

CONTRACT: C201682 TIP PROJECT: B-4005

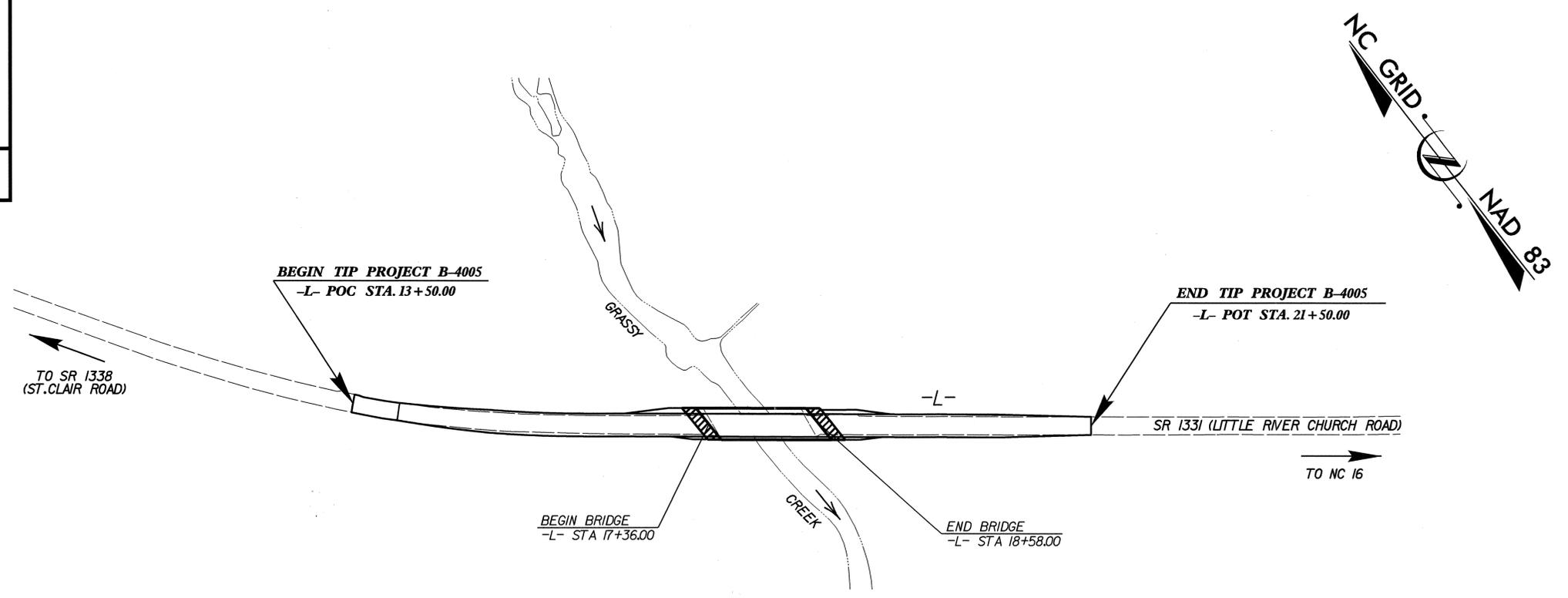
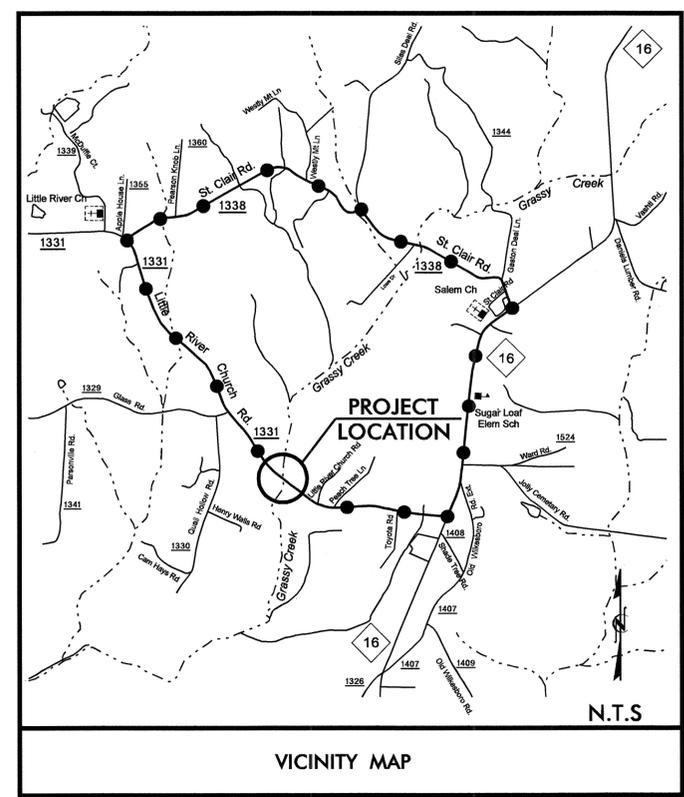
STRUCTURE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

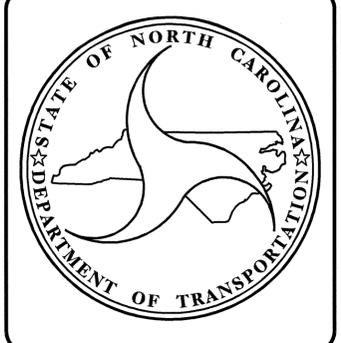
ALEXANDER COUNTY

LOCATION: BRIDGE NO. 70 OVER GRASSY CREEK ON SR 1331
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4005		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33373.1.1	BRZ-1331(9)	P.E.	
33373.2.1	BRZ-1331(9)	UTIL. & RW	
33373.3.1	BRZ-1331(9)	CONST.	



**DESIGN EXCEPTIONS SAG VERTICAL CURVE K VERTICAL STOPPING SIGHT DISTANCE



DESIGN DATA

ADT 2007 =	1,640
ADT 2027 =	2,650
DHV =	10 %
D =	60 %
T =	3 % *
V =	60 MPH **
* (TTST 1% + DUAL 2%)	
FUNCT CLASS=RURAL MINOR COLLECTOR	

PROJECT LENGTH

LENGTH ROADWAY OF F.A. PROJECT =	0.129 MI
LENGTH STRUCTURE OF F.A. PROJECT =	0.023MI
TOTAL LENGTH OF STATE PROJECT =	0.152 MI

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE :	J. C. FRYE, P.E. PROJECT ENGINEER
AUGUST 21, 2007	T. H. FANG, P.E. 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

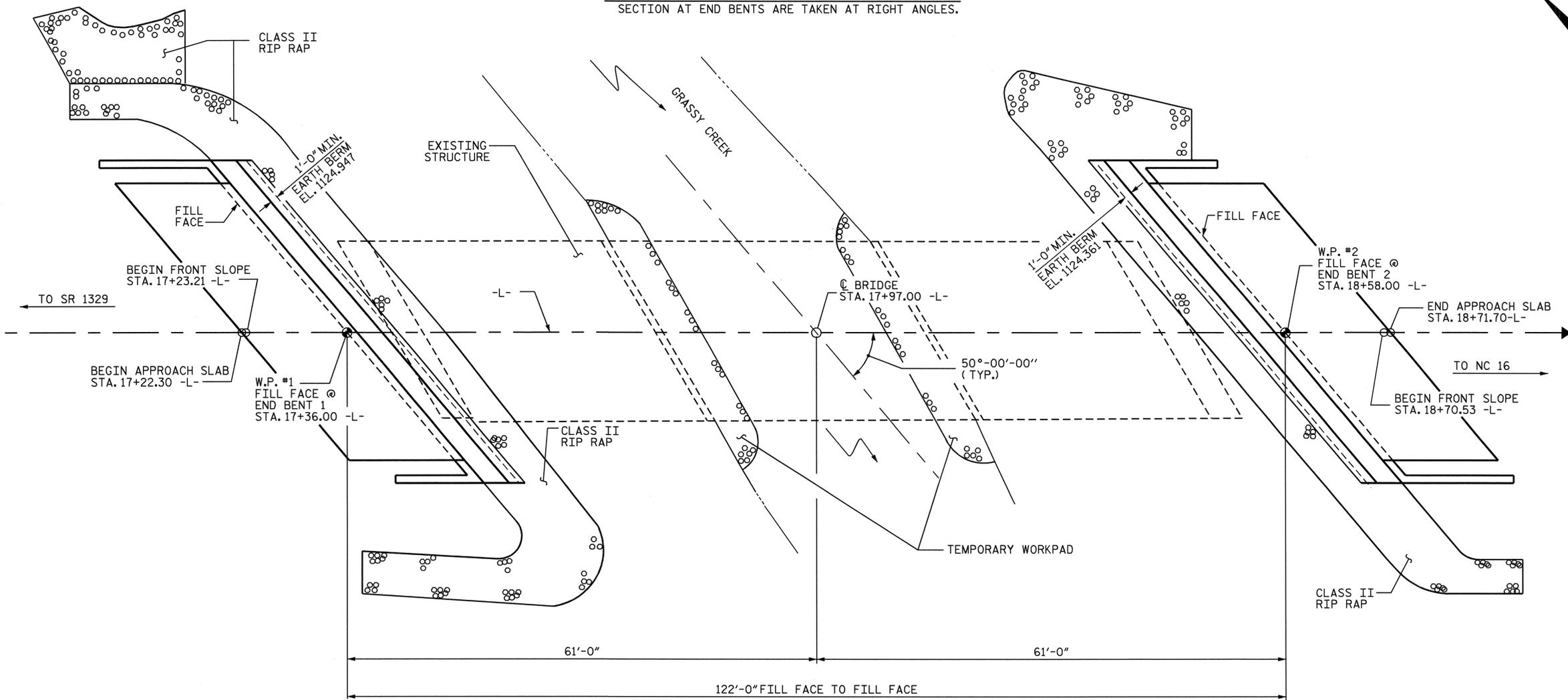
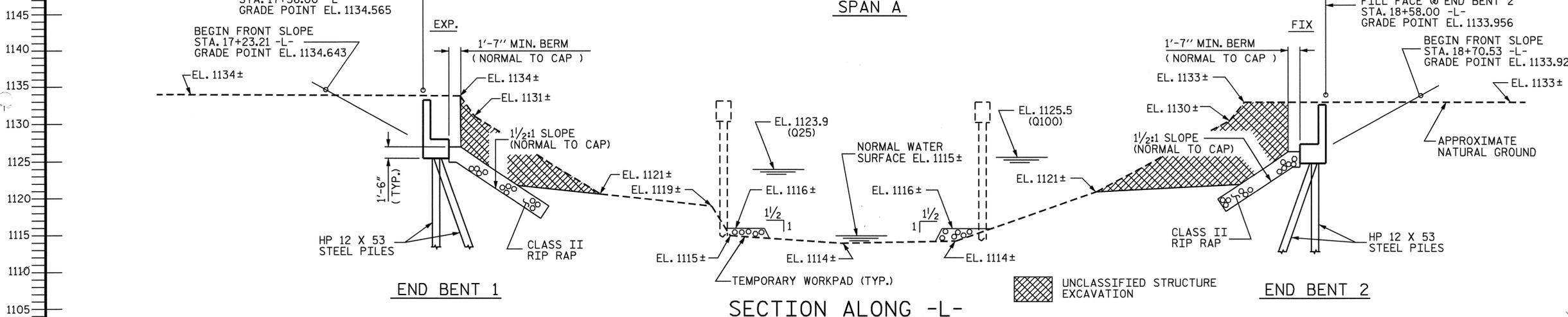
PI STA. 16+35.00 -L-
EL. 1135.07
VC =200'

GRADE DATA

-0.5000% 4.2476%

PI STA. 19+45.00 -L-
EL. 1133.52
VC =180'

GRADE DATA



Professional Engineer seals for John C. [Signature] and Ting Fang [Signature].

PROJECT NO. B-4005
ALEXANDER COUNTY
STATION: 17+97.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE #70

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
FOR BRIDGE OVER GRASSY CREEK ON SR 1331 BETWEEN SR 1329 AND NC 16

DRAWN BY : R. W. WRIGHT/DGE DATE : 1-30-06
CHECKED BY : TING FANG DATE : 4/07

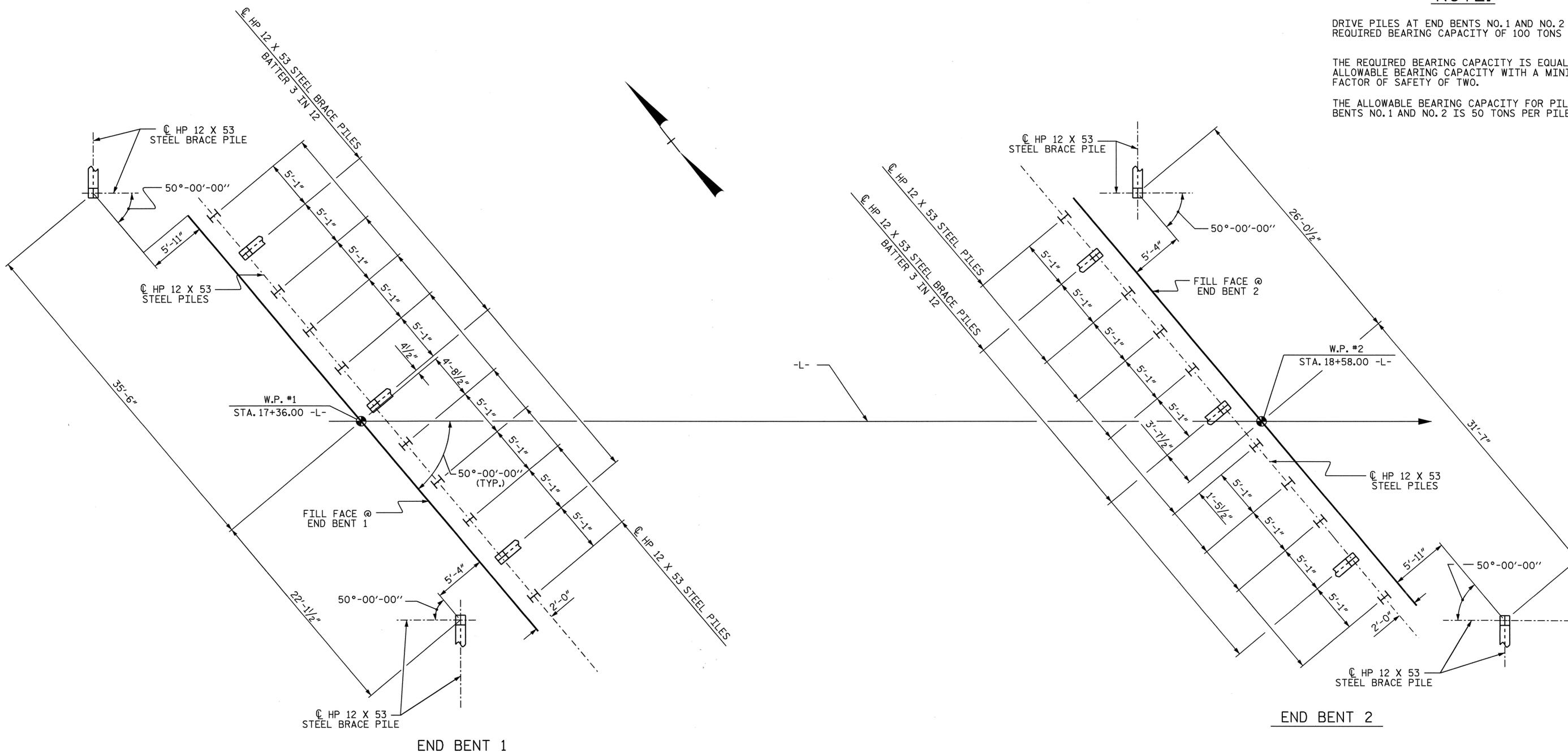
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			23

NOTE:

DRIVE PILES AT END BENTS NO.1 AND NO.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 BENTS NO.1 AND NO.2 IS 50 TONS PER PILE.



FOUNDATION LAYOUT
DIMENSIONS LOCATING PILES ARE SHOWN TO PILE CENTERLINE

PROJECT NO. B-4005
ALEXANDER COUNTY
STATION: 17+97.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER GRASSY
CREEK ON SR 1331 BETWEEN
SR 1329 AND NC 16



DRAWN BY : D. G. ELY DATE : 9/06
CHECKED BY : TING FANG DATE : 4/07

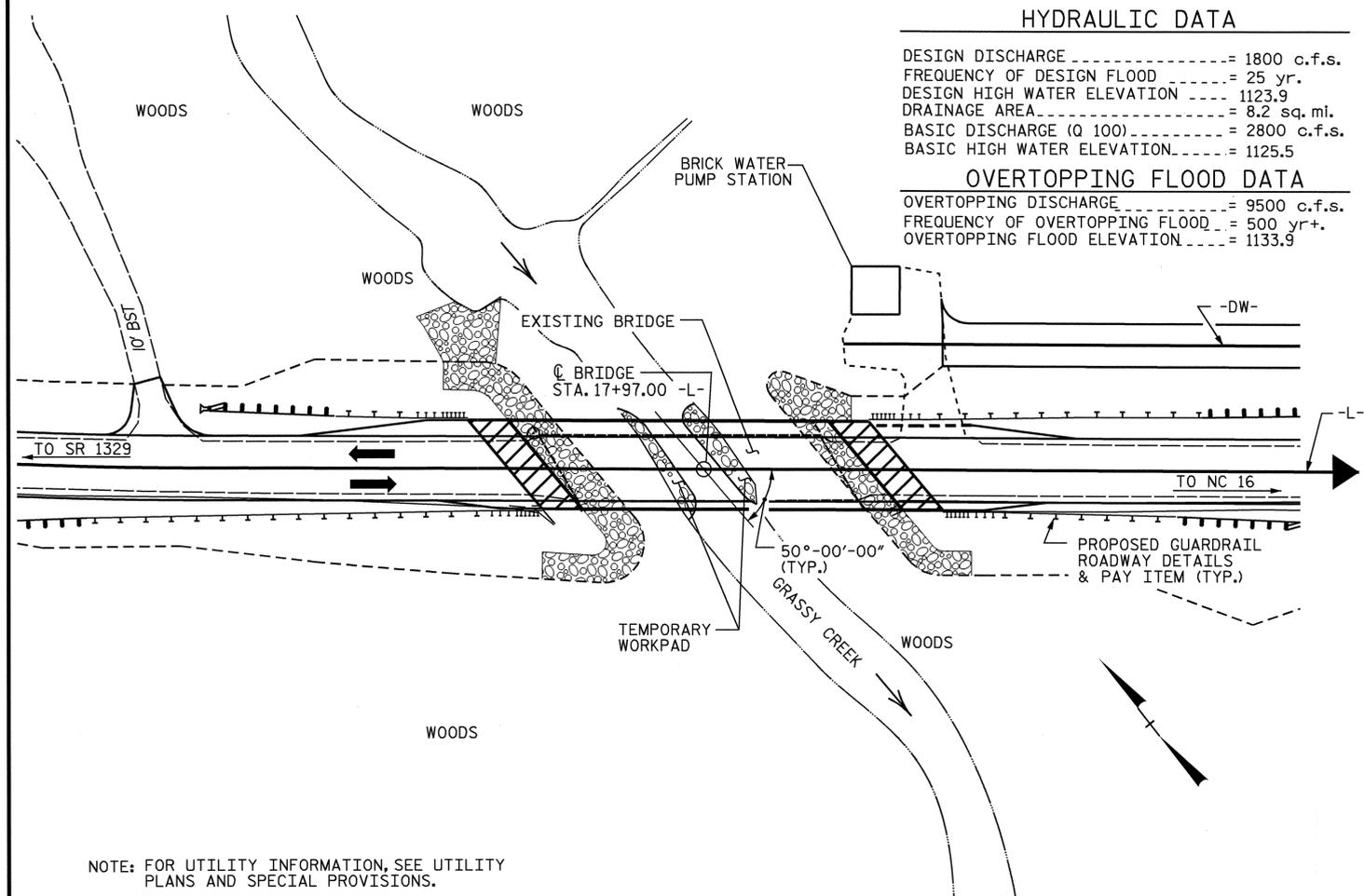
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			23

HYDRAULIC DATA

DESIGN DISCHARGE = 1800 c.f.s.
 FREQUENCY OF DESIGN FLOOD = 25 yr.
 DESIGN HIGH WATER ELEVATION = 1123.9
 DRAINAGE AREA = 8.2 sq. mi.
 BASIC DISCHARGE (Q 100) = 2800 c.f.s.
 BASIC HIGH WATER ELEVATION = 1125.5

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 9500 c.f.s.
 FREQUENCY OF OVERTOPPING FLOOD = 500 yr+.
 OVERTOPPING FLOOD ELEVATION = 1133.9



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

LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING. EXCEPT THAT GIRDERS HAVE BEEN DESIGNED FOR HS25.

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

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

FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

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

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

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

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 17+97.00 -L-.

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 MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 13 FT. EACH SIDE @ END BENT 1 AND 40 FT. LEFT SIDE, AND 13 FT. RIGHT SIDE AT END BENT 2 OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

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 BID PRICE FOR 'REMOVAL OF EXISTING STRUCTURE AT STA. 17+97.00 -L-'

THE EXISTING STRUCTURE CONSISTING OF 3 SPANS: 1 @ 35'-6", 1 @ 35'-0", 1 @ 35'-4"; 24'-6" CLEAR ROADWAY WIDTH AND TIMBER DECK ON STEEL I-BEAMS; END BENTS: TIMBER CAP ON TIMBER PILES; INTERIOR BENTS: TIMBER CAPS & POSTS ON CONCRETE SILL, AND LOCATED ON THE CENTER LINE OF PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS CLOSED TO TRAFFIC.

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 GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	CONST., MAINT. & REMOVAL OF TEMP. ACCESS	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRODGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	STRUCTURAL STEEL	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	
	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	APPROX. LBS.	NO.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM	
SUPERSTRUCTURE				4324	4349		LUMP SUM		129300		238.56			LUMP SUM	LUMP SUM	
END BENT 1						39.6		6266		13	195	245	270			
END BENT 2						39.5		6269		13	295	125	140			
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	4324	4349	79.1	LUMP SUM	12535	129300	26	490	238.56	370	410	LUMP SUM	LUMP SUM



PROJECT NO. B-4005
 ALEXANDER COUNTY
 STATION: 17+97.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER GRASSY CREEK ON SR 1331 BETWEEN SR 1329 AND NC 16

REVISIONS

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

SHEET NO.

S-3

TOTAL SHEETS

23

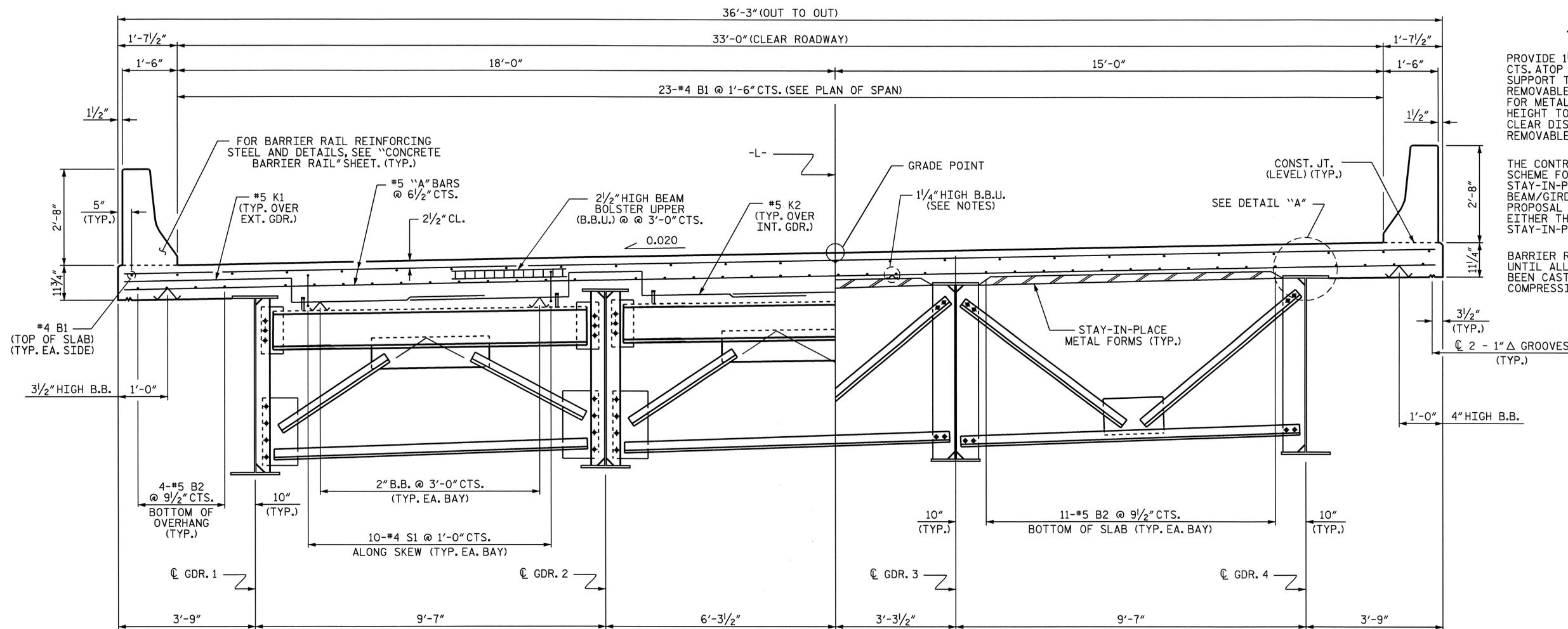
DRAWN BY: D.G. ELY DATE: 9/06
 CHECKED BY: TING FANG DATE: 4/07

NOTES

PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE STAY-IN-PLACE METAL FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

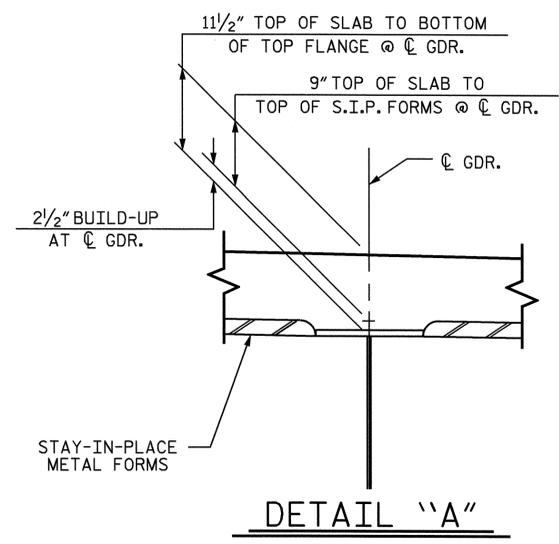
THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN STAY-IN-PLACE METAL FORM SUPPORTS OR FORMS AND BEAM/GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE STAY-IN-PLACE METAL FORM DRAWINGS.

BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

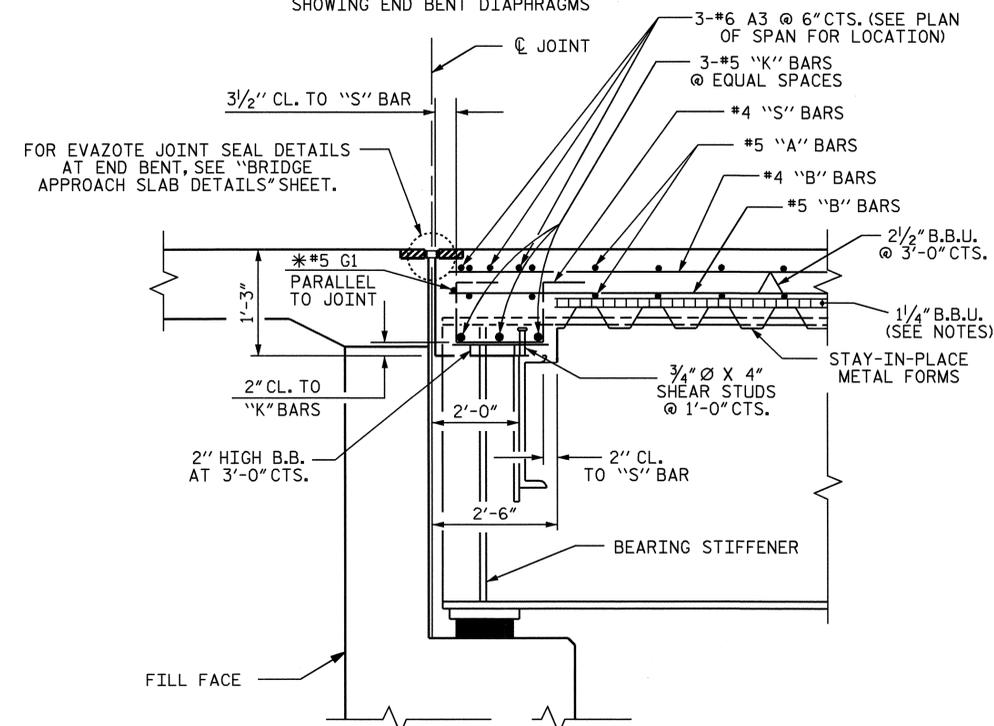


PART TYPICAL SECTION
SHOWING END BENT DIAPHRAGMS

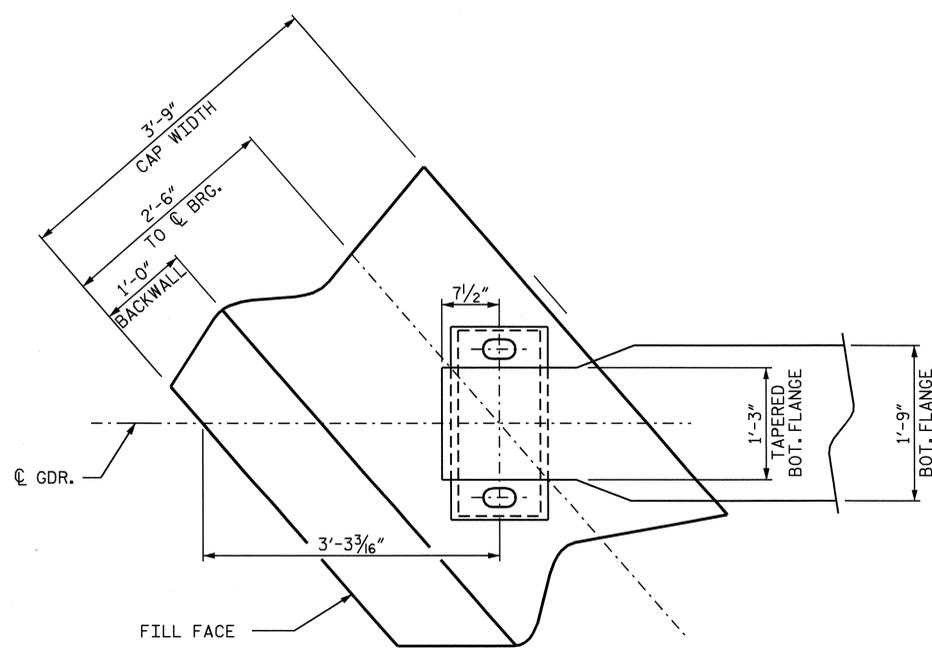
PART TYPICAL SECTION
SHOWING INTERMEDIATE DIAPHRAGMS



DETAIL "A"



SECTION @ END BENT

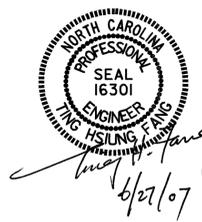


PLAN OF GIRDER @ END BENT
END BENT 1 SHOWN, END BENT 2 SIMILAR

PROJECT NO. B-4005
ALEXANDER COUNTY
STATION: 17+97.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTION
AND DETAILS

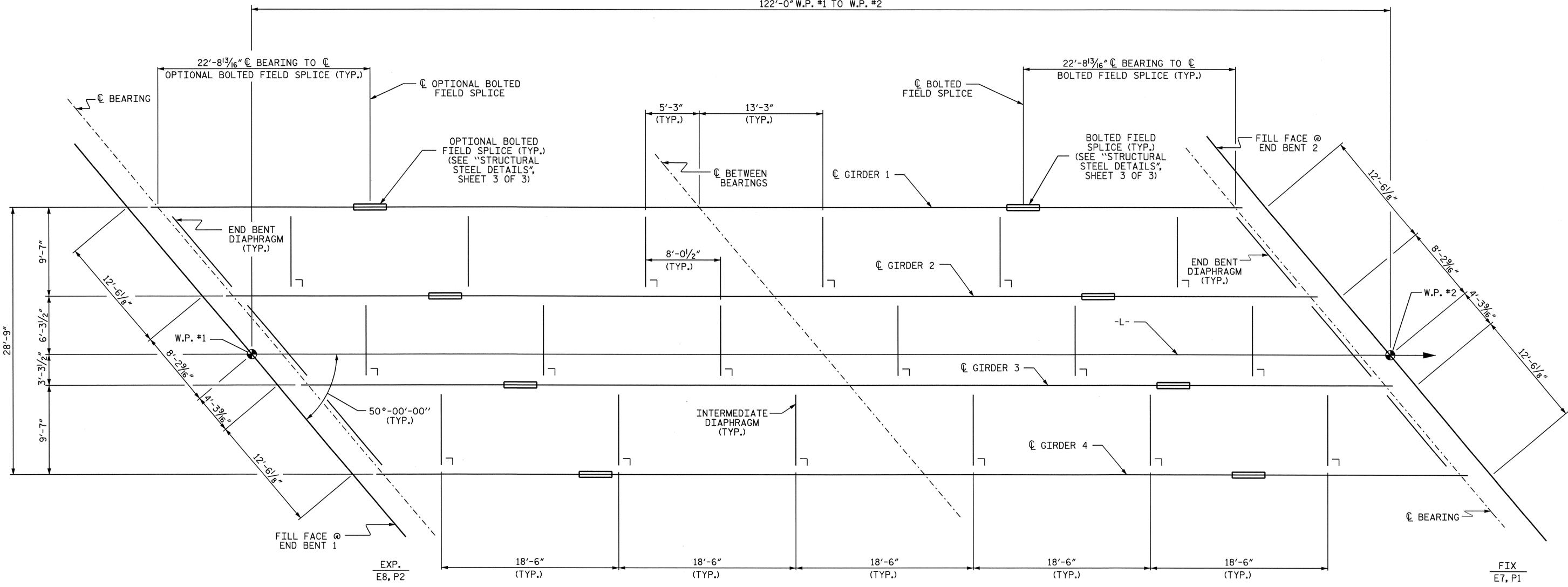


DRAWN BY : D. G. ELY DATE : 3/06
CHECKED BY : Q. T. NGUYEN DATE : 5/06

* #5 G1 BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR DIAPHRAGM AND REINFORCING STEEL.

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

122'-0" W.P. #1 TO W.P. #2



FRAMING PLAN

PROJECT NO. B-4005
ALEXANDER COUNTY
 STATION: 17+97.00 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

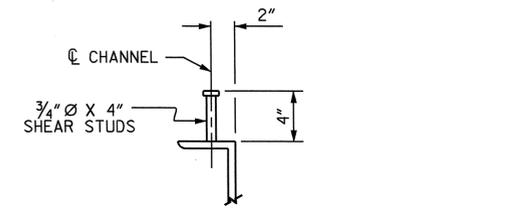
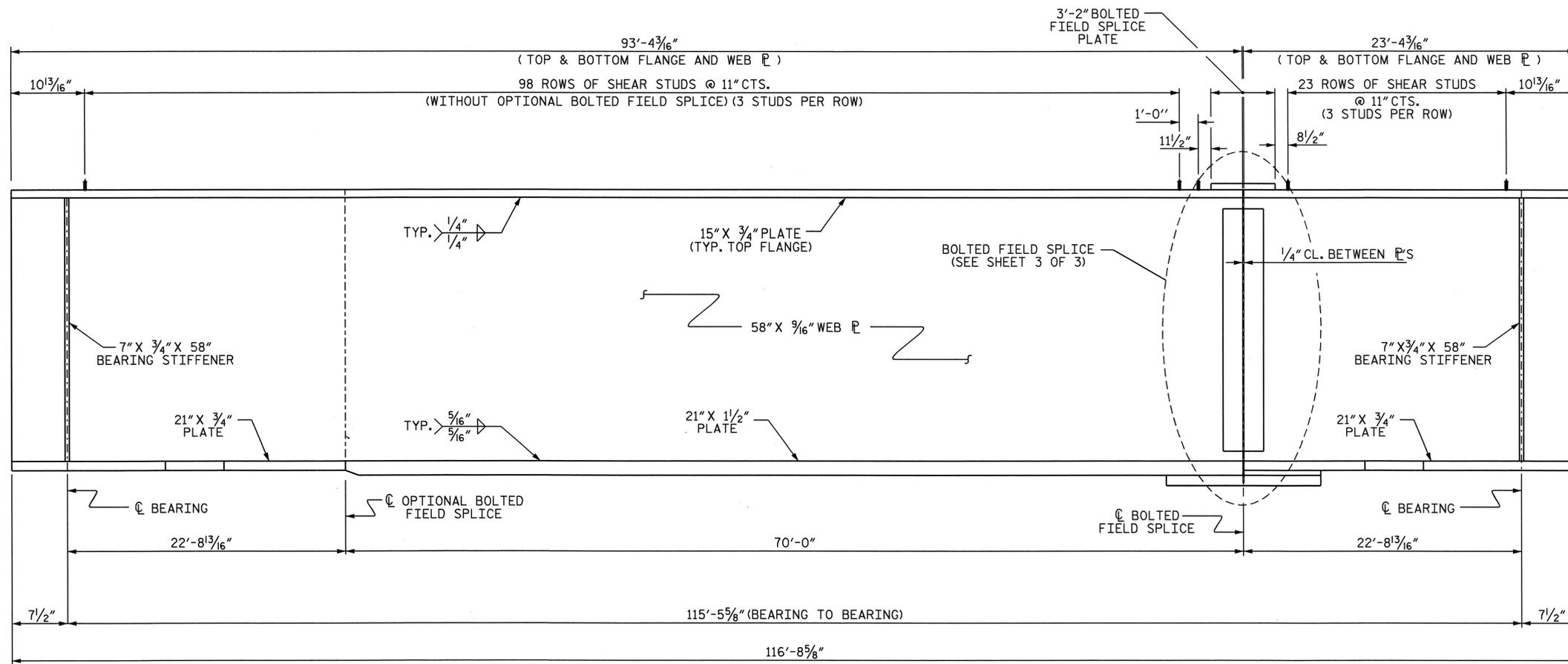
SUPERSTRUCTURE
 FRAMING PLAN

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			23

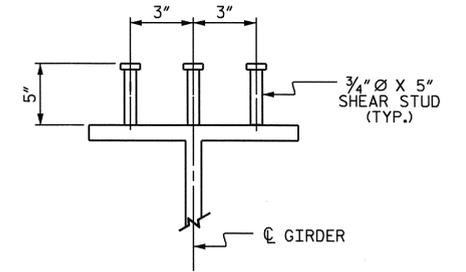


DRAWN BY : D. G. ELY DATE : 5/23/06
 CHECKED BY : Q. T. NGUYEN DATE : 5/30/06

21-MAY-2007 14:28
 H:\STRUCT\B4005\FINALP\B4E4AA2.DGN
 dely

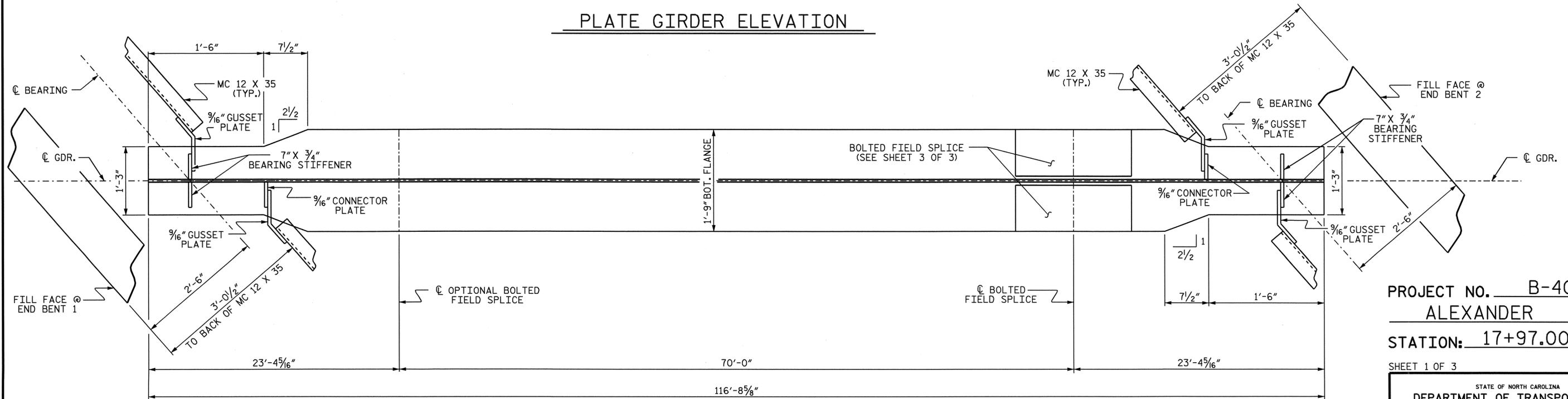


SHEAR STUD DETAILS
(TYP. END BENT DIAPHRAGM)



SHEAR STUD DETAILS
(TYP. EA. GIRDER)

PLATE GIRDER ELEVATION



BOTTOM FLANGE DETAIL

PROJECT NO. B-4005
ALEXANDER COUNTY
 STATION: 17+97.00 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS



DRAWN BY: D. G. ELY DATE: 3/31/06
 CHECKED BY: Q. T. NGUYEN DATE: 5/30/06

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			23

NOTES

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE 7/8" DIAMETER HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED. BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

A CHARPY V-NOTCH TEST IS REQUIRED FOR WEB PLATES, BOTTOM FLANGE PLATES, BOTTOM FLANGE SPLICE PLATES AND WEB SPLICE PLATES FOR ALL GIRDERS AND IN ACCORDANCE WITH ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION. KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

END OF GIRDERS SHALL BE PLUMB.

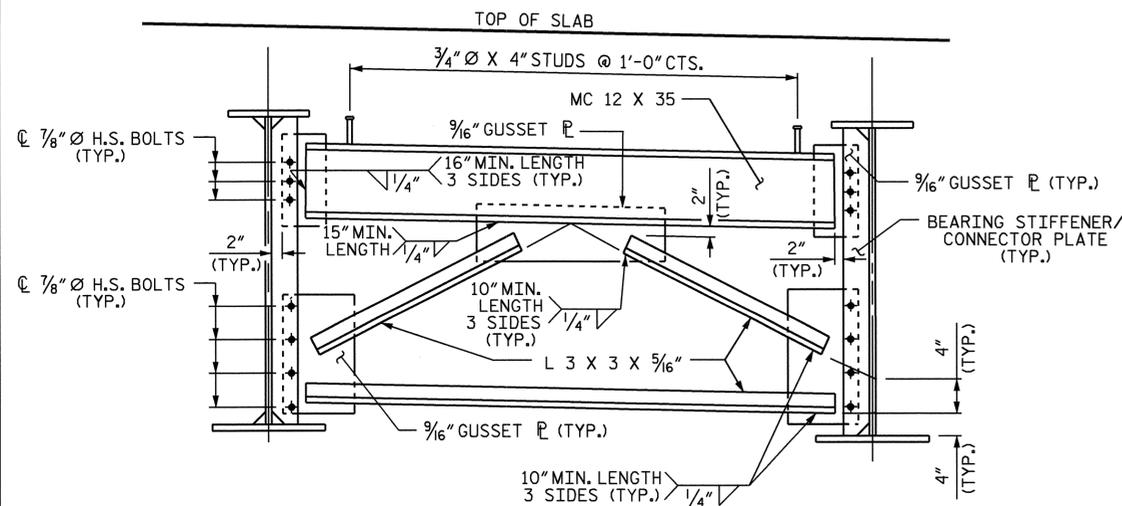
STUDS ON GIRDERS MAY BE SHIFTED UP TO 1" IF NECESSARY TO CLEAR FLANGE SPLICE WELD.

BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE TO AVOID INTERFERENCE WITH THE ANCHOR BOLT.

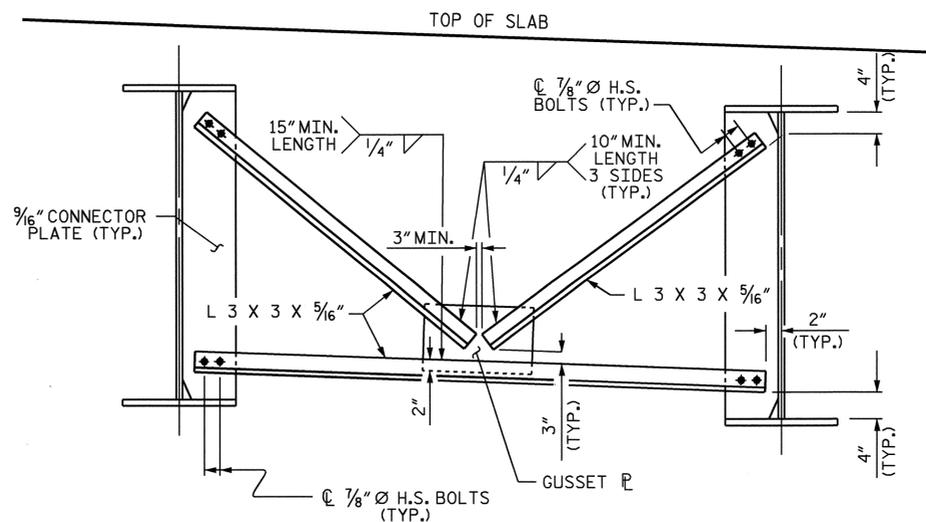
AN OPTIONAL BOLTED FIELD SPLICE WILL BE PERMITTED LOCATED AS SHOWN ON THE PLANS, IF THE OPTIONAL FIELD SPLICE IS USED, IT SHALL BE MADE ENTIRELY AT THE CONTRACTOR'S EXPENSE AND NO ADDITIONAL MEASUREMENT OR PAYMENT WILL BE MADE FOR THE ADDITIONAL MATERIALS REQUIRED. THE DETAILS AND SPLICE MATERIAL WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

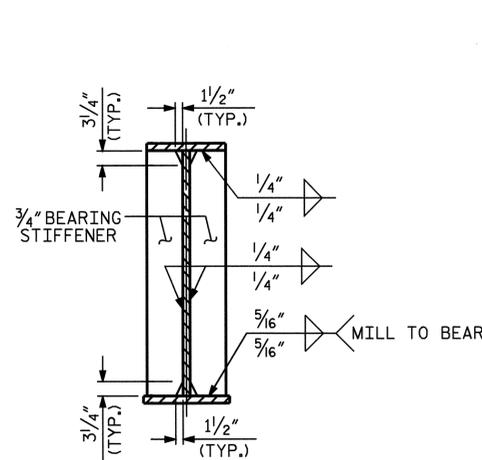
FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.



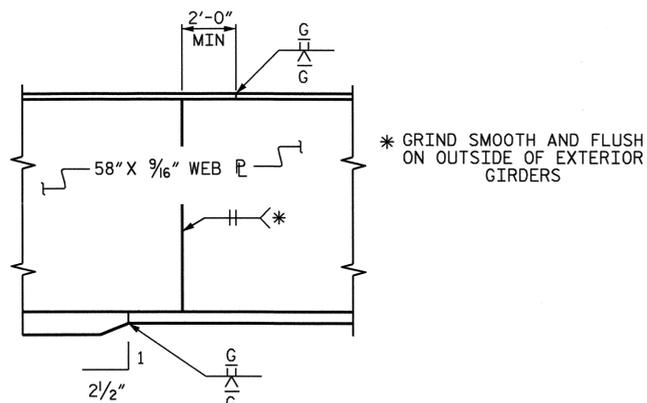
END BENT DIAPHRAGM



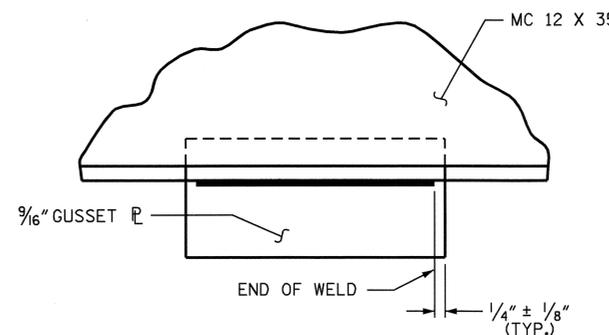
TYPICAL INTERMEDIATE DIAPHRAGM



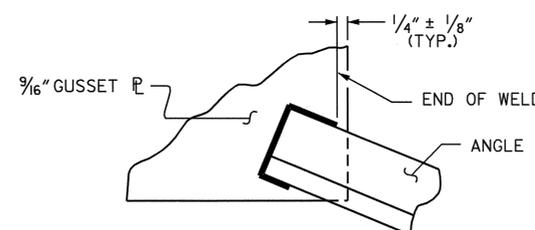
BEARING STIFFENER



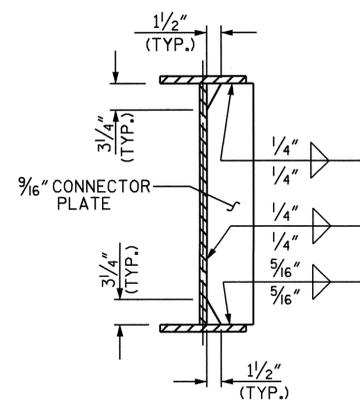
PERMISSIBLE SHOP FLANGE & WEB SPLICE



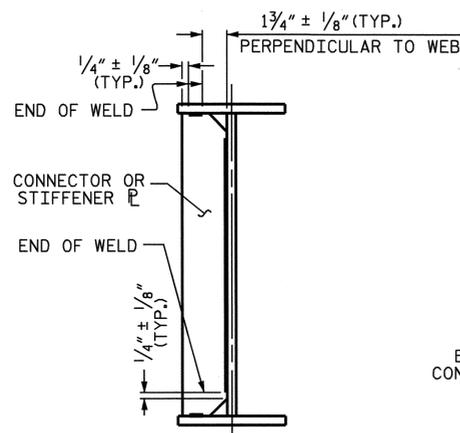
TYPICAL GUSSET PLATE CONNECTION



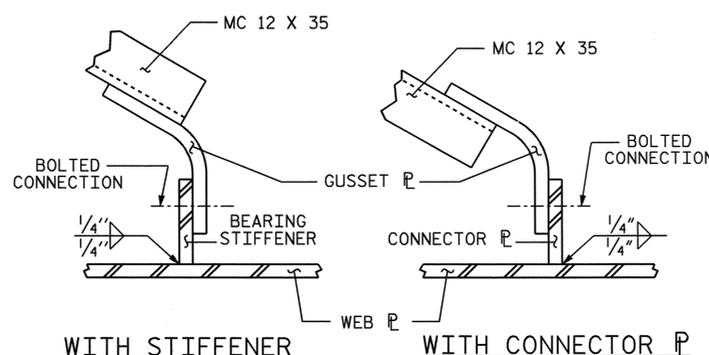
TYPICAL ANGLE TO GUSSET PLATE CONNECTION



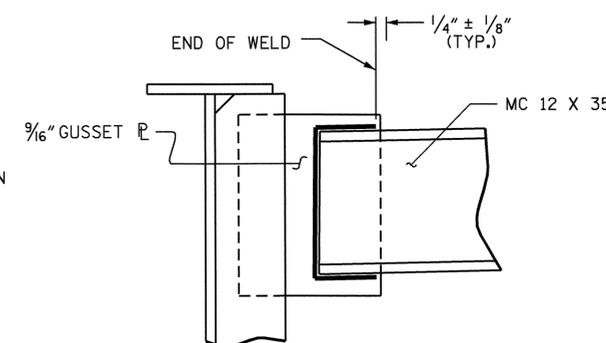
CONNECTOR PLATE DETAILS



TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS



BENT GUSSET PLATE DETAIL



TYPICAL CHANNEL TO GUSSET PLATE CONNECTION

DRAWN BY : D. G. ELY DATE : 3/31/06
 CHECKED BY : Q. T. NGUYEN DATE : 5/30/06

21-MAY-2007 14:32
 H:\STRUCT\B4005\FINALP\B4F0B02.DGN
 dely



PROJECT NO. B-4005
 ALEXANDER COUNTY
 STATION: 17+97.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			23

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

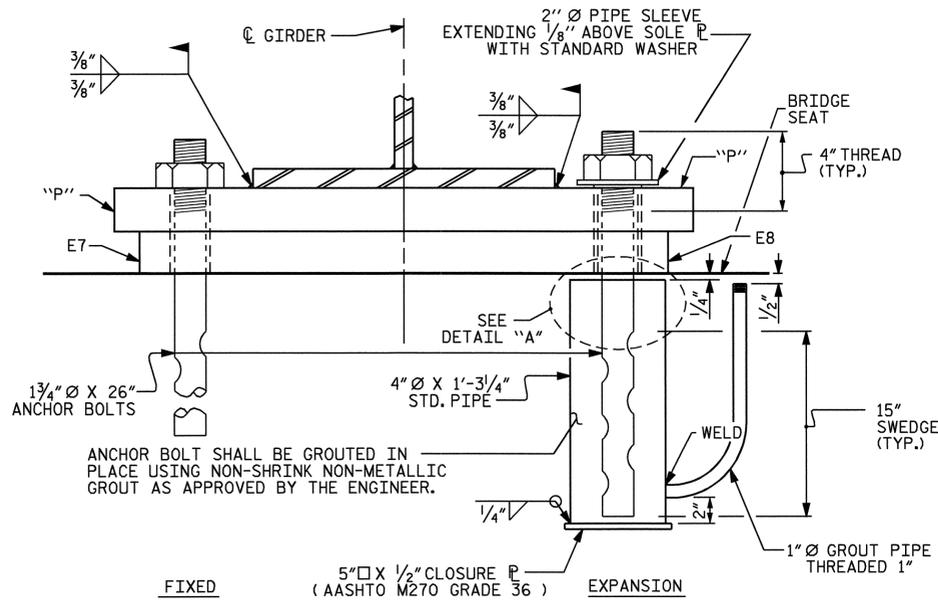
THE CLOSURE PLATE, GROUT PIPE AND STANDARD PIPE FOR THE EXPANSION ASSEMBLY NEED NOT BE GALVANIZED.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FOLLOWING PROCEDURES TO ACCOMMODATE GIRDER TRANSLATION AND END ROTATION:

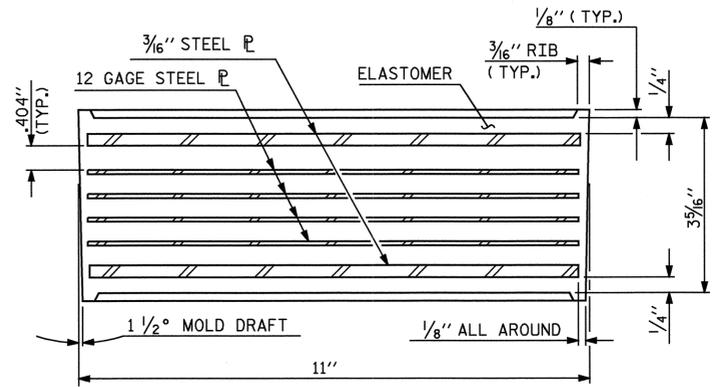
1. ONCE THE DECK HAS CURED, THE GIRDERS SHALL BE JACKED AND THE ANCHOR BOLTS, SOLE PLATE, AND ELASTOMERIC BEARING SLOTS SHALL BE CENTERED AS NEARLY AS PRACTICAL ABOUT THE BEARING STIFFENER. THIS OPERATION SHALL BE PERFORMED AT APPROXIMATELY 60° F.

2. AFTER CENTERING THE SLOTS AND ANCHOR BOLTS, THE SOLE PLATES SHALL BE FIELD WELDED TO THE GIRDER FLANGES AND ANCHOR BOLTS GROUTED.

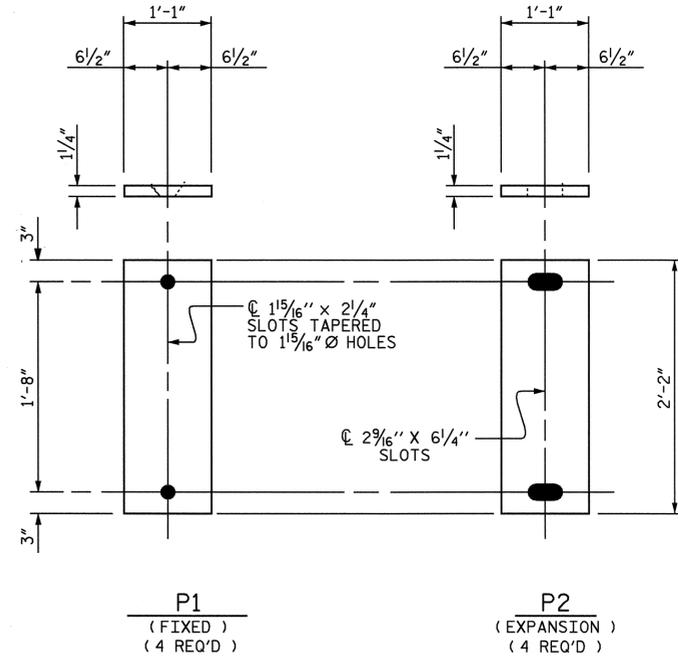
THE CONTRACTOR MAY PROPOSE ALTERNATE METHODS, PROVIDED DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.



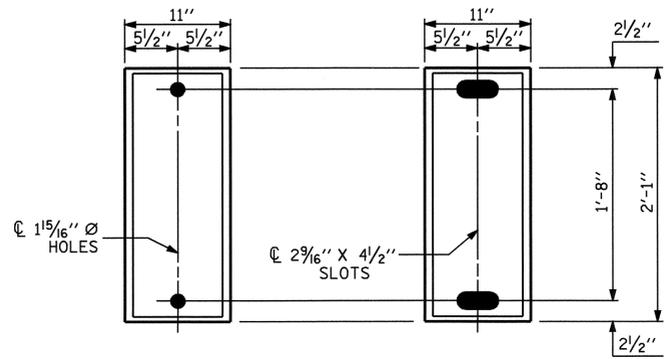
END VIEW



TYPICAL SECTION OF ELASTOMERIC BEARING



SOLE PLATE DETAILS ("P")



E7 (4 REQ'D) E8 (4 REQ'D)

PLAN VIEW OF ELASTOMERIC BEARING

TYPE IV

-LOAD RATINGS-	
TYPE IV	MAX.D.L.+ L.L. 184 K

PROJECT NO. B-4005
ALEXANDER COUNTY
 STATION: 17+97.00 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
ELASTOMERIC BEARING DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-10
					TOTAL SHEETS 23

ASSEMBLED BY : D. G. ELY DATE : 04/4/06
 CHECKED BY : Q. T. NGUYEN DATE : 5/30/06

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
GIRDERS #1 & #4																					
TWENTIETH POINTS	BRG.	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	0.012	0.024	0.034	0.044	0.053	0.060	0.065	0.070	0.072	0.073	0.072	0.070	0.065	0.060	0.053	0.044	0.034	0.024	0.012	0
* DEFLECTION DUE TO WEIGHT OF SLAB	0	0.047	0.099	0.146	0.189	0.227	0.258	0.284	0.302	0.313	0.317	0.313	0.302	0.284	0.258	0.227	0.189	0.146	0.099	0.047	0
DEFLECTION DUE TO WEIGHT OF RAIL	0	0.005	0.009	0.014	0.018	0.021	0.024	0.026	0.028	0.029	0.029	0.029	0.028	0.026	0.024	0.021	0.018	0.014	0.009	0.005	0
TOTAL DEAD LOAD DEFLECTION	0	0.064	0.132	0.194	0.251	0.300	0.342	0.375	0.399	0.414	0.419	0.414	0.399	0.375	0.342	0.300	0.251	0.194	0.132	0.064	0
REQUIRED CAMBER	0	3/4"	1 1/16"	2 5/16"	3"	3 5/8"	4 1/8"	4 1/2"	4 13/16"	5"	5"	5"	4 13/16"	4 1/2"	4 1/8"	3 5/8"	3"	2 5/16"	1 7/8"	3/4"	0
GIRDERS #2 & #3																					
TWENTIETH POINTS	BRG.	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	BRG.
DEFLECTION DUE TO WEIGHT OF GIRDER	0	0.012	0.024	0.034	0.044	0.053	0.060	0.065	0.070	0.072	0.073	0.072	0.070	0.065	0.060	0.053	0.044	0.034	0.024	0.012	0
DEFLECTION DUE TO WEIGHT OF SLAB	0	0.044	0.092	0.136	0.176	0.211	0.241	0.264	0.282	0.292	0.296	0.292	0.282	0.264	0.241	0.211	0.176	0.136	0.092	0.044	0
DEFLECTION DUE TO WEIGHT OF RAIL	0	0.005	0.009	0.013	0.017	0.020	0.023	0.025	0.027	0.028	0.028	0.028	0.027	0.025	0.023	0.020	0.017	0.013	0.009	0.005	0
TOTAL DEAD LOAD DEFLECTION	0	0.061	0.125	0.184	0.237	0.284	0.323	0.355	0.378	0.392	0.397	0.392	0.378	0.355	0.323	0.284	0.237	0.184	0.125	0.061	0
REQUIRED CAMBER	0	3/4"	1 1/2"	2 3/16"	2 7/8"	3 7/16"	3 7/8"	4 1/4"	4 9/16"	4 11/16"	4 3/4"	4 11/16"	4 9/16"	4 1/4"	3 7/8"	3 7/16"	2 7/8"	2 3/16"	1 1/2"	3/4"	0

* INCLUDES SLAB, BUILDUPS & STAY-IN-PLACE FORMS.
 ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "REQUIRED CAMBER", WHICH IS GIVEN IN INCHES (FRACTION FORM).

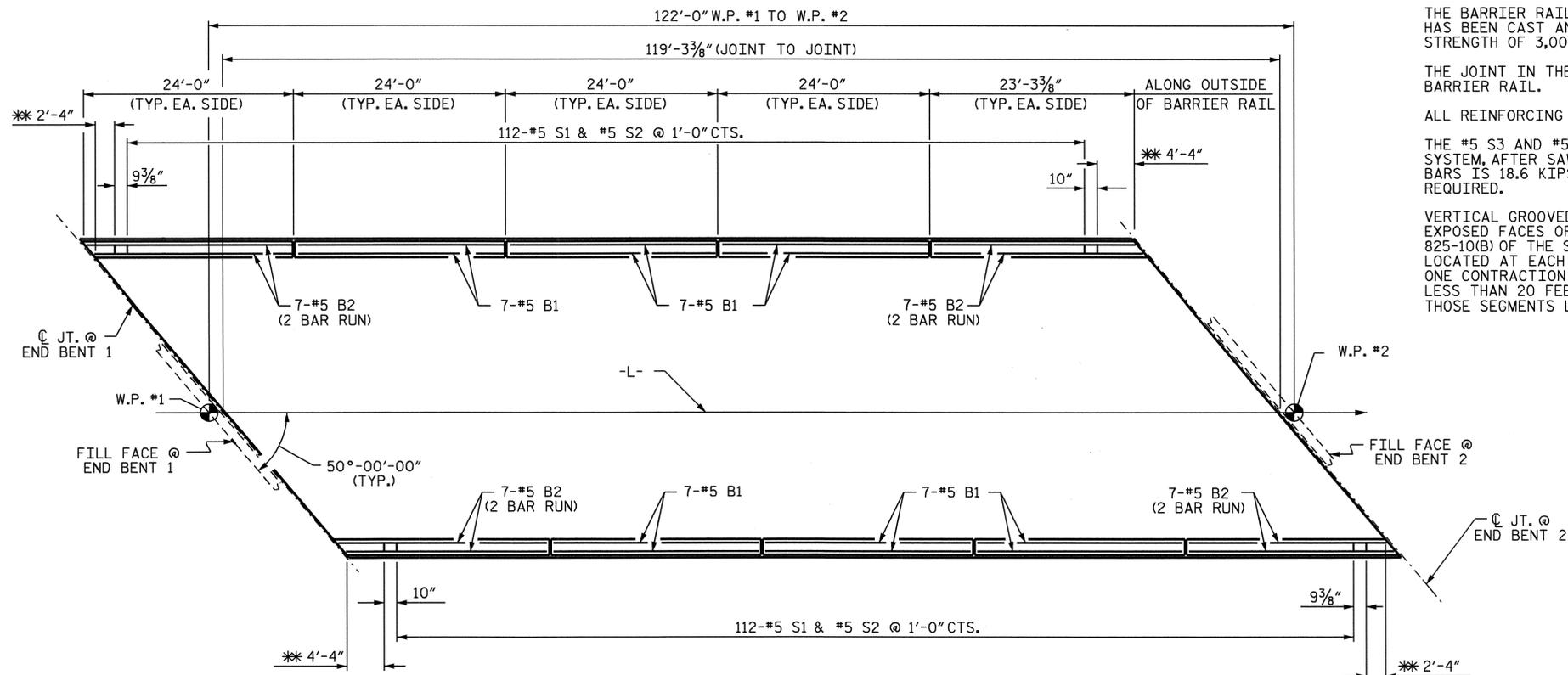
PROJECT NO. B-4005
ALEXANDER COUNTY
 STATION: 17+97.00 -L-



Ting H. Fang
 5/21/07

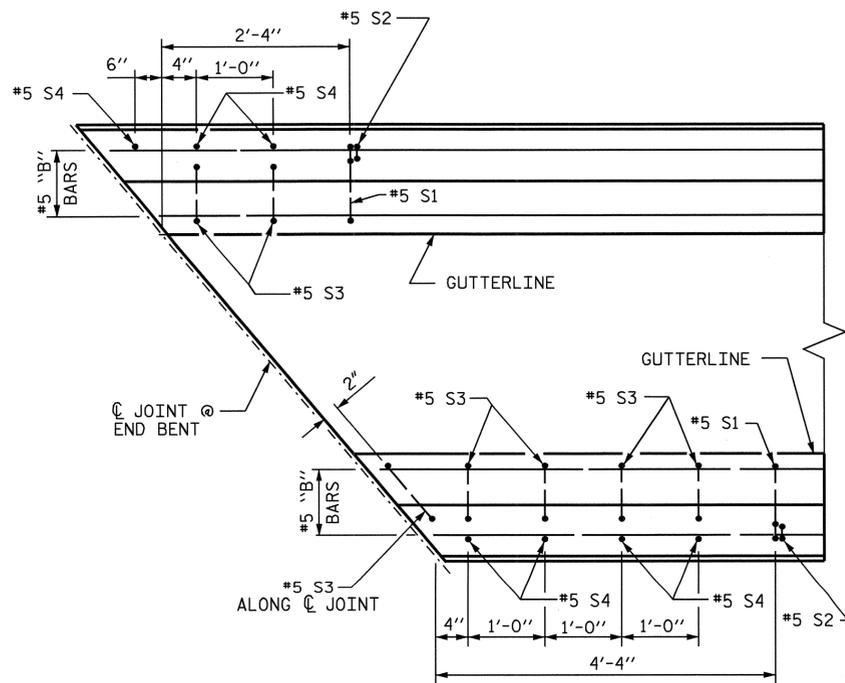
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE DEAD LOAD DEFLECTIONS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-11					TOTAL SHEETS 23

DRAWN BY : D. G. ELY DATE : 5/23/06
 CHECKED BY : Q. T. NGUYEN DATE : 5/30/06



PLAN OF BARRIER RAIL

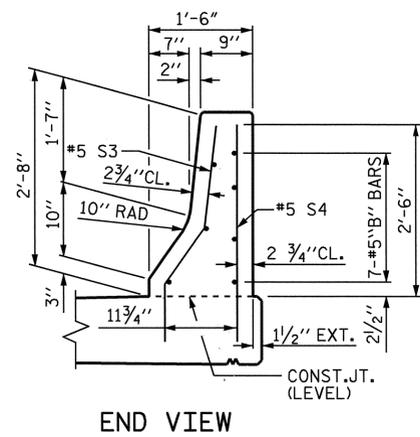
** SEE "END OF RAIL DETAILS - PLAN VIEW" FOR ADDITIONAL REINFORCING STEEL.



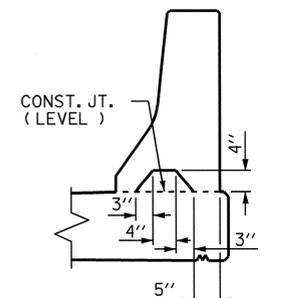
PLAN

END OF RAIL DETAILS

FOR ADHESIVE ANCHORING AT SAWED JOINTS

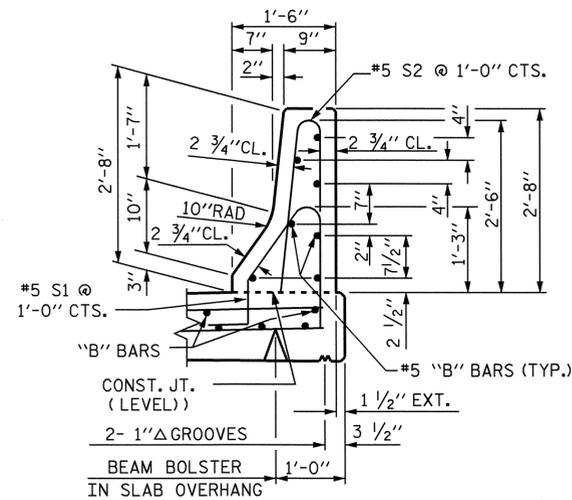


END VIEW



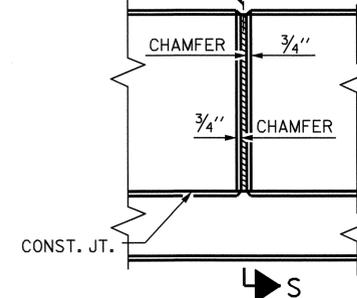
SECTION S-S

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



SECTION THRU RAIL

1/2" EXP. JT. MAT'L. HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORMING IS USED.)



ELEVATION AT EXPANSION JOINTS
BARRIER RAIL DETAILS

NOTES

THE BARRIER RAIL SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

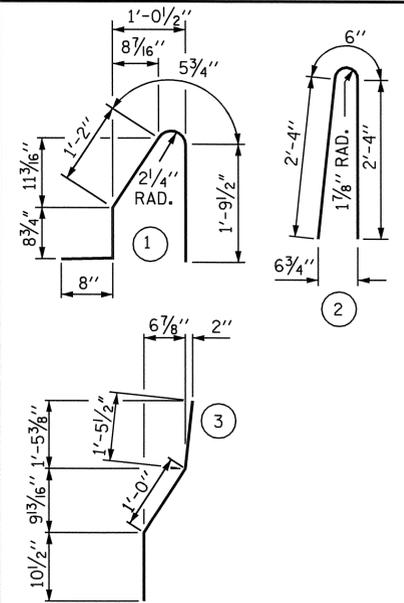
THE JOINT IN THE DECK SHALL BE SAWED PRIOR TO THE CASTING OF BARRIER RAIL.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

THE #5 S3 AND #5 S4 BARS SHALL BE INSTALLED, USING AN ADHESIVE ANCHORING SYSTEM, AFTER SAWING THE JOINT. THE YIELD LOAD FOR THE #5 S3 AND #5 S4 BARS IS 18.6 KIPS. FIELD TESTING FOR THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

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. THE 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.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	42	#5 STR	23'-7"	1033
* B2	56	#5 STR	13'-8"	798
* S1	228	#5	4'-10"	1149
* S2	228	#5	5'-2"	1229
* S3	14	#5	3'-4"	49
* S4	14	#5 STR	3'-2"	43
* EPOXY COATED REINFORCING STEEL				4301 LBS.
CLASS AA CONCRETE				23.9 CU. YDS.
CONCRETE BARRIER RAIL				238.56 LIN. FT.



PROJECT NO. B-4005
ALEXANDER COUNTY
STATION: 17+97.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			23
2			4			

STD. NO. CBRI

ASSEMBLED BY : D. G. ELY DATE : 4/6/06
CHECKED BY : Q. T. NGUYEN DATE : 6/1/06
DRAWN BY : ARB 5/87 REV. 8/16/99 RWW/LES
CHECKED BY : SJD 9/87 REV. 10/17/00 RWW/LES
REV. 5/17/03R RWW/JTE

NOTES

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

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

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

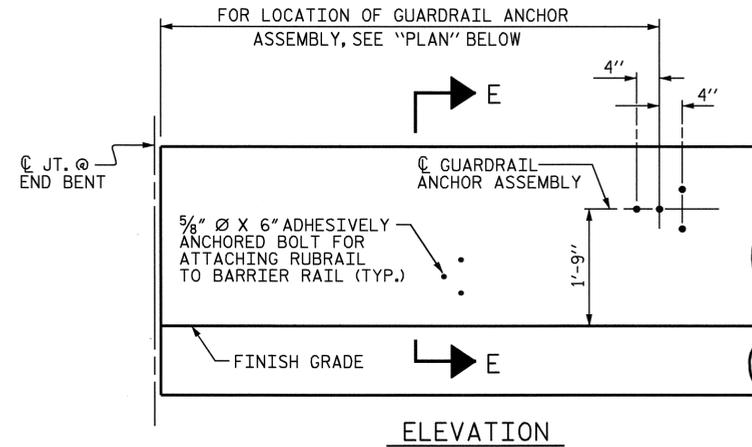
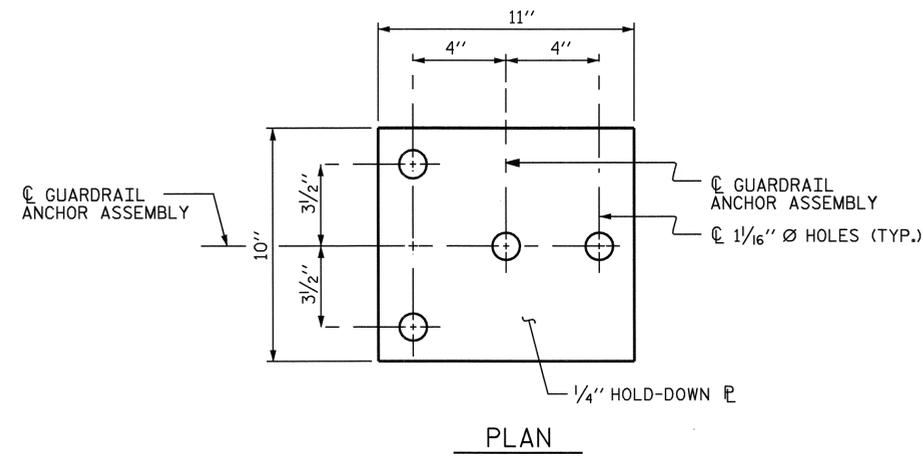
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

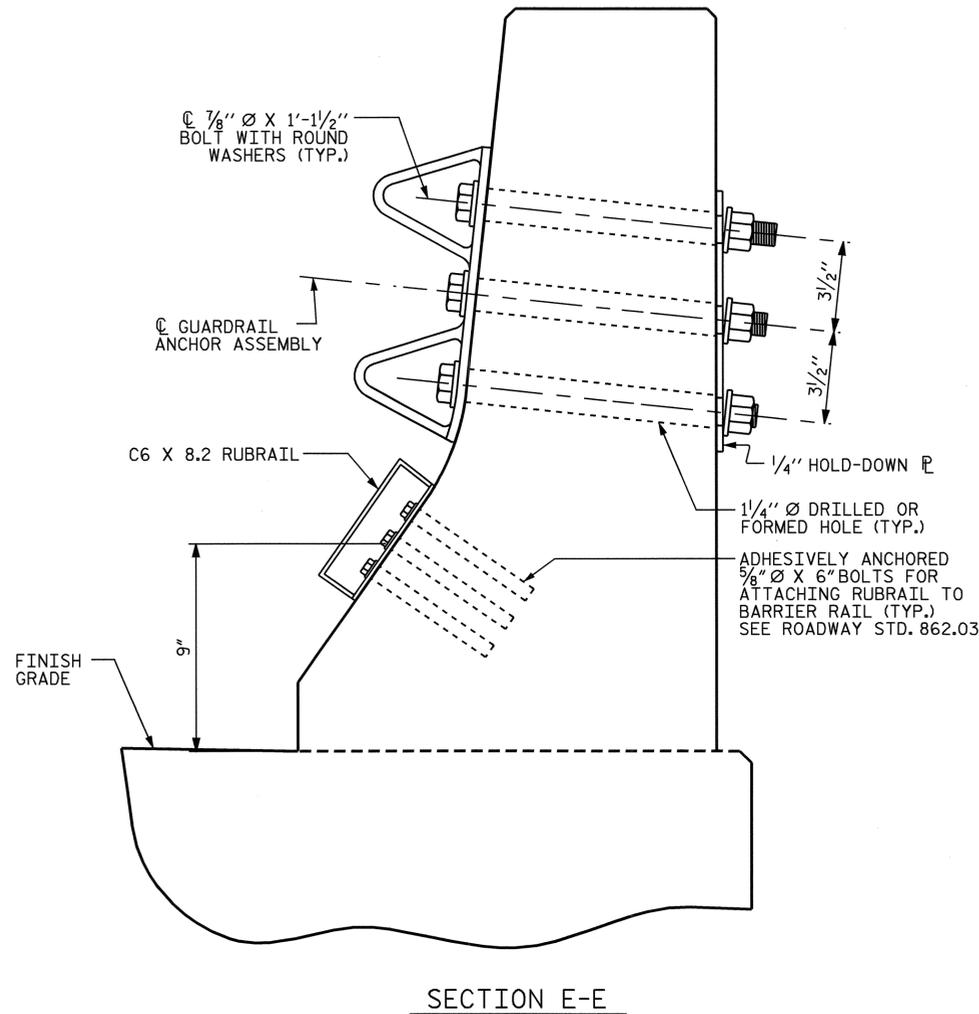
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

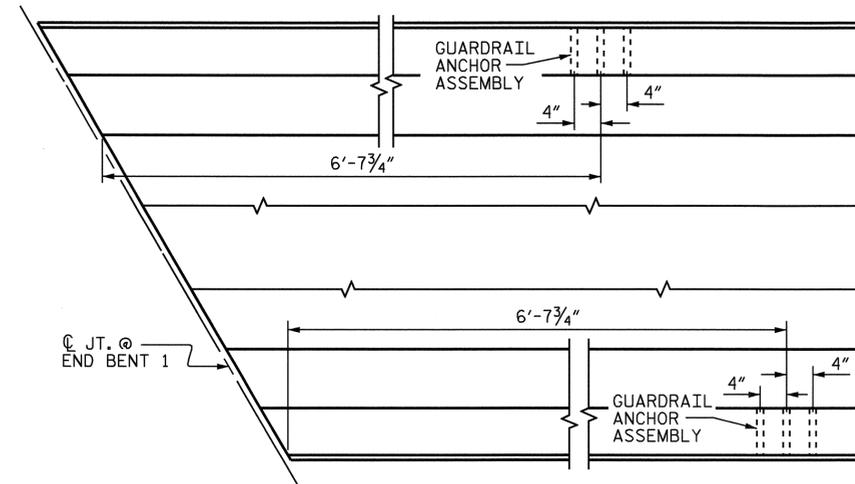
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 5/8" Ø X 6" BOLTS WITH WASHERS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03

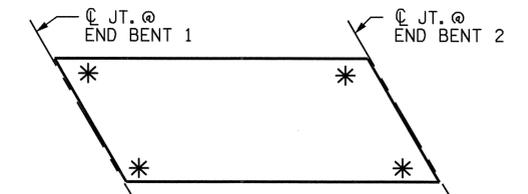


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

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



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

ASSEMBLED BY : D. G. ELY	DATE : 4/20/07
CHECKED BY : T. H. FANG	DATE : 4/20/07
DRAWN BY : TLA 5/06	ADDED 5/1/06
CHECKED BY : GM 5/06	

21-MAY-2007 14:37
H:\STRUCT\B4005\FINALP\B40CA2.DGN
dely



PROJECT NO. B-4005
ALEXANDER COUNTY
STATION: 17+97.00 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-13
STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL						TOTAL SHEETS 23
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

GROOVING BRIDGE FLOORS

APPROACH SLABS	823	SQ.FT.
BRIDGE DECK	3526	SQ.FT.
TOTAL	4349	SQ.FT.

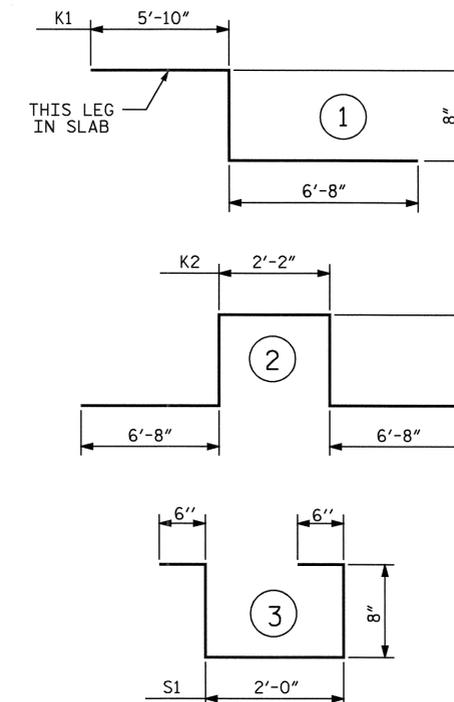
SUPERSTRUCTURE BILL OF MATERIAL			
	CLASS AA CONCRETE (CU.YDS.)	REINFORCING STEEL (LBS.)	EPOXY COATED REINFORCING STEEL (LBS.)
SPAN "A"	126.6	13,424	11,086
TOTALS**	126.6	13,424	11,086

**QUANTITIES FOR BARRIER RAIL ARE NOT INCLUDED

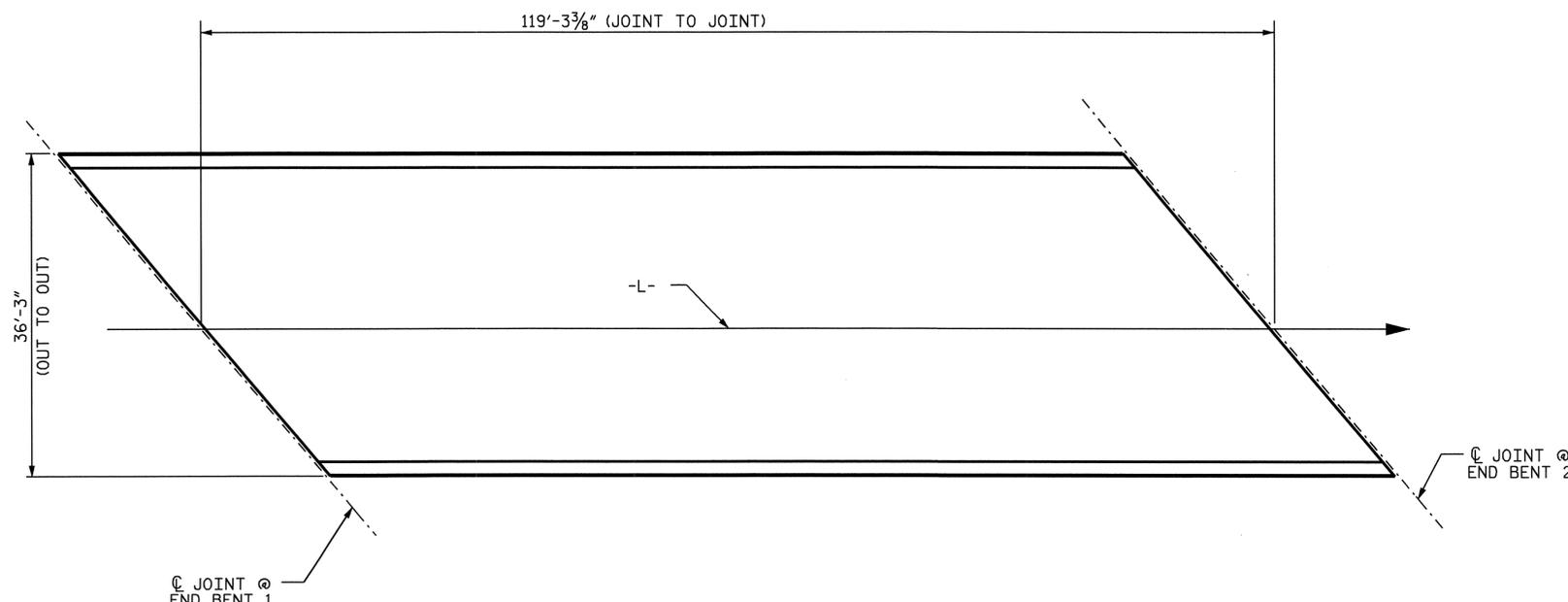
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	164	5	STR	35'-11"	6144
A2	164	5	STR	35'-11"	6144
* A3	6	6	STR	17'-6"	158
* A101	4	5	STR	34'-9"	145
* A102	4	5	STR	33'-6"	140
* A103	4	5	STR	32'-2"	134
* A104	4	5	STR	30'-11"	129
* A105	4	5	STR	29'-7"	123
* A106	4	5	STR	28'-4"	118
* A107	4	5	STR	27'-0"	113
* A108	4	5	STR	25'-9"	107
* A109	4	5	STR	24'-5"	102
* A110	4	5	STR	23'-2"	97
* A111	4	5	STR	21'-10"	91
* A112	4	5	STR	20'-7"	86
* A113	4	5	STR	19'-3"	80
* A114	4	5	STR	18'-0"	75
* A115	4	5	STR	16'-8"	70
* A116	4	5	STR	15'-5"	64
* A117	4	5	STR	14'-1"	59
* A118	4	5	STR	12'-10"	54
* A119	4	5	STR	11'-6"	48
* A120	4	5	STR	10'-3"	43
* A121	4	5	STR	8'-11"	37
* A122	4	5	STR	7'-8"	32
* A123	4	5	STR	6'-4"	26
* A124	4	5	STR	5'-1"	21
* A125	4	5	STR	3'-9"	16
A201	4	5	STR	34'-9"	145
A202	4	5	STR	33'-6"	140
A203	4	5	STR	32'-2"	134
A204	4	5	STR	30'-11"	129
A205	4	5	STR	29'-7"	123
A206	4	5	STR	28'-4"	118
A207	4	5	STR	27'-0"	113
A208	4	5	STR	25'-9"	107
A209	4	5	STR	24'-5"	102
A210	4	5	STR	23'-2"	97
A211	4	5	STR	21'-10"	91
A212	4	5	STR	20'-7"	86
A213	4	5	STR	19'-3"	80
A214	4	5	STR	18'-0"	75
A215	4	5	STR	16'-8"	70
A216	4	5	STR	15'-5"	64
A217	4	5	STR	14'-1"	59
A218	4	5	STR	12'-10"	54
A219	4	5	STR	11'-6"	48
A220	4	5	STR	10'-3"	43
A221	4	5	STR	8'-11"	37
A222	4	5	STR	7'-8"	32
A223	4	5	STR	6'-4"	26
A224	4	5	STR	5'-1"	21
A125	4	5	STR	3'-9"	16
* B1	125	4	STR	25'-5"	2122
B2	123	5	STR	41'-1"	5271
* G1	4	5	STR	24'-9"	103
* K1	12	5	1	13'-2"	165
* K2	12	5	2	16'-10"	211
* S1	60	4	3	4'-4"	174
REINFORCING STEEL - LBS.					13,424
* EPOXY COATED REINFORCING STEEL - LBS.					11,086

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 4,324.0)

PROJECT NO. B-4005
ALEXANDER COUNTY
STATION: 17+97.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

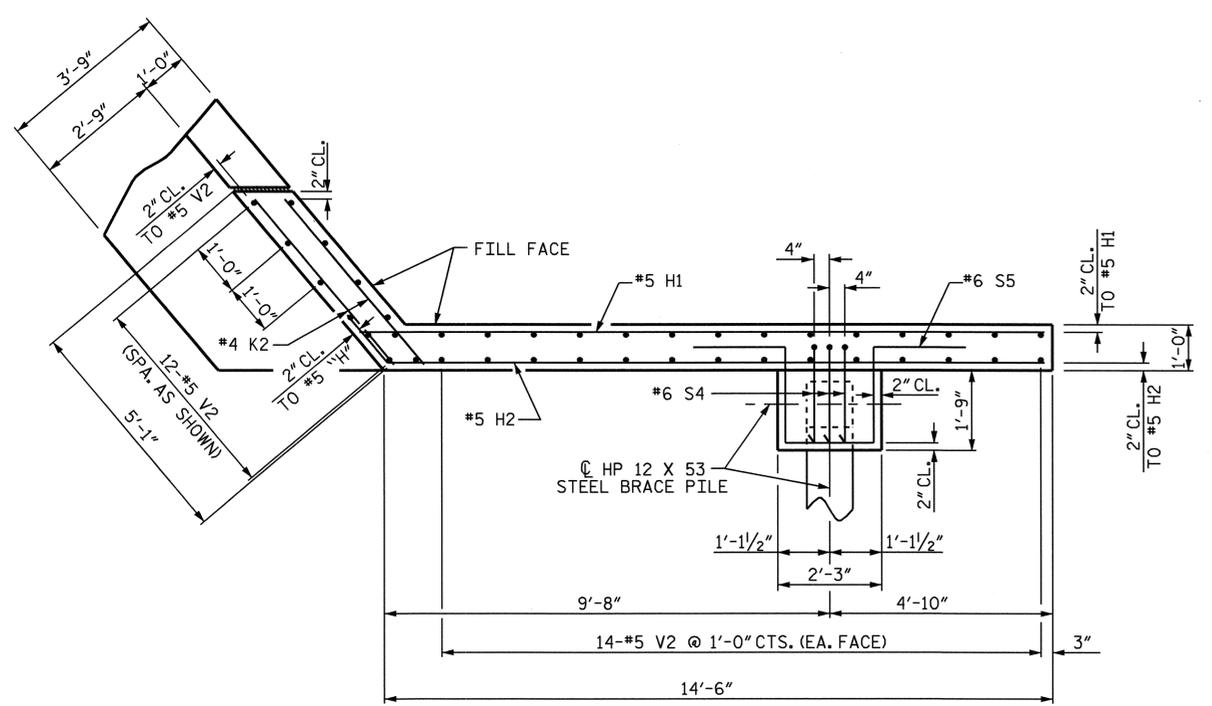
SUPERSTRUCTURE
BILL OF MATERIAL



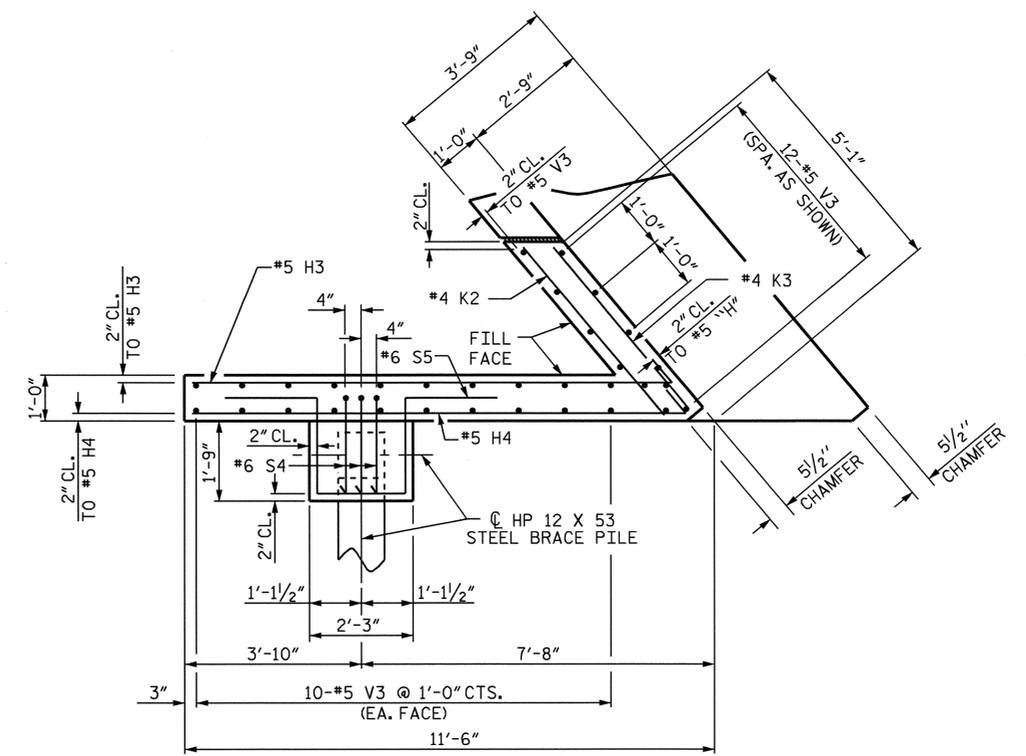
Ting Hsiung Yang
6/28/07

ASSEMBLED BY : D. G. ELY DATE : 4/10/06
CHECKED BY : Q. T. NGUYEN DATE : 6/1/06

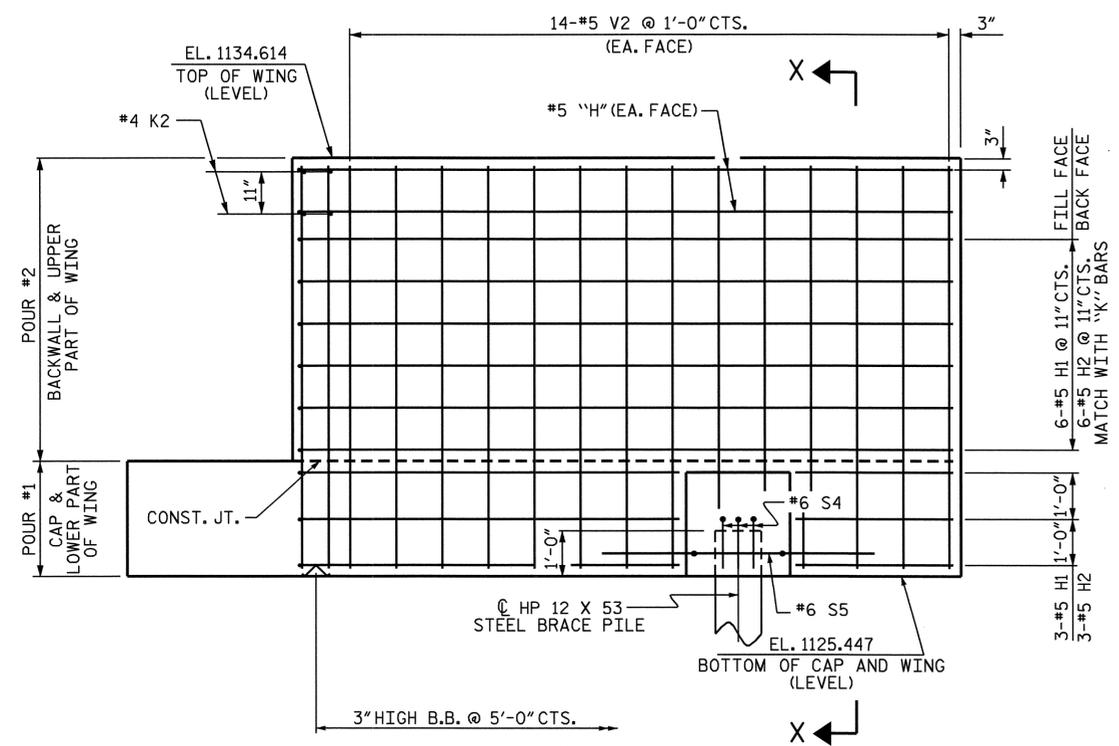
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			23



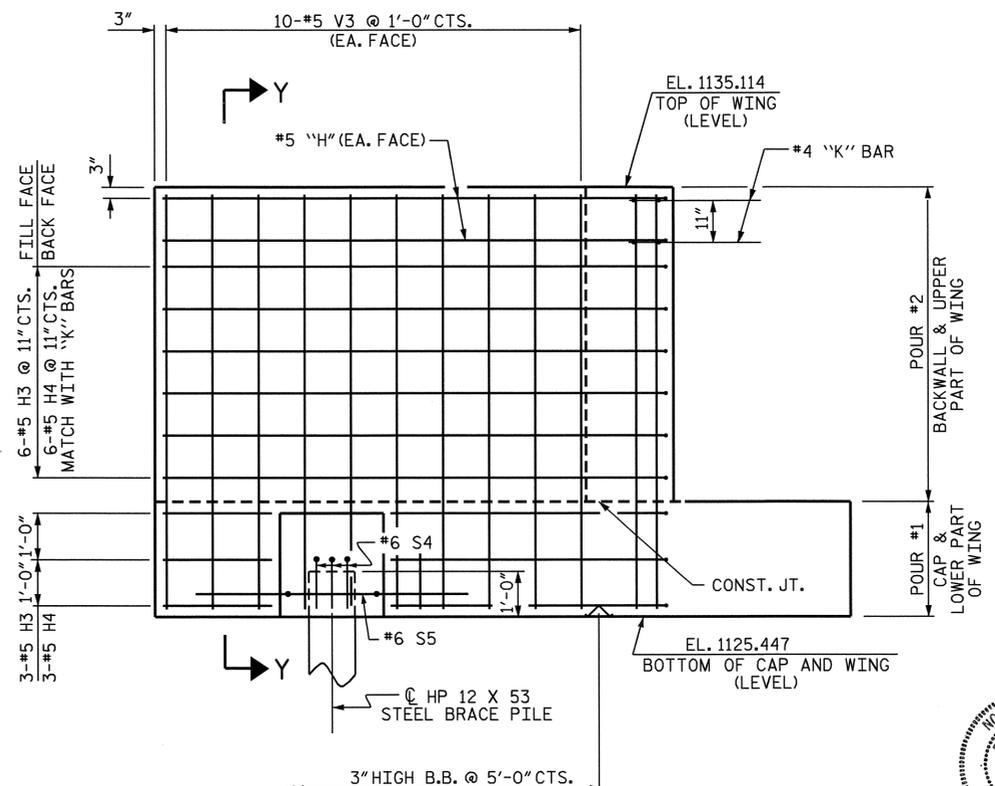
PLAN OF LEFT WING - W1



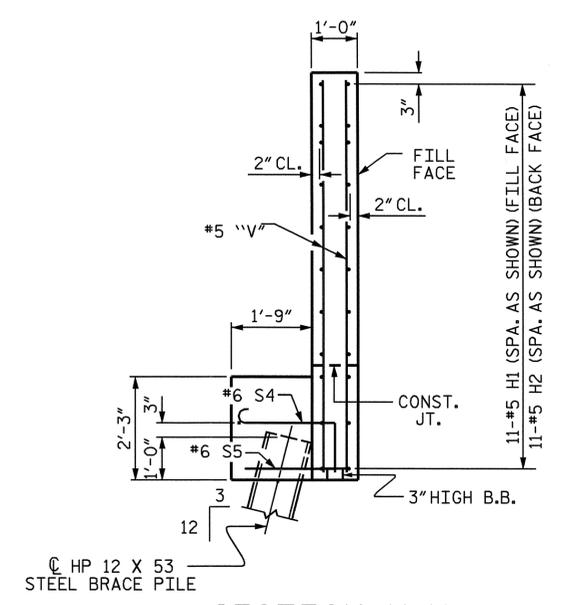
PLAN OF RIGHT WING - W2



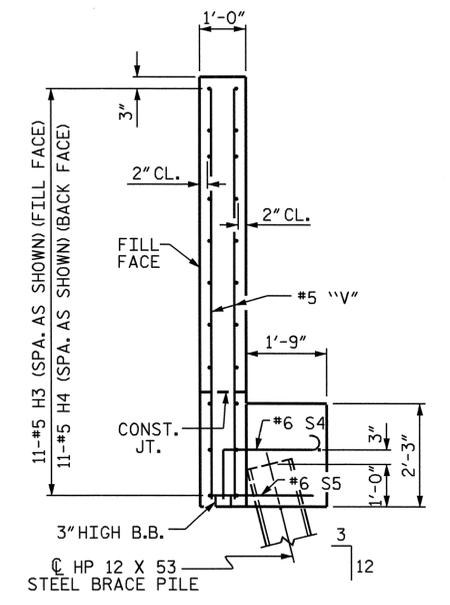
ELEVATION OF LEFT WING - W1



ELEVATION OF RIGHT WING - W2



SECTION X-X



SECTION Y-Y

PROJECT NO. B-4005
 ALEXANDER COUNTY
 STATION: 17+97.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

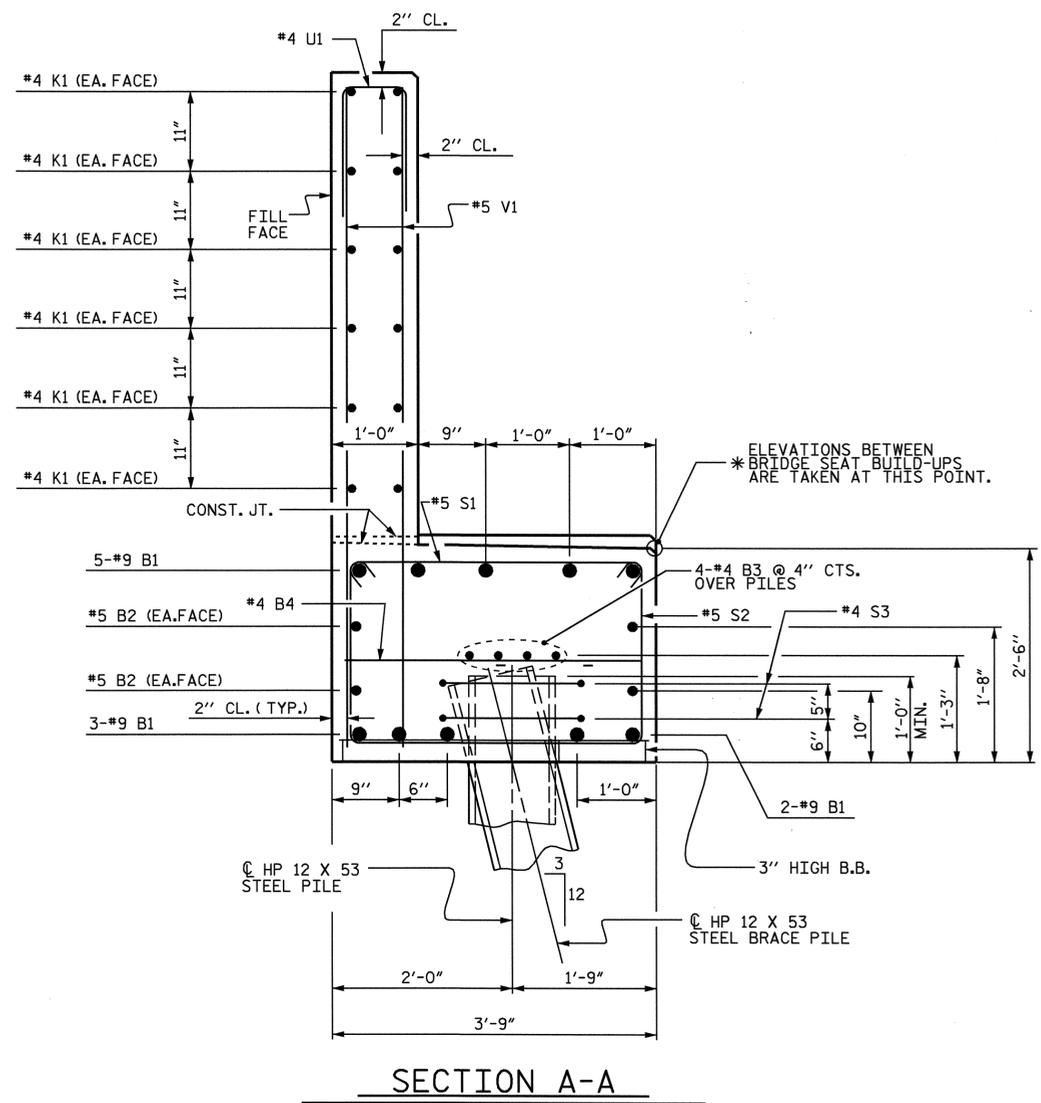
SUBSTRUCTURE
 END BENT 1



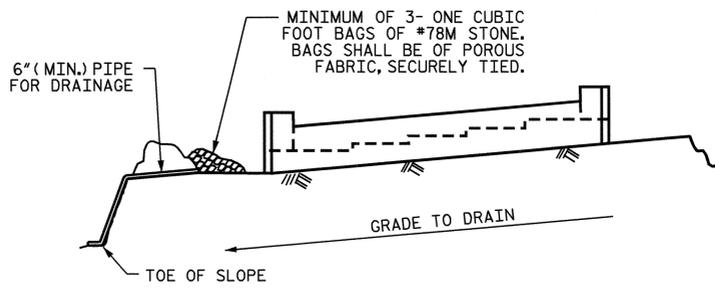
Amet B. Nair
 5-21-2007

DRAWN BY: D. G. ELY DATE: 8/06
 CHECKED BY: A. B. NAIK DATE: 3/07

REVISIONS						SHEET NO. S-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 23
2			4			



SECTION A-A



MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

6" (MIN.) PIPE FOR DRAINAGE

GRADE TO DRAIN

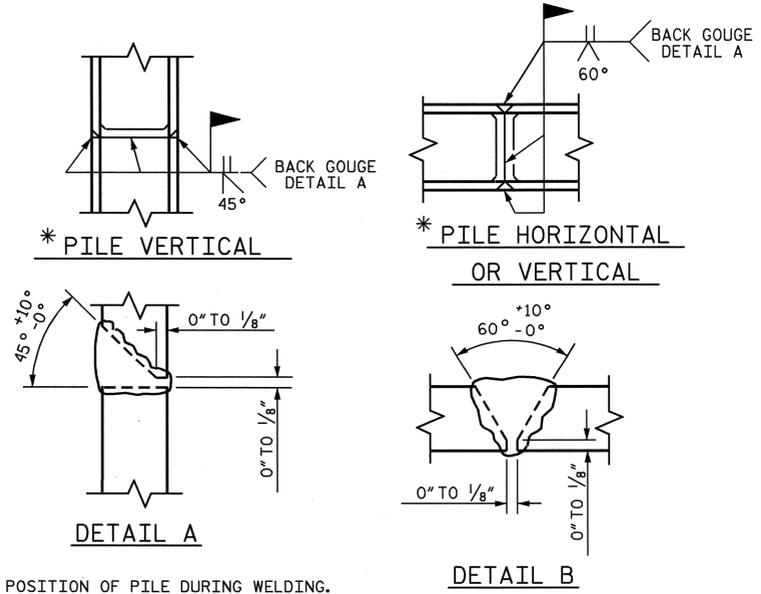
TOE OF SLOPE

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.

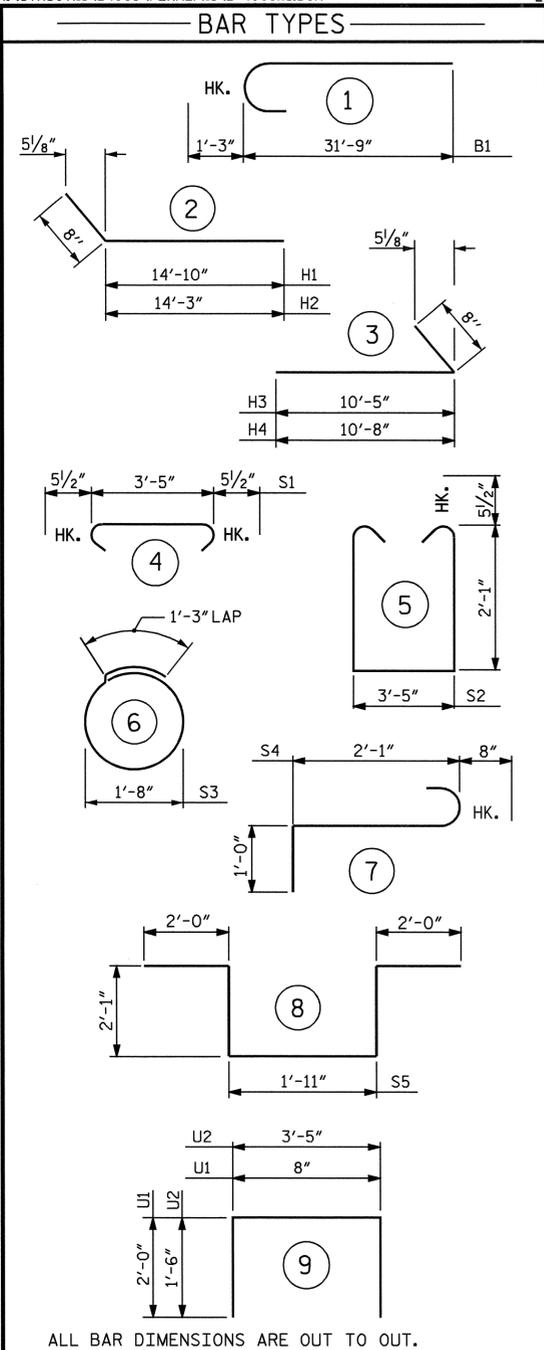
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



PILE SPLICE DETAILS



BILL OF MATERIAL

END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	20	#9	1	33'-0"	2244
B2	8	#5	STR	28'-11"	241
B3	8	#4	STR	28'-8"	153
B4	14	#4	STR	3'-5"	32
B5	15	#4	STR	2'-8"	27
H1	11	#5	2	15'-6"	178
H2	11	#5	2	14'-11"	171
H3	11	#5	3	11'-1"	127
H4	11	#5	3	11'-4"	130
K1	24	#4	STR	28'-8"	460
K2	6	#4	STR	3'-5"	14
K3	2	#4	STR	3'-1"	4
S1	59	#5	4	4'-4"	267
S2	59	#5	5	8'-6"	523
S3	22	#4	6	6'-5"	94
S4	6	#6	7	3'-9"	34
S5	2	#6	8	10'-1"	30
U1	45	#4	9	4'-8"	140
U2	12	#4	9	6'-5"	51
V1	90	#5	STR	7'-1"	665
V2	40	#5	STR	8'-10"	369
V3	32	#5	STR	9'-4"	312

REINFORCING STEEL	LBS	6266
CLASS A CONCRETE		
POUR #1: CAP & LOWER PART OF WINGS	CY	22.4
POUR #2: BACKWALL & UPPER PART OF WINGS	CY	17.2
TOTAL CLASS A CONCRETE	CY	39.6
HP 12 X 53 STEEL PILES NO. 13		195 LN. FT.

PROJECT NO. B-4005
ALEXANDER COUNTY
STATION: 17+97.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1

Professional Engineer Seal for Amat B. Naik, No. 18875, State of North Carolina. Date: 5-21-2007.

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17	
1			3			TOTAL SHEETS 23	
2			4				

DRAWN BY: D. G. ELY DATE: 8/06
CHECKED BY: A. B. NAIK DATE: 3/07

NOTES

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

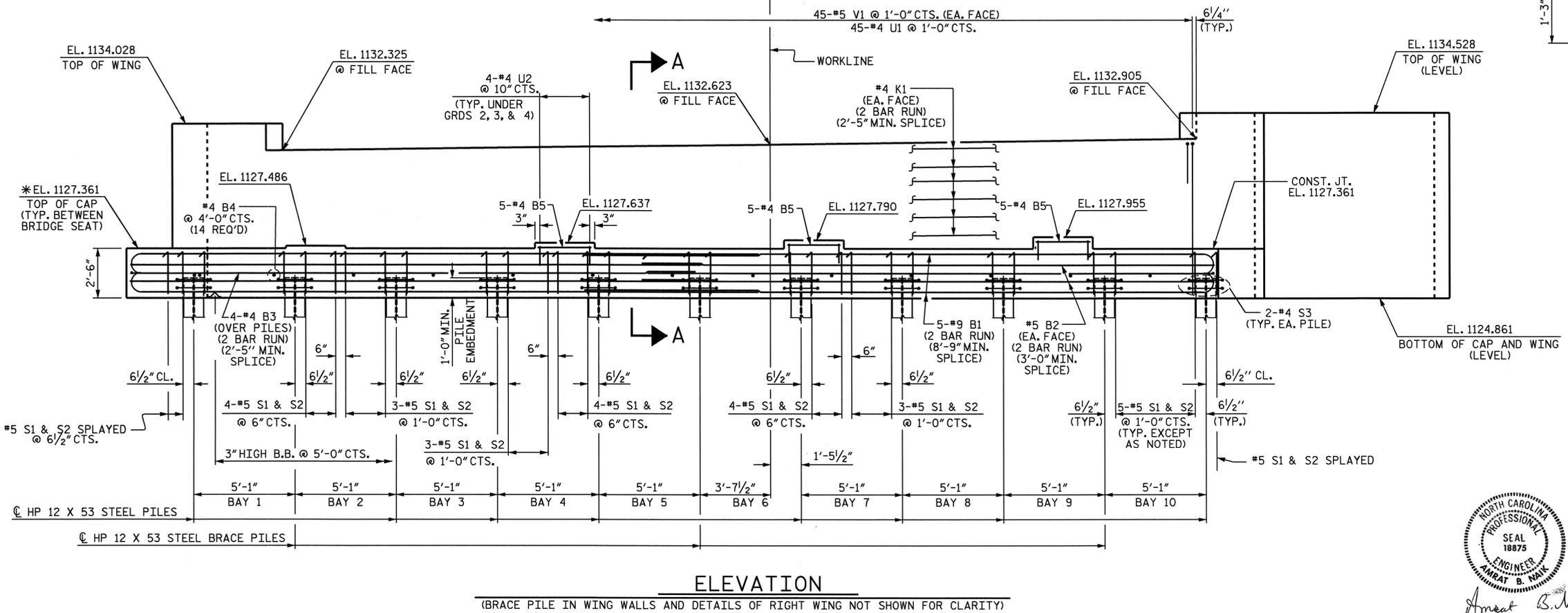
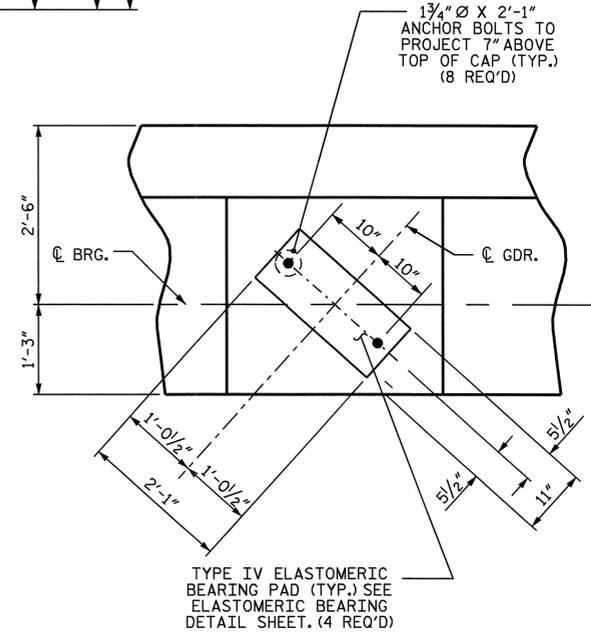
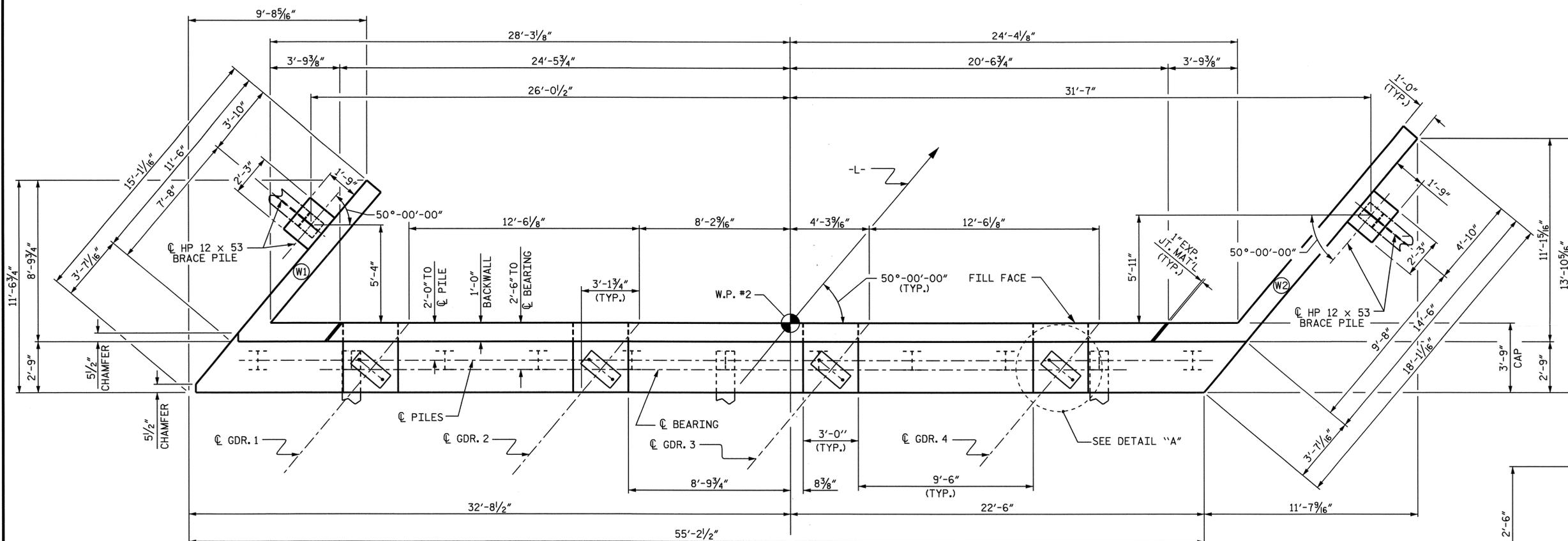
FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

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 TOP SURFACE OF THE CAP EXCEPT THE BRIDGE SEAT BUILDUPS SHALL BE SLOPED TRANSVERSELY FROM THE FILL FACE TO THE BACK FACE AT THE RATE OF 2%.

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.

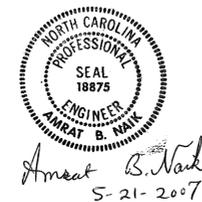


PROJECT NO. B-4005
ALEXANDER COUNTY
 STATION: 17+97.00 -L-

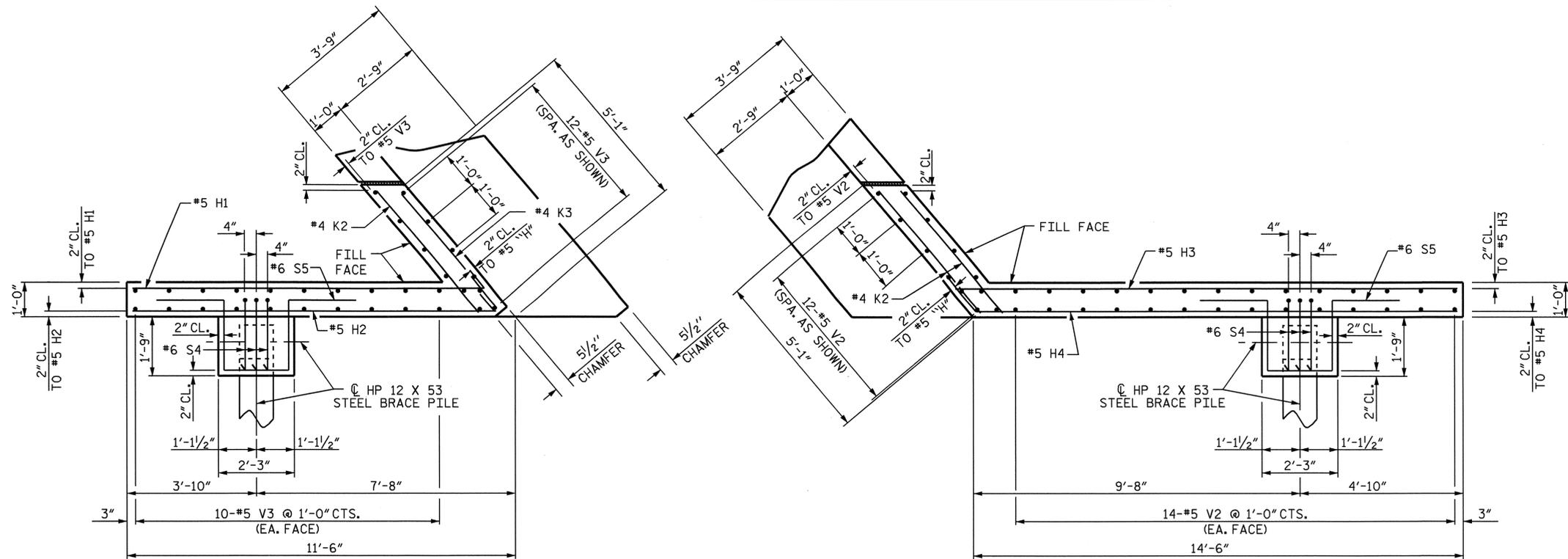
SHEET 1 OF 3

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

SHEET NO. S-18
TOTAL SHEETS 23

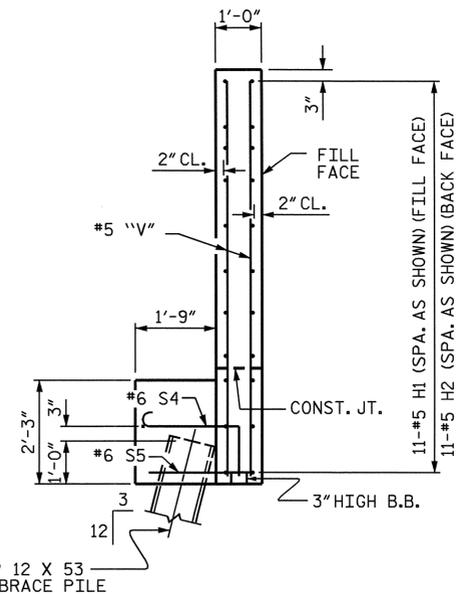


DRAWN BY: D. G. ELY DATE: 8/8/06
 CHECKED BY: A. B. NAIK DATE: 3/07

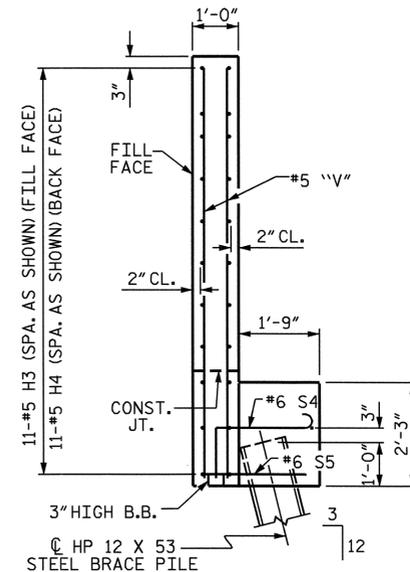


PLAN OF LEFT WING - W1

PLAN OF RIGHT WING - W2



SECTION X-X



SECTION Y-Y

PROJECT NO. B-4005
ALEXANDER COUNTY
 STATION: 17+97.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

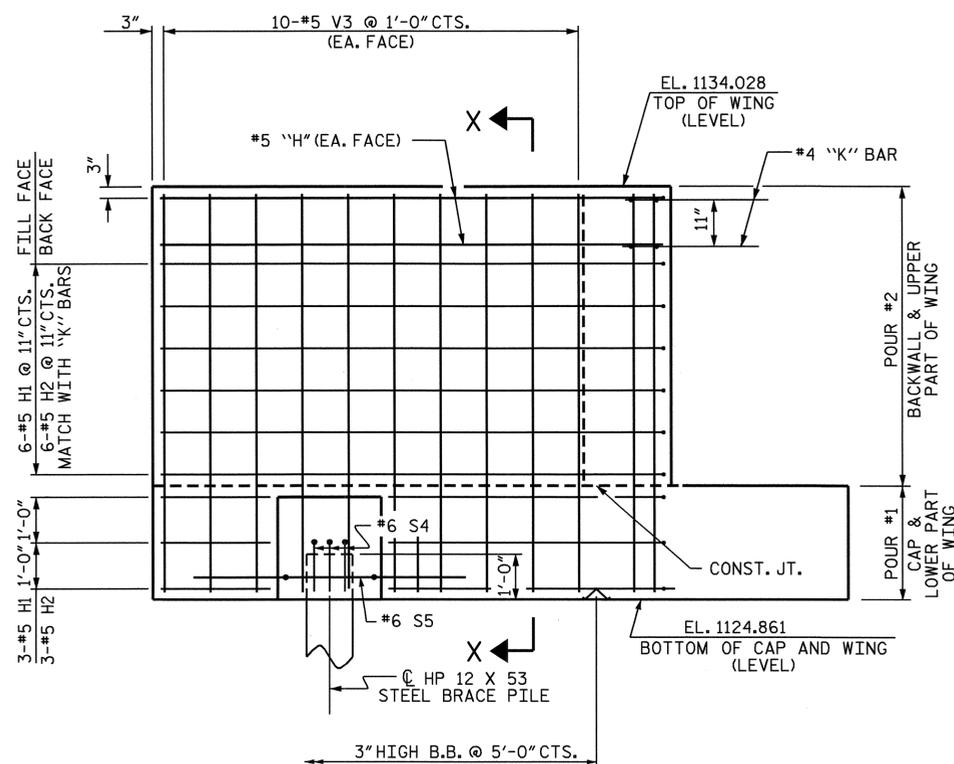
SUBSTRUCTURE
 END BENT 2

REVISIONS

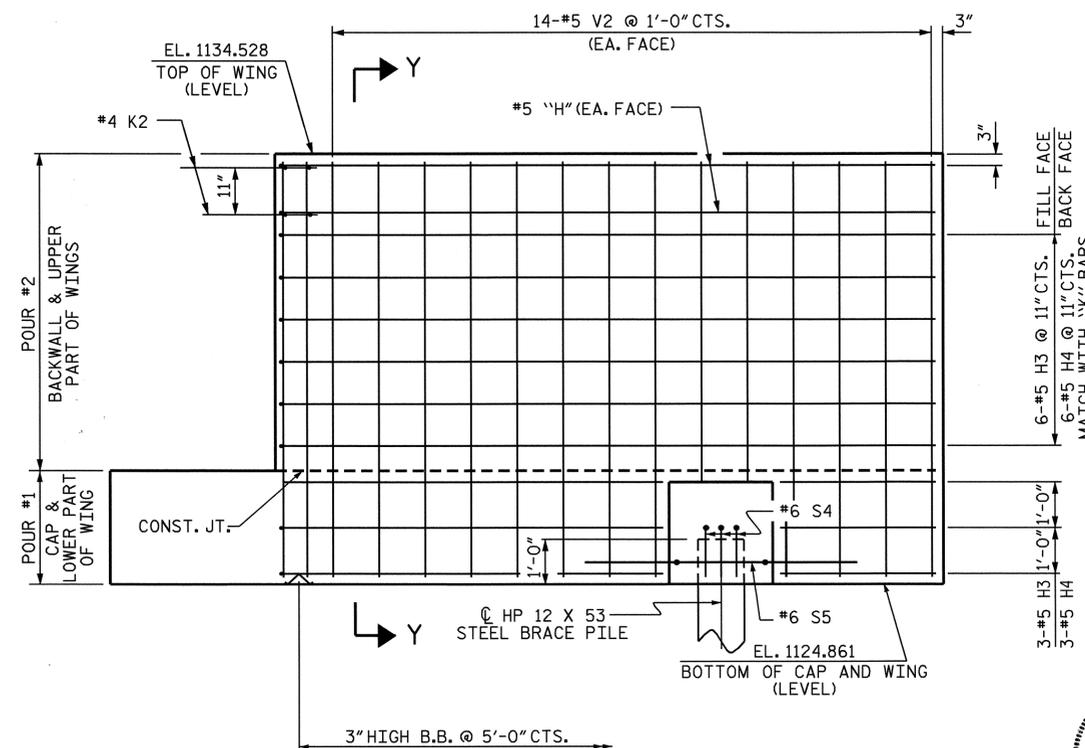
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-19
2			4			TOTAL SHEETS 23



Ansat B. Naik
 5-21-2007



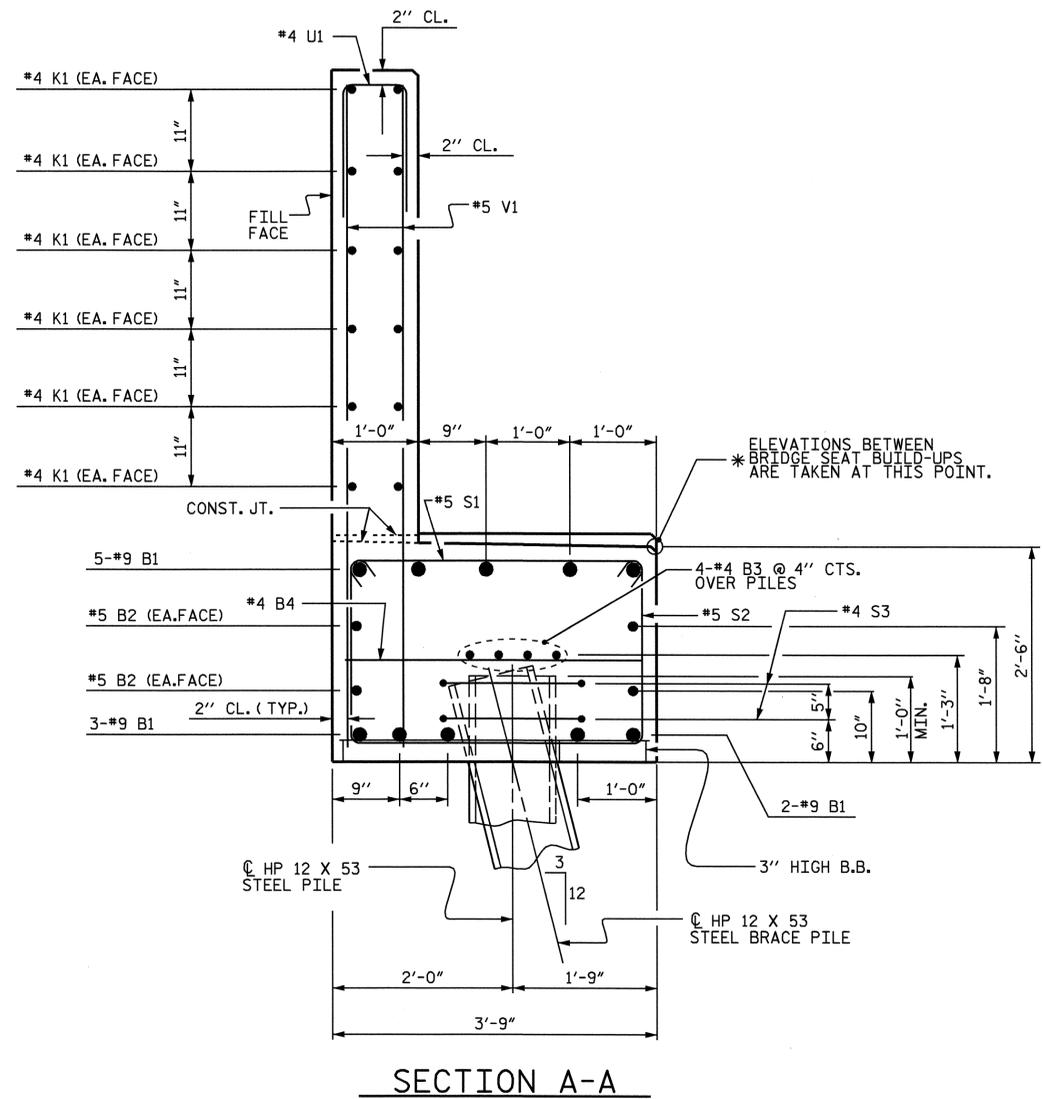
ELEVATION OF LEFT WING - W1



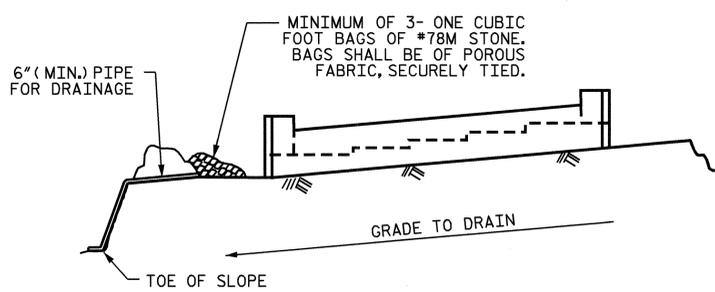
ELEVATION OF RIGHT WING - W2

DRAWN BY: D. G. ELY DATE: 8/06
 CHECKED BY: A. B. NAIK DATE: 3/07

21-MAY-2007 14:41
 H:\STRUCTURE\B4005\FINALP2\B-4005.DGN
 dely



SECTION A-A

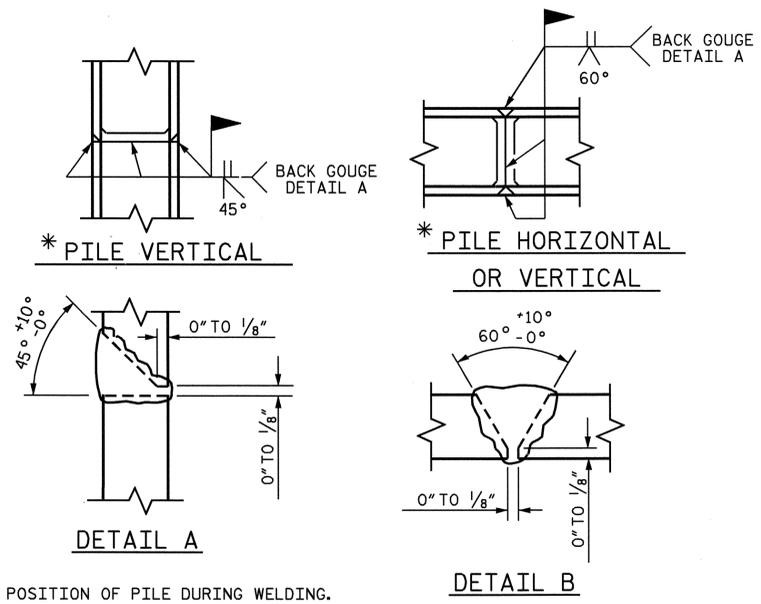


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

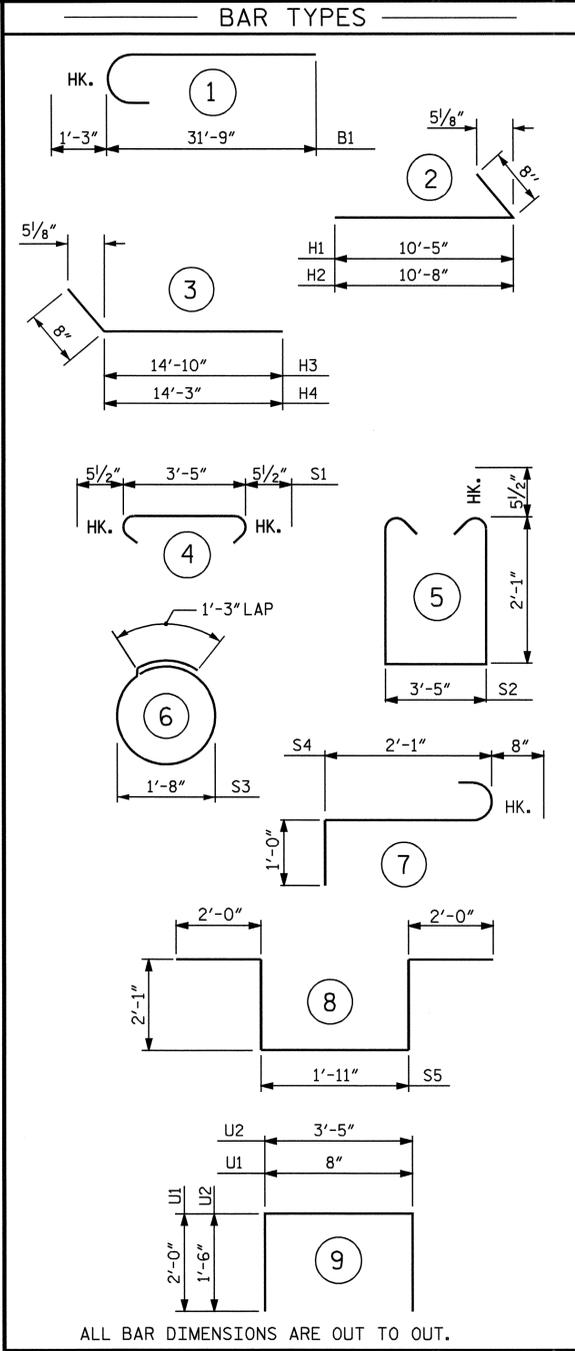
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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



PILE SPLICE DETAILS



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	20	#9	1	33'-0"	2244
B2	8	#5	STR	28'-11"	241
B3	8	#4	STR	28'-8"	153
B4	14	#4	STR	3'-5"	32
B5	15	#4	STR	2'-8"	27
H1	11	#5	2	11'-1"	127
H2	11	#5	2	11'-4"	130
H3	11	#5	3	15'-6"	178
H4	11	#5	3	14'-11"	171
K1	24	#4	STR	28'-8"	460
K2	6	#4	STR	3'-5"	14
K3	2	#4	STR	3'-1"	4
S1	59	#5	4	4'-4"	267
S2	59	#5	5	8'-6"	523
S3	22	#4	6	6'-5"	94
S4	6	#6	7	3'-9"	34
S5	2	#6	8	10'-1"	30
U1	45	#4	9	4'-8"	140
U2	12	#4	9	6'-5"	51
V1	90	#5	STR	7'-1"	665
V2	40	#5	STR	9'-4"	389
V3	32	#5	STR	8'-10"	295

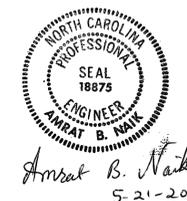
REINFORCING STEEL LBS 6269

CLASS A CONCRETE
 POUR #1: CAP & LOWER PART OF WINGS CY 22.4
 POUR #2: BACKWALL & UPPER PART OF WINGS CY 17.1
 TOTAL CLASS A CONCRETE CY 39.5

HP 12 X 53 STEEL PILES NO. 13 295 LN. FT.

PROJECT NO. B-4005
 ALEXANDER COUNTY
 STATION: 17+97.00 -L-

SHEET 3 OF 3



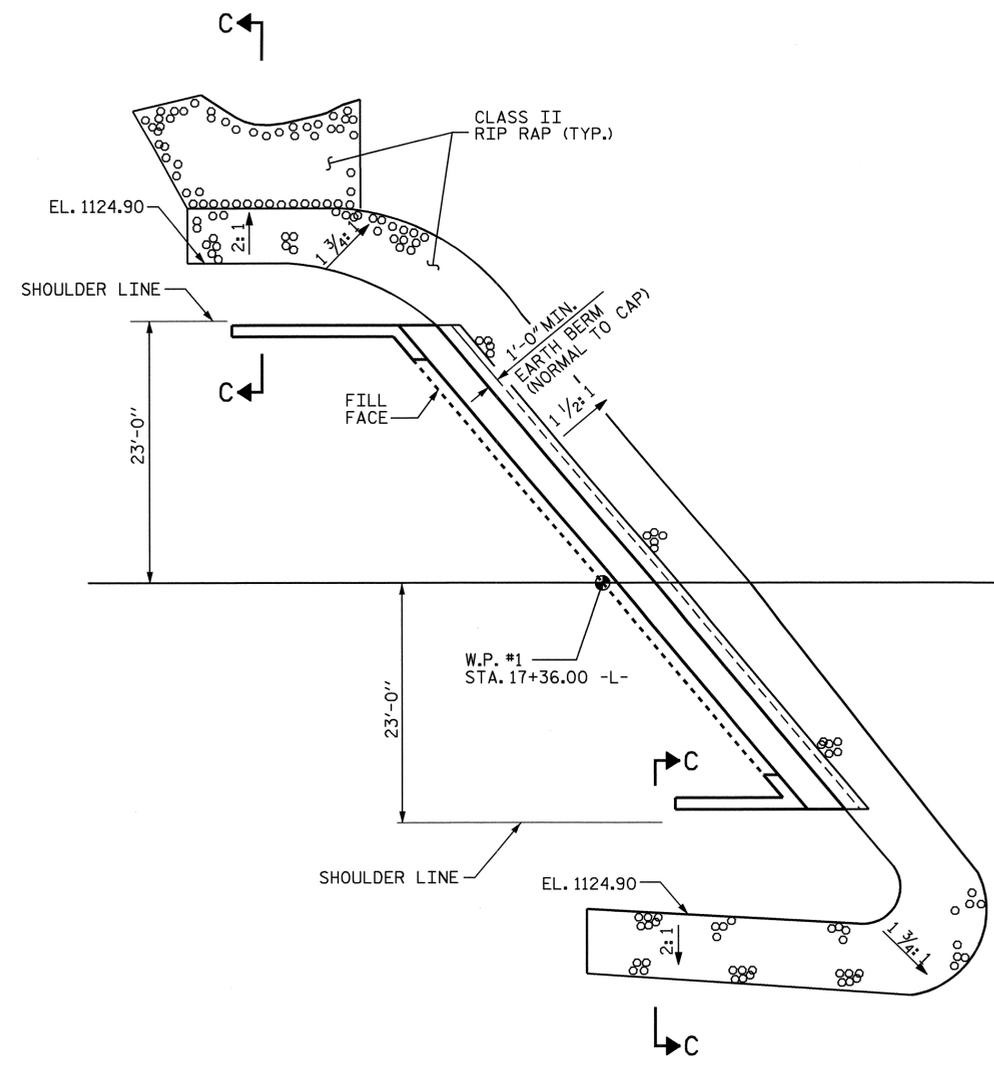
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2

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

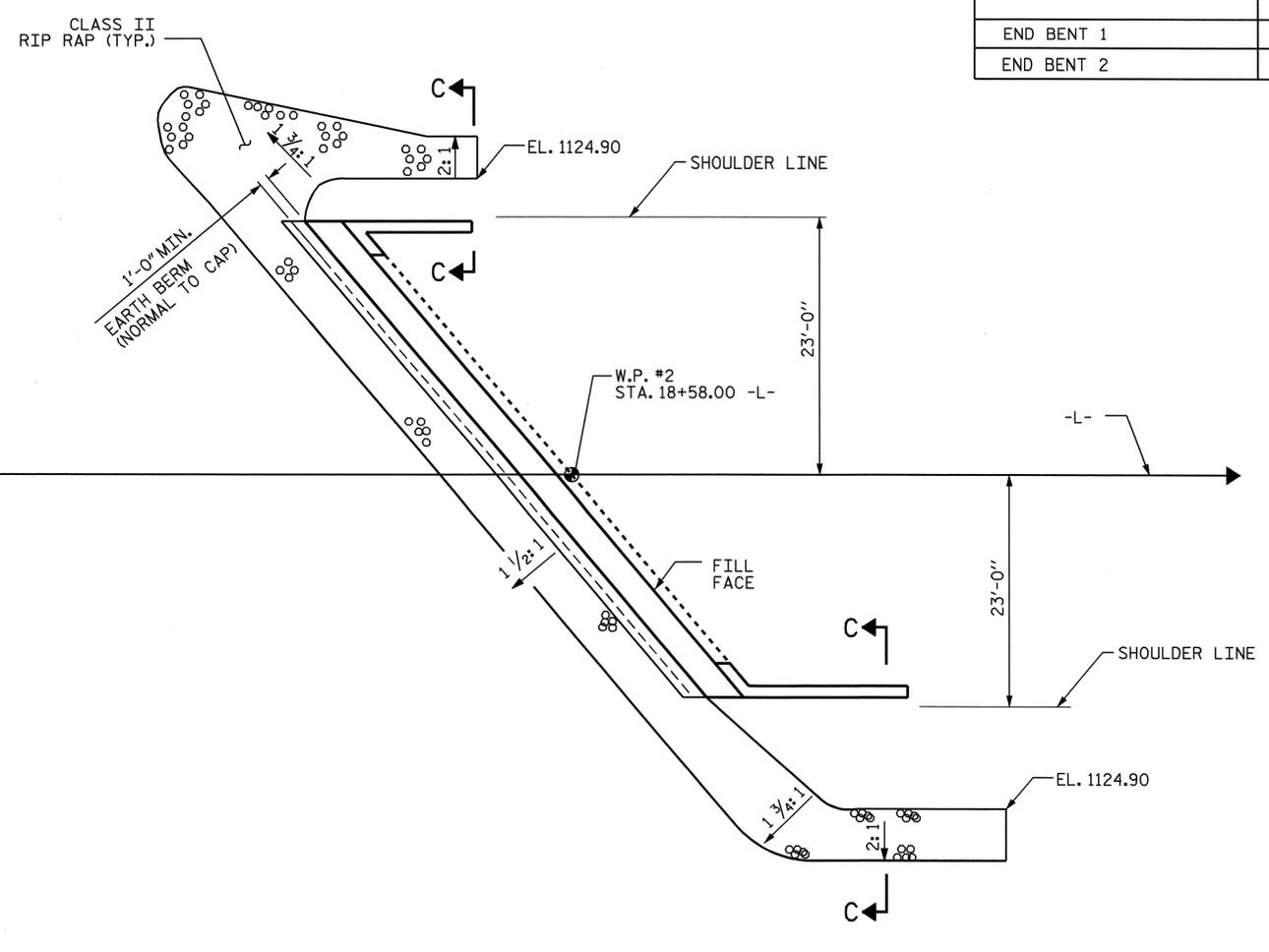
TOTAL SHEETS 23

DRAWN BY: D. G. ELY DATE: 8/06
 CHECKED BY: A. B. NAIK DATE: 3/07

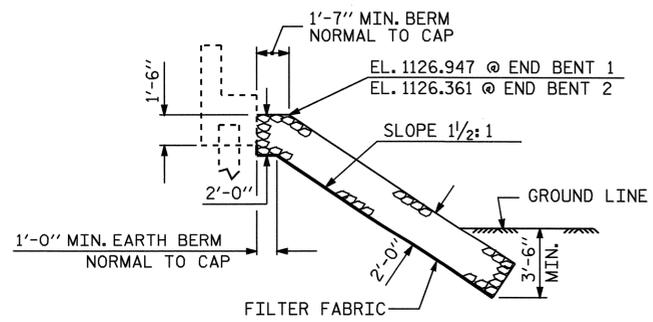
ESTIMATED QUANTITIES		
BRIDGE @ STA. 17+97.00 -L-	RIP RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	245	270
END BENT 2	125	140



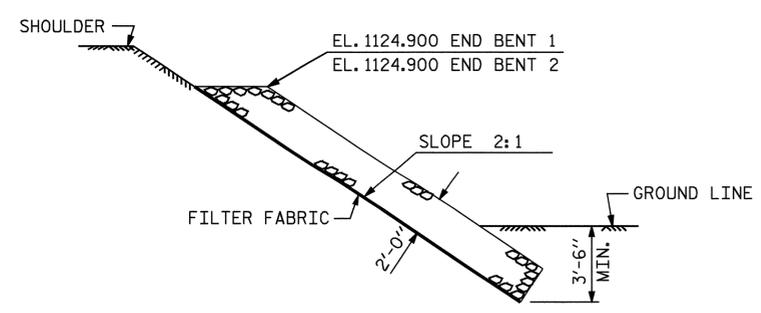
END BENT 1



END BENT 2



**SECTION C-C
BERM RIP RAPPED**



SECTION C-C

PROJECT NO. B-4005
ALEXANDER COUNTY
 STATION: 17+97.00 -L-

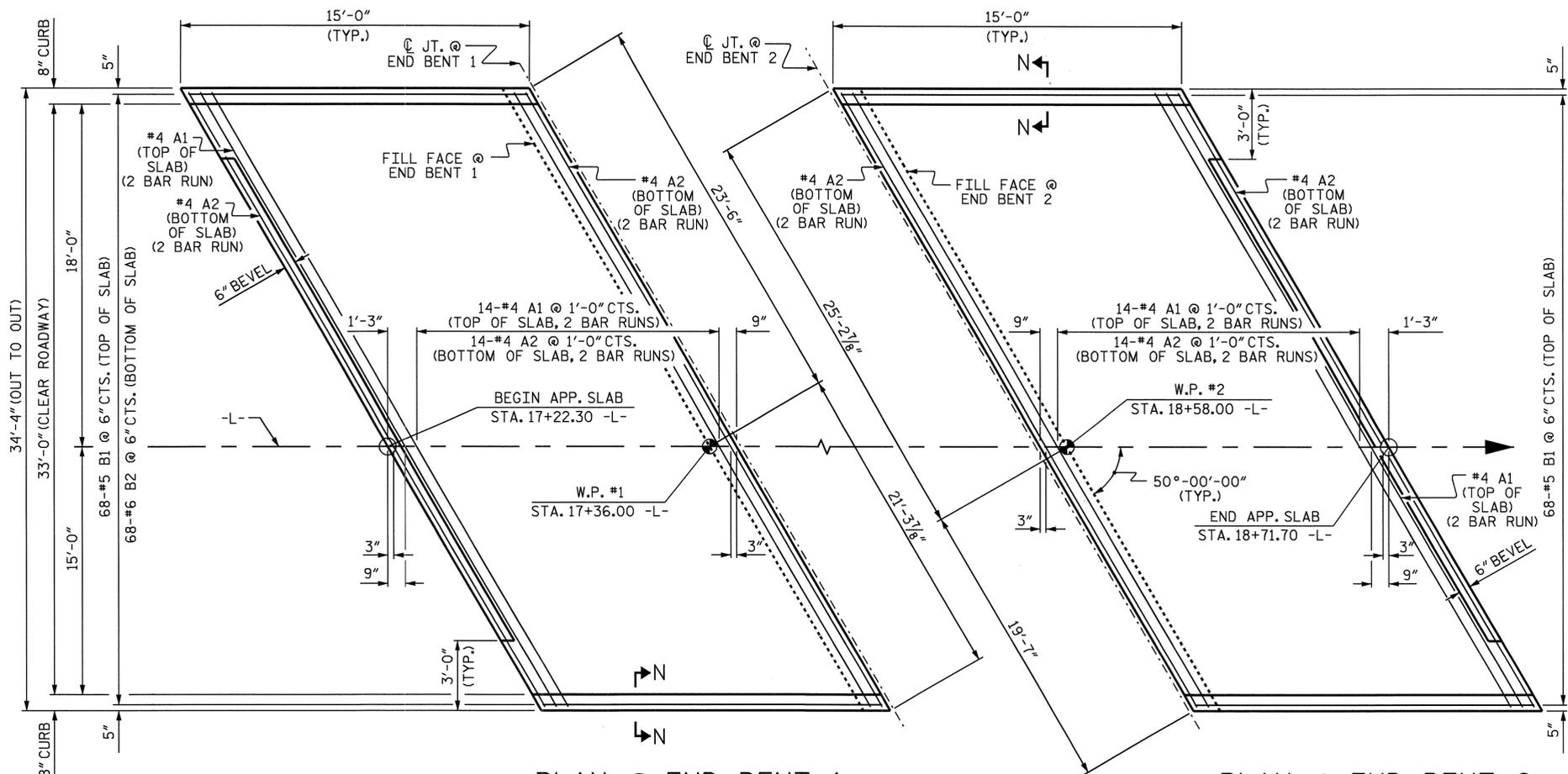


Anant B. Nair
6-27-2007

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
—RIP RAP DETAILS—					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.	S-21
TOTAL SHEETS	23

ASSEMBLED BY : D. G. ELY	DATE : 9/06
CHECKED BY : A. B. NAIK	DATE : 3/07
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



PLAN @ END BENT 1

PLAN @ END BENT 2

NOTES

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

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

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

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.

THE JOINT SHALL BE SAWS PRIOR TO THE CASTING OF THE BARRIER RAIL.

TEMPORARY DRAINAGE AND TEMPORARY BERMS AND SLOPE DRAINS WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR BRIDGE APPROACH SLAB.

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.

BILL OF MATERIAL

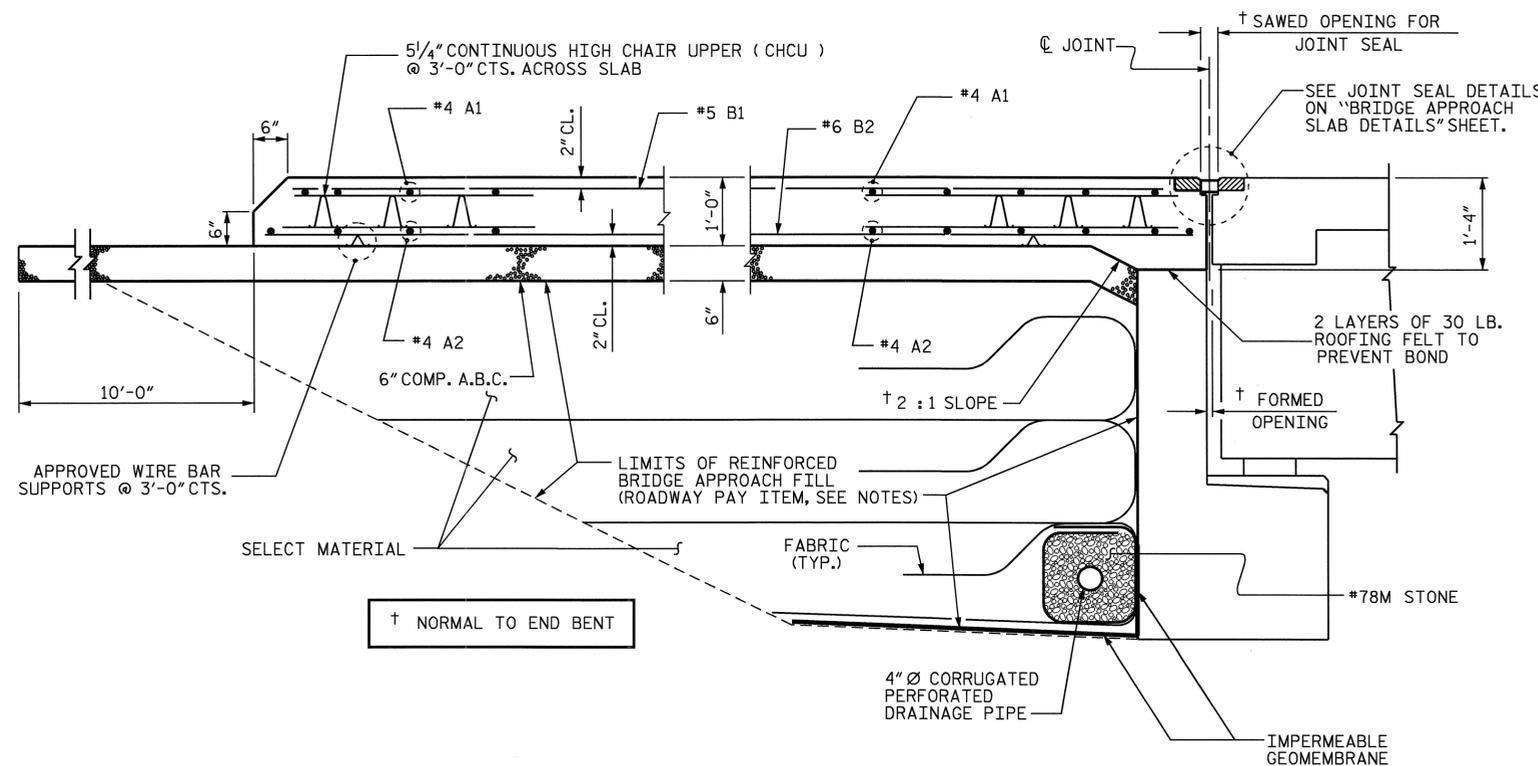
FOR ONE APPROACH SLAB (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	30	#4	STR	23'-3"	466
A2	32	#4	STR	23'-1"	493
*B1	68	#5	STR	14'-0"	993
B2	68	#6	STR	14'-6"	1481

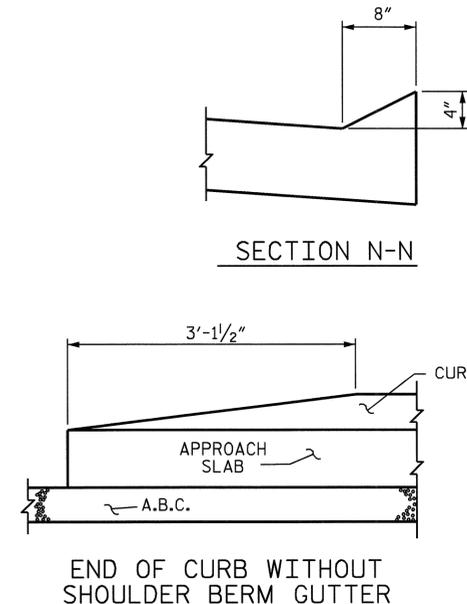
REINFORCING STEEL LBS. 1974

*EPOXY COATED REINFORCING STEEL LBS. 1459

CLASS AA CONCRETE C. Y. 19.6



SECTION THRU SLAB



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

SECTION N-N

ASSEMBLED BY : D. G. ELY	DATE : 9/06
CHECKED BY : A. B. NAIK	DATE : 3/07
DRAWN BY : EEM 3/95	REV. 7/10/01 LES/RDR
CHECKED BY : VAP 3/95	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM

21-MAY-2007 14:47
H:\STRUCT\B4005\FINALP\B-4005.DGN
dely

PROJECT NO. B-4005
ALEXANDER COUNTY
STATION: 17+97.00 -L-

SHEET 1 OF 2

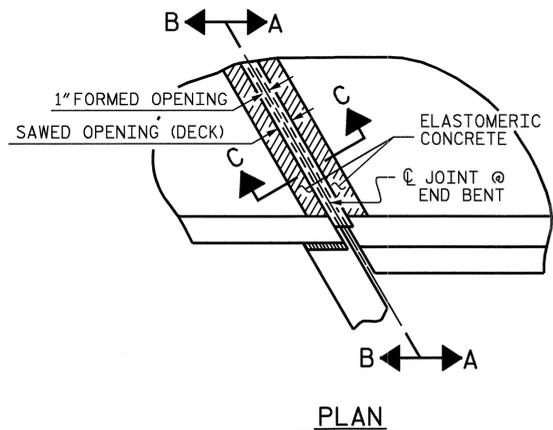
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
FOR FLEXIBLE PAVEMENT

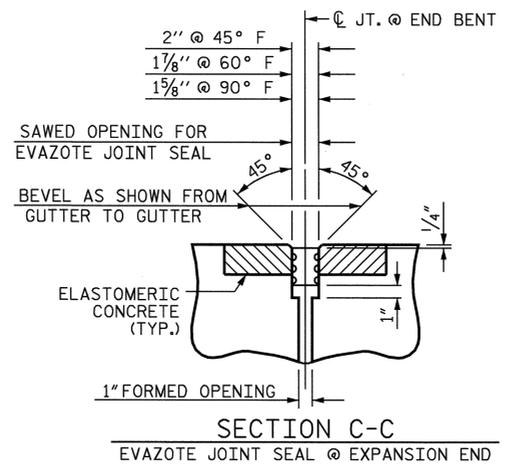


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS 23
2			4			

STD. NO. BAS4 (SHT 3)

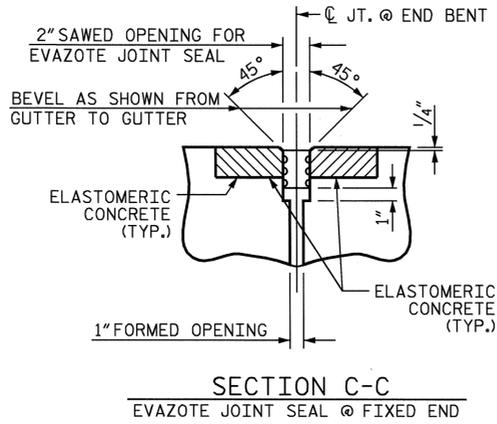


PLAN



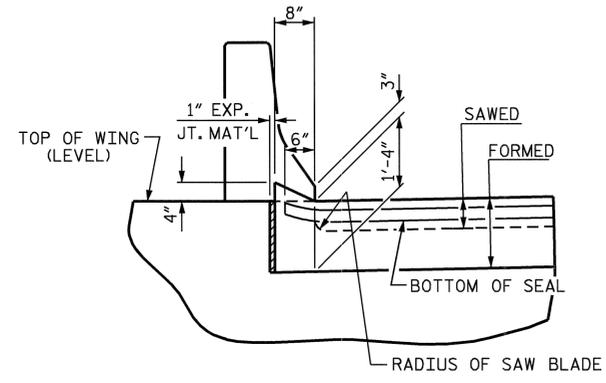
SECTION C-C

EVAZOTE JOINT SEAL @ EXPANSION END

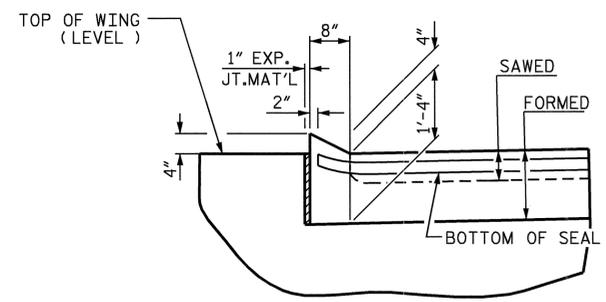


SECTION C-C

EVAZOTE JOINT SEAL @ FIXED END

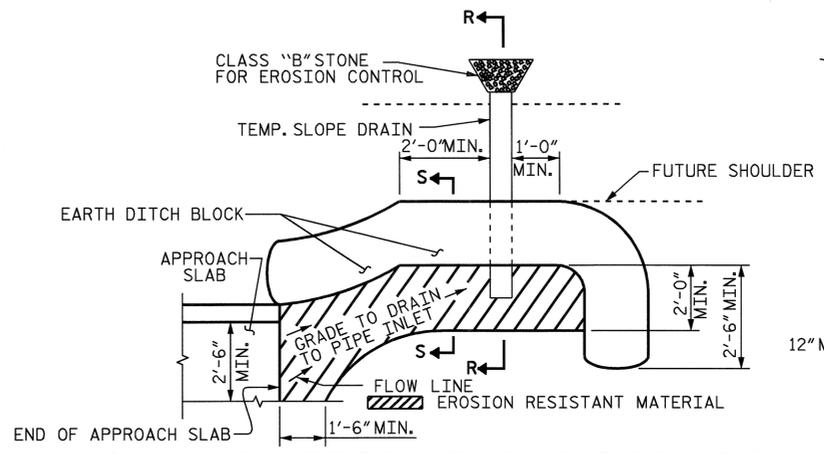


SECTION A-A



SECTION B-B

JOINT SEAL DETAILS @ END BENTS

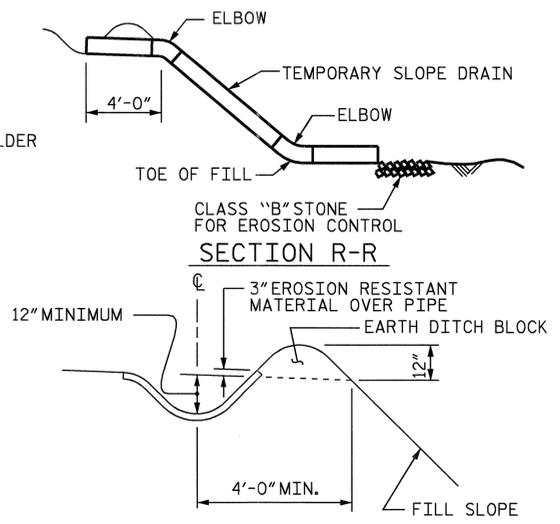


PLAN VIEW

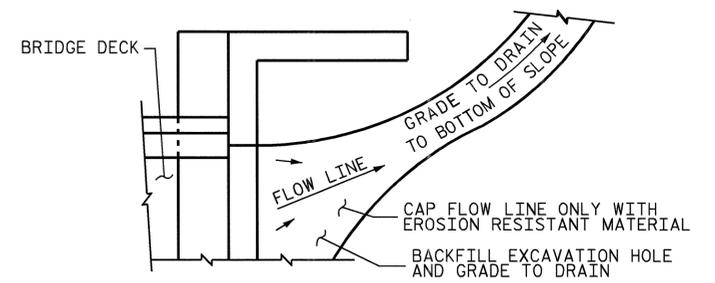
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN.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

(TO BE USED WHEN SHOULDER BERM GUTTER REQUIRED)



SECTION S-S



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

ELASTOMERIC CONCRETE	
END BENT NO.	(CU. FT.)*
1	7.4
2	7.4
TOTAL	14.8

* BASED ON THE MINIMUM BLOCKOUT SHOWN

PROJECT NO. B-4005
ALEXANDER COUNTY
 STATION: 17+97.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH
 SLAB DETAILS

1988
 SHEET NO. S-23
 TOTAL SHEETS 23

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



ASSEMBLED BY : D. G. ELY DATE : 9/06
 CHECKED BY : A. B. NAIK DATE : 3/07
 DRAWN BY : FCJ 11/88 REV. 10/17/00 RWW/LES
 CHECKED BY : ARB 11/88 REV. 5/17/03 RWW/JTE
 REV. 5/1/06 TLA/GM

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. FINISH 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