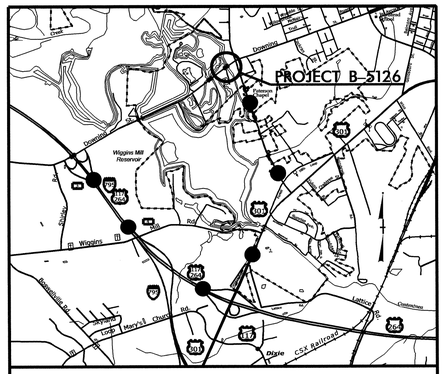
09/08/99

TIP PROJECT: B-5126

CONTRACT: C203157

STRUCTURE



VICINITY MAP

OFFSITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WILSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5126		

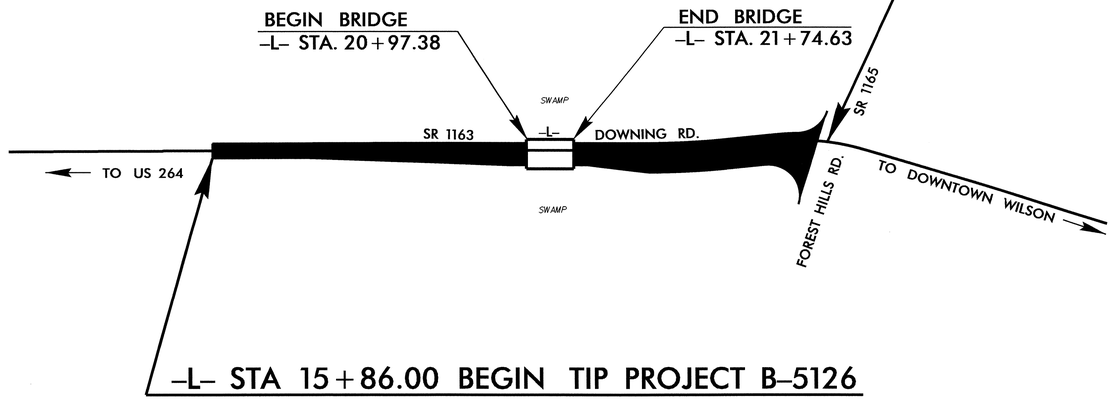
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
33833.1.1	BRSTP-1163(4)	PE
33833.2.1	BRSTP-1163(4)	R/W & UTIL
33833.3.1	BRSTP-1163(4)	CONST.

LOCATION: BRIDGE NO. 65 OVER A SWAMP OF CONTENTNEA CREEK AT WIGGINS MILL RESERVOIR ON SR 1163 (DOWNING ROAD) IN WILSON

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNALS, AND STRUCTURES

NAD 83/ NSRS 2007

–L– STA 25+75.00 END TIP PROJECT B–5126



–L– STA 15+86.00 BEGIN TIP PROJECT B–5126

DESIGN DATA

ADT 2012 = 8,774
ADT 2035 = 14,700
DHV = 14 %
D = 80 %
T = 3 % *
V = 60 MPH
* TTST =1% DUAL =2%

FUNC CLASS = LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B–5126 = 0.172 MILES
LENGTH OF STRUCTURE TIP PROJECT B–5126 = 0.015 MILES
TOTAL LENGTH OF STATE PROJECT B–5126 = 0.187 MILES

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

2012 STANDARD SPECIFICATIONS

LETTING DATE:
JUNE 18, 2013

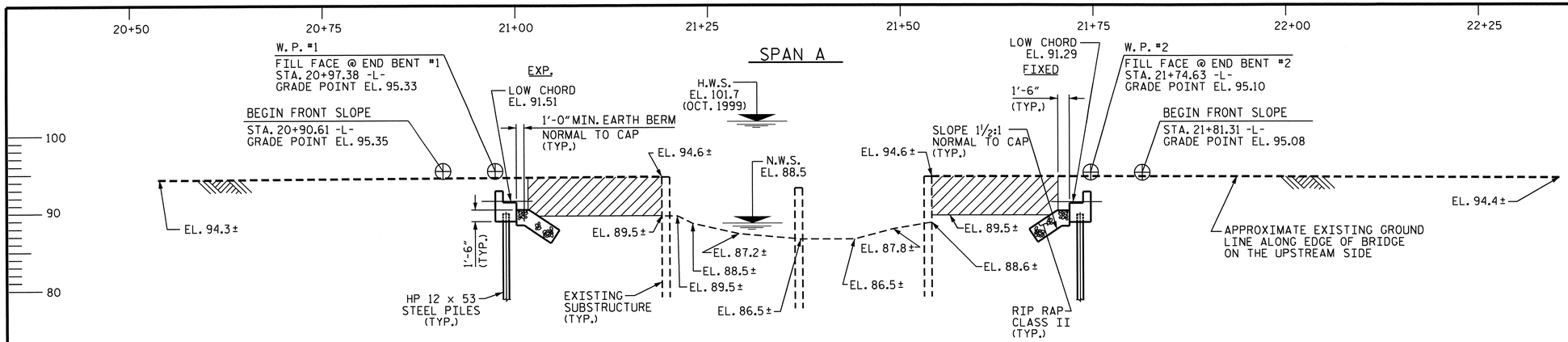
OMAR R. AZIZI, PE
PROJECT ENGINEER

EMILY E. MURRAY, PE
PROJECT DESIGN ENGINEER

STRUCTURES MANAGEMENT UNIT

18-APR-2013 12:22
$$$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
pdkins

F.A. PROJECT NO.: BRSTP-1163(4)



END BENT #1

END BENT #2

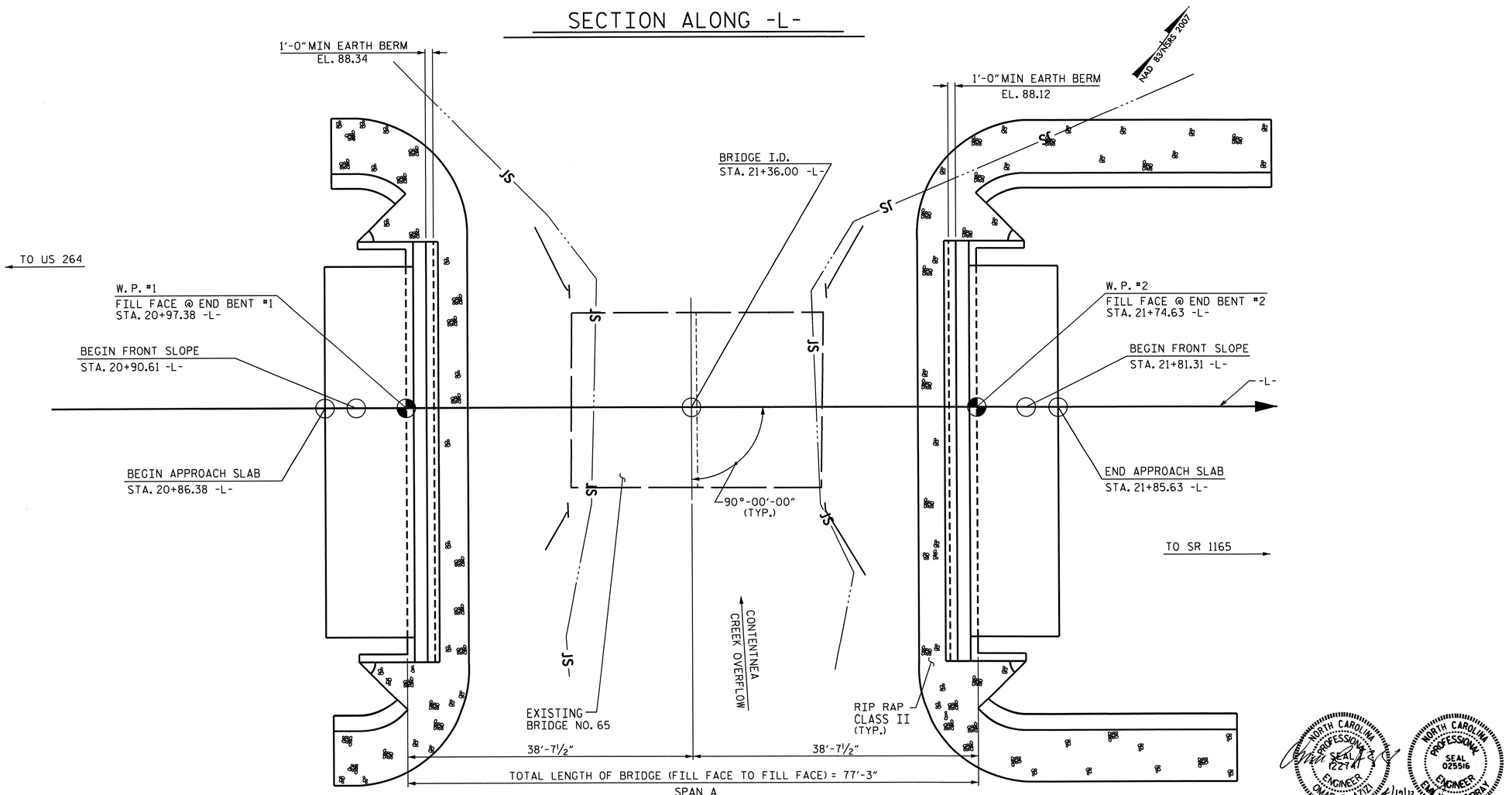
SECTION ALONG -L-

-0.3008% +0.5464%

GRADE DATA

P.I. STA. = 24+60.00 -L-
EL. = 94.24'
V.C. = 130.00'

▨ UNCLASSIFIED STRUCTURE EXCAVATION



PLAN

PILES NOT SHOWN FOR CLARITY.

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS.

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 65

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER
CONTENTNEA CREEK OVERFLOW
ON SR 1163 BETWEEN
US 264 AND SR 1165

NORTH CAROLINA PROFESSIONAL SEAL 22741 ENGINEER OMAR R. AZIZ 4/19/13

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY 4/19/13

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

DESIGN ENGINEER OF RECORD: E. K. POPE DATE: 4-17-13

DRAWN BY: PEGGY ADKINS DATE: 2-4-13

CHECKED BY: T. L. AVERETTE DATE: 2-13-13

18-APR-2013 12:21
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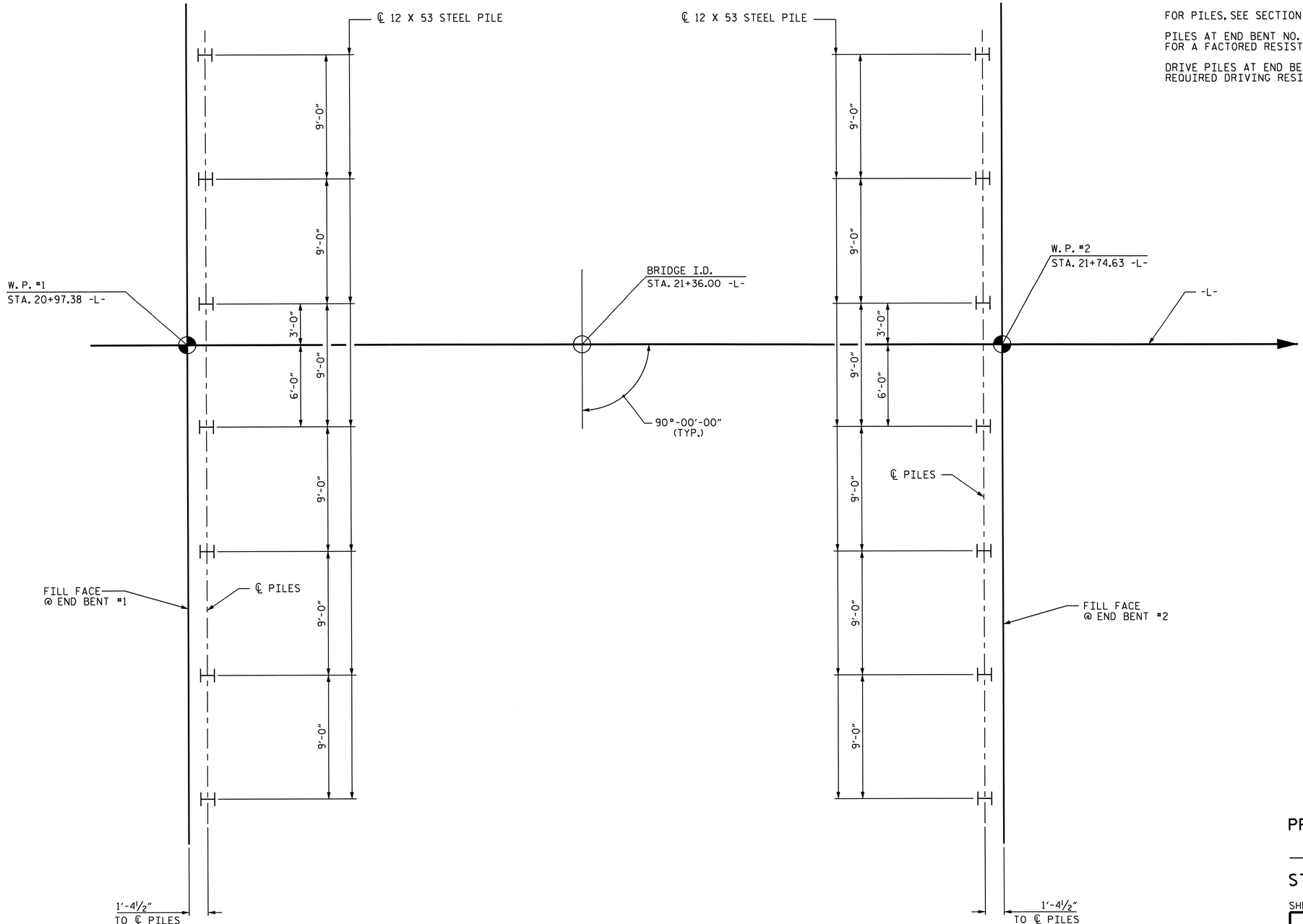
padkins

NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENT NO. 1 AND END BENT NO. 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 110 TONS PER PILE.

DRIVE PILES AT END BENT NO. 1 AND END BENT NO. 2 TO A REQUIRED DRIVING RESISTANCE OF 185 TONS PER PILE.



END BENT #1

END BENT #2

FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE.

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER CARY E. MURRAY
4/19/13

PROJECT NO. B-5126
WILSON COUNTY
STATION: 21+36.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

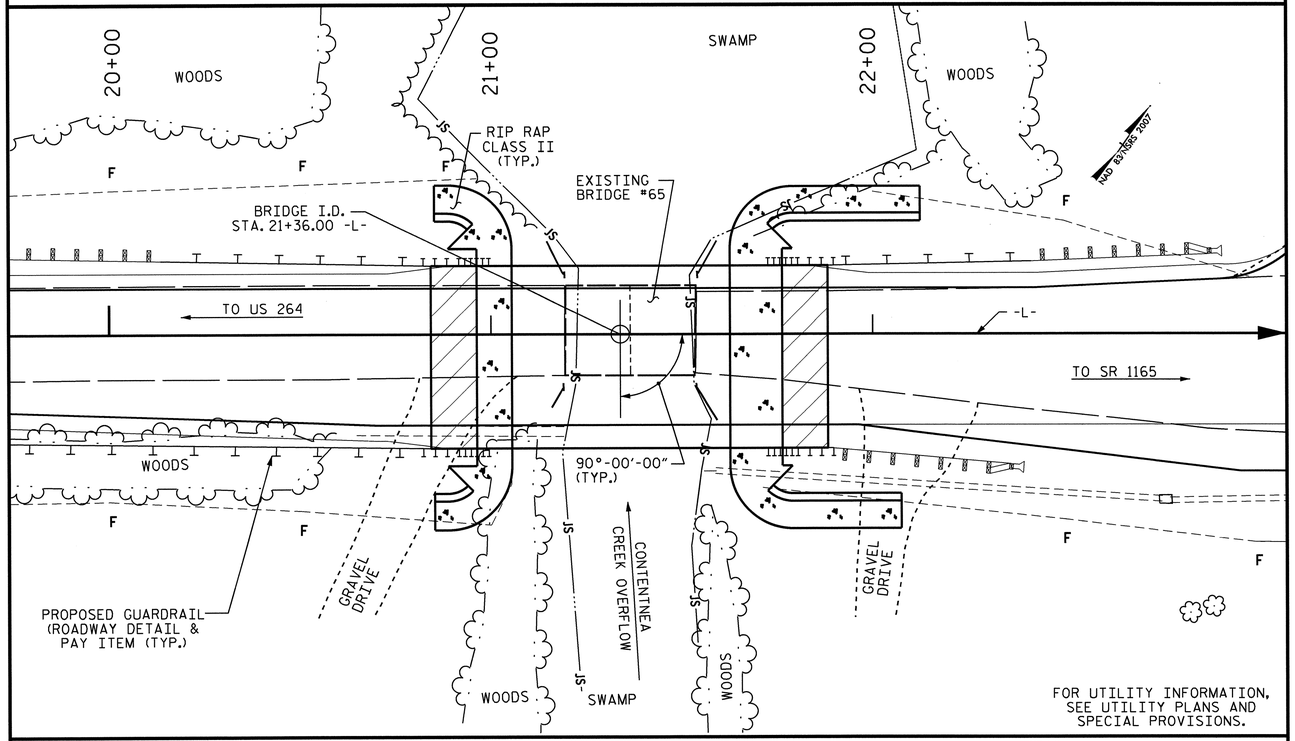
FOUNDATION LAYOUT

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

DRAWN BY : PEGGY ADKINS DATE : 2-4-13
CHECKED BY : T.L. AVERETTE DATE : 2-13-13
DESIGN ENGINEER OF RECORD: MADONNA RORIE DATE : 4-17-13

18-APR-2013 12:21
Z:\TIPProjects-B\B5126\Structures\Plans\finalplans\B5126_SD_GD_01.dgn
padkins

BM #2: RAILROAD SPIKE IN BASE OF 24" MAPLE, 47.83' LT. OF STA. 20+38.76 -L-, ELEV. 91.93', NAVD 88.



LOCATION SKETCH

HYDRAULIC DATA

DESIGN DISCHARGE	= 18700 CFS
FREQUENCY OF DESIGN FLOOD	= 50 YR.
DESIGN HIGH WATER ELEVATION	= 98.1'
DRAINAGE AREA	= 237 Sq. MILES
BASE DISCHARGE (Q100)	= 22100 CFS
BASE HIGH WATER ELEVATION	= 99.4'

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 5500 CFS
FREQUENCY OF OVERTOPPING FLOOD	= <10 YR.
OVERTOPPING FLOOD ELEVATION	= 94.4'

NOTES:

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR CONCRETE WEARING SURFACE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 35 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. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF TWO SPANS @ 17'-9", A CLEAR ROADWAY WIDTH OF 24'-0", A REINFORCED CONCRETE FLOOR ON TIMBER JOISTS SUPPORTED BY TIMBER CAPS ON TIMBER PILES AT THE END BENTS AND BENT, AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.

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.

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

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

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CONCRETE WEARING SURFACE	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		TWO BAR METAL RAIL	1'-2" X 2'-11½" CONCRETE PARAPET	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	FOAM JOINT SEALS	3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAMS	
	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	CU. YDS.	LUMP SUM	LBS.	NO.	LIN.FT.	LIN.FT.	LIN.FT.	TONS	SQ.YDS.	LUMP SUM	LUMP SUM	NO.	LIN.FT.
SUPERSTRUCTURE			3638	4346		LUMP SUM				135.00	150.00			LUMP SUM	LUMP SUM	17	1275.00
END BENT NO. 1					25.8		4212	7	210			82	91				
END BENT NO. 2					25.8		4212	7	105			160	178				
TOTAL	LUMP SUM	LUMP SUM	3638	4346	51.6	LUMP SUM	8424	14	315	135.00	150.00	242	269	LUMP SUM	LUMP SUM	17	1275.00

DESIGN ENGINEER OF RECORD: E. K. POPE DATE: 4-17-13

DRAWN BY: PEGGY ADKINS DATE: 2-4-13

CHECKED BY: T. L. AVERETTE DATE: 2-13-13

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY

4/19/13

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE OVER CONTENTNEA CREEK OVERFLOW ON SR 1163 BETWEEN US 264 AND SR 1165

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

18-APR-2013 12:21
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LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR						MOMENT					
							LIVE-LOAD FACTORS $\gamma_{(LL)}$	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	LIVE-LOAD FACTORS $\gamma_{(LL)}$	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING		HL-93 (INVENTORY)	N/A	1	1.205	--	1.75	0.275	1.59	A	EL	36.750	0.503	1.29	A	EL	7.350	0.80	0.275	1.21	A	EL	36.750	
		HL-93 (OPERATING)	N/A		1.677	--	1.35	0.275	2.06	A	EL	36.750	0.503	1.68	A	EL	7.350	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	2	1.581	56.916	1.75	0.275	2.08	A	EL	36.750	0.503	1.63	A	EL	7.350	0.80	0.275	1.58	A	EL	36.750	
		HS-20 (OPERATING)	36.000		2.118	76.248	1.35	0.275	2.70	A	EL	36.750	0.503	2.12	A	EL	7.350	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.575	48.263	1.40	0.275	5.89	A	EL	36.750	0.503	4.87	A	EL	7.350	0.80	0.275	3.57	A	EL	36.750	
		SNGARBS2	20.000		2.661	53.220	1.40	0.275	4.39	A	EL	36.750	0.503	3.46	A	EL	7.350	0.80	0.275	2.66	A	EL	36.750	
		SNAGRIS2	22.000		2.519	55.418	1.40	0.275	4.15	A	EL	36.750	0.503	3.21	A	EL	7.350	0.80	0.275	2.52	A	EL	36.750	
		SNCOTTS3	27.250		1.779	48.478	1.40	0.275	2.93	A	EL	36.750	0.503	2.43	A	EL	7.350	0.80	0.275	1.78	A	EL	36.750	
		SNAGGRS4	34.925		1.485	51.864	1.40	0.275	2.45	A	EL	36.750	0.503	2.01	A	EL	7.350	0.80	0.275	1.49	A	EL	36.750	
		SNS5A	35.550		1.453	51.654	1.40	0.275	2.39	A	EL	36.750	0.503	2.04	A	EL	7.350	0.80	0.275	1.45	A	EL	36.750	
		SNS6A	39.950		1.332	53.213	1.40	0.275	2.20	A	EL	36.750	0.503	1.86	A	EL	7.350	0.80	0.275	1.33	A	EL	36.750	
		SNS7B	42.000		1.269	53.298	1.40	0.275	2.09	A	EL	36.750	0.503	1.83	A	EL	7.350	0.80	0.275	1.27	A	EL	36.750	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.625	53.625	1.40	0.275	2.68	A	EL	36.750	0.503	2.21	A	EL	7.350	0.80	0.275	1.62	A	EL	36.750	
		TNT4A	33.075		1.632	53.978	1.40	0.275	2.69	A	EL	36.750	0.503	2.16	A	EL	7.350	0.80	0.275	1.63	A	EL	36.750	
		TNT6A	41.600		1.334	55.494	1.40	0.275	2.20	A	EL	36.750	0.503	1.94	A	EL	7.350	0.80	0.275	1.33	A	EL	36.750	
		TNT7A	42.000		1.340	56.280	1.40	0.275	2.21	A	EL	36.750	0.503	1.91	A	EL	7.350	0.80	0.275	1.34	A	EL	36.750	
		TNT7B	42.000		1.386	58.212	1.40	0.275	2.28	A	EL	36.750	0.503	1.78	A	EL	7.350	0.80	0.275	1.39	A	EL	36.750	
		TNAGRIT4	43.000		1.319	56.717	1.40	0.275	2.17	A	EL	36.750	0.503	1.73	A	EL	7.350	0.80	0.275	1.32	A	EL	36.750	
		TNAGT5A	45.000		1.243	55.935	1.40	0.275	2.05	A	EL	36.750	0.503	1.72	A	EL	7.350	0.80	0.275	1.24	A	EL	36.750	
		TNAGT5B	45.000	3	1.229	55.305	1.40	0.275	2.03	A	EL	36.750	0.503	1.64	A	EL	7.350	0.80	0.275	1.23	A	EL	36.750	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

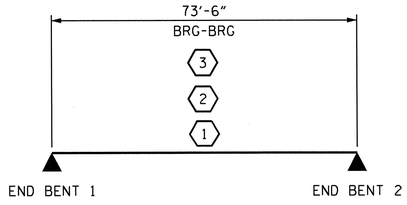
(#) CONTROLLING LOAD RATING

1. DESIGN LOAD RATING (HL-93)
2. DESIGN LOAD RATING (HS-20)
3. LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MARRIAN

4/19/13

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

SHEET NO. S-4

TOTAL SHEETS 21

STD. NO. LRFR1

DESIGN ENGINEER OF RECORD: E.K. POPE DATE : 4-17-13

ASSEMBLED BY : A. SORSENGINH DATE : 10/2012
CHECKED BY : B.N.BARODAWALA DATE : 11/2012

DRAWN BY : MAA 1/08
CHECKED BY : GM/DI 2/08

REV. 11/12/08RR MAA/GM
REV. 10/1/11 MAA/GM

18-APR-2013 12:23
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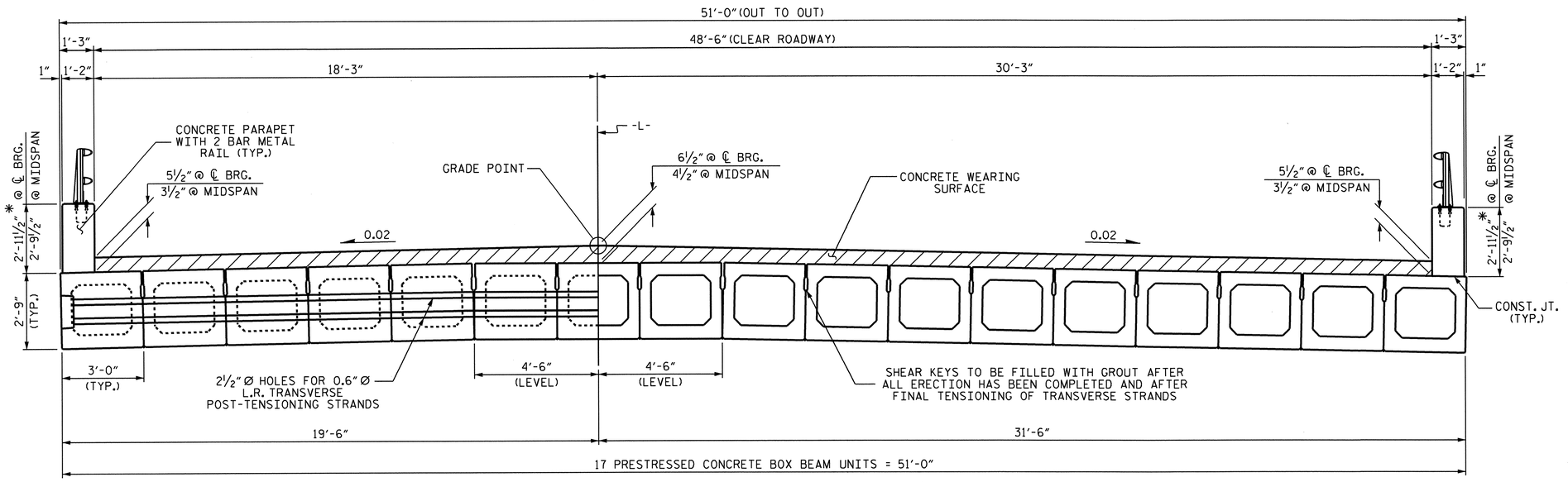
padkins



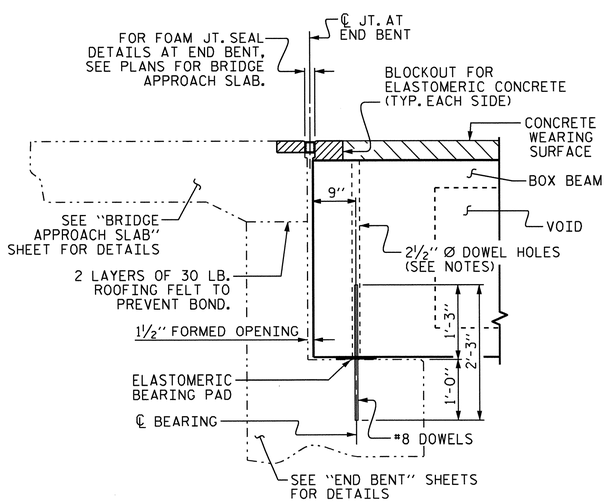
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

HALF SECTION
THROUGH VOIDS

TYPICAL SECTION

* THE MINIMUM AND MAXIMUM PARAPET HEIGHTS AND CONCRETE WEARING SURFACE THICKNESSES ARE SHOWN. THE HEIGHT OF THE PARAPET AND CONCRETE WEARING SURFACE THICKNESS VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE.

EXPANSION END
OR
FIXED END



SECTION AT END BENT

NOTES

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

ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

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

THE 2½" Ø DOWEL HOLES AT FIXED ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT. THE 2½" Ø DOWEL HOLES AT EXPANSION ENDS OF BOX BEAM SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1½" ABOVE THE TOP OF DOWELS AND THEN FILLED WITH GROUT.

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

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

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

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

APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS.

VERTICAL GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE CONCRETE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A VERTICAL CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF PARAPET SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

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

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

THE TOP SURFACE OF THE BOX BEAM UNITS SHALL HAVE A ⅜" RAKED FINISH.

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

PROJECT NO. B-5126
WILSON COUNTY
STATION: 21+36.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAM UNIT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			21

DESIGN ENGINEER OF RECORD: E. K. POPE	DATE : 4-17-13	
ASSEMBLED BY : A. SORSENGINH	DATE : 10/2012	
CHECKED BY : B.N.BARODAWALA	DATE : 11/2012	
DRAWN BY : TLA 5/05	ADDED 7/11/05R	KMM/GM
CHECKED BY : GM 6/05	REV. 5/1/06R	KMM/GM
	REV. 10/1/11	MAA/GM

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
4/19/13

18-APR-2013 12:27
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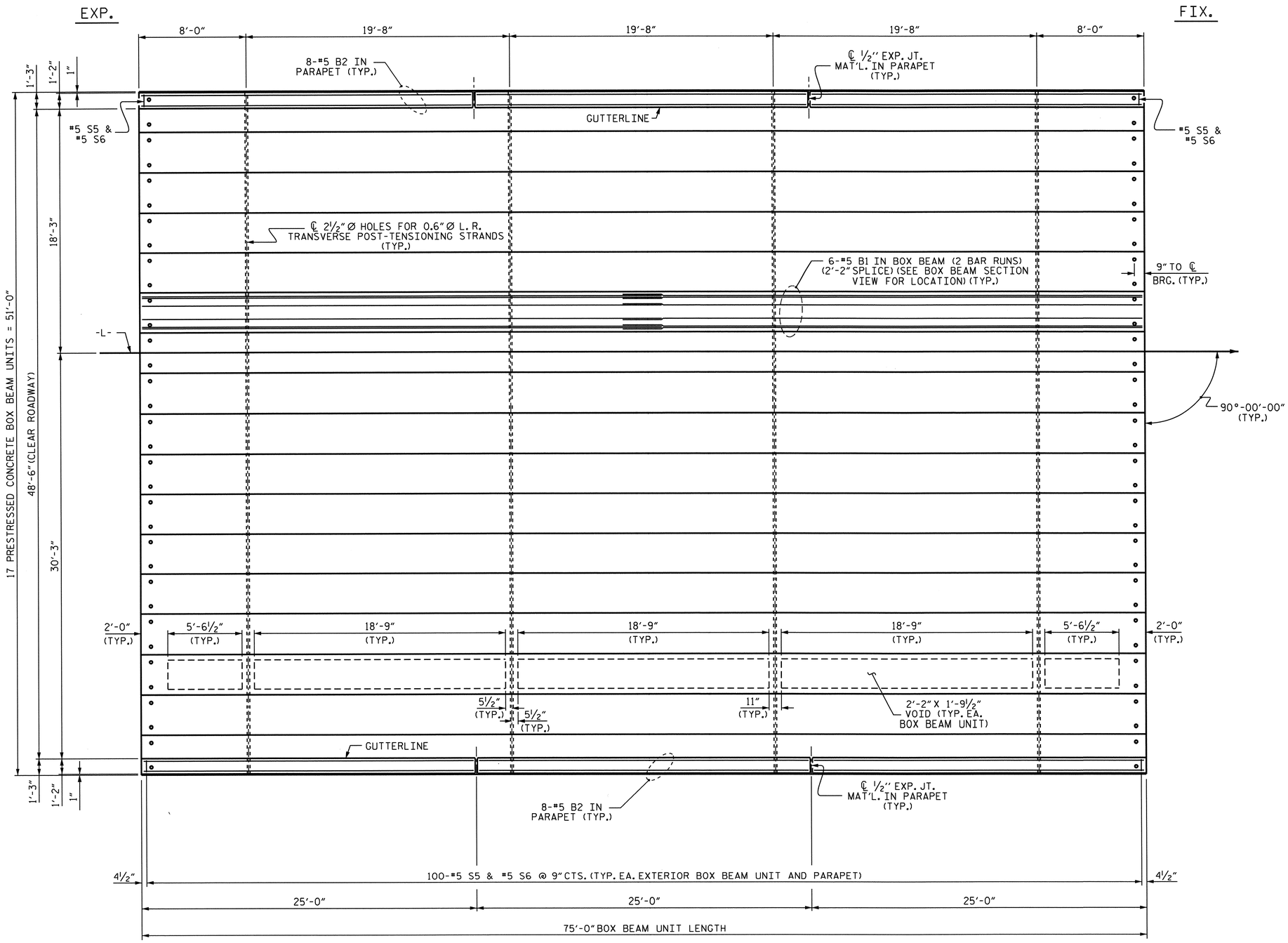
padkins



PLAN OF UNIT

DRAWN BY : A. SORSENGINH DATE : 10/2012
CHECKED BY : B.N.BARODAWALA DATE : 11/2012
DESIGN ENGINEER OF RECORD: E. K. POPE DATE : 4-17-13

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NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
4/19/13

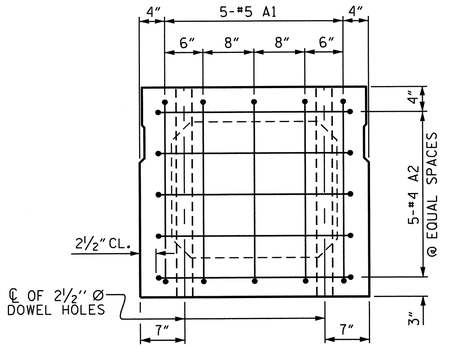
PROJECT NO. B-5126
WILSON COUNTY
STATION: 21+36.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

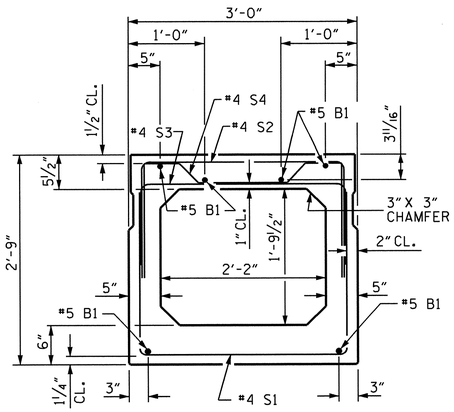
PLAN OF 75' UNIT 48'-6" CLEAR ROADWAY 90° SKEW

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



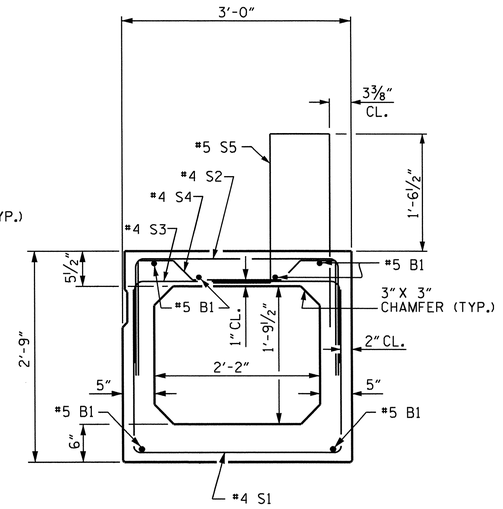
END ELEVATION

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



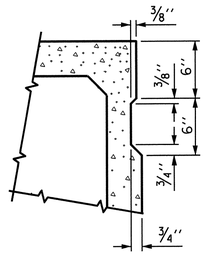
INTERIOR BOX BEAM SECTION

(STRAND LAYOUT NOT SHOWN)



EXTERIOR BOX BEAM SECTION

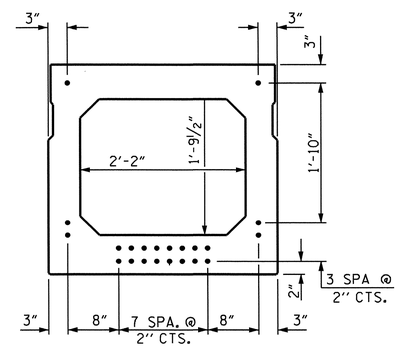
(STRAND LAYOUT NOT SHOWN)



SHEAR KEY DETAIL

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

0.6" Ø LOW RELAXATION STRAND LAYOUT



TYPICAL STRAND LOCATION

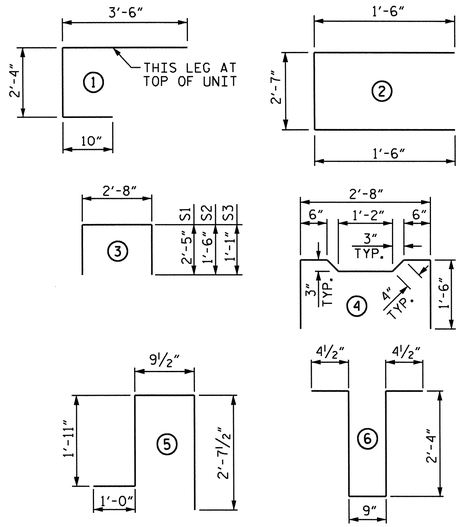
(22 STRANDS REQUIRED)

DEBONDING LEGEND

● FULLY BONDED STRANDS

GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

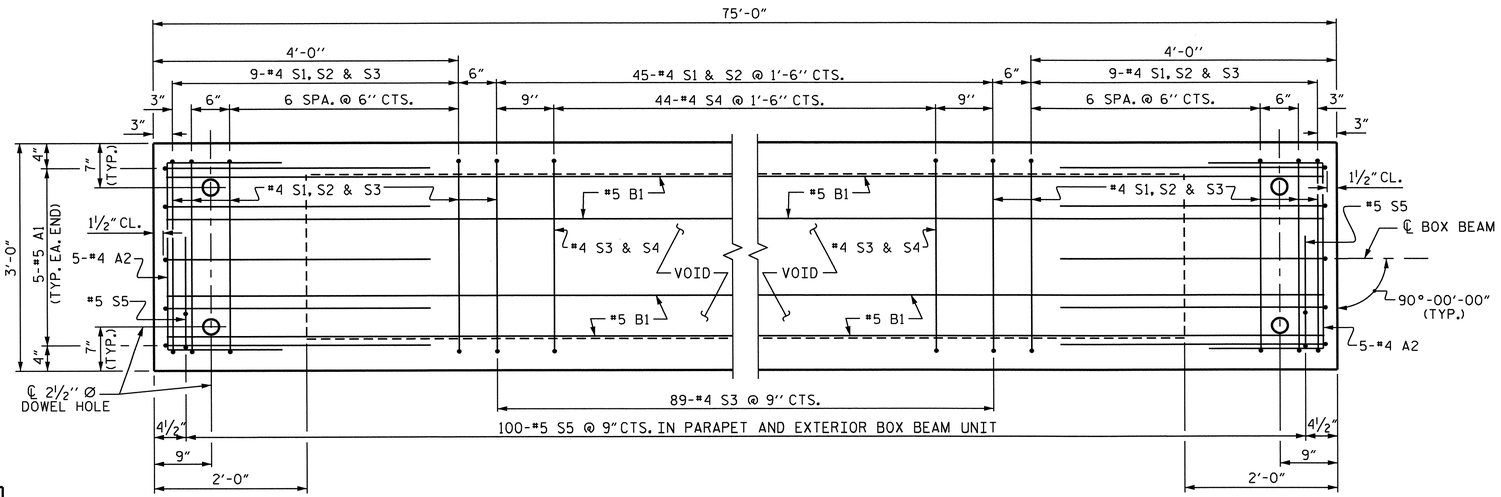
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE BOX BEAM SECTION

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
A1	10	#5	1	6'-8"	70	6'-8"	70
A2	34	#4	2	5'-7"	127	5'-7"	127
B1	12	#5	STR	38'-5"	481	38'-5"	481
K1	12	#4	6	6'-2"	49	6'-2"	49
K2	8	#4	STR	2'-7"	14	2'-7"	14
S1	63	#4	3	7'-6"	316	7'-6"	316
S2	63	#4	3	5'-8"	238	5'-8"	238
S3	107	#4	3	4'-10"	345	4'-10"	345
S4	44	#4	4	5'-10"	171	5'-10"	171
✱ S5	100	#5	5	6'-4"	661	--	--
REINFORCING STEEL					1811 LBS.		1811 LBS.
✱ EPOXY COATED REINF. STEEL					661 LBS.		
6300 P.S.I. CONCRETE					13.4 CU. YDS.		13.3 CU. YDS.
0.6" Ø L.R. STRANDS					No. 22		No. 22



PLAN OF BOX BEAM

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

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 2'-9" PRESTRESSED CONCRETE BOX BEAM UNIT

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY

4/19/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			21

DESIGN ENGINEER OF RECORD: E. K. POPE	DATE : 4-17-13	
ASSEMBLED BY : A. SORSENGINH	DATE : 11/2012	
CHECKED BY : B.N.BARODAWALA	DATE : 11/2012	
DRAWN BY : TLA 5/05	ADDED 7/11/05	
CHECKED BY : GM 6/05	REV. 5/1/06	TLA/GM
	REV. 10/1/11	MAA/GM

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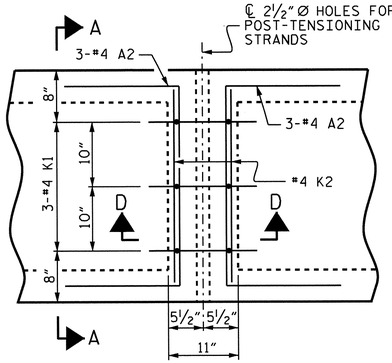
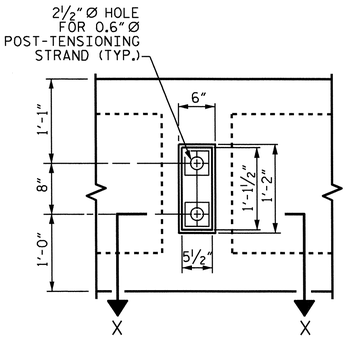
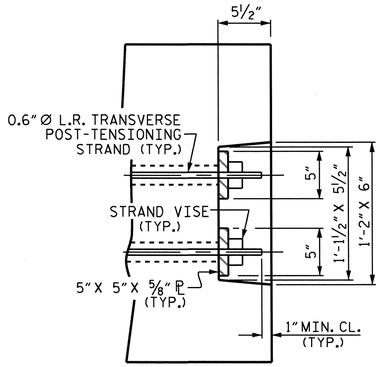


PLAN



VIEW Y-Y

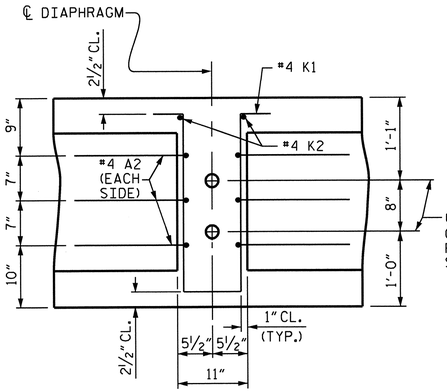
SHOWING ELEVATION VIEW OF GROUTED RECESS



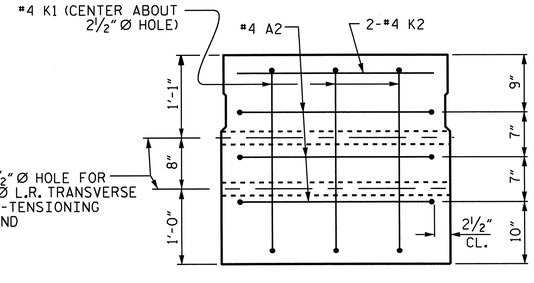
DETAIL "C"

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 2'-9"
	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	2 5/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD	5/16" ↓
FINAL CAMBER	2" ↑

BOX BEAM UNITS REQUIRED			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR B.B.	2	75'-0"	150'-0"
INTERIOR B.B.	15	75'-0"	1125'-0"
TOTAL	17	———	1275'-0"

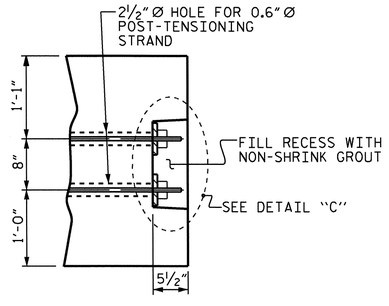


SECTION D-D

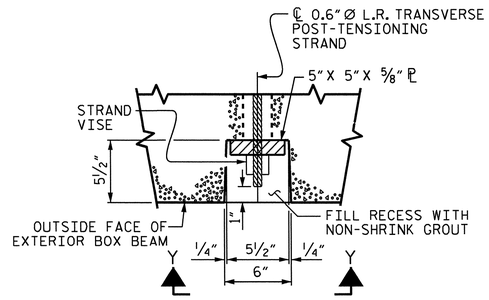


SECTION A-A

VOIDS NOT SHOWN



PART SECTION AT RECESS



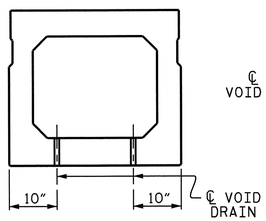
SECTION X-X

SHOWING PLAN VIEW OF GROUTED RECESS

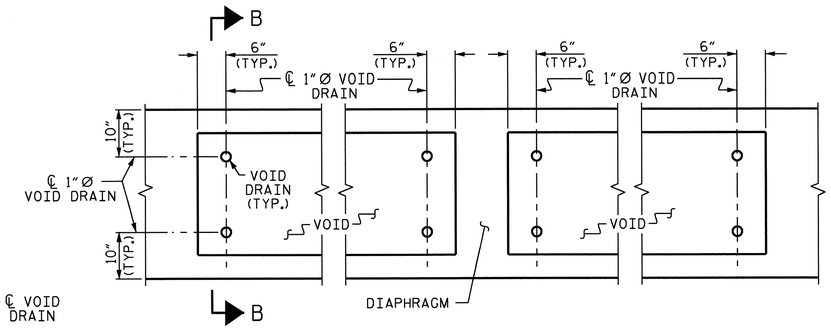
DOUBLE DIAPHRAGM DETAILS

#4 "S" BARS NOT SHOWN. #4 "S" BARS MAY BE SHIFTED SLIGHTLY TO CLEAR 2½" Ø HOLE.

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



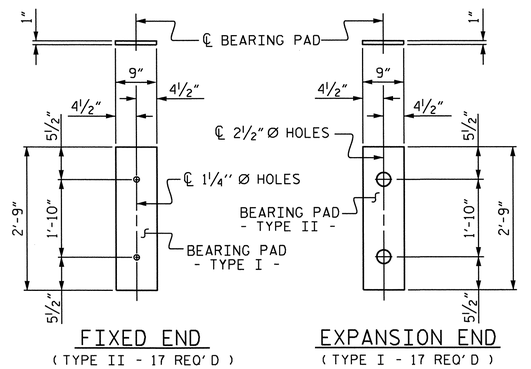
SECTION B-B



PART PLAN

VOID DRAIN DETAILS

(DIMENSIONS SHOWN ARE TYPICAL FOR EACH VOID)



FIXED END

(TYPE II - 17 REQ'D)

EXPANSION END

(TYPE I - 17 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

DESIGN ENGINEER OF RECORD: E. K. POPE DATE: 4-17-13		
ASSEMBLED BY: A. SORSENGINH	DATE: 11/2012	
CHECKED BY: B.N.BARODAWALA	DATE: 11/2012	
DRAWN BY: TLA 5/05	ADDED 7/11/05	TLA/GM
CHECKED BY: GM 6/05	REV. 5/1/06	TLA/GM
	REV. 10/1/11	MAA/GM

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY 4/9/13

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
3'-0" X 2'-9"
PRESTRESSED CONCRETE
BOX BEAM UNIT

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

(SHT 1) STD. NO. PCBB5

18-APR-2013 12:27
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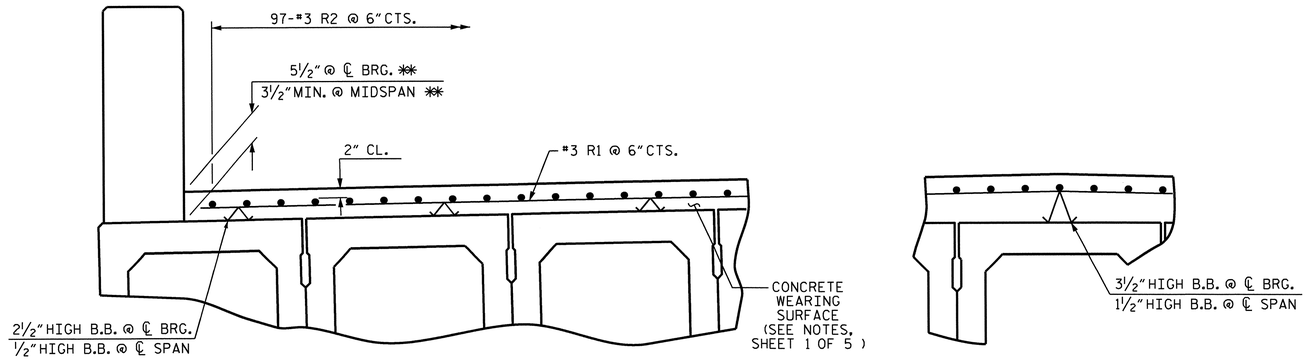


REINFORCING FOR CONCRETE WEARING SURFACE

✳✳ BASED ON PREDICTED FINAL CAMBER AND THEORETICAL GRADE LINE ELEVATIONS

BILL OF MATERIAL FOR CONCRETE WEARING SURFACE

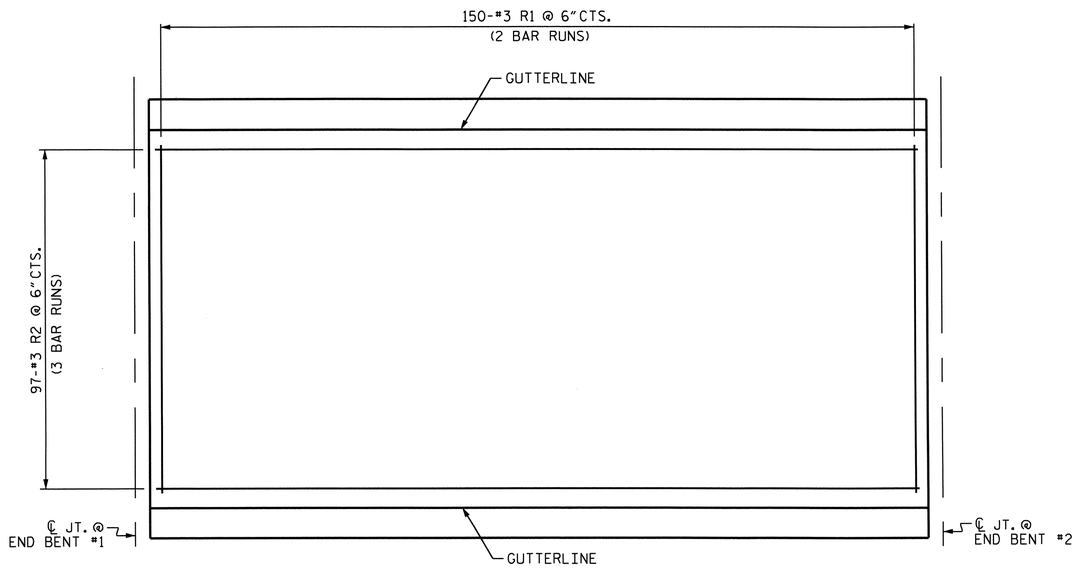
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
✳ R1	300	#3	STR	24'-9"	2792
✳ R2	291	#3	STR	25'-9"	2817
✳ EPOXY COATED REINF. STEEL				LBS.	5609
CONCRETE WEARING SURFACE				SQ. FT.	3638

GROOVING BRIDGE FLOORS

APPROACH SLABS	990 SQ.FT.
BRIDGE DECK	3356 SQ.FT.
TOTAL	4346 SQ.FT.

SPLICE LENGTH CHART

BAR SIZE	EPOXY COATED
#3	1'-3"



PLAN SHOWING CONCRETE WEARING SURFACE REINFORCING STEEL

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE WEARING SURFACE DETAILS

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

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
4/19/13

DRAWN BY : A. SORSENGINH DATE : 10/2012
CHECKED BY : B.N.BARODAWALA DATE : 11/2012
DESIGN ENGINEER OF RECORD: E. K. POPE DATE : 4-17-13

18-APR-2013 12:26
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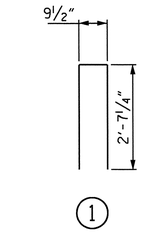
NOTES

FOR DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" AND "GUARDRAIL ANCHORAGE DETAILS" SHEETS.

ALL DIMENSIONS ARE TAKEN ALONG OUTSIDE EDGE OF PARAPET.

ALL REINFORCING STEEL IN CONCRETE PARAPET AND END POSTS SHALL BE EPOXY COATED.

THE REINFORCING STEEL & CONCRETE IN THE END POSTS IS INCLUDED IN THE UNIT PRICE BID FOR THE CONCRETE PARAPET.

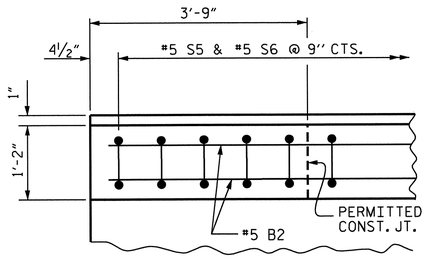


BAR TYPE

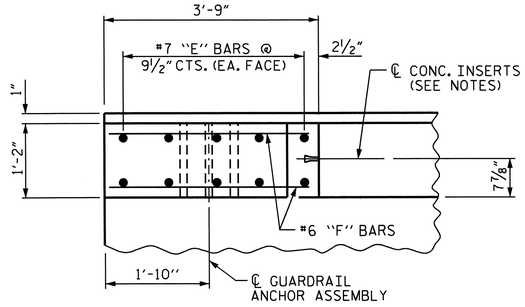
BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR PARAPETS AND END POSTS

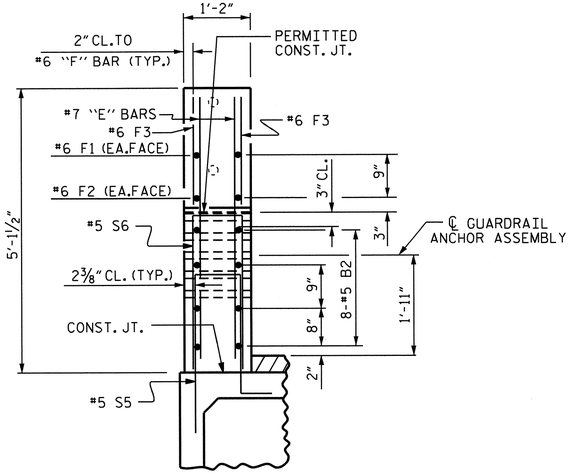
BAR	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
✳ B2	48	#5	STR	24'-7"	1231
✳ E1	8	#7	STR	2'-11"	48
✳ E2	8	#7	STR	3'-5"	56
✳ E3	8	#7	STR	3'-11"	64
✳ E4	8	#7	STR	4'-5"	72
✳ E5	8	#7	STR	4'-9"	78
✳ F1	8	#6	STR	1'-10"	22
✳ F2	8	#6	STR	3'-0"	36
✳ F3	8	#6	STR	3'-4"	40
✳ S6	200	#5	1	6'-0"	1252
EPOXY COATED REINF. STEEL			LBS.		2899
CLASS AA CONCRETE			CU. YDS.		20.0
TOTAL LIN. FT. OF 1'-2" x 2'-11½" CONCRETE PARAPET					150.00



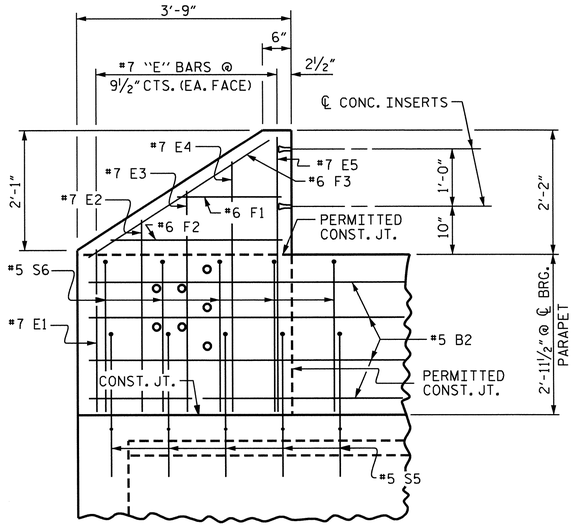
PLAN OF PARAPET



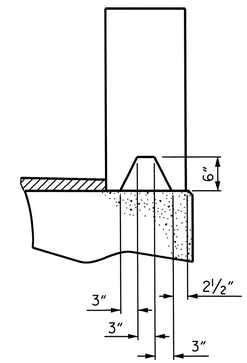
PLAN OF END POST



END VIEW

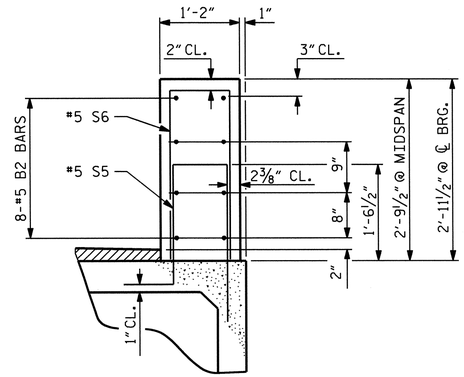


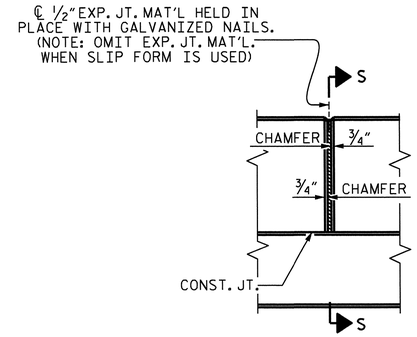
ELEVATION



SECTION S-S

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





ELEVATION AT EXPANSION JOINTS

PARAPET DETAILS

PARAPET AND END POST FOR TWO BAR RAIL

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 1 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

CONCRETE PARAPET AND END POST DETAILS

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

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
4/19/13

DRAWN BY : A. SORSENGINH DATE : 11/2012
CHECKED BY : B.N.BARODAWALA DATE : 11/2012

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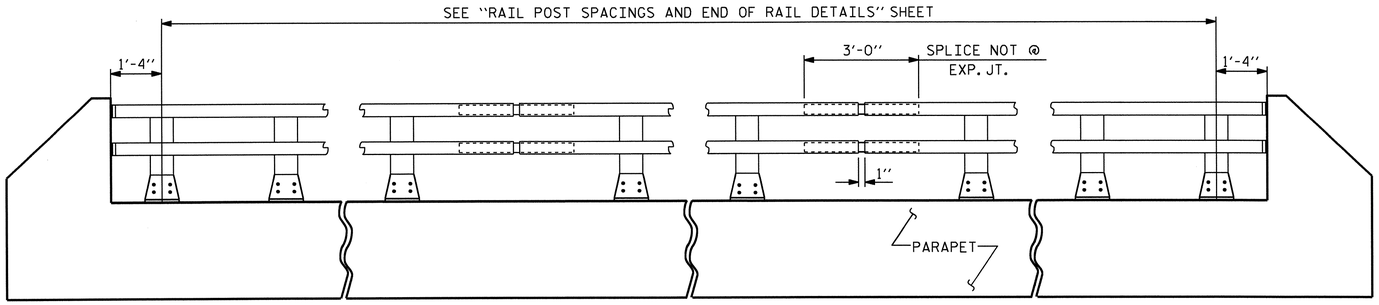
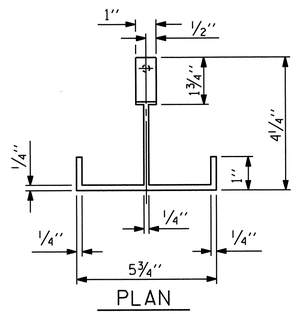
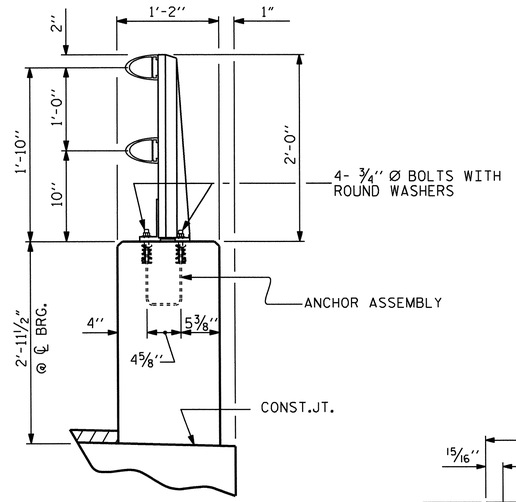


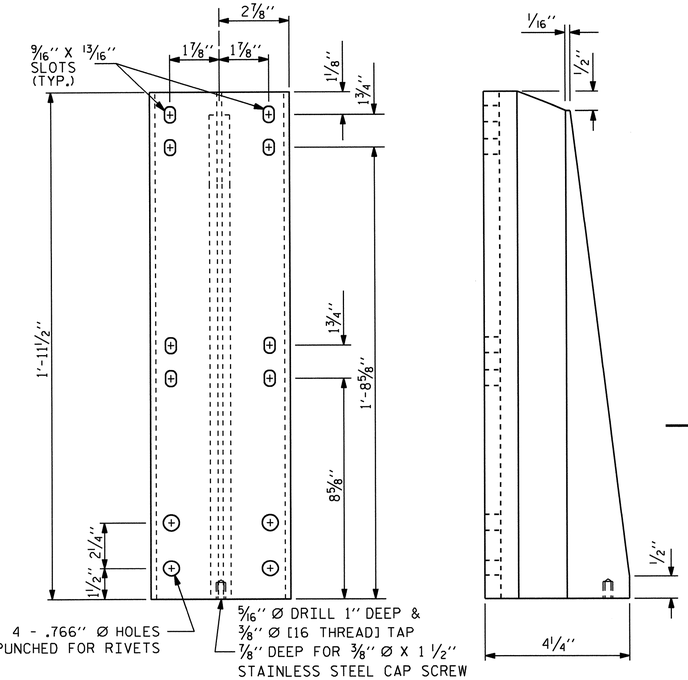
ELEVATION

NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR2.



PLAN

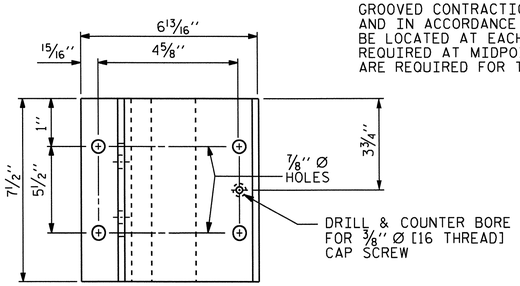




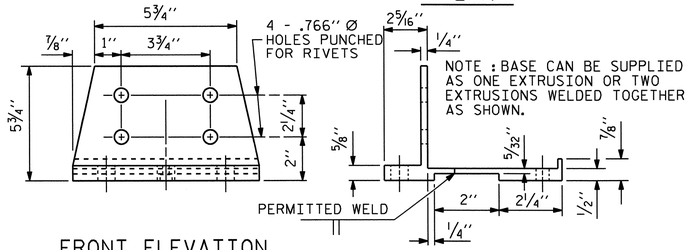
FRONT ELEVATION SIDE ELEVATION

DETAILS OF POST

SECTION THRU PARAPET AND RAIL

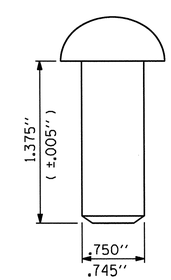


PLAN



FRONT ELEVATION SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL

NOTES

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

ALUMINUM RAILS

MATERIAL FOR POSTS, BASES AND RAILS, EXPANSION BARS AND CLAMP BARS SHALL BE ASTM B-221 ALLOY 6061-T6.

MATERIAL FOR RIVETS SHALL BE ASTM B316 ALLOY 6061-T6. RIVETS SHALL BE STANDARD BUTTON HEAD AND CONE POINT COLD DRIVEN AS PER DRAWING.

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

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

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

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

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

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

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

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

GENERAL NOTES

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

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR2.

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

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

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

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

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

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

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

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

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

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

PAY LENGTH = 135.00 LIN. FT.

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 2 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

2 BAR METAL RAIL

ASSEMBLED BY : A. SORSENGINH	DATE : 11/2012		
CHECKED BY : B.N.BARODAWALA	DATE : 11/2012		
DRAWN BY : EEM 6/94	REV. 5/7/03R	RWW/JTE	
CHECKED BY : RGW 6/94	REV. 5/1/06	TLA/GM	
	REV. 10/1/11	MAA/GM	

NORTH CAROLINA PROFESSIONAL SEAL 025916 ENGINEER EMILY E. MURRAY
4/19/13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			21

STD. NO. BMR3

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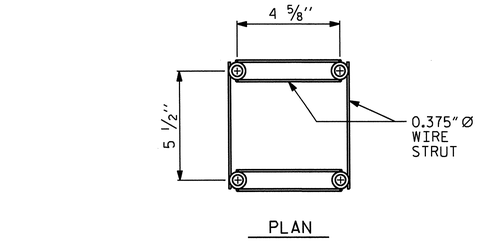


4-BOLT METAL RAIL ANCHOR ASSEMBLY

(26 ASSEMBLIES REQUIRED)

NOTES

STRUCTURAL CONCRETE ANCHOR ASSEMBLY

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

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.

B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 3/4" Ø X 2 1/2" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

C. WIRE STRUT SHOWN IN THE CONCRETE ANCHOR ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

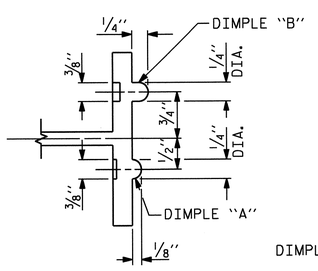
D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.

E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.

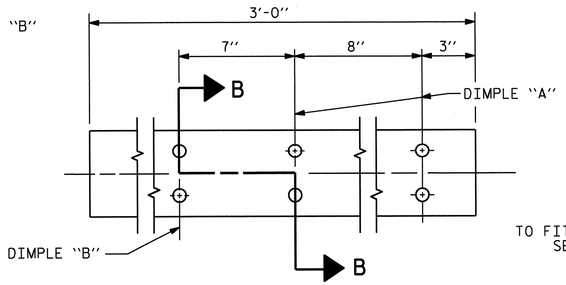
F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE THE STANDARD SPECIFICATIONS.

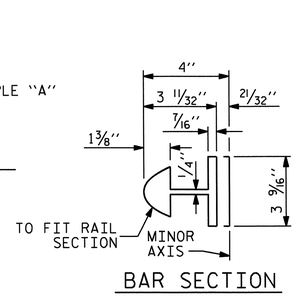
WHEN ADHESIVELY ANCHORED ANCHOR BOLTS ARE USED, BOLTS SHALL MEET THE REQUIREMENTS OF ASTM F593 ALLOY 304 STAINLESS STEEL WITH MINIMUM 75,000 PSI ULTIMATE STRENGTH. NUTS SHALL MEET THE REQUIREMENTS OF ASTM F594 ALLOY 304 STAINLESS STEEL AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM F844 EXCEPT THEY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



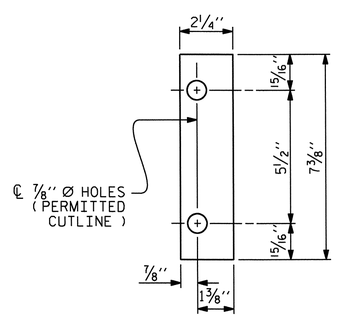
SECTION B - B



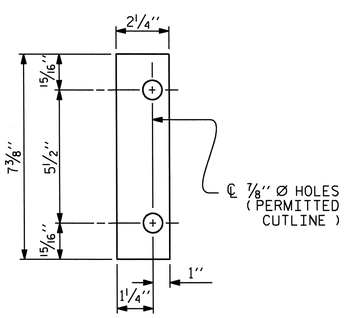
EXPANSION BAR DETAILS



BAR SECTION



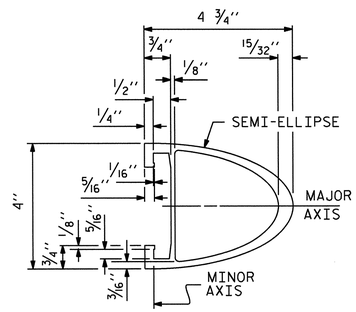
FRONT PLATE



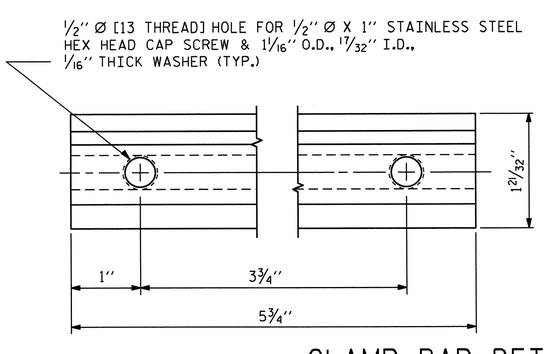
REAR PLATE

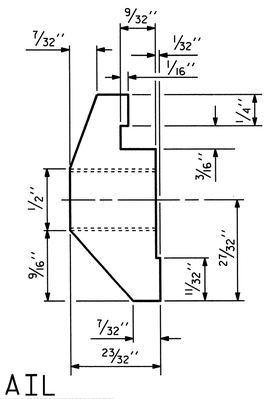
SHIM DETAILS

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



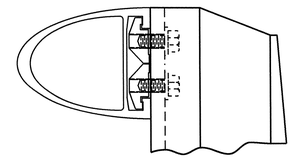
RAIL SECTION



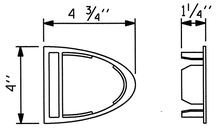


CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY



RAIL CAP

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 3 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

2 BAR METAL RAIL

ASSEMBLED BY : A. SORSENGINH	DATE : 11/2012		
CHECKED BY : B.N.BARODAWALA	DATE : 11/2012		
DRAWN BY : EEM 6/94	REV. 8/16/99	MAB/LES	
CHECKED BY : RGW 6/94	REV. 5/1/06R	KMM/GM	
	REV. 10/1/11	MAA/GM	

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

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
4/19/13

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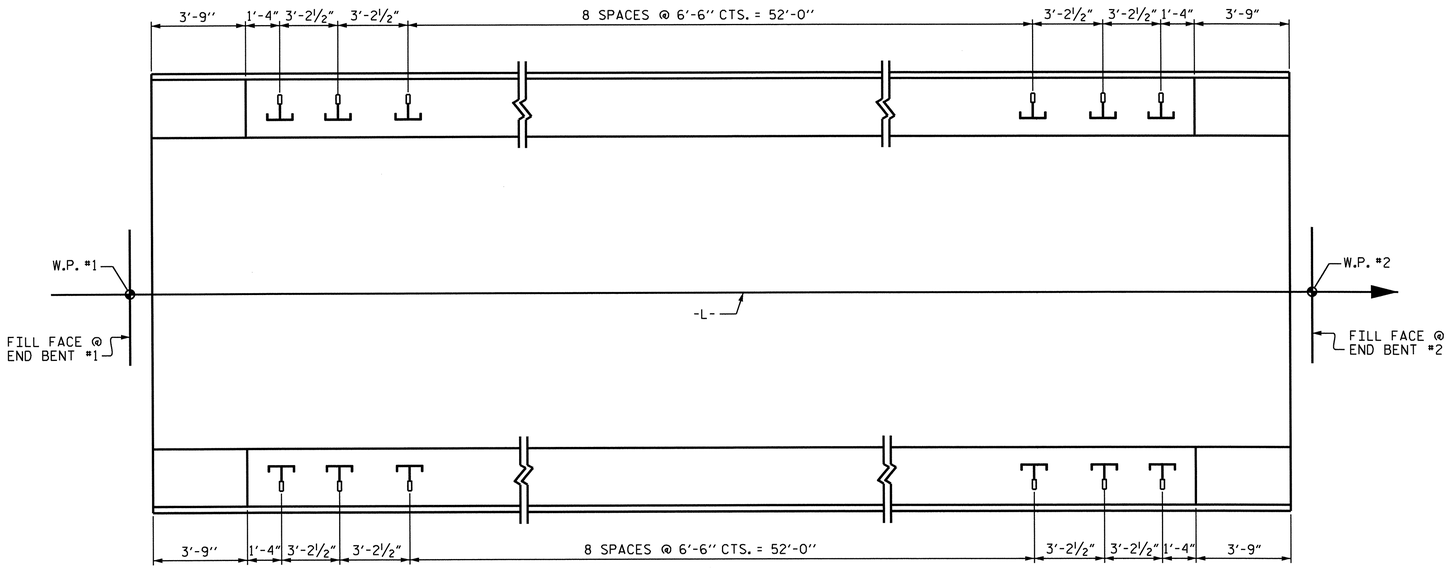
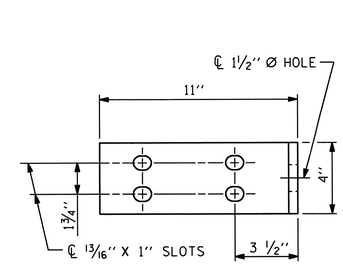
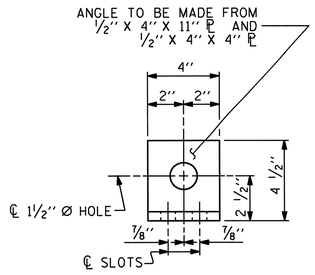
STD. NO. BMR4



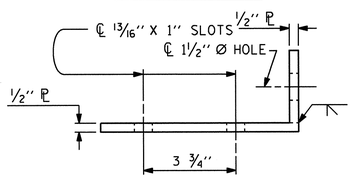
PLAN OF RAIL POST SPACINGS



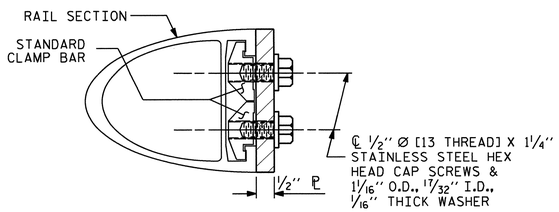
ELEVATION



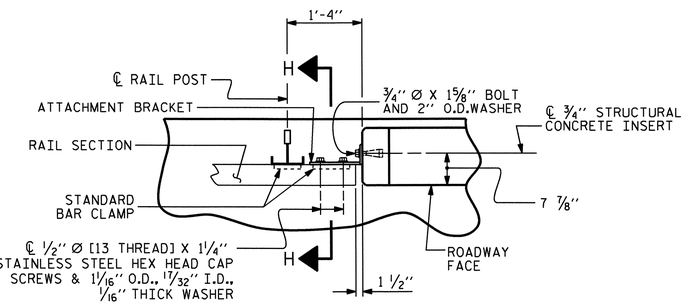
END VIEW



TOP VIEW



SECTION H-H



PLAN - RAIL AND END POST

FIXED

DETAILS FOR ATTACHING METAL RAIL TO END POST

NOTES

STRUCTURAL CONCRETE INSERT

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

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1½".

B. 1 - ¾" Ø X 1⅝" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE ¾" Ø X 1⅝" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. ½" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.

B. ¾" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A ¾"Ø X 1⅝" BOLT WITH 2" O.D. WASHER IN PLACE. THE ¾"Ø X 1⅝" BOLT SHALL HAVE N. C. THREADS.

C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 60°F.

D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).

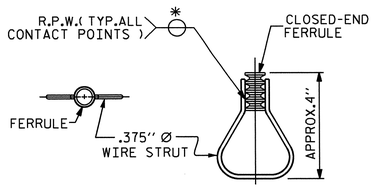
E. ½" Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.

THE ¾" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE ¾" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE ½" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE ¾" Ø X 1⅝" BOLT WITH WASHER SHALL BE REPLACED WITH A ¾"Ø X 6½" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE ¾" Ø X 1⅝" BOLT SHALL APPLY TO THE ¾"Ø X 6 ½" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

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

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 4 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

RAIL POST SPACINGS AND END OF RAIL DETAILS
FOR ONE OR TWO BAR METAL RAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			21

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
4/19/13

ASSEMBLED BY : A. SORSENGINH	DATE : 11/2012		
CHECKED BY : B. N. BARODAWALA	DATE : 11/2012		
DRAWN BY : FCJ 1/88	REV. 5/7/03	RWW/JTE	
CHECKED BY : CRK 3/89	REV. 5/1/06	TLA/GM	
	REV. 10/1/11	MAA/GM	

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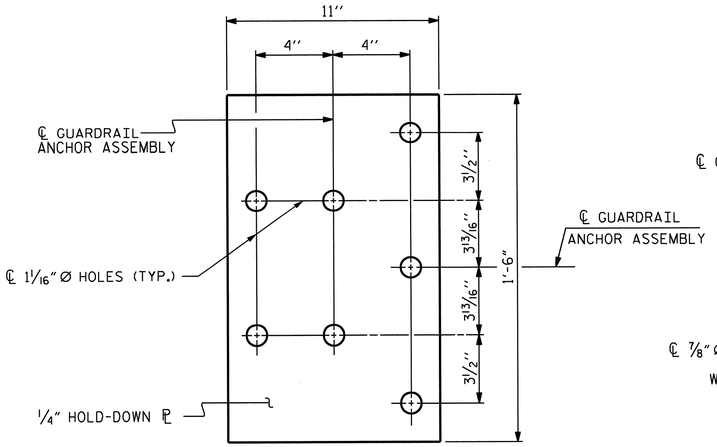
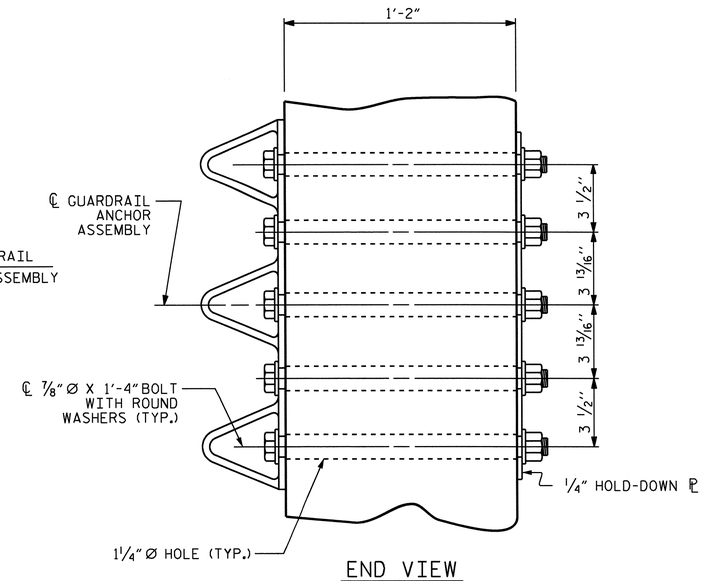


PLAN



END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS

NOTES

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

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

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

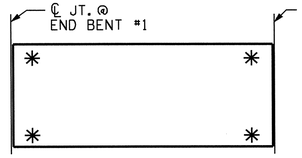
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF THE PARAPET. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

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

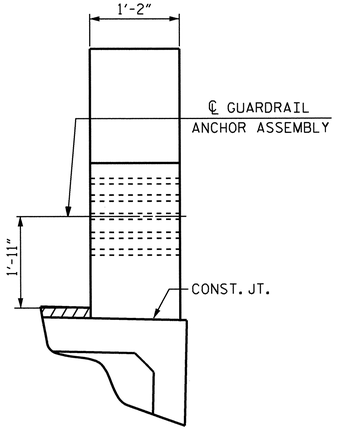
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

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

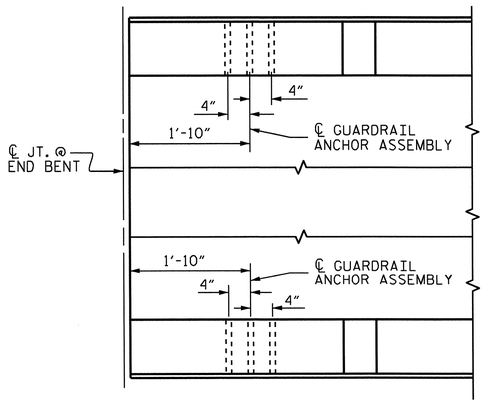


SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



END VIEW



PLAN

LOCATION OF GUARDRAIL ANCHOR AT END POST

ASSEMBLED BY : A. SORSENGINH	DATE : 11/2012		
CHECKED BY : B.N.BARODAWALA	DATE : 11/2012		
DRAWN BY : MAA 5/10	ADDED 5/6/10		
CHECKED BY : GM 5/10	REV. 10/1/11	MAA/GM	
	REV. 12/5/11	MAA/GM	

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 5 OF 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			21

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMORY E. MURRAY
4/19/13

(SHT 4) STD. NO. GRA3

18-APR-2013 14:41
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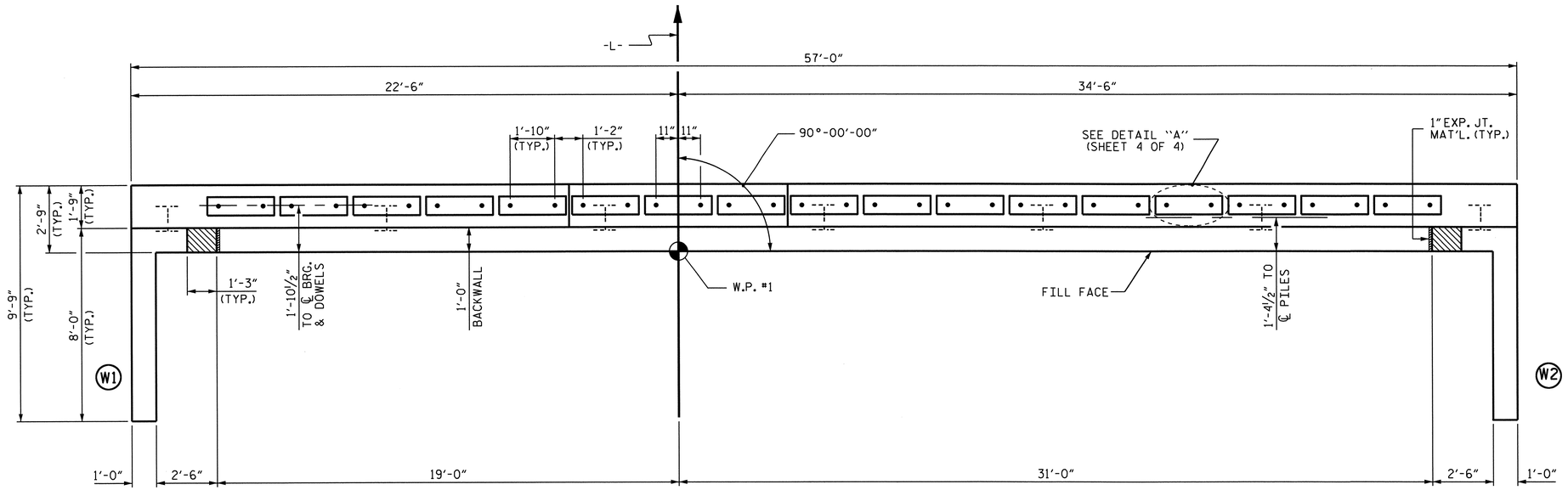
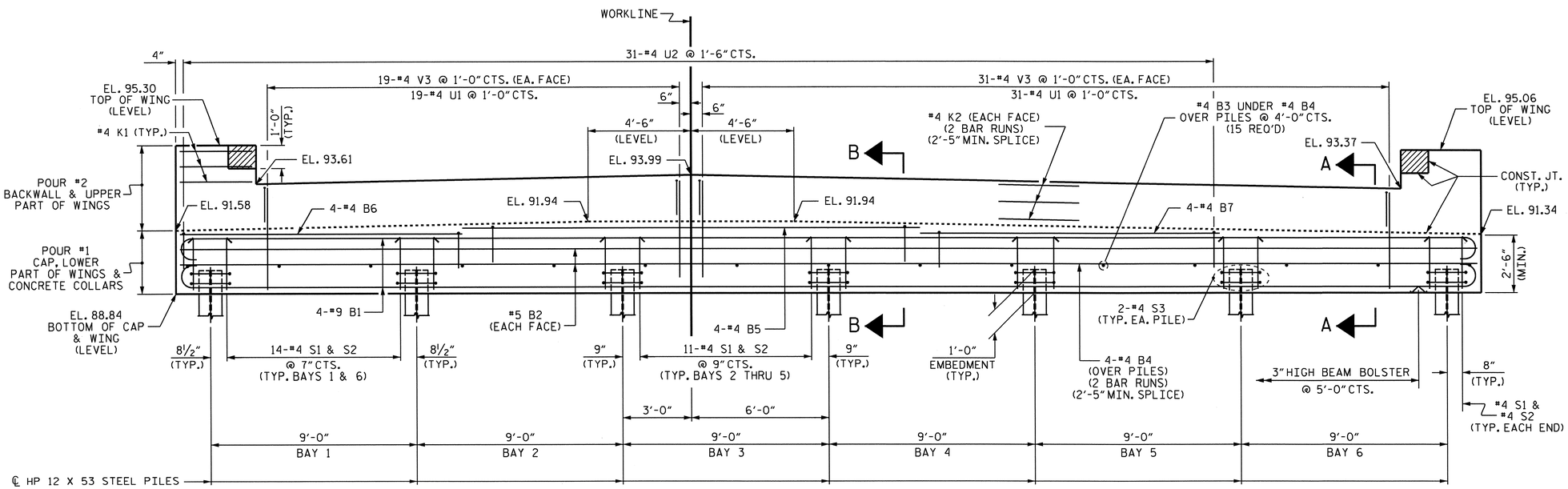
padkins



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

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

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

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT #1

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

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
4/19/13

DRAWN BY : A. SORSENGINH DATE : 11/2012
CHECKED BY : B.N.BARODAWALA DATE : 11/2012
DESIGN ENGINEER OF RECORD: M. RORIE DATE : 4-17-13

18-APR-2013 14:46
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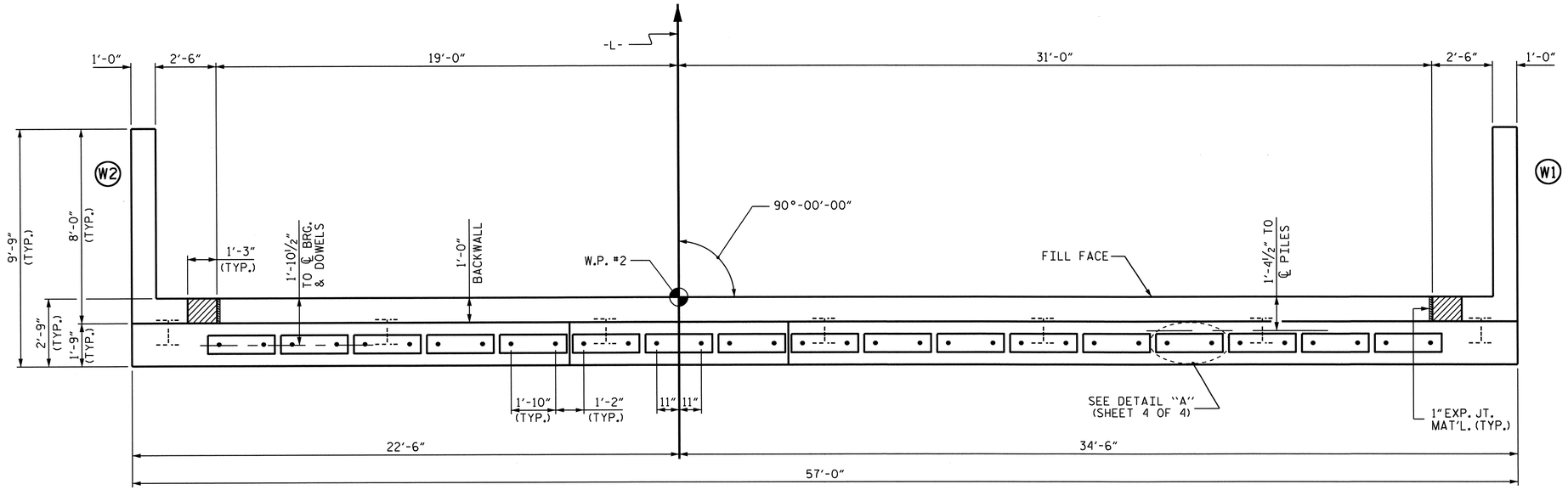
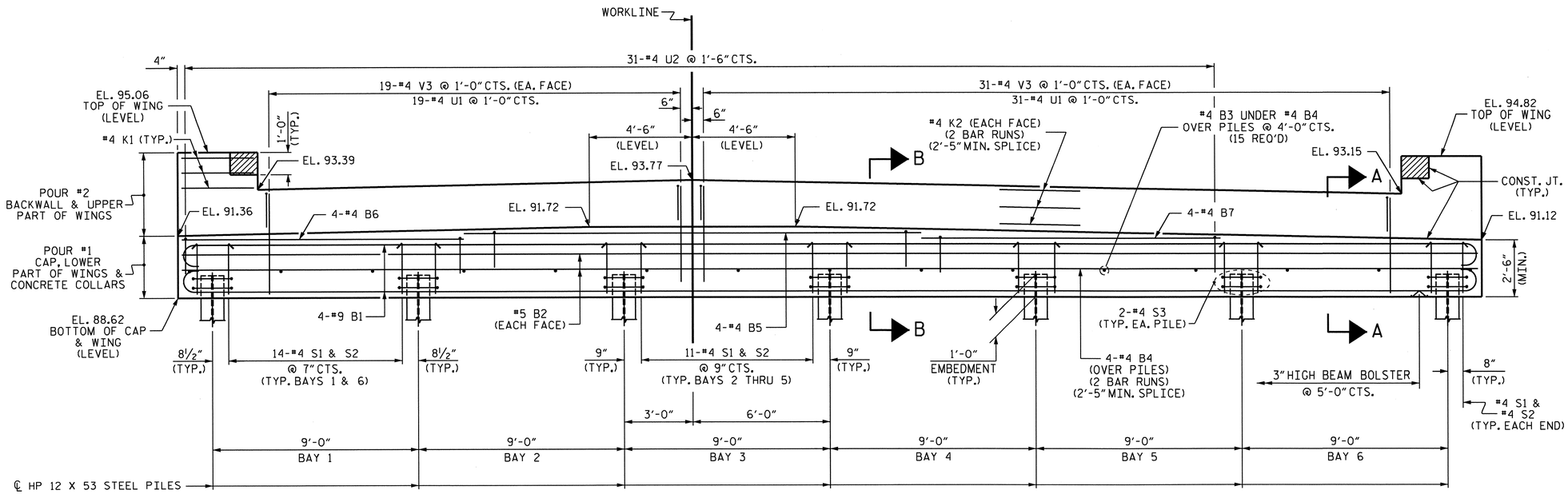
padkins



PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.
FOR SECTION A-A, SEE SHEET 4 OF 4.
CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 4 OF 4.

NOTES

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

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

FOR PILE SPLICE DETAILS, SEE SHEET 4 OF 4.

FOR WING DETAILS, SEE SHEET 3 OF 4.

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER TIMOTHY E. MURRAY
4/19/13

DRAWN BY :	A. SORSENGINH — DATE : 11/2012
CHECKED BY :	B.N.BARODAWALA — DATE : 11/2012
DESIGN ENGINEER OF RECORD:	M. RORIE — DATE : 4-17-13

18-APR-2013 14:46
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padkins

PROJECT NO. B-5126
WILSON COUNTY
STATION: 21+36.00 -L-

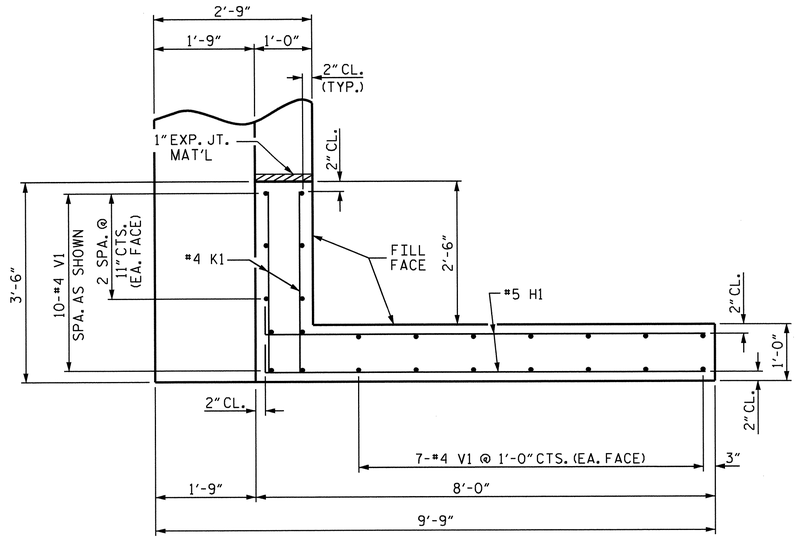
SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

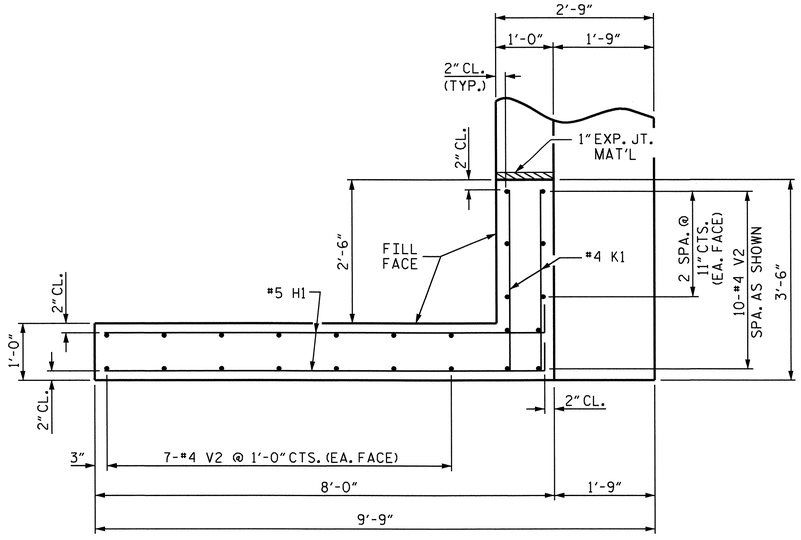
SUBSTRUCTURE

END BENT #2

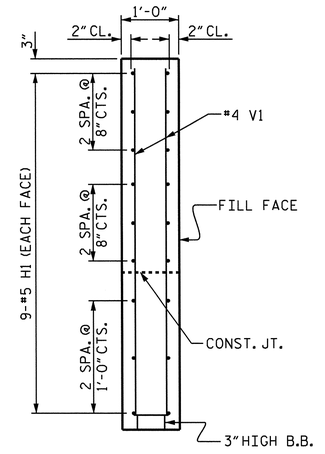
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			21



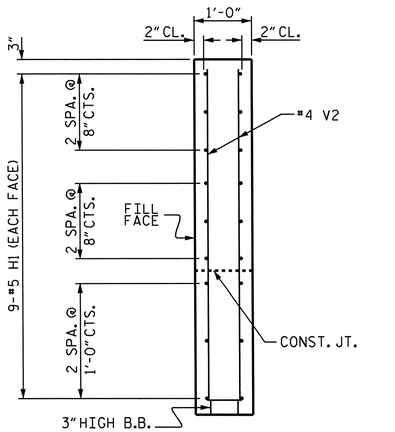
PLAN OF WING (W1)



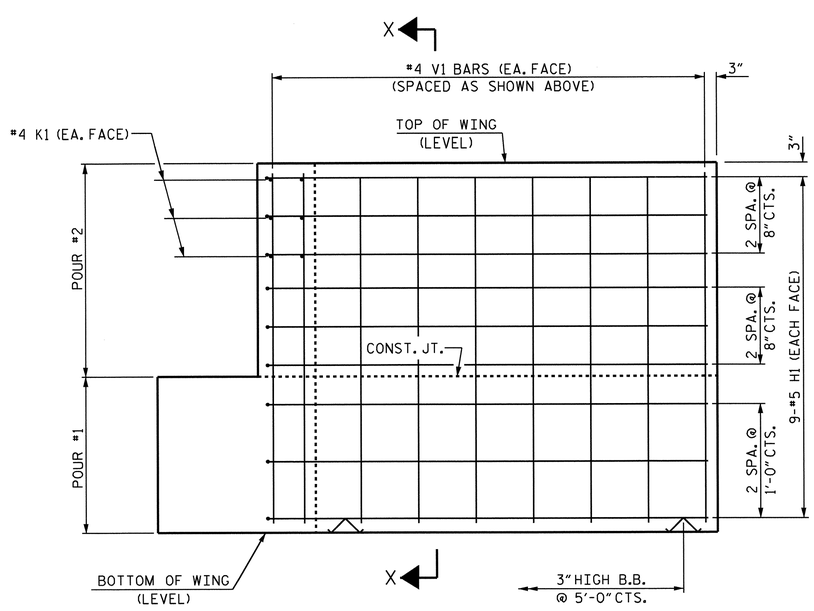
PLAN OF WING (W2)



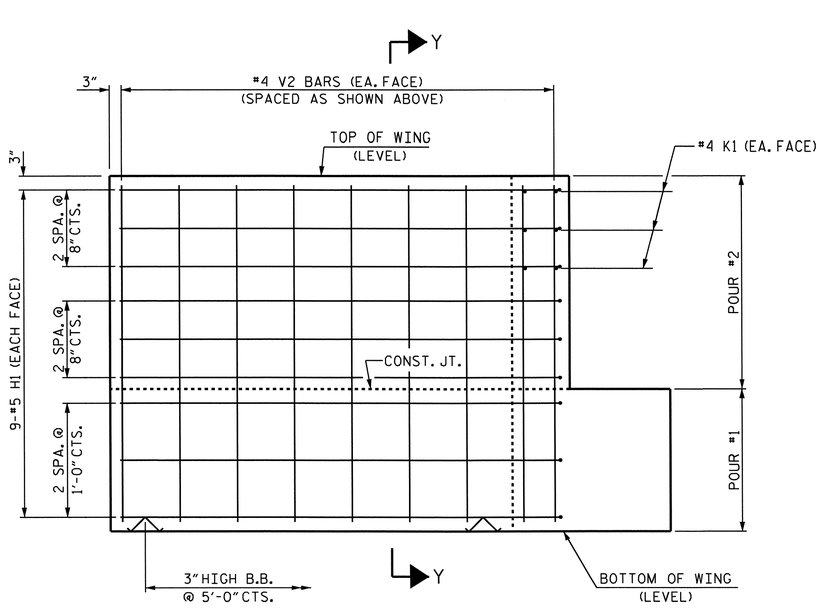
SECTION X-X



SECTION Y-Y



ELEVATION OF WING (W1)



ELEVATION OF WING (W2)

WING DETAILS

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT
WING DETAILS

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

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER MARY E. MURRAY
4/19/13

DRAWN BY : A. SORSENGINH DATE : 11/2012
CHECKED BY : B.N.BARODAWALA DATE : 11/2012
DESIGN ENGINEER OF RECORD: M. RORIE DATE : 4-17-13

18-APR-2013 14:46
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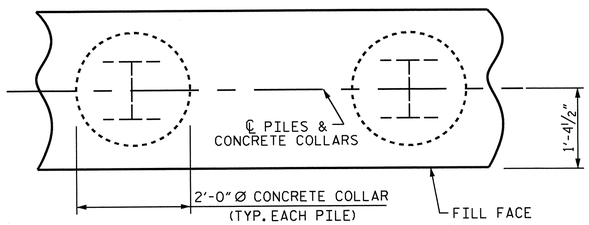
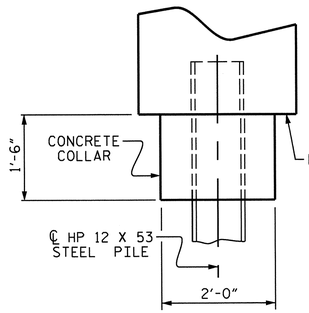
padkins



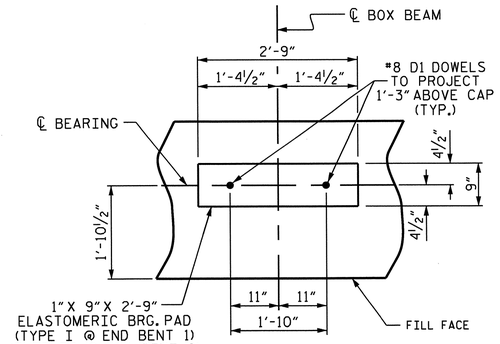
PLAN

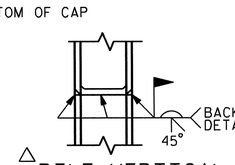


ELEVATION

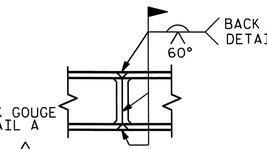
CORROSION PROTECTION FOR STEEL PILES DETAIL

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)

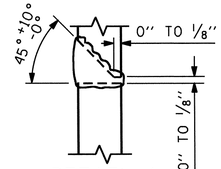




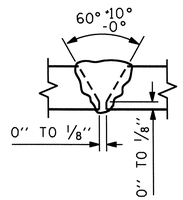
△ PILE VERTICAL



△ PILE HORIZONTAL
OR VERTICAL



DETAIL A

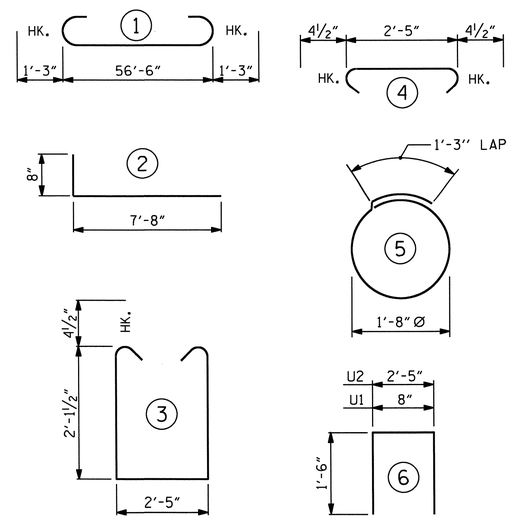


DETAIL B

△ POSITION OF PILE DURING WELDING.

PILE SPLICE DETAILS

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

END BENT 1	END BENT 2
HP 12 X 53 STEEL PILES	HP 12 X 53 STEEL PILES
NO: 7 LIN. FT.= 210	NO: 7 LIN. FT.= 105

BILL OF MATERIAL
FOR ONE END BENT

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	59'-0"	1605
B2	4	#5	STR	56'-8"	236
B3	15	#4	STR	2'-5"	24
B4	8	#4	STR	29'-7"	158
B5	4	#4	STR	20'-0"	53
B6	4	#4	STR	12'-4"	33
B7	4	#4	STR	13'-1"	35
D1	34	#8	STR	2'-3"	204
H1	36	#5	2	8'-4"	313
K1	12	#4	STR	3'-2"	25
K2	12	#4	STR	29'-7"	237
S1	74	#4	3	7'-5"	367
S2	74	#4	4	3'-2"	157
S3	14	#4	5	6'-6"	61
U1	50	#4	6	3'-8"	122
U2	31	#4	6	5'-5"	112
V1	24	#4	STR	6'-1"	98
V2	24	#4	STR	5'-10"	94
V3	100	#4	STR	4'-2"	278

REINFORCING STEEL
(FOR ONE END BENT) 4212 LBS.

CLASS A CONCRETE BREAKDOWN
(FOR ONE END BENT)

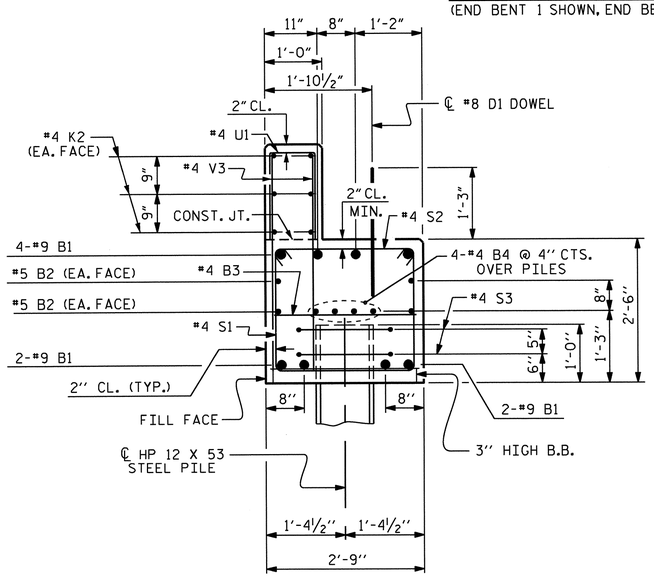
POUR #1 CAP, LOWER PART OF WINGS & COLLARS 19.3 C.Y.

POUR #2 BACKWALL & UPPER PART OF WINGS 6.5 C.Y.

TOTAL CLASS A CONCRETE 25.8 C.Y.

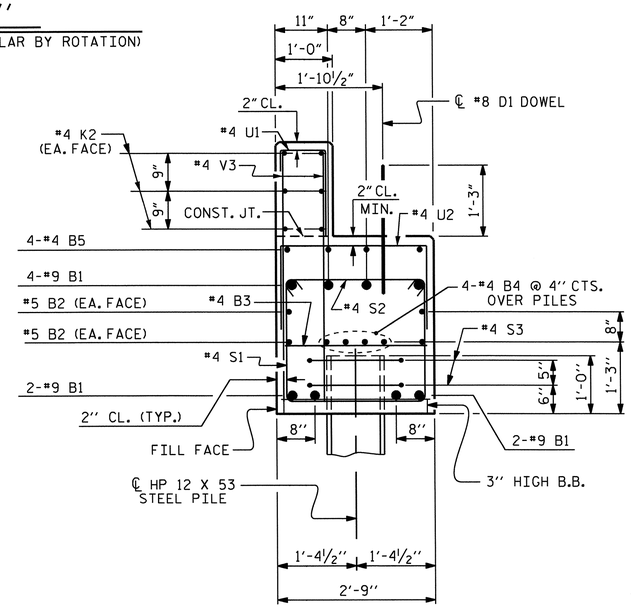
DETAIL "A"

(END BENT 1 SHOWN, END BENT 2 SIMILAR BY ROTATION)



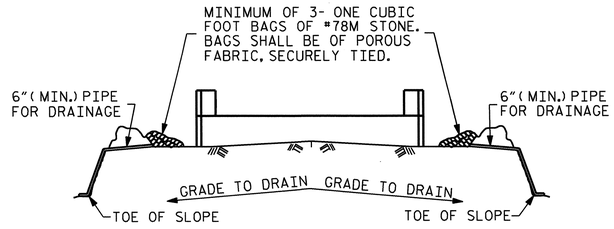
SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



SECTION B-B

(CONCRETE COLLAR NOT SHOWN FOR CLARITY.
SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")



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

PROJECT NO. B-5126
WILSON COUNTY
STATION: 21+36.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE

END BENT 1 & 2 DETAILS

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

DRAWN BY : A. SORSENGINH DATE : 11/2012
CHECKED BY : B.N.BARODAWALA DATE : 11/2012
DESIGN ENGINEER OF RECORD: M. RORIE DATE : 4-17-13

18-APR-2013 14:46
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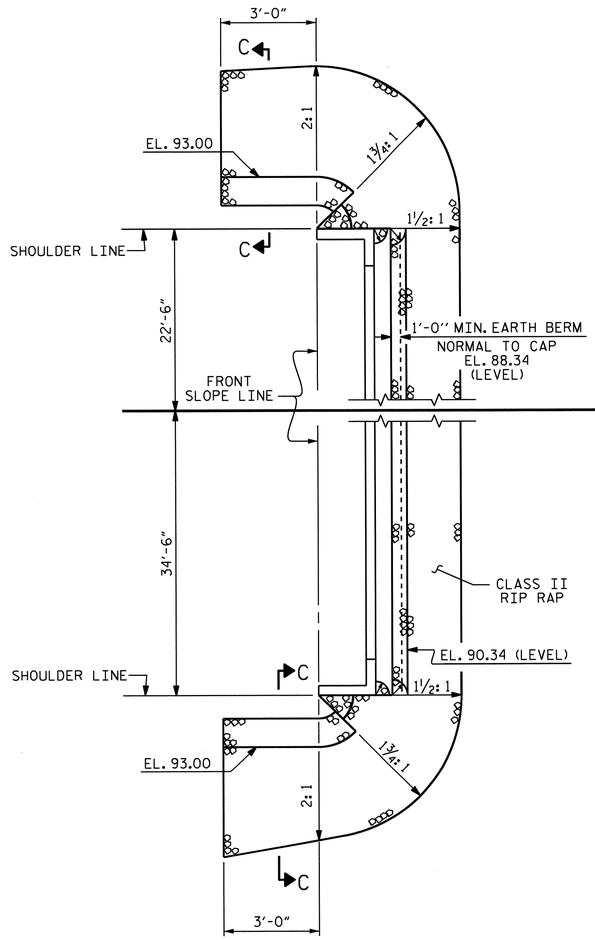
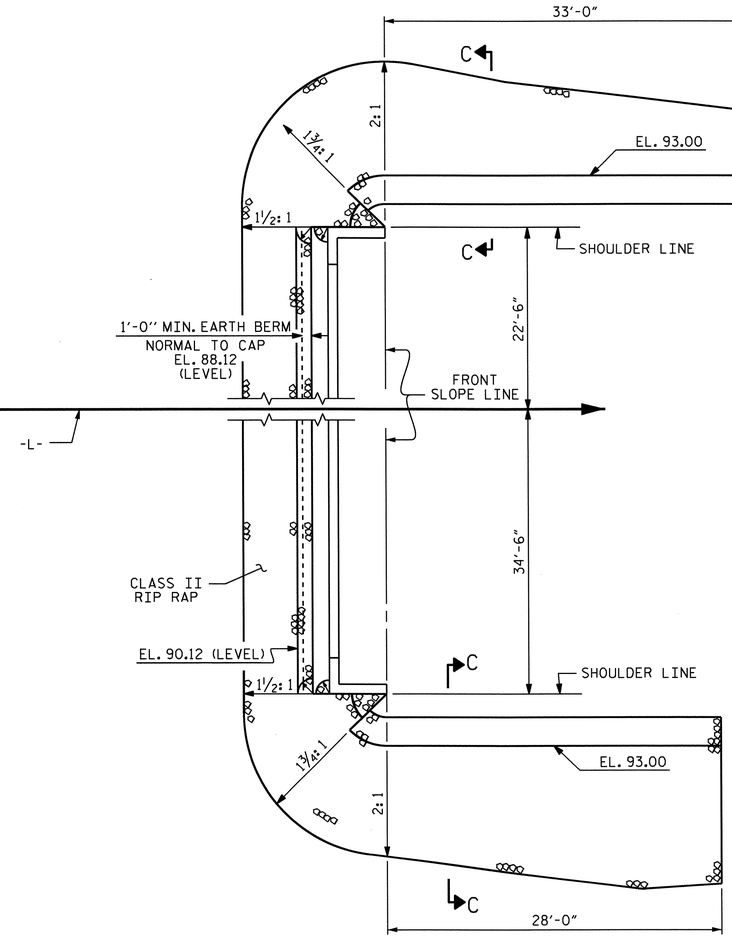
padkins

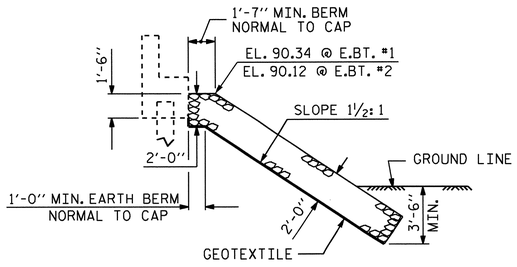


END BENT #1

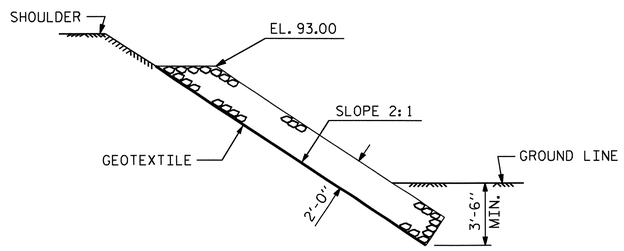


END BENT #2

PLAN



℄ SECTION
BERM RIP RAPPED



SECTION C-C

ESTIMATED QUANTITIES		
BRIDGE @ STA. 21+36.00 -L-	RIP RAP CLASS II (2'-0" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT #1	82	91
END BENT #2	160	178

PROJECT NO. B-5126
WILSON COUNTY
STATION: 21+36.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIP RAP DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER ELMER E. MURRAY
4/19/13

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

SHEET NO. S-19
TOTAL SHEETS 21

ASSEMBLED BY : A. SORSENGINH	DATE : 11/2012	
CHECKED BY : B.N.BARODAWALA	DATE : 11/2012	
DRAWN BY : REK 1/84	REV. 5/1/06R	TLA/GM
CHECKED BY : RDU 1/84	REV. 10/1/11	MAA/GM
	REV. 12/21/11	MAA/GM

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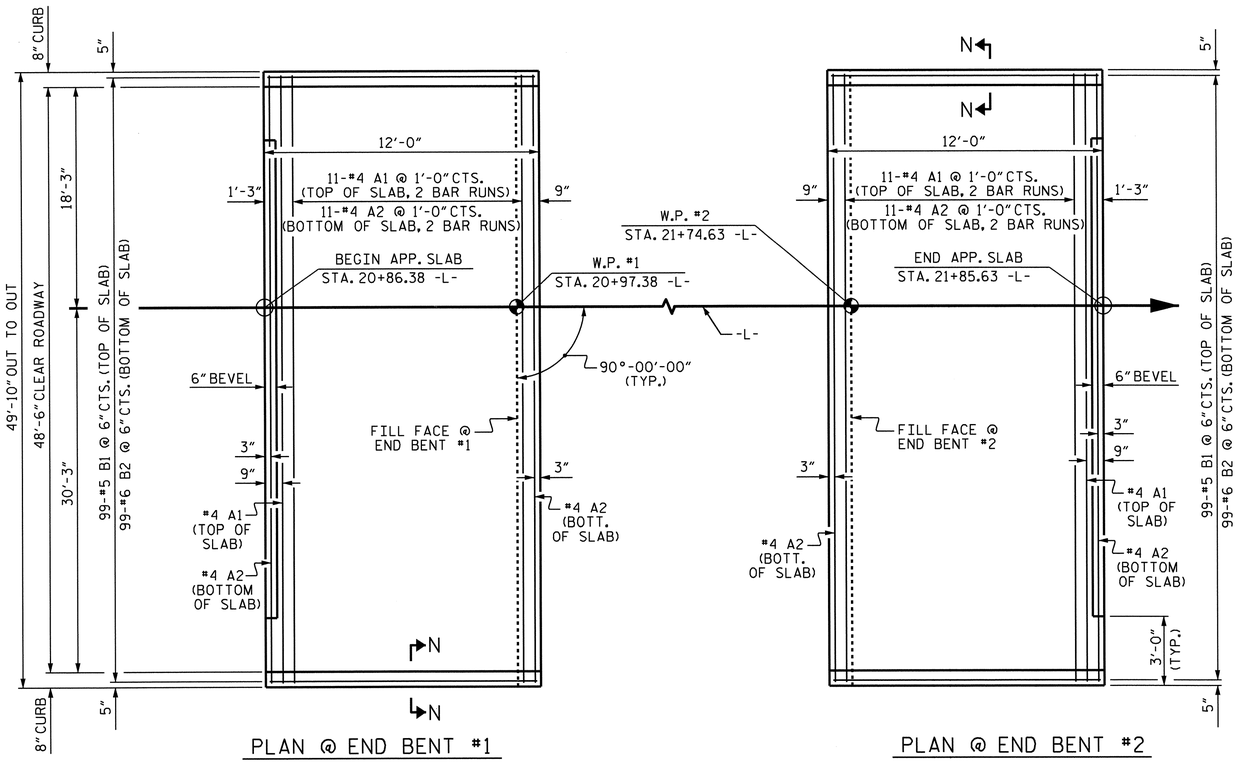
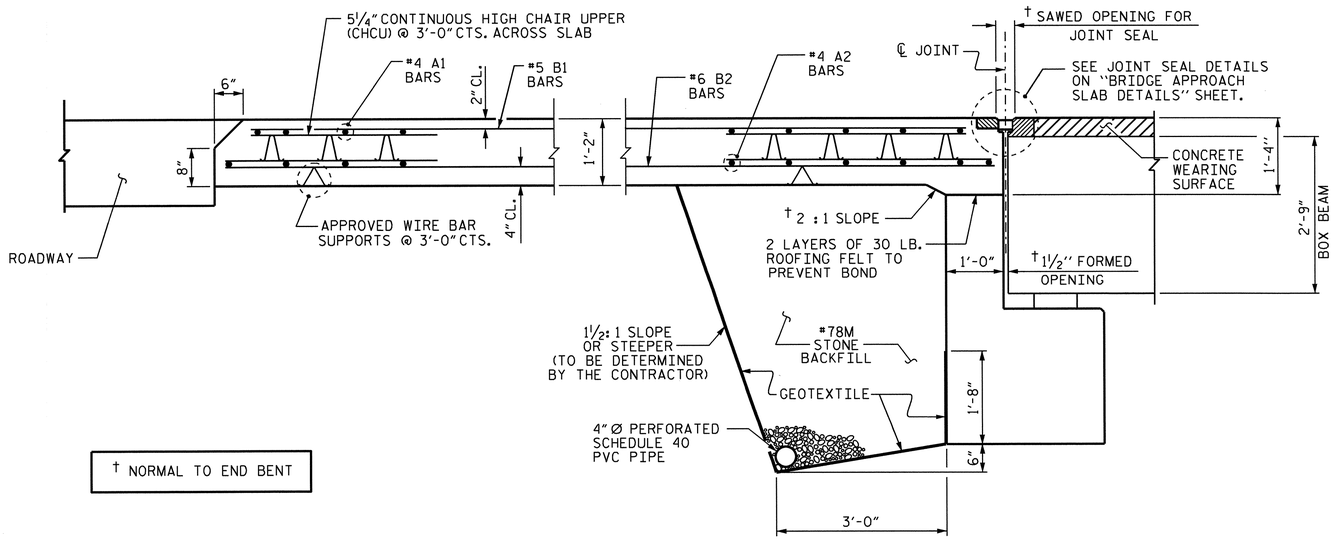
padkins

STD. NO. RR1

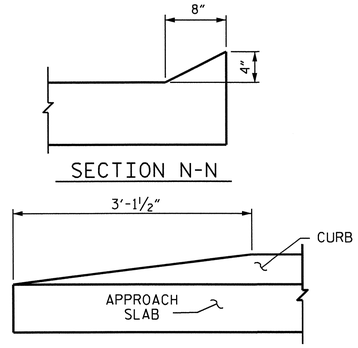


DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



† NORMAL TO END BENT

SECTION THRU SLAB



END OF CURB WITHOUT SHOULDER BERM GUTTER

CURB DETAILS

NOTES

APPROACH SLABS SHALL BE POURED AFTER CONCRETE OVERLAY IS POURED.

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

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

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

WITH FOAM JOINT SEAL

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL SHALL BE 3".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

APPROACH SLAB AT EB #1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A1	24	#4	STR	25'-9"	413
A2	26	#4	STR	25'-8"	446
✱ B1	99	#5	STR	10'-9"	1110
B2	99	#6	STR	11'-8"	1735
REINFORCING STEEL				LBS.	2181
✱ EPOXY COATED REINFORCING STEEL				LBS.	1523
CLASS AA CONCRETE				C.Y.	26.0

APPROACH SLAB AT EB #2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A1	24	#4	STR	25'-9"	413
A2	26	#4	STR	25'-8"	446
✱ B1	99	#5	STR	10'-9"	1110
B2	99	#6	STR	11'-8"	1735
REINFORCING STEEL				LBS.	2181
✱ EPOXY COATED REINFORCING STEEL				LBS.	1523
CLASS AA CONCRETE				C.Y.	26.0

SPLICE CHART

BAR	LENGTH
#4 A1	2'-0"
#4 A2	1'-9"

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE BOX BEAM UNIT

(SUB-REGIONAL TIER)

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

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
4/19/13

DRAWN BY : T.L. AVERETTE DATE : 2-20-13
CHECKED BY : B.L. GREEN DATE : 2-21-13

18-APR-2013 14:50
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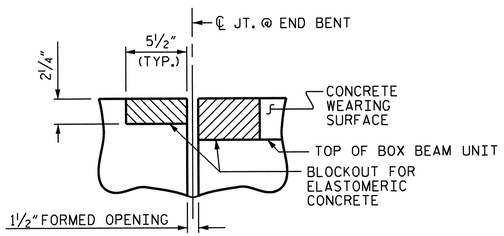
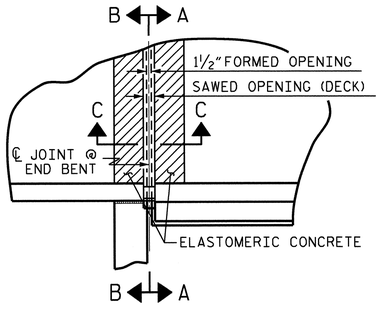
podkins

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	14.5
2	14.5
TOTAL	29.0

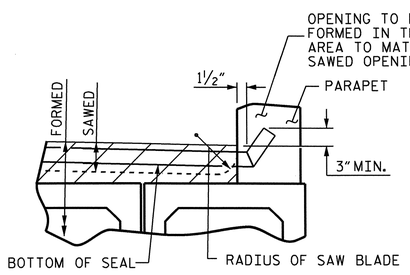
* BASED ON THE MINIMUM BLOCKOUT SHOWN.



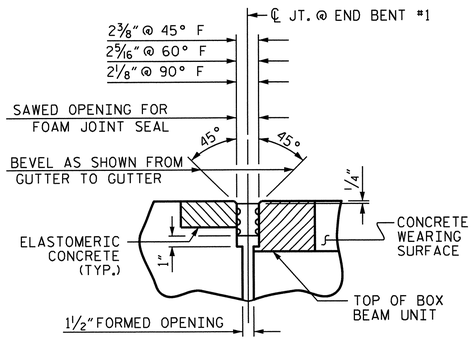
SECTION C-C
FOAM JOINT SEAL
(PRE-SAWED ELASTOMERIC CONCRETE DIMENSIONS)



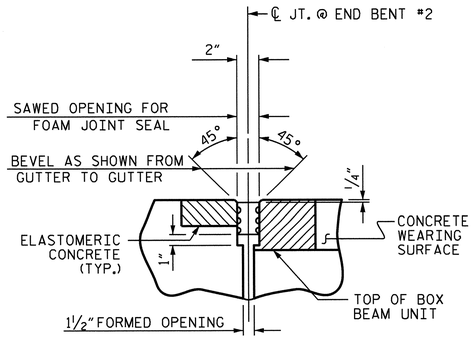
PLAN



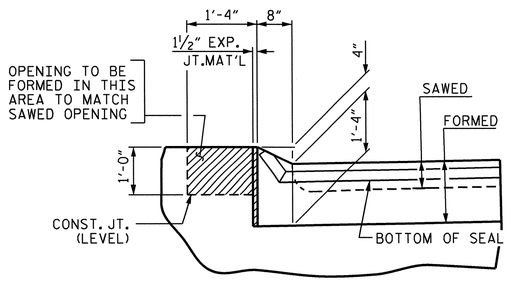
SECTION A-A



SECTION C-C
FOAM JOINT SEAL
(EXPANSION)



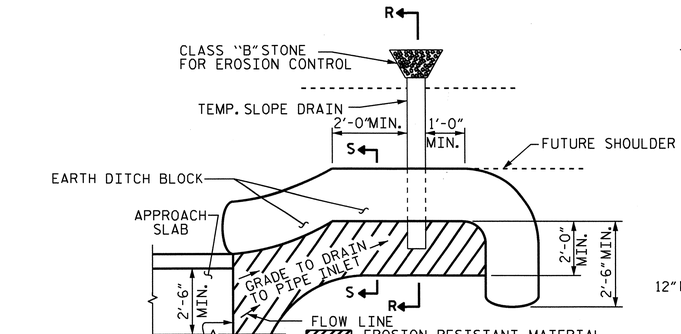
SECTION C-C
FOAM JOINT SEAL
(FIXED)



SECTION B-B

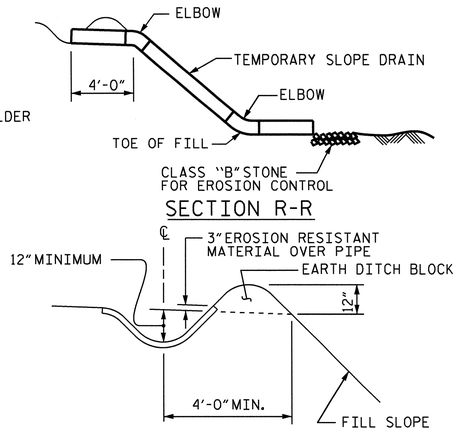
JOINT SEAL DETAILS @ END BENT

FOAM JOINT SEAL TO BE CUT, HEAT WELDED AND TURNED UP AS SHOWN.



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW

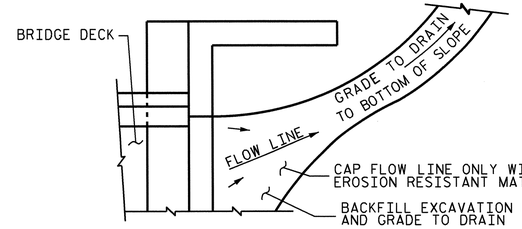


SECTION R-R

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-5126

WILSON COUNTY

STATION: 21+36.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 025516 ENGINEER EMILY E. MURRAY
4/19/13

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DRAWN BY : T.L. AVERETTE DATE : 2-20-13
CHECKED BY : B.L. GREEN DATE : 2-21-13

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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF	
STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION	
GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR	
UNTREATED - EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN

REV. 6-16-95 EEM @ RGW REV. 5-7-03 RWW @ JTE REV. 10-1-11 MAA @ GM
REV. 8-16-99 RWW @ LES REV. 5-1-06 TLA @ GM