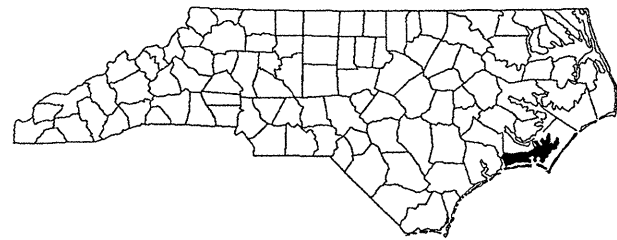
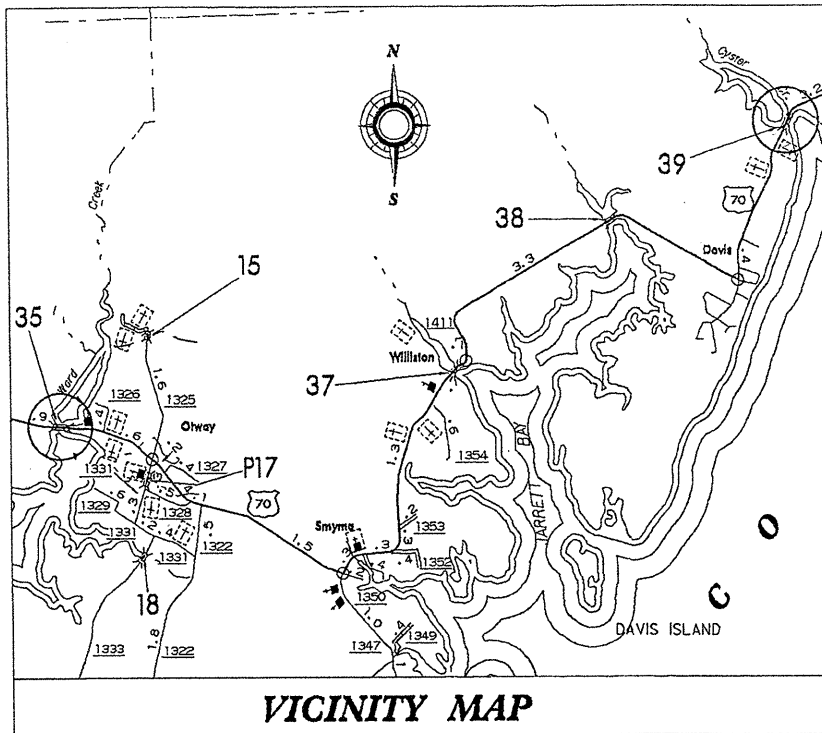


PROJECT: 41665.4B

CONTRACT: C203404



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

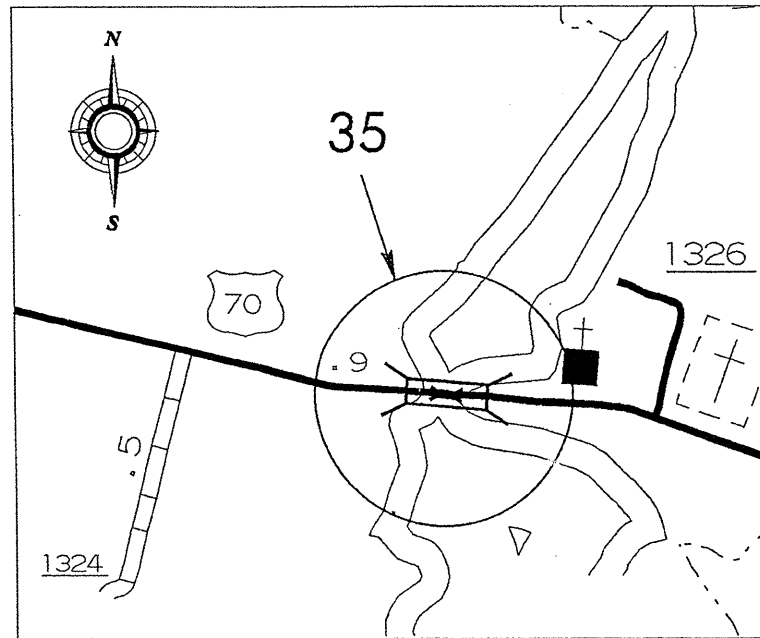
CARTERET COUNTY

**LOCATION: CARTERET COUNTY BRIDGE #35, US70 ACROSS WARD CREEK
CARTERET COUNTY BRIDGE #39, US70 ACROSS OYSTER CREEK**

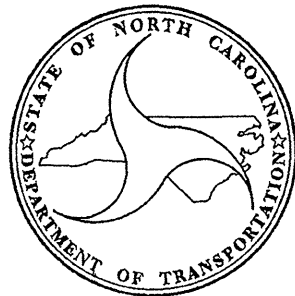
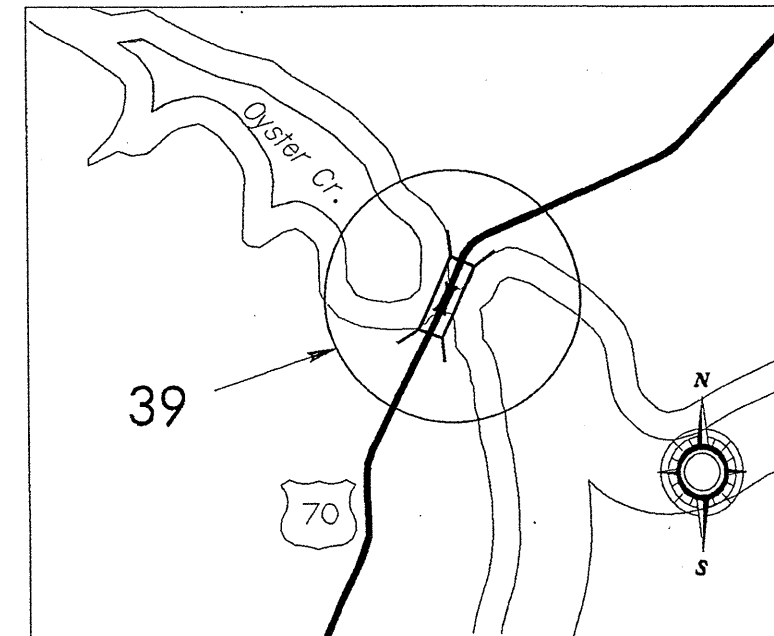
**TYPE OF WORK: BRIDGE REHABILITATION; SUPERSTRUCTURE REPLACEMENT
& CONCRETE REPAIRS TO SUBSTRUCTURE**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	41665.4B	1	62
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41665.4B		P.E.	
41665.4B		CONST.	

BRIDGE #35



BRIDGE #39



DESIGN DATA

CARTERET	
#35	ADT 2009 = 8500
#39	ADT 2011 = 2700

PROJECT LENGTH

BRIDGE CARTERET #35	=	0.0686 MILE
BRIDGE CARTERET #39	=	0.0688 MILE

Prepared in the Office of:
**DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**
STRUCTURES MANAGEMENT UNIT - PRESERVATION & REPAIR GROUP
1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610

RICK NELSON, PE
PROJECT ENGINEER

2012 STANDARD SPECIFICATIONS

LETTING DATE:
AUGUST 20, 2013

ENGINEER



6/29/2013
DANIEL C. MULLER
PROJECT DESIGN ENGINEER

PROJECT: 41665.4B

CONTRACT: C203404

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

CARTERET COUNTY

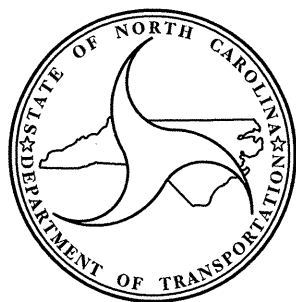
*LOCATION: CARTERET COUNTY BRIDGE #35, US70 ACROSS WARD CREEK
CARTERET COUNTY BRIDGE #39, US70 ACROSS OYSTER CREEK*

*TYPE OF WORK: BRIDGE REHABILITATION: SUPERSTRUCTURE REPLACEMENT
& CONCRETE REPAIRS TO SUBSTRUCTURE*

INDEX OF SHEETS

<u>SHEET #</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
1A	INDEX OF SHEETS
2	SUMMARY OF QUANTITIES
S-1 THRU S-25	STRUCTURES PLANS - BRIDGE #35
S-26 THRU S-49	STRUCTURES PLANS - BRIDGE #39
TMP-1 THRU TMP-9	TRAFFIC MANAGEMENT PLANS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	41665.4B	1A	62
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41665.4B		P.E.	
41665.4B		CONST.	



SUMMARY OF QUANTITIES - 41665.4B

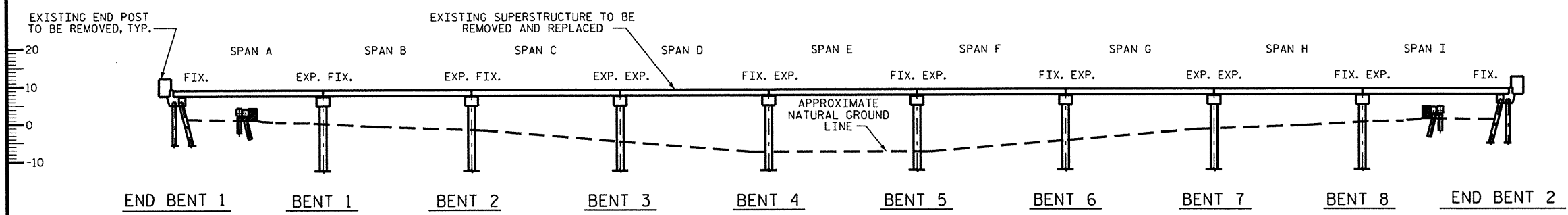
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203404

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
1330000000-E	607	1,533	SY	INCIDENTAL MILLING
1489000000-E	610	70	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1519000000-E	610	1,089	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1575000000-E	620	49	TON	ASPHALT BINDER FOR PLANT MIX
3030000000-E	862	1,277	LF	STEEL BM GUARDRAIL
3215000000-N	862	8	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	8	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3360000000-E	863	1,827	LF	REMOVE EXISTING GUARDRAIL
4400000000-E	1110	296	SF	WORK ZONE SIGNS (STATIONARY)
4410000000-E	1110	40	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4420000000-N	1120	4	EA	PORTABLE CHANGEABLE MESSAGE SIGN
4430000000-N	1130	60	EA	DRUMS
4445000000-E	1145	48	LF	BARRICADES (TYPE III)
4450000000-N	1150	700	HR	FLAGGER
4600000000-N	SP	2	EA	GENERIC TRAFFIC CONTROL ITEM PORTABLE TRAFFIC SIGNAL SYSTEM (PRE-TIMED)
4600000000-N	SP	24	EA	GENERIC TRAFFIC CONTROL ITEM TEMPORARY RUMBLE STRIPS
4650000000-N	1251	206	EA	TEMPORARY RAISED PAVEMENT MARKERS
4685000000-E	1205	1,688	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 90 MILS)
4686000000-E	1205	1,827	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 120 MILS)
4687000000-E	1205	1,040	LF	THERMOPLASTIC PAVEMENT MARKING LINES (4", 240 MILS)
4810000000-E	1205	10,376	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	96	LF	PAINT PAVEMENT MARKING LINES (24")

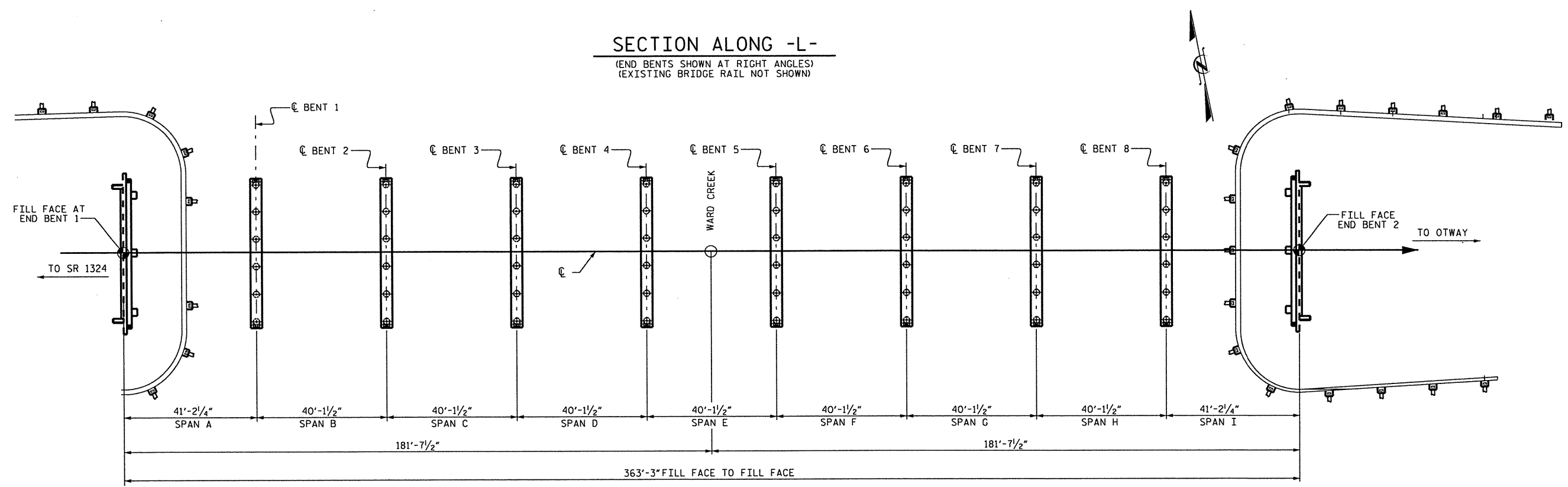
ItemNumber	Sec #	Quantity	Unit	Description
4850000000-E	1205	8,910	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
4870000000-E	1205	48	LF	REMOVAL OF PAVEMENT MARKING LINES (24")
4900000000-N	1251	17	EA	PERMANENT RAISED PAVEMENT MARKERS
8182000000-E	420	2.3	CY	CLASS A CONCRETE (BRIDGE)
8217000000-E	425	293	LB	REINFORCING STEEL (BRIDGE)
8224000000-E	425	1,258	LB	EPOXY COATED REINFORCING STEEL (BRIDGE)
8475000000-E	460	1,414	LF	TWO BAR METAL RAIL
8517000000-E	460	1,444	LF	1'-***"X *****" CONCRETE PARA-PET (1'-2" X 2'-10")
8657000000-N	430	Lump Sum		ELASTOMERIC BEARINGS
8660000000-E	SP	13	CF	CONCRETE REPAIRS
8678000000-E	SP	494	LF	EPOXY RESIN INJECTION
8762000000-E	430	10,080	LF	3'-0" X 1'-9" PRESTRESSED CONC CORED SLABS
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMPORARY BRIDGING AT BRIDGE #35
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM CONSTRUCTION, MAINTENANCE, & REMOVAL OF TEMPORARY BRIDGING AT BRIDGE #39
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXISTING STRUCTURE AT BRIDGE #35
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM PARTIAL REMOVAL OF EXISTING STRUCTURE AT BRIDGE #39
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM TEMPORARY METAL BRIDGE RAIL AT BRIDGE #35
8860000000-N	SP	Lump Sum		GENERIC STRUCTURE ITEM TEMPORARY METAL BRIDGE RAIL AT BRIDGE #39
8867000000-E	SP	61	LF	GENERIC STRUCTURE ITEM CONCRETE PILE JACKETS

SUMMARY OF QUANTITIES - 41665.4B

ItemNumber	Sec #	Quantity	Unit	Description
8897000000-N	SP	10	EA	GENERIC STRUCTURE ITEM SPECIAL REMOVAL & DELIVERY OF CORED SLAB UNITS
8897000000-N	SP	17	EA	GENERIC STRUCTURE ITEM STABILIZATION OF EXISTING SPAN DURING CONSTRUCTION



SECTION ALONG -L-
 (END BENTS SHOWN AT RIGHT ANGLES)
 (EXISTING BRIDGE RAIL NOT SHOWN)



PLAN
 (EXISTING SUPERSTRUCTURE NOT SHOWN)

SCOPE OF WORK

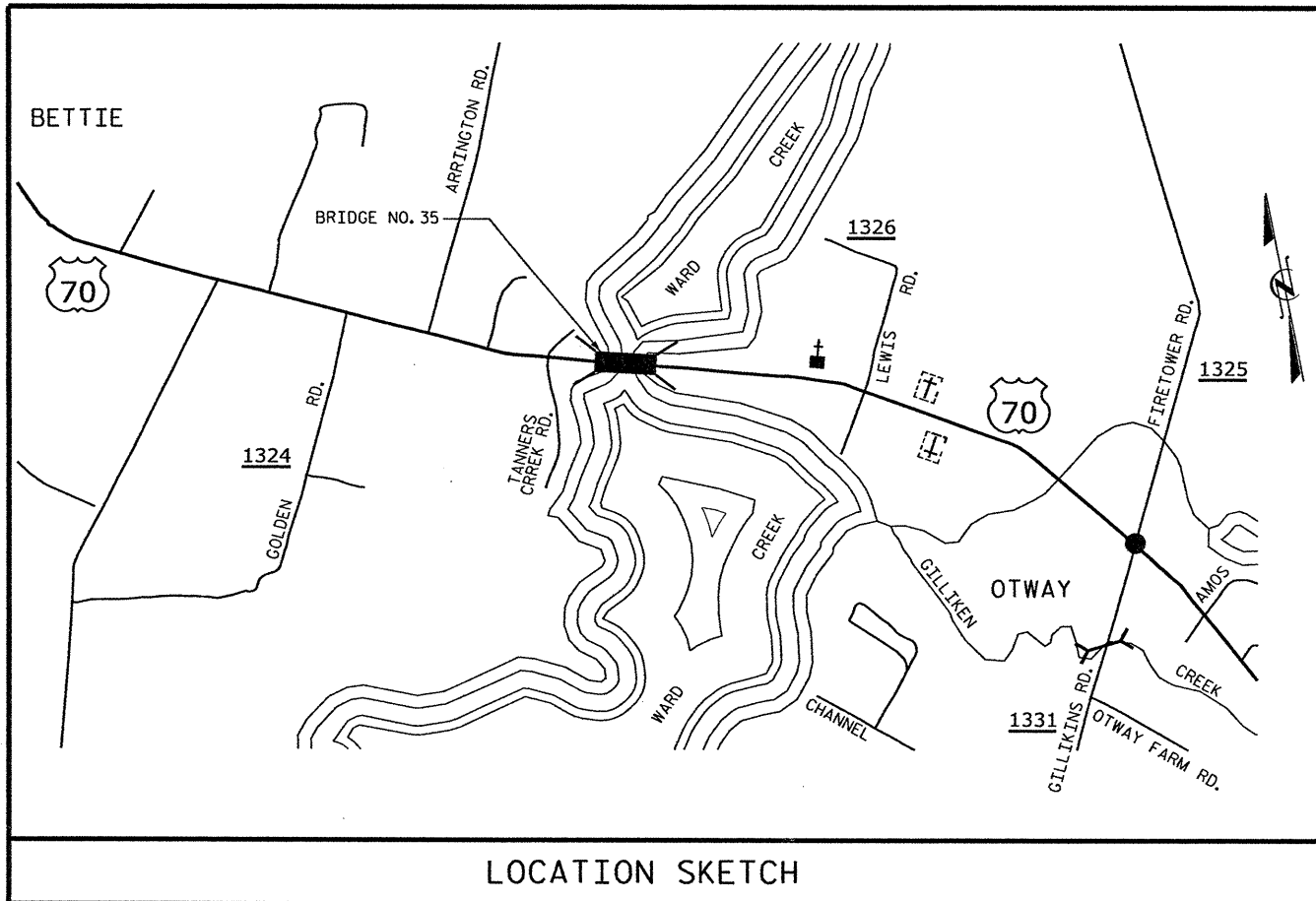
- CONSTRUCT, MAINTAIN, AND REMOVE TEMPORARY BRIDGING AND APPROACH RAMPS.
- REMOVE THE EXISTING CORED SLAB SUPERSTRUCTURE IN STAGES SHOWN.
- PLACE A NEW CORED SLAB SUPERSTRUCTURE IN STAGES SHOWN.
- MILL ASPHALT AND PLACE NEW SURFACE COURSE AT BRIDGE APPROACHES.
- FILL EXISTING CRACKS IN THE SUBSTRUCTURE WITH EPOXY RESIN.
- REMOVE AND REPAIR DAMAGED PORTIONS OF THE EXISTING CONCRETE CAPS.
- CONSTRUCT CONCRETE JACKETS AT THE PILES INDICATED.
- REMOVE AND REPLACE EXISTING APPROACH GUARDRAIL (SEE TRAFFIC MANAGEMENT PLANS).

PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO. : 35

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE OVER
 WARD CREEK ON
 US 70 BETWEEN
 SR 1324 & OTWAY

DRAWN BY : B.N.BARODAWALA DATE : 5-28-13
 CHECKED BY : D. MULLER DATE : 5-28-13
 DESIGN ENGINEER OF RECORD: D. MULLER DATE : 5-28-13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			49



LOCATION SKETCH

GENERAL NOTES

ASSUMED LIVE LOAD FOR SUPERSTRUCTURE = HL 93 OR ALTERNATE LOADING.
 ASSUMED LIVE LOAD FOR EXISTING SUBSTRUCTURE = HS15.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

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

THE EXISTING SUPERSTRUCTURE CONSISTING OF SIXTEEN PRESTRESSED CORED SLAB UNITS WITH A CLEAR ROADWAY WIDTH OF 42'-0" SHALL BE REMOVED PER THE PLANS ALONG WITH THE EXISTING LATERAL GUIDES AND END POSTS, SEE SPECIAL PROVISION FOR "PARTIAL REMOVAL OF EXISTING STRUCTURE".

SEVERAL OF THE EXISTING CORED SLAB UNITS WILL BE MARKED FOR SPECIAL DELIVERY PRIOR TO DEMOLITION. FOR SPECIAL REMOVAL AND DELIVERY OF CORED SLAB UNITS, SEE THE SPECIAL PROVISION FOR "PARTIAL REMOVAL OF EXISTING STRUCTURE".

CARE SHALL BE TAKEN NOT TO DAMAGE THE SUBSTRUCTURE DURING REMOVAL OF THE SUPERSTRUCTURE. IF THE SUBSTRUCTURE IS DAMAGED DURING REMOVAL IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL A REPAIR PROCEDURE FOR THE DAMAGED AREAS. REPAIRS MADE TO DAMAGE DONE BY REMOVAL SHALL BE AT THE EXPENSE OF THE CONTRACTOR. NO ADDITIONAL TIME WILL BE GRANTED IN ORDER TO PERFORM REPAIRS NEEDED DUE TO REMOVAL OF THE SUPERSTRUCTURE.

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

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

THIS SUPERSTRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.

ALL BAR SUPPORTS USED IN THE BARRIER RAIL AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY BRIDGING, SEE SPECIAL PROVISIONS.

FOR STABILIZATION OF EXISTING SPAN DURING CONSTRUCTION, SEE SPECIAL PROVISIONS.

FOR TEMPORARY METAL RAIL, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
 FOR PILE JACKETS, SEE SPECIAL PROVISIONS.
 FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
 FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
 FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
 THIS BRIDGE MAY BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS.
 FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
 FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
 FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

* INCIDENTAL MILLING AND AN ADDITIONAL 120 TONS OF ASPHALT CONCRETE SURFACE COURSE HAVE BEEN ADDED TO ENSURE A SMOOTH TRANSITION ONTO THE PROPOSED SUPERSTRUCTURE, PROVIDED QUANTITIES BASED UPON 150 FEET OF MILLING AT EACH APPROACH (300 FEET TOTAL). FINAL LENGTH TO BE DETERMINED BY THE ENGINEER.

TOTAL BILL OF MATERIAL

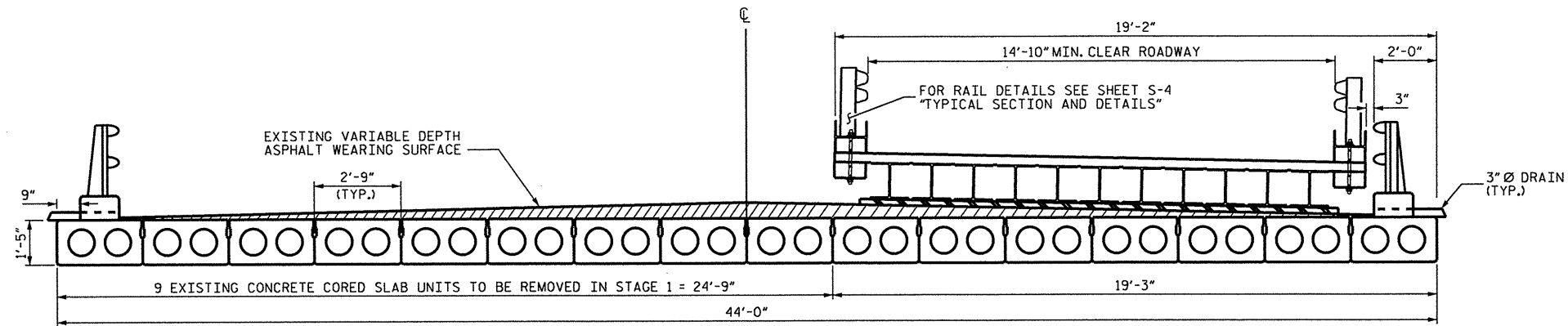
MOBILIZATION	PARTIAL REMOVAL OF EXISTING STRUCTURE AT BRIDGE #35	SPECIAL REMOVAL AND DELIVERY OF CORED SLAB UNITS	CONST. MAINT & REMOVAL OF TEMP BRIDGING AT BRIDGE #35	ELASTOMERIC BEARINGS	EPOXY COATED REINFORCING STEEL DOWELS	3'-0" X 1'-9" PRESTRESSED CONC. CORED SLABS	TEMPORARY METAL RAIL AT BRIDGE #35	STABILIZATION OF EXIST. SPAN DURING CONSTR.	* ASPH. CONC. SURFACE COURSE TYPE S9.5B
LUMP SUM	LUMP SUM	EA.	LUMP SUM	LUMP SUM	LBS.	NO. LIN. FT.	LUMP SUM	EA.	TONS
LUMP SUM	LUMP SUM	5	LUMP SUM	LUMP SUM	666	126 5,040	LUMP SUM	9	580
CONCRETE REPAIRS	EPOXY RESIN INJECTION	PILE JACKETS	REINFORCING STEEL	CLASS A CONCRETE	TWO-BAR METAL RAIL	1'-2" X 2'-10" CONCRETE PARAPET	* INCIDENTAL MILLING		
CU. FT.	LIN. FT.	LIN. FT.	LBS.	CU. YDS.	LIN. FT.	LIN. FT.	SO. YDS.		
5	35	26	150	1.3	707	722	1089		

PROJECT NO. 41665.4B
 CARTERET COUNTY
 STATION: 35

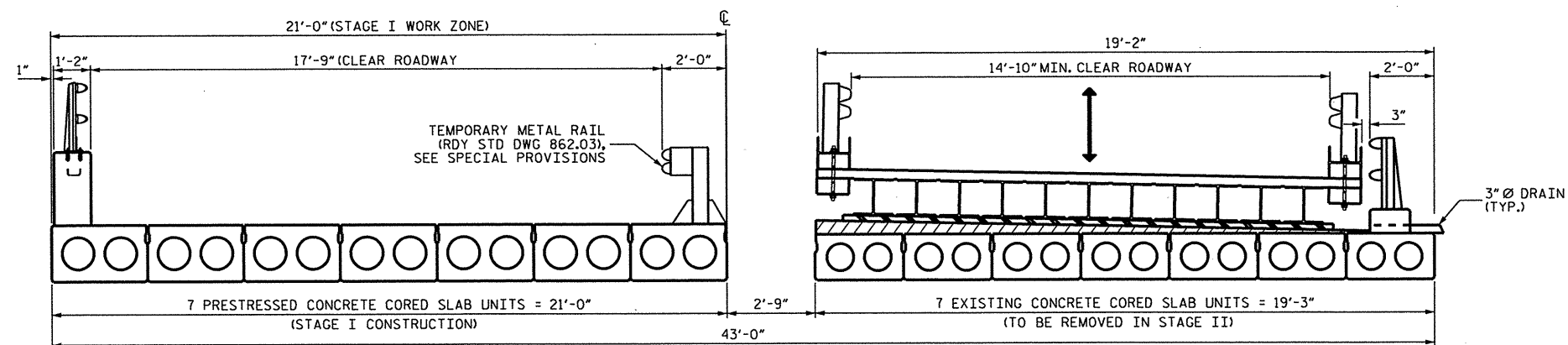
SHEET OF
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE OVER
 WARD CREEK ON
 US 70 BETWEEN
 SR 1324 & OTWAY

DRAWN BY: B.N.BARODAWALA DATE: 5-28-13
 CHECKED BY: D. MULLER DATE: 5-28-13
 DESIGN ENGINEER OF RECORD: D. MULLER DATE: 5-28-13

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-2
2			4			49

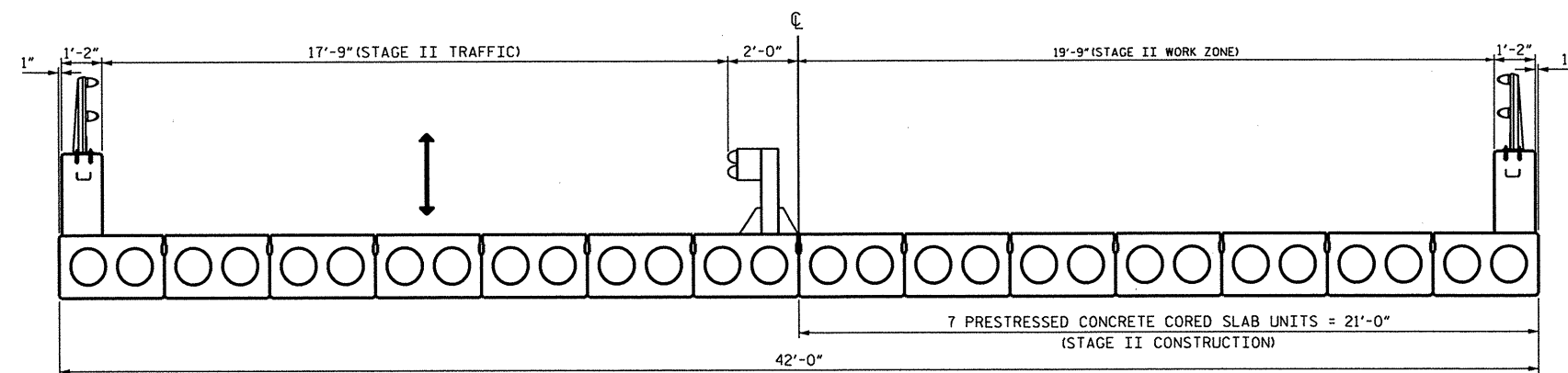


EXISTING TYPICAL SECTION



STAGE I TYPICAL SECTION

(PROPOSED ASPHALT WEARING SURFACE NOT SHOWN)



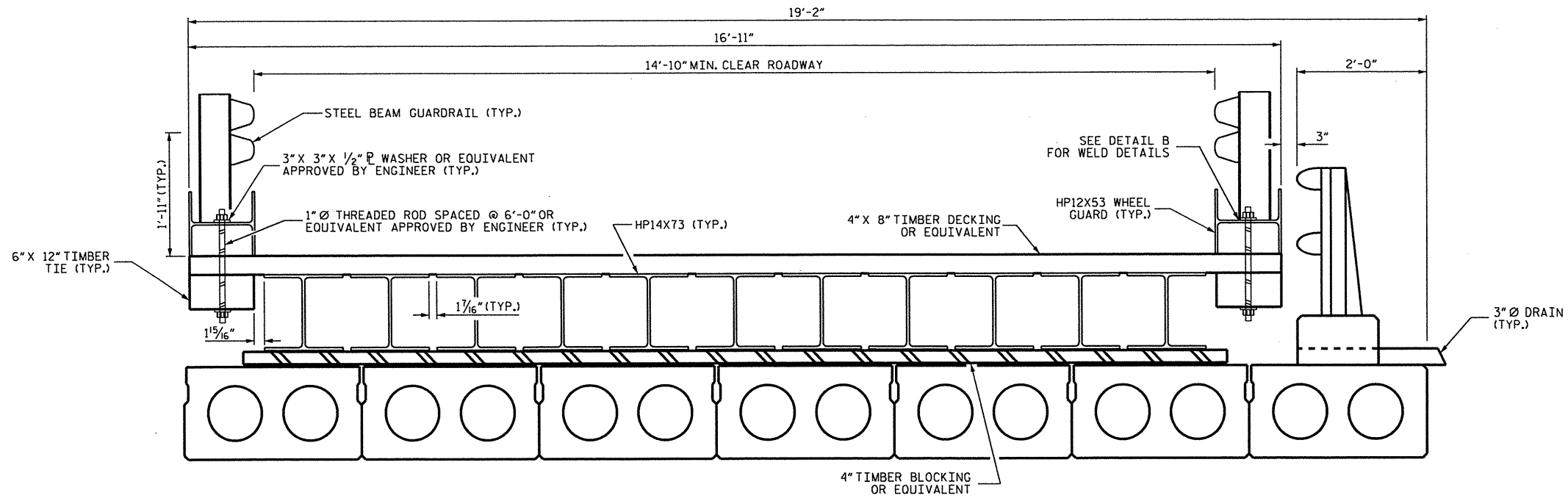
STAGE II TYPICAL SECTION

(PROPOSED ASPHALT WEARING SURFACE NOT SHOWN)

PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO. 35

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
TYPICAL SECTIONS (STAGED)						S-3
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	49
1			3			
2			4			

DRAWN BY: W.M. CLARKE DATE: 5/2013
 CHECKED BY: D. MULLER DATE: 5/2013
 DESIGN ENGINEER OF RECORD: D. MULLER DATE: 5/2013



PROPOSED BRIDGING TYPICAL SECTION

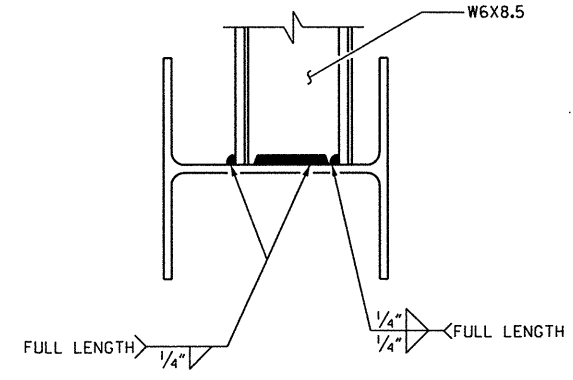
NOTES

THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE APPROACH BRIDGING TO PREVENT MOVEMENT AND SEPARATION FROM THE PROPOSED BRIDGING. ANY CONNECTION MADE TO PERMANENT BRIDGE COMPONENTS SHALL BE REPAIRED AT NO COST TO THE DEPARTMENT.

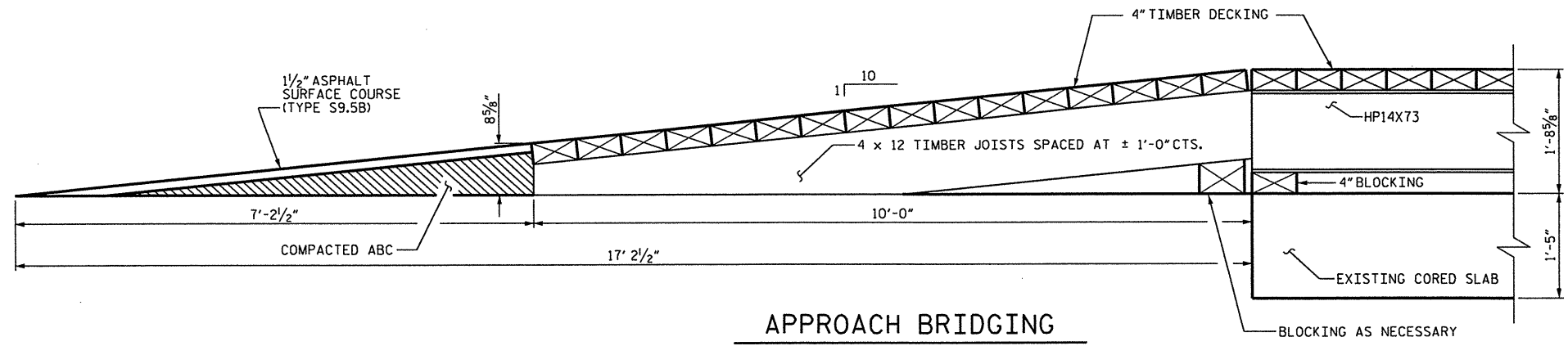
THE CLEAR ROADWAY ON THE APPROACH BRIDGING SHALL NOT BE LESS THAN THE CLEAR ROADWAY ON THE PROPOSED BRIDGING.

STEEL BEAM GUARDRAIL SHALL BE CONSTRUCTED BEGINNING IN ADVANCE OF THE APPROACH BRIDGING. THE GUARDRAIL SHALL BE ATTACHED TO THE STEEL BEAM GUARDRAIL ON THE PROPOSED BRIDGING.

THE TIMBER DECKING ON THE APPROACH BRIDGING SHALL BE SECURED TO TIMBER JOISTS IN A MANNER ACCEPTABLE TO THE ENGINEER.



DETAIL B



APPROACH BRIDGING

(GUARDRAIL NOT SHOWN FOR CLARITY)

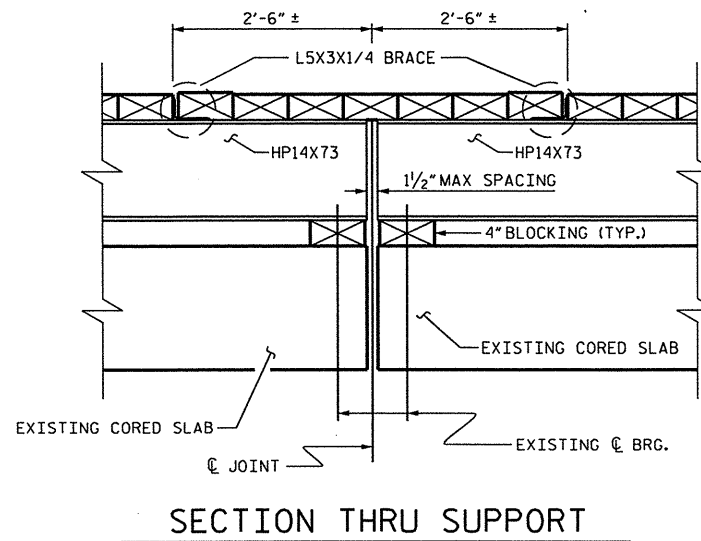
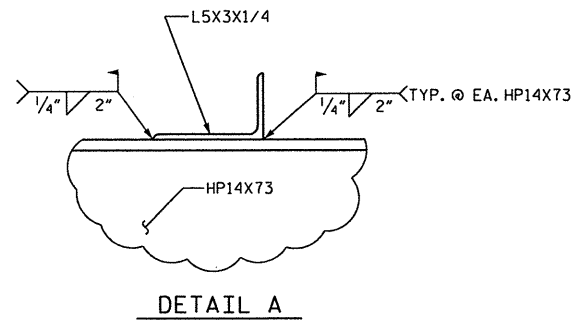
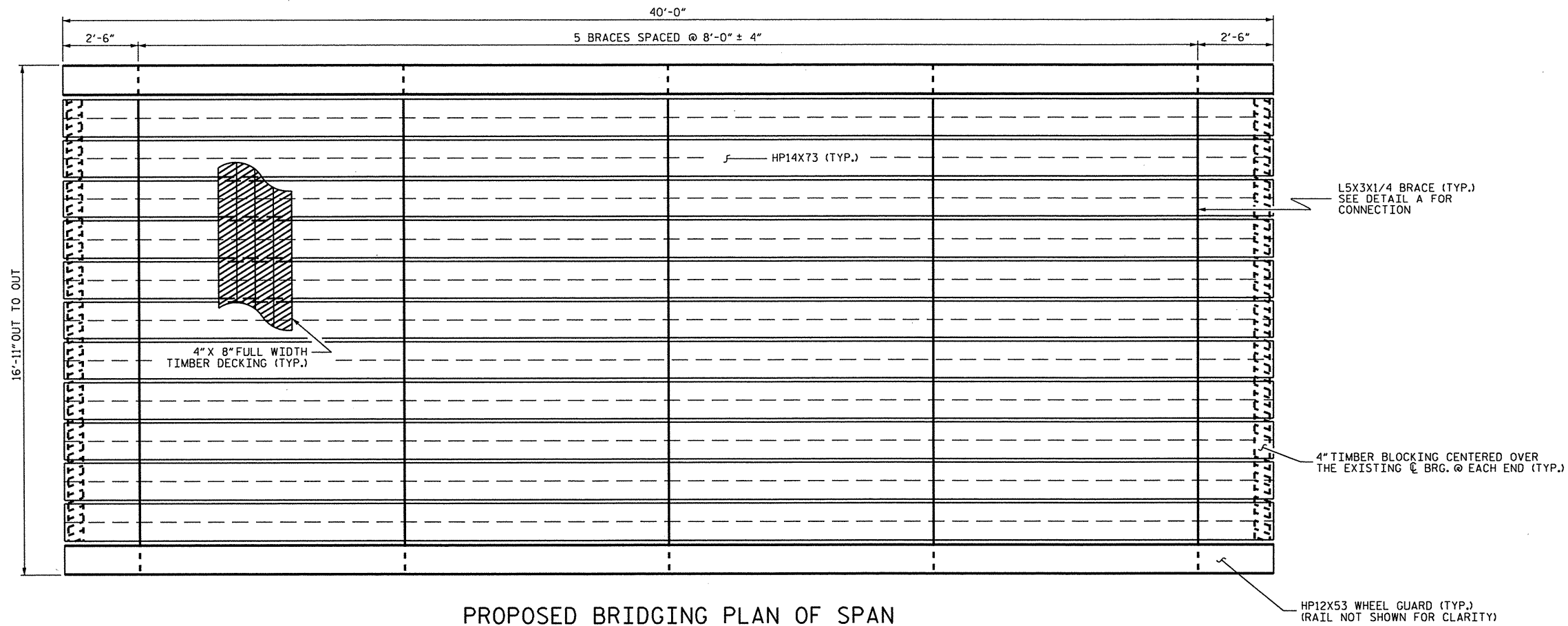
PROJECT NO. 41665.4B
 CARTERET COUNTY
 BRIDGE NO. 35

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 TEMPORARY BRIDGING
 TYPICAL SECTION
 AND DETAILS

DRAWN BY: W.M. CLARKE DATE: 5/2013
 CHECKED BY: D. MULLER DATE: 5/2013
 DESIGN ENGINEER OF RECORD: D. MULLER DATE: 5/2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			49



PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO. 35

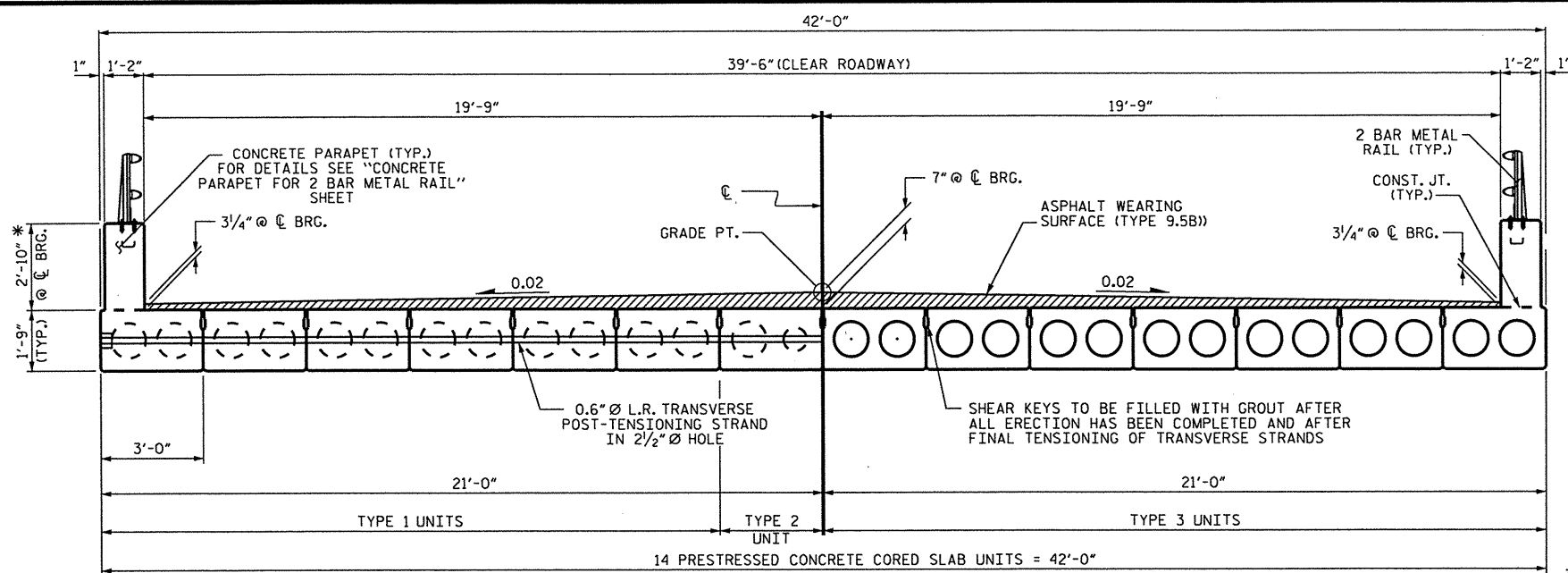
SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF TEMPORARY
 BRIDGING SPAN

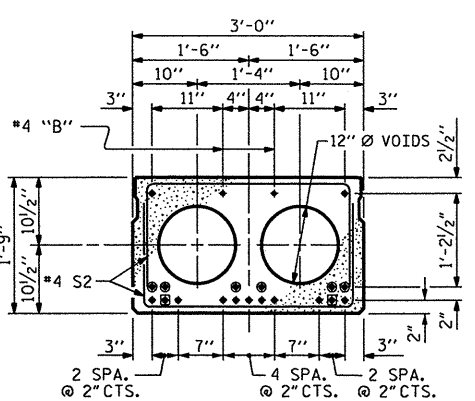
DRAWN BY: W.M. CLARKE DATE: 5/2013
 CHECKED BY: D. MULLER DATE: 5/2013
 DESIGN ENGINEER OF RECORD: D. MULLER DATE: 5/2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			5-5
2			4			49

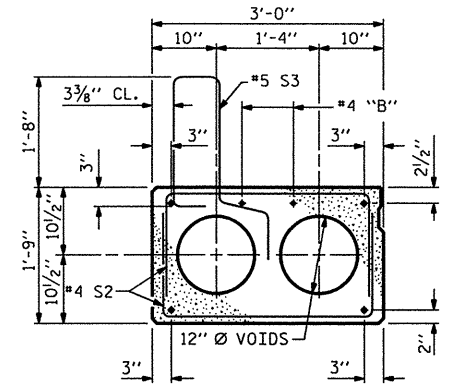


TYPICAL SECTION
 HALF SECTION AT INTERMEDIATE DIAPHRAGMS HALF SECTION THROUGH VOIDS
 14 PRESTRESSED CONCRETE CORED SLAB UNITS = 42'-0"

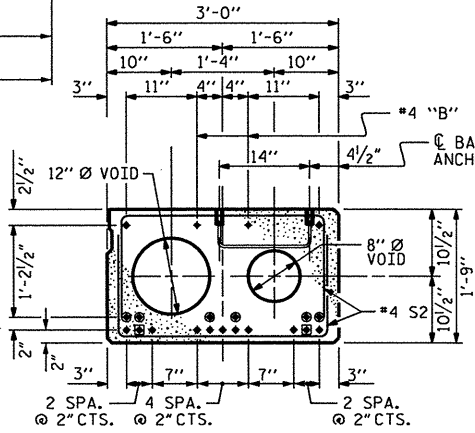
* - THE MAXIMUM PARAPET HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE PARAPET AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR PARAPET HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "CONCRETE PARAPET FOR 2 BAR METAL RAIL" DETAIL.



INTERIOR SLAB SECTION
 (13 STRANDS REQUIRED)
 (TYPES 1 & 3)



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

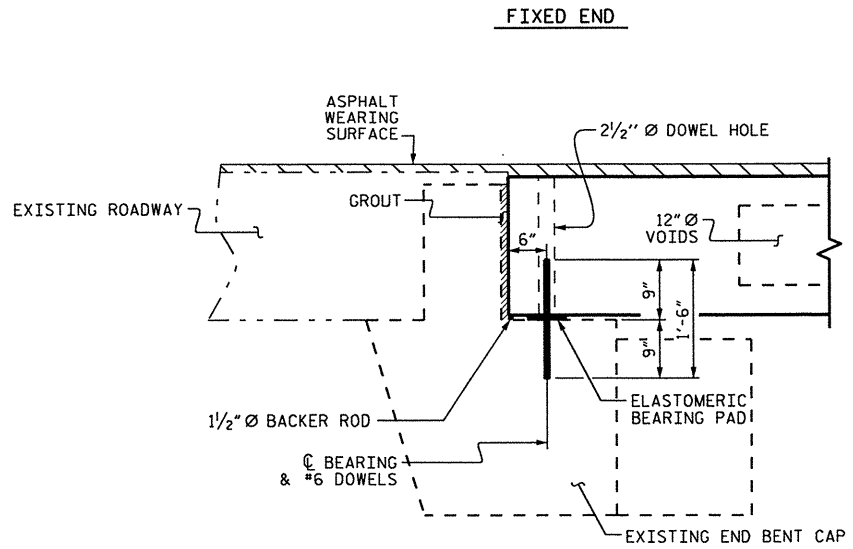


INTERIOR SLAB SECTION
 (13 STRANDS REQUIRED)
 (TYPE 2)

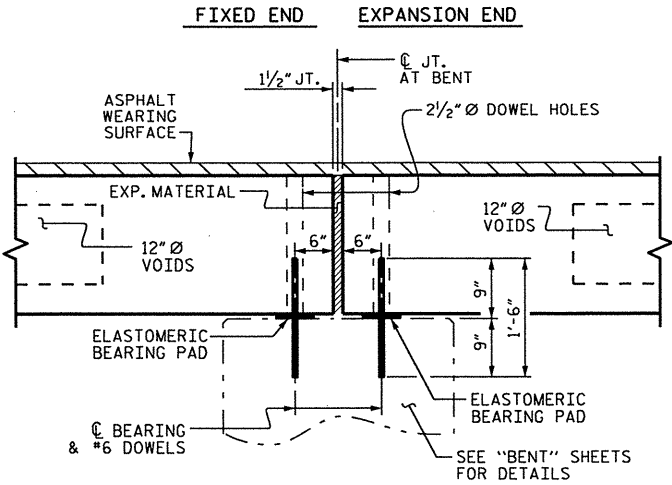
0.6" Ø LOW RELAXATION STRAND LAYOUT

- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



SECTION AT END BENT



SECTION AT BENT

PROJECT NO. 41665.4B
 CARTERET COUNTY
 BRIDGE NO. : 35

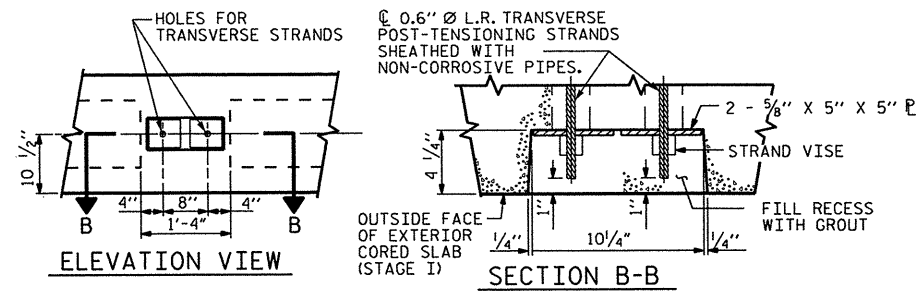
SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW

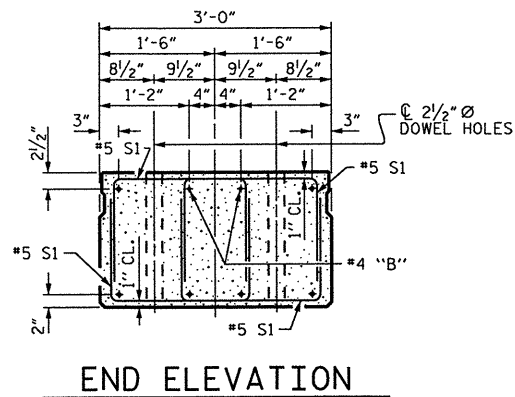
REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 49

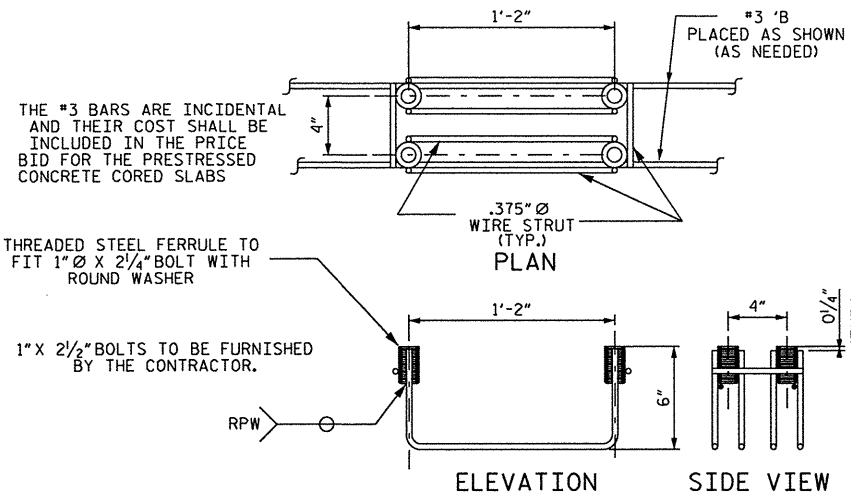
ASSEMBLED BY : B.N.BARODAWALA DATE : 5-16-13
 CHECKED BY : D. MULLER DATE : 5-16-13
 DRAWN BY : DGE 5/09 REV. 12/11 MAA/AAC
 CHECKED BY : BCH 6/09



GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS
(TYPE 1)



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



GUARDRAIL ANCHOR ASSEMBLY

NOTES

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

FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 1" diameter FERRULES.

4 - 1" diameter 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 1" diameter 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.

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 3/16" diameter WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

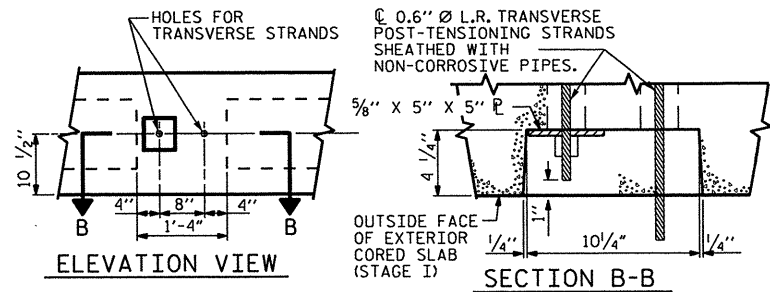
GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY COMPLETE IN PLACE SHALL BE INCLUDED IN THE UNIT CONTRACT BID FOR 3'-0" x 1'-9" PRESTRESSED CONCRETE CORED SLABS.

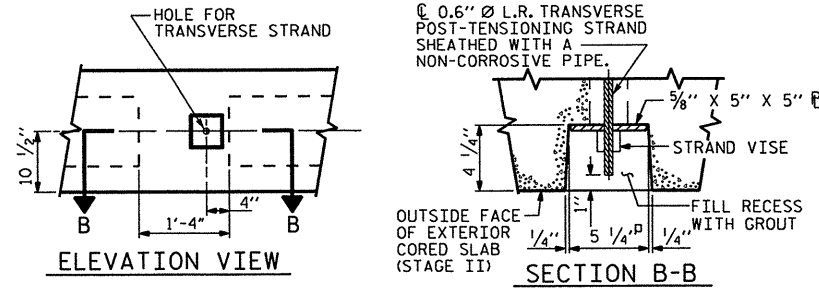
FERRULES TO BE PLUGGED DURING CASTING OF THE CORED SLAB UNITS AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

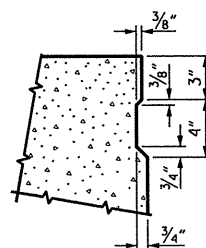
AT THE CONTRACTOR'S OPTION, ANCHOR ASSEMBLY MAY BE OMITTED AND ADHESIVELY ANCHORED 1" diameter BOLTS MAY BE INSTALLED AT LOCATIONS AND SPACING INDICATED. SUBMIT ADHESIVE ANCHOR SYSTEM TO ENGINEER FOR APPROVAL. ADHESIVELY ANCHORED BOLTS TO BE TESTED TO LEVEL 2 TESTING AS PER STANDARD SPECIFICATIONS. TEST LOAD SHALL BE 15,000 LBS.



GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS
(TYPE 2)



GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS
(TYPE 3)



SHEAR KEY DETAIL

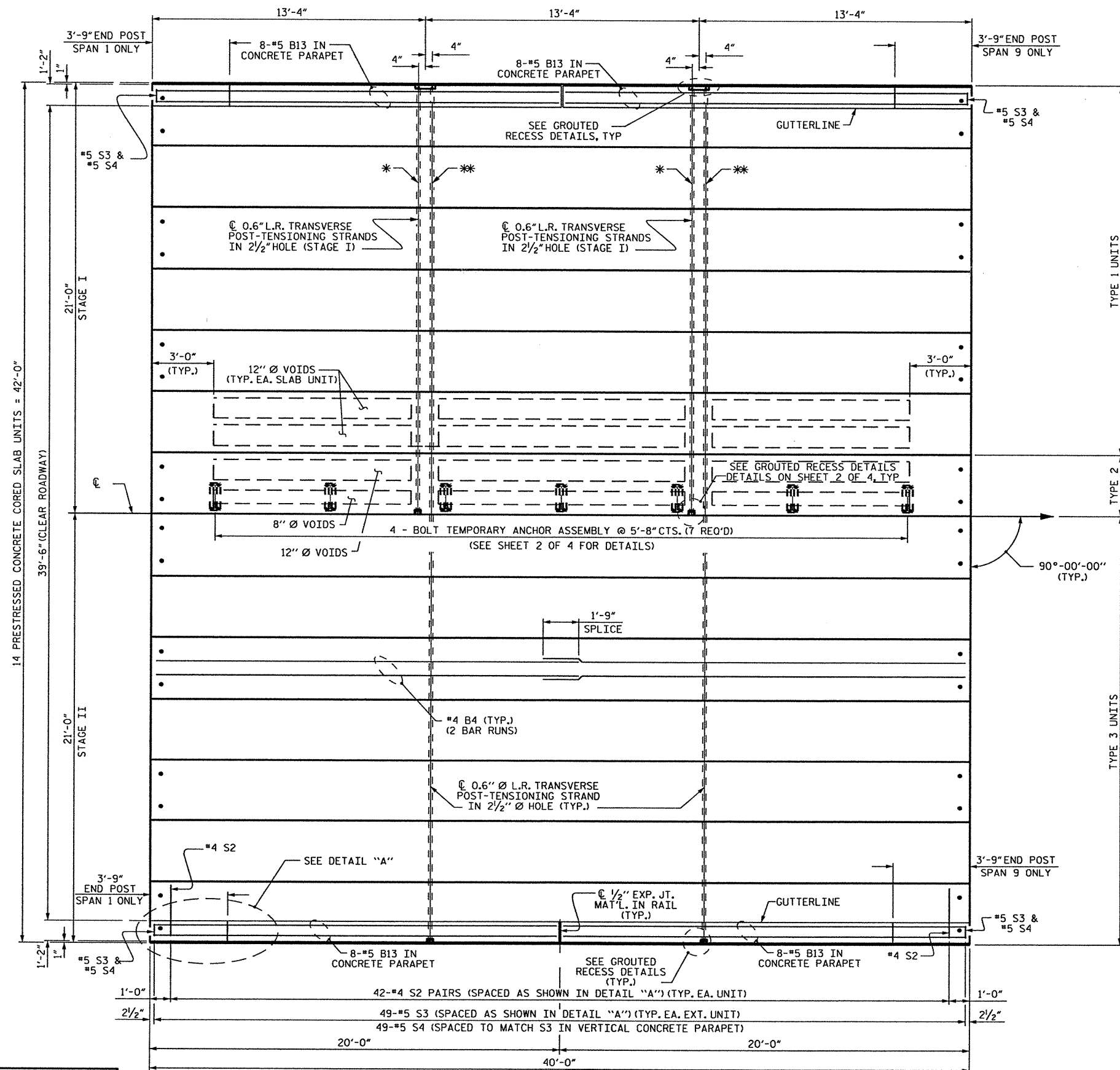
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO. 35

SHEET 2 OF 4

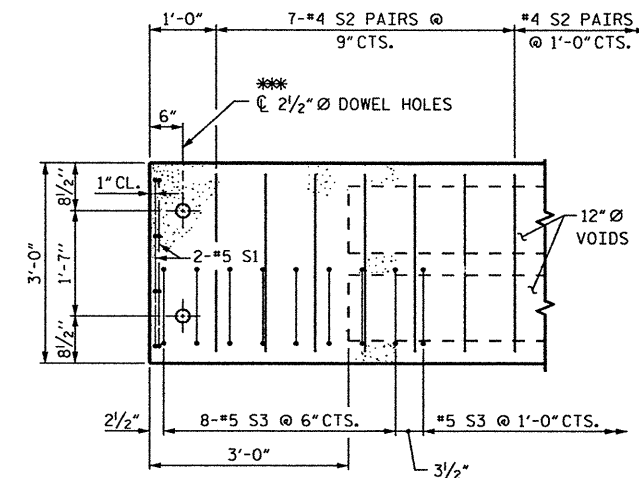
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-7
TOTAL SHEETS					49

ASSEMBLED BY : B.N.BARODAWALA	DATE : 5-16-13
CHECKED BY : D. MULLER	DATE : 5-16-13
DRAWN BY : DGE	5/09
CHECKED BY : BCH	6/09
REV. 12/11	MAA/AAC



NOTES:

- * STRAND GOES THRU 7 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE I CONSTRUCTION).
- ** STRAND GOES THRU ALL 14 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE II CONSTRUCTION).



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

- ** IF DOWEL HOLES ARE PROVIDED AT THE END UNITS WHERE DOWELS ARE NOT REQUIRED THEY SHALL BE FILLED WITH NON-SHRINKING GROUT AT THE CONTRACTORS EXPENSE.

DECK DRAINS ARE TO BE INSTALLED AT 6'-0" MAX CTS. EACH SPAN EACH SIDE (TYP.)

THE DRAIN OPENING AT THE GUTTERLINE SHALL BE 4" X 8". THE HEIGHT OF THE BLOCKOUT IN THE CONCRETE PARAPET SHALL EXTEND FROM THE TOP OF THE CORED SLAB UNIT TO THE TOP OF THE DRAIN OPENING.

APPLY EPOXY COATING PROTECTIVE COATING TO THE EXTERIOR FACE OF ALL EXTERIOR CORED SLAB UNITS THAT REQUIRE DRAINS IN THE CONCRETE PARAPET.

PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO. : 35

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**PLAN OF 40' UNIT
 39'-6" CLEAR ROADWAY
 90° SKEW**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			49

ASSEMBLED BY : B.N.BARODAWALA DATE : 5-16-13
 CHECKED BY : D.MULLER DATE : 5-16-13
 DRAWN BY : DGE 6/09
 CHECKED BY : BCH 6/09
 REV. 12/5/11 MAA/AAC

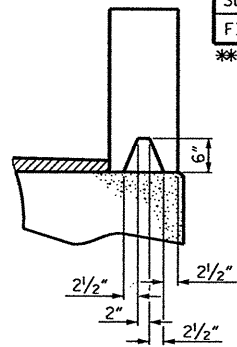
PLAN OF UNIT

CONCRETE RELEASE STRENGTH	
UNIT	PSI
40' UNITS	4000

DEAD LOAD DEFLECTION AND CAMBER	
40' CORED SLAB UNIT	3'-0" x 1'-9" 0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓
FINAL CAMBER	1/8" ↑

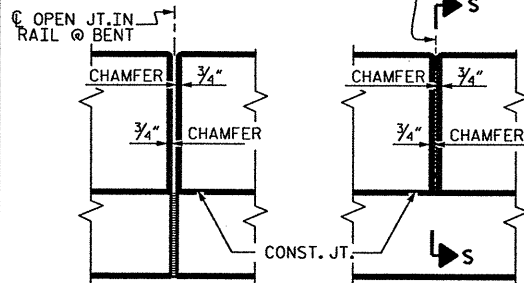
** INCLUDES FUTURE WEARING SURFACE

CORED SLABS REQUIRED			
40' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	18	40'-0"	720'-0"
INTERIOR C.S.	108	40'-0"	4320'-0"
TOTAL	126		5040'-0"

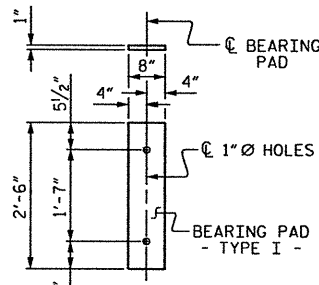


SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)

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



ELEVATION AT EXPANSION JOINTS

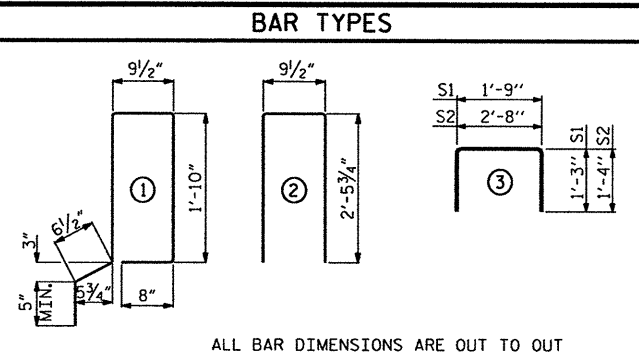


FIXED END
(TYPE I - 252 REQ'D)
ELASTOMERIC
BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

BILL OF MATERIAL PARAPETS AND END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*B13	288	#5	STR	19'-7"	5883
*E1	8	#7	STR	2'-8"	44
*E2	8	#7	STR	3'-2"	52
*E3	8	#7	STR	3'-8"	60
*E4	8	#7	STR	4'-2"	68
*E5	8	#7	STR	4'-6"	74
*F1	8	#6	STR	1'-10"	22
*F2	8	#6	STR	3'-0"	36
*F3	8	#6	STR	3'-7"	43
*S4	882	#5	2	5'-9"	5290

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



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE 40' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B4	4	#4	STR	20'-9"	55	20'-9"	55
S1	8	#5	3	4'-3"	35	4'-3"	35
S2	84	#4	3	5'-4"	299	5'-4"	299
*S3	49	#5	1	6'-2"	315		
REINFORCING STEEL					LBS. 475		389
*EPOXY COATED REINFORCING STEEL					LBS. 379		
6500 P.S.I. CONCRETE				CU. YDS. 5.8 (TYPE 1 & 3)			5.8
6500 P.S.I. CONCRETE				CU. YDS. (TYPE 2)			5.9
0.6" Ø L.R. STRANDS				No. 13			13

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
39'-6" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	PARAPET HEIGHT
	@ MID-SPAN	@ MID-SPAN
	NORMAL CROWN SECTION	
40'	1 7/8"	3'-8 7/8"

NOTES

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

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

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS AND EXPANSION END OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

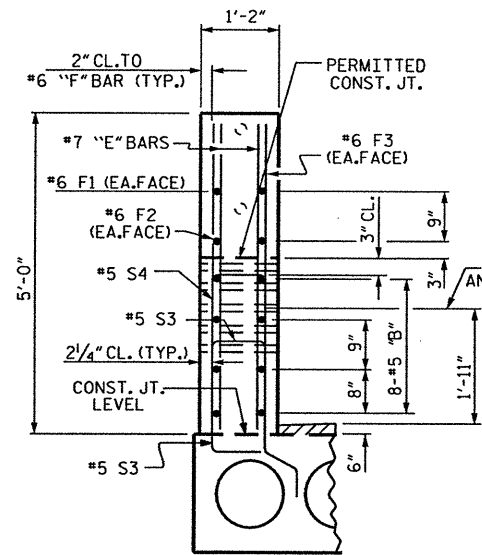
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

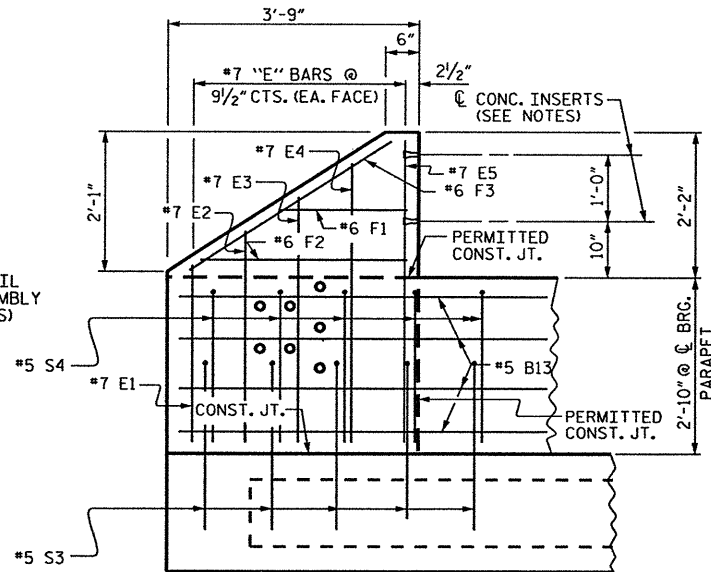
FOR DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET 1 OF 3 AND "GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS."

PRESTRESSED CONCRETE CORED SLAB UNITS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

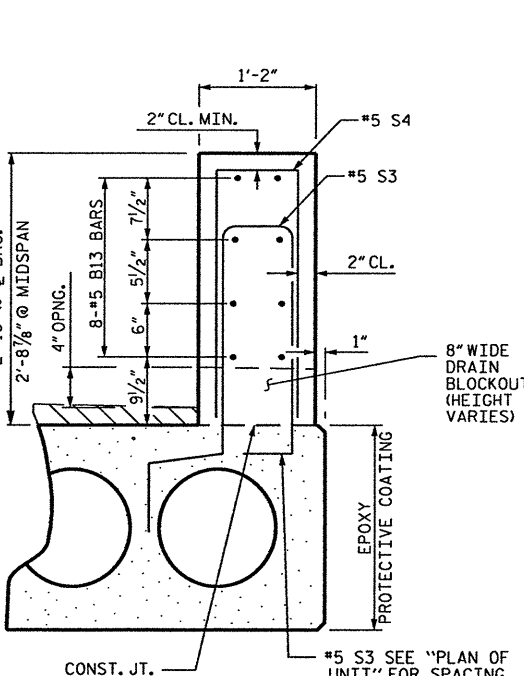
PRESTRESSED CONCRETE CORED SLAB UNITS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



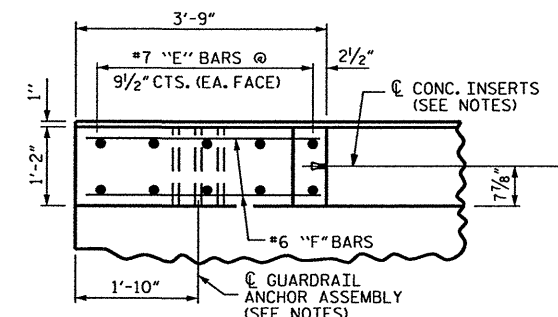
END VIEW



ELEVATION



TWO BAR METAL
RAIL PARAPET SECTION

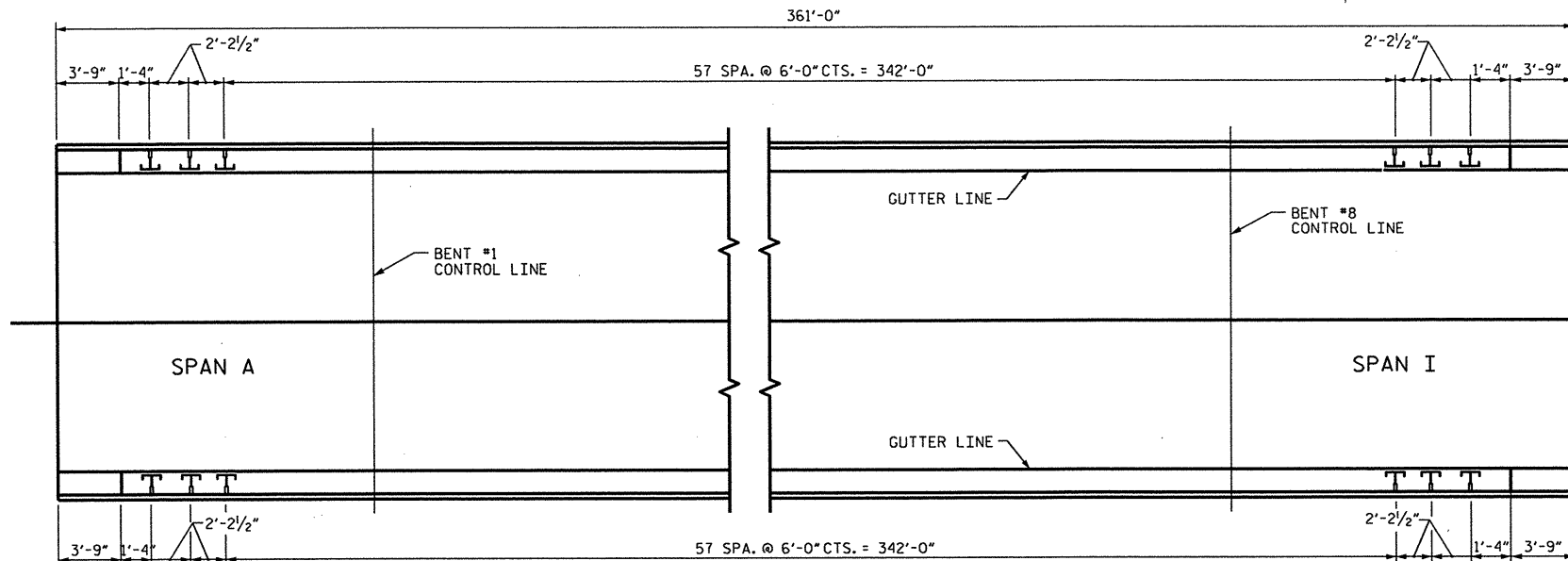


PLAN OF END POST

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO.: 35
SHEET 4 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

ASSEMBLED BY: B.N. BARODAWAL DATE: 5-16-13
CHECKED BY: D. MILLER DATE: 5-16-13
DRAWN BY: DGE 5/09
CHECKED BY: BCH 6/09



PLAN OF RAIL POST SPACINGS

NOTES

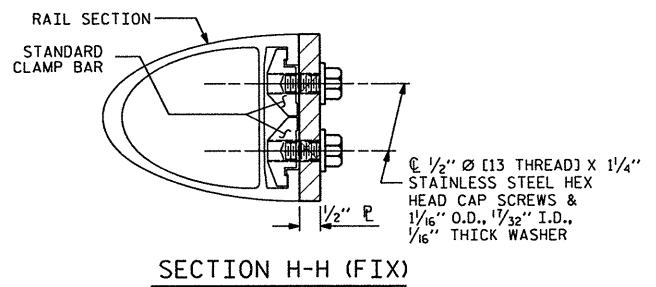
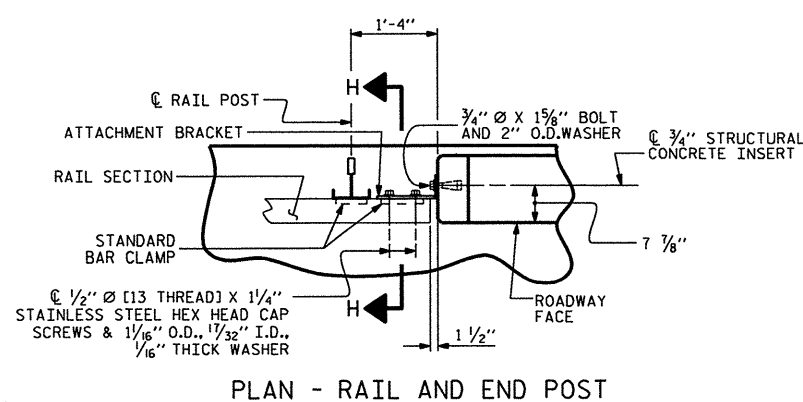
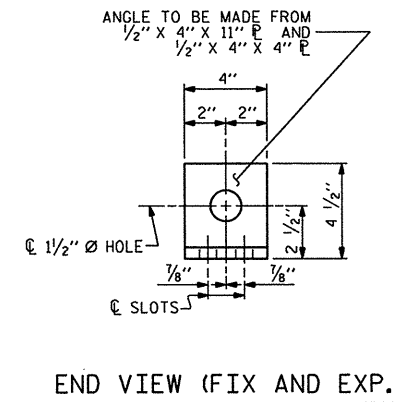
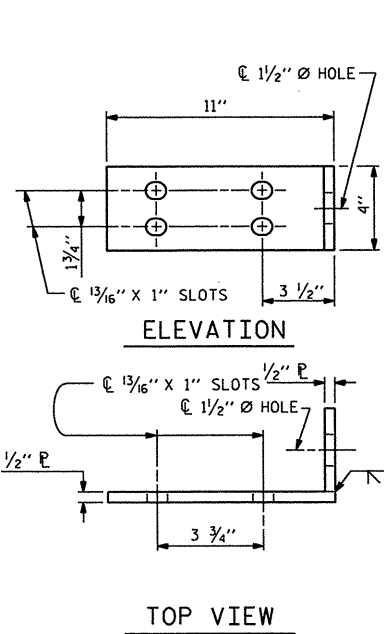
STRUCTURAL CONCRETE INSERT

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

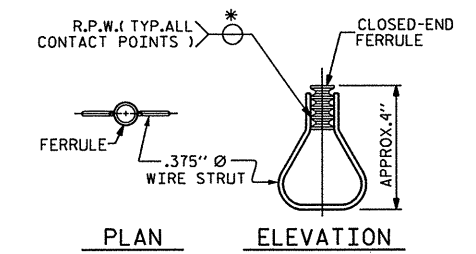
NOTES

METAL RAIL TO END POST CONNECTION

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



FIXED
DETAILS FOR ATTACHING METAL RAIL TO END POST



PLAN ELEVATION
STRUCTURAL CONCRETE
INSERT

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

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO. : 35

SHEET 1 OF 3

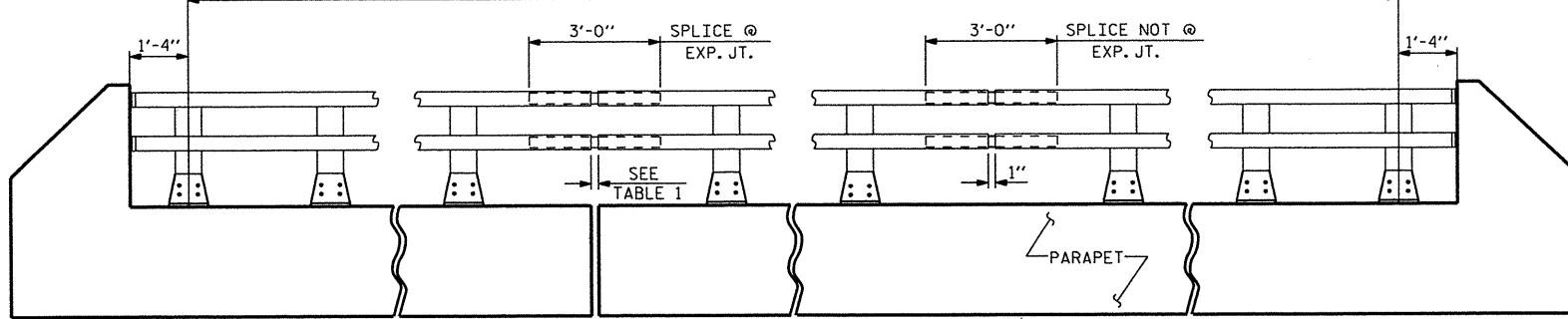
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
RAIL POST SPACINGS
AND
END OF RAIL DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			49

STD. NO. BMR2

ASSEMBLED BY : B.N.BARODAWALA	DATE : 5-16-13
CHECKED BY : D. MULLER	DATE : 5-16-13
DRAWN BY : FCJ	1/88
CHECKED BY : CRK	3/89
REV. 5/7/03	RWW/JTE
REV. 5/1/06	TLA/GM
REV. 10/1/11	MAA/GM

SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET



ELEVATION

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

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.

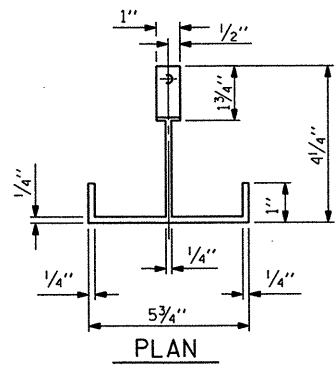
ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

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

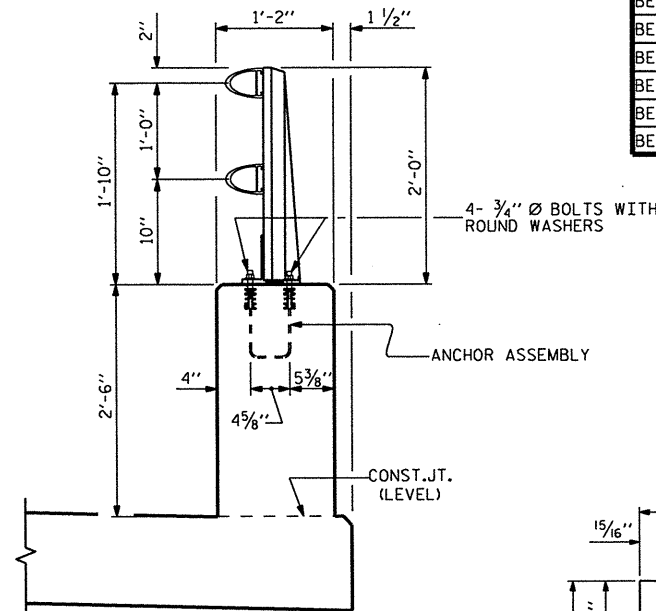
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT 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 = 707.0 LIN. FT.

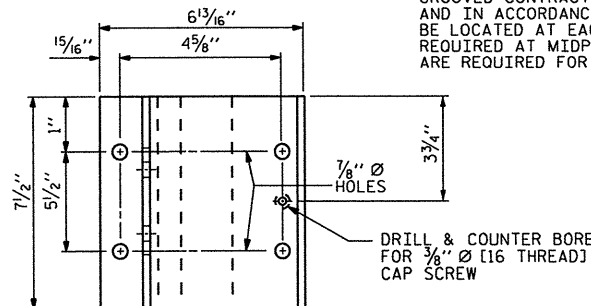
TABLE 1	
EXP. JT. @	RAIL OPENING
BENT No. 1	1 1/2"
BENT No. 2	1 1/2"
BENT No. 3	1 1/2"
BENT No. 4	1 1/2"
BENT No. 5	1 1/2"
BENT No. 6	1 1/2"
BENT No. 7	1 1/2"
BENT No. 8	1 1/2"



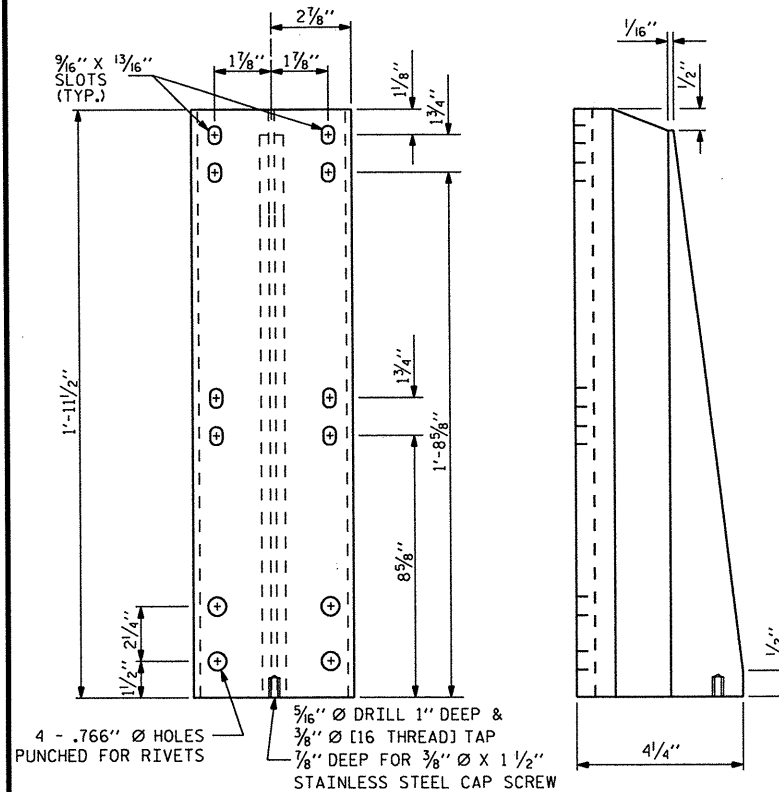
PLAN



SECTION THRU PARAPET AND RAIL



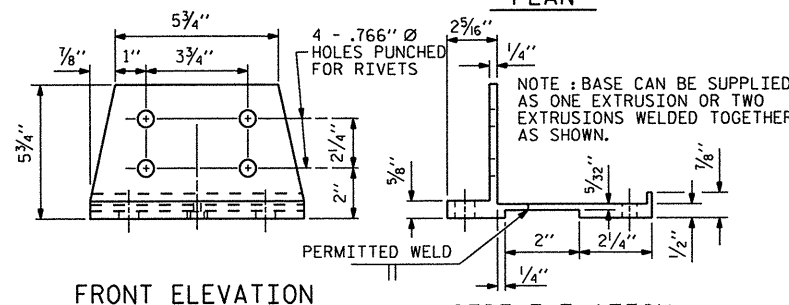
PLAN



FRONT ELEVATION

SIDE ELEVATION

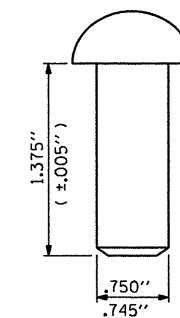
DETAILS OF POST



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL

PROJECT NO. 41665.4B
CARTERET COUNTY
 STATION: 35

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
2 BAR METAL RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			49

STD. NO. BMR3

ASSEMBLED BY: B.N.BARODAWAL DATE: 5-16-13
 CHECKED BY: D. MULLER DATE: 5-16-13
 DRAWN BY: EEM 6/94 REV. 5/7/03R RWW/JTE
 CHECKED BY: ROW 6/94 REV. 5/1/06 TLA/GM
 REV. 10/1/11 MAA/GM

NOTES

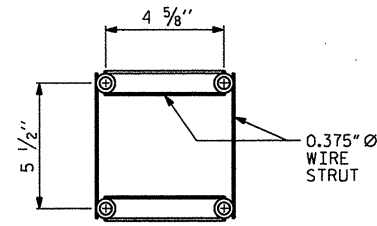
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

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

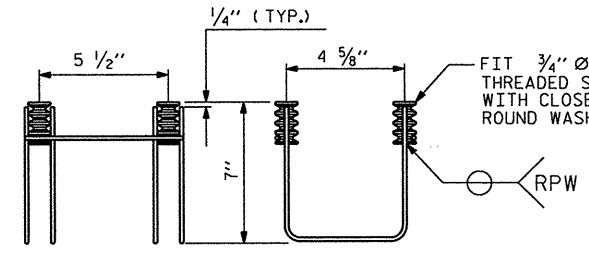
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 3/4" FERRULES.
- B. 4 - 3/4" Ø X 2 1/2" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. AT 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 1/2" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLY 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.



PLAN

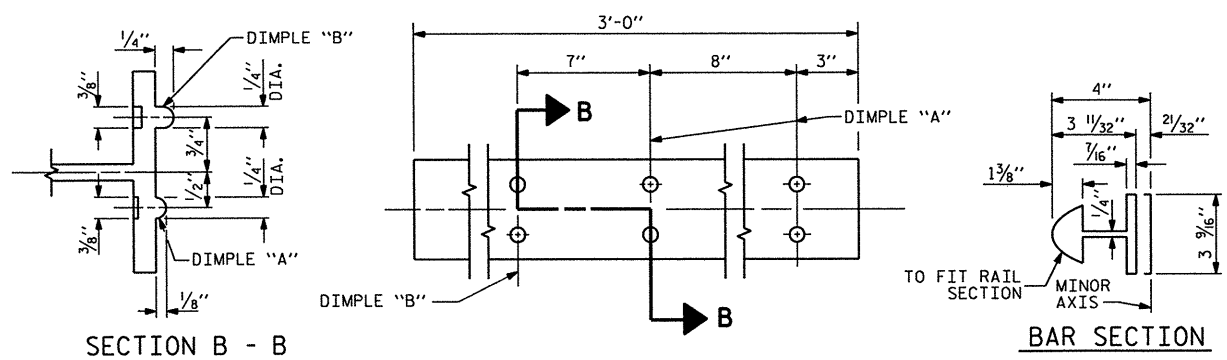


SIDE VIEW

ELEVATION

4-BOLT METAL RAIL ANCHOR ASSEMBLY

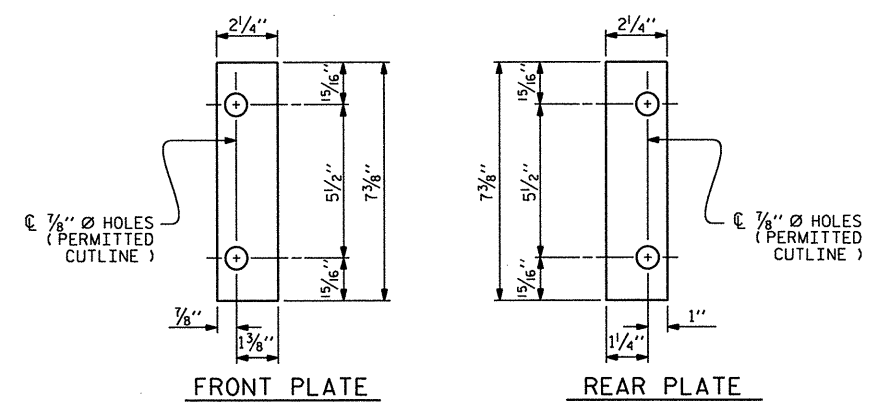
(124 ASSEMBLIES REQUIRED)



SECTION B - B

EXPANSION BAR DETAILS

BAR SECTION

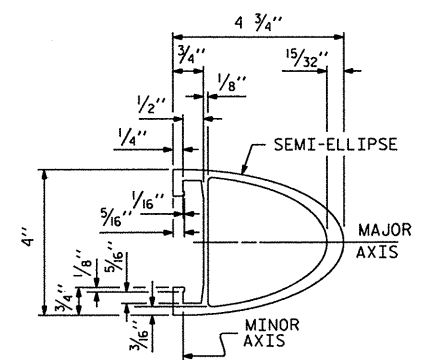


FRONT PLATE

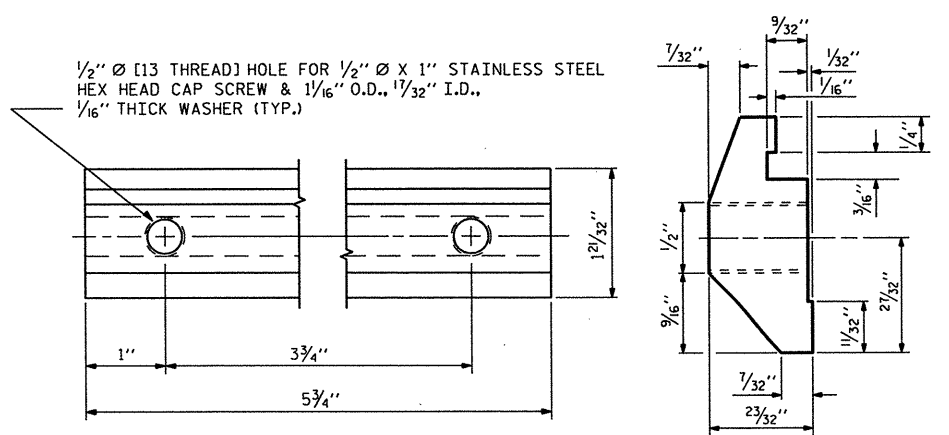
REAR PLATE

SHIM DETAILS

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

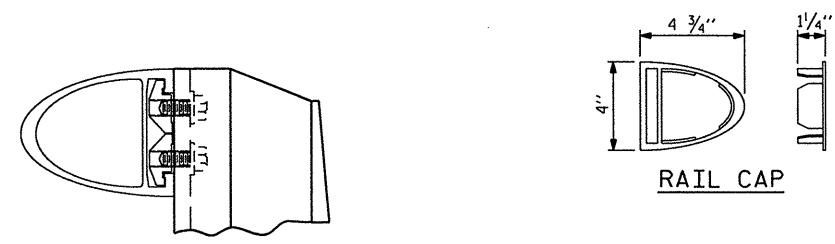


RAIL SECTION



CLAMP BAR DETAIL

(4 REQUIRED PER POST)



CLAMP ASSEMBLY

RAIL CAP

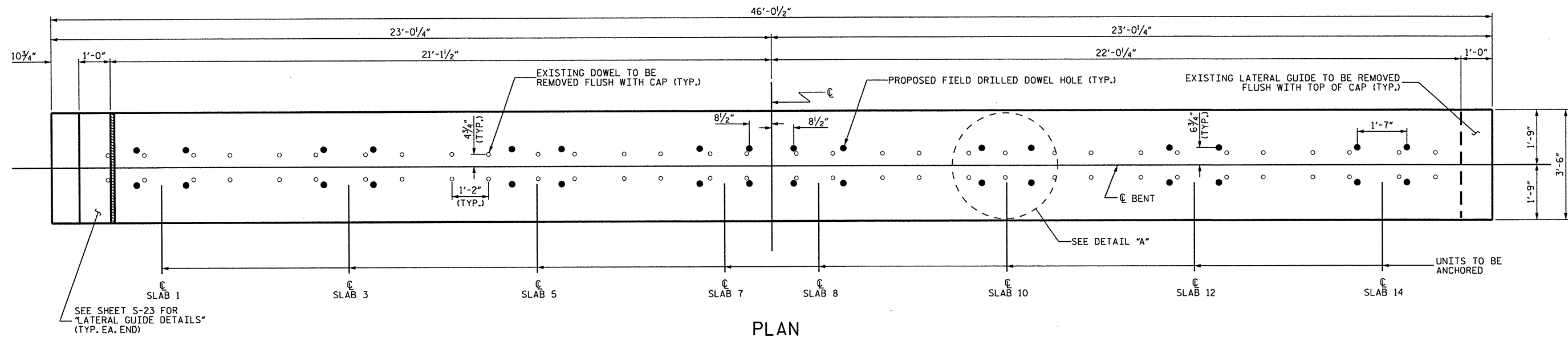
PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO. : 35
 SHEET 3 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 2 BAR METAL RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-12
					TOTAL SHEETS 49

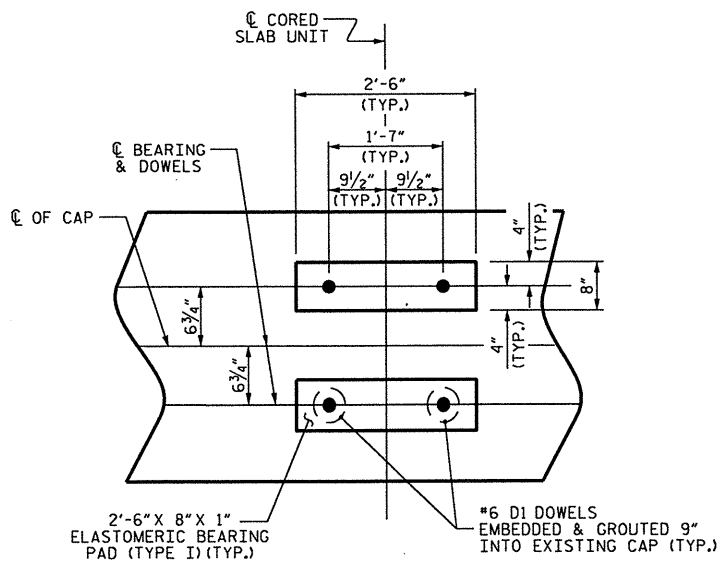
STD. NO. BMR4

ASSEMBLED BY : B.N.BARODAWAL	DATE : 5-16-13
CHECKED BY : D. MULLER	DATE : 5-16-13
DRAWN BY : EEM	6/94
CHECKED BY : RCW	6/94
REV. 8/16/99	MAB/LES
REV. 5/1/06R	KMM/GM
REV. 10/1/11	MAA/GM

BILL OF MATERIAL					
FOR ONE BENT					
BAR NO.	SIZE	TYPE	LENGTH	WEIGHT	
D1	#6	STR	1'-6"	74	
REINFORCING STEEL (FOR ONE BENT)				121 LBS	



PLAN



DETAIL "A"
(DIMENSIONS ARE TYPICAL EACH BEARING)

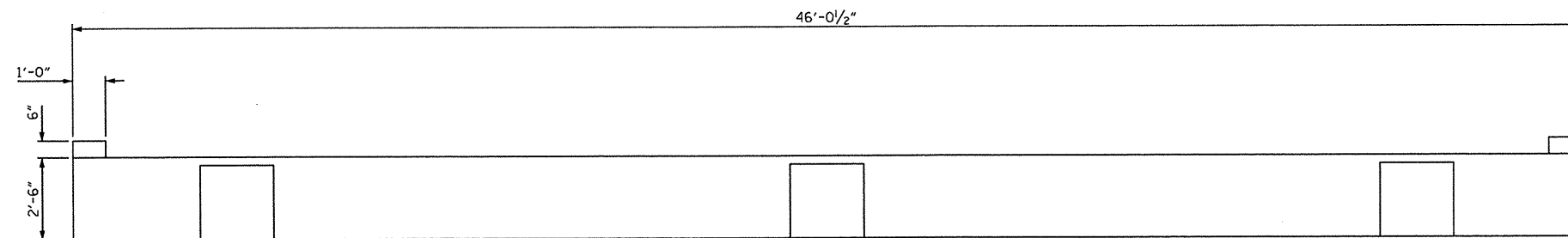
PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO: 35

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 BENT & DOWEL DETAILS

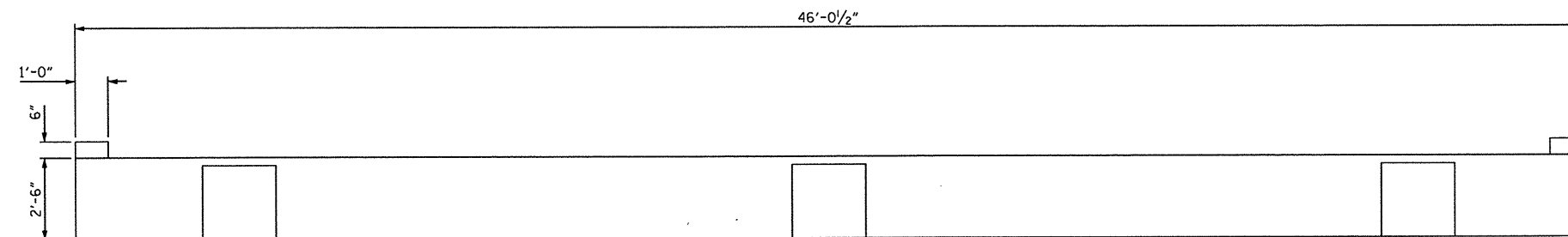
DRAWN BY : W.M. CLARKE DATE : 5/2013
 CHECKED BY : D. MULLER DATE : 5/2013
 DESIGN ENGINEER OF RECORD: D. MULLER DATE : 5/2013

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

SHEET NO.
S-13
 TOTAL SHEETS
49



END BENT 1
(SPAN 1 FACE)



END BENT 2
(SPAN 7 FACE)

LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.)
FOR NEW LATERAL GUIDE, SEE DETAILS SHEET S-23.

LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.)
FOR NEW LATERAL GUIDE, SEE DETAILS SHEET S-23.

REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			0			

REPAIR QUANTITY TABLE

REPAIRS END BENT 2	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO.: 35

SHEET 1 OF 1

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

END BENTS

DRAWN BY : CL BRIGHT DATE : 05/2013
 CHECKED BY : D. MULLER DATE : 05/2013
 DESIGN ENGINEER OF RECORD: D. MULLER DATE : 05/2013

*****SYSTEM*****
 *****DGN*****
 *****USERNAME*****

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-14
2			4			TOTAL SHEETS 49

REPAIR QUANTITY TABLE

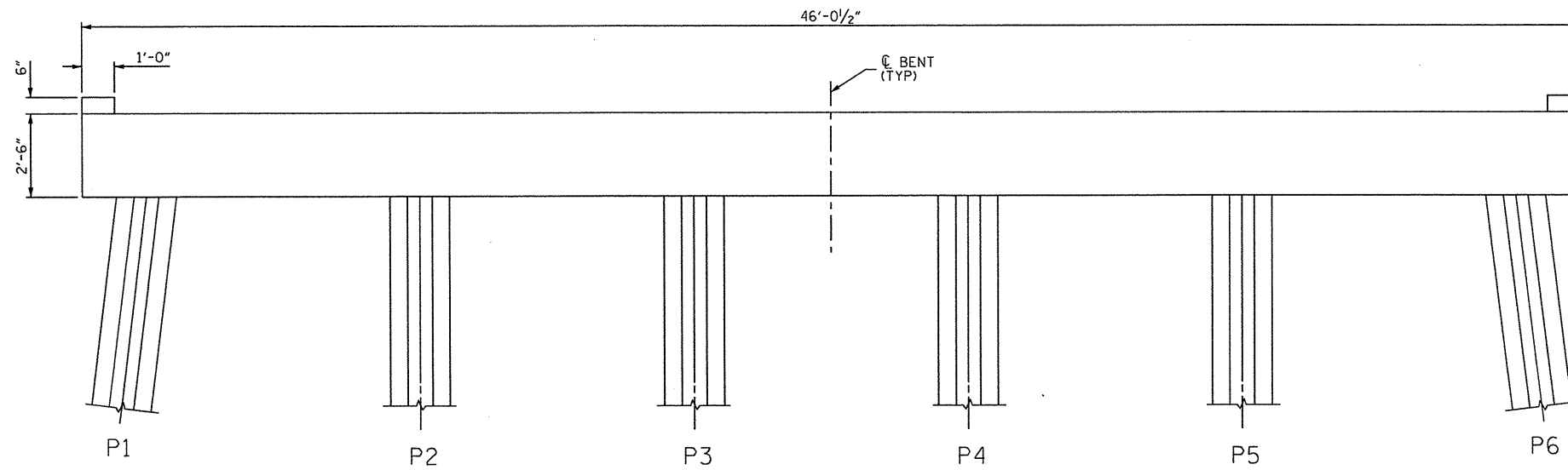
REPAIRS BENT 1	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0	0	0			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			0			
COLUMN			0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

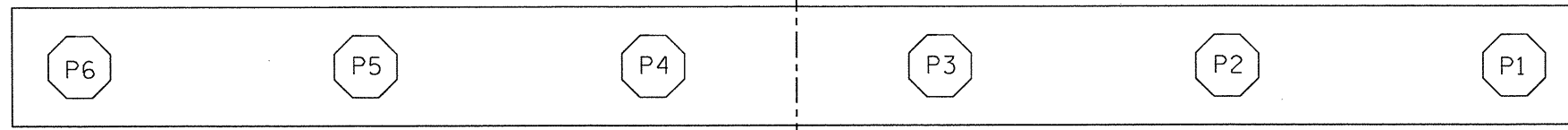
NOTES:

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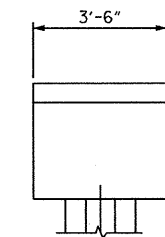
LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.) FOR NEW LATERAL GUIDE, SEE DETAILS SHEET S-23.



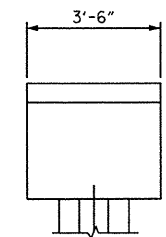
SPAN 1 FACE
(UP STATION)



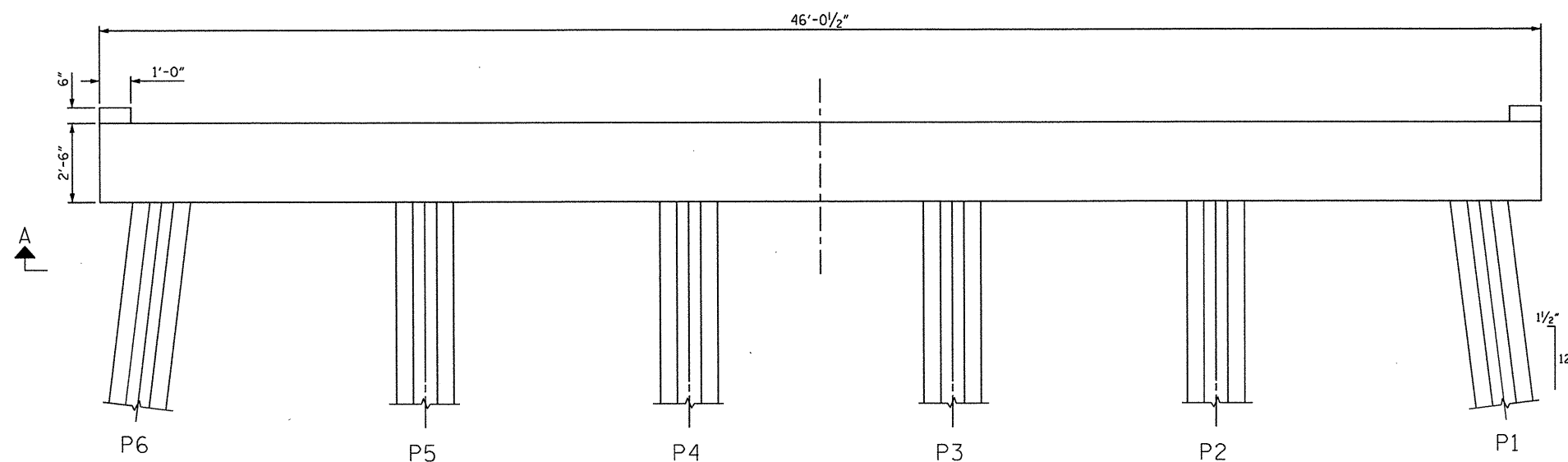
SECTION A-A
(UNDERSIDE OF CAP)



P1
END VIEW



P6
END VIEW



SPAN 2 FACE
(BACK STATION)

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO.: 35

SHEET 1 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT NO. 1

DRAWN BY: CL BRIGHT DATE: 05/2013
CHECKED BY: D. MULLER DATE: 05/2013
DESIGN ENGINEER OF RECORD: D. MULLER DATE: 05/2013

*****SYSTEM*****
*****DCN*****
*****USERNAME*****

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-15
2			4			49

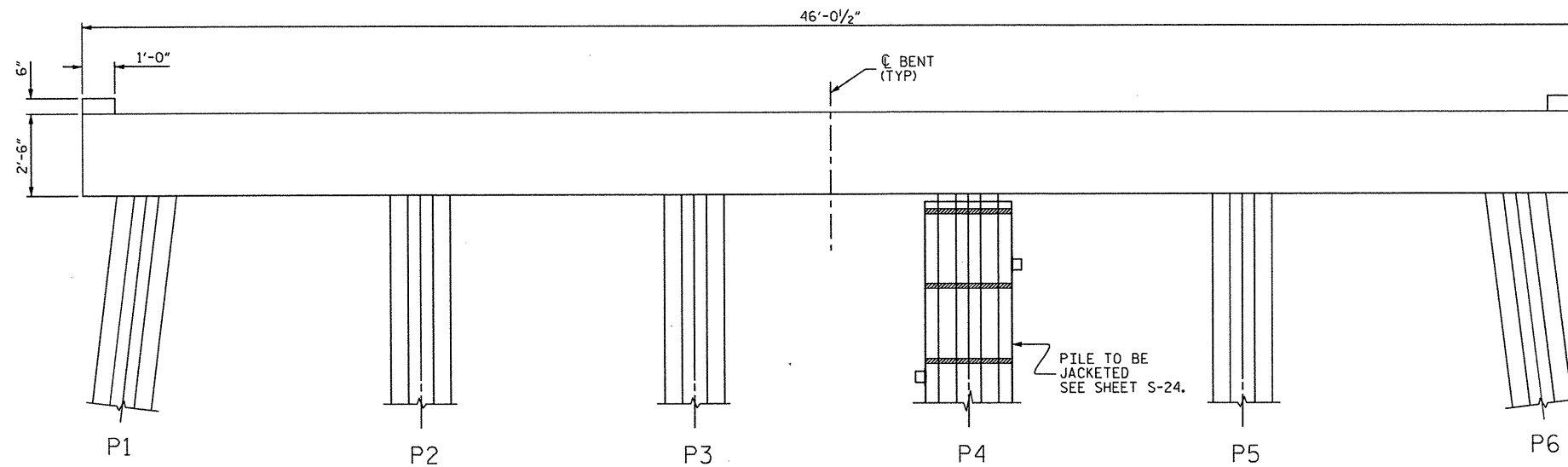
REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	3.53	0.50	1.77			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			0.75			
COLUMN			0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

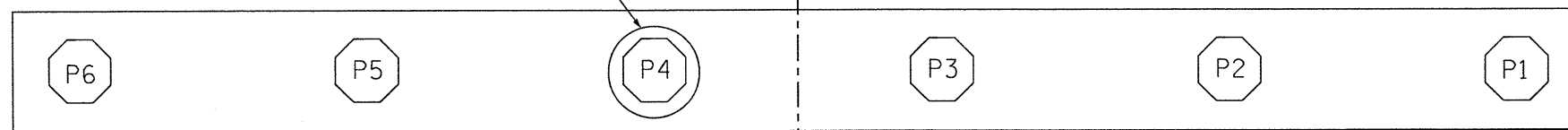
NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

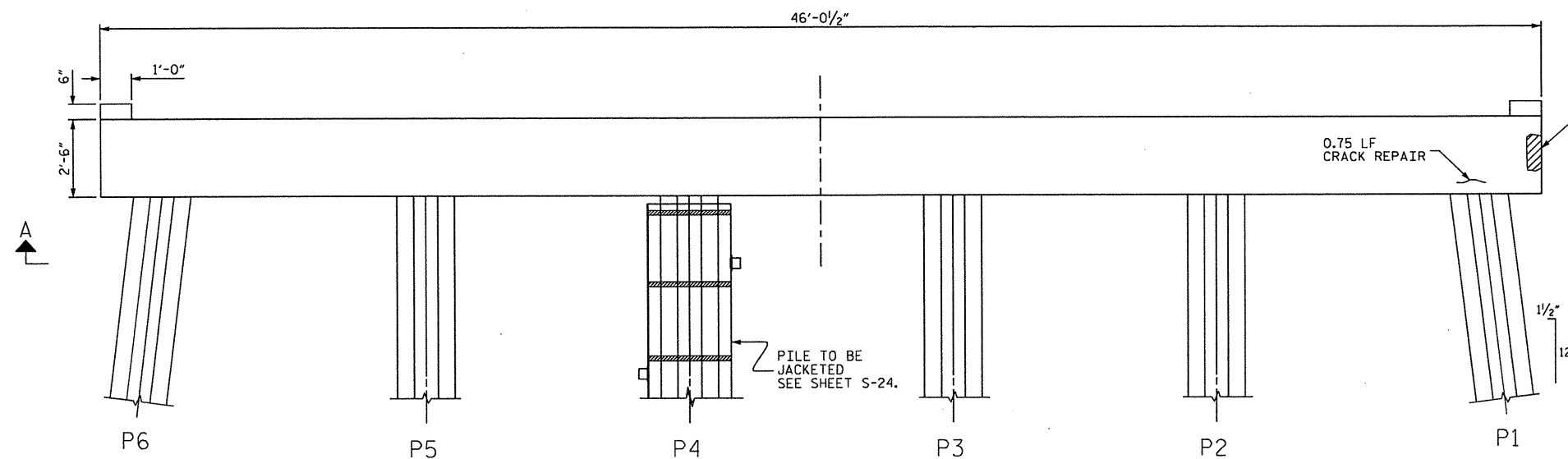


SPAN 2 FACE
(UP STATION)

PILE TO BE JACKETED
SEE SHEET S-24.

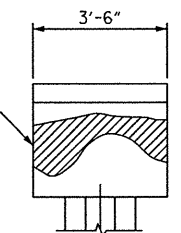


SECTION A-A
(UNDERSIDE OF CAP)

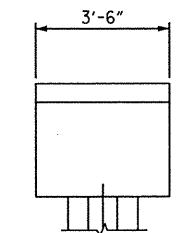


SPAN 3 FACE
(BACK STATION)

0.33 SOFT
CONCRETE REPAIR
(REMOVE PATCH)



P1
END VIEW



P6
END VIEW

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO. : 35

SHEET 2 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT NO. 2

DRAWN BY : CL BRIGHT DATE : 05/2013
CHECKED BY : D. MULLER DATE : 05/2013
DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

*****SYSTEM*****
*****SDGN*****
*****USERNAME*****

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-16 TOTAL SHEETS 49
2			4			

REPAIR QUANTITY TABLE

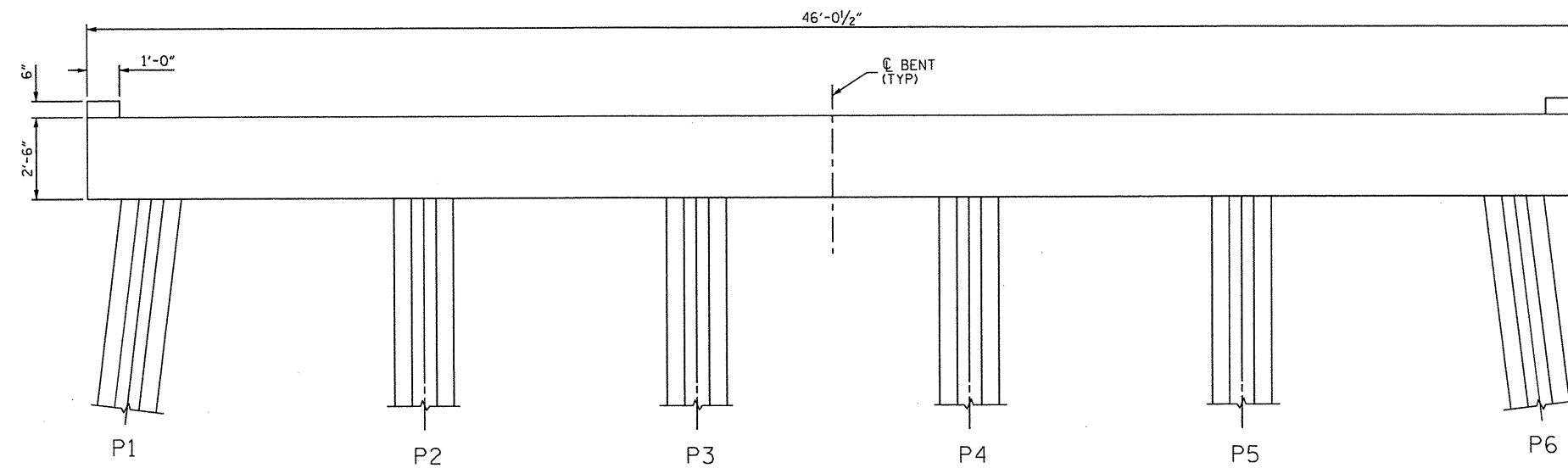
REPAIRS BENT 3	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0	0	0			
COLUMN	0	0	0			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			0			
COLUMN			0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

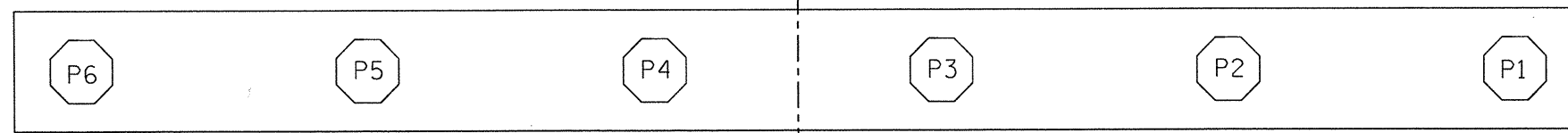
NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

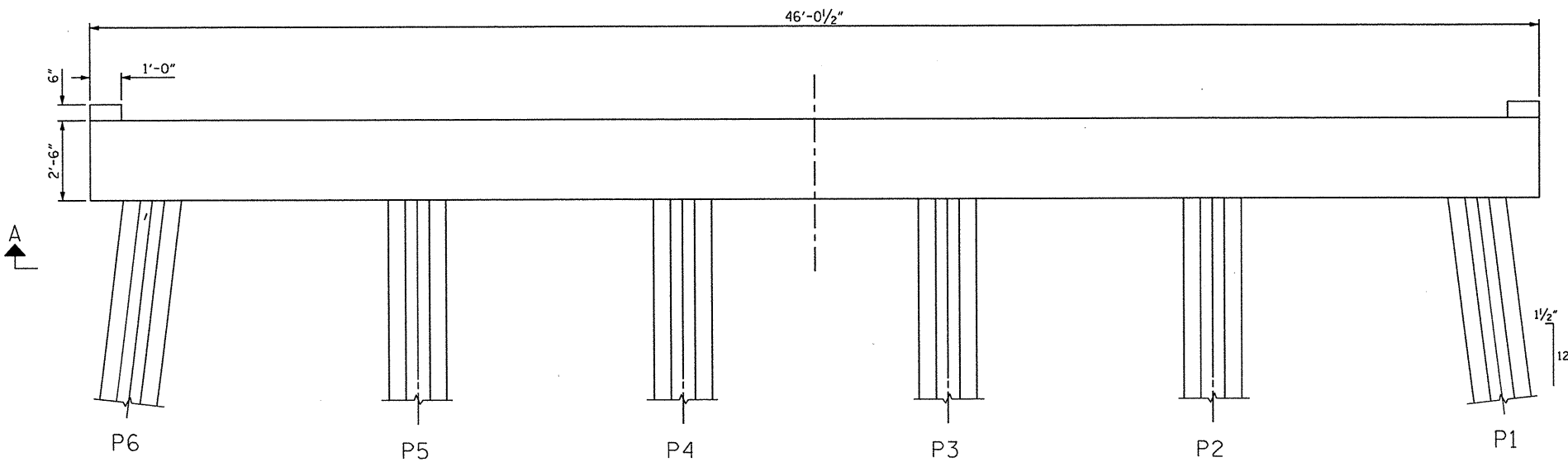
LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.) FOR NEW LATERAL GUIDE, SEE DETAILS SHEET S-23.



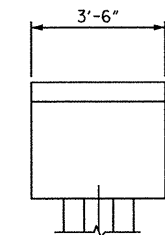
SPAN 3 FACE
(UP STATION)



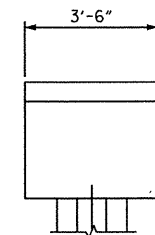
SECTION A-A
(UNDERSIDE OF CAP)



SPAN 4 FACE
(BACK STATION)



P1
END VIEW



P6
END VIEW

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO. : 35

SHEET 3 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT NO. 3

DRAWN BY : CL BRIGHT DATE : 05/2013
CHECKED BY : D. MULLER DATE : 05/2013
DESIGN ENGINEER OF RECORD: D. MULLER DATE : 05/2013

*****SYSTEM*****
*****DCN*****
*****USERNAME*****

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			49

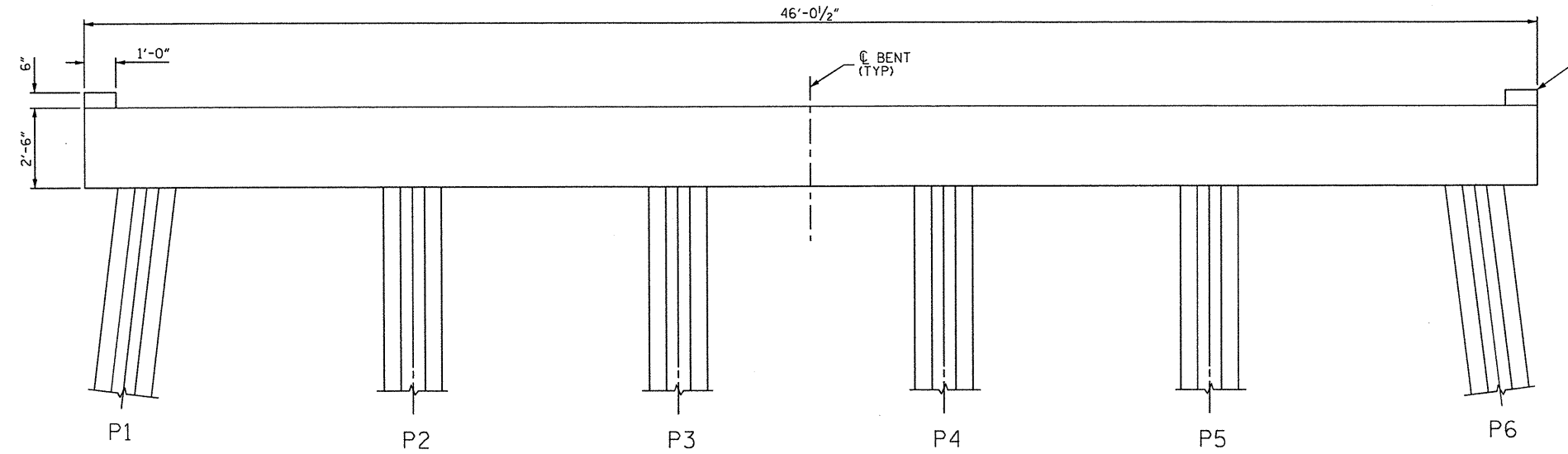
REPAIR QUANTITY TABLE

REPAIRS BENT 4	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0.06	0.40	0.02			
COLUMN	0	0	0			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			0			
COLUMN			0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

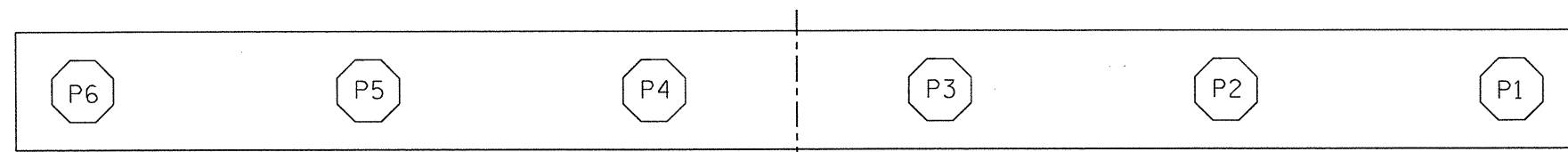
NOTES:

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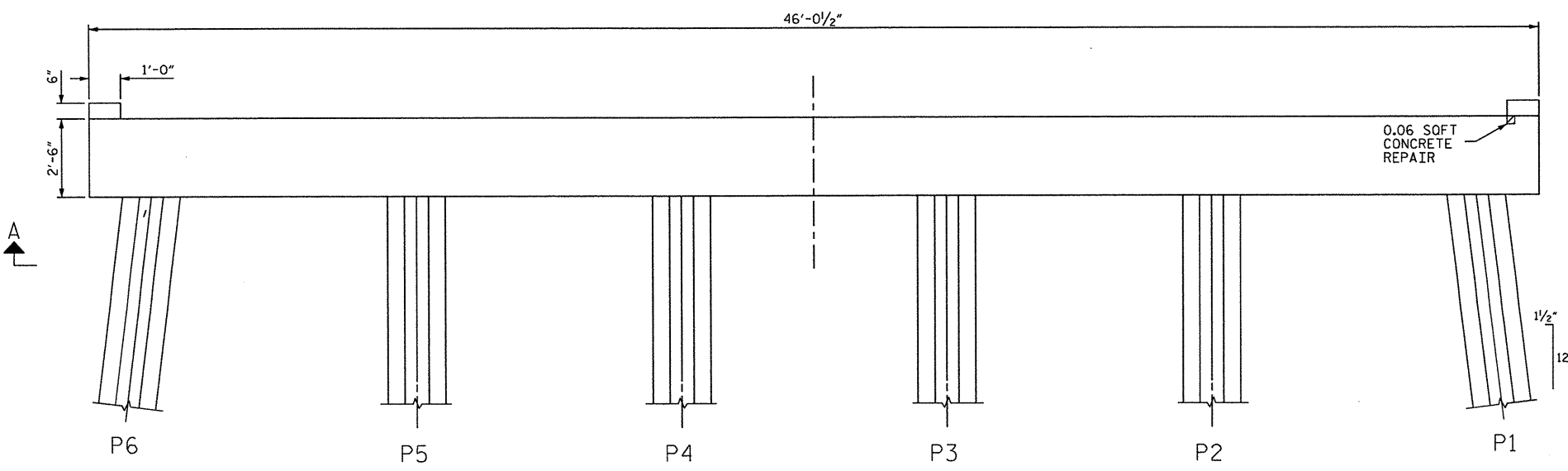


LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.) FOR NEW LATERAL GUIDE, SEE DETAILS SHEET S-23.

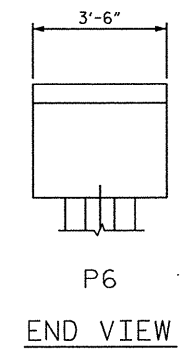
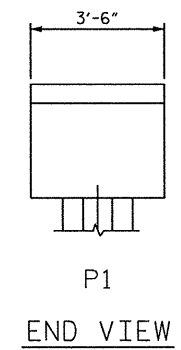
SPAN 4 FACE
(UP STATION)



SECTION A-A
(UNDERSIDE OF CAP)



SPAN 5 FACE
(BACK STATION)



PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO. : 35
 SHEET 4 OF 8

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT NO. 4

DRAWN BY : CL BRIGHT DATE : 05/2013
 CHECKED BY : D. MULLER DATE : 05/2013
 DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			49
2			4			

*****SYSTEM*****
 *****DGN*****
 *****USERNAME*****

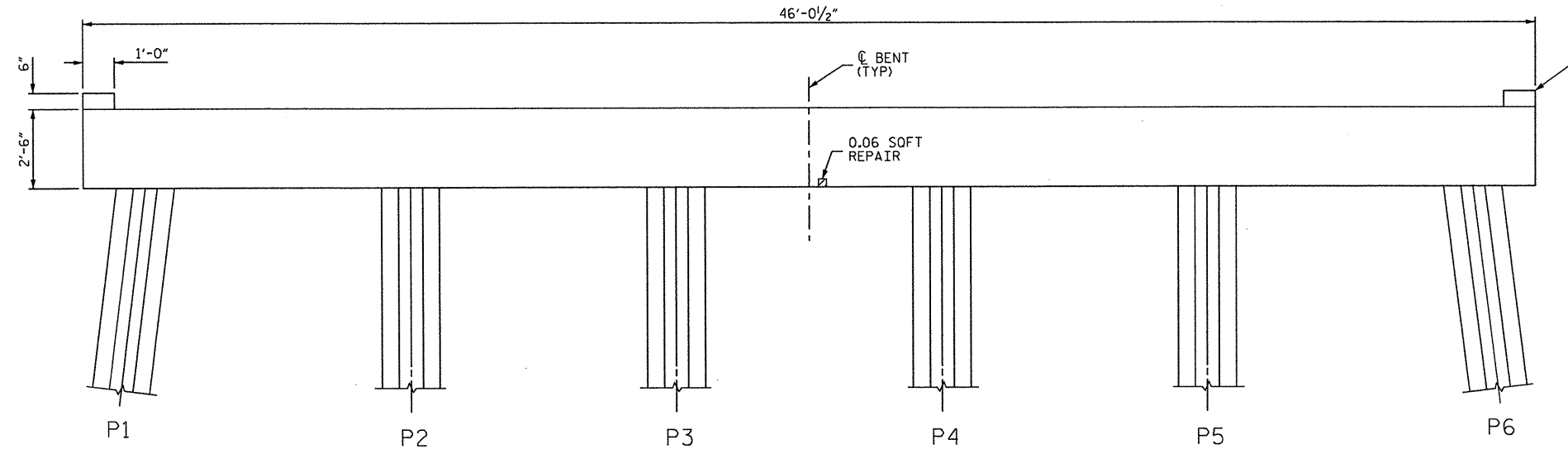
REPAIR QUANTITY TABLE

REPAIRS BENT 5	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	4.02	0.5	2.01			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT		LN. FT	
CAP			0			
COLUMN			0			

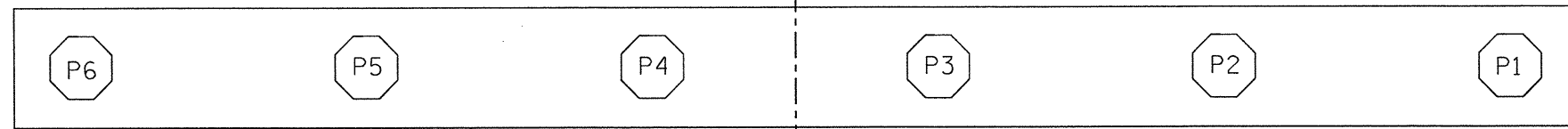
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

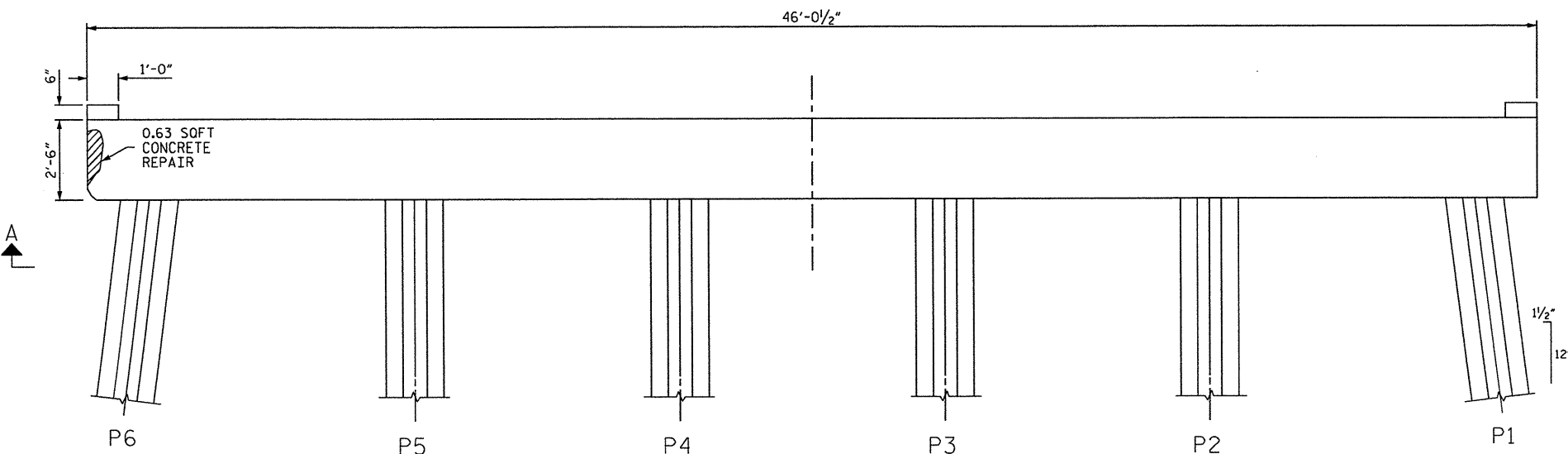
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.



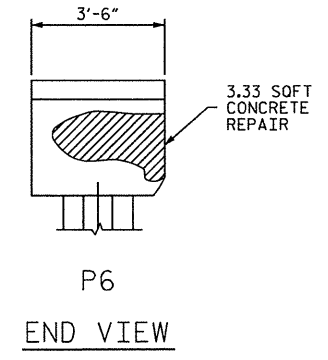
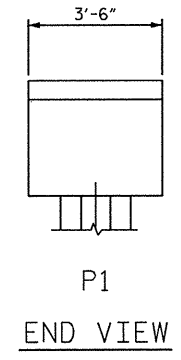
SPAN 5 FACE
(UP STATION)



SECTION A-A
(UNDERSIDE OF CAP)



SPAN 6 FACE
(BACK STATION)



PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO. : 35

SHEET 5 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT NO. 5

DRAWN BY : CL. BRIGHT DATE : 05/2013
CHECKED BY : D. MULLER DATE : 05/2013
DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-19
2			4			TOTAL SHEETS 49

*****SYSTEM*****
*****DCN*****
*****USERNAME*****

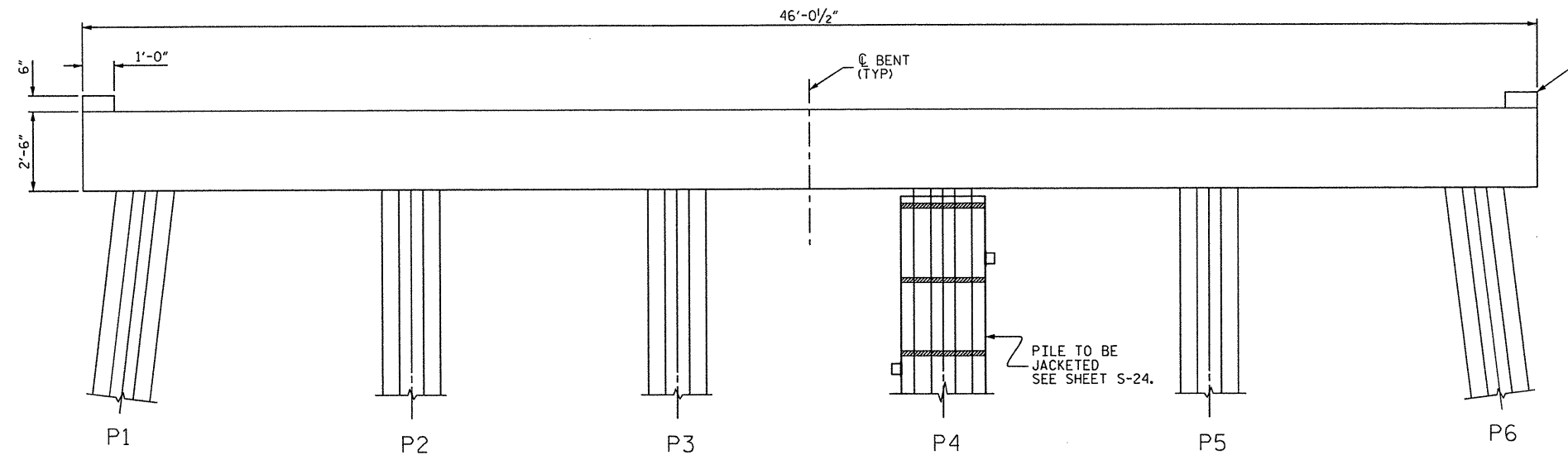
REPAIR QUANTITY TABLE

REPAIRS BENT 6	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0	0	0			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP				20.0		
COLUMN				0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

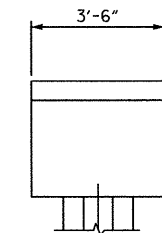
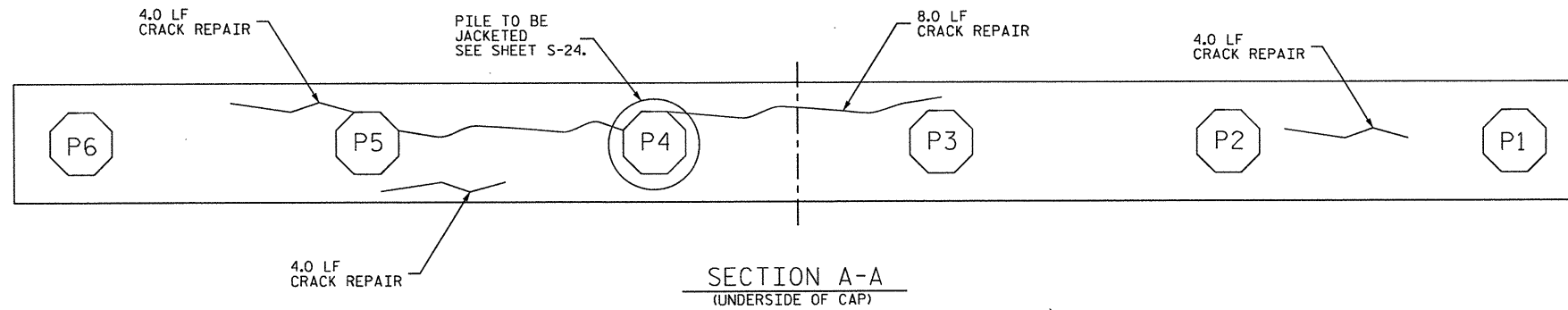
NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

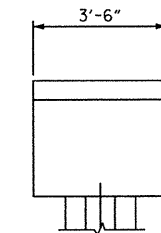


LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.) FOR NEW LATERAL GUIDE, SEE DETAILS SHEET S-23.

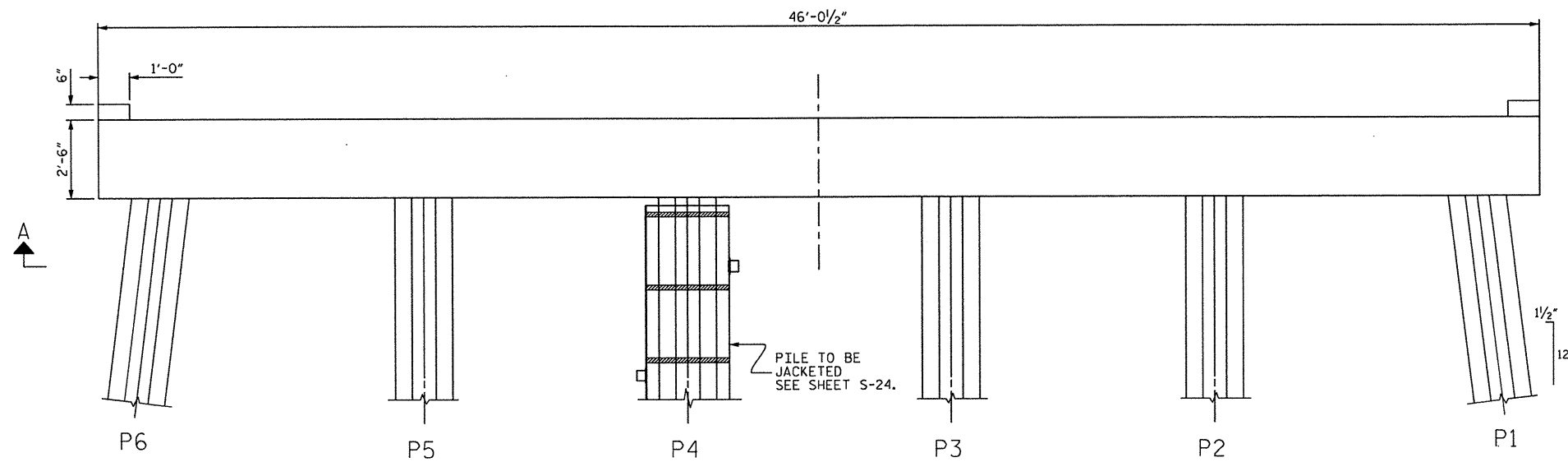
SPAN 6 FACE
(UP STATION)



P1
END VIEW



P6
END VIEW



SPAN 7 FACE
(BACK STATION)

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO. : 35

SHEET 6 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT NO. 6

DRAWN BY : CL BRIGHT DATE : 05/2013
CHECKED BY : D. MULLER DATE : 05/2013
DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

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*****DGN*****
*****USERNAME*****

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-20
2			4			TOTAL SHEETS 49

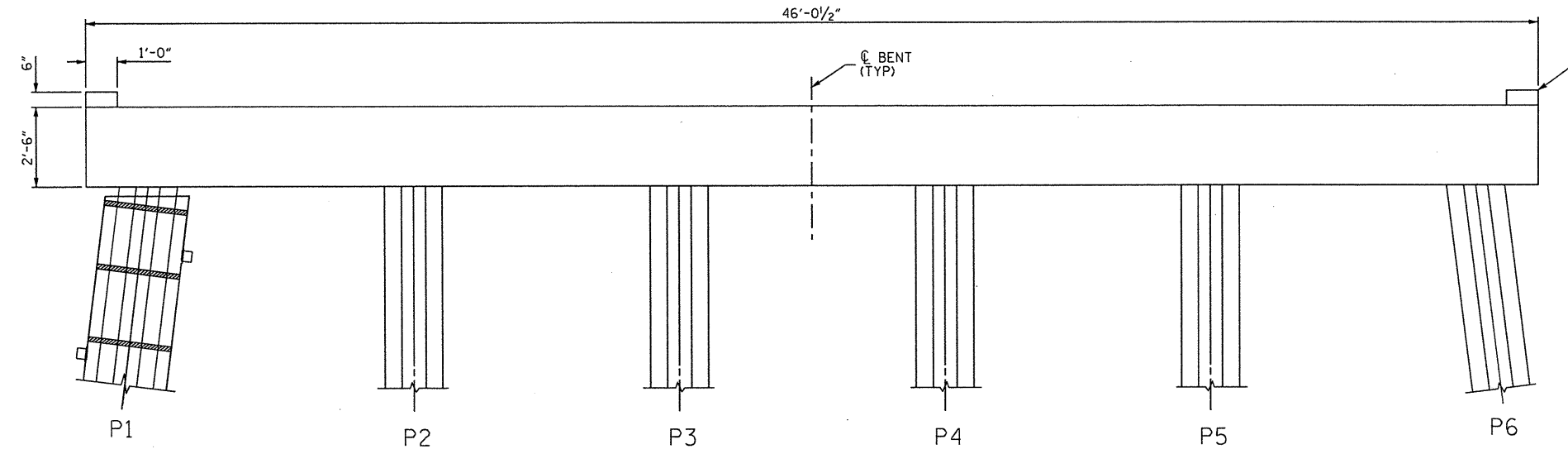
REPAIR QUANTITY TABLE

REPAIRS BENT 7	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0.63	0.4	0.25			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			8.0			
COLUMN			0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

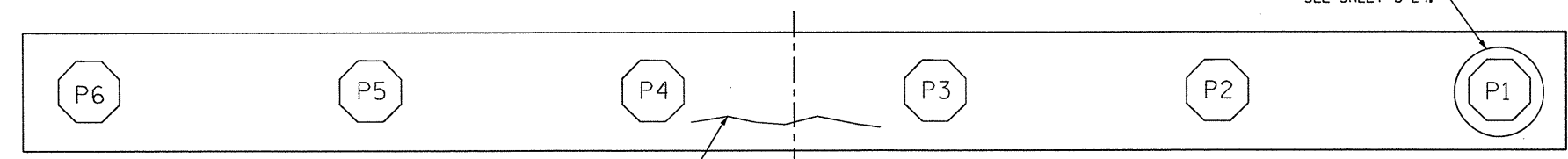
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.



LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.) FOR NEW LATERAL GUIDE, SEE DETAILS SHEET S-23.

P1 P2 P3 P4 P5 P6

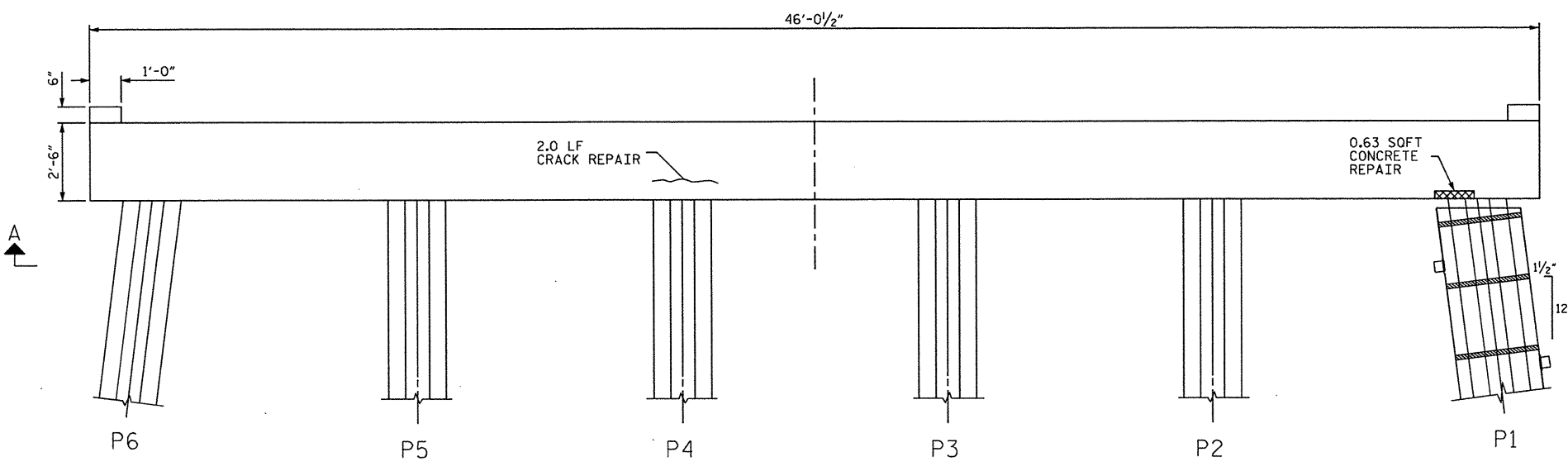
SPAN 7 FACE
(UP STATION)



6.0 LF CRACK REPAIR

PILE TO BE JACKETED SEE SHEET S-24.

SECTION A-A
(UNDERSIDE OF CAP)

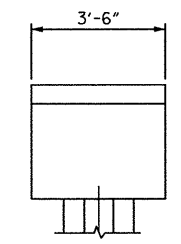


2.0 LF CRACK REPAIR

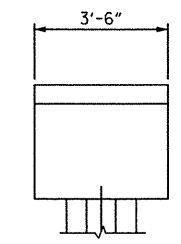
0.63 SOFT CONCRETE REPAIR

P6 P5 P4 P3 P2 P1

SPAN 8 FACE
(BACK STATION)



P1
END VIEW



P6
END VIEW

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO.: 35

SHEET 7 OF 8

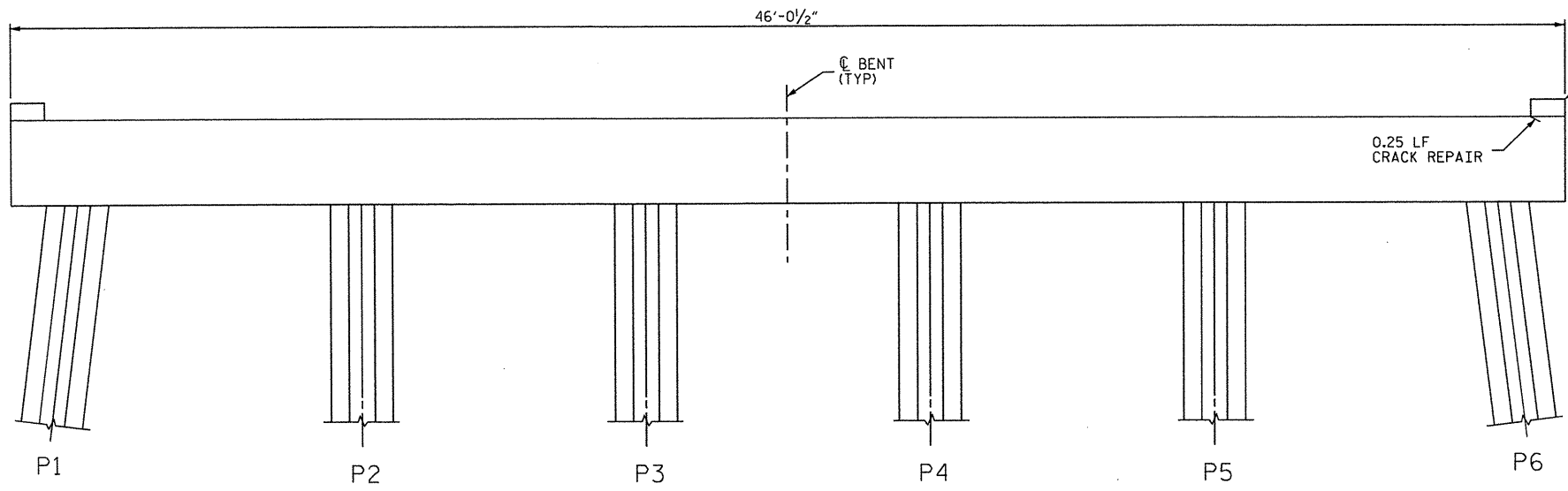
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT NO. 7

DRAWN BY : CL BRIGHT DATE : 05/2013
CHECKED BY : D. MULLER DATE : 05/2013
DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

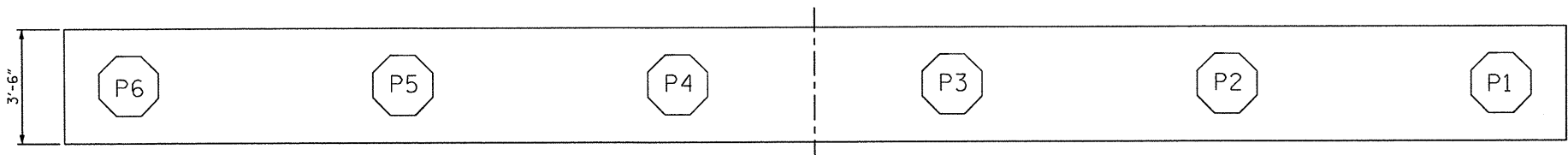
*****SYSTEMTIME*****
*****DGN*****
*****USERNAME*****

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			49

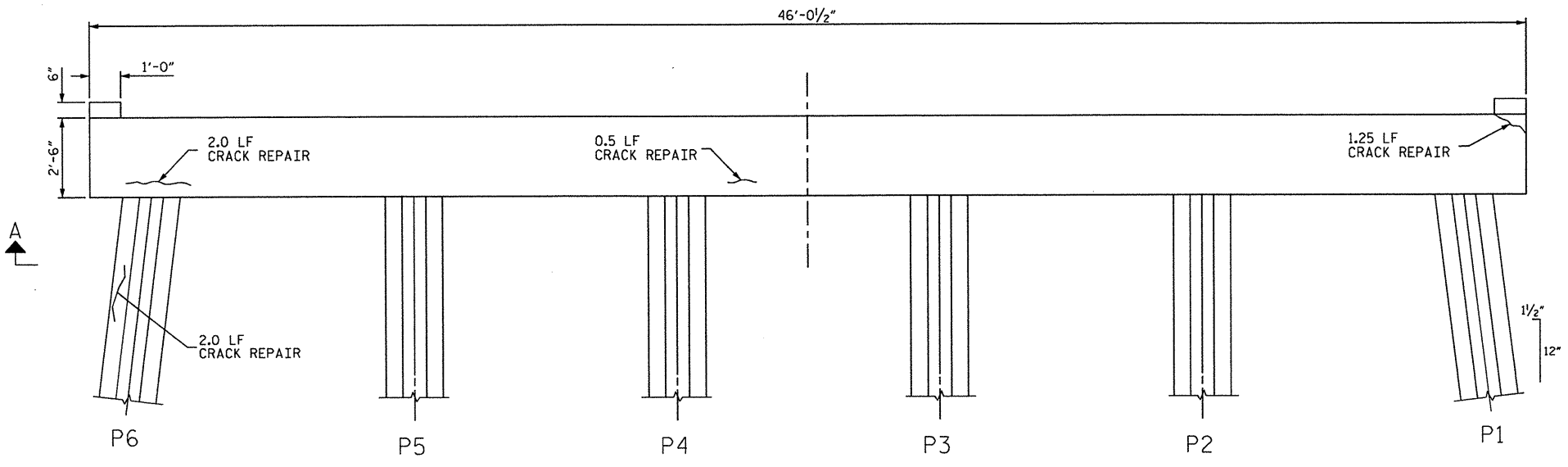


LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.) FOR NEW LATERAL GUIDE, SEE DETAILS SHEET S-23.

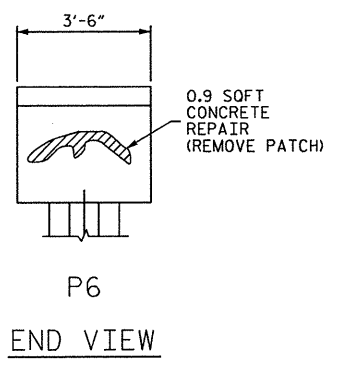
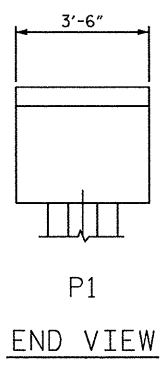
SPAN 8 FACE
(UP STATION)



SECTION A-A
(UNDERSIDE OF CAP)



SPAN 9 FACE
(BACK STATION)



REPAIR QUANTITY TABLE						
REPAIRS BENT 8	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0.9	0.4	0.36			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			4.0			
COLUMN			2.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:
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PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO.: 35
SHEET 8 OF 8

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT NO. 8

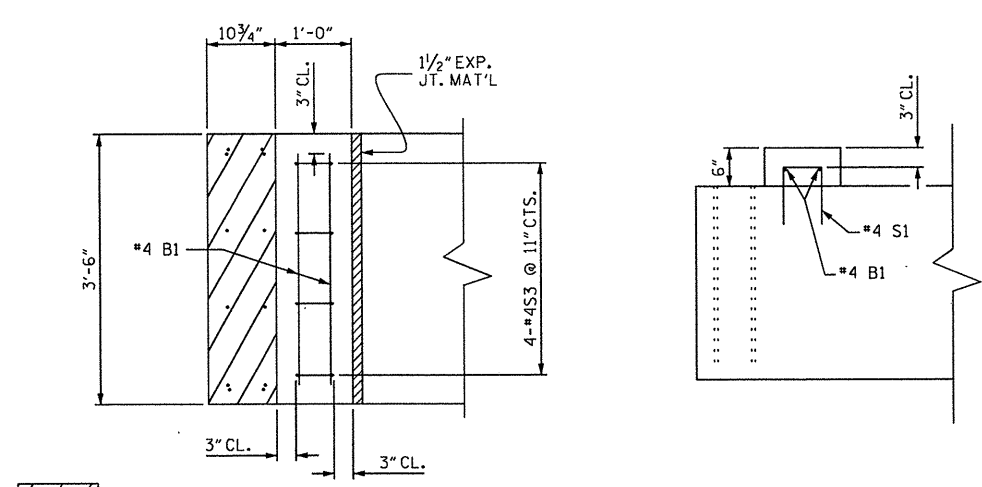
DRAWN BY: CL BRIGHT DATE: 05/2013
CHECKED BY: D. MULLER DATE: 05/2013
DESIGN ENGINEER OF RECORD: D. MULLER DATE: 05/2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			49

*****SYSTEM*****
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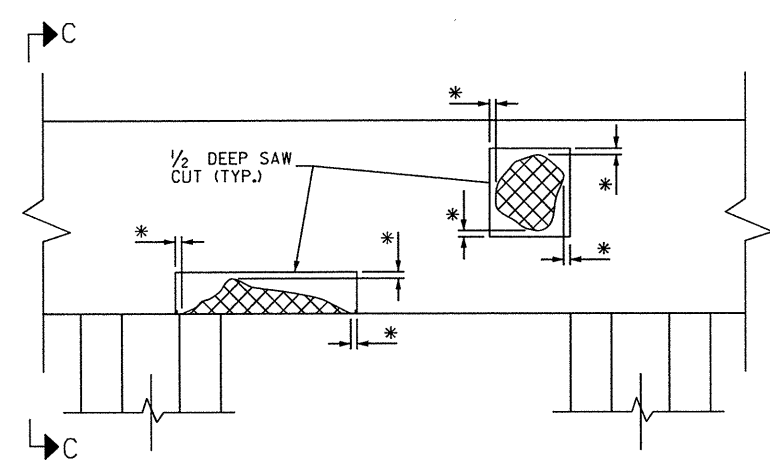
BAR TYPES		BILL OF MATERIAL			
		REINFORCING STEEL			
		BAR NO.	SIZE	TYPE	LENGTH
B1	40	4	STR	3-0	80
S1	80	4	1	2-0	107
REINFORCING STEEL TOTAL = 187 LBS					
CONCRETE					
CLASS A (LATERAL GUIDES)				VOLUME (CU. YDS)	
				1.30	

ALL BAR DIMENSIONS ARE OUT TO OUT.

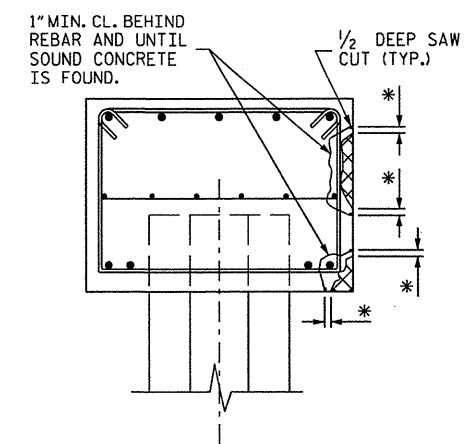


PLAN
ELEVATION
LATERAL GUIDE DETAILS
(TYP. ALL BENTS)

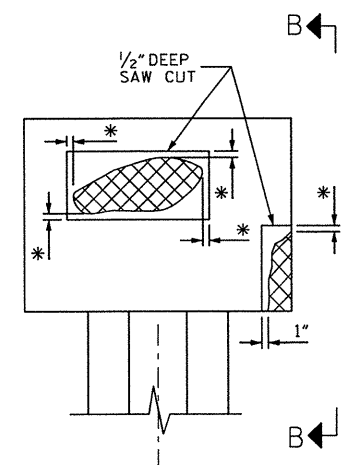
AREA TO BE EPOXY COATED



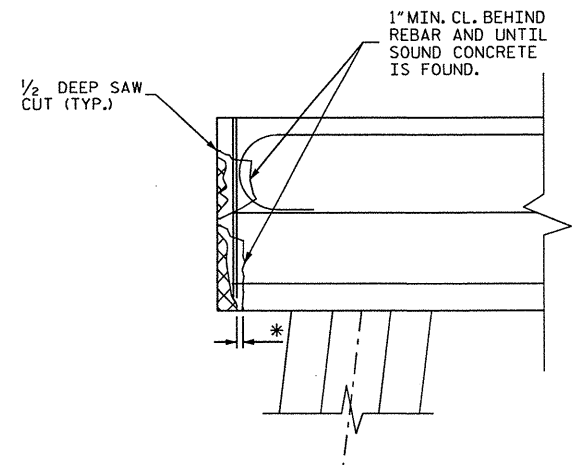
ELEVATION



SECTION C-C



END VIEW



SECTION B-B

CAP REPAIR DETAILS

* CONCRETE TO BE REMOVED UNTIL SOUND CONCRETE IS FOUND, MIN. OF 1"

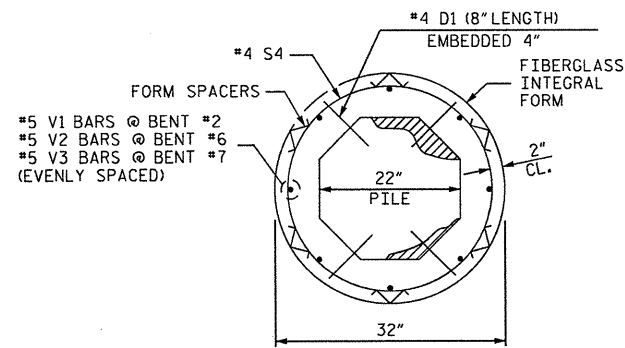
PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO. : 35
 SHEET 1 OF 1

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 LATERAL GUIDE
 & CAP
 REPAIR DETAILS

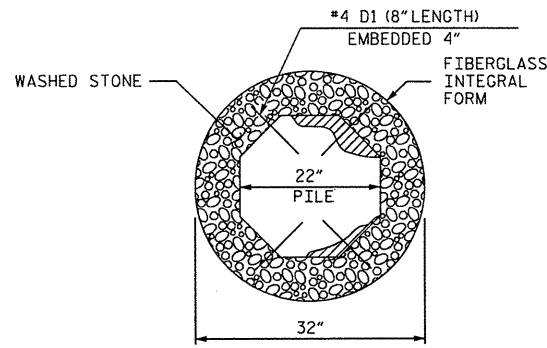
DRAWN BY : CL BRIGHT DATE : 05/2013
 CHECKED BY : D. MULLER DATE : 05/2013
 DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			49
2			4			49

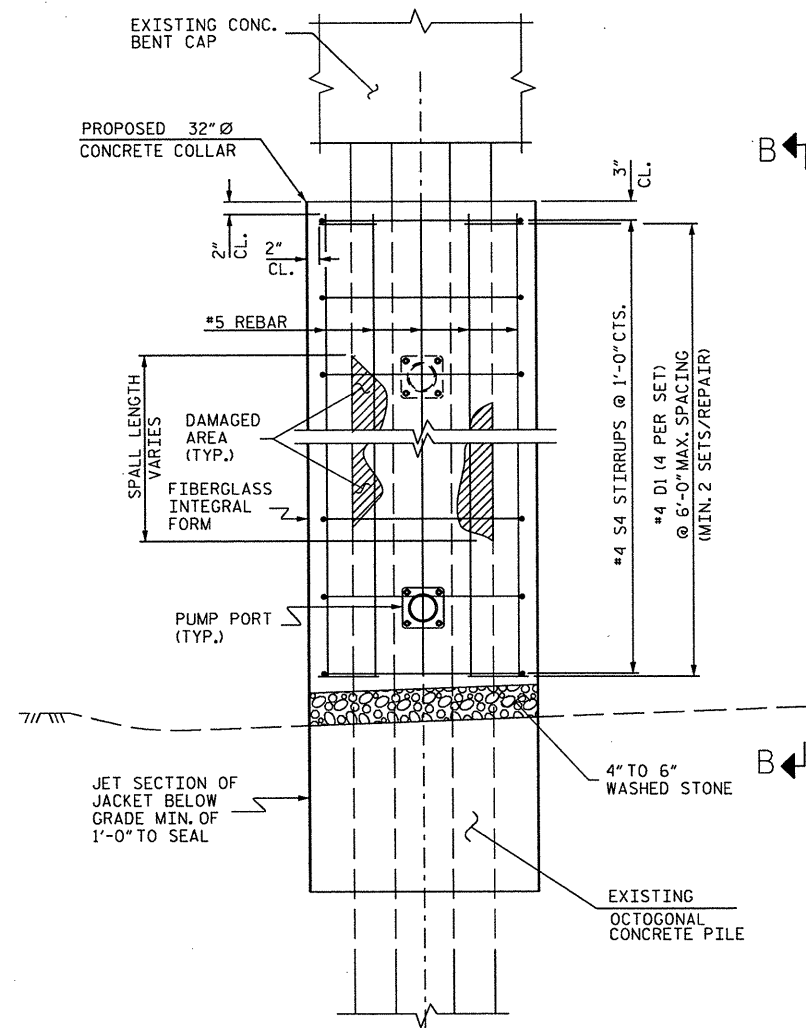
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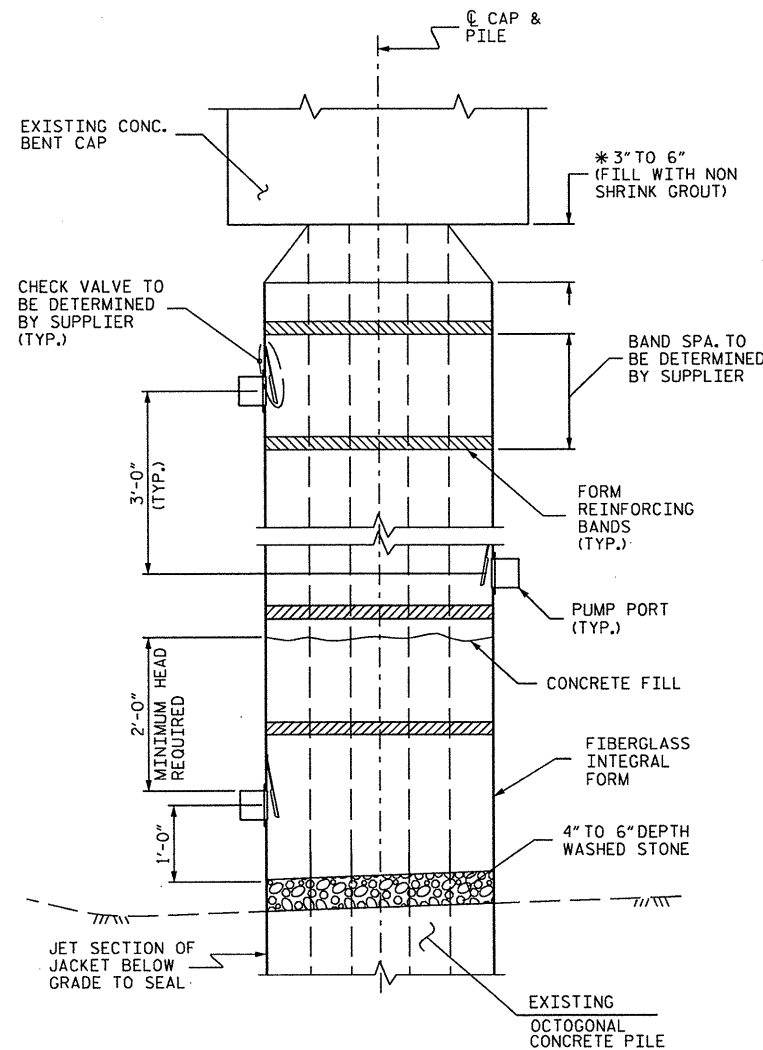
JACKET DETAIL



BOTTOM DETAIL



COLLAR ELEVATION
(BELOW GRADE APPLICATIONS)



SECTION B-B

* USE JACKET PROVIDERS RECOMMENDATION FOR DIMENSIONS AND TYPE OF NON SHRINK GROUT. SLOPE TOP AT 45°

PILE JACKET W/ PUMP PORTS
(BELOW GRADE REPAIR)

JACKET NOTES:

CONCRETE AND BAR REINFORCEMENT SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF THE STANDARD SPECIFICATION SECTIONS.

ALL REINFORCING BARS SHALL BE ASTM GRADE 60.

SURFACES OF PILES TO ENCASED IN CONCRETE SHALL BE CLEANED AS DESCRIBED IN SPECIAL PROVISIONS. CLEANING MUST BE DONE IMMEDIATELY BEFORE FORMS ARE INSTALLED.

SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL, SHOWING ALL FASTENING DETAILS, STANDOFFS, FORMS, AND ANY OTHER DEVICES NECESSARY TO SECURE THE FORMS SO THAT CONCRETE MAY BE PLACED IN A CONTINUOUS OPERATION COMPLETELY ENCAPSULATING THE PILES.

FORMS FOR JACKET SHALL BE INSTALLED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. BOTTOM SEAL SHALL BE MORTAR TIGHT.

EXCESS CONCRETE AT THE TOP OF THE FORM SHALL BE REMOVED SEVEN DAYS AFTER POURING CONCRETE. THE GAP BETWEEN CONCRETE ENCASEMENT AND PILE CAP SHALL BE FILLED WITH NON SHRINK GROUT IN ORDER TO PROVIDE FULL BEARING.

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO.: 35

SHEET 1 OF 2

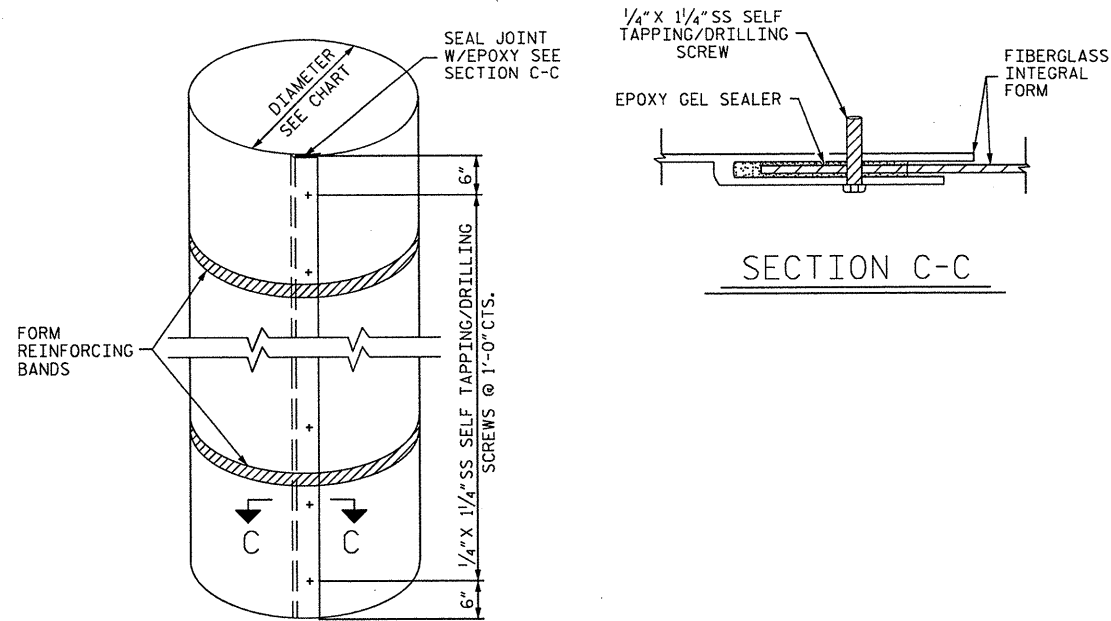
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PILE JACKET
DETAILS

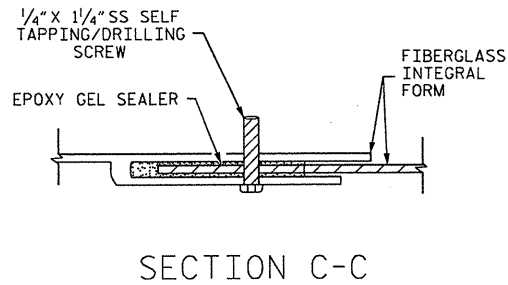
DRAWN BY: CL BRIGHT DATE: 05/2013
CHECKED BY: D. MULLER DATE: 05/2013
DESIGN ENGINEER OF RECORD: D. MULLER DATE: 05/2013

*****SYSTEM*****
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*****USERNAME*****

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			49
2			4			



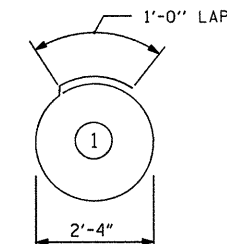
FIBERGLASS INTEGRAL FORM



REPAIR SEQUENCE

- 1) COMPLETELY REMOVE ALL RUST, OIL, GREASE, AND OTHER CONTAMINANTS. PREPARE STEEL USING ACCEPTABLE MECHANICAL MEANS AND STEEL CLEANERS AND DEGREASERS AS NECESSARY TO OBTAIN CLEAN, SOUND SURFACES. STEEL PILE SURFACES SHOULD BE SOUND AND FREE OF CONTAMINATION. WHERE MARINE GROWTH OR OTHER CONTAMINANTS EXIST, INCLUDING VISIBLE SIGNS OF CORROSION, A HIGH PRESSURE WATER BLAST SHOULD BE UTILIZED TO ENSURE A CLEAN, SOUND, CONTAMINANT- FREE SURFACE.
- 2) COMPLETE REPAIRS AS INDICATED IN SHEET NO. S-5.
- 3) DETERMINE FIBERGLASS INTEGRAL FORM LENGTH. MINIMUM LENGTH IS 2' ABOVE AND BELOW CLEAN, SOUND, CONTAMINANT- FREE SURFACE.
- 4) BUILD THE REBAR CAGE BY PLACING THE #4 STIRRUPS AND VERTICAL REINFORCING STEEL IN ACCORDANCE WITH THE PROJECT DRAWING.
- 5) INSTALL FORM SPACERS TO INSURE ADEQUATE CONCRETE COVER AT ALL PARTS OF THE SLEEVE.
- 6) INSTALL THE SLEEVE- IN PLACE FIBERGLASS FORM (ALSO CALLED JACKET OR COLLAR). THE DIAMETER OF THE JACKET SHOULD BE LARGE ENOUGH TO IN- CIRCLE THE PILE WHILE PROVIDING A MINIMUM OF 5" TOTAL CLEARANCE. 2" OF CLEARANCE BETWEEN THE PILE AND THE REINFORCING STEEL AND 2" OF CLEARANCE BETWEEN THE REINFORCING STEEL AND THE FORM. (SEE JACKET SIZING CHART)
- 7) INSERT CONCRETE PUMP HOSE THRU TOP OF JACKET AND EXTEND TO JUST ABOVE THE BOTTOM AND PUMP AT A FLOW RATE TO THE DESIRED FILL ELEVATION. IF SITE CONDITIONS PROHIBIT INSERTING PUMP HOSE THRU TOP OF JACKET THEN INSTALL PUMP PORTS AND PLACE CONCRETE AS SHOWN IN THE DETAILS.
- 8) PLACE CONCRETE FILL. INSTALL PUMP PORT(S) IN JACKET FOR UNDERWATER APPLICATIONS. PORTS SHOULD HAVE A CHECK VALVE TO KEEP BACK FLOW OF CONCRETE ONCE PUMP NOZZLE IS REMOVED. FOR CONCRETE PLACEMENTS GREATER THAN 5' USE MULTIPLE PORTS SPACED 3' VERTICALLY AND ALTERNATING 180° FROM PREVIOUS PORT. A MINIMUM OF 2' OF CONCRETE HEAD IS NEEDED ABOVE PORT PRIOR TO CHANGING PORTS.
- 9) REMOVE FORM WORK AFTER 24 HOURS.

BAR TYPES



BILL OF MATERIAL

REINFORCING STEEL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	36	4	STR	8"	16
V1	8	5	STR	±6'-9"	56
V2	8	5	STR	±10'-0"	83
V3	8	5	STR	±9'-0"	75
S4	28	#4	1	8'-4"	156
REINFORCING STEEL TOTAL =					386 LBS
CONCRETE					
CLASS				VOLUME (CU. YDS)	
A				5.6	

ALL BAR DIMENSIONS ARE OUT TO OUT.

REINFORCING STEEL AND CLASS A CONCRETE ARE PAID FOR IN THE PAY ITEM - PILE JACKETS

JACKET SIZING CHART

PILE / COLUMN SIZE	RECOMMENDED JACKET SIZE
	ROUND
22" OCTAGONAL	32" Ø

DRAWN BY : CL BRIGHT DATE : 05/2013
 CHECKED BY : D. MULLER DATE : 05/2013
 DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

*****SYSTEM*****
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 *****USER*****

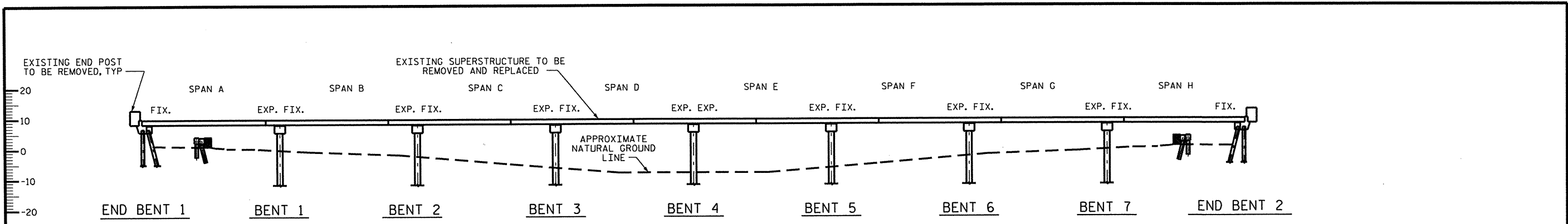
PROJECT NO. 41665.4B
 CARTERET COUNTY
 BRIDGE NO. : 35

SHEET 2 OF 2

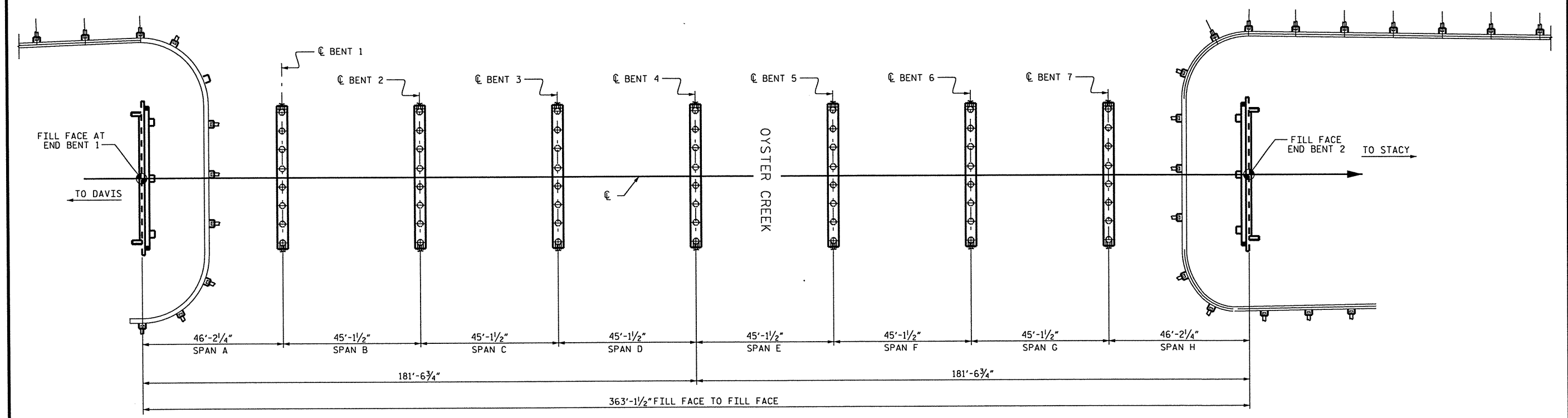
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PILE JACKET
 DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			49



SECTION ALONG -L-
 (END BENTS SHOWN AT RIGHT ANGLES)
 (EXISTING BRIDGE RAIL NOT SHOWN)



PLAN
 (EXISTING SUPERSTRUCTURE NOT SHOWN)

SCOPE OF WORK

- CONSTRUCT, MAINTAIN, AND REMOVE TEMPORARY BRIDGING AND APPROACH RAMPS.
- REMOVE THE EXISTING CORED SLAB SUPERSTRUCTURE IN STAGES SHOWN.
- PLACE A NEW CORED SLAB SUPERSTRUCTURE IN STAGES SHOWN.
- MILL ASPHALT AND PLACE NEW SURFACE COURSE AT BRIDGE APPROACHES.
- FILL EXISTING CRACKS IN THE SUBSTRUCTURE WITH EPOXY RESIN.
- REMOVE AND REPAIR DAMAGED PORTIONS OF THE EXISTING CONCRETE CAPS.
- CONSTRUCT CONCRETE JACKETS AT THE PILES INDICATED.
- REMOVE AND REPLACE EXISTING APPROACH GUARDRAIL (SEE TRAFFIC MANAGEMENT PLANS)

PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO. : 39

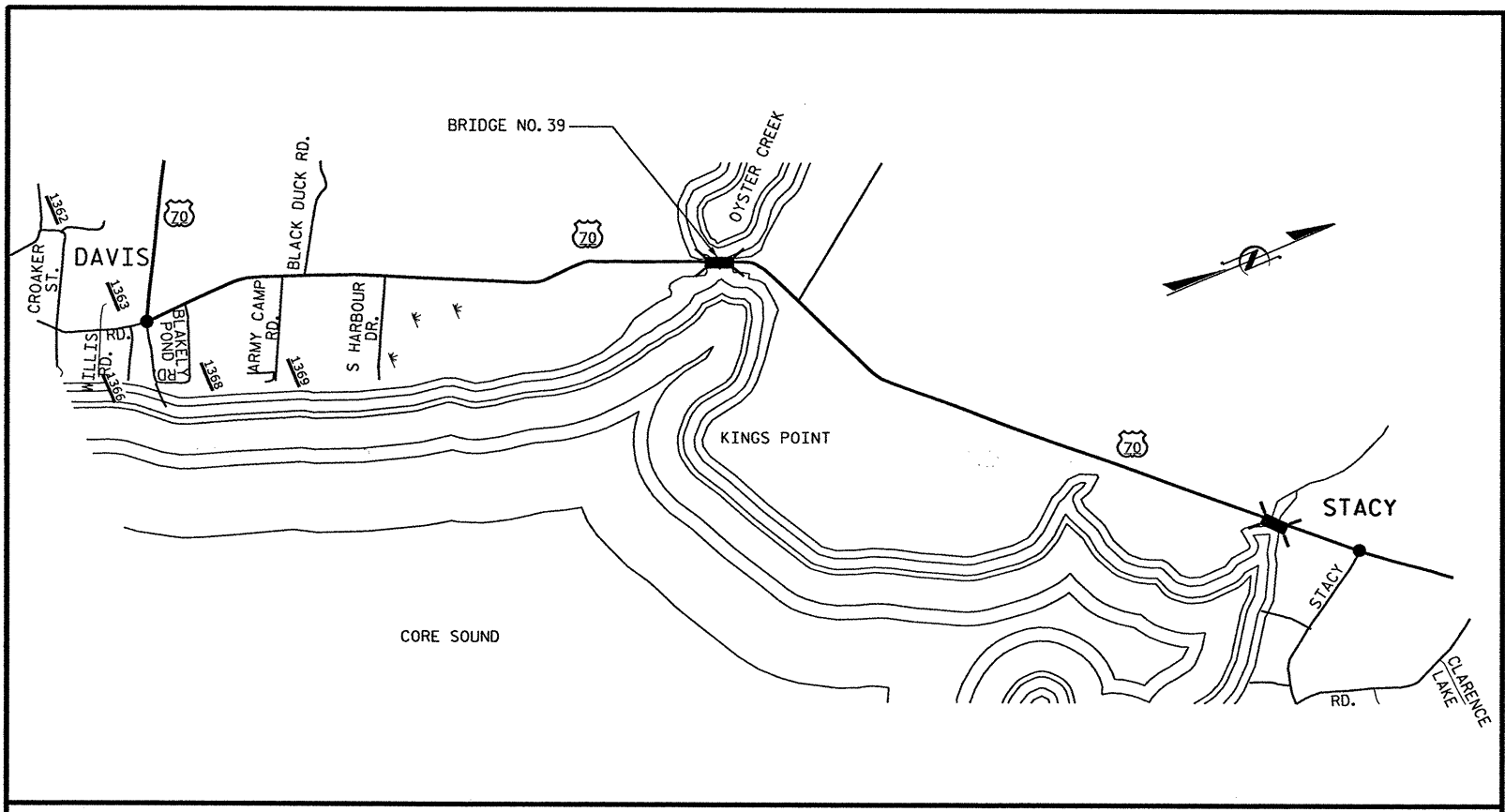
SHEET OF

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 OYSTER CREEK ON
 US 70 BETWEEN
 DAVIS AND STACY

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			49

DRAWN BY : B.N.BARODAWALA DATE : 5-28-13
 CHECKED BY : D. MULLER DATE : 5-28-13
 DESIGN ENGINEER OF RECORD: D. MULLER DATE : 5-28-13



LOCATION SKETCH

NOTES

ASSUMED LIVE LOAD FOR SUPERSTRUCTURE = HL 93 OR ALTERNATE LOADING.

ASSUMED LIVE LOAD FOR EXISTING SUBSTRUCTURE = HS15.

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

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

THE EXISTING SUPERSTRUCTURE CONSISTING OF SIXTEEN PRESTRESSED CORED SLAB UNITS WITH A CLEAR ROADWAY WIDTH OF '42-0" SHALL BE REMOVED PER THE PLANS ALONG WITH THE EXISTING LATERAL GUIDES AND END POSTS, SEE SPECIAL PROVISION FOR "PARTIAL REMOVAL OF EXISTING STRUCTURE".

SEVERAL OF THE EXISTING CORED SLAB UNITS WILL BE MARKED FOR SPECIAL DELIVERY PRIOR TO DEMOLITION. FOR SPECIAL REMOVAL AND DELIVERY OF CORED SLAB UNITS, SEE THE SPECIAL PROVISION FOR "PARTIAL REMOVAL OF EXISTING STRUCTURE".

CARE SHALL BE TAKEN NOT TO DAMAGE THE SUBSTRUCTURE DURING REMOVAL OF THE SUPERSTRUCTURE. IF THE SUBSTRUCTURE IS DAMAGED DURING REMOVAL IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL A REPAIR PROCEDURE FOR THE DAMAGED AREAS. REPAIRS MADE TO DAMAGE DONE BY REMOVAL SHALL BE AT THE EXPENSE OF THE CONTRACTOR. NO ADDITIONAL TIME WILL BE GRANTED IN ORDER TO PERFORM REPAIRS NEEDED DUE TO REMOVAL OF THE SUPERSTRUCTURE.

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

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

THIS SUPERSTRUCTURE CONTAINS THE NECESSARY CORROSION PROTECTION REQUIRED FOR A CORROSIVE SITE.

ALL BAR SUPPORTS USED IN THE BARRIER RAIL AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY BRIDGING, SEE SPECIAL PROVISIONS.

FOR STABILIZATION OF EXISTING SPAN DURING CONSTRUCTION, SEE SPECIAL PROVISIONS.

FOR TEMPORARY METAL RAIL, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR PILE JACKETS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

THIS BRIDGE MAY BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

* INCIDENTAL MILLING AND AN ADDITIONAL 49.0 TONS OF ASPHALT CONCRETE SURFACE COURSE HAVE BEEN ADDED TO ENSURE A SMOOTH TRANSITION ONTO THE PROPOSED SUPERSTRUCTURE. PROVIDED QUANTITIES BASED UPON 50 FEET OF MILLING AT EACH APPROACH (100 FEET TOTAL). FINAL LENGTH TO BE DETERMINED BY THE ENGINEER.

TOTAL BILL OF MATERIAL

MOBILIZATION	PARTIAL REMOVAL OF EXISTING STRUCTURE AT BRIDGE #39	SPECIAL REMOVAL AND DELIVERY OF CORED SLAB UNITS	CONST. MAINT & REMOVAL OF TEMP BRIDGING AT BRIDGE #39	ELASTOMERIC BEARINGS	EPOXY COATED REINFORCING STEEL DOWELS	3'-0" X 1'-9" PRESTRESSED CONC. CORED SLABS		TEMPORARY METAL RAIL AT BRIDGE #39	STABILIZATION OF EXIST. SPAN DURING CONSTR.	* ASPH. CONC. SURFACE COURSE TYPE S9.5B
LUMP SUM	LUMP SUM	EA.	LUMP SUM	LUMP SUM	LBS.	NO.	LIN. FT.	LUMP SUM	EA.	TONS
LUMP SUM	LUMP SUM	5	LUMP SUM	LUMP SUM	592	112	5,040	LUMP SUM	8	509
CONCRETE REPAIRS	EPOXY RESIN INJECTION	PILE JACKETS	REINFORCING STEEL	CLASS A CONCRETE	TWO-BAR METAL RAIL	1'-2" X 2'-10" CONCRETE PARAPET		* INCIDENTAL MILLING		
CU. FT.	LIN. FT.	LIN. FT.	LBS.	CU. YDS.	LIN. FT.	LIN. FT.		SQ. YDS.		
8	459	35	143	1.0	707	722		444		

PROJECT NO. 41665.4B
CARTERET COUNTY
 STATION: 39

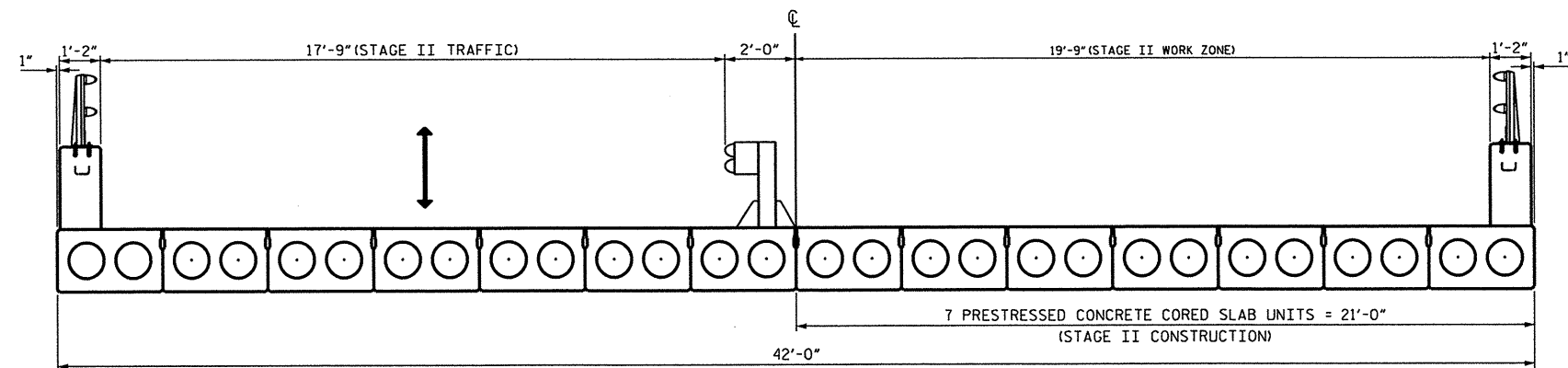
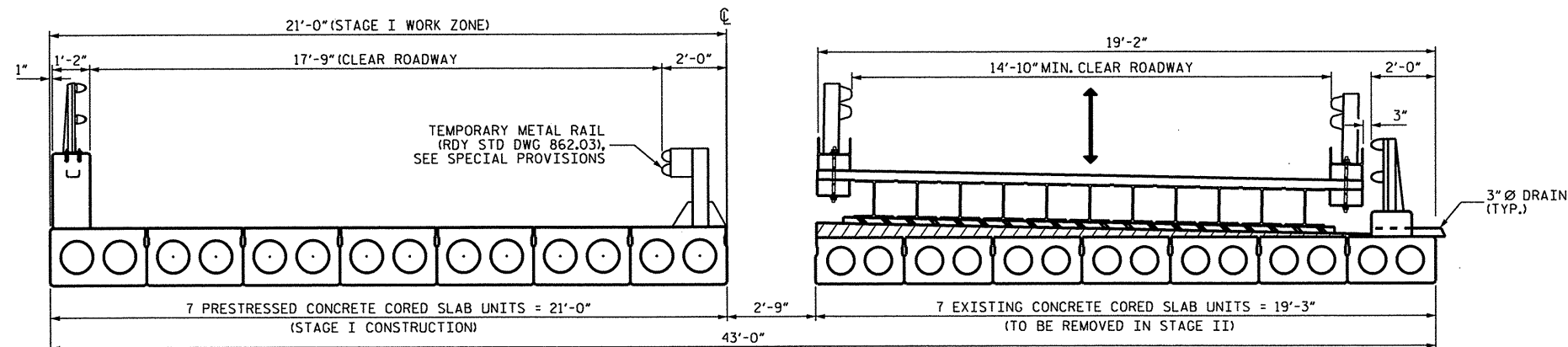
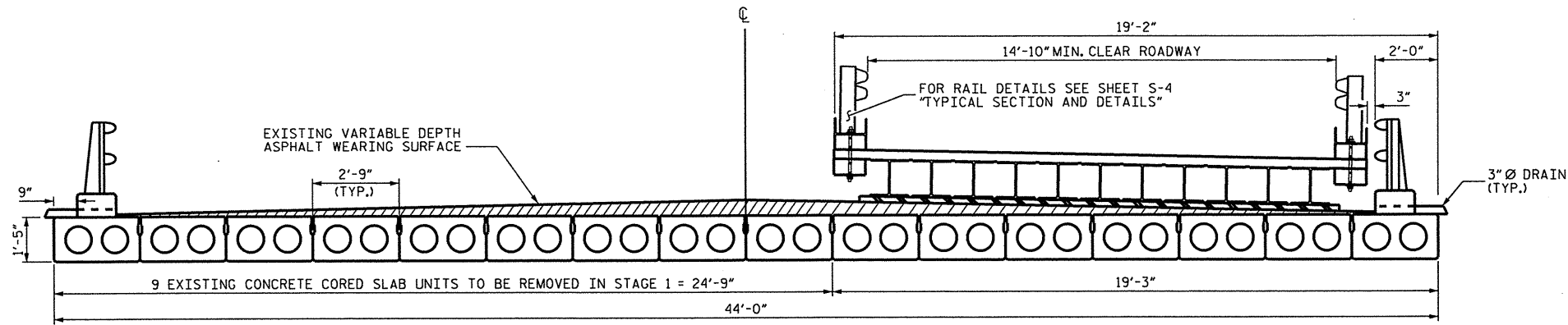
SHEET OF

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER
 OYSTER CREEK ON
 US 70 BETWEEN
 DAVIS AND STACY

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-27
1			3			TOTAL SHEETS
2			4			49

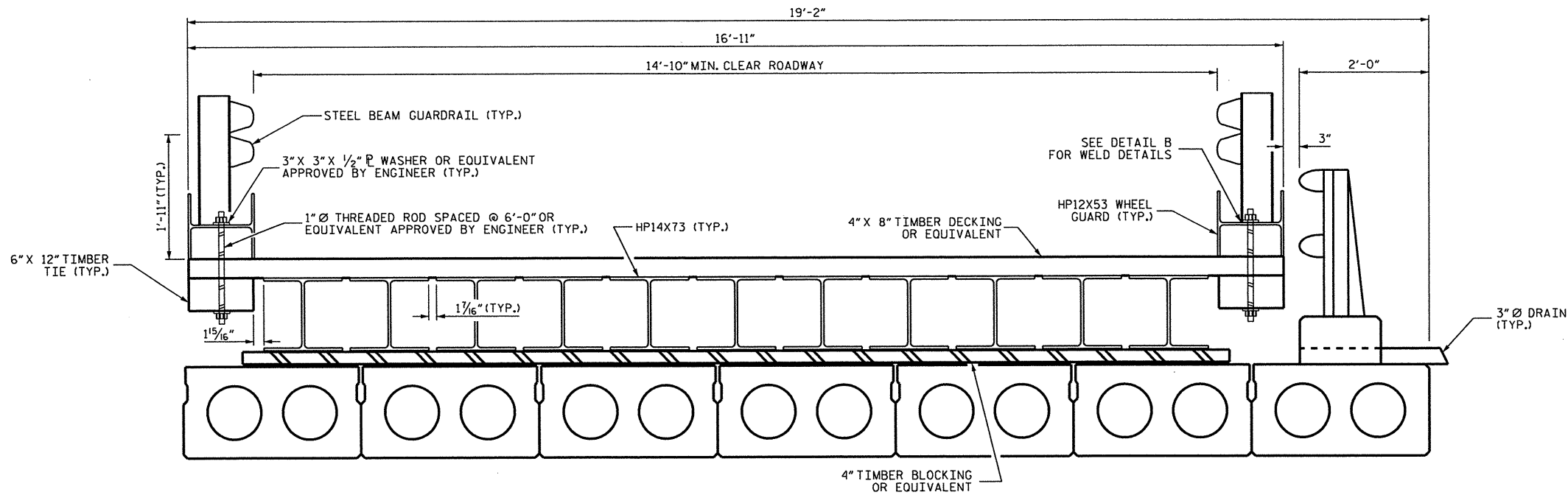
DRAWN BY : B.N.BARODAWALA DATE : 5-28-13
 CHECKED BY : D. MULLER DATE : 5-28-13
 DESIGN ENGINEER OF RECORD: D. MULLER DATE : 5-28-13



PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO: 39

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
TYPICAL SECTIONS (STAGED)						S-28
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	49
1			3			
2			4			

DRAWN BY : W.M. CLARKE DATE : 5/2013
 CHECKED BY : D. MULLER DATE : 5/2013
 DESIGN ENGINEER OF RECORD: D. MULLER DATE : 5/2013



PROPOSED BRIDGING TYPICAL SECTION

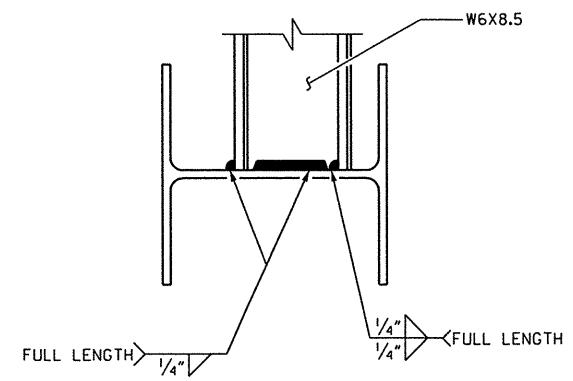
NOTES

THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE APPROACH BRIDGING TO PREVENT MOVEMENT AND SEPARATION FROM THE PROPOSED BRIDGING. ANY CONNECTION MADE TO PERMANENT BRIDGE COMPONENTS SHALL BE REPAIRED AT NO COST TO THE DEPARTMENT.

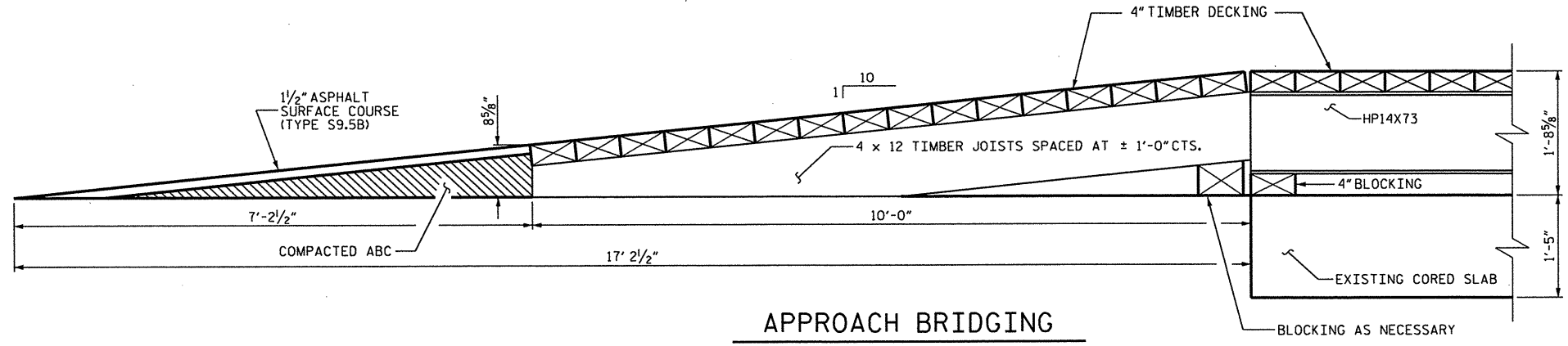
THE CLEAR ROADWAY ON THE APPROACH BRIDGING SHALL NOT BE LESS THAN THE CLEAR ROADWAY ON THE PROPOSED BRIDGING.

STEEL BEAM GUARDRAIL SHALL BE CONSTRUCTED BEGINNING IN ADVANCE OF THE APPROACH BRIDGING. THE GUARDRAIL SHALL BE ATTACHED TO THE STEEL BEAM GUARDRAIL ON THE PROPOSED BRIDGING.

THE TIMBER DECKING ON THE APPROACH BRIDGING SHALL BE SECURED TO TIMBER JOISTS IN A MANNER ACCEPTABLE TO THE ENGINEER.



DETAIL B
SCALE 2.5X



APPROACH BRIDGING
(GUARDRAIL NOT SHOWN FOR CLARITY)

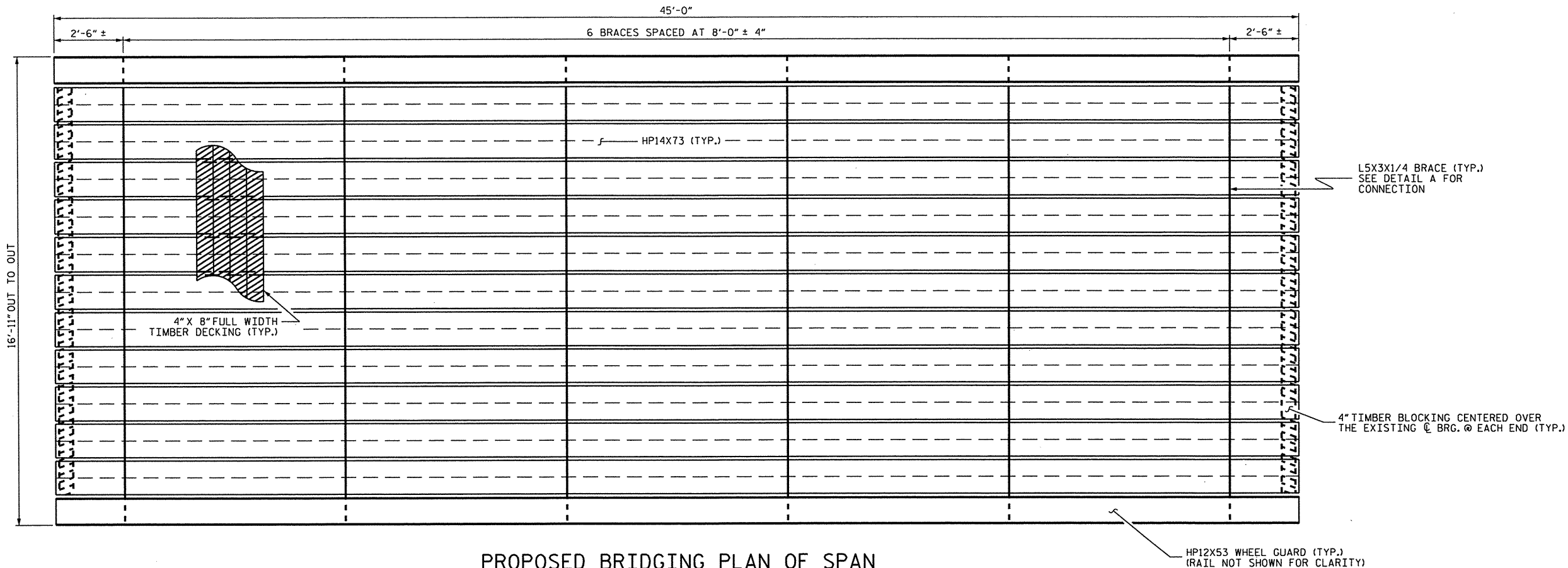
PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO. 39

SHEET 1 OF 2

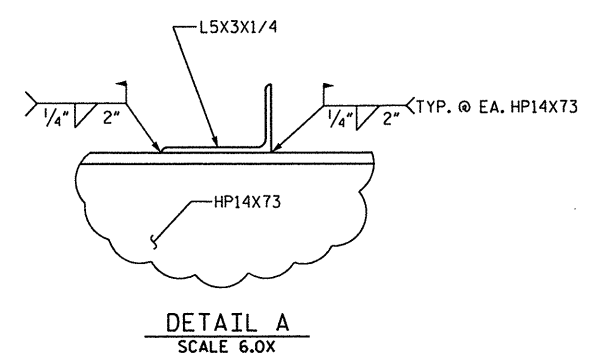
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
TEMPORARY BRIDGING
TYPICAL SECTION
AND DETAILS

DRAWN BY :	W.M. CLARKE	DATE :	5/2013
CHECKED BY :	D. MULLER	DATE :	5/2013
DESIGN ENGINEER OF RECORD :	D. MULLER	DATE :	5/2013

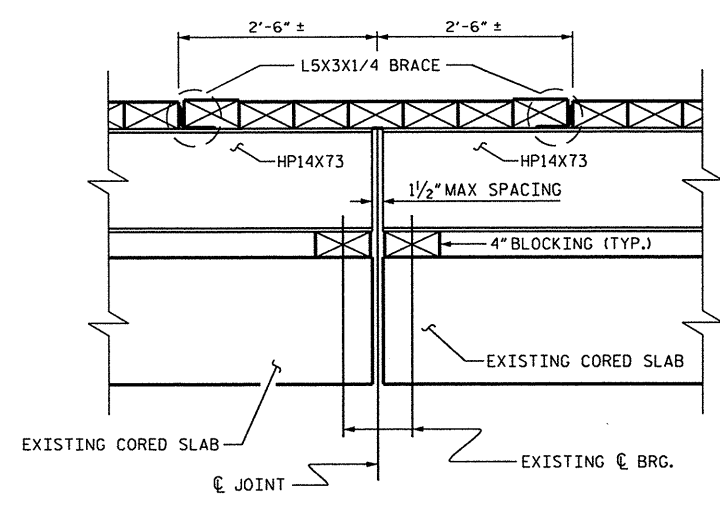
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-29
2			4			49



PROPOSED BRIDGING PLAN OF SPAN



DETAIL A
SCALE 6.0X



SECTION THRU SUPPORT

PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO: 39
 SHEET 2 OF 2

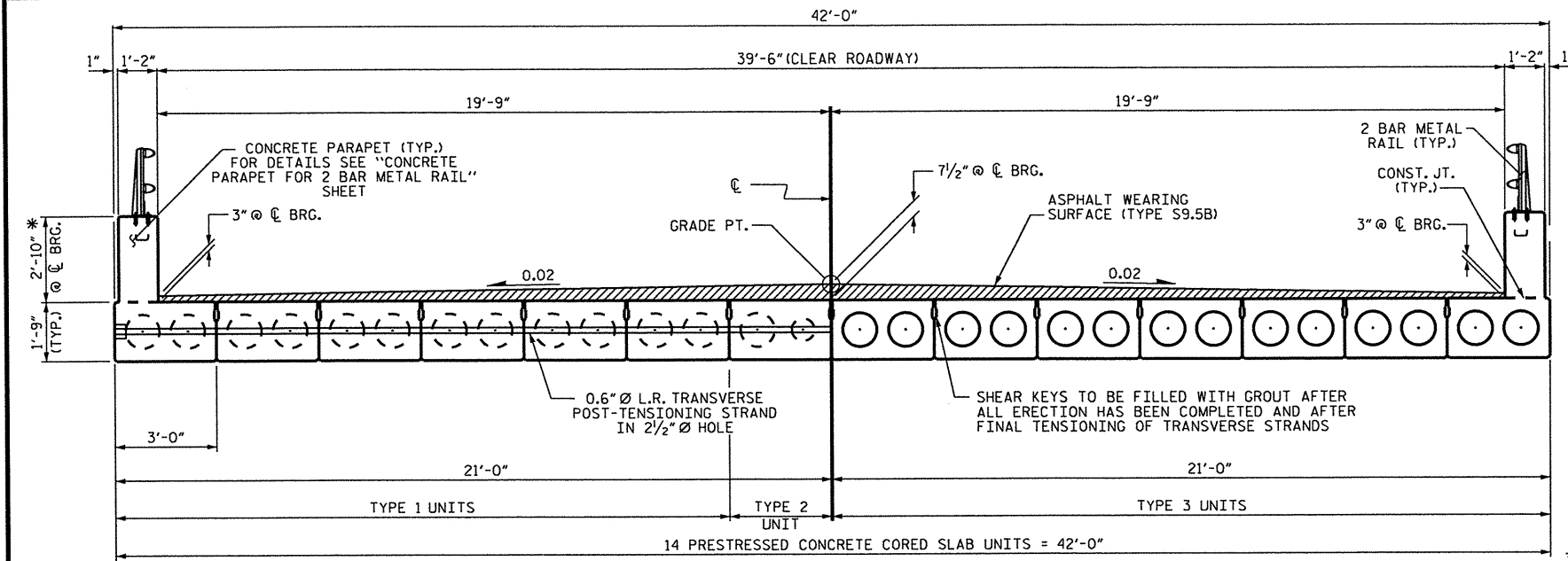
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PLAN OF TEMPORARY
 BRIDGING SPAN

DRAWN BY : W.M. CLARKE DATE : 5/2013
 CHECKED BY : D. MULLER DATE : 5/2013
 DESIGN ENGINEER OF RECORD: D. MULLER DATE : 5/2013

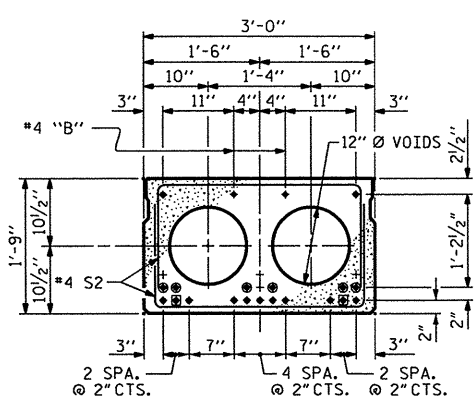
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			49

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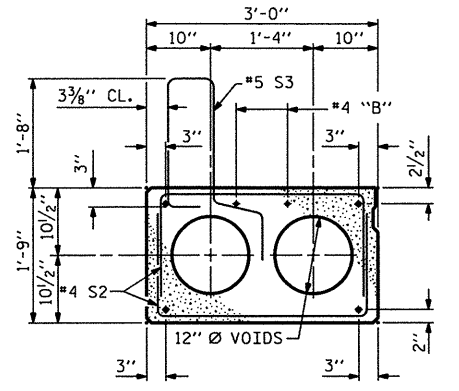


HALF SECTION AT INTERMEDIATE DIAPHRAGMS
TYPICAL SECTION
 HALF SECTION THROUGH VOIDS

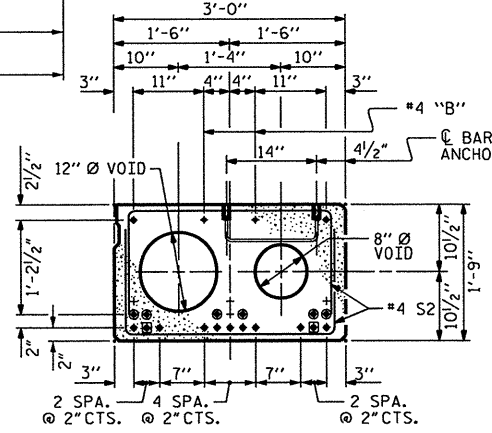
* - THE MAXIMUM PARAPET HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE PARAPET AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE PARAPET FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR PARAPET HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "CONCRETE PARAPET FOR 2 BAR METAL RAIL" DETAIL.



INTERIOR SLAB SECTION
 (13 STRANDS REQUIRED)
 (TYPES 1 & 3)



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

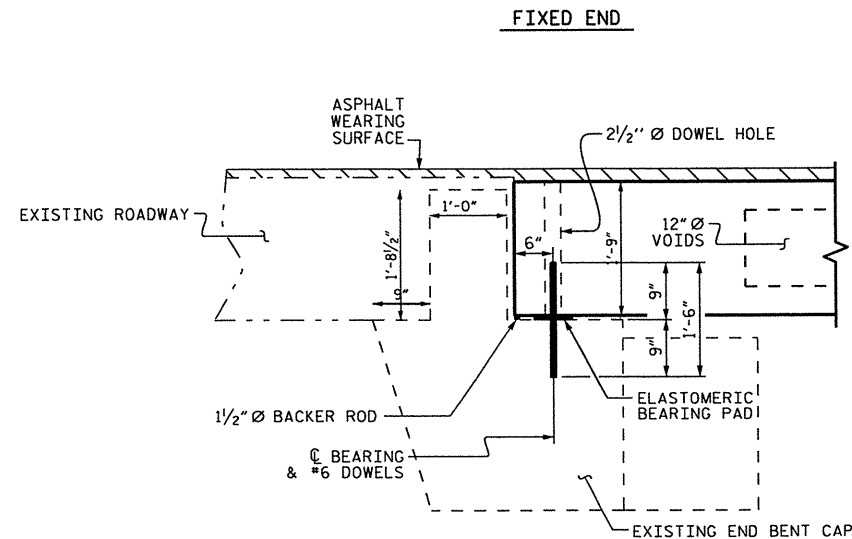


INTERIOR SLAB SECTION
 (13 STRANDS REQUIRED)
 (TYPE 2)

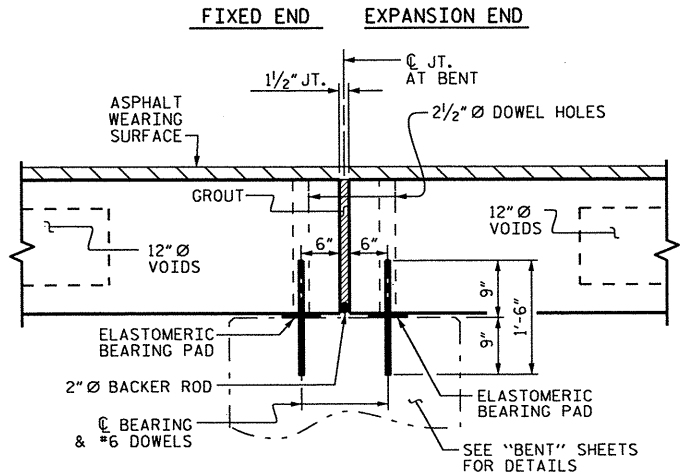
0.6" Ø LOW RELAXATION STRAND LAYOUT

- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED. IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



SECTION AT END BENT



SECTION AT BENT

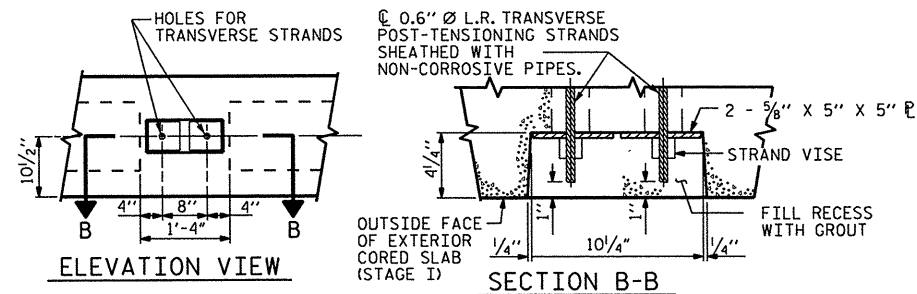
PROJECT NO. 41665.4B
 CARTERET COUNTY
 BRIDGE NO. : 39

SHEET 1 OF 4

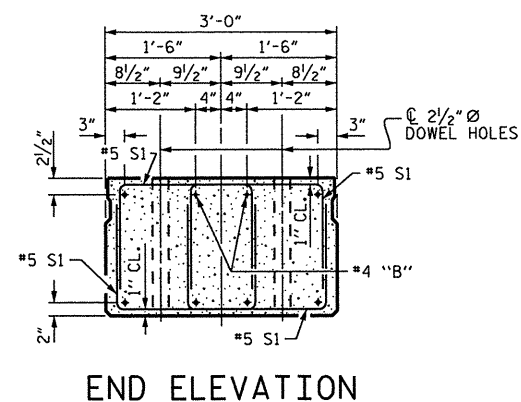
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 3'-0" X 1'-9"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 90° SKEW

ASSEMBLED BY : B.N.BARODAWALA DATE : 5-23-13
CHECKED BY : D. MULLER DATE : 5-23-13
DRAWN BY : DGE 5/09 REV. 12/11 MAA/AAC
CHECKED BY : BCH 6/09

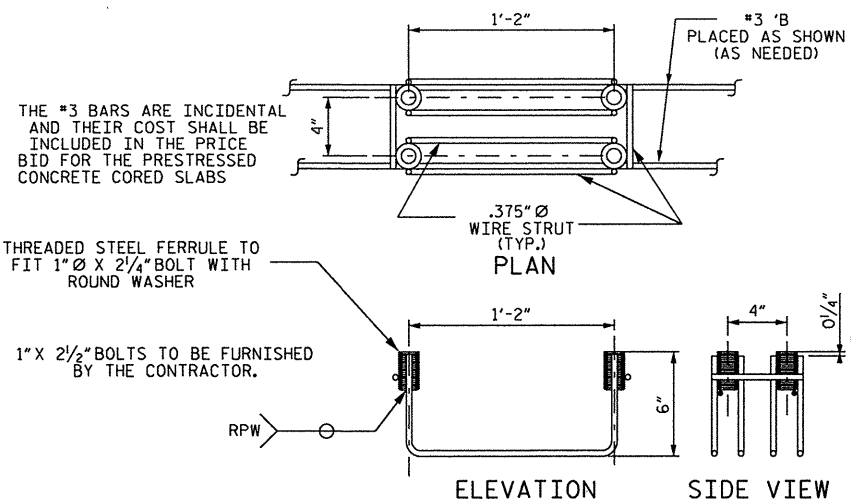
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			49



GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS
(TYPE 1)



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



GUARDRAIL ANCHOR ASSEMBLY

NOTES

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

FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2" FOR 1" Ø FERRULES.

4 - 1" 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 1" 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.

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 3/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

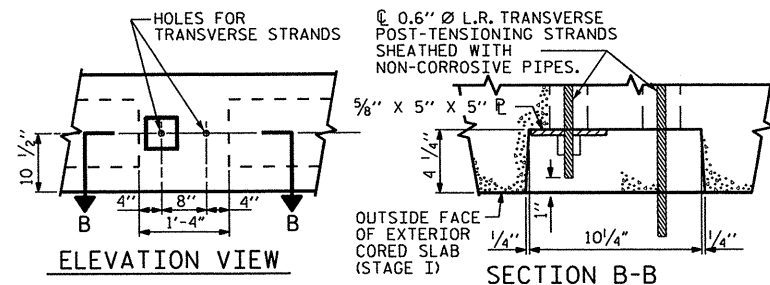
GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY COMPLETE IN PLACE SHALL BE INCLUDED IN THE UNIT CONTRACT BID FOR 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS.

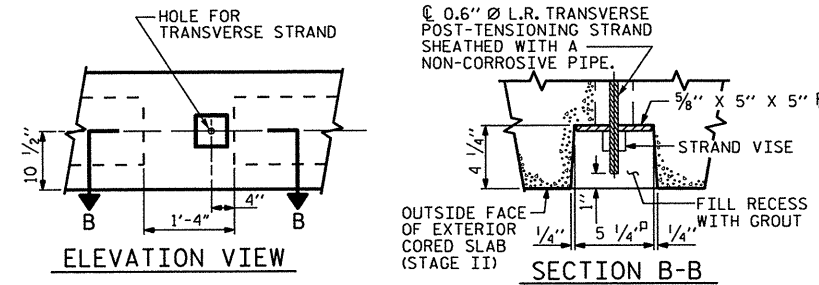
FERRULES TO BE PLUGGED DURING CASTING OF THE CORED SLAB UNITS AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

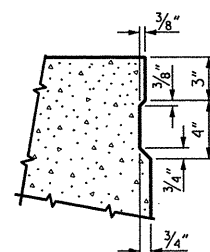
AT THE CONTRACTOR'S OPTION, ANCHOR ASSEMBLY MAY BE OMITTED AND ADHESIVELY ANCHORED 1" Ø BOLTS MAY BE INSTALLED AT LOCATIONS AND SPACING INDICATED. SUBMIT ADHESIVE ANCHOR SYSTEM TO ENGINEER FOR APPROVAL. ADHESIVELY ANCHORED BOLTS TO BE TESTED TO LEVEL 2 TESTING AS PER STANDARD SPECIFICATIONS. TEST LOAD SHALL BE 15,000 LBS.



GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS
(TYPE 2)



GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS
(TYPE 3)



SHEAR KEY DETAIL

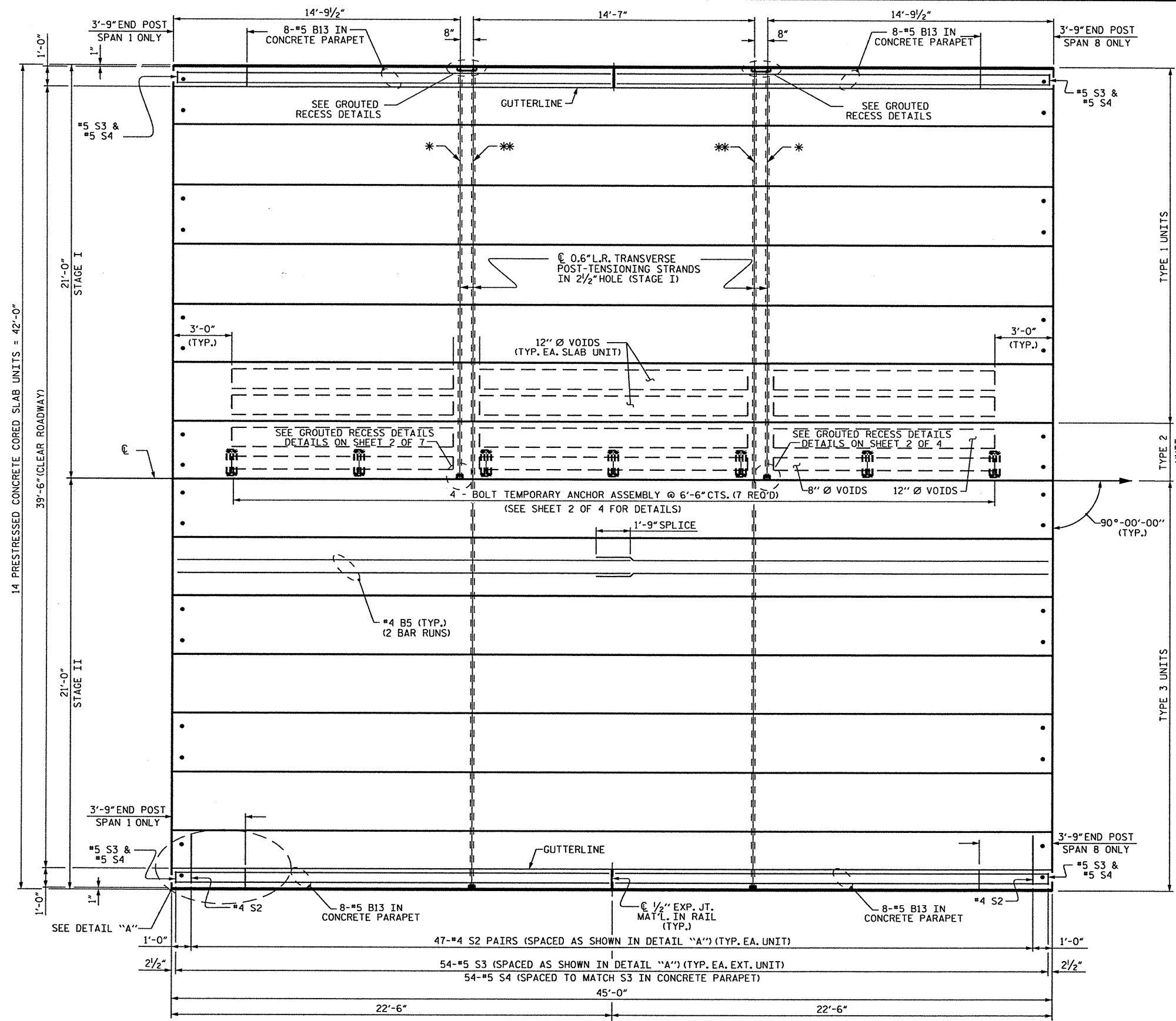
NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO. 39

SHEET 2 OF 4

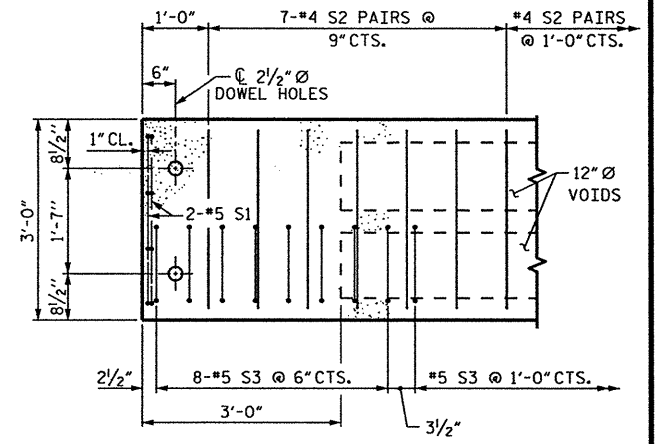
STATE OF NORTH CAROLINA			
DEPARTMENT OF TRANSPORTATION			
RALEIGH			
STANDARD			
3'-0" X 1'-9"			
PRESTRESSED CONCRETE			
CORED SLAB UNIT			
90° SKEW			
REVISIONS			
NO.	BY:	DATE:	NO.
1			3
2			4
SHEET NO.			S-32
TOTAL SHEETS			49

ASSEMBLED BY : B.N.BARODAWALA	DATE : 5-23-13
CHECKED BY : D. MULLER	DATE : 5-23-13
DRAWN BY : DGE	5/09
CHECKED BY : BCH	6/09
REV. 12/11	MAA/AAC



NOTES:

- * STRAND GOES THRU 7 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE I CONSTRUCTION).
- ** STRAND GOES THRU ALL 14 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE II CONSTRUCTION).



DETAIL "A"

NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

*** IF DOWEL HOLES ARE PROVIDED AT THE END UNITS WHERE DOWELS ARE NOT REQUIRED THEY SHALL BE FILLED WITH NON-SHRINKING GROUT AT THE CONTRACTORS EXPENSE.

DECK DRAINS ARE TO BE INSTALLED AT 6'-0" MAX CTS. EACH SPAN EACH SIDE (TYP.)

THE DRAIN OPENING AT THE GUTTERLINE SHALL BE 4" X 8". THE HEIGHT OF THE BLOCKOUT IN THE CONCRETE PARAPET SHALL EXTEND FROM THE TOP OF THE CORED SLAB UNIT TO THE TOP OF THE DRAIN OPENING.

APPLY EPOXY COATING PROTECTIVE COATING TO THE EXTERIOR FACE OF ALL EXTERIOR CORED SLAB UNITS THAT REQUIRE DRAINS IN THE CONCRETE PARAPET.

PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO.: 39

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**PLAN OF 45' UNIT
 36'-10" CLEAR ROADWAY
 90° SKEW**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			TOTAL SHEETS
2			4			49

ASSEMBLED BY: B.N. BARODAWAL DATE: 5-23-13
 CHECKED BY: D. MULLER DATE: 5-23-13
 DRAWN BY: DGE 6/09 REV. 12/5/11 MAA/AAC
 CHECKED BY: BCH 6/09

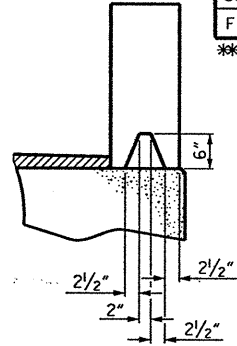
PLAN OF UNIT

CONCRETE RELEASE STRENGTH	
UNIT	PSI
45' UNITS	4000

DEAD LOAD DEFLECTION AND CAMBER	
	3'-0" x 1'-9"
45' CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	1/4" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	1/8" ↓
FINAL CAMBER	1/8" ↓

** INCLUDES FUTURE WEARING SURFACE

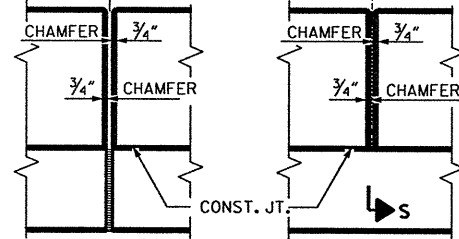
CORED SLABS REQUIRED			
45' UNIT	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	16	45'-0"	720'-0"
INTERIOR C.S.	96	45'-0"	4320'-0"
TOTAL	112		5040'-0"



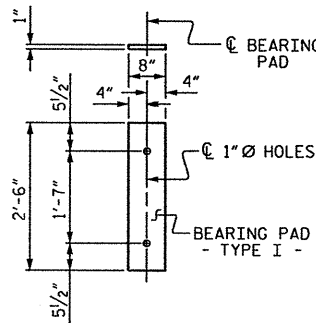
SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)

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

OPEN JT. IN RAIL @ BENT



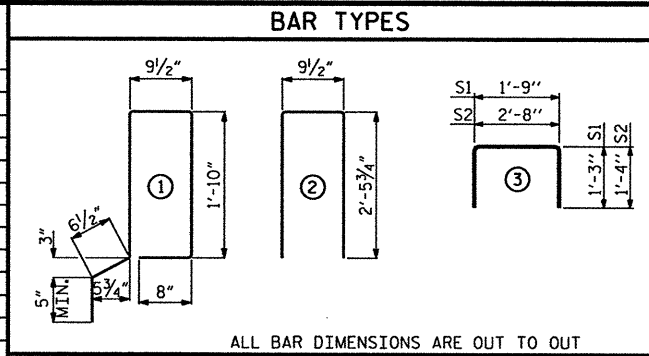
ELEVATION AT EXPANSION JOINTS



FIXED END
(TYPE I - 252 REQ'D)
ELASTOMERIC BEARING DETAILS
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

BILL OF MATERIAL PARAPETS AND END POSTS					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B13	288	*5	STR	19'-7"	5883
* E1	8	*7	STR	2'-8"	44
* E2	8	*7	STR	3'-2"	52
* E3	8	*7	STR	3'-8"	60
* E4	8	*7	STR	4'-2"	68
* E5	8	*7	STR	4'-6"	74
* F1	8	*6	STR	1'-10"	22
* F2	8	*6	STR	3'-0"	36
* F3	8	*6	STR	3'-7"	43
* S4	882	*5	2	5'-9"	5290

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



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE 45' CORED SLAB UNIT							
BAR	NUMBER	SIZE	TYPE	EXTERIOR UNIT LENGTH	EXTERIOR UNIT WEIGHT	INTERIOR UNIT LENGTH	INTERIOR UNIT WEIGHT
B5	4	*4	STR	23'-3"	62	23'-3"	62
S1	8	*5	3	4'-3"	35	4'-3"	35
S2	94	*4	3	5'-4"	335	5'-4"	335
* S3	54	*5	1	6'-2"	347		
REINFORCING STEEL				LBS.	432		432
* EPOXY COATED REINFORCING STEEL				LBS.	347		
6500 P.S.I. CONCRETE				CU. YDS.	6.5 (TYPE 1 & 3)		6.5
6500 P.S.I. CONCRETE				CU. YDS.	(TYPE 2)		6.6
0.6" Ø L.R. STRANDS				No.	13		13

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
39'-6" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	PARAPET HEIGHT
	@ MID-SPAN	@ MID-SPAN
	NORMAL CROWN SECTION	
45'	1 1/8"	3'-8 1/8"

NOTES

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

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

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

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS AND EXPANSION END OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

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

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

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

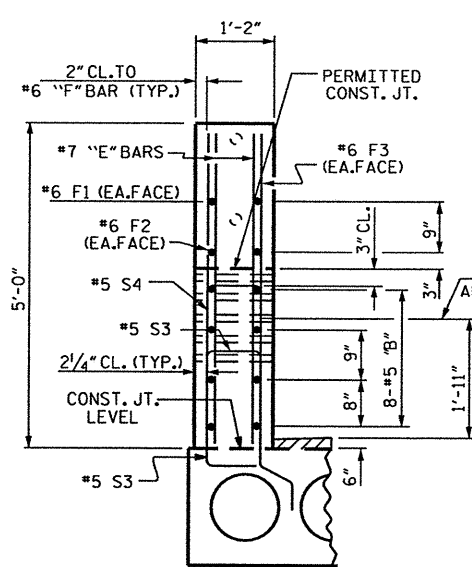
THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE "CONCRETE RELEASE STRENGTH" TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

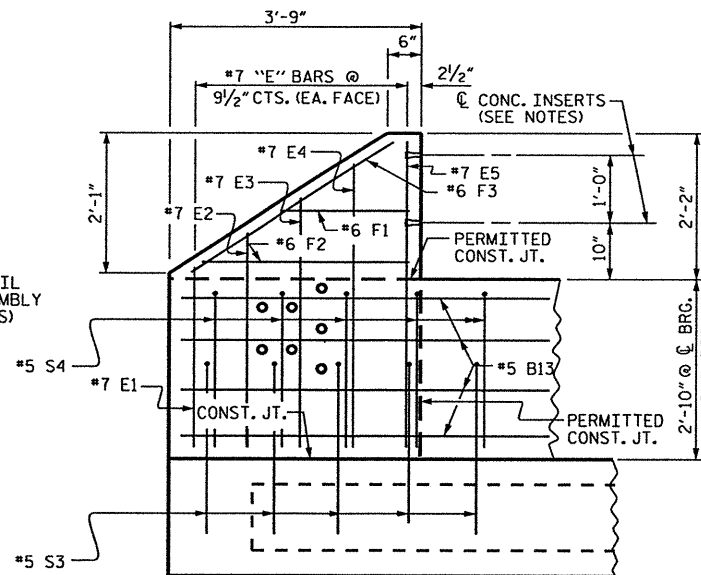
FOR DETAILS OF CONCRETE INSERT AND GUARDRAIL ANCHOR ASSEMBLY, SEE "RAIL POST SPACINGS AND END OF RAIL DETAILS" SHEET 1 OF 3 AND "GUARDRAIL ANCHORAGE DETAILS FOR METAL RAILS."

PRESTRESSED CONCRETE CORED SLAB UNITS ARE DESIGNED FOR 0 PSI TENSION IN THE PRECOMPRESSED TENSILE ZONE UNDER ALL LOADING CONDITIONS.

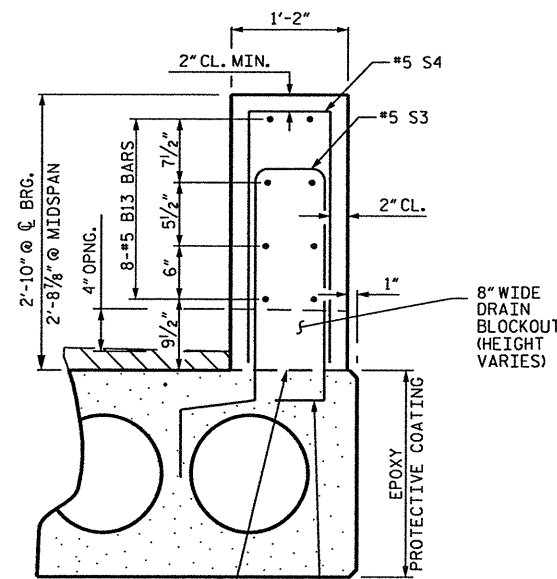
PRESTRESSED CONCRETE CORED SLAB UNITS SHALL CONTAIN CALCIUM NITRITE CORROSION INHIBITOR IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.



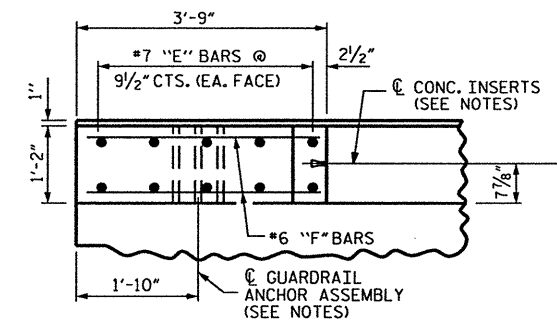
END VIEW



ELEVATION



TWO BAR METAL RAIL PARAPET SECTION



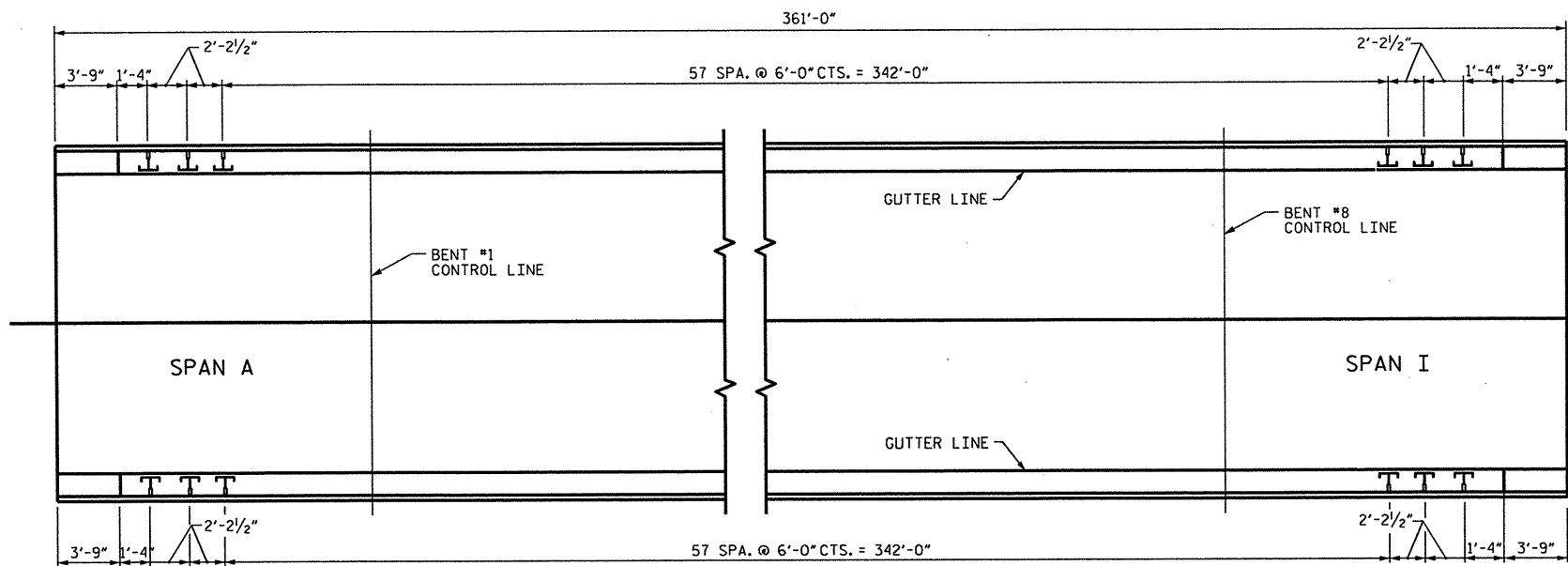
PLAN OF END POST

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO.: 39

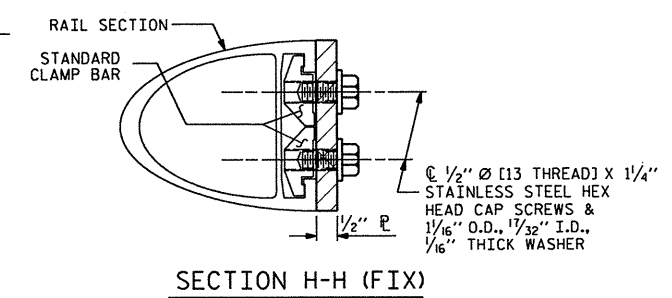
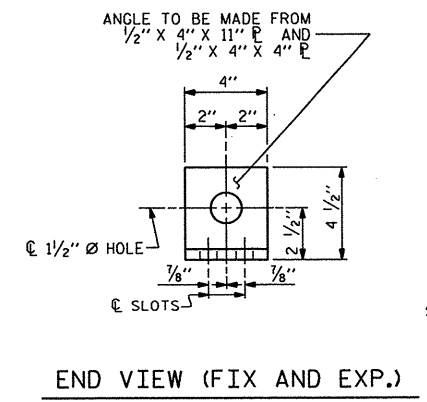
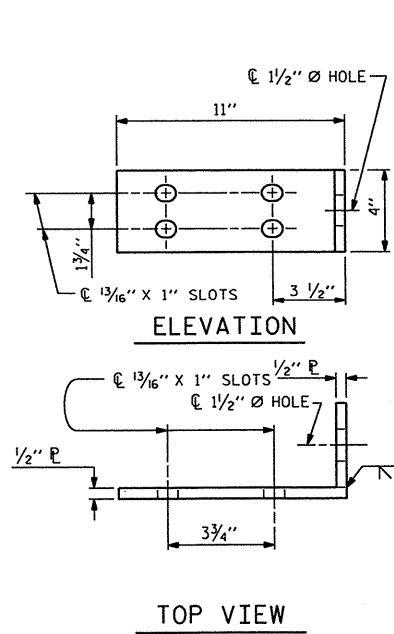
SHEET 4 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

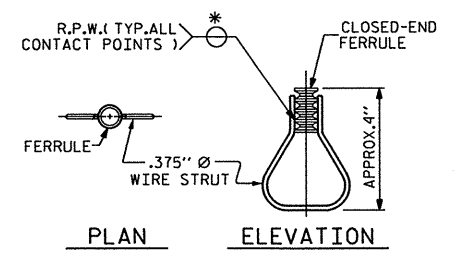
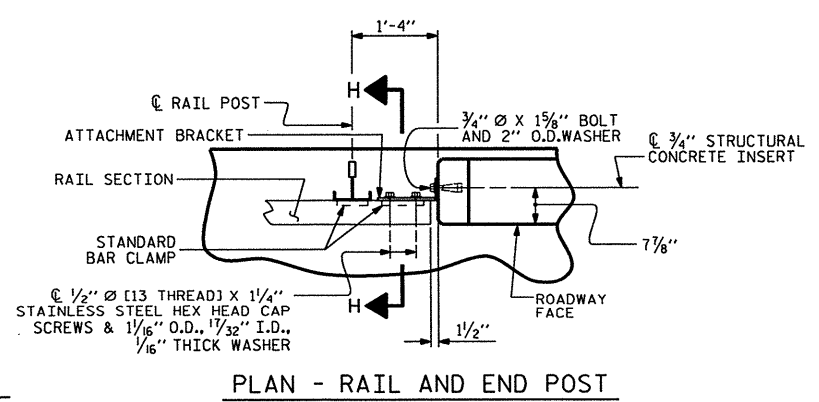
ASSEMBLED BY: B.N. BARODAWAL DATE: 5-23-13
CHECKED BY: D. MULLER DATE: 5-23-13
DRAWN BY: DCE 5/09
CHECKED BY: BCH 6/09



PLAN OF RAIL POST SPACINGS



FIXED
 DETAILS FOR ATTACHING METAL RAIL TO END POST



STRUCTURAL CONCRETE INSERT

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

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 1 1/2".
 B. 1 - 3/4" x 1 5/8" BOLT WITH WASHER, BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 3/4" x 1 5/8" GALVANIZED BOLT AND WASHER, THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
 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" x 1 5/8" WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

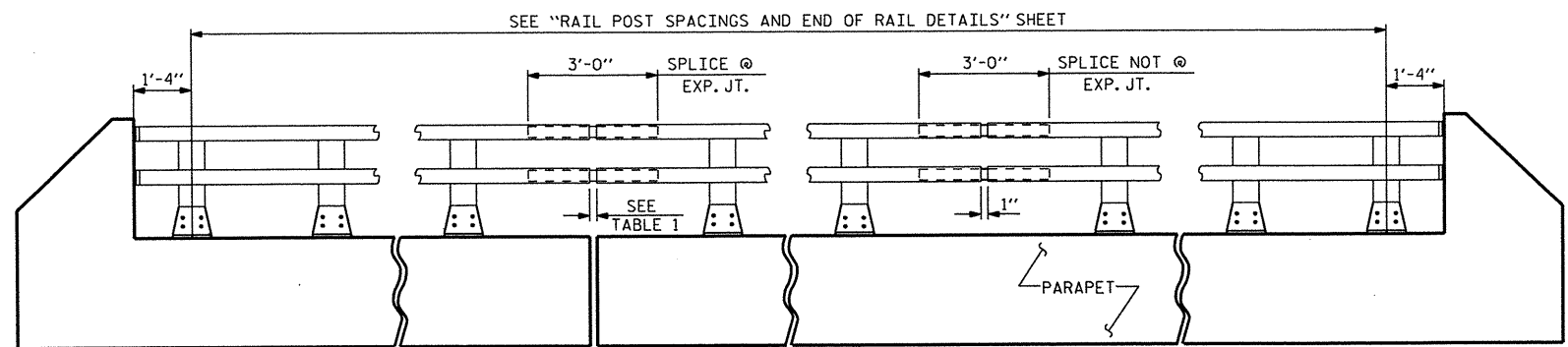
NOTES
 METAL RAIL TO END POST CONNECTION
 THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:
 A. 1/2" PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION.
 B. 3/4" STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A 3/4" x 1 5/8" BOLT WITH 2" O.D. WASHER IN PLACE. THE 3/4" x 1 5/8" 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. 1/2" x PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.
 THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR LINEAR FEET OF 1 OR 2 BAR METAL RAILS.
 THE 3/4" STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.
 THE COST OF THE 3/4" STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 1/2" PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.
 THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 3/4" x 1 5/8" BOLT WITH WASHER SHALL BE REPLACED WITH A 3/4" x 6 1/2" BOLT AND 2" O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 3/4" x 1 5/8" BOLT SHALL APPLY TO THE 3/4" x 6 1/2" BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

PROJECT NO. 41665.4B
 CARTERET COUNTY
 BRIDGE NO. 39

SHEET 1 OF 3

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD						SHEET NO. S-35
RAIL POST SPACINGS AND END OF RAIL DETAILS						TOTAL SHEETS 49
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY : B.N.BARODAWALA	DATE : 5-23-13
CHECKED BY : D. MULLER	DATE : 5-23-13
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



ELEVATION

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

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.

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.

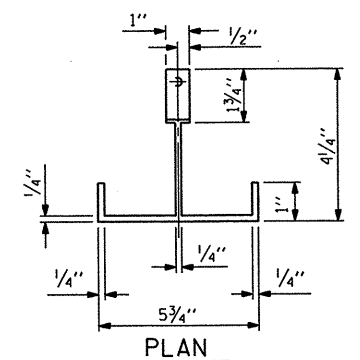
ALLOY 6351-T5 MAY BE SUBSTITUTED FOR ALLOY 6061-T6 WHERE APPLICABLE.

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

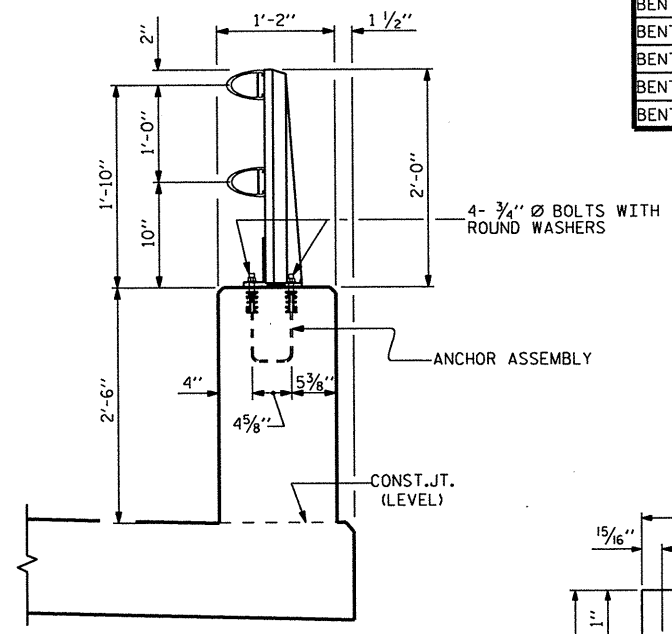
GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE PARAPET AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN PARAPET EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT 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 = 707.0 LIN. FT.

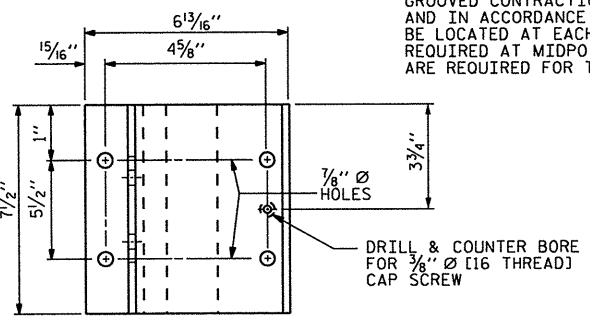
TABLE 1	
EXP. JT. @	RAIL OPENING
BENT No. 1	1 1/2"
BENT No. 2	1 1/2"
BENT No. 3	1 1/2"
BENT No. 4	1 1/2"
BENT No. 5	1 1/2"
BENT No. 6	1 1/2"
BENT No. 7	1 1/2"



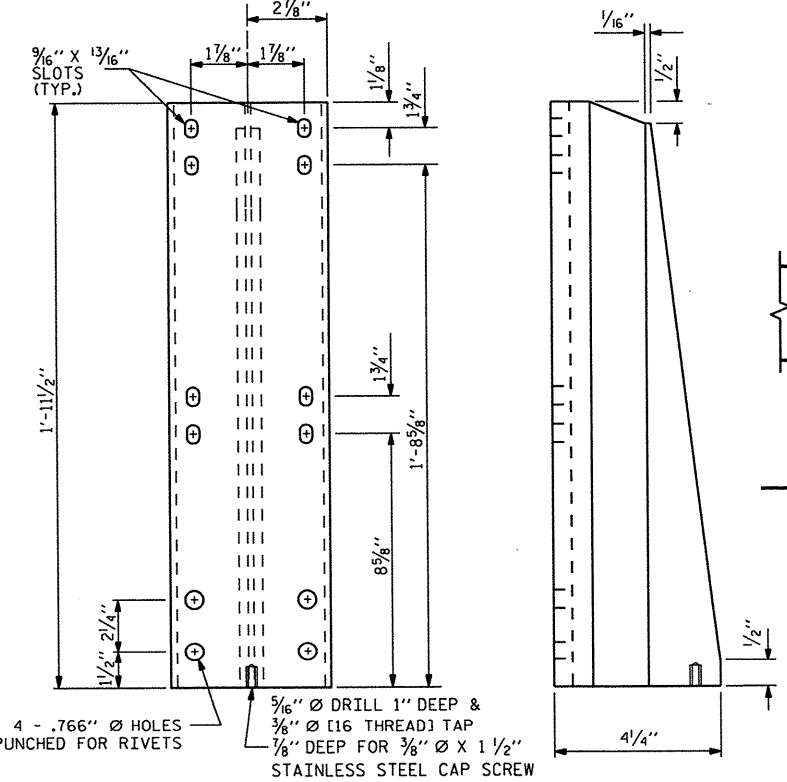
PLAN



SECTION THRU PARAPET AND RAIL



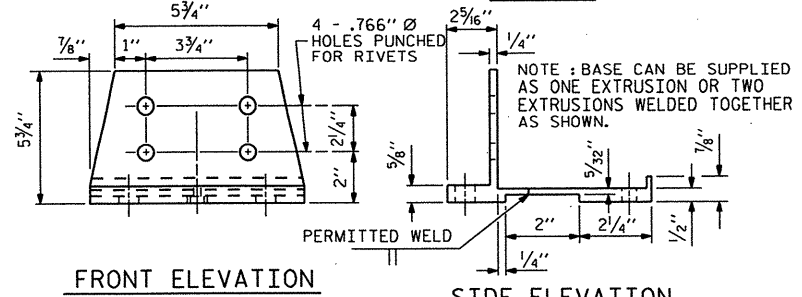
PLAN



FRONT ELEVATION

SIDE ELEVATION

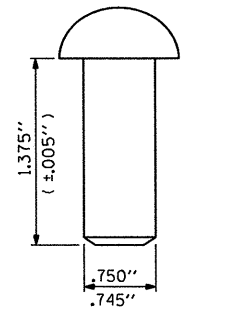
DETAILS OF POST



FRONT ELEVATION

SIDE ELEVATION

POST BASE DETAILS



RIVET DETAIL

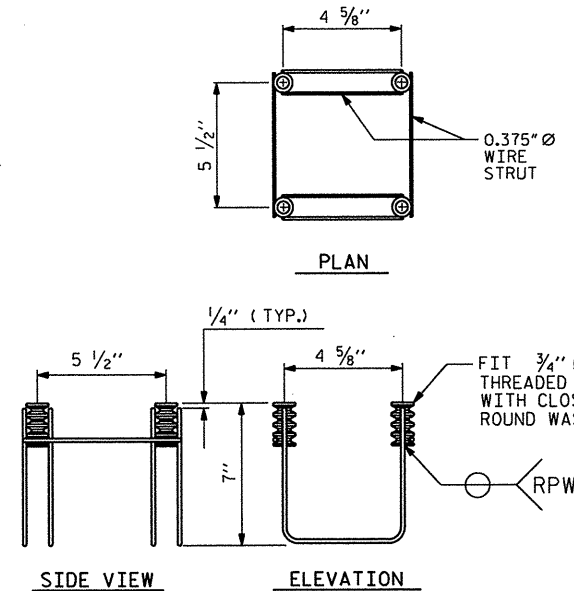
ASSEMBLED BY : B.N.BARODAWAL DATE : 5-16-13
 CHECKED BY : D. MULLER DATE : 5-16-13
 DRAWN BY : EEM 6/94
 CHECKED BY : RCW 6/94
 REV. 5/7/03R RWW/JTE
 REV. 5/1/06 TLA/GM
 REV. 10/1/11 MAA/GM

PROJECT NO. 41665.4B
 CARTERET COUNTY
 STATION: 39

SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 2 BAR METAL RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
1			3			TOTAL SHEETS 49
2			4			



4-BOLT METAL RAIL ANCHOR ASSEMBLY

(124 ASSEMBLIES REQUIRED)

NOTES

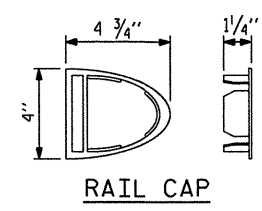
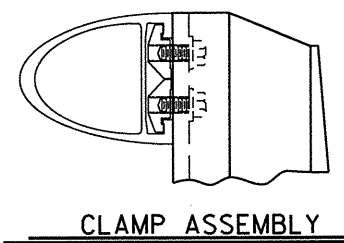
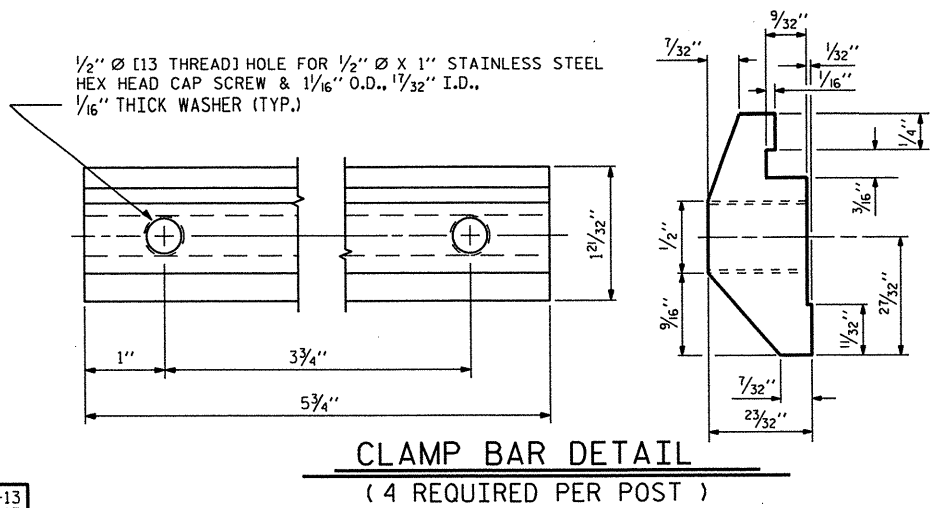
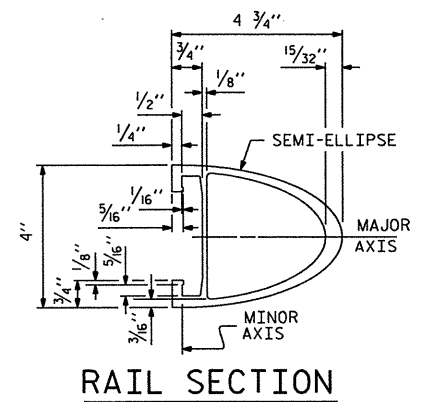
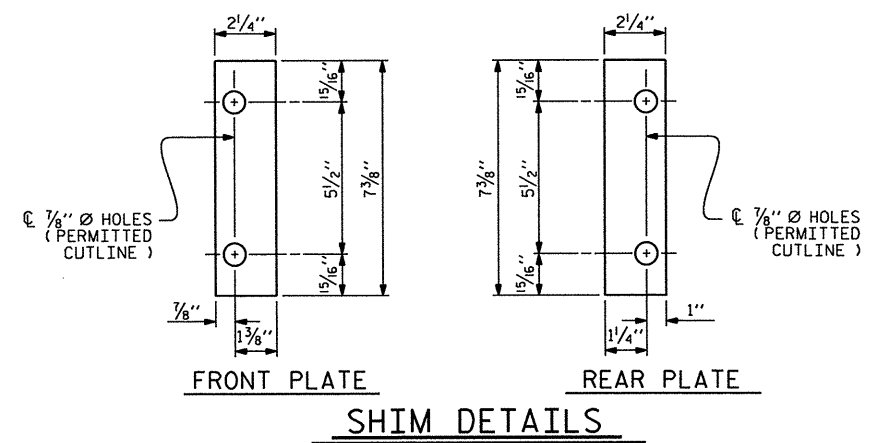
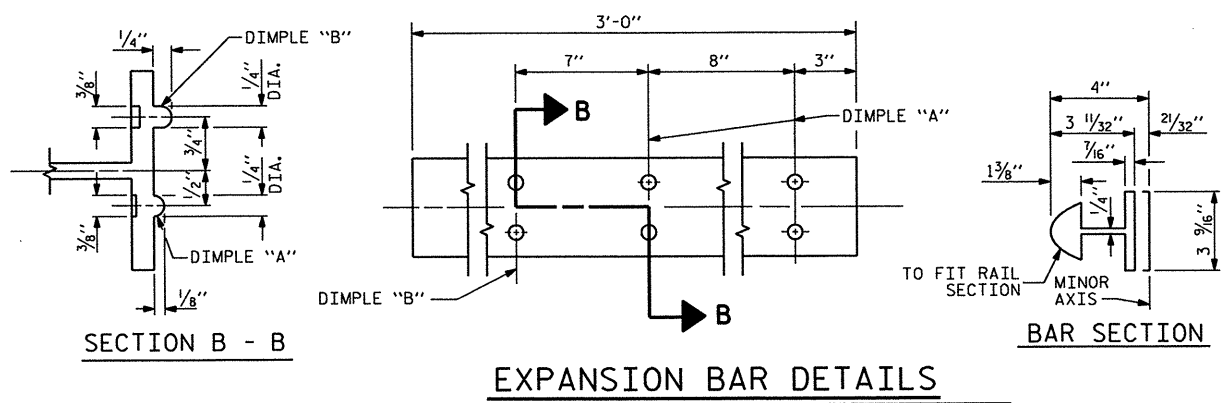
STRUCTURAL CONCRETE ANCHOR ASSEMBLY

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 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.
- D. THE METAL RAIL ANCHOR ASSEMBLIES TO BE HOT DIPPED GALVANIZED TO CONFORM TO REQUIREMENTS OF AASHTO M111.
- E. THE COST OF THE METAL RAIL ANCHOR ASSEMBLY WITH BOLTS AND WASHERS COMPLETE IN PLACE SHALL BE INCLUDED IN THE PRICE BID FOR LINEAR FEET OF METAL RAIL.
- F. BOLTS TO BE TIGHTENED ONE-HALF TURN WITH A WRENCH FROM A FINGER-TIGHT POSITION.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF THE METAL RAIL ANCHOR ASSEMBLY. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 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.

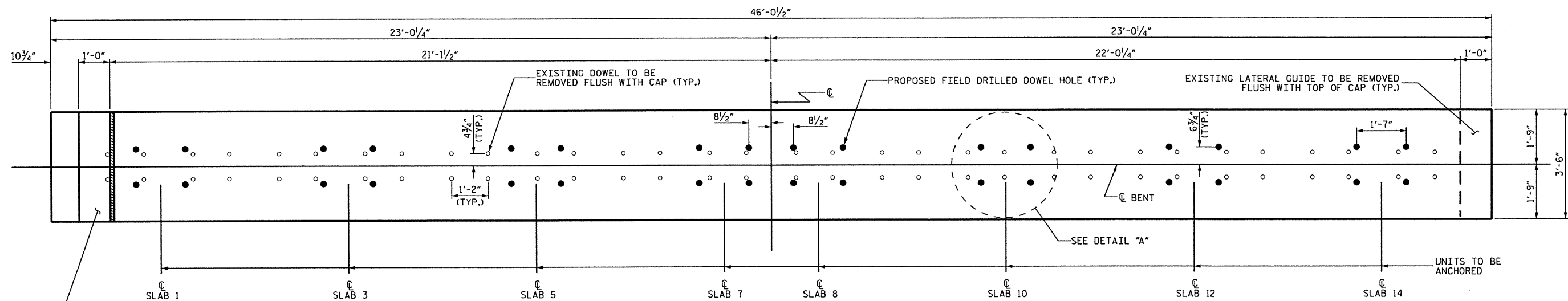


PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO. : 39
 SHEET 3 OF 3

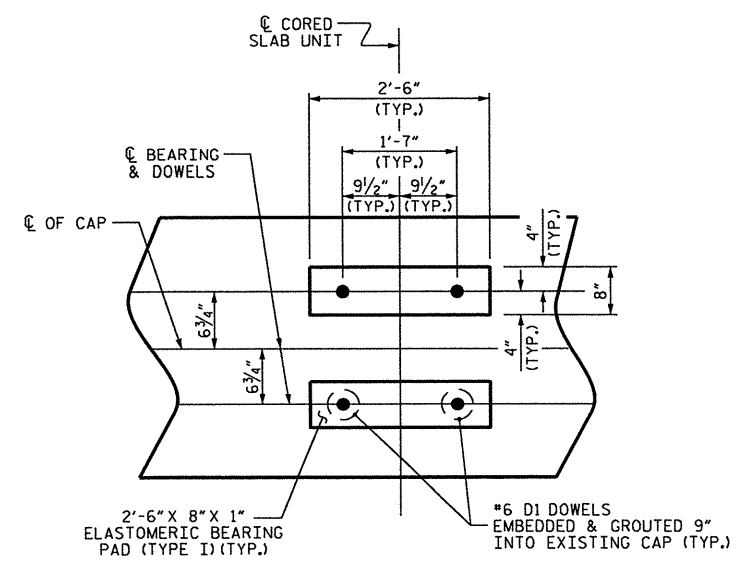
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. 5-37
STANDARD						TOTAL SHEETS 49
2 BAR METAL RAIL						
REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

ASSEMBLED BY : B.N.BARODAWAL	DATE : 5-23-13
CHECKED BY : D. MULLER	DATE : 5-23-13
DRAWN BY : EEM	6/94
CHECKED BY : RCW	6/94
REV. 8/16/99	MAB/LES
REV. 5/1/06R	KMM/GM
REV. 10/1/11	MAA/GM

BILL OF MATERIAL					
FOR ONE BENT					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
D1	32	#6	STR	1'-6"	74
REINFORCING STEEL (FOR ONE BENT)					121 LBS



PLAN



DETAIL "A"
(DIMENSIONS ARE TYPICAL EACH BEARING)

PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO: 39

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE
BENT & DOWEL DETAILS

DRAWN BY : W.M. CLARKE DATE : 5/2013
 CHECKED BY : D. MULLER DATE : 5/2013
 DESIGN ENGINEER OF RECORD: D. MULLER DATE : 5/2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
1			3			TOTAL SHEETS
2			4			49

REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			34.5			

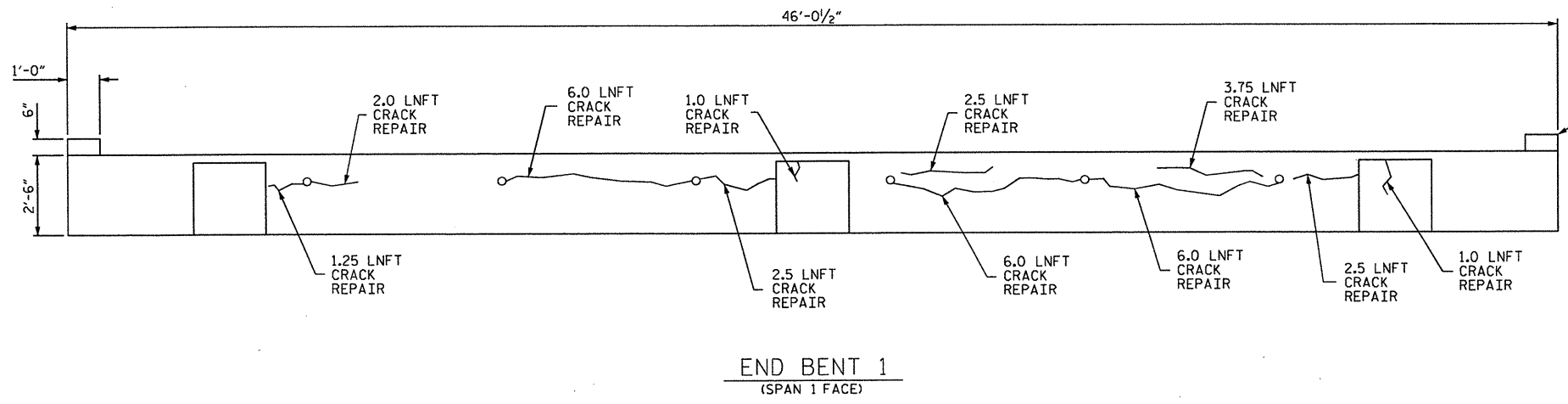
REPAIR QUANTITY TABLE

REPAIRS END BENT 2	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			0			

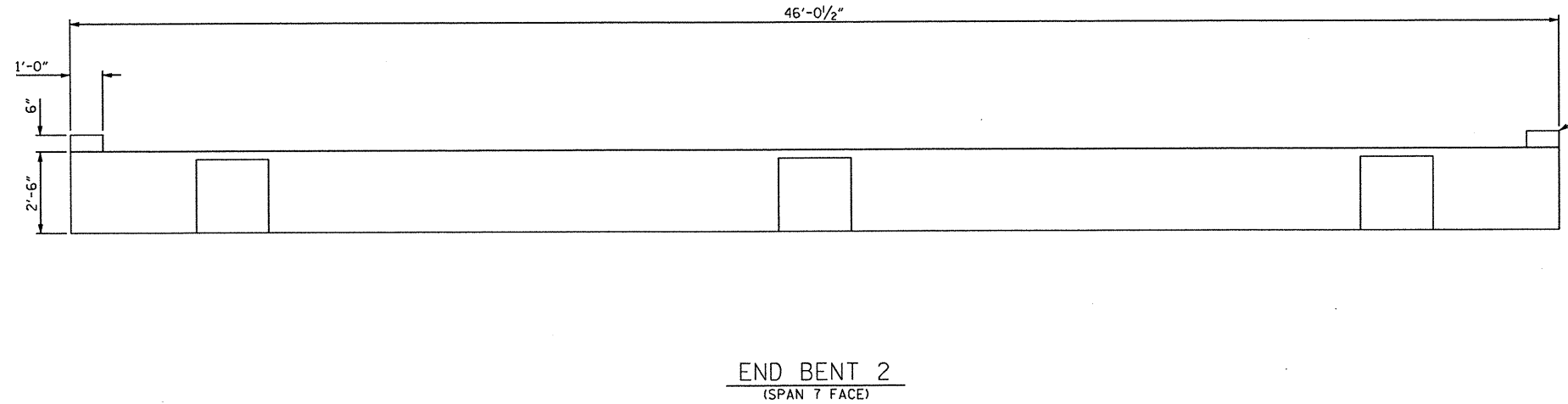
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.



END BENT 1
(SPAN 1 FACE)



END BENT 2
(SPAN 7 FACE)

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO.: 39

SHEET 1 OF 1

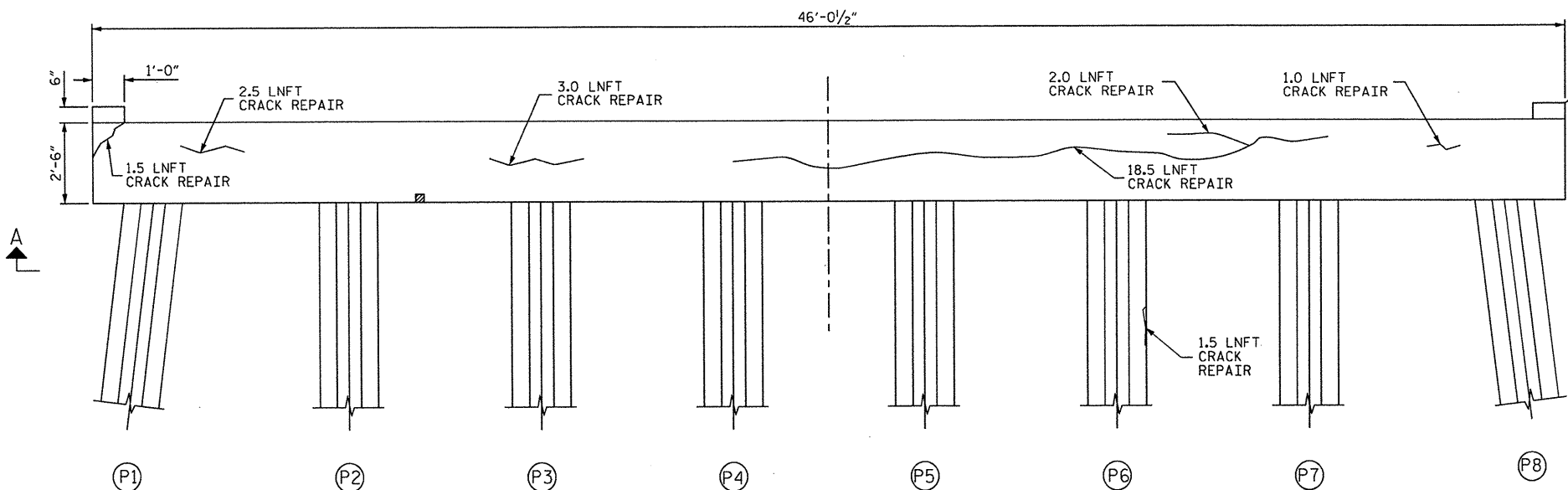
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENTS

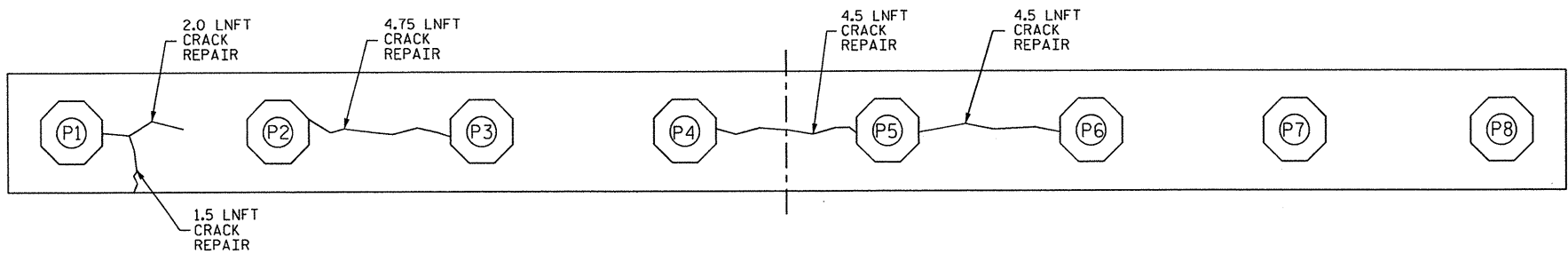
DRAWN BY: CL BRIGHT DATE: 05/2013
CHECKED BY: D. MULLER DATE: 05/2013
DESIGN ENGINEER OF RECORD: D. MULLER DATE: 05/2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			49
2			4			

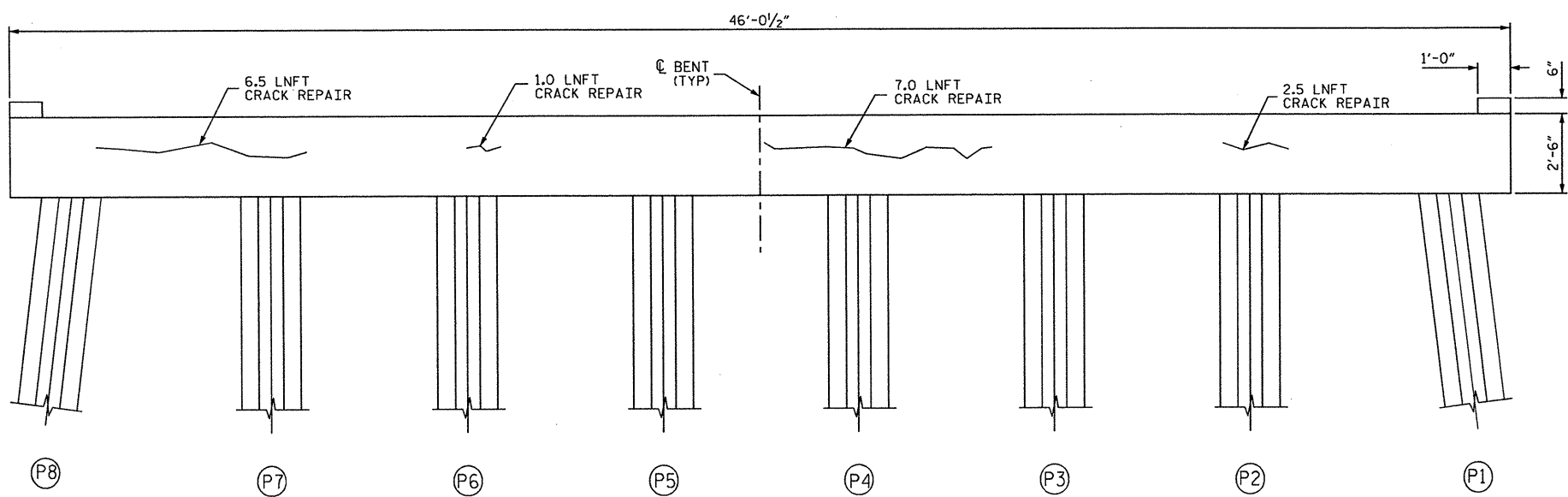
*****SYSTEM*****
*****DGN*****
*****USERNAME*****



SPAN 1 FACE
(UP STATION)



SECTION A-A
(UNDERSIDE OF CAP)

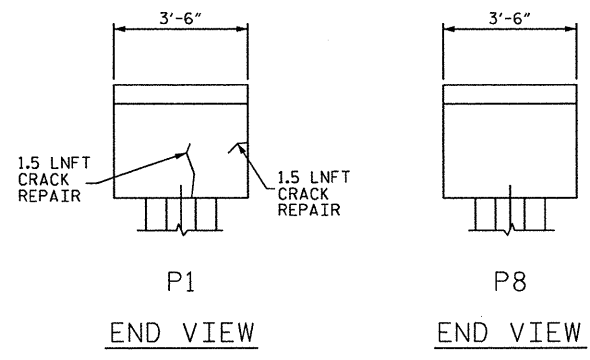


SPAN 2 FACE
(BACK STATION)

REPAIR QUANTITY TABLE						
REPAIRS BENT 1	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0	0	0			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			65.8			
COLUMN			1.5			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.



PROJECT NO. 41665.4B
 CARTERET COUNTY
 BRIDGE NO.: 39
 SHEET 1 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT NO. 1

DRAWN BY : CL BRIGHT DATE : 05/2013
 CHECKED BY : D. MULLER DATE : 05/2013
 DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 49
2			4			

*****SYTIME*****
 *****DCN*****
 *****USER*****

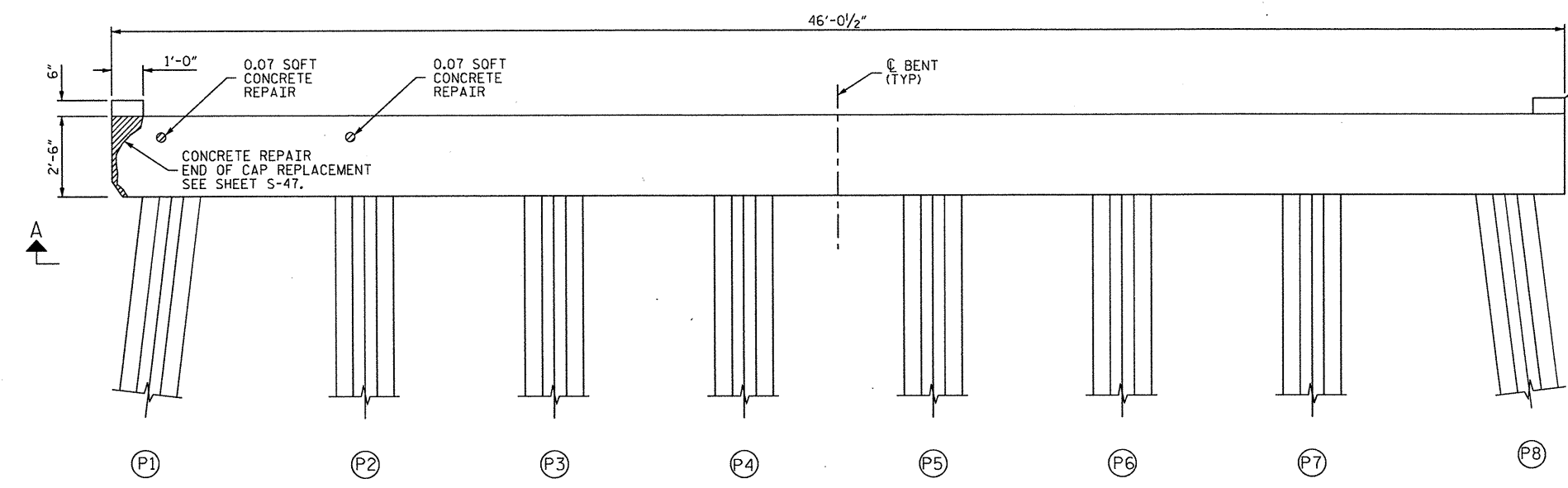
REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	2.84	0.3	0.85			
END CAP REPLACEMENT	8.7	0.5	4.35			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			0			
COLUMN			0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

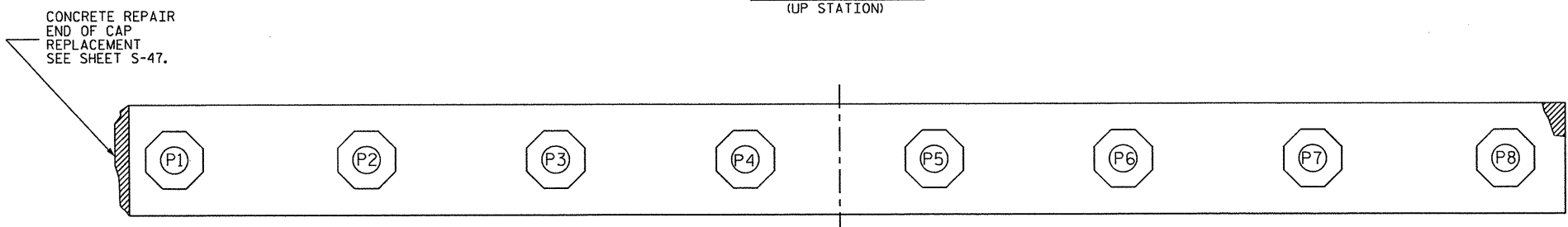
NOTES:

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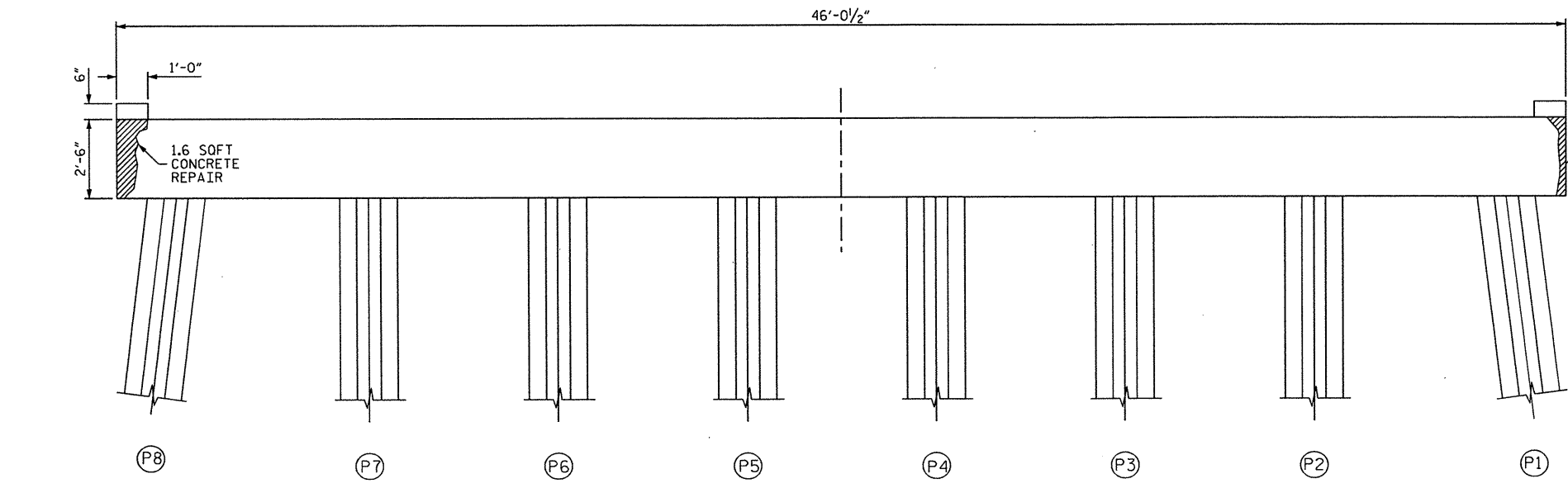


LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.) FOR NEW LATERAL GUIDE, SEE DETAILS SHEET S-47.

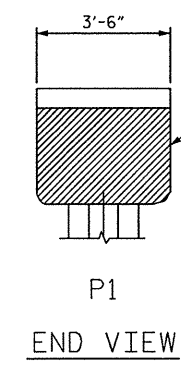
SPAN 2 FACE
(UP STATION)



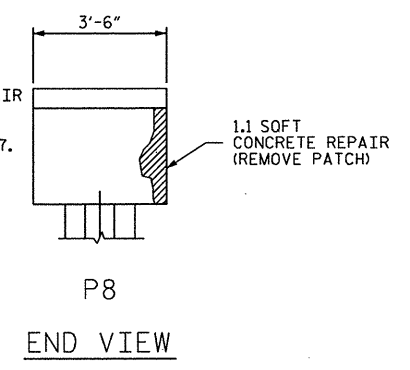
SECTION A-A
(UNDERSIDE OF CAP)



SPAN 3 FACE
(BACK STATION)



P1
END VIEW



P8
END VIEW

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO.: 39

SHEET 2 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT NO. 2

DRAWN BY: CL BRIGHT DATE: 05/2013
CHECKED BY: D. MULLER DATE: 05/2013
DESIGN ENGINEER OF RECORD: D. MULLER DATE: 05/2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS
2			4			49

*****SYSTEM*****
*****DGN*****
*****USERNAME*****

REPAIR QUANTITY TABLE

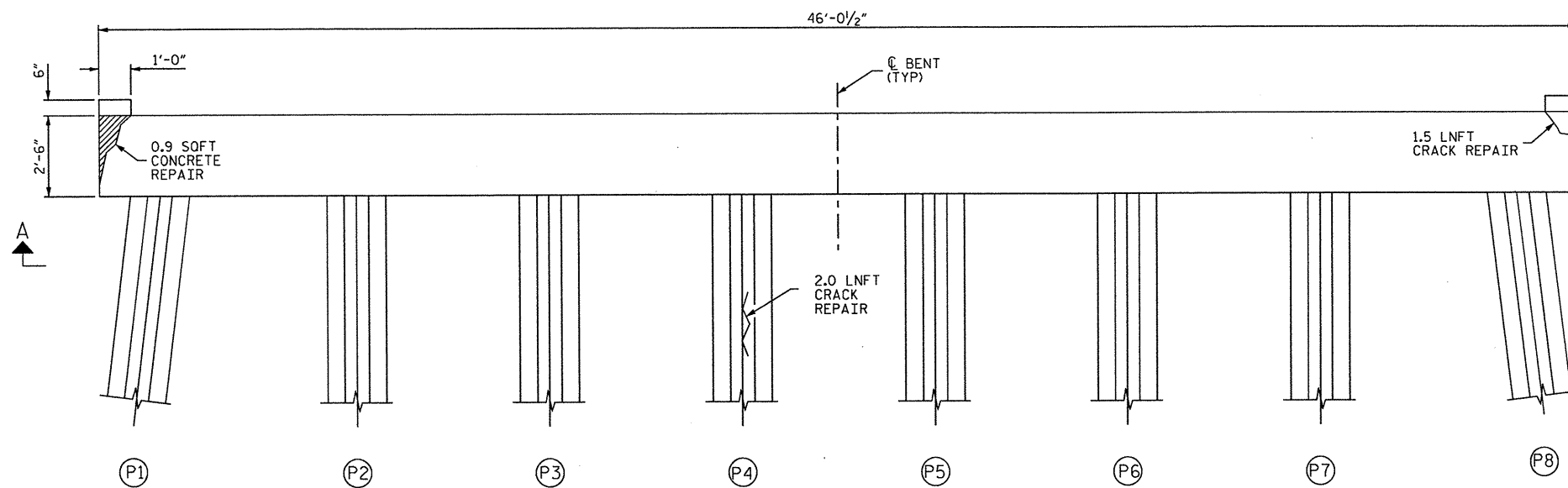
REPAIRS BENT 3	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	4.5	.5	2.25			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			1.5			
COLUMN			2.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

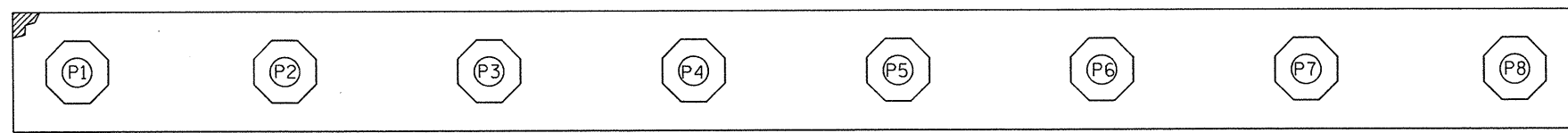
NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.

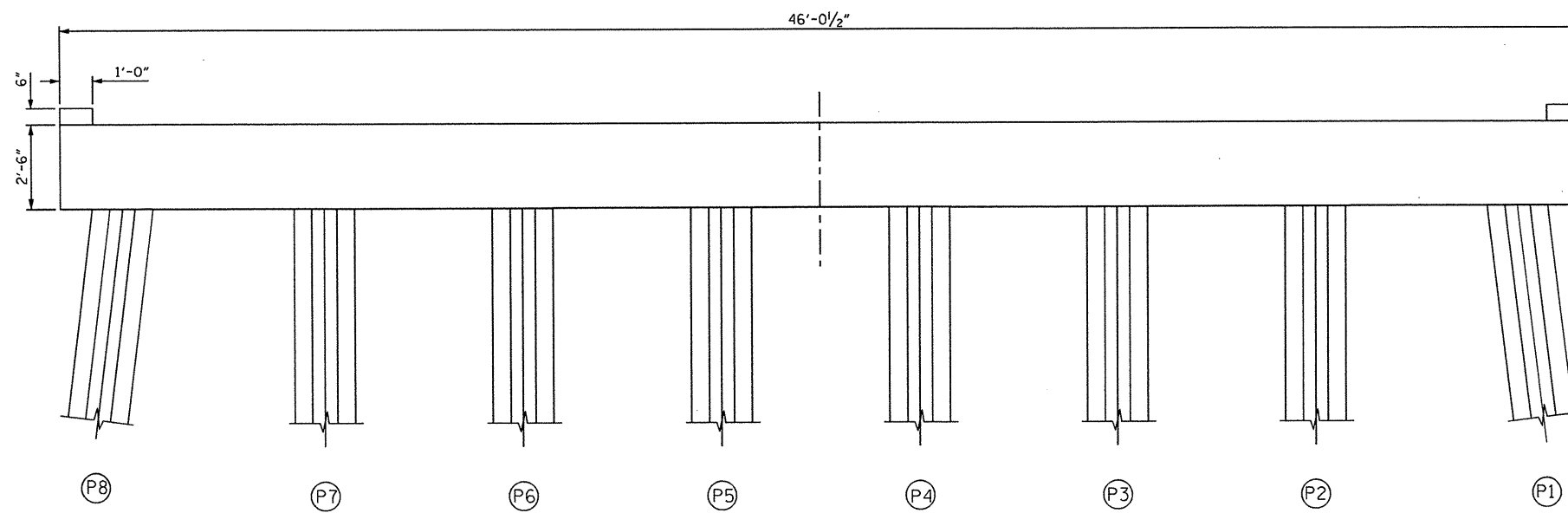
LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.) FOR NEW LATERAL GUIDE, SEE DETAILS SHEET S-47.



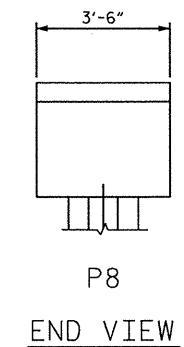
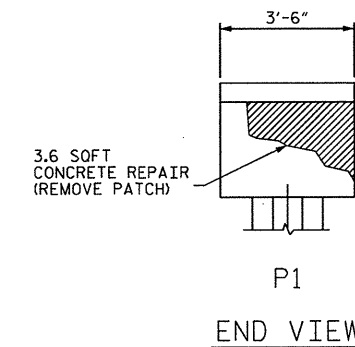
SPAN 3 FACE
(UP STATION)



SECTION A-A
(UNDERSIDE OF CAP)



SPAN 4 FACE
(BACK STATION)



PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO. : 39

SHEET 3 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT NO. 3

DRAWN BY : CL BRIGHT DATE : 05/2013
CHECKED BY : D. MULLER DATE : 05/2013
DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

*****SYSTEM*****
*****DCN*****
*****USERNAME*****

REVISIONS						SHEET NO. S-42
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 49
2			4			

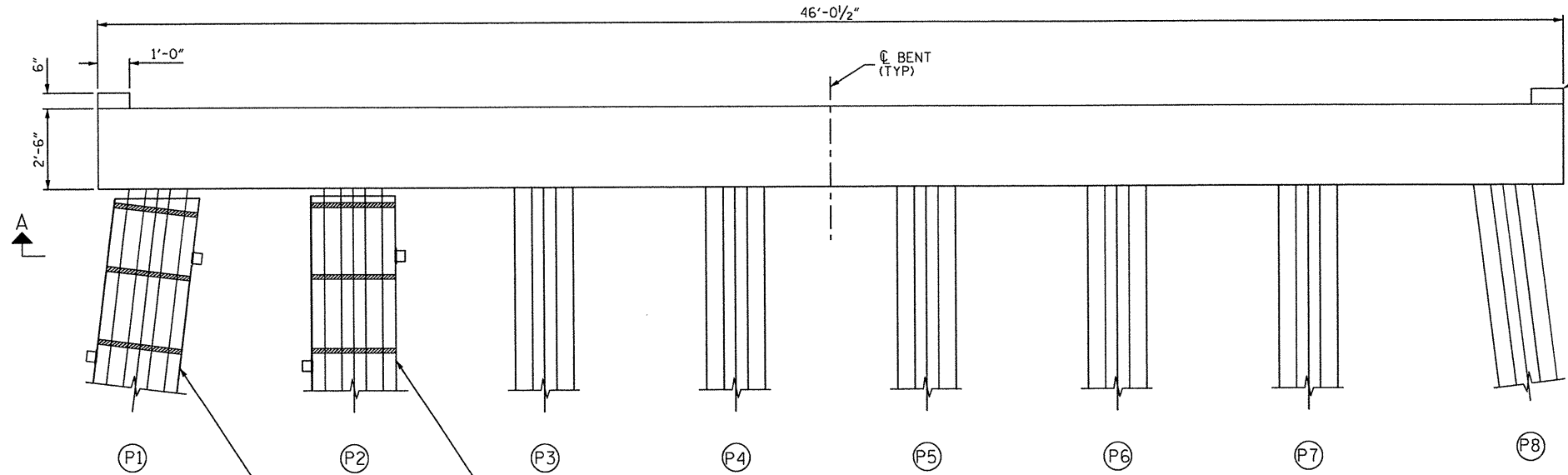
REPAIR QUANTITY TABLE

REPAIRS BENT 4	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0	0	0			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP				1.25		
COLUMN				0		

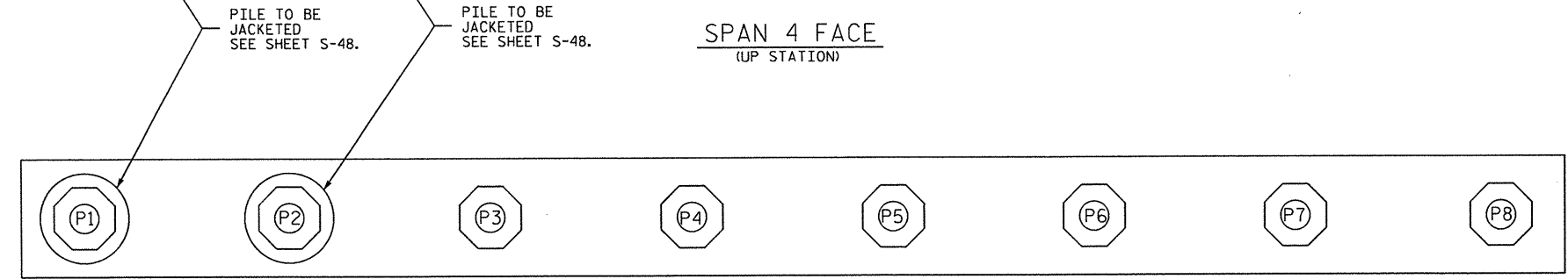
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

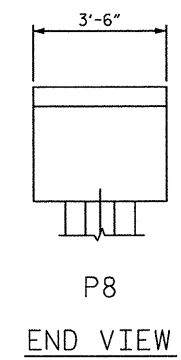
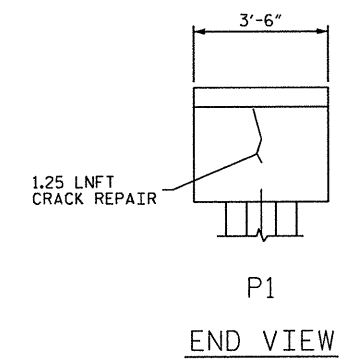
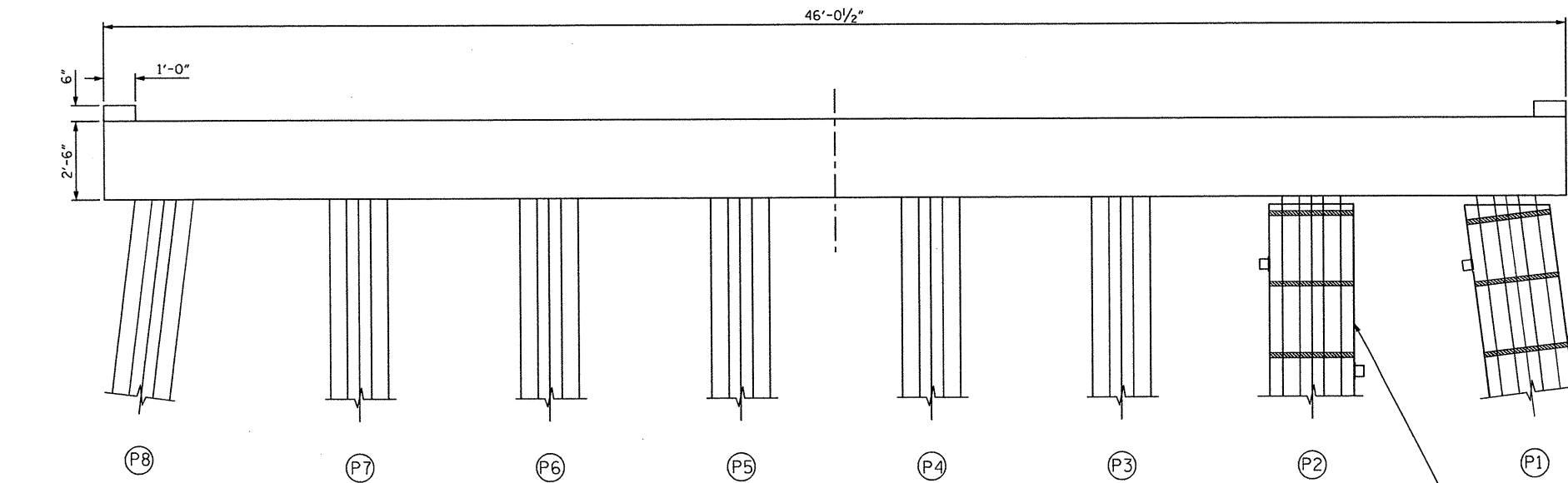
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LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.) FOR NEW LATERAL GUIDE. SEE DETAILS SHEET S-47.



SECTION A-A
(UNDERSIDE OF CAP)



PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO. : 39
 SHEET 4 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT NO. 4

DRAWN BY : CL BRIGHT DATE : 05/2013
 CHECKED BY : D. MULLER DATE : 05/2013
 DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			49

*****SYSTEM*****
 *****DCN*****
 *****USERNAME*****

REPAIR QUANTITY TABLE

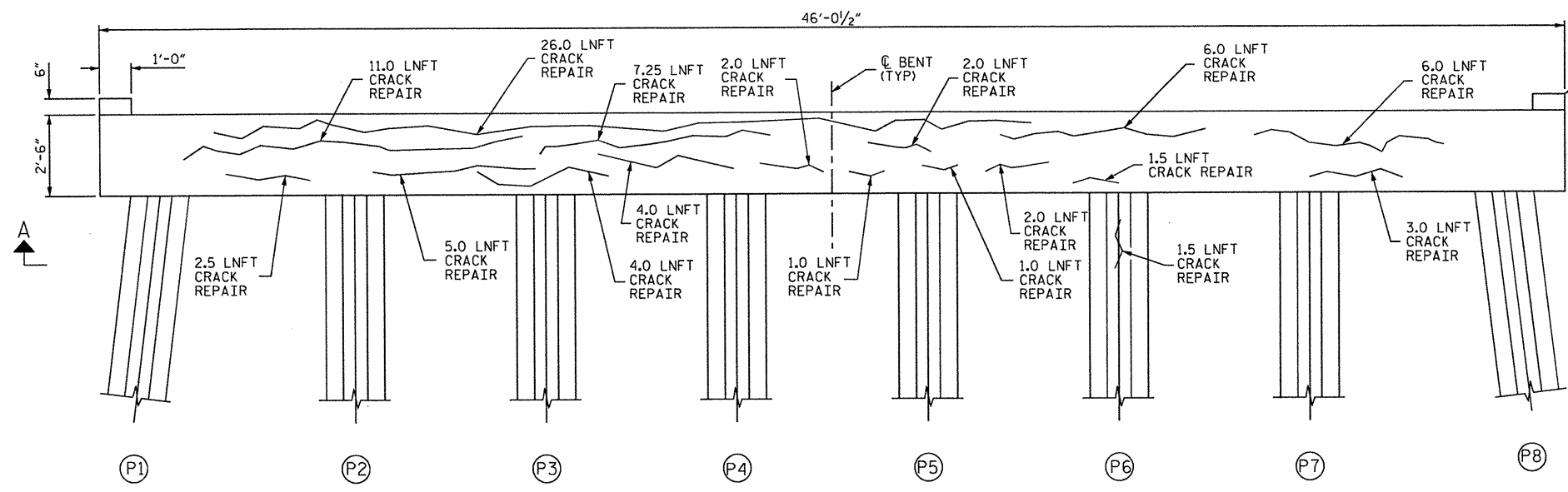
REPAIRS BENT 5	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0	0	0			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			166.9			
COLUMN			1.5			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

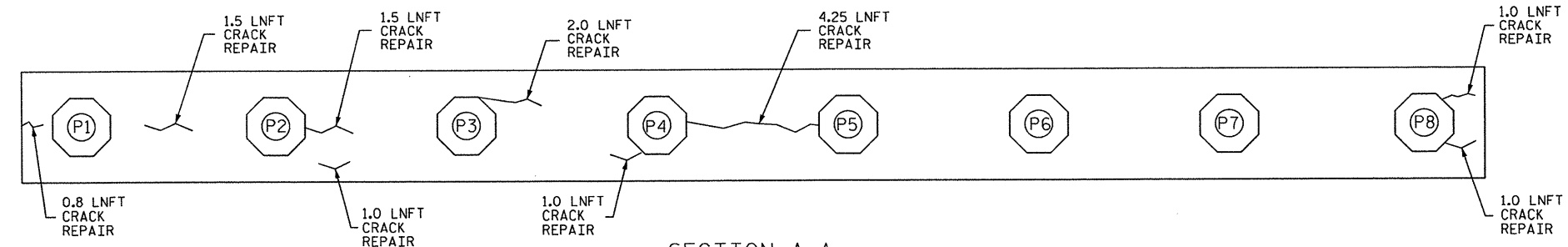
NOTES:

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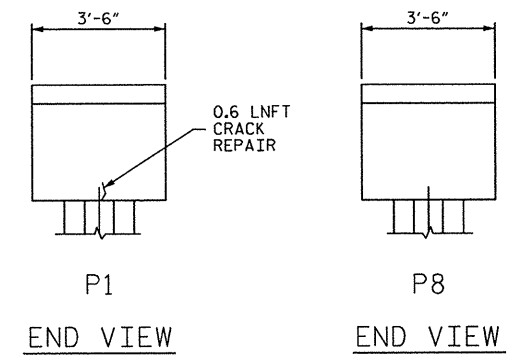
LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.) FOR NEW LATERAL GUIDE, SEE DETAILS SHEET S-47.



SPAN 5 FACE
(UP STATION)

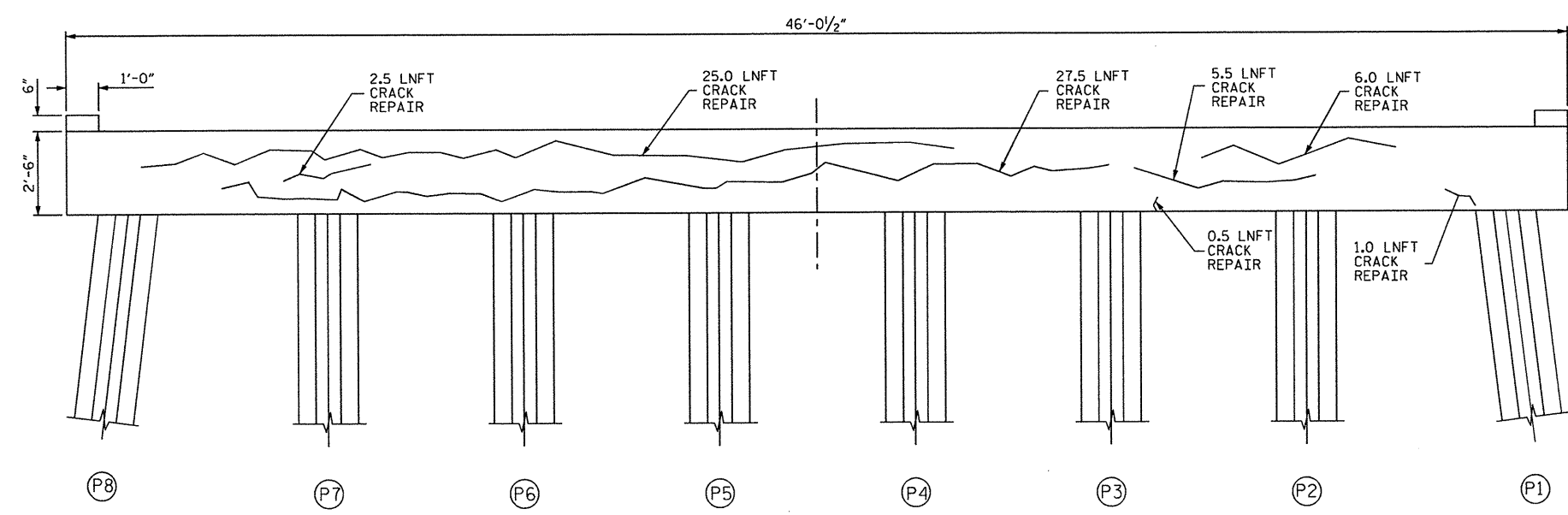


SECTION A-A
(UNDERSIDE OF CAP)



P1
END VIEW

P8
END VIEW



SPAN 6 FACE
(BACK STATION)

DRAWN BY : CL BRIGHT DATE : 05/2013
 CHECKED BY : D. MULLER DATE : 05/2013
 DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

*****SYSTEM*****
 *****SDGN*****
 *****USERNAME*****

PROJECT NO. 41665.4B
 CARTERET COUNTY
 BRIDGE NO. : 39
 SHEET 5 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT NO. 5

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			49

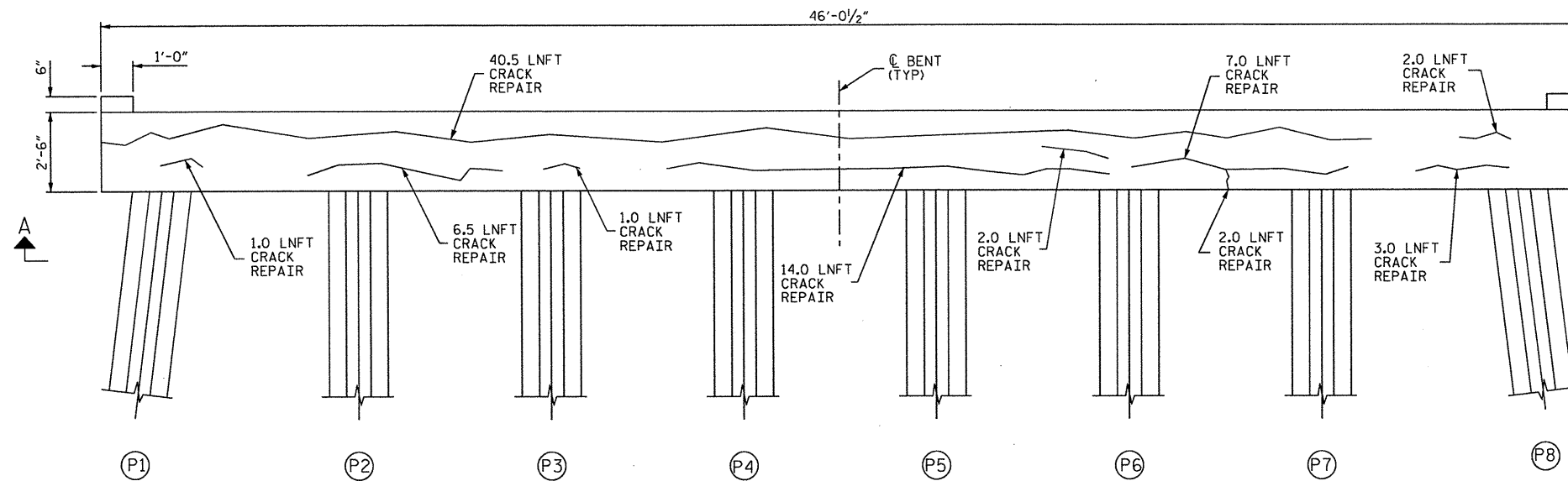
REPAIR QUANTITY TABLE

REPAIRS BENT 6	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0	0	0			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP			164.75			
COLUMN			0			

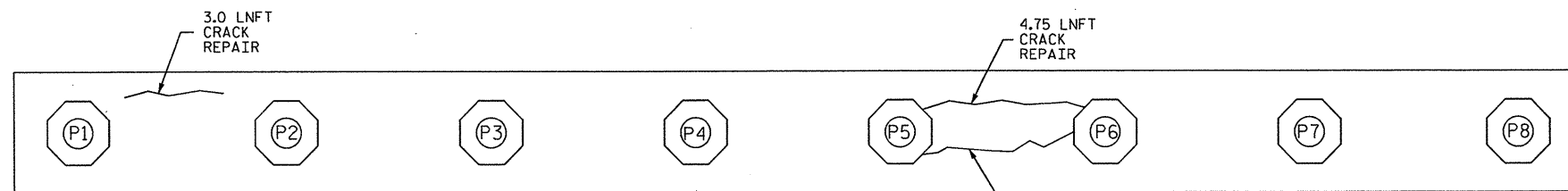
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

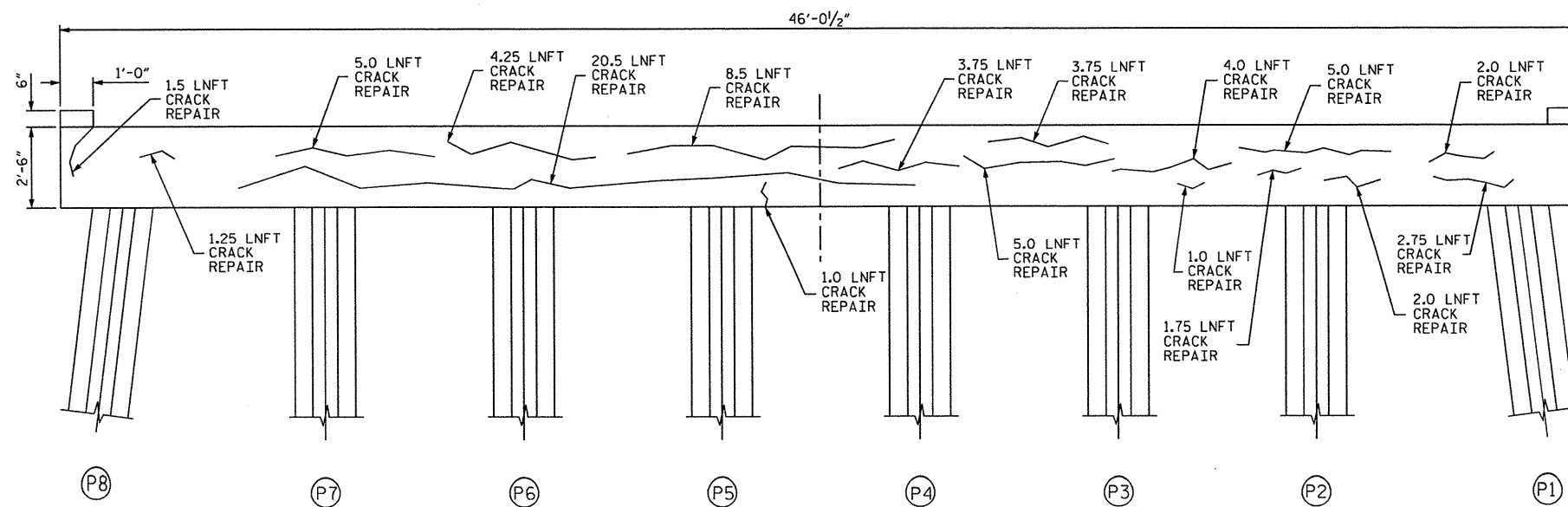
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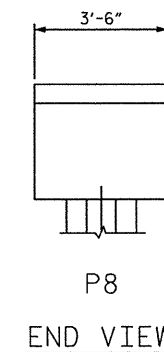
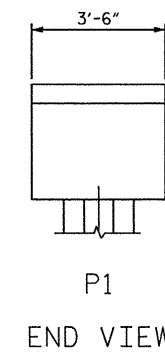
SPAN 5 FACE
(UP STATION)



SECTION A-A
(UNDERSIDE OF CAP)



SPAN 6 FACE
(BACK STATION)



DRAWN BY : CL BRIGHT DATE : 05/2013
 CHECKED BY : D. MULLER DATE : 05/2013
 DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

*****SYSTEM*****
 *****DGN*****
 *****USERNAME*****

PROJECT NO. 41665.4B
 CARTERET COUNTY
 BRIDGE NO. : 39
 SHEET 6 OF 7

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BENT NO. 6

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-45
1			3			TOTAL SHEETS
2			4			49

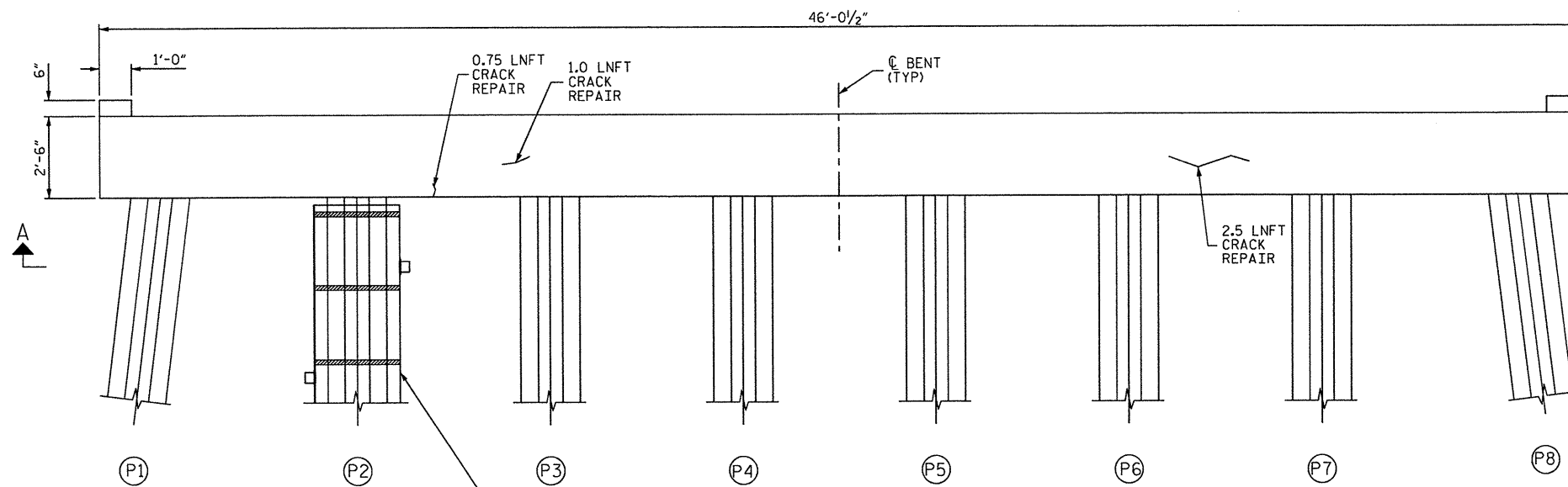
REPAIR QUANTITY TABLE

REPAIRS BENT 7	QUANTITIES					
	ESTIMATE			ACTUAL		
CONCRETE REPAIRS	AREA SF	DEPTH FT	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0	0	0			
COLUMN	0	0	0			
EPOXY RESIN INJECTION			LN. FT			LN. FT
CAP				21.0		
COLUMN				0		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 1" CL TO SAWCUT. SEE REPAIR DETAILS.

NOTES:

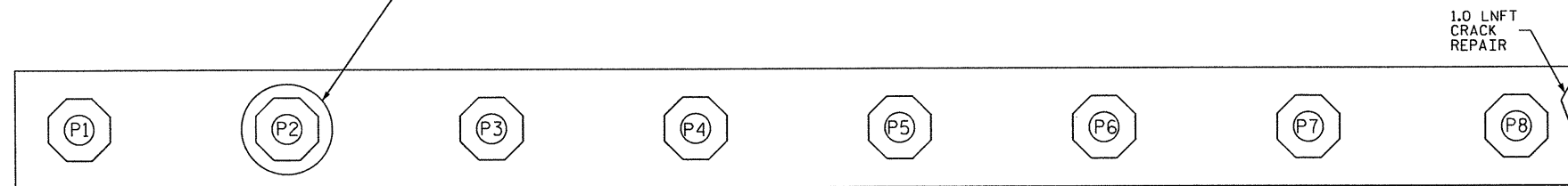
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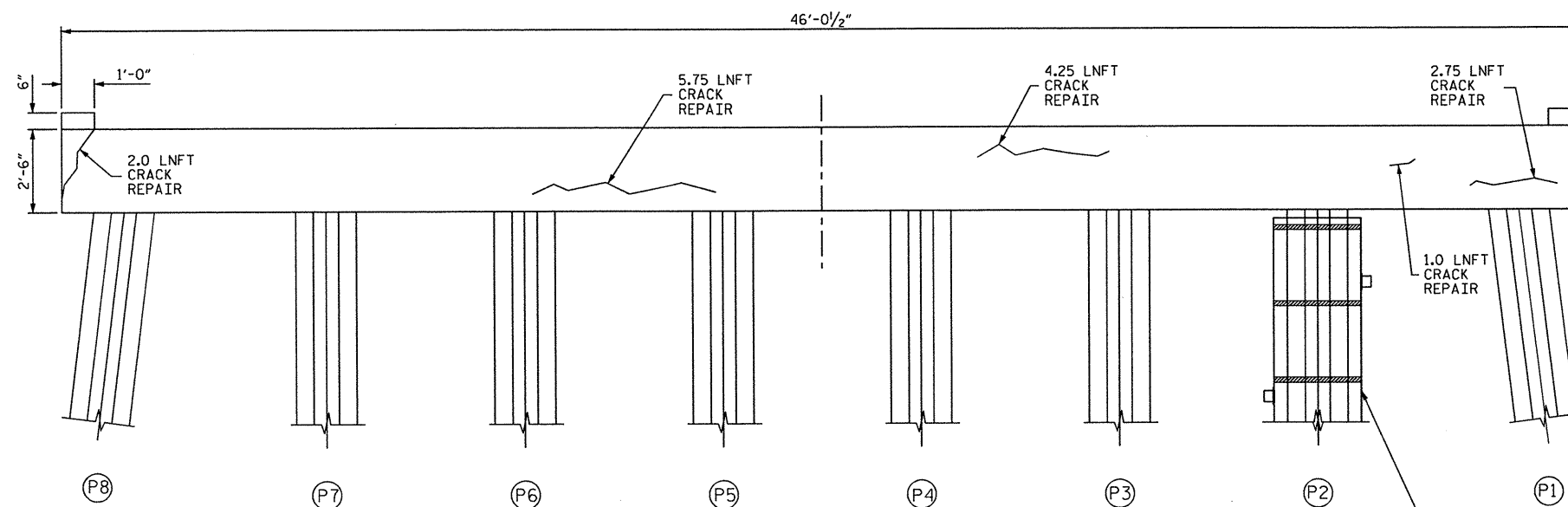
LATERAL GUIDE TO BE REMOVED AND STEEL TO BE CUT FLUSH WITH CAP. (TYP.) FOR NEW LATERAL GUIDE, SEE DETAILS SHEET S-47.

PILE TO BE JACKETED SEE SHEET S-48

SPAN 6 FACE
(UP STATION)

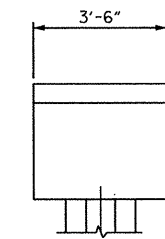


SECTION A-A
(UNDERSIDE OF CAP)

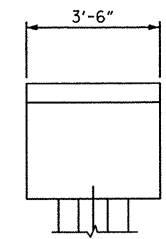


PILE TO BE JACKETED SEE SHEET S-48

SPAN 7 FACE
(BACK STATION)



P1
END VIEW



P8
END VIEW

PROJECT NO. 41665.4B
CARTERET COUNTY
BRIDGE NO.: 39

SHEET 7 OF 7

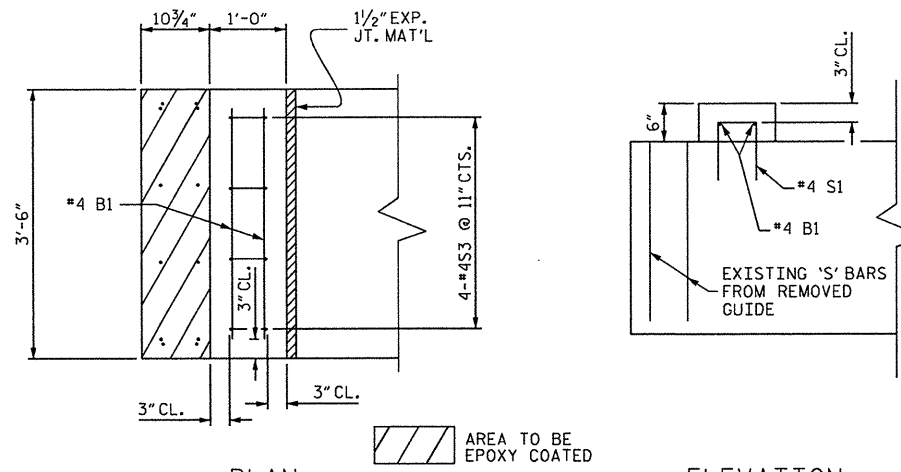
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT NO. 7

DRAWN BY: CL BRIGHT DATE: 05/2013
CHECKED BY: D. MULLER DATE: 05/2013
DESIGN ENGINEER OF RECORD: D. MULLER DATE: 05/2013

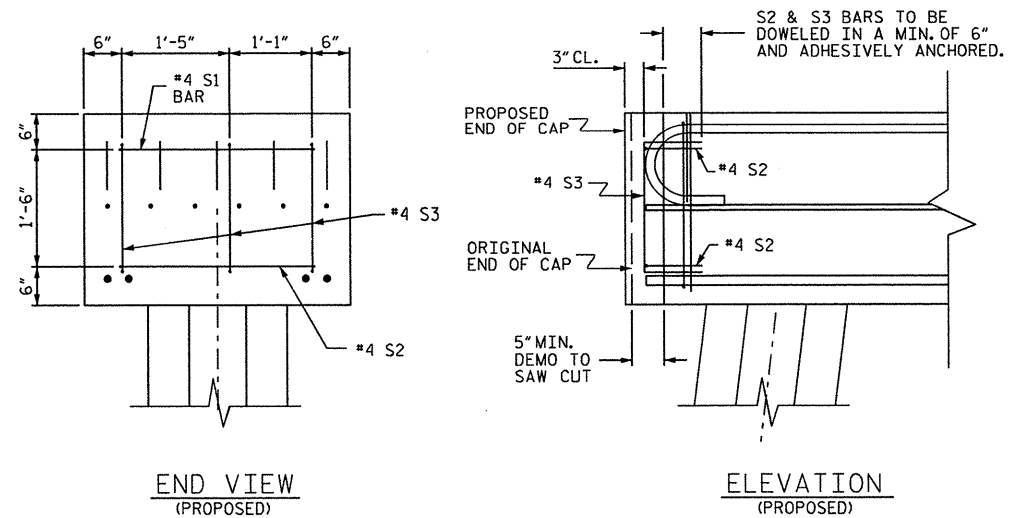
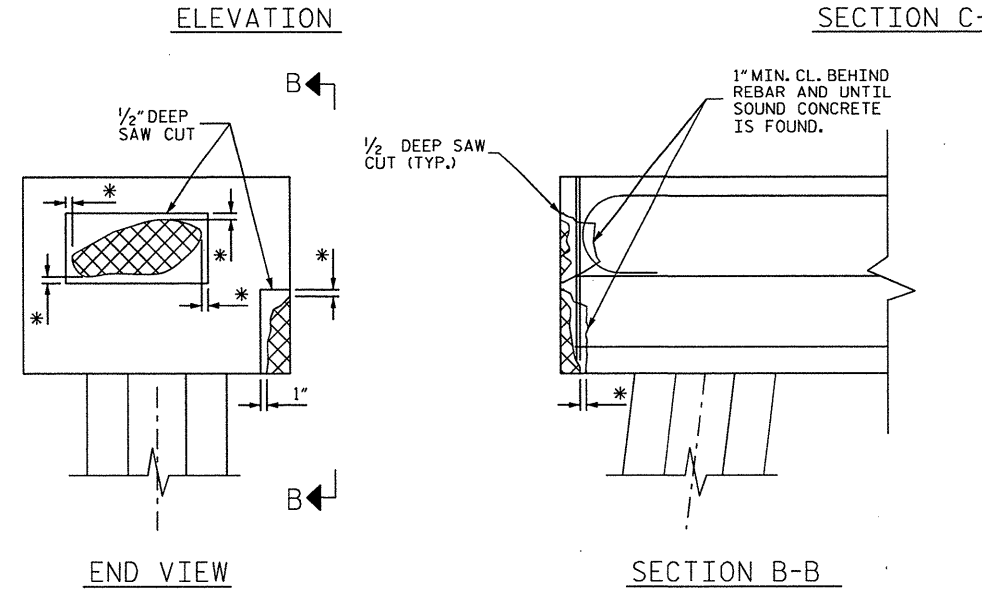
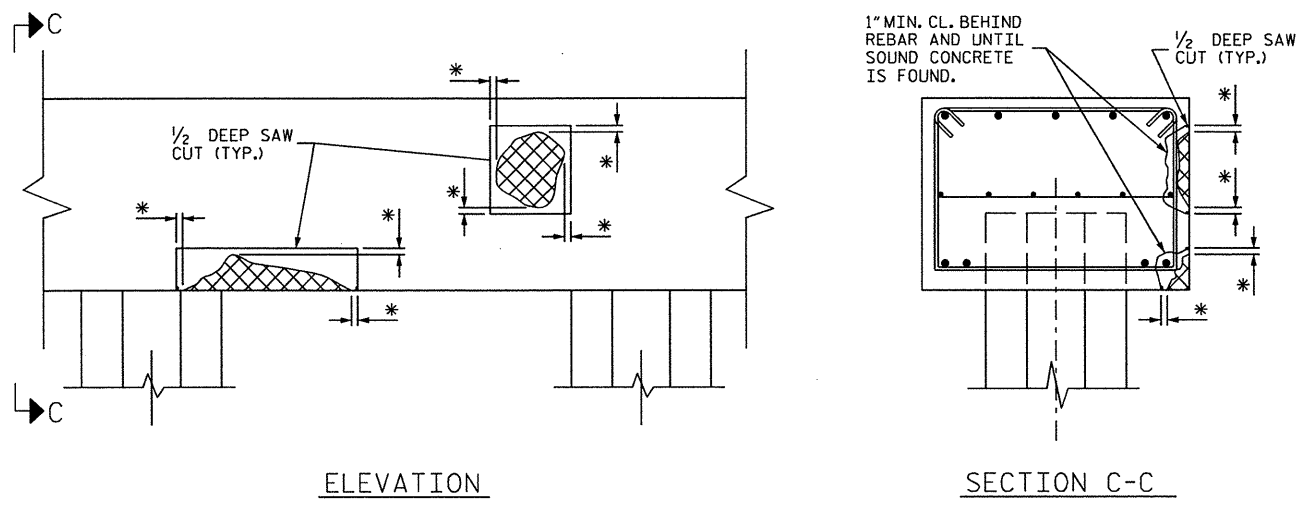
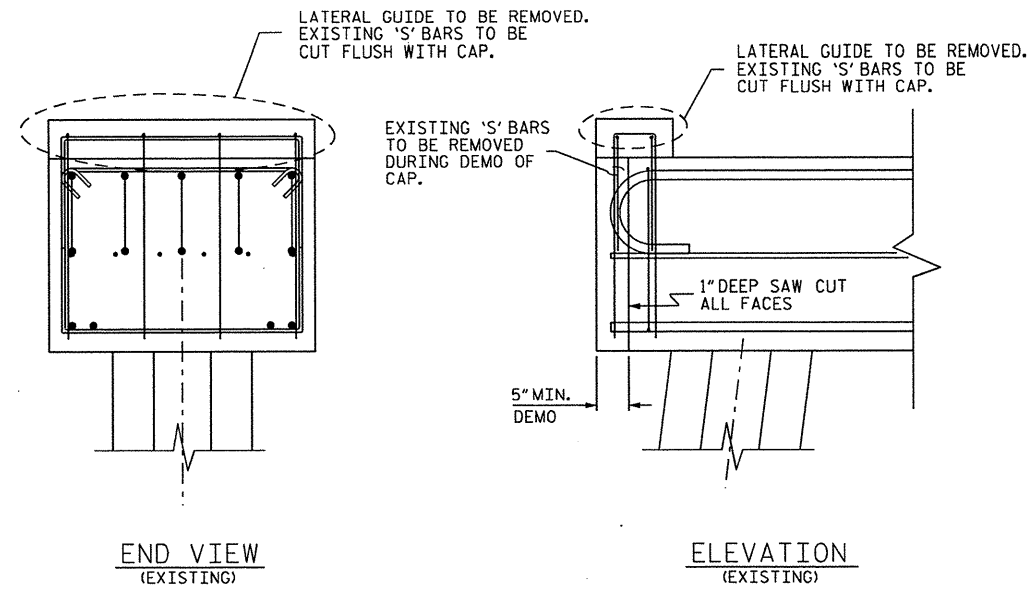
*****SYSTEM*****
*****SDGN*****
*****USERNAME*****

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-46
1			3			TOTAL SHEETS
2			4			49



PLAN
ELEVATION
LATERAL GUIDE DETAILS
(TYP. ALL BENTS)

BAR TYPES		BILL OF MATERIAL				
		REINFORCING STEEL				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
B1	36	4	STR	3-0	72	
S1	64	4	1	2-0	86	
S2	2	4	1	4-1	6	
S3	3	4	1	3-2	6	
REINFORCING STEEL TOTAL =					170 LBS	
		CONCRETE				
CLASS		VOLUME (CU. YDS)				
A (LATERAL GUIDES)		1.12				



END OF CAP REPLACEMENT DETAILS

CAP REPAIR DETAILS

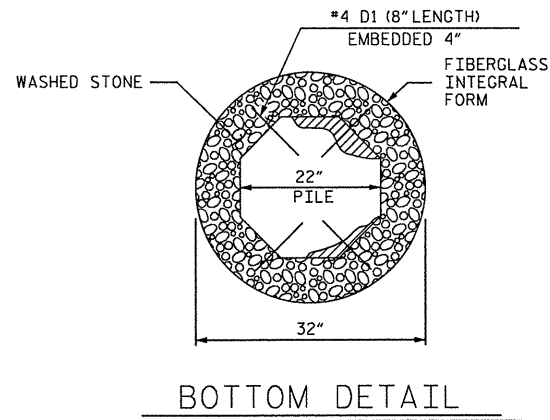
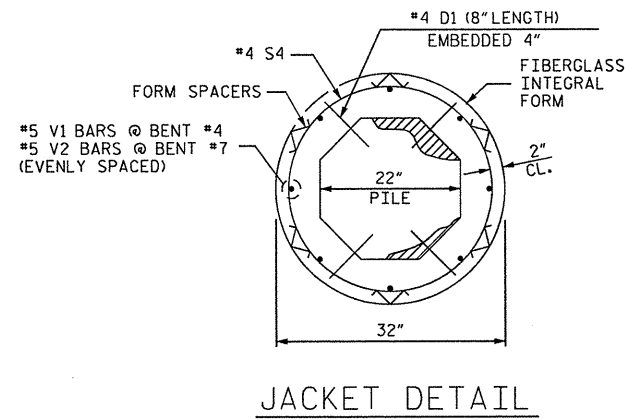
* CONCRETE TO BE REMOVED UNTIL SOUND CONCRETE IS FOUND. MIN. OF 1"

PROJECT NO. 41665.4B
 CARTERET COUNTY
 BRIDGE NO.: 39
 SHEET 1 OF 1

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
LATERAL GUIDE & CAP REPAIR DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-47
					TOTAL SHEETS 49

DRAWN BY: CL BRIGHT DATE: 05/2013
 CHECKED BY: D. MULLER DATE: 05/2013
 DESIGN ENGINEER OF RECORD: D. MULLER DATE: 05/2013

*****SYSTEM*****
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 *****USERNAME*****



JACKET NOTES:

CONCRETE AND BAR REINFORCEMENT SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF THE STANDARD SPECIFICATION SECTIONS.

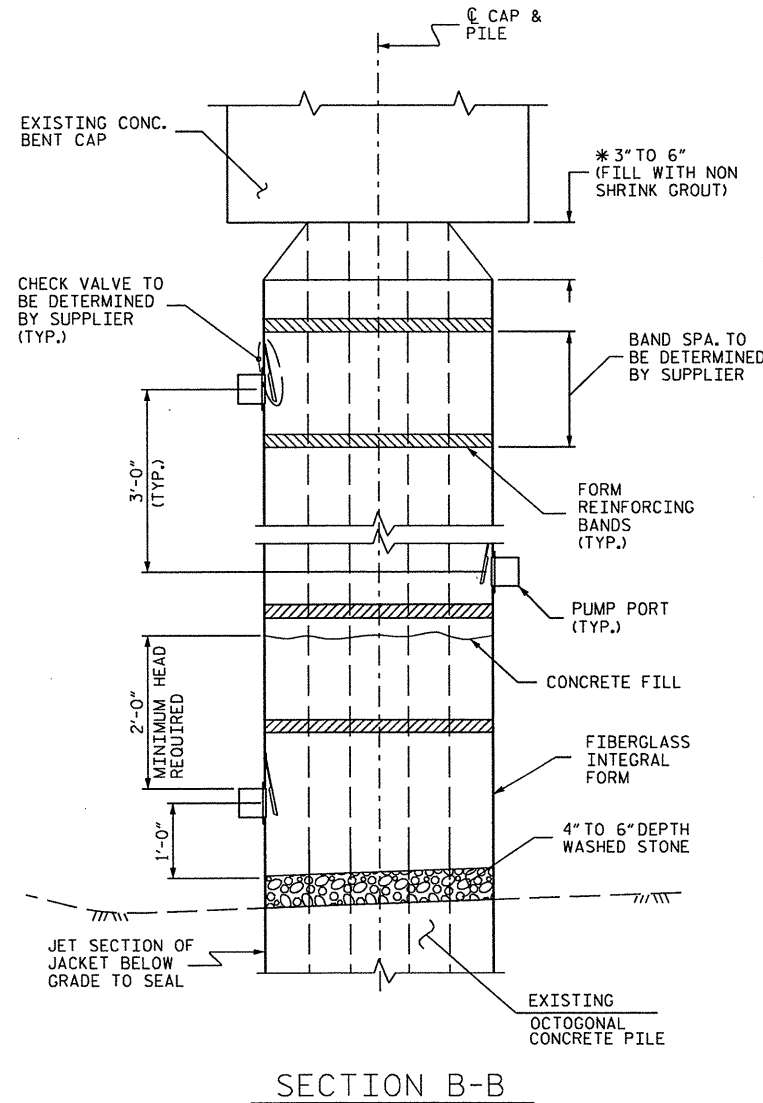
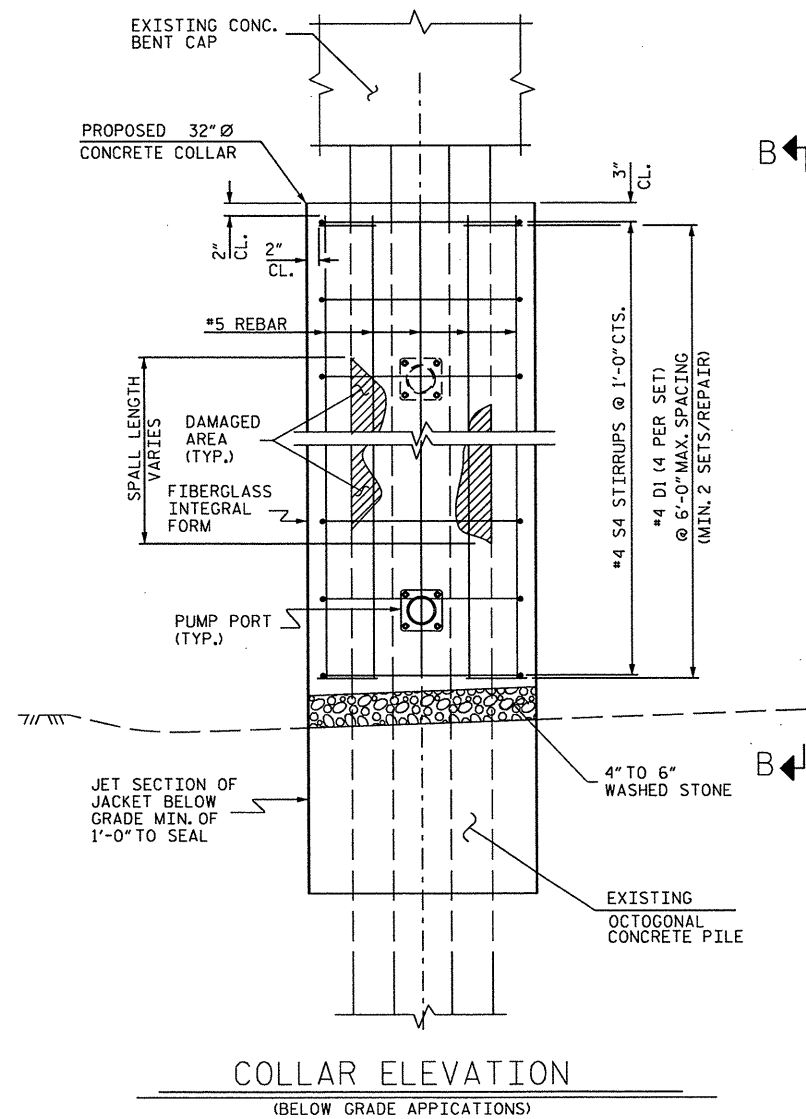
ALL REINFORCING BARS SHALL BE ASTM GRADE 60.

SURFACES OF PILES TO ENCASED IN CONCRETE SHALL BE CLEANED AS DESCRIBED IN SPECIAL PROVISIONS. CLEANING MUST BE DONE IMMEDIATELY BEFORE FORMS ARE INSTALLED.

SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL, SHOWING ALL FASTENING DETAILS, STANDOFFS, FORMS, AND ANY OTHER DEVICES NECESSARY TO SECURE THE FORMS SO THAT CONCRETE MAY BE PLACED IN A CONTINUOUS OPERATION COMPLETELY ENCAPSULATING THE PILES.

FORMS FOR JACKET SHALL BE INSTALLED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. BOTTOM SEAL SHALL BE MORTAR TIGHT.

EXCESS CONCRETE AT THE TOP OF THE FORM SHALL BE REMOVED SEVEN DAYS AFTER POURING CONCRETE. THE GAP BETWEEN CONCRETE ENCASEMENT AND PILE CAP SHALL BE FILLED WITH NON SHRINK GROUT IN ORDER TO PROVIDE FULL BEARING.



COLLAR ELEVATION
(BELOW GRADE APPLICATIONS)

SECTION B-B

PILE JACKET W/ PUMP PORTS
(BELOW GRADE REPAIR)

PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO. : 39
 SHEET 1 OF 2

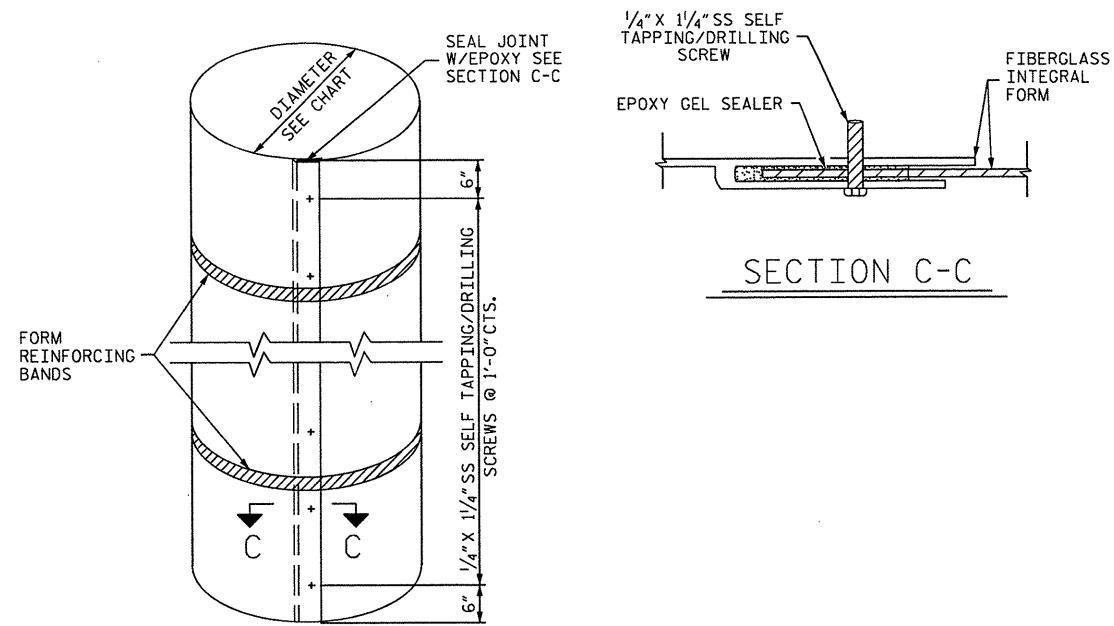
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**PILE JACKET
 DETAILS**

DRAWN BY : CL BRIGHT DATE : 05/2013
 CHECKED BY : D. MULLER DATE : 05/2013
 DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

*****SYSTEM*****
 *****DGN*****
 *****USER*****

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	48
1			3			TOTAL SHEETS
2			4			49



FIBERGLASS INTEGRAL FORM

BAR TYPES		BILL OF MATERIAL				
		REINFORCING STEEL				
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	
D1	36	4	STR	8"	16	
V1	16	5	STR	±11'-10"	198	
V2	8	5	STR	±8'-11"	74	
S4	36	4	1	8'-4"	200	
REINFORCING STEEL TOTAL =					488 LBS	
CONCRETE						
CLASS		VOLUME (CU. YDS)				
A		7.1				

ALL BAR DIMENSIONS ARE OUT TO OUT.
 REINFORCING STEEL AND CLASS A CONCRETE ARE PAID FOR IN THE PAY ITEM - PILE JACKETS

JACKET SIZING CHART	
PILE/COLUMN SIZE	RECOMMENDED JACKET SIZE
	ROUND
22" OCTAGONAL	32" Ø

REPAIR SEQUENCE

- 1) COMPLETELY REMOVE ALL RUST, OIL, GREASE, AND OTHER CONTAMINANTS. PREPARE STEEL USING ACCEPTABLE MECHANICAL MEANS AND STEEL CLEANERS AND DEGREASERS AS NECESSARY TO OBTAIN CLEAN, SOUND SURFACES. STEEL PILE SURFACES SHOULD BE SOUND AND FREE OF CONTAMINATION. WHERE MARINE GROWTH OR OTHER CONTAMINANTS EXIST, INCLUDING VISIBLE SIGNS OF CORROSION, A HIGH PRESSURE WATER BLAST SHOULD BE UTILIZED TO ENSURE A CLEAN, SOUND, CONTAMINANT-FREE SURFACE.
- 2) COMPLETE REPAIRS AS INDICATED IN SHEET NO. S-5.
- 3) DETERMINE FIBERGLASS INTEGRAL FORM LENGTH. MINIMUM LENGTH IS 2' ABOVE AND BELOW CLEAN, SOUND, CONTAMINANT-FREE SURFACE.
- 4) BUILD THE REBAR CAGE BY PLACING THE #4 STIRRUPS AND VERTICAL REINFORCING STEEL IN ACCORDANCE WITH THE PROJECT DRAWING.
- 5) INSTALL FORM SPACERS TO INSURE ADEQUATE CONCRETE COVER AT ALL PARTS OF THE SLEEVE.
- 6) INSTALL THE SLEEVE- IN PLACE FIBERGLASS FORM (ALSO CALLED JACKET OR COLLAR). THE DIAMETER OF THE JACKET SHOULD BE LARGE ENOUGH TO IN-CIRCLE THE PILE WHILE PROVIDING A MINIMUM OF 5" TOTAL CLEARANCE, 2" OF CLEARANCE BETWEEN THE PILE AND THE REINFORCING STEEL AND 2" OF CLEARANCE BETWEEN THE REINFORCING STEEL AND THE FORM. (SEE JACKET SIZING CHART)
- 7) INSERT CONCRETE PUMP HOSE THRU TOP OF JACKET AND EXTEND TO JUST ABOVE THE BOTTOM AND PUMP AT A FLOW RATE TO THE DESIRED FILL ELEVATION. IF SITE CONDITIONS PROHIBIT INSERTING PUMP HOSE THRU TOP OF JACKET THEN INSTALL PUMP PORTS AND PLACE CONCRETE AS SHOWN IN THE DETAILS.
- 8) PLACE CONCRETE FILL. INSTALL PUMP PORT(S) IN JACKET FOR UNDERWATER APPLICATIONS. PORTS SHOULD HAVE A CHECK VALVE TO KEEP BACK FLOW OF CONCRETE ONCE PUMP NOZZLE IS REMOVED. FOR CONCRETE PLACEMENTS GREATER THAN 5' USE MULTIPLE PORTS SPACED 3' VERTICALLY AND ALTERNATING 180° FROM PREVIOUS PORT. A MINIMUM OF 2' OF CONCRETE HEAD IS NEEDED ABOVE PORT PRIOR TO CHANGING PORTS.
- 9) REMOVE FORM WORK AFTER 24 HOURS.

PROJECT NO. 41665.4B
CARTERET COUNTY
 BRIDGE NO. : 39

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

PILE JACKET
 DETAILS

DRAWN BY : CL BRIGHT DATE : 05/2013
 CHECKED BY : D. MULLER DATE : 05/2013
 DESIGN ENGINEER OF RECORD : D. MULLER DATE : 05/2013

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-49
2			4			TOTAL SHEETS 49

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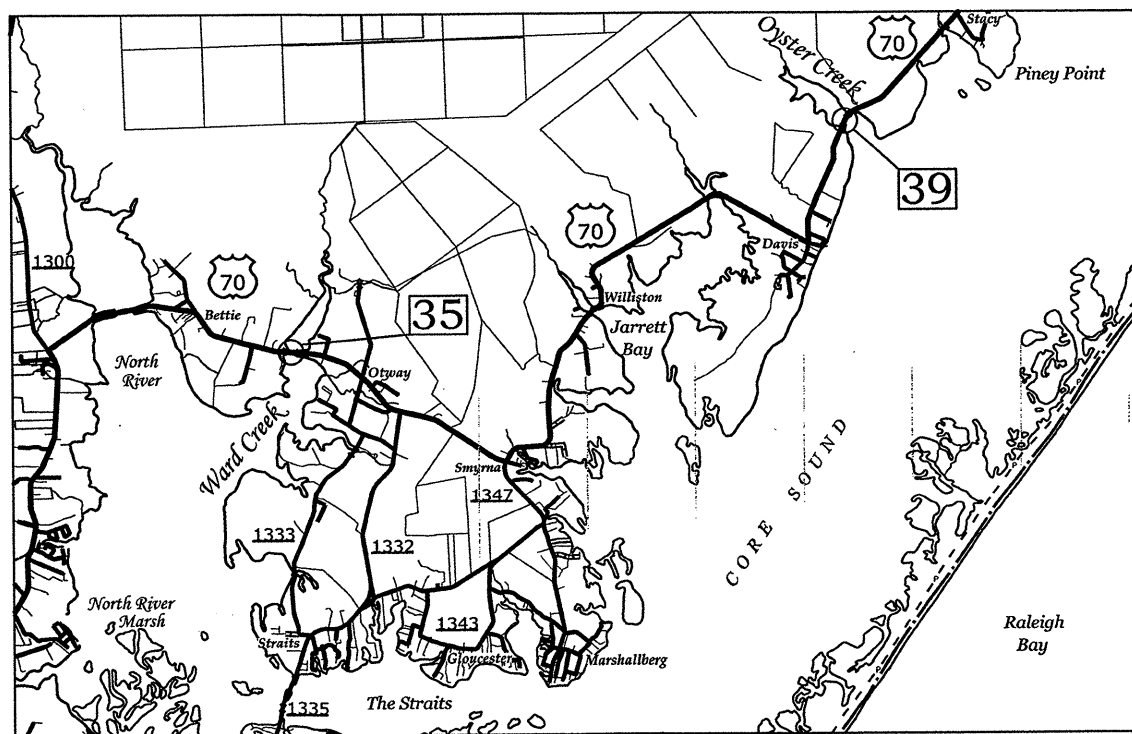
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CARTERET COUNTY



**LOCATIONS: BRIDGE 35 ON US 70 OVER WARD CREEK
BRIDGE 39 ON US 70 OVER OYSTER CREEK**



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-2	GENERAL NOTES - BRIDGES 35 & 39
TMP-2A	PHASING - BRIDGES 35 & 39
TMP-3	BRIDGE NO. 35 - PLAN VIEW
TMP-4	BRIDGE NO. 35 - TYPICAL SECTIONS
TMP-5	BRIDGE NO. 39 - PLAN VIEW
TMP-6	BRIDGE NO. 39 - TYPICAL SECTIONS
TMP-7	TEMPORARY RUMBLE STRIPS
TMP-8	SHOULDER PAVING AND GUARDRAIL REPLACEMENT
TMP-9	SPECIAL SIGN DESIGN

SHEET NO.

TMP-1

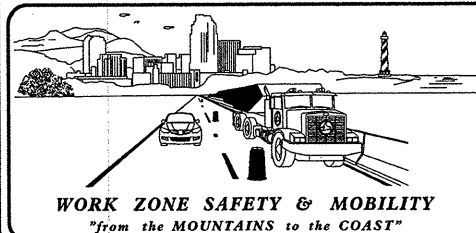
41665.4B

PLAN PREPARED BY:

HDR HDR Engineering, Inc. of the Carolinas
3733 National Drive, Suite 207 Raleigh, N.C. 27612
N.C.B.E.L.S. License Number: F-0116

MICHELLE WARD, P.E. TRAFFIC CONTROL PROJECT ENGINEER

CHRIS HARNDEN TRAFFIC CONTROL DESIGN ENGINEER



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 713-2800 FAX: (919) 711-2745

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER
STEVE KITE, P.E. TRAFFIC CONTROL PROJECT ENGINEER
DON PARKER TRAFFIC CONTROL PROJECT DESIGN ENGINEER
TRAFFIC CONTROL DESIGN ENGINEER



SEAL

PROJECT:

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TIME: 2:30:08 PM






ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

<u>STD. NO.</u>	<u>TITLE</u>
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING












LEGEND

GENERAL




-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  EXIST. PVMT.
-  NORTH ARROW
-  PROPOSED PVMT.

-  WORK AREA




TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE III)
-  CONE
-  DRUM  SKINNY DRUM  TUBULAR MARKER
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW PANEL (TYPE C)
-  FLAGGER
-  LAW ENFORCEMENT
-  TRUCK MOUNTED IMPACT ATTENUATOR (TMIA)
-  CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN




SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY

PAVEMENT MARKINGS

-  EXISTING LINES
-  TEMPORARY LINES




PAVEMENT MARKERS

-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS



-  PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

-  24" WHITE STOP BAR (PAINT)
-  4" WHITE EDGE LINE (PAINT)
-  4" WHITE RUMBLE STRIP (THERMO, 240 MILS)

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		<p>ROADWAY STANDARD DRAWINGS & LEGEND</p>
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GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS, OR RESULT IN DUPLICATE, OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATIONS MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR AS DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
US 70	MONDAY - SUNDAY 6:00 AM - 9:00 PM	30 MINUTES FOR INSTALLING TEMPORARY BRIDGING AND APPROACH RAMP 30 MINUTES FOR DE-TENSIONING ON EXISTING BRIDGE

LANE AND SHOULDER CLOSURE REQUIREMENTS

- B) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- F) DO NOT INSTALL MORE THAN 1/4 MILE OF LANE CLOSURE ON US 70 MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.
- G) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON US 70.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- H) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

 BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

 BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

 BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.
- I) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

SIGNING

- J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT. FROM THE EDGE OF THE TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- K) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERNING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

- L) WHEN LANE CLOSURES ARE NOT IN EFFECT, SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT. ON-CENTER IN RADII, AND 3 FT. OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES), AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

PAVEMENT MARKINGS AND MARKERS

- M) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS FOR THE TEMPORARY TRAFFIC PATTERN AS FOLLOWS:

ROAD NAME	MARKING	MARKER
US 70	PAINT	TEMPORARY RAISED

- N) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

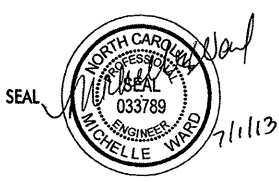

- O) INSTALL FINAL PAVEMENT MARKINGS AND FINAL PAVEMENT MARKERS FOR THE FINAL PATTERN AS FOLLOWS:

ROAD NAME	MARKING	MARKER
US 70	THERMOPLASTIC	PERMANENT RAISED

MISCELLANEOUS

- P) ENSURE THAT THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919-733-4740) HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.
- Q) THE CONTRACTOR MAY CONDUCT WORK AT BOTH BRIDGE 35 AND BRIDGE 39 SIMULTANEOUSLY.

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		<h2 style="margin: 0;">GENERAL NOTES</h2>
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PHASING - BRIDGE NO. 35

PHASING - BRIDGE NO. 39

PROJ. REFERENCE NO.	SHEET NO.
41665.4B	TMP-2A
HDR HDR Engineering, Inc. of the Carolinas 1733 Noland Drive, Suite 207 Raleigh, N.C. 27612 N.C.B.E.L.S. License Number: F-0116	

NOTES:

RECORD EXISTING PAVEMENT MARKING PRIOR TO BEGINNING WORK.

MAINTAIN ACCESS TO ALL DRIVEWAYS THROUGHOUT THE LIFE OF THE PROJECT.

STEP 1:

INSTALL ADVANCED WORK ZONE WARNING SIGNS AS SHOWN ON RSD 1101.01, SHEET 3 OF 3, ACCORDING TO THE EXISTING POSTED SPEED LIMIT. (SEE GENERAL NOTE 'J' ON SHEET TMP-2)

STEP 2:

USING RSD 1101.02, SHEET 1 OF 15 (FLAGGER OPERATION), PERFORM THE FOLLOWING:

- INSTALL TEMPORARY BRIDGING AND APPROACH RAMP ON BRIDGE (SEE GENERAL NOTE 'A' ON SHEET TMP-2 FOR ALLOWABLE DURATION FOR STOPPING TRAFFIC & STRUCTURE PLANS).
- INSTALL CMS, TEMPORARY SIGNS AND TRAFFIC CONTROL DEVICES AS SHOWN ON SHEETS TMP-3 AND TMP-4.
- INSTALL PORTABLE SIGNAL AS SHOWN ON SHEET TMP-3 (SEE SPECIAL PROVISION)
- CONSTRUCT ASPHALT SHOULDERS TO FACE OF EXISTING GUARDRAIL (SEE SHEET TMP-3 AND TMP-8).

NOTE: COMPLETE WORK IN STEP 2 IN ONE CONTINUOUS OPERATION UNTIL ALL TEMPORARY RAMPS HAVE BEEN INSTALLED, THEN CONTINUE DIRECTLY TO STEP 3.

NOTE: IF TEMPORARY BRIDGING (ACROSS ENTIRE EXISTING BRIDGE) CANNOT BE COMPLETED IN ONE NIGHT, CONTINUE TO MAINTAIN TRAFFIC IN A ONE-LANE/TWO-WAY PATTERN UTILIZING FLAGGERS, OR AS DIRECTED BY THE ENGINEER, UNTIL THE TEMPORARY BRIDGING CAN BE COMPLETED.

STEP 3:

USING RSD 1101.02, SHEET 1 OF 15 (FLAGGER OPERATION), PLACE TEMPORARY PAVEMENT MARKING AS SHOWN ON SHEETS TMP-3 AND TMP-4, ACTIVATE PORTABLE SIGNAL, THEN OPEN TRAFFIC TO THE ONE-LANE/TWO-WAY TRAFFIC PATTERN UTILIZING THE PORTABLE SIGNAL.

NOTE: CONTRACTOR MAY NEED TO REVERT TO A FLAGGER OPERATION RATHER THAN THE PORTABLE SIGNAL DURING PEAK HOURS, AS DETERMINED BY THE ENGINEER.

NOTE: PORTABLE SIGNAL SHALL BE DE-ACTIVATED (AND/OR SIGNAL HEADS COVERED) WHEN FLAGGER OPERATION IS IN USE.

STEP 4:

AWAY FROM TRAFFIC, REMOVE PORTION OF EXISTING BRIDGE AND CONSTRUCT STAGE 1 OF THE PROPOSED BRIDGE, INCLUDING PROPOSED GUARDRAIL AND ASPHALT WEDGING TO THE FACE OF TEMPORARY GUARDRAIL, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. (SEE SHEETS TMP-3, TMP-4 AND TMP-8)

NOTE: WHEN DE-TENSIONING EXISTING BRIDGE, STOP TRAFFIC ON US 70. (SEE GENERAL NOTE 'A' ON SHEET TMP-2 FOR ALLOWABLE DURATION FOR STOPPING TRAFFIC)

STEP 5:

AWAY FROM TRAFFIC, AND USING RSD 1101.02, SHEET 1 OF 15 (FLAGGER OPERATION), AS NECESSARY, INSTALL TEMPORARY PAVEMENT MARKING ON STAGE 1 OF THE PROPOSED BRIDGE AND APPROACH ROADWAY, SHIFT TRAFFIC TO STAGE 1 OF THE PROPOSED BRIDGE AND RE-ACTIVATE THE PORTABLE SIGNAL. (SEE SHEETS TMP-3 AND TMP-4)

NOTE: CONTRACTOR MAY NEED TO REVERT TO A FLAGGER OPERATION RATHER THAN THE PORTABLE SIGNAL DURING PEAK HOURS, AS DETERMINED BY THE ENGINEER.

NOTE: PORTABLE SIGNAL SHALL BE DE-ACTIVATED (AND/OR SIGNAL HEADS COVERED) WHEN FLAGGER OPERATION IS IN USE.

STEP 6:

AWAY FROM TRAFFIC, REMOVE REMAINING PORTION OF EXISTING BRIDGE AND CONSTRUCT STAGE 2 OF THE PROPOSED BRIDGE, INCLUDING PROPOSED GUARDRAIL AND ASPHALT WEDGING, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. (SEE SHEETS TMP-3, TMP-4 AND TMP-8)

NOTE: WHEN PLACING ASPHALT ON STAGE 2 OF THE BRIDGE, REMOVE TEMPORARY GUARDRAIL ON STAGE 1 AND COMPLETE ASPHALT WEDGING ON STAGE 2 IN A CONTINUOUS MANNER, SO THAT ALLOWABLE DROP-OFFS ARE NOT EXCEEDED. ONCE TEMPORARY GUARDRAIL IS REMOVED AND ASPHALT WEDGING IS COMPLETED, PROCEED DIRECTLY TO STEP 7.

STEP 7:

USING RSD 1101.02, SHEET 1 OF 15 (FLAGGER OPERATION), PERFORM THE FOLLOWING:

- DE-ACTIVATE PORTABLE SIGNAL,
- PLACE FINAL LAYER OF ASPHALT ON BRIDGE AS SHOWN IN THE STRUCTURE PLANS,
- PLACE FINAL PAVEMENT MARKING AND MARKERS ON US 70 USING RECORDED MARKINGS, OR AS DIRECTED BY THE ENGINEER,
- THEN, OPEN TRAFFIC TO THE EXISTING TWO-LANE/TWO-WAY TRAFFIC PATTERN

STEP 8:

REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES.

NOTES:

RECORD EXISTING PAVEMENT MARKING PRIOR TO BEGINNING WORK.

MAINTAIN ACCESS TO ALL DRIVEWAYS THROUGHOUT THE LIFE OF THE PROJECT.

STEP 1:

INSTALL ADVANCED WORK ZONE WARNING SIGNS AS SHOWN ON RSD 1101.01, SHEET 3 OF 3, ACCORDING TO THE EXISTING POSTED SPEED LIMIT. (SEE GENERAL NOTE 'J' ON SHEET TMP-2)

STEP 2:

USING RSD 1101.02, SHEET 1 OF 15 (FLAGGER OPERATION), PERFORM THE FOLLOWING:

- INSTALL TEMPORARY BRIDGING AND APPROACH RAMP ON BRIDGE (SEE GENERAL NOTE 'A' ON SHEET TMP-2 FOR ALLOWABLE DURATION FOR STOPPING TRAFFIC & STRUCTURE PLANS).
- INSTALL CMS, TEMPORARY SIGNS AND TRAFFIC CONTROL DEVICES AS SHOWN ON SHEETS TMP-5 AND TMP-6.
- INSTALL PORTABLE SIGNAL AS SHOWN ON SHEET TMP-5 (SEE SPECIAL PROVISION)
- CONSTRUCT ASPHALT SHOULDERS TO FACE OF EXISTING GUARDRAIL (SEE SHEET TMP-5 AND TMP-8).

NOTE: COMPLETE WORK IN STEP 2 IN ONE CONTINUOUS OPERATION UNTIL ALL TEMPORARY RAMPS HAVE BEEN INSTALLED, THEN CONTINUE DIRECTLY TO STEP 3.

NOTE: IF TEMPORARY BRIDGING (ACROSS ENTIRE EXISTING BRIDGE) CANNOT BE COMPLETED IN ONE NIGHT, CONTINUE TO MAINTAIN TRAFFIC IN A ONE-LANE/TWO-WAY PATTERN UTILIZING FLAGGERS, OR AS DIRECTED BY THE ENGINEER, UNTIL THE TEMPORARY BRIDGING CAN BE COMPLETED.

STEP 3:

USING RSD 1101.02, SHEET 1 OF 15 (FLAGGER OPERATION), PLACE TEMPORARY PAVEMENT MARKING AS SHOWN ON SHEETS TMP-5 AND TMP-6, ACTIVATE PORTABLE SIGNAL, THEN OPEN TRAFFIC TO THE ONE-LANE/TWO-WAY TRAFFIC PATTERN UTILIZING THE PORTABLE SIGNAL.

NOTE: CONTRACTOR MAY NEED TO REVERT TO A FLAGGER OPERATION RATHER THAN THE PORTABLE SIGNAL DURING PEAK HOURS, AS DETERMINED BY THE ENGINEER.

NOTE: PORTABLE SIGNAL SHALL BE DE-ACTIVATED (AND/OR SIGNAL HEADS COVERED) WHEN FLAGGER OPERATION IS IN USE.

STEP 4:

AWAY FROM TRAFFIC, REMOVE PORTION OF EXISTING BRIDGE AND CONSTRUCT STAGE 1 OF THE PROPOSED BRIDGE, INCLUDING PROPOSED GUARDRAIL AND ASPHALT WEDGING TO THE FACE OF TEMPORARY GUARDRAIL, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. (SEE SHEETS TMP-5, TMP-6 AND TMP-8)

NOTE: WHEN DE-TENSIONING EXISTING BRIDGE, STOP TRAFFIC ON US 70. (SEE GENERAL NOTE 'A' ON SHEET TMP-2 FOR ALLOWABLE DURATION FOR STOPPING TRAFFIC)

STEP 5:

AWAY FROM TRAFFIC, AND USING RSD 1101.02, SHEET 1 OF 15 (FLAGGER OPERATION), AS NECESSARY, INSTALL TEMPORARY PAVEMENT MARKING ON STAGE 1 OF THE PROPOSED BRIDGE AND APPROACH ROADWAY, SHIFT TRAFFIC TO STAGE 1 OF THE PROPOSED BRIDGE AND RE-ACTIVATE THE PORTABLE SIGNAL. (SEE SHEETS TMP-5 AND TMP-6)

NOTE: CONTRACTOR MAY NEED TO REVERT TO A FLAGGER OPERATION RATHER THAN THE PORTABLE SIGNAL DURING PEAK HOURS, AS DETERMINED BY THE ENGINEER.

NOTE: PORTABLE SIGNAL SHALL BE DE-ACTIVATED (AND/OR SIGNAL HEADS COVERED) WHEN FLAGGER OPERATION IS IN USE.

STEP 6:

AWAY FROM TRAFFIC, REMOVE REMAINING PORTION OF EXISTING BRIDGE AND CONSTRUCT STAGE 2 OF THE PROPOSED BRIDGE, INCLUDING PROPOSED GUARDRAIL AND ASPHALT WEDGING, UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. (SEE SHEETS TMP-5, TMP-6 AND TMP-8)

NOTE: WHEN PLACING ASPHALT ON STAGE 2 OF THE BRIDGE, REMOVE TEMPORARY GUARDRAIL ON STAGE 1 AND COMPLETE ASPHALT WEDGING ON STAGE 2 IN A CONTINUOUS MANNER, SO THAT ALLOWABLE DROP-OFFS ARE NOT EXCEEDED. ONCE TEMPORARY GUARDRAIL IS REMOVED AND ASPHALT WEDGING IS COMPLETED, PROCEED DIRECTLY TO STEP 7.

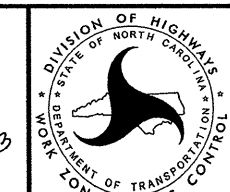
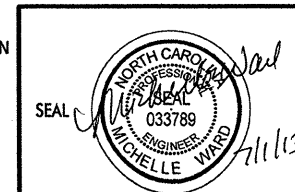
STEP 7:

USING RSD 1101.02, SHEET 1 OF 15 (FLAGGER OPERATION), PERFORM THE FOLLOWING:

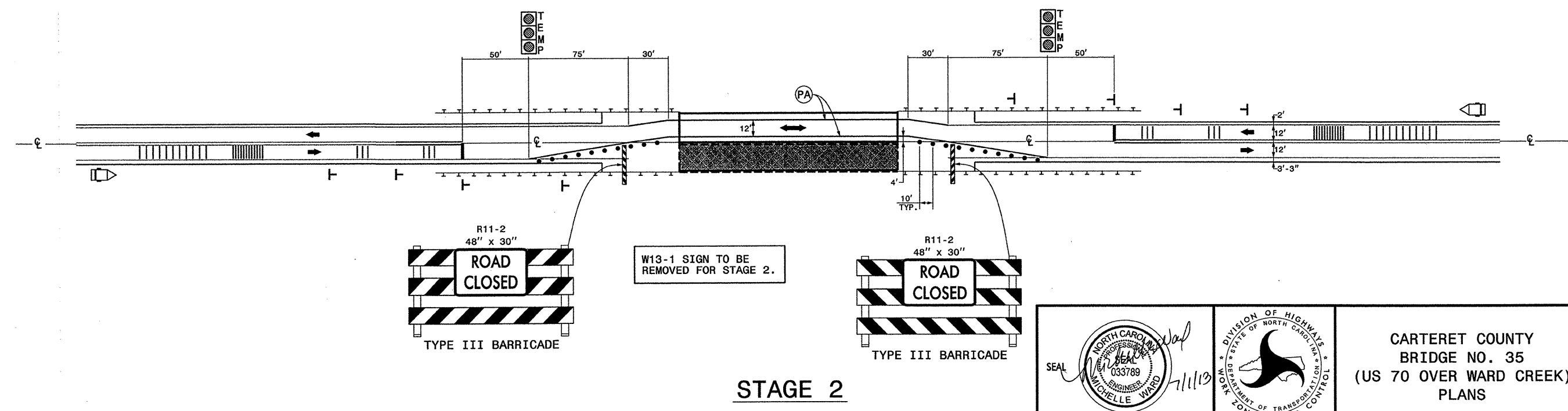
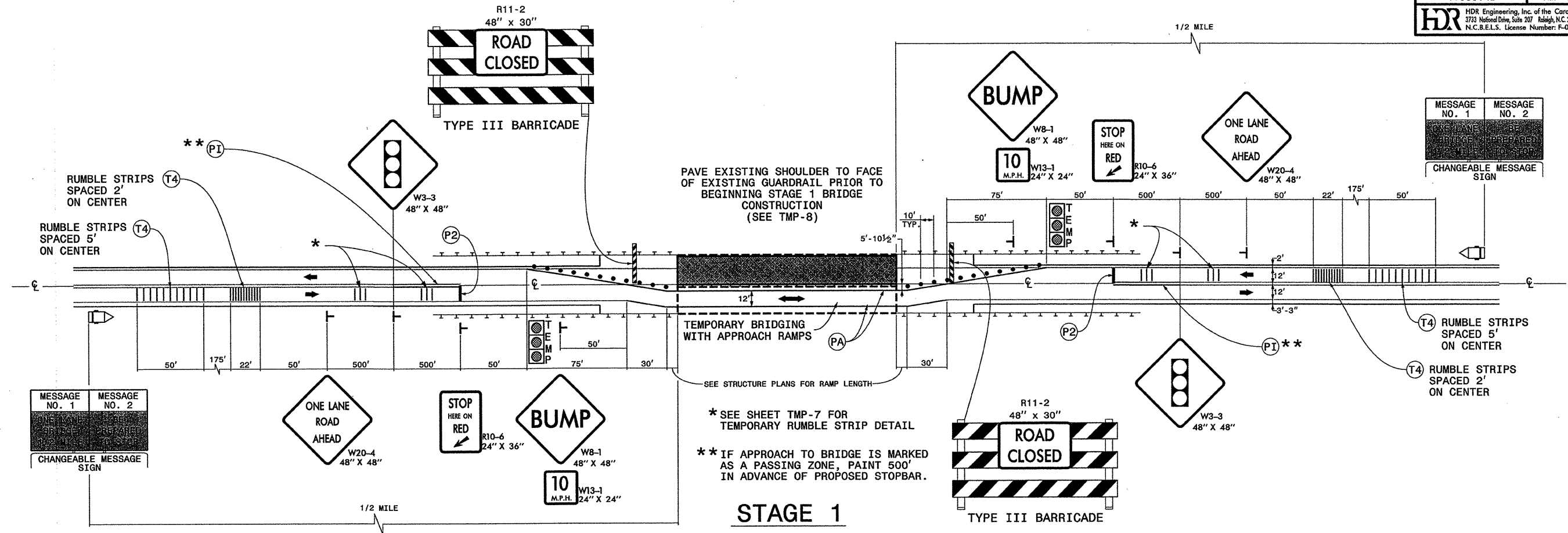
- DE-ACTIVATE PORTABLE SIGNAL,
- PLACE FINAL LAYER OF ASPHALT ON BRIDGE AS SHOWN IN THE STRUCTURE PLANS,
- PLACE FINAL PAVEMENT MARKING AND MARKERS ON US 70 USING RECORDED MARKINGS, OR AS DIRECTED BY THE ENGINEER,
- THEN, OPEN TRAFFIC TO THE EXISTING TWO-LANE/TWO-WAY TRAFFIC PATTERN



STEP 8:

REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES.

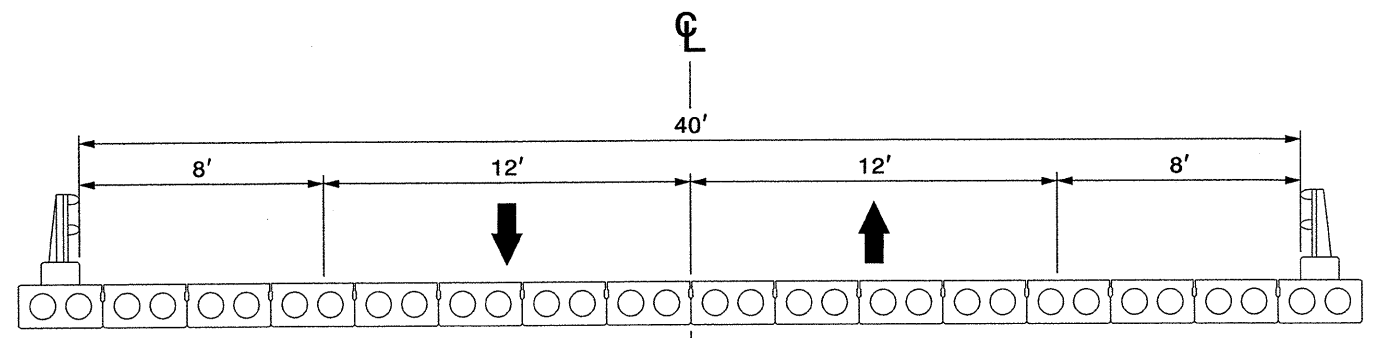


PHASING

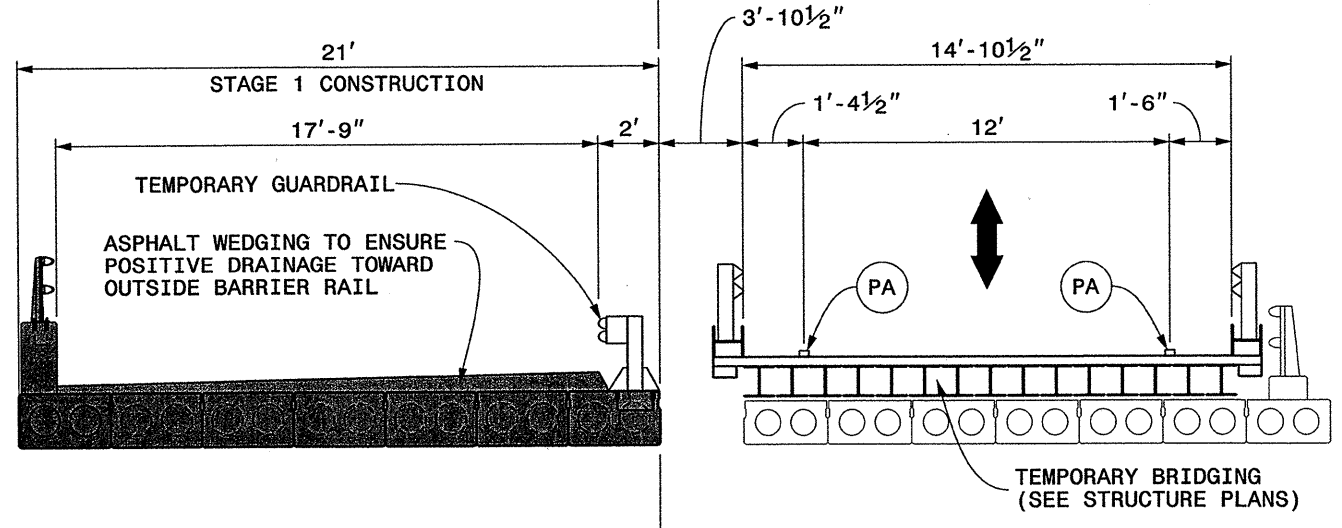


		<p>CARTERET COUNTY BRIDGE NO. 35 (US 70 OVER WARD CREEK) PLANS</p>
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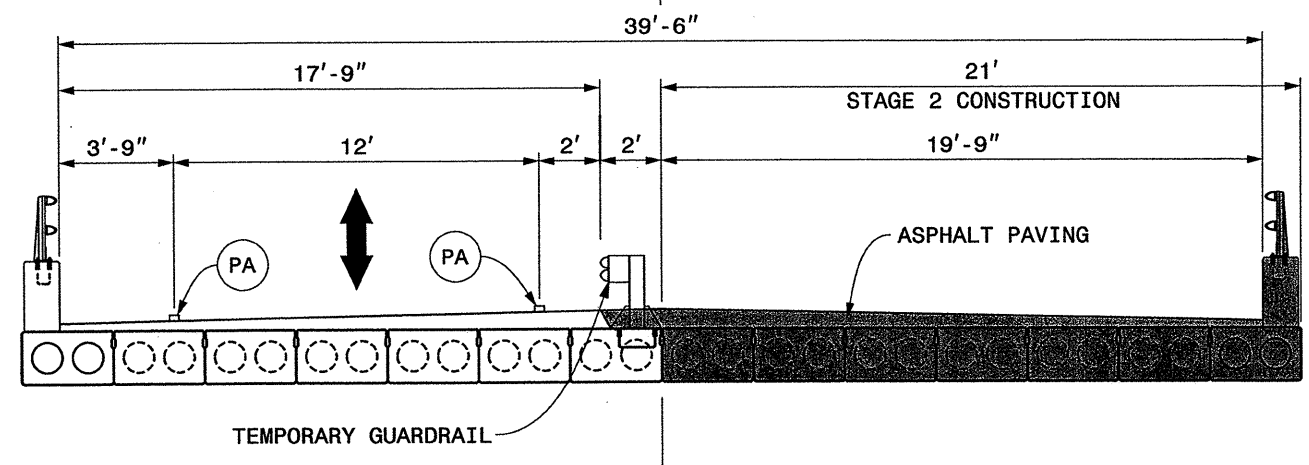
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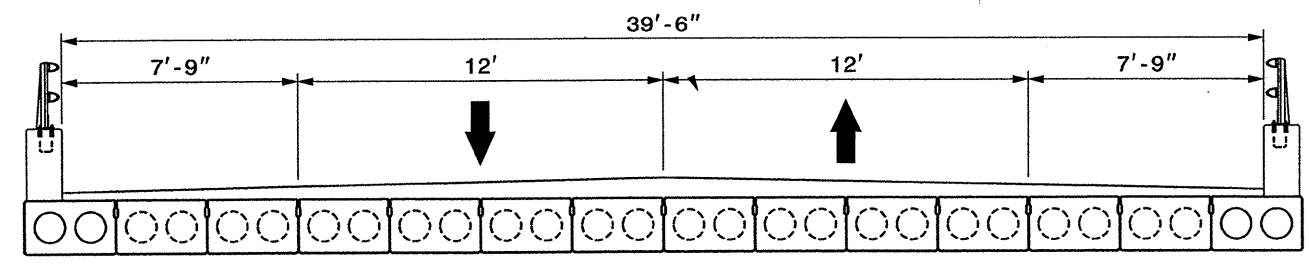
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STAGE 1

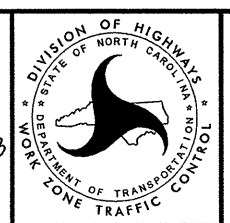
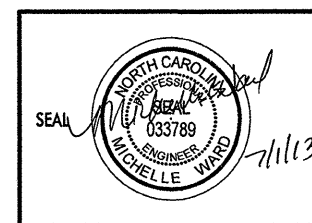


STAGE 2

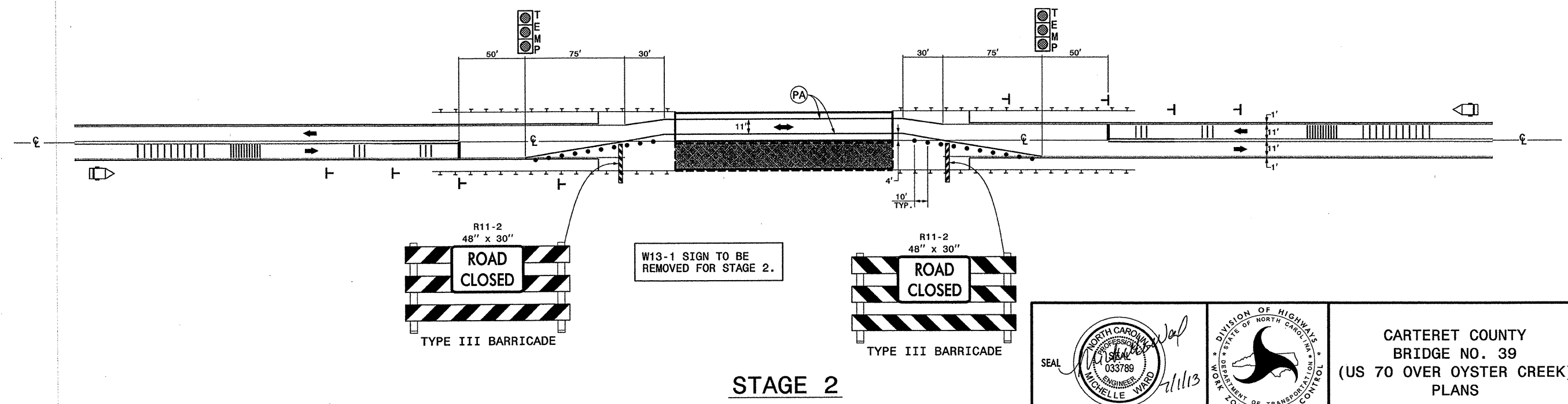
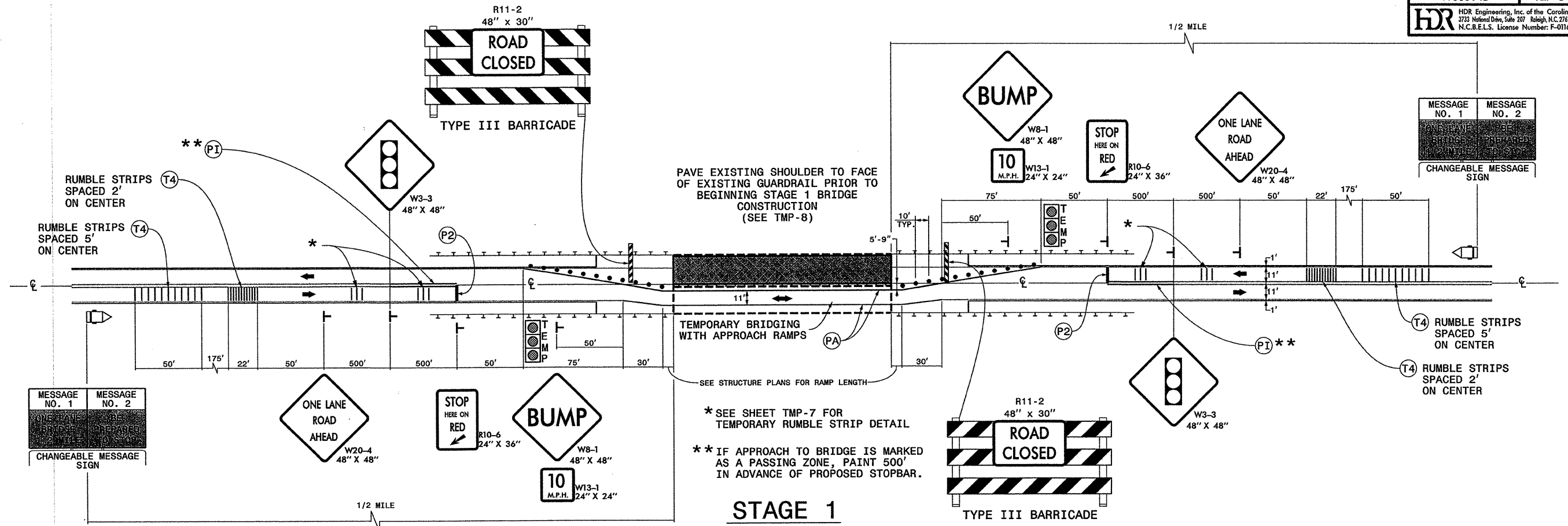


FINAL

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CARTERET COUNTY
 BRIDGE NO. 35
 (US 70 OVER WARD CREEK)
 TYPICALS

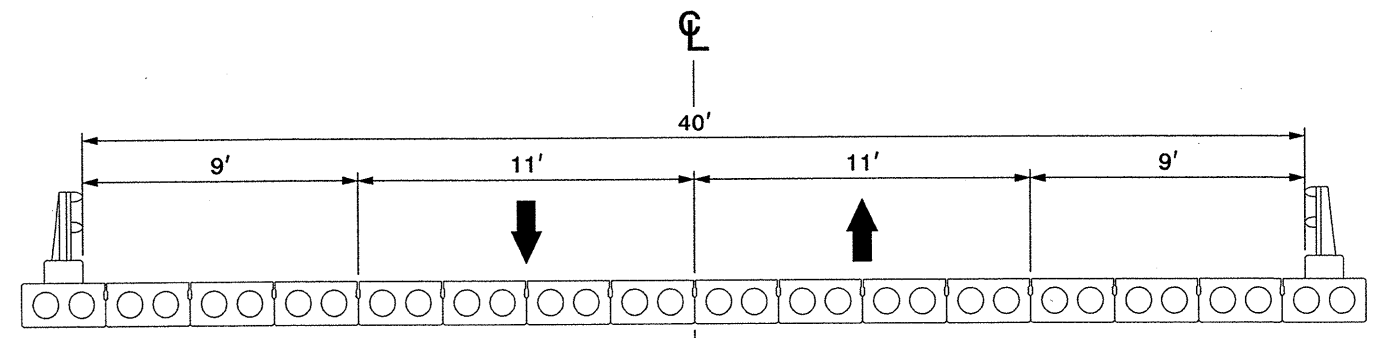


STAGE 1

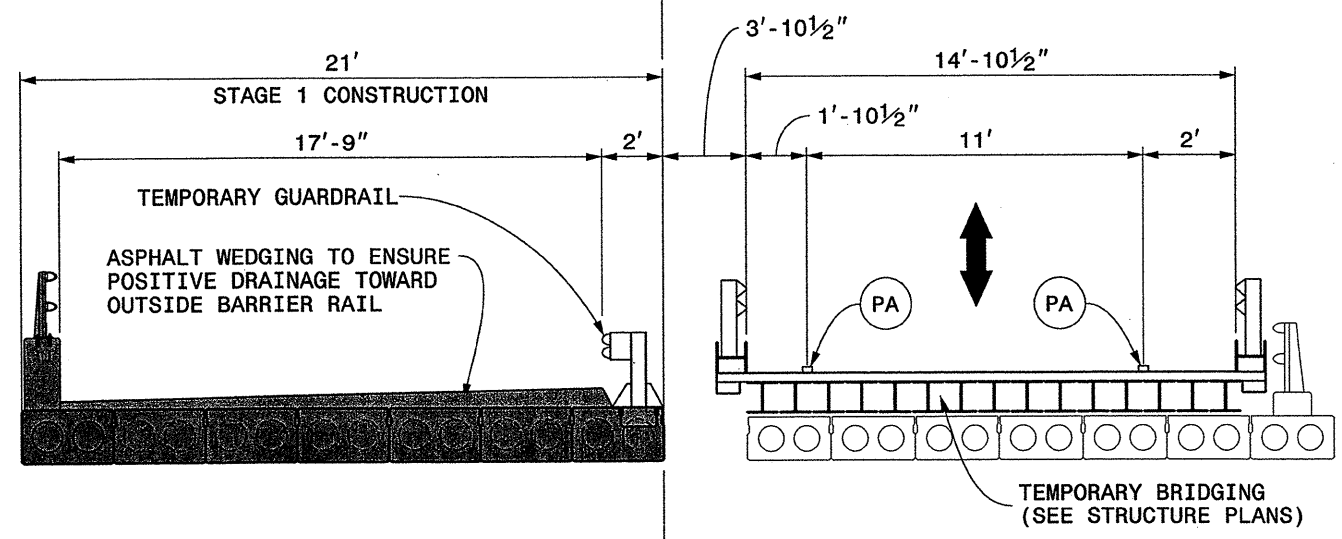
STAGE 2

		<p align="center"> CARTERET COUNTY BRIDGE NO. 39 (US 70 OVER OYSTER CREEK) PLANS </p>
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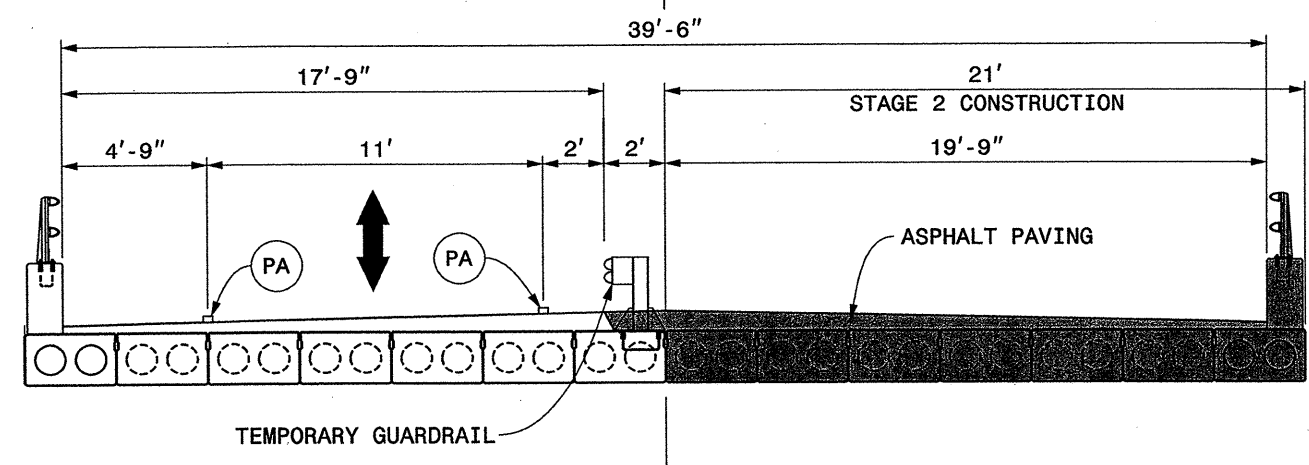
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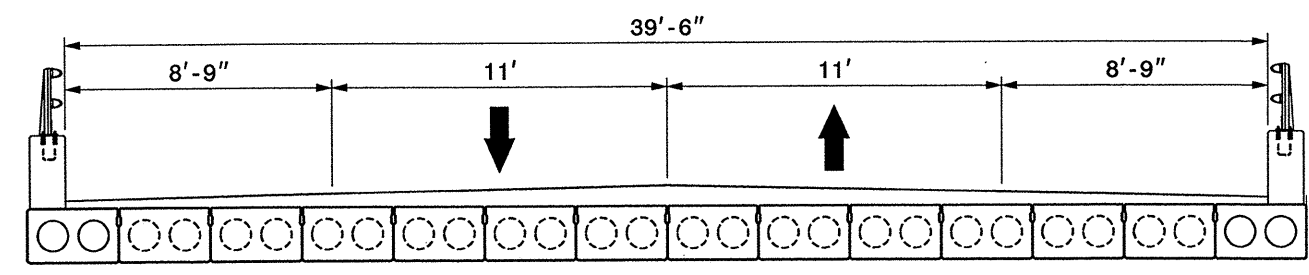
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STAGE 1

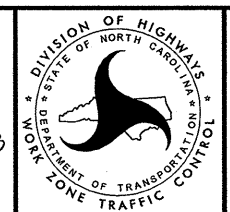
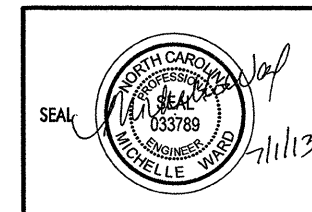


STAGE 2



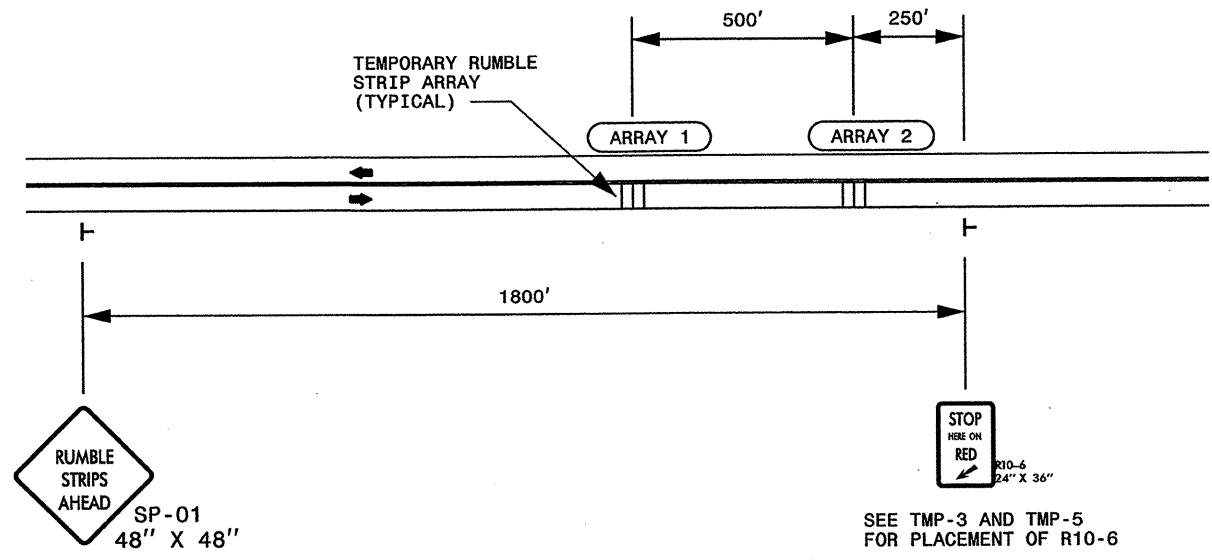
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CARTERET COUNTY
 BRIDGE NO. 39
 (US 70 OVER OYSTER CREEK)
 TYPICALS

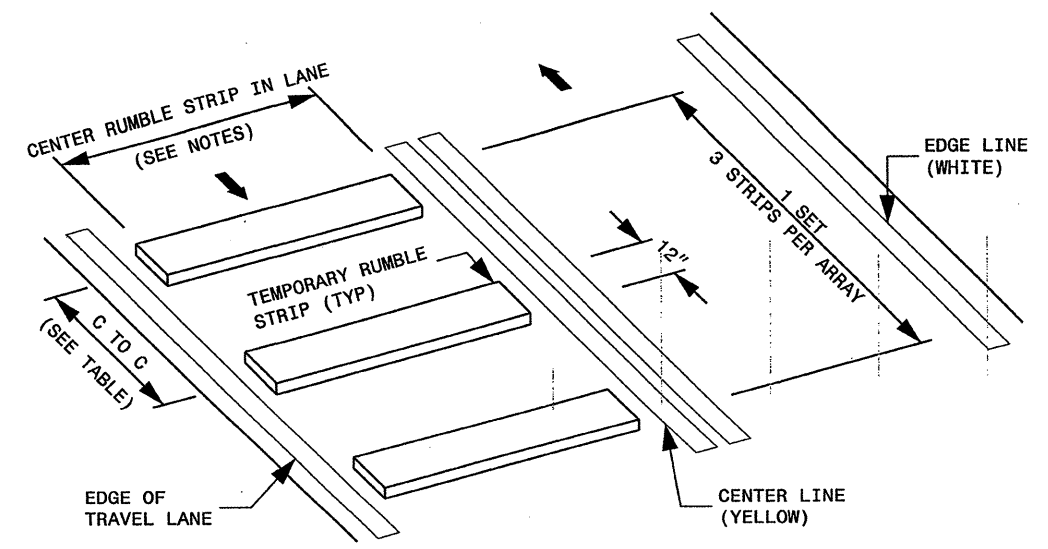
TYPICAL PLACEMENT OF TEMPORARY RUMBLE STRIP ARRAYS



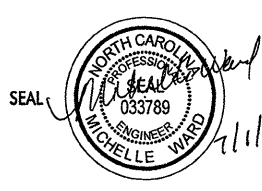
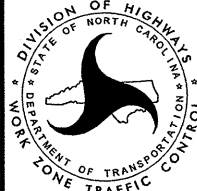
SPEED (MPH)	SPACING (FT.), C TO C	
	ARRAY 1	ARRAY 2
LESS THAN 50	4	4
50 AND GREATER	6 - 8	4

GENERAL NOTES

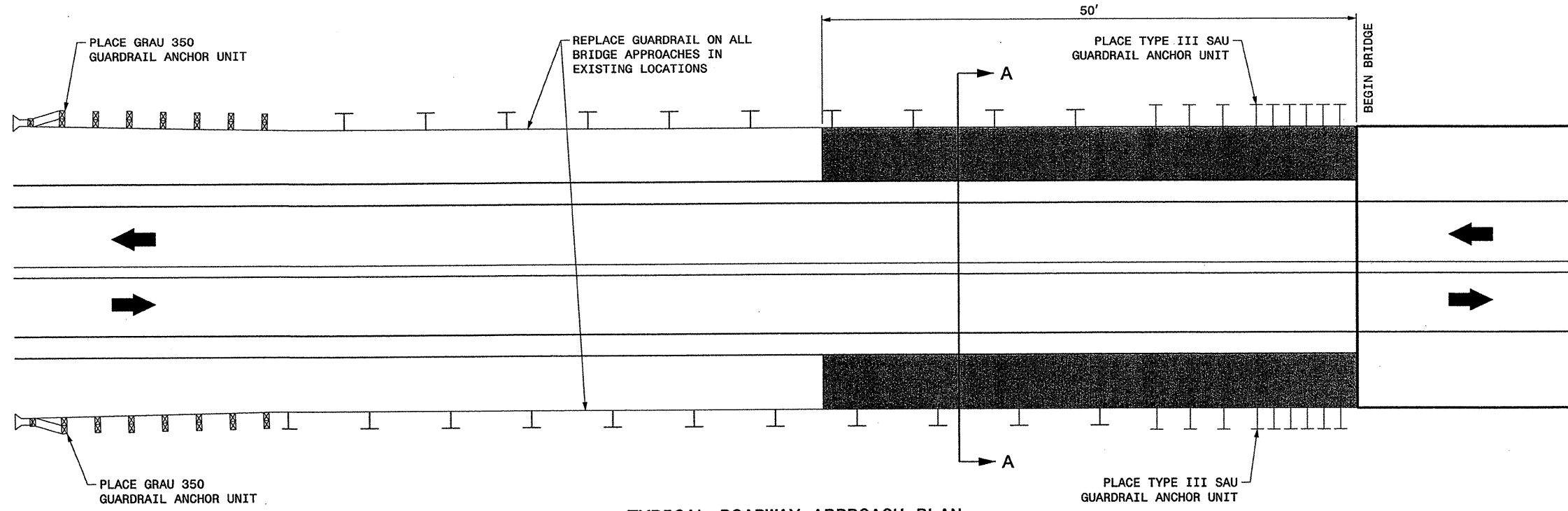
1. TEMPORARY RUMBLE STRIP ARRAYS TO BE PLACED IN ADVANCE OF PORTABLE SIGNAL WHEN CALLED FOR IN THE PLANS.
2. TEMPORARY RUMBLE STRIP ARRAYS ARE USED TO SUPPLEMENT A SERIES OF ADVANCED WARNING SIGNS AND SHALL BE INSTALLED AND REMOVED WHEN THE SIGNS ARE INSTALLED AND REMOVED.
3. REMOVE THE TEMPORARY RUMBLE STRIPS PRIOR TO REMOVING THE ADVANCED WARNING SIGNS.
4. TEMPORARY RUMBLE STRIPS ARE NOT TO BE PLACED IN SHARP HORIZONTAL OR VERTICAL CURVES, OR THROUGH PEDESTRIAN CROSSINGS.
5. DO NOT USE ON SLICK ROADWAY SURFACES DURING INCLEMENT WEATHER.
6. CONTACT THE MANUFACTURER FOR THE LOWEST AIR TEMPERATURE TO APPLY TEMPORARY RUMBLE STRIPS ON ROAD PAVEMENTS.
7. MONITOR TEMPORARY RUMBLE STRIPS FOR MOVEMENT UNDER TRAFFIC AND RE-ADJUST AS NECESSARY.



TEMPORARY RUMBLE STRIP ARRAY

		<p>TEMPORARY RUMBLE STRIPS</p>
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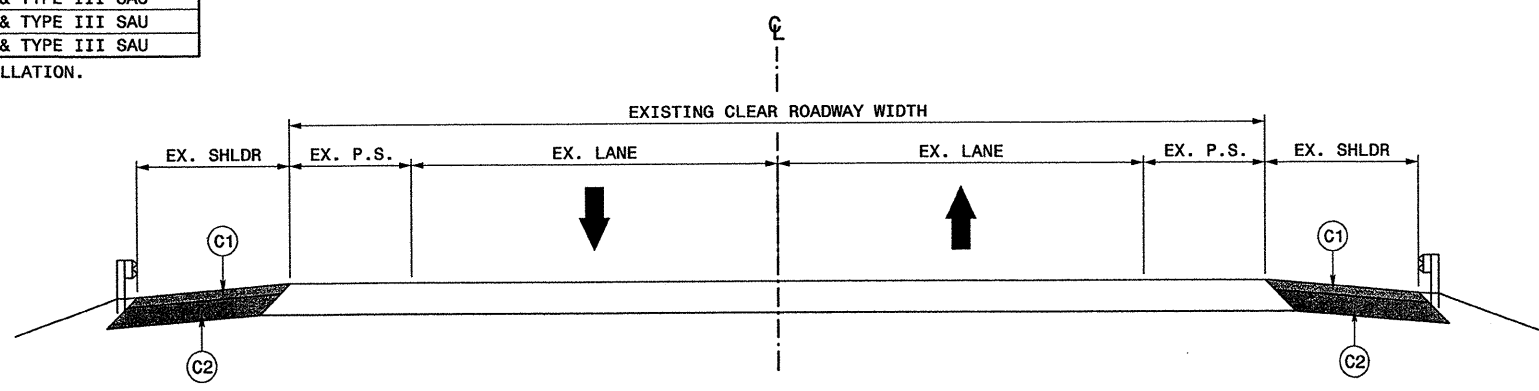
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TYPICAL ROADWAY APPROACH PLAN


BRIDGE #	GUARDRAIL LENGTH (APPROX.)	ANCHOR UNITS
BRIDGE #35		
NE QUAD	150 LF	GRAU 350 & TYPE III SAU
NW QUAD	150 LF	GRAU 350 & TYPE III SAU
SW QUAD	150 LF	GRAU 350 & TYPE III SAU
SE QUAD	150 LF	GRAU 350 & TYPE III SAU
BRIDGE #39		
NE QUAD	227 LF	GRAU 350 & TYPE III SAU
NW QUAD	150 LF	GRAU 350 & TYPE III SAU
SW QUAD	150 LF	GRAU 350 & TYPE III SAU
SE QUAD	150 LF	GRAU 350 & TYPE III SAU

SEE RSD 862.01, 862.02 AND 862.03 FOR GUARDRAIL INSTALLATION.




TYPICAL ROADWAY APPROACH SECTION A-A

C1	PROPOSED PAVING 1.5" ASPHALT SURFACE COURSE, TYPE S9.5B
C2	PROPOSED PAVING 4.0" ASPHALT BASE COURSE, TYPE B25.0B



SEAL



DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

**SHOULDER PAVING
AND
GUARDRAIL REPLACEMENT**

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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