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09/08/19

5/3/2017 8:16:52 AM G:\Projects\1008-1916-NCDDOT Bridge Rehabilitation\Projects\Final\DCN\Revised Plans\_042617\400\_001\_15746A\_15746B\_SMU\_TSH.dgn I-5746A\_S1R\_REHAB.TBL

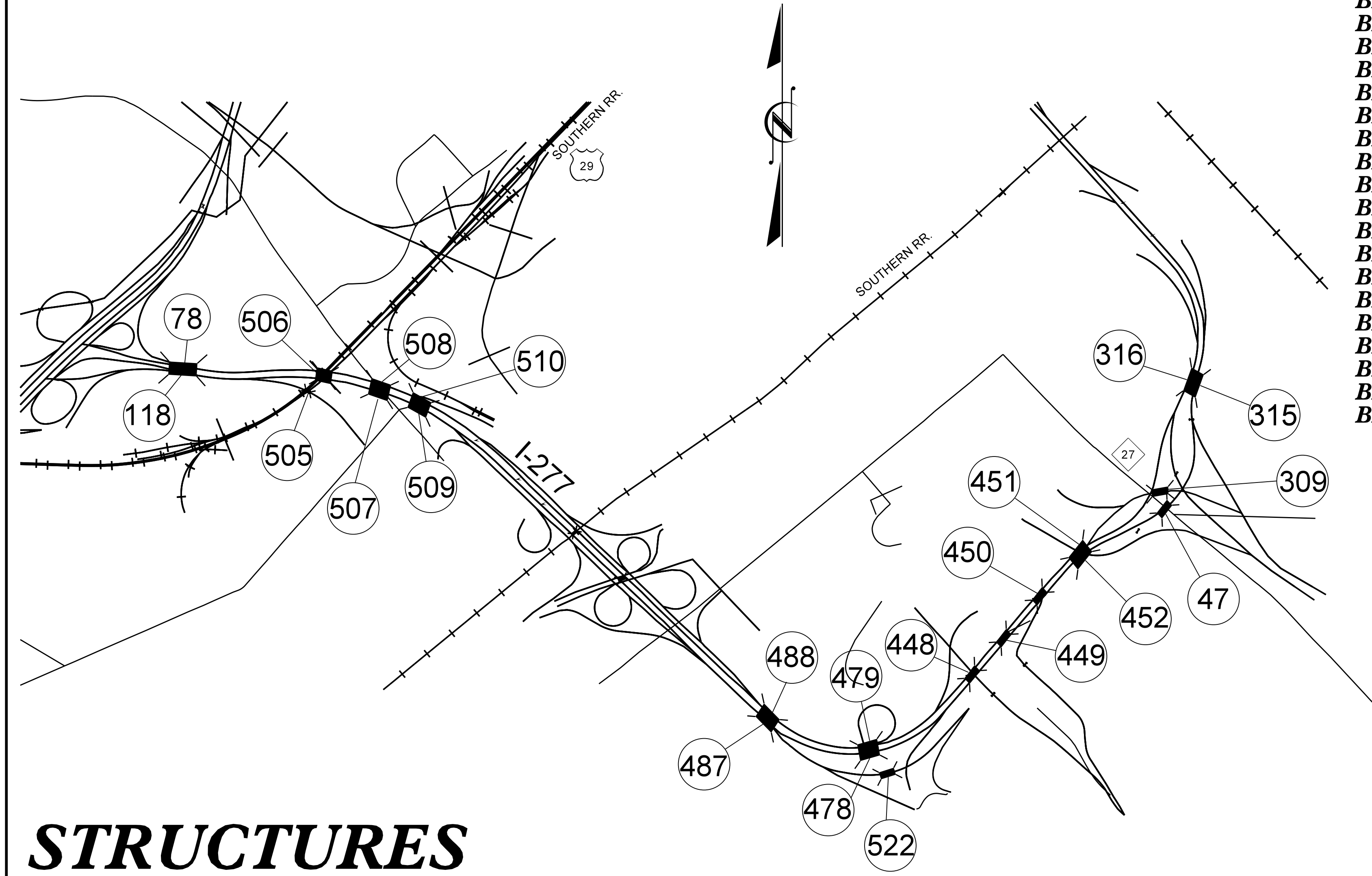
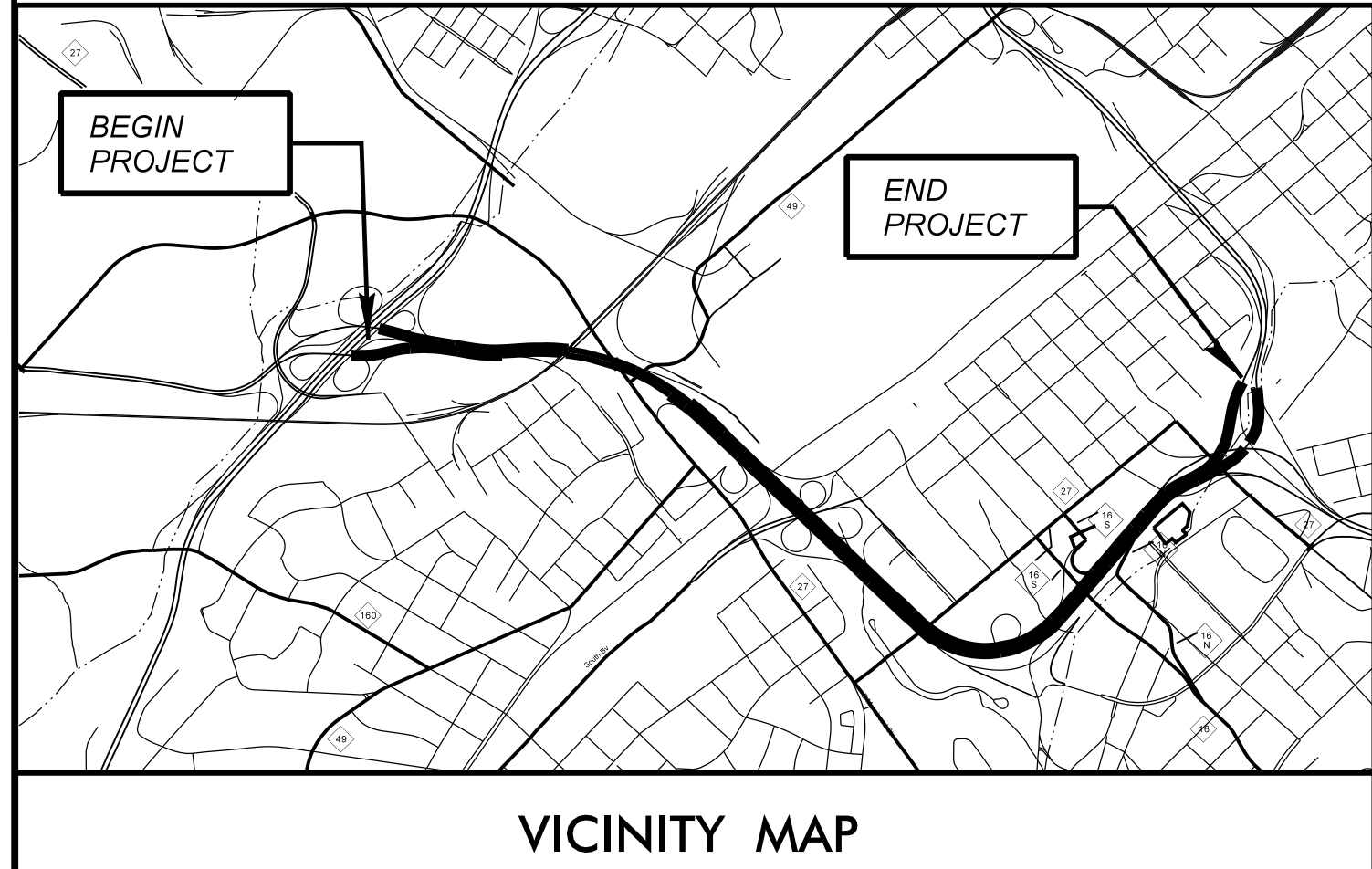
**PROJECT NO.: I-5746A / I-5746B**  
**CONTRACT: C203867**

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**MECKLENBURG COUNTY**

**TYPE OF WORK: BRIDGE PRESERVATION - SCARIFICATION, HYDRO-DEMOLITION, DECK REPAIR, LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH, JOINT DEMOLITION, PAINTING STRUCTURAL STEEL SUBSTRUCTURE REPAIR AND BEARING REPAIR.**

- LOCATION:**
- BRIDGE #47 ON I-277/US-74 RAMP OVER (NBL) I-277
  - BRIDGE #78 ON I-277 OVER SOUTH CLARKSON STREET
  - BRIDGE #118 ON I-277 OVER SOUTHERN RAILWAY
  - BRIDGE #309 ON US-74 (WBL) RAMP OVER I-277
  - BRIDGE #315 ON I-277 (NBL) OVER 10TH STREET
  - BRIDGE #316 ON I-277 (SBL) OVER 10TH STREET
  - BRIDGE #448 ON I-277 OVER EAST 3RD STREET
  - BRIDGE #449 ON I-277 OVER EAST 4TH STREET
  - BRIDGE #450 ON I-277 OVER ELIZABETH AVE.
  - BRIDGE #451 ON US-74 (WBL) RAMP OVER 5TH STREET
  - BRIDGE #452 ON I-277 OVER 5TH STREET
  - BRIDGE #478 ON I-277 (NBL) OVER EAST STONEWALL STREET
  - BRIDGE #479 ON I-277 (SBL) OVER EAST STONEWALL STREET
  - BRIDGE #487 ON I-277 (NBL) OVER SOUTH McDOWELL STREET
  - BRIDGE #488 ON I-277 (SBL) OVER SOUTH McDOWELL STREET
  - BRIDGE #505 ON I-277 (NBL) OVER SOUTHERN RAILWAY YARD
  - BRIDGE #506 ON I-277 (SBL) OVER SOUTHERN RAILWAY YARD
  - BRIDGE #507 ON I-277 (NBL) BRIDGE OVER MOREHEAD ST.
  - BRIDGE #508 ON I-277 (SBL) BRIDGE OVER MOREHEAD ST.
  - BRIDGE #509 ON I-277 (NBL) FOR BRIDGE OVER MINT STREET
  - BRIDGE #510 ON I-277 (SBL) FOR BRIDGE OVER MINT STREET
  - BRIDGE #522 ON I-277 AND US-74 RAMP OVER STONEWALL STREET



**STRUCTURES**

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

**STATE HIGHWAY DESIGN ENGINEER** P.E.

DESIGN DATA			
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#47	=	22,000	2013
#78	=	92,000	2013
#118	=	3,000	2013
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PROJECT LENGTH			
		MILES	
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BRIDGE #508	=	0.04	
BRIDGE #509	=	0.02	
BRIDGE #510	=	0.02	
BRIDGE #522	=	0.06	

Prepared for NCDOT in the Office of:  
LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, North Carolina 27605  
License No.: F-0840

2012 STANDARD SPECIFICATIONS

**LETTING DATE:**  
JUNE 20, 2017

**DEAN HATFIELD, P.E.**  
PROJECT ENGINEER

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

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



**CONTRACT: 203867**

**PROJECT NO.: I-5746A / I-5746B**

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

**MECKLENBURG COUNTY**

**TYPE OF WORK: BRIDGE PRESERVATION - SCARIFICATION, HYDRO-DEMOLITION, DECK REPAIR, LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH, JOINT DEMOLITION, PAINTING STRUCTURAL STEEL AND SUBSTRUCTURE REPAIR.**

**LOCATION:**

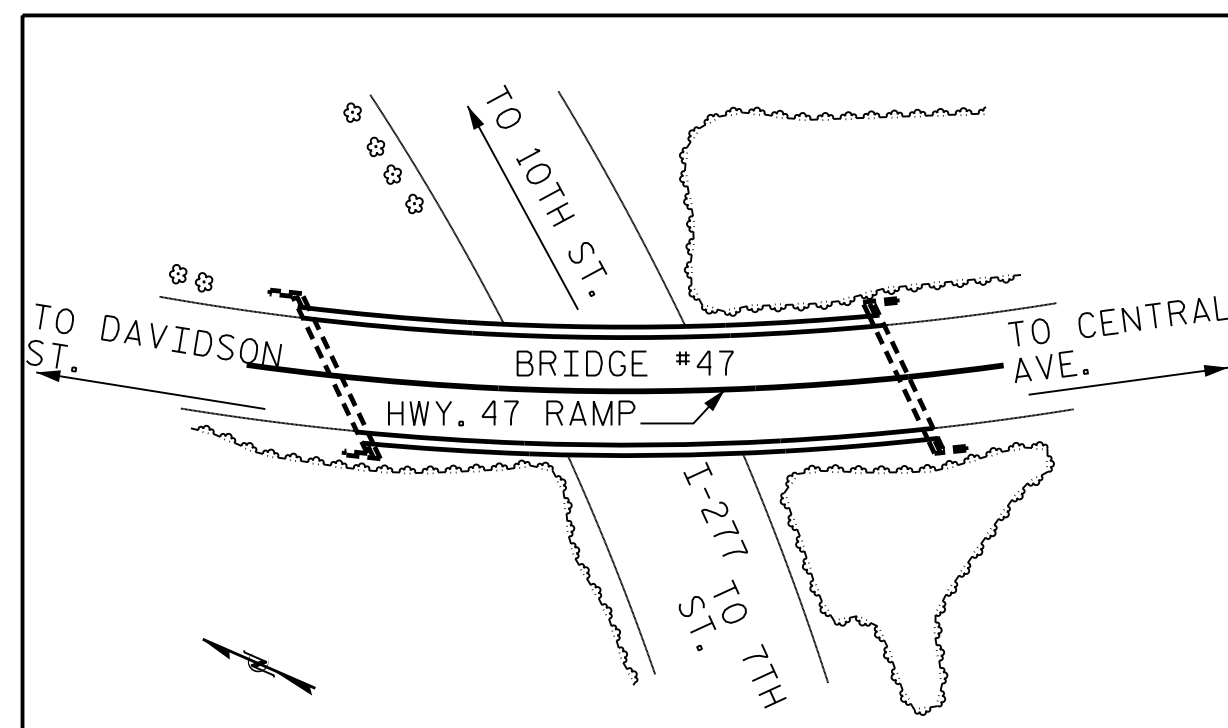
- BRIDGE #47 ON I-277/US-74 RAMP OVER (NBL) I-277
- BRIDGE #78 ON I-277 OVER SOUTH CLARKSON STREET
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- BRIDGE #509 ON I-277 (NBL) FOR BRIDGE OVER MINT STREET
- BRIDGE #510 ON I-277 (SBL) FOR BRIDGE OVER MINT STREET
- BRIDGE #522 ON I-277 AND US-74 RAMP OVER STONEWALL STREET

INDEX OF SHEETS

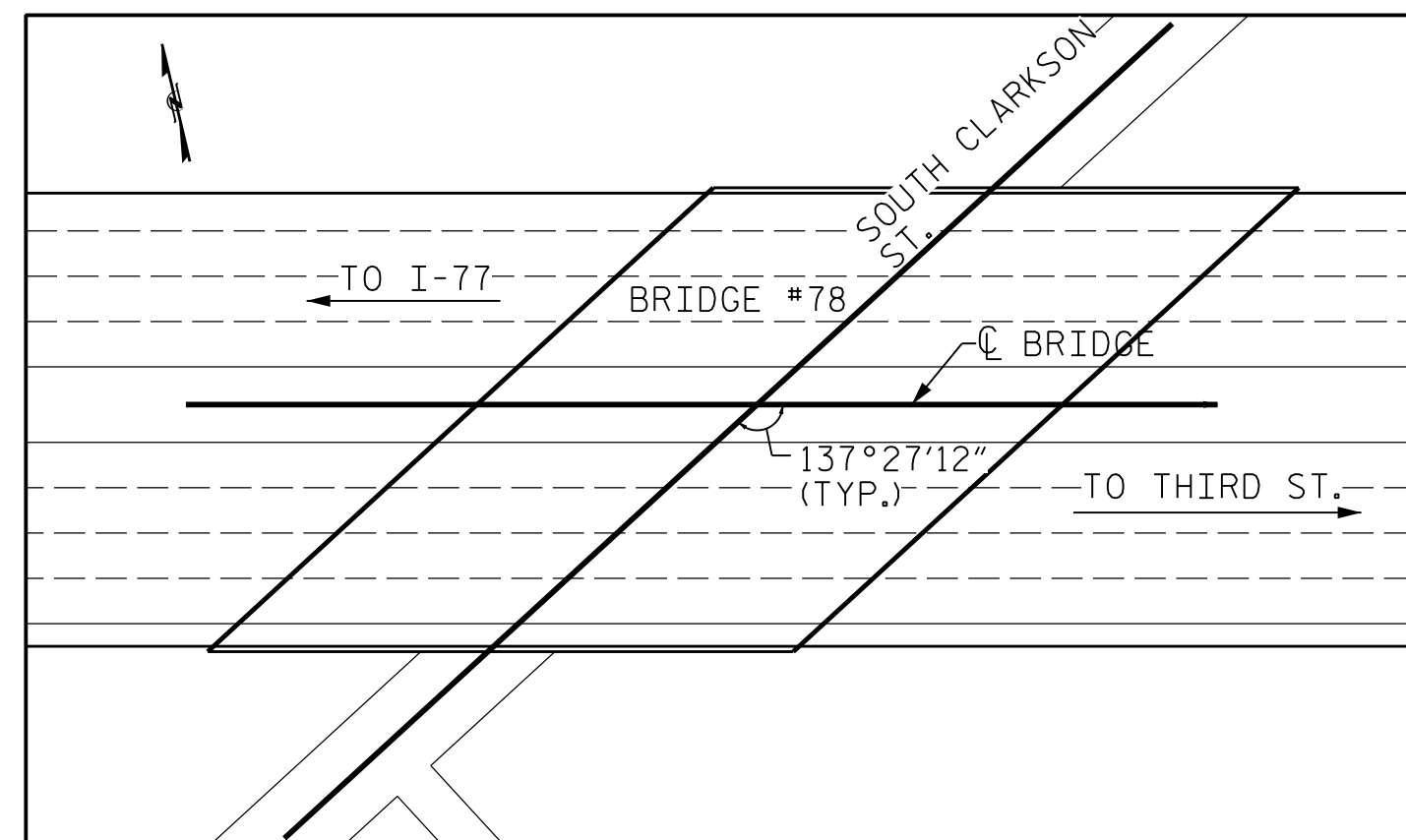
- I** **TITLE SHEET**
- 1A** **INDEX OF SHEET**
- 1B TO 1C** **BRIDGE LOCATION SKETCHES**
- 1D TO 1E** **TOTAL BILL OF MATERIALS**
- S-1 TO S-196** **STRUCTURAL PLANS**
- SN** **STANDARD NOTES**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5746A / I-5746B	1A	
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52024.3.3	-	CONST.	

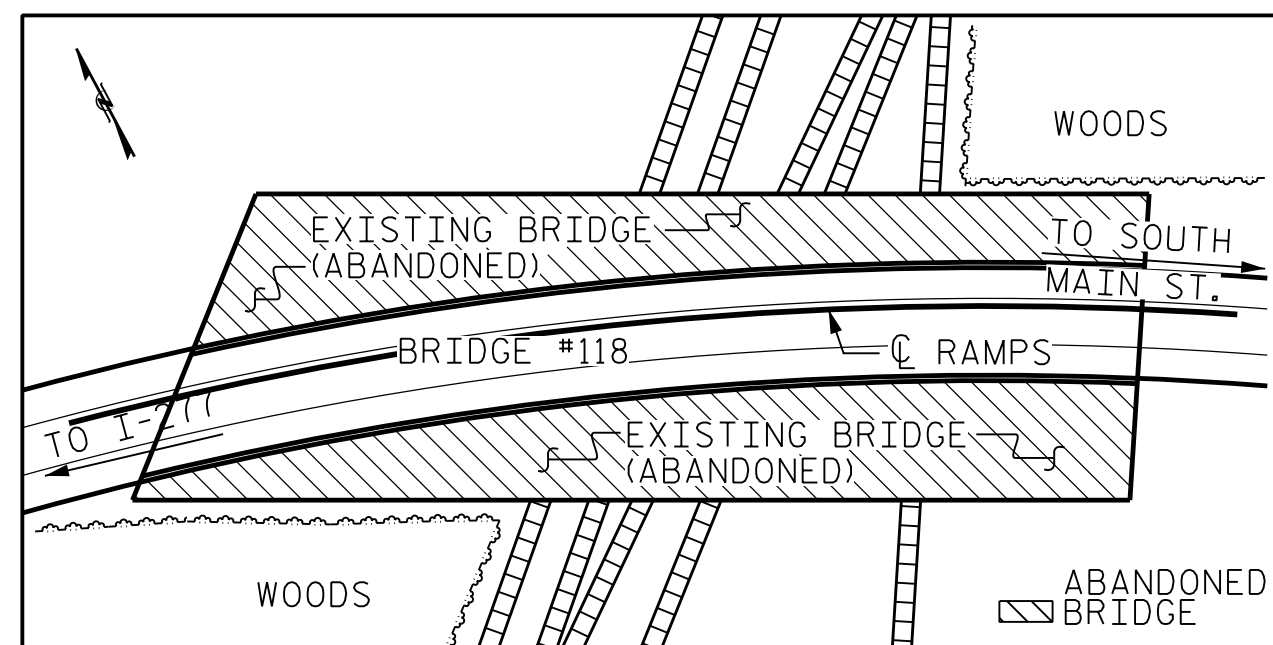
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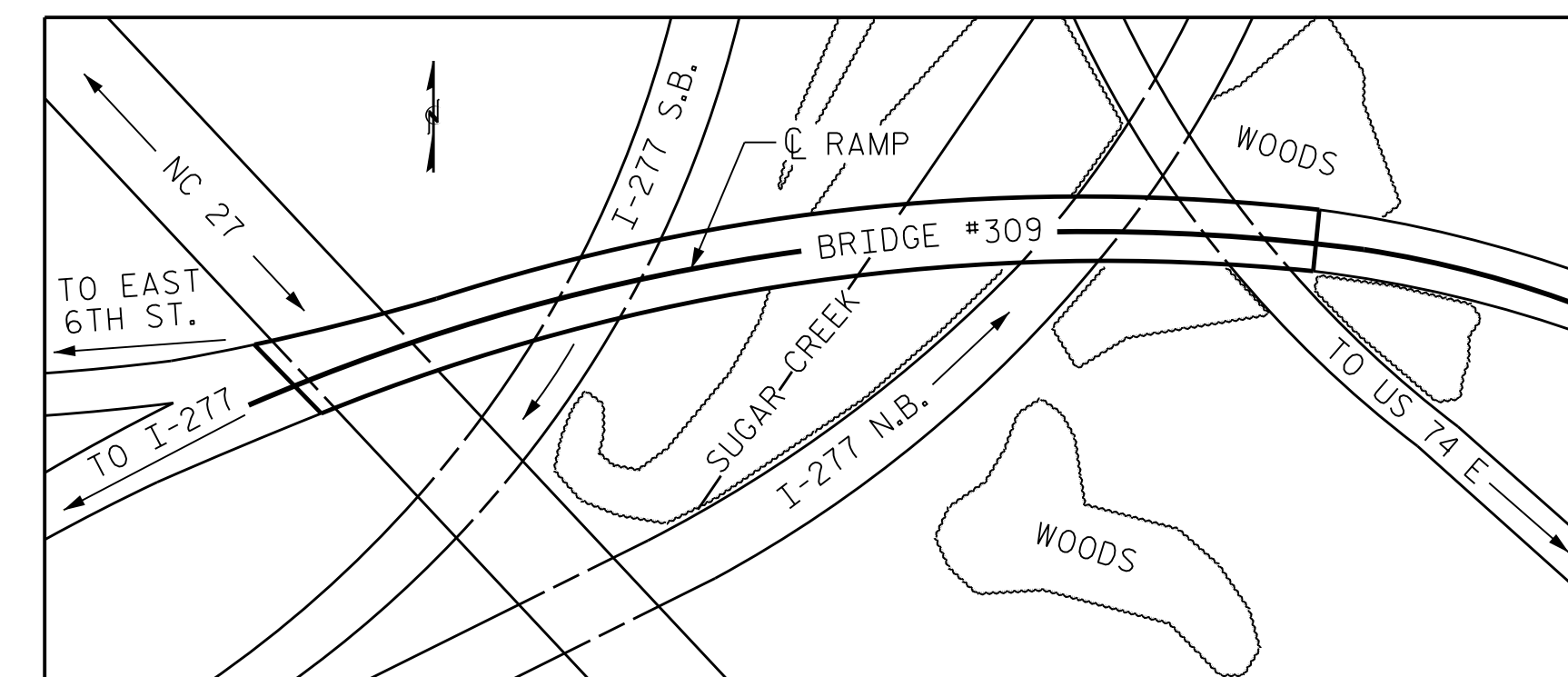
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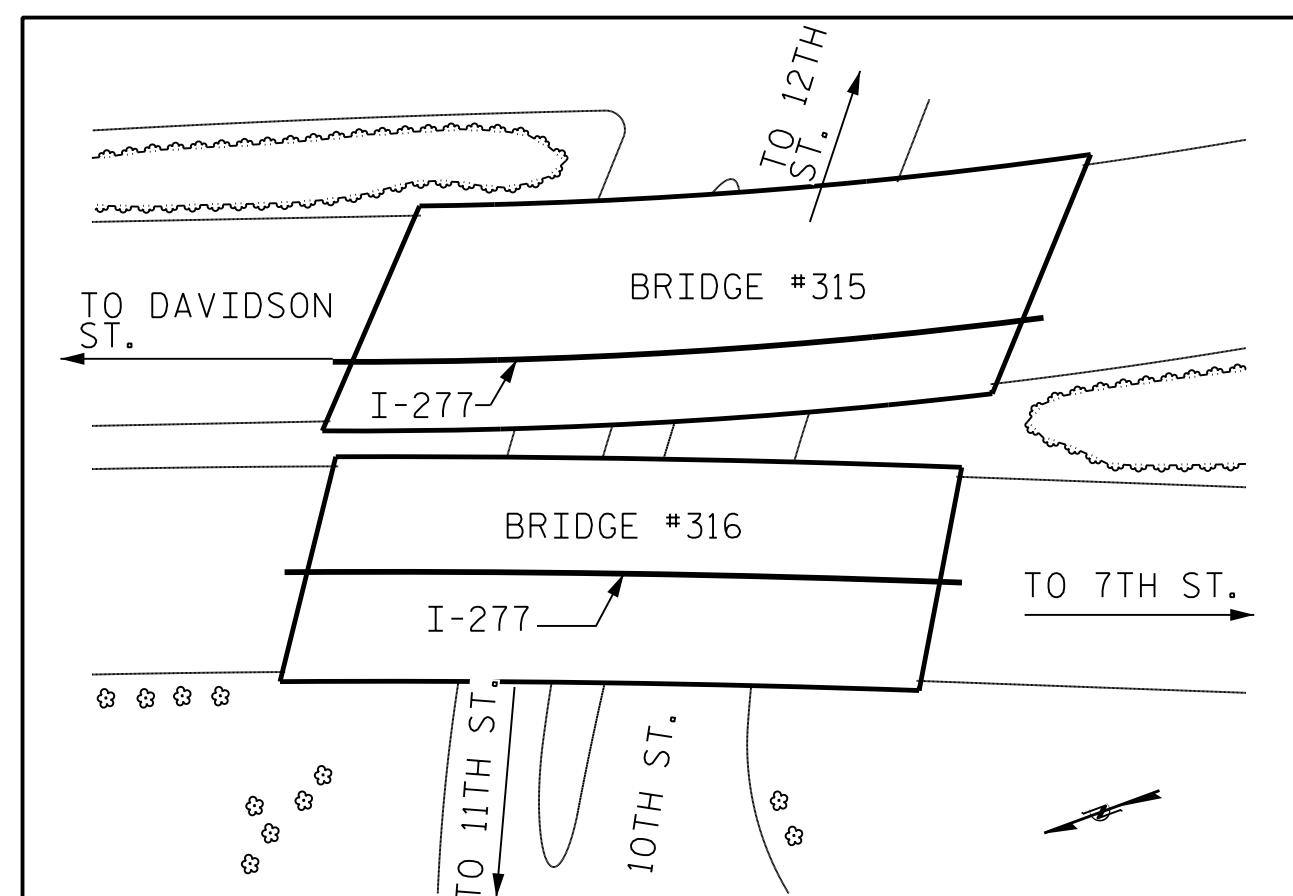
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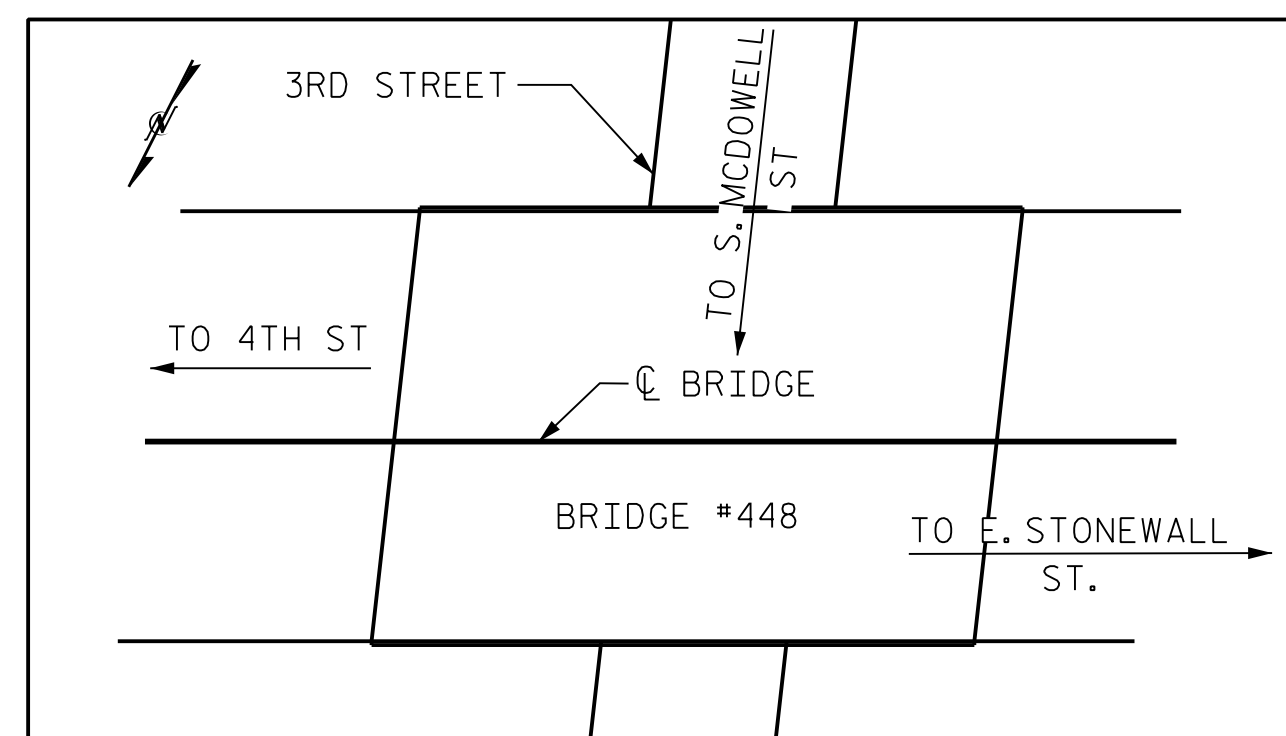
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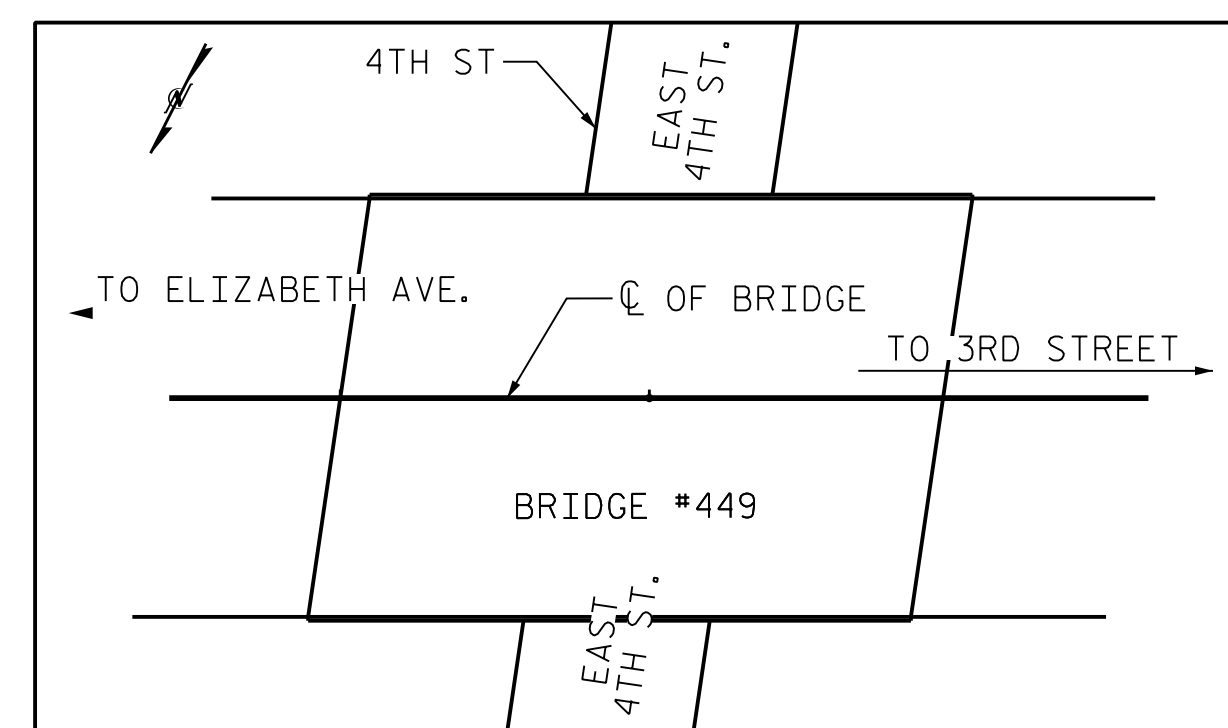
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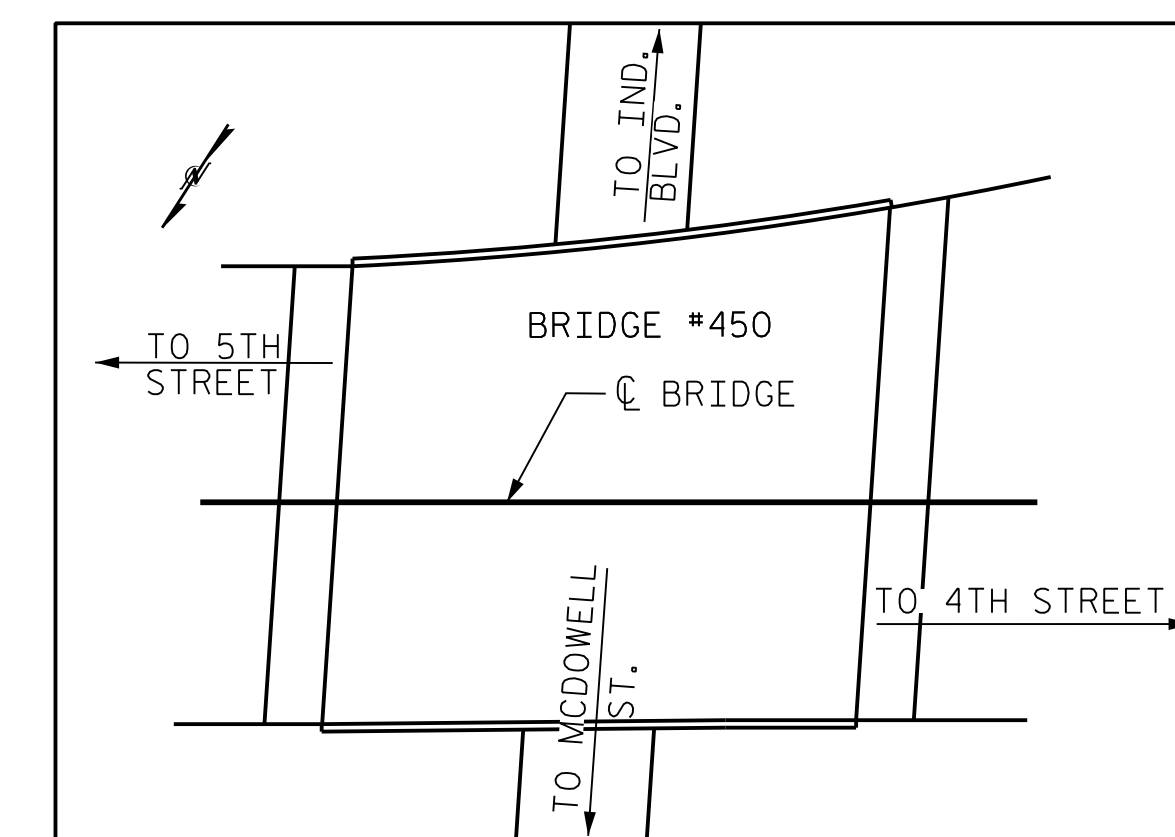
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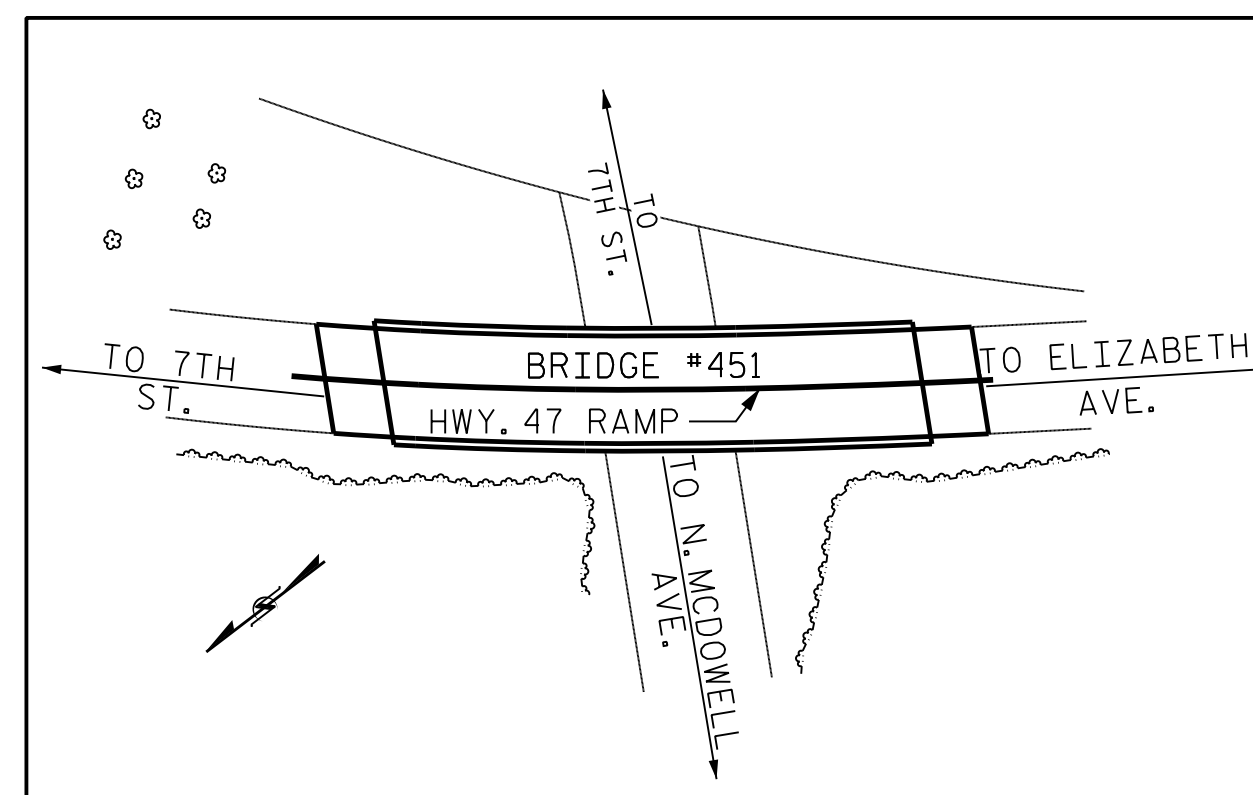
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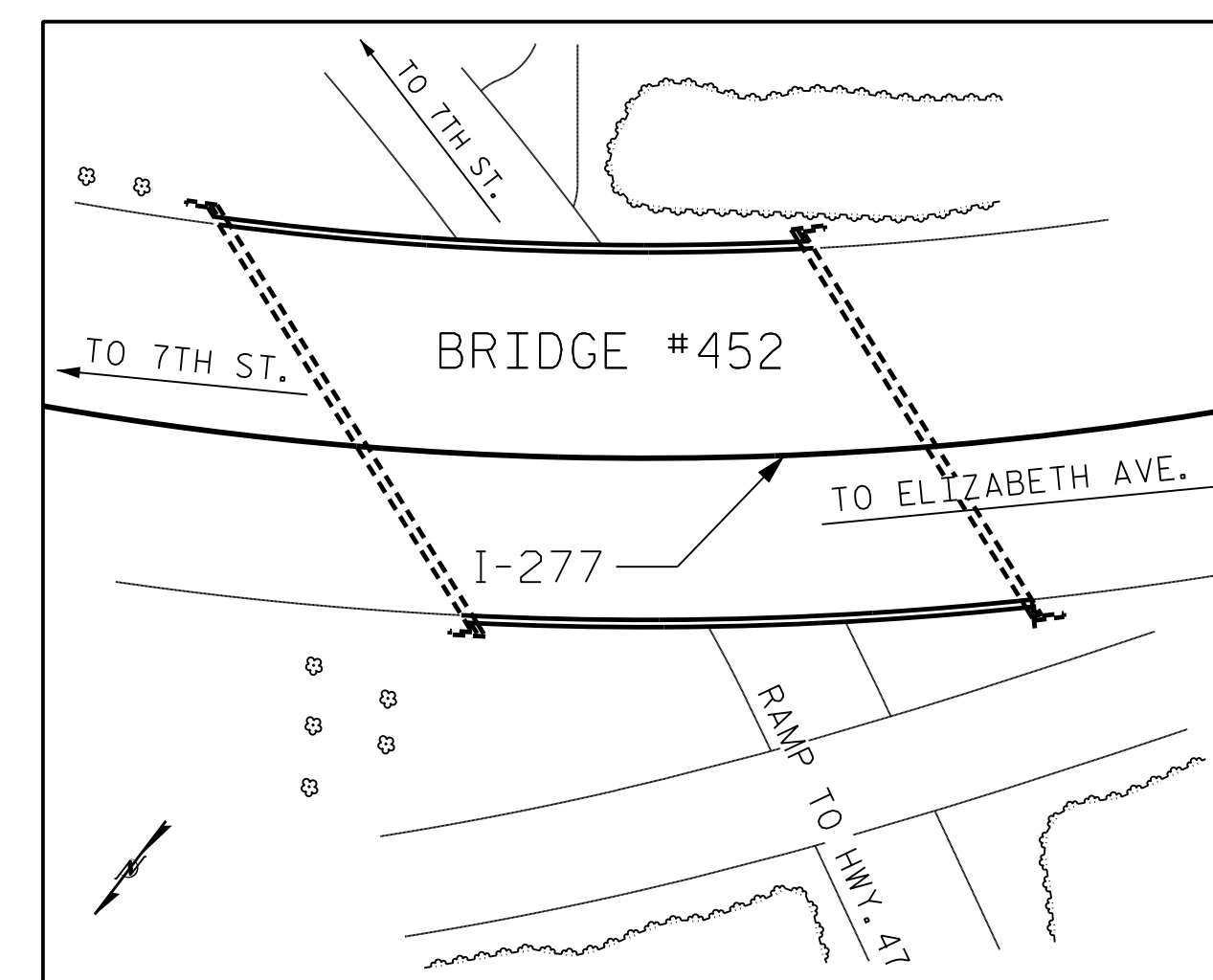
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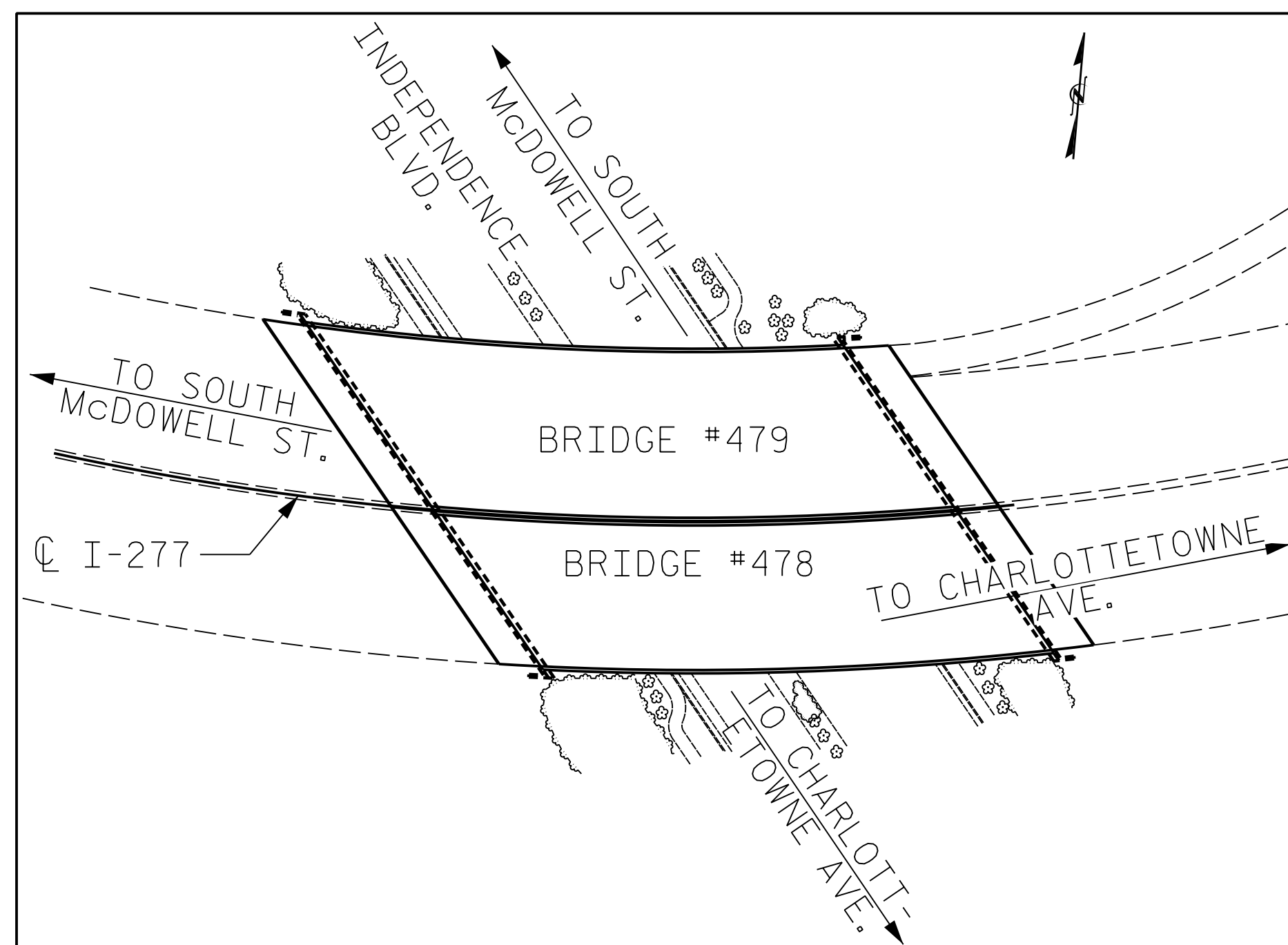
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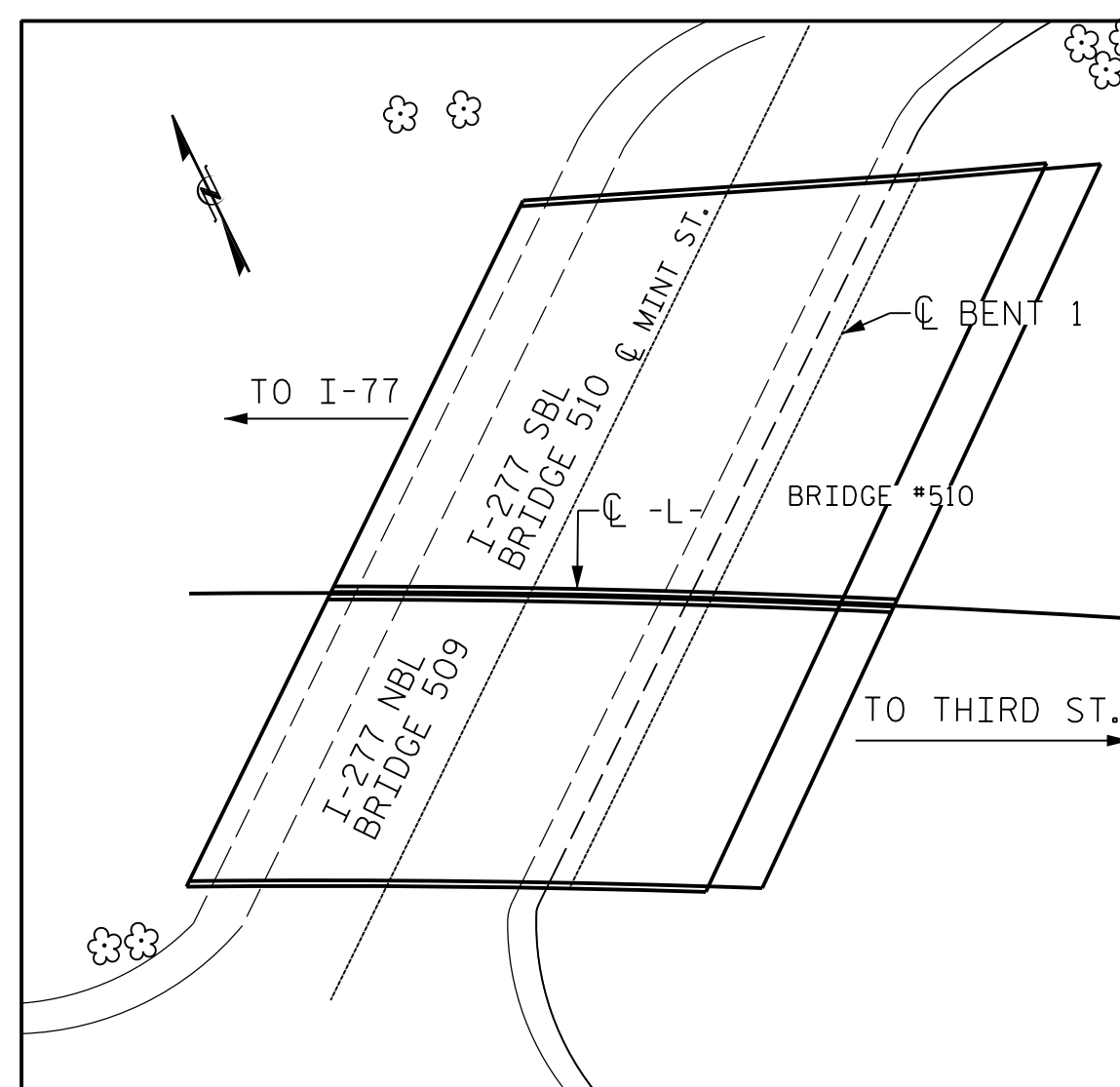
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BRIDGE #452



BRIDGE #478 AND #479

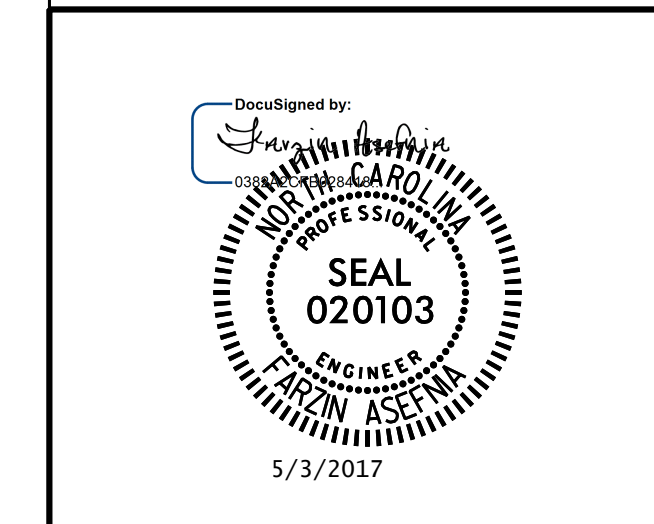


BRIDGE #509 & #510

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. \_\_\_\_\_

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BRIDGE  
 LOCATION SKETCHES

DRAWN BY : M. HOGAN DATE : 1-17  
 CHECKED BY : F. ASEFNIA DATE : 1-17  
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 1-17

REVISIONS		SHEET NO.	
NO.	DATE	NO.	DATE
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2		4	

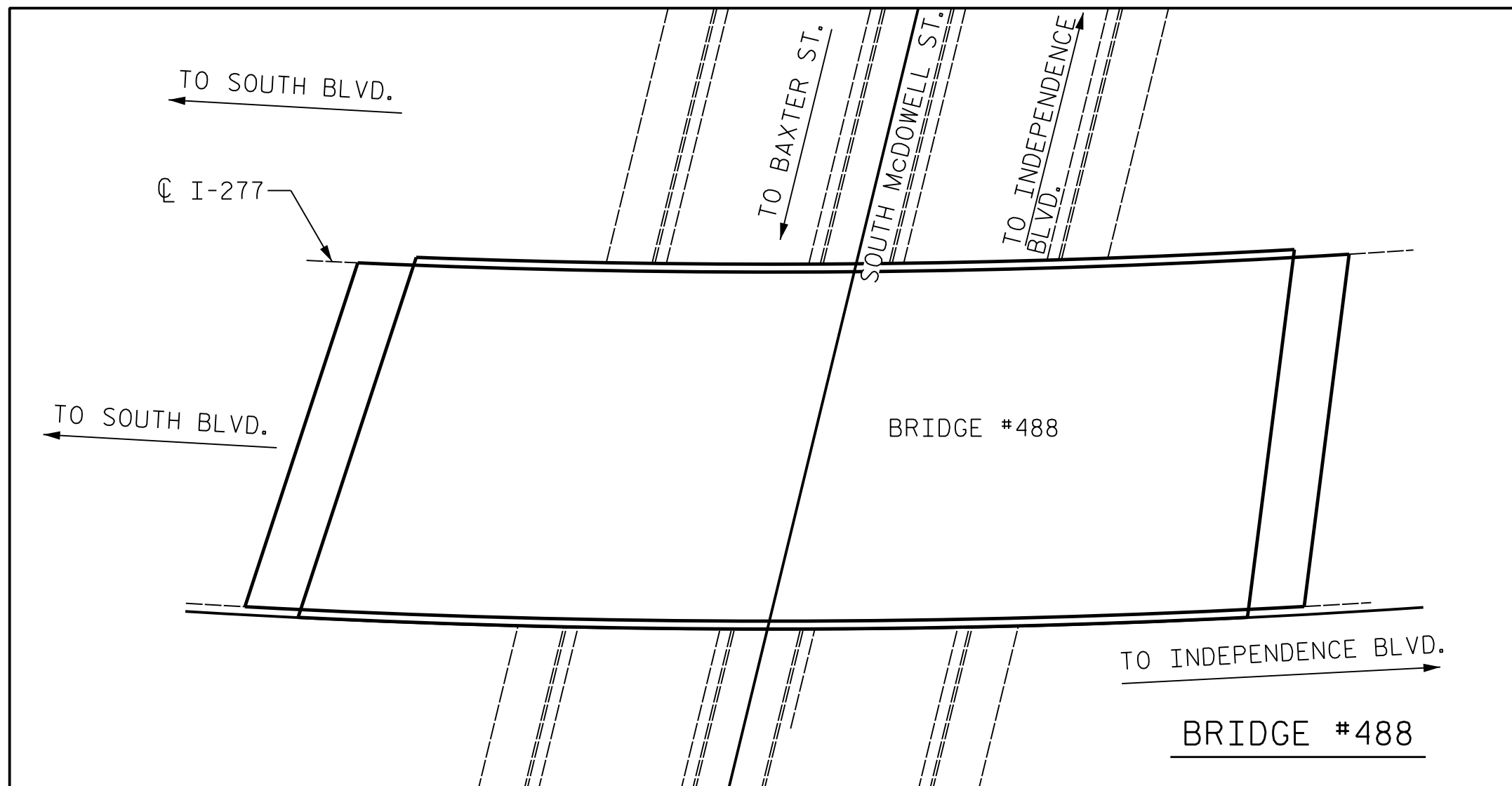
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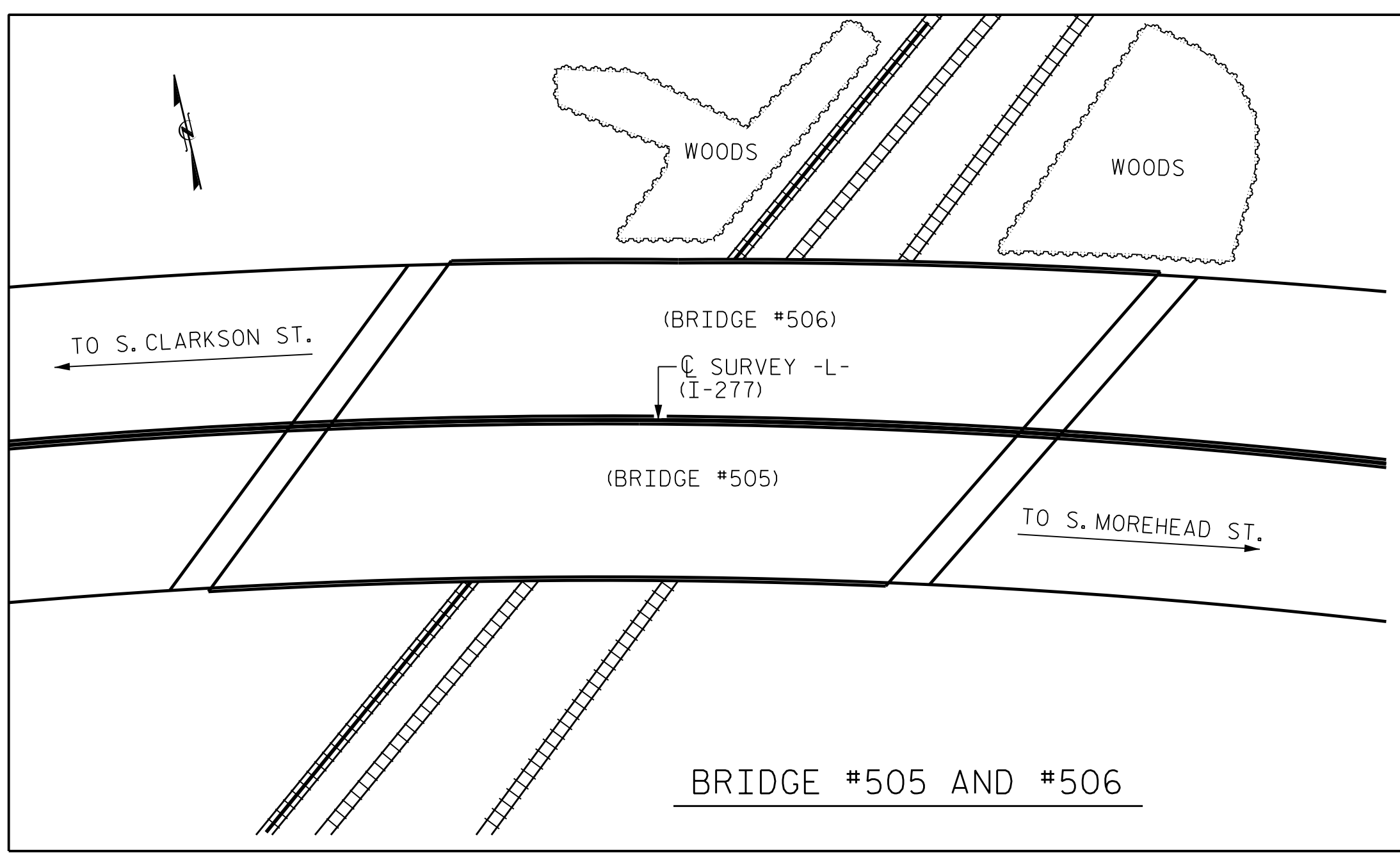
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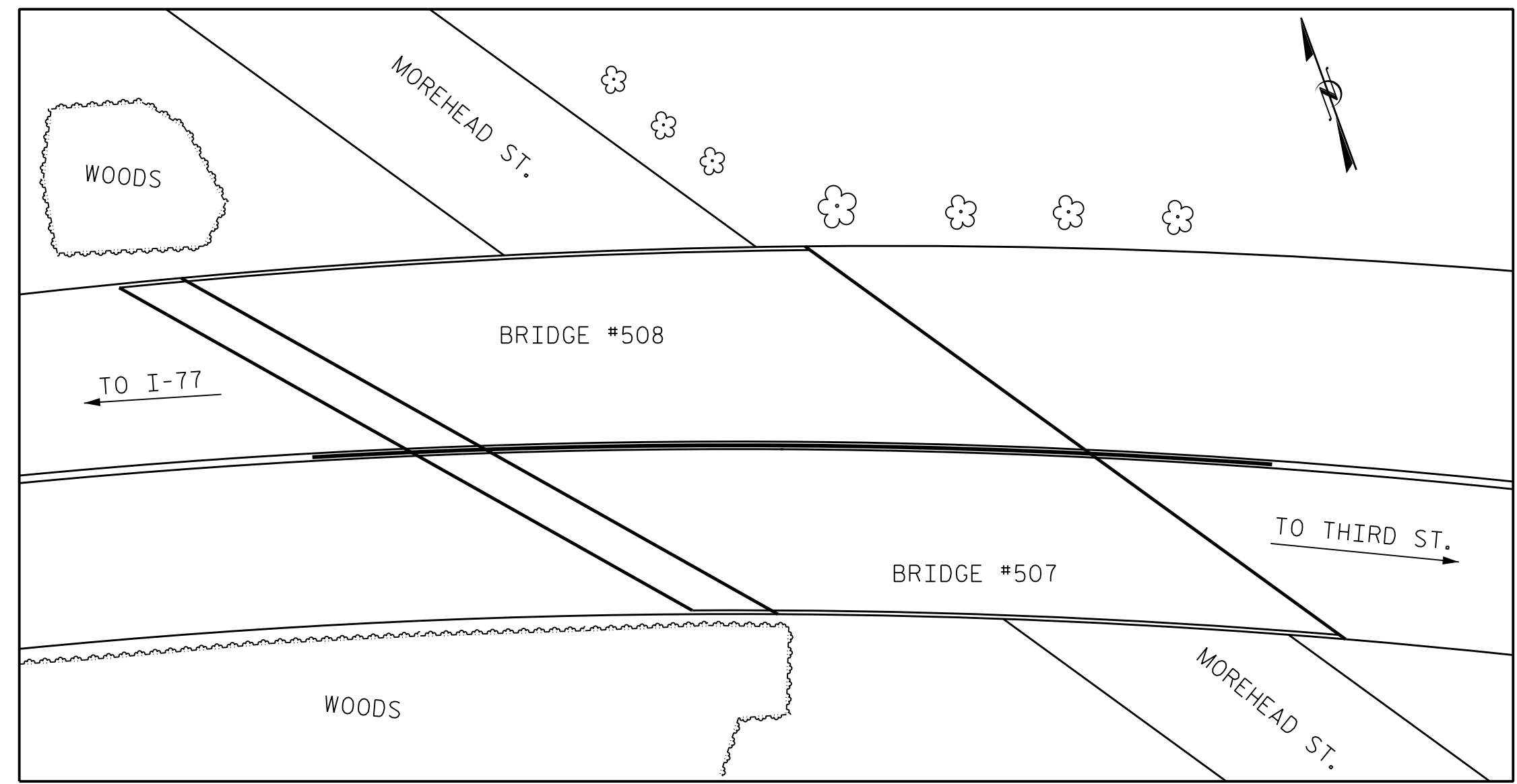
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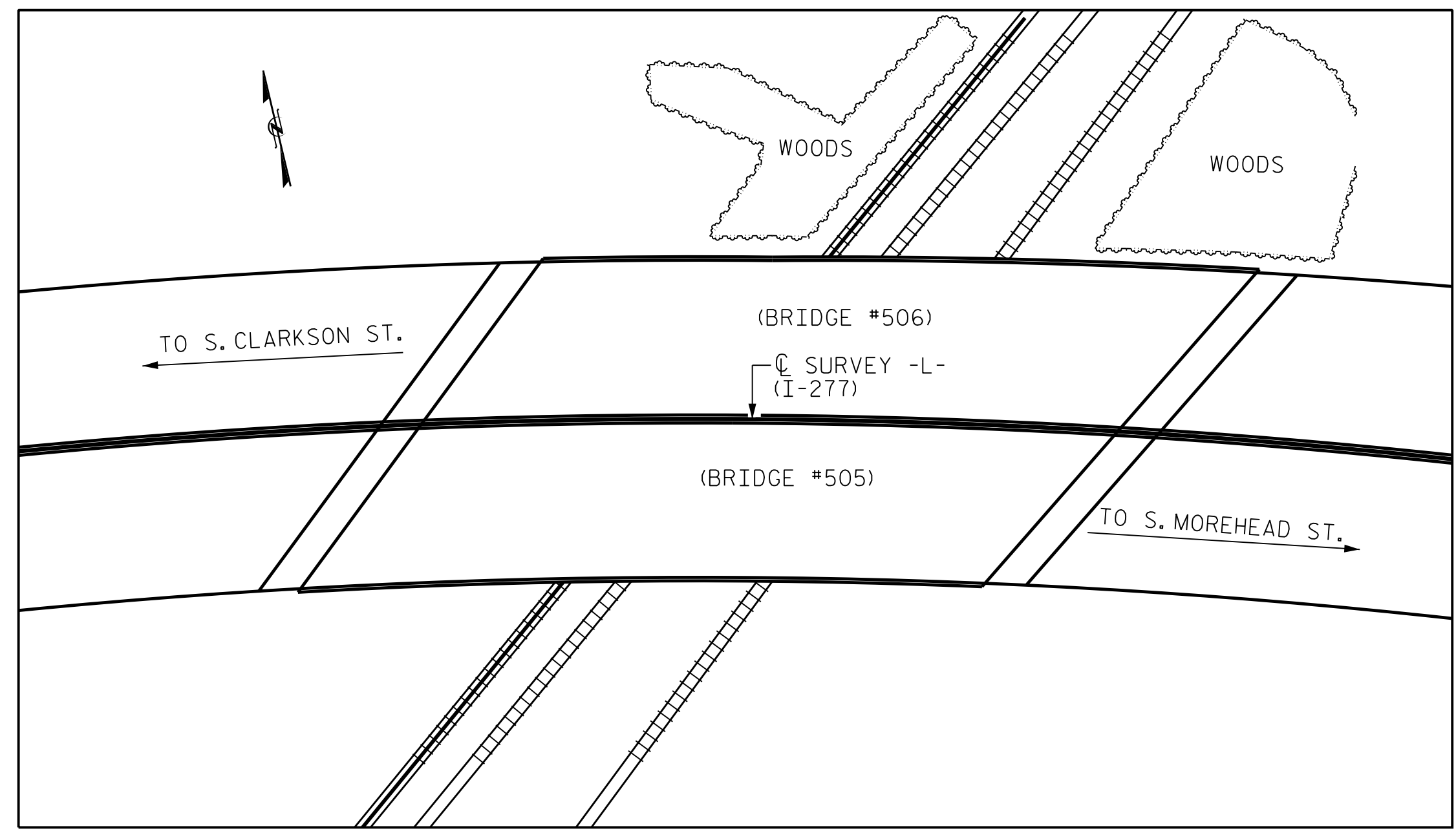
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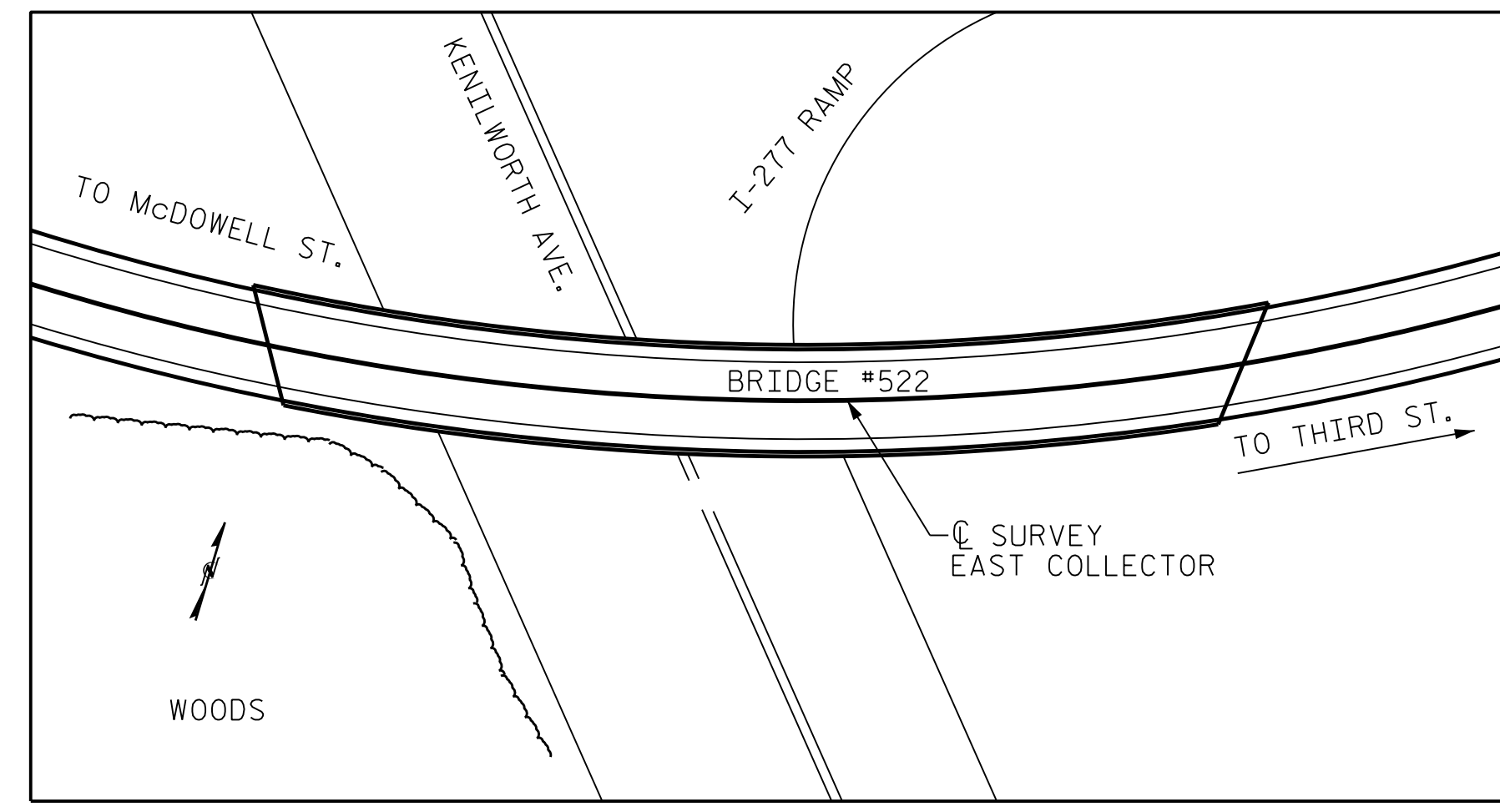
BRIDGE #505 AND #506



BRIDGE #507 AND #508



BRIDGE #505 AND #506



BRIDGE #522

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. \_\_\_\_\_

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BRIDGE  
 LOCATION SKETCHES

DRAWN BY :	M. HOGAN	DATE :	1-17
CHECKED BY :	F. ASEFNIA	DATE :	1-17
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	1-17

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

TOTAL SHEETS	196
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I-5746\_PDF\_FULL.pltcfgr I-5746\_STR\_REHAB.TBL

TOTAL BILL OF MATERIAL												
BRIDGE NO.	GROOVING BRIDGE FLOORS	CLEANING & PAINTING OF BRIDGE NO.----	CLEANING & PAINTING EXISTING WEATHERING STEEL BRIDGE NO.----	PAINTING CONTAINMENT FOR BRIDGE NO.----	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	CLASS III SURFACE PREPARATION	LATEX MODIFIED CONCRETE-VES	PLACING & FINISHING OF LATEX MODIFIED CONCRETE OVERLAY-VES	CONCRETE REPAIRS	SHOTCRETE REPAIR	EPOXY RESIN INJECTION
	SQ. FT.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	SQ.YDS.	SQ.YDS.	CU. YD.	SQ.YDS.	CU. FT.	CU. FT.	LN. FT.
47	3,775	LUMP SUM	-	LUMP SUM	LUMP SUM	3	3	20	468	13.1	36.9	3.5
78	18,020	LUMP SUM	-	LUMP SUM	LUMP SUM	5	5	100	2,407	24.3	268.6	21.9
118	-	LUMP SUM	-	LUMP SUM	LUMP SUM	-	-	-	-	38.1	16.5	39.6
309	-	-	-	-	-	-	-	-	-	150	819.6	97.0
315	9,305	LUMP SUM	-	LUMP SUM	LUMP SUM	3	3	45	1,056	25.3	24.8	8.6
316	8,662	LUMP SUM	-	LUMP SUM	LUMP SUM	3	3	40	955	26.0	19.9	31.3
448	-	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	-	5.0	-
449	-	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	17.3	-	-
450	-	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	1.7	30.5	10.6
451	-	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	6.1	7.3	0.5
452	20,753	LUMP SUM	-	LUMP SUM	LUMP SUM	3	3	71	1,682	5.9	24.5	1.9
478	-	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	1.4	7.1	9.0
479	-	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	1.2	6.8	2.0
487	-	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	4.2	47.9	26.5
488	-	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	1.1	70.8	1.5
505	-	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	0.0	10.9	6.3
506	-	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	1.9	9.1	1.5
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510	-	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	2.0	3.7	65.5
522	-	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	-	-	-
TOTAL	60,515	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	17	17	276	6,568	329.5	1,427.4	547.7

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. \_\_\_\_\_

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

SHEET 1 OF 2

DocuSigned by:  
 F. ASEFNIA  
 PROFESSIONAL ENGINEER  
 STATE OF NORTH CAROLINA  
 SEAL  
 020103  
 ENGINEER  
 F. ASEFNIA  
 5/3/2017

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**STRUCTURES**  
 TOTAL BILL  
 OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	1D
1			3			TOTAL SHEETS
2			4			196

DRAWN BY : M. HOGAN DATE : 1-17  
 CHECKED BY : F. ASEFNIA DATE : 1-17  
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 1-17

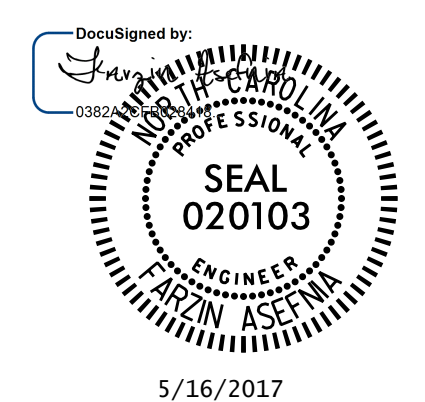
Louis Berger  
 Prepared by:  
 LOUIS BERGER  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840



TOTAL BILL OF MATERIAL											
BRIDGE NO.	FOAM JOINT SEALS	EPOXY OVERLAY SYSTEM - MECHANICALLY DISTRIBUTED	HYDRO-DEMOLITION OF BRIDGE DECK	SCARIFYING BRIDGE DECK	CONCRETE DECK REPAIR FOR EPOXY OVERLAY	ELASTOMERIC CONCRETE	BRIDGE JOINT DEMOLITION	EPOXY COATING	VOLUMETRIC MIXER	STEEL KEEPER ANGLE ASSEMBLY BRIDGE No.: -----	REMOVE AND REPLACE EXPANSION JOINT SEAL
	LUMP SUM	SQ. FT.	SQ.YDS.	SQ.YDS.	SQ. FT.	CU. FT.	SQ. FT.	SQ. FT.	LUMP SUM	EACH	LN. FT.
47	LUMP SUM	-	462.5	462.5	-	31	124	431	LUMP SUM	-	-
78	LUMP SUM	-	823	823	-	181.7	726.8	1,818	LUMP SUM	-	-
118	LUMP SUM	6,961	-	-	1.0	46.5	186	1,497	-	-	-
309	-	-	-	-	-	-	-	2,358	-	-	-
315	LUMP SUM	-	1,056	1,056	-	60	240	306	LUMP SUM	-	-
316	LUMP SUM	-	955	955	-	56	224	533	LUMP SUM	-	-
448	LUMP SUM	17,270	-	-	1.0	57	228	-	-	-	-
449	LUMP SUM	16,642	-	-	17.3	55	220	-	-	-	-
450	LUMP SUM	23,150	-	-	1.0	125	500	1,206	-	-	-
451	LUMP SUM	5,035	-	-	1.0	30	120	289	-	-	-
452	LUMP SUM	-	1,682	1,682	-	120	480	701	LUMP SUM	-	-
478	LUMP SUM	12,084	-	-	1.0	102.7	308	832	-	1	-
479	LUMP SUM	14,224	-	-	1.0	120.7	362	959	-	-	-
487	LUMP SUM	15,936	-	-	1.0	87	348	1,019	-	-	-
488	LUMP SUM	11,248	-	-	1.0	65	260	798	-	1	-
505	LUMP SUM	18,971	-	-	1.0	104	350	940	-	-	-
506	LUMP SUM	18,965	-	-	1.0	104	350	924	-	-	-
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508	LUMP SUM	18,048	-	-	1.0	115	407	1,389	-	-	-
509	LUMP SUM	7,685	-	-	1.0	67	234	672	-	-	-
510	LUMP SUM	11,099	-	-	1.0	97	411	959	-	-	-
522	LUMP SUM	10,348	-	-	1.0	17	68	-	-	-	95.5
TOTAL	LUMP SUM	223,087	4,978.5	4,979	301.3	1,736.6	6,499	18,949	LUMP SUM	2	95.5

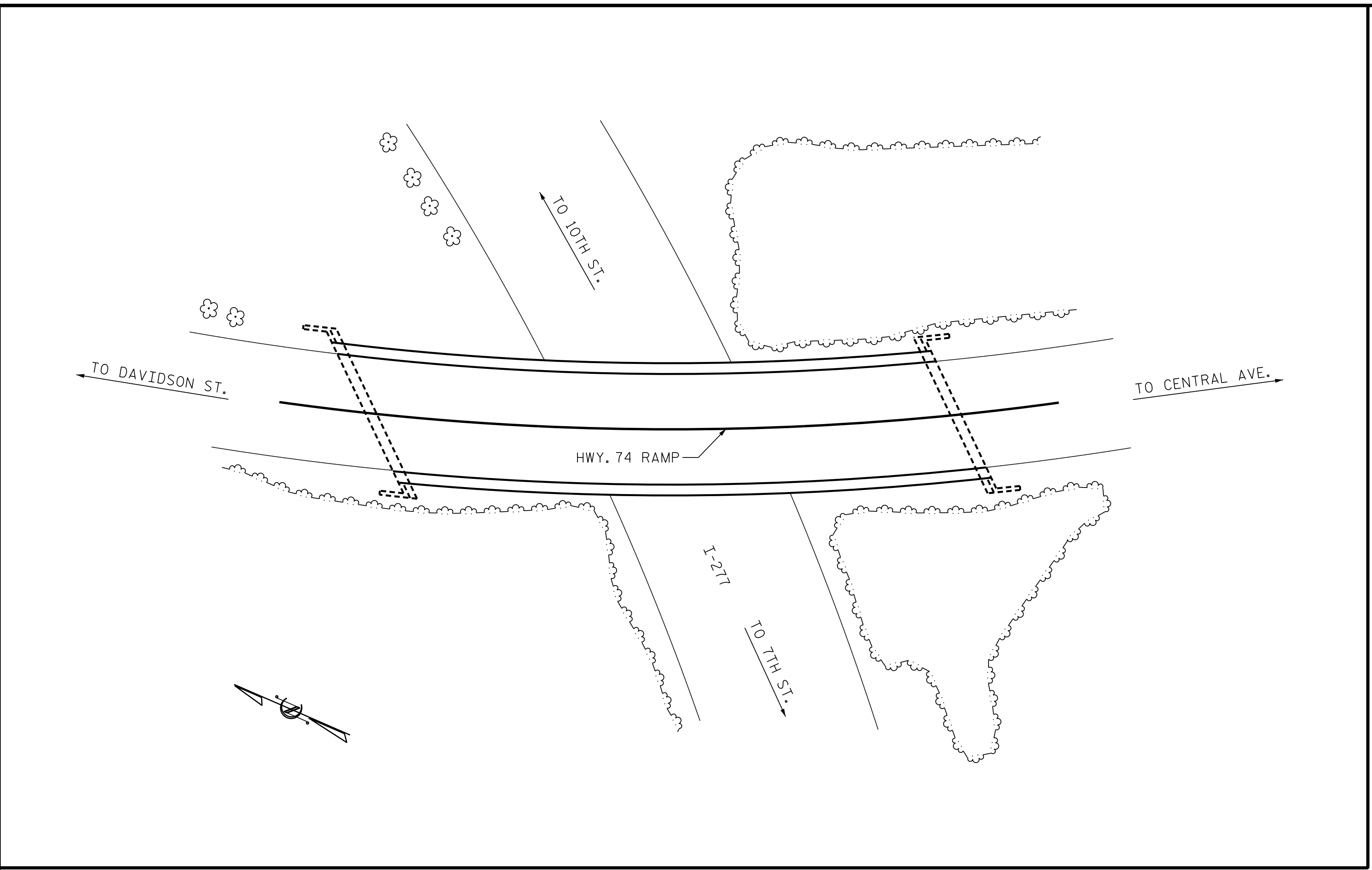
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PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. \_\_\_\_\_

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		SHEET 2 OF 2																	
		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH  <b>STRUCTURES</b> TOTAL BILL OF MATERIAL																	
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1			3																
2			4																
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LOCATION SKETCH

**NOTES**

- INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION, ONLY. CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING THE BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETET THE PROJECT.
- EXISTING DIMENSION AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSION AND CONDITION DIFFER.
- IT IS THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM HYDRO-DEMOLITION PROCESS. SEE MANAGING HYDRO-DEMOLITION WATER SPECIAL PROVISION.
- EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO TO BEGINING SURFACE PREPERATION OF BRIDGE DECK.
- DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.
- THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOWS THROUGH THE DECK.
- LONGITUDINAL CONSTRCTIION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, CLASS II SURFACE PREPARATION, AND CLASS III SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.
- FOR LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
- FOR PAINTING EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 47

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH <b>GENERAL DRAWING</b> BRIDGE OVER I-277/US74 BETWEEN DAVIDSON STREET AND CENTRAL AVENUE			
REVISIONS			
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1			S-2
2			TOTAL SHEETS
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**Louis Berger**  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

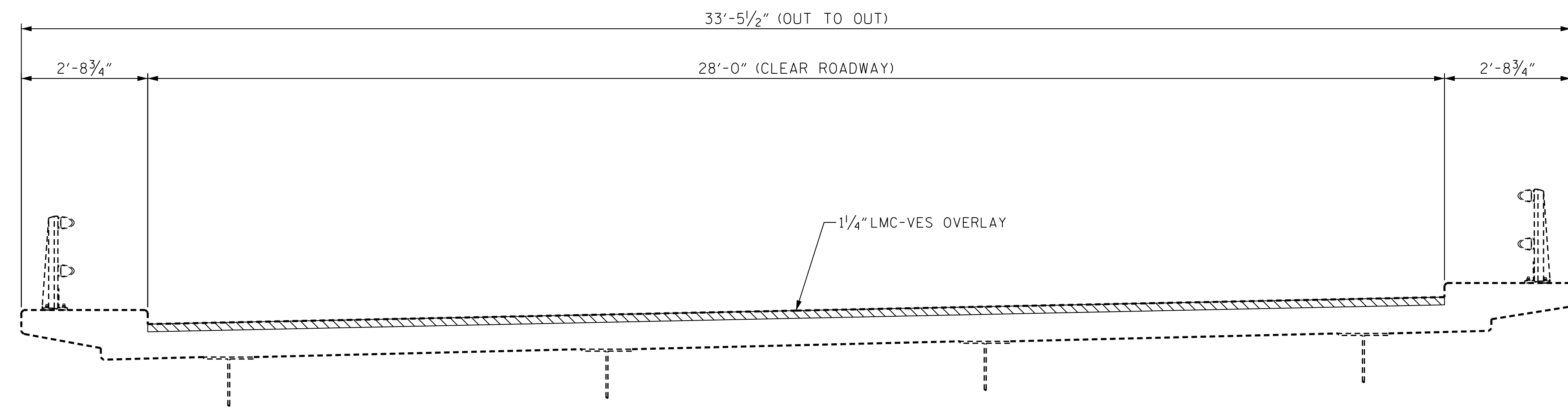


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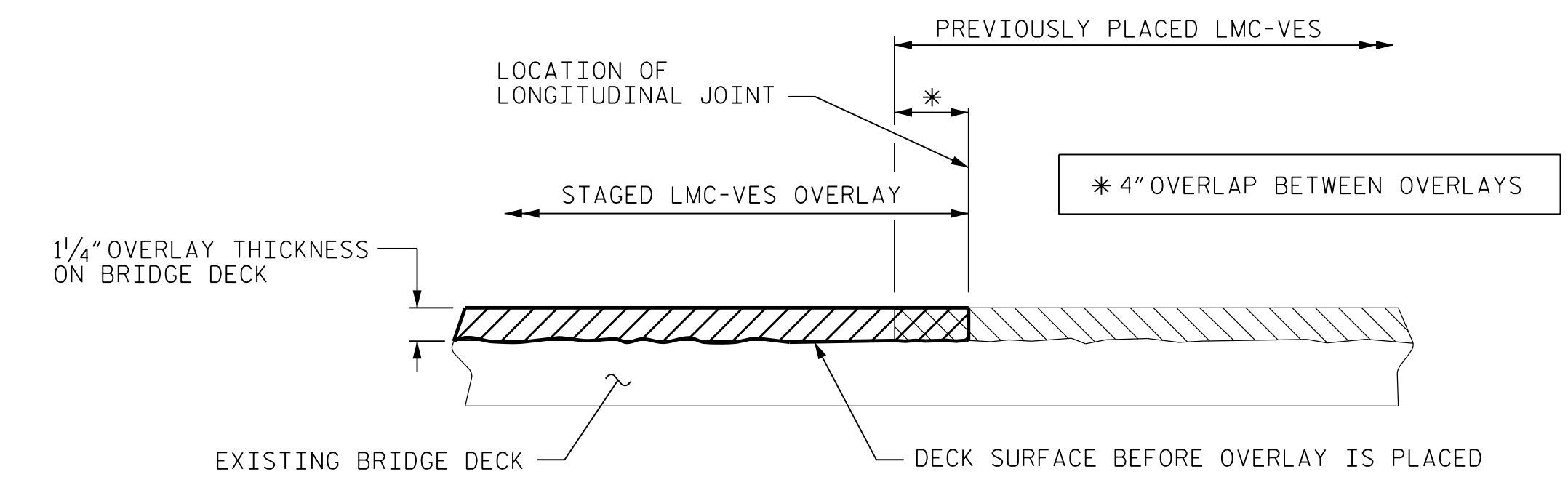
**NOTE:**

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

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC-VES PLACEMENT.



TYPICAL SECTION



SECTION THRU DECK  
STAGED LMC-VES OVERLAY JOINT  
 (AS NEEDED)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 47

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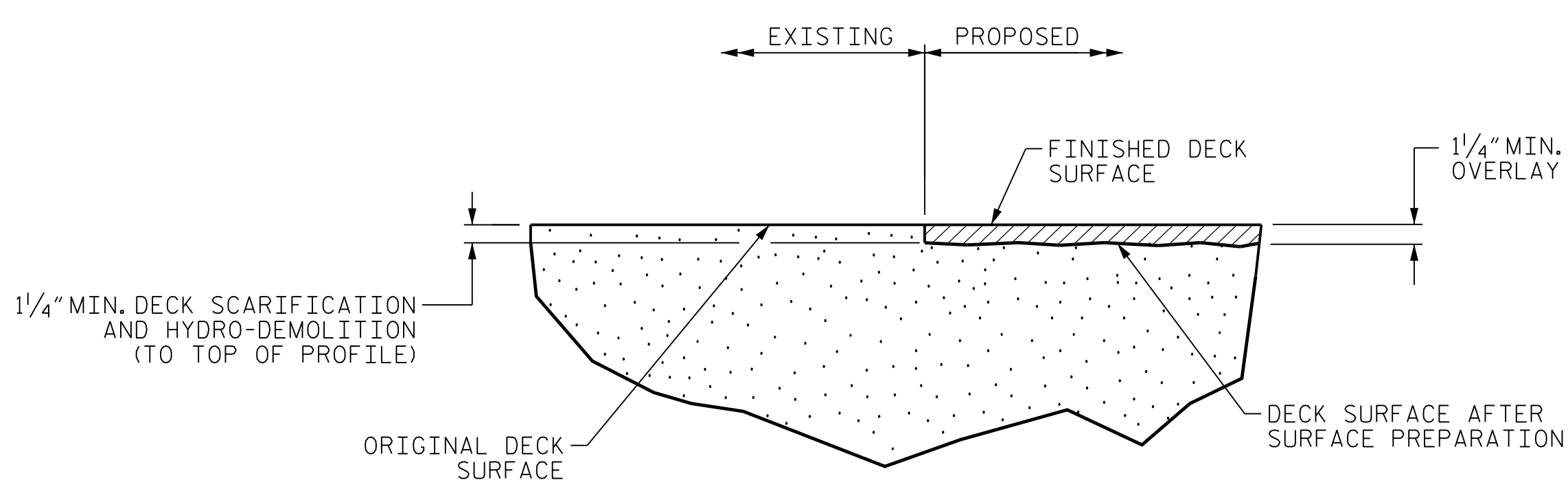
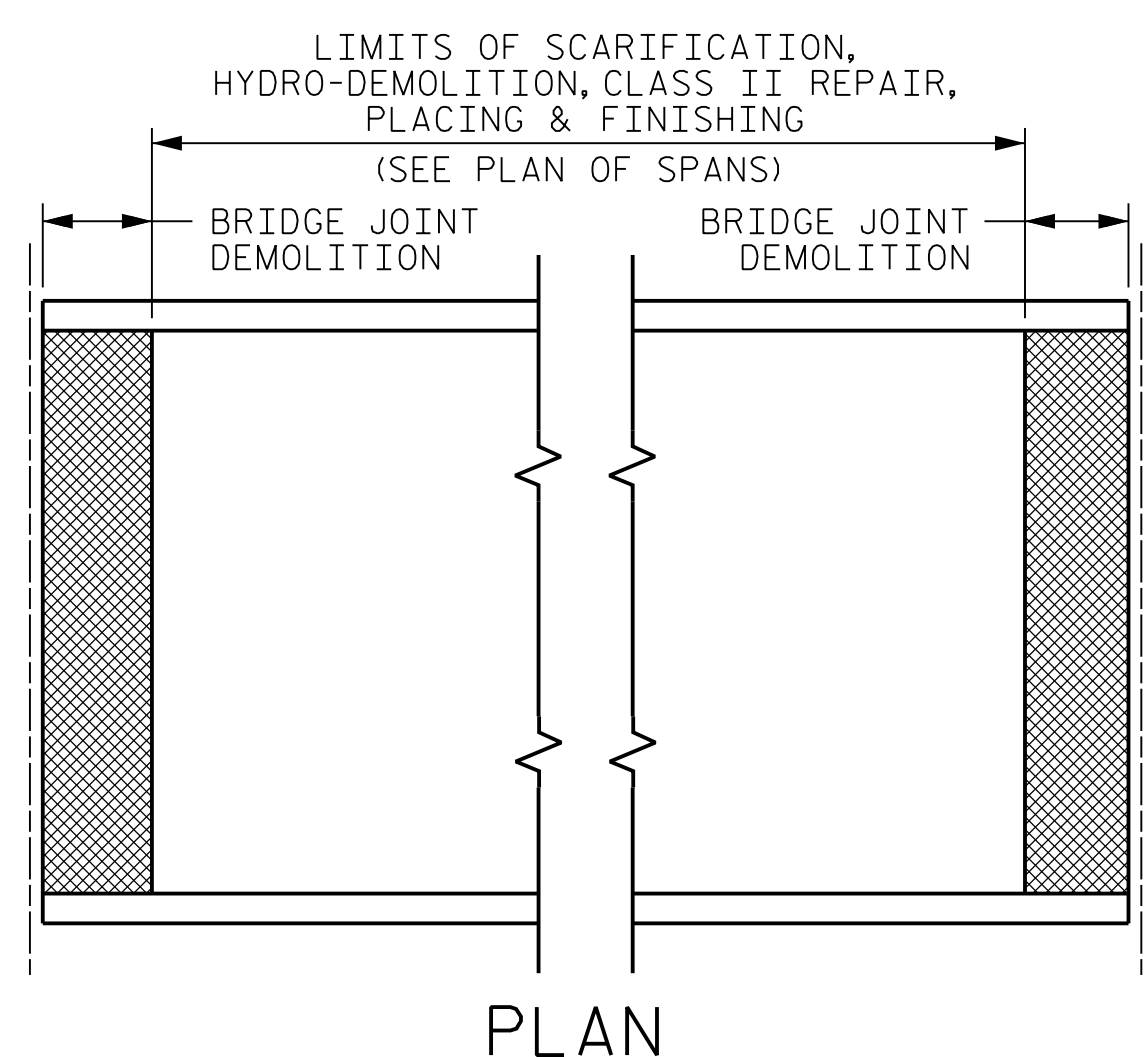
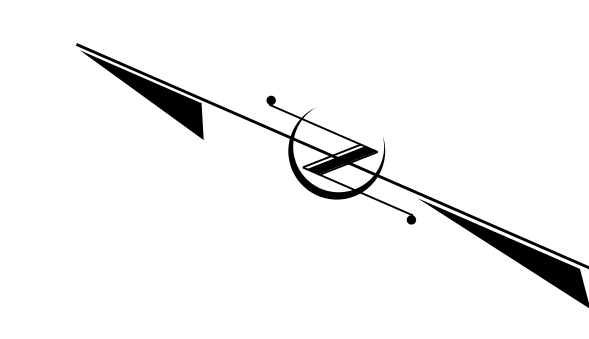
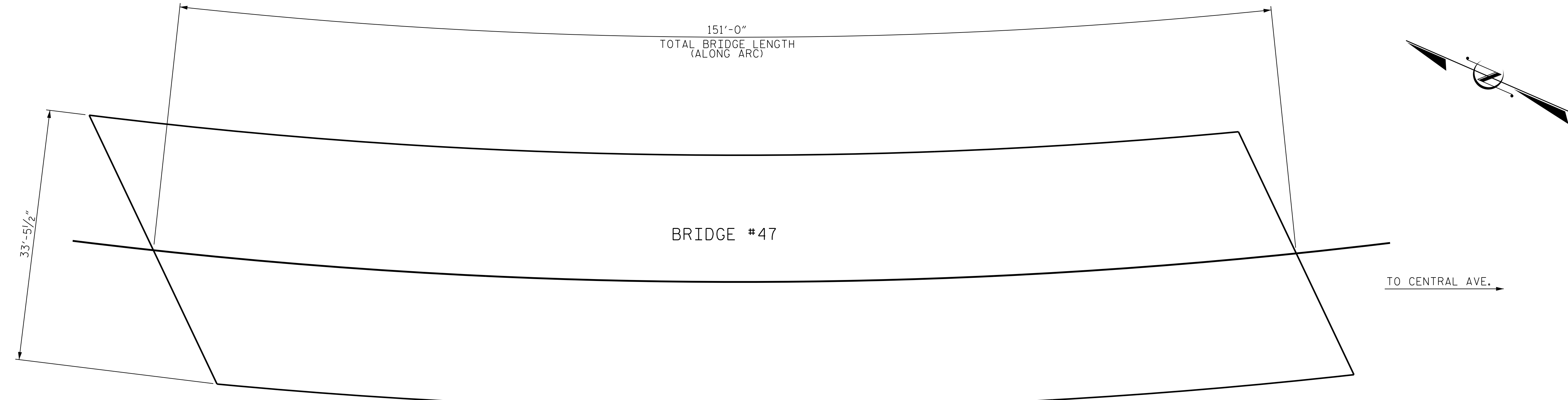


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION**  
 LMC-VES OVERLAY

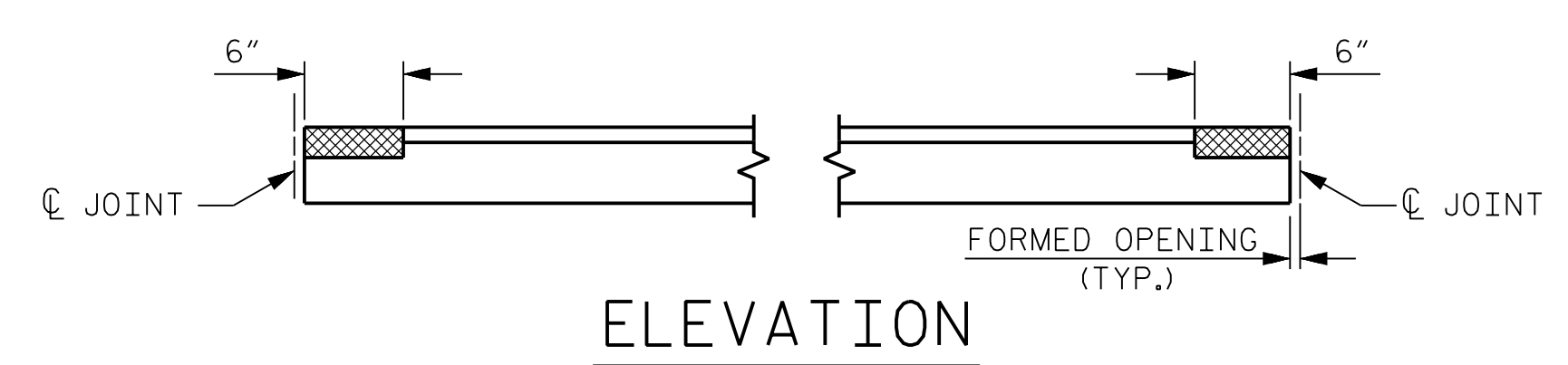
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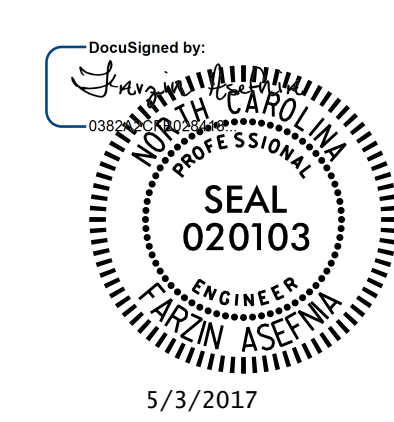


DETAIL FOR LATEX  
MODIFIED CONCRETE OVERLAY  
(EXISTING BRIDGES)



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BRIDGE NO. 47

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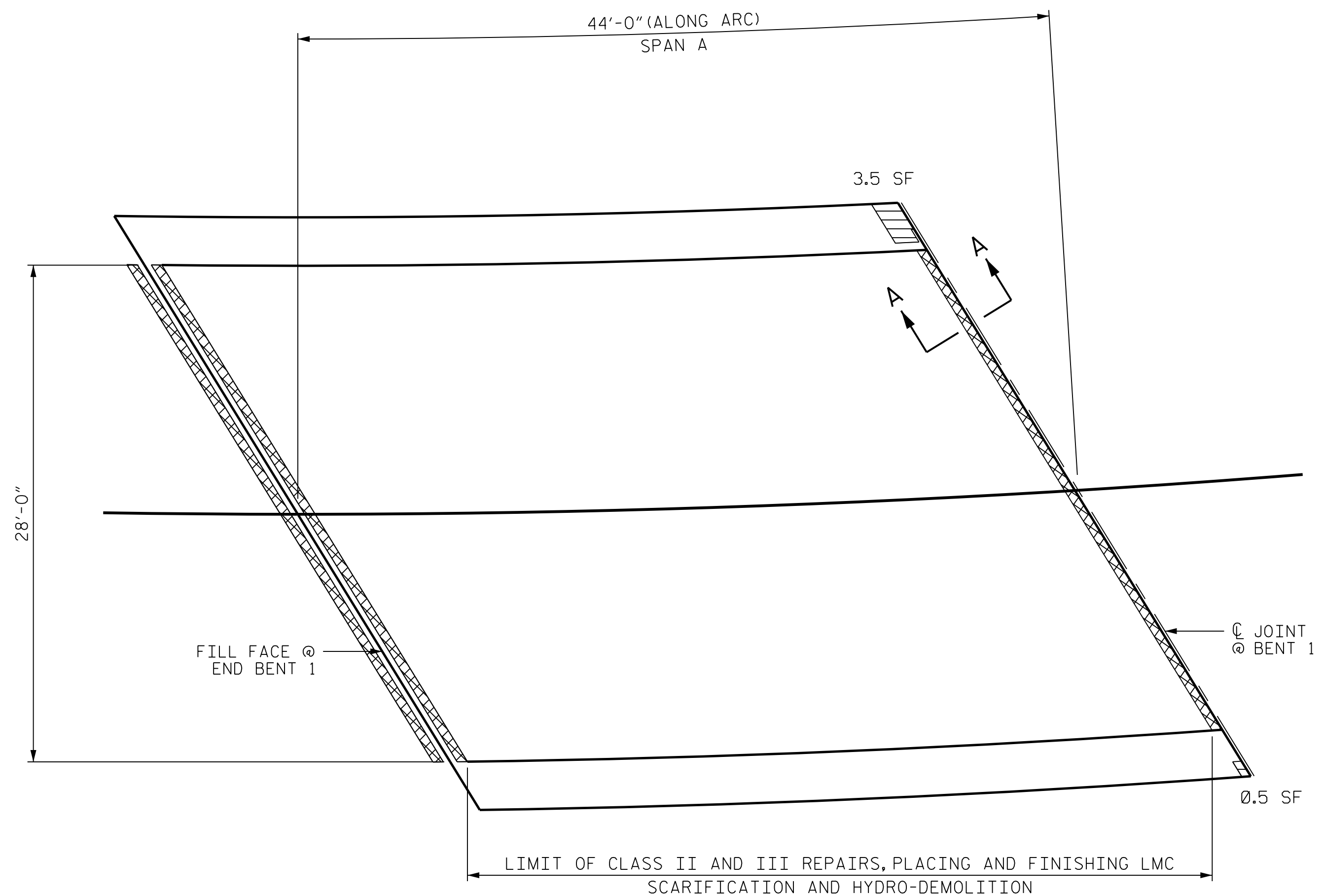
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
SURFACE PREPARATION

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**PLAN OF SPAN A**  
FOR SECTION A-A, SEE "JOINT DETAILS" SHEET

SPAN "A" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	46.5 SQ. FT.	
SCARIFYING BRIDGE DECK	134 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	134 SQ. YDS.	
SHOTCRETE REPAIR	1.0 CU. FT.	

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

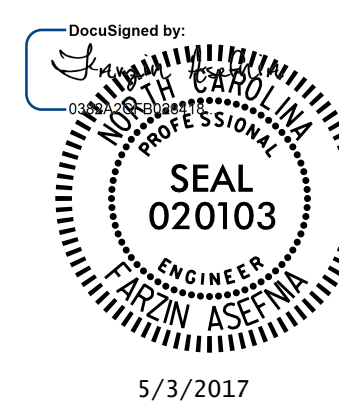
CLASS II & CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN AMOUNT IS INDICATED FOR PRICING PURPOSE. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION
- OVERHANG AND DECK UNDERSIDE DELAMINATION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 47

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SHEET 1 OF 3



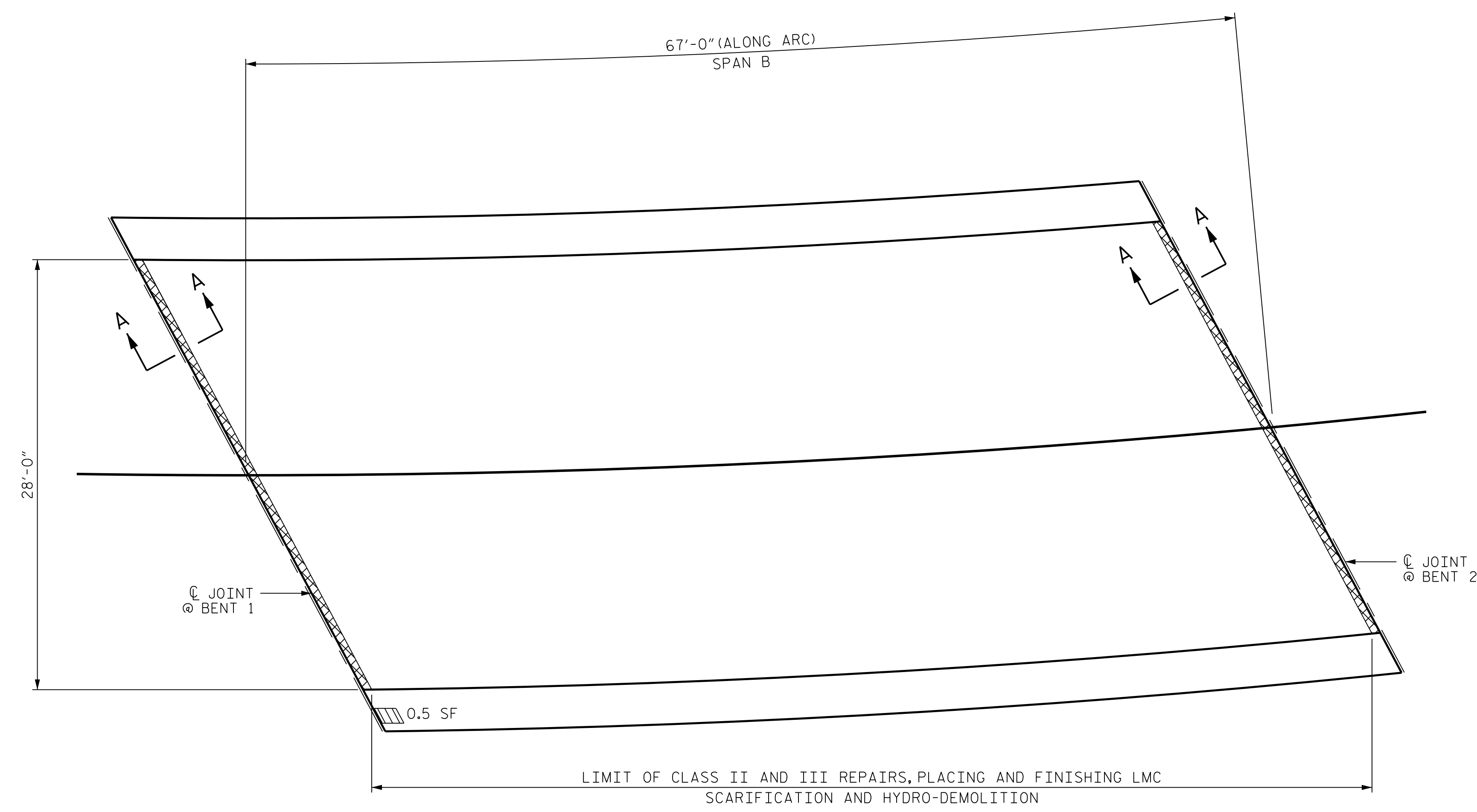
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DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION  
AND UNDERDECK REPAIR  
LOCATIONS**  
SPAN A

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DESIGN ENGINEER OF RECORD : F. ASEFNIA	DATE : 9-16

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1			3			TOTAL SHEETS
2			4			196

**Louis Berger**  
Prepared by: LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

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**PLAN OF SPAN A**  
FOR SECTION A-A, SEE "JOINT DETAILS" SHEET

SPAN "B" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	31 SQ. FT.	
SCARIFYING BRIDGE DECK	209 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	209 SQ. YDS.	
SHOTCRETE REPAIR	1.0 CU. FT.	

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

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

- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION
- OVERHANG AND DECK UNDERSIDE DELAMINATION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 47

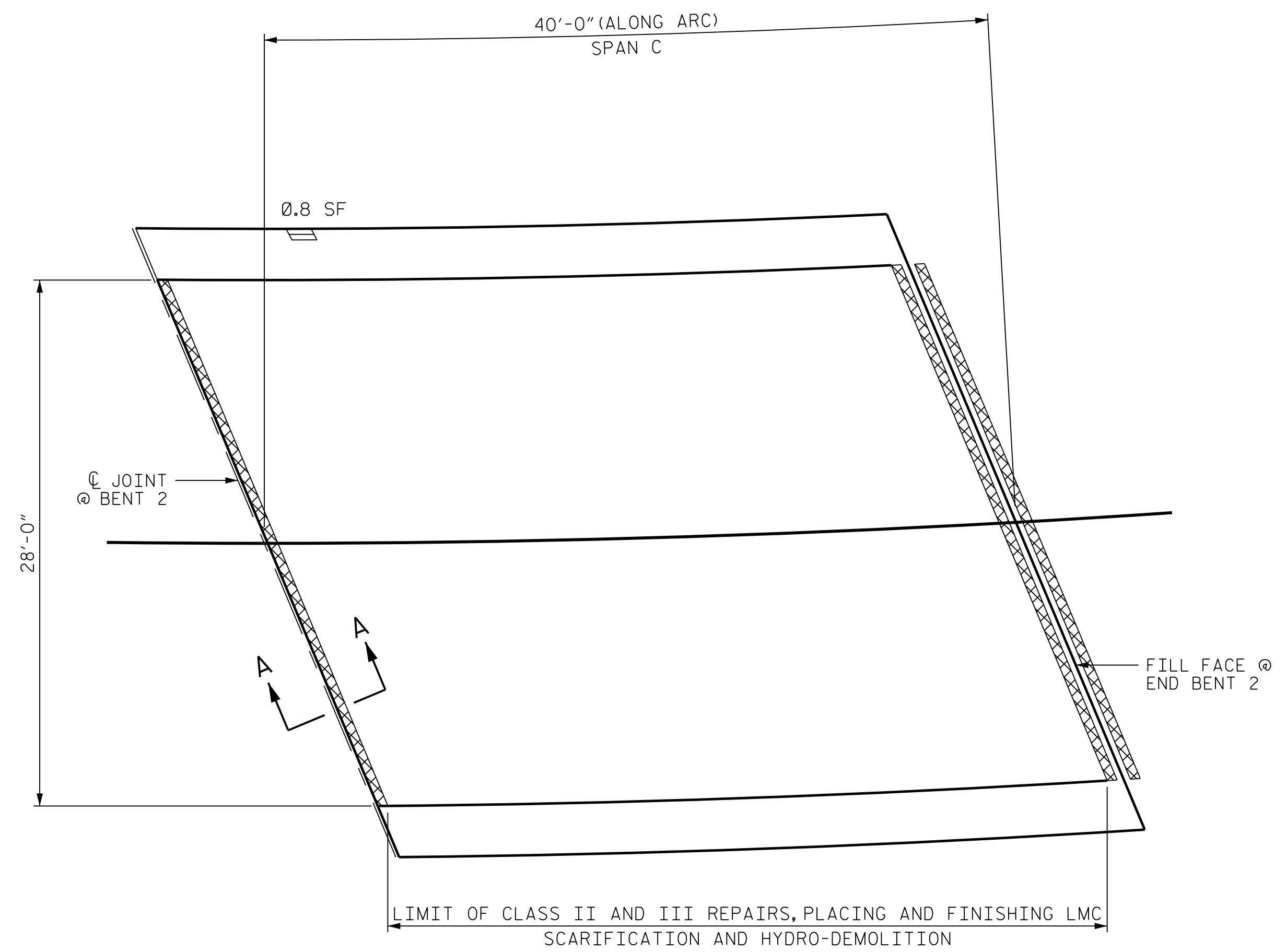
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**PLAN OF SPAN C**  
FOR SECTION A-A, SEE "JOINT DETAILS" SHEET

SPAN "C" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	46.5 SQ. FT.	
SCARIFYING BRIDGE DECK	119.5 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	119.5 SQ. YDS.	
SHOTCRETE REPAIR	1.0 CU. FT.	

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

CLASS II & CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN AMOUNT IS INDICATED FOR PRICING PURPOSE. IN CASE UNANTICIPATED CLASS II SURFACE PREPARATION ARE ENCOUNTERED.

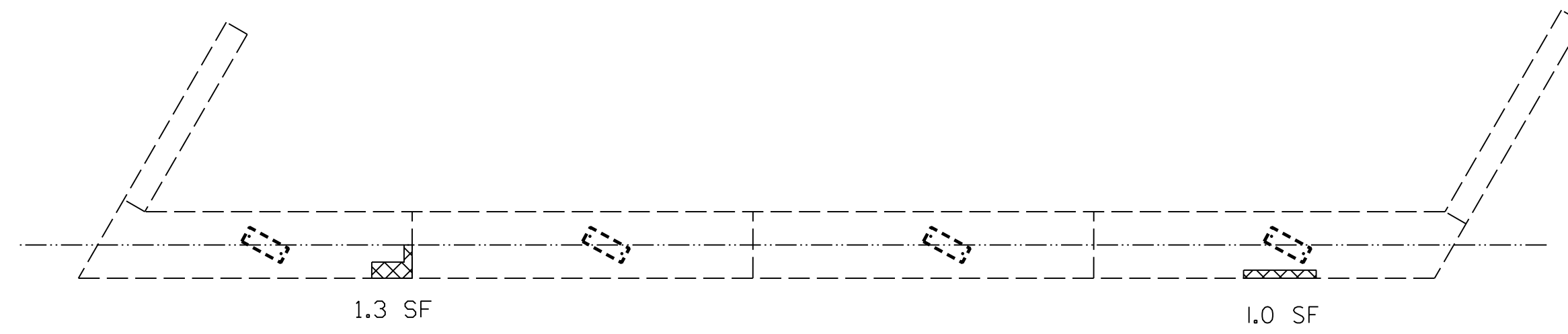
- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION
- OVERHANG AND DECK UNDERSIDE DELAMINATION

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MECKLENBURG COUNTY  
BRIDGE NO. 47

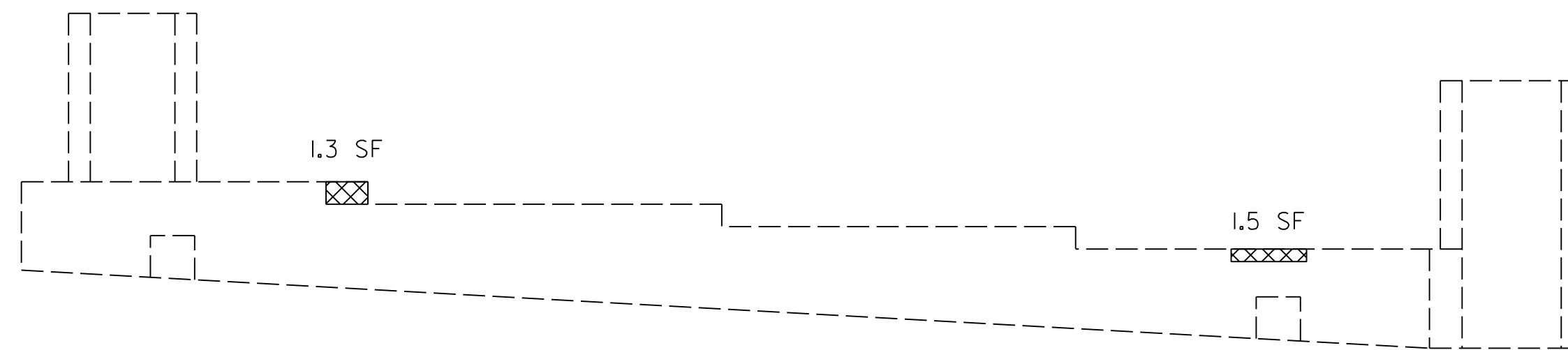
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		REVISIONS	
NO. 1 BY: [Signature] DATE: [Date]	NO. 2 BY: [Signature] DATE: [Date]	NO. 3 BY: [Signature] DATE: [Date]	NO. 4 BY: [Signature] DATE: [Date]
Louis Berger Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840			SHEET NO. S-7 TOTAL SHEETS 196

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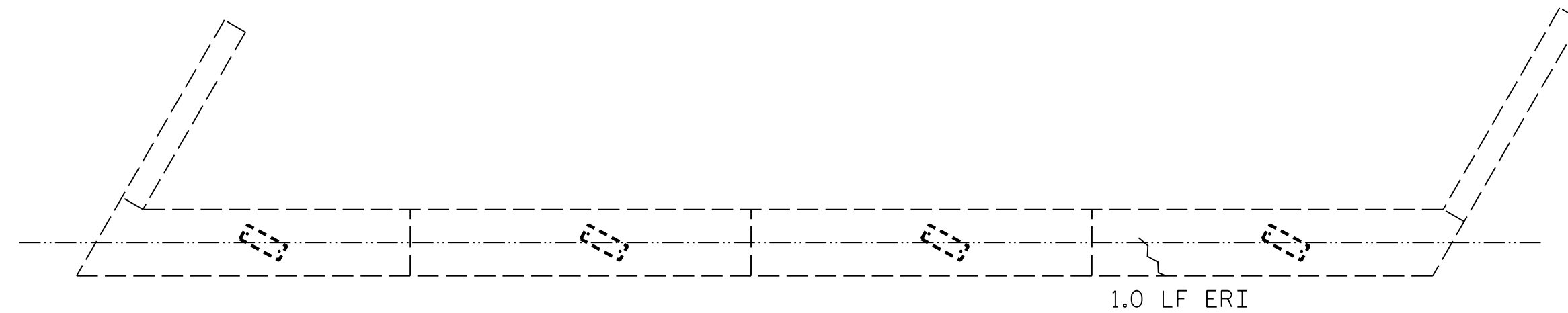
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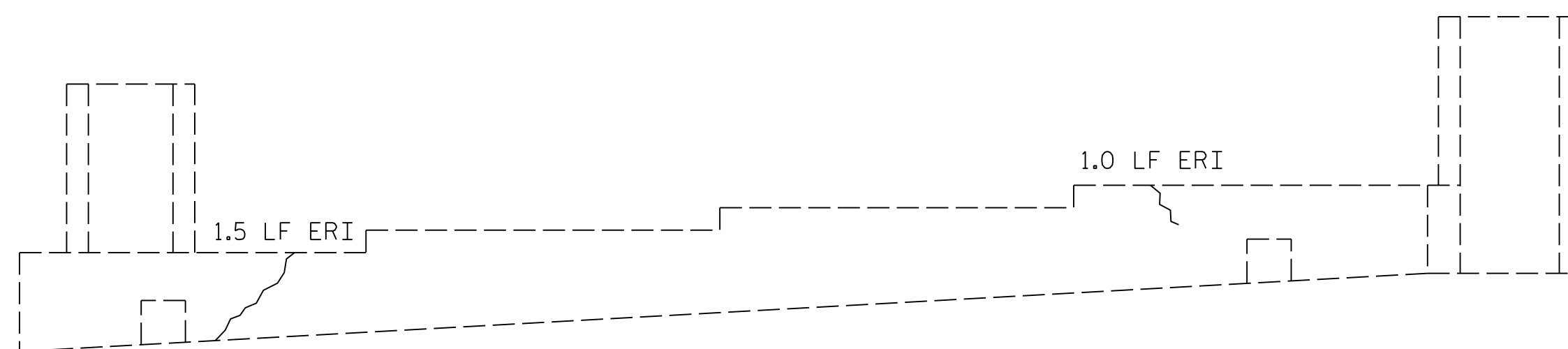
**PLAN**  
END BENT 1



**ELEVATION**  
END BENT 1



**PLAN**  
END BENT 2



**ELEVATION**  
END BENT 2

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

**REPAIR QUANTITY TABLE**

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL)	0.0	0.0		
CONCRETE REPAIR	5.1	1.3		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			0.0	
EPOXY COATING		AREA SF		
CAP		125.0		
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIR	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			3.5	
EPOXY COATING		AREA SF		
CAP		125.0		

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

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

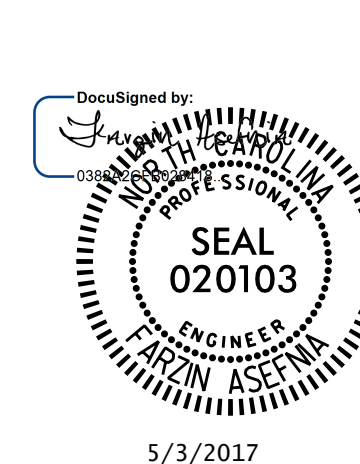
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 47

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RALEIGH

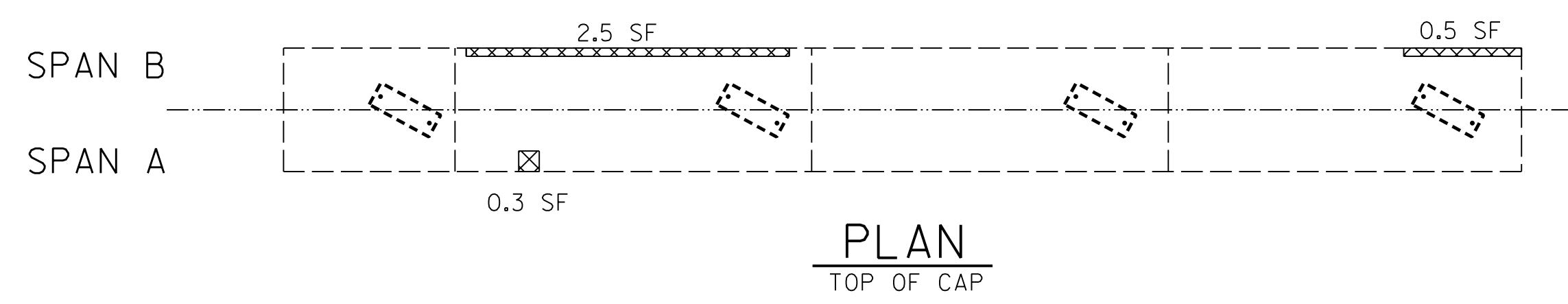
**SUBSTRUCTURE**  
END BENT 1 & 2

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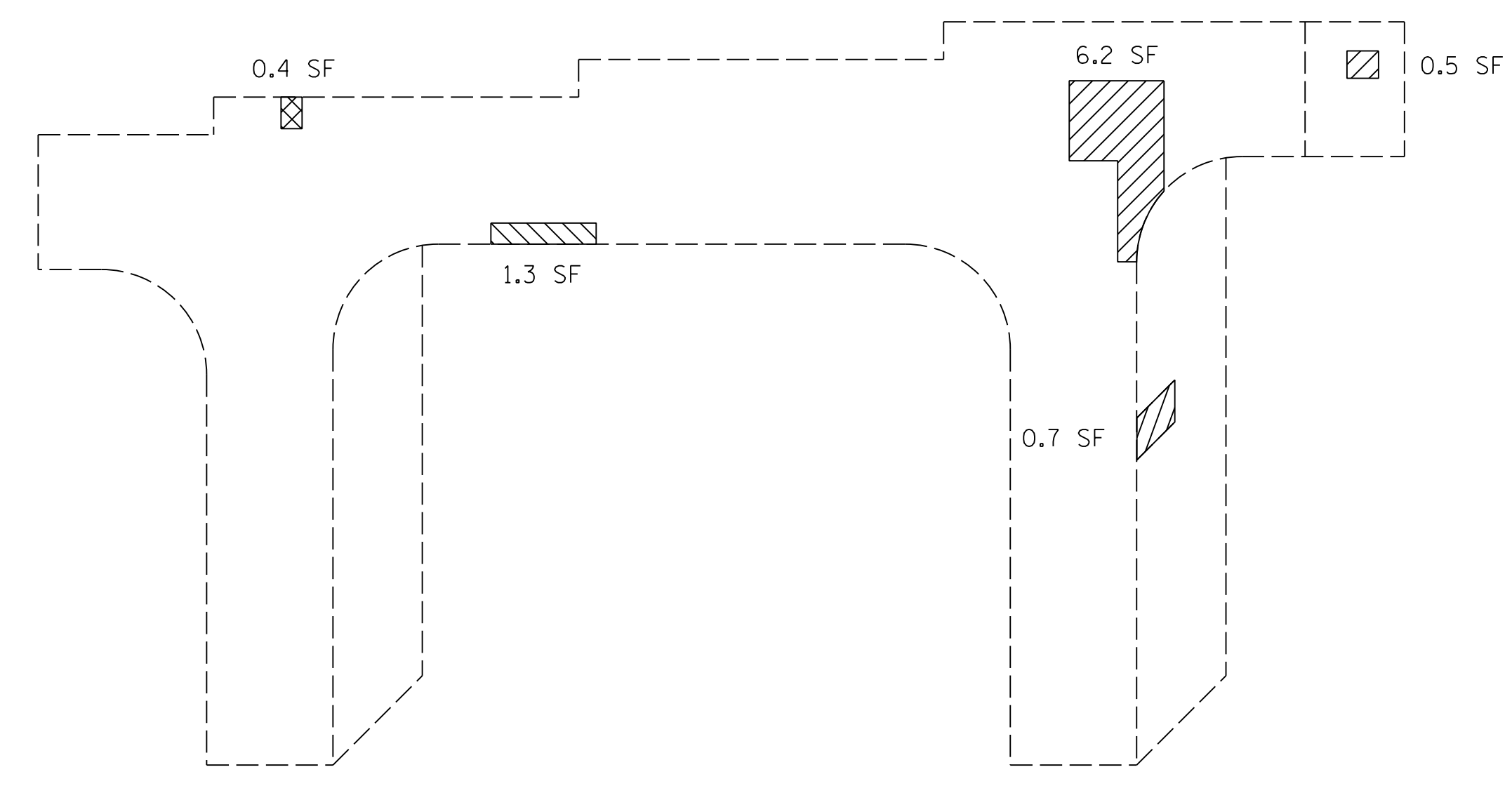
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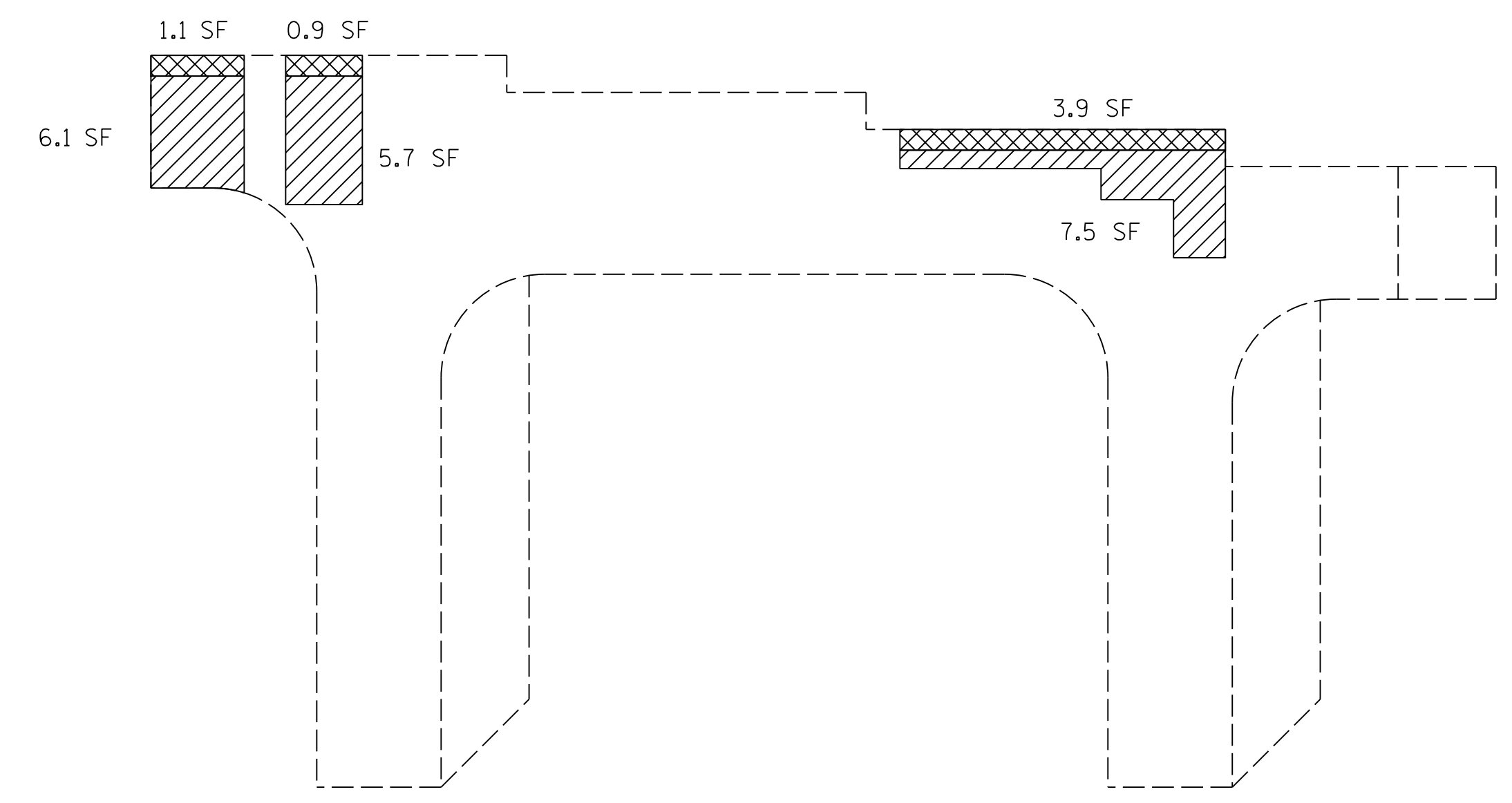
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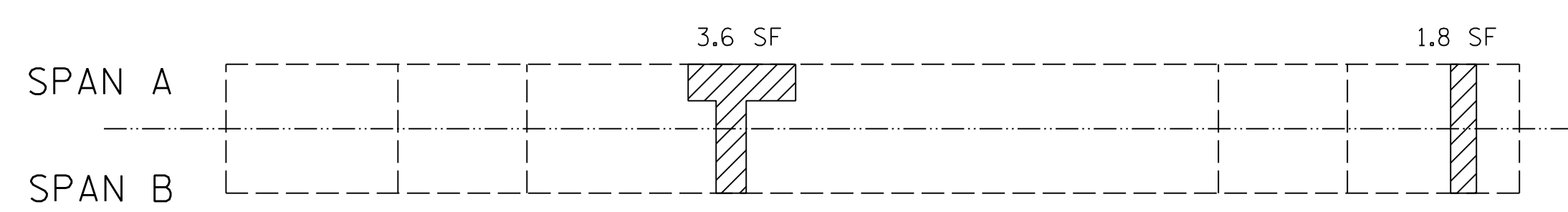
**PLAN**  
TOP OF CAP



**ELEVATION**  
SPAN A SIDE



**ELEVATION**  
SPAN B SIDE



**PLAN**  
BOTTOM OF CAP

REPAIR QUANTITY TABLE				
REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	27.3	6.8		
CAP (HORIZONTAL)	5.4	1.4		
COLUMN (HORIZONTAL FACE)	0.7	0.2		
CONCRETE REPAIRS	7.6	1.9		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			0.0	
COLUMN			0.0	
EPOXY COATING			SQ. FT	SQ. FT
TOP OF CAP			91	

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

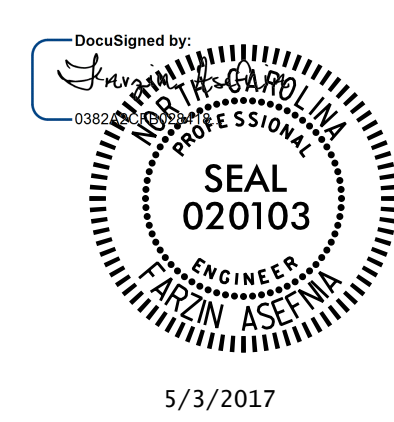
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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MECKLENBURG COUNTY  
BRIDGE NO. 47

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DEPARTMENT OF TRANSPORTATION  
RALEIGH

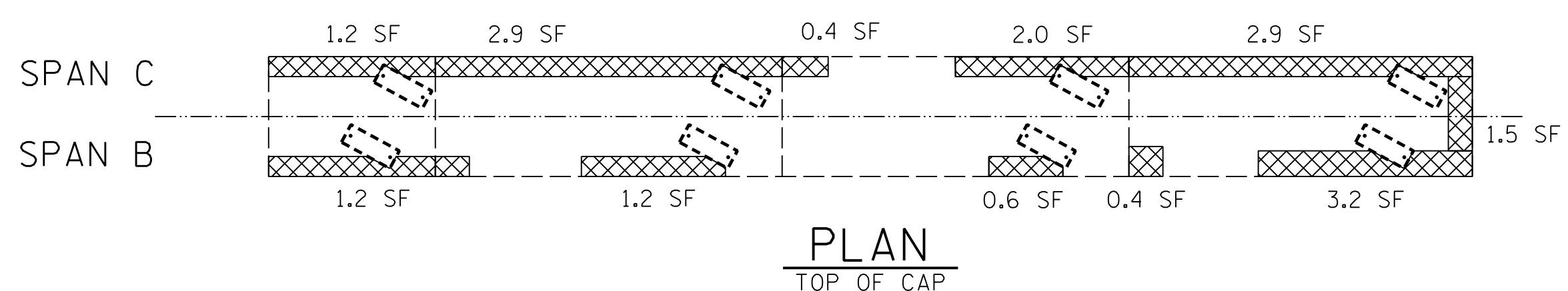
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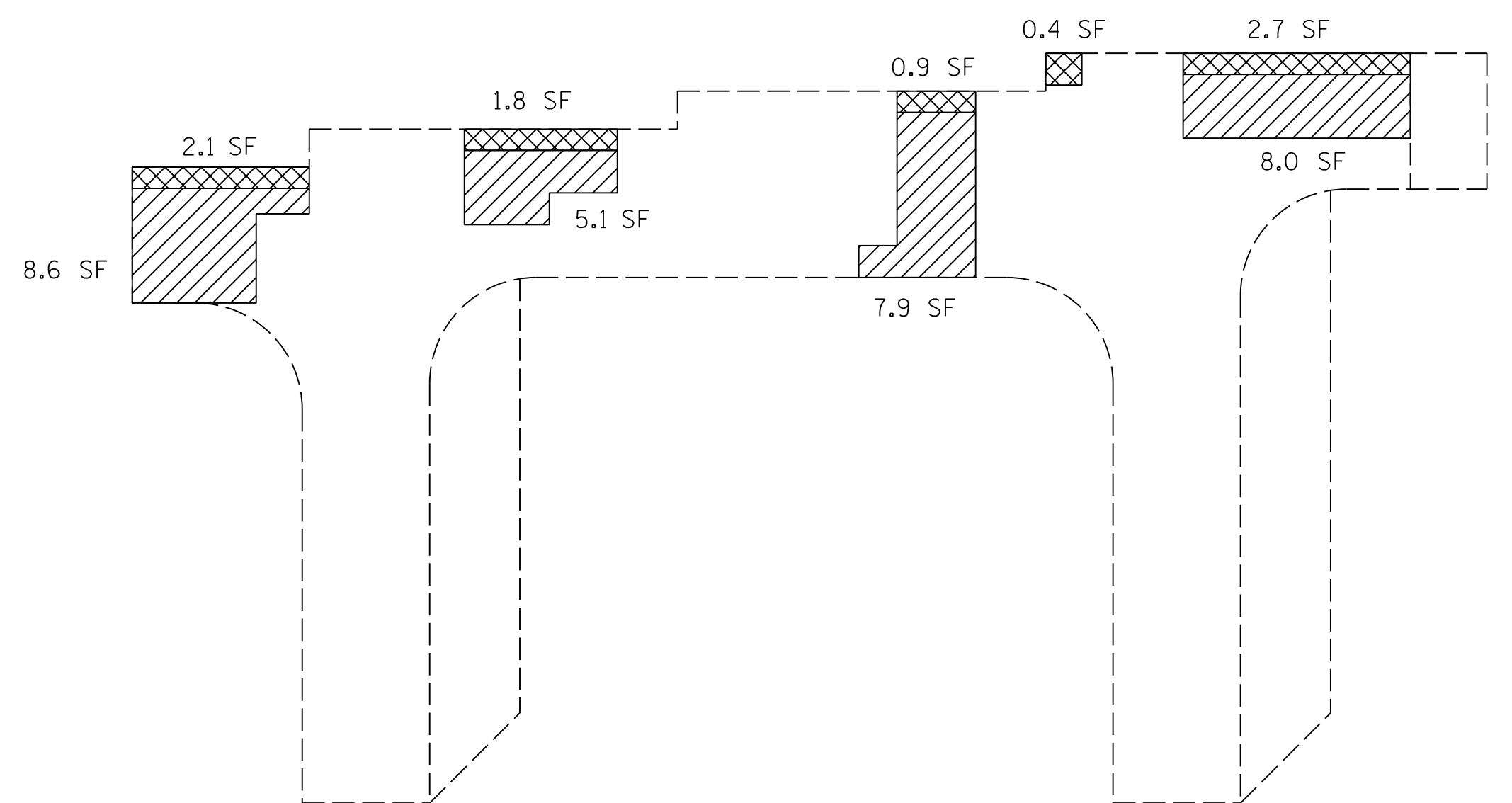
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DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

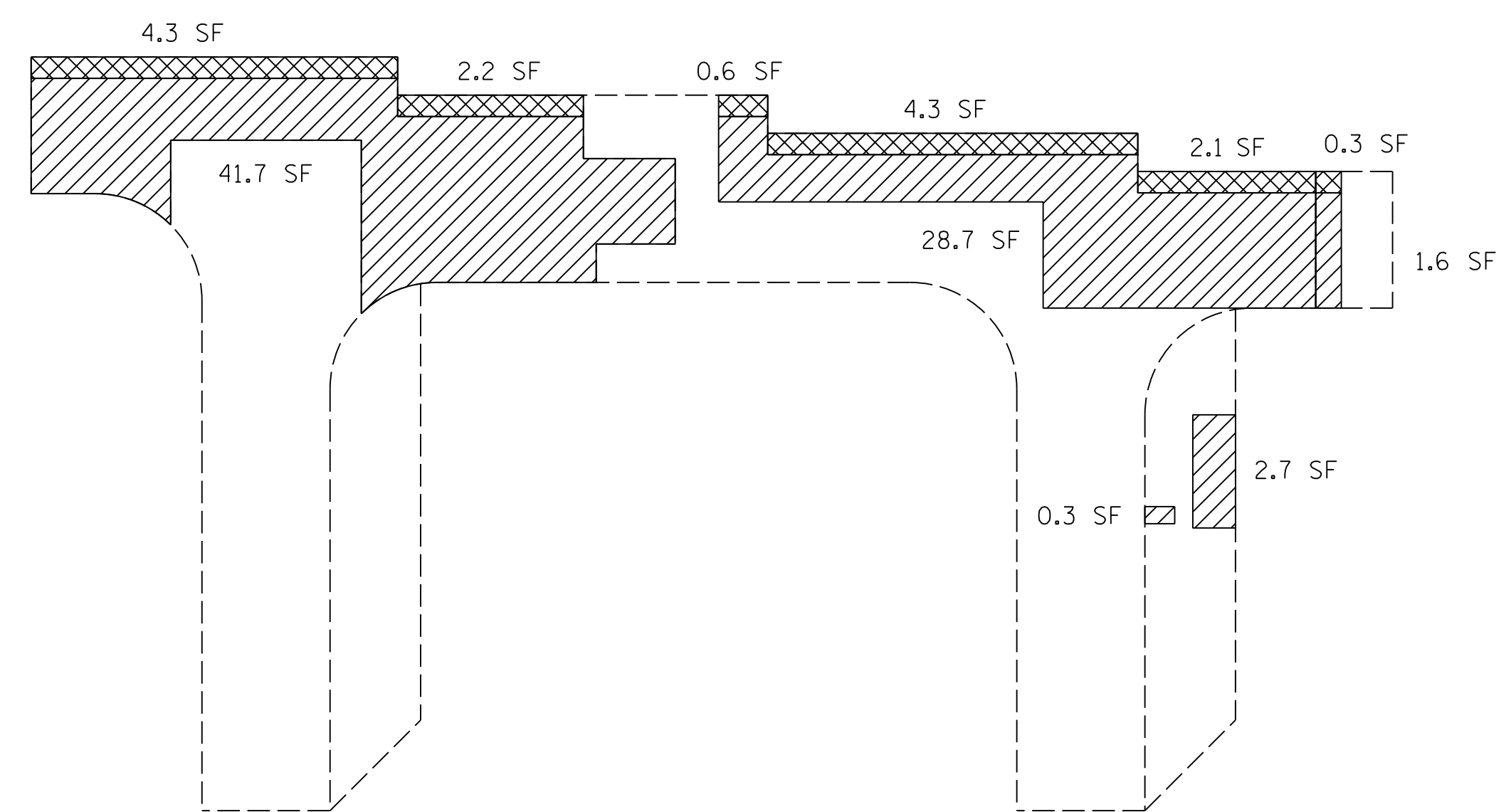
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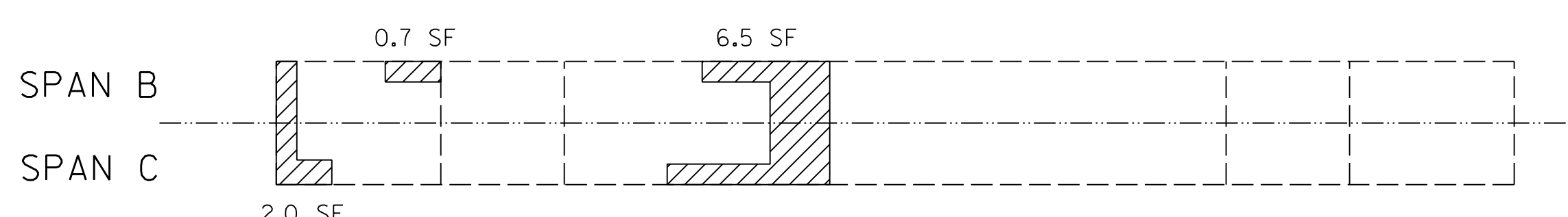
**PLAN**  
TOP OF CAP



**ELEVATION**  
SPAN B SIDE



**ELEVATION**  
SPAN C SIDE



**PLAN**  
BOTTOM OF CAP

REPAIR QUANTITY TABLE				
REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	101.6	25.4		
CAP (HORIZONTAL)	9.2	2.3		
COLUMN (HORIZONTAL FACE)	3.0	0.8		
CONCRETE REPAIRS	39.5	9.9		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			0.0	
COLUMN			0.0	
EPOXY COATING			SQ. FT	SQ. FT
TOP OF CAP			90.3	

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

**NOTES:**  
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.  
CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.  
FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.  
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.  
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 47

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RALEIGH  
**SUBSTRUCTURE**  
BENT 2

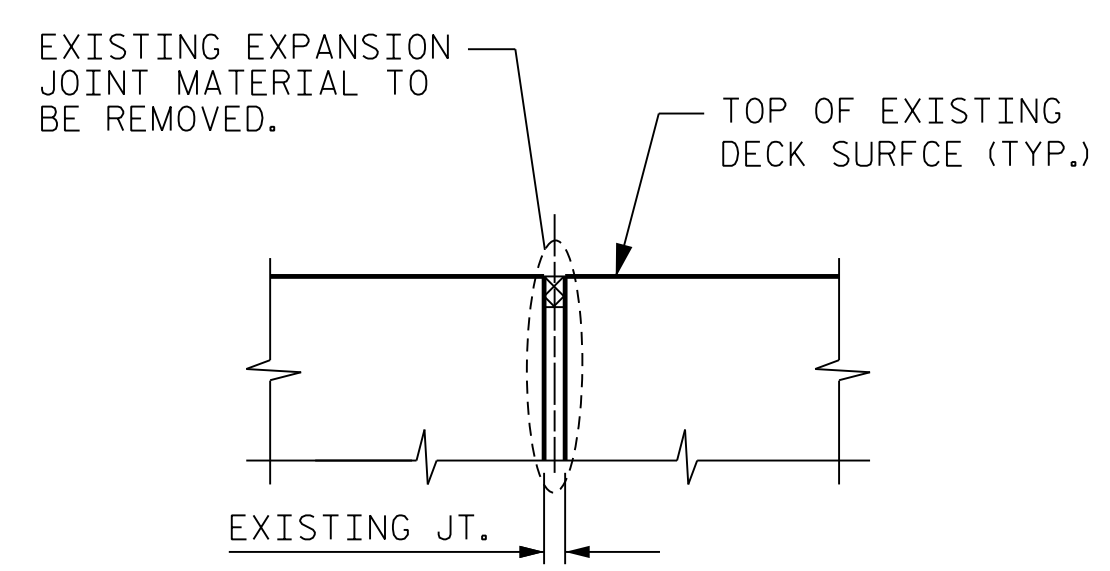
DRAWN BY : T. KIRSCHBAUM DATE : 10-16  
CHECKED BY : F. ASEFNIA DATE : 10-16  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 10-16

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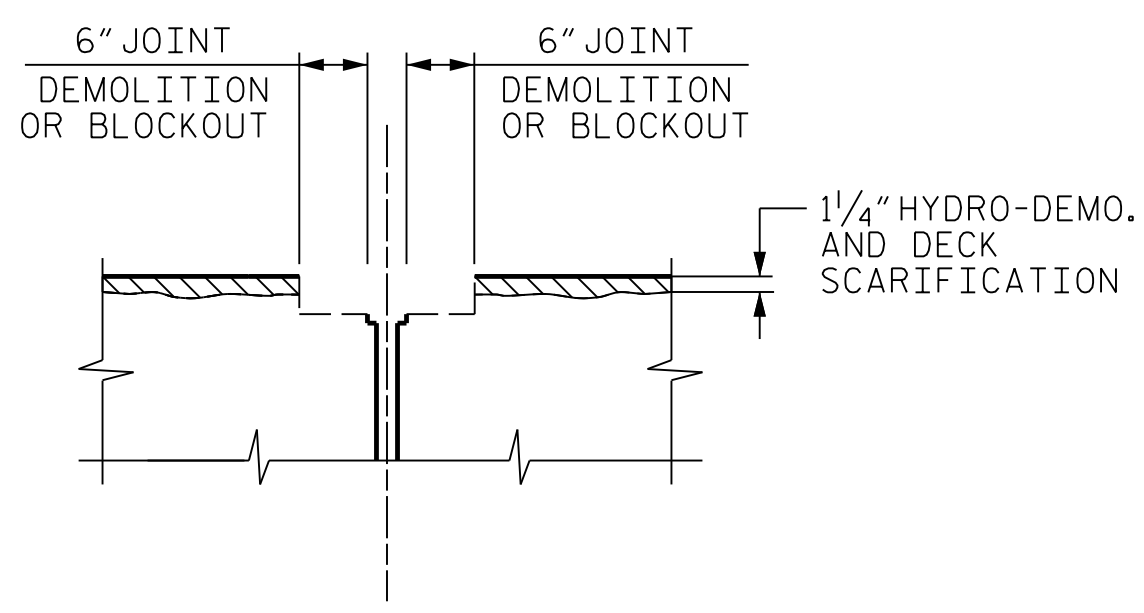




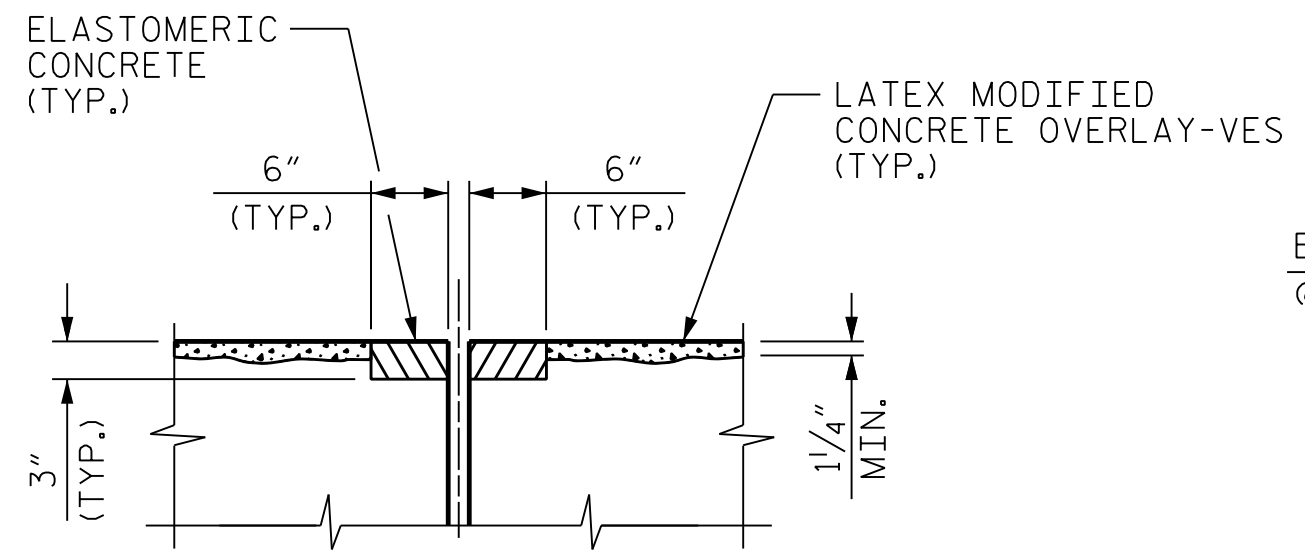
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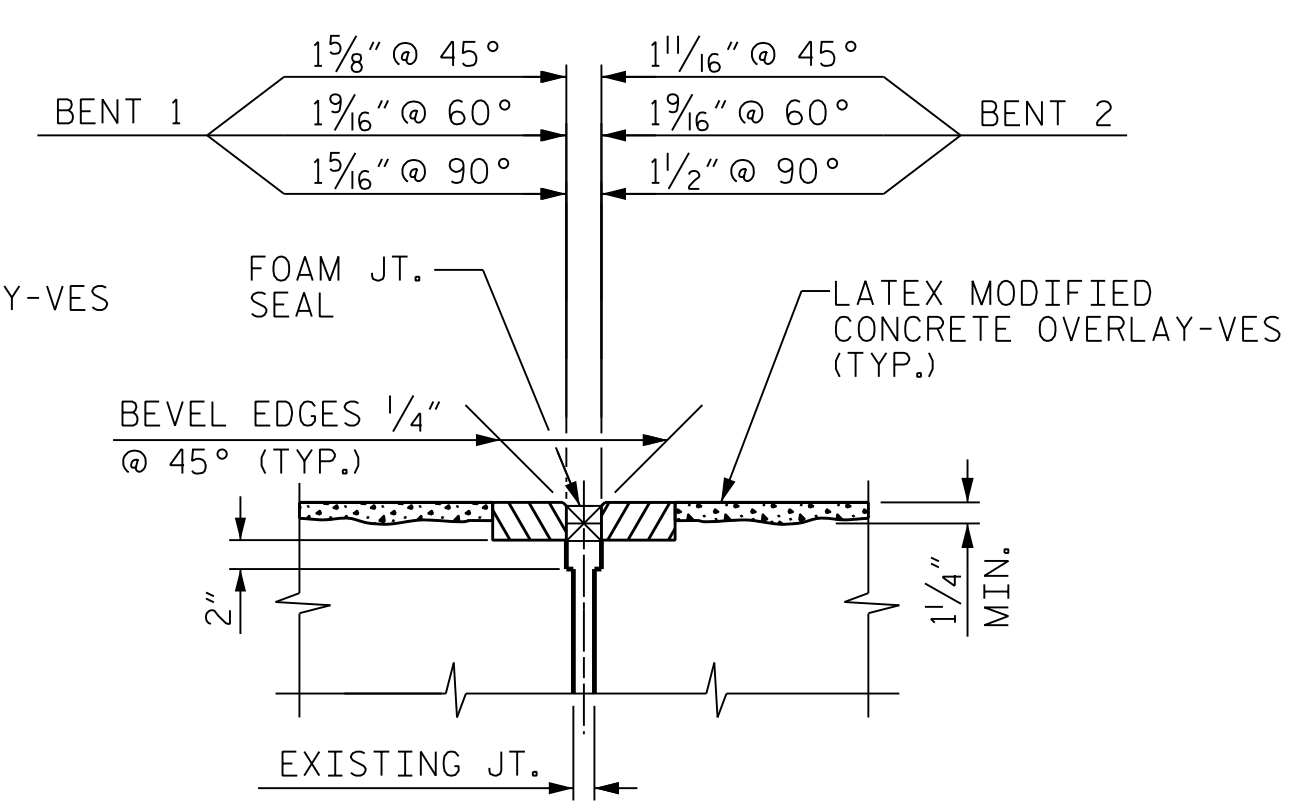
**SECTION A-A**  
(EXISTING JOINT)



**SECTION A-A**  
(MINIMUM EXISTING JOINT DEMOLITION)

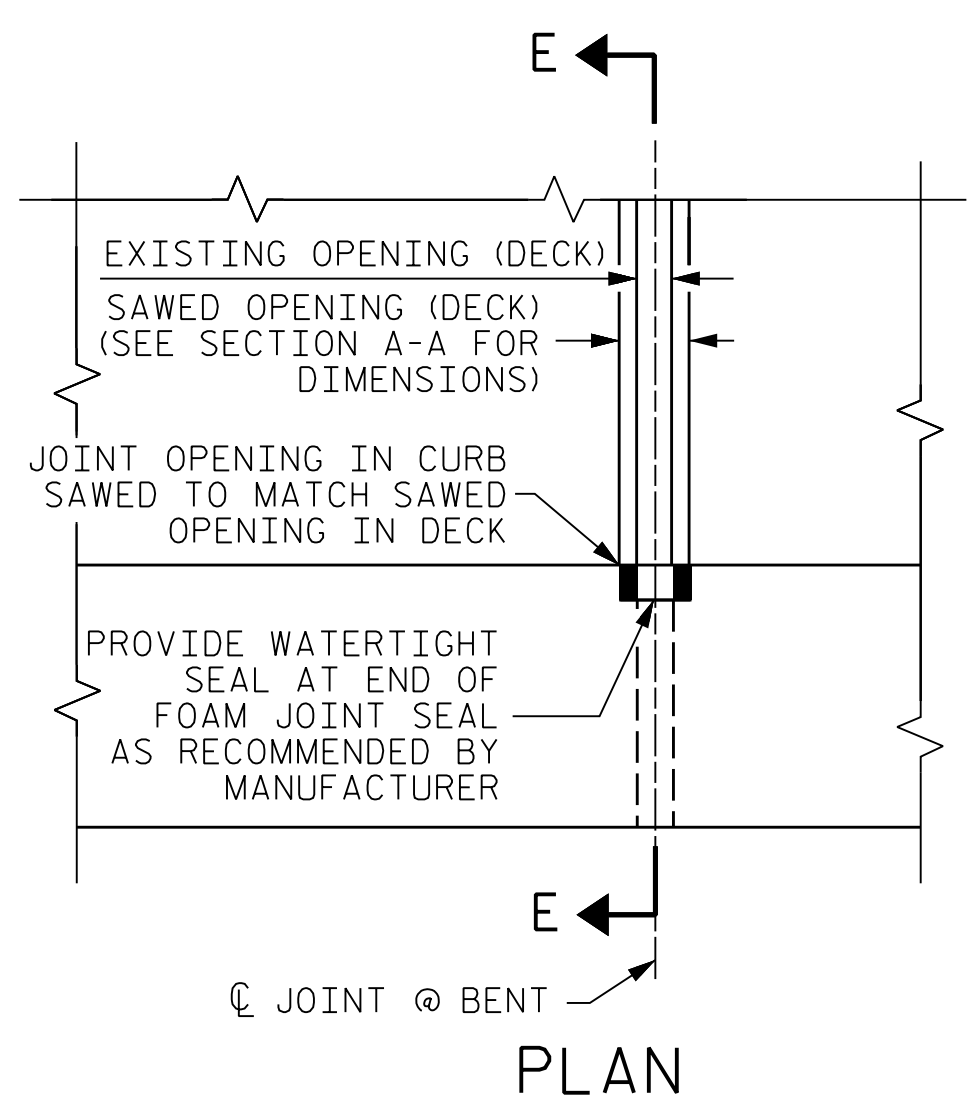


**SECTION A-A**  
(PROPOSED JOINT PRE-SAWED DIMENSIONS)

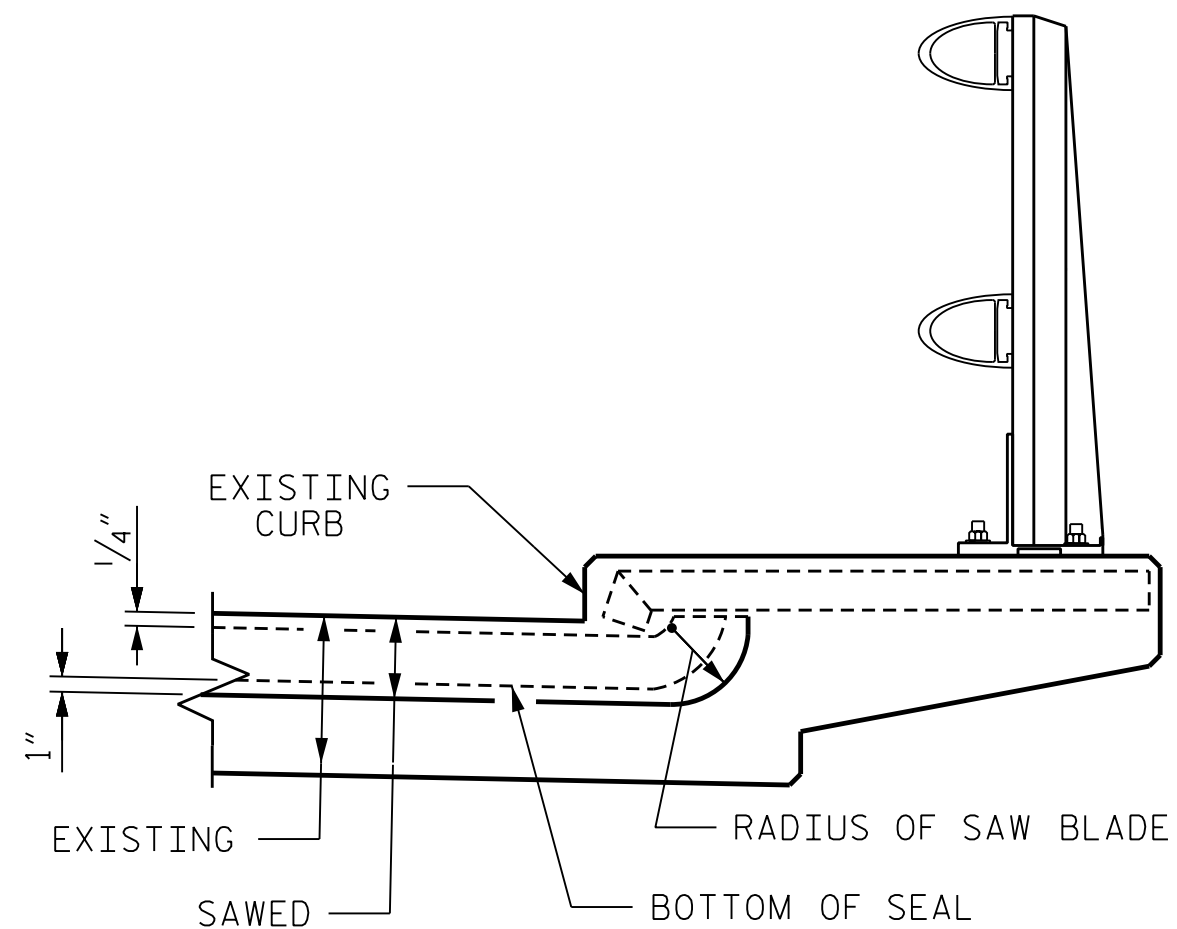


**SECTION A-A**  
(PROPOSED EXPANSION JOINT FOAM SEAL)

**JOINT INSTALLATION SEQUENCE**  
SECTION A-A



**PLAN**



**SECTION E-E**

**NOTES:**  
 CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
 HYDRO-DEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OF ELASTOMERIC CONCRETE.  
 RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.  
 THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2" FOR ALL BENTS.

ELASTOMERIC CONCRETE	
BRIDGE 47	31 (CU. FT.)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 47

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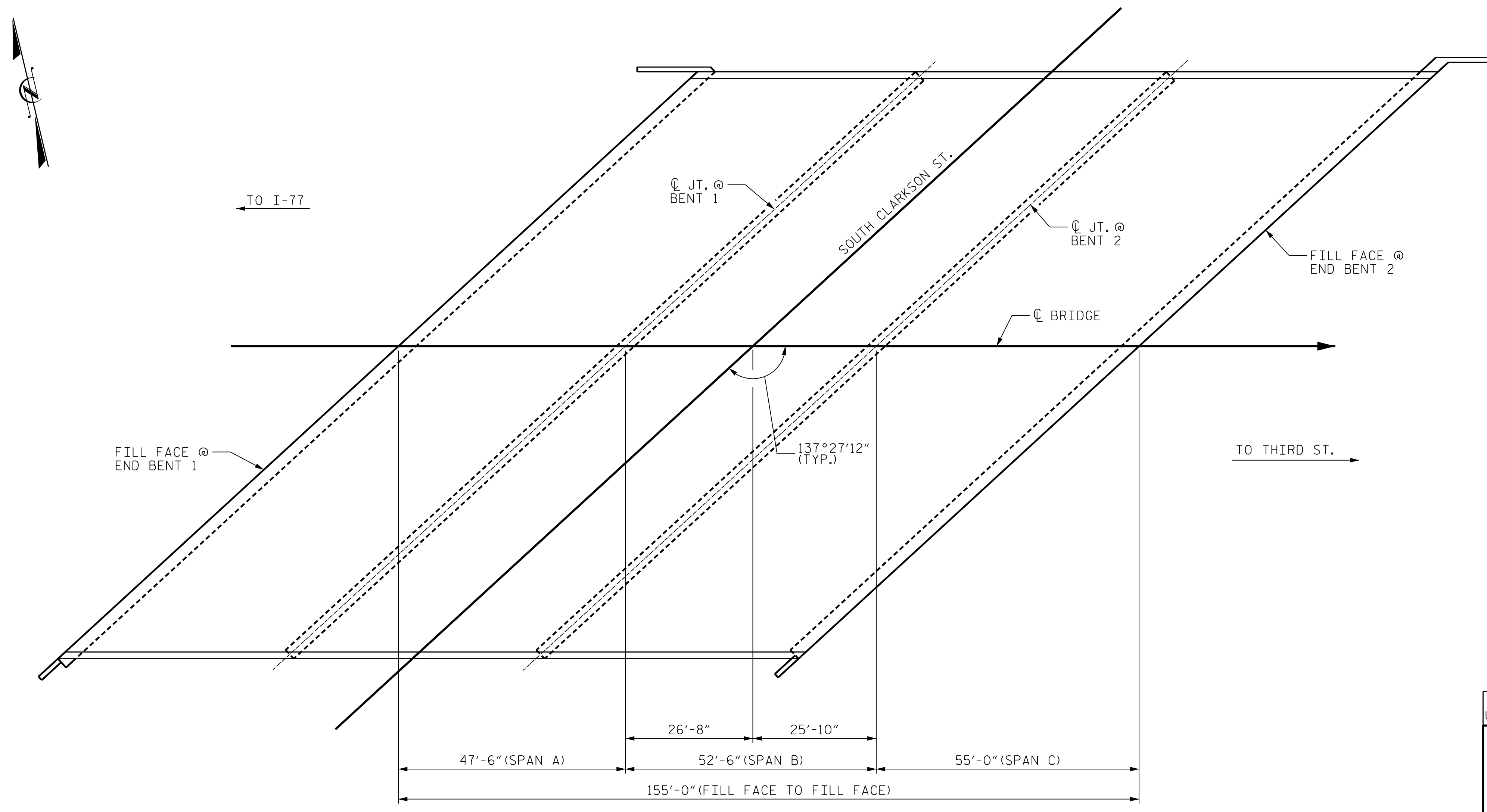
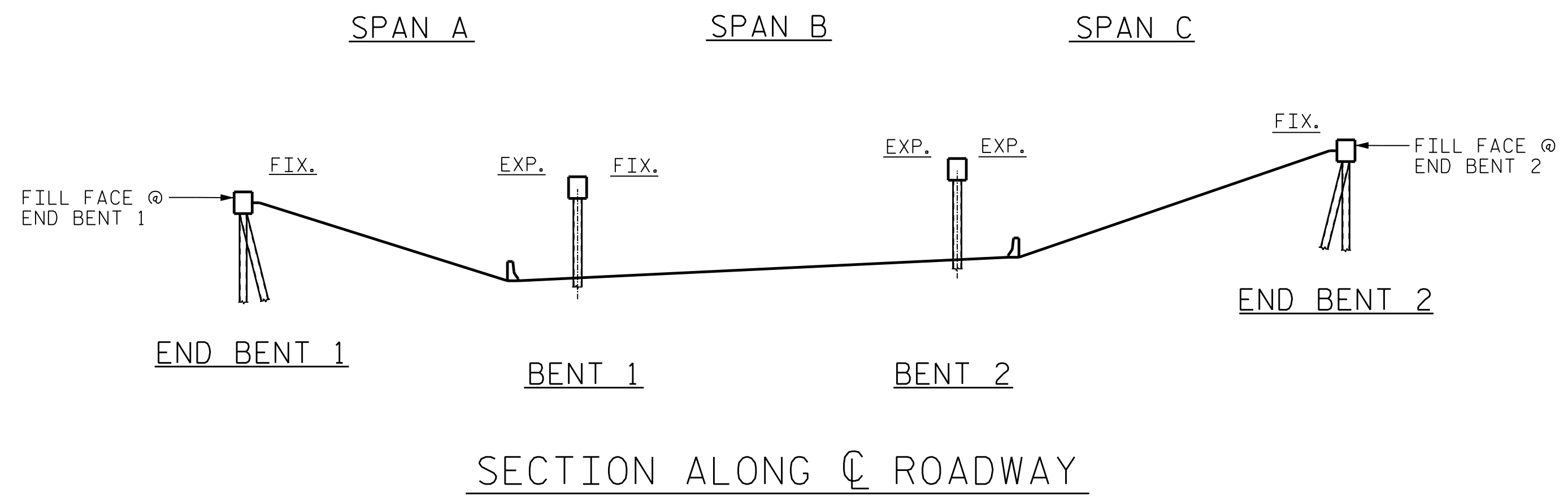
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE**  
 JOINT DETAILS

DRAWN BY : T. KIRSCHBAUM	DATE : 9-16
CHECKED BY : F. ASEFNIA	DATE : 9-16
DESIGN ENGINEER OF RECORD : F. ASEFNIA	DATE : 9-16

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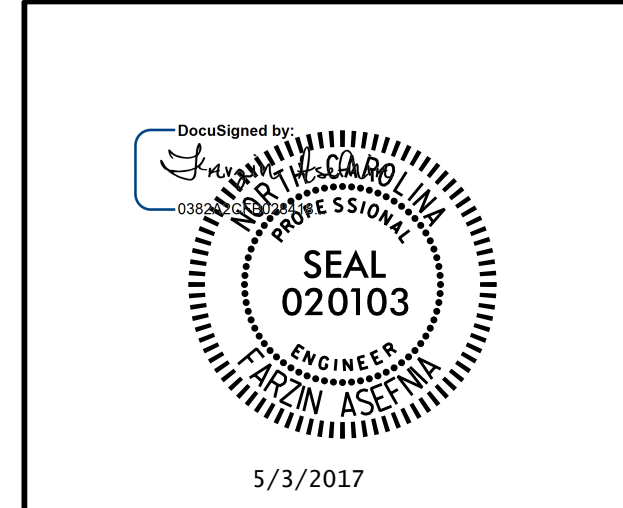
I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer      Date

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 78

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SHEET 1 OF 2



STATE OF NORTH CAROLINA  
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 RALEIGH

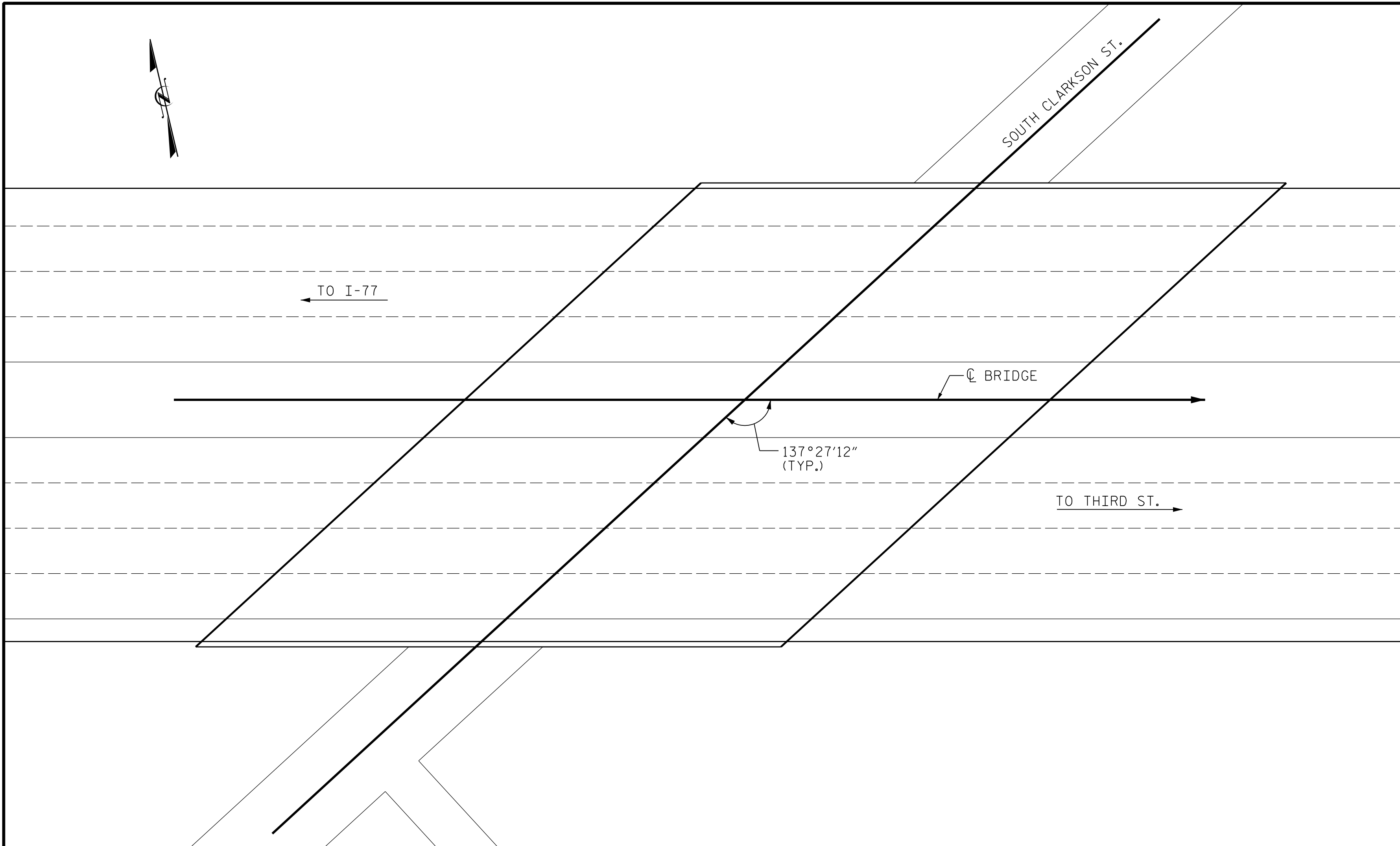
**GENERAL DRAWING**  
 FOR BRIDGE ON I-277  
 OVER SOUTH CLARKSON STREET

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	8-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	8-16

	Prepared by:	NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO. S-12
	LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	1				3		
REVISIONS								TOTAL SHEETS 196
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**LOCATION SKETCH**

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

**NOTES**

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

EXISTING DIMENSION AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSION AND CONDITION DIFFER.

IT IS THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM HYDRO-DEMOLITION PROCESS. SEE MANAGING HYDRO-DEMOLITION WATER SPECIAL PROVISION.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO TO BEGINING SURFACE PREPERATION OF BRIDGE DECK.

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOWS THROUGH THE DECK.

LONGITUDINAL CONSTRUCION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

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

FOR LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLIITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

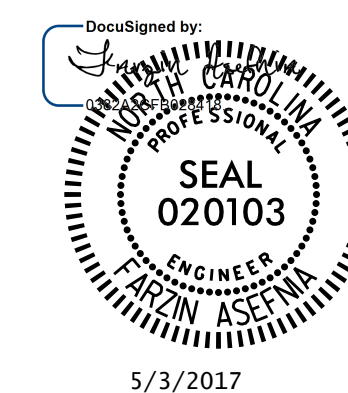
FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 78

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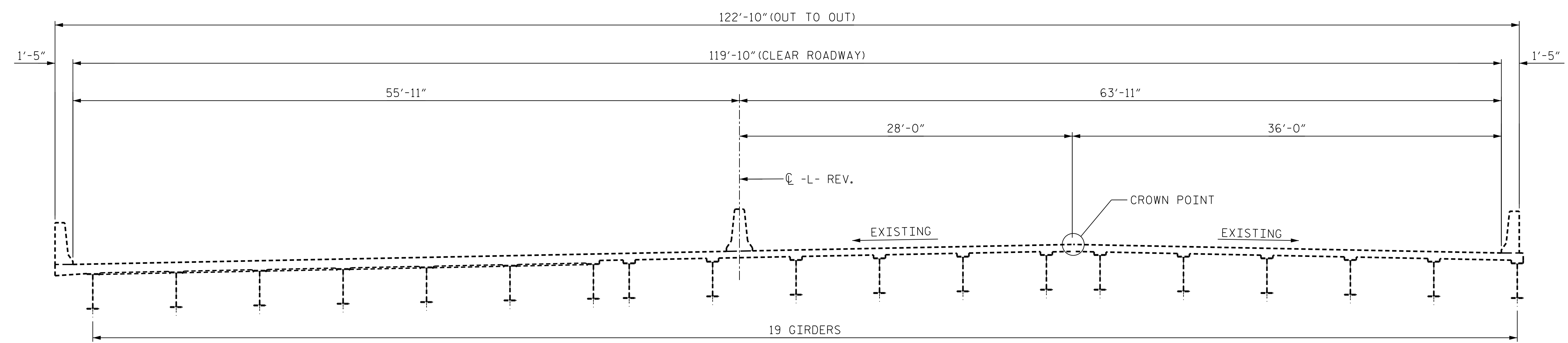
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**GENERAL DRAWING**  
FOR BRIDGE ON I-277  
OVER SOUTH CLARKSON STREET

DRAWN BY :	M. HOGAN	DATE :	9-16
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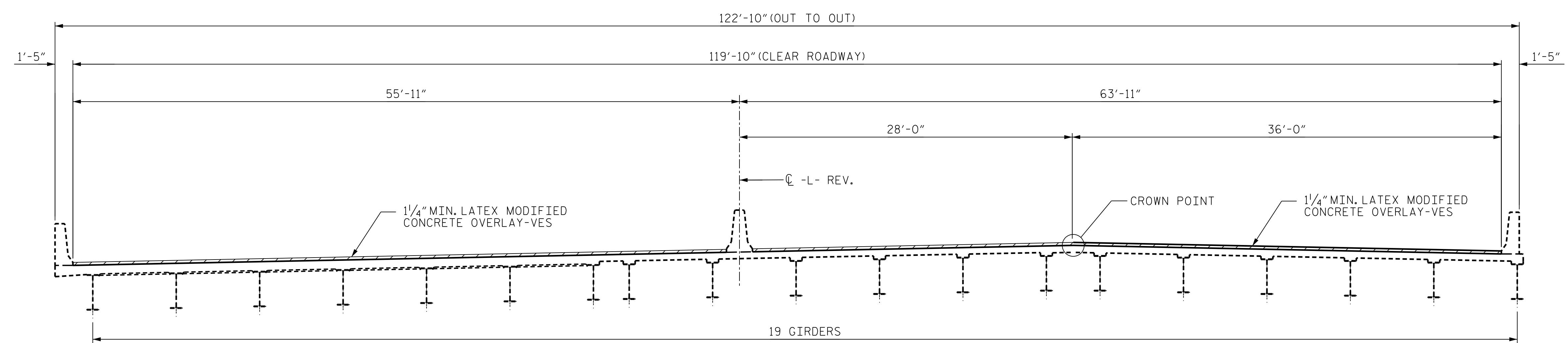


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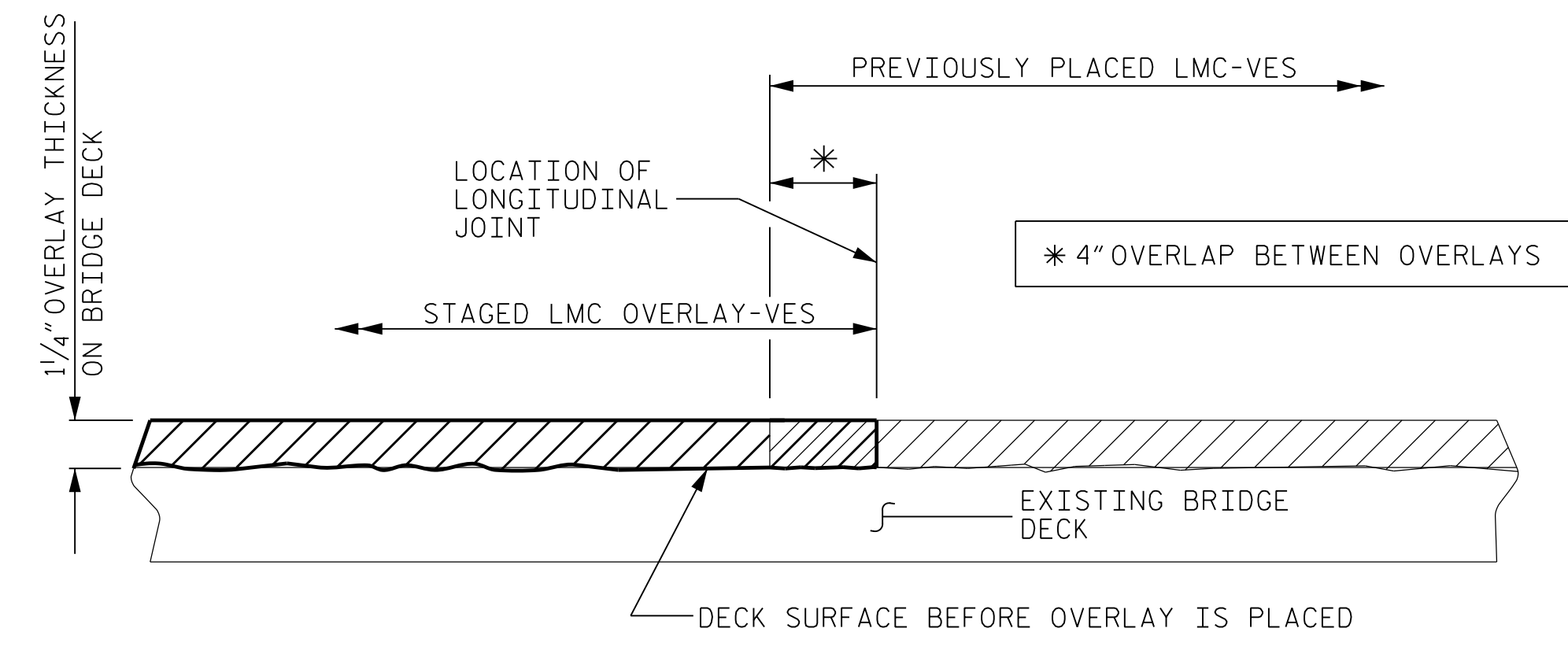
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**TYPICAL SECTION**  
(EXISTING)



**TYPICAL SECTION**  
(LATEX MODIFIED CONCRETE OVERLAY)

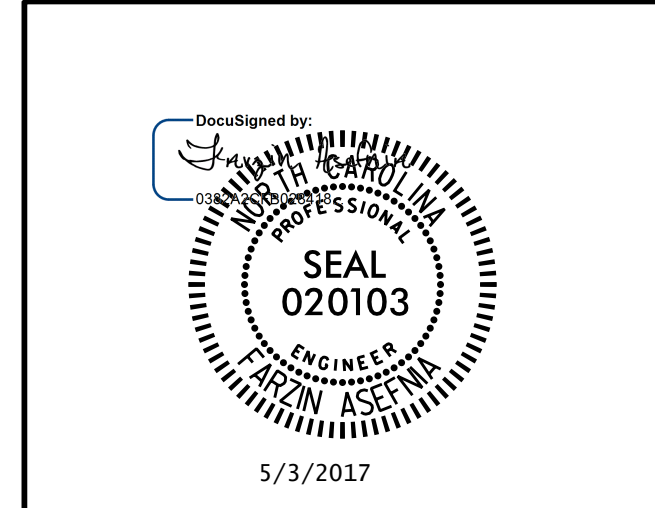


**SECTION THRU DECK**  
**STAGED LMC-VES OVERLAY JOINT**  
(AS NEEDED)

**NOTE:**  
WHEN PREPARING THE SURFACE FOR LMC OVERLAY-VES ADJACENT TO A PREVIOUSLY PLACED LMC-VES STAGE, THE PREVIOUSLY PLACED LMC-VES SHALL BE REMOVED FOR A DISTANCE OF 4-INCHES FROM THE LMC-VES EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC-VES SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF NEW LMC-VES STAGE PLACEMENT.  
  
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCE, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC-VES PLACEMENT.

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MECKLENBURG COUNTY  
BRIDGE NO. 78

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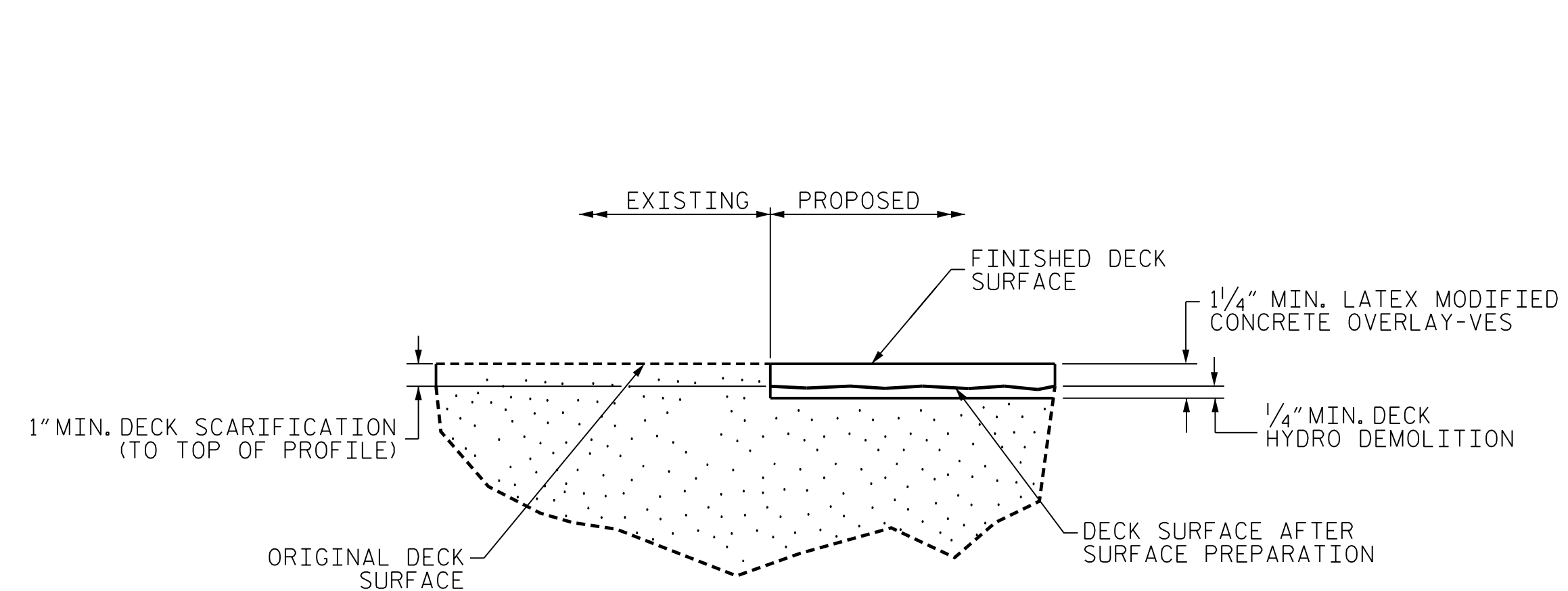
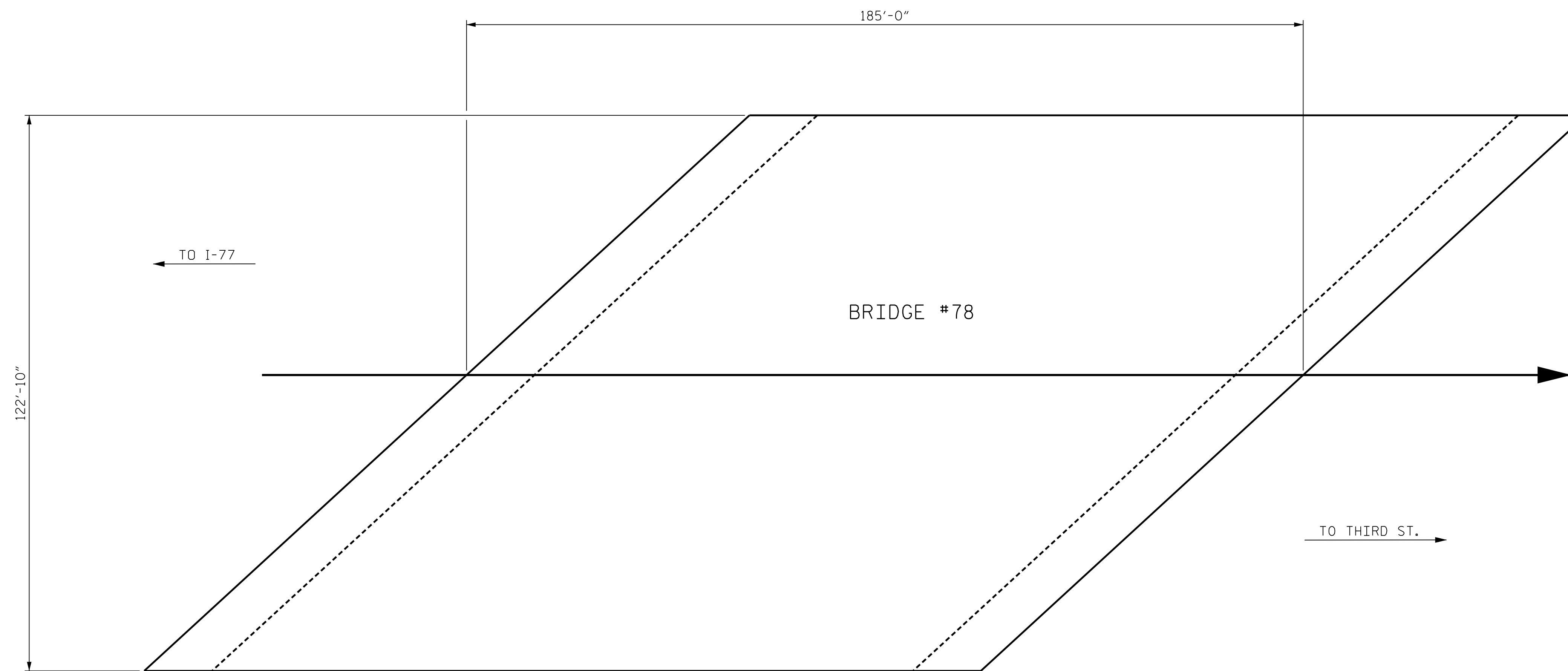
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DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**TYPICAL SECTION**  
LMC-VES OVERLAY

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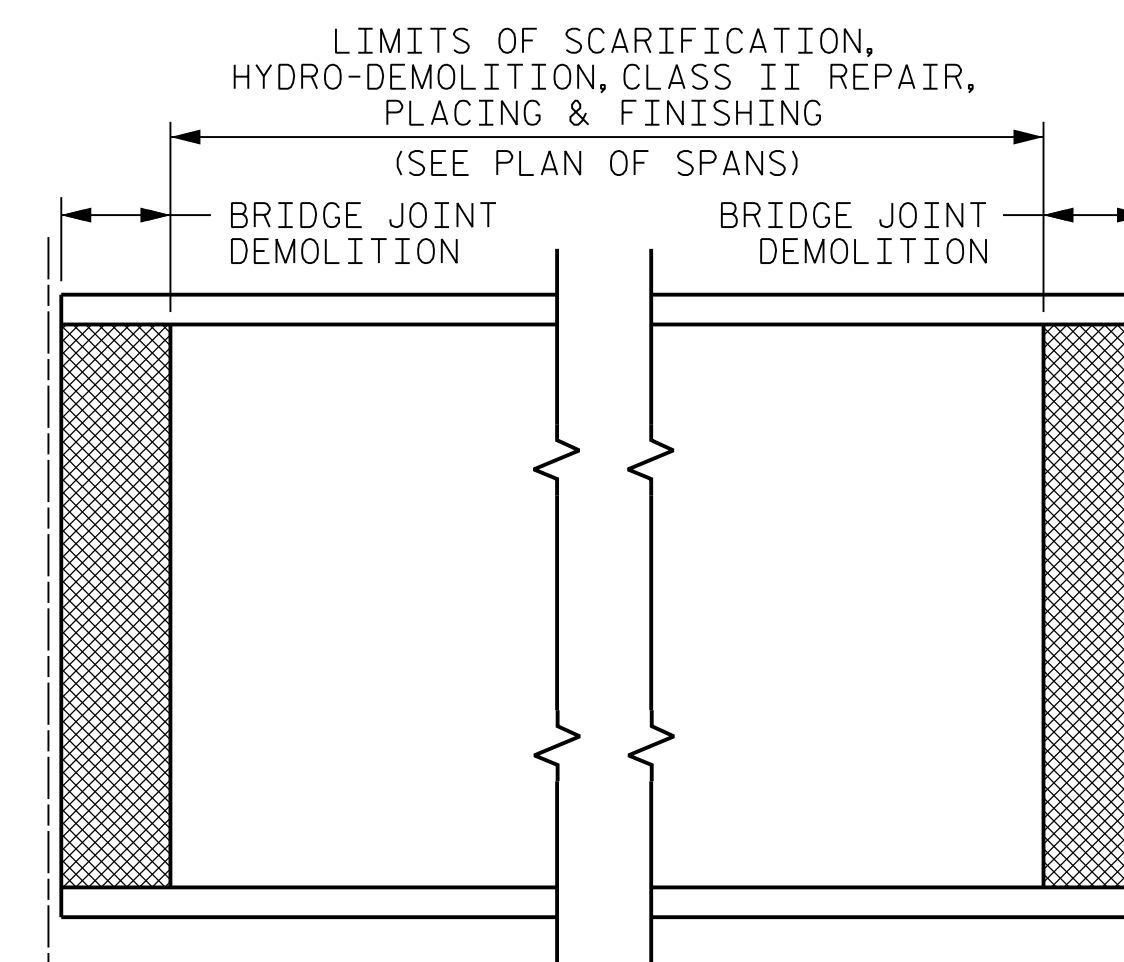
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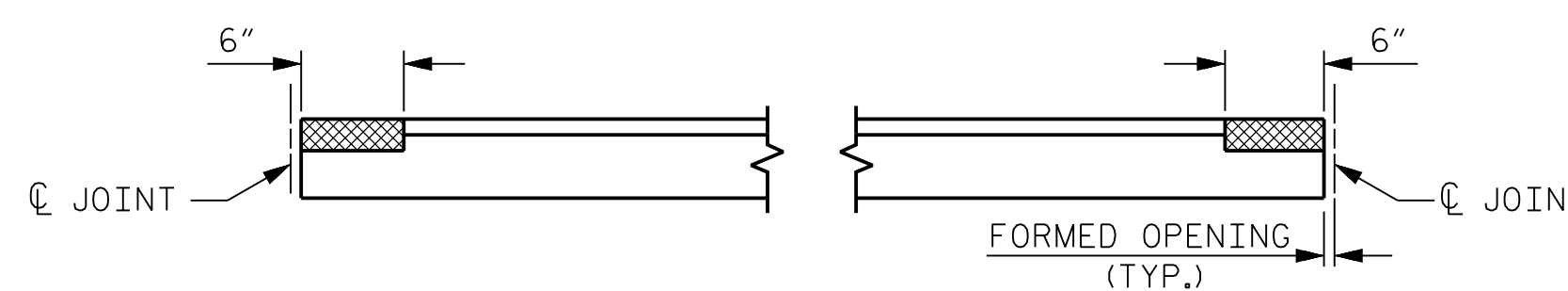
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**DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY-VES**

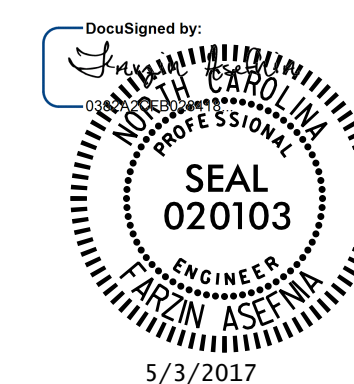


PLAN



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 BRIDGE NO. 78

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**SUPERSTRUCTURE**  
 SURFACE PREPARATION

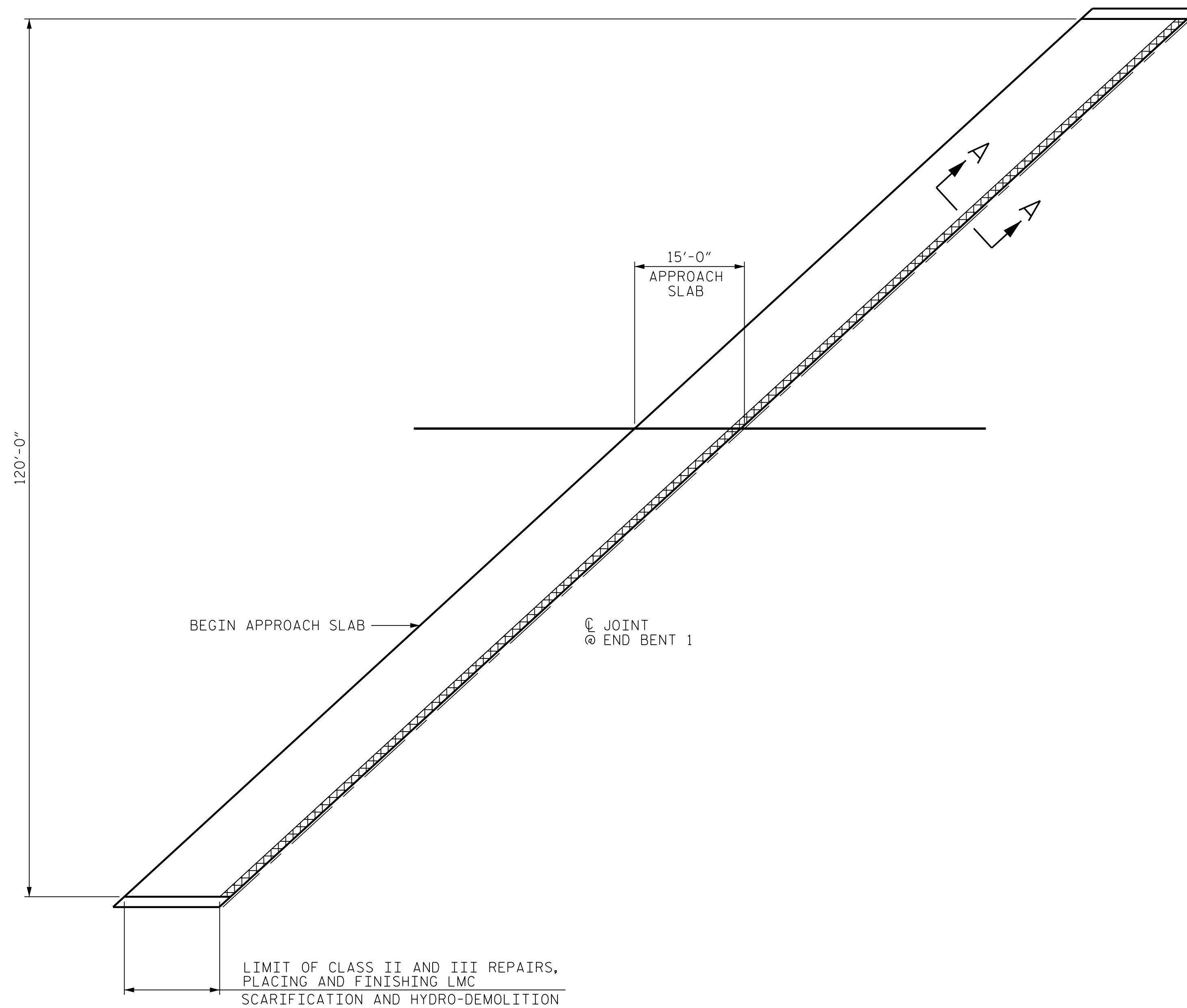
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Prepared by:  
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 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

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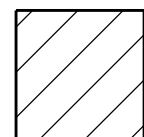
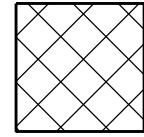
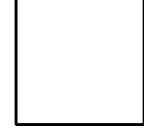


**PLAN OF APPROACH SLAB @ END BENT 1**  
FOR SECTION A-A, SEE "JOINT DETAILS" SHEET

APPROACH SLAB QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
SCARIFYING BRIDGE DECK	187 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	187 SQ. YDS.	
BRIDGE JOINT DEMOLITION	90.85 SQ.FT.	

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

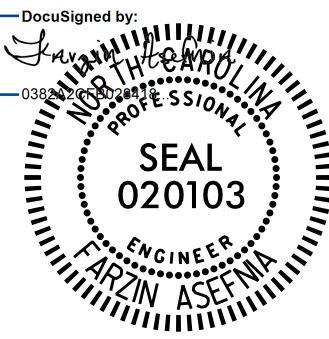
CLASS II & CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN AMOUNT IS INDICATED FOR PRICING PURPOSE. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION ARE ENCOUNTERED.

-  CLASS II SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION
-  SCARIFICATION & HYDRO-DEMOLITION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 78

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5/3/2017

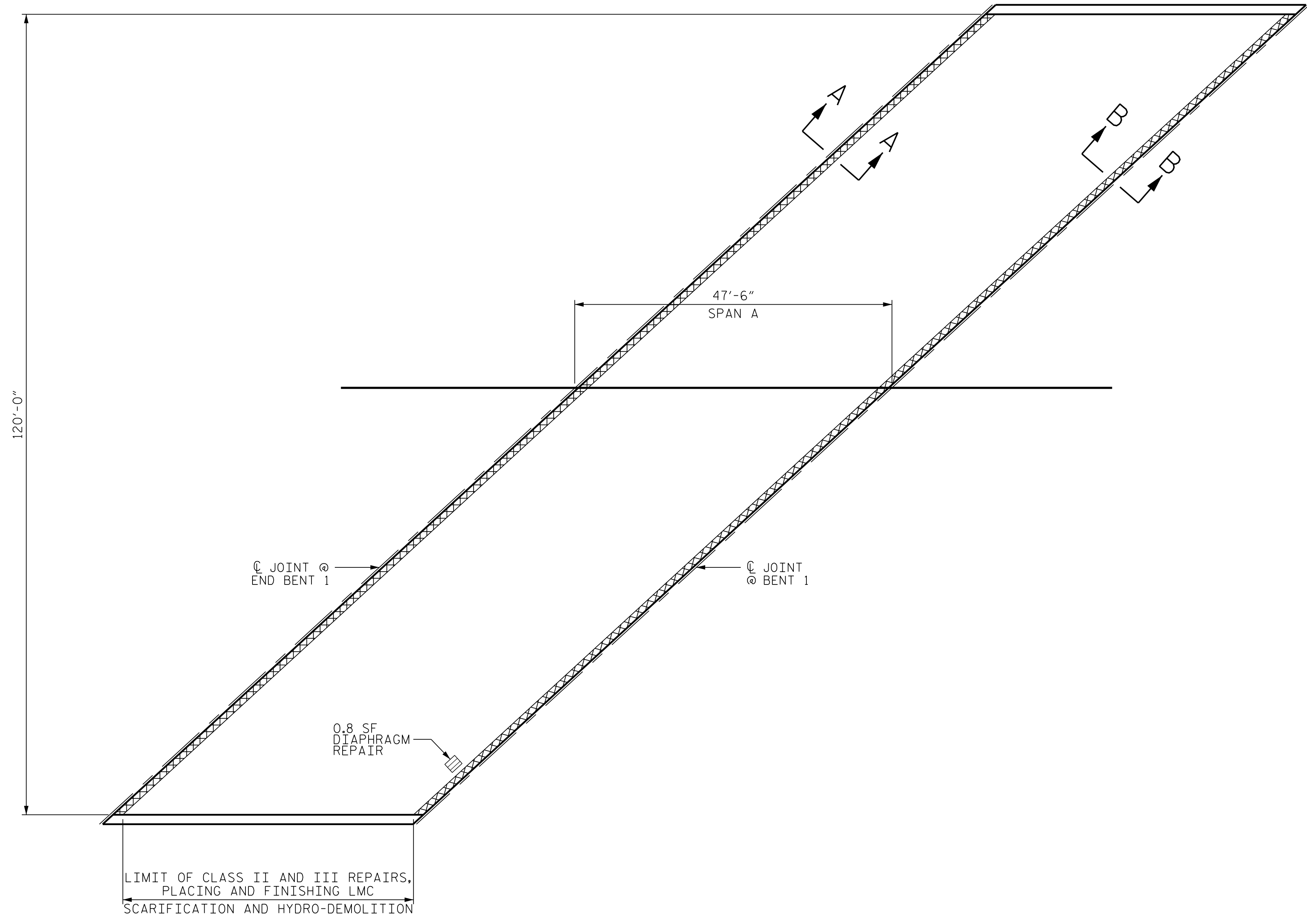
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION**  
APPROACH SLAB  
AT END BENT 1

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2			4			196

 Louis Berger  
Prepared by:  
LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

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**PLAN OF SPAN A**  
FOR SECTION A-A & B-B, SEE "JOINT DETAILS" SHEET

SPAN "A" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	181.7 SQ. FT.	
SCARIFYING BRIDGE DECK	606 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	606 SQ. YDS.	
SHOTCRETE REPAIR	1.0 CU. FT.	

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

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

- DIAPHRAGM REPAIR
- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 78

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SHEET 2 OF 5



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SURFACE PREPARATION  
AND UNDERDECK  
REPAIRS  
SPAN A**

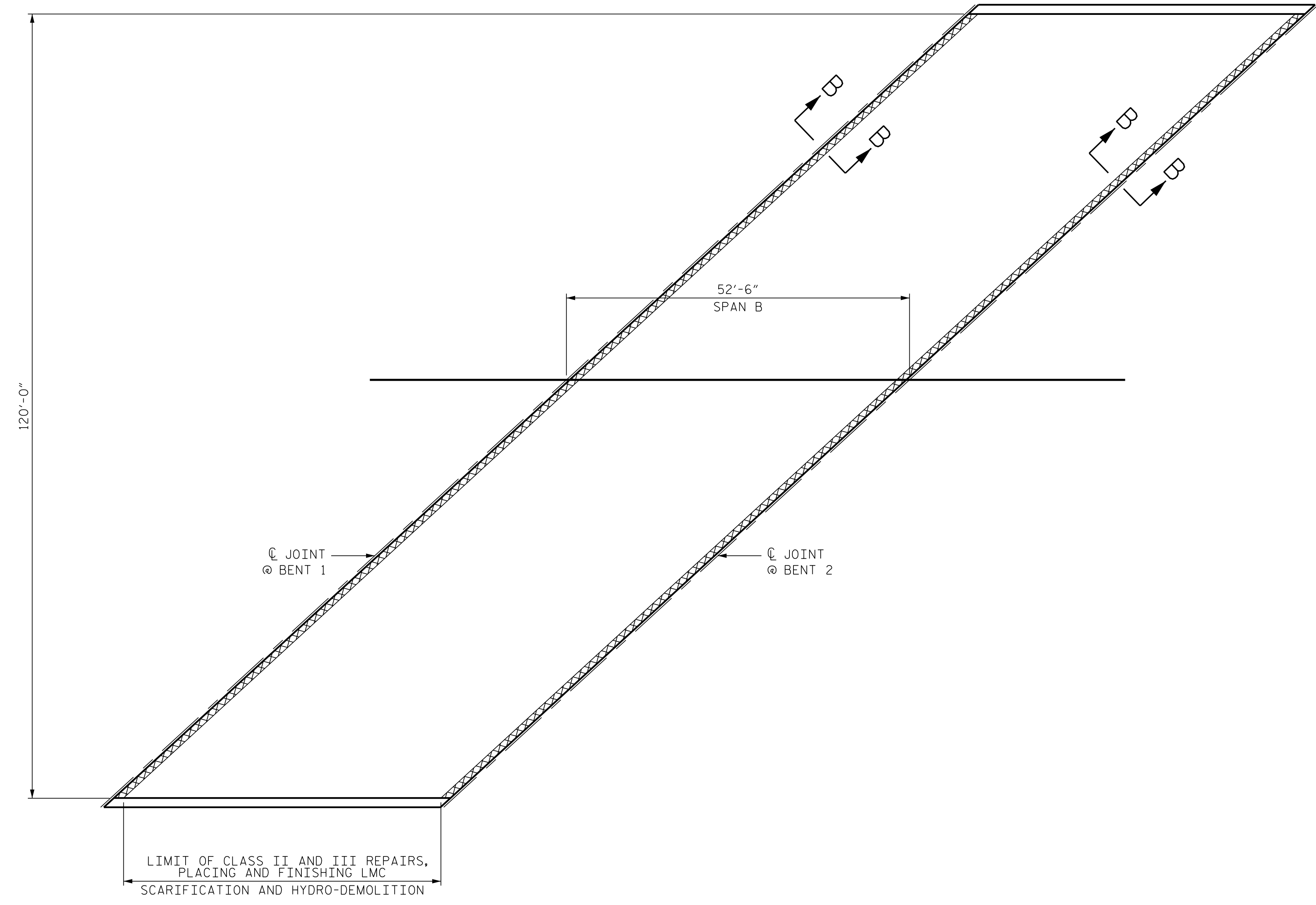
DRAWN BY : T. KIRSCHBAUM	DATE : 9-16
CHECKED BY : F. ASEFNIA	DATE : 9-16
DESIGN ENGINEER OF RECORD : F. ASEFNIA	DATE : 9-16

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**PLAN OF SPAN B**  
 FOR SECTION B-B, SEE "JOINT DETAILS" SHEET

SPAN "B" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	181.7 SQ. FT.	
SCARIFYING BRIDGE DECK	676 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	676 SQ. YDS.	

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

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

- DIAPHRAGM REPAIR
- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 78

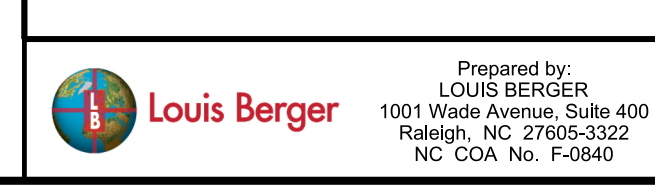
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SHEET 3 OF 5



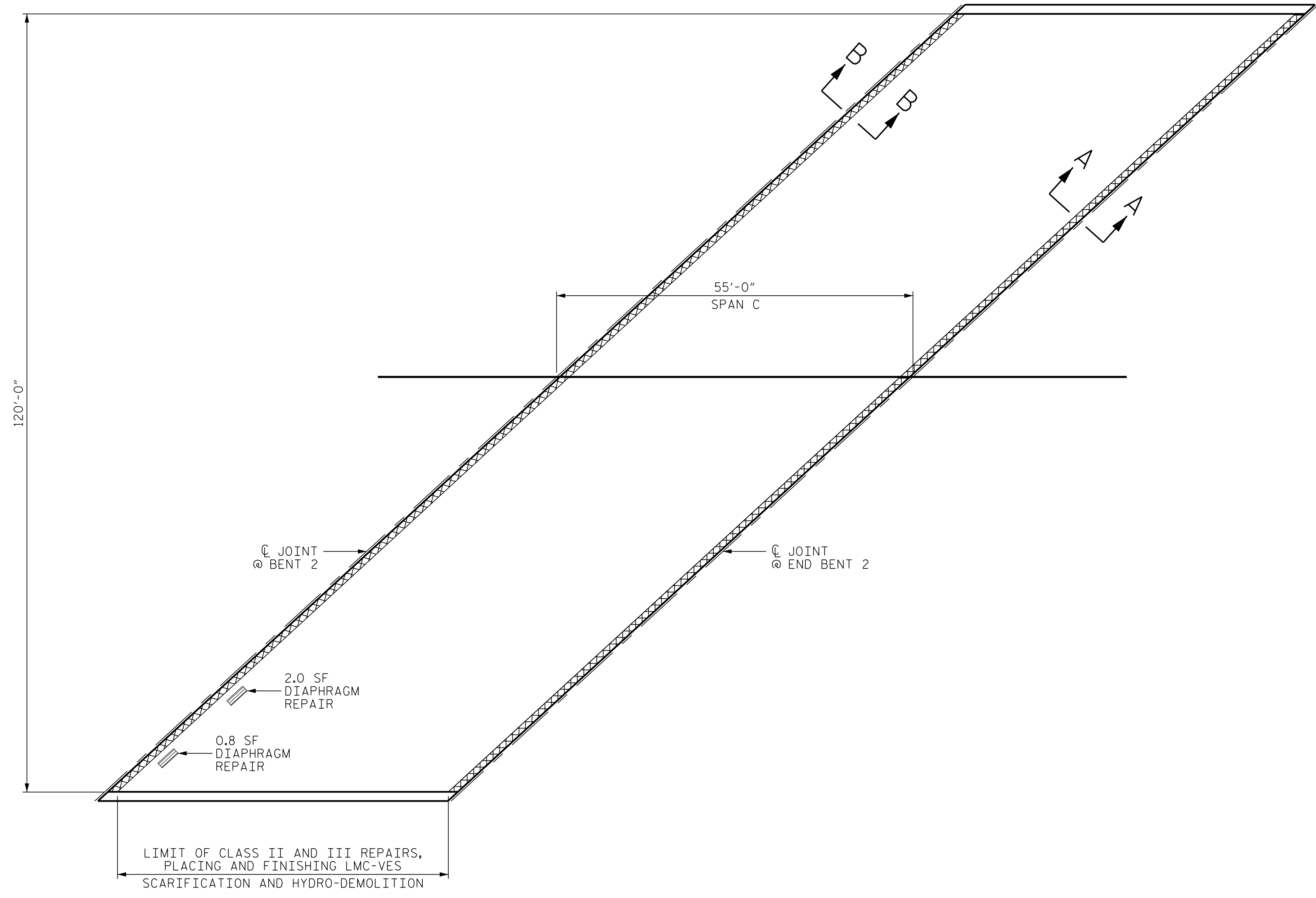
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SURFACE PREPARATION AND UNDERDECK REPAIRS**  
 SPAN B

DRAWN BY :	T. KIRSCHBAUM	DATE :	9-16
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DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16



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**PLAN OF SPAN C**  
 FOR SECTION A-A & B-B, SEE "JOINT DETAILS" SHEET

SPAN "C" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	181.7 SQ. FT.	
SCARIFYING BRIDGE DECK	704.5 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	704.5 SQ. YDS.	
SHOTCRETE REPAIR	1.0 CU. FT.	

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

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

- DIAPHRAGM REPAIR
- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 78

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SHEET 4 OF 5



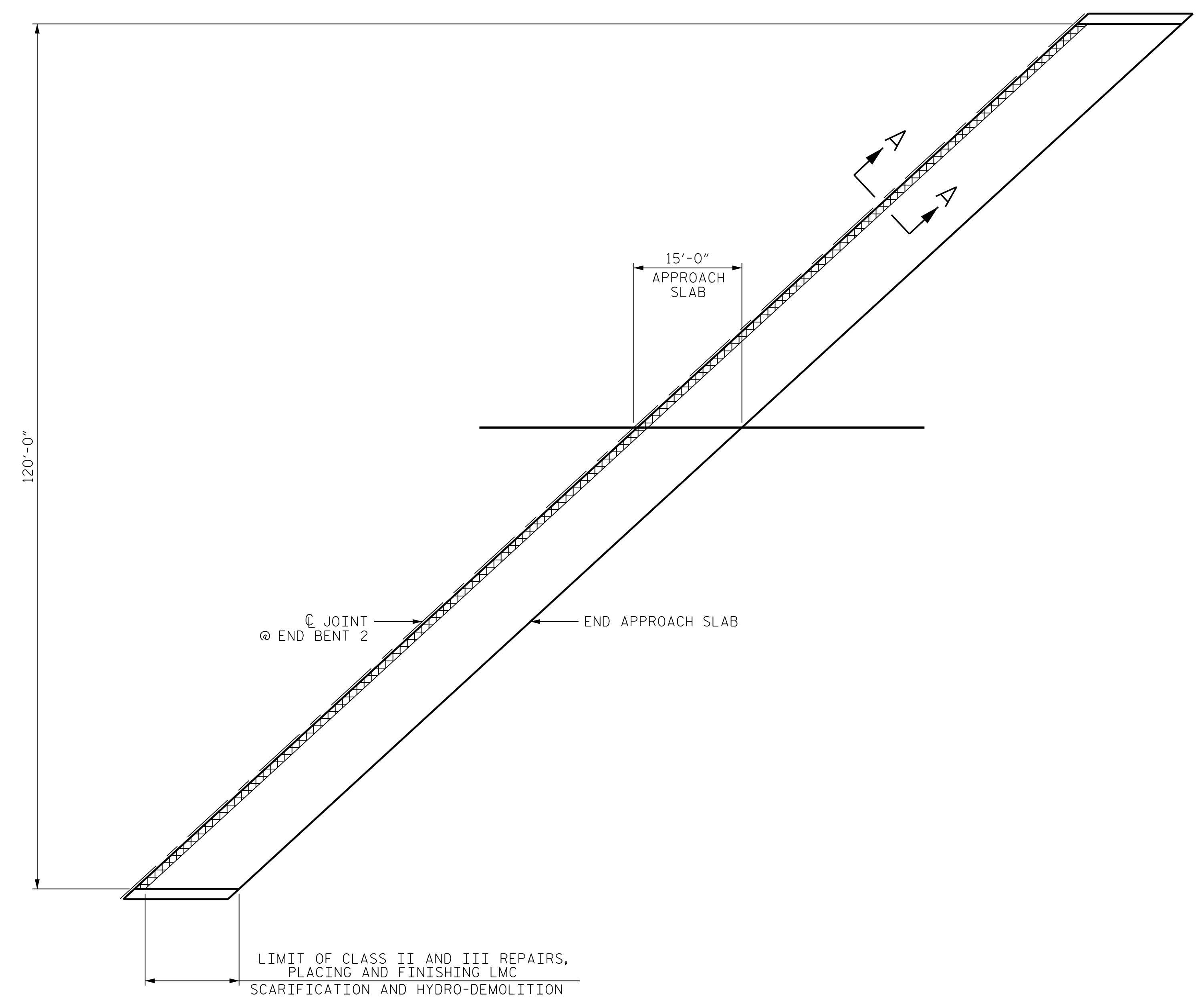
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 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SURFACE PREPARATION  
 AND UNDERDECK  
 REPAIRS**  
 SPAN C

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CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

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**PLAN OF APPROACH SLAB @ END BENT 2**  
FOR SECTION A-A, SEE "JOINT DETAILS" SHEET

APPROACH SLAB QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
SCARIFYING BRIDGE DECK	193 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	193 SQ. YDS.	
BRIDGE JOINT DEMOLITION	90.85 SQ. FT.	

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

CLASS II & CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN AMOUNT IS INDICATED FOR PRICING PURPOSE. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION ARE ENCOUNTERED.

- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 78

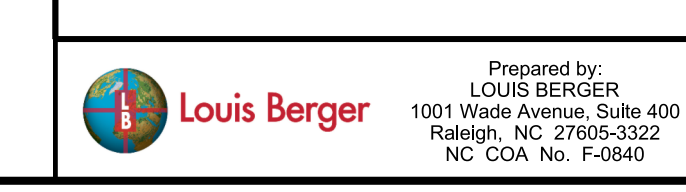
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SHEET 5 OF 5



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION**  
  
APPROACH SLAB  
AT END BENT 2

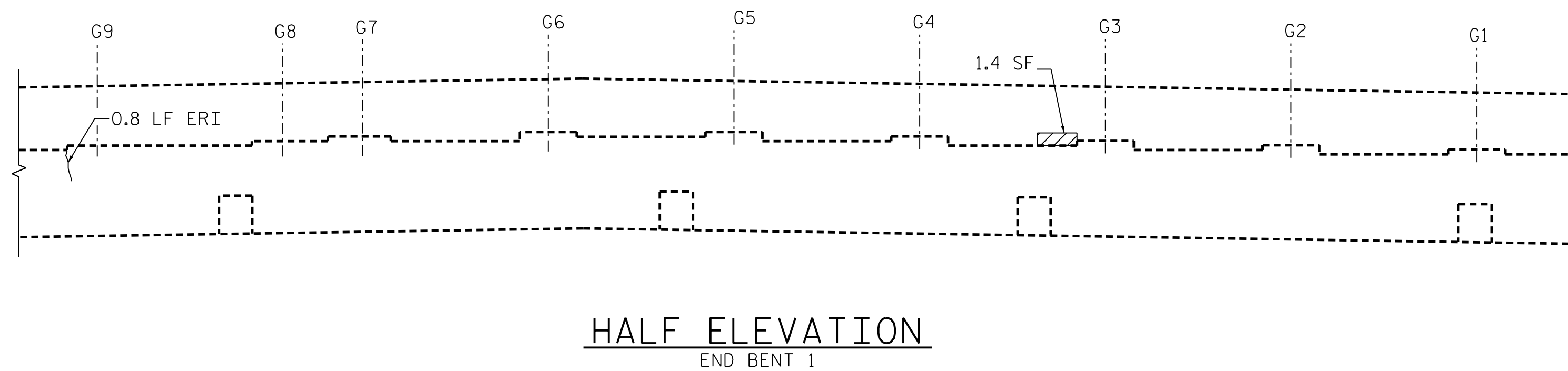
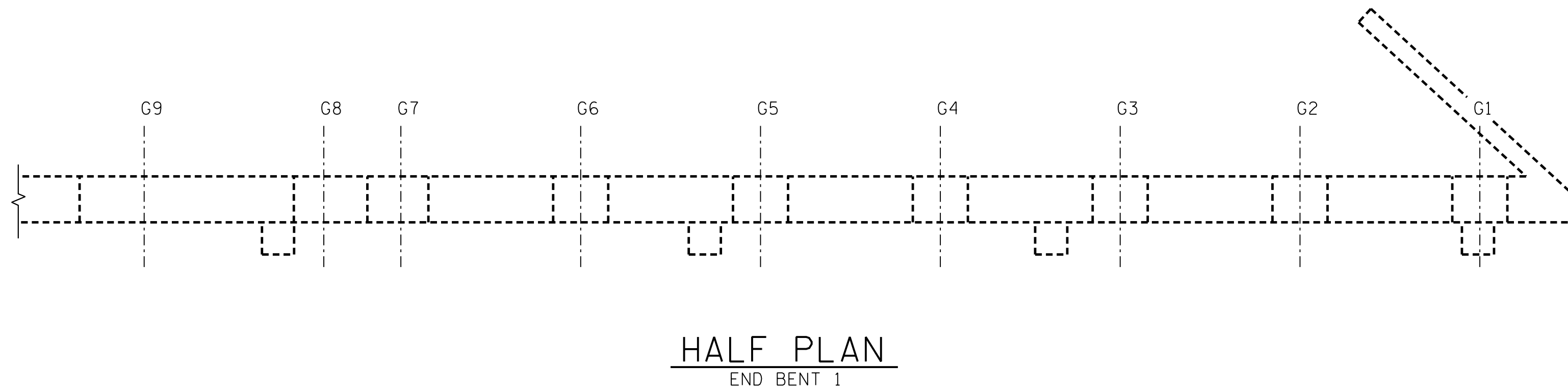
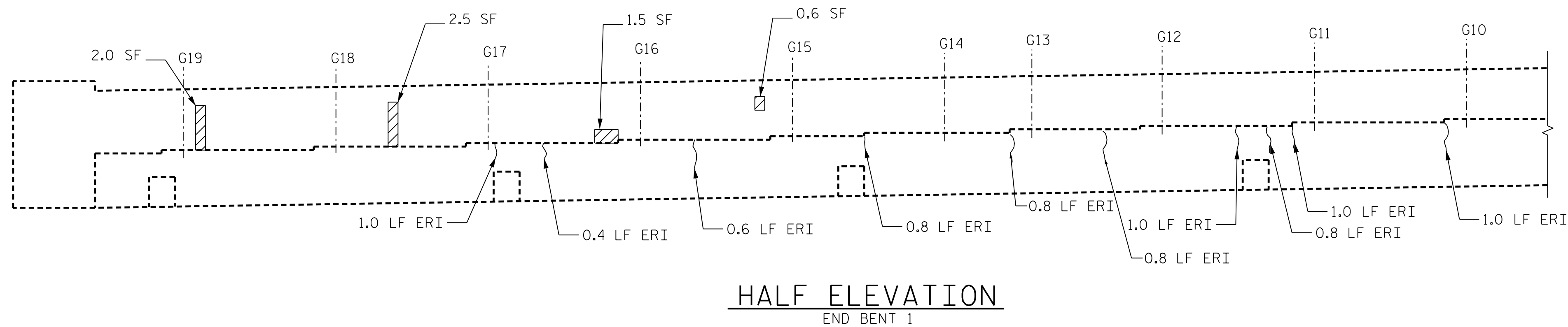
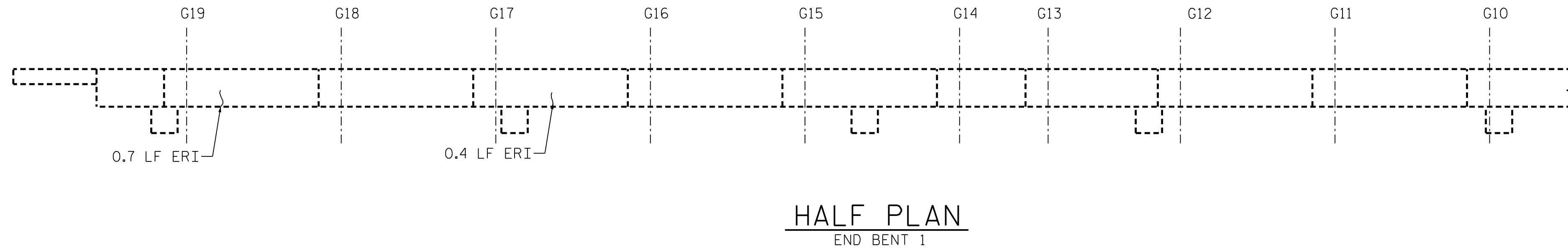
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CHECKED BY :	F. ASEFNIA	DATE :	9-16
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REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	8.0	2.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		10.1		
EPOXY COATING	AREA SF			
CAP	467.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAW CUT. SEE REPAIR DETAILS.

**NOTES:**

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

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

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

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

FOR REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

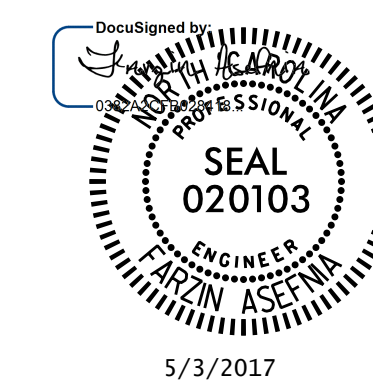
▣ - CONCRETE REPAIR

▨ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 78

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DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE**

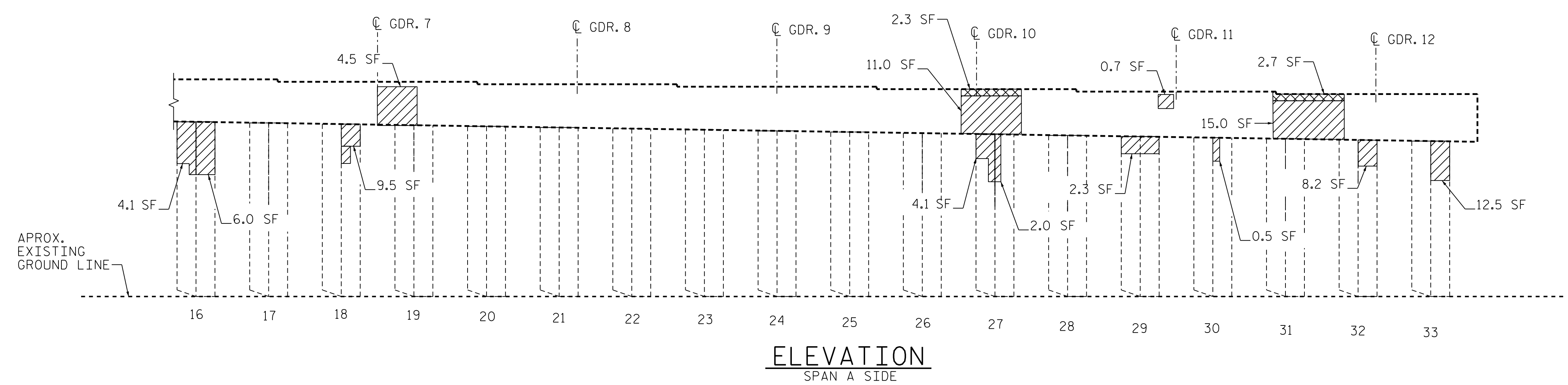
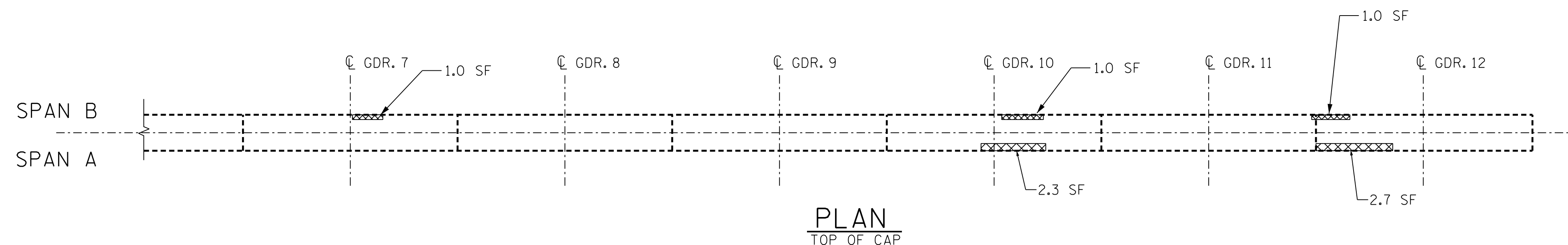
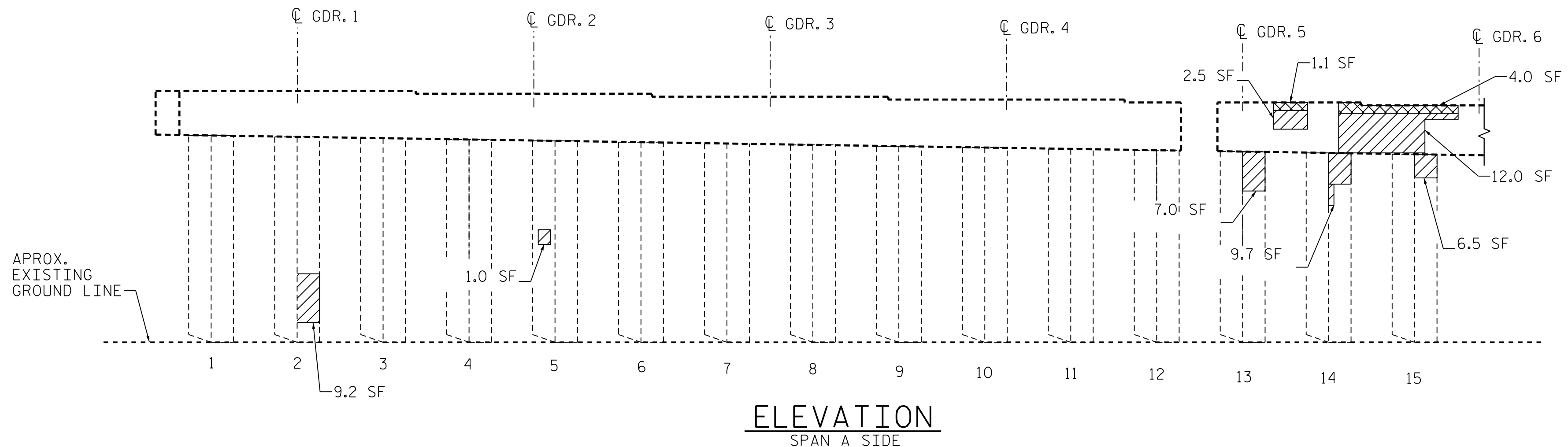
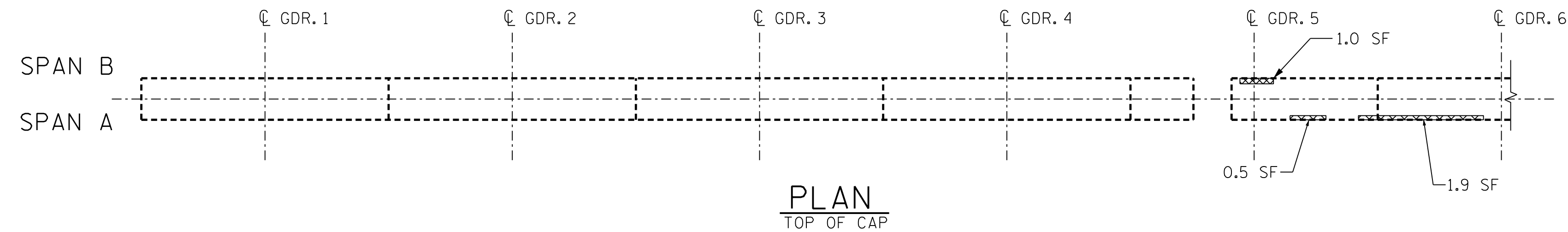
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 8:17:22 AM  
 Louis Berger



**NOTES:**

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

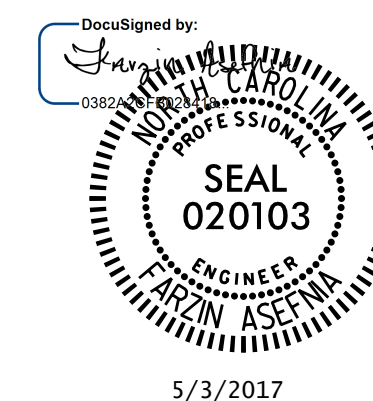
☒ - CONCRETE REPAIR

☒ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 78

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 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

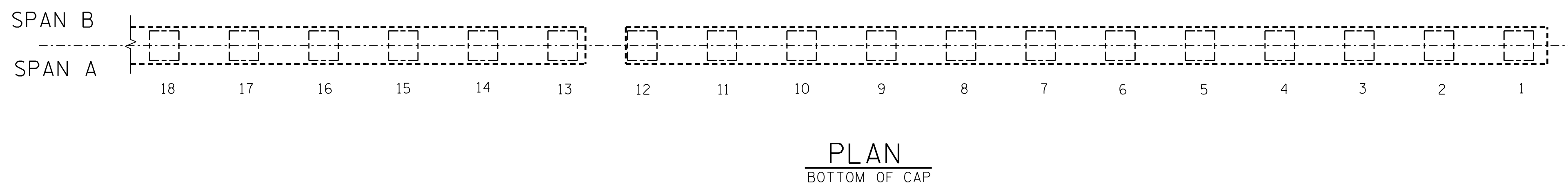
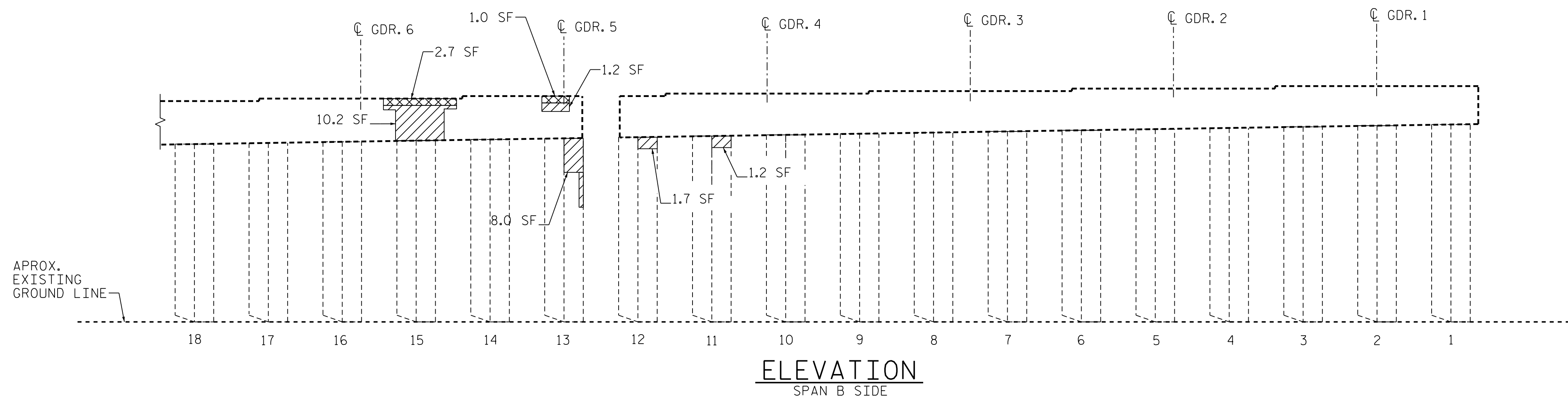
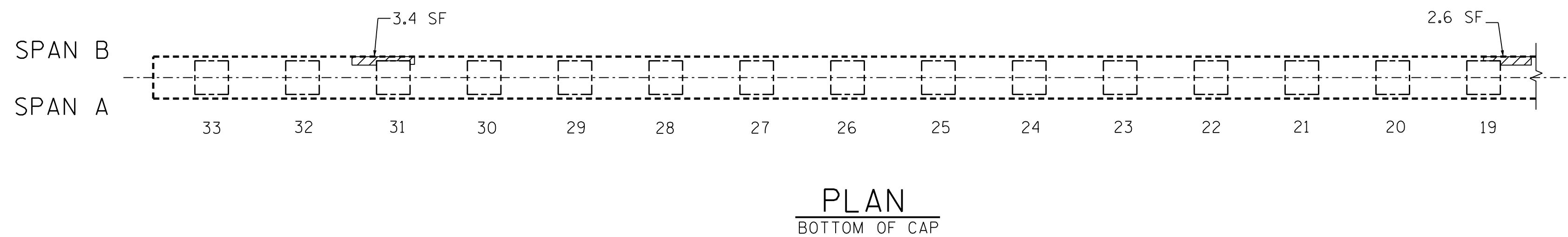
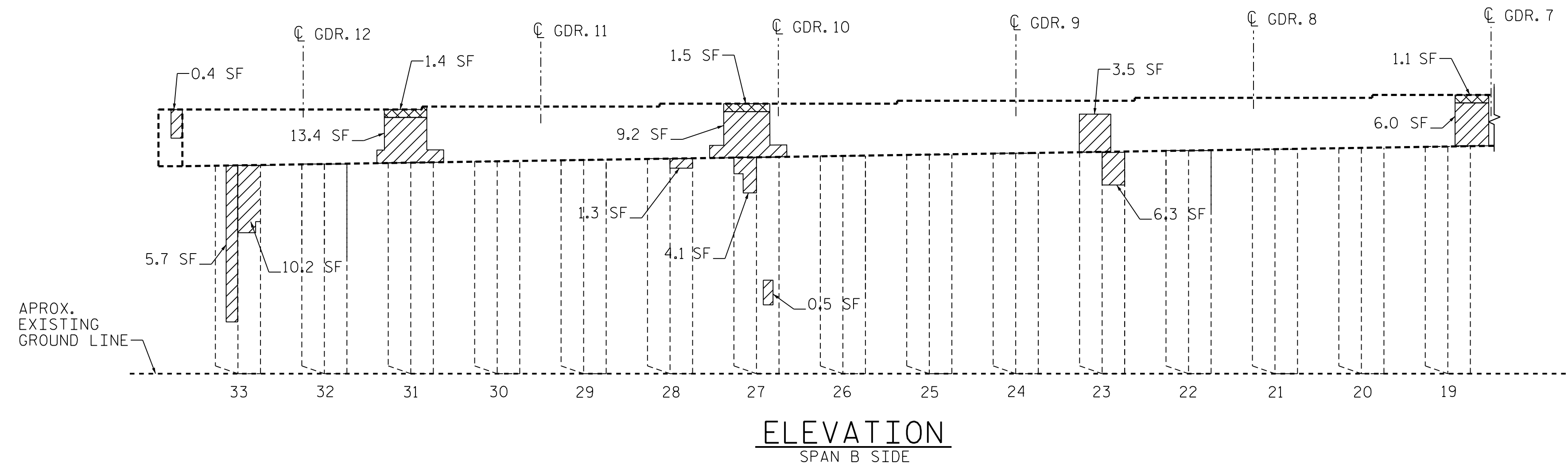
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 (SPAN A)

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**QUANTITY TABLE**

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
<b>SHOTCRETE REPAIRS</b>				
CAP (VERTICAL FACE)	93.2	46.6		
CAP (HORIZONTAL)	6.0	3.0		
COLUMN	121.6	60.8		
<b>CONCRETE REPAIRS</b>	33.1	11.0		
<b>EPOXY RESIN INJECTION</b>		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
<b>EPOXY COATING</b>		SQ. FT		SQ. FT
TOP OF CAP		442.0		

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

**NOTES:**

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

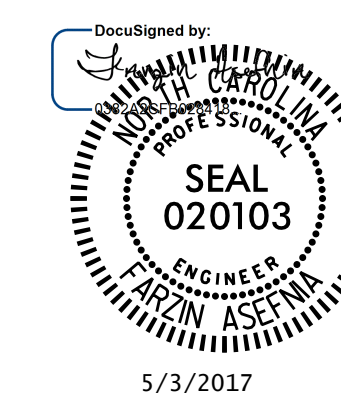
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 78

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE**  
BENT 1  
(SPAN B)

REVISIONS

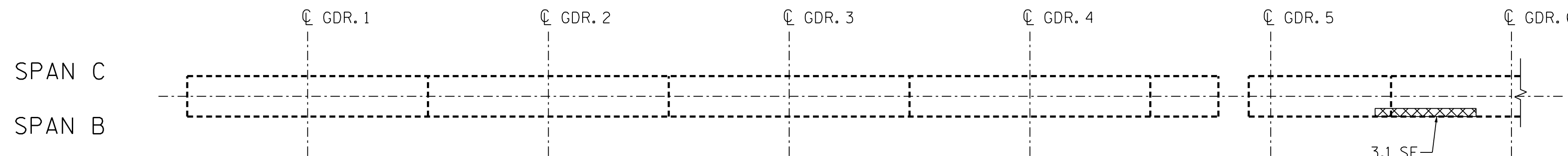
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DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

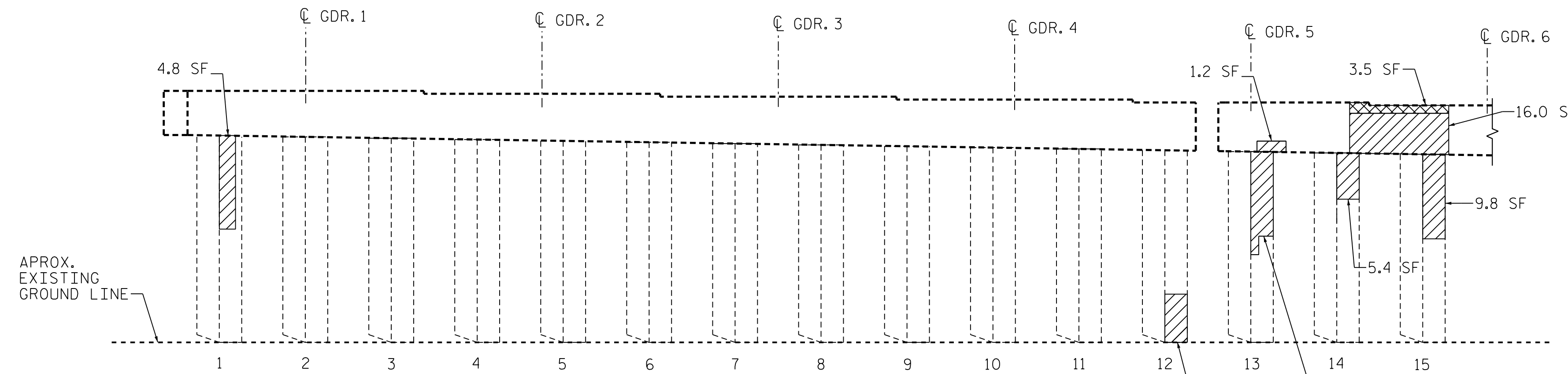
**Louis Berger**  
Prepared by:  
LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840



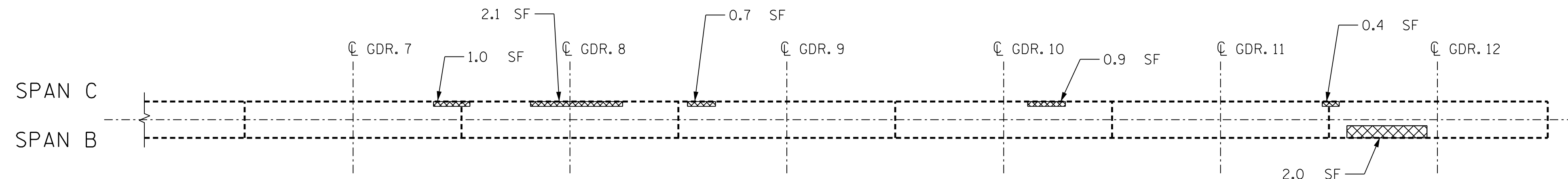
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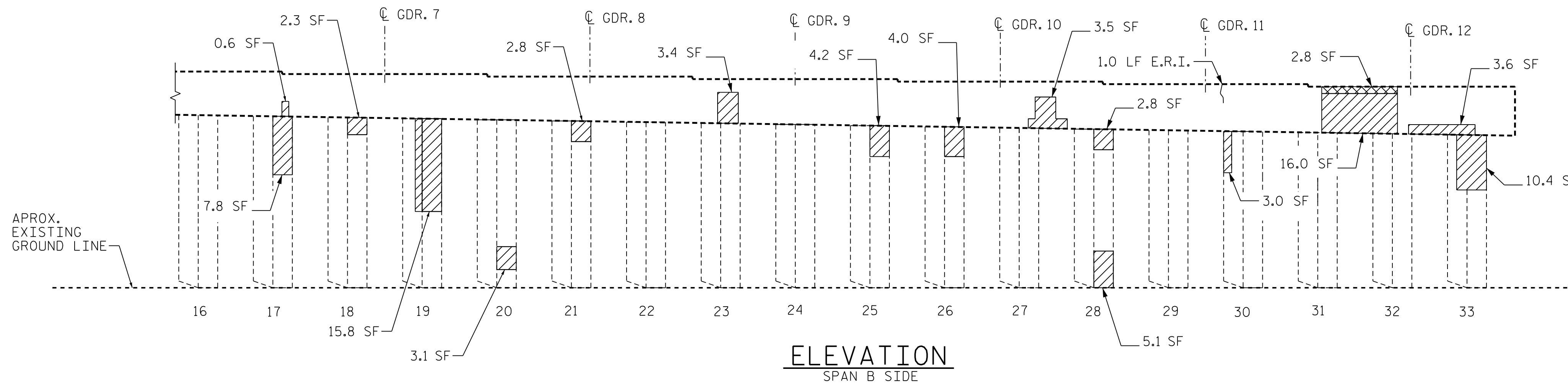
**PLAN**  
TOP OF CAP



**ELEVATION**  
SPAN B SIDE



**PLAN**  
TOP OF CAP



**ELEVATION**  
SPAN B SIDE

**NOTES:**

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

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

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

FOR SHOTCRET REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

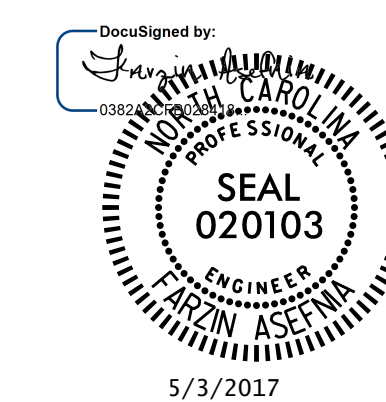
☒ - CONCRETE REPAIR

▨ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 78

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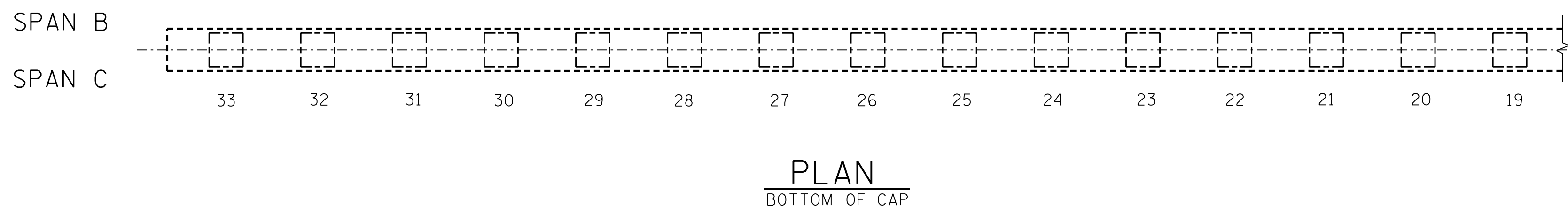
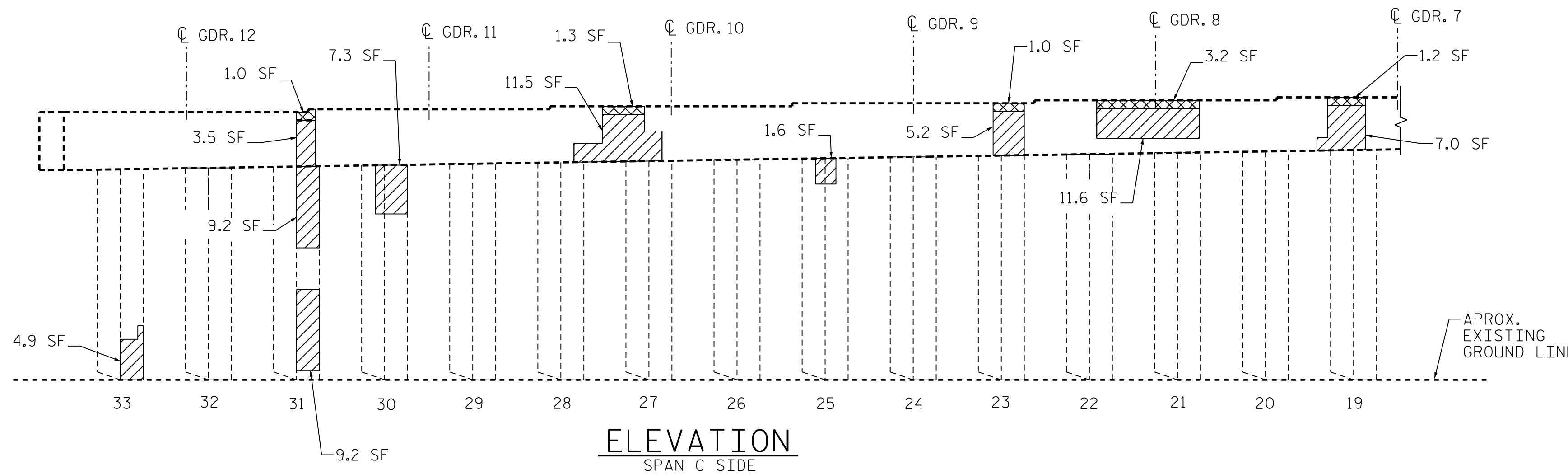
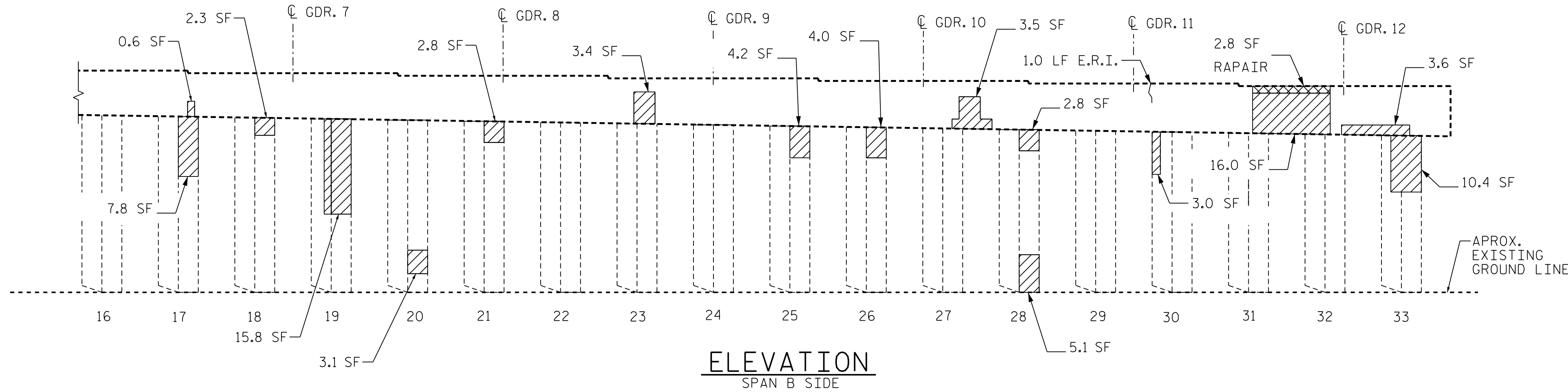
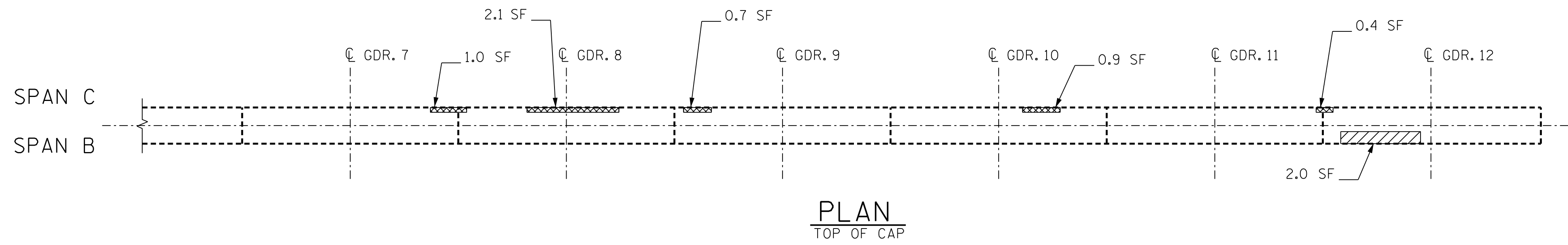
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DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE**  
BENT 2  
(SPAN B)

DRAWN BY :	M. HOGAN	DATE :	9-16
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DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS						SHEET NO.
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REPAIR QUANTITY TABLE				
REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	129.0	64.5		
CAP (HORIZONTAL)	0.0	0.0		
COLUMN	172.7	86.4		
CONCRETE REPAIRS	35.0	11.7		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		1.0		
COLUMN		0.0		
EPOXY COATING		SQ. FT		SQ. FT
TOP OF CAP		442.0		

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

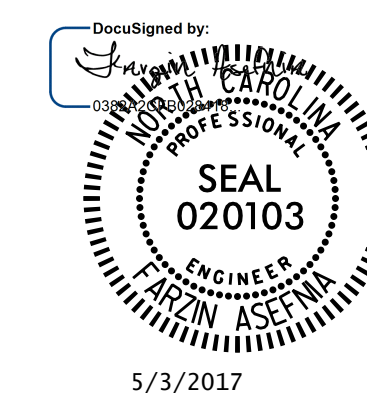
▨ - CONCRETE REPAIR

▨ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 78

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DEPARTMENT OF TRANSPORTATION  
RALEIGH

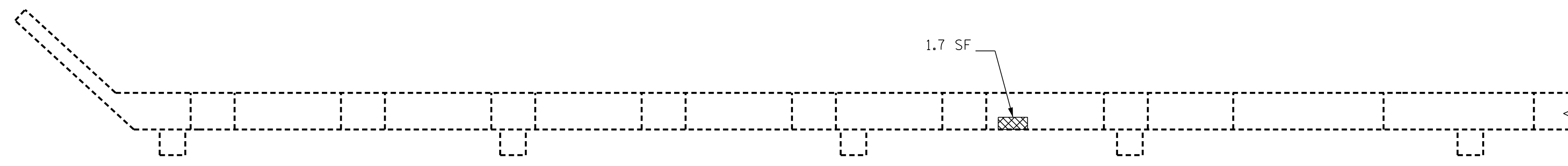
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BENT 2  
(SPAN C)

DRAWN BY : M. HOGAN DATE : 9-16  
CHECKED BY : F. ASEFNIA DATE : 9-16  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 9-16

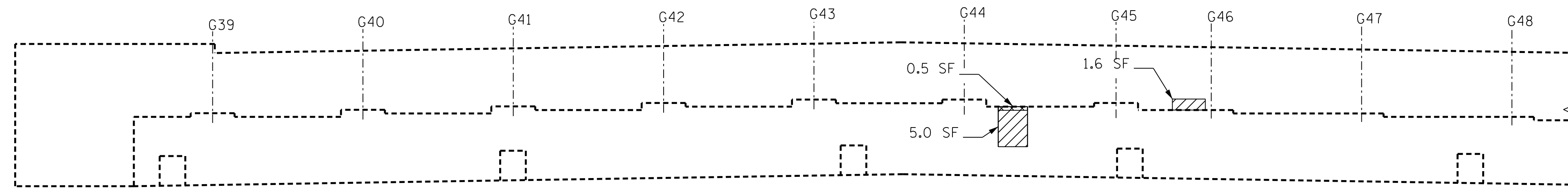
Prepared by: LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

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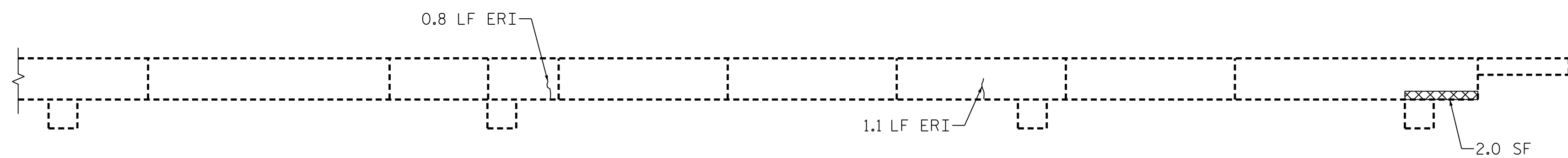
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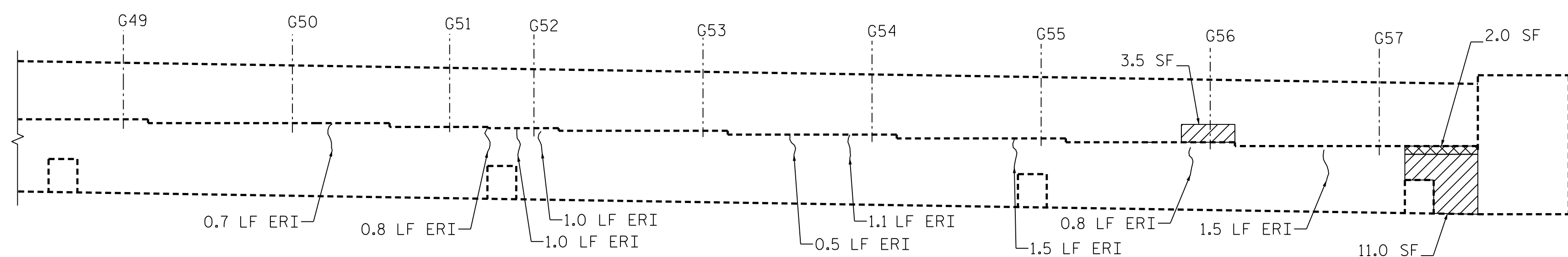
HALF PLAN  
END BENT 2



HALF ELEVATION  
END BENT 2



HALF PLAN  
END BENT 2



HALF ELEVATION  
END BENT 2

REPAIR QUANTITY TABLE				
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	
CAP (VERTICAL FACE)	21.0	5.3		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIRS	6.2	1.6		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		10.8		
EPOXY COATING	AREA SF			
CAP	467.0			

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

NOTES:

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

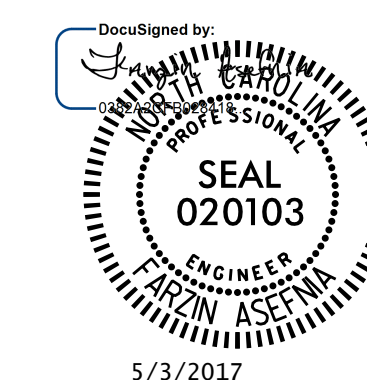
⊠ - CONCRETE REPAIR

▨ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 78

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RALEIGH

SUBSTRUCTURE

END BENT 2

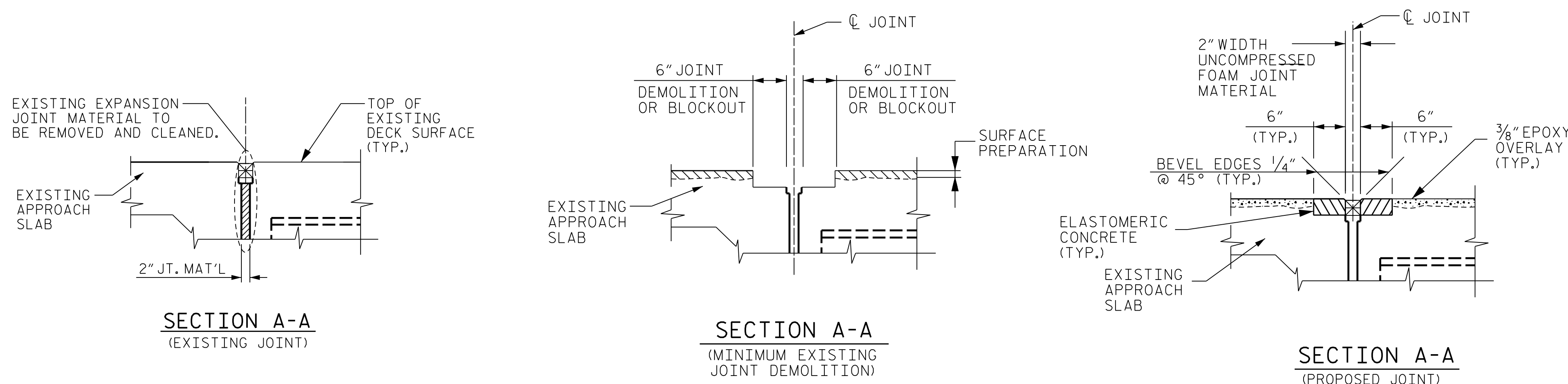
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CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

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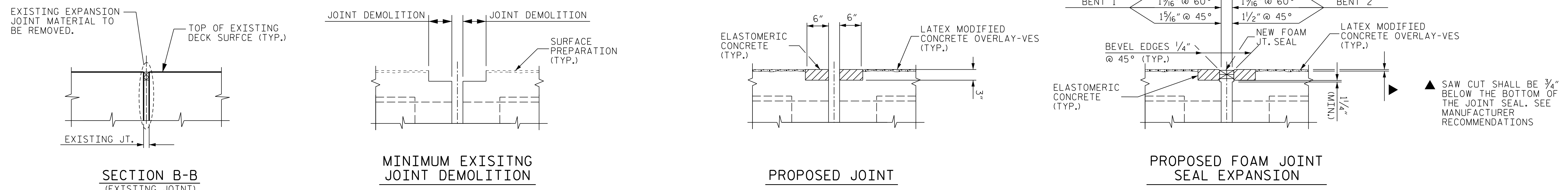
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**JOINT INSTALLATION SEQUENCE AT END BENTS**  
SECTION A-A

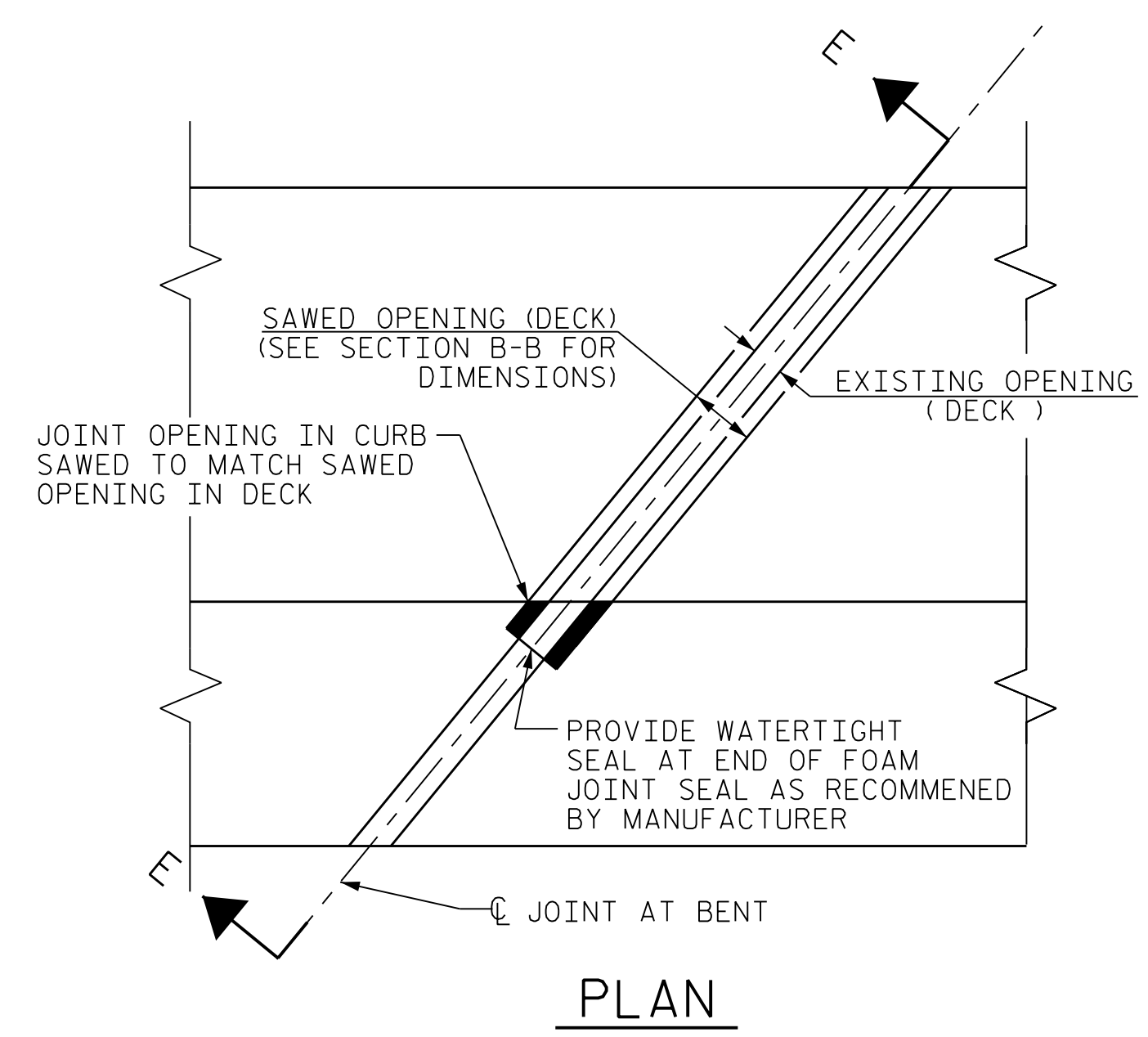
**NOTES:**  
CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
HYDRO-DEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OF ELASTOMERIC CONCRETE.  
ELASTOMERIC CONCRETE SHALL NOT BE PLACED ON LATEX MODIFIED CONCRETE. ELASTOMERIC CONCRETE SHALL BE PLACED ON PREPARED SURFACE OF ORIGINAL DECK CONCRETE OR CONCRETE FOR DECK REPAIR  
RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.  
THE WIDTH OF THE UNCOMPRESSED JOINT MATERIAL SHALL BE 2" FOR ALL BENTS.

<b>ELASTOMERIC CONCRETE</b>	
BRIDGE 78	181.7 (CU. FT.)

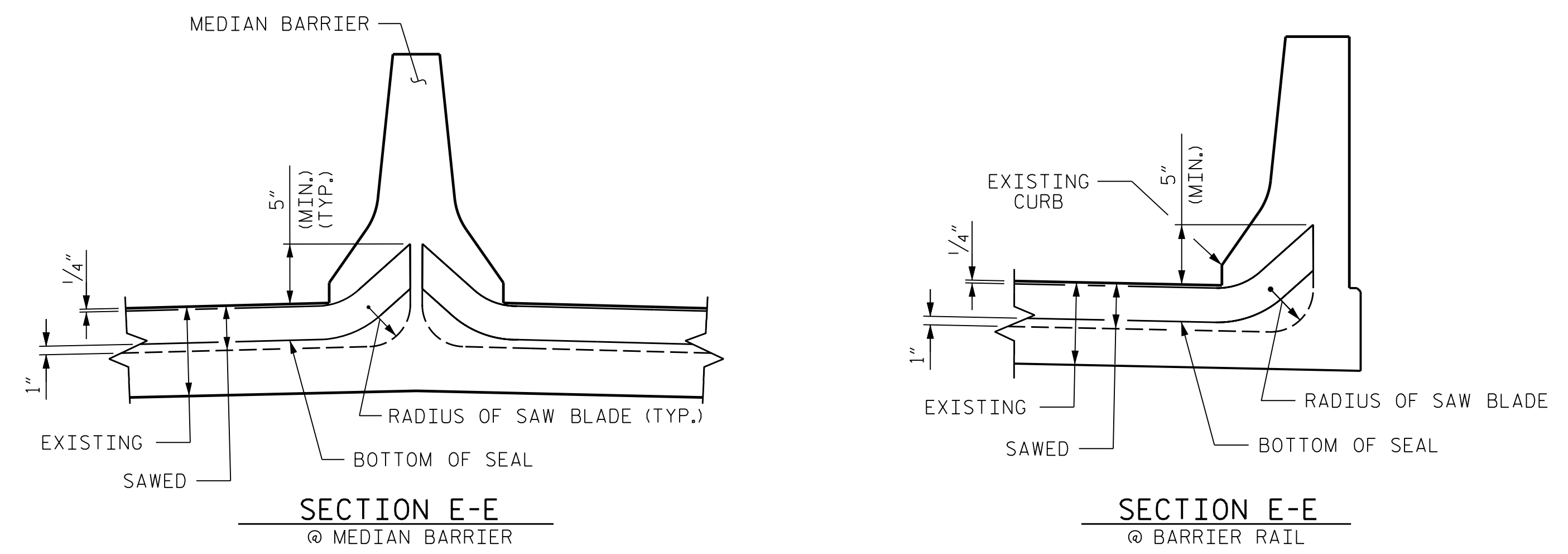


**JOINT INSTALLATION SEQUENCE**  
SECTION B-B

▲ SAW CUT SHALL BE 3/4" BELOW THE BOTTOM OF THE JOINT SEAL. SEE MANUFACTURER RECOMMENDATIONS



**PLAN**



**SECTION E-E**  
@ MEDIAN BARRIER

**SECTION E-E**  
@ BARRIER RAIL

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 78

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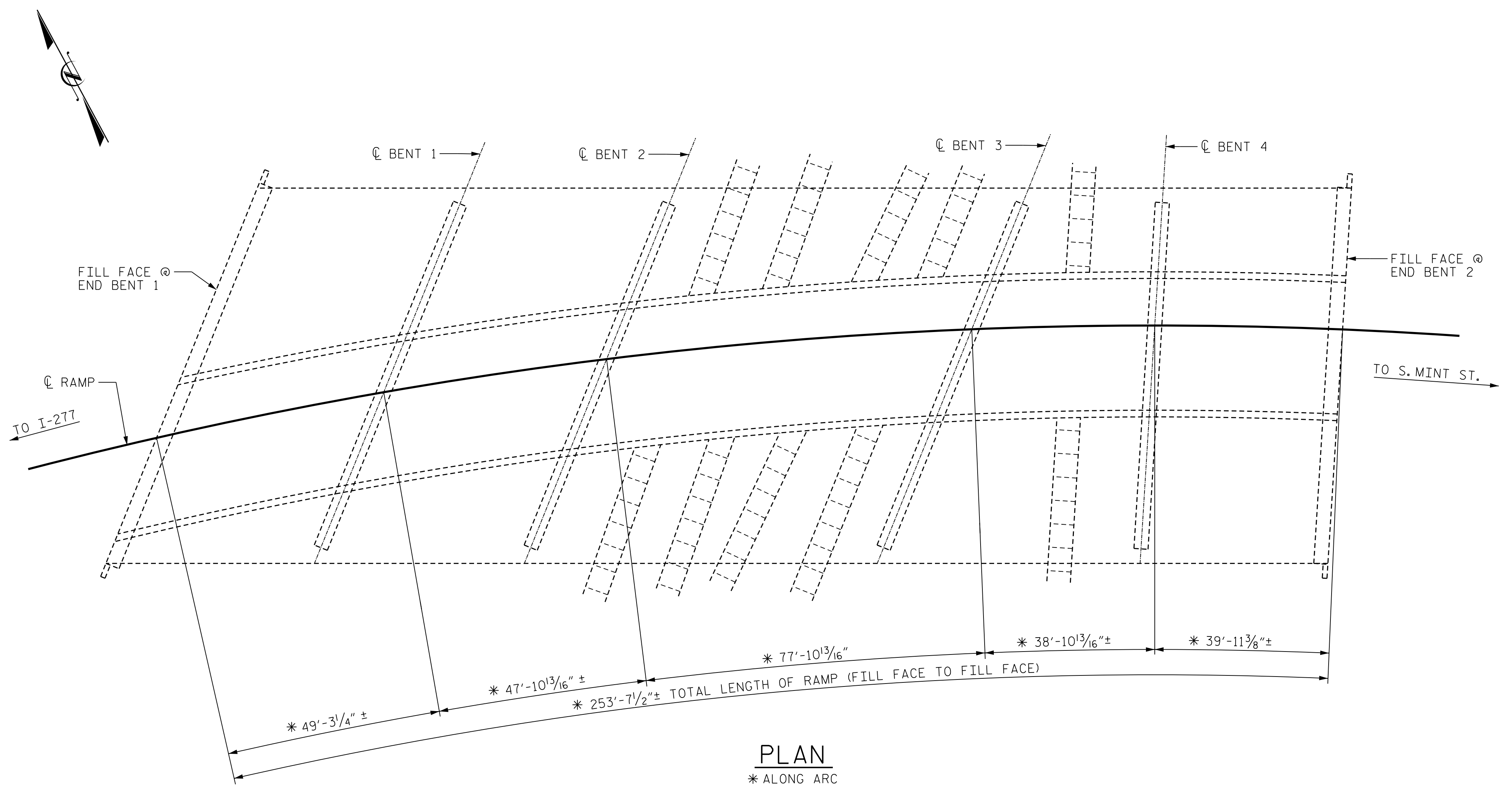
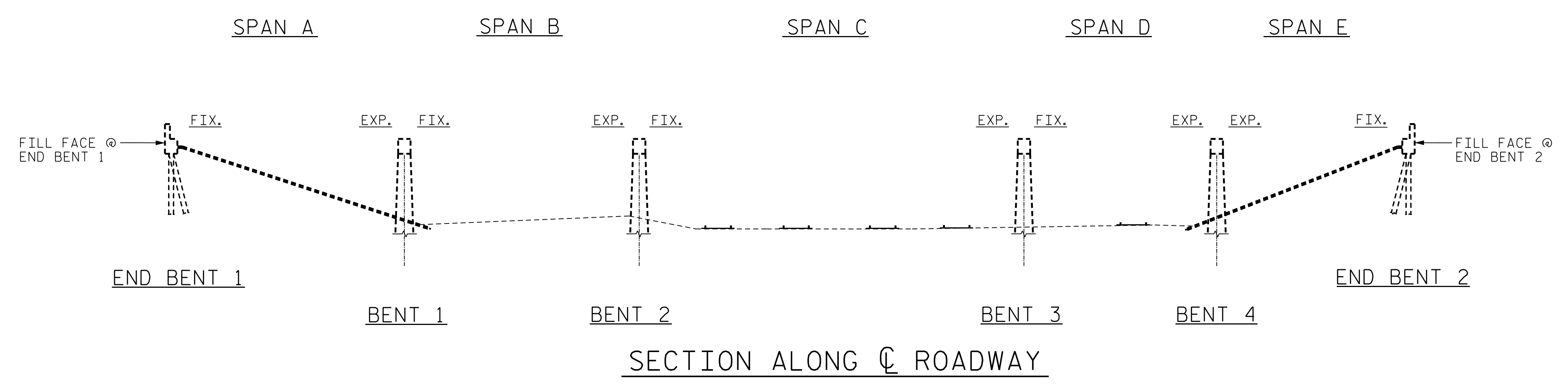
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUPERSTRUCTURE**  
JOINT DETAILS

DRAWN BY :	T. KIRSCHBAUM	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

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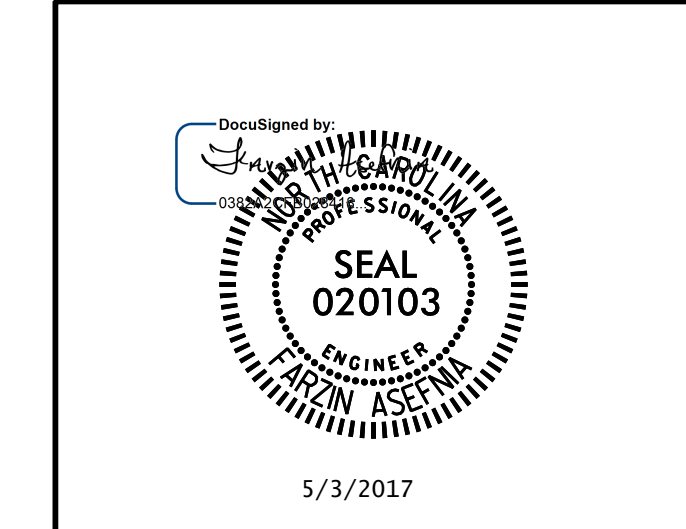


I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer \_\_\_\_\_ Date \_\_\_\_\_

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 118

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON I-277  
 OVER SOUTHERN  
 RAILROAD

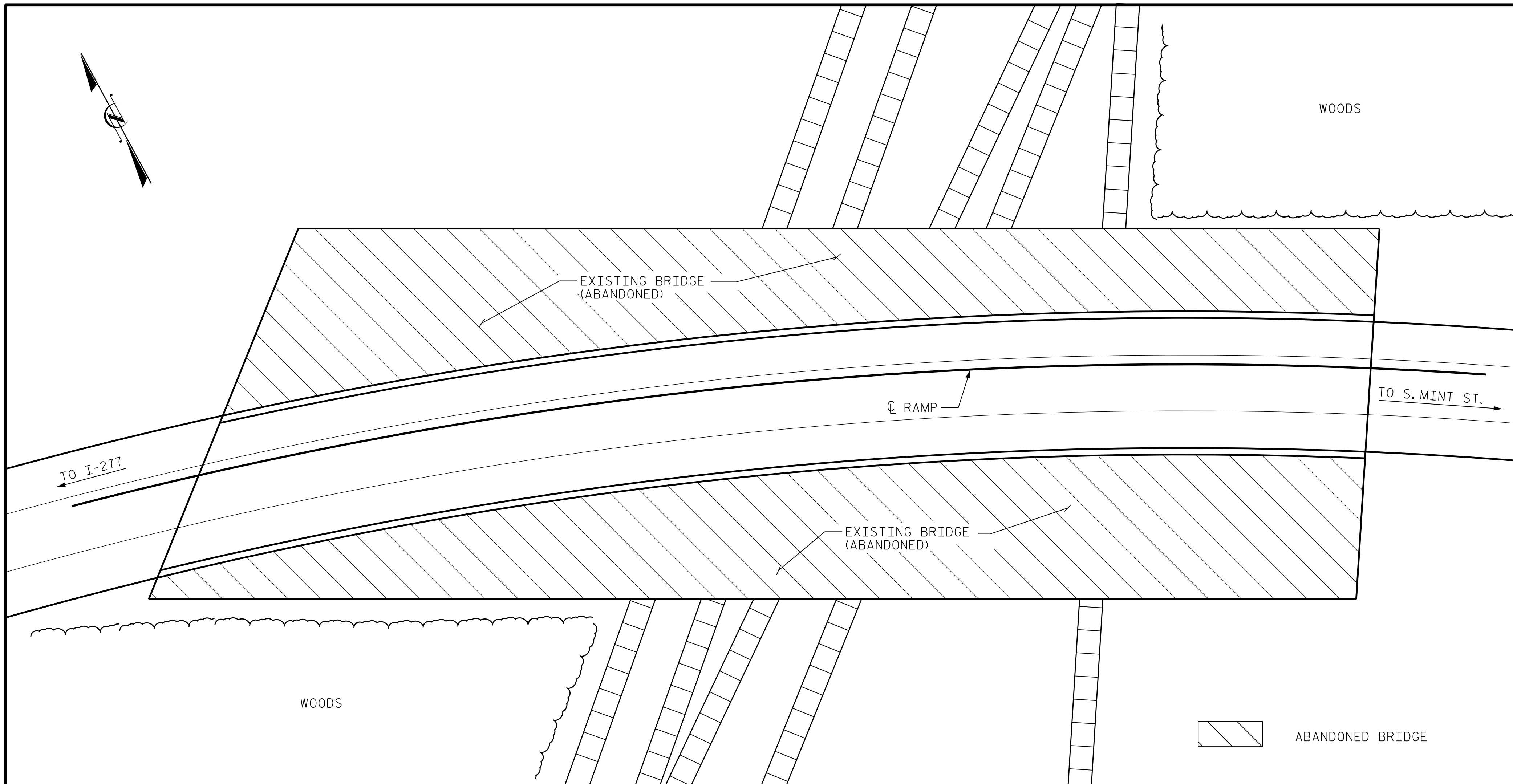
DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

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**LOCATION SKETCH**

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

**NOTES:**

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

FOR OVERLAY OF BRIDGE WITH EPOXY OVERLAY SYSTEM, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

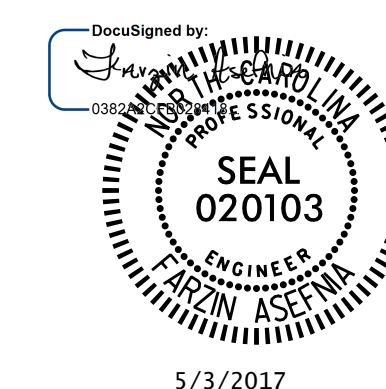
FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR AT THE PAVEMENT MARKINGS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 118

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SHEET 2 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**

FOR BRIDGE ON I-277  
OVER SOUTHERN  
RAILROAD

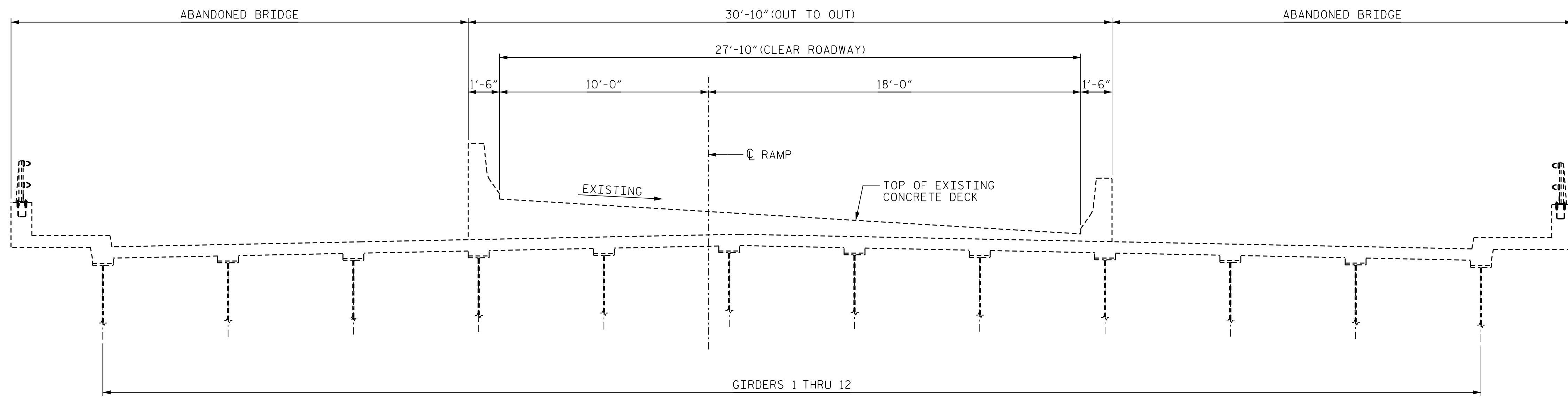
DRAWN BY : M. HOGAN DATE : 8-16  
CHECKED BY : T. KIRSCHBAUM DATE : 10-16  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 10-16

Prepared by:  
**Louis Berger**  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

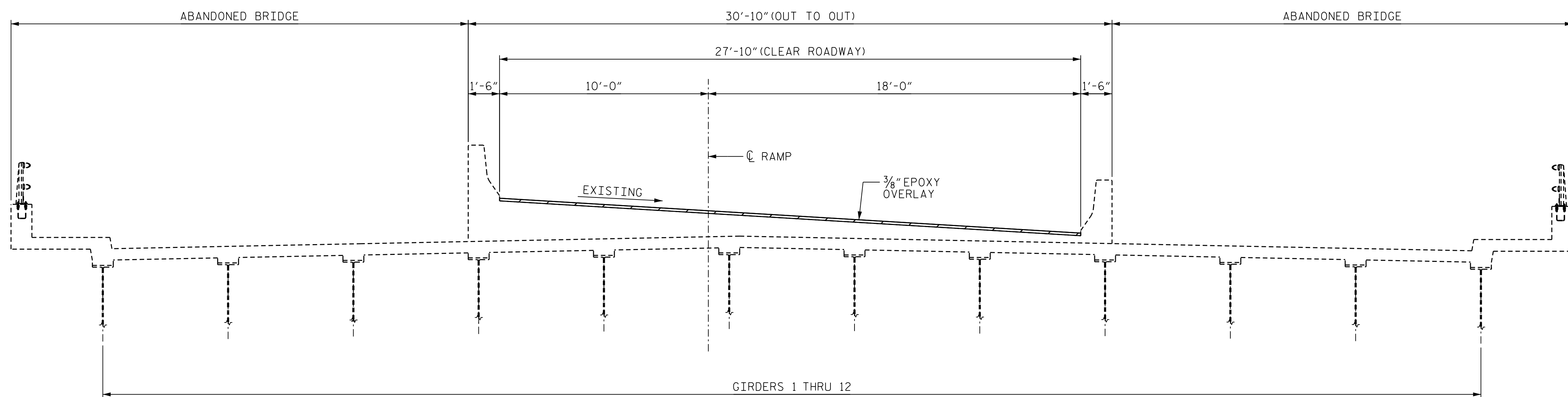
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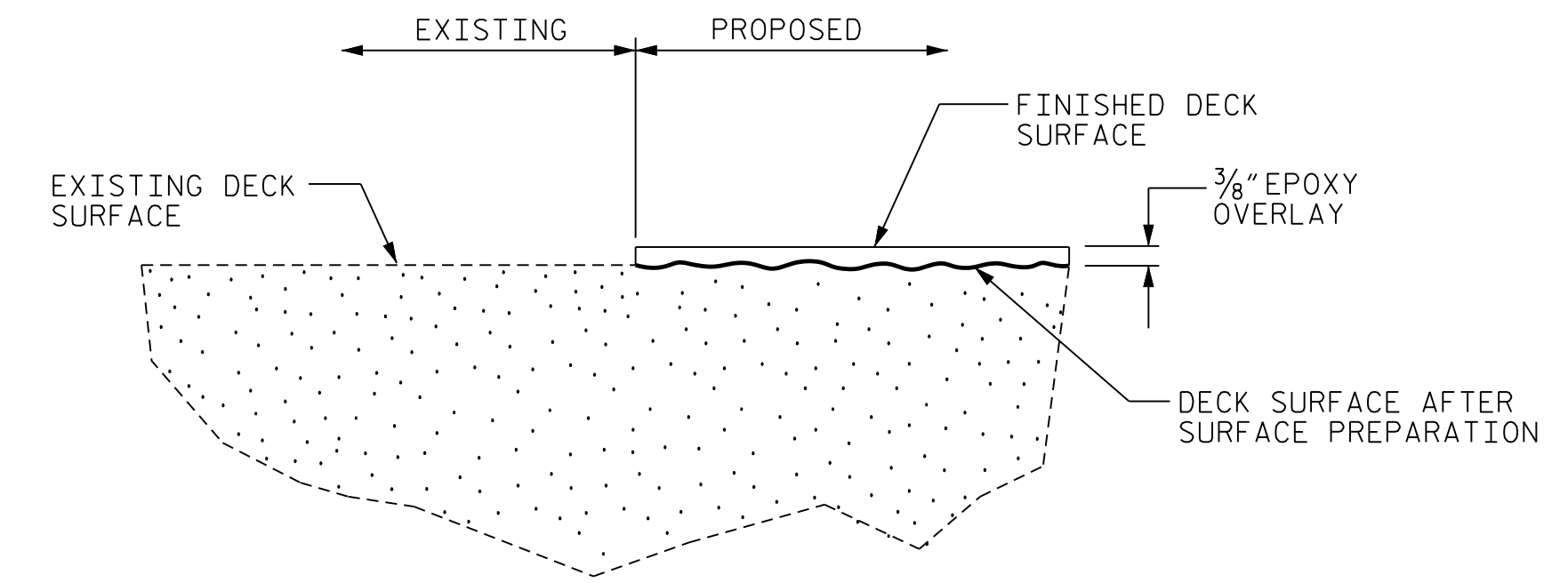
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(EXISTING)



**TYPICAL SECTION**  
(EPOXY OVERLAY)

**NOTE:**

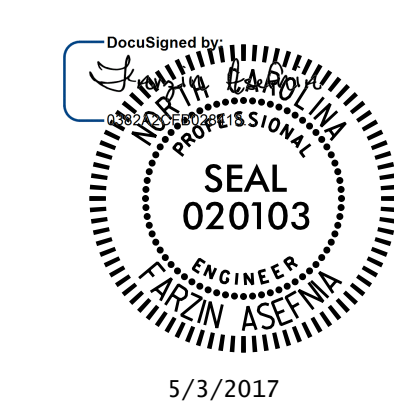
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.



**DETAIL OF EPOXY OVERLAY**

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 118

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DEPARTMENT OF TRANSPORTATION  
RALEIGH

**TYPICAL SECTION  
& EPOXY OVERLAY  
DETAILS**

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DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

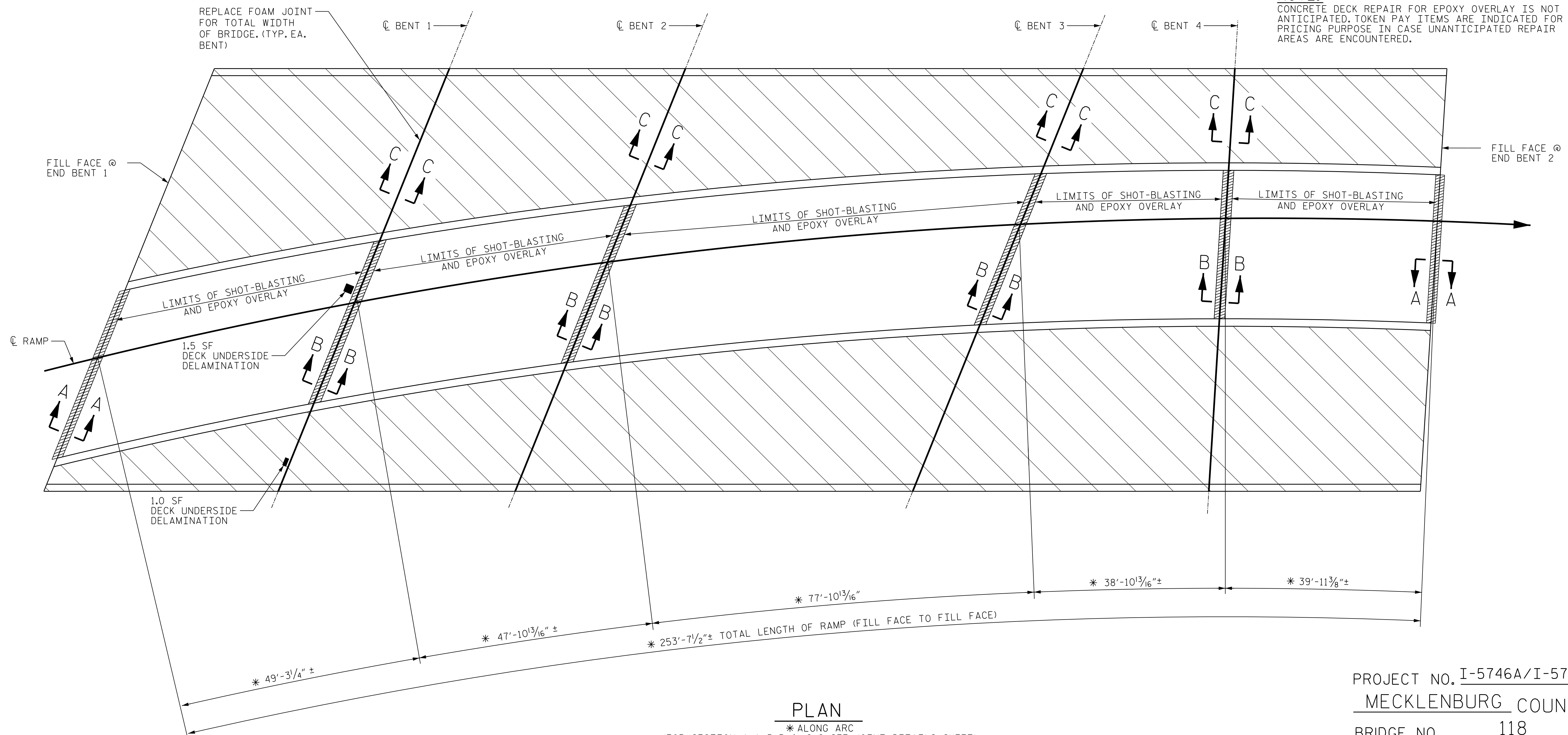


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SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1.0 SQ. FT.	
BRIDGE JOINT DEMOLITION	186.0 SQ. FT.	
EPOXY OVERLAY SYSTEM	6961 SQ. FT.	
SHOTCRETE REPAIR	1.0 CU. FT.	

**NOTE:**  
 CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED.



**PLAN**  
 \* ALONG ARC  
 (FOR SECTION A-A, B-B, & C-C SEE JOINT DETAILS SHEET)

- EPOXY OVERLAY
- BRIDGE JOINT DEMOLITION
- ABANDONED BRIDGE (NO OVERLAY)
- DECK UNDERSIDE DELAMINATION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 118

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SURFACE PREPARATION  
 FOR EPOXY OVERLAY  
 AND  
 UNDERDECK REPAIR**

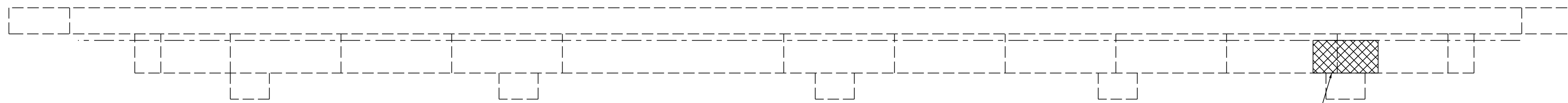
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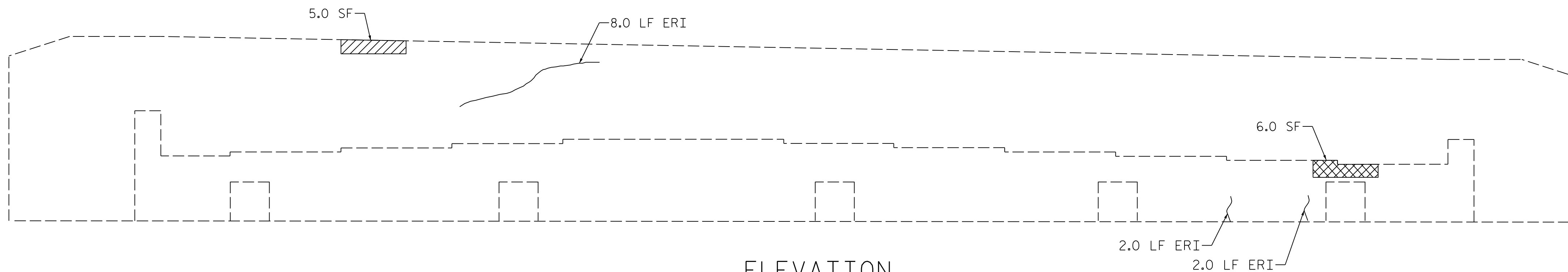
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 Prepared by: LOUIS BERGER  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

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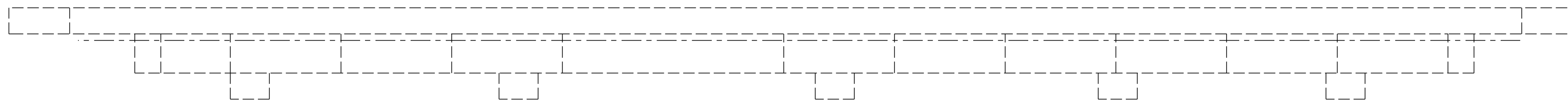
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PLAN  
END BENT 1



ELEVATION  
END BENT 1



PLAN  
END BENT 2



ELEVATION  
END BENT 2

REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	5.0	1.3		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIRS	19.0	5.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		12.0		
EPOXY COATING	AREA SF			
CAP	308.0			

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

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

NOTES:

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

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

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FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

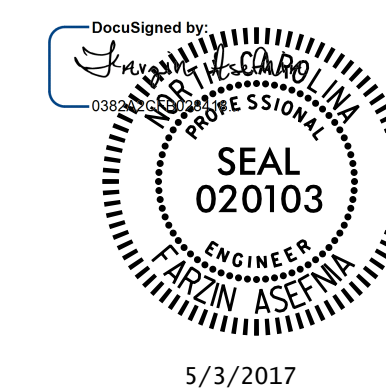
▣ - CONCRETE REPAIR

▨ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 118

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SUBSTRUCTURE  
END BENTS

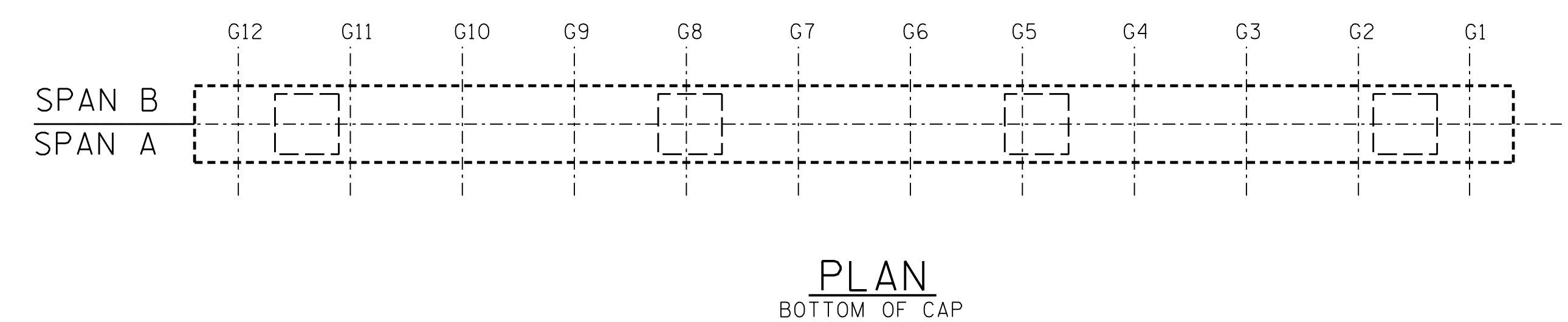
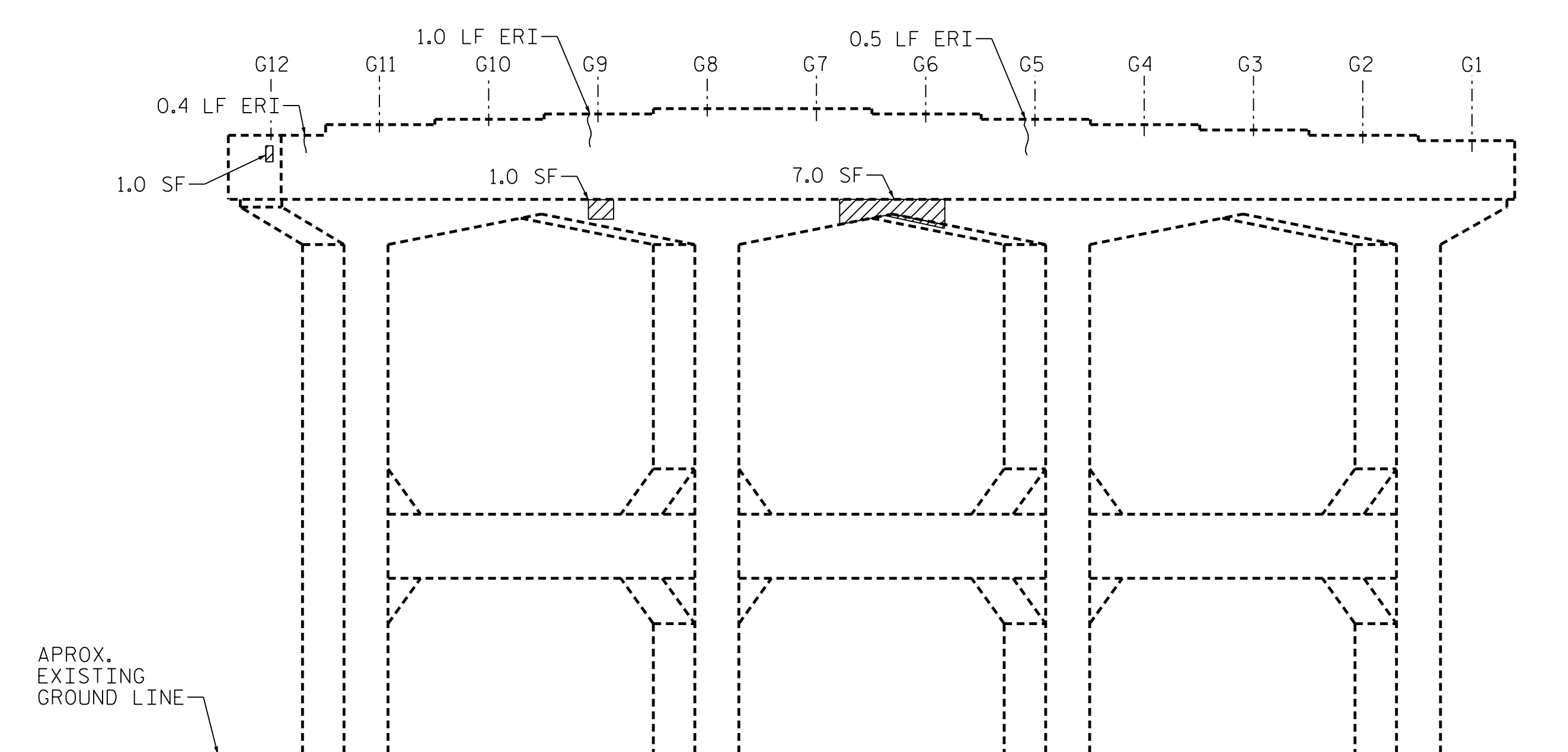
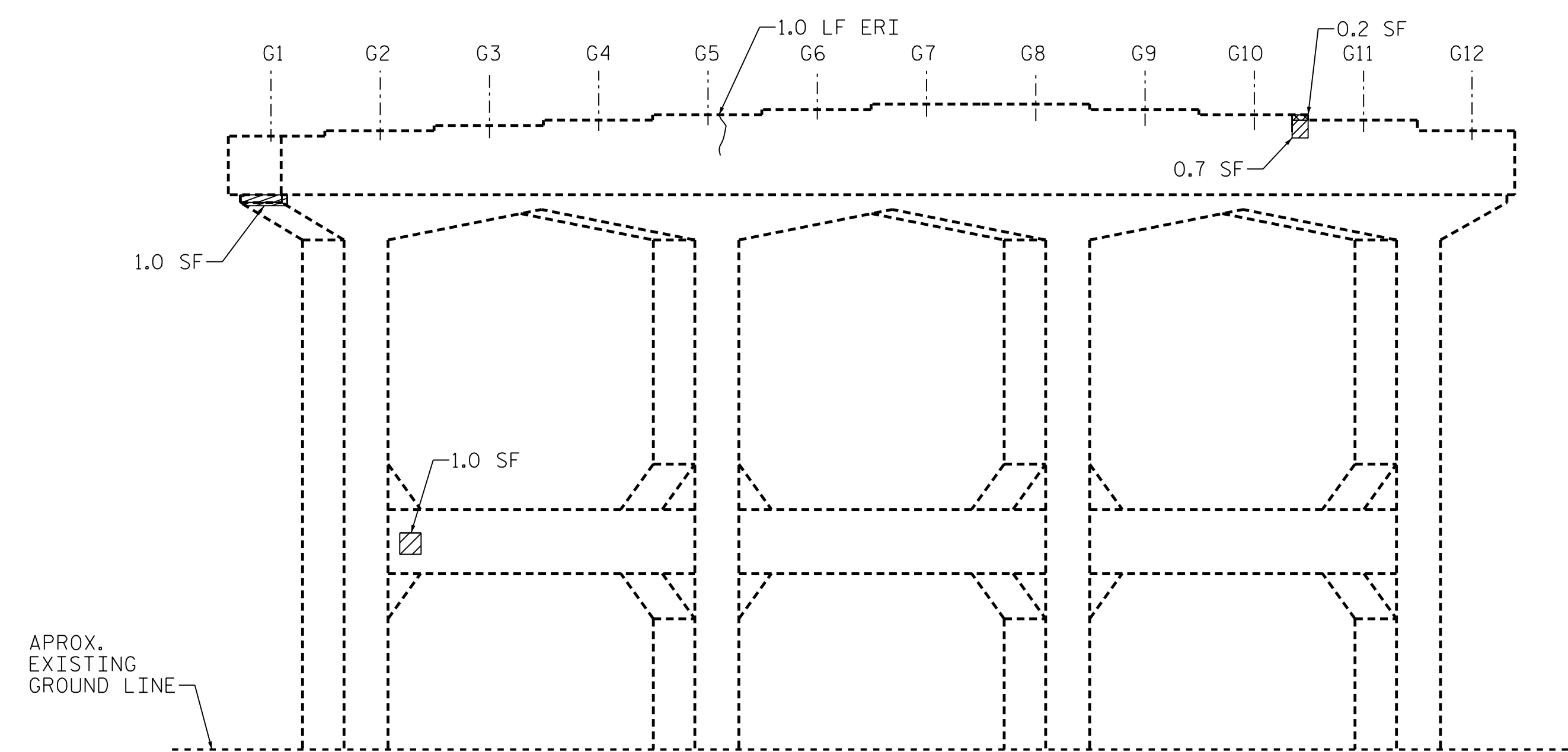
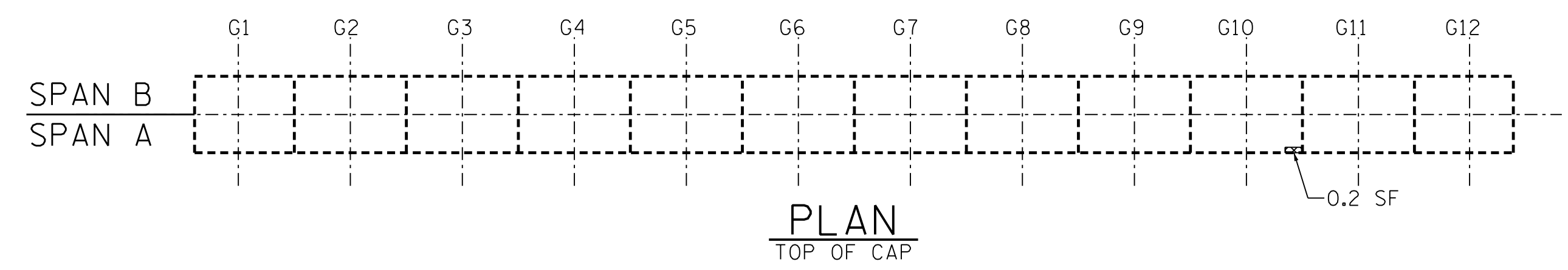
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REPAIR QUANTITY TABLE				
REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	11.7	2.9		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN (HORIZONTAL FACE)	1.0	0.3		
CONCRETE REPAIRS	0			
EPOXY RESIN INJECTION	LN. FT		LN. FT	
CAP	2.9			
COLUMN	0.0			
EPOXY COATING	SQ. FT		SQ. FT	
TOP OF CAP	211			

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

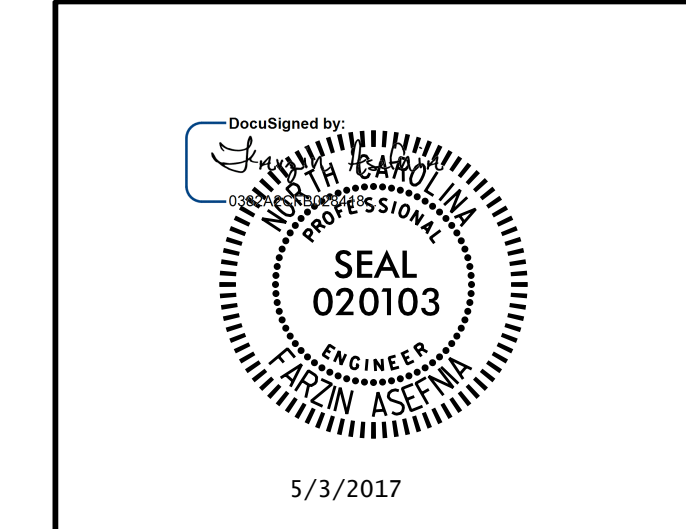
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 118

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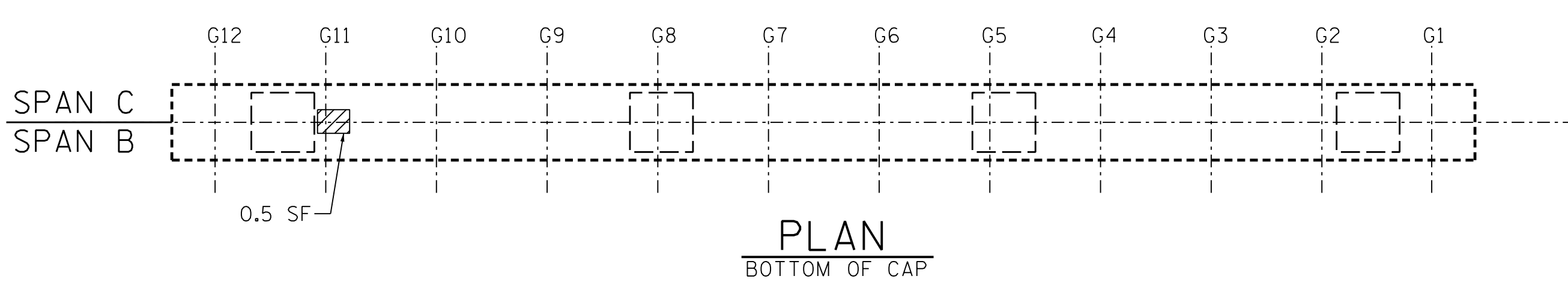
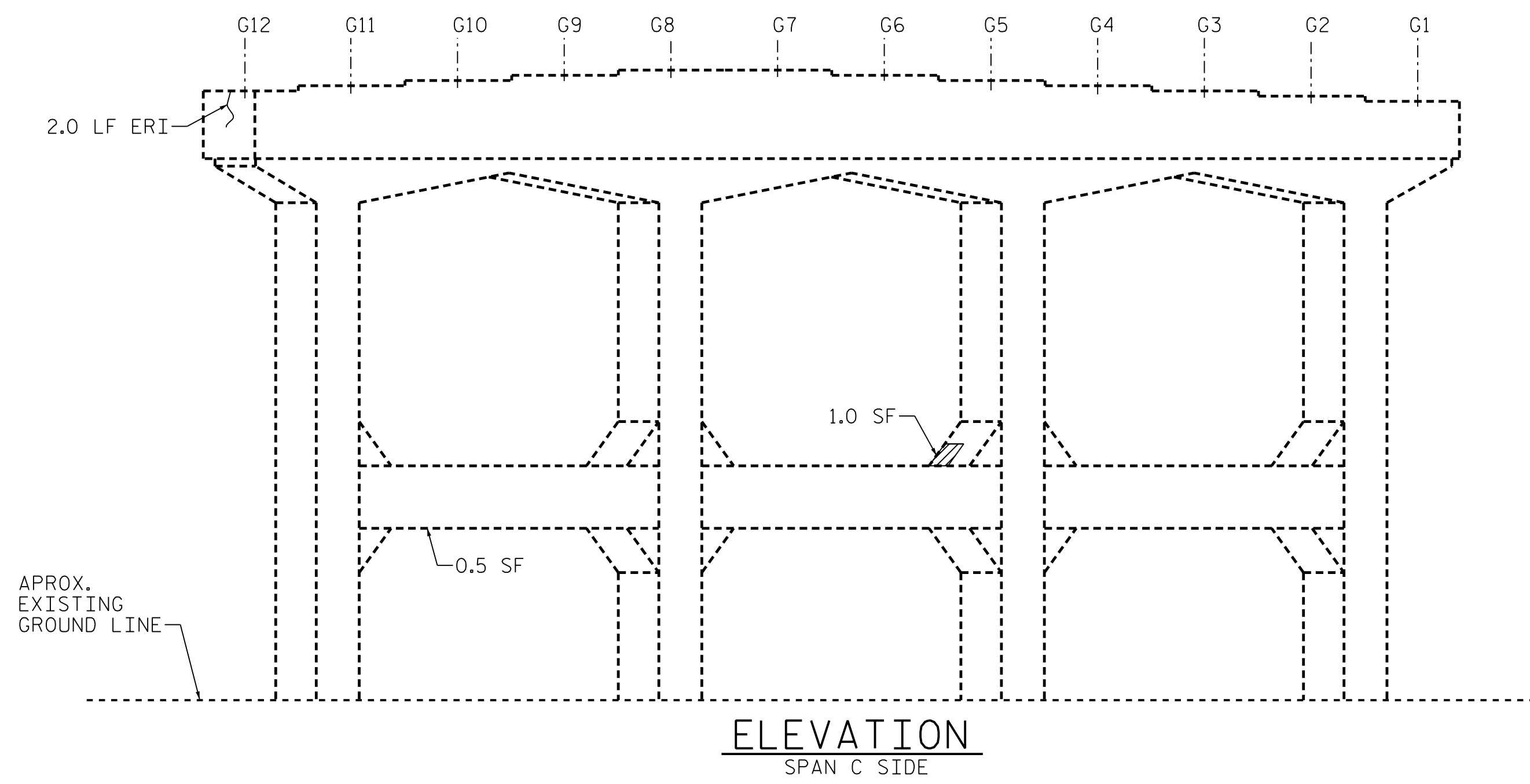
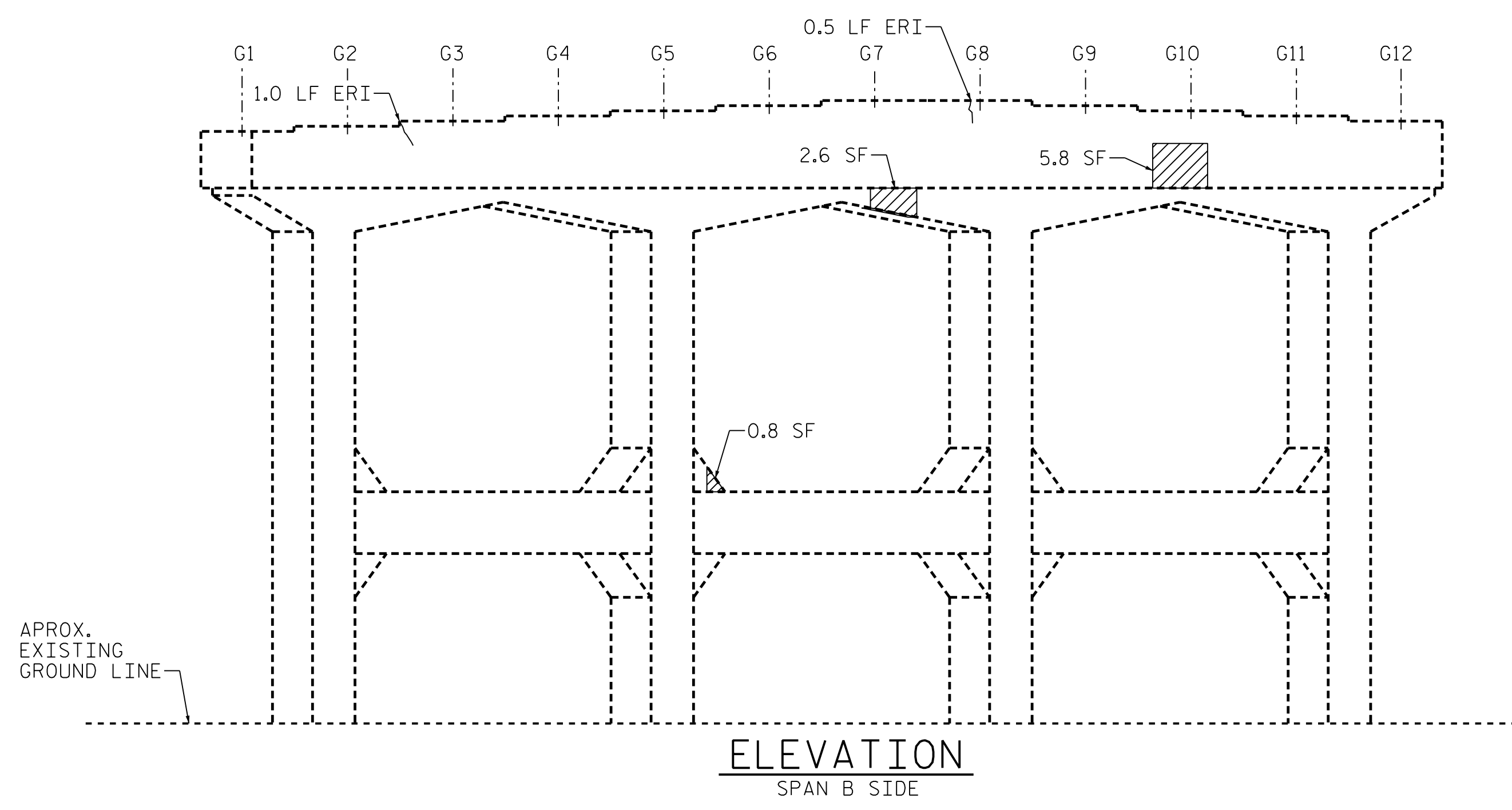
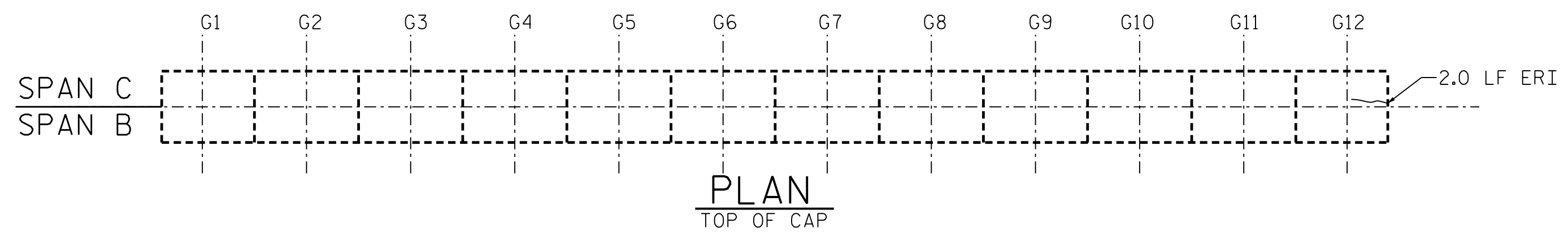
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 1

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

**Louis Berger**  
Prepared by:  
LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

5/3/2017 8:17:36 AM G:\Projects\1008.2016.NC DOT Bridge Rehabilitation Projects\Final\DCN\Revised Plans\_042617\403\_067\_I5746A\_I5746B\_SMU\_S34\_BT2\_590118.dgn I-5746\_PDF\_FULL.pltcfgr I-5746\_STR\_REHAB.TBL



REPAIR QUANTITY TABLE				
REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	8.4	2.1		
CAP (HORIZONTAL)	0.5	0.1		
COLUMN (HORIZONTAL FACE)	2.3	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		5.5		
COLUMN		0.0		
EPOXY COATING		SQ. FT		SQ. FT
TOP OF CAP		211		

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

**NOTES:**  
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.  
CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

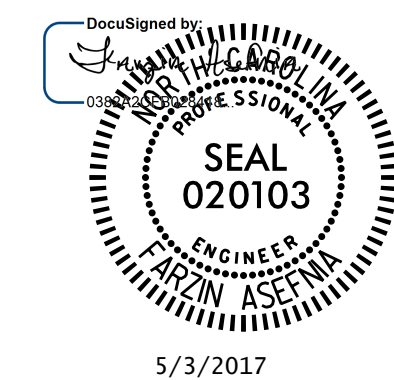
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 118

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

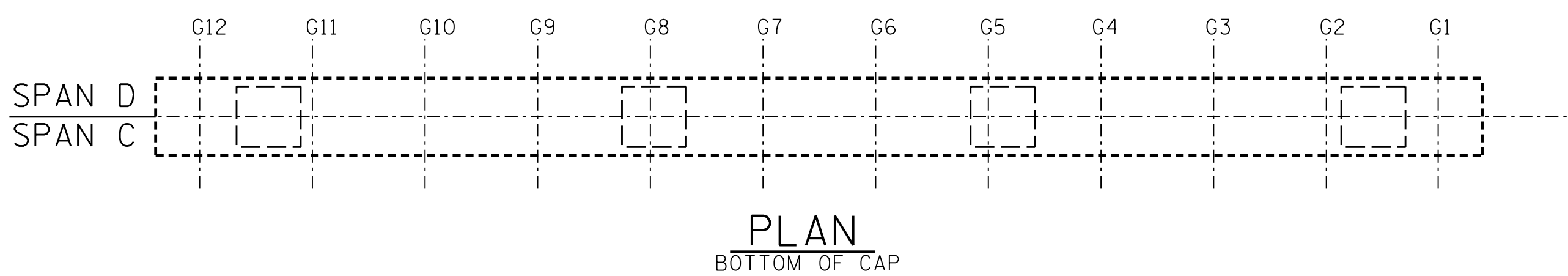
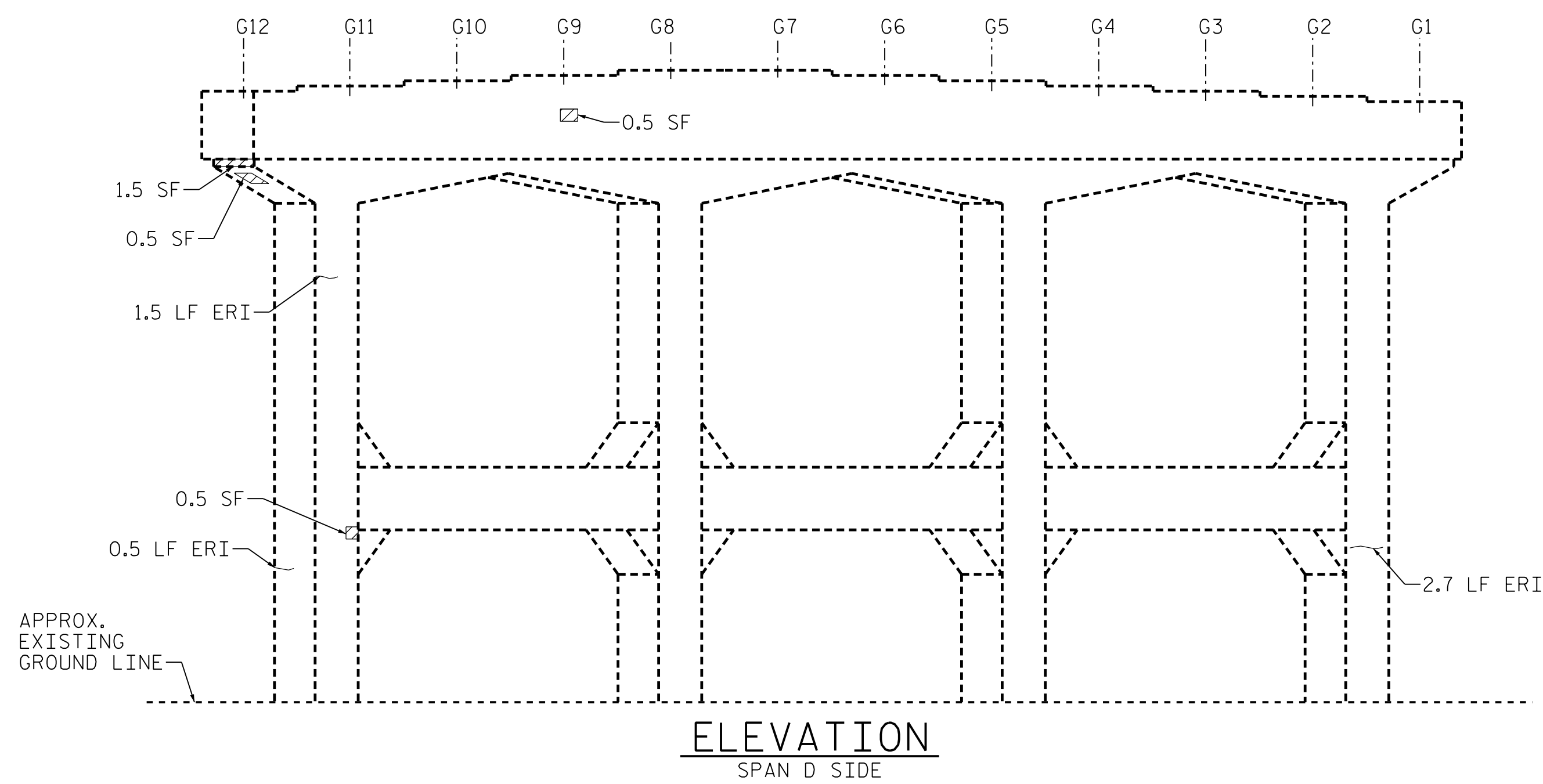
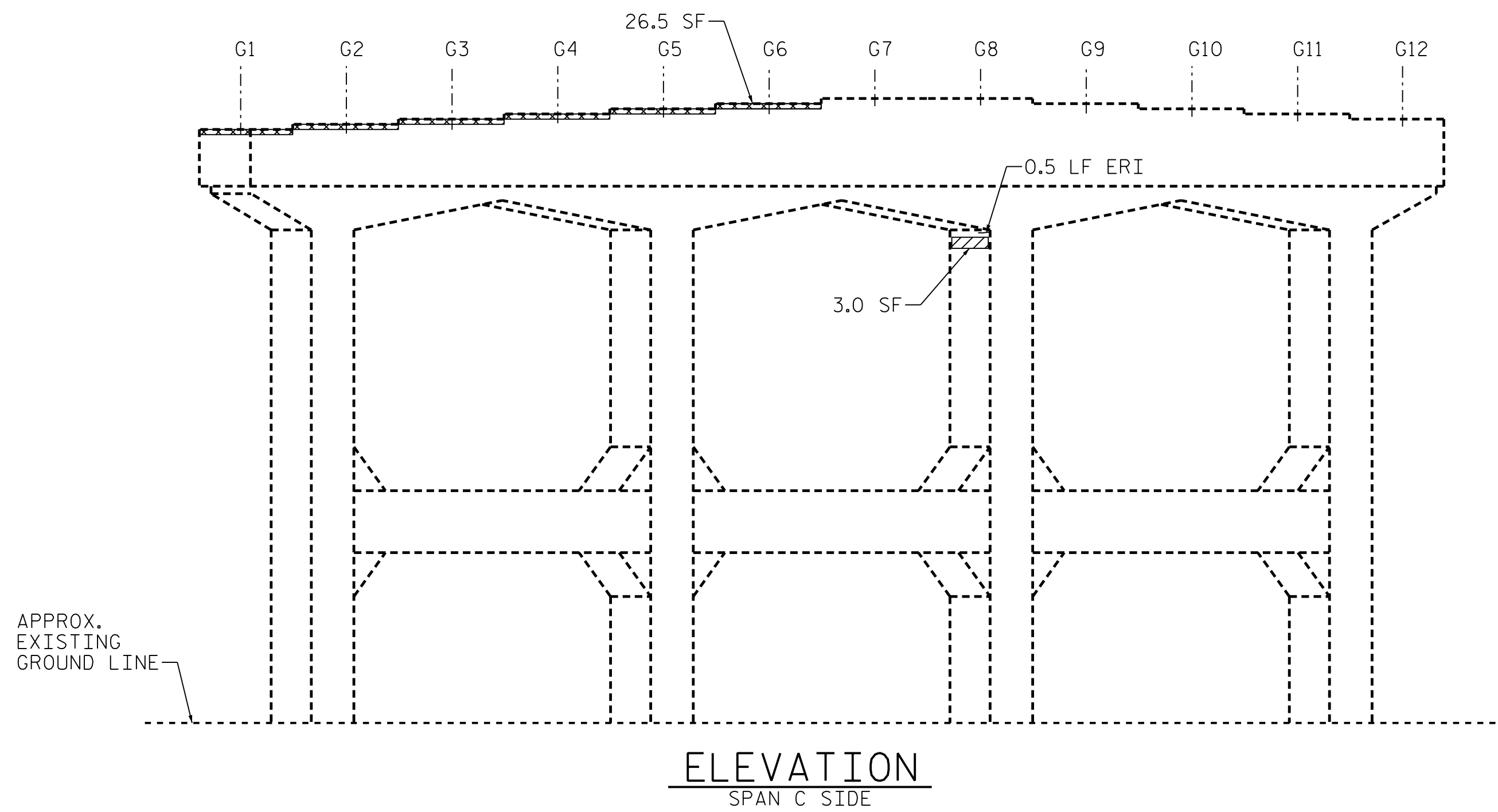
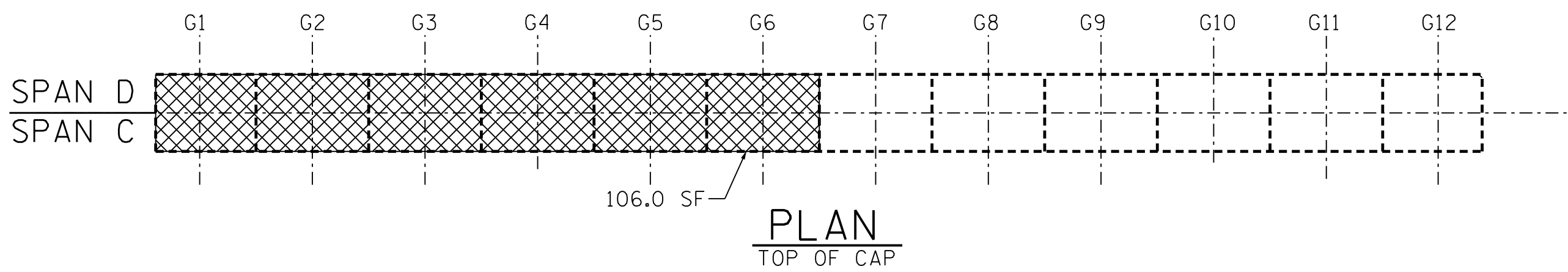
SUBSTRUCTURE  
BENT 2

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16



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1			3			TOTAL SHEETS
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REPAIR QUANTITY TABLE				
REPAIRS BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	2.5	1.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	3.5	1.0		
CONCRETE REPAIRS	132.5	33.1		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP		0.0		
COLUMN		5.2		
EPOXY COATING			SQ. FT	SQ. FT
TOP OF CAP		211		

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

**NOTES:**

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

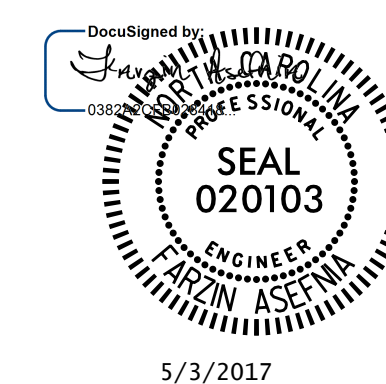
- CONCRETE REPAIR

- SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 118

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT 3

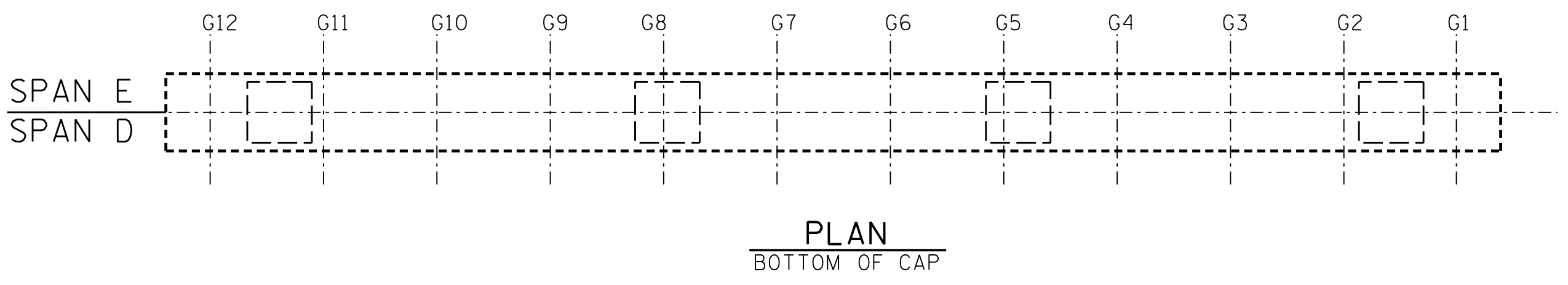
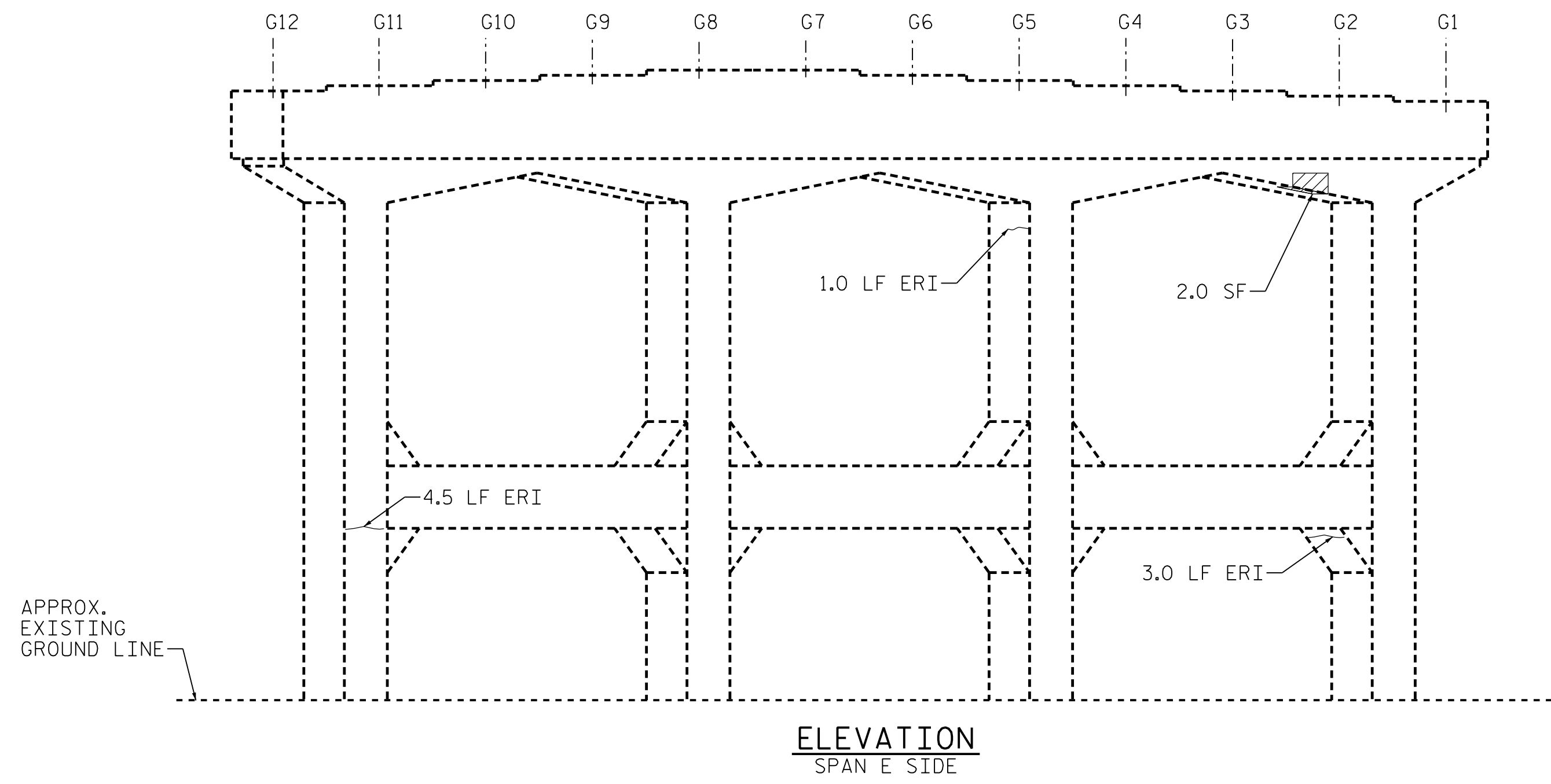
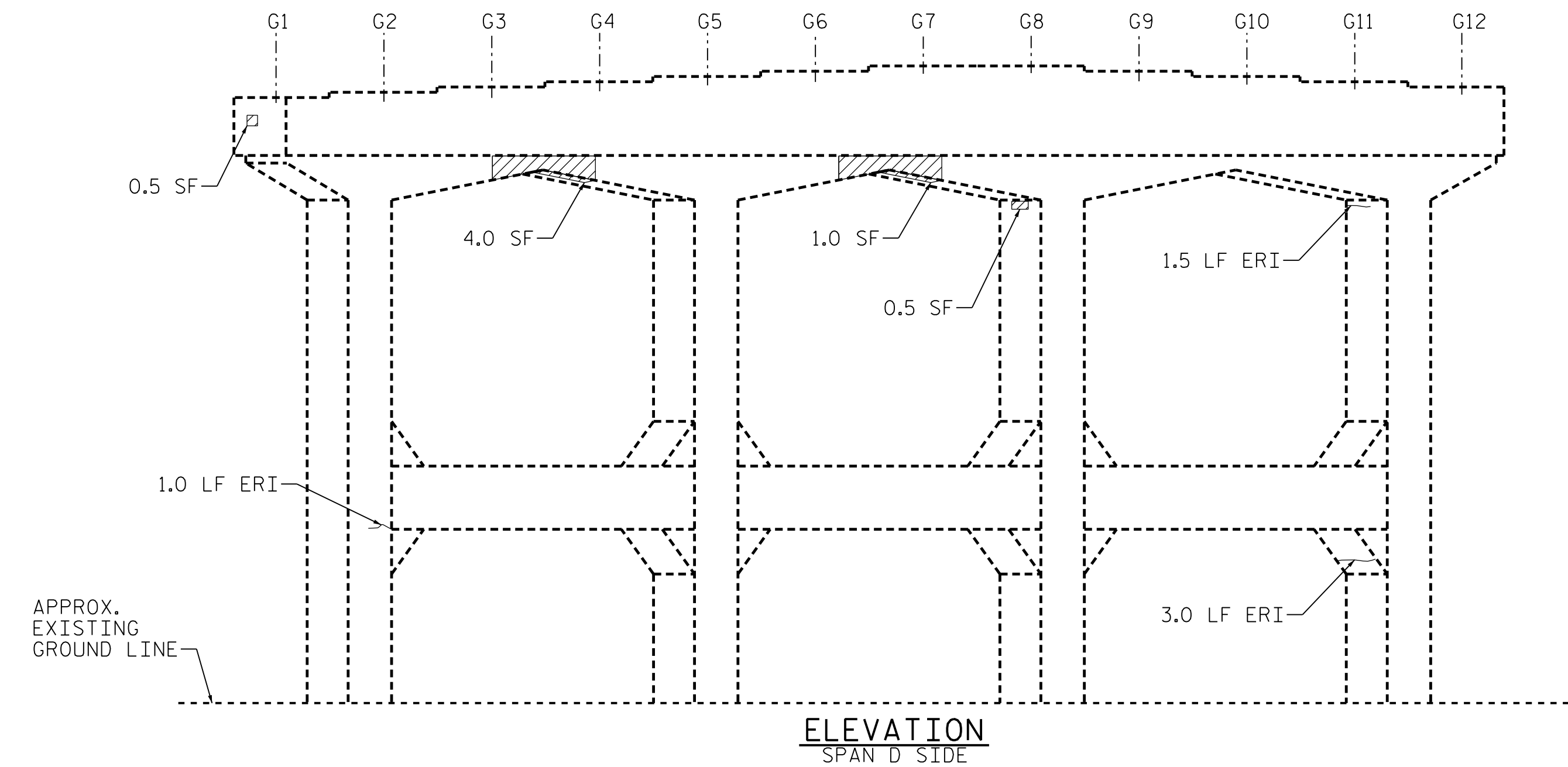
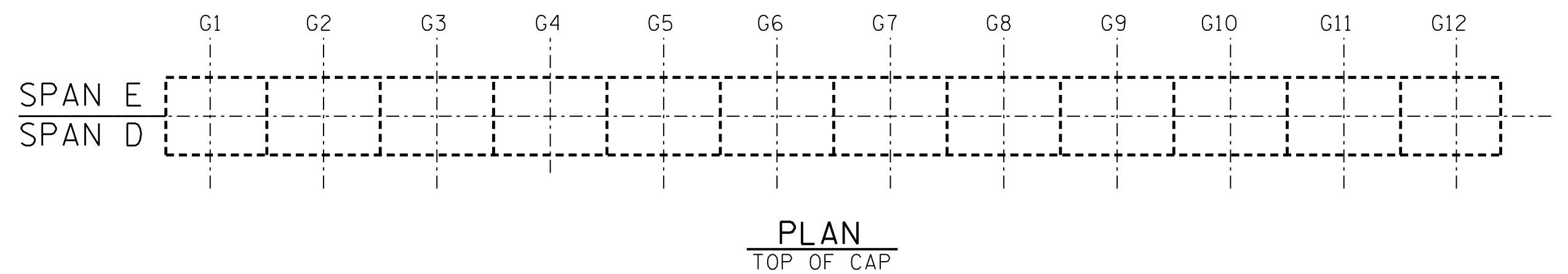
DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

Prepared by:  
**Louis Berger**  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

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REPAIR QUANTITY TABLE				
REPAIRS BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	7.5	2.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.5	0.2		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			0.0	
COLUMN			14.0	
EPOXY COATING			SQ. FT	SQ. FT
TOP OF CAP			211	

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 118

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



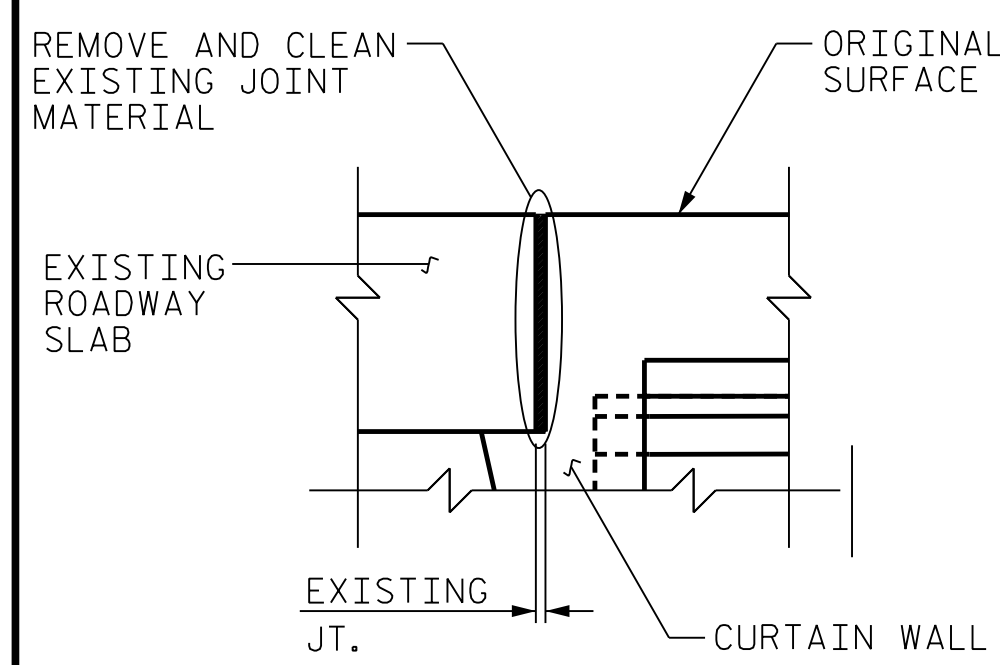
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 4

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

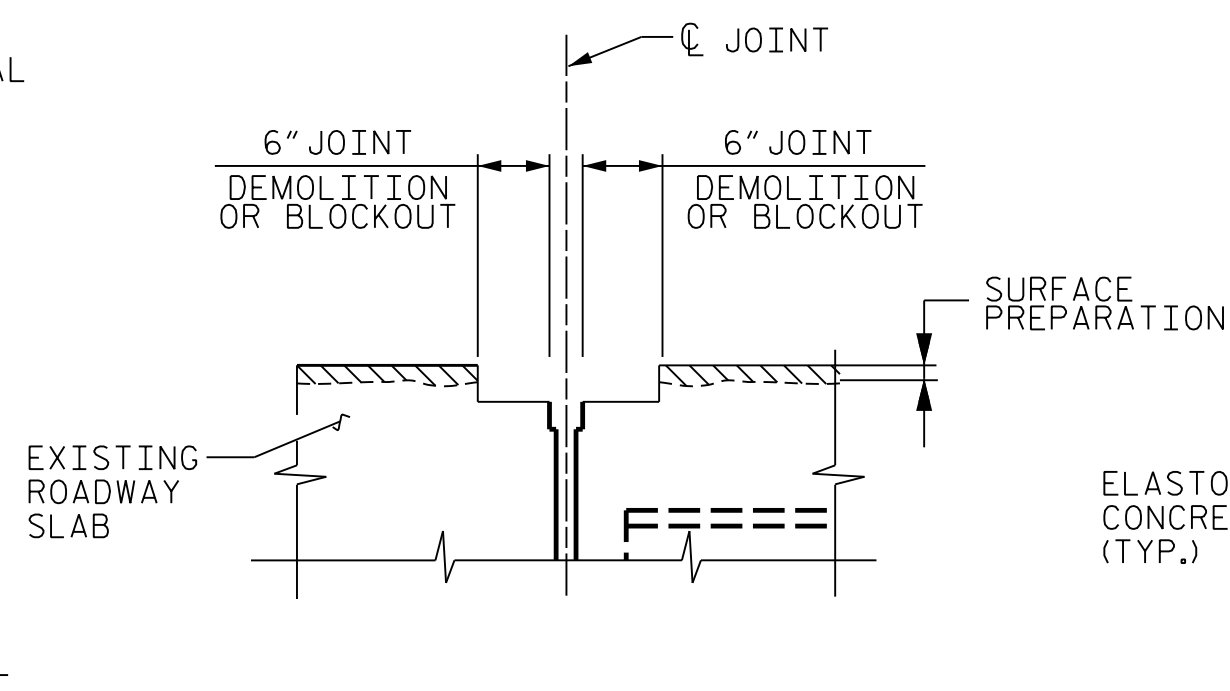
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
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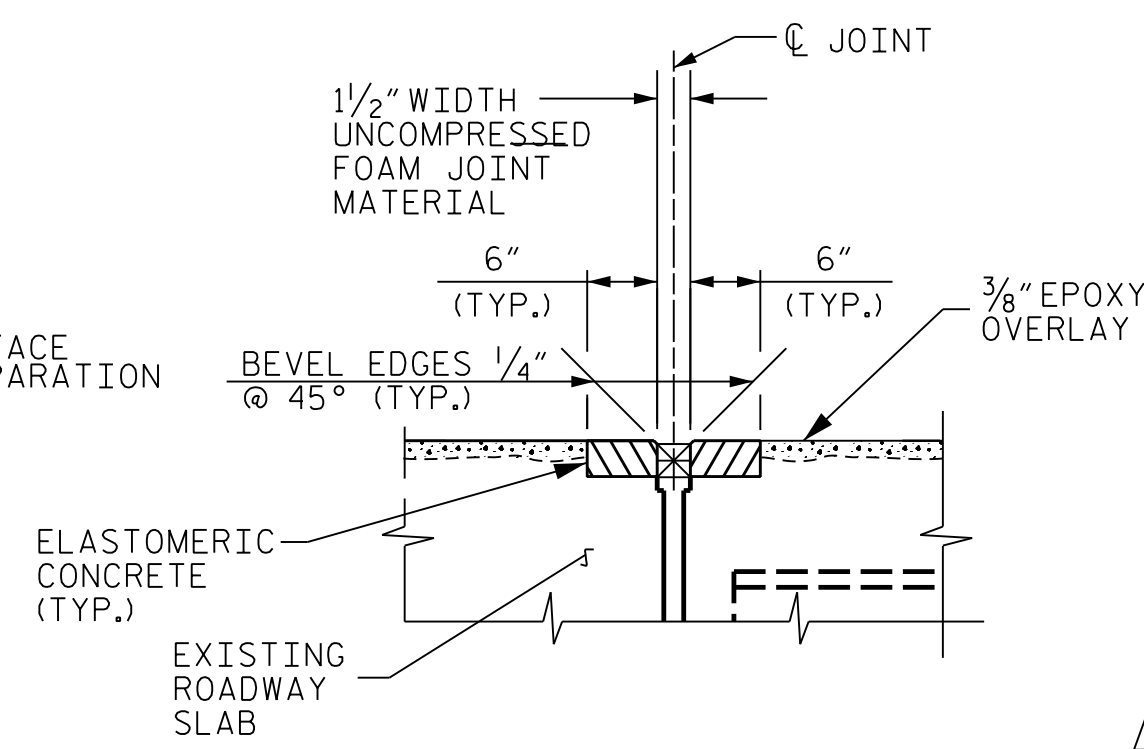
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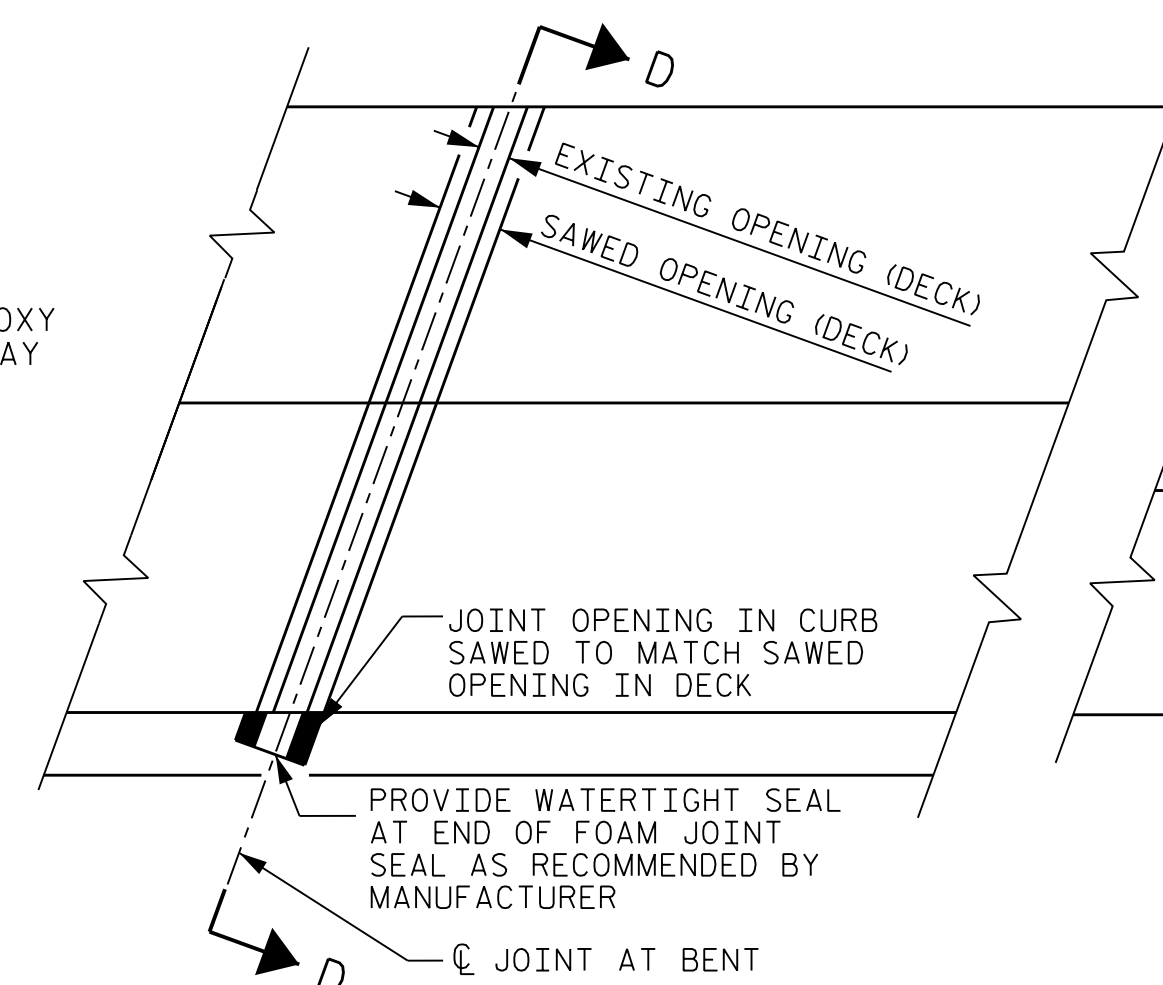
**SECTION A-A**  
(EXISTING JOINT)



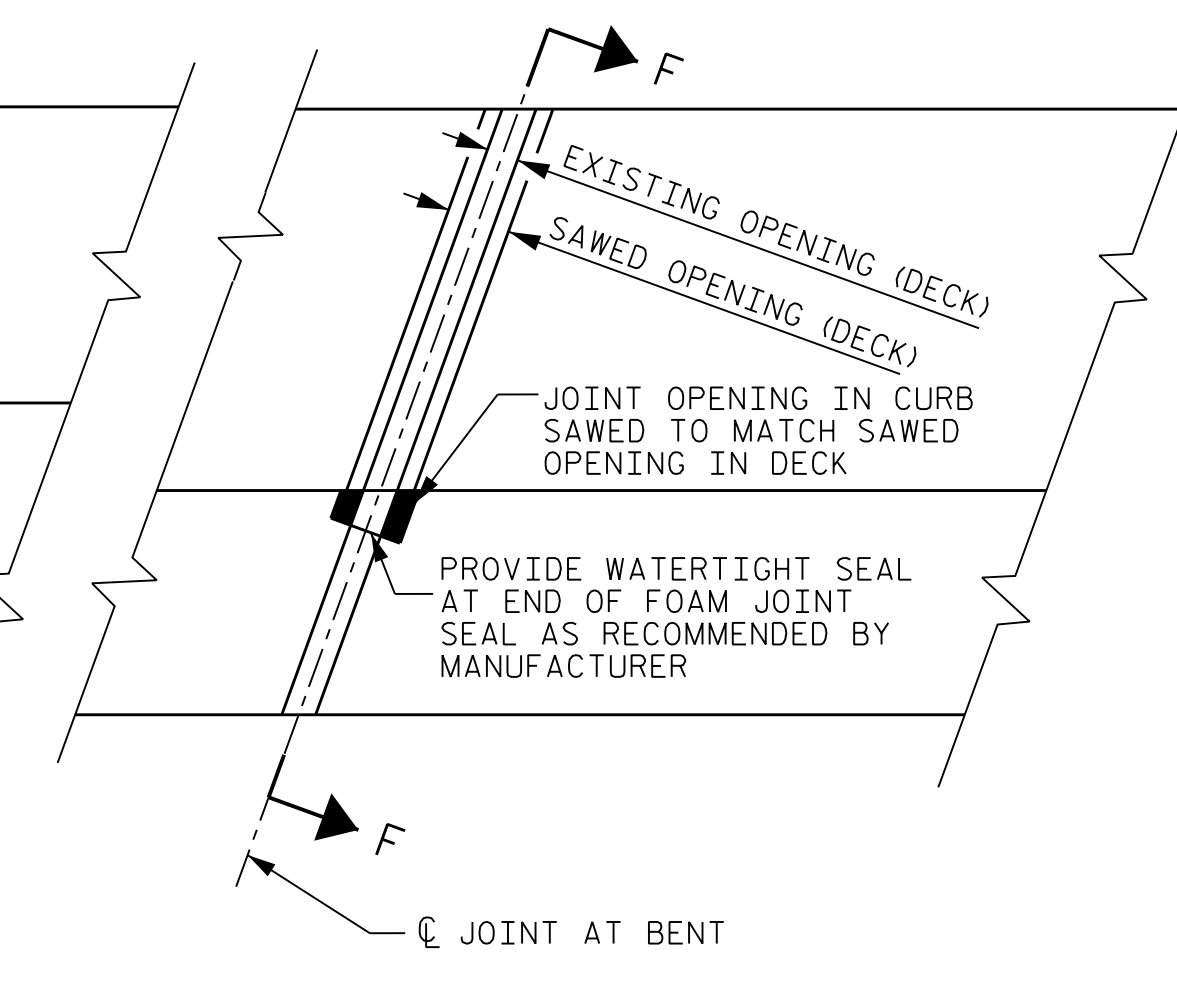
**SECTION A-A**  
(MINIMUM EXISTING JOINT DEMOLITION)



**SECTION A-A**  
(PROPOSED JOINT)



**PLAN**  
(AT THE SIDEWALK)



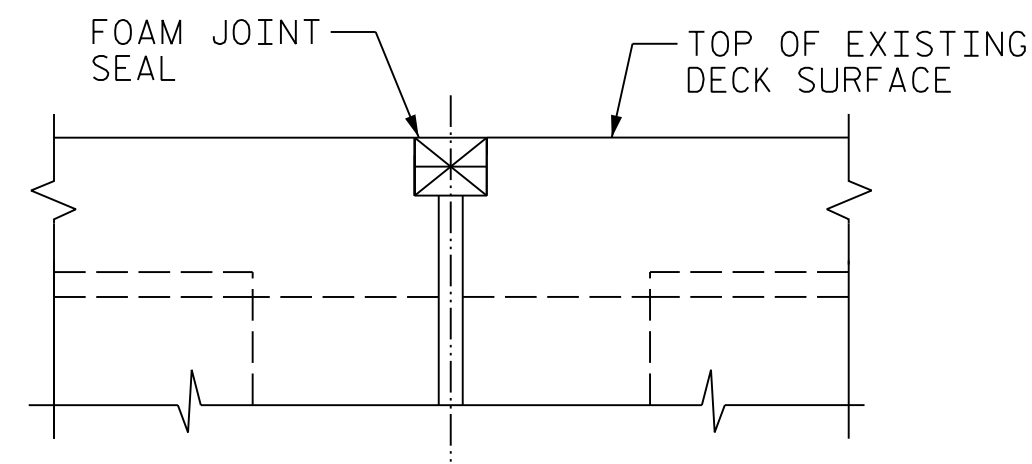
**PLAN**  
(AT THE BARRIER RAIL)

**NOTES:**  
 CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
 FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.  
 FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.  
 RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.  
 THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2" @ BENTS & 1 1/2" AT END BENTS.

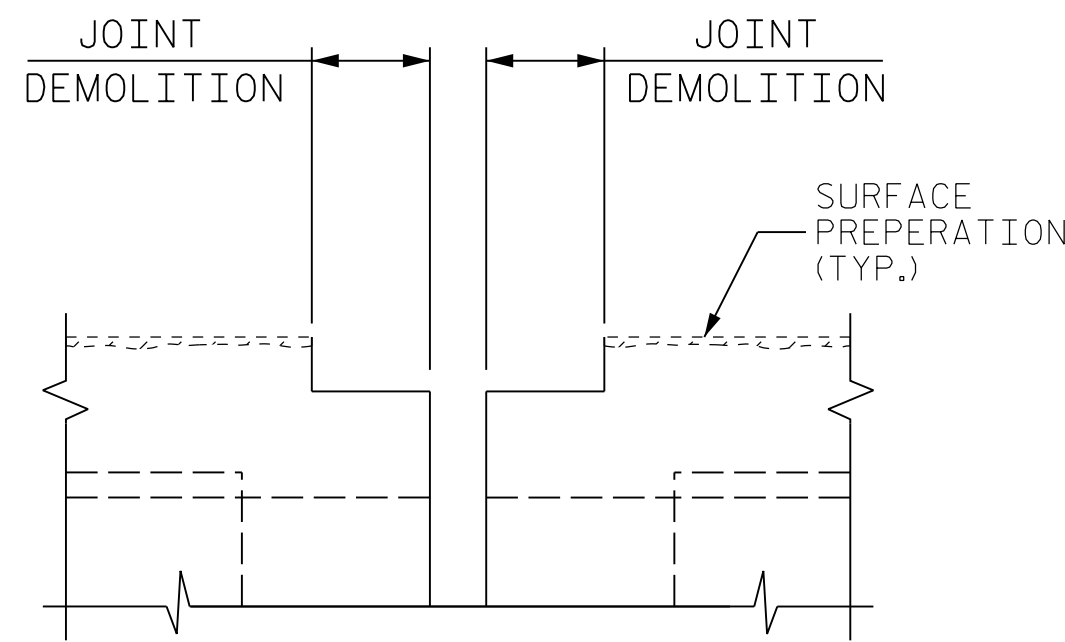
<b>ELASTOMERIC CONCRETE</b>	
BRIDGE 118	46.5 (CU. FT.)

**JOINT INSTALLATION SEQUENCE AT END BENTS**

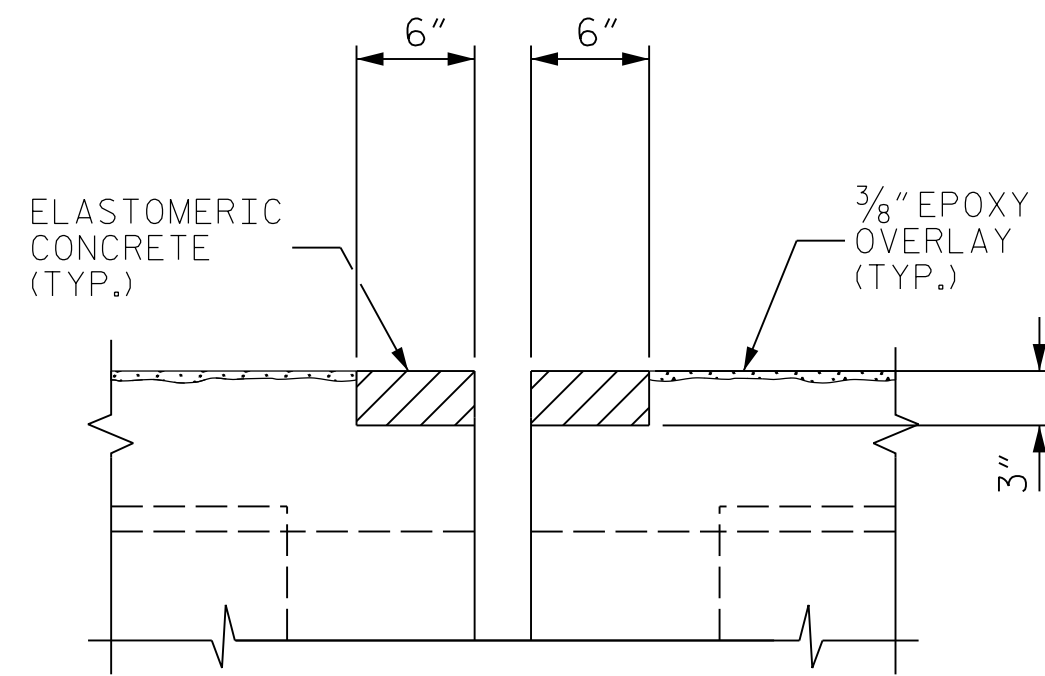
SECTION A-A



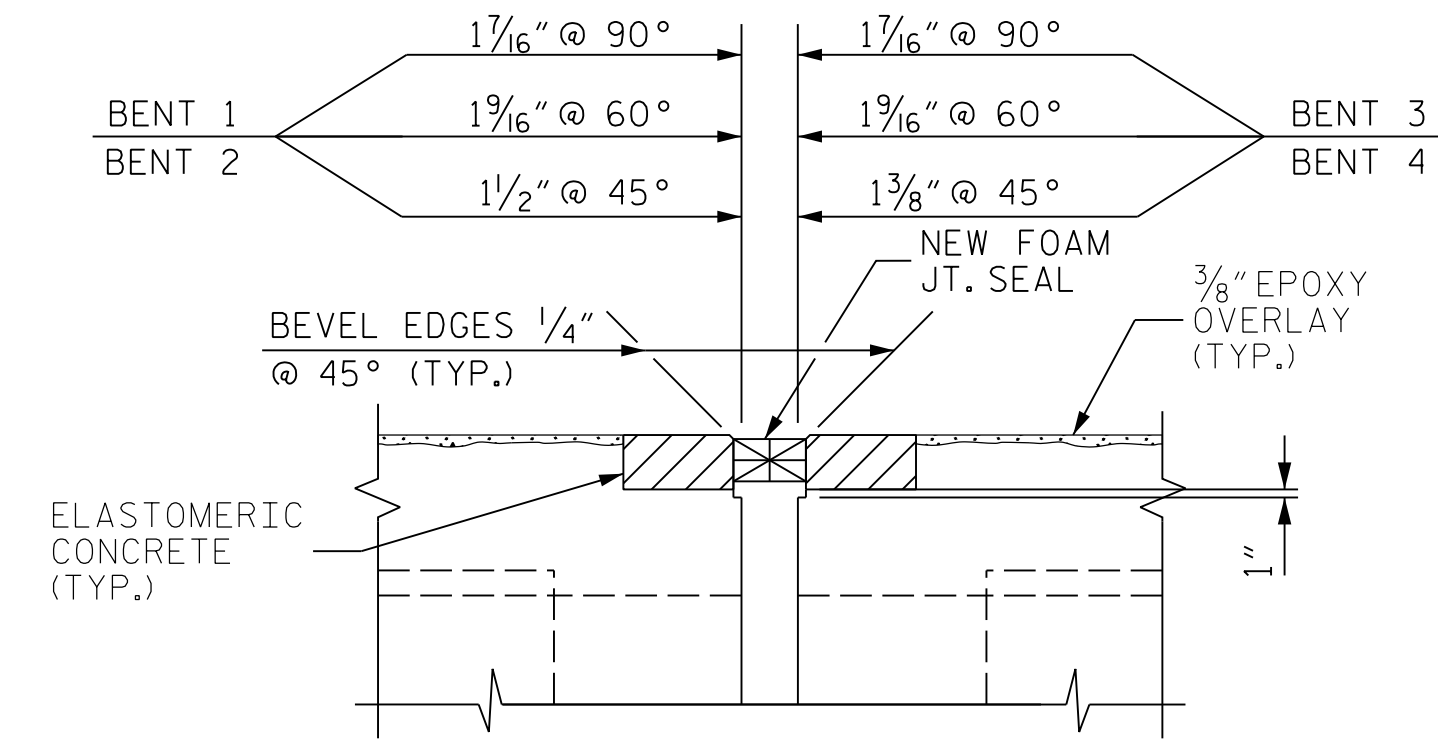
**EXISTING JOINT**



**MINIMUM EXISTING JOINT DEMOLITION**



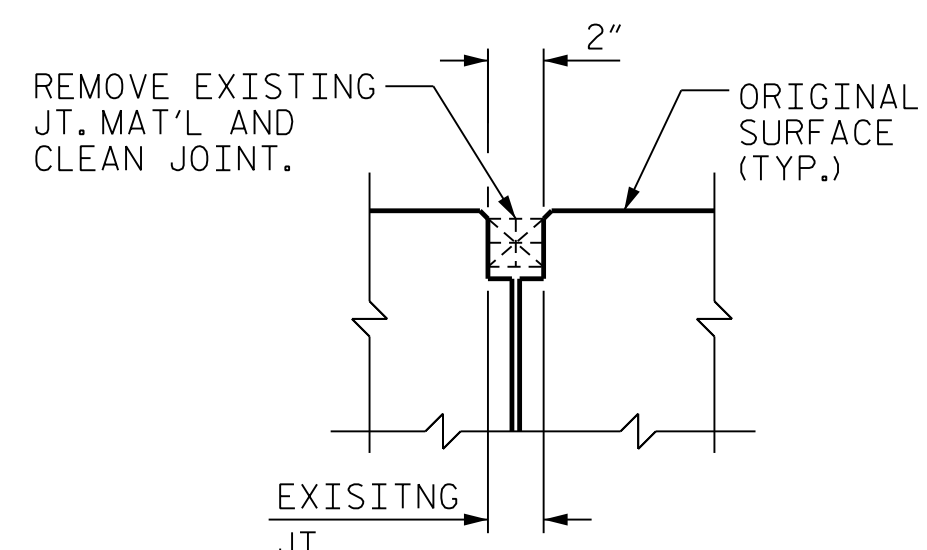
**PROPOSED JOINT PRE-SAWED DIMENSION**



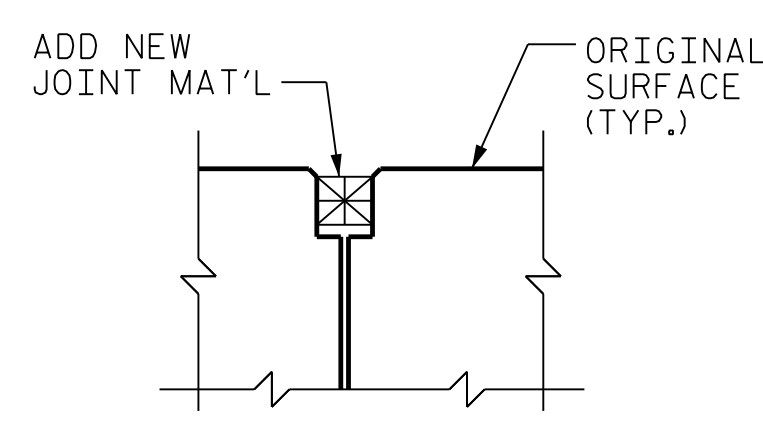
**PROPOSED FOAM JOINT SEAL EXPANSION**

**JOINT INSTALLATION SEQUENCE AT BENTS**

SECTION B-B



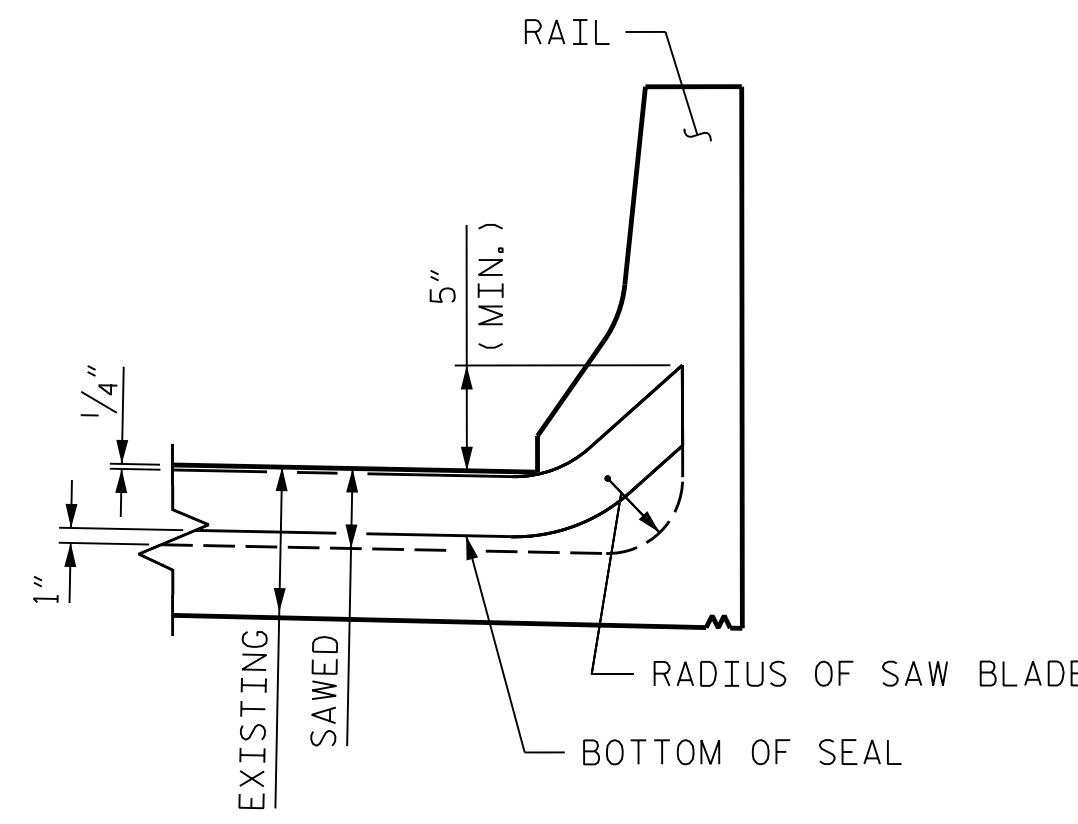
**EXISTING JOINT**



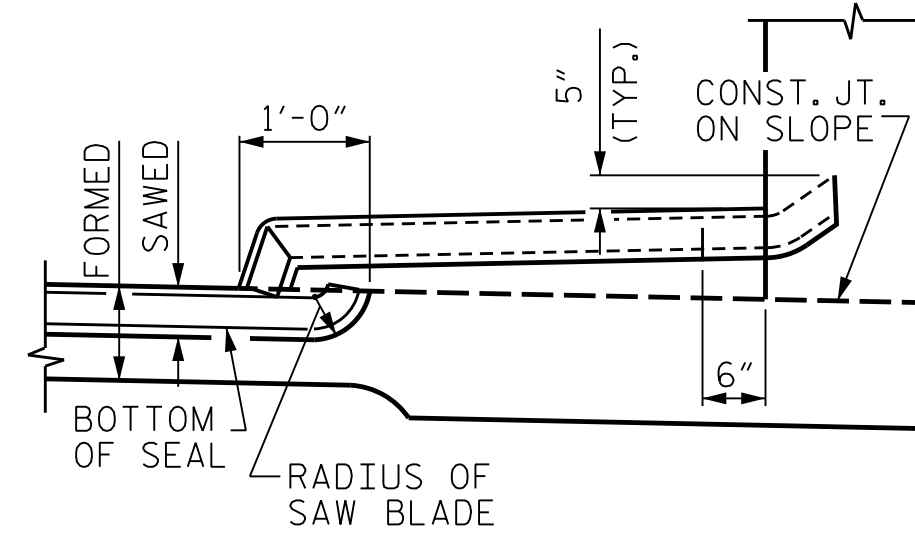
**PROPOSED JOINT**

**JOINT INSTALLATION SEQUENCE AT BENTS OF THE ABANDONED BRIDGE PORTION**

SECTION C-C



**SECTION F-F**



**SECTION D-D**

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 118

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE JOINT DETAILS**

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

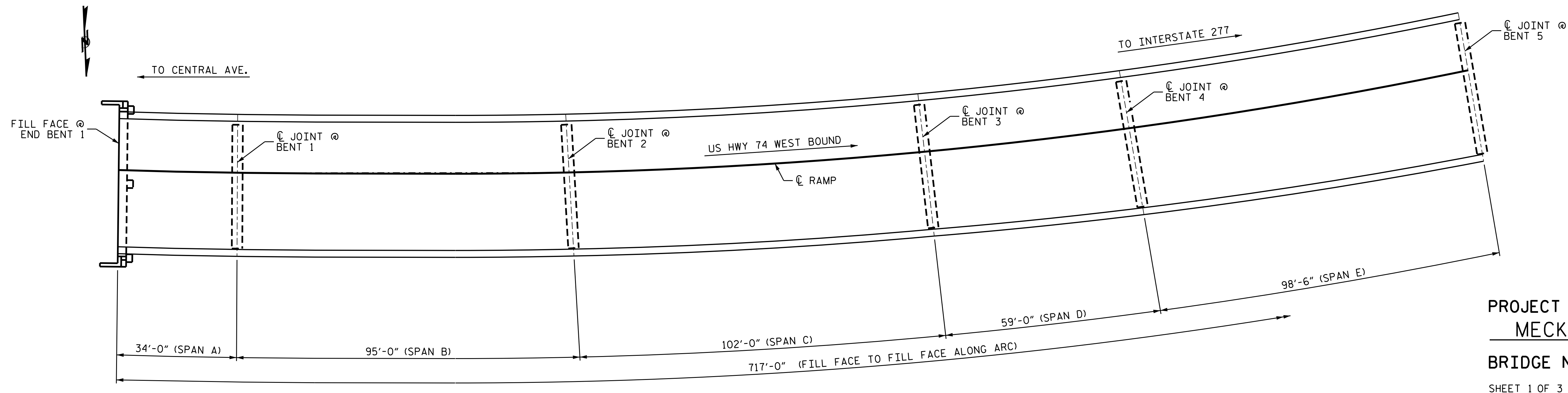
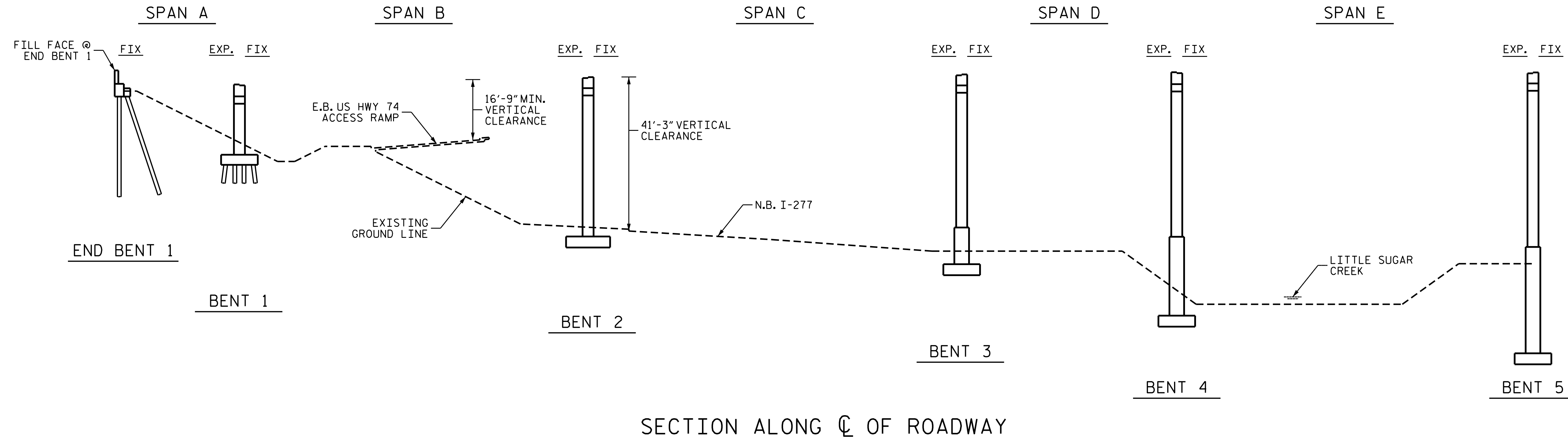
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS	196
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**NOTES**

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 09/12/2016.

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.



**PLAN**

**SCOPE OF WORK**

- EPOXY INJECTION OF CONCRETE CRACKS.
- CLEAN AND REPAIR REBAR IN CONCRETE REPAIR AREAS.
- PERFORM SHOTCRETE AND CONCRETE REPAIRS IN PREPARED AREAS.
- REMOVE DEBRIS FROM TOP OF BENT CAPS AND STRUTS, CLEAN AND APPLY EPOXY COATING.

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

RESIDENT ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

DocuSigned by:  
Steven L. Wance  
4/25/2017  
F40DFBA3B331425  
NORTH CAROLINA  
PROFESSIONAL  
SEAL  
21545  
ENGINEER  
STEVEN L. WANCE

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 309

SHEET 1 OF 3  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
GENERAL DRAWING  
FOR BRIDGE ON US HWY 74 WB  
OVER I-277,  
LITTLE SUGAR CREEK  
AND NC HWY 27

DRAWN BY : R.L. PUTEK DATE : 03/17  
CHECKED BY : S. WANCE DATE : 03/17

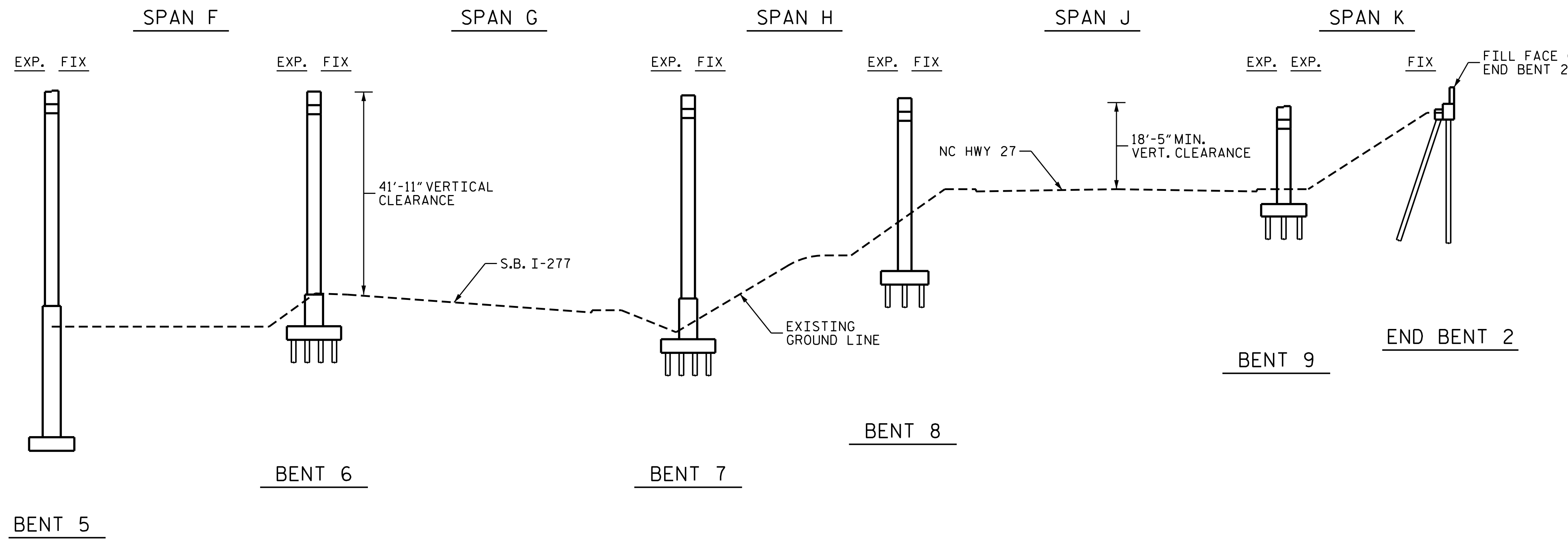
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
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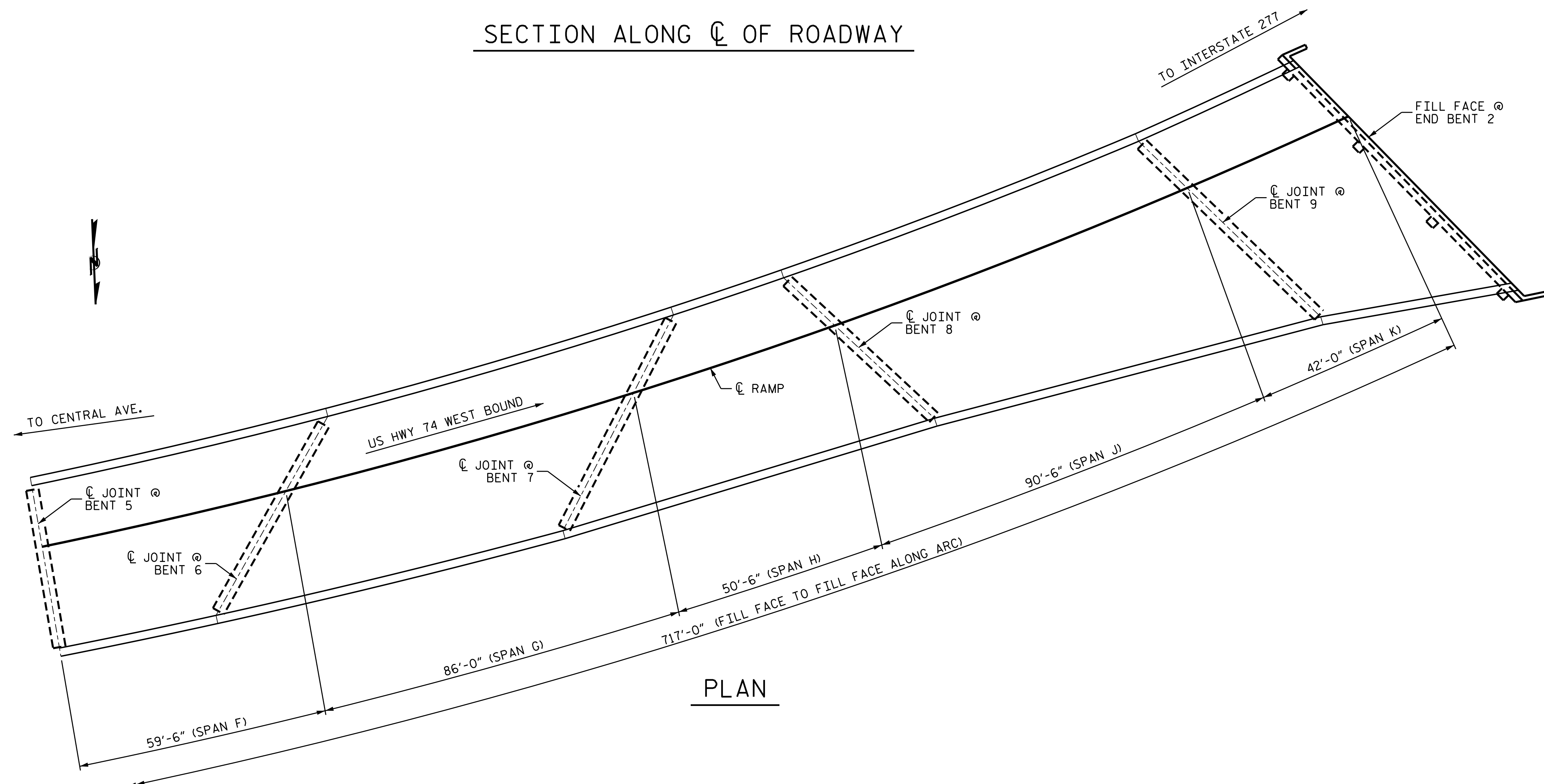
**NOTES**

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 09/12/2016.

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.



SECTION ALONG CL OF ROADWAY

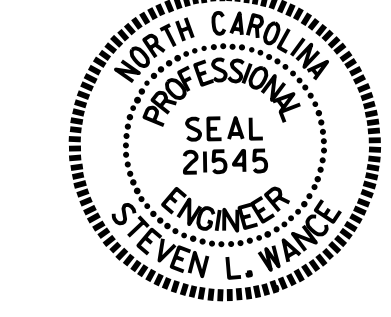


PLAN

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 309

SHEET 2 OF 3

DocuSigned by:  
 Steven L. Wance  
 FA0DFBA3B31425... 4/25/2017



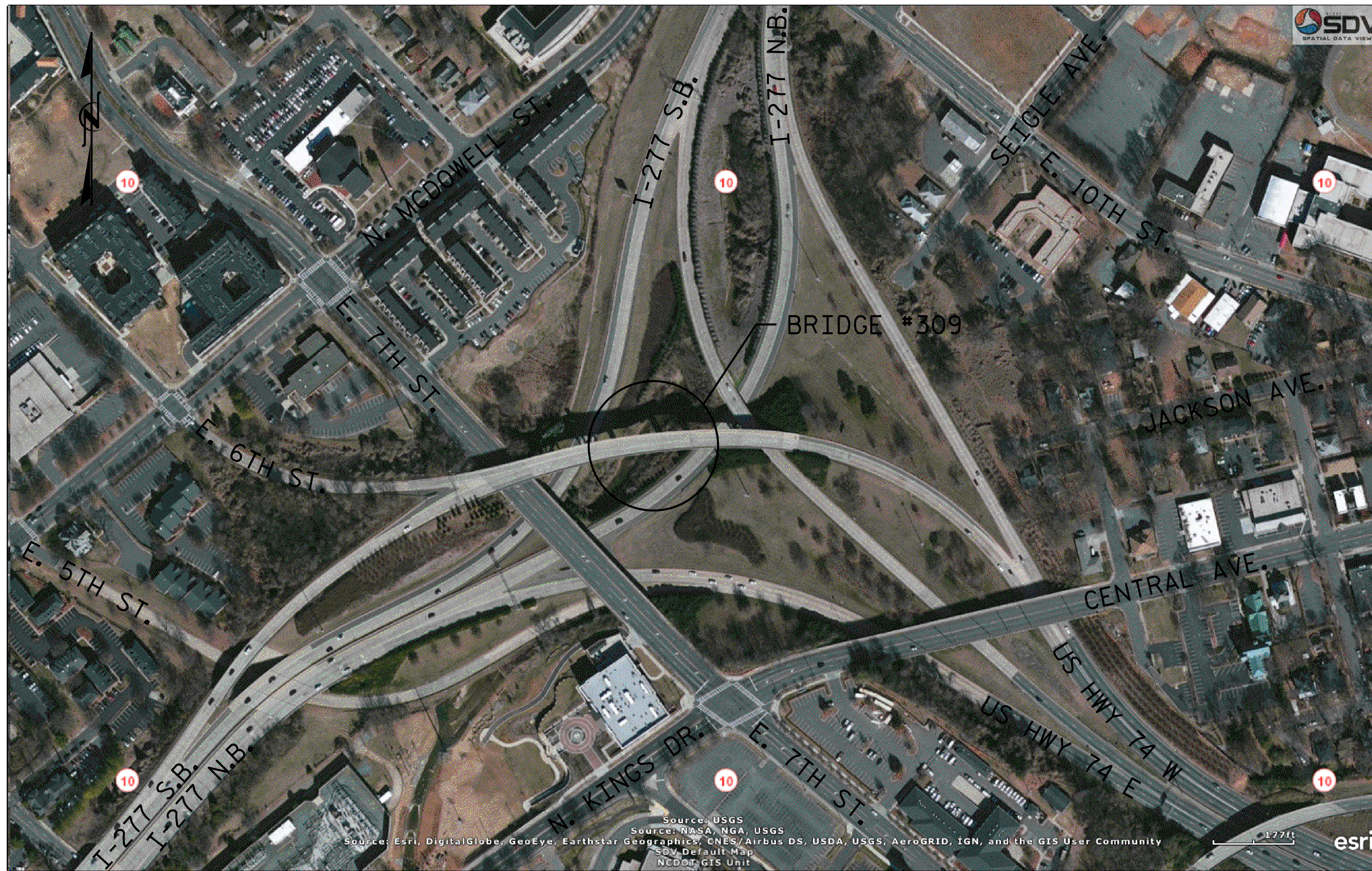
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON US HWY 74 WB  
 OVER I-277,  
 LITTLE SUGAR CREEK  
 AND NC HWY 27

DRAWN BY : R.L. PUTEK DATE : 03/17  
 CHECKED BY : S. WANCE DATE : 03/17

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 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			196





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.

NOTES

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

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.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE EPOXY COATING AND DEBRIS REMOVAL SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

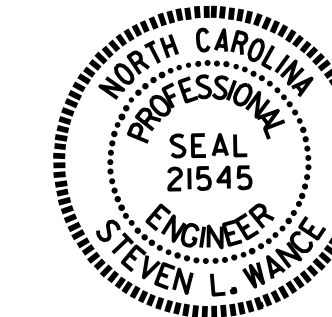
FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 309

SHEET 3 OF 3

DocuSigned by:  
 Steven L. Wance  
 FA0DFBA3B331425 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGE ON US HWY 74 WB  
 OVER I-277,  
 LITTLE SUGAR CREEK  
 AND NC HWY 27

DRAWN BY : R.PUTEK DATE : 03/17  
 CHECKED BY : S.WANCE DATE : 03/17

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-40
1			3			TOTAL SHEETS
2			4			196



# AS-BUILT REPAIR QUANTITY TABLE

## UNDERSIDE OF DECK REPAIRS



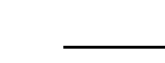
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	0.0	0.0		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	3.0 LF			

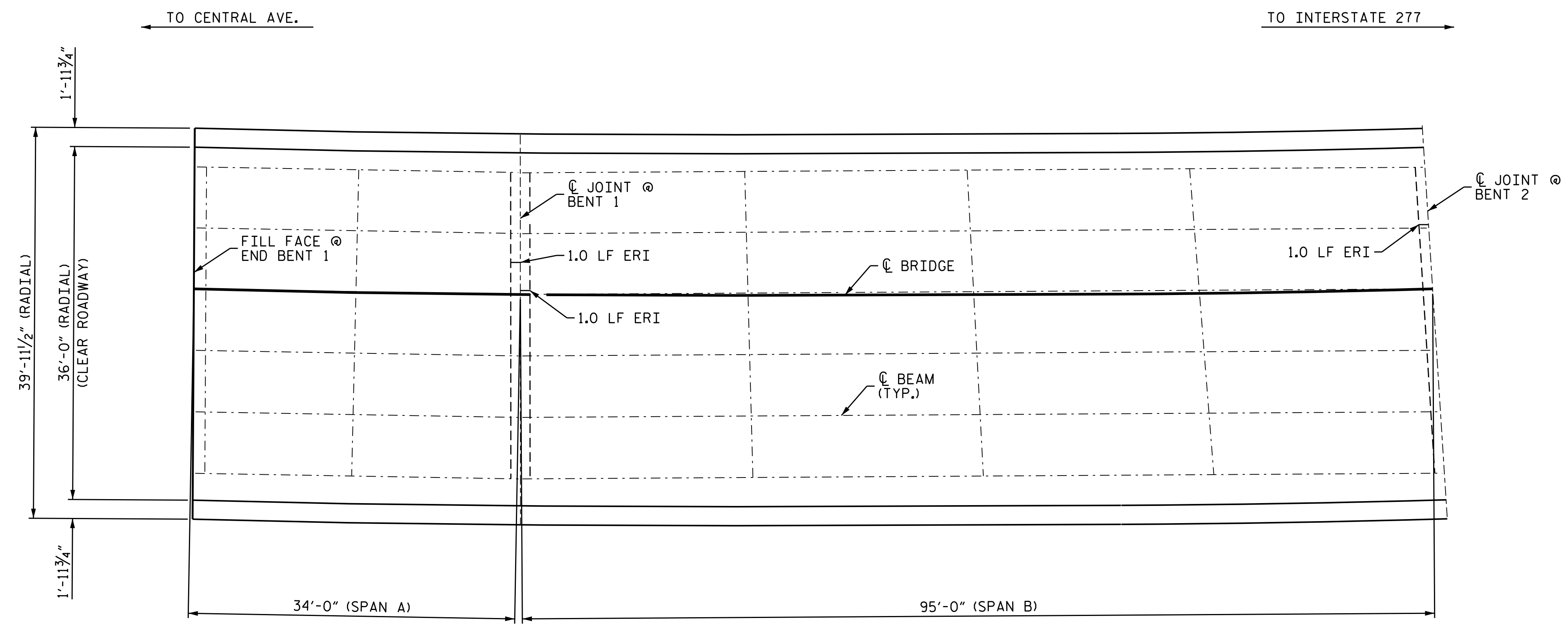
VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

### 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK AND DIAPHRAGM REPAIRS, SEE "OVERHANG, DIAPHRAGM AND BRIDGE RAIL REPAIR DETAILS" SHEET.

-  UNDERSIDE REPAIR
-  DIAPHRAGM REPAIR
-  ERI (EPOXY RESIN INJECTION)

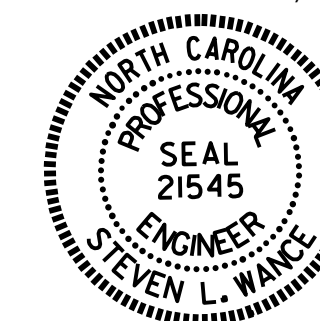


PLAN

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 309

SHEET 1 OF 5

DocuSigned by:  
*Steven L. Wance*  
 FA0DF8A3B331425... 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

## PLAN OF SPANS SPANS A & B

DRAWN BY : R.L. PUTEK DATE : 03/17  
 CHECKED BY : S. WANCE DATE : 03/17

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-41
1			3			TOTAL SHEETS 196
2			4			



# AS-BUILT REPAIR QUANTITY TABLE

## 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	3.5	1.9 *		
INTERIOR DIAPHRAGMS	1.2	0.7 *		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	2.0 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.

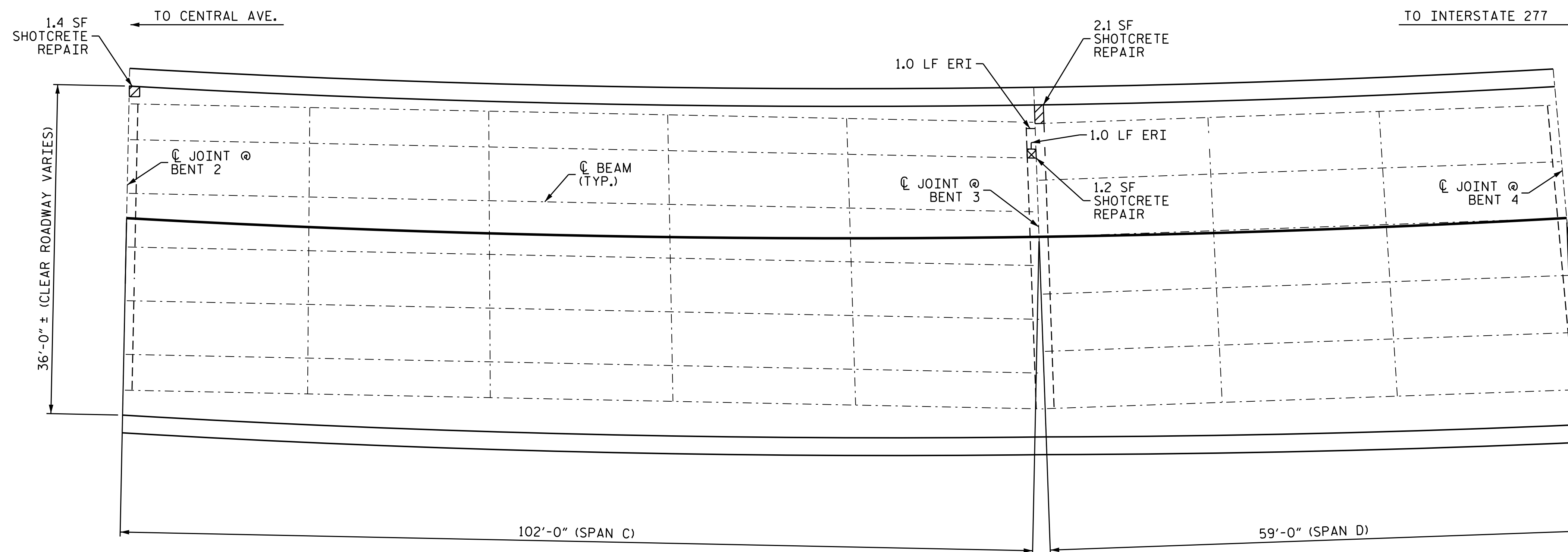
### NOTES

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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK AND DIAPHRAGM REPAIRS, SEE "OVERHANG, DIAPHRAGM AND BRIDGE RAIL REPAIR DETAILS" SHEET.

\* QUANTITY HAS BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETEIORATION SINCE THE FIELD INSPECTION BY STRUCTURES MANAGEMENT UNIT.

-  UNDERSIDE REPAIR
-  DIAPHRAGM REPAIR
-  ERI (EPOXY RESIN INJECTION)

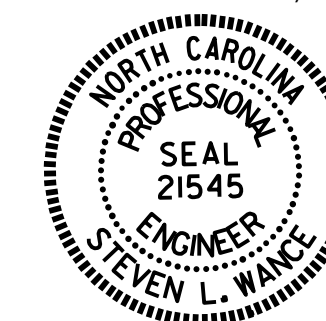


PLAN

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 309

SHEET 2 OF 5

DocuSigned by:  
 Steven L. Wance  
 FA0DFB43B331425... 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

## PLAN OF SPANS SPANS C & D

DRAWN BY : R.L. PUTEK DATE : 03/17  
 CHECKED BY : S. WANCE DATE : 03/17

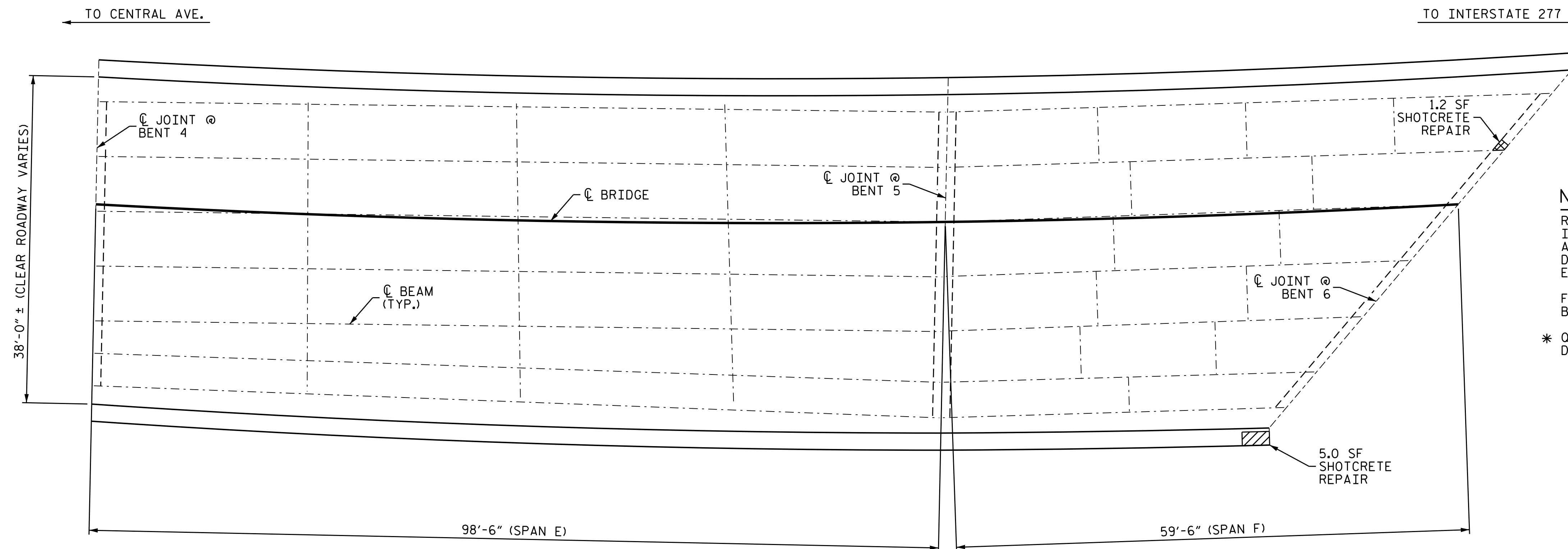
DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-42
1			3			TOTAL SHEETS 196
2			4			

# AS-BUILT REPAIR QUANTITY TABLE

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	5.0	2.8 *		
INTERIOR DIAPHRAGMS	1.2	0.7 *		
	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.



## 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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK AND DIAPHRAGM REPAIRS, SEE "OVERHANG, DIAPHRAGM AND BRIDGE RAIL REPAIR DETAILS" SHEET.

\* QUANTITY HAS BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION BY STRUCTURES MANAGEMENT UNIT.

- UNDERSIDE REPAIR
- DIAPHRAGM REPAIR
- ERI (EPOXY RESIN INJECTION)

## PLAN

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 309

SHEET 3 OF 5

DocuSigned by:  
 Steven L. Wance  
 FA00FBA38331425... 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

## PLAN OF SPANS SPANS E & F

DRAWN BY : R.L. PUTEK DATE : 03/17  
 CHECKED BY : S. WANCE DATE : 03/17

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-43
2			4			TOTAL SHEETS 196

# AS-BUILT REPAIR QUANTITY TABLE

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	12.7	7.0 *		
INTERIOR DIAPHRAGMS	3.5	2.0 *		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	1.5 LF			

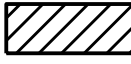

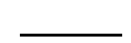
VALUES IN CHARTS REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

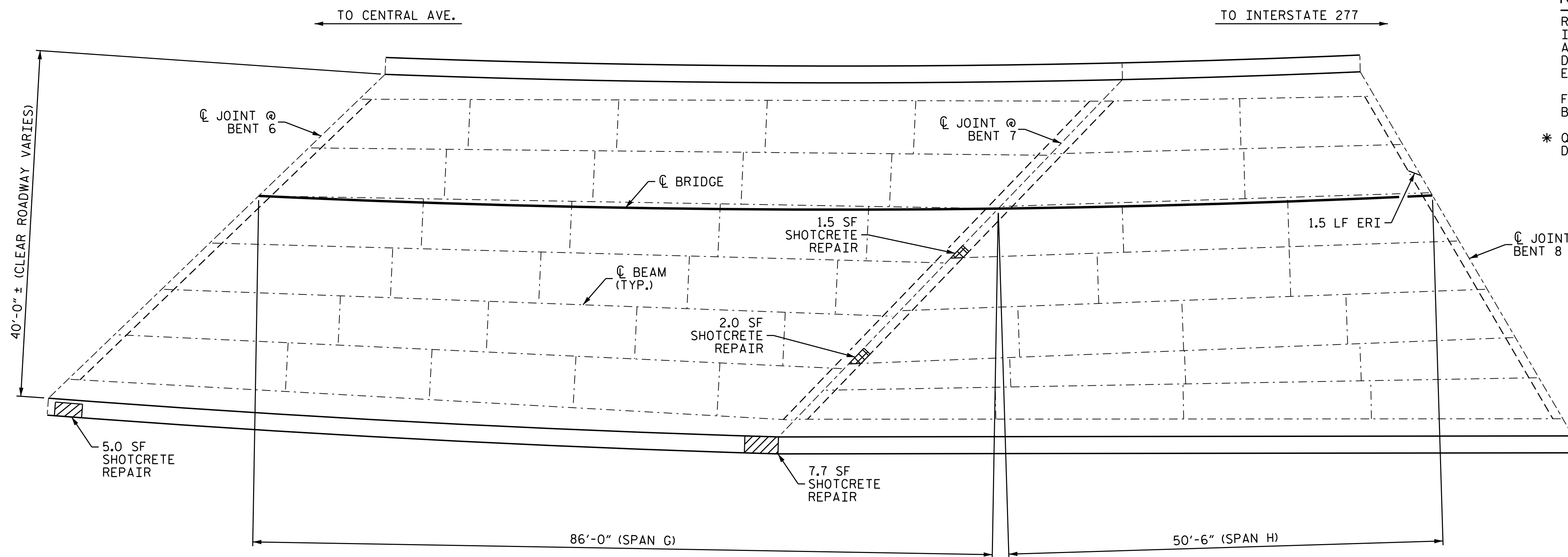
## NOTES

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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK AND DIAPHRAGM REPAIRS, SEE "OVERHANG, DIAPHRAGM AND BRIDGE RAIL REPAIR DETAILS" SHEET.

\* QUANTITY HAS BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION BY STRUCTURES MANAGEMENT UNIT.

-  UNDERSIDE REPAIR
-  DIAPHRAGM REPAIR
-  ERI (EPOXY RESIN INJECTION)



PLAN

PROJECT NO. I-5746A/I-5746B

MECKLENBURG COUNTY

BRIDGE NO. 309

SHEET 4 OF 5

DocuSigned by:  
Steven L. Wance  
FA0DF8A3B331425... 4/25/2017



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

PLAN OF SPANS  
SPANS G & H

DRAWN BY : R.L. PUTEK DATE : 03/17  
CHECKED BY : S. WANCE DATE : 03/17

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SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-44
1			3			TOTAL SHEETS
2			4			196



# AS-BUILT REPAIR QUANTITY TABLE

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	7.6	4.2 *		
INTERIOR DIAPHRAGMS	0.0	0.0 *		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	16.5 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.

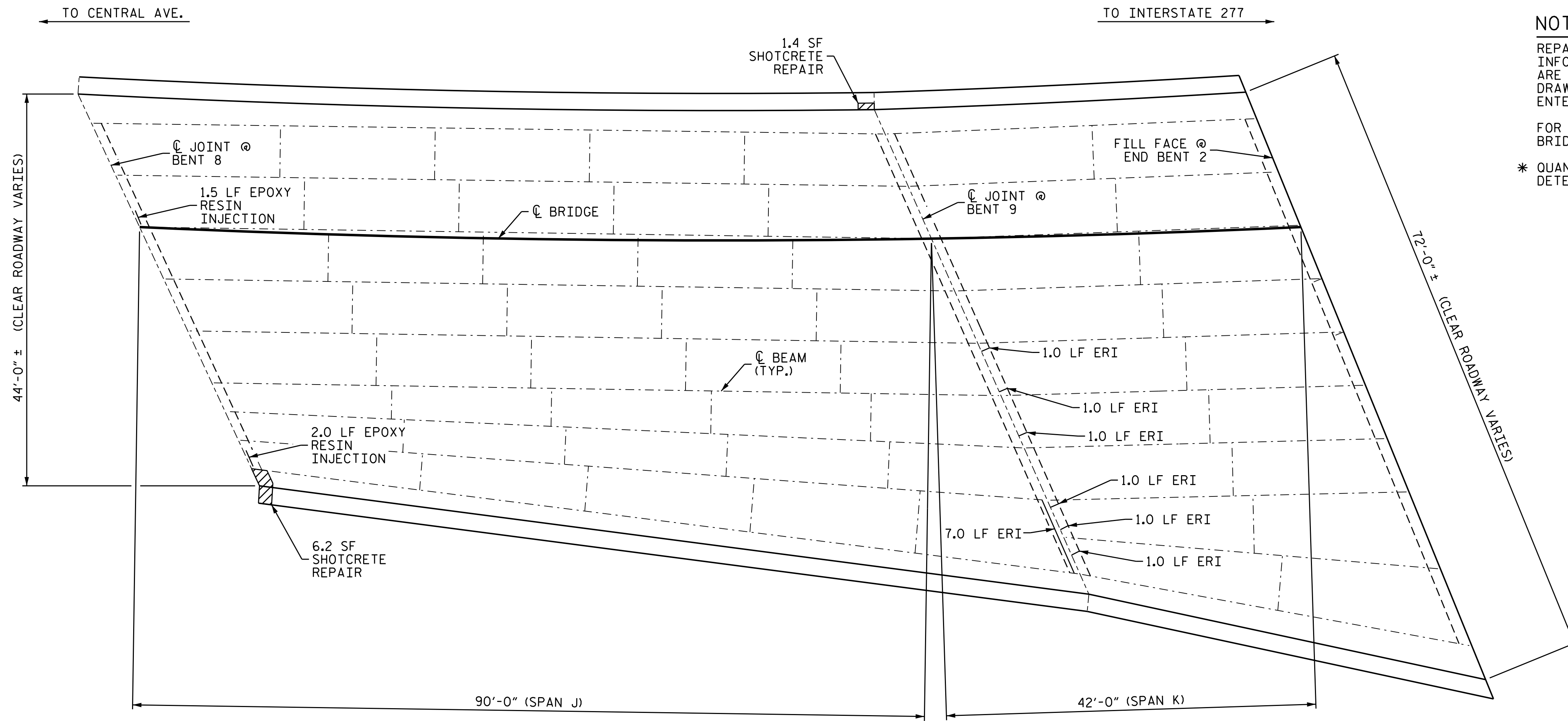
## NOTES

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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

FOR UNDERSIDE OF DECK AND DIAPHRAGM REPAIRS, SEE "OVERHANG, DIAPHRAGM AND BRIDGE RAIL REPAIR DETAILS" SHEET.

\* QUANTITY HAS BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION BY STRUCTURES MANAGEMENT UNIT.

-  UNDERSIDE REPAIR
-  DIAPHRAGM REPAIR
-  ERI (EPOXY RESIN INJECTION)



PLAN

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 309

SHEET 5 OF 5

DocuSigned by:  
 Steven L. Wance  
 FA00DFBA38331425... 4/25/2017



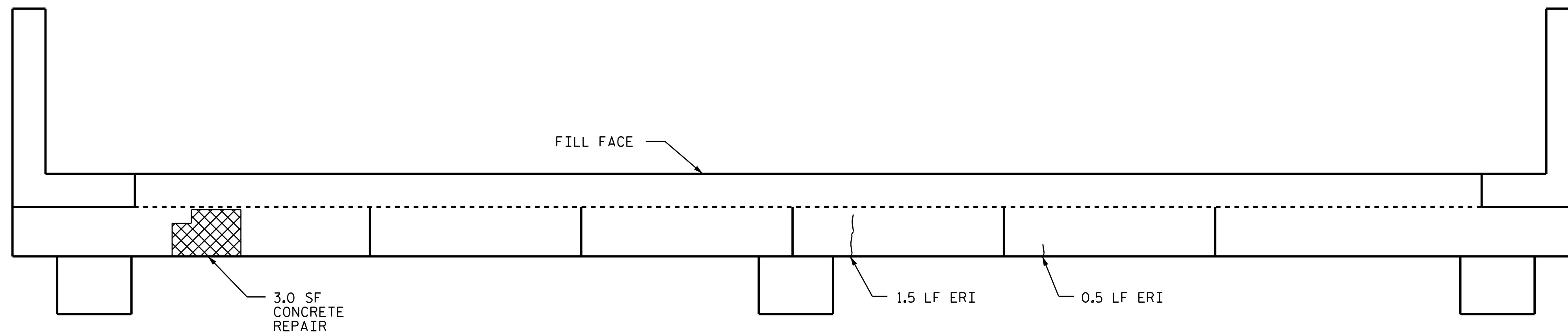
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

## PLAN OF SPANS SPANS J & K

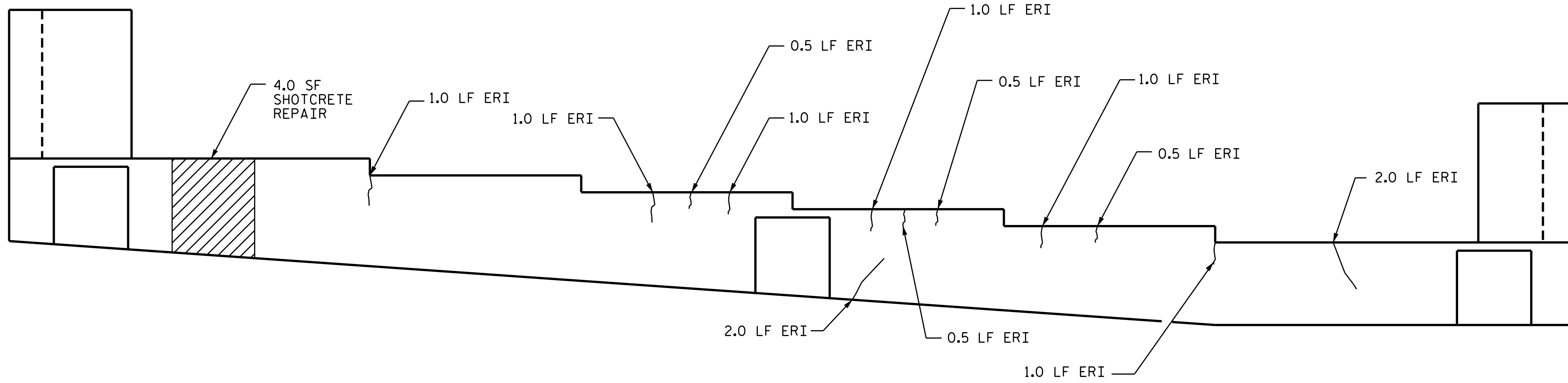
DRAWN BY : R.L. PUTEK DATE : 03/17  
 CHECKED BY : S. WANCE DATE : 03/17

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-45
1			3			TOTAL SHEETS 196
2			4			

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PLAN



ELEVATION  
END BENT 1

AS-BUILT REPAIR QUANTITY TABLE				
REPAIRS END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	4.0	1.7 *		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	3.0	1.5 *		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		14.0		

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

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.

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

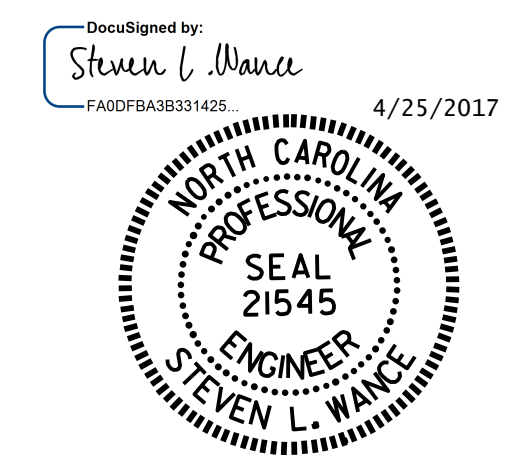
FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR BRIDGE JACKING, SEE "JACKING DETAILS" SHEET.

\* QUANTITY HAS BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION BY STRUCTURES MANAGEMENT UNIT.

- CONCRETE REPAIR
- SHOTCRETE REPAIR
- ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO: 309



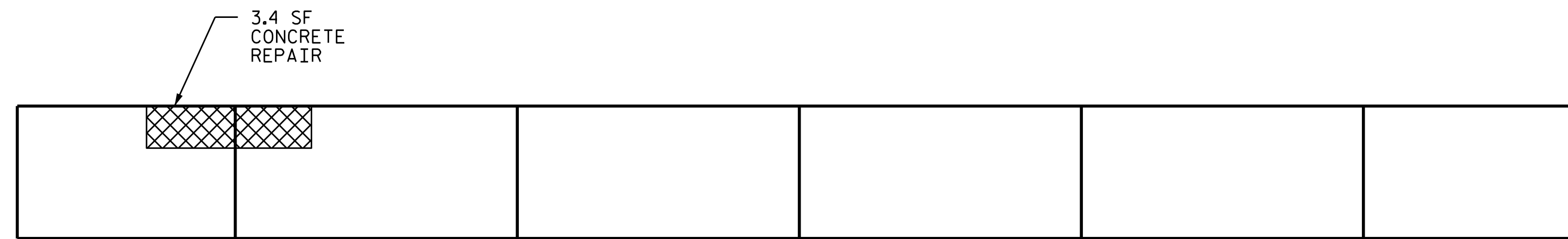
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

END BENT 1

DRAWN BY : M. WELDON DATE : 02/2017  
 CHECKED BY : S. WANCE DATE : 03/2017

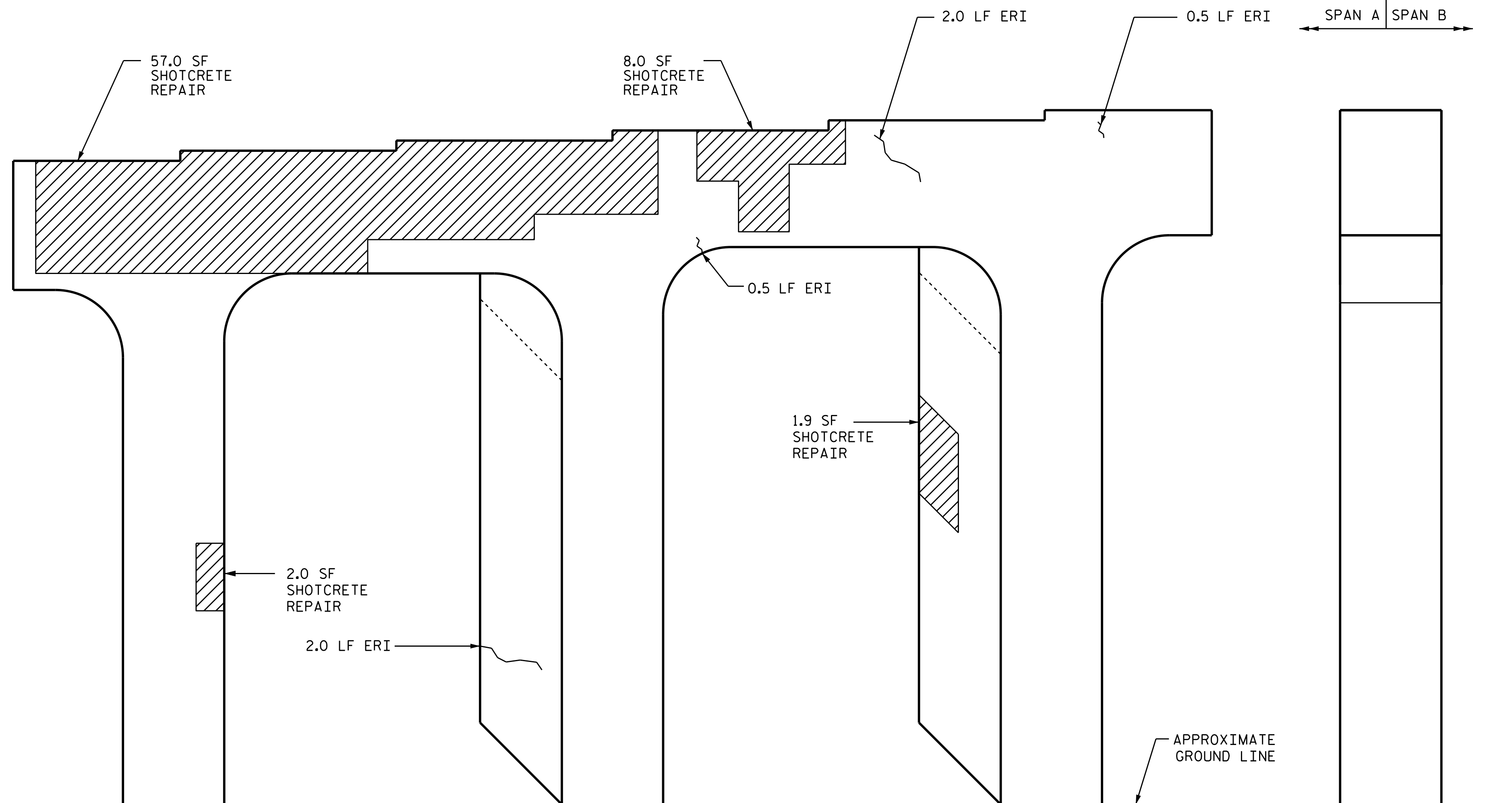
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-46
2			4			196

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SPAN B  
SPAN A

TOP OF CAP



1

2

3

SPAN A FACE

END VIEW

BENT 1

AS-BUILT REPAIR QUANTITY TABLE				
REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	102.6	43.1 *		
COLUMN	40.8	17.1 *		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	3.4	1.7 *		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT.		LN. FT.	
CAP	3.0			
COLUMN	2.0			
EPOXY COATING	SQ. FT.		SQ. FT.	
TOP OF BENT CAP	107			

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

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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.


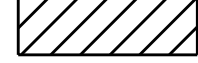

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

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

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP. APPLY EPOXY PROTECTIVE COATING TO THE 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 "JACKING DETAILS" SHEET.

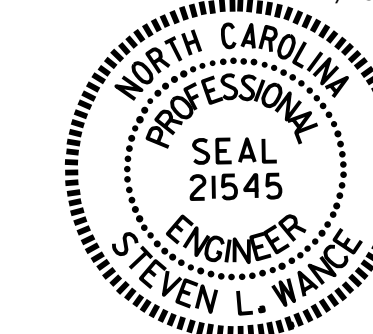
\* QUANTITY HAS BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION BY STRUCTURES MANAGEMENT UNIT.

-  CONCRETE REPAIR
-  SHOTCRETE REPAIR
-  ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO: 309

SHEET 1 OF 2

DocuSigned by:  
 Steven L. Wance  
 FA0DFBA3B331425 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 1  
 SPAN A FACE

DRAWN BY : M. WELDON DATE : 02/2017  
 CHECKED BY : S. WANCE DATE : 03/2017

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-47
2			4			TOTAL SHEETS 196

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



NOTES

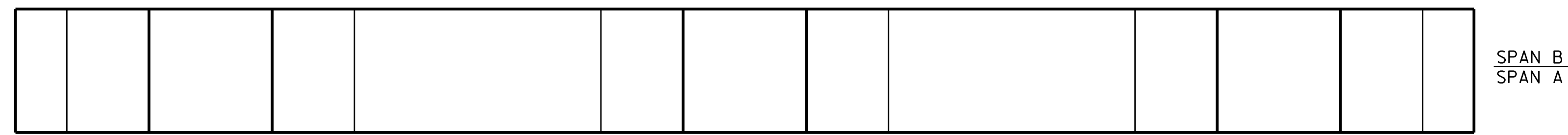
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES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

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

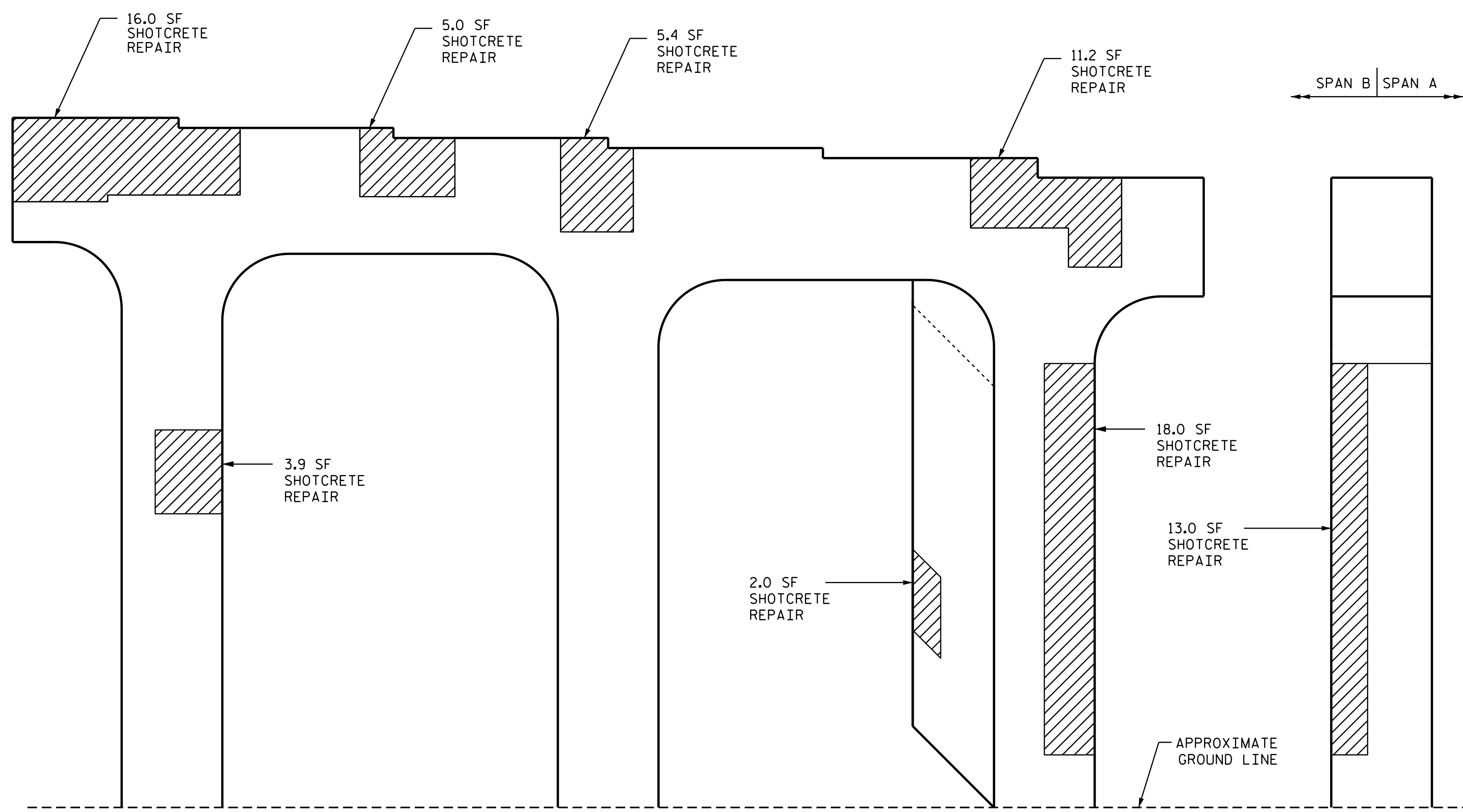
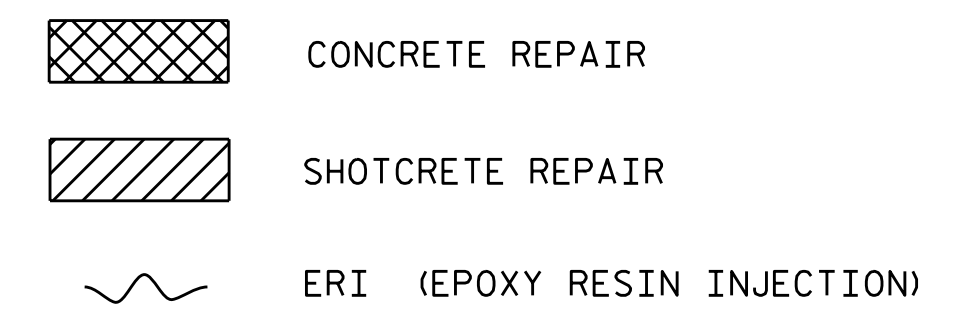
FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP. APPLY EPOXY PROTECTIVE COATING TO THE 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 "JACKING DETAILS" SHEET.



BOTTOM OF CAP



3

2

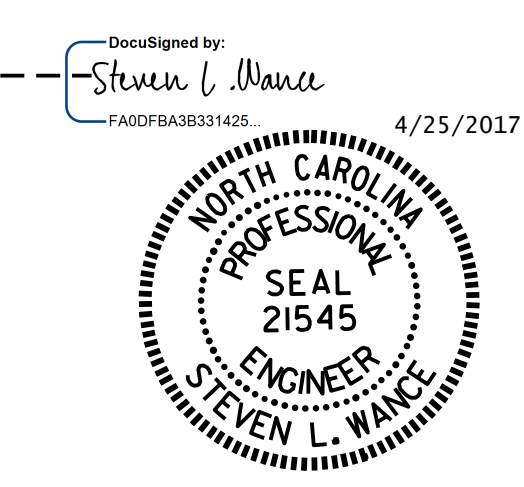
1

SPAN B FACE

END VIEW

BENT 1

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO: 309  
SHEET 2 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 1  
SPAN B FACE

DRAWN BY : M. WELDON DATE : 02/2017  
CHECKED BY : S. WANCE DATE : 02/2017

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

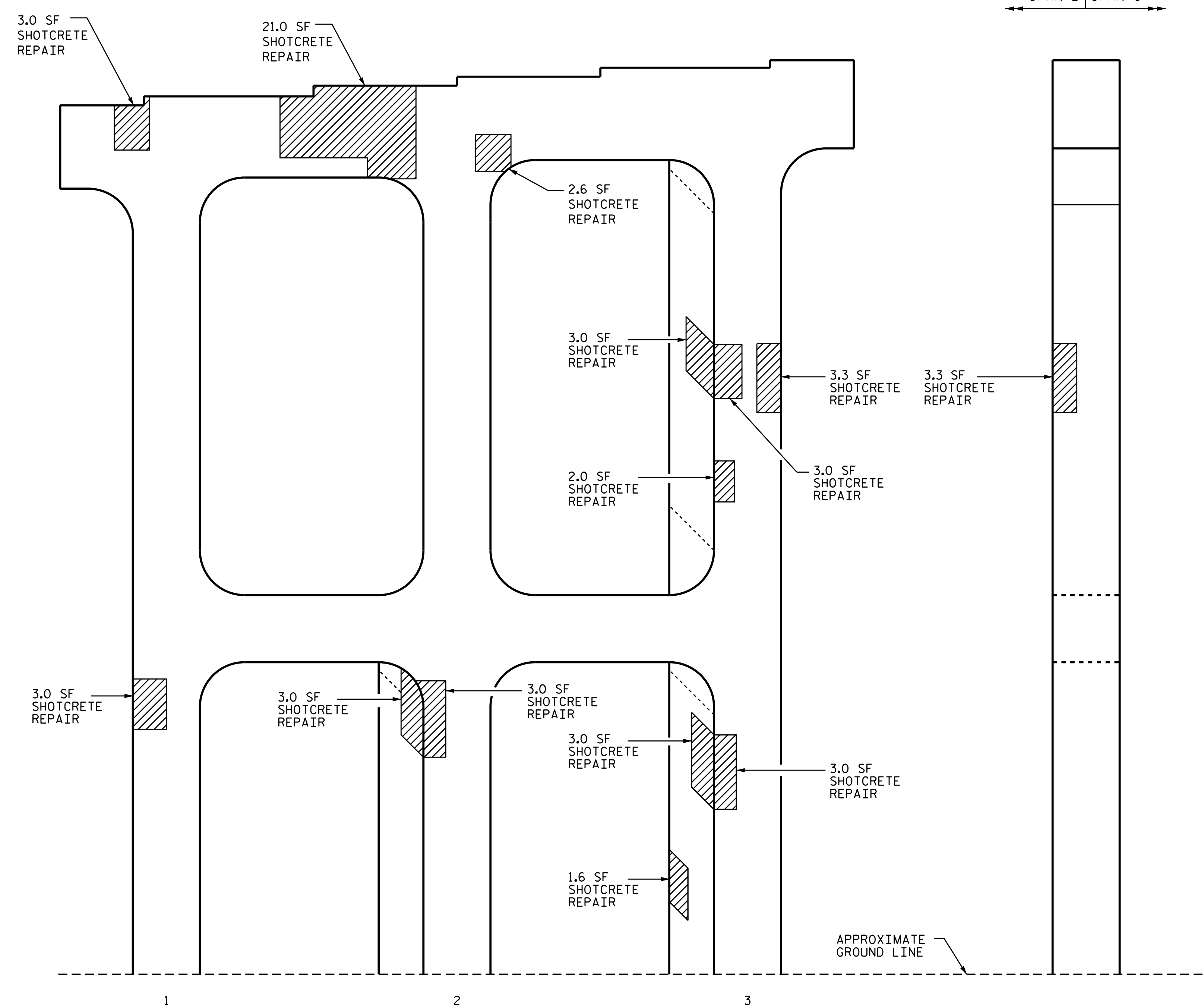
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-48
2			4			196



SPAN C  
SPAN B

TOP OF CAP

SPAN B | SPAN C



SPAN B FACE

END VIEW

BENT 2

AS-BUILT REPAIR QUANTITY TABLE

REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	46.6	19.6 *		
COLUMN & STRUTS	58.2	24.4 *		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
COLUMN & STRUTS	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT.		LN. FT.	
CAP	0.0			
COLUMN & STRUTS	1.0			
EPOXY COATING	SQ. FT.		SQ. FT.	
TOP OF BENT CAP & STRUTS	251			

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

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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

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

FOR BRIDGE JACKING, SEE "JACKING DETAILS" SHEET.

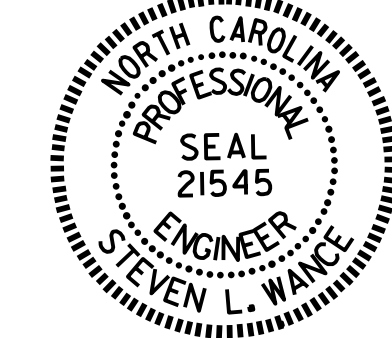
\* QUANTITY HAS BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION BY STRUCTURES MANAGEMENT UNIT.

- CONCRETE REPAIR
- SHOTCRETE REPAIR
- ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO: 309

SHEET 1 OF 2

DocuSigned by:  
 Steven L. Wance  
 F40DFBA3B331425 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 2  
 SPAN B FACE**

DRAWN BY : M. WELDON DATE : 02/2017  
 CHECKED BY : S. WANCE DATE : 03/2017

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-49
2			4			TOTAL SHEETS 196

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NOTES

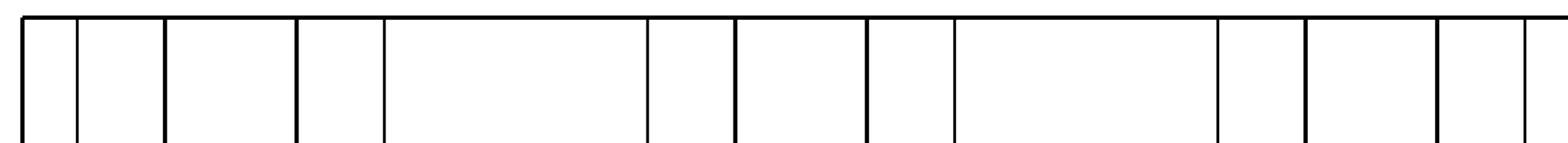
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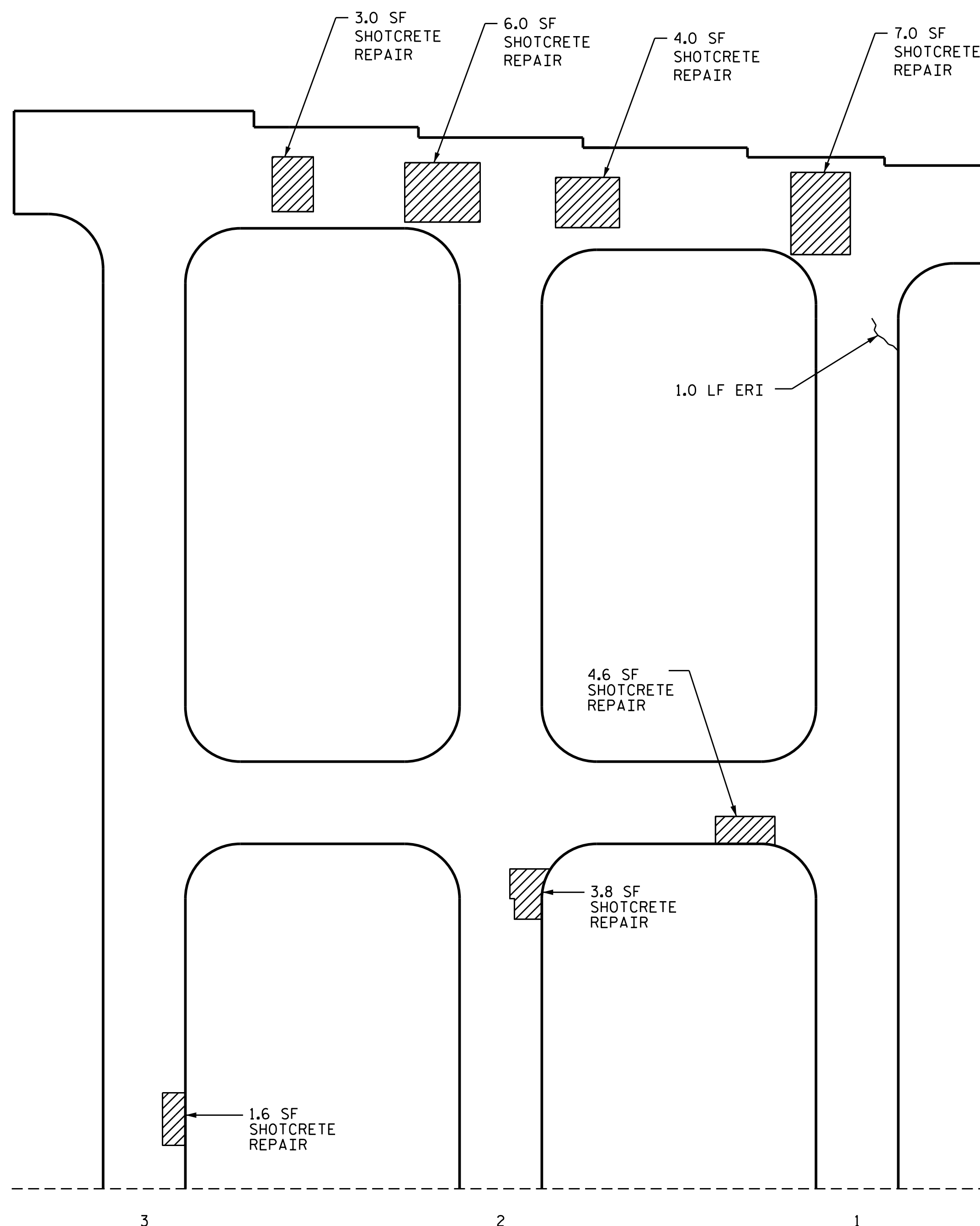
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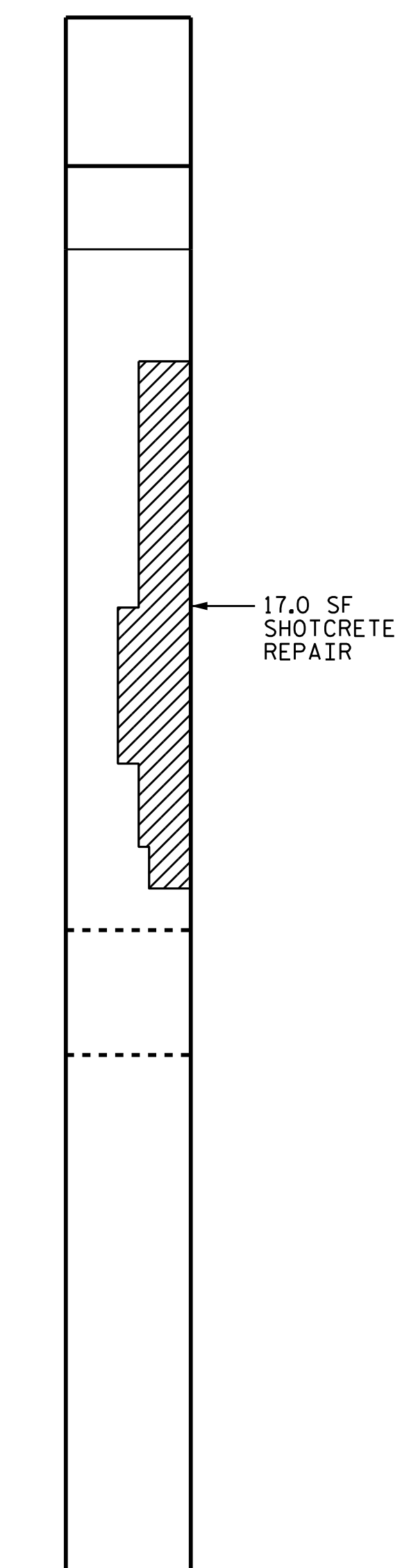
SPAN C  
SPAN B

BOTTOM OF CAP



SPAN C | SPAN B

-  CONCRETE REPAIR
-  SHOTCRETE REPAIR
-  ERI (EPOXY RESIN INJECTION)



APPROXIMATE GROUND LINE

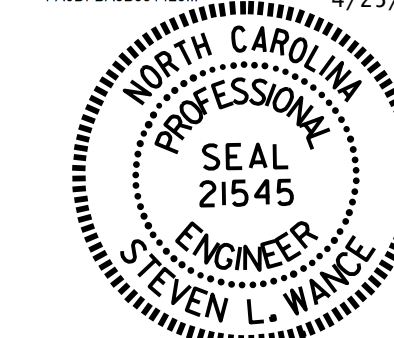
SPAN C FACE

END VIEW

BENT 2

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO: 309  
 SHEET 2 OF 2

DocuSigned by:  
 Steven L. Wance  
 FA0DFB4B331425 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

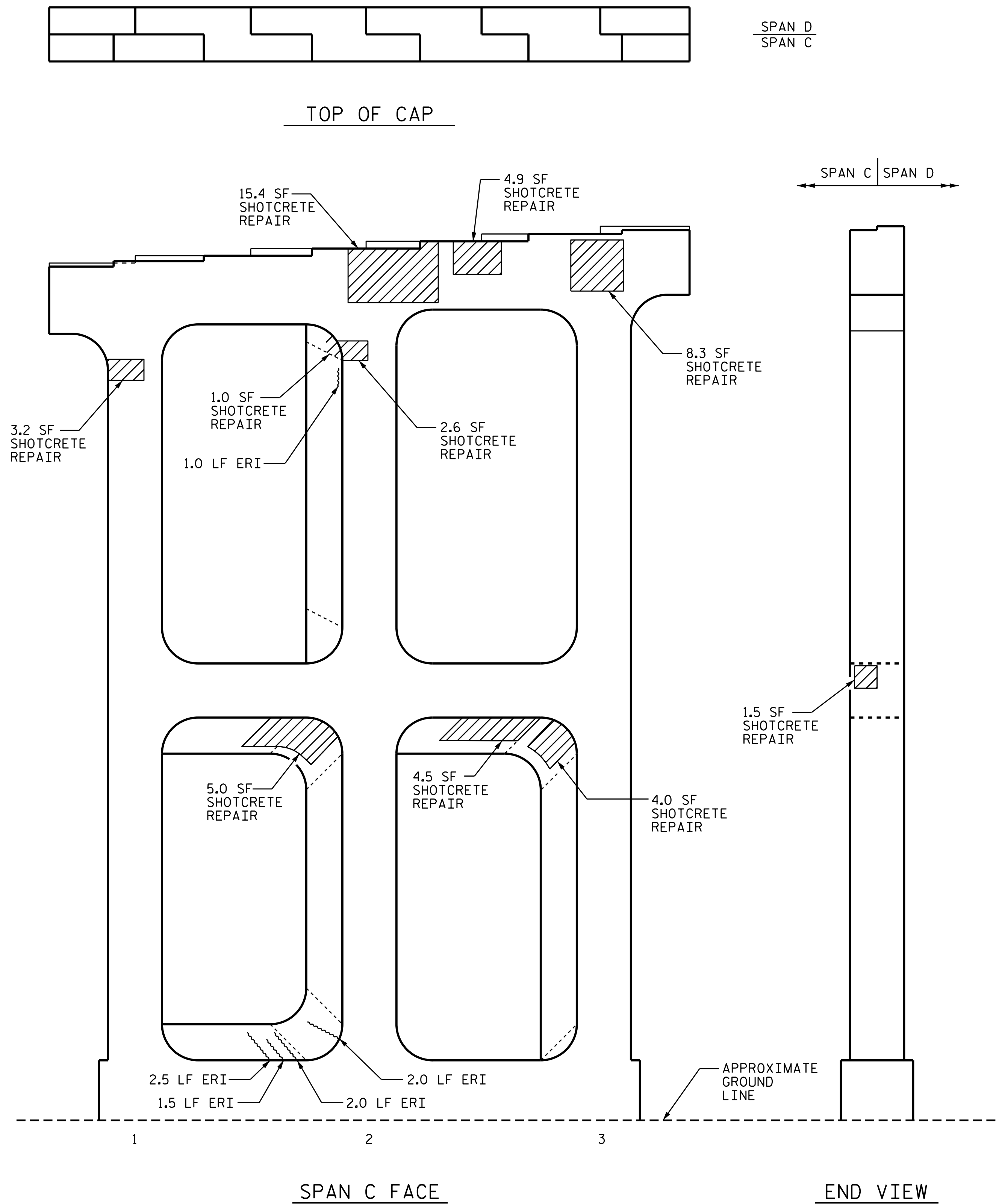
BENT 2  
 SPAN C FACE

DRAWN BY : M. WELDON DATE : 02/2017  
 CHECKED BY : S. WANCE DATE : 03/2017

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			50
2			4			196





**AS-BUILT REPAIR QUANTITY TABLE**

REPAIRS BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	62.0	26.0 *		
COLUMN & STRUTS	31.0	13.1 *		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
COLUMN & STRUTS	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		0.0		
COLUMN		9.0		
EPOXY COATING		SO. FT.		SO. FT.
TOP OF BENT CAP & STRUTS		258		

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

**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 ENTER THE ACTUAL QUANTITIES INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

FOR BRIDGE JACKING, SEE "JACKING DETAIL" SHEET.

\* QUANTITY HAS BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION BY STRUCTURES MANAGEMENT UNIT.

- CONCRETE REPAIR
- SHOTCRETE REPAIR
- ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 309

SHEET 1 OF 2

DocuSigned by: *Steven L. Wance*  
 FA0DFBA3831425... 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 3**  
**SPAN C FACE**

DRAWN BY : D. V. JOYNER DATE : 2/2017  
 CHECKED BY : S.L. WANCE DATE : 3/2017

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			TOTAL SHEETS 196

NOTES

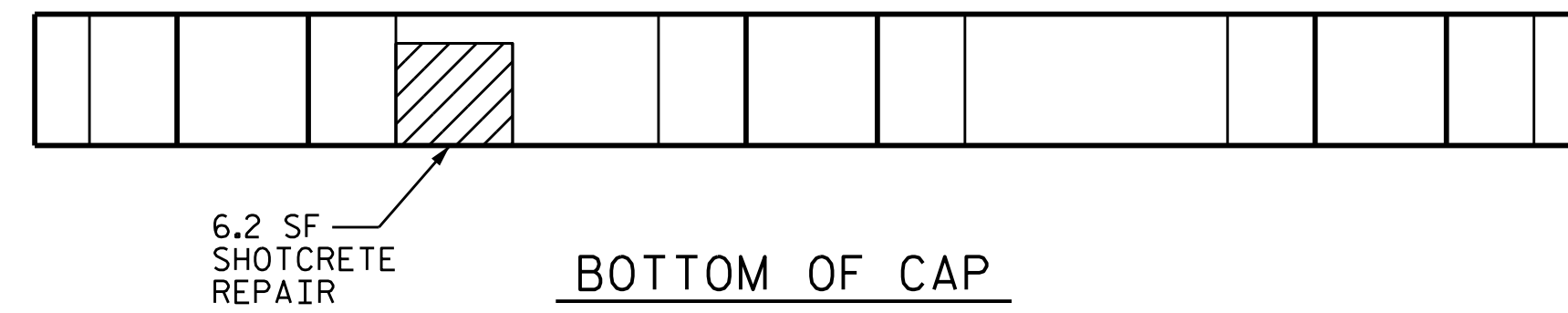
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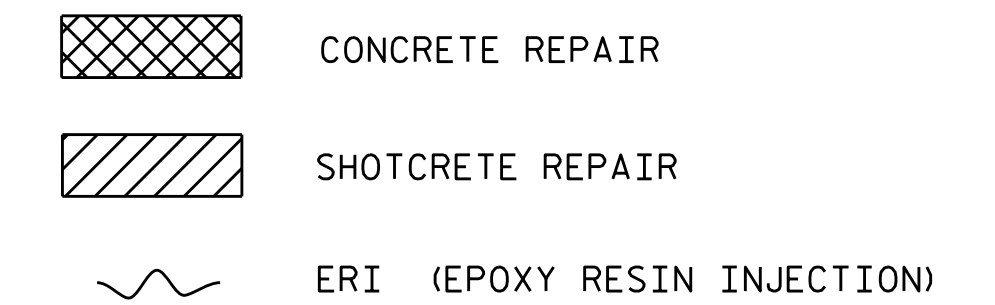
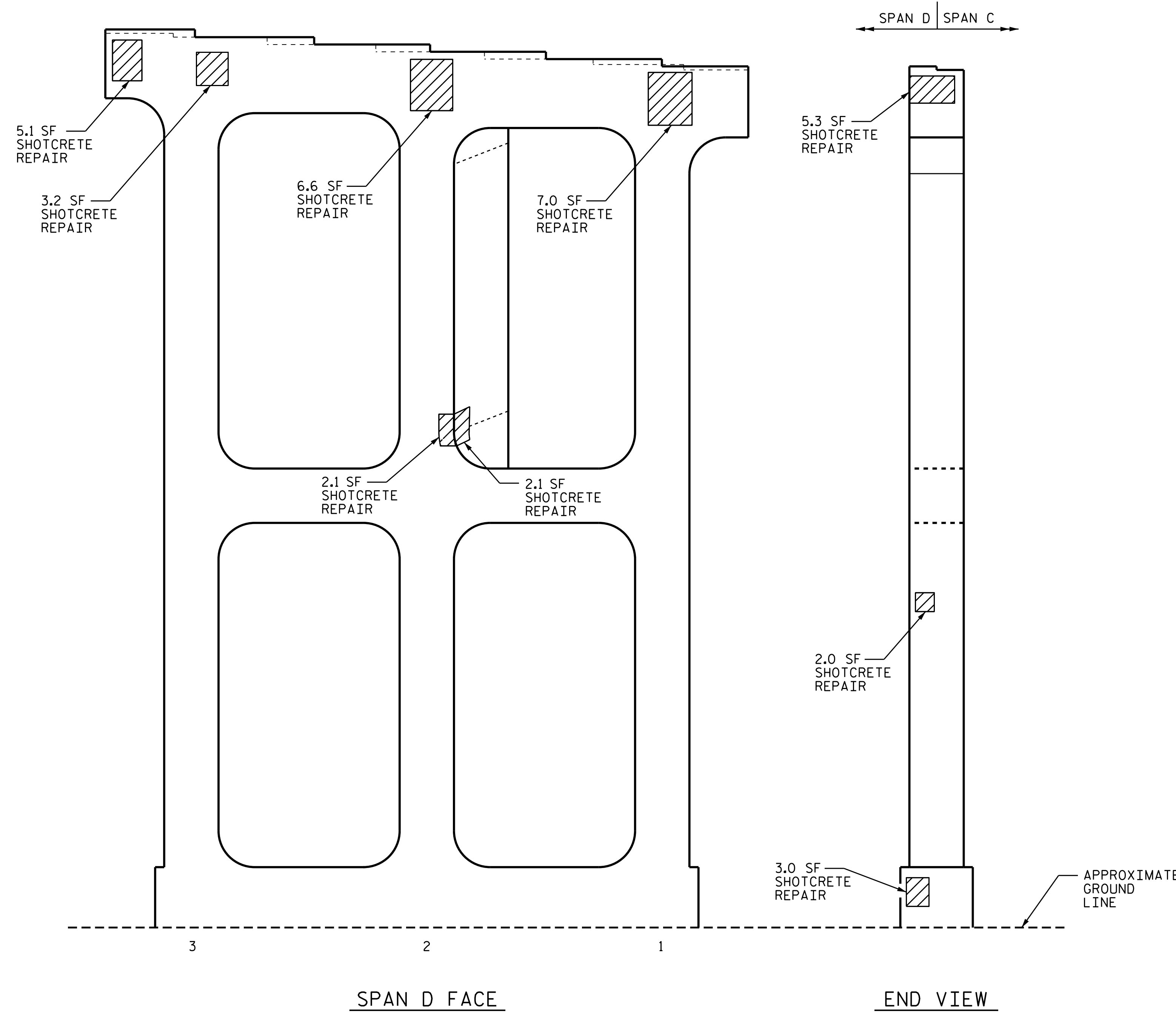
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FOR BRIDGE JACKING, SEE "JACKING DETAIL" SHEET.



SPAN D  
SPAN C



PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 309

SHEET 2 OF 2

DocuSigned by:  
 Steven L. Wance  
 FA0DFBA3B331425 4/25/2017



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 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

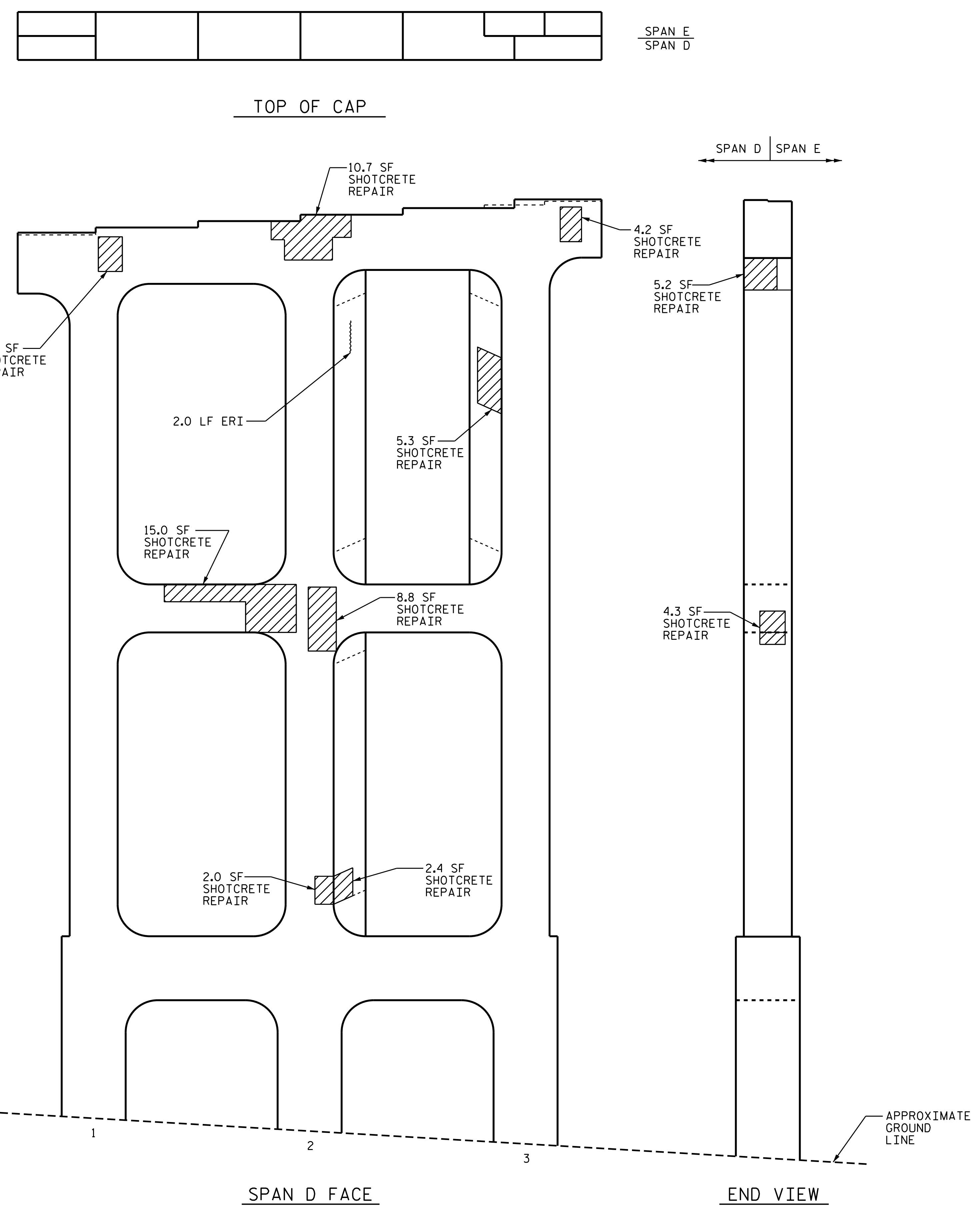
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DRAWN BY : D. V. JOYNER DATE : 2/2017  
 CHECKED BY : S.L. WANCE DATE : 3/2017

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-52
1			3			TOTAL SHEETS
2			4			196





AS-BUILT REPAIR QUANTITY TABLE				
REPAIRS BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	49.0	20.6 *		
COLUMN & STRUTS	46.3	19.4 *		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
COLUMN & STRUTS	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		0.0		
COLUMN & STRUTS		2.0		
EPOXY COATING		SO. FT.		SO. FT.
TOP OF BENT CAP & STRUTS		260		

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

**NOTES**

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\* QUANTITY HAS BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION BY STRUCTURES MANAGEMENT UNIT.

- CONCRETE REPAIR
- SHOTCRETE REPAIR
- ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 309

SHEET 1 OF 2

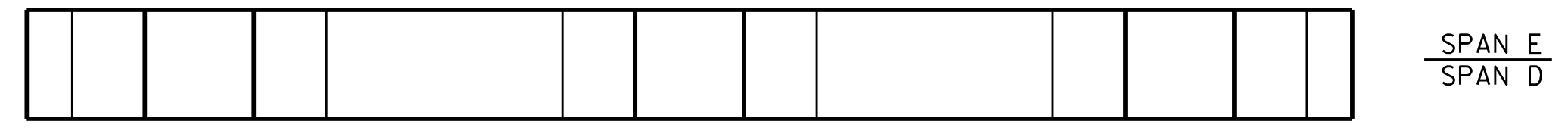
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 4**  
**SPAN D FACE**

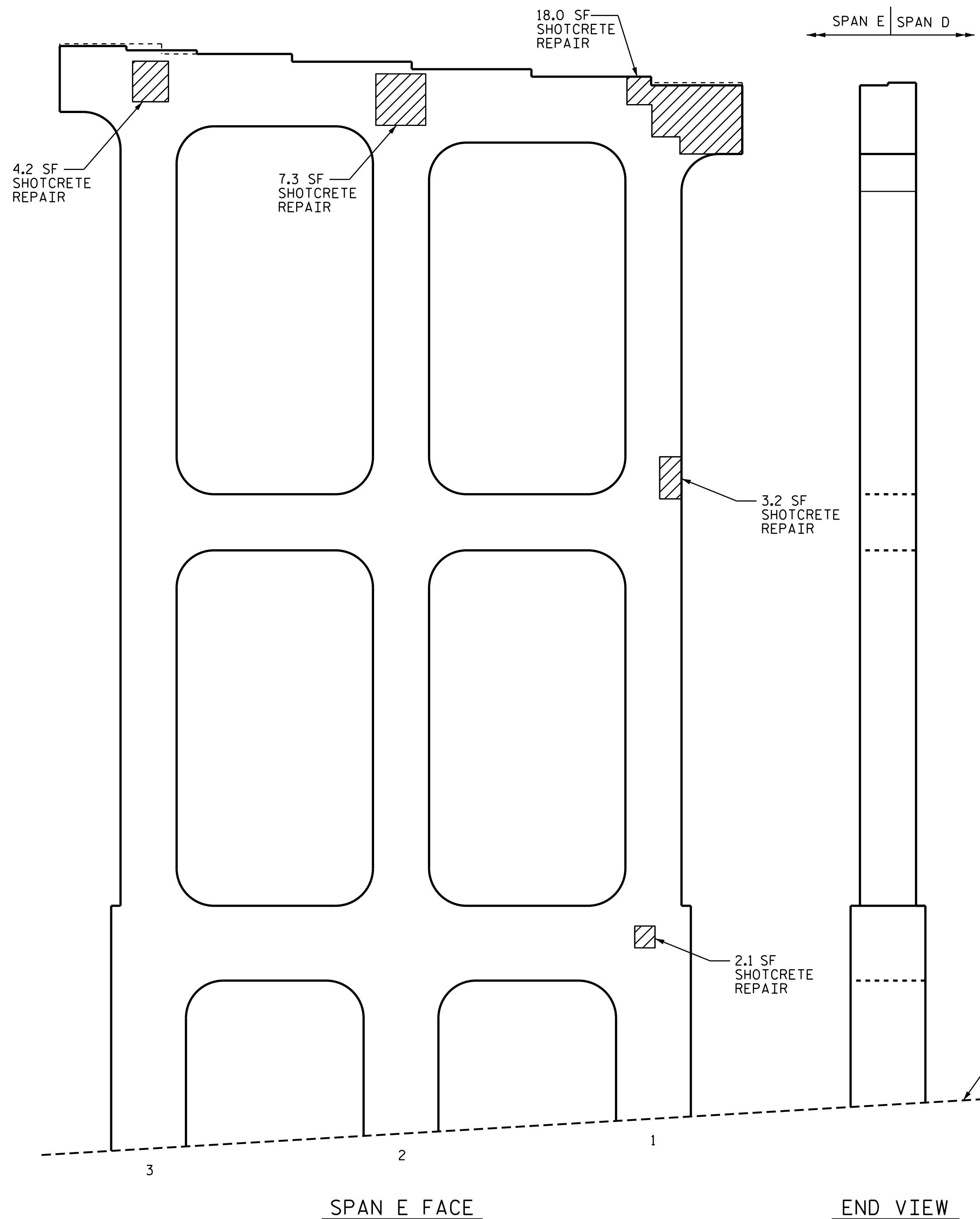
DocuSigned by:  
 Steven L. Wance  
 FA0DFB3B31425  
 4/25/2017

DRAWN BY : D. V. JOYNER DATE : 2/2017  
 CHECKED BY : S.L. WANCE DATE : 3/2017

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-53
1			3			TOTAL SHEETS 196
2			4			



BOTTOM OF CAP



**NOTES**

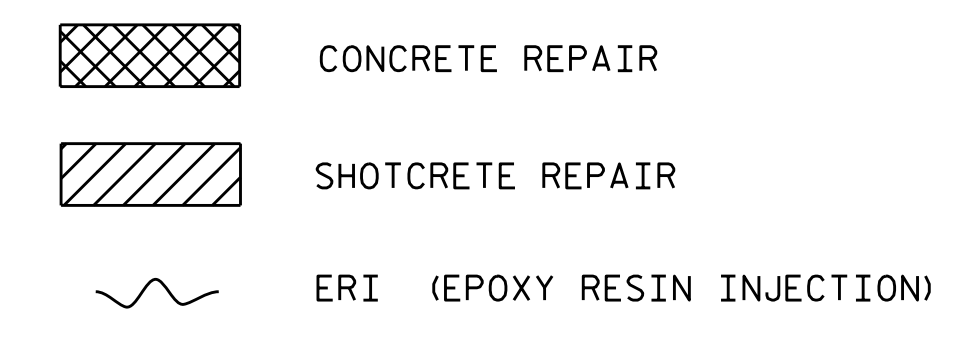
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PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 309

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 4**  
**SPAN E FACE**

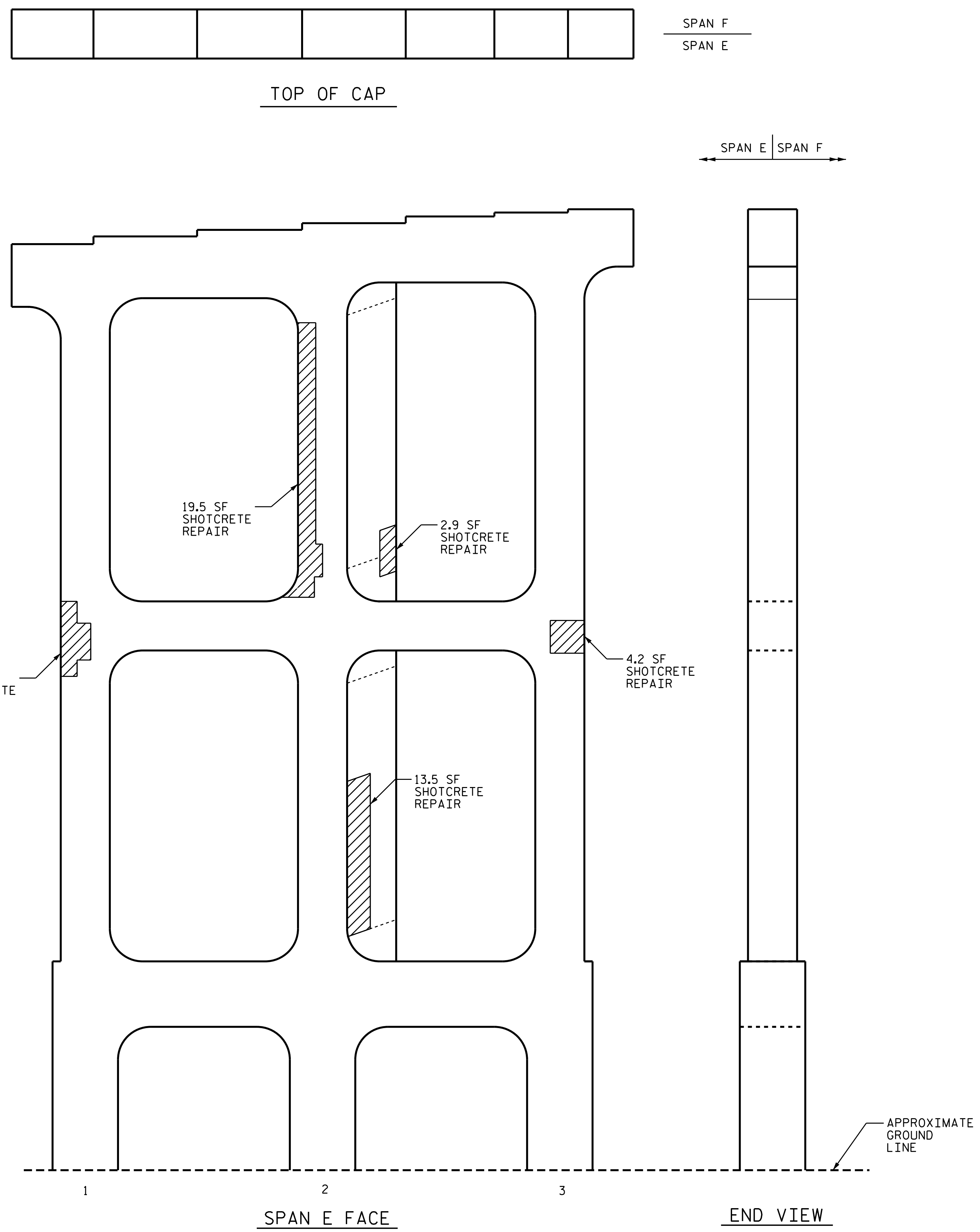


DRAWN BY : D. V. JOYNER DATE : 2/2017  
 CHECKED BY : S.L. WANCE DATE : 3/2017

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			196
2			4			

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**AS-BUILT REPAIR QUANTITY TABLE**

BENT 5 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	4.6	2.0 *		
COLUMN & STRUTS	111.5	46.8 *		
<b>CONCRETE REPAIRS</b>				
CAP	0.0	0.0		
COLUMN & STRUTS	0.0	0.0		
<b>EPOXY RESIN INJECTION</b>				
CAP		LIN. FT. 0.0		LIN. FT.
COLUMN & STRUTS		0.0		
<b>EPOXY COATING</b>				
TOP OF BENT CAP & STRUTS		SO. FT. 276		SO. FT.

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

**NOTES**

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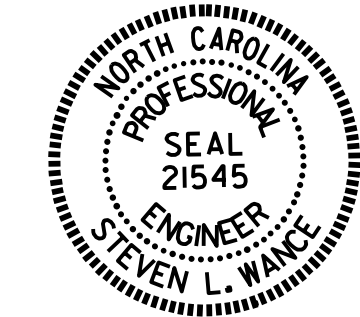
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- CONCRETE REPAIR
- SHOTCRETE REPAIR
- ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO.: 309

SHEET 1 OF 2

DocuSigned by:  
 Steven L. Wance  
 FA00FBA3B331425 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 5**  
**SPAN E FACE**

DRAWN BY : E. K. POPE DATE : 2/27/17  
 CHECKED BY : S.L. WANCE DATE : 3/2017

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-55
1			3			TOTAL SHEETS 196
2			4			

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**BENT 5**

NOTES




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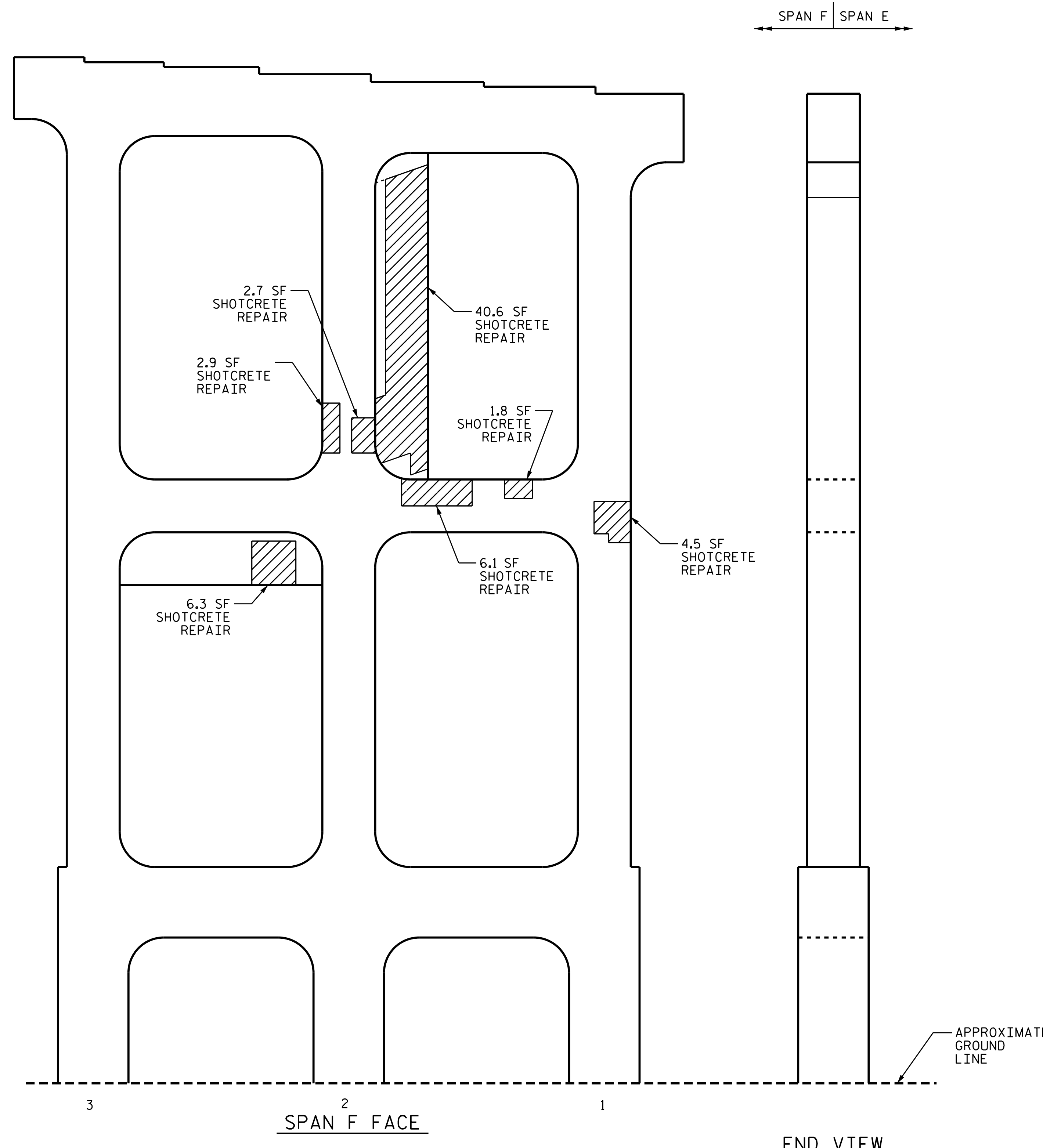
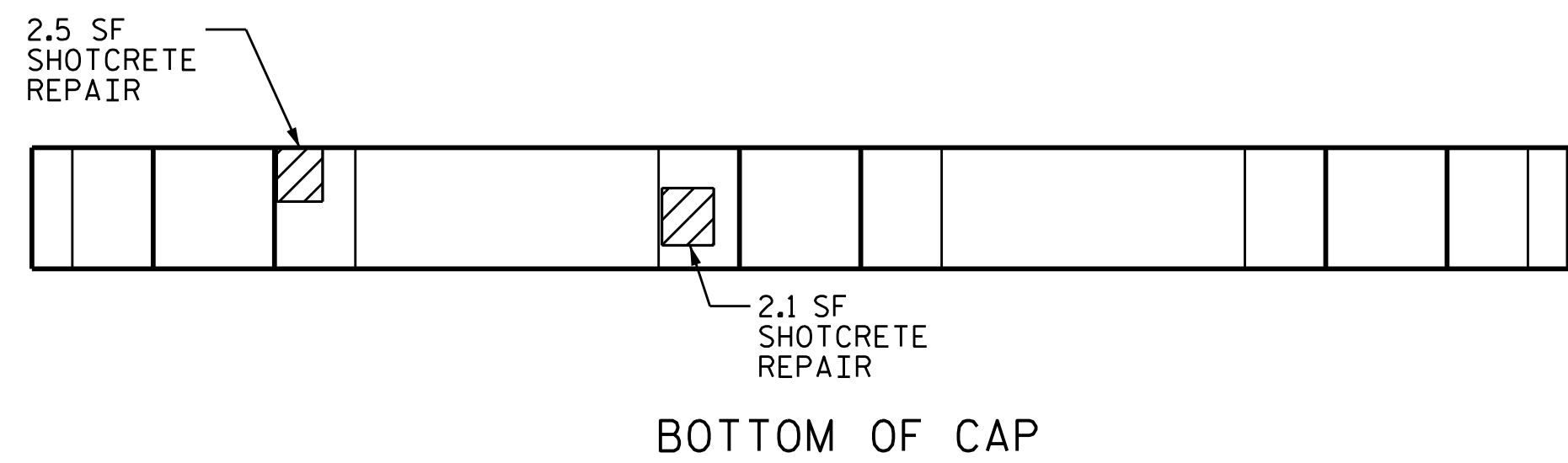
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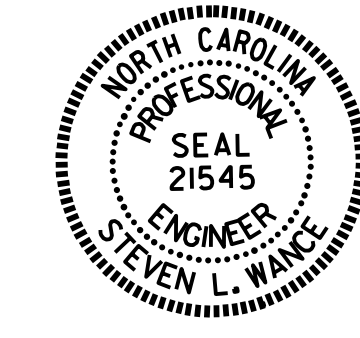
-  CONCRETE REPAIR
-  SHOTCRETE REPAIR
-  ERI (EPOXY RESIN INJECTION)



PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO.: 309

SHEET 2 OF 2

DocuSigned by:  
 Steven L. Wance  
 FA0DFBA3B331425 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 5  
 SPAN F FACE**

DRAWN BY : E. K. POPE DATE : 2/27/17  
 CHECKED BY : S. L. WANCE DATE : 3/2017

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-56
1			3			TOTAL SHEETS 196
2			4			

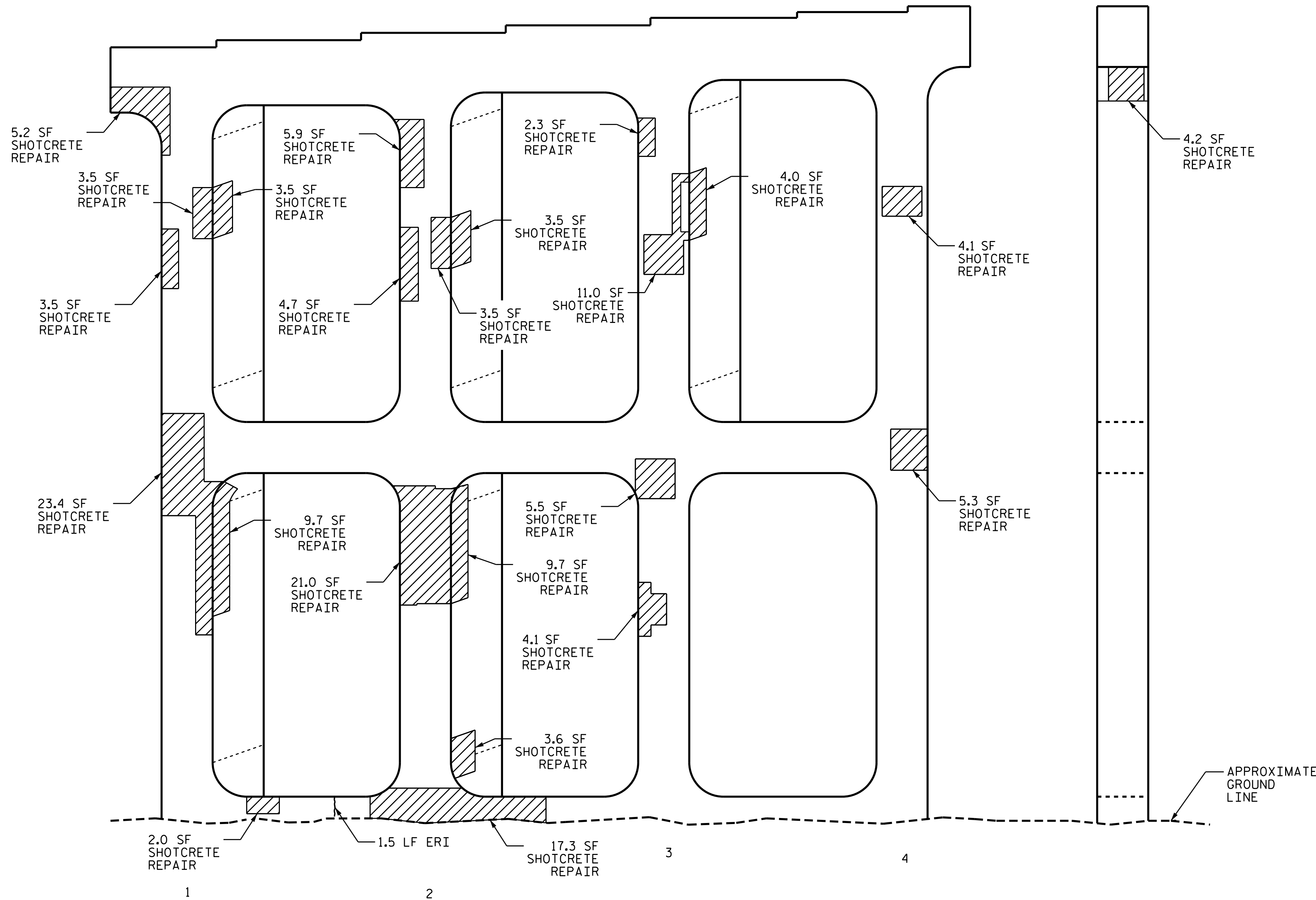




TOP OF CAP

SPAN G  
SPAN F

SPAN F | SPAN G



END VIEW

SPAN F FACE

BENT 6

AS-BUILT REPAIR QUANTITY TABLE				
BENT 6 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	78.8	33.1 *		
COLUMN & STRUTS	319.2	134.2 *		
CONCRETE REPAIRS				
CAP	0.0	0.0		
COLUMN & STRUTS	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		0.0		
COLUMN & STRUTS		1.5		
EPOXY COATING		SO. FT.		SO. FT.
TOP OF BENT CAP & STRUTS		387		

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

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

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

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND STRUTS. EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP FACE OF THE CAP AND STRUTS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE "JACKING DETAIL" SHEET.

\* QUANTITY HAS BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION BY STRUCTURES MANAGEMENT UNIT.

- CONCRETE REPAIR
- SHOTCRETE REPAIR
- ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO.: 309

SHEET 1 OF 2

DocuSigned by:  
Steven L. Wance  
FA0DFBA3B331425... 4/25/2017



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 6  
SPAN F FACE

DRAWN BY : E.K. POPE DATE : 2/27/17  
CHECKED BY : S.L. WANCE DATE : 3/2017

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-57
2			4			TOTAL SHEETS 196

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NOTES

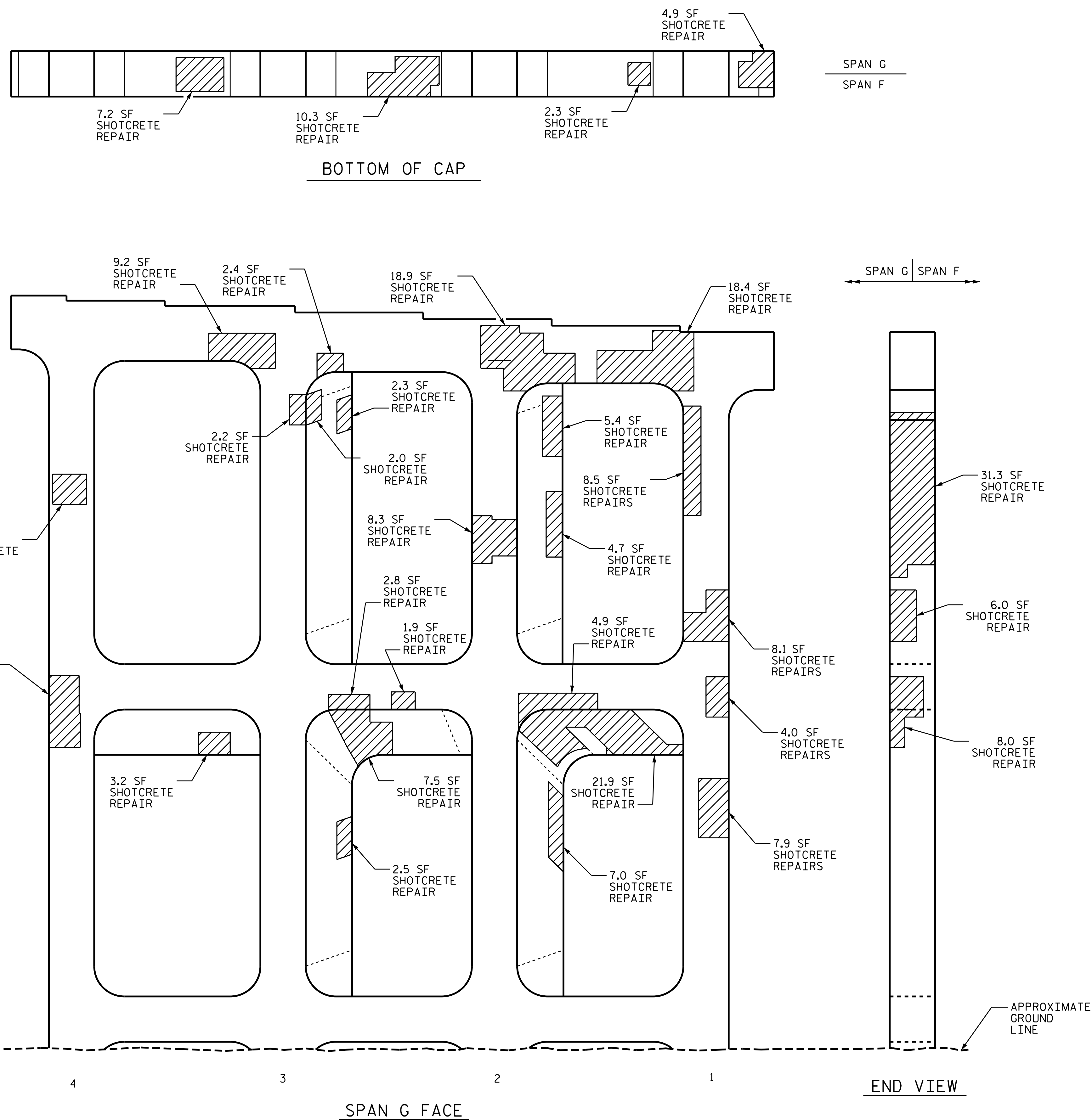
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES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


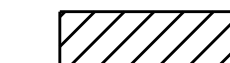

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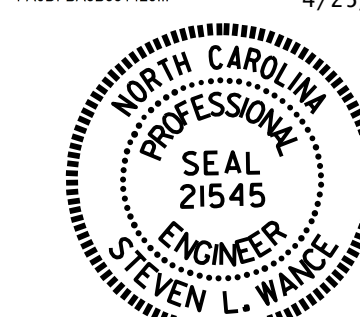


-  CONCRETE REPAIR
-  SHOTCRETE REPAIR
-  ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO.: 309

SHEET 2 OF 2

DocuSigned by:  
 Steven L. Wance  
 FAD0FB3B331425 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 6  
 SPAN G FACE

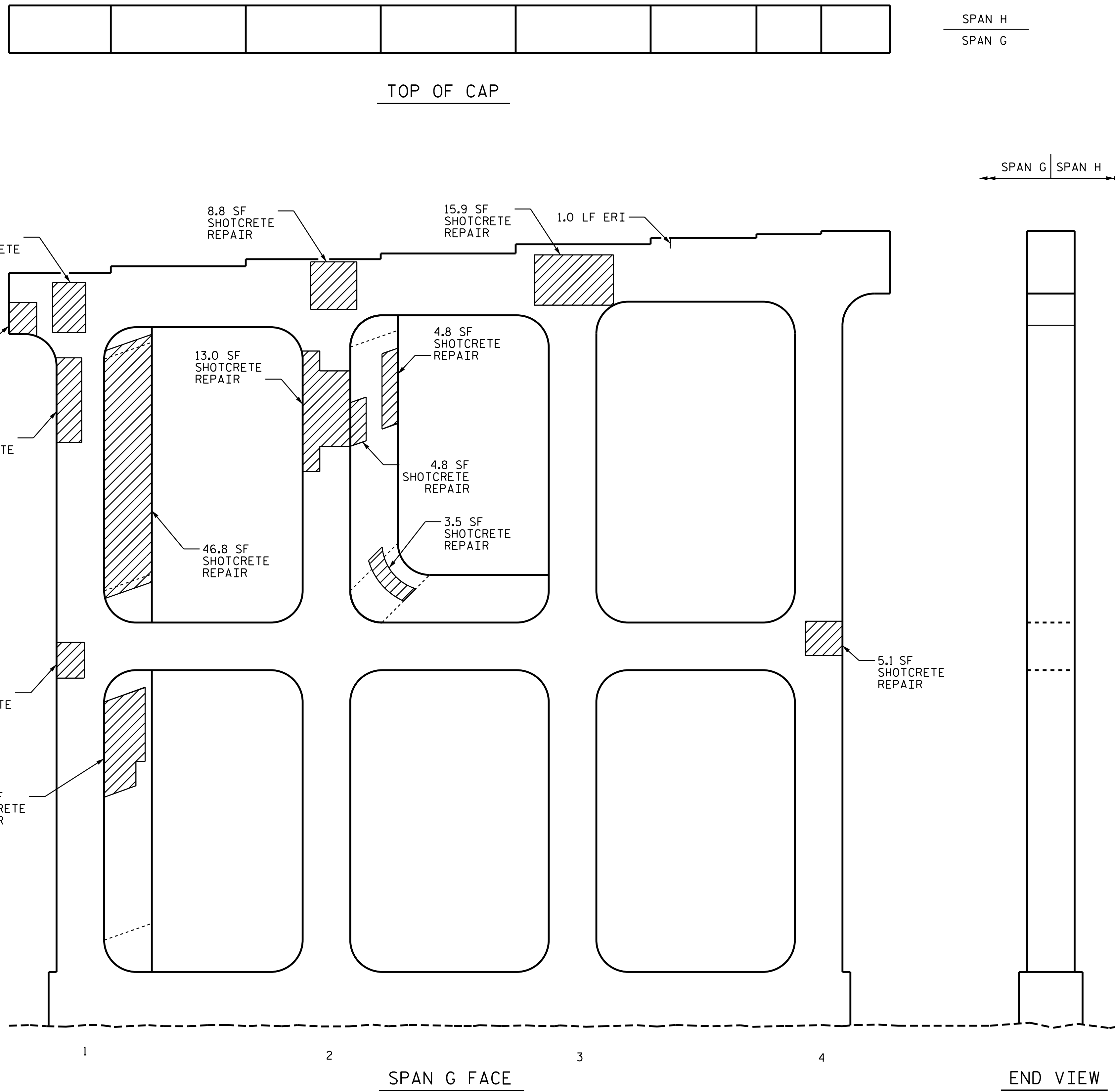
REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-58
2			4			TOTAL SHEETS 196

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DRAWN BY : E.K. POPE DATE : 2/27/17  
 CHECKED BY : S.L. WANCE DATE : 3/2017





AS-BUILT REPAIR QUANTITY TABLE				
BENT 7 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	92.9	39.0 *		
COLUMN & STRUTS	203.7	85.6 *		
CONCRETE REPAIRS				
CAP	0.0	0.0		
COLUMN & STRUTS	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		1.0		
COLUMN & STRUTS		0.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP & STRUTS		428		

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

### 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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.




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

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

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND STRUTS. EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP FACE OF THE CAP AND STRUTS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE "JACKING DETAIL" SHEET.

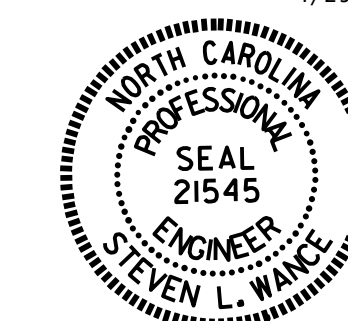
\* QUANTITY HAS BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION BY STRUCTURES MANAGEMENT UNIT.

-  CONCRETE REPAIR
-  SHOTCRETE REPAIR
-  ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO.: 309

SHEET 1 OF 2

DocuSigned by:  
 Steven L. Wance  
 FA0DFBA38331425 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 7  
 SPAN G FACE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			196
2			4			

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DRAWN BY : E.K. POPE DATE : 2/27/17  
 CHECKED BY : S.L. WANCE DATE : 3/2017

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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

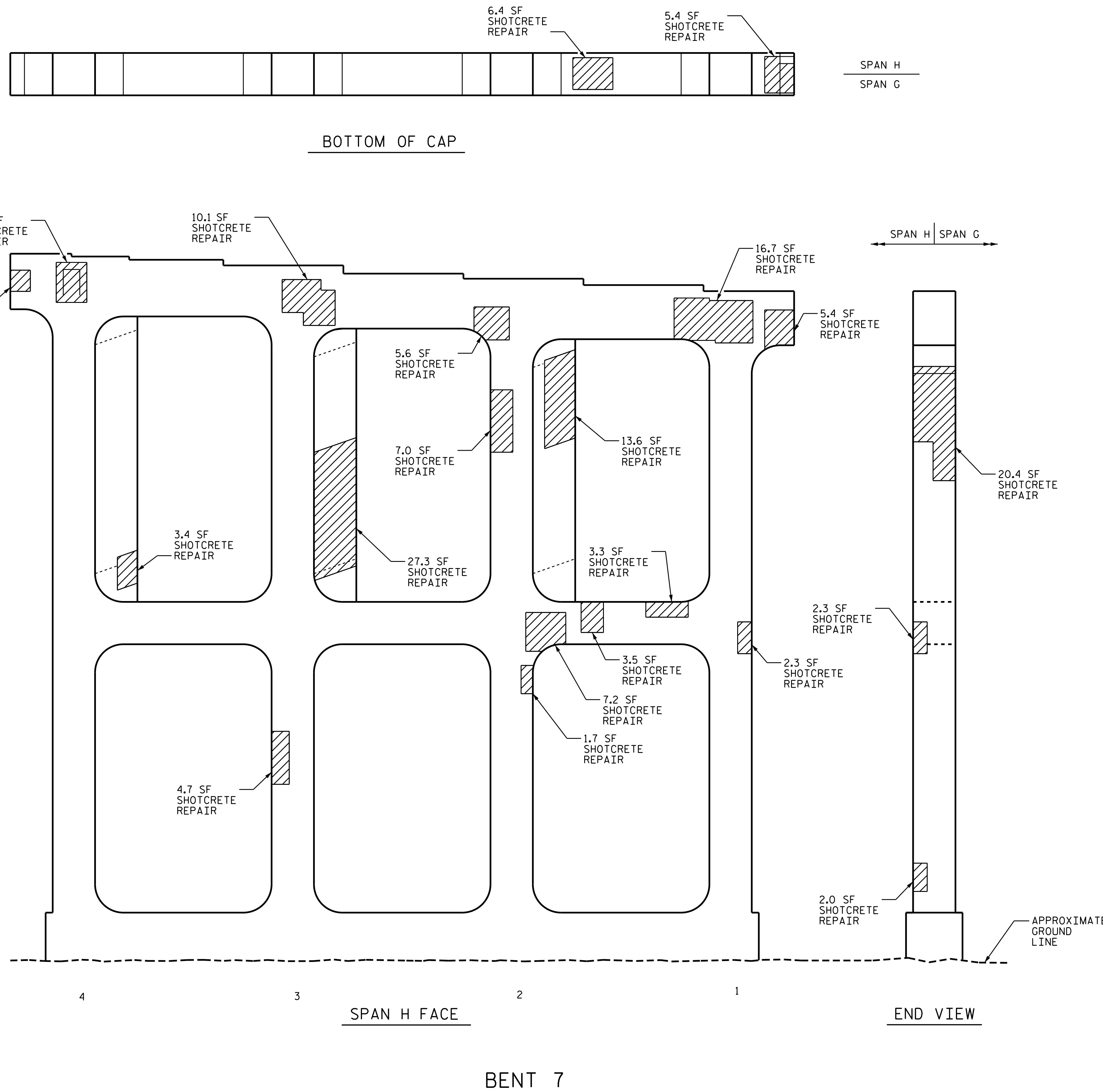
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

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

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FOR BRIDGE JACKING, SEE "JACKING DETAIL" SHEET.

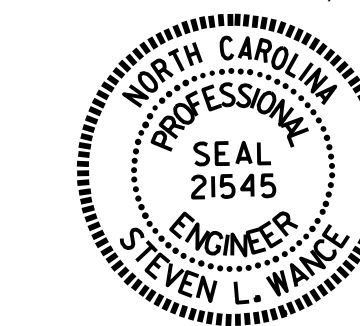
-  CONCRETE REPAIR
-  SHOTCRETE REPAIR
-  ERI (EPOXY RESIN INJECTION)



PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO.: 309

SHEET 2 OF 2

DocuSigned by:  
 Steven L. Wance  
 F40DF8A3B351425 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

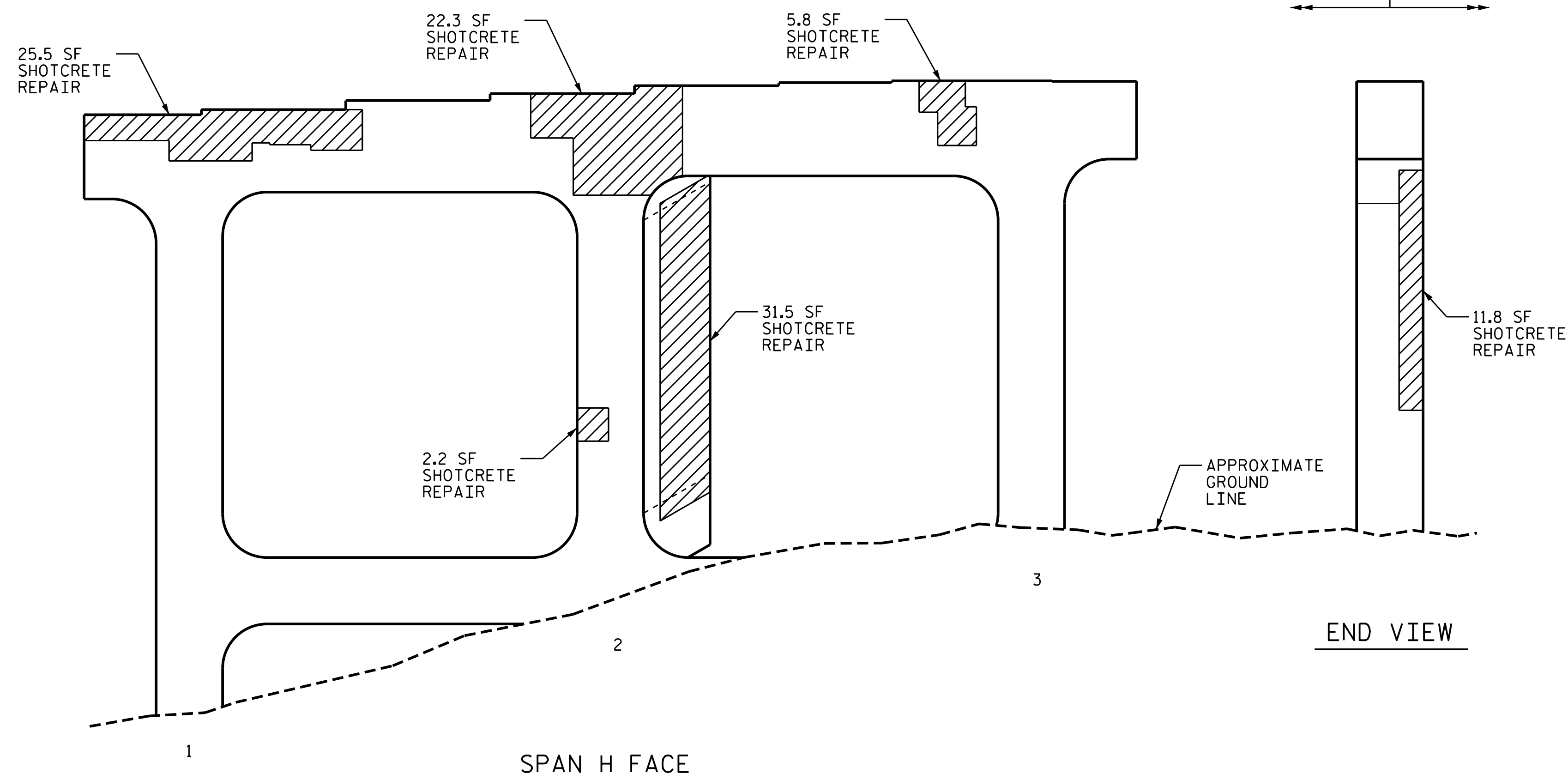
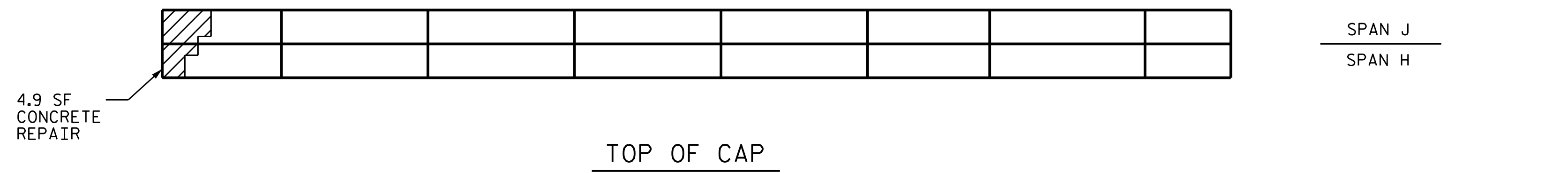
BENT 7  
 SPAN H FACE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-60
1			3			TOTAL SHEETS
2			4			196

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DRAWN BY : E. K. POPE DATE : 2/27/17  
 CHECKED BY : S. L. WANCE DATE : 3/2017





AS-BUILT REPAIR QUANTITY TABLE				
BENT 8 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	136.4	57.3 *		
COLUMN AND STRUTS	177.4	74.5 *		
CONCRETE REPAIRS				
CAP	4.9	2.5 *		
COLUMN AND STRUTS	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		4.0		
COLUMN AND STRUTS		0.0		
EPOXY COATING		SQ. FT.		SQ. FT.
TOP OF BENT CAP AND STRUTS		205.0		

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

**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 LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES ENTERED INTO THE AS-BUILT REPAIR QUANTITY TABLE.

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

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

CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND STRUTS. EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP FACE OF THE CAP AND STRUTS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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\* QUANTITY HAS BEEN INCREASED DUE TO THE POTENTIAL FOR FURTHER DETERIORATION SINCE THE FIELD INSPECTION BY STRUCTURES MANAGEMENT UNIT.

- CONCRETE REPAIR
- SHOTCRETE REPAIR
- ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO.: 309

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**BENT 8**  
**SPAN H FACE**

DocuSigned by:  
 Steven L. Wance  
 FA00FB438331425... 4/25/2017

DRAWN BY : E. K. POPE DATE : 2/17  
 CHECKED BY : S. WANCE DATE : 3/17

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2			4			TOTAL SHEETS 196

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NOTES

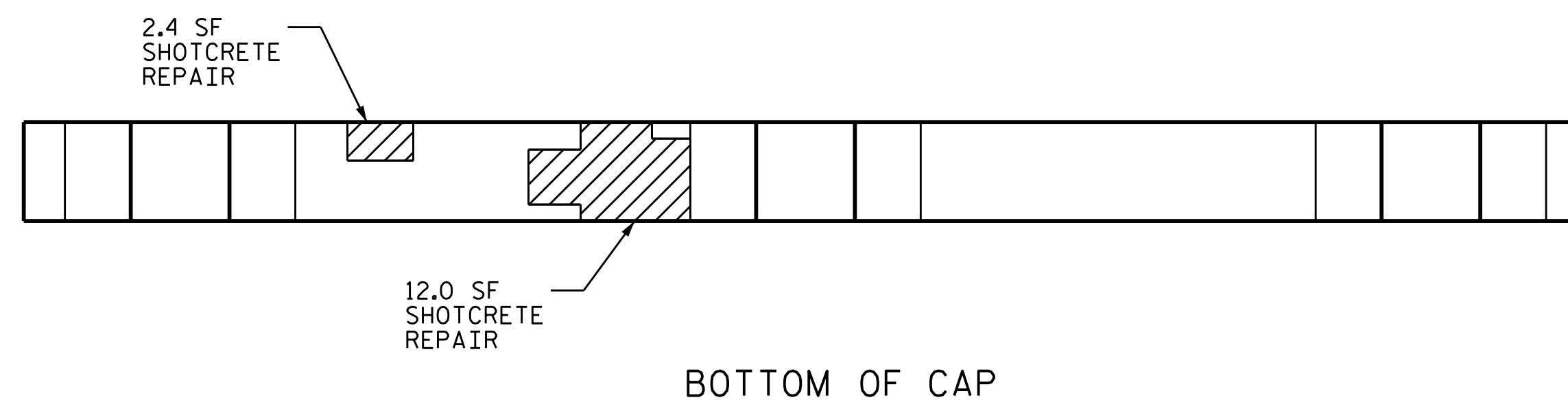
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CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

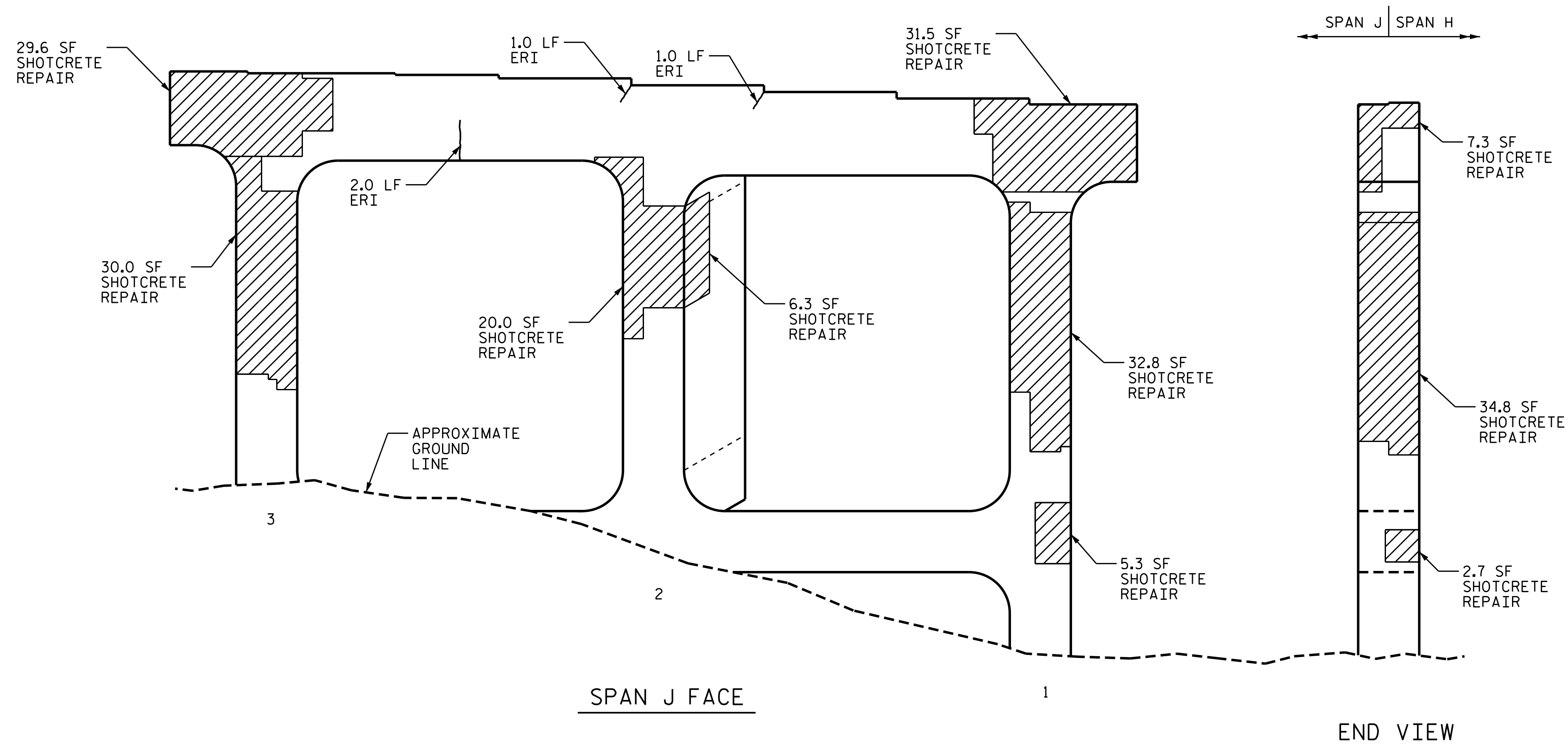
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FOR BRIDGE JACKING, SEE "JACKING DETAIL" SHEET.



SPAN J  
SPAN H



- CONCRETE REPAIR
- SHOTCRETE REPAIR
- ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO.: 309

SHEET 2 OF 2

DocuSigned by:  
 Steven L. Wance  
 FACDFBA3B331425 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

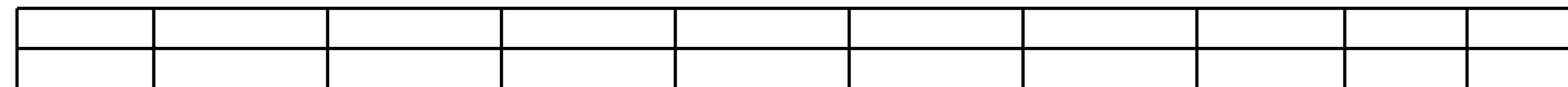
BENT 8  
 SPAN J FACE

DRAWN BY : E. K. POPE DATE : 2/17  
 CHECKED BY : S. WANCE DATE : 3/17

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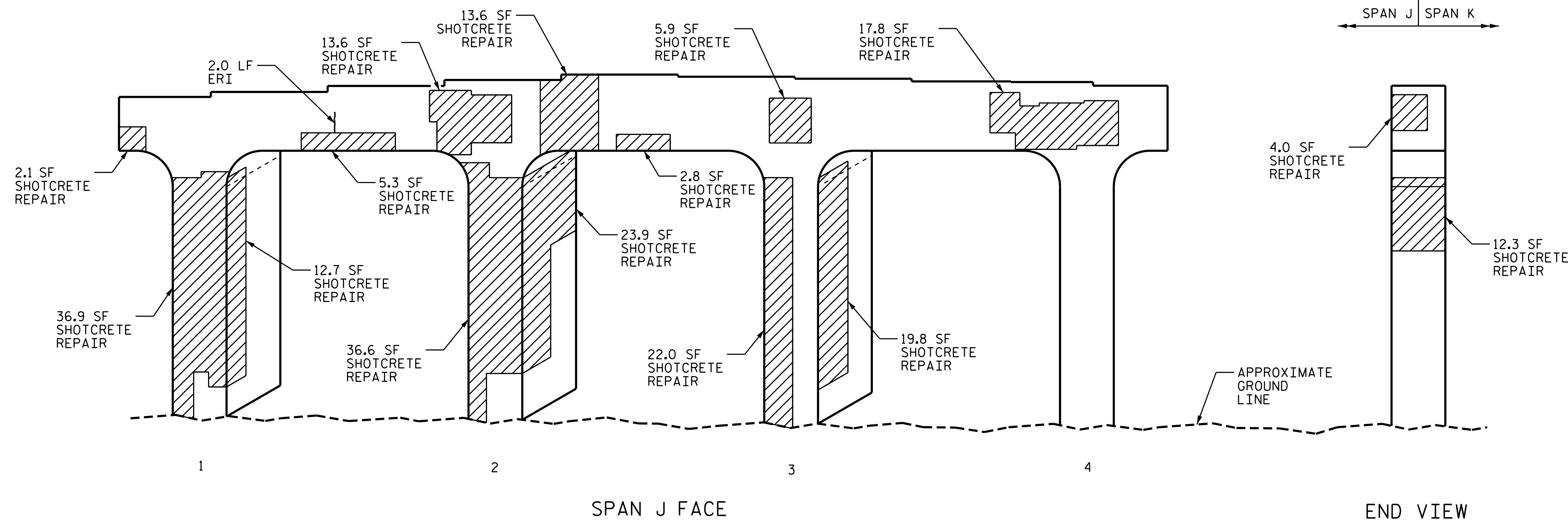
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-62
1			3			TOTAL SHEETS 196
2			4			





SPAN K  
SPAN J

TOP OF CAP



BENT 9

AS-BUILT REPAIR QUANTITY TABLE				
BENT 9 REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	153.7 *	64.6 *		
COLUMN	342.5 *	143.9 *		
CONCRETE REPAIRS				
CAP	0.0	0.0 *		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.
CAP		26.5		
COLUMN		3.0		
EPOXY COATING		SO. FT.		SO. FT.
TOP OF BENT CAP		182.0		

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

NOTES

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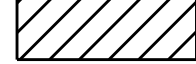

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-  CONCRETE REPAIR
-  SHOTCRETE REPAIR
-  ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO.: 309

SHEET 1 OF 2

DocuSigned by:  
Steven L. Wance  
FA0DFBA3B331425 4/25/2017



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 9  
SPAN J FACE

DRAWN BY : E. K. POPE DATE : 2/17  
CHECKED BY : S. WANCE DATE : 3/17

NO.	BY:	DATE:	REVISIONS			SHEET NO.
			NO.	BY:	DATE:	
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2			4			TOTAL SHEETS 196

NOTES

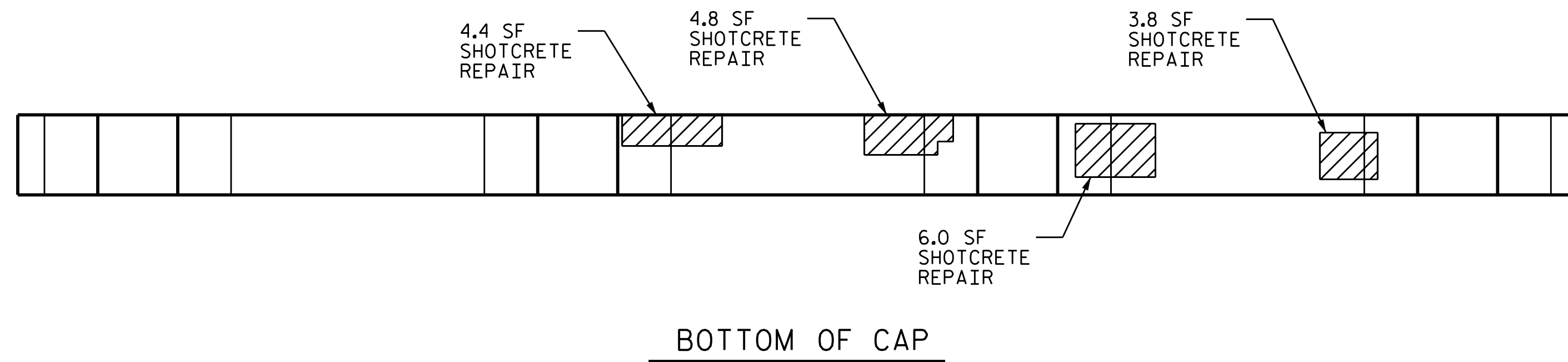
REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES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

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

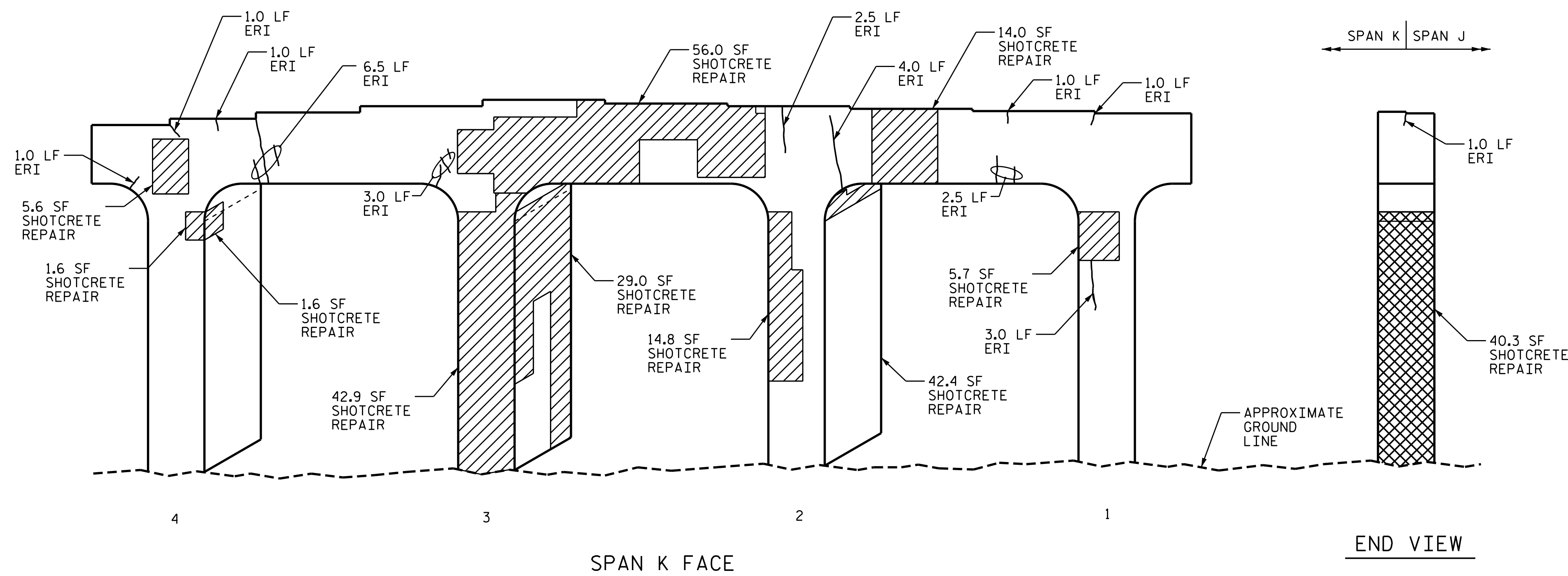
FOR REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.




CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND STRUTS. EPOXY PROTECTIVE COATING SHALL BE APPLIED TO THE TOP FACE OF THE CAP AND STRUTS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE "JACKING DETAIL" SHEET.



SPAN K  
SPAN J

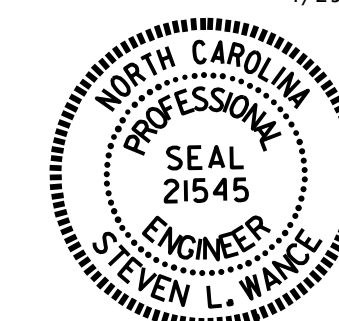


-  CONCRETE REPAIR
-  SHOTCRETE REPAIR
-  ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO.: 309

SHEET 2 OF 2

DocuSigned by:  
 Steven L. Wance  
 FA0DFBA3831425 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 9  
 SPAN K FACE

DRAWN BY : E. K. POPE DATE : 2/17  
 CHECKED BY : S. WANCE DATE : 3/17

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-64
1			3			TOTAL SHEETS
2			4			196

### 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		5.5		

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

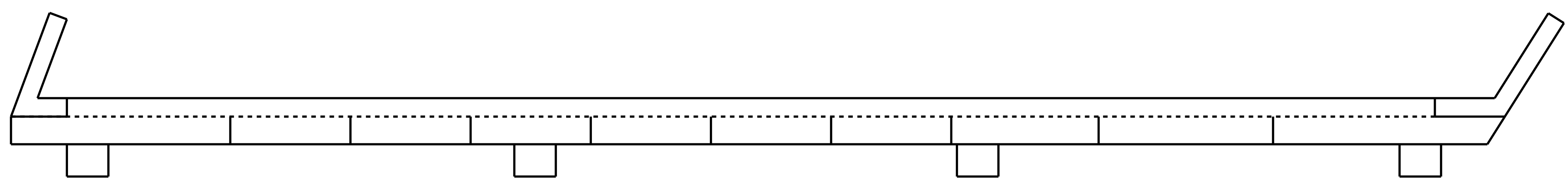
### NOTES

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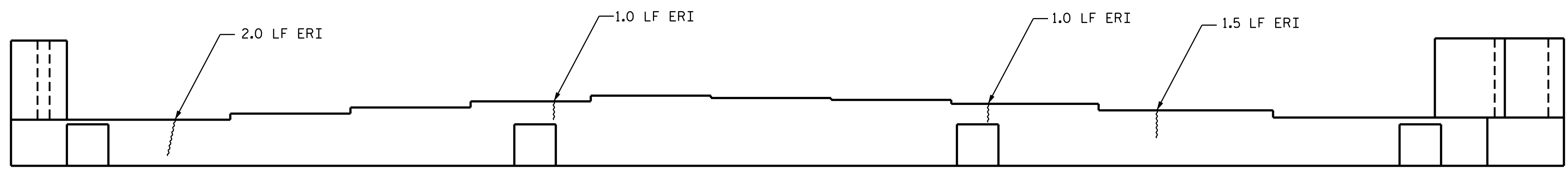
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FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR BRIDGE JACKING, SEE "JACKING DETAILS" SHEET.



PLAN



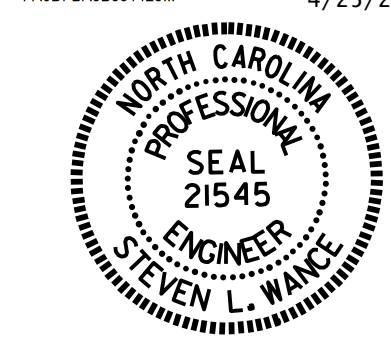
ELEVATION

END BENT 2

- CONCRETE REPAIR
- SHOTCRETE REPAIR
- ERI (EPOXY RESIN INJECTION)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO: 309

DocuSigned by:  
 Steven L. Wance  
 FA0DF8A3B331425 4/25/2017



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

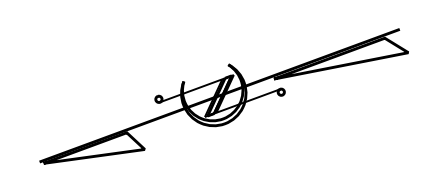
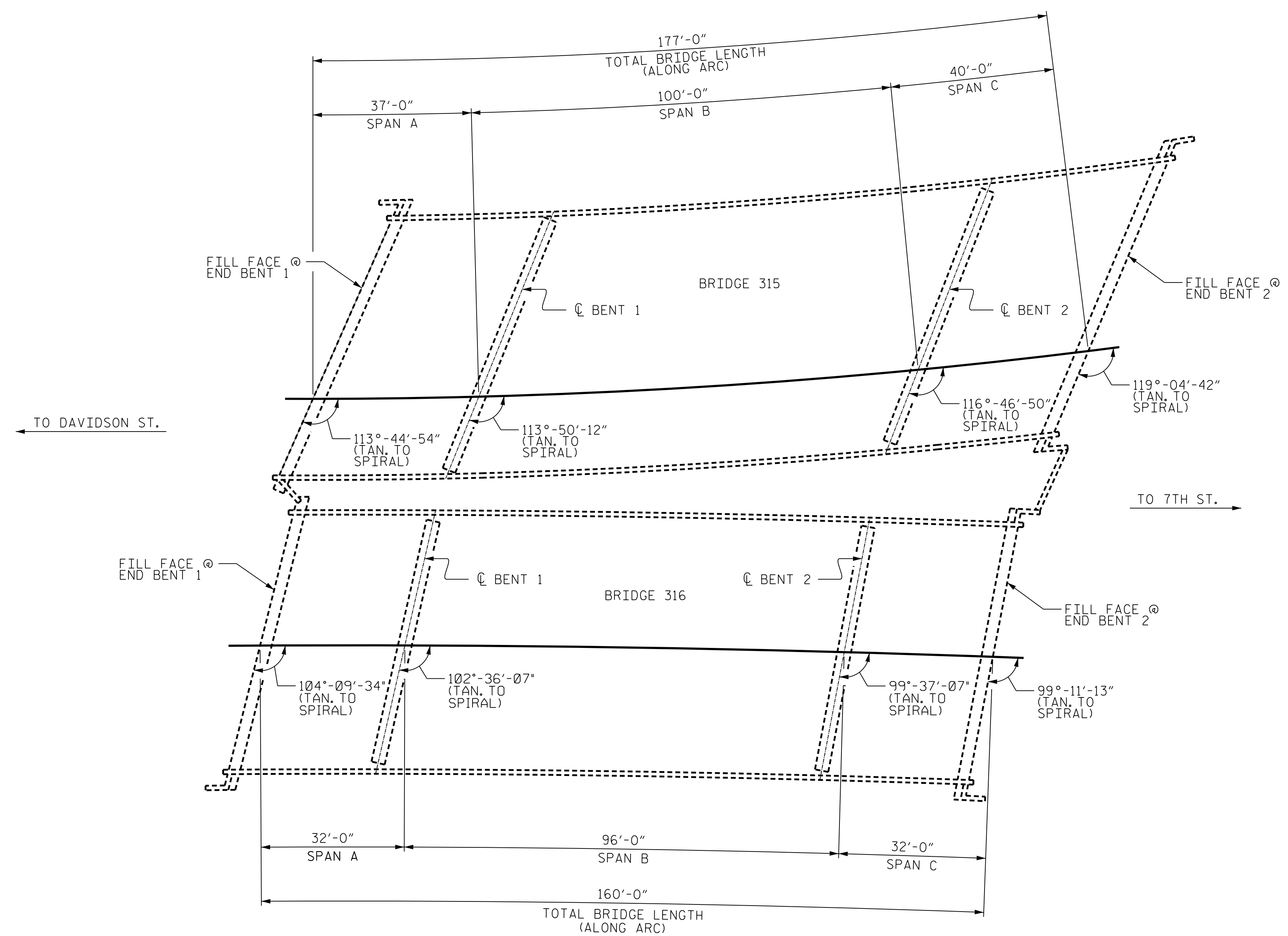
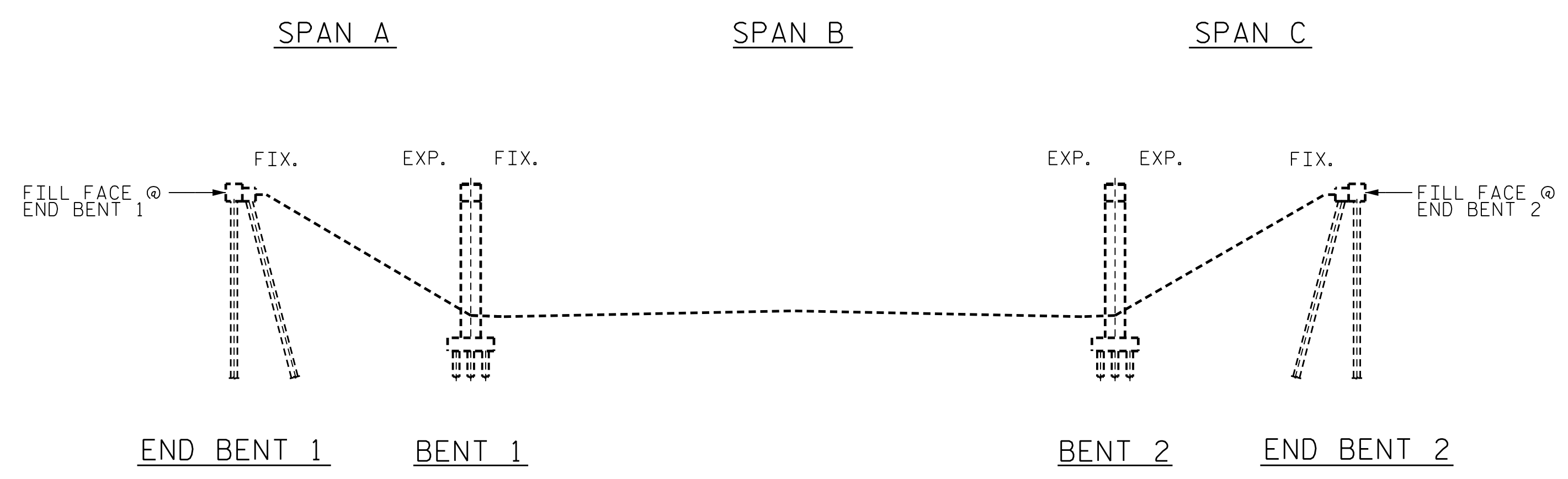
## END BENT 2

DRAWN BY : D.V. JOYNER DATE : 03/2017  
 CHECKED BY : S.L. WANCE DATE : 03/2017

NO.	BY:	DATE:	REVISIONS			SHEET NO.
			NO.	BY:	DATE:	
1			3			S-65
2			4			TOTAL SHEETS 196



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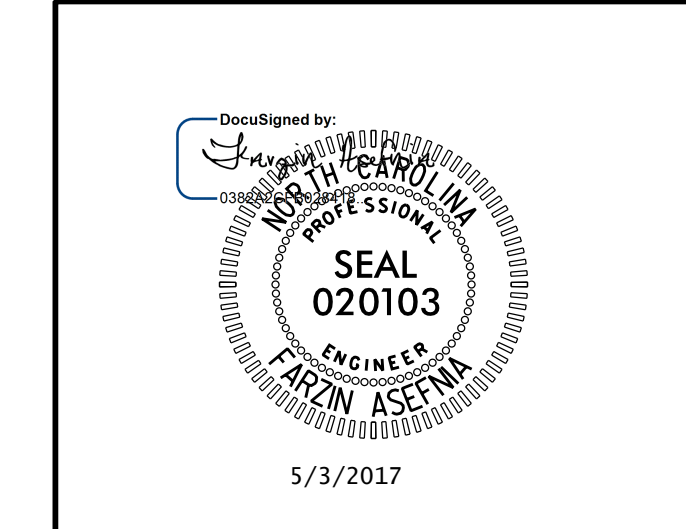
I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer                      Date

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 315 & 316

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SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 BRIDGES ON I-277 OVER  
 10TH STREET ON  
 INDEPENDENCE EXPRESSWAY  
 BETWEEN 7TH STREET AND  
 DAVIDSON STREET

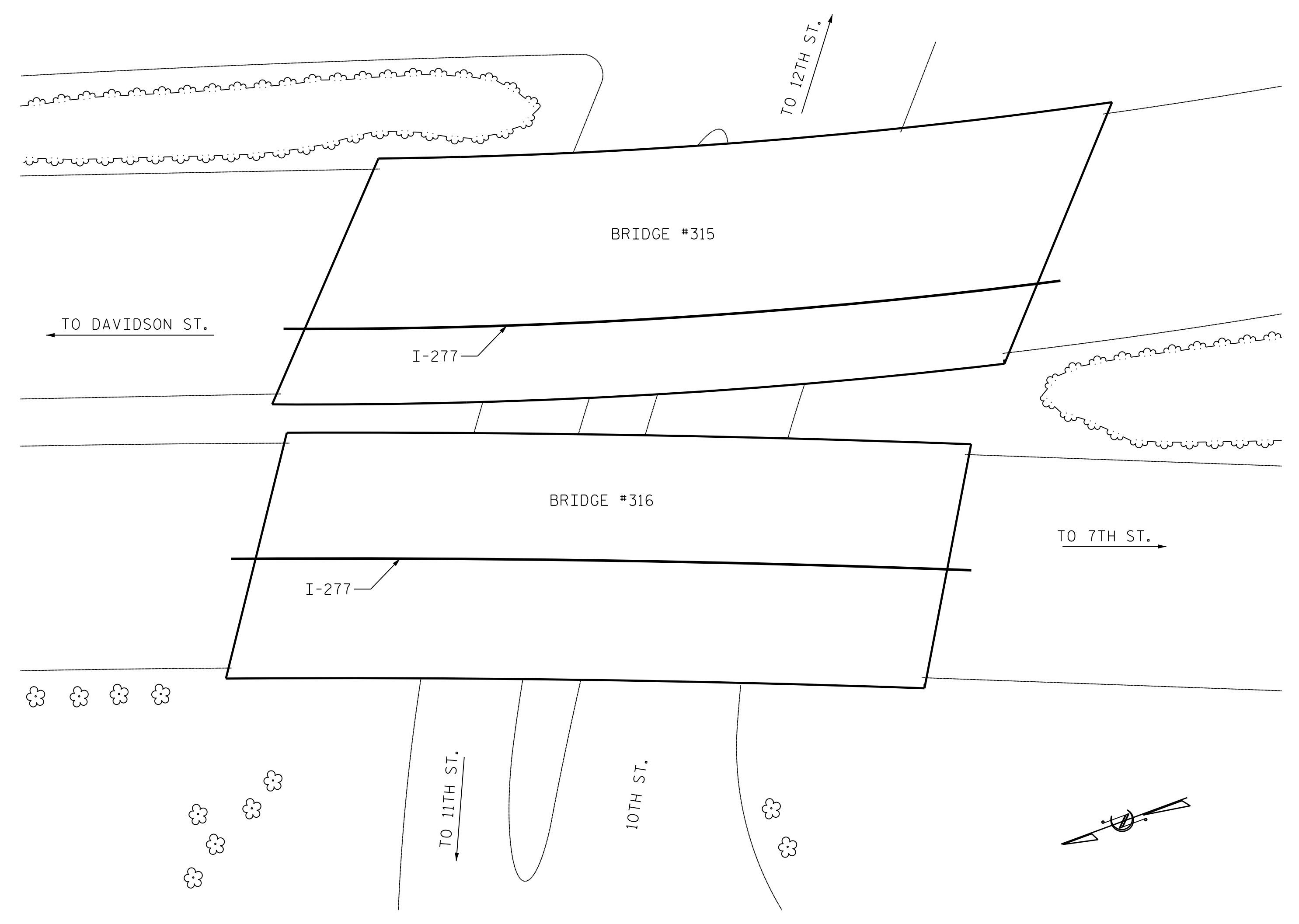
DRAWN BY : T. KIRSCHBAUM                      DATE : 8-16  
 CHECKED BY : F. ASEFNIA                      DATE : 10-16  
 DESIGN ENGINEER OF RECORD : F. ASEFNIA                      DATE : 10-16

PLAN

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

TOTAL SHEETS 196

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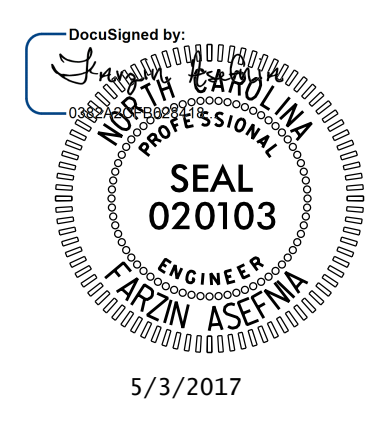


LOCATION SKETCH

**NOTES**

- INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION ONLY. CONTRACTOR SHALL CONFIRM, THROUGH OTHER SOURCES, SPECIFIC INFORMATION REGARDING THE BRIDGES, ROADWAYS, UTILITIES, THE SURROUNDING AREA, AND ANY OTHER ASPECTS THAT MAY BE NECESSARY TO PERFORM AND COMPLETE THE PROJECT.
- EXISTING DIMENSION AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSION AND CONDITION DIFFER.
- IT IS THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM HYDRO-DEMOLITION PROCESS. SEE MANAGING HYDRO-DEMOLITION WATER SPECIAL PROVISION.
- EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPERATION OF BRIDGE DECK.
- DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.
- THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOWS THROUGH THE DECK.
- LONGITUDINAL CONSTRCUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, CLASS II SURFACE PREPARATION, AND CLASS III SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS.
- FOR LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
- FOR PAINTING EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 315 & 316

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		SHEET 2 OF 2	
		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH <b>GENERAL DRAWING</b> BRIDGES ON I-277 OVER 10TH STREET ON INDEPENDENCE EXPRESSWAY BETWEEN 7TH STREET AND DAVIDSON STREET	
		REVISIONS	
NO.	BY:	DATE:	SHEET NO.
1			5-67
2			TOTAL SHEETS
			196

DRAWN BY :	T. KIRSCHBAUM	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

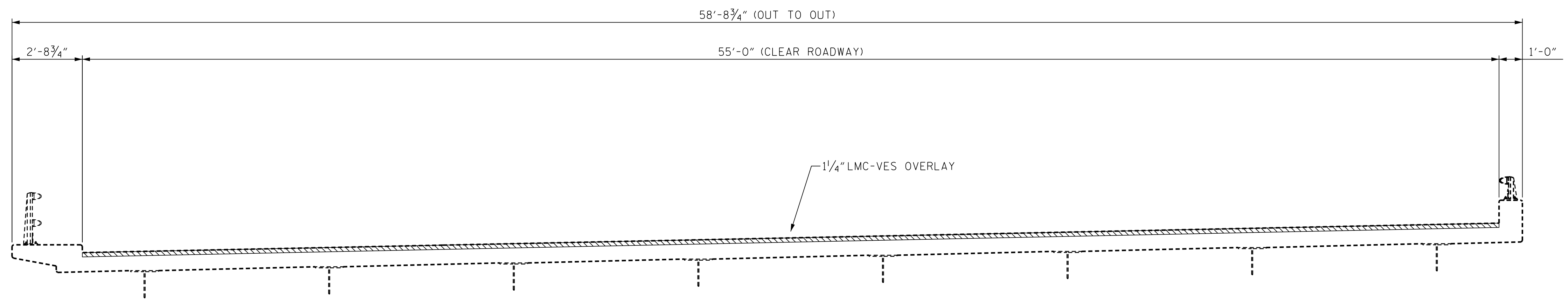

 Prepared by:  
**LOUIS BERGER**  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

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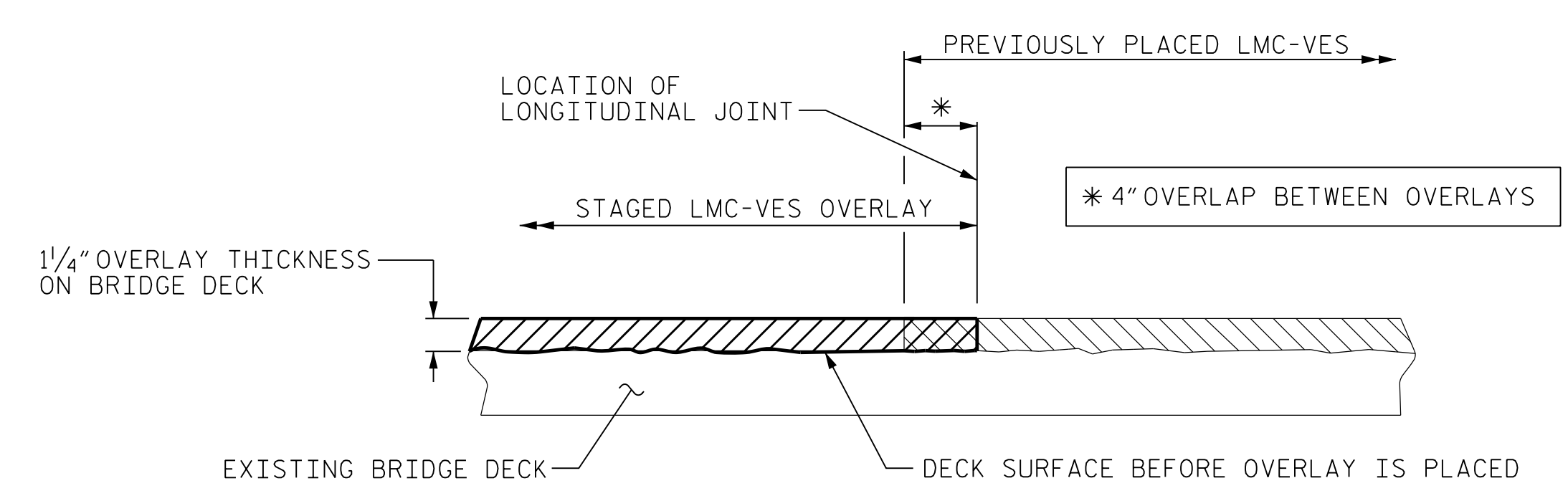
**NOTE:**

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

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC-VES PLACEMENT.



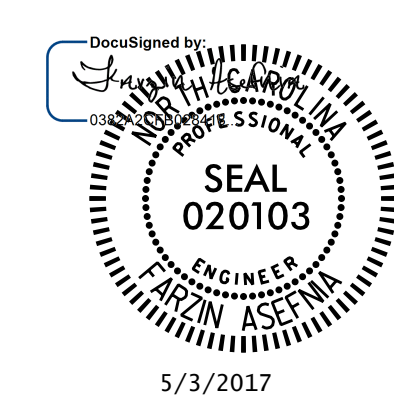
TYPICAL SECTION



SECTION THRU DECK  
STAGED LMC-VES OVERLAY JOINT  
 (AS NEEDED)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 315

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION**  
 LMC-VES OVERLAY

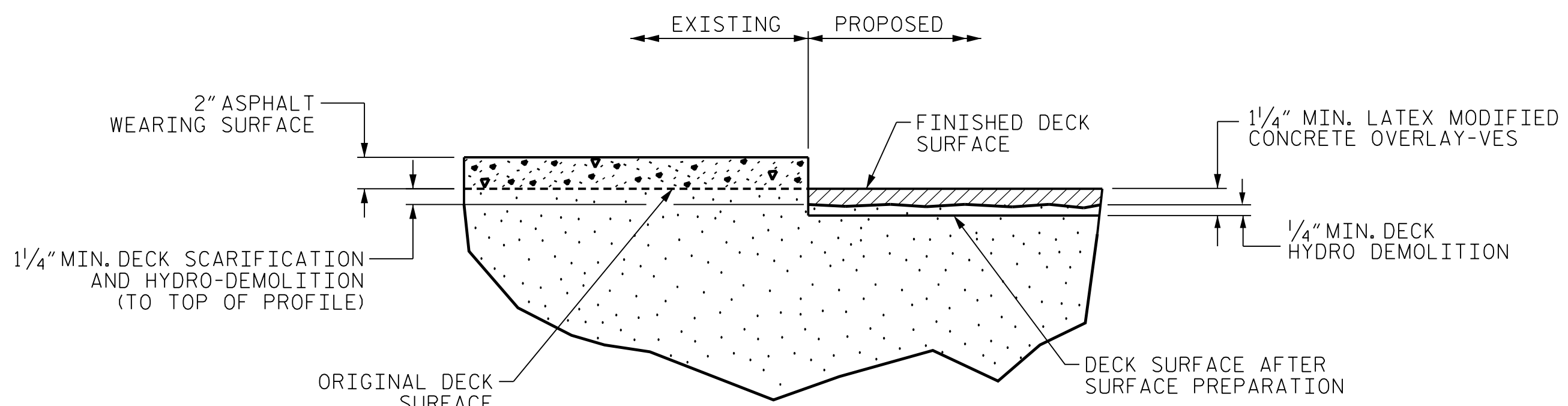
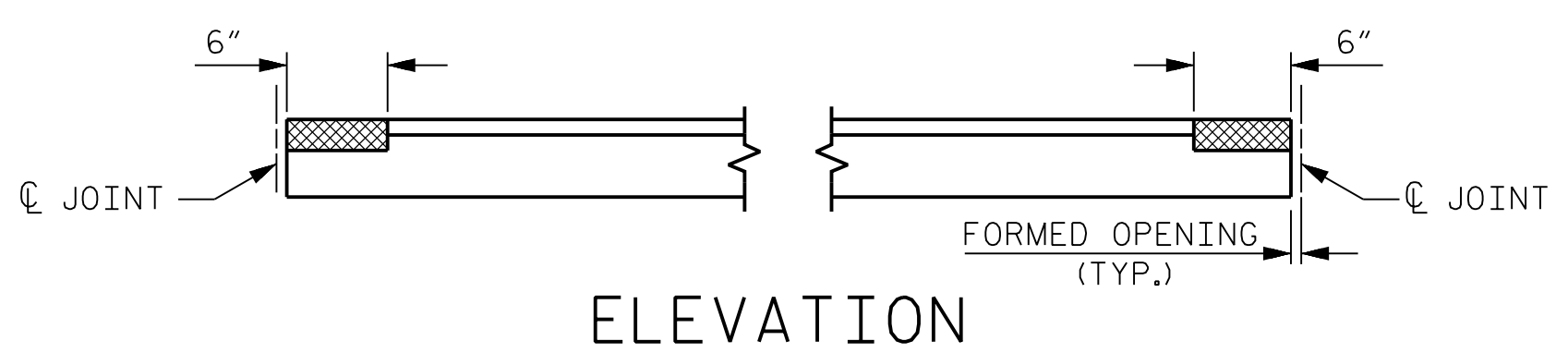
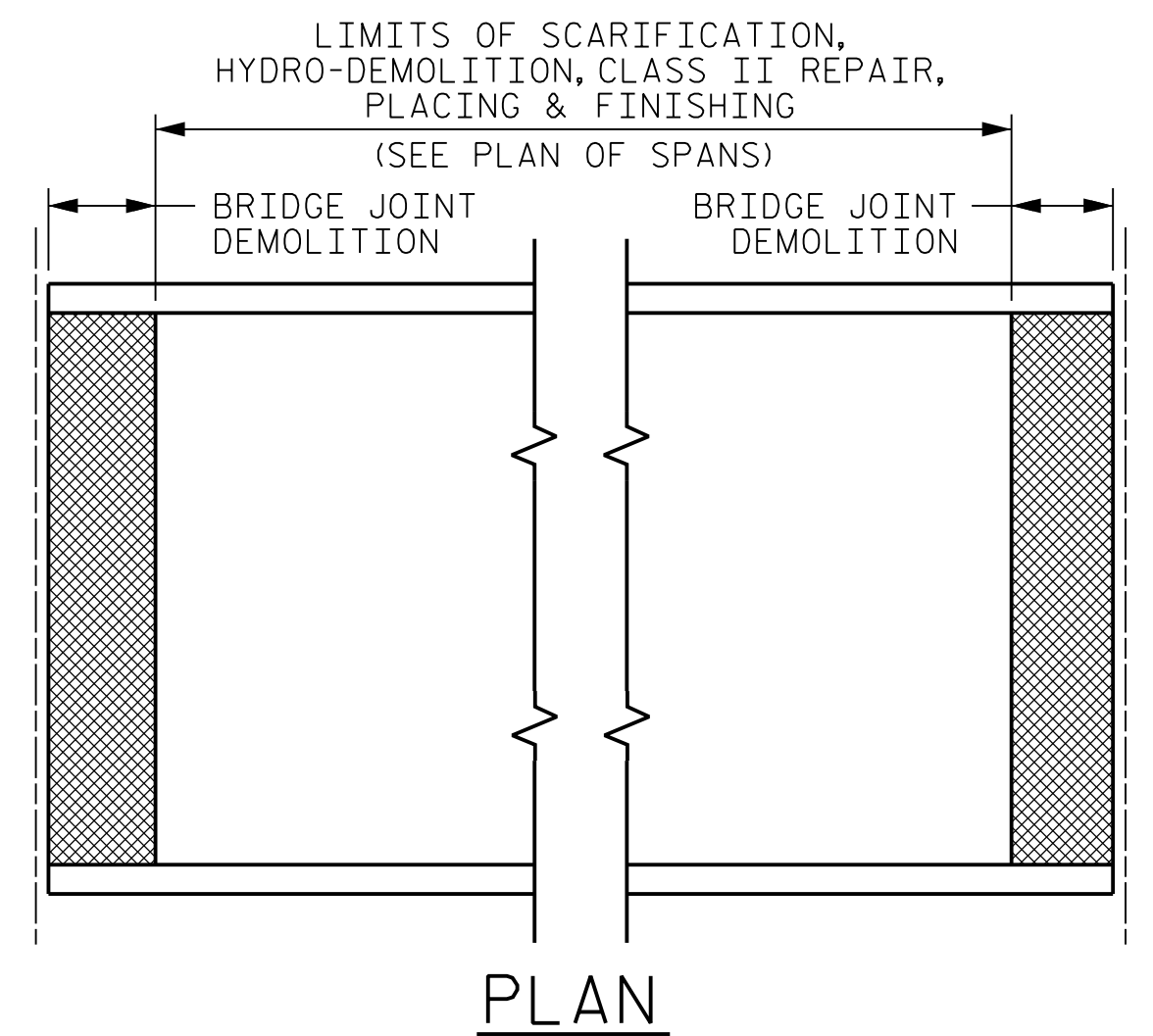
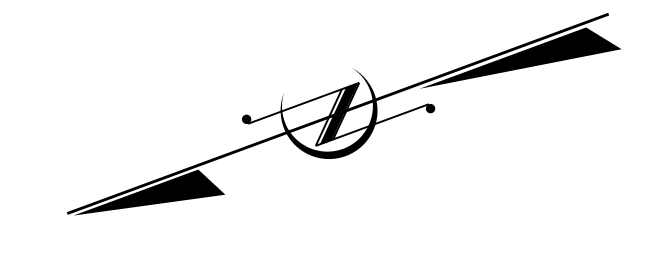
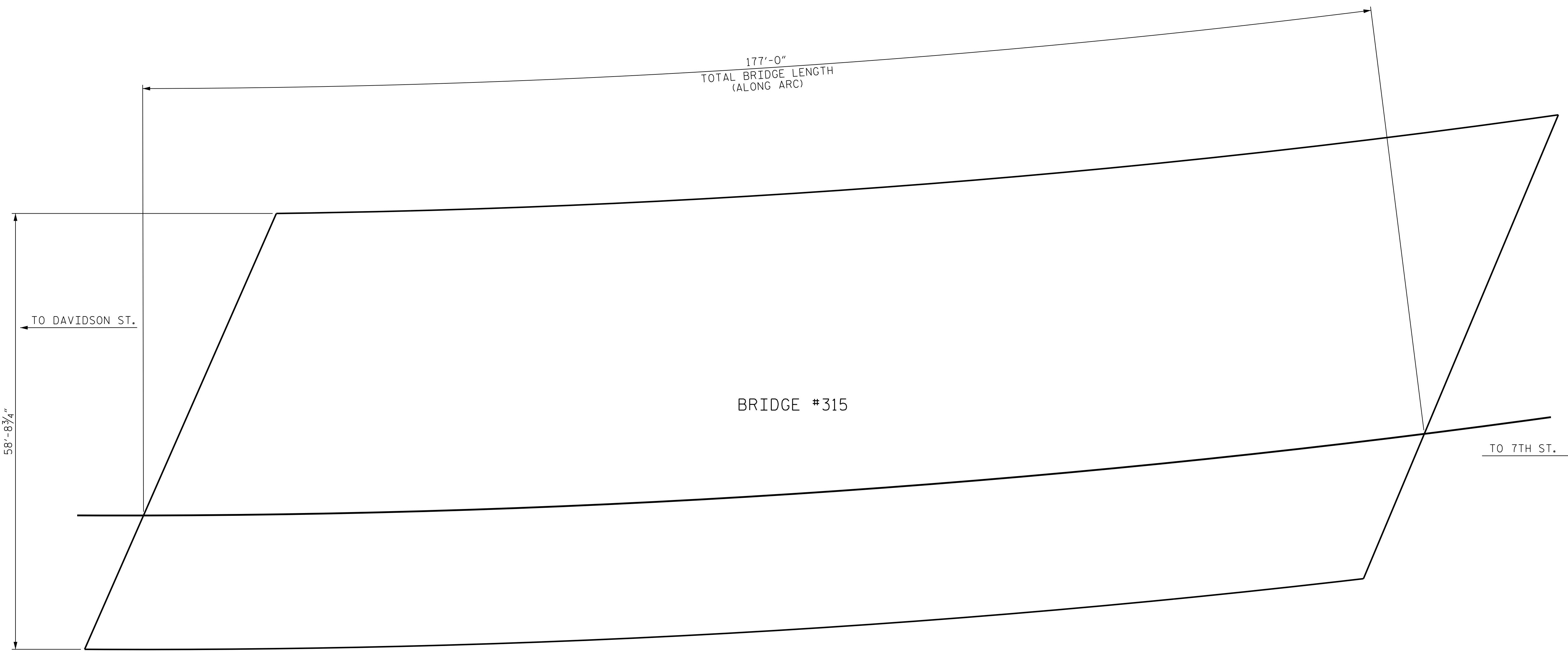
DRAWN BY :	T. KIRSCHBAUM	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

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SHEET NO.	S-68

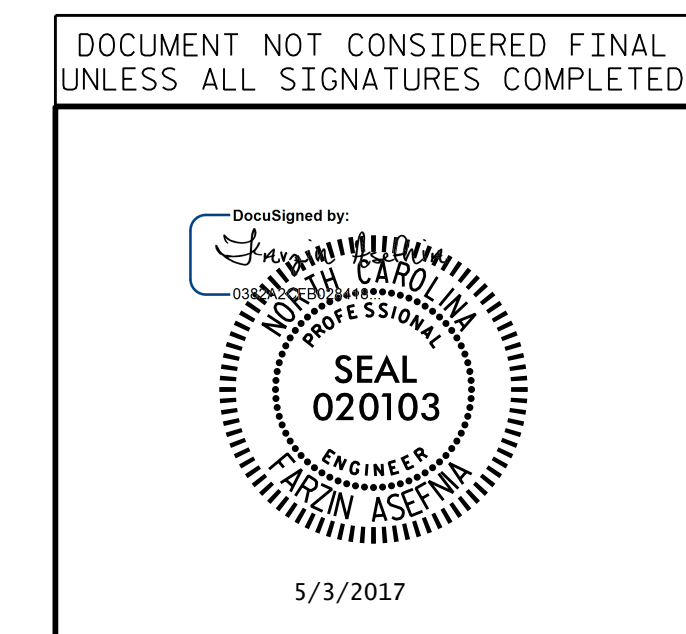


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DETAIL FOR LATEX  
 MODIFIED CONCRETE OVERLAY-VES

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 315



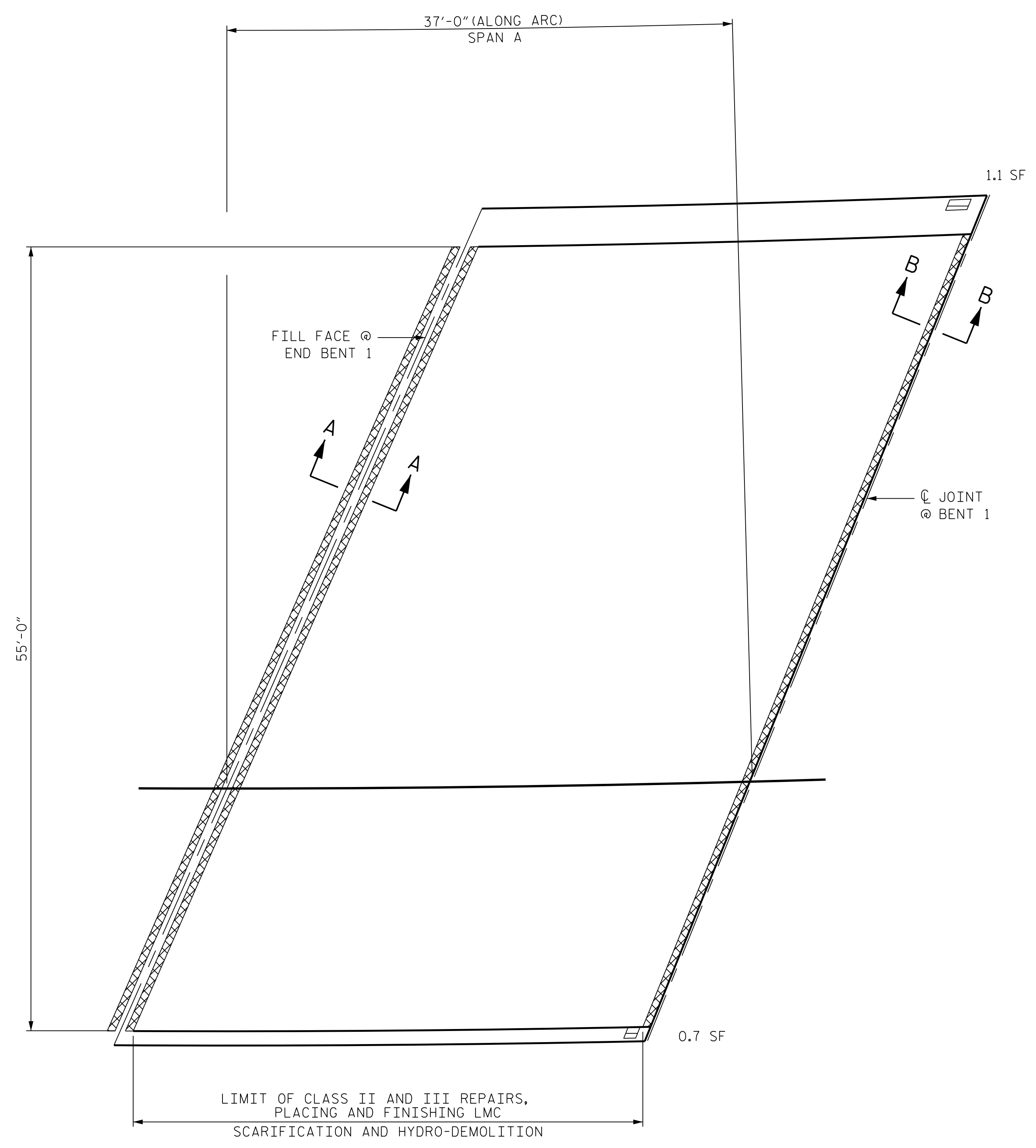
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 SUPERSTRUCTURE  
 SURFACE PREPARATION

DRAWN BY :	T. KIRSCHBAUM	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

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TOTAL SHEETS	196
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**PLAN OF SPAN A**  
 FOR SECTION A-A, SEE "JOINT DETAILS" SHEET

SPAN "A" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	90 SQ. FT.	
SCARIFYING BRIDGE DECK	216 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	216 SQ. YDS.	
SHOTCRETE REPAIR	1.0 CU. FT.	

PAYMENT FOR CLASS II & CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE SPECIAL PROVISIONS.  
 CLASS II & CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN AMOUNT IS INDICATED FOR PRICING PURPOSE. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION
- OVERHANG AND DECK UNDERSIDE DELAMINATION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 315

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SHEET 1 OF 3



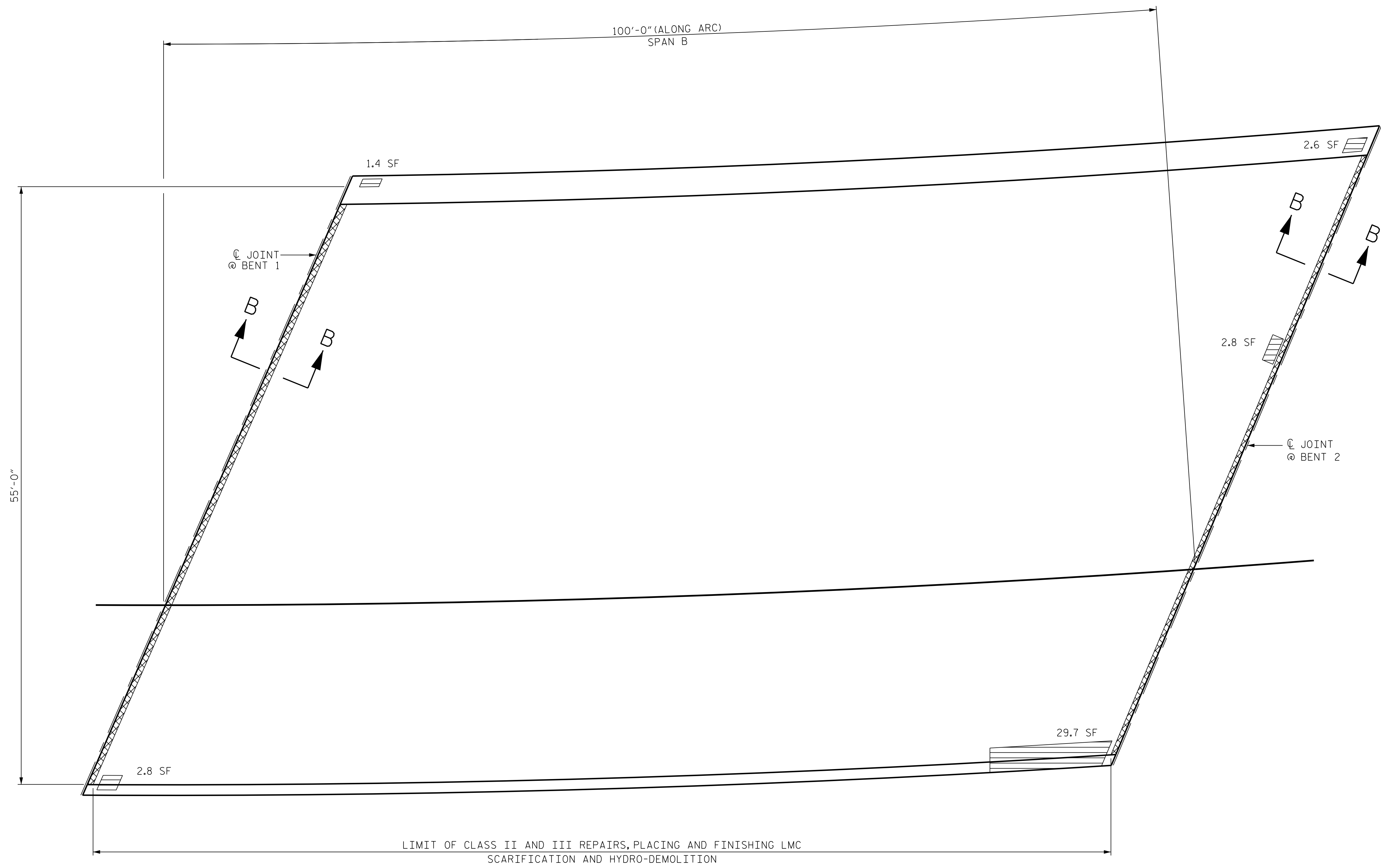
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SURFACE PREPARATION AND UNDERDECK REPAIR LOCATIONS**  
 SPAN A

DRAWN BY :	T. KIRSCHBAUM	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

REVISIONS						SHEET NO.
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SPAN "B" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	60 SQ. FT.	
SCARIFYING BRIDGE DECK	605 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	605 SQ. YDS.	
SHOTCRETE REPAIR	1.0 CU. FT.	

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

CLASS II & CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN AMOUNT IS INDICATED FOR PRICING PURPOSE. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION ARE ENCOUNTERED.

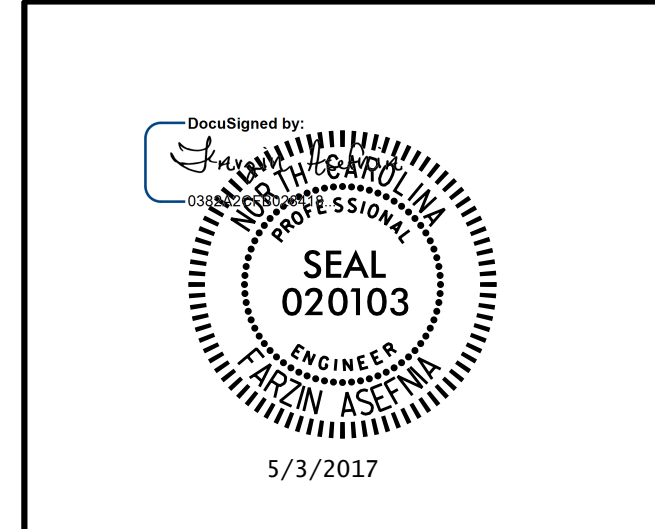
- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION
- OVERHANG AND DECK UNDERSIDE DELAMINATION

**PLAN OF SPAN B**  
FOR SECTION A-A, SEE "JOINT DETAILS" SHEET

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 315

DOCUMENT NOT CONSIDERED FINAL  
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SHEET 2 OF 3



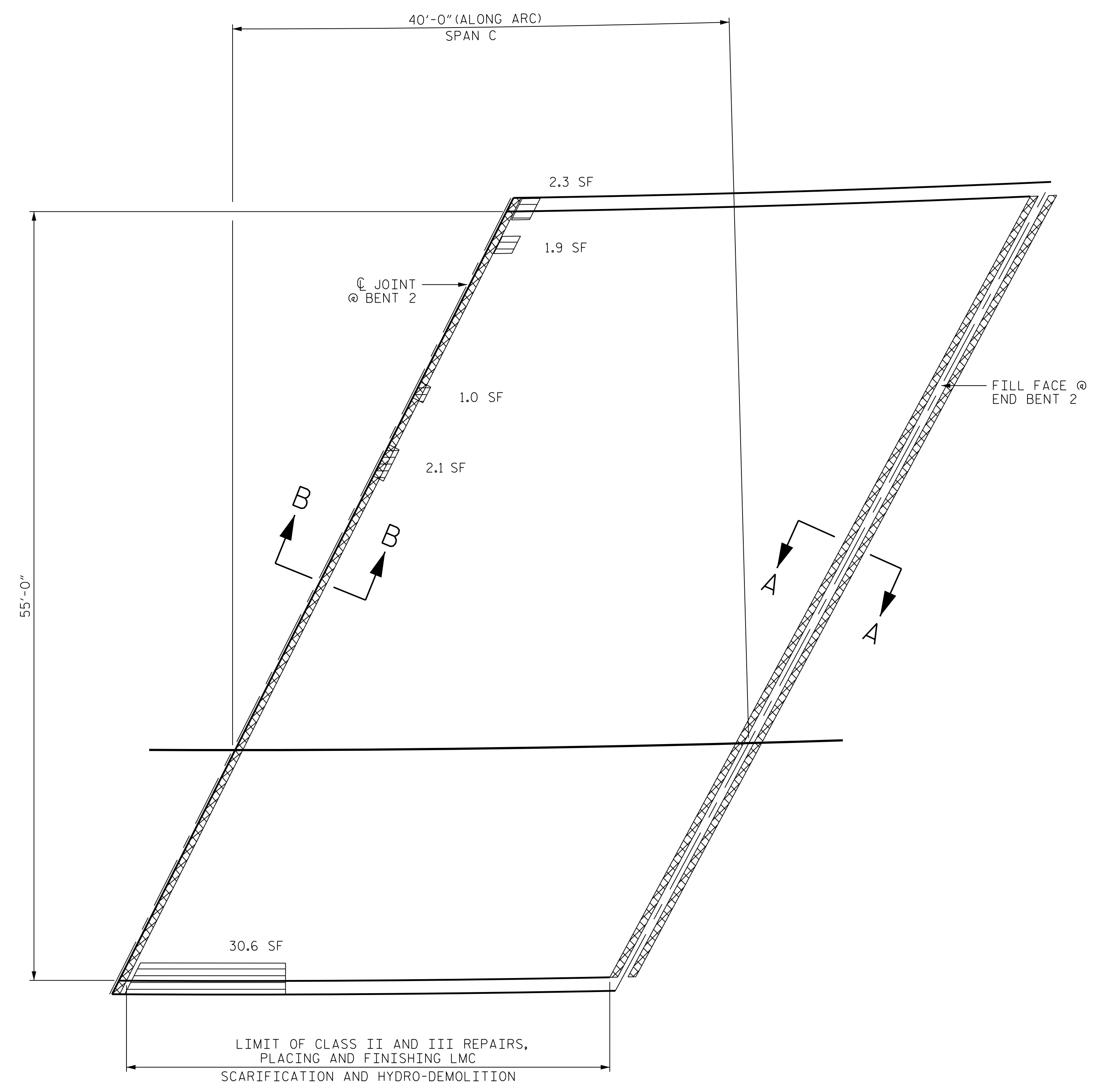
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DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION  
AND UNDERDECK REPAIR  
LOCATION  
SPAN B**

DRAWN BY : T. KIRSCHBAUM	DATE : 9-16
CHECKED BY : F. ASEFNIA	DATE : 9-16
DESIGN ENGINEER OF RECORD : F. ASEFNIA	DATE : 9-16

REVISIONS						SHEET NO.
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**PLAN OF SPAN C**  
FOR SECTION A-A, SEE "JOINT DETAILS" SHEET

SPAN "C" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	90 SQ. FT.	
SCARIFYING BRIDGE DECK	235 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	235 SQ. YDS.	
SHOTCRETE REPAIR	1.0 CU. FT.	

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

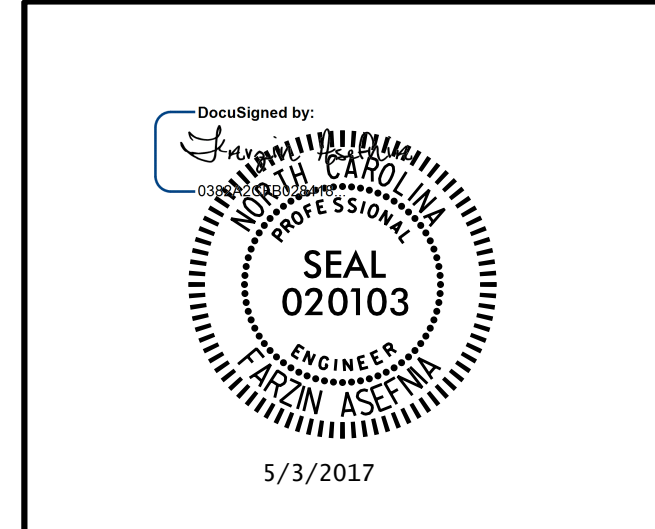
CLASS II & CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN AMOUNT IS INDICATED FOR PRICING PURPOSE. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION
- OVERHANG AND DECK UNDERSIDE DELAMINATION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 315

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SHEET 3 OF 3



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

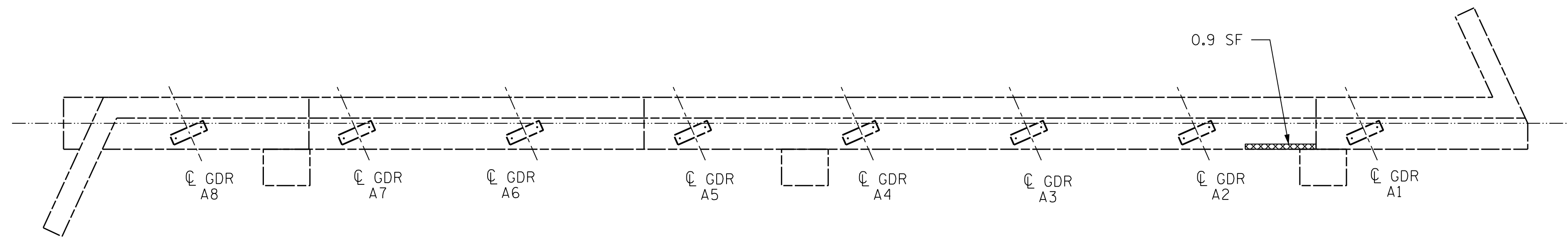
**SURFACE PREPARATION  
AND UNDERDECK REPAIR  
LOCATIONS  
SPAN C**

DRAWN BY : T. KIRSCHBAUM	DATE : 9-16
CHECKED BY : F. ASEFNIA	DATE : 9-16
DESIGN ENGINEER OF RECORD : F. ASEFNIA	DATE : 9-16

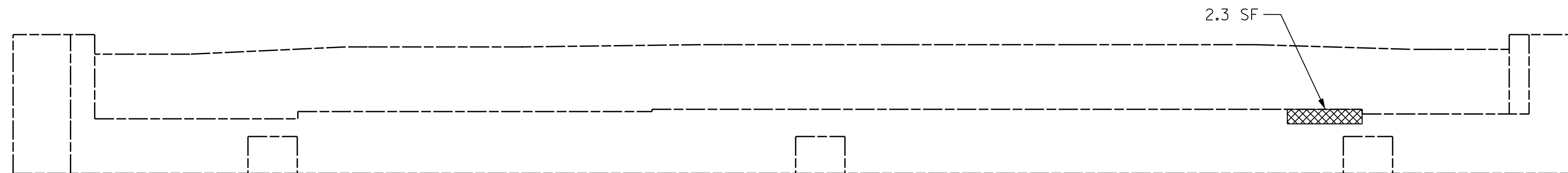
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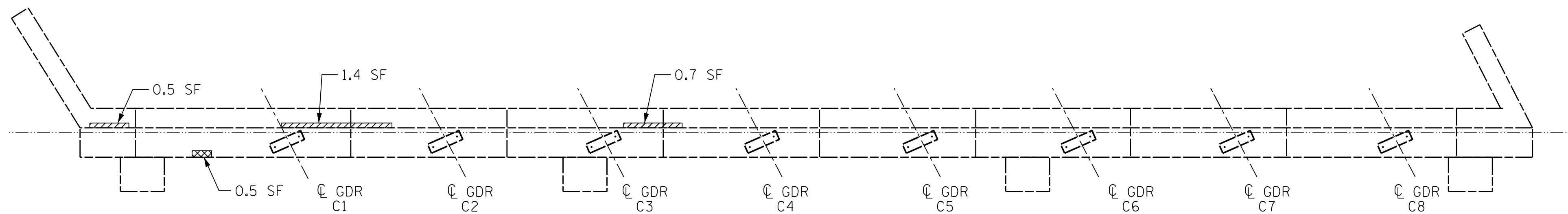
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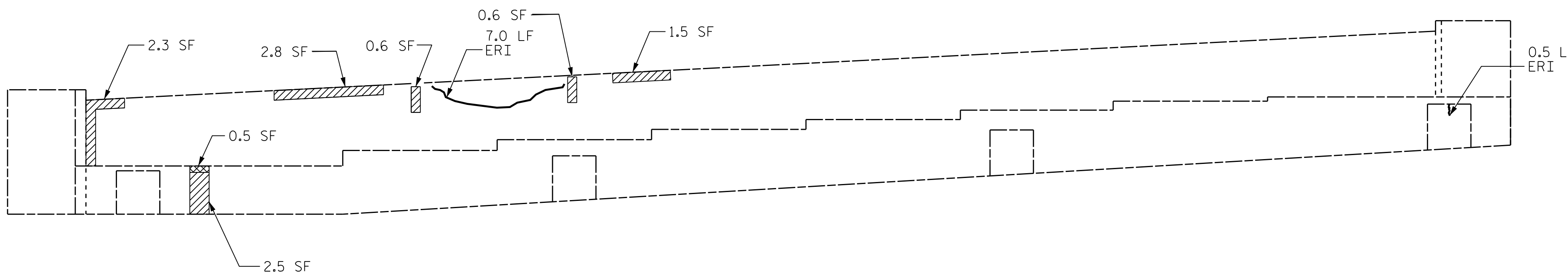
**PLAN**  
END BENT 1



**ELEVATION**  
END BENT 1



**PLAN**  
END BENT 2



**ELEVATION**  
END BENT 2

**REPAIR QUANTITY TABLE**

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIRS	3.2	0.8		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			0.0	
EPOXY COATING	AREA SF			
CAP	62.5			

**REPAIR QUANTITY TABLE**

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	10.3	2.1		
CAP (HORIZONTAL, CORNER)	2.6	0.0		
CONCRETE REPAIRS	1.0	0.3		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			7.5	
EPOXY COATING	AREA SF			
CAP	62.5			

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

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

▨ - CONCRETE REPAIR

▩ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 315

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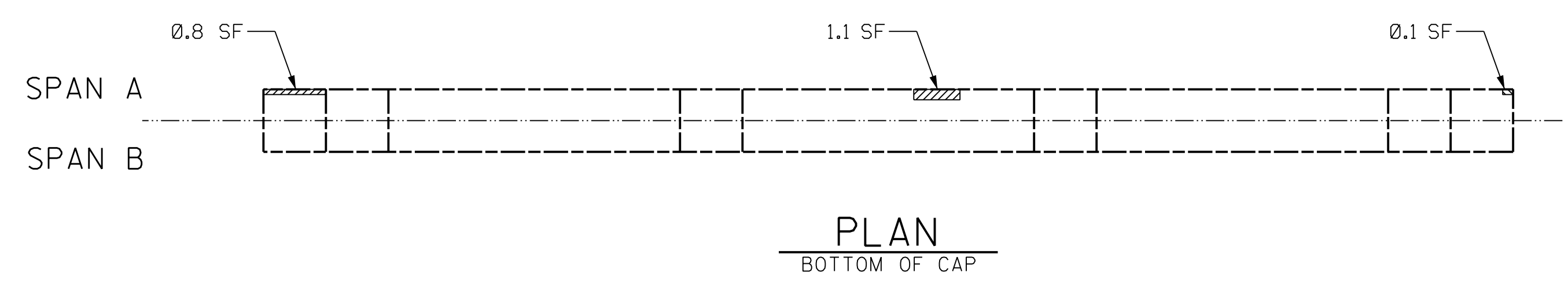
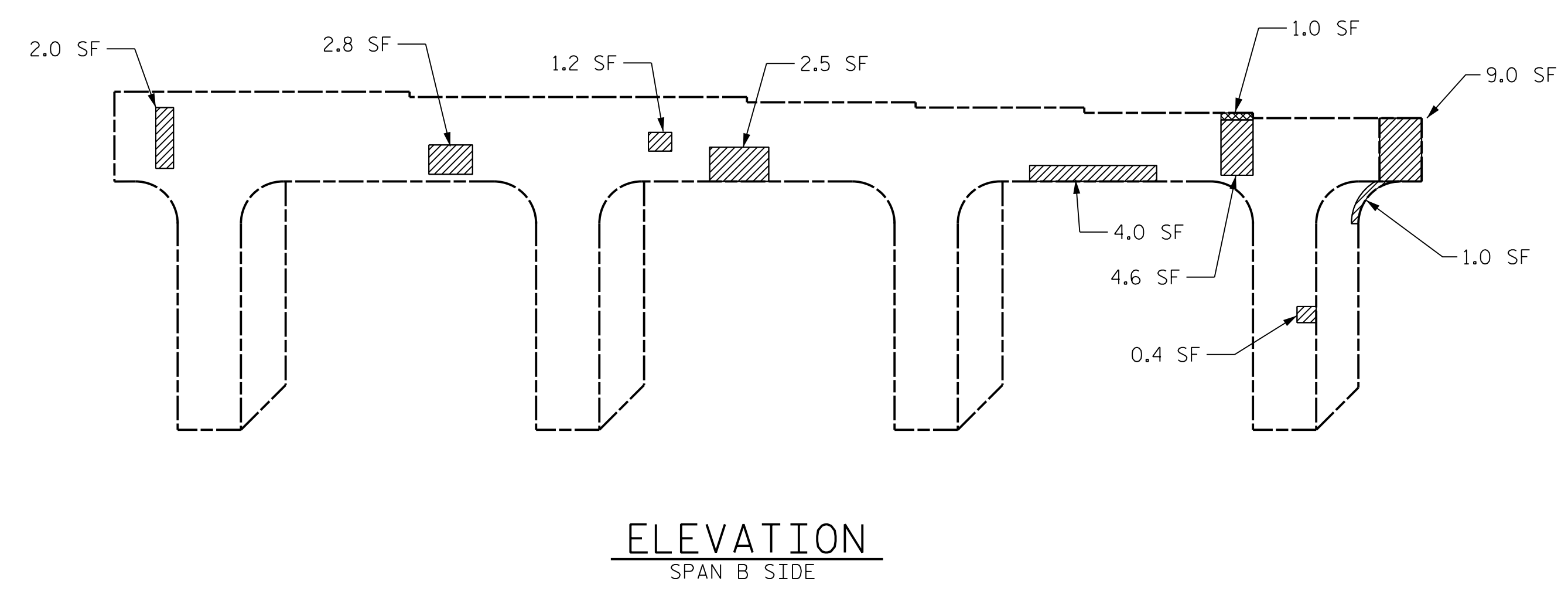
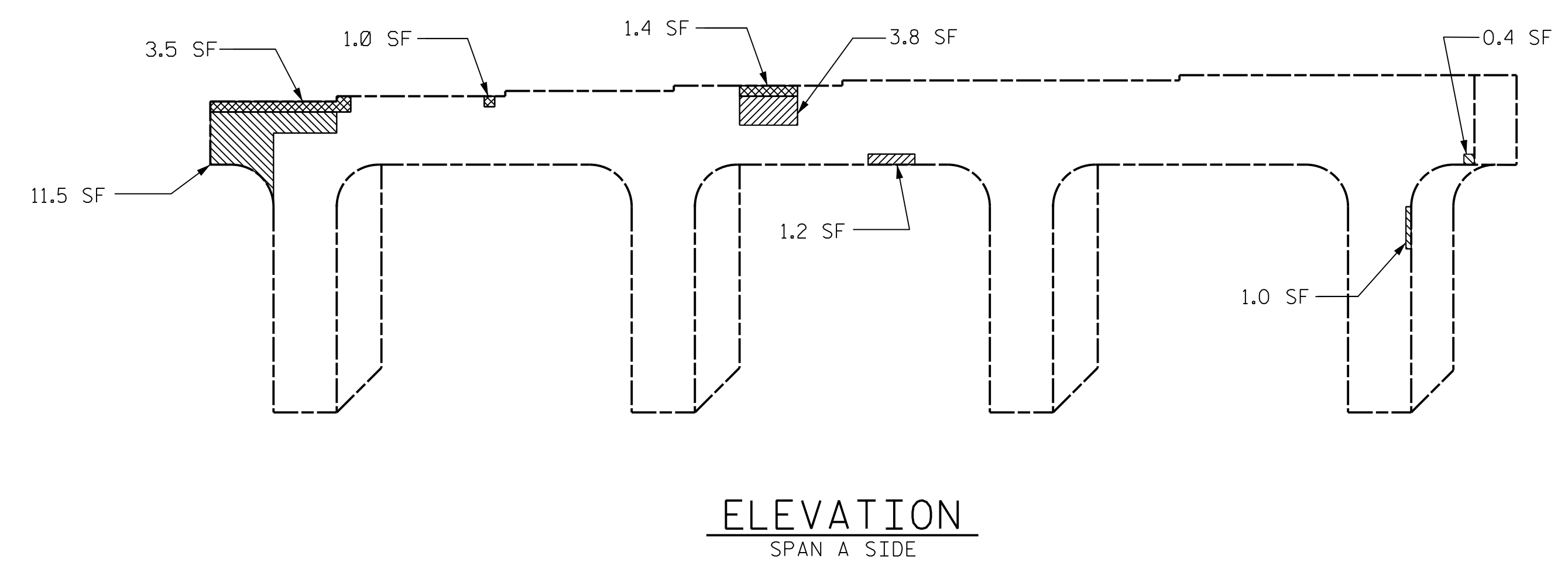
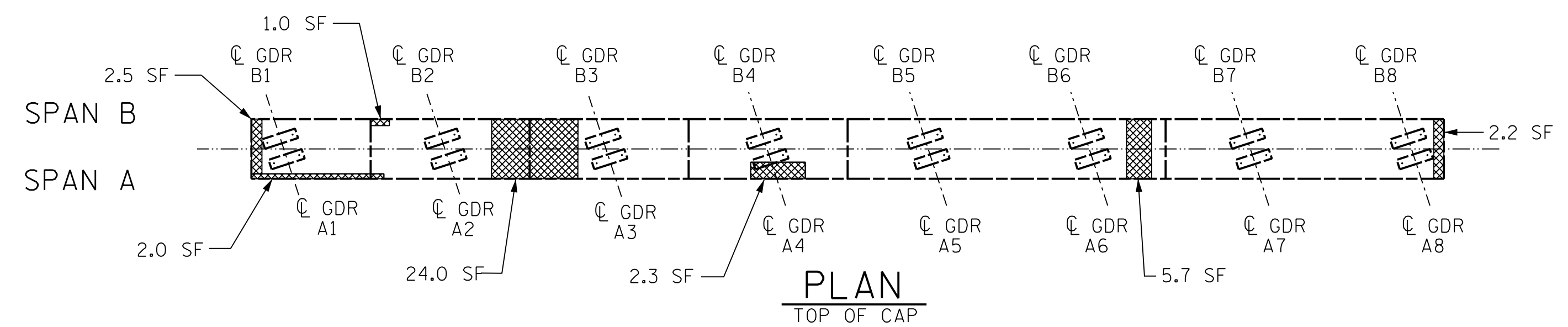
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE  
END BENTS**

DRAWN BY :	J. MYA	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

REVISIONS						SHEET NO. S-73 TOTAL SHEETS 196
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REPAIR QUANTITY TABLE				
REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
SHOTCRETE REPAIRS				
CAP (VERTICAL FACE)	43.0	10.8		
CAP (HORIZONTAL)	2.0	0.5		
COLUMN (HORIZONTAL FACE)	2.4	0.6		
CONCRETE REPAIRS	46.6	11.7		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING			SQ. FT	SQ. FT
TOP OF CAP		90.3		

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

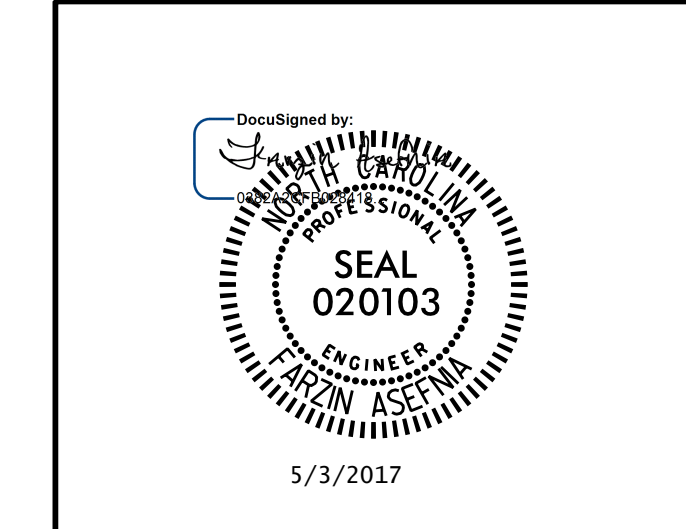
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 315

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE BENT 1**

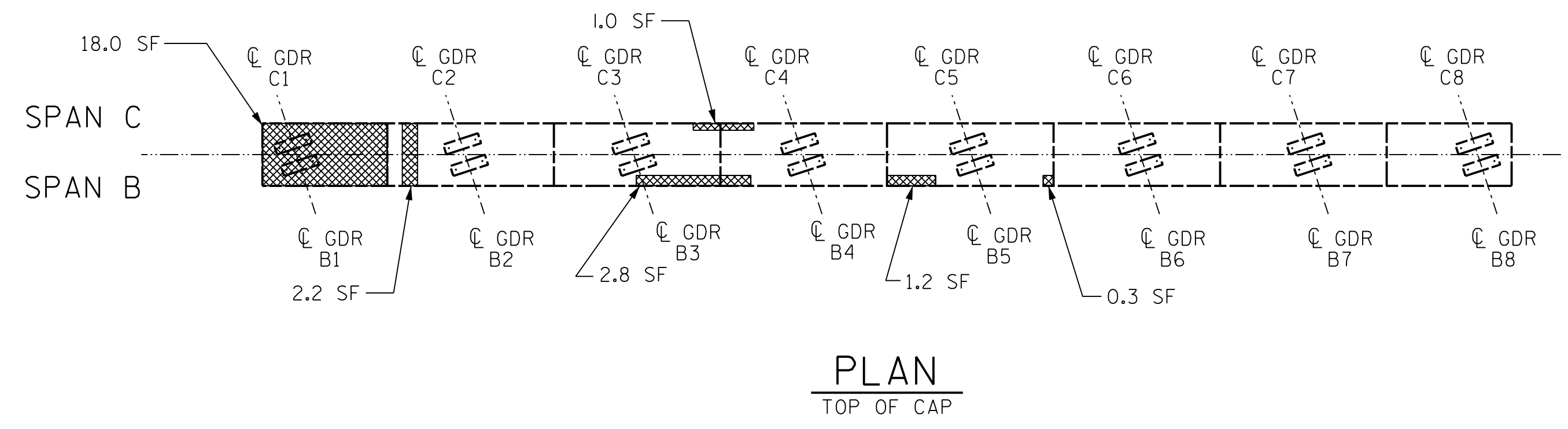
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NO.	BY:	DATE:	NO.	BY:	DATE:	5-74
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2			4			196

DRAWN BY :	J. MYA	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

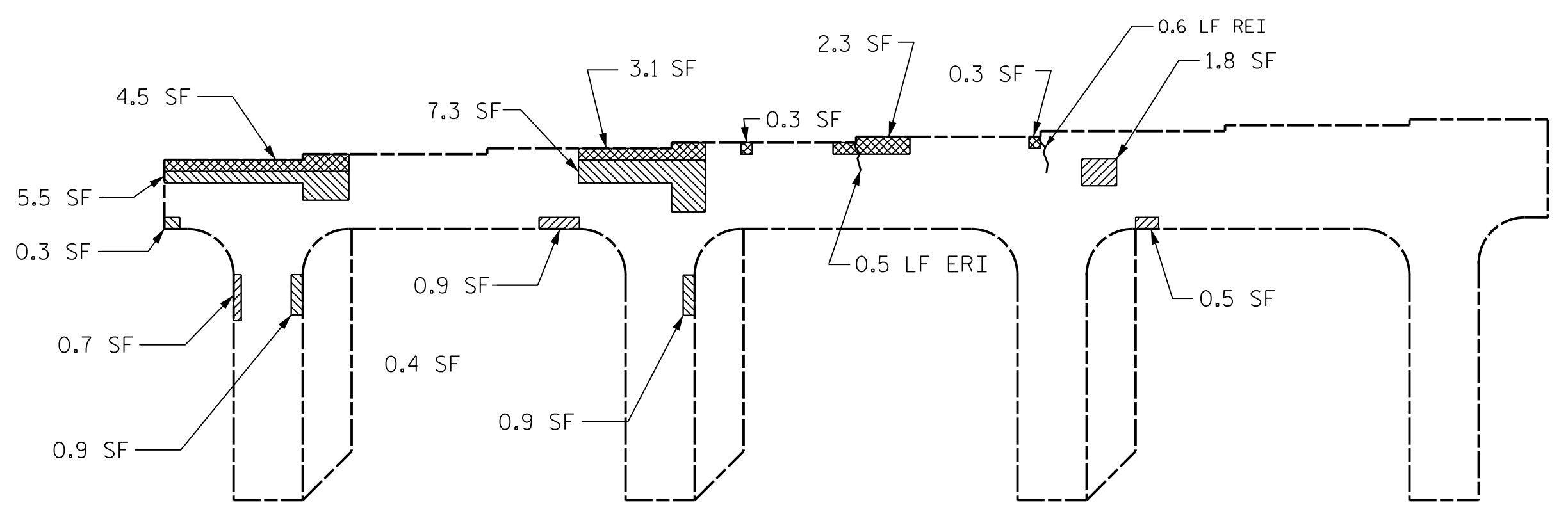




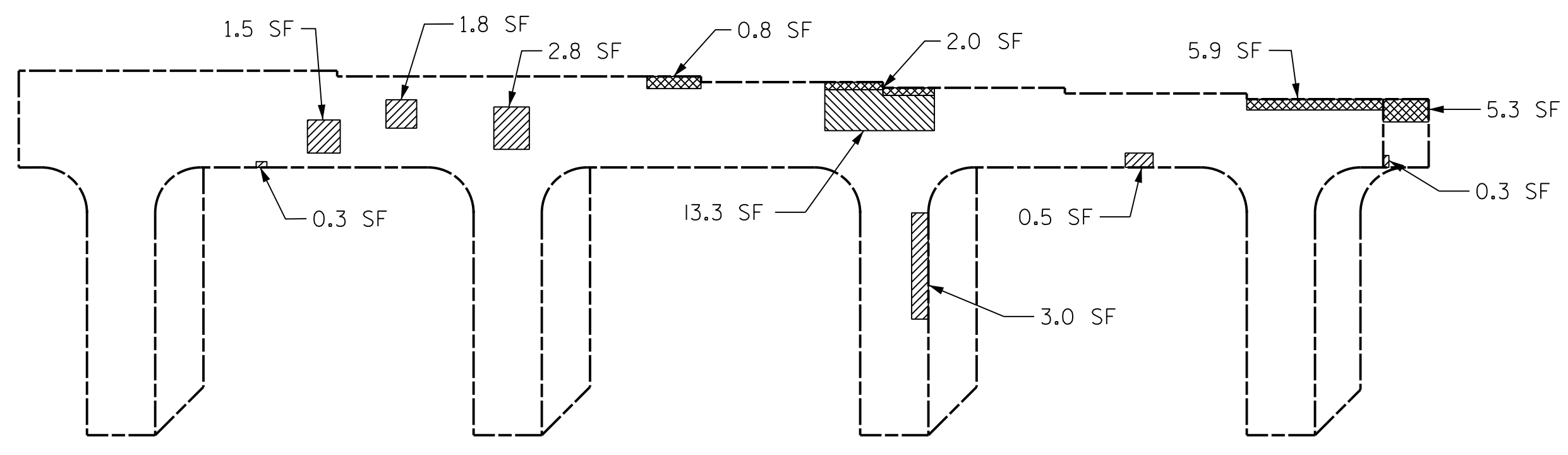
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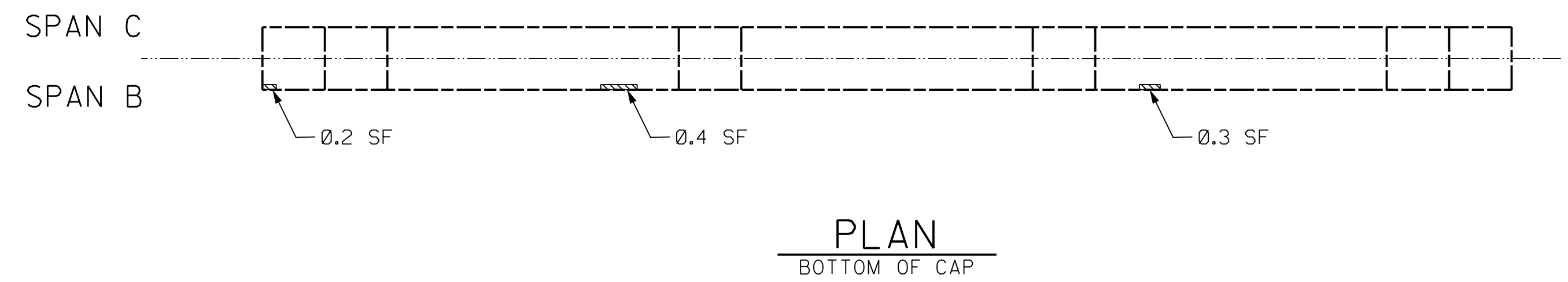
PLAN  
TOP OF CAP



ELEVATION  
SPAN B SIDE



ELEVATION  
SPAN C SIDE



PLAN  
BOTTOM OF CAP

REPAIR QUANTITY TABLE				
REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	36.8	9.2		
CAP (HORIZONTAL, CORNER)	0.9	0.2		
COLUMN (HORIZONTAL FACE)	5.5	1.4		
CONCRETE REPAIRS	50.0	12.5		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP		1.1		
COLUMN		0.0		
EPOXY COATING			SQ. FT	SQ. FT
TOP OF CAP		90.3		

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

**NOTES:**  
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.  
CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.  
FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.  
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.  
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 315

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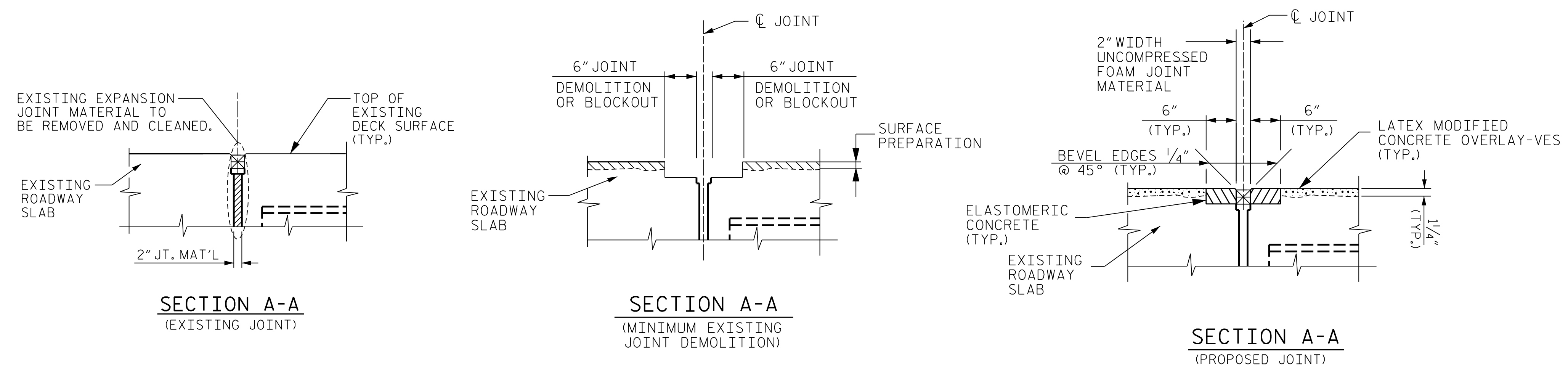
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE  
BENT 2**

DRAWN BY :	J. MYA	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

REVISIONS						SHEET NO. S-75 TOTAL SHEETS 196
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2			4			



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**JOINT INSTALLATION SEQUENCE AT END BENTS**  
SECTION A-A

**NOTES:**

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

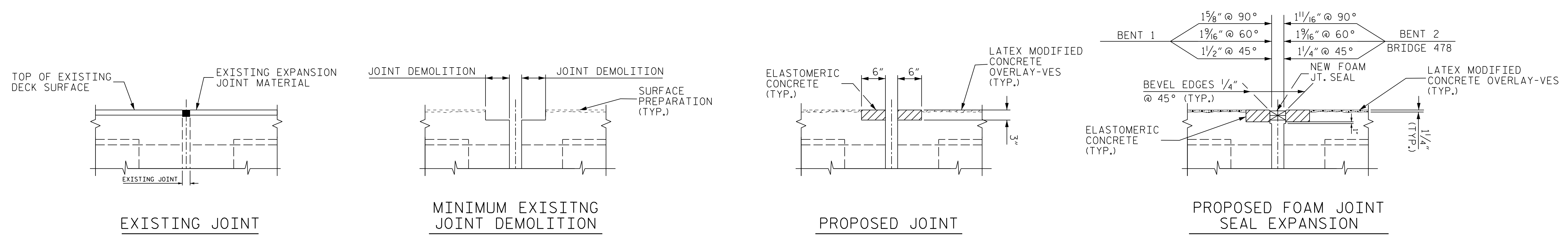
HYDRODEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT. TO PROVIDE SUFFICIENT SUBSTRATE FOR ELASTOMERIC CONCRETE.

ELASTOMERIC CONCRETE SHALL NOT BE PLACED ON LATEX MODIFIED CONCRETE. ELASTOMERIC CONCRETE SHALL BE PLACED ON PREPARED SURFACE OF ORIGINAL DECK CONCRETE OR CONCRETE FOR DECK REPAIR.

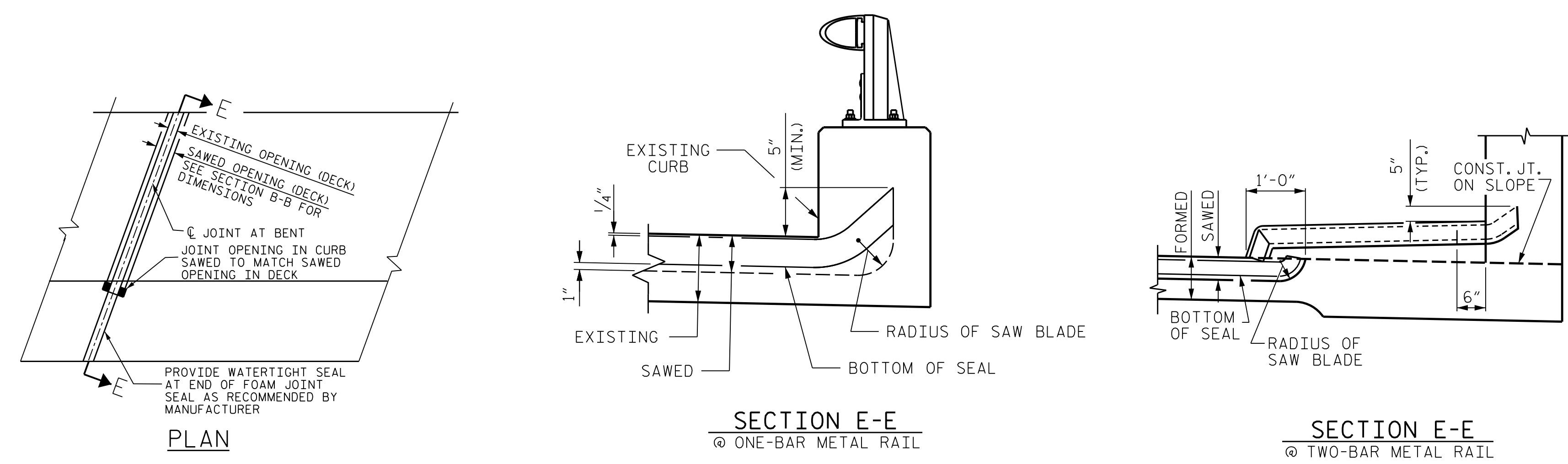
RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL FOR BOTH BRIDGES SHALL BE 2" @ ALL BENTS.

ELASTOMERIC CONCRETE	
BRIDGE 315	60.0 (CU. FT.)



**JOINT INSTALLATION SEQUENCE AT BENT 2**  
SECTION B-B



PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 315

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DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUPERSTRUCTURE**  
JOINT DETAILS

DRAWN BY :	T. KIRSCHBAUM	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

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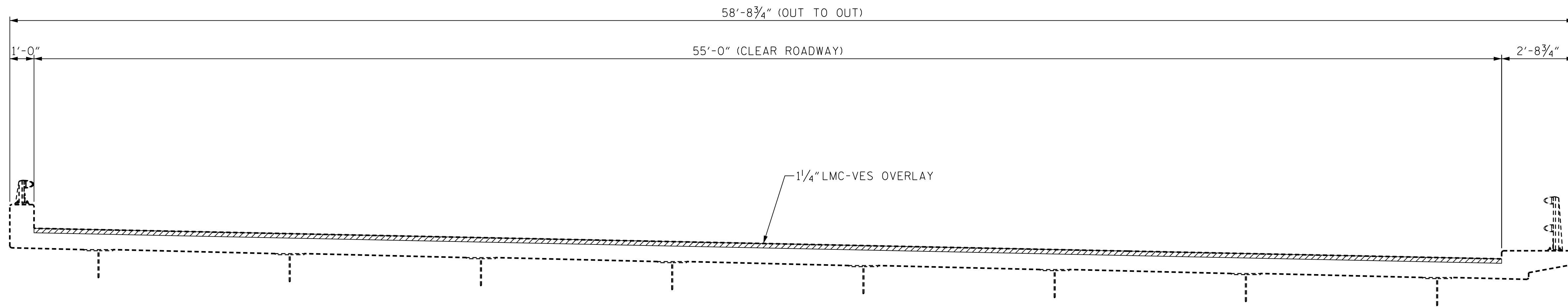
Prepared by:  
**Louis Berger**  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

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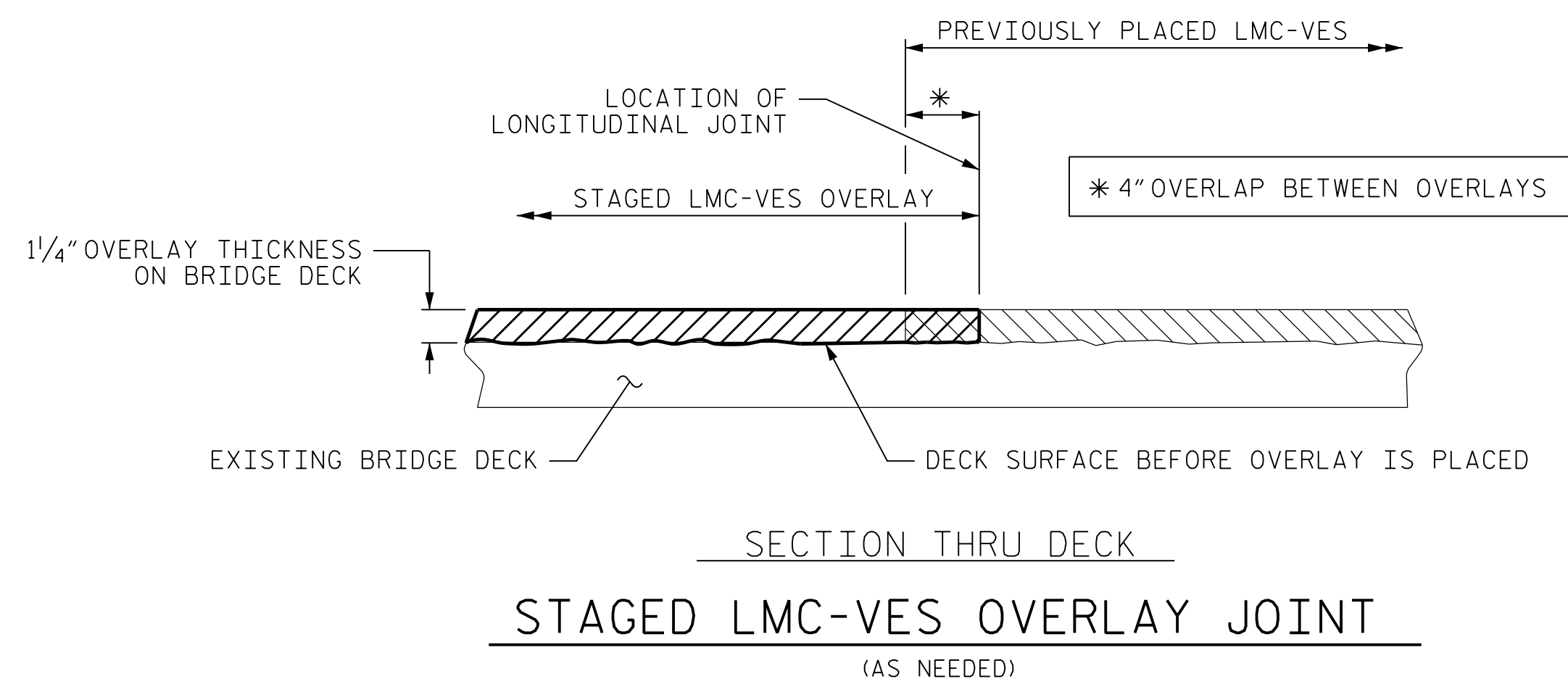
**NOTE:**

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

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC-VES PLACEMENT.



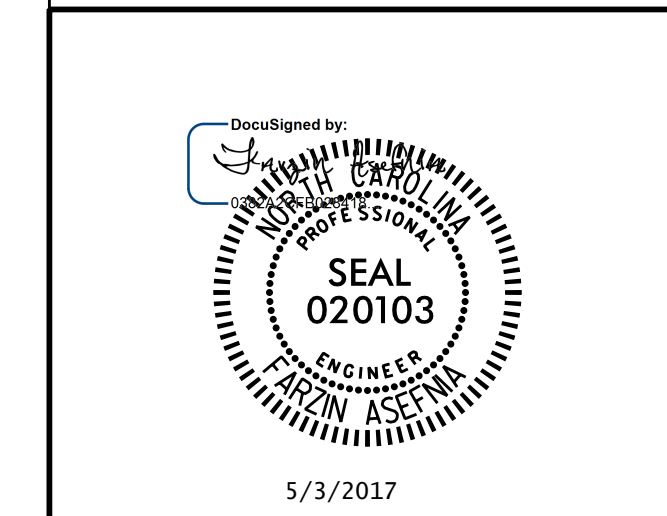
TYPICAL SECTION



SECTION THRU DECK  
STAGED LMC-VES OVERLAY JOINT  
(AS NEEDED)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 316

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**TYPICAL SECTION**  
LMC-VES OVERLAY

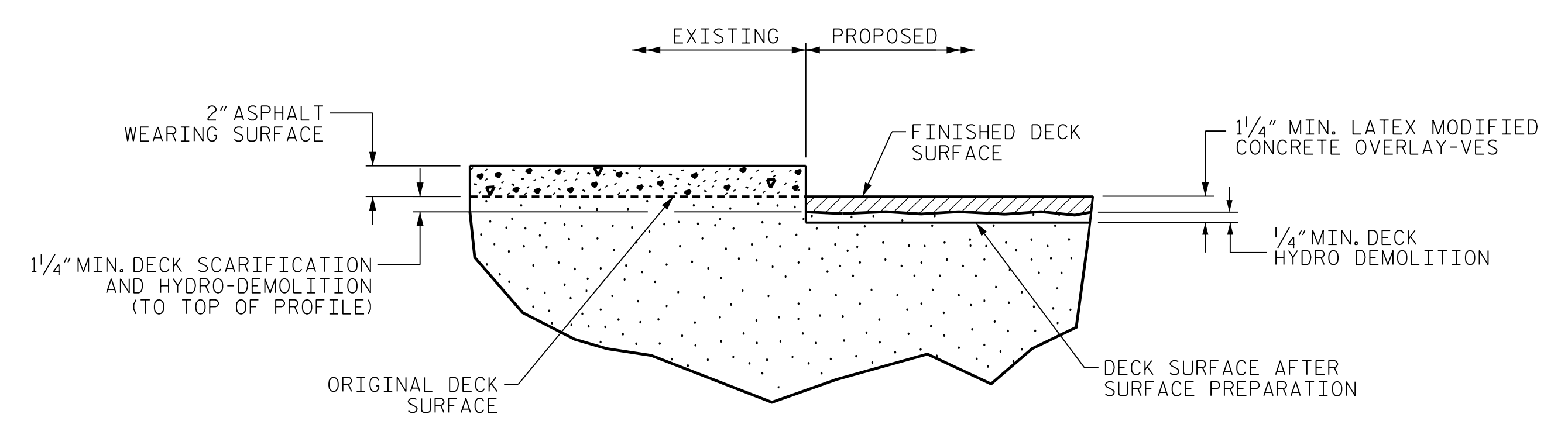
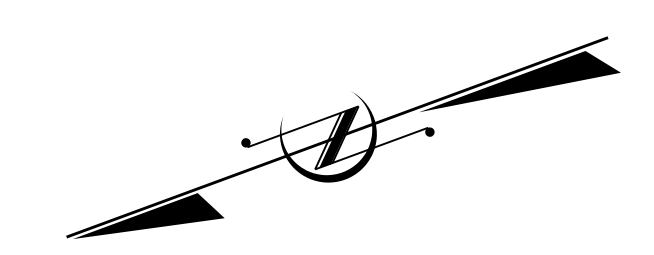
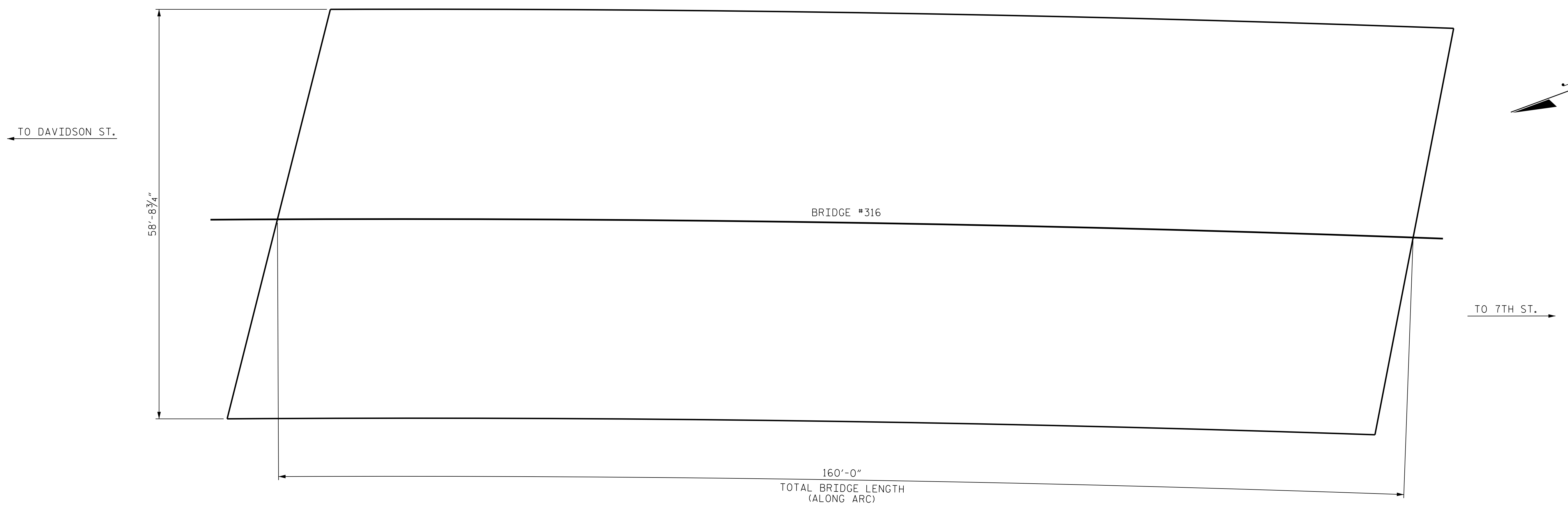
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DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

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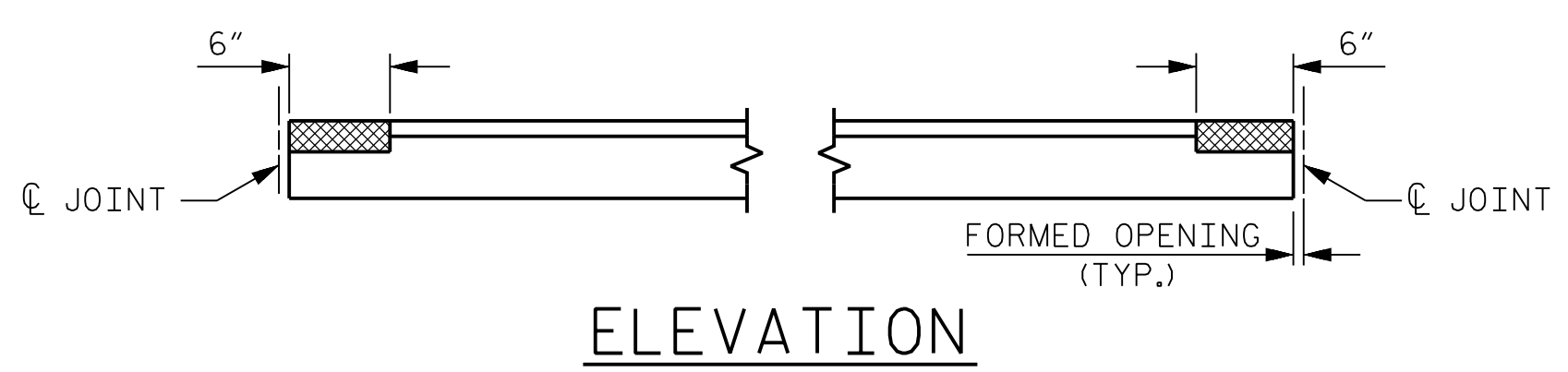
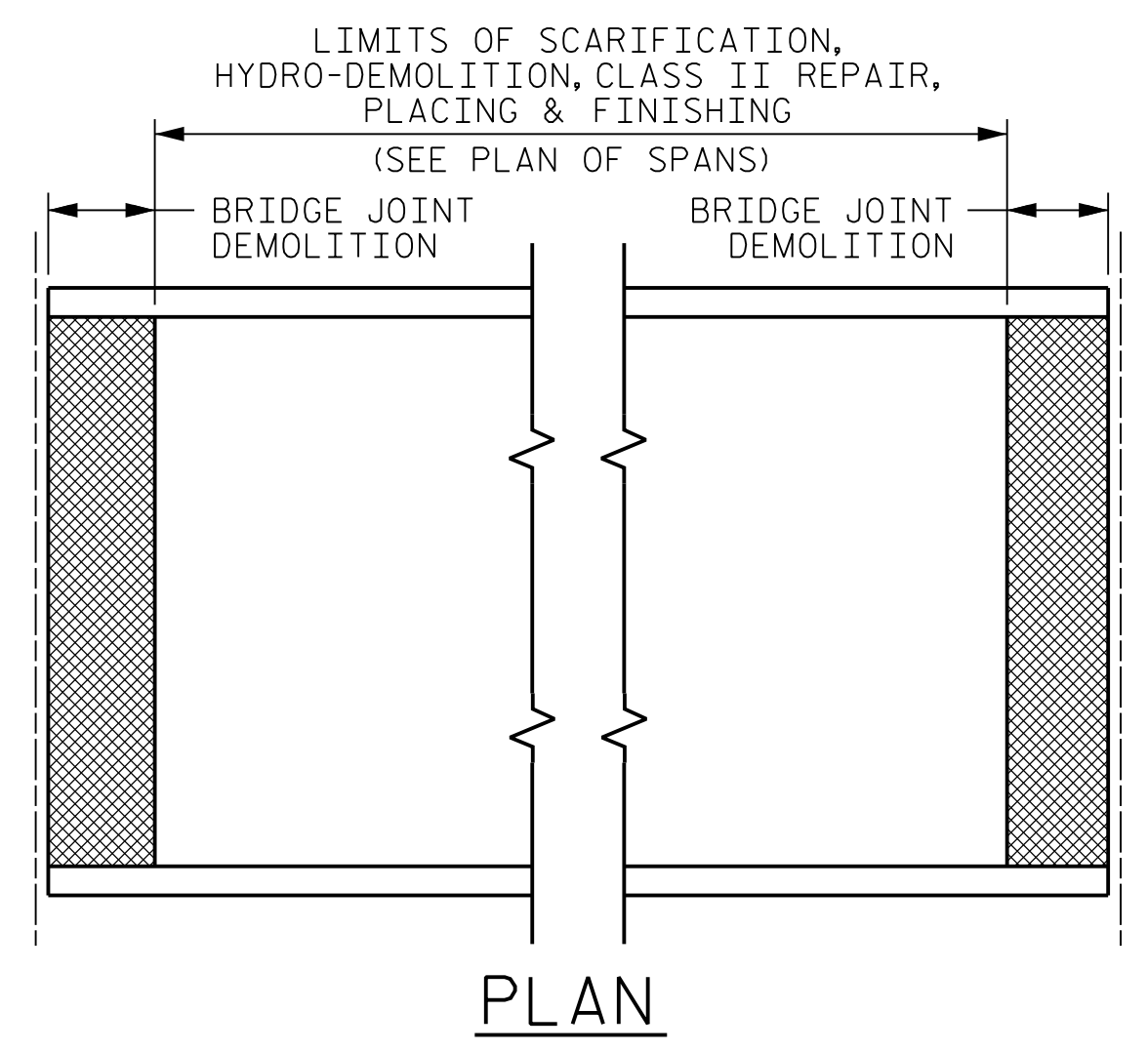
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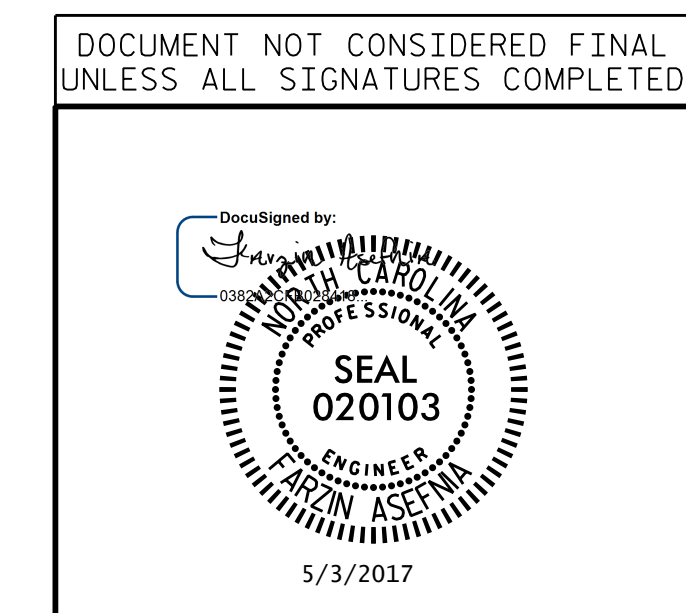
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DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY-VES



PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 316



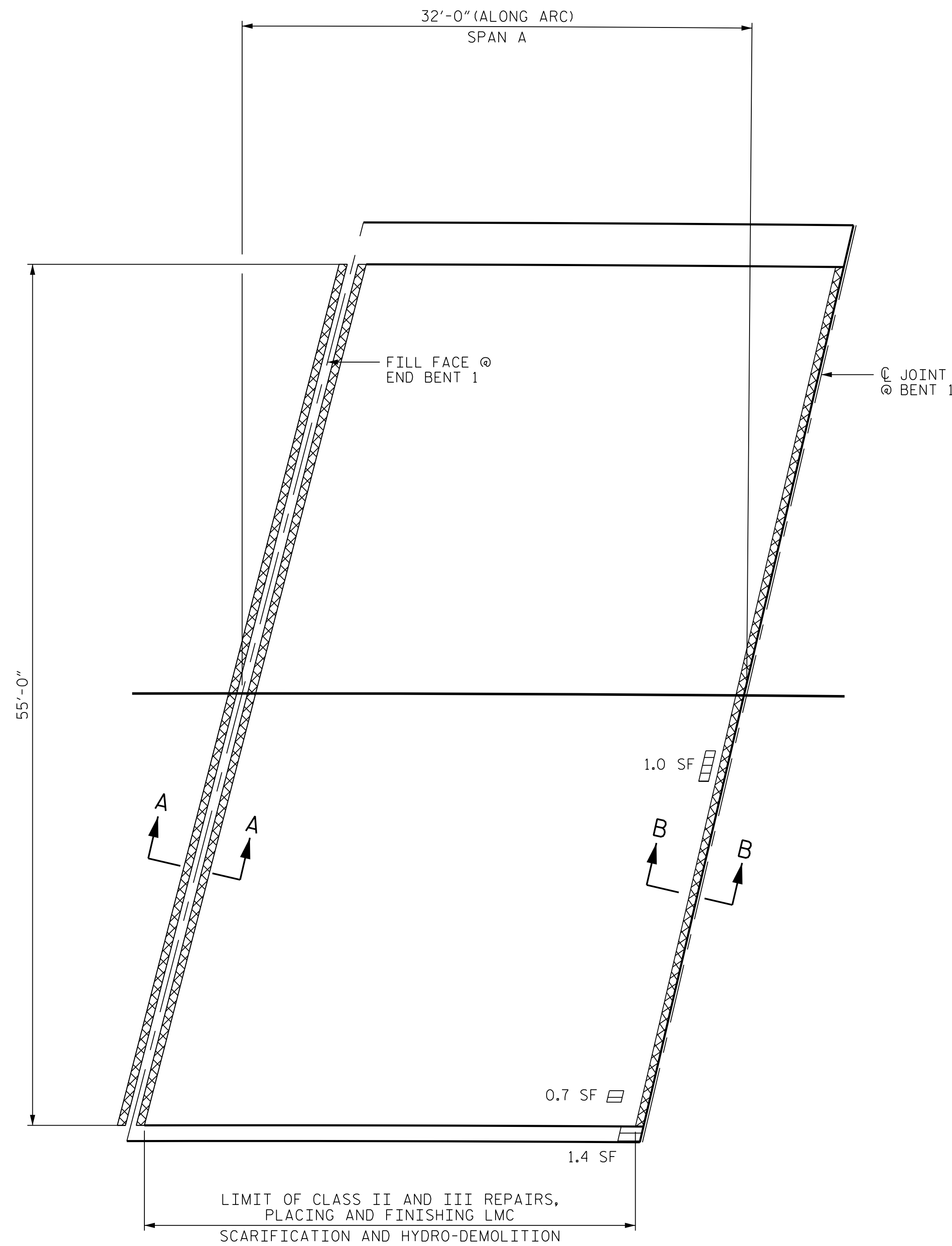
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
SUPERSTRUCTURE  
SURFACE PREPARATION

DRAWN BY :	T. KIRSCHBAUM	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

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SHEET NO.	S-78

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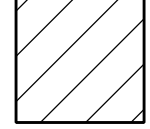
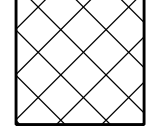

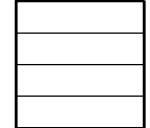
LIMIT OF CLASS II AND III REPAIRS,  
PLACING AND FINISHING LMC  
SCARIFICATION AND HYDRO-DEMOLITION

PLAN OF SPAN A  
FOR SECTION A-A, SEE "JOINT DETAILS" SHEET

SPAN "A" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	84 SQ. FT.	
SCARIFYING BRIDGE DECK	187 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	187 SQ. YDS.	
SHOTCRETE REPAIR	1.0 CU. FT.	

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

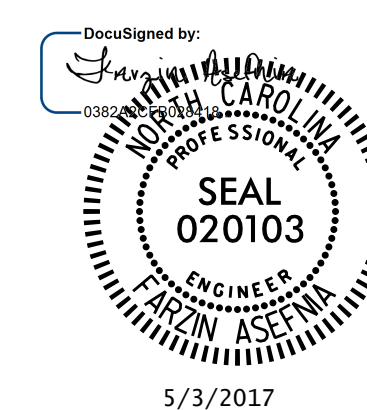
CLASS II & CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN AMOUNT IS INDICATED FOR PRICING PURPOSE. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

-  CLASS II SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION
-  SCARIFICATION & HYDRO-DEMOLITION
-  OVERHANG AND DECK UNDERSIDE DELAMINATION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 316


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SHEET 1 OF 3

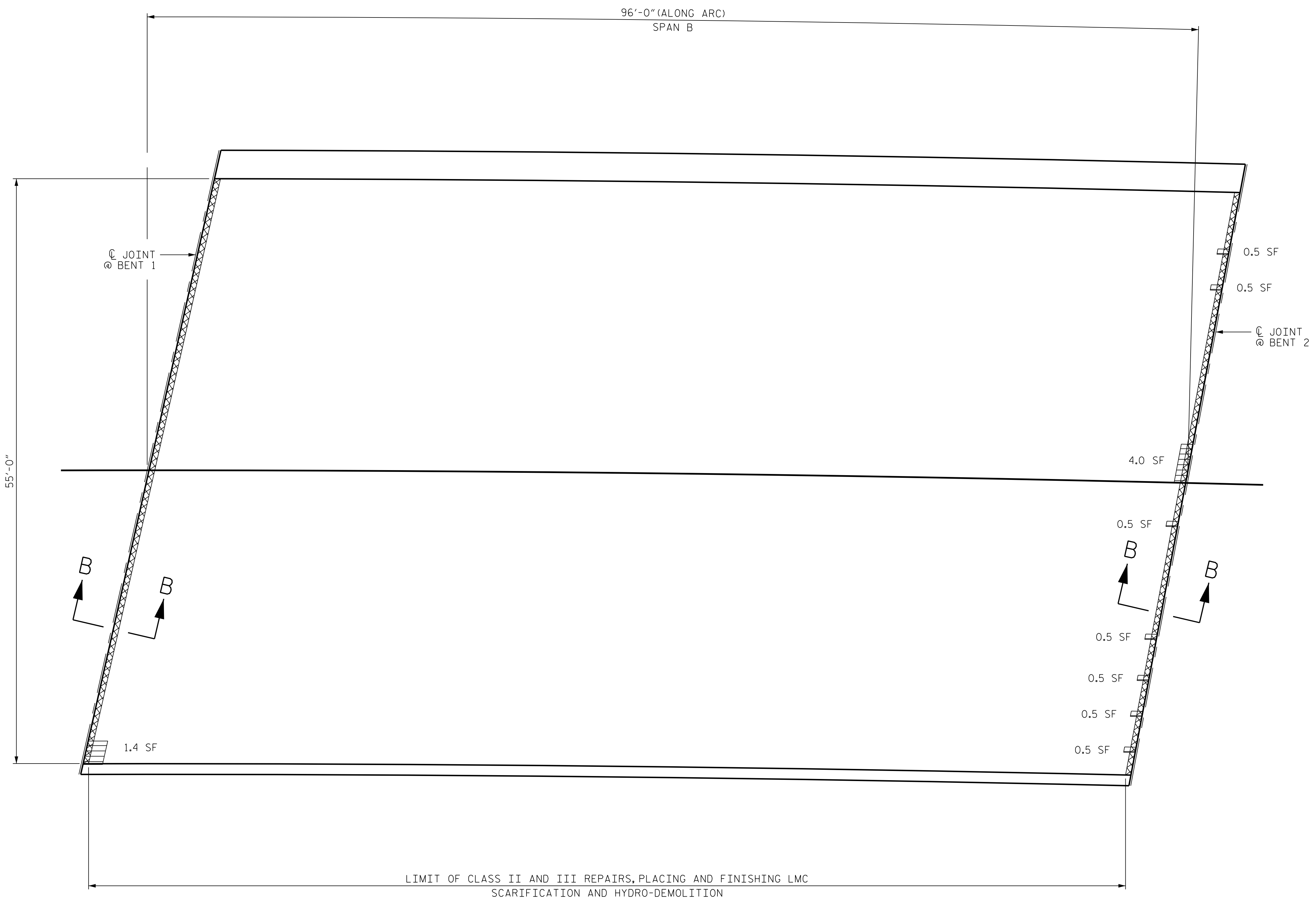


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION  
AND UNDERDECK REPAIR  
LOCATIONS  
SPAN A**

DRAWN BY :	T. KIRSCHBAUM	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

	Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840						SHEET NO. S-79 TOTAL SHEETS 196
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SPAN "B" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	56 SQ. FT.	
SCARIFYING BRIDGE DECK	581 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	581 SQ. YDS.	
SHOTCRETE REPAIR	1.0 CU. YDS.	

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

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

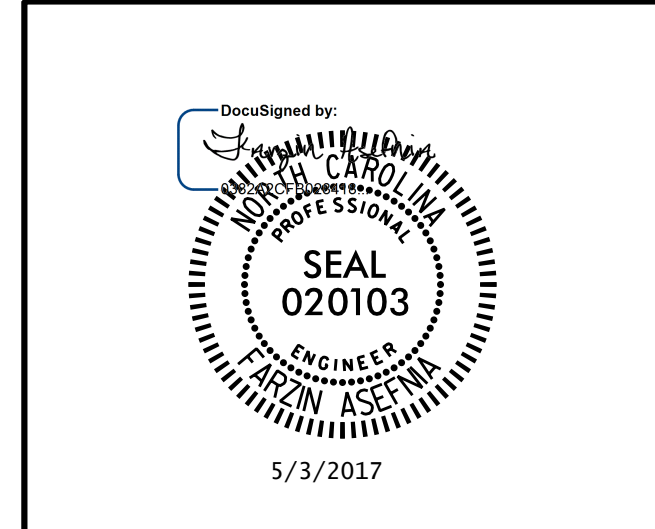
- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION
- OVERHANG AND DECK UNDERSIDE DELAMINATION

**PLAN OF SPAN B**  
FOR SECTION A-A, SEE "JOINT DETAILS" SHEET

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 316

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SHEET 2 OF 3



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SURFACE PREPARATION  
AND UNDERDECK REPAIR  
LOCATION.  
SPAN B**

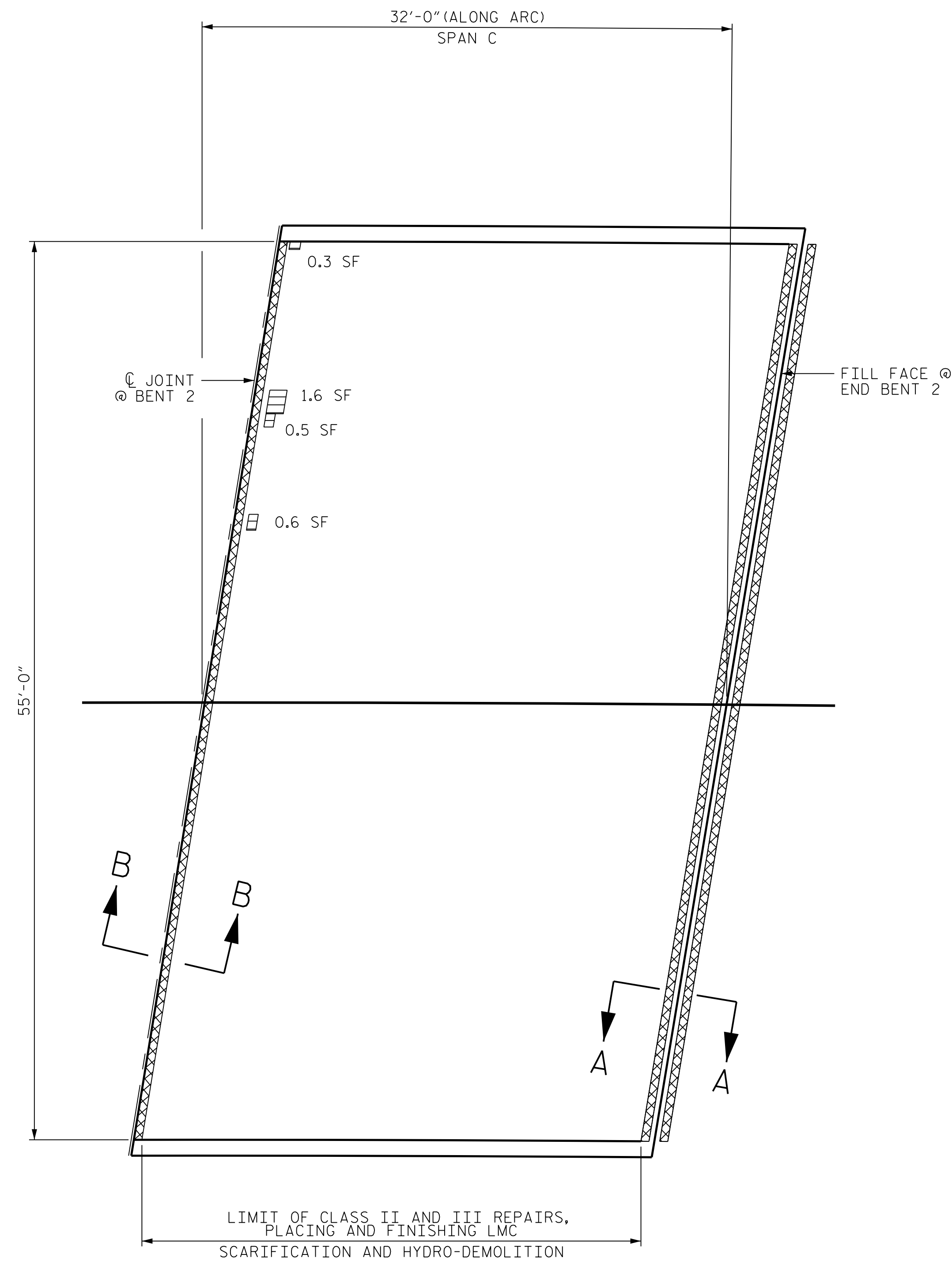
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**PLAN OF SPAN C**  
FOR SECTION A-A, SEE "JOINT DETAILS" SHEET BP-8

SPAN "C" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	84 SQ. FT.	
SCARIFYING BRIDGE DECK	187 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	187 SQ. YDS.	
SHOTCRETE REPAIR	1.0 CU. FT.	

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

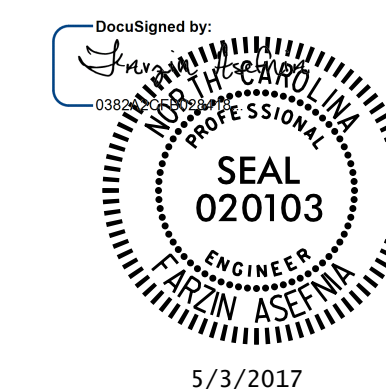
CLASS II & CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN AMOUNT IS INDICATED FOR PRICING PURPOSE. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION
- OVERHANG AND DECK UNDERSIDE DELAMINATION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 316

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SHEET 3 OF 3



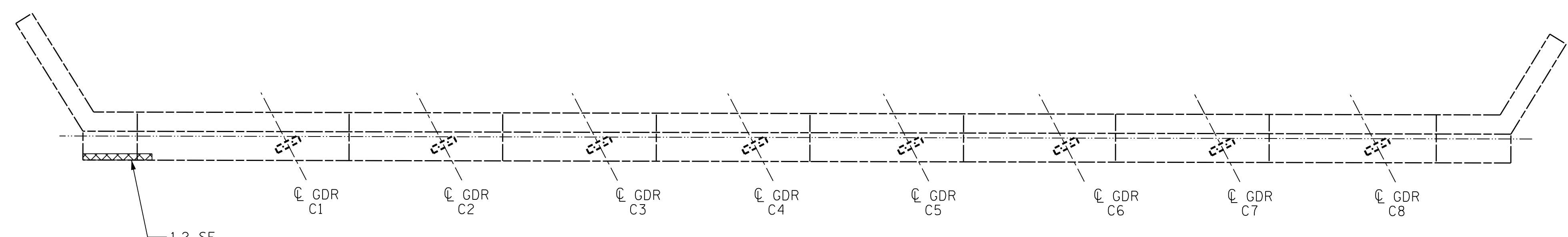
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION  
AND UNDERDECK REPAIR  
LOCATIONS**  
SPAN C

DRAWN BY :	T. KIRSCHBAUM	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

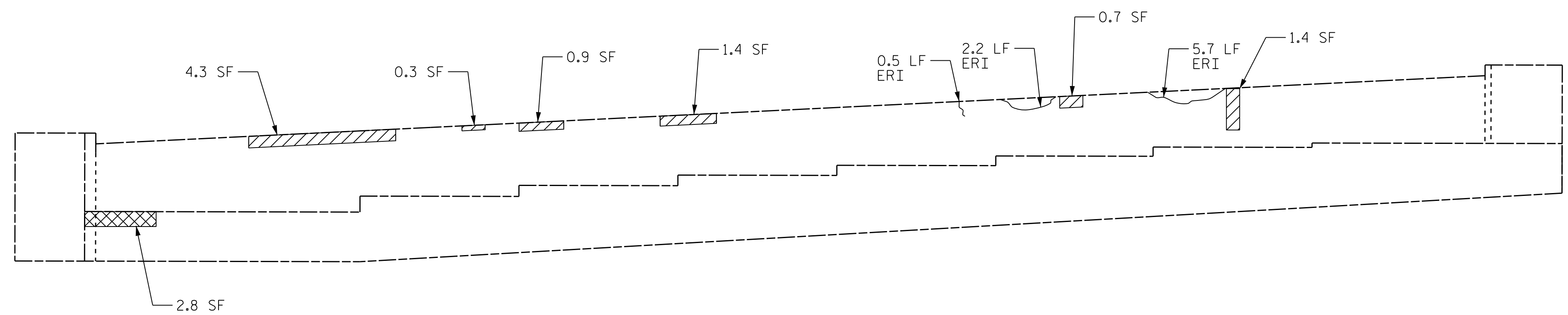


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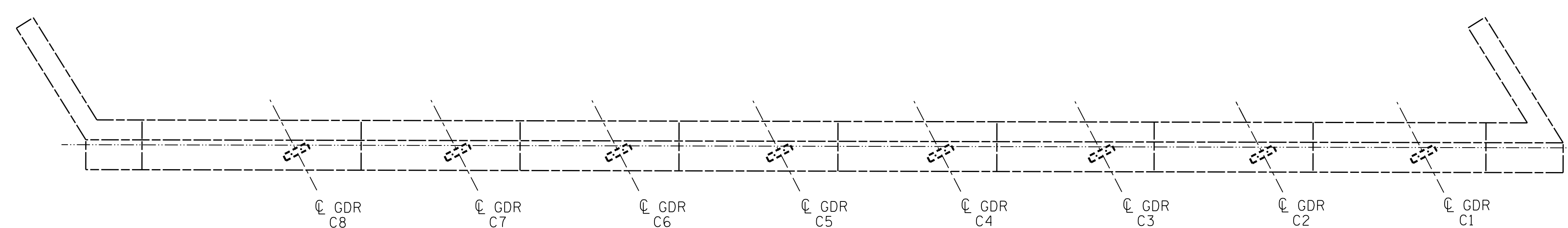
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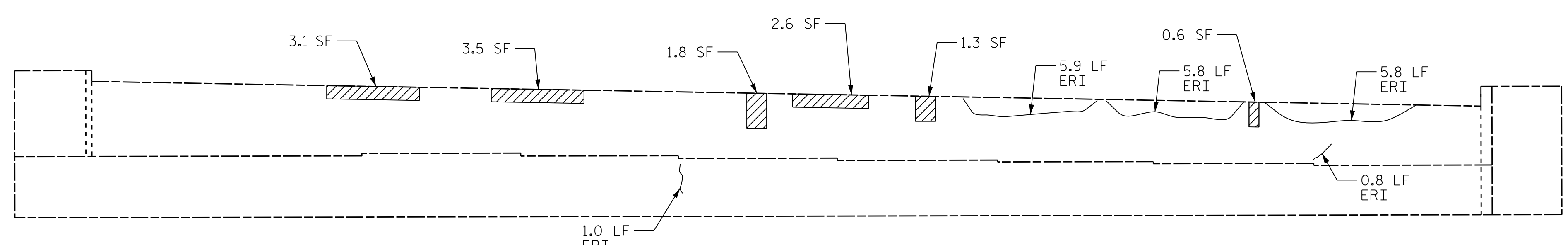
**PLAN**  
END BENT 1



**ELEVATION**  
END BENT 1



**PLAN**  
END BENT 2



**ELEVATION**  
END BENT 2

REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	9.0	2.3		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIRS	4.0	1.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			8.4	
EPOXY COATING	AREA SF			
CAP	98			
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	12.9	3.2		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			19.3	
EPOXY COATING	AREA SF			
CAP	105			

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

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

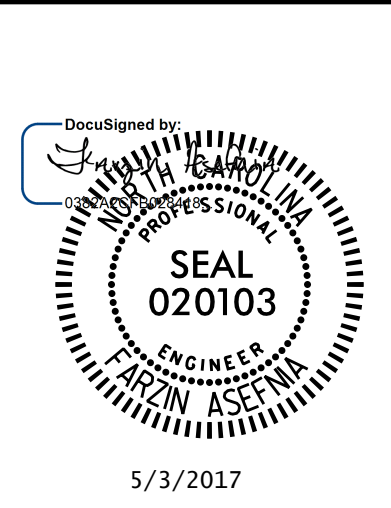
FOR REPAIR DETAILS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

- ☒ - CONCRETE REPAIR
- ▨ - SHOTCRETE REPAIR
- ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 316

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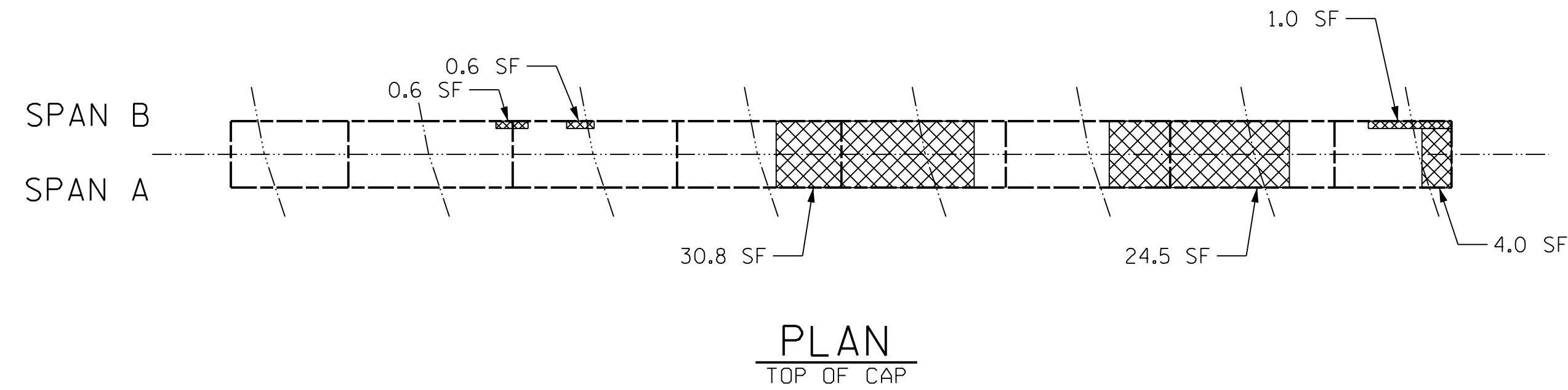
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
**END BENTS**

DRAWN BY :	J. MYA	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

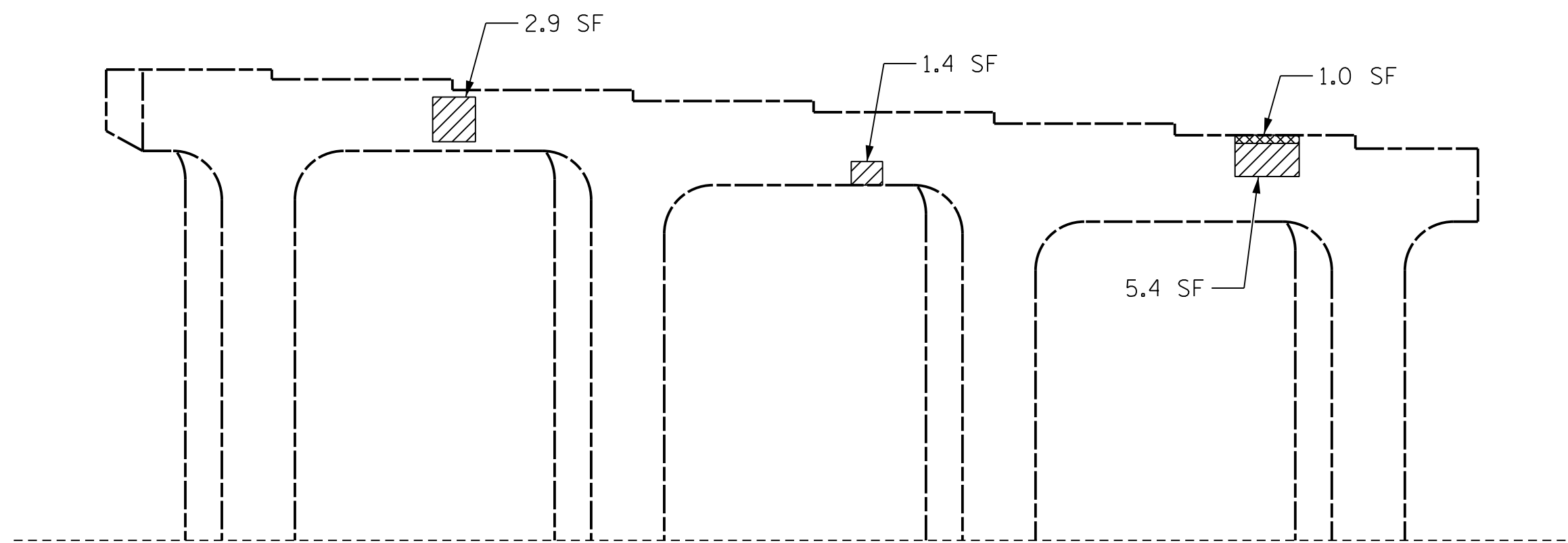
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2			4			196



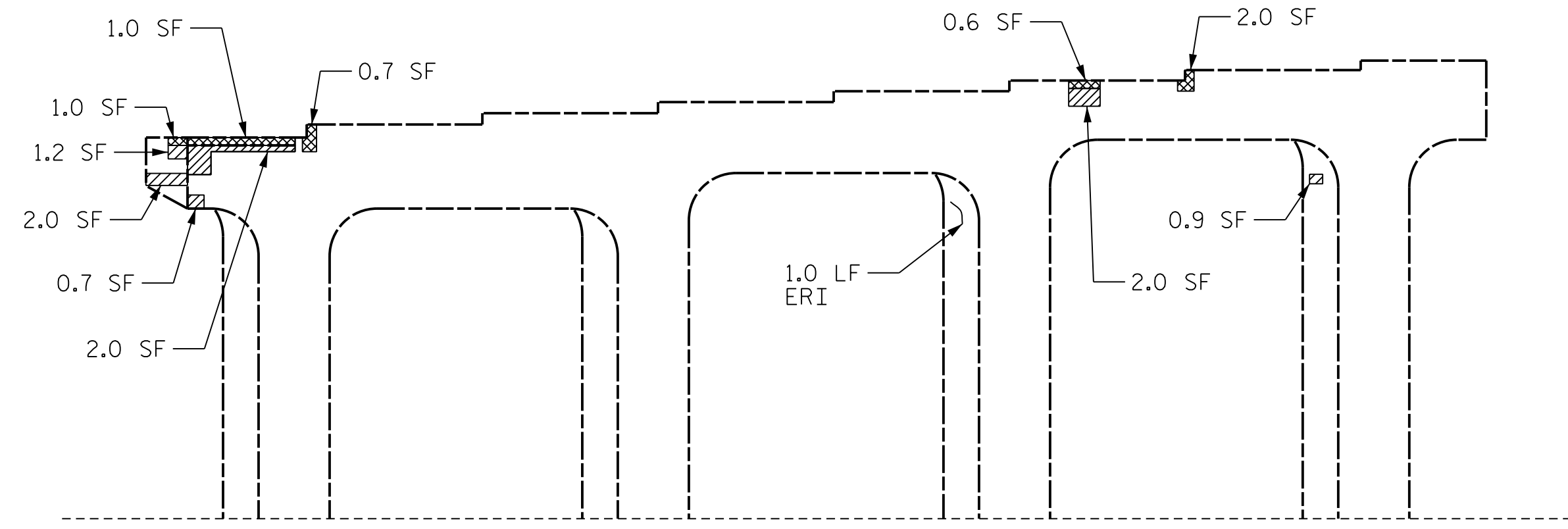
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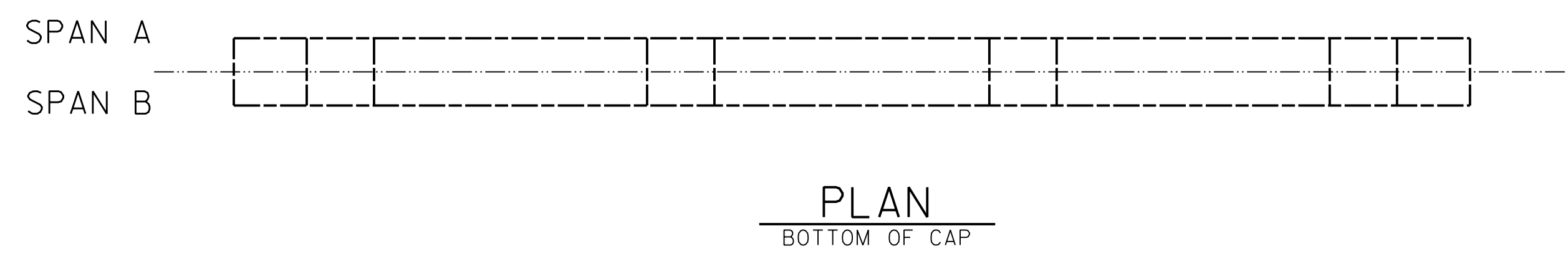
PLAN  
TOP OF CAP



ELEVATION  
SPAN A SIDE



ELEVATION  
SPAN B SIDE



PLAN  
BOTTOM OF CAP

REPAIR QUANTITY TABLE				
REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
SHOTCRETE REPAIRS				
CAP (VERTICAL FACE)	17.6	4.4		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN (HORIZONTAL FACE)	0.9	0.2		
CONCRETE REPAIRS	67.8	17.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			0.0	
COLUMN			1.0	
EPOXY COATING			SQ. FT	SQ. FT
TOP OF CAP			165	

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 316

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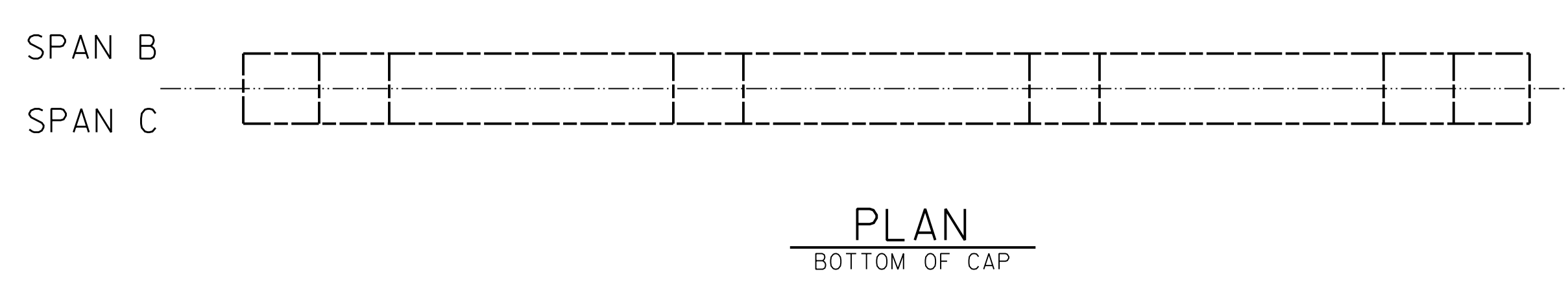
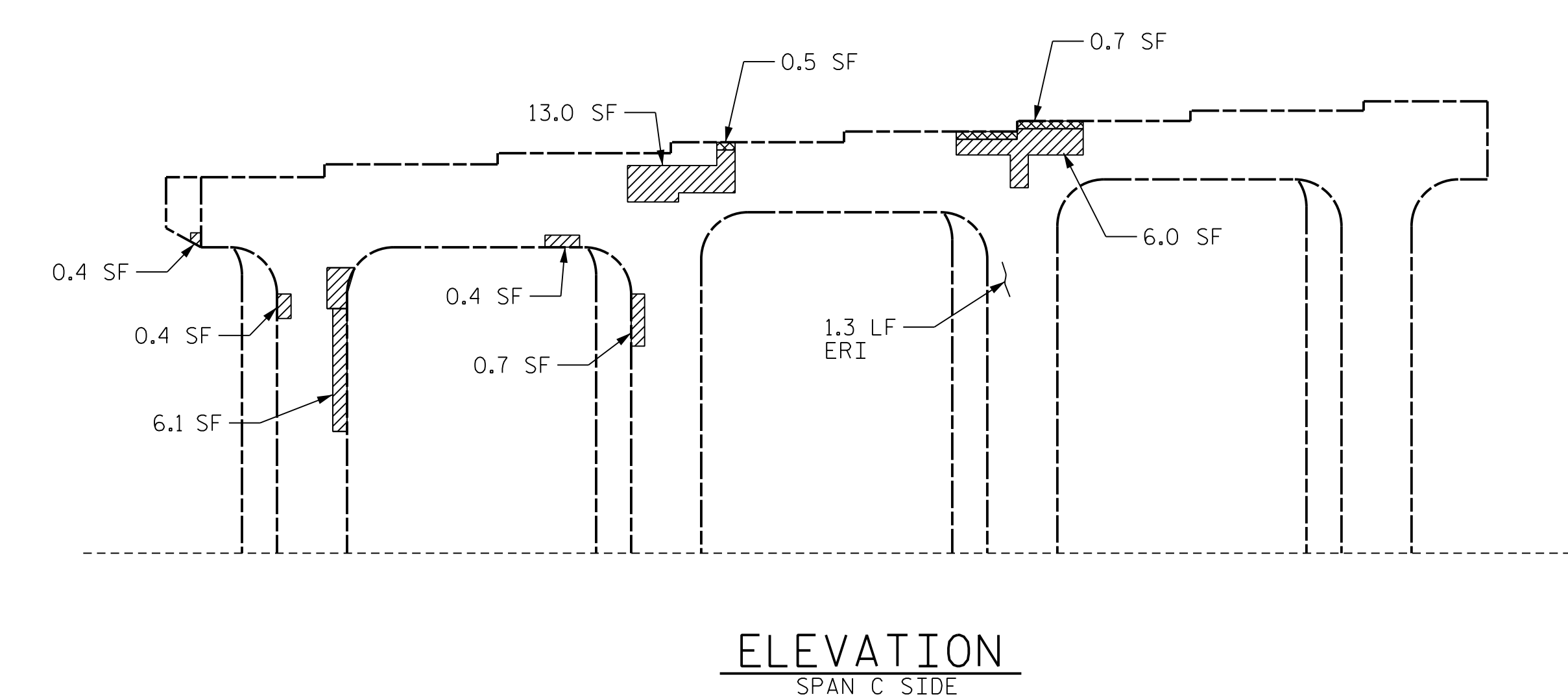
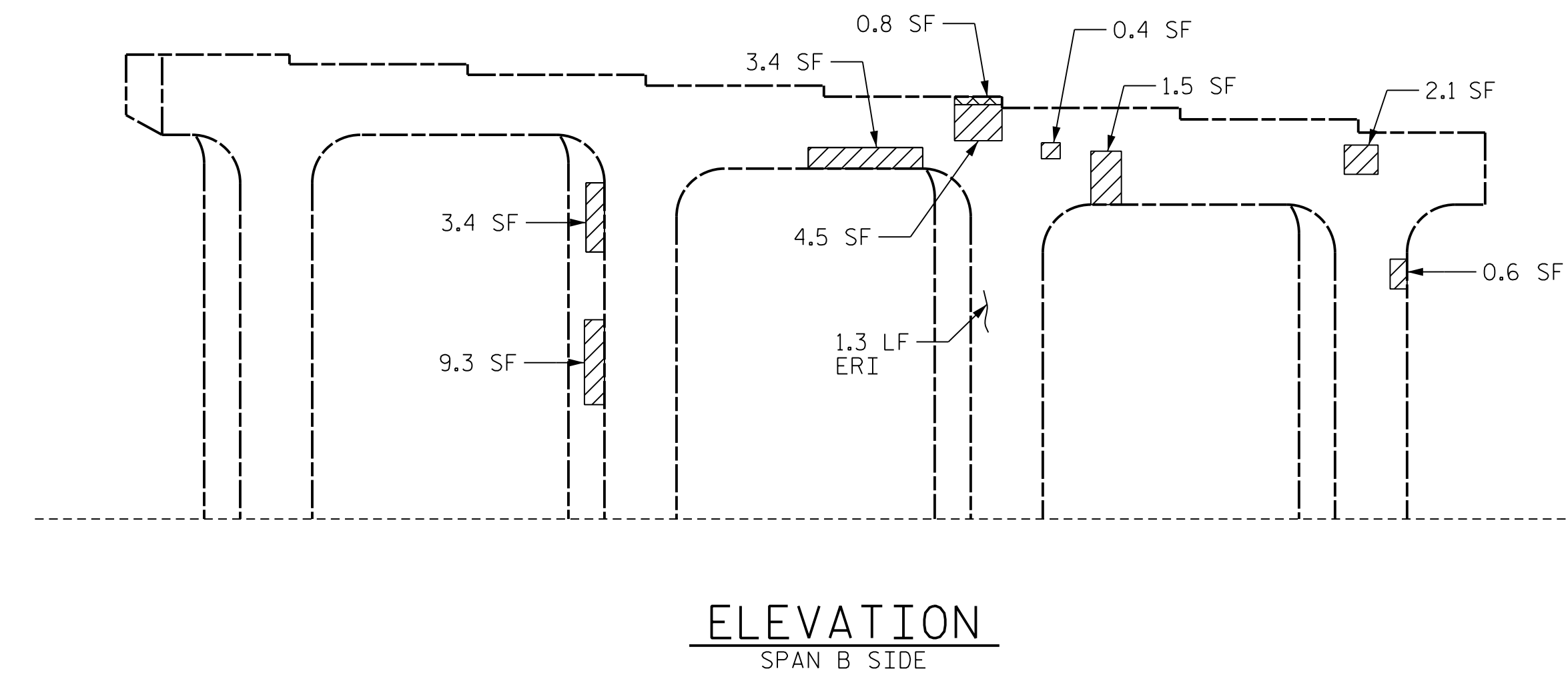
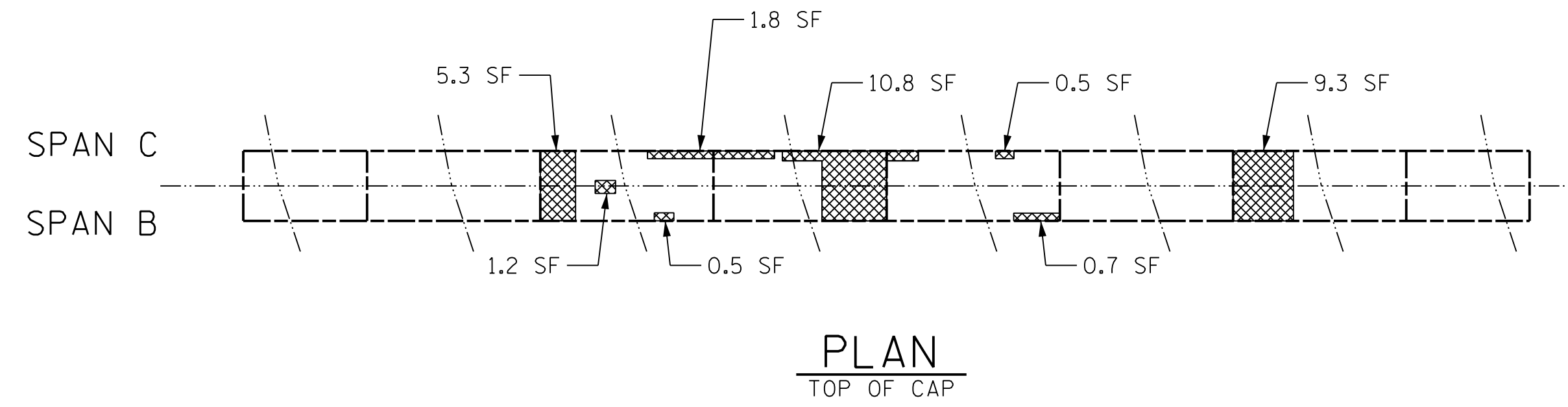
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE  
BENT 1**

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DRAWN BY :	M. HOGAN	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

Prepared by:  
LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840





REPAIR QUANTITY TABLE				
REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	31.7	7.9		
CAP (HORIZONTAL)	0.0	0.0		
COLUMN (HORIZONTAL FACE)	20.5	5.1		
CONCRETE REPAIRS	32.1	8.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			0.0	
COLUMN			2.6	
EPOXY COATING			SQ. FT	SQ. FT
TOP OF CAP			165	

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 316

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
**BENT 2**

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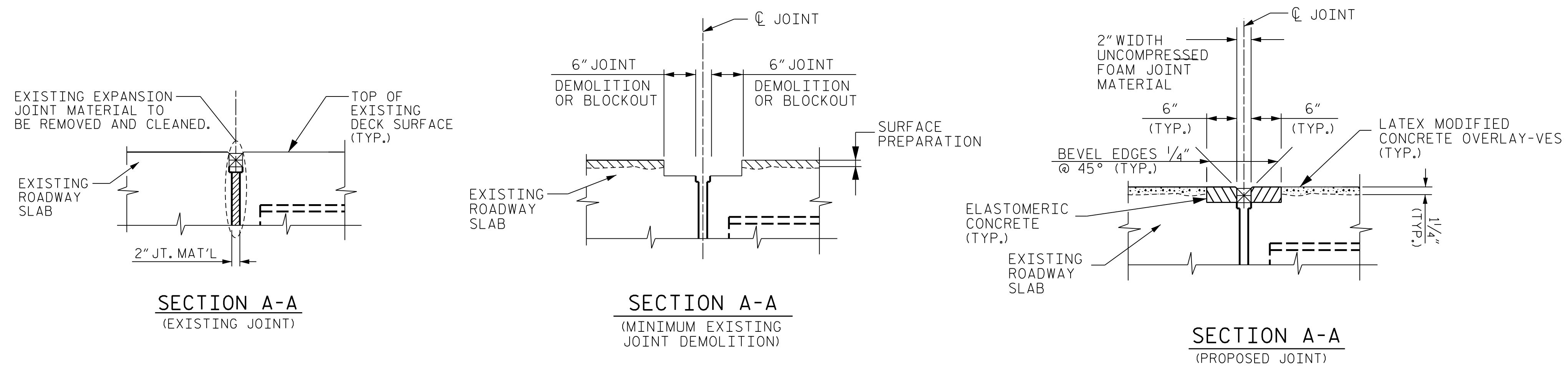
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DRAWN BY : M. HOGAN DATE : 10-16  
 CHECKED BY : F. ASEFNIA DATE : 10-16  
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 10-16



Prepared by:  
 LOUIS BERGER  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

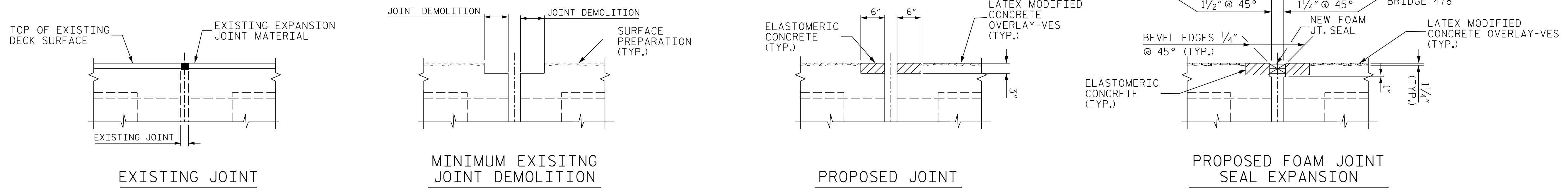
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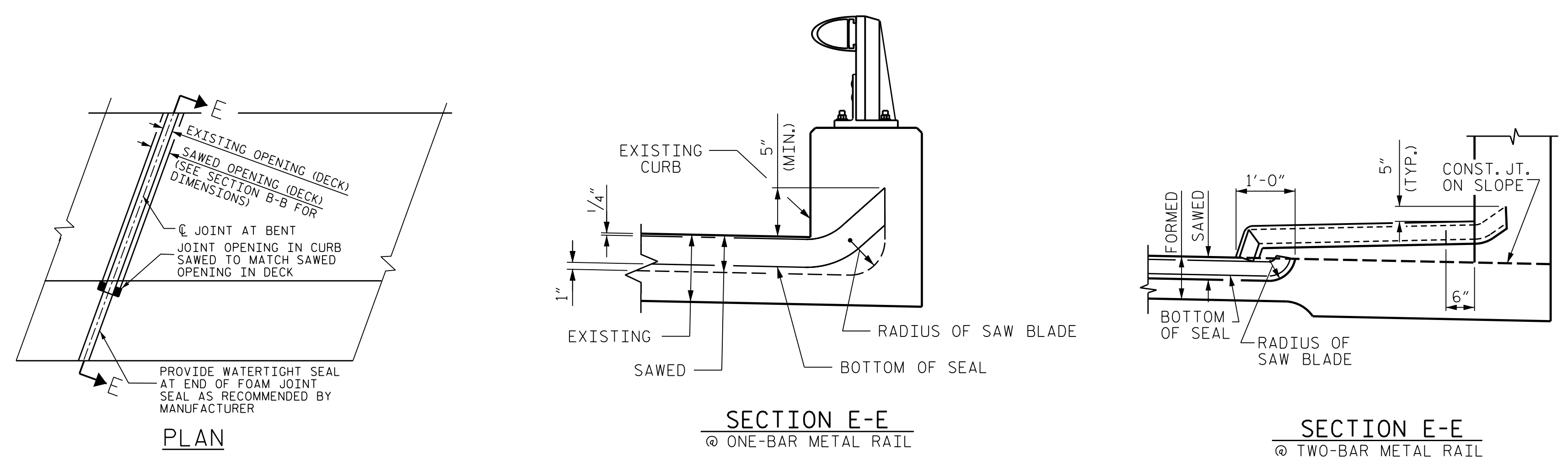
**JOINT INSTALLATION SEQUENCE AT END BENTS**  
SECTION A-A

**NOTES:**  
 CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
 HYDRODEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT. TO PROVIDE SUFFICIENT SUBSTRATE FOR ELASTOMERIC CONCRETE.  
 ELASTOMERIC CONCRETE SHALL NOT BE PLACED ON LATEX MODIFIED CONCRETE. ELASTOMERIC CONCRETE SHALL BE PLACED ON PREPARED SURFACE OF ORIGINAL DECK CONCRETE OR CONCRETE FOR DECK REPAIR.  
 RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.  
 THE WIDTH OF THE UNCOMPRESSED JOINT MATERIAL FOR BOTH BRIDGES SHALL BE 2" @ ALL BENTS.

ELASTOMERIC CONCRETE	
BRIDGE 316	56.0 (CU. FT.)



**JOINT INSTALLATION SEQUENCE AT BENT 2**  
SECTION B-B



PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 316

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DocuSigned by:  
 F. ASEFNIA  
 PROFESSIONAL ENGINEER  
 SEAL 020103  
 ENGINEER  
 F. ASEFNIA  
 5/3/2017

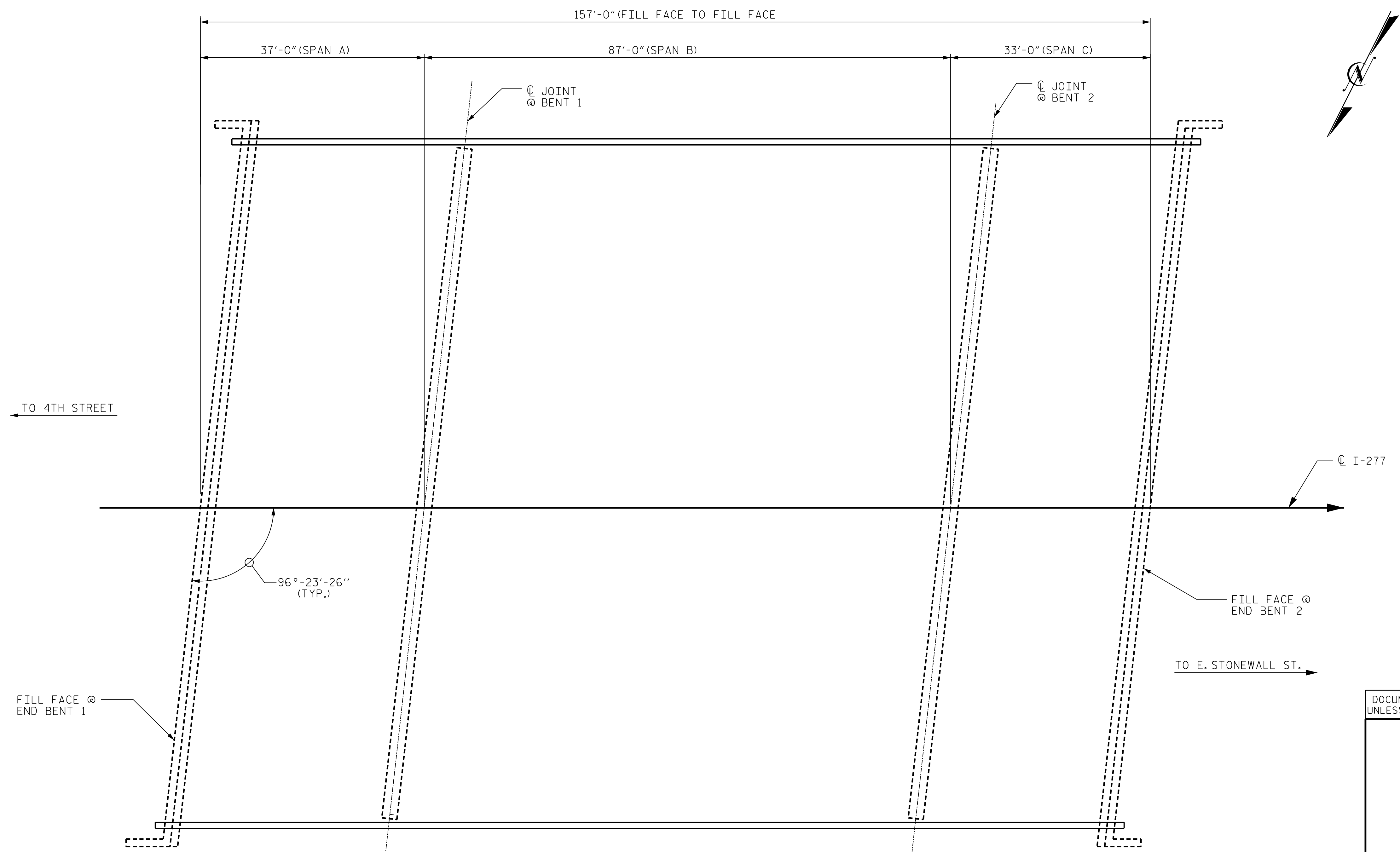
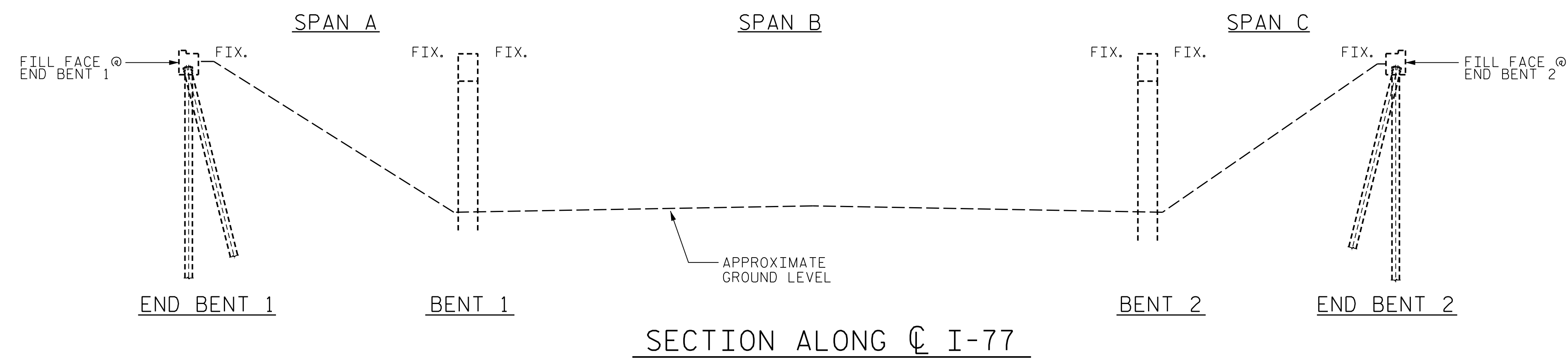
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE**  
 JOINT DETAILS

DRAWN BY : T. KIRSCHBAUM	DATE : 9-16
CHECKED BY : F. ASEFNIA	DATE : 9-16
DESIGN ENGINEER OF RECORD : F. ASEFNIA	DATE : 9-16

REVISIONS				SHEET NO.	
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2			4		
					TOTAL SHEETS 196

Louis Berger  
 Prepared by:  
 LOUIS BERGER  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

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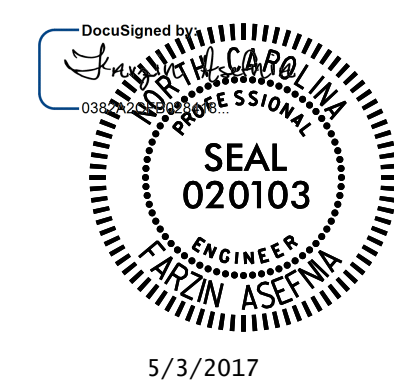
PLAN  
(PILES NOT SHOWN FOR CLARITY)

I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer      Date

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 448

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 BRIDGE ON I-277 OVER  
 EAST 3RD. STREET

DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

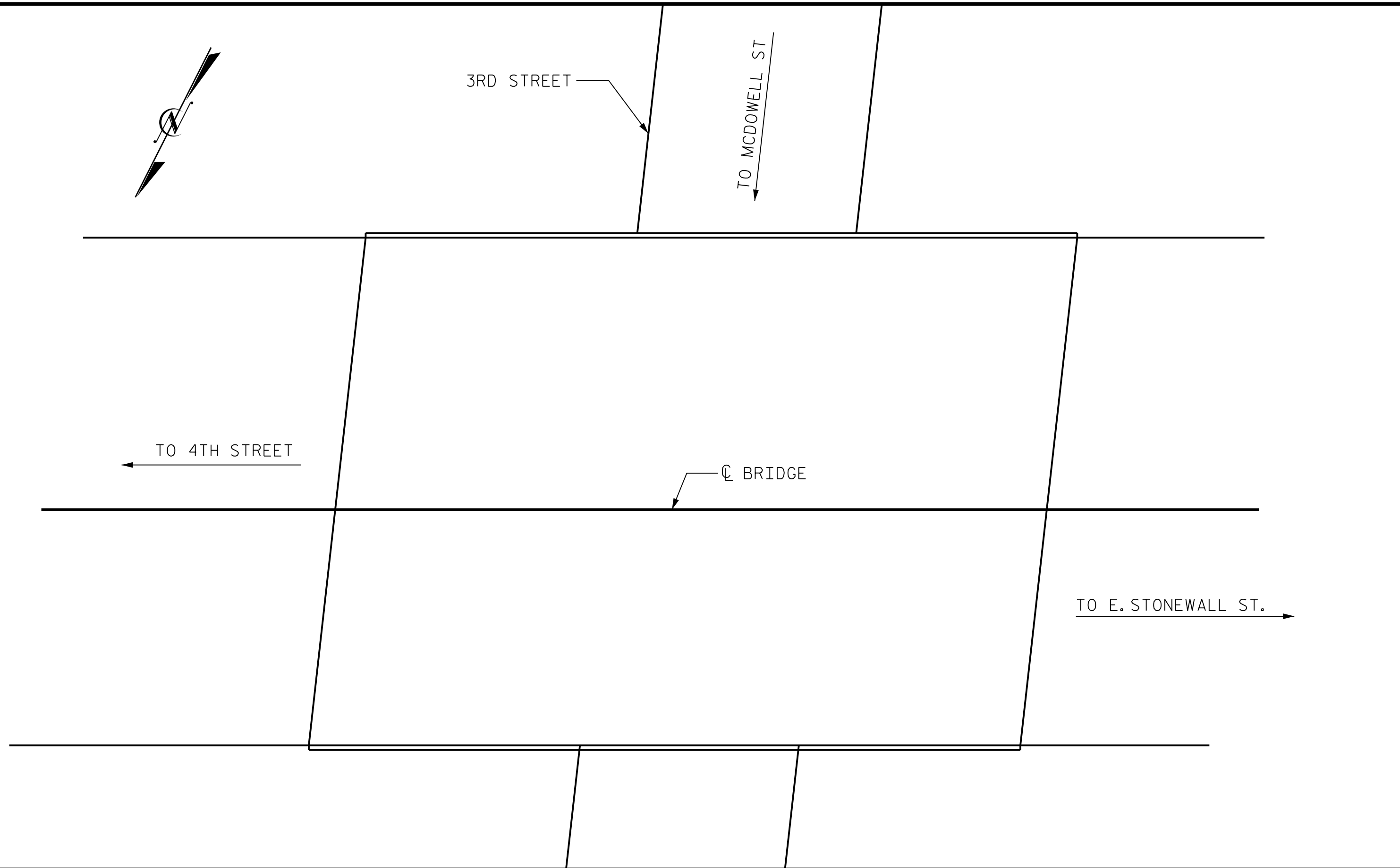
Prepared by:  
 LOUIS BERGER  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

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**LOCATION SKETCH**

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

**NOTES**

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

FOR EPOXY OVERLAY SYSTEM, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

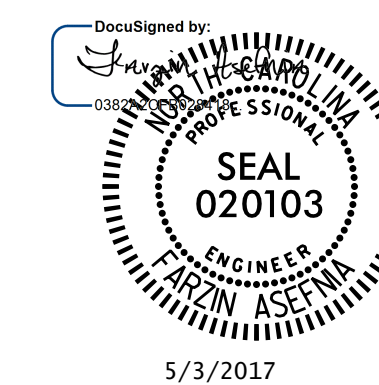
FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE AT THE PAVEMENT MARKINGS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 448

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SHEET 2 OF 2



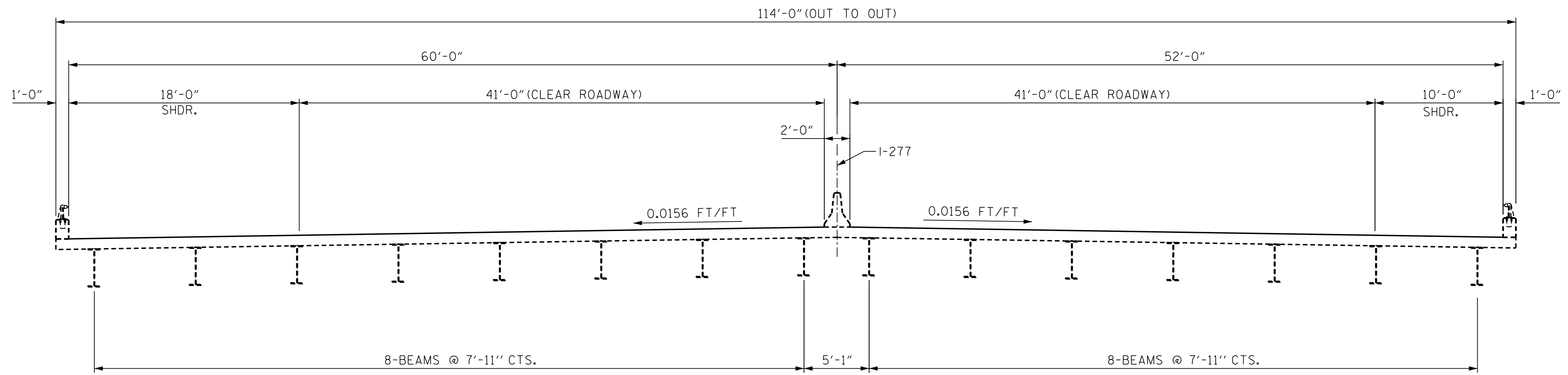
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

GENERAL DRAWING  
BRIDGE ON I-277 OVER  
EAST 3RD STREET

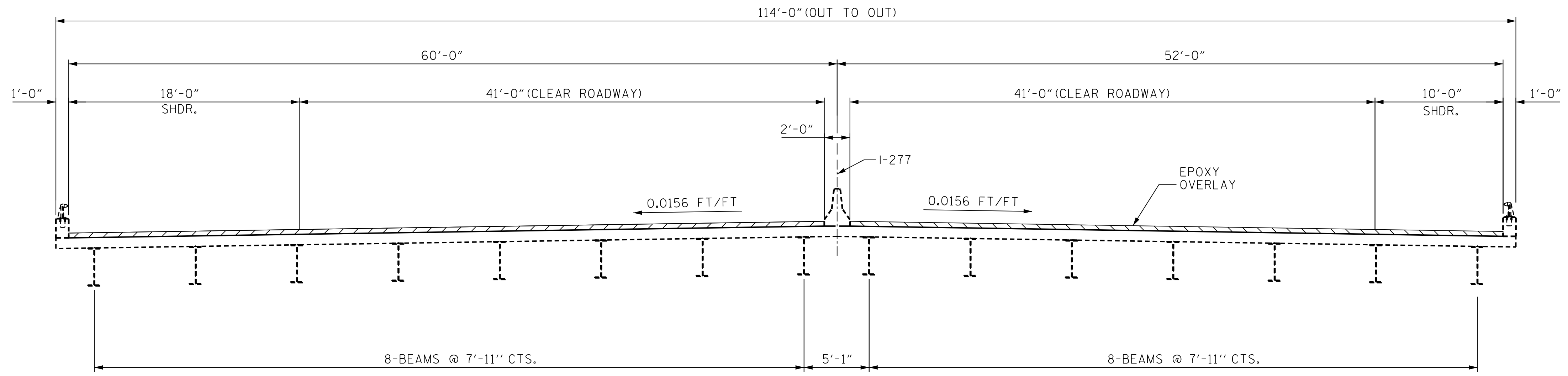
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DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS						SHEET NO.
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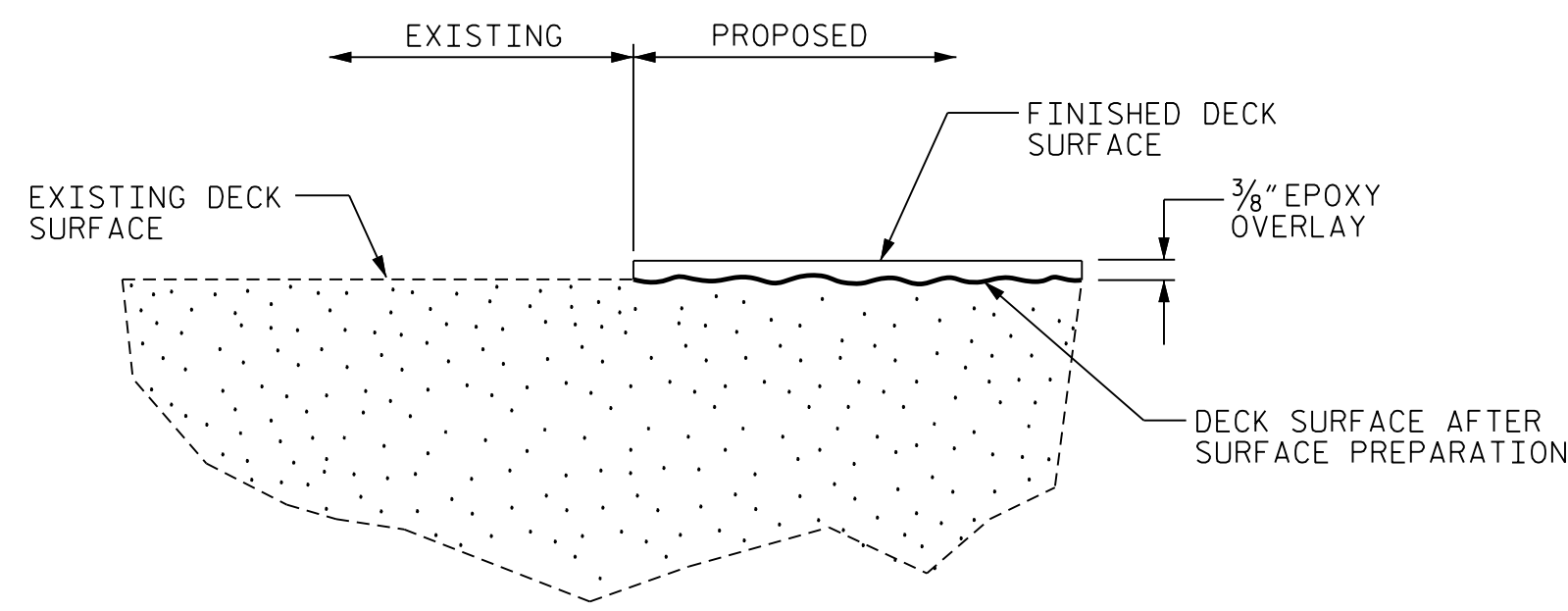
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**TYPICAL SECTION**  
(EXISTING STRUCTURE)



**TYPICAL SECTION**  
(EPOXY OVERLAY)



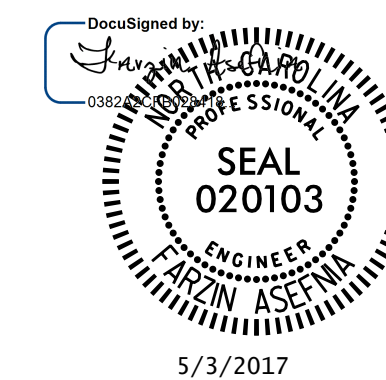
**DETAIL OF EPOXY OVERLAY**

**NOTE:**

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND EPOXY OVERLAY PLACEMENT.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 448

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 RALEIGH

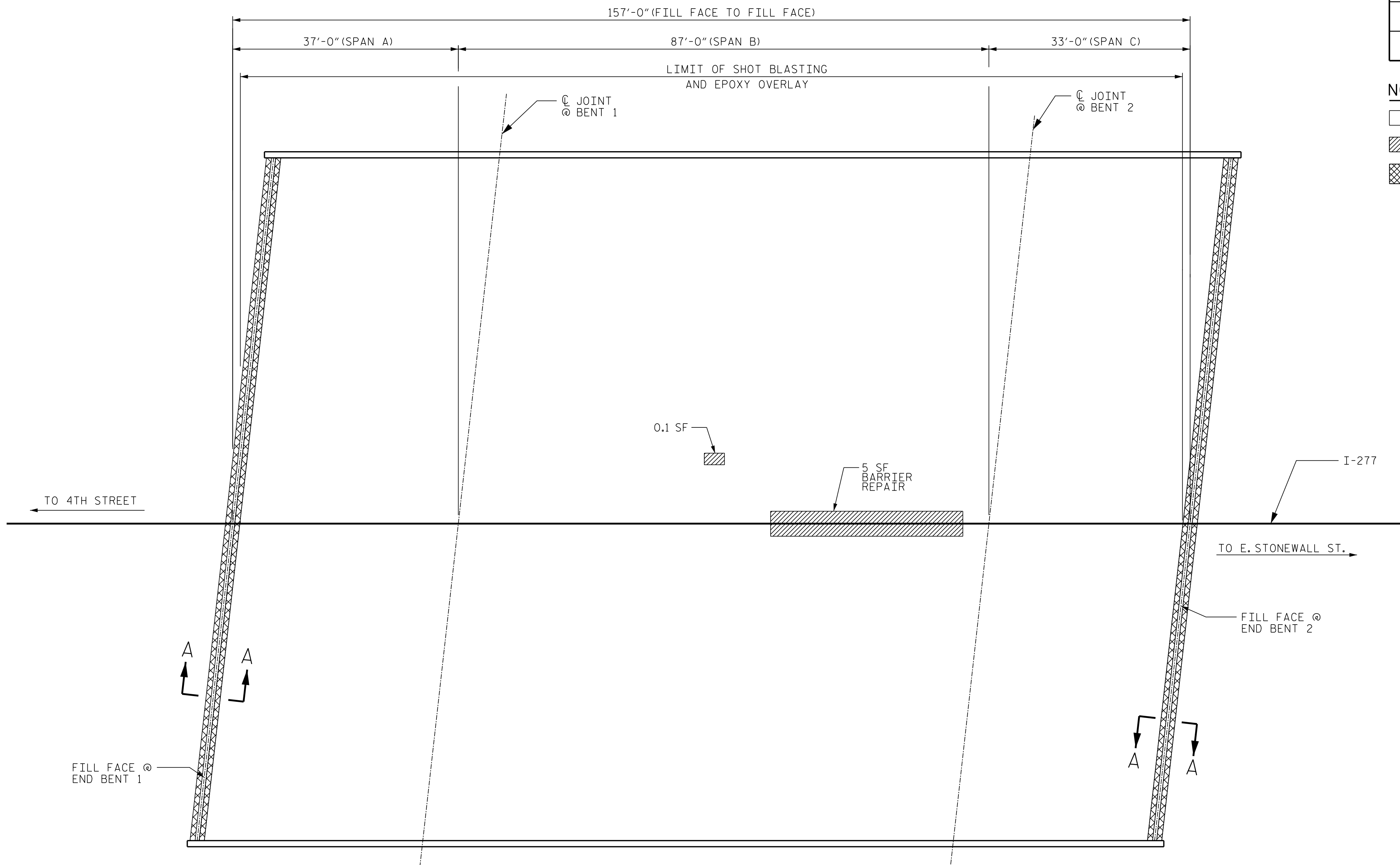
**TYPICAL SECTION**  
 EPOXY OVERLAY  
 DETAIL

DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS				SHEET NO. S-88	
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SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1.0 SQ. FT.	
EPOXY OVERLAY SYSTEM	17,270 SQ. FT.	
BRIDGE JOINT DEMOLITION	228.0 SQ. FT.	
SHOTCRETE REPAIR	5.0 SQ. FT.	



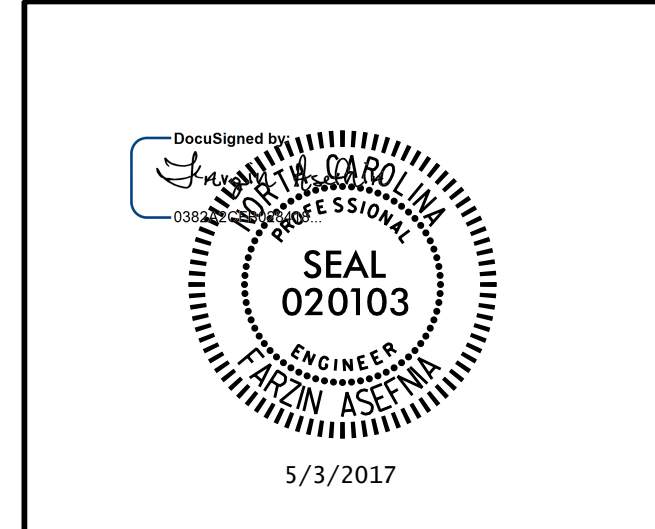
**NOTE:**

- EPOXY OVERLAY
- CLASS II REPAIR
- JOINT DEMOLITION

PLAN

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 448

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SURFACE PREPARATION  
 AND  
 EPOXY OVERLAY**

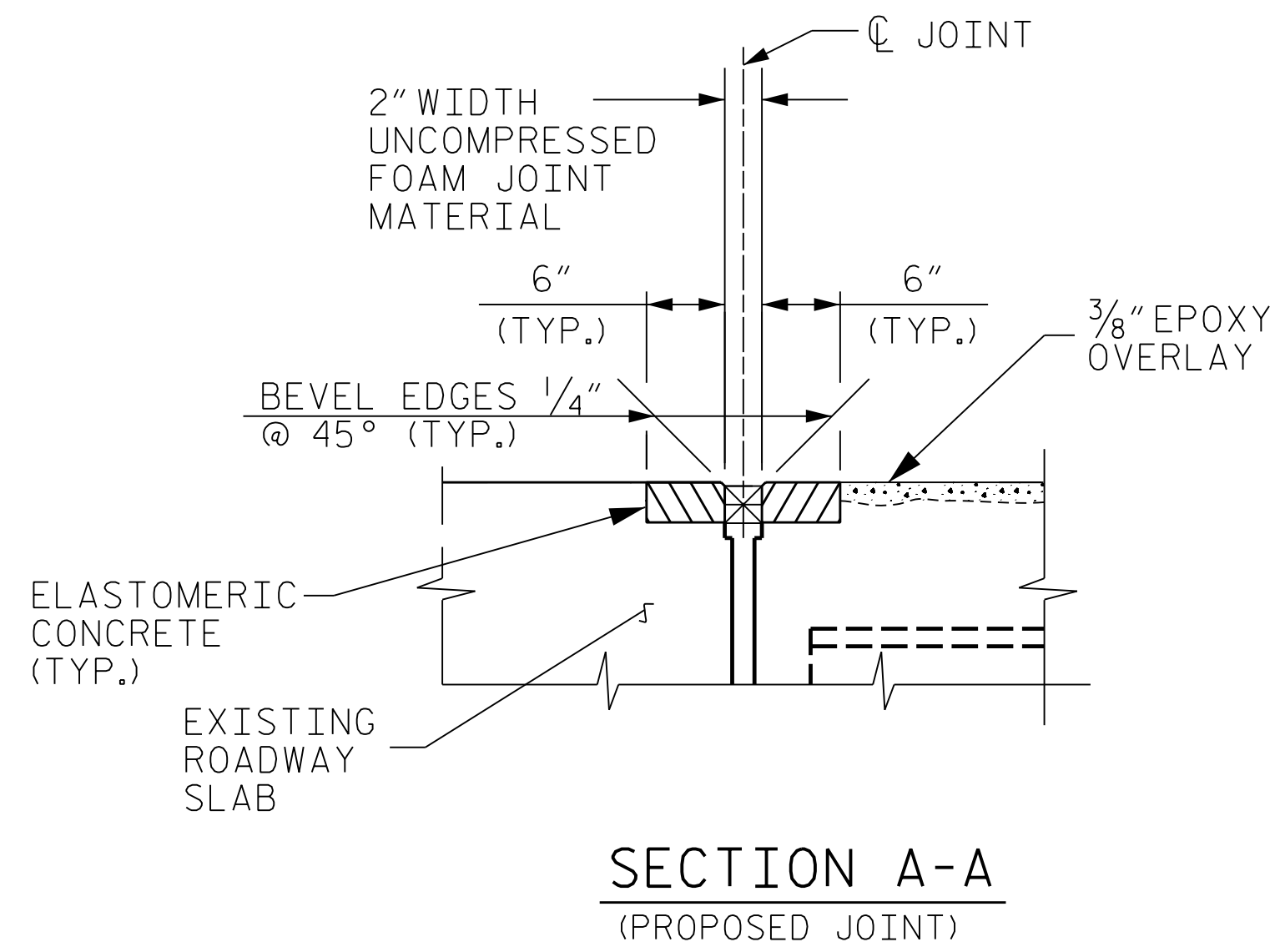
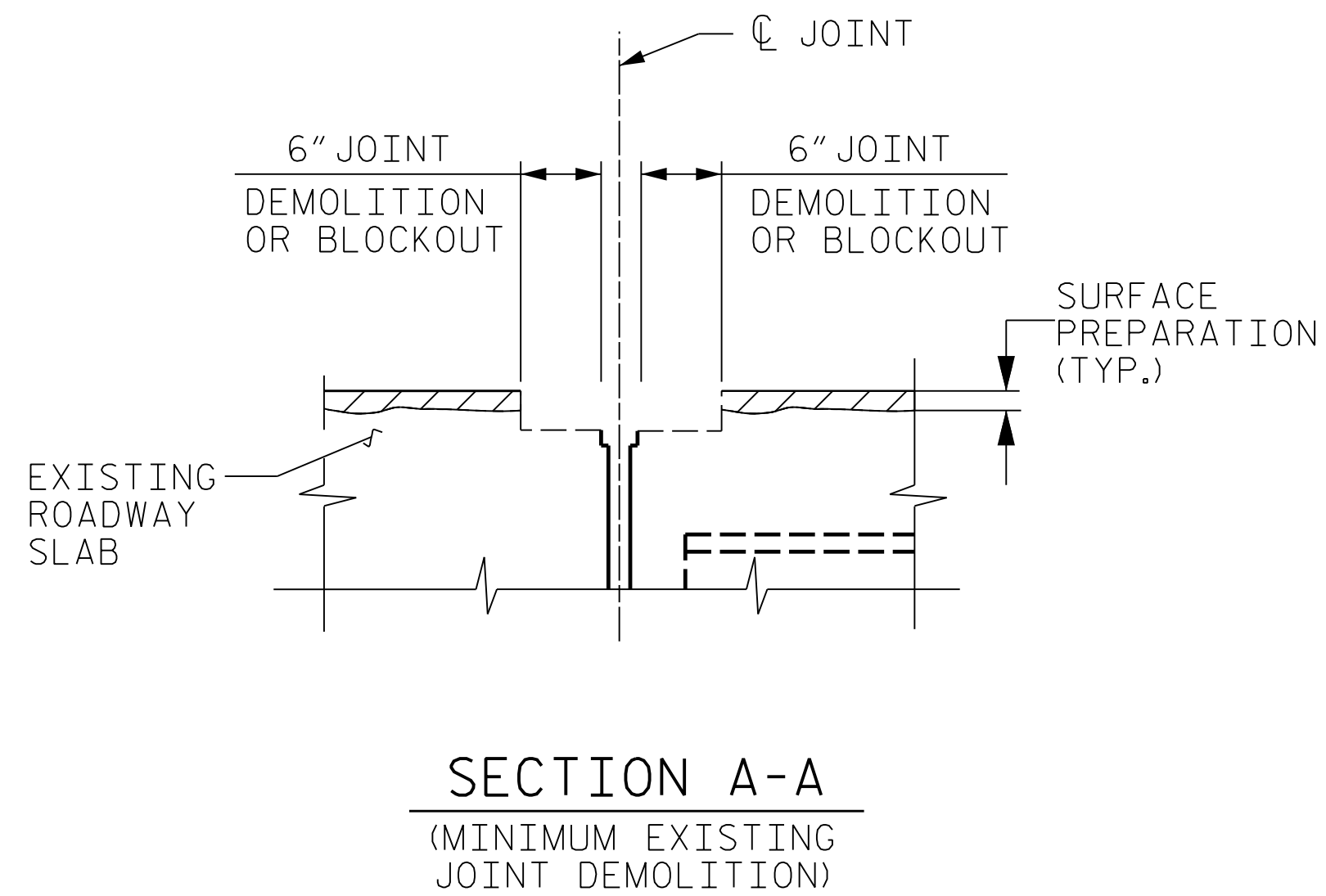
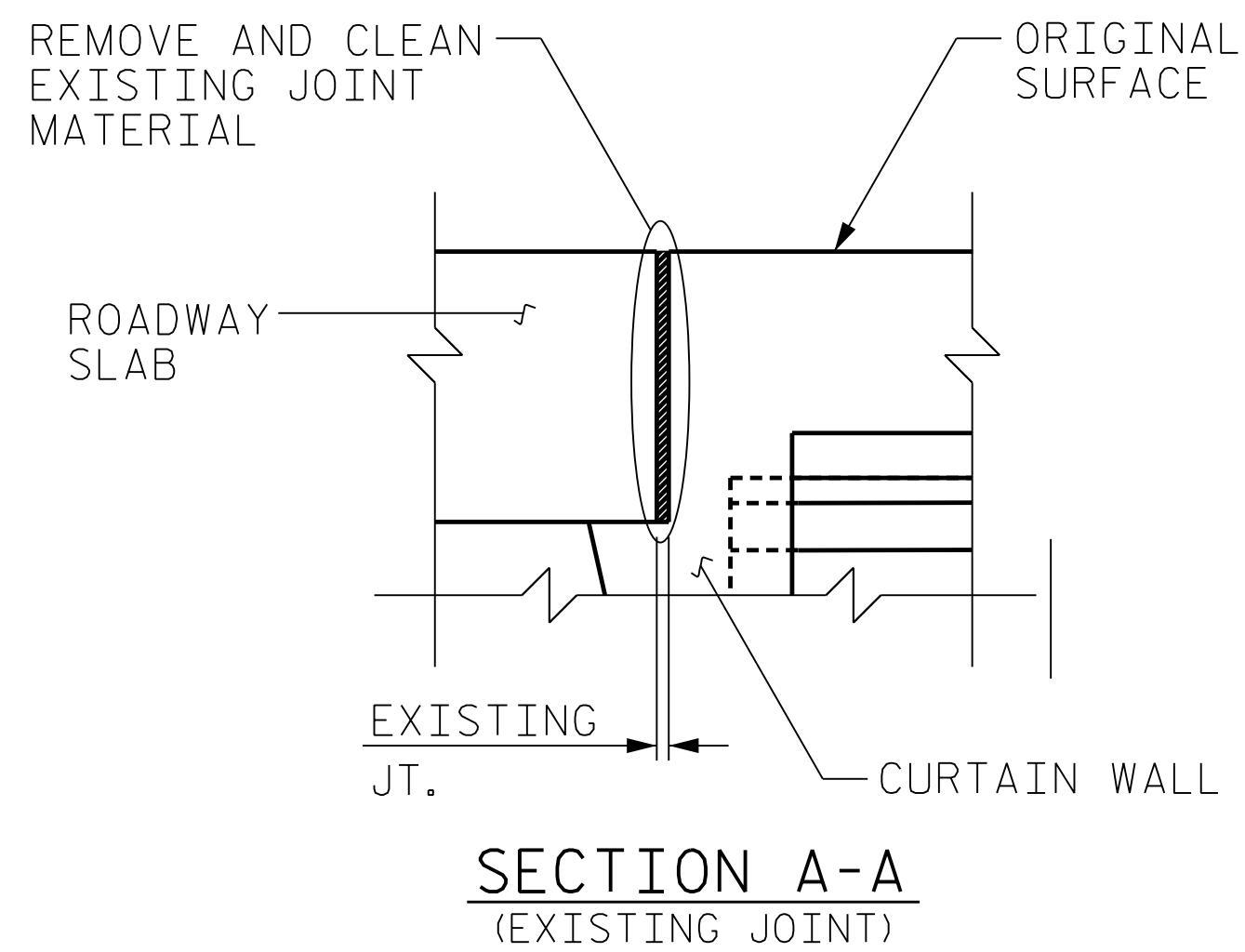
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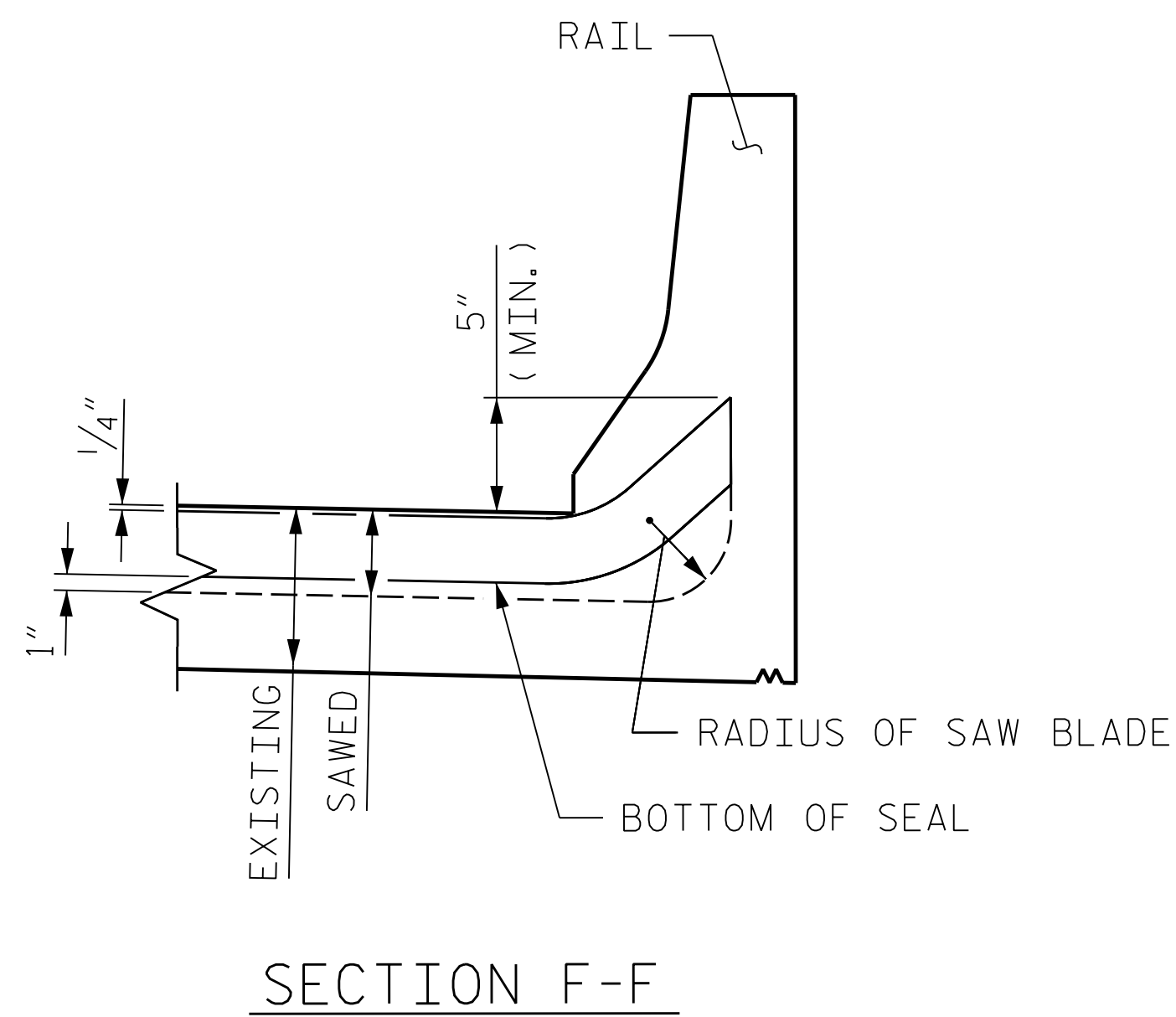
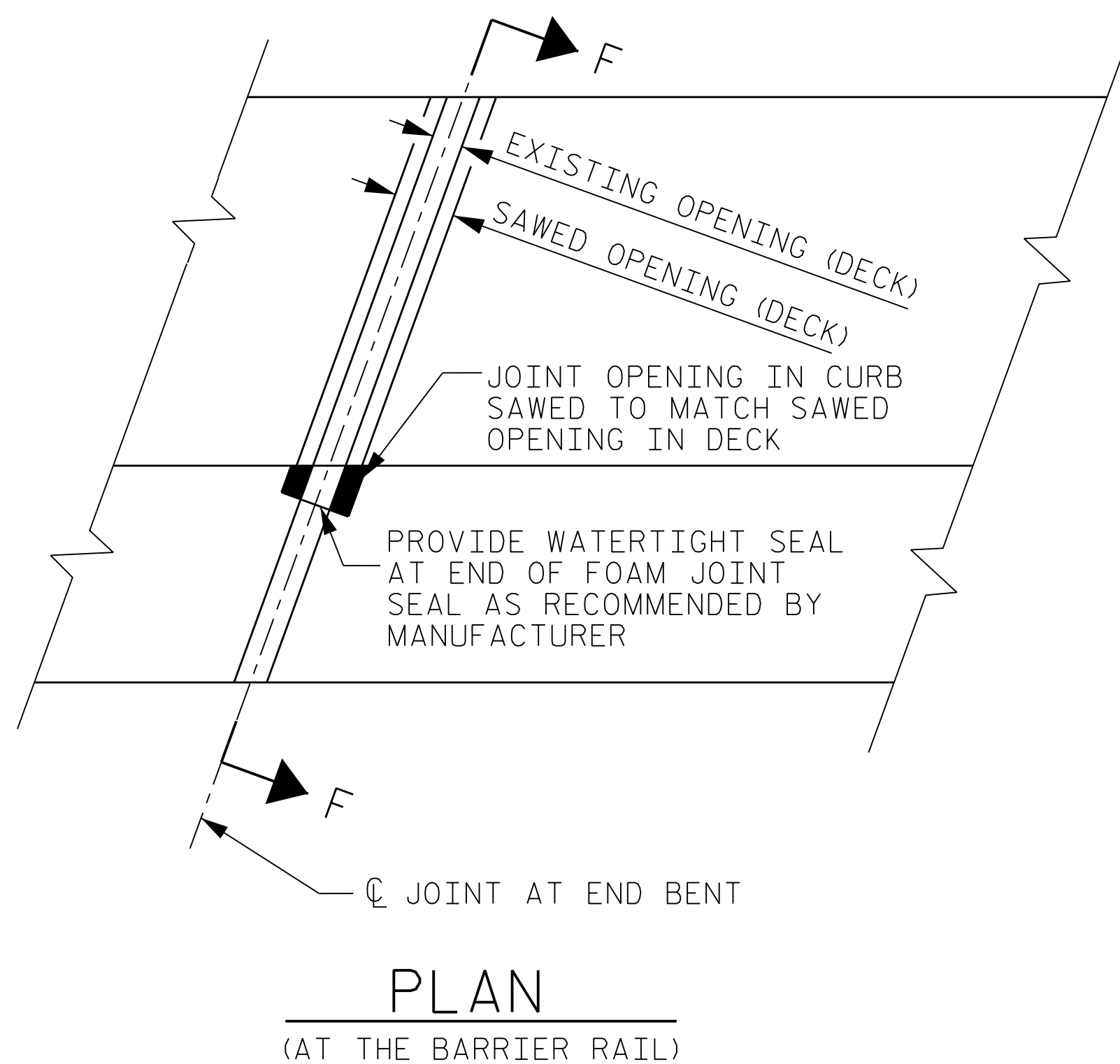
**NOTES:**

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

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

<b>ELASTOMERIC CONCRETE</b>	
BRIDGE 448	57.0 (CU. FT.)

**JOINT INSTALLATION SEQUENCE AT END BENTS**  
SECTION A-A



PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 448

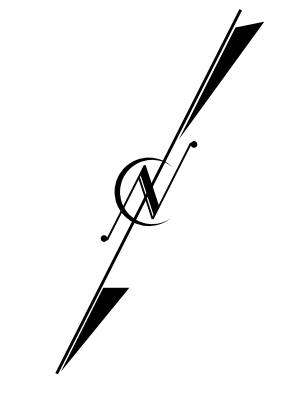
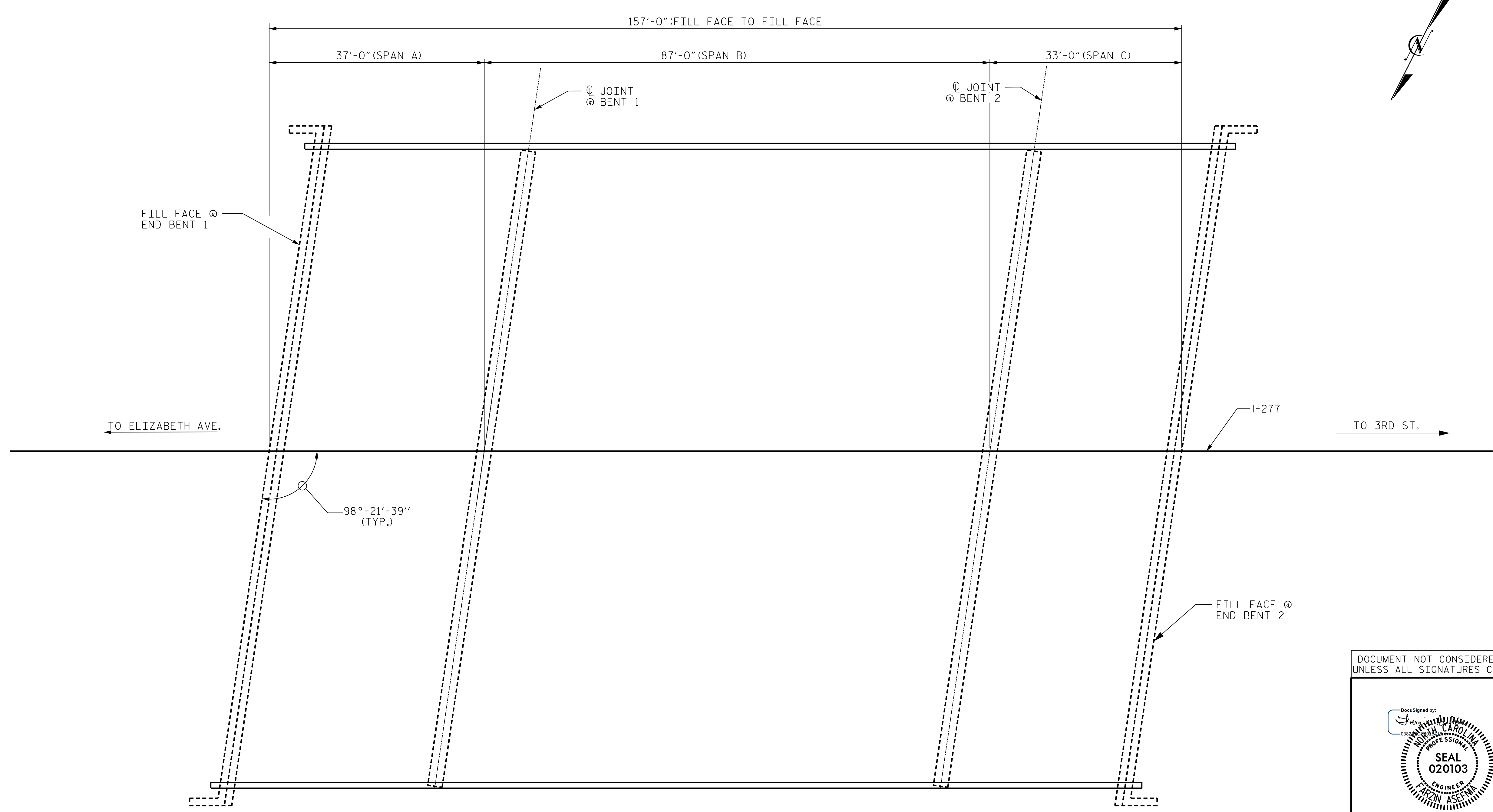
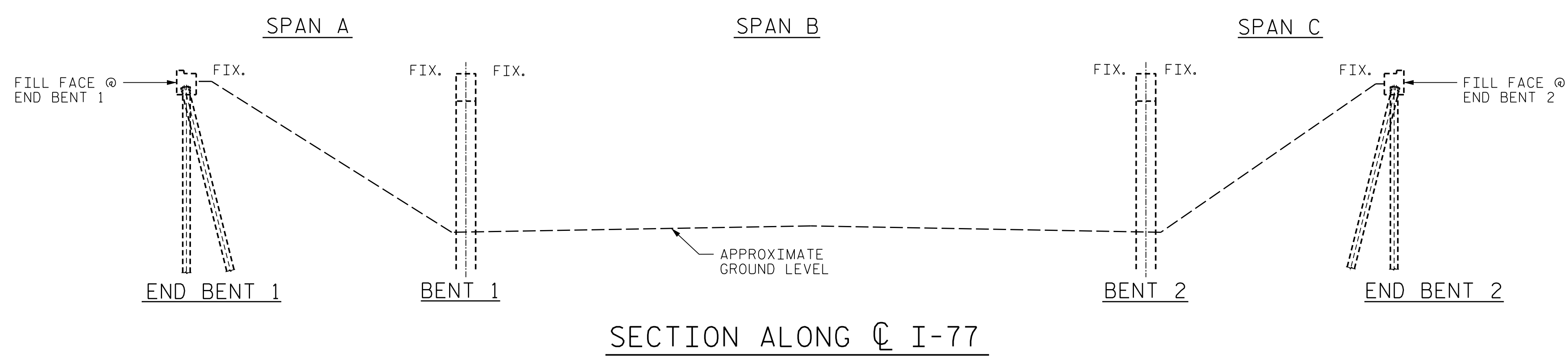
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared by: **Louis Berger**  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>SUPERSTRUCTURE</b> JOINT DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-90
					TOTAL SHEETS 196

DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

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 I-5746\_PDF\_FULL.pltcfgr I-5746\_STR\_REHAB.TBL



I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer \_\_\_\_\_ Date \_\_\_\_\_

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 449

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED



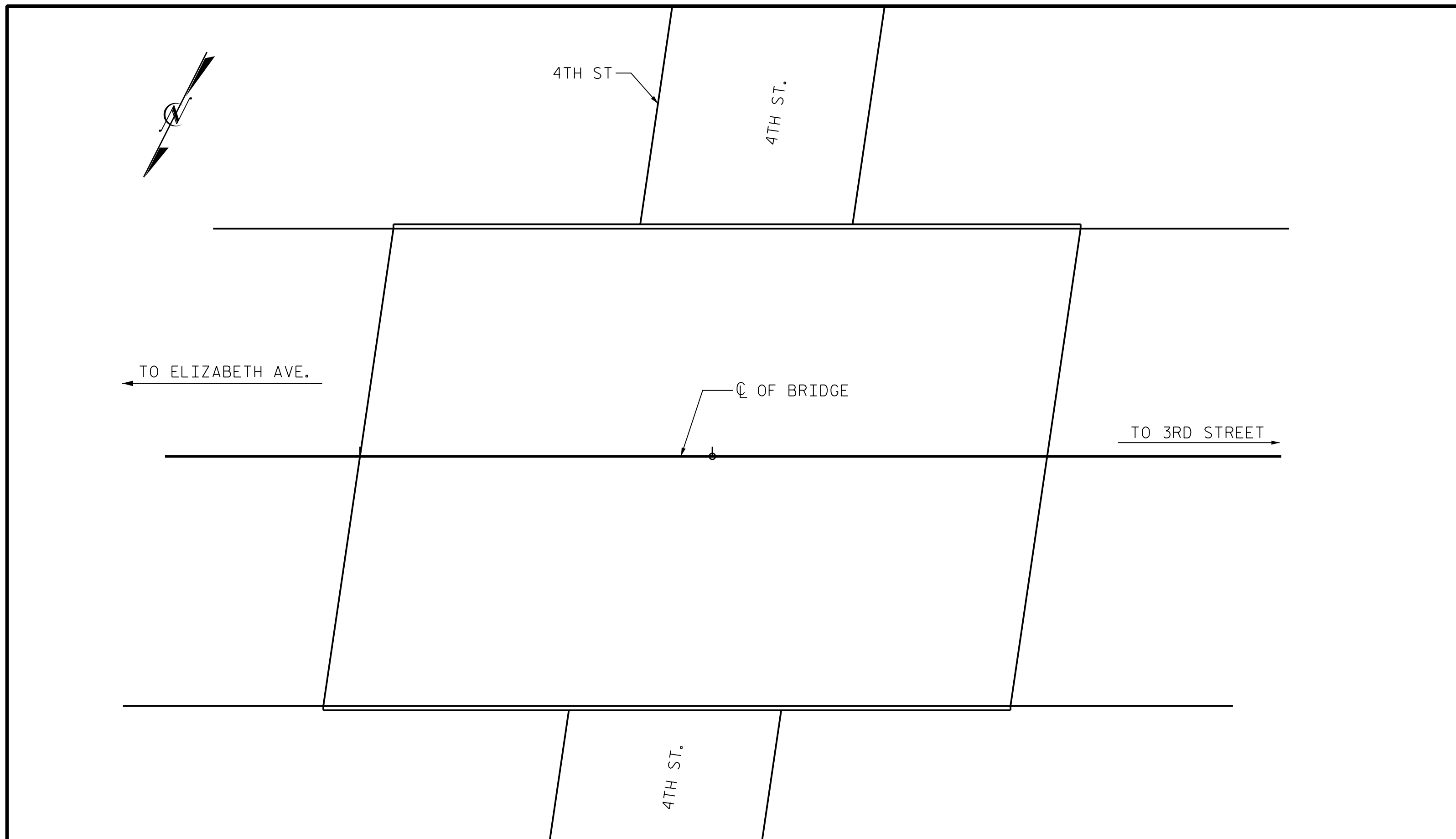
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 BRIDGE ON I-277  
 OVER EAST 4TH STREET

DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

REVISIONS				SHEET NO.	
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### LOCATION SKETCH

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

### NOTES

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

FOR EPOXY OVERLAY SYSTEM, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE AT THE PAVEMENT MARKINGS.

PROJECT NO. I-5746A/I-5746B

MECKLENBURG COUNTY

BRIDGE NO. 449

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

GENERAL DRAWING

BRIDGE ON I-277  
OVER EAST 4TH STREET

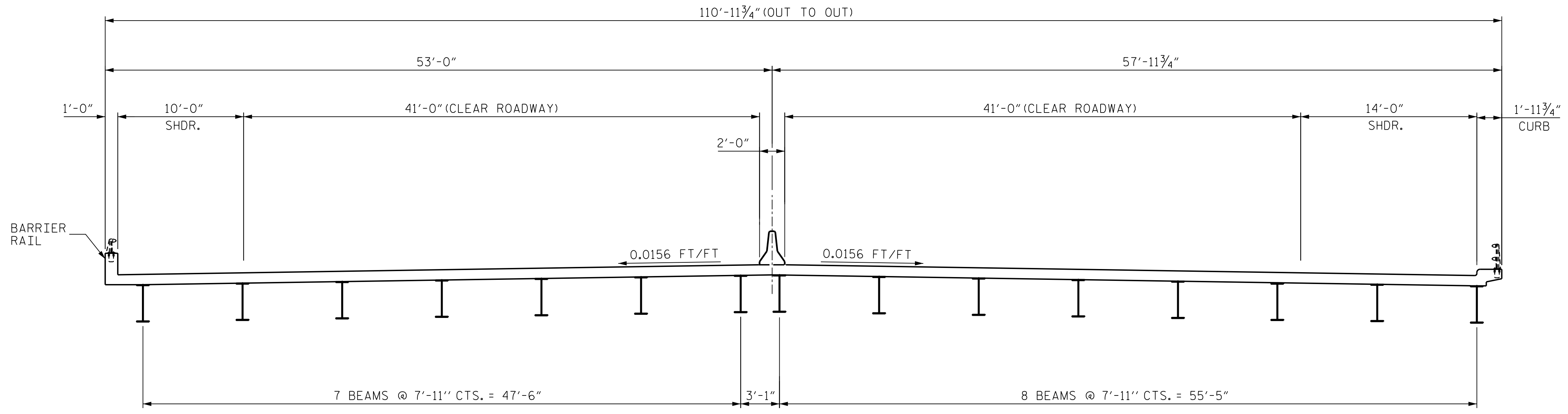
DRAWN BY :	J. MYA	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16



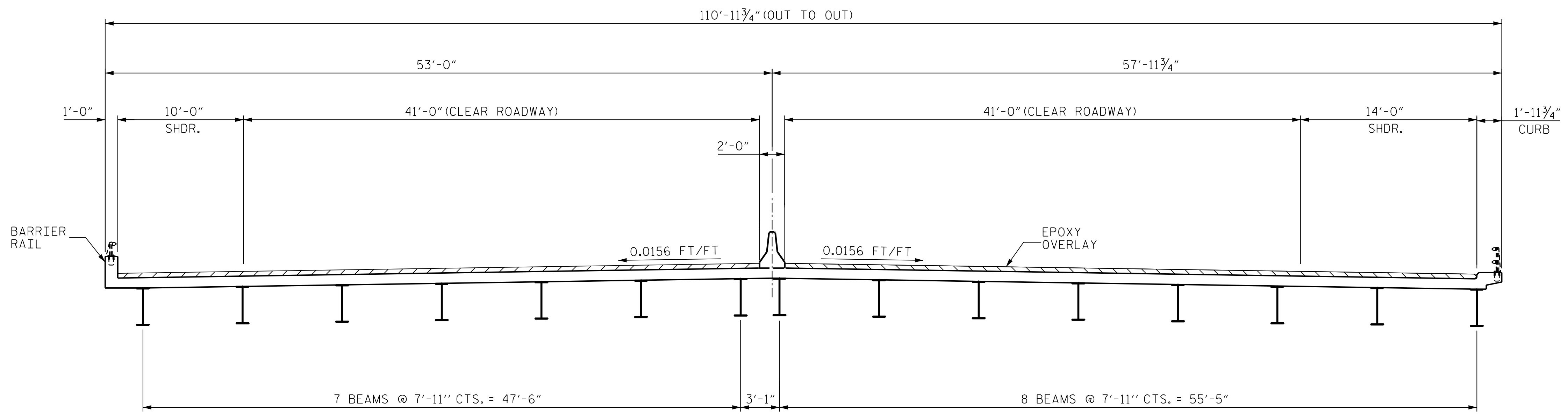
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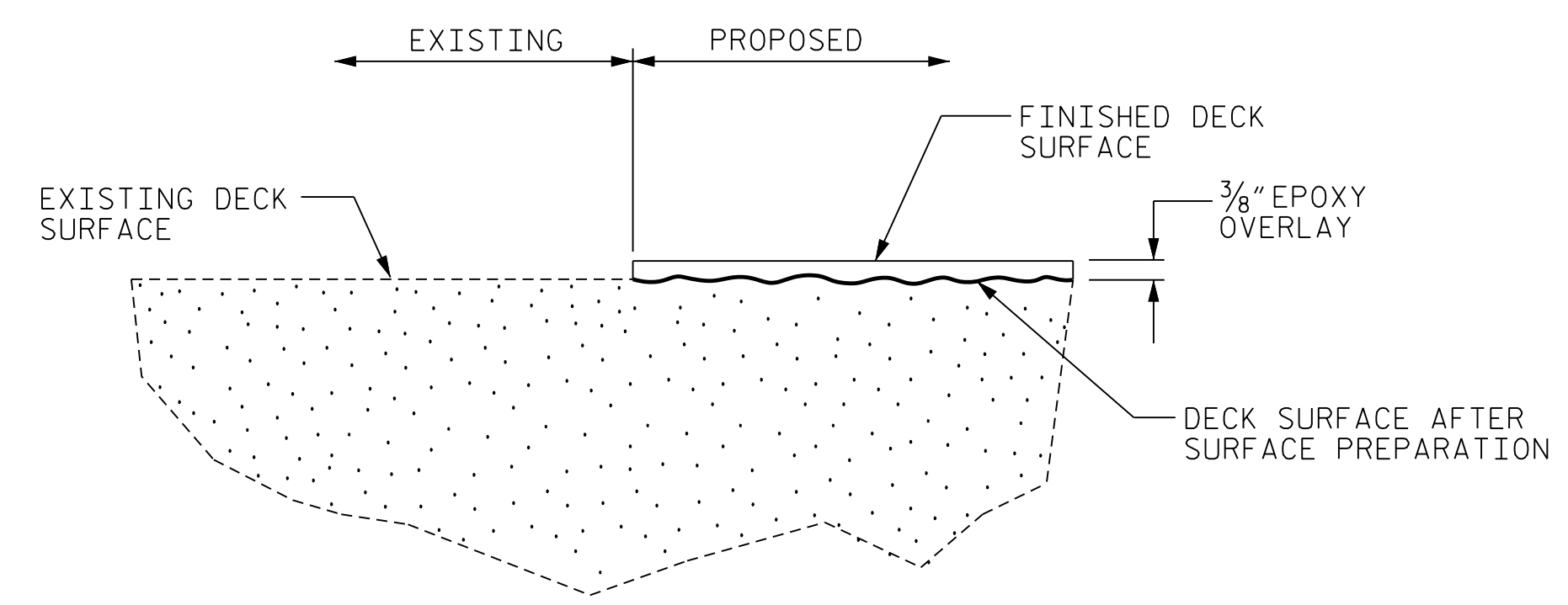
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**TYPICAL SECTION**  
(EXISTING STRUCTURE)



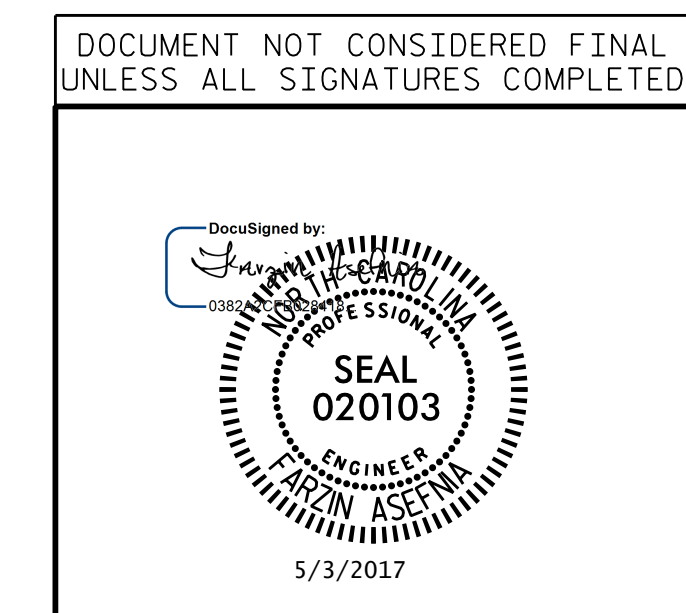
**TYPICAL SECTION**  
(EXISTING STRUCTURE)



**DETAIL OF EPOXY OVERLAY**

**NOTE:**  
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND EPOXY OVERLAY PLACEMENT.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 449



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION**  
 EPOXY OVERLAY  
 DETAILS

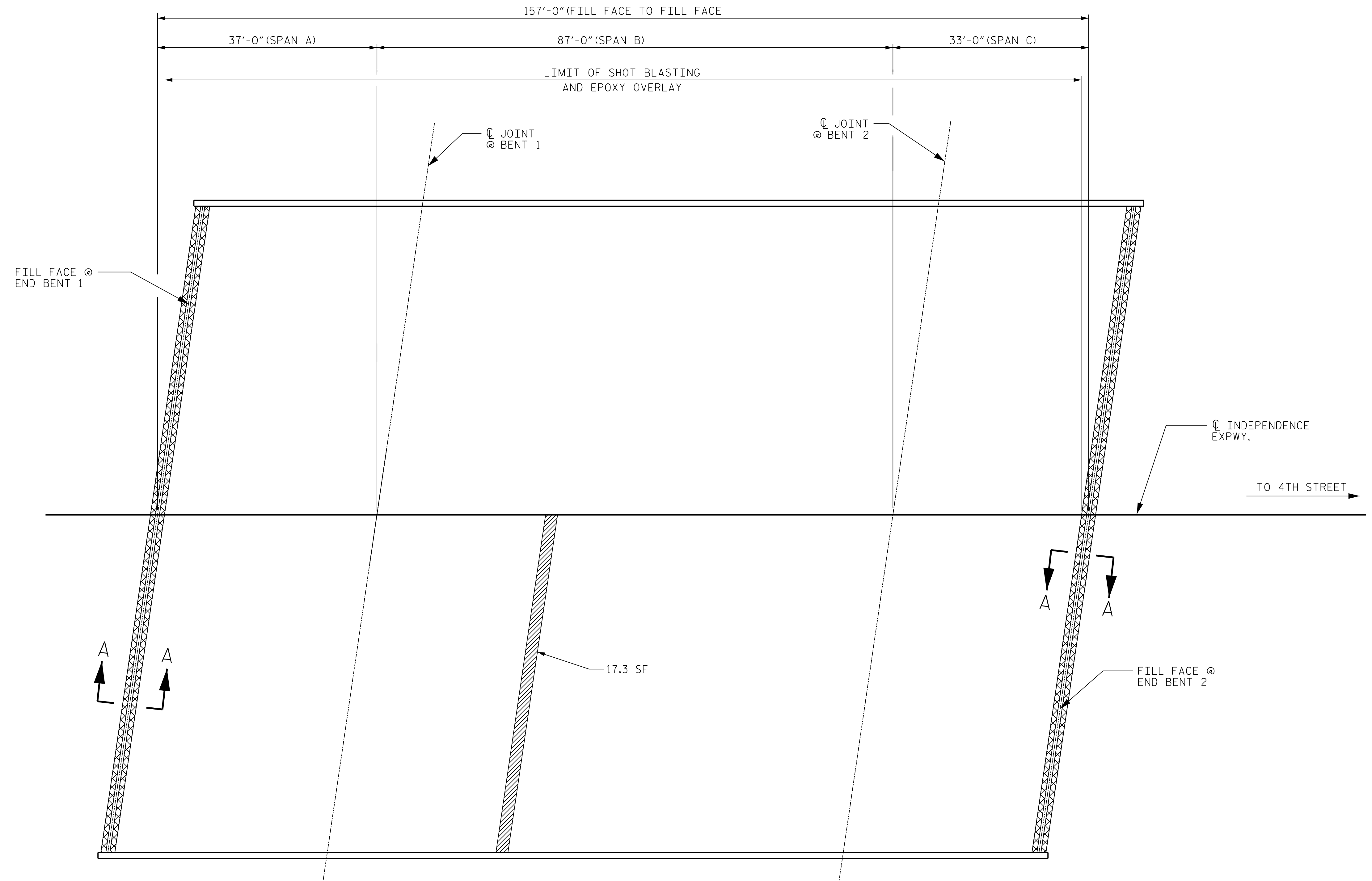
DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

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1			3					TOTAL SHEETS	
2			4					196	



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 I-5746\_PDF\_FULL.pltcfgr I-5746\_STR\_REHAB.TBL

SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1 SQ. FT.	
EPOXY OVERLAY SYSTEM	17,110 SQ. FT.	
BRIDGE JOINT DEMOLITION	220 SQ. FT.	
CONCRETE REPAIR	17.3 SQ. FT.	



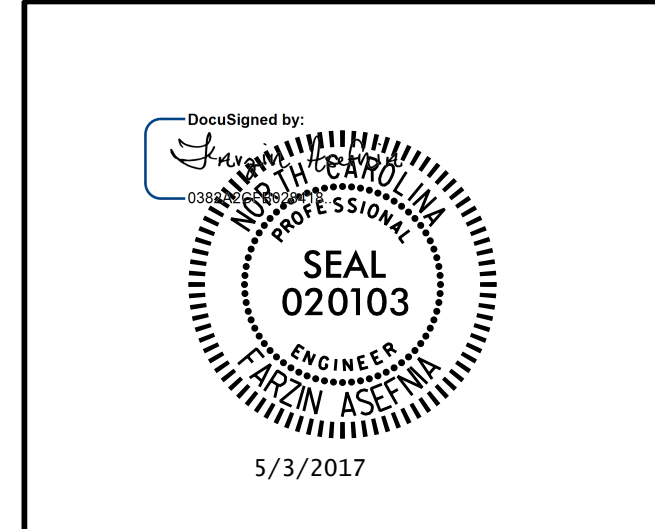
**NOTE:**

- EPOXY OVERLAY
- CLASS II REPAIR
- JOINT DEMOLITION

PLAN

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 449

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED



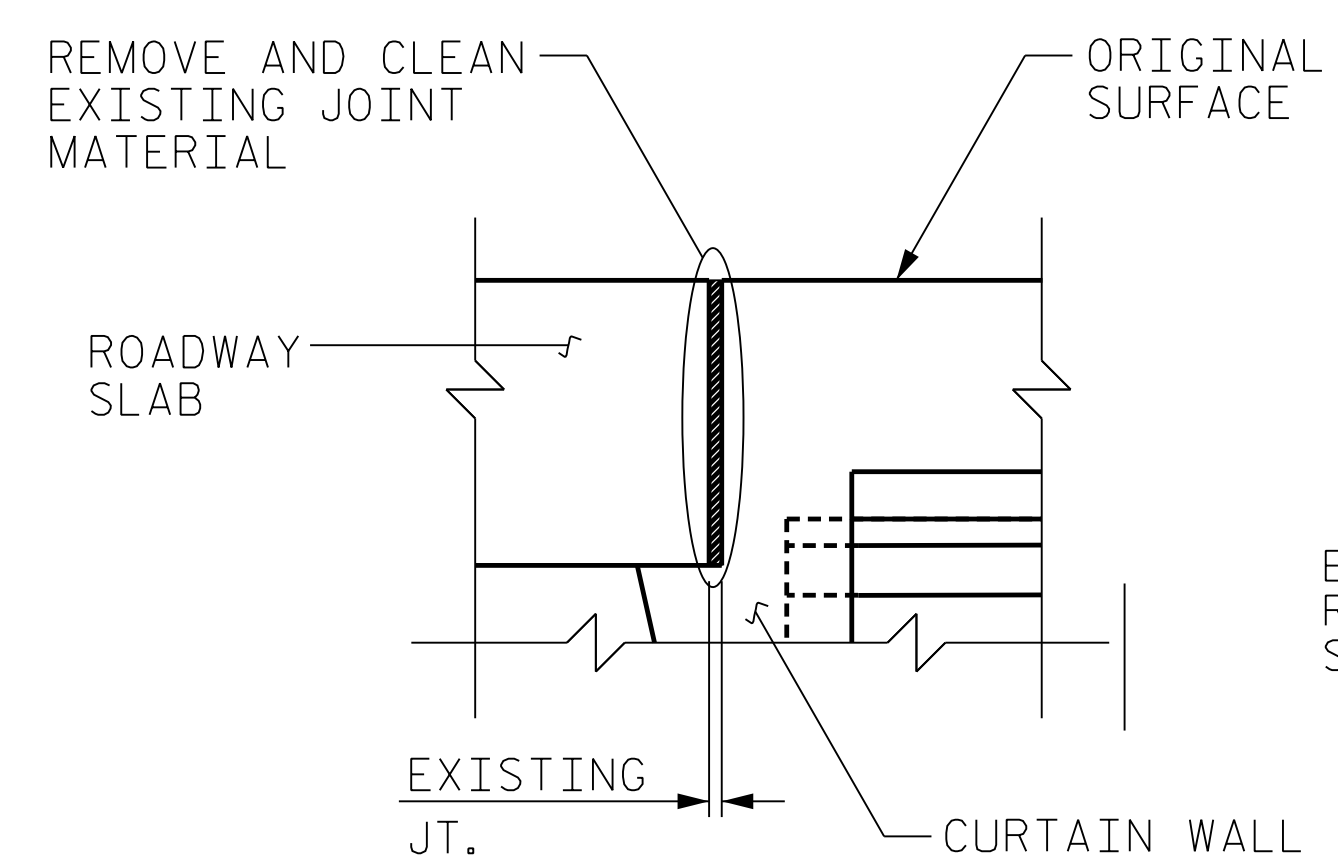
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SURFACE PREPARATION  
 AND  
 EPOXY OVERLAY**

DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

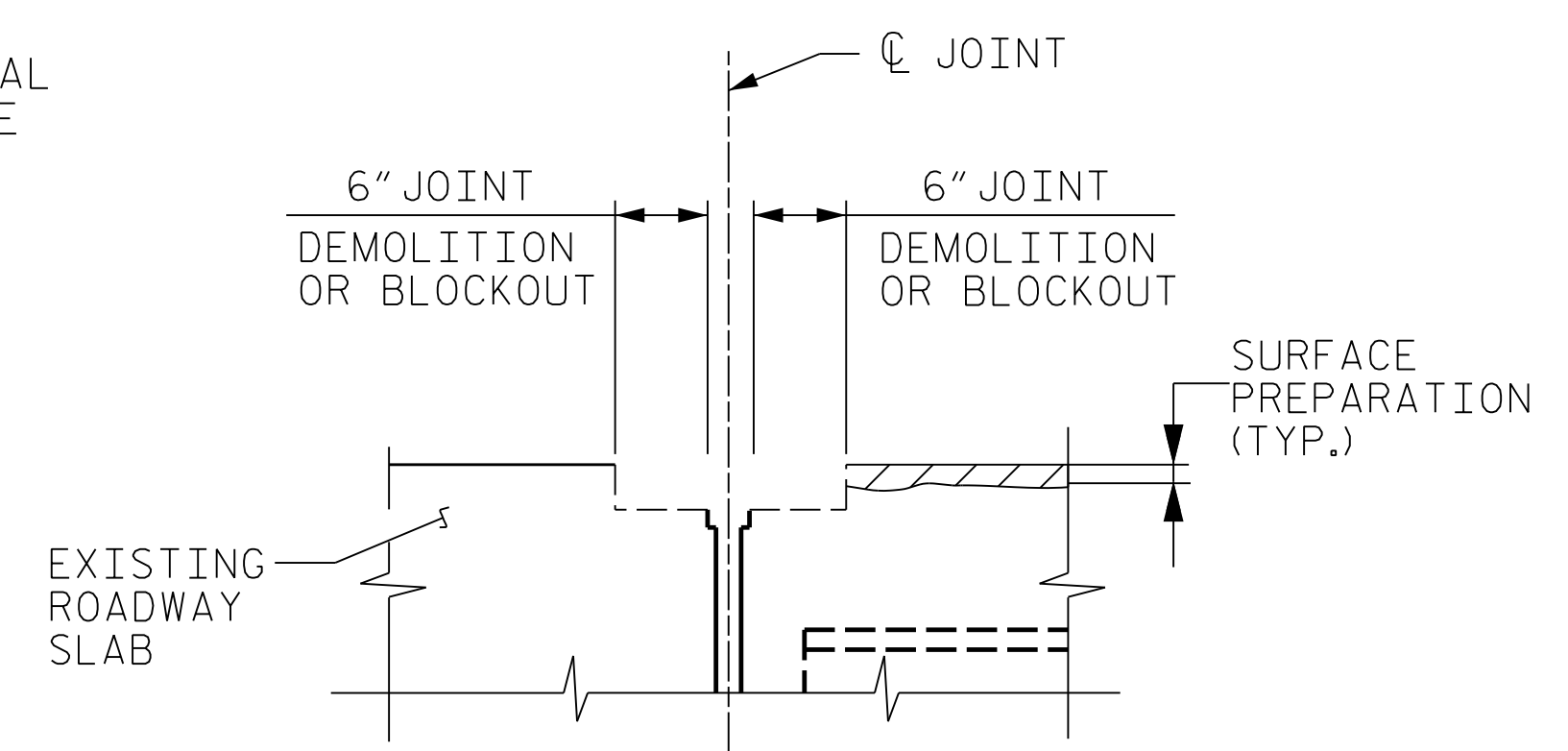
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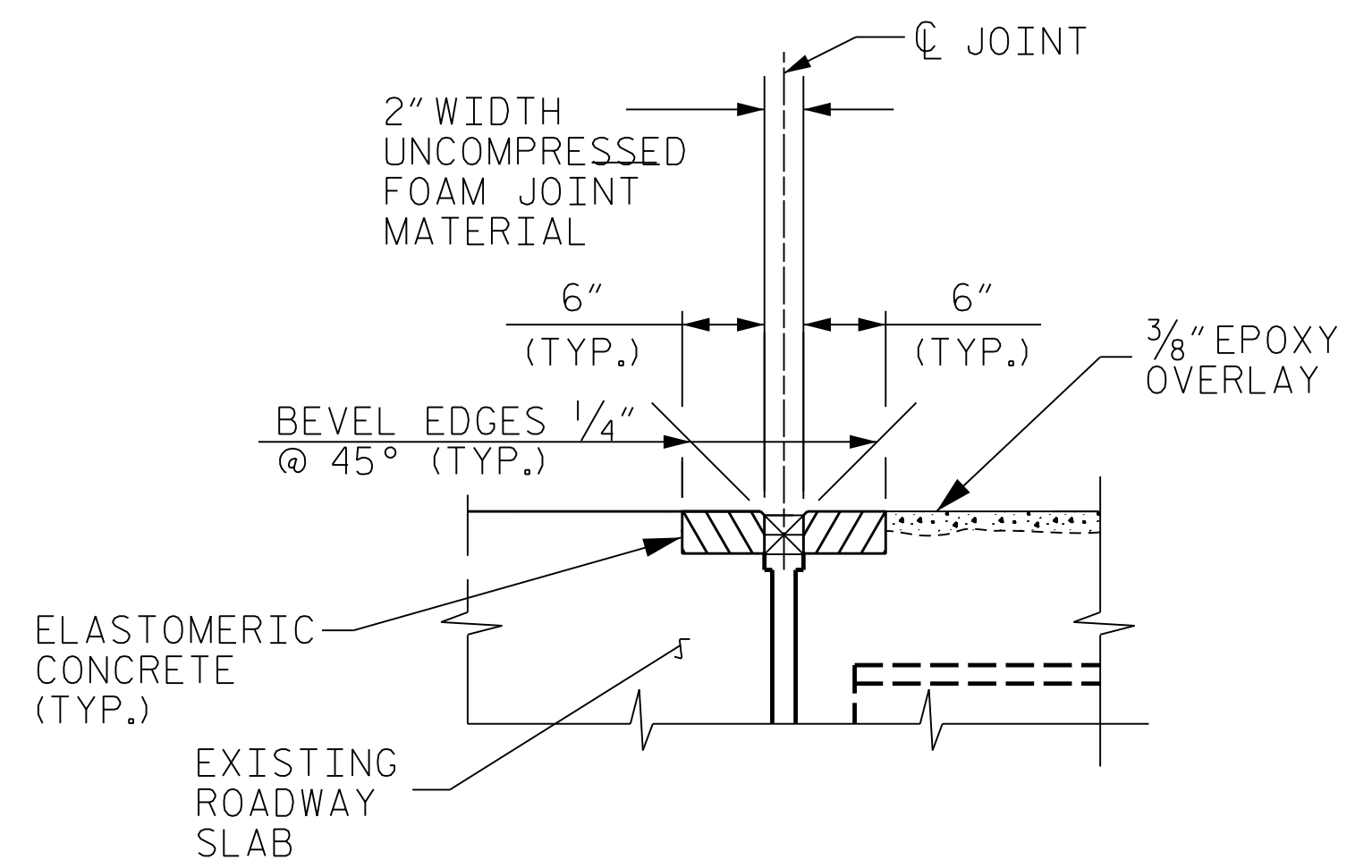
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**SECTION A-A**  
(EXISTING JOINT)



**SECTION A-A**  
(MINIMUM EXISTING JOINT DEMOLITION)



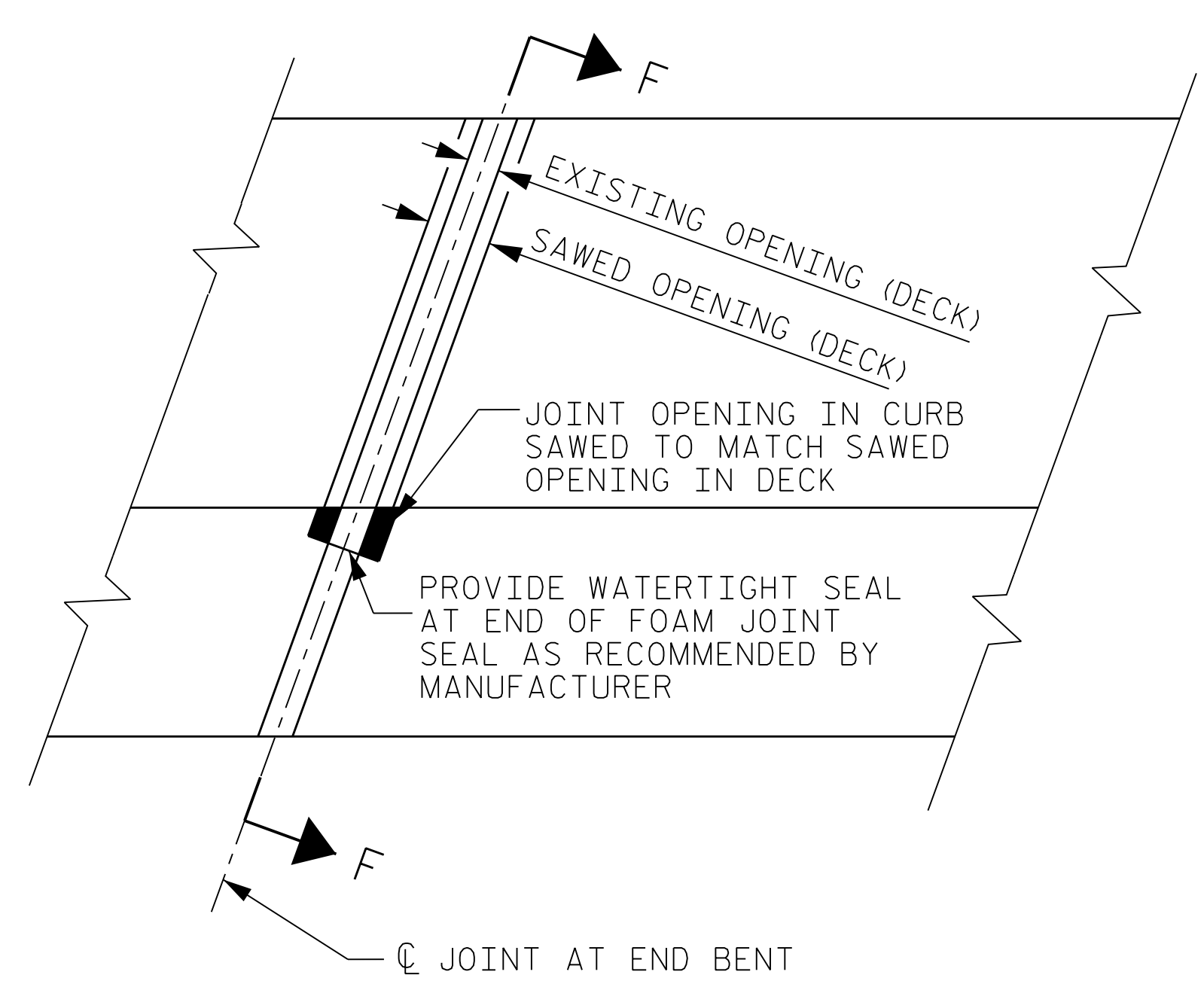
**SECTION A-A**  
(PROPOSED JOINT)

**NOTES:**  
CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.

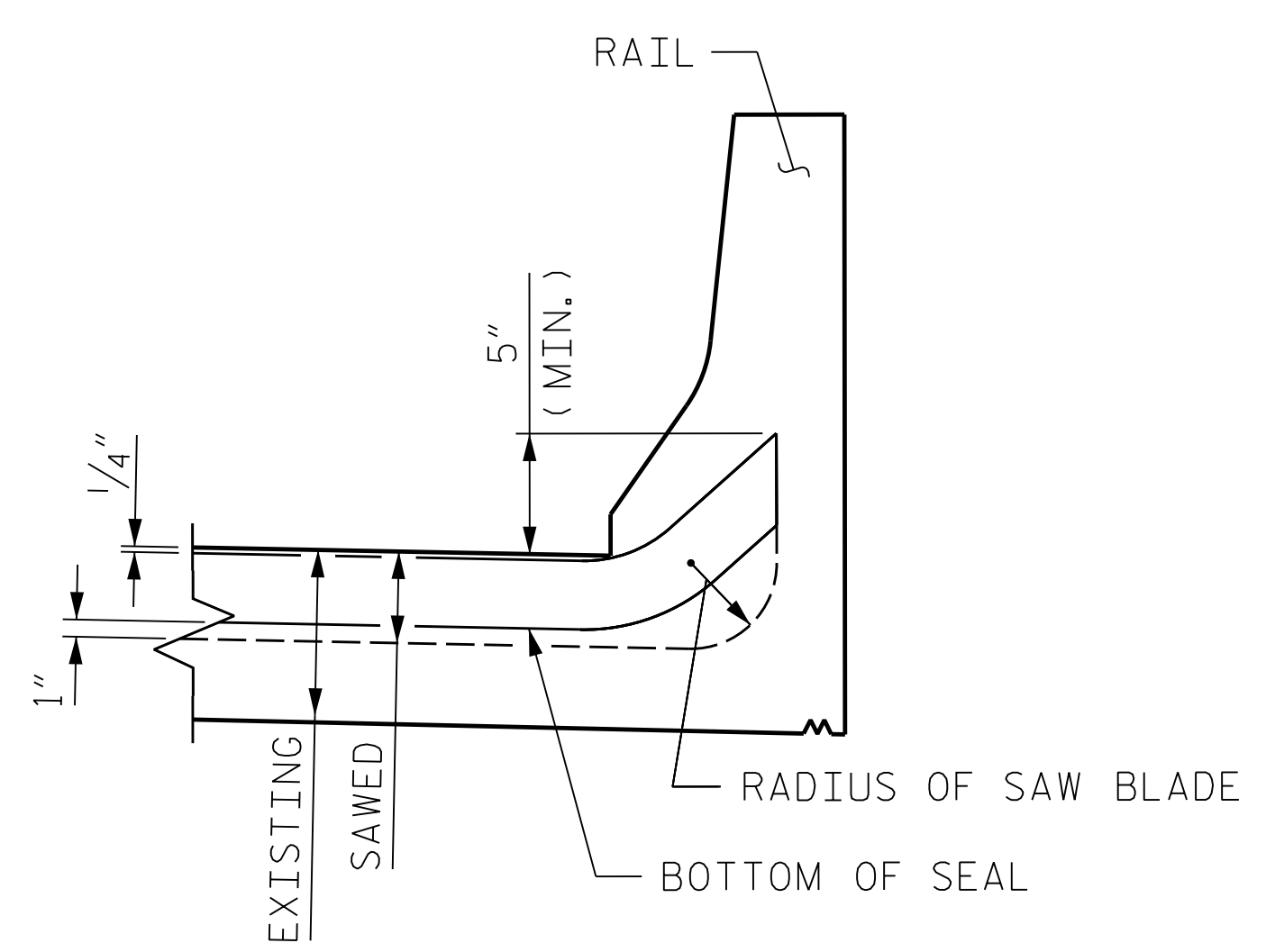
<b>ELASTOMERIC CONCRETE</b>		
BRIDGE 448	55	(CU. FT.)

## JOINT INSTALLATION SEQUENCE AT END BENTS

SECTION A-A



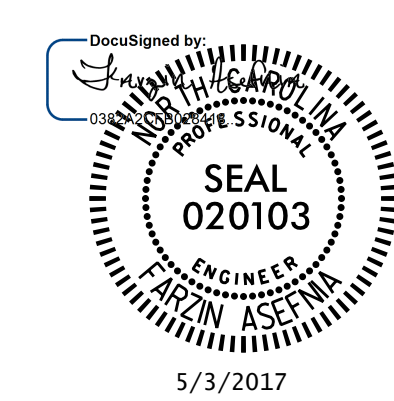
**PLAN**  
(AT THE BARRIER RAIL)



**SECTION F-F**

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 449

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



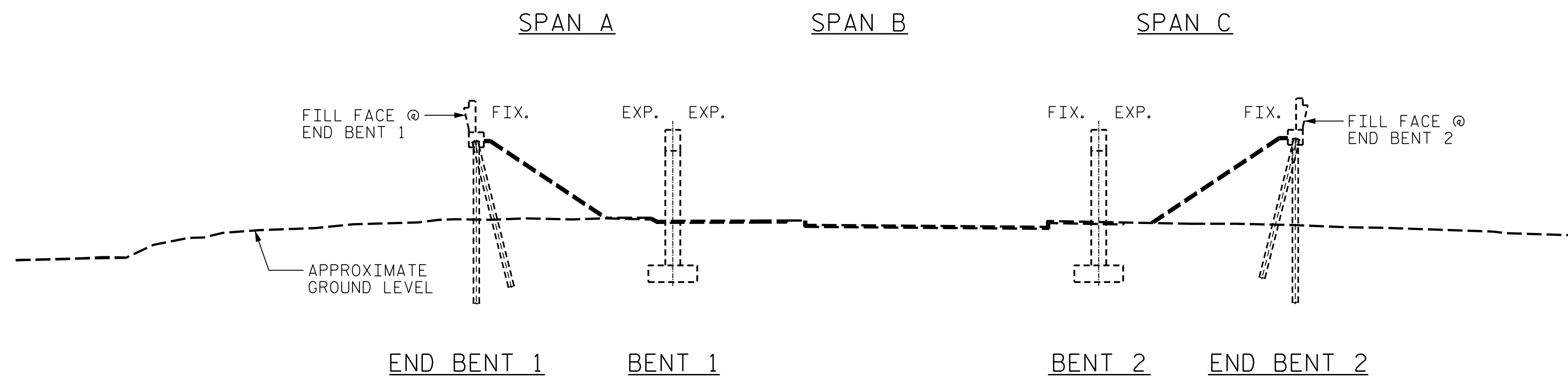
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUPERSTRUCTURE**  
JOINT DETAILS

DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

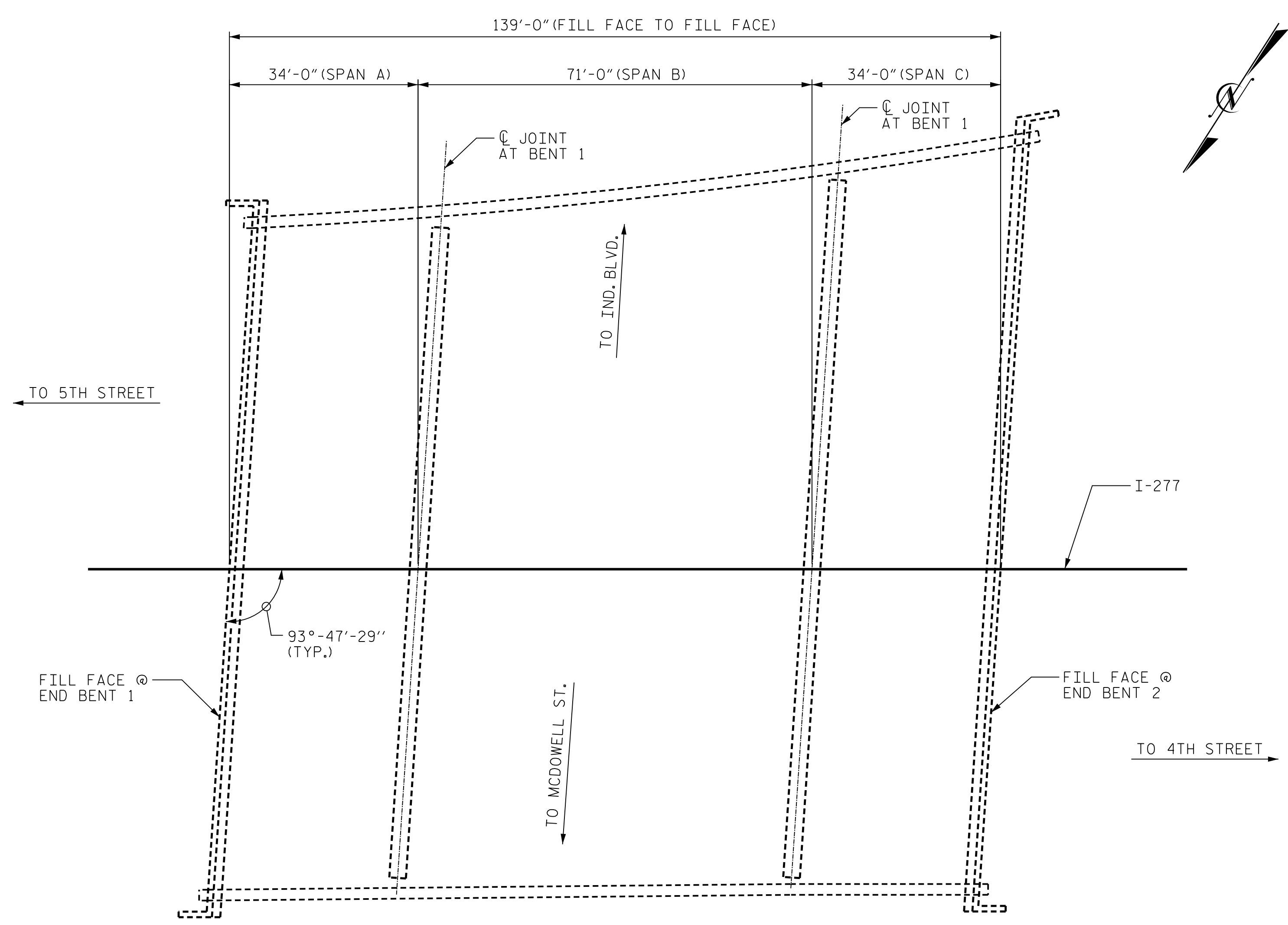
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SECTION ALONG C I-77



PLAN

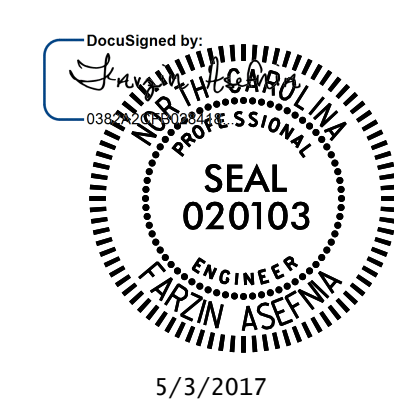
I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer \_\_\_\_\_ Date \_\_\_\_\_

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 450

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

SHEET 1 OF 2



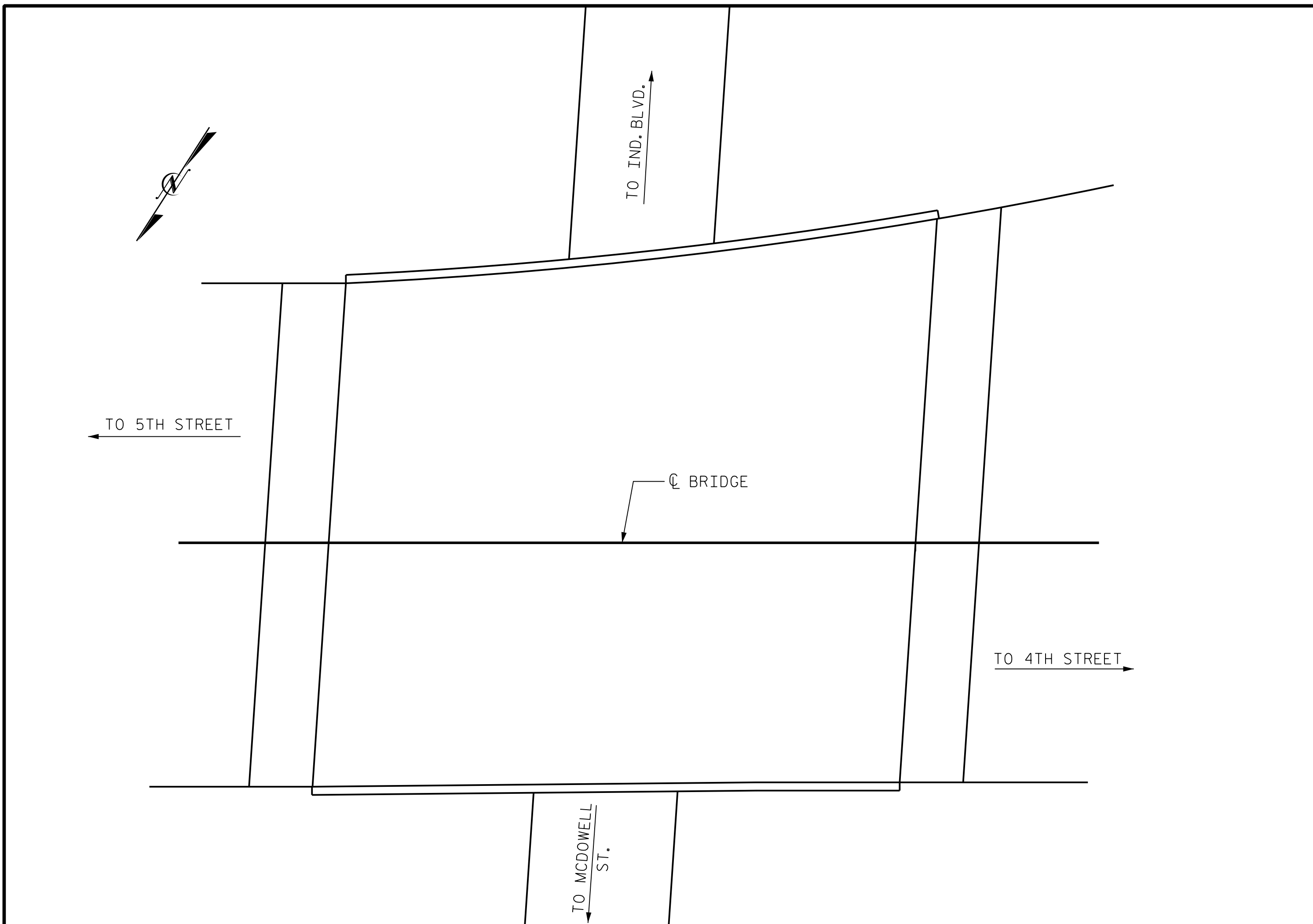
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 BRIDGE ON I-277  
 OVER ELIZABETH AVE.

DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
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**LOCATION SKETCH**

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

**NOTES**

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EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

FOR EPOXY OVERLAY SYSTEM, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPACIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

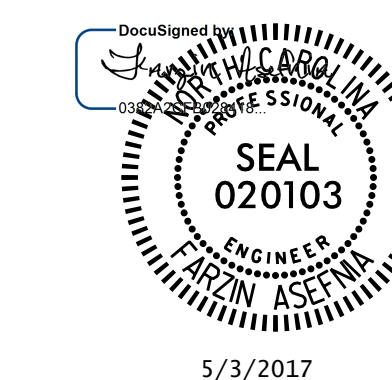
FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR AT PAVEMENT MARKINGS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 450

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

SHEET 2 OF 2



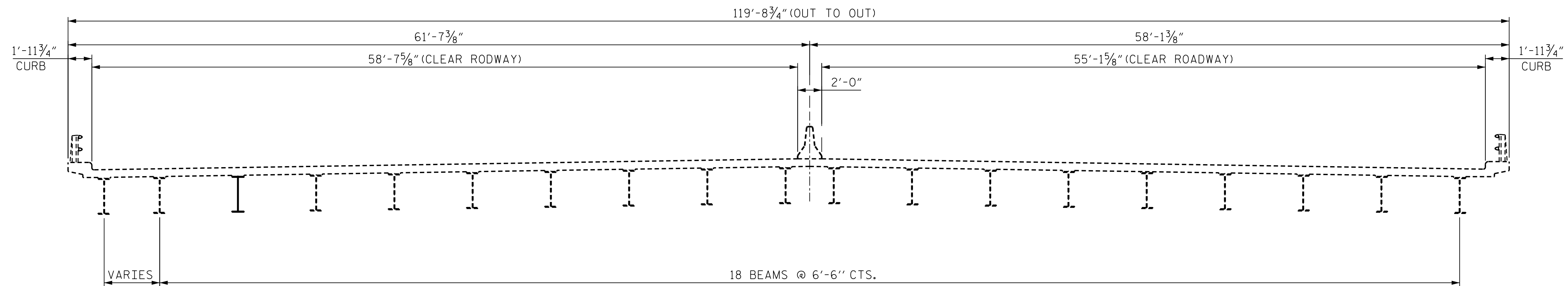
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**  
BRIDGE ON I-277  
OVER ELIZABETH AVE.

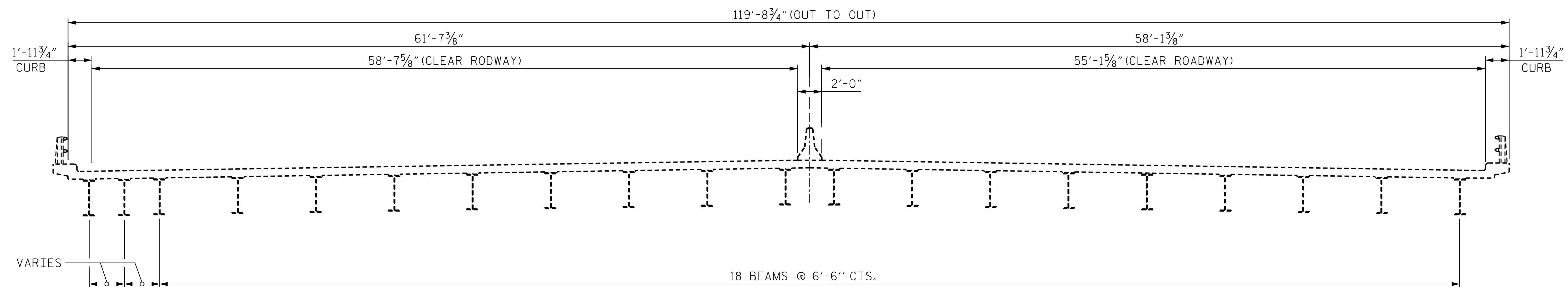
DRAWN BY :	J. MYA	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

	Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840						SHEET NO. S-97 TOTAL SHEETS 196
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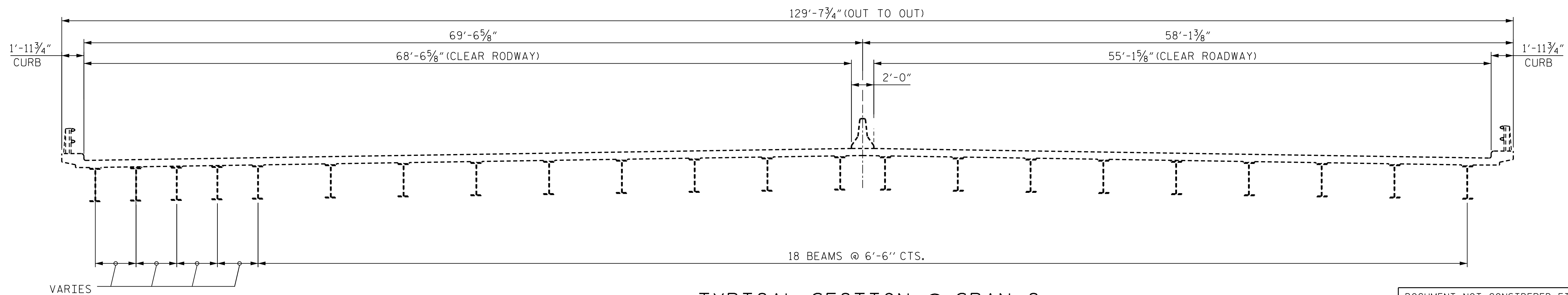
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**TYPICAL SECTION @ SPAN A**  
(EXISTING STRUCTURE)



**TYPICAL SECTION @ SPAN B**  
(EXISTING STRUCTURE)

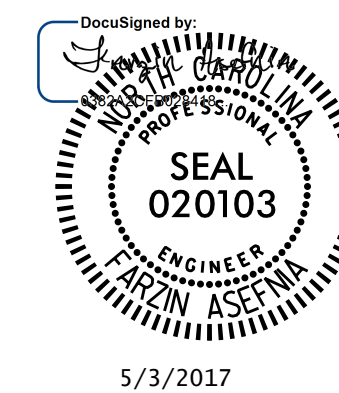


**TYPICAL SECTION @ SPAN C**  
(EXISTING STRUCTURE)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 450

SHEET 1 OF 2

DOCUMENT NOT CONSIDERED FINAL  
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION**  
 (EXISTING STRUCTURE)

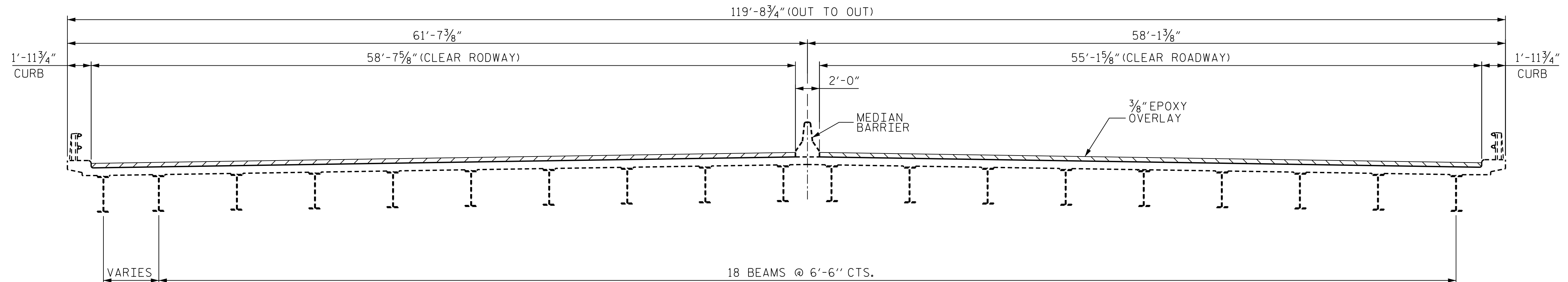
DRAWN BY : J. MYA DATE : 9-16  
 CHECKED BY : F. ASEFNIA DATE : 9-16  
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 9-16

Louis Berger  
 Prepared by:  
 LOUIS BERGER  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

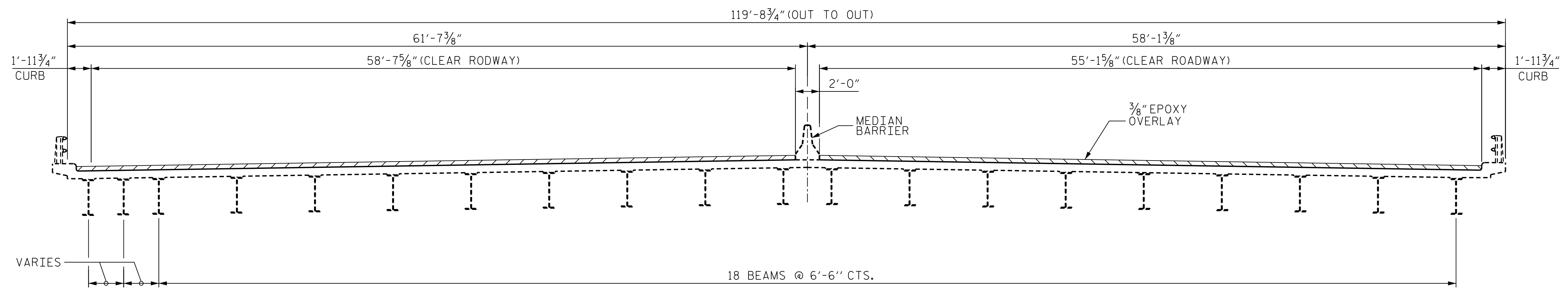
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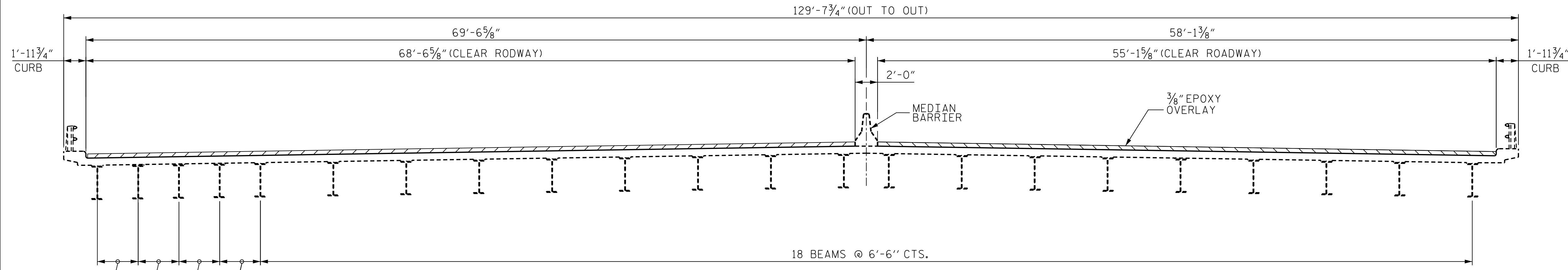
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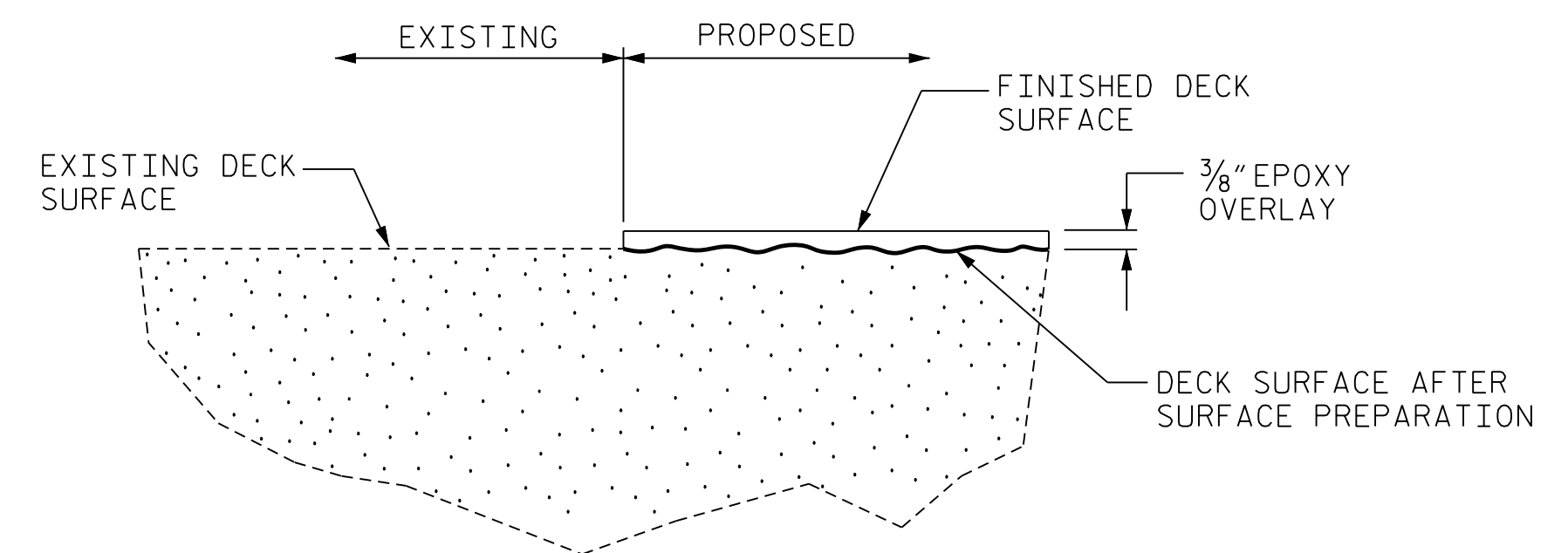
**TYPICAL SECTION @ SPAN A**  
(EPOXY OVERLAY)



**TYPICAL SECTION @ SPAN B**  
(EPOXY OVERLAY)



**TYPICAL SECTION @ SPAN C**  
(EPOXY OVERLAY)



**DETAIL OF EPOXY OVERLAY**

**NOTE:**  
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 450

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION & EPOXY OVERLAY DETAILS**

DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

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

TOTAL SHEETS	196
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I-5746\_PDF\_FULL.pltcfgr I-5746\_STR\_REHAB.TBL



SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1.0 SQ. FT.	
EPOXY OVERLAY SYSTEM	23,150 SQ. FT.	
BRIDGE JOINT DEMOLITION	500 SQ. FT.	
CONCRETE REPAIR	1.0 SQ. FT.	

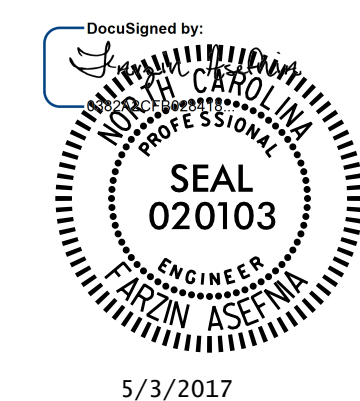
**NOTE:**  
CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED, TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED

- EPOXY OVERLAY
- JOINT DEMOLITION
- CLASS II REPAIR

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 450

**PLAN**  
FOR SECTION A-A & B-B SEE JOINT DETAILS SHEET

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



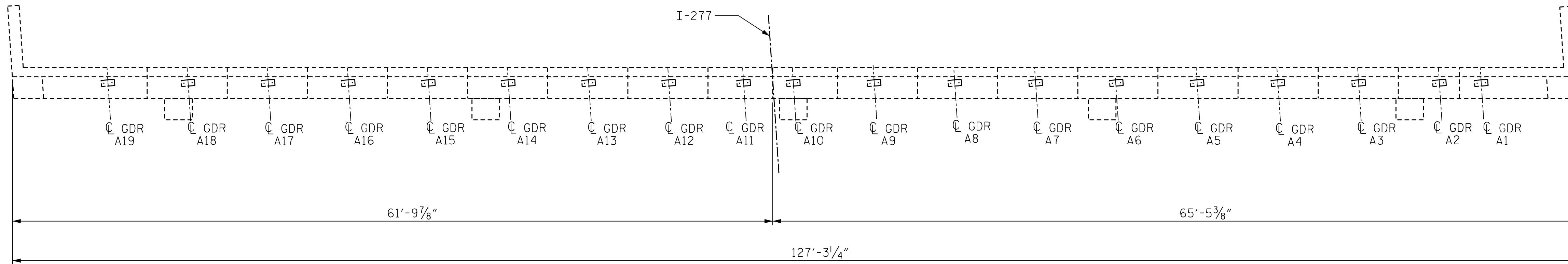
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION  
& EPOXY OVERLAY**

DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

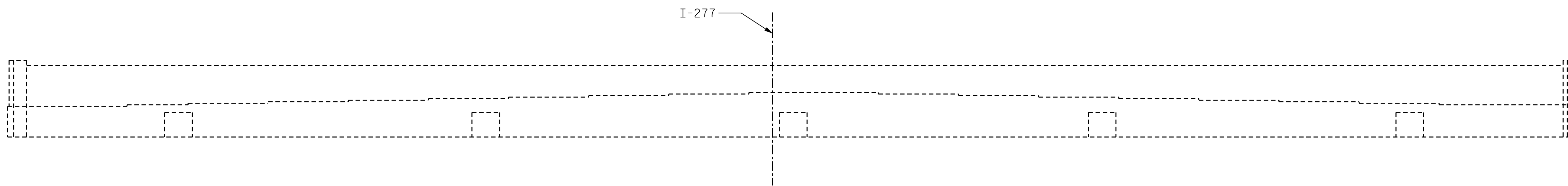


REVISIONS						SHEET NO. S-100
NO.	BY:	DATE:	NO.	BY:	DATE:	
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**PLAN**  
END BENT 1



**ELEVATION**  
END BENT 1

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR END BENT 1, NO DAMAGE WAS OBSERVE @ THE TIME OF INSPECTION.

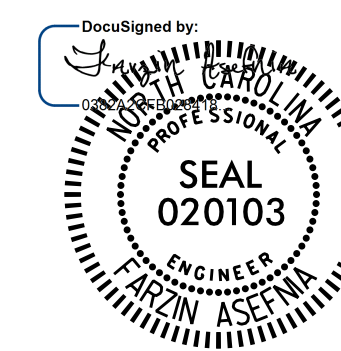
**REPAIR QUANTITY TABLE**

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

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 450

DOCUMENT NOT CONSIDERED FINAL  
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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE**  
**END BENT 1**

REVISIONS

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

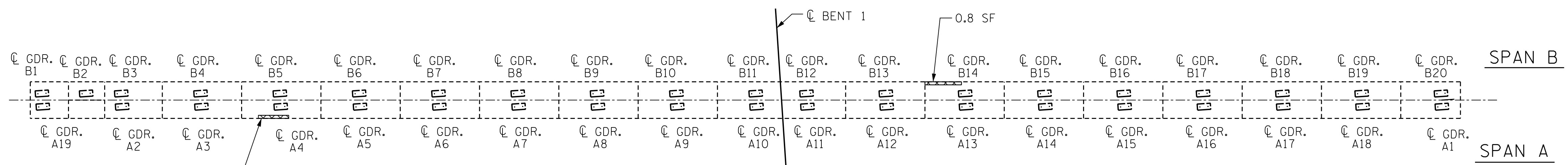
SHEET NO.  
S-101  
TOTAL SHEETS  
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DRAWN BY : J. MYA DATE : 9-16  
CHECKED BY : F. ASEFNIA DATE : 9-16  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 9-16

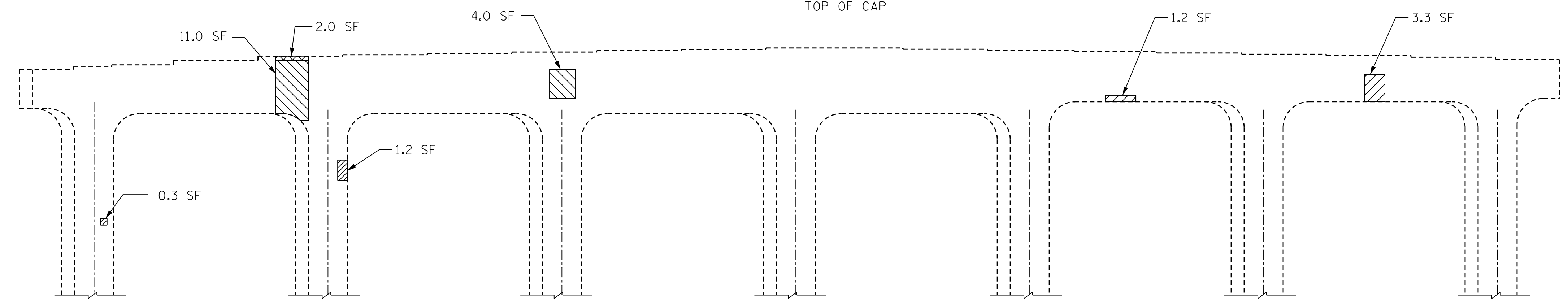
Prepared by:  
**Louis Berger**  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840



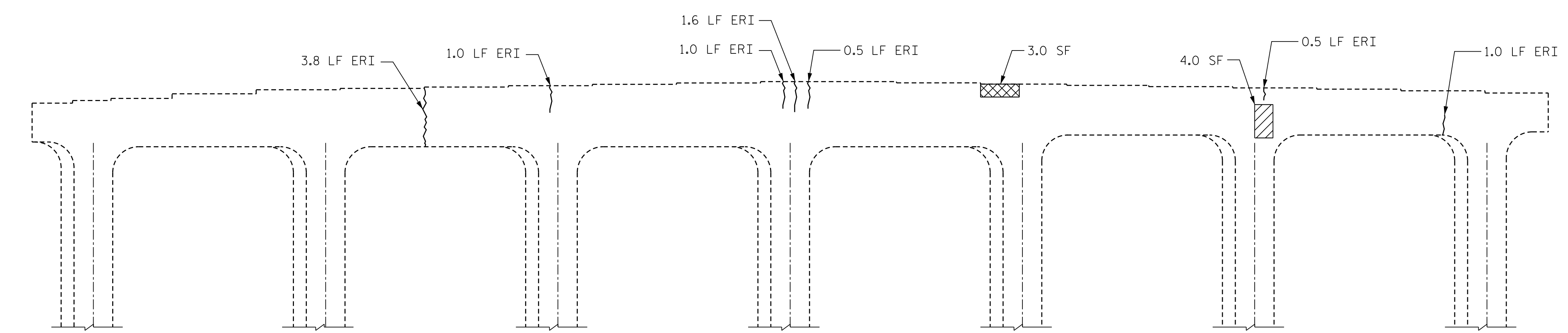
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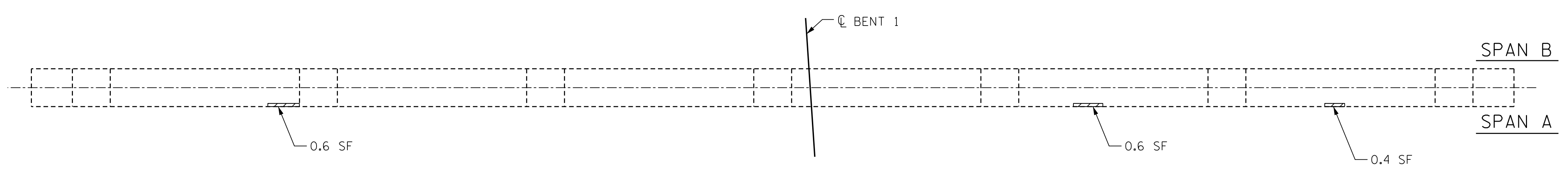
PLAN  
TOP OF CAP



ELEVATION  
(SPAN A SIDE)



ELEVATION  
(SPAN B SIDE)



PLAN  
BOTTOM OF CAP

REPAIR QUANTITY TABLE				
REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	23.5	5.9		
CAP (HORIZONTAL)	1.6	0.4		
COLUMN (HORIZONTAL FACE)	1.5	0.4		
CONCRETE REPAIRS	6.4	1.6		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP		9.4		
COLUMN				
EPOXY COATING			SO. FT	SO. FT
TOP OF CAP		353		

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

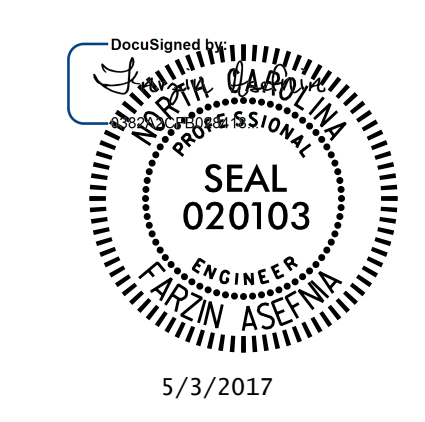
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 450

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UNLESS ALL SIGNATURES COMPLETED

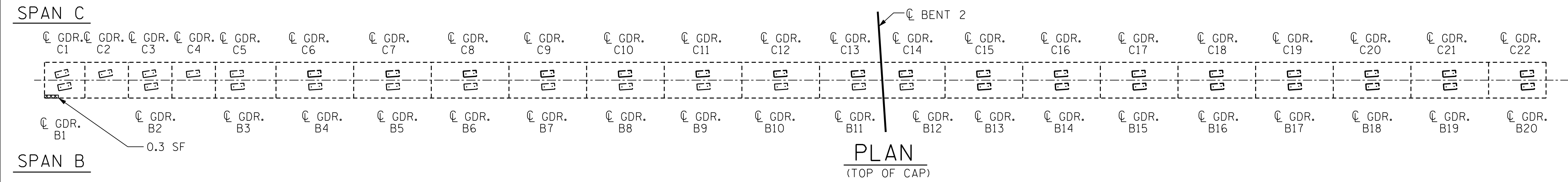


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE  
BENT 1**

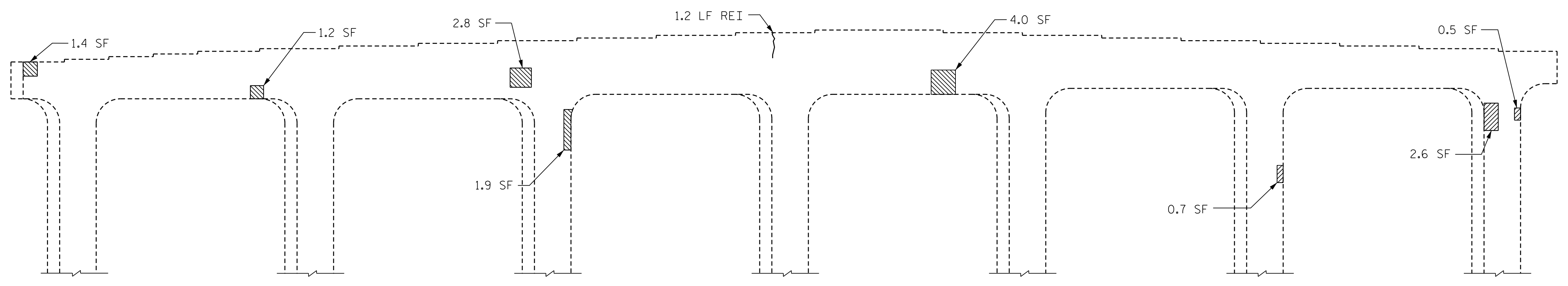
DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

	Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840				SHEET NO. S-102	
	NO. 1 BY: [Signature] DATE: [Date]	NO. 2 BY: [Signature] DATE: [Date]	NO. 3 BY: [Signature] DATE: [Date]	NO. 4 BY: [Signature] DATE: [Date]	TOTAL SHEETS 196	

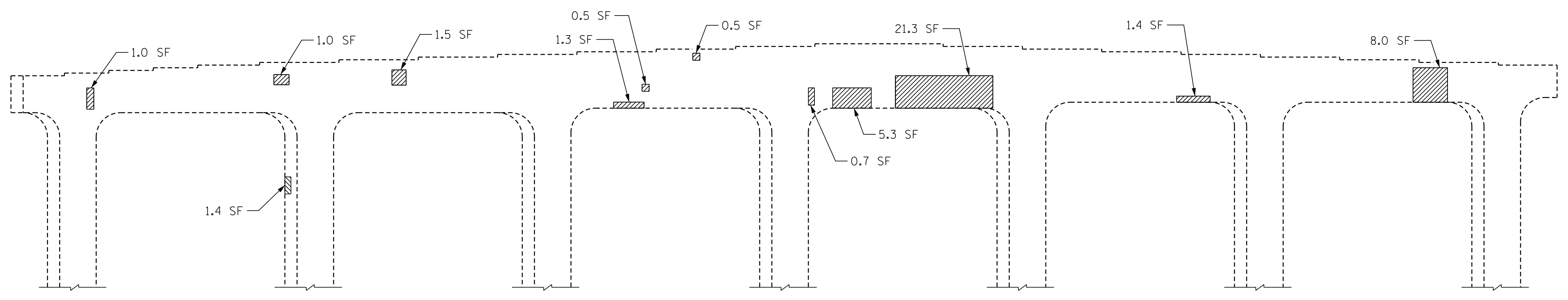
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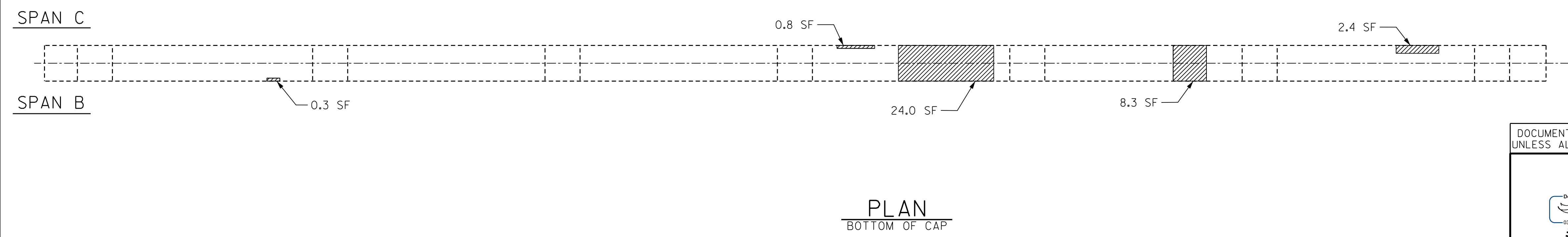
PLAN  
(TOP OF CAP)



ELEVATION  
(SPAN B SIDE)



ELEVATION  
(SPAN C SIDE)



PLAN  
(BOTTOM OF CAP)

REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	51.9	13.0		
CAP (HORIZONTAL)	35.8	9.0		
COLUMN (HORIZONTAL FACE)	7.1	1.8		
CONCRETE REPAIRS	0.3	0.1		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP		1.2		
COLUMN		0.0		
EPOXY COATING			SO. FT	SO. FT
TOP OF CAP		378		

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

NOTES:

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

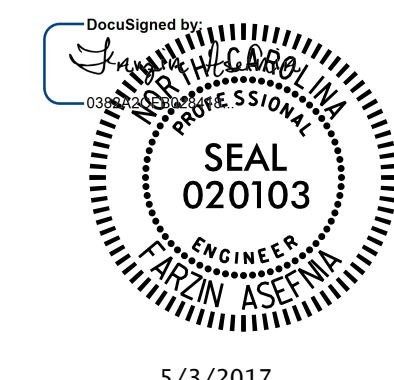
▨ - CONCRETE REPAIR

▨ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 450

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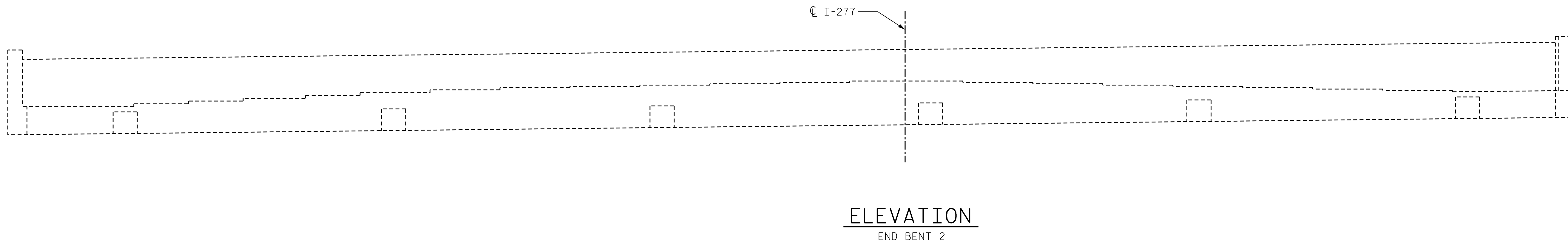
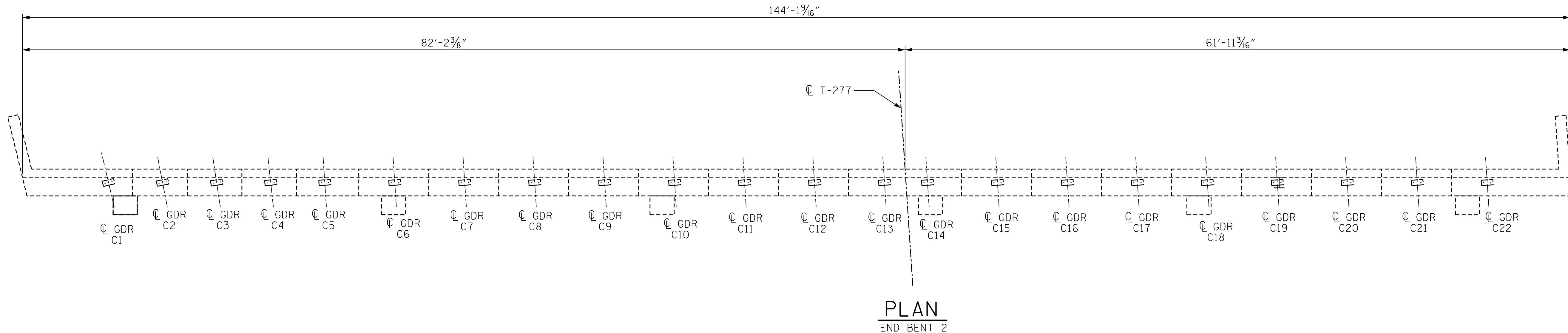
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
**BENT 2**

DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-103
1			3			TOTAL SHEETS
2			4			196



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

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

**NOTES:**

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

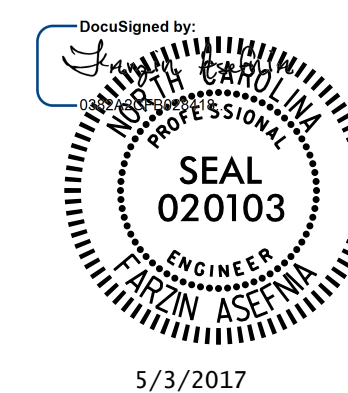
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR END BENT 2 ,NO DAMAGE WAS OBSERVE @ THE TIME OF INSPECTION.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 450

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
END BENT 2

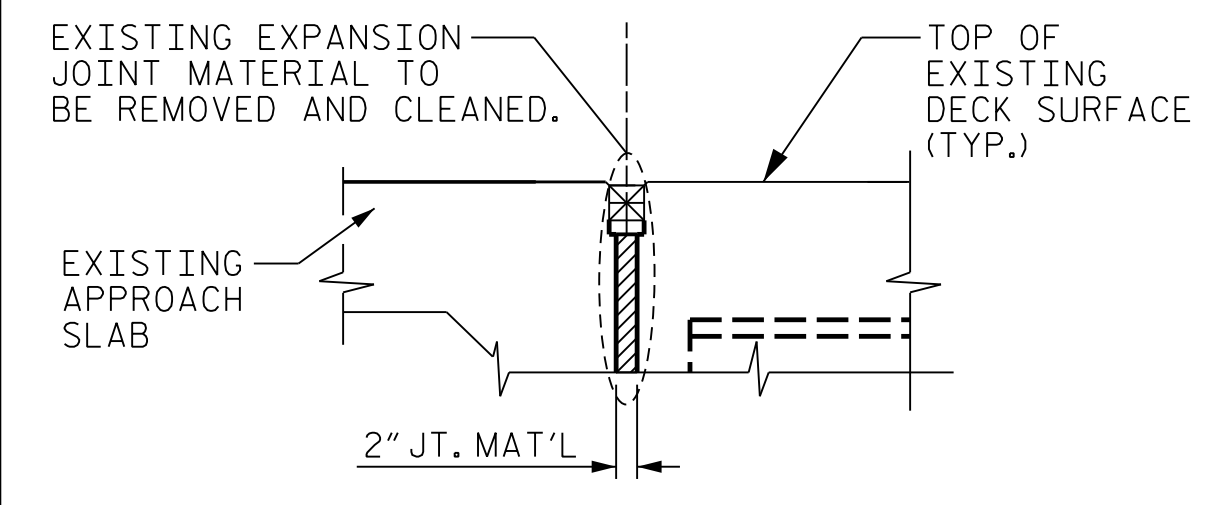
DRAWN BY :	J. MYA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-104
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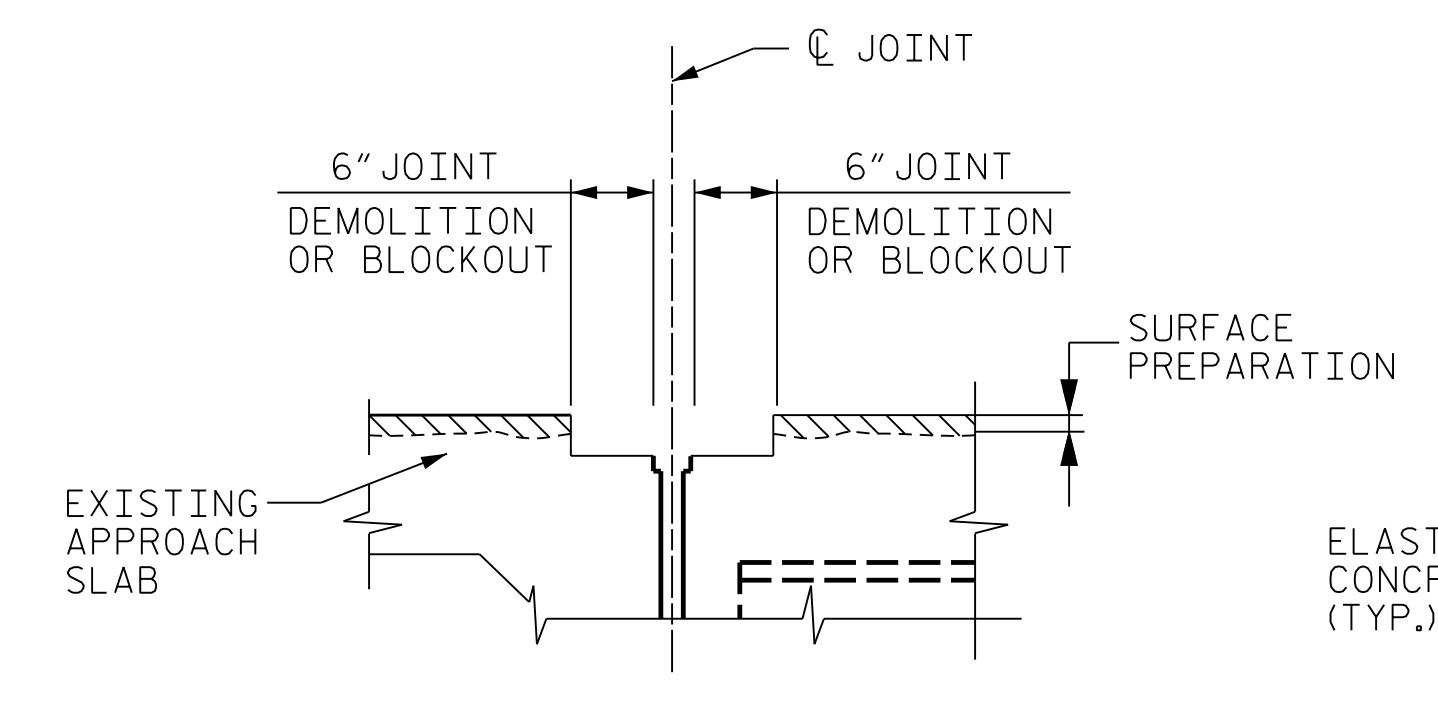
Prepared by:  
 LOUIS BERGER  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840



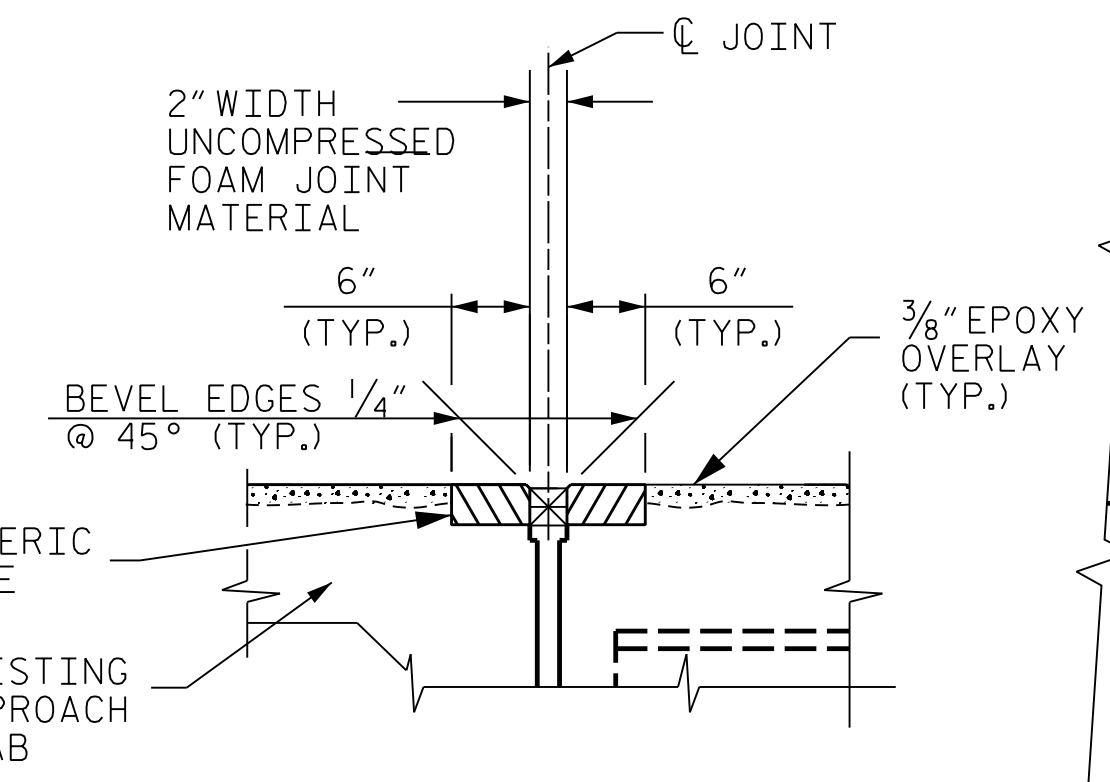
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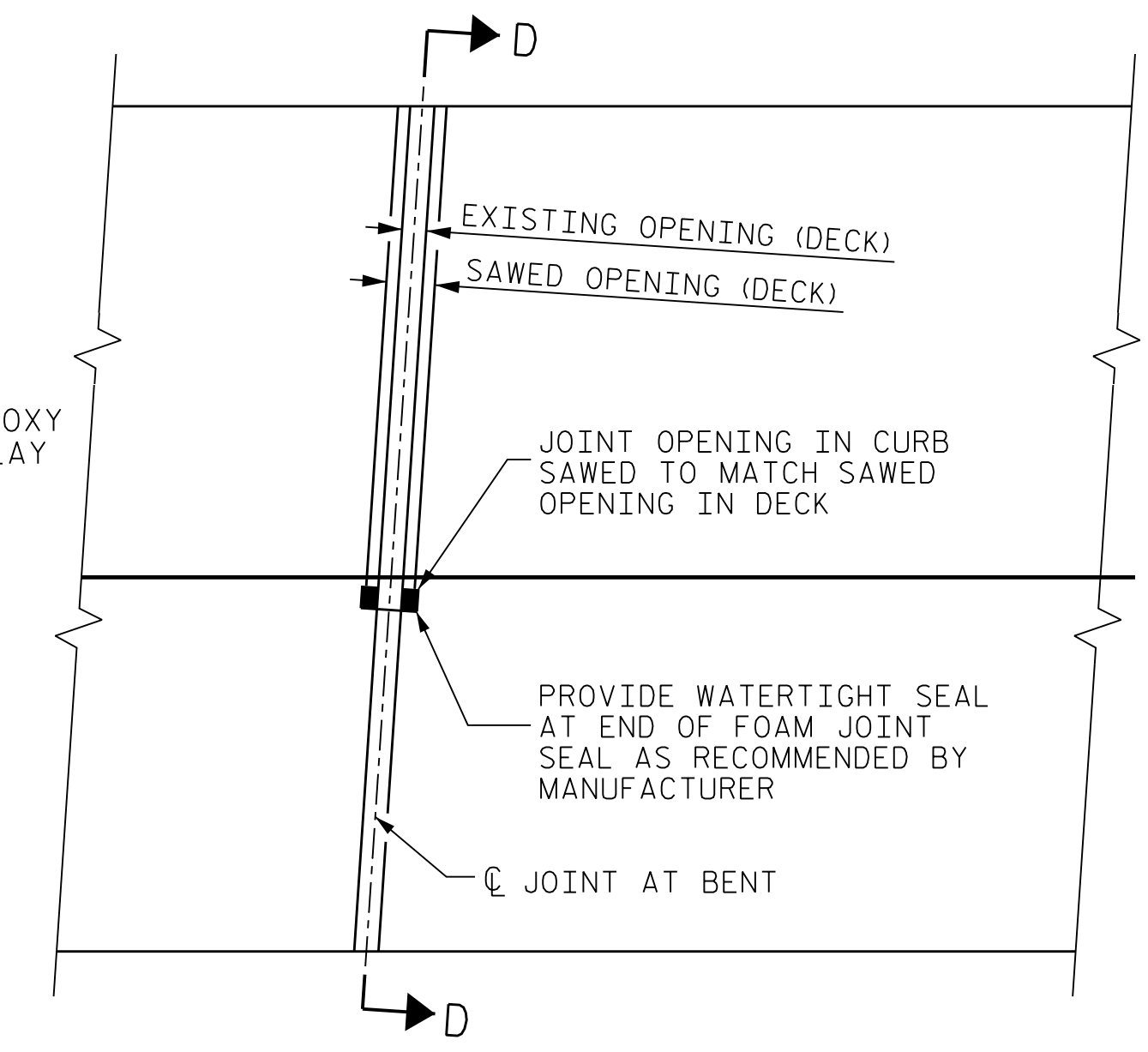
**SECTION A-A**  
(EXISTING JOINT)



**SECTION A-A**  
(MINIMUM EXISTING JOINT DEMOLITION)



**SECTION A-A**  
(PROPOSED JOINT)

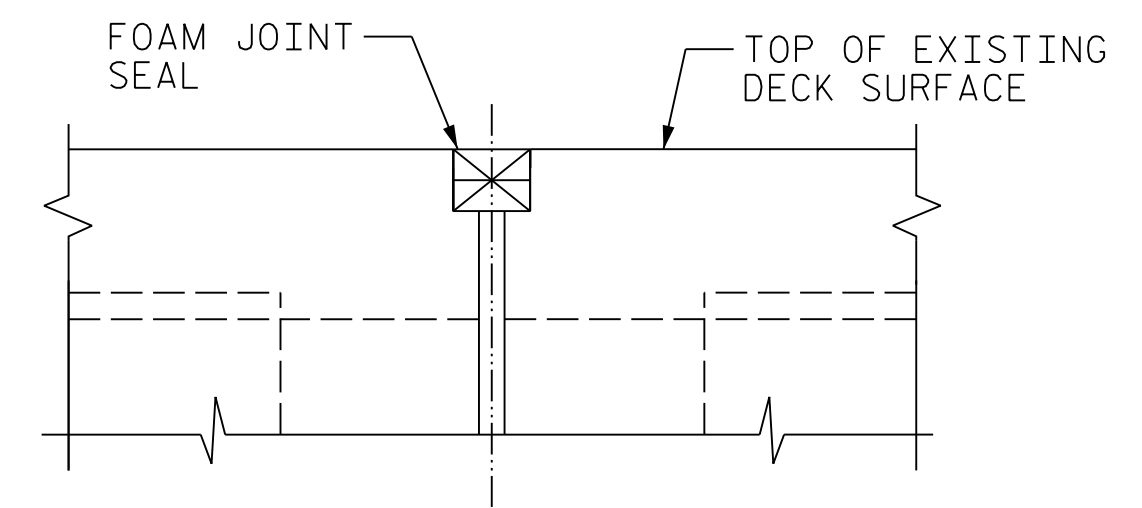


**PLAN**

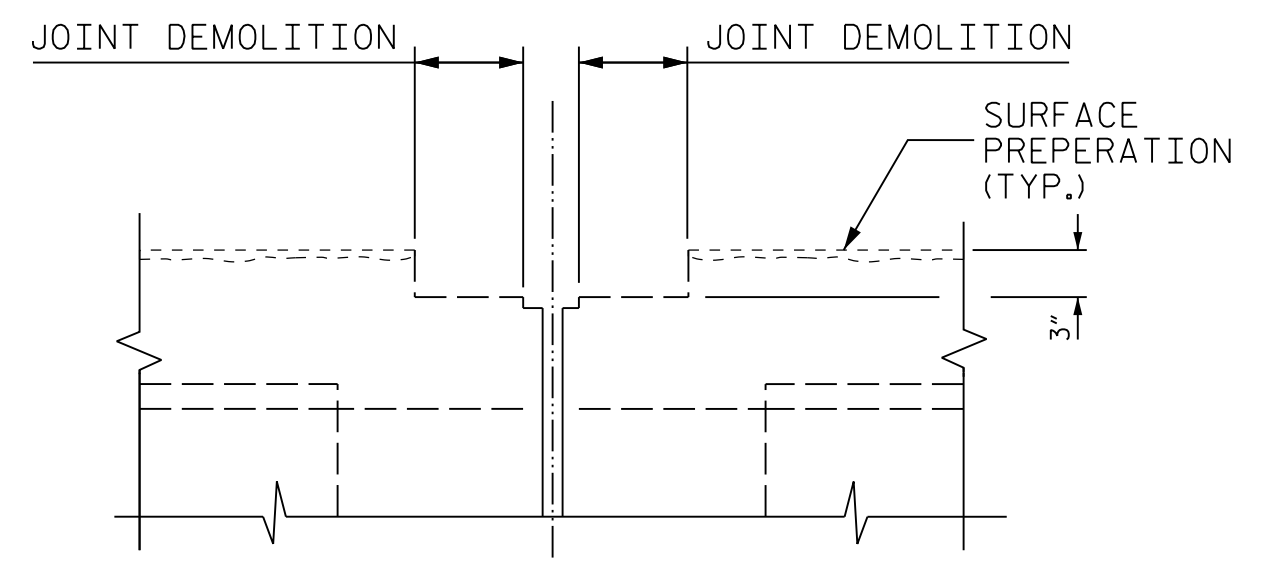
**NOTES:**  
CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.  
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.  
RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.  
THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2.5".

<b>ELASTOMERIC CONCRETE</b>	
BRIDGE 450	125 (CU. FT.)

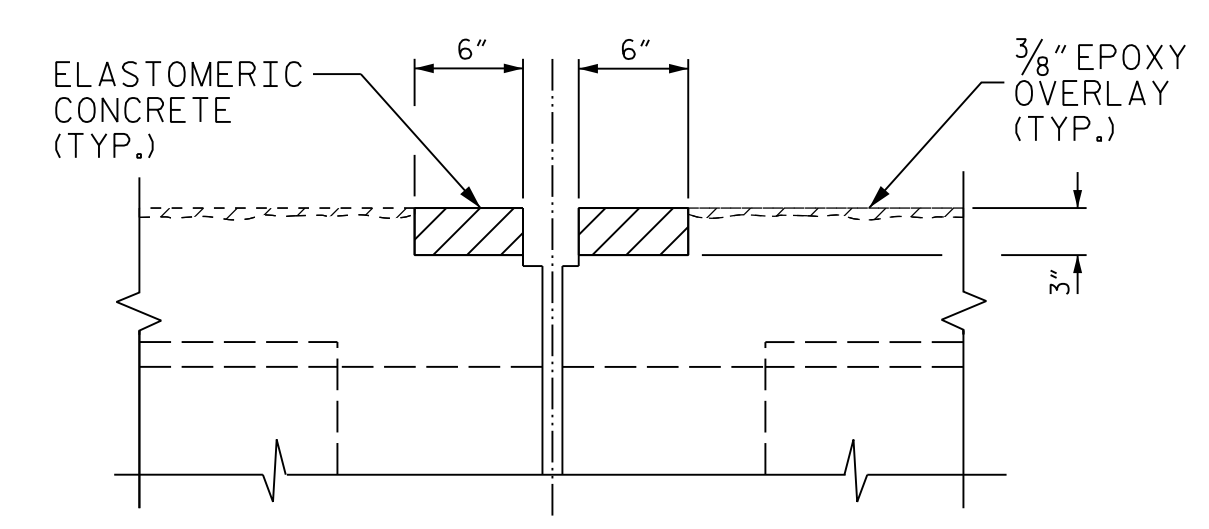
**JOINT INSTALLATION SEQUENCE AT END BENTS**  
SECTION A-A



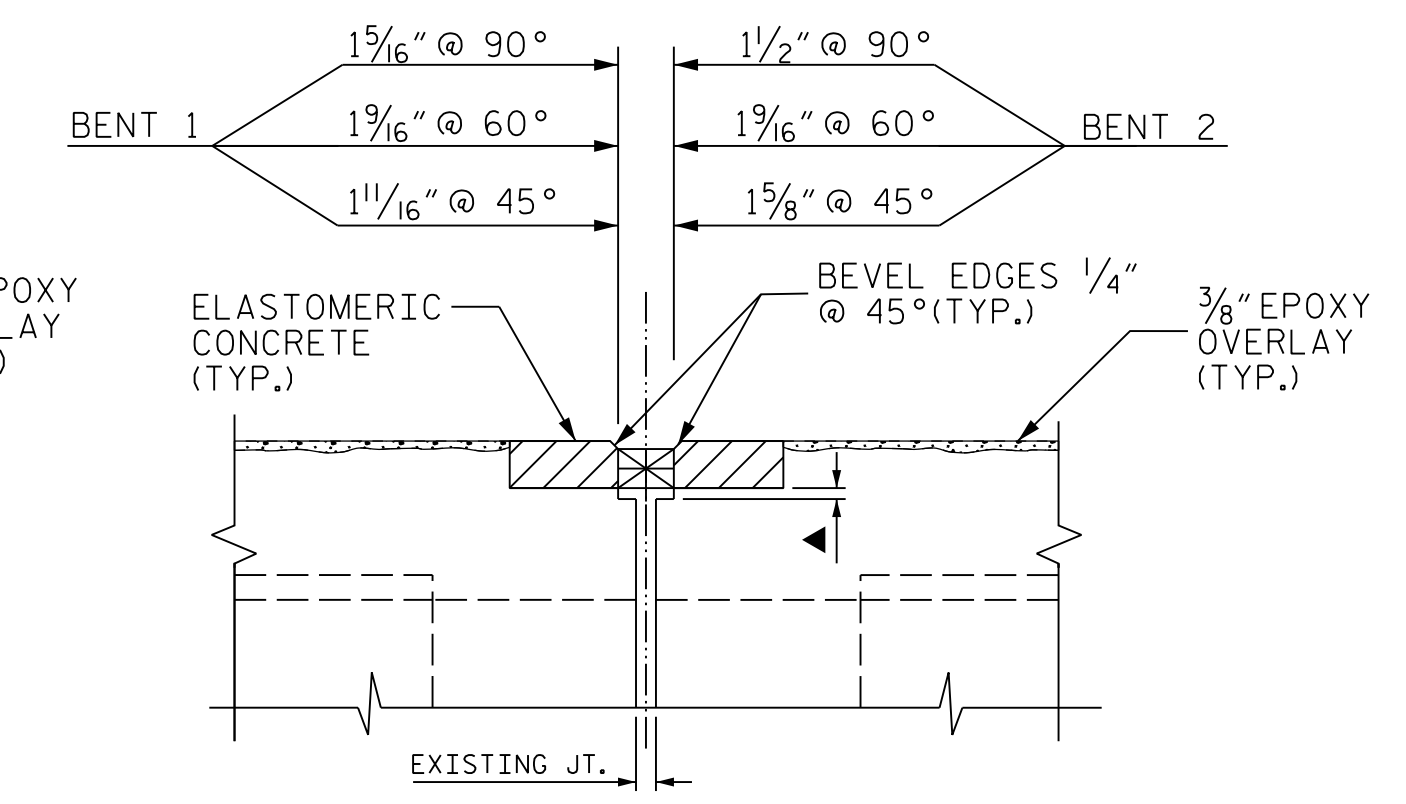
**EXISTING JOINT**



**MINIMUM EXISTING JOINT DEMOLITION**

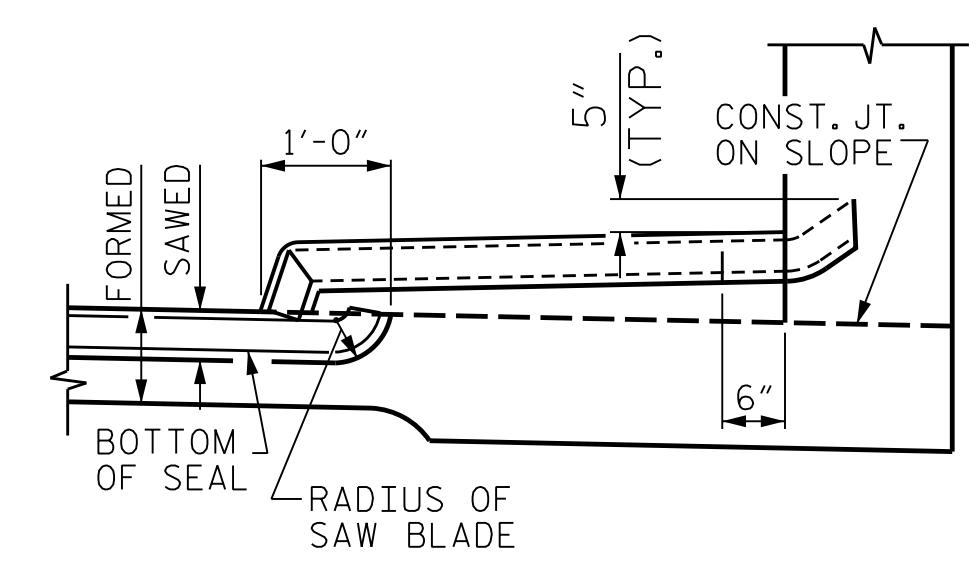


**PROPOSED JOINT PRE-SAWED DIMENSION**



**PROPOSED FOAM JOINT SEAL EXPANSION**

**JOINT INSTALLATION SEQUENCE AT BENTS**  
SECTION B-B



**SECTION D-D**

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 450

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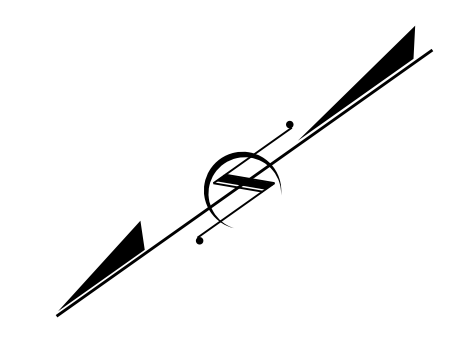
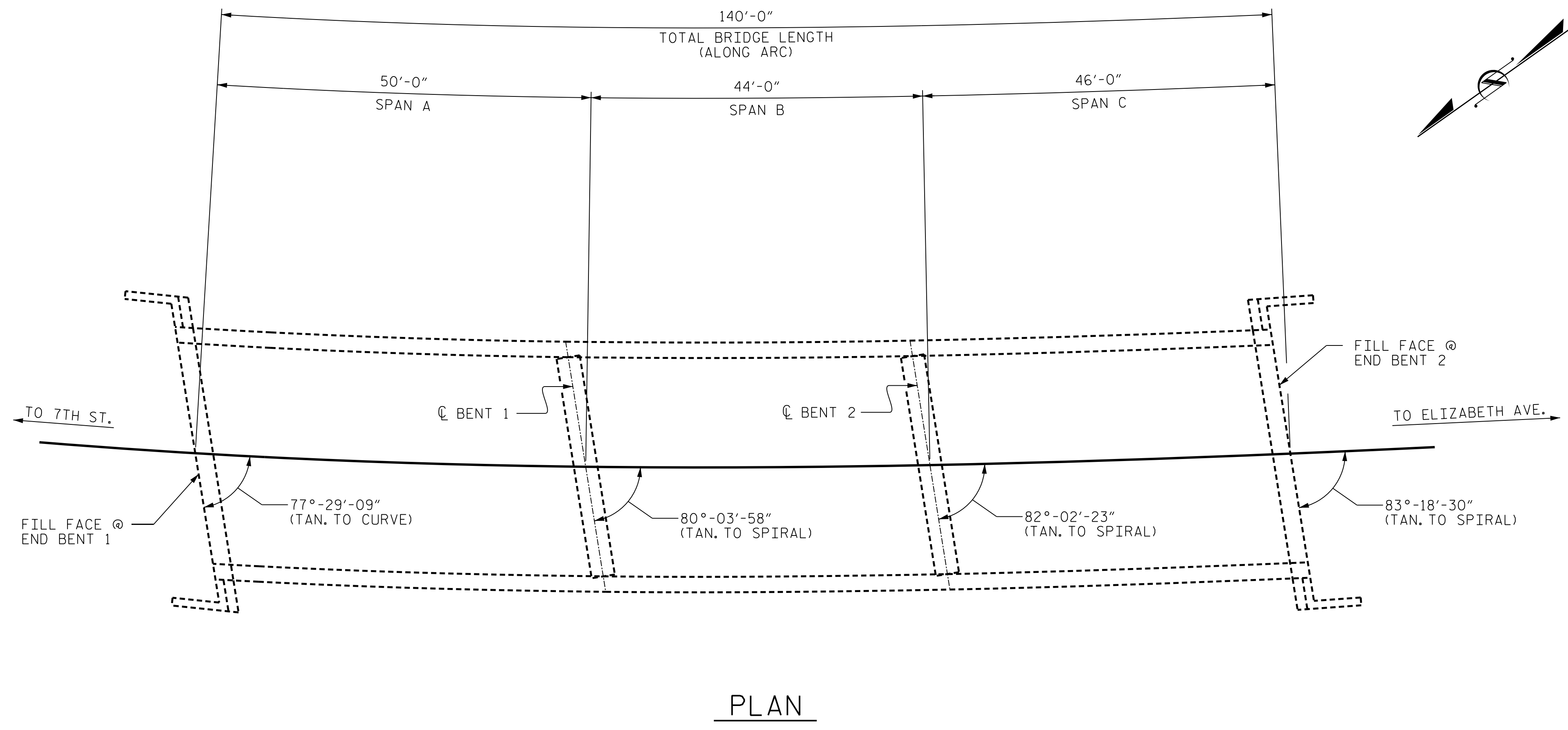
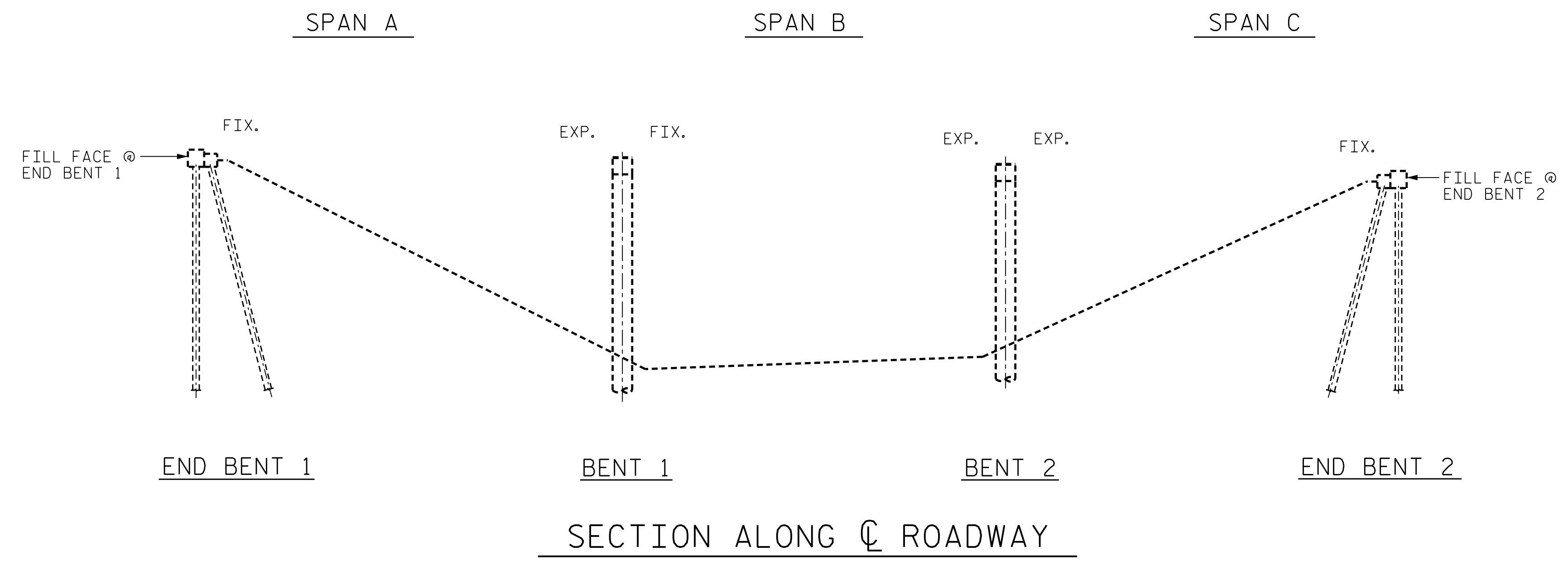
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUPERSTRUCTURE JOINT DETAILS**

DRAWN BY :	J. MYA	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

REVISIONS		SHEET NO.				
NO.	BY:	DATE:	NO.	BY:	DATE:	S-105
1			3			TOTAL SHEETS
2			4			196

**Louis Berger**  
Prepared by:  
LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

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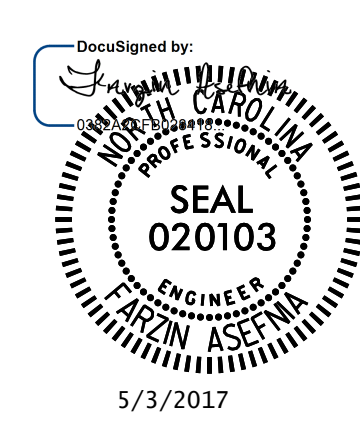


I hereby certify that this structure was rehabilitated according to these plans or as noted therein.  
  
 Resident Engineer \_\_\_\_\_ Date \_\_\_\_\_

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 451

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SHEET 1 OF 2

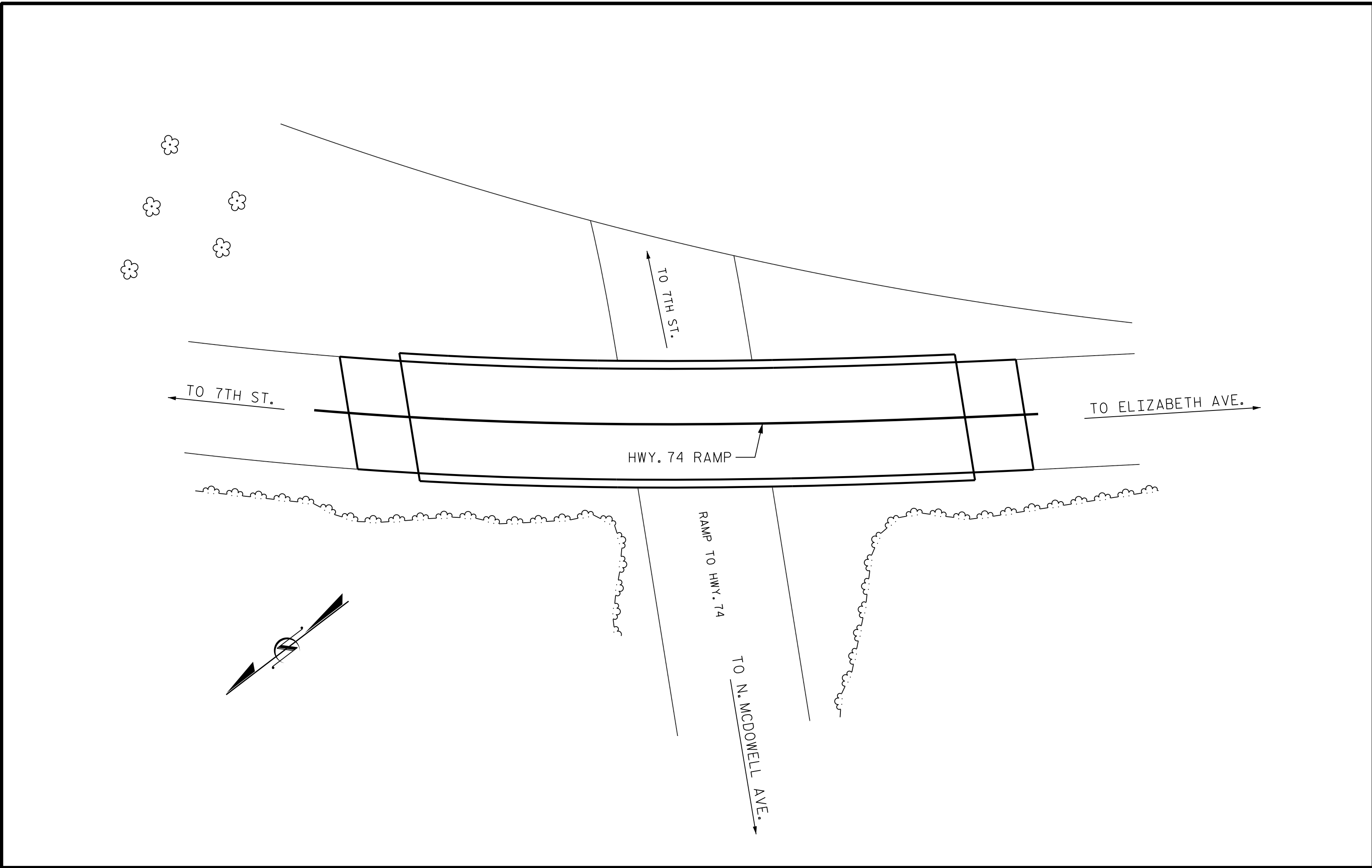


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
  
**GENERAL DRAWING**  
 BRIDGE ON HWY 74  
 OFF-RAMP OVER 5TH STREET  
 BETWEEN 7TH STREET AND  
 ELIZABETH STREET

DRAWN BY :	T. KIRSCHBAUM	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS				SHEET NO.	
	NO.	BY:	DATE:	NO.	BY:	DATE:
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**LOCATION SKETCH**

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

**NOTES**

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

FOR EPOXY OVERLAY SYSTEM, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR AT THE PAVEMENT MARKINGS.

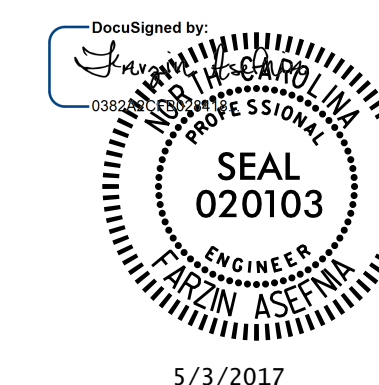
PROJECT NO. I-5746A/I-5746B

MECKLENBURG COUNTY

BRIDGE NO. 451

DOCUMENT NOT CONSIDERED FINAL  
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SHEET 2 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**  
BRIDGE ON HWY 74  
OFF-RAMP OVER 5TH STREET  
BETWEEN 7TH STREET AND  
ELIZABETH STREET

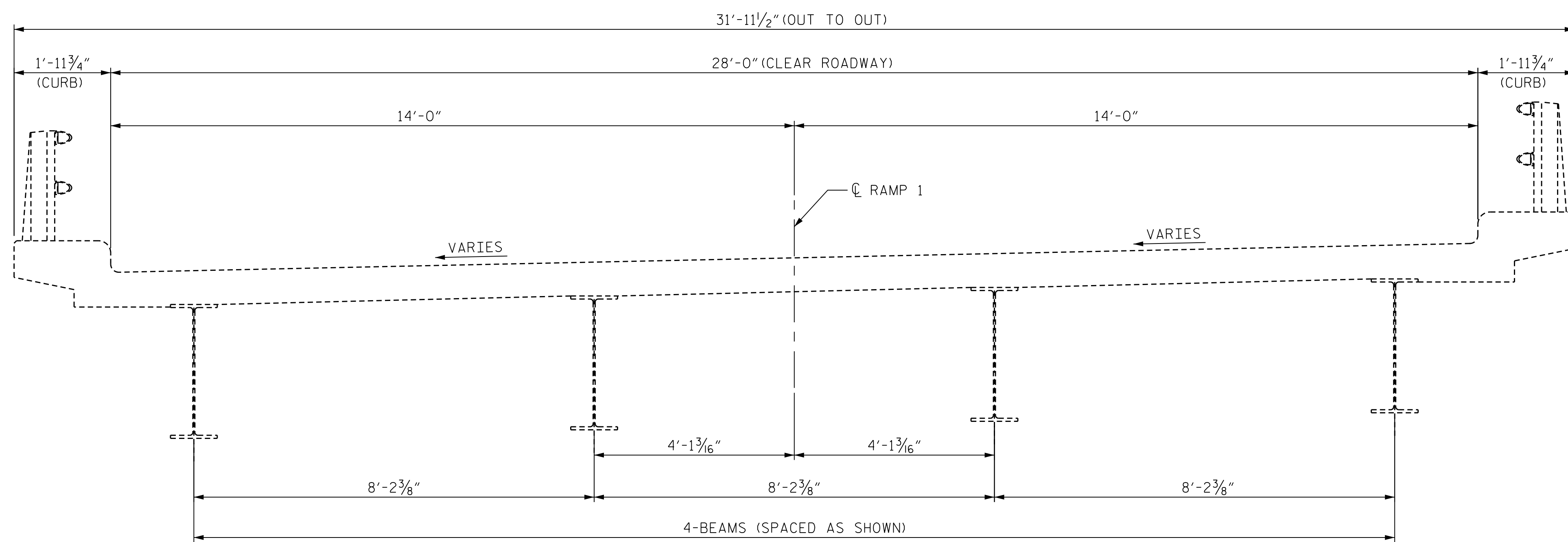
DRAWN BY : T. KIRSCHBAUM DATE : 8-2016  
CHECKED BY : F. ASEFNIA DATE : 9-2016  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 9-2016



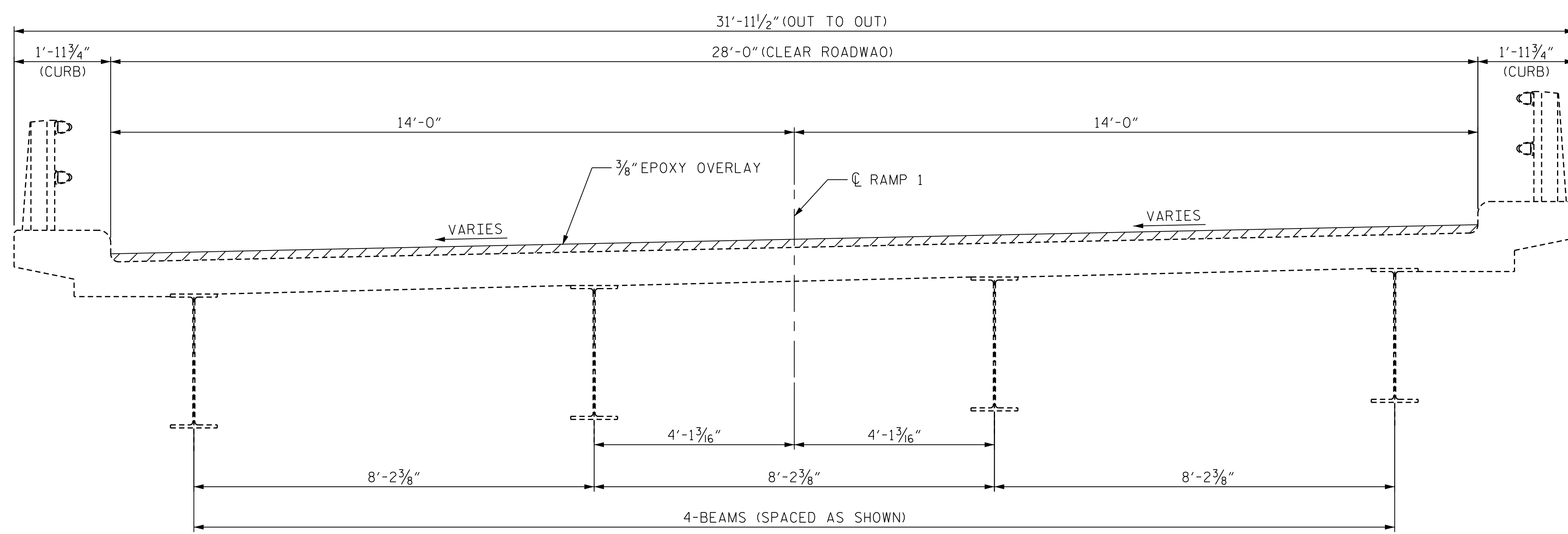
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-107
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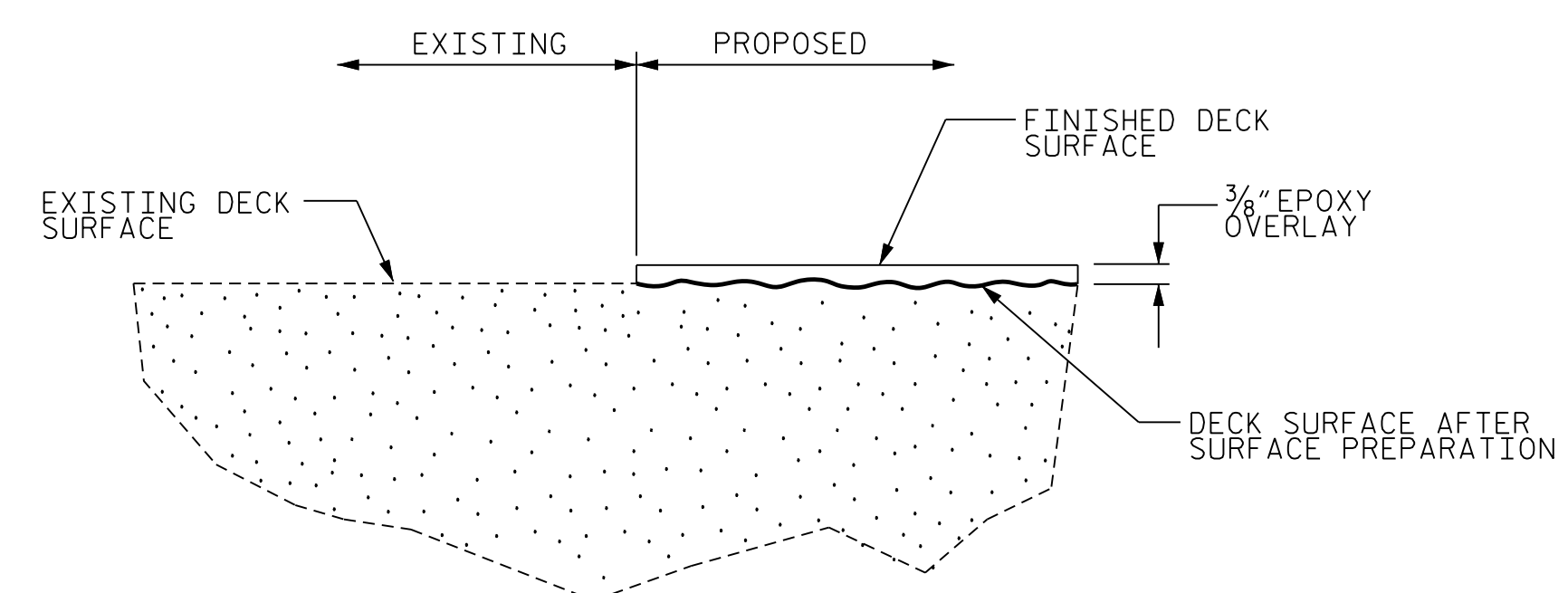
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I-5746\_PDF\_FULL.plt I-5746\_STR\_REHAB.TBL



**TYPICAL SECTION**  
(EXISTING STRUCTURE)



**TYPICAL SECTION**  
(EPOXY OVERLAY)

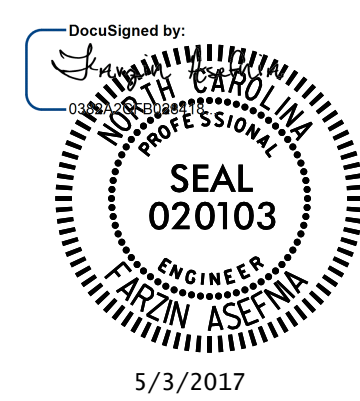


**DETAIL OF EPOXY OVERLAY**

**NOTE:**  
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC-VES PLACEMENT.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 451

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STATE OF NORTH CAROLINA  
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**TYPICAL SECTION  
& EPOXY OVERLAY  
DETAILS**

DRAWN BY :	J. MYA	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

**Louis Berger**  
Prepared by:  
LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

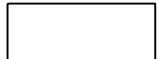

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NO.	BY:	DATE:	NO.	BY:	DATE:
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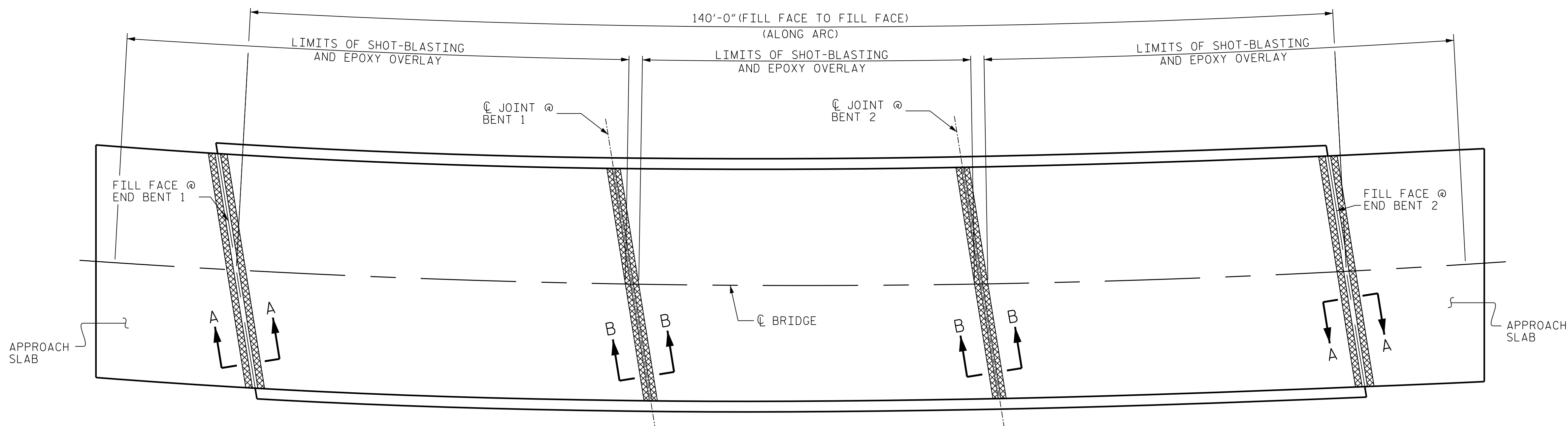
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I-5746\_PDF\_FULL.pltcfgr I-5746\_STR\_REHAB.TBL

SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1.0 SQ. FT.	
EPOXY OVERLAY SYSTEM	5,035 SQ. FT.	
BRIDGE JOINT DEMOLITION	120 SQ. FT.	
CONCRETE REPAIR	1.0 SQ. FT.	

NOTE:  
CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED

-  EPOXY OVERLAY
-  BRIDGE JOINT DEMOLITION

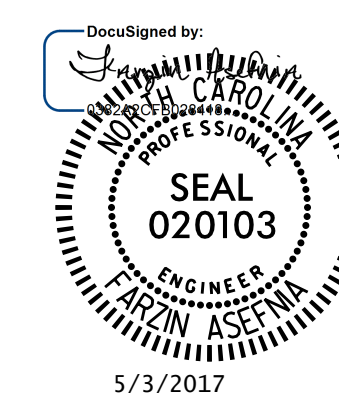


**PLAN**

(FOR SECTION A-A & B-B, SEE JOINT DETAILS SHEET)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 451

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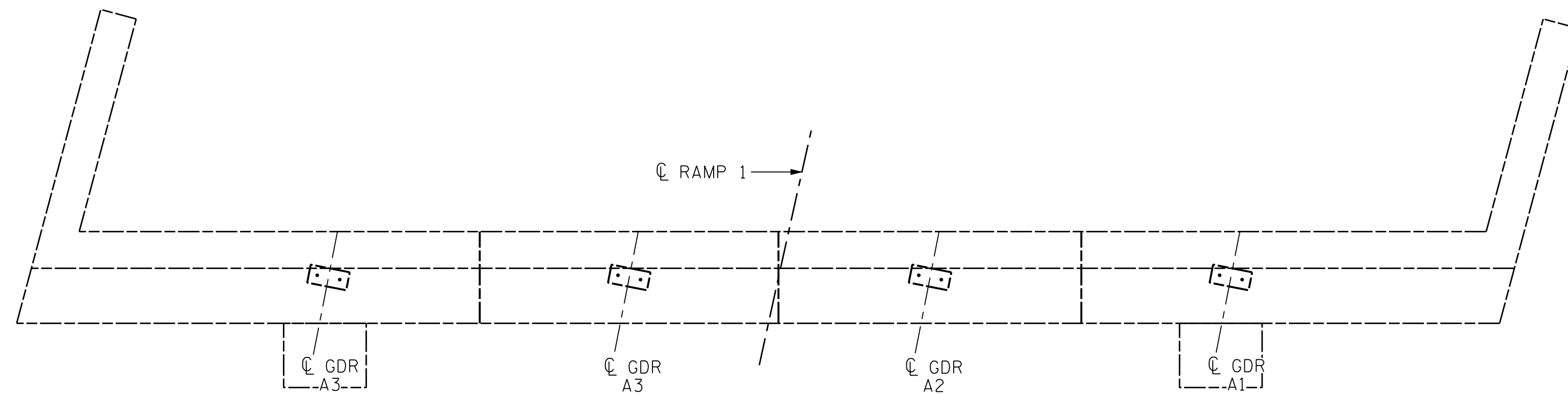
**SURFACE PREPARATION  
& EPOXY OVERLAY**

DRAWN BY :	M. HOGAN	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

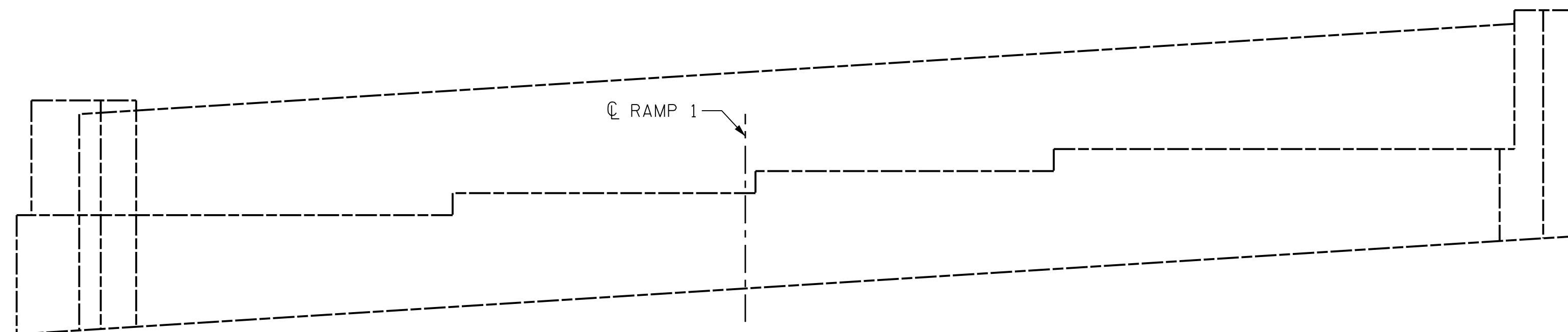
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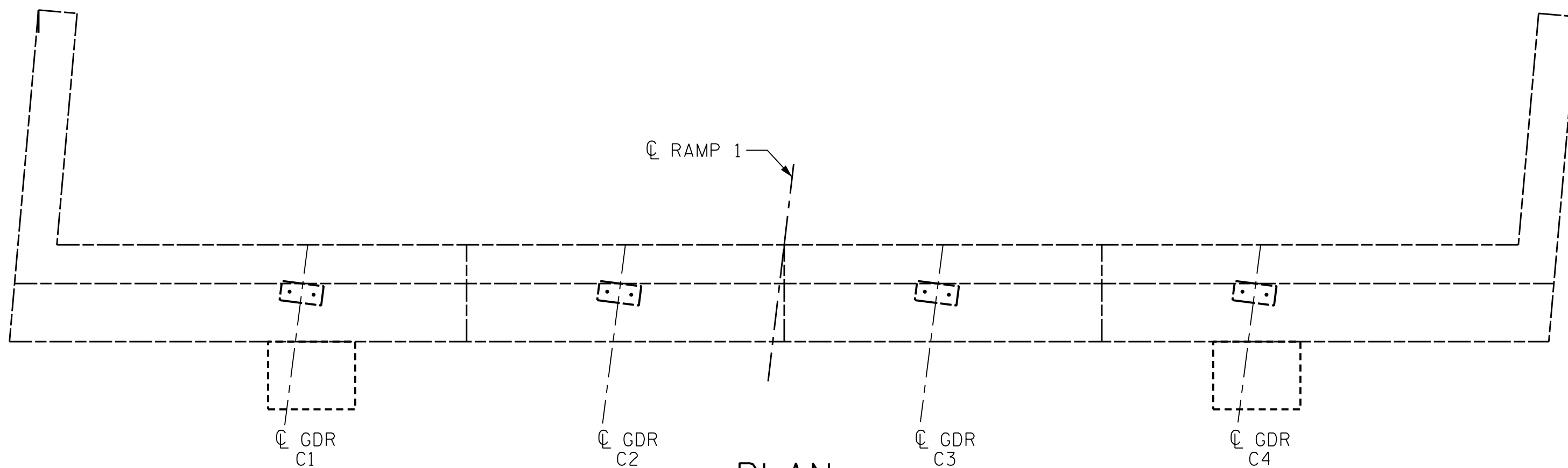
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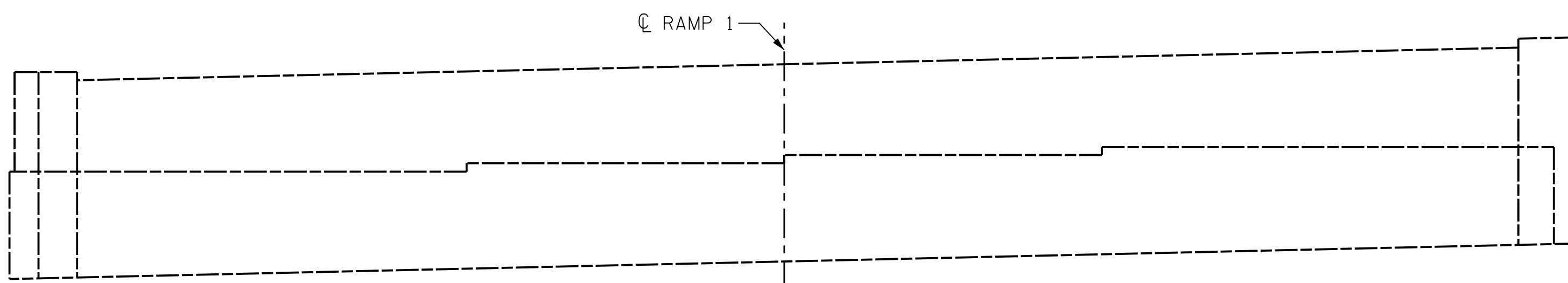
PLAN  
END BENT 1



ELEVATION  
END BENT 1



PLAN  
END BENT 2



ELEVATION  
END BENT 2

REPAIR QUANTITY TABLE

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

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

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

NOTES:

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

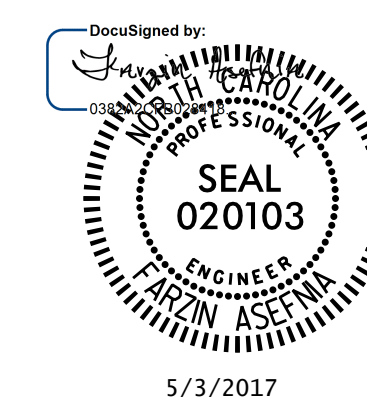
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR END BENT'S 1 & 2 , NO DAMAGE WAS OBSERVE @ THE TIME OF INSPECTION.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 451

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RALEIGH

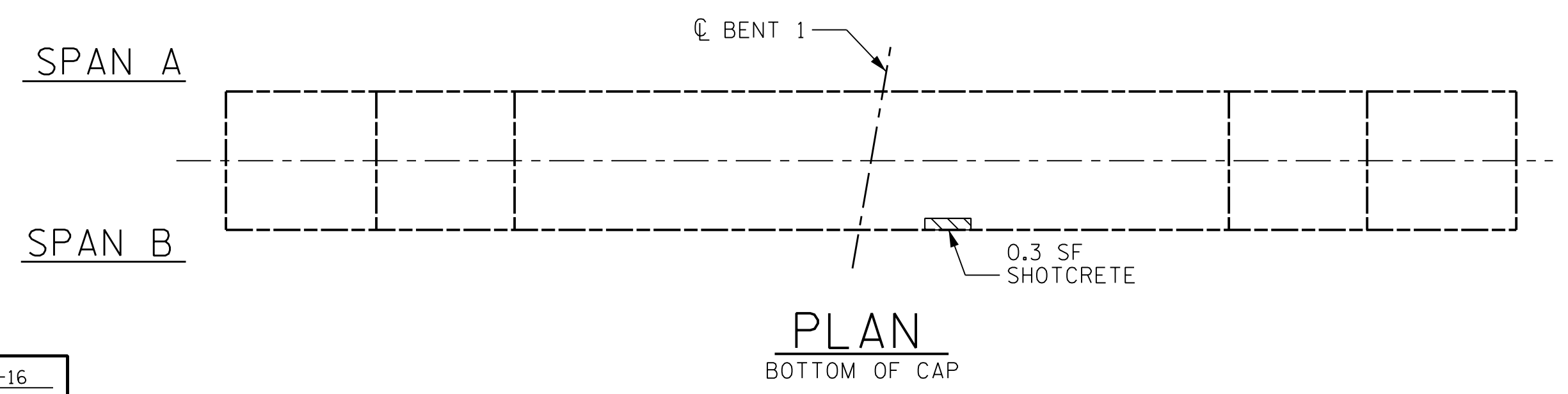
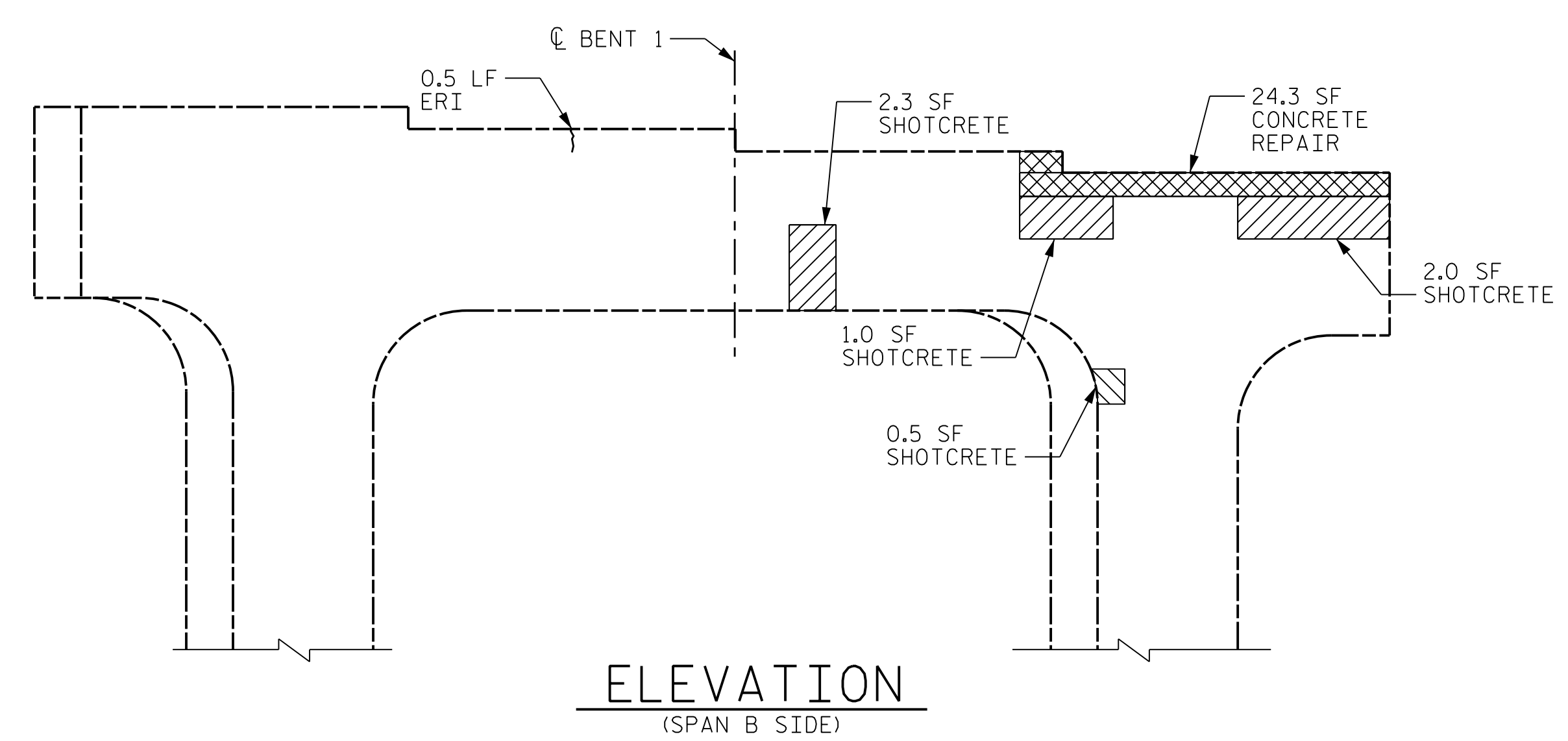
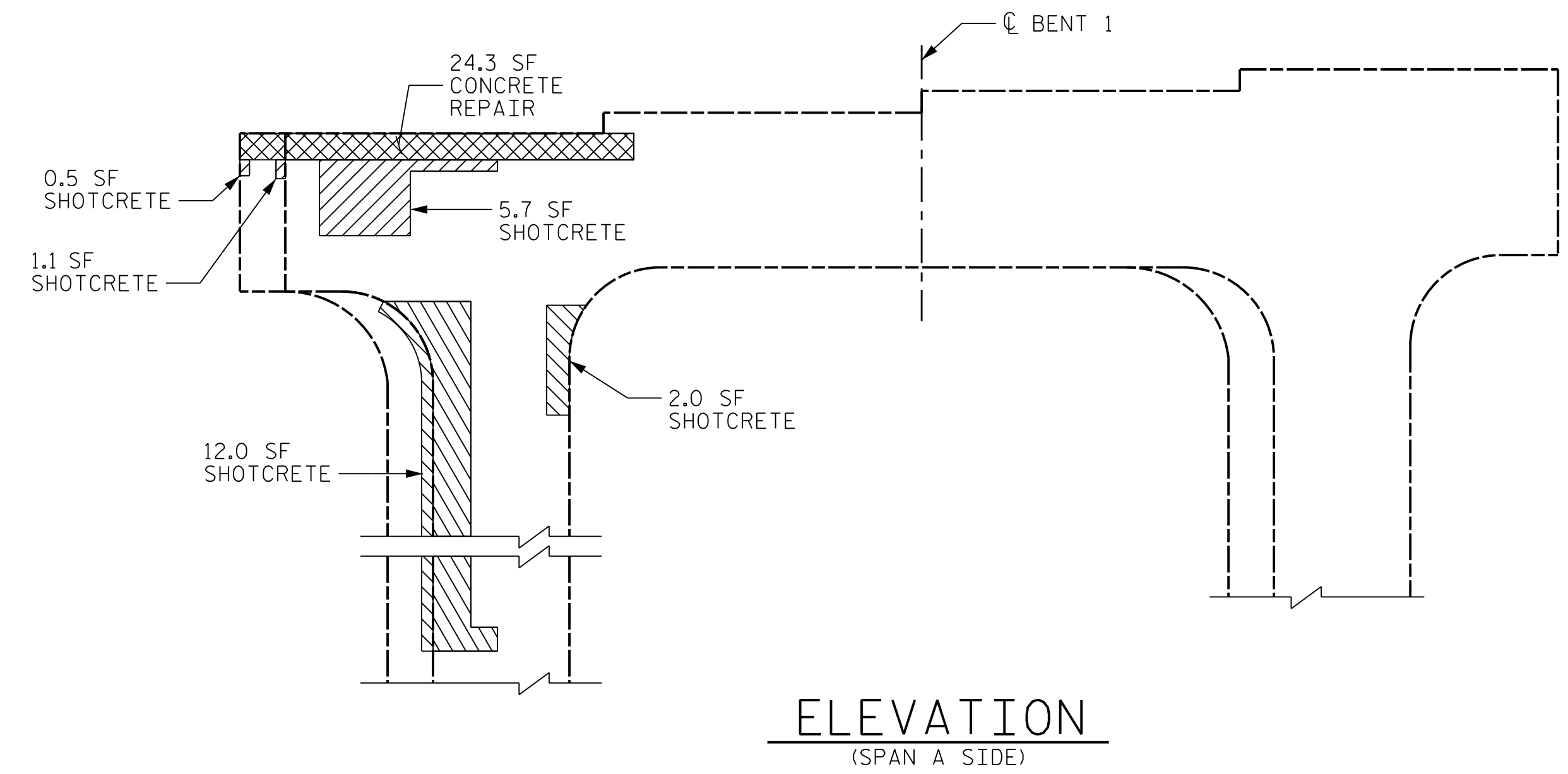
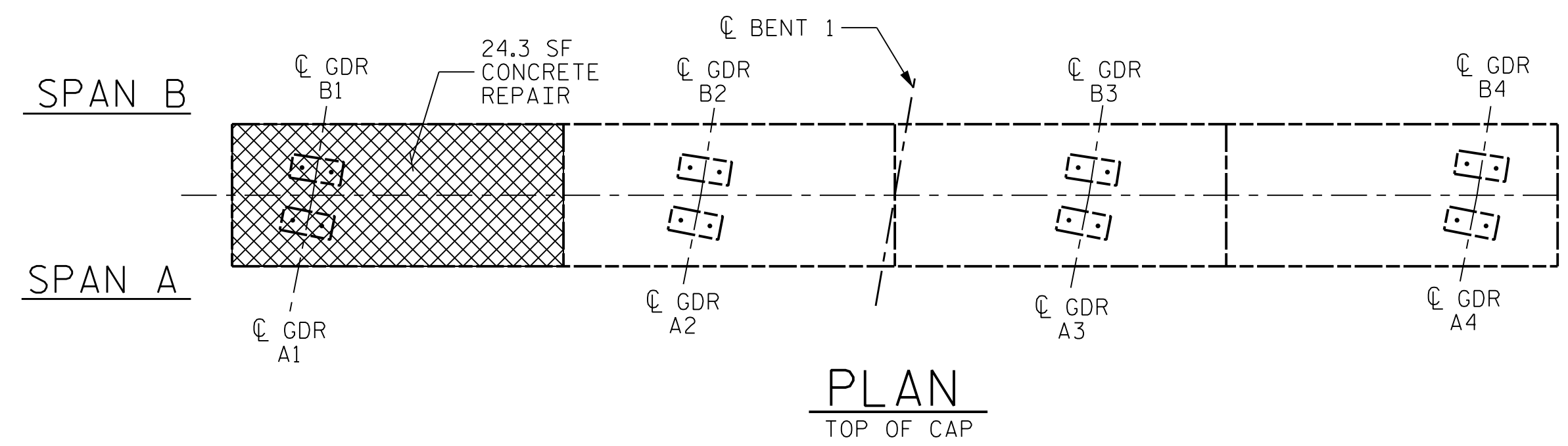
SUBSTRUCTURE  
END BENT 1 & 2

DRAWN BY :	J. MYA	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

Prepared by:  
LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

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2			4			196





REPAIR QUANTITY TABLE				
REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	12.6	3.2		
CAP (HORIZONTAL, CORNER)	0.3	0.1		
COLUMN (HORIZONTAL FACE)	14.5	3.6		
CONCRETE REPAIRS	24.3	6.1		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.5		
COLUMN		0.0		
EPOXY COATING		SQ. FT		SQ. FT
TOP OF CAP		84		

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

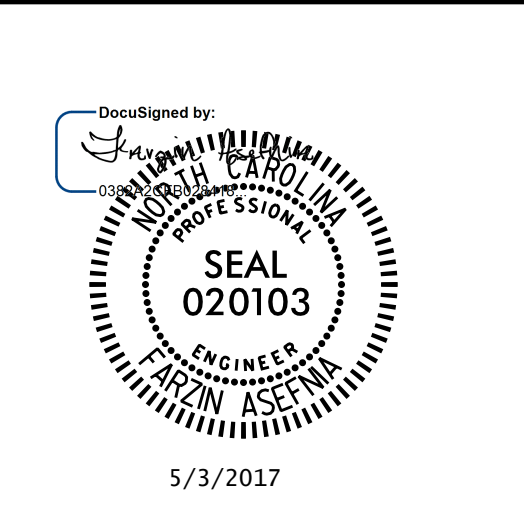
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 451

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 1

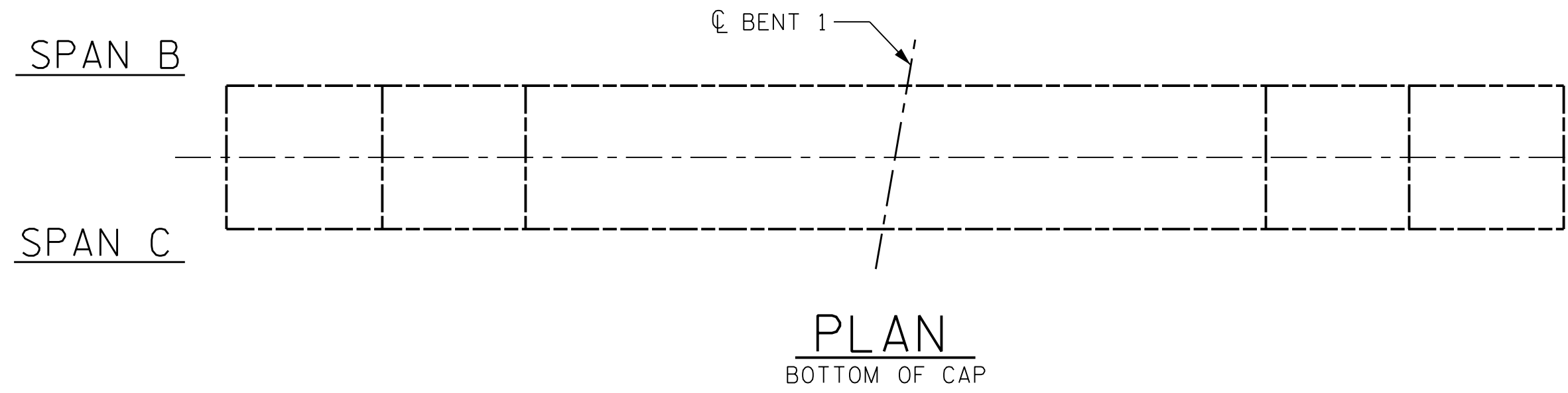
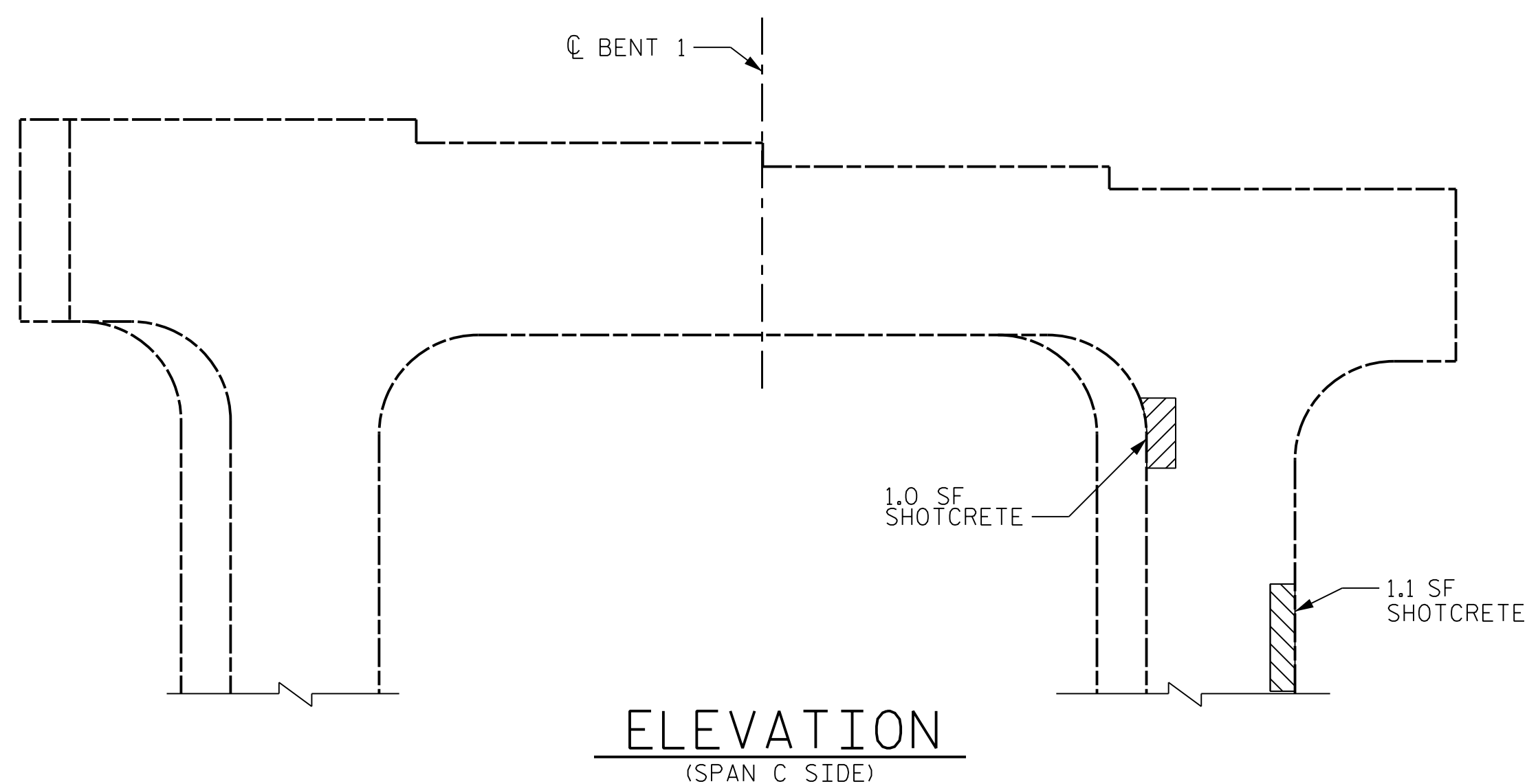
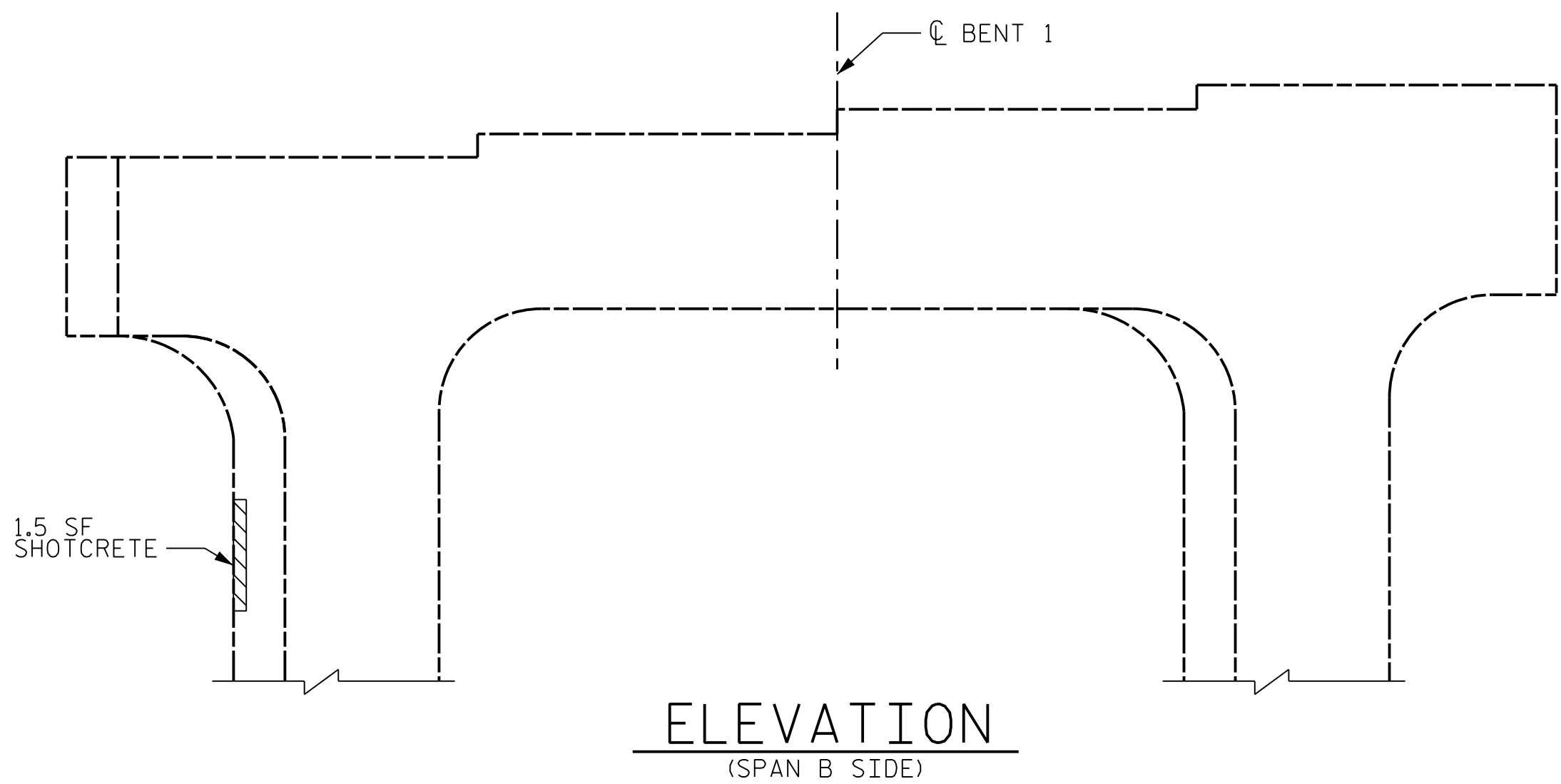
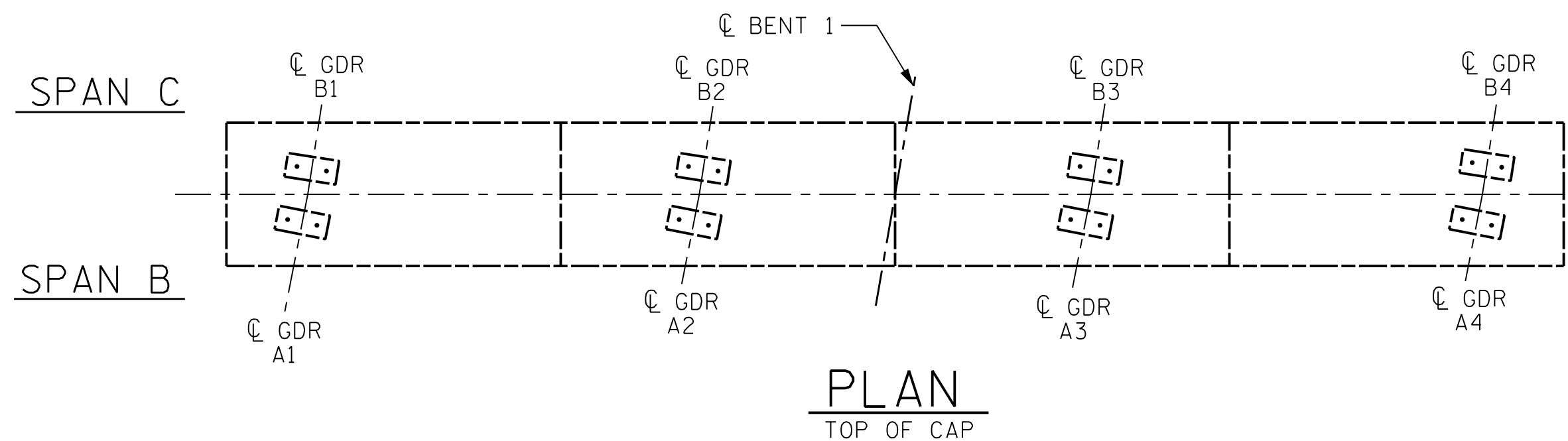
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DRAWN BY :	M. HOGAN	DATE :	11-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16



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REPAIR QUANTITY TABLE				
REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN (HORIZONTAL FACE)	3.6	0.4		
CONCRETE REPAIRS	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 CAP	84			

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

▣ - CONCRETE REPAIR

▨ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 451

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 2

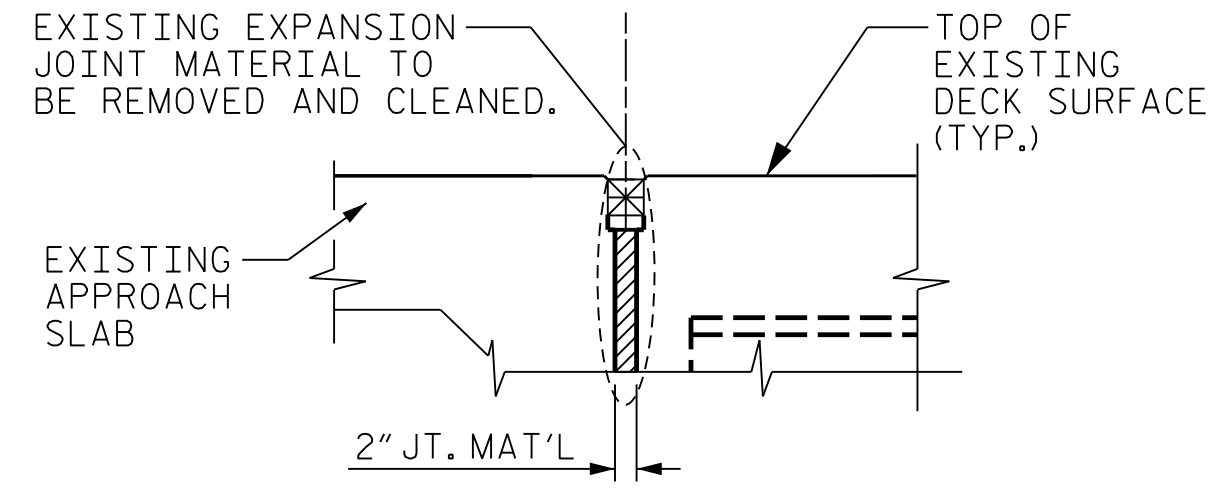
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CHECKED BY : T. KIRSCHBAUM DATE : 11-16  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 11-16

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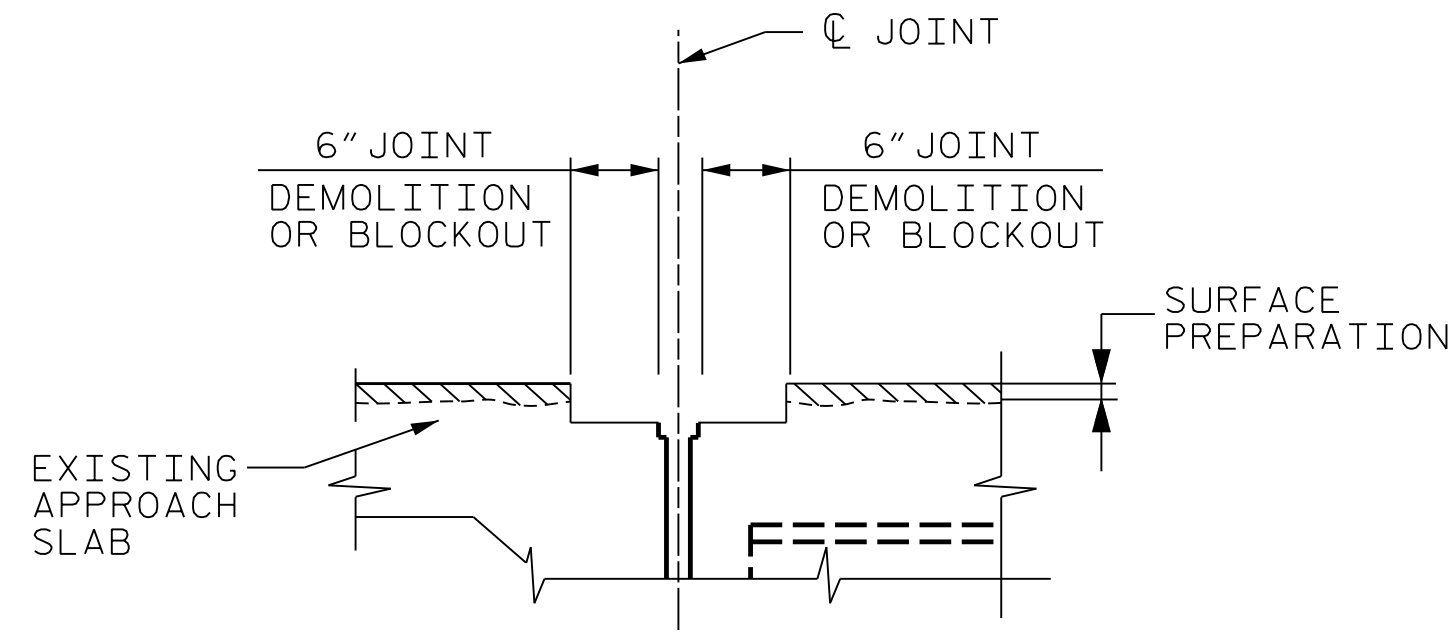




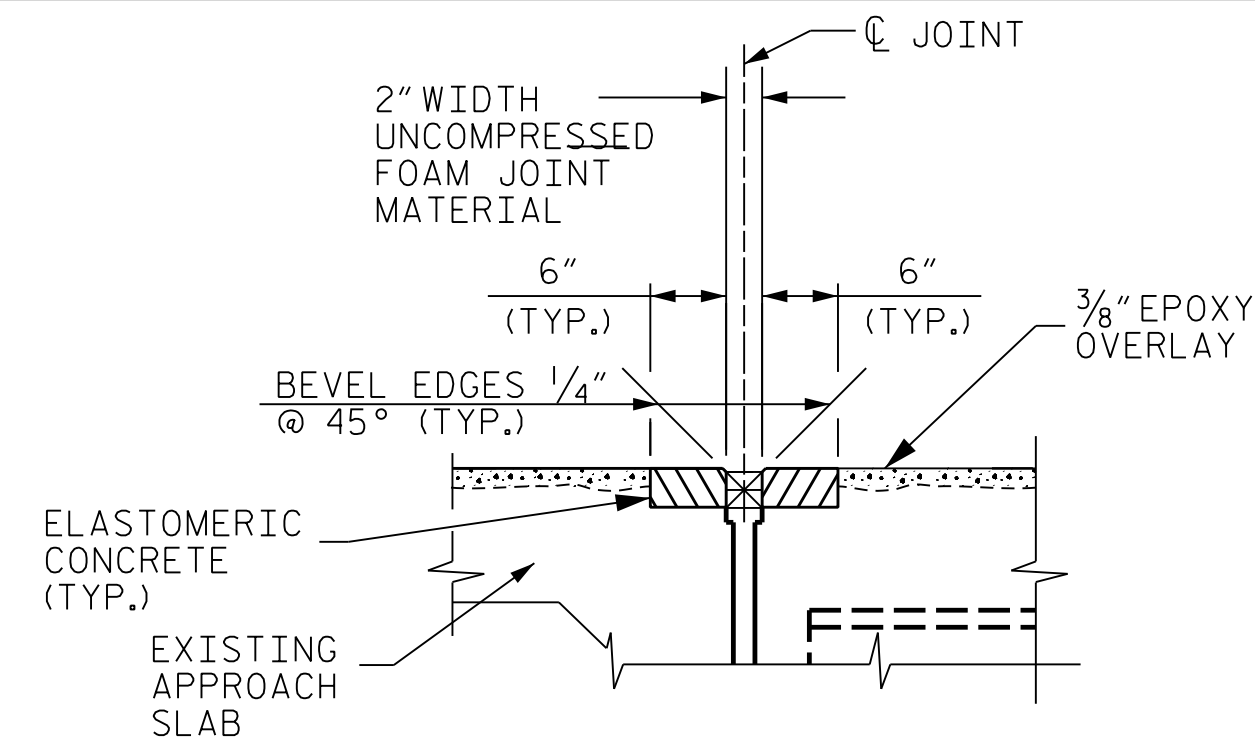
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**SECTION A-A**  
(EXISTING JOINT)



**SECTION A-A**  
(MINIMUM EXISTING JOINT DEMOLITION)



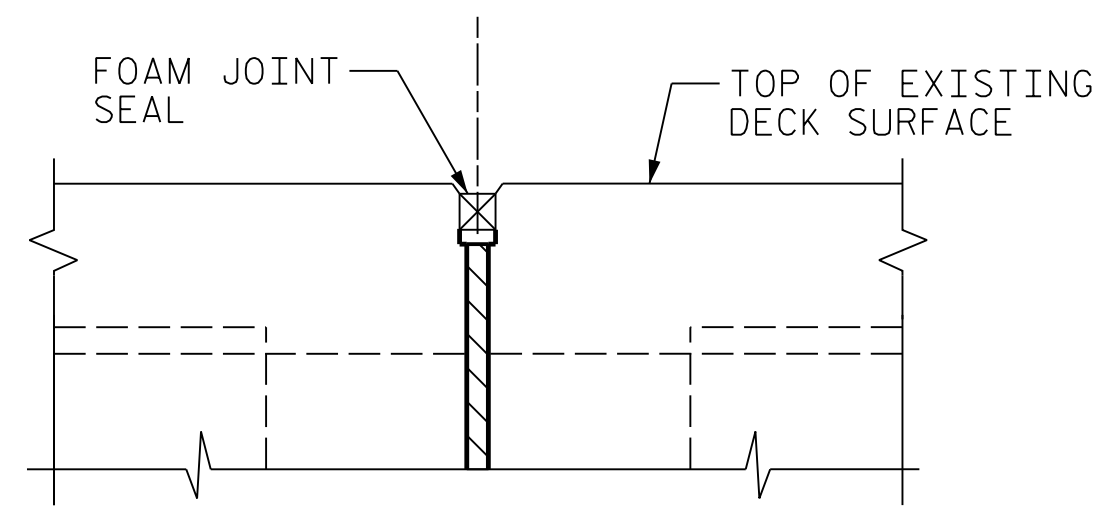
**SECTION A-A**  
(PROPOSED JOINT)

**NOTES:**  
 CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
 FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.  
 FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.  
 RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.  
 THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2 1/2" AT BENT-1 & BENT-2 AND 2" AT END BENTS.

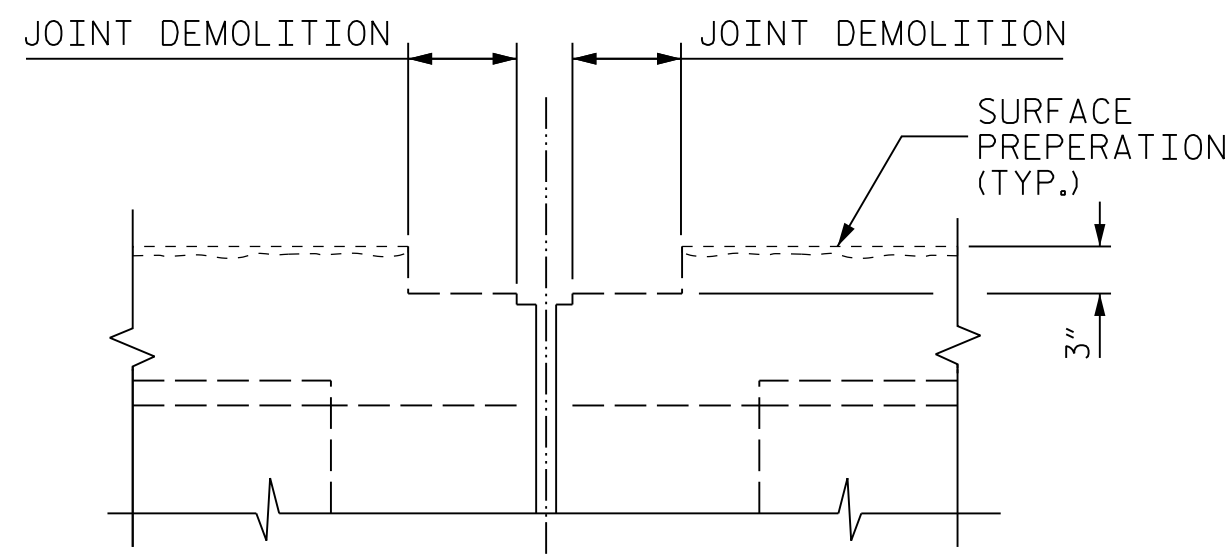
<b>ELASTOMERIC CONCRETE</b>	
BRIDGE 451	30 (CU. FT.)

**JOINT INSTALLATION SEQUENCE AT END BENTS**

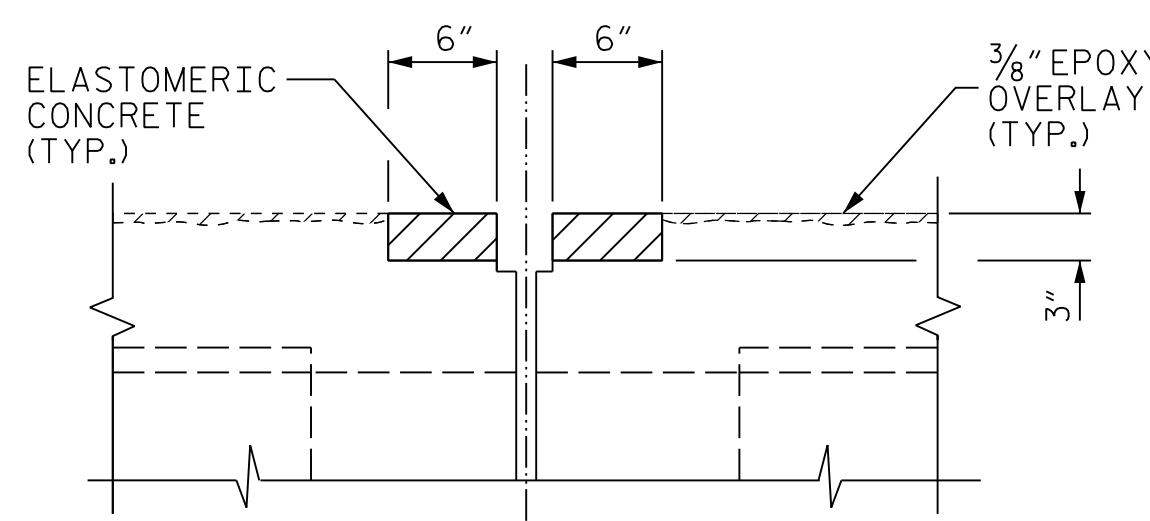
SECTION A-A



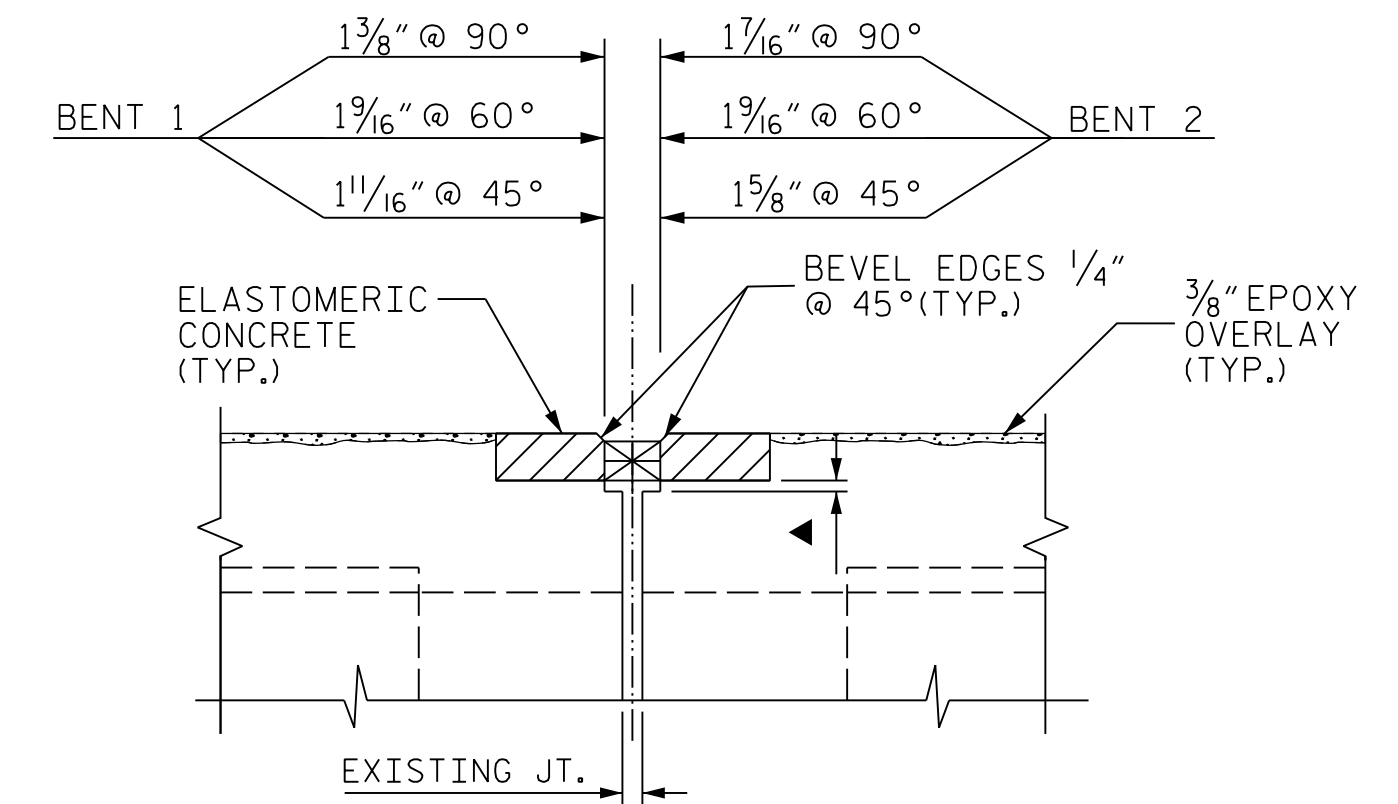
**EXISTING JOINT**



**MINIMUM EXISTING JOINT DEMOLITION**



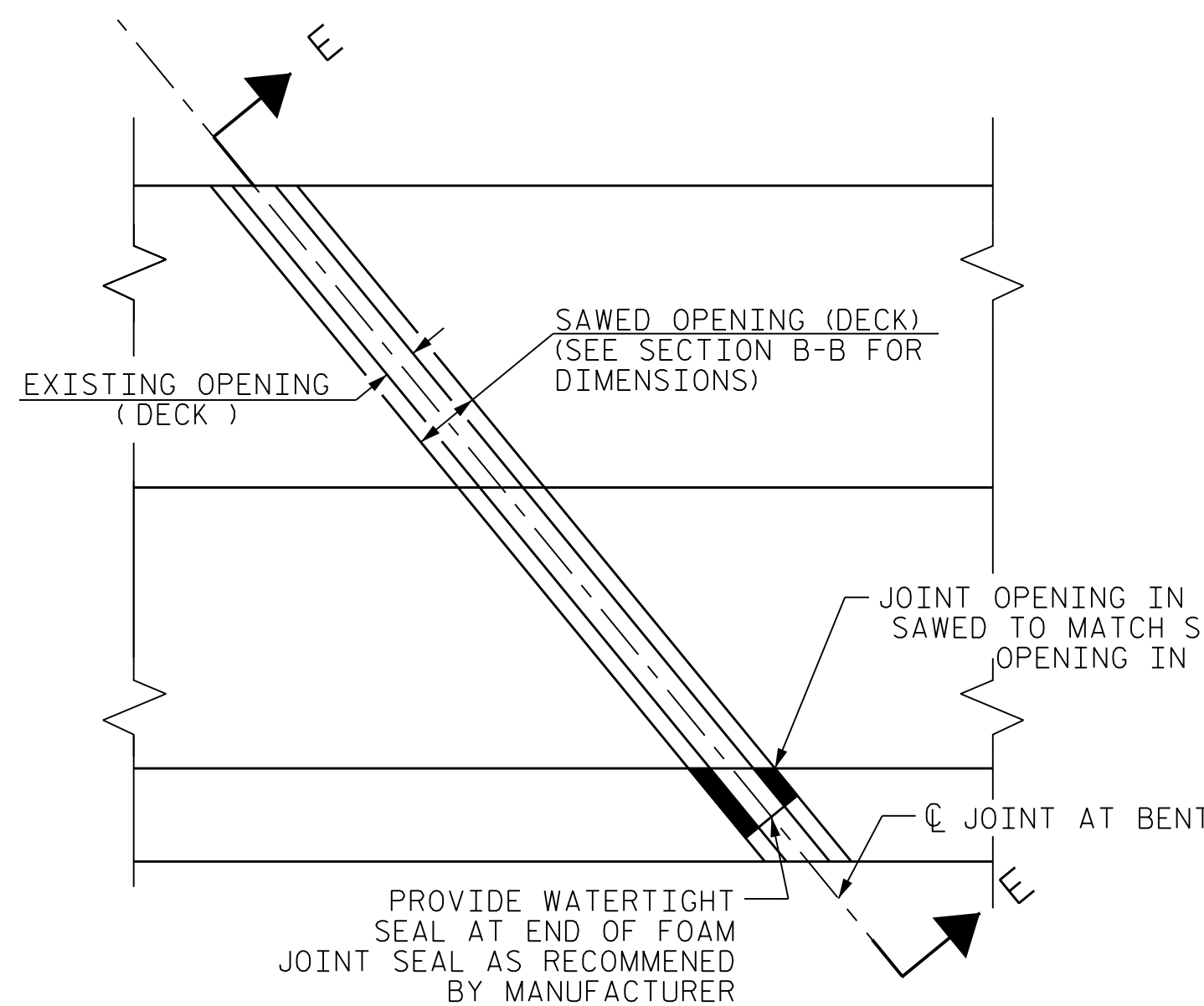
**PROPOSED JOINT PRE-SAWED DIMENSION**



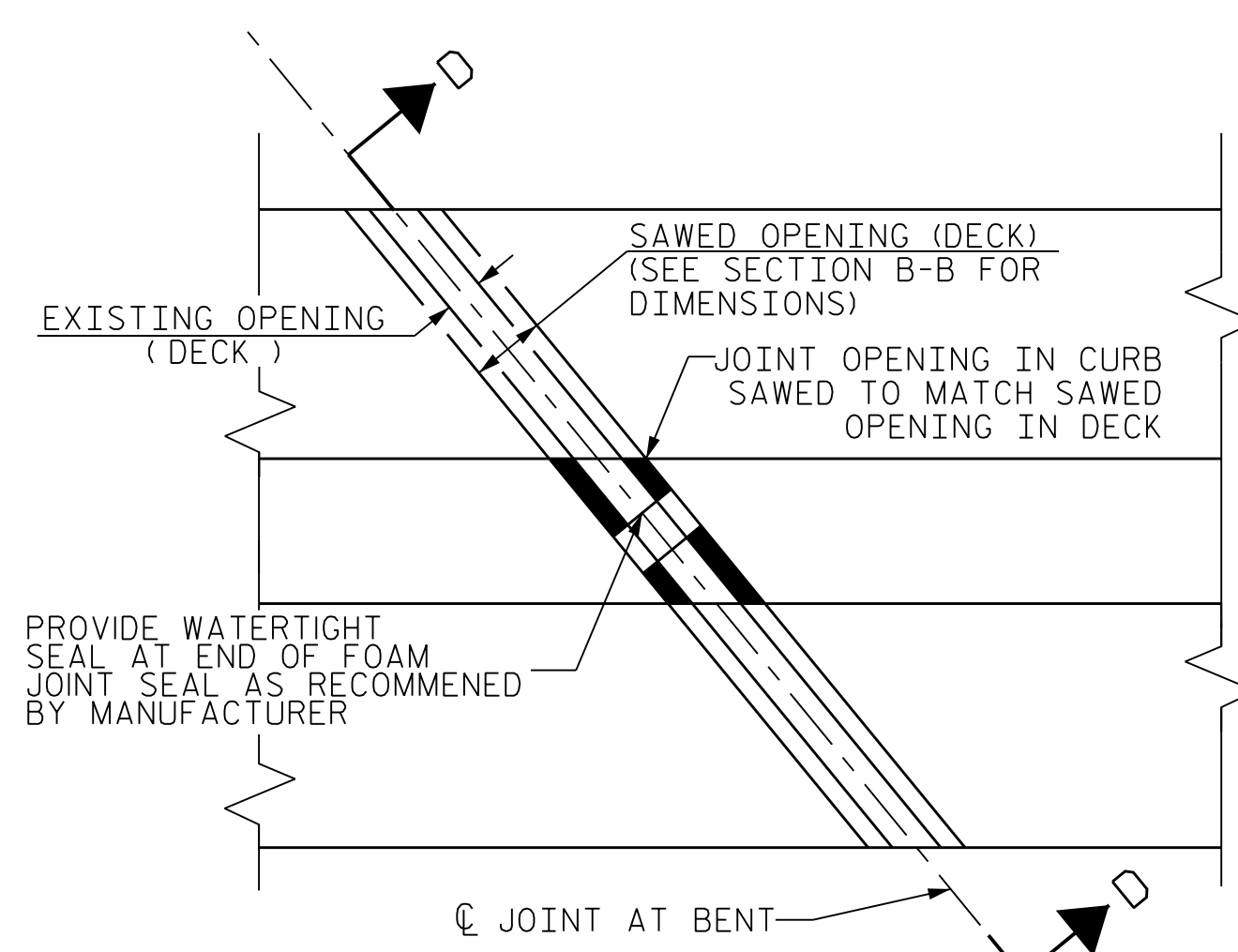
**PROPOSED FOAM JOINT SEAL EXPANSION**

**JOINT INSTALLATION SEQUENCE AT BENTS**

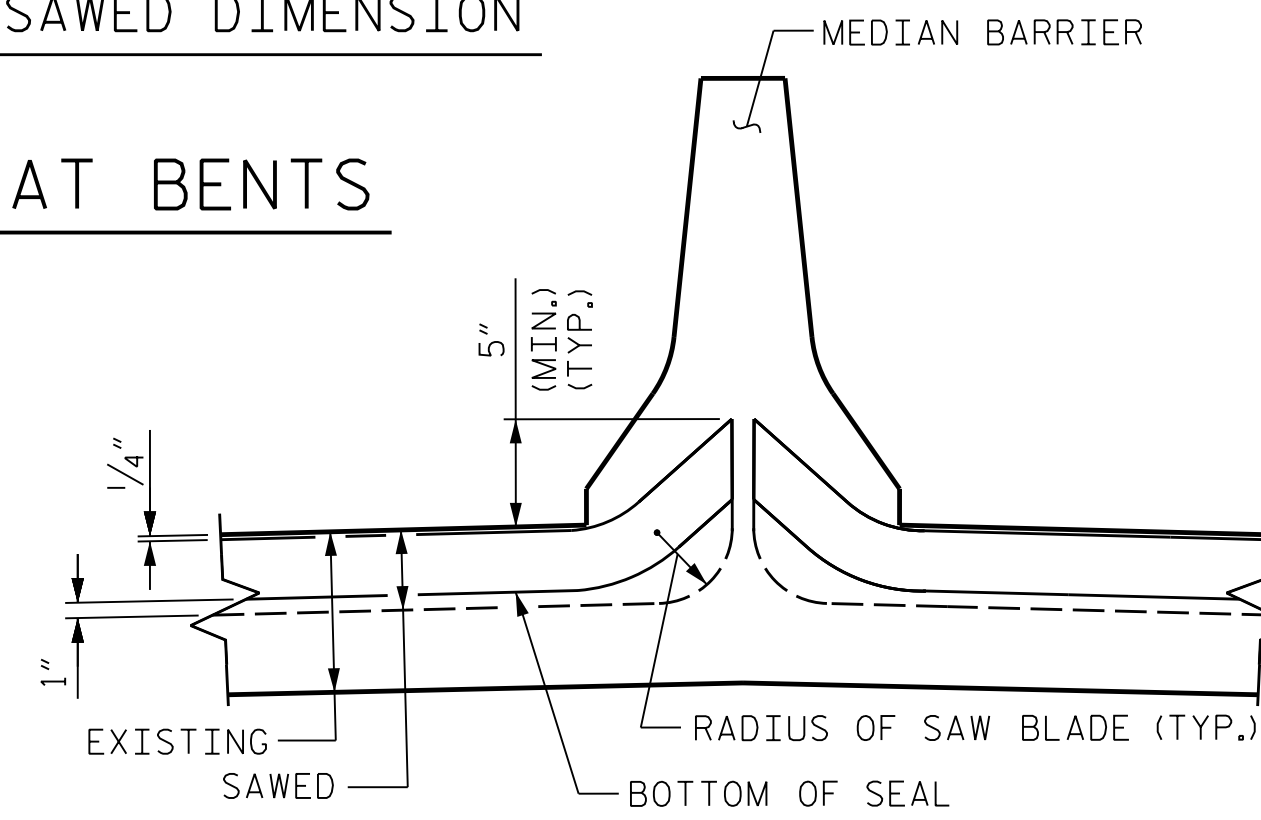
SECTION B-B



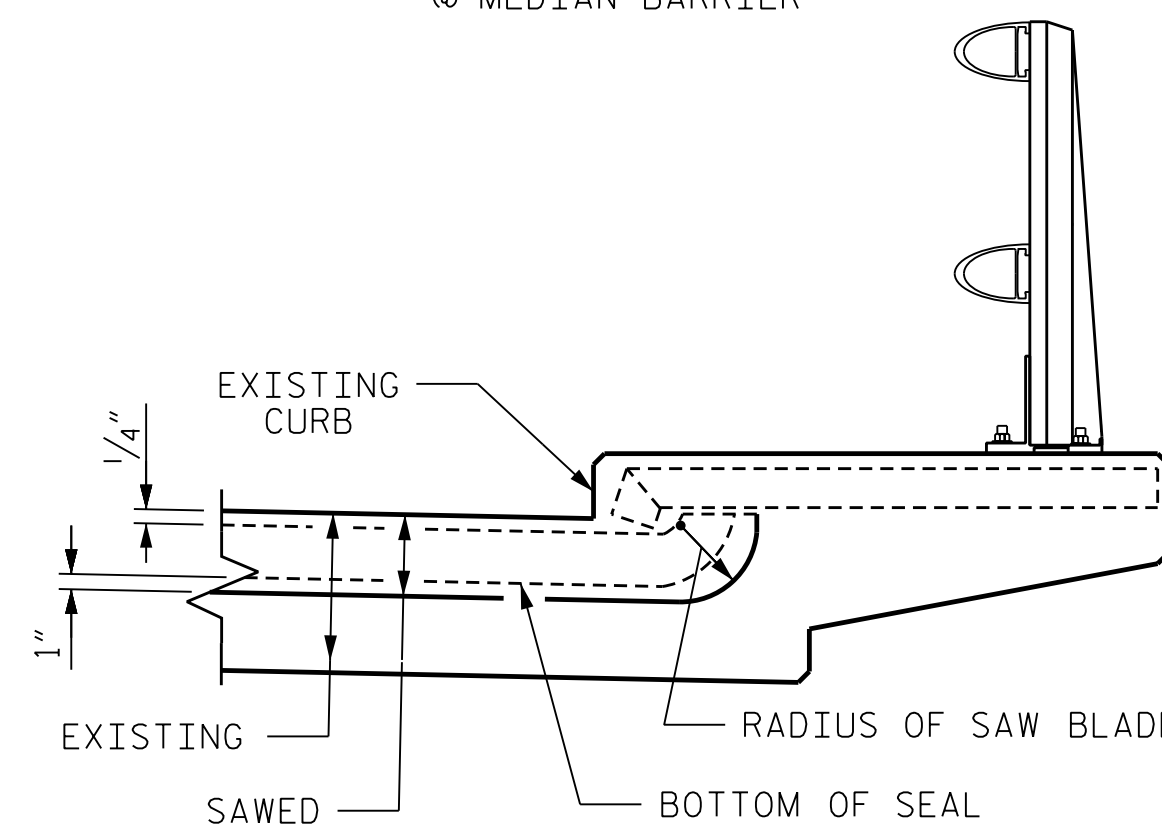
**PLAN**



**PLAN**



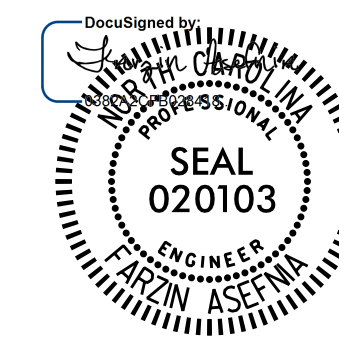
**SECTION D-D**  
@ MEDIAN BARRIER



**SECTION E-E**  
@ TWO-BAR METAL RAIL

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 451

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5/3/2017

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE JOINT DETAILS**

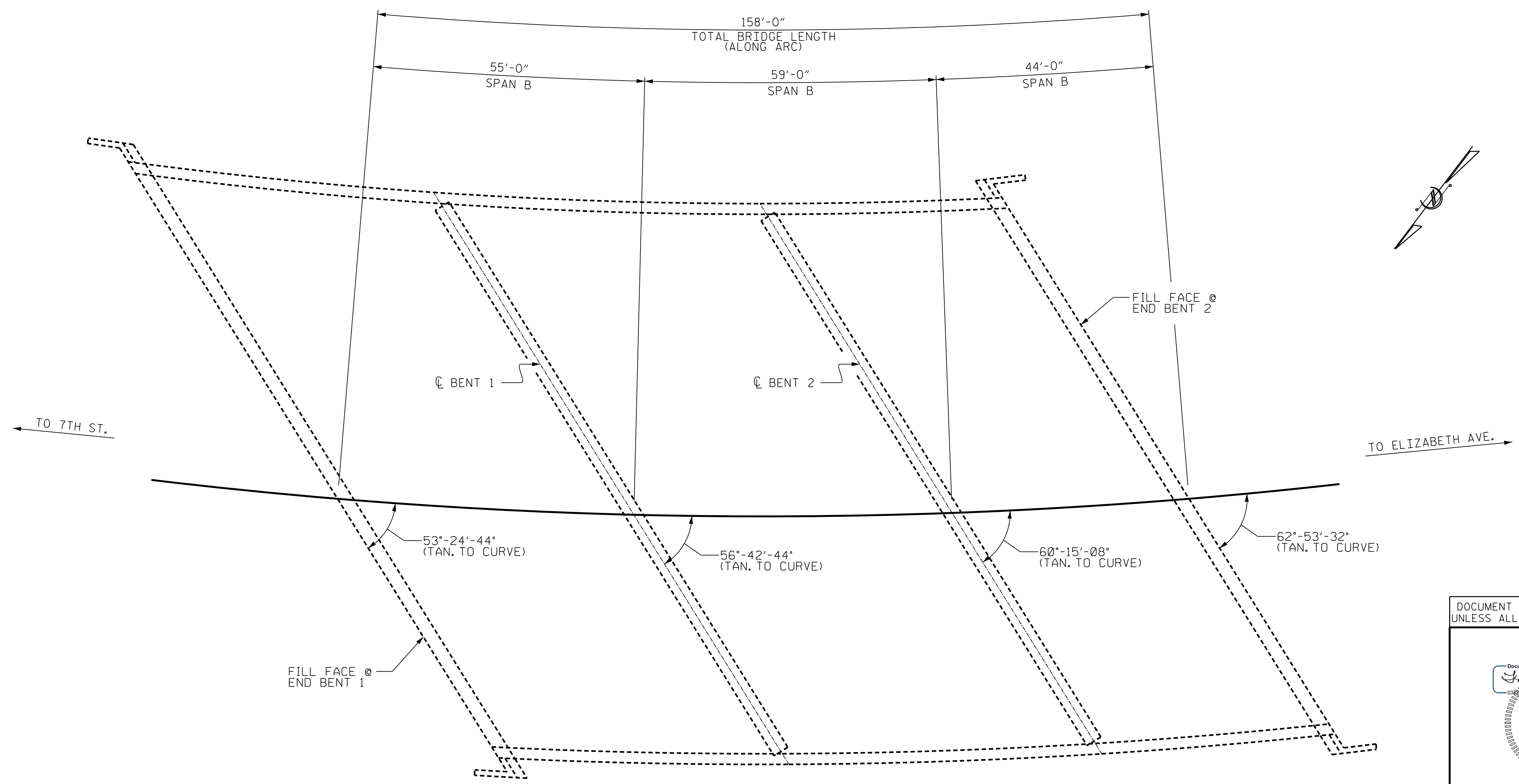
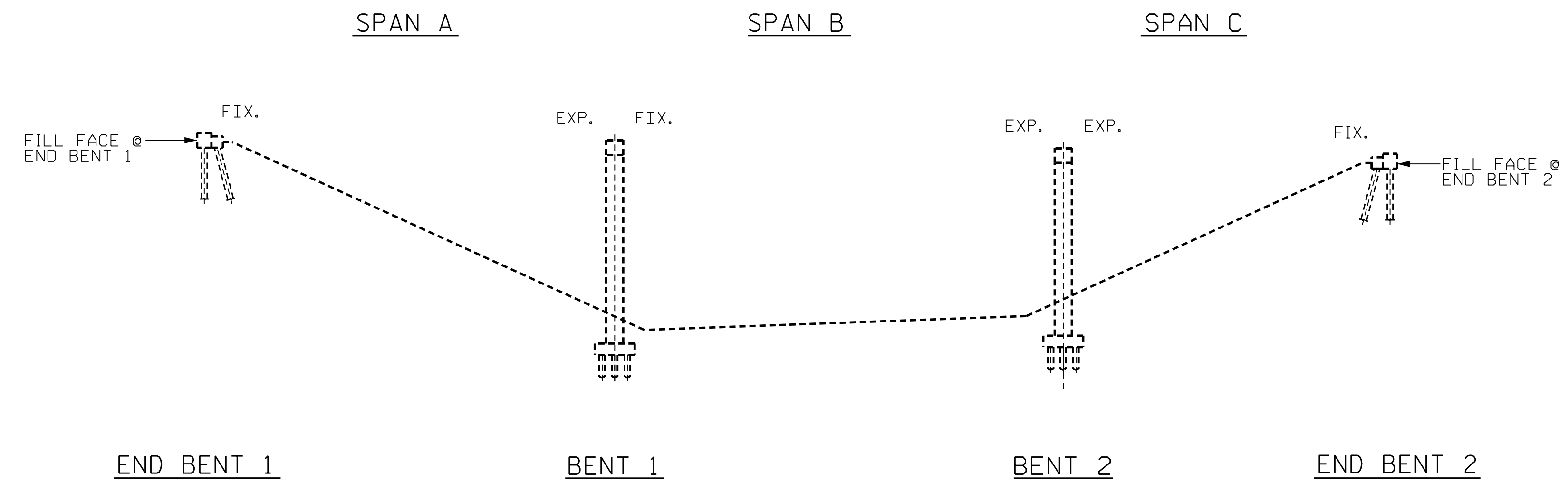
DRAWN BY :	J. MYA	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

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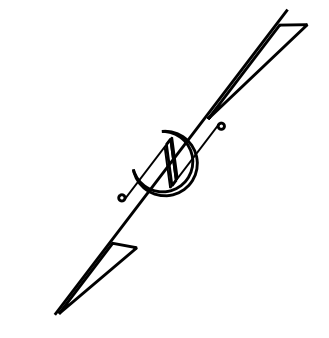
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PLAN



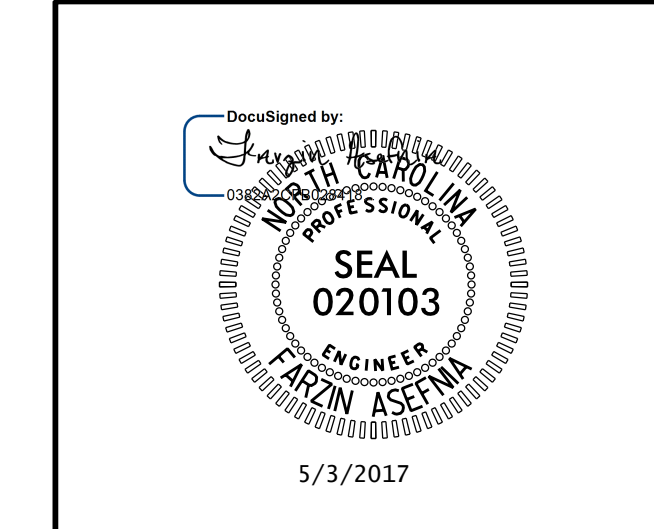
I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer      Date

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 452

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SHEET 1 OF 2



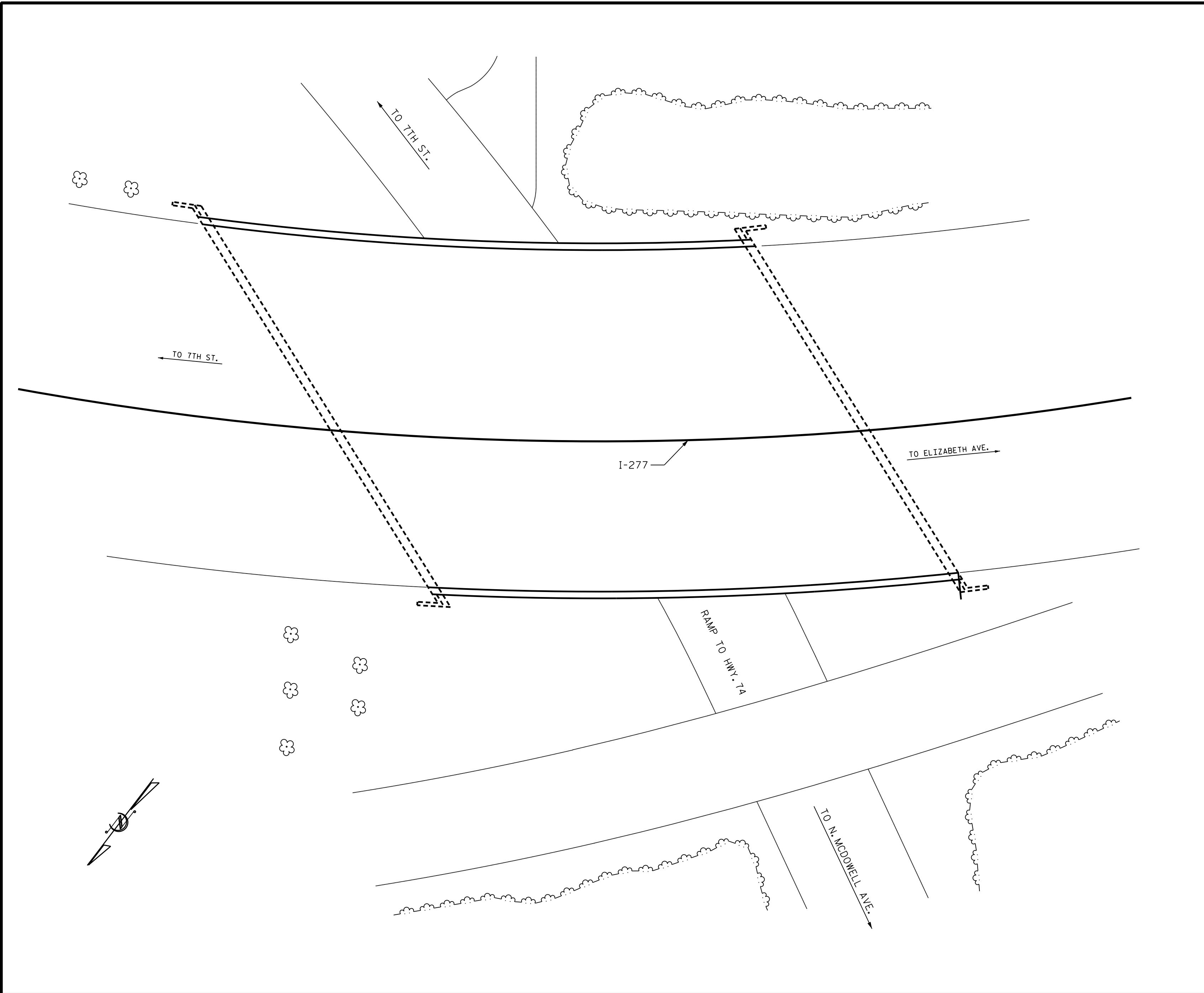
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 BRIDGE ON I-277 OVER  
 5TH STREET BETWEEN  
 7TH STREET AND  
 ELIZABETH STREET

DRAWN BY :	T. KIRSCHBAUM	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16



REVISIONS						SHEET NO.
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I-5746\_PDF\_FULL.pltcfgr I-5746\_STR\_REHAB.TBL



**LOCATION SKETCH**

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

**NOTES**

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

EXISTING DIMENSION AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSION AND CONDITION DIFFER.

IT IS THE CONTRACTORS RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM HYDRO-DEMOLITION PROCESS. SEE MANAGING HYDRO-DEMOLITION WATER SPECIAL PROVISION.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO TO BEGINING SURFACE PREPERATION OF BRIDGE DECK.

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPEXTED BLOWS THROUGH THE DECK.

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

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

FOR LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 452

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SHEET 2 OF 2



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**GENERAL DRAWING**  
BRIDGE ON I-277 OVER  
5TH STREET BETWEEN  
7TH STREET AND  
ELIZABETH STREET

DRAWN BY :	T. KIRSCHBAUM	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

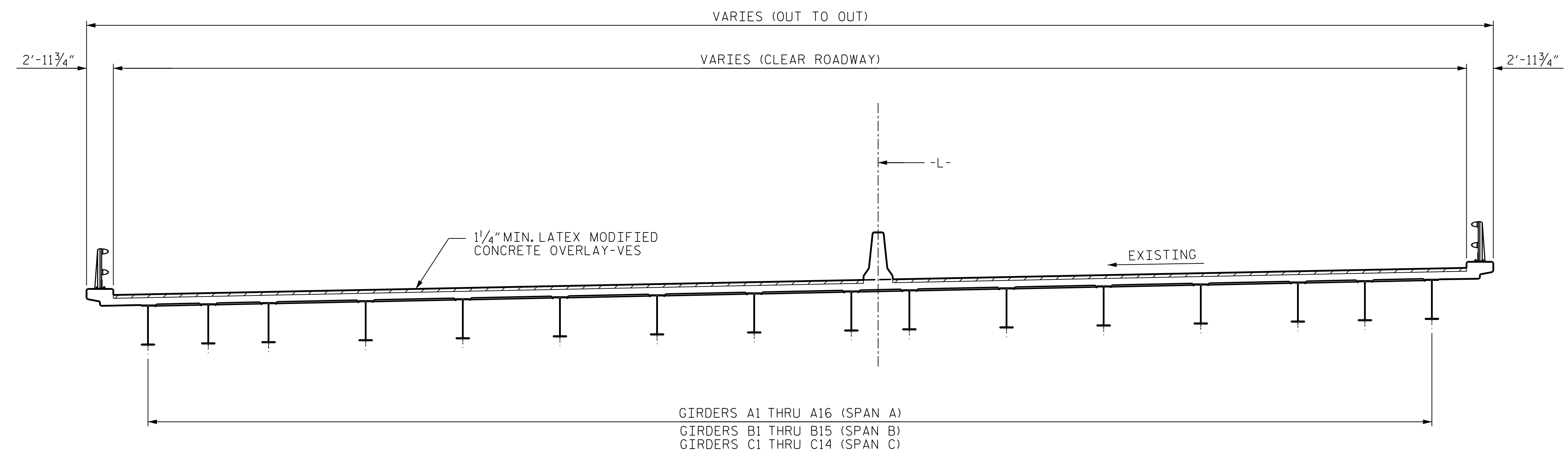
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-115
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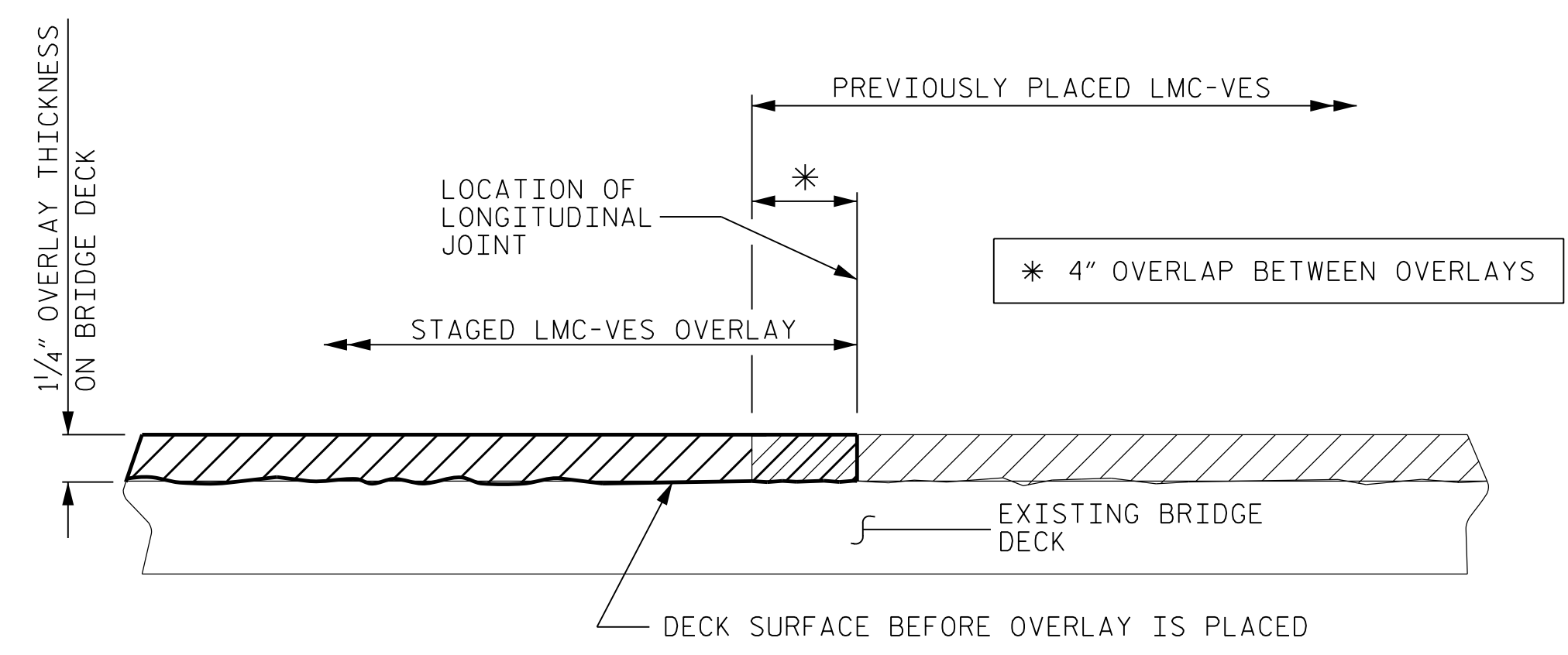
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**NOTE:**

WHEN PREPARING THE SURFACE FOR LMC OVERLAY-VES ADJACENT TO A PREVIOUSLY PLACED LMC-VES STAGE, THE PREVIOUSLY PLACED LMC-VES SHALL BE REMOVED FOR A DISTANCE OF 4-INCHES FROM THE LMC-VES EDGE. THE SURFACE OF THE NEW STAGE AREA, ALONG WITH THE 4 INCH OVERLAY AREA, SHALL BE PREPARED AS PER THE OVERLAY SURFACE PREPARATION SPECIAL PROVISIONS. NEW LMC-VES SHALL BE PLACED IN THE 4-INCH OVERLAP, AS PART OF NEW LMC-VES STAGE PLACEMENT.  
  
 SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCE, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LMC-VES PLACEMENT.



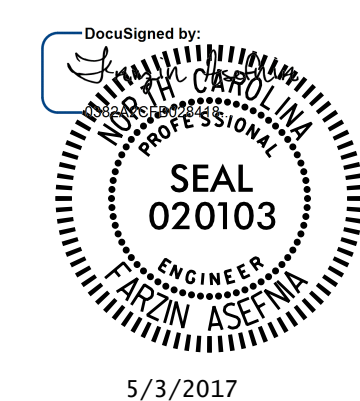
**TYPICAL SECTION**



**SECTION THRU DECK  
STAGED LMC-VES OVERLAY JOINT  
(AS NEEDED)**

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 452

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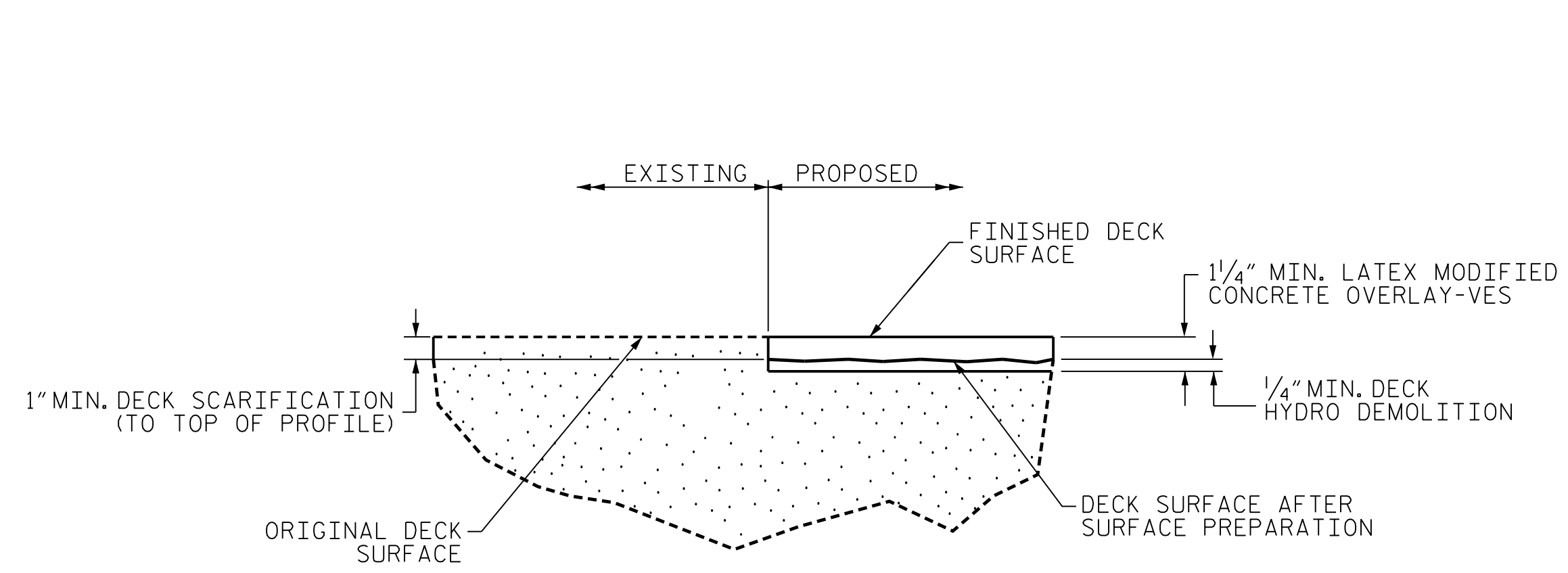
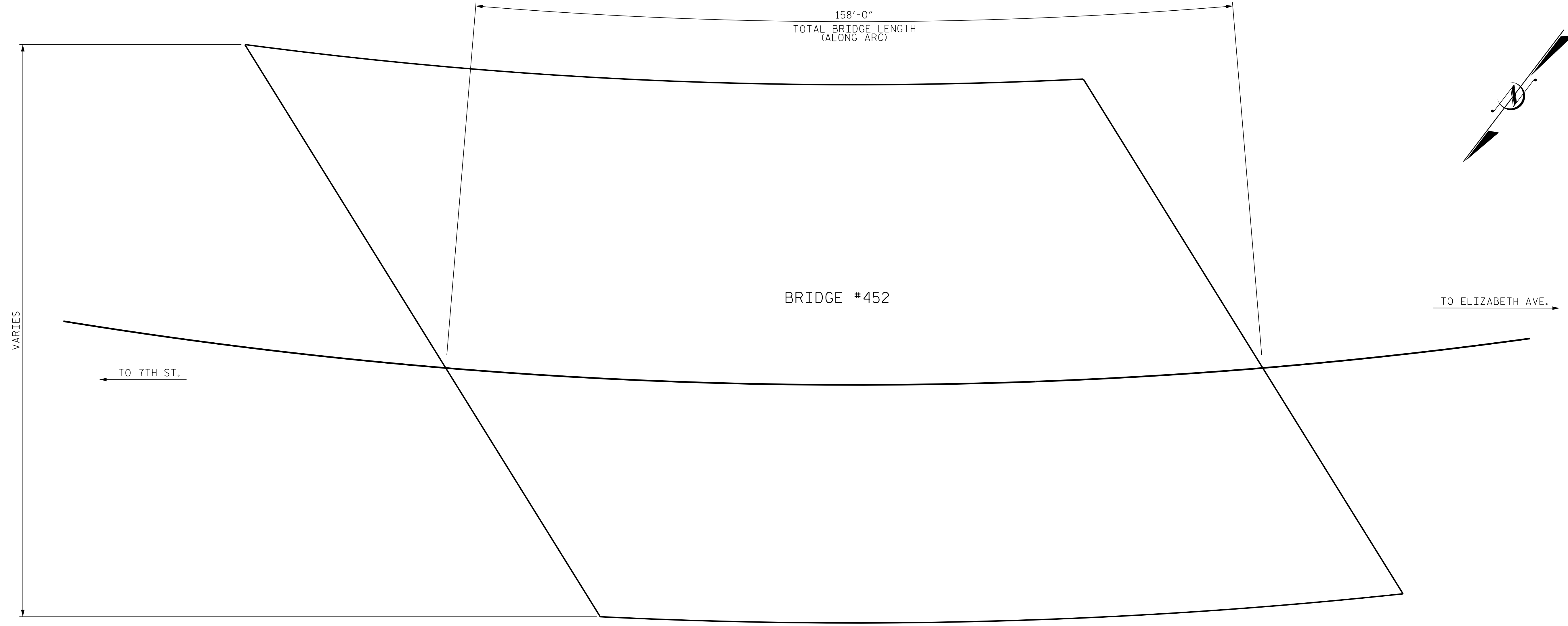
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
  
**TYPICAL SECTION  
& LATEX MODIFIED  
CONCRETE-VES**

DRAWN BY :	T. KIRSCHBAUM	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

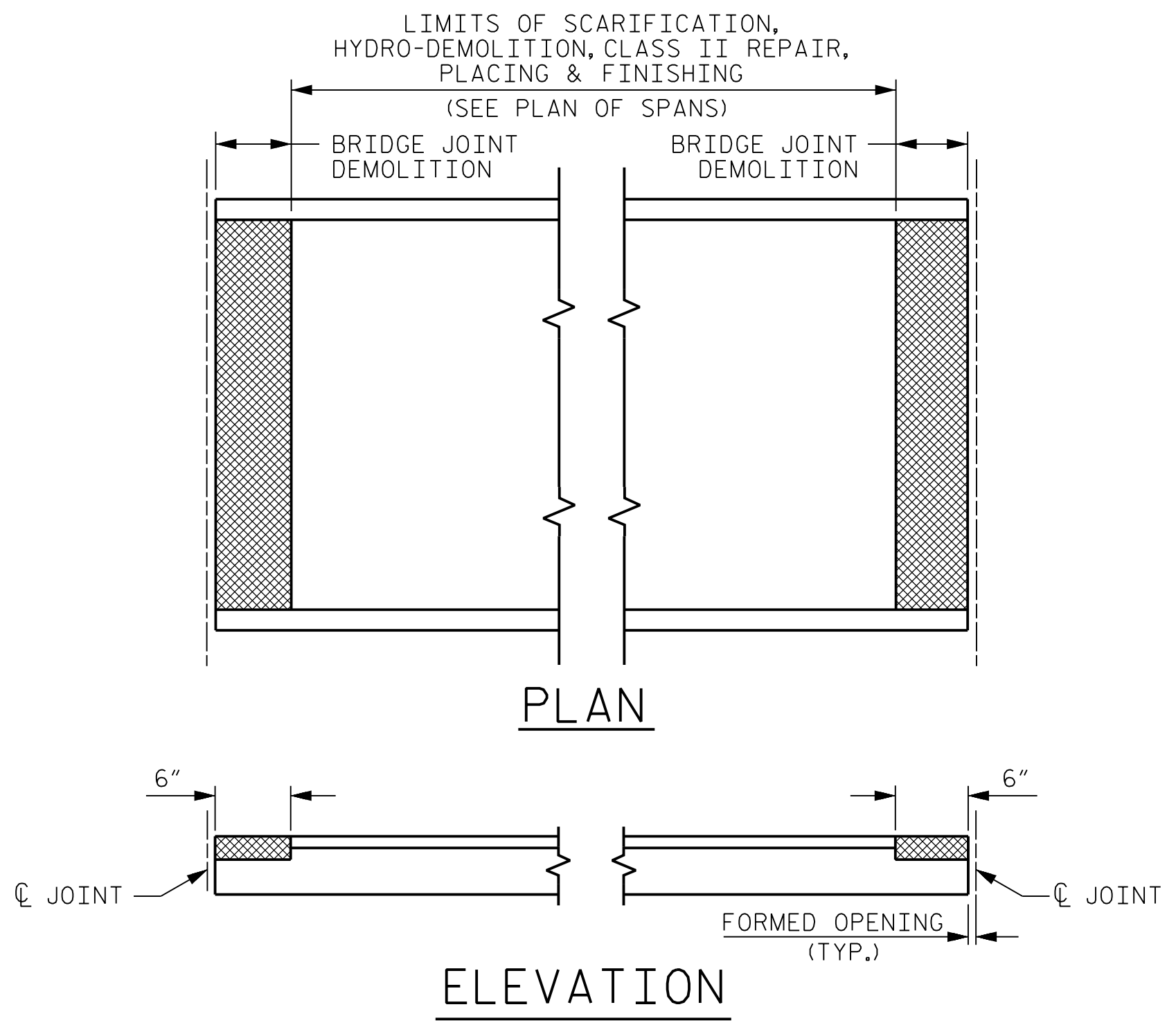
Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS						SHEET NO.
	NO.	BY:	DATE:	NO.	BY:	DATE:	5-116
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2			4			196	



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**DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY-VES**



**ELEVATION**

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 452

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SHEET 1 OF 4



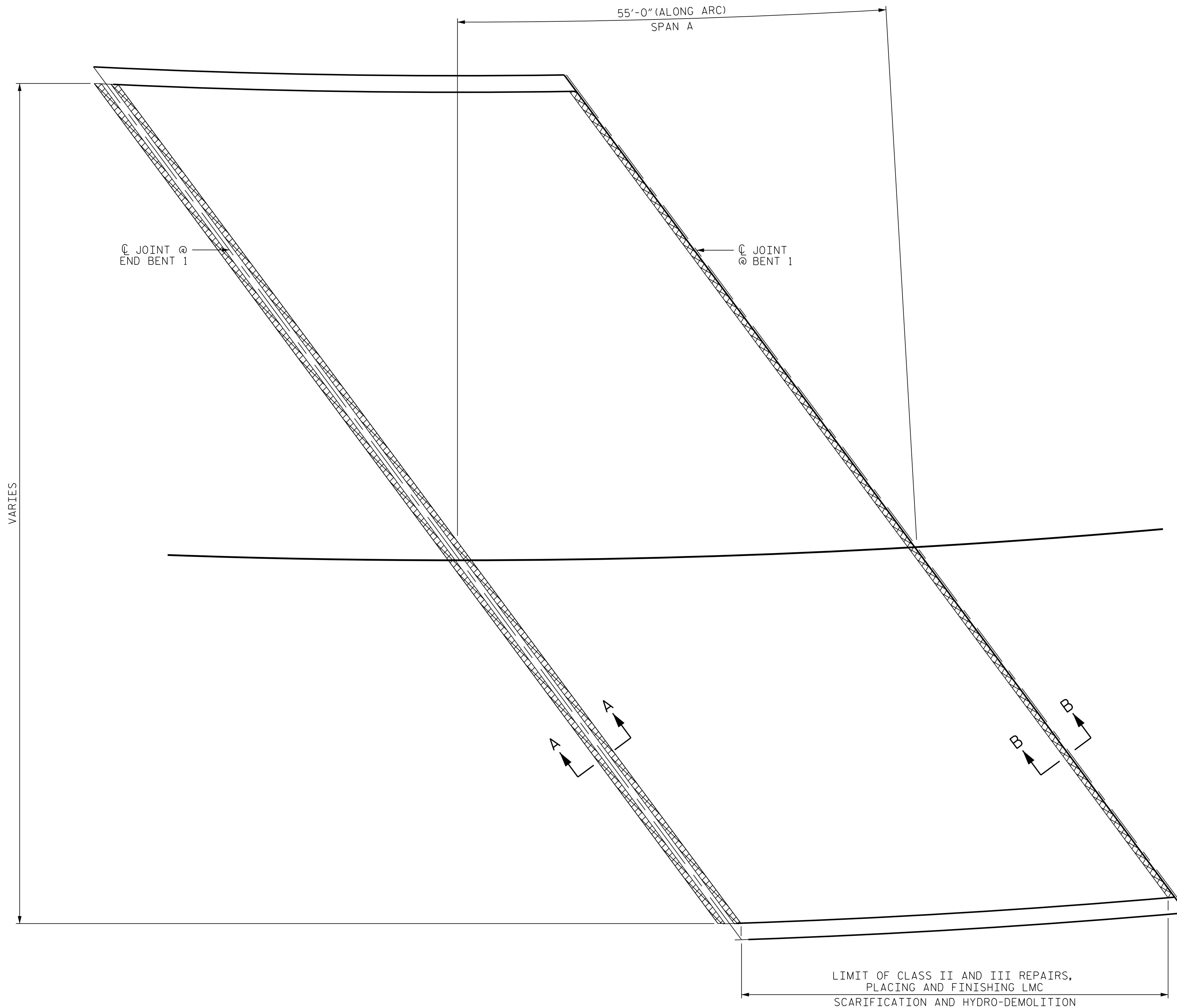
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUPERSTRUCTURE**  
SURFACE PREPARATION

DRAWN BY :	T. KIRSCHBAUM	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

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2			4		

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SHEET NO.	S-117

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**PLAN OF SPAN A**  
FOR SECTION A-A & B-B, SEE "JOINT DETAILS" SHEET

SPAN "A" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	180 SQ. FT.	
SCARIFYING BRIDGE DECK	584 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	584 SQ. YDS.	

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

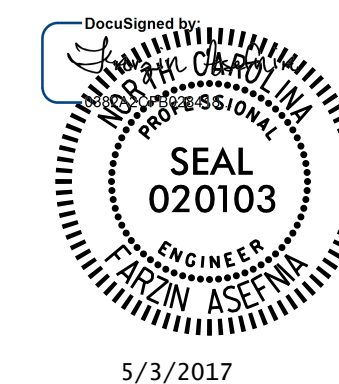
CLASS II & CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN AMOUNT IS INDICATED FOR PRICING PURPOSE. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION AREAS ARE ENCOUNTERED.

- CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION
- SCARIFICATION & HYDRO-DEMOLITION
- OVERHANG AND DECK UNDERSIDE DELAMINATION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 452

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SHEET 2 OF 4



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

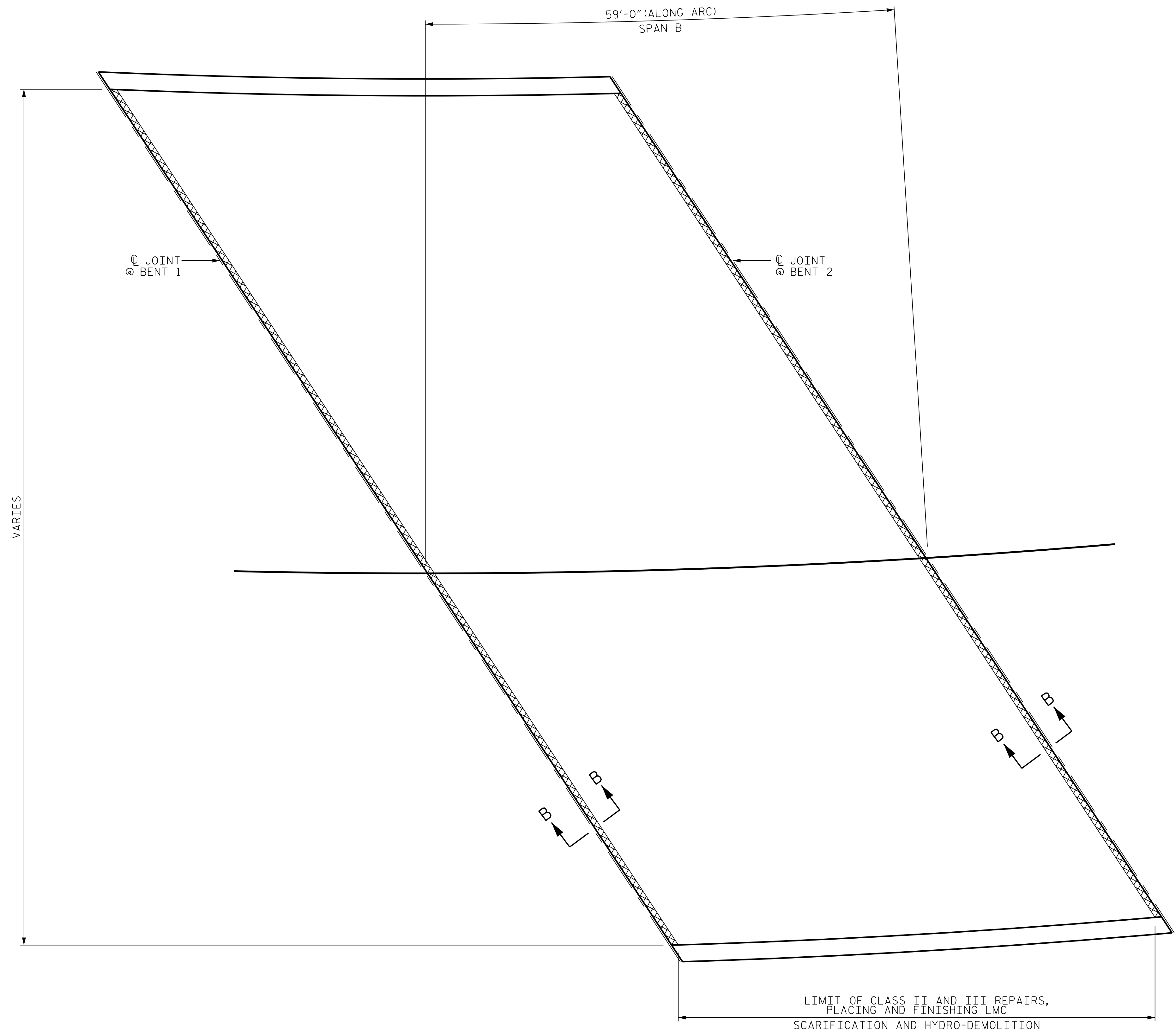
**SURFACE PREPARATION  
AND UNDERDECK REPAIR  
LOCATIONS**  
SPAN A

DRAWN BY : T. KIRSCHBAUM	DATE : 9-16
CHECKED BY : F. ASEFNIA	DATE : 9-16
DESIGN ENGINEER OF RECORD : F. ASEFNIA	DATE : 9-16

NO.	REVISIONS		NO.	REVISIONS		SHEET NO.
	BY:	DATE:		BY:	DATE:	
1			3			S-118
2			4			TOTAL SHEETS 196

Prepared by:  
**LOUIS BERGER**  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

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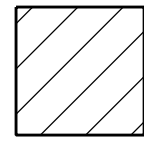
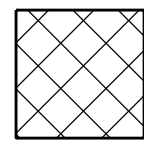
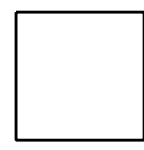
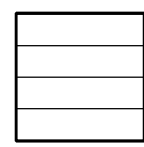


**PLAN OF SPAN B**  
FOR SECTION B-B, SEE "JOINT DETAILS" SHEET

SPAN "B" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	120 SQ. FT.	
SCARIFYING BRIDGE DECK	635 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	635 SQ. YDS.	

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

CLASS II & CLASS III SURFACE PREPARATION IS NOT ANTICIPATED. A TOKEN AMOUNT IS INDICATED FOR PRICING PURPOSE. IN CASE UNANTICIPATED CLASS III SURFACE PREPARATION ARE ENCOUNTERED.

-  CLASS II SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION
-  SCARIFICATION & HYDRO-DEMOLITION
-  OVERHANG AND DECK UNDERSIDE DELAMINATION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 452

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SHEET 3 OF 4



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION  
AND UNDERDECK REPAIR  
LOCATIONS**  
SPAN B

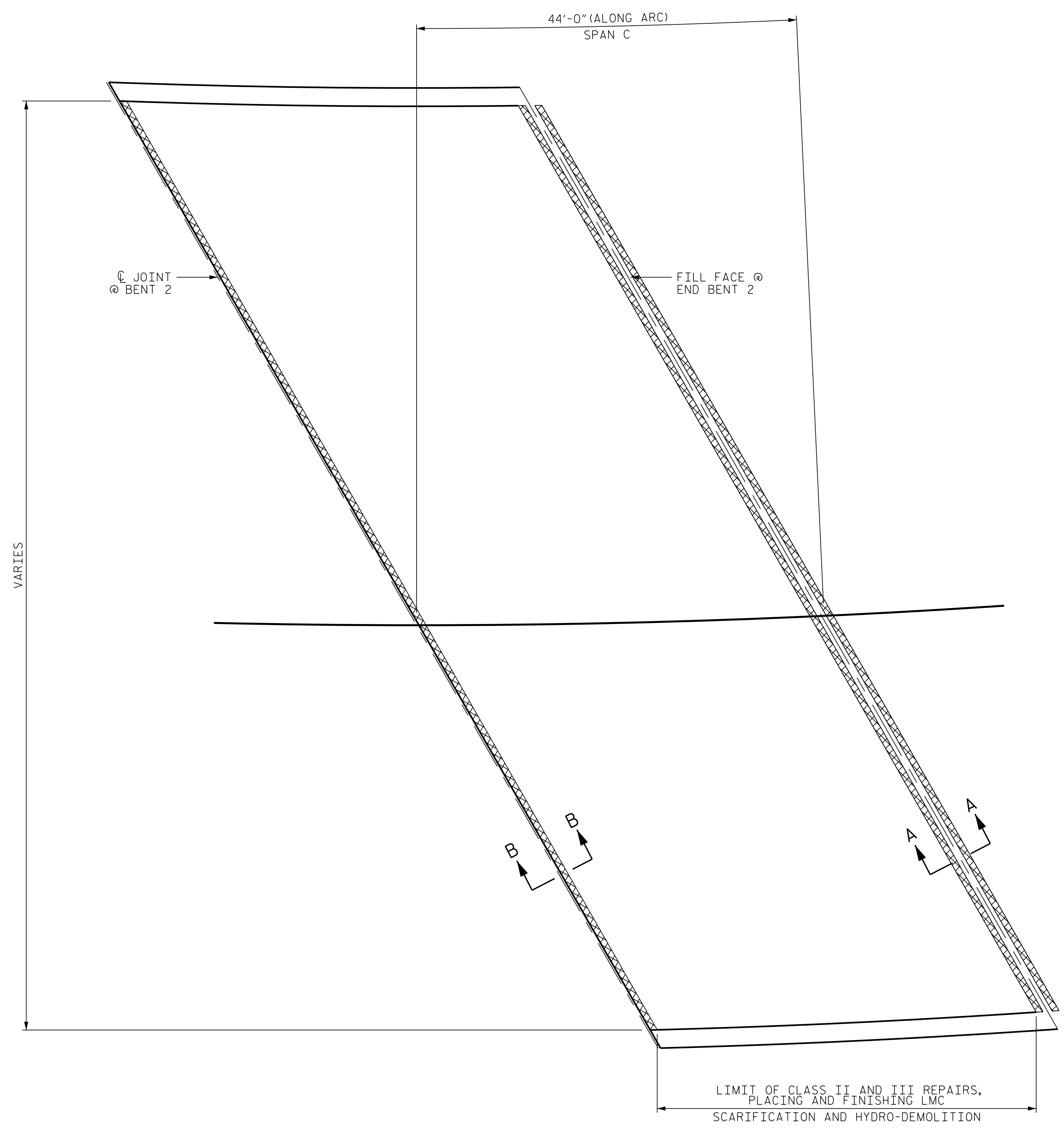
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CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

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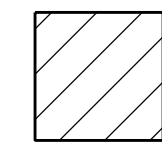
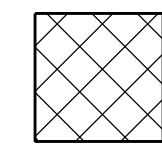
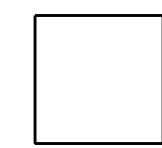
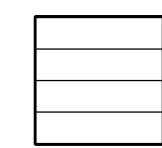


**PLAN OF SPAN C**  
FOR SECTION A-A & B-B, SEE "JOINT DETAILS" SHEET

SPAN "C" QUANTITIES		
	ESTIMATE	ACTUAL
CLASS II SURFACE PREPARATION	1 SQ. YDS.	
CLASS III SURFACE PREPARATION	1 SQ. YDS.	
BRIDGE JOINT DEMOLITION	180 SQ. FT.	
SCARIFYING BRIDGE DECK	463 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	463 SQ. YDS.	

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

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

-  CLASS II SURFACE PREPARATION
-  BRIDGE JOINT DEMOLITION
-  SCARIFICATION & HYDRO-DEMOLITION
-  OVERHANG AND DECK UNDERSIDE DELAMINATION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 452

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SHEET 4 OF 4



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

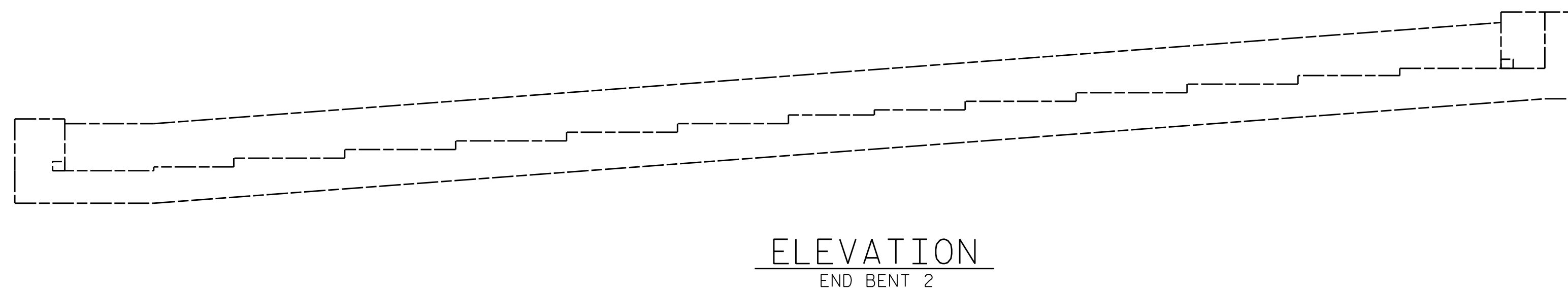
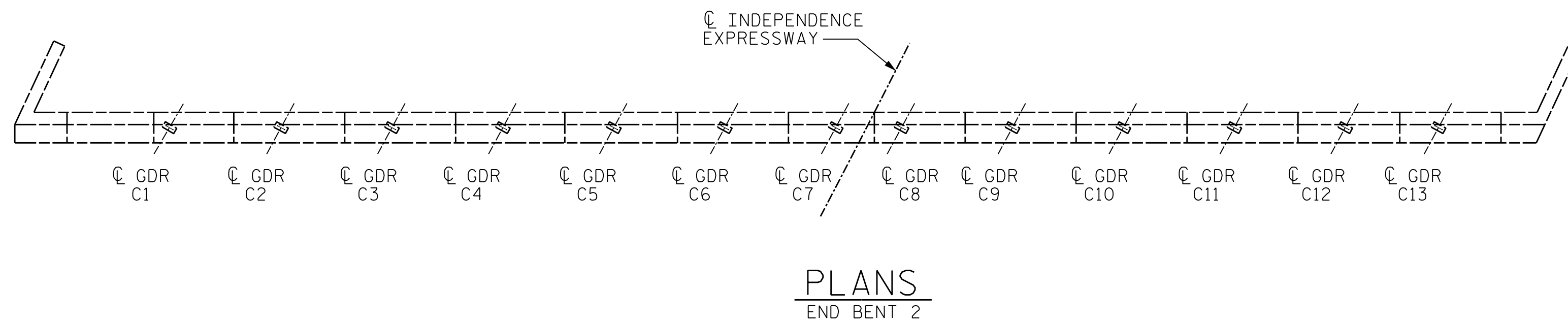
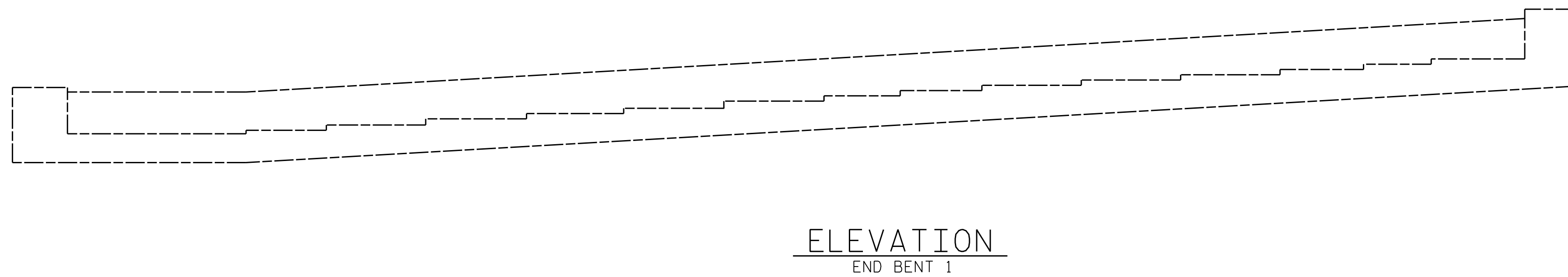
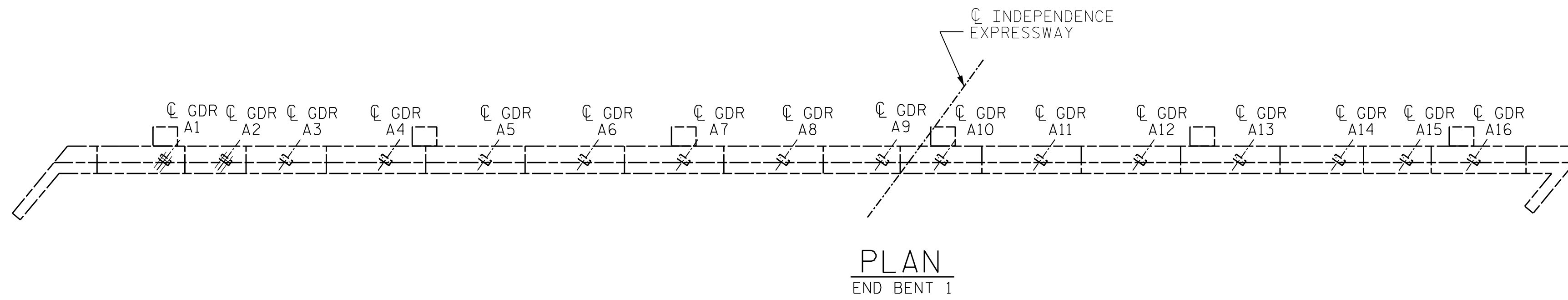
**SURFACE PREPARATION  
AND UNDERDECK REPAIR  
LOCATIONS**

SPAN C

DRAWN BY : T. KIRSCHBAUM	DATE : 9-16
CHECKED BY : F. ASEFNIA	DATE : 9-16
DESIGN ENGINEER OF RECORD : F. ASEFNIA	DATE : 9-16

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-120
1			3			TOTAL SHEETS
2			4			196

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**REPAIR QUANTITY TABLE**

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

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

VALUES IN CHARTS REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL. TO SAWCUT. SEE REPAIR DETAILS.

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

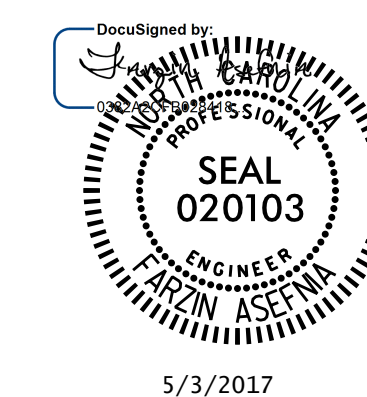
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

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

FOR END BENT 1 & 2, NO DAMAGE WAS OBSERVE @ THE TIME OF INSPECTION.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 452

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RALEIGH

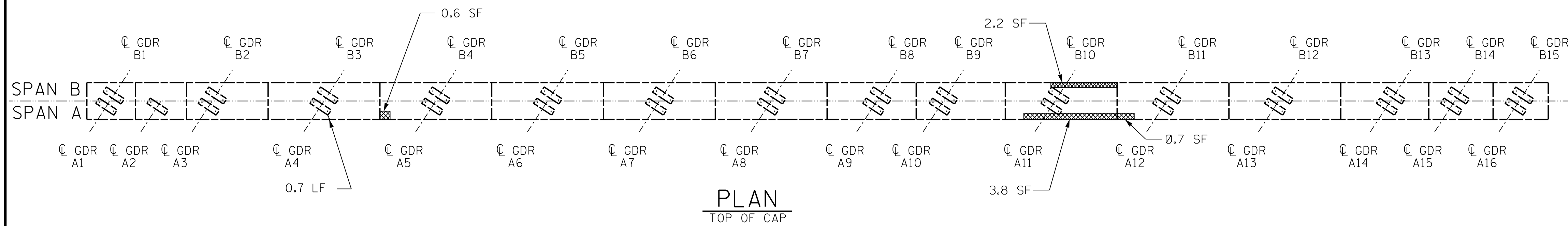
**SUBSTRUCTURE**  
END BENTS



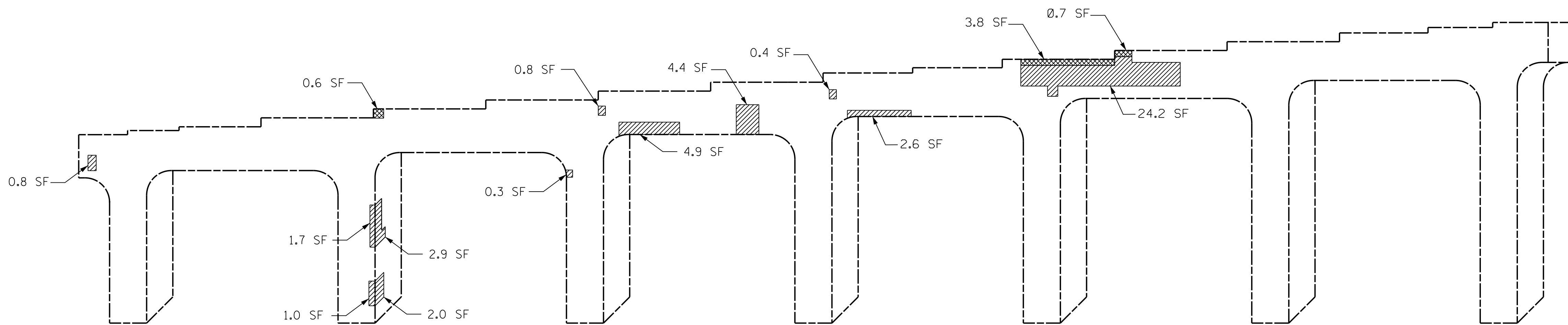
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DRAWN BY :	T. KIRSCHBAUM	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16

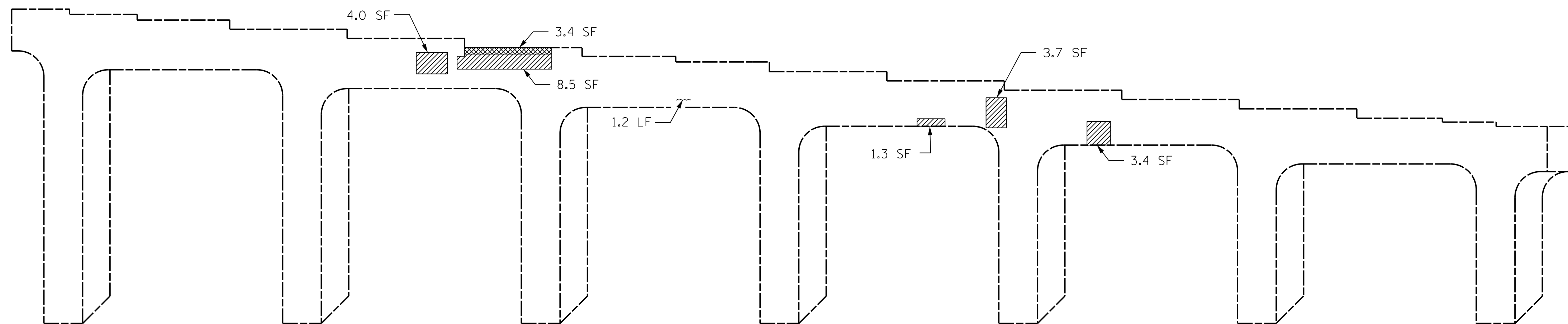
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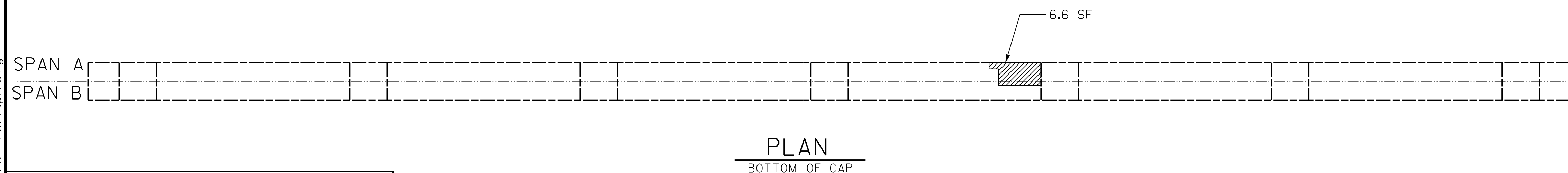
PLAN  
TOP OF CAP



ELEVATION  
SPAN A SIDE



ELEVATION  
SPAN B SIDE



PLAN  
BOTTOM OF CAP

REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
SHOTCRETE REPAIRS				
CAP (VERTICAL FACE)	59.2	14.8		
CAP (HORIZONTAL)	14.9	3.7		
COLUMN (HORIZONTAL FACE)	7.9	0.2		
CONCRETE REPAIRS	11.3	2.8		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			1.9	
COLUMN			0.0	
EPOXY COATING			SO. FT	SO. FT
TOP OF CAP			358	

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

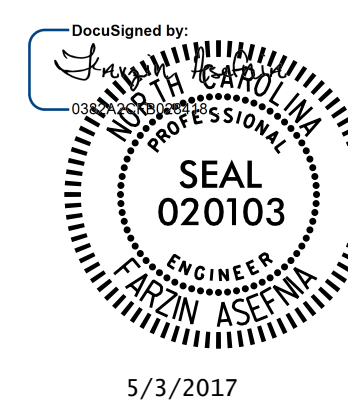
▨ - CONCRETE REPAIR

▨ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 452

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

SUBSTRUCTURE  
BENT 1

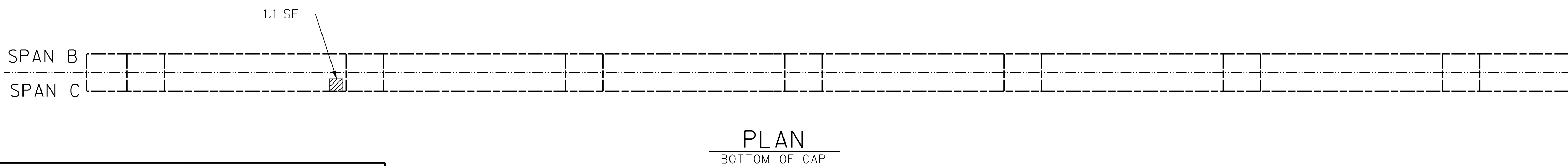
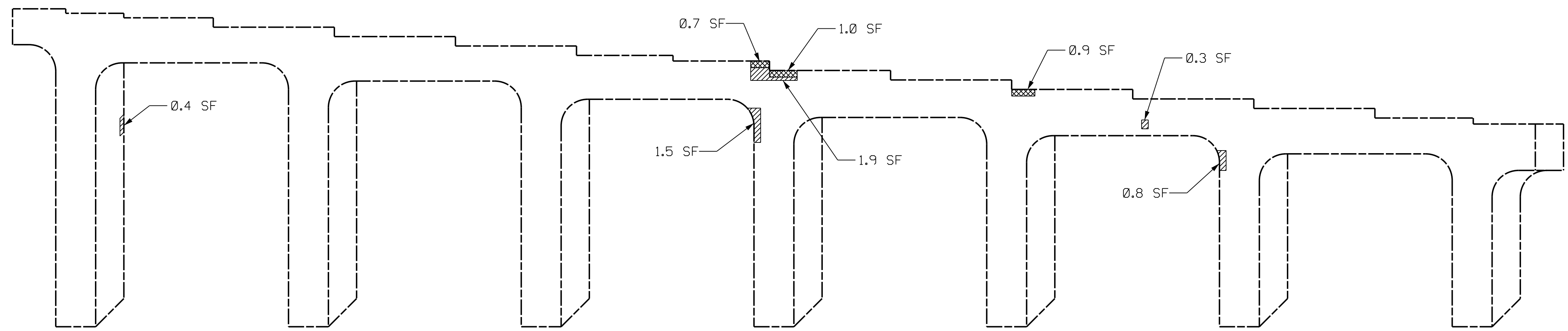
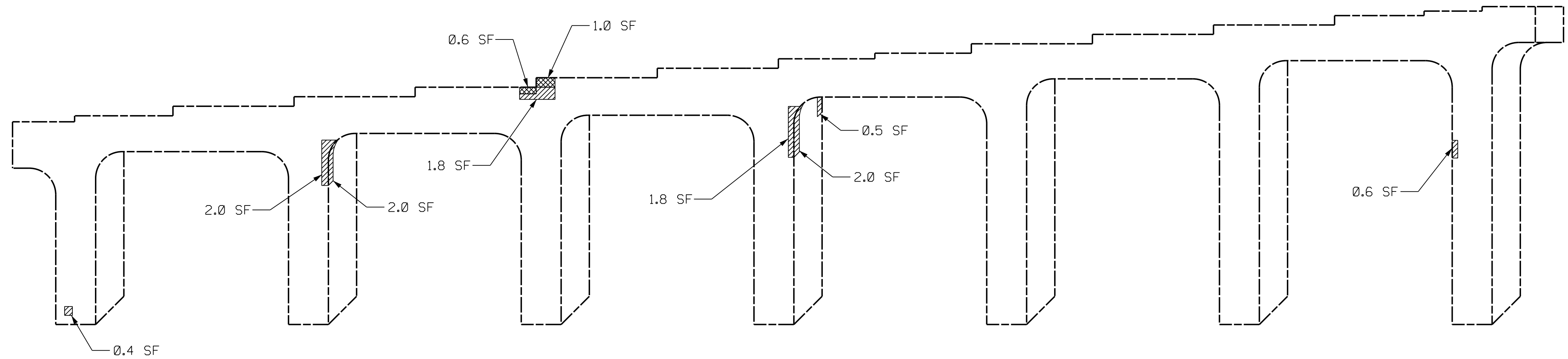
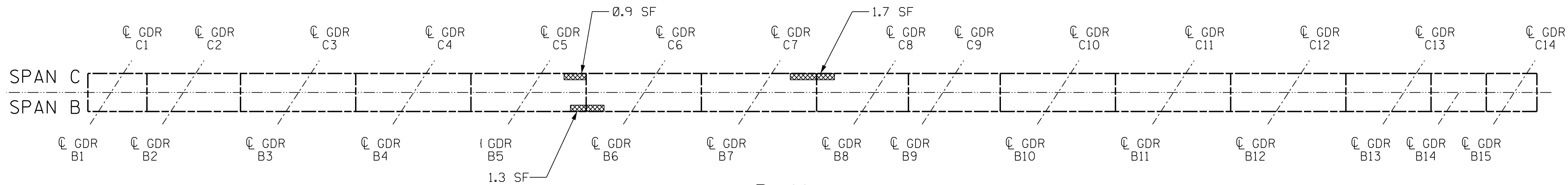
DRAWN BY : J. MYA DATE : 10-2016  
CHECKED BY : F. ASEFNIA DATE : 10-2016  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 10-2016

Prepared by:  
LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-122
1			3			TOTAL SHEETS
2			4			196



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REPAIR QUANTITY TABLE				
REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	4.0	1.0		
CAP (HORIZONTAL)	7.0	1.8		
COLUMN (HORIZONTAL FACE)	12.0	3.0		
CONCRETE REPAIRS	8.1	2.0		
EPOXY RESIN INJECTION	LN. FT		LN. FT	
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT		SQ. FT	
TOP OF CAP	344			

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

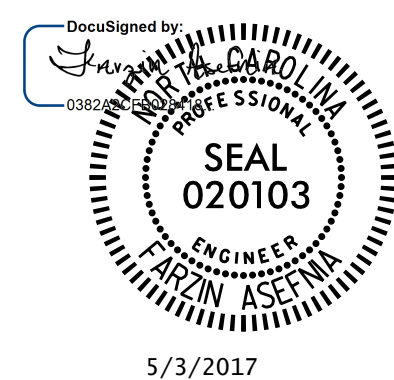
▣ - CONCRETE REPAIR

▨ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 452

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



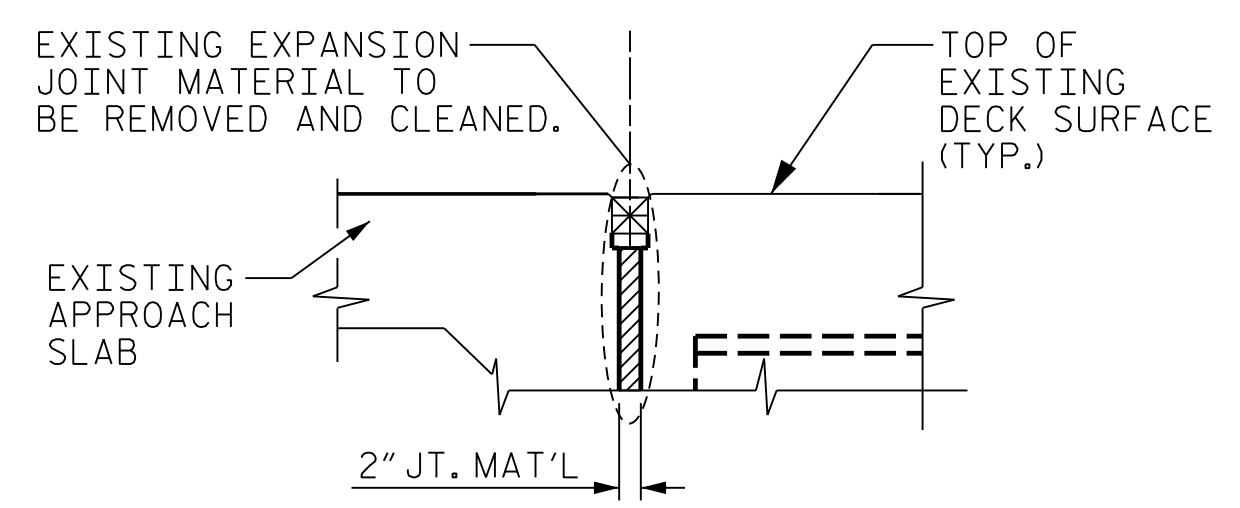
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 2

DRAWN BY : J. MYA DATE : 10-2016  
CHECKED BY : F. ASEFNIA DATE : 10-2016  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 10-2016

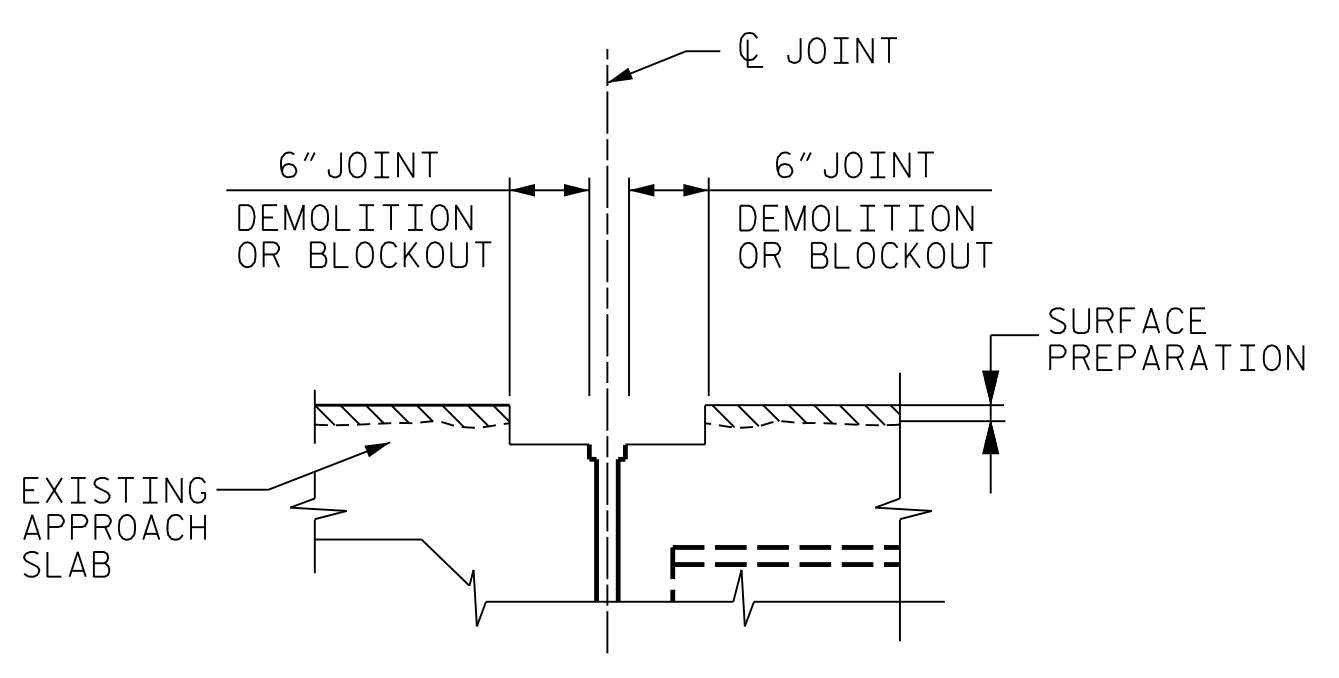


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-123
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2			4			196

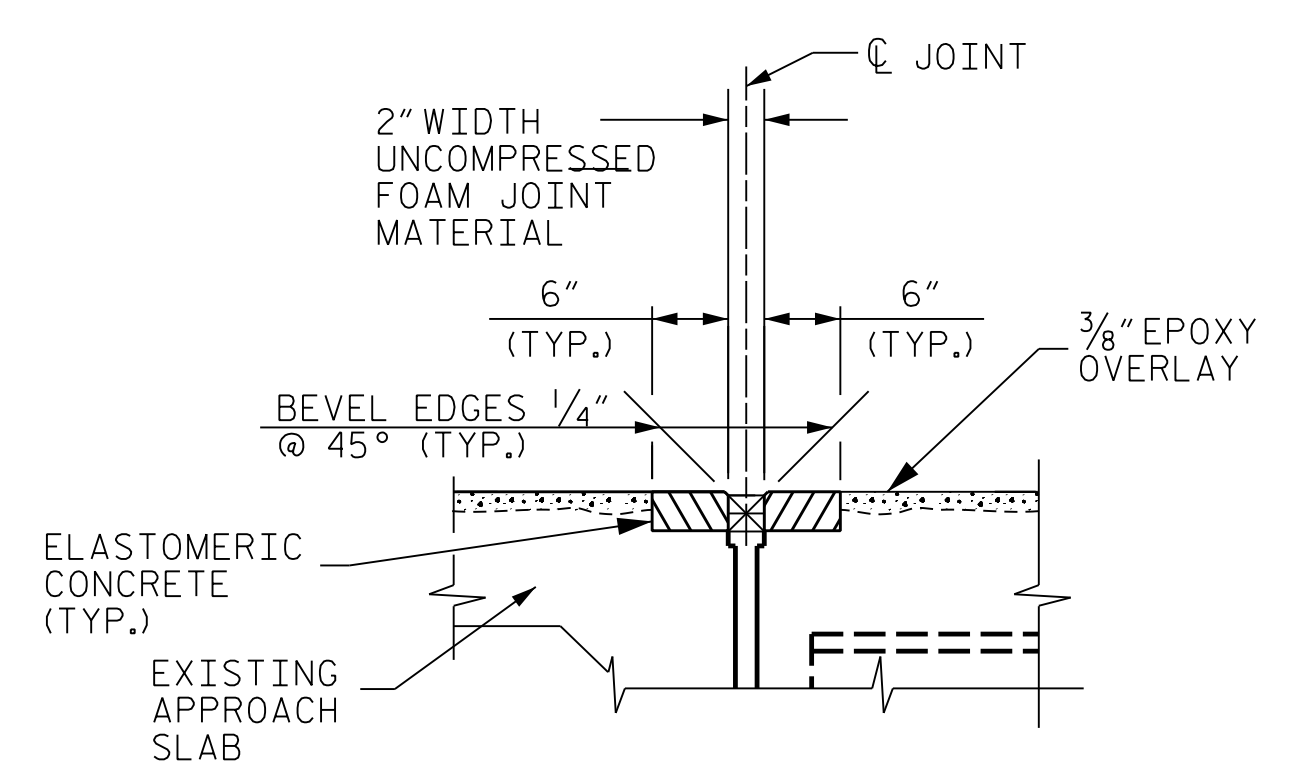
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**SECTION A-A**  
(EXISTING JOINT)



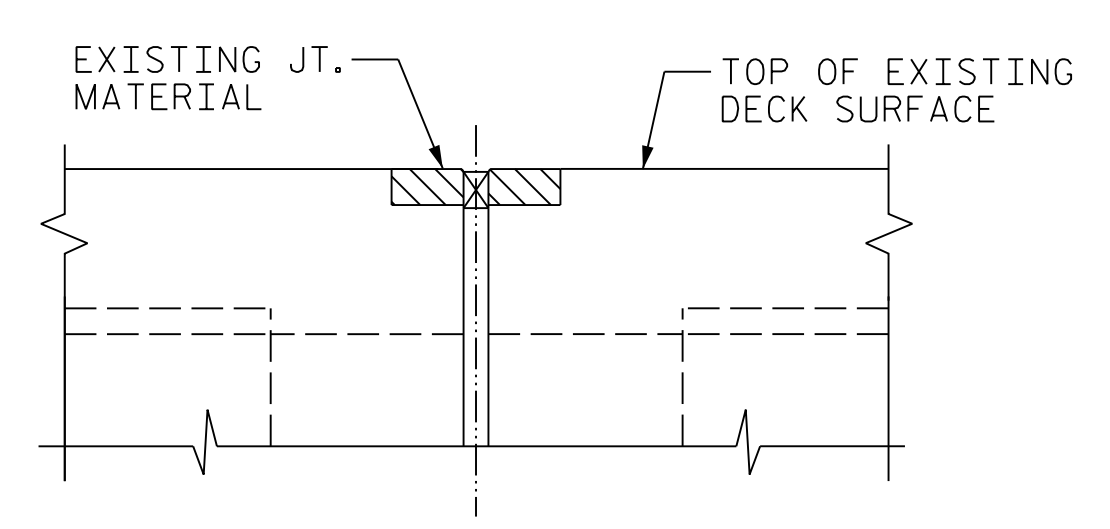
**SECTION A-A**  
(MINIMUM EXISTING JOINT DEMOLITION)



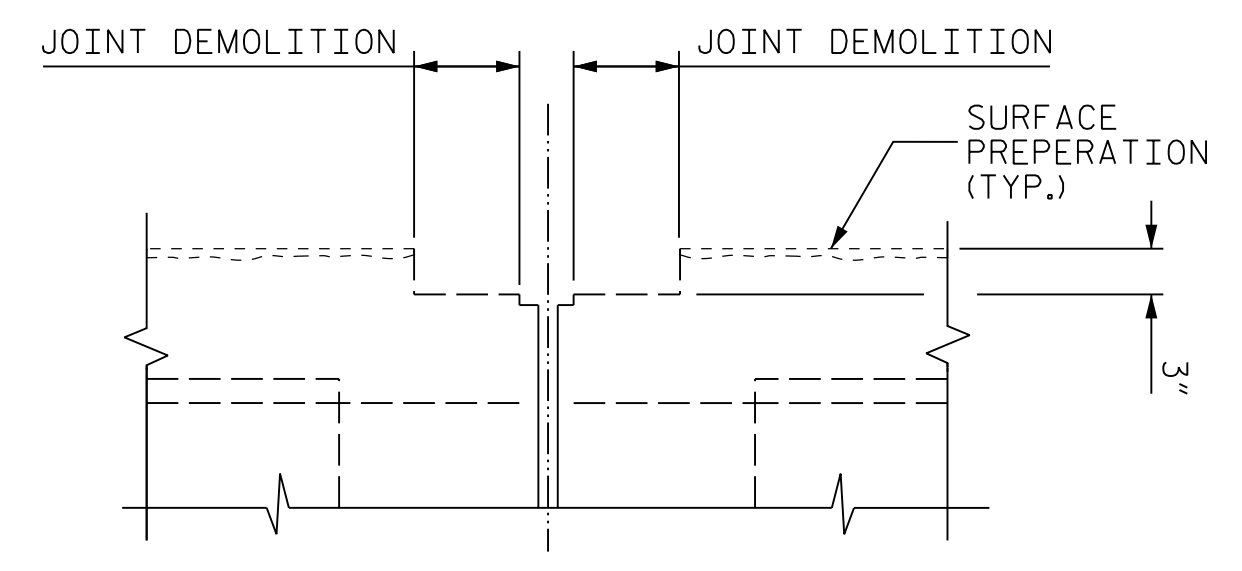
**SECTION A-A**  
(PROPOSED JOINT)

**NOTES:**  
CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
HYDRO-DEMOLITION OR EXCAVATION OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OF ELASTOMERIC CONCRETE.  
ELASTOMERIC CONCRETE SHALL NOT BE PLACED ON LATEX MODIFIED CONCRETE. ELASTOMERIC CONCRETE SHALL BE PLACED ON PREPARED SURFACE OF ORIGINAL DECK CONCRETE OR CONCRETE OF DECK REPAIR.  
RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.  
THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2" FOR ALL BENTS AND 2" AT END BENTS.

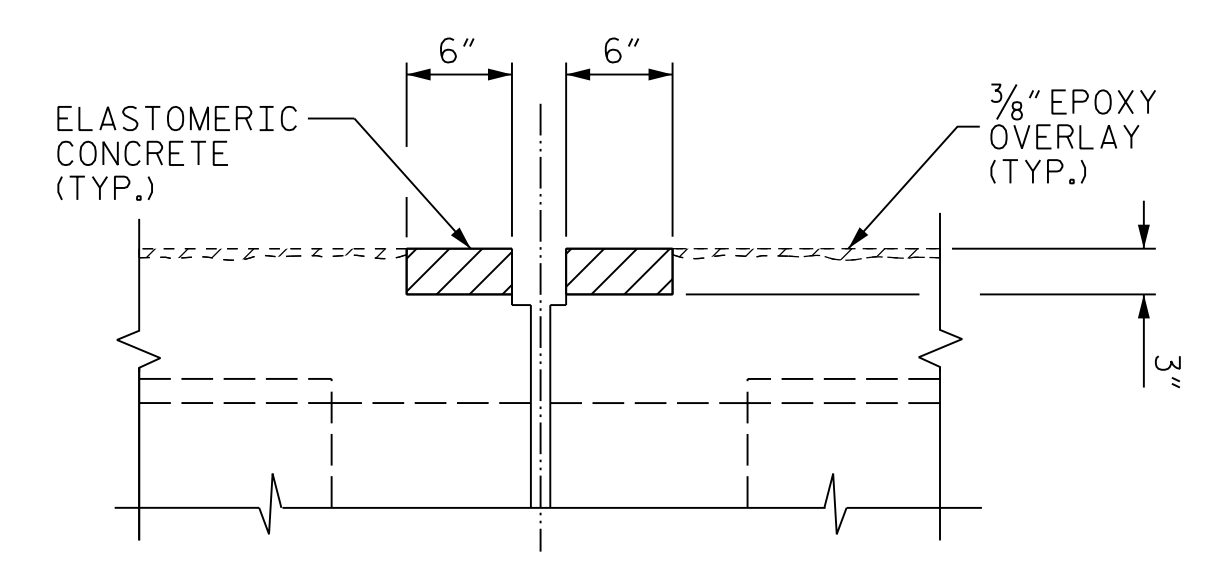
**JOINT INSTALLATION SEQUENCE AT END BENTS**  
SECTION A-A



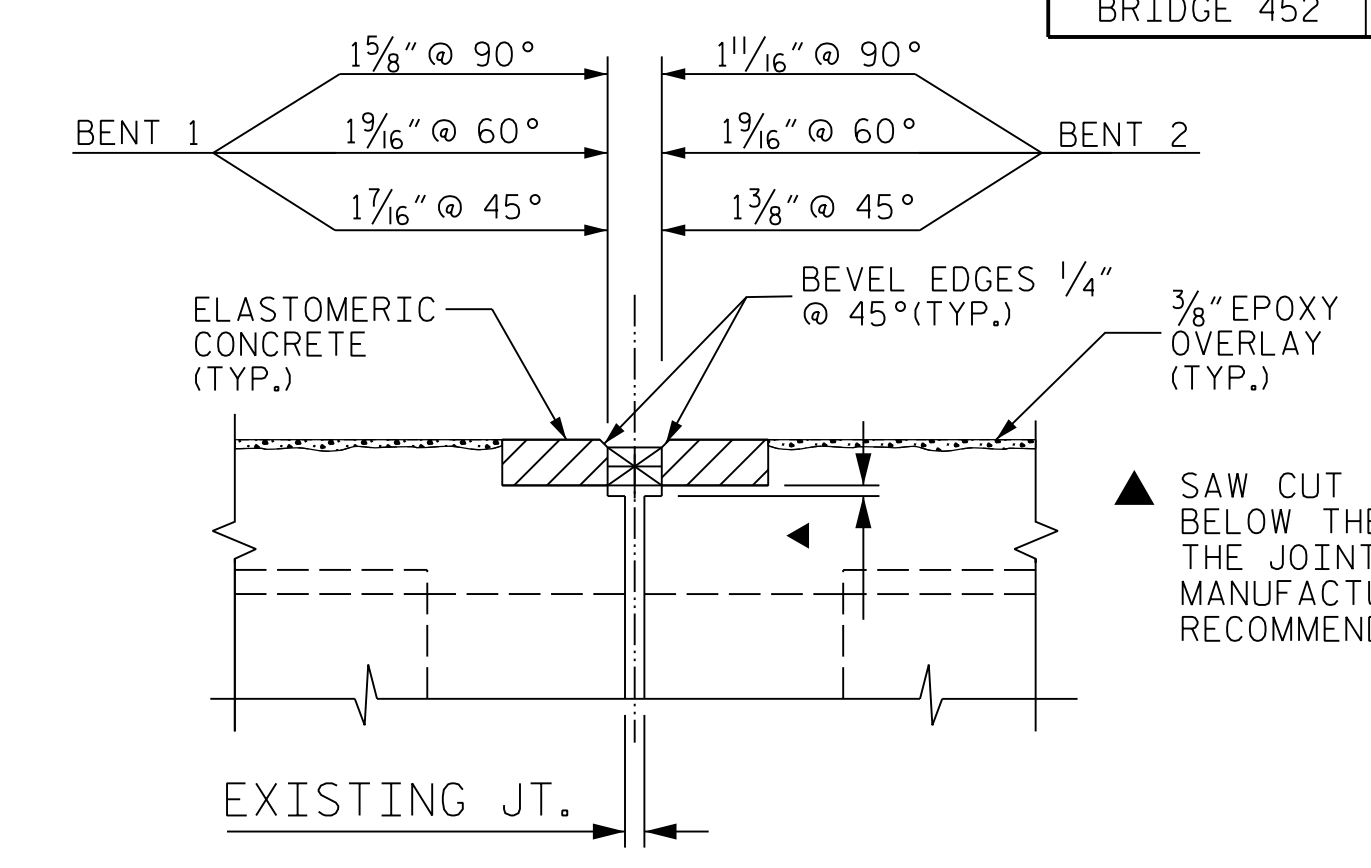
**EXISTING JOINT**



**MINIMUM EXISTING JOINT DEMOLITION**



**PROPOSED JOINT PRE-SAWED DIMENSION**

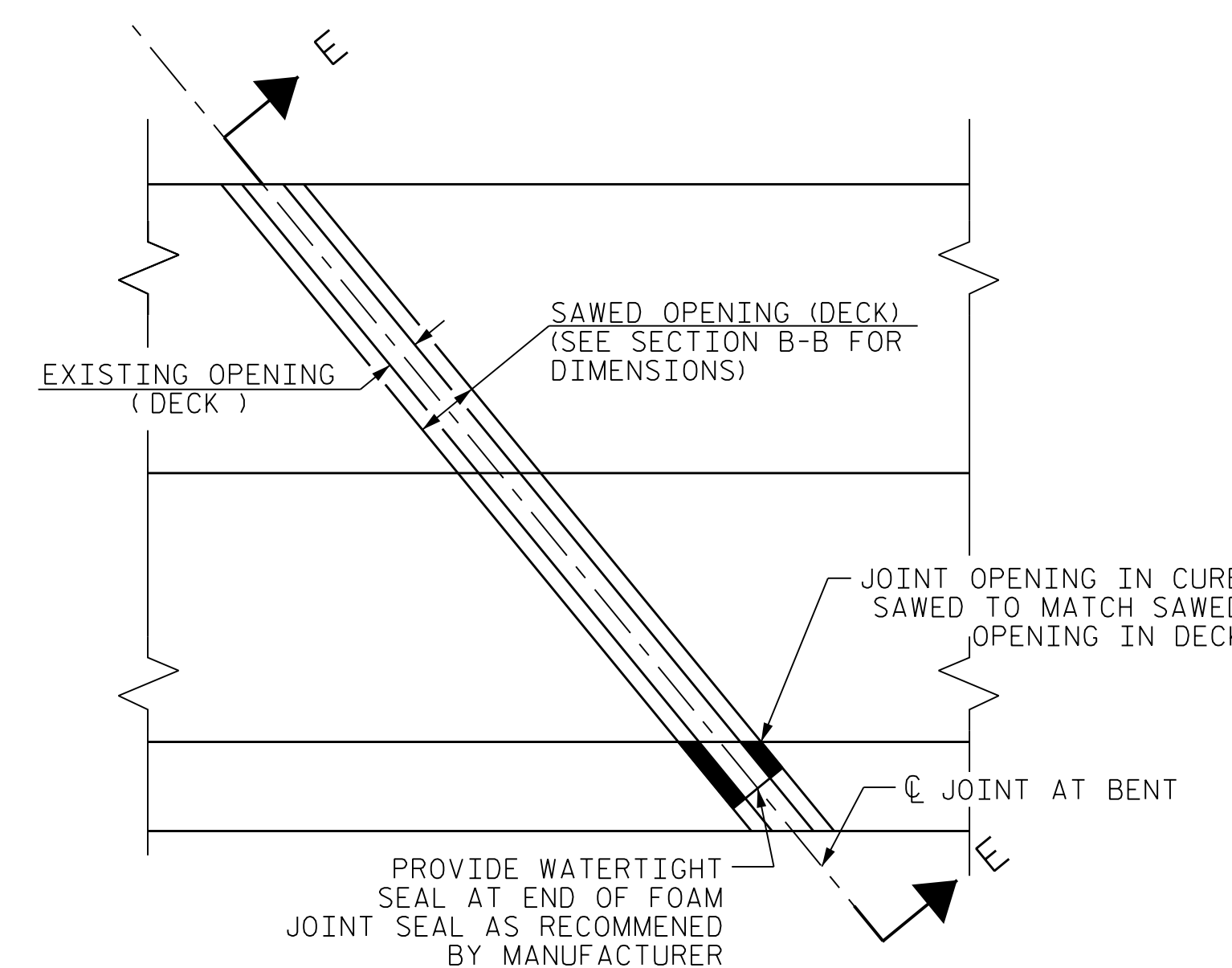


**PROPOSED FOAM JOINT SEAL EXPANSION**

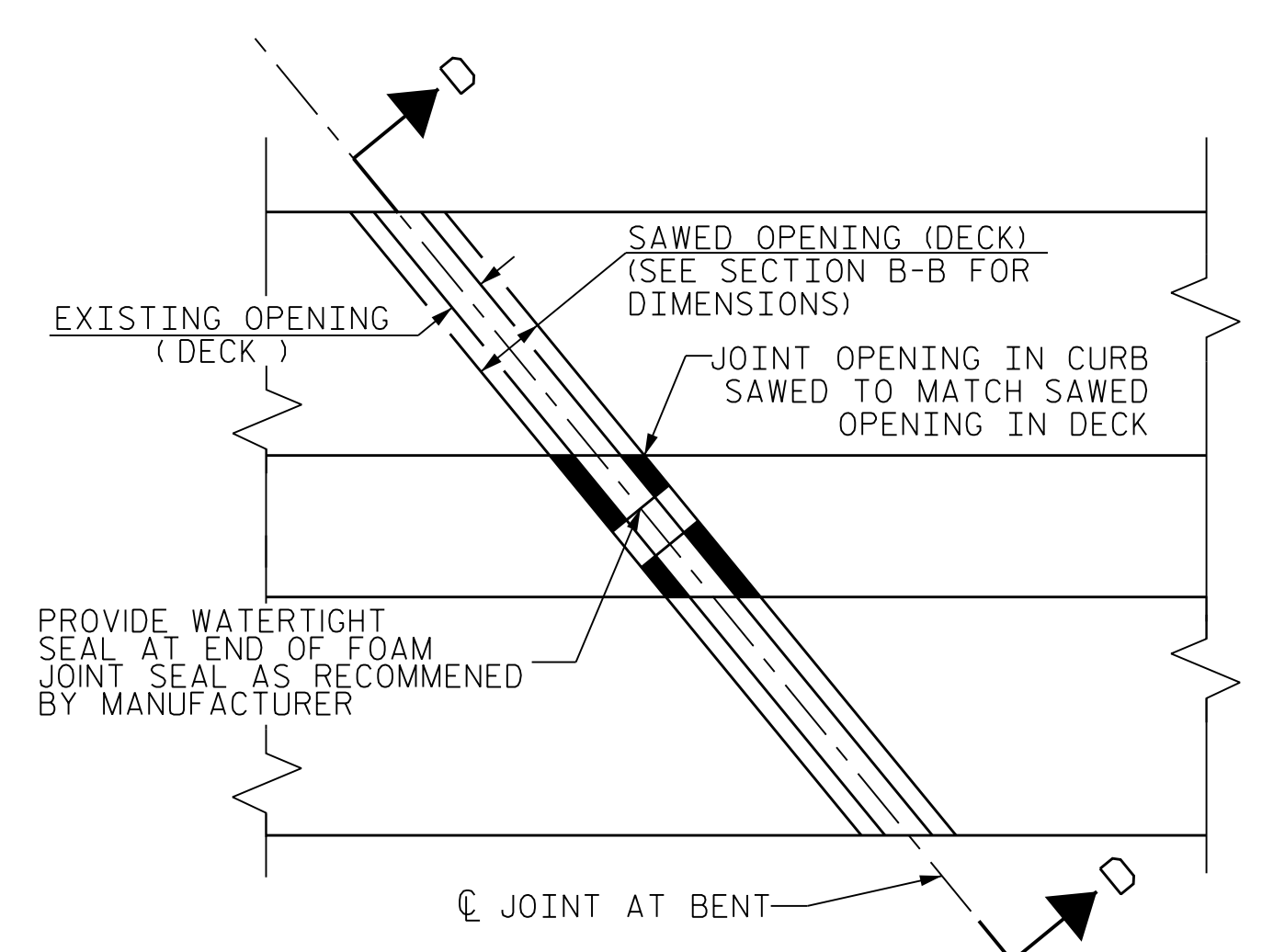
ELASTOMERIC CONCRETE	
BRIDGE 452	120 (CU. FT.)

▲ SAW CUT SHALL BE 3/4" BELOW THE BOTTOM OF THE JOINT SEAL. SEE MANUFACTURER RECOMMENDATIONS

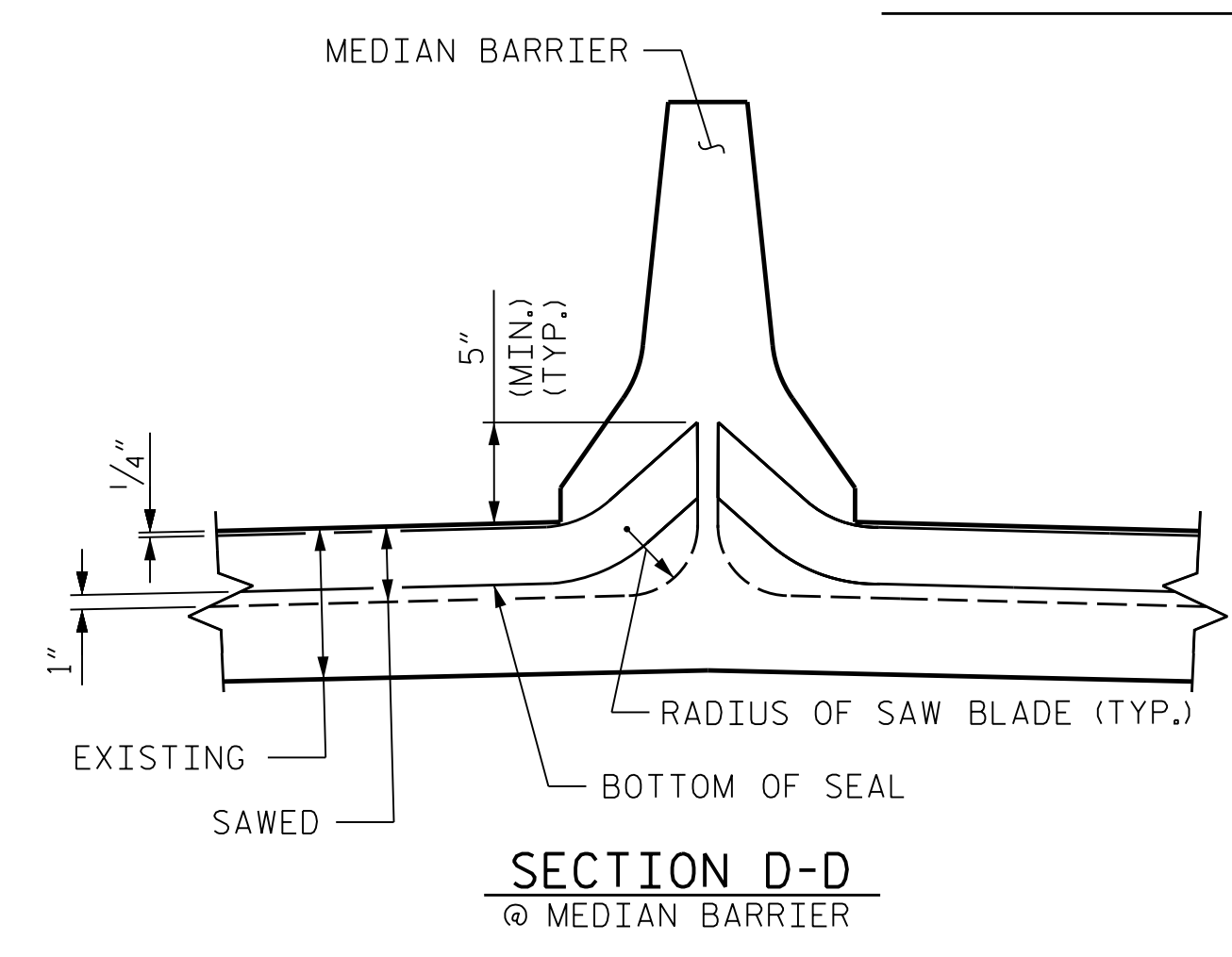
**JOINT INSTALLATION SEQUENCE AT BENTS**  
SECTION B-B



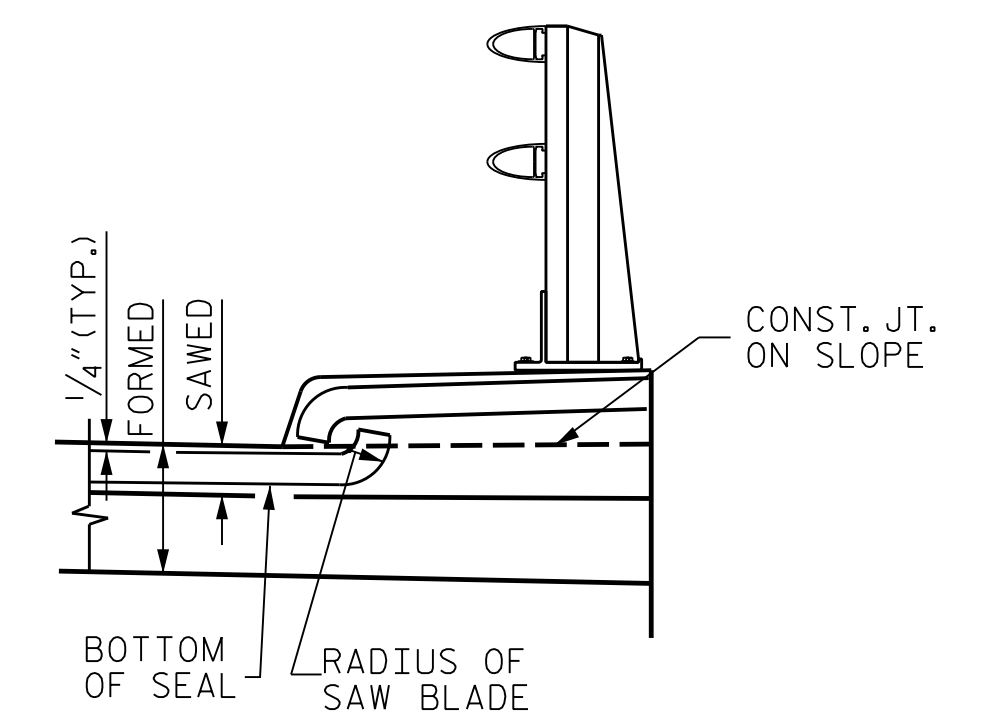
**PLAN**



**PLAN**



**SECTION D-D**  
@ MEDIAN BARRIER



**SECTION E-E**  
@ TWO-BAR METAL RAIL

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 452

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

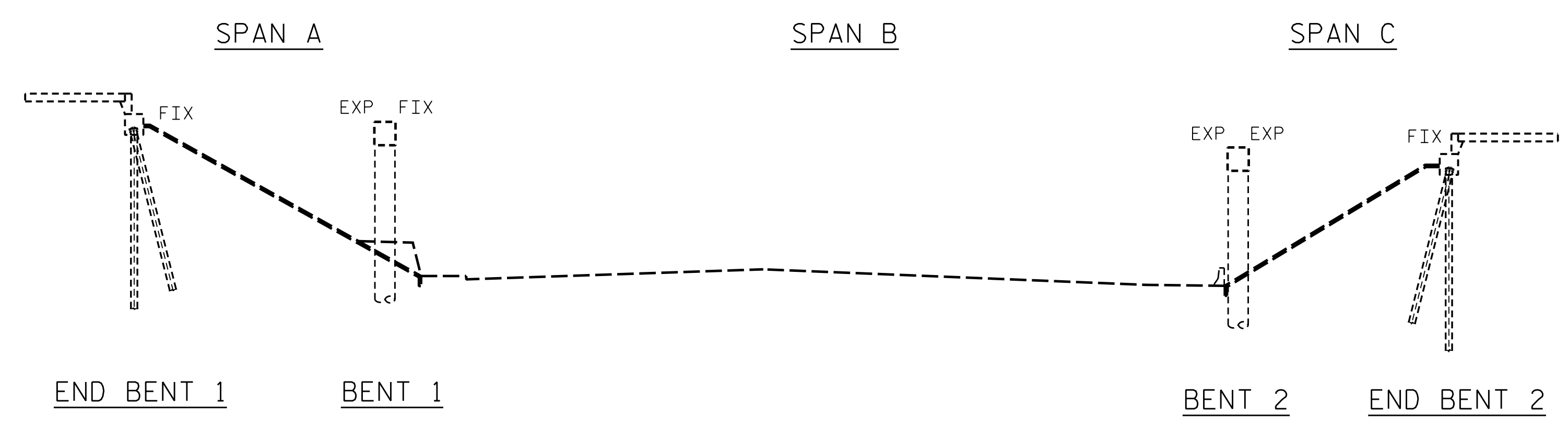
5/3/2017

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>SUPERSTRUCTURE</b>					
JOINT DETAILS					
SHEET NO. S-124					
TOTAL SHEETS 196					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

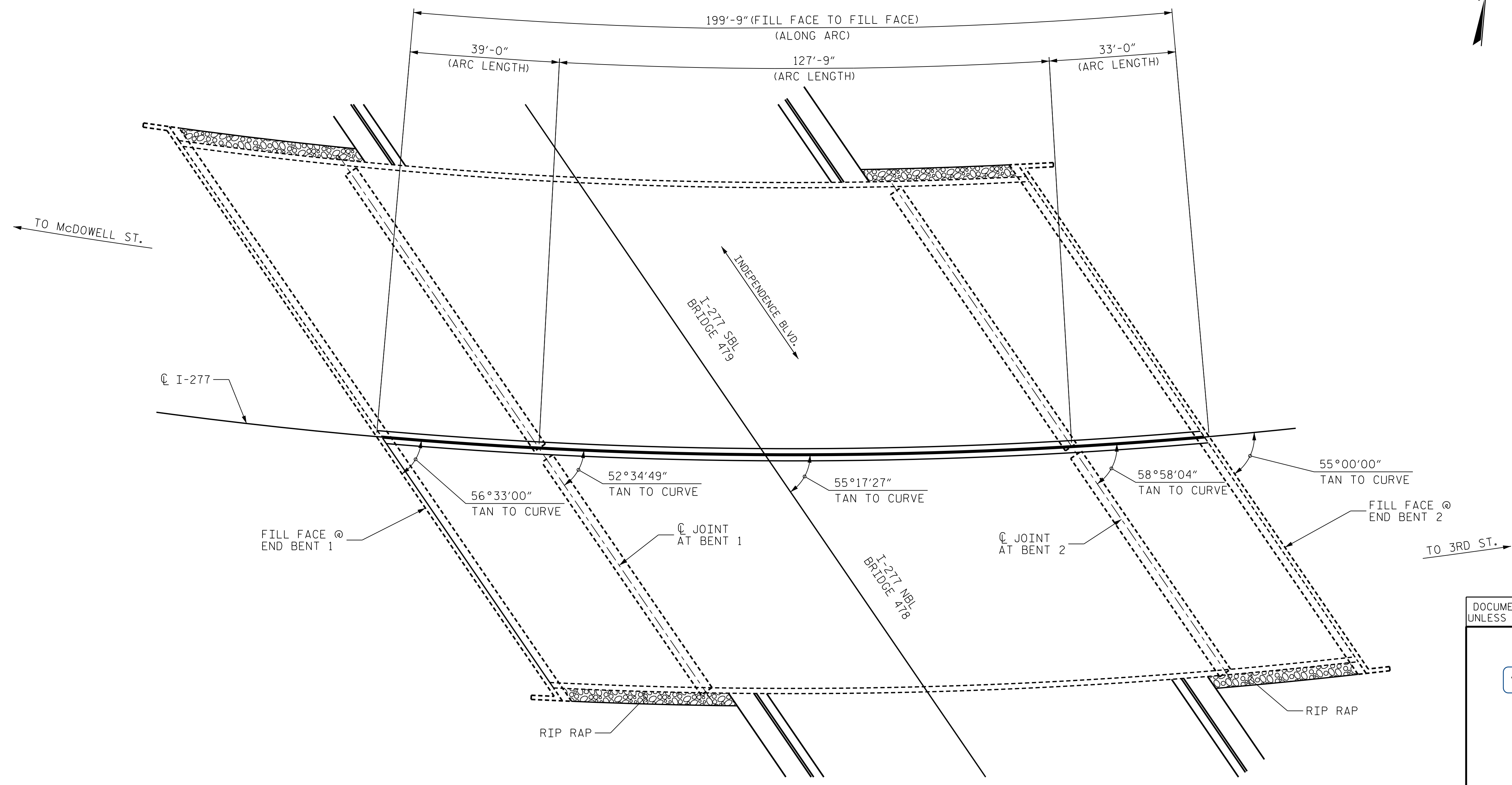
DRAWN BY :	T. KIRSCHBAUM	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	9-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	9-16



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 I-5746\_PDF\_FULL.plt  
 I-5746\_STR.REHAB.TBL



SECTION ALONG C I-277



PLAN

(COLUMNS AND FOOTING NOT SHOWN IN PLAN VIEW FOR CLARITY)

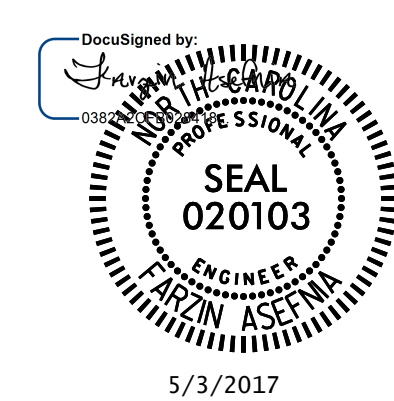
I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer \_\_\_\_\_ Date \_\_\_\_\_

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 478 & 479

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SHEET 1 OF 2



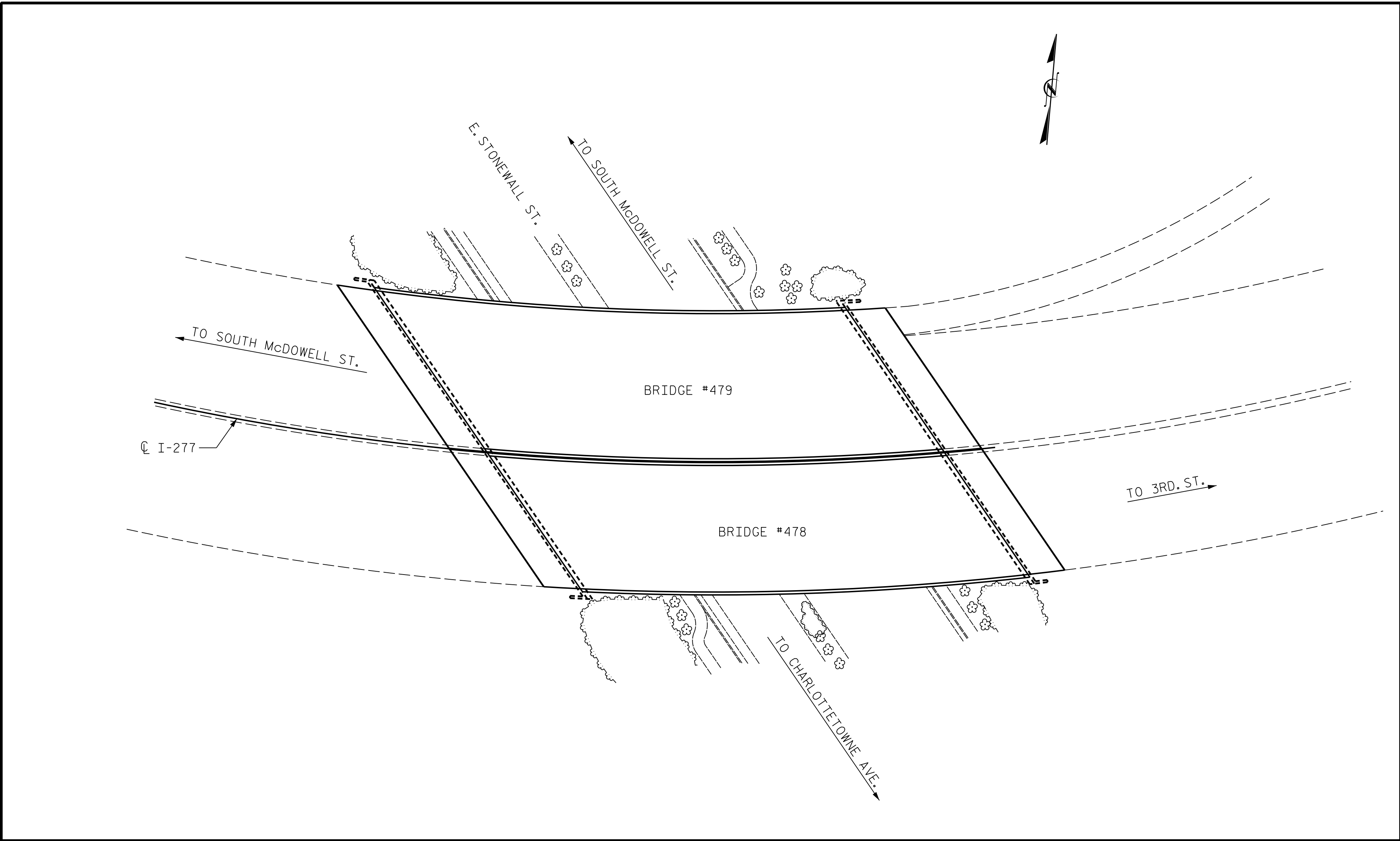
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 BRIDGE ON I-277 OVER  
 EAST STONEWALL ST. BETWEEN  
 SOUTH MCDOWELL BLVD. AND  
 3RD ST.

DRAWN BY :	R. KNIGHT	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS				SHEET NO. S-125 TOTAL SHEETS 196	
	NO.	BY:	DATE:	NO.		BY:
	1			3		
	2			4		



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LOCATION SKETCH

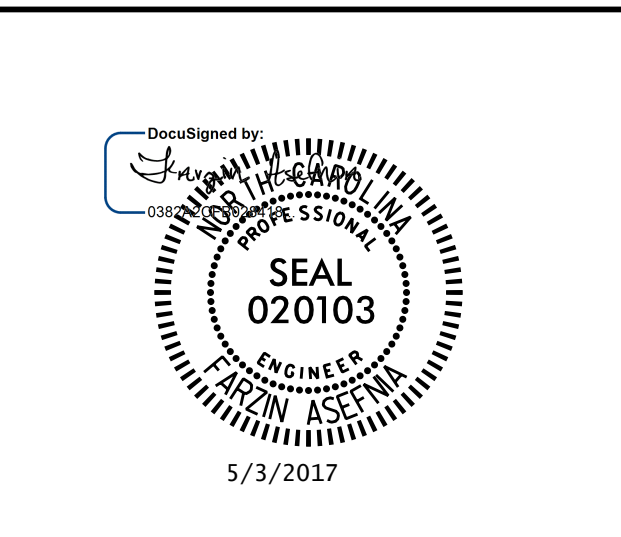
**NOTES**

- EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.
- EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.
- FOR OVERLAY OF BRIDGE WITH EPOXY OVERLAY SYSTEM, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
- FOR BRIDGE JACKING SEE SPECIAL PROVISIONS.
- FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.
- LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR AT THE PAVEMENT MARKINGS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 478 & 479

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 BRIDGE ON I-277 OVER  
 EAST STONEWALL ST. BETWEEN  
 SOUTH MCDOWELL BLVD. AND  
 3RD ST.

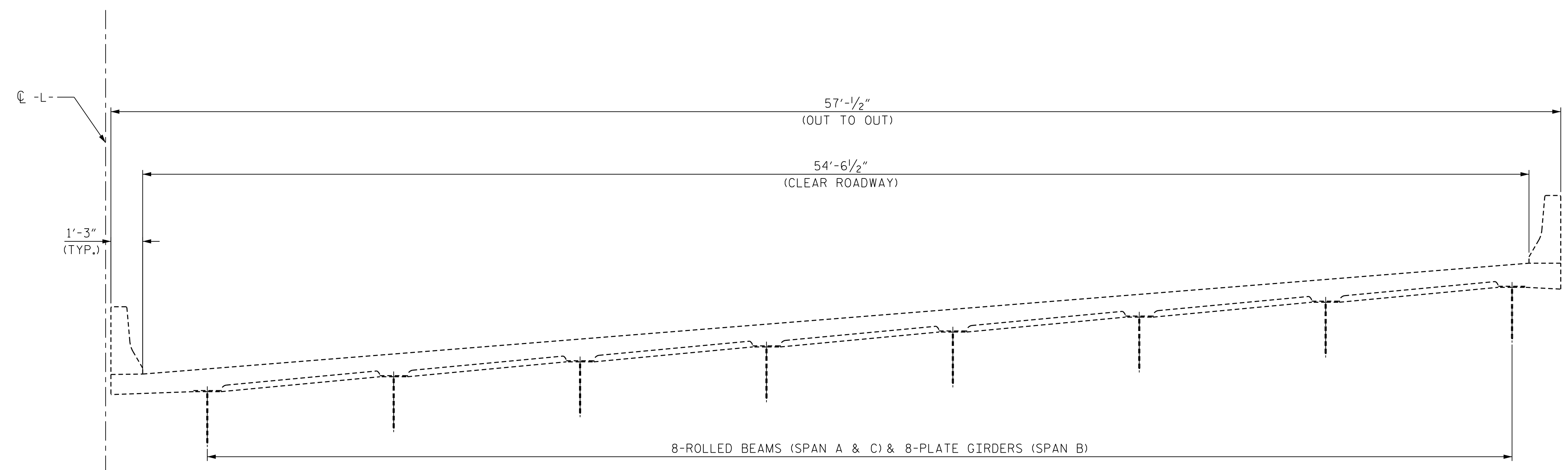
DRAWN BY :	R. KNIGHT	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

**Louis Berger**  
 Prepared by:  
 LOUIS BERGER  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

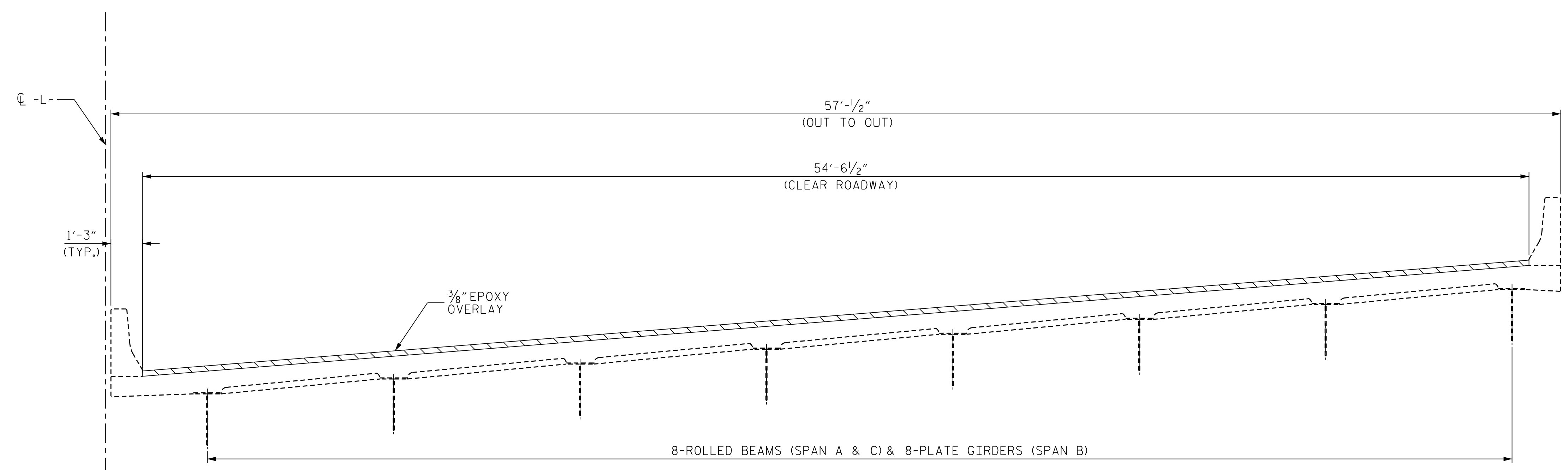
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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SHEET NO.	S-126
TOTAL SHEETS	196

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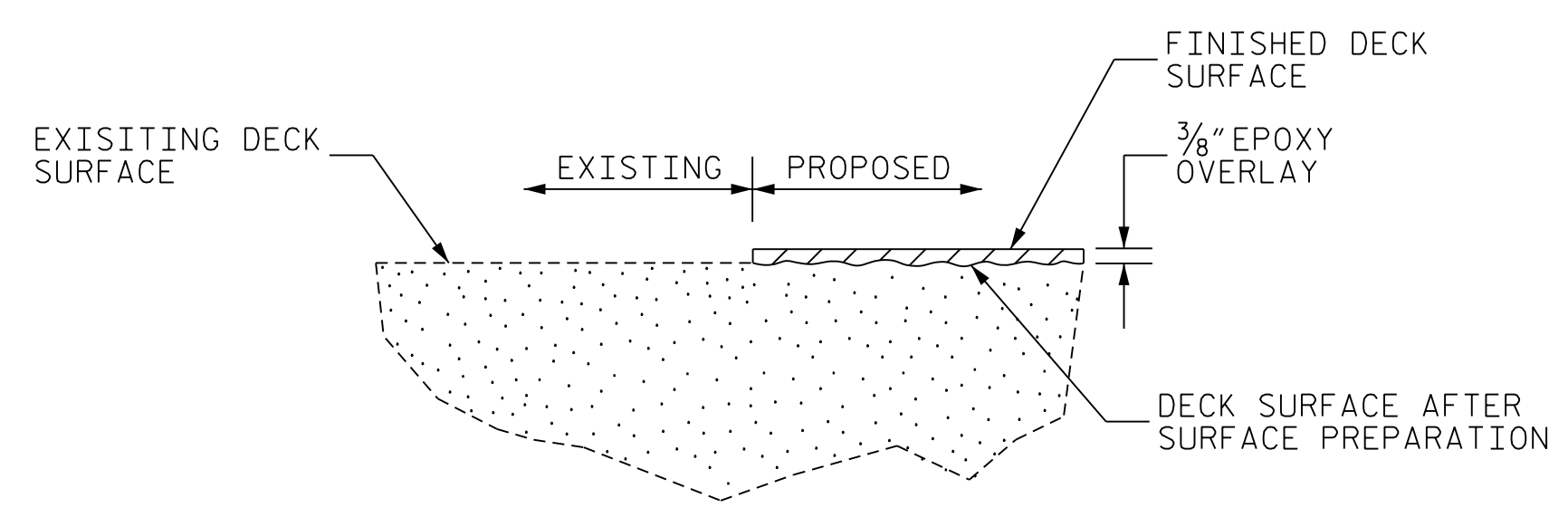


**TYPICAL SECTION**  
(EXISTING)



**TYPICAL SECTION**  
(EPOXY OVERLAY)

**NOTE:**  
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.



**DETAIL OF EPOXY OVERLAY**

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 478

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE**  
 TYPICAL SECTION  
 & EPOXY OVERLAY  
 DETAILS

DRAWN BY :	R. KNIGHT	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

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

TOTAL SHEETS	196
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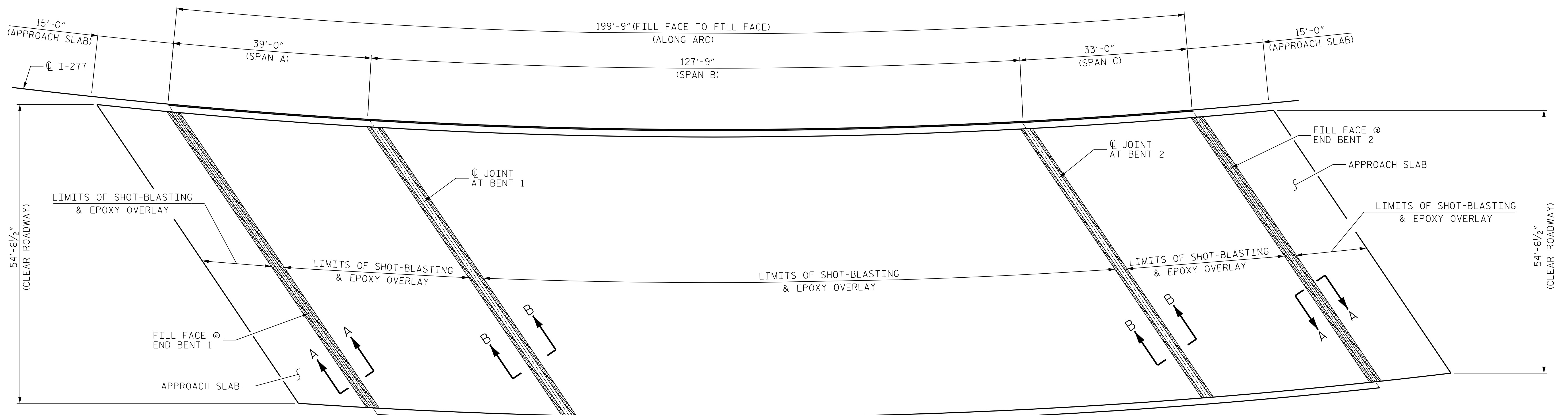
### SUMMARY OF QUANTITIES

	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1 SQ.FT.	
BRIDGE JOINT DEMOLITION	308 SQ.FT.	
EPOXY OVERLAY SYSTEM	12,084 SQ.FT.	

**NOTE:**  
CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED

### LEGEND

- EPOXY OVERLAY
- JOINT DEMOLITION

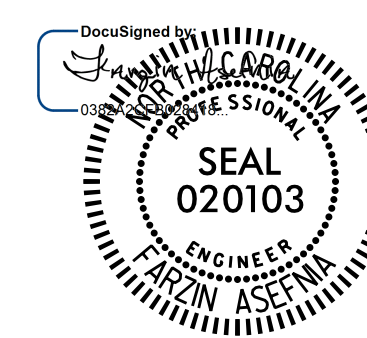


### PLAN

(FOR SECTION A-A & B-B, SEE JOINT DETAILS SHEET)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 478

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



5/3/2017

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

### SURFACE PREPARATION & EPOXY OVERLAY (NORTHBOUND)

DRAWN BY :	R. KNIGHT	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

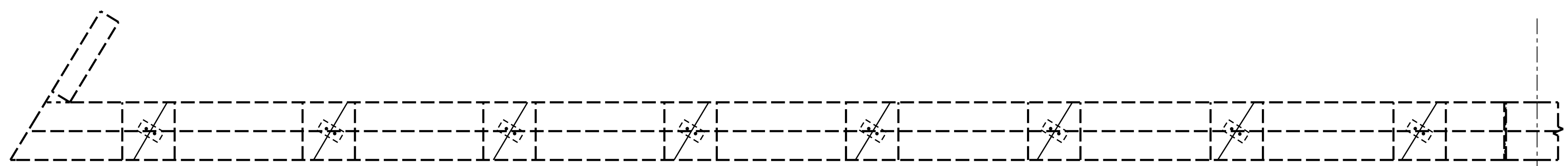


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-128
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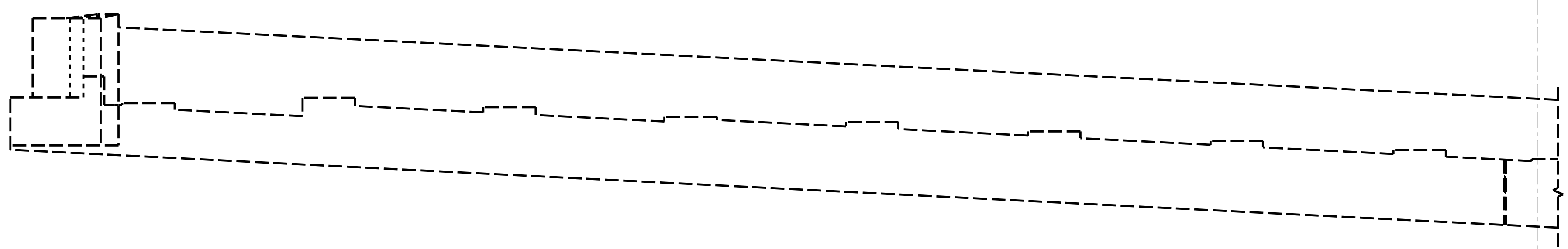


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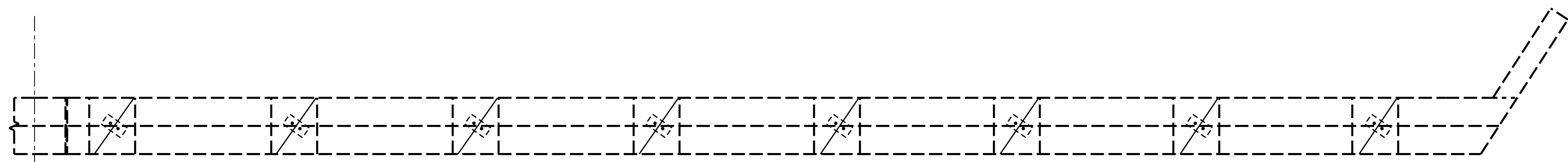
- CONCRETE REPAIR
- SHOTCRETE REPAIR
- ERI - EPOXY RESIN INJECTION



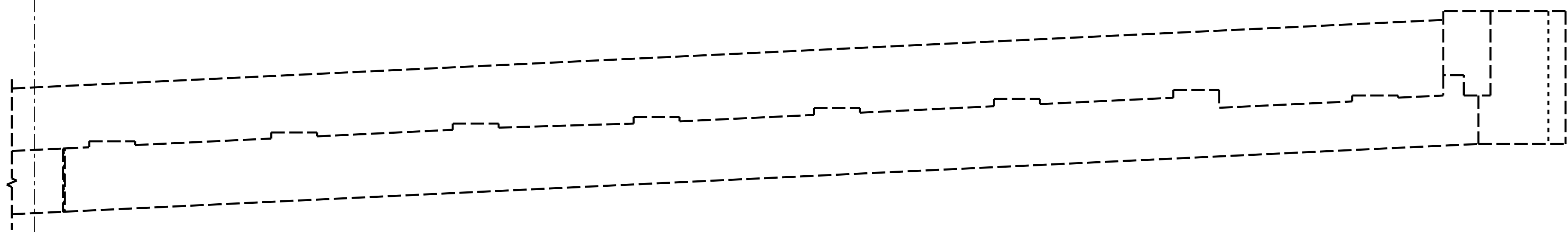
PLAN  
END BENT 1



ELEVATION  
END BENT 1



PLAN  
END BENT 2



ELEVATION  
END BENT 2

WORK LINE  
TO BRIDGE  
479

WORK LINE  
TO BRIDGE  
479

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

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

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

NO REPAIR NOTED DURING INSPECTION BY STRUCTURES MANAGEMENT UNIT. THE CONTRACTOR AND ENGINEER SHALL INSPECT THE END BENTS PRIOR TO BEGINING WORK.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 478

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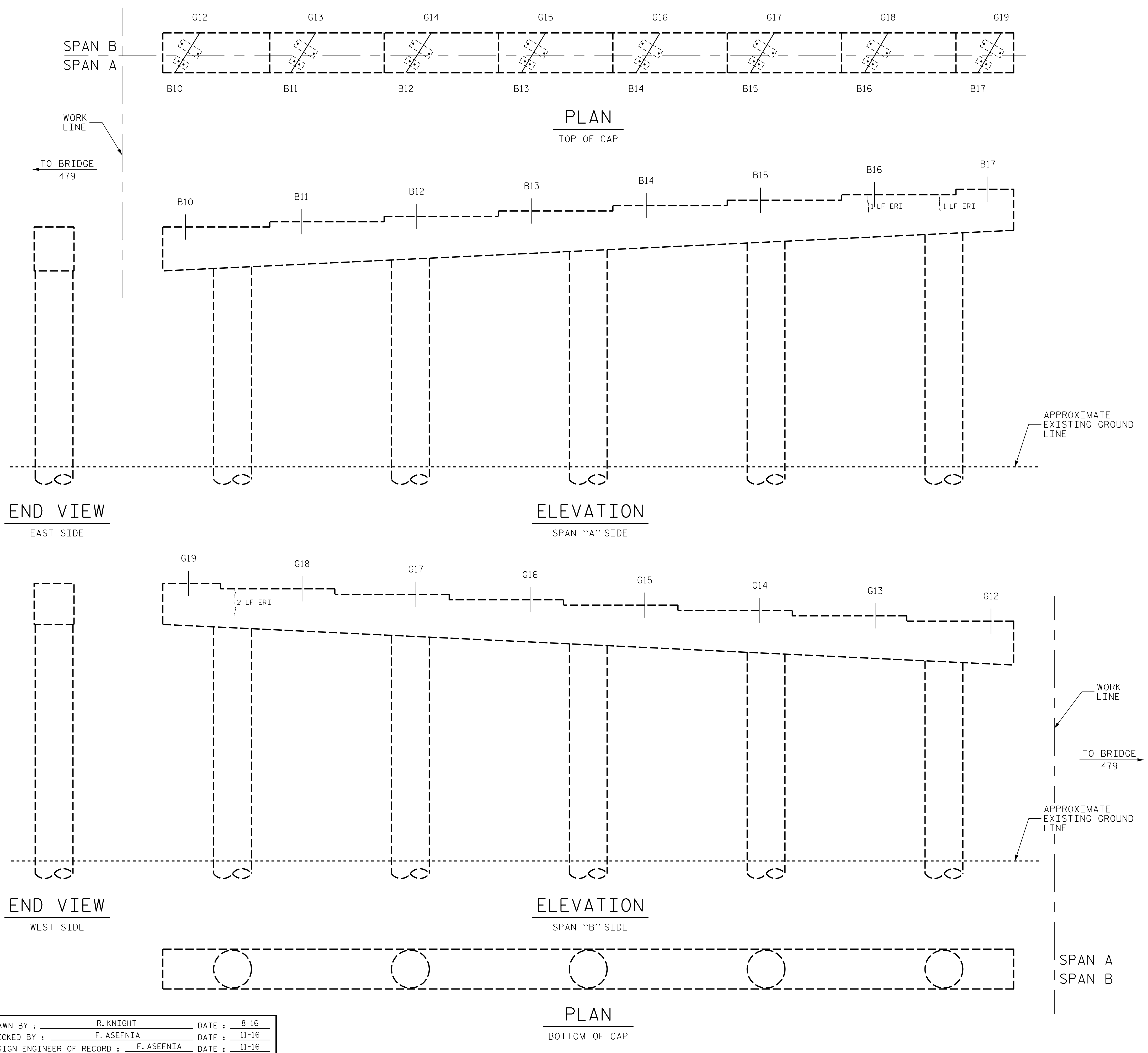


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
END BENT 1  
&  
END BENT 2

DRAWN BY :	R. KNIGHT	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

	Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840						SHEET NO. S-129
	NO. 1	BY:	DATE:	NO. 3	BY:	DATE:	TOTAL SHEETS 196

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### REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		4.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
CAP	215.0			

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

#### NOTES

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

- SHOTCRETE REPAIRS
- CONCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 478

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
 BENT 1

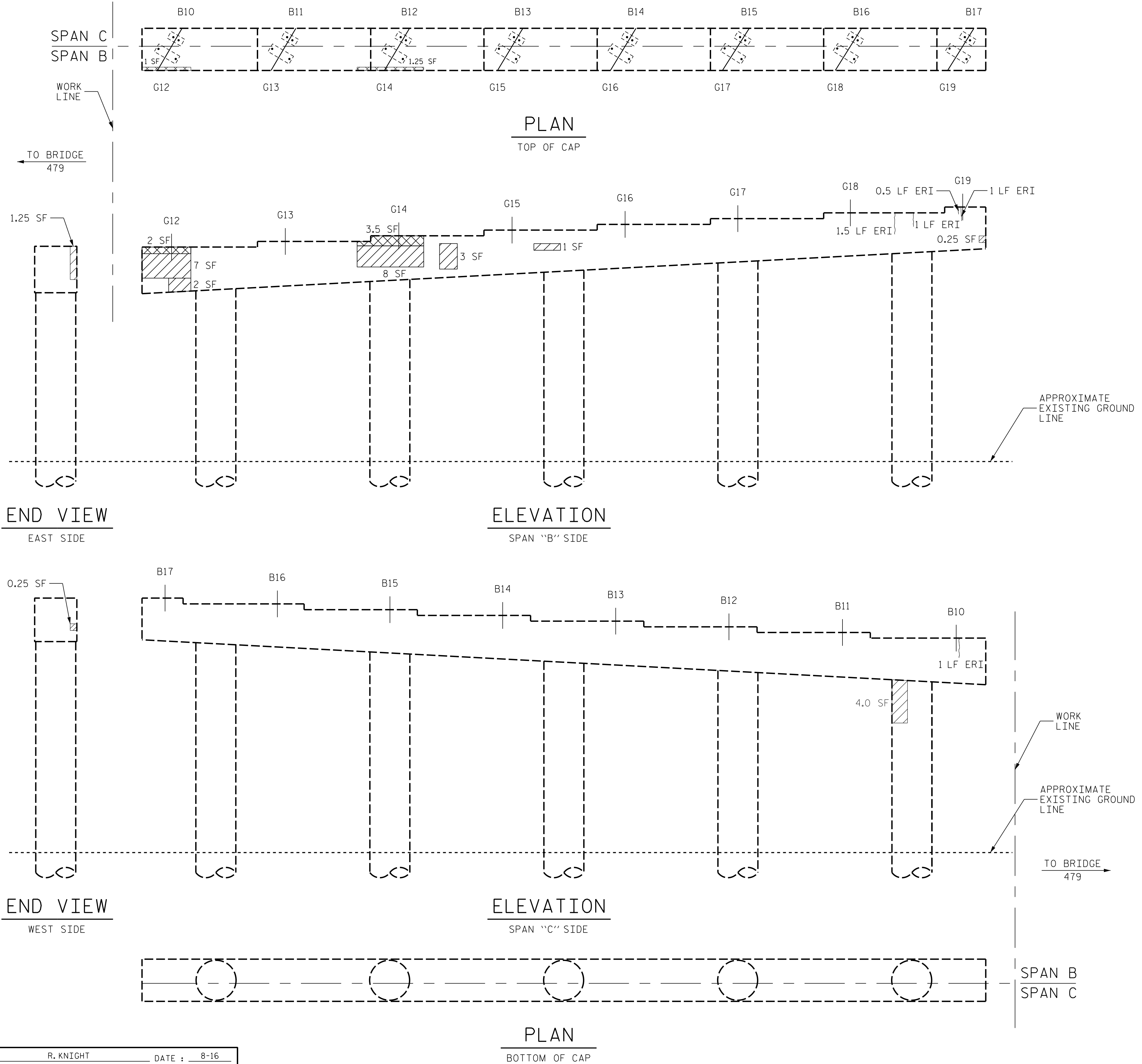
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 CHECKED BY : F. ASEFNIA DATE : 11-16  
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 11-16

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-130
1			3			TOTAL SHEETS
2			4			196

Prepared by:  
**Louis Berger**  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840



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REPAIR QUANTITY TABLE				
BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	22.8	5.7		
CAP (HORIZONTAL FACE/CORNER)	1.5	0.4		
COLUMN	4.0	1.0		
CONCRETE REPAIRS	7.8	1.4		
EPOXY RESIN INJECTION		LN. FT	LN. FT	
CAP		5.0		
COLUMN		0.0		
EPOXY COATING		AREA SF		
CAP		201.0		

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

**NOTES:**  
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FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

- SHOTCRETE REPAIRS
- CONCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 478

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 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
 BENT 2

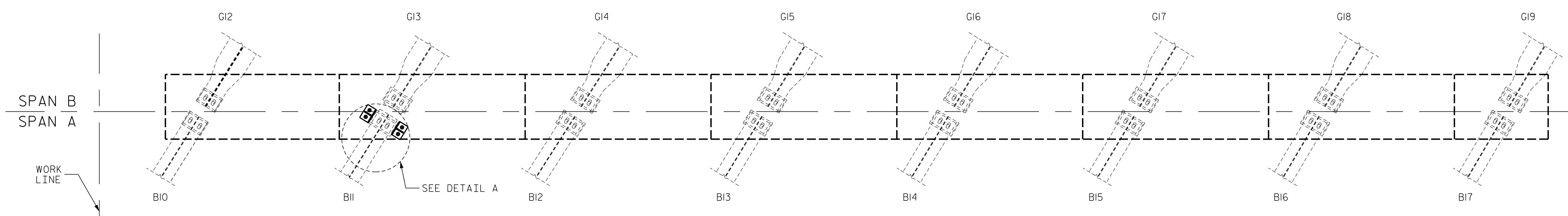
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CHECKED BY :	F. ASEFNIA	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

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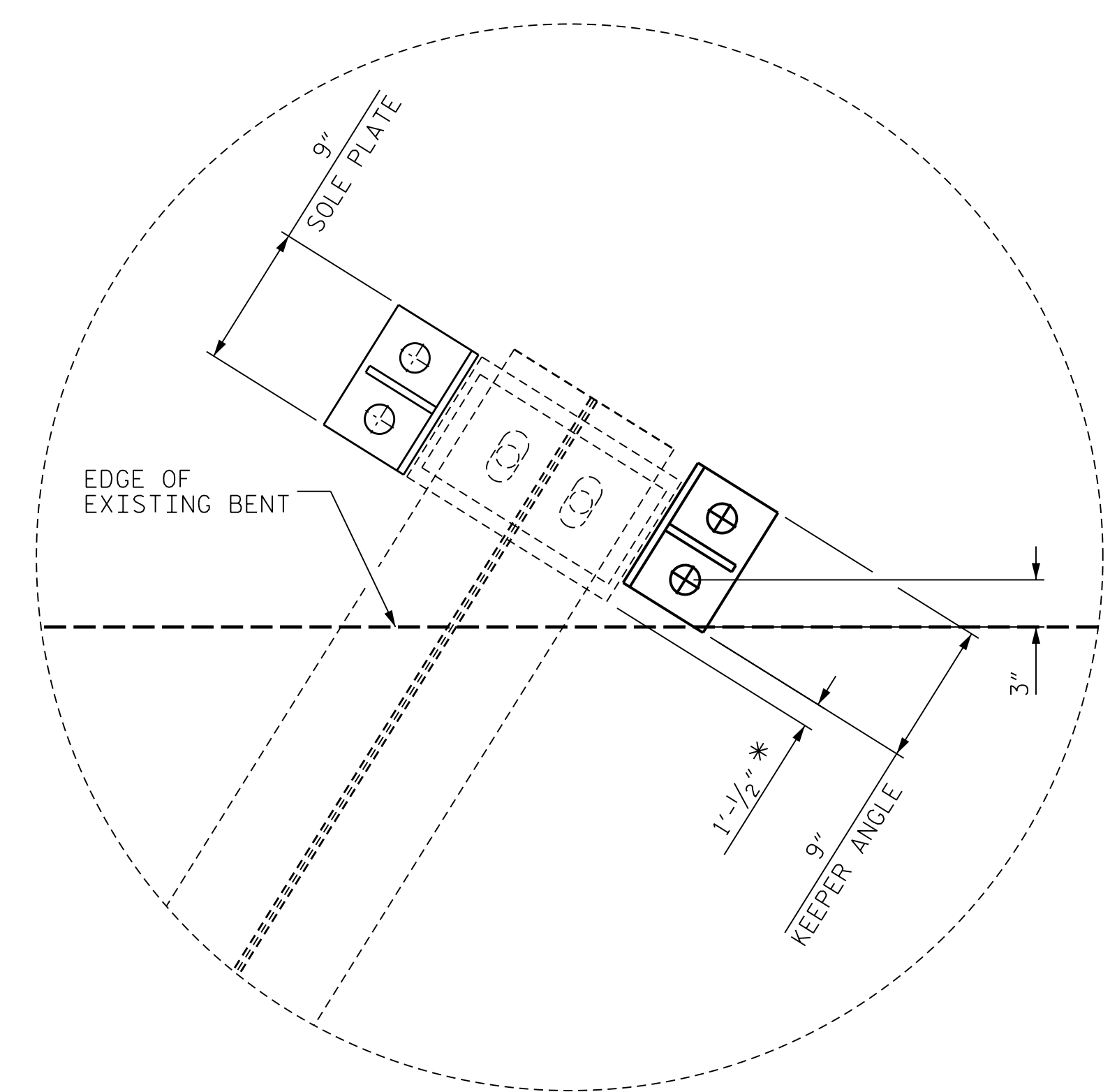




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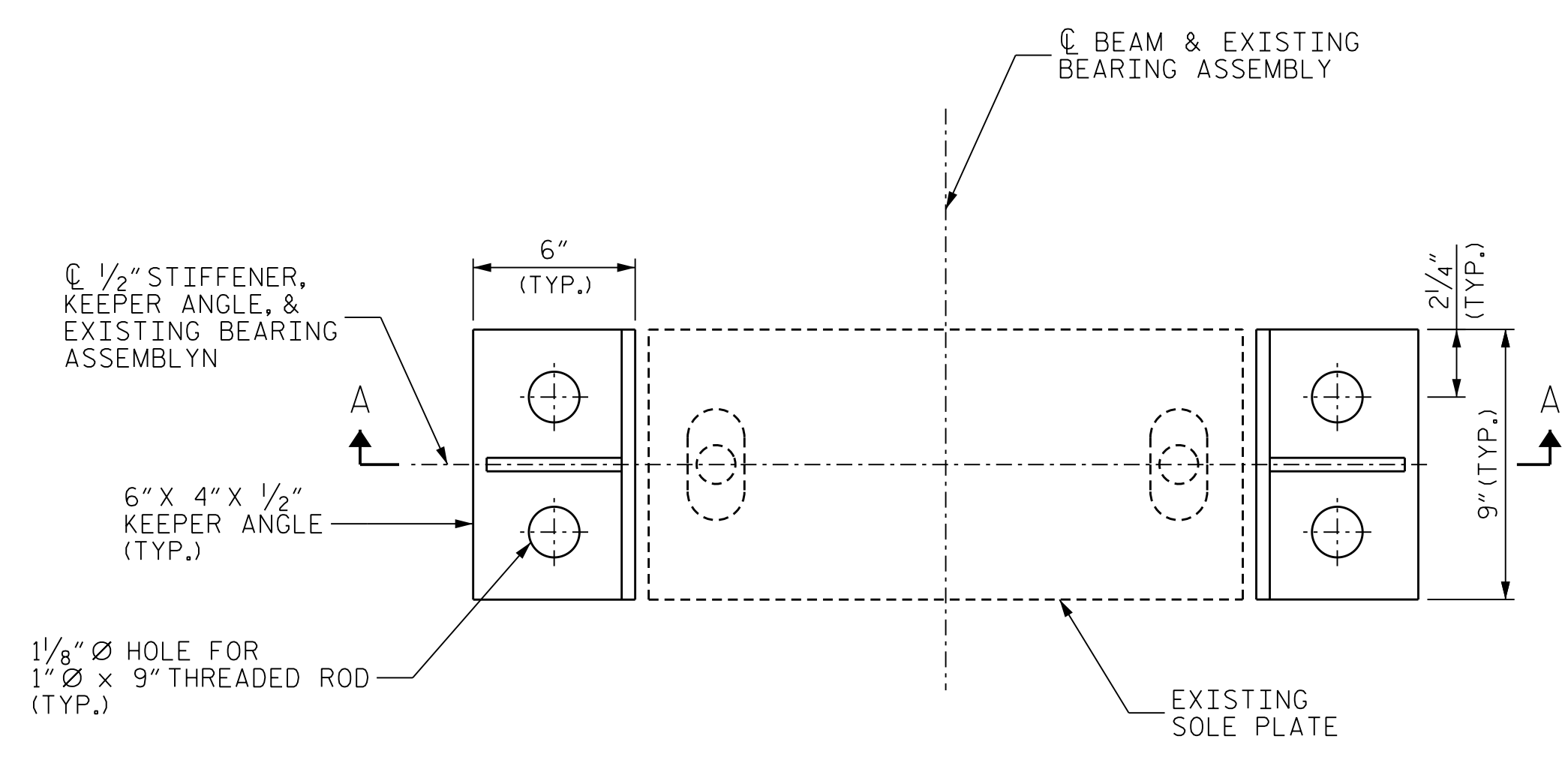


PLAN OF EXISTING BENT 1

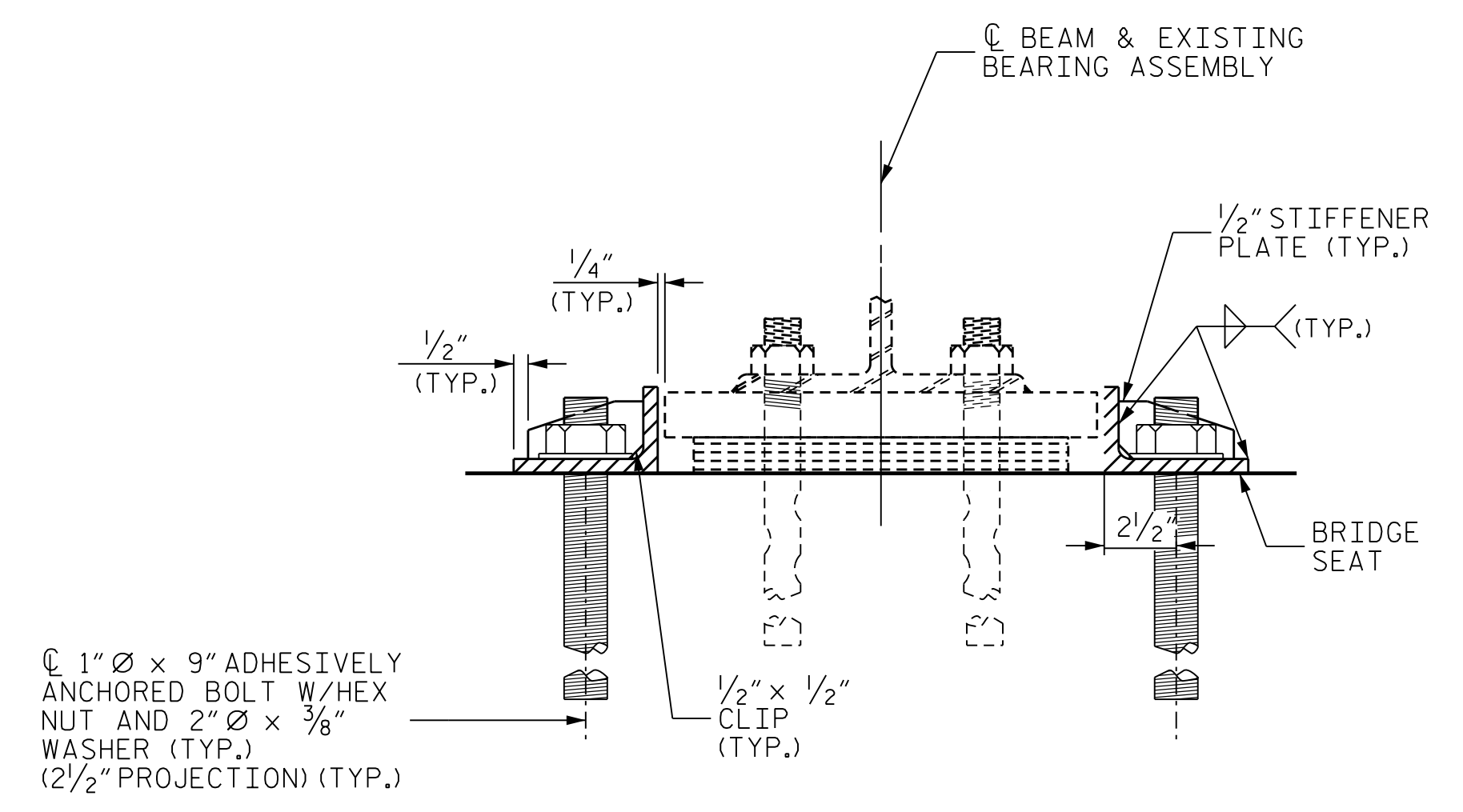


DETAIL A

\* THE KEEPER ANGLE HAS BEEN RELOCATED TO PROVIDE ADEQUATE CONCRETE COVER FOR THE PROPOSED ANCHOR BOLTS.



PLAN

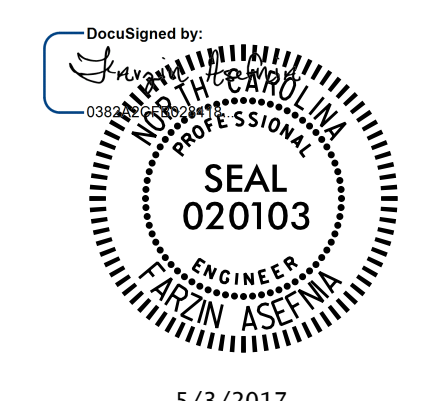


SECTION A-A

STEEL KEEPER ANGLE ASSEMBLY DETAILS  
(1 PAIR REQUIRED AT BENT 1)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 478

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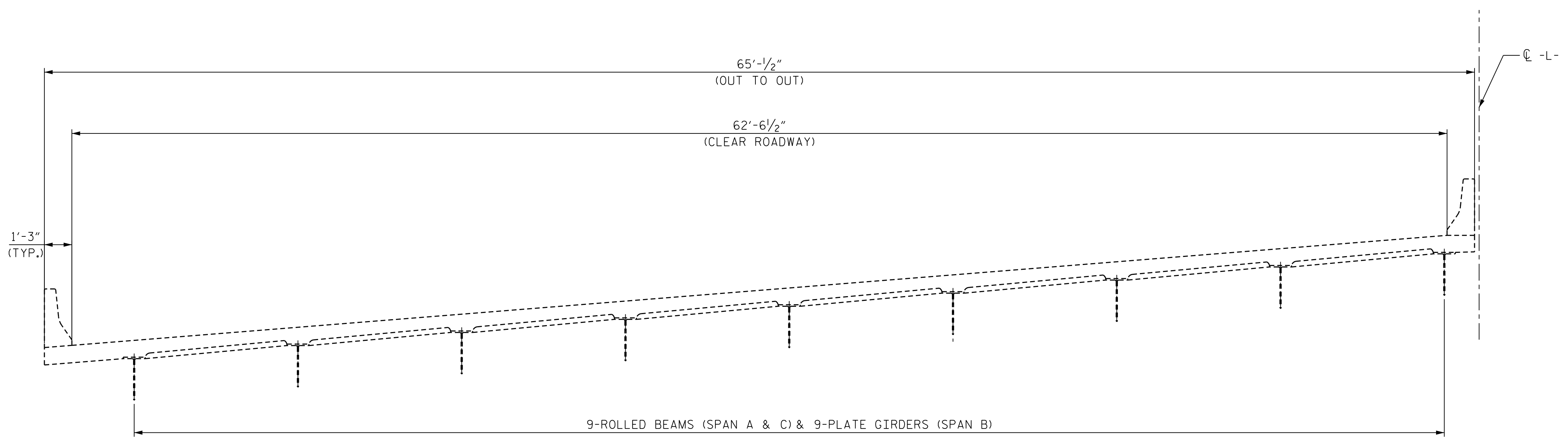


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
 KEEPER ANGLE  
 DETAILS SHEET

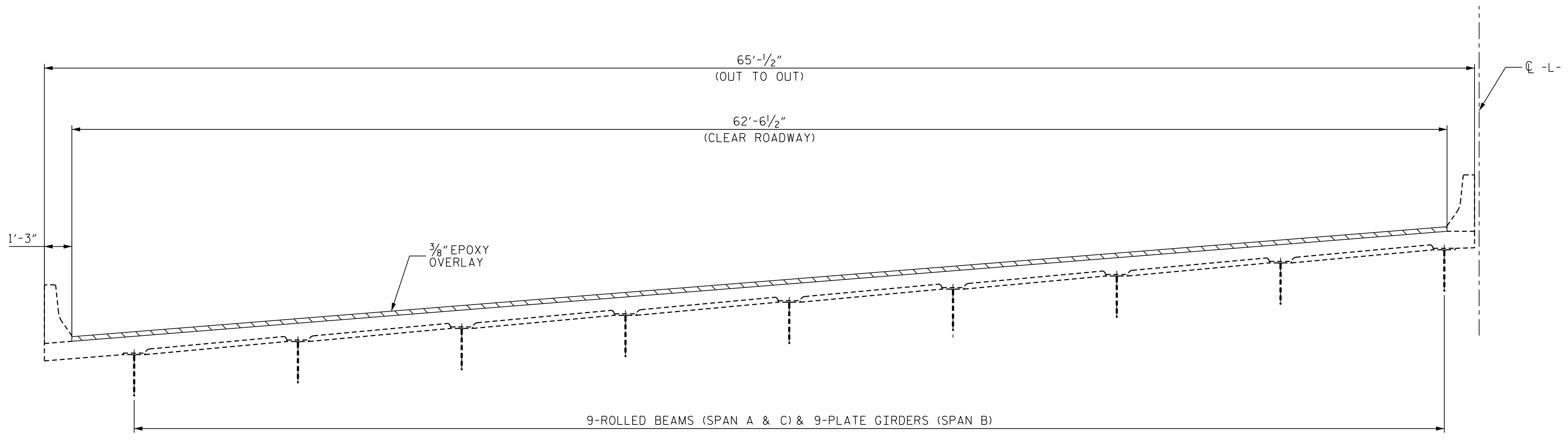
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CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16

Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS				SHEET NO. S-132	
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2				4		
TOTAL SHEETS 196						

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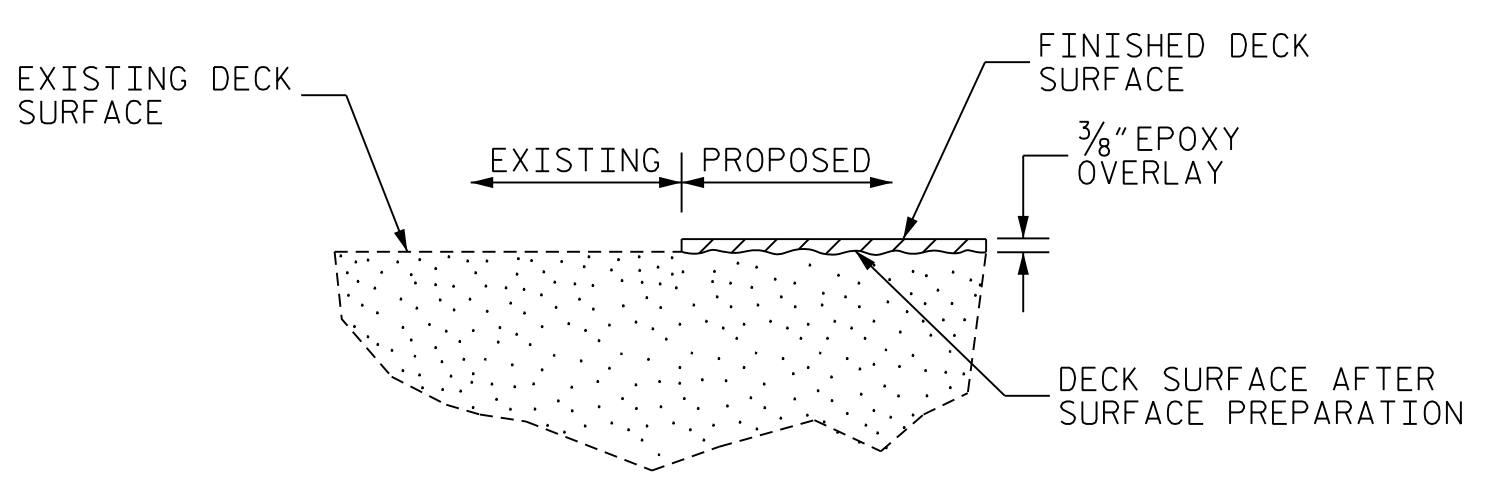
**TYPICAL SECTION**  
(EXISTING)



**TYPICAL SECTION**  
(EPOXY OVERLAY)

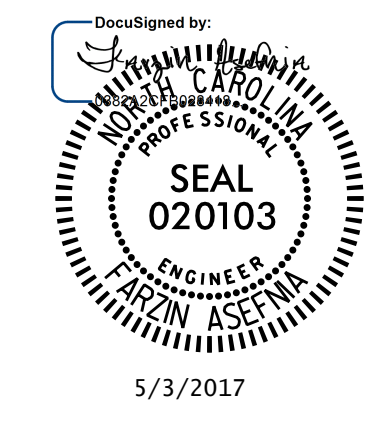
PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 479

**NOTE:**  
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.



**DETAIL OF EPOXY OVERLAY**

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUPERSTRUCTURE**  
TYPICAL SECTION  
& EPOXY OVERLAY  
DETAILS

DRAWN BY :	R. KNIGHT	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

Prepared by:  
**Louis Berger**  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

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TOTAL SHEETS	196
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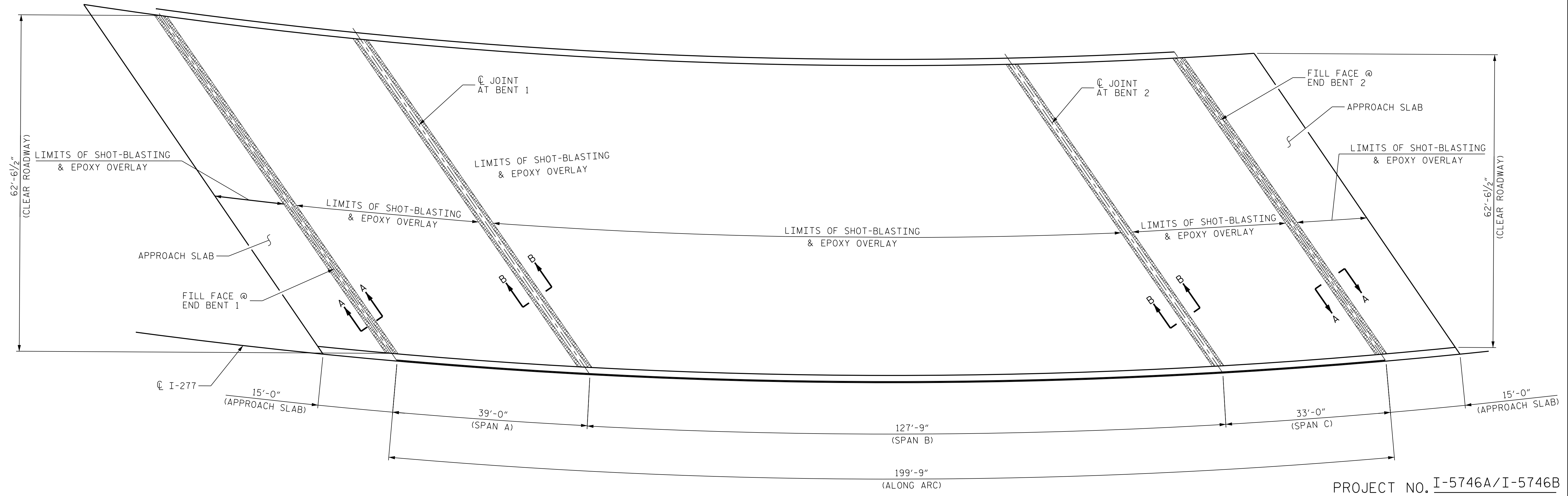
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SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1 SQ.FT.	
BRIDGE JOINT DEMOLITION	362 SQ.FT.	
EPOXY OVERLAY SYSTEM	14,224 SQ.FT.	

**NOTE:**  
CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED

**LEGEND**

	EPOXY OVERLAY
	JOINT DEMOLITION



**PLAN**  
(FOR SECTION A-A & B-B, SEE JOINT DETAILS SHEET)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 479

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DEPARTMENT OF TRANSPORTATION  
RALEIGH


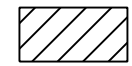
**SURFACE PREPARATION  
& EPOXY OVERLAY  
(SOUTHBOUND)**

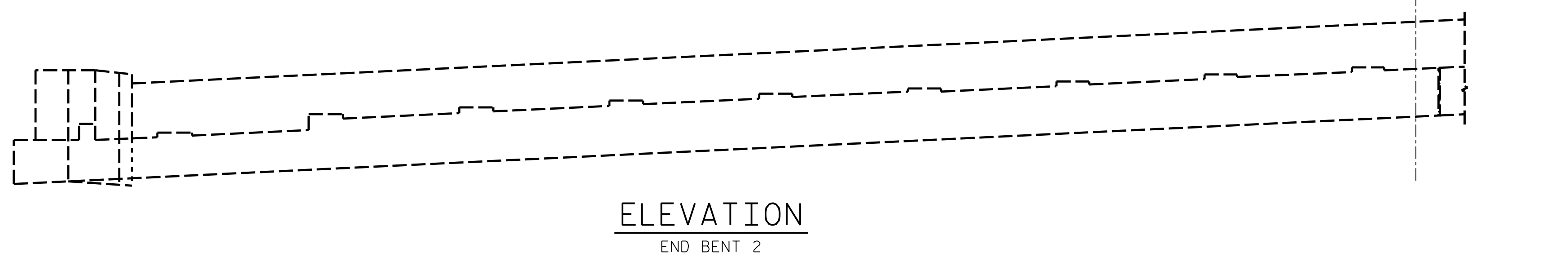
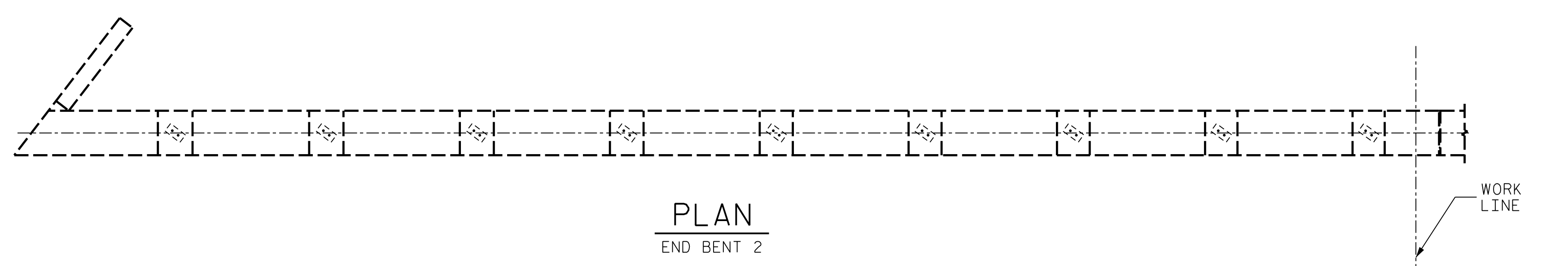
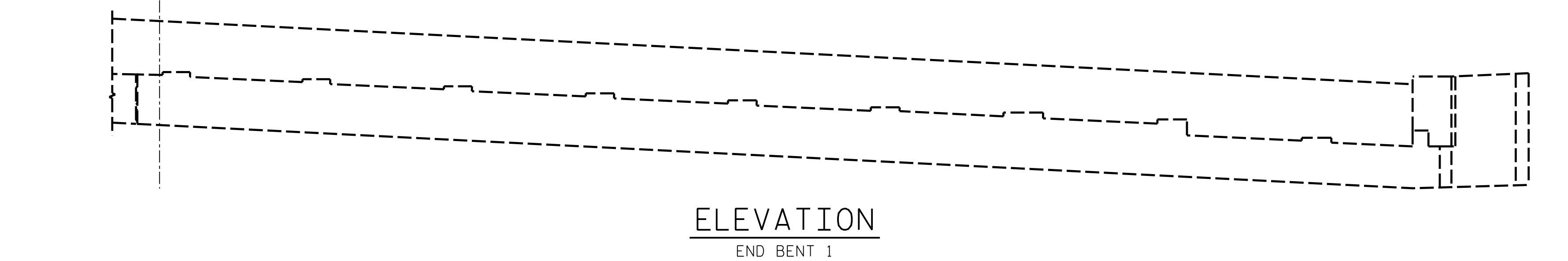
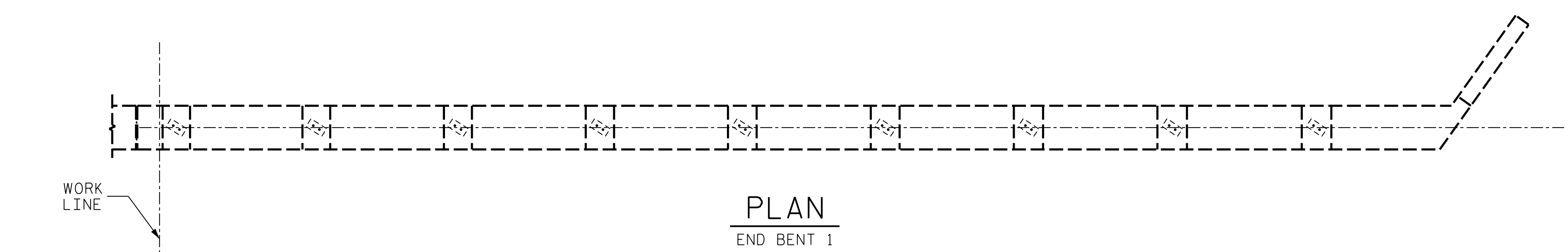
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DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

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 CONCRETE REPAIR  
 SHOTCRETE REPAIR  
 ERI - EPOXY RESIN INJECTION



REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			0.0	
COLUMN			0.0	
EPOXY COATING	AREA SF			
CAP	229			
END BENT 2	QUANTITIES			
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			0.0	
COLUMN			0.0	
EPOXY COATING	AREA SF			
CAP	240			

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

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 479

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
 END BENT 1  
 &  
 END BENT 2

DRAWN BY :	S. DHOLAKIA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

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### REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	1.0	0.3		
COLUMN	12.5	3.2		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		0.0		
COLUMN		2.0		
EPOXY COATING	AREA SF			
CAP	254.0			

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

**NOTES:**

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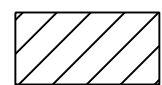

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

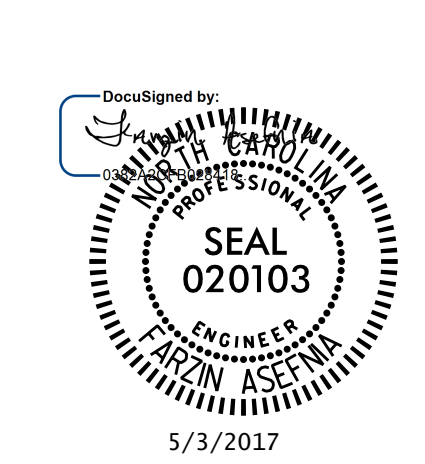
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

-  SHOTCRETE REPAIRS
-  SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

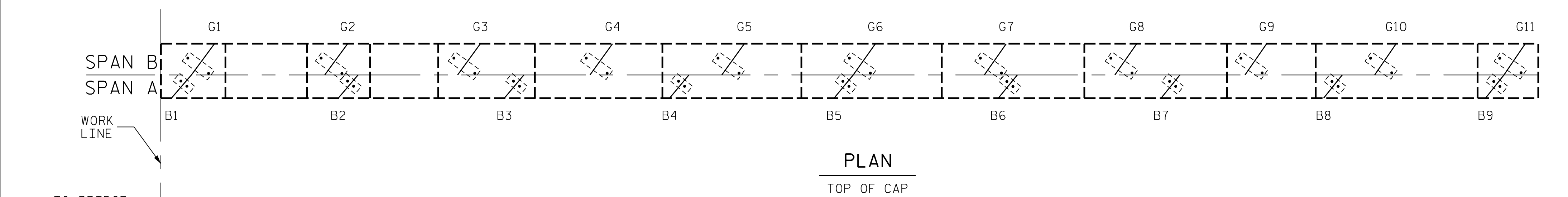
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MECKLENBURG COUNTY  
 BRIDGE NO. 479

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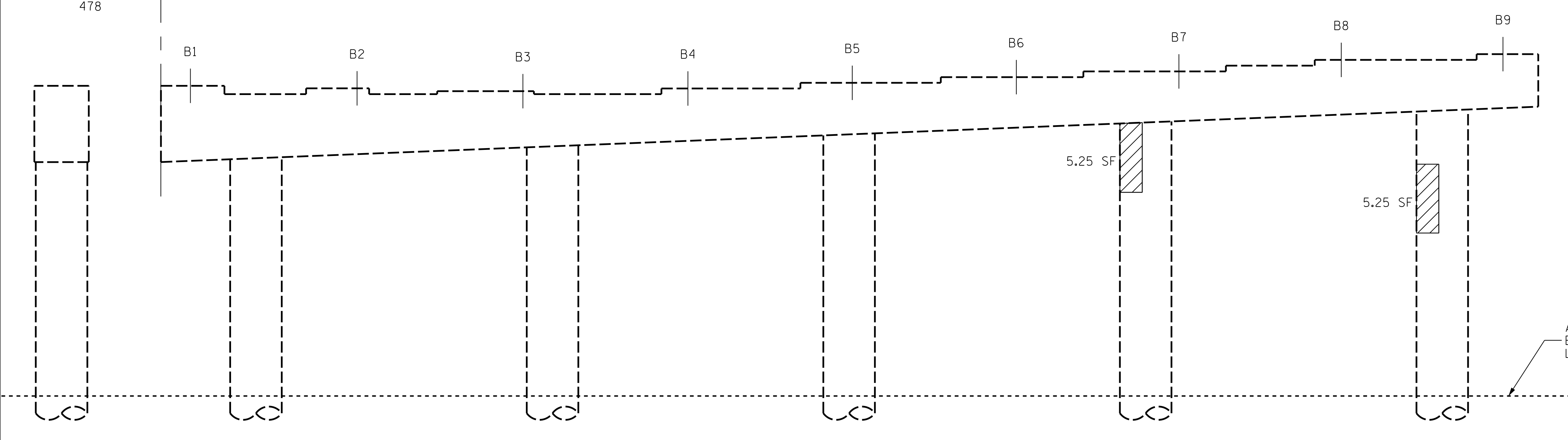


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
 BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-136
1			3			TOTAL SHEETS
2			4			196

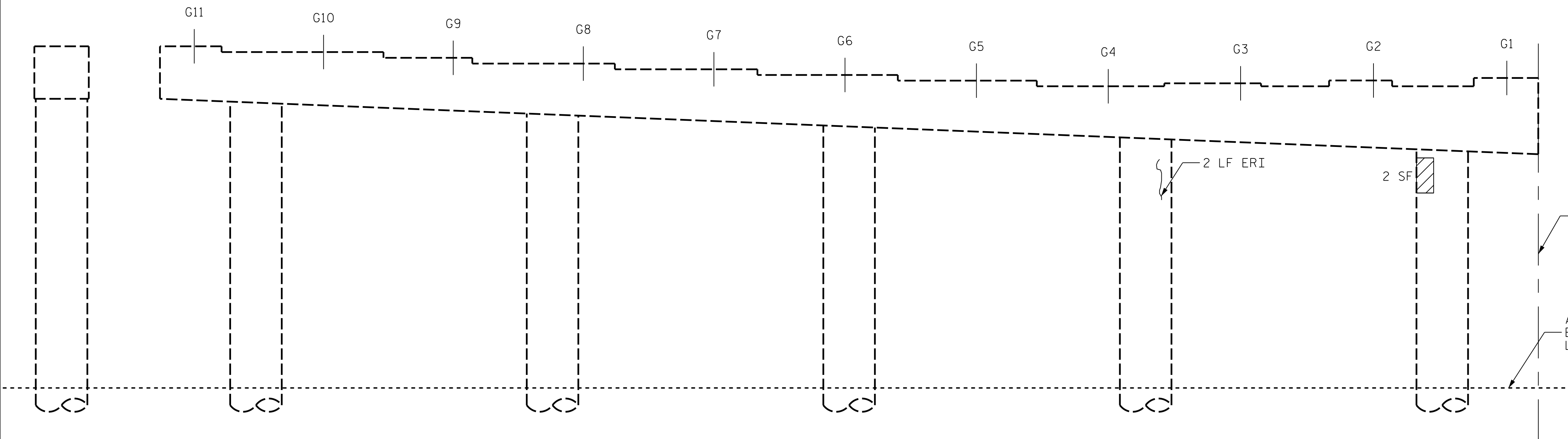


**PLAN**  
TOP OF CAP



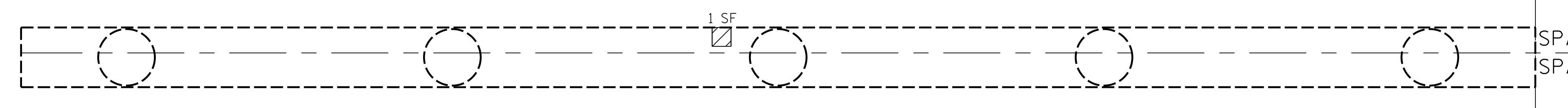
**ELEVATION**  
SPAN "A" SIDE

**END VIEW**  
EAST SIDE



**ELEVATION**  
SPAN "B" SIDE

**END VIEW**  
WEST SIDE



**PLAN**  
BOTTOM OF CAP

DRAWN BY : S. DHOLAKIA DATE : 8-16  
 CHECKED BY : F. ASEFNIA DATE : 11-16  
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 11-16



5/3/2017 8:19:10 AM G:\Projects\1008.2016.NC DOT Bridge Rehabilitation Projects\Final\DCN\Revised Plans\_042617\413.273.15746A-I5746B-SMU-S137-BT2-590479.dgn  
 I-5746\_PDF\_FULL.pltcfgr I-5746\_STR.REHAB.TBL

### REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	1.0	0.3		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	12.0	3.0		
CONCRETE REPAIRS	4.8	1.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
CAP	236.0			

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

#### NOTES

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

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

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

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



FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

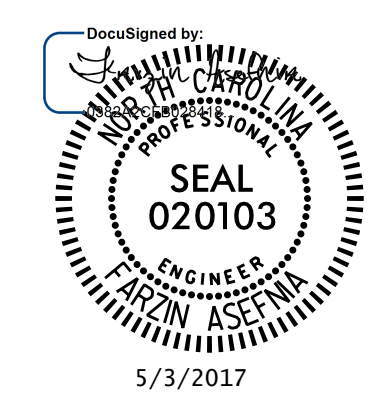
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

-  SHOTCRETE REPAIRS
-  SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 479

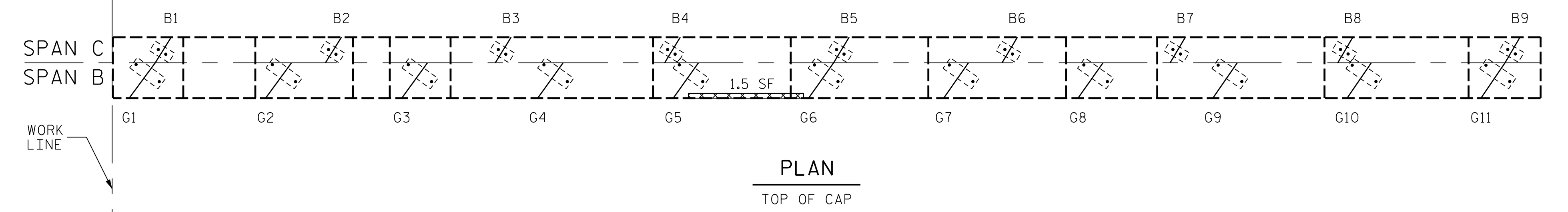
DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
 BENT 2

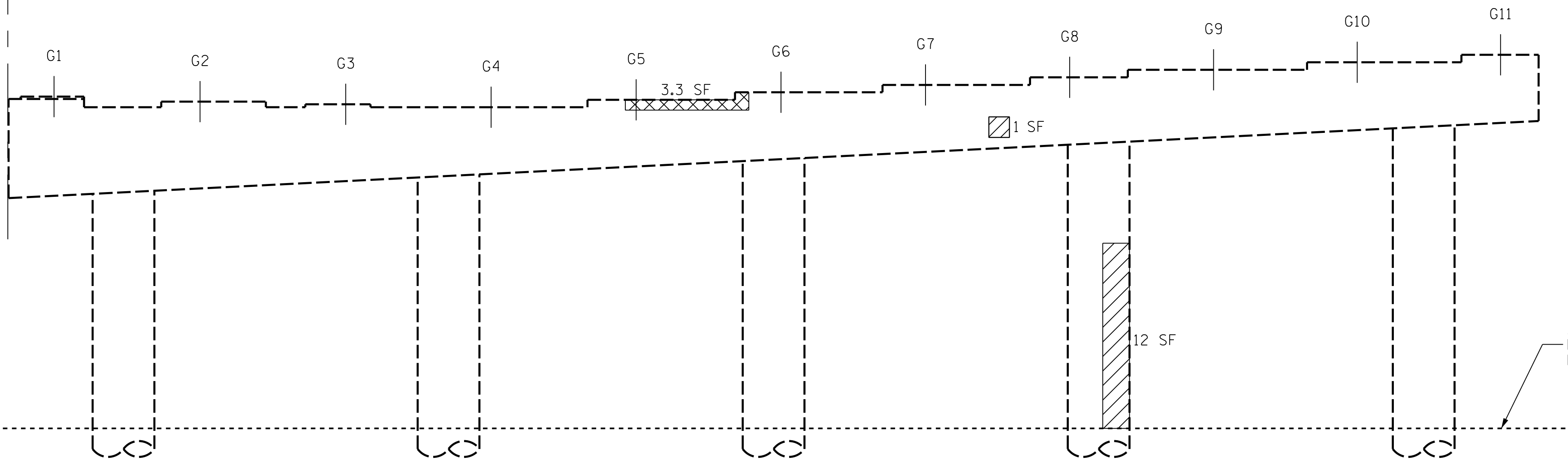
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-137
1			3			TOTAL SHEETS 196
2			4			

**Louis Berger**  
 Prepared by: LOUIS BERGER  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840



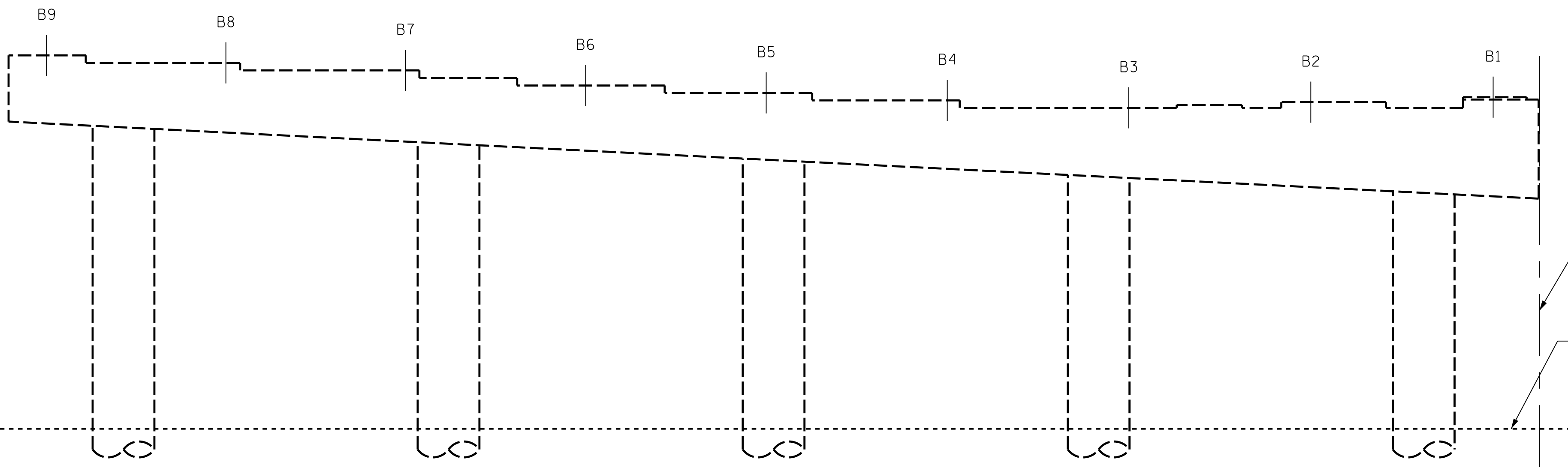
PLAN  
TOP OF CAP

TO BRIDGE  
478



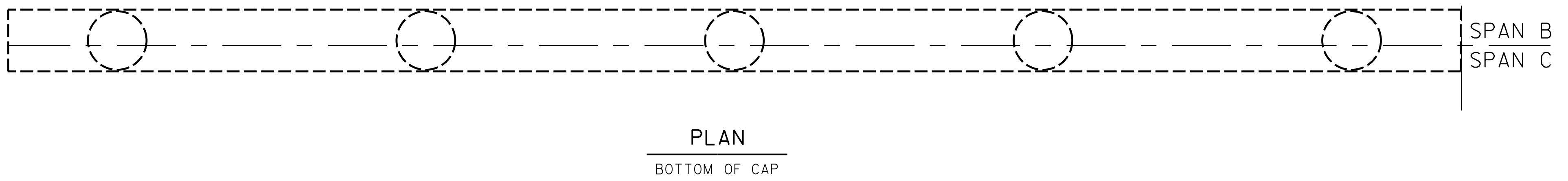
ELEVATION  
SPAN "B" SIDE

END VIEW  
EAST SIDE



ELEVATION  
SPAN "C" SIDE

END VIEW  
WEST SIDE

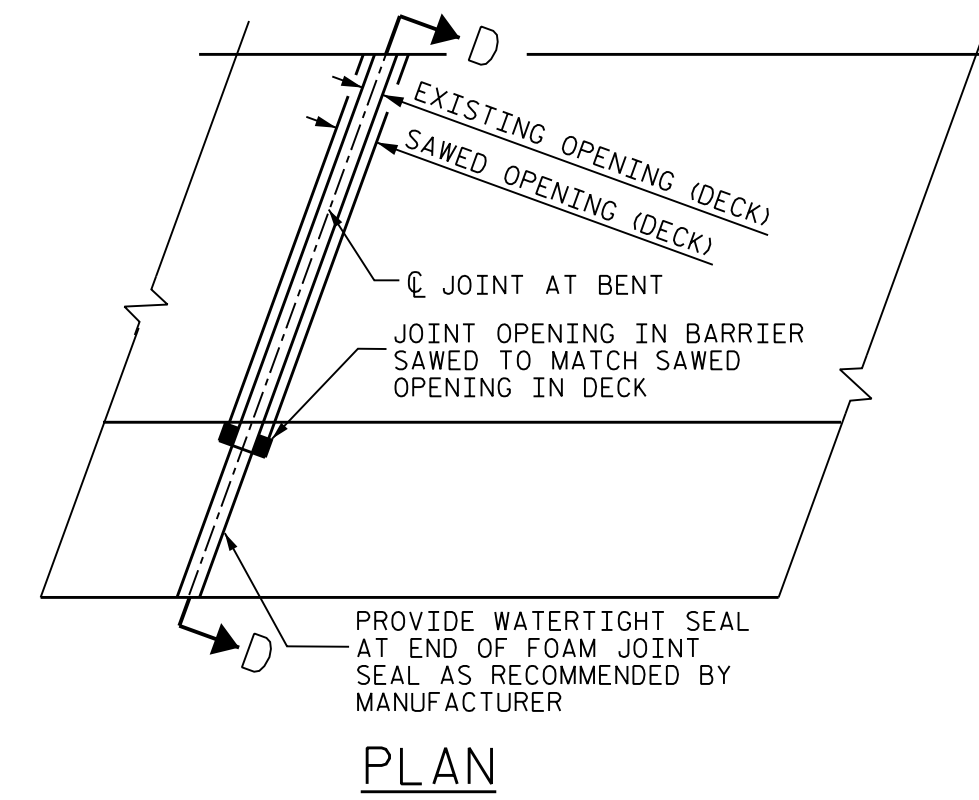
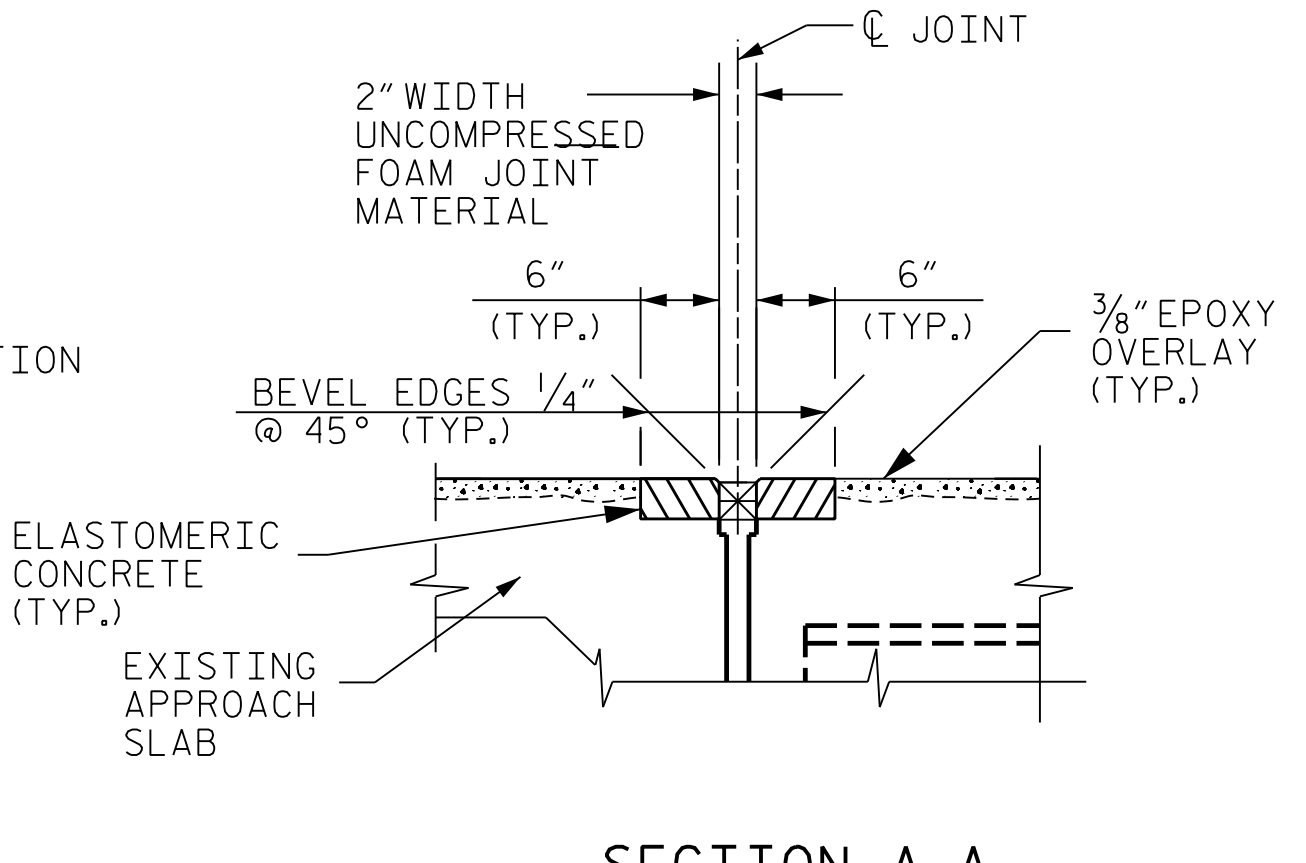
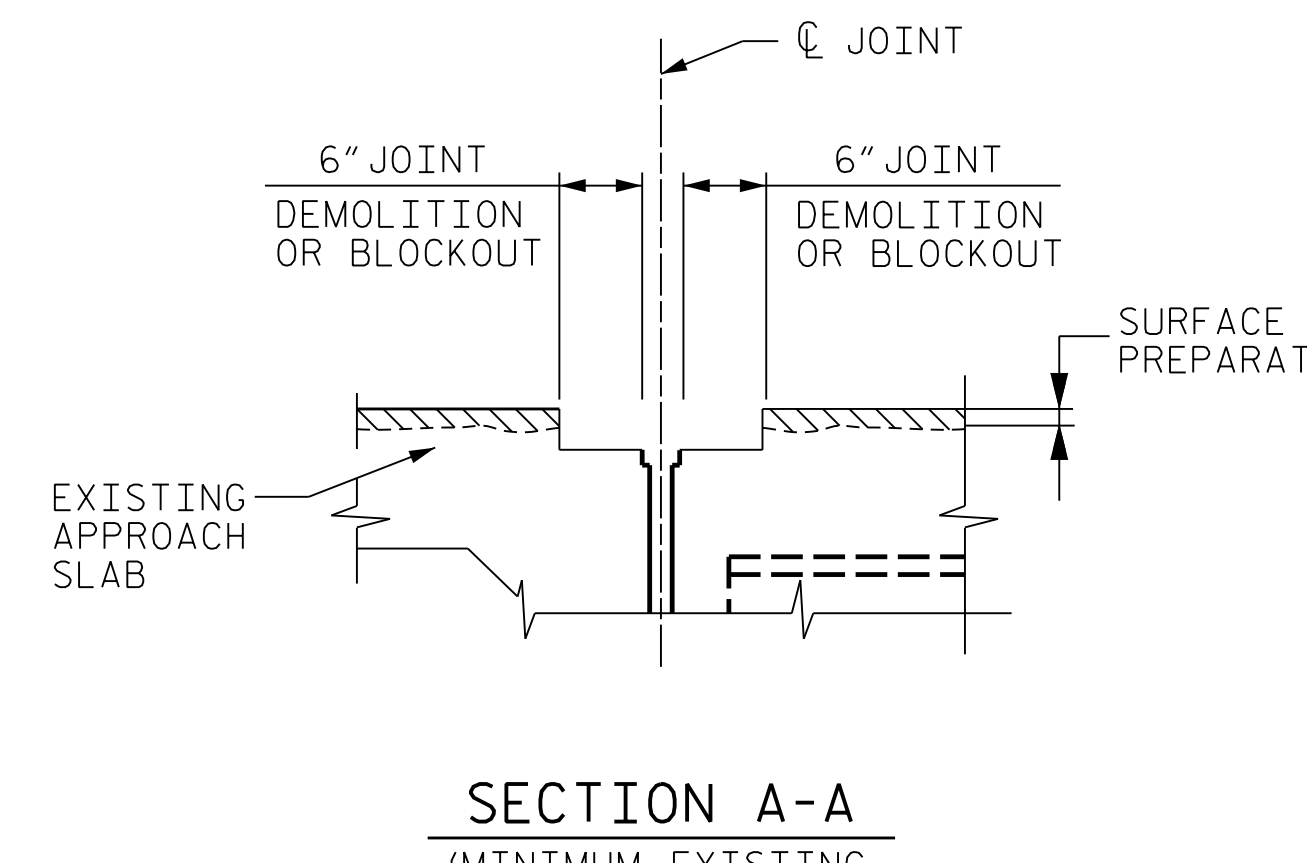
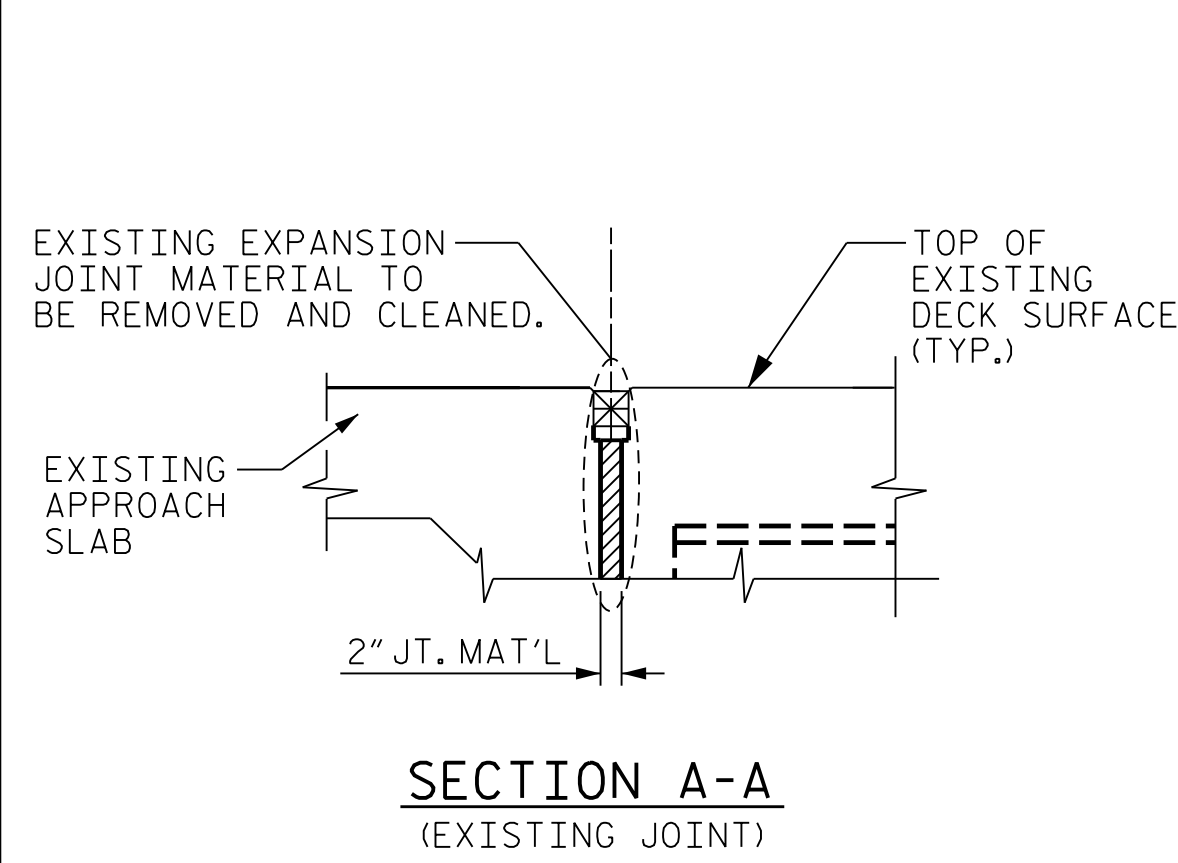


PLAN  
BOTTOM OF CAP

DRAWN BY : S. DHOLAKIA DATE : 9-16  
 CHECKED BY : F. ASEFNIA DATE : 11-16  
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 11-16



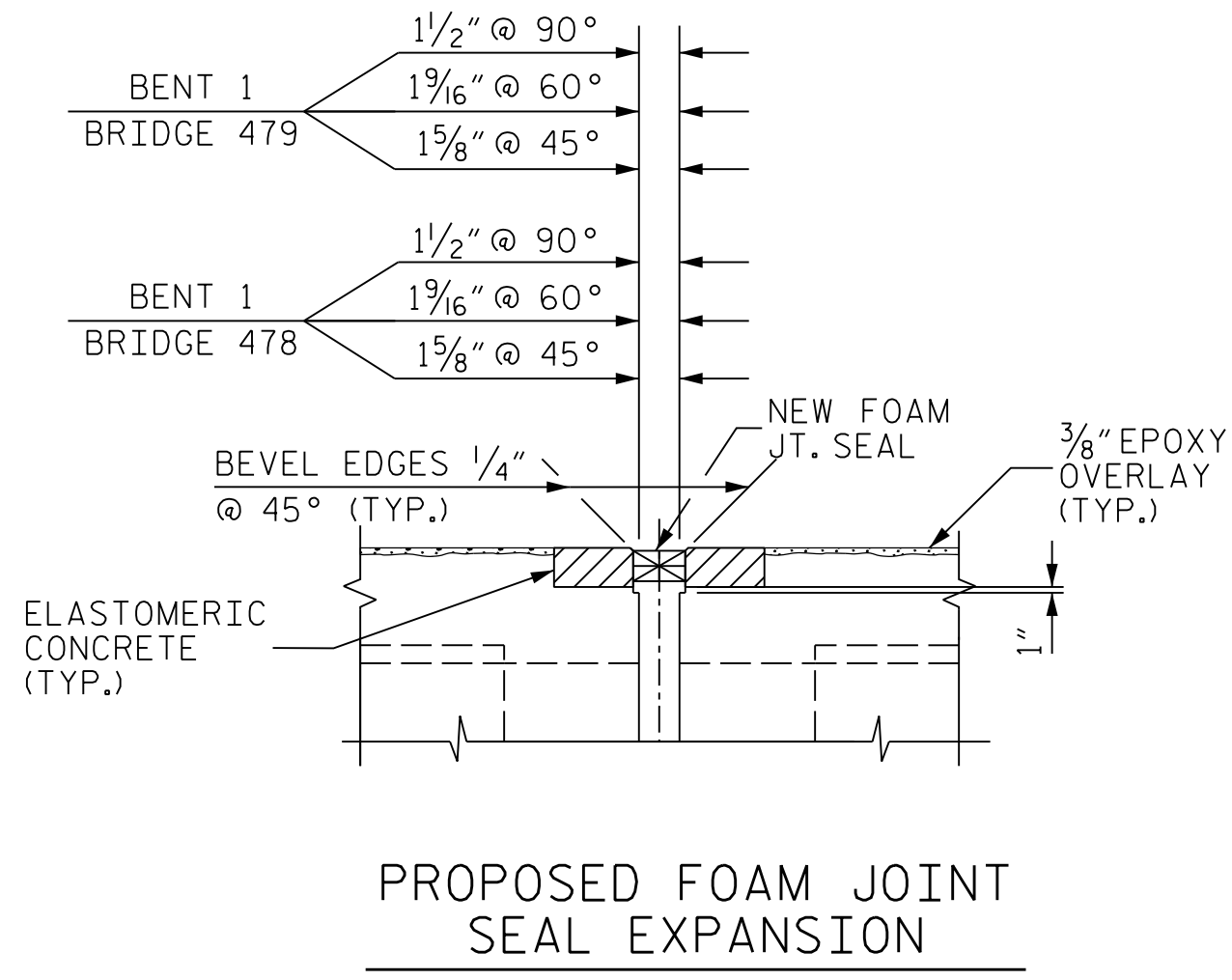
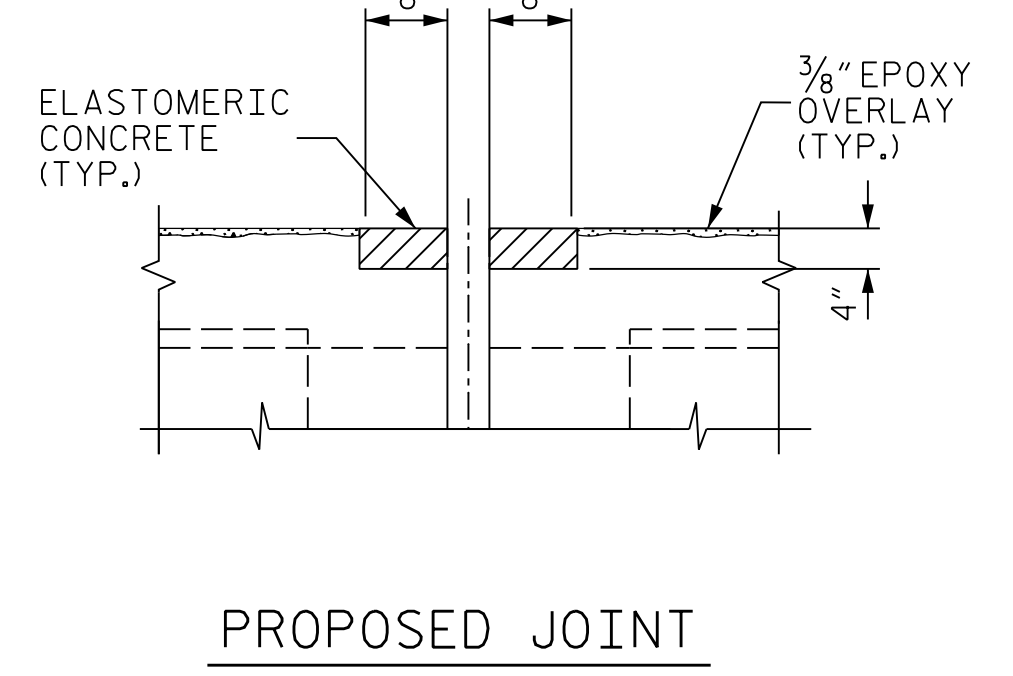
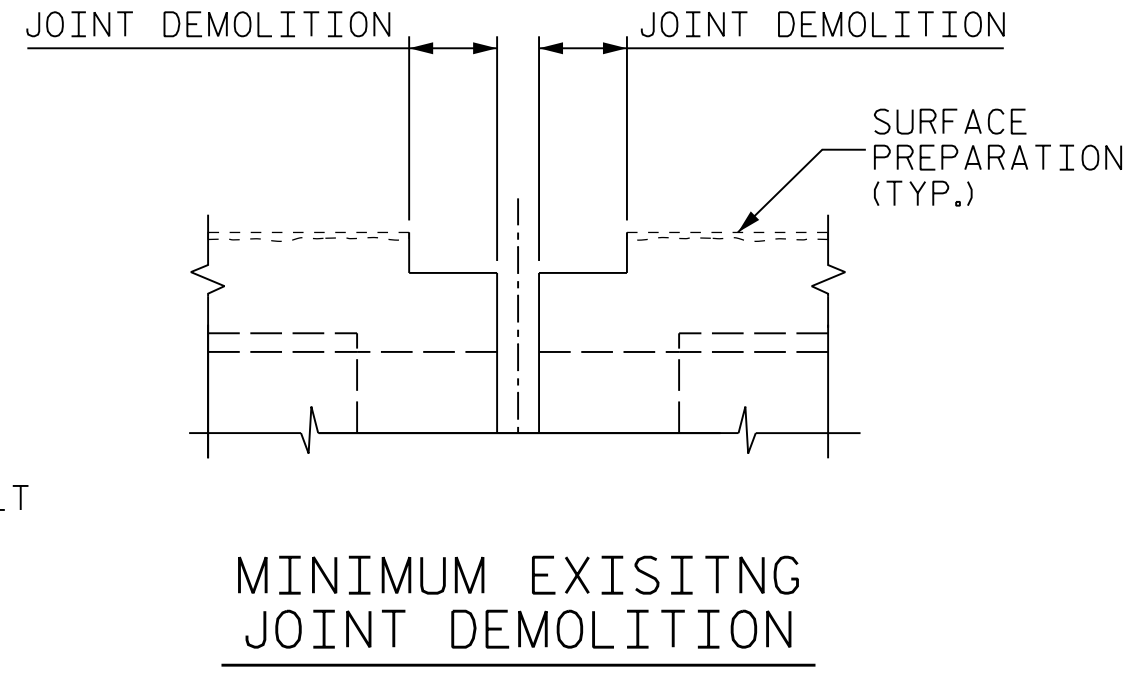
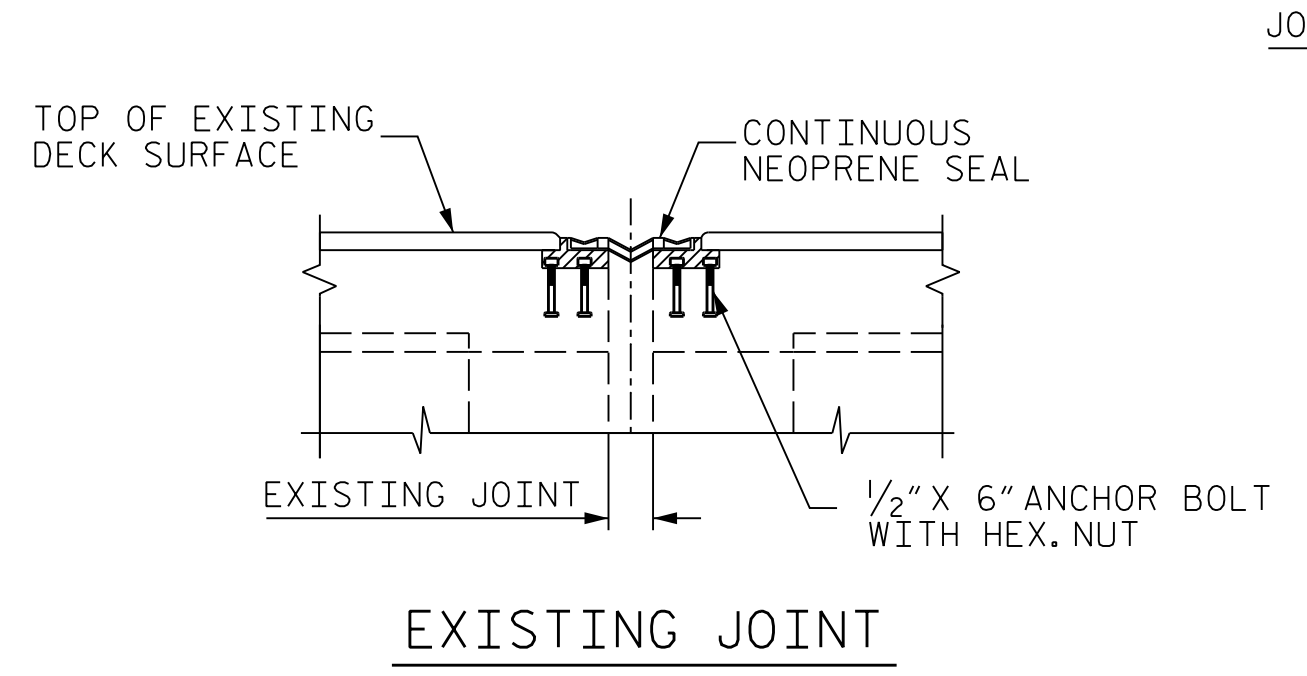
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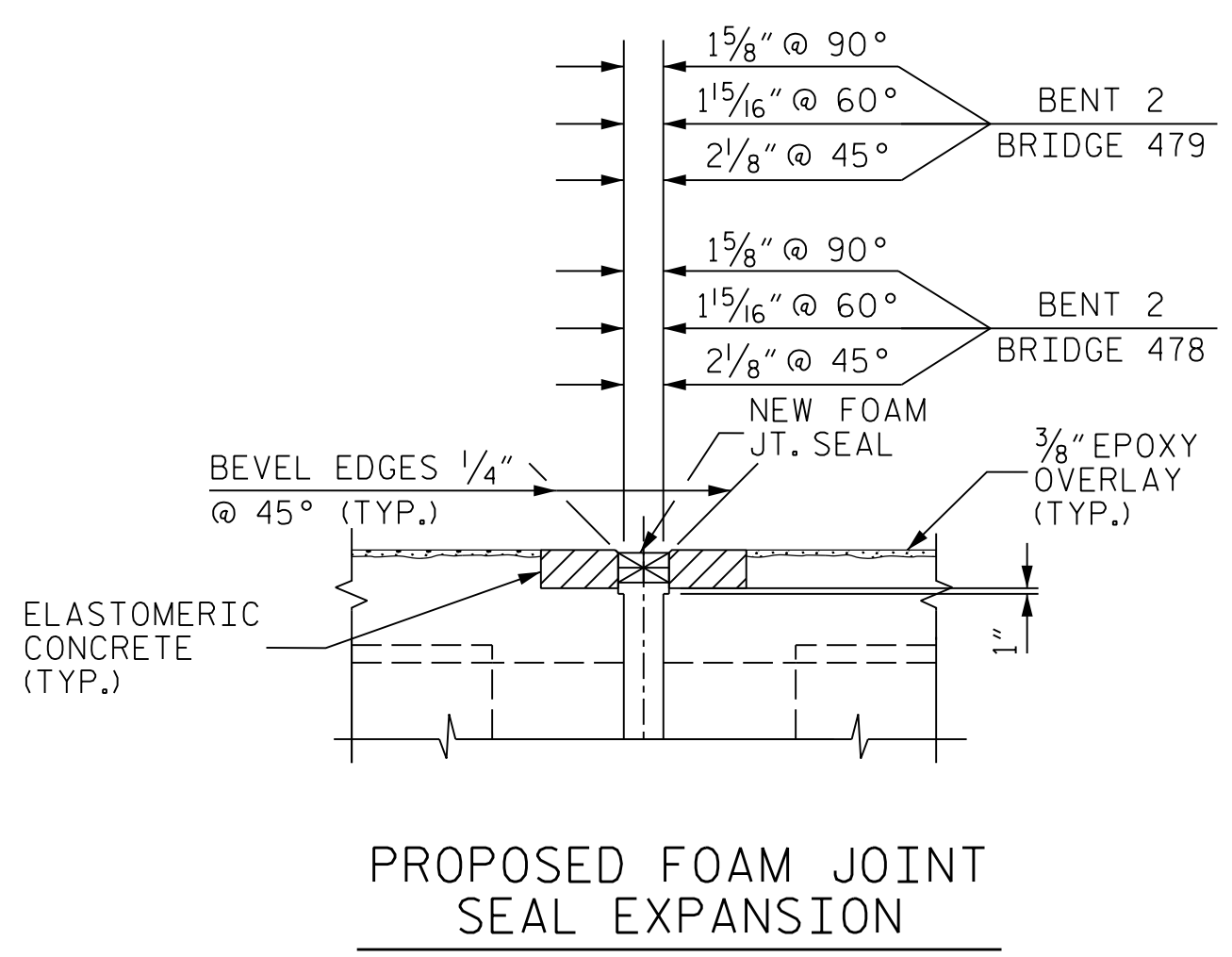
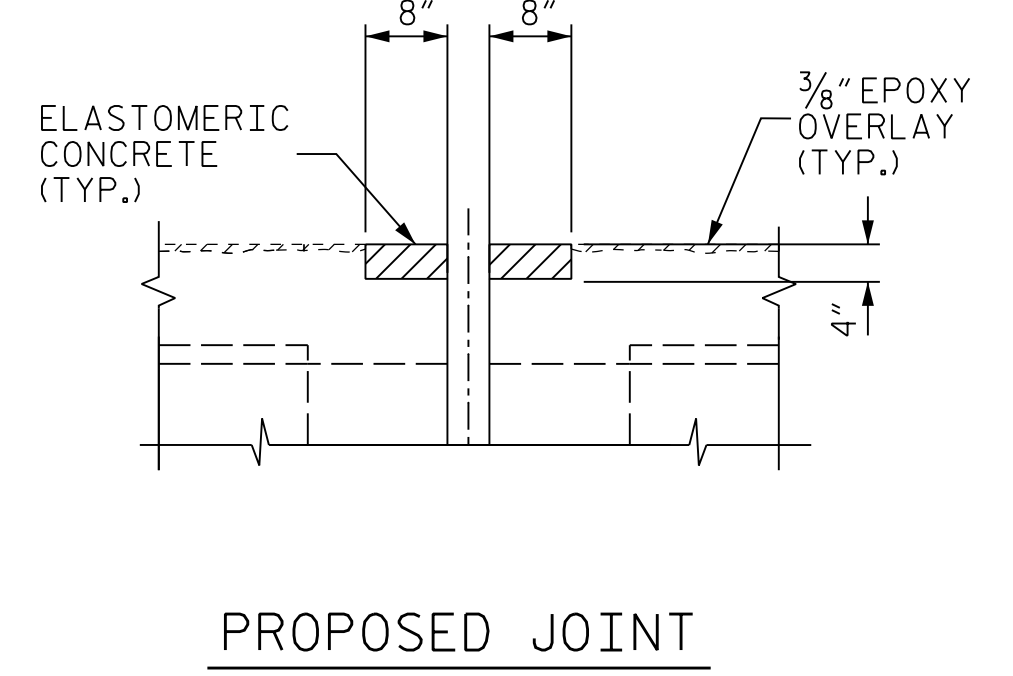
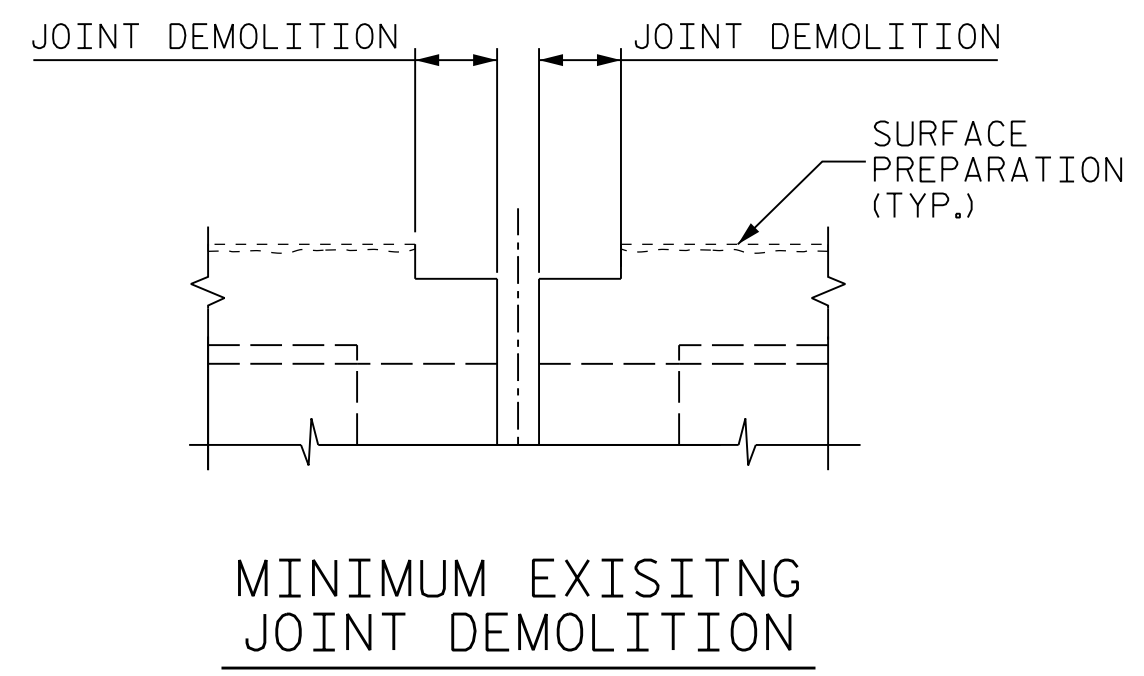
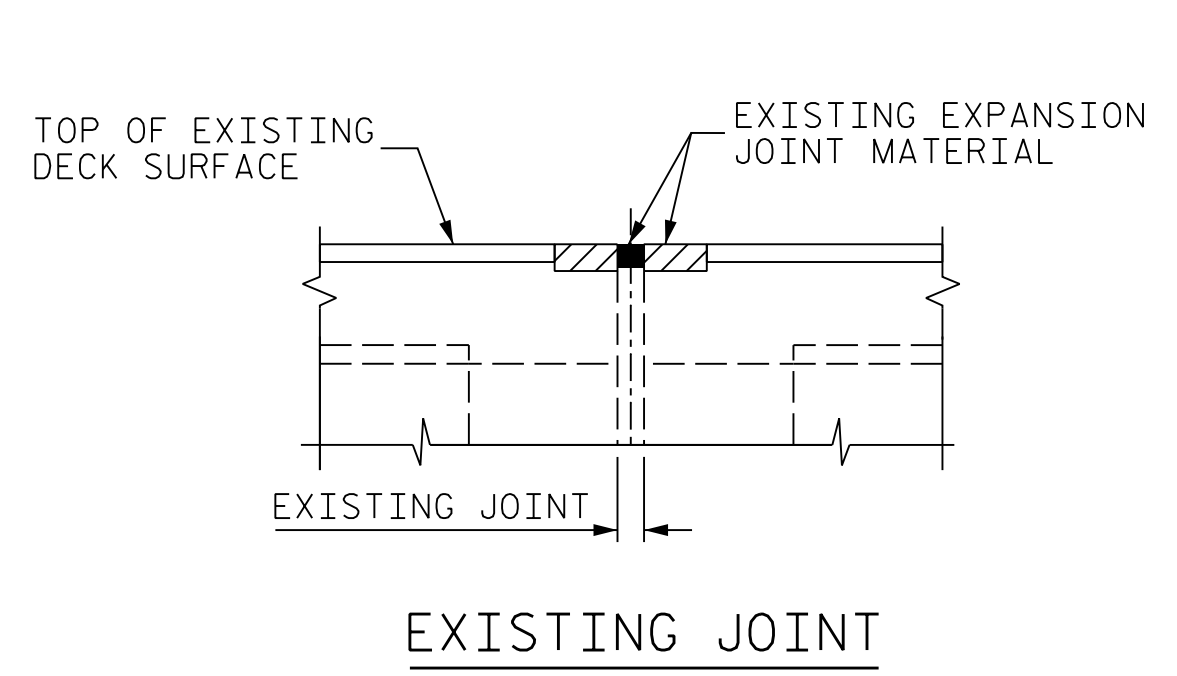
**NOTES:**  
 CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
 FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.  
 FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.  
 RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.  
 THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL FOR BOTH BRIDGES SHALL BE 2" @ BENT 1, 2 1/2" @ BENT 2 AND 2" @ END BENTS.

ELASTOMERIC CONCRETE	
BRIDGE 478	102.7 (CU. FT.)
BRIDGE 479	120.7 (CU. FT.)

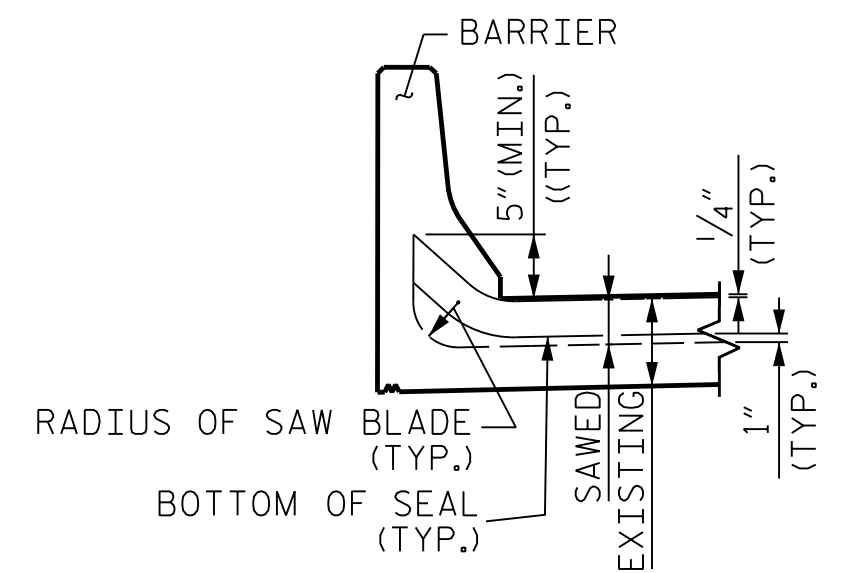
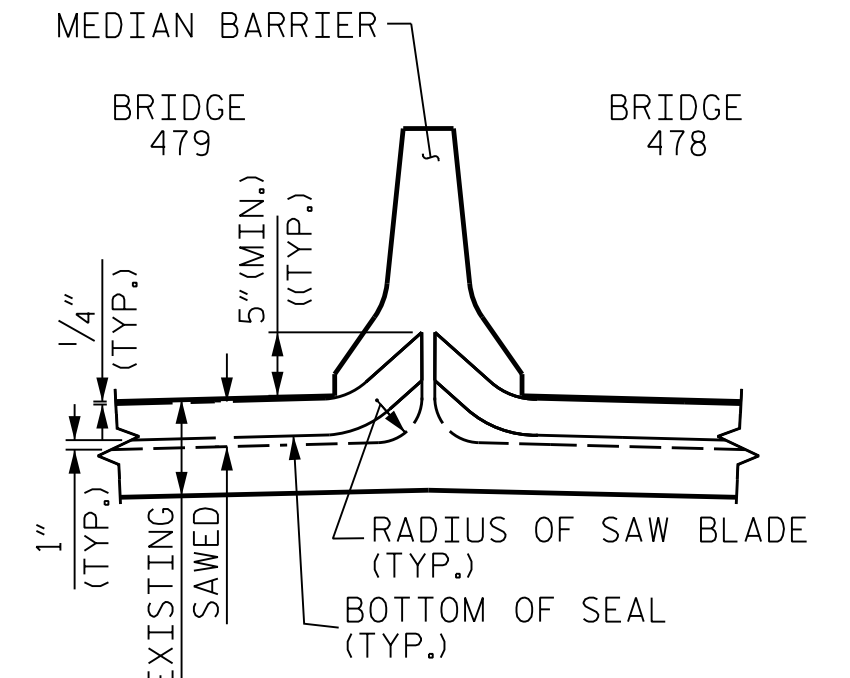
**JOINT INSTALLATION SEQUENCE AT END BENTS**



**JOINT INSTALLATION SEQUENCE AT BENT 1**



**JOINT INSTALLATION SEQUENCE AT BENT 2**



SECTION THRU MEDIAN BARRIER

SECTION D-D

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 478 & 479

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

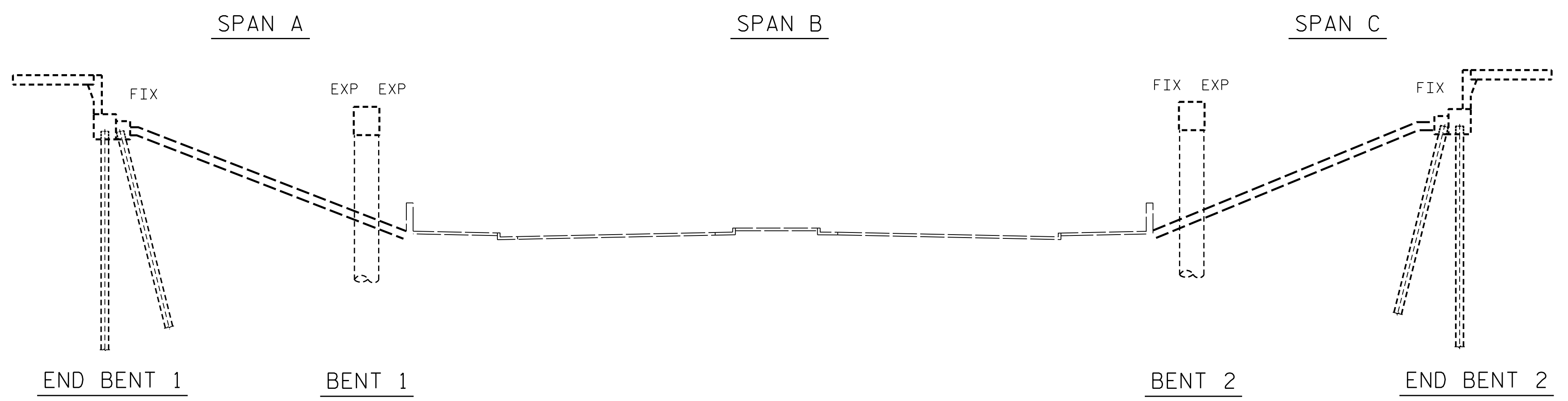
5/3/2017

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>SUPERSTRUCTURE</b>					
JOINT DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					S-138
TOTAL SHEETS					196

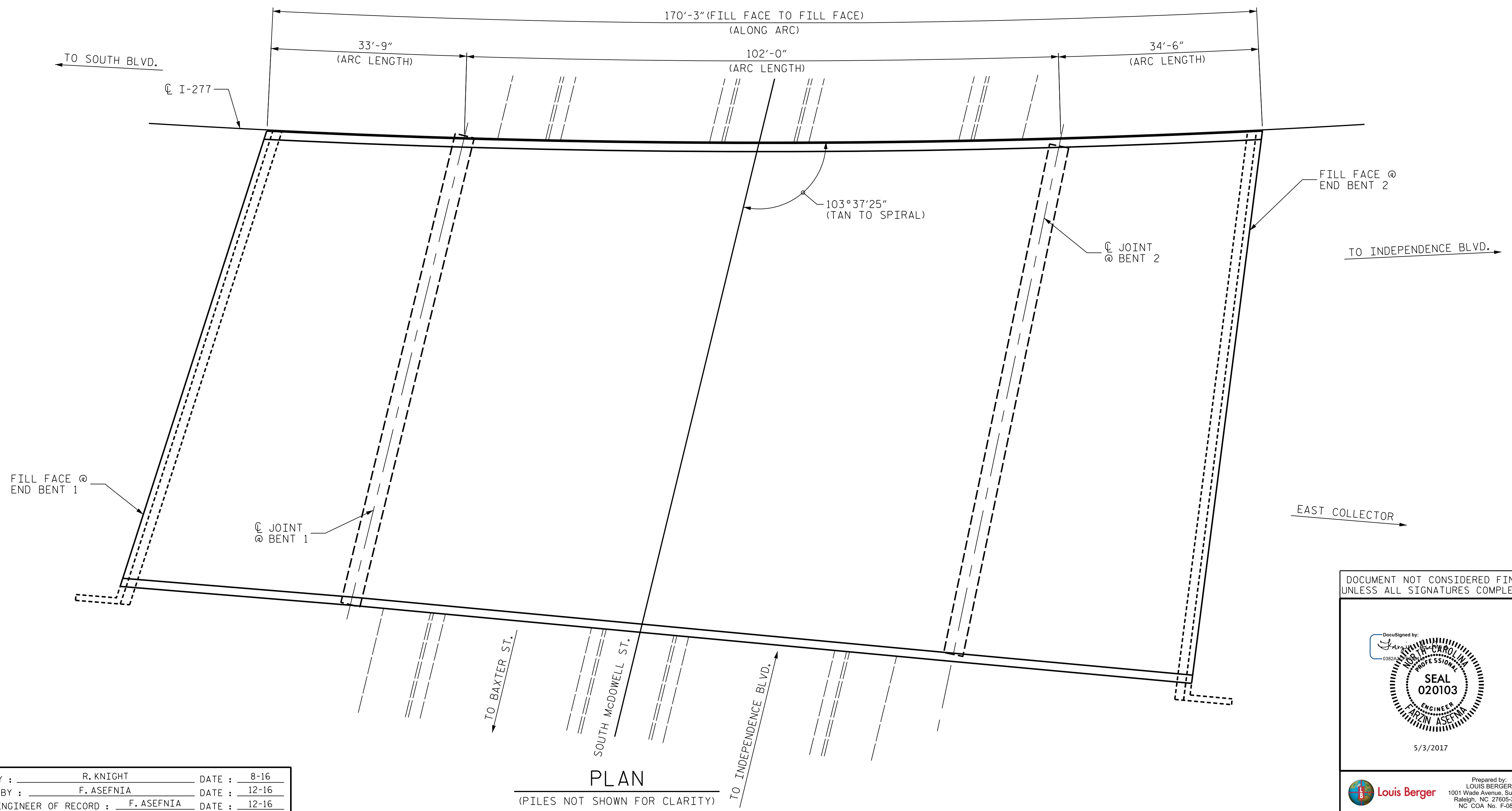
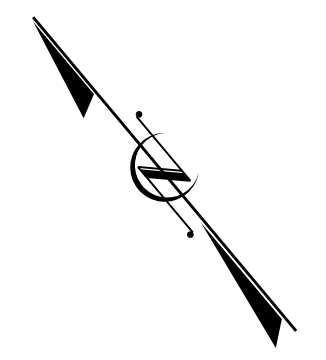
DRAWN BY :	S. DHOLAKIA	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

Prepared by: **Louis Berger**  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

5/3/2017 8:19:12 AM G:\Projects\1008.2016.NC DOT Bridge Rehabilitation Projects\Final\DGN\Revised Plans\_042617\414\_277\_I5746A-I5746B-SMU\_S139\_GD1\_590487.dgn  
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**SECTION ALONG C I-277**  
(SECTIONS TAKEN AT RIGHT ANGLES)

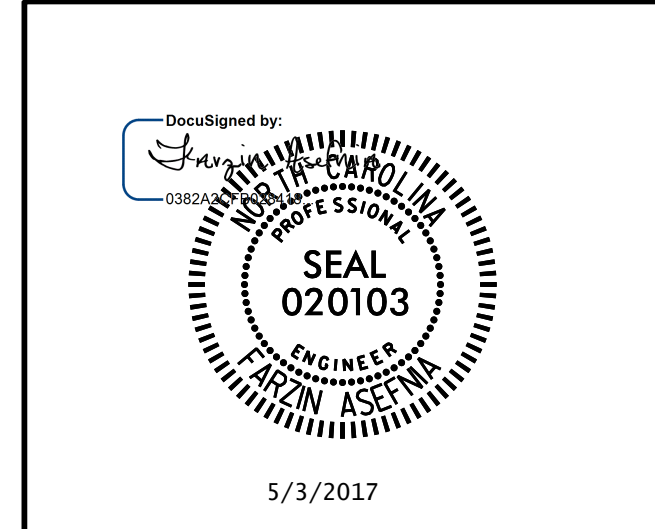


I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer \_\_\_\_\_ Date \_\_\_\_\_

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 487

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 BRIDGE ON I-277 NB OVER  
 SOUTH McDOWELL ST. BETWEEN  
 SOUTH BLVD. AND  
 INDEPENDENCE BLVD.

DRAWN BY :	R. KNIGHT	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16

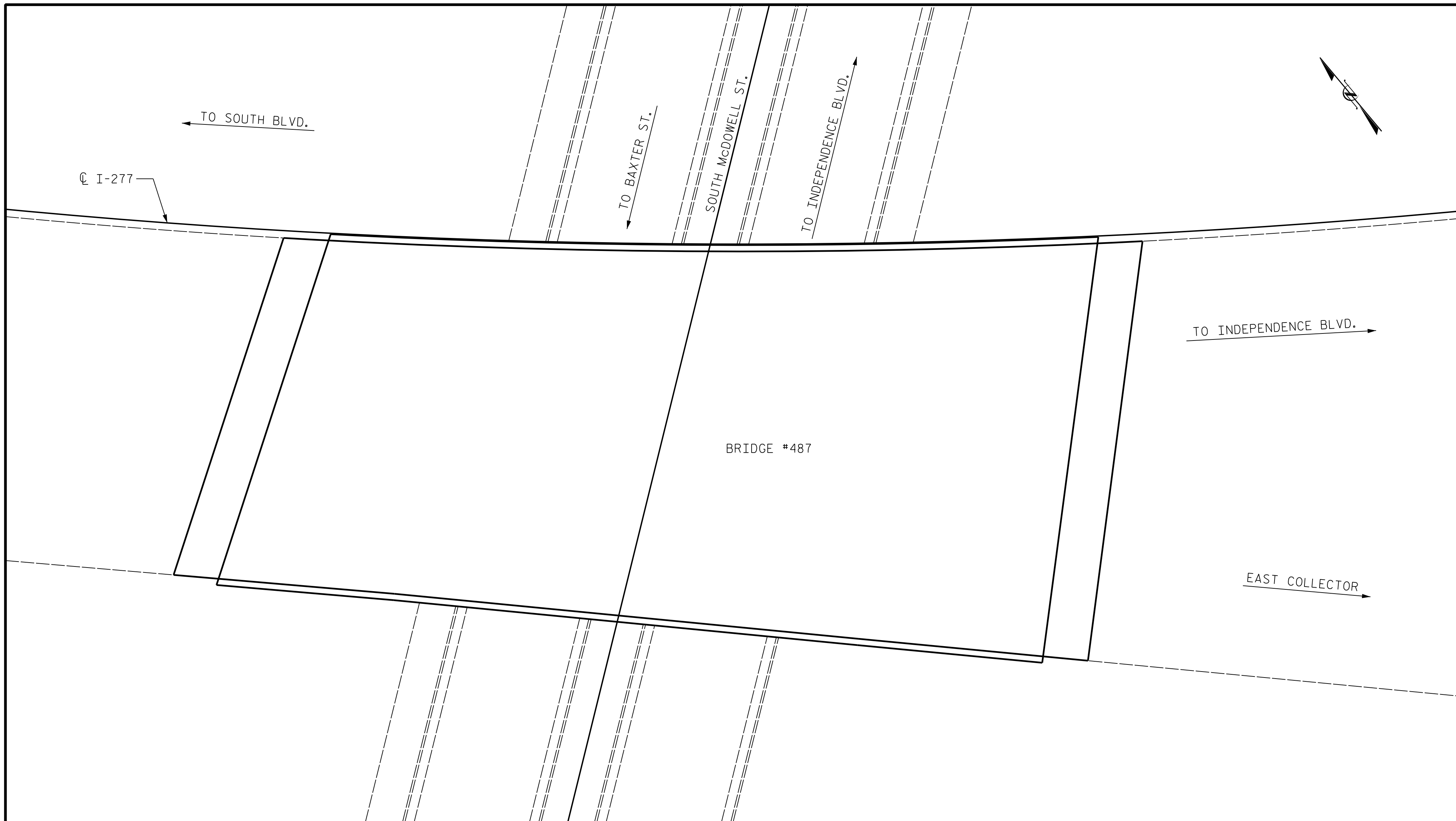
**PLAN**  
(PILES NOT SHOWN FOR CLARITY)

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

TOTAL SHEETS: 196



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LOCATION SKETCH

**NOTES:**

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

FOR OVERLAY OF BRIDGE WITH EPOXY OVERLAY SYSTEM, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

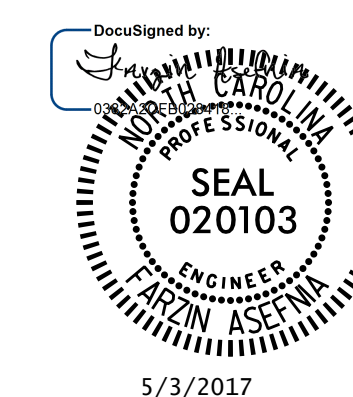
FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR AT THE PAVEMENT MARKINGS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 487

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SHEET 2 OF 2



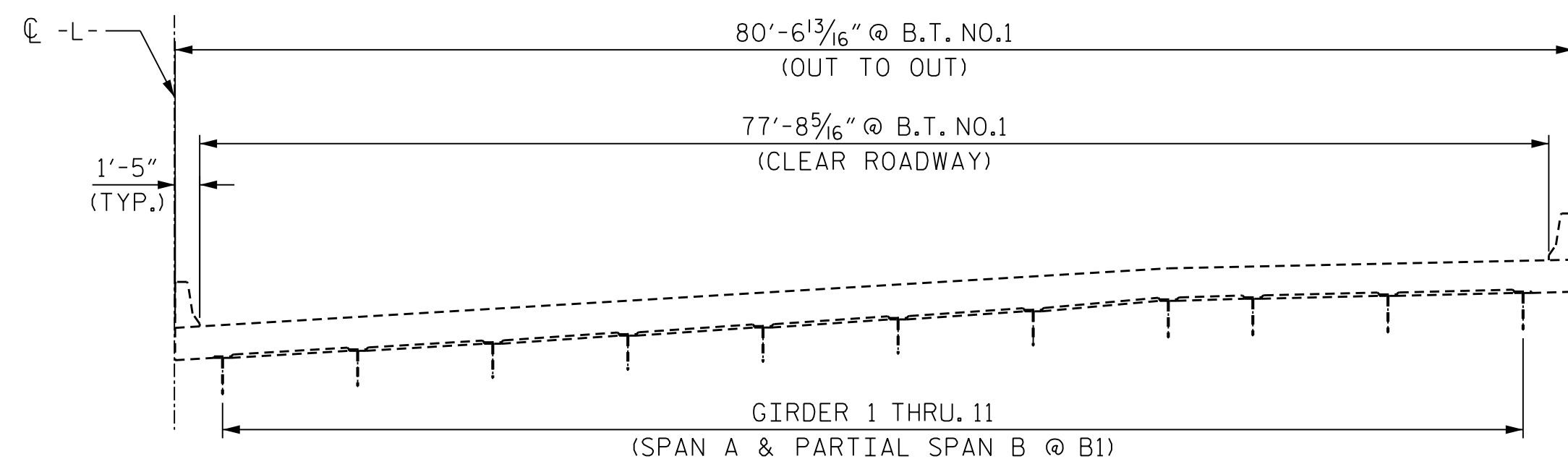
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 BRIDGE ON I-277 NB OVER  
 SOUTH McDOWELL ST. BETWEEN  
 SOUTH BLVD. AND  
 INDEPENDENCE BLVD.

DRAWN BY :	R. KNIGHT	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

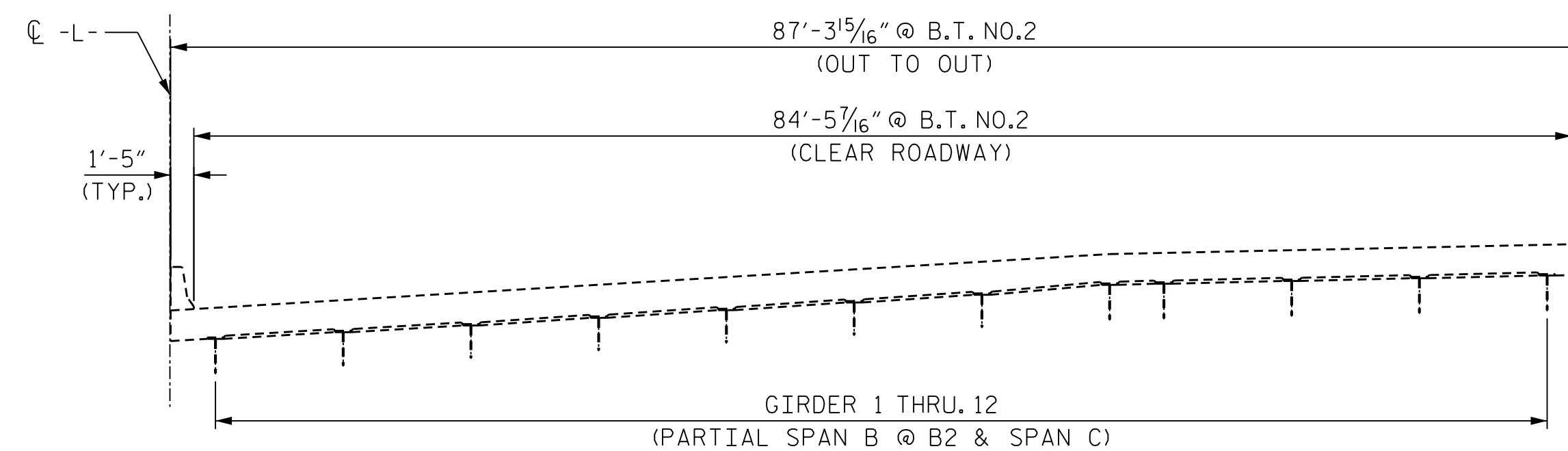
Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS						SHEET NO. S-140 TOTAL SHEETS 196
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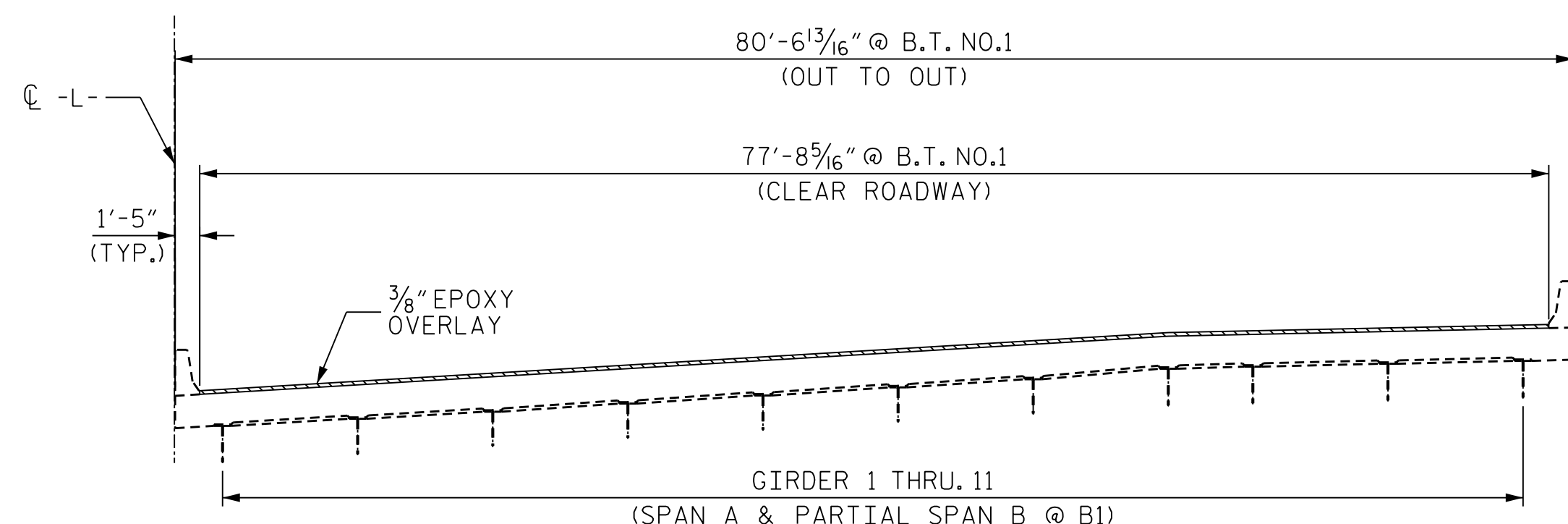
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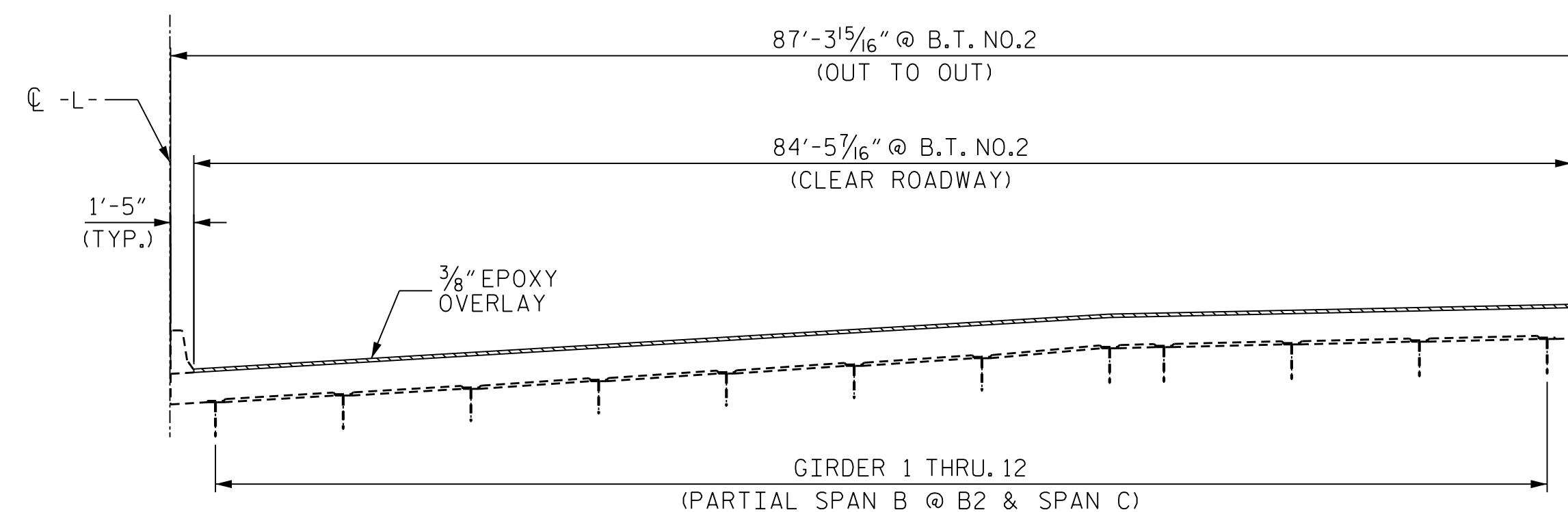
**TYPICAL SECTION**  
(EXISTING)



**TYPICAL SECTION**  
(EXISTING)



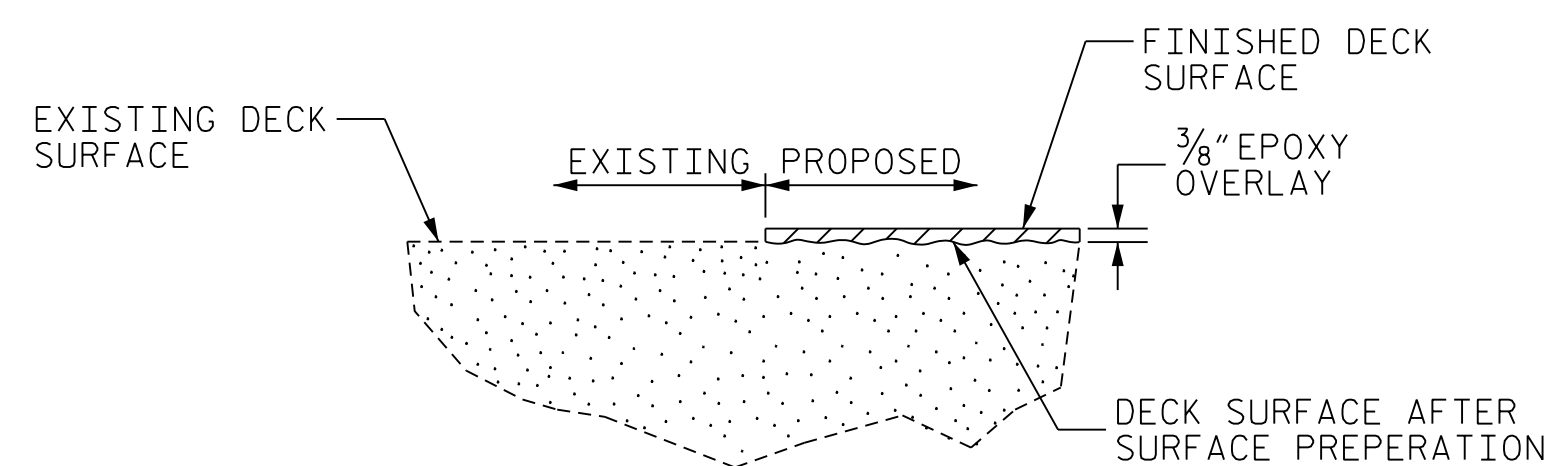
**TYPICAL SECTION**  
(EPOXY OVERLAY)



**TYPICAL SECTION**  
(EPOXY OVERLAY)

**NOTE:**

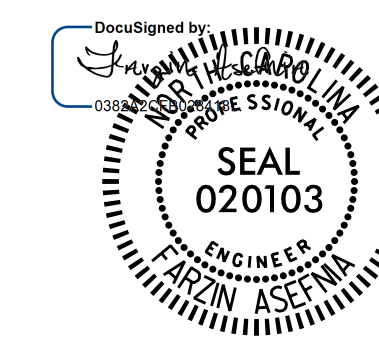
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.



**DETAIL OF EPOXY OVERLAY**

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 487

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 UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE**  
 TYPICAL SECTION &  
 EPOXY OVERLAY  
 DETAILS

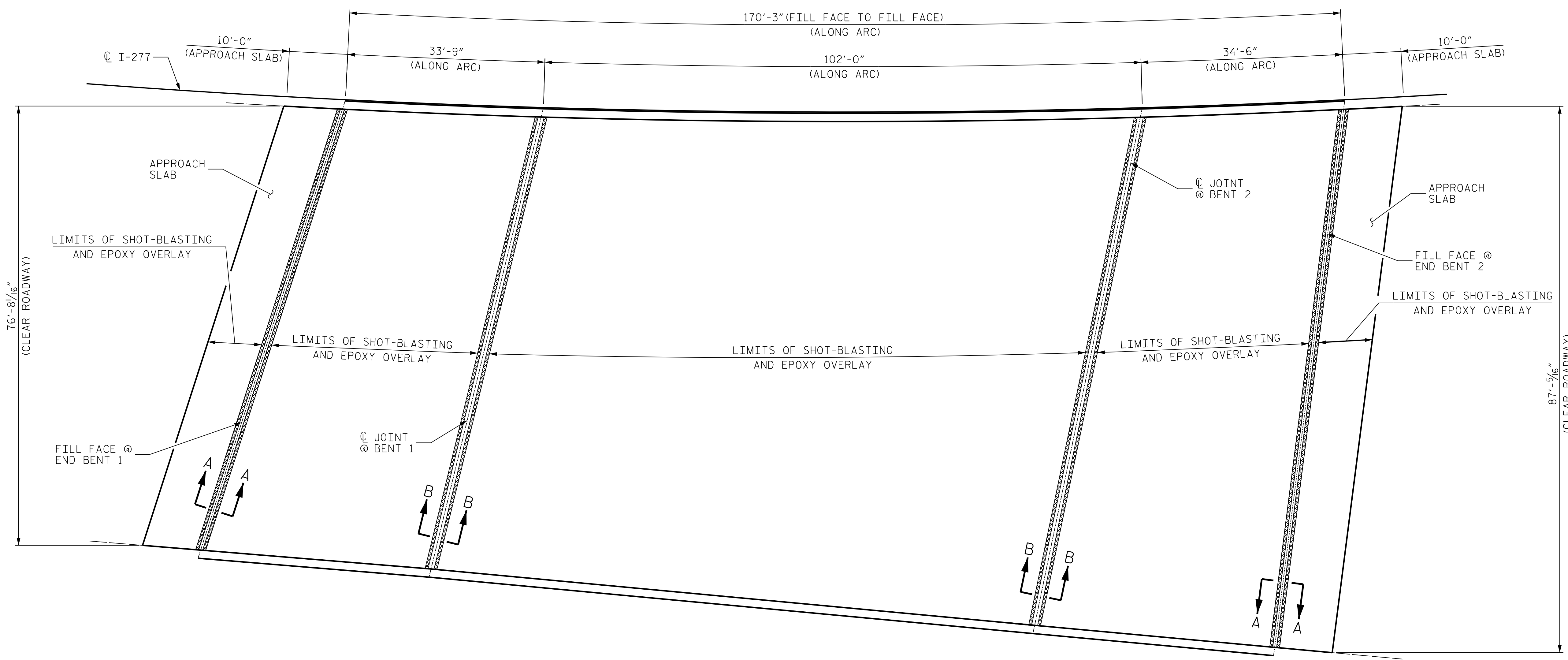
DRAWN BY :	S. DHOLAKIA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16

Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS						SHEET NO. S-141 TOTAL SHEETS 196
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 I-5746\_PDF\_FULL.pltcfgr I-5746\_STR\_REHAB.TBL

SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1 SQ.FT.	
BRIDGE JOINT DEMOLITION	348 SQ. FT.	
EPOXY OVERLAY SYSTEM	15,936 SQ. FT.	

**NOTE:**  
 CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED



**LEGEND**

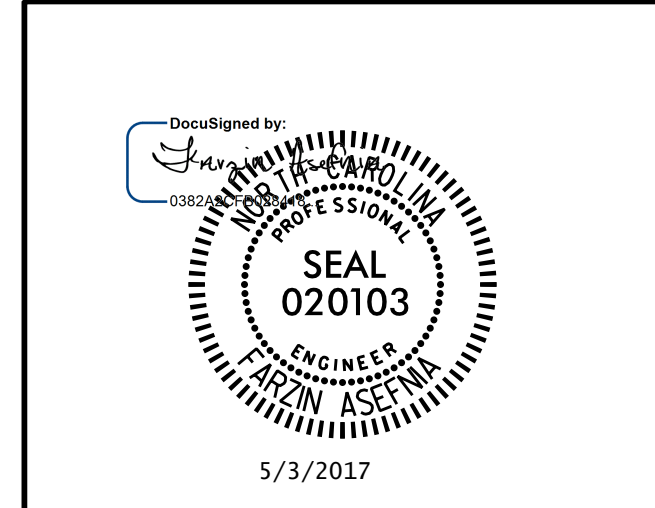
	EPOXY OVERLAY
	JOINT DEMOLITION

**PLAN**

(FOR SECTION A-A & B-B, SEE JOINT DETAILS SHEET)

PROJECT NO. I-5746A/I-5746B  
 MECKLENBURG COUNTY  
 BRIDGE NO. 487

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED



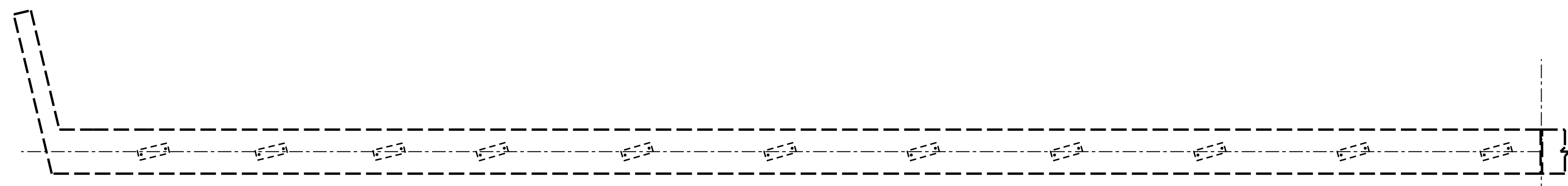
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SURFACE PREPARATION  
 & EPOXY OVERLAY**  
 (NORTHBOUND)

DRAWN BY :	S. DHOLAKIA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-142
1			3			TOTAL SHEETS
2			4			196

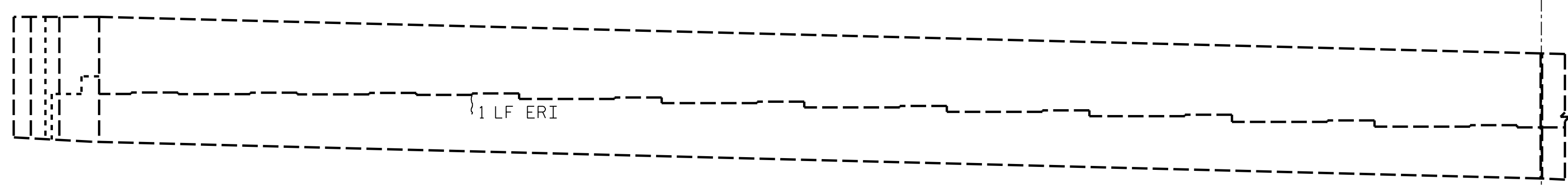


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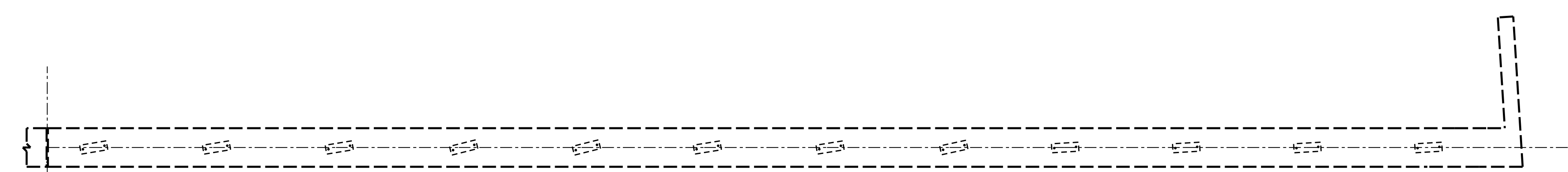


PLAN  
END BENT 1

EXP. JT. & WORK LINE  
TO BRIDGE 488

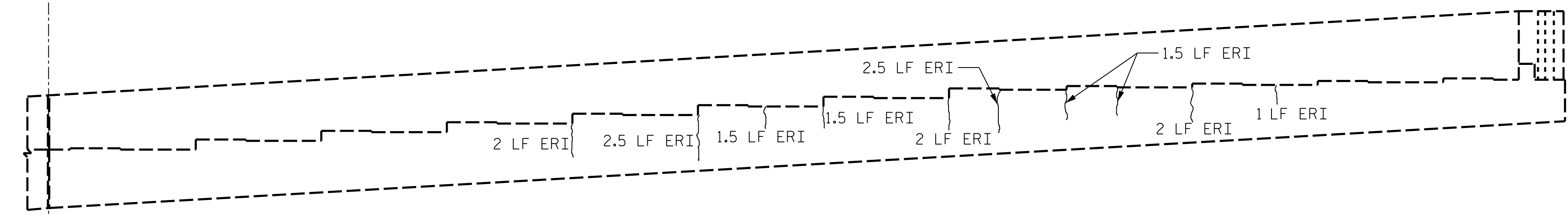


ELEVATION  
END BENT 1



PLAN  
END BENT 2

EXP. JT. & WORK LINE  
TO BRIDGE 488



ELEVATION  
END BENT 2

REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			1.0	
EPOXY COATING	AREA SF			
CAP	212.0			
END BENT 2				
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			18.0	
EPOXY COATING	AREA SF			
CAP	239.0			

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

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

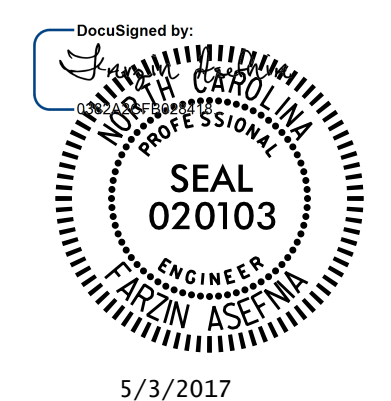
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 487

DOCUMENT NOT CONSIDERED FINAL  
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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
END BENT 1  
&  
END BENT 2

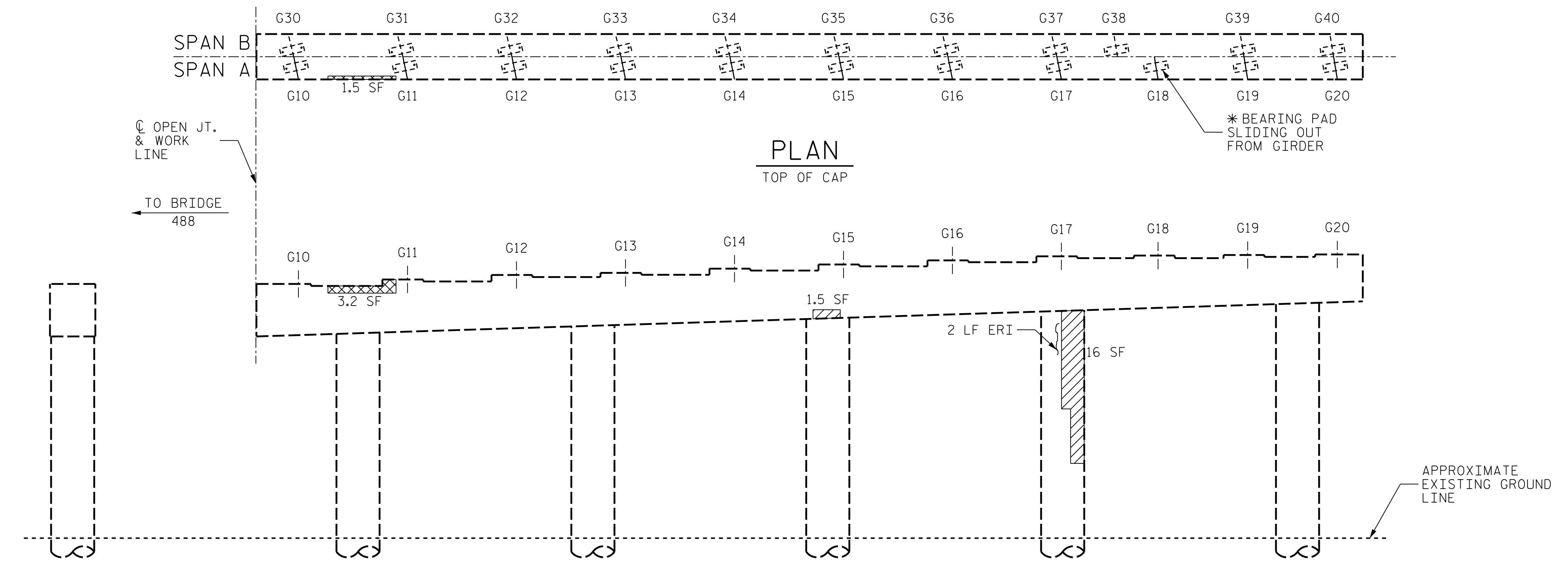
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CHECKED BY : F. ASEFNIA DATE : 12-16  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 12-16

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1			3			TOTAL SHEETS
2			4			196



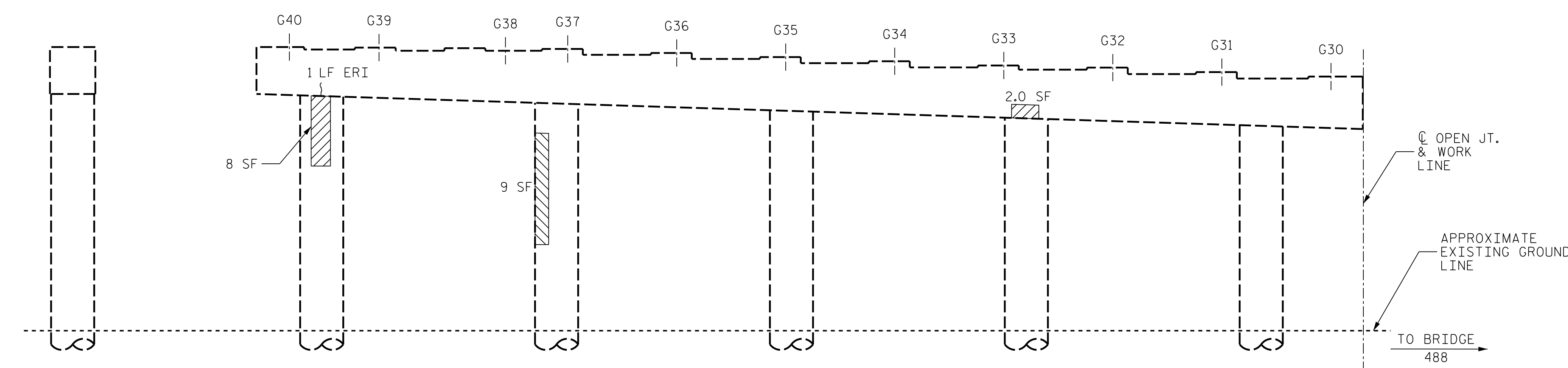


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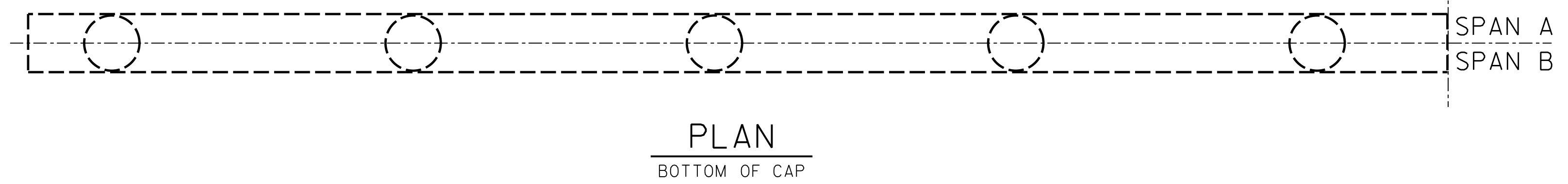
**END VIEW**  
WEST SIDE

**ELEVATION**  
SPAN "A" SIDE



**END VIEW**  
EAST SIDE

**ELEVATION**  
SPAN "B" SIDE



**PLAN**  
BOTTOM OF CAP

REPAIR QUANTITY TABLE				
BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	3.5	0.9		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	33.0	8.3		
CONCRETE REPAIRS	4.7	1.2		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		1.0		
COLUMN		2.0		
EPOXY COATING	AREA SF			
CAP	271.0			

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

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

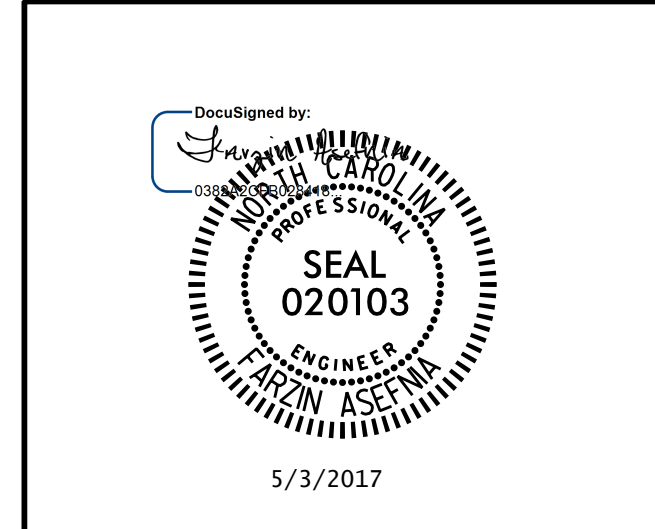
THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

\* THE CONTRACTOR SHALL JACK GIRDER 18 AND REPOSITION THE ELASTOMERIC PAD UNDER THE GIRDER.

- SHOTCRETE REPAIRS
- CONCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 487

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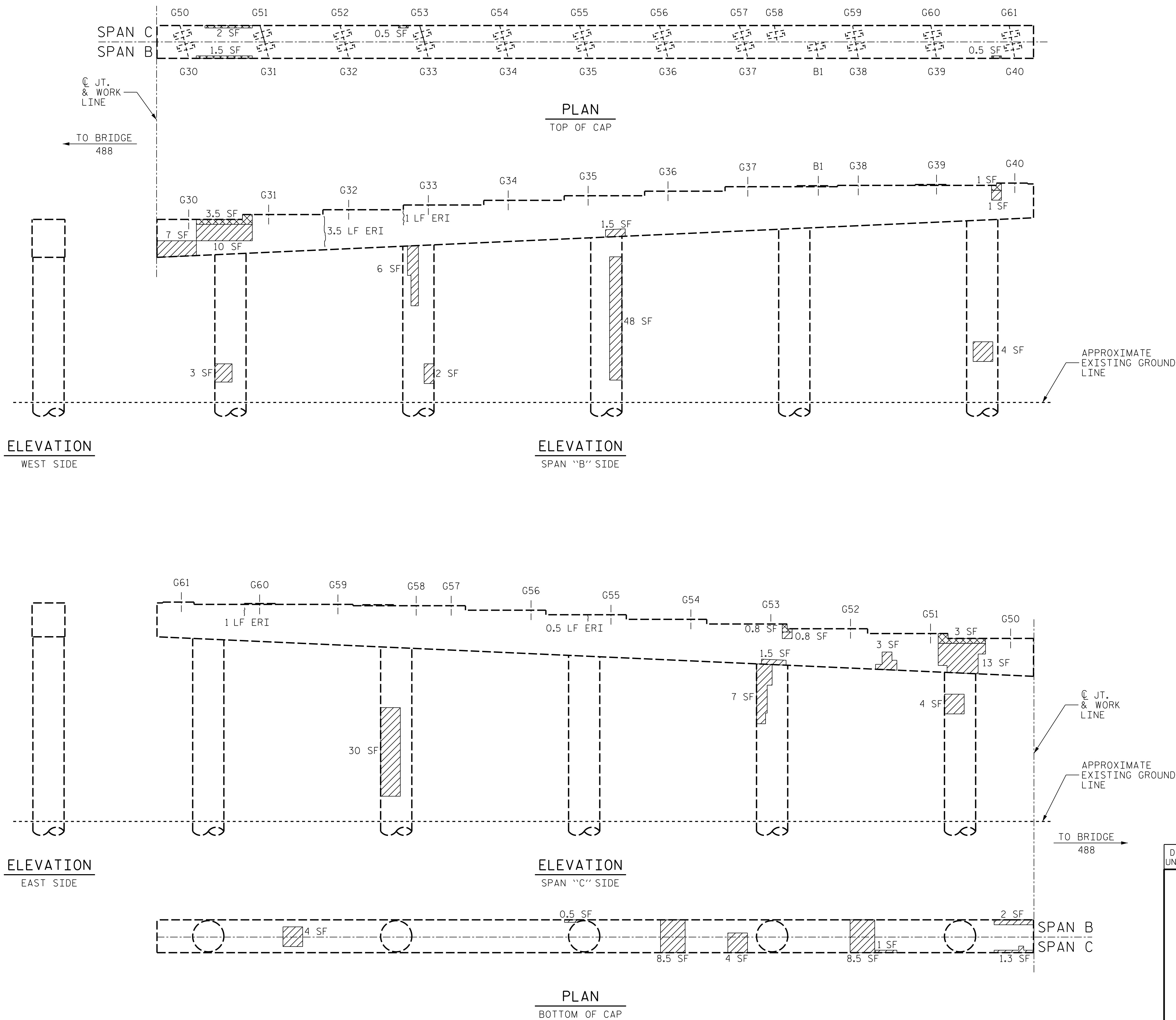
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 1

DRAWN BY :	S. DHOLAKIA	DATE :	10-16
CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16

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2			4			196



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REPAIR QUANTITY TABLE				
BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	37.8	9.5		
CAP (HORIZONTAL FACE/BOTTOM)	12.8	3.2		
COLUMN	104.0	26.0		
CONCRETE REPAIRS	12.0	3.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		4.5		
COLUMN		0.0		
EPOXY COATING	AREA SF			
CAP	297.0			

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

- SHOTCRETE REPAIRS
- CONCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 487

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
 BENT 2

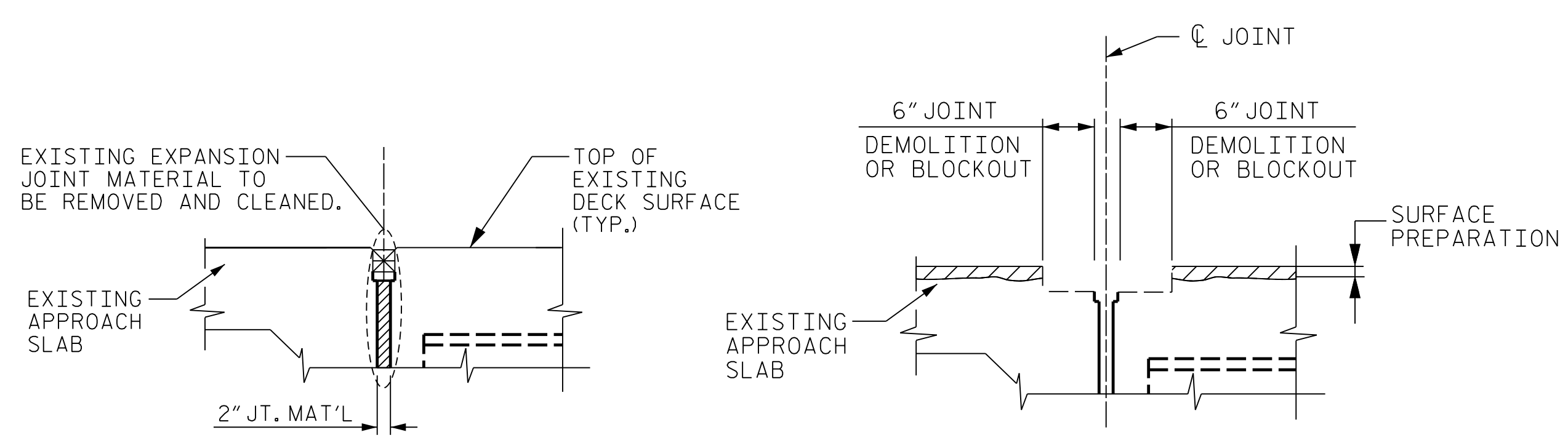
DRAWN BY :	S. DHOLAKIA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

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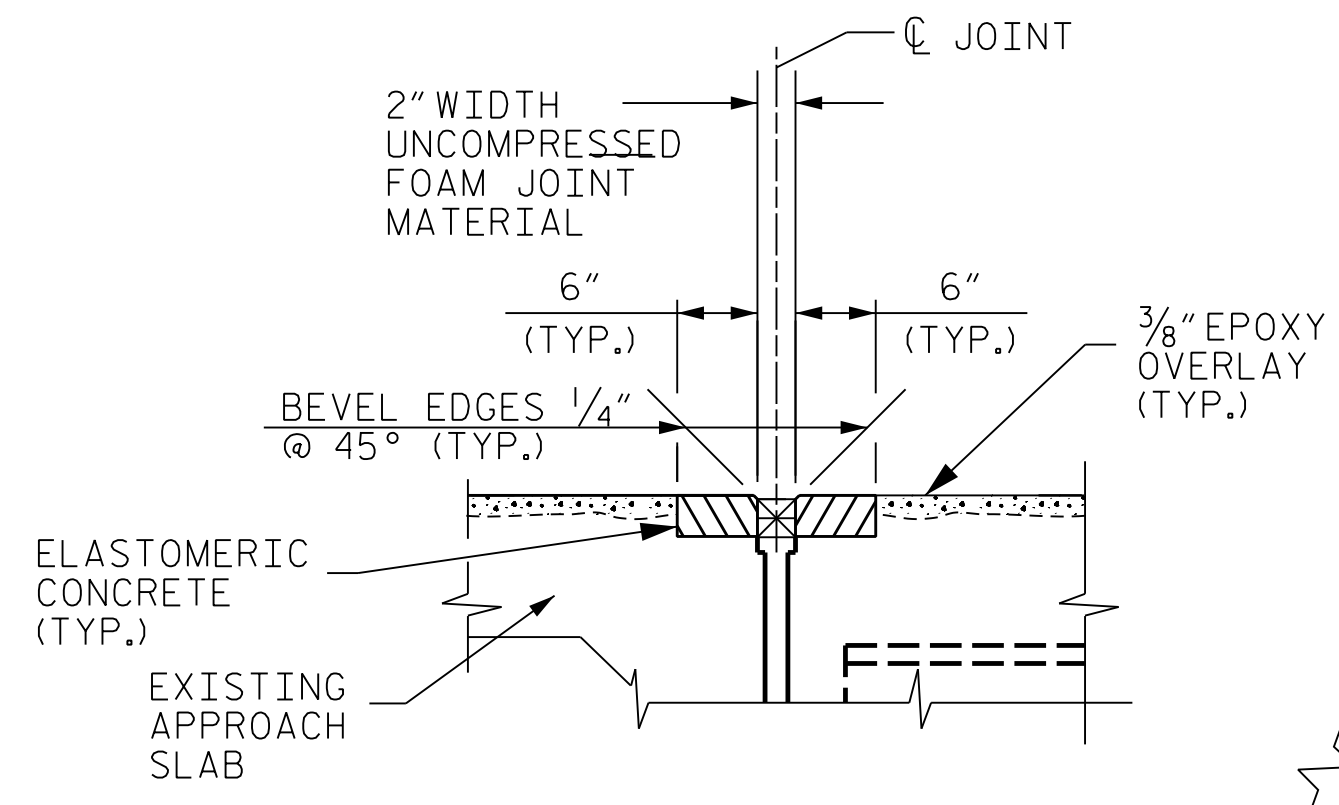


**SECTION A-A**  
(EXISTING JOINT)

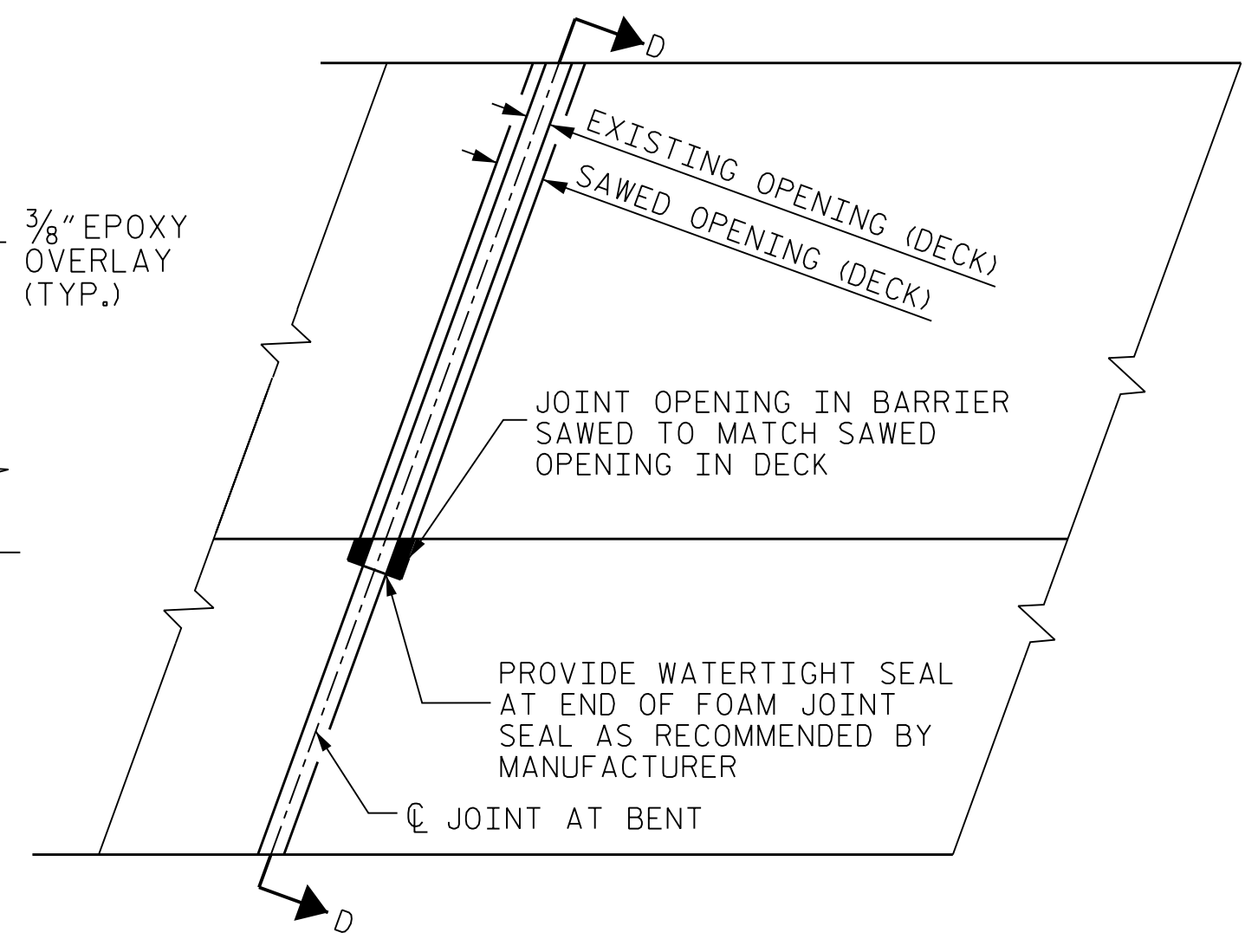
**SECTION A-A**  
(MINIMUM EXISTING JOINT DEMOLITION)

**JOINT INSTALLATION SEQUENCE AT END BENTS**

SECTION A-A



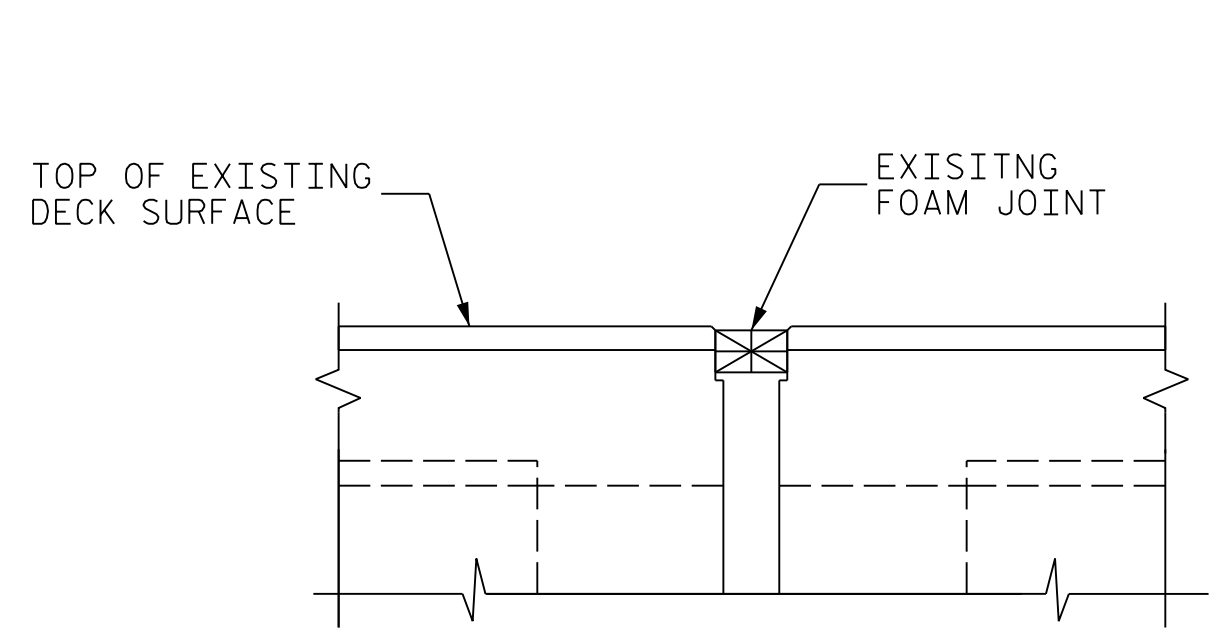
**SECTION A-A**  
(PROPOSED JOINT)



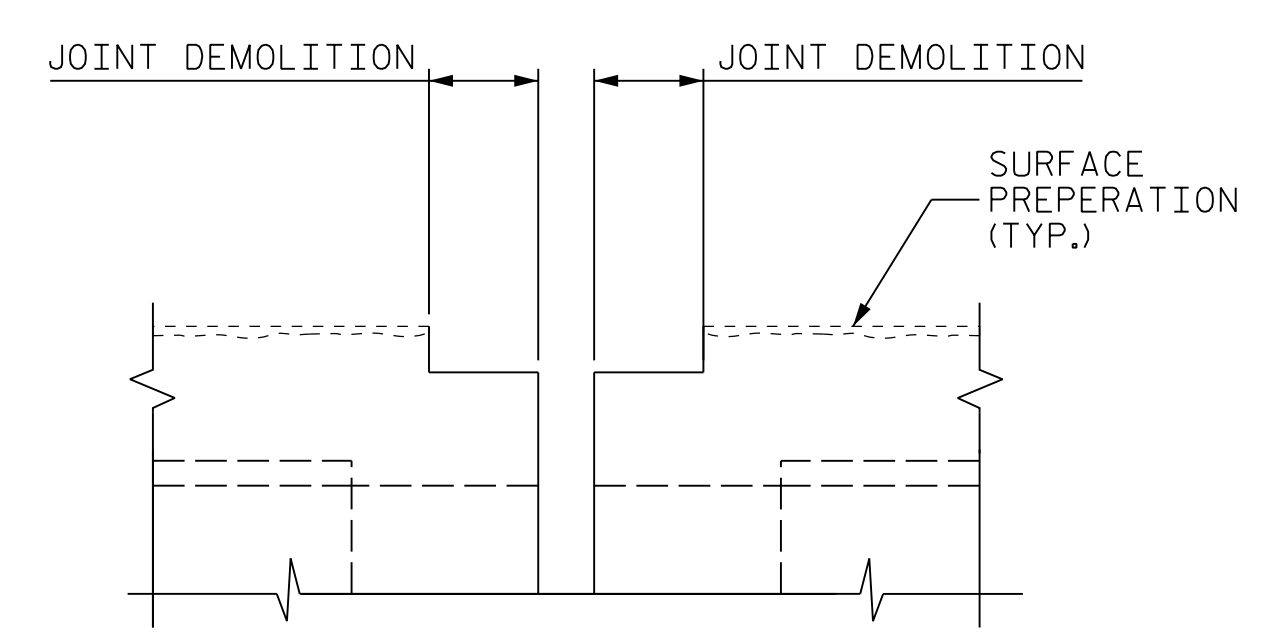
**PLAN**

**NOTES:**  
CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.  
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.  
RETAIN ALL EXISTING REINFORCING STEEL, CLEAN AND REPAIR AS NEEDED.  
THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2 1/2\" @ BENT 1 AND 2\" @ BENT 2 AND END BENTS.

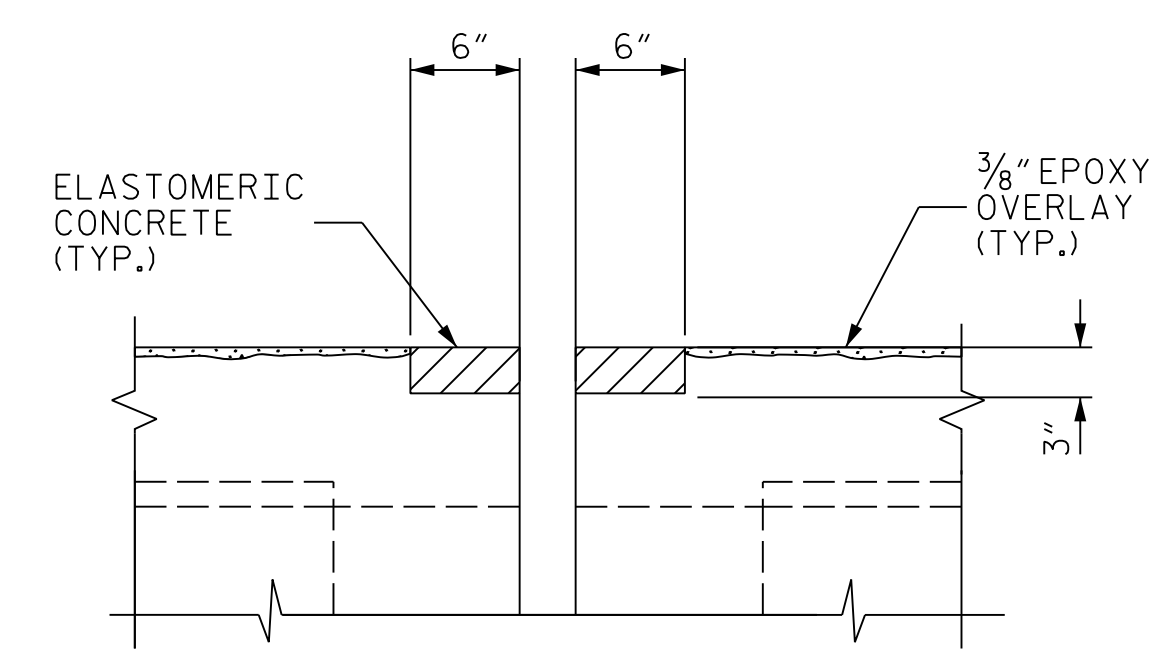
<b>ELASTOMERIC CONCRETE</b>	
BRIDGE 487	87 (CU. FT.)



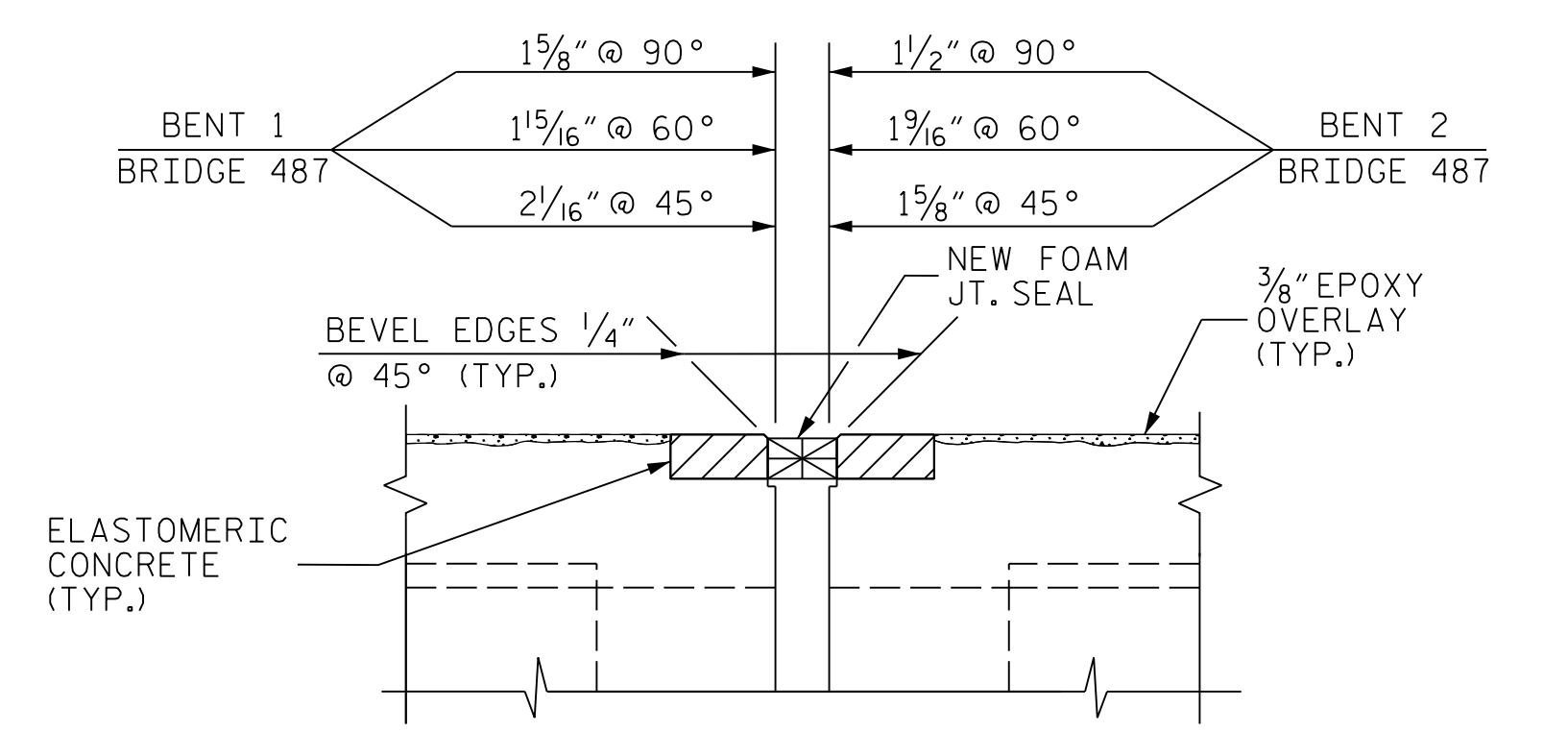
**EXISTING JOINT**



**MINIMUM EXISTING JOINT DEMOLITION**



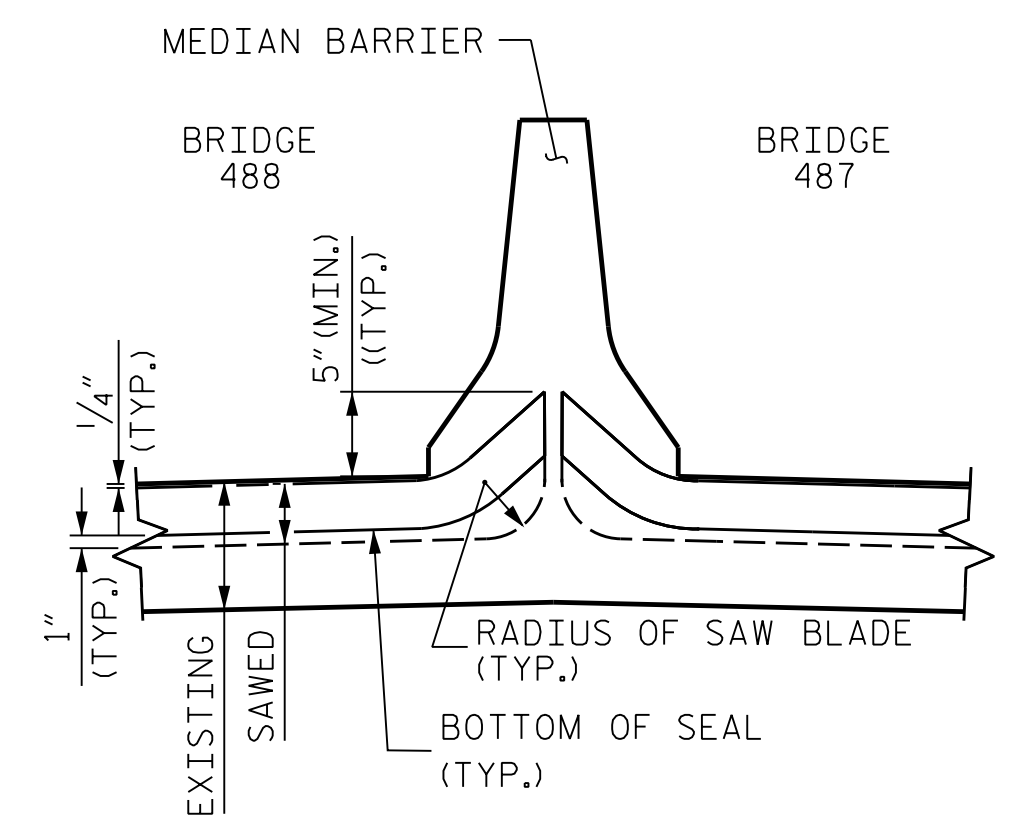
**PROPOSED JOINT PRE-SAWED DIMENSION**



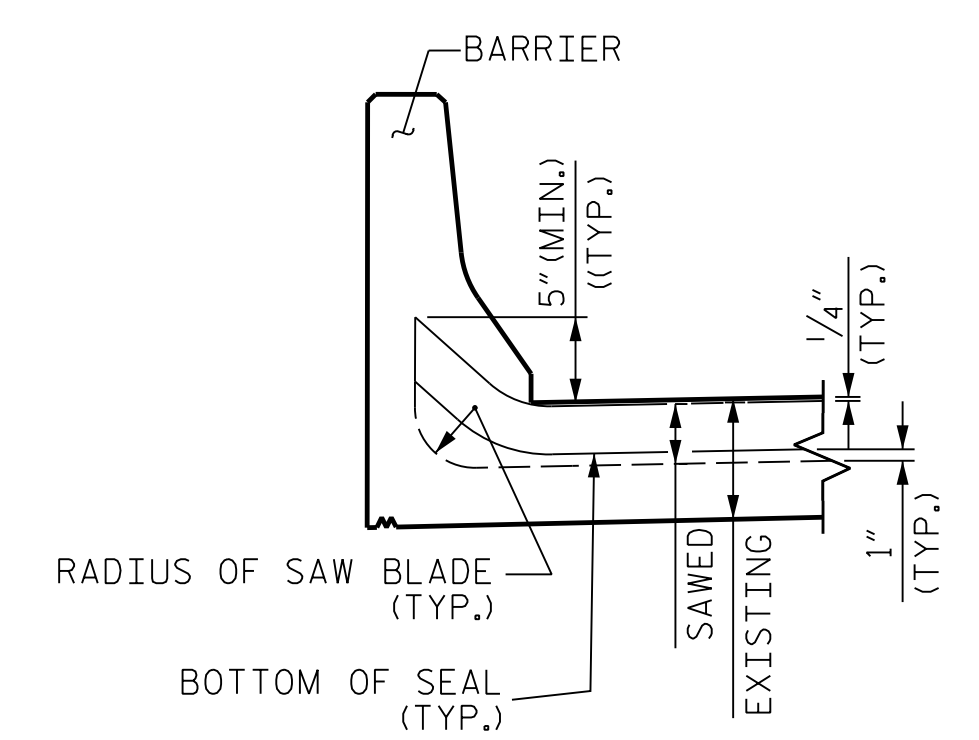
**PROPOSED FOAM JOINT SEAL EXPANSION**

**JOINT INSTALLATION SEQUENCE AT BENTS**

SECTION B-B



**SECTION THRU. MEDIAN BARRIER**



**SECTION D-D**

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 487

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUPERSTRUCTURE**  
JOINT DETAILS

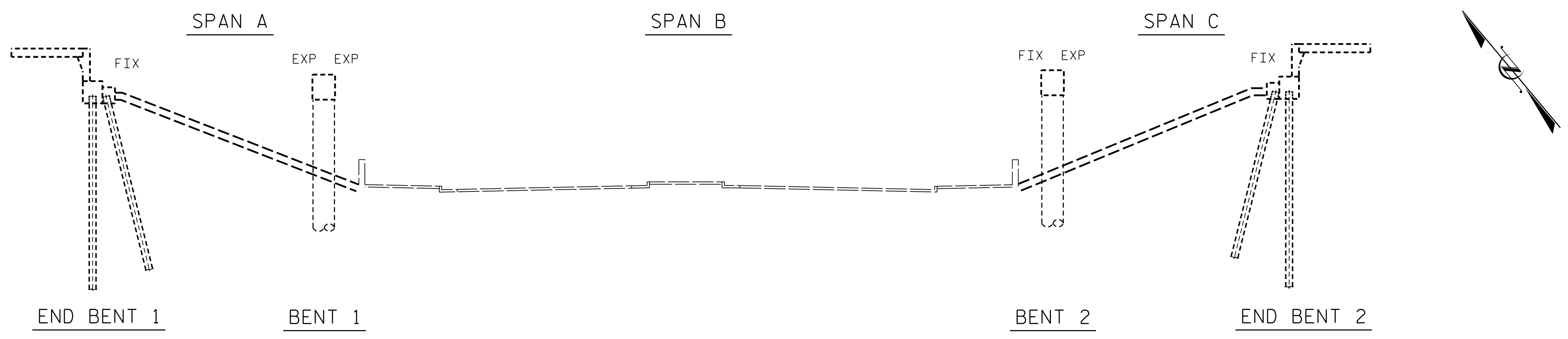
DRAWN BY :	S. DHOLAKIA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16

REVISIONS				SHEET NO.	
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1			3		
2			4		
					TOTAL SHEETS
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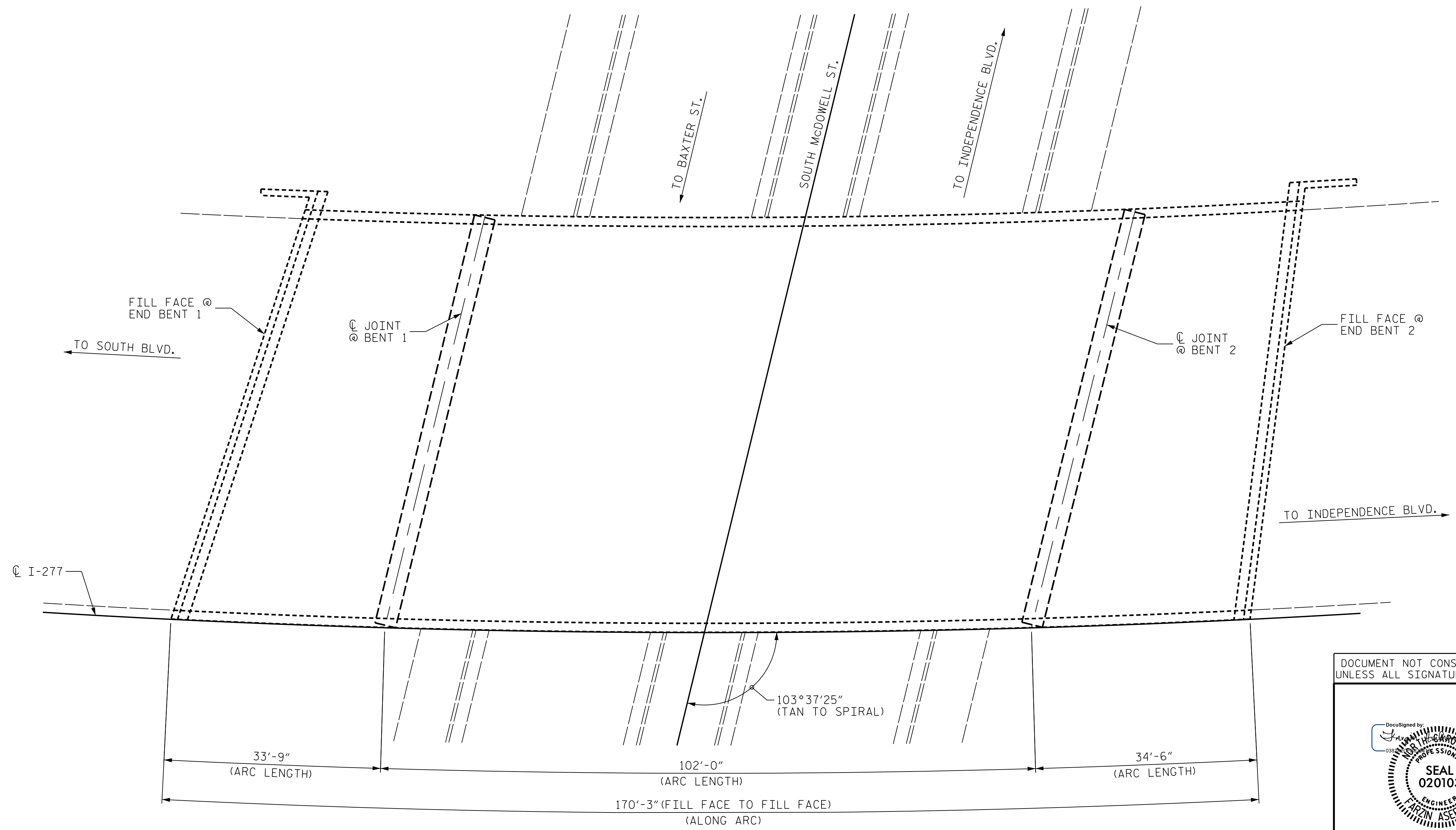
Louis Berger  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840



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**SECTION ALONG C I-277**  
(SECTIONS TAKEN AT RIGHT ANGLES)



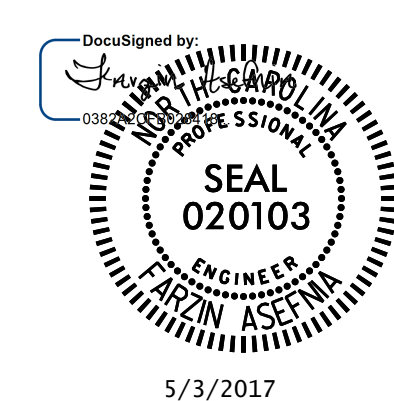
I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer \_\_\_\_\_ Date \_\_\_\_\_

PROJECT NO. I-5746A/I-5746B  
 MECKLENBURG COUNTY  
 BRIDGE NO. 488

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SHEET 1 OF 2



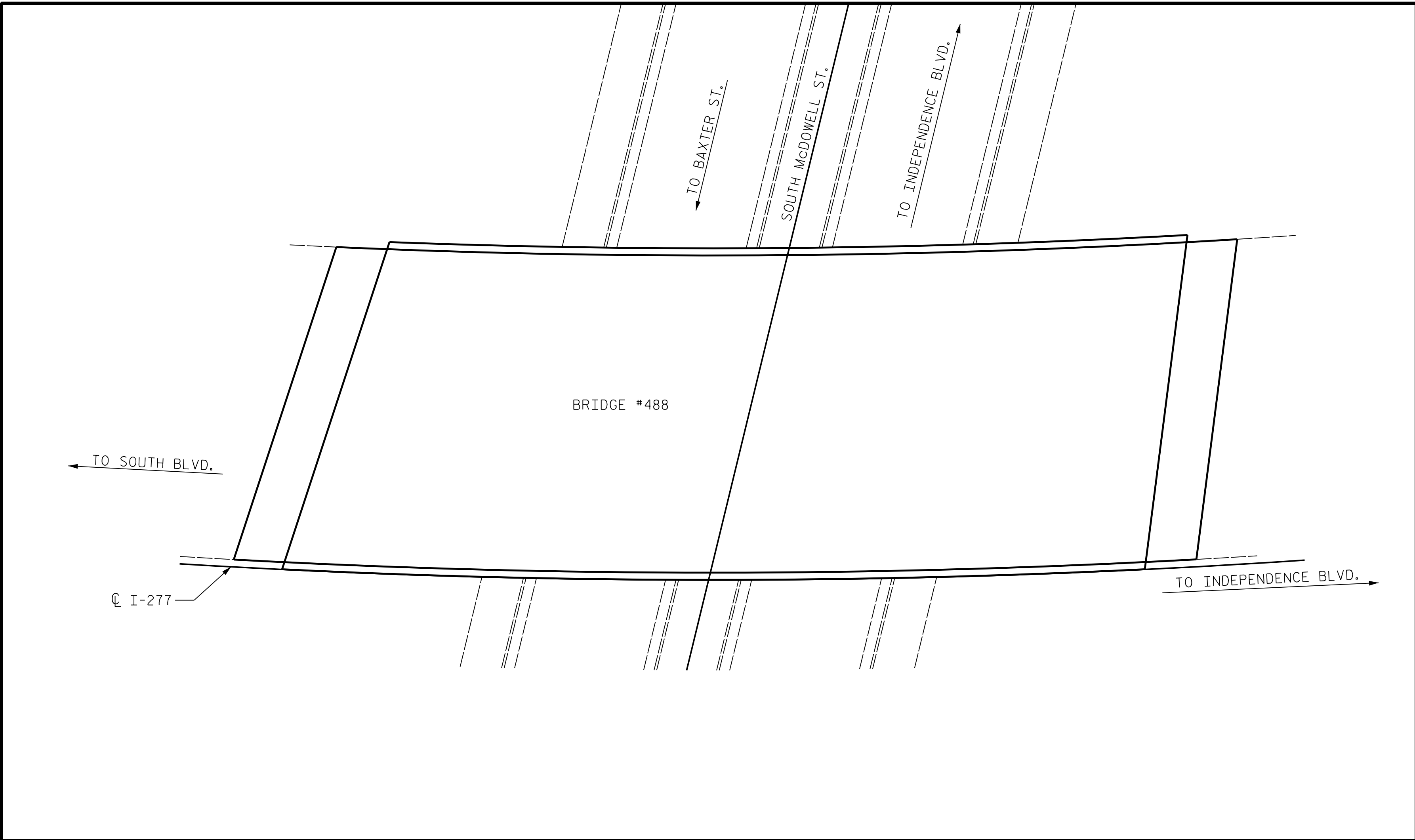
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 BRIDGE ON I-277 SB OVER SOUTH McDOWELL ST. BETWEEN SOUTH BLVD. AND INDEPENDENCE BLVD.

DRAWN BY :	R. KNIGHT	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16

**PLAN**  
(PILES NOT SHOWN FOR CLARITY)

Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS				SHEET NO.	
	NO.	BY:	DATE:	NO.	BY:	DATE:
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LOCATION SKETCH

**NOTES:**

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

FOR OVERLAY OF BRIDGE WITH EPOXY OVERLAY SYSTEM, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

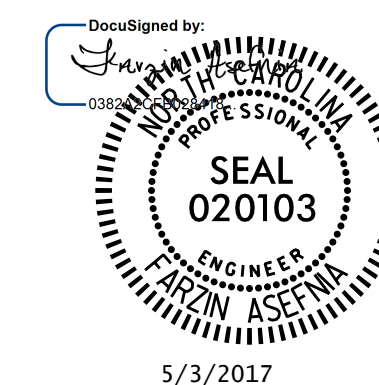
FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR AT THE PAVEMENT MARKINGS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 488

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SHEET 2 OF 2



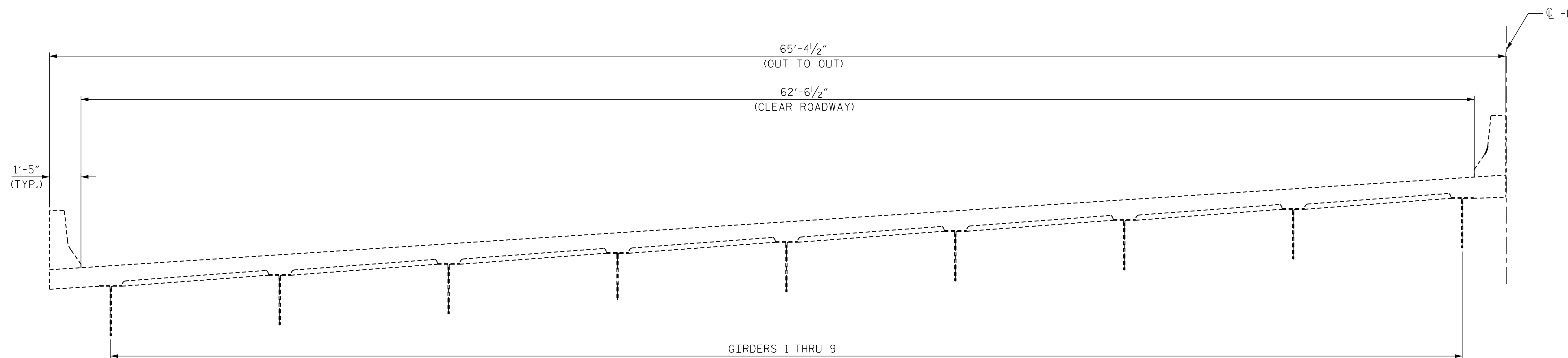
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 BRIDGE ON I-277 SB OVER  
 SOUTH McDOWELL ST. BETWEEN  
 SOUTH BLVD. AND  
 INDEPENDENCE BLVD.

DRAWN BY :	R. KNIGHT	DATE :	8-16
CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16

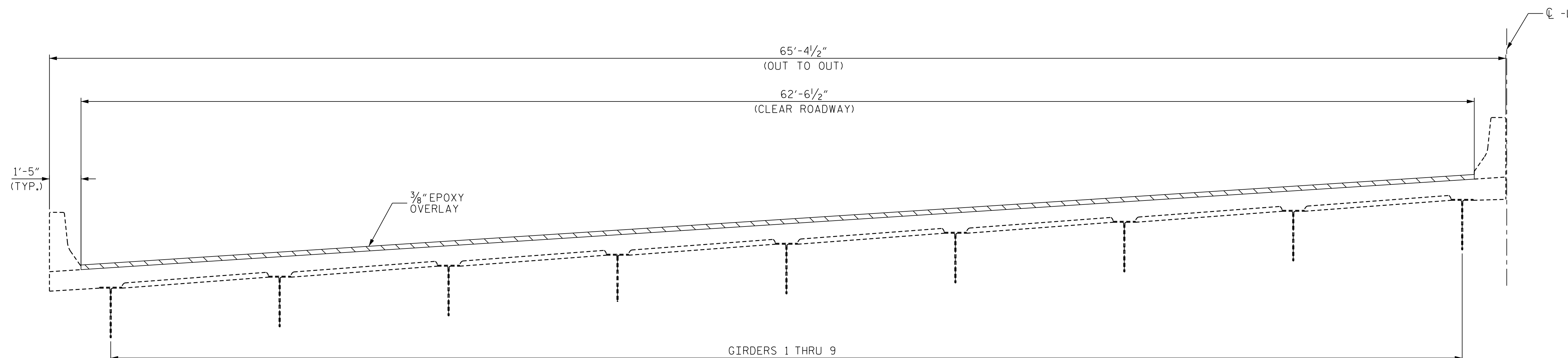


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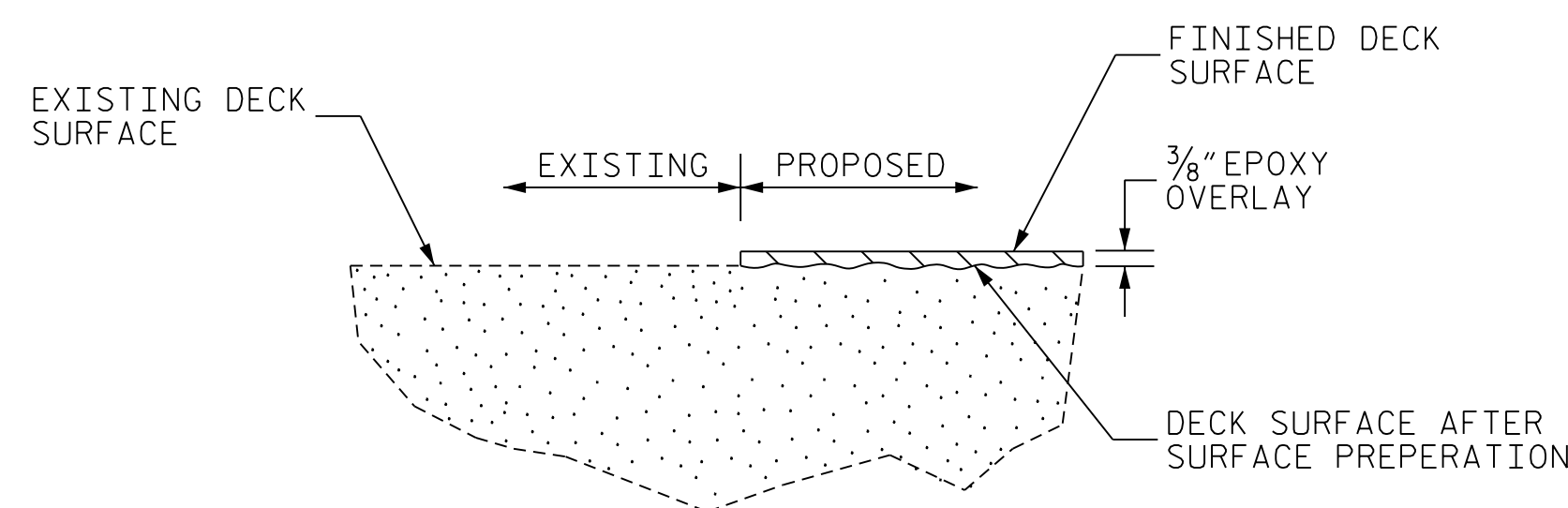
**TYPICAL SECTION**  
(EXISTING)



**TYPICAL SECTION**  
(EPOXY OVERLAY)

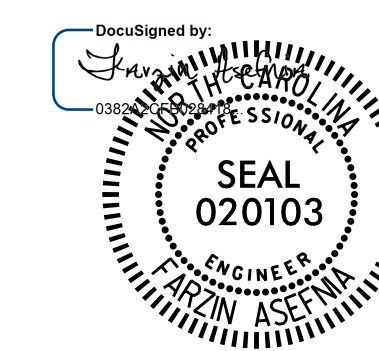
PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 488

**NOTE:**  
 SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.



**DETAIL OF EPOXY OVERLAY**

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5/3/2017

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE**

TYPICAL SECTION  
 & EPOXY OVERLAY

DRAWN BY :	S. DHOLAKIA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16



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1			3			TOTAL SHEETS
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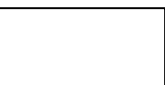



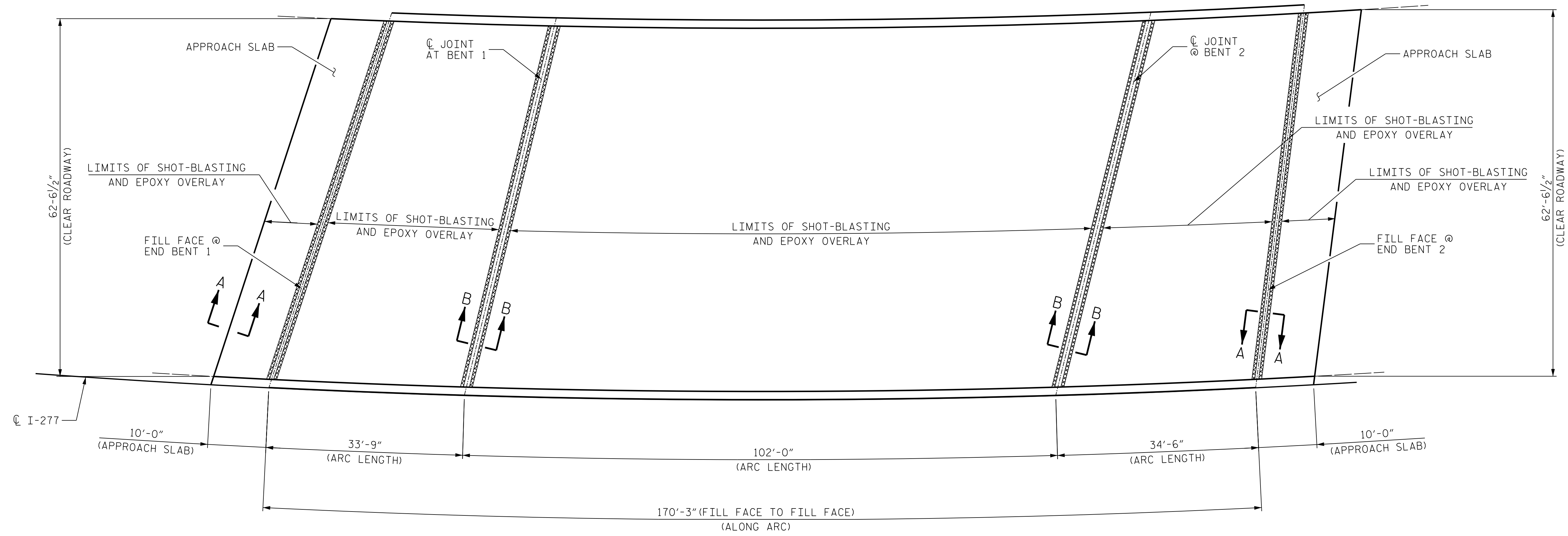
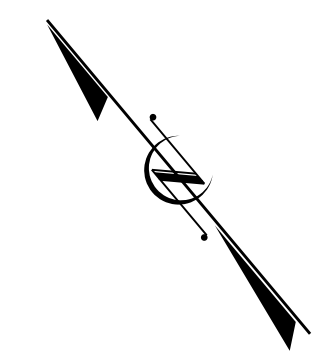
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I-5746\_PDF\_FULL.pltcfgr I-5746\_STR\_REHAB.TBL

SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1 SQ.FT.	
BRIDGE JOINT DEMOLITION	260 SQ. FT.	
EPOXY OVERLAY SYSTEM	11,248 SQ. FT.	

**NOTE:**  
CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED, TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED

**LEGEND**

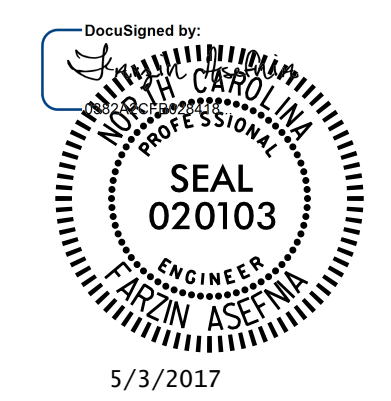
	EPOXY OVERLAY
	JOINT DEMOLITION



**PLAN**  
(FOR SECTION A-A & B-B, SEE JOINT DETAILS SHEET)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 488

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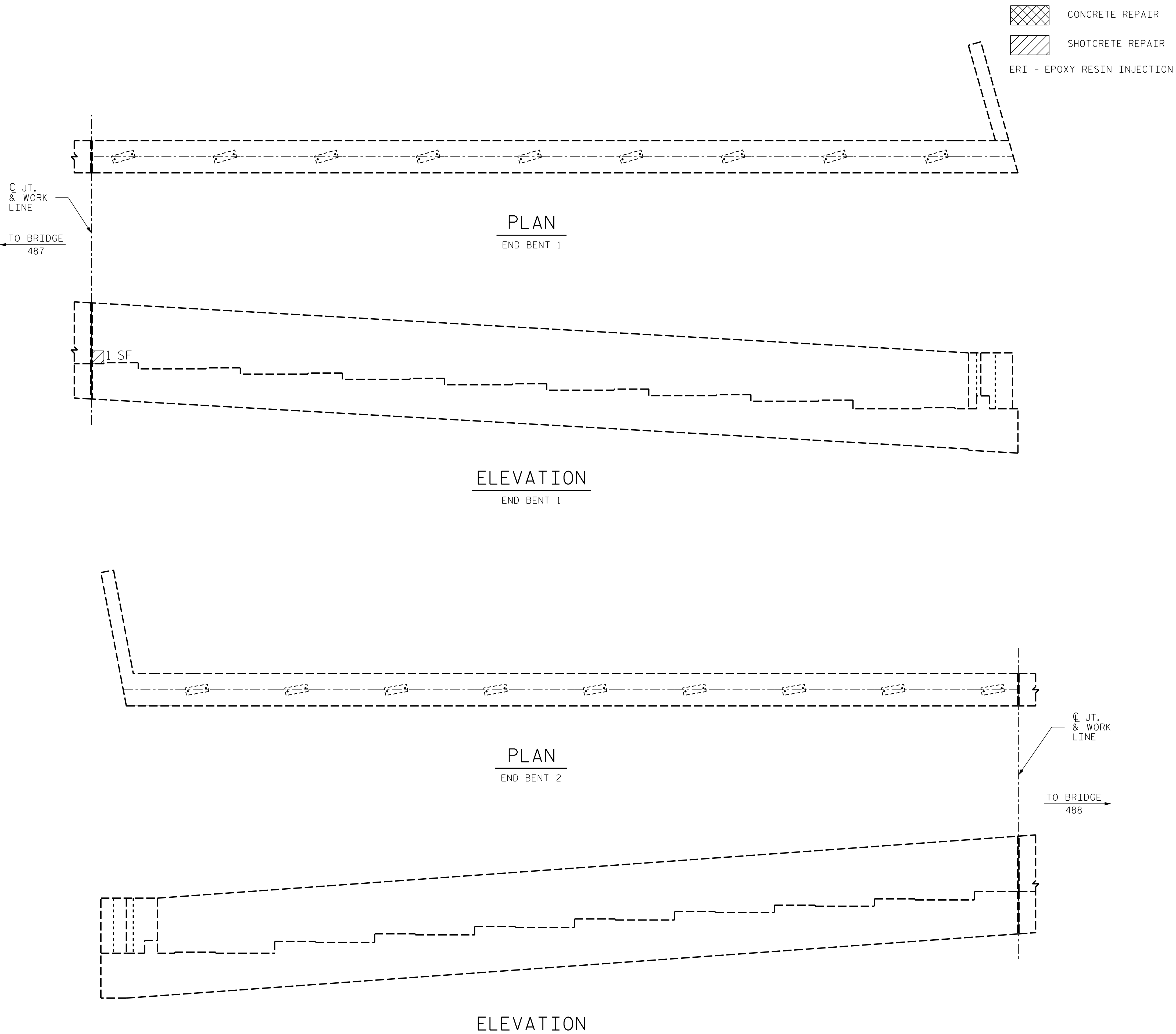
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION  
& EPOXY OVERLAY**  
(SOUTHBOUND)

DRAWN BY :	S. DHOLAKIA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

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1			3			TOTAL SHEETS
2			4			196



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 I-5746\_PDF\_FULL.pltcfp I-5746\_STR\_REHAB.TBL



REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	1.0	0.3		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			0.0	
EPOXY COATING	AREA SF			
CAP	179.0			
END BENT 2	QUANTITIES			
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			0.0	
EPOXY COATING	AREA SF			
CAP	000.0			

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

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

NO REPAIR NOTED DURING INSPECTION BY STRUCTURE MANAGMENT UNIT THE CONTRACTOR AND ENGINEER SHALL INSPECT THE END BENT PRIOR TO BEGINING WORK.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 488

DOCUMENT NOT CONSIDERED FINAL  
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Prepared by:  
**Louis Berger**  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 1 & END BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 196

DRAWN BY : S. DHOLAKIA DATE : 9-16  
 CHECKED BY : F. ASEFNIA DATE : 12-16  
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 12-16

**ELEVATION**  
END BENT 2

**PLAN**  
END BENT 2

**ELEVATION**  
END BENT 1

**PLAN**  
END BENT 1

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### REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	11.8	3.0		
CAP (HORIZONTAL FACE)	6.5	1.6		
COLUMN	25.0	6.3		
CONCRETE REPAIRS	3.0	0.8		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING		AREA SF		AREA SF
CAP		221.0		

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

**NOTES:**

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

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

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



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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

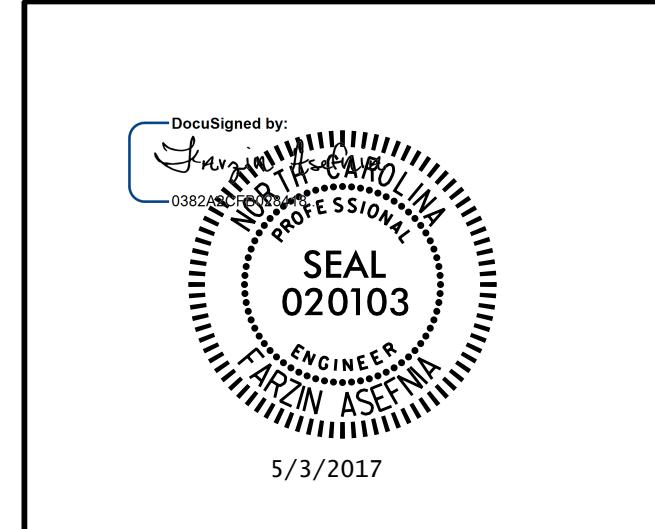
FOR REPAIR DETAILS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

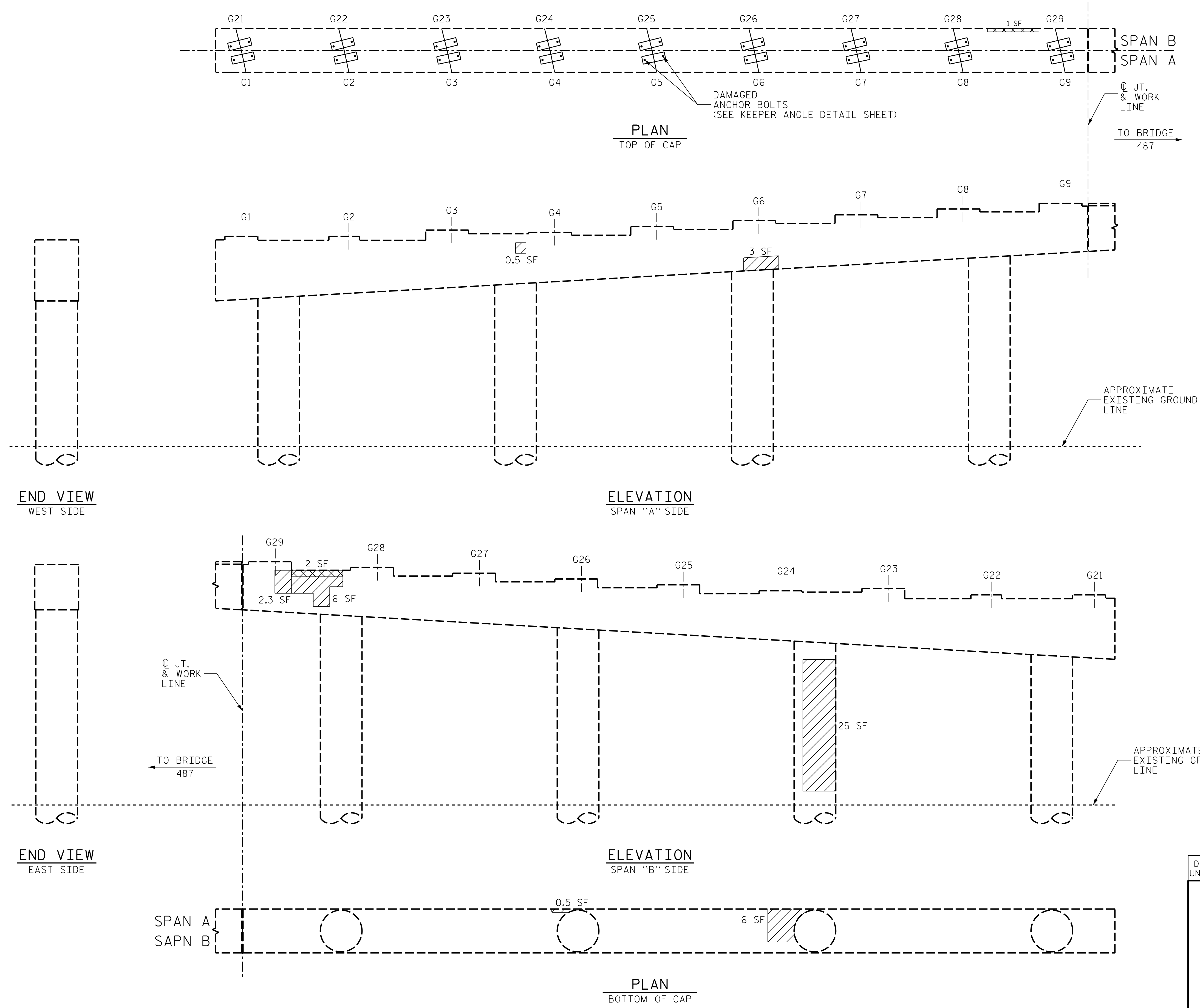
-  SHOTCRETE REPAIRS
-  CONCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 488

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 1

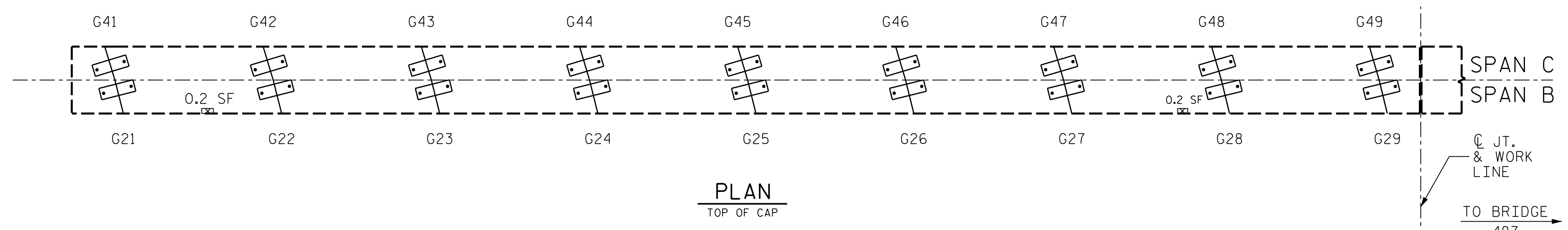


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CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16

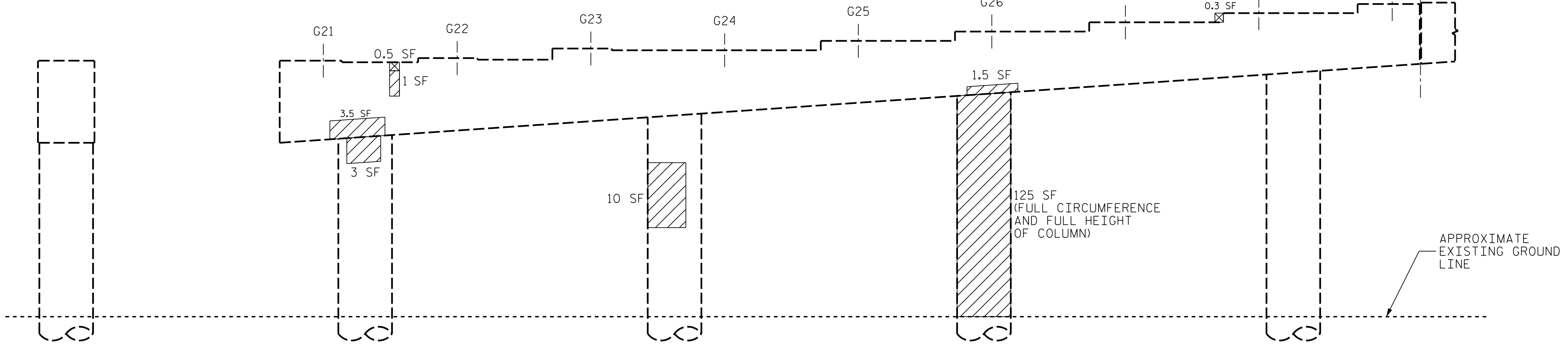
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-152
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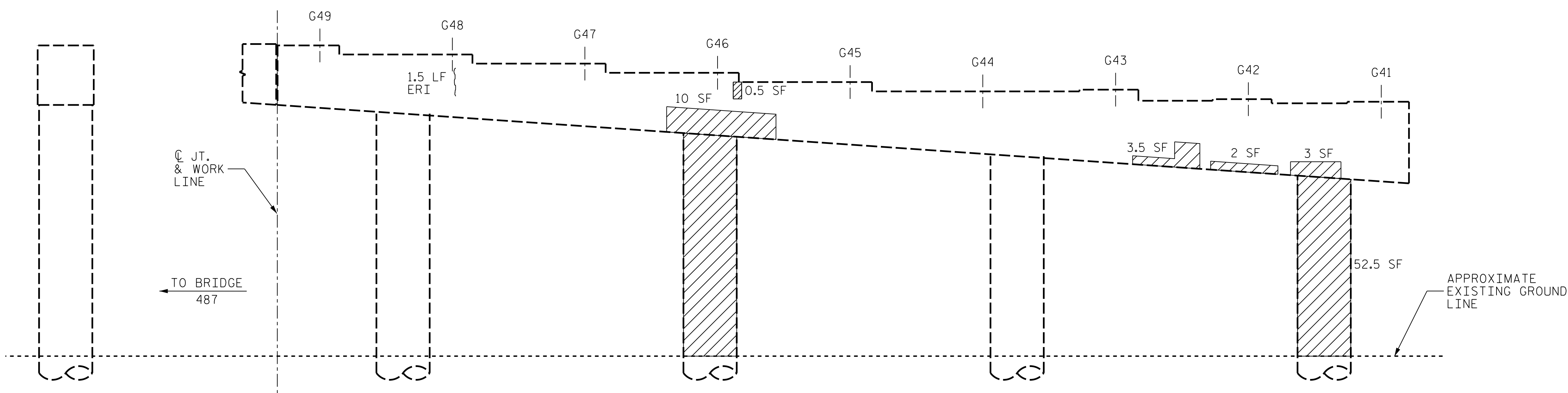


**PLAN**  
TOP OF CAP



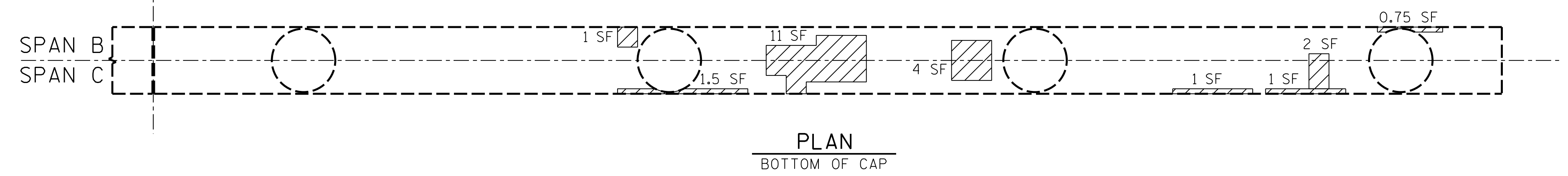
**ELEVATION**  
SPAN "B" SIDE

**END VIEW**  
WEST SIDE



**ELEVATION**  
SPAN "C" SIDE

**END VIEW**  
EAST SIDE



**PLAN**  
BOTTOM OF CAP

**REPAIR QUANTITY TABLE**

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	25.0	6.4		
CAP (HORIZONTAL FACE)	22.3	5.6		
COLUMN	190.5	47.6		
CONCRETE REPAIR	1.2	0.3		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		1.5		
COLUMN		0.0		
EPOXY COATING		AREA SF		AREA SF
CAP		225.0		

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

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

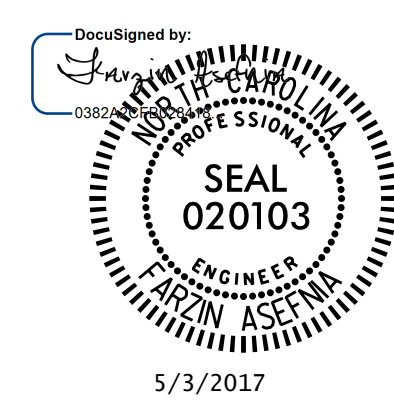
FOR REPAIR DETAILS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

- SHOTCRETE REPAIRS
- CONCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 488

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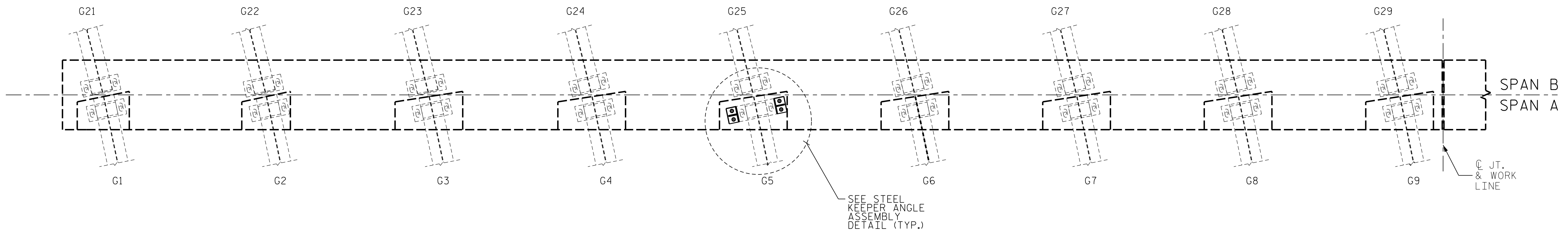
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 2

DRAWN BY :	S. DHOLAKIA	DATE :	9-16
CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16

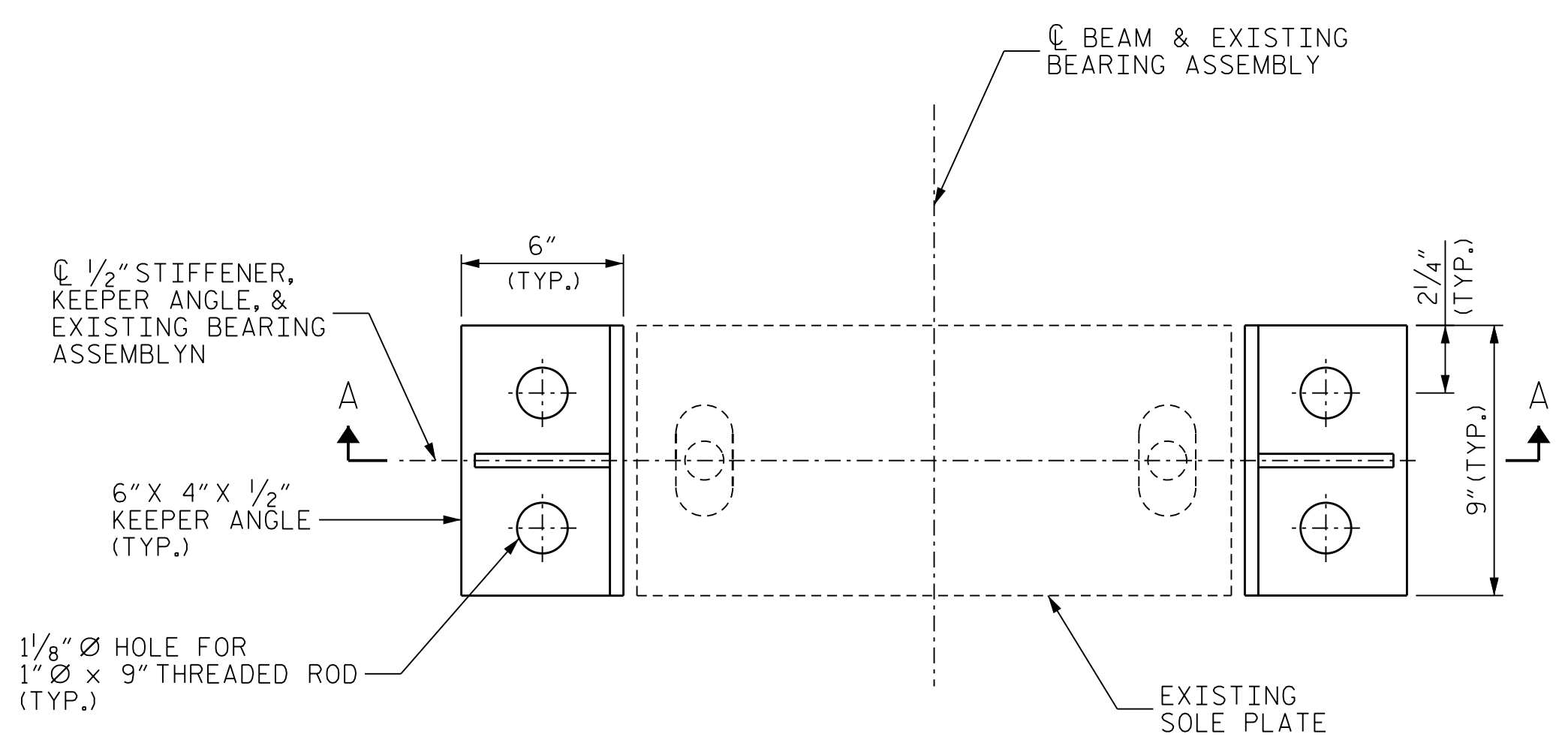
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-153
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2			4			196



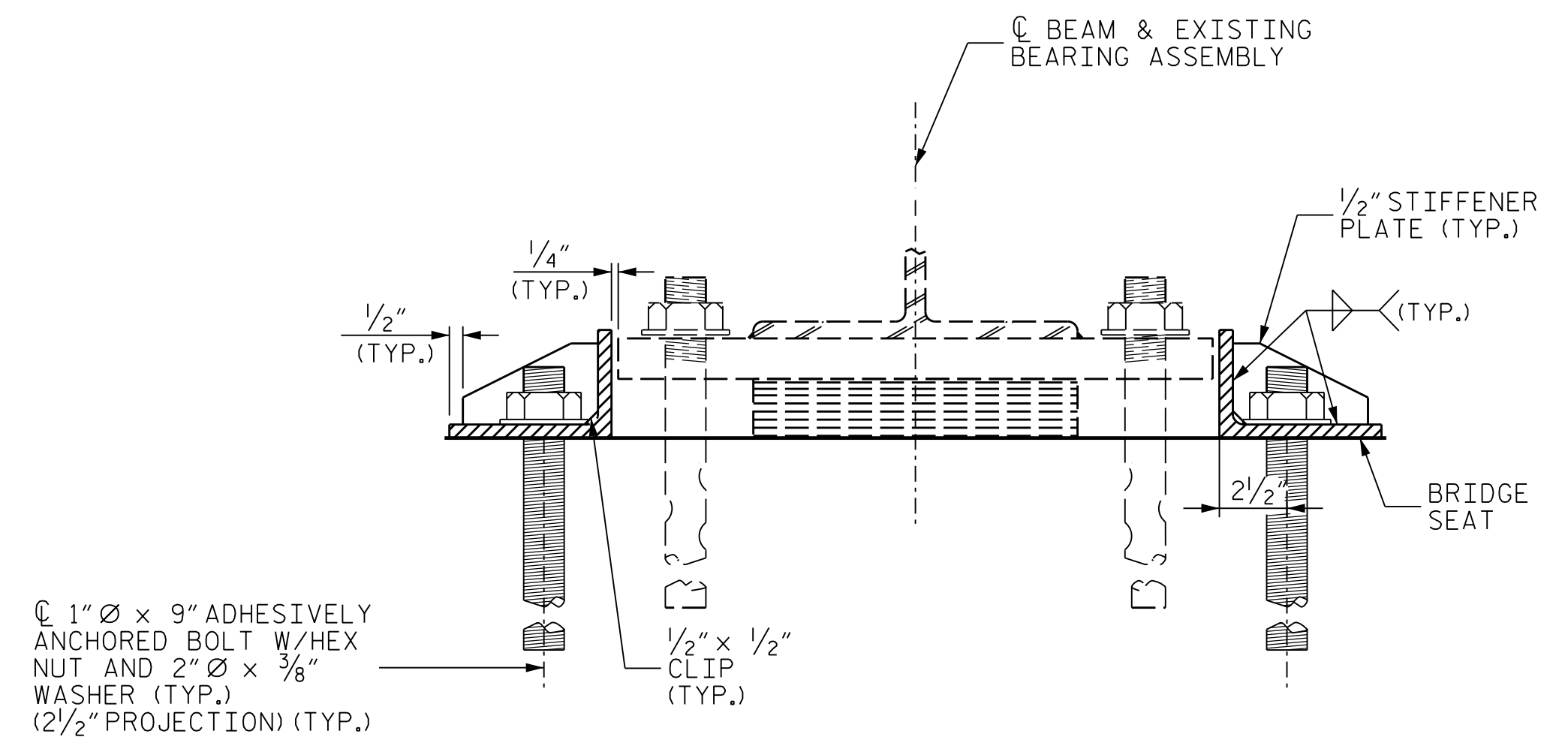
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PLAN OF EXISTING BENT 1



PLAN

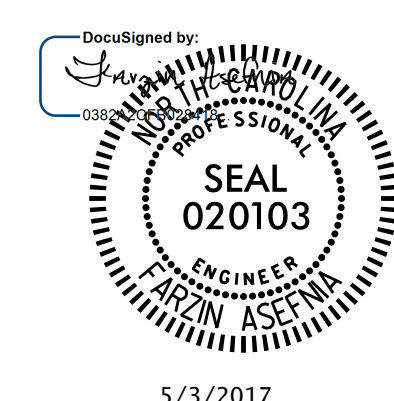


SECTION A-A

STEEL KEEPER ANGLE ASSEMBLY DETAILS  
(1 PAIR REQUIRED AT BENT 1)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 488

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
 KEEPER ANGLE  
 DETAILS SHEET

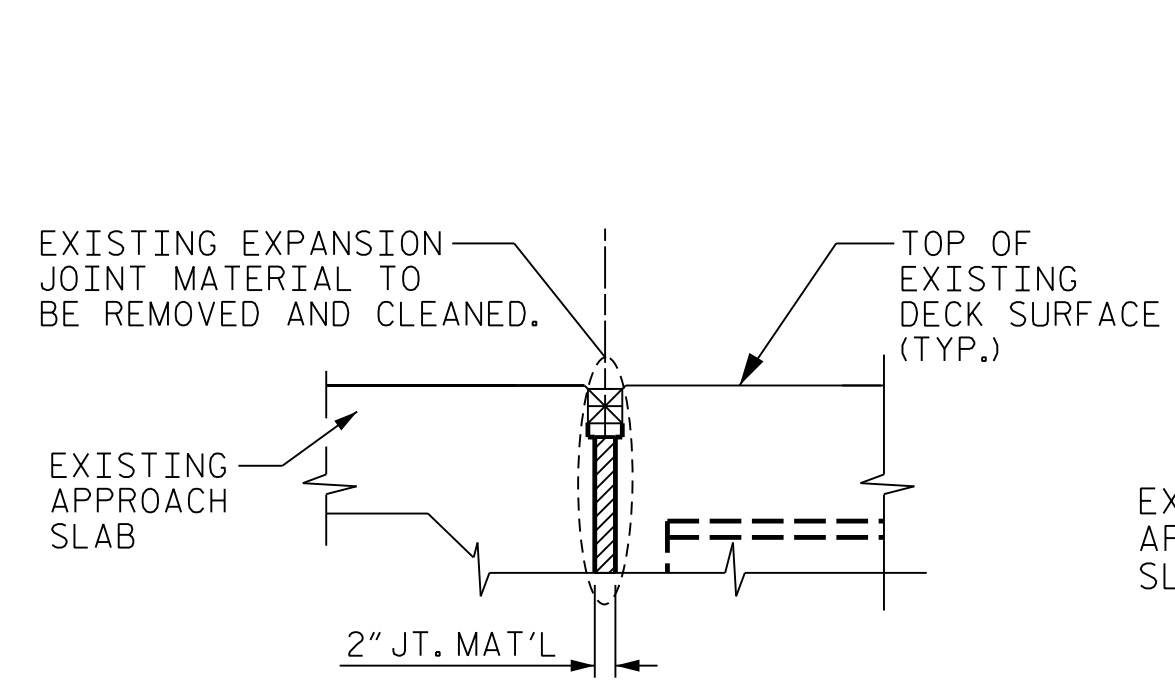
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CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16

Prepared by:  
**Louis Berger**  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

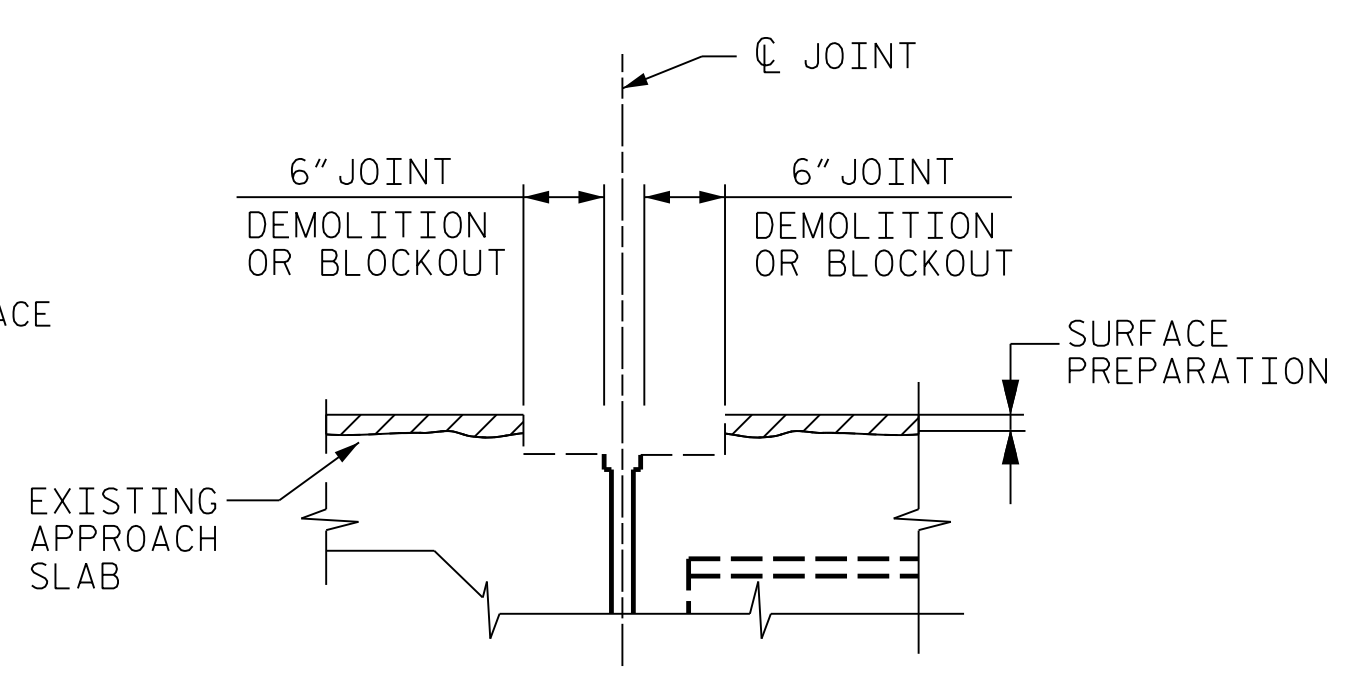
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-154
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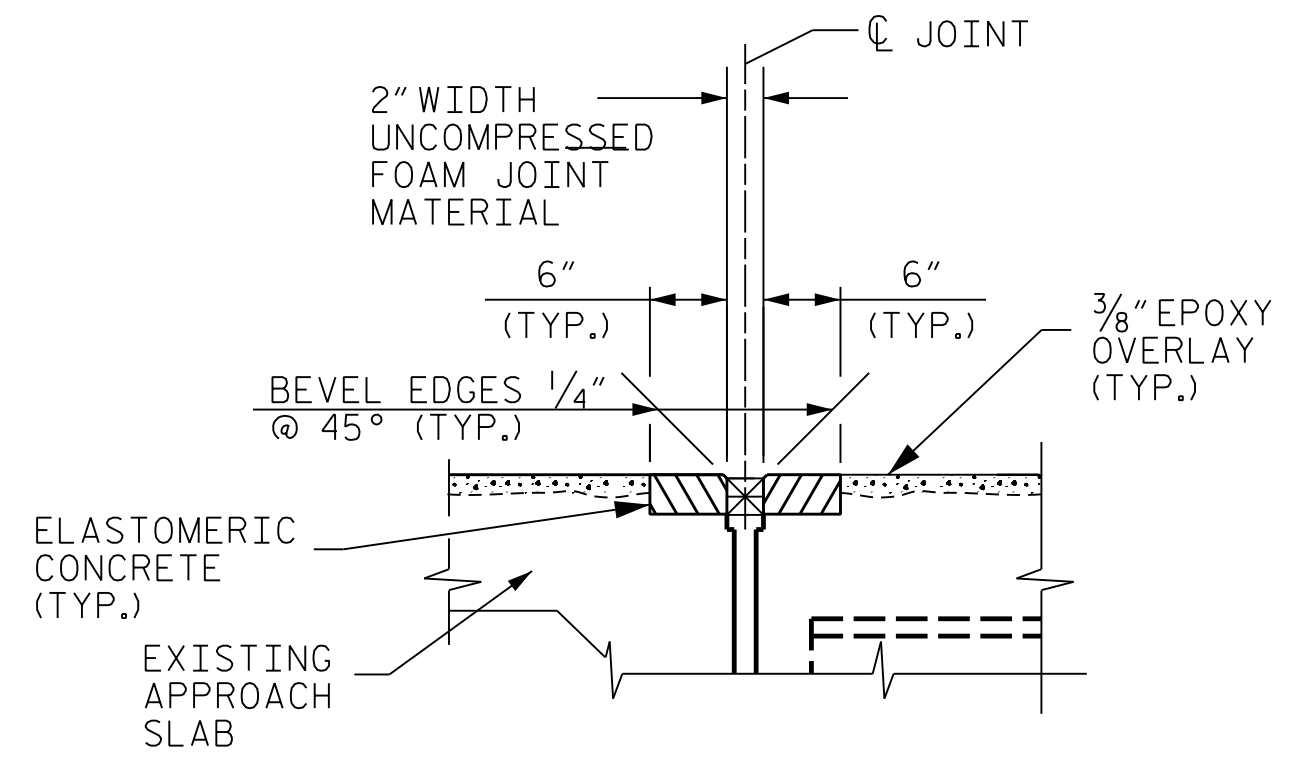
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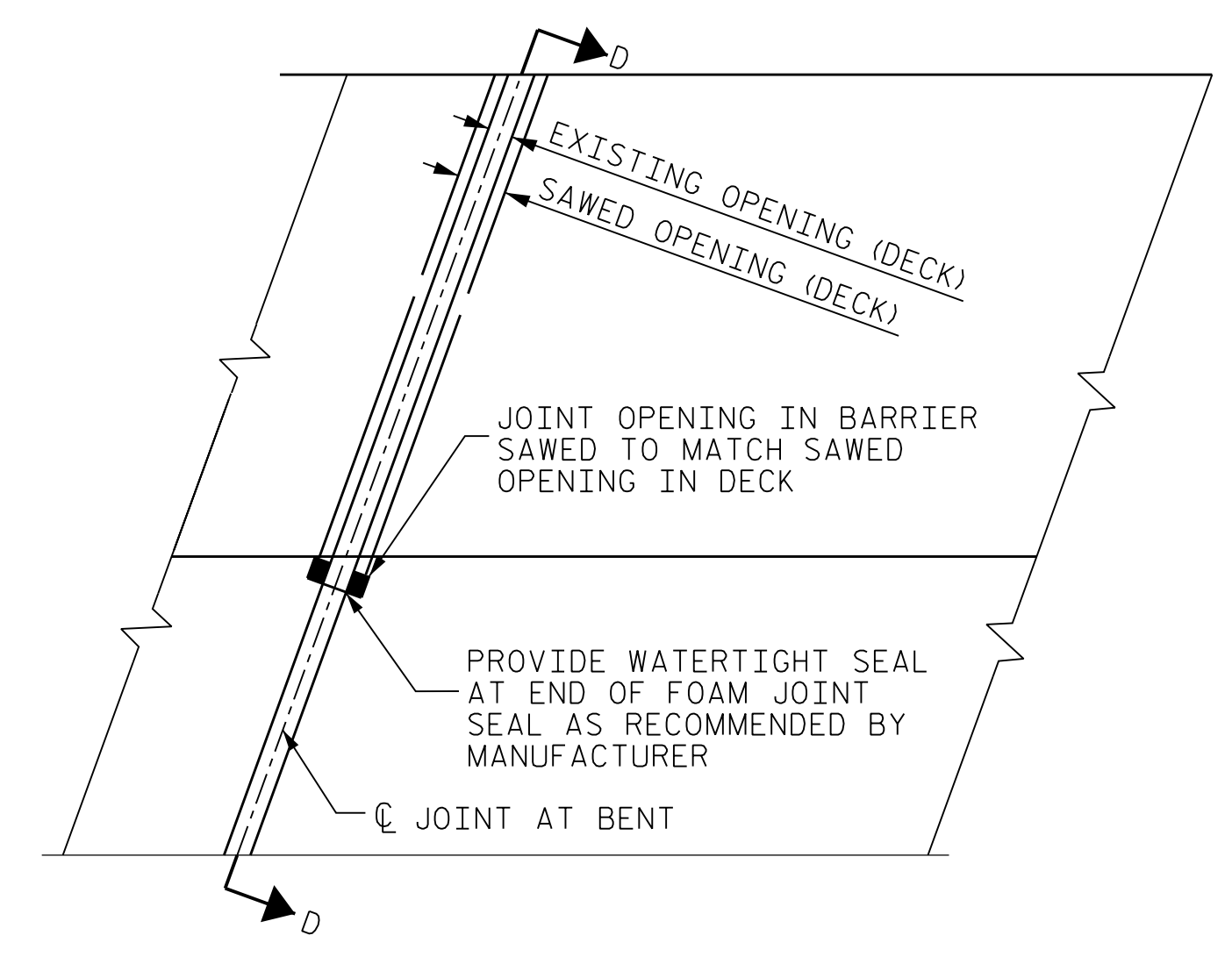
**SECTION A-A**  
(EXISTING JOINT)



**SECTION A-A**  
(MINIMUM EXISTING JOINT DEMOLITION)



**SECTION A-A**  
(PROPOSED JOINT)

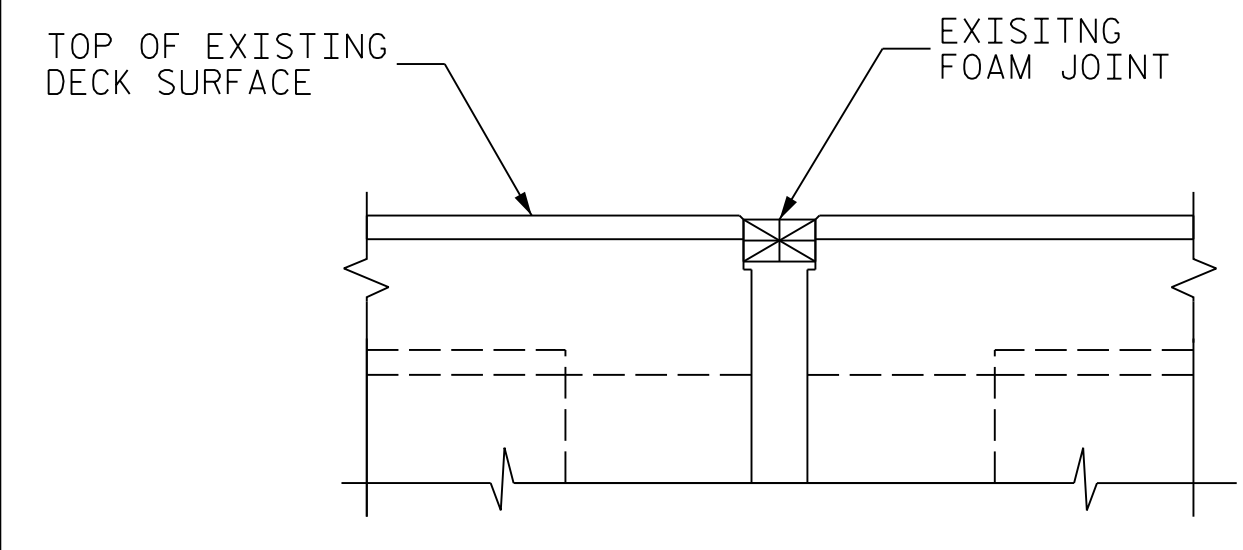


**PLAN**

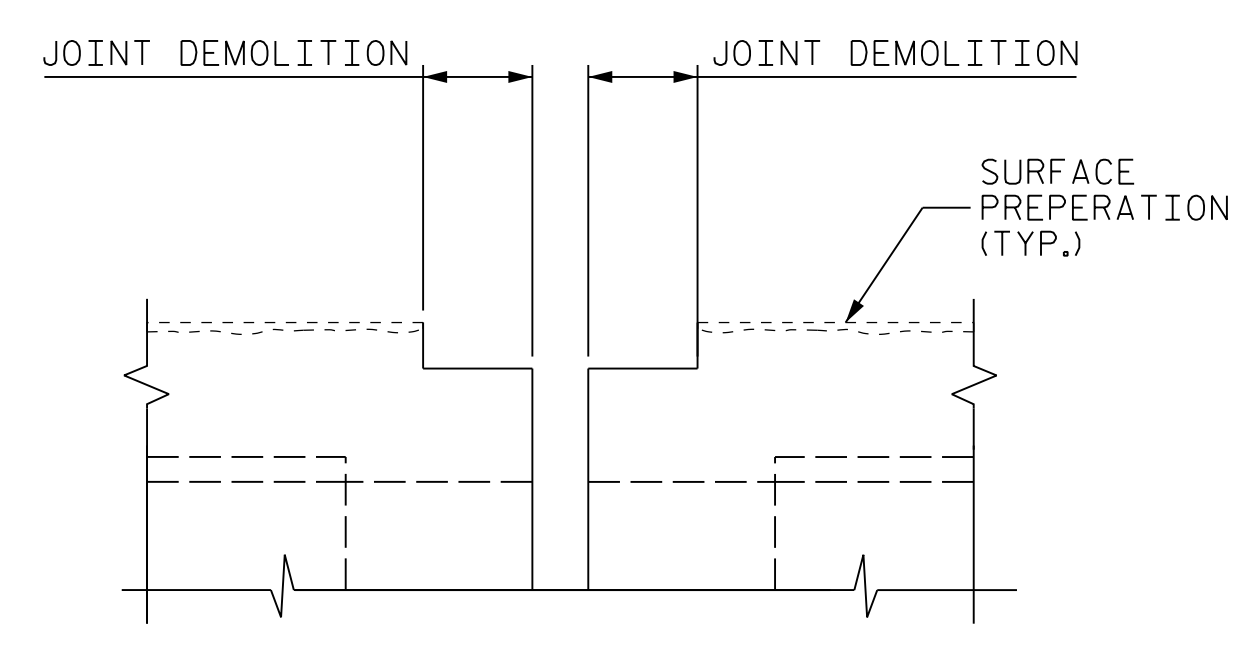
**NOTES:**  
CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.  
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.  
RETAIN ALL EXISTING REINFORCING STEEL, CLEAN AND REPAIR AS NEEDED.  
THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2 1/2" @ BENT 1, AND 2" @ BENT 2 & END BENTS.

<b>ELASTOMERIC CONCRETE</b>	
BRIDGE 488	65.0 (CU. FT.)

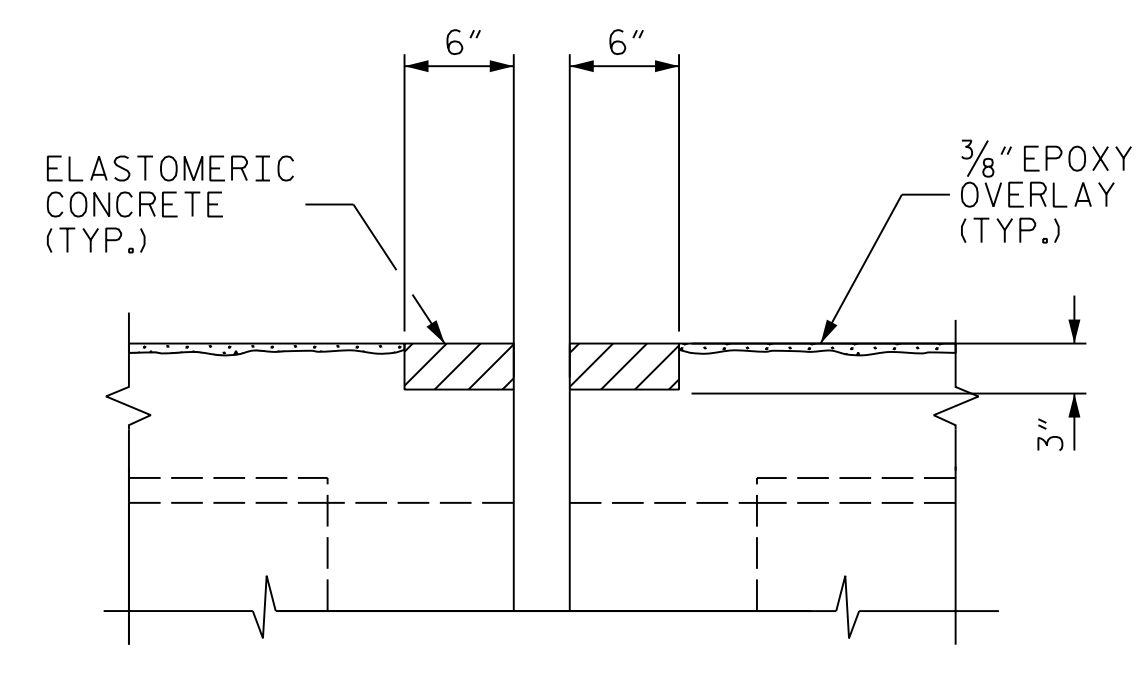
**JOINT INSTALLATION SEQUENCE AT END BENTS**  
SECTION A-A



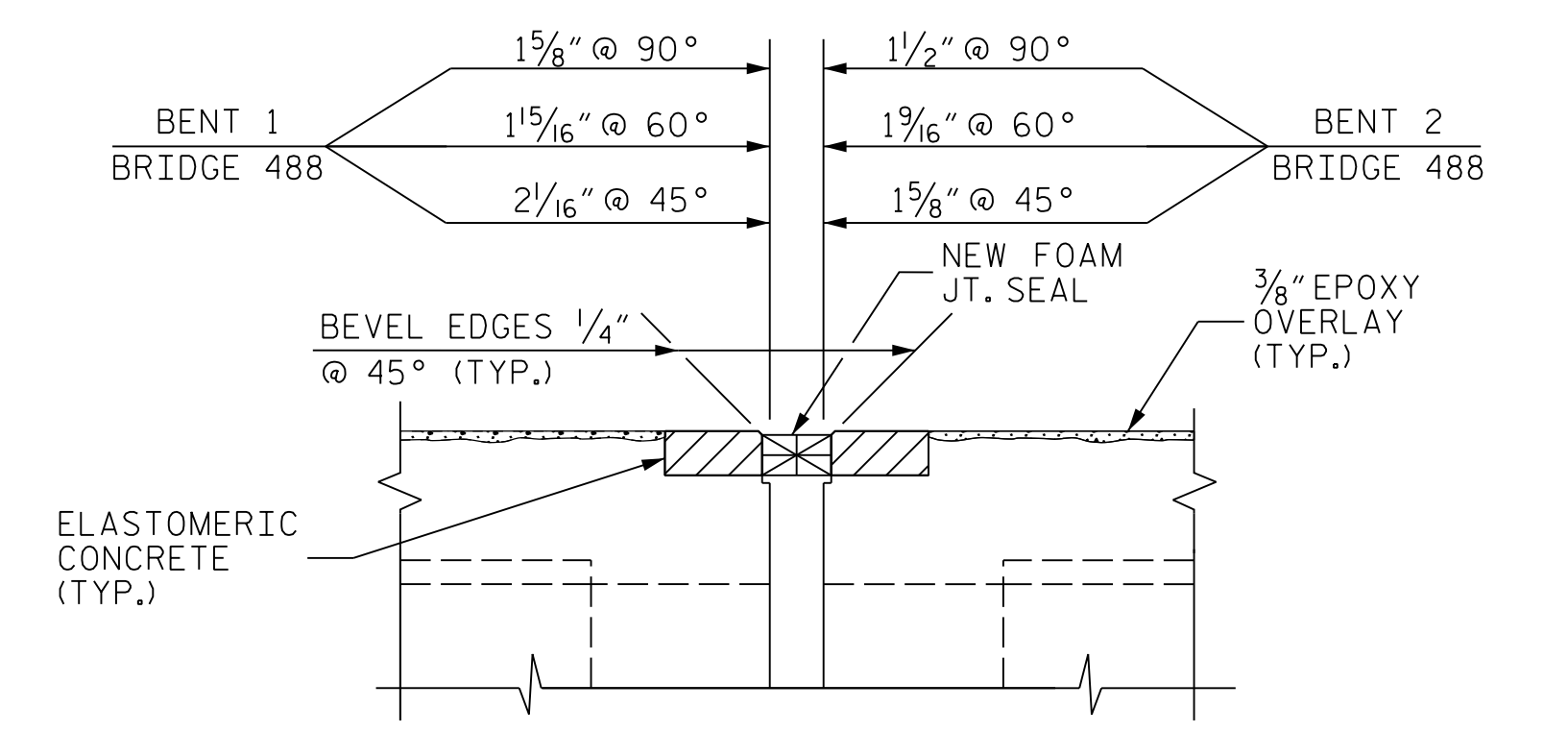
**EXISTING JOINT**



**MINIMUM EXISTING JOINT DEMOLITION**

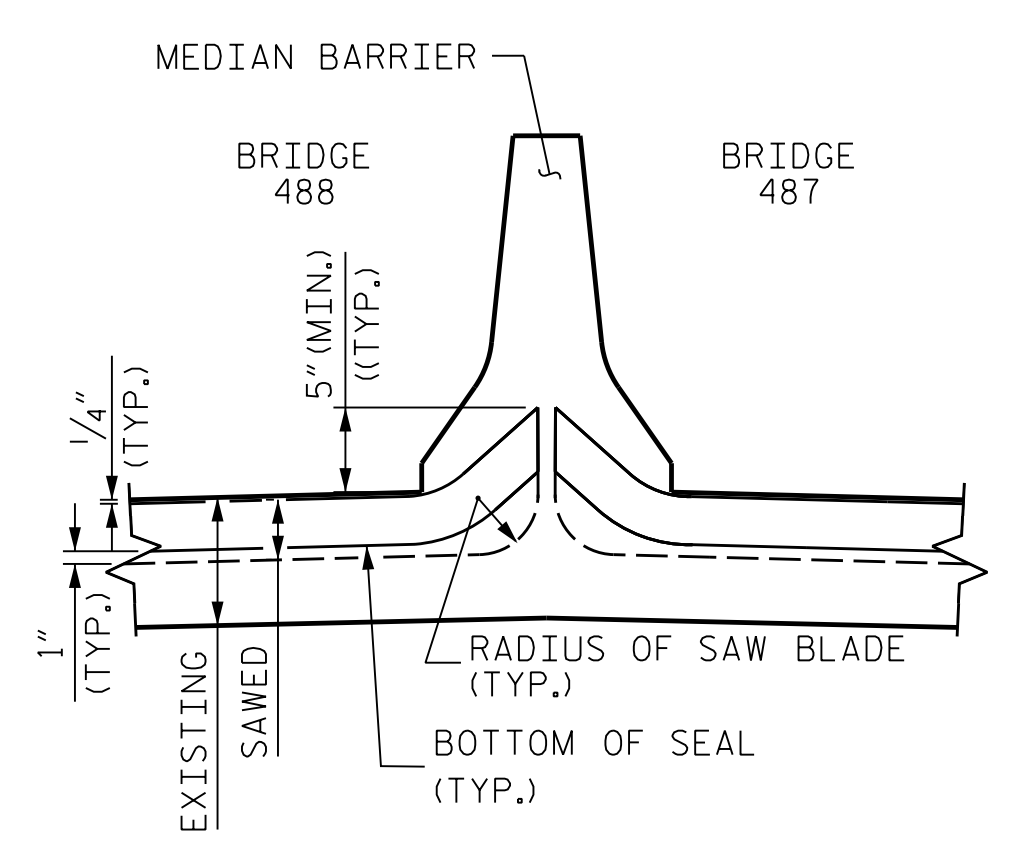


**PROPOSED JOINT PRE-SAWED DIMENSION**

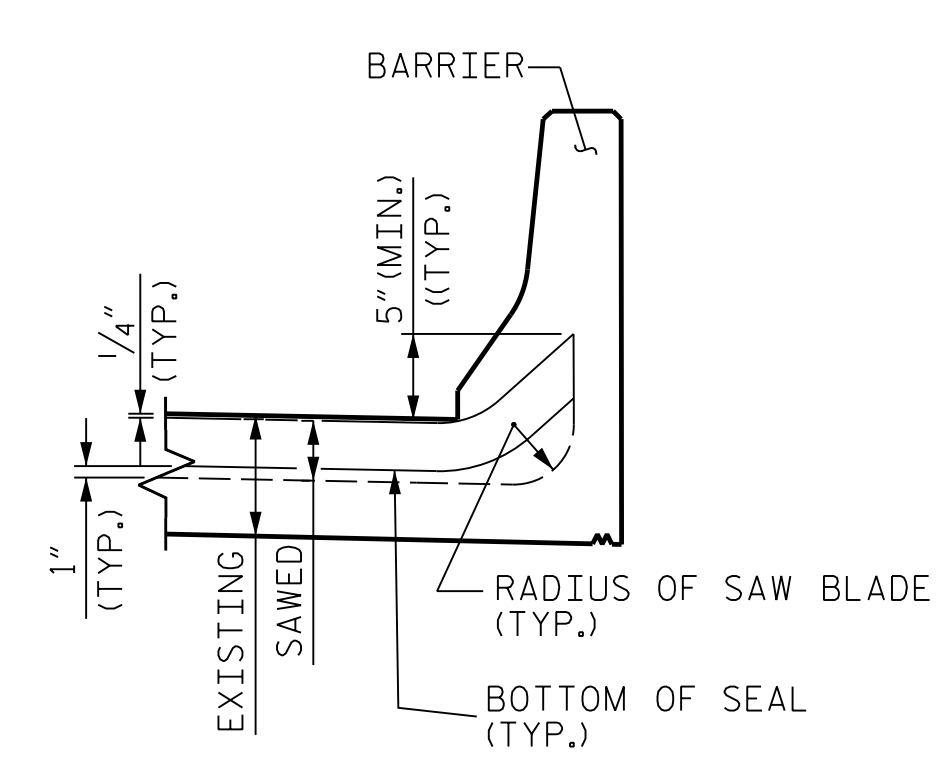


**PROPOSED FOAM JOINT SEAL EXPANSION**

**JOINT INSTALLATION SEQUENCE AT BENTS**  
SECTION B-B



**SECTION THRU. MEDIAN BARRIER**



**SECTION D-D**

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 488

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUPERSTRUCTURE**  
JOINT DETAILS

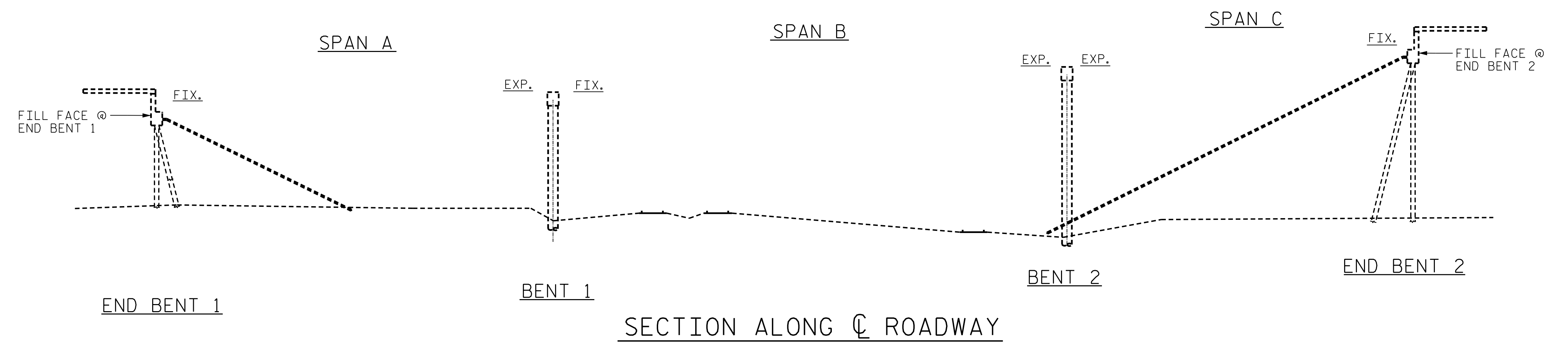
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CHECKED BY :	F. ASEFNIA	DATE :	12-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	12-16

REVISIONS		SHEET NO.				
NO.	BY:	DATE:	NO.	BY:	DATE:	S-155
1			3			TOTAL SHEETS
2			4			196

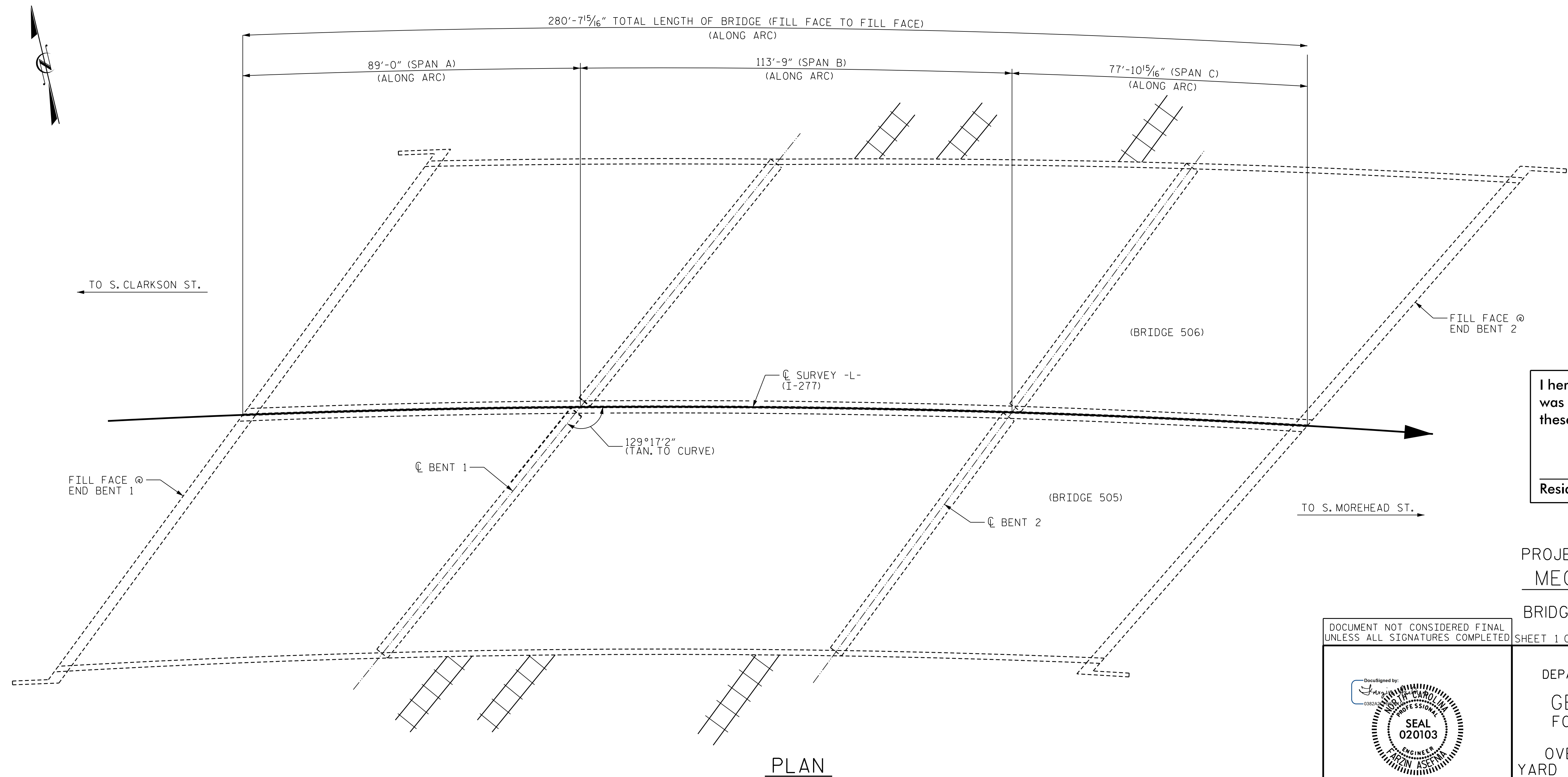
Louis Berger  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840



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SECTION ALONG C ROADWAY



PLAN

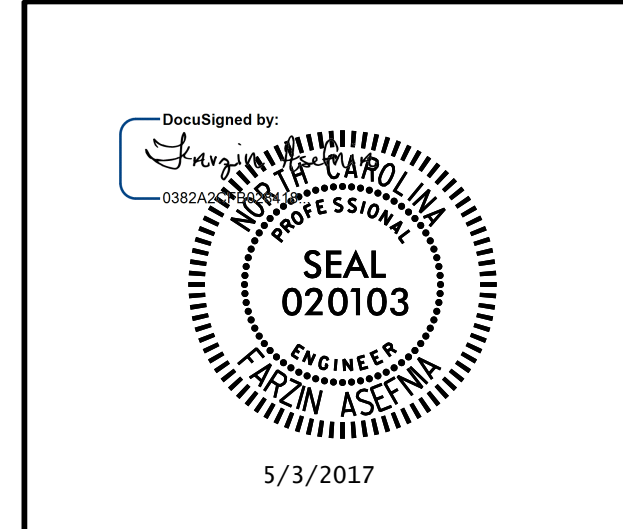
I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer \_\_\_\_\_ Date \_\_\_\_\_

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 505 & 506

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SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGES ON I-277  
 NB & SB  
 OVER SOUTHERN RAILWAY  
 YARD BETWEEN S. CLARKSON ST.  
 & MOREHEAD ST.

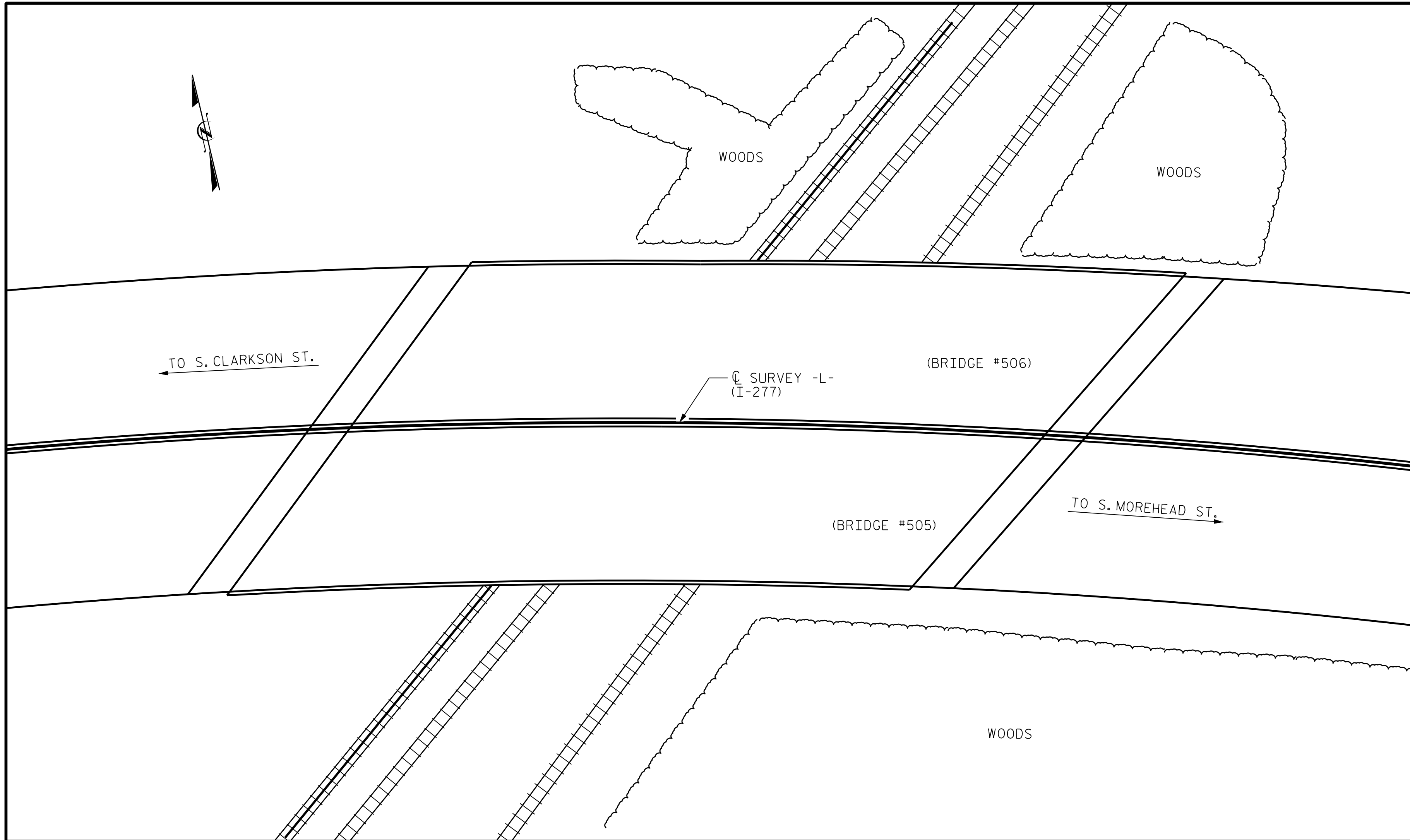
DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

Prepared by:  
 LOUIS BERGER  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

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

TOTAL SHEETS: 196

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**LOCATION SKETCH**

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

**NOTES:**

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

FOR EPOXY OVERLAY SYSTEM, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

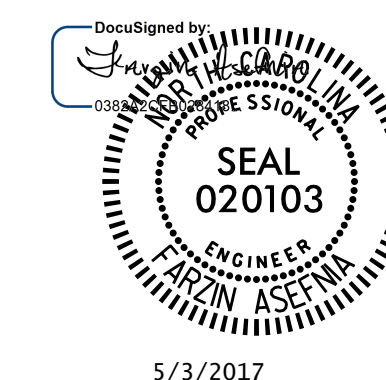
FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR AT THE PAVEMENT MARKINGS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 505 & 506

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SHEET 2 OF 2

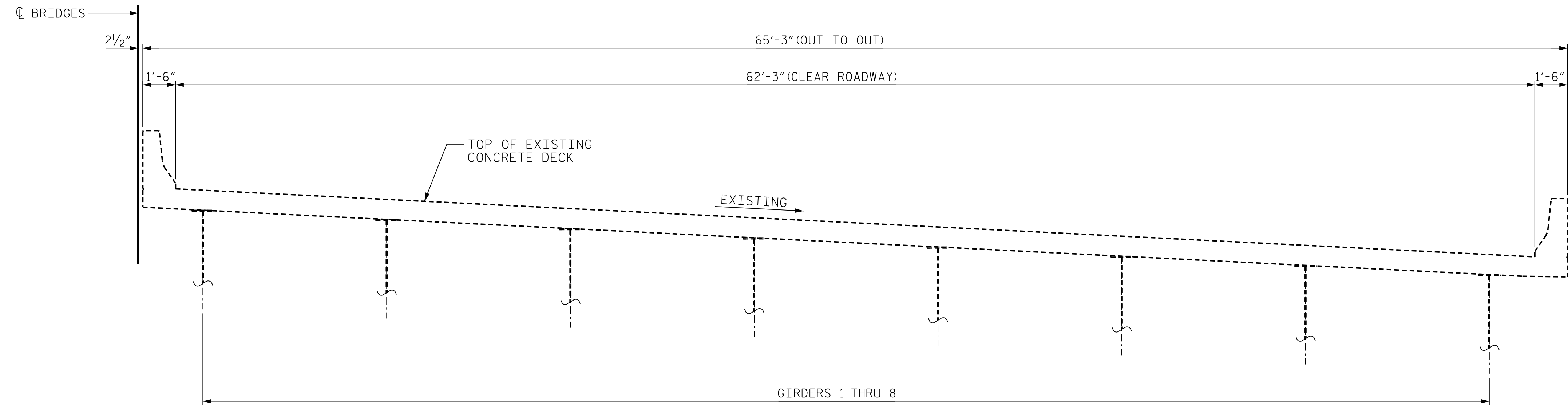


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**GENERAL DRAWING**  
FOR BRIDGES ON I-277  
NB & SB  
OVER SOUTHERN RAILWAY  
YARD BETWEEN S. CLARKSON ST.  
& MOREHEAD ST.

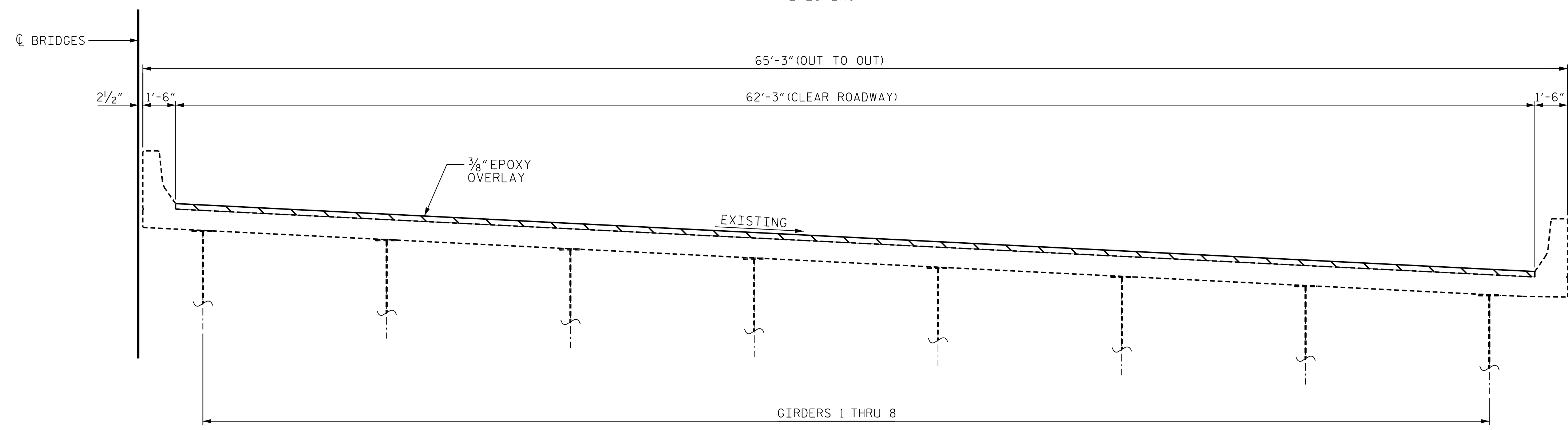
DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

	Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840				SHEET NO. S-157 TOTAL SHEETS 196
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NO.	BY:	DATE:	NO.	BY:	DATE:
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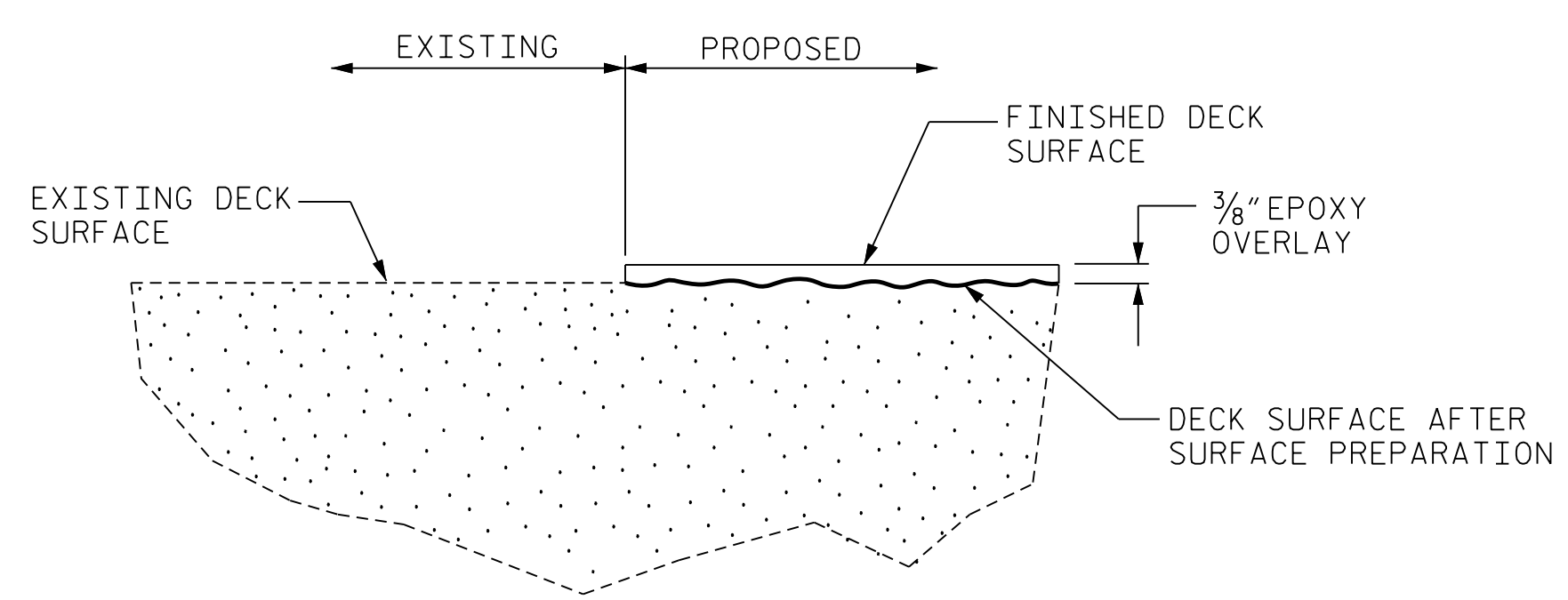
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**TYPICAL SECTION**  
(EXISTING)



**TYPICAL SECTION**  
(EPOXY OVERLAY)



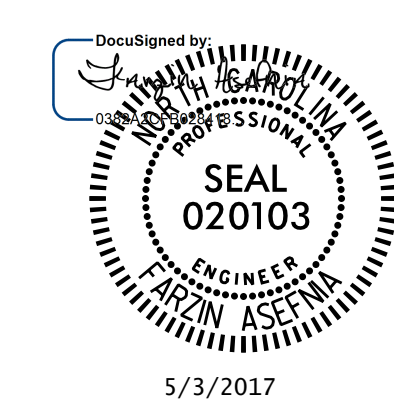
**DETAIL OF EPOXY OVERLAY**

**NOTE:**

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 505

DOCUMENT NOT CONSIDERED FINAL  
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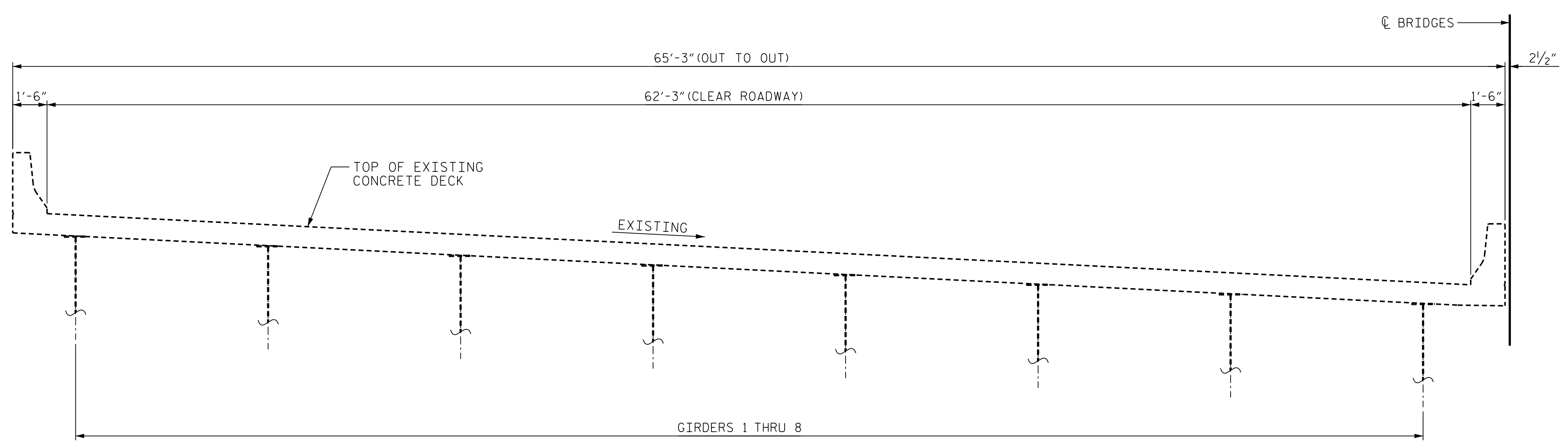
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION  
 & EPOXY OVERLAY  
 DETAILS**

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

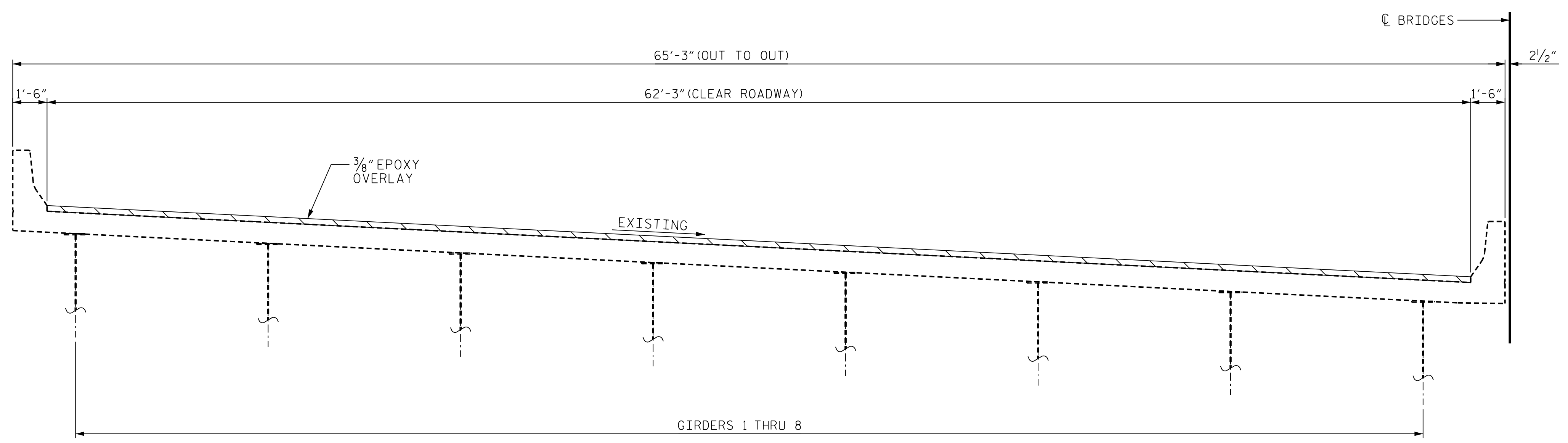
Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS				SHEET NO. S-158	
	NO.	BY:	DATE:	NO.		BY:
	1			3		
	2			4		
TOTAL SHEETS 196						



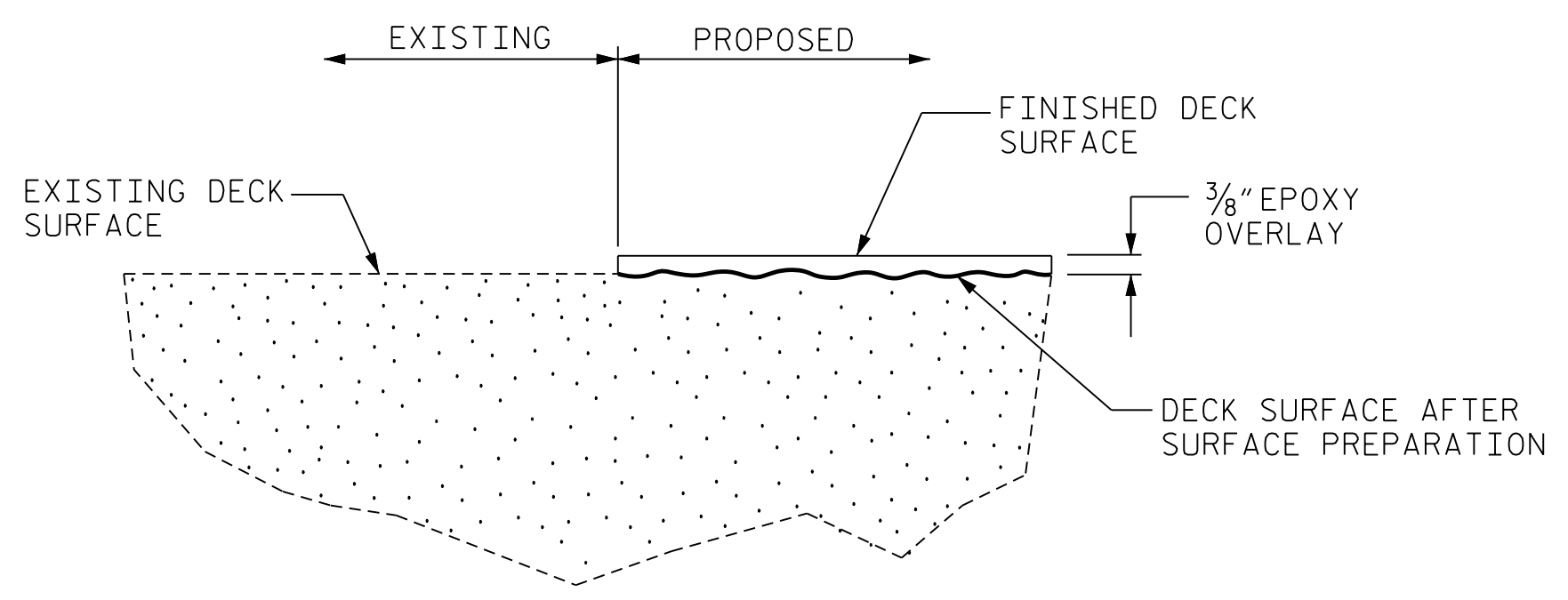
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**TYPICAL SECTION**  
(EXISTING)



**TYPICAL SECTION**  
(EPOXY OVERLAY)



**DETAIL OF EPOXY OVERLAY**

**NOTE:**  
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 506

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION  
 & EPOXY OVERLAY  
 DETAILS**

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

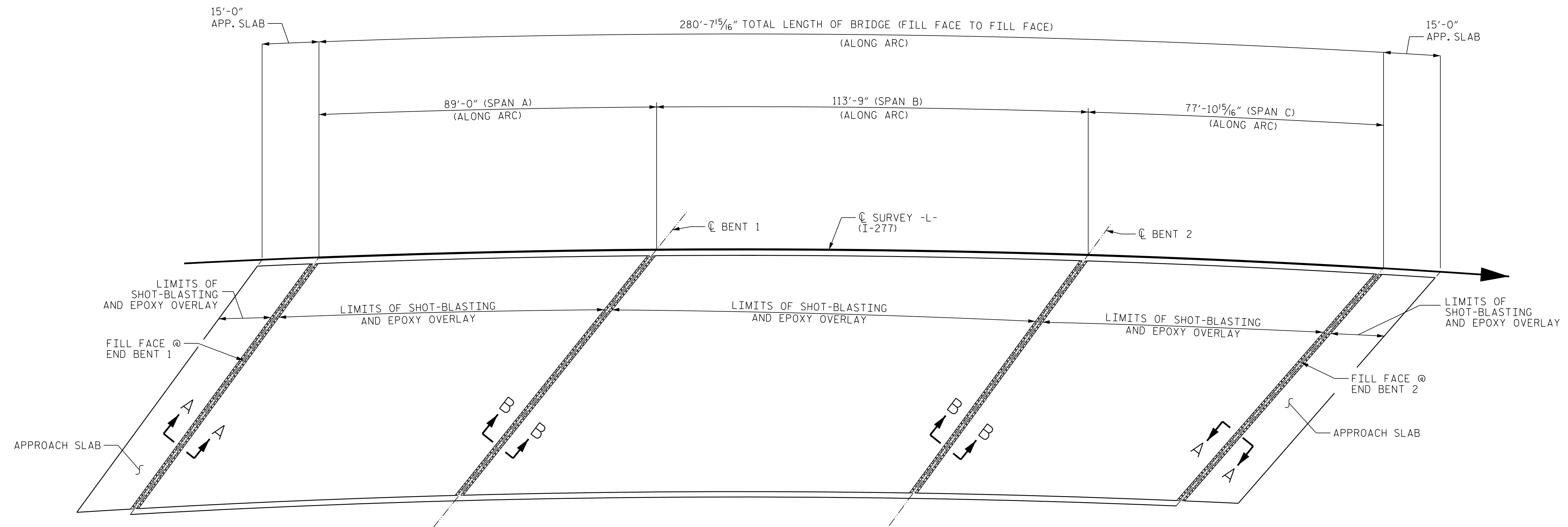
Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS				SHEET NO. S-159	
	NO.	BY:	DATE:	NO.		BY:
1			3			TOTAL SHEETS 196
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I-5746\_PDF\_FULL.pltcfgr I-5746\_STR\_REHAB.TBL

SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1.0 SQ. FT.	
BRIDGE JOINT DEMOLITION	350 SQ. FT.	
EPOXY OVERLAY SYSTEM	18,971 SQ. FT.	

**NOTE:**  
CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED.

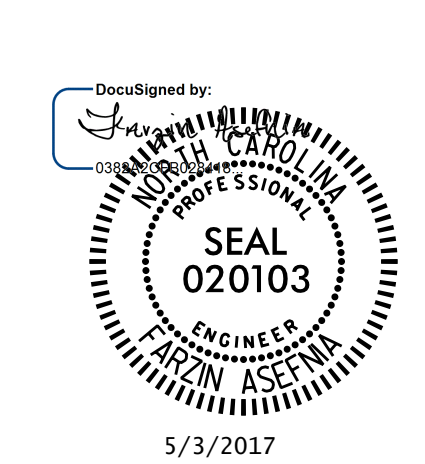
- EPOXY OVERLAY
- BRIDGE JOINT DEMOLITION



**PLAN**  
(FOR SECTION A-A & B-B, SEE JOINT DETAILS SHEET)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 505

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION  
AND  
EPOXY OVERLAY**

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

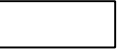

NO.	REVISIONS		NO.	REVISIONS		SHEET NO. S-160
	BY:	DATE:		BY:	DATE:	
1			3			TOTAL SHEETS 196
2			4			

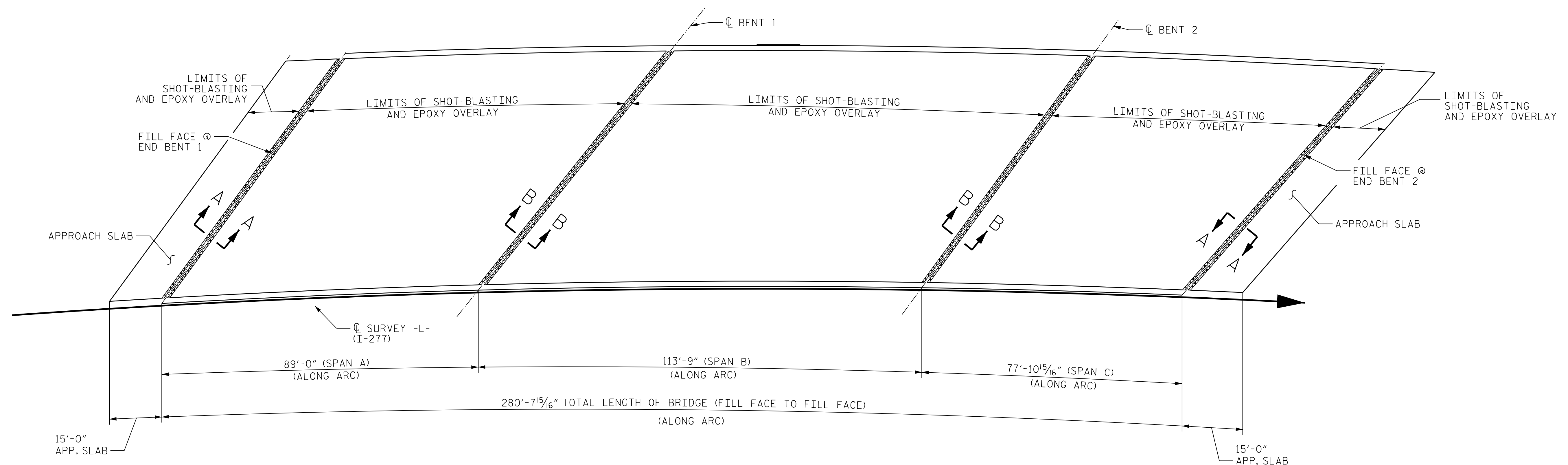


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SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1.0 SQ. FT.	
BRIDGE JOINT DEMOLITION	350 SQ. FT.	
EPOXY OVERLAY SYSTEM	18,965 SQ. FT.	

**NOTE:**  
 CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED.

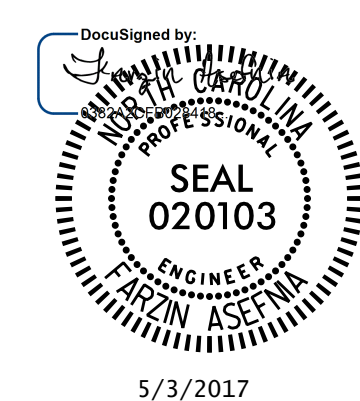
-  EPOXY OVERLAY
-  BRIDGE JOINT DEMOLITION



**PLAN**  
 (FOR SECTION A-A & B-B, SEE JOINT DETAILS SHEET)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 506

DOCUMENT NOT CONSIDERED FINAL  
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SURFACE PREPARATION  
 AND  
 EPOXY OVERLAY**

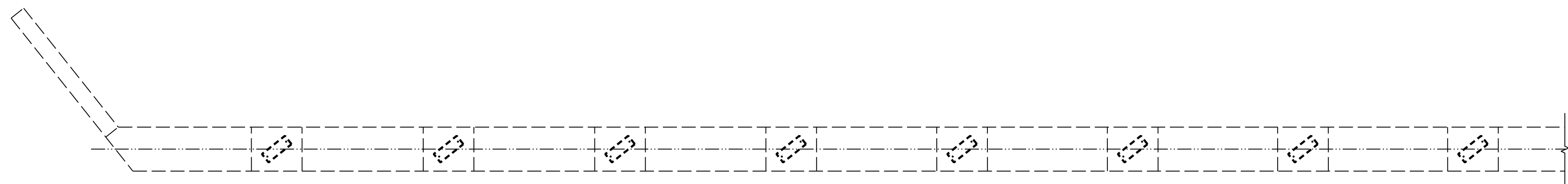
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CHECKED BY :	I. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16



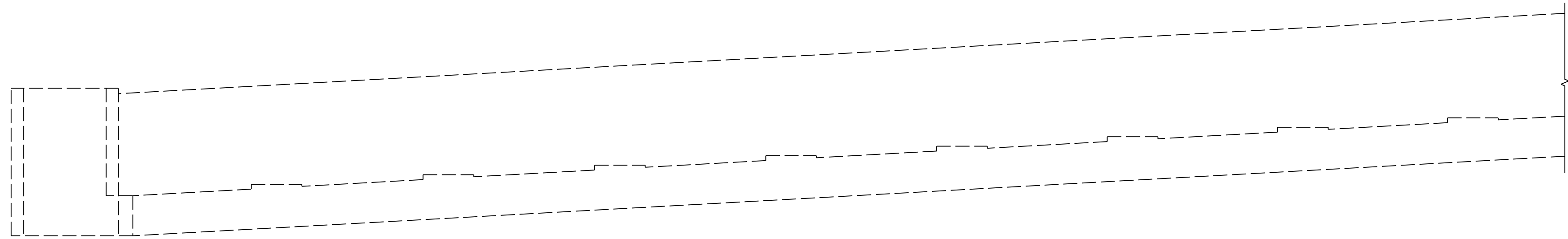
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-161
1			3			TOTAL SHEETS
2			4			196



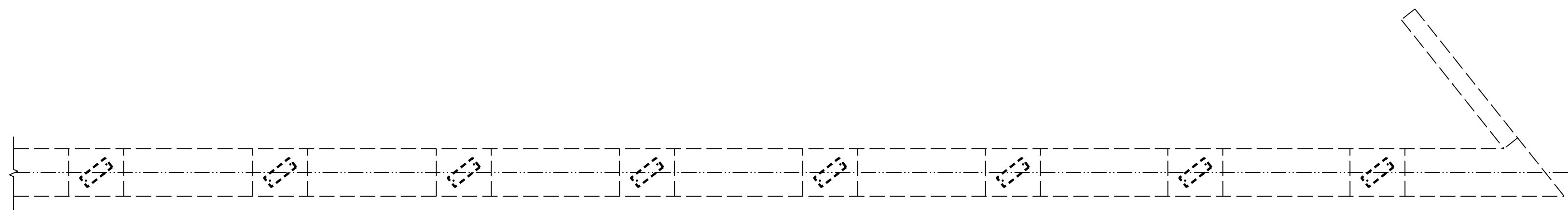
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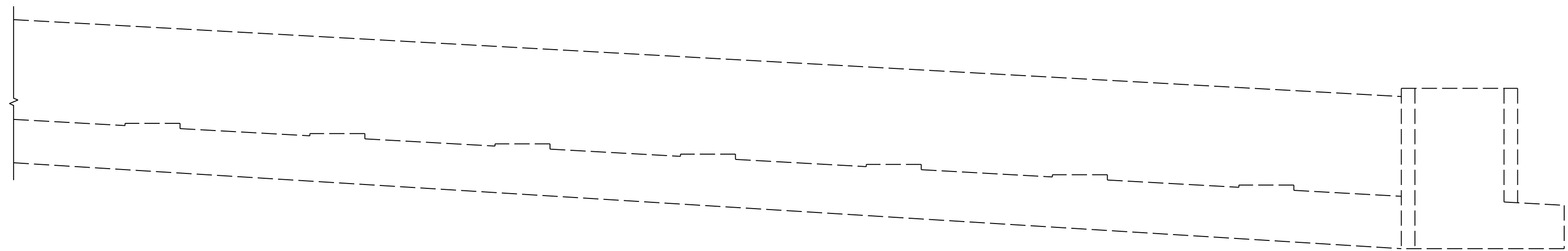
PLAN  
END BENT 1



ELEVATION  
END BENT 1



PLAN  
END BENT 2



ELEVATION  
END BENT 2

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

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

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

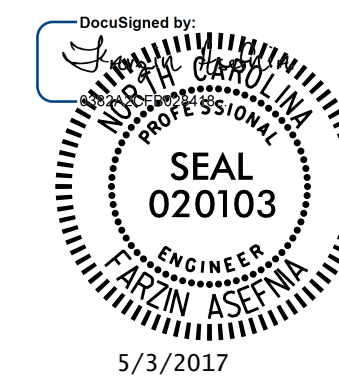
CONCRETE REPAIR

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 505

DOCUMENT NOT CONSIDERED FINAL  
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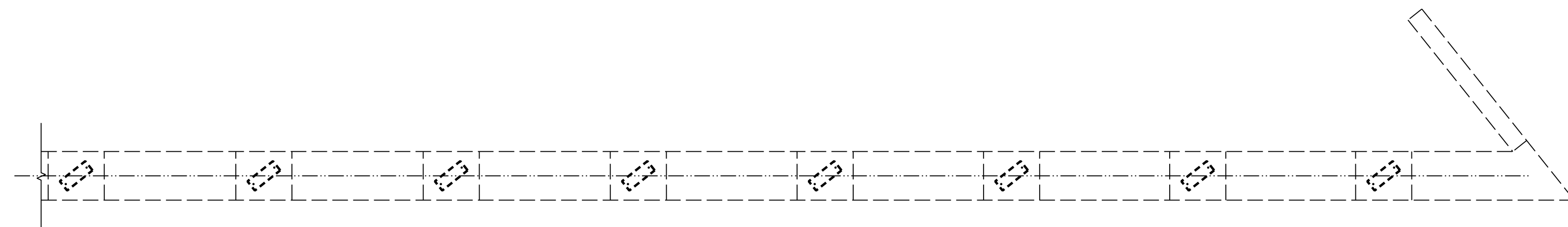


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
END BENTS

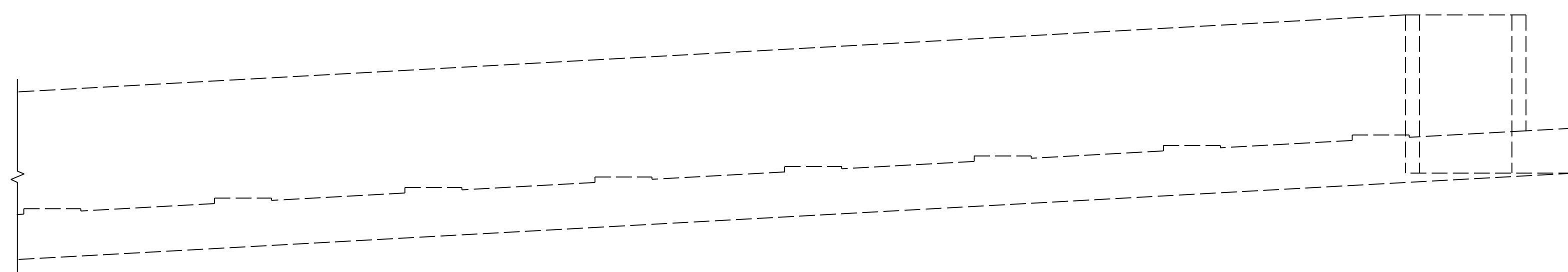
DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS						SHEET NO. S-162 TOTAL SHEETS 196
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2			4				

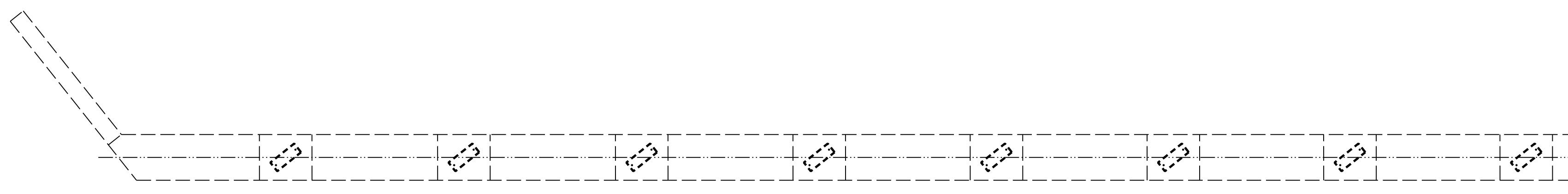
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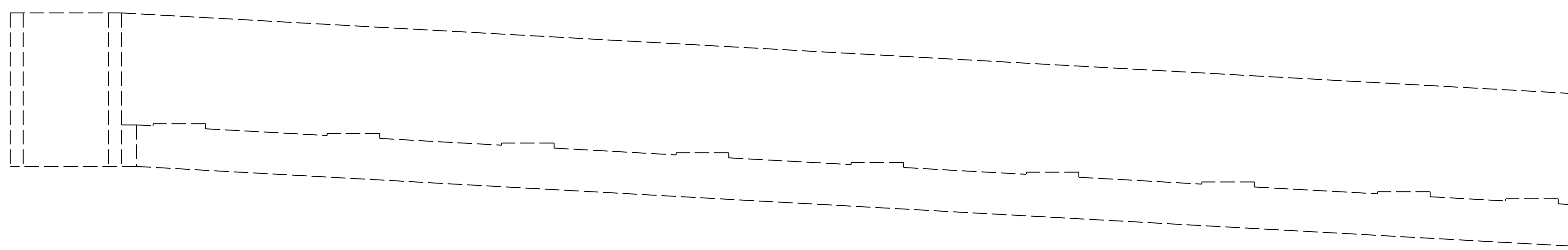
PLAN  
END BENT 1



ELEVATION  
END BENT 1



PLAN  
END BENT 2



ELEVATION  
END BENT 2

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

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

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

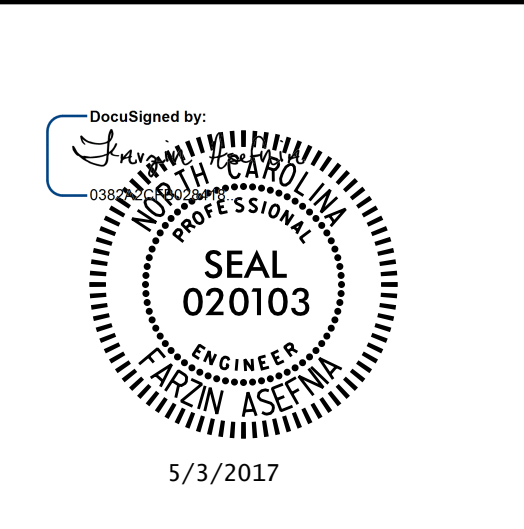
FOR REPAIR DETAILS, SEE TYPICAL CAP AND COLUMN REPAIR DETAILS SHEET.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 506

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
END BENTS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-163
1			3			TOTAL SHEETS
2			4			196

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16





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### REPAIR QUANTITY TABLE

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	3.5	0.9		
CAP (HORIZONTAL)	0.0	0.0		
COLUMN (HORIZONTAL FACE)	9.0	2.3		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		3.1		
COLUMN		2.0		
EPOXY COATING		SQ. FT		SQ. FT
TOP OF CAP		225		

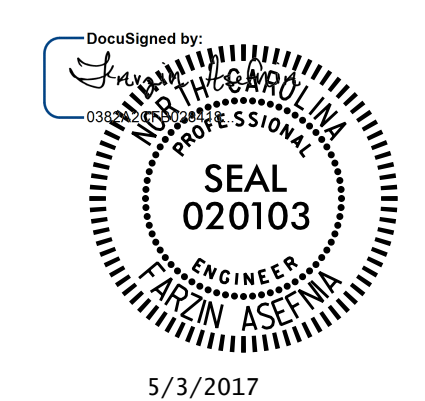
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.

**NOTES:**  
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.  
 CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.  
 FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR EPOXY COATING, SEE SPECIAL PROVISIONS.  
 FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

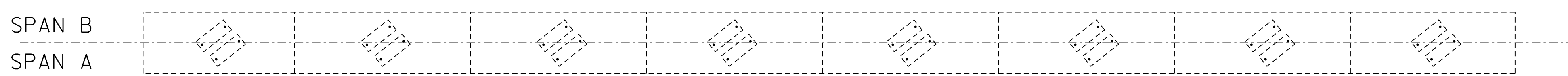
PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 505

DOCUMENT NOT CONSIDERED FINAL  
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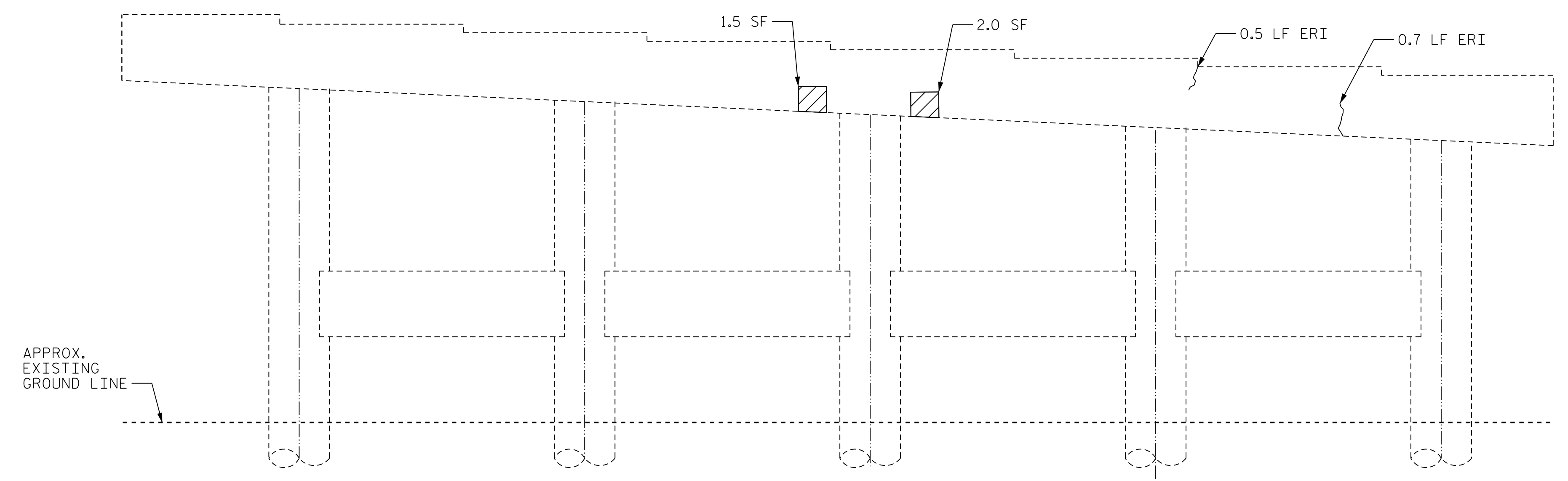


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
 BENT 1

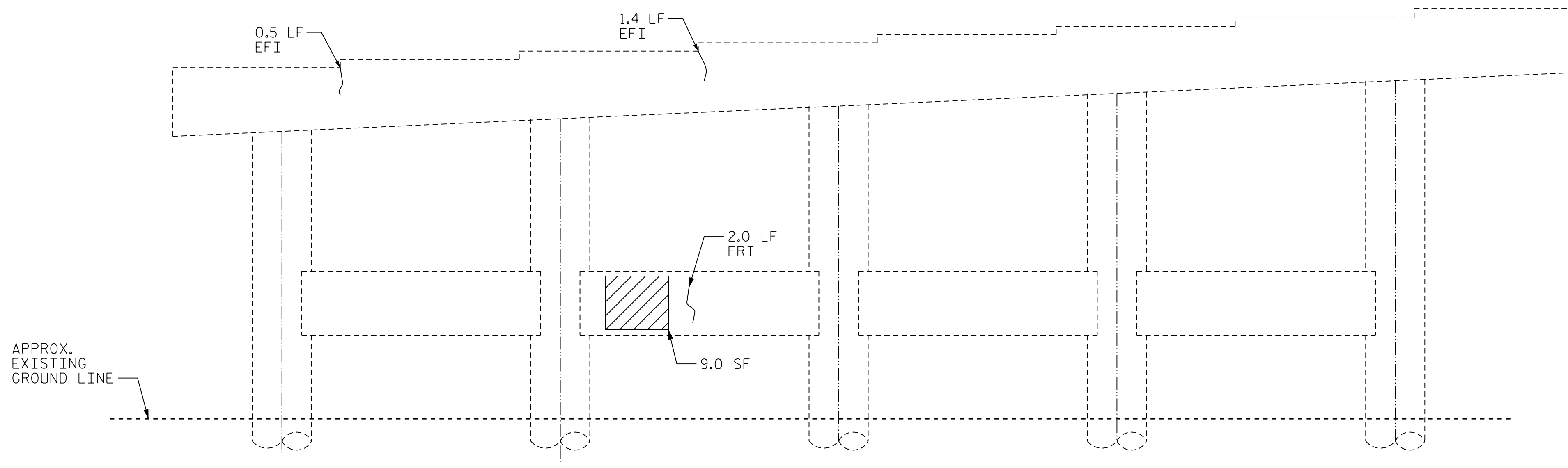
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-164
1			3			TOTAL SHEETS
2			4			196



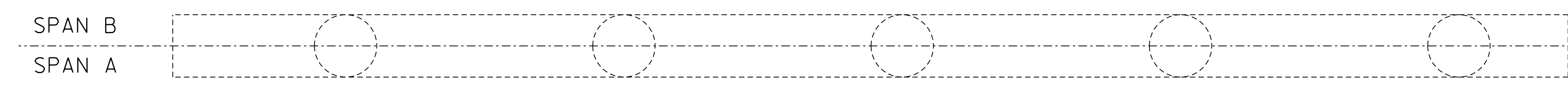
**PLAN**  
TOP OF CAP



**ELEVATION**  
SPAN A SIDE



**ELEVATION**  
SPAN B SIDE

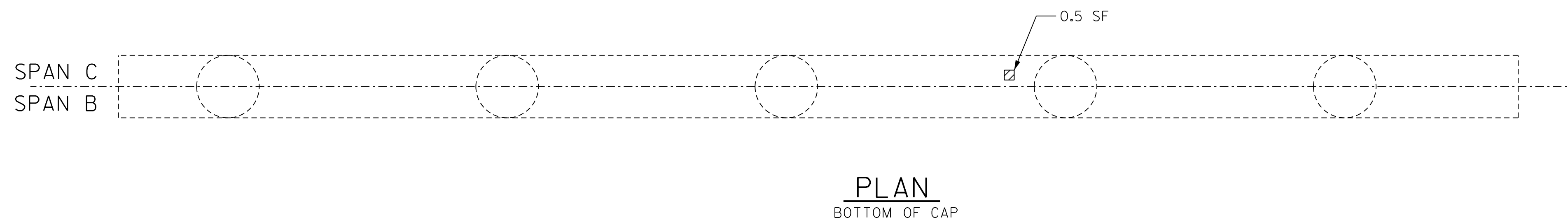
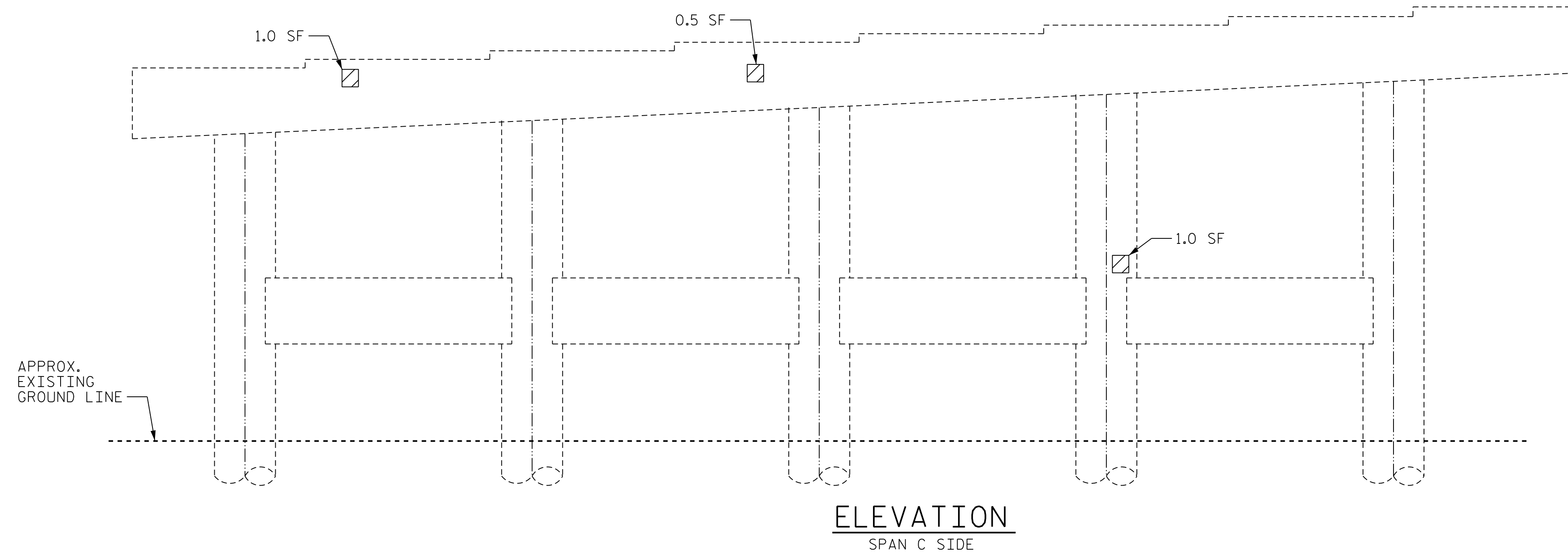
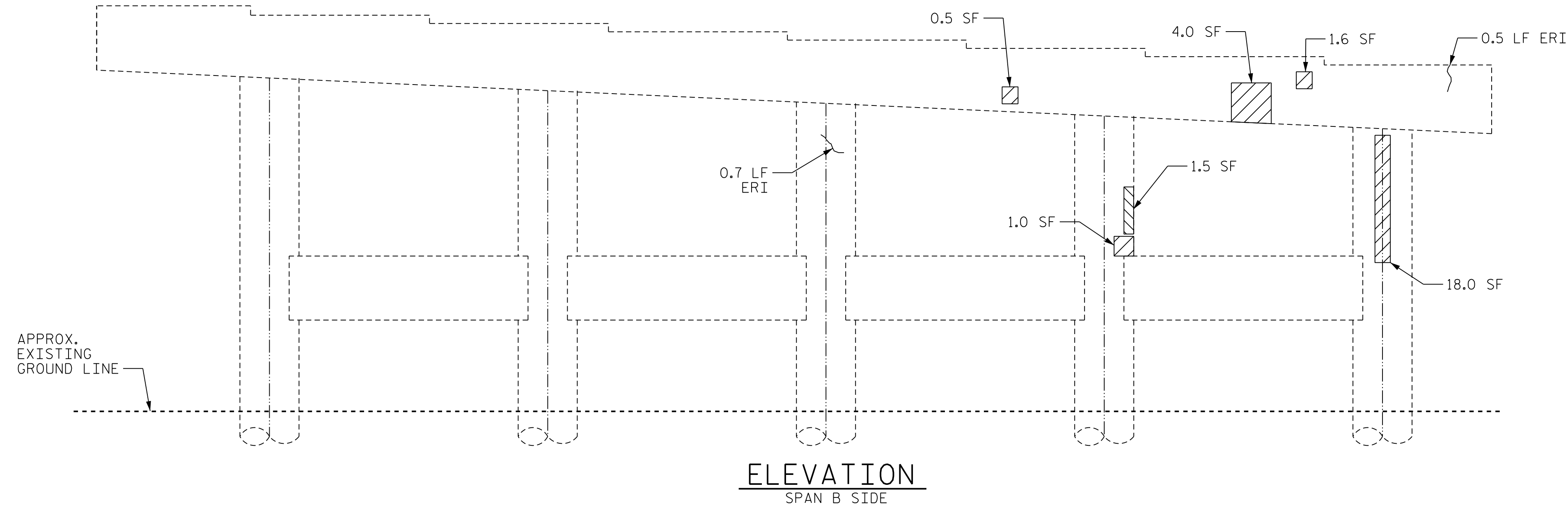
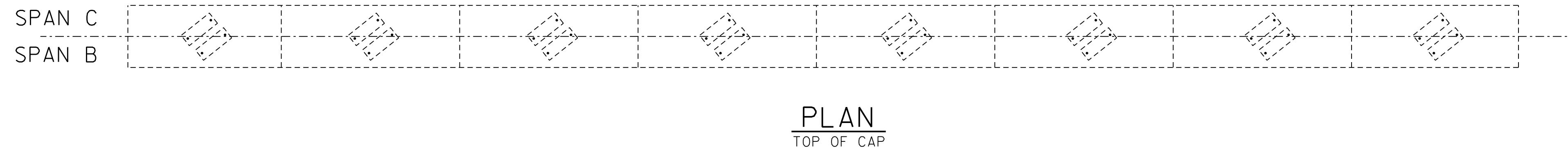


**PLAN**  
BOTTOM OF CAP

DRAWN BY :	M. HOGAN	DATE :	9-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16



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REPAIR QUANTITY TABLE				
REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	7.6	1.9		
CAP (HORIZONTAL)	0.5	0.1		
COLUMN (HORIZONTAL FACE)	21.5	5.4		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			0.5	
COLUMN			0.7	
EPOXY COATING			SO. FT	SO. FT
TOP OF CAP			229	

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

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

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.  
FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

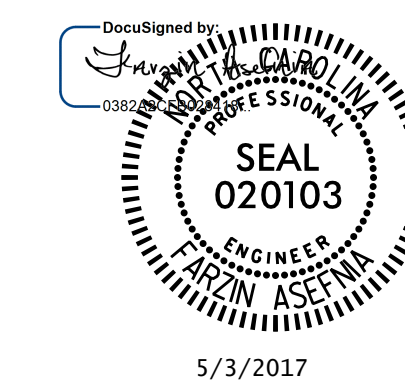
▣ - CONCRETE REPAIR

▨ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 505

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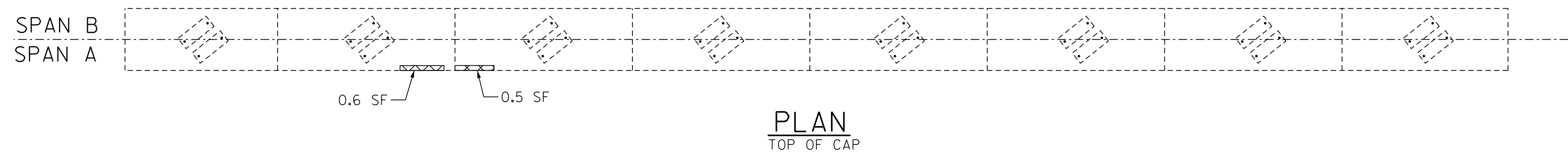
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 2

DRAWN BY : M. HOGAN DATE : 8-16  
CHECKED BY : T. KIRSCHBAUM DATE : 10-16  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 11-16

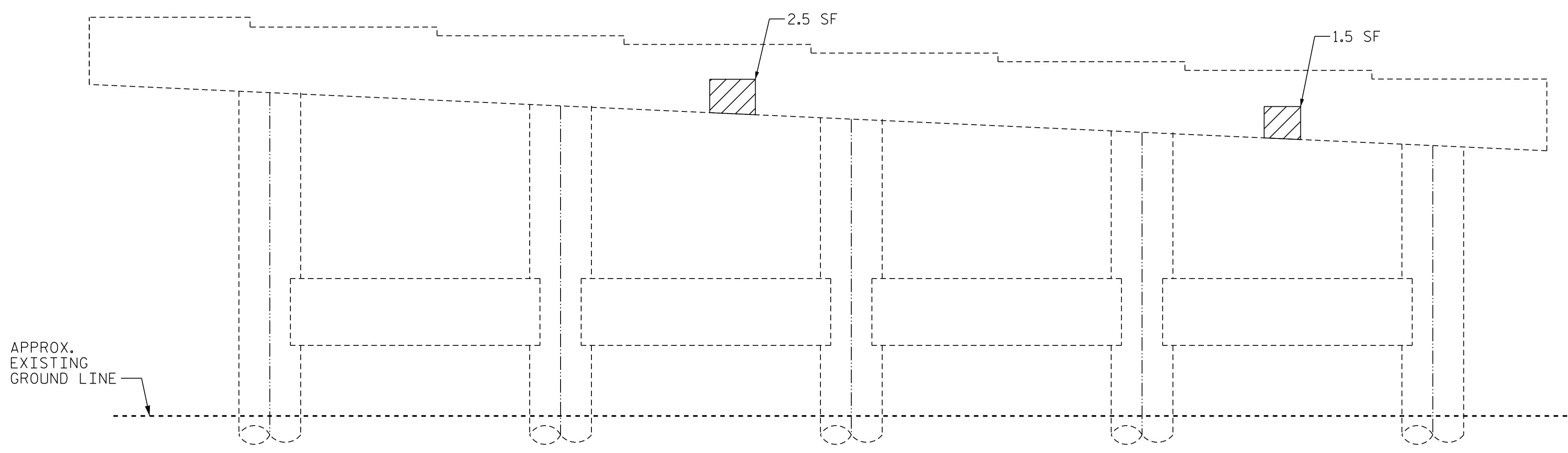
Prepared by:  
**Louis Berger**  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-165
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2			4			196

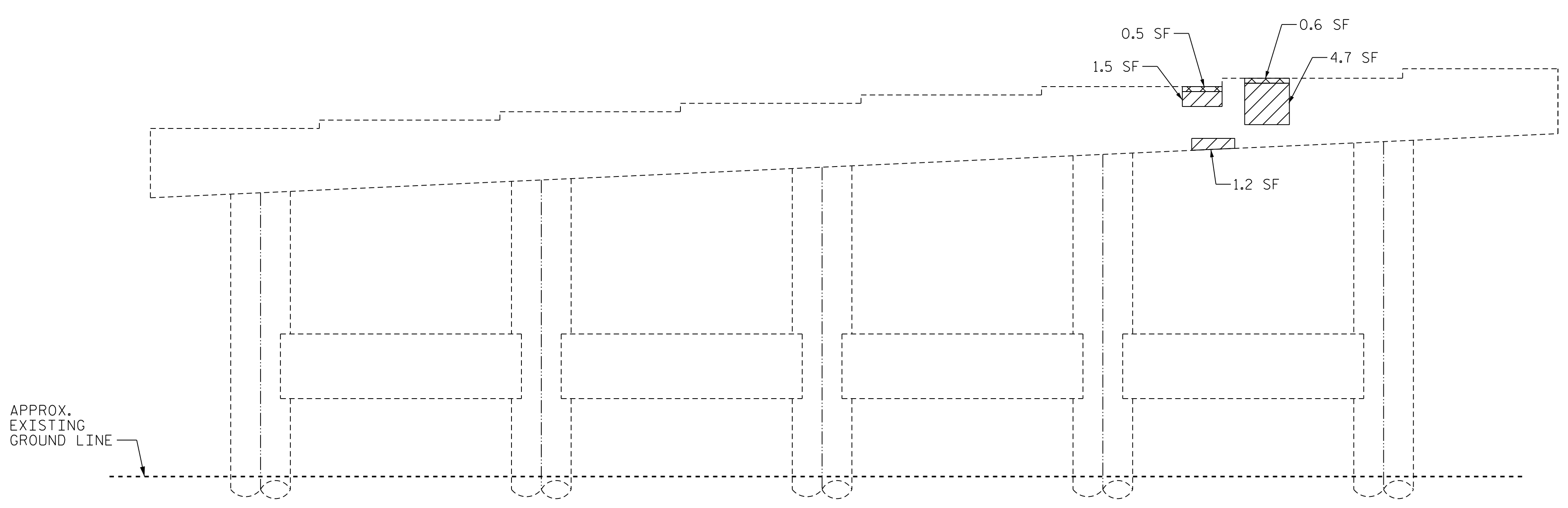
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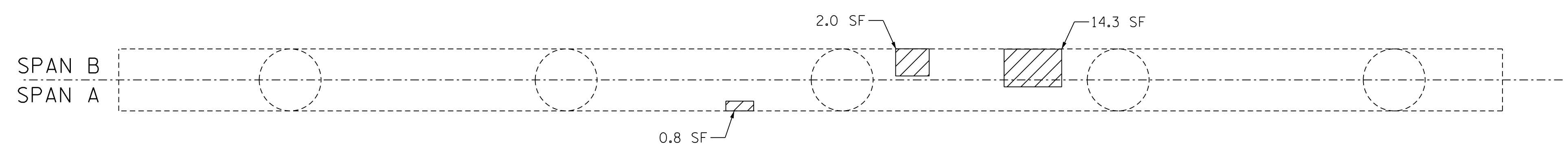
**PLAN**  
TOP OF CAP



**ELEVATION**  
SPAN A SIDE



**ELEVATION**  
SPAN B SIDE



**PLAN**  
BOTTOM OF CAP

**REPAIR QUANTITY TABLE**

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	11.4	2.9		
CAP (HORIZONTAL)	17.1	4.3		
COLUMN (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	2.2	0.6		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING		SO. FT		SO. FT
TOP OF CAP		243		

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

**NOTES:**  
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.  
 CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.  
 FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.  
 FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
 FOR EPOXY COATING, SEE SPECIAL PROVISIONS.  
 FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 506

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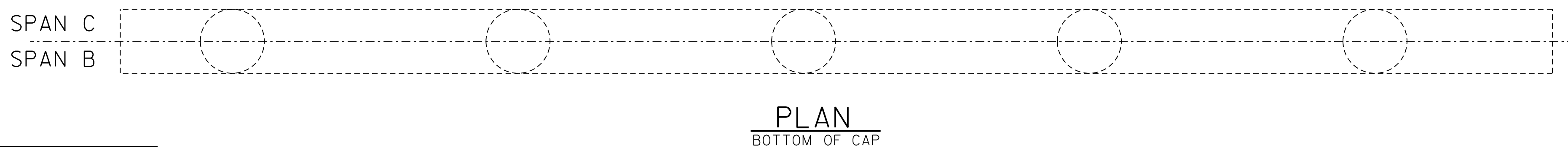
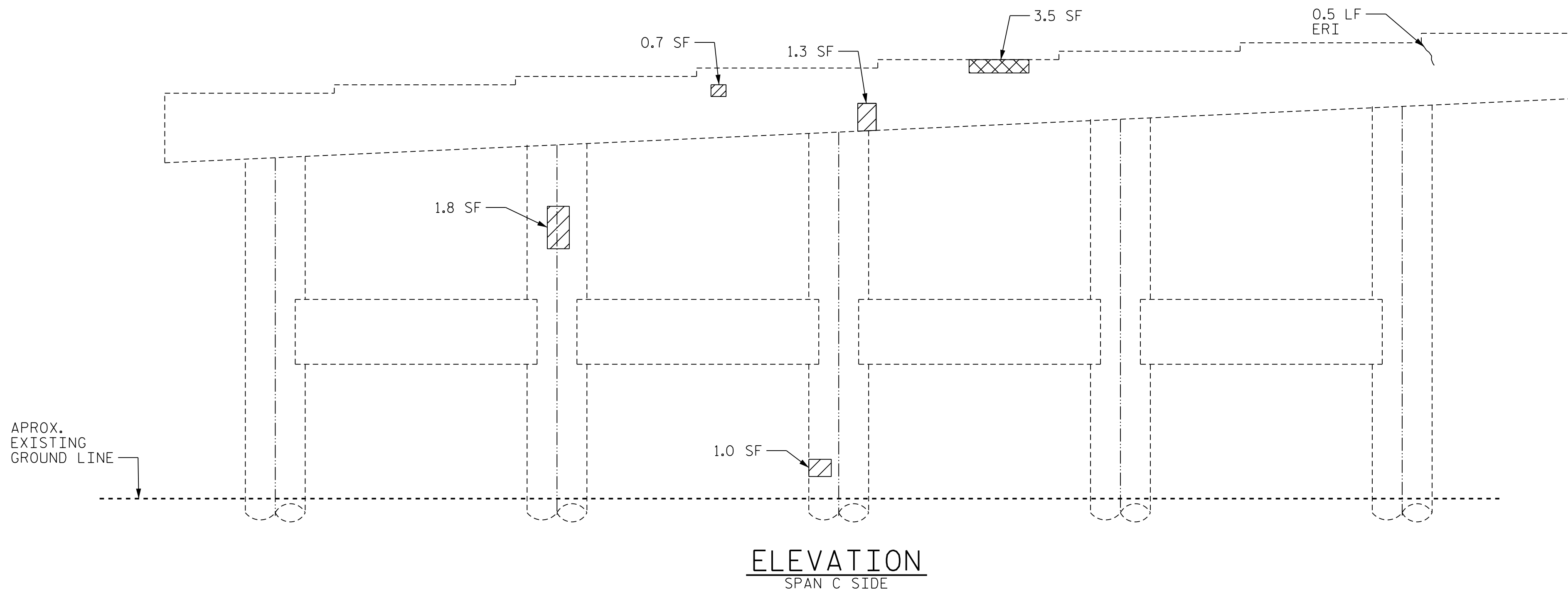
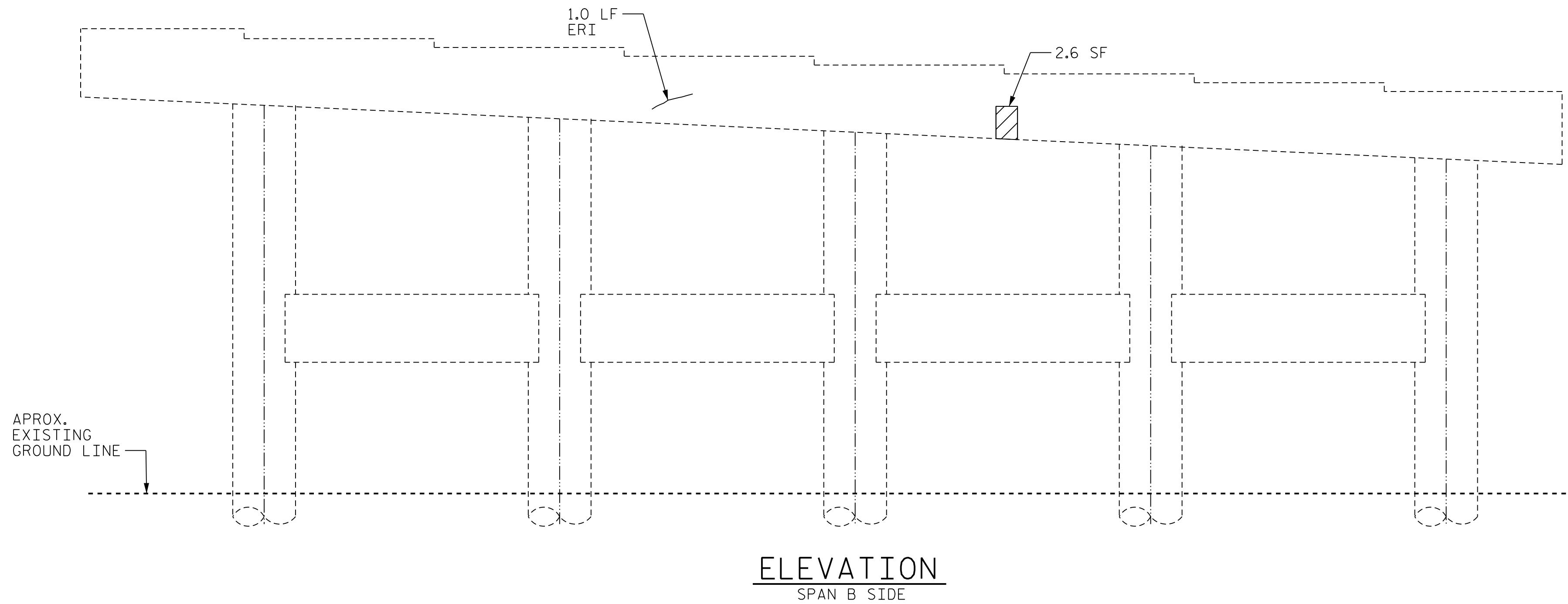
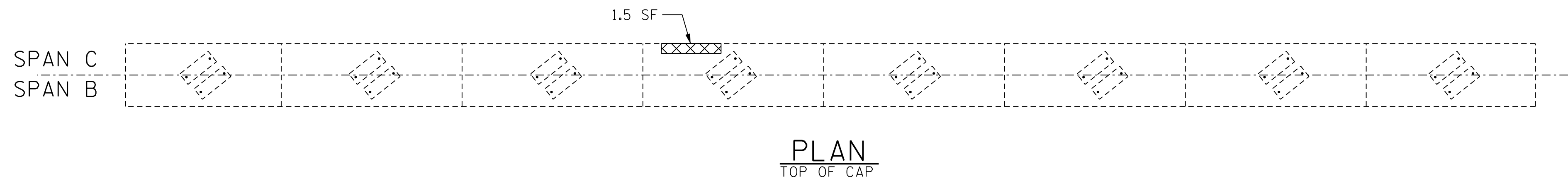


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
 BENT 1

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

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**REPAIR QUANTITY TABLE**

REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	4.6	1.2		
CAP (HORIZONTAL)	0.0	0.0		
COLUMN	2.8	0.7		
CONCRETE REPAIRS	5.0	1.3		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		1.5		
COLUMN		0.0		
EPOXY COATING		SO. FT		SO. FT
TOP OF CAP		225		

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

**NOTES:**

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

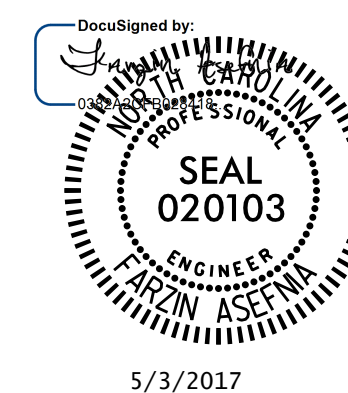
▨ - CONCRETE REPAIR

▧ - SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 506

DOCUMENT NOT CONSIDERED FINAL  
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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE**  
BENT 2

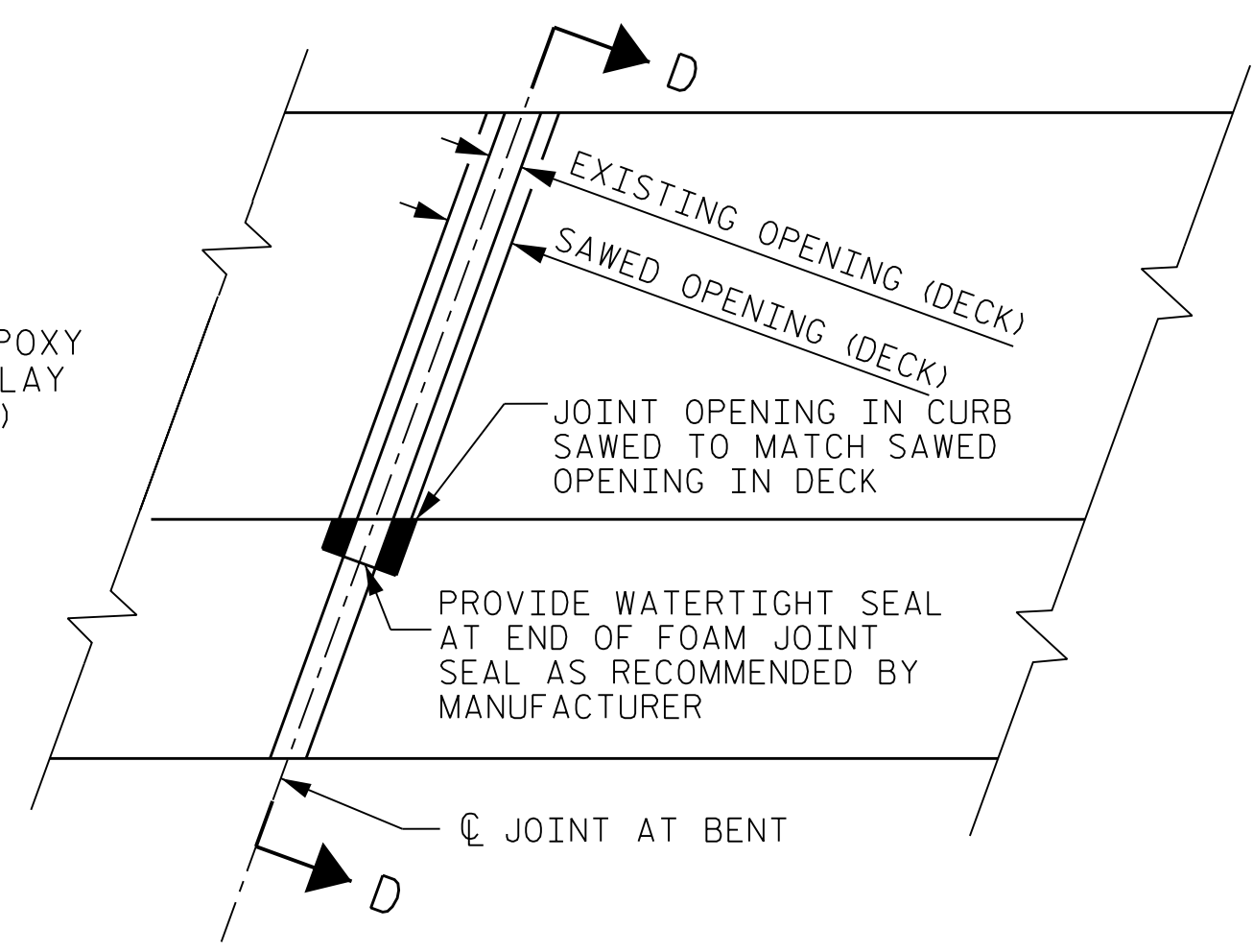
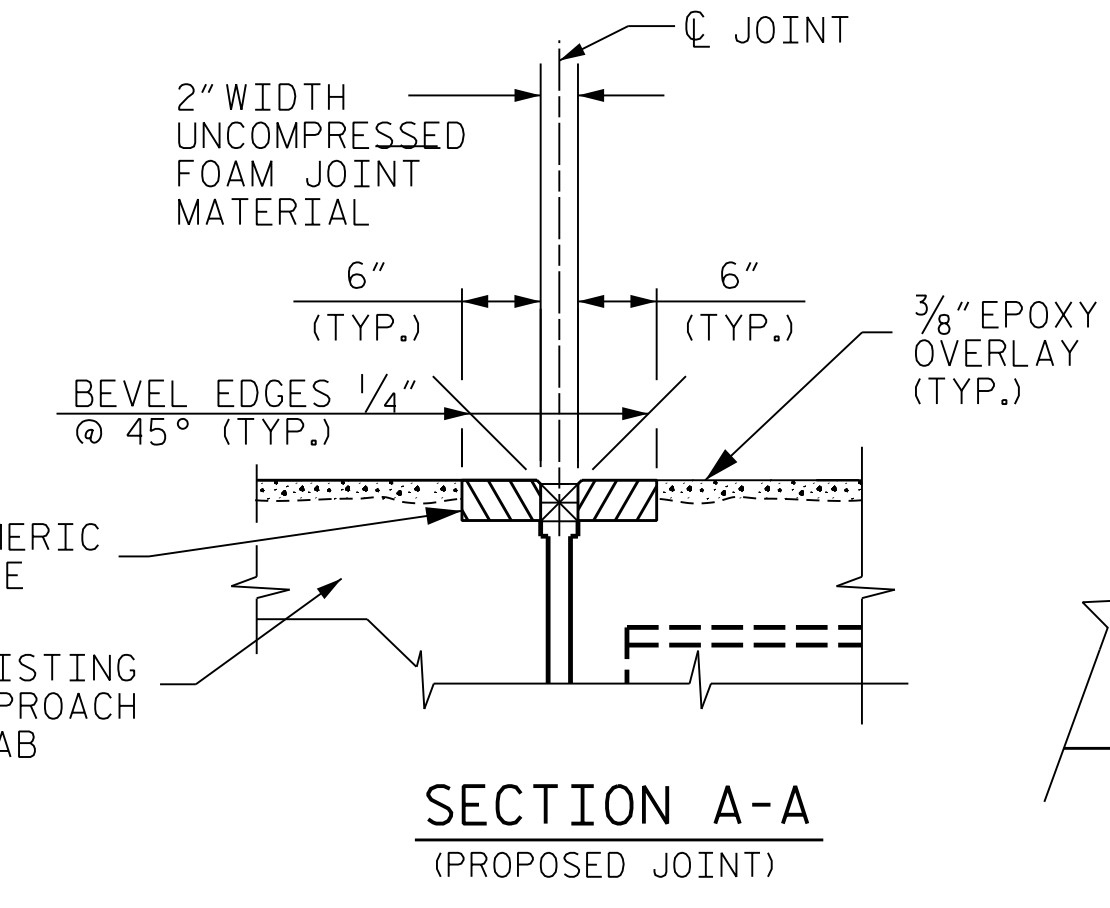
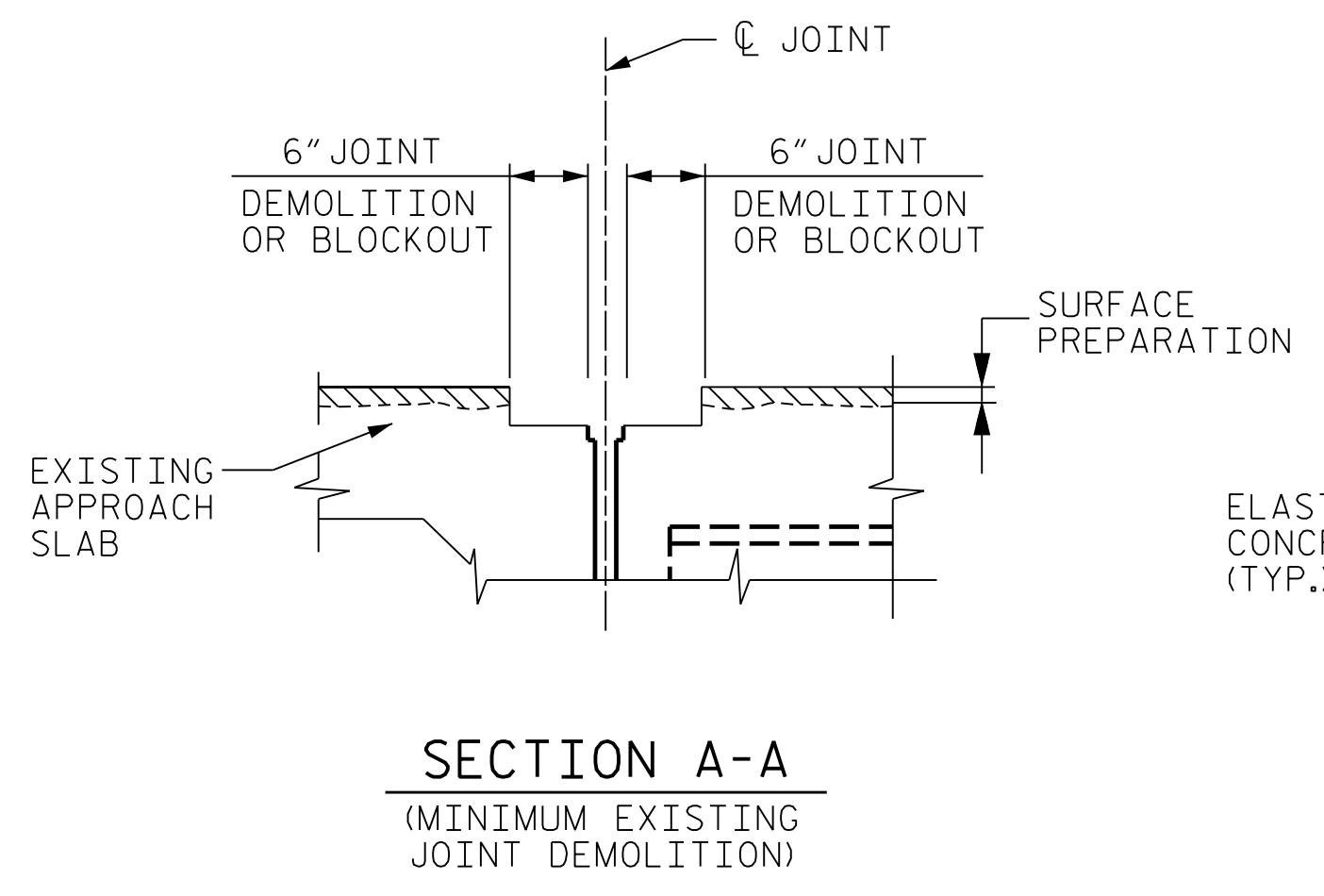
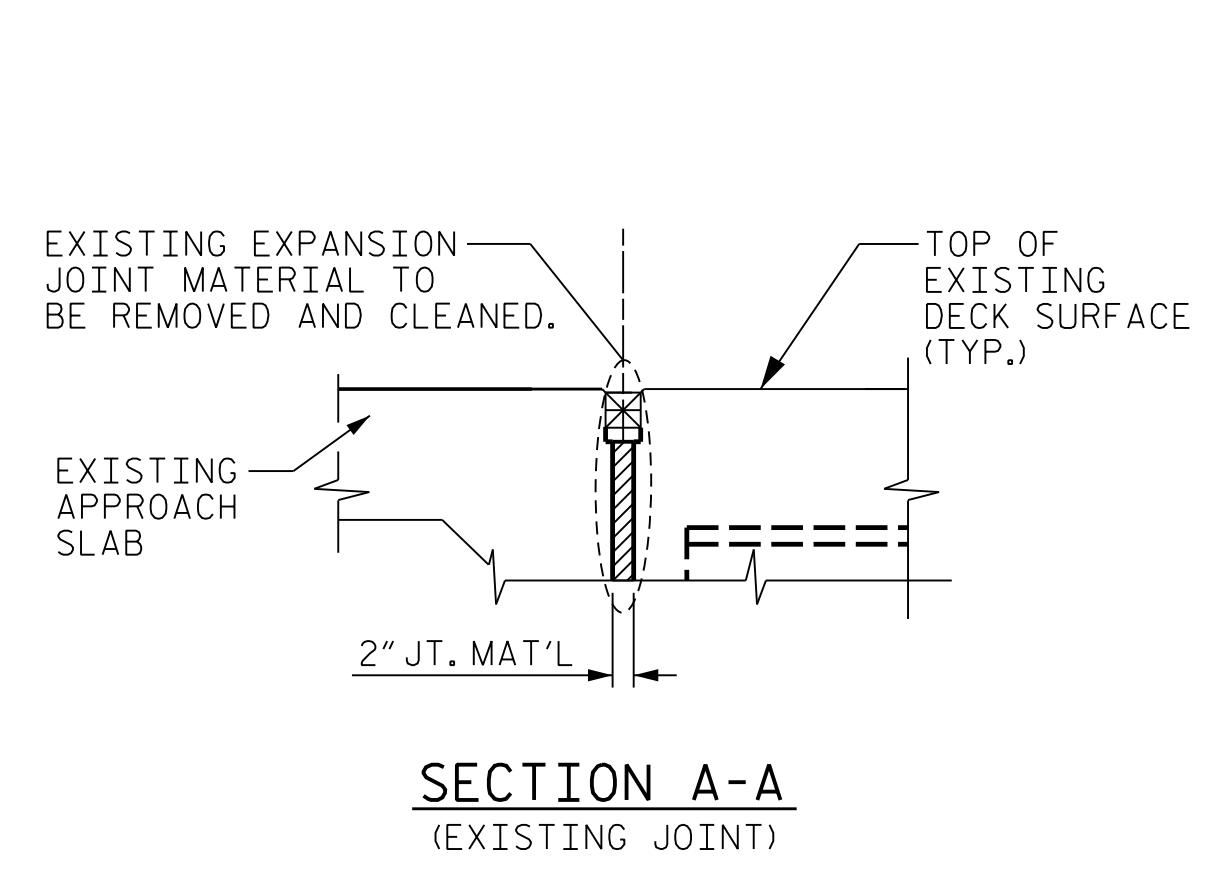
DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

Prepared by:  
**Louis Berger**  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

REVISIONS						SHEET NO. S-167
NO.	BY:	DATE:	NO.	BY:	DATE:	
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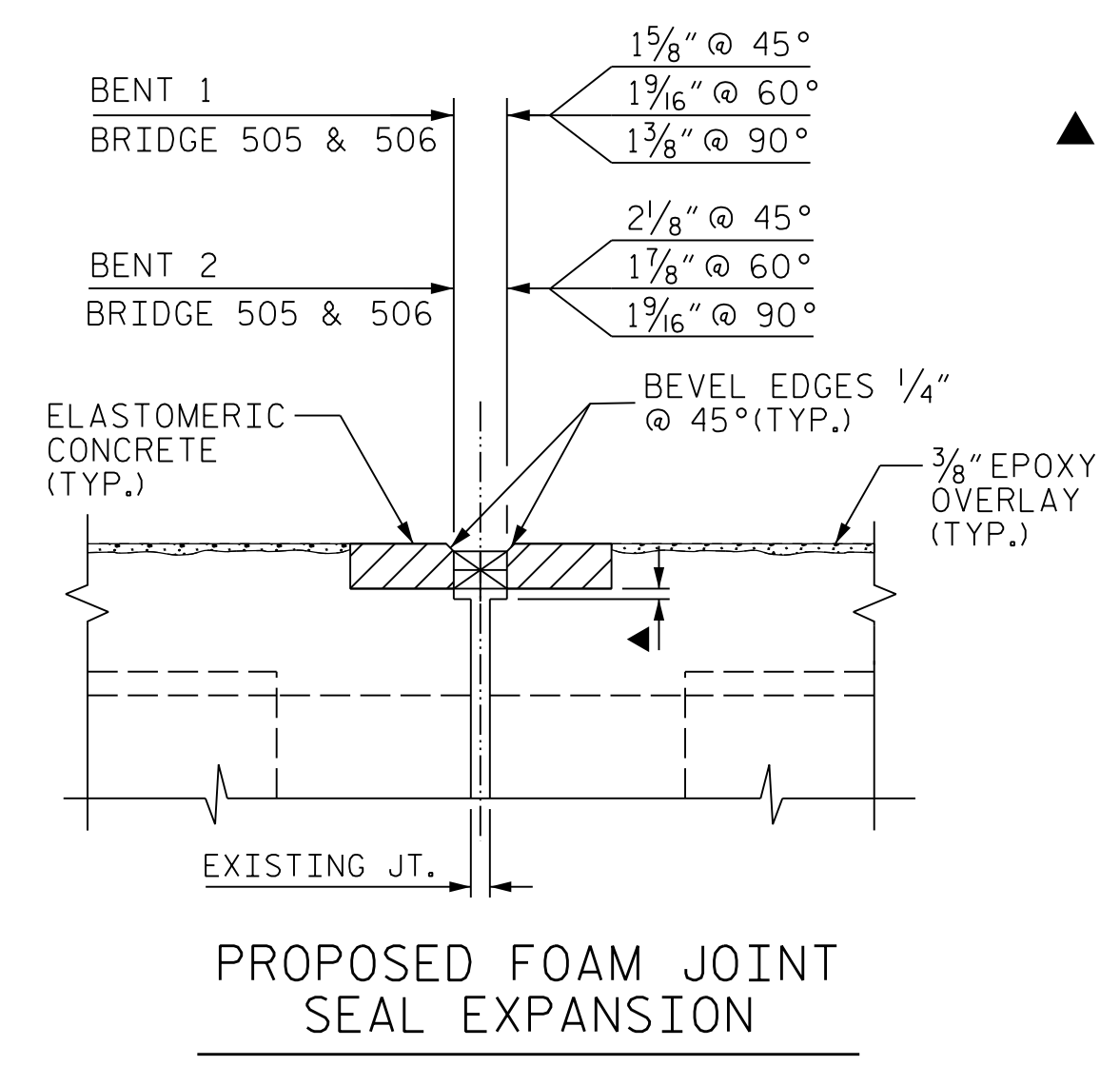
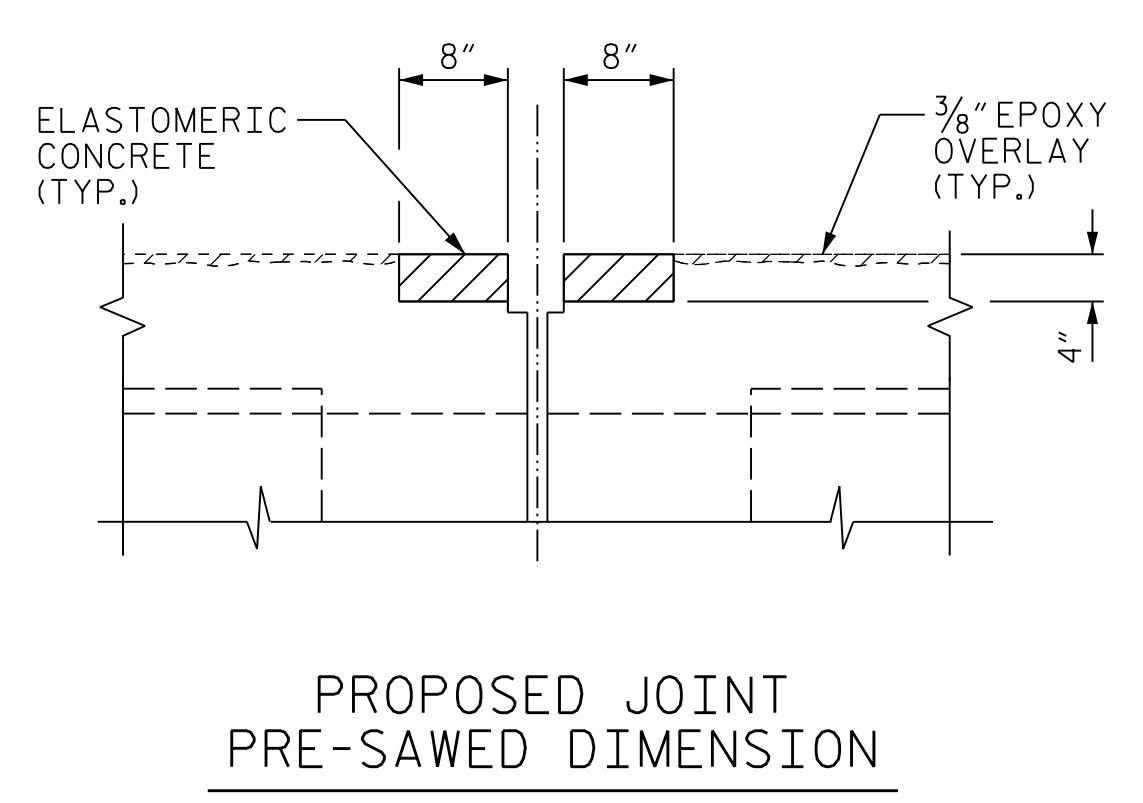
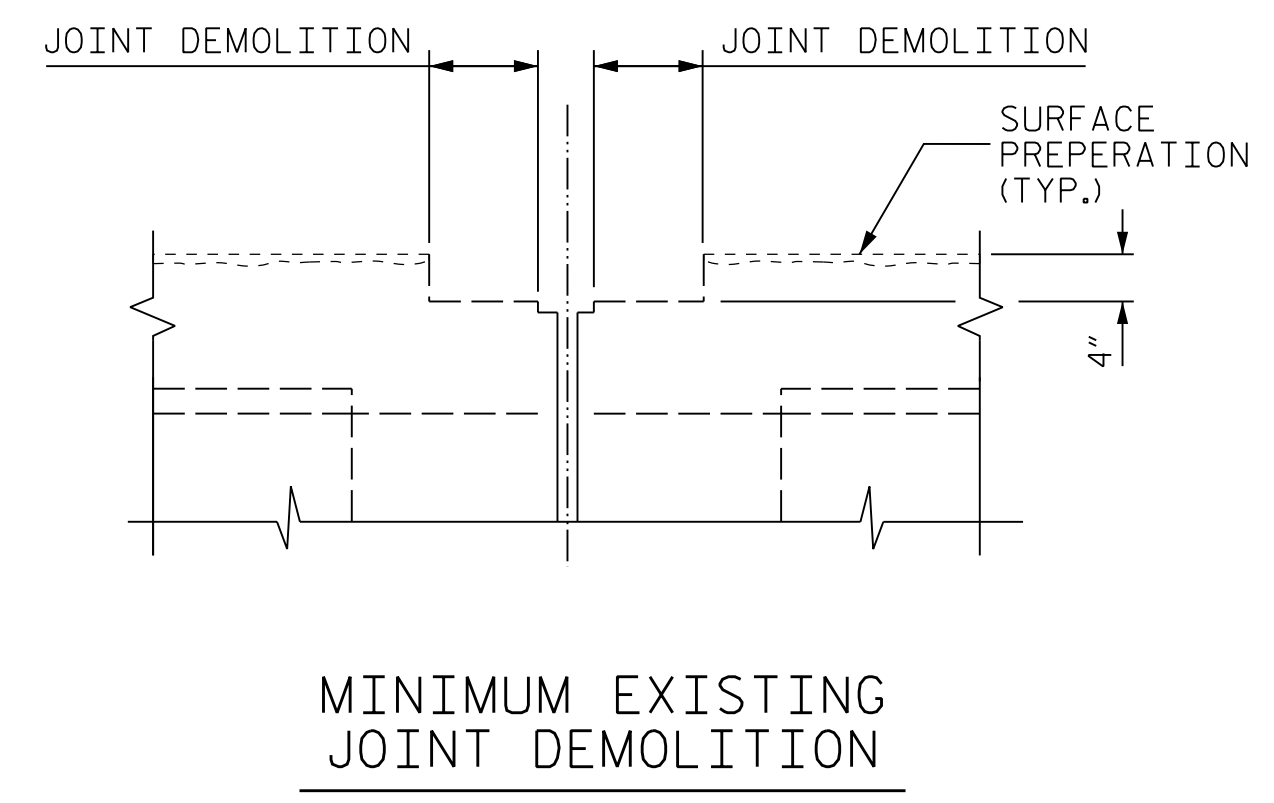
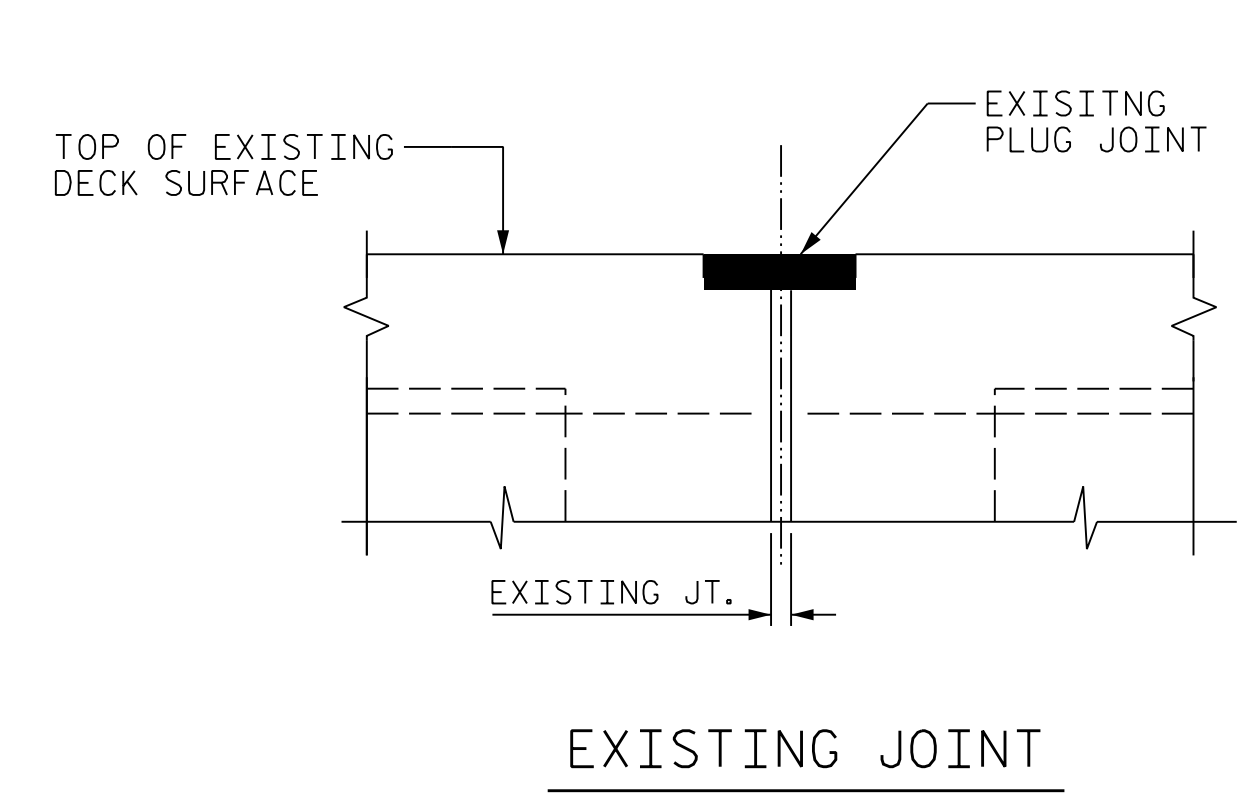
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**NOTES:**  
CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.  
FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.  
RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.  
THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2 1/2" @ BENTS AND 2" @ END BENTS.

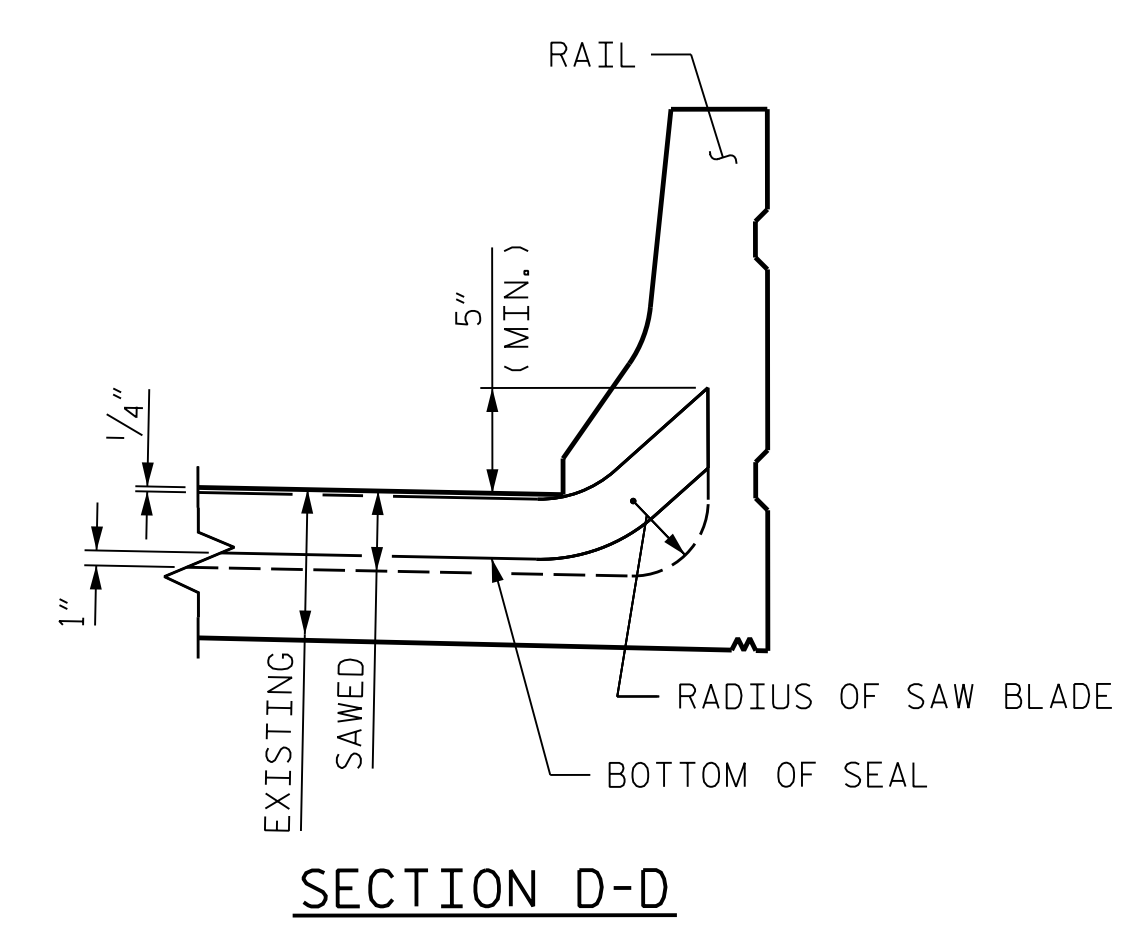
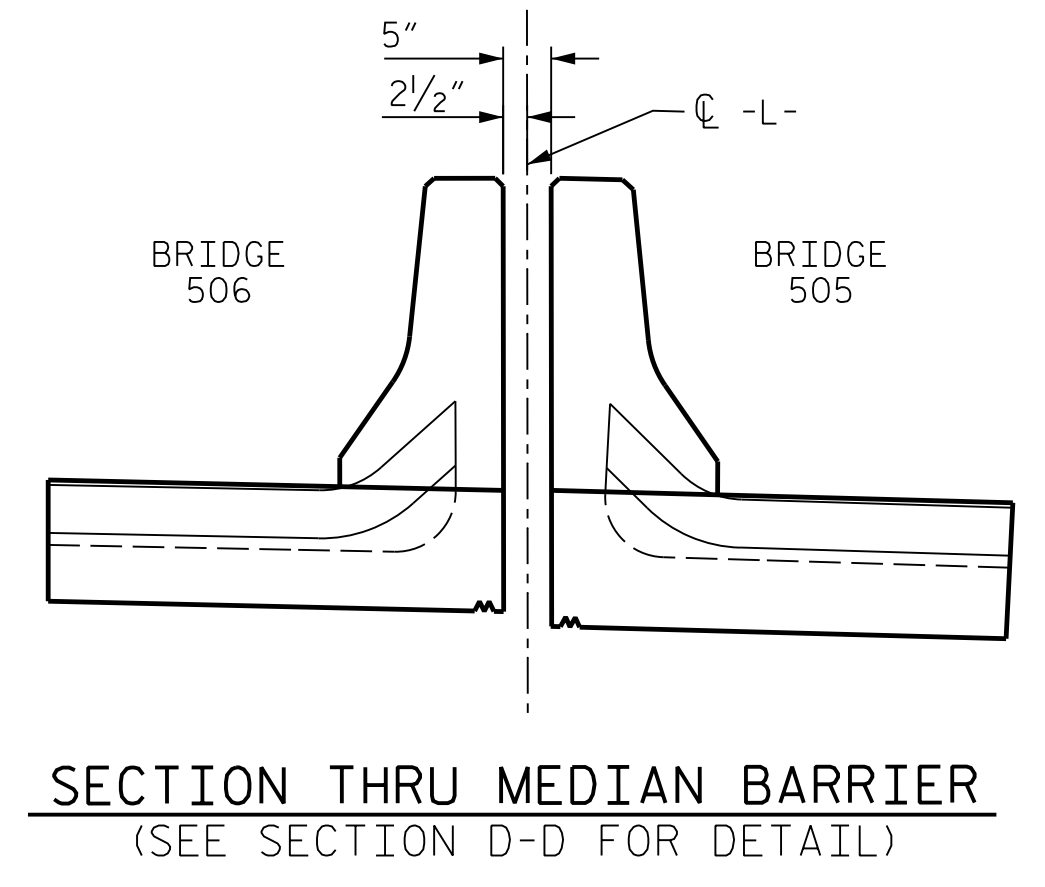
ELASTOMERIC CONCRETE		
BRIDGE 505	104	(CU. FT.)
BRIDGE 506	104	(CU. FT.)

**JOINT INSTALLATION SEQUENCE AT END BENTS**  
SECTION A-A



▲ SAW CUT SHALL BE 3/4" BELOW THE BOTTOM OF THE JOINT SEAL. SEE MANUFACTURER RECOMMENDATIONS

**JOINT INSTALLATION SEQUENCE AT BENTS**  
SECTION B-B



PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 505 & 506

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DEPARTMENT OF TRANSPORTATION  
RALEIGH

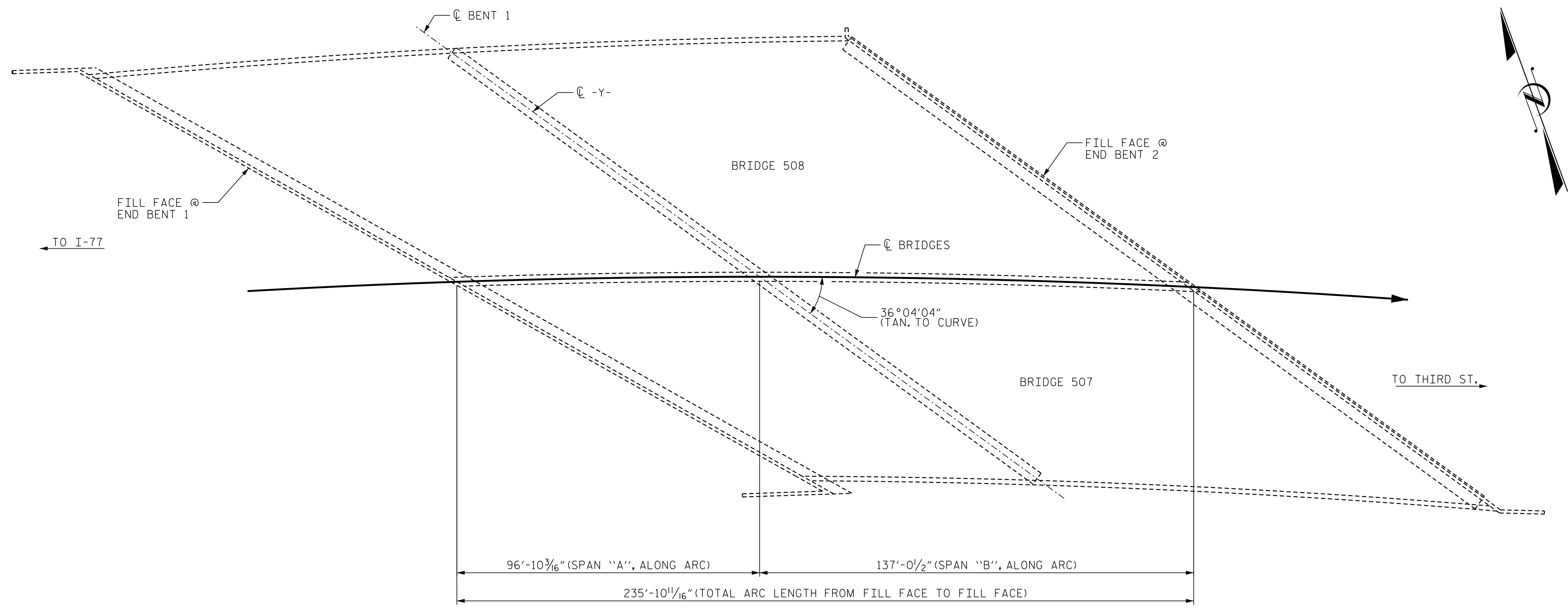
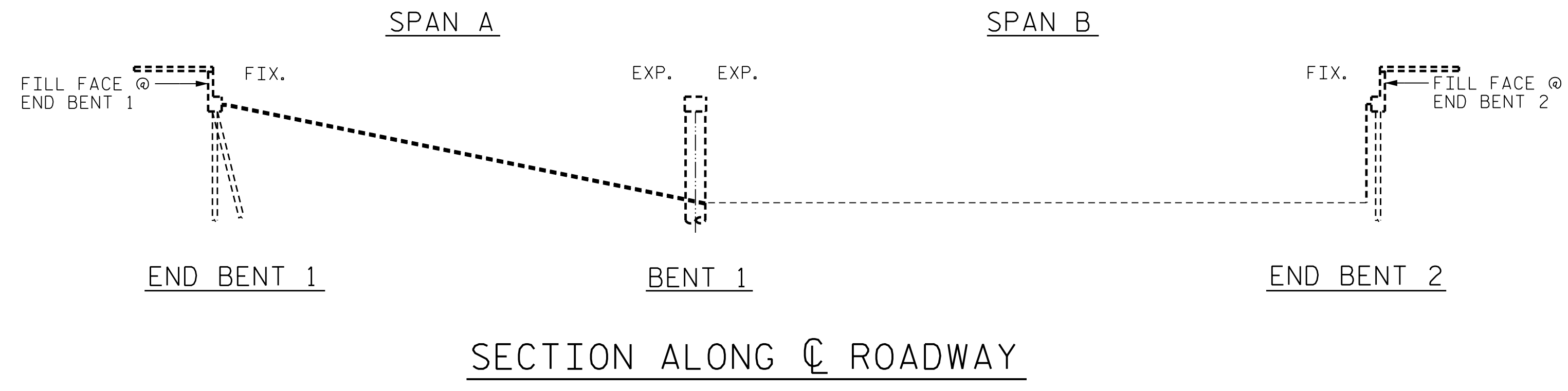
**JOINT DETAILS**

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

REVISIONS				SHEET NO.	
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1			3		
2			4		

TOTAL SHEETS	196
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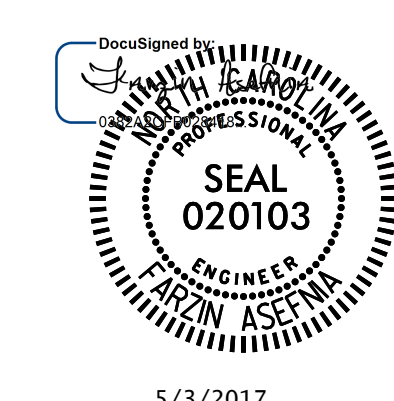


I hereby certify that this structure was rehabilitated according to these plans or as noted therein.  
  
 Resident Engineer \_\_\_\_\_ Date \_\_\_\_\_

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 507 & 508

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SHEET 1 OF 2

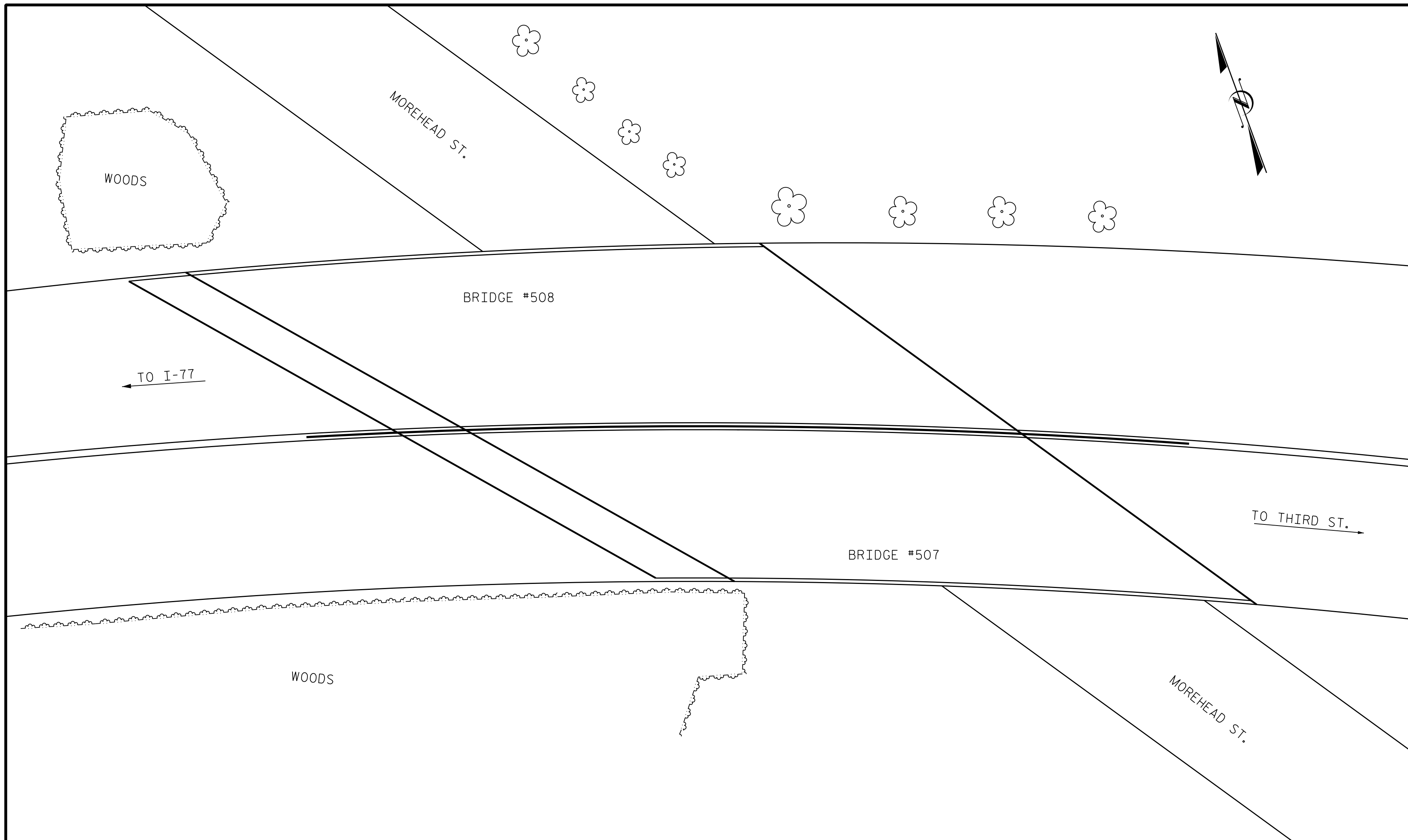


STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGES ON I-277  
 OVER MOREHEAD ST.  
 BETWEEN I-77 AND  
 THIRD ST.

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS				SHEET NO.	
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2			4			TOTAL SHEETS 196

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**LOCATION SKETCH**

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

**NOTES:**

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

FOR EPOXY OVERLAY SYSTEM, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

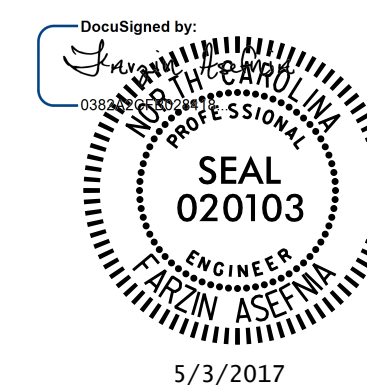
FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR AT THE PAVEMENT MARKINGS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 507 & 508

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SHEET 2 OF 2



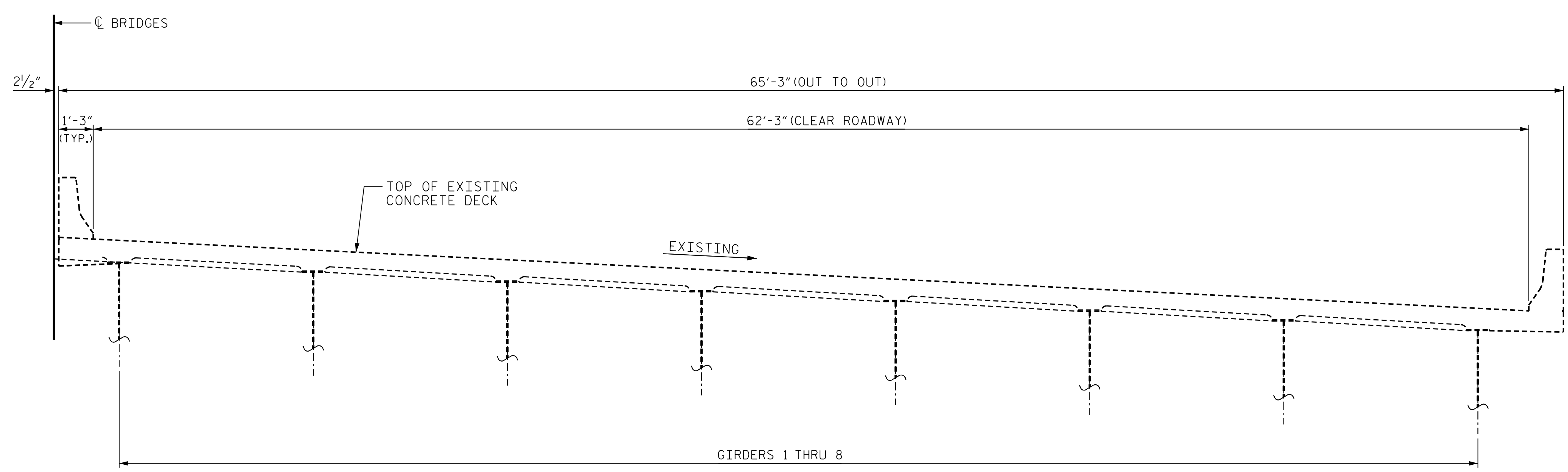
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGES ON I-277  
 OVER MOREHEAD ST.  
 BETWEEN I-77 AND  
 THIRD ST.

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

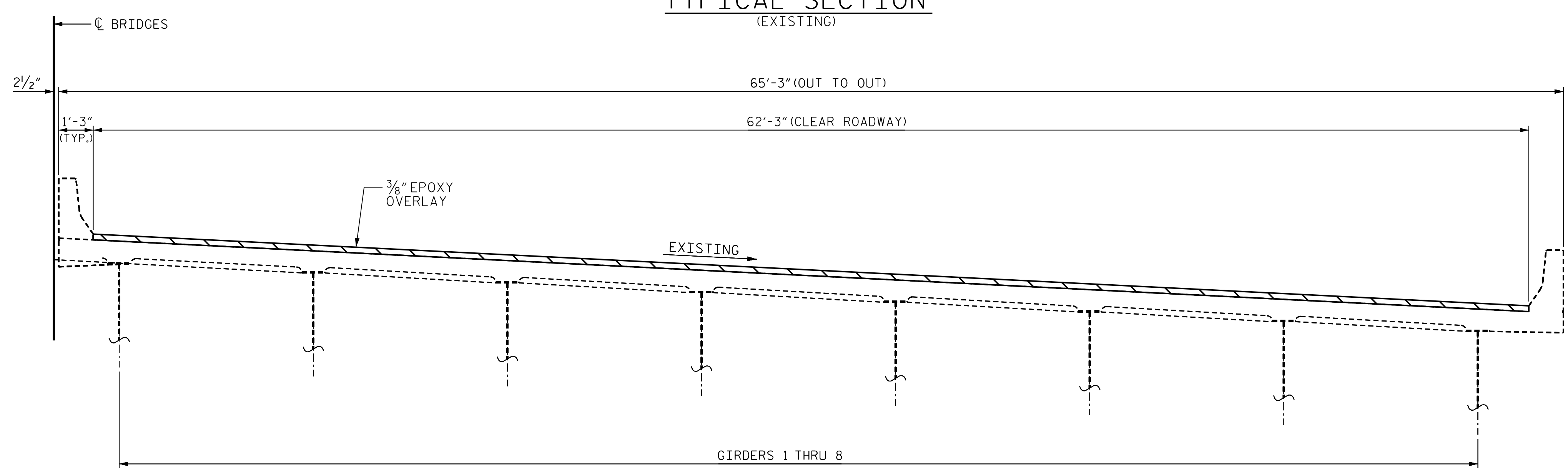
Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840	REVISIONS						SHEET NO.
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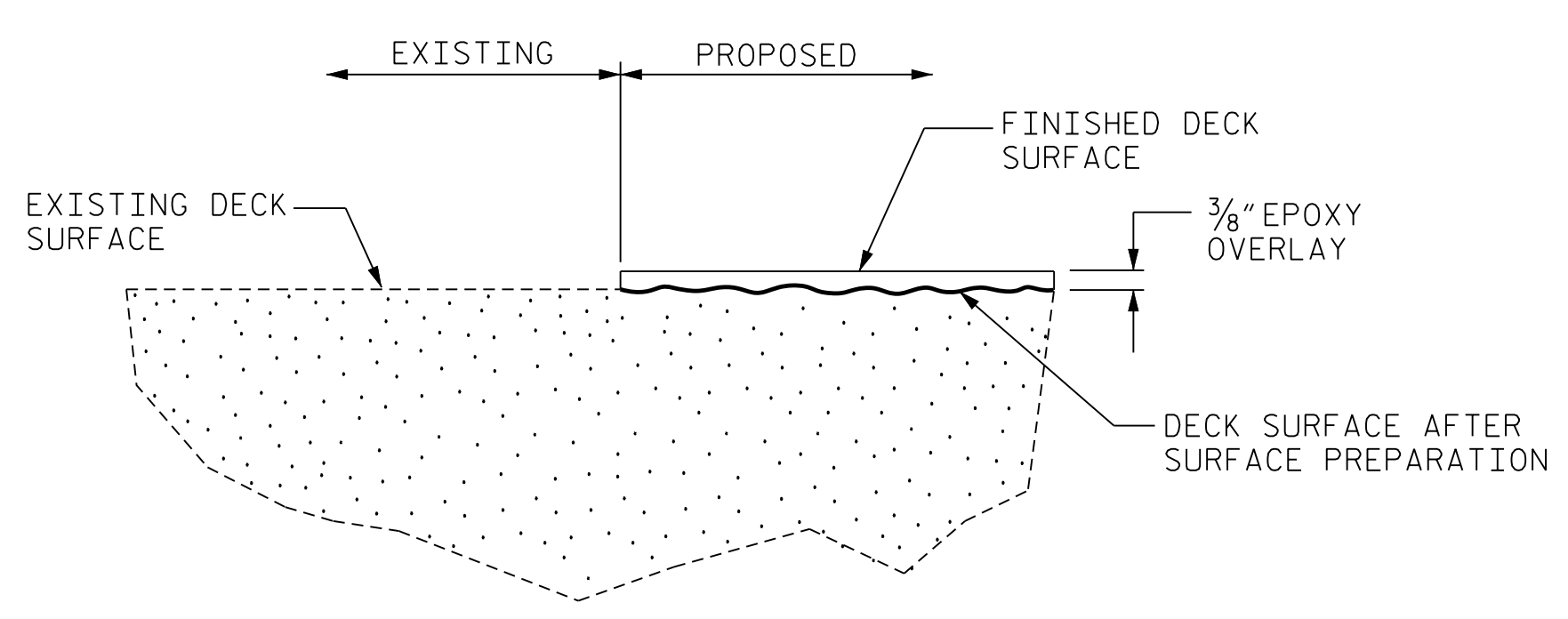
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**TYPICAL SECTION**  
(EXISTING)



**TYPICAL SECTION**  
(EPOXY OVERLAY)



**DETAIL OF EPOXY OVERLAY**

**NOTE:**

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 507

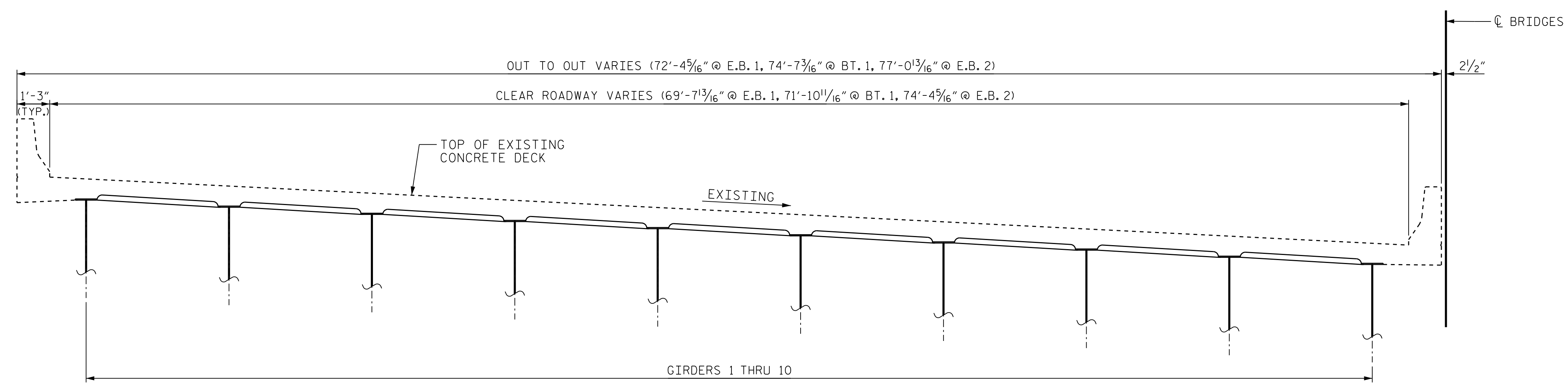
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION  
 & EPOXY OVERLAY  
 DETAILS**

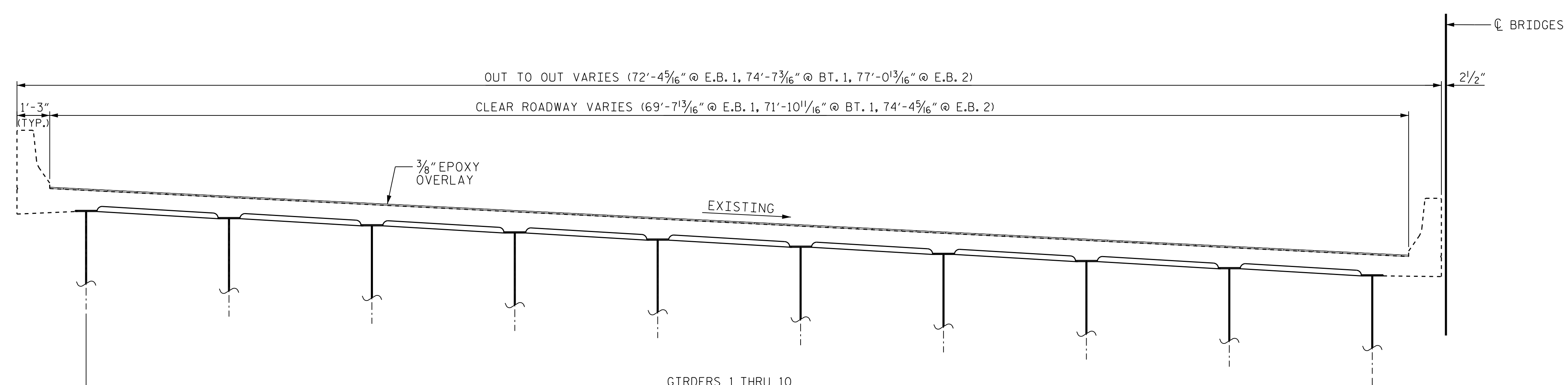
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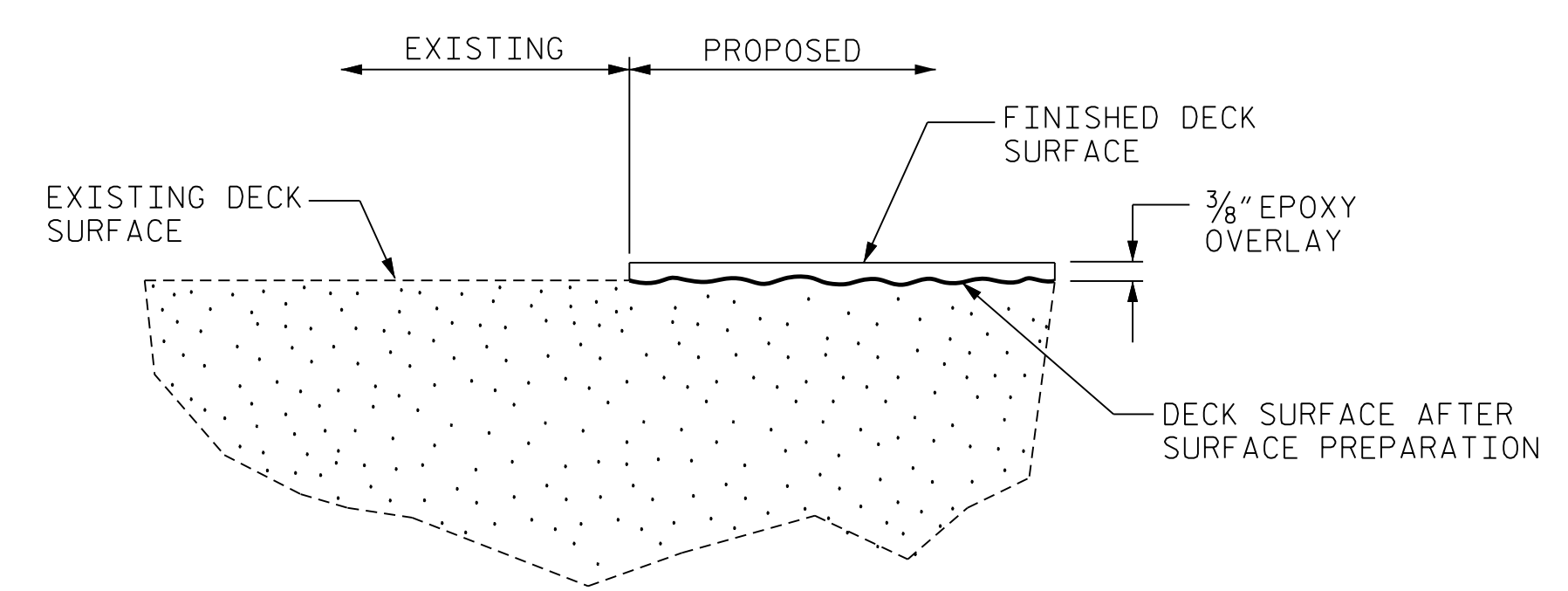
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TYPICAL SECTION  
(EXISTING)



TYPICAL SECTION  
(EPOXY OVERLAY)



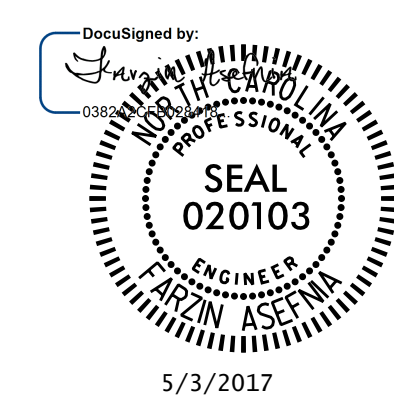
DETAIL OF EPOXY OVERLAY

**NOTE:**

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 508

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**TYPICAL SECTION  
 & EPOXY OVERLAY  
 DETAILS**

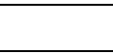
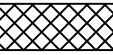
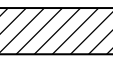
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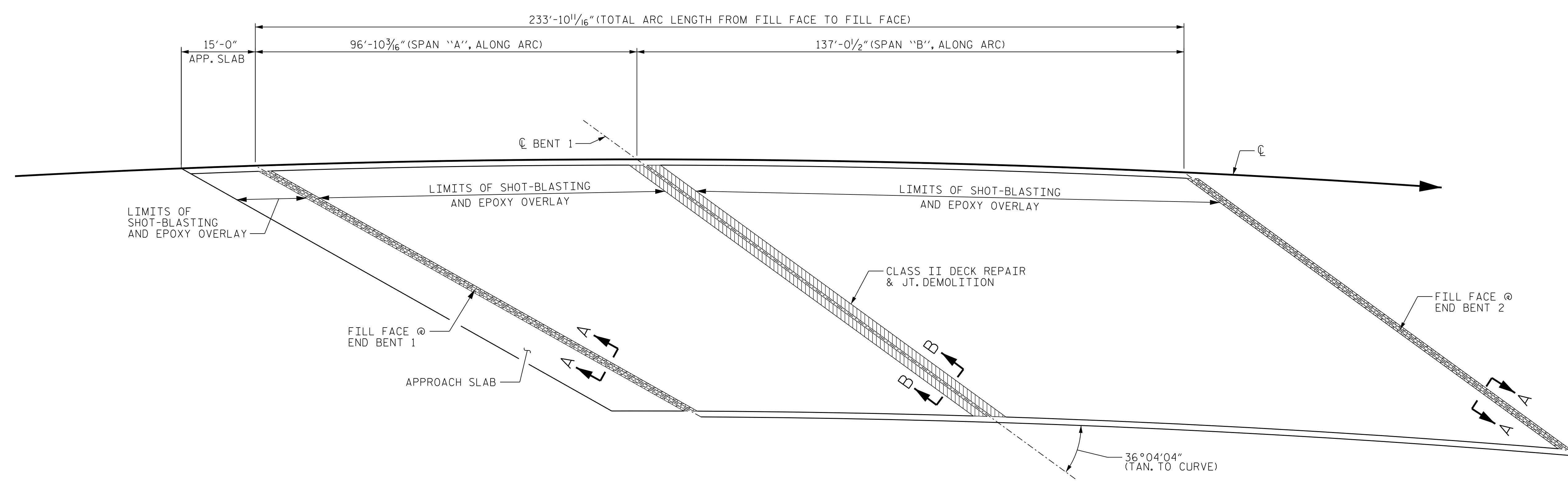
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SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	290 SQ. FT.	
BRIDGE JOINT DEMOLITION	352 SQ. FT.	
EPOXY OVERLAY SYSTEM	15,421 SQ. FT.	

-  EPOXY OVERLAY
-  BRIDGE JOINT DEMOLITION
-  CLASS II REPAIR



**PLAN**  
(FOR SECTION A-A & B-B SEE JOINT DETAILS SHEET)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 507

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SURFACE PREPARATION  
 AND  
 EPOXY OVERLAY**

DRAWN BY :	M. HOGAN	DATE :	9-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

REVISIONS						SHEET NO. S-173
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 196
2			4			



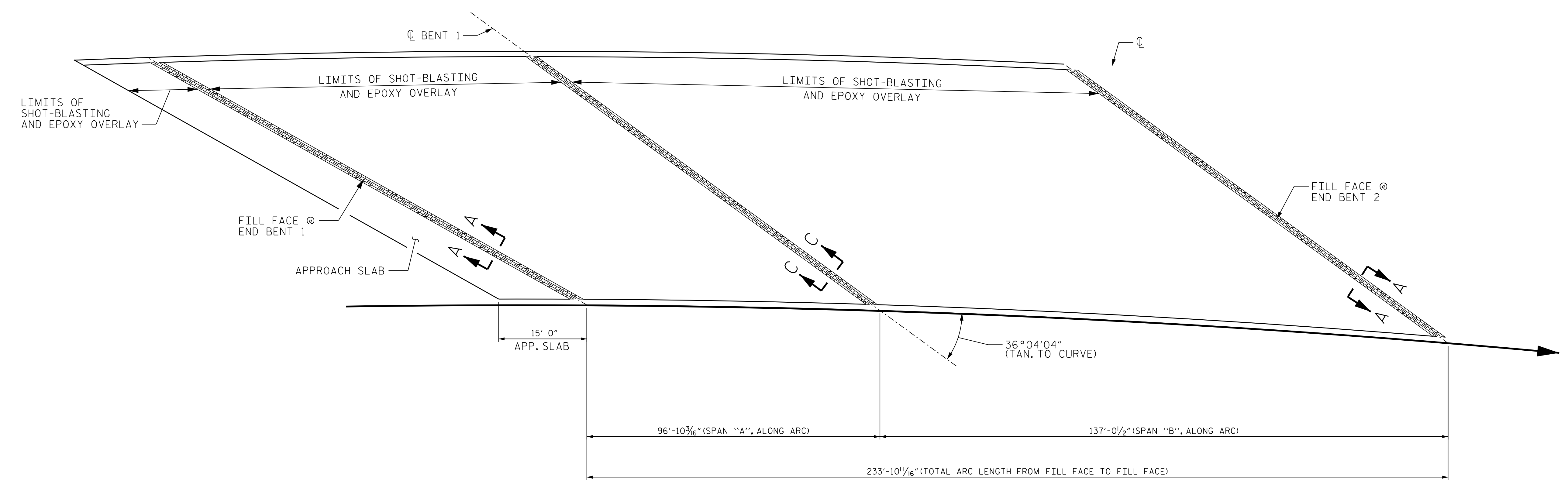


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SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1.0 SQ. FT.	
BRIDGE JOINT DEMOLITION	407.0 SQ. FT.	
EPOXY OVERLAY SYSTEM	18,048 SQ. FT.	

**NOTE:**  
 CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED.

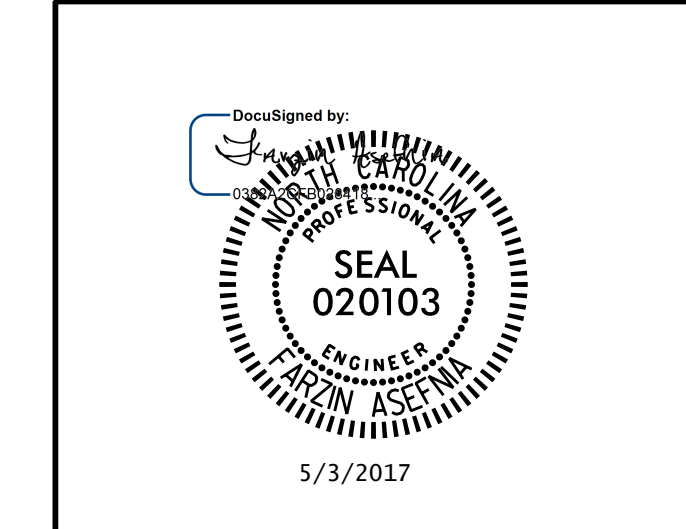
- EPOXY OVERLAY
- BRIDGE JOINT DEMOLITION



**PLAN**  
 (FOR SECTION A-A & C-C SEE JOINT DETAILS SHEET)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 508

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

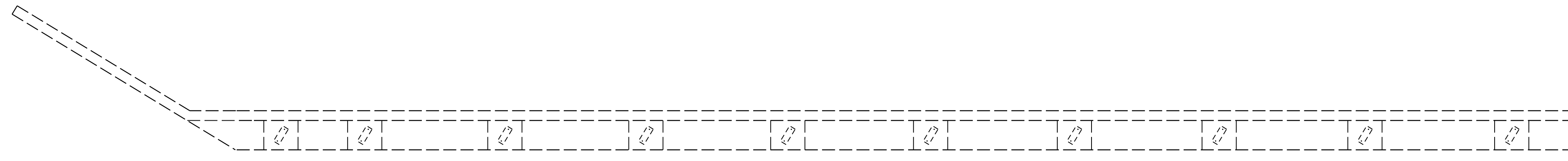
**SURFACE PREPARATION  
 AND  
 EPOXY OVERLAY**

DRAWN BY :	M. HOGAN	DATE :	9-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

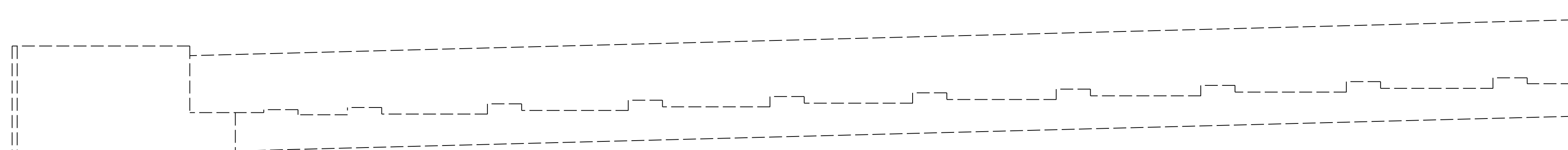
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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**Louis Berger**  
 Prepared by:  
 LOUIS BERGER  
 1001 Wade Avenue, Suite 400  
 Raleigh, NC 27605-3322  
 NC COA No. F-0840

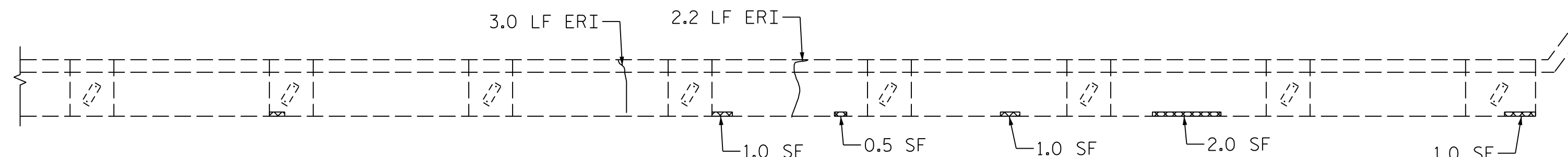
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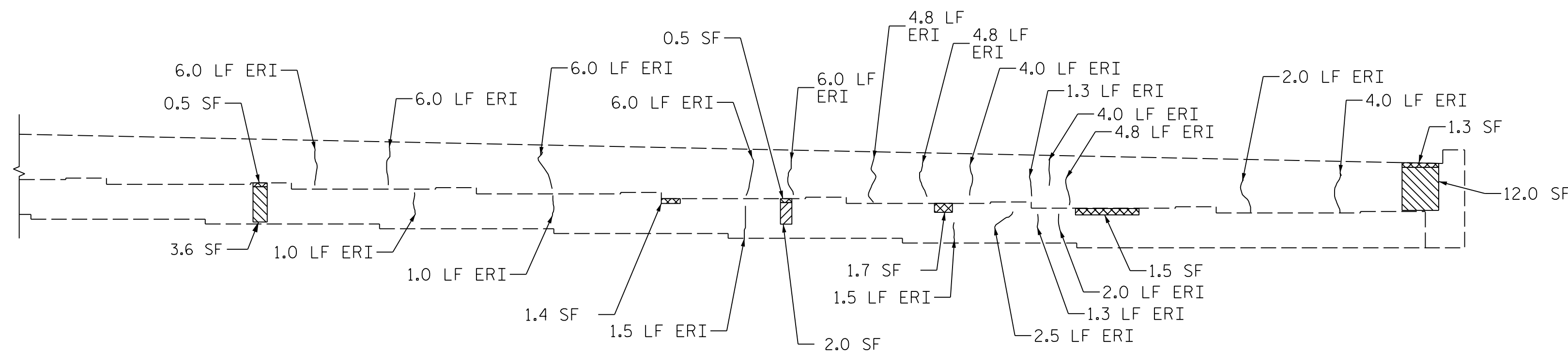
**PLAN**  
END BENT 1



**ELEVATION**  
END BENT 1



**PLAN**  
END BENT 2



**ELEVATION**  
END BENT 2

REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP		0.0		
EPOXY COATING	AREA SF			
CAP	418			
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	
CAP (VERTICAL FACE)	17.6	4.4		
CAP (HORIZONTAL)	0.0	0.0		
CONCRETE REPAIRS	12.4	3.1		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP		75.7		
EPOXY COATING	AREA SF			
CAP	420			

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

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

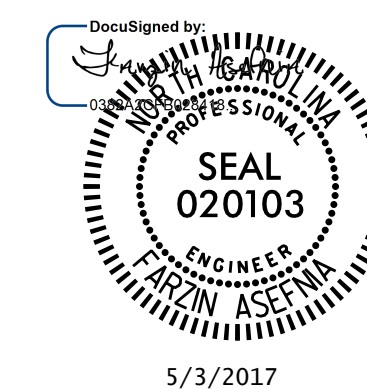
CONCRETE REPAIR

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 507

DOCUMENT NOT CONSIDERED FINAL  
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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE**  
END BENTS

REVISIONS

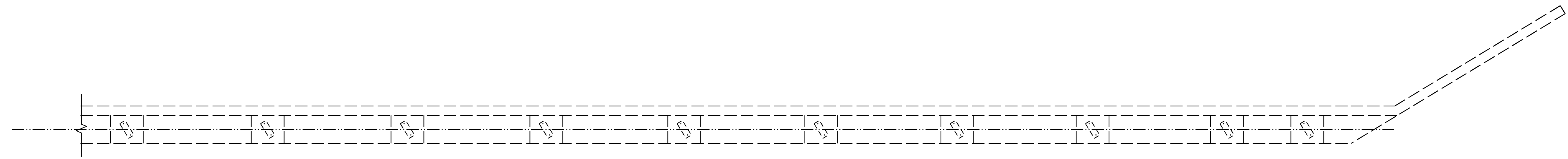
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2			4		

SHEET NO.  
S-175  
TOTAL SHEETS  
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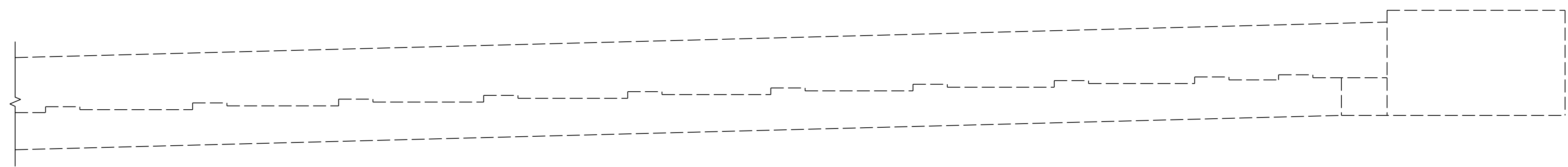
DRAWN BY : M. HOGAN DATE : 8-16  
CHECKED BY : T. KIRSCHBAUM DATE : 10-16  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 10-16

Prepared by:  
**Louis Berger**  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

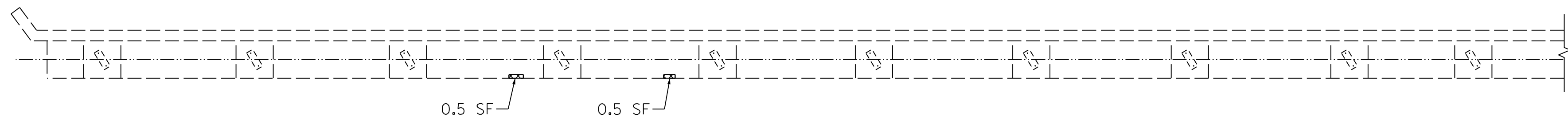
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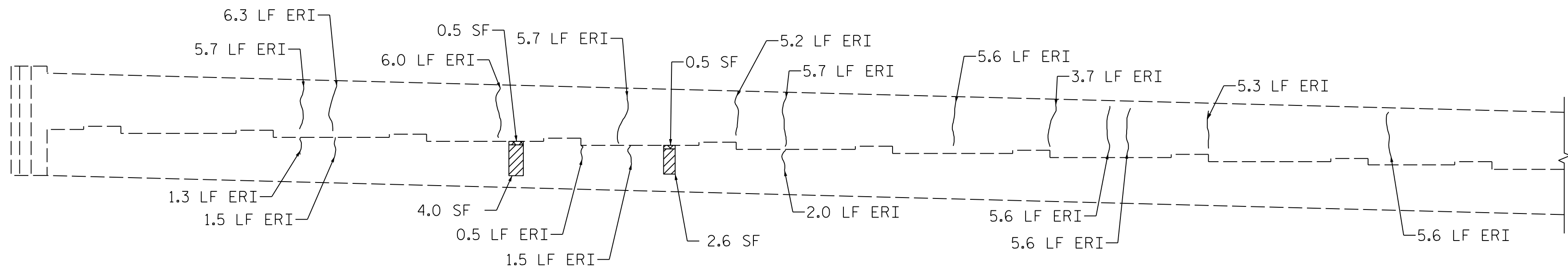
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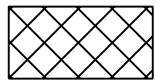
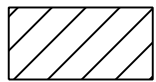
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END BENT 1



**PLAN**  
END BENT 2



**ELEVATION**  
END BENT 2

 CONCRETE REPAIR  
 SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

DRAWN BY : M. HOGAN DATE : 9-16  
CHECKED BY : T. KIRSCHBAUM DATE : 10-16  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 10-16

**REPAIR QUANTITY TABLE**

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
EPOXY COATING	AREA SF			
CAP	0.0			

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	6.6	1.7		
CAP (HORIZONTAL)	0.0	0.0		
CONCRETE REPAIRS	2.0	0.5		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		72.8		
EPOXY COATING	AREA SF			
CAP	499			

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

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

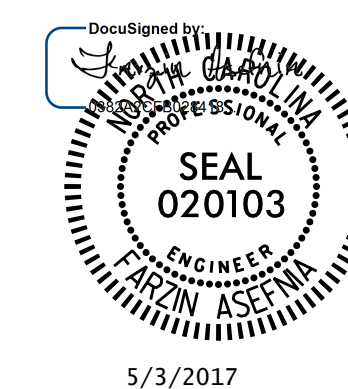
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 508

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE**  
END BENTS

REVISIONS

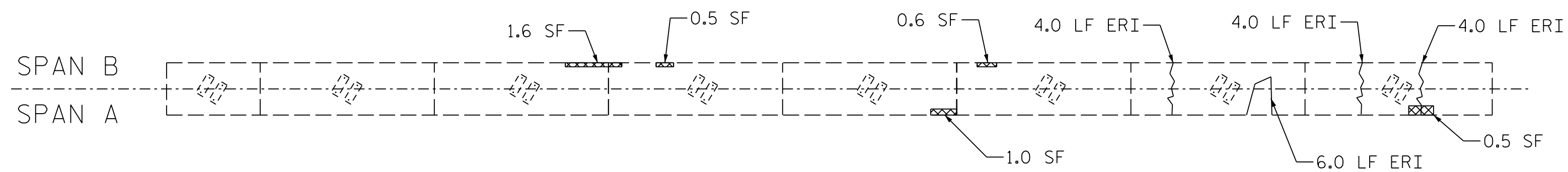
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TOTAL SHEETS  
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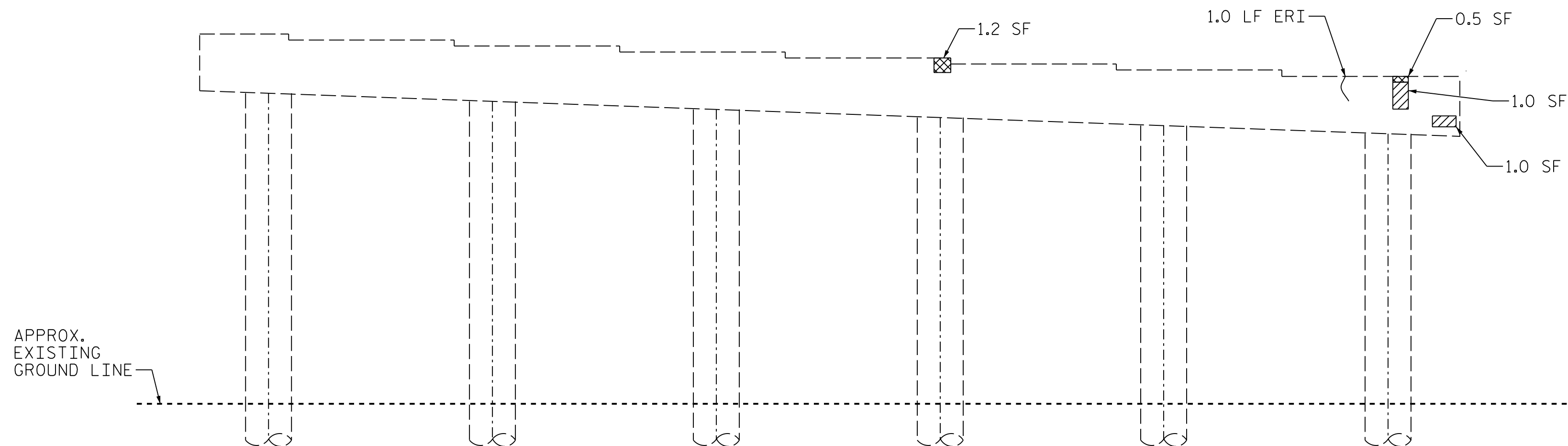
Prepared by:  
**Louis Berger**  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840



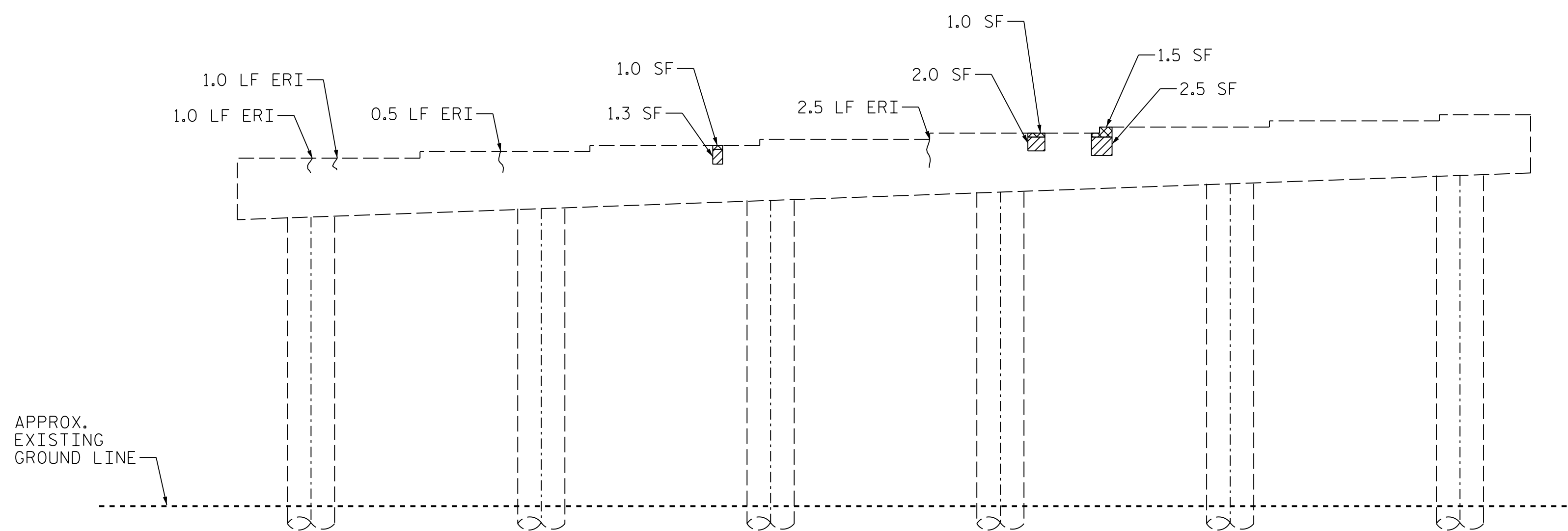
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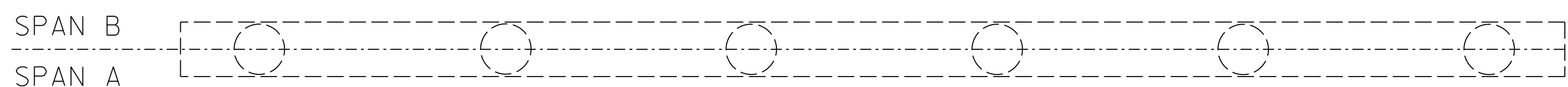
**PLAN**  
(TOP OF CAP)



**ELEVATION**  
(SPAN A SIDE)



**ELEVATION**  
(SPAN B SIDE)



**PLAN**  
(BOTTOM OF CAP)

**REPAIR QUANTITY TABLE**

REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	7.8	2.0		
CAP (HORIZONTAL)	0.0	0.0		
COLUMN (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	9.4	2.4		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		24.0		
COLUMN		0.0		
EPOXY COATING		SQ. FT		SQ. FT
TOP OF CAP		476		

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

**NOTES:**  
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.  
CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.  
FOR REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.  
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.  
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.  
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 507

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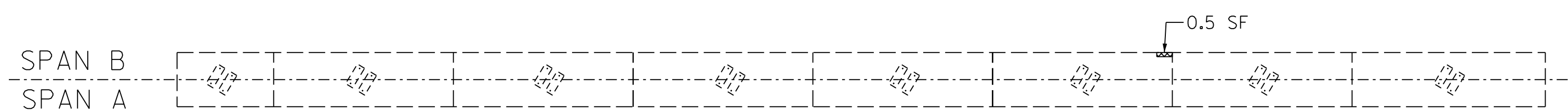
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 1

DRAWN BY : M. HOGAN DATE : 8-16  
CHECKED BY : T. KIRSCHBAUM DATE : 10-16  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 10-16

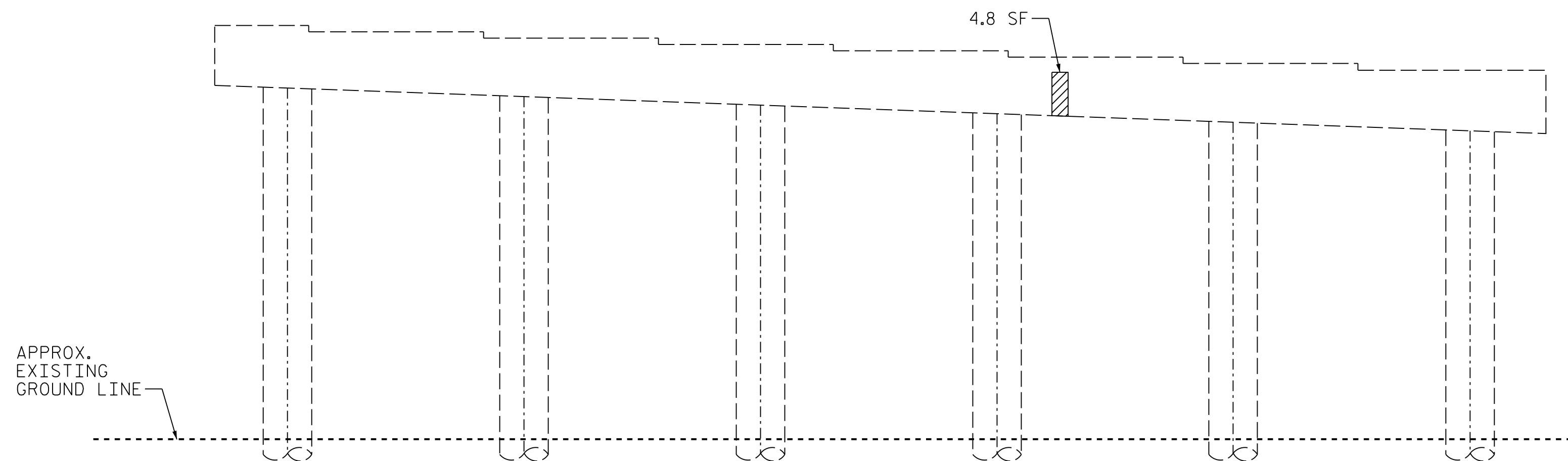
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2			4			196



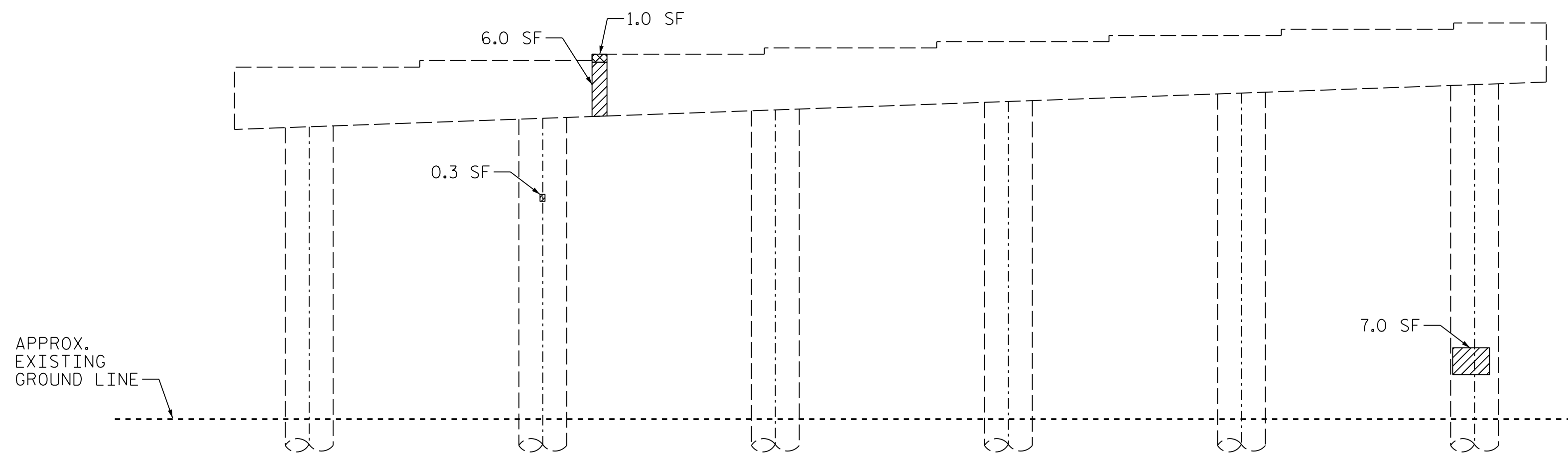
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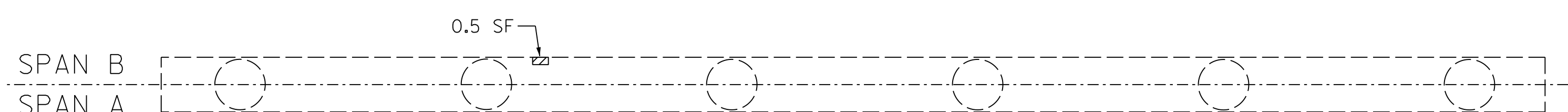
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(TOP OF CAP)



**ELEVATION**  
(SPAN A SIDE)



**ELEVATION**  
SPAN B SIDE



**PLAN**  
(BOTTOM OF CAP)

REPAIR QUANTITY TABLE				
REPAIRS BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	10.8	2.7		
CAP (HORIZONTAL)	0.5	0.1		
COLUMN (HORIZONTAL FACE)	7.3	1.8		
CONCRETE REPAIRS	1.5	0.5		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		0.0		
COLUMN		0.0		
EPOXY COATING		SQ. FT		SQ. FT
TOP OF CAP		476		

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

**NOTES:**

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

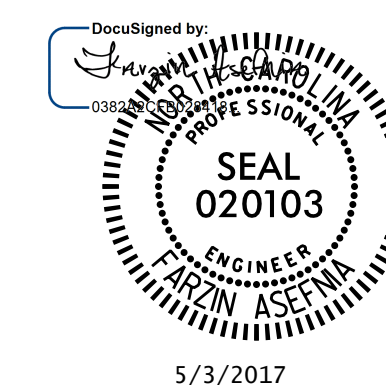
FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 508

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 1

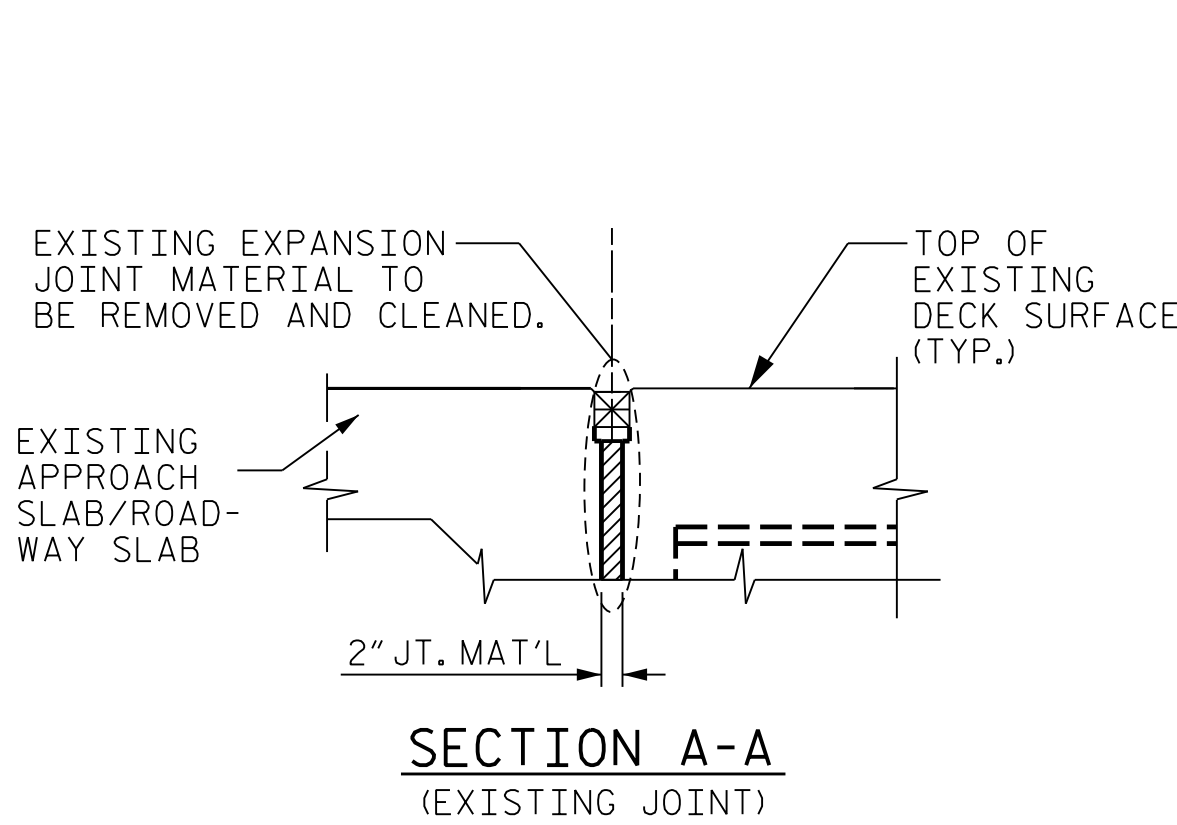


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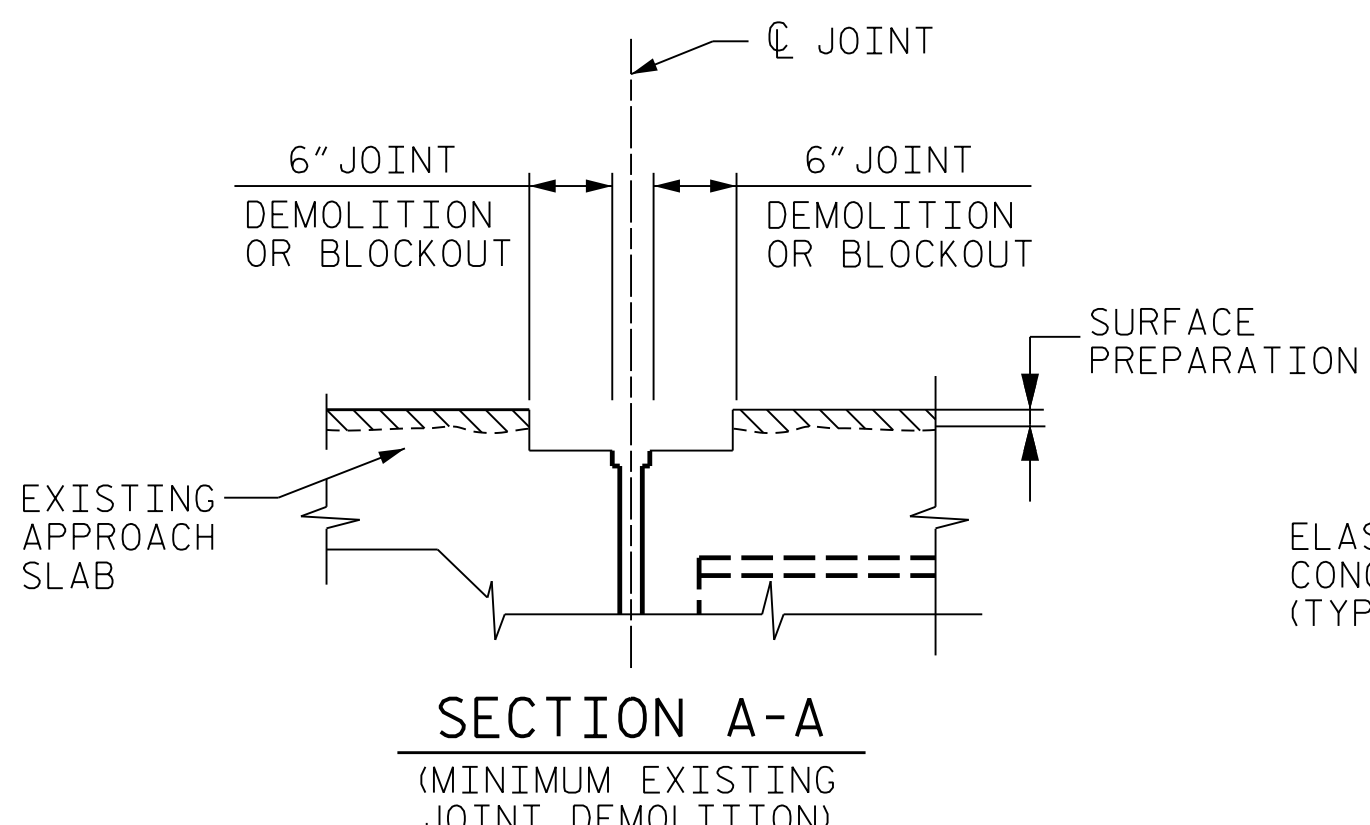
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CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16



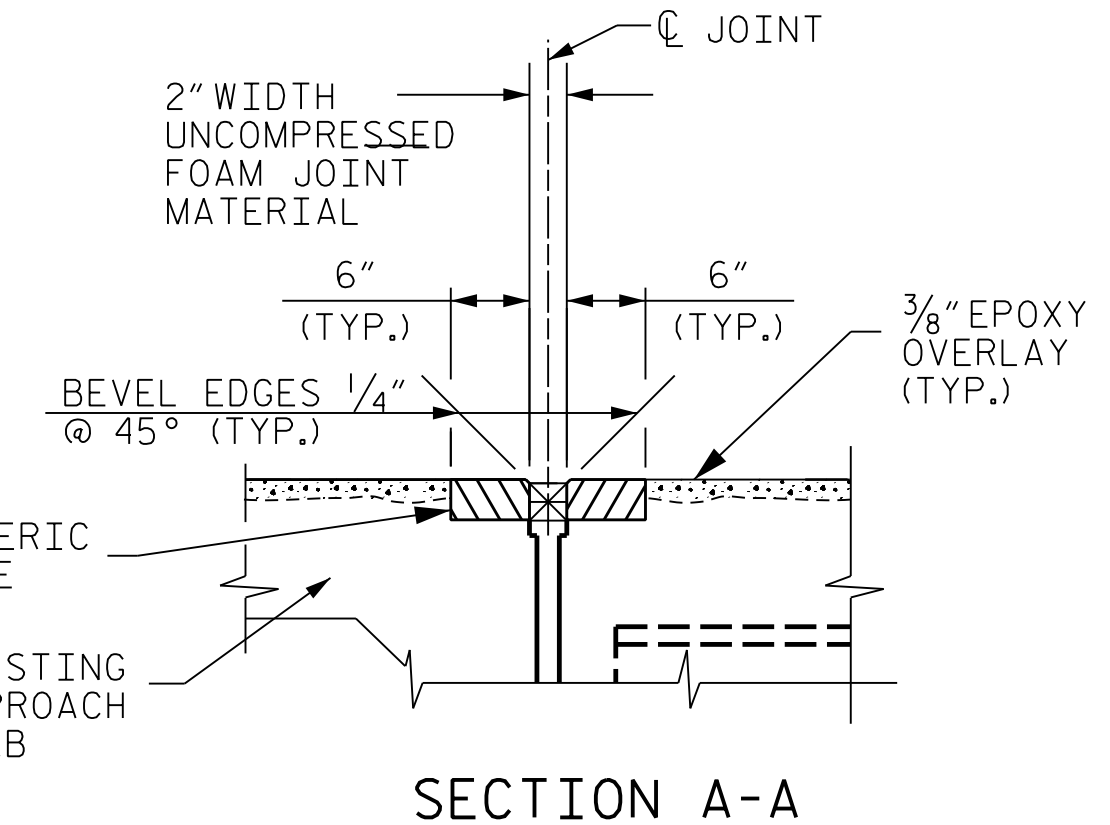
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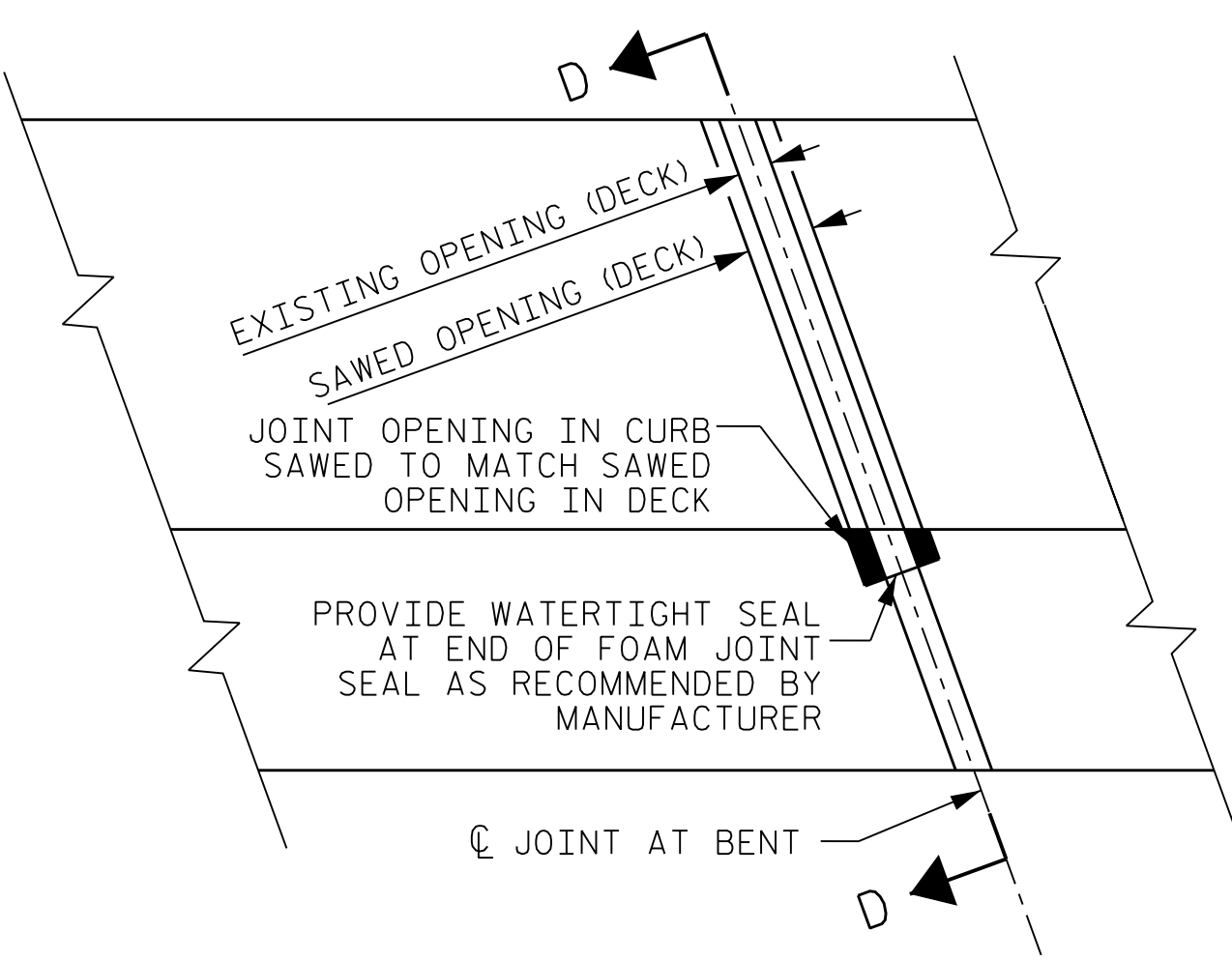
**SECTION A-A**  
(EXISTING JOINT)



**SECTION A-A**  
(MINIMUM EXISTING JOINT DEMOLITION)



**SECTION A-A**  
(PROPOSED JOINT)

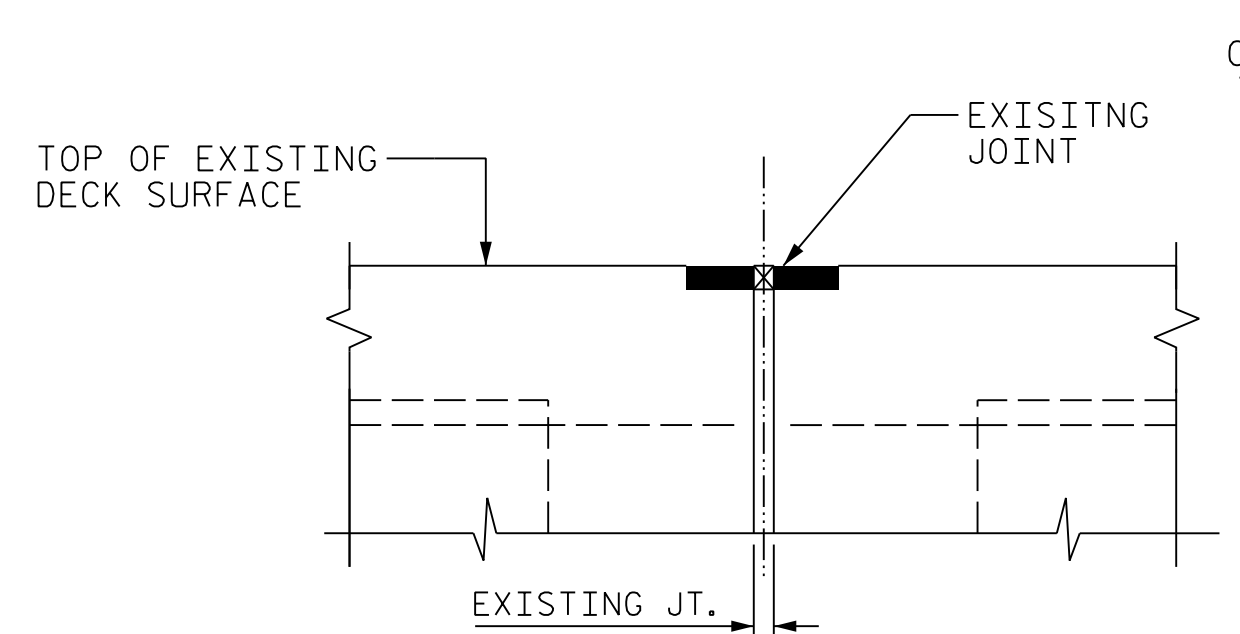


**PLAN**

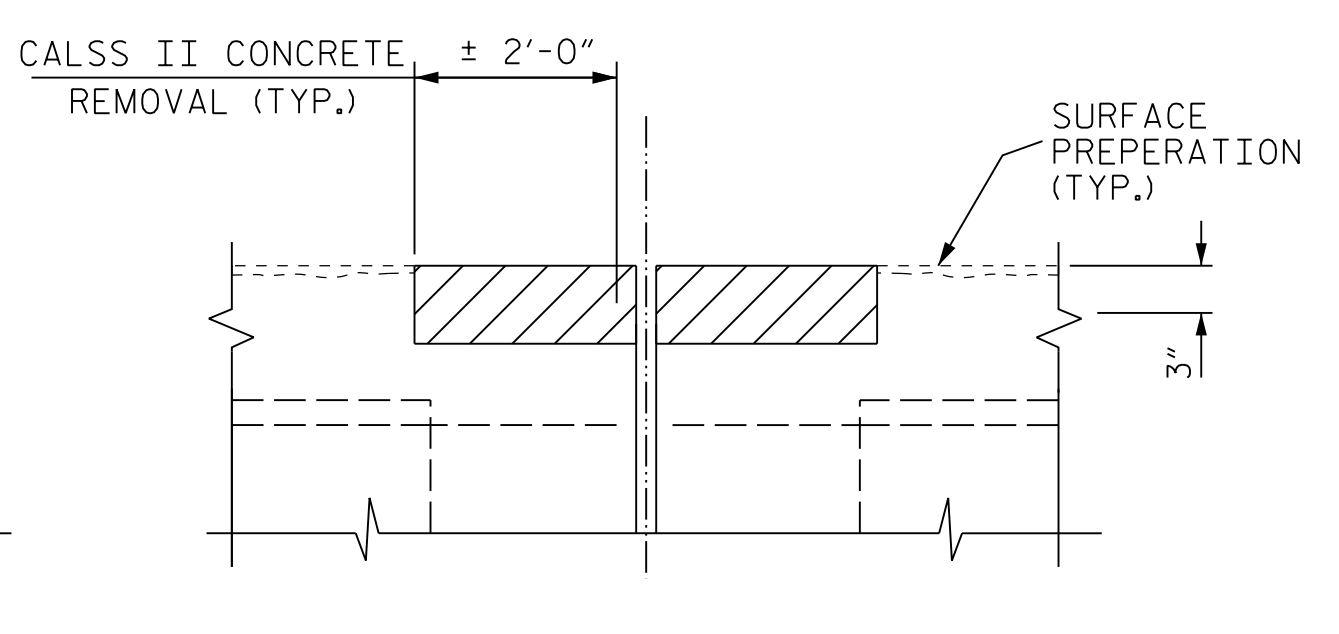
**NOTES:**  
 CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
 FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.  
 FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.  
 RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.  
 THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL SHALL BE 2 1/2" @ BENTS AND 2" AT END BENTS.

ELASTOMERIC CONCRETE	
BRIDGE 507	95.0 (CU. FT.)
BRIDGE 508	115.0 (CU. FT.)

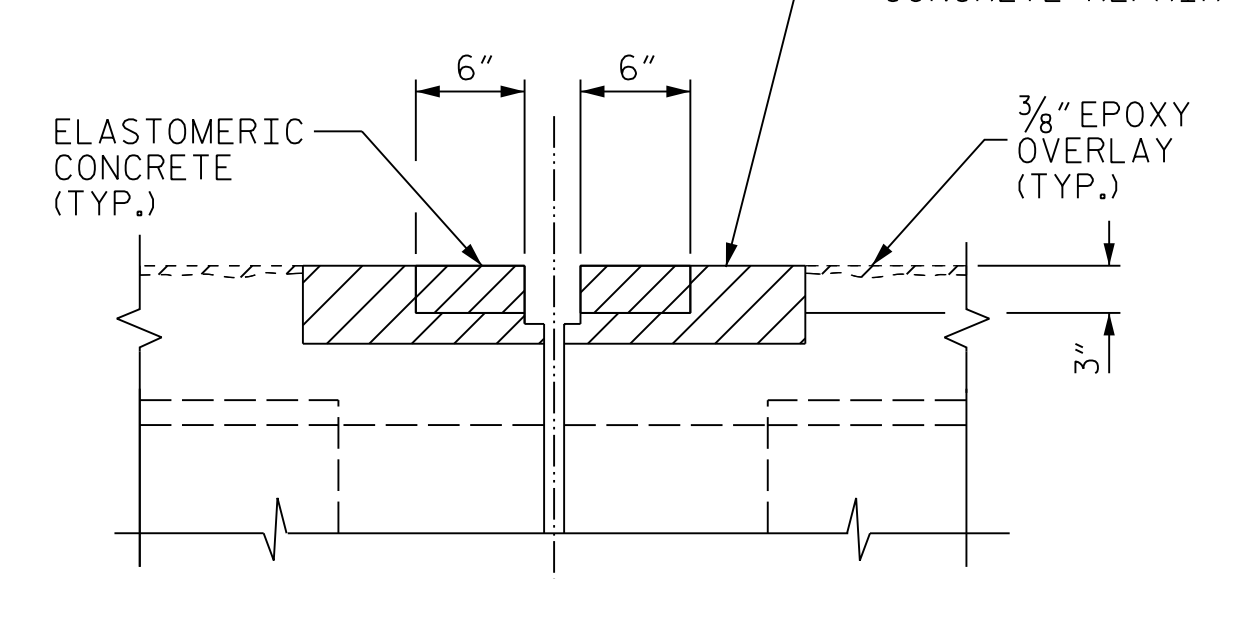
**JOINT INSTALLATION SEQUENCE AT END BENTS**



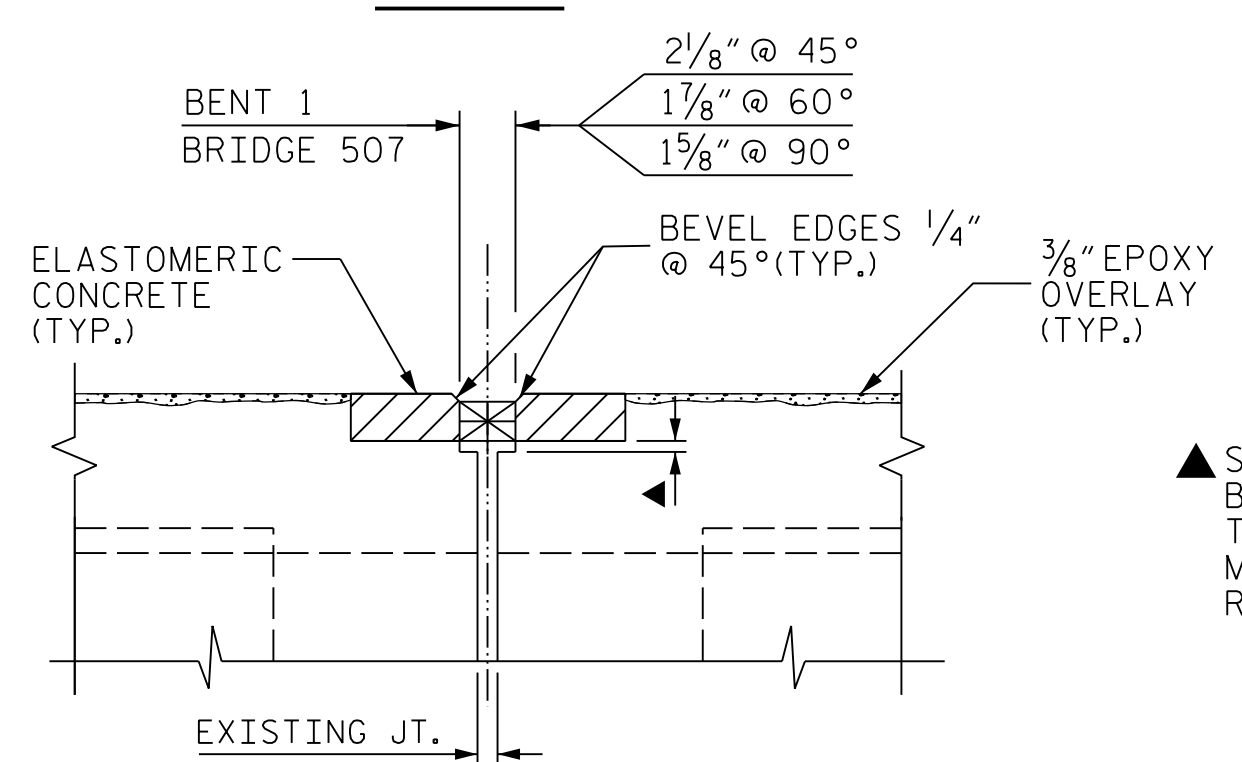
**EXISTING JOINT**



**MINIMUM EXISTING JOINT DEMOLITION**



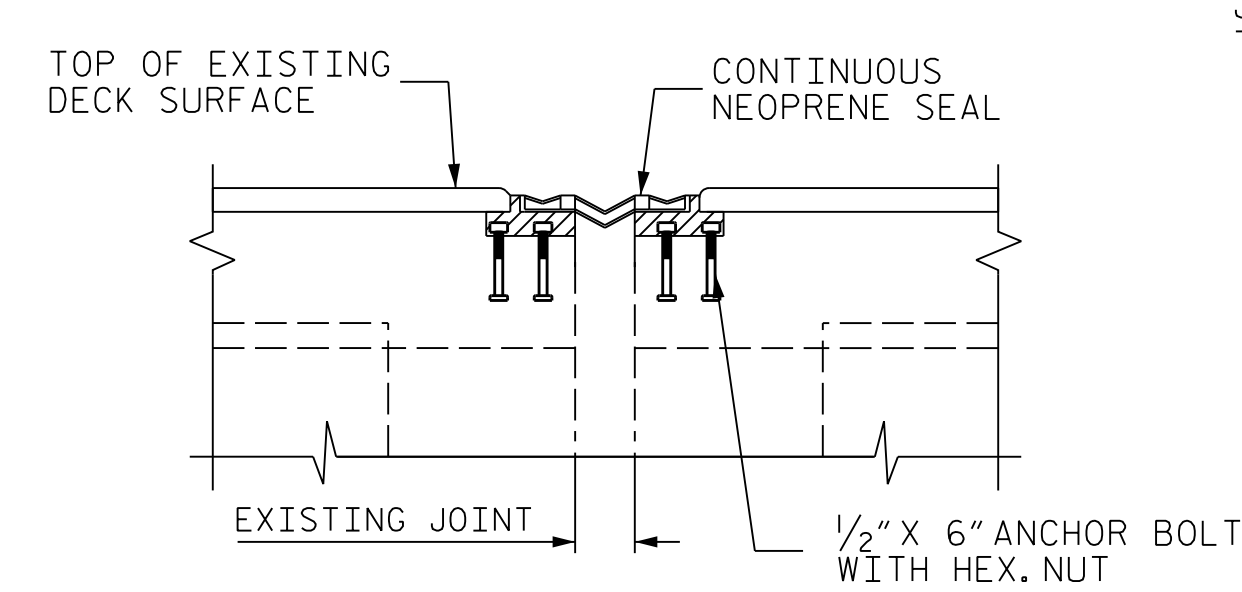
**PROPOSED JOINT PRE-SAWED DIMENSION**



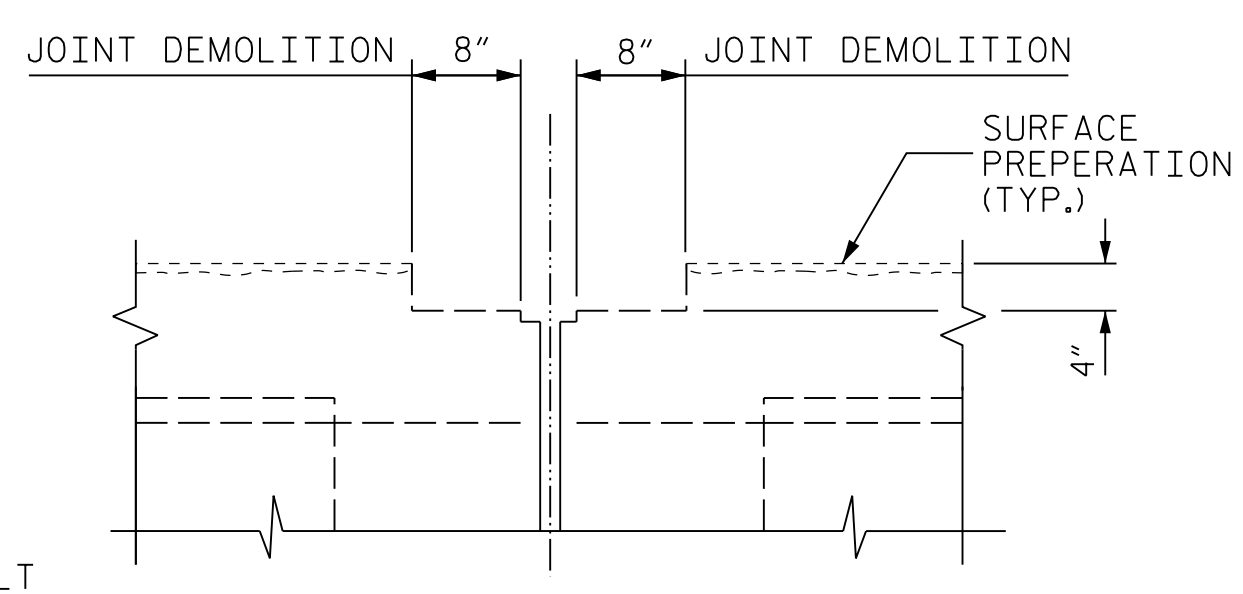
**PROPOSED JOINT SEAL EXPANSION**

▲ SAW CUT SHALL BE 3/4" BELOW THE BOTTOM OF THE JOINT SEAL. SEE MANUFACTURER RECOMMENDATIONS

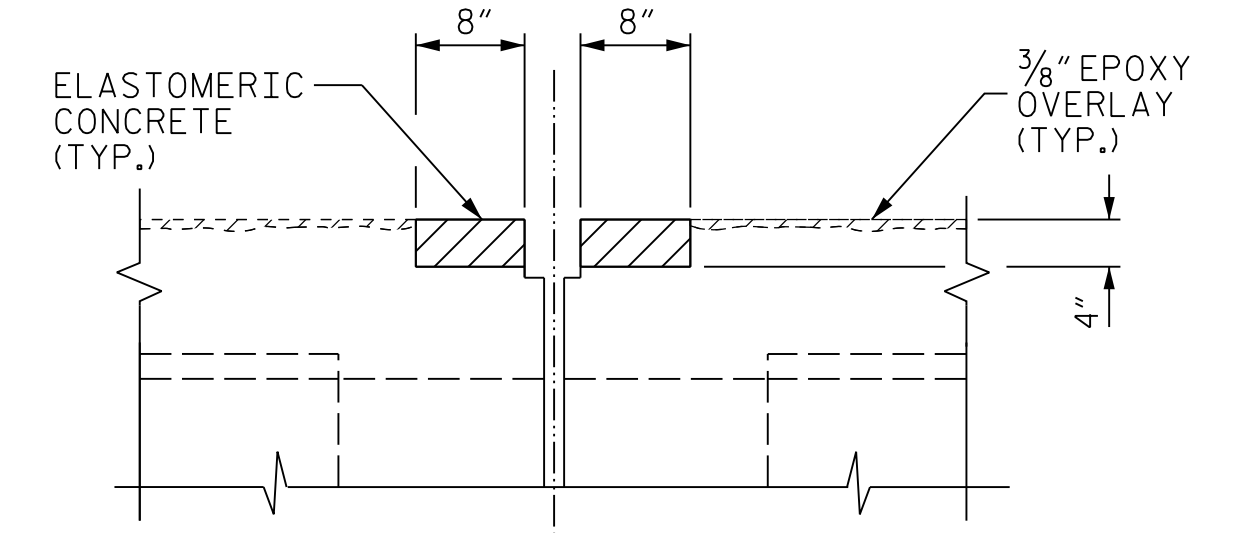
**JOINT INSTALLATION SEQUENCE AT BENTS**



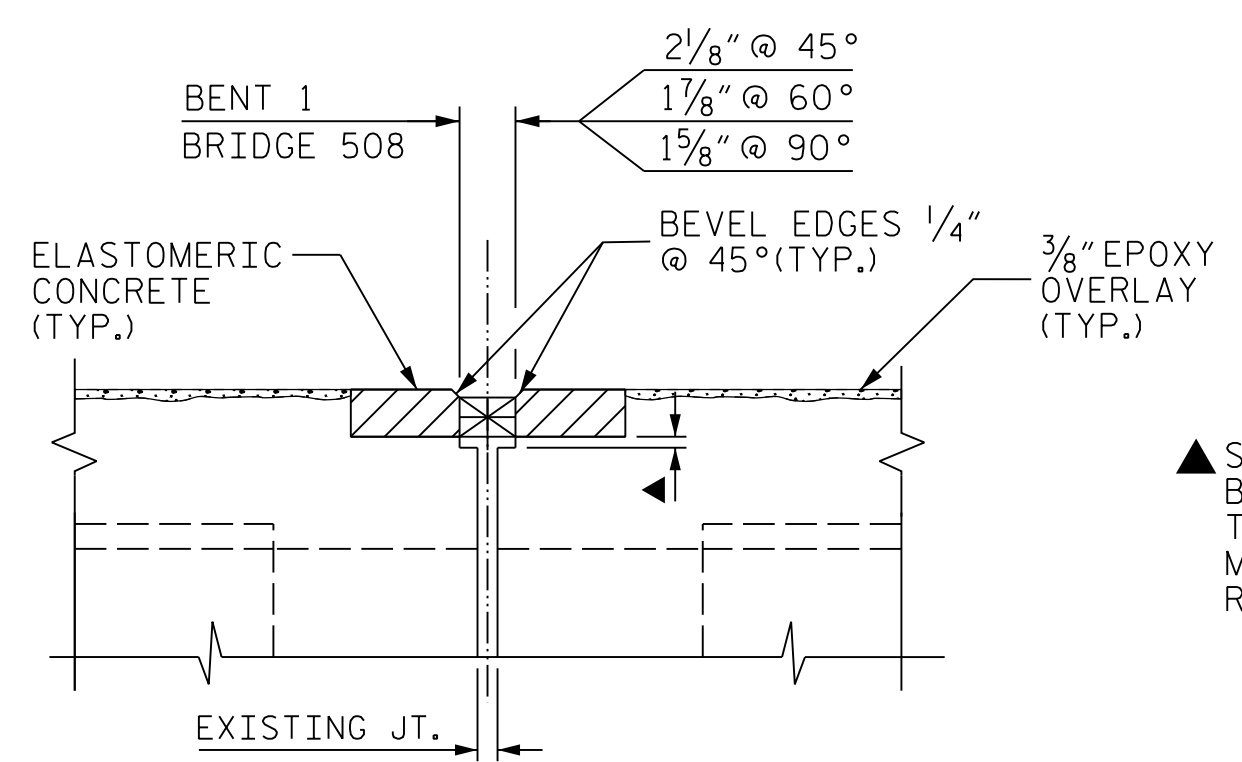
**EXISTING JOINT**



**MINIMUM EXISTING JOINT DEMOLITION**



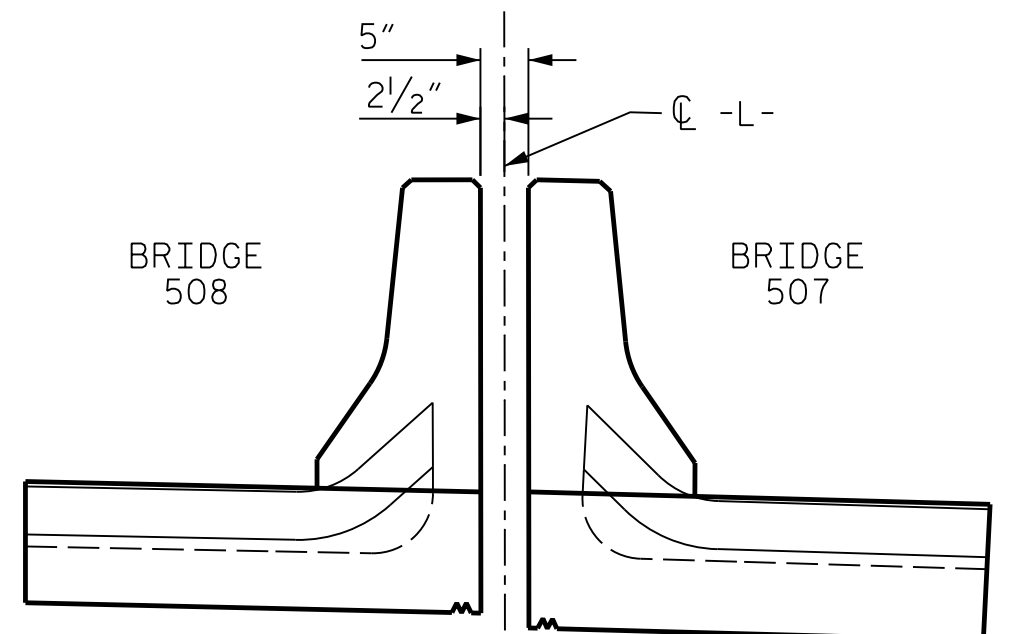
**PROPOSED JOINT PRE-SAWED DIMENSION**



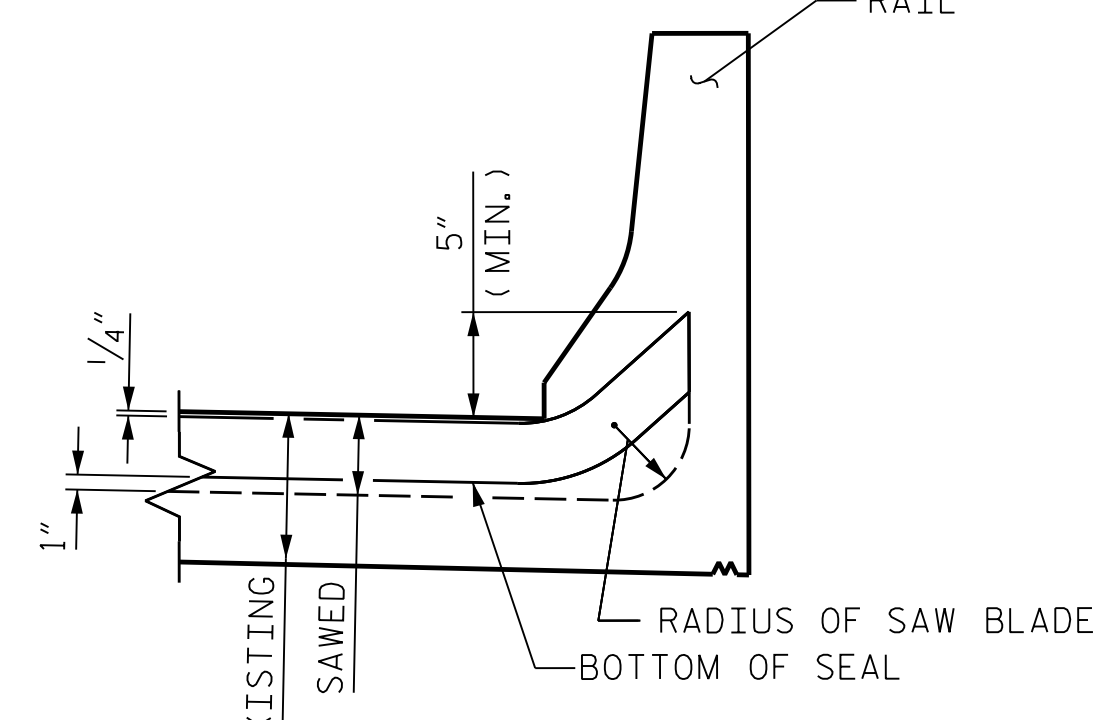
**PROPOSED JOINT SEAL EXPANSION**

▲ SAW CUT SHALL BE 3/4" BELOW THE BOTTOM OF THE JOINT SEAL. SEE MANUFACTURER RECOMMENDATIONS

**JOINT INSTALLATION SEQUENCE AT BENTS**



**SECTION THRU MEDIAN BARRIER**  
(SEE SECTION D-D FOR DETAIL)



**SECTION D-D**

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 507 & 508

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

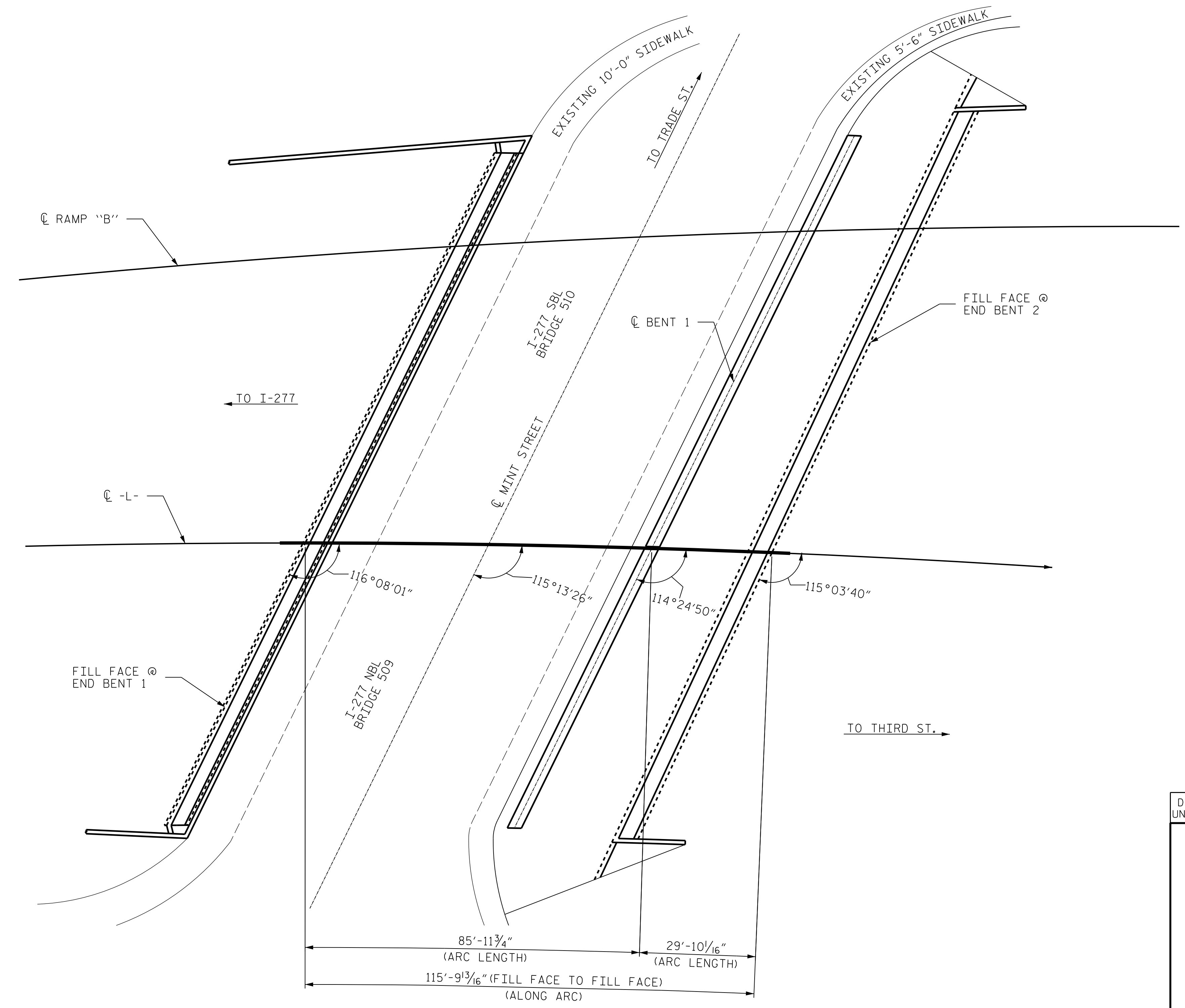
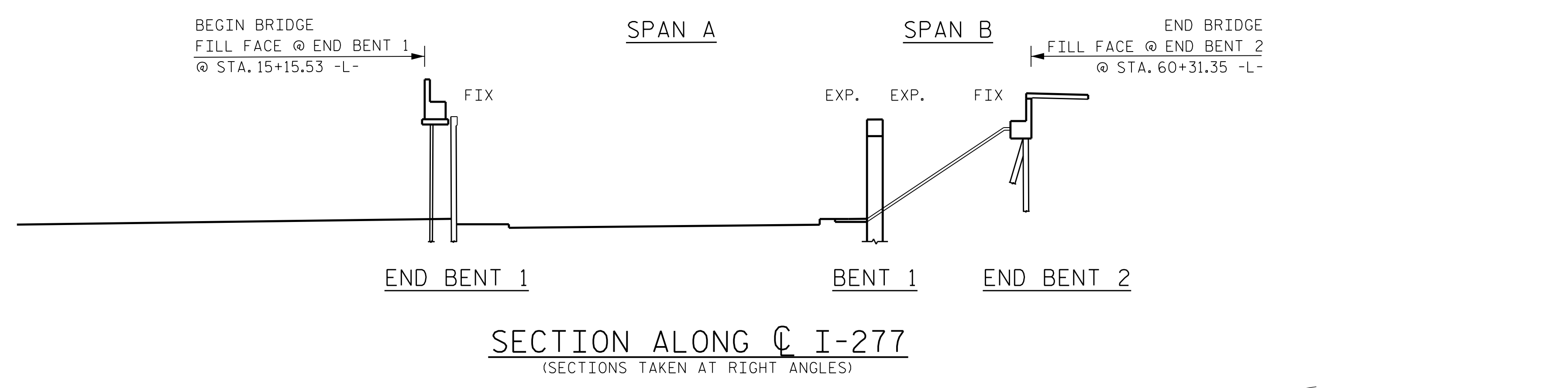
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**JOINT DETAILS**

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

REVISIONS		SHEET NO.	
NO.	BY:	DATE:	NO.
1			3
2			4
			SHEET NO. S-179
			TOTAL SHEETS 196





I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer \_\_\_\_\_ Date \_\_\_\_\_

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 509 & 510

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON  
 I-277 OVER  
 MINT STREET

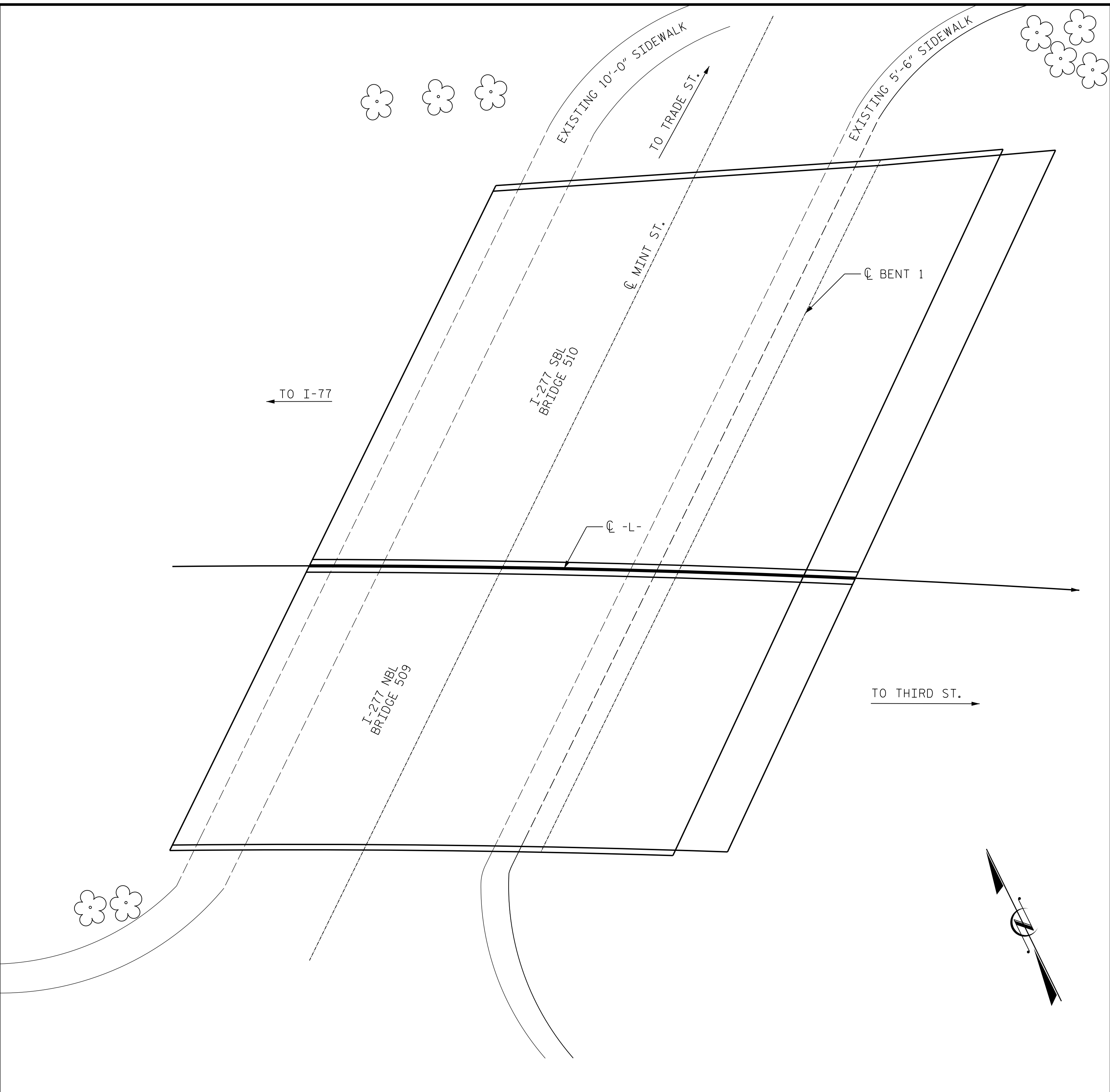
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-180
1			3			TOTAL SHEETS 196
2			4			

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DRAWN BY : S. DHOLAKIA DATE : 8-16  
 CHECKED BY : T. KIRSCHBAUM DATE : 11-16  
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 11-16

**PLAN**  
 (COLUMNS AND FOOTINGS NOT SHOWN IN PLAN VIEW FOR CLARITY)

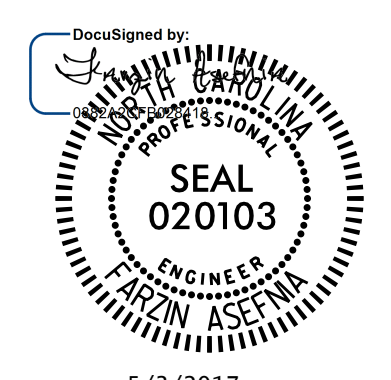
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I-5746\_PDF\_FULL.pltcfgr I-5746\_STR\_REHAB.TBL



LOCATION SKETCH

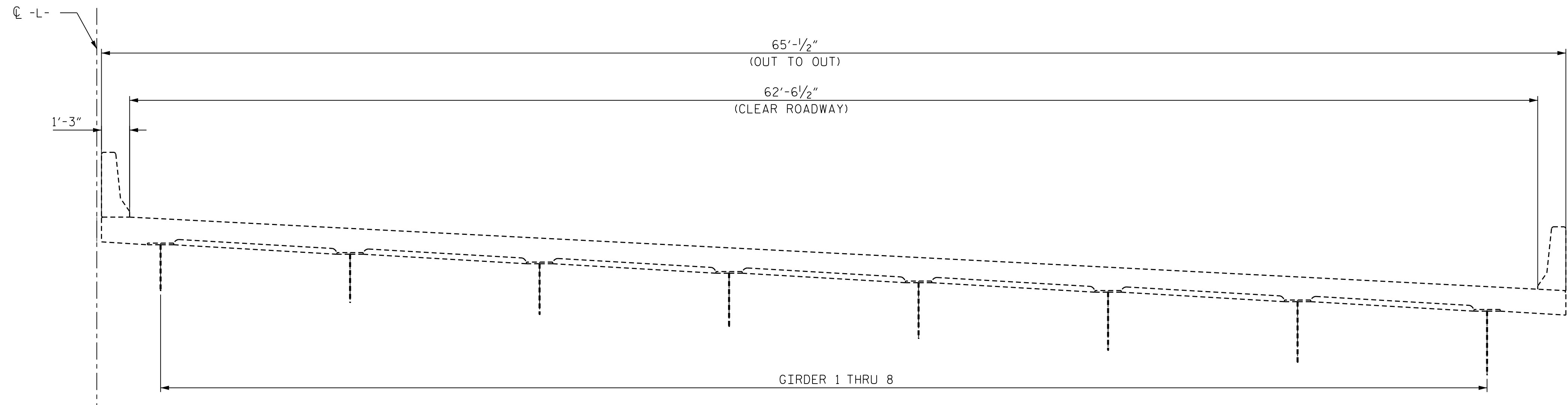
- NOTES:**
- EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.
  - EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.
  - FOR OVERLAY OF BRIDGE WITH EPOXY OVERLAY SYSTEM, SEE SPECIAL PROVISIONS.
  - FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
  - FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
  - FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
  - FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
  - FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
  - FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.
  - FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.
  - FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
  - IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
  - FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.
  - LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 509 & 510

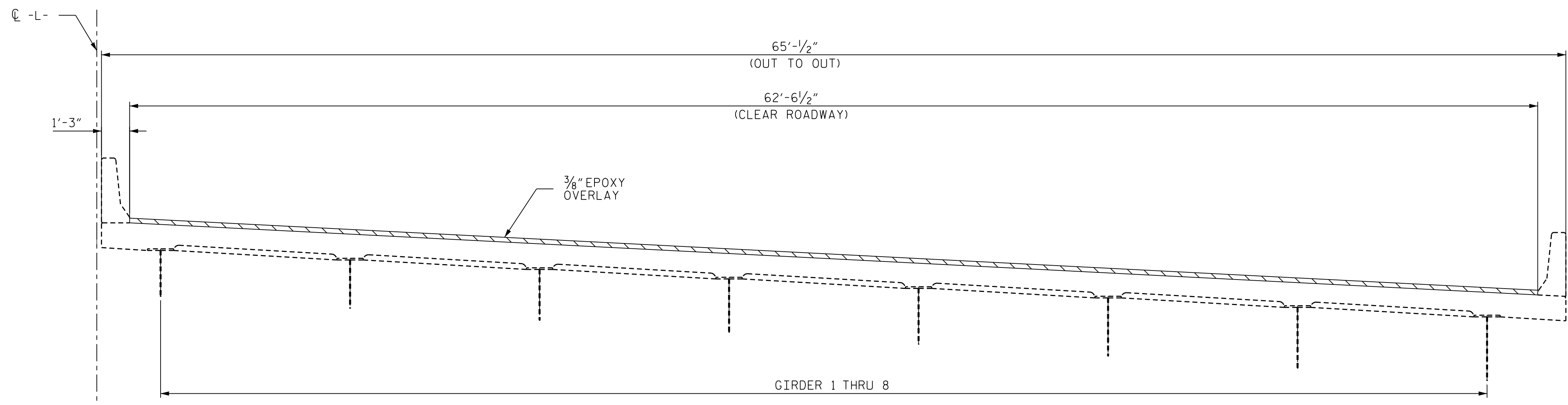
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		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH <b>GENERAL DRAWING</b> FOR BRIDGE ON I-277 OVER MINT STREET	
REVISIONS			
NO.	BY:	DATE:	REVISIONS
1			3
2			4
Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840			SHEET NO. S-181 TOTAL SHEETS 196

DRAWN BY :	S. DHOLAKIA	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

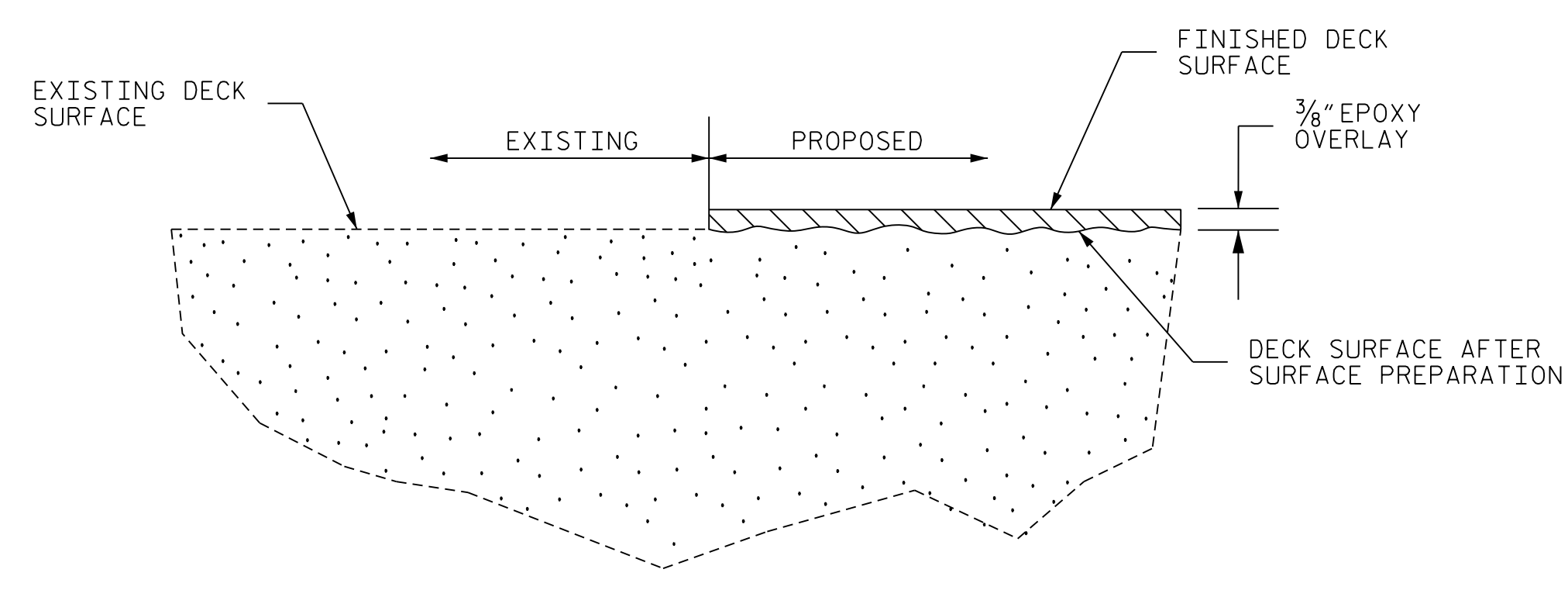
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**TYPICAL SECTION**  
(EXISTING)



**TYPICAL SECTION**  
(EPOXY OVERLAY)

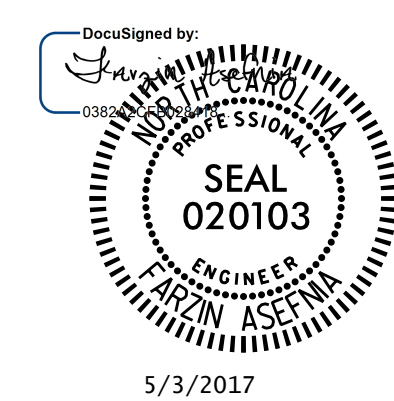


**DETAIL OF EPOXY OVERLAY**

**NOTE:**  
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 509

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



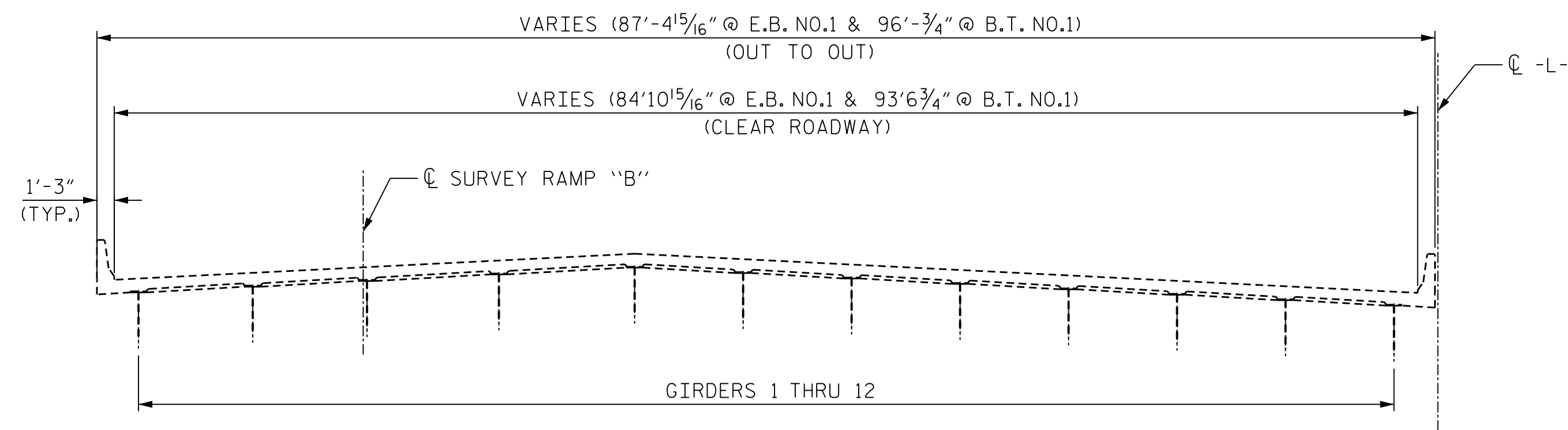
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUPERSTRUCTURE**  
TYPICAL SECTION  
& EPOXY OVERLAY  
DETAILS

DRAWN BY :	S. DHOLAKIA	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

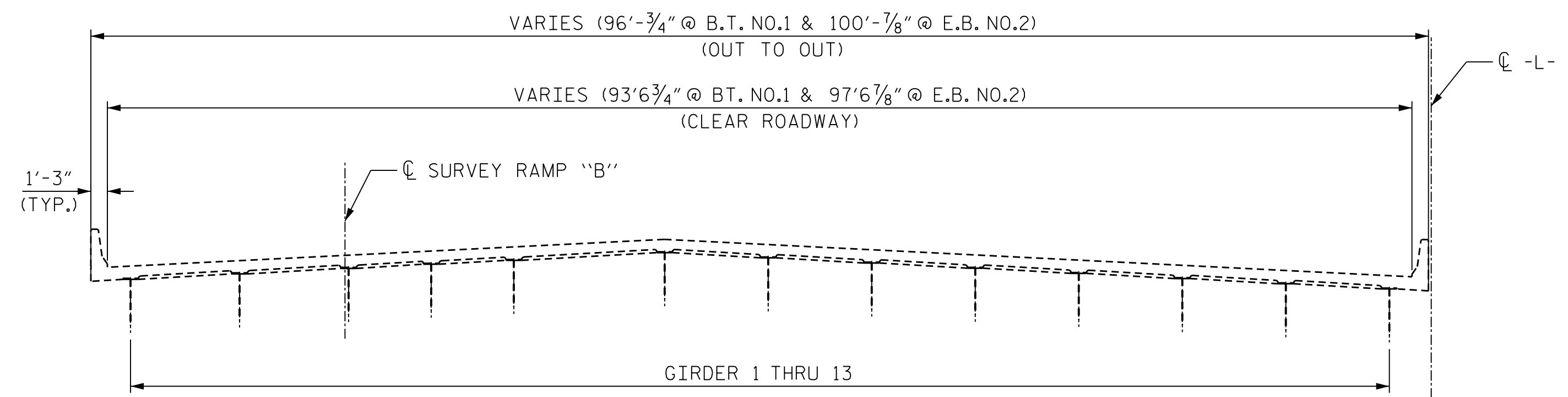
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	NO. 1 BY: [ ] DATE: [ ]			NO. 2 BY: [ ] DATE: [ ]			REVISIONS NO. 3 BY: [ ] DATE: [ ]			TOTAL SHEETS 196	



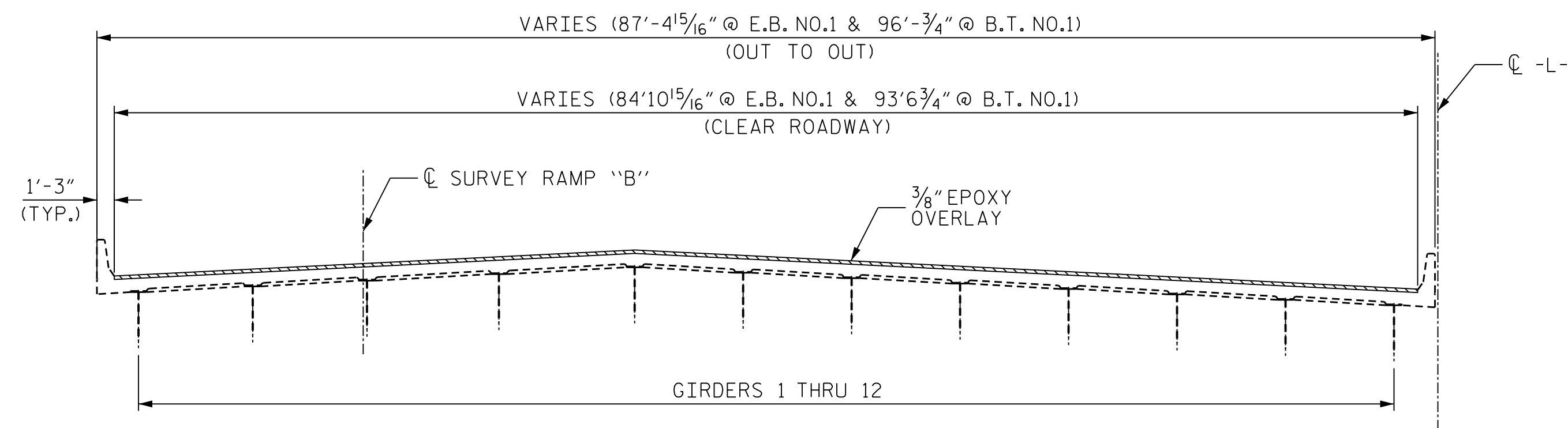
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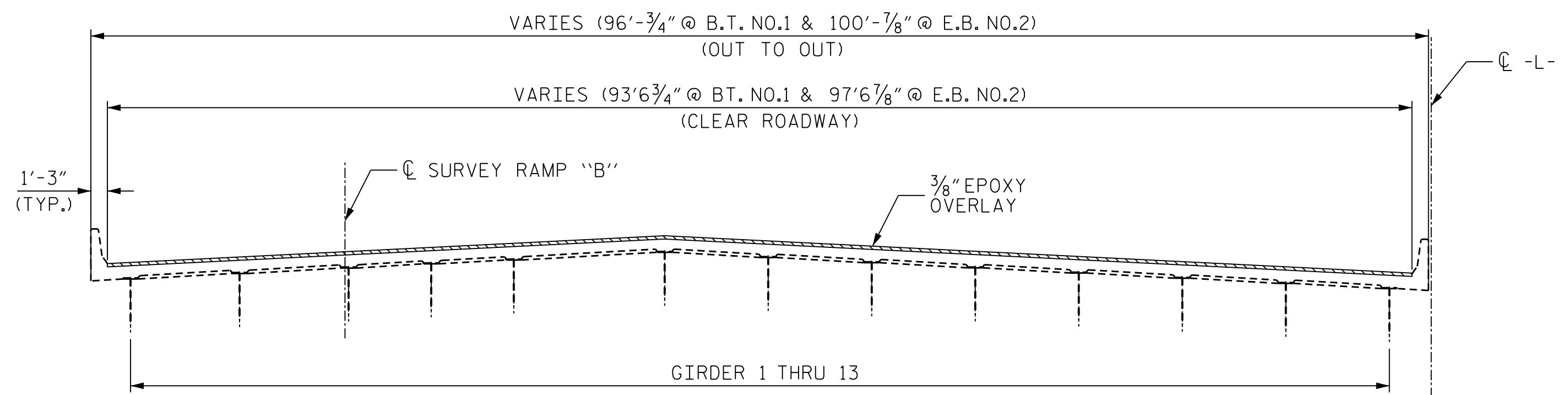
**TYPICAL SECTION**  
(EXISTING-SPAN A)



**TYPICAL SECTION**  
(EXISTING-SPAN B)

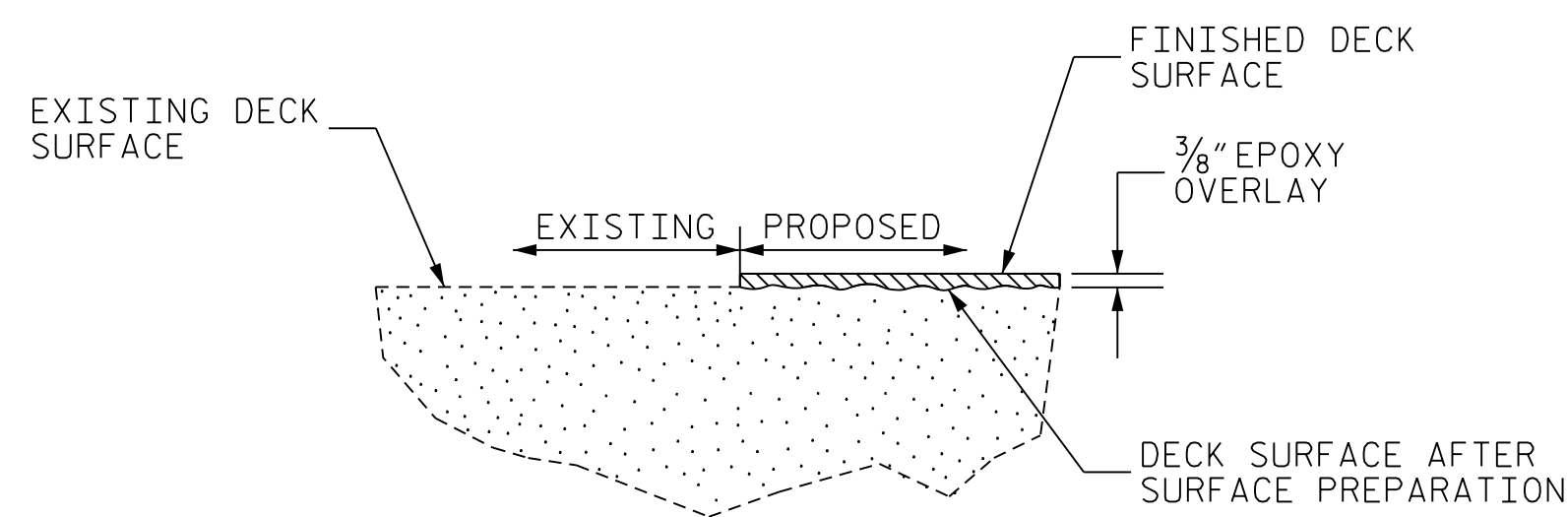


**TYPICAL SECTION**  
(EPOXY OVERLAY-SPAN A)



**TYPICAL SECTION**  
(EPOXY OVERLAY-SPAN B)

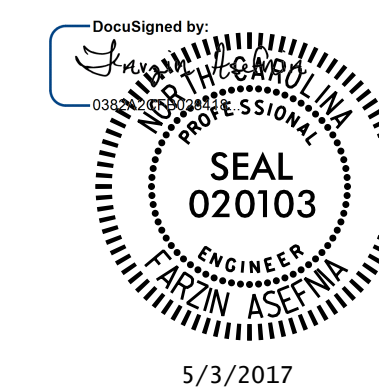
**NOTE:**  
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.



**DETAIL OF EPOXY OVERLAY**

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 510

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUPERSTRUCTURE**  
TYPICAL SECTION  
& EPOXY OVERLAY  
DETAILS

DRAWN BY :	S. DHOLAKIA	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

	Prepared by:		NO.		BY:		DATE:		REVISIONS		SHEET NO.	
	LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840		1	3								S-183
											TOTAL SHEETS	196


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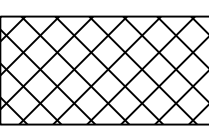
**SUMMARY OF QUANTITIES**

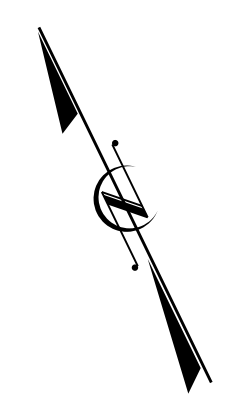
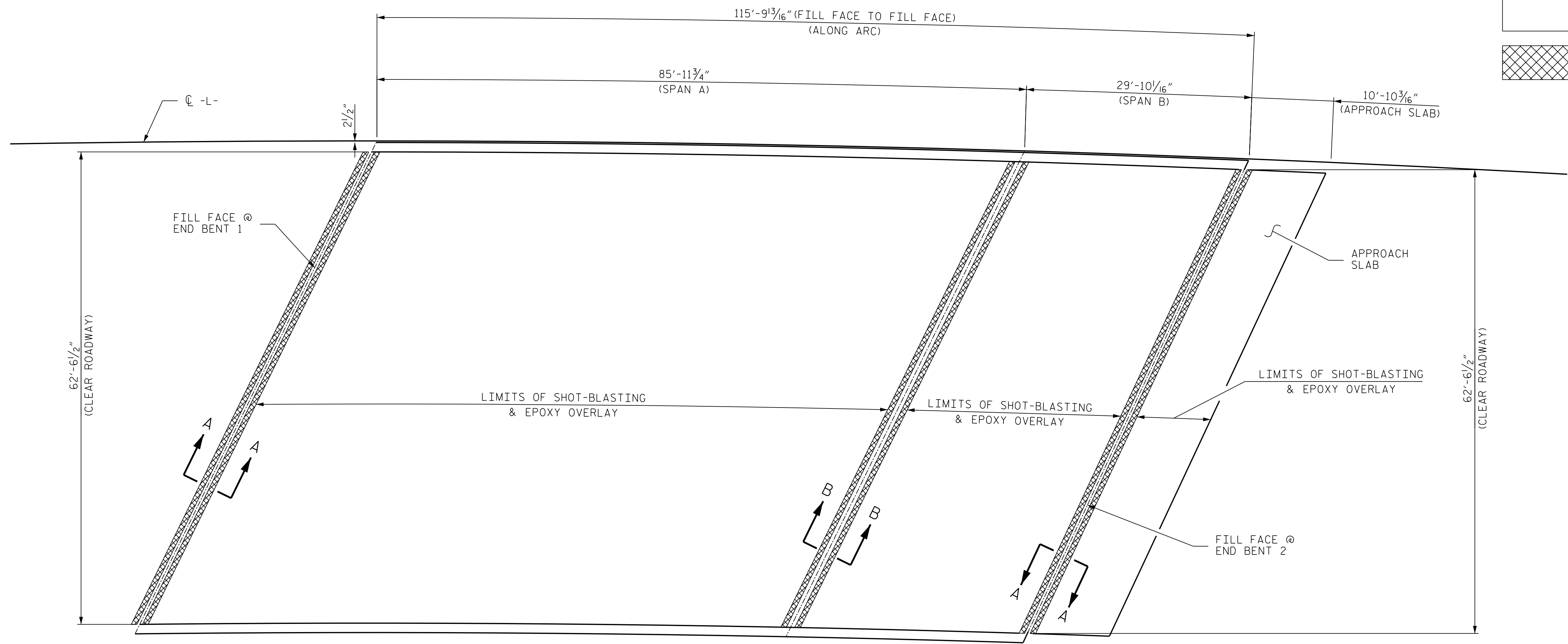
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1 SQ. FT.	
BRIDGE JOINT DEMOLITION	234 SQ. FT.	
EPOXY OVERLAY SYSTEM	7,685 SQ. FT.	

**NOTE:**  
CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED, TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED

**LEGEND**

 EPOXY OVERLAY

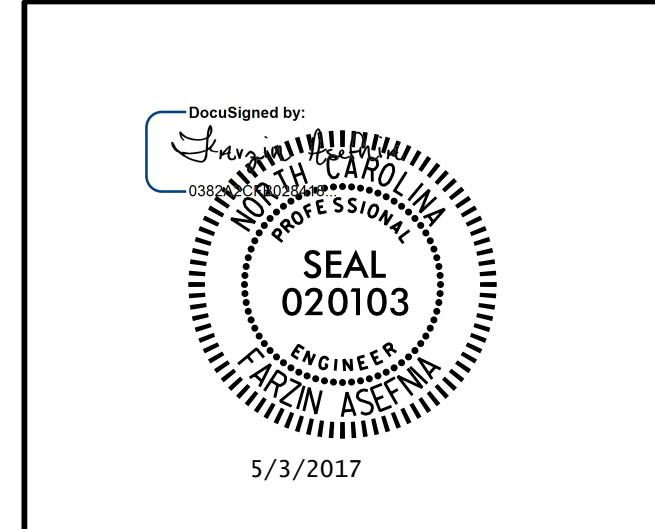
 JOINT DEMOLITION



**PLAN**  
(FOR SECTION A-A & B-B SEE JOINT DETAILS SHEET)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 509

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION  
& EPOXY OVERLAY  
(NORTHBOUND)**

DRAWN BY :	S. DHOLAKIA	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-184
1			3			TOTAL SHEETS
2			4			196



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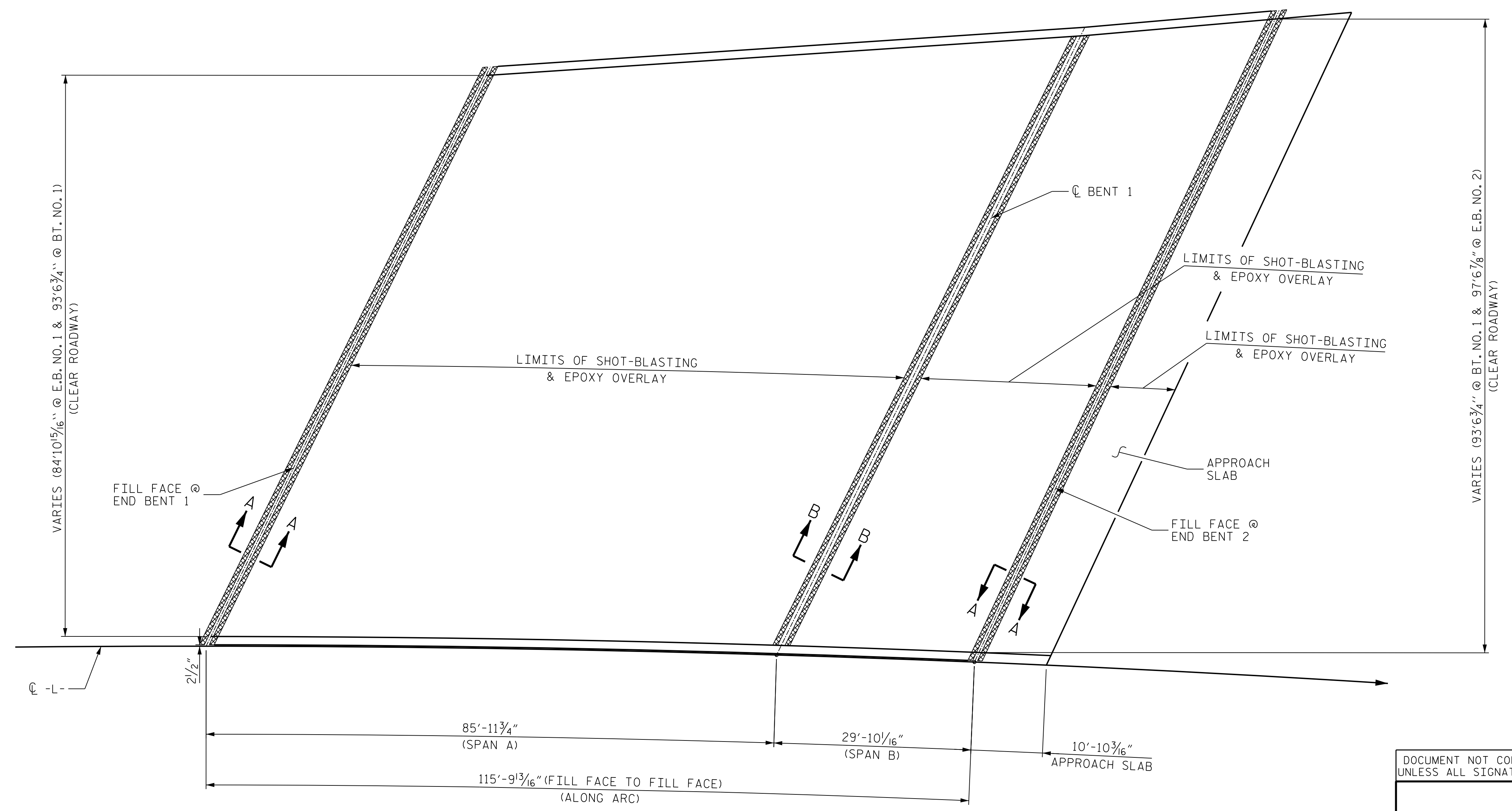
### SUMMARY OF QUANTITIES

	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1 SQ.FT.	
BRIDGE JOINT DEMOLITION	340 SQ.FT.	
EPOXY OVERLAY SYSTEM	11,099 SQ.FT.	

**NOTES:**  
CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED, TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED

### LEGEND

- EPOXY OVERLAY
- JOINT DEMOLITION

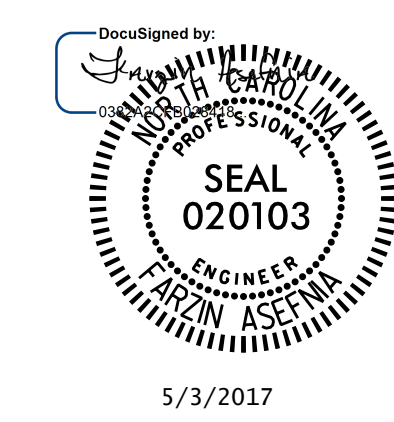


### PLAN

(FOR SECTION A-A & B-B SEE JOINT DETAILS SHEET)

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 510

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION  
& EPOXY OVERLAY  
(SOUTHBOUND)**


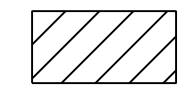
DRAWN BY :	S. DHOLAKIA	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

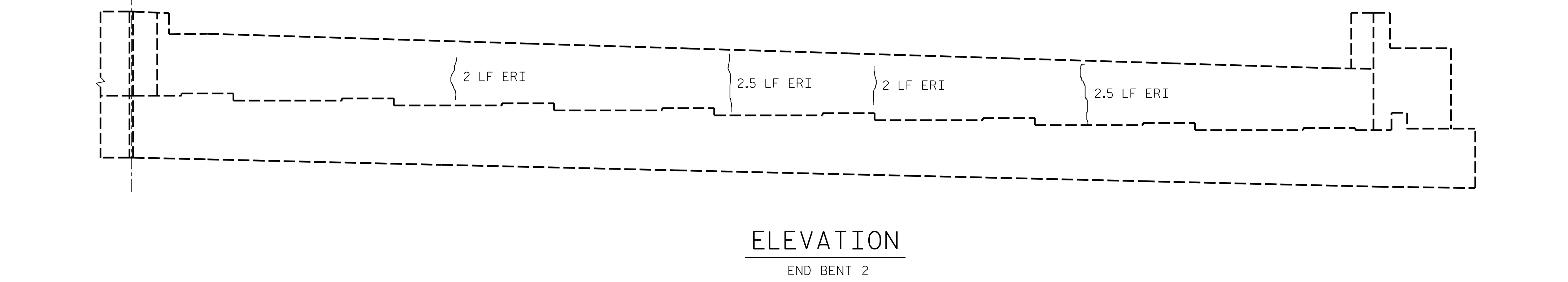
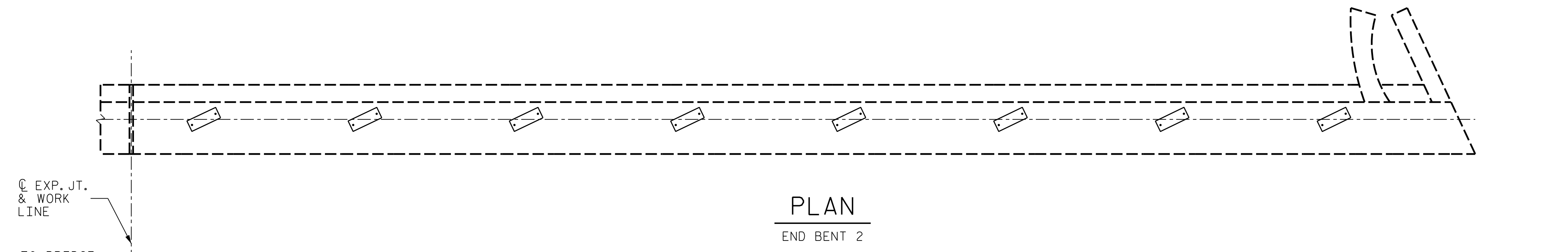
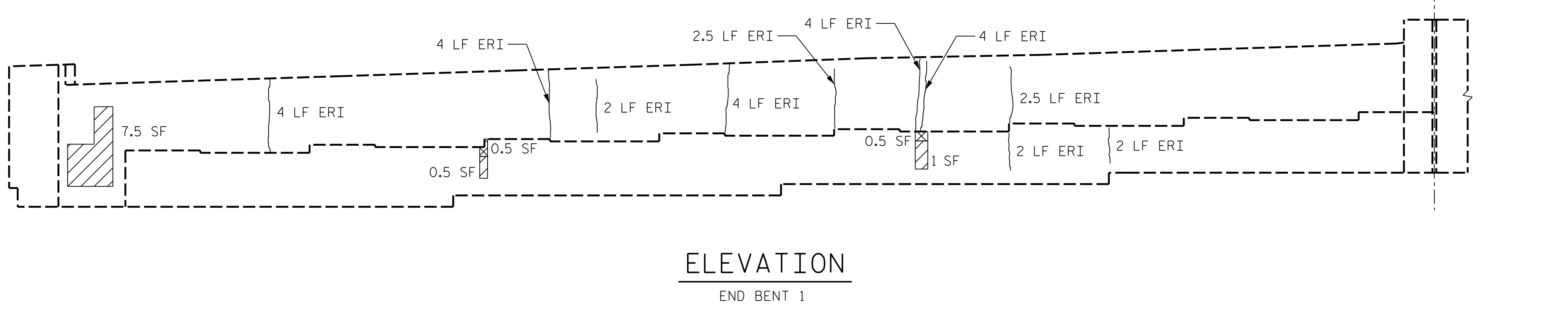
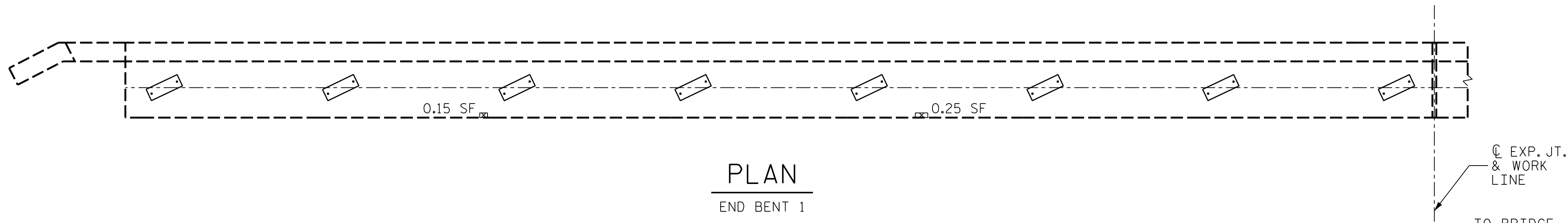
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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TOTAL SHEETS	196
SHEET NO.	S-185



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 CONCRETE REPAIR  
 SHOTCRETE REPAIR  
 ERI - EPOXY RESIN INJECTION



REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	9.0	2.3		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	1.4	0.4		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			31.0	
EPOXY COATING		AREA SF		
CAP		210.0		
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			9.0	
EPOXY COATING		AREA SF		
CAP		231.0		

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

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

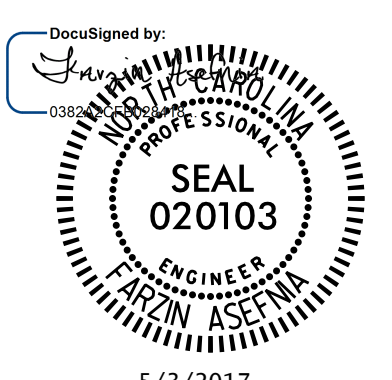
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 509

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:



5/3/2017


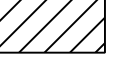
Louis Berger  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

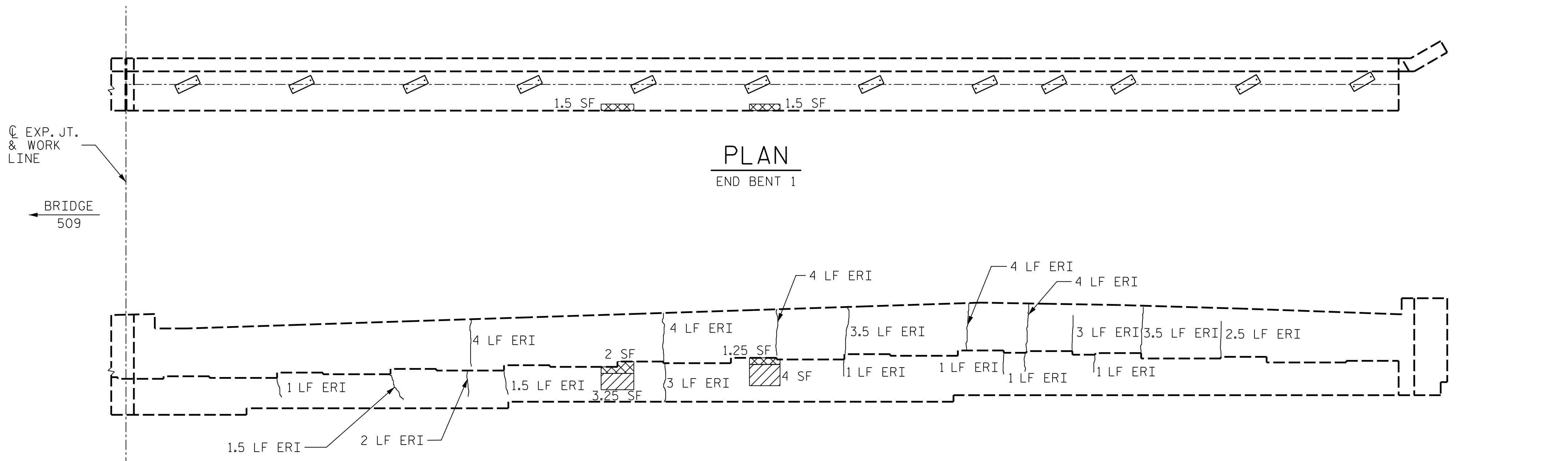
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 1 & END BENT 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-186
TOTAL SHEETS 196

DRAWN BY : S. DHOLAKIA DATE : 08/16  
 CHECKED BY : T. KIRSCHBAUM DATE : 11/16  
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 11/16

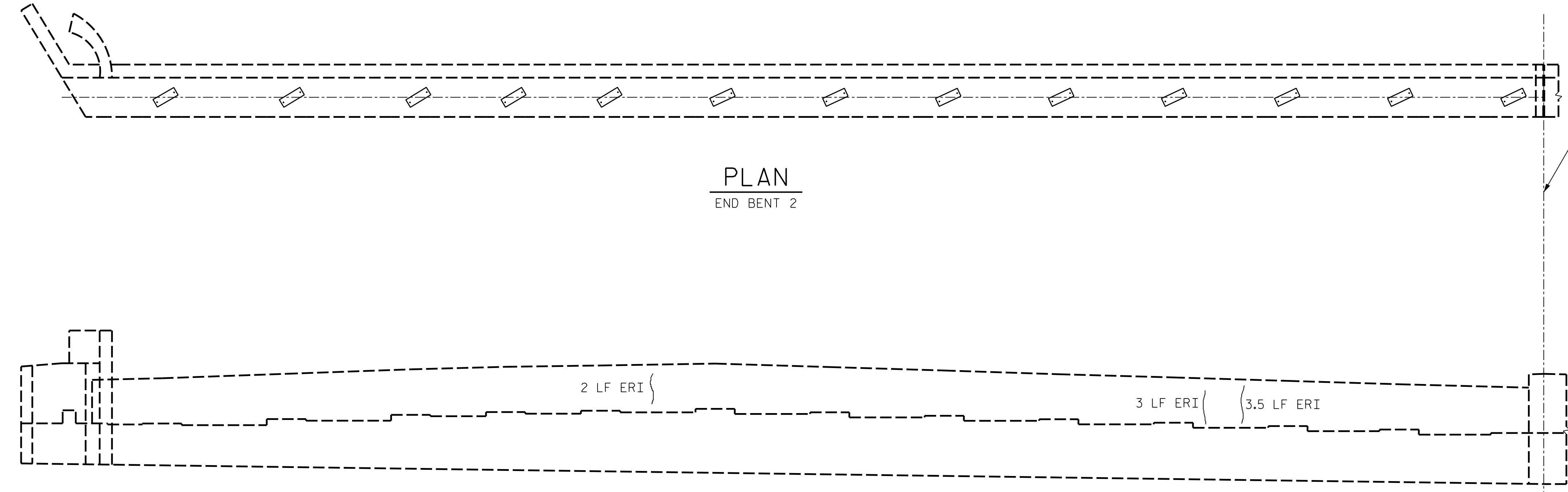
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 CONCRETE REPAIR  
 SHOTCRETE REPAIR  
 ERI - EPOXY RESIN INJECTION



**PLAN**  
END BENT 1

**ELEVATION**  
END BENT 1



**PLAN**  
END BENT 2

**ELEVATION**  
END BENT 2

REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	7.3	1.8		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	6.3	1.6		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			45.5	
EPOXY COATING	AREA SF			
CAP	292.0			
END BENT 2				
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN (HORIZONTAL FACE)	0.0	0.0		
CONCRETE REPAIRS	0.0	0.0		
EPOXY RESIN INJECTION			LN. FT	LN. FT
CAP			8.5	
EPOXY COATING	AREA SF			
CAP	337.0			

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

**NOTES:**

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 510

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE**  
 END BENT 1  
 &  
 END BENT 2

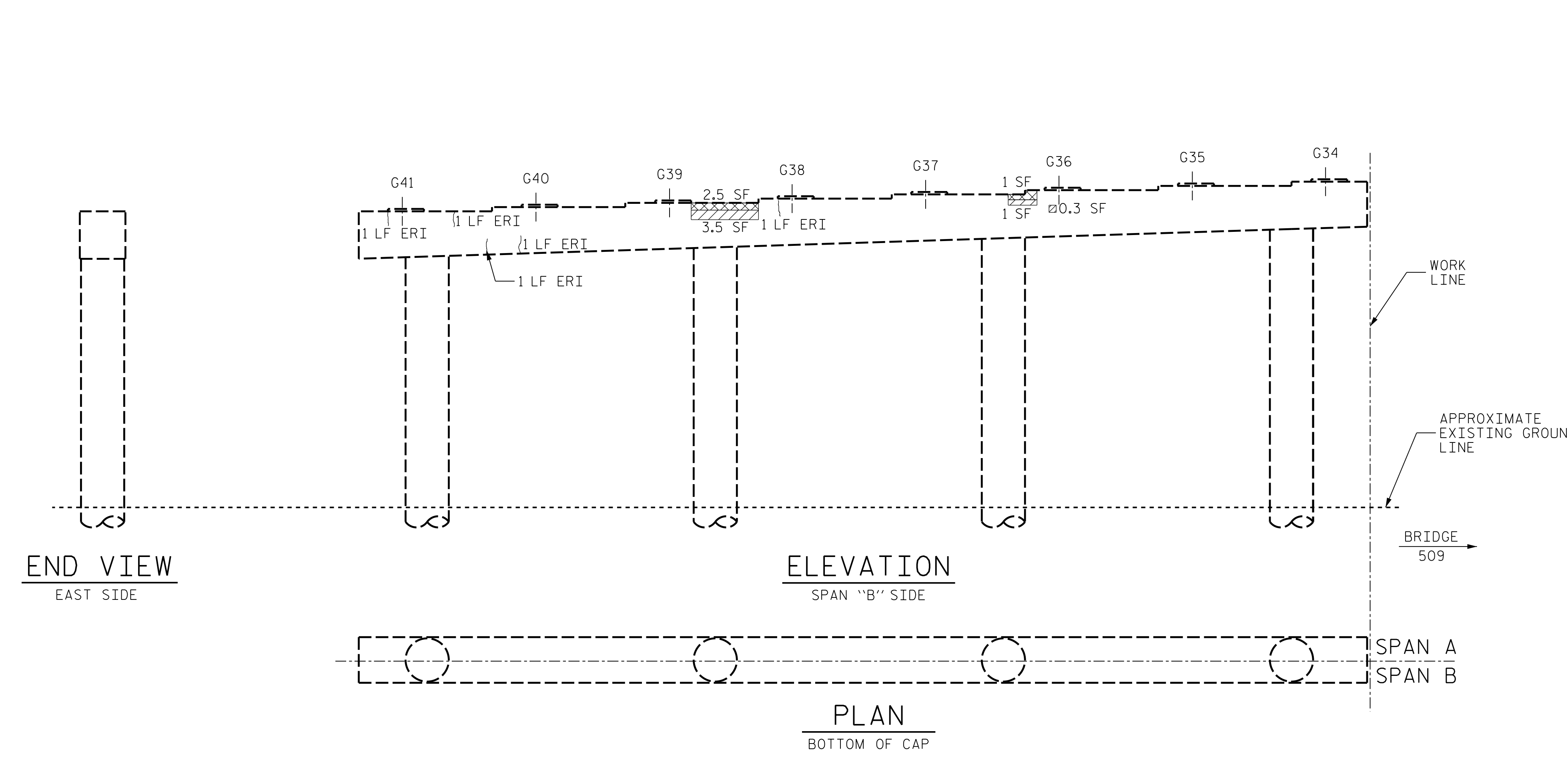
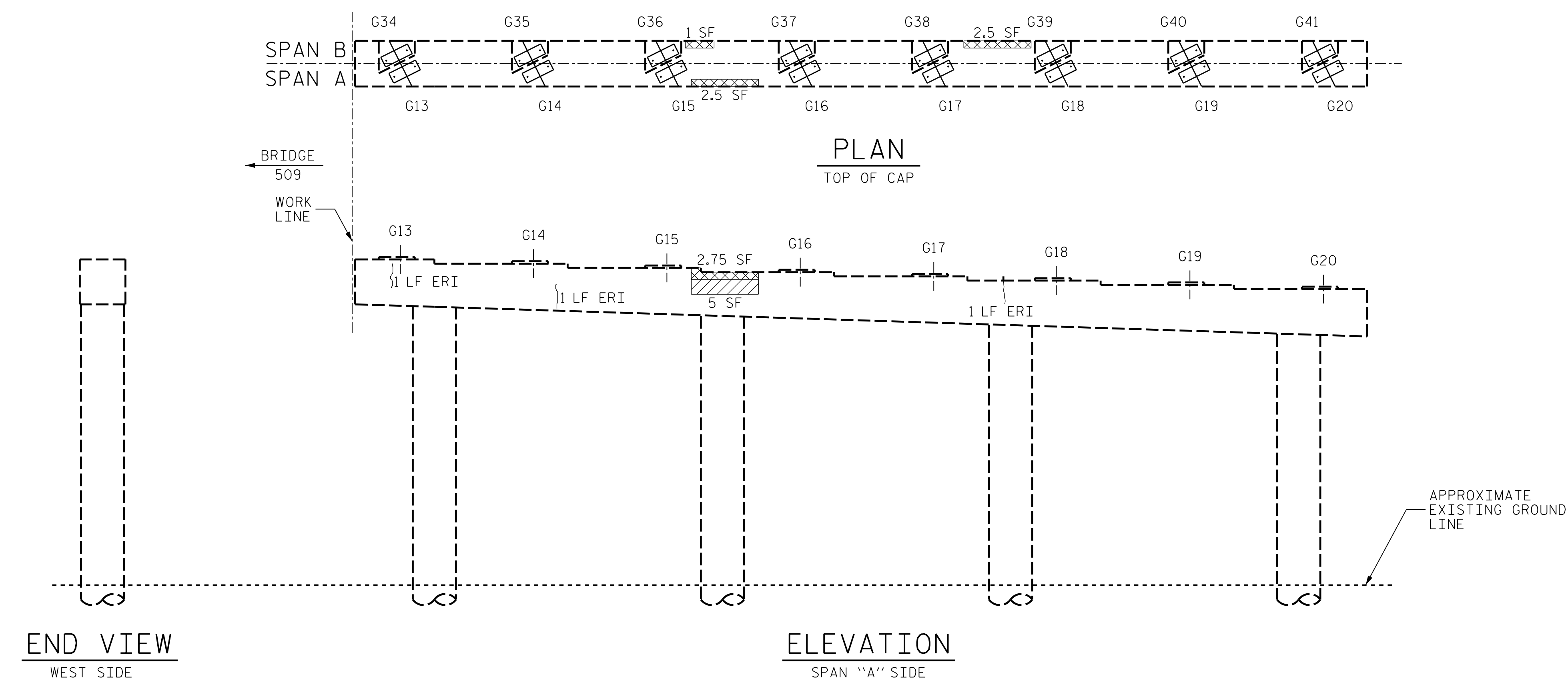
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CHECKED BY :	T. KIRSCHBAUM	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

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1			3			TOTAL SHEETS
2			4			196





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REPAIR QUANTITY TABLE				
BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	9.8	2.5		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	12.3	3.1		LN. FT.
EPOXY RESIN INJECTION				LN. FT.
CAP			8.0	
COLUMN			0.0	
EPOXY COATING	AREA SF			
CAP	223.0			

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

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 509

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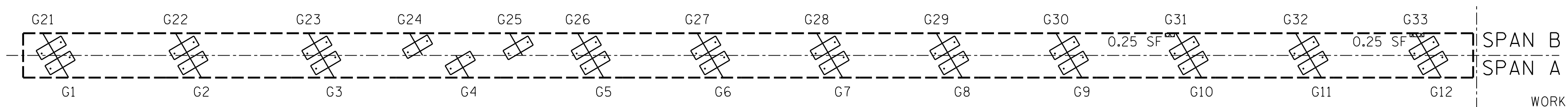
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DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 1

DRAWN BY :	S. DHOLAKIA	DATE :	9-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

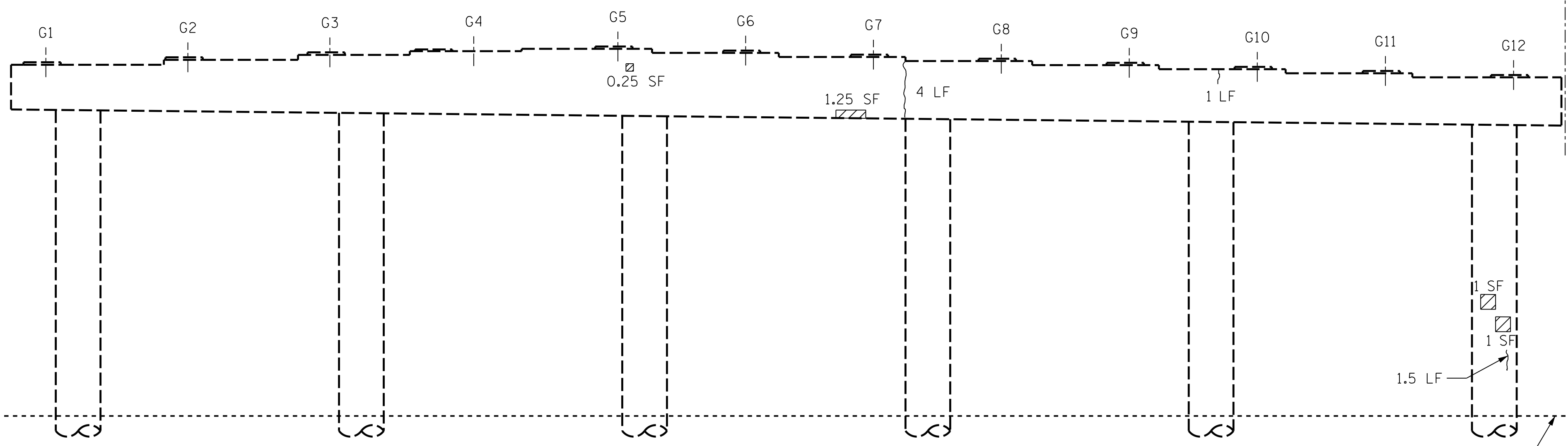
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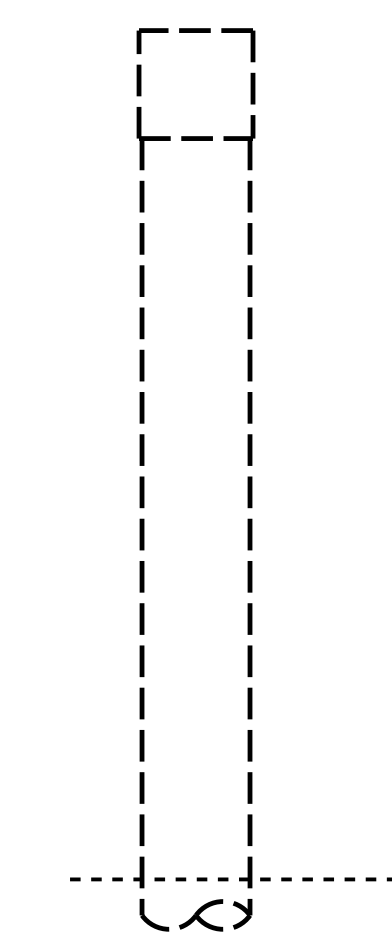
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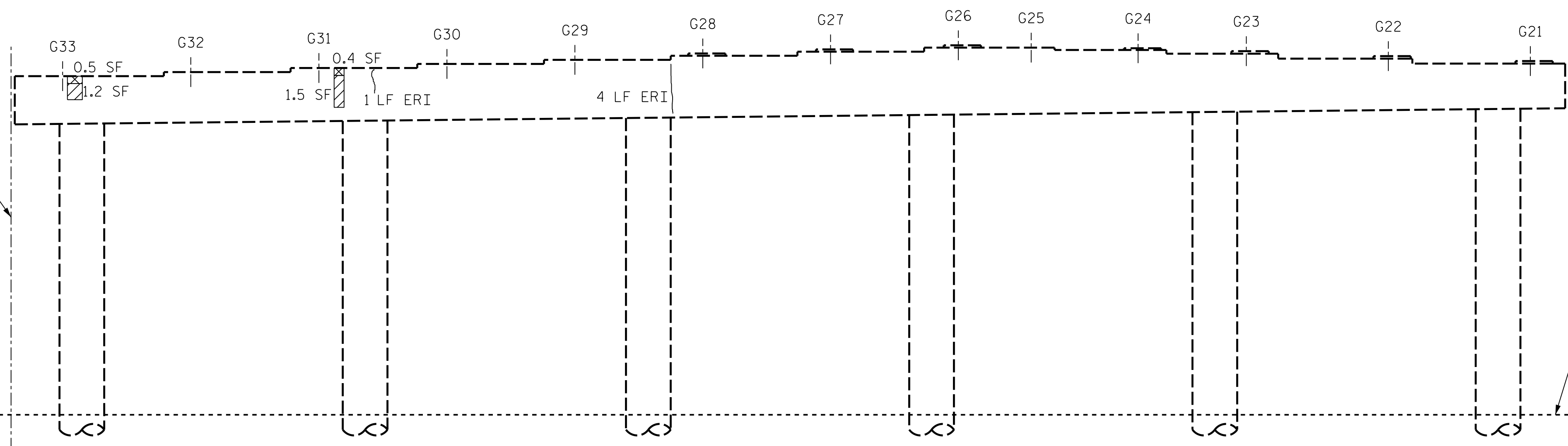
PLAN  
TOP OF CAP



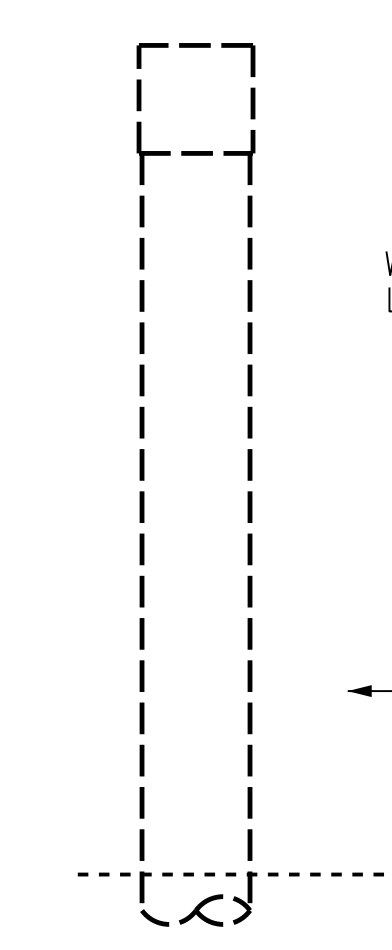
ELEVATION  
SPAN "A" SIDE



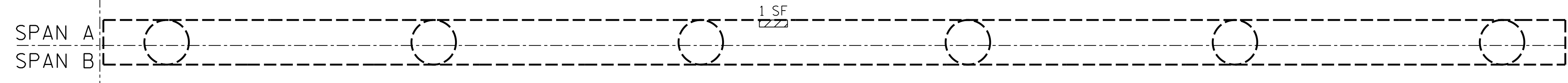
END VIEW  
WEST SIDE



ELEVATION  
SPAN "B" SIDE



END VIEW  
EAST SIDE



PLAN  
BOTTOM OF CAP

REPAIR QUANTITY TABLE				
BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
<b>SHOTCRETE REPAIRS</b>				
CAP (VERTICAL FACE)	4.2	1.1		
CAP (HORIZONTAL FACE/BOTTOM)	1.0	0.3		
COLUMN	2.0	0.5		
<b>CONCRETE REPAIRS</b>	1.4	0.4		
<b>EPOXY RESIN INJECTION</b>			LN. FT	LN. FT
CAP			10.0	
COLUMN			1.5	
<b>EPOXY COATING</b>	AREA SF			
CAP	330.0			

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

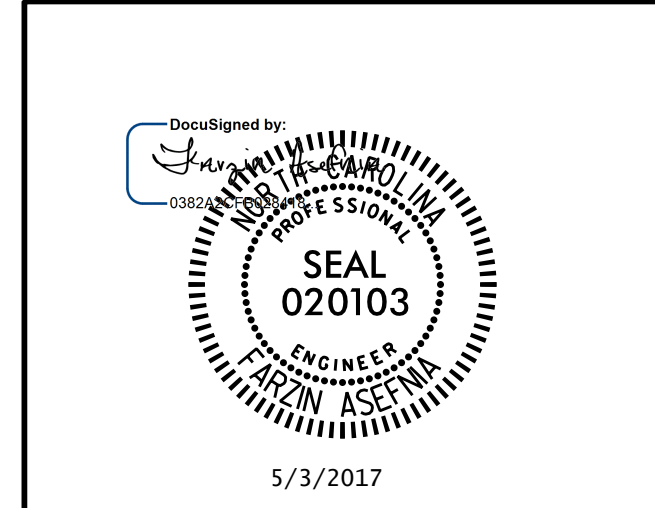
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL EPOXY COAT THE TOP SURFACE AREA OF THE ORIGINAL CAP ONLY.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 510

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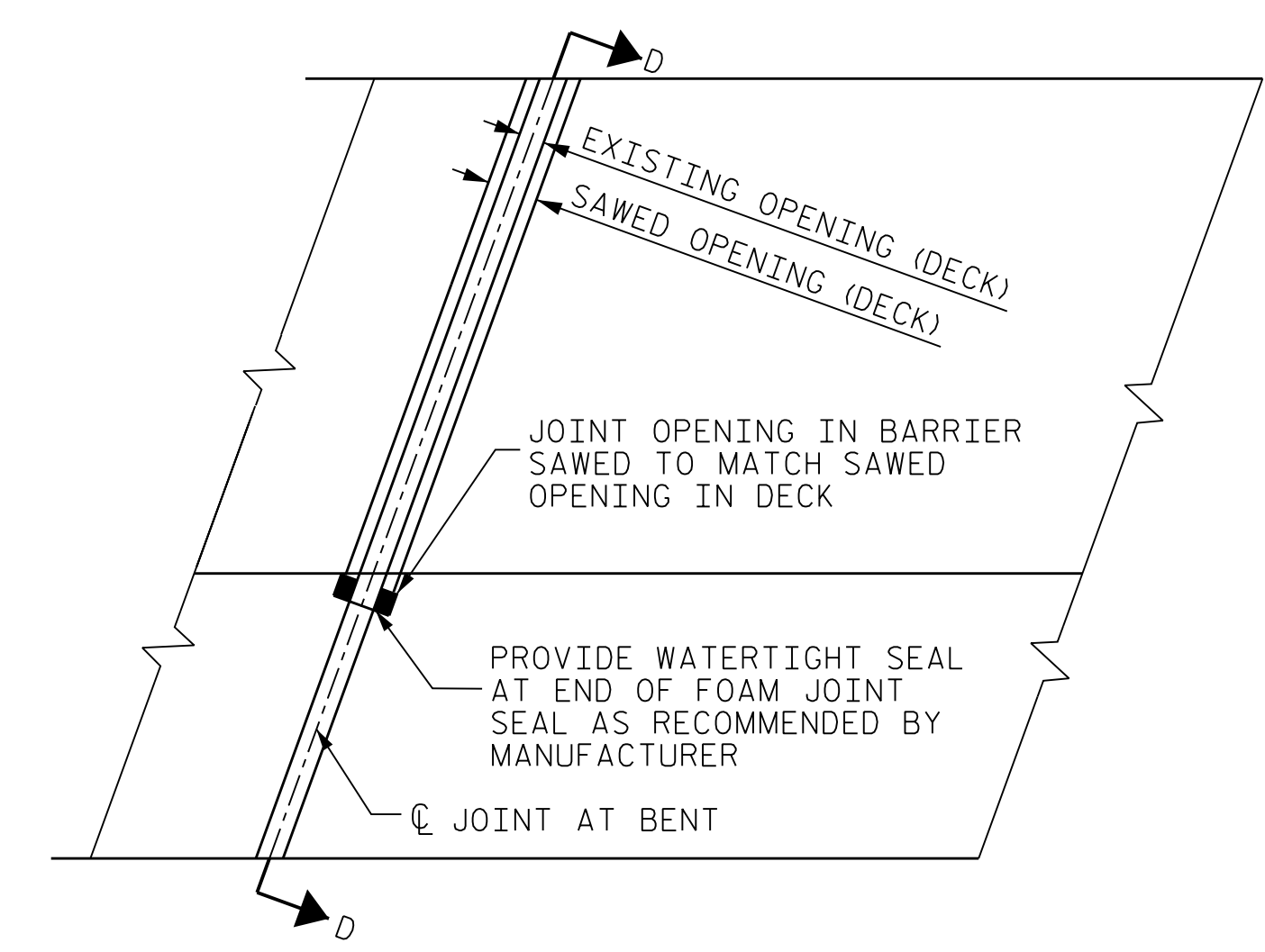
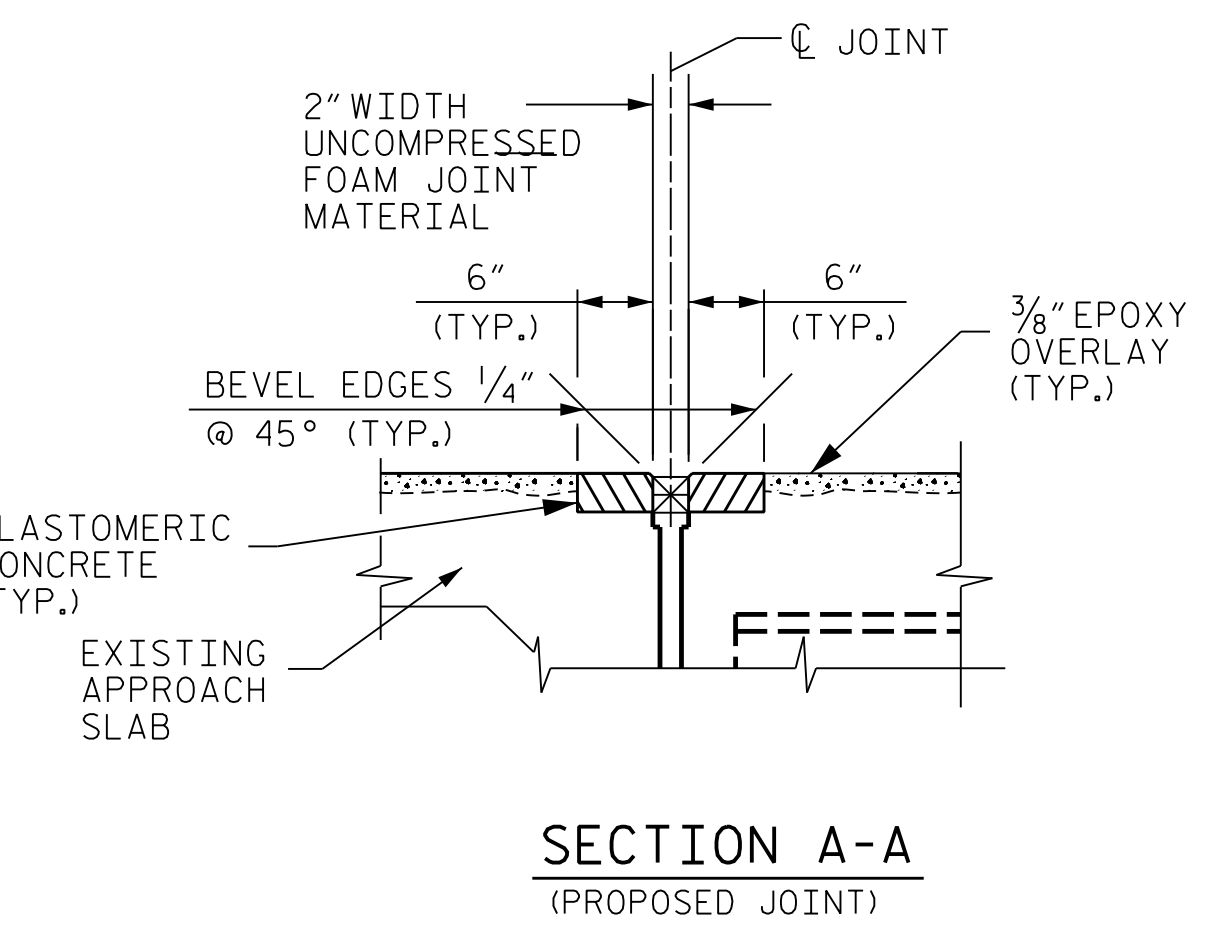
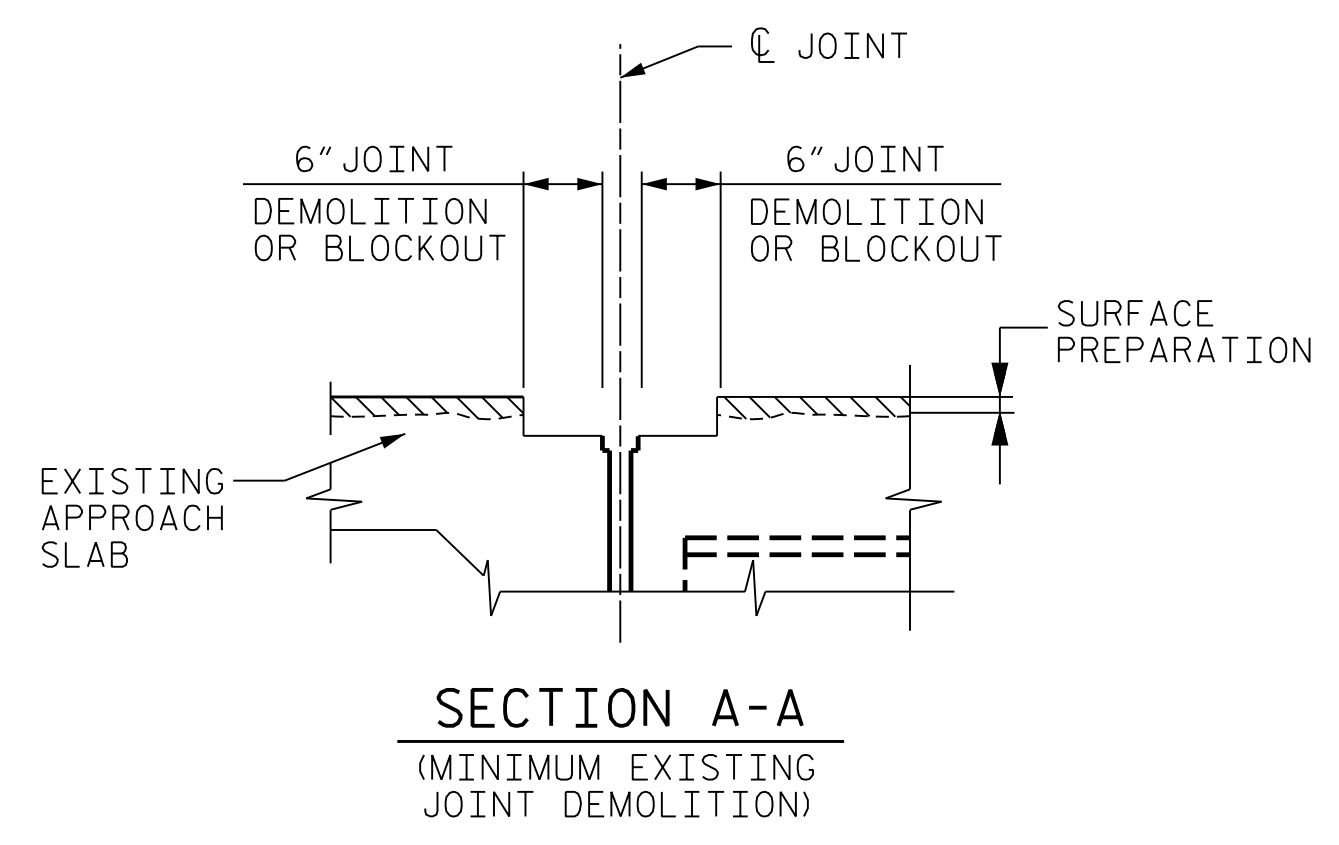
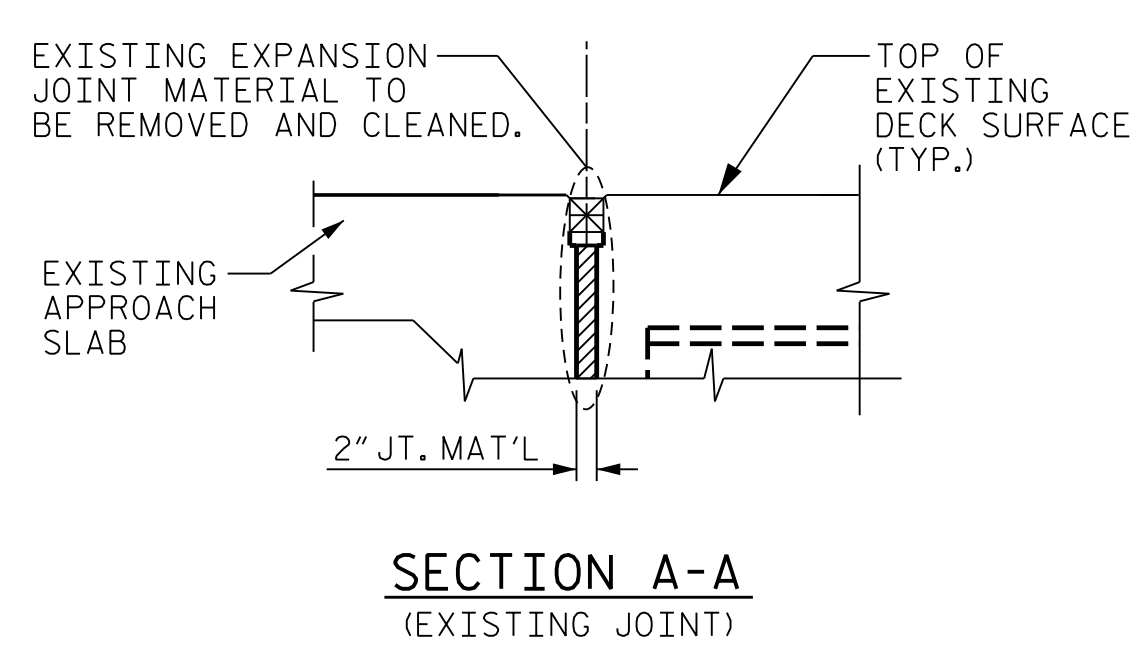


STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SUBSTRUCTURE**  
BENT 1

DRAWN BY :	S. DHOLAKIA	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

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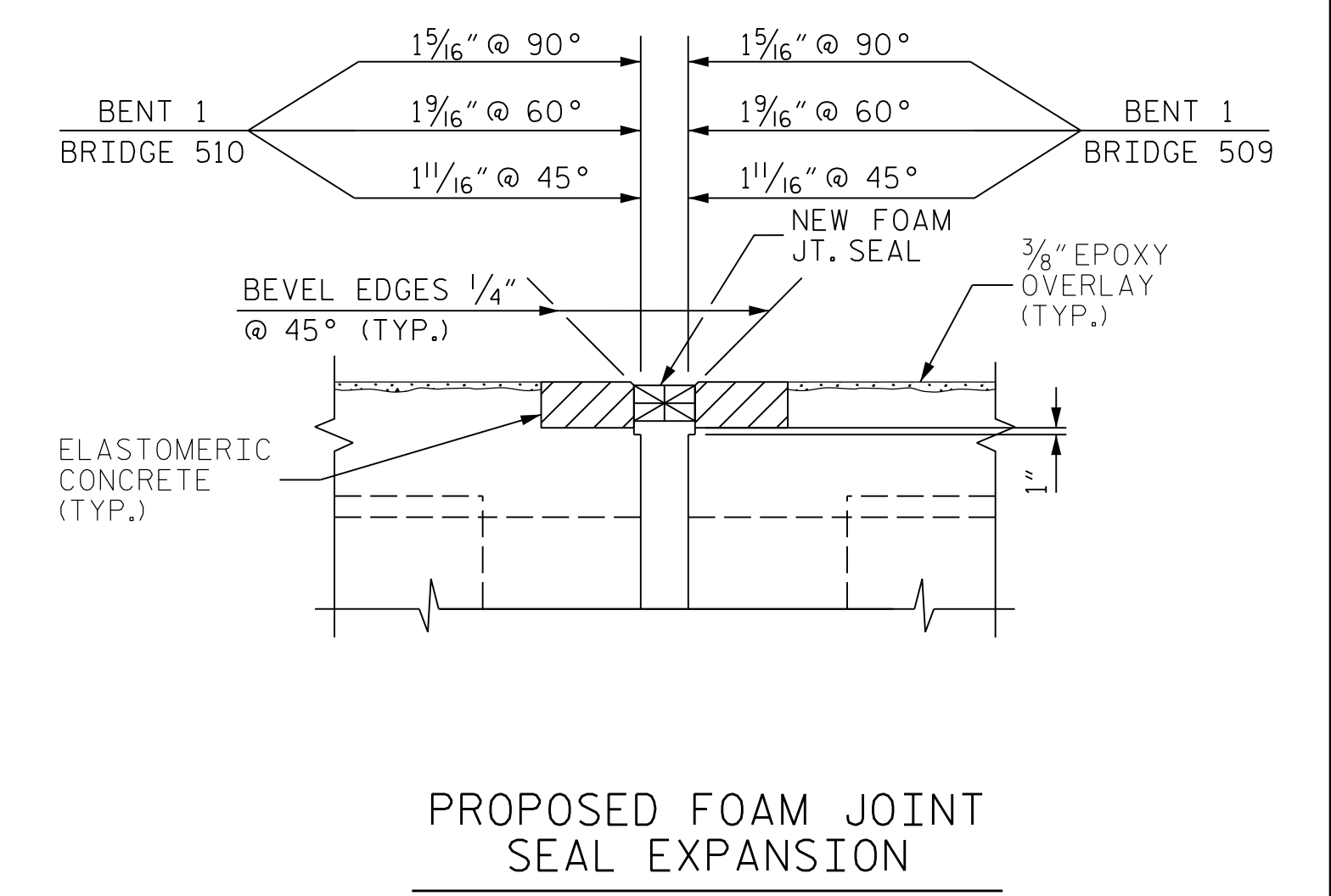
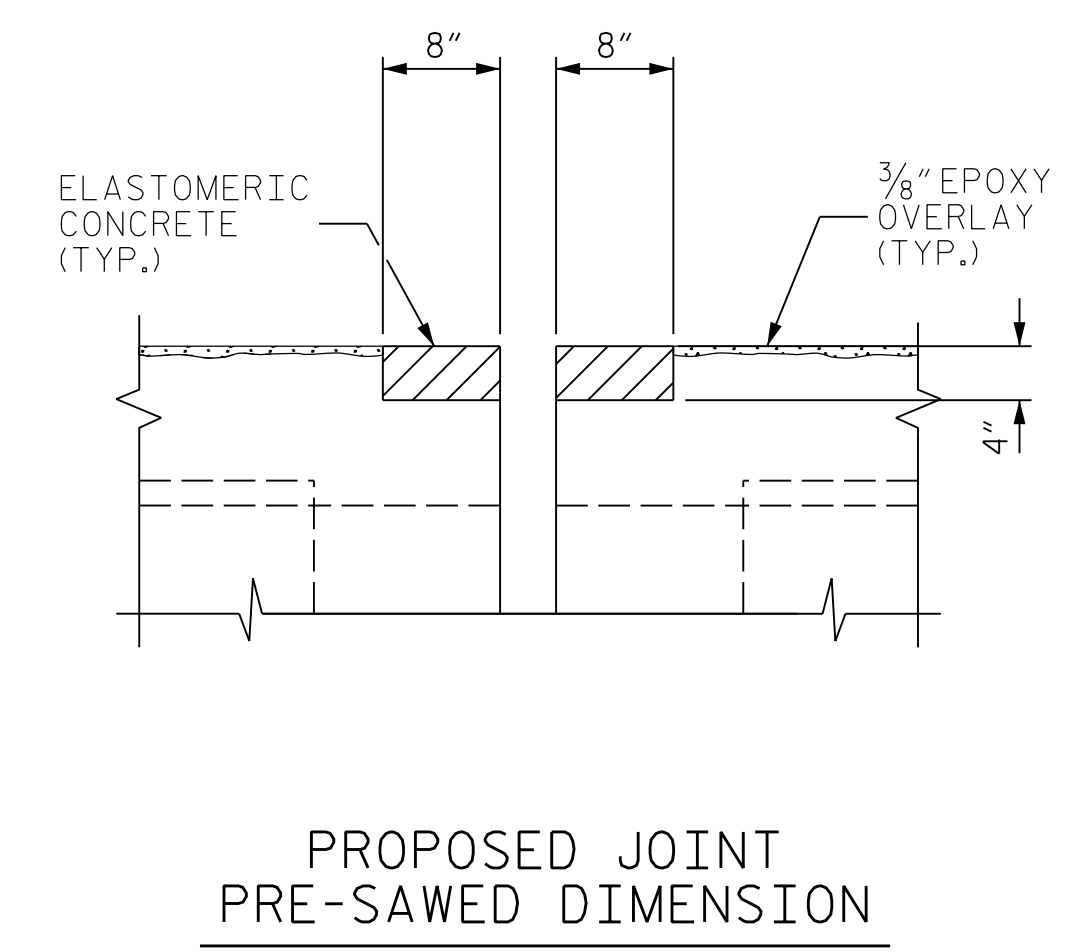
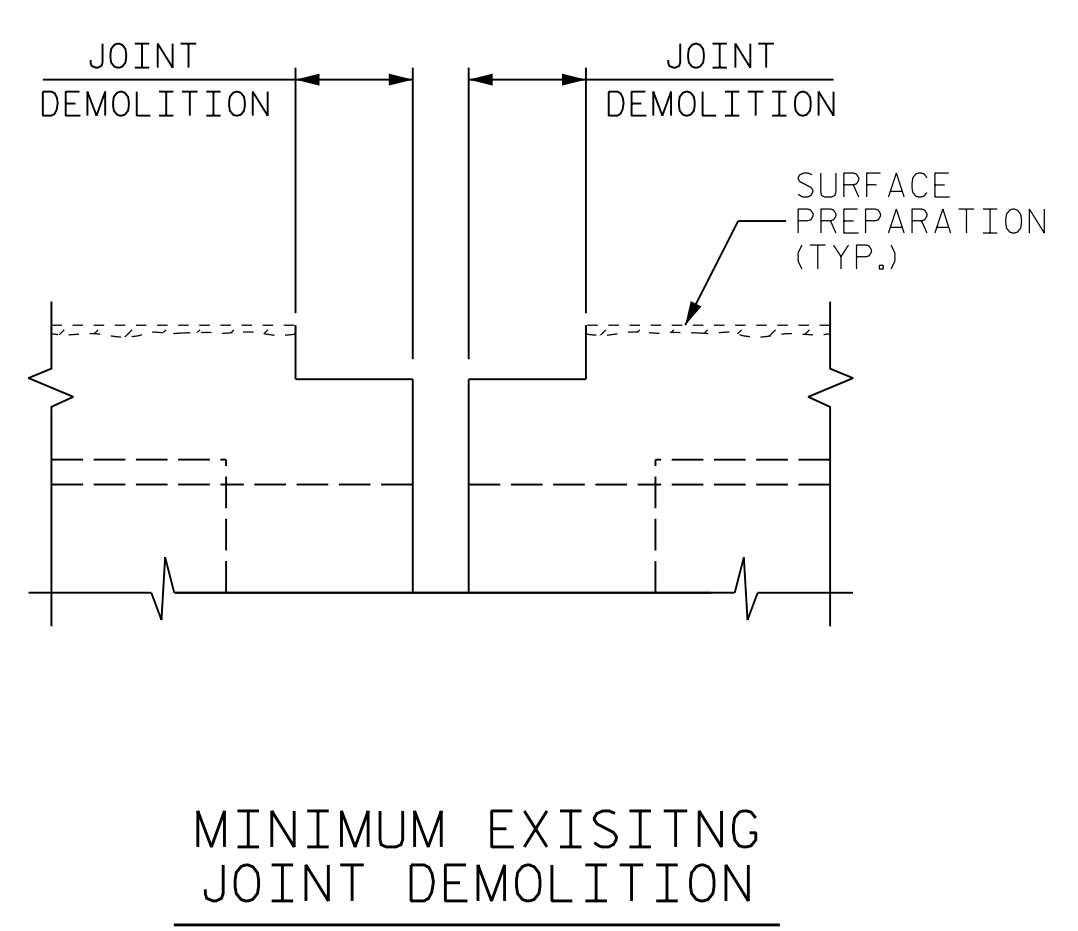
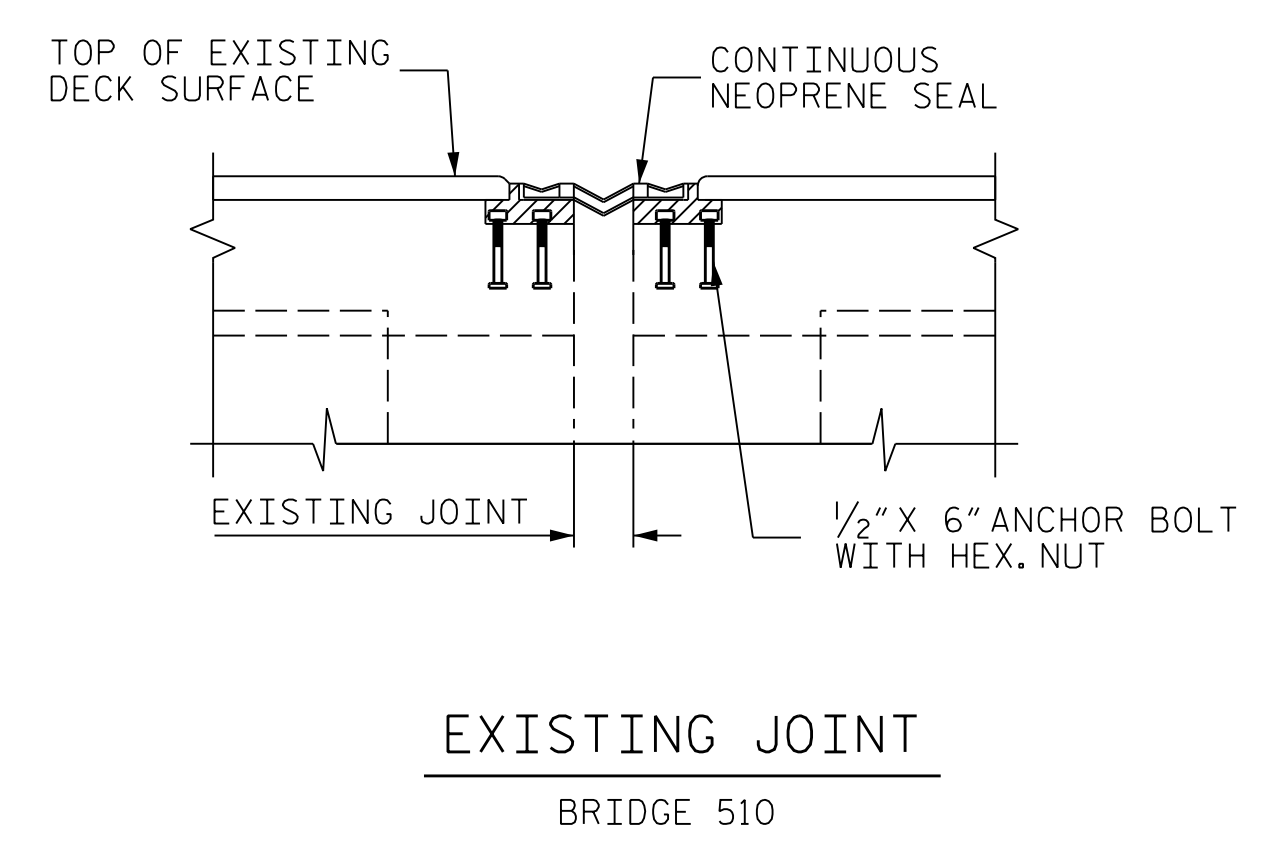
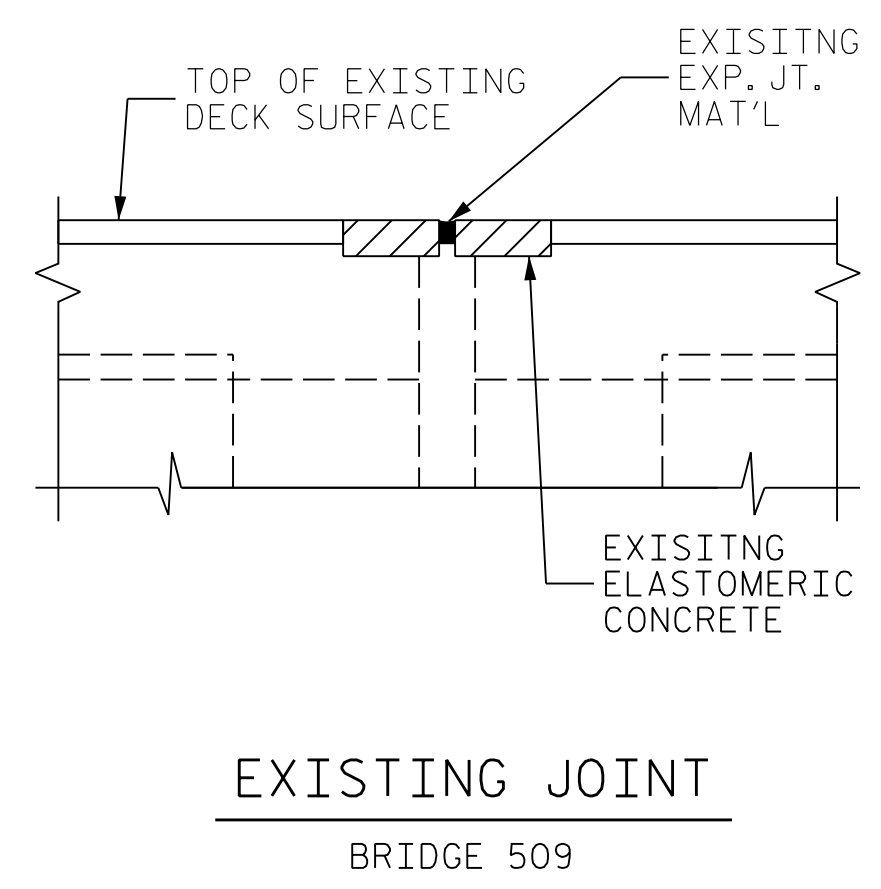
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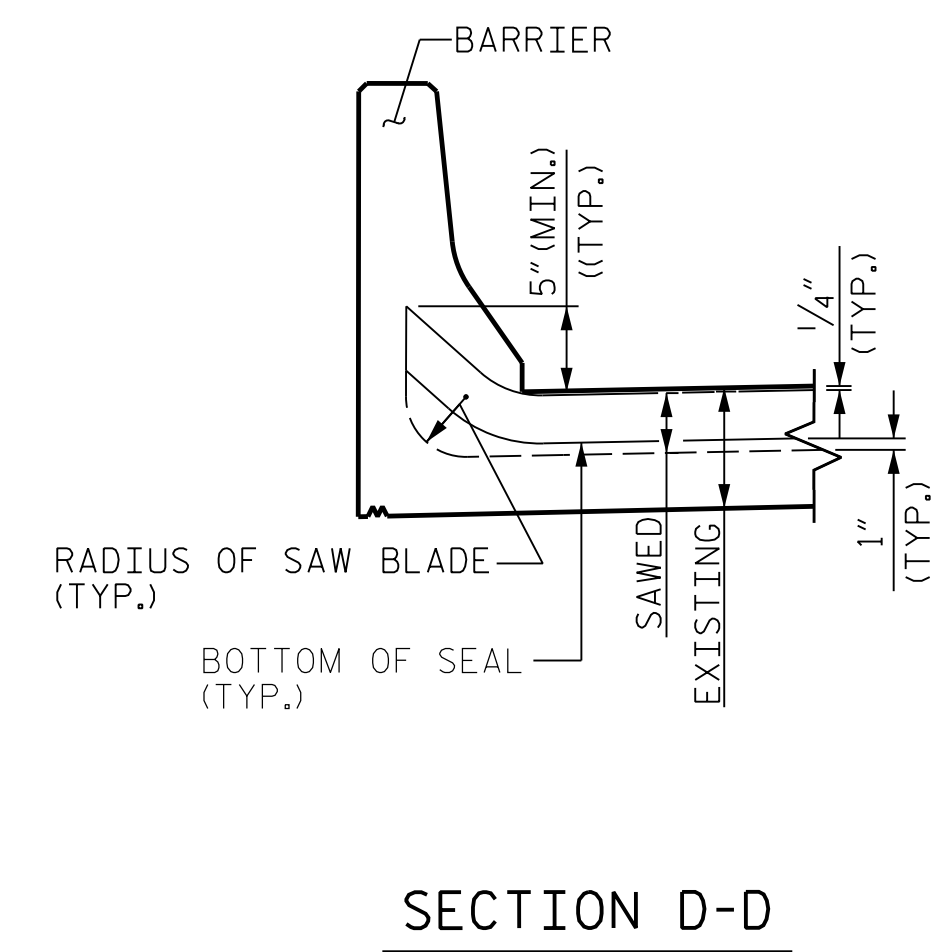
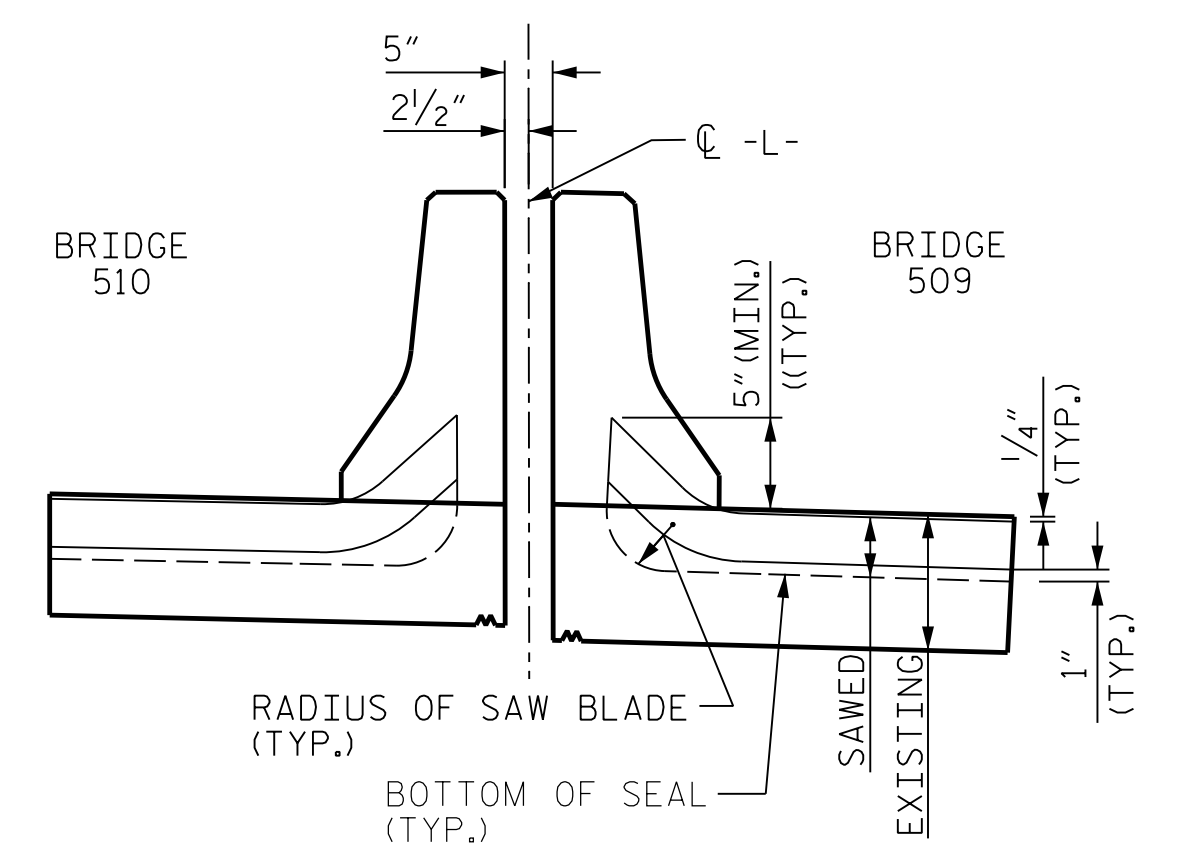
**NOTES:**  
 CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.  
 FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.  
 FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.  
 RETAIN ALL EXISTING REINFORCING STEEL, CLEAN AND REPAIR AS NEEDED.  
 THE WIDTH OF THE UNCOMPRESSED FOAM JOINT MATERIAL FOR BOTH BRIDGES SHALL BE 2.5" AT END BENTS AND 2.0" AT INTERMEDIATE BENTS.

ELASTOMERIC CONCRETE	
BRIDGE 509	67.0 (CU. FT.)
BRIDGE 510	97.0 (CU. FT.)

**JOINT INSTALLATION SEQUENCE AT END BENTS**  
SECTION A-A



**JOINT INSTALLATION SEQUENCE AT BENTS**  
SECTION B-B



SECTION THRU MEDIAN BARRIER  
(SEE SECTION D-D FOR DETAIL)

SECTION D-D

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 509 & 510

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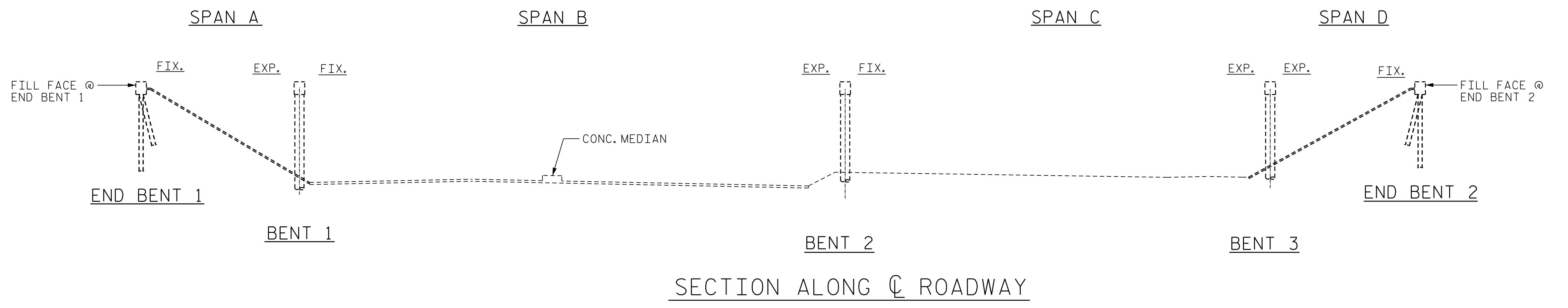
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUPERSTRUCTURE**  
 JOINT DETAILS

DRAWN BY :	S. DHOLAKIA	DATE :	9-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	11-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	11-16

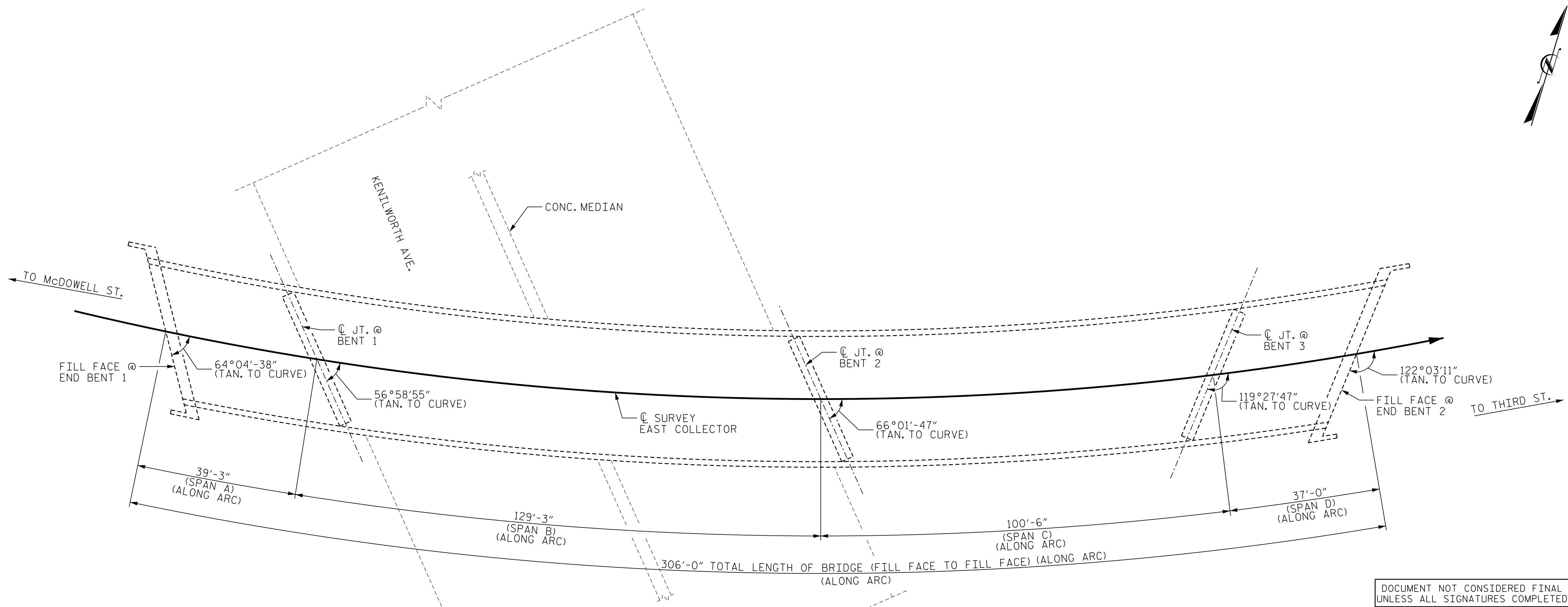
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SECTION ALONG C ROADWAY



PLAN  
ALONG ARC



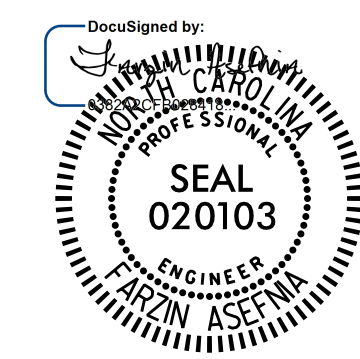
I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer \_\_\_\_\_ Date \_\_\_\_\_

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
 BRIDGE NO. 522

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SHEET 1 OF 2



5/3/2017

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 ON I-277 & US-74 RAMP  
 OVER STONEWALL ST.  
 BETWEEN McDOWELL  
 ST. & 3RD ST.

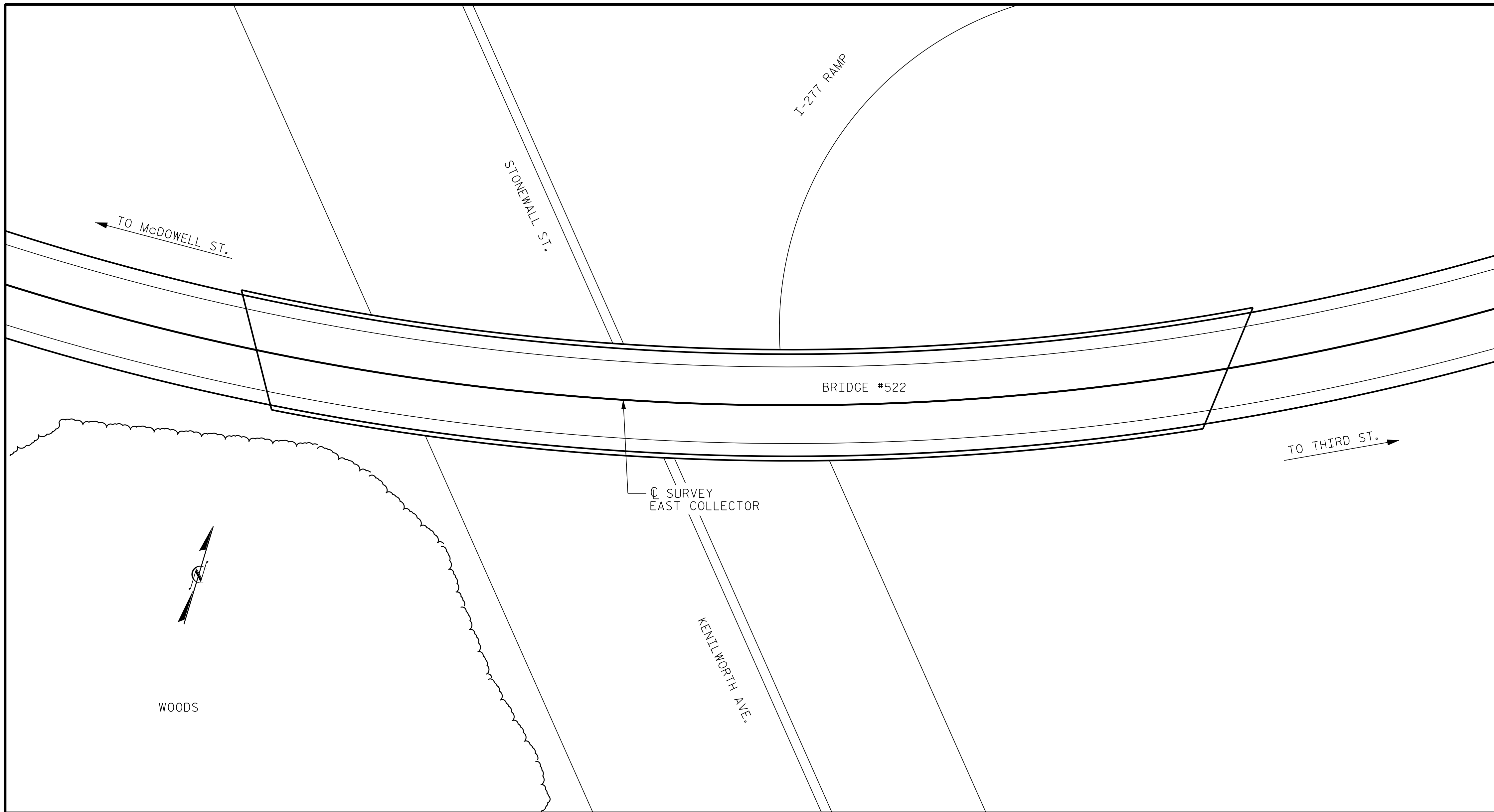
DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16



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### LOCATION SKETCH

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

### NOTES

EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL FIELD VERIFY THE INFORMATION SHOWN ON THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.

FOR EPOXY OVERLAY SYSTEM, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS

IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.

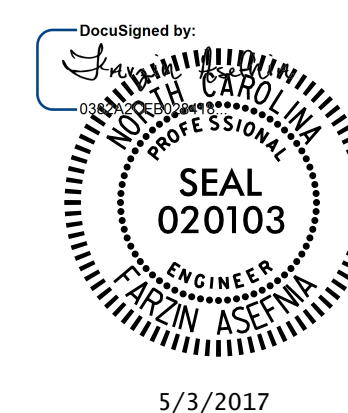
FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN SHEETS.

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

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 522

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SHEET 2 OF 2



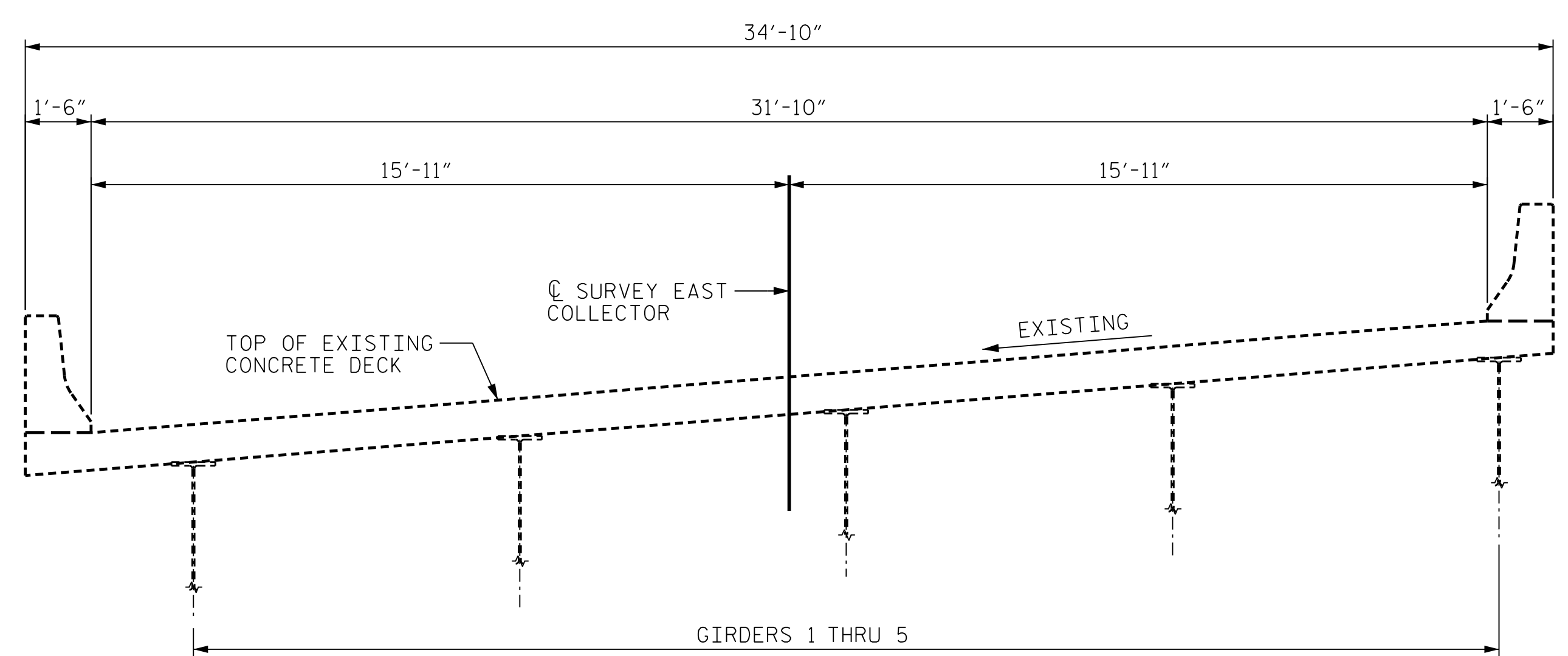
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DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**GENERAL DRAWING**  
ON I-277 & US-74 RAMP  
OVER STONEWALL ST.  
BETWEEN McDOWELL  
ST. & 3RD ST.

DRAWN BY : M. HOGAN DATE : 8-16  
CHECKED BY : T. KIRSCHBAUM DATE : 10-16  
DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 10-16

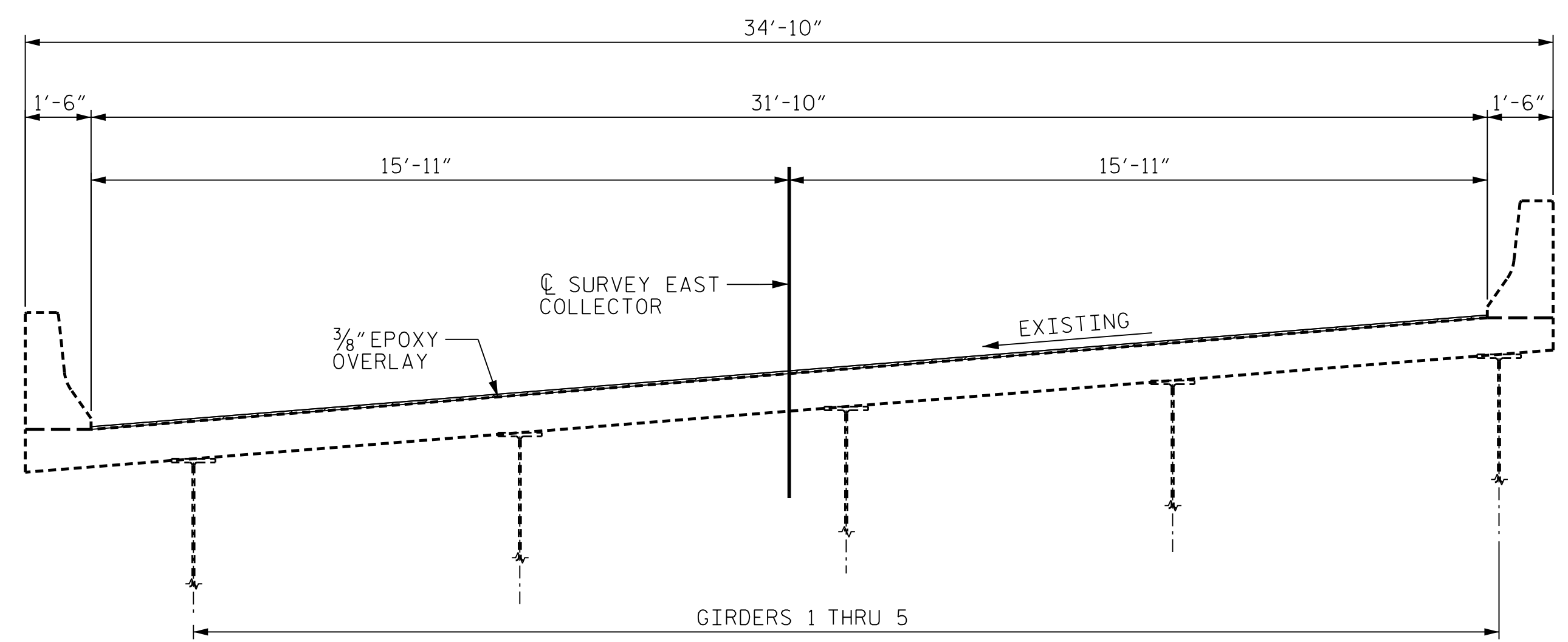
Prepared by:  
**Louis Berger**  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

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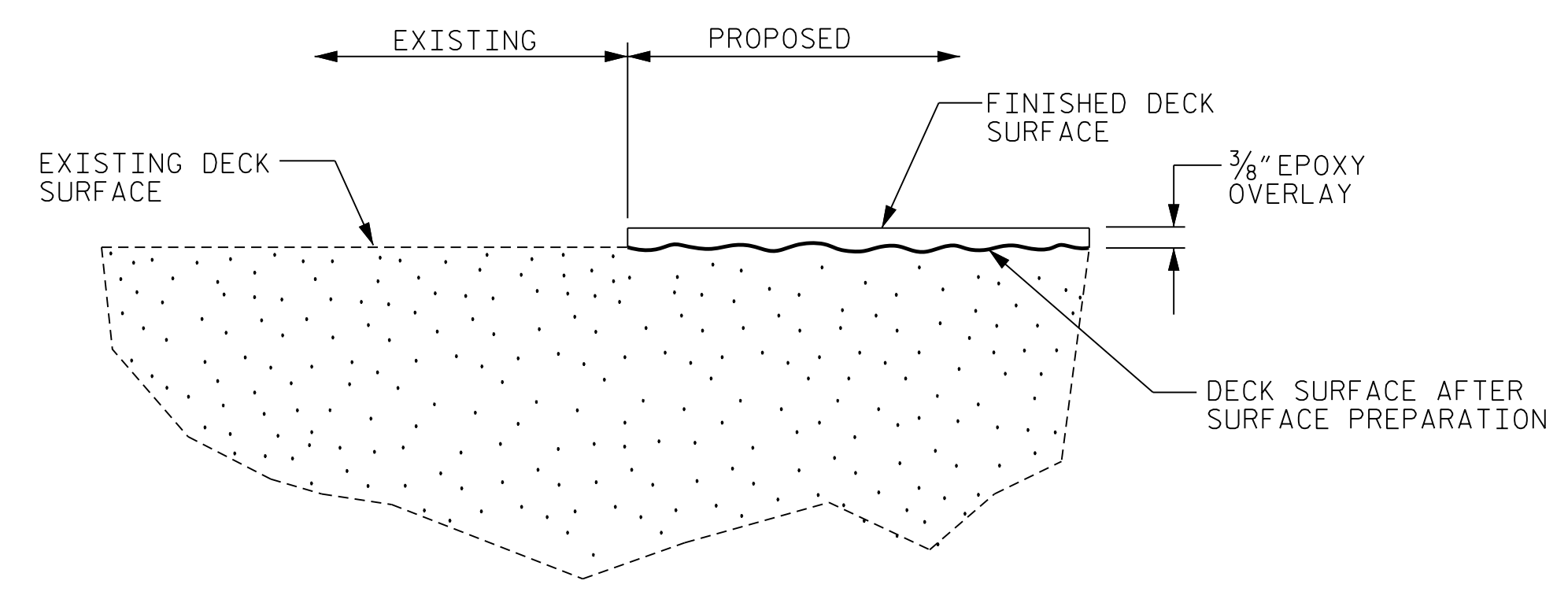
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TYPICAL SECTION  
(EXISTING)



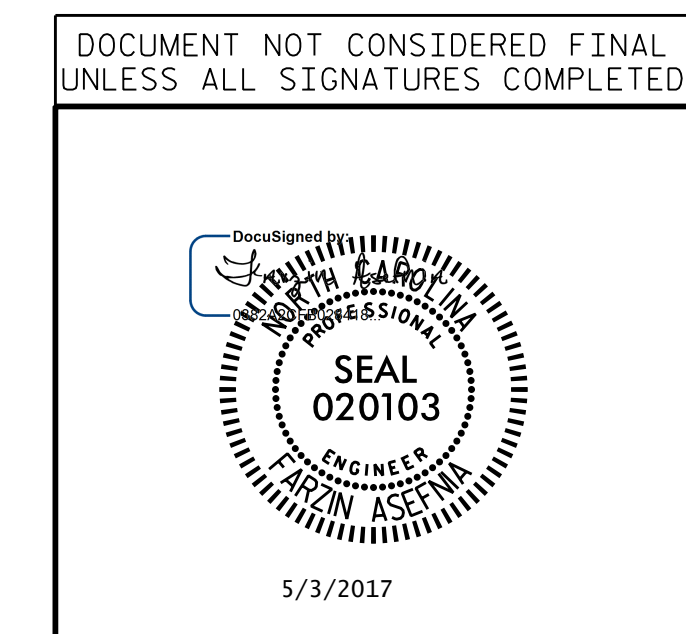
TYPICAL SECTION  
(EPOXY OVERLAY)



DETAIL OF EPOXY OVERLAY

**NOTE:**  
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF EPOXY OVERLAY PLACEMENT.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 522



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**TYPICAL SECTION  
& EPOXY OVERLAY  
DETAILS**

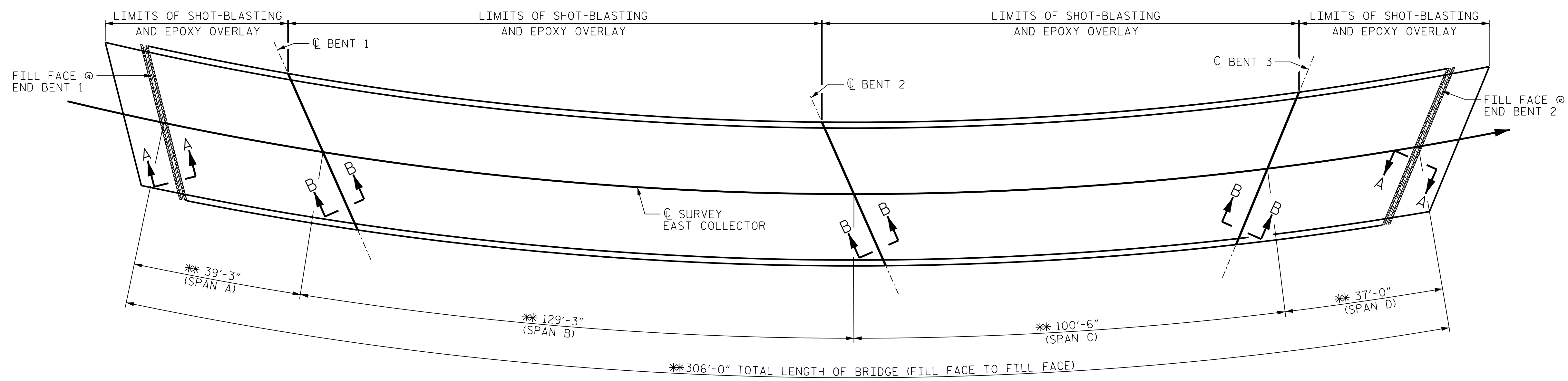
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CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

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2			4						





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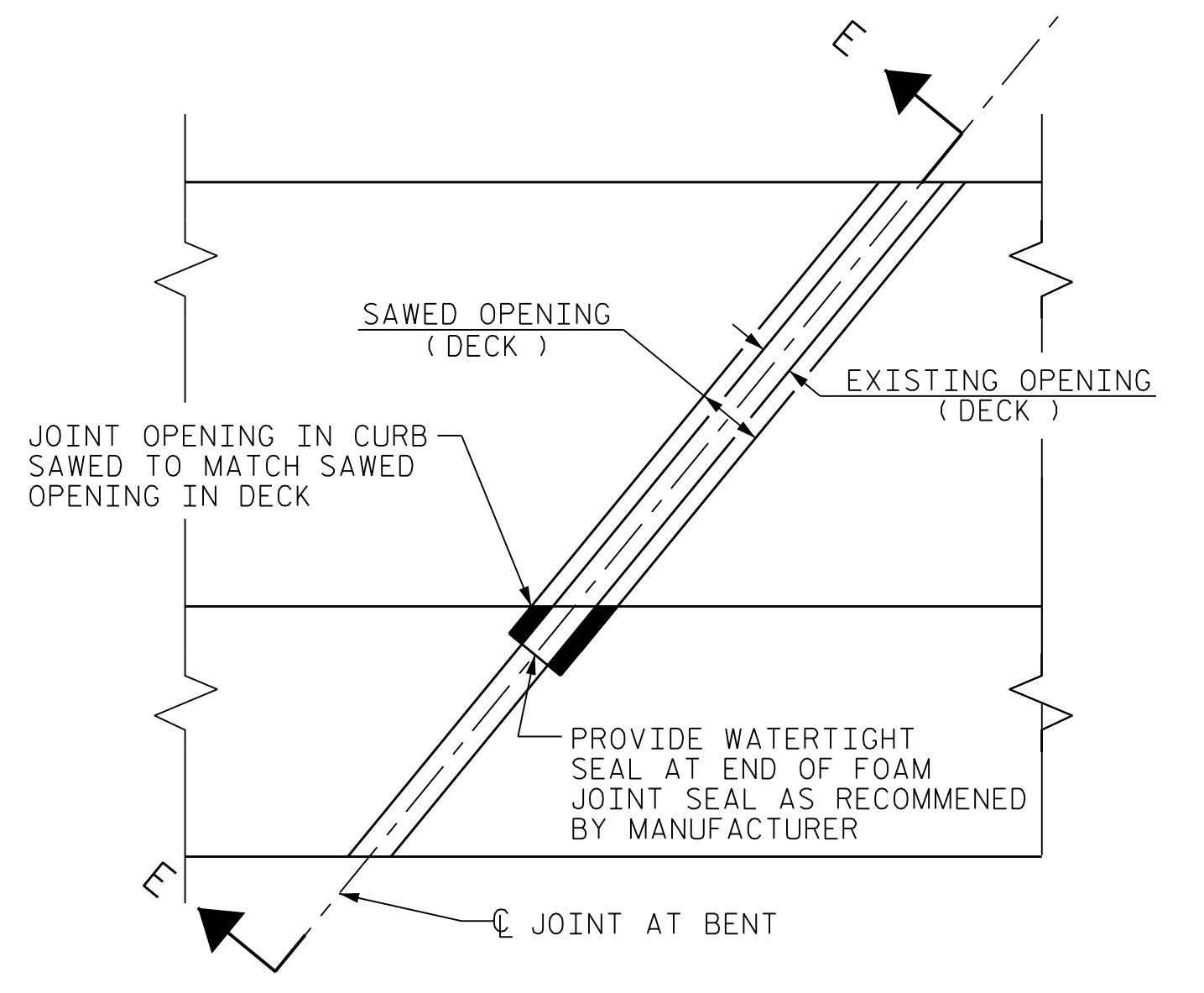
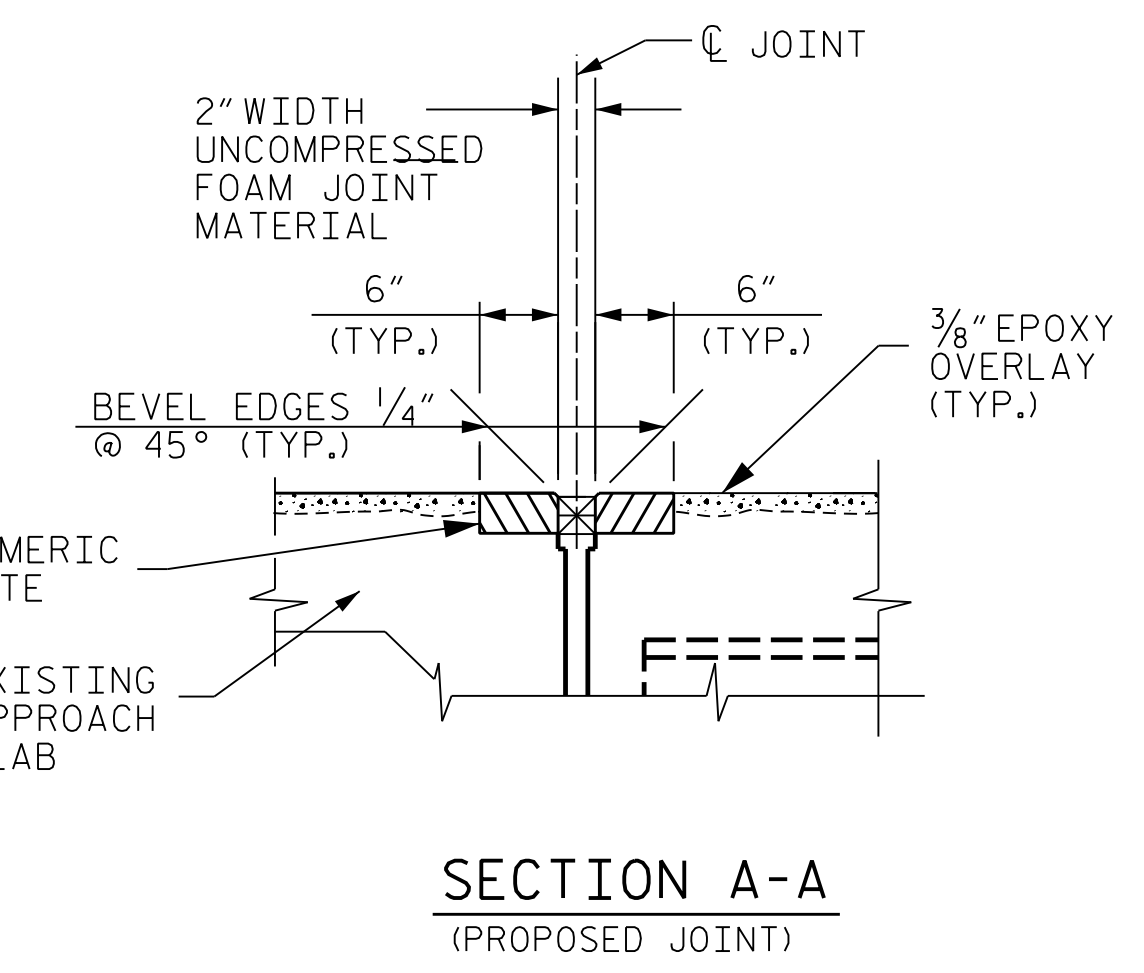
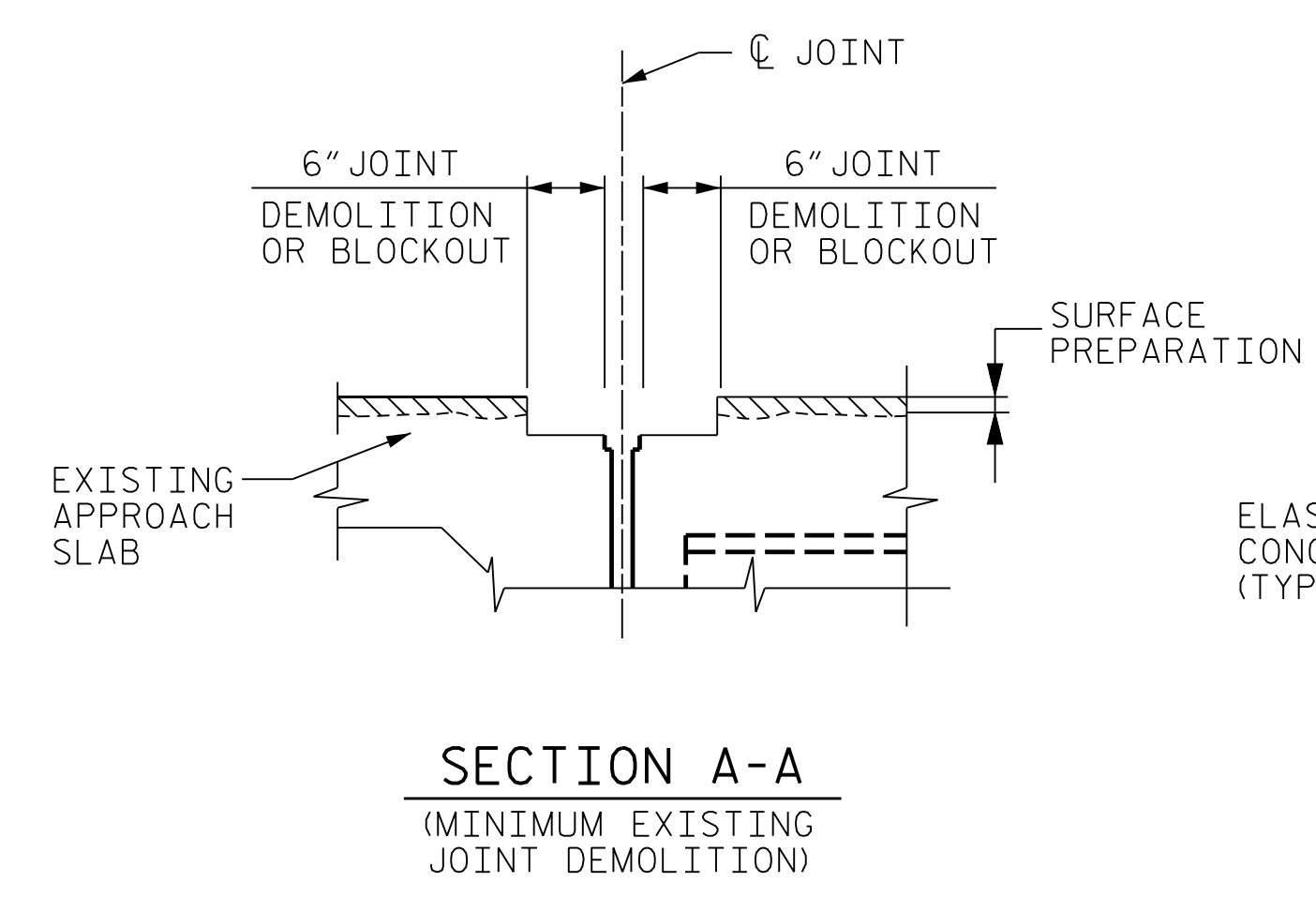
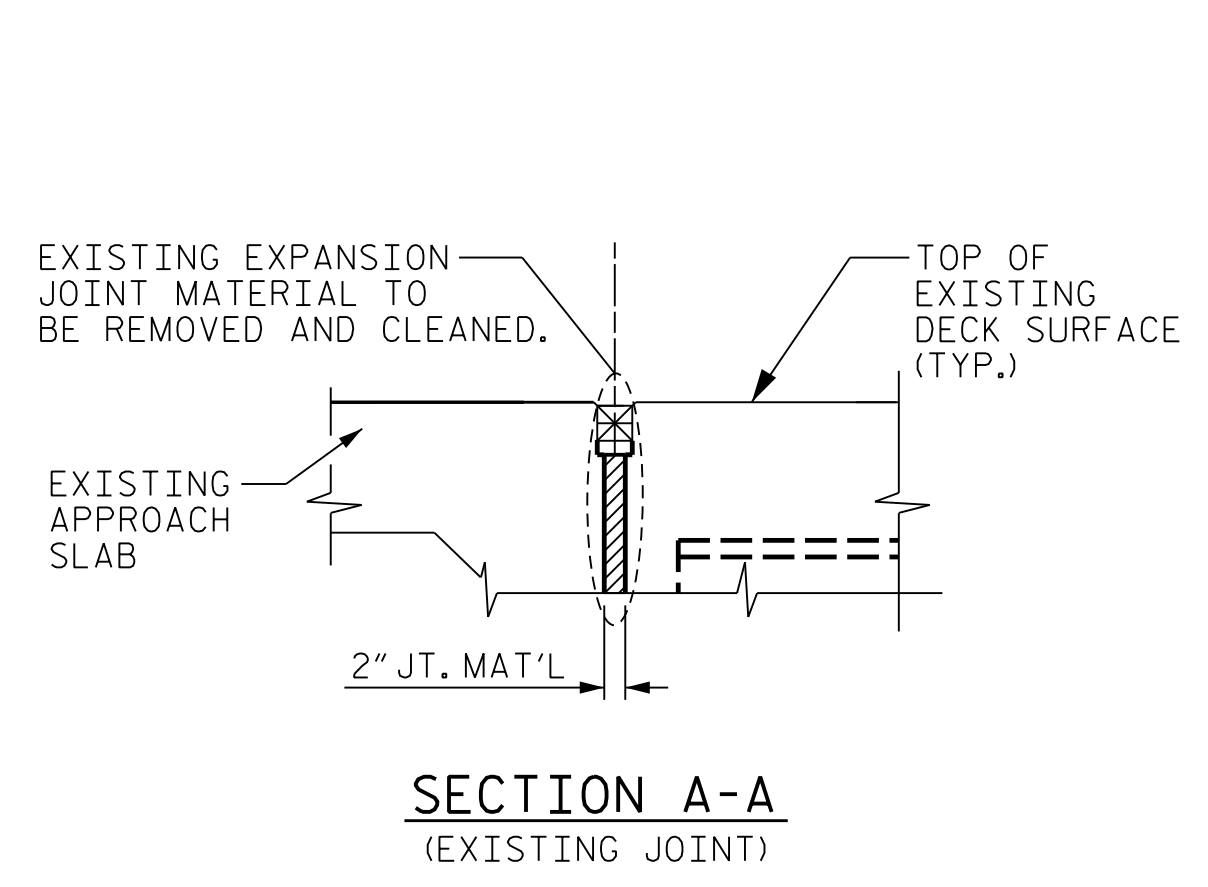


SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
CONCRETE DECK REPAIR FOR EPOXY OVERLAY	1.0 SQ. FT.	
EPOXY OVERLAY SYSTEM	10,348 SQ. FT.	
SHOTCRETE RAPAIR	1 SQ. FT.	
BRIDGE JOINT DEMOLITION	68 SQ. FT.	
EXPANSION JOINT SEAL	95.5 LN. FT.	

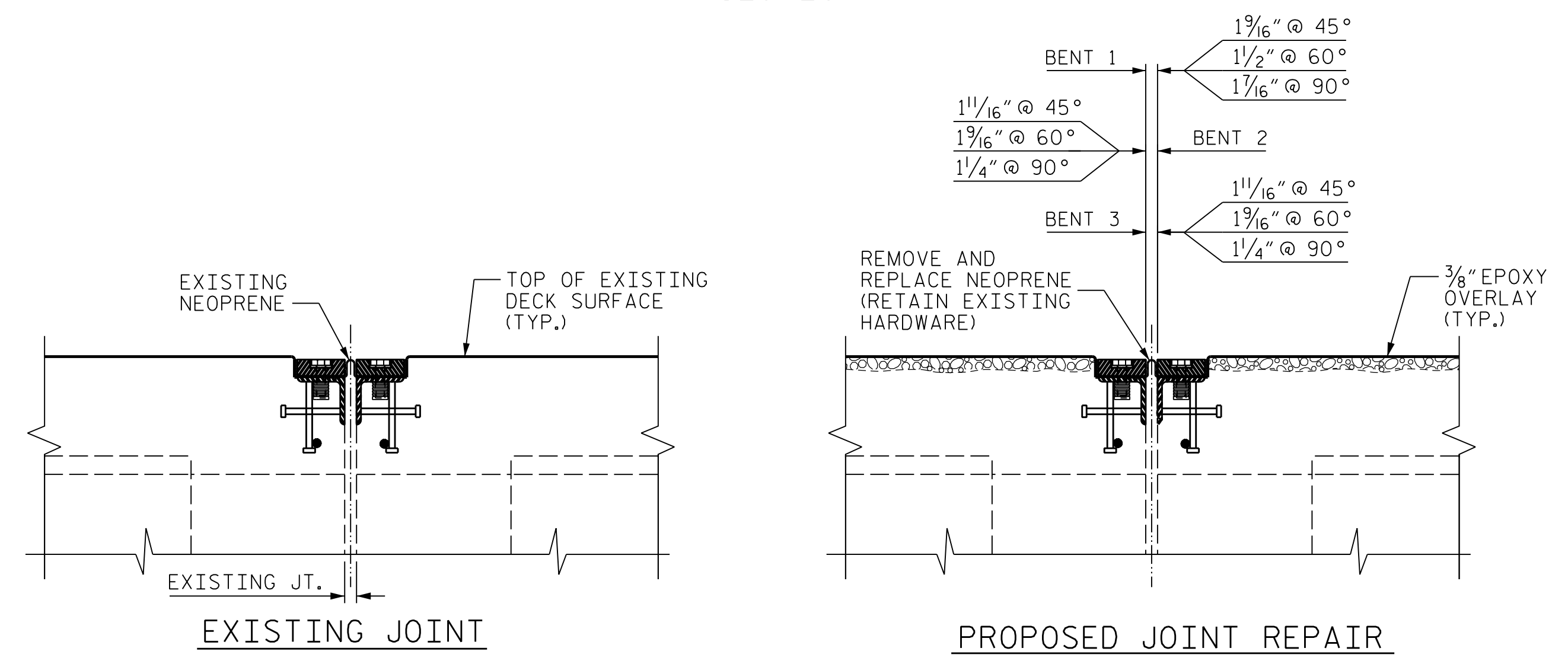
**NOTE:**  
CONCRETE DECK REPAIR FOR EPOXY OVERLAY IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE IN CASE UNANTICIPATED REPAIR AREAS ARE ENCOUNTERED.

ELASTOMERIC CONCRETE	
BRIDGE 522	17.0 (CU. FT.)

EXPANSION JOINT SEAL	
BRIDGE 522	95.5 (LN. FT.)



**JOINT INSTALLATION SEQUENCE AT END BENTS**  
SECTION A-A



**JOINT REPAIR SEQUENCE AT BENTS**  
SECTION B-B

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 522

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**SURFACE PREPARATION FOR EPOXY OVERLAY AND JOINT DETAILS**

DRAWN BY :	M. HOGAN	DATE :	8-16
CHECKED BY :	T. KIRSCHBAUM	DATE :	10-16
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	10-16

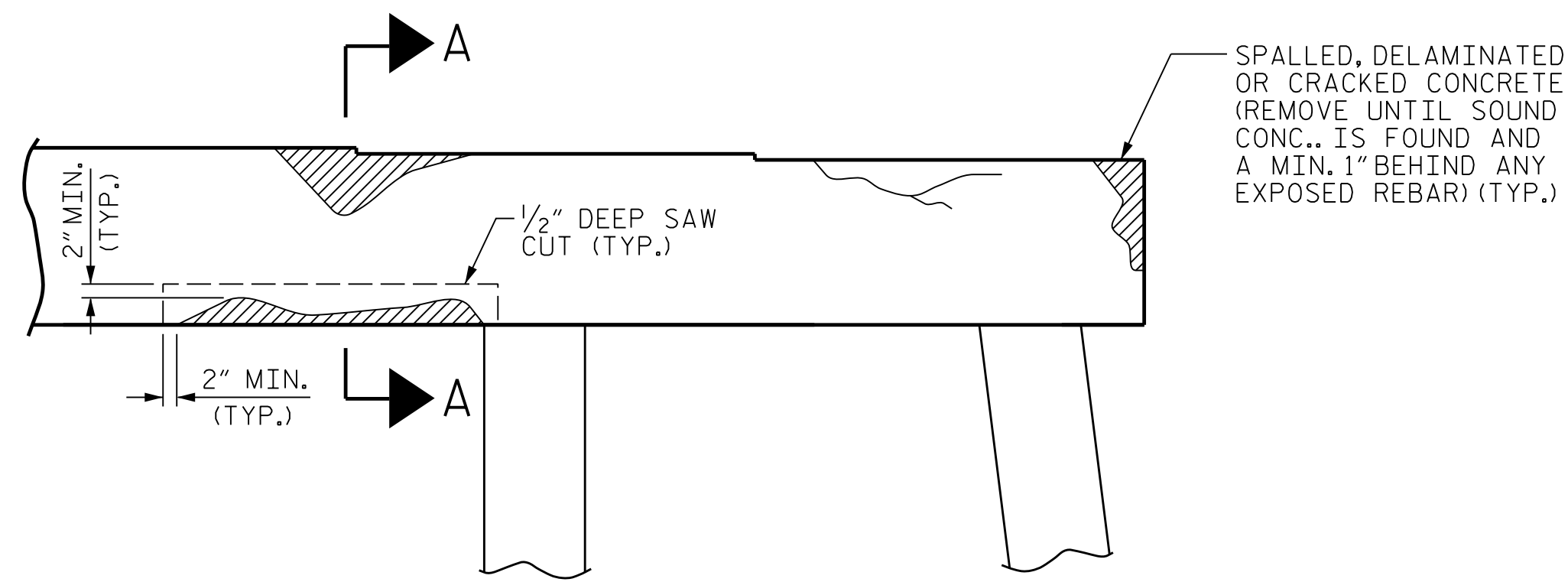
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Prepared by: LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

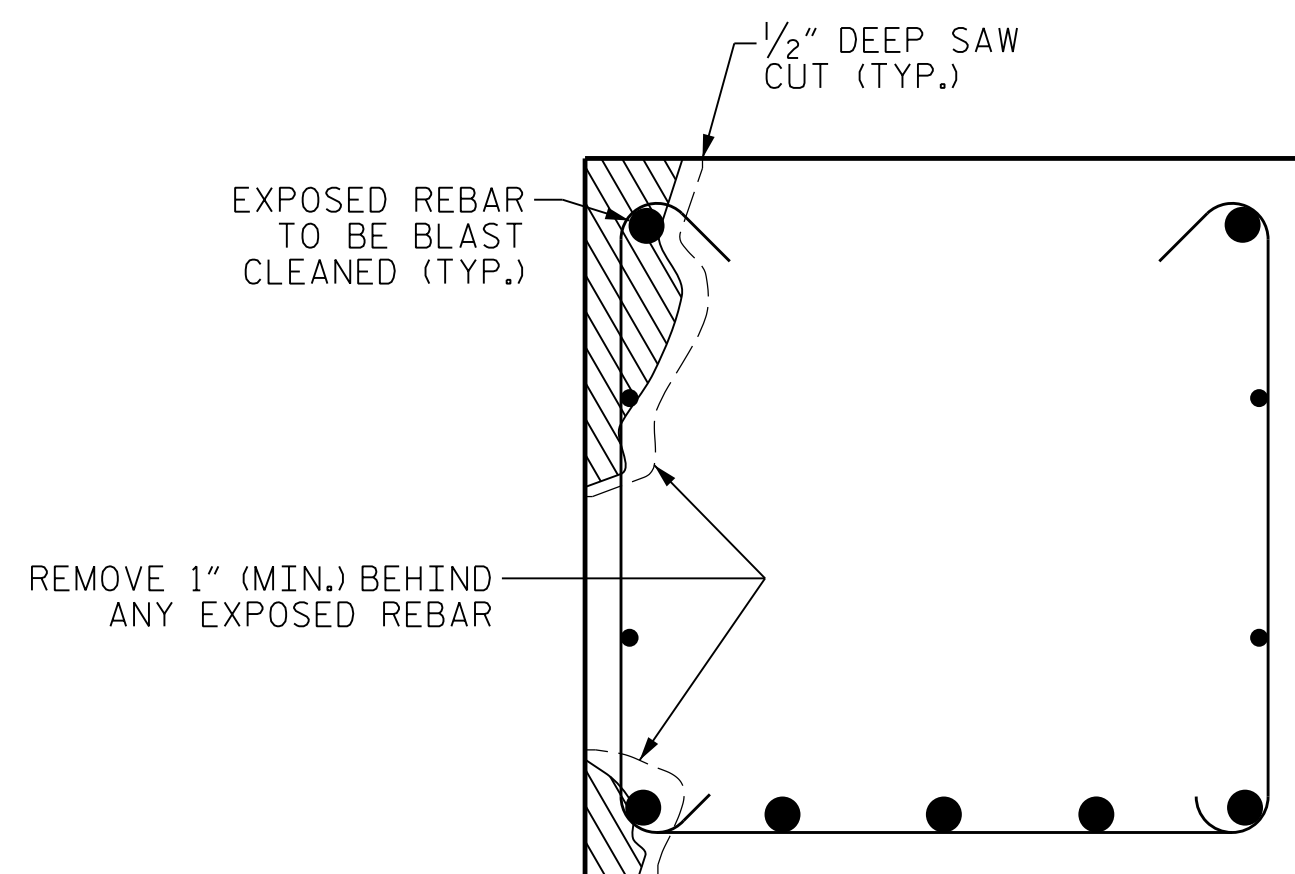
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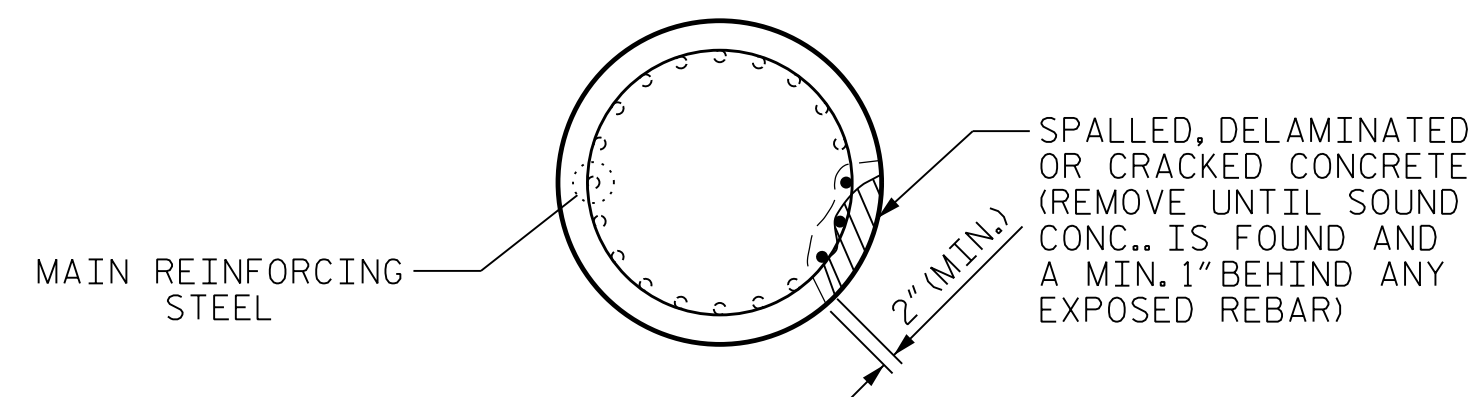


BENT CAP REPAIRS

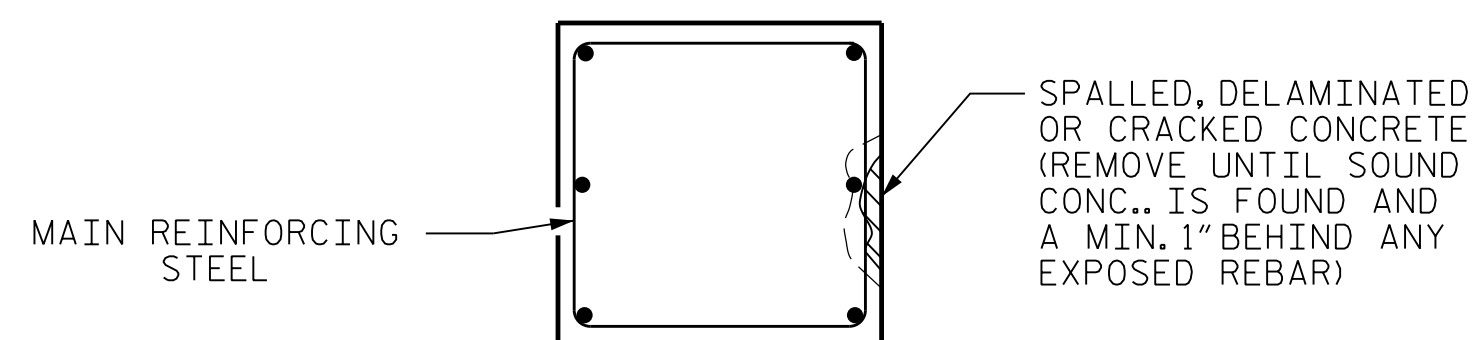


SECTION THRU CAP  
(EXAMPLE ONLY. ACTUAL REBAR SIZES & LOCATIONS MAY VARY)

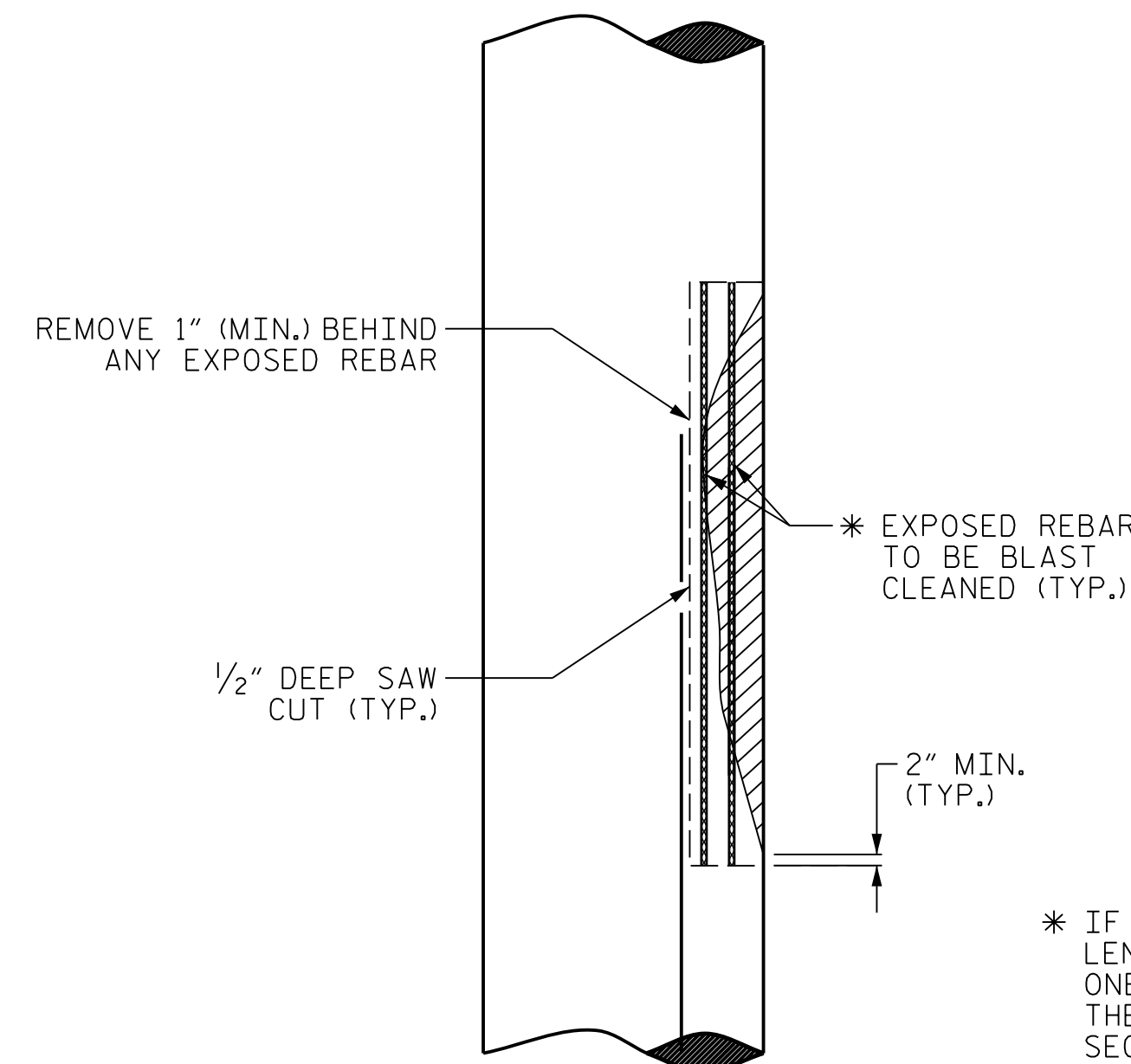
CAP REPAIR



PLAN OF COLUMN



PLAN OF COLUMN



ELEVATION OF CAP

COLUMN REPAIR

\* IF CONFINEMENT STEEL IS NOT PRESENT, AND REPAIR LENGTH EXCEEDS 10 FEET; THE MAXIMUM LENGTH OF ANY ONE REPAIR SEGMENT AT ONE TIME CANNOT EXCEED 10 FEET. THE REMAINING REPAIR SEGMENTS MUST BE DONE AFTER FIRST SEGMENT IS COMPLETE.

**NOTES**

REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL. SAW CUT AROUND REPAIR AREA TO A NOMINAL DEPTH OF 1/2".

REMOVE CONCRETE WITHIN SAW CUT AREA TO A MINIMUM 1/2" DEPTH. IF CONCRETE IS DAMAGED BEYOND THE ORIGINAL SAW CUT, A NEW SAW CUT IS REQUIRED. (PICTURE REQUIRED)

▲ IF MORE THAN HALF THE CIRCUMFERENCE OF A REINFORCING BAR IS EXPOSED DURING THIS PROCESS, REMOVE ADDITIONAL CONCRETE TO 1" BEHIND THE BAR. THIS DOES NOT APPLY TO PRESTRESSED STRANDS.

■ ALL UNSOUND CONCRETE MUST BE REMOVED. HOWEVER, PRESTRESSED STRANDS SHOULD NOT BE DISTURBED UNLESS ABSOLUTELY NECESSARY. USE EXTREME CARE NOT TO DAMAGE STRANDS.

USE A WIRE BRUSH TO CLEAN ALL EXPOSED REINFORCING BARS AND PRESTRESSED STRANDS. FOR BARS WITH MORE THAN 10% SECTION LOSS, SPLICE AND SECURELY TIE SUPPLEMENTAL REINFORCING BARS AS NEEDED. NOTE AND PROVIDE DETAILED DOCUMENTATION, INCLUDING LOCATION AND SEVERITY, OF ALL DAMAGE TO PRESTRESSED STRANDS THAT EXCEED 10% SECTION LOSS. IF FIVE OR MORE STRANDS ARE DAMAGED, NOTIFY THE ENGINEER PRIOR TO PLACEMENT OF REPAIR MATERIAL.

REMOVE ALL LOOSE OR WEAKENED MATERIAL THEN CLEAN THE AREA OF DIRT, GREASE, OIL AND FOREIGN MATTER. (PICTURE REQUIRED)

PREPARE SURFACE AND PLACE APPROVED REPAIR MATERIAL ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. MAXIMUM AGGREGATE SIZE FOR THE REPAIR MATERIAL SHALL NOT EXCEED 2/3 THE MINIMUM REPAIR DEPTH. (PICTURE REQUIRED) CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

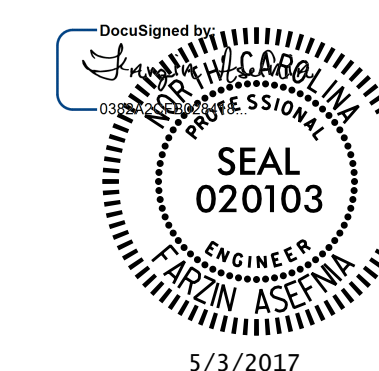
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. \_\_\_\_\_

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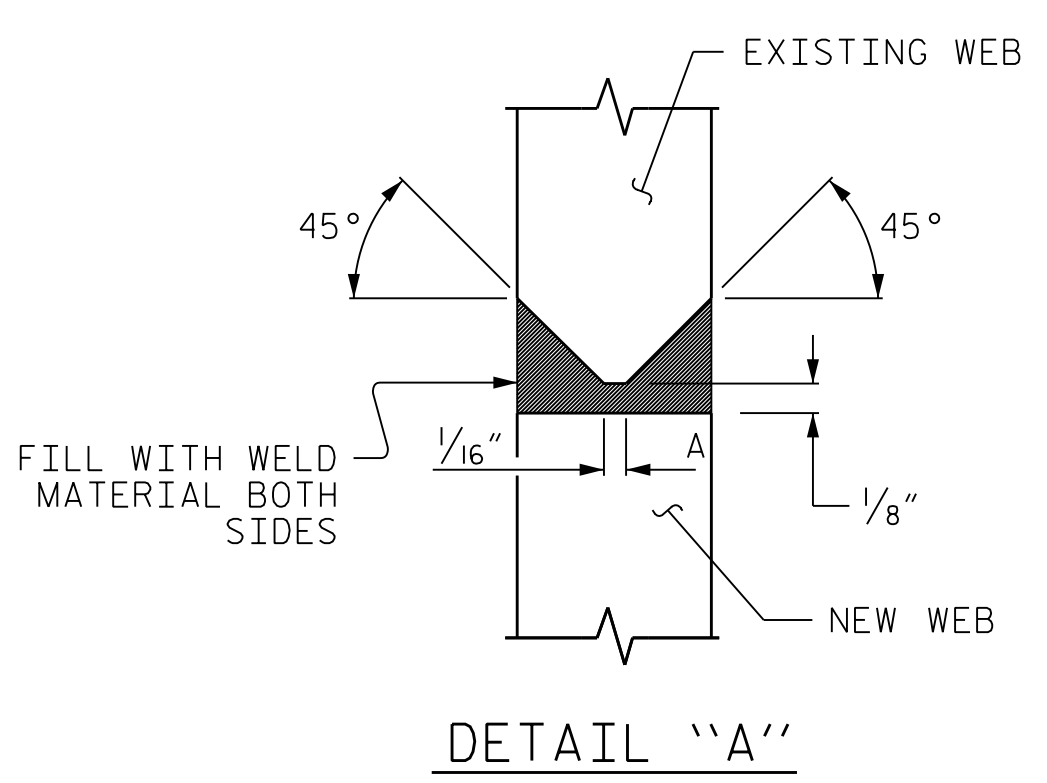
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**TYPICAL CAP  
AND COLUMN  
REPAIR**

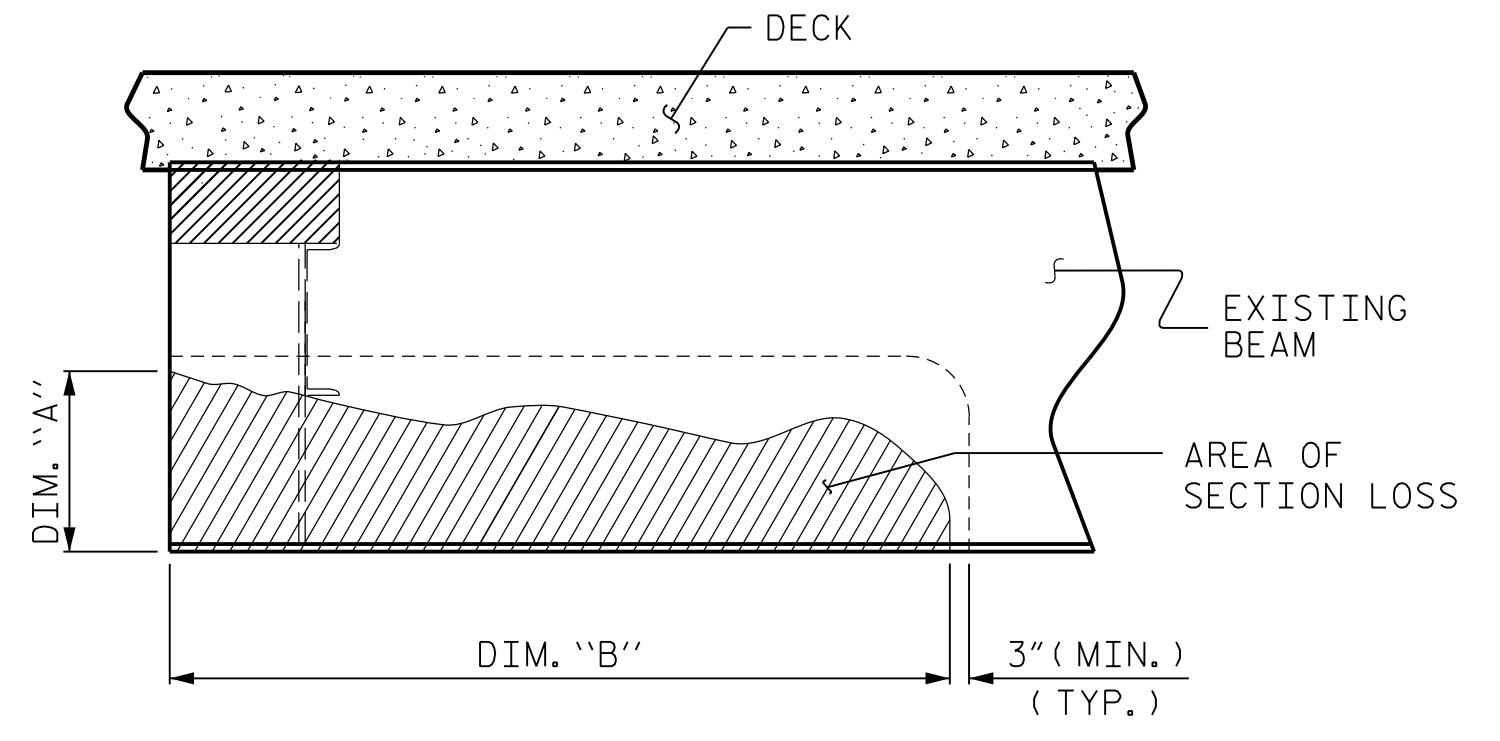
DRAWN BY :	J. MYA	DATE :	1-17
CHECKED BY :	F. ASEFNIA	DATE :	1-17
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	1-17

	Prepared by: LOUIS BERGER 1001 Wade Avenue, Suite 400 Raleigh, NC 27605-3322 NC COA No. F-0840		REVISIONS		SHEET NO. S-195 TOTAL SHEETS 196	
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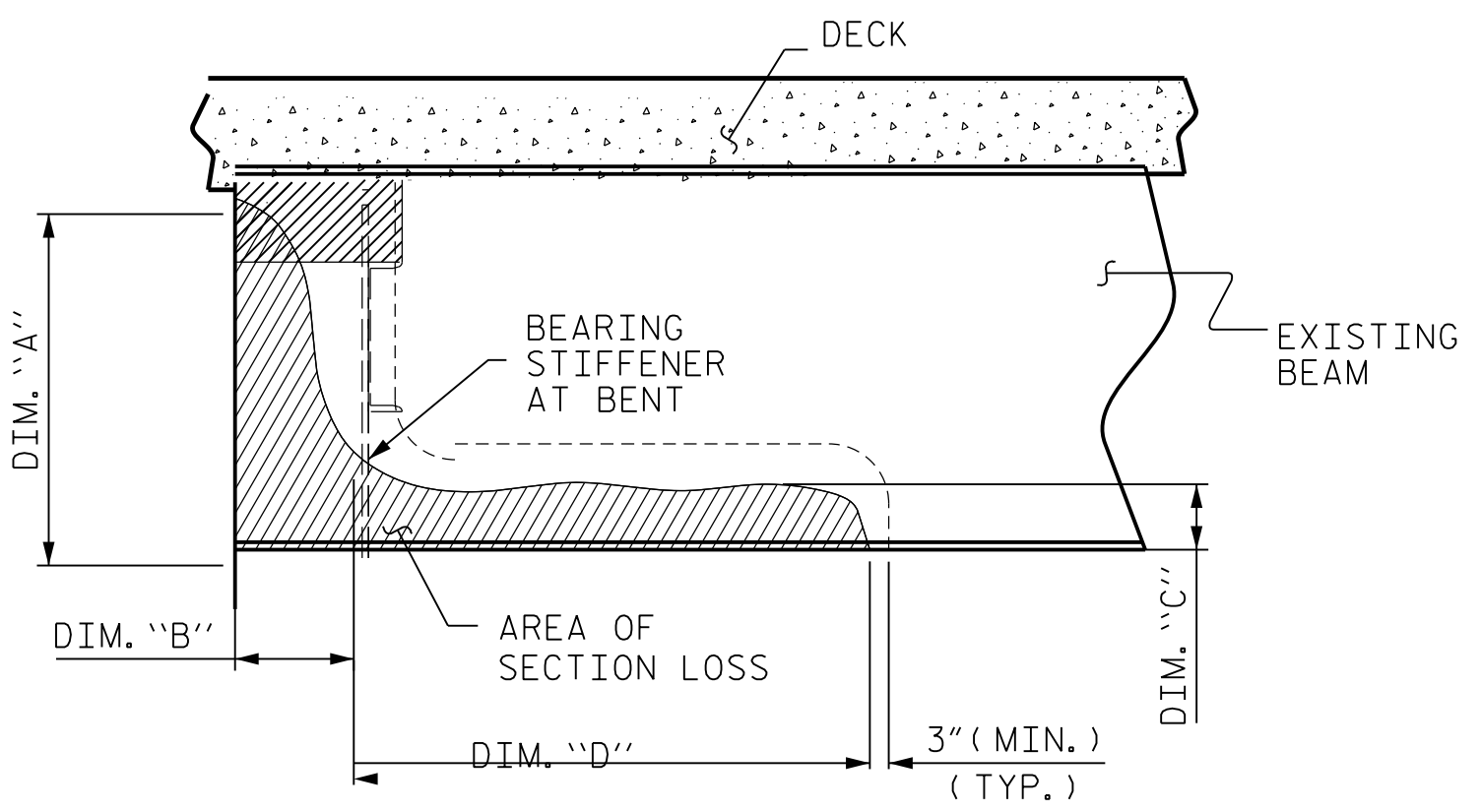
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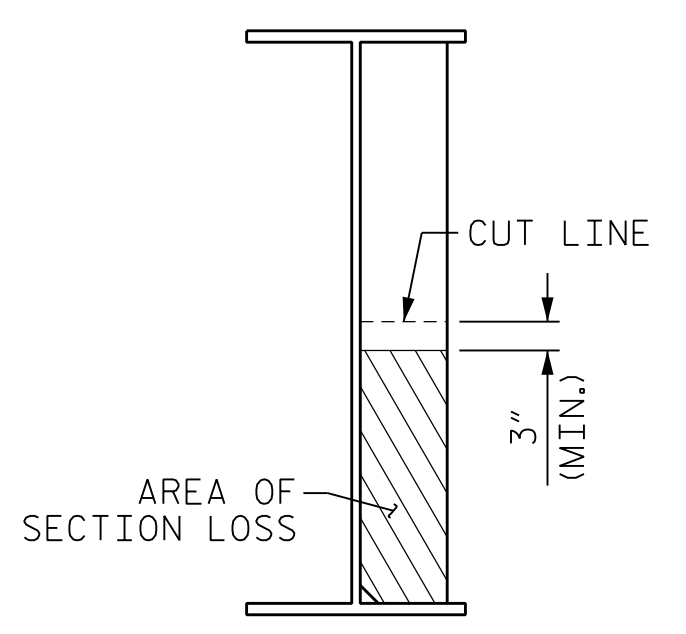
DETAIL "A"



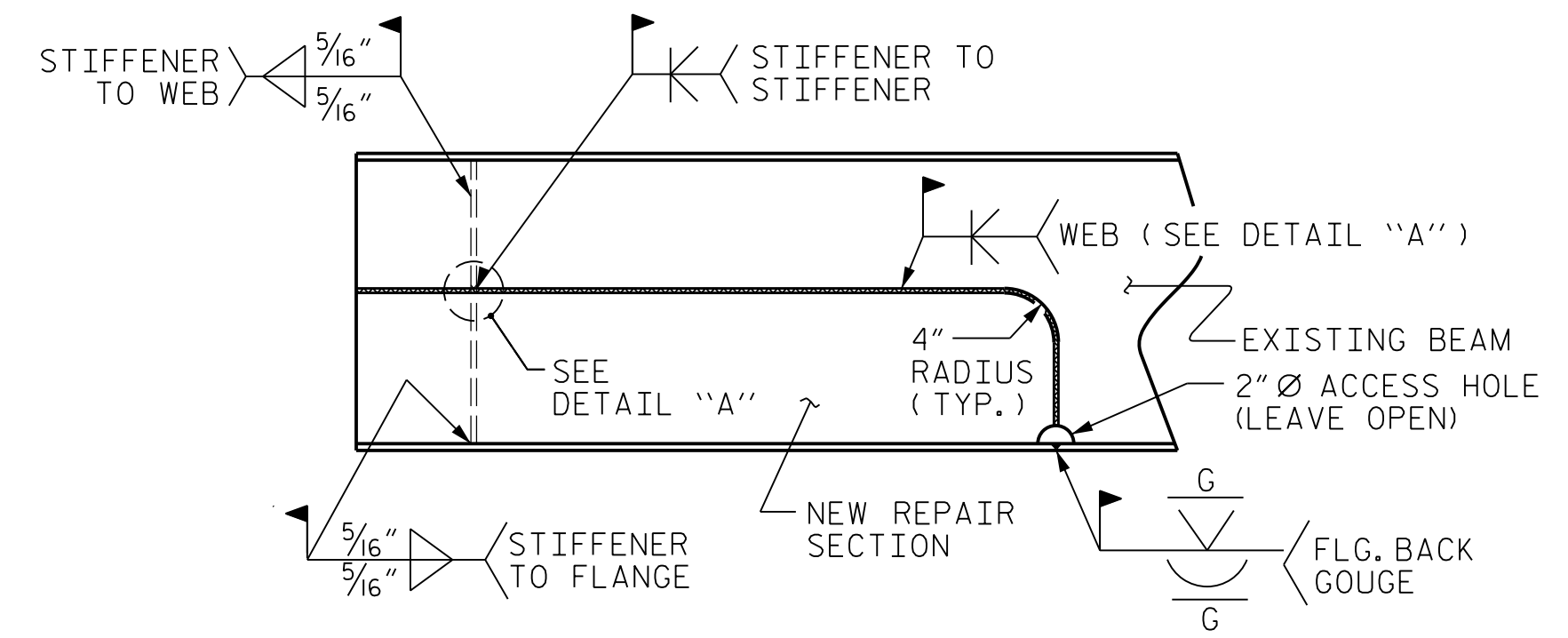
SECTION LOSS BEAM END REPAIR



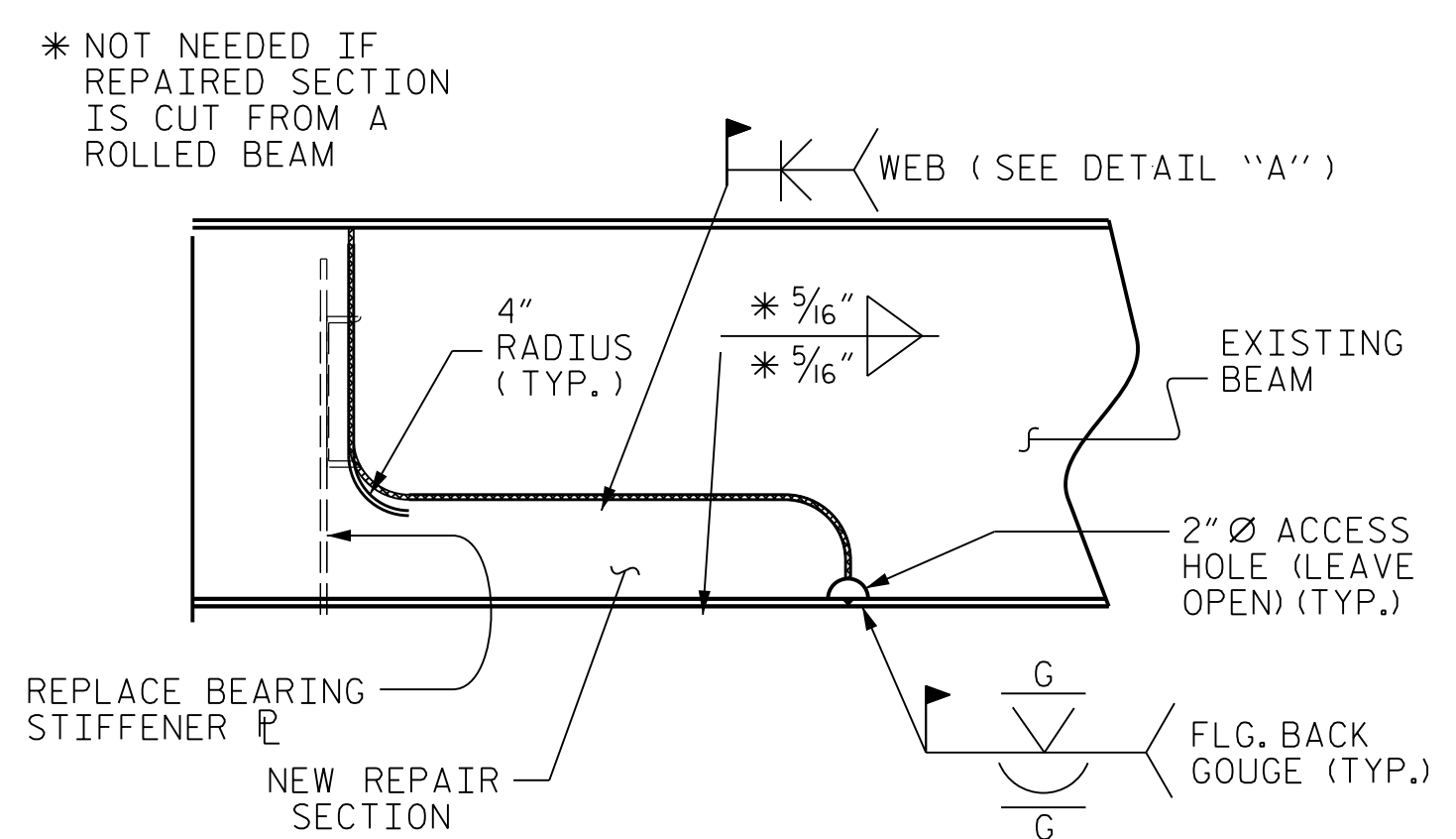
SECTION LOSS BEAM END REPAIR



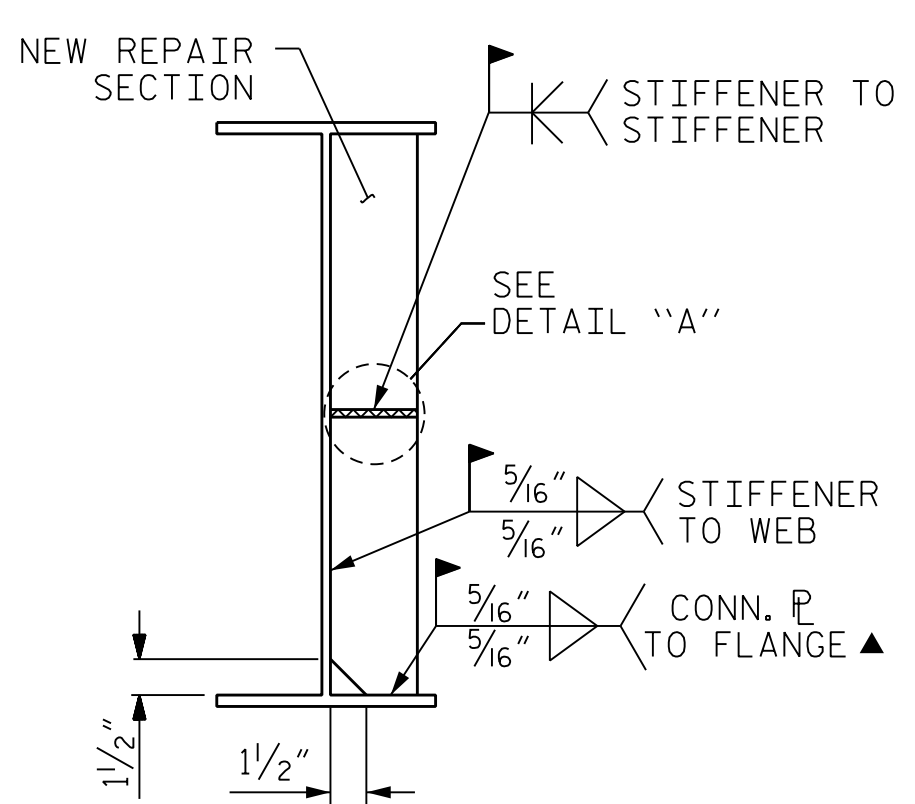
SECTION LOSS STIFFENER/CONN. REPAIR



SECTION LOSS BEAM END REPAIR SECTION



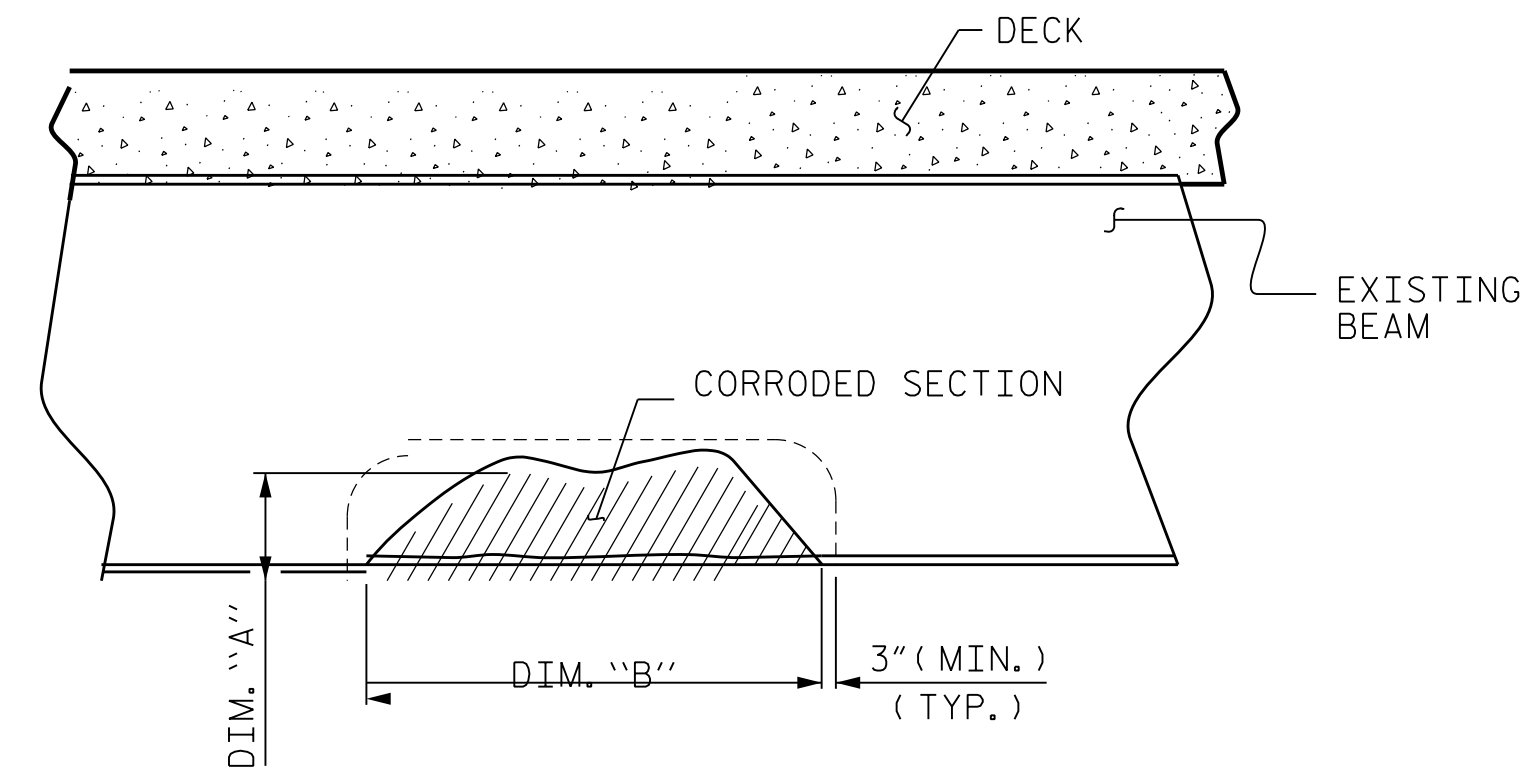
SECTION LOSS BEAM END REPAIR SECTION



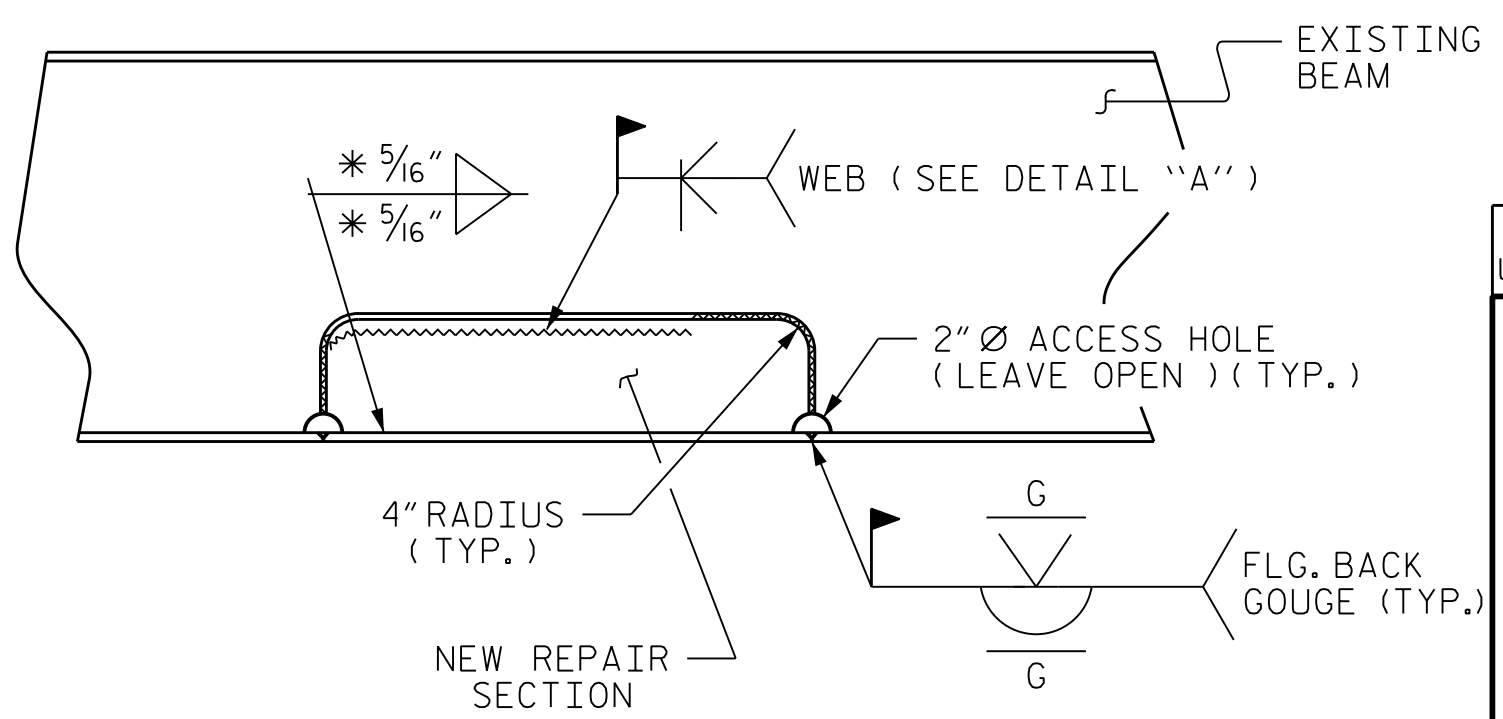
SECTION LOSS STIFFENER/CONN. REPAIR SECTION

▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD

- NOTES:**
- ALL PLATES SHALL BE AASHTO M270 GRADE 50.
  - FOR GIRDER REPAIR, SEE SPECIAL PROVISIONS.
  - FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.
  - FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
  - FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
  - FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.



SECTION LOSS INTERMEDIATE BEAM REPAIR



SECTION LOSS INTERMEDIATE BEAM REPAIR SECTION

**BEAM REPAIR**

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

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

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

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

**REPAIR SEQUENCE:**

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

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

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

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

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

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

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

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

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

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

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

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

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

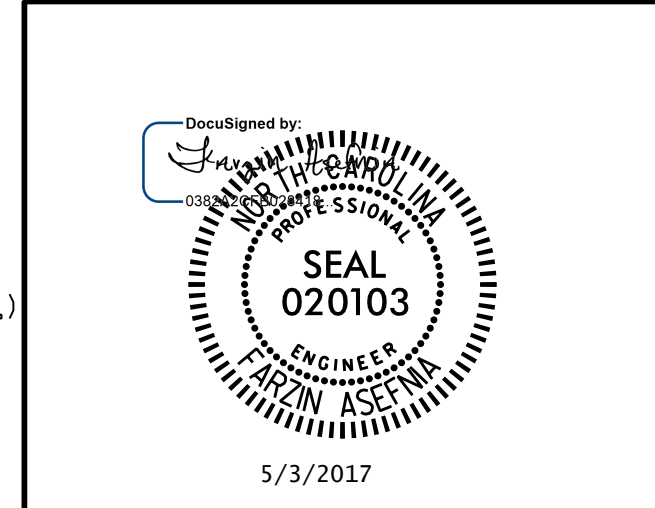
LOWER SPAN TO BEAR, CHECK FOR DISTRESS.

REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.

REMOVE ALL TRAFFIC CONTROL DEVICES.

PROJECT NO. I-5746A/I-5746B  
MECKLENBURG COUNTY  
BRIDGE NO. 522

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
**STEEL BEAM REPAIR DETAILS**

DRAWN BY :	J. MYA	DATE :	1-17
CHECKED BY :	F. ASEFNIA	DATE :	1-17
DESIGN ENGINEER OF RECORD :	F. ASEFNIA	DATE :	1-17

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Prepared by: LOUIS BERGER  
1001 Wade Avenue, Suite 400  
Raleigh, NC 27605-3322  
NC COA No. F-0840

TOTAL SHEETS: 196



