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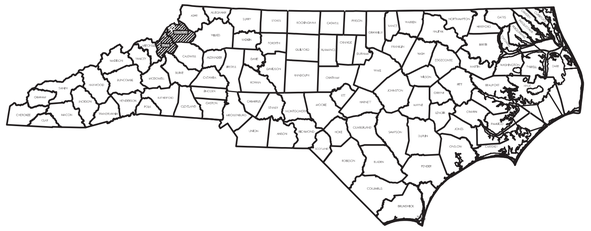
TIP PROJECT: 15BPR.33

CONTRACT: C204236

STRUCTURES



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

AVERY & WATAUGA COUNTY

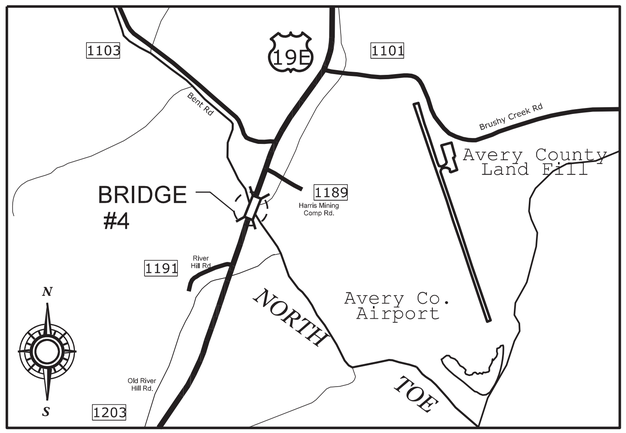
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.33	1	

STATE PROJECT NO.	F. A. PROJ. NO.	DESCRIPTION

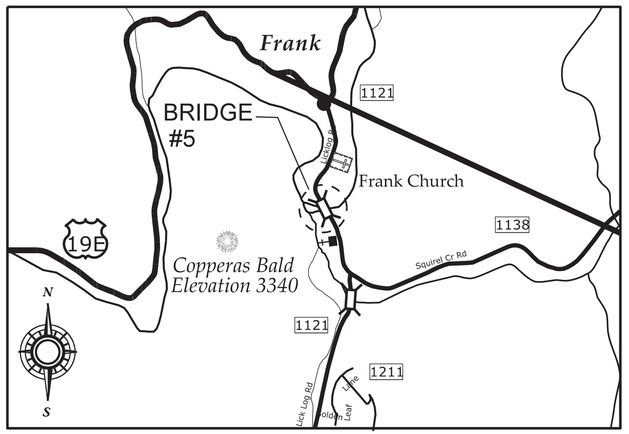
LOCATION: AVERY COUNTY:
BRIDGE #4 OVER N. TOE RIVER ON US 19 E BETWEEN SR 1189 AND SR 1191
BRIDGE #5 OVER N. TOE RIVER ON SR 1121 (SQUIRREL CR. RD.) BETWEEN SR 1138 AND US 19E

WATAUGA COUNTY:
BRIDGE #3 OVER WATAUGA RIVER ON SR 1557 (SHULLS MILL RD.) BETWEEN SR 1568 AND SR 1558

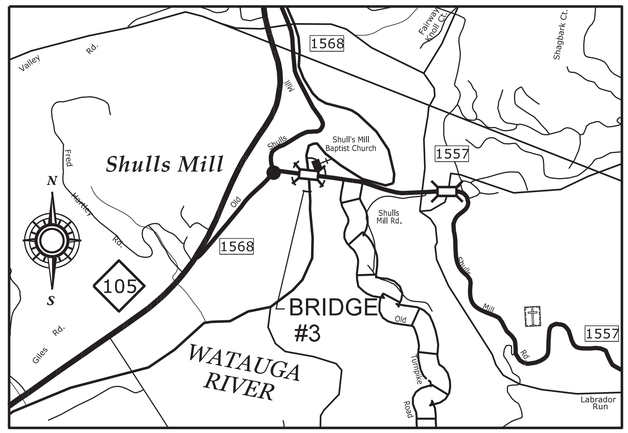
TYPE OF WORK: BRIDGE PRESERVATION - LATEX MODIFIED CONCRETE OVERLAYS, SILANE DECK TREATMENT, DECK REPAIRS, STRUCTURAL STEEL REPAIRS, PAINTING EXISITING STRUCTURES, SUBSTRUCTURE REPAIRS.



AVERY 4



AVERY 5



WATAUGA 3

DESIGN DATA

AVERY #4 ADT 2015 = 6,800
AVERY #5 ADT 2015 = 970
WATAUGA #3 ADT 2013 = 1,600

PROJECT LENGTH

PROJECT LENGTH #004 = 0.033 MI
PROJECT LENGTH #005 = 0.033 MI
PROJECT LENGTH #003 = 0.052 MI

Prepared for:
STRUCTURES MANAGEMENT UNIT
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

LETTING DATE:
FEBRUARY 19, 2019

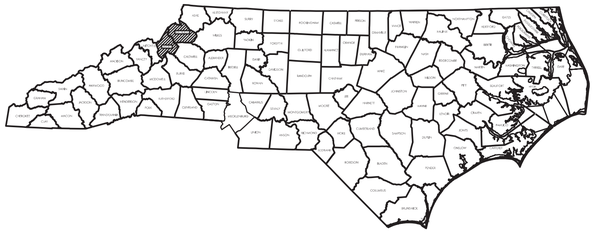
NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. McROY
DocuSigned by: Jennifer McRoy 98091341FA90452...
1/7/2019

JENNIFER R. McROY, PE
PROJECT ENGINEER

VOLKERT
5540 Centerview Drive, Suite 305
Raleigh, NC 27606
Tel. 919-854-0344 Fax. 919-854-0355
NC License No. F-0765

TIP PROJECT: 15BPR.33

CONTRACT: C204236



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

AVERY & WATAUGA COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.33	1A	

STATE PROJECT NO.	F. A. PROJ. NO.	DESCRIPTION

VOLKERT
5540 Centerview Drive, Suite 305
Raleigh, NC 27606
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NC License No. F-0765

LOCATION: AVERY COUNTY:
BRIDGE #4 OVER N. TOE RIVER ON US 19 E BETWEEN SR 1189 AND SR 1191
BRIDGE #5 OVER N. TOE RIVER ON SR 1121 (SQUIRREL CR. RD.) BETWEEN SR 1138 AND US 19E

WATAUGA COUNTY:
BRIDGE #3 OVER WATAUGA RIVER ON SR 1557 (SHULLS MILL RD.) BETWEEN SR 1568 AND SR 1558

INDEX OF SHEETS

STRUCTURE NO.	DESCRIPTION	SHEET NUMBER
	TITLE SHEET	
	INDEX OF SHEETS & SUMMARY OF QUANTITIES	
004	BRIDGE #4 ON US 19 E OVER N. TOE RIVER	S-1 TO S-15
005	BRIDGE #5 ON SR 1121 OVER N. TOE RIVER	S-16 TO S-31
003	BRIDGE #3 ON SR 1557 OVER WATAUGA RIVER	S-32 TO S-47
	DETAILS	S-48 & S-54

TOTAL BILL OF MATERIAL

BRIDGE NO.	ELASTOMERIC CONCRETE FOR PRESERVATION	INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C	ASPHALT BINDER FOR PLANT MIX	GROOVING BRIDGE FLOORS	POLLUTION CONTROL	CLASS II, SURFACE PREPARATION	CLASS III, SURFACE PREPARATION	LATEX MODIFIED CONC. OVERLAY	PLACING & FINISHING OF LATEX MODIFIED CONC OVERLAY	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS FOR PRESERVATION	CLEANING & REPAINTING OF BRIDGE #	PAINTING CONTAINMENT FOR BRIDGE #
	CU. FT.	SQ. YDS.	TONS	TONS	SQ. FT.	LUMP SUM	SQ. YDS.	SQ. YDS.	CU. YDS.	SQ. YDS.	CU. FT.	CU. FT.	LF	LF	LUMP SUM	LUMP SUM
004						LUMP SUM					98.9	192.2	26.5		LUMP SUM	LUMP SUM
005	17.4	248	21.0	1.3	4563.9	LUMP SUM	60.8	0.9	31.6	568.3	101.9	133.6	222.1	74.0	LUMP SUM	LUMP SUM
003	15.6	212	17.9	1.1	3966.4	LUMP SUM	✳ 1.0	✳ 1.0	27.5	494.1	3.6	4.8	27.7	66.3	LUMP SUM	LUMP SUM
TOTAL	33.0	460	38.9	2.4	8530.3	LUMP SUM	61.8	1.9	59.1	1062.4	204.4	330.6	276.3	140.3	LUMP SUM	LUMP SUM

TOTAL BILL OF MATERIAL

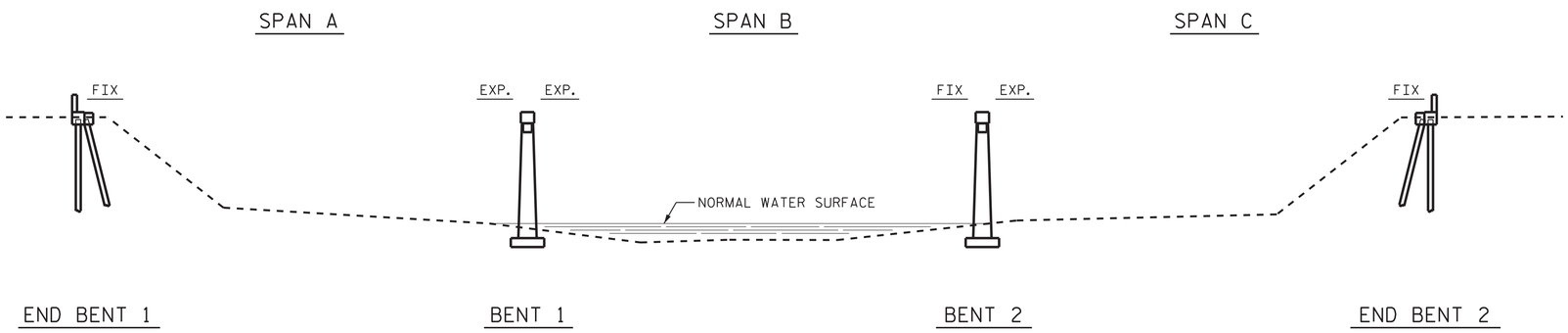
BRIDGE NO.	VOLUMETRIC MIXER	CONCRETE FOR DECK REPAIR	BEAM REPAIR	EPOXY COATING	BRIDGE JOINT DEMOLITION	SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK	SHOTBLASTING BRIDGE DECK	SILANE DECK TREATMENT	CLEANING & PAINTING EXISTING BEARINGS W/HRCSA	TYPE I BRIDGE JACKING BRIDGE #	REMOVE & RESET BEARINGS	STEEL KEEPER ANGLE ASSEMBLY
	LUMP SUM	CU. FT.	LB	SQ. FT.	SQ. FT.	SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	EA	EA	EA	EA
004			2135	582				1104.0	1104.0	30	18	2	7
005	LUMP SUM	185.3	295	450	22.3	567.2	567.2			24	12		2
003	LUMP SUM	✳ 1.0	500	339	62.1	493.0	493.0			24	1		
TOTAL	LUMP SUM	186.3	2930	1371	84.4	1060.2	1060.2	1104.0	1104.0	78	31	2	9

✳ CLASS II SURFACE PREPARATION, CLASS III SURFACE PREPARATION, AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES, IN CASE UNANTICIPATED CLASS II SURFACE PREPARATION, CLASS III SURFACE PREPARATION, OR CONCRETE FOR DECK REPAIR AREAS ARE ENCOUNTERED.

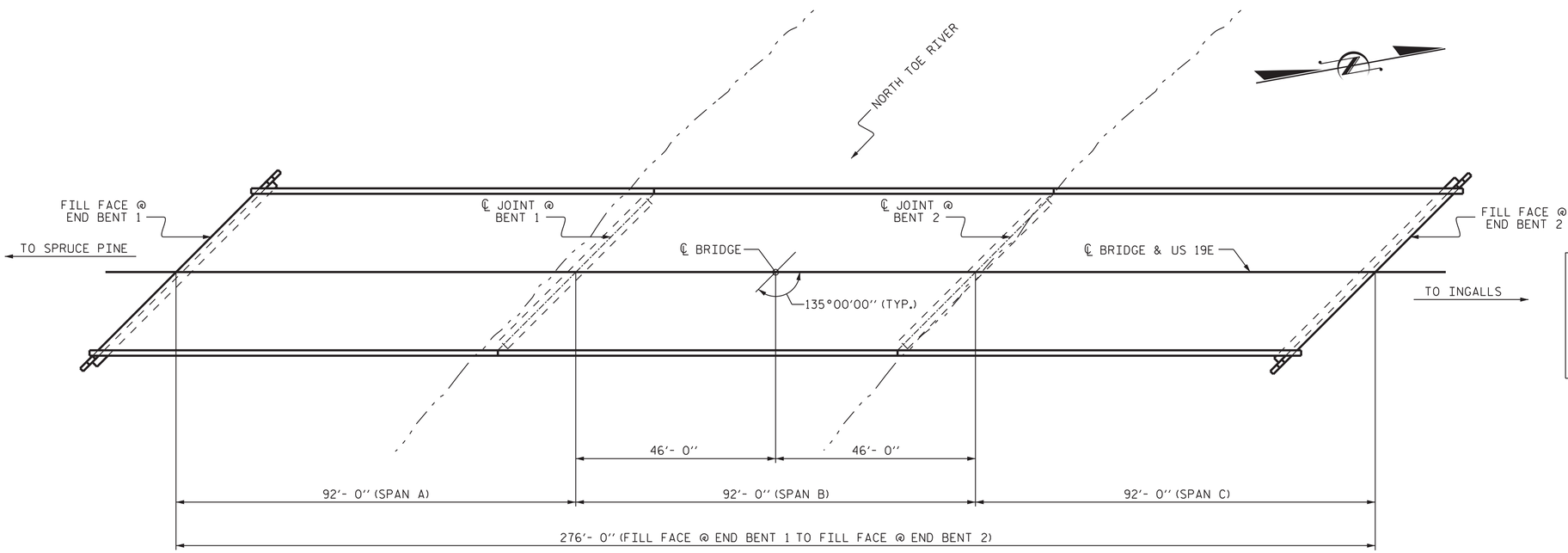
NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

DRAWN BY : R.G.BEAUCHAMP DATE : 10/18
CHECKED BY : J.R. MCROY DATE : 10/18

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SECTION ALONG ℄ BRIDGE



PLAN

(PILES, COLUMNS AND FOOTING ARE NOT SHOWN FOR CLARITY)

NOTES

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND ROUTINE INSPECTION REPORT DATED 8/04/2015.

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

SCOPE OF WORK

REPAIR SUBSTRUCTURE USING EPOXY RESIN INJECTION, SHOTCRETE AND CONCRETE.

REPAIR, CLEAN AND PAINT EXISTING STEEL BEAMS.

CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA.

PERFORM SHOTBLASTING AND SILANE DECK TREATMENT.

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

RESIDENT ENGINEER DATE

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 4

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER NORTH TOE RIVER ON US 19 E BETWEEN SR 1189 AND SR 1191

DRAWN BY : D.A. GLADDEN DATE : 6/18
CHECKED BY : J.R. MCROY DATE : 10/18

VOLKERT
5540 Centerview Drive, Suite 305
Raleigh, NC 27606
Tel. 919-854-0344 Fax. 919-854-0355
NC License No. F-0765

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

Jennifer McRoy
08091341FA90452...
1/7/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			54

LOCATION SKETCH

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

LOCATION COORDINATES	
LATITUDE	35° 56' 43.04"
LONGITUDE	82° 00' 18.09"

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

QUANTITIES HAVE BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION.

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

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.

EXISTING JOINTS SHALL BE SEALED PRIOR TO BEGINNING REPAIRS OF BRIDGE DECK.

FOR PAINTING CONTAINMENT, POLLUTION CONTROL, AND CLEANING AND REPAINTING BRIDGE, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATINGS, SEE EPOXY COATING AND DEBRIS REMOVAL SPECIAL PROVISION.

FOR SHOT BLASTING BRIDGE DECK AND SILANE DECK TREATMENT, SEE SILANE DECK TREATMENT SPECIAL PROVISIONS.

FOR CLEANING AND PAINTING OF EXISTING BEARINGS WITH HRSCA, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 4

SHEET 2 OF 2

DRAWN BY : D. A. GLADDEN DATE : 5/18

CHECKED BY : J.R. MCROY DATE : 10/18

VOLKERT
5540 Centerview Drive, Suite 305
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NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

Jennifer Mcroy
98091341FA80452...

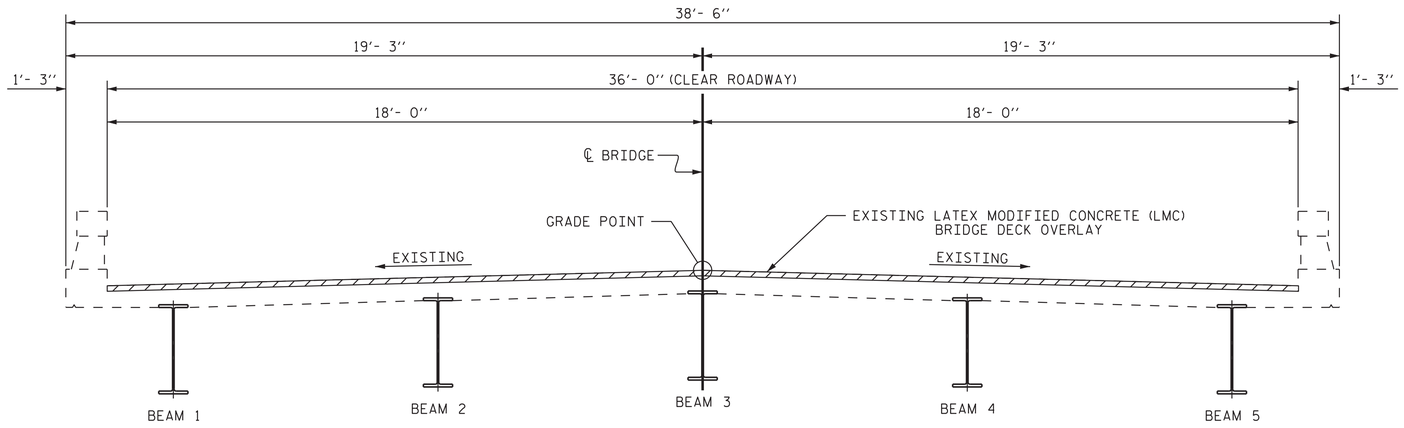
1/7/2019

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

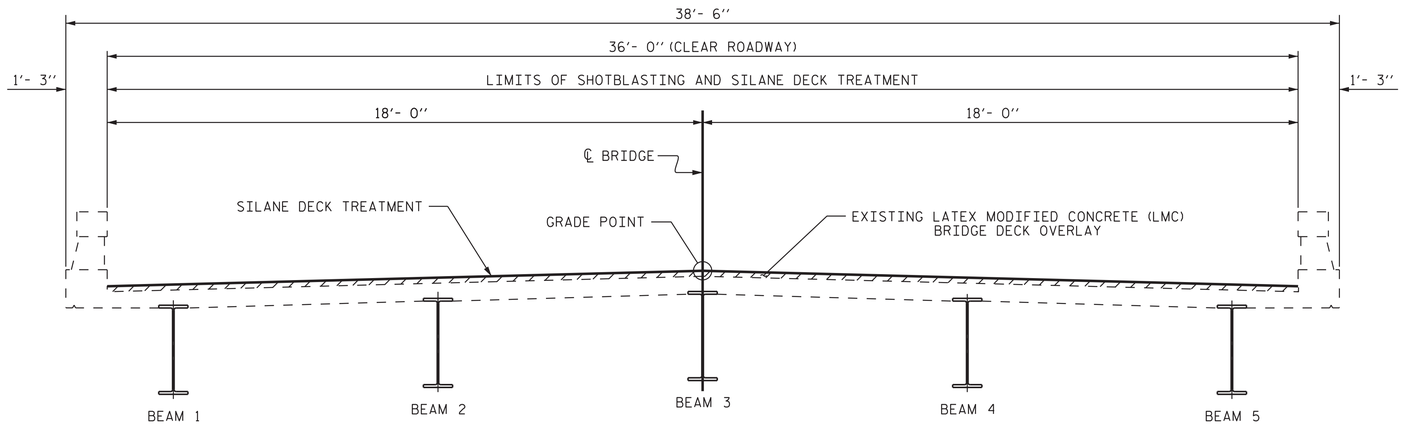
GENERAL DRAWING

FOR BRIDGE OVER NORTH TOE RIVER ON US 19 E BETWEEN SR 1189 AND SR 1191

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			54



EXISTING TYPICAL SECTION



PROPOSED TYPICAL SECTION

NOTES

SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF SILANE DECK TREATMENT PLACEMENT.

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 4

DRAWN BY : D.A. GLADDEN DATE : 10/18

CHECKED BY : J.R. MCROY DATE : 10/18

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NC License No. F-0765

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

Docusigned by: Jennifer R. McRoy 98091341FA90452...

1/7/2019

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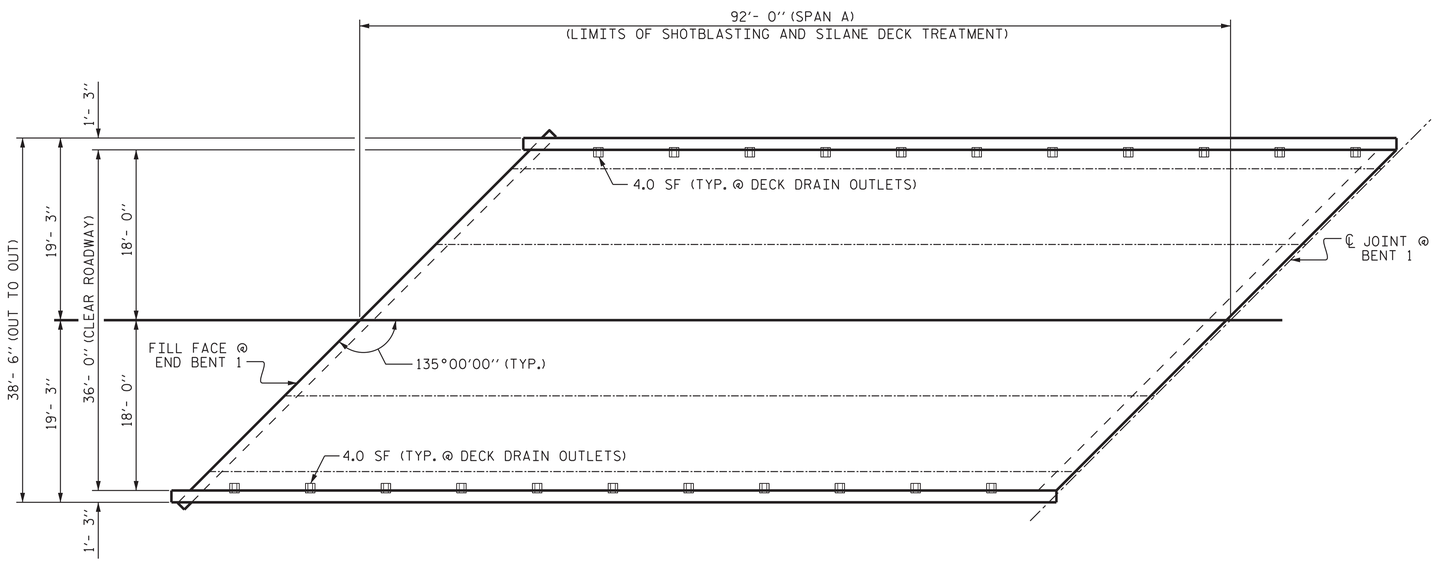
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			54



PLAN OF SPAN A

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

SPAN A

	ESTIMATE		ACTUAL
CONCRETE FOR DECK REPAIR	0.0	CF	
SHOTBLASTING BRIDGE DECK	368.0	SY	
SILANE DECK TREATMENT	368.0	SY	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	88.0	29.3		
INTERIOR DIAPHRAGMS	0.0	0.0		

	ESTIMATE		ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	0.0	LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1'' BEHIND REBAR AND MINIMUM 2'' CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

UNDERSIDE REPAIR

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 4

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN A

VOLKERT
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NC License No. F-0765

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

DocuSigned by: Jennifer R. McRoy 98091341FA90452...

1/7/2019

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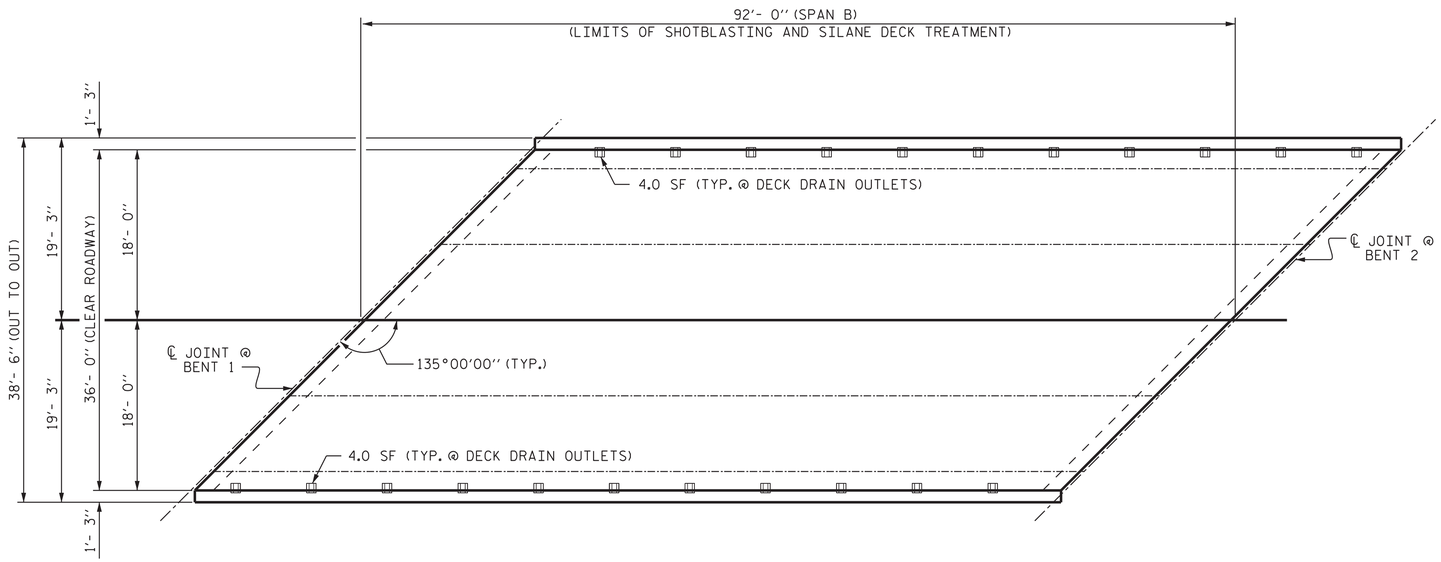
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			54

DRAWN BY : D. A. GLADDEN DATE : 6/18
CHECKED BY : J.R. MCROY DATE : 10/18



PLAN OF SPAN B

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

SPAN B

	ESTIMATE		ACTUAL
CONCRETE FOR DECK REPAIR	0.0	CF	
SHOTBLASTING BRIDGE DECK	368.0	SY	
SILANE DECK TREATMENT	368.0	SY	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	88.0	29.3		
INTERIOR DIAPHRAGMS	0.0	0.0		

	ESTIMATE		ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	0.0	LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1'' BEHIND REBAR AND MINIMUM 2'' CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

UNDERSIDE REPAIR

DRAWN BY : D. A. GLADDEN DATE : 6/18
CHECKED BY : J. R. McROY DATE : 10/18

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NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. McROY
Jennifer R. McRoy
98091341FA90452...
1/7/2019

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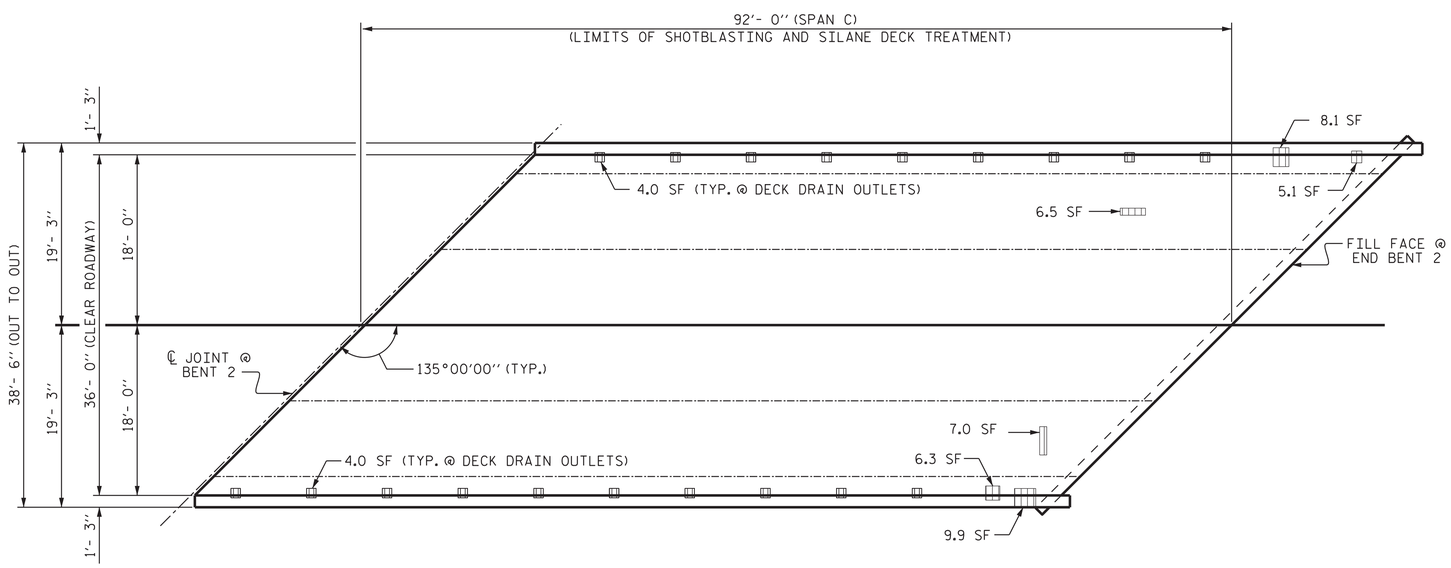
PROJECT NO. 15BPR.33
AVERY COUNTY
BRIDGE NO. 4
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN B

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			54



PLAN OF SPAN C

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

SPAN C

	ESTIMATE		ACTUAL
CONCRETE FOR DECK REPAIR	0.0	CF	
SHOTBLASTING BRIDGE DECK	368.0	SY	
SILANE DECK TREATMENT	368.0	SY	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	13.5	4.5		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	105.4	35.1		
INTERIOR DIAPHRAGMS	0.0	0.0		

	ESTIMATE		ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	0.0	LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1'' BEHIND REBAR AND MINIMUM 2'' CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

UNDERSIDE REPAIR

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

DRAWN BY : D. A. GLADDEN DATE : 6/18
CHECKED BY : J.R. MCROY DATE : 10/18

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Raleigh, NC 27606
Tel. 919-854-0344 Fax. 919-854-0355
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NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

Jennifer R. McRoy
08091341FA90452...
1/7/2019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 15BPR.33
AVERY COUNTY
BRIDGE NO. 4
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			54

Ⓘ BEAM NUMBER
Ⓑ BEAM END REPAIR
Ⓓ DIAPHRAGM REPAIR
Ⓟ PLATE REPAIR
Ⓢ STIFFENER REPAIR
Ⓚ STEEL KEEPER ANGLE ASSEMBLY
Ⓡ REMOVE AND RESET BEARING

NOTES

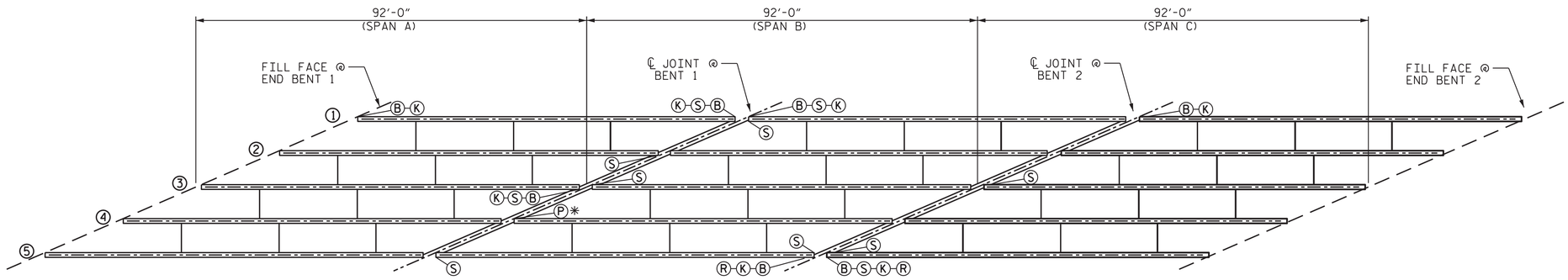
FOR BEAM END REPAIRS AND STIFFENER REPAIRS, SEE ''BEAM END AND INTERMEDIATE REPAIR DETAILS'' SHEET.

FOR PLATE REPAIRS AND DIAPHRAGM REPAIRS, SEE ''BEAM PLATING REPAIR DETAILS'' SHEET.

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENTS OF REPAIR AREAS PRIOR TO STEEL FABRICATION.

CONTRACTOR SHALL ENSURE THAT EXISTING UTILITIES ADJACENT TO THE BRIDGE ARE NOT DAMAGED DURING REPAIR OPERATIONS.

FOR BRIDGE JACKING, SEE "TYPICAL JACKING DETAIL" SHEET.



GIRDER REPAIR LOCATIONS

(OTHER LOCATIONS MAY EXIST, SEE NOTES)

ANTICIPATED BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIM ''A''	DIM ''B''	DIM ''C''	DIM ''D''	DIM ''E''	DIM ''F''
A	1	END BENT 1	3"	14"				
A	1	BENT 1	26"	6"	6"	30"		
A	1	BENT 1	8"					
A	2	BENT 1	6"					
A	3	BENT 1	11"					
A	3	BENT 1	11"	10"				
B	1	BENT 1	6"	84"				
B	3	BENT 1	6"					
* B	4	BENT 1		10"				6"
B	5	BENT 1	6"					
B	5	BENT 2	6"	37"				
B	5	BENT 2	6"					
C	1	BENT 2	4"	24"				
C	3	BENT 2	6"					
C	5	BENT 2	44"	14"	10"	63"		
C	5	BENT 2	52"					
C	5	BENT 2	52"					

* PLATE REPAIR, TOP OF WEB.

BEAM REPAIR							
BEAM END REPAIR		PLATE REPAIR		STIFFENER REPAIR		DIAPHRAGM REPAIR	
LBS.		LBS.		LBS.		LBS.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
1910		30		195		——	

DRAWN BY : P.N.HOLDER DATE : 10/18
CHECKED BY : J.R.McROY DATE : 10/18

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Jennifer McRoy
1/7/2019

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PROJECT NO. 15.BPR33
AVERY COUNTY
BRIDGE NO. 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM REPAIR LOCATIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			54

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

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

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

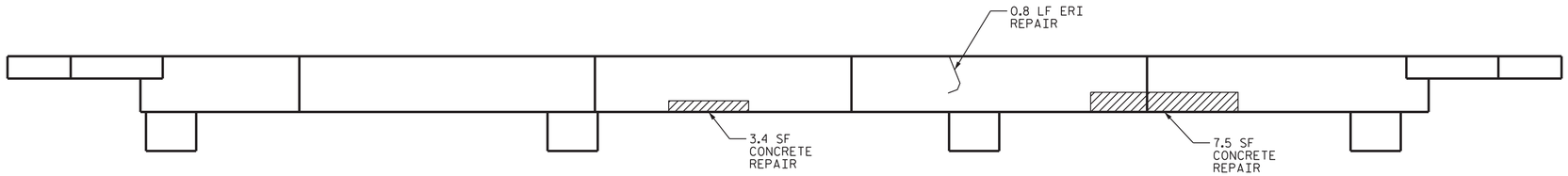
EPOXY COATING SHALL BE APPLIED TO TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE "TYPICAL JACKING DETAIL" SHEET.

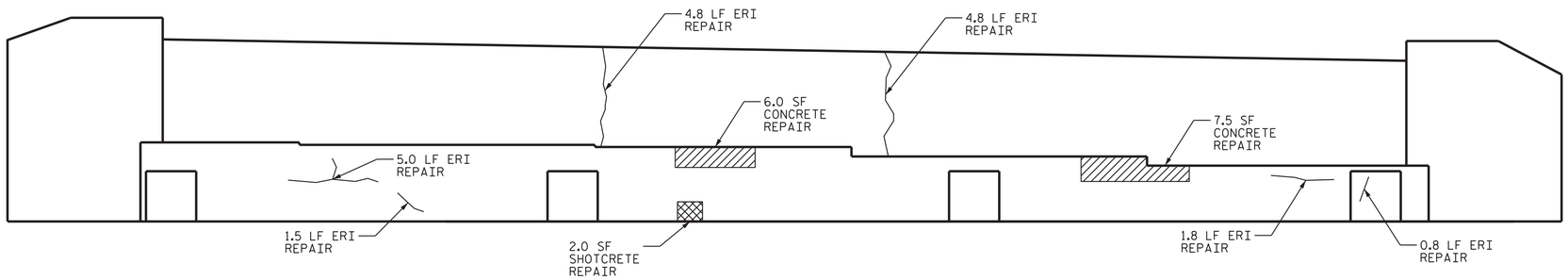
AS-BUILT REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	2.0	1.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	24.4	12.2		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		19.5		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		143		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT.



TOP OF CAP @ END BENT 1



ELEVATION @ END BENT 1 (SPAN A)

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 4

DRAWN BY : P.N.HOLDER DATE : 10/18

CHECKED BY : R.G.BEAUCHAMP DATE : 10/18

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DocuSigned by: Jennifer R. McRoy 9809134 1FA90452...

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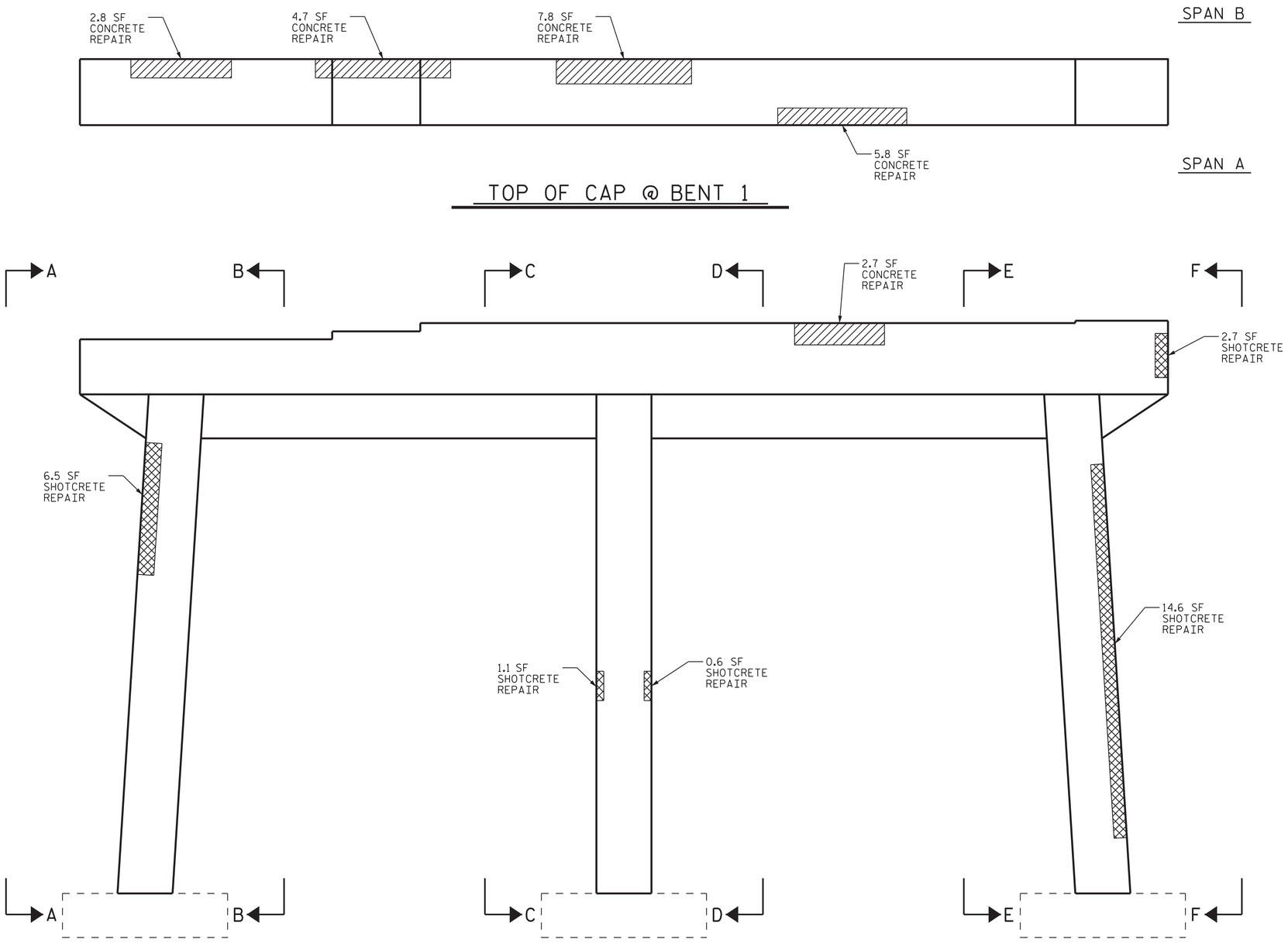
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 1 (SPAN A)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			54



COLUMN 1

COLUMN 2

COLUMN 3

ELEVATION @ BENT 1 (SPAN A)

NOTES

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

EPOXY COATING SHALL BE APPLIED TO TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE "TYPICAL JACKING DETAIL" SHEET.

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

DRAWN BY : P.N.HOLDER DATE : 10/18
CHECKED BY : R.G.BEAUCHAMP DATE : 10/18

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1/7/2019

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PROJECT NO. 15BPR.33
AVERY COUNTY
BRIDGE NO. 4

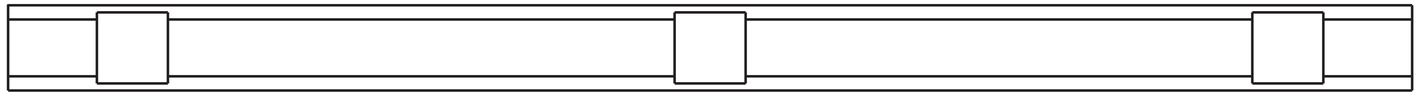
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1
(SPAN A)

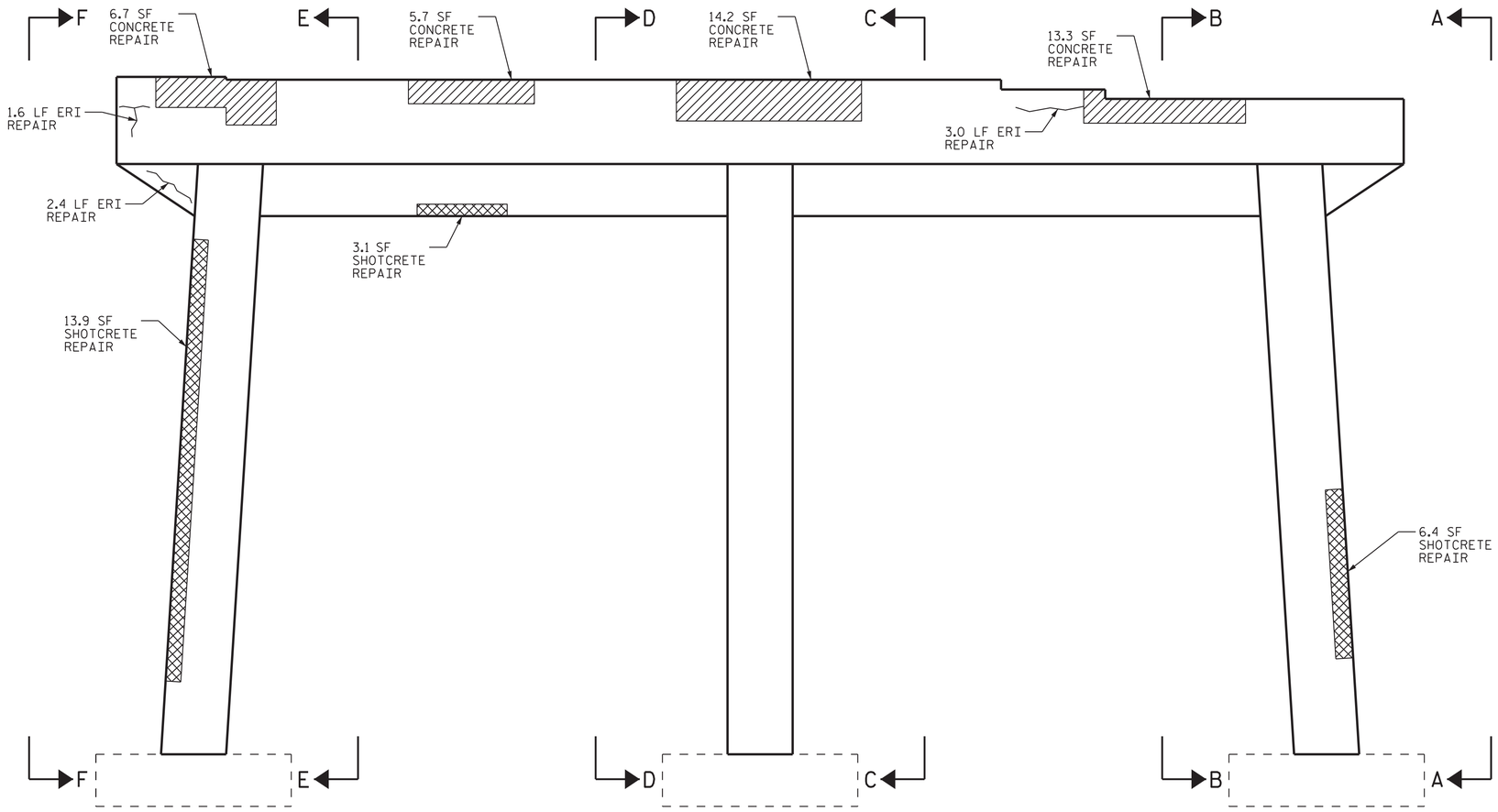
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			54

SPAN A



SPAN B

BOTTOM OF CAP @ BENT 1



COLUMN 3 | COLUMN 2 | COLUMN 1

ELEVATION @ BENT 1 (SPAN B)

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	8.5	4.3		
COLUMN	86.2	43.1		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	63.7	31.7		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		7.0		
COLUMN		0.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		148		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT.

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 4

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1
(SPAN B)

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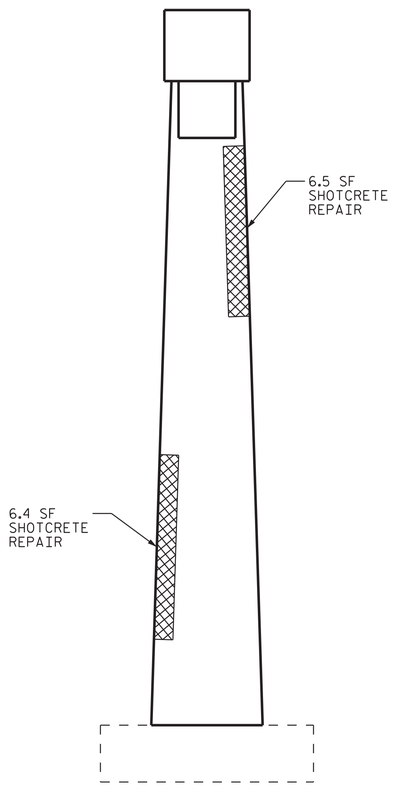
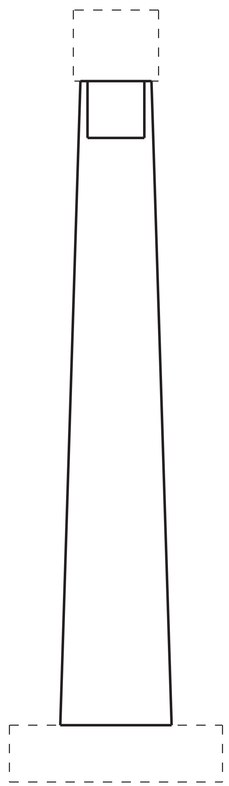
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			54

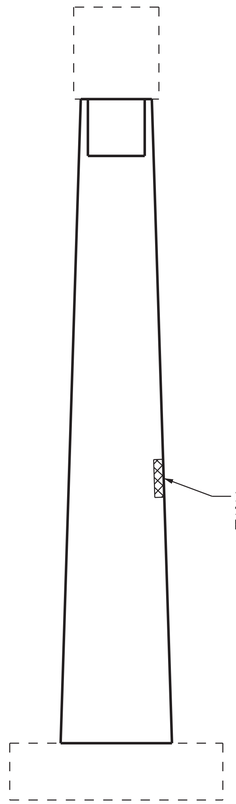


SECTION A-A

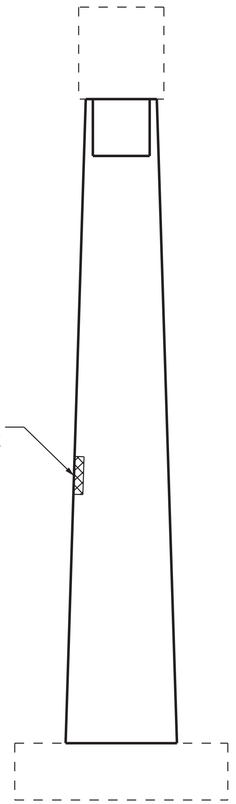


SECTION B-B

COLUMN 1

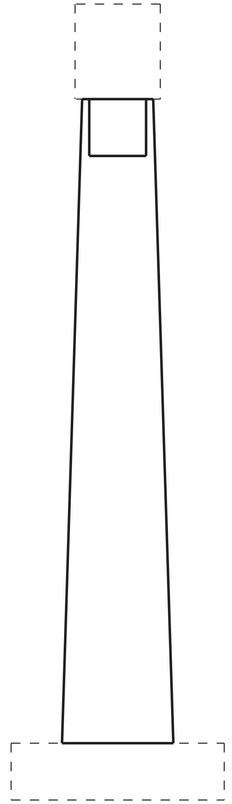


SECTION C-C

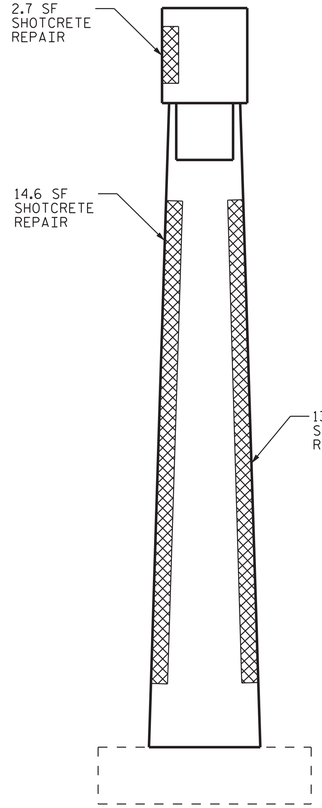


SECTION D-D

COLUMN 2



SECTION E-E



SECTION F-F

COLUMN 3

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

DRAWN BY : P.N.HOLDER DATE : 10/18
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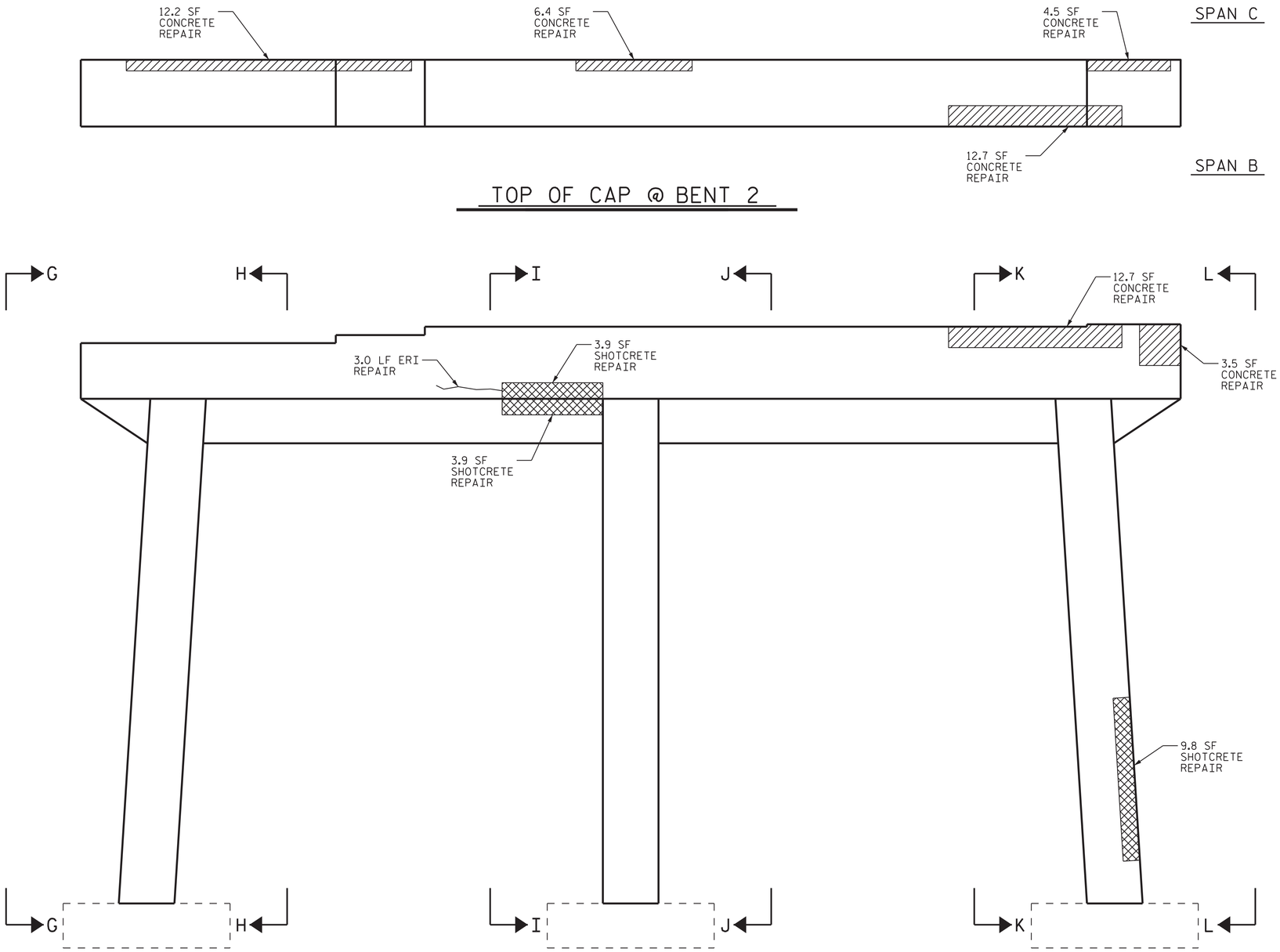
PROJECT NO. 15BPR.33
AVERY COUNTY
BRIDGE NO. 4

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1 (COLUMNS)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			54



ELEVATION @ BENT 2 (SPAN B)

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR BENT REPAIRS, SEE ''TYPICAL CAP AND COLUMN REPAIR DETAILS'' SHEET.

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

EPOXY COATING SHALL BE APPLIED TO TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE "TYPICAL JACKING DETAIL" SHEET.

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

DRAWN BY : P.N.HOLDER DATE : 10/18
CHECKED BY : R.G.BEAUCHAMP DATE : 10/18

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1/7/2019

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PROJECT NO. 15BPR.33
AVERY COUNTY
BRIDGE NO. 4

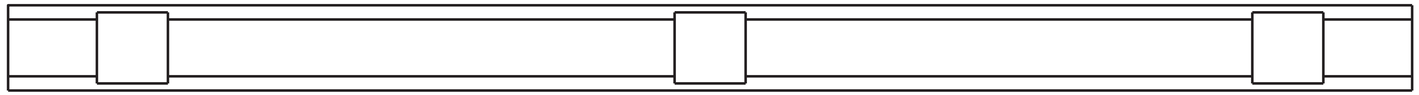
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2
(SPAN B)

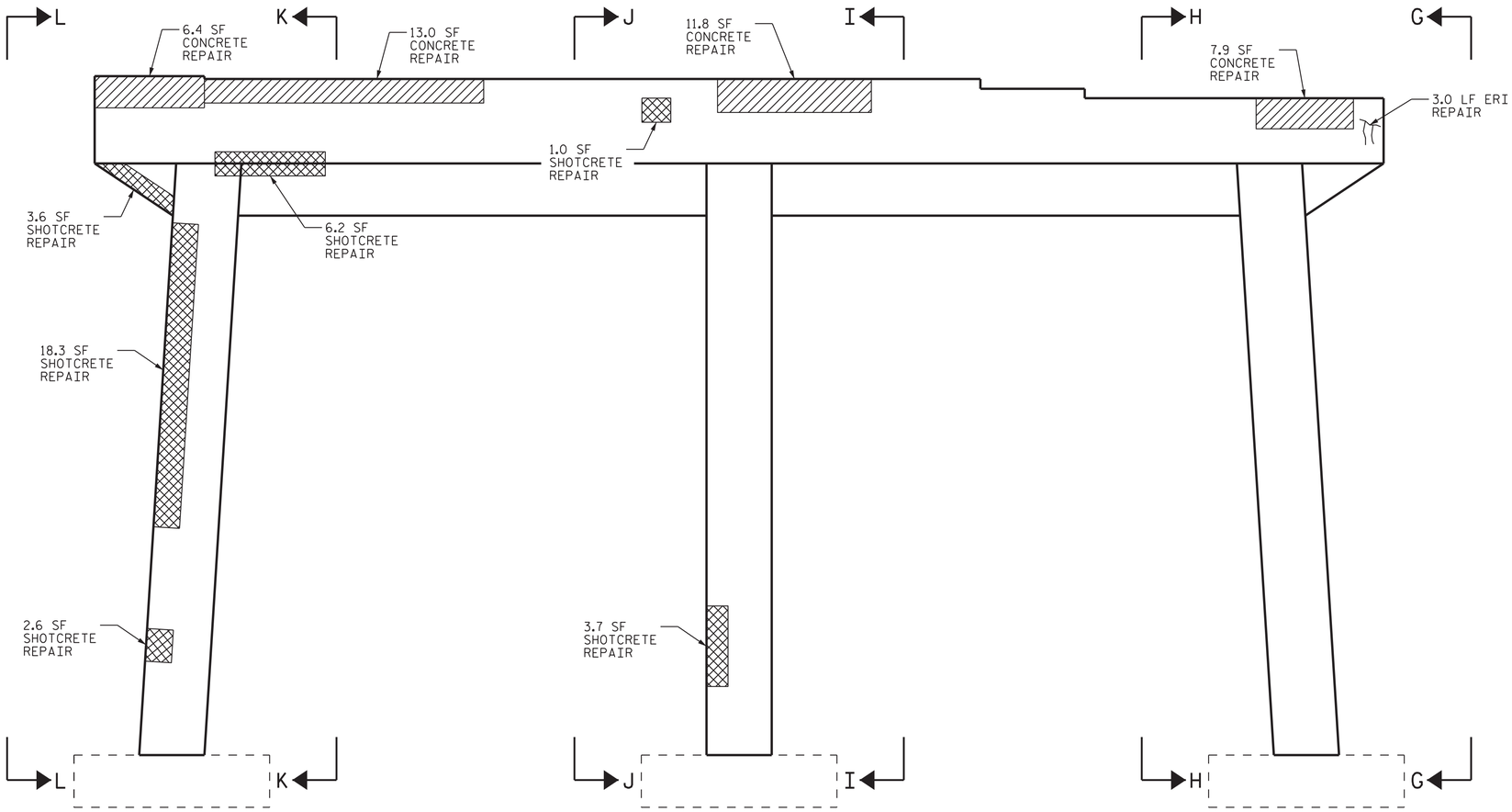
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			54

SPAN B



SPAN C

BOTTOM OF CAP @ BENT 2



COLUMN 3

COLUMN 2

COLUMN 1

ELEVATION @ BENT 2 (SPAN C)

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	21.9	11.0		
COLUMN	69.1	34.6		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	97.1	48.6		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		0.0		
COLUMN		0.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		148		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT.

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

DRAWN BY : P.N.HOLDER DATE : 10/18
CHECKED BY : R.G.BEAUCHAMP DATE : 10/18

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NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

DocuSigned by: Jennifer McRoy 98091341FA90452...

1/7/2019

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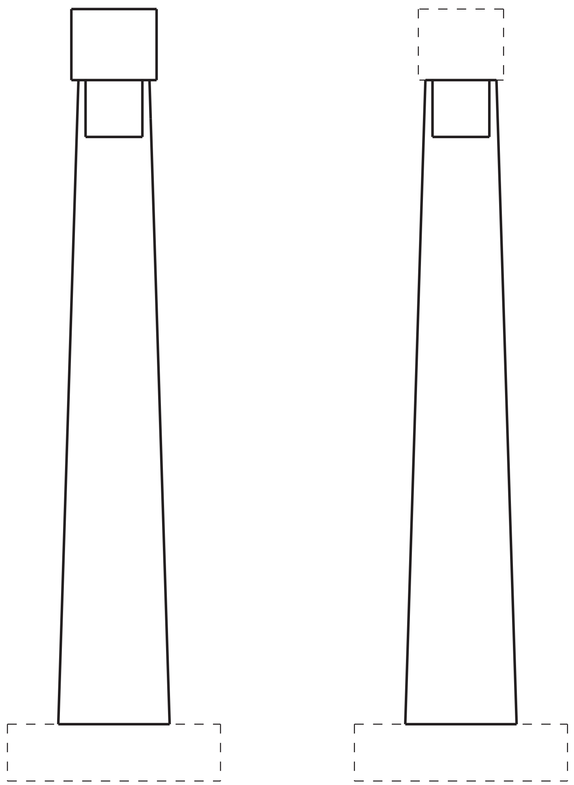
PROJECT NO. 15BPR.33
AVERY COUNTY
BRIDGE NO. 4
SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2
(SPAN C)

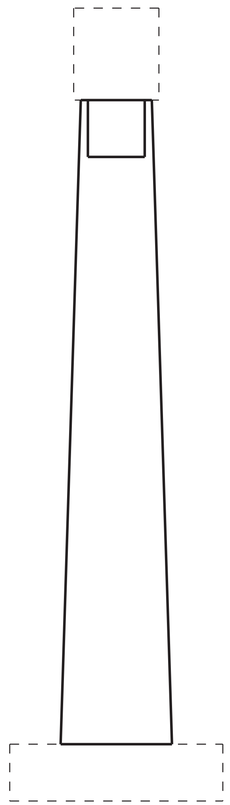
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			54



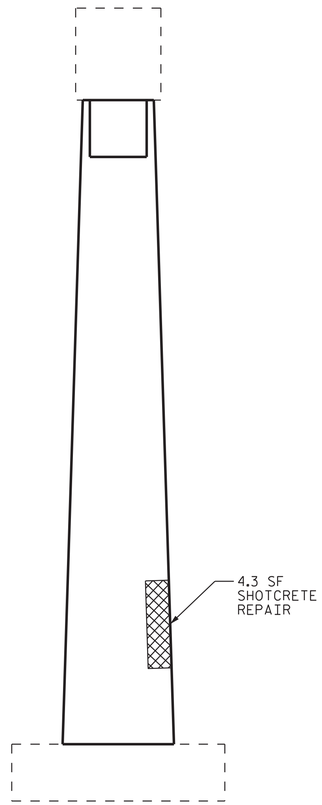
SECTION G-G

SECTION H-H

COLUMN 1

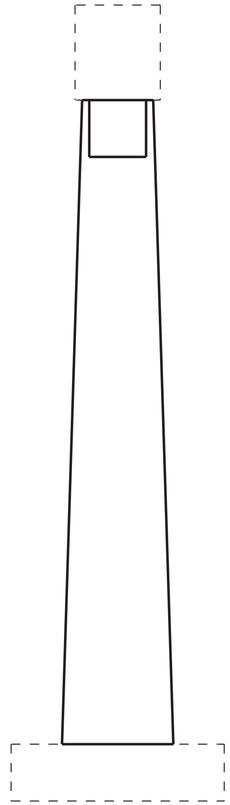


SECTION I-I

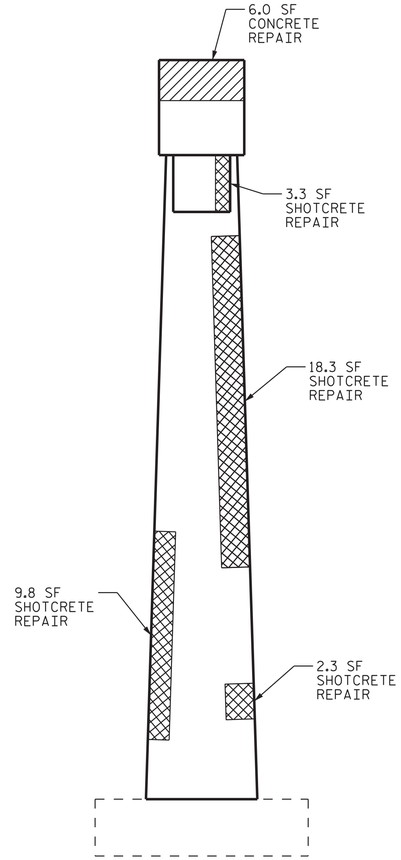


SECTION J-J

COLUMN 2



SECTION K-K



SECTION L-L

COLUMN 3

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

DRAWN BY : P.N.HOLDER DATE : 10/18
CHECKED BY : R.G.BEAUCHAMP DATE : 10/18

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NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

DocuSigned by: Jennifer McRoy 98091341FA904A2...
1/7/2019

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PROJECT NO. 15BPR.33
AVERY COUNTY
BRIDGE NO. 4

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2 (COLUMNS)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			54

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

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

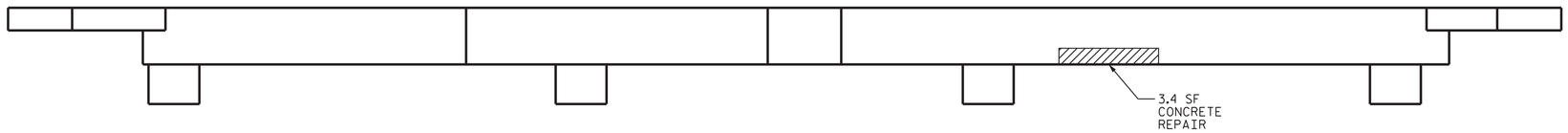
EPOXY COATING SHALL BE APPLIED TO TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE "TYPICAL JACKING DETAIL" SHEET.

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	12.8	6.4		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		0.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		143		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT.

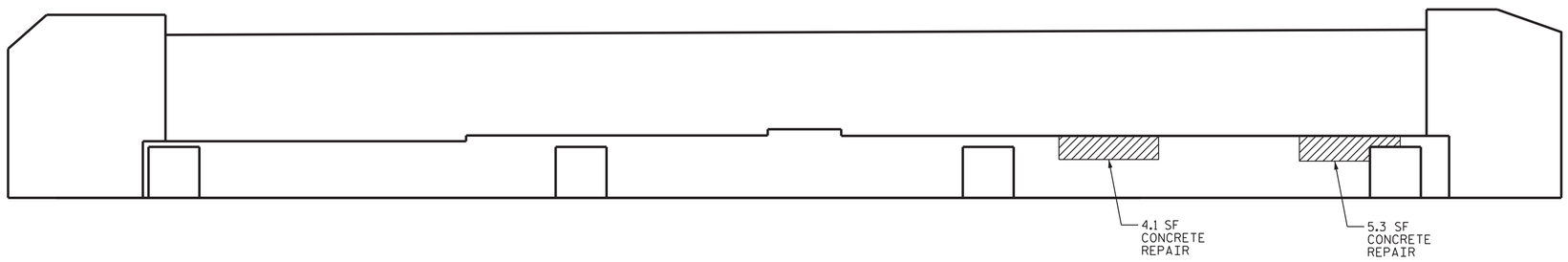


TOP OF CAP @ END BENT 2

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)



ELEVATION @ END BENT 2 (SPAN C)

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 2
(SPAN C)

DRAWN BY : P.N.HOLDER DATE : 10/18

CHECKED BY : R.G.BEAUCHAMP DATE : 10/18

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NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

Jennifer McRoy

1/7/2019

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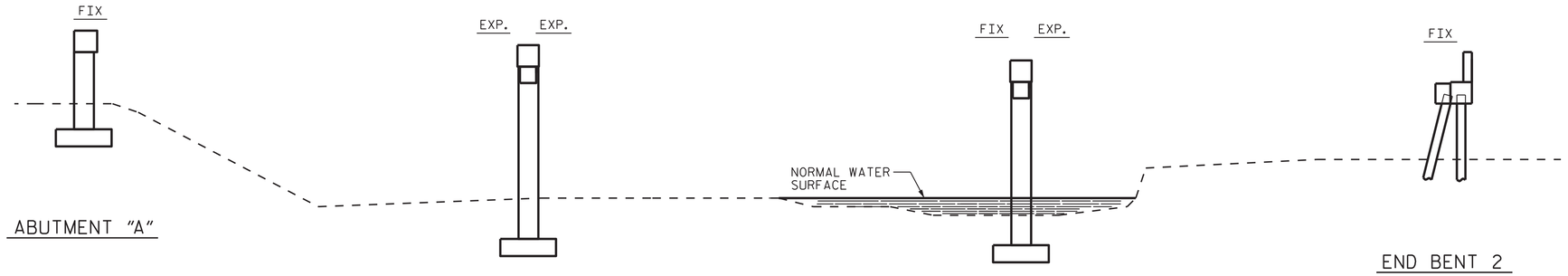


NOTES

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND ROUTINE INSPECTION REPORT DATED 6/12/2017.

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

SCOPE OF WORK

REPAIR SUBSTRUCTURE USING EPOXY RESIN INJECTION, SHOTCRETE AND CONCRETE.

REPAIR, CLEAN AND PAINT EXISTING STEEL BEAMS.

CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA.

PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND HYDRO-DEMOLITION METHODS.

PERFORM DECK REPAIRS IN PREPARED AREAS.

OVERLAY PREPARED BRIDGE DECK WITH LATEX MODIFIED CONCRETE.

RECONSTRUCT BRIDGE JOINTS AND INSTALL FOAM JOINT SEALS.

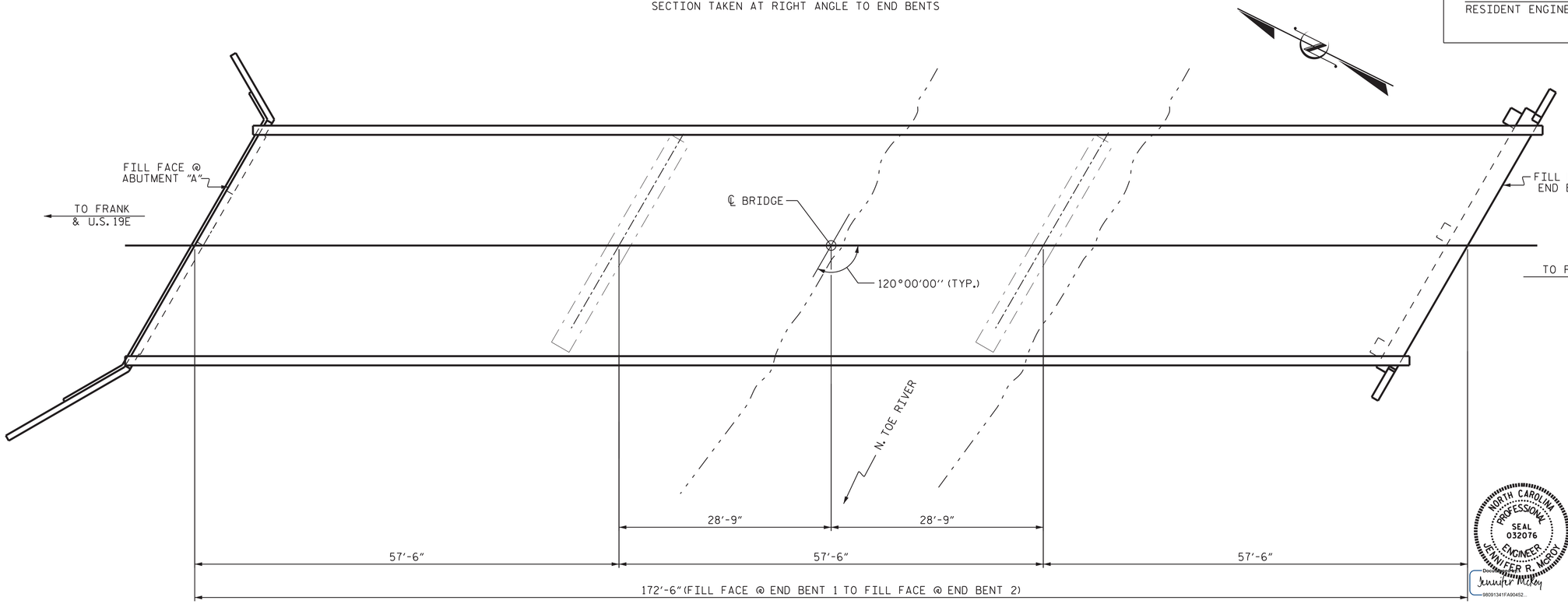
GROOVE LATEX MODIFIED CONCRETE.

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

RESIDENT ENGINEER DATE

SECTION ALONG ℄ BRIDGE

SECTION TAKEN AT RIGHT ANGLE TO END BENTS



PLAN

(PILES, COLUMNS AND FOOTING ARE NOT SHOWN FOR CLARITY)

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

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1/7/2019

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DRAWN BY : R.G.BEAUCHAMP DATE : 6/18
CHECKED BY : J.R. MCROY DATE : 10/18

PROJECT NO. 15BPR.33
AVERY COUNTY
BRIDGE NO. 5
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER N.TOE RIVER ON SR 1121 (SQUIRREL CREEK RD.) BETWEEN SR 1138 & US 19E

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LOCATION SKETCH

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

LOCATION COORDINATES	
LATITUDE	36° 03' 56.79"
LONGITUDE	82° 00' 02.62"

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

QUANTITIES HAVE BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION.

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

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.

EXISTING JOINTS SHALL BE SEALED PRIOR TO BEGINNING REPAIRS OF BRIDGE DECK.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANE.

FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, AND CLASS II AND CLASS III SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

FOR LATEX MODIFIED CONCRETE AND PLACING AND FINISHING LATEX MODIFIED CONCRETE, SEE LATEX MODIFIED CONCRETE SPECIAL PROVISION.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

FOR PAINTING CONTAINMENT, POLLUTION CONTROL, AND CLEANING AND REPAINTING BRIDGE, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR ELASTOMETRIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATINGS, SEE EPOXY COATING AND DEBRIS REMOVAL SPECIAL PROVISION.

FOR CLEANING AND PAINTING OF EXISTING BEARINGS WITH HRSCA, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER N.TOE RIVER ON SR 1121 (SQUIRREL CREEK RD.) BETWEEN SR 1138 & US 19E

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

Docusigned by: Jennifer McRoy 86091341FA90452...

1/7/2019

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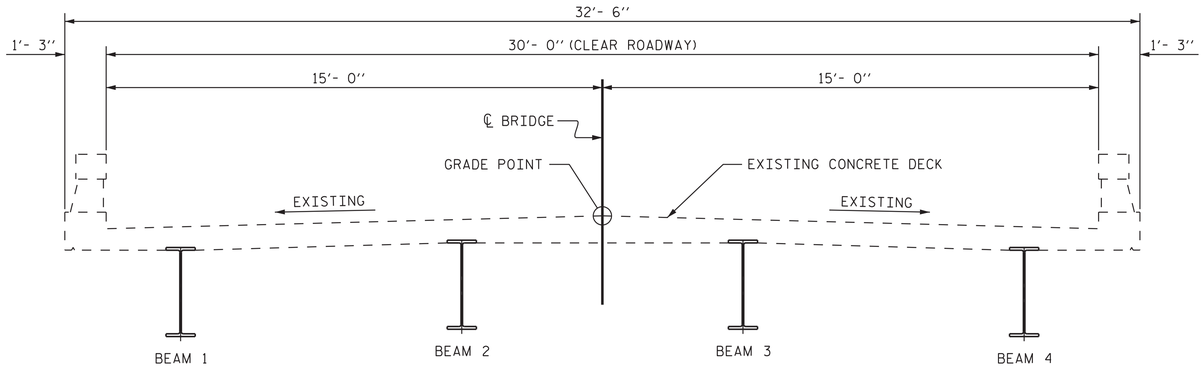
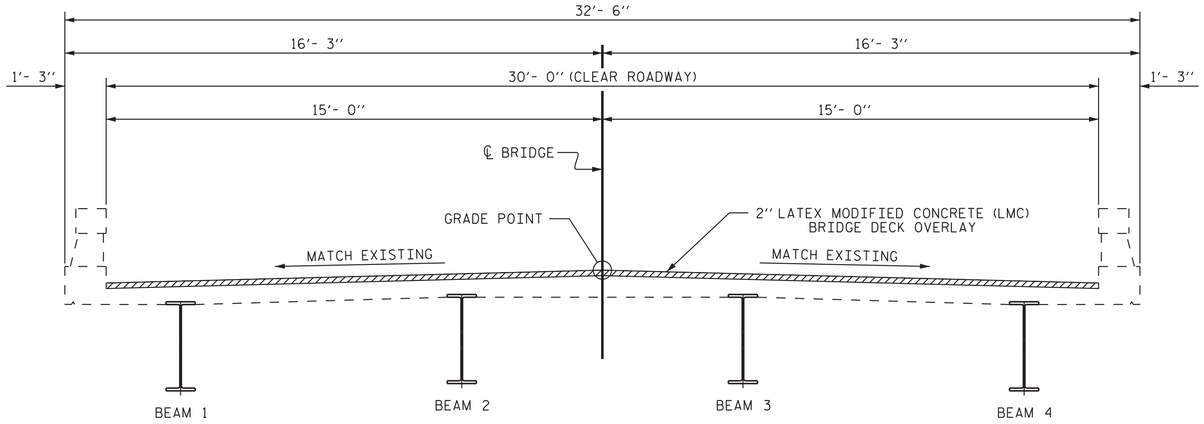


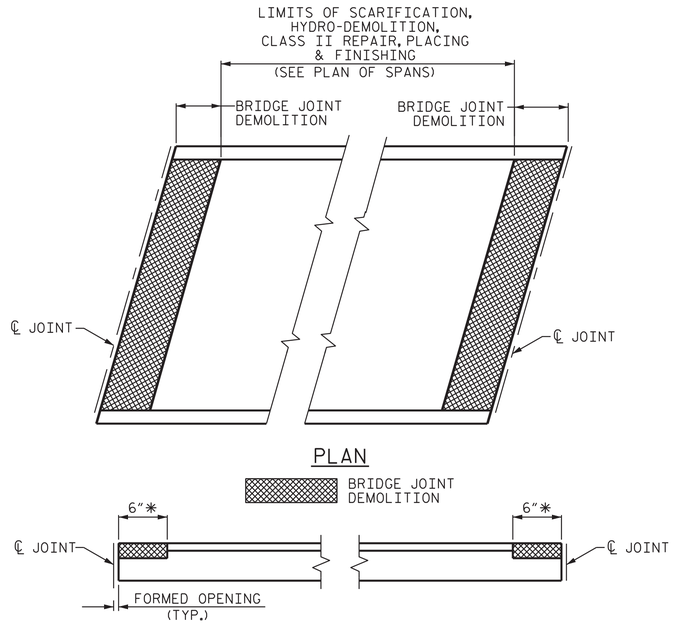
EXISTING TYPICAL SECTION



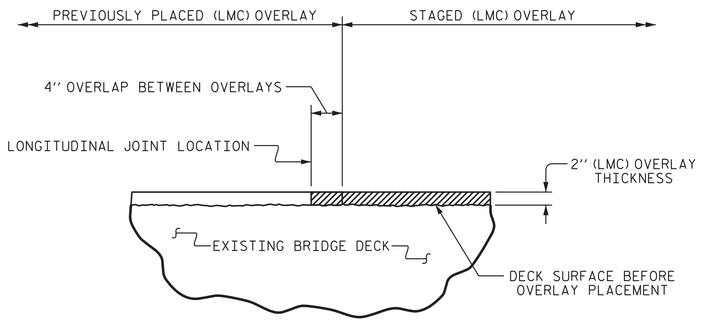
PROPOSED TYPICAL SECTION

NOTES

SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LATEX MODIFIED CONCRETE (LMC) BRIDGE DECK OVERLAY.

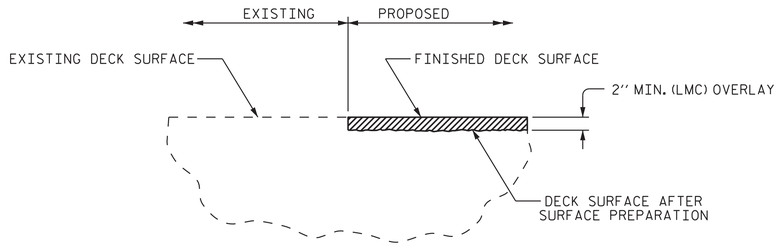


PAY LIMITS FOR OVERLAY BID ITEMS



STAGED LATEX MODIFIED CONCRETE OVERLAY JOINT

(AS NEEDED)



DETAIL OF LATEX MODIFIED CONCRETE OVERLAY

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION AND LMC OVERLAY DETAIL

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NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

DocuSigned by: Jennifer R. McRoy 980913417A90452...

1/7/2019

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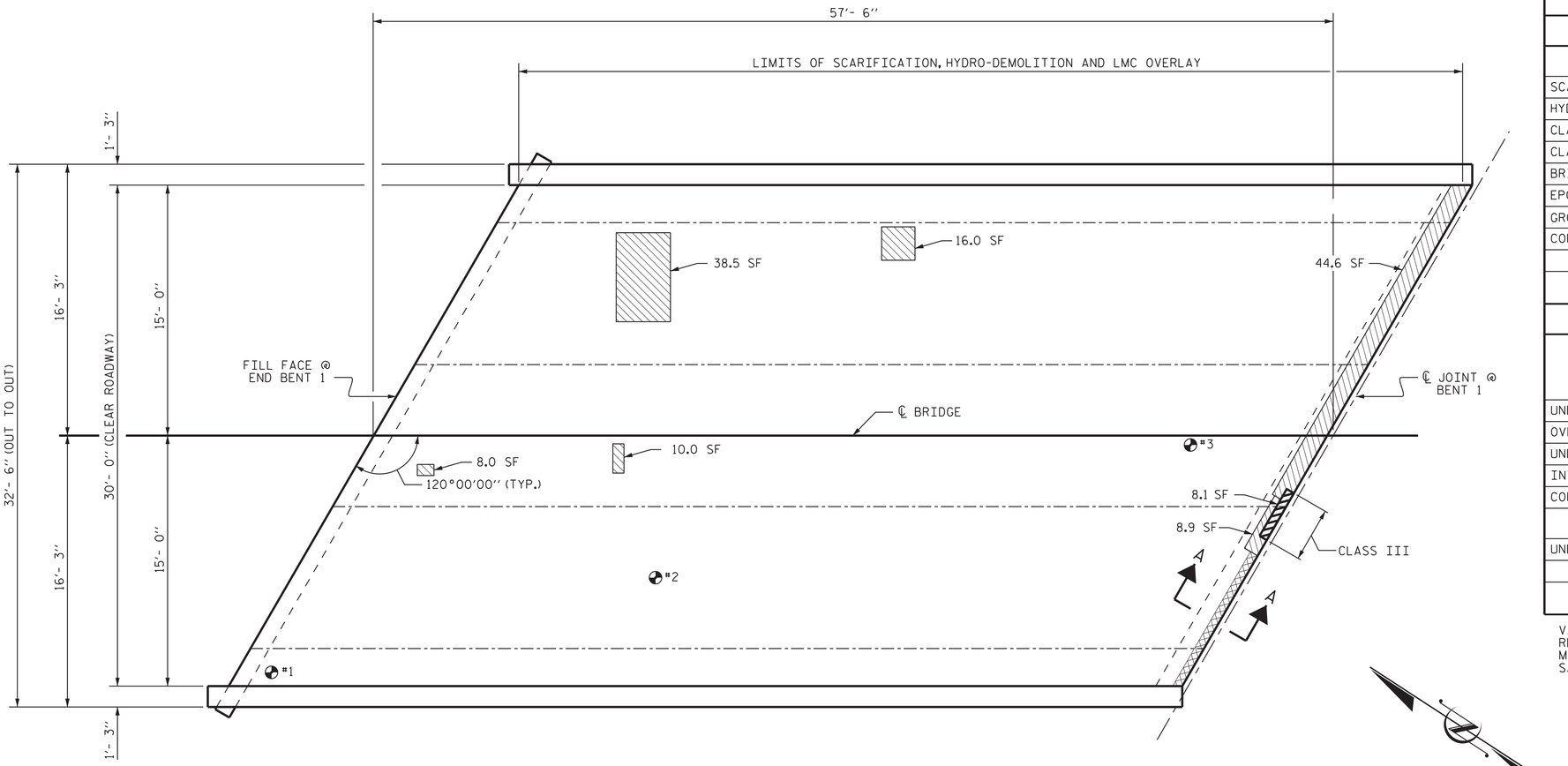

PLAN OF SPAN A

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

PRIOR TO PLACEMENT OF THE LMC OVERLAY ACROSS THE DECK SPANS, THE CONTRACTOR SHALL SUBMIT A POUR SEQUENCE FOR APPROVAL BY THE ENGINEER.

FOR SECTION A-A, SEE "JOINT DETAILS" SHEET.

FOR BRIDGE JOINT DEMOLITION, SEE "JOINT DETAILS" SHEET.

TEST LOCATION	* CONCRETE COVER (INCH)	CONCRETE STRENGTH (PSI)
#1	2"	4800
#2	1½"	5720
#3	2½"	6430

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 5/17/2018.

* CONCRETE COVER FOR TOP BARS IN THE DECK ARE BASED ON DECK EVALUATION DATED 5/17/2018. EXISTING BRIDGE PLANS INDICATE 1⅛" CONCRETE COVER.

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

SPAN A

	ESTIMATE		ACTUAL
SCARIFYING BRIDGE DECK	189.7	SY	
HYDRO-DEMOLITION OF BRIDGE DECK	189.7	SY	
CLASS II SURFACE PREPARATION	14.0	SY	
CLASS III SURFACE PREPARATION	0.9	SY	
BRIDGE JOINT DEMOLITION	4.6	SF	
EPOXY RESIN INJECTION	0.0	LF	
GROOVING BRIDGE FLOORS	1526.5	SF	
CONCRETE FOR DECK REPAIR	44.7	CF	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
CONCRETE CURB AND RAIL	0.0	0.0		

	ESTIMATE		ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	0.0	LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

APPROXIMATE CLASS II AREA

APPROXIMATE CLASS III AREA

UNDERSIDE REPAIR

BRIDGE JOINT DEMOLITION

TEST LOCATION

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN A

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

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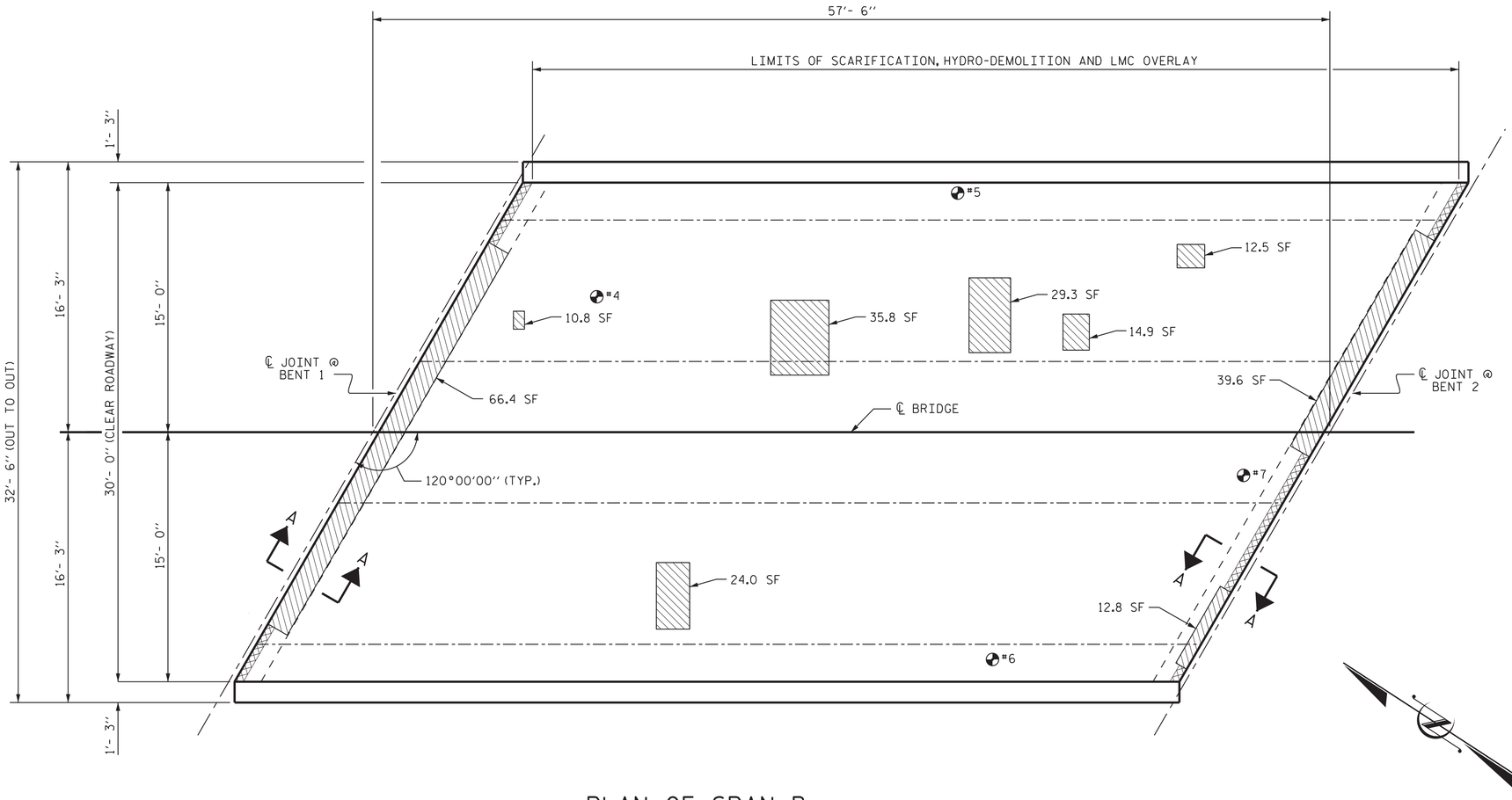

PLAN OF SPAN B

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

PRIOR TO PLACEMENT OF THE LMC OVERLAY ACROSS THE DECK SPANS, THE CONTRACTOR SHALL SUBMIT A POUR SEQUENCE FOR APPROVAL BY THE ENGINEER.

FOR SECTION A-A, SEE "JOINT DETAILS" SHEET.

FOR BRIDGE JOINT DEMOLITION, SEE "JOINT DETAILS" SHEET.

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

SPAN B

	ESTIMATE		ACTUAL
SCARIFYING BRIDGE DECK	187.8	SY	
HYDRO-DEMOLITION OF BRIDGE DECK	187.8	SY	
CLASS II SURFACE PREPARATION	27.3	SY	
CLASS III SURFACE PREPARATION	0.0	SY	
BRIDGE JOINT DEMOLITION	11.2	SF	
EPOXY RESIN INJECTION	0.0	LF	
GROOVING BRIDGE FLOORS	1510.9	SF	
CONCRETE FOR DECK REPAIR	82.0	CF	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
CONCRETE CURB AND RAIL	0.0	0.0		

	ESTIMATE		ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	0.0	LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

TEST LOCATION	* CONCRETE COVER (INCH)	CONCRETE STRENGTH (PSI)
#4	1 3/8"	5470
#5	1 3/4"	5840
#6	1 7/8"	4690
#7	1 1/2"	5020

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 5/17/2018.

* CONCRETE COVER FOR TOP BARS IN THE DECK ARE BASED ON DECK EVALUATION DATED 5/17/2018. EXISTING BRIDGE PLANS INDICATE 1 7/8" CONCRETE COVER.

APPROXIMATE CLASS II AREA

APPROXIMATE CLASS III AREA

UNDERSIDE REPAIR

BRIDGE JOINT DEMOLITION

TEST LOCATION

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN B

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

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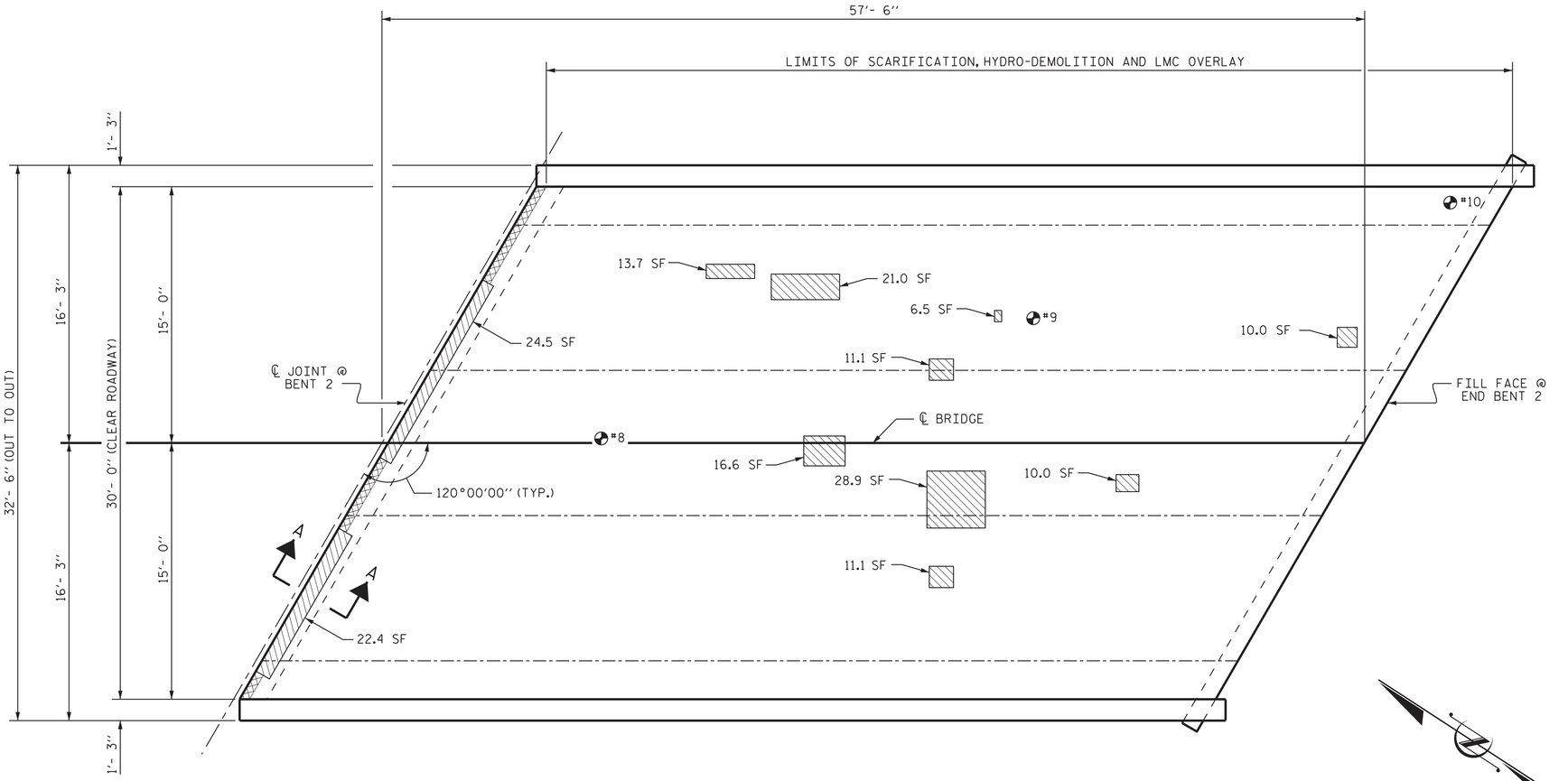

PLAN OF SPAN C

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

PRIOR TO PLACEMENT OF THE LMC OVERLAY ACROSS THE DECK SPANS, THE CONTRACTOR SHALL SUBMIT A POUR SEQUENCE FOR APPROVAL BY THE ENGINEER.

FOR SECTION A-A, SEE "JOINT DETAILS" SHEET.

FOR BRIDGE JOINT DEMOLITION, SEE "JOINT DETAILS" SHEET.

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

SPAN C

	ESTIMATE		ACTUAL
SCARIFYING BRIDGE DECK	189.7	SY	
HYDRO-DEMOLITION OF BRIDGE DECK	189.7	SY	
CLASS II SURFACE PREPARATION	19.5	SY	
CLASS III SURFACE PREPARATION	0.0	SY	
BRIDGE JOINT DEMOLITION	6.5	SF	
EPOXY RESIN INJECTION	0.0	LF	
GROOVING BRIDGE FLOORS	1526.5	SF	
CONCRETE FOR DECK REPAIR	58.6	CF	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
CONCRETE CURB AND RAIL	0.0	0.0		

	ESTIMATE		ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	0.0	LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

APPROXIMATE CLASS II AREA

APPROXIMATE CLASS III AREA

UNDERSIDE REPAIR

BRIDGE JOINT DEMOLITION

TEST LOCATION

TEST LOCATION	* CONCRETE COVER (INCH)	CONCRETE STRENGTH (PSI)
#8	2¼"	5630
#9	1⅜"	5300
#10	1½"	4760

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 5/17/2018.

* CONCRETE COVER FOR TOP BARS IN THE DECK ARE BASED ON DECK EVALUATION DATED 5/17/2018. EXISTING BRIDGE PLANS INDICATE 1⅛" CONCRETE COVER.

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN C

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

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NOTES

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

THE INSTALLED FOAM JOINT SEAL SHALL BE WATER TIGHT.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL BASED ON JOINT OPENINGS.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

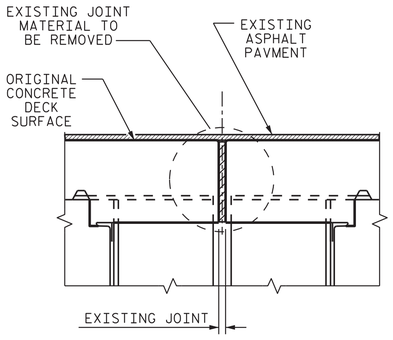
FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

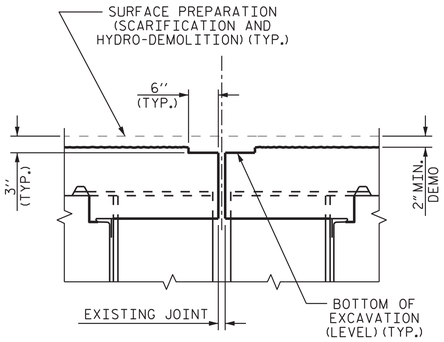
THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN THE DETAIL BY MORE THAN 1/4", NOTIFY THE ENGINEER. REVISION TO THE JOINT SEAL SIZE MIGHT BE NECESSARY.

DEMOLISH BRIDGE JOINT AREA TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE, NOT LATEX MODIFIED CONCRETE.

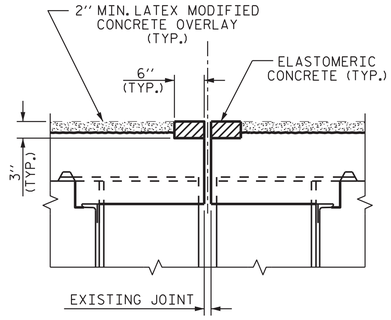
IF THE EMBEDDED PORTION OF AN EXISTING WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED TO WITHIN 2" OF A WATERSTOP, THE ENTIRE WATERSTOP SHALL BE REMOVED. IF SUCH EXCAVATION EXTENDS MORE THAN 2" BELOW THE BOTTOM OF THE PLANNED ELASTOMERIC CONCRETE HEADER, AS SHOWN, APPROVED REPAIR CONCRETE SHALL BE PLACED IN THE EXCAVATION AREA TO THE ELEVATION AT THE BOTTOM OF THE ELASTOMERIC CONCRETE.



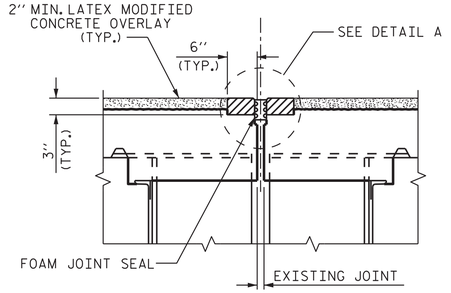
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION

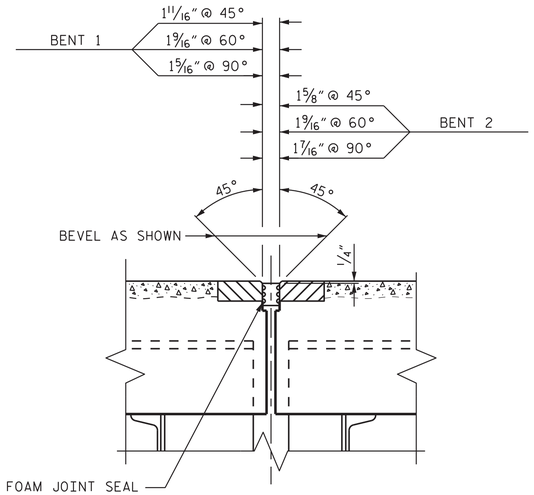


PROPOSED JOINT PRE-SAWED

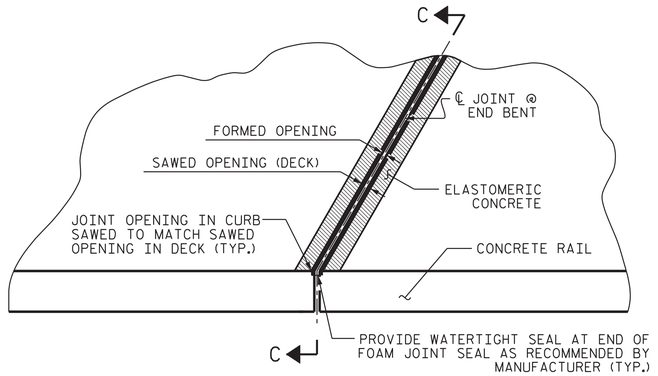


PROPOSED FOAM JOINT SEAL

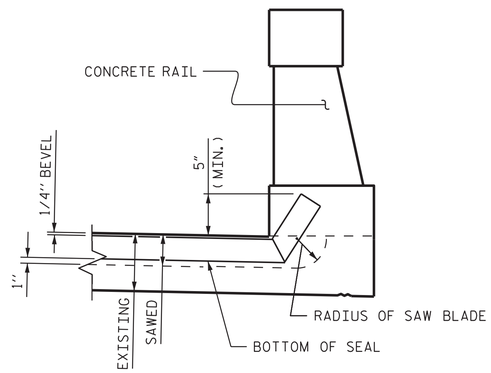
JOINT INSTALLATION SEQUENCE AT BENTS (SECTION A-A)



DETAIL A
(PROPOSED FOAM JOINT SEAL)



PLAN



SECTION C-C

ELASTOMERIC CONCRETE	
BENT 1	8.7 CU. FT.
BENT 2	8.7 CU. FT.
* TOTAL	17.4 CU. FT.

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

JOINT SEAL DETAILS AT BENTS

DRAWN BY : J.R. MCROY DATE : 10/18

CHECKED BY : P.N. HOLDER DATE : 10/18

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1/7/2019

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RALEIGH

JOINT REPAIR DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			54

- ① BEAM NUMBER
- Ⓑ BEAM END REPAIR
- Ⓓ DIAPHRAGM REPAIR
- Ⓟ PLATE REPAIR
- Ⓢ STIFFENER REPAIR
- Ⓝ REPLACE MISSING NUT
- Ⓚ STEEL KEEPER ANGLE ASSEMBLY

NOTES

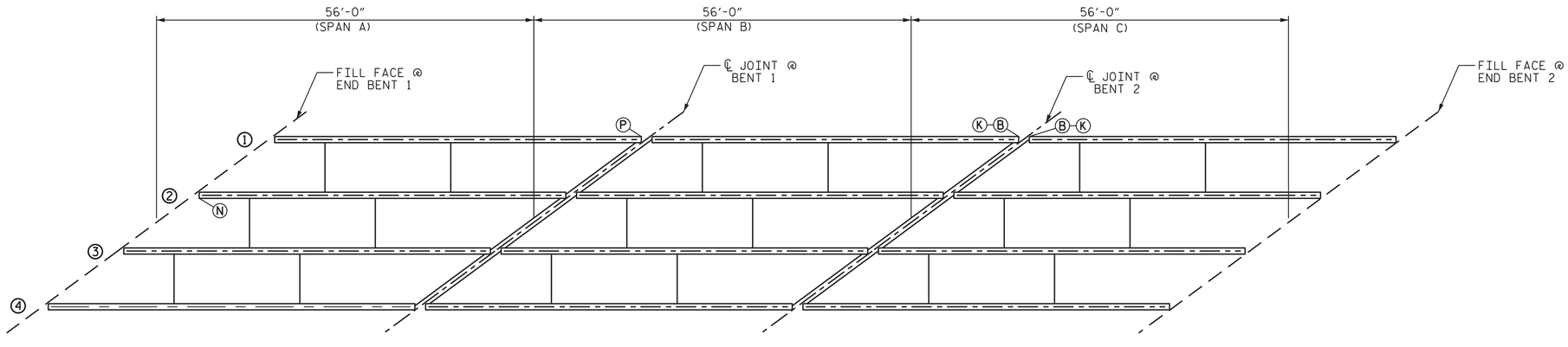
FOR BEAM END REPAIRS AND STIFFENER REPAIRS, SEE ''BEAM END AND INTERMEDIATE REPAIR DETAILS'' SHEET.

FOR PLATE REPAIRS AND DIAPHRAGM REPAIRS, SEE ''BEAM PLATING REPAIR DETAILS'' SHEET.

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENTS OF REPAIR AREAS PRIOR TO STEEL FABRICATION.

CONTRACTOR SHALL ENSURE THAT EXISTING UTILITIES ADJACENT TO THE BRIDGE ARE NOT DAMAGED DURING REPAIR OPERATIONS.

REPLACEMENT OF MISSING NUT IS INCIDENTAL TO THE COST FOR ''BEAM REPAIR''.



BEAM REPAIR LOCATIONS

(OTHER LOCATIONS MAY EXIST, SEE NOTES)

ANTICIPATED BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIM ''A''	DIM ''B''	DIM ''C''	DIM ''D''	DIM ''E''	DIM ''F''
✳ A	1	BENT 1		6"			6"	
B	1	BENT 2	24"	24"				
C	1	BENT 2	6"	24"				

✳ PLATE REPAIR, TOP OF WEB.

BEAM REPAIR

BEAM END REPAIR		PLATE REPAIR		STIFFENER REPAIR		DIAPHRAGM REPAIR	
LBS.		LBS.		LBS.		LBS.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
280		15		——		——	

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

DRAWN BY : P.N.HOLDER DATE : 10/18

CHECKED BY : J.R.McROY DATE : 10/18

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RALEIGH

GIRDER REPAIR LOCATIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			54

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

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

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

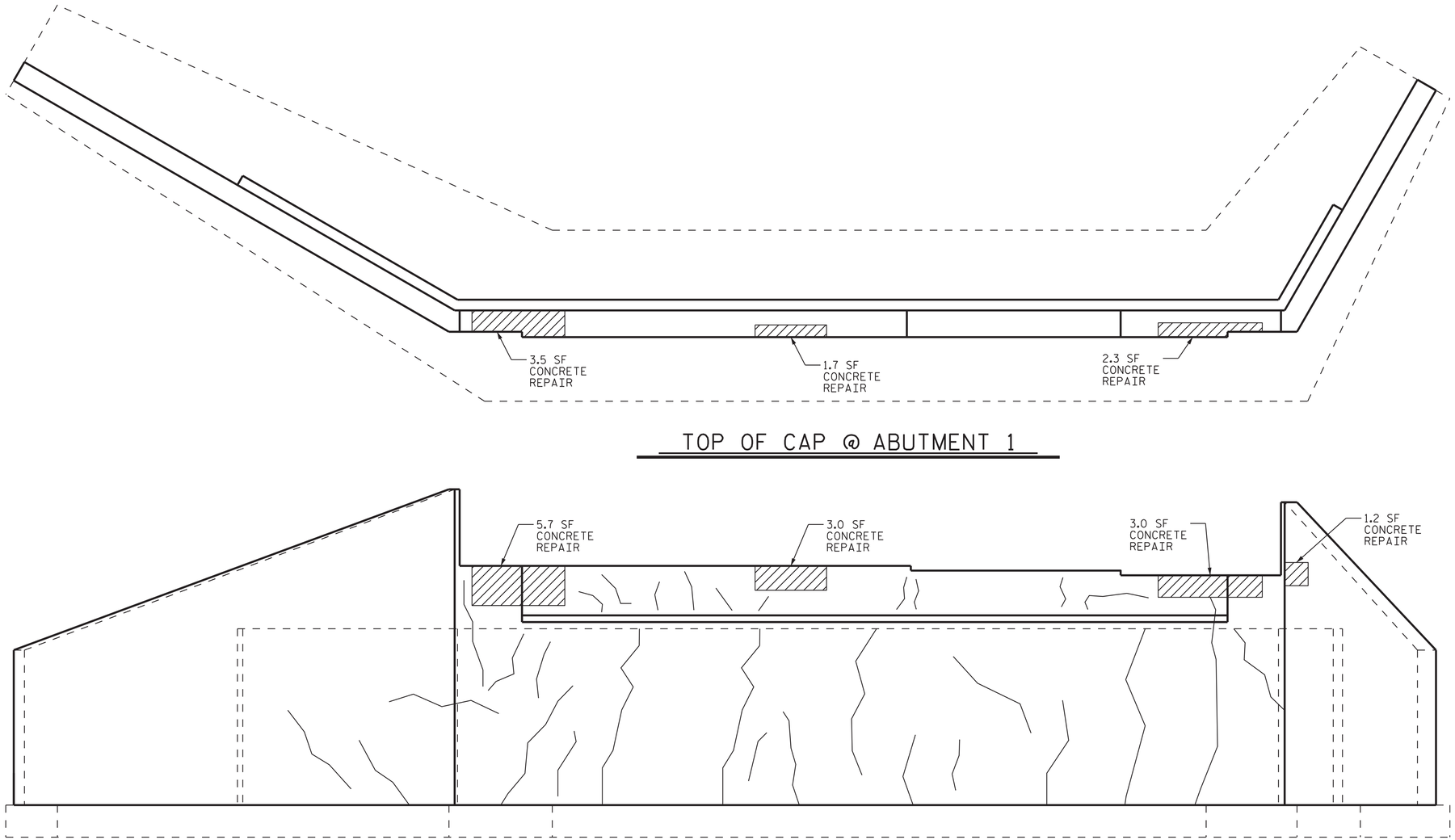
EPOXY COATING SHALL BE APPLIED TO TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE "TYPICAL JACKING DETAIL" SHEET.

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	20.4	10.2		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		125.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		143		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT.



TOP OF CAP @ ABUTMENT 1

ELEVATION @ ABUTMENT 1 (SPAN A)

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ABUTMENT 1

DRAWN BY : P.N.HOLDER DATE : 06/18
CHECKED BY : R.G.BEAUCHAMP DATE : 09/18

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1/7/2019

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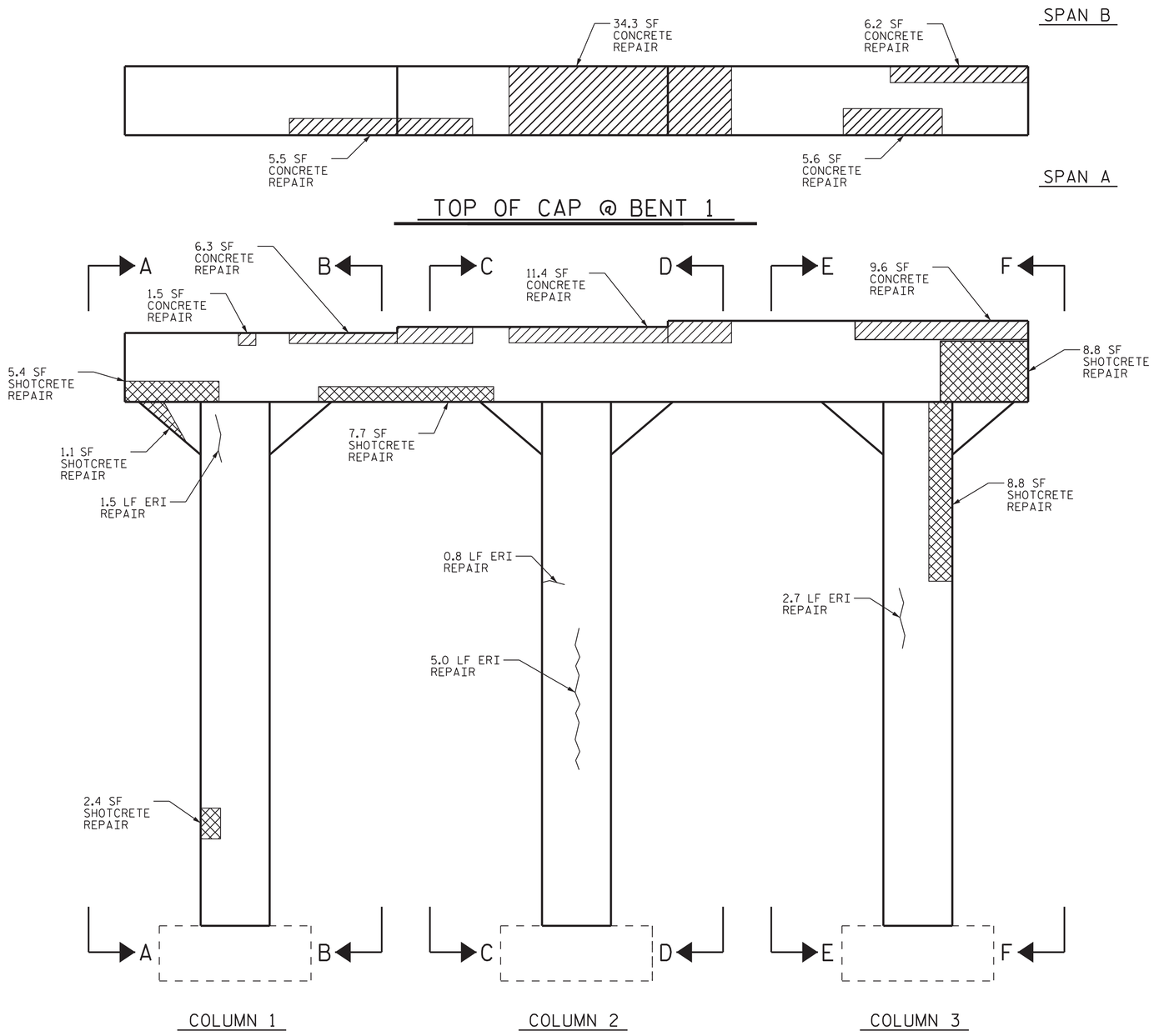
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			54



ELEVATION @ BENT 1 (SPAN A)

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR BENT REPAIRS, SEE ''TYPICAL CAP AND COLUMN REPAIR DETAILS'' SHEET.

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

EPOXY COATING SHALL BE APPLIED TO TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE "TYPICAL JACKING DETAIL" SHEET.

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1
(SPAN A)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			54

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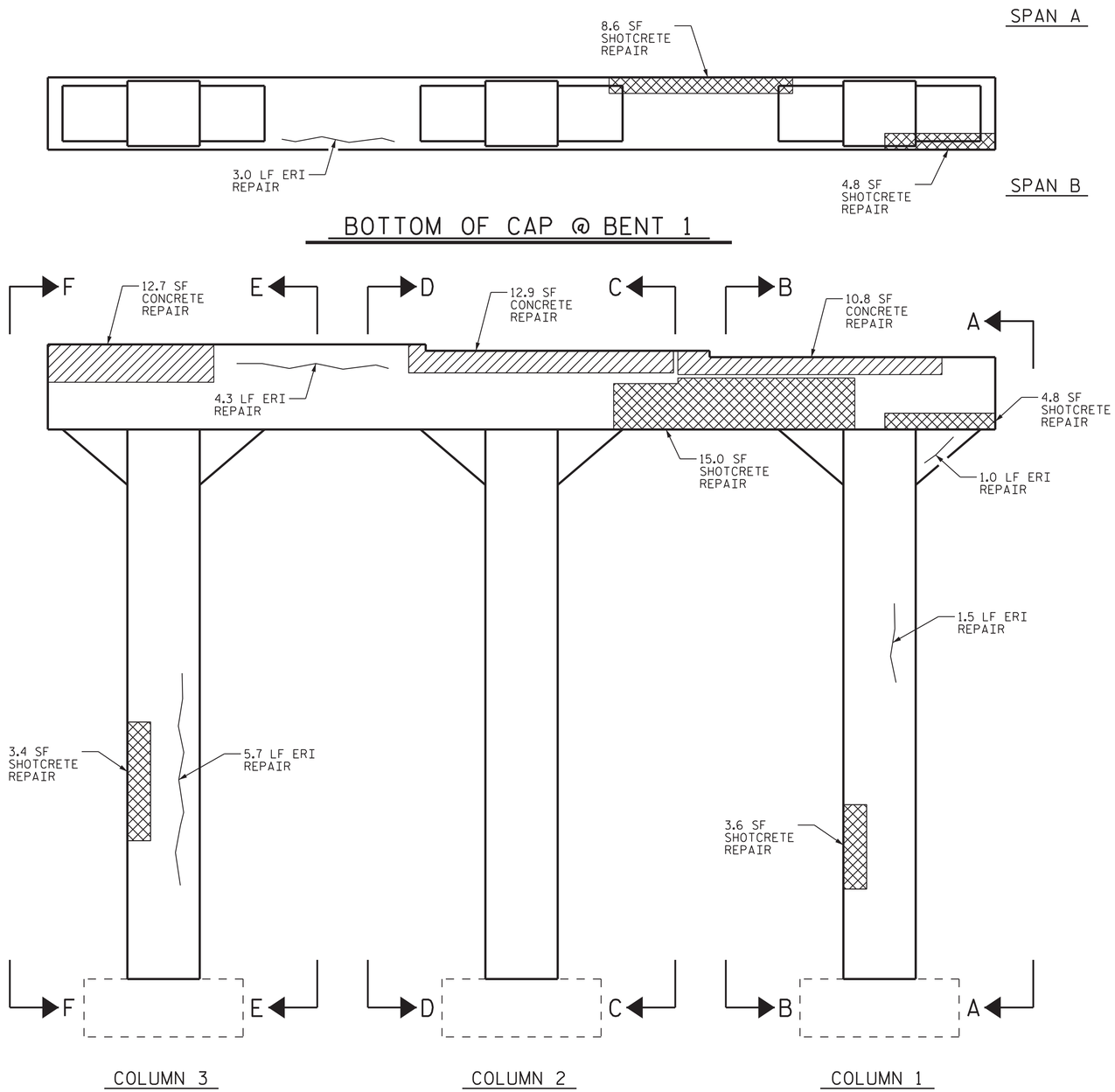

ELEVATION @ BENT 1 (SPAN B)

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	61.9	31.0		
COLUMN	28.7	14.4		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	121.8	60.9		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		8.3		
COLUMN		18.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		82		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT.

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1
(SPAN B)

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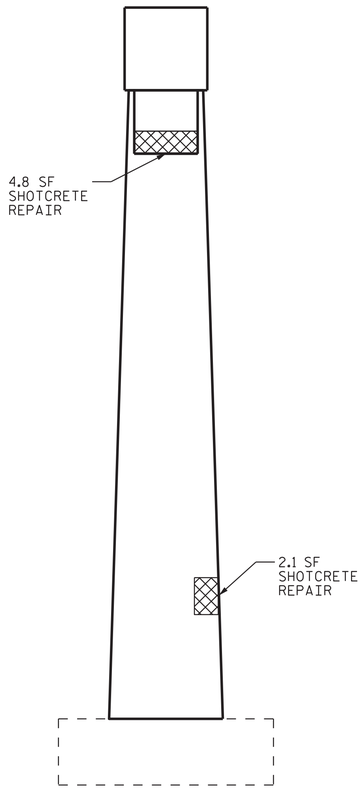
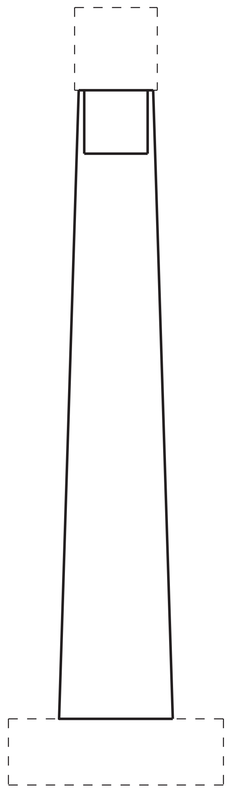
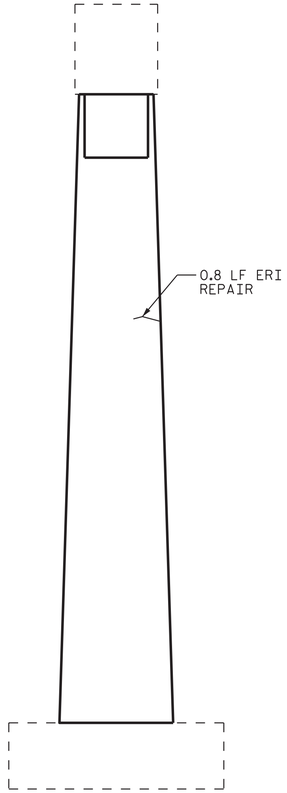
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			54



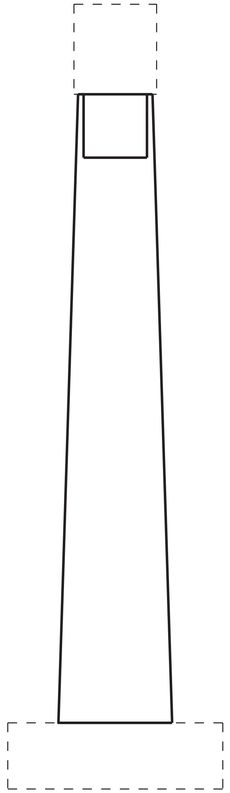
SECTION A-A



SECTION B-B



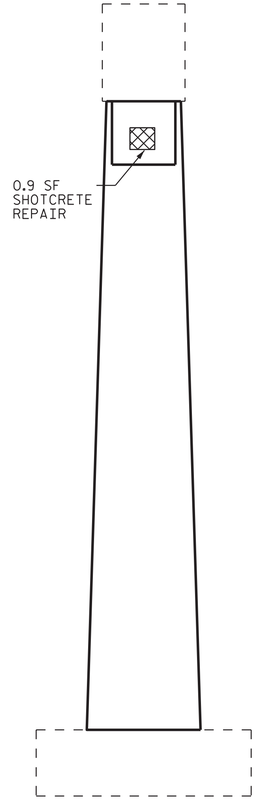
SECTION C-C



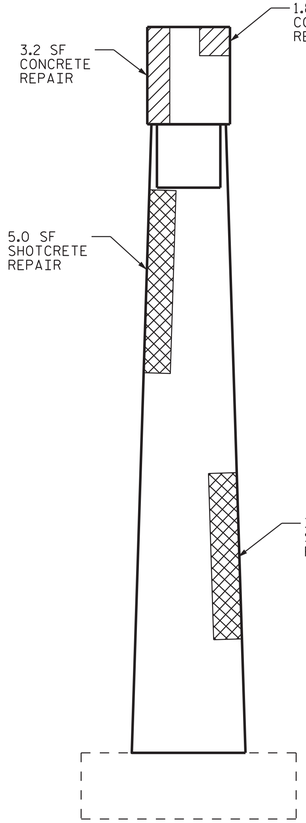
SECTION D-D

COLUMN 1

COLUMN 2



SECTION E-E



SECTION F-F

COLUMN 3

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

DRAWN BY : P.N.HOLDER DATE : 06/18
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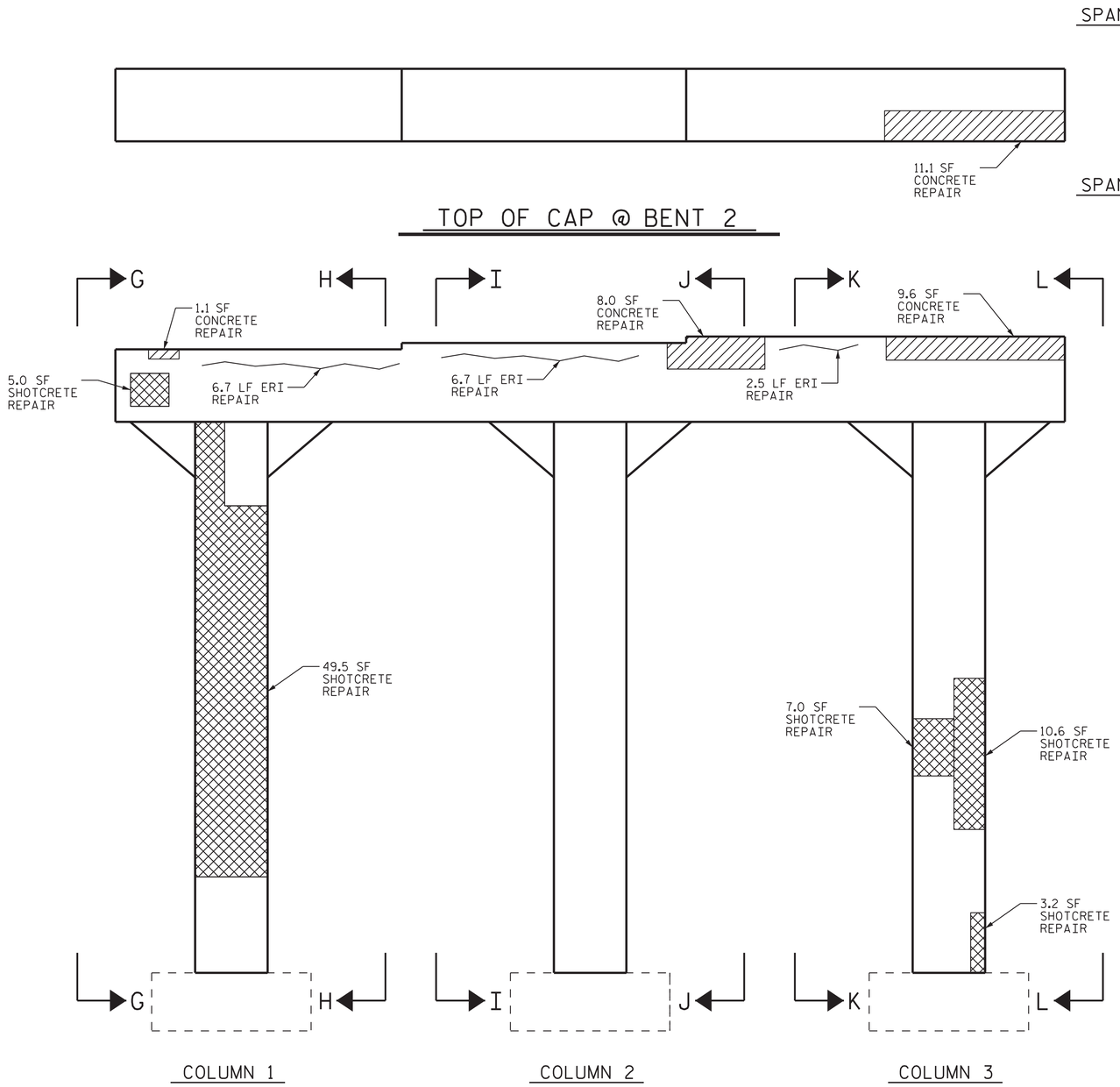
PROJECT NO. 15BPR.33
AVERY COUNTY
BRIDGE NO. 5
SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1
(COLUMNS)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			54



ELEVATION @ BENT 2 (SPAN B)

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR BENT REPAIRS, SEE ''TYPICAL CAP AND COLUMN REPAIR DETAILS'' SHEET.

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

EPOXY COATING SHALL BE APPLIED TO TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE "TYPICAL JACKING DETAIL" SHEET.

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2
(SPAN B)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			54

DRAWN BY : P.N.HOLDER DATE : 06/18
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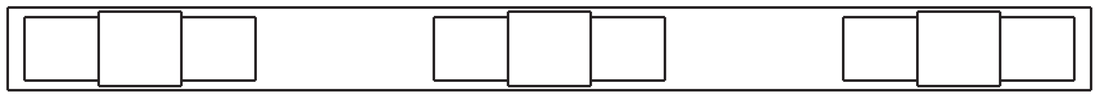
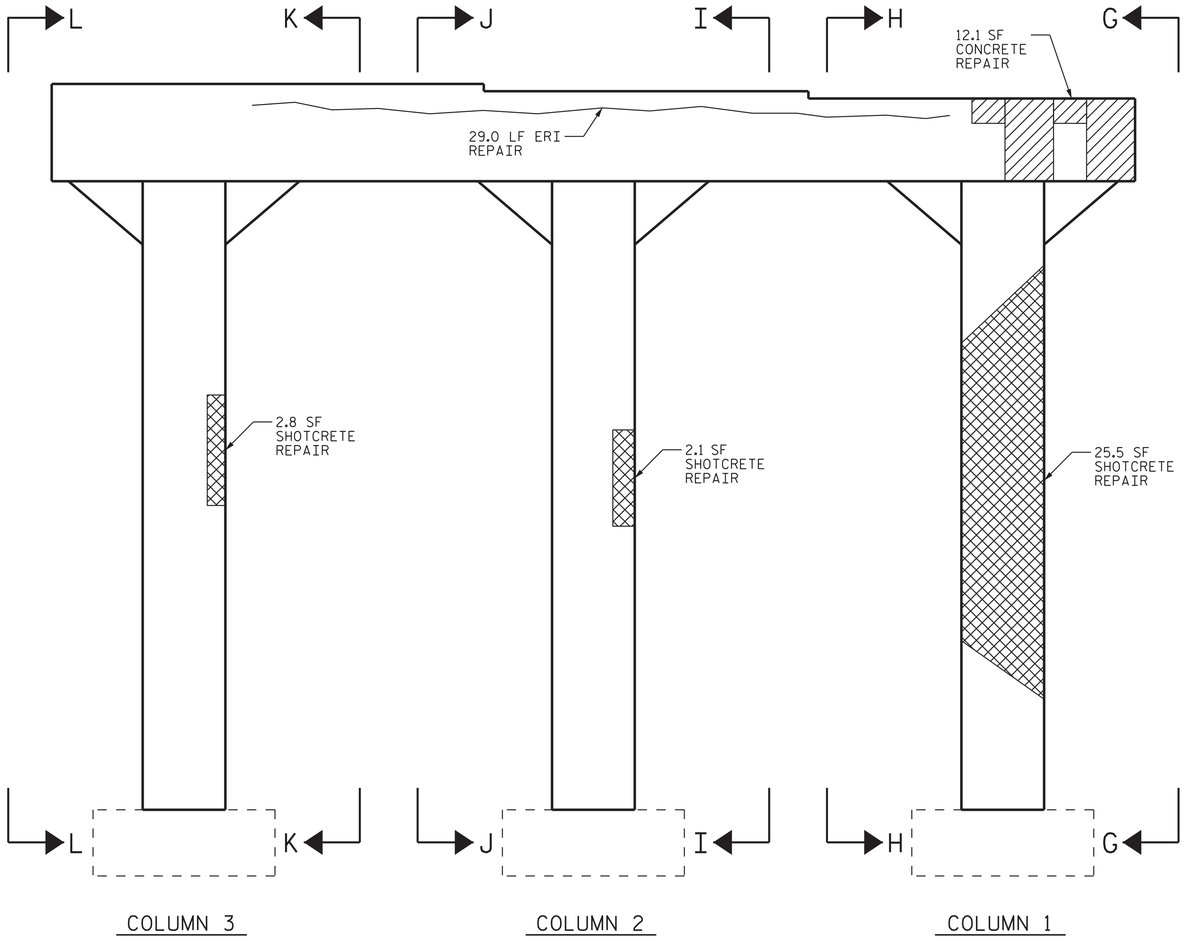
SPAN B



SPAN C

BOTTOM OF CAP @ BENT 2



ELEVATION @ BENT 2 (SPAN C)

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	5.0	2.5		
COLUMN	158.4	79.2		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	45.3	22.7		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT	LN. FT.	
CAP		44.9		
COLUMN		0.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		82		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT.

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2
(SPAN C)

DRAWN BY : P.N.HOLDER DATE : 06/18
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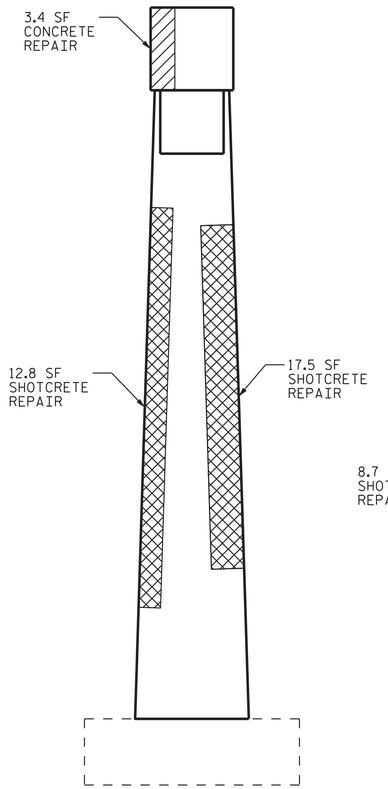
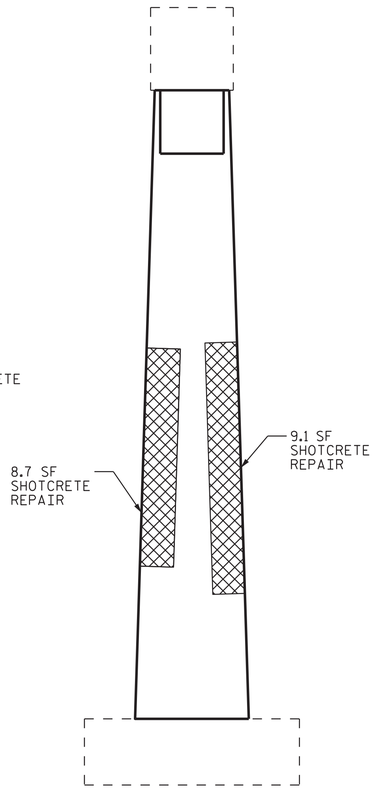
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			54

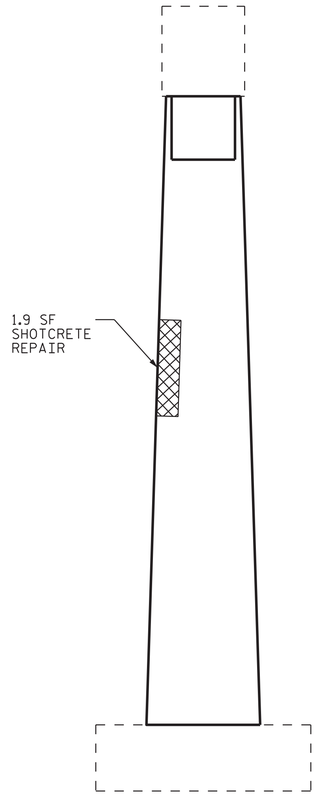


SECTION G-G

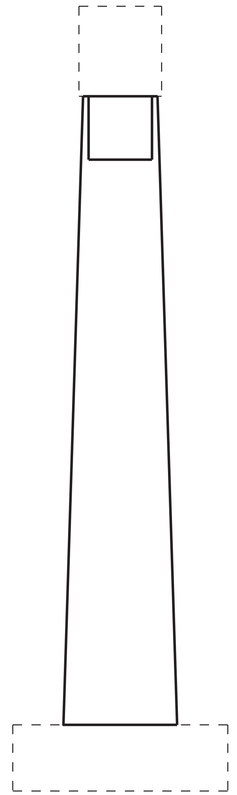


SECTION H-H

COLUMN 1

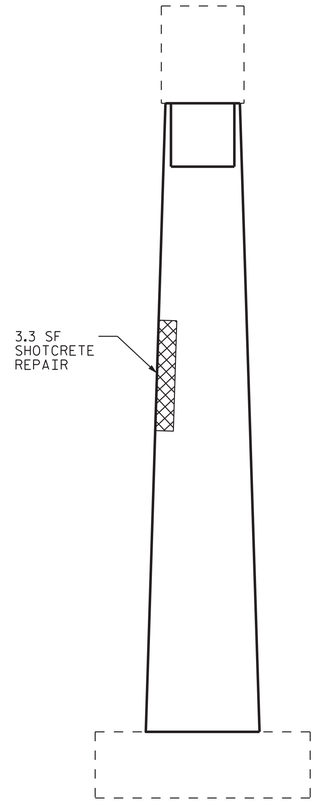


SECTION I-I

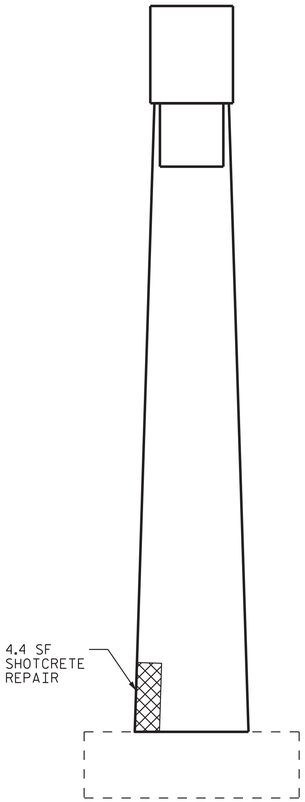


SECTION J-J

COLUMN 2



SECTION K-K



SECTION L-L

COLUMN 3

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

DRAWN BY : P.N.HOLDER DATE : 06/18
CHECKED BY : R.G.BEAUCHAMP DATE : 09/18

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NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

Jennifer McRoy
9809134IFA90452...
1/7/2019

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PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2 (COLUMNS)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			54

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

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

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

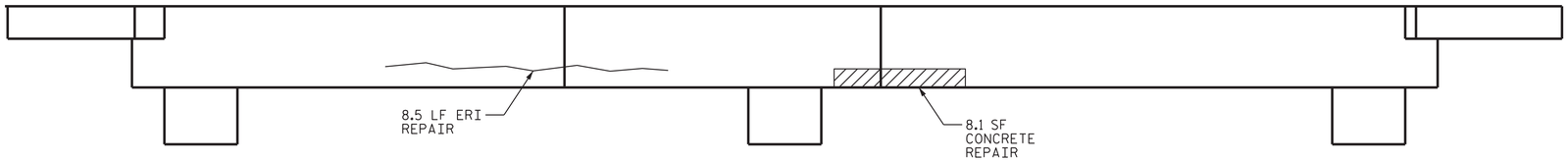
EPOXY COATING SHALL BE APPLIED TO TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE "TYPICAL JACKING DETAIL" SHEET.

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	12.9	6.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	16.2	8.1		
EPOXY RESIN INJECTION		LN. FT.	LN. FT.	
CAP		25.9		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		143		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT.

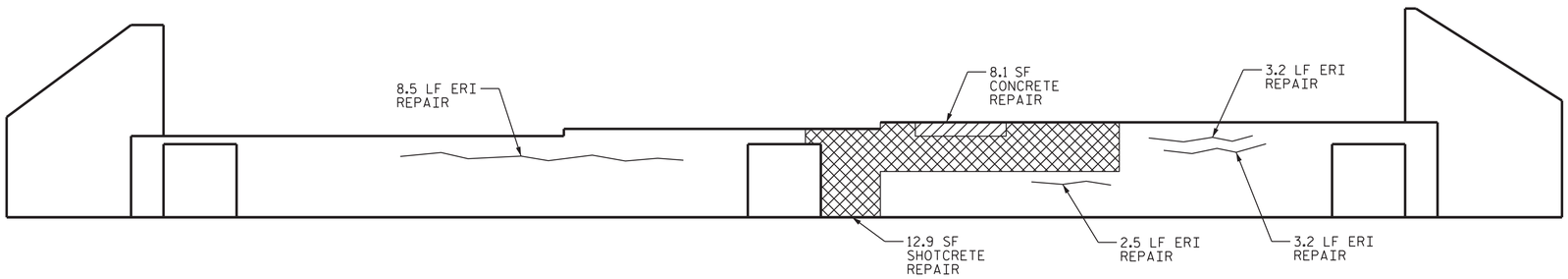


TOP OF CAP @ END BENT 2

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)



ELEVATION @ END BENT 2

PROJECT NO. 15BPR.33

AVERY COUNTY

BRIDGE NO. 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 2

DRAWN BY : P.N.HOLDER DATE : 06/18
CHECKED BY : R.G.BEAUCHAMP DATE : 09/18

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NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCFOY

Docusigned by: Jennifer McFoy 98091341FA8045Z...
1/7/2019

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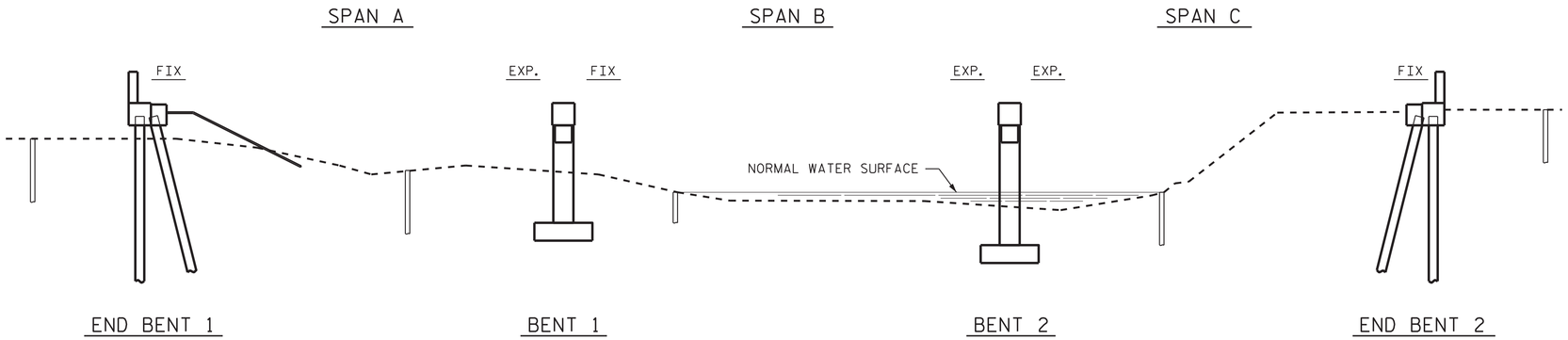
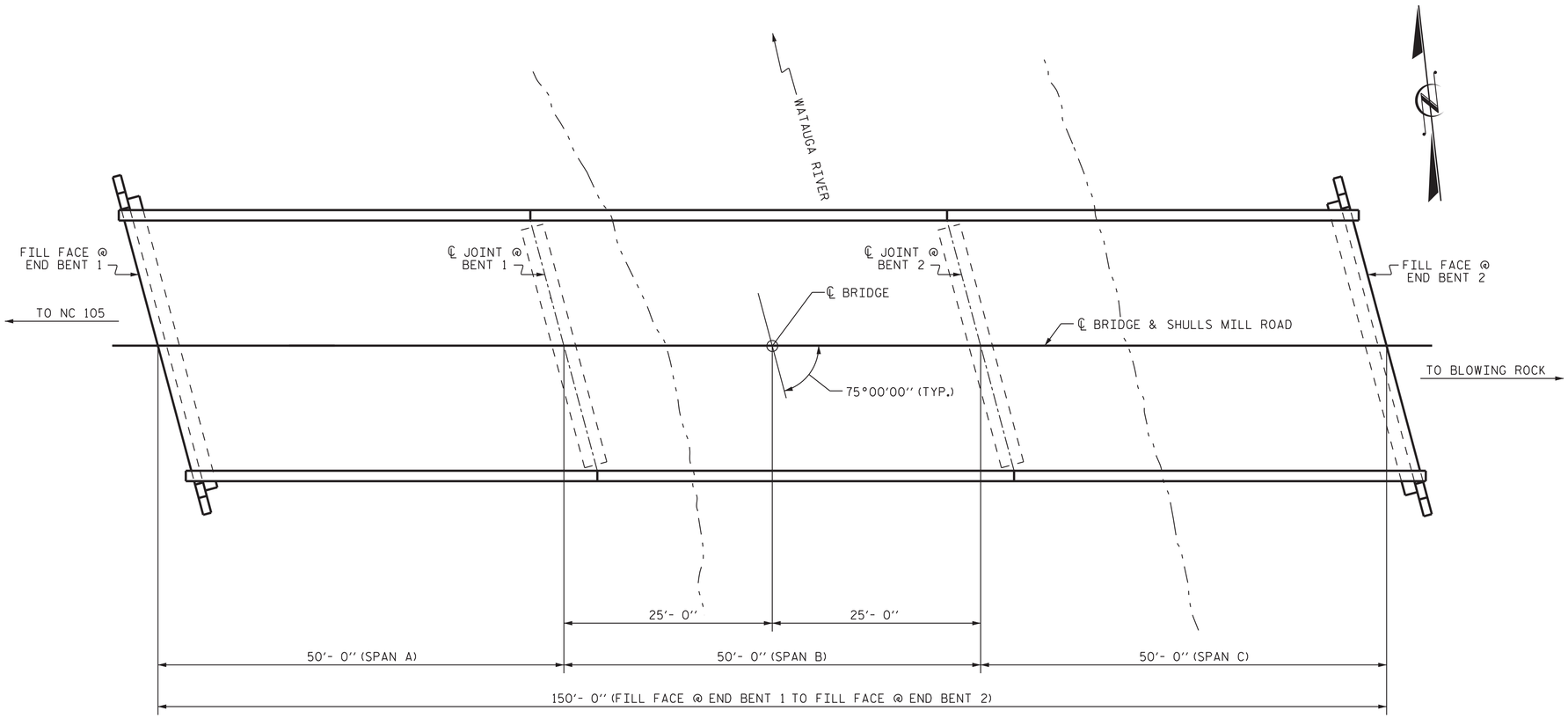


SECTION ALONG ℄ BRIDGE



PLAN

(PILES, COLUMNS AND FOOTING ARE NOT SHOWN FOR CLARITY)

NOTES

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND ROUTINE INSPECTION REPORT DATED 8/04/2015.

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

SCOPE OF WORK

REPAIR SUBSTRUCTURE USING EPOXY RESIN INJECTION, SHOTCRETE AND CONCRETE.

REPAIR, CLEAN AND PAINT EXISTING STEEL BEAMS.

CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA.

REMOVE EXISTING ASPHALT WEARING SURFACE AND PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND HYDRO-DEMOLITION METHODS.

PERFORM DECK REPAIRS IN PREPARED AREAS.

OVERLAY PREPARED BRIDGE DECK WITH LATEX MODIFIED CONCRETE.

RECONSTRUCT BRIDGE JOINTS AND INSTALL FOAM JOINT SEALS.

GROOVE LATEX MODIFIED CONCRETE.

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

RESIDENT ENGINEER DATE

PROJECT NO. 15BPR.33

WATAUGA COUNTY

BRIDGE NO. 3

SHEET 1 OF 2

DRAWN BY : D. A. GLADDEN DATE : 5/18

CHECKED BY : J.R. MCROY DATE : 10/18

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Docusigned by: Jennifer McRoy 98091341FA90452...

1/7/2019

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER WATAUGA RIVER ON SR 1557 (SHULLS MILL ROAD) BETWEEN SR 1568 & SR 1558

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			54

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

QUANTITIES HAVE BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION.

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

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.

EXISTING JOINTS SHALL BE SEALED PRIOR TO BEGINNING REPAIRS OF BRIDGE DECK.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANE.

FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, AND CLASS II AND CLASS III SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

FOR LATEX MODIFIED CONCRETE AND PLACING AND FINISHING LATEX MODIFIED CONCRETE, SEE LATEX MODIFIED CONCRETE SPECIAL PROVISION.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

FOR PAINTING CONTAINMENT, POLLUTION CONTROL, AND CLEANING AND REPAINTING BRIDGE, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISION.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR ELASTOMETRIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATINGS, SEE EPOXY COATING AND DEBRIS REMOVAL SPECIAL PROVISION.

FOR CLEANING AND PAINTING OF EXISTING BEARINGS WITH HRSCA, SEE SPECIAL PROVISIONS.

LOCATION SKETCH

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. THE CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.

LOCATION COORDINATES	
LATITUDE	36° 10′ 24.98″
LONGITUDE	81° 44′ 44.67″

PROJECT NO. 15BPR.33

WATAUGA COUNTY

BRIDGE NO. 3

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER WATAUGA RIVER ON SR 1557 (SHULLS MILL ROAD) BETWEEN SR 1568 & SR 1558

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

Jennifer McRoy
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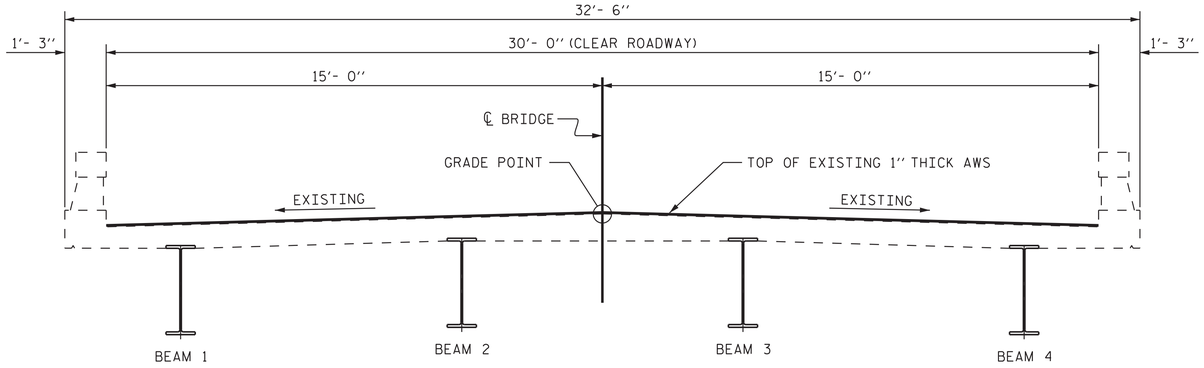
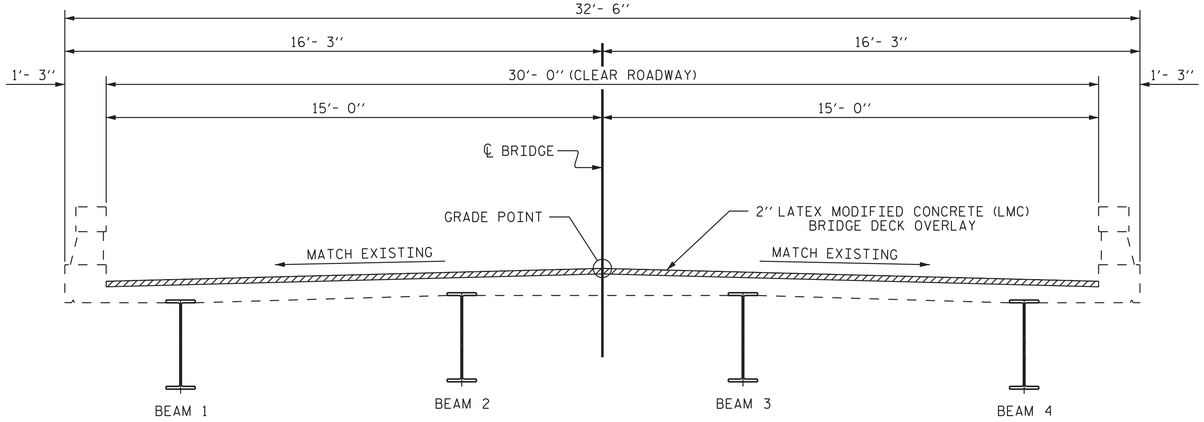
DRAWN BY : D. A. GLADDEN DATE : 5/18
CHECKED BY : J.R. MCROY DATE : 10/18



EXISTING TYPICAL SECTION



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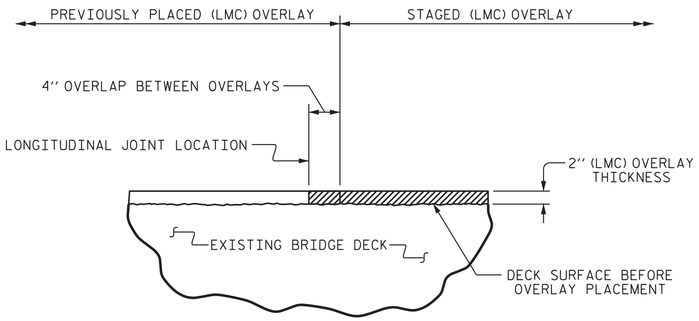
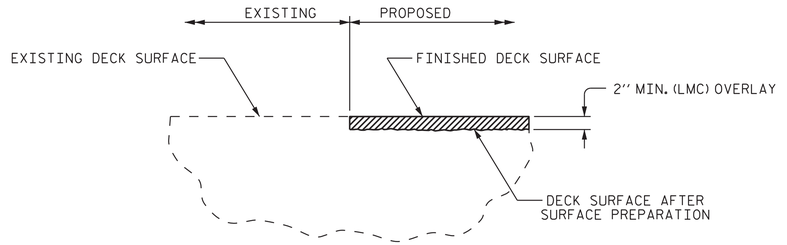


STAGED LATEX MODIFIED CONCRETE OVERLAY JOINT

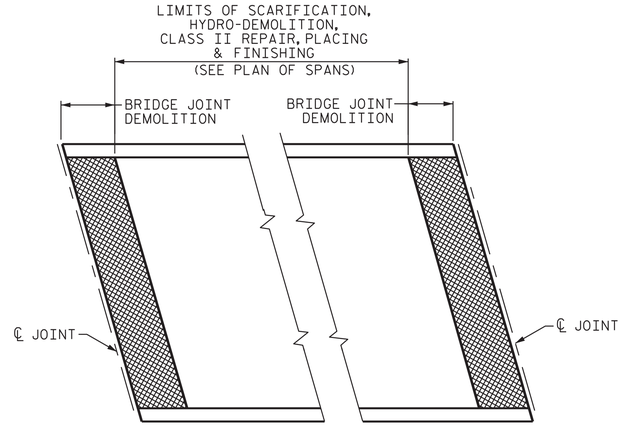
(AS NEEDED)



DETAIL OF LATEX MODIFIED CONCRETE OVERLAY

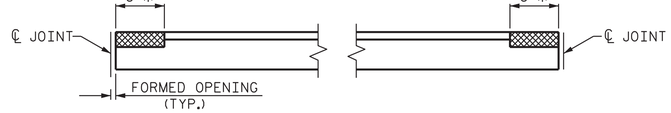
NOTES

SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LATEX MODIFIED CONCRETE (LMC) BRIDGE DECK OVERLAY.



PLAN

BRIDGE JOINT DEMOLITION



* DIMENSION MEASURED PERPENDICULAR TO JOINT

ELEVATION

PAY LIMITS FOR OVERLAY BID ITEMS

PROJECT NO. 15BPR.33

WATAUGA COUNTY

BRIDGE NO. 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION AND LMC OVERLAY DETAIL

DRAWN BY : D. A. GLADDEN DATE : 4/18
CHECKED BY : J.R. MCROY DATE : 10/18

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DocuSigned by: Jennifer Mcroy 98091341FA90452...
1/7/2019

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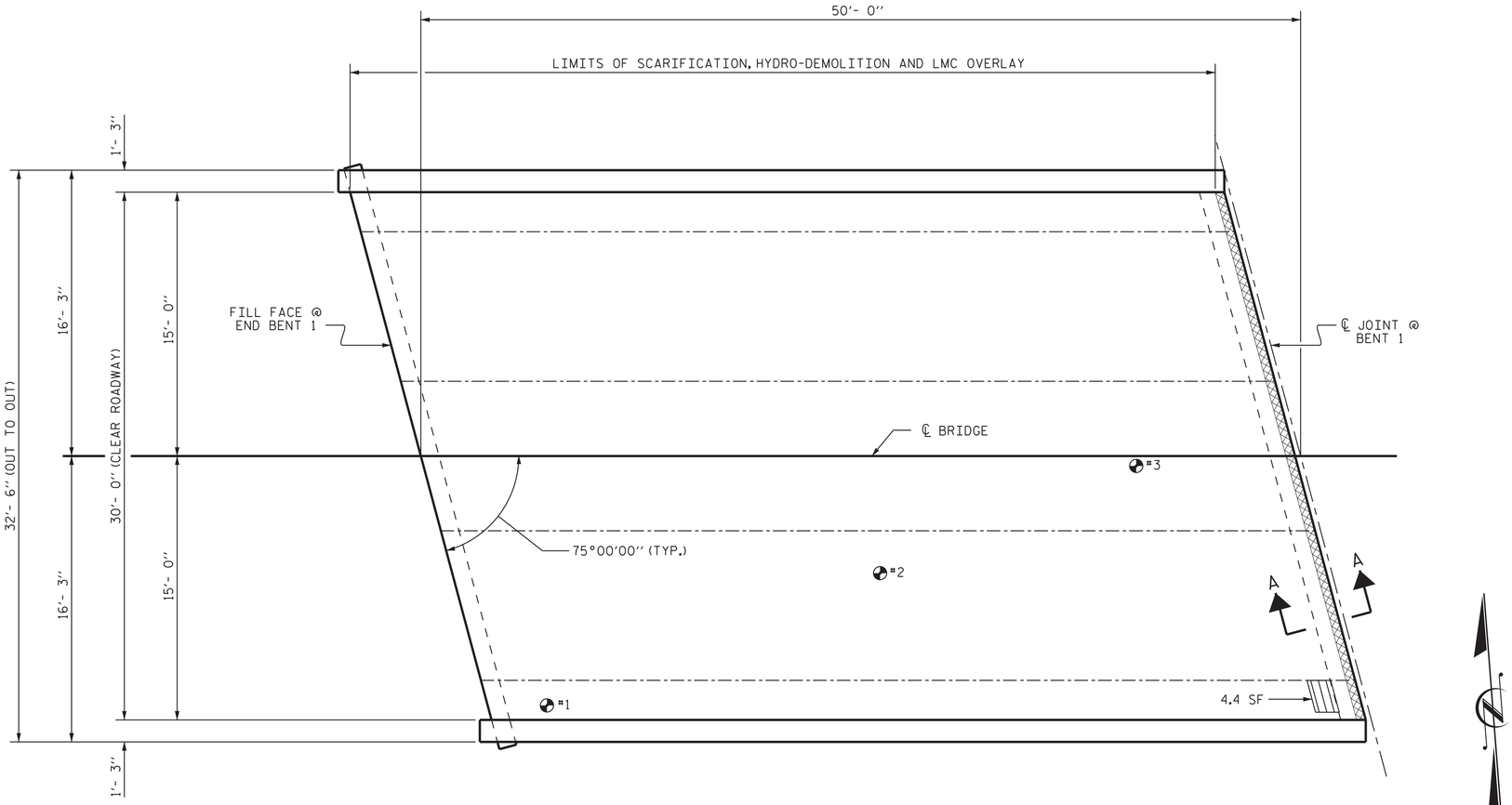

PLAN OF SPAN A

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

SPAN A

	ESTIMATE		ACTUAL
SCARIFYING BRIDGE DECK	164.9	SY	
HYDRO-DEMOLITION OF BRIDGE DECK	164.9	SY	
CLASS II SURFACE PREPARATION	0.0	SY	
CLASS III SURFACE PREPARATION	0.0	SY	
BRIDGE JOINT DEMOLITION	15.5	SF	
EPOXY RESIN INJECTION	0.0	LF	
GROOVING BRIDGE FLOORS	1326.7	SF	
CONCRETE FOR DECK REPAIR	0.0	CF	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	4.4	1.5		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
CONCRETE CURB AND RAIL	0.0	0.0		

	ESTIMATE		ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	0.0	LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1'' BEHIND REBAR AND MINIMUM 2'' CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

APPROXIMATE CLASS II AREA

APPROXIMATE CLASS III AREA

UNDERSIDE REPAIR

BRIDGE JOINT DEMOLITION

TEST LOCATION

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONCRETE COVER FOR TOP BARS IN DECK SLAB IS 1½'' PER THE EXISTING BRIDGE PLANS.

PRIOR TO PLACEMENT OF THE LMC OVERLAY ACROSS THE DECK SPANS, THE CONTRACTOR SHALL SUBMIT A POUR SEQUENCE FOR APPROVAL BY THE ENGINEER.

FOR SECTION A-A, SEE ''JOINT DETAILS'' SHEET.

CLASS II SURFACE PREPARATION, CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS II SURFACE PREPARATION, CLASS III SURFACE PREPARATION, OR CONCRETE FOR DECK REPAIR AREAS ARE ENCOUNTERED.

FOR BRIDGE JOINT DEMOLITION, SEE ''JOINT DETAILS'' SHEET.

TEST LOCATION	ASPHALT THICKNESS (INCH)	CONCRETE STRENGTH (PSI)
#1	1/4''	*
#2	1/4''	*
#3	5/16''	*

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 5/01/2018.

* CONCRETE COMPRESSIVE STRENGTH COULD NOT BE TESTED DUE TO THE PRESENCE OF ASPHALT OVERLAY.

PROJECT NO. 15BPR.33

WATAUGA COUNTY

BRIDGE NO. 3

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN A

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. McROY

DocuSigned by: Jennifer McRoy 9B09134 1FA80452...

1/7/2019

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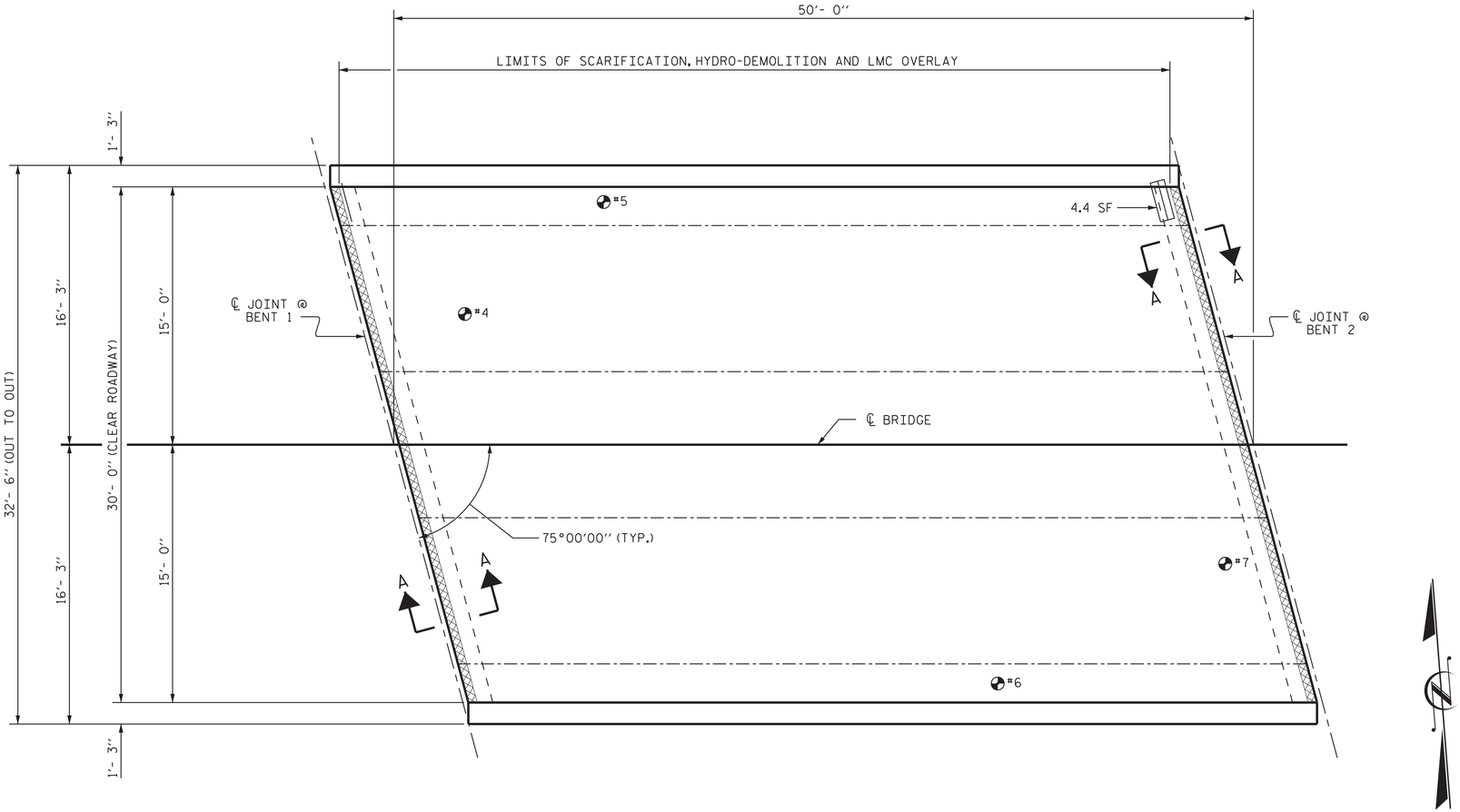

PLAN OF SPAN B

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

SPAN B

	ESTIMATE		ACTUAL
SCARIFYING BRIDGE DECK	163.2	SY	
HYDRO-DEMOLITION OF BRIDGE DECK	163.2	SY	
CLASS II SURFACE PREPARATION	0.0	SY	
CLASS III SURFACE PREPARATION	0.0	SY	
BRIDGE JOINT DEMOLITION	31.1	SF	
EPOXY RESIN INJECTION	0.0	LF	
GROOVING BRIDGE FLOORS	1313.0	SF	
CONCRETE FOR DECK REPAIR	0.0	CF	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	4.4	1.5		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
CONCRETE CURB AND RAIL	0.0	0.0		

	ESTIMATE		ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	0.0	LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1'' BEHIND REBAR AND MINIMUM 2'' CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

APPROXIMATE CLASS II AREA

APPROXIMATE CLASS III AREA

UNDERSIDE REPAIR

BRIDGE JOINT DEMOLITION

TEST LOCATION

TEST LOCATION	ASPHALT THICKNESS (INCH)	CONCRETE STRENGTH (PSI)
#4	1/4''	*
#5	1/4''	*
#6	1/4''	*
#7	1/4''	*

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 5/01/2018.

* CONCRETE COMPRESSIVE STRENGTH COULD NOT BE TESTED DUE TO THE PRESENCE OF ASPHALT OVERLAY.

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONCRETE COVER FOR TOP BARS IN DECK SLAB IS 1½'' PER THE EXISTING BRIDGE PLANS.

PRIOR TO PLACEMENT OF THE LMC OVERLAY ACROSS THE DECK SPANS, THE CONTRACTOR SHALL SUBMIT A POUR SEQUENCE FOR APPROVAL BY THE ENGINEER.

FOR SECTION A-A, SEE ''JOINT DETAILS'' SHEET.

CLASS II SURFACE PREPARATION, CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS II SURFACE PREPARATION, CLASS III SURFACE PREPARATION, OR CONCRETE FOR DECK REPAIR AREAS ARE ENCOUNTERED.

FOR BRIDGE JOINT DEMOLITION, SEE ''JOINT DETAILS'' SHEET.

PROJECT NO. 15BPR.33

WATAUGA COUNTY

BRIDGE NO. 3

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN B

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. McROY

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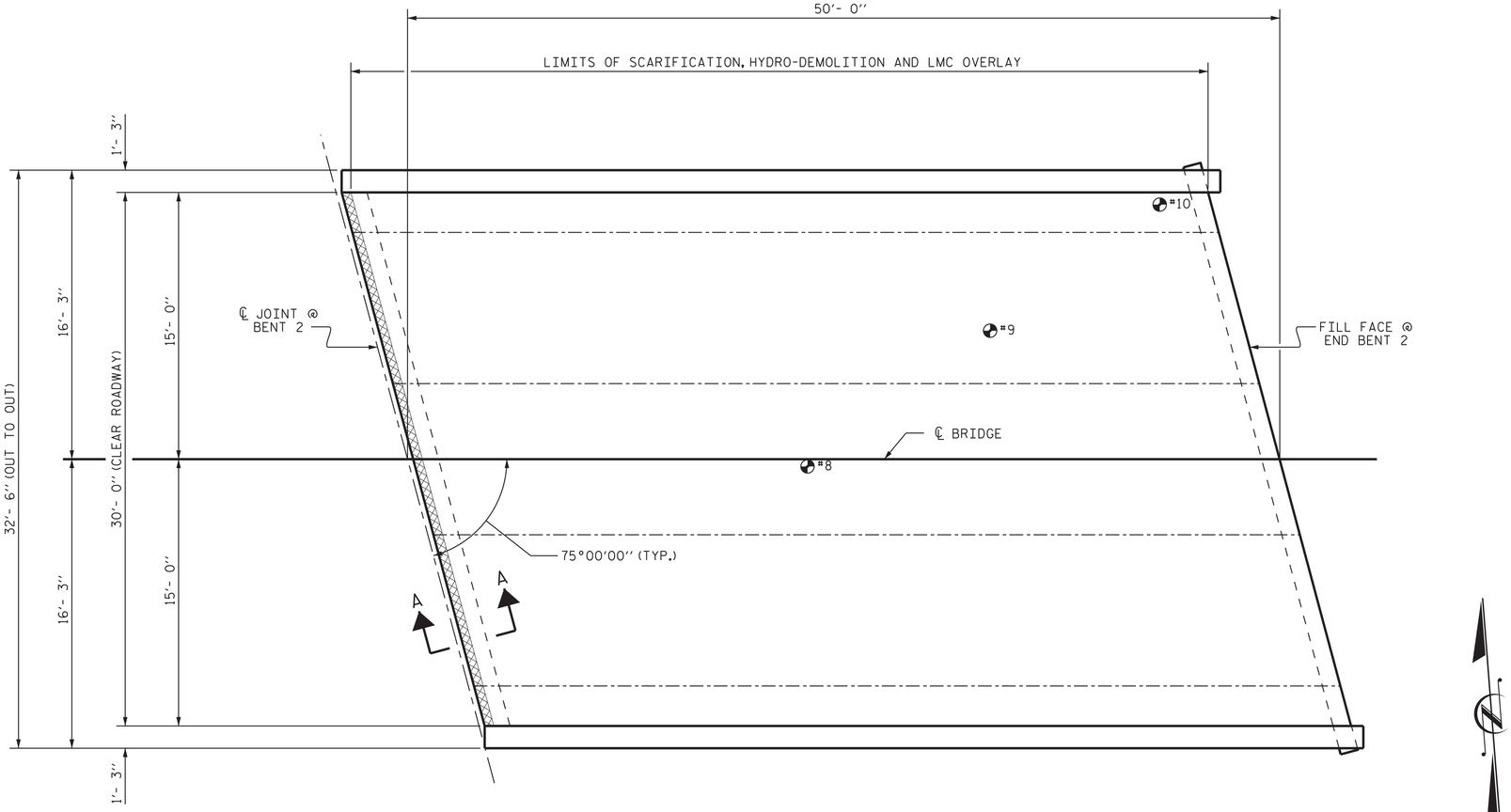

PLAN OF SPAN C

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

CONCRETE COVER FOR TOP BARS IN DECK SLAB IS 1½'' PER THE EXISTING BRIDGE PLANS.

PRIOR TO PLACEMENT OF THE LMC OVERLAY ACROSS THE DECK SPANS, THE CONTRACTOR SHALL SUBMIT A POUR SEQUENCE FOR APPROVAL BY THE ENGINEER.

FOR SECTION A-A, SEE ''JOINT DETAILS'' SHEET.

CLASS II SURFACE PREPARATION, CLASS III SURFACE PREPARATION AND CONCRETE FOR DECK REPAIR ARE NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSES IN CASE UNANTICIPATED CLASS II SURFACE PREPARATION, CLASS III SURFACE PREPARATION, OR CONCRETE FOR DECK REPAIR AREAS ARE ENCOUNTERED.

FOR BRIDGE JOINT DEMOLITION, SEE ''JOINT DETAILS'' SHEET.

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS

SPAN C

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	164.9 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	164.9 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
CLASS III SURFACE PREPARATION	0.0 SY	
BRIDGE JOINT DEMOLITION	15.5 SF	
EPOXY RESIN INJECTION	0.0 LF	
GROOVING BRIDGE FLOORS	1326.7 SF	
CONCRETE FOR DECK REPAIR	0.0 CF	

UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
CONCRETE CURB AND RAIL	0.0	0.0		

	ESTIMATE	ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	0.0 LF	

VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1'' BEHIND REBAR AND MINIMUM 2'' CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

APPROXIMATE CLASS II AREA

APPROXIMATE CLASS III AREA

UNDERSIDE REPAIR

BRIDGE JOINT DEMOLITION

TEST LOCATION

TEST LOCATION	ASPHALT THICKNESS (INCH)	CONCRETE STRENGTH (PSI)
#8	7/16''	*
#9	1/4''	*
#10	1/8''	*

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 5/01/2018.

* CONCRETE COMPRESSIVE STRENGTH COULD NOT BE TESTED DUE TO THE PRESENCE OF ASPHALT OVERLAY.

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. McROY

Jennifer McRoy

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PROJECT NO. 15BPR.33

WATAUGA COUNTY

BRIDGE NO. 3

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPAN C

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			54

DRAWN BY : D. A. GLADDEN DATE : 5/18
CHECKED BY : J. R. McROY DATE : 10/18

NOTES

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

THE INSTALLED FOAM JOINT SEAL SHALL BE WATER TIGHT.

THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL BASED ON JOINT OPENINGS.

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE JOINT.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

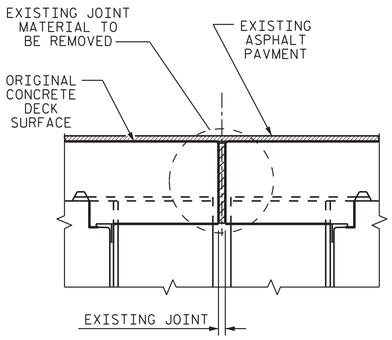
FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

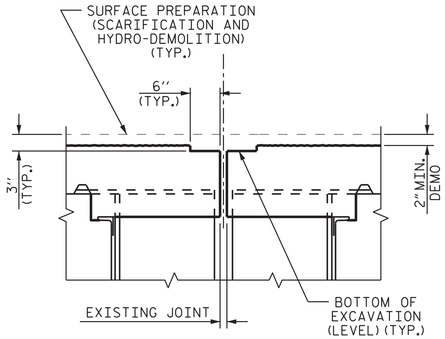
THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN THE DETAIL BY MORE THAN 1/4", NOTIFY THE ENGINEER. REVISION TO THE JOINT SEAL SIZE MIGHT BE NECESSARY.

DEMOLISH BRIDGE JOINT AREA TO THE NECESSARY DEPTH, SUCH THAT ELASTOMERIC CONCRETE SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE, NOT LATEX MODIFIED CONCRETE.

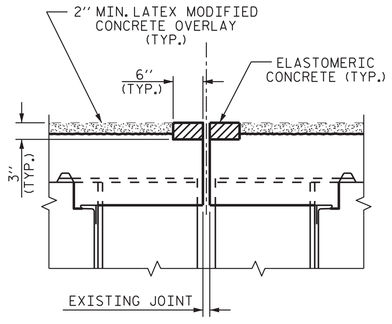
IF THE EMBEDDED PORTION OF AN EXISTING WATERSTOP IS EXPOSED DURING REMOVAL OF UNSOUND CONCRETE, OR IF UNSOUND CONCRETE IS REMOVED TO WITHIN 2" OF A WATERSTOP, THE ENTIRE WATERSTOP SHALL BE REMOVED. IF SUCH EXCAVATION EXTENDS MORE THAN 2" BELOW THE BOTTOM OF THE PLANNED ELASTOMERIC CONCRETE HEADER, AS SHOWN, APPROVED REPAIR CONCRETE SHALL BE PLACED IN THE EXCAVATION AREA TO THE ELEVATION AT THE BOTTOM OF THE ELASTOMERIC CONCRETE.



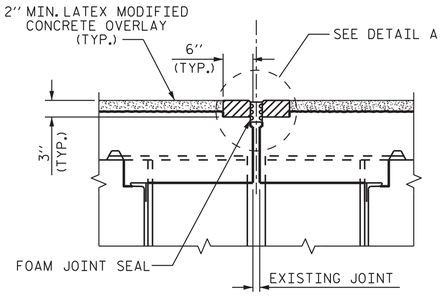
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION

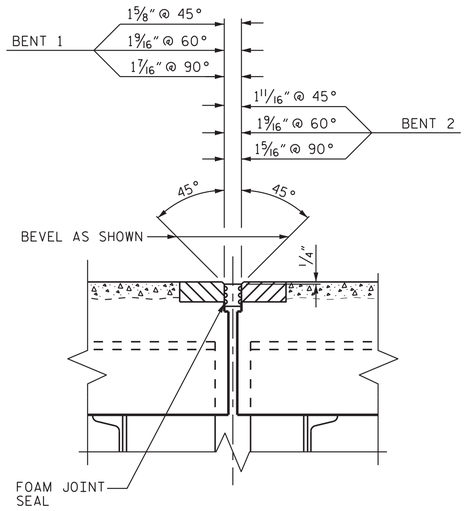


PROPOSED JOINT PRE-SAWED

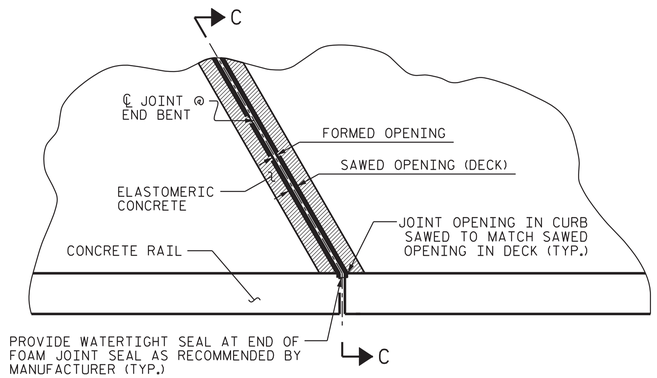


PROPOSED FOAM JOINT SEAL

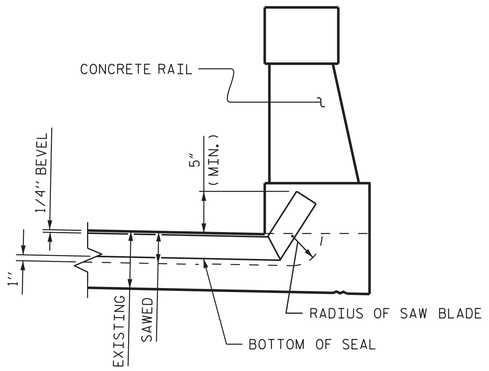
JOINT INSTALLATION SEQUENCE AT BENTS (SECTION A-A)



DETAIL A
(PROPOSED FOAM JOINT SEAL)



PLAN



SECTION C-C

ELASTOMERIC CONCRETE	
BENT 1	7.8 CU. FT.
BENT 2	7.8 CU. FT.
* TOTAL	15.6 CU. FT.

JOINT SEAL DETAILS AT BENTS

PROJECT NO. 15BPR.33
WATAUGA COUNTY
BRIDGE NO. 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

JOINT REPAIR DETAILS

DRAWN BY : J.R. MCROY DATE : 10/18
CHECKED BY : P.N. HOLDER DATE : 10/18

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1/7/2019

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① BEAM NUMBER
Ⓑ BEAM END REPAIR
Ⓓ DIAPHRAGM REPAIR
Ⓟ PLATE REPAIR
Ⓢ STIFFENER REPAIR

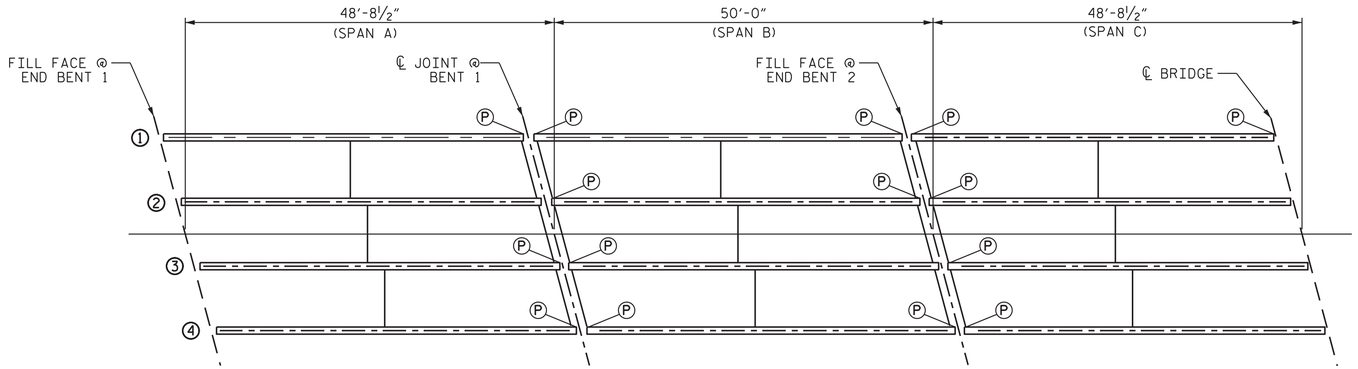
NOTES

FOR BEAM END REPAIRS AND STIFFENER REPAIRS, SEE ''BEAM END AND INTERMEDIATE REPAIR DETAILS'' SHEET.

FOR PLATE REPAIRS AND DIAPHRAGM REPAIRS, SEE ''BEAM PLATING REPAIR DETAILS'' SHEET.

THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY THE LOCATION AND EXTENTS OF REPAIR AREAS PRIOR TO STEEL FABRICATION.

CONTRACTOR SHALL ENSURE THAT EXISTING UTILITIES ADJACENT TO THE BRIDGE ARE NOT DAMAGED DURING REPAIR OPERATIONS.



BEAM REPAIR LOCATIONS

(OTHER LOCATIONS MAY EXIST. SEE NOTES)

ANTICIPATED BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIM ''A''	DIM ''B''	DIM ''C''	DIM ''D''	DIM ''E''	DIM ''F''
✳ A	1	BENT 1		10″			15″	
✳ A	3	BENT 1		5″			5″	
✳ A	4	BENT 1		4″			4″	
✳ B	1	BENT 1		8″			8″	
✳ B	2	BENT 1		5″			5″	
✳ B	3	BENT 1		3″			3″	
✳ B	4	BENT 1		10″			10″	
✳ B	1	BENT 2		12″				4″
✳ B	2	BENT 2		10″			3″	
✳ B	4	BENT 2		15″				4″
✳ C	1	BENT 2		12″				4″
✳ C	2	BENT 2		10″			21″	
✳ C	3	BENT 2		10″			5″	
✳ C	4	BENT 2		10″			6″	
C	1	END BENT 2	27″	6″				

✳ PLATE REPAIR, TOP OF WEB.

BEAM REPAIR

BEAM END REPAIR		PLATE REPAIR		STIFFENER REPAIR		DIAPHRAGM REPAIR	
LBS.		LBS.		LBS.		LBS.	
ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
——		500		——		——	

PROJECT NO. 15BPR.33
WATAUGA COUNTY
BRIDGE NO. 3

DRAWN BY : P.N.HOLDER DATE : 10/18
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RALEIGH

BEAM REPAIR LOCATIONS

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			54

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

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

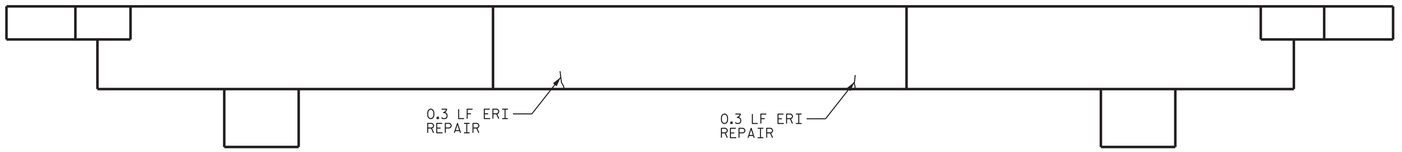
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

EPOXY COATING SHALL BE APPLIED TO TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

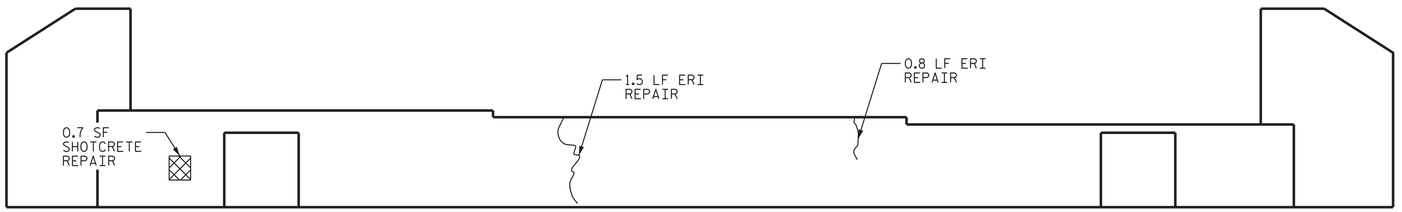
AS-BUILT REPAIR QUANTITY TABLE

REPAIRS END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.7	0.4		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		2.9		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		88		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT.



TOP OF CAP @ END BENT 1



ELEVATION @ END BENT 1 (SPAN A)

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 15BPR.33

WATAUGA COUNTY

BRIDGE NO. 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 1
(SPAN A)

DRAWN BY : P.N.HOLDER DATE : 10/18

CHECKED BY : R. G. BEAUCHAMP DATE : 10/18

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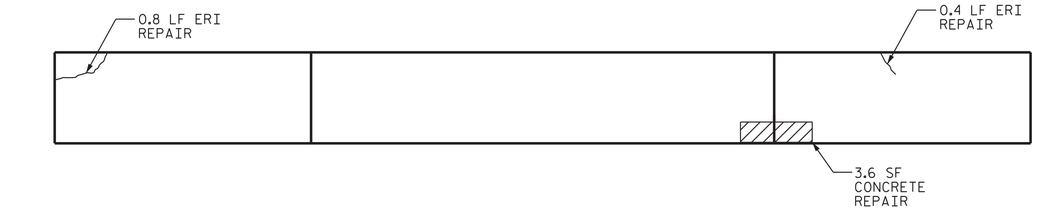
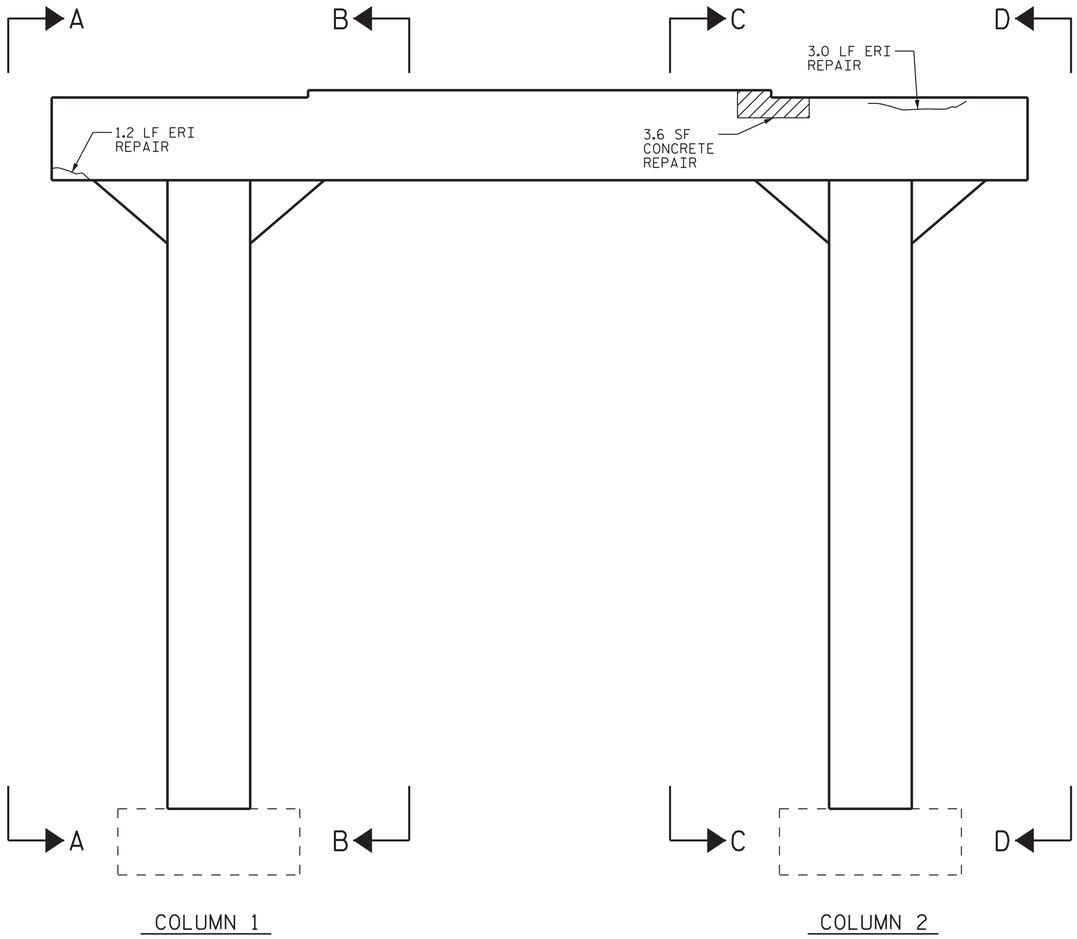
1			3			TOTAL SHEETS
2			4			54



SPAN B

SPAN A

TOP OF CAP @ BENT 1



ELEVATION @ BENT 1 (SPAN A)

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR BENT REPAIRS, SEE ''TYPICAL CAP AND COLUMN REPAIR DETAILS'' SHEET.

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

EPOXY COATING SHALL BE APPLIED TO TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE "TYPICAL JACKING DETAIL" SHEET.

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

DRAWN BY : P.N.HOLDER DATE : 10/18
CHECKED BY : R. G. BEAUCHAMP DATE : 10/18

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1/7/2019

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PROJECT NO. 15BPR.33
WATAUGA COUNTY
BRIDGE NO. 3

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

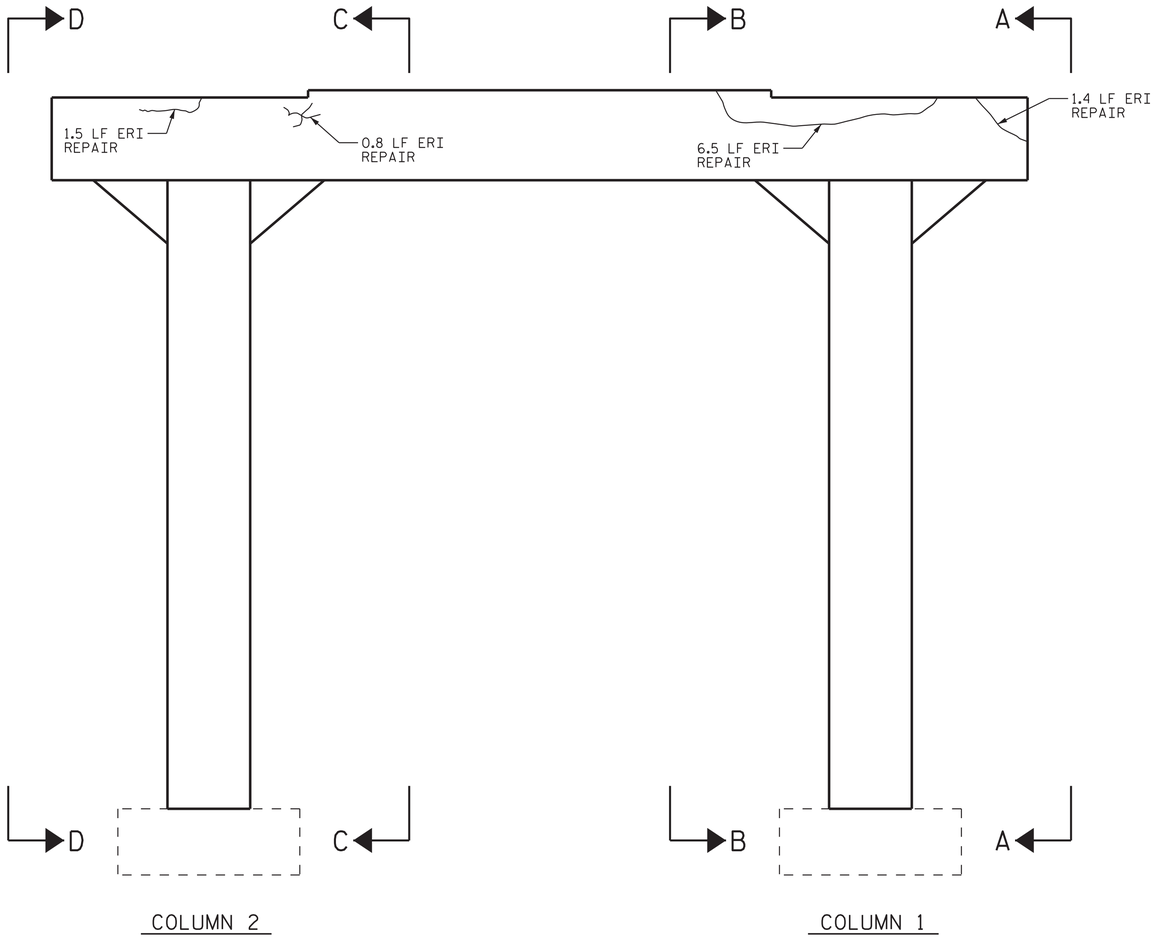
BENT 1
(SPAN A)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS
2			4			54

SPAN A

SPAN B

BOTTOM OF CAP @ BENT 1



ELEVATION @ BENT 1 (SPAN B)

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.5	0.3		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	7.2	3.6		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		20.6		
COLUMN		0.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		82		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT.

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 15BPR.33

WATAUGA COUNTY

BRIDGE NO. 3

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1
(SPAN B)

DRAWN BY : P.N.HOLDER DATE : 10/18
CHECKED BY : R. G. BEAUCHAMP DATE : 10/18

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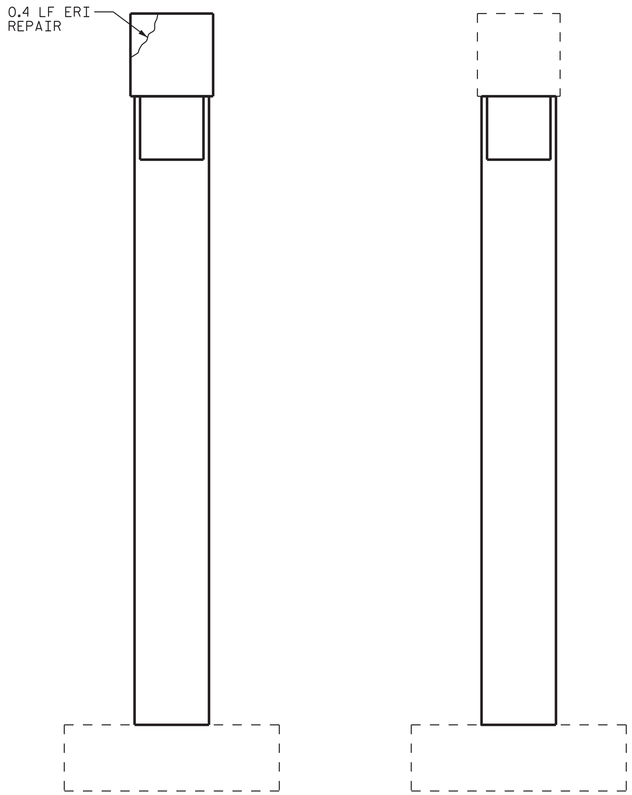
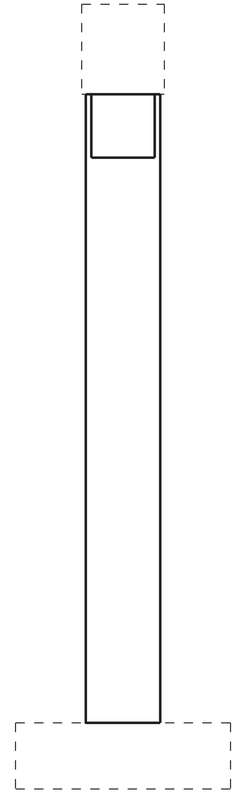
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS
2			4			54



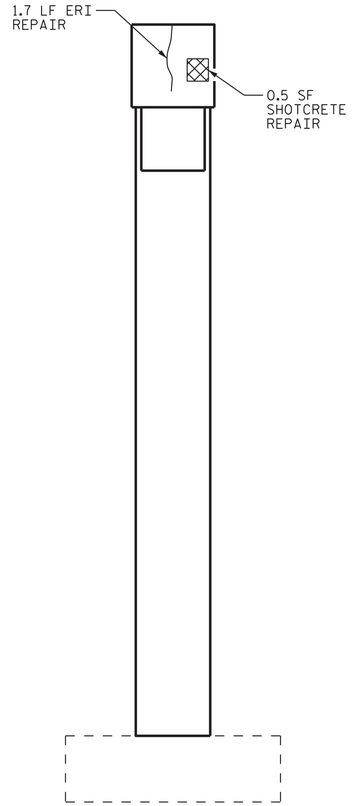
SECTION A-A

SECTION B-B

COLUMN 1



SECTION C-C



SECTION D-D

COLUMN 2

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

DRAWN BY : P.N.HOLDER DATE : 10/18
CHECKED BY : R. G. BEAUCHAMP DATE : 10/18

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PROJECT NO. 15BPR.33
WATAUGA COUNTY
BRIDGE NO. 3
SHEET 3 OF 3

STATE OF NORTH CAROLINA
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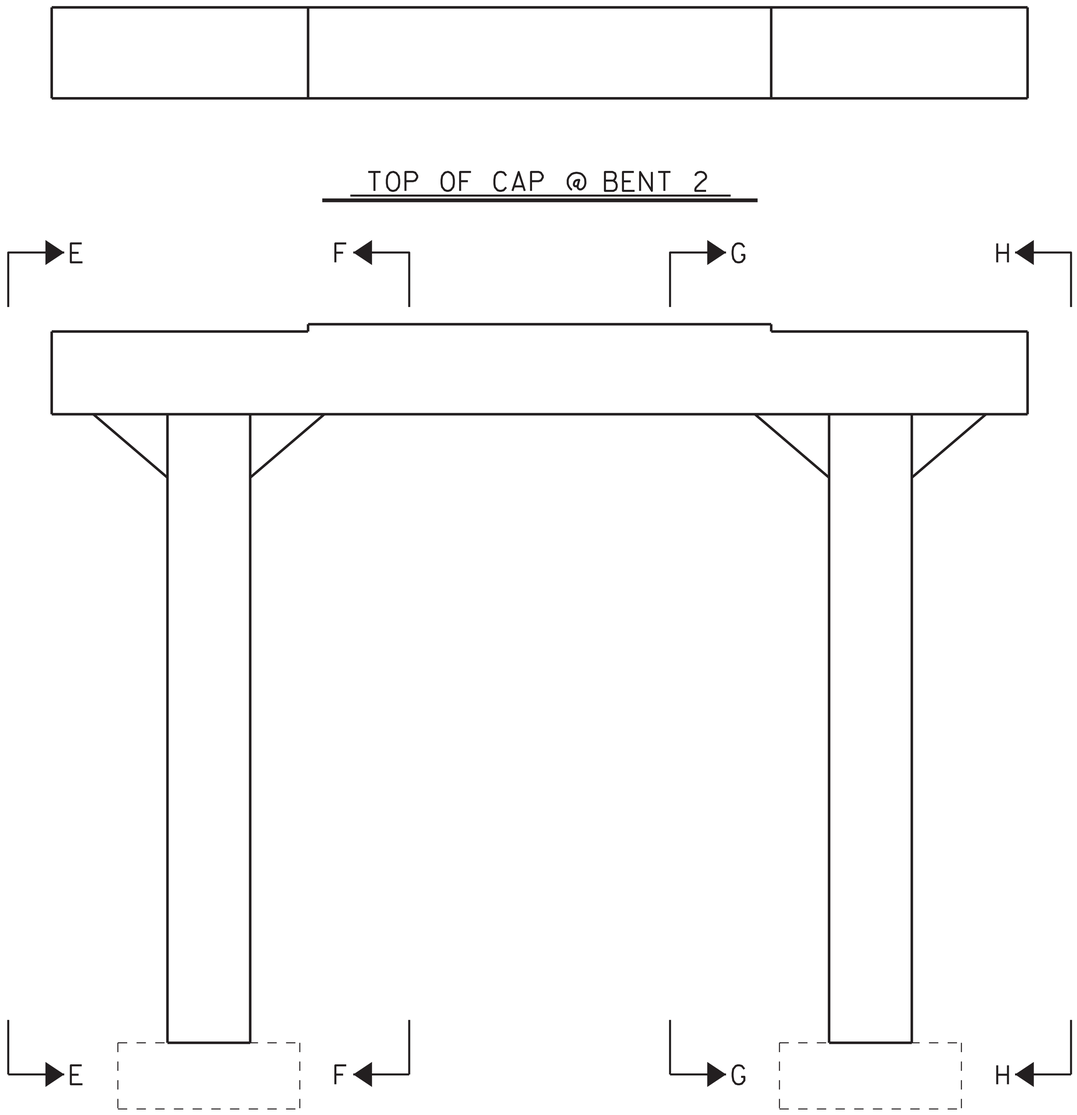
RALEIGH

BENT 1
(COLUMNS)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-43
1			3			TOTAL SHEETS
2			4			54



ELEVATION @ BENT 2 (SPAN B)

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

FOR BENT REPAIRS, SEE ''TYPICAL CAP AND COLUMN REPAIR DETAILS'' SHEET.

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

EPOXY COATING SHALL BE APPLIED TO TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

DRAWN BY : P.N.HOLDER DATE : 10/18
CHECKED BY : R. G. BEAUCHAMP DATE : 10/18

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BRIDGE NO. 3

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

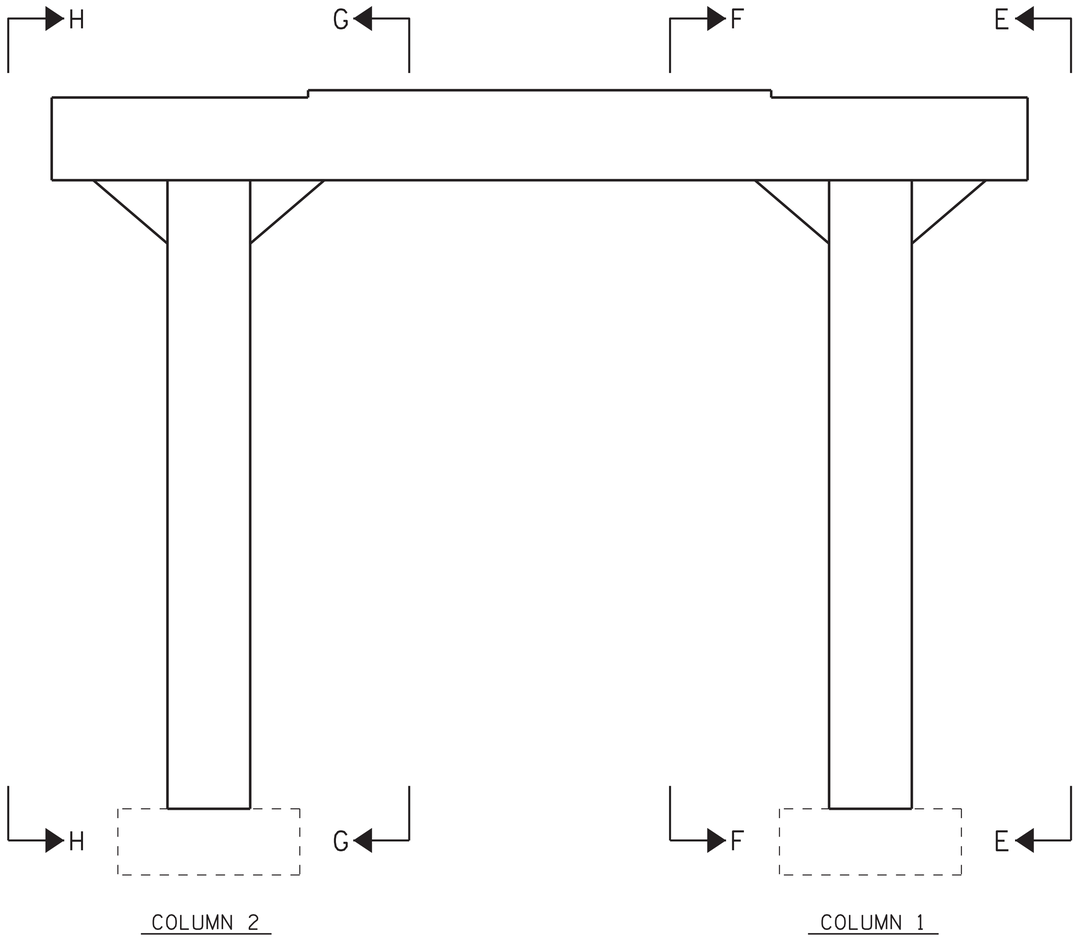
BENT 2
(SPAN B)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			54

SPAN B

SPAN C

BOTTOM OF CAP @ BENT 2



ELEVATION @ BENT 2 (SPAN C)

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	2.2	1.1		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT	LN. FT.	
CAP		0.0		
COLUMN		0.0		
EPOXY COATING		SQ. FT.	SQ. FT.	
TOP OF BENT CAP		81		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT.

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 15BPR.33

WATAUGA COUNTY

BRIDGE NO. 3

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2
(SPAN C)

DRAWN BY : P.N.HOLDER DATE : 10/18
CHECKED BY : R. G. BEAUCHAMP DATE : 10/18

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NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

Jennifer R. McRoy
98091341FA90452...

1/7/2019

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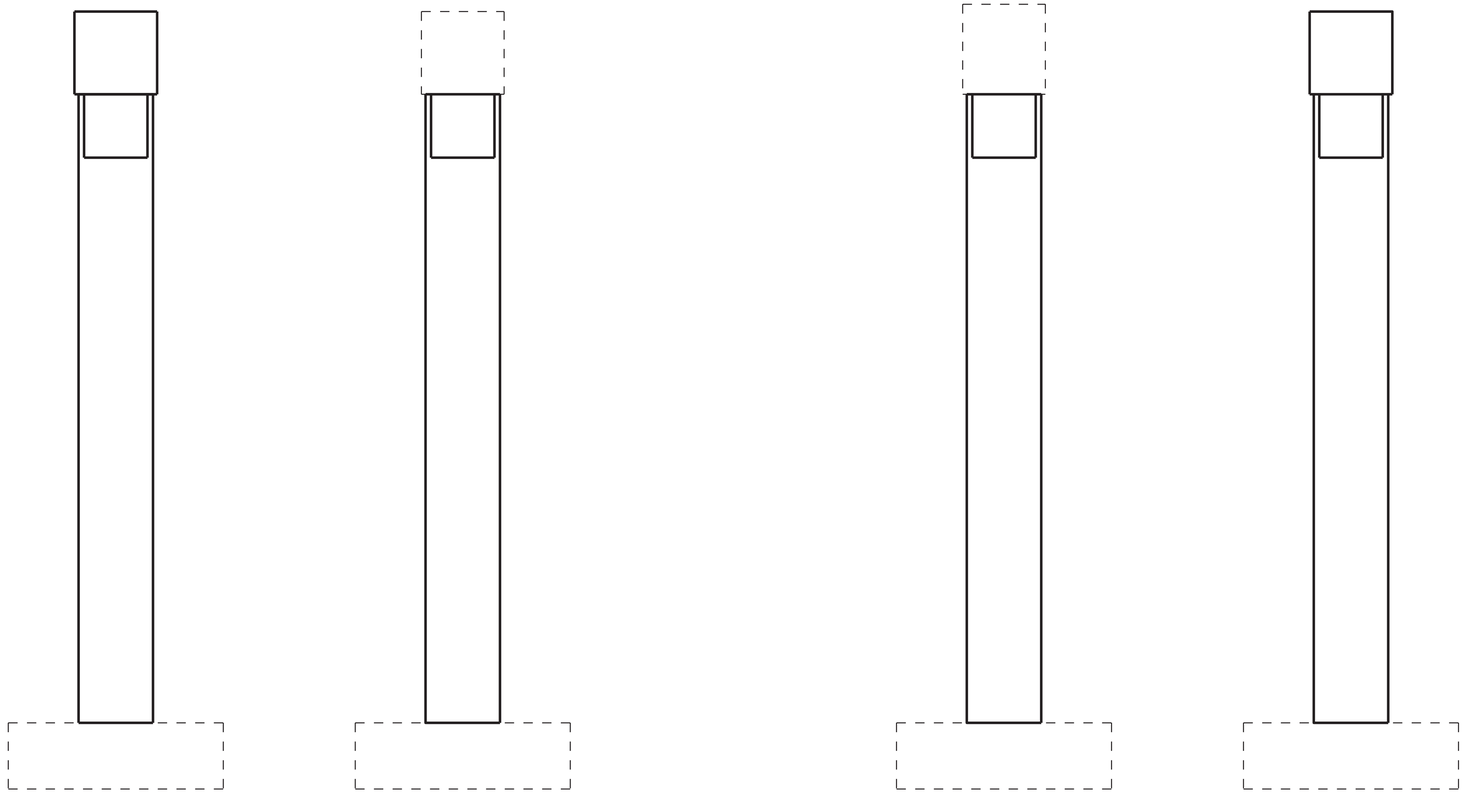
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-45
1			3			TOTAL SHEETS
2			4			54



SECTION E-E

SECTION F-F

SECTION G-G

SECTION H-H

COLUMN 1

COLUMN 2

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

DRAWN BY : P.N.HOLDER DATE : 10/18

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PROJECT NO. 15BPR.33

WATAUGA COUNTY

BRIDGE NO. 3

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2 (COLUMNS)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-46
1			3			TOTAL SHEETS
2			4			54

NOTES

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR SUMMARY OF QUANTITIES TABLE.

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

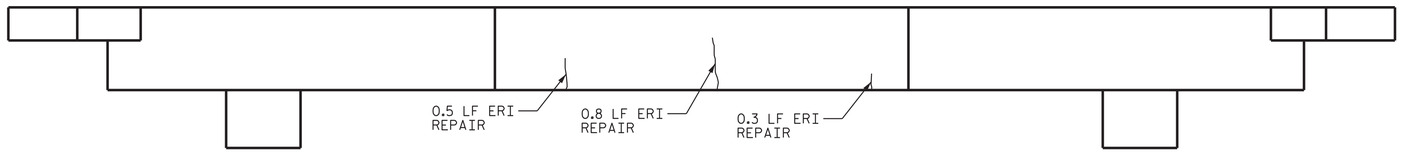
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

EPOXY COATING SHALL BE APPLIED TO TOP FACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

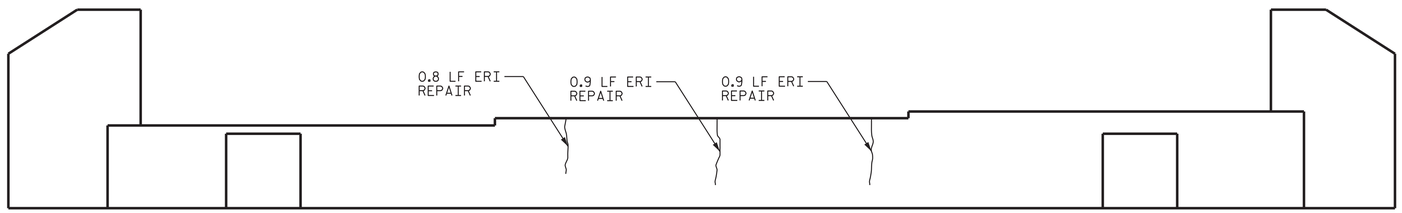
AS-BUILT REPAIR QUANTITY TABLE

REPAIRS END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		4.2		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP		88		

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND 2" MIN. CLEAR TO SAWCUT.



TOP OF CAP @ END BENT 2



ELEVATION @ END BENT 2

SHOTCRETE REPAIR

CONCRETE REPAIR

EPOXY RESIN INJECTION (ERI)

PROJECT NO. 15BPR.33

WATAUGA COUNTY

BRIDGE NO. 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 2
(SPAN C)

DRAWN BY : P.N.HOLDER DATE : 10/18

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NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY

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1/7/2019

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REVISIONS						SHEET NO.
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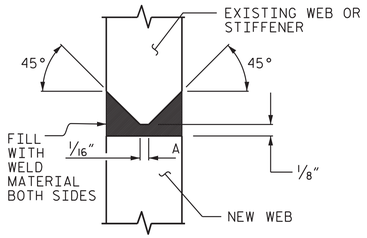
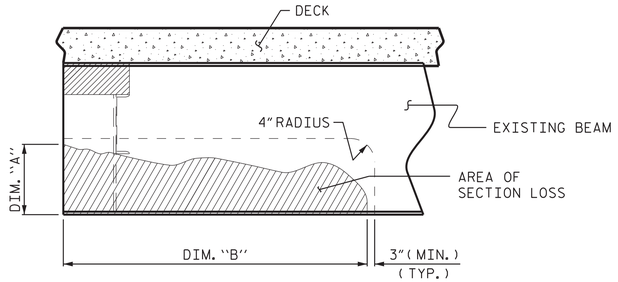
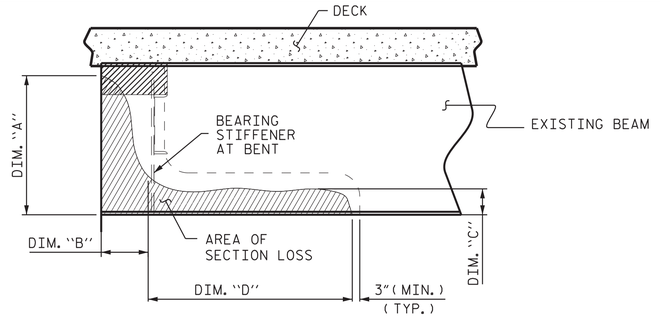
1			3			TOTAL SHEETS
2			4			54



DETAIL ''A''

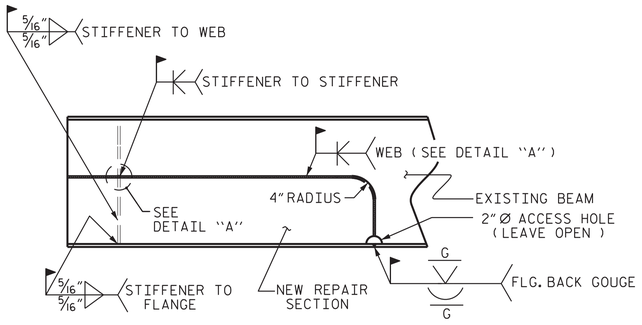


SECTION LOSS
BEAM END REMOVAL

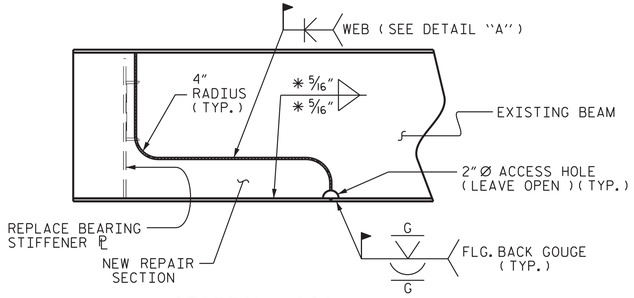


SECTION LOSS
BEAM END REMOVAL

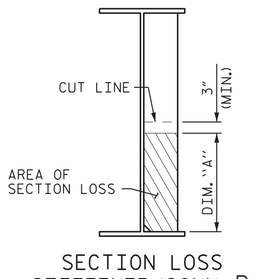
✳NOT NEEDED IF REPAIRED SECTION IS CUT FROM A ROLLED BEAM



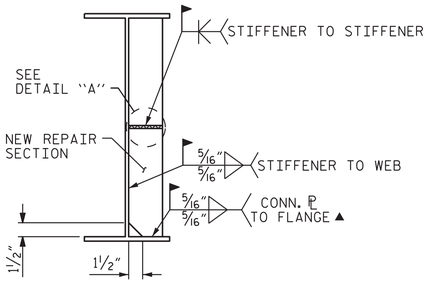
SECTION LOSS
BEAM END REPAIR



SECTION LOSS
BEAM END REPAIR

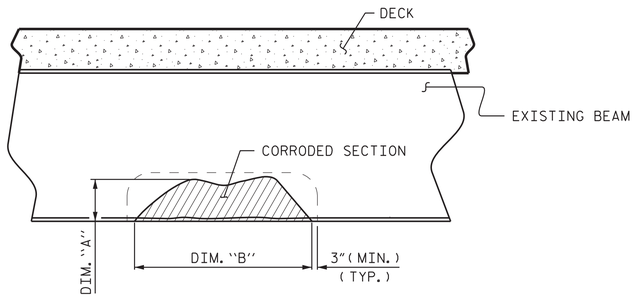


SECTION LOSS
STIFFENER/CONN. ℄
REMOVAL

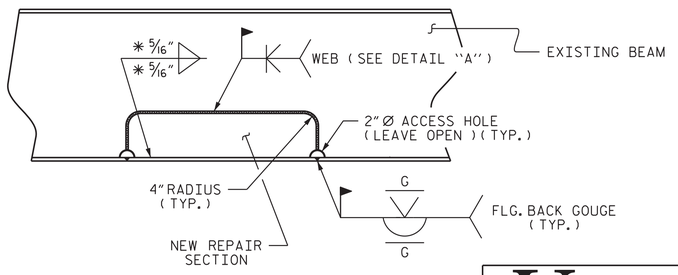


SECTION LOSS
STIFFENER/CONN. ℄
REPAIR SECTION

▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD



SECTION LOSS
INTERMEDIATE BEAM REMOVAL



SECTION LOSS
INTERMEDIATE BEAM REPAIR

NOTES

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. FOR BRIDGE JACKING, SEE 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 PAINTING EXISTING STRUCTURE 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 SIMLAR 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''. FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

LOWER SPAN TO BEAR; CHECK FOR DISTRESS.

REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. 15BPR.33
AVERY/WATAUGA COUNTY
BRIDGE NO. AVERY 4 & 5
WATAUGA 3

DRAWN BY : P.N.HOLDER DATE : 10/18
CHECKED BY : J.R.McROY DATE : 10/18

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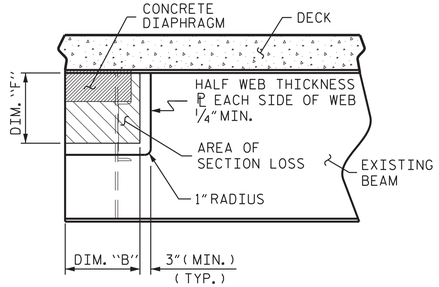
NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. McROY
DocuSigned by: Jennifer McRoy 9B091341FA90452...
1/7/2019

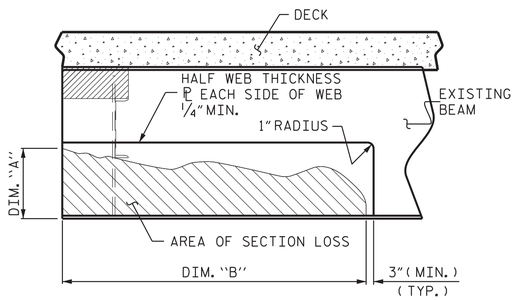
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM END AND INTERMEDIATE REPAIR DETAILS

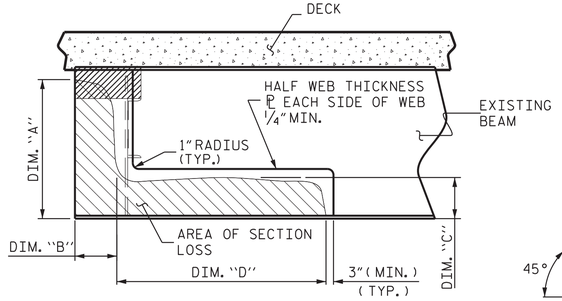
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-48
1			3			TOTAL SHEETS
2			4			54



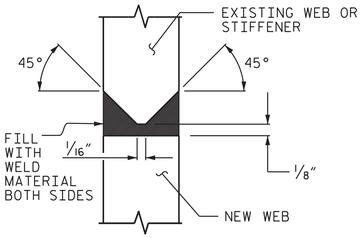
BEAM END SECTION LOSS AND PLATING REPAIR



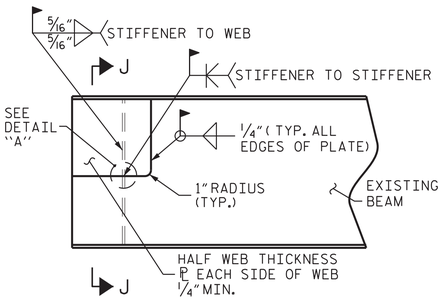
SECTION LOSS BEAM PLATING REPAIR



SECTION LOSS BEAM PLATING REPAIR



DETAIL "A"



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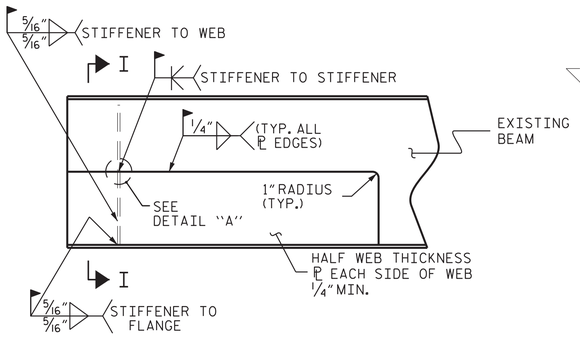
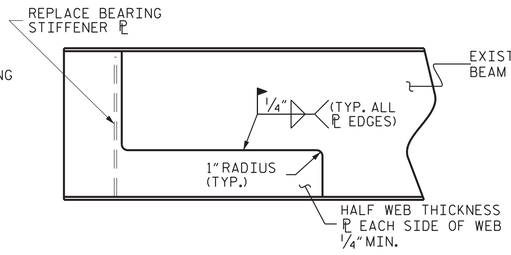
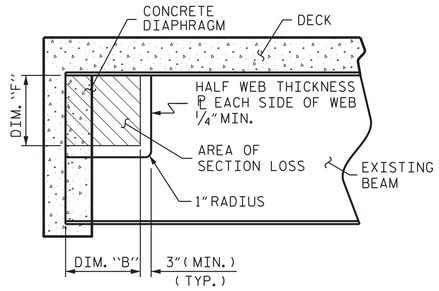


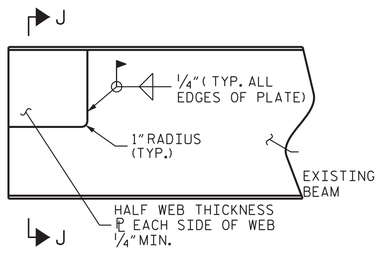
SECTION LOSS BEAM PLATING REPAIR



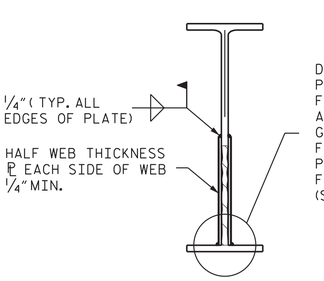
SECTION LOSS BEAM PLATING REPAIR



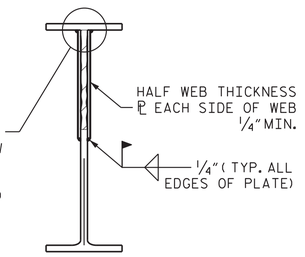
BEAM END SECTION LOSS AND PLATING REPAIR



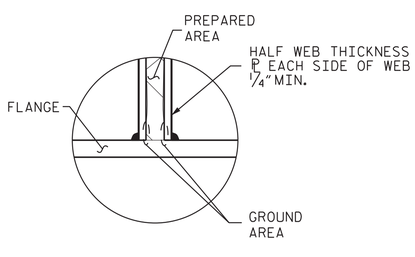
BEAM END PLATING REPAIR AT END CURTAIN WALL



SECTION I-I



SECTION J-J



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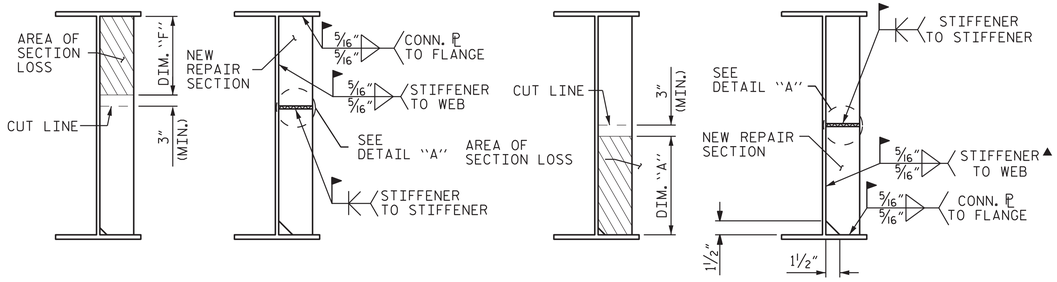

SECTION LOSS STIFFENER/CONN. ℄ REPAIR SECTION

▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD

NOTES

ALL CONDITIONS AND DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OR INSTALLATION OF ANY COMPONENTS.

REPAIR PLATES SHALL BE MINIMUM 36 KSI STEEL.

REPAIR SEQUENCE

COORDINATE WITH MATERIALS AND TEST UNIT AT LEAST 4 DAYS PRIOR TO ANTICIPATED WORK.

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

IF NECESSARY, REMOVE EXISTING STIFFENER TO INSTALL WELDED PLATE REPAIR. REPLACE WITH A NEW STIFFENER PLATE OF SIMILAR SIZE.

IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE.

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

PRIME ENTIRE REPAIR AREA AND REPAIR PLATES WITH AN ORGANIC ZINC PRIMER PRIOR TO WELDING NEW PLATES. REMOVE PRIMER IN WELD AREA.

ONE PLATE SHALL BE PLACED, AS INDICATED ON EACH SIDE OF THE BEAM WEB.

EACH PLATE SHALL BE APPROXIMATELY ONE- HALF THE ORIGINAL THICKNESS OF THE BEAM WEB.

FULLY WELD ALONG TOP AND SIDES OF THE PLATES AS SHOWN.

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

ALL WELDS SHALL 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 THE 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 PAINTING EXISTING STRUCTURE SPECIAL PROVISIONS.

AFTER BEAMS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS OR END CURTAIN WALLS 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". FOR BEAM REPAIR, SEE SPECIAL PROVISIONS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. 15BPR.33
AVERY/WATAUGA COUNTY
BRIDGE NO. AVERY 4 & 5
WATAUGA 3

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM PLATING REPAIR DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-49
1			3			TOTAL SHEETS
2			4			54

DRAWN BY : P.N.HOLDER DATE : 10/18
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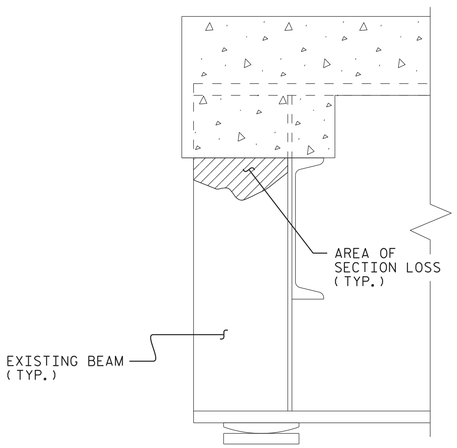
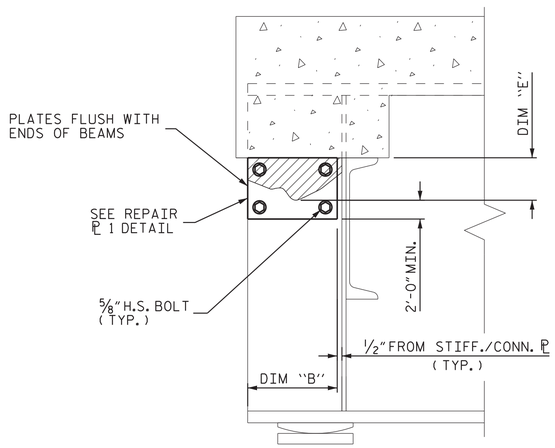
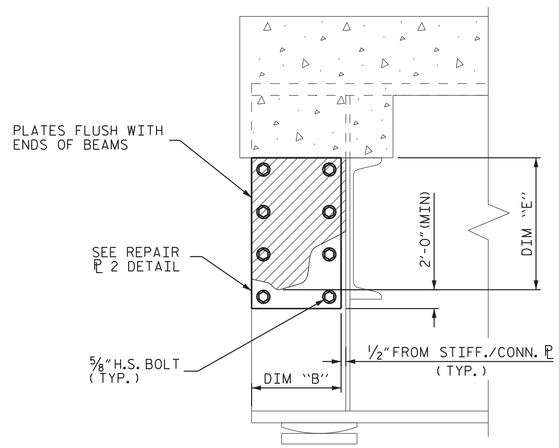


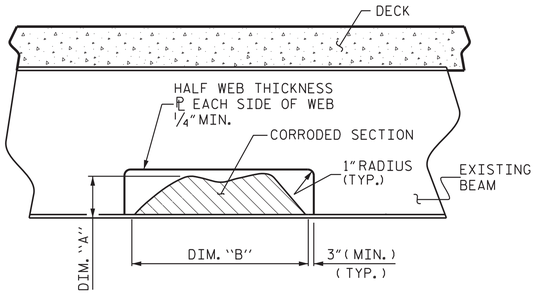
BEAM END SECTION LOSS
(EXISTING)



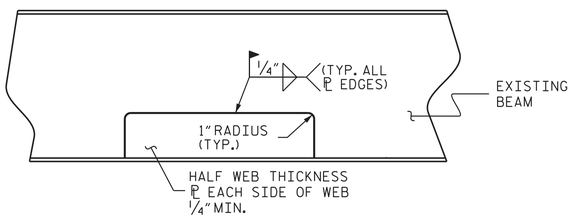
BEAM END SECTION LOSS PLATING REPAIR
(DIMENSION "E" 3" TO 6½" USE REPAIR ℄ 1)



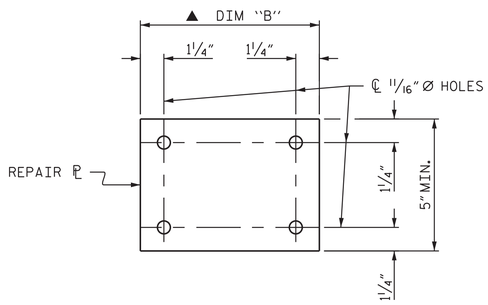
BEAM END SECTION LOSS PLATING REPAIR
(DIMENSION "E" GREATER THAN 6½" USE REPAIR ℄ 2)



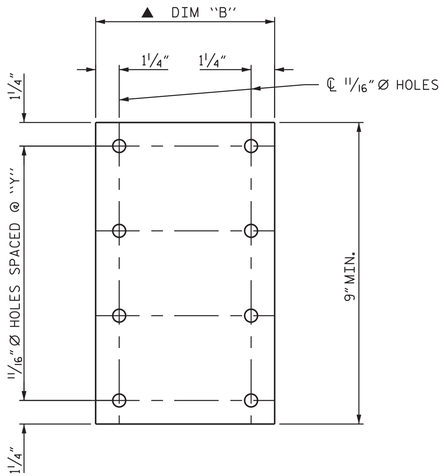
SECTION LOSS INTERMEDIATE BEAM PLATING REPAIR



SECTION LOSS INTERMEDIATE BEAM PLATING REPAIR
(FOR NOTES AND REPAIR SEQUENCE, SEE SHEET 1 OF 2)



REPAIR ℄ 1 DETAIL
(2-PLATES REQ'D PER REPAIR)



REPAIR ℄ 2 DETAIL
(2-PLATES REQ'D PER REPAIR)

NOTES:

▲ FOR EACH BEAM BEING REPAIRED, CONTRACTOR SHALL FIELD VERIFY DIMENSIONS. PLATE DIMENSIONS SHALL BE ADJUSTED TO FIT IN THE SPACE FROM BEAM END TO ½" FROM STIFFENER / CONNECTOR PLATE.

THE ENGINEER SHALL BE NOTIFIED IF DIMENSION "B" EXCEEDS 12". IF SO, AN ADDITIONAL COLUMN OF BOLTS SHALL BE ADDED.

THE PLATES FOR DIM "E" SHALL BE PLACED SNUG TO THE BOTTOM OF THE DIAPHRAGM.

DIMENSION "Y" SHALL BE A MINIMUM OF 3¼" AND A MAXIMUM OF 6".

EACH PLATE SHALL BE APPROXIMATELY ONE-HALF THE ORIGINAL THICKNESS OF THE BEAM WEB AND SHALL BE APPROVED BY THE ENGINEER.

PLATES SHALL BE SHOP PRIMED PRIOR TO DELIVERY.

PLATES SHALL BE NEW, AND SHALL BE THE SAME GRADE OF THE EXISTING STEEL MEMBER OR BETTER.

ALL BOLTS SHALL MEET ASTM A325.

ALL NUTS SHALL MEET ASTM A194.

ALL FLAT WASHERS SHALL MEET ASTM F436.

IF STEEL IS WEATHER, ALL BOLTS, NUT, AND WASHERS SHALL BE AASHTO M163 TYPE 3.

THE EPOXY MASTIC USED FOR THIS WORK SHALL BE COMPATIBLE WITH THE PAINT SYSTEM USED FOR THE PAINTING OF EXISTING STEEL AND SHALL BE APPROVED BY THE NCDOT MATERIALS AND TEST UNIT. THE EPOXY MASTIC WILL BE ACCEPTED ON THE BASIS OF THE MANUFACTURER'S WRITTEN CERTIFICATION THAT THE BATCH PRODUCED MEETS THEIR PRODUCT SPECIFICATION.

REPAIR SEQUENCE:

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

IF PAINTING THE STEEL, CLEAN AND BLAST STEEL AS REQUIRED, PRIOR TO PERFORMING STEEL REPAIRS. OTHERWISE, MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

PRIME ENTIRE REPAIR AREA AND REPAIR PLATES WITH AN ORGANIC ZINC PRIMER PRIOR TO ATTACHING NEW PLATES

ONE PLATE SHALL BE PLACED, ON EACH SIDE OF THE BEAM ENDS.

PRIOR TO PLACEMENT OF THE PLATES, APPLY WET EPOXY MASTIC AROUND THE TOP AND SIDE PERIMETERS ON THE PLATE FACE THAT IS TO BE IN CONTACT WITH THE BEAM. AMOUNT OF EPOXY MASTIC SHALL BE SUFFICIENT TO SEAL THE INTERFACE OF THE PLATE AND THE BEAM AFTER BOLTS ARE TIGHTENED. NO EPOXY MASTIC SHALL BE PLACED ALONG THE BOTTOM PERIMETER ON THE PLATE. WHILE THE MASTIC IS STILL WET, PLATES SHALL BE PUT IN PLACE AND BOLTS PROPERLY TIGHTENED.

TENSION ON THE BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS (DTIS) IN ACCORDANCE WITH ARTICLE 440-8 OF THE NCDOT STANDARD SPECIFICATIONS. DTIS SHALL BE MEET ASTM F959.

AFTER PLACEMENT OF THE PLATES AND TIGHTENING OF THE BOLTS, PLATES, BOLTS, AND SURROUNDING AREA SHALL BE PAINTED OR PAINT SHALL BE REPAIRED AS PER PROJECT REQUIREMENTS AND NCDOT STANDARD SPECIFICATIONS.

PAYMENT WILL BE MADE AT CONTRACT PRICE BID PER POUNDS STRUCTURAL STEEL USED FOR GIRDER REPAIR. SUCH PAYMENTS WILL BE FULL COMPENSATION FOR ALL MATERIALS. EQUIPMENT, TOOLS, LABOR, MISCELLANEOUS STEEL, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

PROJECT NO. 15BPR.33
AVERY/WATAUGA COUNTY
BRIDGE NO. AVERY 4 & 5
WATAUGA 3
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM PLATING REPAIR DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. McROY
Docusigned by: Jennifer McRoy 980913417A90452...
1/7/2019

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1			3			TOTAL SHEETS
2			4			54

DRAWN BY : P.N.HOLDER DATE : 10/18
CHECKED BY : J.R.McROY DATE : 10/18

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patrick.holder AT C-160005

NOTES

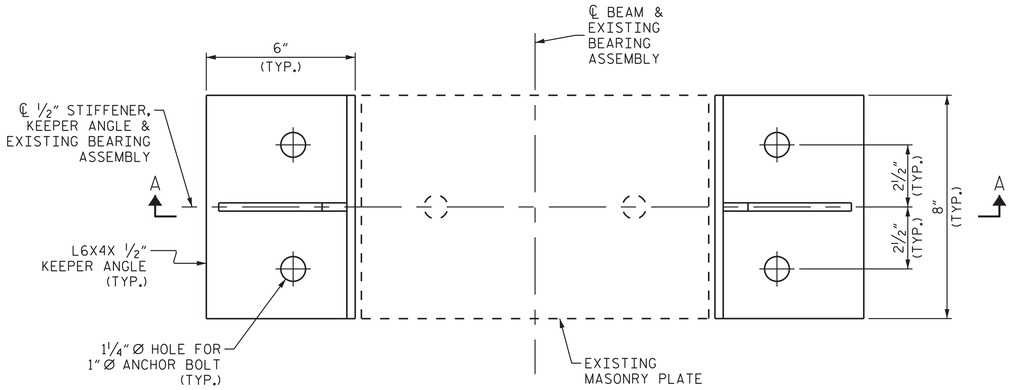
STRUCTURAL STEEL SHALL BE AASHTO GRADE 36 OR GREATER.

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

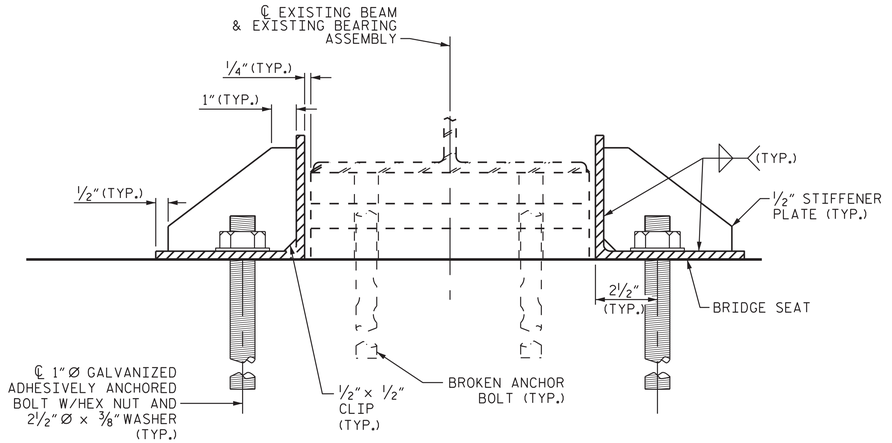
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS NOT REQUIRED.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS. NO FIELD TESTING IS REQUIRED. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SECTION 420 OF THE STANDARD SPECIFICATIONS.

FOR STEEL KEEPER ANGLE ASSEMBLY, SEE SPECIAL PROVISIONS.



PLAN



SECTION A-A
(LOCATION OF EXISTING ANCHOR BOLTS AS SHOWN IS FOR ILLUSTRATION ONLY)

STEEL KEEPER ANGLE ASSEMBLY DETAILS

STEEL KEEPER ANGLE ASSEMBLY	
EACH	
ESTIMATE	ACTUAL
9	

PROJECT NO. 15BPR.33
AVERY COUNTY
BRIDGE NO. AVERY 4 & 5

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STEEL KEEPER ANGLE ASSEMBLY DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 032076 ENGINEER JENNIFER R. MCROY
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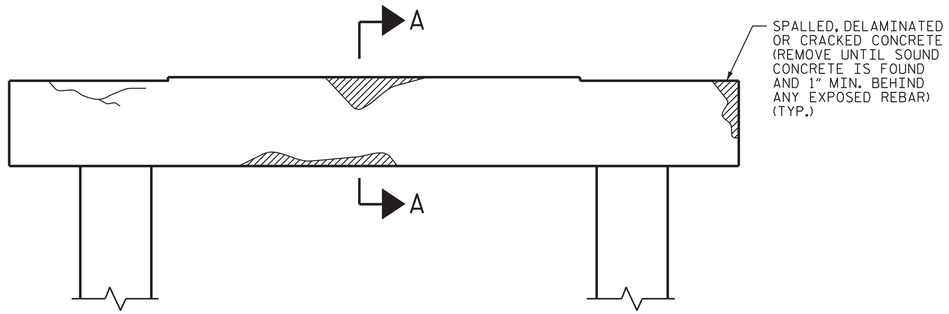
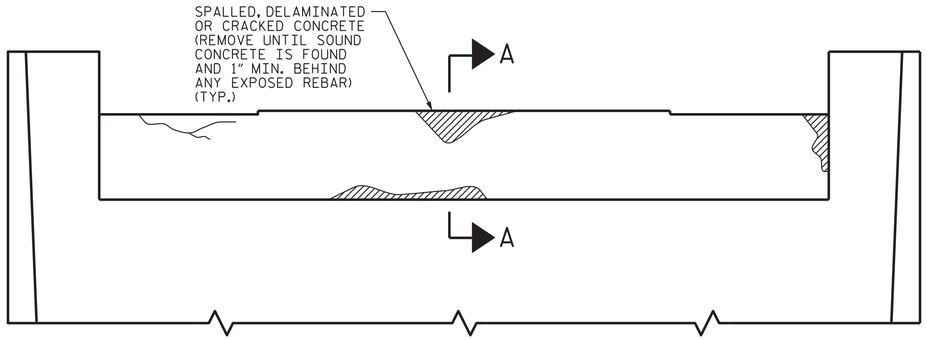
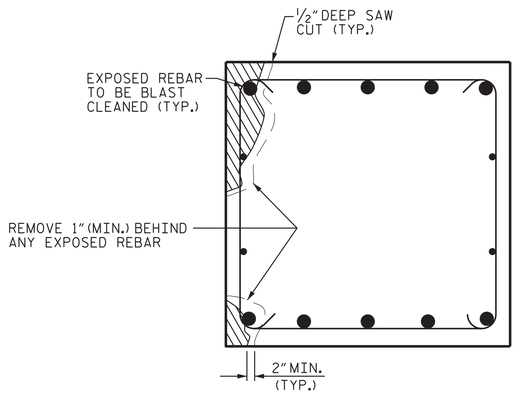


BENT CAP REPAIRS

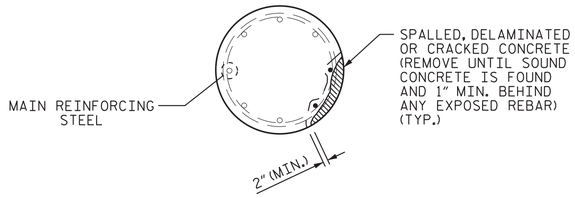


ABUTMENT REPAIRS

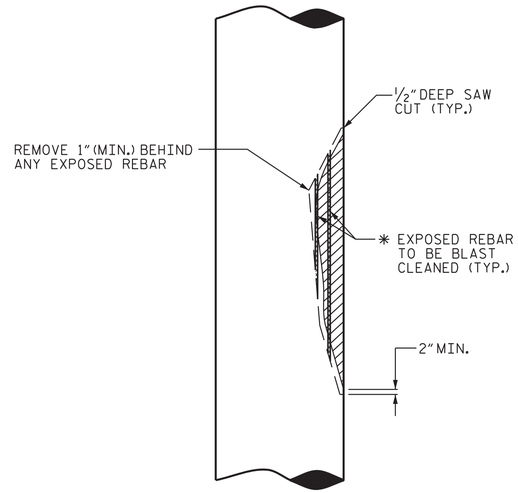


SECTION A-A

CAP REPAIR



PLAN OF COLUMN



ELEVATION OF CAP

* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

COLUMN REPAIR

NOTES

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" 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.

PROJECT NO. 15BPR.33
AVERY/WATAUGA COUNTY
BRIDGE NO. AVERY 4 & 5
WATAUGA 3

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1/7/2019

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYIPICAL CAP & COLUMN REPAIR DETAILS

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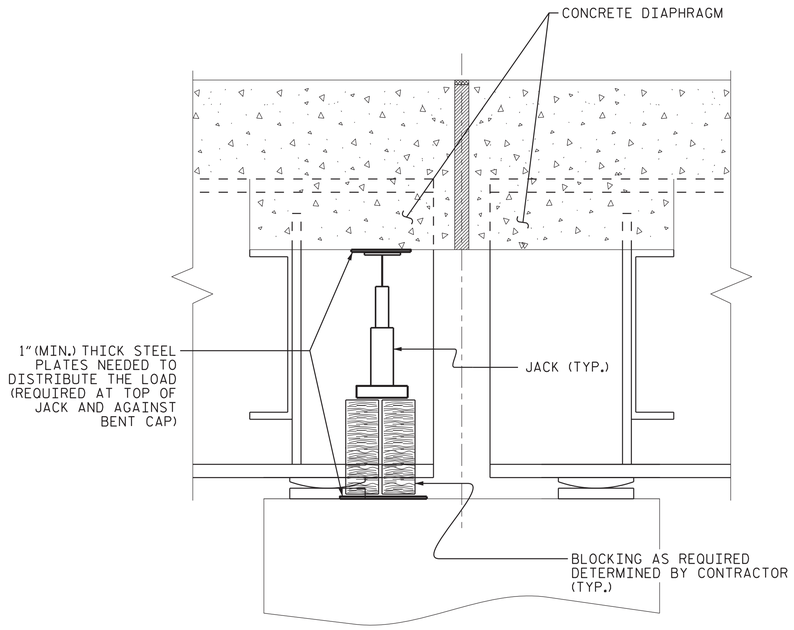
1			3			TOTAL SHEETS
2			4			54



SECTION THRU DIAPHRAGM

THIS DETAIL IS A GENERIC EXAMPLE OF A JACKING SCHEME AND DOES NOT NECESSARILY REPRESENT SPECIFIC CONDITIONS AT A PARTICULAR BRIDGE. ACTUAL BRIDGE GEOMETRY, DIMENSIONS, AND CONDITIONS MAY DIFFER FROM THIS DETAIL. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL INVESTIGATE THE BRIDGE ON THE PROJECT AND DEVELOP A JACKING PLAN TO BE SUBMITTED FOR REVIEW AND APPROVAL. SEE BRIDGE JACKING SPECIAL PROVISION.

JACKING NOTES:

THE CONTRACTOR SHALL SUBMIT JACKING PLANS AND CALCULATIONS FOR REVIEW AND APPROVAL PRIOR TO MATERIAL PURCHASE OR FABRICATION OF THE JACKING SYSTEM.

THE BEAM SHALL BE LIFTED ENOUGH THAT THE BEAM CLEARS THE BEARINGS AND ALL LOAD IS SUPPORTED BY THE JACKS. AFTER JACKING IS COMPLETE THE CONTRACTOR SHALL PROVIDE A METHOD TO SUPPORT THE BEAM FOR DEAD AND LIVE LOADS AND REMOVE THE JACKS DURING THE REPAIR OPERATIONS. IF THE JACKS REMAIN IN PLACE DURING THE ENTIRE JACKING AND REPAIR OPERATION, THEY SHALL HAVE MECHANICAL LOCK OFF CAPABILITIES.

IF DURING THE JACKING PROCESS OR WHILE THE BEAM IS BEING SUPPORTED THE BEAM SHIFTS FROM ITS ORIGINAL POSITION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

PRIOR TO JACKING, THE CONTRACTOR SHALL ENSURE THERE ARE NO OBSTACLES PREVENTING THE BEAM FROM BEING LIFTED.

ALL ADJACENT BEARINGS OF BEAMS NOT BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARINGS LOOSENED SHALL BE TIGHTENED BACK AFTER REPAIR OPERATIONS ARE COMPLETED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED IS 1/8".

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PROJECT NO. 15BPR.33
AVERY/WATAUGA COUNTY
BRIDGE NO. AVERY 4 & 5
WATAUGA 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL JACKING DETAIL

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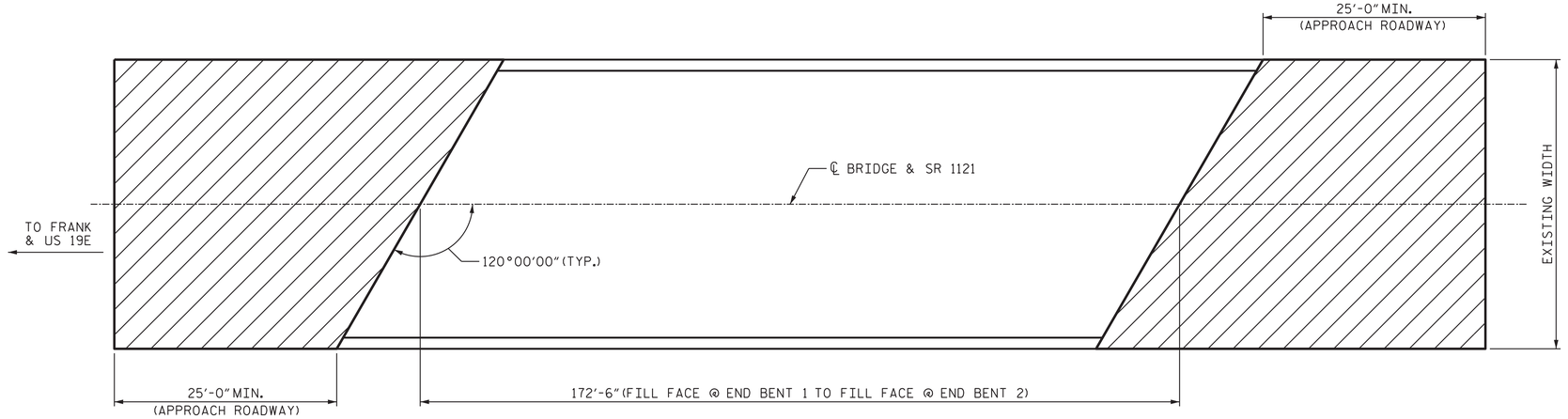
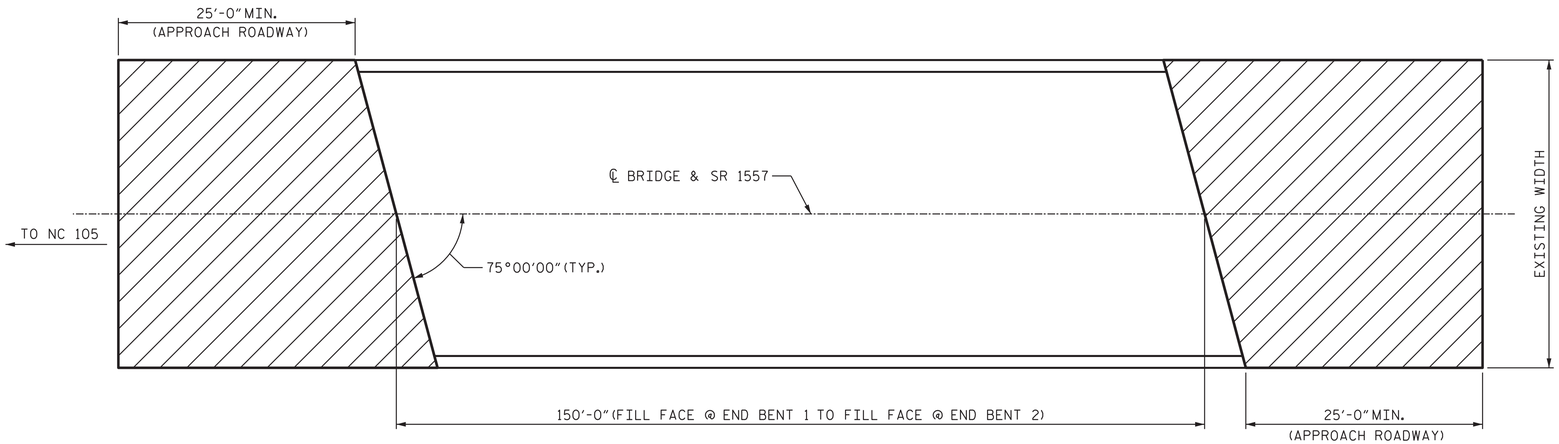
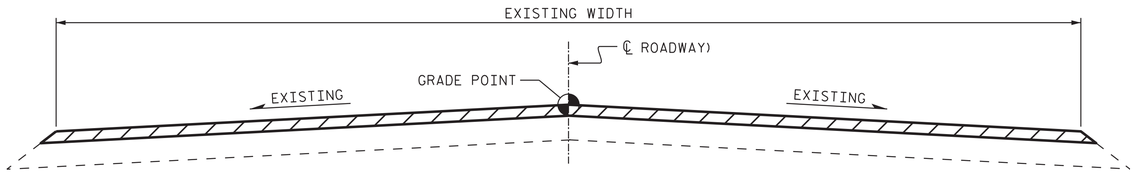


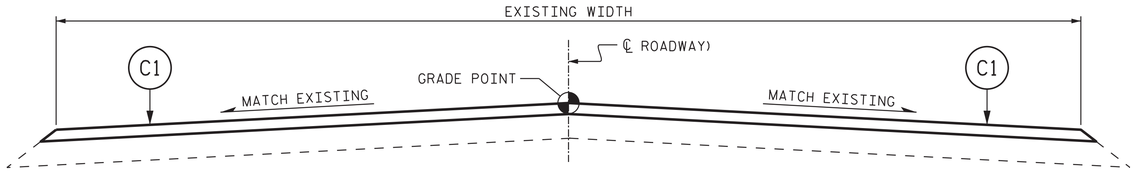
PLAN (AVERY 5)



PLAN (WATAUGA 3)



TYPICAL ROADWAY MILLING SECTION



TYPICAL PROPOSED ROADWAY SECTION

NOTES

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1½" DEPTH OF NEW ASPHALT PAVING.

PROVIDE NEW ASPHALT PAVING THICKNESS TO CREATE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK.

NEW ASPHALT PAVING THICKNESS MAY EXCEED 1½" DUE TO SETTLEMENT OF THE EXISTING APPROACH ASPHALT PAVING.

SUMMARY OF QUANTITIES		
AVERY 5		
	ESTIMATE	ACTUAL
INCIDENTAL MILLING	248 SQ. YD.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	21.0 TONS	
ASPHALT BINDER FOR PLANT MIX	1.3 TONS	
WATAUGA 3		
	ESTIMATE	ACTUAL
INCIDENTAL MILLING	212 SQ. YD.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	17.9 TONS	
ASPHALT BINDER FOR PLANT MIX	1.1 TONS	

C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OF GREATER THAT 2" IN DEPTH.

PROJECT NO. 15BPR.33
AVERY/WATAUGA COUNTY
BRIDGE NO. AVERY 5
WATAUGA 3

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1/7/2019

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DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH MILLING AND TYPICAL ROADWAY SECTIONS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-54
1			3			TOTAL SHEETS
2			4			54

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 2018 "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 ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" 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 ¼" 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 ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞" Ø STUDS FOR 4 - ¾" 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

REV. 6-16-95 EEM (/) RGW REV. 5-7-03 RWW (/) JTE REV. 10-1-11 MAA (/) GM
REV. 8-16-99 RWW (/) LES REV. 5-1-06 TLA (/) GM REV. 12-17 MAA (/) THC

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