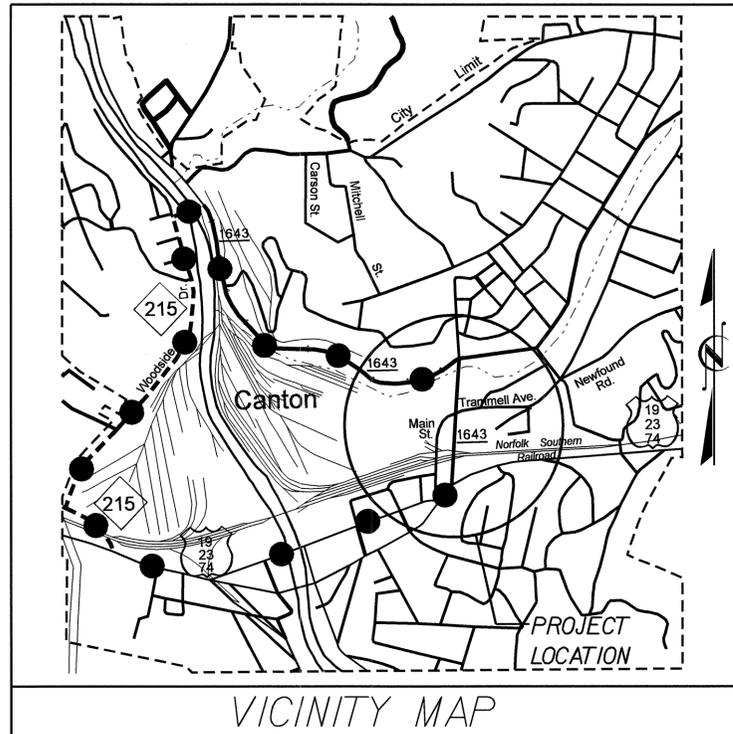


CONTRACT: C201477 TIP PROJECT: B-3189

STRUCTURES

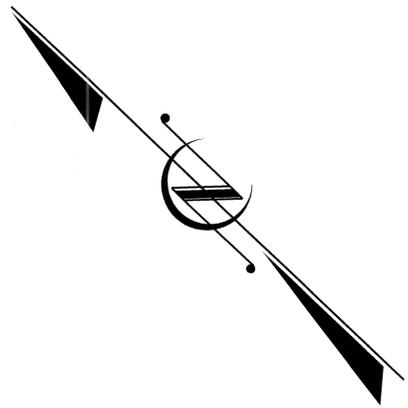
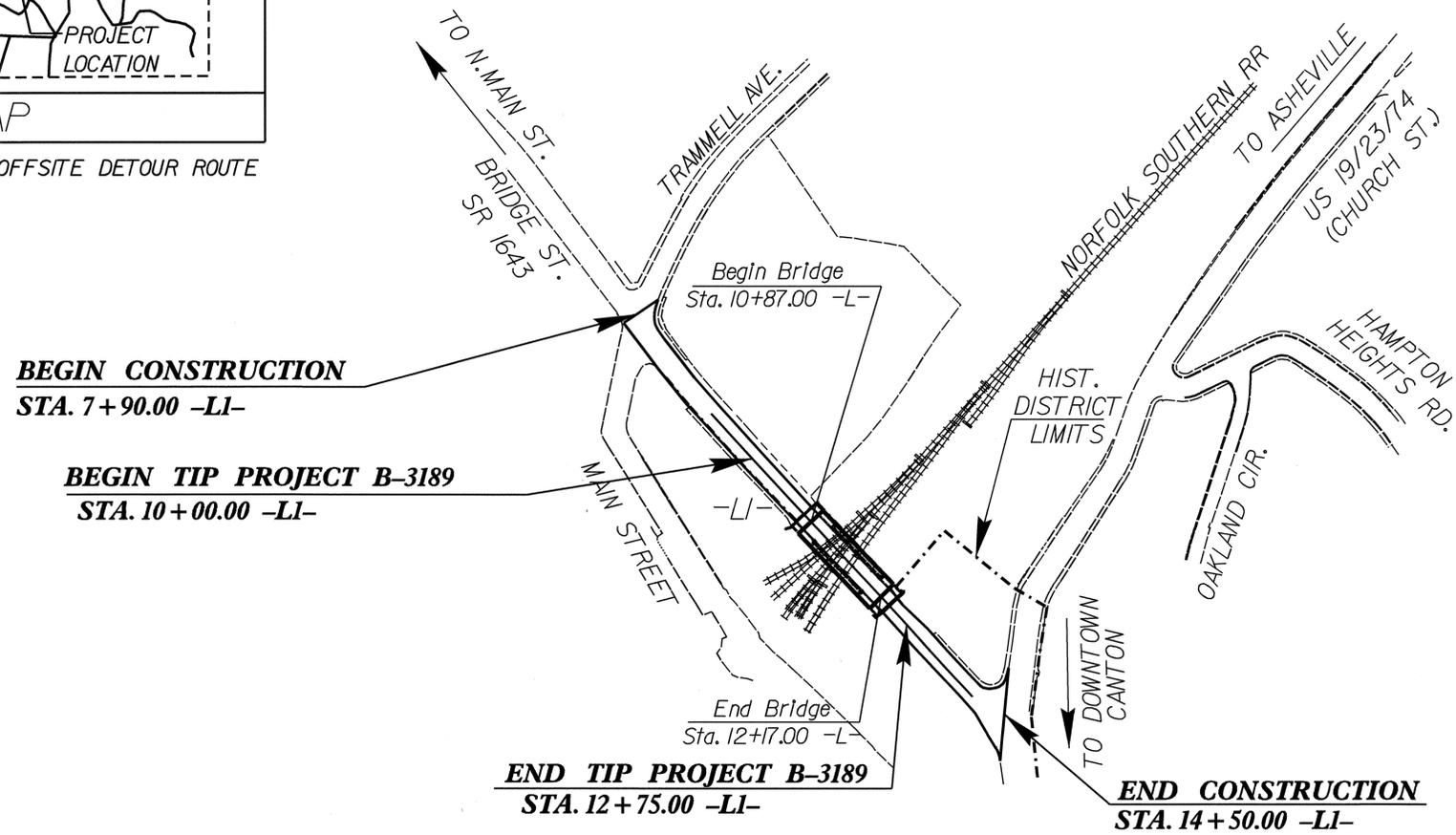


●●●● OFFSITE DETOUR ROUTE

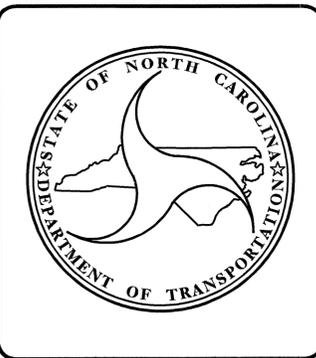
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
HAYWOOD COUNTY

**LOCATION: BRIDGE No. 272 on SR 1643 (BRIDGE STREET) OVER
NORFOLK-SOUTHERN RAILROAD IN CANTON**

**TYPE OF WORK: GRADING, PAVING, RESURFACING, DRAINAGE, CURB & GUTTER,
SIDEWALK, RETAINING WALLS AND STRUCTURE**



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3189		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
32920.1.1	BRZ-1643 (1)	PE	
32920.2.2	BRZ-1643 (1)	R/W, UTIL	
32920.3.2	BRZ-1643 (2)	CONST.	



DESIGN DATA

ADT 2005 =	7,160 VPD
ADT 2030 =	11,600 VPD
DHV =	11 %
D =	55 %
T =	4 % *
V =	30 MPH
*DUAL 3 %	* TTST 1 %

PROJECT LENGTH

LENGTH ROADWAY OF TIP PROJECT B-3189 =	.027 MILES
LENGTH STRUCTURE OF F.A. PROJECT B-3189 =	.025 MILES
TOTAL LENGTH OF STATE PROJECT B-3189 =	.052 MILES

Prepared In the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

LETTING DATE :	Q. H. NGUYEN, P.E. PROJECT ENGINEER
MAY 15, 2007	J. R. DUGGINS, P.E. PROJECT DESIGN ENGINEER

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

NORTH CAROLINA PROFESSIONAL SEAL
14552
ENGINEER
GREGORY R. PERFETTI

Gregory R. Perfetti
4.10.07

SHEETS 5-1 THRU 5-30

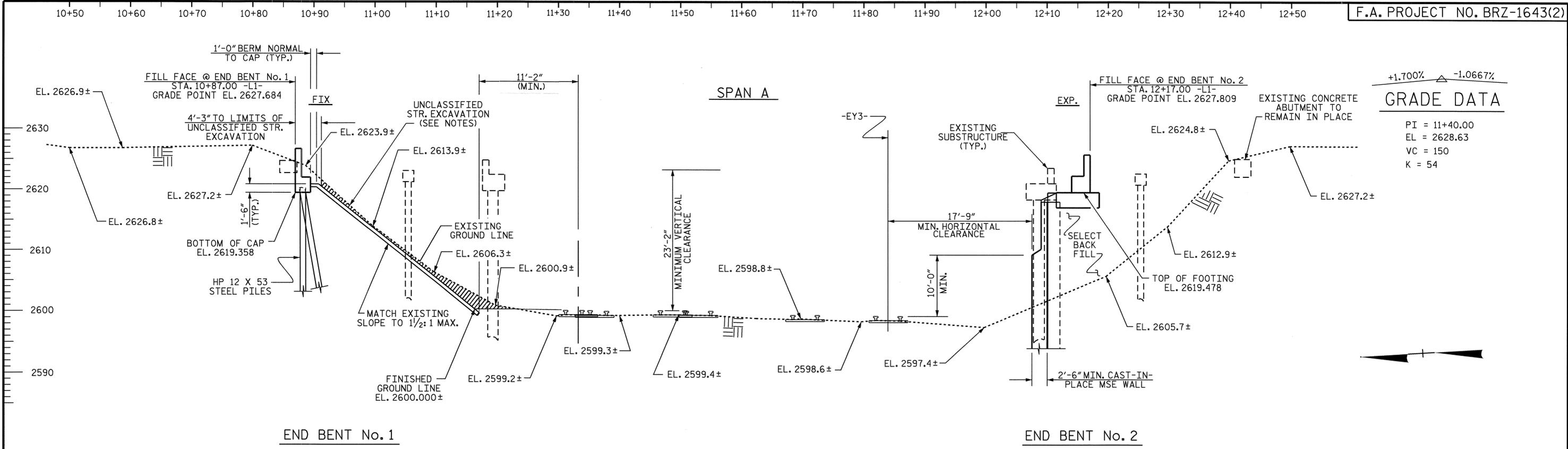
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE DESIGN ENGINEER

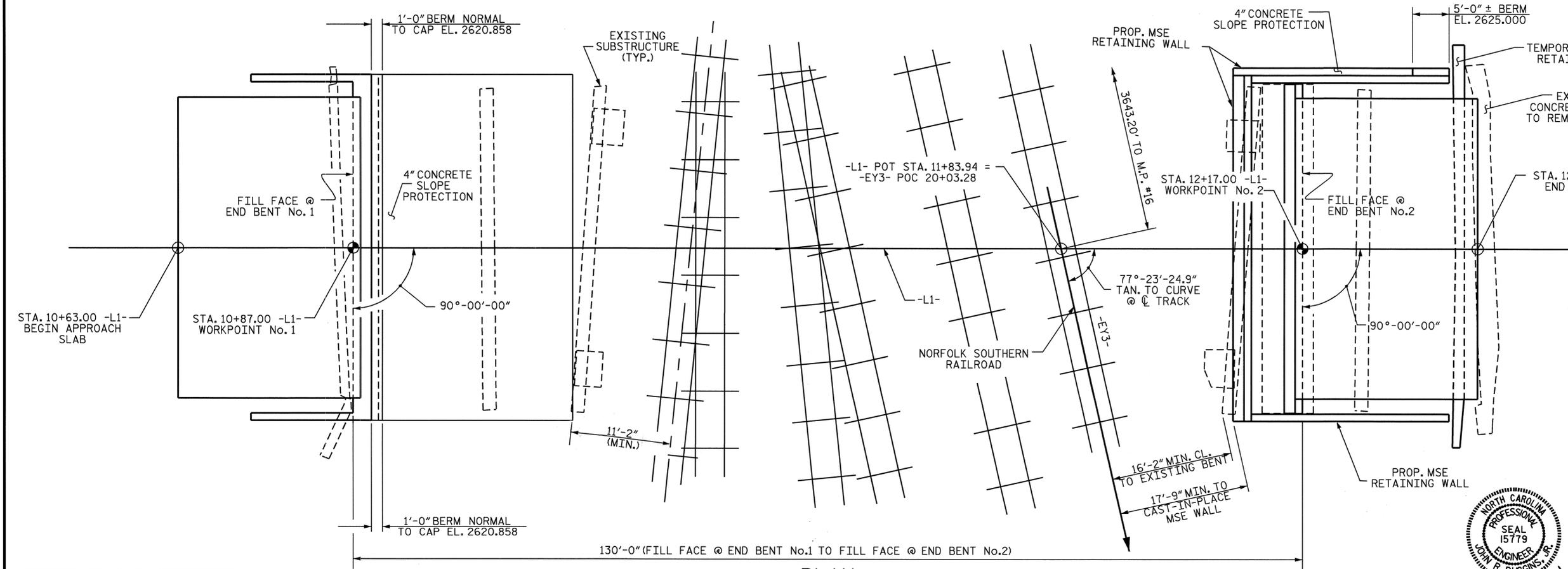
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED
DIVISION ADMINISTRATOR

DATE



SECTION ALONG C -L1-
(SECTION @ END BENTS ARE TAKEN @ RIGHT ANGLES)



PLAN

DRAWN BY : J. LAMBERT DATE : 2/07
 CHECKED BY : S. PEARCE DATE : 2/07

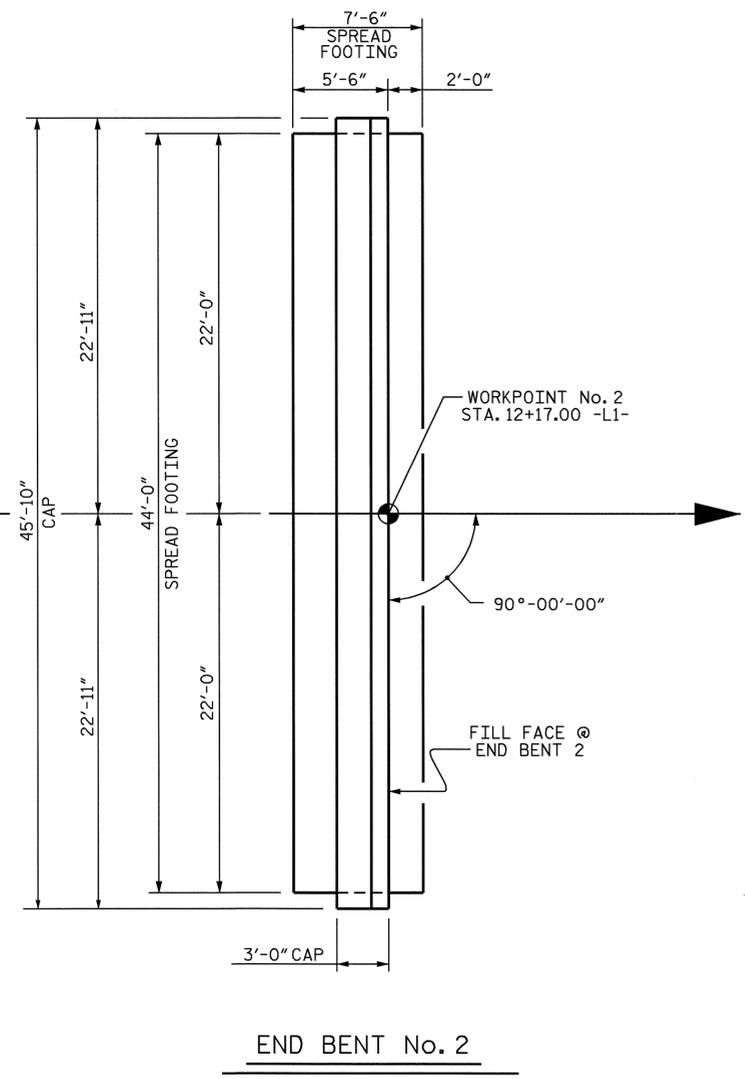
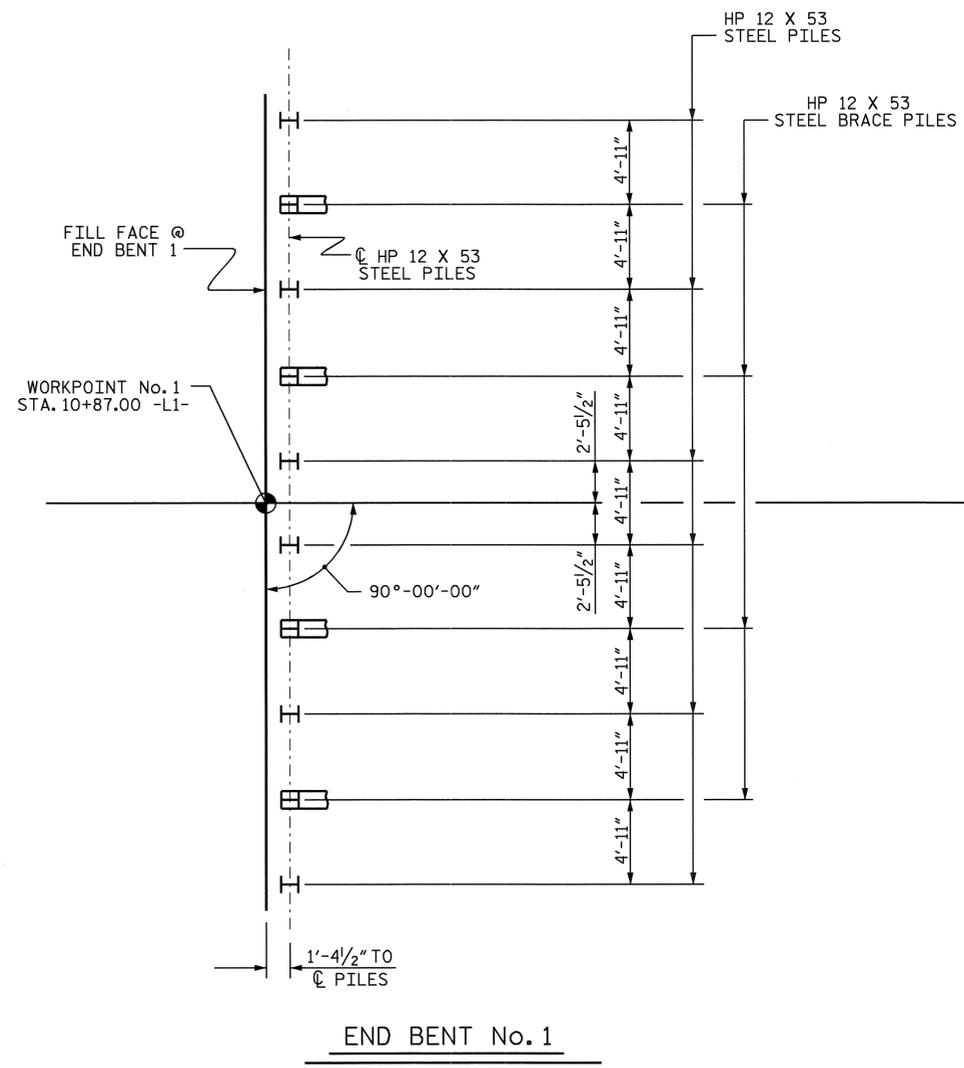
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 jlambrt



Duang H. Nguyen 4-4-07

PROJECT NO. B-3189
 HAYWOOD COUNTY
 STATION: 11+83.94 -L1-
 REPLACES BRIDGE No. 272
 SHEET 1 OF 4 MILE POST #16.69

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
FOR BRIDGE OVER NORFOLK SOUTHERN RAILROAD ON SR 1643 BETWEEN SR 1004 AND US 19/23/74					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-1
					TOTAL SHEETS 30



FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE AT BOTTOM OF CAP.
BRACE PILES AT THE END BENT 1 ARE BATTERED 3:12.

NOTES

- DRIVE PILES AT END BENT No. 1 TO A REQUIRED BEARING CAPACITY OF 120 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 60 TONS PER PILE.
- THE ALLOWABLE BEARING CAPACITY FOR SPREADFOOTINGS AT END BENT No. 2 IS 2 TSF.
- OBSERVE A ONE MONTH WAITING PERIOD AFTER CONSTRUCTING THE END BENT RETAINING WALLS UP TO THE BOTTOM OF FOOTING ELEVATION BEFORE BEGINNING CONSTRUCTION OF THE END BENT No. 2 FOOTING AND CAP.
- THE CONTRACTOR'S ATTENTION IS CALLED TO THE PRECONSTRUCTION SURVEY AND VIBRATION MONITORING REQUIREMENTS OUTLINED IN THE CONTROL OF VIBRATION SPECIAL PROVISION. SEE CONTROL OF VIBRATION SPECIAL PROVISION.

PROJECT NO. B-3189
HAYWOOD COUNTY
STATION: 11+83.94 -L1-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

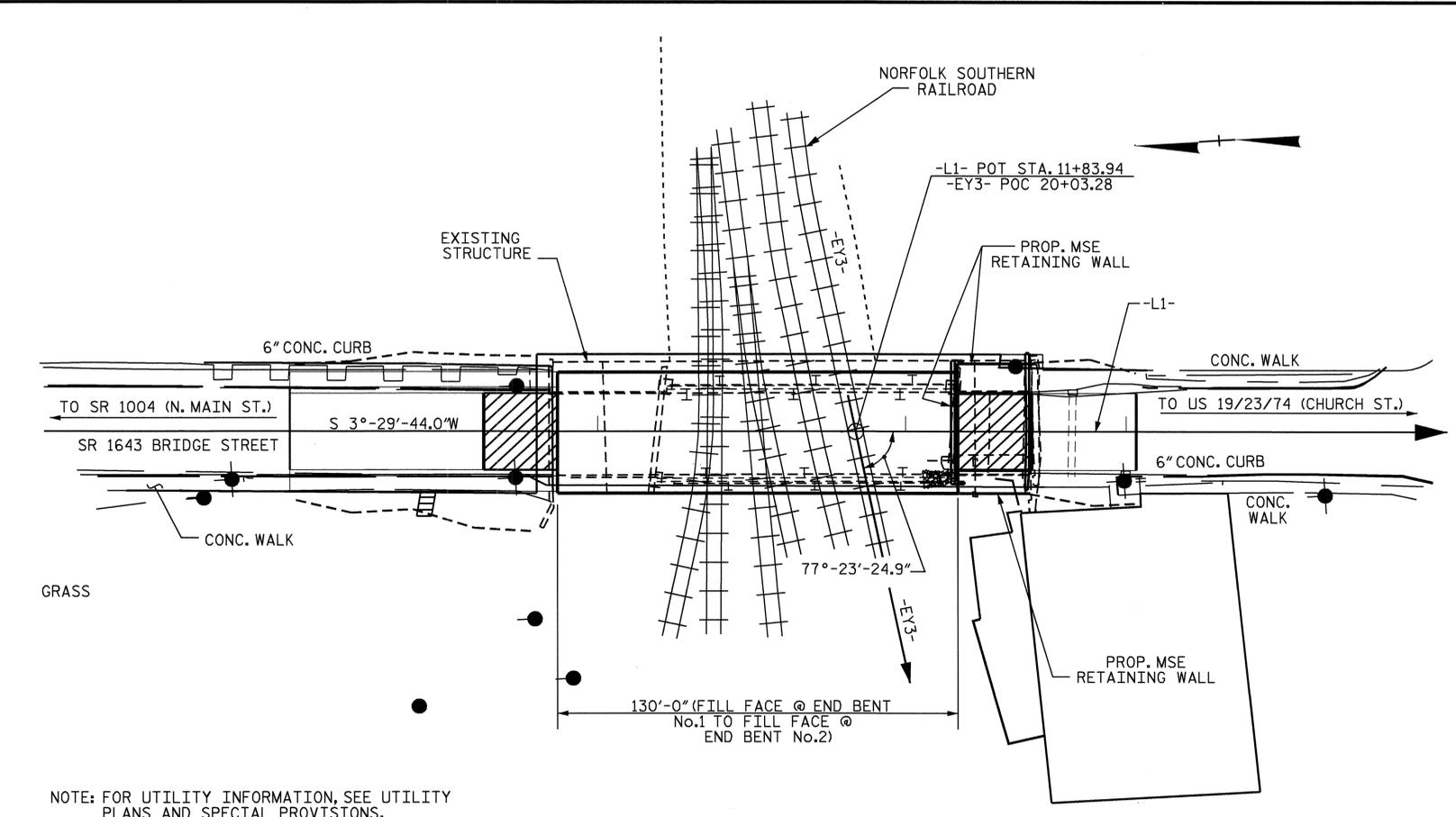
FOR BRIDGE OVER
NORFOLK SOUTHERN RAILROAD
ON SR 1643 BETWEEN SR 1004
AND US 19/23/74

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			5-2
2			4			TOTAL SHEETS 30



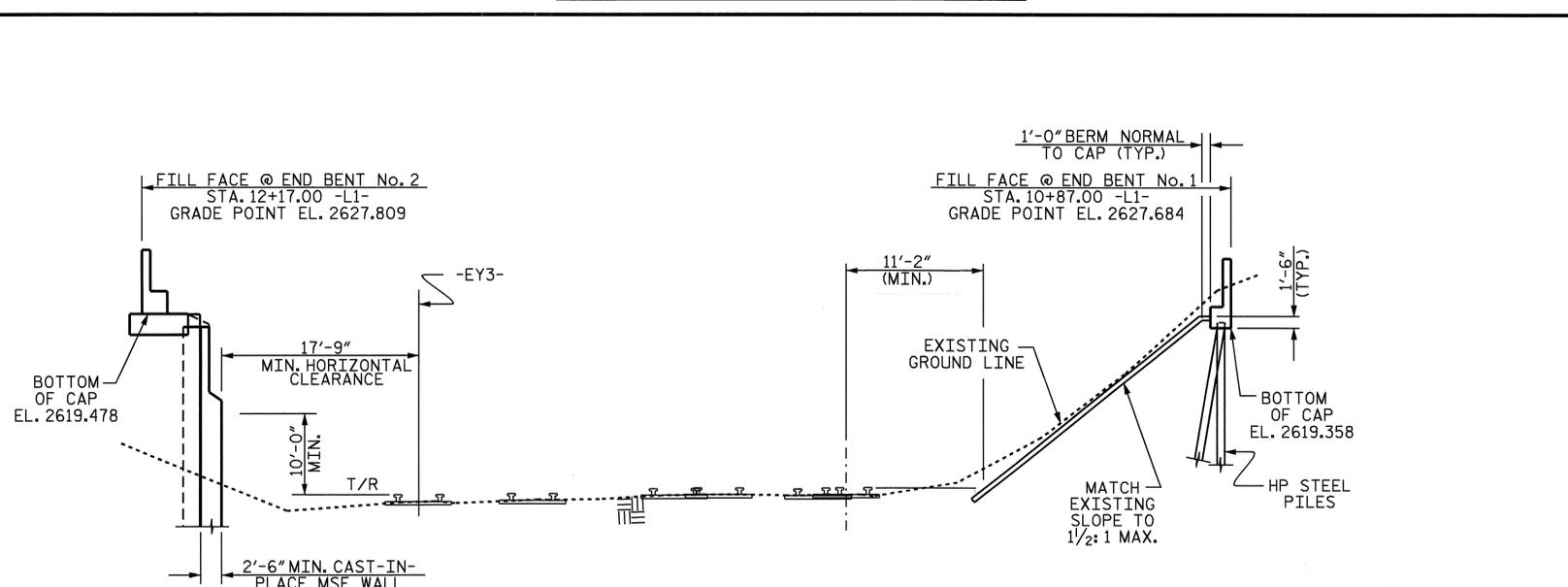
DRAWN BY : J.LAMBERT DATE : 2/07
CHECKED BY : J.R. DUGGINS DATE : 2/07

B.M. #3 EL. 2629.90', -L1- 12+05.78, 15.11' LT. N 671394.4480 E 858764.3370 POINT IS ON TOP OF THE SIXTH METAL RIVETED BOLT ON AN I-BEAM TYPE GUARDRAIL ABOVE A METAL PLATE READING "CAROLINA STEEL AND IRON COMPANY", ON THE SOUTHEAST SIDE OF THE BRIDGE OVER NORFOLK SOUTHERN RAILROAD. ALSO ± 245' NORTH OF THE INTERSECTION OF US 19/23/74 (CHURCH ST.) AND SR 1643 BRIDGE ST.



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

LOCATION SKETCH



HORIZONTAL CLEARANCE - RAILROAD

LOOKING IN DIRECTION OF INCREASING STATIONS ON RAILROAD (SPAN LENGTH BASED ON THIS SECTION)

DRAWN BY: J. LAMBERT DATE: 2/07
 CHECKED BY: S. PEARCE DATE: 2/07

05-APR-2007 09:00
 R:\Structures\B3189\jlambrt\Microstation\B3189\B3189_sd.P6D.dgn
 jlambrt

TOP OF RAIL ELEVATIONS		
TRACK STA. @ -EY3-	LEFT RAIL	RIGHT RAIL
18+40.00	2597.817	2597.932
18+60.00	2597.949	2598.091
18+80.00	2598.105	2598.203
19+00.00	2598.217	2598.316
19+20.00	2598.309	2598.411
19+40.00	2598.410	2598.488
19+60.00	2598.453	2598.530
19+80.00	2598.458	2598.542
20+00.00	2598.453	2598.555
20+20.00	2598.540	2598.633
20+40.00	2598.589	2598.673
20+60.00	2598.616	2598.708
20+80.00	2598.642	2598.750
21+00.00	2598.678	2598.780
21+20.00	2598.694	2598.813
21+40.00	2598.709	2598.804

PROJECT NO. B-3189
 HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER
 NORFOLK SOUTHERN RAILROAD
 ON SR 1643 BETWEEN SR 1004
 AND US 19/23/74



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS 30
2			4			

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	STRUCTURAL STEEL	HP 12 X 53 STEEL PILES		4" SLOPE PROTECTION	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS	CLASSIC CONCRETE BRIDGE RAIL	VIBRATION MONITORING
	LUMP SUM	LUMP SUM	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	APPROX.LBS.	NO.	LIN.FT.	SQ.YDS.	LUMP SUM	LUMP SUM	LIN. FT.	LUMP SUM
SUPERSTRUCTURE	LUMP SUM		5287	4357		LUMP SUM		262,400				LUMP SUM	LUMP SUM	255.83	LUMP SUM
END BENT No. 1		LUMP SUM			24.5		3566		10	500	219				
END BENT No. 2					51.9		6027				8				
TOTAL	LUMP SUM	LUMP SUM	5287	4357	76.4	LUMP SUM	9593	262,400	10	500	227	LUMP SUM	LUMP SUM	255.83	LUMP SUM

NOTES :

ASSUMED LIVE LOAD = HS-20 OR ALTERNATE LOADING EXCEPT THAT THE GIRDERS HAVE BEEN DESIGNED FOR HS-25.

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

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

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

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.

THE EXISTING STRUCTURE CONSISTING OF 5 SPANS, 1 @ 18'-9" AND 1 @ 15'-6", 1 @ 86'-4", 1 @ 16'-6", AND 1 @ 18'-5" WITH A STEEL GIRDER AND BEAM SYSTEM AND TIMBER FLOOR WITH ASPHALT WEARING SURFACE SUPERSTRUCTURE AND A CLEAR ROADWAY WIDTH OF 25'-11" WITH A SIDEWALK ON BOTH SIDES ON A SUBSTRUCTURE OF CONCRETE ABUTMENT END BENTS, CONCRETE POST & BEAM MAIN BENTS AND TIMBER POST & CAP INTERMEDIATE BENTS AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED EXCEPT THAT THE FOOTINGS ON THE NORTH END CONCRETE BENT MAY REMAIN IN PLACE DUE TO THE CLOSE PROXIMITY OF A FORCED SANITARY SEWER LINE AND THE CONCRETE ABUTMENT AT THE SOUTH END THE BRIDGE SHALL REMAIN IN PLACE SO AS NOT TO DISTURB THE FOUNDATION OF THE ADJACENT BUILDING.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 24'-0" FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, TWO 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.

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 RAILROAD TRACK TOP OF RAIL ELEVATIONS SHOWN ON THE PLANS ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL ELEVATIONS AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

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

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

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SHIPPING STEEL STRUCTURAL MEMBERS, SEE SPECIAL PROVISIONS.

FOR HIGH STRENGTH BOLTS, 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 THE "6" DI RJ WATER MAIN ATTACHMENT" AND PAY ITEMS, SEE UTILITY CONSTRUCTION PLANS AND SPECIAL PROVISIONS.

PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

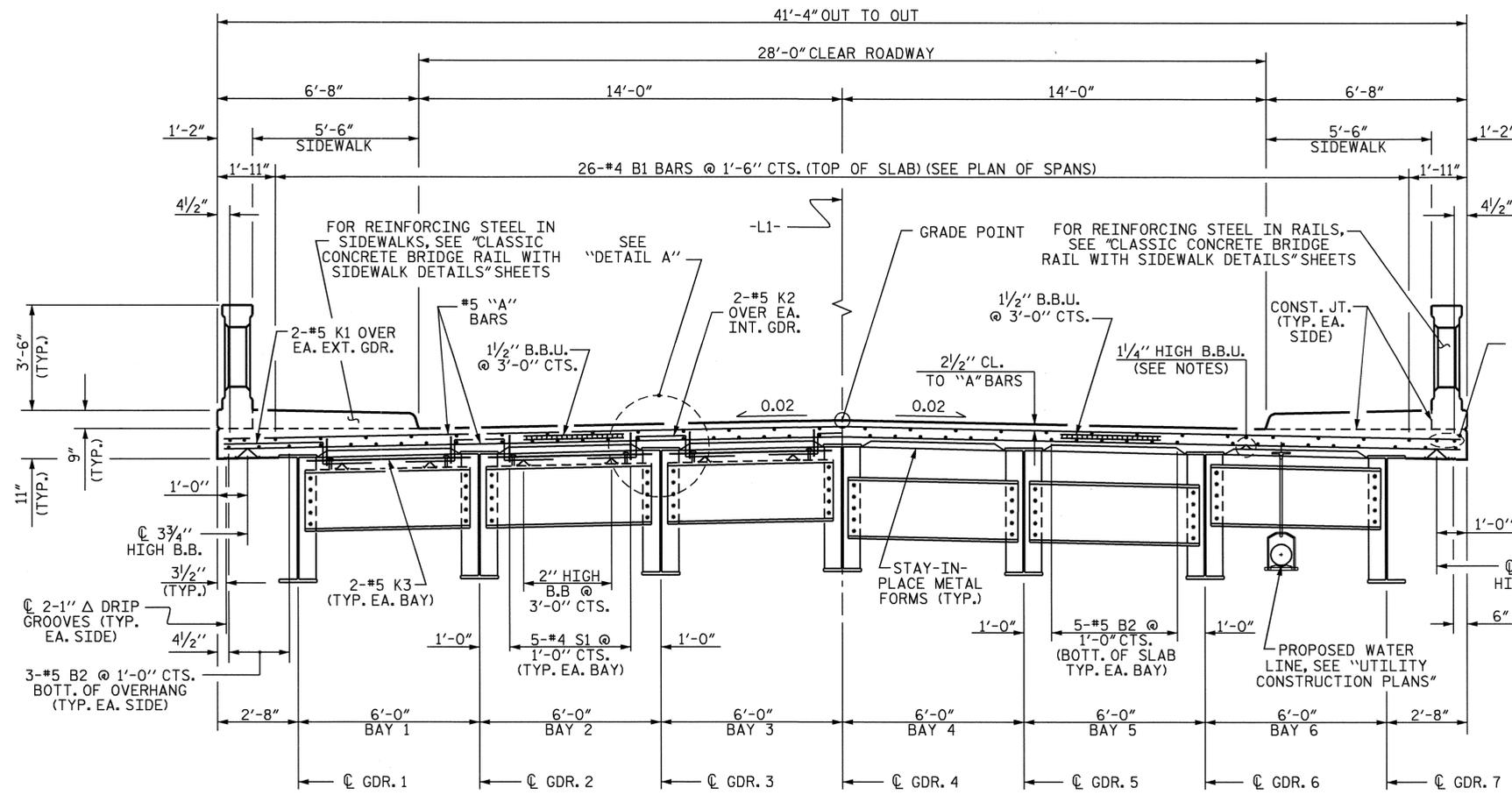
GENERAL DRAWING

FOR BRIDGE OVER
 NORFOLK SOUTHERN RAILROAD
 ON SR 1643 BETWEEN SR 1004
 AND US 19/23/74



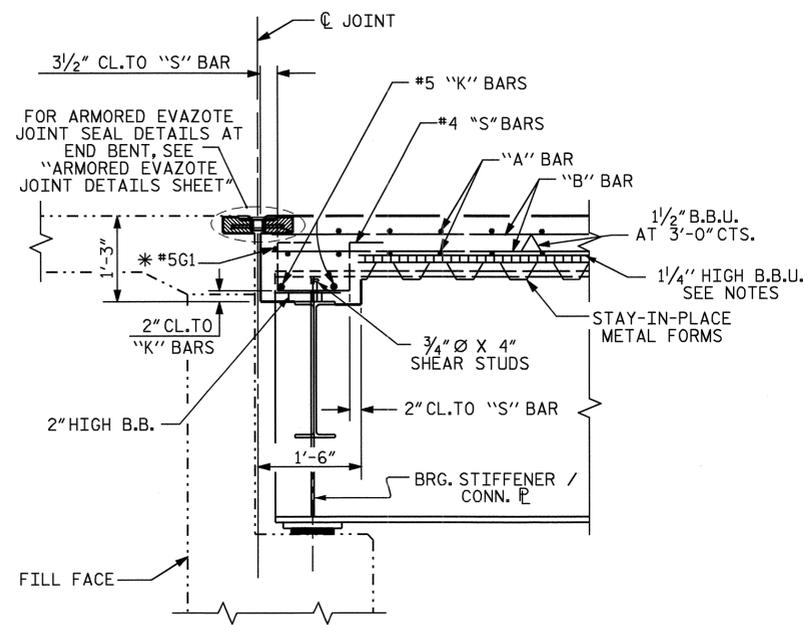
DRAWN BY : J. LAMBERT DATE : 3/07
 CHECKED BY : J.R. DUGGINS DATE : 3/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-4
2			4			SQUATS 30



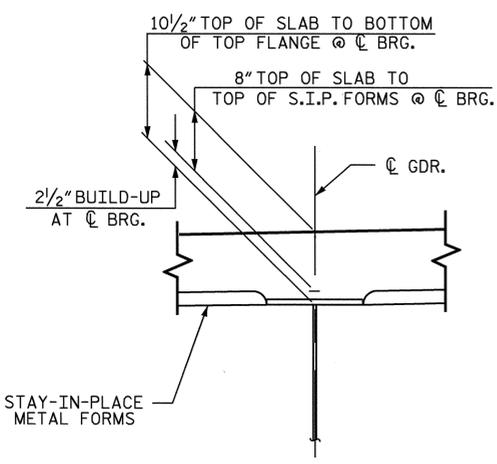
HALF TYPICAL SECTION
SHOWING END BENT DIAPHRAGMS

HALF TYPICAL SECTION
SHOWING INTERMEDIATE DIAPHRAGMS

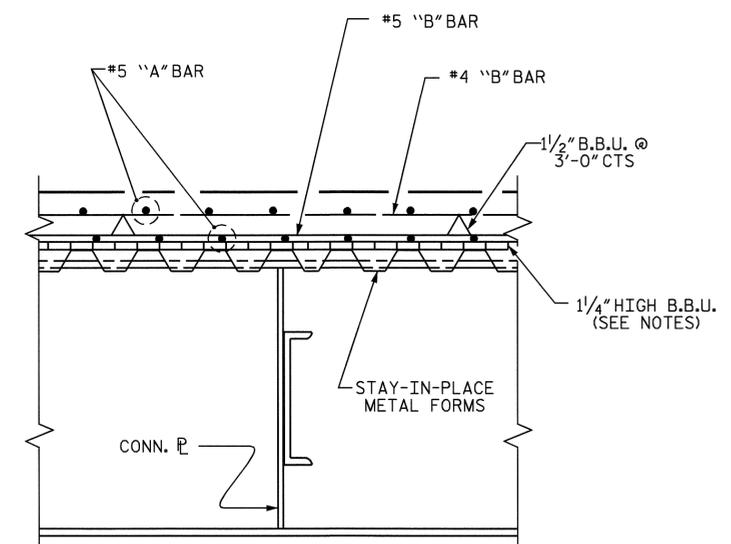


SECTION THRU END BENT DIAPHRAGM

*5 GI BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR STIRRUPS AND REINFORCING STEEL.



DETAIL A



SECTION THRU INTERMEDIATE DIAPHRAGM

NOTES

PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE 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.

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

DIRECTION OF CASTING DECK CONCRETE SHALL BE FROM THE FIXED BEARING END TOWARD THE EXPANSION BEARING END OF THE SPAN.

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

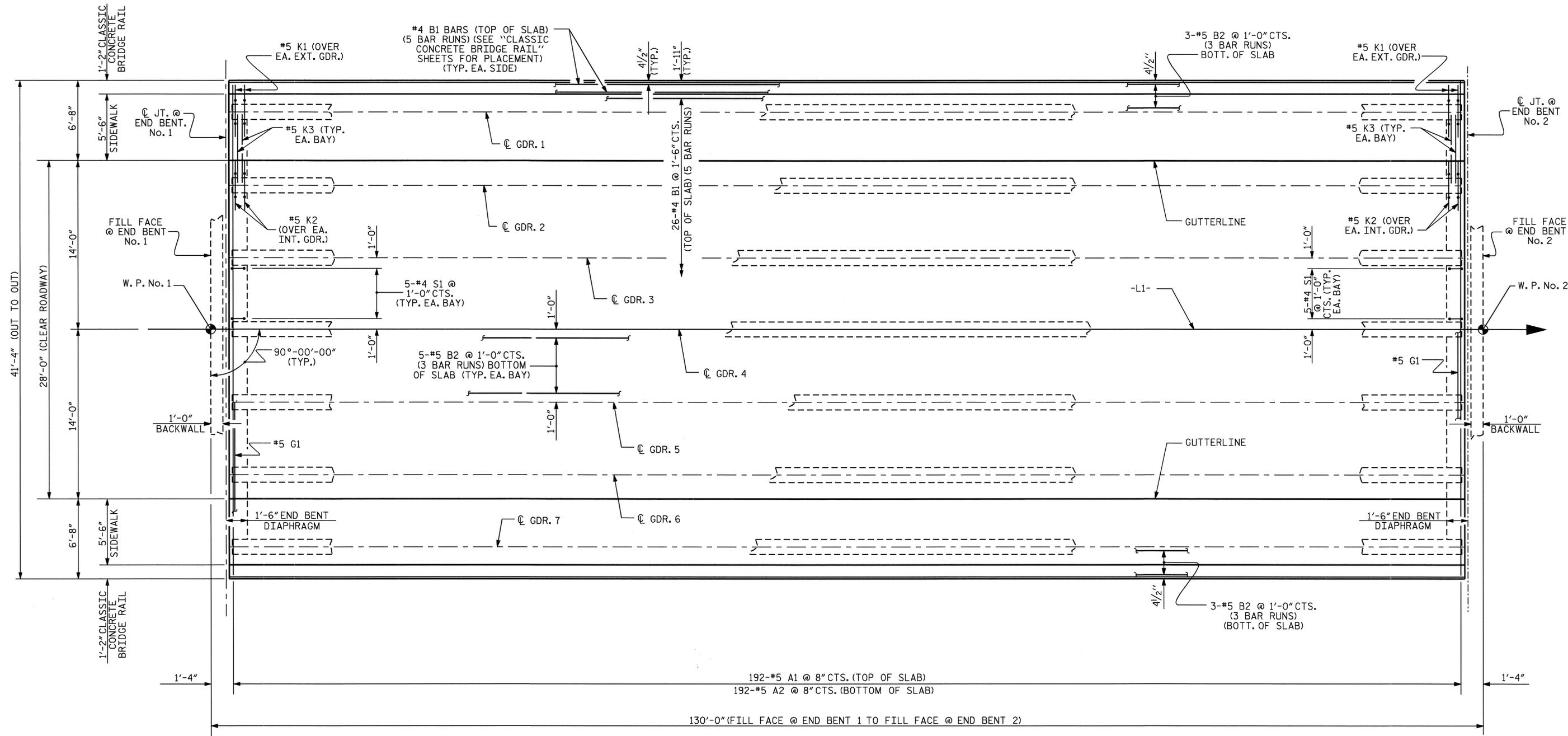
DRAWN BY: J. LAMBERT DATE: 5/05
CHECKED BY: D. HODGE DATE: 3/07

05-APR-2007 09:02
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jlambert



PROJECT NO. B-3189
HAYWOOD COUNTY
STATION: 11+83.94 -L1-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE TYPICAL SECTION					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					3-5
TOTAL SHEETS					30



PLAN OF SPAN A

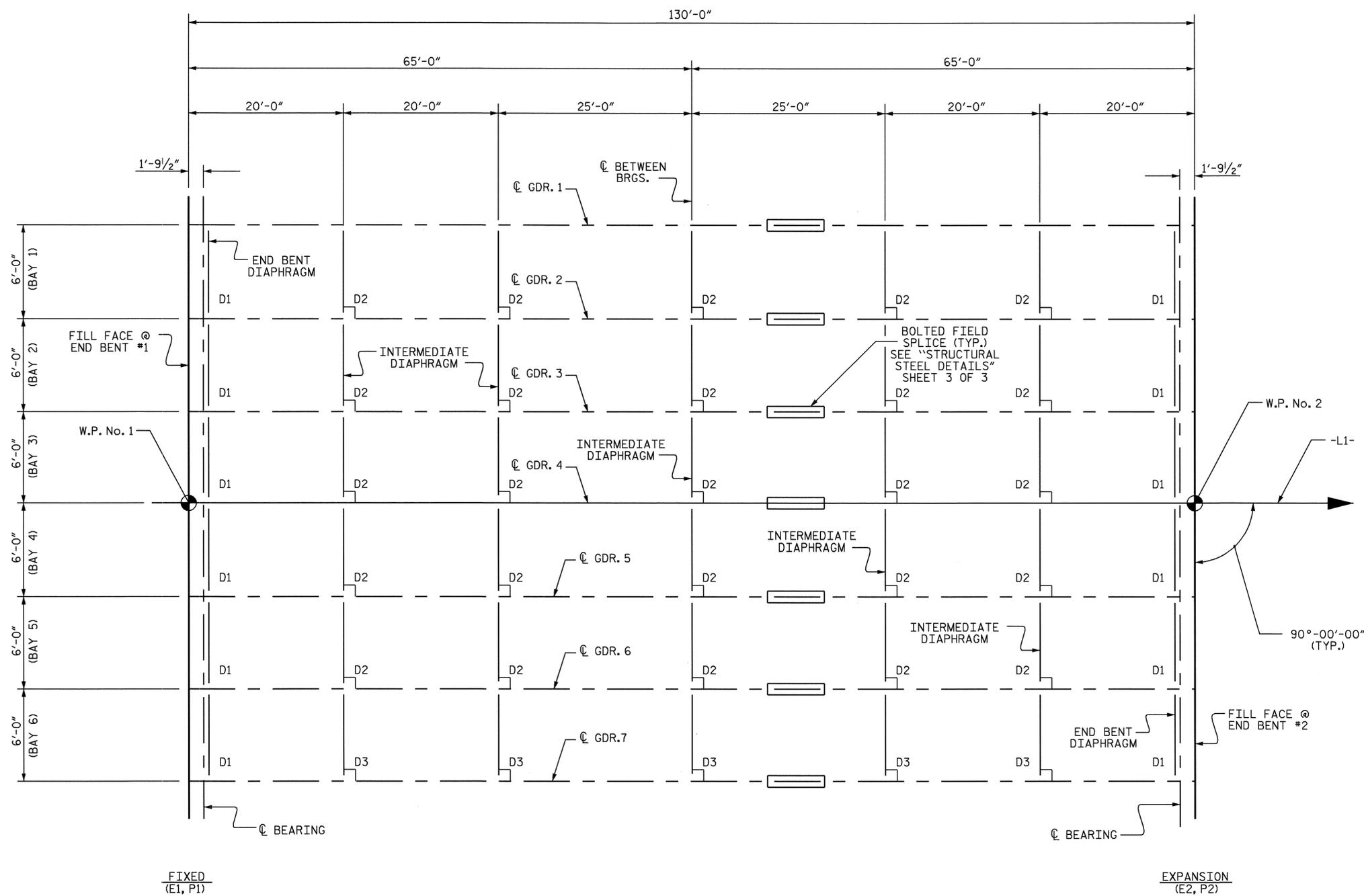
FOR REINFORCING STEEL IN SIDEWALK AND RAILS SEE "CLASSIC BRIDGE RAIL" SHEETS
 NOTE : SEE "UTILITY CONSTRUCTION PLANS" FOR LOCATION AND SPACING OF CONCRETE INSERTS FOR PROPOSED WATER LINE.

PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE PLAN OF SPAN					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-6
					TOTAL SHEETS 30



DRAWN BY : J. LAMBERT DATE : 06/05
 CHECKED BY : D. HODGE DATE : 3/07



FRAMING PLAN

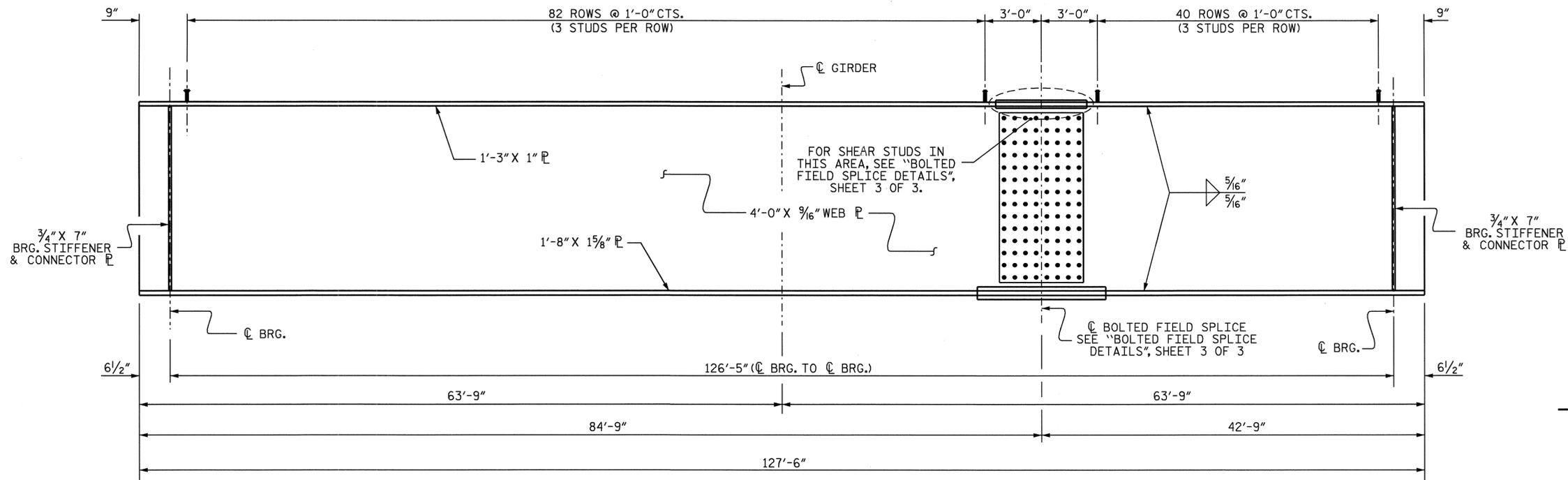
PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE FRAMING PLAN					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					3-7
TOTAL SHEETS					30



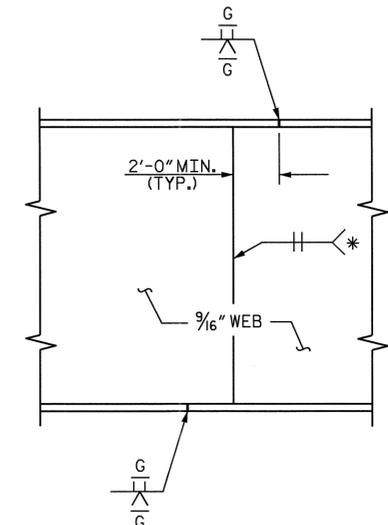
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 CHECKED BY: D. HODGE DATE: 3/07

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 jlambert



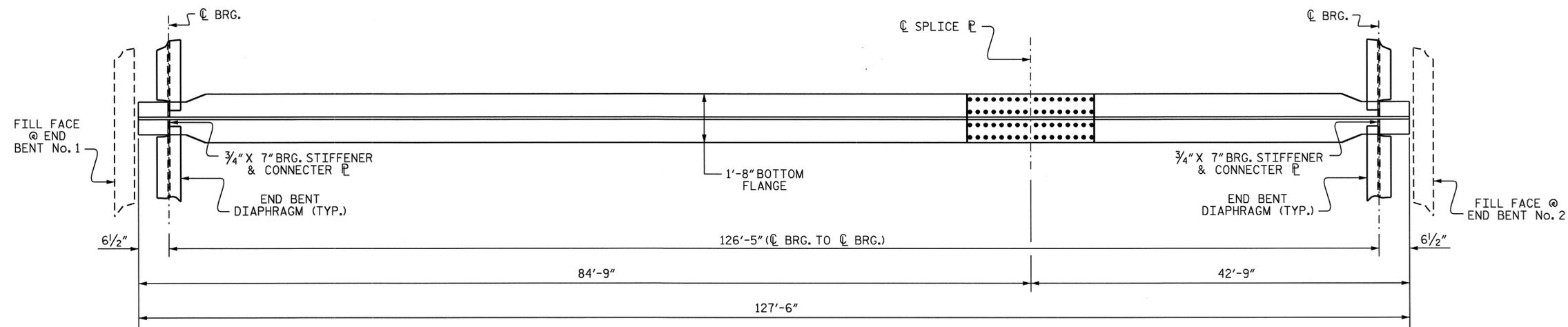
GIRDER ELEVATION

(INTERMEDIATE DIAPHRAGMS NOT SHOWN)



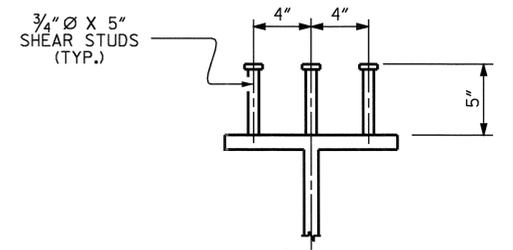
PERMISSIBLE SHOP WEB SPLICE

* GRIND SMOOTH AND FLUSH ON OUTSIDE OF EXTERIOR GIRDERS



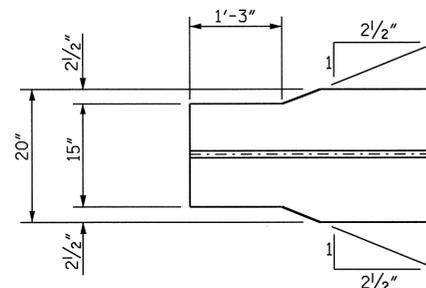
BOTTOM FLANGE DETAIL

(INTERMEDIATE DIAPHRAGMS NOT SHOWN)



SHEAR STUD DETAILS

(TYP. EA. GDR.)



END OF GIRDER DETAIL

(BOTTOM FLANGE ONLY)

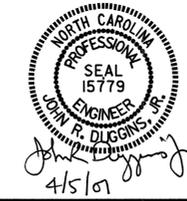
PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

SHEET 1 OF 3

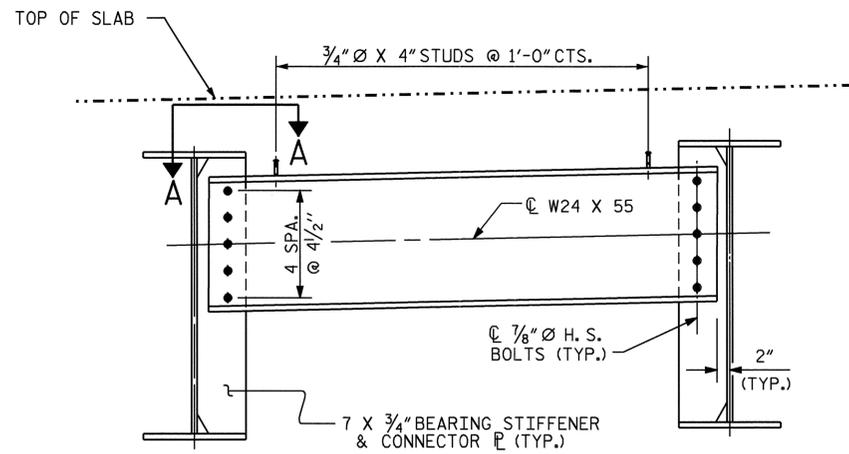
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS

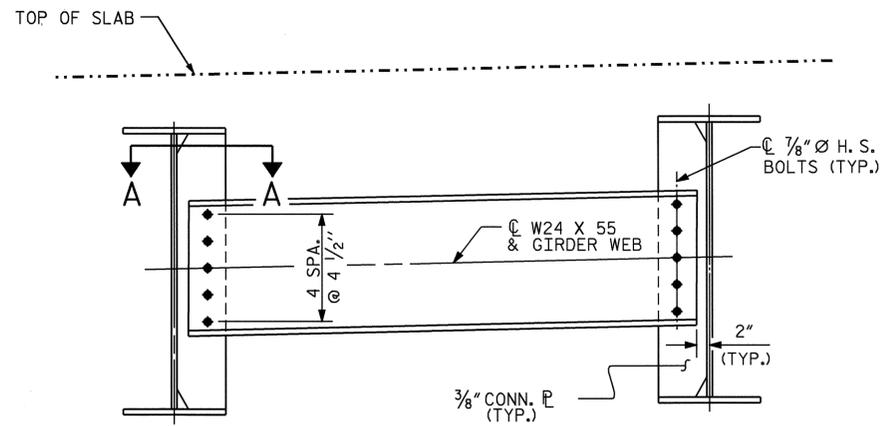
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS 30	
2			4				



DRAWN BY : J. LAMBERT DATE : 6/05
 CHECKED BY : D. HODGE DATE : 3/07

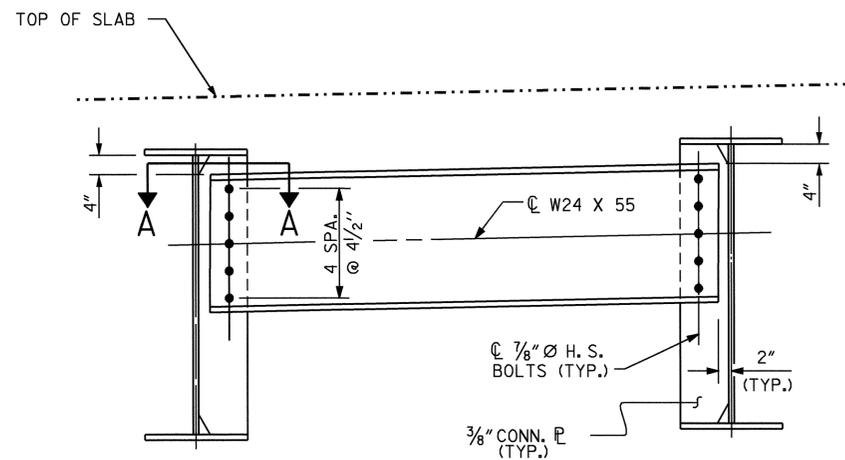


TYPICAL END BENT DIAPHRAGM (D1)



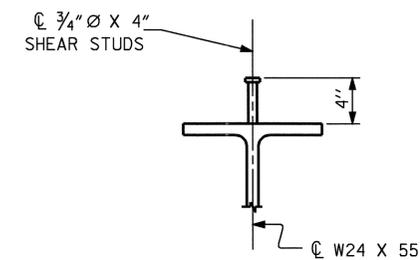
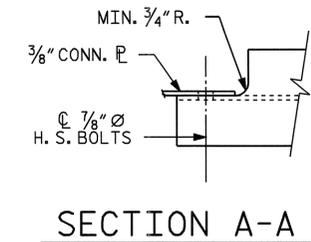
INTERMEDIATE DIAPHRAGM (D2)

(BAYS 1 THRU 5)

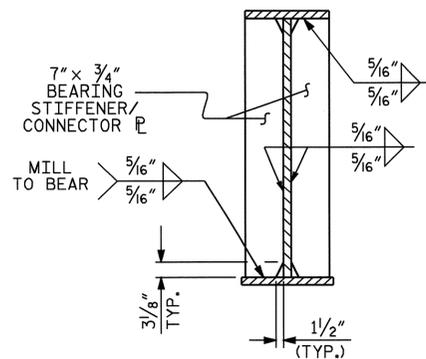


INTERMEDIATE DIAPHRAGM (D3)

(BAY 6 ONLY)

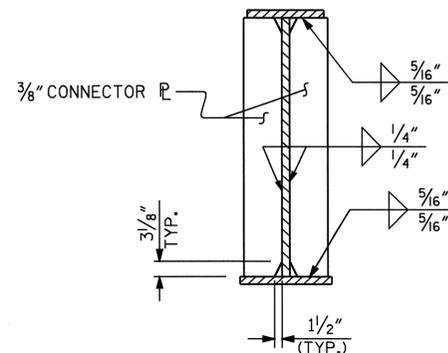


SHEAR STUD DETAILS

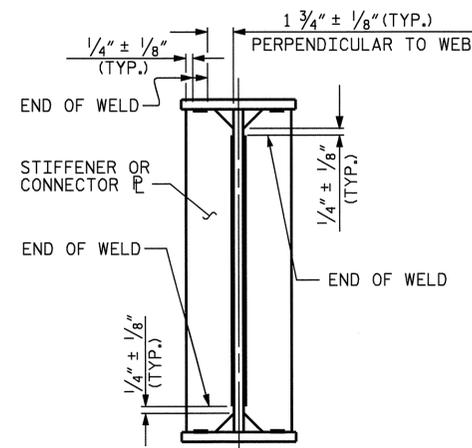


BEARING STIFFENER DETAILS

(END BENTS #1 & #2)



CONNECTOR PLATE DETAILS



TYPICAL STIFFENER OR
CONNECTOR PLATE CONNECTIONS

WELD TERMINATION DETAILS

PROJECT NO. B-3189
HAYWOOD COUNTY
STATION: 11+83.94 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
STRUCTURAL STEEL
DETAILS



DRAWN BY: J. LAMBERT DATE: 6/05
CHECKED BY: D. HODGE DATE: 3/07

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

TOTAL SHEETS: 30

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" DIA. 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.

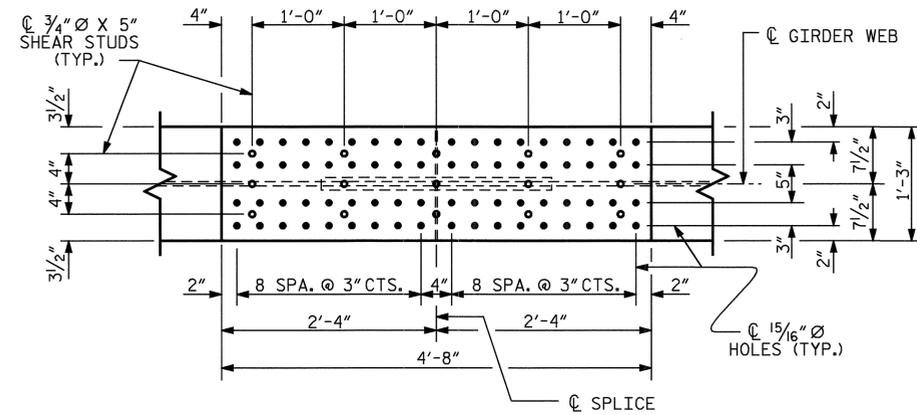
SHOP SPLICES ARE PERMITTED TO LIMIT THE MAXIMUM REQUIRED FLANGE PIECE LENGTHS TO 60 FEET AND WEB PIECE LENGTHS TO 45 FEET. PERMITTED FLANGE AND WEB SHOP SPLICES SHALL NOT BE LOCATED WITHIN 15 FEET OF MAXIMUM DEAD LOAD DEFLECTION. KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM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

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

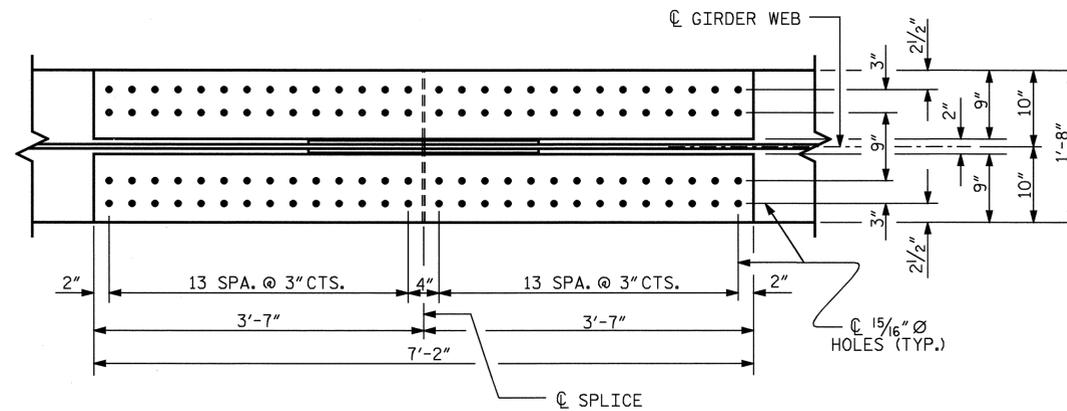
BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE TO AVOID INTERFERENCE WITH THE ANCHOR BOLT.

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

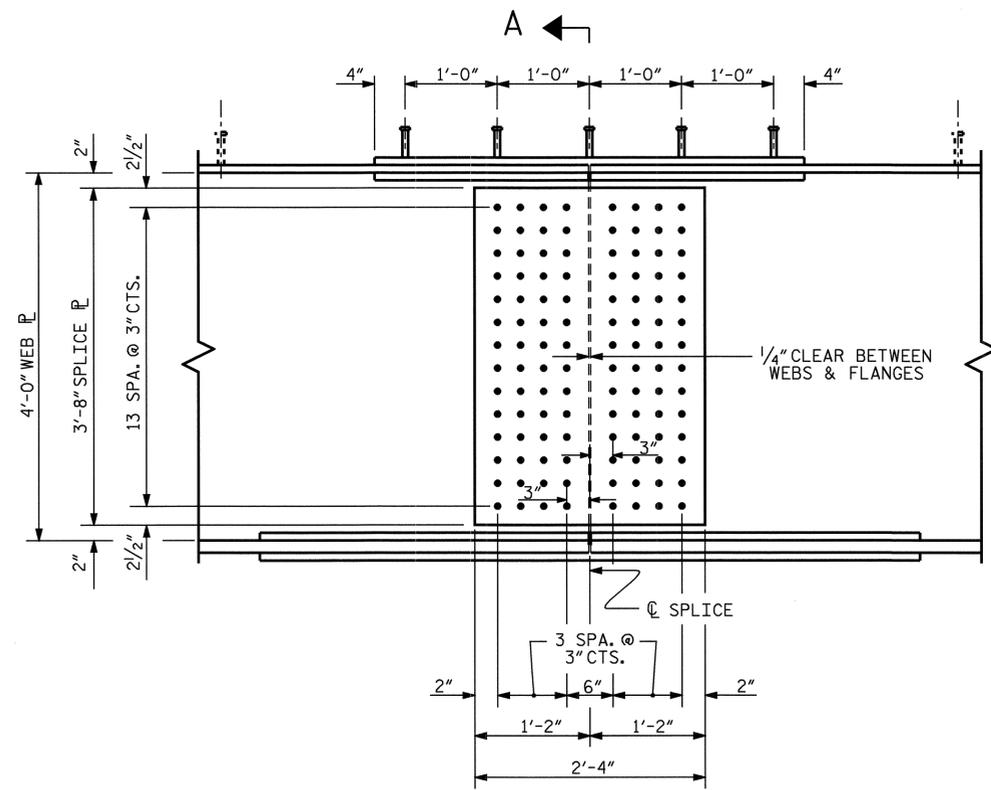
END OF GIRDERS SHALL BE PLUMB.



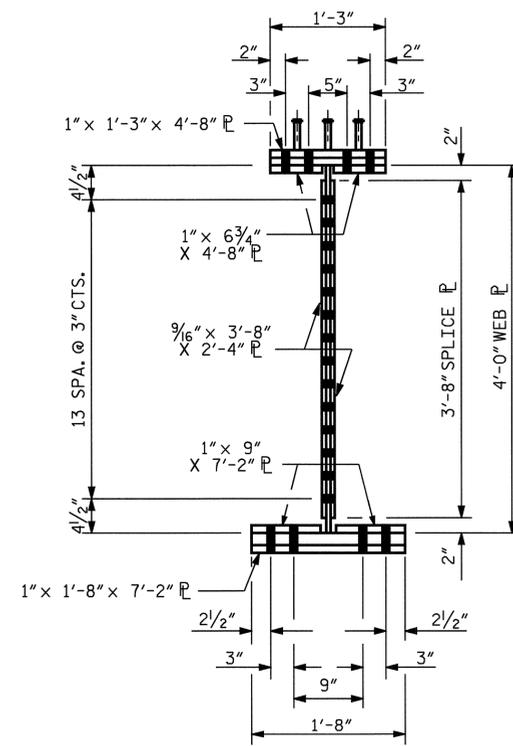
PLAN (TOP OF TOP FLANGE)



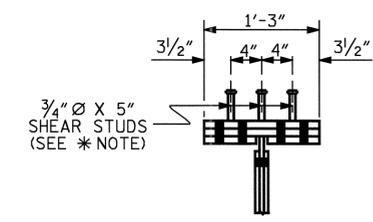
PLAN (TOP OF BOTTOM FLANGE)



ELEVATION



SECTION A-A



SHEAR STUD DETAIL FOR TOP FLANGE SPLICE PLATE

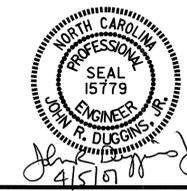
* NOTE: SHEAR STUDS ARE TO BE SHOP WELDED ON TOP OF PLATE BEFORE FIELD ASSEMBLY.

BOLTED FIELD SPLICE DETAILS

(TYPICAL EACH FIELD SPLICE)

DRAWN BY : J. LAMBERT DATE : 3/07
 CHECKED BY : D. HODGE DATE : 3/07

05-APR-2007 07:44
 R:\Structures\B3189\JLambert\Microstation\B3189\B3189_sd_SS.dgn
 dahodge



PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE STRUCTURAL STEEL DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-10
					TOTAL SHEETS 30

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.

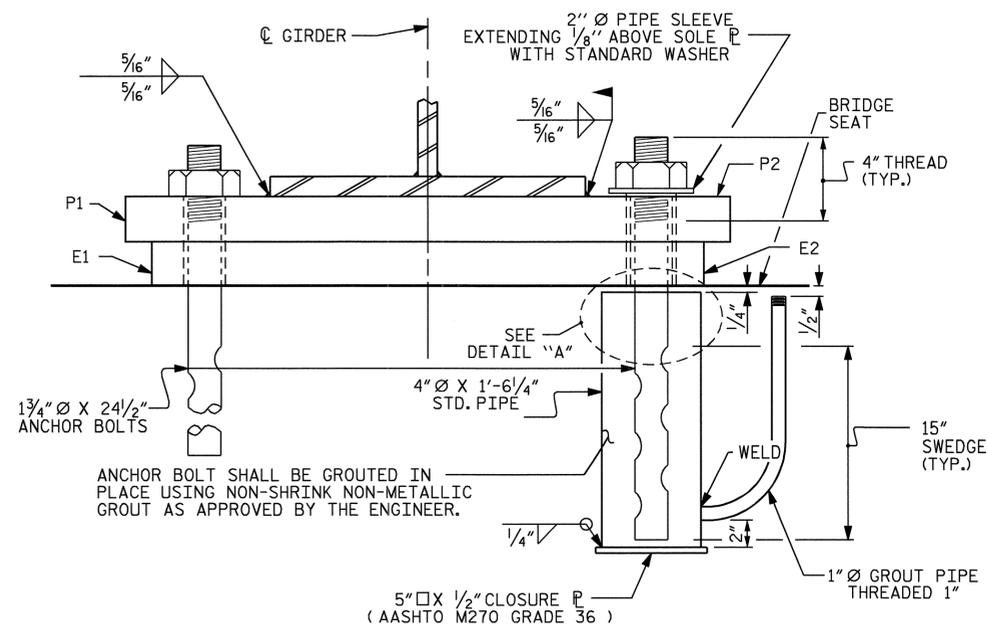
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

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

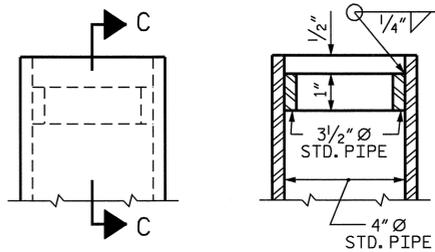
1. ONCE THE DECK HAS CURED, THE GIRDERS SHALL BE JACKED AND THE SOLE PLATE AND ELASTOMERIC BEARING SLOTS SHALL BE CENTERED AS NEARLY AS PRACTICAL ABOUT THE BEARING STIFFENERS AND ANCHOR BOLTS. THIS OPERATION SHALL BE PERFORMED AT APPROXIMATELY 60° F.
2. AFTER CENTERING THE SLOTS ABOUT THE ANCHOR BOLTS,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

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



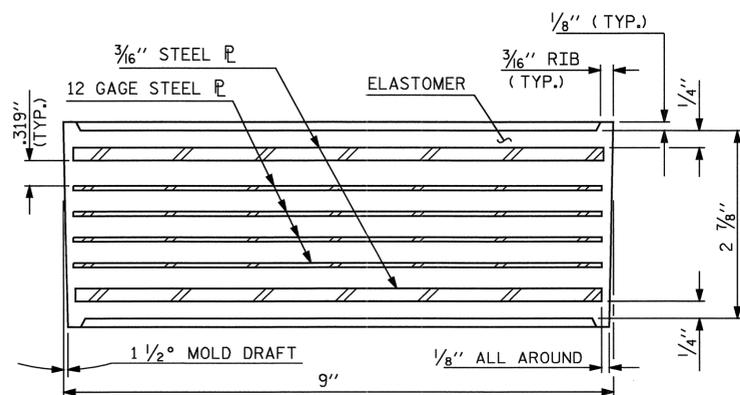
FIXED EXPANSION

END VIEW

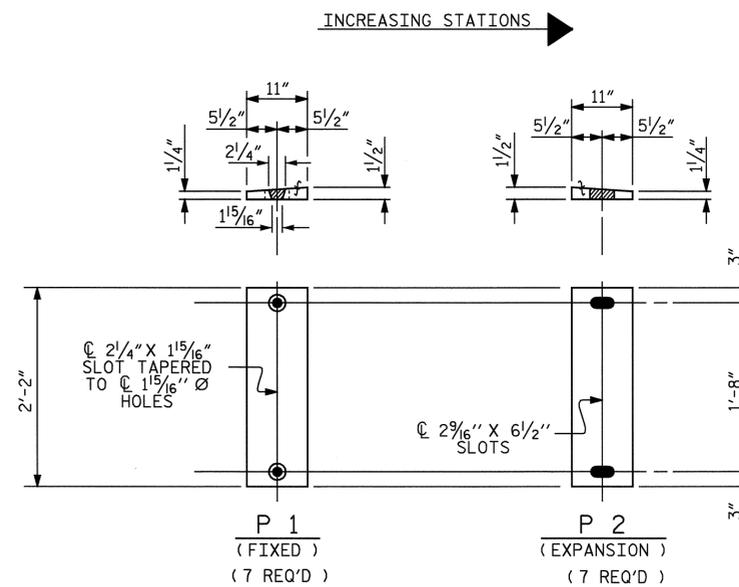


SECTION C-C

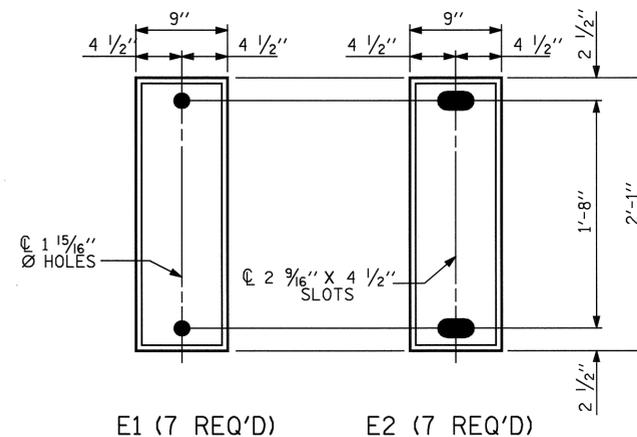
DETAIL "A"



TYPICAL SECTION OF ELASTOMERIC BEARINGS



SOLE PLATE DETAILS ("P")



PLAN VIEW OF ELASTOMERIC BEARING

TYPE III

-LOAD RATINGS-	
	MAX.D.L.+L.L.
TYPE III	144 K

PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.91 -L1-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 ELASTOMERIC BEARING
 DETAILS
 (STEEL SUPERSTRUCTURE)



DRAWN BY: J. LAMBERT DATE: 7/05
 CHECKED BY: D. HODGE DATE: 4/07

05-APR-2007 09:44
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 Jlambert

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			30

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
TWENTIETH POINTS	SPAN A																				
	EXTERIOR GIRDER 1																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.024	0.048	0.070	0.090	0.108	0.124	0.136	0.145	0.150	0.152	0.150	0.145	0.136	0.124	0.108	0.090	0.070	0.048	0.024	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.064	0.121	0.176	0.225	0.269	0.307	0.336	0.358	0.371	0.376	0.371	0.358	0.336	0.307	0.269	0.225	0.176	0.121	0.064	0.000
DEFLECTION DUE TO WEIGHT OF CLASSIC BRIDGE RAIL AND SIDEWALK	0.000	0.018	0.036	0.052	0.068	0.081	0.093	0.102	0.109	0.113	0.114	0.113	0.109	0.102	0.093	0.081	0.068	0.052	0.036	0.018	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.106	0.205	0.298	0.383	0.458	0.524	0.574	0.612	0.634	0.642	0.634	0.612	0.574	0.524	0.458	0.383	0.298	0.205	0.106	0.000
VERTICAL CURVE ORDINATE	0.000	0.006	0.011	0.016	0.020	0.023	0.026	0.028	0.029	0.030	0.031	0.030	0.029	0.028	0.026	0.023	0.020	0.016	0.011	0.006	0.000
REQUIRED CAMBER	0.000	1/4"	2/16"	3/16"	4/8"	5/2"	6/16"	6/8"	7/8"	7/8"	7 1/16"	7/8"	7/8"	6 7/8"	6 5/16"	5 1/2"	4 5/8"	3 3/16"	2 7/16"	1/4"	0.000

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
TWENTIETH POINTS	SPAN A																				
	INTERIOR GIRDERS 2 & 3																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.024	0.048	0.070	0.090	0.108	0.124	0.136	0.145	0.150	0.152	0.150	0.145	0.136	0.124	0.108	0.090	0.070	0.048	0.024	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.064	0.122	0.176	0.226	0.271	0.308	0.338	0.360	0.373	0.378	0.373	0.360	0.338	0.308	0.271	0.226	0.176	0.122	0.064	0.000
DEFLECTION DUE TO WEIGHT OF CLASSIC BRIDGE RAIL AND SIDEWALK	0.000	0.018	0.036	0.052	0.068	0.081	0.093	0.102	0.109	0.113	0.114	0.113	0.109	0.102	0.093	0.081	0.068	0.052	0.036	0.018	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.106	0.206	0.298	0.384	0.460	0.525	0.576	0.614	0.636	0.644	0.636	0.614	0.576	0.525	0.460	0.384	0.298	0.206	0.106	0.000
VERTICAL CURVE ORDINATE	0.000	0.006	0.011	0.016	0.020	0.023	0.026	0.028	0.029	0.030	0.031	0.030	0.029	0.028	0.026	0.023	0.020	0.016	0.011	0.006	0.000
REQUIRED CAMBER	0.000	1/4"	2 1/2"	3 3/16"	4 5/8"	5 1/2"	6 5/16"	6 5/16"	7 3/8"	7 5/8"	7 3/4"	7 5/8"	7 3/8"	6 15/16"	6 5/16"	5 1/2"	4 5/8"	3 7/16"	2 1/2"	1/4"	0.000

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

PROJECT NO. B-3189
HAYWOOD COUNTY
STATION: 11+83.94 -L1-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
DEAD LOAD DEFLECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			30



DRAWN BY: J. LAMBERT DATE: 7/05
CHECKED BY: S. PEARCE DATE: 3/07

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
TWENTIETH POINTS	SPAN A																				
	INTERIOR GIRDERS 4 & 5																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.024	0.048	0.070	0.090	0.108	0.124	0.136	0.145	0.150	0.152	0.150	0.145	0.136	0.124	0.108	0.090	0.070	0.048	0.024	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.065	0.123	0.177	0.227	0.272	0.310	0.340	0.362	0.375	0.380	0.375	0.362	0.340	0.310	0.272	0.227	0.177	0.123	0.065	0.000
DEFLECTION DUE TO WEIGHT OF CLASSIC BRIDGE RAIL, SIDEWALK AND WATERLINE	0.000	0.019	0.038	0.055	0.071	0.086	0.098	0.107	0.114	0.119	0.120	0.119	0.114	0.107	0.098	0.086	0.071	0.055	0.038	0.019	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.108	0.209	0.302	0.388	0.466	0.532	0.583	0.621	0.644	0.652	0.644	0.621	0.583	0.532	0.466	0.388	0.302	0.209	0.108	0.000
VERTICAL CURVE ORDINATE	0.000	0.006	0.011	0.016	0.020	0.023	0.026	0.028	0.029	0.030	0.031	0.030	0.029	0.028	0.026	0.023	0.020	0.016	0.011	0.006	0.000
REQUIRED CAMBER	0.000	1 5/16"	2 1/2"	3 5/8"	4 11/16"	5 9/16"	6 3/8"	7"	7 7/16"	7 3/4"	7 13/16"	7 3/4"	7 7/16"	7"	6 3/8"	5 9/16"	4 11/16"	3 5/8"	2 1/2"	1 5/16"	0.000

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
TWENTIETH POINTS	SPAN A																				
	INTERIOR GIRDER 6																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.024	0.048	0.070	0.090	0.108	0.124	0.136	0.145	0.150	0.152	0.150	0.145	0.136	0.124	0.108	0.090	0.070	0.048	0.024	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.064	0.122	0.176	0.226	0.271	0.308	0.338	0.360	0.373	0.378	0.373	0.360	0.338	0.308	0.271	0.226	0.176	0.122	0.064	0.000
DEFLECTION DUE TO WEIGHT OF CLASSIC BRIDGE RAIL, SIDEWALK AND WATERLINE	0.000	0.019	0.038	0.055	0.071	0.086	0.098	0.107	0.114	0.119	0.120	0.119	0.114	0.107	0.098	0.086	0.071	0.055	0.038	0.019	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.107	0.208	0.301	0.387	0.465	0.530	0.581	0.619	0.642	0.650	0.642	0.619	0.581	0.530	0.465	0.387	0.301	0.208	0.107	0.000
VERTICAL CURVE ORDINATE	0.000	0.006	0.011	0.016	0.020	0.023	0.026	0.028	0.029	0.030	0.031	0.030	0.029	0.028	0.026	0.023	0.020	0.016	0.011	0.006	0.000
REQUIRED CAMBER	0.000	1 5/16"	2 1/2"	3 5/8"	4 5/8"	5 9/16"	6 3/8"	7"	7 7/16"	7 11/16"	7 13/16"	7 11/16"	7 7/16"	7"	6 3/8"	5 9/16"	4 5/8"	3 5/8"	2 1/2"	1 5/16"	0.000

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

DEAD LOAD DEFLECTION TABLE FOR GIRDERS																					
TWENTIETH POINTS	SPAN A																				
	EXTERIOR GIRDER 7																				
	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.024	0.048	0.070	0.090	0.108	0.124	0.136	0.145	0.150	0.152	0.150	0.145	0.136	0.124	0.108	0.090	0.070	0.048	0.024	0.000
DEFLECTION DUE TO WEIGHT OF SLAB *	0.000	0.064	0.121	0.176	0.225	0.269	0.307	0.336	0.358	0.371	0.376	0.371	0.358	0.336	0.307	0.269	0.225	0.176	0.121	0.064	0.000
DEFLECTION DUE TO WEIGHT OF CLASSIC BRIDGE RAIL, SIDEWALK AND WATERLINE	0.000	0.019	0.038	0.055	0.071	0.086	0.098	0.107	0.114	0.119	0.120	0.119	0.114	0.107	0.098	0.086	0.071	0.055	0.038	0.019	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.107	0.207	0.301	0.386	0.463	0.529	0.579	0.617	0.640	0.648	0.640	0.617	0.579	0.529	0.463	0.386	0.301	0.207	0.107	0.000
VERTICAL CURVE ORDINATE	0.000	0.006	0.011	0.016	0.020	0.023	0.026	0.028	0.029	0.030	0.031	0.030	0.029	0.028	0.026	0.023	0.020	0.016	0.011	0.006	0.000
REQUIRED CAMBER	0.000	1 5/16"	2 1/2"	3 5/8"	4 5/8"	5 9/16"	6 5/16"	6 15/16"	7 3/8"	7 11/16"	7 3/4"	7 11/16"	7 3/8"	6 15/16"	6 5/16"	5 9/16"	4 5/8"	3 5/8"	2 1/2"	1 5/16"	0.000

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

PROJECT NO. B-3189
HAYWOOD COUNTY
STATION: 11+83.94 -L1-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE DEAD LOAD DEFLECTION					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					30

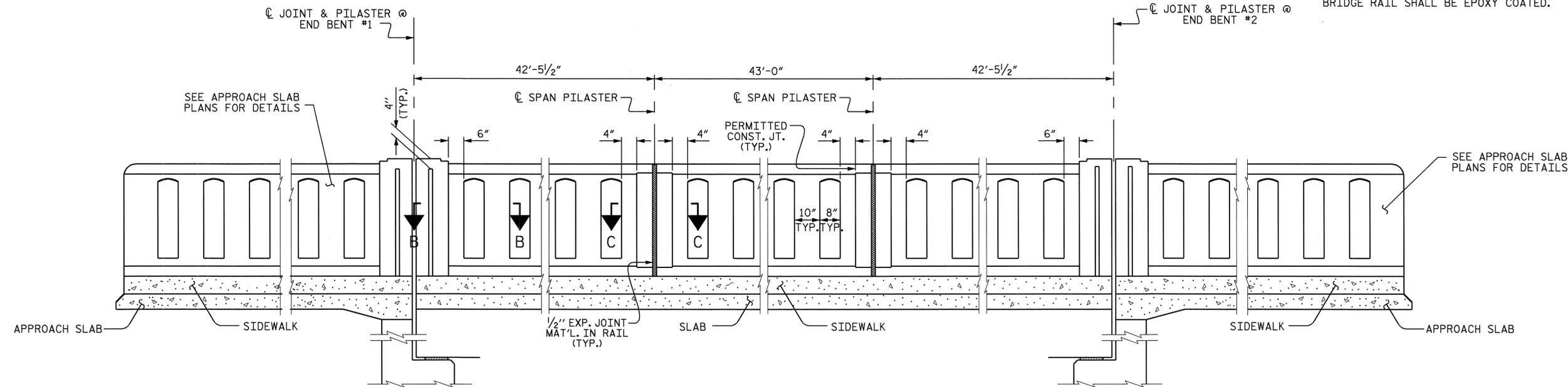


DRAWN BY: J. LAMBERT DATE: 7/05
CHECKED BY: S. PEARCE DATE: 3/07

NOTES

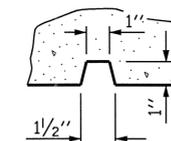
CLASSIC CONCRETE BRIDGE RAIL SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE DECK HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN THE CLASSIC CONCRETE BRIDGE RAIL SHALL BE EPOXY COATED.

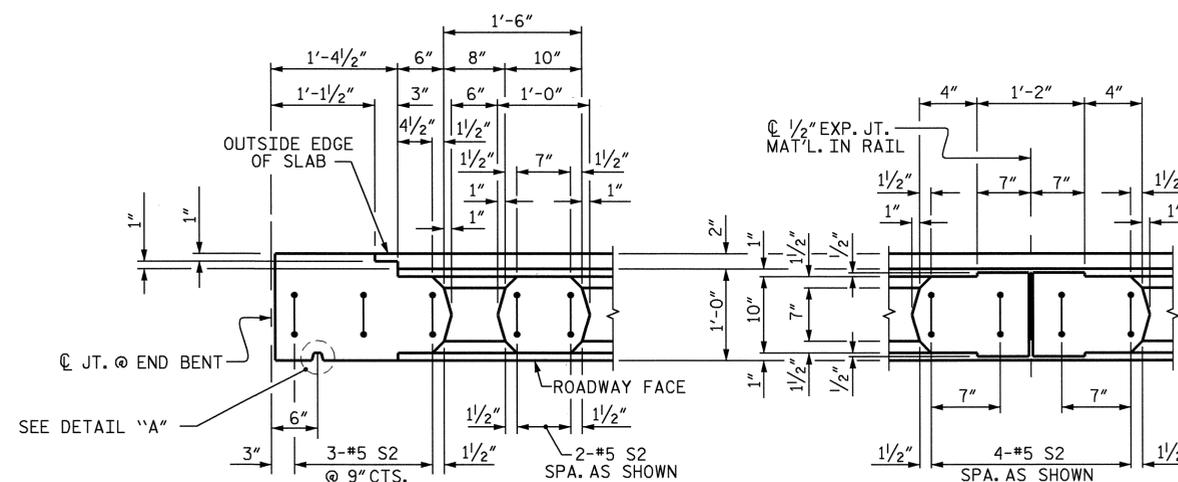


ROADWAY ELEVATION OF RAIL

CHAMFERS NOT SHOWN FOR CLARITY (TYP. EACH SIDE)



DETAIL "A"



SECTION B-B

SHOWING END BENT PILASTER

SECTION C-C

SHOWING SPAN PILASTER

PARTIAL PLAN

LEFT SIDE SHOWN, RIGHT SIDE SIMILAR

PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.94-L1-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

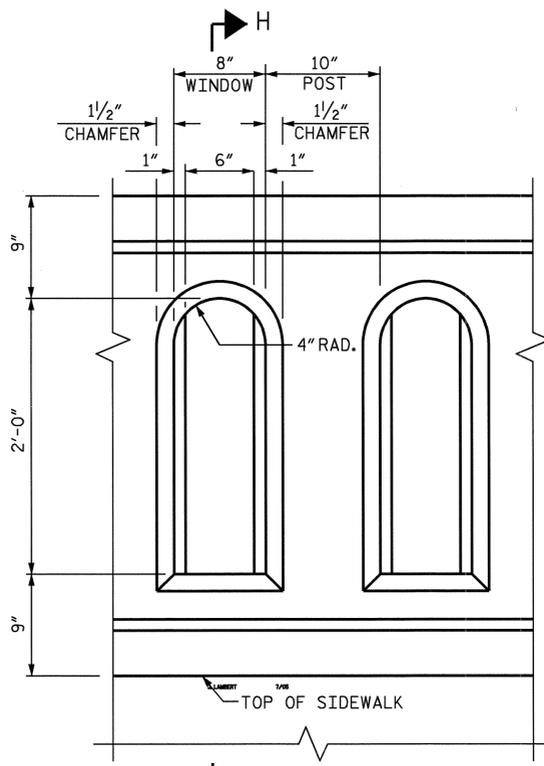
CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK



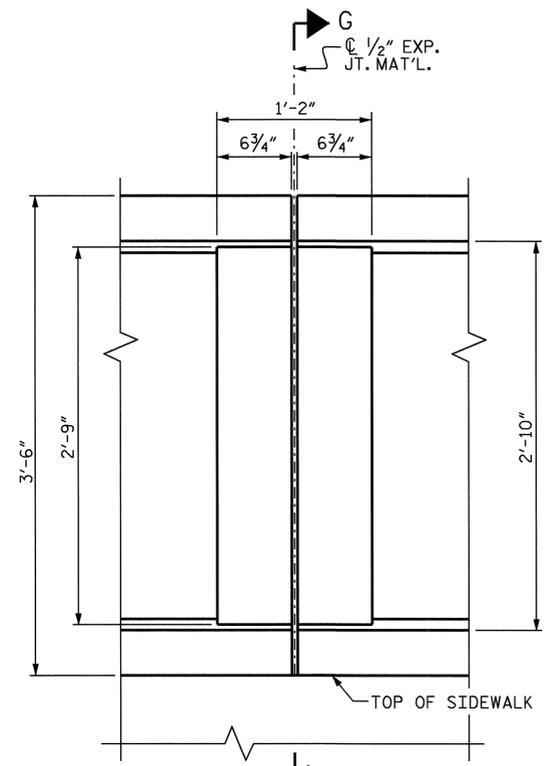
DRAWN BY : J. LAMBERT DATE : 7/05
 CHECKED BY : D. HODGE DATE : 3/07

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 JLambert

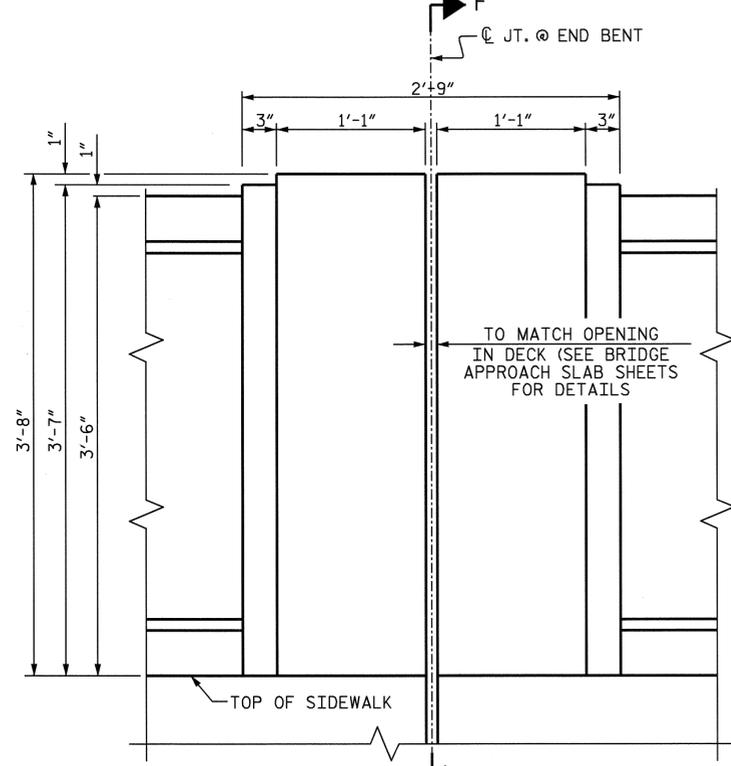
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			5-14
2			4			TOTAL SHEETS 30



WINDOW DETAIL

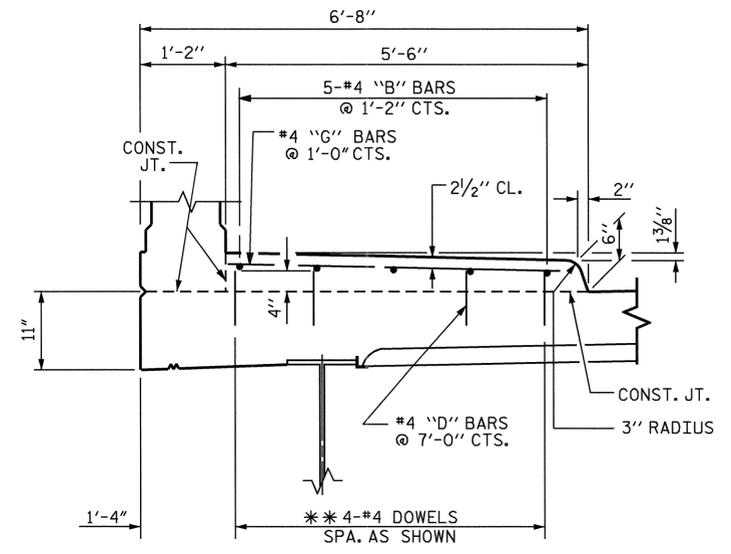


SPAN PILASTER



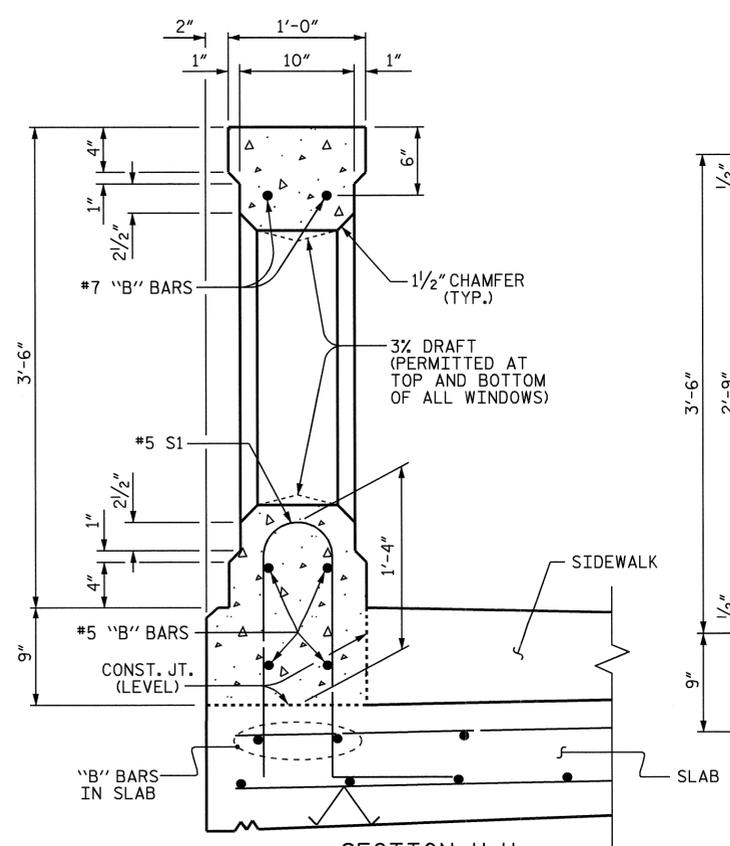
END BENT PILASTER

EXTERIOR PILASTER ELEVATIONS

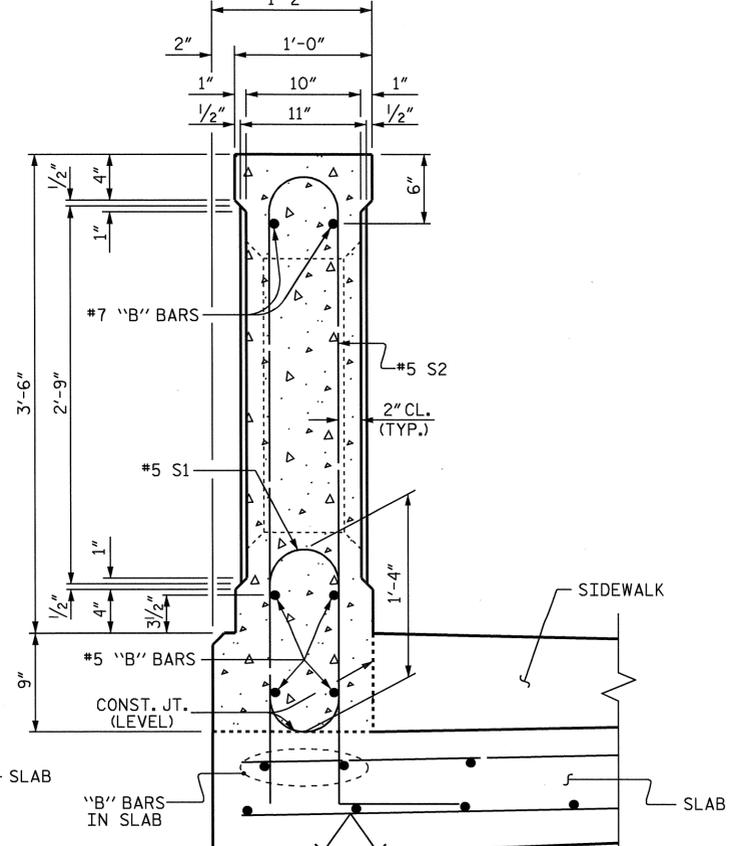


SECTION THRU SIDEWALK

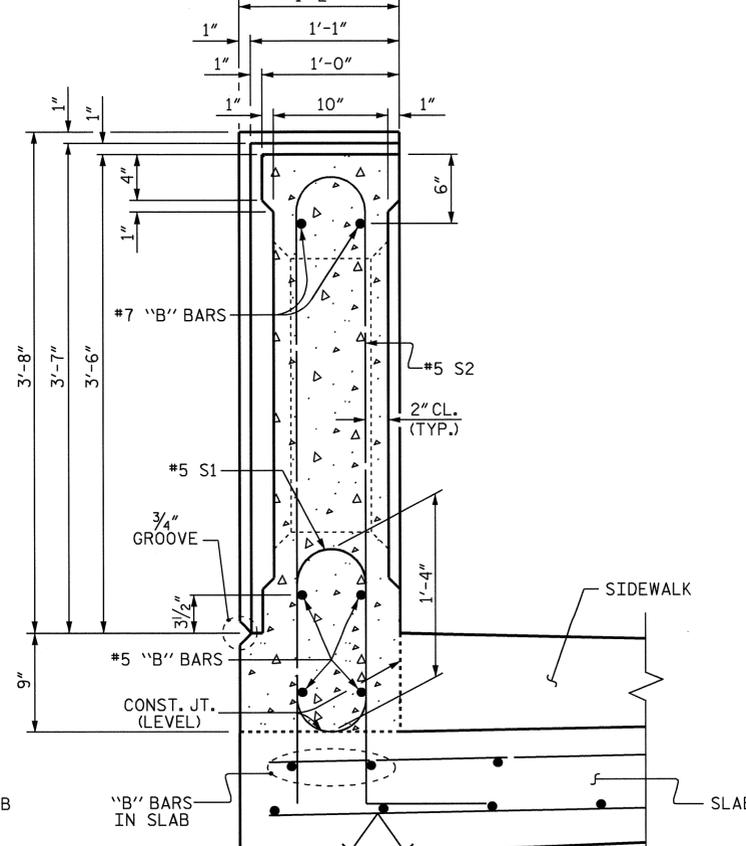
** DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SPAN HAS BEEN SCREEDED OFF.



SECTION H-H (SHOWING WINDOW OF RAIL)



SECTION G-G (SHOWING SPAN PILASTER)



SECTION F-F (SHOWING END BENT PILASTER)

PROJECT NO. B-3189
 HAYWOOD COUNTY
 STATION: 11+83.94-L1-

SHEET 2 OF 3

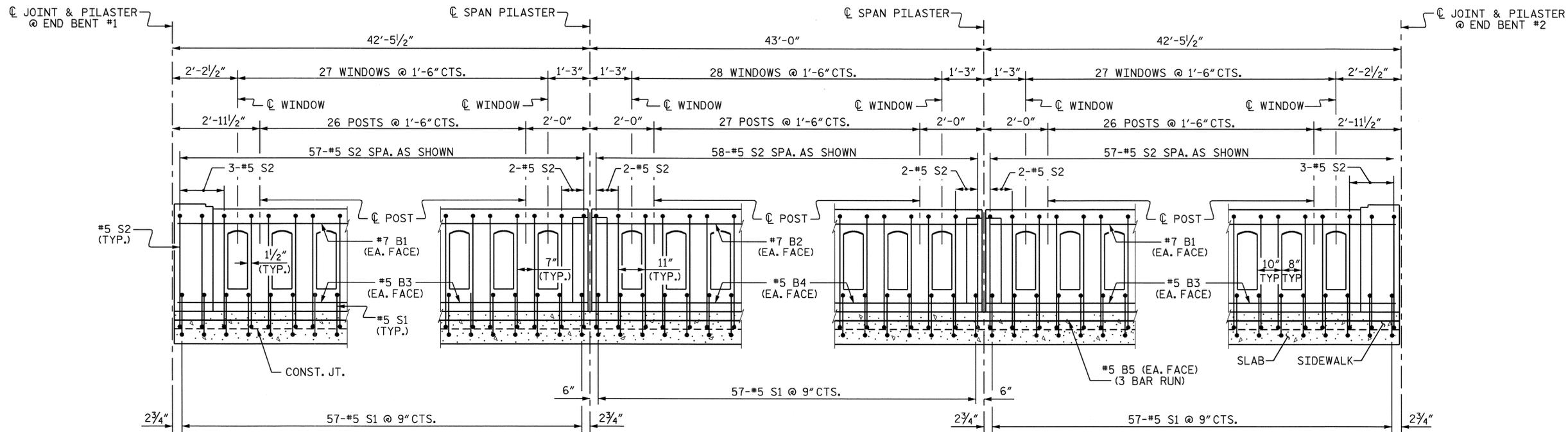
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK



DRAWN BY: J. LAMBERT DATE: 7/05
 CHECKED BY: D. HODGE DATE: 3/07

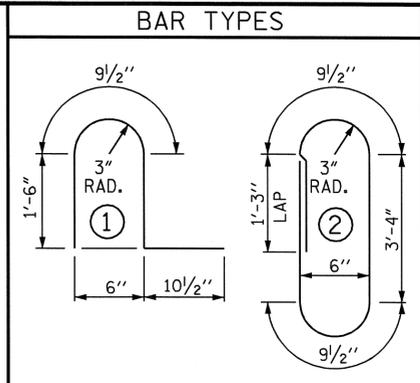
05-APR-2007 09:30
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 JLambert

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15	
1			3			TOTAL SHEETS 30	
2			4				



REINFORCING PLACEMENT- SPAN "A"

DIMENSIONS SHOWN ARE ALONG ROADWAY FACE OF RAIL



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

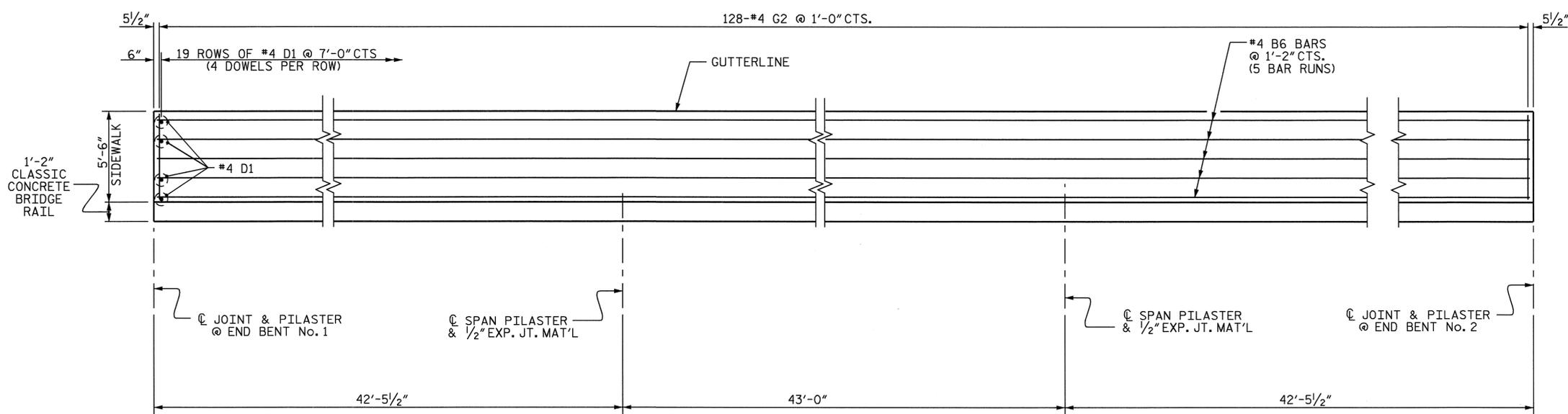
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B1	8	#7	STR	42'-0"	687
*B2	4	#7	STR	42'-7"	348
*B3	8	#5	STR	42'-0"	350
*B4	4	#5	STR	42'-7"	178
*B5	12	#5	STR	44'-10"	561
*S1	342	#5	1	4'-8"	1665
*S2	344	#5	2	9'-6"	3409

* EPOXY COATED REINFORCING STEEL 7198 LBS.

CLASS AA CONCRETE 30.8 CU. YDS.

CLASSIC CONCRETE BRIDGE RAIL 255.83 LIN. FT.

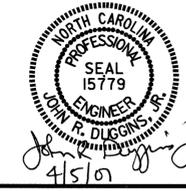
FOR SIDEWALK REINFORCING STEEL AND CONCRETE QUANTITIES, SEE "SUPERSTRUCTURE BILL OF MATERIAL"



REINFORCING PLACEMENT FOR SIDEWALK- SPAN "A"

DRAWN BY : J. LAMBERT DATE : 7/05
 CHECKED BY : D. HODGE DATE : 3/07

05-APR-2007 09:23
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 Jlambert



PROJECT NO. B-3189
 HAYWOOD COUNTY
 STATION: 11+83.94-L1-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 CLASSIC CONCRETE
 BRIDGE RAIL WITH
 SIDEWALK

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-16
1			3			TOTALS
2			4			30

NOTES

ANGLES SHALL CONFORM TO AASHTO M270 GRADE 36 STEEL OR APPROVED EQUAL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169 GRADES 1010 THRU 1020 OR APPROVED EQUAL.

STUD ANCHORS SHALL BE SHOP WELDED AND ALL HOLES SHALL BE SHOP DRILLED AS SHOWN ON THE PLANS. STUD ANCHORS SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.

UPON COMPLETION OF SHOP FABRICATION, THE ENTIRE ANCHOR ASSEMBLY SHALL BE METALLIZED. THE 1/2" Ø STUD ANCHORS AND ANCHOR TABS NEED NOT BE METALLIZED. SEE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

ANCHOR ASSEMBLY SHALL BE MADE CONTINUOUS THE LENGTH OF THE JOINT FROM GUTTER TO GUTTER. FOR FIELD SPLICES AT ALL CROWN BREAK POINTS, THE ENDS OF THE STEEL ANGLES SHALL BE CUT PARALLEL TO THE BRIDGE CENTERLINE. FINISHED FIELD WELDS SHALL BE GROUND SMOOTH AND COATED WITH A MINIMUM THICKNESS OF 4 DRY MILS OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

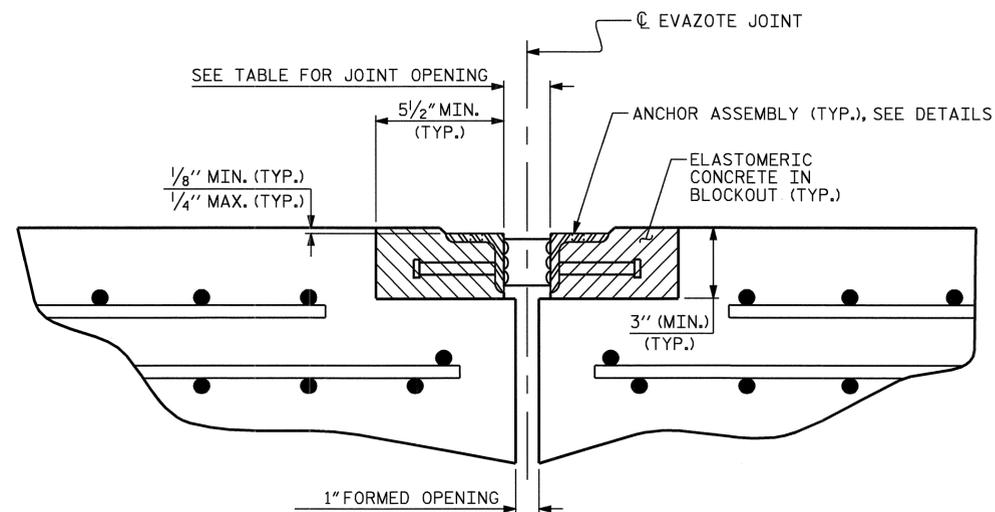
ANCHOR ASSEMBLY SEGMENTS SHALL NOT BE LESS THAN 12 FEET NOR MORE THAN 20 FEET IN LENGTH. SHORTER SEGMENTS MAY BE USED AT THE EDGE OF ROADWAY OR AT POINTS OF STAGED CONSTRUCTION.

THE ANCHOR ASSEMBLY SHALL BE SECURED AND LEVELLED AS SHOWN IN THE "ARMORED JOINT ANCHOR ASSEMBLY DETAILS". NO SUBMITTALS ARE REQUIRED FOR 3/8" Ø EXPANSION ANCHORS, NUTS OR WASHERS. THE CONTRACTOR MAY SUBMIT FOR APPROVAL AN ALTERNATE METHOD OF ALIGNING AND LEVELING THE ANGLES. THE ALTERNATE METHOD SHALL NOT INCLUDE ANY WELDING TO THE OUTSIDE FACE OF THE ANGLES.

AFTER THE ELASTOMERIC CONCRETE HAS BEEN CAST ON BOTH SIDES OF THE JOINT, REMOVE ANY EXCESS CONCRETE THAT COMES THROUGH THE WEEP HOLES AND THOROUGHLY CLEAN THE ANGLES. ANY DAMAGED STEEL SHALL BE COATED WITH A MINIMUM OF 4 MILS OF ZINC-RICH PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

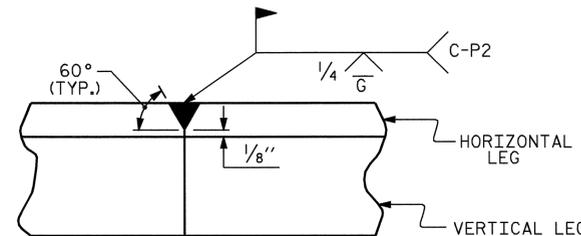
SEE SPECIAL PROVISIONS FOR EVAZOTE JOINT SEALS.

SEE SPECIAL PROVISIONS FOR ELASTOMERIC CONCRETE.

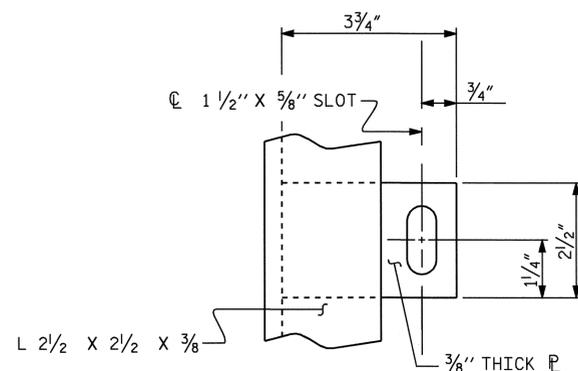


ARMORED JOINT DETAILS

SECTION NORMAL TO JOINT AT BENT



DETAIL- FIELD WELD SPLICE OF ANGLE



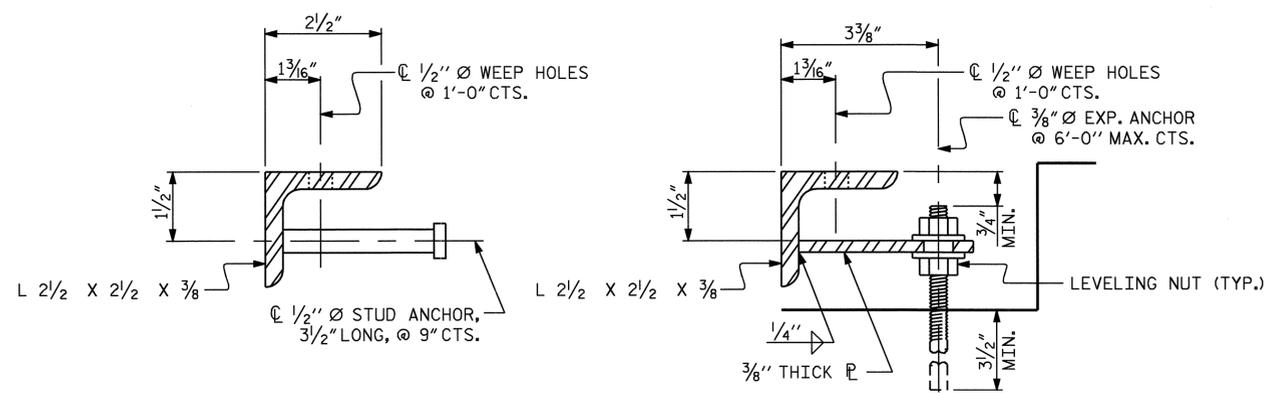
PLAN VIEW OF TAB

MOVEMENT AND SETTING AT EVAZOTE JOINT						
END BENT NO.	SKEW ANGLE	NOMINAL UNCOMPRESSED SEAL WIDTH	TOTAL MOVEMENT (ALONG C. RDWY)	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
1	90°-00'-00"	2 1/2"	0	1 7/8"	1 7/8"	1 7/8"
2	90°-00'-00"	2 1/2"	1 5/16"	2 1/16"	1 7/8"	1 1/2"

TOTAL MOVEMENT IS CALCULATED ALONG THE CENTERLINE OF ROADWAY. JOINT OPENINGS ARE MEASURED PERPENDICULAR TO THE JOINT.

BILL OF MATERIAL		
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)	TOTAL LENGTH OF ANGLE (FT)
1	6.4	56.0
2	6.4	56.0

* BASED ON THE MINIMUM BLOCKOUT SHOWN.



SECTION VIEW OF STUD

SECTION VIEW OF TAB

ARMORED JOINT ANCHOR ASSEMBLY DETAILS

PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STANDARD
 ARMORED EVAZOTE
 JOINT DETAILS

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			30
2			4			30

SEAL 15779
 J. R. DUGGINS, JR.
 ENGINEER

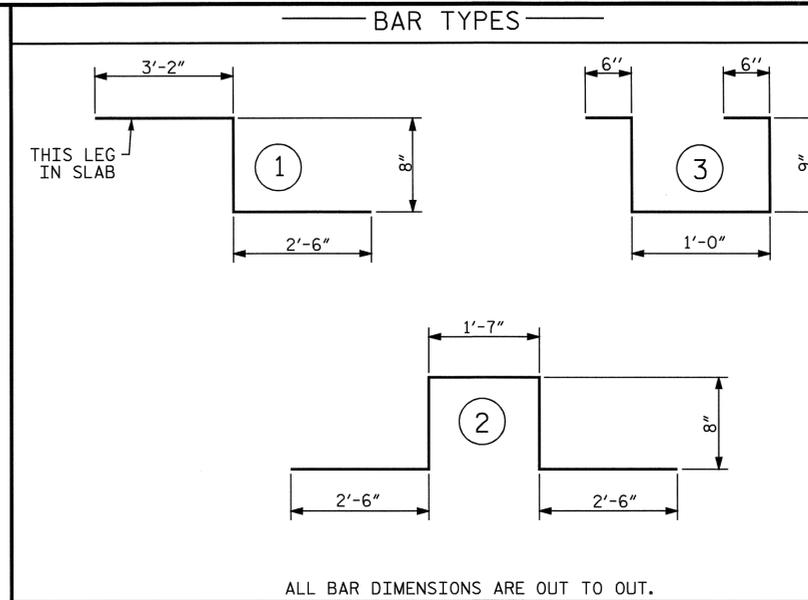
ASSEMBLED BY : D. HODGE DATE : 4/07
 CHECKED BY : J.R. DUGGINS DATE : 4/07
 DRAWN BY : EEM 1/96 REV. 7/10/01 LES/RDR
 CHECKED BY : RGW 1/96 REV. 5/7/03RR RWW/JTE
 REV. 5/1/06 TLA/GM

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	1188	SQ.FT.
BRIDGE DECK	3169	SQ.FT.
TOTAL	4357	SQ.FT.



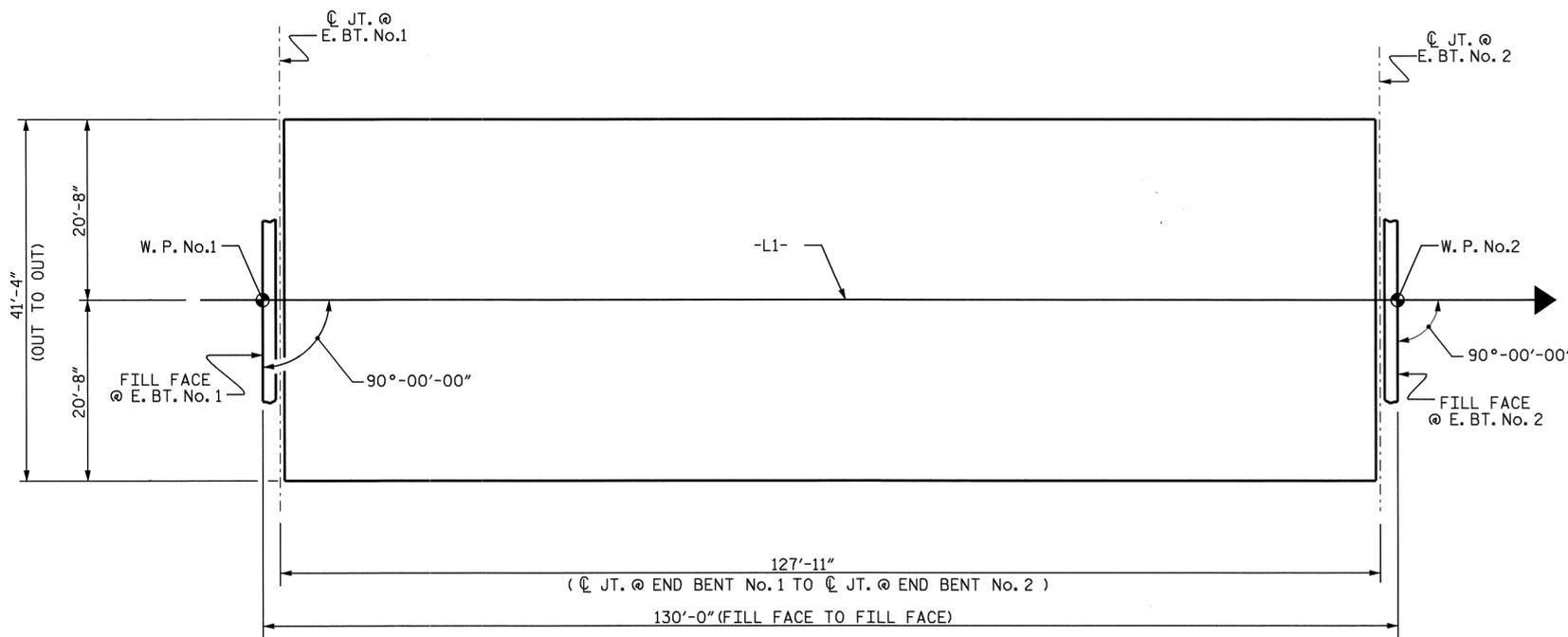
BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	192	5	STR	41'- 0"	8210
A2	192	5	STR	41'- 0"	8210
* B1	150	4	STR	27'- 2"	2722
B2	108	5	STR	44'- 0"	4956
* B6	50	4	STR	27'- 2"	907
* D1	152	4	STR	0'- 10"	85
* G1	2	5	STR	41'- 0"	86
* G2	256	4	STR	5'- 0"	855
* K1	8	5	1	6'- 4"	53
* K2	20	5	2	7'- 11"	165
* K3	24	5	STR	5'- 8"	142
* S1	60	4	3	3'- 6"	140
REINFORCING STEEL (LBS.)					13,166
* EPOXY COATED REINFORCING STEEL (LBS.)					13,365

— SUPERSTRUCTURE BILL OF MATERIAL —

	CLASS AA CONCRETE (cu. yds)	REINFORCING STEEL (lbs.)	EPOXY COATED REINFORCING STEEL (lbs.)
SPAN A	162.6	13,166	13,365
SIDEWALK	31.4	■	■
TOTALS **	194.0	13,166	13,365

** QUANTITIES FOR CLASSIC CONCRETE BRIDGE RAIL ARE NOT INCLUDED.
■ QUANTITIES INCLUDED WITH SPAN TOTALS



LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB
(SQ. FT. = 5,287)

DRAWN BY : J. LAMBERT DATE : 7/05
CHECKED BY : D. HODGE DATE : 3/07

05-APR-2007 09:09
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PROJECT NO. B-3189
HAYWOOD COUNTY
STATION: 11+83.94 -L1-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

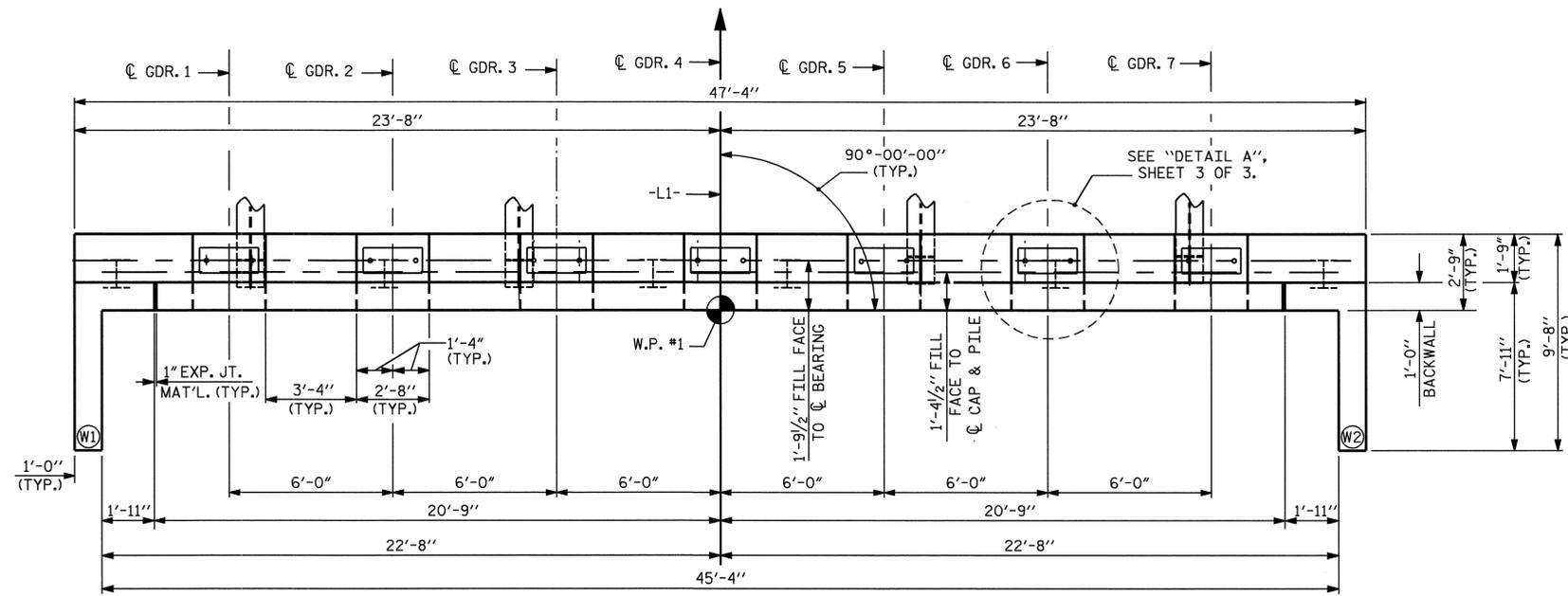
SUPERSTRUCTURE
BILL OF MATERIAL



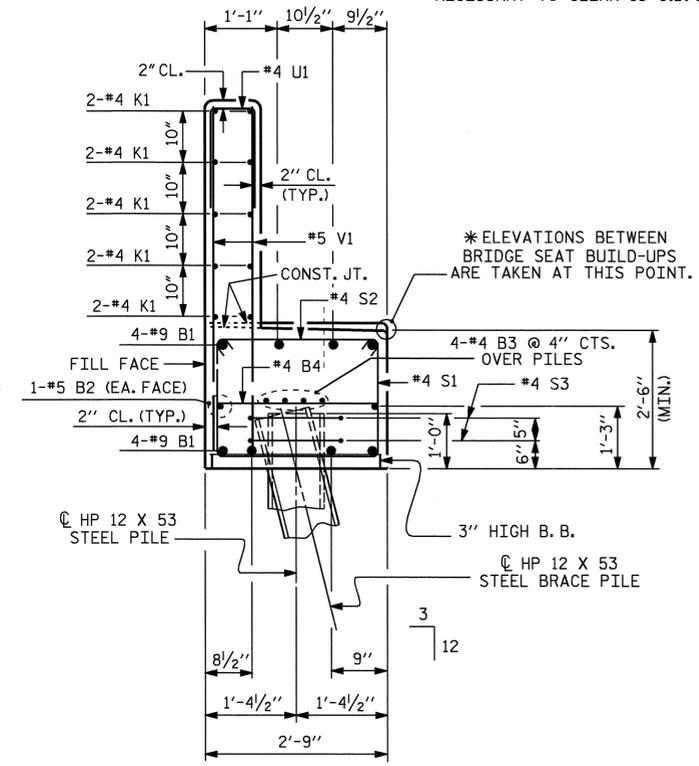
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			30

NOTES

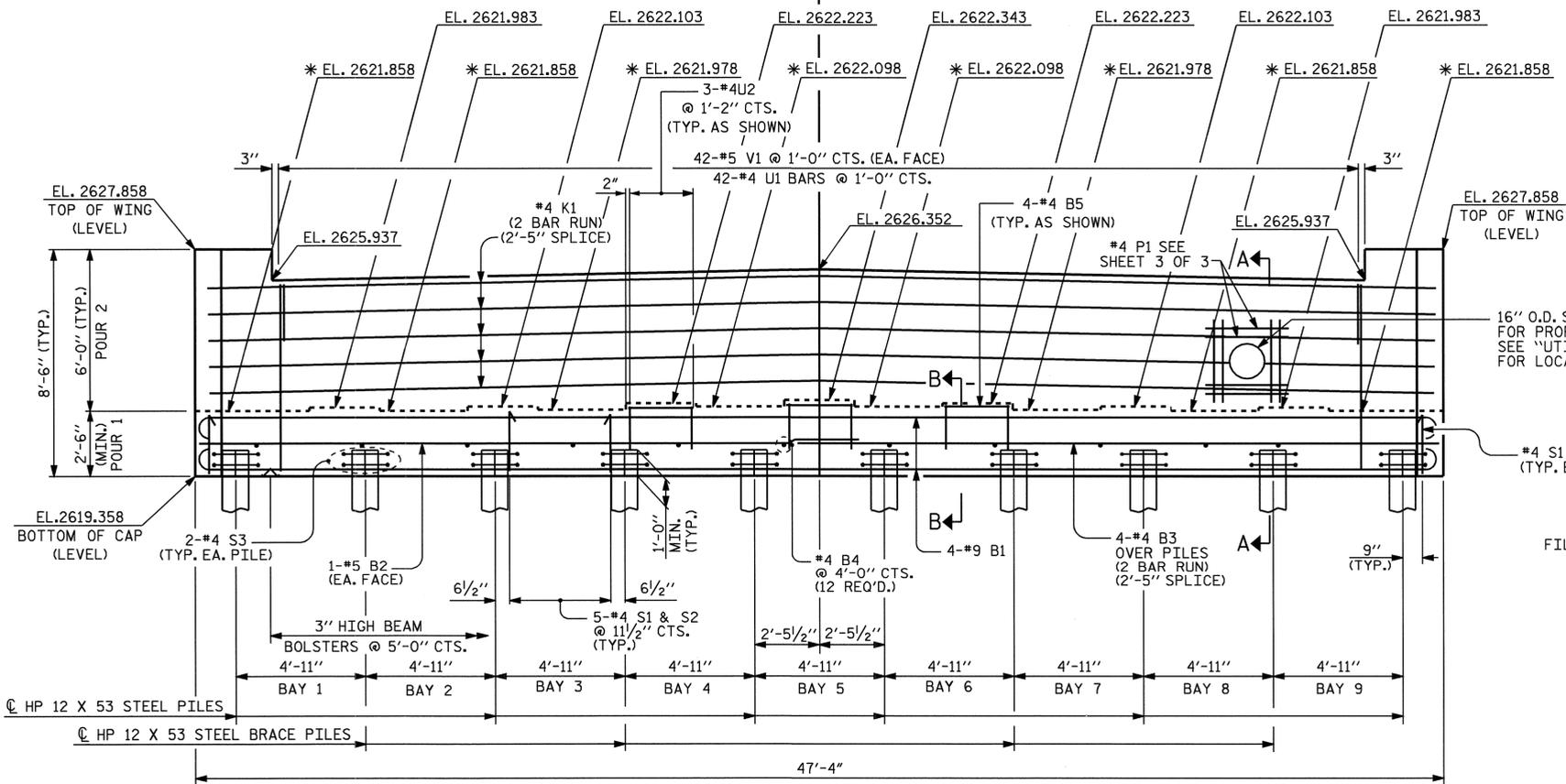
- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.
- FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.
- BACKWALL SHALL BE PLACED BEFORE APPLYING THE EPOXY PROTECTIVE COATING.
- THE TOP SURFACE AREAS OF THE END BENT CAPS SHALL BE CURED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS EXCEPT 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.
- #4 K1 BARS IN BACKWALL SHALL BE FIELD BENT AND #5 V1 BARS IN BACKWALL SHALL BE SHIFTED AS NECESSARY TO CLEAR 16" O.D. STEEL PIPE SLEEVE.



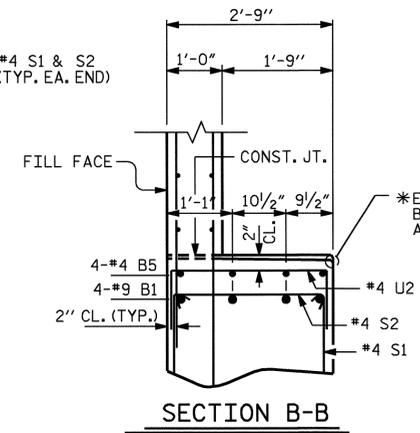
PLAN



SECTION A-A



ELEVATION



SECTION B-B

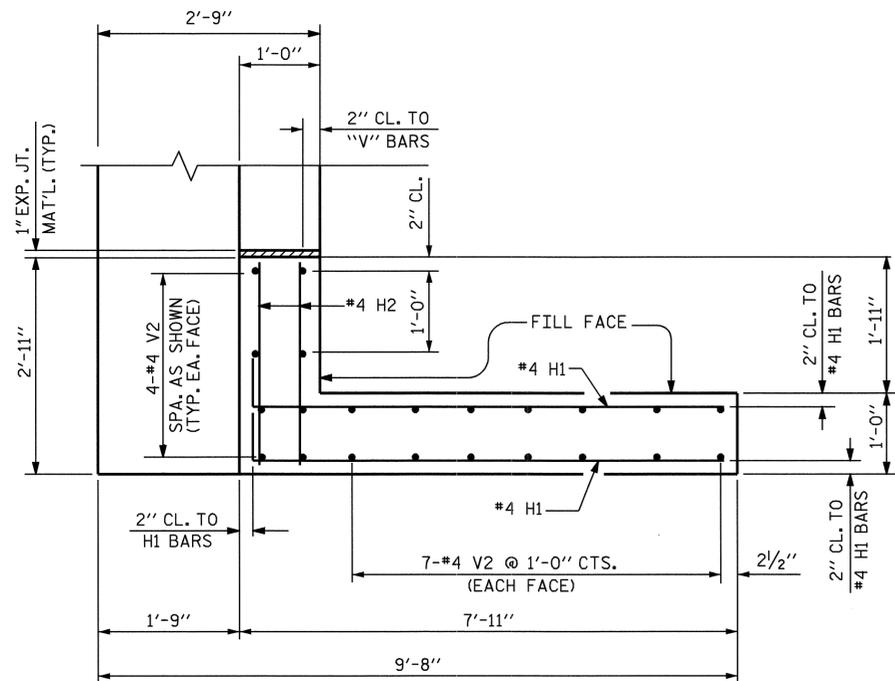
PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

SHEET 1 OF 3

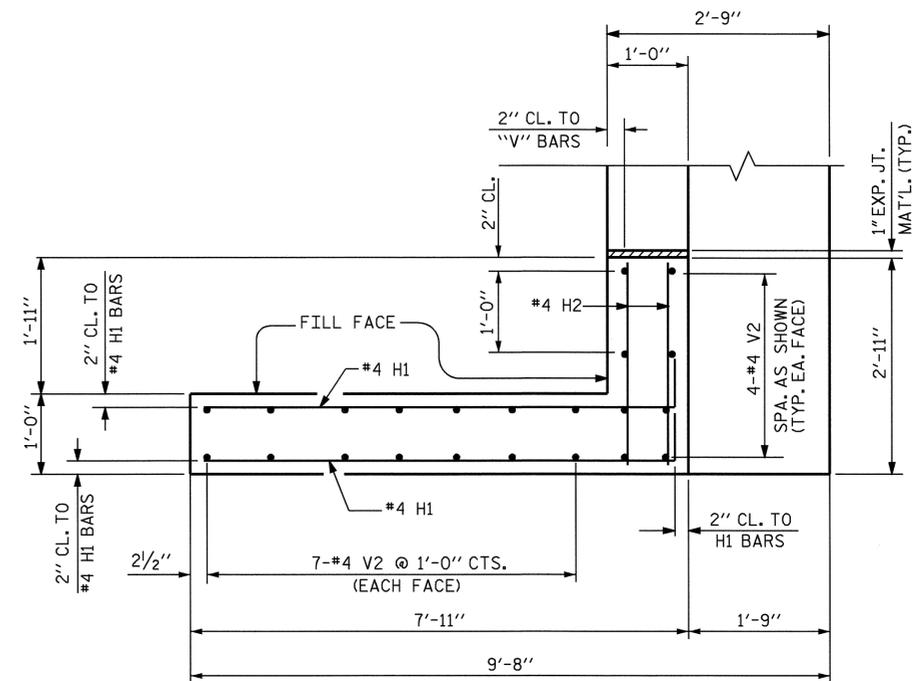
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT No. 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 30



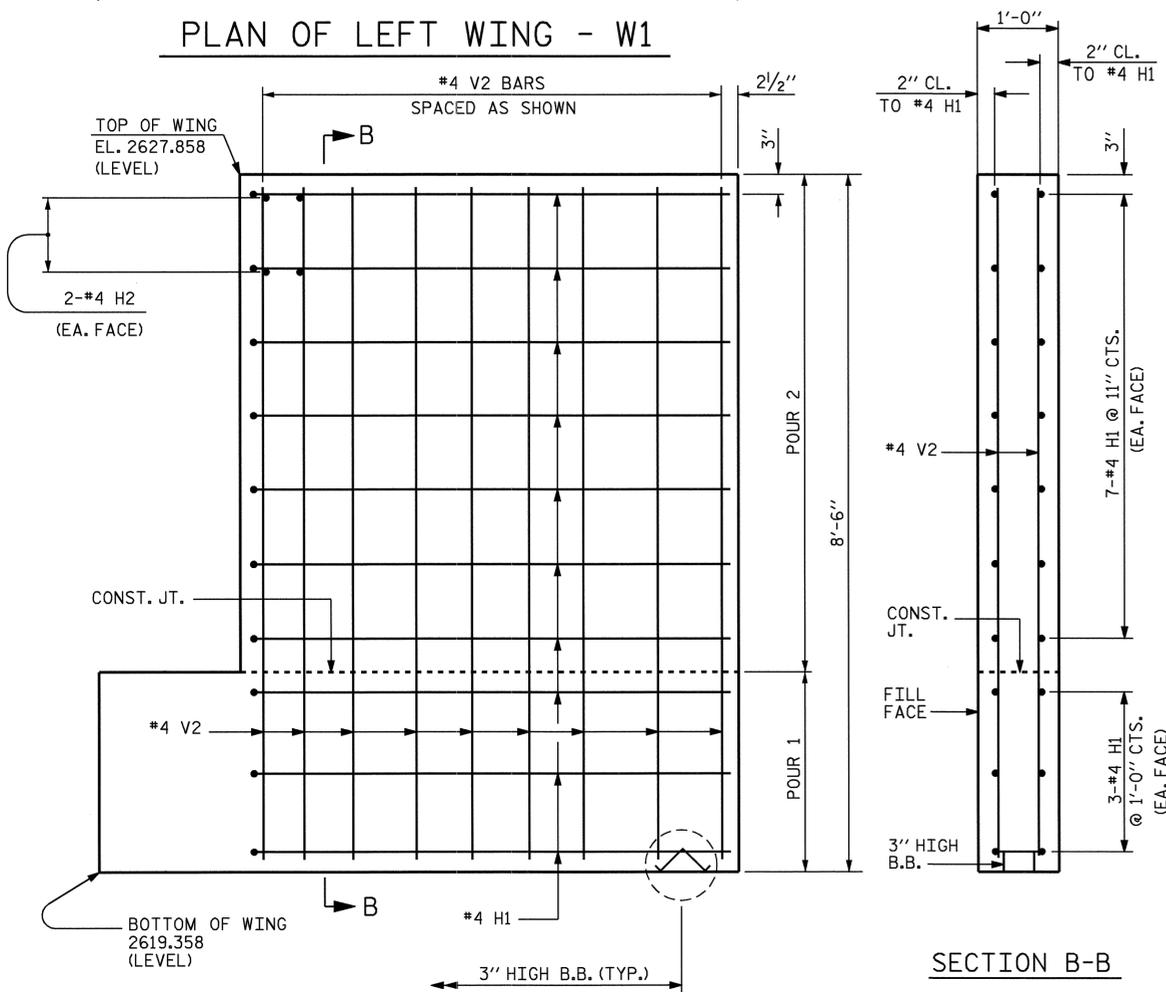
DRAWN BY: M. POOLE DATE: 05/06
 CHECKED BY: S.W. PEARCE DATE: 06/06



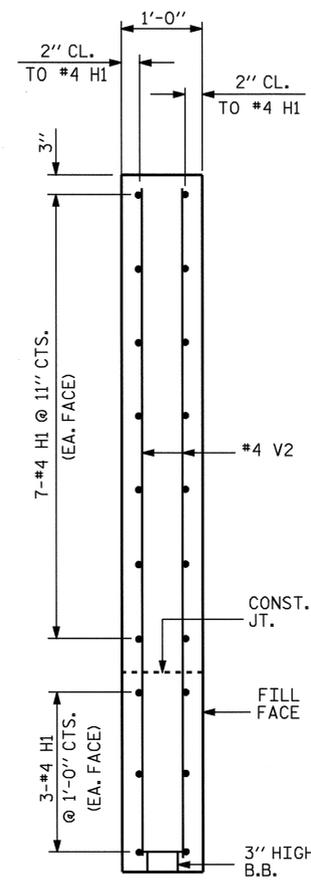
PLAN OF LEFT WING - W1



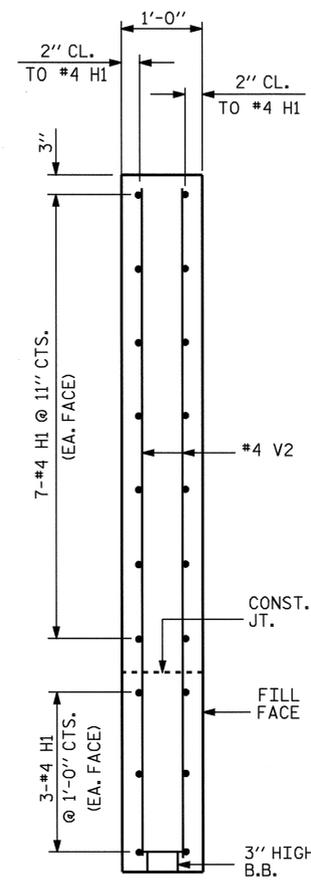
PLAN OF RIGHT WING - W2



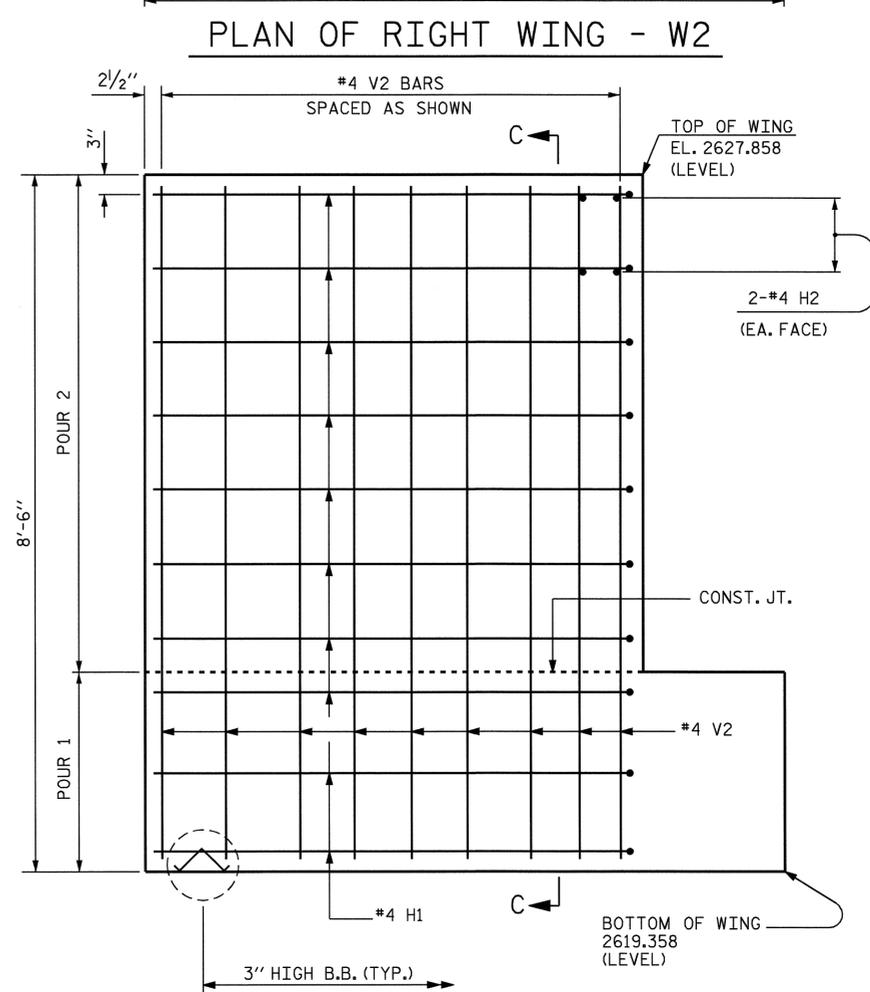
ELEVATION OF LEFT WING - W1



SECTION B-B



SECTION C-C



ELEVATION OF RIGHT WING - W2



PROJECT NO. B-3189
 HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

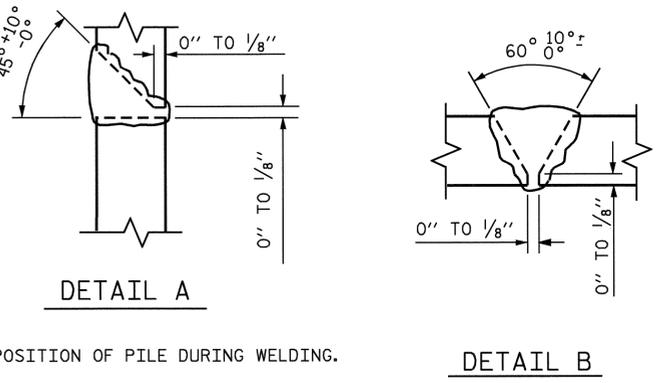
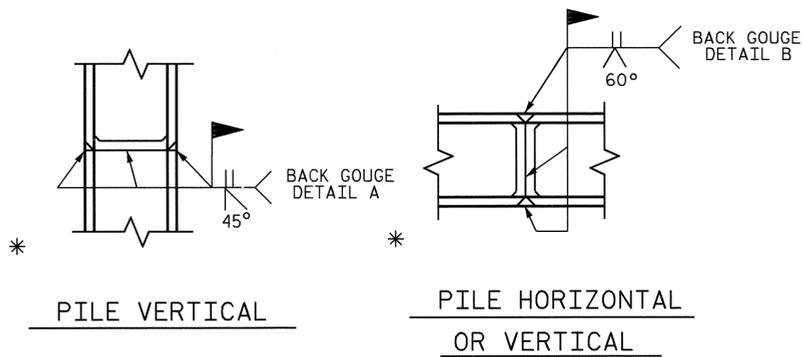
SUBSTRUCTURE
 END BENT No. 1

DRAWN BY: M. POOLE DATE: 05/06
 CHECKED BY: S.W. PEARCE DATE: 06/06

03-APR-2007 11:21
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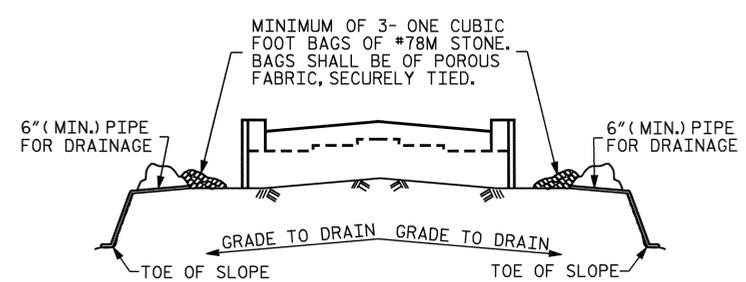
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20	
1			3			TOTAL SHEETS	30
2			4				

NCBDS



* POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS



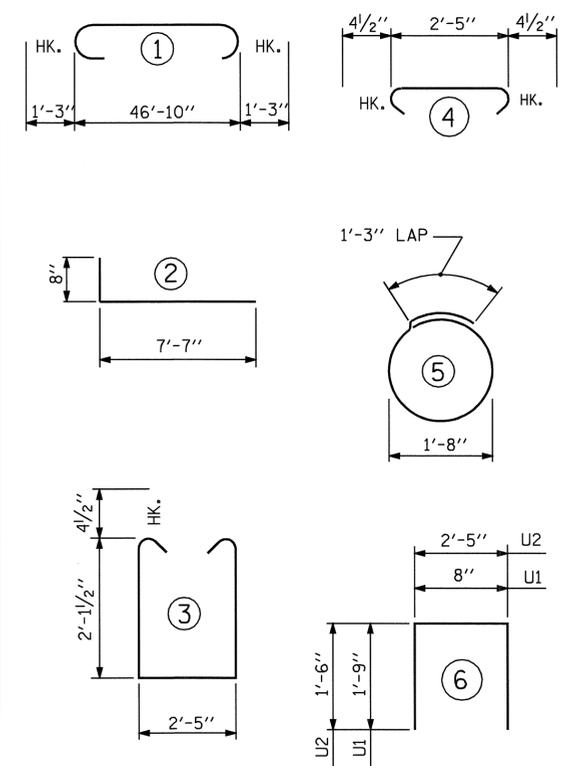
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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

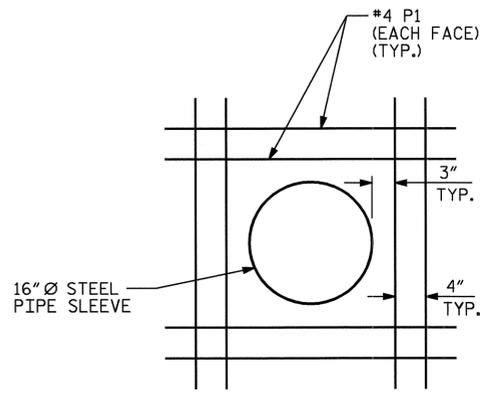
BAR TYPES



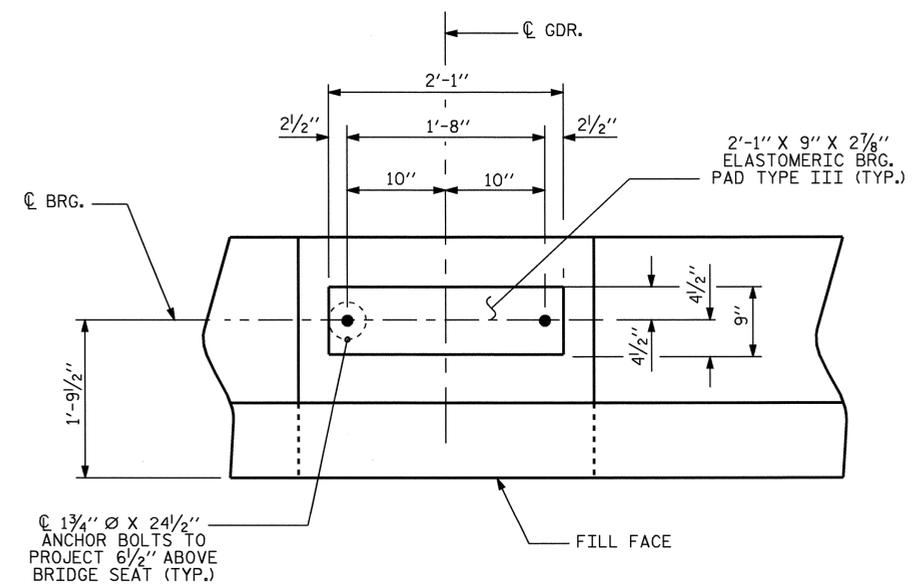
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		49'-4"	1342
B2	2	#5	STR	47'-0"	98
B3	8	#4	STR	24'-9"	132
B4	12	#4	STR	2'-5"	19
B5	12	#4	STR	2'-4"	19
H1	40	#4		8'-3"	220
H2	8	#4	STR	2'-7"	14
K1	20	#4	STR	24'-9"	331
P1	16	#4	STR	3'-2"	34
S1	47	#4		7'-5"	233
S2	47	#4		3'-2"	99
S3	20	#4		6'-6"	87
U1	42	#4		4'-2"	117
U2	9	#4		5'-5"	33
V1	84	#5	STR	6'-3"	548
V2	44	#4	STR	8'-2"	240
REINFORCING STEEL					3,566 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR 1 (CAP & LOWER WINGS)					14.1 C.Y.
POUR 2 (BACKWALL & UPPER WINGS)					10.4 C.Y.
TOTAL					24.5 C.Y.
HP 12 x 53 STEEL PILES					
NO. 10					500 LIN FT.



16" Ø STEEL PIPE SLEEVE DETAIL
THE REINFORCING STEEL IN BACKWALL WILL BE CUT AND FIELD BENT AS NECESSARY TO CLEAR STEEL PIPE SLEEVE.



DETAIL A
(TYP. EA. GDR.)

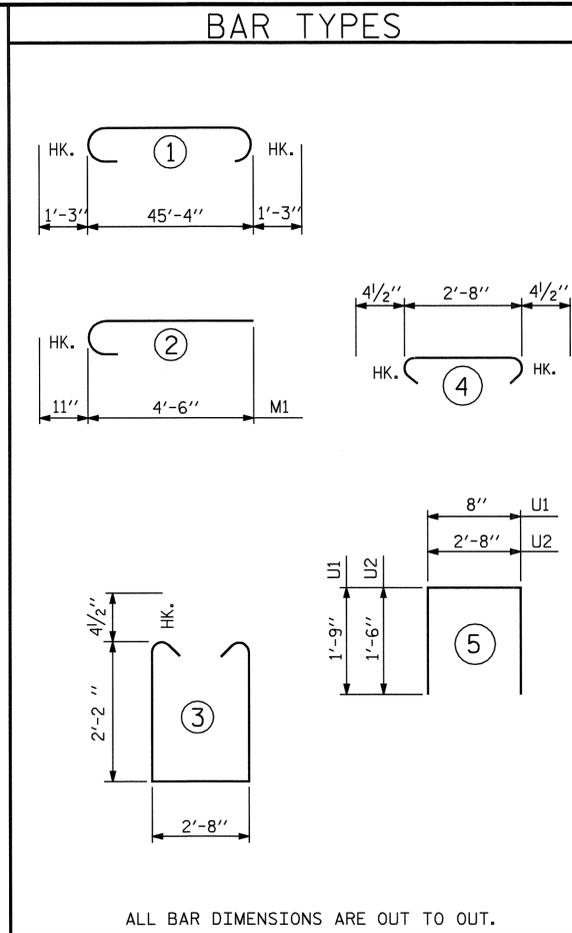
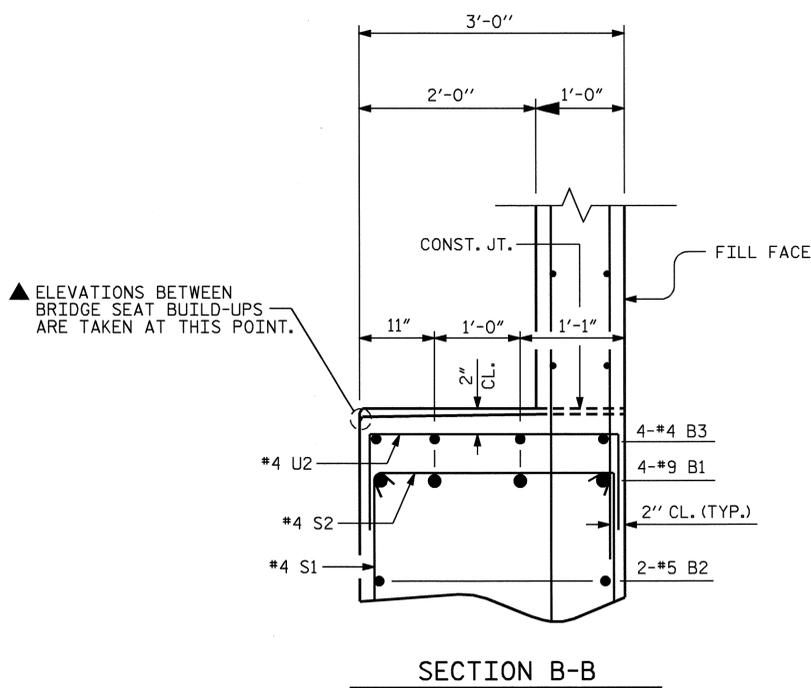
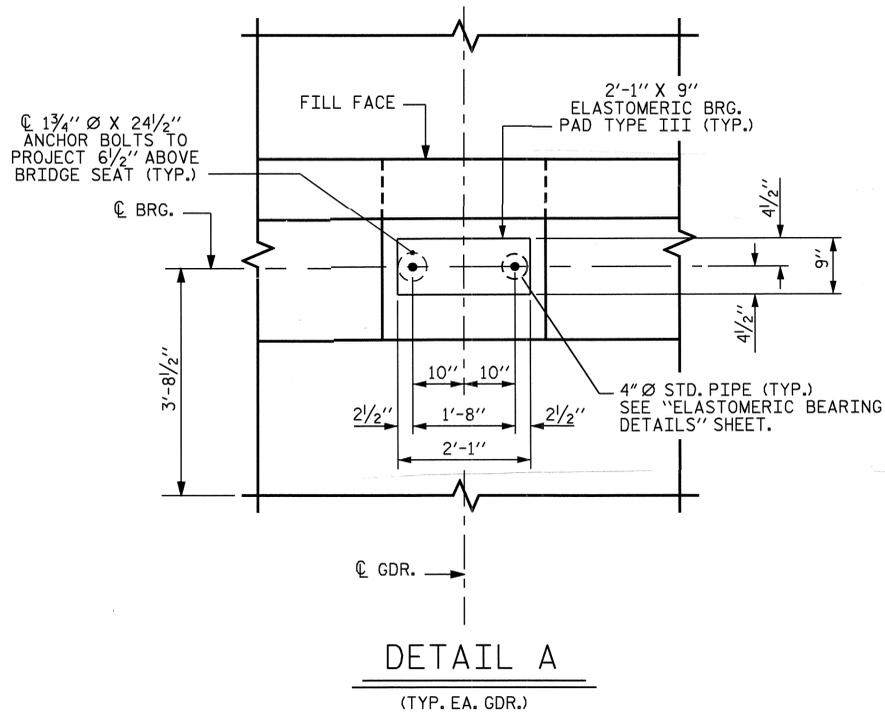
PROJECT NO. B-3189
HAYWOOD COUNTY
STATION: 11+83.94 -L1-

SHEET 3 OF 3
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUBSTRUCTURE
END BENT No. 1

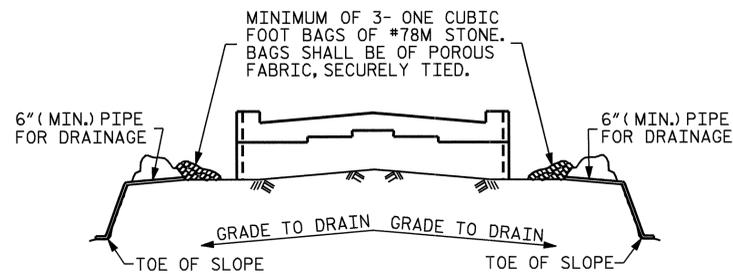


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			30
2			4			

DRAWN BY: M. POOLE DATE: 05/06
CHECKED BY: S.W. PEARCE DATE: 06/06



BILL OF MATERIAL					
END BENT No. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	47'-10"	1301
B2	2	#5	STR	45'-6"	95
D1	8	#4	STR	2'-3"	12
K1	20	#4	STR	24'-0"	321
K2	8	#4	STR	1'-10"	10
M1	88	#8	2	5'-5"	1273
M2	44	#4	STR	4'-7"	135
P1	16	#4	STR	3'-2"	34
S1	46	#4	3	7'-9"	238
S2	46	#4	4	3'-5"	105
T1	8	#6	STR	43'-6"	523
T2	66	#6	STR	7'-0"	694
T3	16	#4	STR	23'-0"	246
T4	44	#4	STR	7'-0"	206
U1	48	#4	5	4'-2"	134
U2	9	#4	5	5'-8"	34
V1	84	#5	STR	6'-2"	540
V2	12	#5	STR	8'-1"	101
V3	8	#4	STR	4'-8"	25
REINFORCING STEEL					6,027 LBS.
CLASS A CONCRETE BREAKDOWN					
POUR 1 FOOTING & EXTENDED BACKWALL					30.7 C.Y.
POUR 2 CAP					13.8 C.Y.
POUR 3 BACKWALL					7.4 C.Y.
TOTAL					51.9 C.Y.

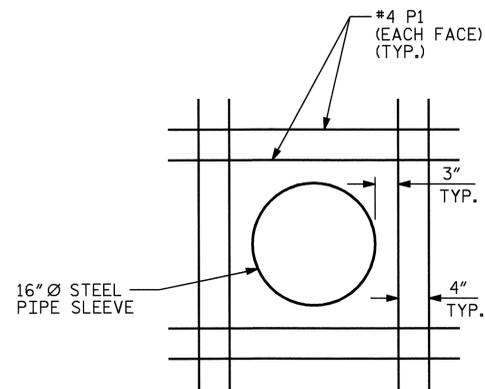
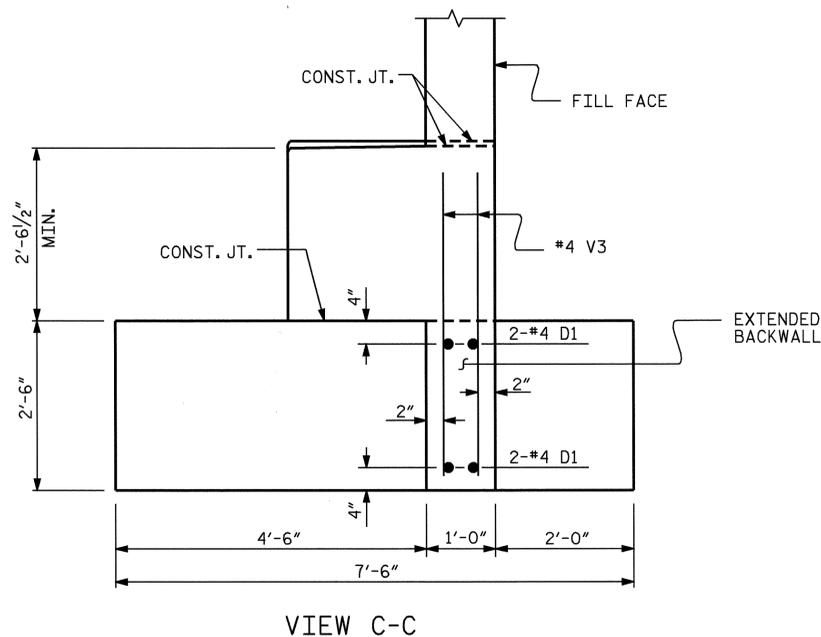


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

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



16" Ø STEEL PIPE SLEEVE DETAIL

THE REINFORCING STEEL IN BACKWALL WILL BE CUT AND FIELD BENT AS NECESSARY TO CLEAR STEEL PIPE SLEEVE.

PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE END BENT No. 2



DRAWN BY: M. POOLE DATE: 01/07
 CHECKED BY: J.R. DUGGINS DATE: 03/07

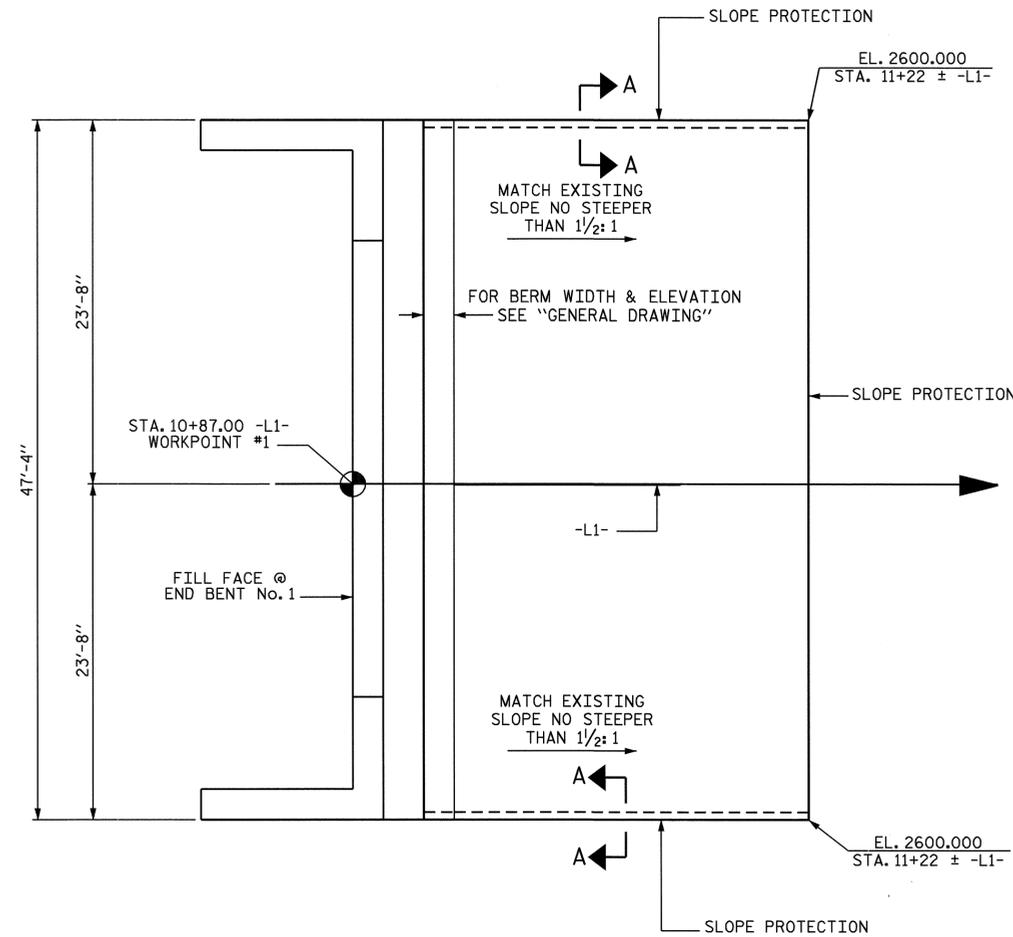
02-APR-2007 16:25
 R:\Structures\B3189\m\pooler\Microstation\B3189_sd.E2_01.dgn
 danodge

REVISIONS						SHEET NO. S-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 30
2			4			

GENERAL NOTES

SLOPE PROTECTION SHALL BE PLACED UNDER THE END BENT No. 1 END OF THE BRIDGE AS SHOWN IN THE DETAILS. METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS. FOR BERM WIDTH, SEE GENERAL DRAWING.

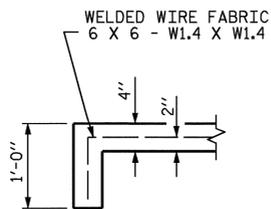
SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4, 60" WIDE. SLOPE PROTECTION SHALL BE POURED IN 5' STRIPS AS SHOWN IN THE "POURING DETAIL" WITH 2'-0" LONG #4 BARS PLACED ALONG THE SLOPE BETWEEN STRIPS AT 1'-6" MAXIMUM SPACING. SLOPE PROTECTION MAY BE POURED IN ALTERNATE 4' AND 5' STRIPS AS SHOWN IN THE "OPTIONAL POURING DETAIL" WITH ADJACENT RUNS OF WELDED WIRE FABRIC LAPPING AT LEAST 6". THE COST OF THE WELDED WIRE FABRIC AND #4 BARS, IF USED, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.



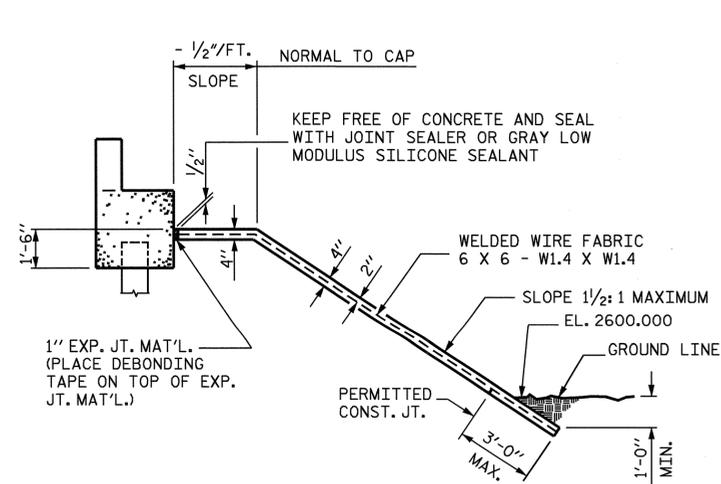
PLAN

BRIDGE @ STA. 11+83.94 -L1-	* 4" SLOPE PROTECTION	* WELDED WIRE FABRIC 5 FEET WIDE
	SQUARE YARDS	APPROX. YARDS
END BENT No. 1	219	438

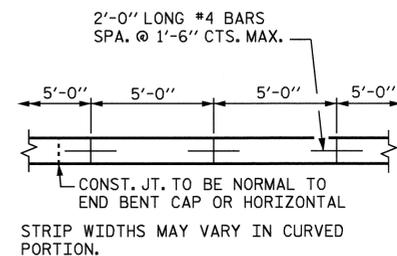
* QUANTITY SHOWN IS BASED ON 5 FEET POURS.



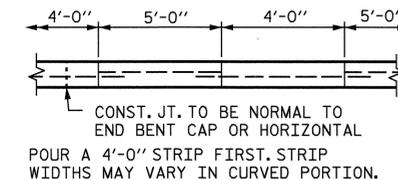
SECTION A-A



SECTION ALONG Q ROADWAY WHEN DITCH IS NOT PROVIDED



POURING DETAIL



OPTIONAL POURING DETAIL

PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SLOPE PROTECTION
 DETAILS AT
 END BENT No. 1**



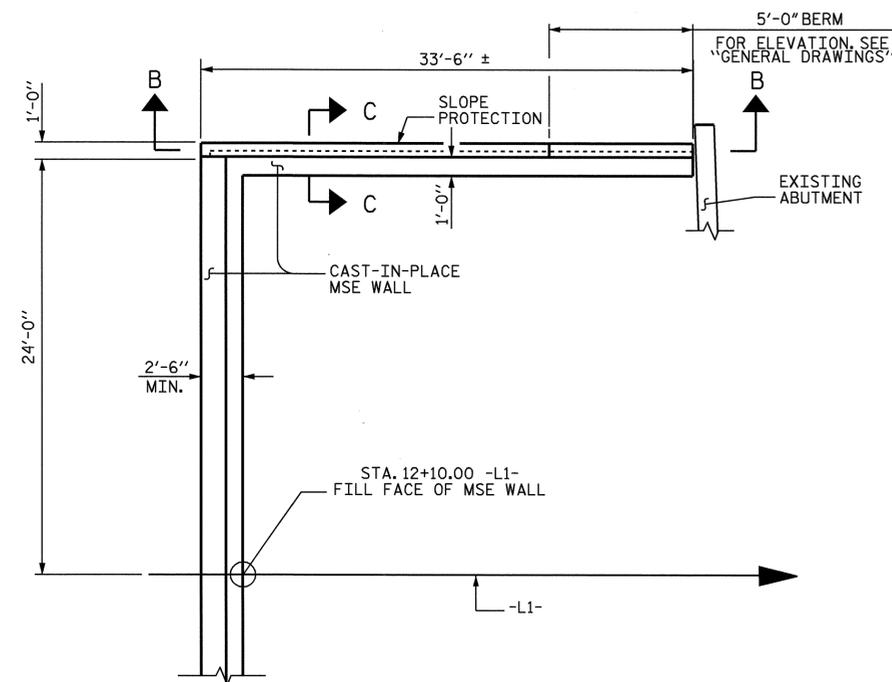
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	30
1			3			
2			4			

DRAWN BY : M. POOLE DATE : 1/2007
 CHECKED BY : J.R. DUGGINS DATE : 2/2007

GENERAL NOTES

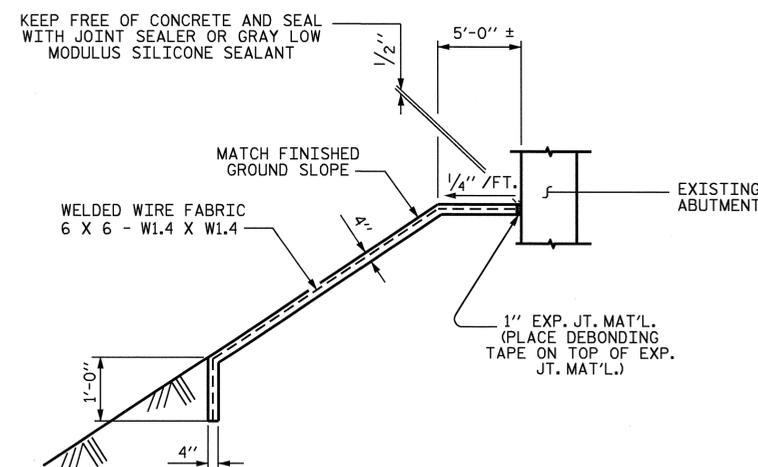
SLOPE PROTECTION SHALL BE PLACED ALONG THE LEFT SIDE OF THE CAST-IN-PLACE MSE WALL AS SHOWN IN THE DETAILS. METHOD OF MEASUREMENT AND BASIS OF PAYMENT SHALL BE AS PRESCRIBED IN SECTION 462 OF THE STANDARD SPECIFICATIONS.

SLOPE PROTECTION SHALL CONSIST OF 4" POURED-IN-PLACE CONCRETE PAVING AS SHOWN IN THE DETAILS ON THIS SHEET. CONCRETE SHALL BE CLASS "B". THE CONCRETE SURFACE SHALL BE FLOATED WITH A WOODEN FLOAT AND FINISHED. WELDED WIRE FABRIC REINFORCING SHALL BE 6 X 6 - W1.4 X W1.4 WIDE. THE COST OF THE WELDED WIRE FABRIC SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR SLOPE PROTECTION.

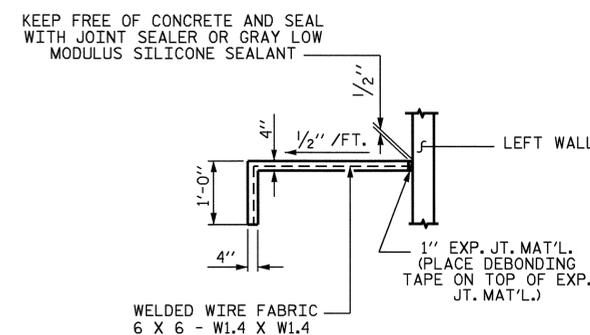


PLAN

BRIDGE @ STA. 11+83.94 -L1-	4" SLOPE PROTECTION	WELDED WIRE FABRIC 5 FEET WIDE
	SQUARE YARDS	APPROX. YARDS
END BENT No. 2	8	16



SECTION B-B



SECTION C-C

PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

SHEET 2 OF 2

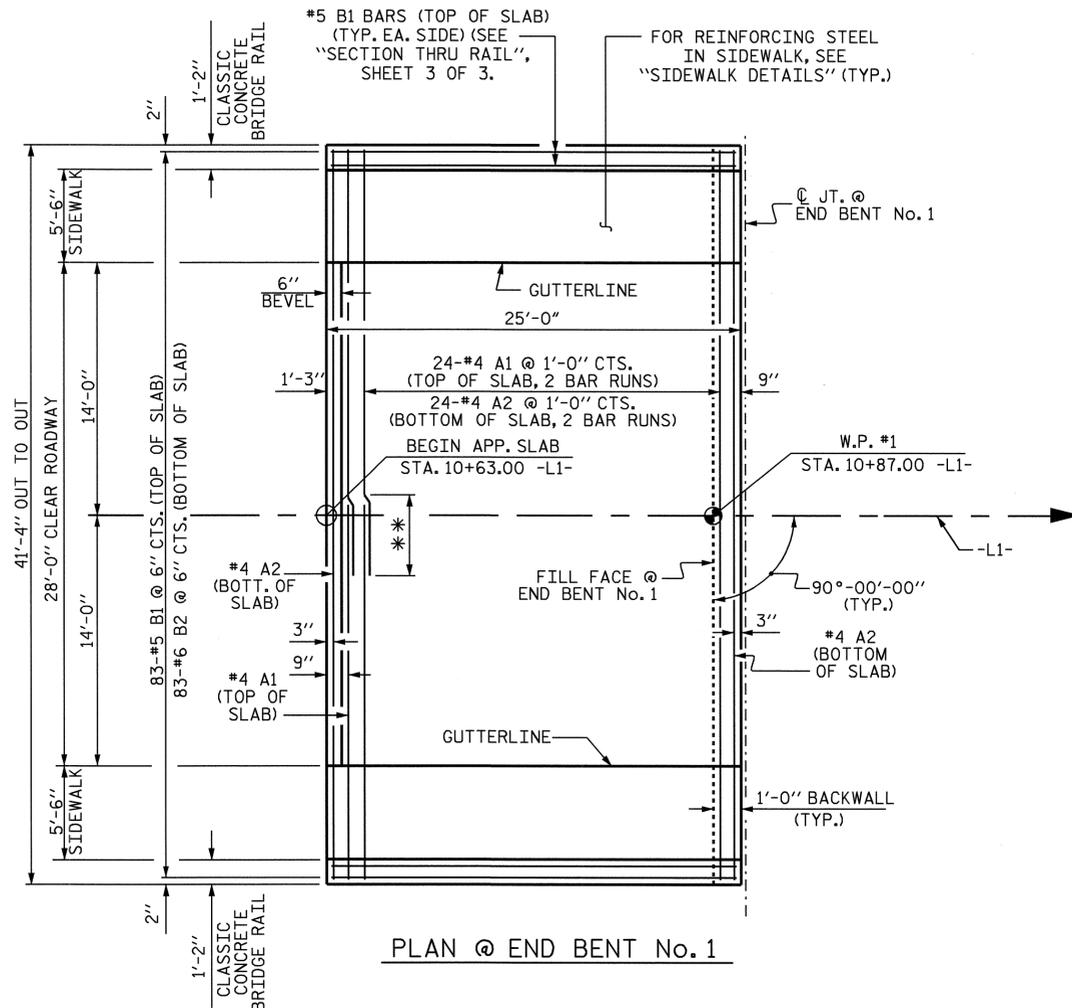
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SLOPE PROTECTION
 DETAILS
 @ END BENT No. 2**



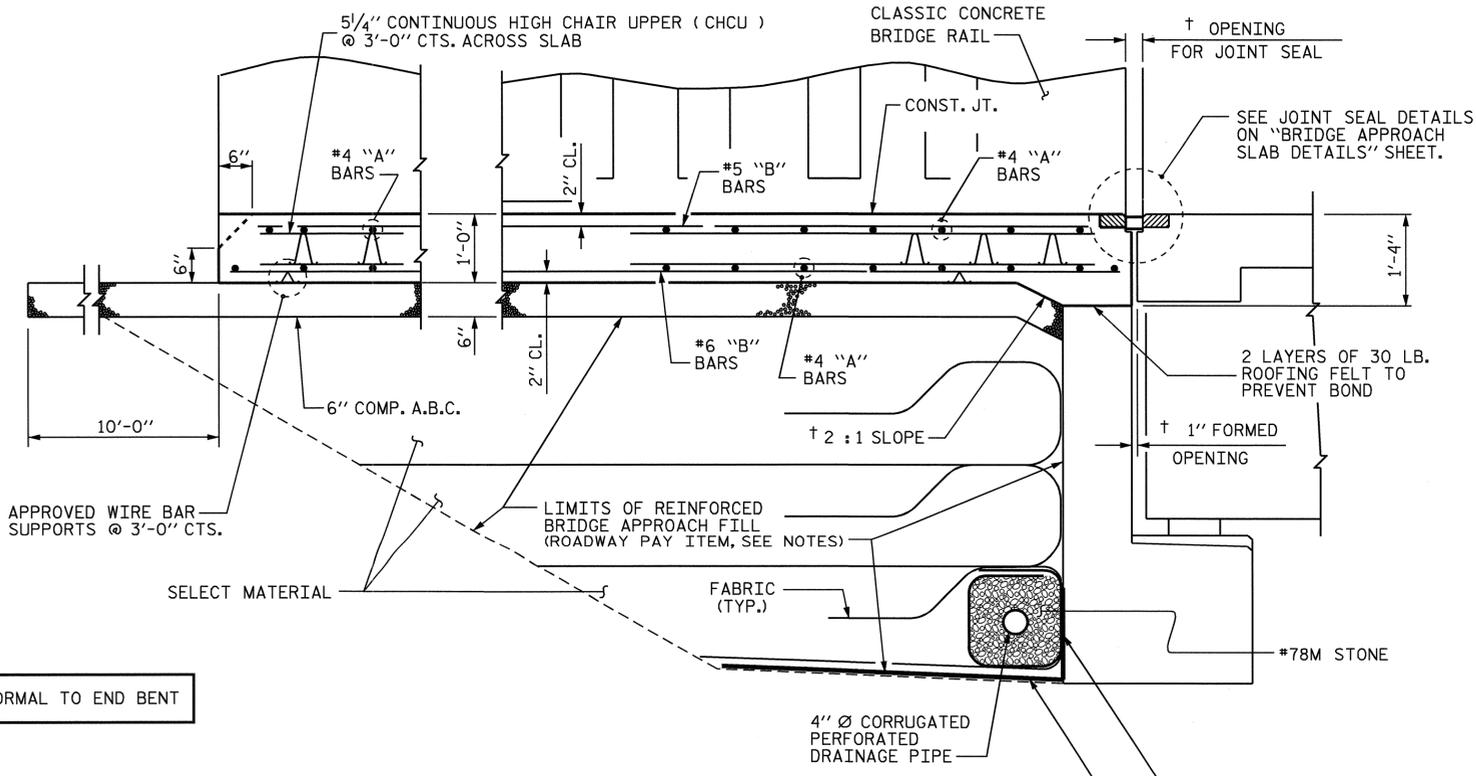
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			30
2			4			

DRAWN BY: M. POOLE DATE: 1/2007
 CHECKED BY: J.R. DUGGINS DATE: 2/2007



PLAN @ END BENT No. 1

** 2'-0" SPLICE FOR A1
 ** 1'-9" SPLICE FOR A2



SECTION THRU SLAB

† NORMAL TO END BENT

ASSEMBLED BY : M. POOLE	DATE : 01/07
CHECKED BY : J.R. DUGGINS	DATE : 03/07
DRAWN BY : RH 5/99	LES/RDR
CHECKED BY : RDR 5/99	REV. 5/1/03R RWW/JTE
	REV. 5/1/06 TLA/GM

NOTES

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

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

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

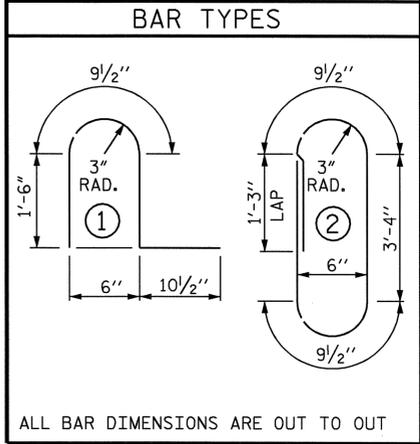
THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

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.

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

THE COST OF THE CLASSIC CONCRETE BRIDGE RAIL AND SIDEWALK ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

BILL OF MATERIAL					
APPROACH SLAB AT EB No. 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	21'-6"	718
A2	52	#4	STR	21'-5"	744
*B1	83	#5	STR	23'-9"	2056
B2	83	#6	STR	24'-8"	3075
*B3	10	#4	STR	24'-6"	164
*B4	4	#7	STR	24'-8"	202
*B5	8	#5	STR	24'-8"	206
*D1	40	#4	STR	1'-0"	27
*G1	50	#4	STR	5'-2"	173
*S1	66	#5	1	4'-8"	321
*S2	70	#5	2	9'-6"	694
REINFORCING STEEL					LBS. 3819
*EPOXY COATED REINFORCING STEEL					LBS. 4561
CLASS AA CONCRETE					
POUR 1 APPROACH SLAB					39.0 C. Y.
POUR 2 CLASSIC BRIDGE RAIL					6.2 C. Y.
POUR 3 SIDEWALK					5.8 C. Y.
TOTAL					51.0 C. Y.

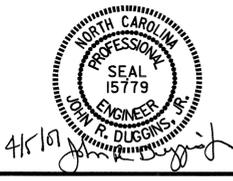


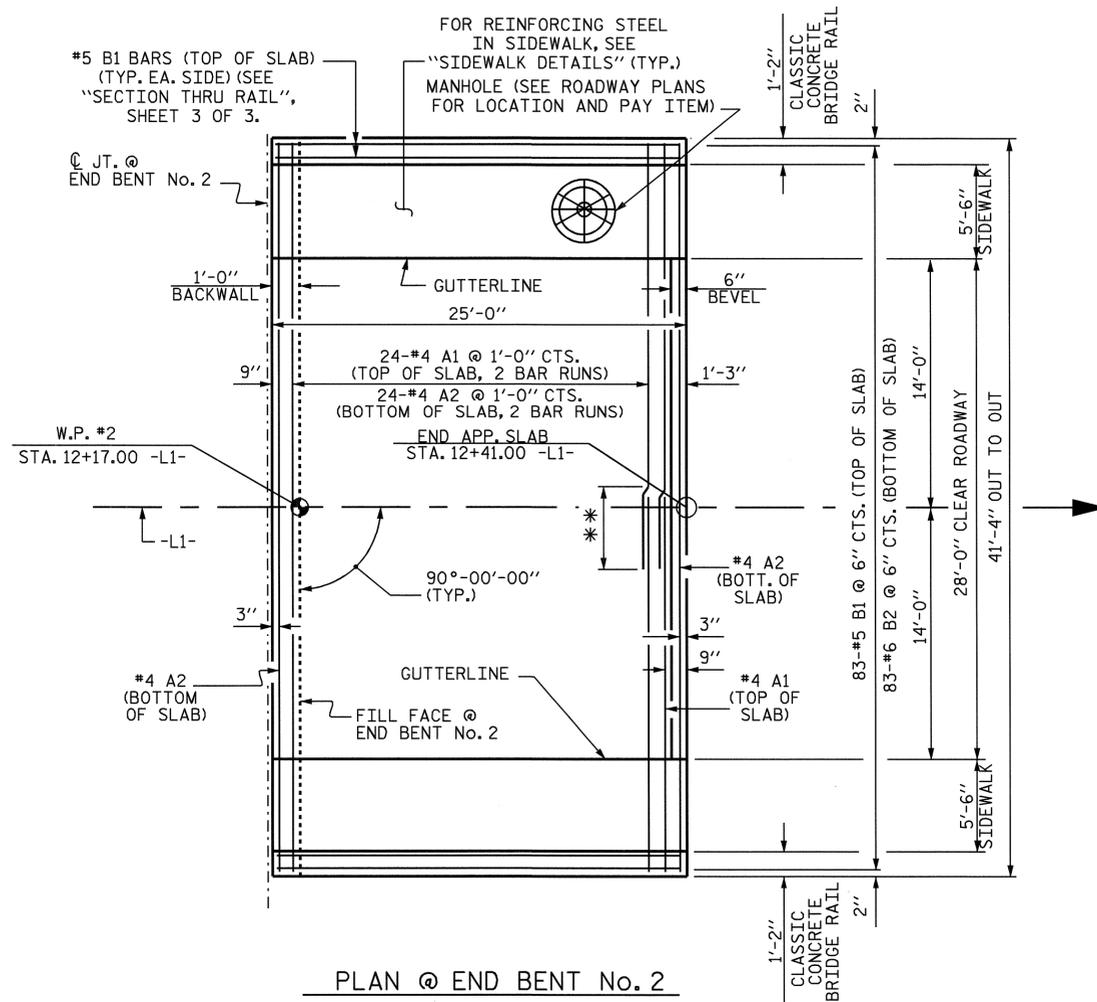
ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. B-3189
 HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

SHEET 1 OF 5

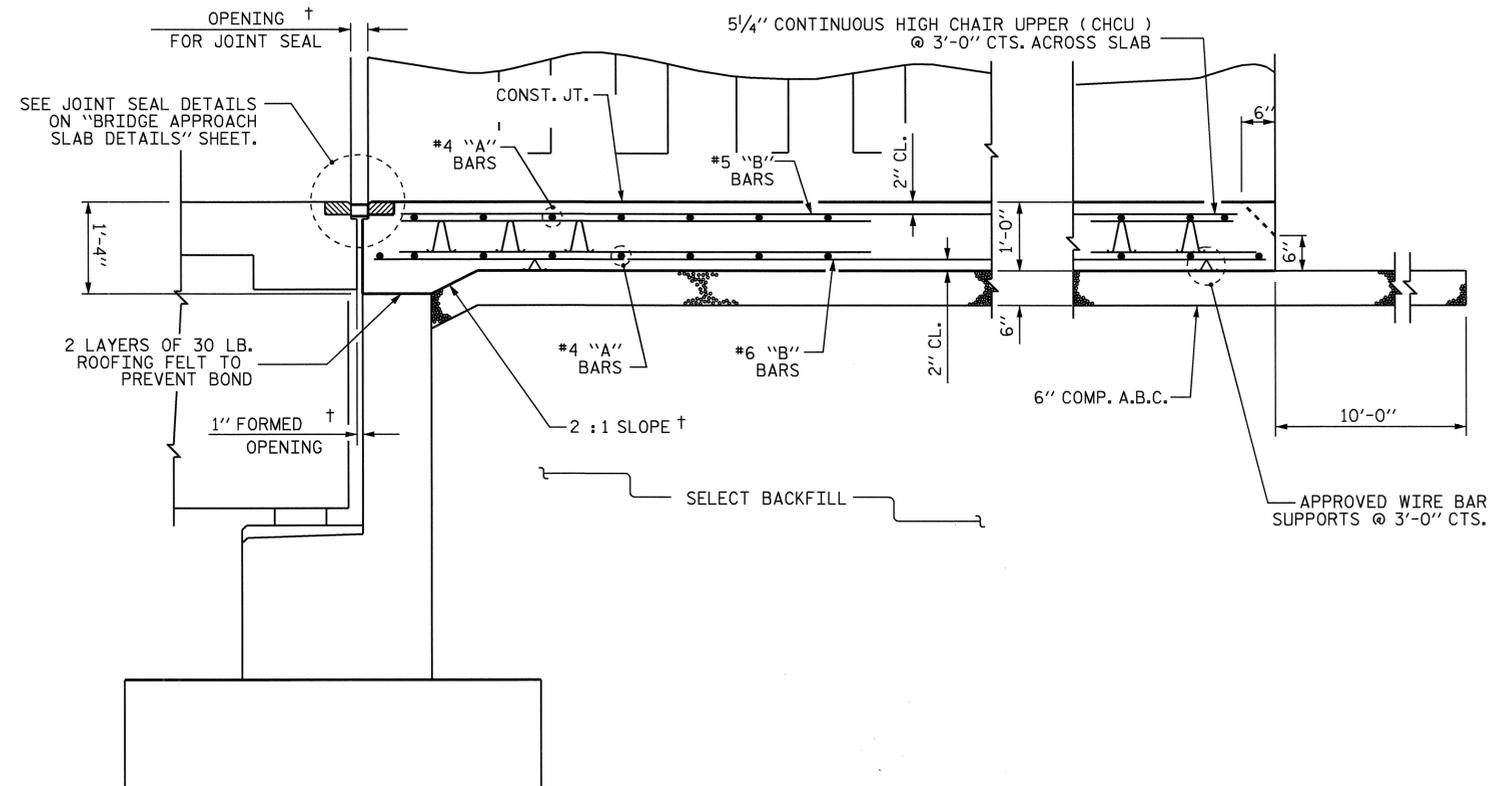
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
BRIDGE APPROACH SLAB FOR FLEXIBLE PAVEMENT					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-26
					TOTAL SHEETS 30





** 2'-0" SPLICE FOR A1
 ** 1'-9" SPLICE FOR A2

PLAN @ END BENT No. 2



SECTION THRU SLAB

NOTES

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

AREA BETWEEN THE WALLS AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE "CAST-IN-PLACE MSE RETAINING WALL" SHEET 2 OF 3.

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 THE 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.

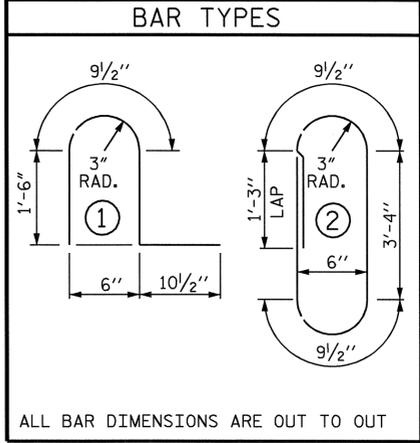
THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL EXTEND 1'-0" BEYOND THE END OF THE APPROACH SLAB AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 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.

TEMPORARY DRAINAGE AND TEMPORARY BERM AND SLOPE DRAIN WILL BE PAID FOR UNDER THE LUMP SUM PRICE FOR BRIDGE APPROACH SLABS.

THE COST OF THE CLASSIC CONCRETE BRIDGE RAIL AND SIDEWALK ON THE APPROACH SLAB SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR BRIDGE APPROACH SLABS.

REINFORCING STEEL IN THE APPROACH SLAB AND SIDEWALK MAY BE CUT OR BENT TO CLEAR THE MANHOLE, SEE MANHOLE DETAIL SHEET 3 OF 3 FOR THE REINFORCING STEEL IN THIS AREA.

BILL OF MATERIAL					
APPROACH SLAB AT EB No. 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	50	#4	STR	21'-6"	718
A2	52	#4	STR	21'-5"	744
*B1	83	#5	STR	23'-9"	2056
B2	83	#6	STR	24'-8"	3075
*B3	10	#4	STR	24'-6"	164
*B4	4	#7	STR	24'-8"	202
*B5	8	#5	STR	24'-8"	206
*D1	40	#4	STR	1'-0"	27
*G1	50	#4	STR	5'-2"	173
*E1	16	#5	STR	4'-3"	71
*S1	66	#5	1	4'-8"	321
*S2	70	#5	2	9'-6"	694
REINFORCING STEEL				LBS.	3819
*EPOXY COATED REINFORCING STEEL				LBS.	4632
CLASS AA CONCRETE					
POUR 1 APPROACH SLAB				C. Y.	39.0
POUR 2 CLASSIC BRIDGE RAIL				C. Y.	6.2
POUR 3 SIDEWALK				C. Y.	5.8
TOTAL				C. Y.	51.0



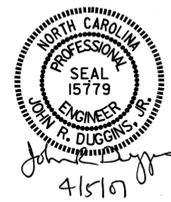
ALL BAR DIMENSIONS ARE OUT TO OUT

PROJECT NO. B-3189
 HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

SHEET 2 OF 5

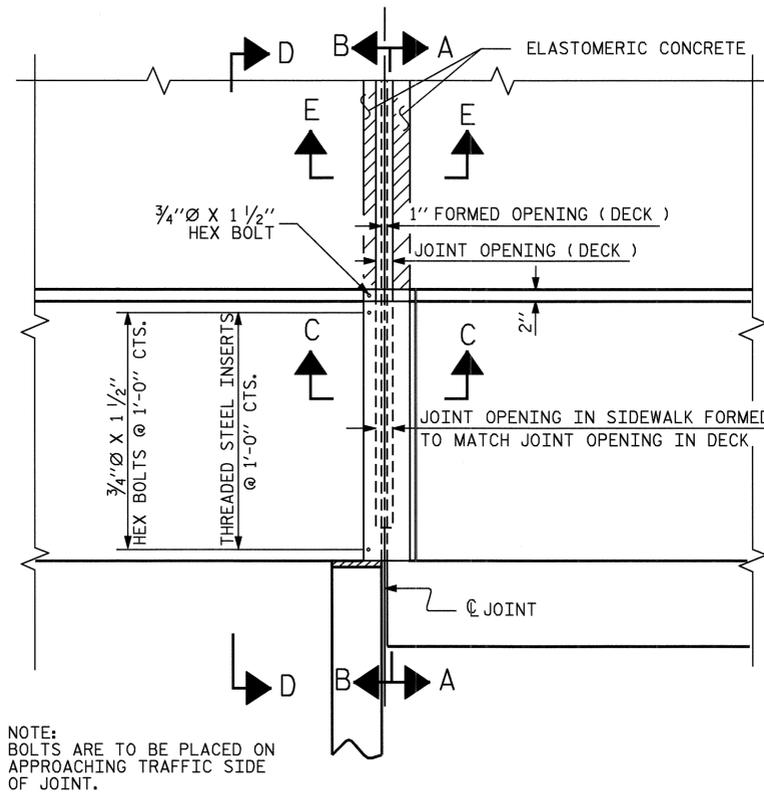
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT



ASSEMBLED BY : M. POOLE	DATE : 01/07
CHECKED BY : J.R. DUGGINS	DATE : 03/07
DRAWN BY : RH 5/99	REV. 7/10/01 LES/RDR
CHECKED BY : RDR 5/99	REV. 5/7/03R RWW/JTE
	REV. 5/1/06 TLA/GM

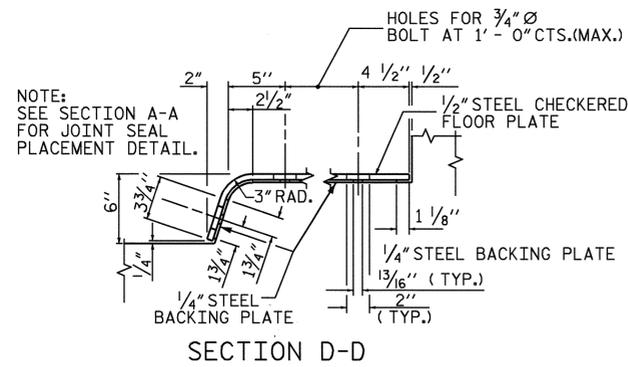
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			30
2			4			



NOTE:
BOLTS ARE TO BE PLACED ON
APPROACHING TRAFFIC SIDE
OF JOINT.

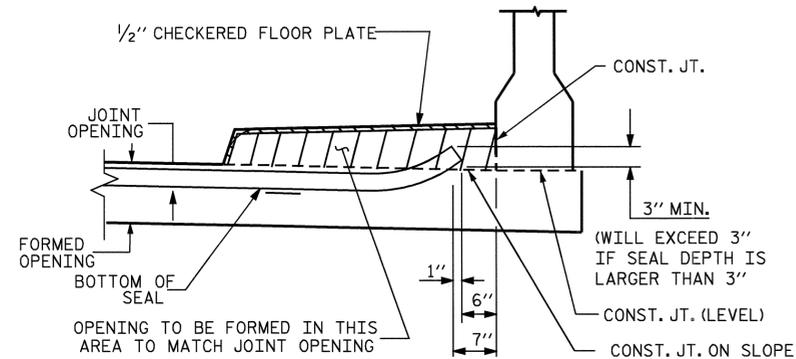
PLAN OF EVAZOTE JOINT SEAL WITH COVER

SIDEWALK WITH EVAZOTE JOINT SEAL

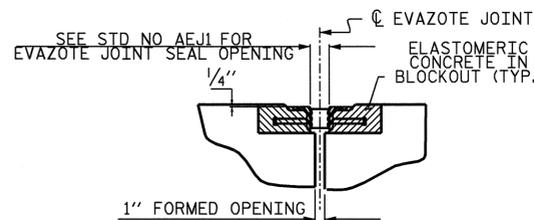


NOTE:
SEE SECTION A-A
FOR JOINT SEAL
PLACEMENT DETAIL.

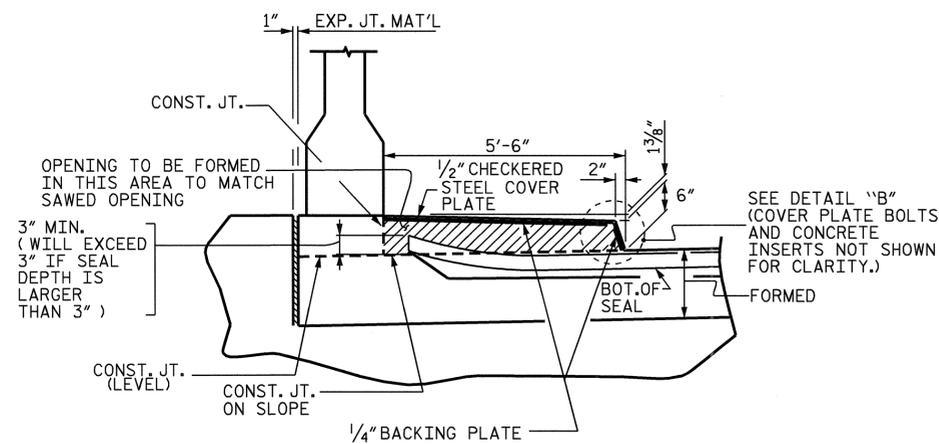
SECTION D-D



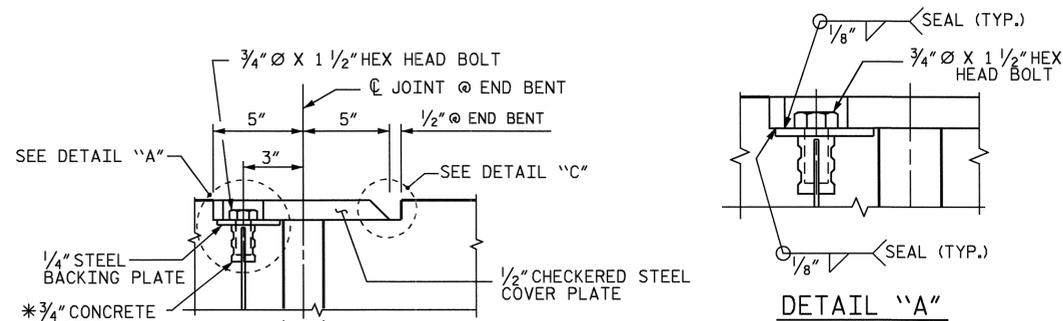
SECTION A-A



SECTION E-E
ARMORED EVAZOTE JOINT SEAL

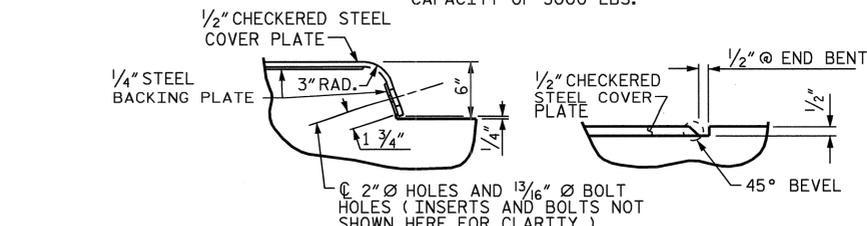


SECTION B-B
JOINT SEAL DETAILS @ END BENT



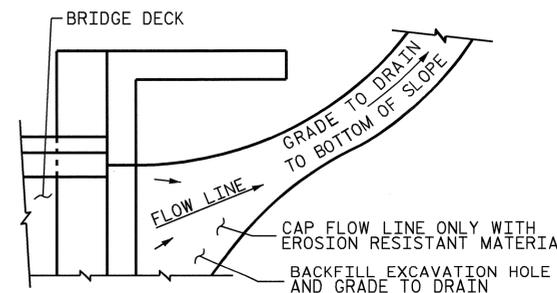
DETAIL "A"

*THE 3/4" CONCRETE INSERTS SHALL BE CLOSED-END FERRULES WITH LOOPED WIRE STRUTS ATTACHED TO THEM. THE INSERTS SHALL CONFORM TO AASHTO M169, GRADE 12L14 AND SHALL HAVE A TENSILE WORKING LOAD CAPACITY OF 3000 LBS.



DETAIL "B" DETAIL "C"
JOINT SEAL DETAILS @ END BENT

(FOR SIDEWALK)



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

TEMPORARY DRAINAGE DETAIL



PROJECT NO. B-3189
HAYWOOD COUNTY
STATION: 11+83.94 -L1-

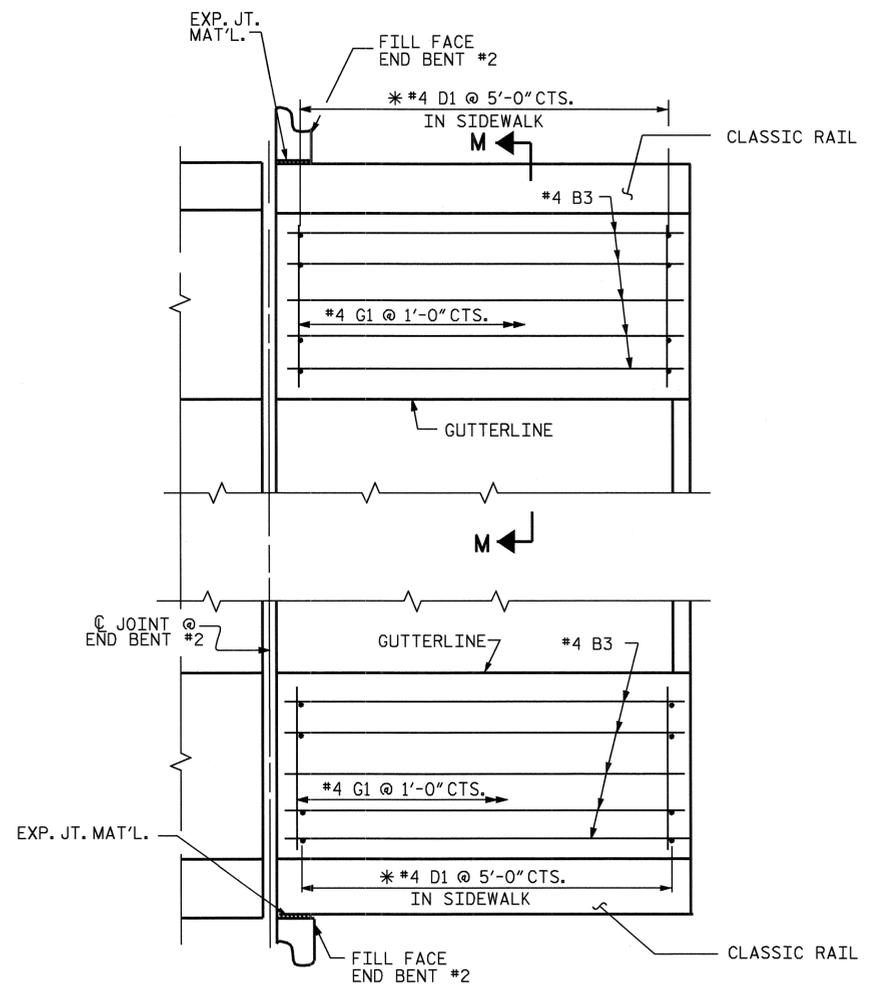
SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH
SLAB DETAILS

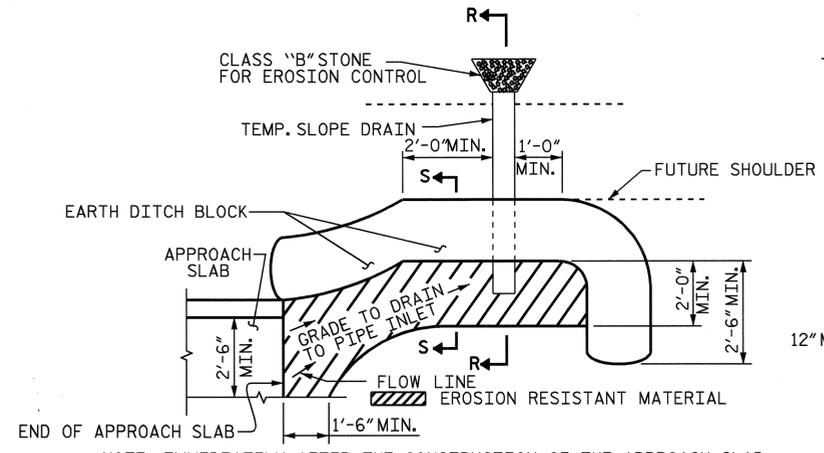
ASSEMBLED BY : M. POOLE	DATE : 1/07
CHECKED BY : J.R. DUGGINS	DATE : 3/07
DRAWN BY : FCJ 11/88	REV. 8/16/99 MAB/LES
CHECKED BY : ARB 11/88	REV. 10/17/00 RWW/LES
	REV. 5/7/03 RWW/JTE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			30
2			4			



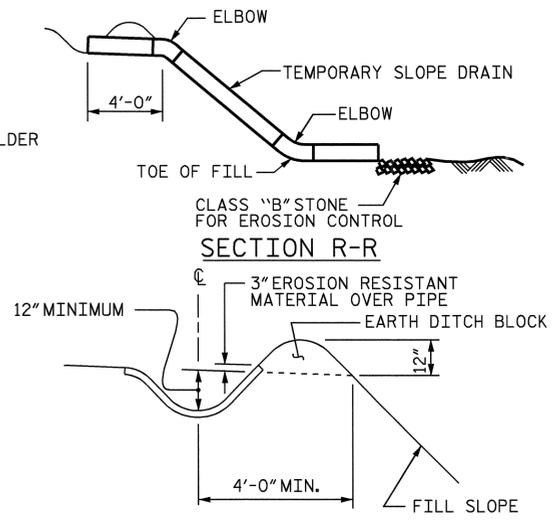
PLAN

* DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER APPROACH SLAB HAS BEEN POURED



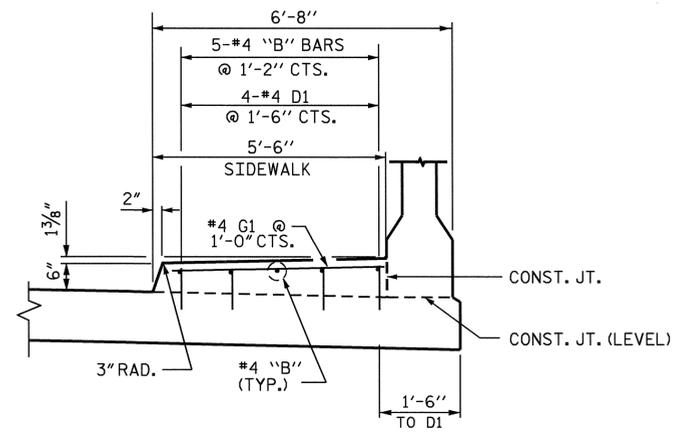
PLAN VIEW

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.

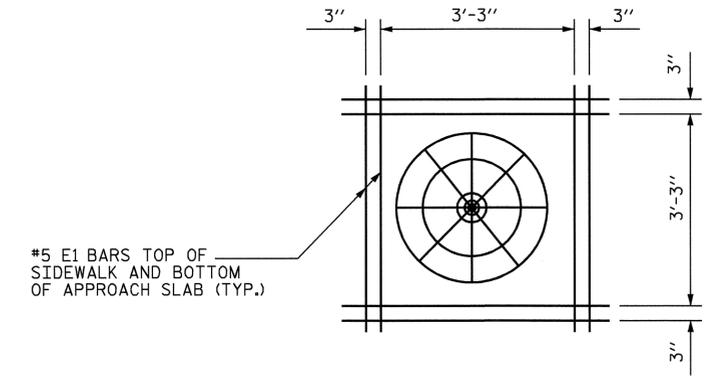


SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS



SECTION M-M
SIDEWALK DETAILS

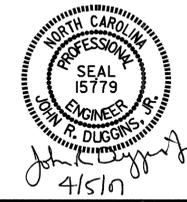


MANHOLE DETAIL

PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 11+83.94 -L1-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BRIDE APPROACH SLAB
 SIDEWALK DETAILS



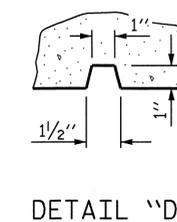
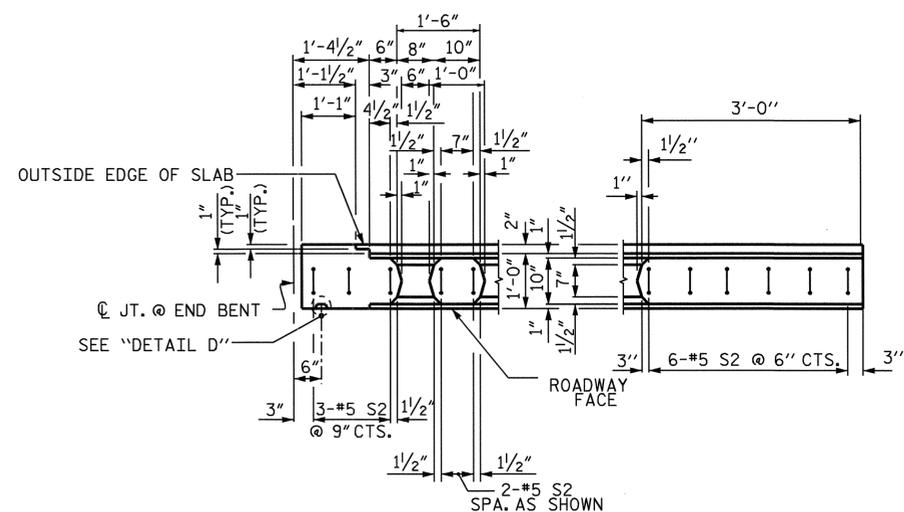
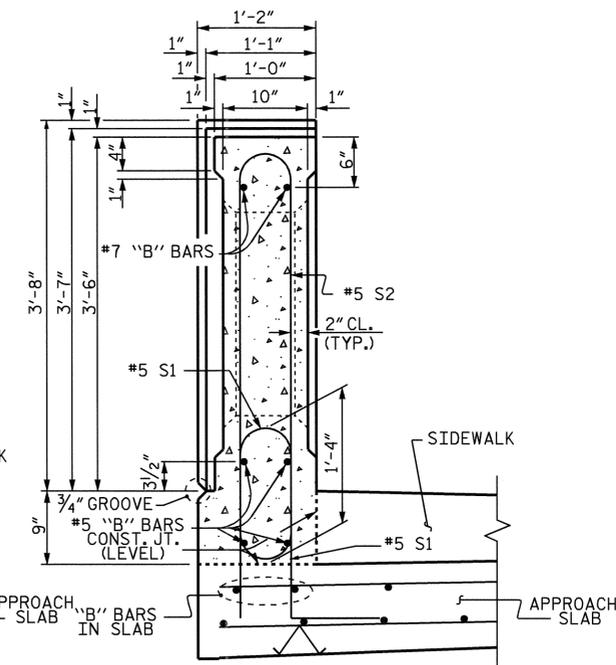
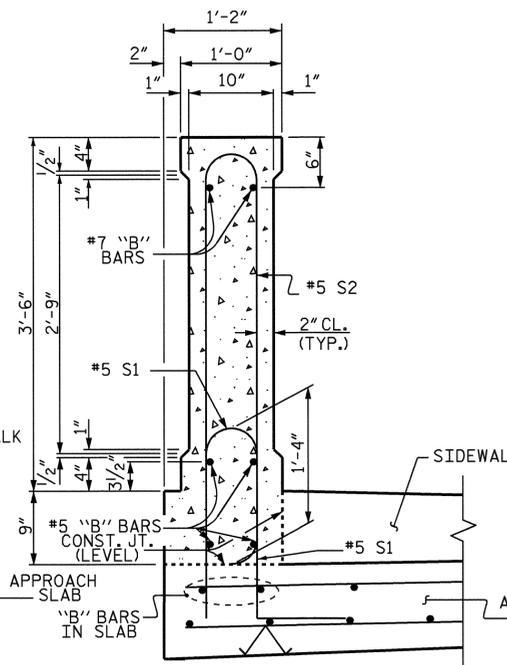
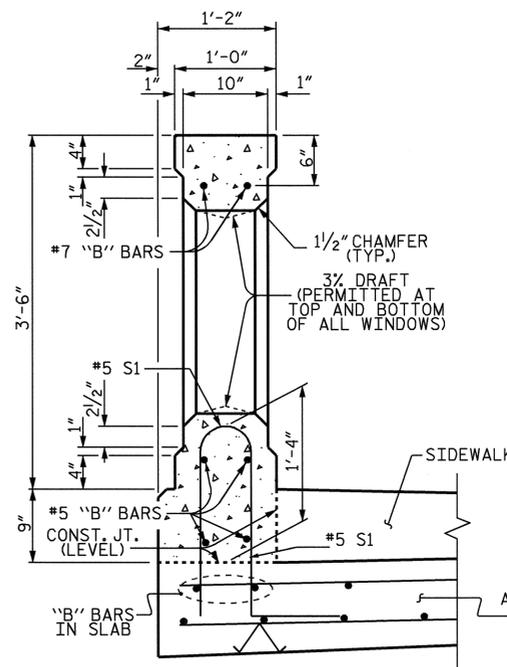
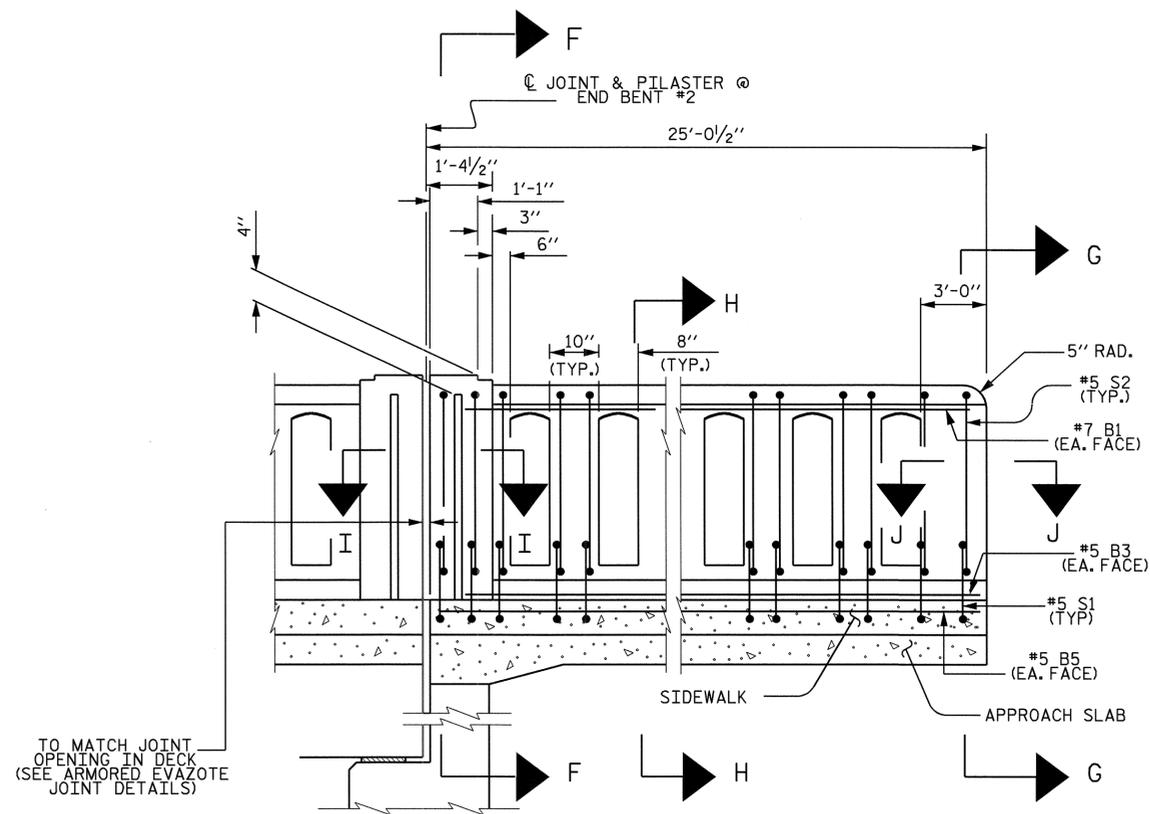
DRAWN BY: M. POOLE DATE: 03/07
 CHECKED BY: J.R. DUGGINS DATE: 03/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			30
2			4			

NOTES

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

ALL REINFORCING STEEL IN THE CLASSIC CONCRETE BRIDGE RAIL SHALL BE EPOXY COATED.



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SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
BRIDGE APPROACH SLAB
CLASSIC RAIL DETAILS



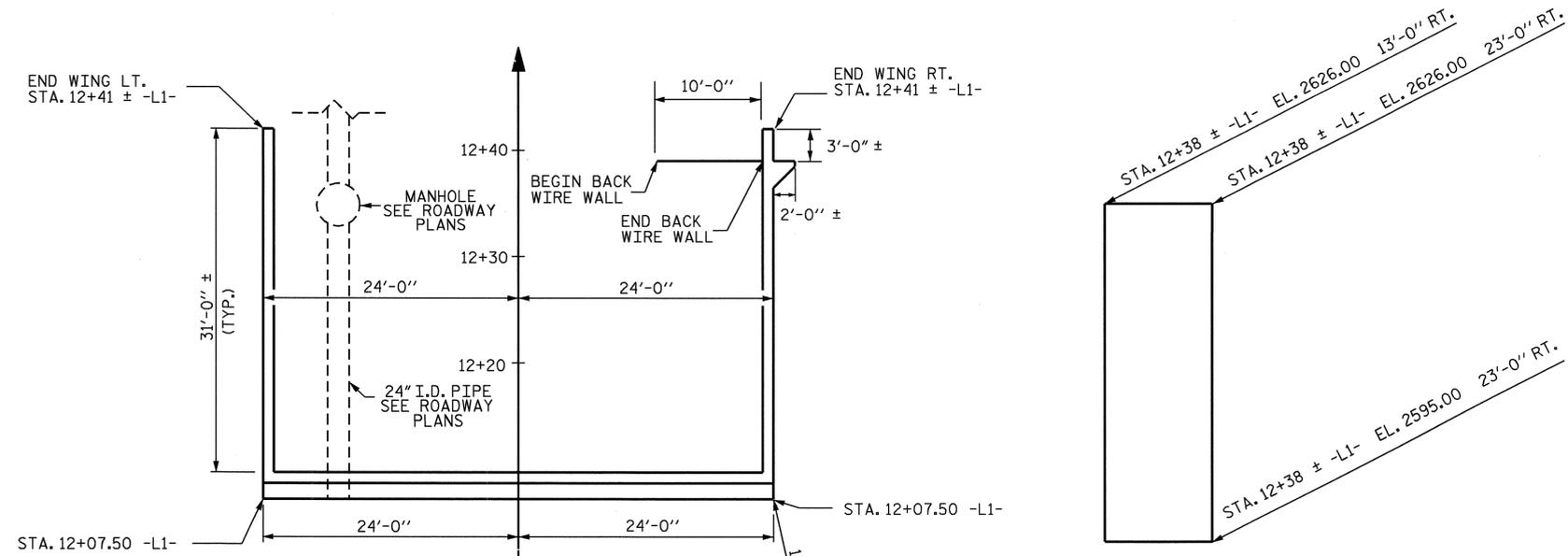
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mpoole

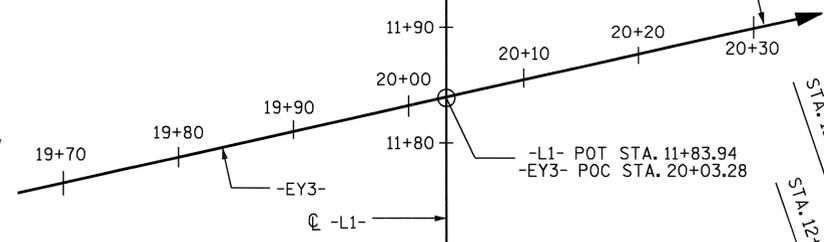
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NOTES

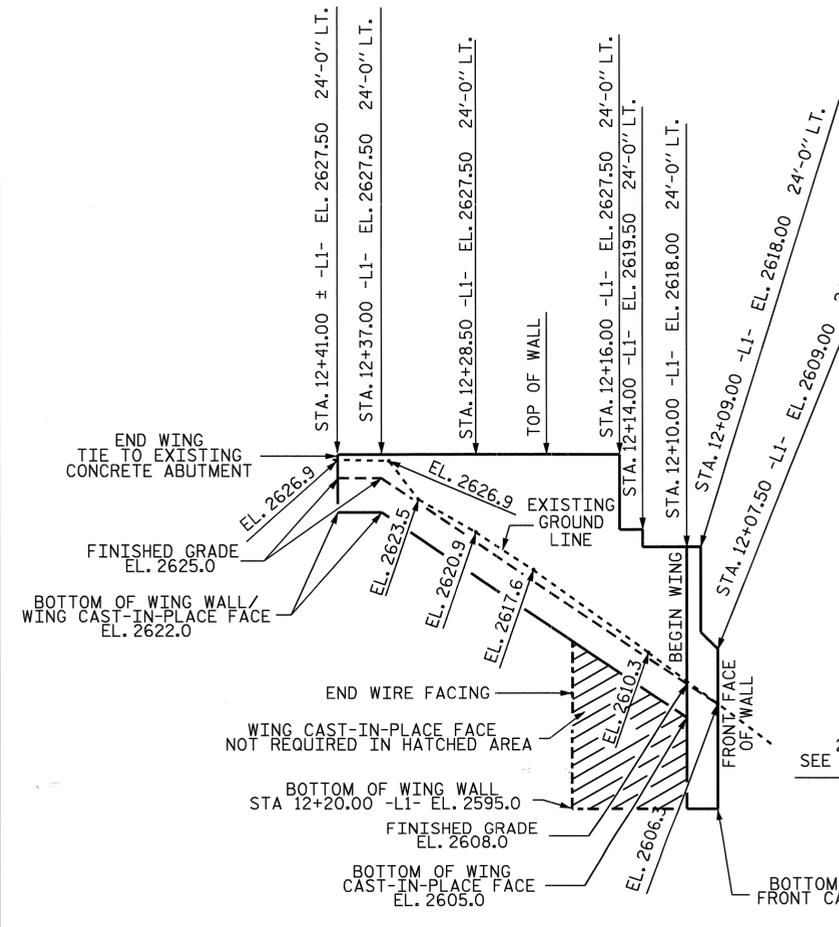
- BOTTOM OF WALL ELEVATIONS INCLUDE THE REQUIRED EMBEDMENT.
- CONSTRUCT BACK WIRE WALL FLUSH AGAINST TEMPORARY TIEBACK WALL.
- CAST-IN-PLACE CONCRETE FACING NOT REQUIRED FOR BACK WIRE WALLS.
- SEE SPECIAL PROVISION FOR BASIS OF MEASUREMENT AND PAYMENT.
- FIELD VERIFY THE EXISTING GROUND LINE AND WALL ENVELOPES PRIOR TO BEGINNING WALL DESIGN



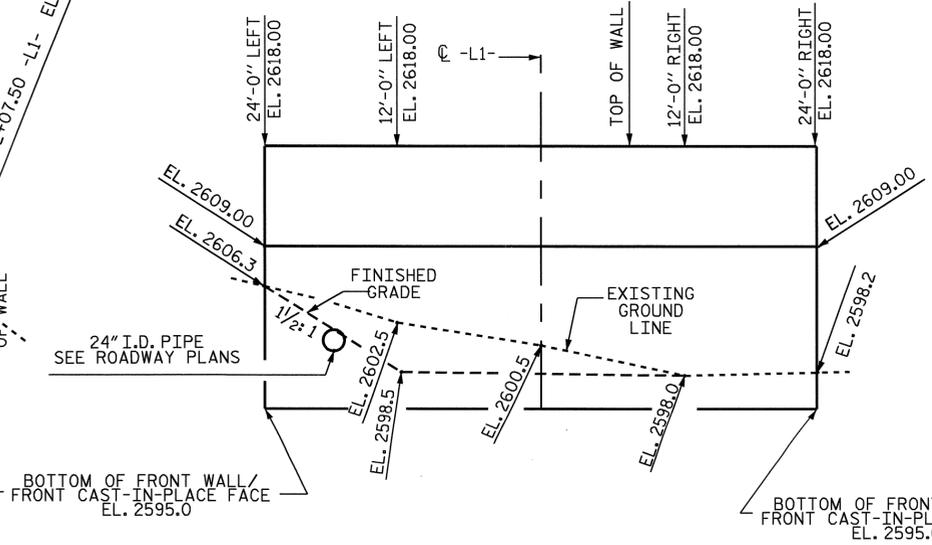
ELEVATION
ALONG BACK WIRE FACED WALL



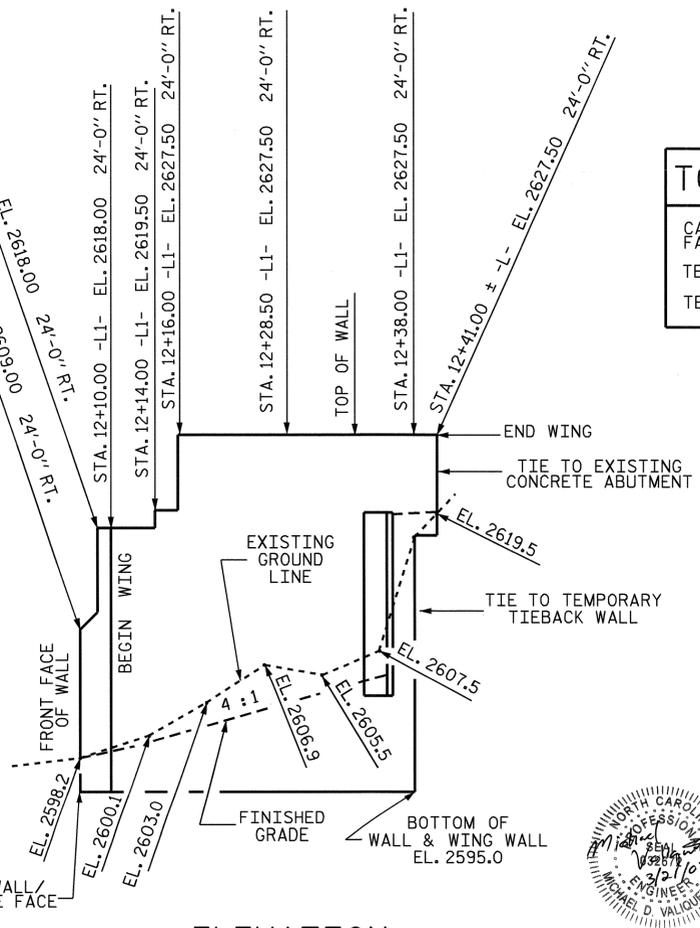
PLAN OF WALL



ELEVATION
ALONG LEFT WING WALL



ELEVATION
ALONG FRONT WALL



ELEVATION
ALONG RIGHT WING WALL

TOTAL BILL OF MATERIALS	
CAST-IN-PLACE CONCRETE FACED MSE RETAINING WALLS	1820 SQFT
TEMPORARY TIEBACK RETAINING WALL	1250 SQFT
TEMPORARY SHORING	800 SQFT

PROJECT NO. B-3189
HAYWOOD COUNTY
 STATION: 12+07.50 -L1-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

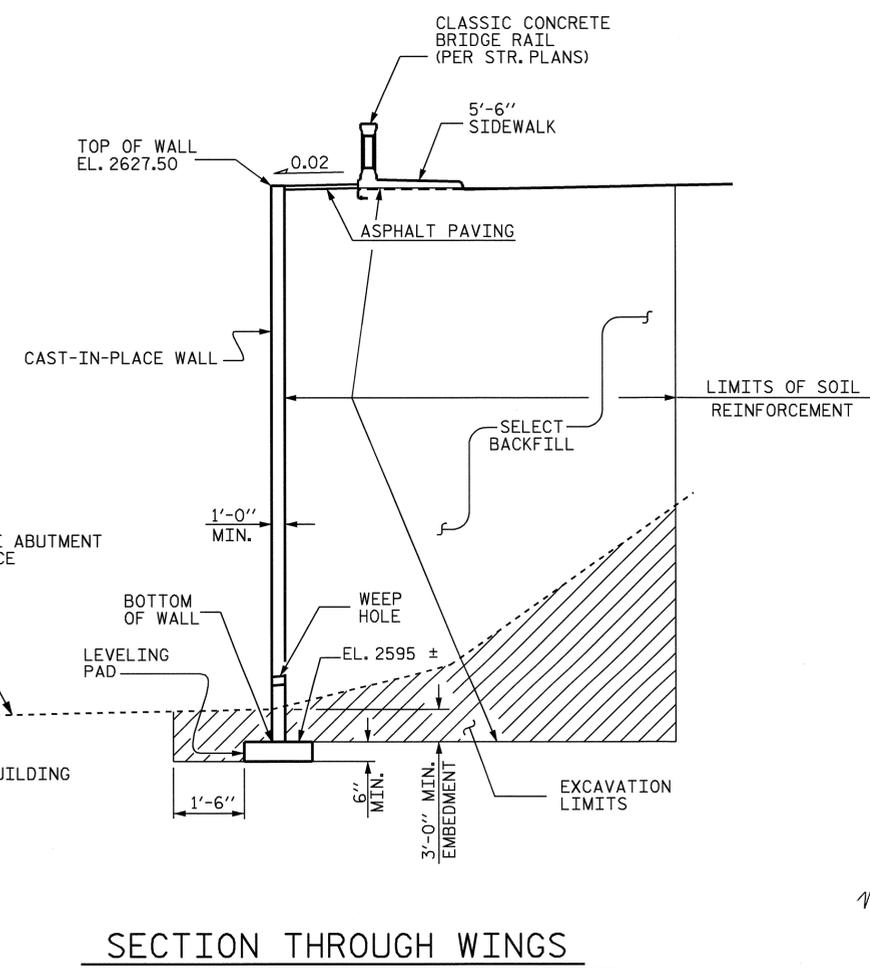
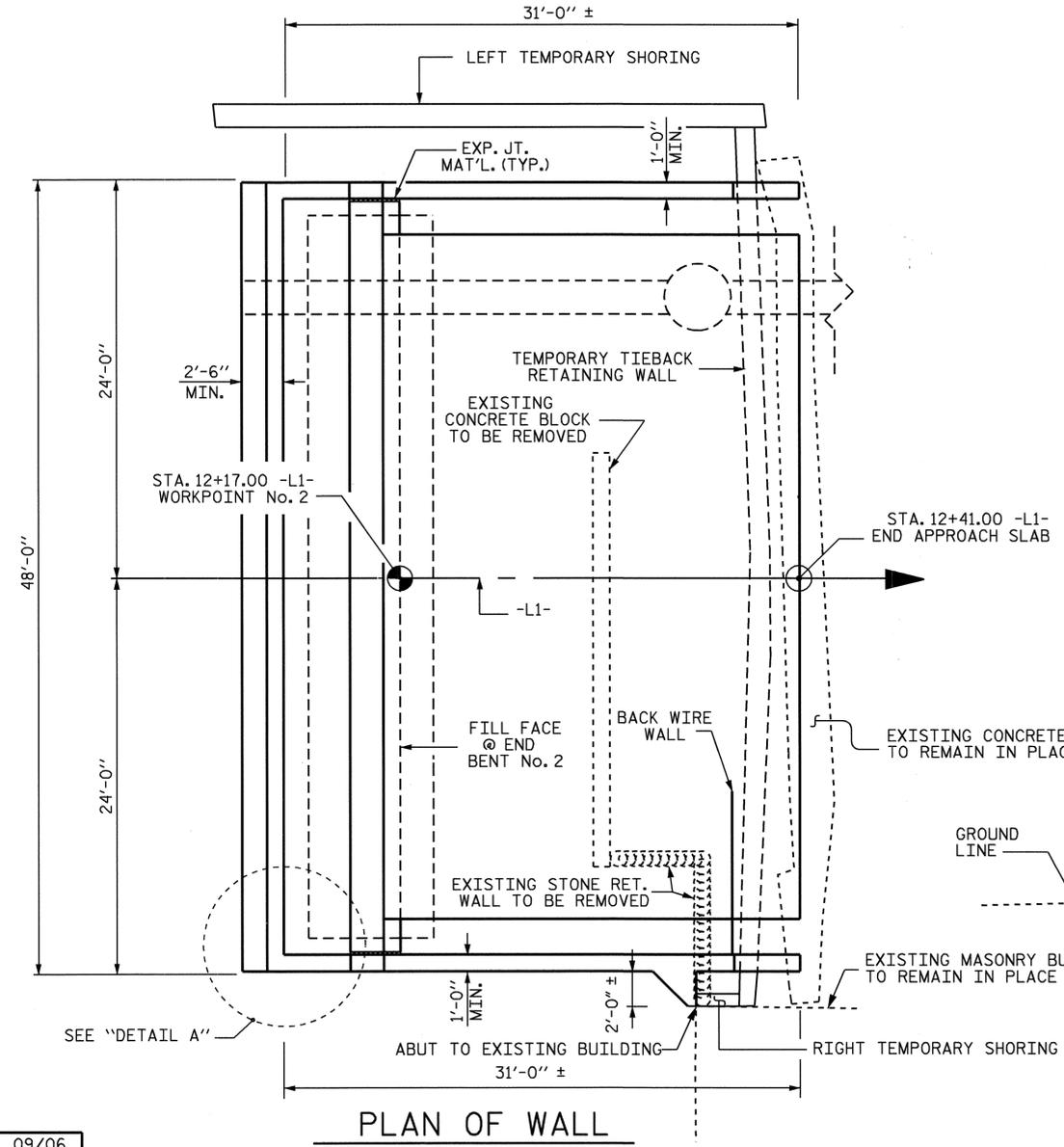
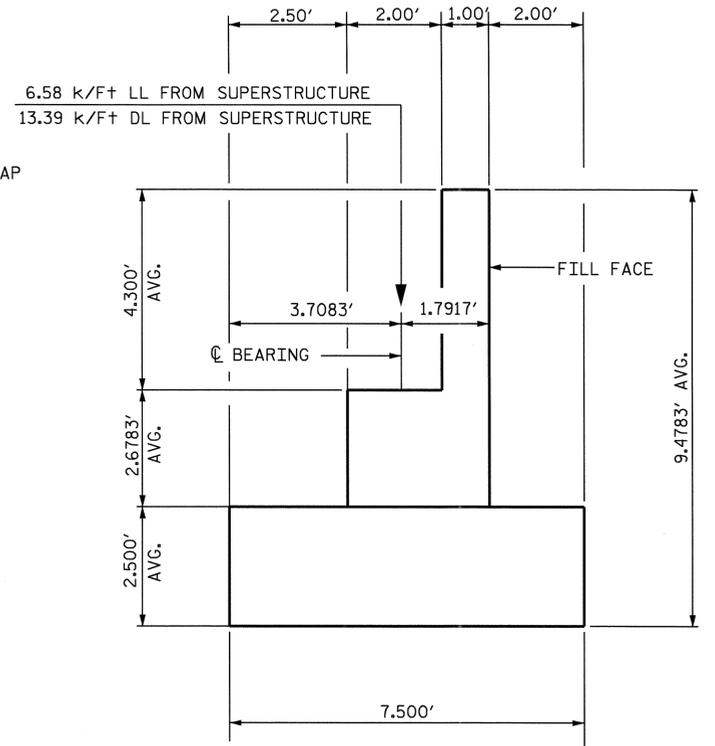
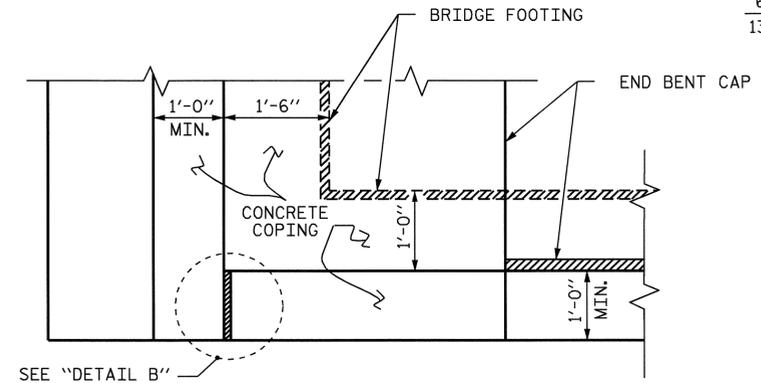
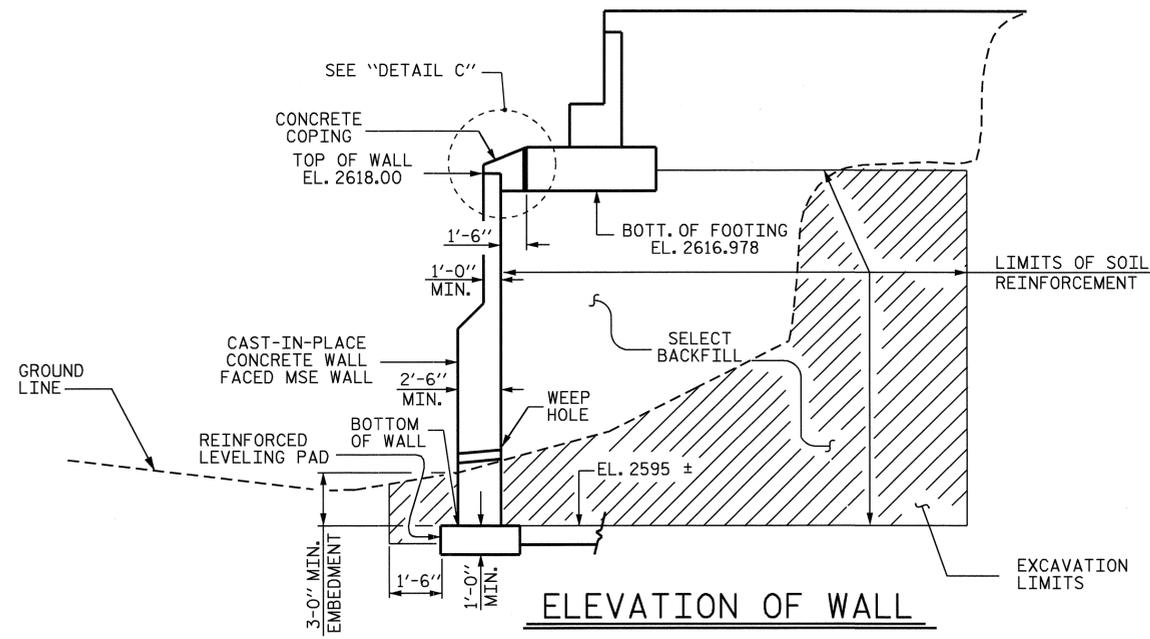
CAST-IN-PLACE MSE RETAINING WALL



DRAWN BY: M. POOLE DATE: 09/06
 CHECKED BY: J.R. DUGGINS DATE: 01/07

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REVISIONS						SHEET NO.
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PROJECT NO. B-3189
 HAYWOOD COUNTY
 STATION: 12+07.50 -L1-
 SHEET 2 OF 3



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
CAST-IN-PLACE MSE RETAINING WALL					
SHEET NO. <u>W-2</u>					
TOTAL SHEETS <u>3</u>					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DRAWN BY : M. POOLE DATE : 09/06
 CHECKED BY : J.R. DUGGINS DATE : 01/07

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NOTES

THE CONTRACTOR SHALL SUBMIT COMPLETE WORKING DRAWINGS / SHOP PLANS, ERECTION PLANS, AND DESIGN CALCULATIONS FOR REVIEW AND APPROVAL PRIOR TO BEGINNING THE "CAST-IN-PLACE FACE MSE" WALL, SEE CAST-IN-PLACE FACE MSE RETAINING WALL SPECIAL PROVISIONS.

THE COMPLETE WORKING DRAWINGS / SHOP PLANS MUST BE SUBMITTED TO RAILROAD FOR REVIEW AND APPROVAL PRIOR TO BEGINNING THE "CAST-IN-PLACE FACE MSE" WALL, SEE CAST-IN-PLACE FACE MSE RETAINING WALL SPECIAL PROVISIONS FOR RAILROAD SUBMITTAL REQUIREMENTS.

THE SERVICE LIFE FOR DESIGN IS 100 YEARS.

ALL WIRE FACING COMPONENTS MUST BE GALVANIZED.

THE MINIMUM MSE STRIP LENGTH SHALL BE 23 FEET FOR THE FRONT WALL AND RIGHT WING WALL AND 23 FEET FOR THE LEFT WING WALL FROM STA 12+10 TO STA 12+20.

DESIGN THE LEFT WING WALL BELOW ELEVATION 2617.0 FROM STA 12+10.00 -L1- TO STA 12+20.00 -L1- TO HAVE, AT A MINIMUM, THE SAME DENSITY, LENGTH, AND CROSS-SECTION OF REINFORCEMENT STRIPS AS THE FRONT WALL. ADDITIONAL REINFORCEMENT STRIP LENGTH OR DENSITY MAY BE NEEDED IN THIS AREA.

DESIGN THE RIGHT WING WALL BELOW ELEVATION 2617.0 FROM STA 12+10.00 -L1- TO STA 12+30.00 -L1- TO HAVE, AT A MINIMUM, THE SAME DENSITY, LENGTH, AND CROSS-SECTION OF REINFORCEMENT STRIPS AS THE FRONT WALL. ADDITIONAL REINFORCEMENT STRIP LENGTH OR DENSITY MAY BE NEEDED IN THIS AREA.

ALL WALL BACKFILL MATERIAL WITHIN THE REINFORCED ZONE SHALL BE CLASS VI SELECT MATERIAL. SEE SECTION 1016 OF THE STANDARD SPECIFICATIONS FOR CLASS VI SELECT MATERIAL.

THE LEVELING PAD SHALL BE CAST-IN-PLACE AND MADE CONTINUOUS AT STEPS.

THE LEVELING PAD FOR THE FRONT WALL SHALL BE REINFORCED CAST-IN-PLACE CONCRETE.

USE THE FOLLOWING VALUES FOR WALL DESIGN:

- A. ALLOWABLE SOIL BEARING PRESSURE = 6.0 KSF
- B. REINFORCED EARTH MATERIALS, $\gamma = 110$ pcf, $\phi = 34^\circ$, $C = 0$ pcf
- C. RETAINED EARTH MATERIALS, $\gamma = 120$ pcf, $\phi = 32^\circ$, $C = 0$ pcf
- D. WALL FOUNDATION MATERIALS, $\gamma = 120$ pcf, $\phi = 34^\circ$, $C = 0$ pcf

THE CAST-IN-PLACE FACE MSE WALLS SHALL BE DESIGNED TO MEET THE CRITERIA OF THE LATEST VERSION OF AASHTO ALLOWABLE STRENGTH DESIGN STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES AND ITS INTERIMS, THE LATEST VERSION OF THE FHWA MECHANICALLY STABILIZED EARTH WALLS AND REINFORCED SOIL SLOPES DESIGN AND CONSTRUCTION GUIDELINES, THE SPECIAL PROVISIONS, AND PLANS.

DESIGN THE CAST-IN-PLACE FACE MSE WALL FOR THE APPLIED BRIDGE LOADINGS AS SHOWN ON THE PLANS AND FOR A TRAFFIC LIVE LOAD OF 240 PSF.

THE ALLOWABLE BEARING PRESSURE FOR THE SPREAD FOOTING IS 3.9 KSF.

DESIGN THE CONNECTION BETWEEN THE REINFORCING STRIPS AND THE CAST-IN-PLACE FACE TO RESIST THE FULL TENSION LOAD IN THE REINFORCING STRIP. THE REINFORCING STRIPS MUST BE ATTACHED DIRECTLY TO THE CAST-IN-PLACE FACE.

MAINTAIN A MINIMUM OF 3 INCHES CLEAR DISTANCE BETWEEN THE BOTTOM OF THE SPREAD FOOTING AND THE TOP MOST LEVEL OF REINFORCING STRIPS.

THE MINIMUM MSE RETAINING WALL EMBEDMENT IS 3'-0" FOR THE FRONT WALL AND LEFT AND RIGHT WING WALLS EXCEPT AT LOCATIONS WHERE DEEPER EMBEDMENT IS SHOWN ON THE PLANS. WALL ENVELOPES INCLUDE REQUIRED EMBEDMENTS.

MSE WALL PLANS SUBMITTED FOR REVIEW SHALL INCLUDE THE FOLLOWING: PLAN VIEW, ELEVATION VIEWS, TYPICAL SECTIONS, CAST-IN-PLACE FACING, CONSTRUCTION JOINTS, AND EXPANSION JOINT DETAILS.

EXPANSION JOINTS IN THE CAST-IN-PLACE FACE SHALL CONSIST OF 1" EXPANSION JOINT MATERIAL AND SHALL BE LOCATED AT A MINIMUM WHERE THE WING WALLS MEET THE FRONT WALL. REINFORCING STEEL SHALL BE STOPPED 2" SHORT OF EITHER SIDE OF THE EXPANSION JOINTS. SEE "DETAIL B".

THE FRONT WALL CAST-IN-PLACE FACE MUST BE DESIGNED AS A CRASH WALL UP TO ELEV. 2609.00 IN ACCORDANCE WITH AREMA REQUIREMENTS. SEE CAST-IN-PLACE FACE MSE WALL SPECIAL PROVISION.

DESIGN THE MSE WALL FOR A 24 INCH PIPE TO GO THROUGH THE WALL AT THE LOCATION SHOWN ON THE ROADWAY PLANS. VERIFY THE PIPE LOCATION BASED UPON ACTUAL FIELD CONDITIONS PRIOR TO DESIGNING THE MSE WALL.

SHOW DETAILS IN THE PLANS FOR SKEWING REINFORCING STRIPS AROUND OBSTRUCTIONS SUCH AS GUARDRAIL, PAVEMENT STRUCTURES, AND DRAINAGE STRUCTURES. SOIL REINFORCING SHALL NOT BE IN CONTACT WITH OBSTRUCTIONS.

THE CONCRETE COPING SHALL BE CAST-IN-PLACE AND HAVE A SMOOTH FINISH. CONCRETE COPING IS ONLY REQUIRED WHERE SHOWN ON THE PLANS.

EXPANSION JOINTS IN THE COPING SHALL CONSIST OF 1/2" EXPANSION JOINT MATERIAL AND SHALL BE LOCATED AT 30'-0" MAXIMUM CENTERS. REINFORCING STEEL SHALL BE STOPPED 2" SHORT OF EITHER SIDE OF THE EXPANSION JOINTS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE CONSTRUCTED IN ALL EXPOSED FACES OF THE COPING AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN COPING EXPANSION JOINTS. ONLY ONE JOINT IS REQUIRED AT THE MIDPOINT OF COPING SEGMENTS LESS THAN 20'-0" IN LENGTH AND NO JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 11'-6" IN LENGTH.

CONTACT THE GEOTECHNICAL ENGINEERING UNIT WESTERN REGIONAL OPERATIONS ENGINEER FOR FIELD VERIFICATION OF REQUIRED BEARING CAPACITY PRIOR TO BEGINNING MSE WALL CONSTRUCTION.

USE THE FOLLOWING VALUES FOR DESIGN OF TEMPORARY TIEBACK WALL AND TEMPORARY SHORING:

ALL EARTH MATERIALS, $\gamma = 120$ pcf, $\phi = 32^\circ$, $C = 0$ pcf

TEMPORARY SHORING AND TEMPORARY TIEBACK WALL STATIONS AND OFFSETS SHOWN ON THE PLANS ARE PRELIMINARY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SELECT THE FINAL TEMPORARY WALL LOCATIONS. TEMPORARY WALL LOCATIONS MUST BE APPROVED BY THE ENGINEER.

THE TEMPORARY TIEBACK WALL SHALL BE DESIGNED SUCH THAT MOVEMENT OF THE EXISTING CONCRETE ABUTMENT IS RESTRAINED. METHODS SUCH AS EXTENDING THE TEMPORARY TIEBACK WALL UP AND BACKFILLING AGAINST THE ABUTMENT OR ANCHORING THE ABUTMENT ITSELF MAY BE REQUIRED.

THE LEFT AND RIGHT WING WALL ENVELOPES MAY BE FIELD ADJUSTED TO TIE INTO THE TEMPORARY SHORING AND TEMPORARY TIEBACK WALL.

COORDINATE THE LOCATION AND DETAILING OF THE TEMPORARY SHORING AND TEMPORARY TIEBACK WALL WITH THE MSE WALL PLANS.

THE MSE WALL SUBMITTAL, CAST-IN-PLACE CONCRETE FACING FORMWORK SUBMITTAL AND THE TEMPORARY SHORING AND TIEBACK WALL SUBMITTALS MUST BE SUBMITTED FOR REVIEW AT THE SAME TIME.

THE CONTRACTOR IS CAUTIONED THAT THE USE OF ANY GROUND ANCHORS FOR THE RIGHT TEMPORARY SHORING WILL NOT BE POSSIBLE DUE TO THE CLOSE PROXIMITY OF THE ADJOINING STRUCTURE'S BASEMENT. BRACING AGAINST THE MAIN TEMPORARY TIEBACK WALL MAY BE REQUIRED TO STABILIZE THE RIGHT TEMPORARY SHORING IF THE DESIGN HEIGHT IS SUCH THAT CANTILEVERED PILES ARE NOT FEASIBLE.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE PRECONSTRUCTION SURVEY AND VIBRATION MONITORING REQUIREMENTS OUTLINED IN THE CONTROL OF VIBRATION SPECIAL PROVISION. SEE CONTROL OF VIBRATION SPECIAL PROVISION.

DO NOT USE IMPACT OR VIBRATORY METHODS TO INSTALL SHEET PILING OR SOLDIER PILES FOR EITHER THE TEMPORARY SHORING OR TEMPORARY TIEBACK WALLS.

THE CONTRACTOR IS CAUTIONED THAT COBBLES AND BOULDERS OR GENERAL DEBRIS MAY BE PRESENT WITHIN THE FILL IN THE GENERAL VICINITY OF THE EXISTING STONE RETAINING WALL AND CONCRETE BLOCK PRESENT AT THE SITE AND SHOULD PLAN THE DESIGN AND CONSTRUCTION OF THE TEMPORARY SHORING AND TEMPORARY TIEBACK WALLS ACCORDINGLY.

ALL TIMBER LAGGING FOR BOTH TEMPORARY SHORING OR TIEBACK WALLS MUST HAVE A MINIMUM THICKNESS OF 4 INCHES.

ALL EXCAVATION FOR THE CONSTRUCTION OF THE MSE WALLS WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE WALLS.

THE CONTRACTOR SHALL OBSERVE A 1 MONTH WAITING PERIOD UPON COMPLETION OF WIRE FACED MSE RETAINING WALLS UP TO THE BOTTOM OF FOOTING ELEVATION BEFORE BEGINNING CONSTRUCTION OF THE END BENT FOOTING AND CAP.

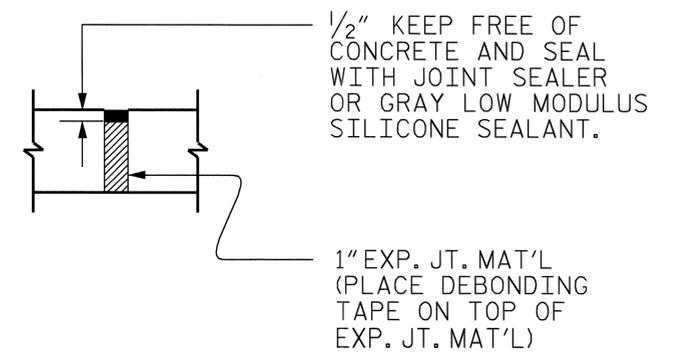
CONSTRUCT DRAINAGE STRUCTURES AS SHOWN ON THE ROADWAY PLANS CONCURRENTLY WITH MSE WALL CONSTRUCTION.

THE CONTRACTOR SHALL NOT SET THE GIRDERS UNTIL THE FRONT WALL CAST-IN-PLACE FACE HAS REACHED DESIGN STRENGTH.

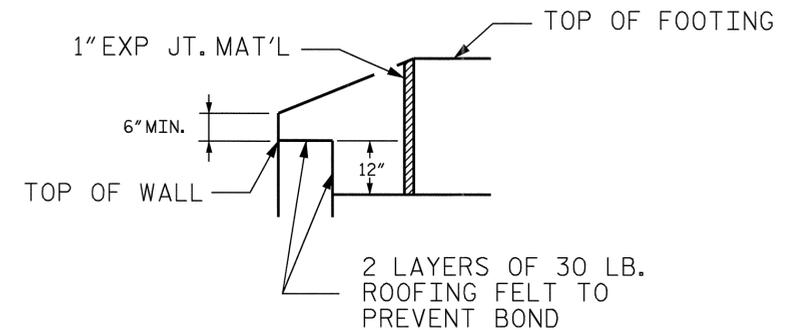
THE CONTRACTOR SHALL NOT CAST THE BRIDGE DECK UNTIL THE WING WALL CAST-IN-PLACE FACES HAVE REACHED DESIGN STRENGTH.

THE CONSTRUCTION SEQUENCE OF THE CAST-IN-PLACE FACE MSE WALL SHALL BE AS FOLLOWS UNLESS DIRECTED OTHERWISE BY THE ENGINEER:

- A. INSTALL TEMPORARY TIE BACK WALL AND TEMPORARY SHORING.
- B. EXCAVATE FOR THE MSE REINFORCED ZONE.
- C. CONSTRUCT WIRE FACED MSE WALLS UP TO THE BOTTOM OF FOOTING ELEVATION.
- D. OBSERVE A ONE MONTH WAITING PERIOD.
- E. CONSTRUCT THE END BENT FOOTING AND CAP.
- F. COMPLETE THE LEFT AND RIGHT WIRE FACED MSE RETAINING WALLS TO TOP OF WALL.
- G. INSTALL CAST-IN-PLACE FACE ON THE FRONT MSE RETAINING WALL.
- H. SET STEEL GIRDERS.
- I. INSTALL CAST-IN-PLACE FACE ON LEFT AND RIGHT MSE RETAINING WALLS.
- J. COMPLETE CONSTRUCTION OF BRIDGE SUPERSTRUCTURE.



DETAIL B
CAST-IN-PLACE
CONCRETE FACING
EXPANSION JOINTS



DETAIL C
CAST-IN-PLACE
CONCRETE COPING

PROJECT NO. B-3189
HAYWOOD COUNTY
STATION: 12+07.50 -L1-

SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**CAST-IN-PLACE MSE
RETAINING WALL**

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

DRAWN BY: M. POOLE DATE: 10/06
CHECKED BY: J.R. DUGGINS DATE: 01/07

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

SPECIAL NOTES:

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

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