

**PROJECT: BP-5500A**

**CONTRACT NO:**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

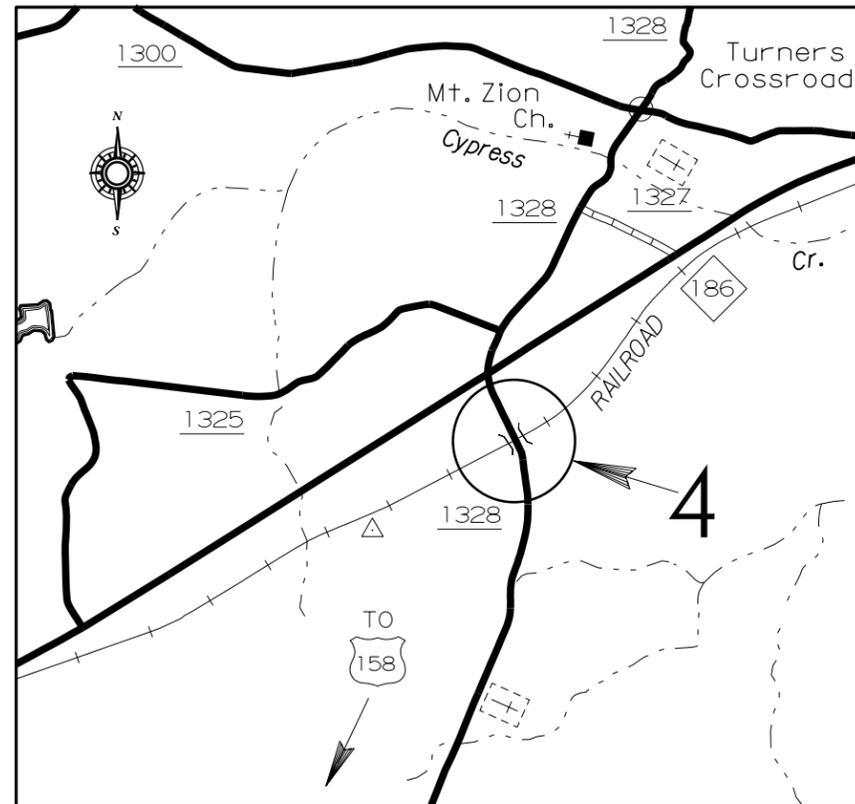
**NORTHAMPTON COUNTY**



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP-5500A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50070.1.1		P.E.	
50070.3.FD1	BRNHP-1328(8)	CONST.	

**LOCATION:** BRIDGE #4 ON SR 1328 OVER CSX RAILROAD

**TYPE OF WORK:** BRIDGE PRESERVATION - DECK REPAIR, HYDRO-DEMOLITION, SCARIFICATION, LATEX MODIFIED CONCRETE, AND JOINT DEMOLITION. SUBSTRUCTURE REPAIR USING SHOTCRETE AND EPOXY RESIN INJECTION. STRUCTURAL STEEL REPAIR, PAINTING STRUCTURAL STEEL, AND BEARING REPLACEMENT, INCIDENTAL MILLING.



**DESIGN DATA**

BRIDGE #4 - ADT - 120

**PROJECT LENGTH**

BRIDGE #4 - .02 MILE

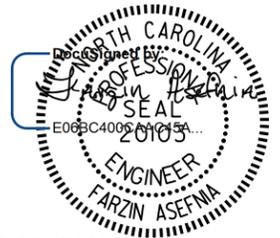
Prepared In the Office of:  
**DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS**

STRUCTURES MANAGEMENT UNIT  
1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610

**J. M. BAILEY, P. E.**  
PROJECT ENGINEER

2012 STANDARD SPECIFICATIONS

**LETTING DATE:**  
SEPTEMBER 16, 2015



7/28/2015

**FARZIN ASEFINA, P.E.**  
PROJECT DESIGN ENGINEER

**PROJECT: BP-5500A**

**CONTRACT NO:**



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**NORTHAMPTON COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP-5500A	1A	
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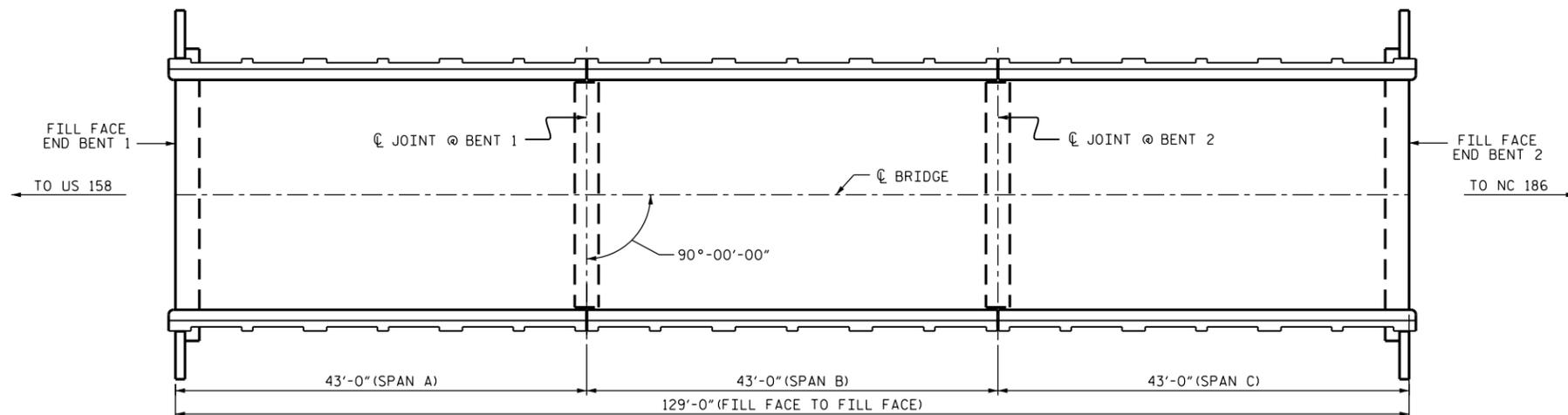
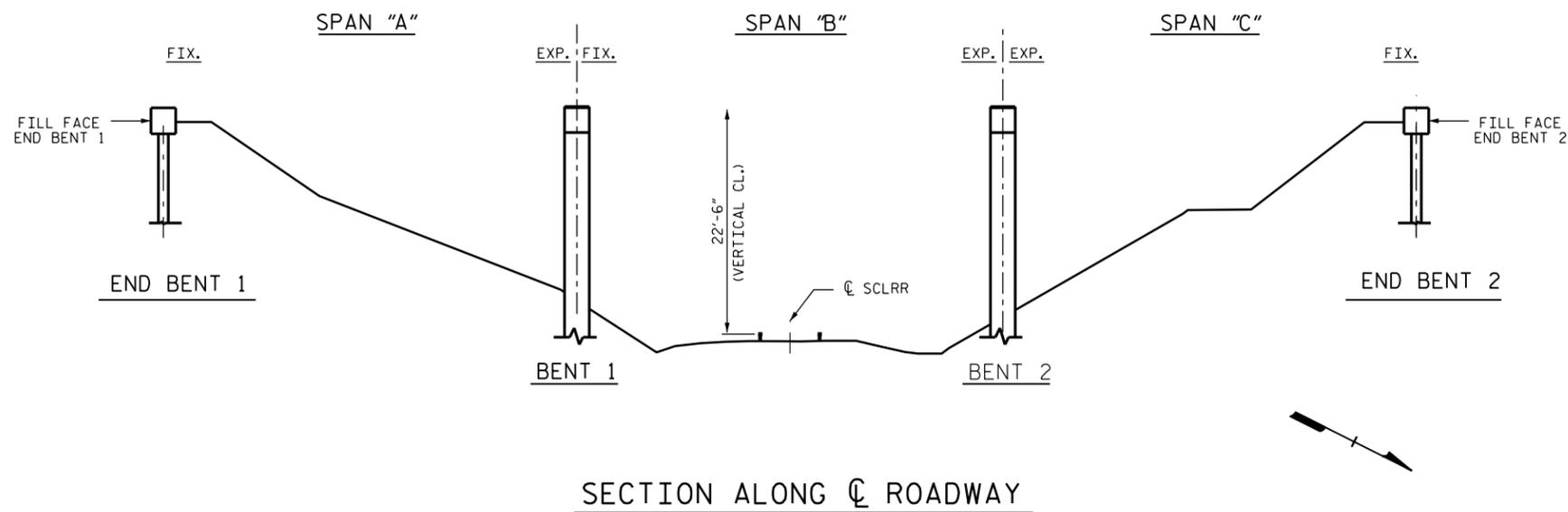
**INDEX OF SHEETS**

SHEET NO.

1  
1A  
S-1 THRU S-15  
SN

DESCRIPTION

TITLE SHEET  
INDEX OF SHEETS  
STRUCTURAL PLANS  
STANDARD NOTES

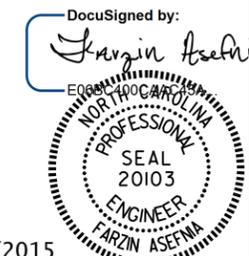


PLAN

PROJECT NO. BP-5500A  
NORTHAMPTON COUNTY  
 BRIDGE NO. 4

SHEET 1 OF 2

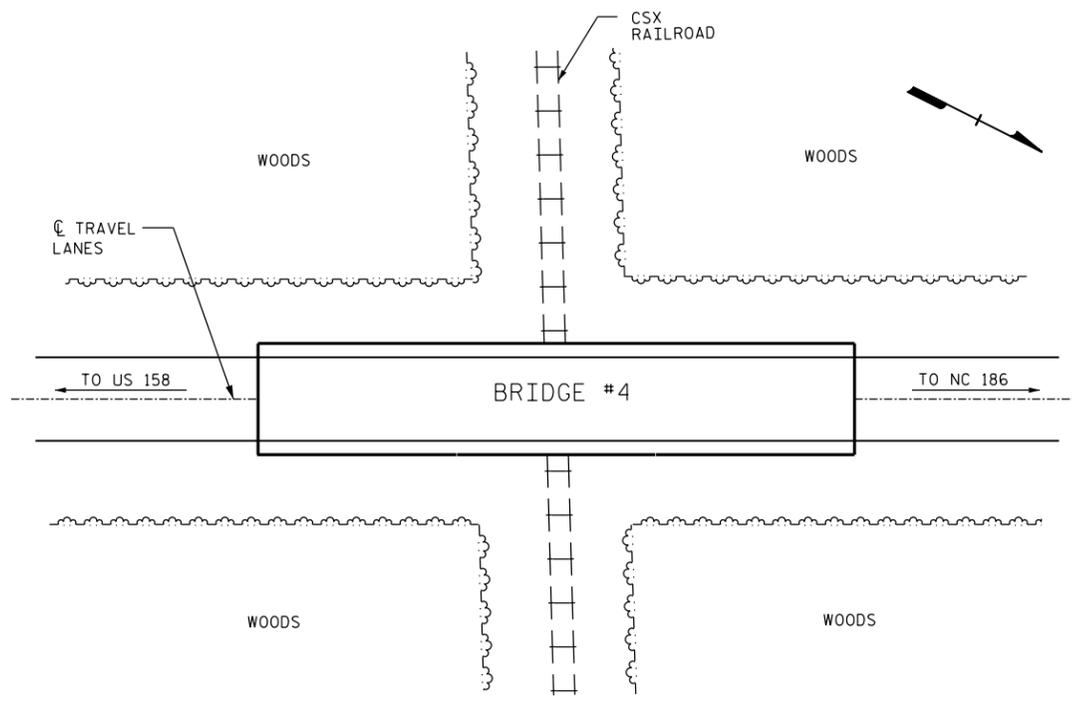
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 BRIDGE OVER CSX RAILROAD  
 ON SR 1328 BETWEEN  
 US 158 AND NC 186



7/28/2015

DRAWN BY : M. WELDON DATE : 3/15  
 CHECKED BY : F. ASEFINA DATE : 3/15

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



LOCATION SKETCH

NOTES

- EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.
- EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.
- ROADWAY MILLING IS INCLUDED TO ENSURE A SMOOTH TRANSITION ONTO THE BRIDGE FLOOR. DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL MILL AS REQUIRED TO PROVIDE A SMOOTH TRANSITION TO THE ROADWAY AT BOTH ENDS OF BRIDGE.
- THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK.
- FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, AND CLASS II SURFACE PREPARATION SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS. SEE MANAGING HYDRO-DEMOLITION WATER SPECIAL PROVISION.
- FOR OVERLAY OF BRIDGE WITH LATEX MODIFIED CONCRETE, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
- INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION. ONLY, CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING THE BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.
- LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.
- AS PER THE RAILROAD GENERAL SPECIAL PROVISIONS, THE CONTRACTOR SHALL SUBMIT HIS PLAN FOR THE PROPOSED WORK TO CSXT AND WRITTEN APPROVAL FOR THE PROPOSED MEANS AND METHODS OF THE WORK MUST BE OBTAINED FROM CSXT. ANY TEMPORARY REDUCTION IN LATERAL CLEARANCE MUST HAVE EXPLICIT APPROVAL FROM CSXT OR ITS AGENT.
- ON SPANS A AND C, ALL STRUCTURAL STEEL SHALL BE PREPARED AND PAINTED AS PER THE SPECIAL PROVISIONS. FOR SPAN B, SURFACE PREPARATION AND PAINTING SHALL BE AS PER THE SPECIAL PROVISIONS, EXCEPT BLASTING AND OTHER REQUIRED SURFACE PREPARATION SHALL EXTEND 4'-4" FROM EACH END OF EACH BEAM. PAINTING IN SPAN B SHALL EXTEND 4'-8" FROM EACH END OF EACH BEAM. CONTAINMENT SHALL ENCOMPASS THESE AREAS, BUT SHALL BE LIMITED, AS PER CSXT REQUIREMENTS AND ALLOWANCES.
- THE CONTRACTOR SHALL MAINTAIN ALL MINIMAL VERTICAL AND HORIZONTAL CLEARANCES AND MEET ALL OTHER REQUIREMENTS OF THE PROJECT SPECIAL PROVISION, "RAILROAD GENERAL SPECIAL PROVISIONS-CSX TRANSPORTATION, INC." UNLESS OTHERWISE ALLOWED BY CSXT.

TOTAL BILL OF MATERIAL

INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE SF9.5A	ASPHALT BINDER FOR PLANT MIX	GROOVING BRIDGE FLOORS	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	CLASS III SURFACE PREPARATION	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING OF LATEX MODIFIED CONCRETE OVERLAY	SHOTCRETE REPAIR	EPOXY RESIN INJECTION	FOAM JOINT SEALS	CLEANING AND REPAINTING OF BRIDGE #4	PAINT CONTAINMENT FOR BRIDGE #4	VOLUMETRIC MIXER	STRUCTURAL STEEL FOR BEAM REPAIR	CONCRETE FOR DECK REPAIR	BRIDGE JOINT DEMOLITION	EPOXY COATING	SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK	BEARING REPLACEMENT	BRIDGE JACKING
SO.YDS.	TONS	TONS	SO. FT.	LUMP SUM	SO.YDS.	SO. FT.	C.Y.	SO.YDS.	CU. FT.	LN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM *	LBS.	CU. FT.	SO. FT.	SO. FT.	SO.YDS.	SO.YDS.	EACH	EACH
200	16.5	1.1	2644	LUMP SUM	9.7	1.5 *	18.9	340	10.75	32	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM *	3287	1.0 *	44	98	340	340	16	4

\* CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

PROJECT NO. BP-5500A  
NORTHAMPTON COUNTY  
 BRIDGE NO. 4

SHEET 2 OF 2

DocuSigned by:  
*Farzin Asefina*  
 E06B...  
 NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20103  
 FARZIN ASEFINA

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 BRIDGE OVER CSX RAILROAD  
 ON SR 1328 BETWEEN  
 US 158 AND NC 186

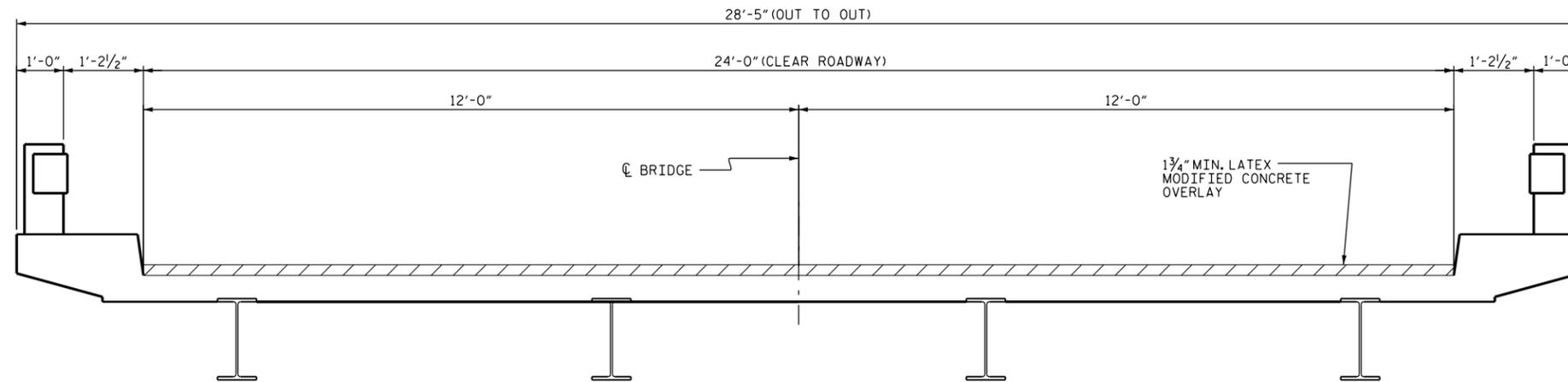
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DRAWN BY : M. WELDON DATE : 3/15  
 CHECKED BY : W. SMITH DATE : 3/15

8/18/2015

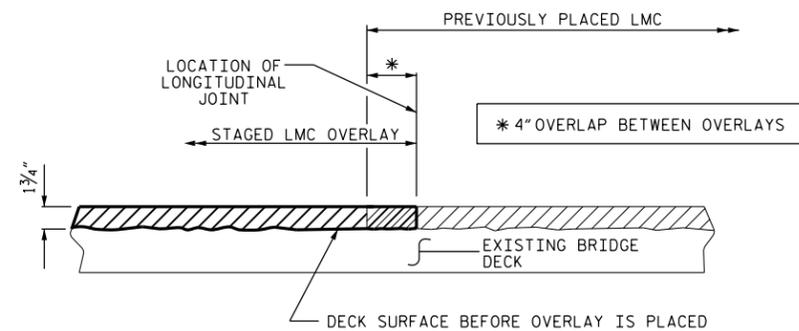
**NOTE:**

WHEN PREPARING THE SURFACE FOR LMC OVERLAY ADJACENT TO A PREVIOUSLY PLACED LMC STAGE, THE PREVIOUSLY PLACED LMC SHALL BE REMOVED FOR A DISTANCE OF 4-INCHES FROM THE LMC EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF NEW LMC STAGE PLACEMENT.



**TYPICAL SECTION**

( PROPOSED LOOKING NORTH )



**SECTION THRU DECK**

**STAGED LMC OVERLAY JOINT**

(AS NEEDED)

PROJECT NO. BP-5500A  
NORTHAMPTON COUNTY  
 BRIDGE NO. 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE**

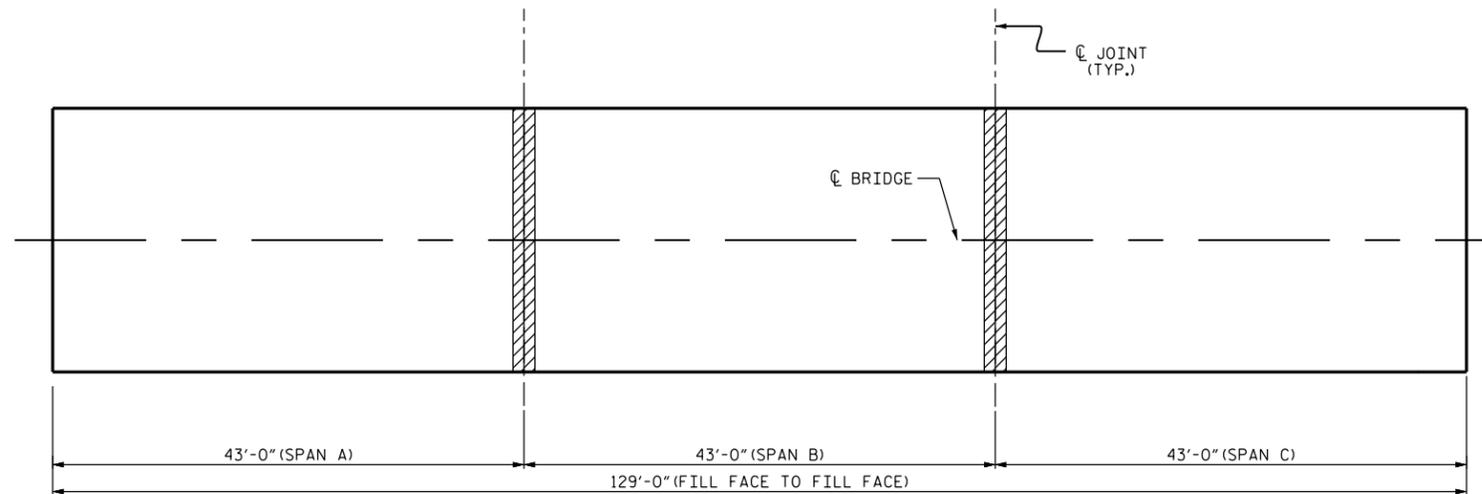
TYPICAL SECTION  
 & LATEX MODIFIED  
 CONCRETE DETAILS

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

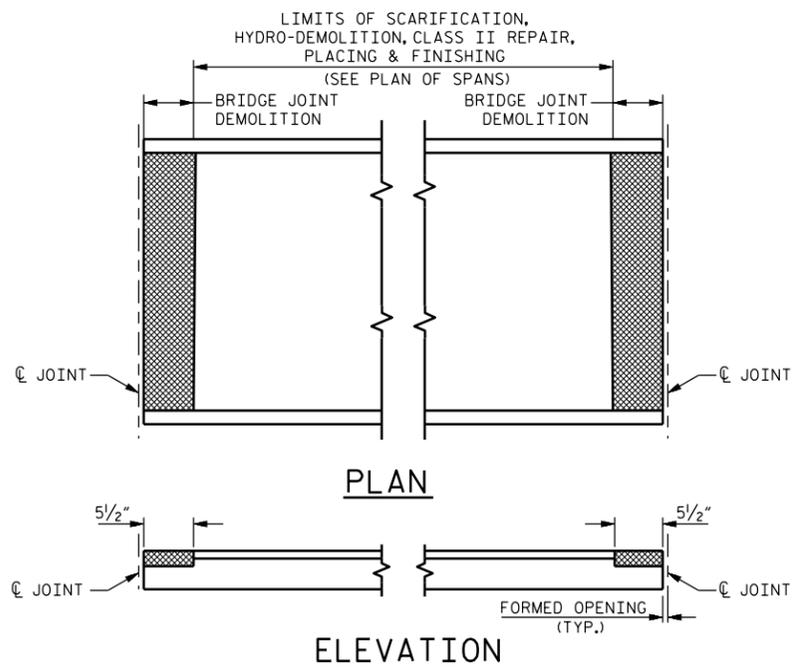
DocuSigned by:  
*Farzin Asefma*  
 NORTH CAROLINA  
 PROFESSIONAL  
 SEAL  
 20103  
 ENGINEER  
 FARZIN ASEFMA

7/28/2015

DRAWN BY : D.J.RENCKENS DATE : 05/2014  
 CHECKED BY : W. M. CLARKE DATE : 05/2014

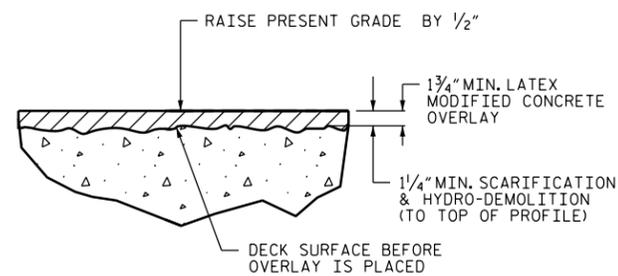


PLAN



PLAN

ELEVATION



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

- DECK SCARIFICATION, HYDRO-DEMOLITION, AND LATEX MODIFIED CONCRETE OVERLAY
- BRIDGE JOINT DEMOLITION

PROJECT NO. BP-5500A  
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE SURFACE PREPARATION					
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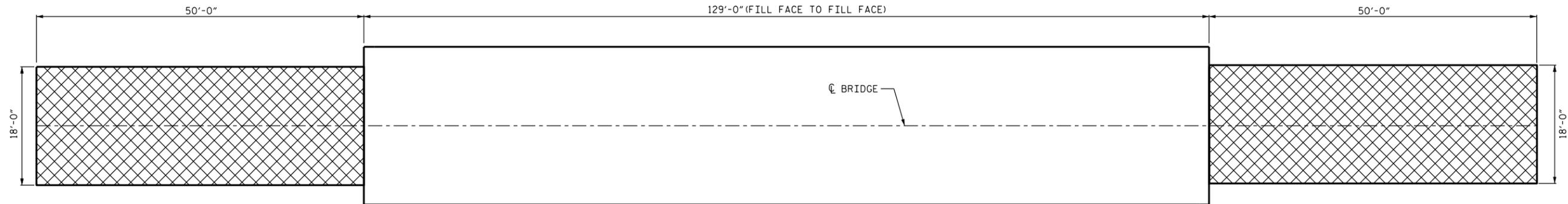
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*Farzin Asefma*  
 ENGINEER  
 NORTH CAROLINA  
 PROFESSIONAL SEAL  
 20103  
 FARZIN ASEFMA

7/28/2015

DRAWN BY : M. WELDON DATE : 3/15  
 CHECKED BY : W. SMITH DATE : 3/15

**NOTES:**

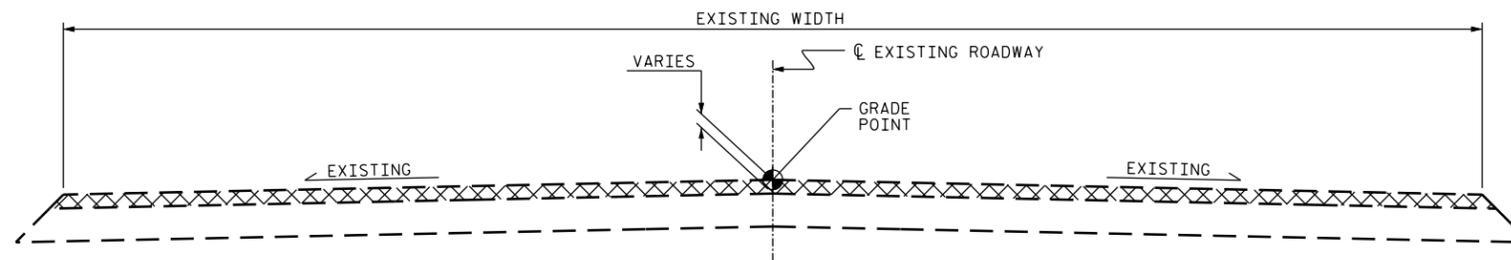
EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1/2" DEPTH OF NEW ASPHALT PAVING. PROVIDE NEW ASPHALT PAVING THICKNESS TO CREATE A SMOOTH TRANSITION TO THE ROADWAY AS SHOWN. NEW ASPHALT PAVING THICKNESS MAY EXCEED 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH ASPHALT PAVING.



PLAN

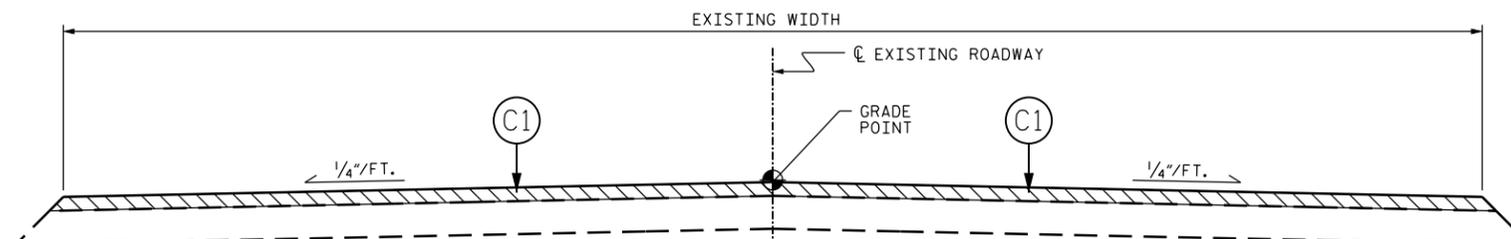
INCIDENTAL MILLING

**C1** PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF 9.5B AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" IN DEPTH OR GREATER THAN 1 1/2" IN DEPTH.



TYPICAL ROADWAY MILLING SECTION

SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
INCIDENTAL MILLING	200 SQ. YDS.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	16.5 TONS	



TYPICAL ROADWAY SECTION

PROJECT NO. BP-5500A  
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE**  
**APPROACH MILLING**

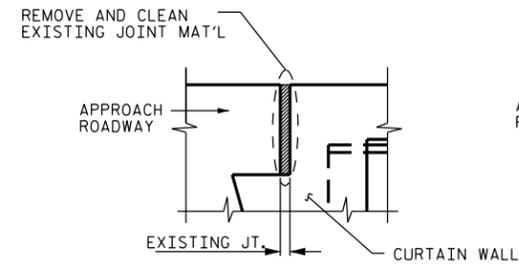
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*Farzin Asefma*

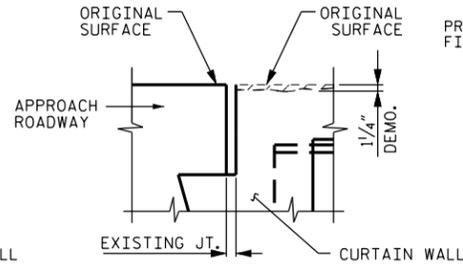


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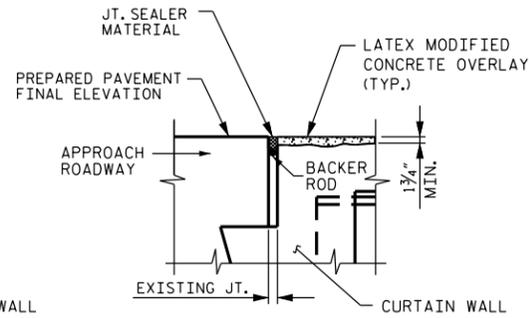
DRAWN BY : W. SMITH DATE : 3/15  
 CHECKED BY : M. WELDON DATE : 3/15



EXISTING JOINT



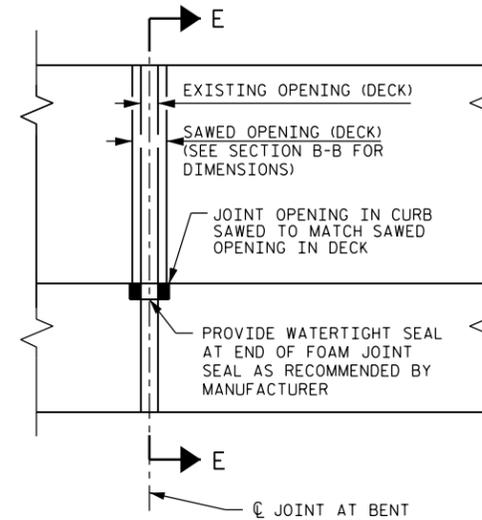
MINIMUM EXISTING JOINT DEMOLITION



PROPOSED JOINT

JOINT INSTALLATION SEQUENCE AT END BENTS

SECTION A-A



PLAN

NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.

IF THE EMBEDDED PORTION OF THE EXISTING PLASTIC WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE OR IF UNSOUND CONCRETE IS REMOVED TO WITHIN 2" OF THE WATERSTOP, THE ENTIRE WATERSTOP SHALL BE REMOVED.

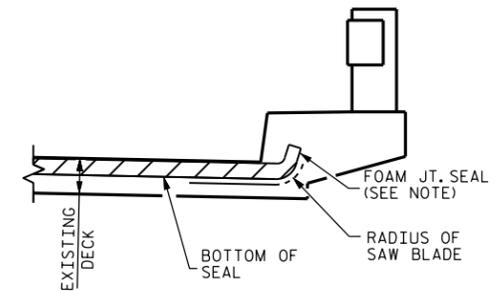
HYDRO-DEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT AND LEVEL, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OF ELASTOMERIC CONCRETE.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

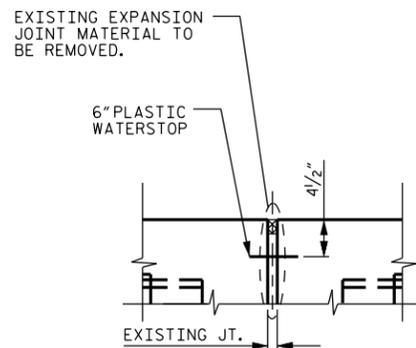
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

RETAIN ALL EXISTING REINFORCING STEEL CLEAN AND REPAIR AS NEEDED.

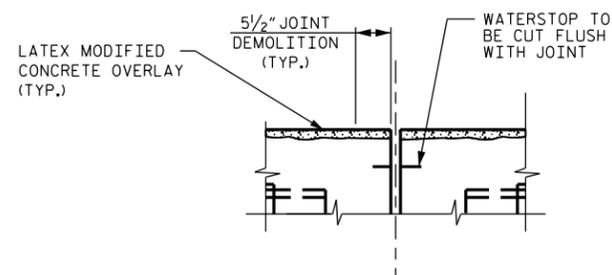
THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2".



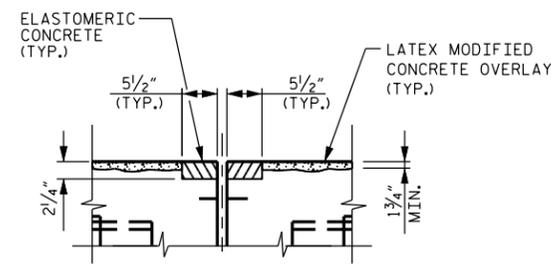
SECTION E-E



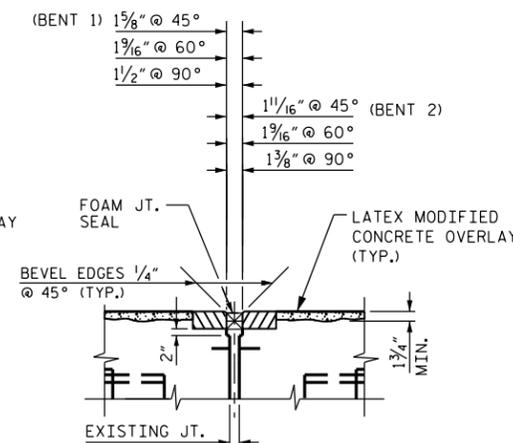
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION



PROPOSED JOINT PRE-SAWED DIMENSIONS



PROPOSED FOAM JOINT SEAL EXPANSION

JOINT INSTALLATION SEQUENCE AT BENTS

SECTION B-B

ELASTOMERIC CONCRETE	
	ELASTOMERIC CONCRETE (CU. FT.) *
BENTS	8.3
TOTAL	8.3

\* BASED ON THE MINIMUM BLOCKOUT SHOWN

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NORTHAMPTON COUNTY  
 BRIDGE NO.: 4

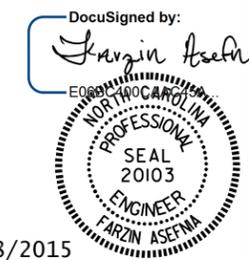
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUPERSTRUCTURE  
 JOINT DETAILS

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS 15
2			4			

DRAWN BY : M. WELDON DATE : 4/2014  
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7/28/2015

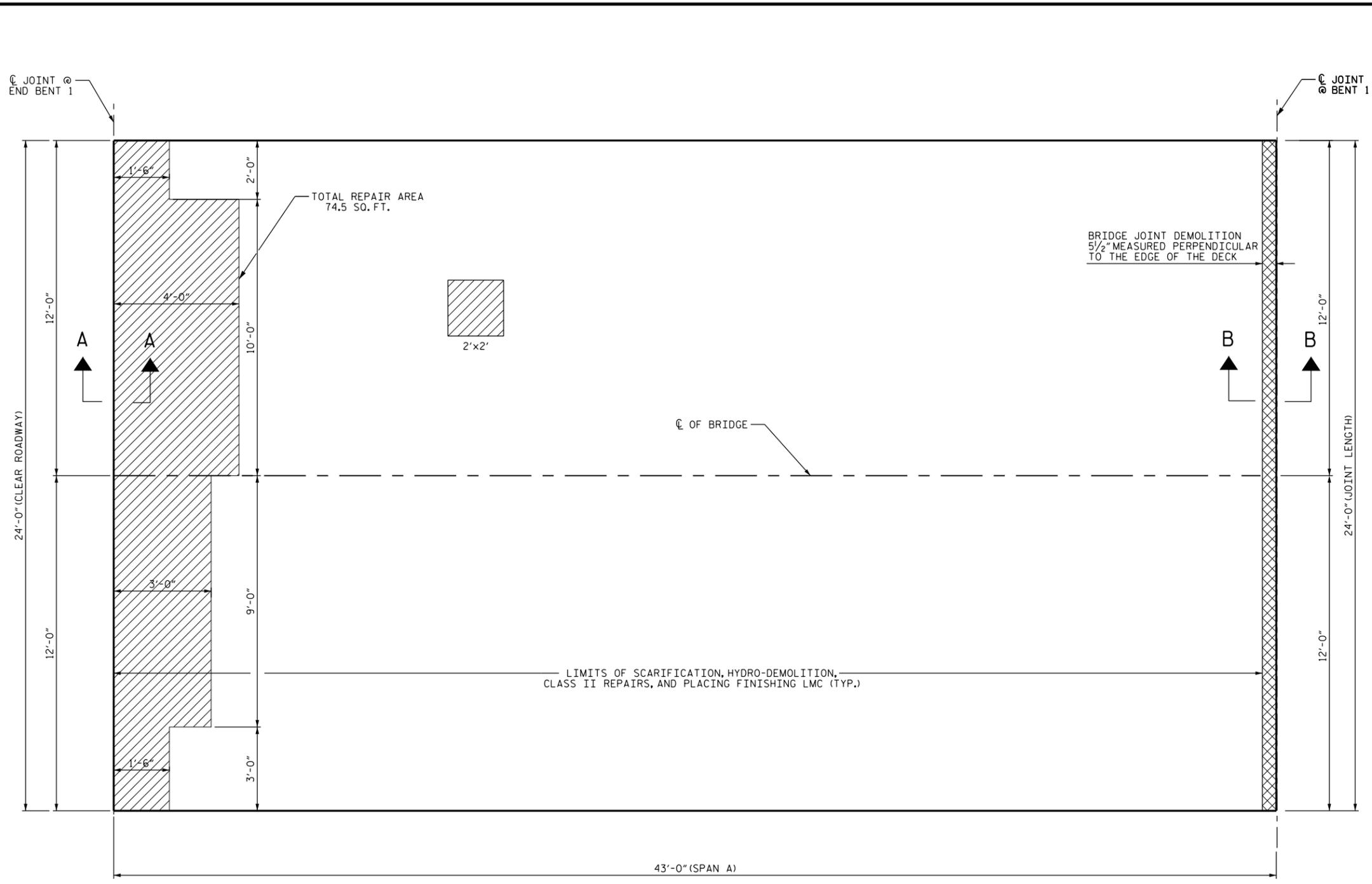


SPAN A QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	8.7 SQ. YDS.	
CLASS III SURFACE PREPARATION	0.5 SQ. YDS.	
BRIDGE JOINT DEMOLITION	11.0 SQ. FT.	
SCARIFYING BRIDGE DECK	113.5 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	113.5 SQ. YDS.	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISIONS.

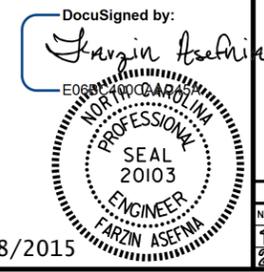
CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN AMOUNT IS INDICATED FOR PRICING PURPOSES. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

-  - BRIDGE JOINT DEMOLITION
-  - CLASS II SURFACE PREPARATION
-  - SCARIFYING BRIDGE DECK



**PLAN OF SPAN A**  
(FOR SECTIONS A-A & B-B, SEE "JOINT DETAILS" SHEET)

PROJECT NO. BP-5500A  
NORTHAMPTON COUNTY  
 BRIDGE NO. 4



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SURFACE PREPARATION  
 SPAN A**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			15

DRAWN BY : D.J.RENCKENS DATE : 06/2014  
 CHECKED BY : W.M.CLARKE DATE : 06/2014





**BEARING REPAIR SEQUENCE**

ALL EXISTING BEARINGS AT INTERIOR BENTS SHALL BE REMOVED AND REPLACED WITH BEARINGS AS SHOWN.

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

SOLE PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

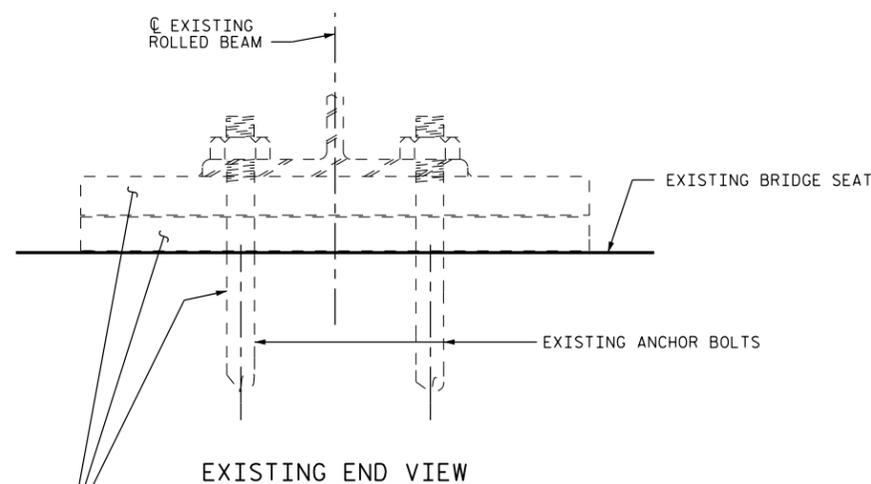
ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS WILL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

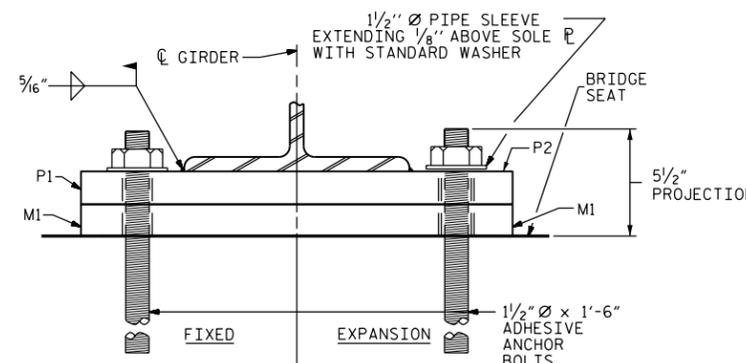
THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1/2" Ø ANCHOR BOLTS. BOLTS SHALL BE ADHESIVELY ANCHORED. LEVEL 1 FIELD TESTING IS REQUIRED. THE YIELD LOAD OF THE 1/2" Ø ANCHOR BOLTS SHALL BE 20.0 KIPS. FOR ADHESIVE ANCHOR BOLTS SEE THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL BE ALL-THREAD OR SWEDGED OR DEFORMED BELOW REQUIRED THREAD LENGTH.



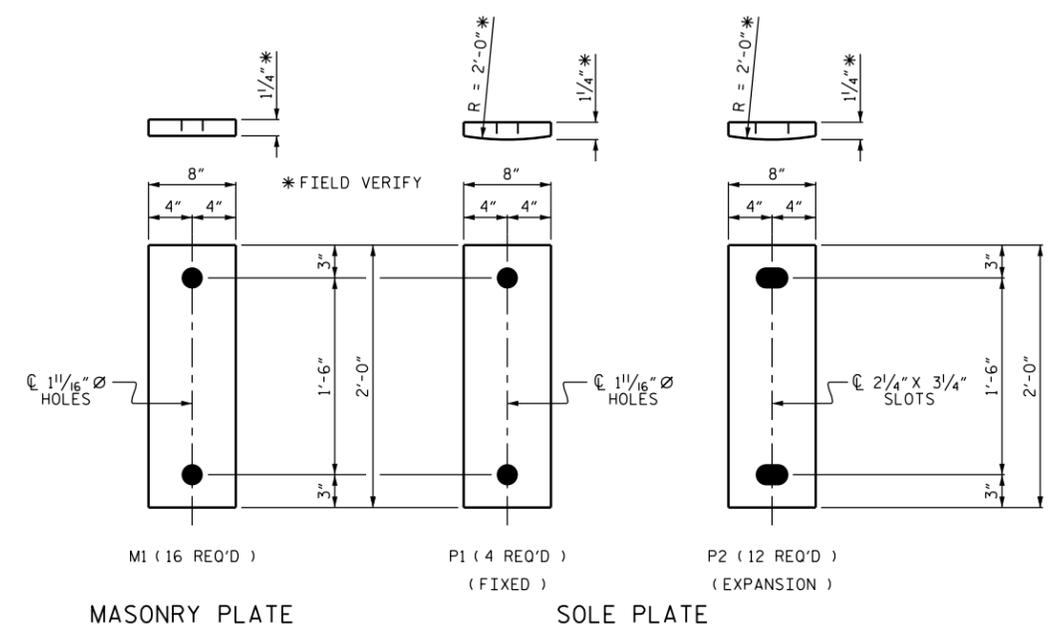
**EXISTING END VIEW**

EXISTING SOLE PLATE AND MASONRY PLATE TO BE REMOVED. EXISTING ANCHOR BOLTS TO BE CUT OFF FLUSH WITH THE TOP OF EXISTING BENT CAP. COAT EXPOSED END OF ANCHOR BOLT WITH EPOXY PAINT. (TYP.)



**PROPOSED END VIEW**  
( 32 ANCHOR BOLTS REQUIRED )

CONTRACTOR TO VERIFY EXISTING CONDITIONS. NOTIFY ENGINEER IF CONDITIONS VARY SIGNIFICANTLY FROM THOSE SHOWN ON PLANS AND MAY AFFECT THE IMPLEMENTATION OF REPAIRS.



BILL OF MATERIAL	
REPLACE BEARINGS	
EACH	
	16

PROJECT NO. BP-5500A  
NORTHAMPTON COUNTY  
 BRIDGE NO. 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

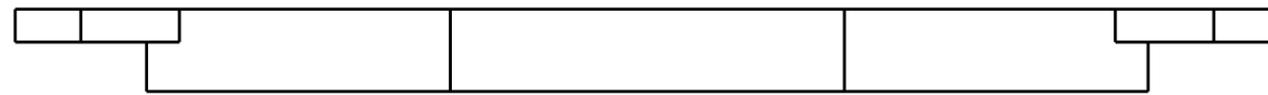
**BEARING REPAIR DETAILS**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			15

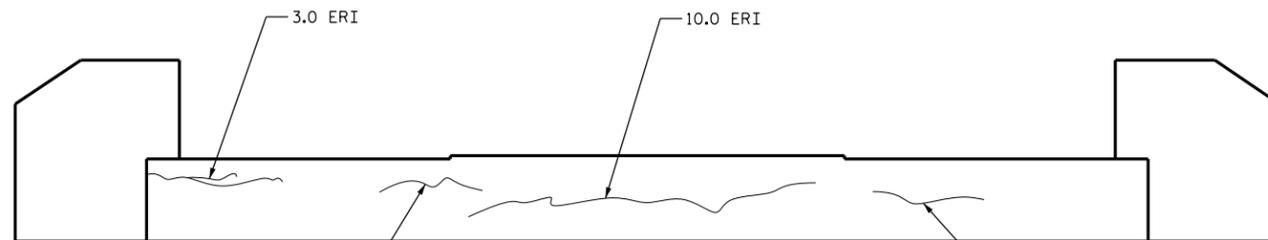
DocuSigned by:  
*Farzin Asefina*  
 ENGINEER  
 NORTH CAROLINA  
 PROFESSIONAL SEAL  
 2013  
 FARZIN ASEFINA

7/28/2015

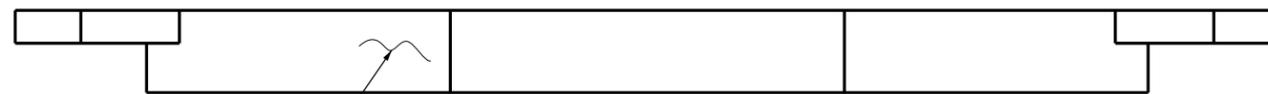
DRAWN BY : D.J.RENCKENS DATE : 06/2014  
 CHECKED BY : W.M.CLARKE DATE : 06/2014



PLAN  
END BENT 1



ELEVATION  
END BENT 1



PLAN  
END BENT 2



ELEVATION  
END BENT 2

-  -CONCRETE REPAIRS
-  -SHOTCRETE REPAIRS
- ERI -EPOXY RESIN INJECTION

PROJECT NO. BP-5500A  
NORTHAMPTON COUNTY  
 BRIDGE NO. 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

SUBSTRUCTURE  
 END BENT 1 & 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			15

DocuSigned by:  
*Fargin Asefma*  
 ENGINEER  
 NORTH CAROLINA  
 PROFESSIONAL  
 SEAL  
 20103  
 FARGIN ASEFMA

7/28/2015

DRAWN BY : D.J.RENCKENS DATE : 05/2014  
 CHECKED BY : W.M.CLARKE DATE : 05/2014

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.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR REPAIR DETAILS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		17.5		
EPOXY COATING	AREA SF			
CAP	74			
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		1.5		

REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	1.0	0.25		
CAP (HORIZONTAL FACE)	3.0	0.75		
COLUMN (HORIZONTAL FACE)	19.0	4.75		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		7.0		
COLUMN		2.0		
EPOXY COATING	AREA SF			
CAP	49			

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.

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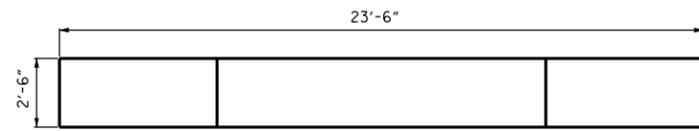
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

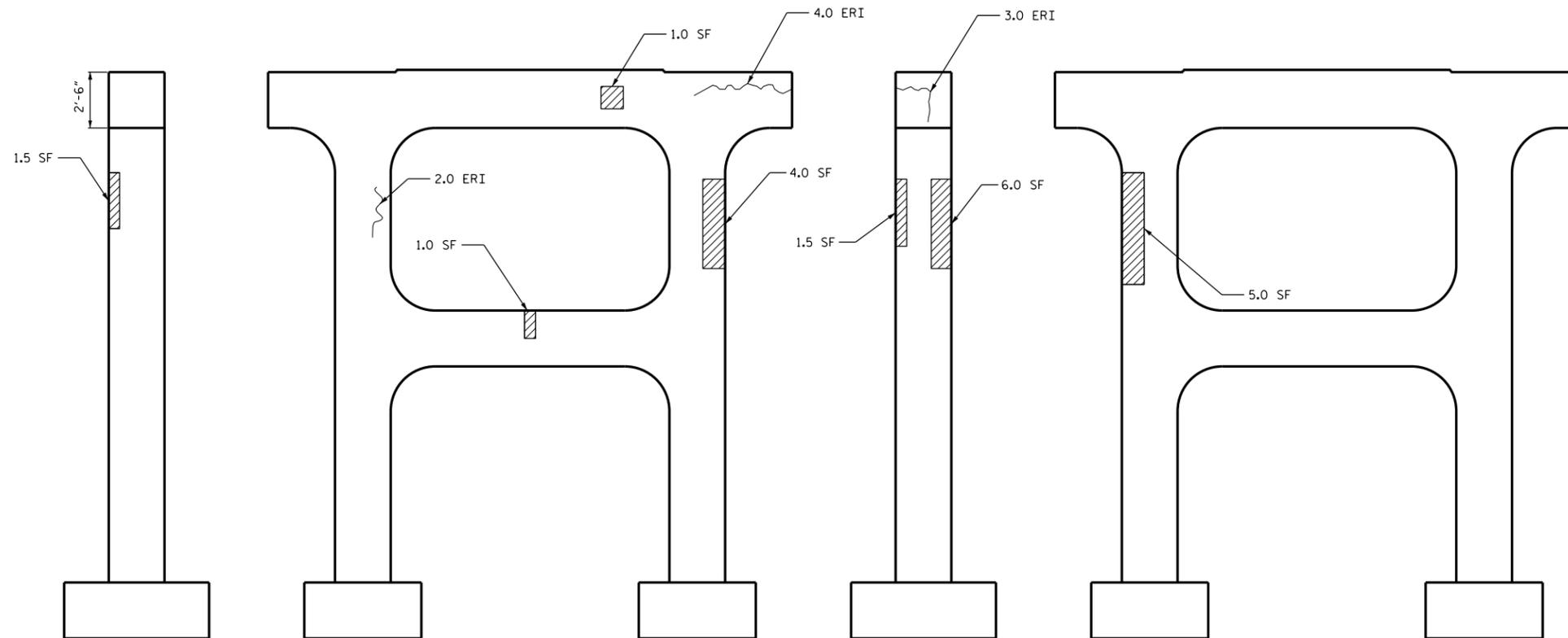
FOR REPAIR DETAILS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT PAINT THE TOP SURFACE OF BENT CAPS AFTER ALL BEARING REPAIRS ARE COMPLETED, AS A FINAL FINISH.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.



PLAN OF CAP  
TOP



END VIEW  
WEST SIDE

ELEVATION  
SOUTH SIDE

END VIEW  
EAST SIDE

ELEVATION  
NORTH SIDE



PLAN OF CAP  
BOTTOM

- CONCRETE REPAIRS
- SHOTCRETE REPAIR
- ERI -EPOXY RESIN INJECTION

PROJECT NO. BP-5500A  
NORTHAMPTON COUNTY  
 BRIDGE NO. 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 BENT 1**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-12
2			4			TOTAL SHEETS 15

DocuSigned by:  
*Farzin Asefnia*  
 PROFESSIONAL ENGINEER  
 SEAL 20103  
 FARZIN ASEFNIA

7/28/2015

DRAWN BY : D.J.RENCKENS DATE : 05/2014  
 CHECKED BY : W.M.CLARKE DATE : 05/2014

REPAIR QUANTITY TABLE

BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	8.0	2.0		
CAP (HORIZONTAL FACE)	2.0	0.5		
COLUMN (HORIZONTAL FACE)	10.0	2.5		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		1.0		
COLUMN		3.0		
EPOXY COATING	AREA SF			
CAP	49			

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.

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CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

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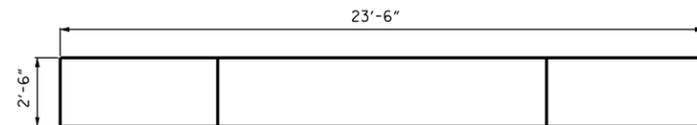
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

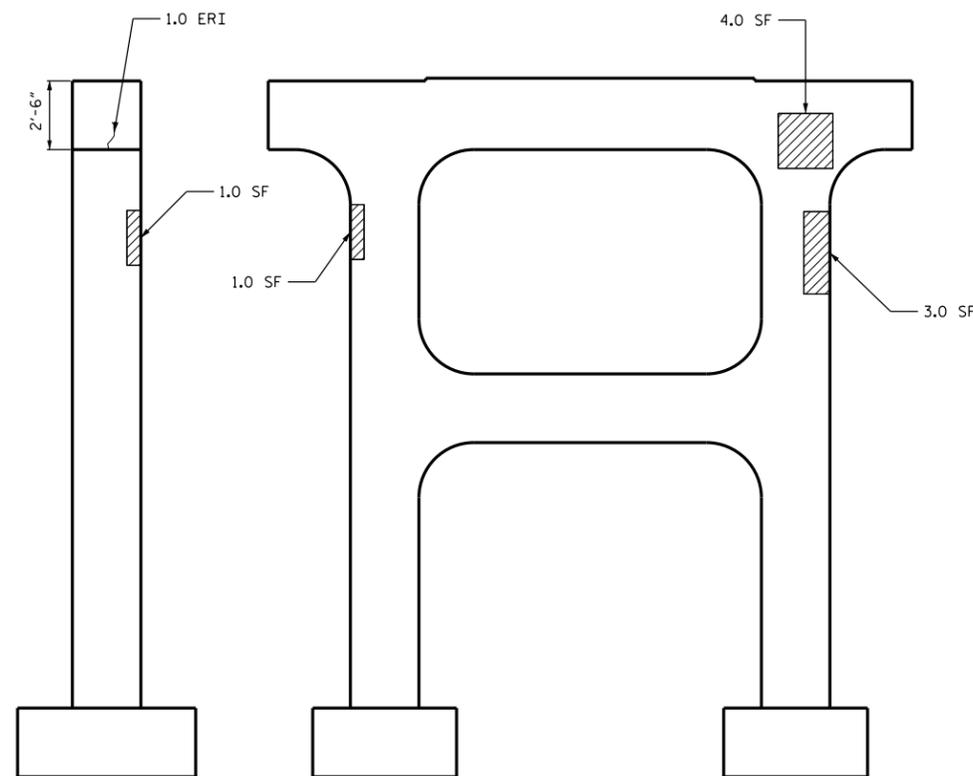
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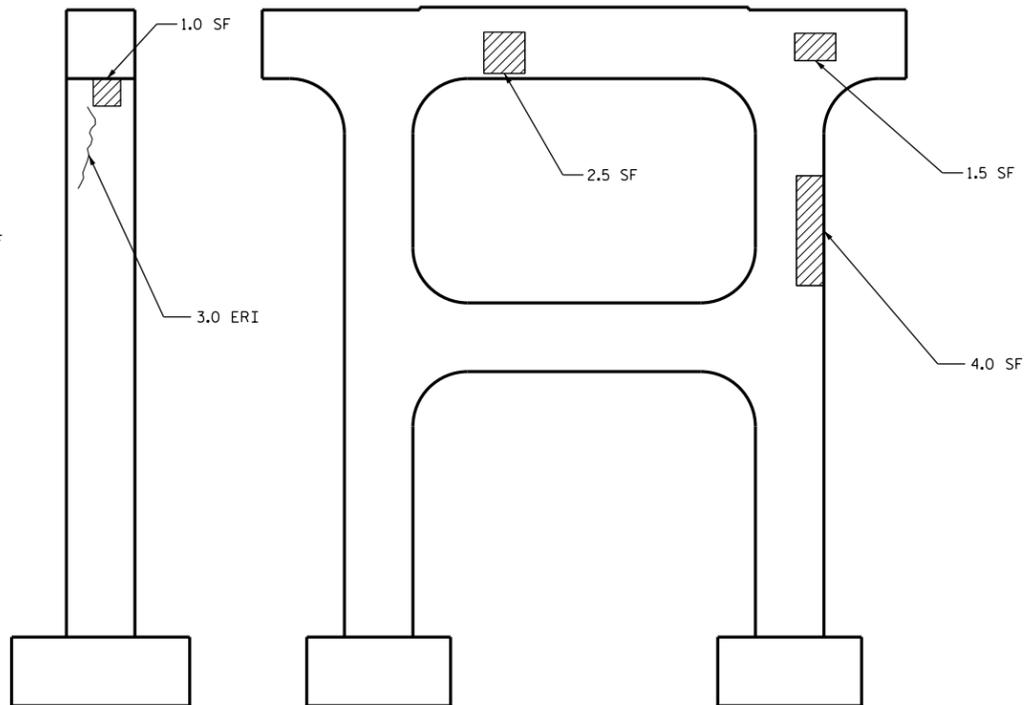
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.



PLAN OF CAP  
TOP



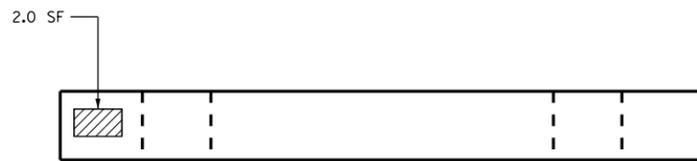
ELEVATION  
SOUTH SIDE



ELEVATION  
NORTH SIDE

END VIEW  
WEST SIDE

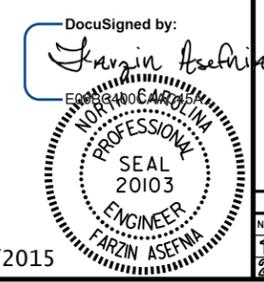
END VIEW  
EAST SIDE



PLAN OF CAP  
BOTTOM

- CONCRETE REPAIRS
- SHOTCRETE REPAIR
- ERI -EPOXY RESIN INJECTION

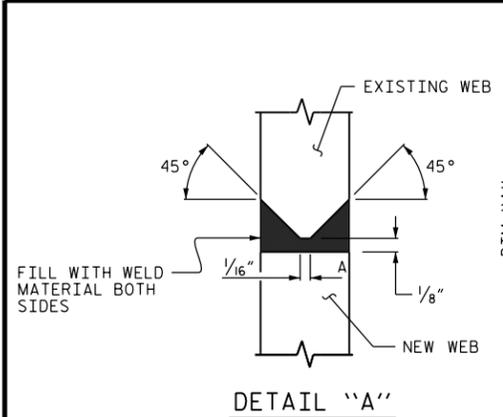
PROJECT NO. BP-5500A  
NORTHAMPTON COUNTY  
 BRIDGE NO. 4



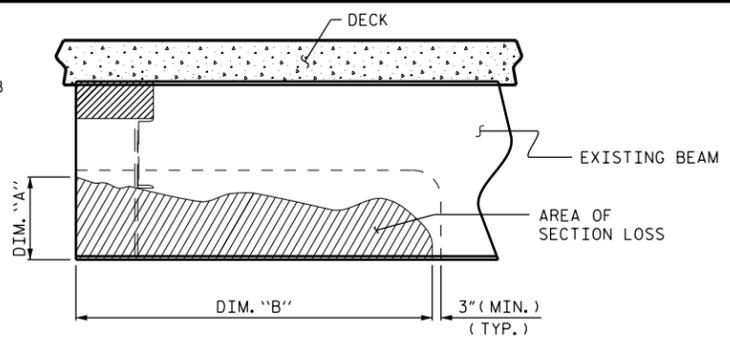
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			15
2			4			

DRAWN BY : D.J.RENCKENS DATE : 05/2014  
 CHECKED BY : W.M.CLARKE DATE : 05/2014

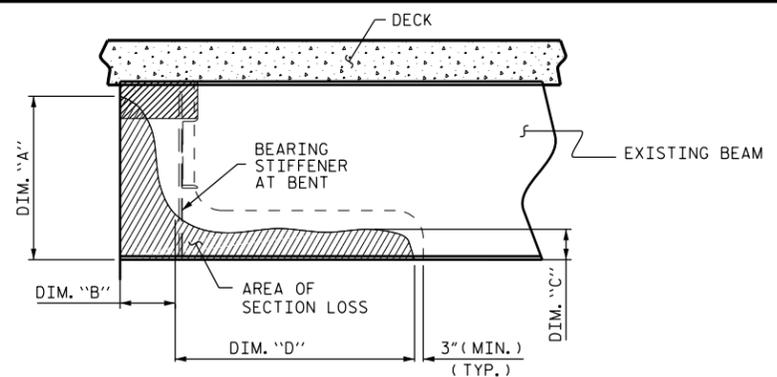
7/28/2015



DETAIL "A"



SECTION LOSS BEAM END REPAIR



SECTION LOSS BEAM END REPAIR

BEAM REPAIR

AFTER THE STRUCTURAL STEEL HAS BEEN BLASTED AND PRIMED, THE STRUCTURAL STEEL AND BEARING SHALL BE INSPECTED FOR EXCESSIVE SECTION LOSS. AREAS THAT EXHIBIT AN EXCESS OF 35% SECTION LOSS SHALL BE REVIEWED BY THE ENGINEER TO DETERMINE IF AREA OF SECTION LOSS SHOULD BE REPAIRED.

AS DETERMINED BY THE ENGINEER, AREAS WITH EXCESSIVE SECTION LOSS OR AREAS WITH TEMPORARY REPAIRS SHALL BE REMOVED AND THE BEAMS SHALL BE REPAIRED AS INDICATED ON THIS PLAN SHEET. CONTRACTOR AND ENGINEER TO DETERMINE ACTUAL DIMENSIONS OF AREA TO BE REMOVED AND REPLACED. REMOVE CONCRETE BENT DIAPHRAGMS AS NEEDED TO EVALUATE LIMITS OF REPAIR.

PAYMENT FOR THE SECTION REPAIR SHALL BE BASED ON THAT AMOUNT OF REPAIR ACTUALLY PERFORMED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

GOUGES AND INDENTIONS FROM IMPACT ON GIRDERS SHALL BE GROUND SMOOTH PRIOR TO BLASTING AND PAINTING OPERATION.

REPAIR SEQUENCE:

REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.

REMOVE DEAD LOAD FROM BEAM BY JACKING AND BLOCKING. CONTRACTOR SHALL SUBMIT JACKING PLAN FOR APPROVAL, PRIOR TO BEGINNING WORK. SEE BRIDGE JACKING SPECIAL PROVISIONS.

STEEL DIAPHRAGM CHANNELS AND/OR STIFFENERS MAY BE TEMPORARILY REMOVED, IF NECESSARY, AND REPLACED AFTER BEAM REPAIR.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE. CUT OUT BY APPROPRIATE MEANS THE DAMAGED BEAM AREA AND/OR BEARING STIFFENER.

MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

REPLACEMENT CUT-TO-FIT BEAM SECTION SHALL BE NEW AND FROM SIMILAR SIZE ROLLED BEAM OR APPROVED EQUIVALENT PLATES. THE GRADE OF STEEL SHALL BE AASHTO M270, GRADE 36 OR BETTER.

INSTALL THE CUT-TO-FIT SECTION, FULLY WELD ALONG TOP AND SIDES OF PLATE USING FULL PENETRATION WELDS.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.

ALL WELDS WILL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM REPAIR PROCESS.

CLEANING AND PAINTING OF REPAIRED STRUCTURAL STEEL SHALL BE PERFORMED AS PART OF THE OVERALL CLEANING AND PAINTING CONTRACT.

FOR CLEANING AND PAINTING, SEE PROJECT SPECIAL PROVISIONS.

AFTER BEAMS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE CAST BACK. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. NO SEPARATE PAYMENT SHALL BE MADE FOR CONCRETE AND REINFORCING STEEL AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM "BEAM REPAIR."

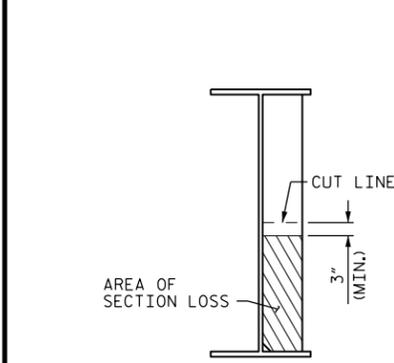
LOWER SPAN TO BEAR; CHECK FOR DISTRESS.

REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.

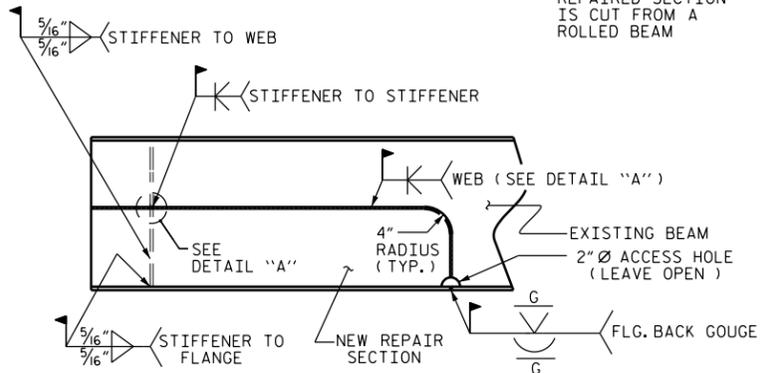
REMOVE ALL TRAFFIC CONTROL DEVICES.

FOR STRUCTURAL STEEL FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

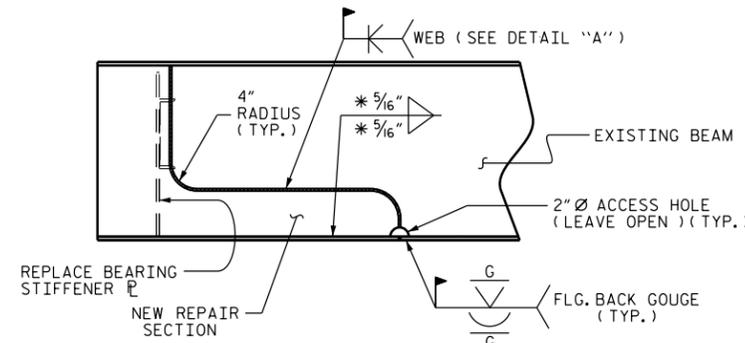
PROJECT NO. BP-5500A  
NORTHAMPTON COUNTY  
 BRIDGE NO. 4



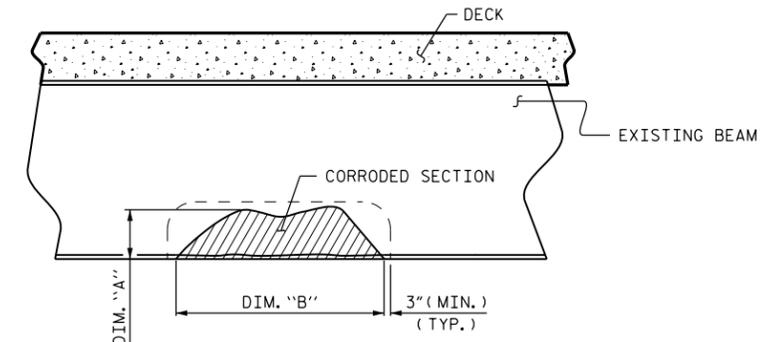
SECTION LOSS STIFFENER/CONN. REPAIR



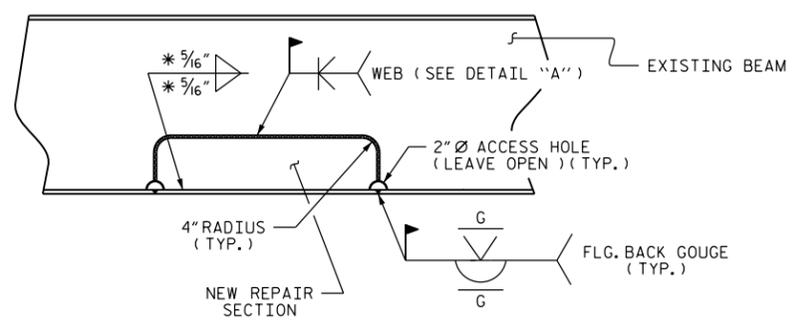
SECTION LOSS BEAM END REPAIR SECTION



SECTION LOSS BEAM END REPAIR SECTION



SECTION LOSS INTERMEDIATE BEAM REPAIR



SECTION LOSS INTERMEDIATE BEAM REPAIR SECTION

\* NOT NEEDED IF REPAIRED SECTION IS CUT FROM A ROLLED BEAM

ANTICIPATED BEAM REPAIR LOCATIONS				
LOCATION	SPAN	BEAM	HEIGHT ("A")	LENGTH ("B")
BENT 2	B	1	2'-0"	4'-0"
BENT 1	B	1	1'-4"	2'-0"
BENT 1	A	1	1'-4"	2'-0"
BENT 1	A	2	1'-8"	3'-0"
BENT 1	B	2	1'-8"	3'-0"
BENT 1	A	3	2'-0"	5'-0"
BENT 1	B	3	2'-0"	3'-0"
BENT 1	A	4	2'-0"	5'-0"
BENT 1	B	4	2'-3"	3'-0"
BENT 2	B	3	1'-4"	2'-0"
BENT 2	C	3	1'-4"	2'-0"
BENT 2	C	4	2'-3"	7'-6"
BENT 2	B	4	1'-8"	4'-0"

BILL OF MATERIAL	
BRIDGE JACKING	BEAM REPAIR
LUMP SUM	LBS.
LUMP SUM	3,287

SECTION LOSS STIFFENER/CONN. REPAIR SECTION

▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD

DRAWN BY: D.J.RENCKENS DATE: 06/2014  
 CHECKED BY: W.M.CLARKE DATE: 06/2014

DocuSigned by:  
*Farzin Asefma*  
 E06B000A-0000-4000-8000-000000000000  
 PROFESSIONAL ENGINEER  
 SEAL 20103  
 FARZIN ASEFMA

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BEAM END AND INTERMEDIATE REPAIR DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-14
2			4			TOTAL SHEETS 15

7/28/2015

**NOTE**

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

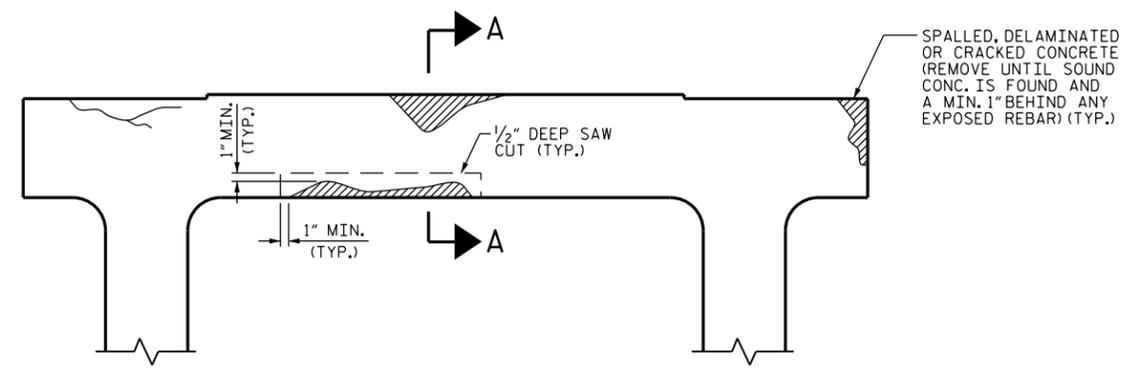
CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

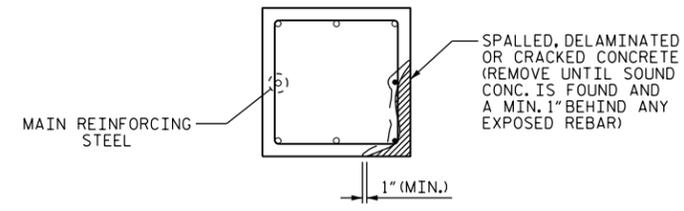
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

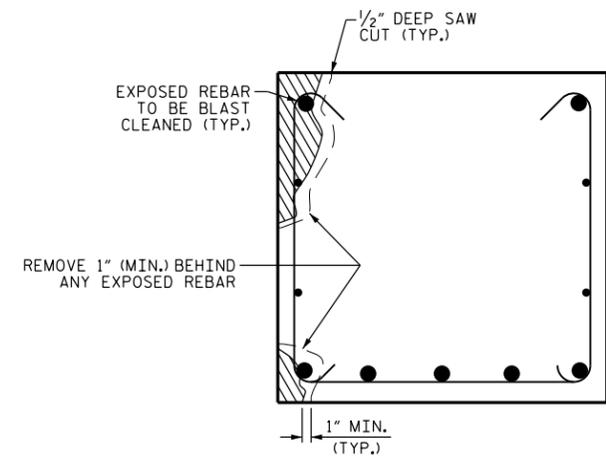
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.



**BENT CAP REPAIRS**

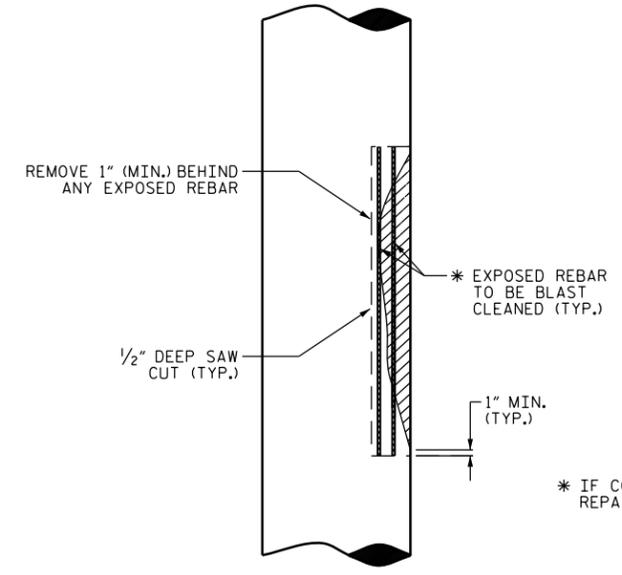


**PLAN OF COLUMN**



**SECTION THRU CAP**  
(EXAMPLE ONLY, ACTUAL REBAR SIZES & LOCATIONS MAY VARY)

**CAP REPAIR**



**ELEVATION OF CAP**

**COLUMN REPAIR**

\* IF CONFINEMENT STEEL IS NOT PRESENT, THEN REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

PROJECT NO. BP-5500A  
NORTHAMPTON COUNTY  
 BRIDGE NO. 4

DocuSigned by:  
*Farzin Asefina*



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE  
 TYPICAL CAP &  
 COLUMN REPAIR  
 DETAILS**

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

DRAWN BY: R. WEISZ DATE: 11/14  
 CHECKED BY: J. YANACCONE DATE: 11/14

7/28/2015

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

### SPECIAL NOTES:

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

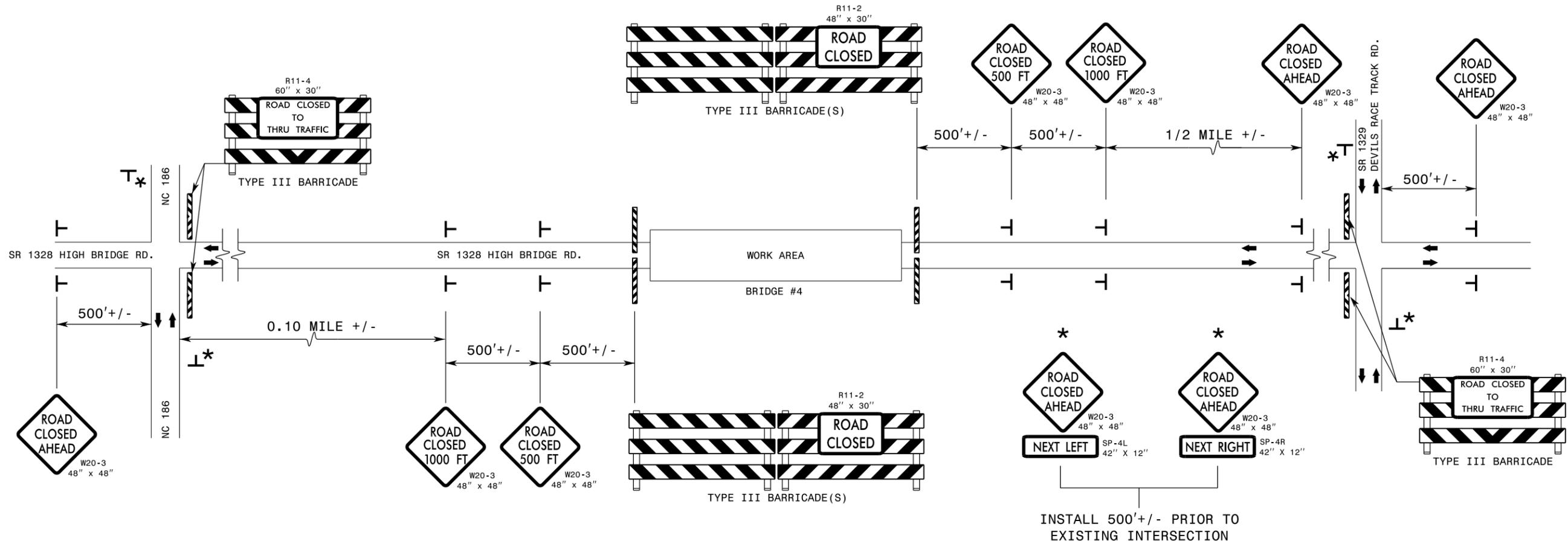
# ENGLISH

JANUARY, 1990

WBS # 50070.3.FDI

CONTRACT #: DA00262

## TRAFFIC MANAGEMENT FOR TEMPORARY ROAD CLOSURE



LEGEND	
	DIRECTION OF TRAFFIC FLOW
	STATIONARY SIGN
	BARRICADE (TYPE III)

**GENERAL NOTES**

- 1 - INSTALLATION OF TEMPORARY ROUTE MARKERS, DESTINATION SIGNS AND ANY NECESSARY MODIFICATIONS TO EXISTING OR PROPOSED REGULATORY OR WARNING SIGNS WILL BE MADE BY OTHERS (STATE OR CITY FORCES) UNLESS OTHERWISE DESIGNATED IN PLANS. PROVIDE A MINIMUM 21 CALENDAR DAY NOTICE TO STATE FORCES BEFORE A ROADWAY IS CLOSED TO TRAFFIC SUCH THAT NECESSARY PROVISIONS CAN BE MADE TO INFORM LOCAL EMERGENCY AND LAW ENFORCEMENT PERSONNEL, SCHOOLS OR ANY OTHER PARTIES AFFECTED BY THE ROAD CLOSURE.
- 2 - INSTALL SIGNS BEFORE THE BARRICADES WHEN CLOSING THE ROADWAY TO TRAFFIC. REMOVE BARRICADES BEFORE SIGNS WHEN OPENING THE ROADWAY TO TRAFFIC. INSTALL/REMOVE SIGNS AND BARRICADES WITHIN THE SAME CALENDAR DAY.
- 3 - POSITION WING BARRICADES ON THE SHOULDERS AND SLOPE THE STRIPES DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING.
- 4 - USE ADDITIONAL TYPE III BARRICADES IN STAGGERED LOCATIONS SUPPLEMENTED WITH SIGN R11-4 "ROAD CLOSED TO THRU TRAFFIC" IN THE EVENT THAT TRAFFIC MUST BE MAINTAINED BEYOND THE DETOUR POINT.
- 5 - SEE STANDARD SPECIFICATION 1089-1 FOR WORK ZONE SIGNS.
- 6 - SEE STANDARD SPECIFICATION 1089-2 FOR WORK ZONE SIGN SUPPORTS.
- \* 7 - ALL DETOUR SIGNS WILL BE FURNISHED AND INSTALLED BY STATE FORCES.

**ROADWAY STANDARD DRAWINGS**  
 THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH N.C., ARE CONSIDERED A PART OF THE PLANS:

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1135.01	CONES
1145.01	BARRICADES
904.10	ORIENTATION OF GROUND MOUNTED SIGNS

PROJECT: 50070.3.FDI  
 NORTHAMPTON COUNTY  
 STATION: -L-

PRESERVATION OF BRIDGE NO. 650004  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

TRAFFIC MANAGEMENT PLAN

24'-0" CLEAR ROADWAY - 90° SKEW

DRAWN BY: DHS DATE: 8/18/15  
 CHECKED BY: DATE:

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			1			TOTAL SHEETS
2			2			