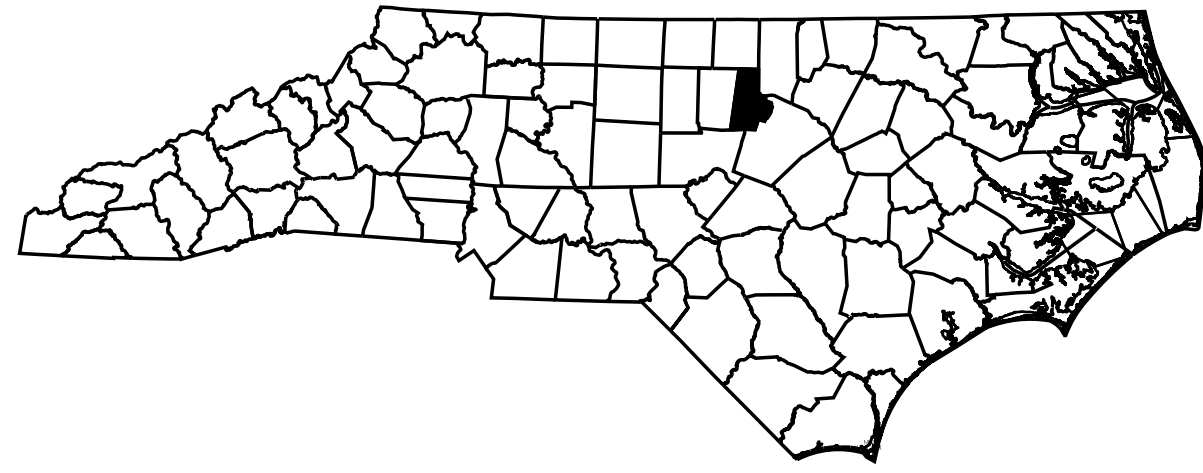


PROJECT: I-5941

CONTRACT NO: C204885



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

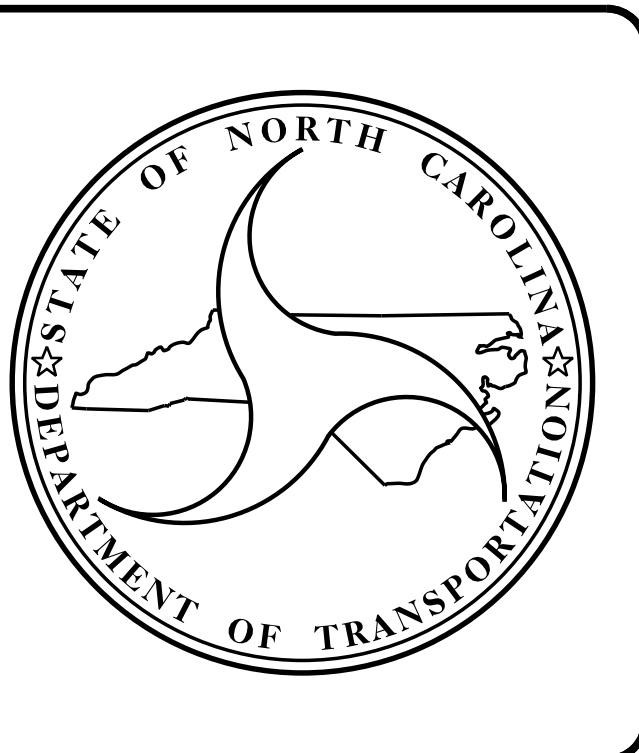
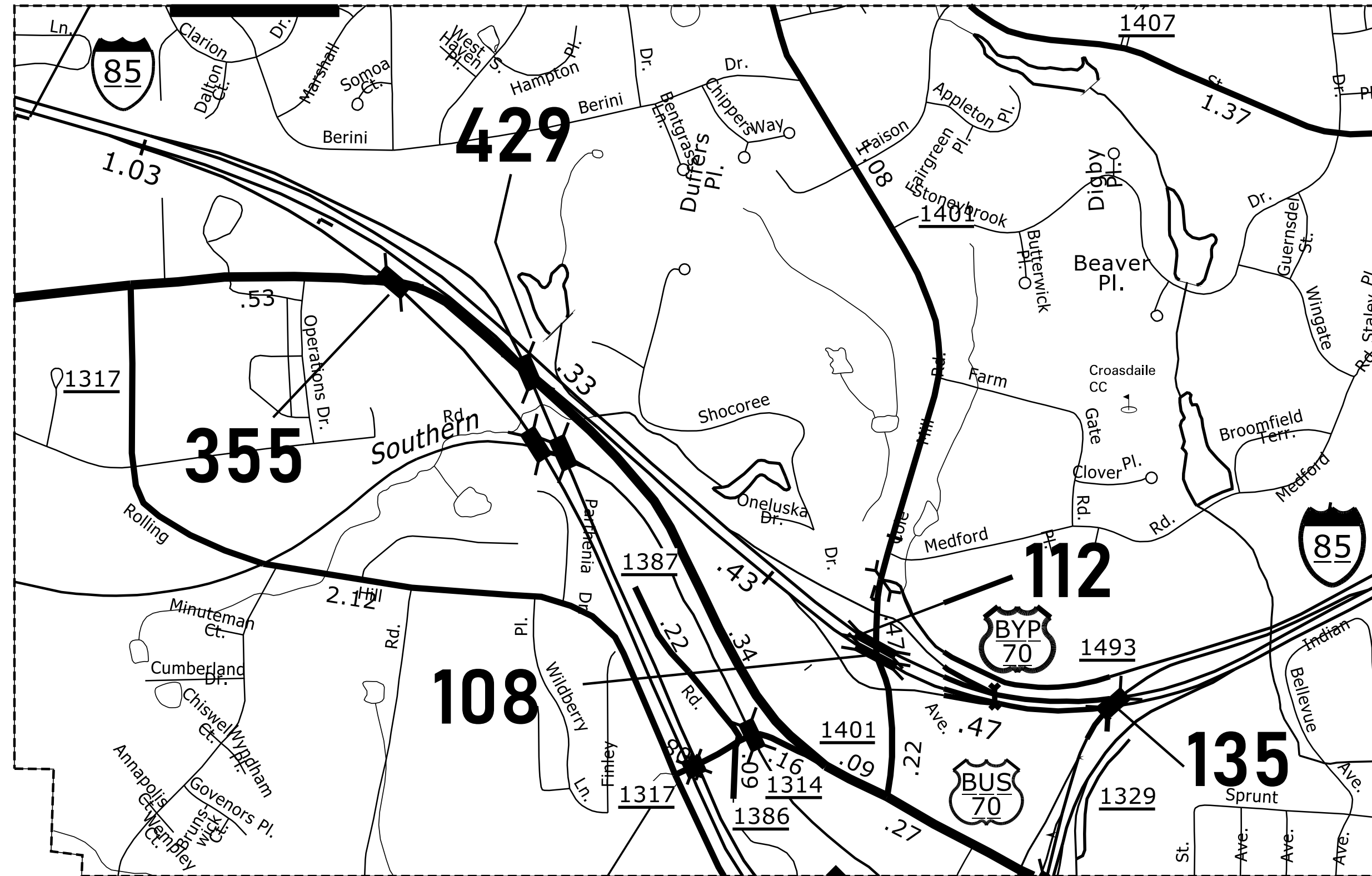
DURHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5941	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45884.1.1	0085065	PE	
45884.3.1	0085065	CONST	



LOCATION: BRIDGE #310108 ON I-85 NORTHBOUND OVER COLE MILL ROAD.
 BRIDGE #310112 ON I-85 SOUTHBOUND OVER COLE MILL ROAD.
 BRIDGE #310135 ON US 15 /501 SOUTHBOUND OVER I-85 AND ELLERBE CREEK.
 BRIDGE #310355 ON NC 147 SOUTHBOUND RAMP OVER US 70 BUSINESS.
 BRIDGE #310429 ON NC 147 NORTHBOUND RAMP OVER I-85 & US 70 BUSINESS.

TYPE OF WORK: BRIDGE PRESERVATION - DECK REPAIR, SCARIFICATION, SHOTBLASTING, POLYMER CONCRETE OVERLAY, JOINT DEMOLITION, PAINTING OF STRUCTURAL STEEL BEAM ENDS, STRUCTURAL STEEL REPAIR AND SUBSTRUCTURE REPAIR.



DESIGN DATA

BRIDGE #108	ADT 2019 =	24,000
BRIDGE #112	ADT 2019 =	22,250
BRIDGE #135	ADT 2019 =	30,500
BRIDGE #355	ADT 2019 =	11,500
BRIDGE #429	ADT 2019 =	23,000

PROJECT LENGTH

BRIDGE #108	=	0.05 MILE
BRIDGE #112	=	0.05 MILE
BRIDGE #135	=	0.13 MILE
BRIDGE #355	=	0.05 MILE
BRIDGE #429	=	0.14 MILE



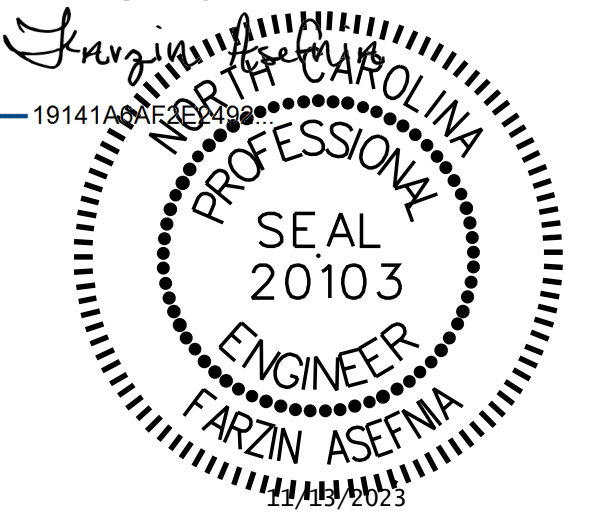
3362 Six Forks Rd.
Raleigh, N.C. 27609
Tel: 984.960.2810
elrobinsonengineering.com
License: C-22 9

DEAN HATFIELD, PE
PROJECT ENGINEER

2024 STANDARD SPECIFICATIONS

LETTING DATE:
FEBRUARY 20, 2024

DocuSigned by:



FARZIN ASEFNIA, P.E.
PROJECT DESIGN ENGINEER

PROJECT: I-5941**CONTRACT NO: C204885**

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

DURHAM COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5941	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45884.1.1	0085065	PE	
45884.3.1	0085065	CONST	

LOCATION: BRIDGE #310108 ON I-85 NORTHBOUND OVER COLE MILL ROAD.
BRIDGE #310112 ON I-85 SOUTHBOUND OVER COLE MILL ROAD.
BRIDGE #310135 ON US 15 /501 SOUTHBOUND OVER I-85 AND ELLERBE CREEK.
BRIDGE #310355 ON NC 147 SOUTHBOUND RAMP OVER US 70 BUSINESS.
BRIDGE #310429 ON NC 147 NORTHBOUND RAMP OVER I-85 & US 70 BUSINESS.

TYPE OF WORK: BRIDGE PRESERVATION - DECK REPAIR, SCARIFICATION, SHOTBLASTING, POLYMER CONCRETE OVERLAY, JOINT DEMOLITION, PAINTING OF STRUCTURAL STEEL BEAM ENDS, STRUCTURAL STEEL REPAIR AND SUBSTRUCTURE REPAIR.

INDEX OF SHEETS

SHEET No.

1
1A
S-1
S1-1 THRU S1-11
S2-1 THRU S2-11
S3-1 THRU S3-18
S4-1 THRU S4-14
S5-1 THRU S5-17
S-73 THRU S-74
SN

DESCRIPTION

TITLE SHEET
INDEX OF SHEETS
TOTAL BILL OF MATERIAL
STRUCTURAL PLANS - BRIDGE NO. 310108
STRUCTURAL PLANS - BRIDGE NO. 310112
STRUCTURAL PLANS - BRIDGE NO. 310135
STRUCTURAL PLANS - BRIDGE NO. 310355
STRUCTURAL PLANS - BRIDGE NO. 310429
STANDARD REPAIR DETAILS
STANDARD NOTES

TOTAL BILL OF MATERIAL

BRIDGE NO.	GROOVING BRIDGE FLOORS	CLEANING & PAINTING OF EXISTING WEATHERING STEEL BRIDGE No. ___	PAINTING CONTAINMENT FOR BRIDGE No. ___	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	POLYESTER POLYMER CONCRETE MATERIALS	EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	PLACING & FINISHING POLYMER CONCRETE OVERLAY	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS FOR PRESERVATION	POURABLE SILICONE JOINT SEALANT	BRIDGE JOINT DEMOLITION	EPOXY COATING	CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	BEAM REPAIR - PLATING	SURFACE PREPARATION FOR CONCRETE BARRIER	SILANE BARRIER RAIL TREATMENT	SILANE DECK TREATMENT
	SO. FT.	LUMP SUM	LUMP SUM	LUMP SUM	SO. YDS.	CU. YDS.	CU. YDS.	SO. YDS.	CU. FT.	CU. FT.	LN. FT.	LN. FT.	LN. FT.	SO. FT.	SO. FT.	SO. YDS.	LBS.	SO. FT.	SO. FT.	SO. YD.
310108	17,992	LUMP SUM	LUMP SUM	LUMP SUM	26.0	103	103	2,105	-	98.1	254.5	175	-	-	731	26.0	-	1,764	1,764	-
310112	15,956	LUMP SUM	LUMP SUM	LUMP SUM	24.0	91	91	1,879	12.0	257.0	363	156	-	-	668	24.0	-	1,797	1,797	-
310135	-	LUMP SUM	LUMP SUM	LUMP SUM	-	-	-	-	4.0	133.0	123	73 *	-	95 *	1,234	-	-	5,046	5,046	3,985
310355	10,716	LUMP SUM	LUMP SUM	LUMP SUM	22.0	63.5	63.5	1,304	0.3	115.0	347	150	169	-	830	22.0	306	1,776	1,776	-
310429	27,461	LUMP SUM	LUMP SUM	LUMP SUM	56.0	165	165	3,383	1.3	658.8	552.5	386	200	-	2,434	56.0	-	4,980	4,980	-
TOTAL	72,125	LUMP SUM	LUMP SUM	LUMP SUM	128.0	422.5	422.5	8,671	17.6	1,261.9	1,640	940	369	95	5,897	128.0	306	15,363	15,363	3,985

* FOR END BENT 2 JOINT ONLY

TOTAL BILL OF MATERIAL

BRIDGE NO.	FLOWABLE FILL	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	ELASTOMERIC CONCRETE FOR PRESERVATION
	CU. YD.	SO. YDS.	SO. YDS.	CU. FT.
310108	-	2,105	2,105	-
310112	-	1,879	1,879	-
310135	1.4	-	3,985	32.0
310355	-	1,304	1,304	-
310429	-	3,383	3,383	-
TOTAL	1.4	8,668	12,653	32.0

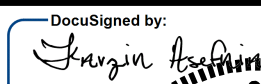
NOTE:

AT THE TIME OF PREPARATION OF THESE PLANS, IT WAS NOT ANTICIPATED THAT ITEM(S) LISTED BELOW WOULD BE REQUIRED. HOWEVER, IT MAY BE DETERMINED IN THE FIELD THAT THE FOLLOWING ITEM(S) LISTED, OR OTHER WORK WILL BE NECESSARY TO PROPERLY COMPLETE THE INTENDED BRIDGE PRESERVATION/REHABILITATION WORK. THE CONTRACTOR SHALL BE PREPARED TO PERFORM SUCH WORK IN A TIMELY MANNER, AS DETERMINED IN THE FIELD. SUCH WORK SHALL BE CONSIDERED EXTRA WORK AND SHALL BE ADDRESSED AS PER ARTICLE 104-7 OF THE STANDARD SPECIFICATIONS. PROJECT SPECIAL PROVISIONS THAT OUTLINE REQUIREMENTS FOR THESE POTENTIAL ADDITIONAL WORK ITEMS HAVE BEEN PROVIDED IN THE PROJECT DOCUMENTS, BUT NO QUANTITIES HAVE BEEN LISTED. ACTUAL PAY ITEMS, QUANTITIES, AND COSTS WILL BE ESTABLISHED, AS REQUIRED, IF EXTRA WORK IS ENCOUNTERED. UNANTICIPATED ITEMS:

- CLASS III SURFACE PREPARATION
- CONCRETE DECK REPAIR FOR SILANE DECK TREATMENT
- CONCRETE FOR DECK REPAIR
- VOLUMETRIC MIXER

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310108, 310112,
310135, 310355, 310429
 SHEET 1 OF 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:

 19141ABAF02

NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FARZIN ASEFNIA 11/13/2023

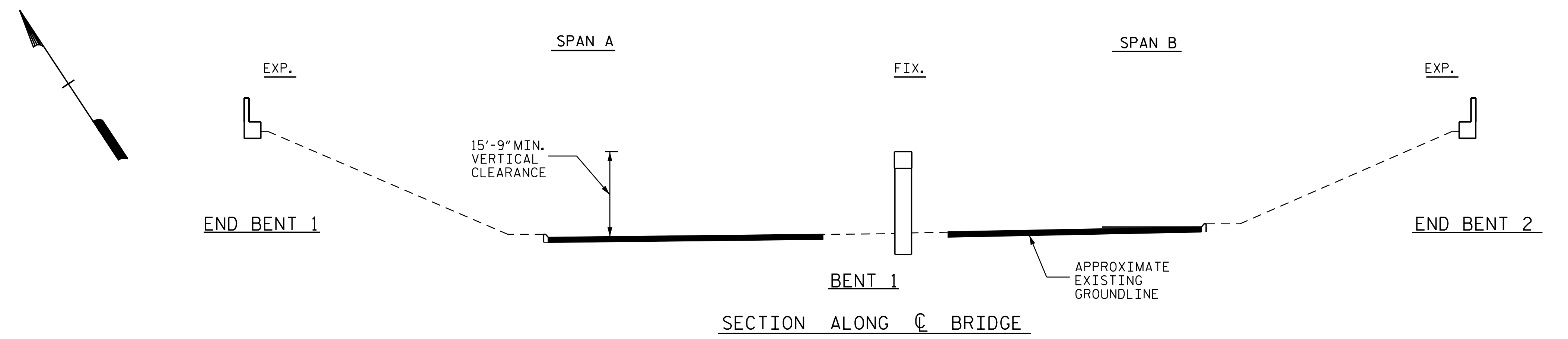
E.L. ROBINSON
 3362 Six Forks Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 efarz@elrobinsonengineering.com
 License: C-22 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TOTAL BILL OF MATERIAL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-1
2			4			TOTAL SHEETS 74

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

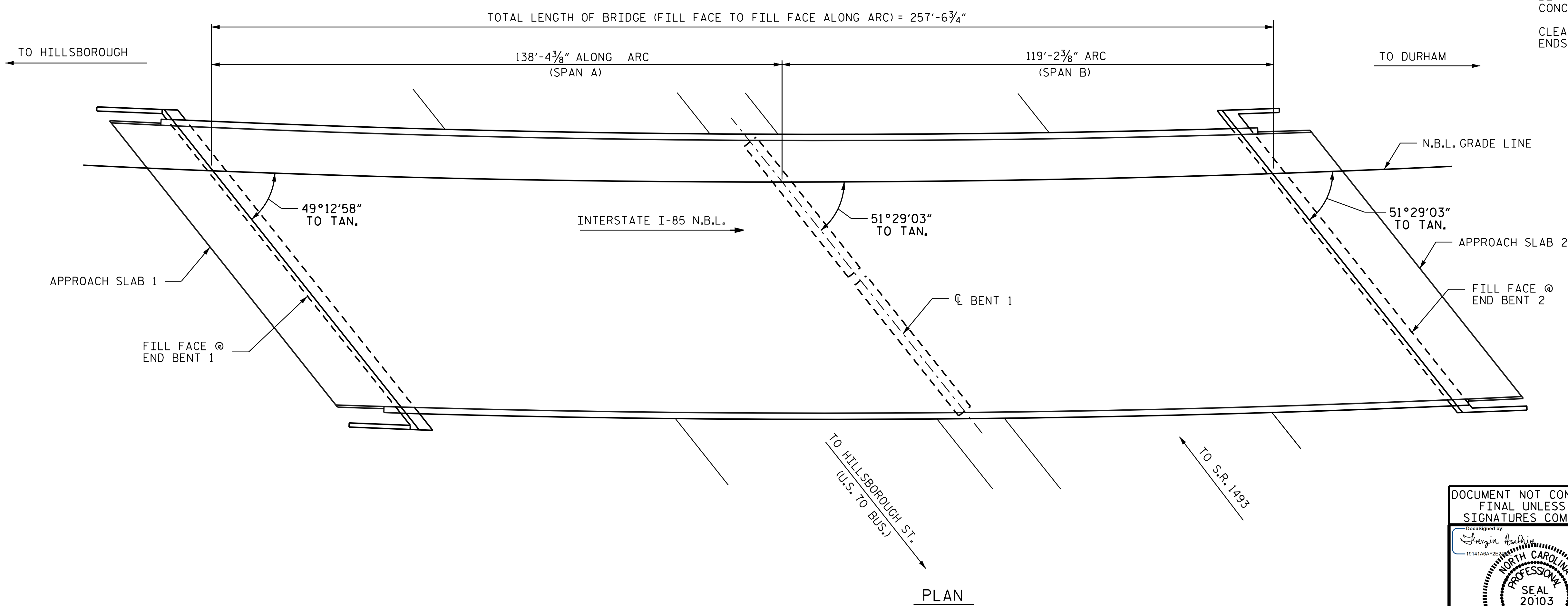


NOTES:
 GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 11/28/2022.

BRIDGE ORIENTATION CONFORMS TO THE ORIGINAL BRIDGE PLANS/ROUTINE INSPECTION.

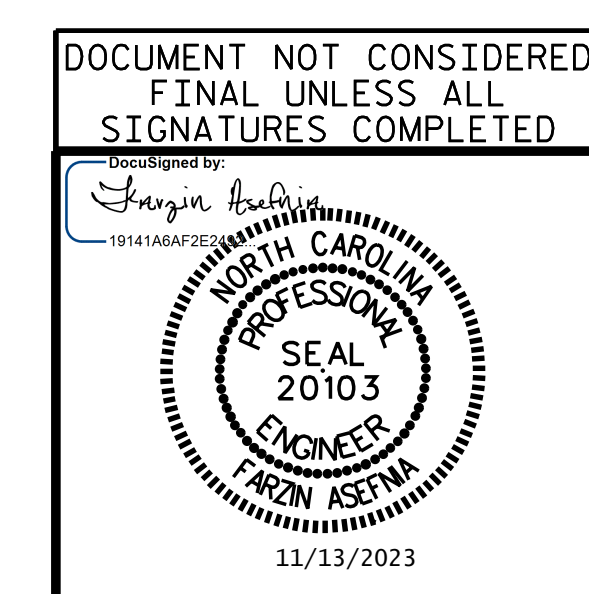
SCOPE OF WORK

- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- PREPARE THE CONCRETE BARRIER RAIL FRONT AND TOP SURFACES BY SHOTBLASTING FOR SILANE TREATMENT.
- PREPARE AND REPAIR CLASS II AREAS OF BRIDGE DECK.
- APPLY SILANE SEALER TO THE FRONT AND TOP SURFACES OF THE CONCRETE BARRIER SECTIONS.
- OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYMER CONCRETE (PC).
- REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINT SEALS FOR PRESERVATION.
- GROOVE PC BRIDGE DECK.
- REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS AND APPLY EPOXY COATING.
- EPOXY RESIN INJECTION OF CONCRETE CRACKS.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIRS.
- PROPERLY PREPARE SPALLED AREAS IN EXISTING END BENT AND BENTS AND PERFORM SHOTCRETE AND CONCRETE REPAIRS.
- CLEAN AND PAINT EXISTING WEATHERING STEEL BEAM ENDS.



PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310108

SHEET 1 OF 2



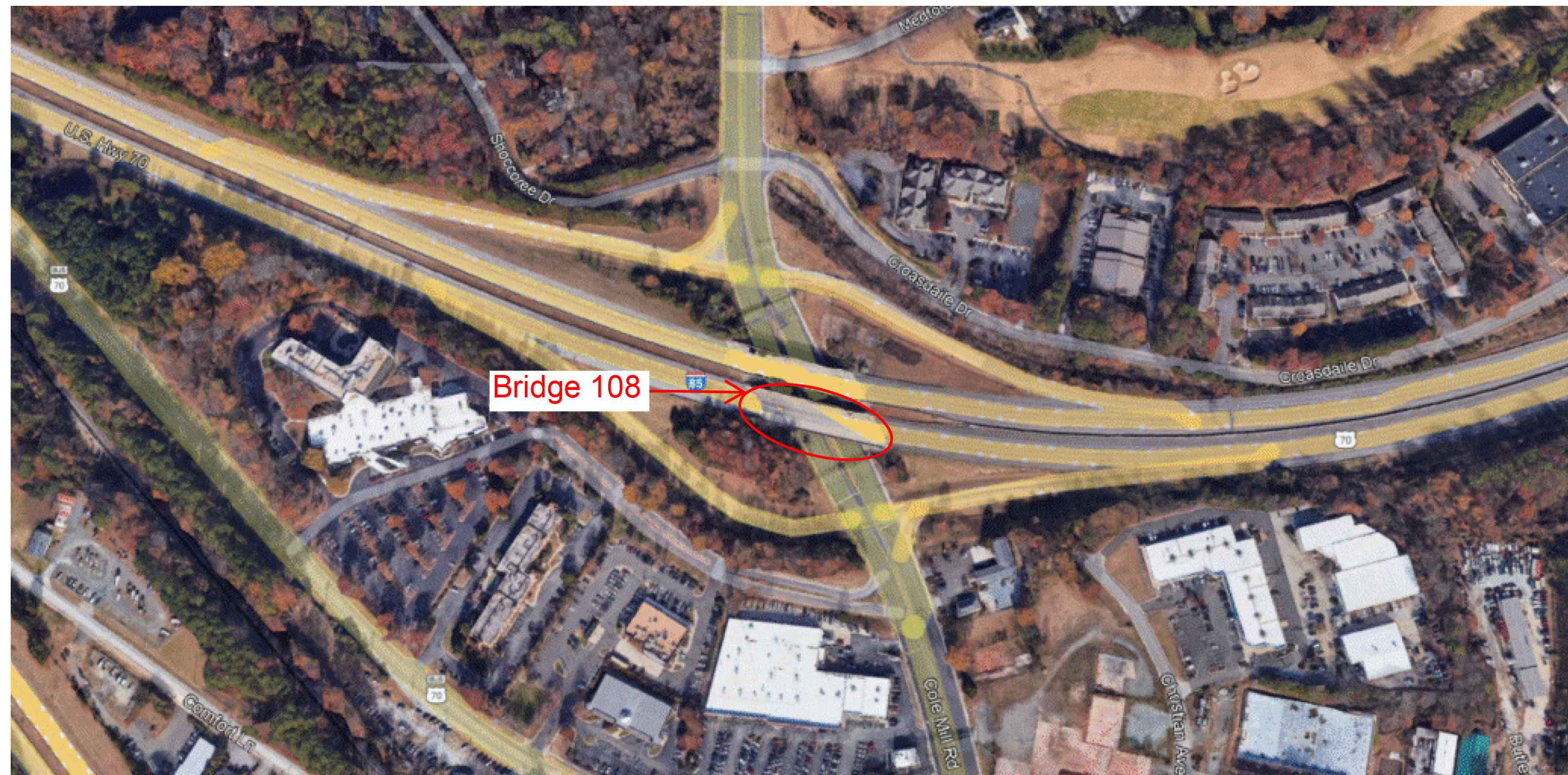
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON I-85
 NORTHBOUND OVER
 COLE MILL ROAD

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
 E.L. ROBINSON ENGINEERING
 3362 Old Fort Rd., Raleigh, N.C. 27609
 Tel: 984.980.2810
 ebr@elrobinsonengineering.com
 License: C-22 9

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-1
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

PLAN



Bridge 108

LOCATION SKETCH

BRIDGE COORDINATES

LATITUDE: 36° 1' 31.61"
 LONGITUDE: 78° 57' 13.25"

BILL OF MATERIAL

BRIDGE NO. 310108	GROOVING BRIDGE FLOORS	CLEANING & PAINTING OF EXISTING WEATHERING STEEL BRIDGE No. ____	PAINTING CONTAINMENT FOR BRIDGE No. ____	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	POLYESTER POLYMER CONCRETE MATERIALS	EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	PLACING & FINISHING POLYMER CONCRETE OVERLAY	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS FOR PRESERVATION	EPOXY COATING	CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	SURFACE PREPARATION FOR CONCRETE BARRIER	SILANE BARRIER RAIL TREATMENT	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK
	SO. FT.	LUMP SUM	LUMP SUM	LUMP SUM	SO. YDS.	CU. YDS.	CU. YDS.	SO. YDS.	CU. FT.	CU. FT.	LN. FT.	LN. FT.	SO. FT.	SO. YDS.	SO. FT.	SO. FT.	SO. YDS.	SO. YDS.
TOTAL	17,992	LUMP SUM	LUMP SUM	LUMP SUM	26	103	103	2,105	-	98.1	254.5	175	731	26	1,764	1,764	2,105	2,105

NOTES

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.

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

THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT FOR ANY DELAYS OF ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN WHAT IS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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

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

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING OF SURFACE PREPARATIONS OF THE BRIDGE DECK. THE CONTRACTOR SHALL TAKE CARE THAT ANY CONSTRUCTION DEBRIS THAT COLLECTS IN THE DRAIN IS CONTAINED. DRAINS IN SHOULDERS OF ADJACENT TRAVEL LANE(S) SHALL BE KEPT FREE AND CLEAR OF DEBRIS.

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

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR PAINTING CONTAINMENT AND POLLUTION CONTROL, SEE PAINTING EXISTING WEATHERING STEEL STRUCTURE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY PART OF THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE, THE DAMAGED AREA SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS, AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

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

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

FOR SILANE BARRIER RAIL TREATMENT, SEE SPECIAL PROVISIONS.

THE EXISTING BRIDGE DECK SHALL BE REPAIRED AS SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER AFTER SCARIFICATION AND PRIOR TO THE SURFACE PREPARATION AND APPLICATION OF THE PC OVERLAY. UNLESS OTHERWISE APPROVED, SUCH LOCATIONS SHALL BE REPAIRED WITH POLYMER CONCRETE.

WORK ON THE BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.

PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

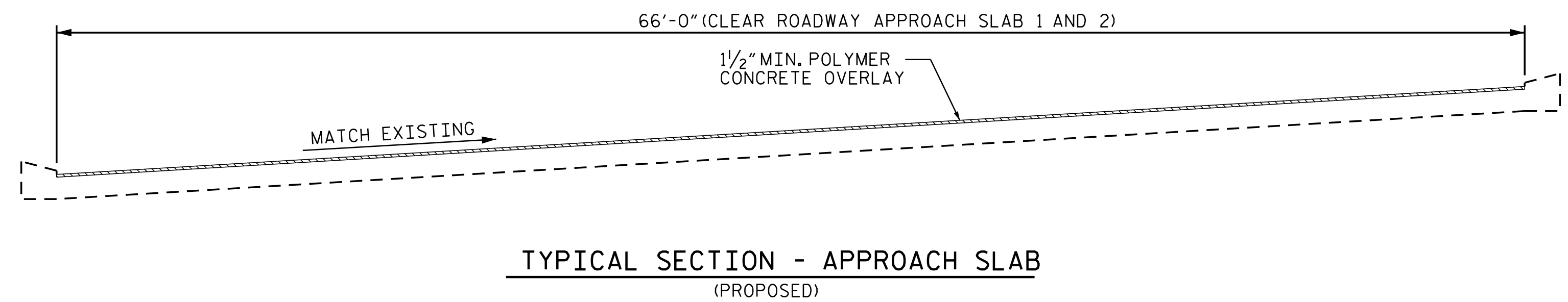
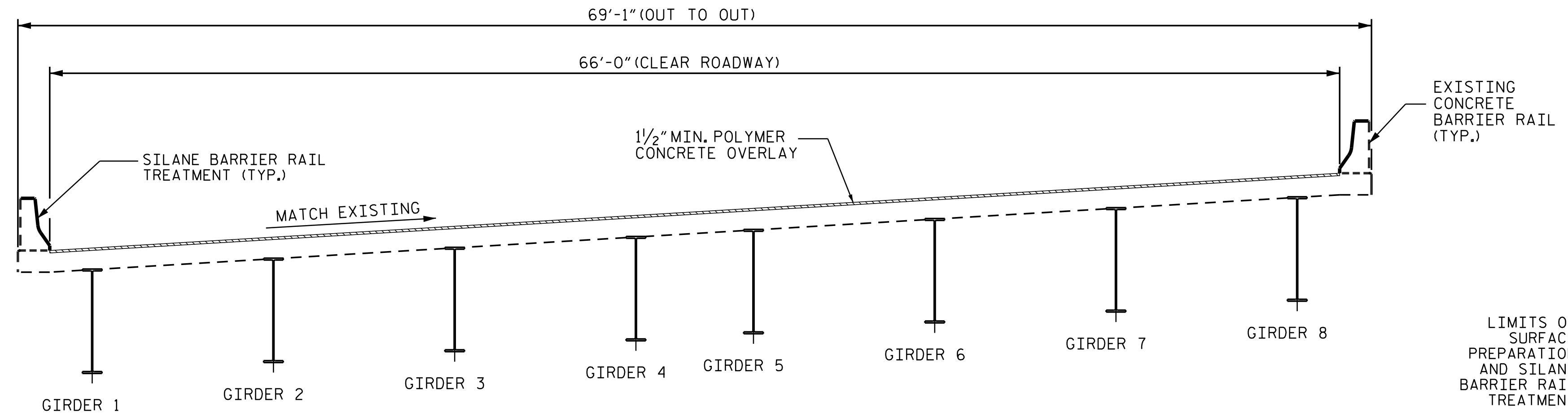
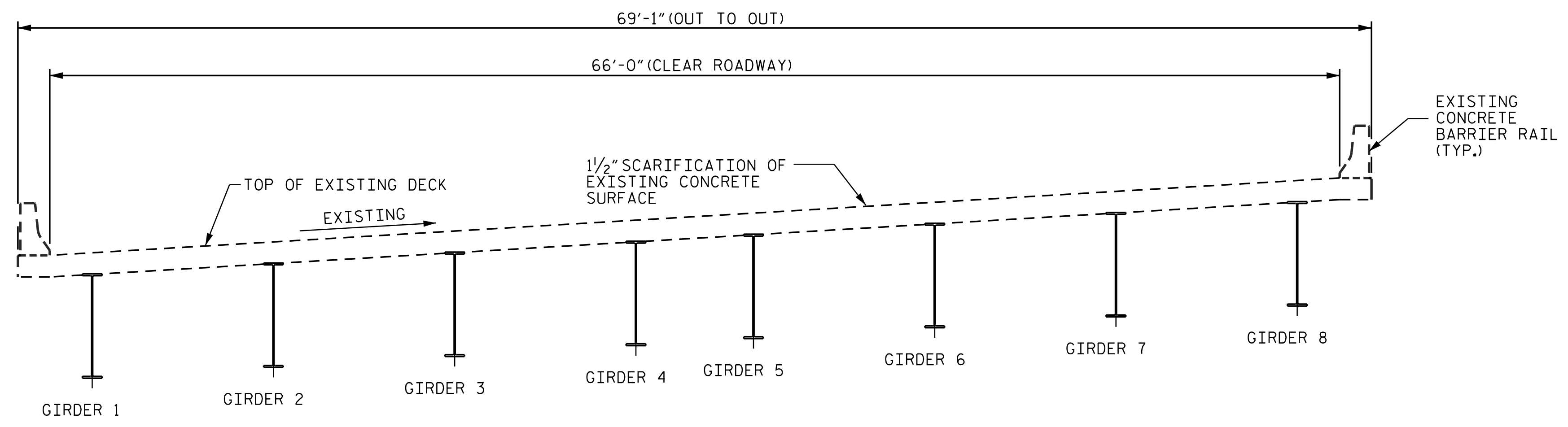
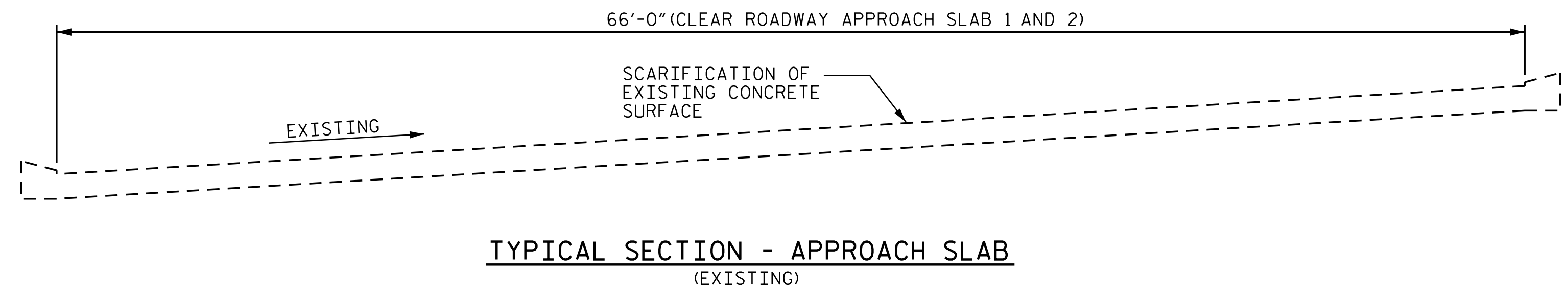
PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310108

SHEET 2 OF 2

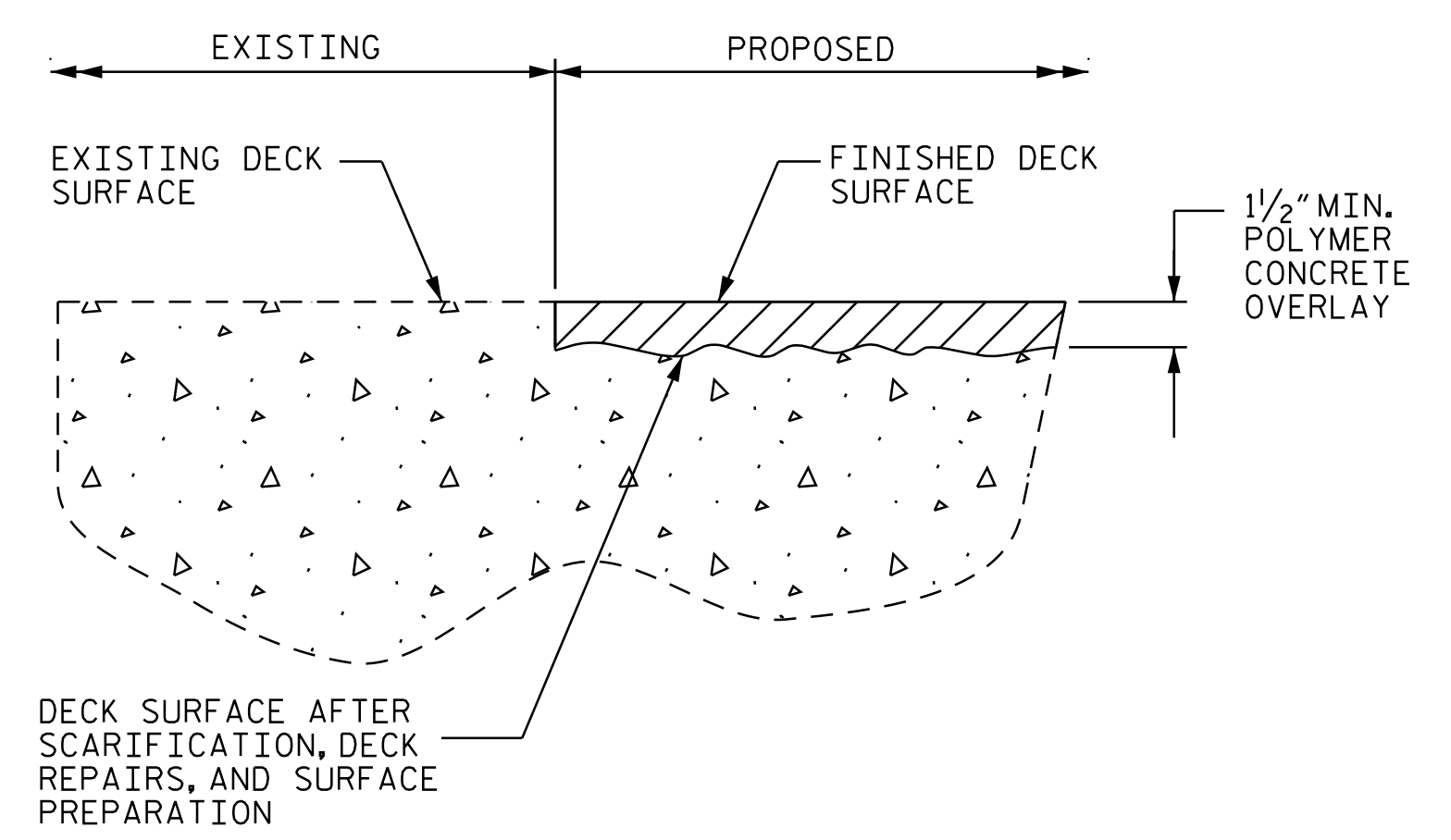
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH	
		GENERAL DRAWING	
FOR BRIDGE ON I-85 NORTHBOUND OVER COLE MILL ROAD		REVISIONS	
		SHEET NO. S1-2	
		TOTAL SHEETS 11	

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

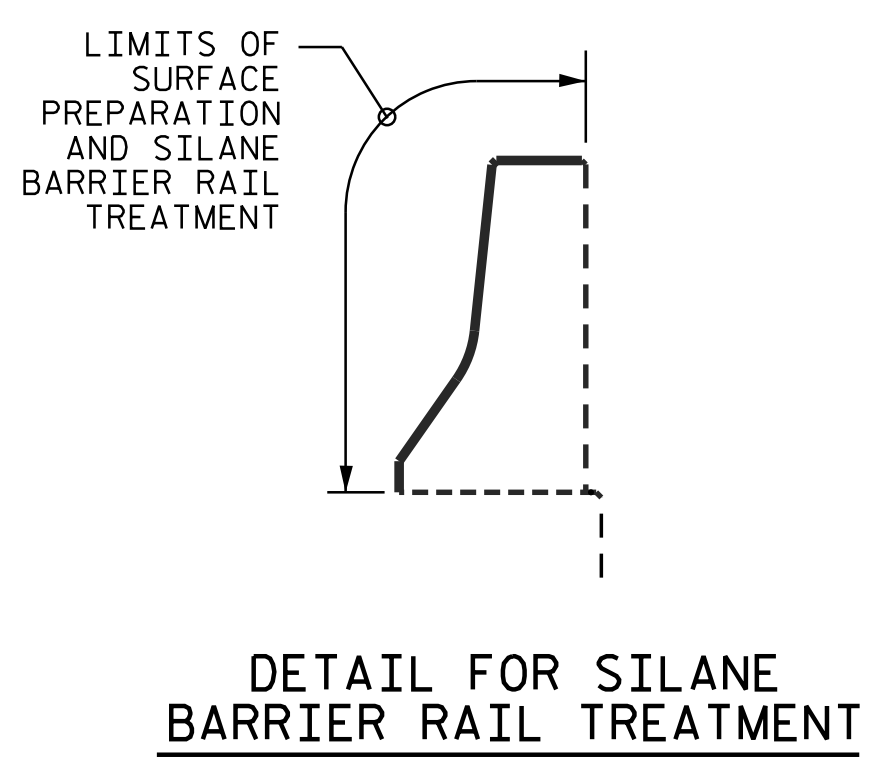
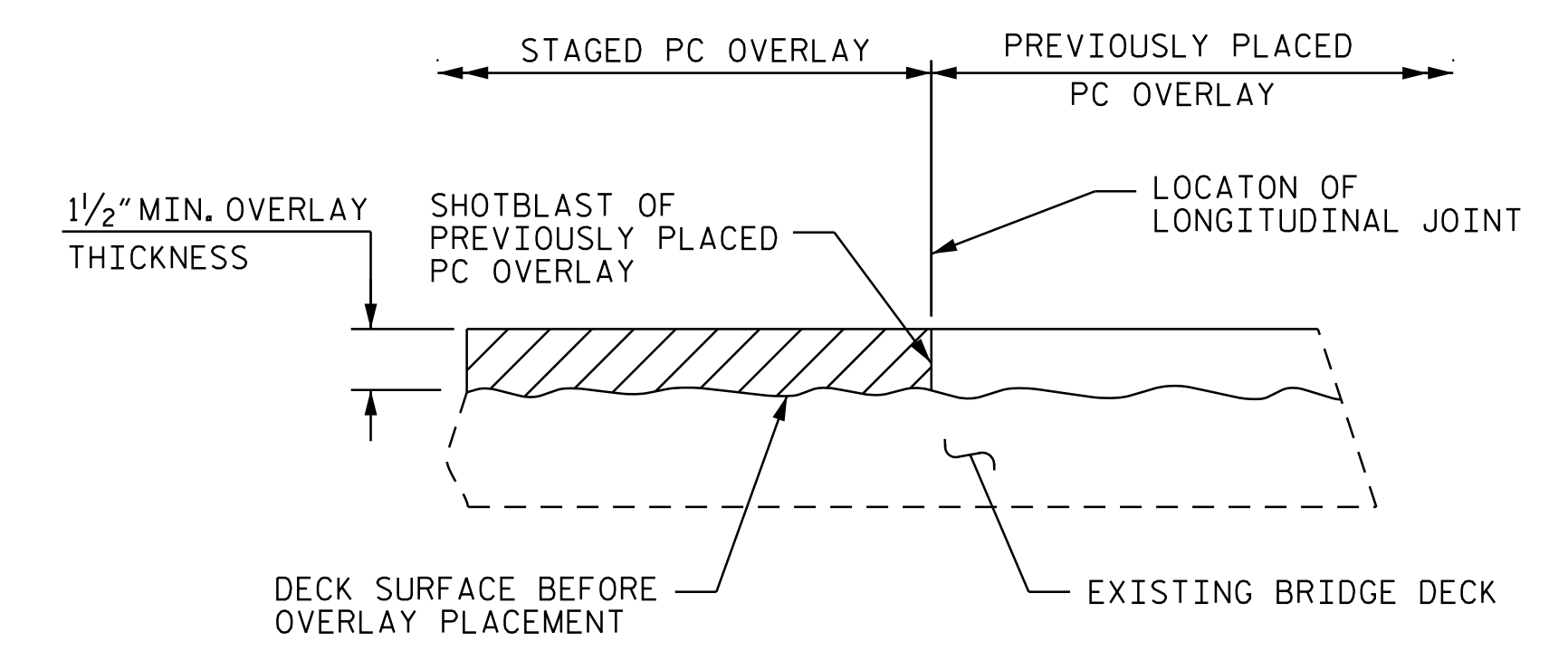
E.L. ROBINSON
 3362 Six Forks Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 efl@elrobinsongroup.com
 License: C-22 9



NOTES:
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYMER CONCRETE (PC) OVERLAY SYSTEM AND SURFACE PREPARATION.



DETAILS FOR POLYMER CONCRETE OVERLAY
FINISHED SURFACE ELEVATION SHALL MATCH EXISTING CONCRETE SURFACE ELEVATIONS. ACTUAL THICKNESS OF PC OVERLAY MAY VARY.



PROJECT NO. I-5941
DURHAM COUNTY
BRIDGE NO. 310108

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Designed by: *Farzin Asefnia*

191418A07

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20103

FARZIN ASEFNIA

11/13/2023

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION & PC OVERLAY DETAILS

DRAWN BY : M. HOGAN DATE : 3/2023
CHECKED BY : JIA XU DATE : 7/2023
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

REVISIONS						SHEET NO. S1-3
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 11
2			4			

E.L. ROBINSON

3962 Old Fork Rd.
Raleigh, N.C. 27609
Tel: 984.980.2810
elr@elrobinsonengineering.com
License: C-22 9

AS-BUILT REPAIR QUANTITY TABLE

APPROACH SLAB 1

	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	118.0 SY			
CLASS II SURFACE PREPARATION	6.5 SY			
CONCRETE DECK REPAIR FOR PC OVERLAY	6.5 SY			
	118.0 SY			
POLYMER CONCRETE MATERIALS	6.0 CY			
PLACING AND FINISHING PC OVERLAY	118.0 SY			
GROOVING BRIDGE FLOORS	984.0 SF			
SURFACE PREP. FOR CONCRETE BARRIER	27.0 SF			
SILANE BARRIER RAIL TREATMENT	27.0 SF			
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	0.0	0.0		

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 SECTION A-A, SEE "JOINT DETAILS" SHEETS.

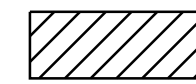
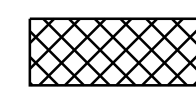
FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISIONS.

TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISIONS.

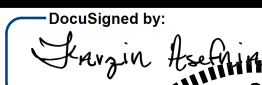
THE EXISTING COVER PLATES SHALL BE REMOVED DURING THE JOINT REPLACEMENT PROCESS, CLEANED AND PUT BACK IN PLACE AFTER COMPLETION OF WORK. PAYMENT FOR SUCH WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.


-  CLASS II SURFACE PREPARATION AT THE JOINTS
-  CONCRETE REPAIR AREA

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310108

SHEET 1 OF 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:

 1914188225

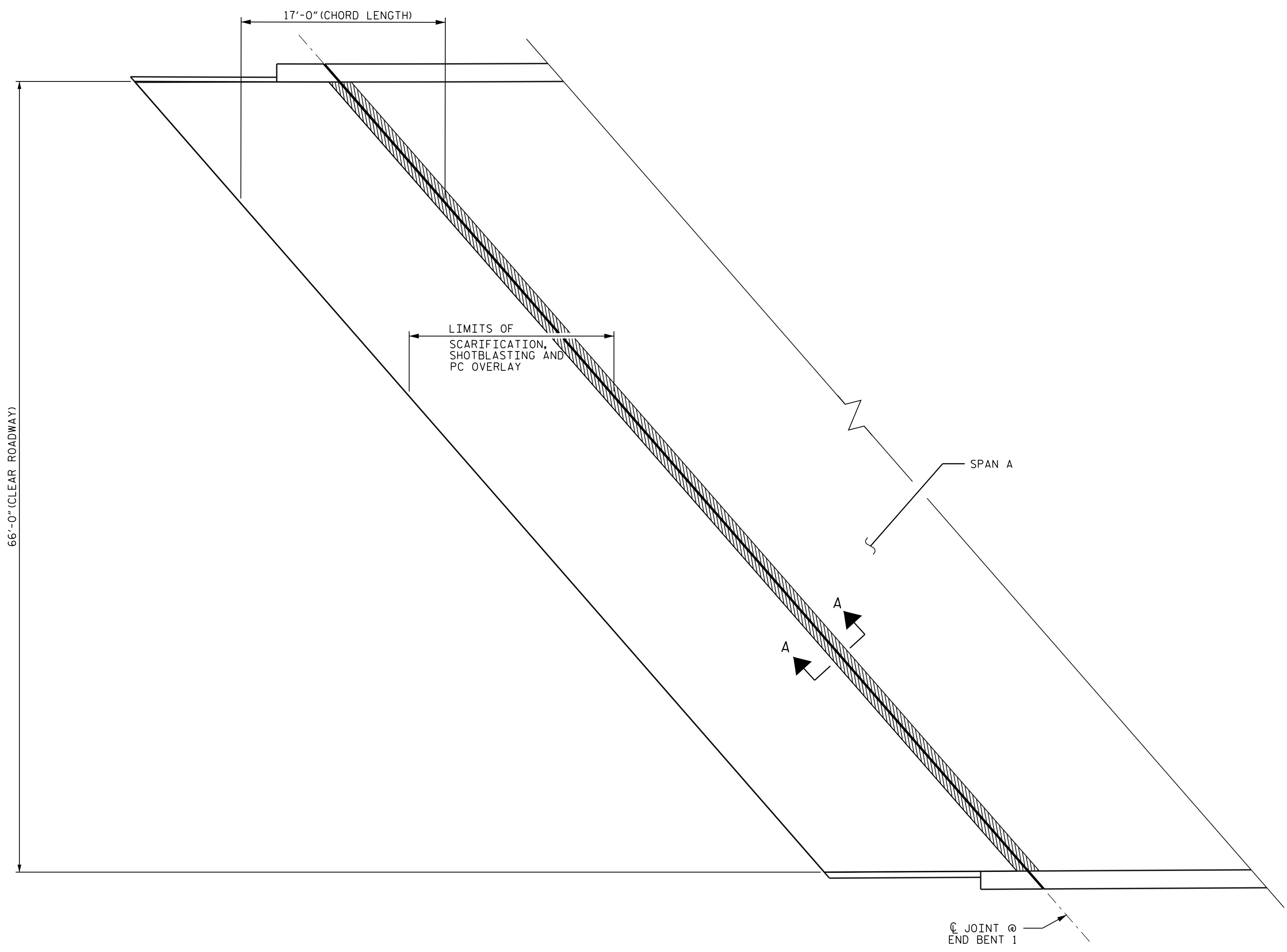


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK SURFACE REPAIR

APPROACH SLAB 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-4
1			3			TOTAL SHEETS 11
2			4			

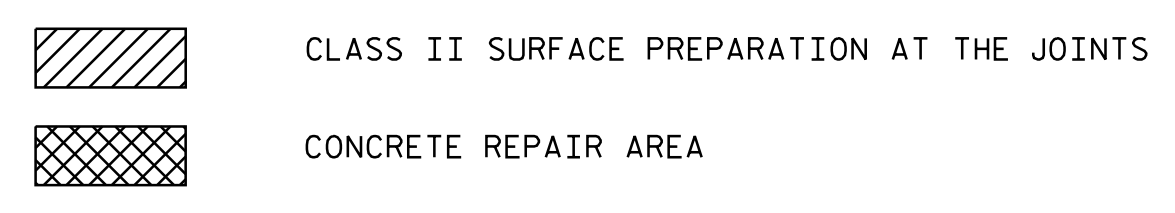


APPROACH SLAB 1

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

 E.L. ROBINSON

3362 Six Forks Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 efl@elrobinsonengineering.com
 License: C-22 9



NOTES:
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 SECTION B-B, SEE "JOINT DETAILS" SHEETS.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISIONS.

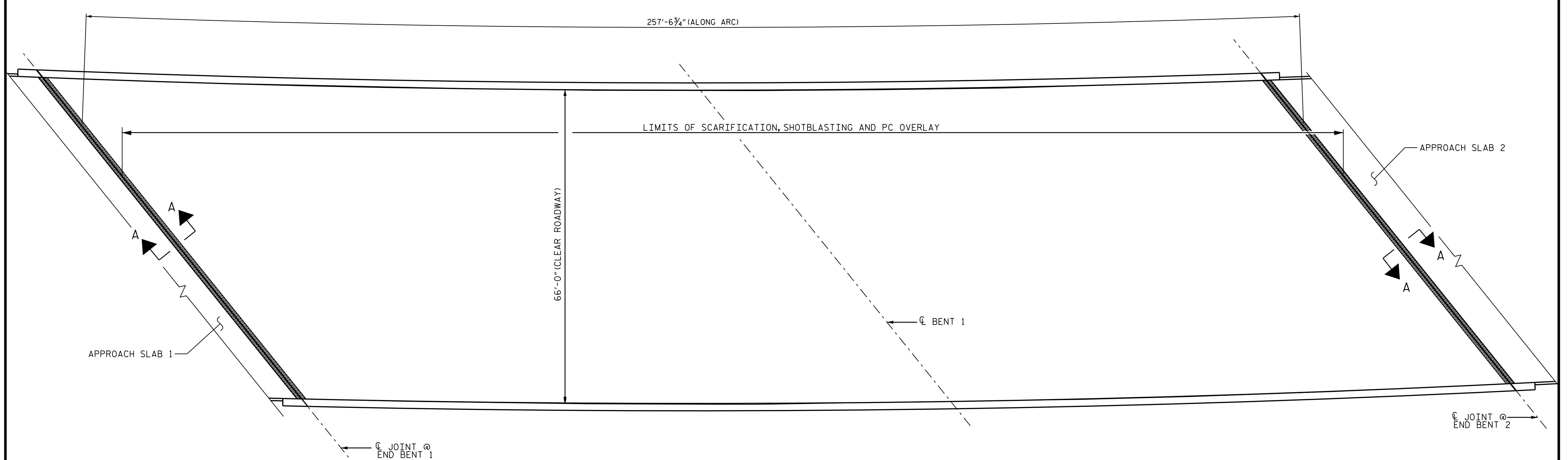
TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISIONS.

THE EXISTING COVER PLATES SHALL BE REMOVED DURING THE JOINT REPLACEMENT PROCESS, CLEANED AND PUT BACK IN PLACE AFTER COMPLETION OF WORK. PAYMENT FOR SUCH WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.

AS-BUILT REPAIR QUANTITY TABLE				
SPAN A & B REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	1,869.0	SY		
CLASS II SURFACE PREPARATION	13.0	SY		
CONCRETE DECK REPAIR FOR PC OVERLAY	13.0	SY		
SHOTBLASTING BRIDGE DECK	1,869.0	SY		
POLYMER CONCRETE MATERIALS	91.0	CY		
PLACING AND FINISHING PC OVERLAY	1,869.0	SY		
GROOVING BRIDGE FLOORS	16,017	SF		
SURFACE PREP. FOR CONCRETE BARRIER	1,710.0	SF		
SILANE BARRIER RAIL TREATMENT	1,710.0	SF		
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	0.0	0.0		



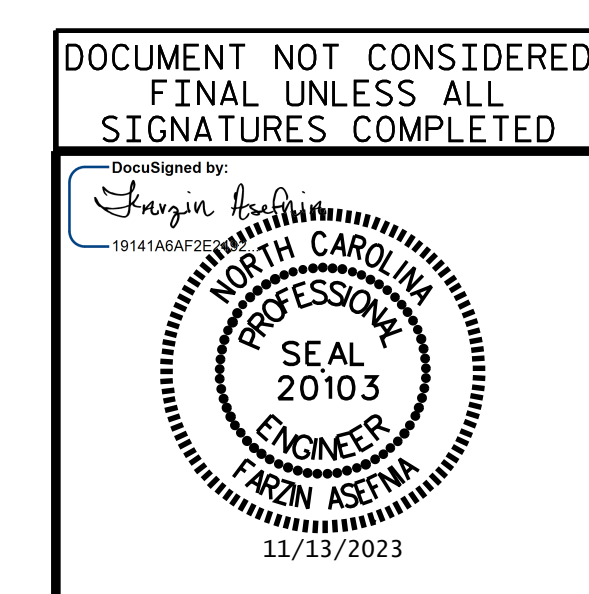
BRIDGE DECK

SPAN A SPAN B

PROJECT NO. I-5941
 DURHAM COUNTY
 BRIDGE NO. 310108

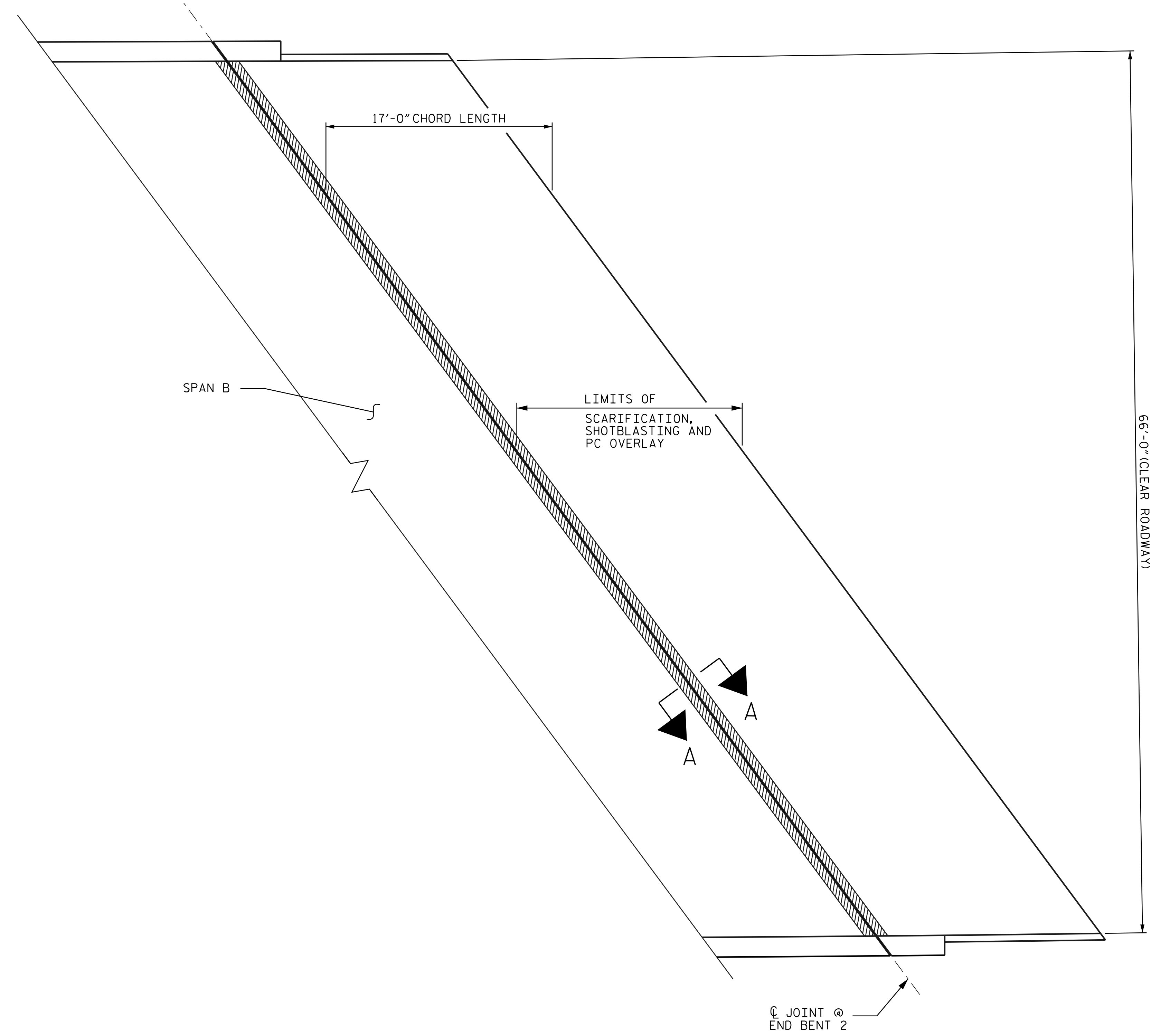
SHEET 2 OF 3

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 11/2023



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DECK SURFACE REPAIR
 SPAN A & B

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



AS-BUILT REPAIR QUANTITY TABLE				
APPROACH SLAB 2				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	118.0 SY			
CLASS II SURFACE PREPARATION	6.5 SY			
CONCRETE DECK REPAIR FOR PC OVERLAY	6.5 SY			
SHOTBLASTING BRIDGE DECK	118.0 SY			
POLYMER CONCRETE MATERIALS	6.0 CY			
PLACING AND FINISHING PC OVERLAY	118.0 SY			
GROOVING BRIDGE FLOORS	991.0 SF			
SURFACE PREP. FOR CONCRETE BARRIER	27.0 SF			
SILANE BARRIER RAIL TREATMENT	27.0 SF			
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	0.0	0.0		

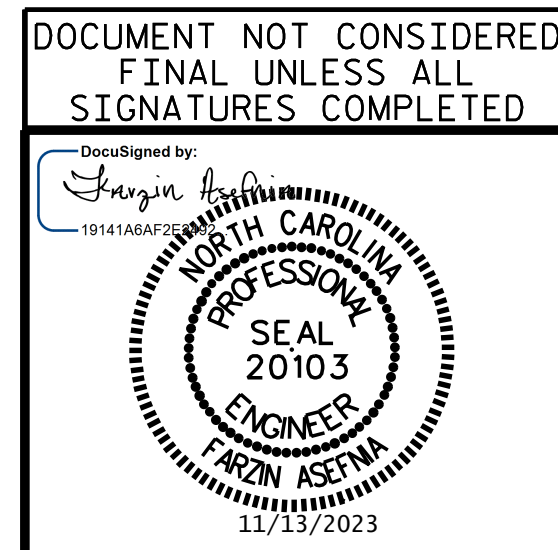
NOTES:
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES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

FOR SECTION A-A, SEE "JOINT DETAILS" SHEETS.
 FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISIONS.
 TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISIONS.
 FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.
 FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISIONS.
 THE EXISTING COVER PLATES SHALL BE REMOVED AND THE AREA SHALL BE REMOVED DURING THE JOINT REPLACEMENT PROCESS, CLEANED AND PUT BACK IN PLACE AFTER COMPLETION OF WORK. PAYMENT FOR SUCH WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.

- CLASS II SURFACE PREPARATION AT THE JOINTS
- CONCRETE REPAIR AREA

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310108

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
DECK SURFACE REPAIR
APPROACH SLAB 2

REVISIONS						SHEET NO. S1-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 11
2			4			

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

E.L. ROBINSON
 3362 Old Fork Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 efr@elrobinsonengineering.com
 License: C-22 9

JOINT REPAIR QUANTITY TABLE		
FOAM JOINT SEALS FOR PRESERVATION	ESTIMATED LIN. FT.	ACTUAL LIN. FT.
END BENT 1	90	
END BENT 2	85	
TOTAL	175	

NOTES:

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

FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY IS COMPLETE.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVE AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OF NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

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

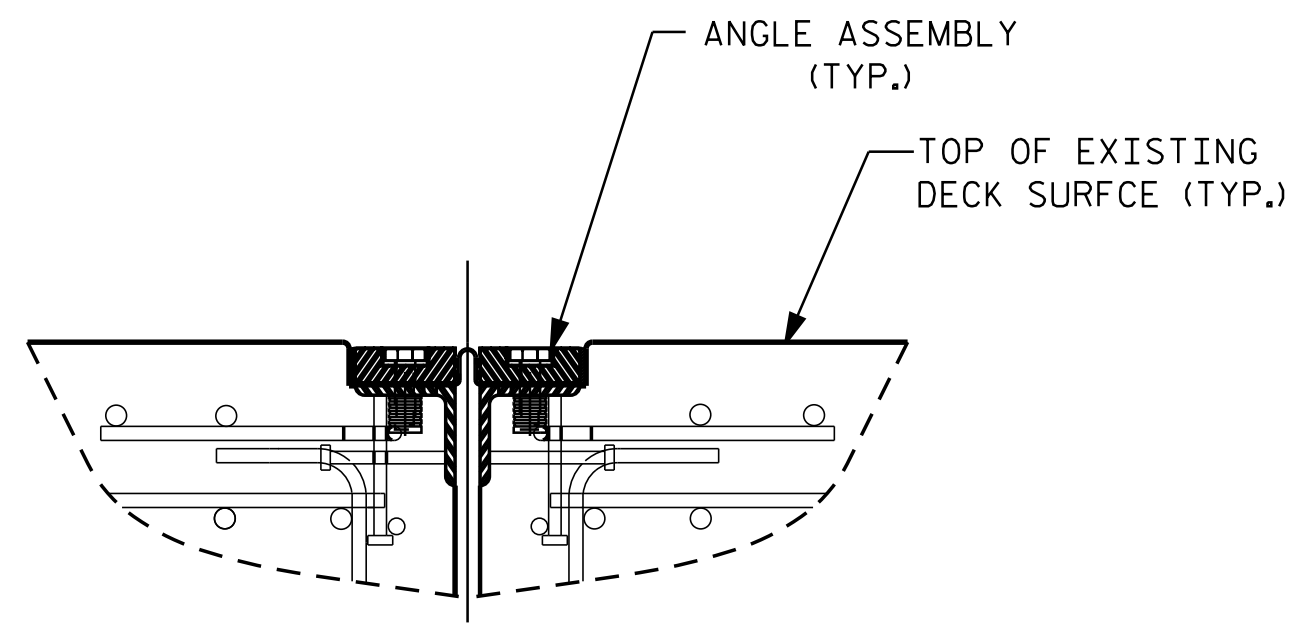
DURING THE JOINT INSTALLATION PROCEDURE, THE JOINT AND SURROUNDING AREA SHALL BE KEPT CLEAN AND FREE OF DEBRIS.

THE MANUFACTURER IS TO DETERMINE AND PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND TO ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

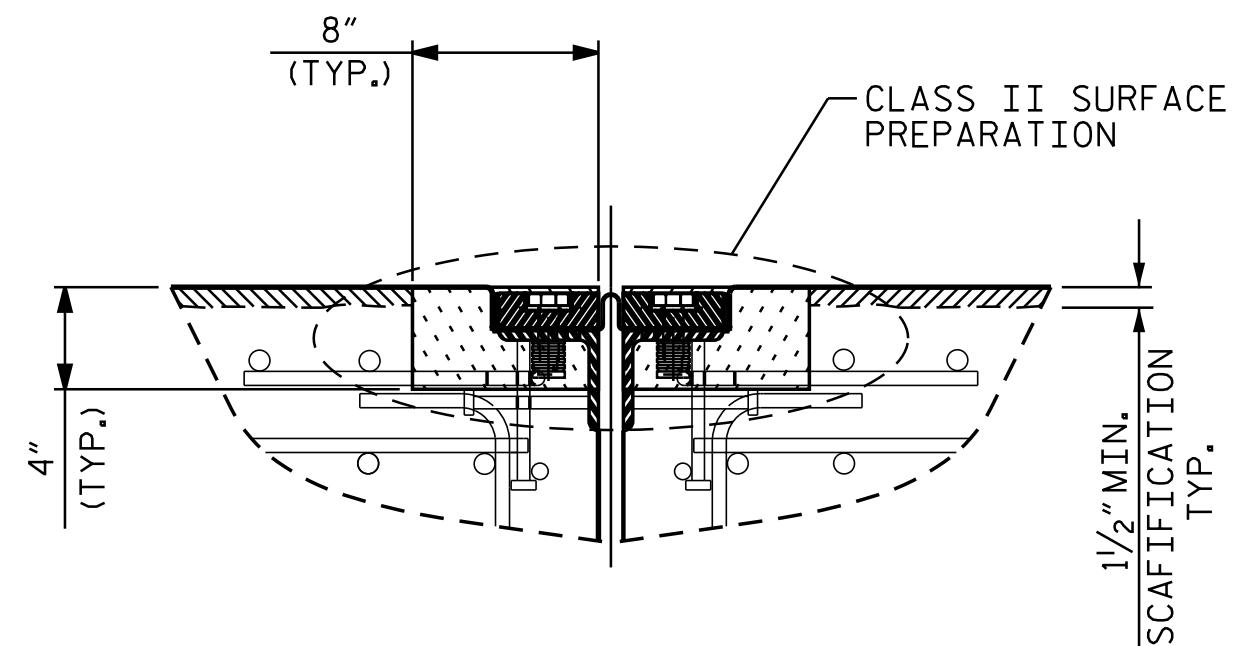
FINAL SURFACE OF THE JOINT DEMOLITION AREA PRIOR TO PLACEMENT OF CONCRETE REPAIR MATERIAL SHOULD BE REASONABLY FLAT AND LEVEL. ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF THE SURFACE PRIOR TO PLACEMENT OF REPAIR CONCRETE.

THE INSTALLATION OF THE JOINT SEAL SHALL BE WATERTIGHT.

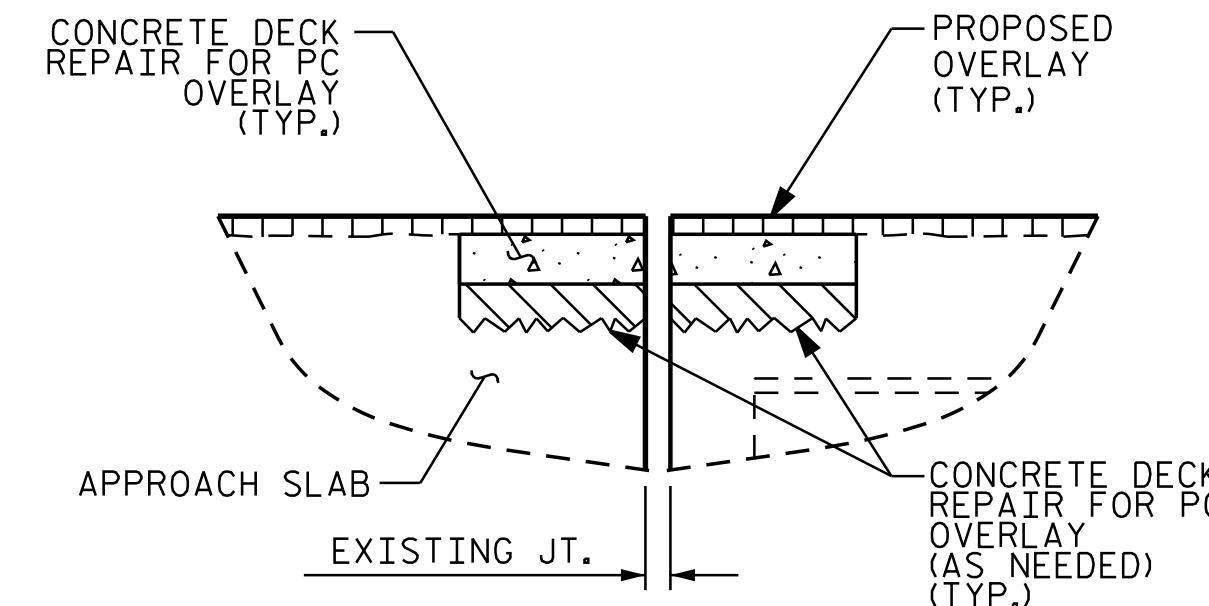
A MANUFACTURER'S CERTIFIED TRAINED REPRESENTATIVE SHALL BE PRESENT DURING THE INSTALLATION OF THE FIRST JOINT OF THE PROJECT, OR UNTIL THE ENGINEER IS SATISFIED WITH THE INSTALLATION PROCESS.



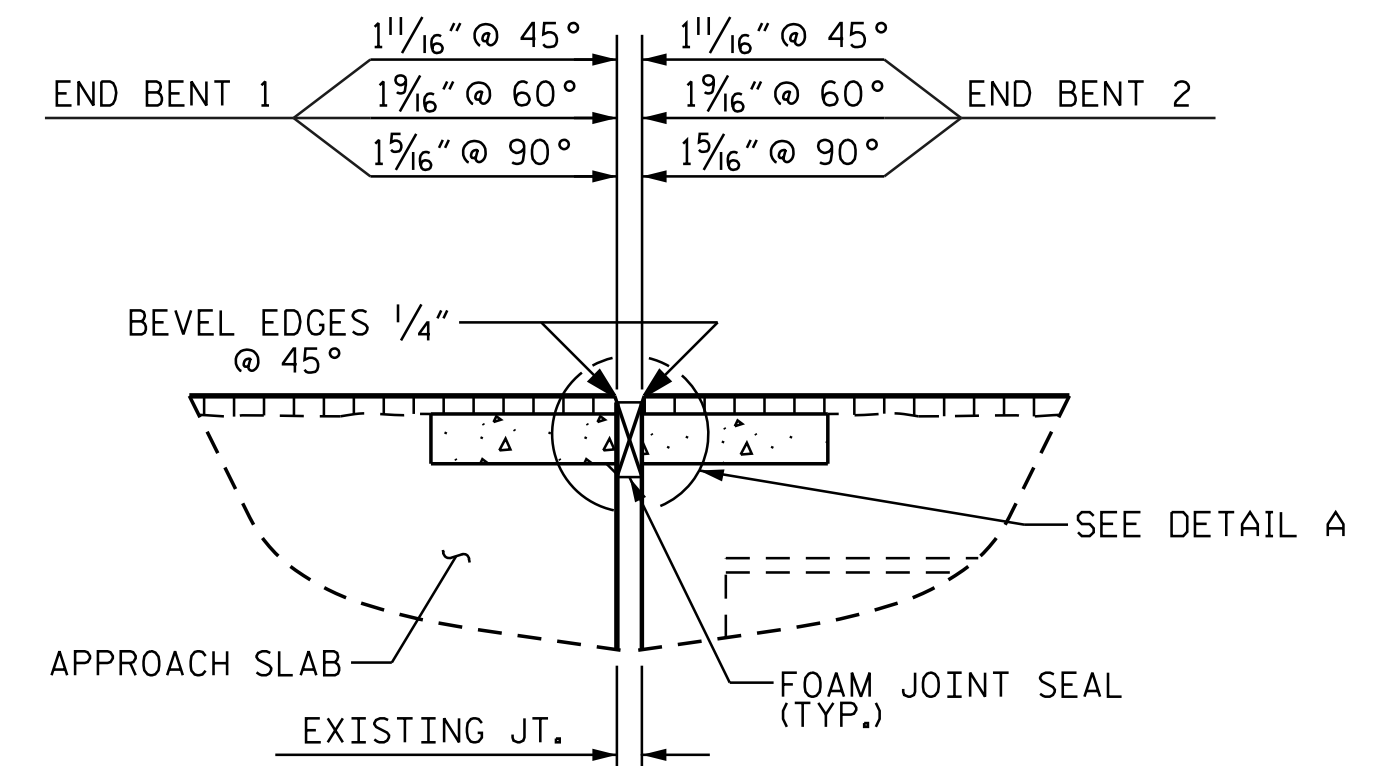
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION

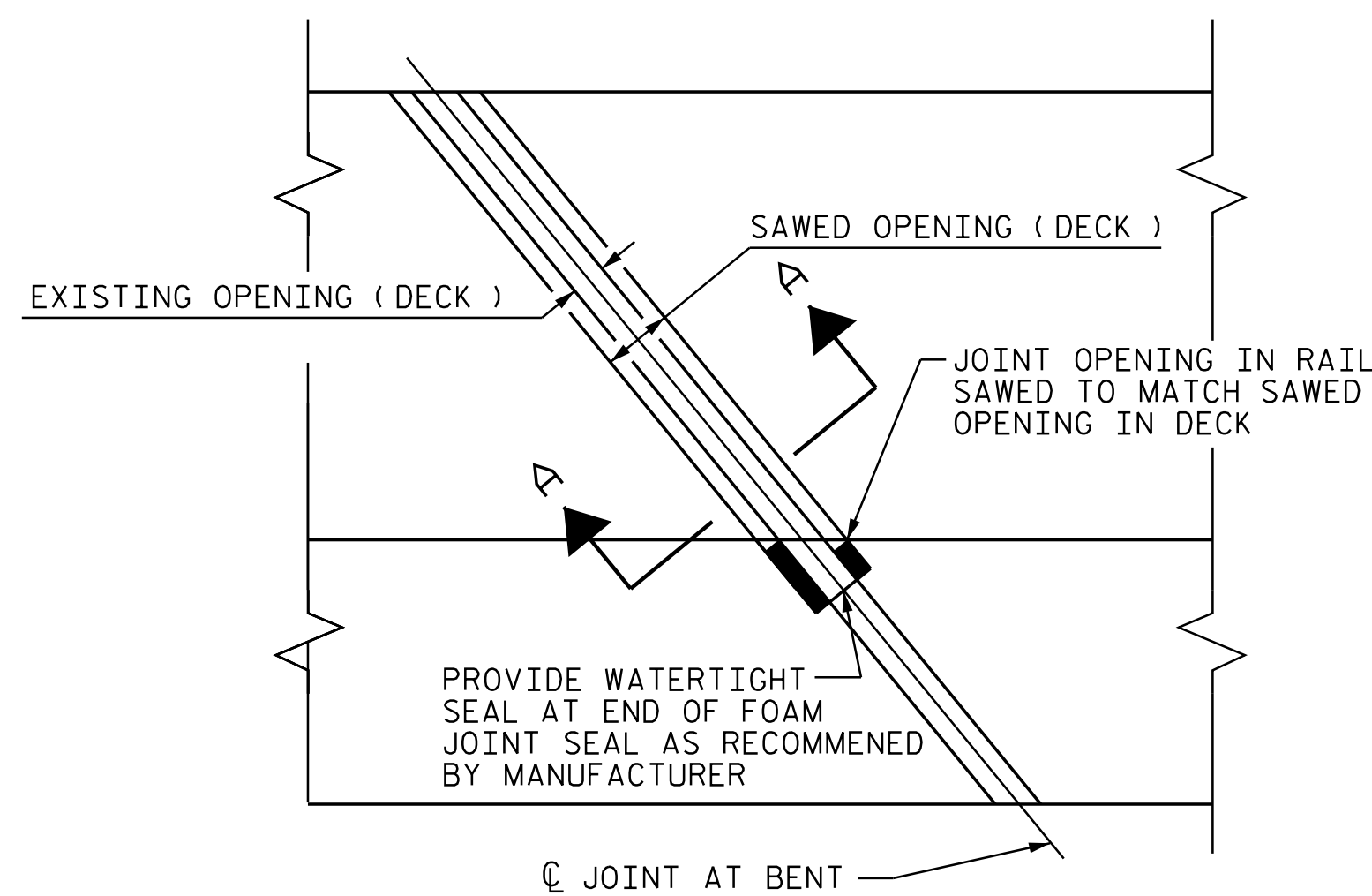


PROPOSED JOINT PRIOR TO SAWING



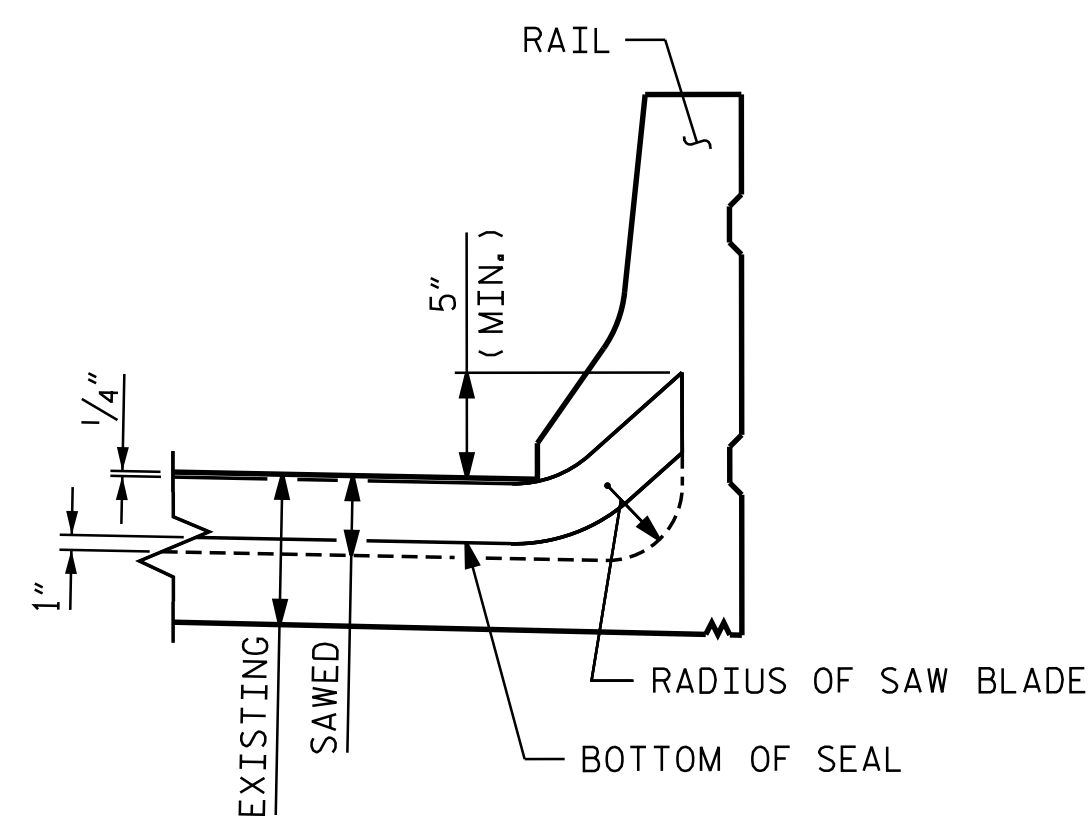
PROPOSED FOAM JOINT SEAL

JOINT INSTALLATION SEQUENCE AT BENTS

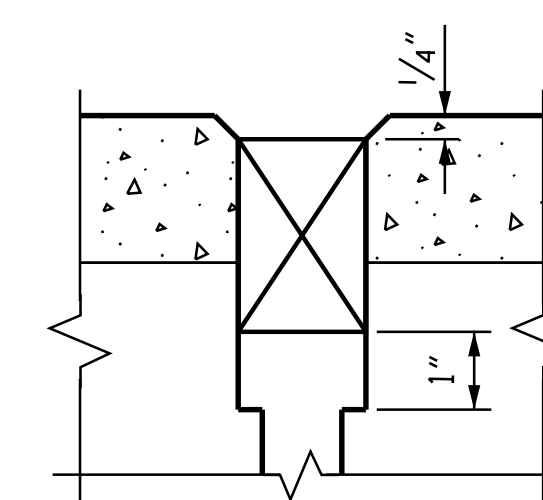


PLAN

SECTION A-A



EXPANSION JOINT FOAM AT BARRIER



DETAIL "A"

PROJECT NO. I-5941
DURHAM COUNTY
BRIDGE NO. 310108

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Drawn/Designed by: *Farzin Asefnia*

19141 ABAP

NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FARZIN ASEFNIA

11/13/2023

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
JOINT DETAILS

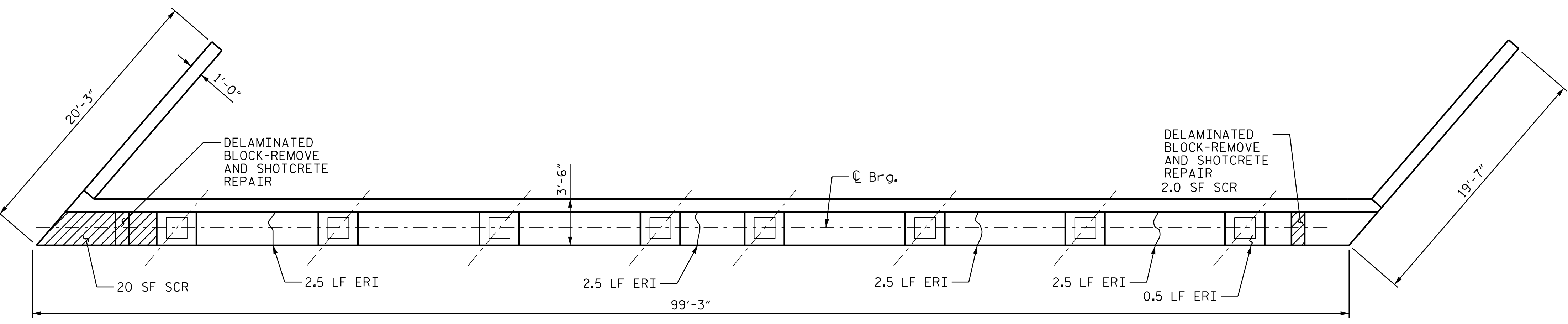
REVISIONS

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

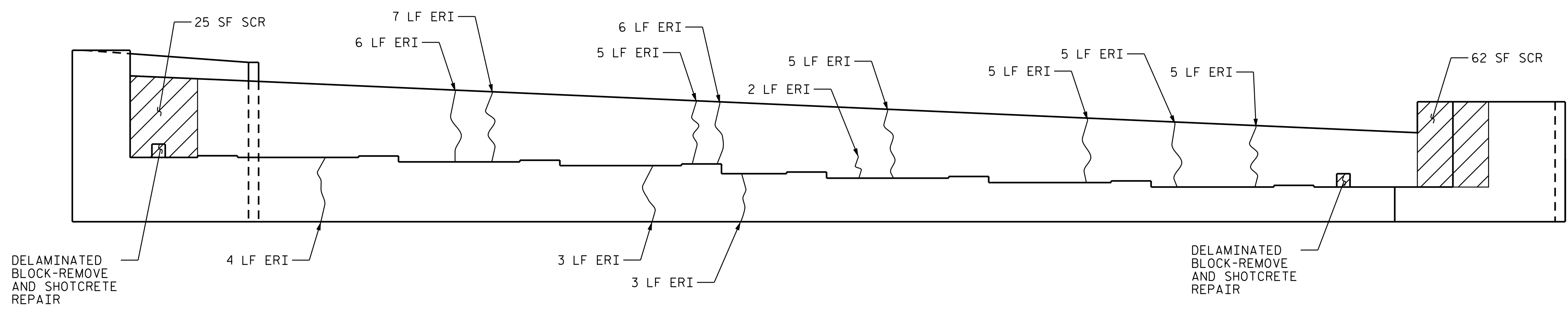
SHEET NO.
S1-7
TOTAL SHEETS
11

DRAWN BY : M. HOGAN DATE : 3/2023
CHECKED BY : JIA XU DATE : 7/2023
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

E.L. ROBINSON
3362 Old Fork Rd.
Raleigh, N.C. 27609
Tel: 984.980.2810
ef@elrob.com
License: C-22 9



PLAN



ELEVATION

END BENT NO. 1

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	22.0	5.5		
CURTAIN WALL	87.0	22.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		20.5		
CURTAIN WALL		46.0		
EPOXY COATING		SO. FT.		SO. FT.
TOP OF CAP		232.0		

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

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

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

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

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

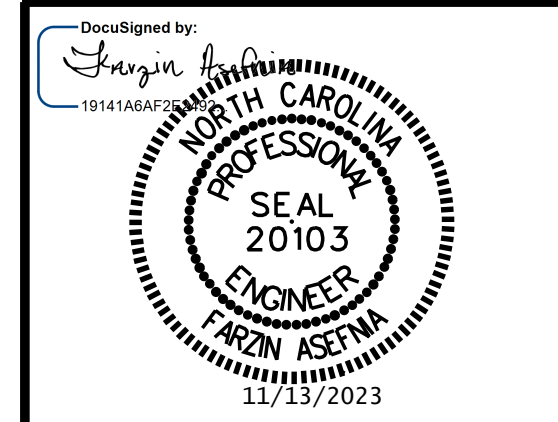
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310108

SHEET 1 OF 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

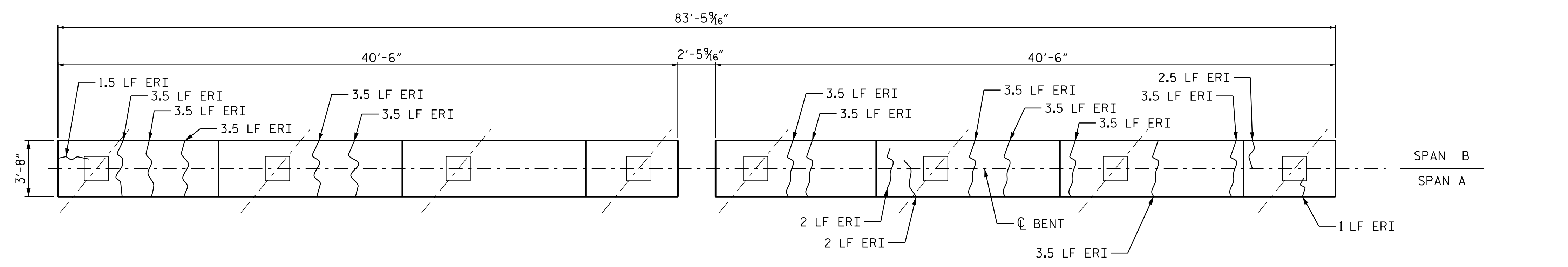


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUBSTRUCTURE REPAIR
END BENT 1

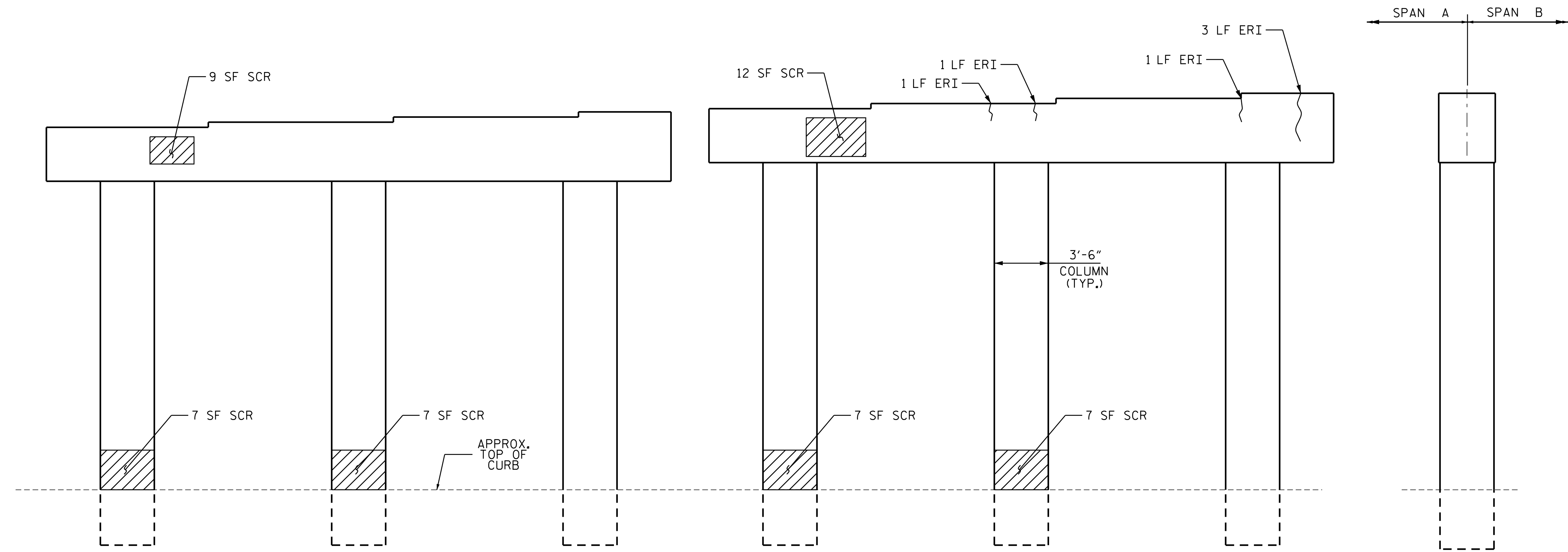
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-8
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

E.L. ROBINSON
 3362 Six Forks Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 e:elrob@erobinson.com
 License: C-22 9



PLAN



ELEVATION

BENT NO. 1
SPAN A FACE

AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 SPAN A FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	21.0	5.3		
COLUMN	28.0	7.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT.		LN. FT.	
CAP	57.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT.		SQ. FT.	
TOP OF BENT CAP	281.0			

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

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

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

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

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

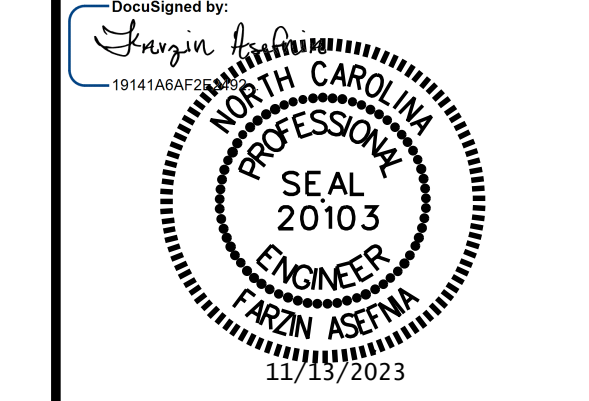
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310108

SHEET 2 OF 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE REPAIR

BENT 1
 SPAN A FACE

REVISIONS						SHEET NO. S1-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 11
2			4			

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

E.L. ROBINSON
 3362 Old Park Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 efr@elrobinsonengineering.com
 License: C-22 9

AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 SPAN B FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	86.0	21.5		
COLUMN	1.5	0.4		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT.		LN. FT.	
CAP	25.5			
COLUMN	0.0			

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

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

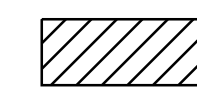


SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

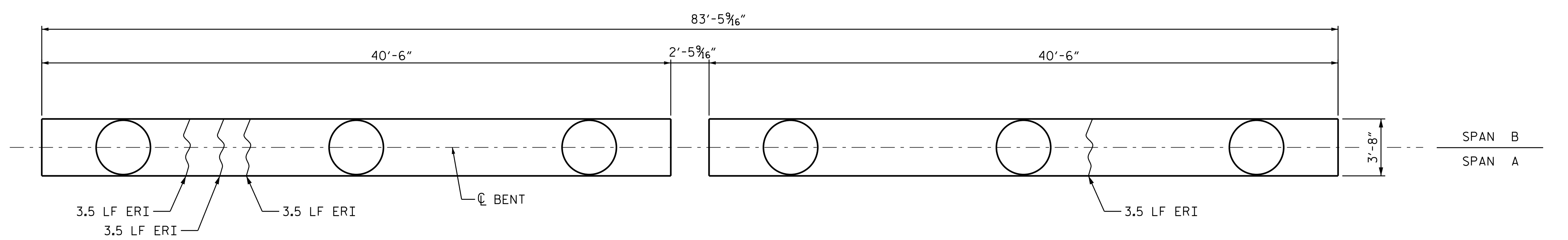
FOR CAP AND COLUMN REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS", SHEET.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

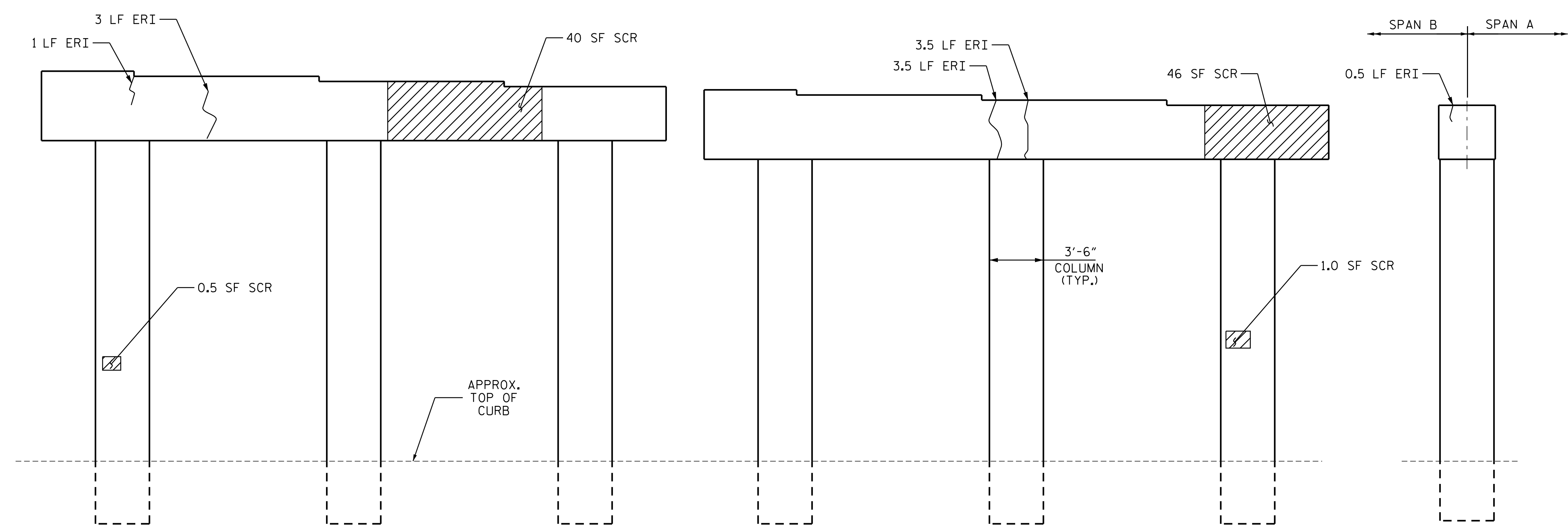
FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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



BOTTOM OF CAP



ELEVATION

BENT NO. 1
SPAN B FACE


PROJECT NO. I-5941
DURHAM COUNTY
BRIDGE NO. 310108

SHEET 3 OF 4

DRAWN BY : M. HOGAN DATE : 3/2023
CHECKED BY : JIA XU DATE : 7/2023
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

191418A047



11/13/2023

E.L. ROBINSON

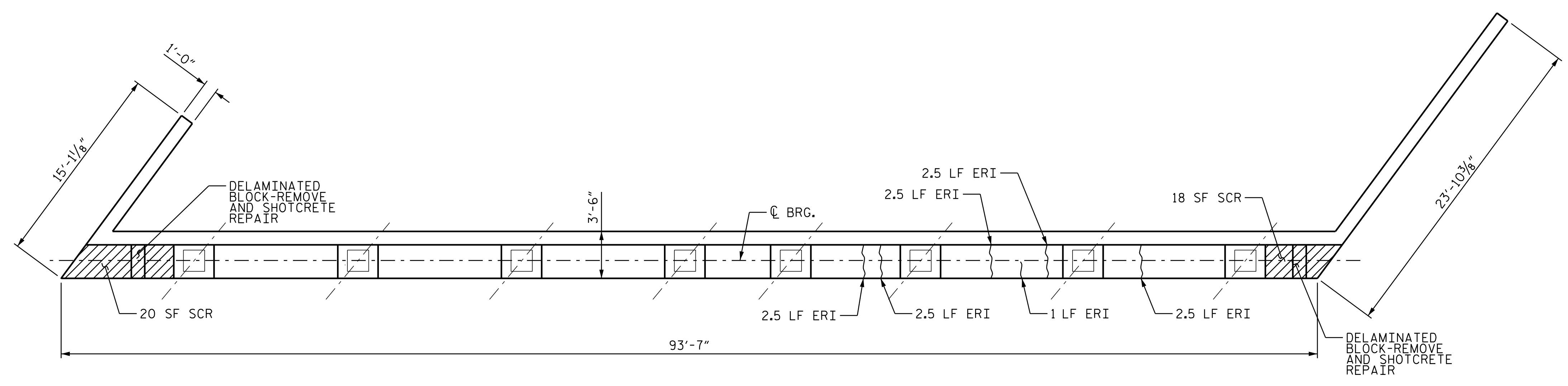
3362 Old Fork Rd.
Raleigh, N.C. 27609
Tel: 984.980.2810
ef@elrobinsonengineering.com
License: C-22 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

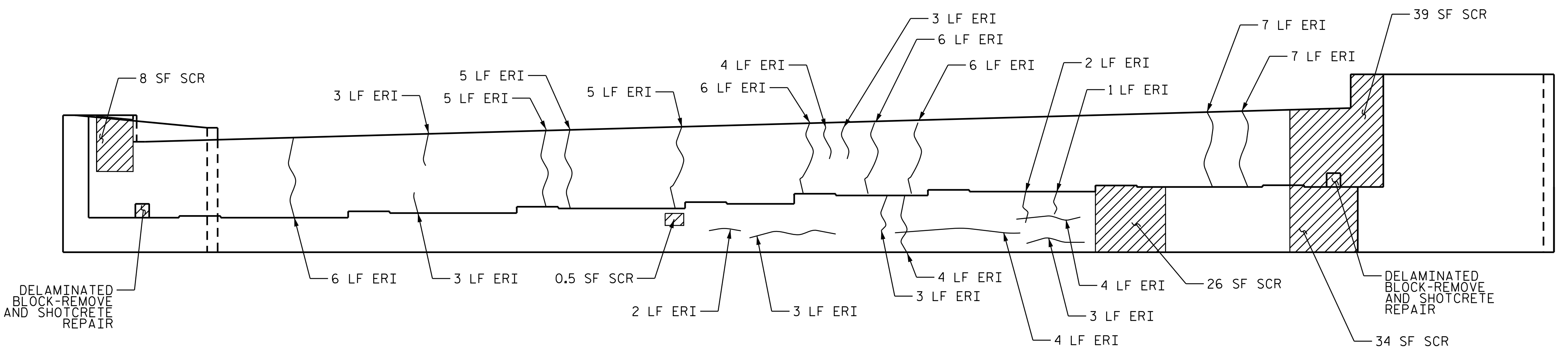
SUBSTRUCTURE REPAIR

BENT 1
SPAN B FACE

REVISIONS						SHEET NO. S1-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 11
2			4			



PLAN



ELEVATION

END BENT NO. 2

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	98.5	24.6		
CURTAIN WALL	47.0	11.8		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT.		LN. FT.	
CAP	39.5			
CURTAIN WALL	66.0			
EPOXY COATING	SQ. FT.		SQ. FT.	
TOP OF CAP	218.0			

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

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

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

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

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

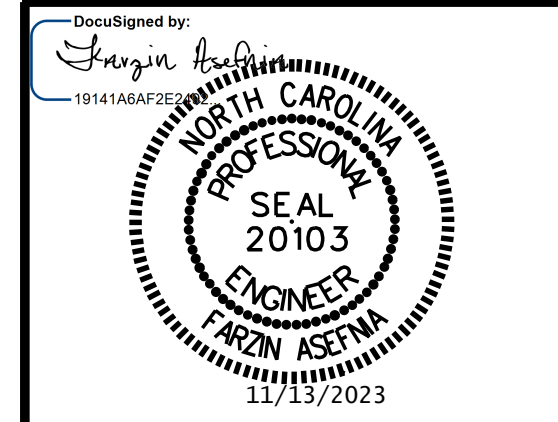
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310108

SHEET 4 OF 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE REPAIR
 END BENT 2

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 11/2023

REVISIONS						SHEET NO. S1-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 11
2			4			

NOTES:
 GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 11/28/2022.

BRIDGE ORIENTATION CONFORMS TO THE ORIGINAL BRIDGE PLANS/ROUTINE INSPECTION.

SCOPE OF WORK
 PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.

PREPARE THE CONCRETE BARRIER RAIL FRONT AND TOP SURFACES BY SHOTBLASTING FOR SILANE TREATMENT.

PREPARE AND REPAIR CLASS II AREAS OF BRIDGE DECK.

APPLY SILANE SEALER TO THE FRONT AND TOP SURFACES OF THE CONCRETE BARRIER SECTIONS.

OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYMER CONCRETE (PC).

REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINT SEALS FOR PRESERVATION.

GROOVE PC BRIDGE DECK.

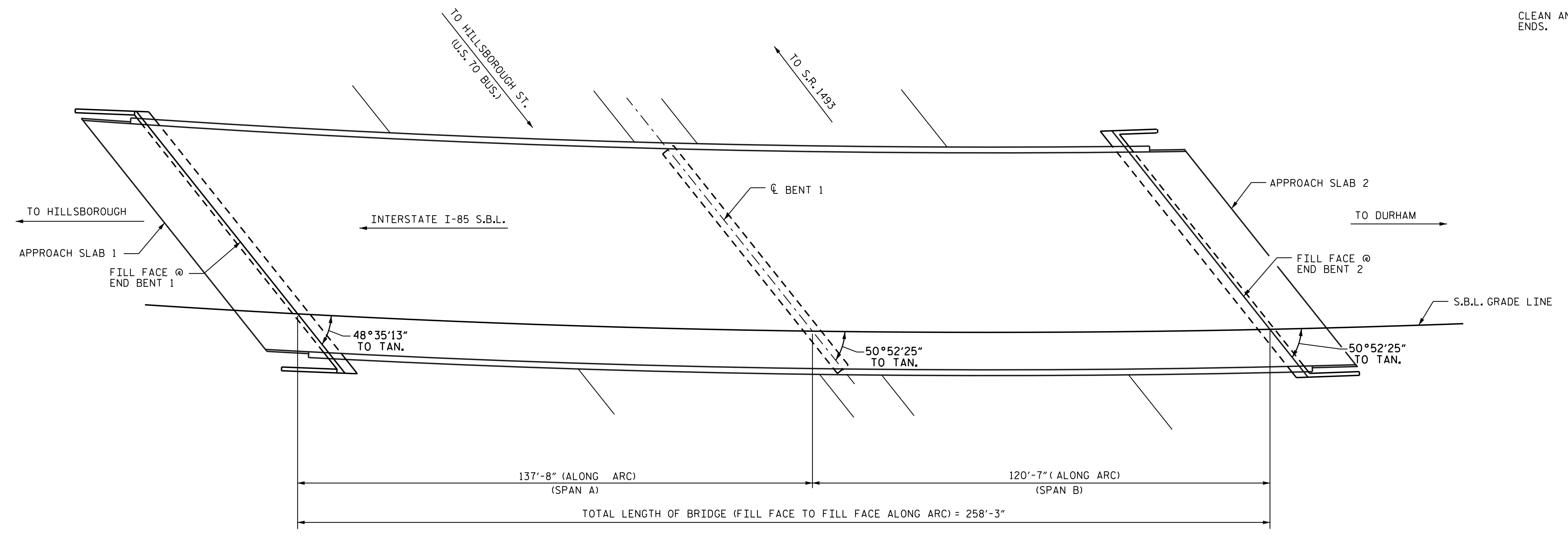
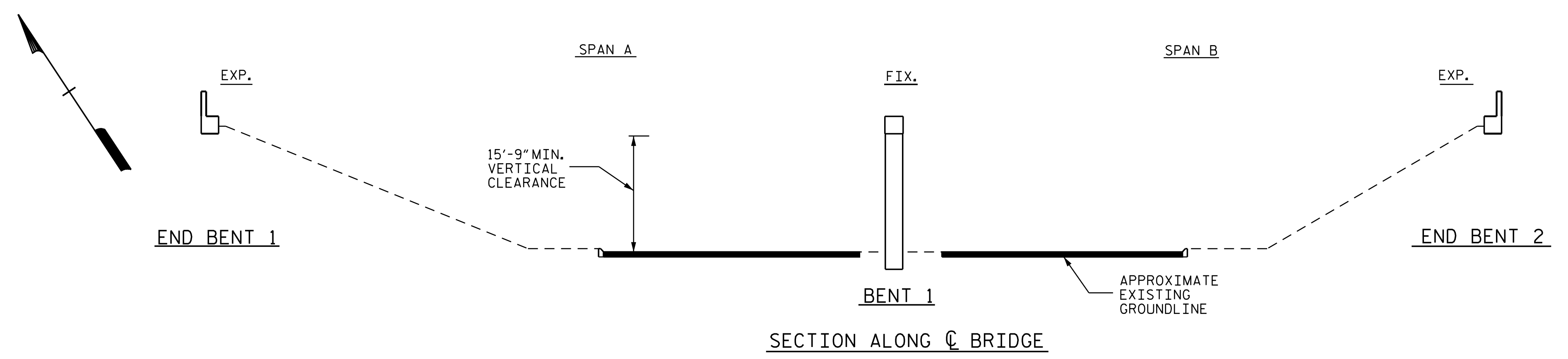
REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS AND APPLY EPOXY COATING.

EPOXY RESIN INJECTION OF CONCRETE CRACKS.

REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIRS.

PROPERLY PREPARE SPALLED AREAS IN EXISTING END BENT AND BENTS AND PERFORM SHOTCRETE AND CONCRETE REPAIRS.

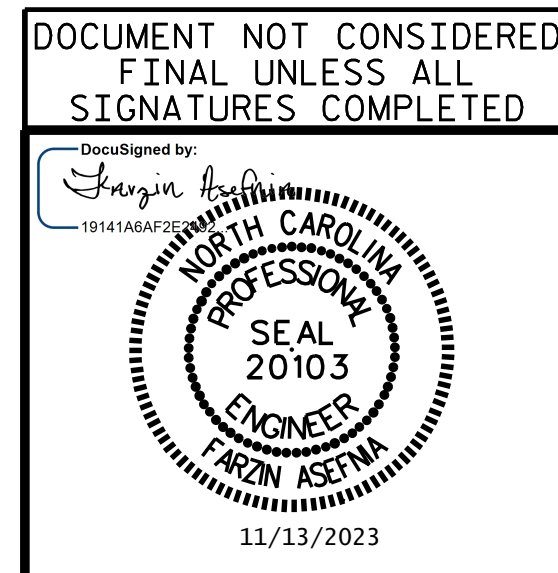
CLEAN AND PAINT EXISTING WEATHERING STEEL BEAM ENDS.



PLAN

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310112

SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE ON I-85
 SOUTHBOUND OVER
 COLE MILL ROAD



REVISIONS						SHEET NO. S2-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 11
2			4			

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023



Bridge 112

LOCATION SKETCH

BRIDGE COORDINATES

LATITUDE: 36° 1' 31.64"

LONGITUDE: 78° 57' 13.36"

NOTES

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.

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

THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT FOR ANY DELAYS OF ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN WHAT IS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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

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

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING OF SURFACE PREPARATIONS OF THE BRIDGE DECK. THE CONTRACTOR SHALL TAKE CARE THAT ANY CONSTRUCTION DEBRIS THAT COLLECTS IN THE DRAIN IS CONTAINED. DRAINS IN SHOULDERS OF ADJACENT TRAVEL LANE(S) SHALL BE KEPT FREE AND CLEAR OF DEBRIS.

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

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR PAINTING CONTAINMENT AND POLLUTION CONTROL, SEE PAINTING EXISTING WEATHERING STEEL STRUCTURE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY PART OF THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE, THE DAMAGED AREA SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS, AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

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

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

FOR SILANE BARRIER RAIL TREATMENT, SEE SPECIAL PROVISIONS.

THE EXISTING BRIDGE DECK SHALL BE REPAIRED AS SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER AFTER SCARIFICATION AND PRIOR TO THE SURFACE PREPARATION AND APPLICATION OF THE PC OVERLAY. UNLESS OTHERWISE APPROVED, SUCH LOCATIONS SHALL BE REPAIRED WITH POLYMER CONCRETE.

WORK ON THE BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.

PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

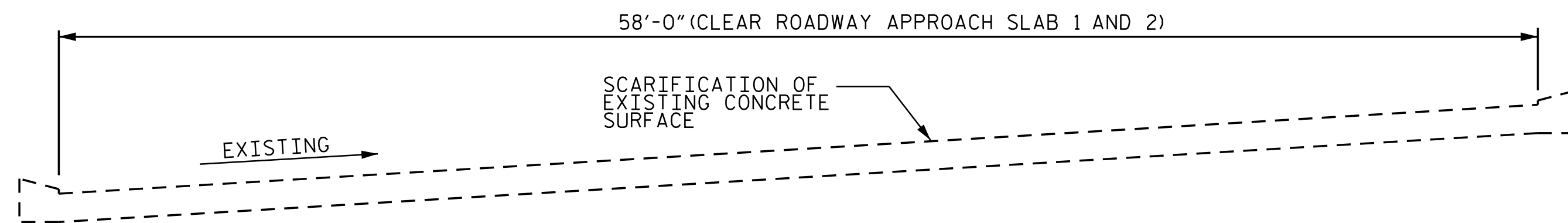
BILL OF MATERIAL

BRIDGE NO. 310112	GROOVING BRIDGE FLOORS	CLEANING & PAINTING OF EXISTING WEATHERING STEEL BRIDGE No. ____	PAINTING CONTAINMENT FOR BRIDGE No. ____	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	POLYESTER POLYMER CONCRETE MATERIALS	EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	PLACING & FINISHING POLYMER CONCRETE OVERLAY	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	FOAM JOINT SEALS FOR PRESERVATION	EPOXY COATING	CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	SURFACE PREPARATION FOR CONCRETE BARRIER	SILANE BARRIER RAIL TREATMENT	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK
	SO. FT.	LUMP SUM	LUMP SUM	LUMP SUM	SO. YDS.	CU. YDS.	CU. YDS.	SO. YDS.	CU. FT.	CU. FT.	LN. FT.	LN. FT.	SO. FT.	SO. YDS.	SO. FT.	SO. FT.	SO. YDS.	SO. YDS.
TOTAL	15,956	LUMP SUM	LUMP SUM	LUMP SUM	24	91	91	1,879	12	257	363	156	668	24	1,797	1,797	1,879	1,879

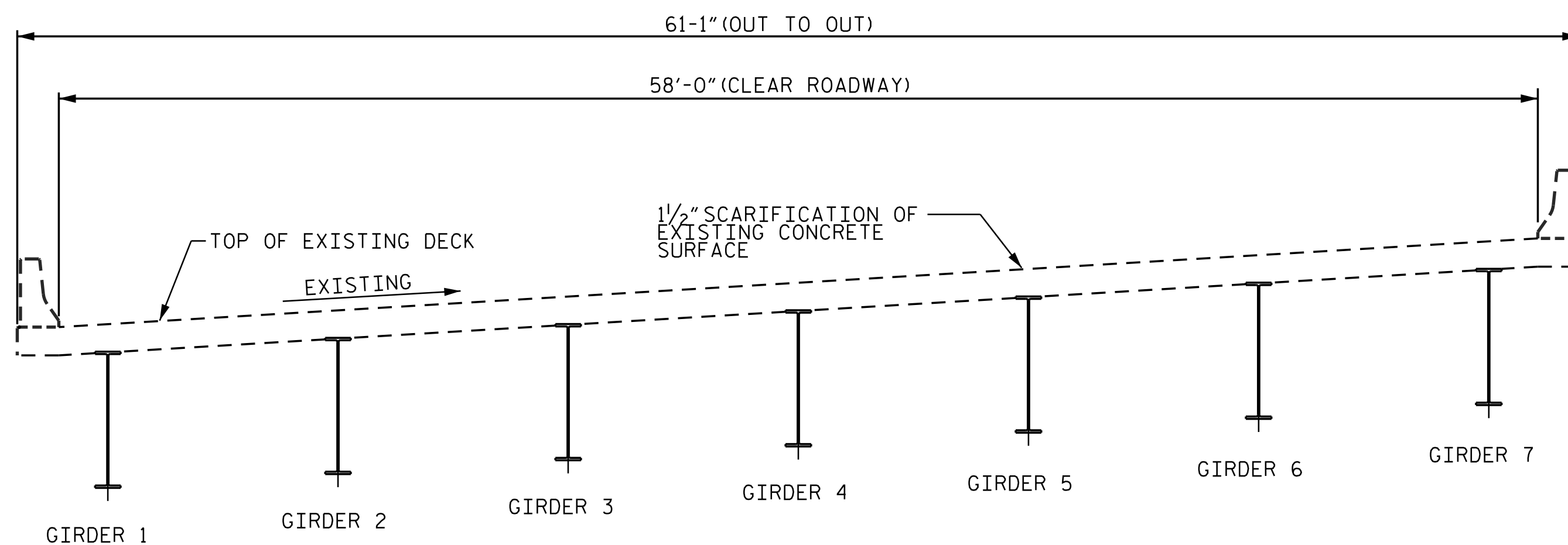
PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310112

SHEET 2 OF 2

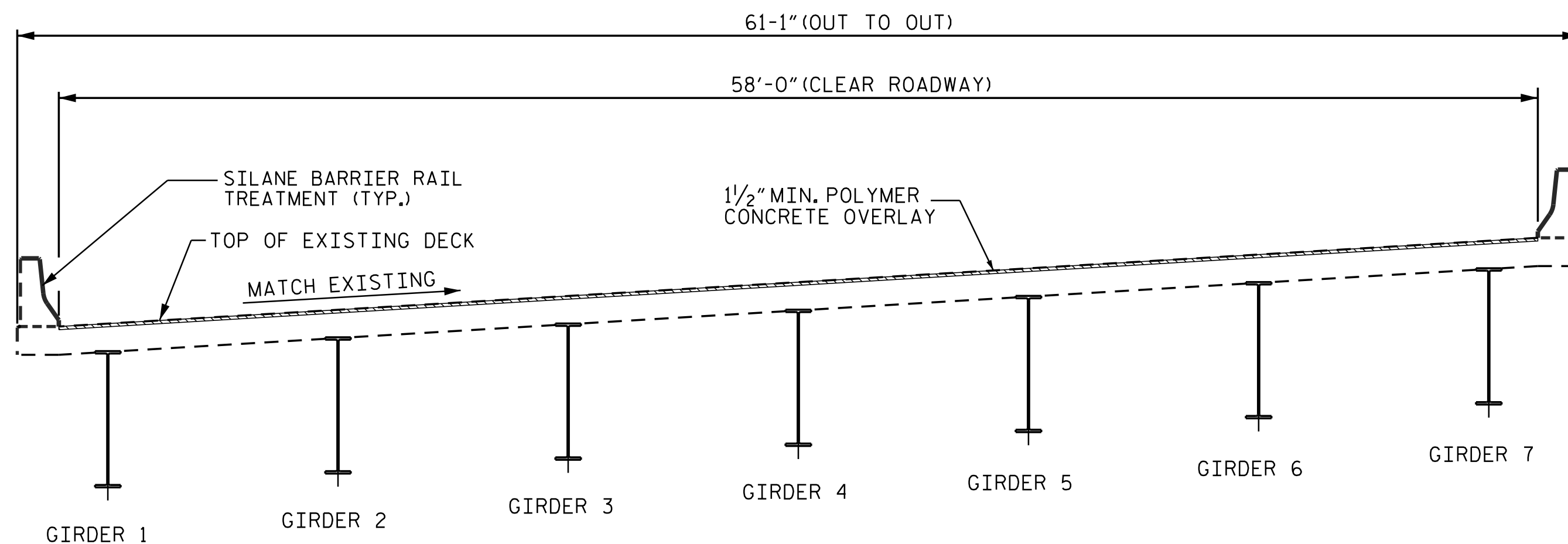
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH GENERAL DRAWING																			
		FOR BRIDGE ON I-85 SOUTHBOUND OVER COLE MILL ROAD																			
		REVISIONS <table border="1"> <tr> <th>NO.</th> <th>BY:</th> <th>DATE:</th> <th>NO.</th> <th>BY:</th> <th>DATE:</th> </tr> <tr> <td>1</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> </tr> </table>		NO.	BY:	DATE:	NO.	BY:	DATE:	1			3			2			4		
NO.	BY:	DATE:	NO.	BY:	DATE:																
1			3																		
2			4																		
DRAWN BY : <u>M. HOGAN</u> DATE : <u>3/2023</u> CHECKED BY : <u>JIA XU</u> DATE : <u>7/2023</u> DESIGN ENGINEER OF RECORD: <u>F. ASEFNIA</u> DATE : <u>11/2023</u>		SHEET NO. <u>S2-2</u> TOTAL SHEETS <u>11</u>																			



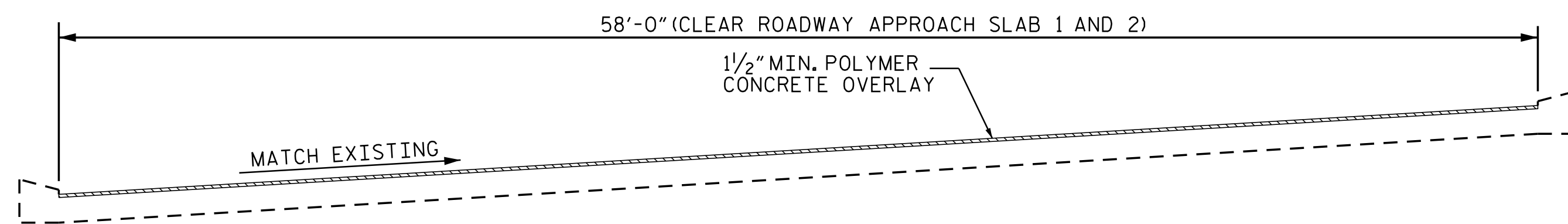
TYPICAL SECTION - APPROACH SLAB
(EXISTING)



TYPICAL SECTION
(EXISTING)



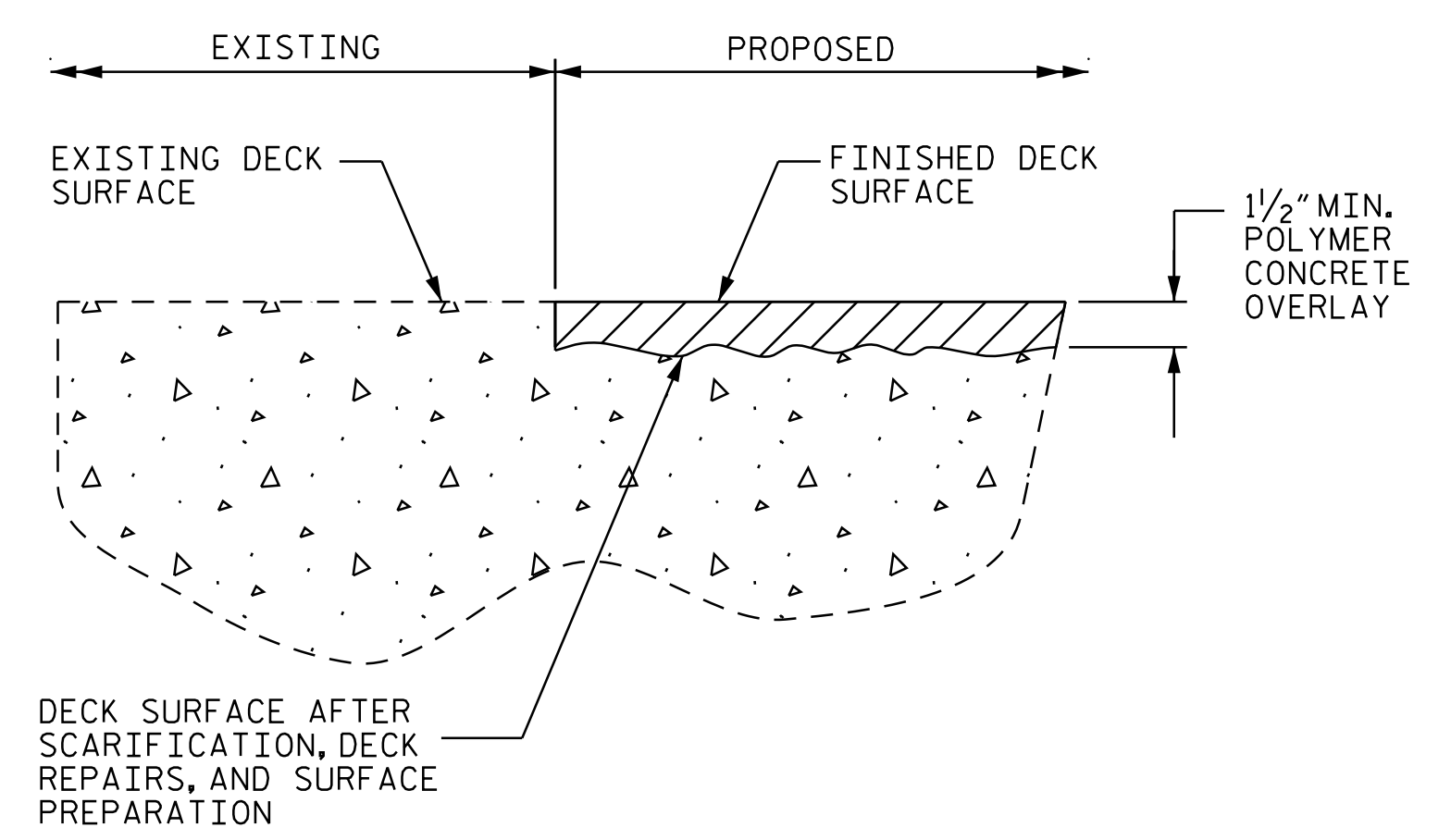
TYPICAL SECTION
(PROPOSED)



TYPICAL SECTION - APPROACH SLAB
(PROPOSED)

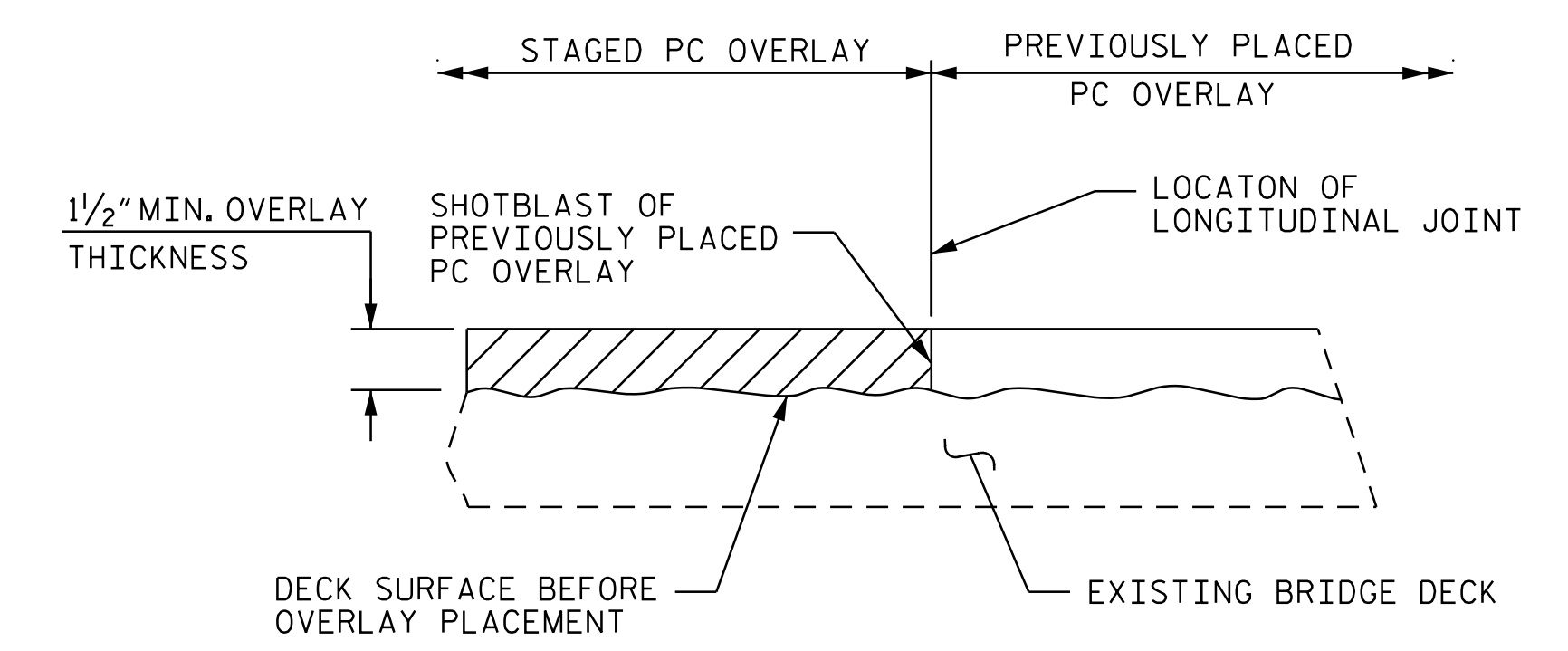
NOTES:

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYMER CONCRETE (PC) OVERLAY SYSTEM AND SURFACE PREPARATION.

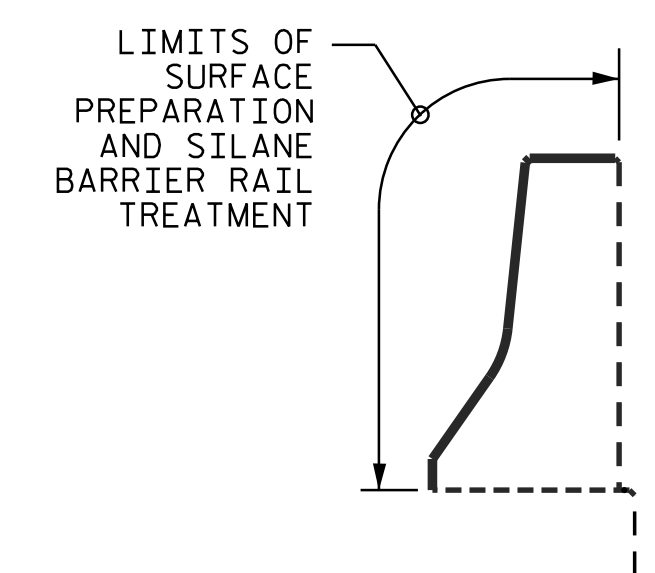


DETAILS FOR POLYMER CONCRETE OVERLAY

FINISHED SURFACE ELEVATION SHALL MATCH EXISTING CONCRETE SURFACE ELEVATIONS. ACTUAL THICKNESS OF PC OVERLAY MAY VARY.



STAGED PC OVERLAY JOINT



DETAIL FOR SILANE BARRIER RAIL TREATMENT

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310112

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
 Farzin Asefnia
 101412484702

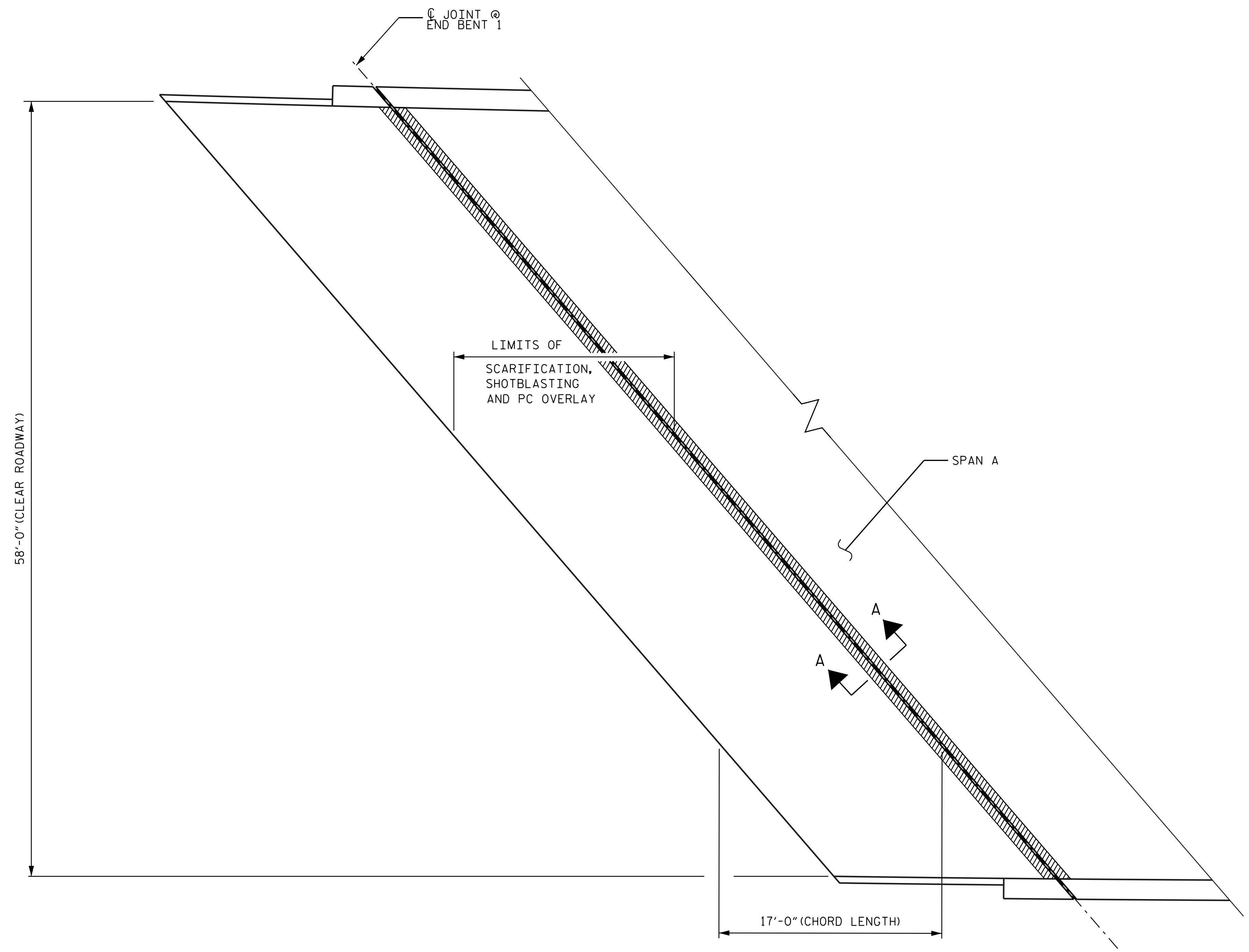
NORTH CAROLINA
 PROFESSIONAL
 SEAL
 20103
ENGINEER
 FARZIN ASEFNIA
 11/13/2023

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION & PC OVERLAY DETAILS

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 11/2023

REVISIONS						SHEET NO. S2-3
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 11
2			4			



AS-BUILT REPAIR QUANTITY TABLE

APPROACH SLAB 1

	ESTIMATE	ACTUAL		
SCARIFYING BRIDGE DECK	104.0 SY			
CLASS II SURFACE PREPARATION	6.0 SY			
CONCRETE DECK REPAIR FOR PC OVERLAY	6.0 SY			
SHOTBLASTING BRIDGE DECK	104.0 SY			
POLYMER CONCRETE MATERIALS	5.0 CY			
PLACING AND FINISHING PC OVERLAY	104.0 SY			
GROOVING BRIDGE FLOORS	866.0 SF			
SURFACE PREP. FOR CONCRETE BARRIER	27.0 SF			
SILANE BARRIER RAIL TREATMENT	27.0 SF			
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	0.0	0.0		

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 SECTION A-A, SEE "JOINT DETAILS" SHEETS.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISIONS.

TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISIONS.

THE EXISTING COVER PLATES SHALL BE REMOVED DURING THE JOINT REPLACEMENT PROCESS, CLEANED AND PUT BACK IN PLACE AFTER COMPLETION OF WORK. PAYMENT FOR SUCH WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.

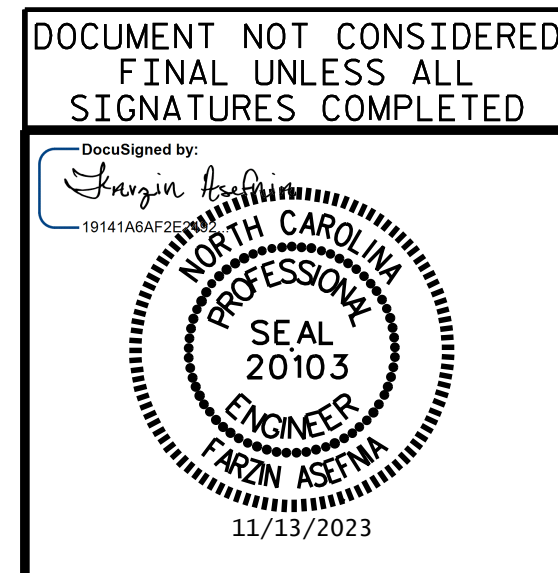
- CLASS II SURFACE PREPARATION AT THE JOINTS
- CONCRETE REPAIR AREA

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310112

SHEET 1 OF 3

APPROACH SLAB 1

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DECK SURFACE REPAIR
 APPROACH SLAB 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S2-4
2			4			TOTAL SHEETS 11



NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISIONS.



THE EXISTING COVER PLATES SHALL BE REMOVED AS PART OF THE JOINT DEMOLITION AND REPAIRED WITH CONCRETE. SEE "COVER PLATE REMOVAL AND REPAIR" SHEET.

THE EXISTING COVER PLATES SHALL BE REMOVED DURING THE JOINT REPLACEMENT PROCESS, CLEANED AND PUT BACK IN PLACE AFTER COMPLETION OF WORK. PAYMENT FOR SUCH WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.

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

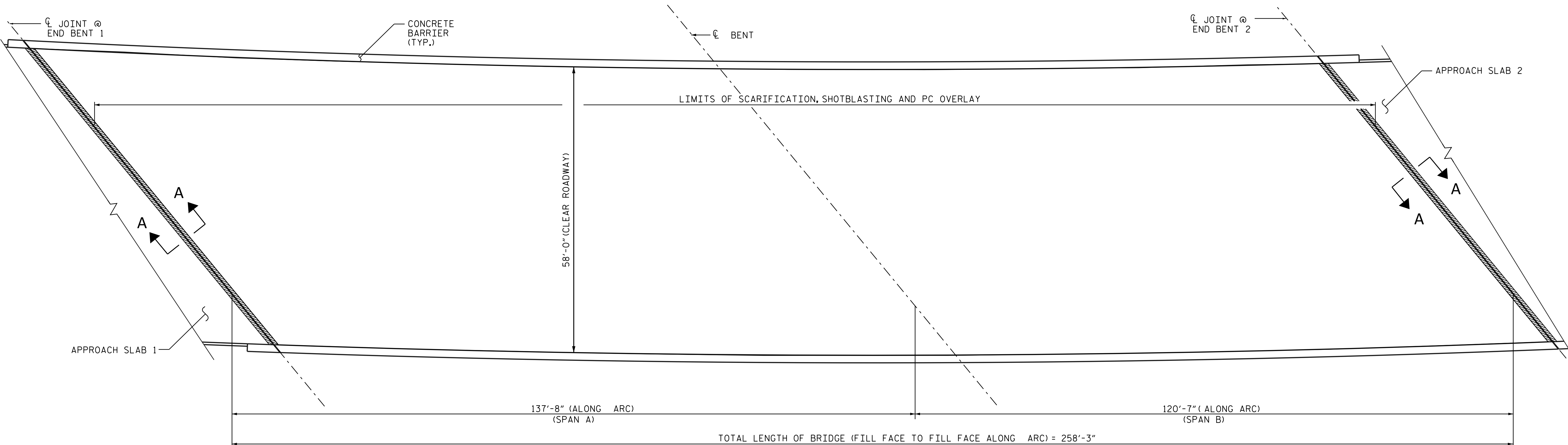
FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISIONS.

TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISIONS.

-  CLASS II SURFACE PREPARATION AT THE JOINTS
-  CONCRETE REPAIR AREA

AS-BUILT REPAIR QUANTITY TABLE

SPAN A & B REPAIRS				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	1,671.0	SY		
CLASS II SURFACE PREPARATION	12.0	SY		
CONCRETE DECK REPAIR FOR PC OVERLAY	12.0	SY		
SHOTBLASTING BRIDGE DECK	1,671.0	SY		
POLYMER CONCRETE MATERIALS	81.0	CY		
PLACING AND FINISHING PC OVERLAY	1,671.0	SY		
GROOVING BRIDGE FLOORS	14,226.0	SF		
SURFACE PREP. FOR CONCRETE BARRIER	1,740.0	SF		
SILANE BARRIER RAIL TREATMENT	1,740.0	SF		
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	0.0	0.0		

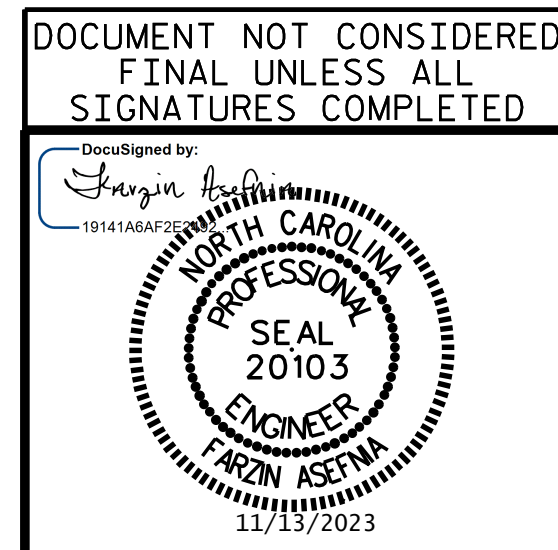


BRIDGE DECK

PROJECT NO. I-5941
 DURHAM COUNTY
 BRIDGE NO. 310112

SHEET 2 OF 3

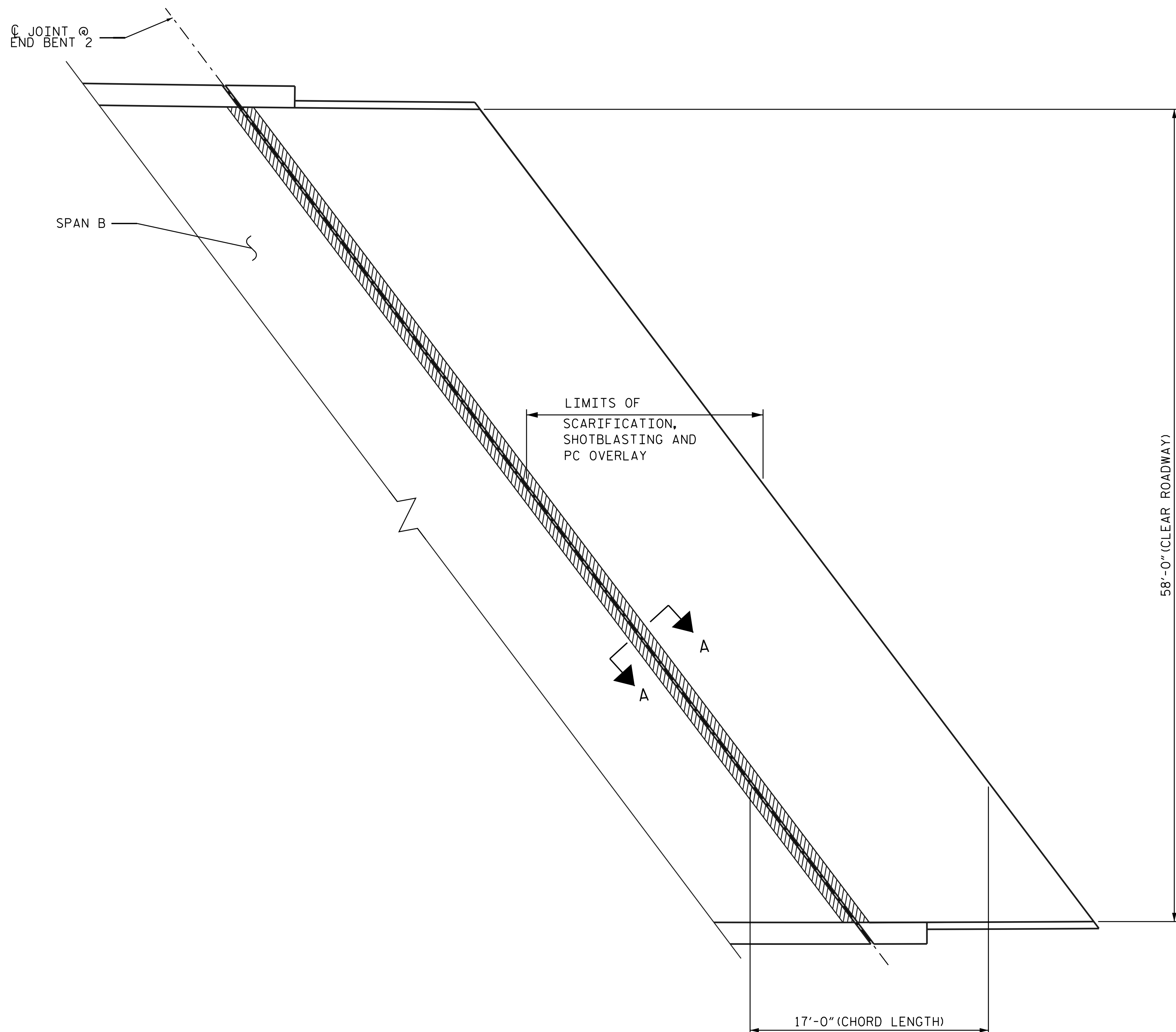
DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DECK SURFACE REPAIR
 SPAN A & B

REVISIONS						SHEET NO. S2-5 TOTAL SHEETS 11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

E.L. ROBINSON
 3362 Old Forks Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2870
 efl@elrobinsonengineering.com
 License: C-22 9



APPROACH SLAB 2

AS-BUILT REPAIR QUANTITY TABLE

APPROACH SLAB 2				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	104.0	SY		
CLASS II SURFACE PREPARATION	6.0	SY		
CONCRETE DECK REPAIR FOR PC OVERLAY	6.0	SY		
SHOTBLASTING BRIDGE DECK	104.0	SY		
POLYMER CONCRETE MATERIALS	5.0	CY		
PLACING AND FINISHING PC OVERLAY	104	SY		
GROOVING BRIDGE FLOORS	864	SF		
SURFACE PREP. FOR CONCRETE BARRIER	30.0	SF		
SILANE BARRIER RAIL TREATMENT	30.0	SF		
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	0.0	0.0		

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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 SECTION A-A, SEE "JOINT DETAILS" SHEETS.

FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISIONS.

TOP OF DECK REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAWCUT). SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR PC OVERLAY, PC MATERIALS AND PLACING AND FINISHING PC OVERLAY, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISIONS.

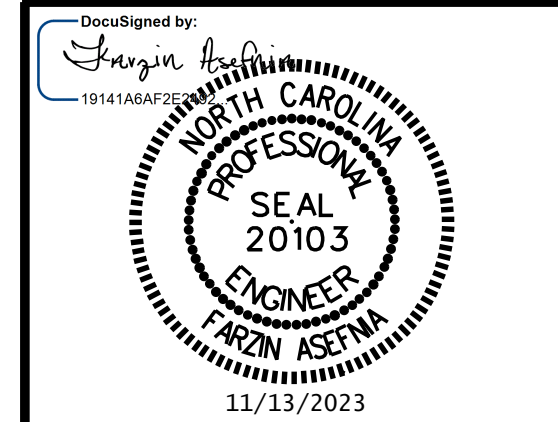
THE EXISTING COVER PLATES SHALL BE REMOVED DURING THE JOINT REPLACEMENT PROCESS, CLEANED AND PUT BACK IN PLACE AFTER COMPLETION OF WORK. PAYMENT FOR SUCH WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.

- CLASS II SURFACE PREPARATION AT THE JOINTS
- CONCRETE REPAIR AREA

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310112

SHEET 3 OF 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DECK SURFACE REPAIR
 APPROACH SLAB 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-6
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

E.L. ROBINSON
 3362 Old Fork Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 e:rl@elrobinsonengineering.com
 License: C-22 9

JOINT REPAIR QUANTITY TABLE		
FOAM JOINT SEALS FOR PRESERVATION	ESTIMATED LIN. FT.	ACTUAL LIN. FT.
END BENT 1	80	
END BENT 2	76	
TOTAL	156	

NOTES:

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

FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY IS COMPLETE.

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVE AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OF NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

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

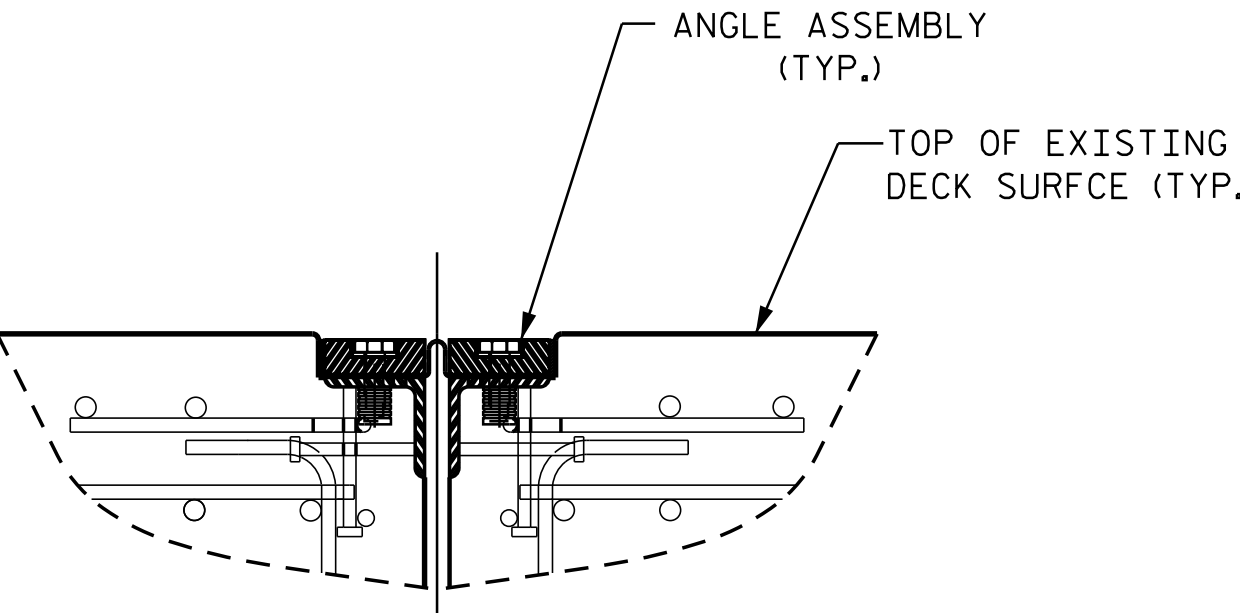
DURING THE JOINT INSTALLATION PROCEDURE, THE JOINT AND SURROUNDING AREA SHALL BE KEPT CLEAN AND FREE OF DEBRIS.

THE MANUFACTURER IS TO DETERMINE AND PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND TO ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

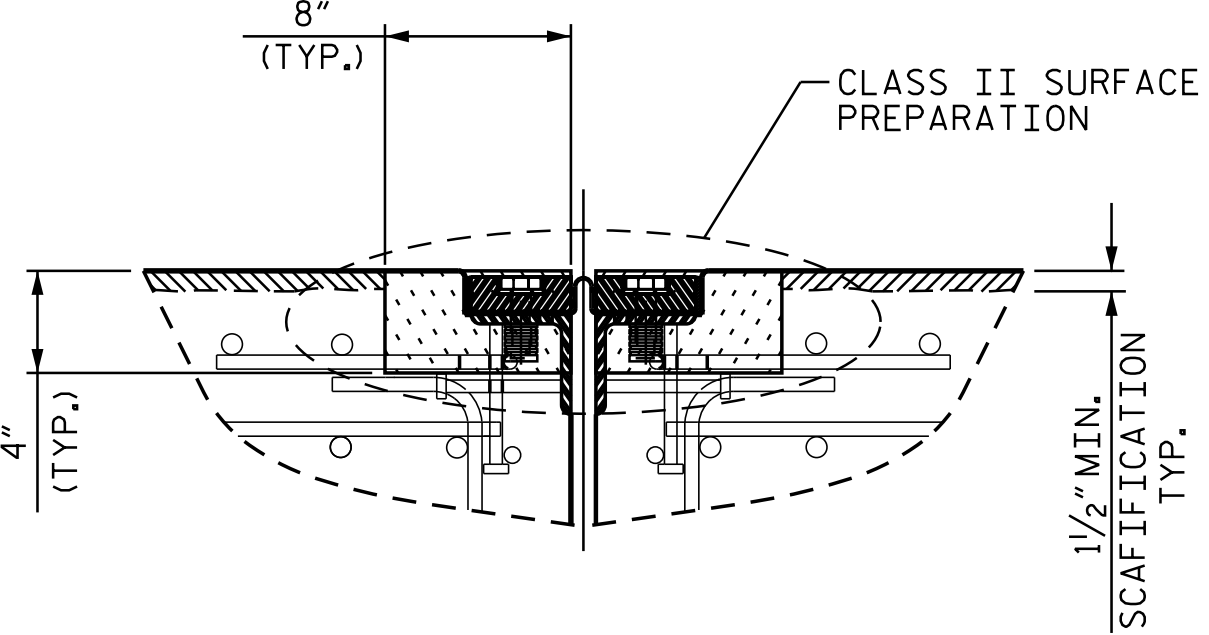
FINAL SURFACE OF THE JOINT DEMOLITION AREA PRIOR TO PLACEMENT OF CONCRETE REPAIR MATERIAL SHOULD BE REASONABLY FLAT AND LEVEL. ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF THE SURFACE PRIOR TO PLACEMENT OF REPAIR CONCRETE.

THE INSTALLATION OF THE JOINT SEAL SHALL BE WATERTIGHT.

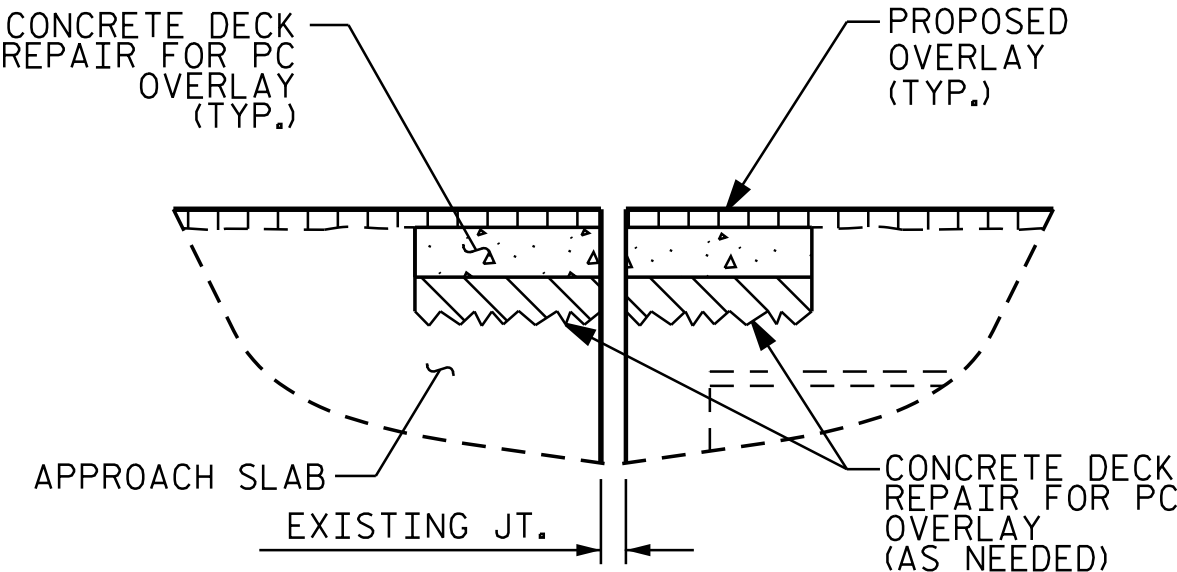
A MANUFACTURER'S CERTIFIED TRAINED REPRESENTATIVE SHALL BE PRESENT DURING THE INSTALLATION OF THE FIRST JOINT OF THE PROJECT, OR UNTIL THE ENGINEER IS SATISFIED WITH THE INSTALLATION PROCESS.



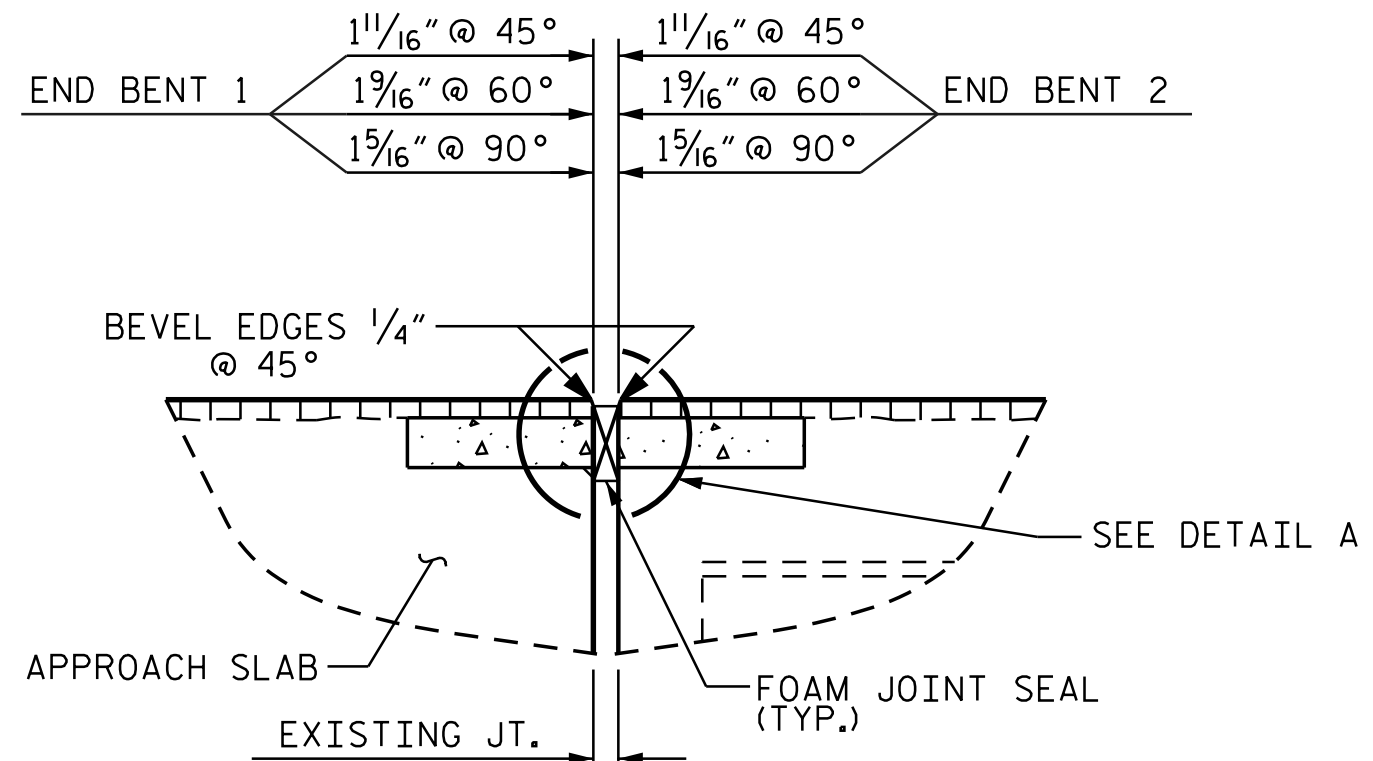
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION



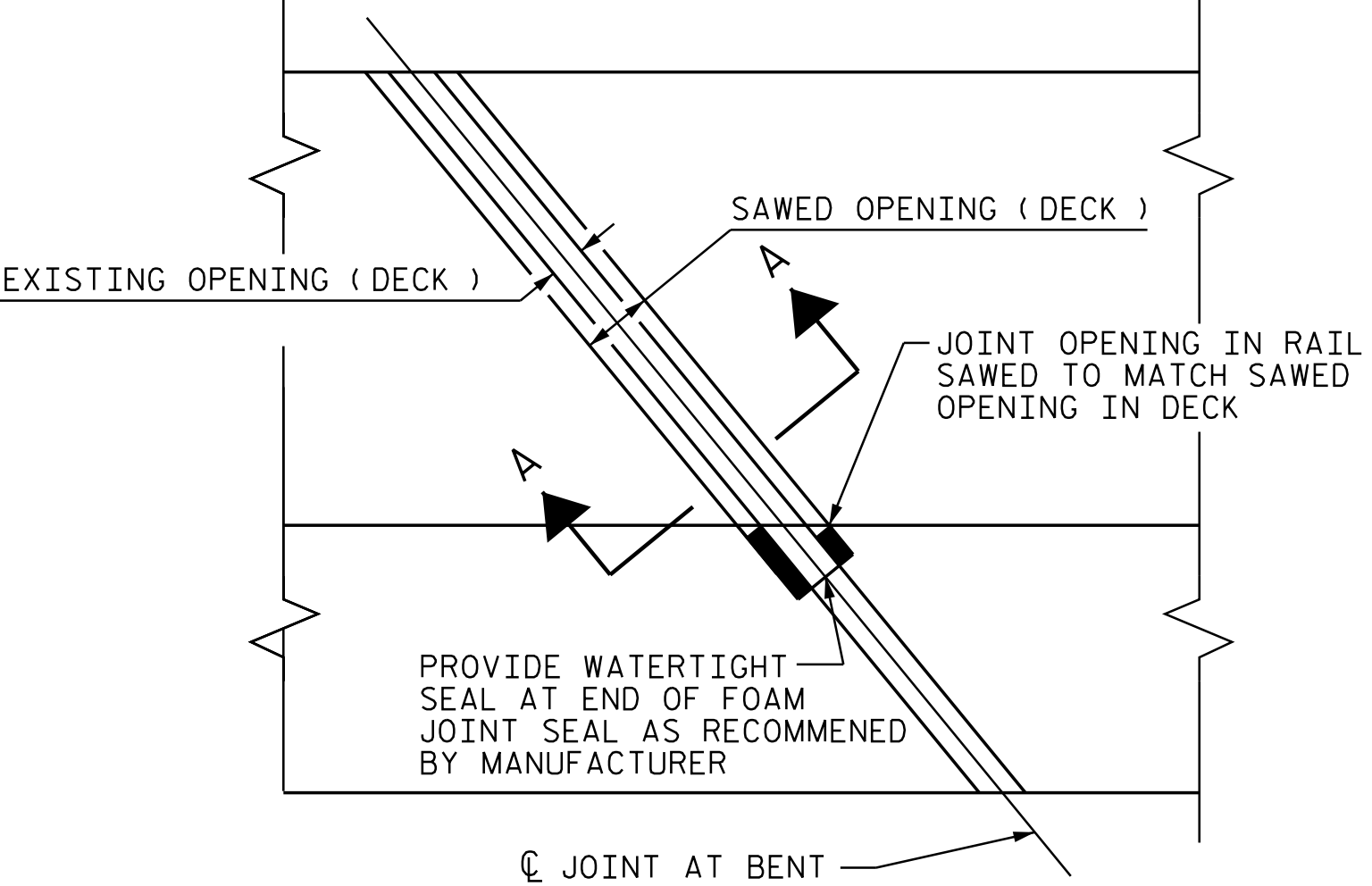
PROPOSED JOINT PRIOR TO SAWING



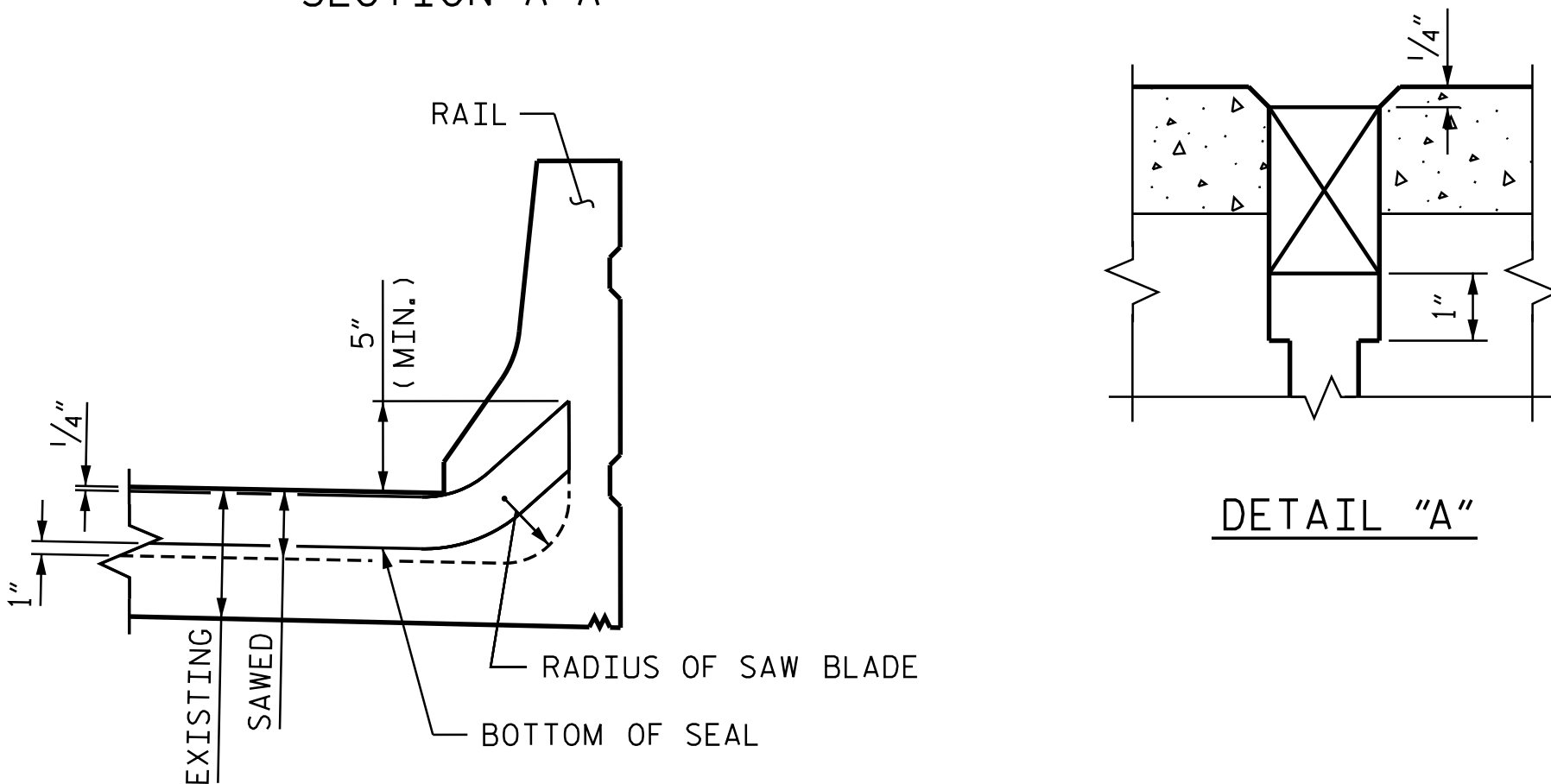
PROPOSED FOAM JOINT SEAL

JOINT INSTALLATION SEQUENCE AT BENTS

SECTION A-A



PLAN



DETAIL "A"

EXPANSION JOINT FOAM AT BARRIER

PROJECT NO. I-5941
DURHAM COUNTY
BRIDGE NO. 310112

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
Farzin Asefnia
191418A8F05C

NORTH CAROLINA PROFESSIONAL SEAL 20103
ENGINEER
FARZIN ASEFNIA
11/13/2023

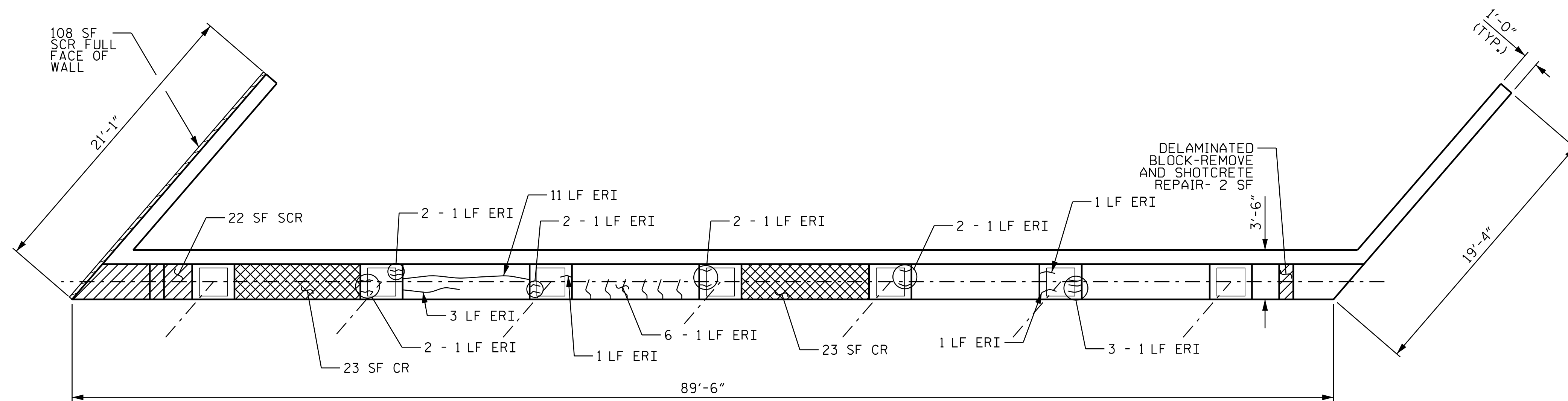
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
JOINT DETAILS

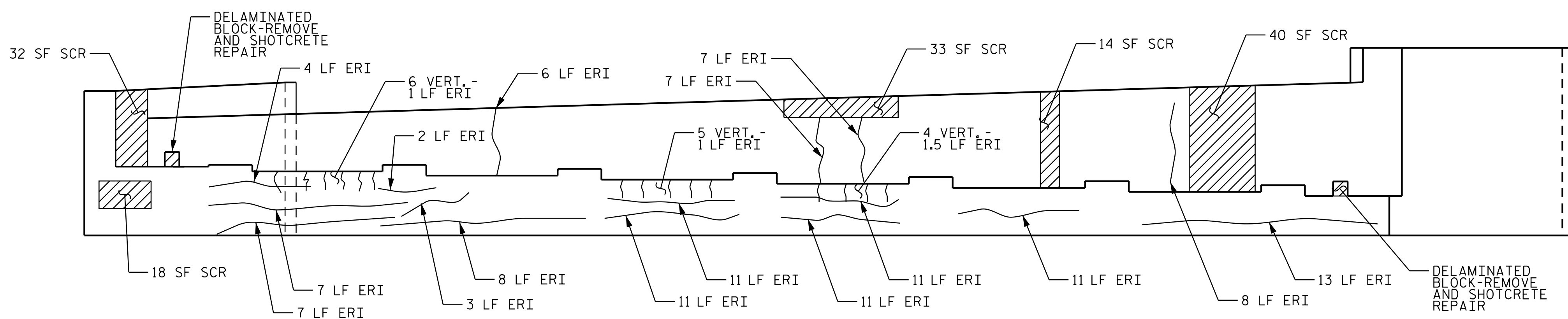
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-7
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : M. HOGAN DATE : 3/2023
CHECKED BY : JIA XU DATE : 7/2023
DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

E.L. ROBINSON
3962 Old Fork Rd.
Raleigh, N.C. 27609
Tel: 984.980.2810
elr@elrobinsonengineering.com
License: C-22 9



PLAN



ELEVATION

END BENT NO. 1

AS-BUILT REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	42.0	10.5		
CURTAIN & WING WALL	227.0	57.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	46.0	11.5		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		152.0		
CURTAIN WALL		28.0		
EPOXY COATING		SO. FT.		SO. FT.
TOP OF CAP		210.0		

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

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

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

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

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

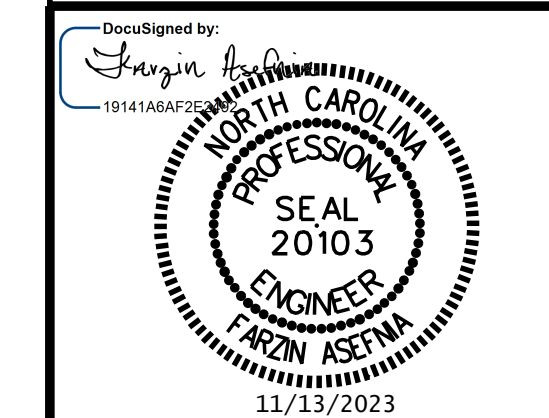
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310112

SHEET 1 OF 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE REPAIR

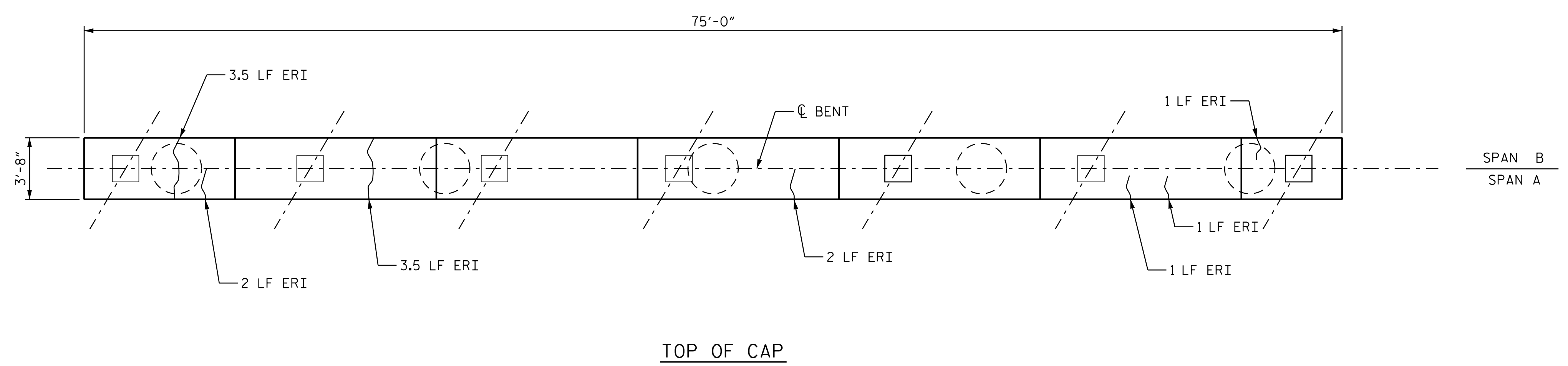
END BENT 1

REVISIONS

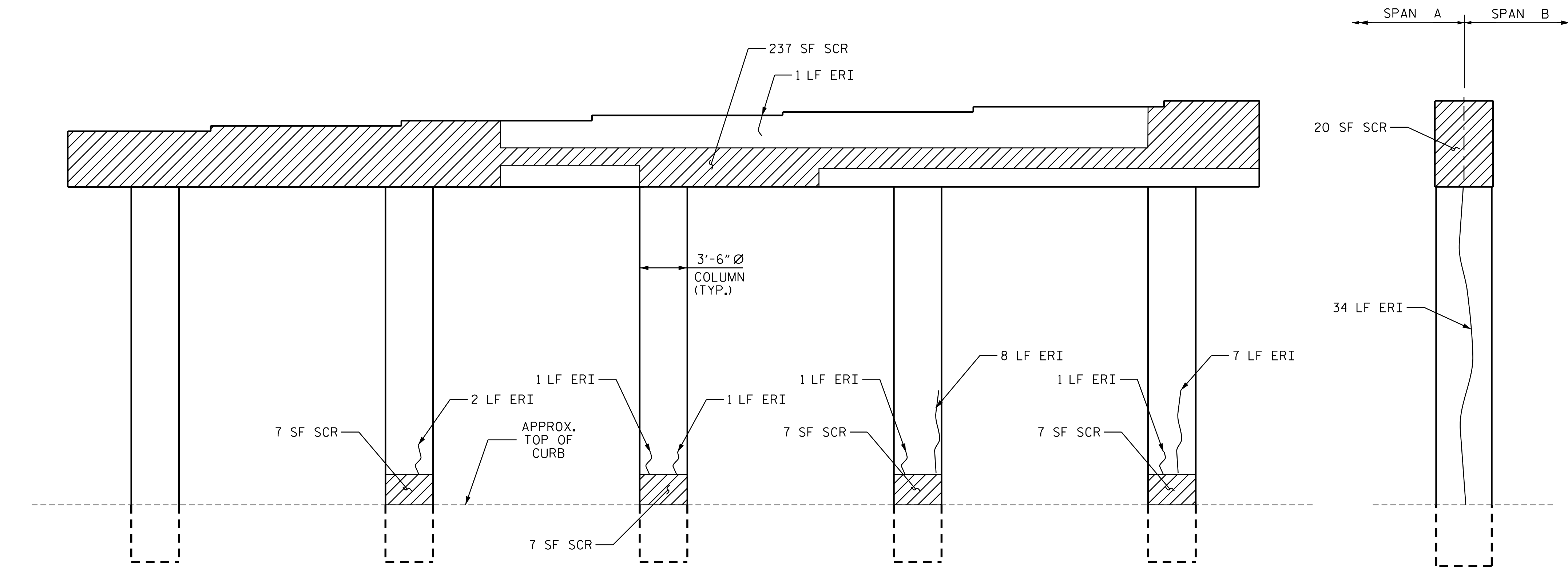
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S2-8
2			4			TOTAL SHEETS 11

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD : F. ASEFNIA DATE : 11/2023

E.L. ROBINSON
 3362 Old Fork Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 e:elrob@e-robinson.com
 License: C-22 9



TOP OF CAP



ELEVATION

BENT NO. 1
SPAN A FACE

AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 SPAN A FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	257.0	64.0		
COLUMN	28.0	7.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT.		LN. FT.	
CAP	15.0			
COLUMN	55.0			
EPOXY COATING	SQ. FT.		SQ. FT.	
TOP OF BENT CAP	261.0			

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

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

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

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

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

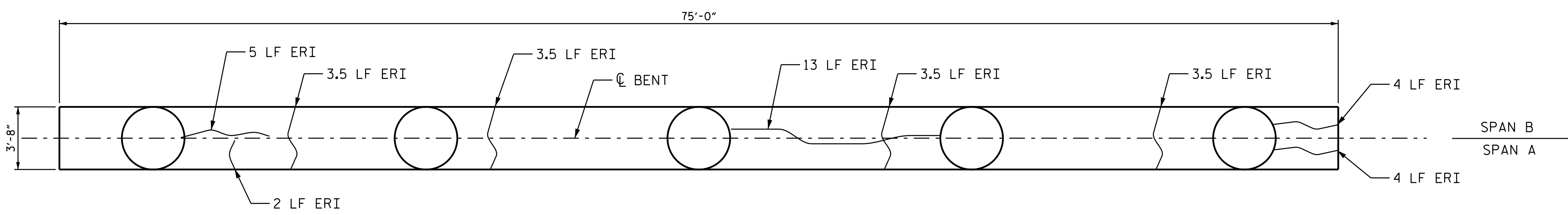
- SHOTCRETE REPAIR (SCR)
- CONCRETE REPAIR (CR)
- EPOXY RESIN INJECTION (ERI)

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310112

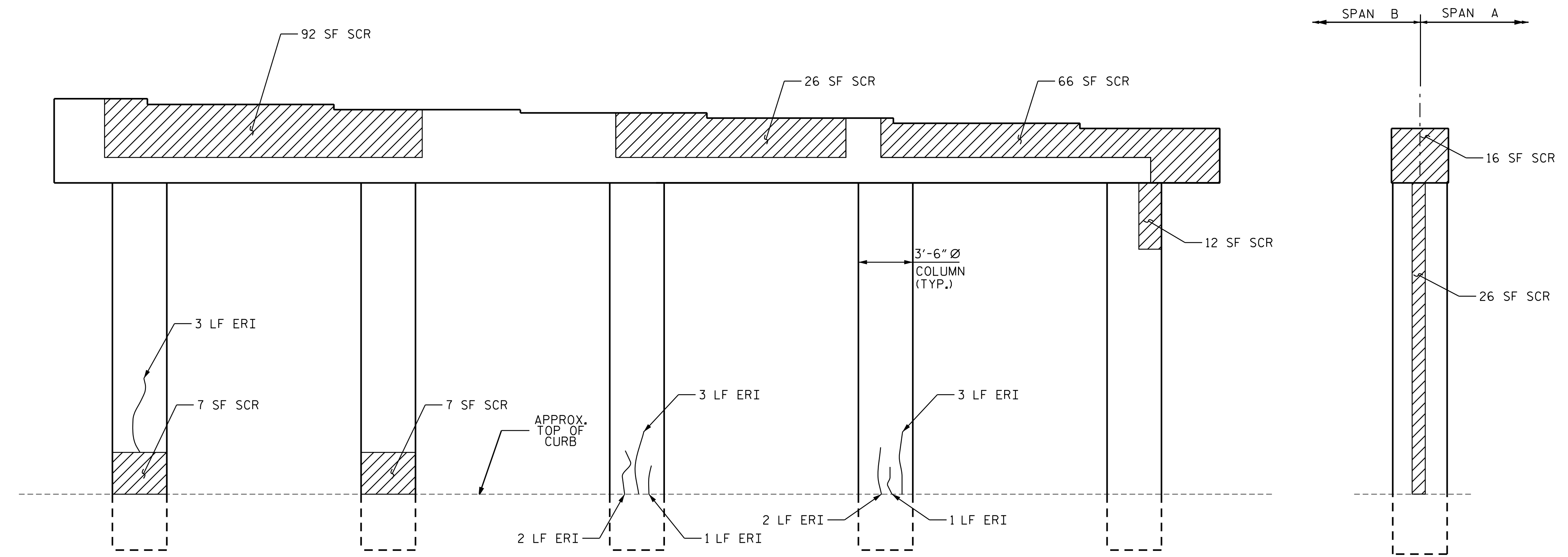
SHEET 2 OF 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED Drawn/Signed by: 	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUBSTRUCTURE REPAIR BENT 1 SPAN A FACE																		
	REVISIONS																		
E.L. ROBINSON <small>3362 Old Fork Rd. Raleigh, N.C. 27609 Tel: 984.980.2810 efarzin@erobinson.com License: C-22 9</small>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>BY:</th> <th>DATE:</th> <th>NO.</th> <th>BY:</th> <th>DATE:</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> </tr> </tbody> </table>	NO.	BY:	DATE:	NO.	BY:	DATE:	1			3			2			4		
NO.	BY:	DATE:	NO.	BY:	DATE:														
1			3																
2			4																
		SHEET NO. S2-9 TOTAL SHEETS 11																	

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023



BOTTOM OF CAP



ELEVATION

BENT NO. 1
SPAN B FACE

AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 SPAN B FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	200.0	50.0		
COLUMN	52.0	13.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT.		LN. FT.	
CAP	42.0			
COLUMN	15.0			

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

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

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

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

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

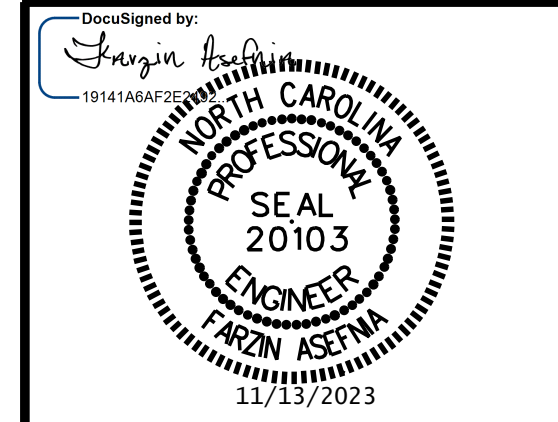
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310112

SHEET 3 OF 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

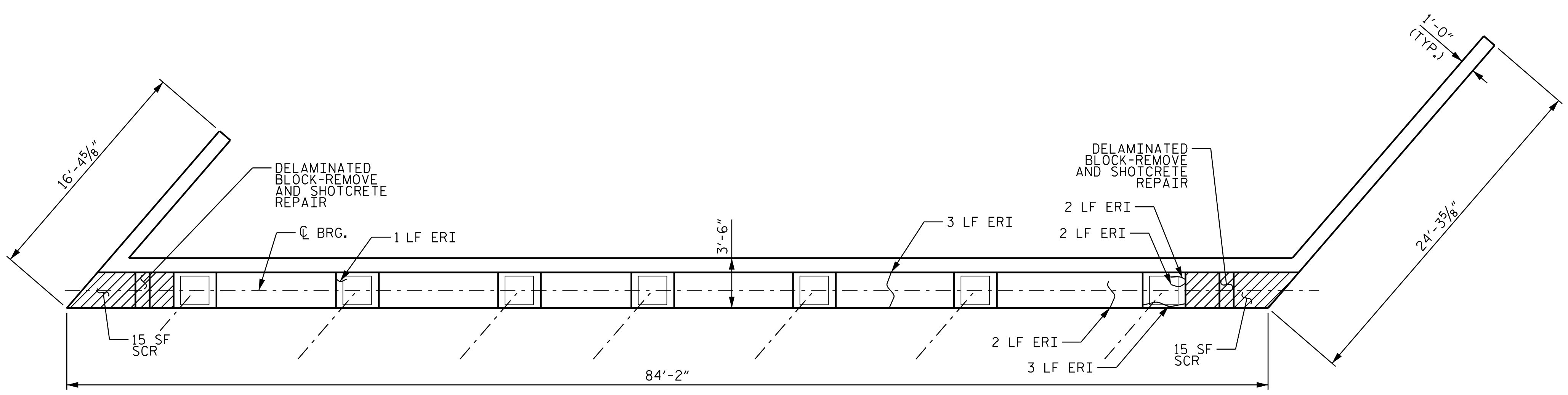


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE REPAIR
 BENT 1
 SPAN B FACE

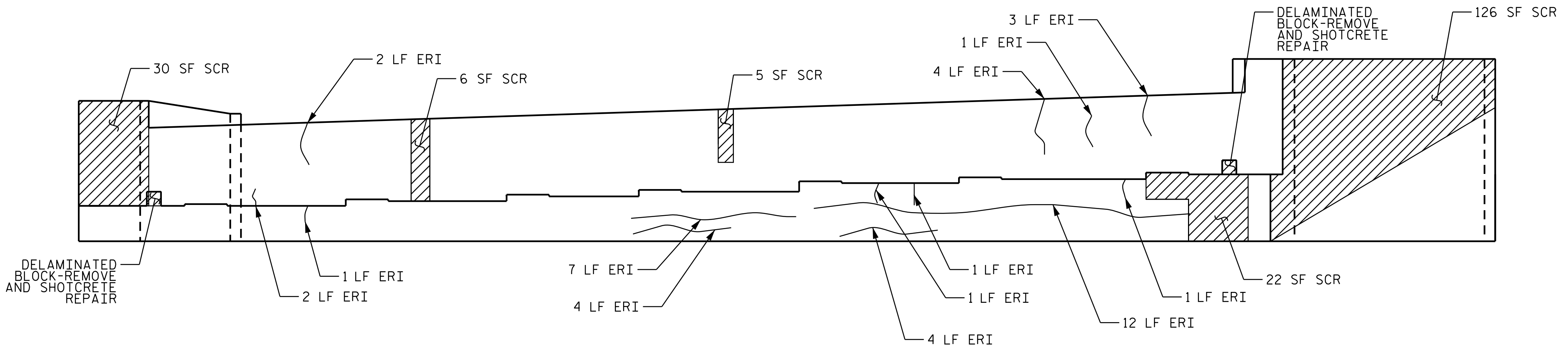
REVISIONS						SHEET NO. S2-10
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 11
2			4			

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023





PLAN



ELEVATION

END BENT NO. 2

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	52.0	13.0		
CURTAIN & WING WALL	167.0	42		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT.		LN. FT.	
CAP	44.0			
CURTAIN WALL	12.0			
EPOXY COATING	SQ. FT.		SQ. FT.	
TOP OF CAP	197.0			

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

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

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

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

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

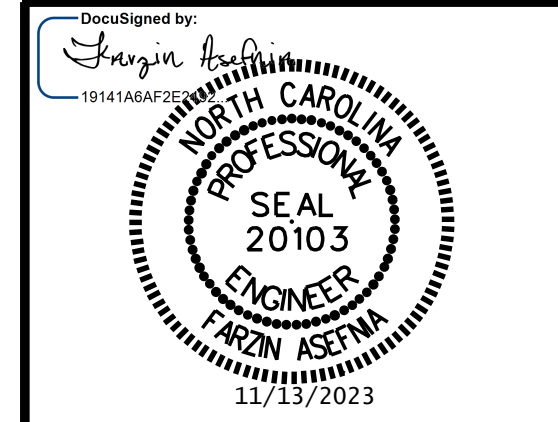
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310112

SHEET 4 OF 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

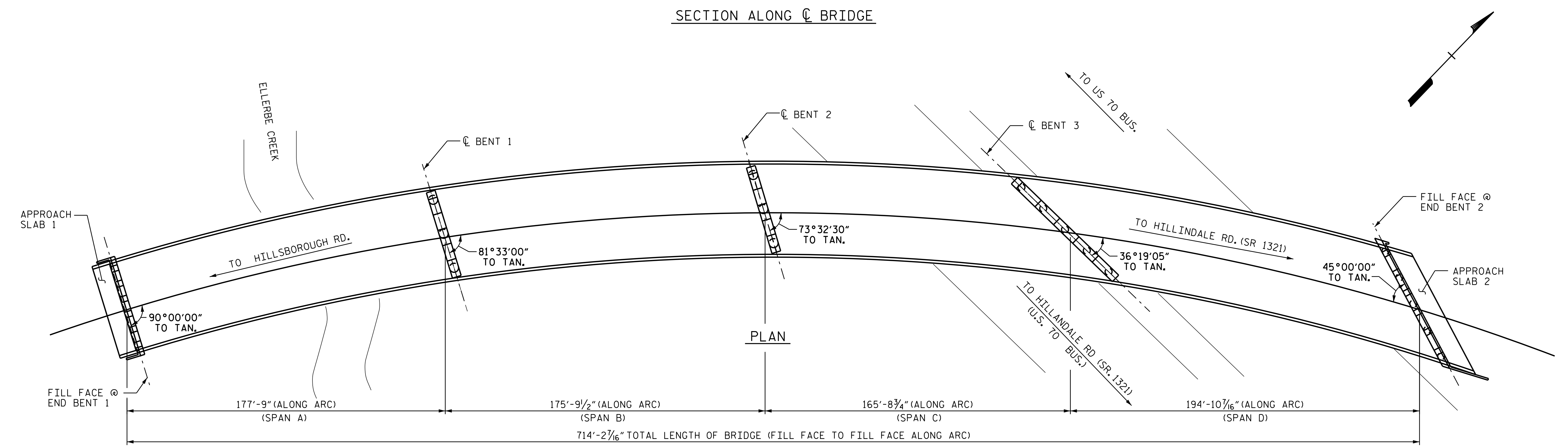
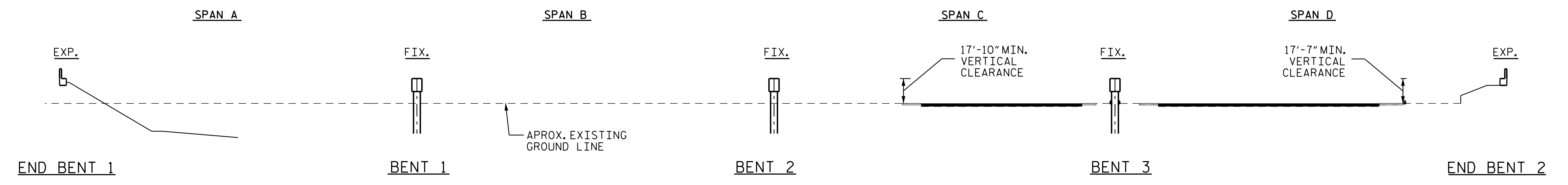


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE REPAIR
 END BENT 2

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

REVISIONS						SHEET NO. S2-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 11
2			4			

E.L. ROBINSON
 3362 Old Fork Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 efarzin@e.lrobinson.com
 License: C-22 9



NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 11/28/2022.

BRIDGE ORIENTATION CONFORMS TO THE ORIGINAL BRIDGE PLANS/ROUTINE INSPECTION.

SCOPE OF WORK

REMOVE AND PROPERLY DISPOSE OF DEBRIS IN THE GLANDS OF THE MODULAR JOINT AT END BENT 1. THE CONTRACTOR SHALL REPORT ANY DAMAGE TO THE GLANDS OR THE ASSEMBLY TO THE ENGINEER. PAYMENT FOR REMOVAL OF DEBRIS IN THE MODULAR JOINT GLAND SHALL BE CONSIDERED TO BE INCIDENTAL TO OTHER PAY ITEMS.

PERFORM BRIDGE JOINT DEMOLITION AND REMOVE EXISTING JOINT MATERIAL AT END BENT 2.

INSTALL ELASTOMERIC CONCRETE HEADERS AND FOAM JOINT SEAL AT END BENT 2.

PREPARE TOP OF BRIDGE DECK AND TOP AND FRONT FACE OF THE CONCRETE BARRIER RAIL BY SHOTBLASTING METHODS.

APPLY SILANE TREATMENT TO BRIDGE DECK AND BARRIER RAILS.

CLEAN AND PAINT EXISTING WEATHERING STEEL BEAM ENDS.

REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING BENT AND END BENT AREAS FOR SUBSTRUCTURE REPAIRS.

REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS AND APPLY EPOXY COATING.

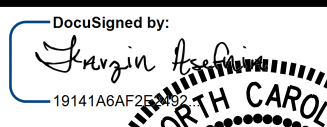

REPAIR UNDERMINED END BENT 1 CAP.

PROJECT NO. I-5941

DURHAM COUNTY

BRIDGE NO. 310135

SHEET 1 OF 2

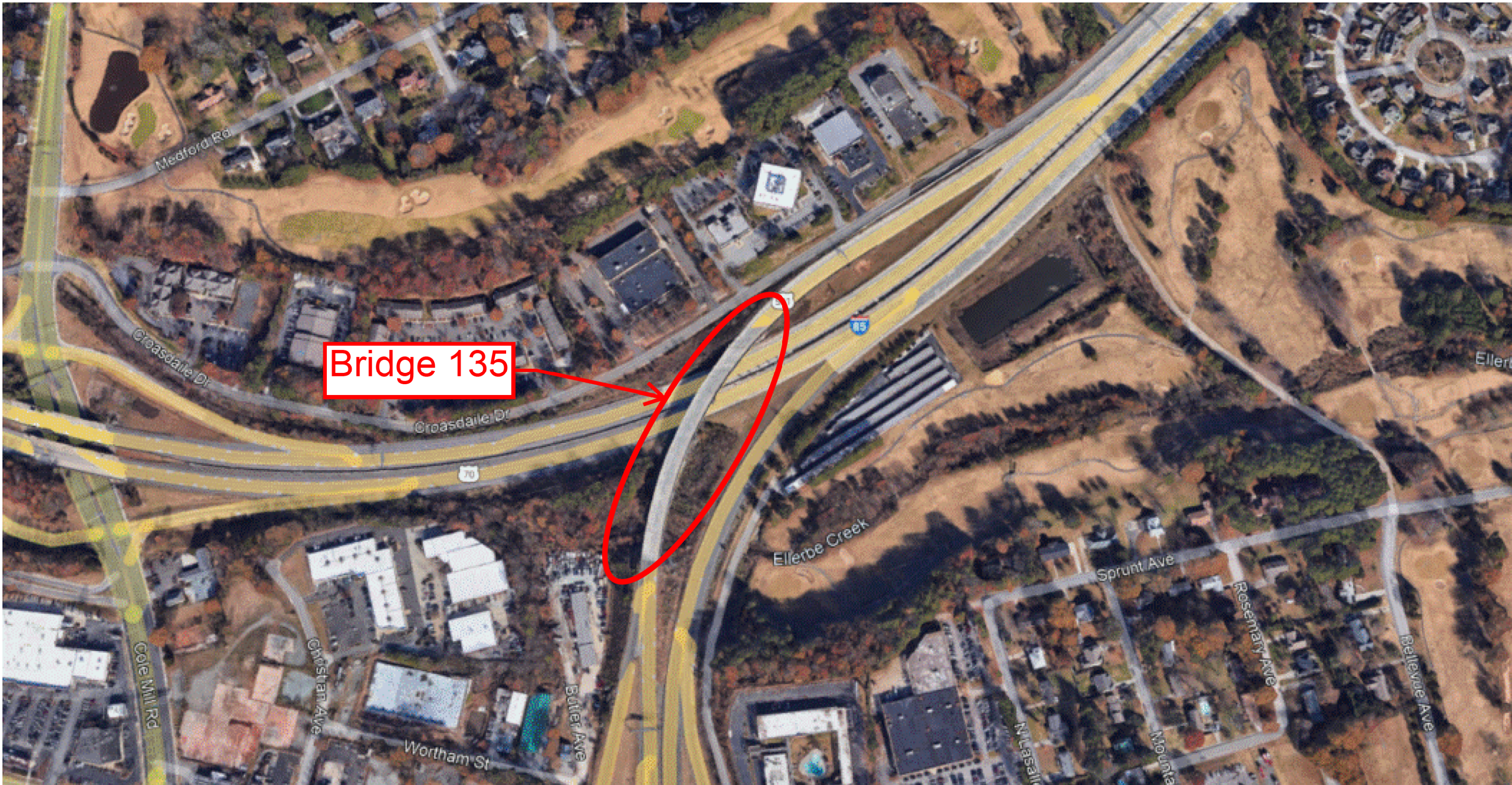
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED DocuSigned by:  191416645		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH GENERAL DRAWING FOR BRIDGE ON US 15/501 SOUTHBOUND OVER I-85 AND ELLERBE CREEK			
 11/13/2023		REVISIONS			
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S3-1 TOTAL SHEETS 18					

DRAWN BY : M. HOGAN DATE : 3/2023

CHECKED BY : JIA XU DATE : 7/2023

DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

E.L. ROBINSON
 3362 Six Forks Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2850
 efarzin@elrobinsongroup.com
 License: C-22 9



Bridge 135

LOCATION SKETCH

BRIDGE COORDINATES

LATITUDE: 36° 1' 27.96"
 LONGITUDE: 78° 56' 51.53"

NOTES

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.

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

THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT FOR ANY DELAYS OF ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN WHAT IS SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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

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

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING OF SURFACE PREPARATIONS OF THE BRIDGE DECK. THE CONTRACTOR SHALL TAKE CARE THAT ANY CONSTRUCTION DEBRIS THAT COLLECTS IN THE DRAIN IS CONTAINED. DRAINS IN SHOULDERS OF ADJACENT TRAVEL LANE(S) SHALL BE KEPT FREE AND CLEAR OF DEBRIS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

FOR PAINTING CONTAINMENT AND POLLUTION CONTROL, SEE PAINTING EXISTING WEATHERING STEEL STRUCTURE SPECIAL PROVISIONS.

FOR FLOWABLE FILL, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY PART OF THE EXISTING STRUCTURE WHICH IS TO REMAIN IN PLACE, THE DAMAGED AREA SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT NO ADDITIONAL COST TO THE DEPARTMENT.

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

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

FOR SILANE DECK TREATMENT, SEE SPECIAL PROVISIONS.

FOR SILANE BARRIER RAIL TREATMENT, SEE SPECIAL PROVISIONS.

THE EXISTING BRIDGE DECK SHALL BE REPAIRED AS SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER AFTER SCARIFICATION AND PRIOR TO THE SURFACE PREPARATION AND APPLICATION OF THE SILANE OVERLAY. UNLESS OTHERWISE APPROVED, SUCH LOCATIONS SHALL BE REPAIRED WITH POLYMER CONCRETE.

WORK ON THE BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.

PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL A COMPLETE SEQUENCE OF TASKS FOR EACH OPERATION AFFECTING THE BRIDGE SURFACE AND/OR TRAFFIC.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

BRIDGE NO. 310135	CLEANING & PAINTING OF EXISTING WEATHERING STEEL BRIDGE No. ____	PAINTING CONTAINMENT FOR BRIDGE No. ____	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	EPOXY COATING	BRIDGE JOINT DEMOLITION	SURFACE PREPARATION FOR CONCRETE BARRIER	SILANE BARRIER RAIL TREATMENT	SILANE DECK TREATMENT	FOAM JOINT SEALS FOR PRESERVATION	FLOWABLE FILL	SHOTBLASTING BRIDGE DECK	ELASTOMERIC CONCRETE FOR PRESERVATION
	LUMP SUM	LUMP SUM	LUMP SUM	SQ. YDS.	CU. FT.	CU. FT.	LN. FT.	SQ. FT.	SQ. FT.	SQ. FT.	SQ. FT.	SQ. FT.	LN. FT.	CU. YD.	SQ. YDS.	CU. FT.
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	-	4	133	123	1,234	95*	5,046	5,046	3,985	73*	1.4	3,985	32.0

* FOR END BENT 2 JOINT ONLY

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310135

SHEET 2 OF 2

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

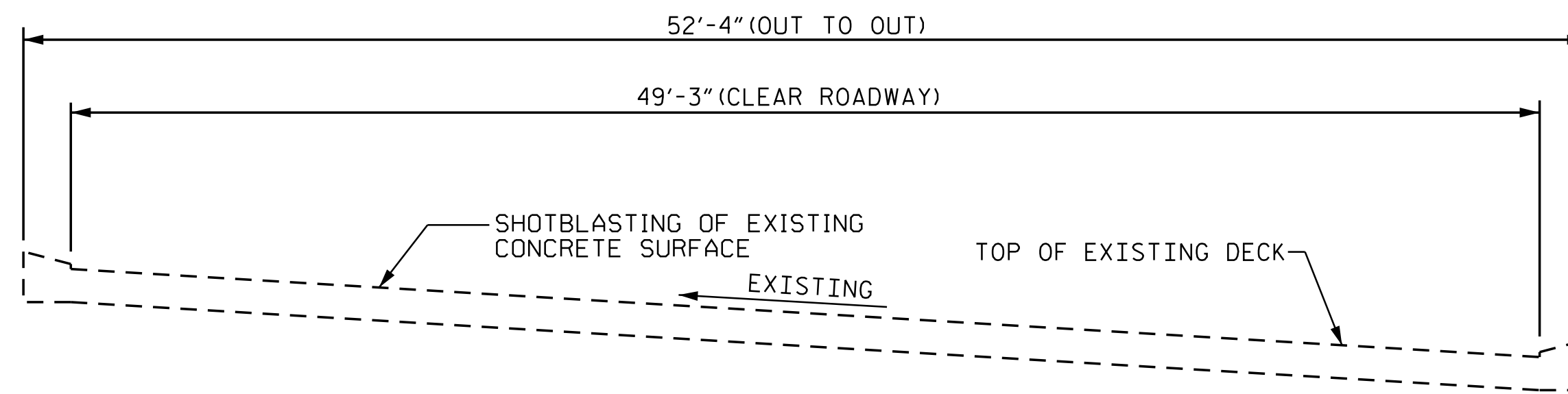
DocuSigned by:

E.L. ROBINSON
 3362 Six Forks Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2870
 efarzina@elrobinsongroup.com
 License: C-22 9

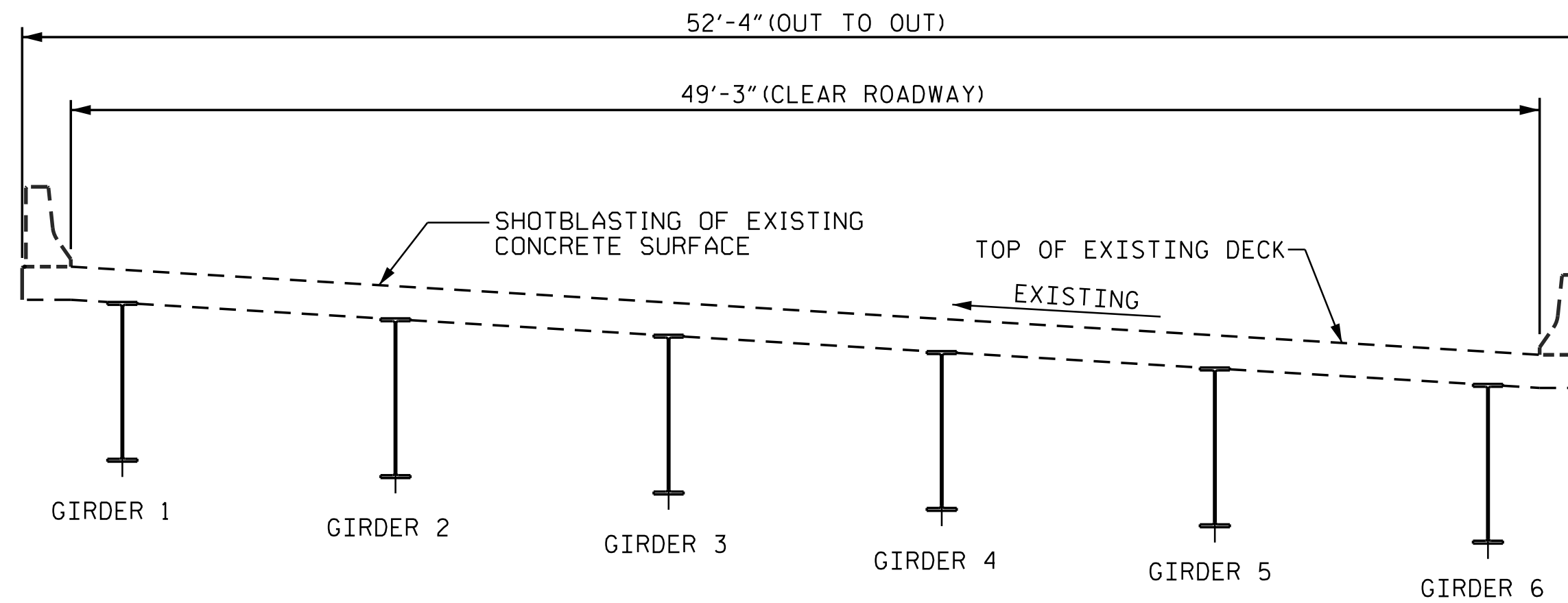
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON US
 15/501 SOUTHBOUND
 OVER I-85 AND
 ELLERBE CREEK

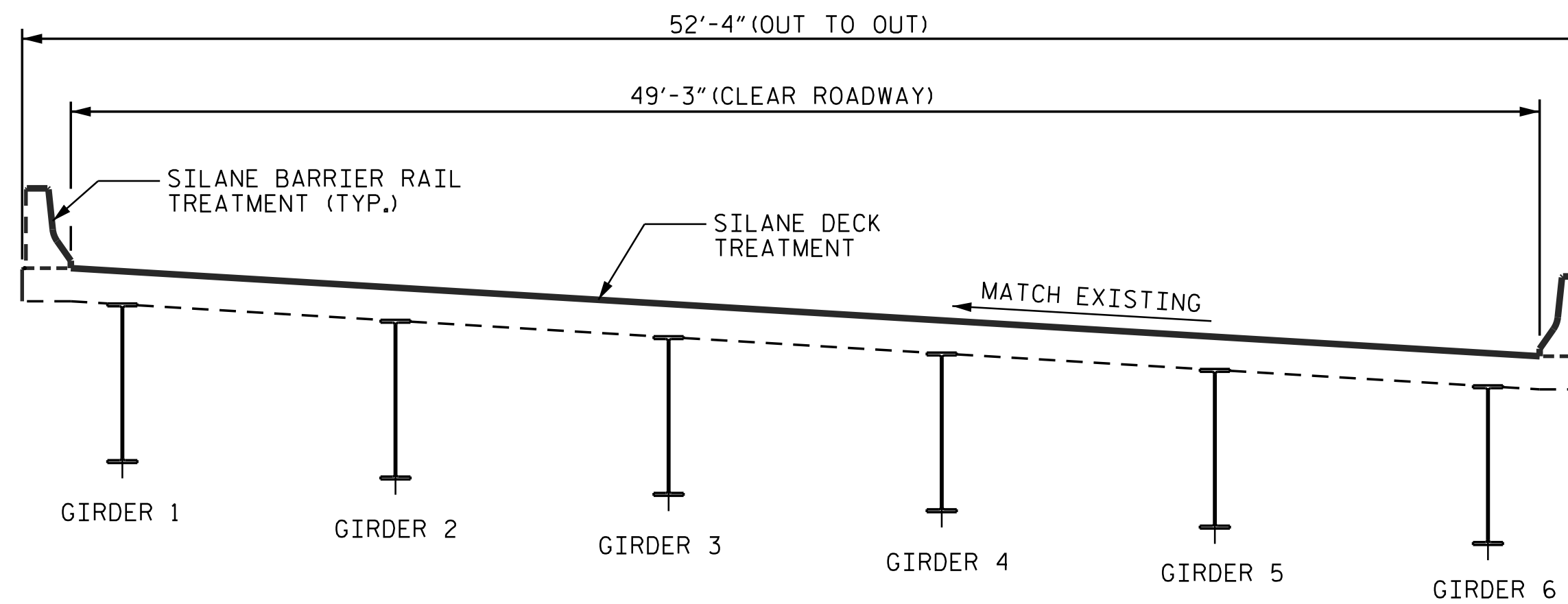
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			18



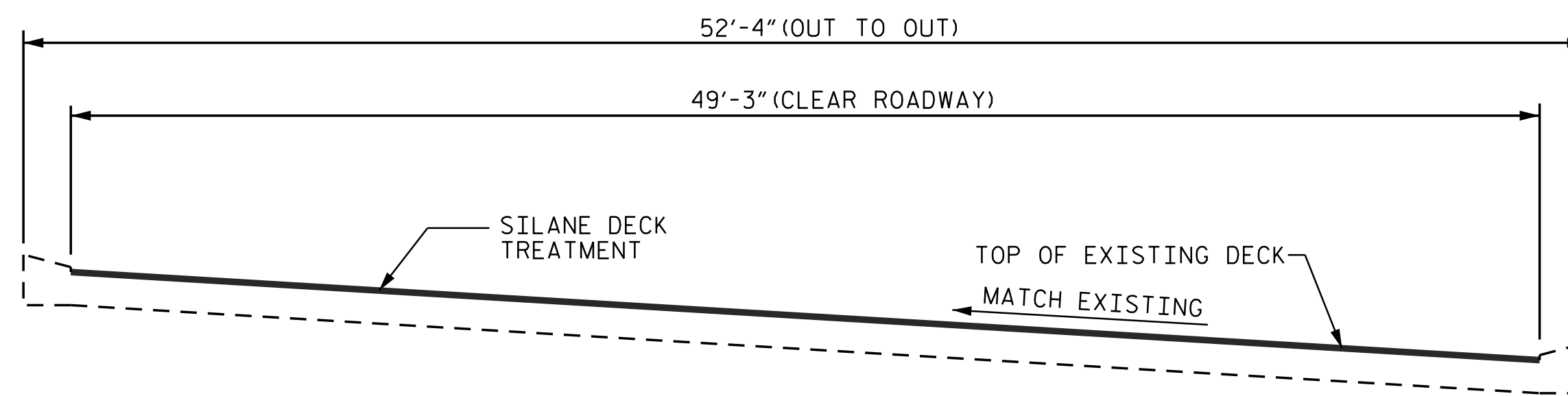
TYPICAL SECTION - APPROACH SLAB
(EXISTING)



TYPICAL SECTION
(EXISTING)



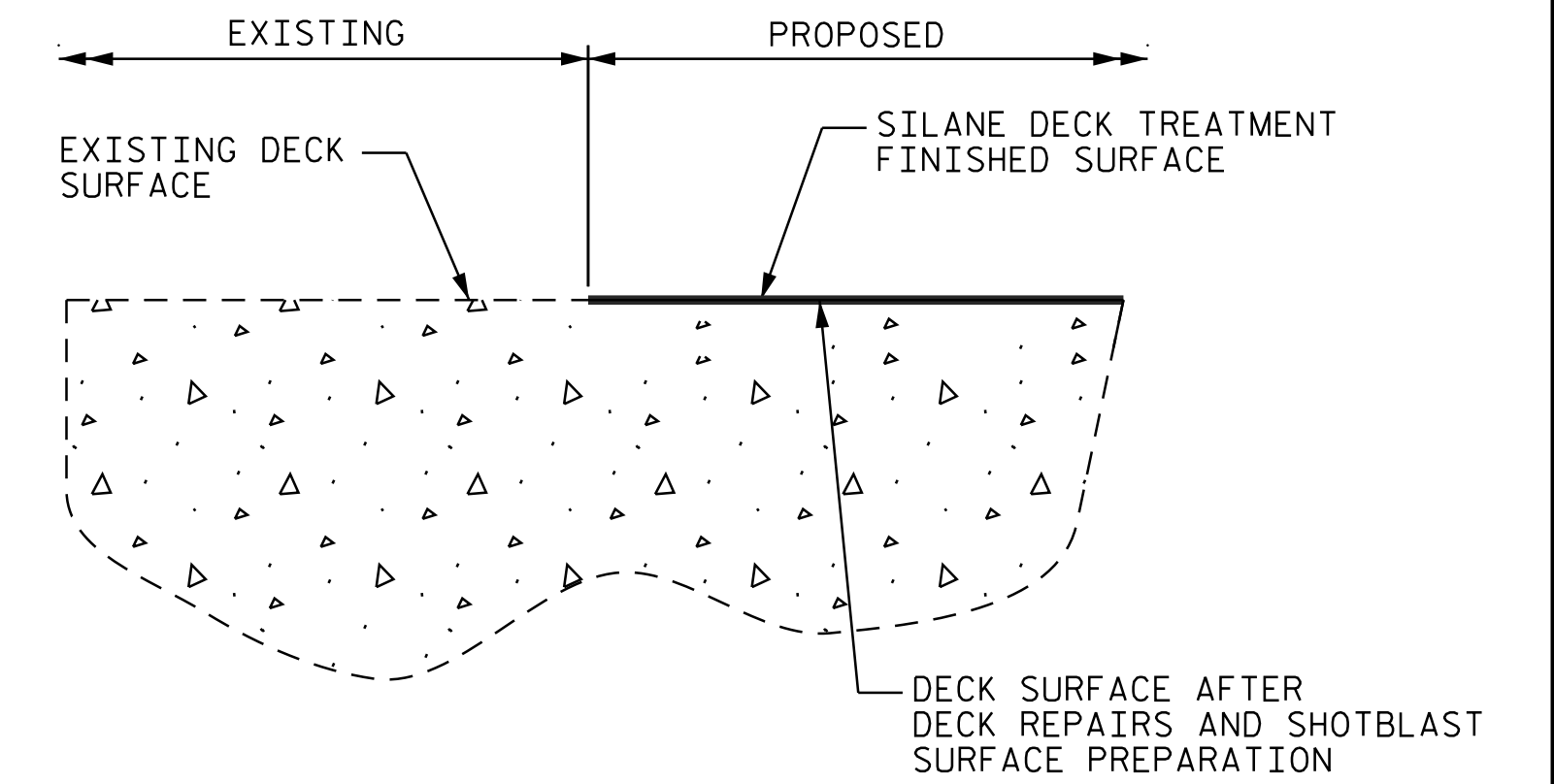
TYPICAL SECTION
(PROPOSED)



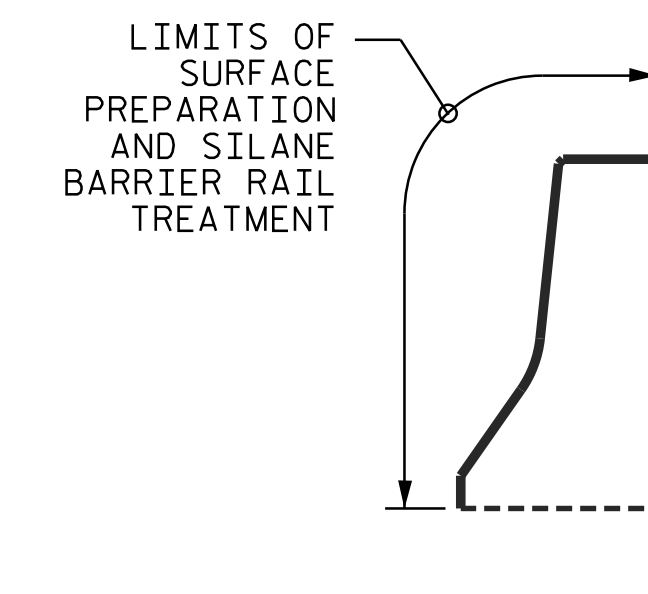
TYPICAL SECTION - APPROACH SLAB
(PROPOSED)

NOTES:

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



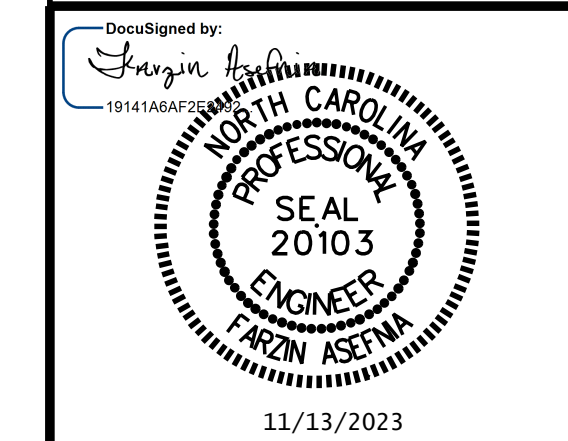
DETAIL FOR SILANE DECK TREATMENT



DETAIL FOR SILANE BARRIER RAIL TREATMENT

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310135

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



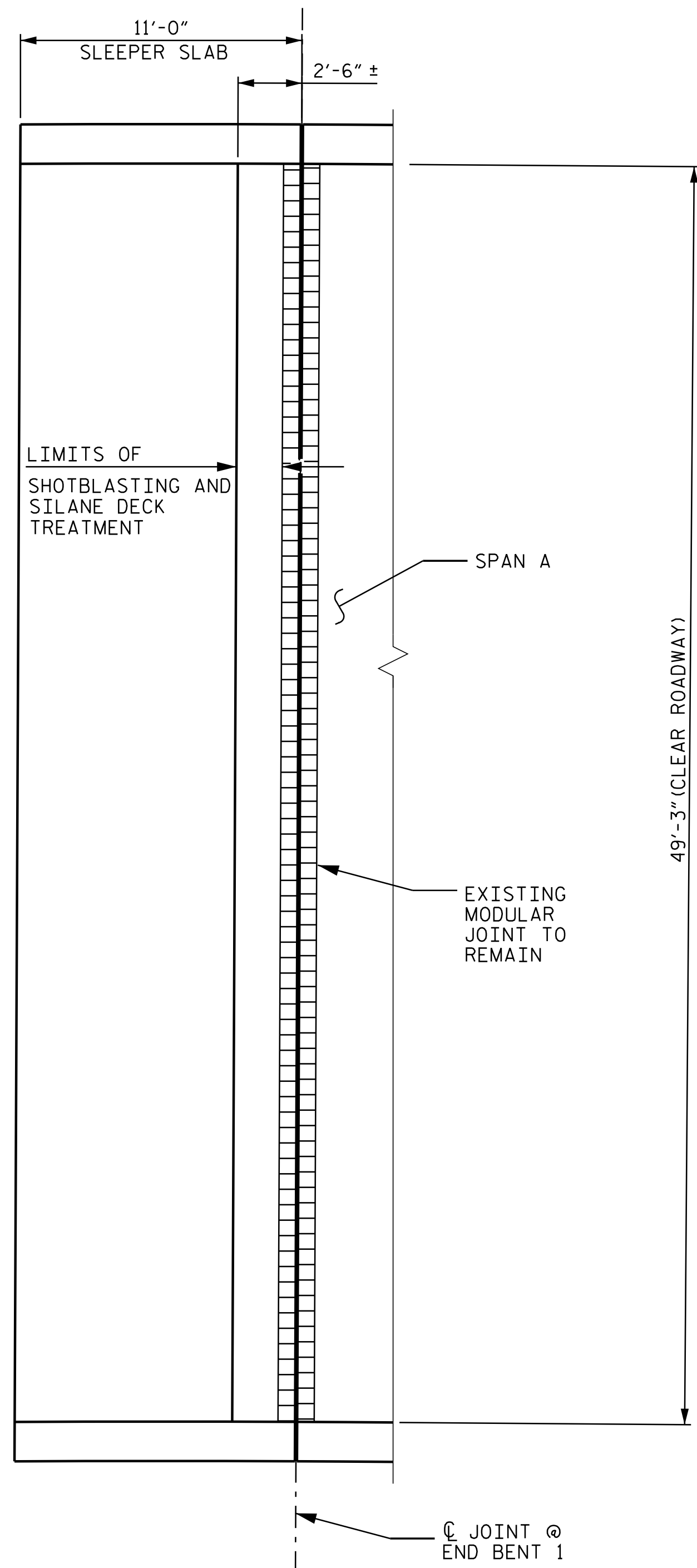
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION & SILANE DECK TREATMENT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-3
1			3			TOTAL SHEETS
2			4			18

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

E.L. ROBINSON
 3362 Six Forks Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 e:elrob@erobinson.com
 License: C-22 9



APPROACH SLAB 1

* SEE NOTE FOR EXPANSION JOINT @ END BENT 1

AS-BUILT REPAIR QUANTITY TABLE

APPROACH SLAB 1

	ESTIMATE	ACTUAL		
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR	0.0 SY			
SHOTBLASTING BRIDGE DECK	10.0 SY			
SILANE DECK TREATMENT	10.0 SY			
SURFACE PREP. FOR CONCRETE BARRIER	80.0 SF			
SILANE BARRIER RAIL TREATMENT	80.0 SF			
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	0.0	0.0		



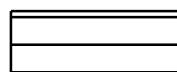
NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR AFTER REMOVAL OF UNSOUND CONCRETE. SEE CONCRETE FOR DECK REPAIR SPECIAL PROVISIONS.


FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

* THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF DEBRIS IN THE GLANDS OF THE MODULAR JOINT AT END BENT 1. ANY DAMAGE TO THE GLANDS OR THE ASSEMBLY SHALL BE REPORTED TO THE ENGINEER. PAYMENT FOR SUCH WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.

-  CLASS II SURFACE PREPARATION
-  CONCRETE REPAIR (CR)
-  EXISTING JOINT TO REMAIN

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310135

SHEET 1 OF 6

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH	
		DECK SURFACE REPAIR APPROACH SLAB 1	
REVISIONS NO. BY: DATE: NO. BY: DATE:		SHEET NO. S3-4	
1 3 2 4		TOTAL SHEETS 18	

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

E.L. ROBINSON
 3362 Old Fork Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 e:elr@elrrobinson.com
 License: C-22 9

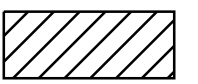
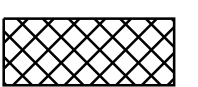
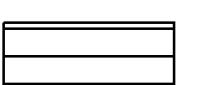
NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR AFTER REMOVAL OF UNSOUND CONCRETE. SEE CONCRETE FOR DECK REPAIR SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

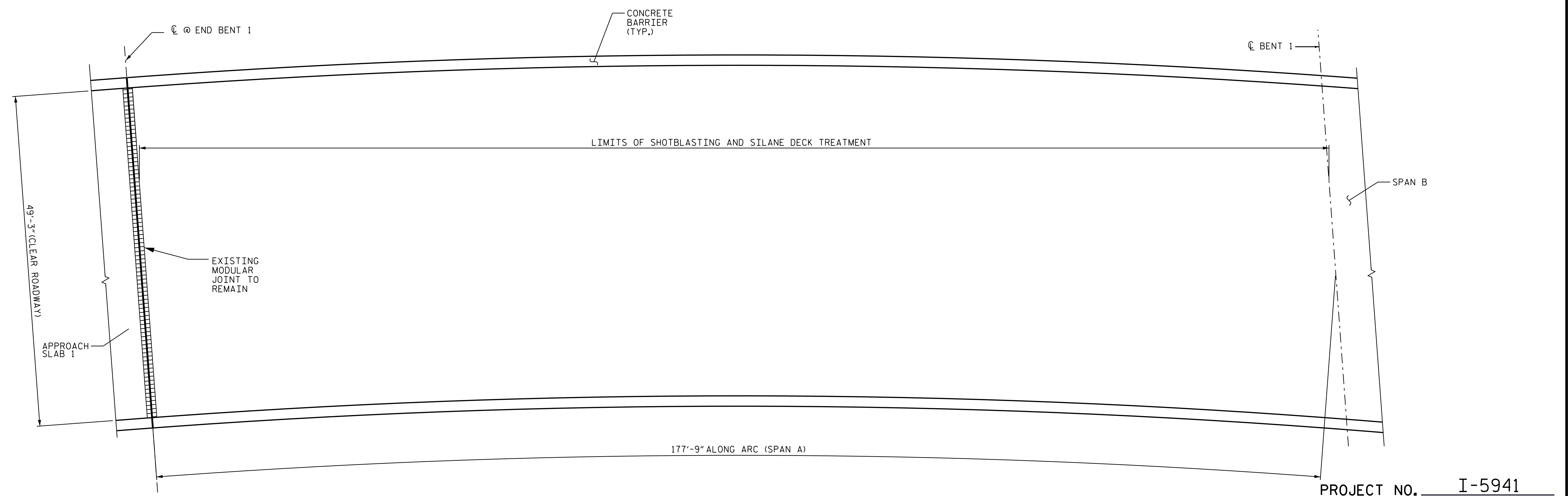
* THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF DEBRIS IN THE GLANDS OF THE MODULAR JOINT AT END BENT 1. ANY DAMAGE TO THE GLANDS OR THE ASSEMBLY SHALL BE REPORTED TO THE ENGINEER. PAYMENT FOR SUCH WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.

-  CLASS II SURFACE PREPARATION
-  CONCRETE REPAIR (CR)
-  EXISTING JOINT TO REMAIN

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS - SPAN A

	ESTIMATE		ACTUAL	
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR	0.0 SY			
SHOTBLASTING BRIDGE DECK	969.0 SY			
SILANE DECK TREATMENT	969.0 SY			
SURFACE PREP. FOR CONCRETE BARRIER	1,185.0 SF			
SILANE BARRIER RAIL TREATMENT	1,185.0 SF			
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	0.0	0.0		

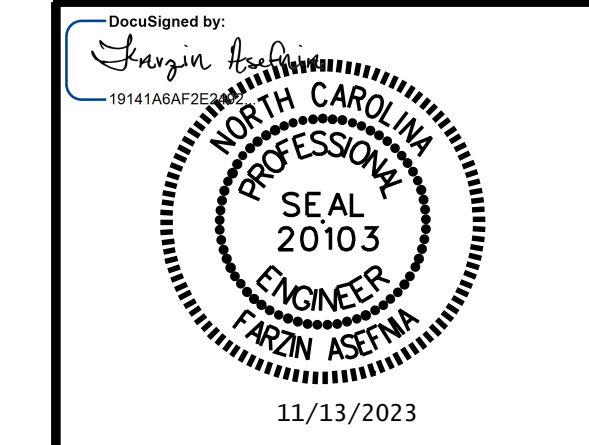


PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310135
 SHEET 2 OF 6

PLAN OF SPAN A

* SEE NOTE FOR EXPANSION JOINT @ END BENT 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
DECK SURFACE REPAIR
SPAN A

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

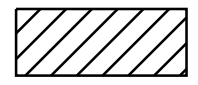
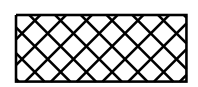
E.L. ROBINSON
 3362 Six Forks Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 e:rlr@elrobinsongroup.com
 License: C-22 9

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-5
2			4			TOTAL SHEETS 18

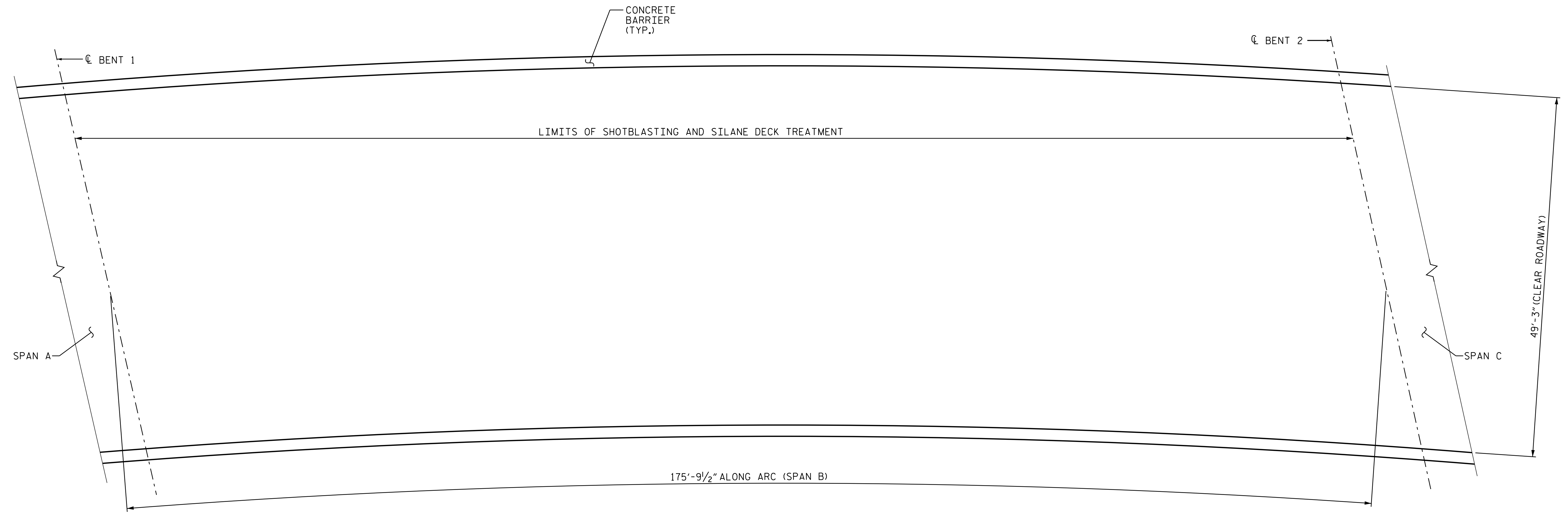
AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS - SPAN B

	ESTIMATE	ACTUAL		
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR	0.0 SY			
SHOTBLASTING BRIDGE DECK	957.0 SY			
SILANE DECK TREATMENT	957.0 SY			
SURFACE PREP. FOR CONCRETE BARRIER	1,172.0 SF			
SILANE BARRIER RAIL TREATMENT	1,172.0 SF			
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	0.0	0.0		

-  CLASS II SURFACE PREPARATION
-  CONCRETE REPAIR (CR)

NOTES:
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.
 DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR AFTER REMOVAL OF UNSOUND CONCRETE. SEE CONCRETE FOR DECK REPAIR SPECIAL PROVISIONS.
 FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.




PLAN OF SPAN B

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310135
 SHEET 3 OF 6

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Designed by: *Farzin Asefnia*



11/13/2023

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK SURFACE REPAIR
 SPAN B

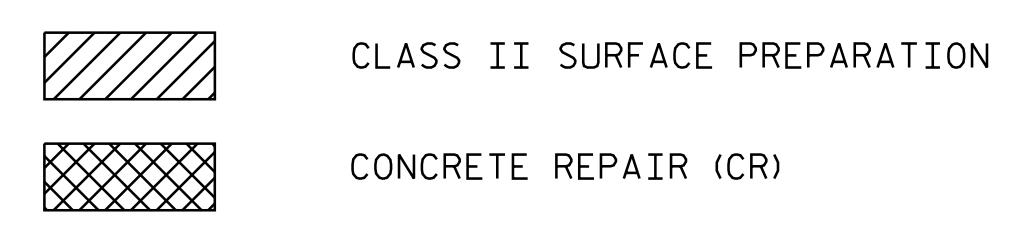
DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-6
2			4			TOTAL SHEETS 18

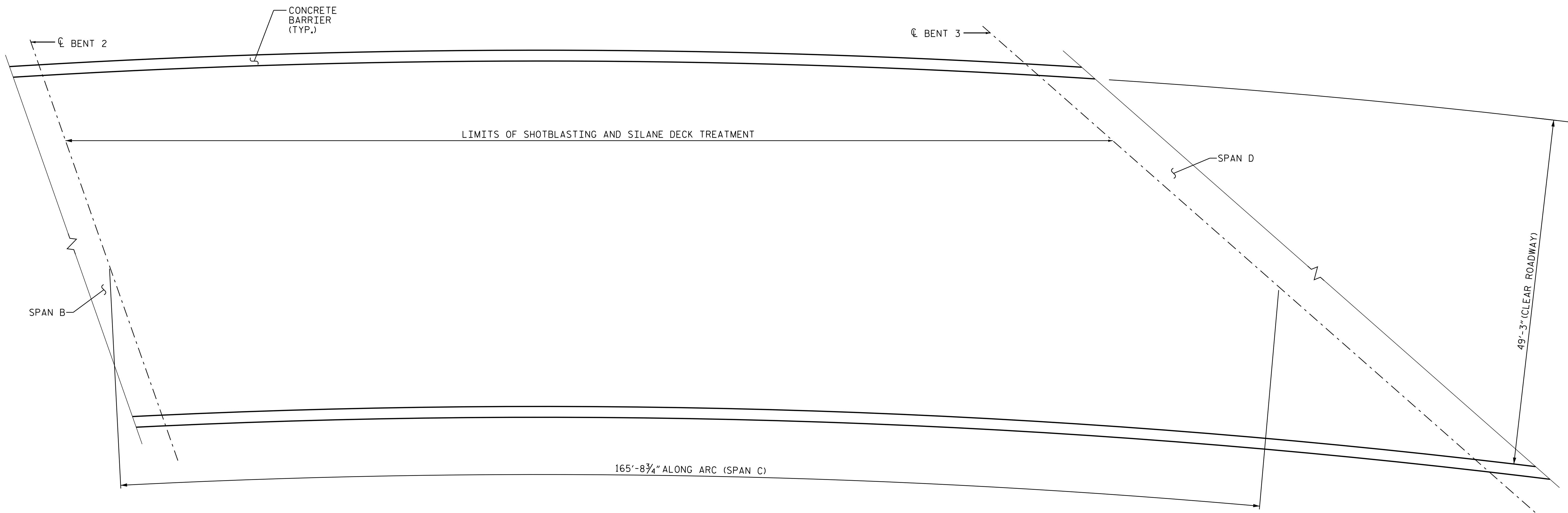
AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS - SPAN C

	ESTIMATE		ACTUAL	
CLASS II SURFACE PREPARATION	0.0	SY		
CONCRETE DECK REPAIR	0.0	SY		
SHOTBLASTING BRIDGE DECK	906.0	SY		
SILANE DECK TREATMENT	906.0	SY		
SURFACE PREP. FOR CONCRETE BARRIER	1,093.0	SF		
SILANE BARRIER RAIL TREATMENT	1,093.0	SF		
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	0.0	0.0		



NOTES:
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.
 DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR AFTER REMOVAL OF UNSOUND CONCRETE. SEE CONCRETE FOR DECK REPAIR SPECIAL PROVISIONS.
 FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.



PLAN OF SPAN C

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310135
 SHEET 4 OF 6

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

10/14/2023

11/13/2023

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

DECK SURFACE REPAIR
 SPAN C

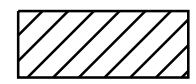
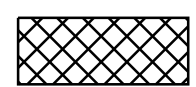

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S3-7
2			4			TOTAL SHEETS 18

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR AFTER REMOVAL OF UNSOUND CONCRETE. SEE CONCRETE FOR DECK REPAIR SPECIAL PROVISIONS.

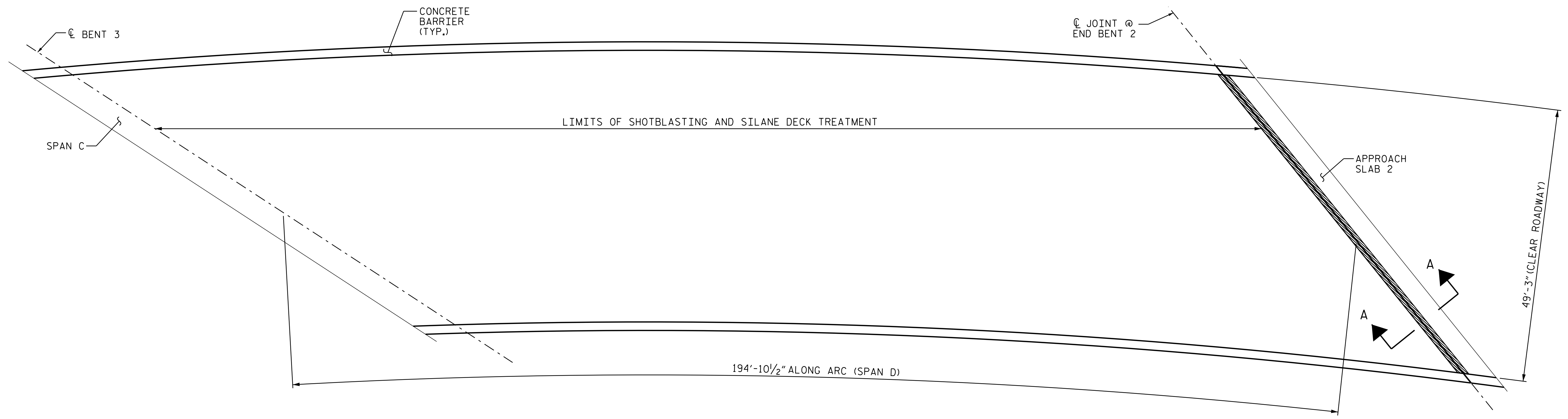
FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

-  CLASS II SURFACE PREPARATION
-  CONCRETE REPAIR (CR)
-  BRIDGE JOINT DEMOLITION

AS-BUILT REPAIR QUANTITY TABLE

TOP OF DECK REPAIRS - SPAN D

	ESTIMATE	ACTUAL		
BRIDGE JOINT DEMOLITION	47.5 SF			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR	0.0 SY			
SHOTBLASTING BRIDGE DECK	1,063.0 SY			
SILANE DECK TREATMENT	1,063.0 SY			
SURFACE PREP. FOR CONCRETE BARRIER	1,309.0 SF			
SILANE BARRIER RAIL TREATMENT	1,309.0 SF			
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF	AREA SF.	VOLUME CF
CONCRETE CURB AND RAIL	0.0	0.0		



PLAN OF SPAN D

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310135

SHEET 5 OF 6

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

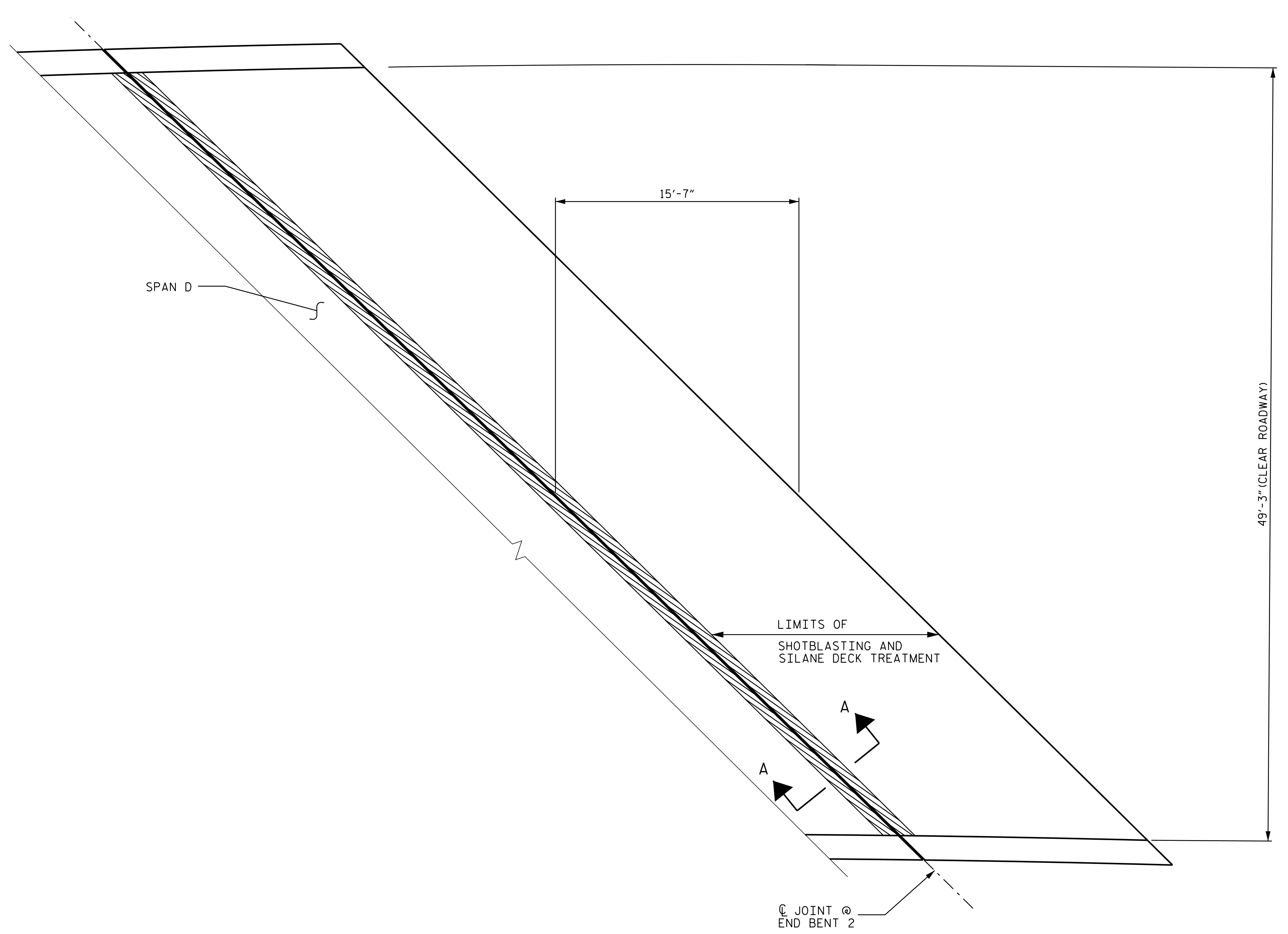


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DECK SURFACE REPAIR
 SPAN D

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

E.L. ROBINSON
 3362 Old Fork Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 efr@elrobinsonengineering.com
 License: C-22 9

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



APPROACH SLAB 2

AS-BUILT REPAIR QUANTITY TABLE

APPROACH SLAB 2

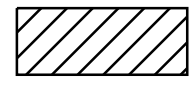
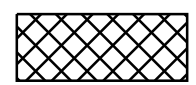
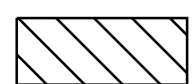
	ESTIMATE	ACTUAL		
BRIDGE JOINT DEMOLITION	47.5 SF			
CLASS II SURFACE PREPARATION	0.0 SY			
CONCRETE DECK REPAIR	0.0 SY			
SHOTBLASTING BRIDGE DECK	80.0 SY			
SILANE DECK TREATMENT	80.0 SY			
SURFACE PREP. FOR CONCRETE BARRIER	207.0 SF			
SILANE BARRIER RAIL TREATMENT	207.0 SF			
CONCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF.	VOLUME CF.	AREA SF.	VOLUME CF.
CONCRETE CURB AND RAIL	0.0	0.0		

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

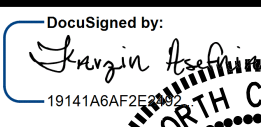

DECK SURFACE REPAIR QUANTITIES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR AFTER REMOVAL OF UNSOUND CONCRETE. SEE CONCRETE FOR DECK REPAIR SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

-  CLASS II SURFACE PREPARATION
-  CONCRETE REPAIR (CR)
-  BRIDGE JOINT DEMOLITION

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310135

SHEET 6 OF 6

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED DocuSigned by:   11/13/2023	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH DECK SURFACE REPAIR APPROACH SLAB 2																			
	REVISIONS																			
E.L. ROBINSON 3362 Old Fork Rd. Raleigh, N.C. 27609 Tel: 984.980.2810 efarzina@easeng.com License: C-22 9	<table border="1"> <thead> <tr> <th>NO.</th> <th>BY:</th> <th>DATE:</th> <th>NO.</th> <th>BY:</th> <th>DATE:</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> </tr> </tbody> </table>	NO.	BY:	DATE:	NO.	BY:	DATE:	1			3			2			4			SHEET NO. S3-9 TOTAL SHEETS 18
NO.	BY:	DATE:	NO.	BY:	DATE:															
1			3																	
2			4																	

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

JOINT REPAIR QUANTITY TABLE		
FOAM JOINT SEALS FOR PRESERVATION	ESTIMATED LIN. FT.	ACTUAL LIN. FT.
END BENT 2	73	

ELASTOMERIC CONCRETE (CU. FT.)	
END BENT 2	32.0
TOTAL	32.0

NOTES:
 FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE SEALANT WORK IS COMPLETE.
 THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN DETAIL BY MORE THAN 1/4", NOTIFY ENGINEER.

FINAL SURFACE OF THE JOINT DEMOLITION AREA PRIOR TO PLACEMENT OF CONCRETE REPAIR MATERIAL SHOULD BE REASONABLY FLAT AND LEVEL. ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF THE SURFACE PRIOR TO PLACEMENT OF ELASTOMERIC CONCRETE OR REPAIR CONCRETE.

THE INSTALLATION OF THE JOINT SEAL SHALL BE WATERTIGHT.

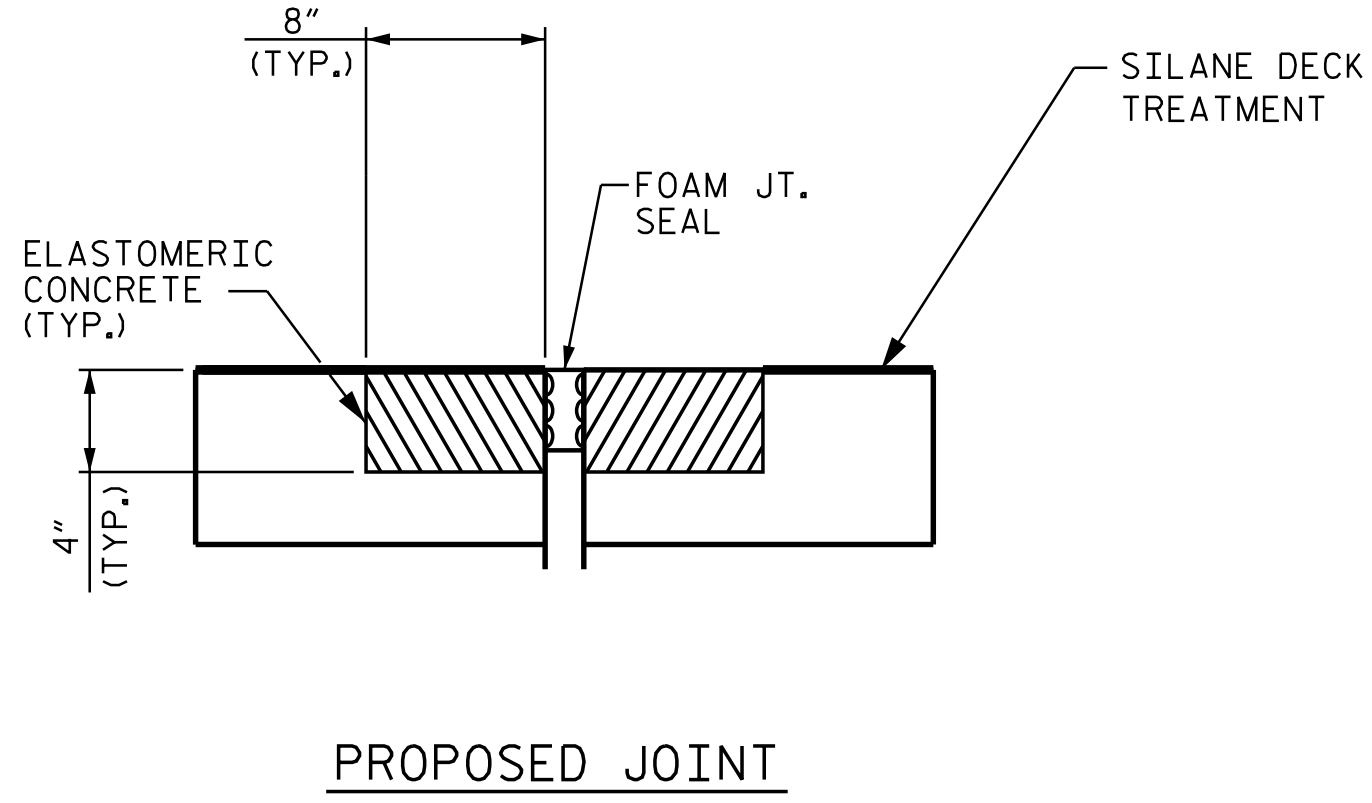
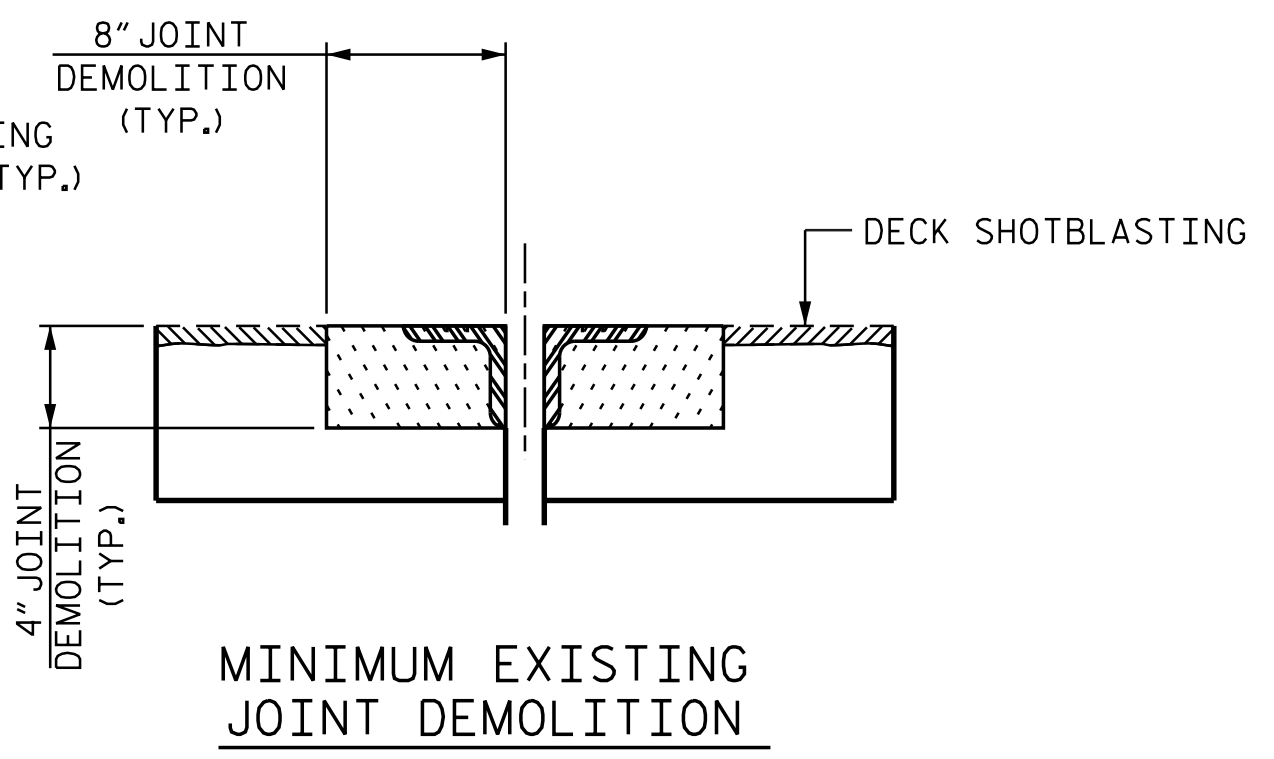
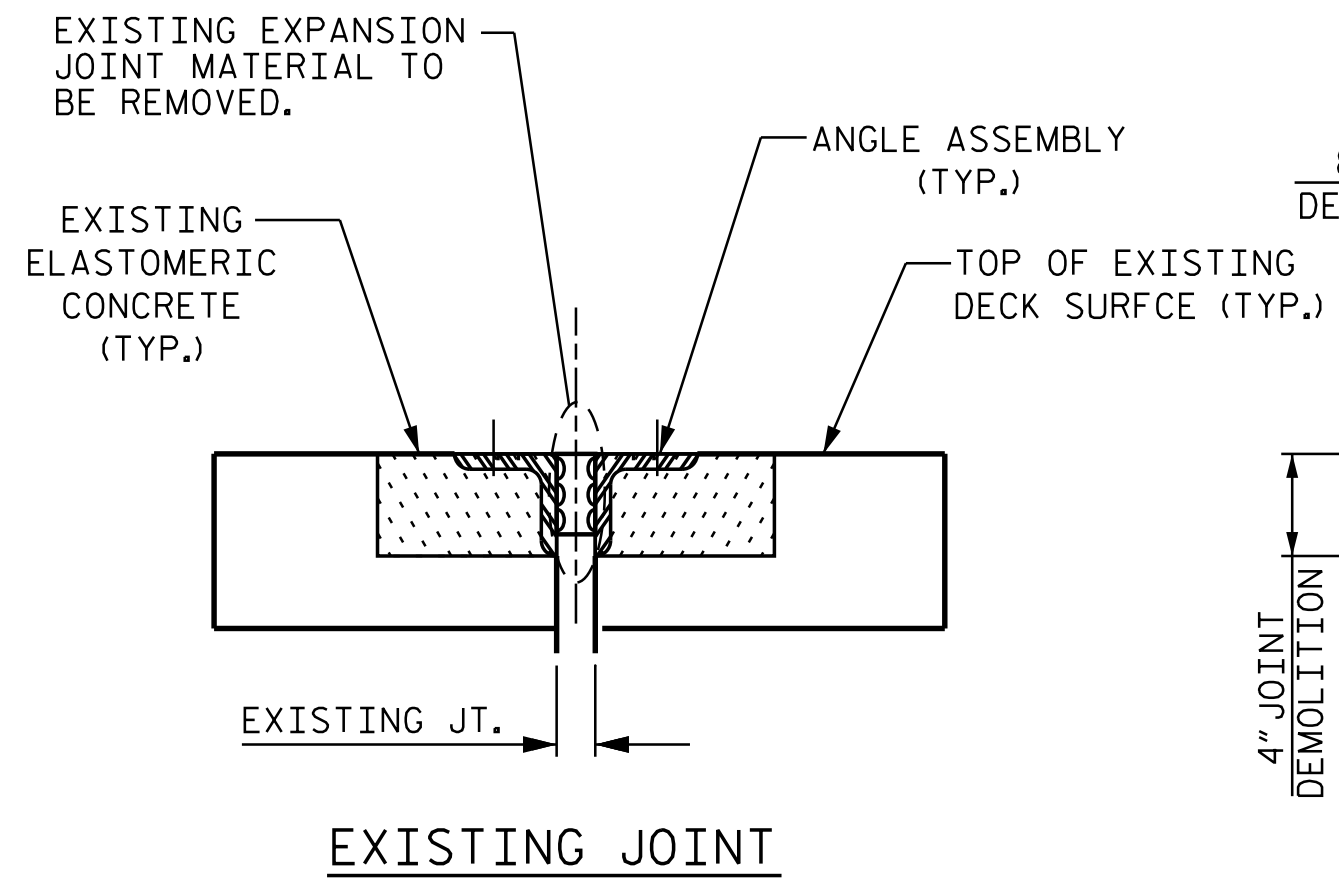
FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

A MANUFACTURER'S CERTIFIED TRAINED REPRESENTATIVE SHALL BE PRESENT DURING THE INSTALLATION OF THE FIRST JOINT OF THE PROJECT, OR UNTIL THE ENGINEER IS SATISFIED WITH THE INSTALLATION PROCESS.

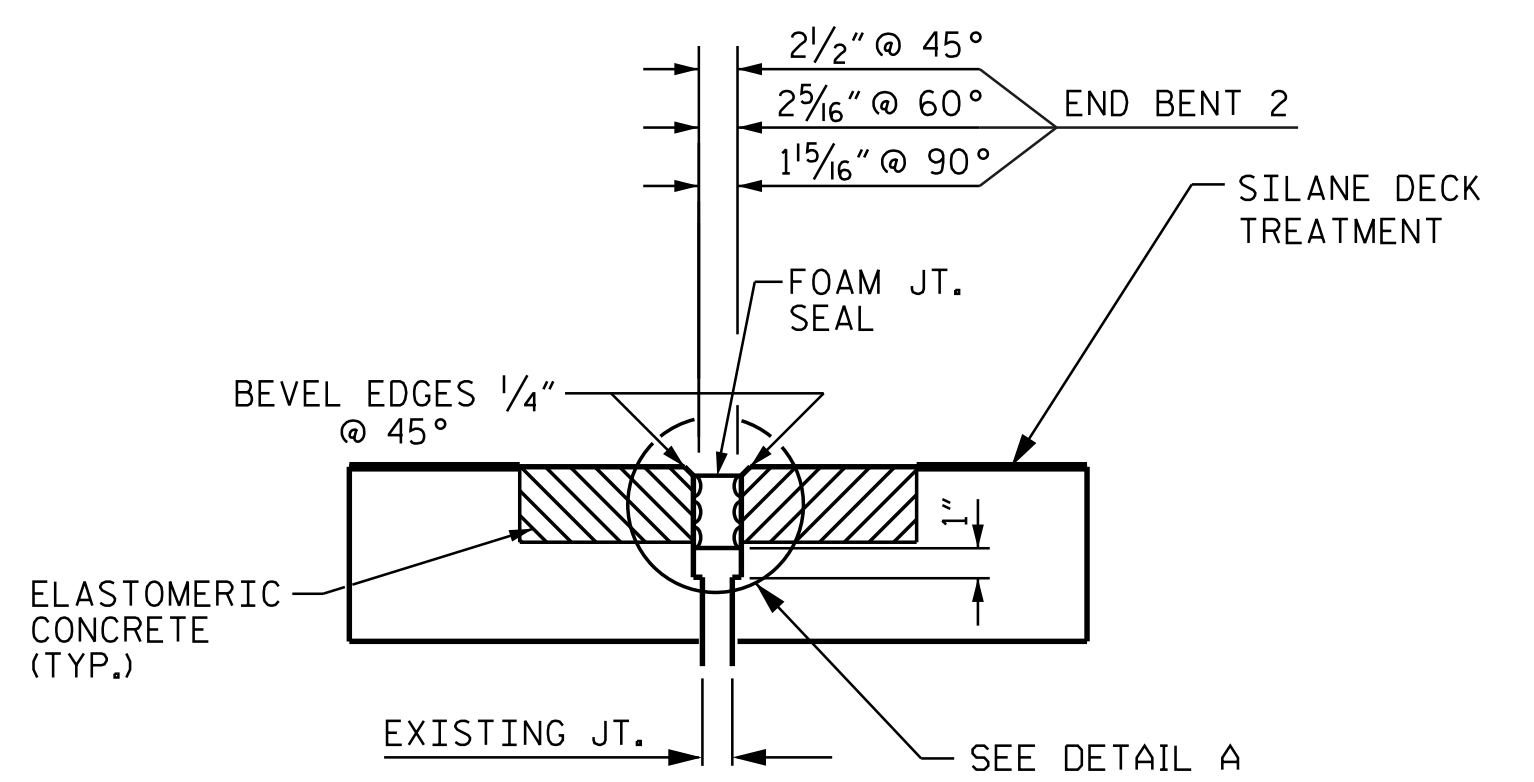
THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVE AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OF NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

THE MANUFACTURER IS TO DETERMINE AND PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND TO ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.

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

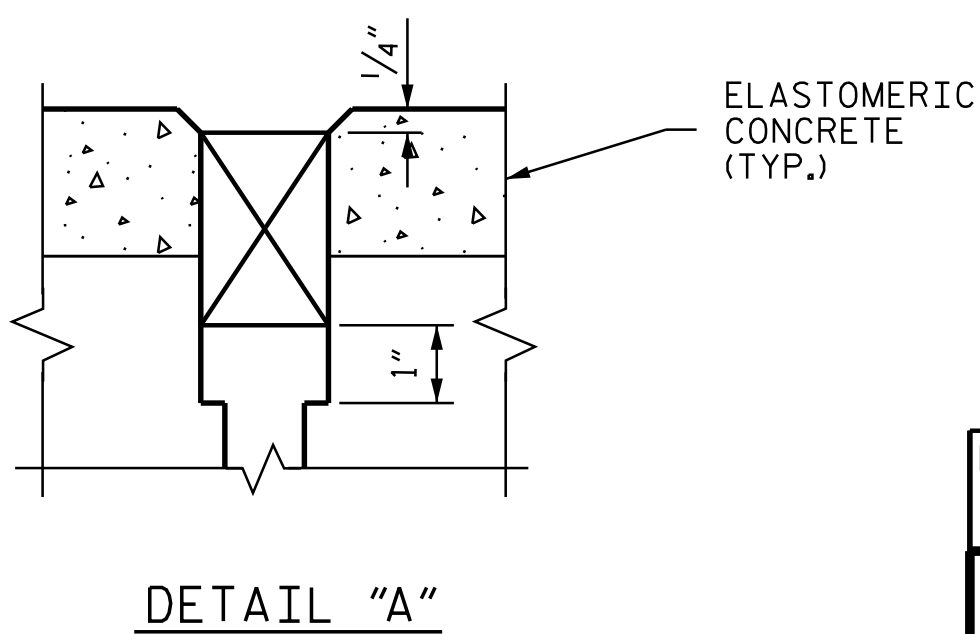
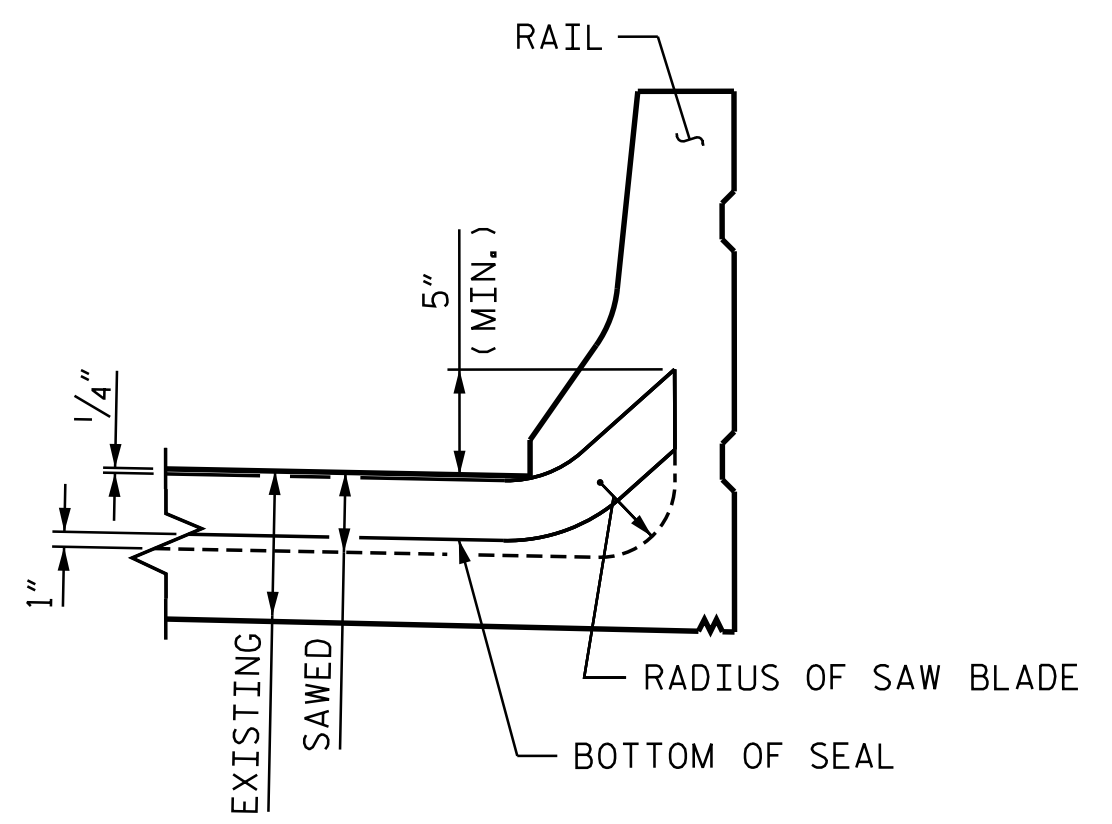
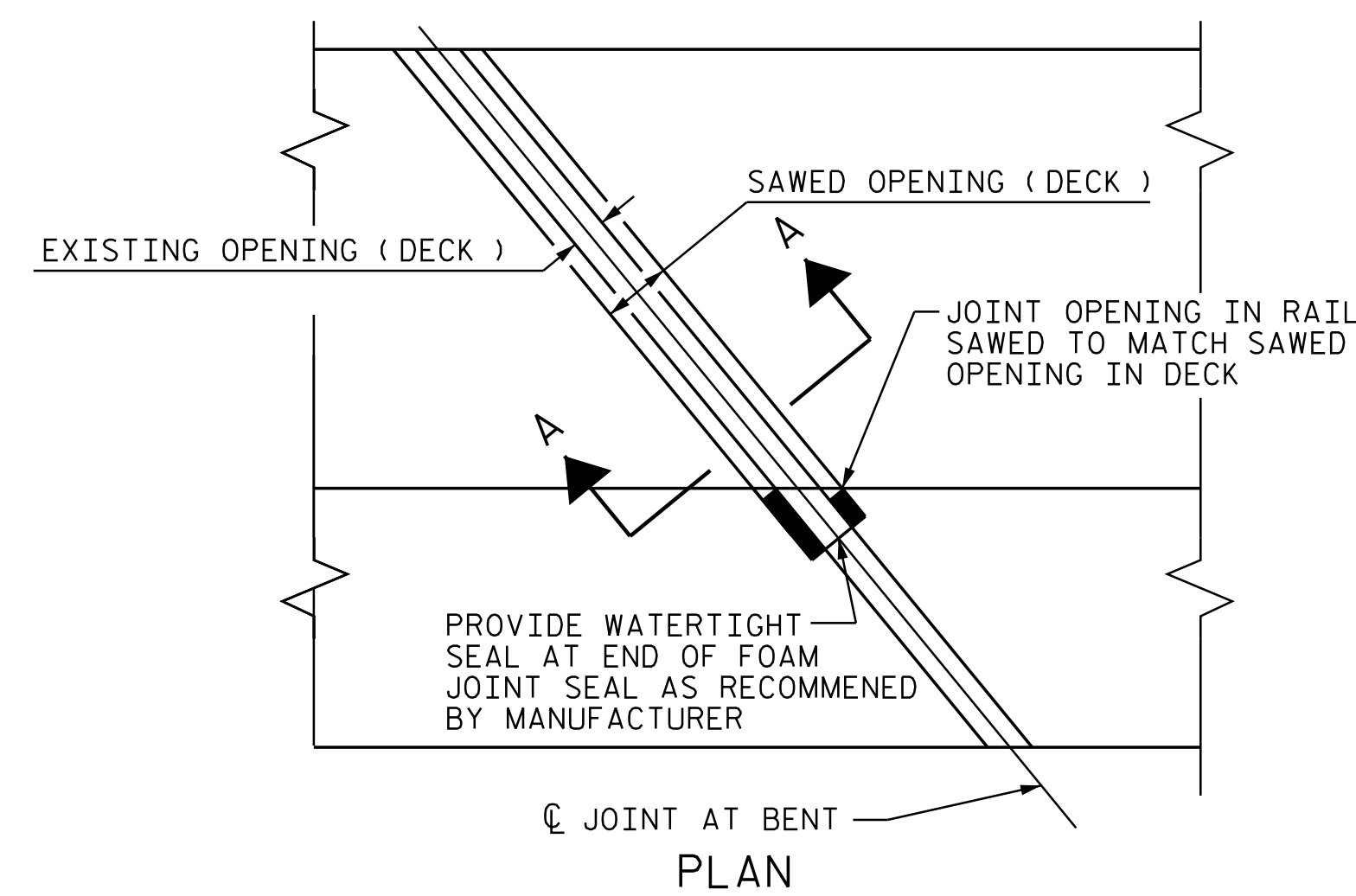


JOINT INSTALLATION SEQUENCE AT BENTS
 SECTION A-A



PROPOSED FOAM JOINT SEAL EXPANSION

PROJECT NO. I-5941
 DURHAM COUNTY
 BRIDGE NO. 310135



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by:
 Farzin Asefnia
 10141ABAD

NORTH CAROLINA PROFESSIONAL SEAL 20103 ENGINEER FARZIN ASEFNIA
 11/13/2023

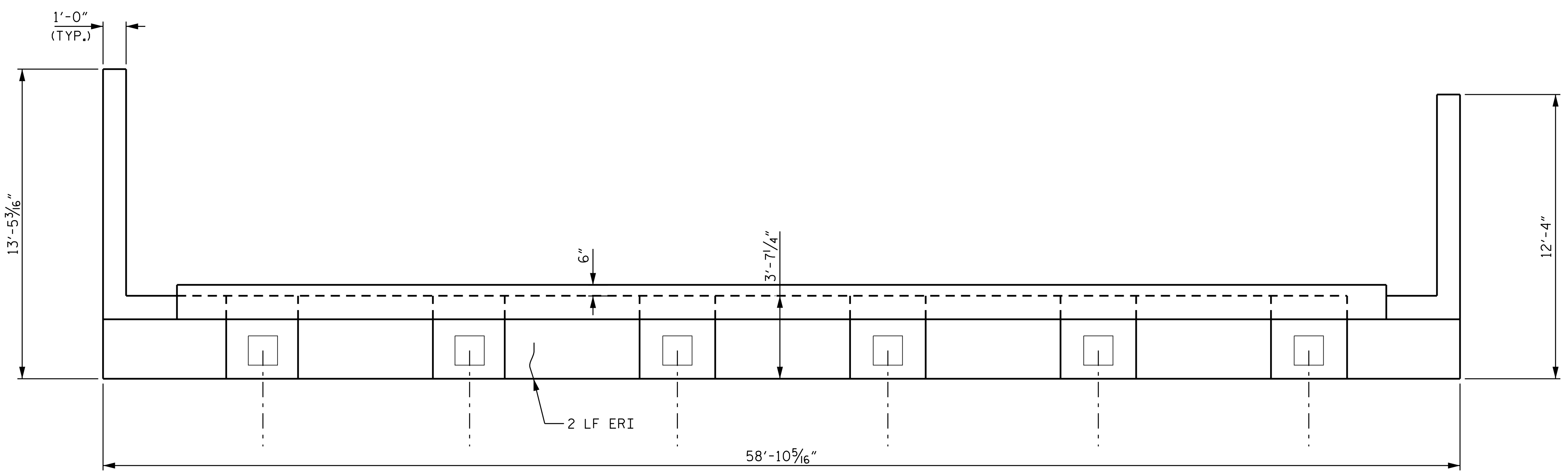
E.L. ROBINSON
 3362 Old Fork Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 efarzina@e.lrobinson.com
 License: C-22 9

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

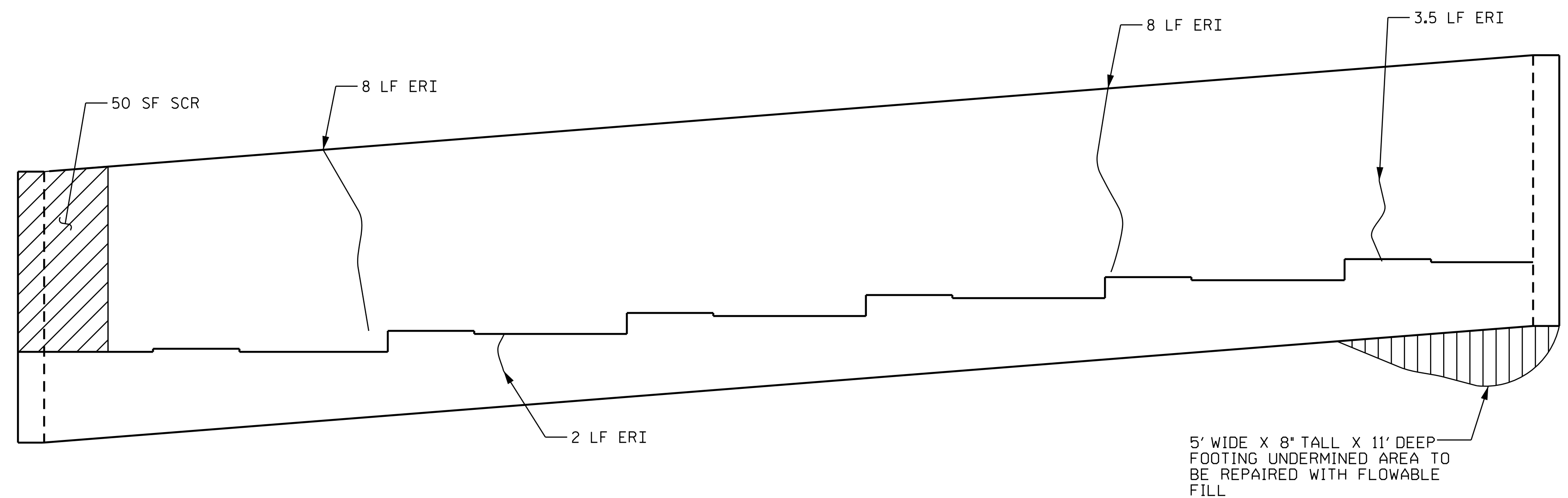
SUPERSTRUCTURE
 JOINT DETAILS @ END BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-10
1			3			TOTAL SHEETS
2			4			18

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023



PLAN



ELEVATION

END BENT NO. 1

AS-BUILT REPAIR QUANTITY TABLE				
END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
CURTAIN WALL	50.0	12.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
FLOWABLE FILL	VOLUME CY		VOLUME CY	
RIGHT END	1.4			
EPOXY RESIN INJECTION	LN. FT.		LN. FT.	
CAP	4.0			
CURTAIN WALL	19.5			
EPOXY COATING	SQ. FT.		SQ. FT.	
TOP OF CAP	140.0			

NOTES:
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

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

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

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

FOR FLOWABLE FILL, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL CLEAN AND REMOVE DEBRIS AND LOOSE MATERIAL FROM THE UNDERMINED FOOTING AREA TO THE SATISFACTION OF THE ENGINEER. NO ADDITIONAL EXCAVATION SHALL BE ALLOWED.

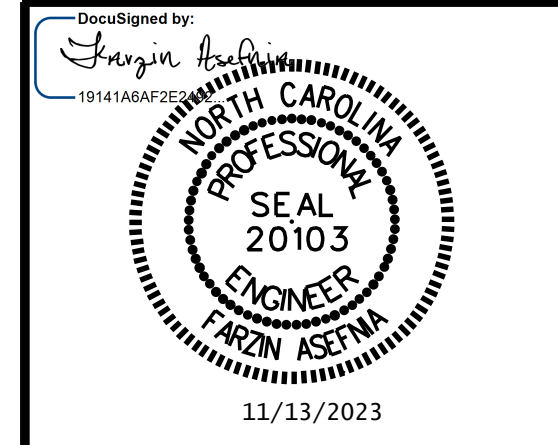
AFTER COMPLETION AND TOTAL CURING OF THE FLOWABLE FILL, THE SURROUNDING AFFECTED AREA AND THE SLOPE PROTECTION SHALL BE RESTORED WITH THE SAME SIZE RIP RAP STONES.

- SHOTCRETE REPAIR (SCR)
- CONCRETE REPAIR (CR)
- FLOWABLE FILL REPAIR
- EPOXY RESIN INJECTION (ERI)

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310135

SHEET 1 OF 8

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



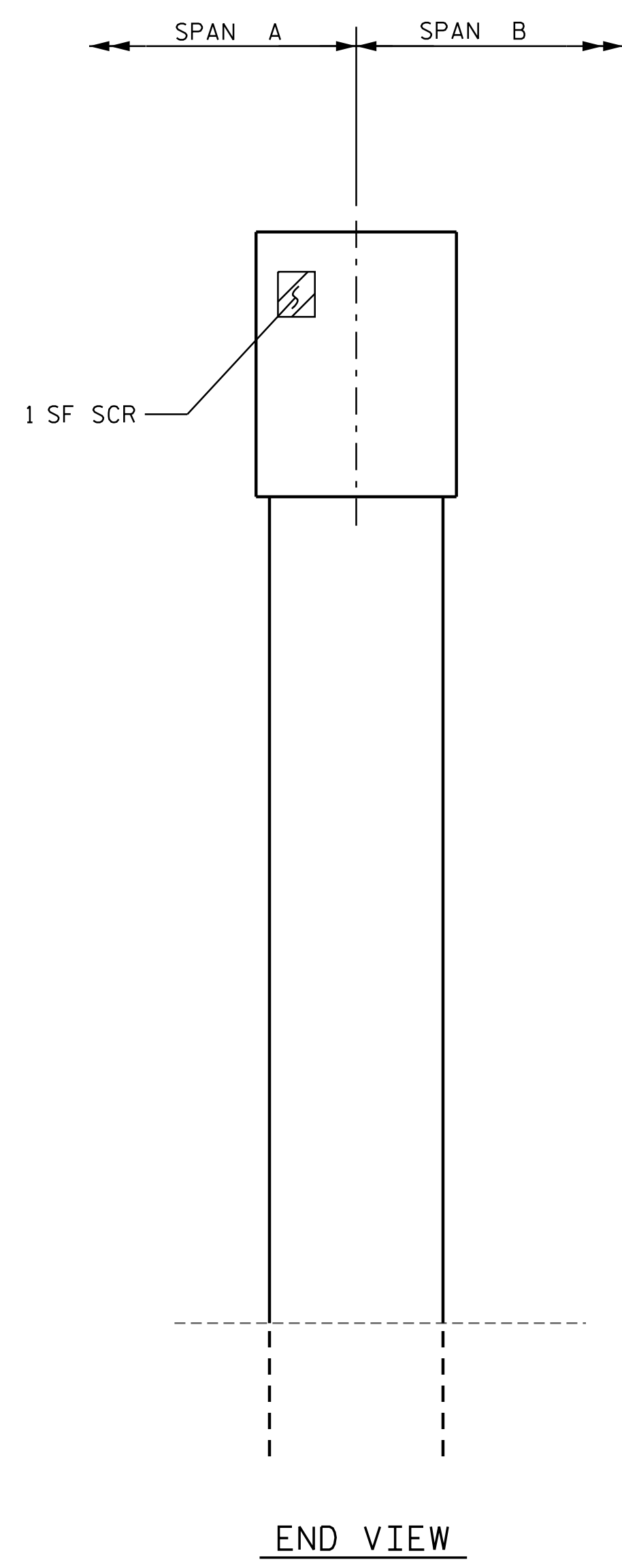
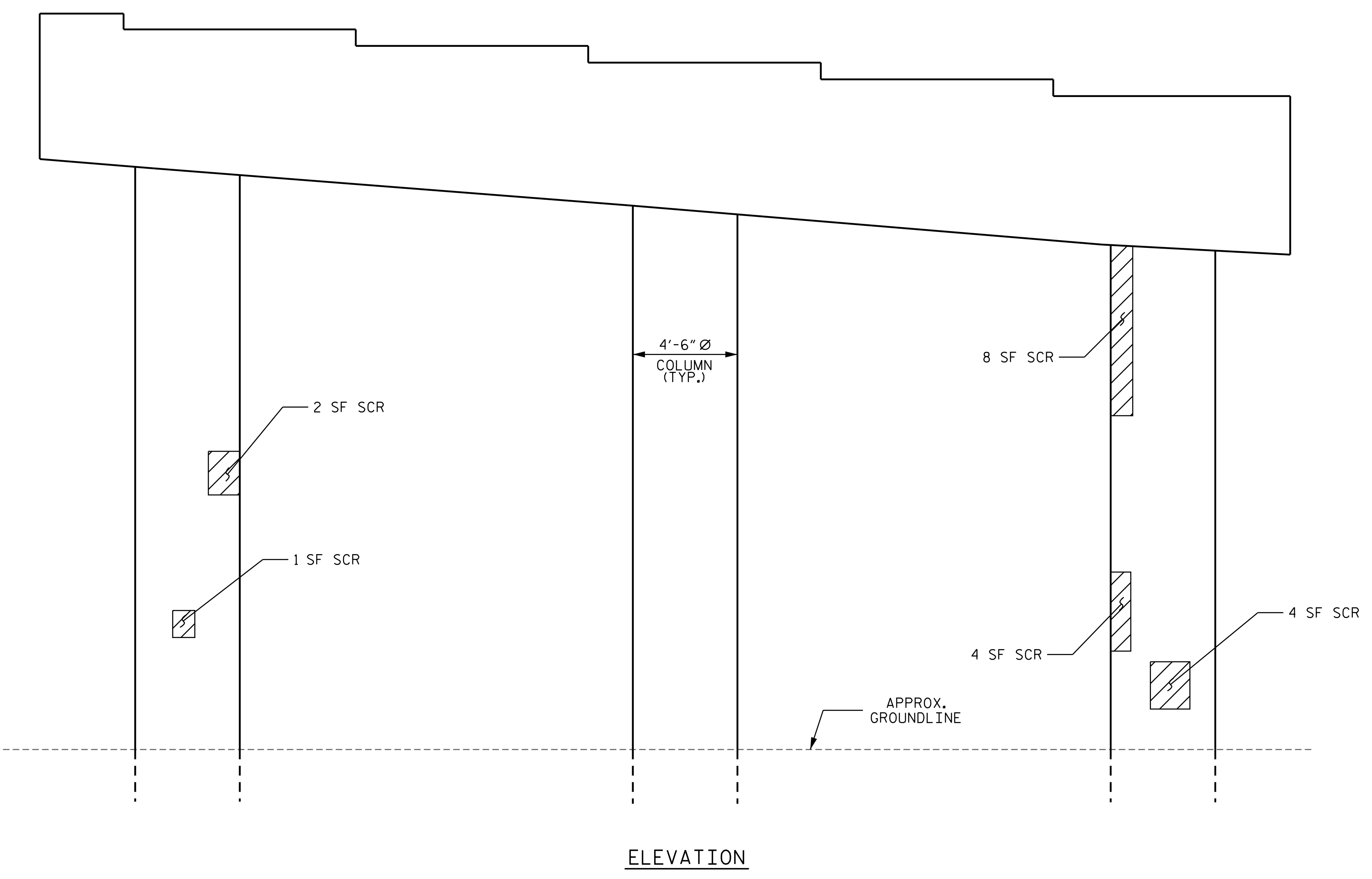
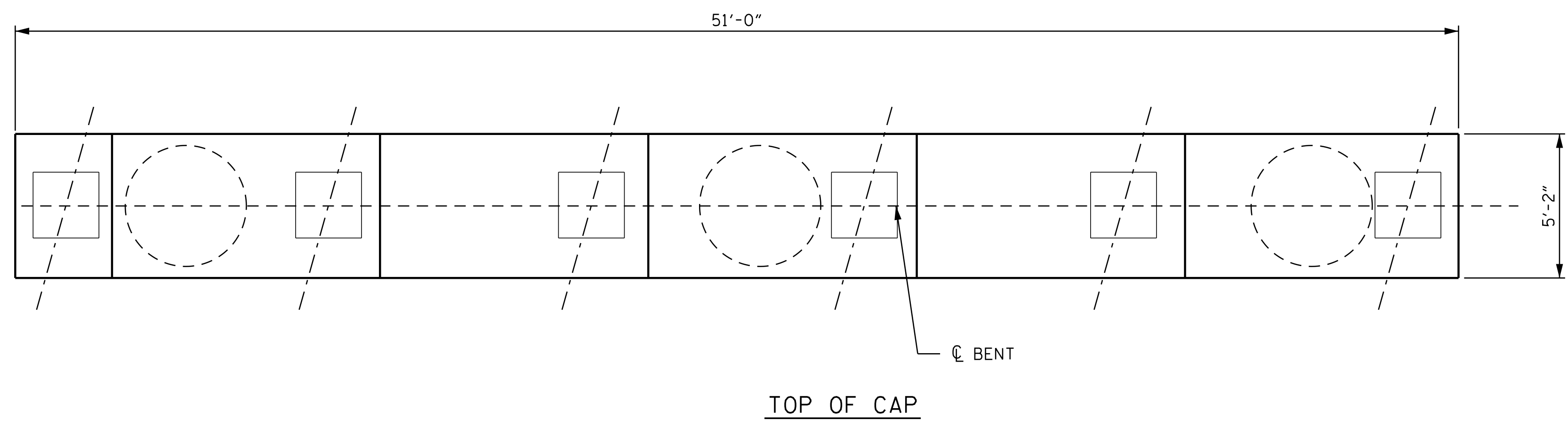
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE REPAIR
 END BENT 1

REVISIONS						SHEET NO. S3-11
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

E.L. ROBINSON
 3362 Six Forks Rd.
 Raleigh, N.C. 27609
 Tel: 984.980.2810
 efl@elrobinsonengineering.com
 License: C-22 9



BENT NO. 1
SPAN A FACE

AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 SPAN A FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	1.0	0.3		
COLUMN	19.0	5.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT.		LN. FT.	
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	SQ. FT.		LN. FT.	
TOP OF BENT CAP	252.0			

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

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

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

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

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310135

SHEET 2 OF 8

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

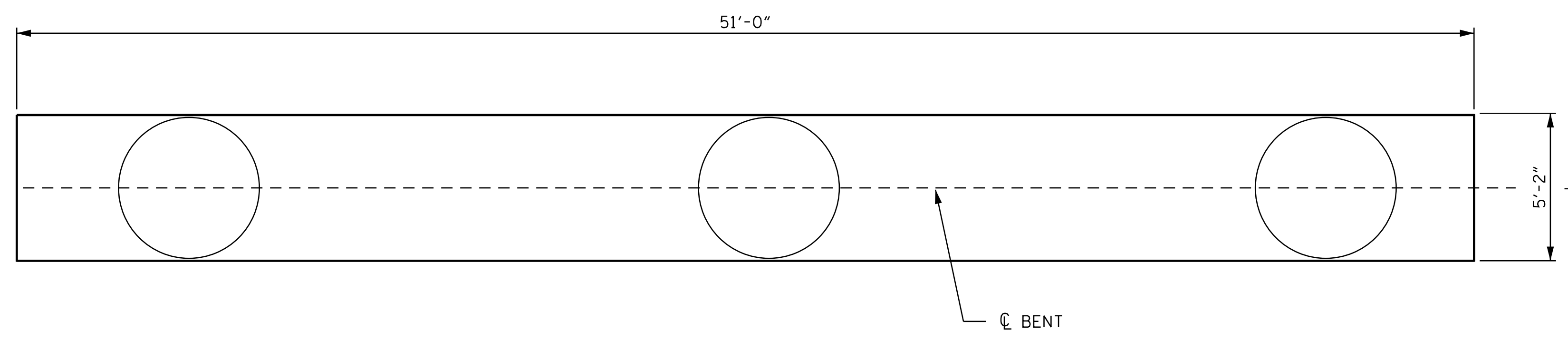
Disciplined by:

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

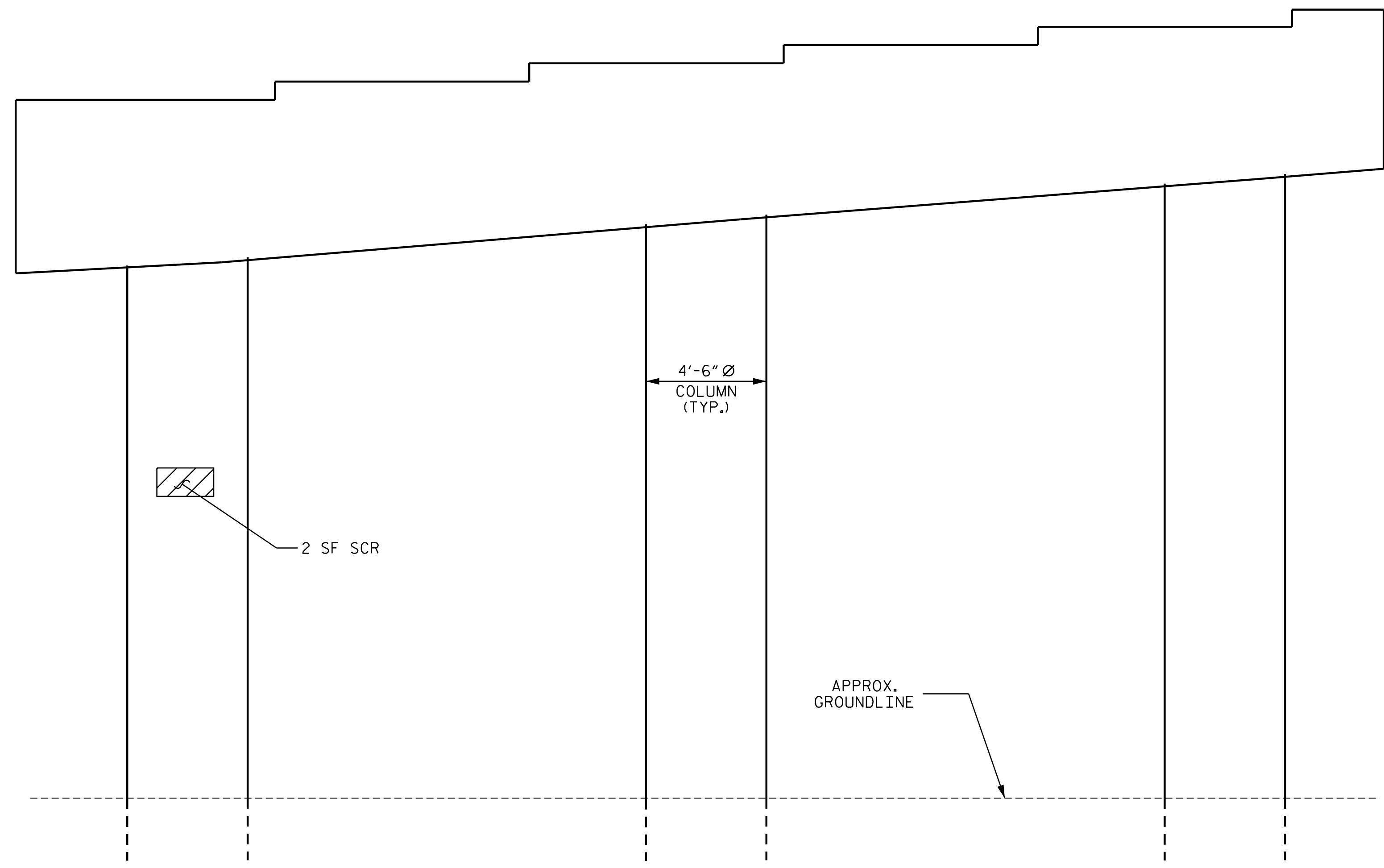
SUBSTRUCTURE REPAIR
BENT 1 SPAN A FACE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-12
1			3			TOTAL SHEETS
2			4			18

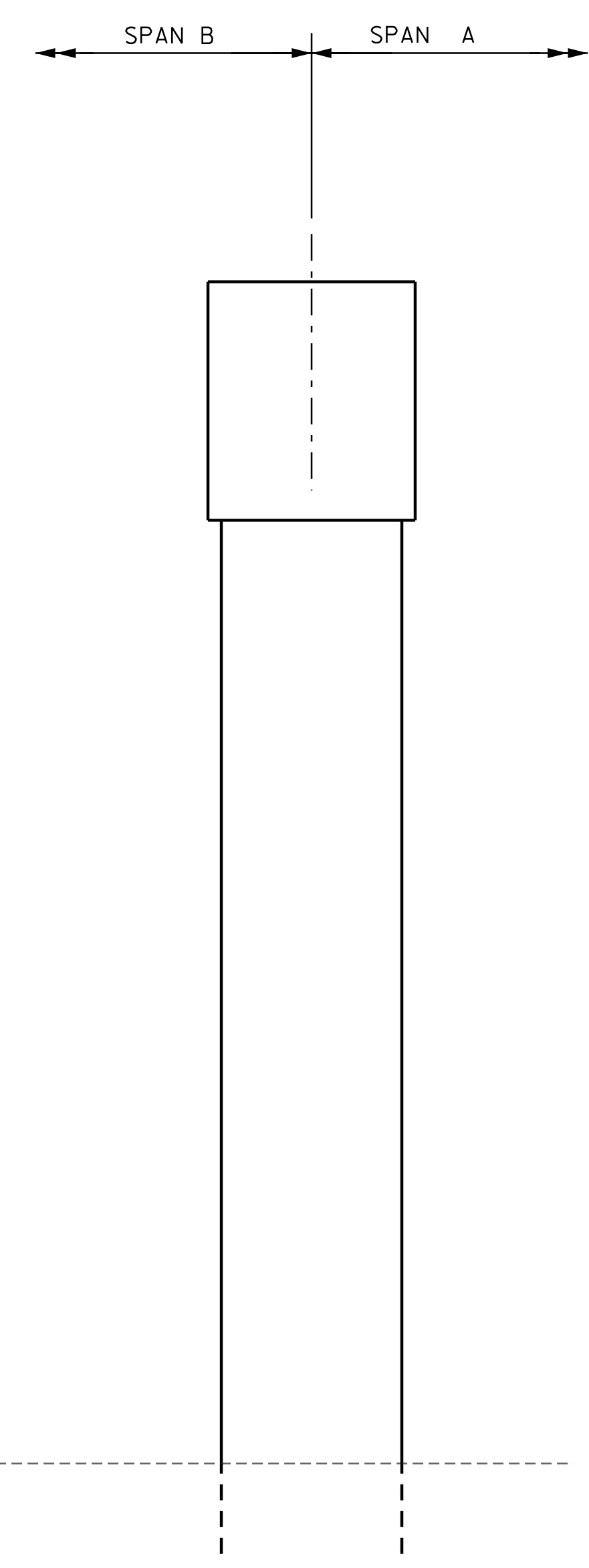
DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023



BOTTOM OF CAP



ELEVATION



END VIEW

BENT NO. 1
SPAN B FACE

AS-BUILT REPAIR QUANTITY TABLE				
BENT 1 SPAN B FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
COLUMN	2.0	0.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT.		LN. FT.	
CAP	0.0			
COLUMN	0.0			

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

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

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

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

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

PROJECT NO. I-5941
DURHAM COUNTY
 BRIDGE NO. 310135

SHEET 3 OF 8

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

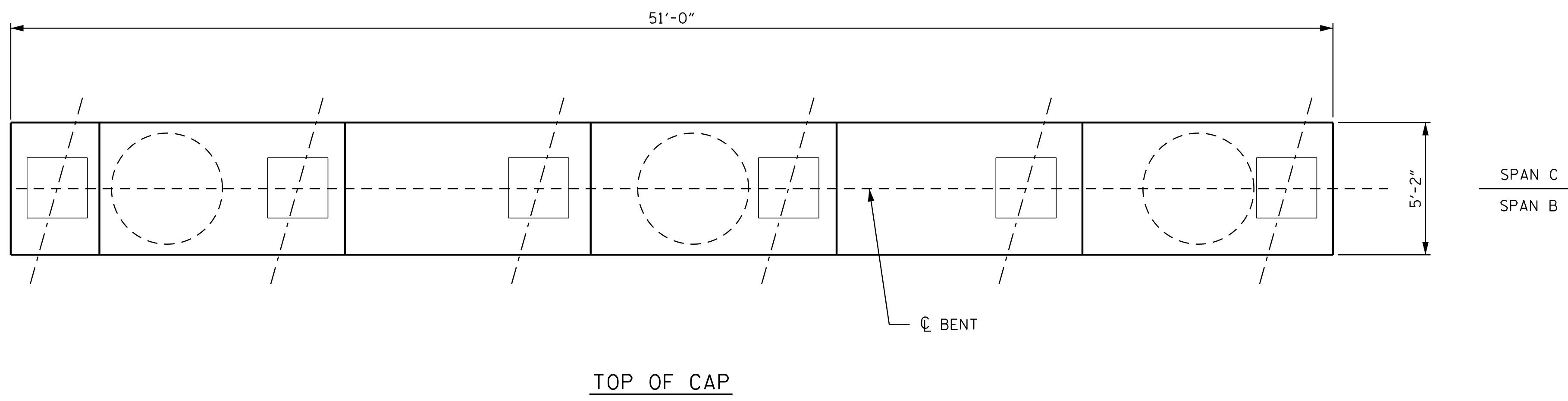
Drawn/Signed by: *Farzin Asefnia*

11/13/2023

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE REPAIR
 BENT 1 SPAN B FACE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-13
1			3			TOTAL SHEETS
2			4			18

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023



AS-BUILT REPAIR QUANTITY TABLE				
BENT 2 SPAN B FACE	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	4.0	1.0		
COLUMN	19.0	5.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT.		LN. FT.
CAP		3.0		
COLUMN		0.0		
EPOXY COATING		SO. FT.		LN. FT.
CAP		252.0		

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON 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.

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

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

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

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

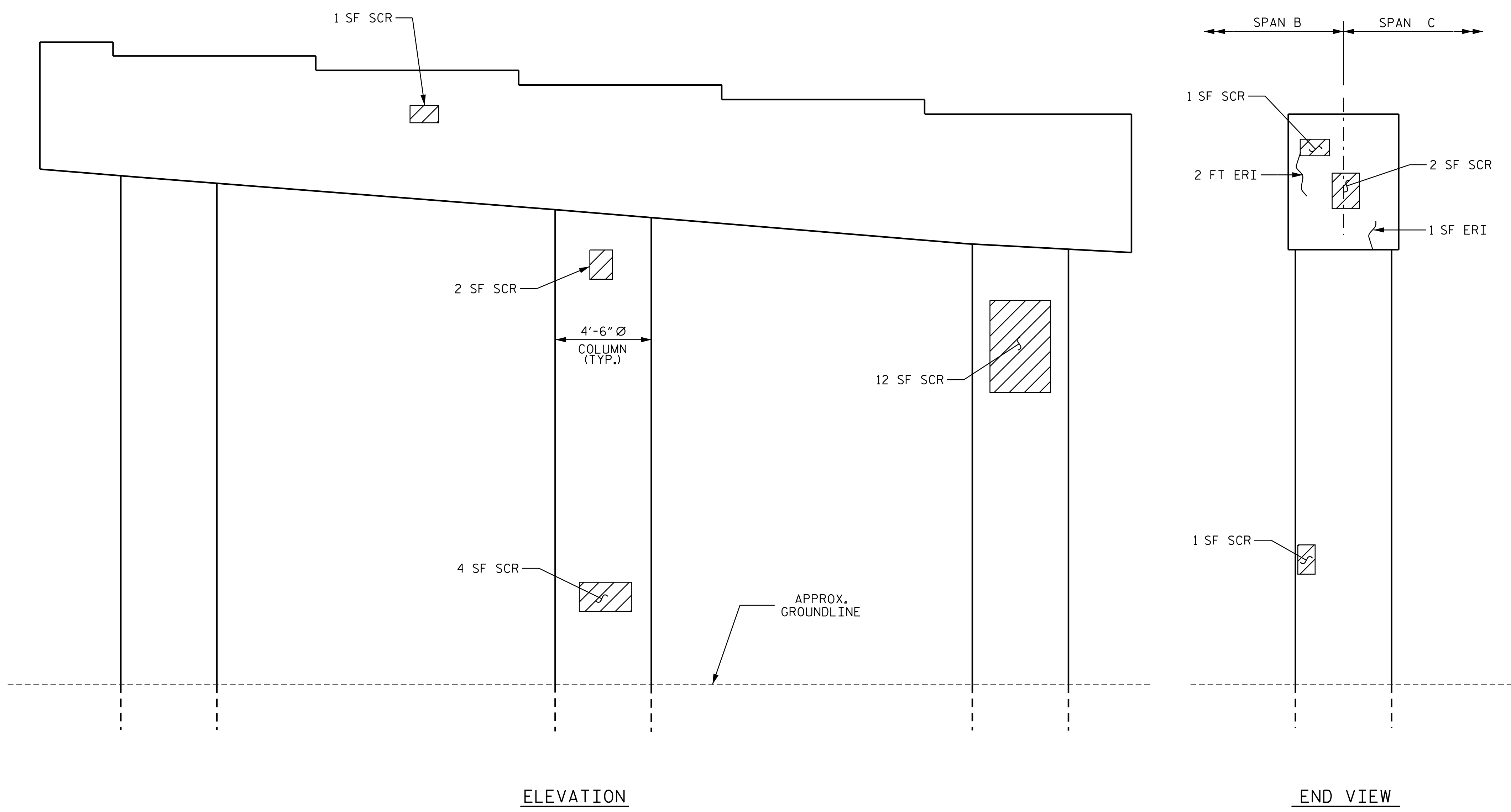
- SHOTCRETE REPAIR (SCR)
- CONCRETE REPAIR (CR)
- EPOXY RESIN INJECTION (ERI)

PROJECT NO. I-5941

DURHAM COUNTY

BRIDGE NO. 310135

SHEET 4 OF 8



ELEVATION

END VIEW

BENT NO. 2
SPAN B FACE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Designed by: *Farzin Asefnia*

11/13/2023

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIR
BENT 2 SPAN B FACE

DRAWN BY : M. HOGAN DATE : 3/2023
 CHECKED BY : JIA XU DATE : 7/2023
 DESIGN ENGINEER OF RECORD: F. ASEFNIA DATE : 11/2023

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-14
1			3			TOTAL SHEETS
2			4			18