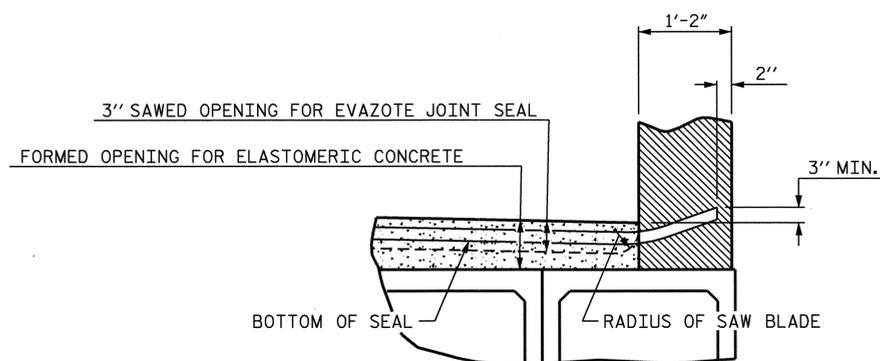
SECTION C-C
EVAZOTE JOINT SEAL
(PRE-SAWED ELASTOMERIC
CONCRETE DIMENSIONS)

SECTION C-C
EVAZOTE JOINT SEAL



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



JOINT SEAL DETAILS @ END BENT

ELASTOMERIC CONCRETE	
	CUBIC FT.
AT END BENT #1	18.840
AT END BENT #2	18.840
TOTAL	37.680



PROJECT NO. B-4326
WILSON COUNTY
 STATION: 17+05.00 -L-

SHEET 3 OF 3

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		

1988
SHEET NO. S-28
TOTAL SHEETS 28

ASSEMBLED BY: D. A. GLADDEN DATE: 4-10-06
 CHECKED BY: H. T. BARBOUR DATE: 5-30-07

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. 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