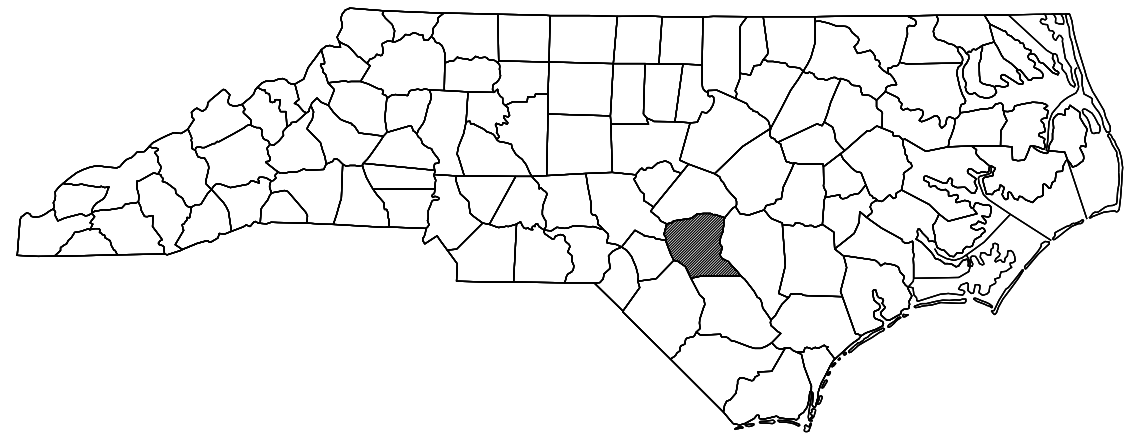


CONTRACT NO: C205094 PROJECT: 15BPR.146.3



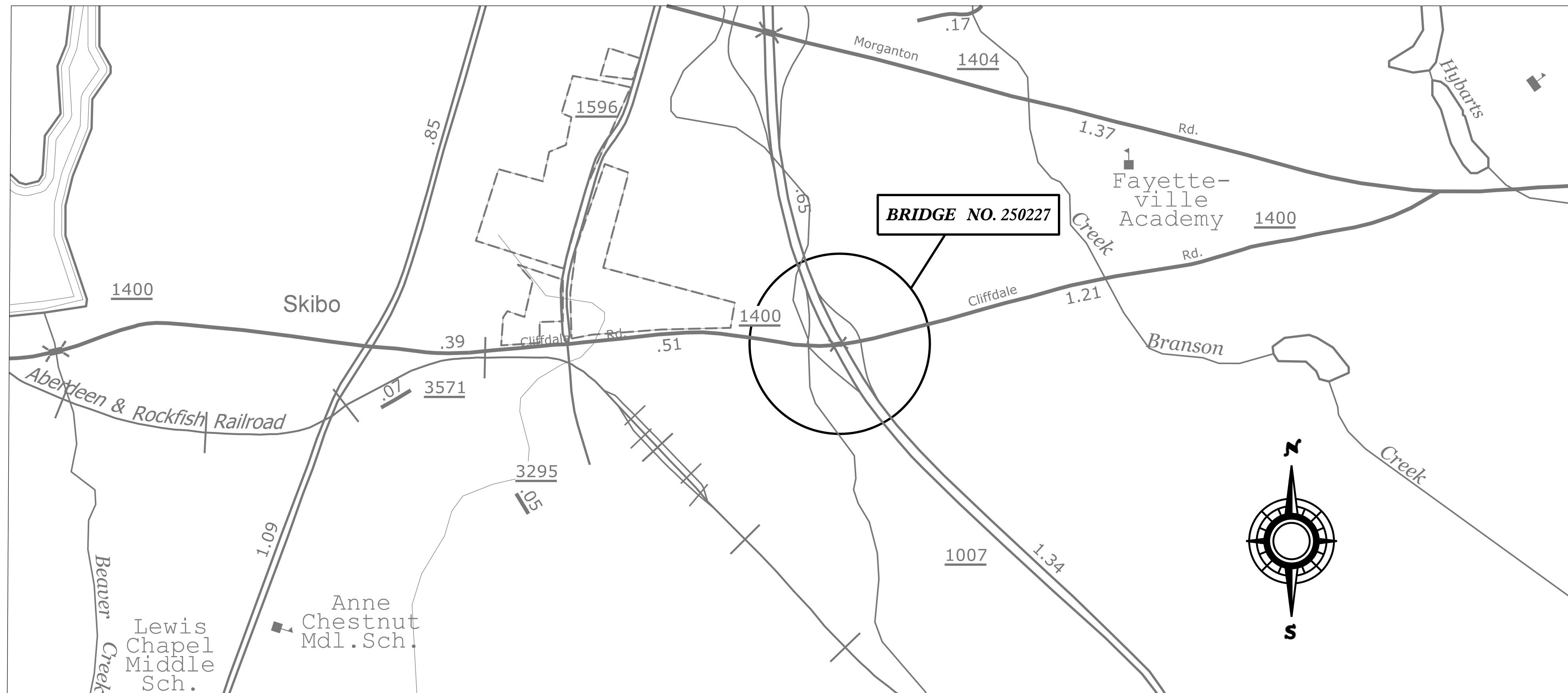
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

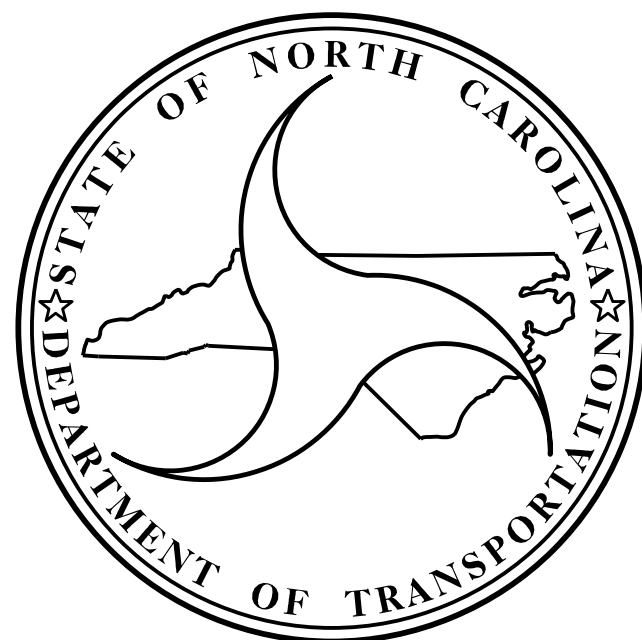
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.146.3	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.146.1	—	P.E.	
15BPR.146.3	—	CONST.	

LOCATION: BRIDGE #250227 ON SR1400 (CLIFFDALE RD) OVER SR1007.

TYPE OF WORK: CONCRETE BRIDGE DECK REHABILITATION BY SCARIFICATION, SHOTBLASTING, AND PLACEMENT OF POLYMER CONCRETE OVERLAY, RECONSTRUCTION OF DECK JOINTS AND SEALS, CLEANING AND PAINTING EXISTING STEEL BEAMS, PAINTING OF EXISTING BEARINGS WITH HRCSA, SUBSTRUCTURE REPAIRS WITH SHOTCRETE, EPOXY COATING, MILLING APPROACH ROADWAY.



VICINITY MAP



DESIGN DATA

BRIDGE #250227 ADT 2021 = 40,000

PROJECT LENGTH

BRIDGE #250227 = 0.05 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

2024 STANDARD SPECIFICATIONS

LETTING DATE :
NOVEMBER 18, 2025

Kristy W. Alford, P.E., CPM
PROJECT ENGINEER

Aster G. Abraha, P.E.
PROJECT DESIGN ENGINEER

CONTRACT NO: C205094

PROJECT: 15BPR.146.3

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.146.3	1A	
STATE PROJ.NO.	F.A. PROJ.NO.	DESCRIPTION	
15BPR.146.1	-	P.E.	
15BPR.146.3	-	CONST.	

LOCATION: BRIDGE #250227 ON SR1400 (CLIFFDALE RD) OVER SR1007.

TYPE OF WORK: CONCRETE BRIDGE DECK REHABILITATION BY SCARIFICATION, SHOTBLASTING, AND PLACEMENT OF POLYMER CONCRETE OVERLAY, RECONSTRUCTION OF DECK JOINTS AND SEALS, CLEANING AND PAINTING EXISTING STEEL BEAMS, PAINTING OF EXISTING BEARINGS WITH HRCSA, SUBSTRUCTURE REPAIRS WITH SHOTCRETE, EPOXY COATING, MILLING AND PAVING APPROACH ROADWAY.

INDEX OF STRUCTURES SHEETS

<u>SHEET No.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
1A	INDEX OF SHEETS
S-1	LOCATION SKETCH
S-2	TOTAL BILL OF MATERIAL & GENERAL NOTES
<u>SHEET No.</u>	<u>DESCRIPTION</u>
STRUCTURE No. 250227	
SI-1	GENERAL DRAWING
SI-2	TYPICAL SECTION
SI-3 TO SI-6	DECK SURFACE REPAIRS
SI-7 TO SI-10	DECK UNDERSIDE REPAIRS
SI-11 TO SI-12	JOINT REPAIR DETAILS
SI-13	DECK REPAIR DETAILS
SI-14	OVERHANG & DIAPHRAGM REPAIR DETAILS
SI-15	END BENTS 1 & 2
SI-16 TO SI-18	BENTS
SI-19	TYPICAL CAP AND COLUMN REPAIR DETAILS
SI-20	APPROACH MILLING & TYPICAL ROADWAY SECTIONS
SN	STANDARD NOTES



BRIDGE COORDINATES		
BRIDGE NO.	LATITUDE	LONGITUDE
250227	35°-03'-34"	78°-57'-13"

LOCATION SKETCH

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

PROJECT NO. 15BPR.146.3
CUMBERLAND COUNTY
BRIDGE NO. 250227



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LOCATION SKETCH

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

DRAWN BY :	A.K. IBRAHIM	DATE :	05/2025
CHECKED BY :	WILLIAM C. SMITH	DATE :	06/2025
DESIGN ENGINEER OF RECORD:		DATE :	

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

8/26/21

GENERAL NOTES:

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT DUE TO THE NATURE OF PRESERVATION PROJECTS, THE EXTENT OF WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO COMMENCEMENT OF WORK. REPAIR LOCATIONS AND ESTIMATES OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS.

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

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 REQUIREMENTS.

WORK ON THE BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW, EXCEPT WHERE THE CONTRACTOR PLANS TO USE PLATFORMS, NETS, SCREENS OR OTHER PROTECTIVE DEVICES TO CATCH THE MATERIAL. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT 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.

ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST TO DEPARTMENT.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE ELSEWHERE IN THE CONTRACT DOCUMENTS.

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 OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

ALL PAVEMENT MARKINGS WILL BE IN ACCORDANCE WITH THE TRAFFIC CONTROL PLANS.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATIONS OF THE BRIDGE DECK. THE CONTRACTOR SHALL TAKE CARE THAT ANY CONSTRUCTION DEBRIS THAT COLLECTS IN THE DRAINS 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 COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

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

FOR PAINTING EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

FOR CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY, PLACING AND FINISHING POLYMER CONCRETE OVERLAY, GROOVING BRIDGE FLOORS, POLYESTER POLYMER CONCRETE MATERIALS, AND EPOXY POLYMER CONCRETE MATERIALS, SEE POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.

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

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

AT THE TIME OF PREPARATION OF THESE PLANS, IT WAS NOT ANTICIPATED THAT THE FOLLOWING ITEM(S) LISTED 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:

ITEM	DESCRIPTION	UNIT
1.	CLASS III SURFACE PREPARATION	SQ. YDS.
2.	EPOXY RESIN INJECTION (SEE SPECIAL PROVISIONS)	LN. FT.
3.	CONCRETE REPAIRS	CU. FT.

TOTAL BILL OF MATERIAL

BRIDGE NO. 250227	INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE TYPE S9.5B	ASPHALT BINDER FOR PLANT MIX	GROOVING BRIDGE FLOORS	POLLUTION CONTROL	FOAM JOINT SEALS FOR PRESERVATION	CLASS II SURFACE PREPARATION	SHOTCRETE REPAIRS	PAINTING CONTAINMENT FOR BRIDGE # 250227	CLEANING AND REPAINTING OF BRIDGE # 250227	POLYESTER POLYMER CONCRETE MATERIALS	EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	EPOXY COATING	CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	PLACING & FINISHING POLYMER CONCRETE OVERLAY	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	CLEANING AND PAINTING EXISTING BEARINGS WITH HIGH RATIO CALCIUM SULFONATE
	SQ. YDS.	TONS	TONS	SQ. FT.	LUMP SUM	LIN. FT.	SQ. YD.	CU. FT.	LUMP SUM	LUMP SUM	CU. YD.	CU. YD.	SQ. FT.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	EACH
TOTAL	426.0	36.0	3.0	22,778	LUMP SUM	466.0	23.1	1.5	LUMP SUM	LUMP SUM	74.7	74.7	1094.0	23.1	2,687.1	2,687.1	2,687.1	96

PROJECT NO. **15BPR.146.3**
CUMBERLAND COUNTY
BRIDGE NO. **250227**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**BILL OF MATERIAL
AND GENERAL NOTES**

DRAWN BY : A.K. IBRAHIM / A. ABRAHA DATE : 05/2025
CHECKED BY : WILLIAM C. SMITH DATE : 06/2025
DESIGN ENGINEER OF RECORD: _____ DATE : _____

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

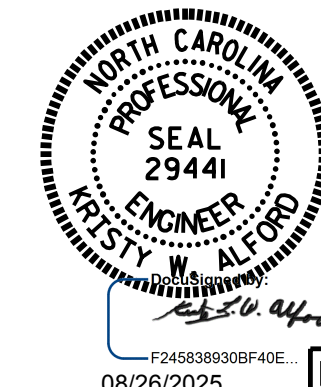
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



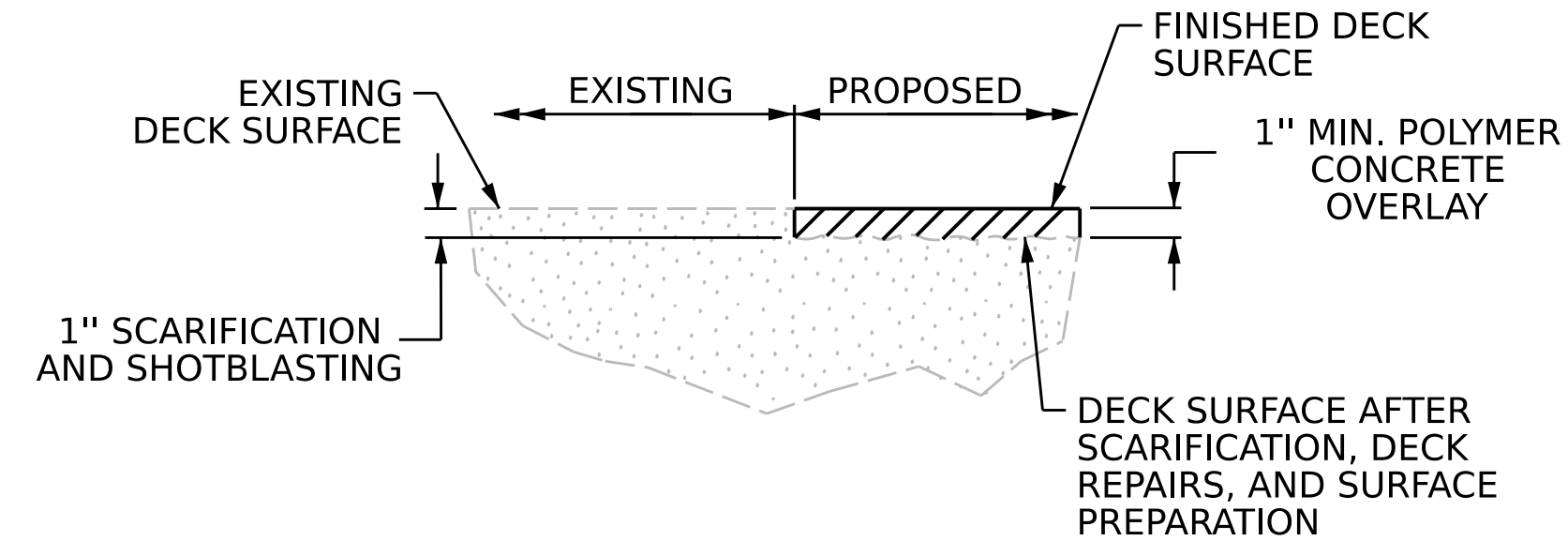
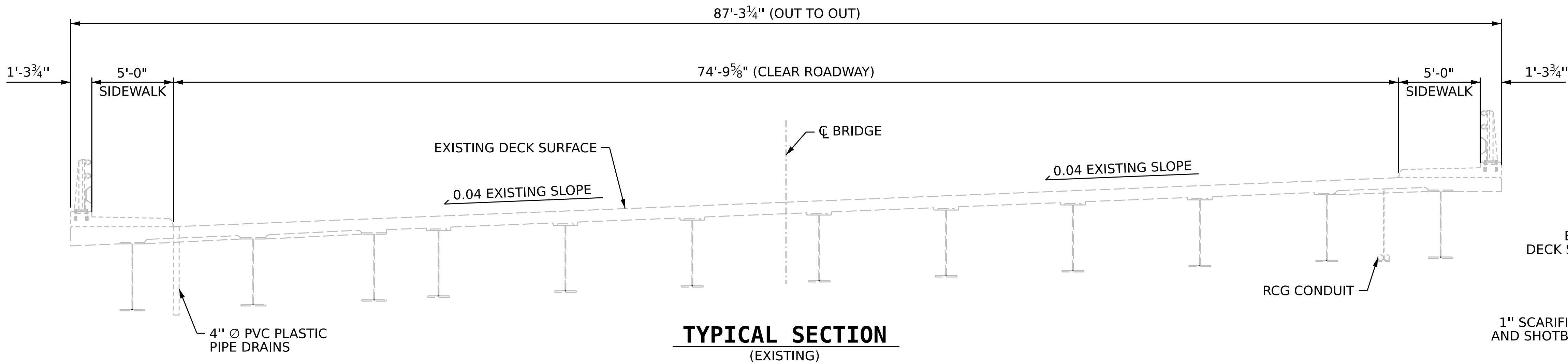
DATE _____

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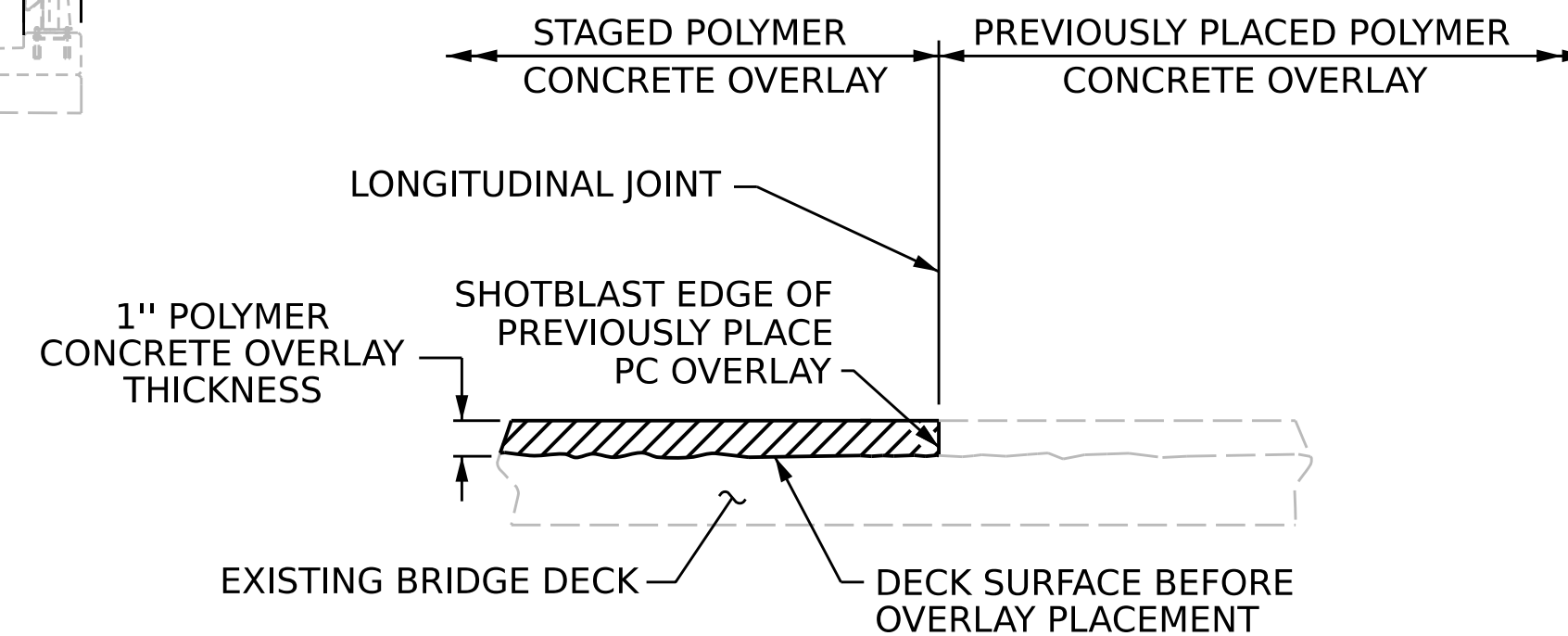
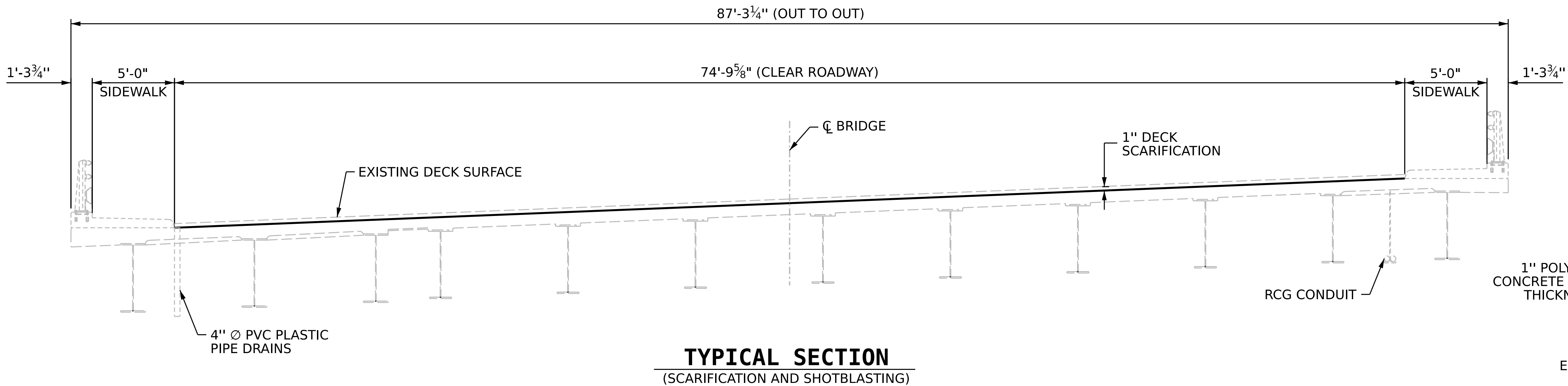
8/26/2025
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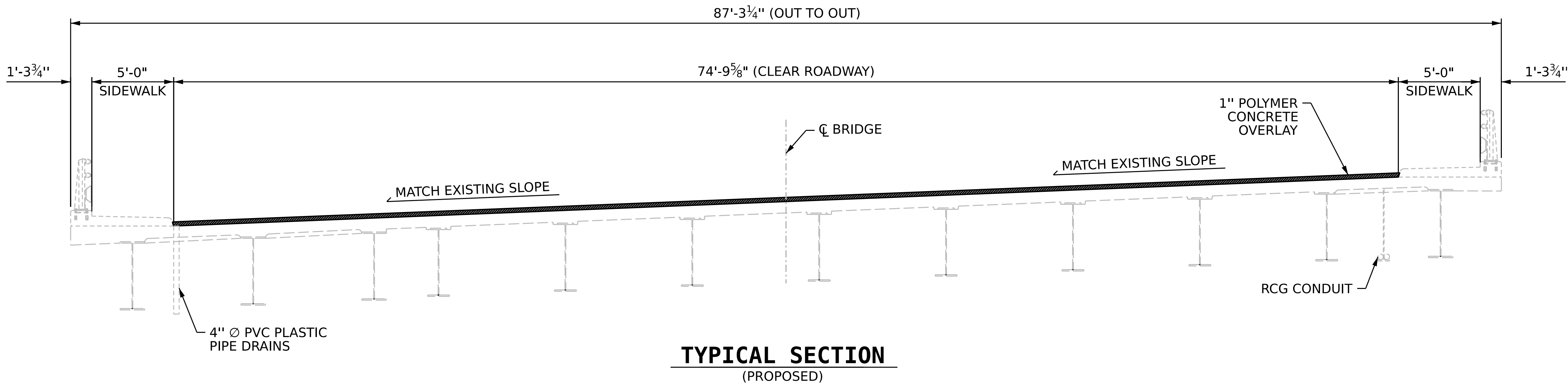
DOCUMENT NOT CONSIDERED
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SIGNATURES COMPLETED



**DETAIL FOR
POLYMER CONCRETE (PC) OVERLAY**



**STAGED POLYMER CONCRETE (PC)
OVERLAY JOINT**



PROJECT NO. **15BPR.146.3**
CUMBERLAND COUNTY
BRIDGE NO. **250227**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

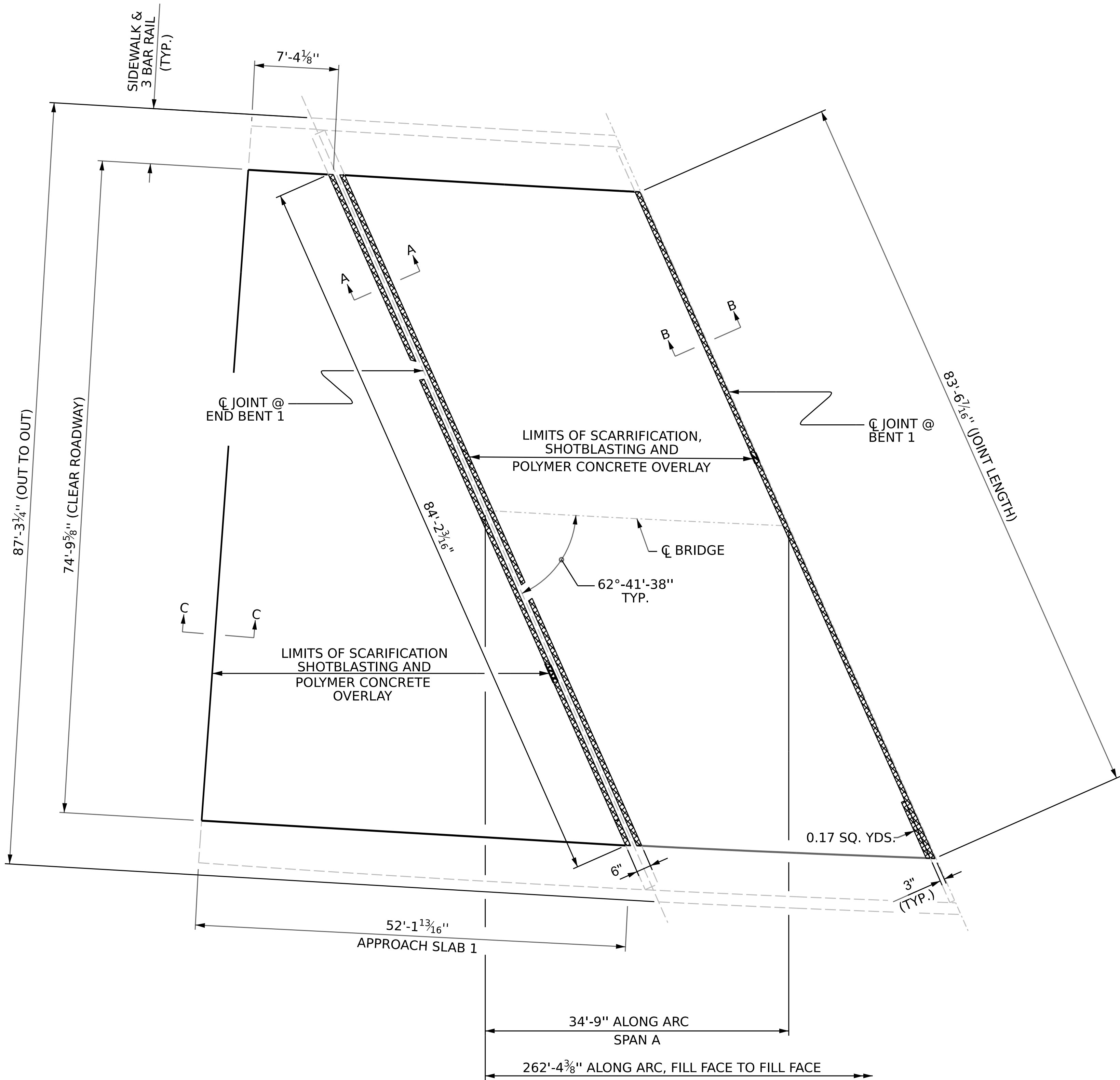
SUPERSTRUCTURE
TYPICAL SECTION
AND POLYMER CONCRETE
OVERLAY DETAILS

DRAWN BY : **A.K. IBRAHIM / M. AHMED** DATE : **03/2025**
CHECKED BY : **WILLIAM C. SMITH** DATE : **06/2025**
DESIGN ENGINEER OF RECORD: DATE :

8/25/2025
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DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-02
2			4			TOTAL SHEETS 20



DECK SURFACE REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN A & APPROACH SLAB 1

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	536.1 SQ. YDS.	
CLASS II SURFACE PREPARATION	6.9 SQ. YDS.	
CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	6.9 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	536.1 SQ. YDS.	
POLYESTER POLYMER CONCRETE MATERIALS	14.9 CU. YDS.	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	14.9 CU. YDS.	
PLACING AND FINISHING POLYMER CONCRETE OVERLAY	536.1 SQ. YDS.	
GROOVING BRIDGE FLOORS	4,507 SQ.FT.	

NOTES:

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

FOR SECTION A-A, B-B AND C-C, SEE ``JOINT DETAIL`` SHEET S1-11 AND S1-12.

FOR DECK REPAIRS, SEE ``DECK REPAIR DETAILS`` SHEET S1-13.

- APPROX. AREA CLASS II SURFACE PREPARATION
- SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR POLYMER CONCRETE OVERLAY

PROJECT NO. **15BPR.146.3**
CUMBERLAND COUNTY
BRIDGE NO. **250227**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SURFACE PREPARATION
SPAN A AND
APPROACH SLAB 1**

DRAWN BY : **A.K. IBRAHIM/ M. AHMED** DATE : **03/2025**
CHECKED BY : **WILLIAM C. SMITH** DATE : **06/2025**
DESIGN ENGINEER OF RECORD: DATE :

SPAN A & APPROACH SLAB 1
(DECK DRAINS NOT SHOWN FOR CLARITY)

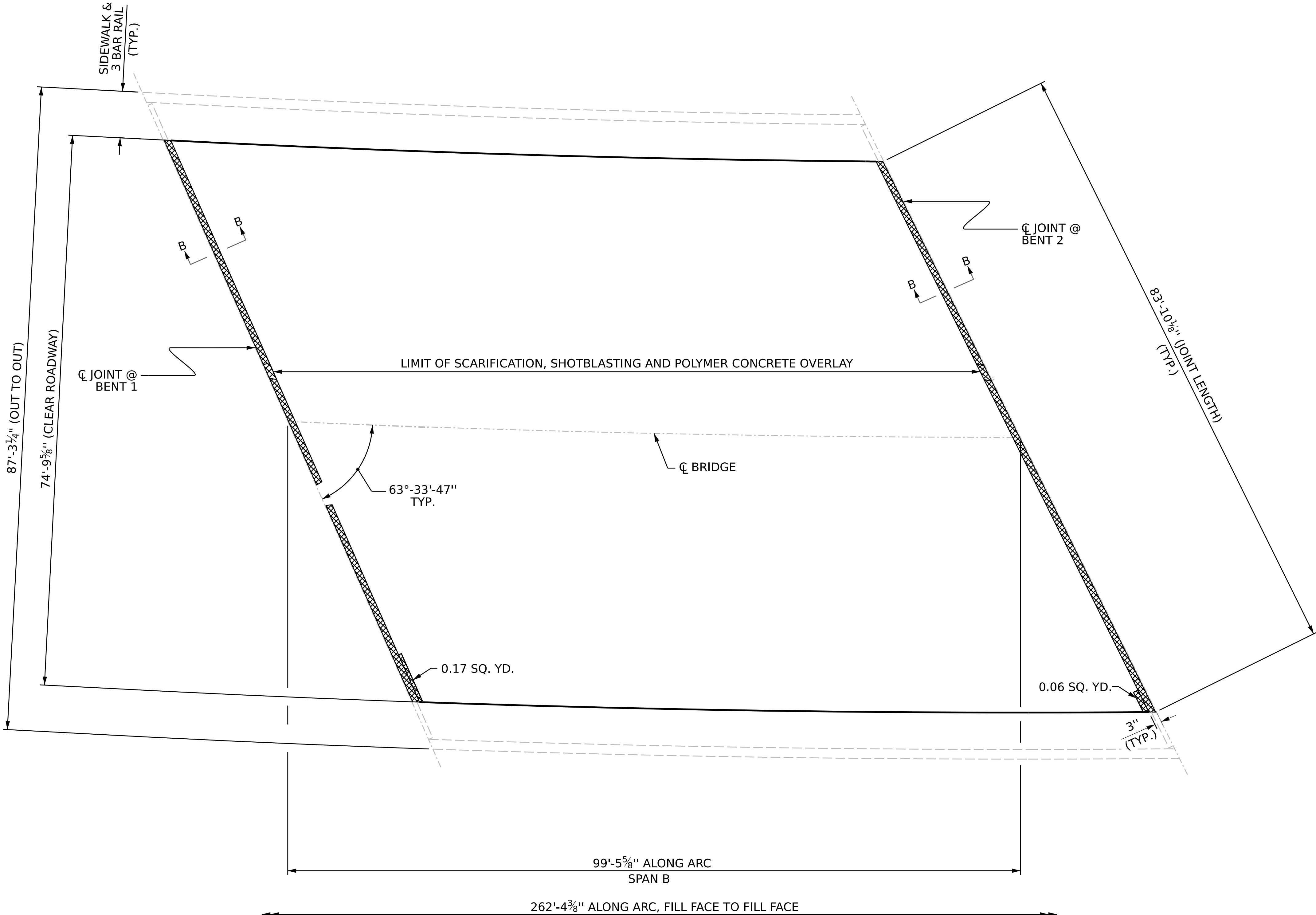
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-03
2			4			TOTAL SHEETS 20

8/26/21

+

+



PLAN OF SPAN B

DECK SURFACE REPAIR QUANTITY TABLE

DECK SURFACE REPAIR - SPAN B

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	826.7 SQ. YDS.	
CLASS II SURFACE PREPARATION	4.6 SQ. YDS.	
CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	4.6 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	826.7 SQ. YDS.	
POLYESTER POLYMER CONCRETE MATERIALS	23.0 CU. YDS.	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	23.0 CU. YDS.	
PLACING AND FINISHING POLYMER CONCRETE OVERLAY	826.7 SQ. YDS.	
GROOVING BRIDGE FLOORS	7061 SQ.FT.	

NOTES:

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

FOR SECTIONS B-B, SEE ``JOINT DETAIL`` SHEET S1-11.



APPROX. AREA CLASS II SURFACE PREPARATION

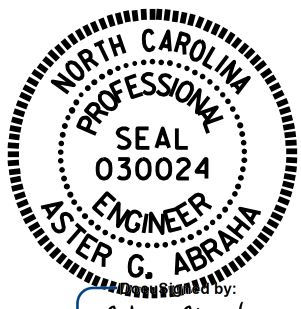


SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR POLYMER CONCRETE OVERLAY

PROJECT NO. **15BPR.146.3**

CUMBERLAND COUNTY

BRIDGE NO. **250227**



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08/25/2025

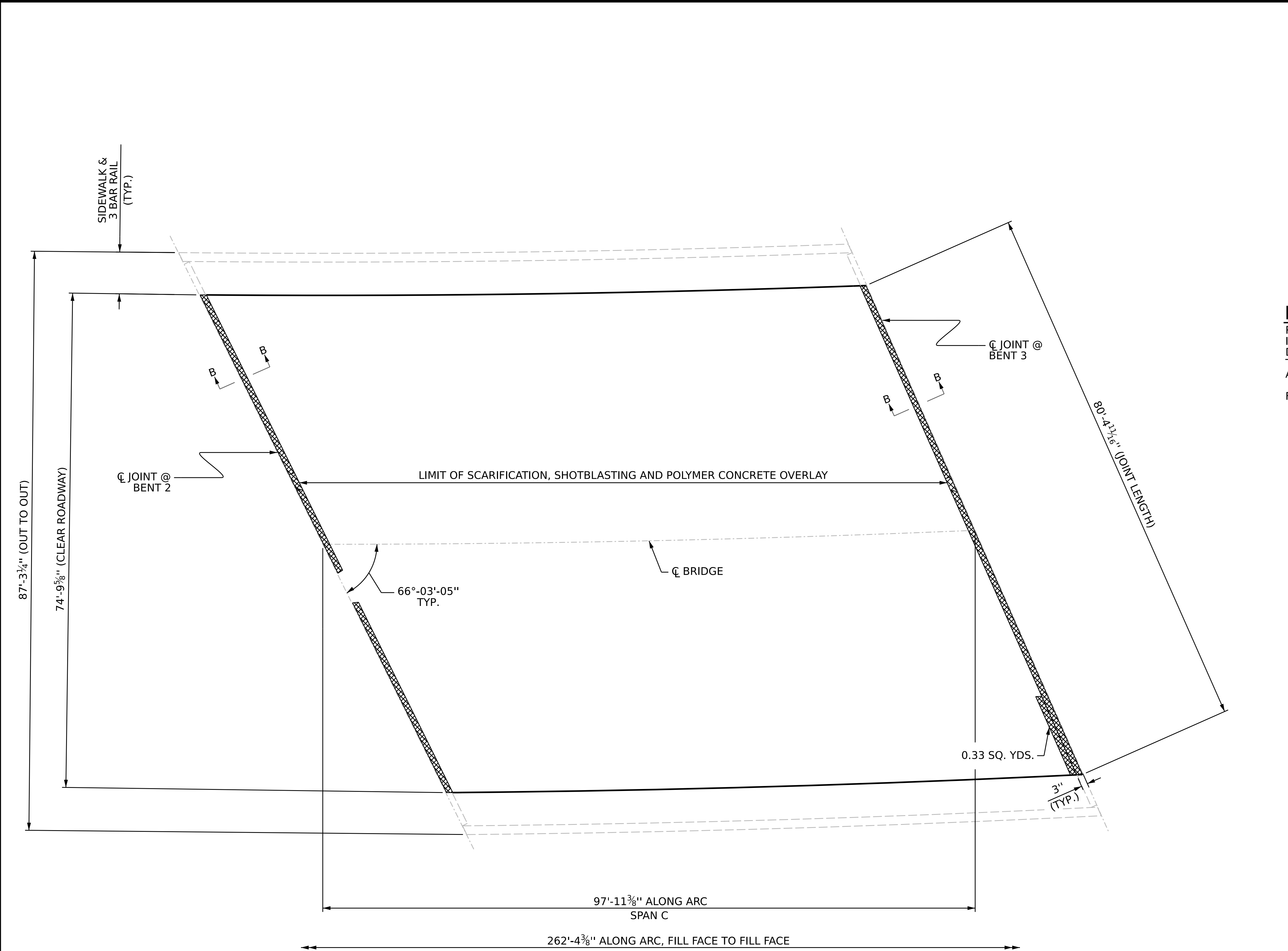
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SURFACE PREPARATION
SPAN B

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

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

DRAWN BY : **A.K. IBRAHIM / M. AHMED** DATE : **04/2025**
CHECKED BY : **WILLIAM C. SMITH** DATE : **06/2025**
DESIGN ENGINEER OF RECORD: _____ DATE : _____

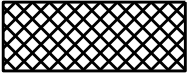
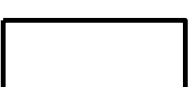


PLAN OF SPAN C

DECK SURFACE REPAIR QUANTITY TABLE		
DECK SURFACE REPAIR - SPAN C		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	814.1 SQ. YDS.	
CLASS II SURFACE PREPARATION	4.9 SQ. YDS.	
CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	4.9 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	814.1 SQ. YDS.	
POLYESTER POLYMER CONCRETE MATERIALS	22.6 CU. YDS.	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	22.6 CU. YDS.	
PLACING AND FINISHING POLYMER CONCRETE OVERLAY	814.1 SQ. YDS.	
GROOVING BRIDGE FLOORS	6948 SQ.FT.	

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

FOR SECTIONS B-B, SEE ``JOINT DETAIL`` SHEET S1-11.

-  APPROX. AREA CLASS II SURFACE PREPARATION
-  SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR POLYMER CONCRETE OVERLAY

PROJECT NO. 15BPR.146.3
CUMBERLAND COUNTY
BRIDGE NO. 250227



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**SURFACE PREPARATION
SPAN C**

DRAWN BY : A.K. IBRAHIM / M. AHMED DATE : 04/2025
CHECKED BY : WILLIAM C. SMITH DATE : 06/2025
DESIGN ENGINEER OF RECORD: _____ DATE : _____

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

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

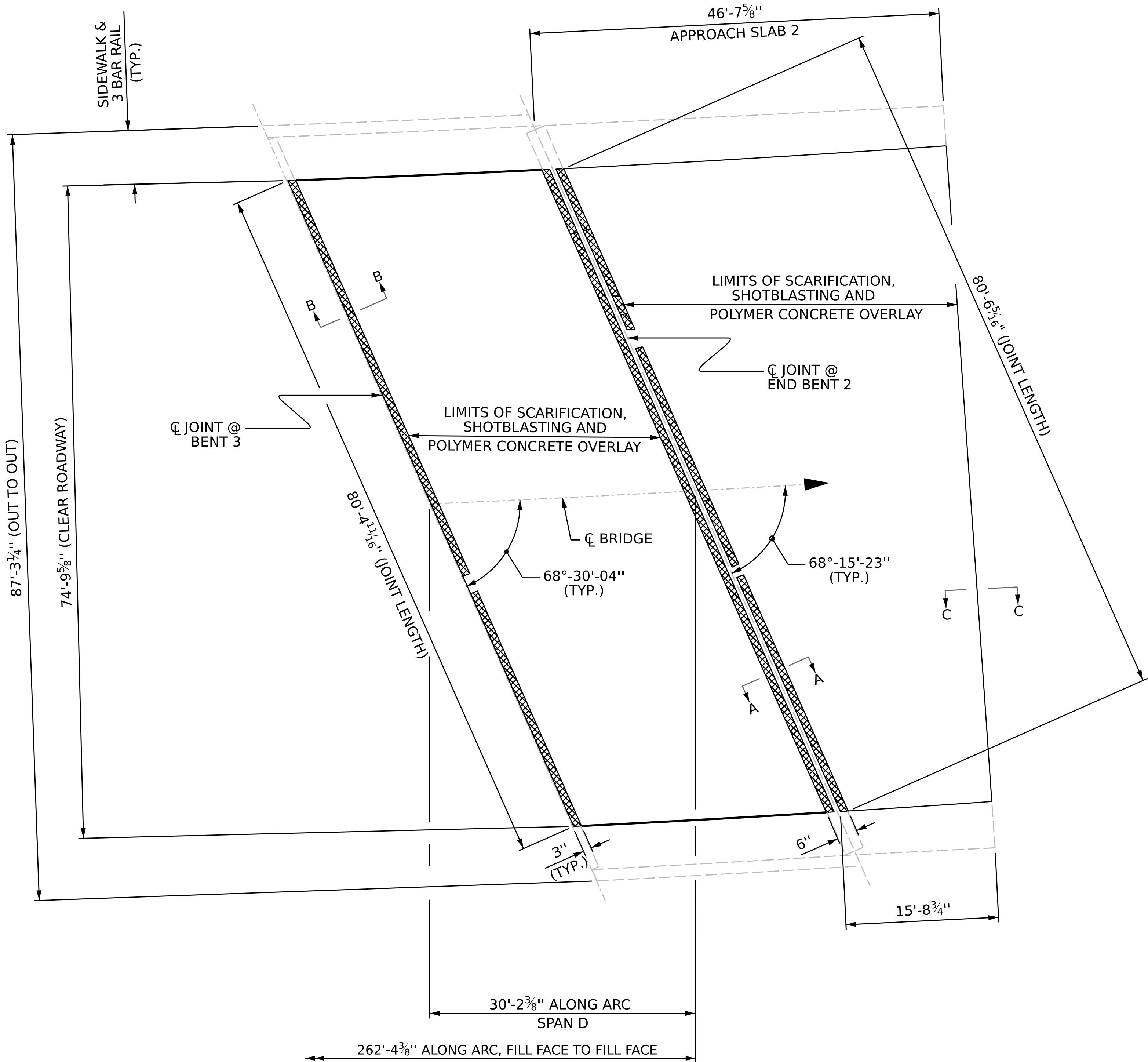
8/26/21

DECK SURFACE REPAIR QUANTITY TABLE		
DECK SURFACE REPAIR - SPAN D & APPROACH SLAB 2		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	510.2 SQ. YDS.	
CLASS II SURFACE PREPARATION	6.7 SQ. YDS.	
CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	6.7 SQ. YDS.	
SHOTBLASTING BRIDGE DECK	510.2 SQ. YDS.	
POLYESTER POLYMER CONCRETE MATERIALS	14.2 CU. YDS.	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	14.2 CU. YDS.	
PLACING AND FINISHING POLYMER CONCRETE OVERLAY	510.2 SQ. YDS.	
GROOVING BRIDGE FLOORS	2086 SQ.FT.	

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

FOR SECTIONS A-A, B-B AND C-C, SEE ``JOINT DETAIL`` SHEET S1-11 AND S1-12.

FOR DECK REPAIRS, SEE ``DECK REPAIR DETAILS`` SHEET S1-13.



- APPROX. AREA CLASS II SURFACE PREPARATION
- SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR POLYMER CONCRETE OVERLAY

PROJECT NO. **15BPR.146.3**
CUMBERLAND COUNTY
BRIDGE NO. **250227**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SURFACE PREPARATION
SPAN D AND
APPROACH SLAB 2

DRAWN BY : **A.K. IBRAHIM / M. AHMED** DATE : **03/2025**
CHECKED BY : **WILLIAM C. SMITH** DATE : **06/2025**
DESIGN ENGINEER OF RECORD: DATE :

SPAN D & APPROACH SLAB 2
(DECK DRAINS NOT SHOWN FOR CLARITY)

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-06
2			4			TOTAL SHEETS 20

8/26/21

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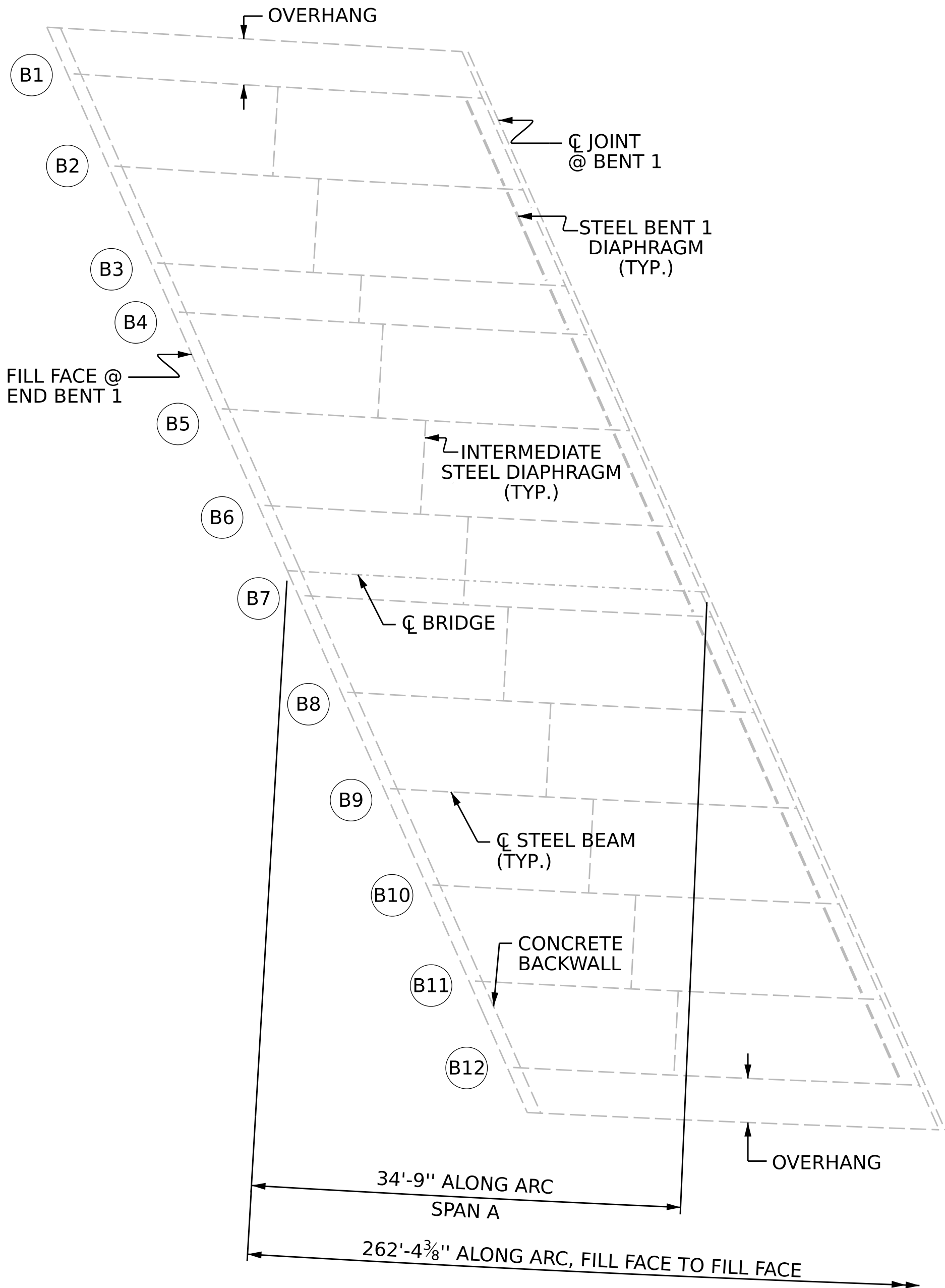
DRAWN BY :
CHECKED BY :
DESIGN ENGINEER OF RECORD:

A.K. IBRAHIM / M. AHMED
WILLIAM C. SMITH

DATE :
DATE :
DATE :

03/2025
06/2025

8/20/2025
S:\DPG1\Division6\15BPR,146.3\Plans\401.013.15BPR,146.3_SMU.DUR-A_S1-07_250227.dgn
mmahmed



SPAN A
(DECK DRAINS AND CONDUITS NOT SHOWN FOR CLARITY)

DECK UNDERSIDE REPAIR QUANTITY TABLE

DECK UNDERSIDE REPAIRS SPAN A	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
BENT DIAPHRAGMS	0	0		
EPOXY RESIN INJECTION		LINEAR FT		LINEAR FT
UNDERSIDE OF DECK		0		
BENT DIAPHRAGMS		0		

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

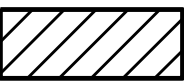
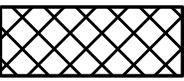
NOTES:

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

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

FOR UNDERSIDE OF DECK REPAIRS, SEE ``DECK REPAIR DETAILS`` SHEET S1-13.

FOR OVERHANG & DIAPHRAGM REPAIRS, SEE ``OVERHANG & DIAPHRAGM REPAIR DETAILS`` SHEET S1-14.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- BEAM NUMBER

PROJECT NO. **15BPR.146.3**
CUMBERLAND COUNTY
BRIDGE NO. **250227**



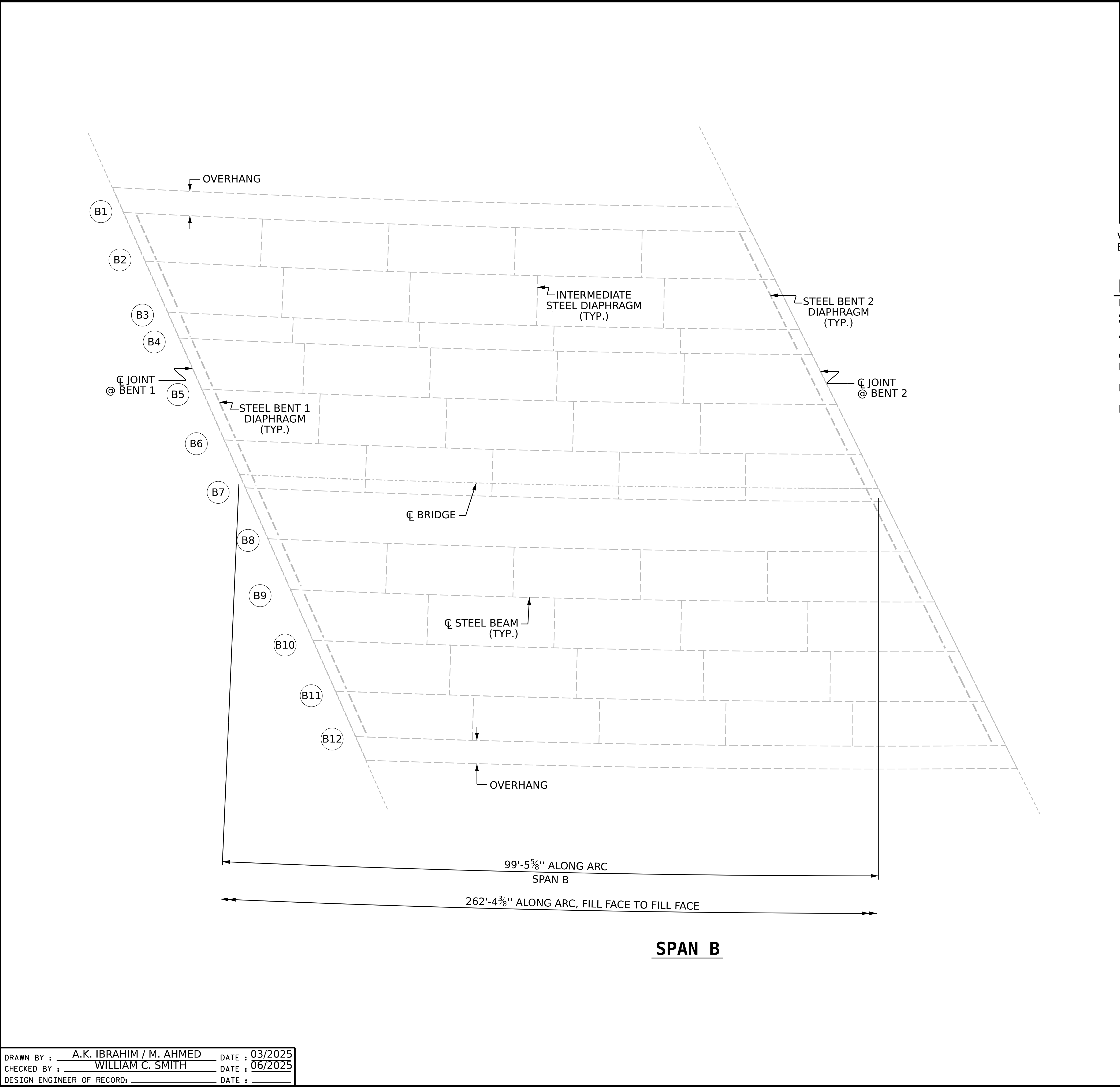
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DECK UNDERSIDE REPAIR					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 20

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

8/26/21

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DECK UNDERSIDE REPAIR QUANTITY TABLE				
DECK UNDERSIDE REPAIRS SPAN B	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
BENT DIAPHRAGMS	0	0		
EPOXY RESIN INJECTION		LINEAR FT		LINEAR FT
UNDERSIDE OF DECK		0		
BENT DIAPHRAGMS		0		

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

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

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

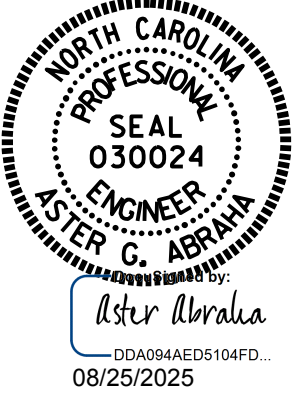
FOR UNDERSIDE OF DECK REPAIRS, SEE ``DECK REPAIR DETAILS`` SHEET S1-13.

FOR OVERHANG & DIAPHRAGM REPAIRS, SEE ``OVERHANG & DIAPHRAGM REPAIR DETAILS`` SHEET S1-14.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- B#

BEAM NUMBER

PROJECT NO. 15BPR.146.3
CUMBERLAND COUNTY
BRIDGE NO. 250227



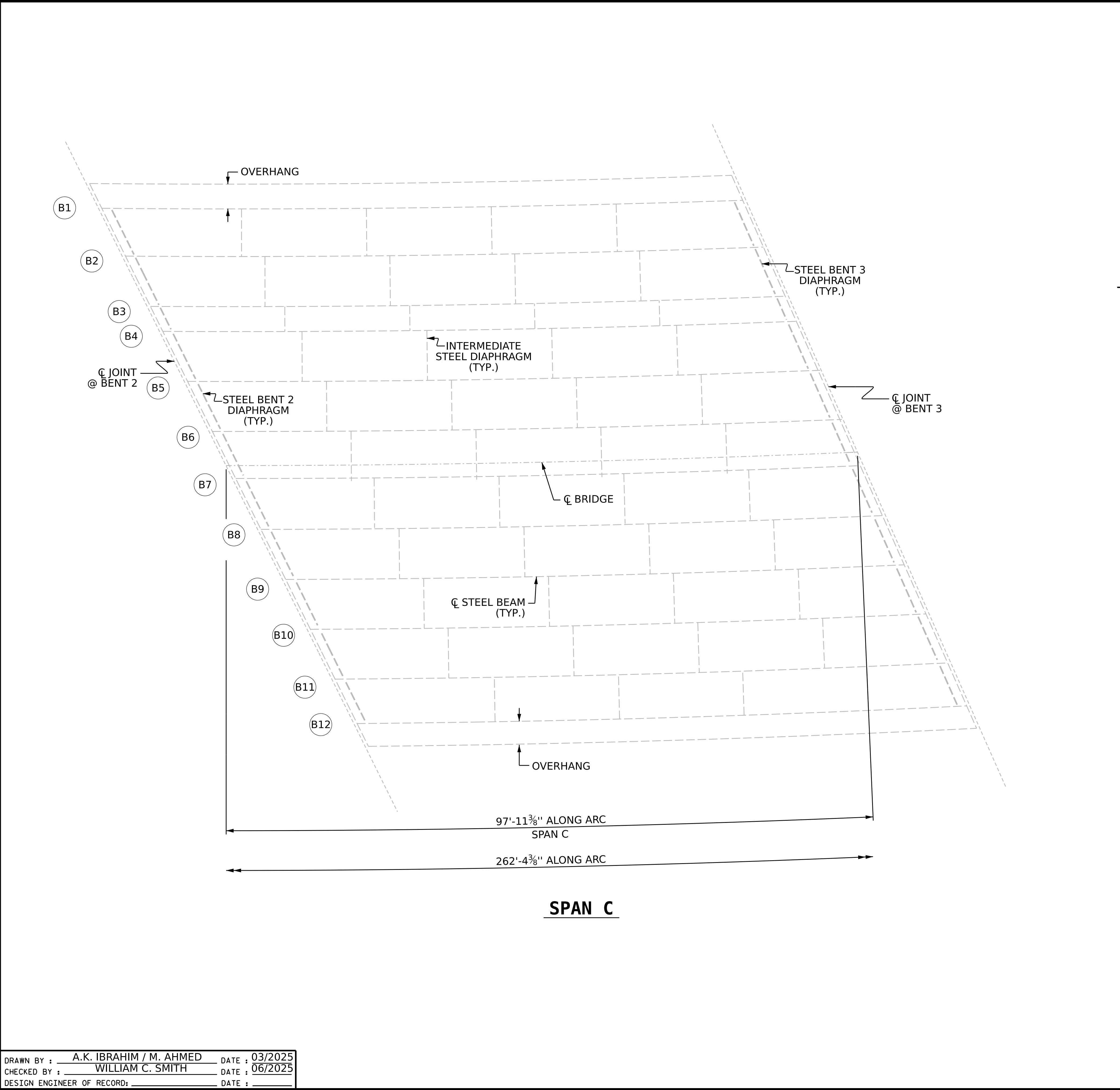
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DECK UNDERSIDE REPAIR					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					TOTAL SHEETS 20

DRAWN BY : A.K. IBRAHIM / M. AHMED DATE : 03/2025
CHECKED BY : WILLIAM C. SMITH DATE : 06/2025
DESIGN ENGINEER OF RECORD: _____ DATE : _____

8/26/21

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DECK UNDERSIDE REPAIR QUANTITY TABLE				
DECK UNDERSIDE REPAIRS SPAN C	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
BENT DIAPHRAGMS	0	0		
EPOXY RESIN INJECTION		LINEAR FT		LINEAR FT
UNDERSIDE OF DECK		0		
BENT DIAPHRAGMS		0		

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

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

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

FOR UNDERSIDE OF DECK REPAIRS, SEE ``DECK REPAIR DETAILS`` SHEET S1-13.

FOR OVERHANG & DIAPHRAGM REPAIRS, SEE ``OVERHANG & DIAPHRAGM REPAIR DETAILS`` SHEET S1-14.

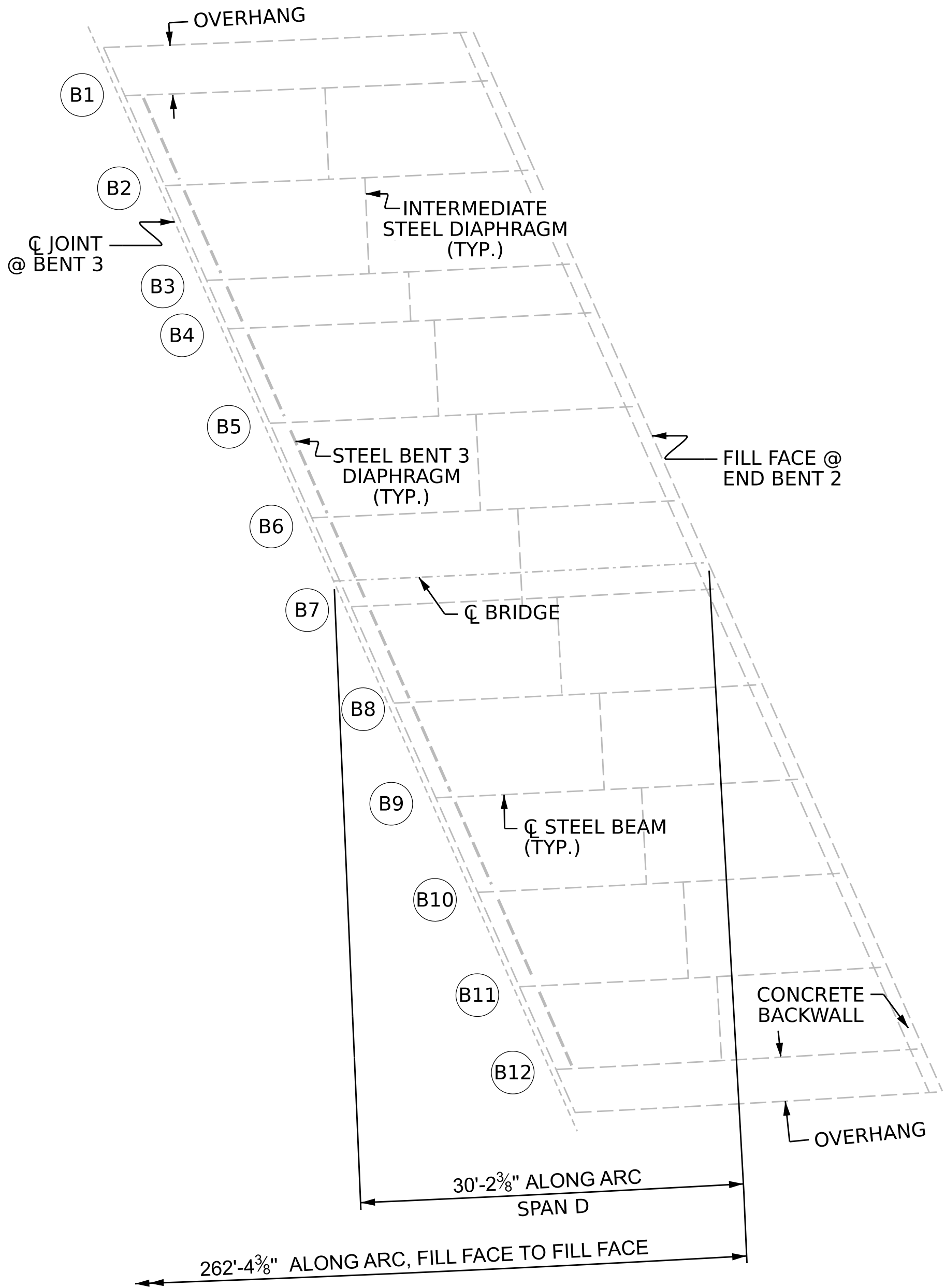
-  SHOTCRETE REPAIR AREA
-  CONCRETE REPAIR AREA
-  BEAM NUMBER

PROJECT NO. 15BPR.146.3
CUMBERLAND COUNTY
BRIDGE NO. 250227



DEPARTMENT OF TRANSPORTATION RALEIGH					
DECK UNDERSIDE REPAIR					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					TOTAL SHEETS 20

DRAWN BY : A.K. IBRAHIM / M. AHMED DATE : 03/2025
CHECKED BY : WILLIAM C. SMITH DATE : 06/2025
DESIGN ENGINEER OF RECORD: _____ DATE : _____



SPAN D
(DECK DRAINS AND CONDUITS NOT SHOWN FOR CLARITY)

DECK UNDERSIDE REPAIR QUANTITY TABLE				
DECK UNDERSIDE REPAIRS SPAN D	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0	0		
BENT DIAPHRAGMS	0	0		
EPOXY RESIN INJECTION		LINEAR FT		LINEAR FT
UNDERSIDE OF DECK		0		
BENT DIAPHRAGMS		0		

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

NOTES:

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

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

FOR UNDERSIDE OF DECK REPAIRS, SEE ``DECK REPAIR DETAILS`` SHEET S1-13.

FOR OVERHANG & DIAPHRAGM REPAIRS, SEE ``OVERHANG & DIAPHRAGM REPAIR DETAILS`` SHEET S1-14.



SHOTCRETE REPAIR AREA



CONCRETE REPAIR AREA

B#

BEAM NUMBER

PROJECT NO. **15BPR.146.3**
CUMBERLAND COUNTY
BRIDGE NO. **250227**



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
DECK UNDERSIDE REPAIR					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					S1-10 TOTAL SHEETS 20

DRAWN BY : A.K. IBRAHIM / M. AHMED DATE : 03/2025
CHECKED BY : WILLIAM C. SMITH DATE : 06/2025
DESIGN ENGINEER OF RECORD: _____ DATE : _____

NOTES

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

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN THE DETAILS BY MORE THAN ¼", NOTIFY THE ENGINEER.

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

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

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, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR 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.

THE INSTALLED FOAM JOINTS SHALL BE WATER TIGHT.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

THE NOMINAL UNCOMPRESSED SEAL WIDTH OF FOAM JOINTS SHALL BE 2" FOR END BENTS AND 3" FOR BENTS.

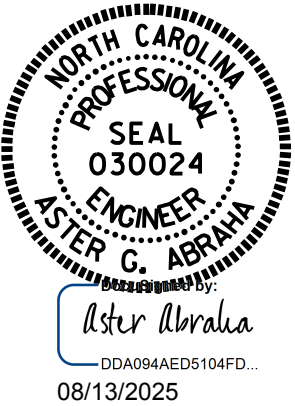
THE CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

FINAL SURFACE OF CLASS II PREPARATION AREA PRIOR TO PLACEMENT OF POLYMER CONCRETE REPAIR MATERIAL SHALL BE REASONABLY FLAT AND LEVEL. THE ENGINEER SHALL DETERMINE ACCEPTABILITY OF THE SURFACE.

FOR CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.

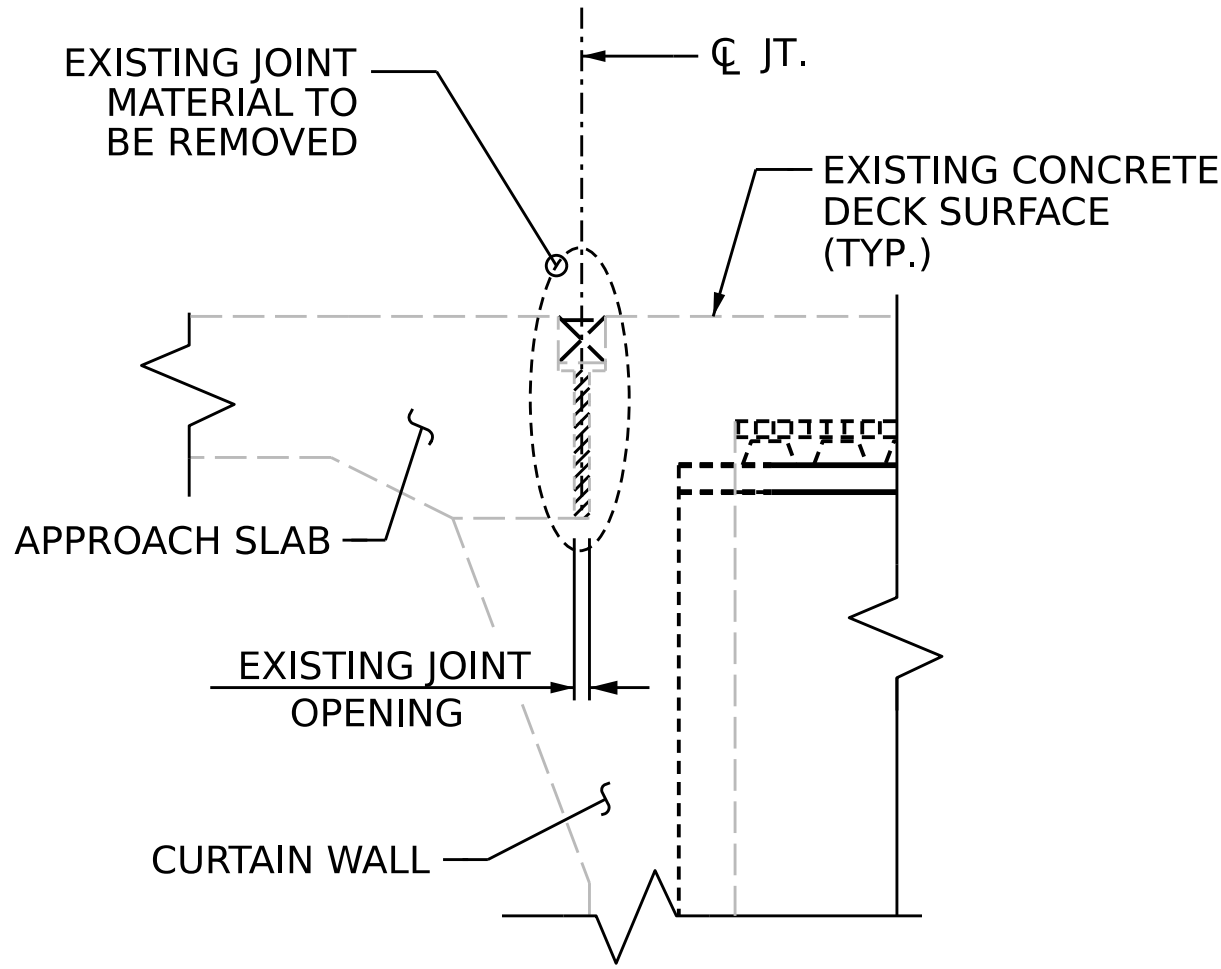
PROJECT NO. 15BPR.146.3
CUMBERLAND COUNTY
BRIDGE NO. 250227

SHEET 1 OF 2

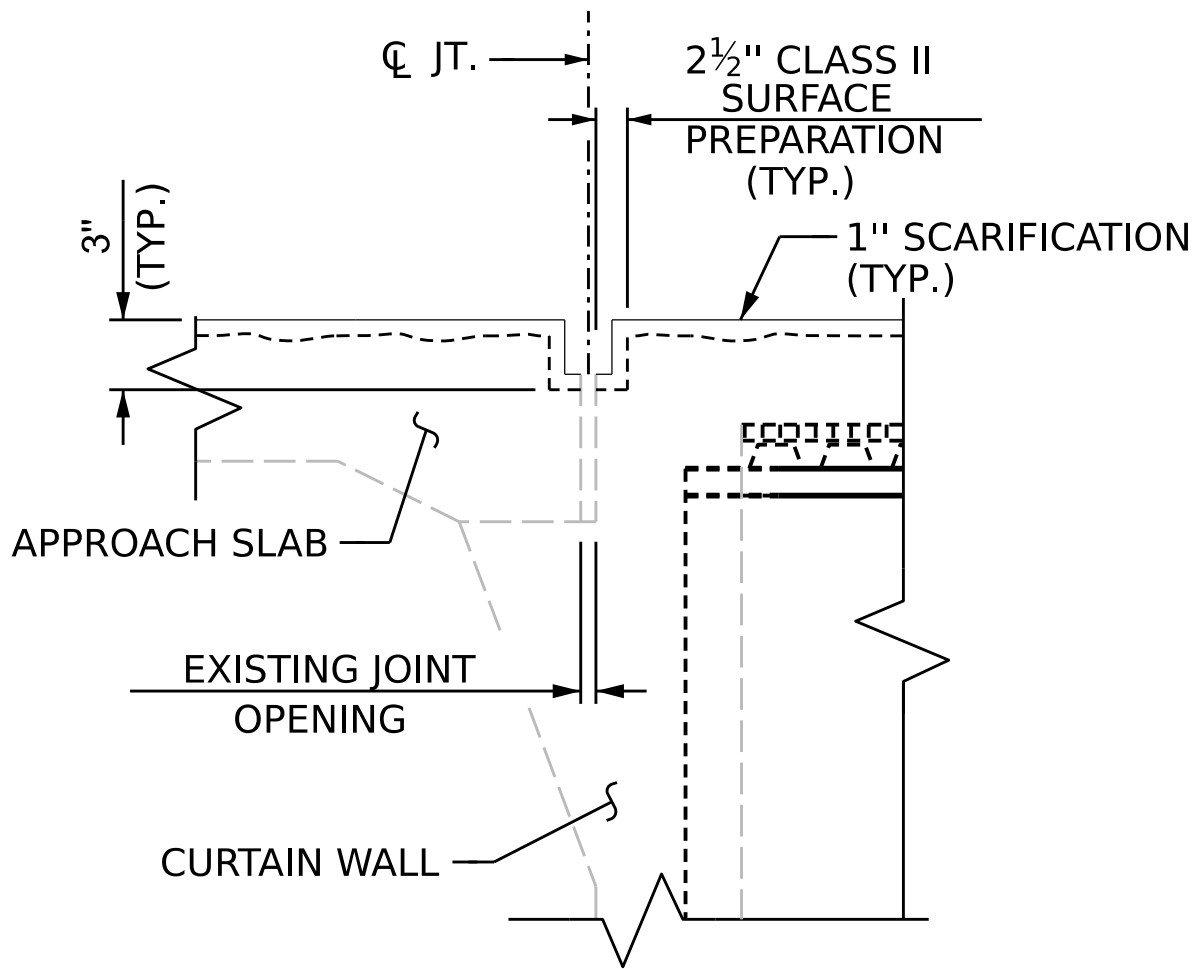


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						
JOINT REPAIR DETAILS						
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-11
2			4			TOTAL SHEETS 20

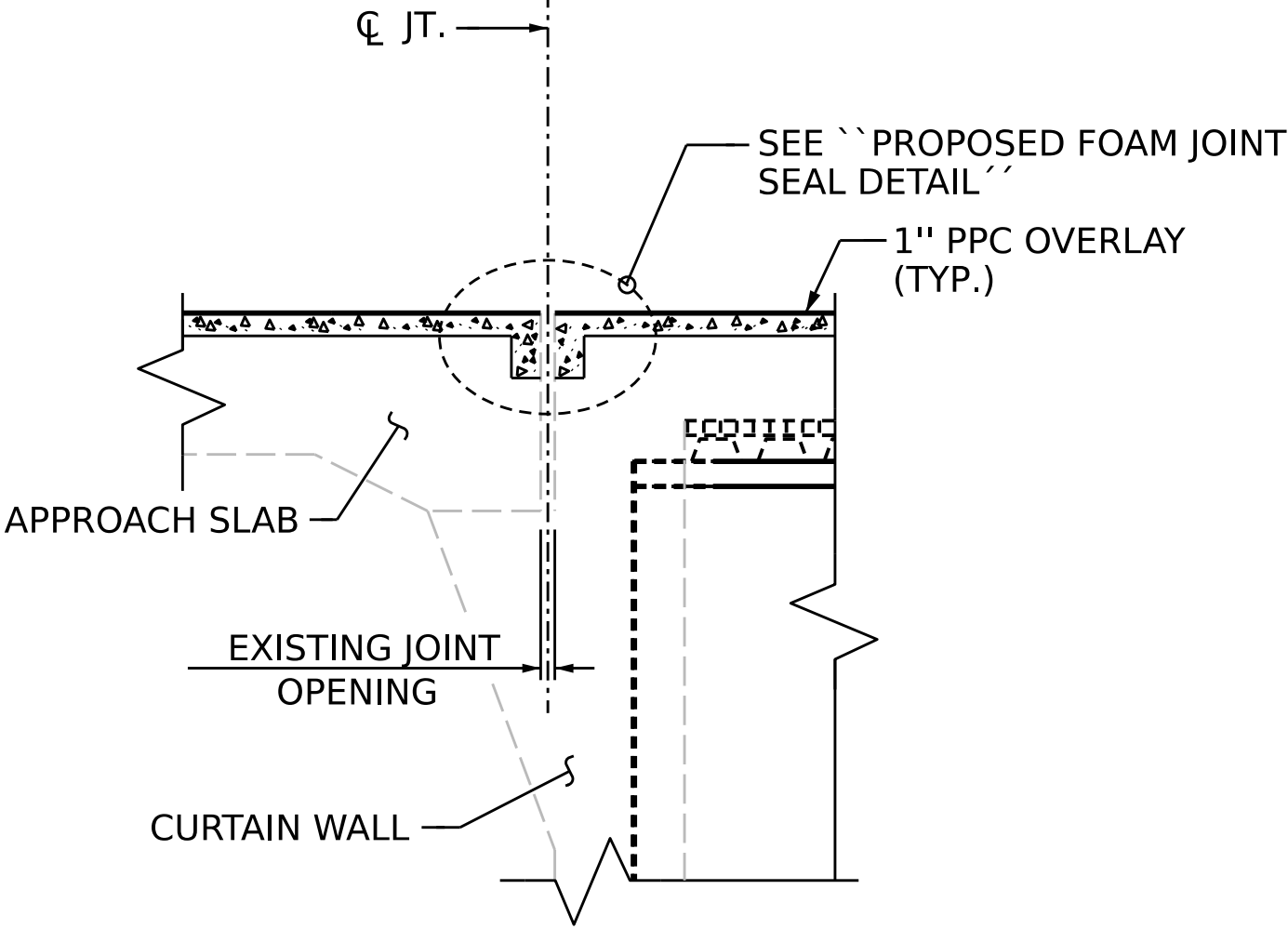
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



EXISTING JOINT

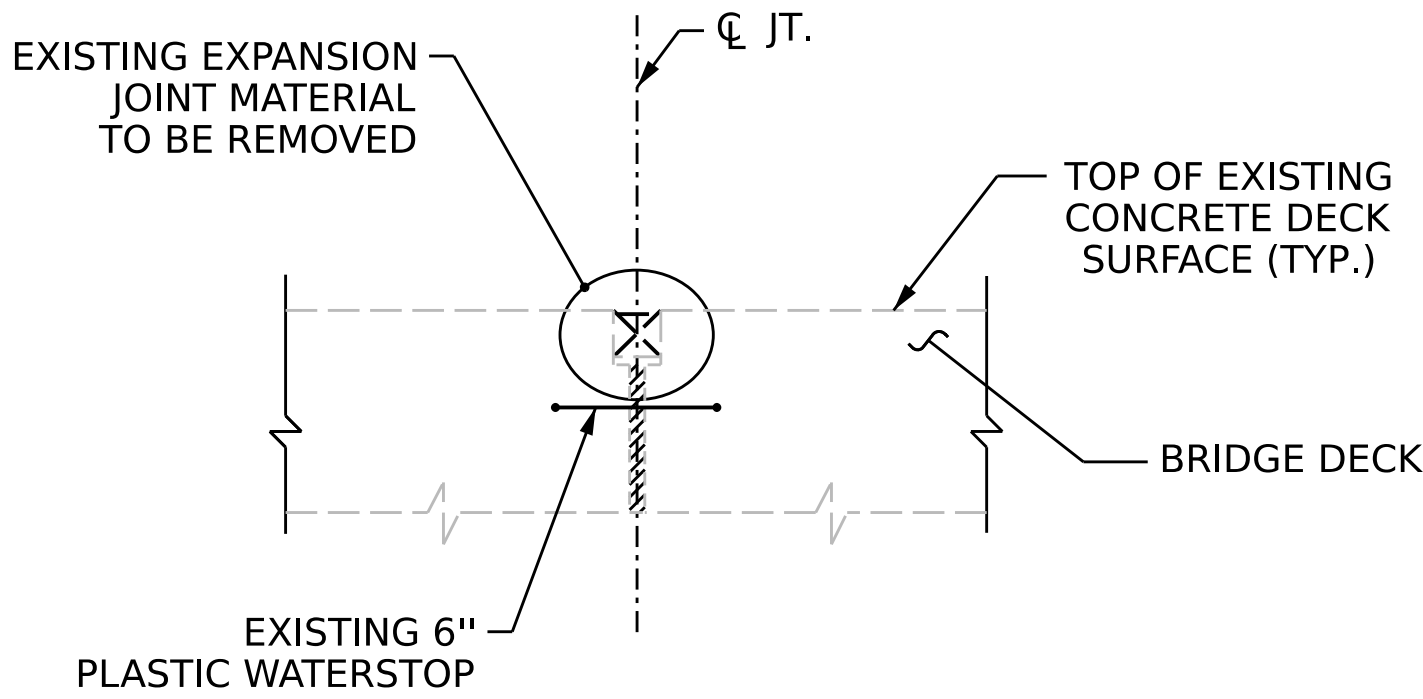


EXISTING JOINT AFTER
SURFACE PREPARATION

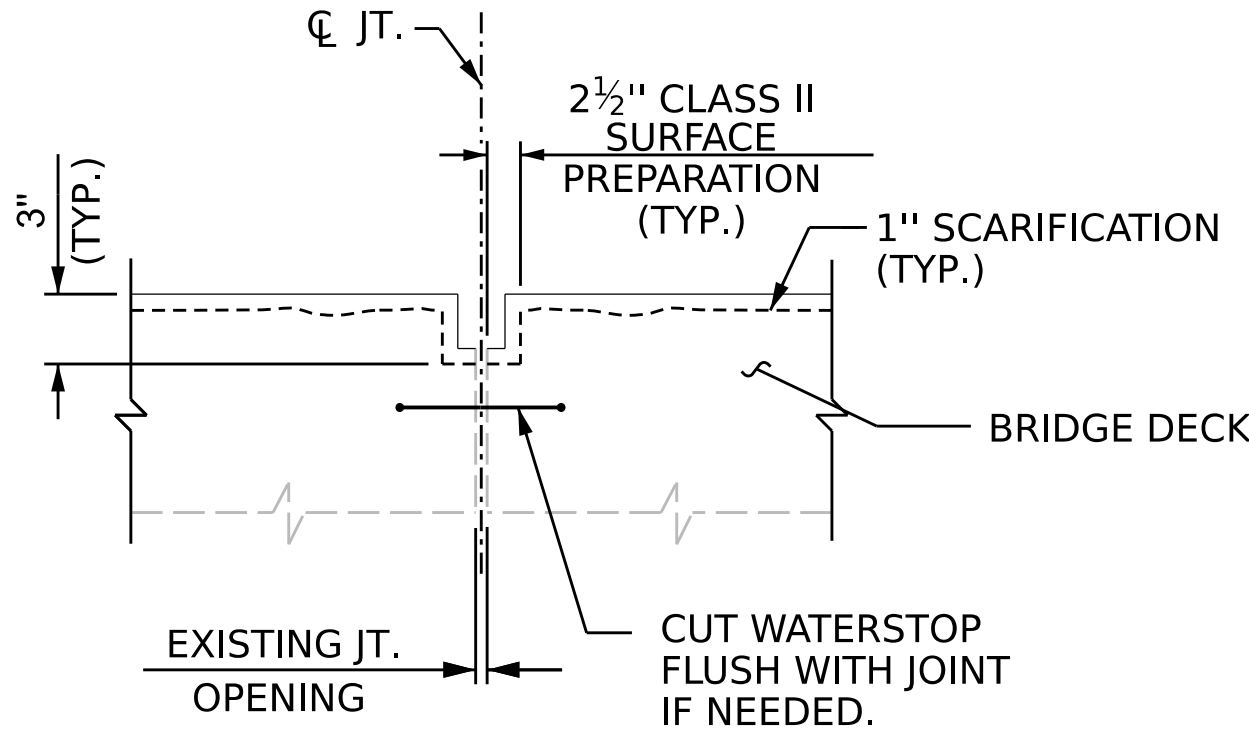


PROPOSED JOINT

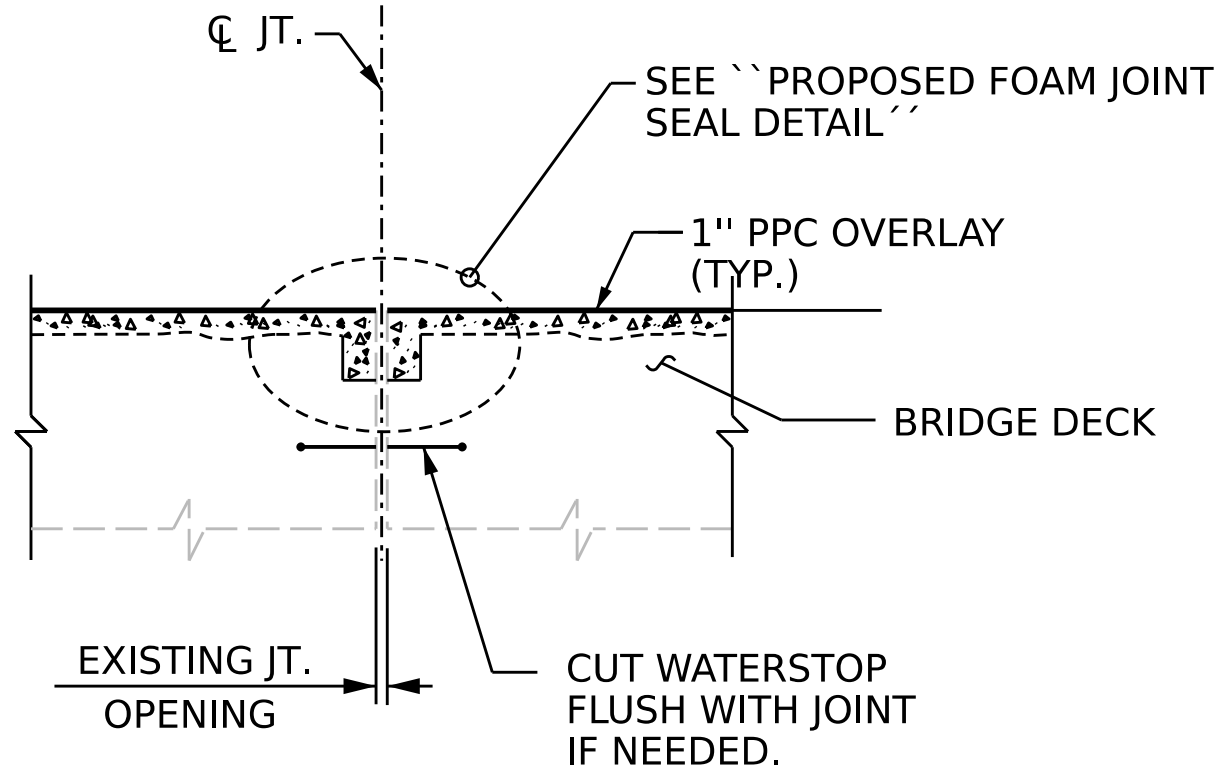
SECTION A-A
(@ END BENTS)



EXISTING JOINT



EXISTING JOINT AFTER
SURFACE PREPARATION

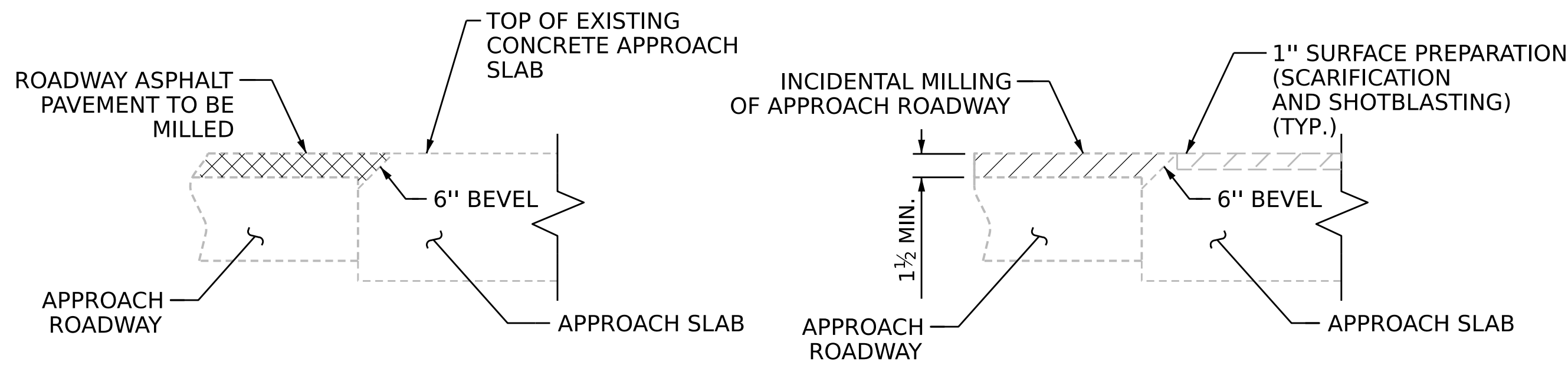


PROPOSED JOINT

SECTION B-B
(@ BENTS)

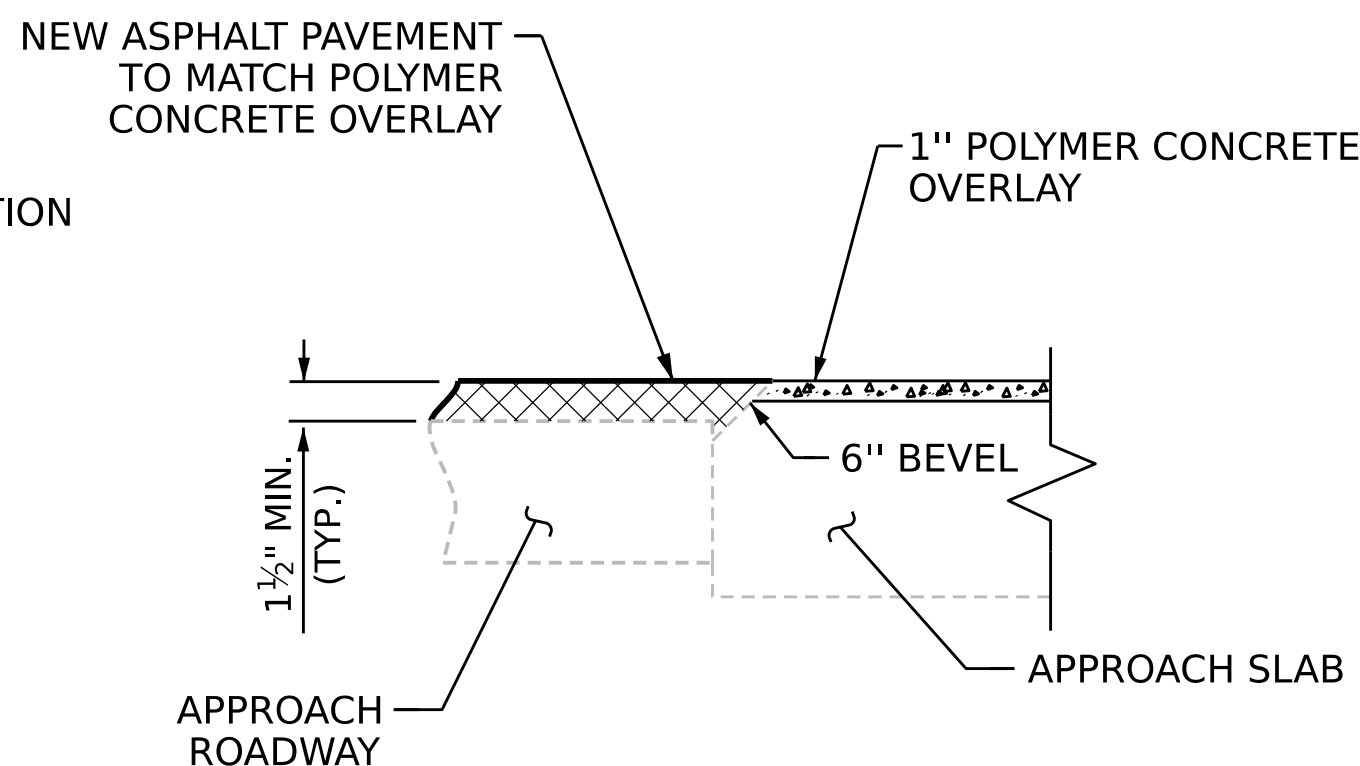
FOAM JOINT SEAL		
	ESTIMATE	ACTUAL
END BENTS	186 LF	
BENTS	280 LF	
TOTAL	466 LF	

ASSEMBLED BY : A.K. IBRAHIM / M. AHMED	DATE : 04/2025
CHECKED BY : WILLIAM C. SMITH	DATE : 06/2025
DRAWN BY : NAP 08/2018	
CHECKED BY : -	



EXISTING SURFACE

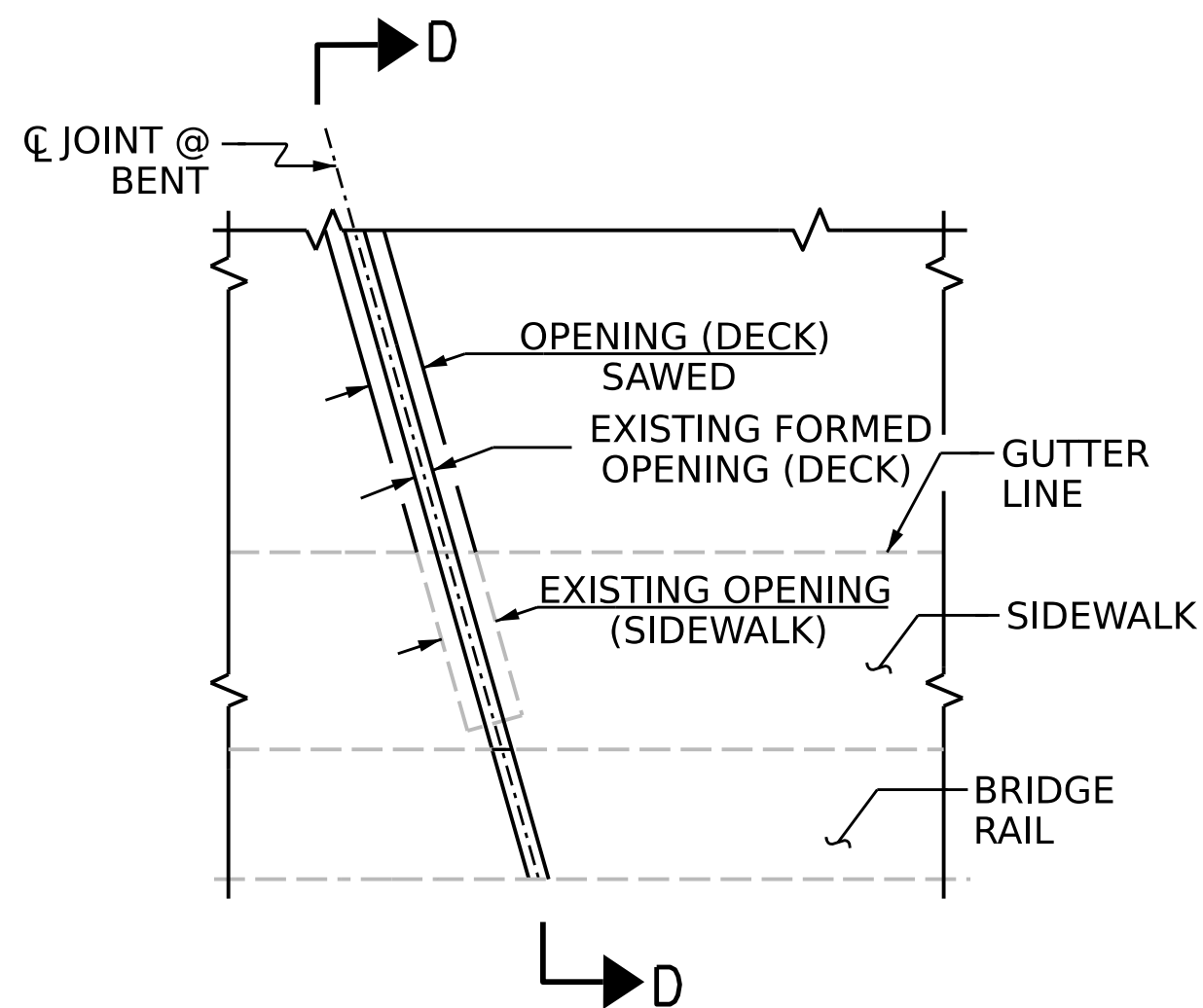
SURFACE PREPARATION



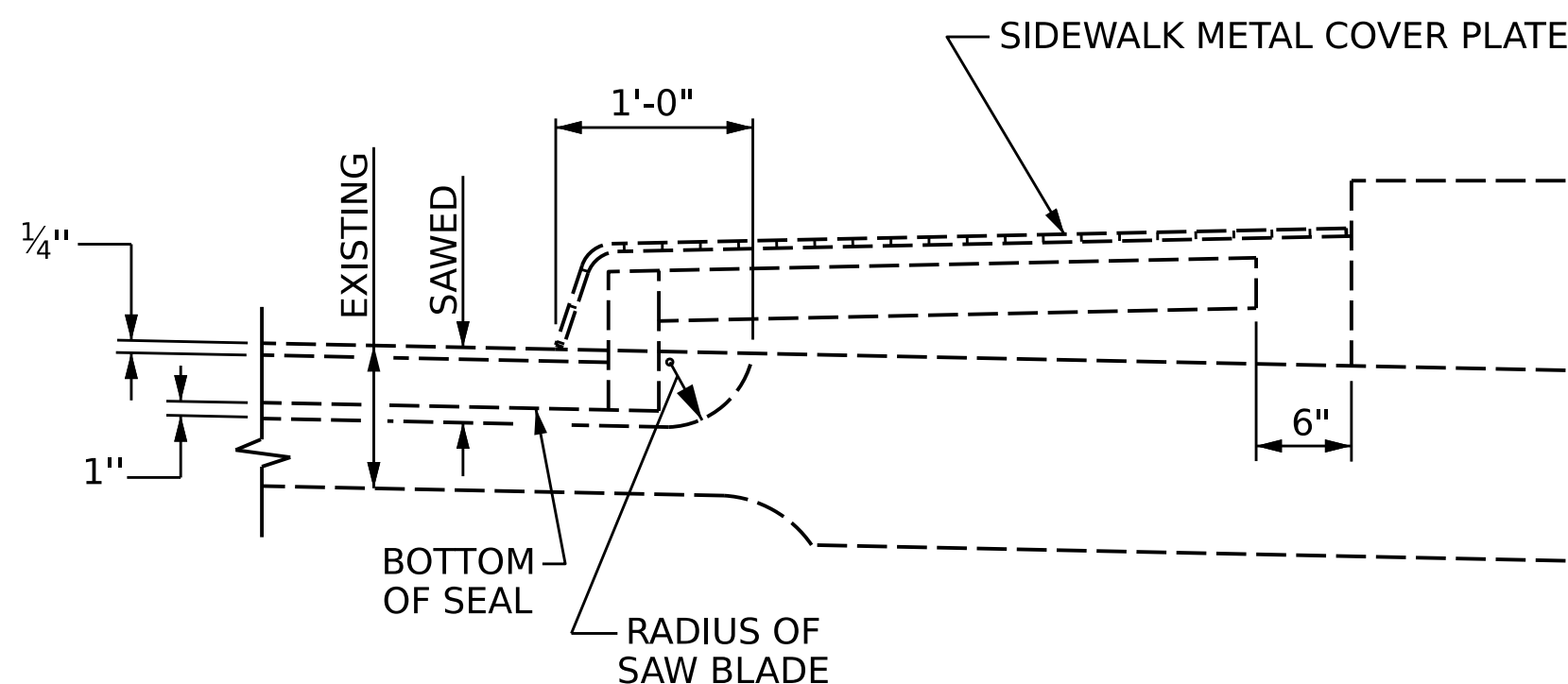
PROPOSED SURFACE

SECTION C-C

(APPROACH ROADWAY AND APPROACH SLABS)

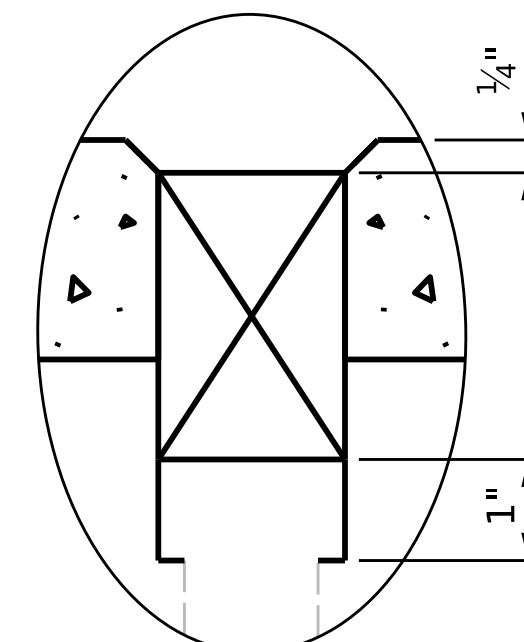


PLAN AT BENT

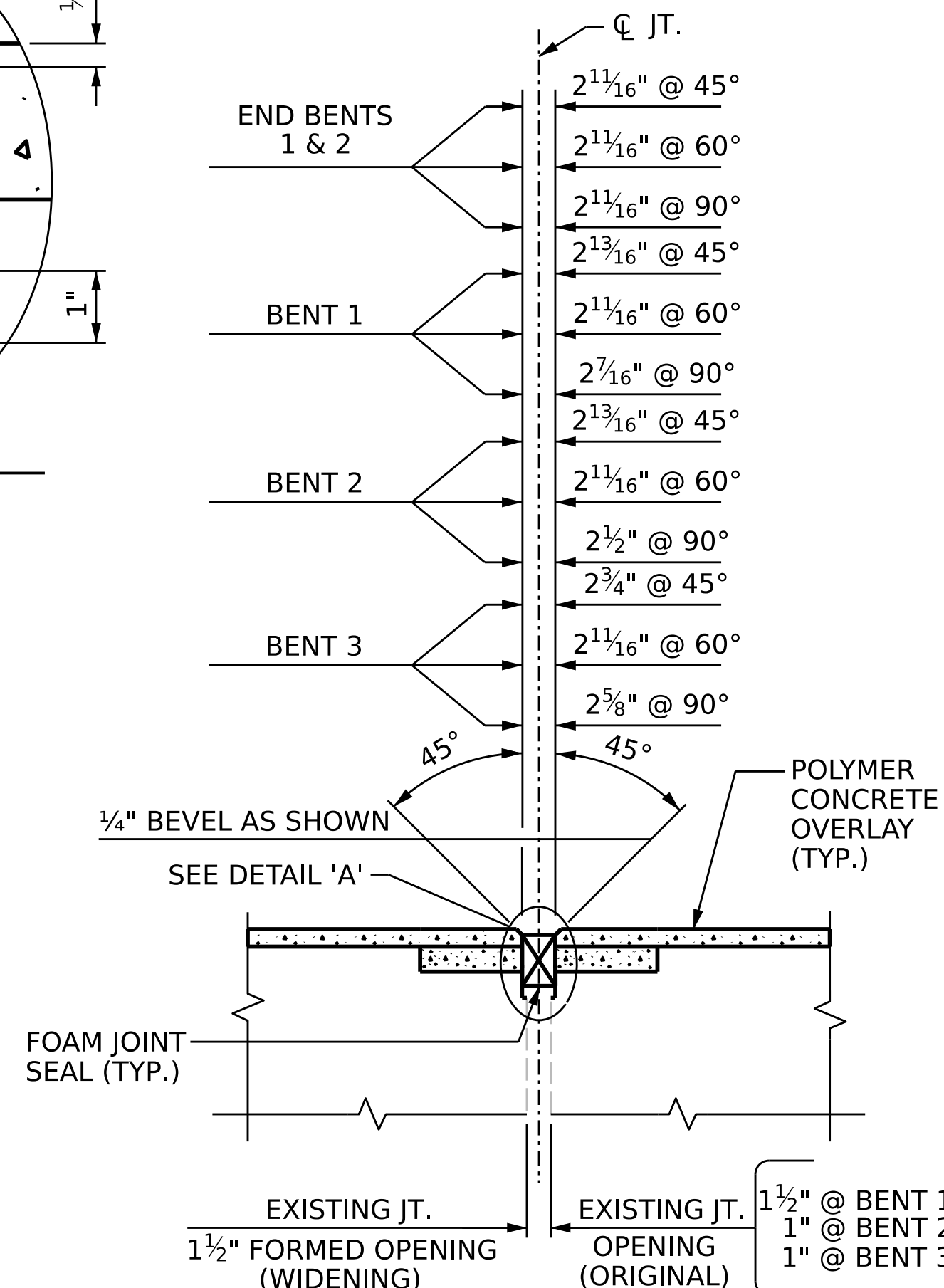


SECTION D-D

JOINT DETAILS AT SIDEWALK



DETAIL 'A'



PROPOSED FOAM JOINT SEAL

PROJECT NO. **15BPR.146.3**
CUMBERLAND COUNTY
BRIDGE NO. **250227**

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

JOINT REPAIR DETAILS



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	
1			3		S1-12
2			4		
TOTAL SHEETS					20

ASSEMBLED BY : A.K. IBRAHIM / M. AHMED	DATE : 04/2025
CHECKED BY : WILLIAM C. SMITH	DATE : 06/2025
DRAWN BY : NAP 08/2018	
CHECKED BY : -	

NOTES

FOR AREAS TO BE REPAIRED, SEE "PLAN OF SPAN" SHEETS.

ALL DECK REPAIRS SHALL BE COMPLETED PRIOR TO PLACEMENT OF OVERLAY.

FOR CLASS II AND CLASSIII SURFACE PRPARATION, SEE "OVERLAY SURFACE PREPARATIONS" SPECIAL PROVISION.

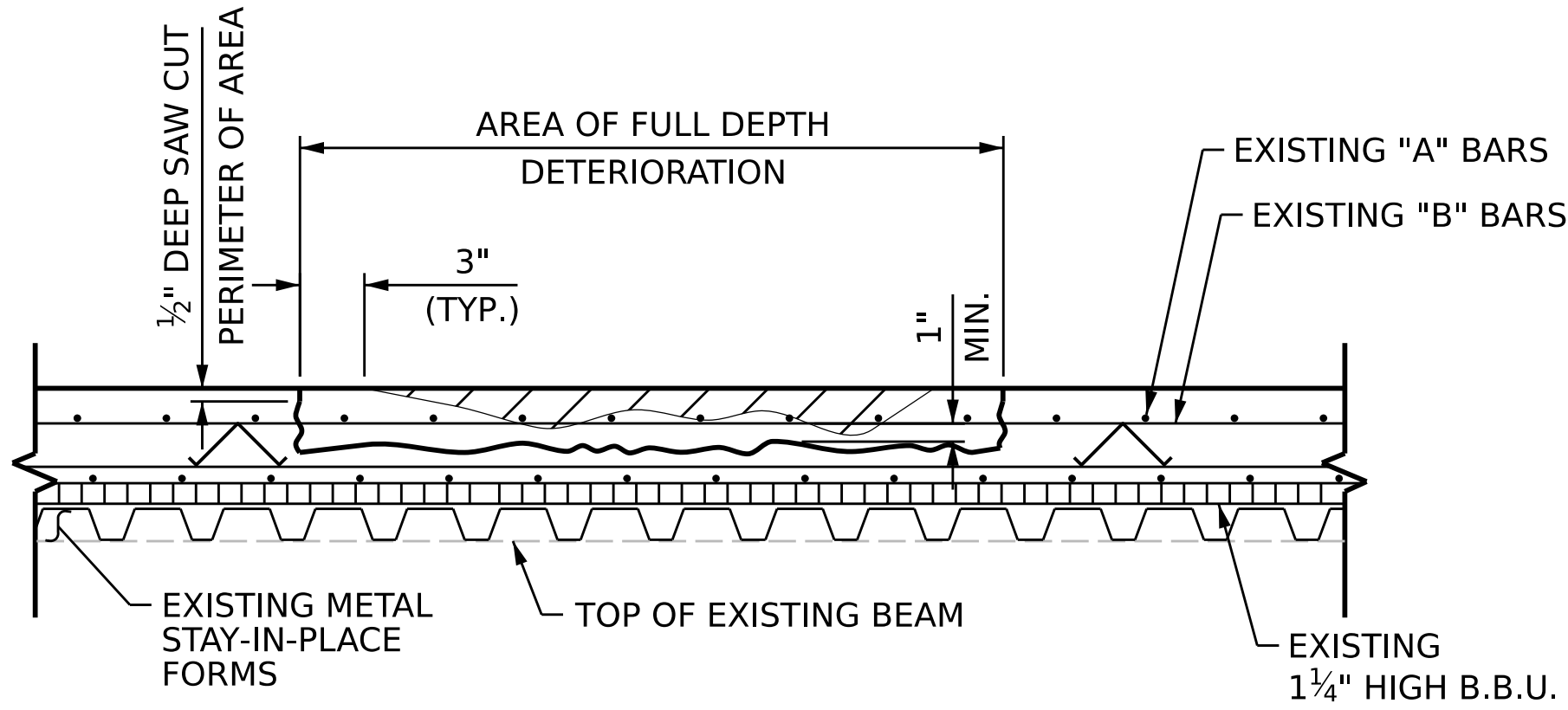
FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

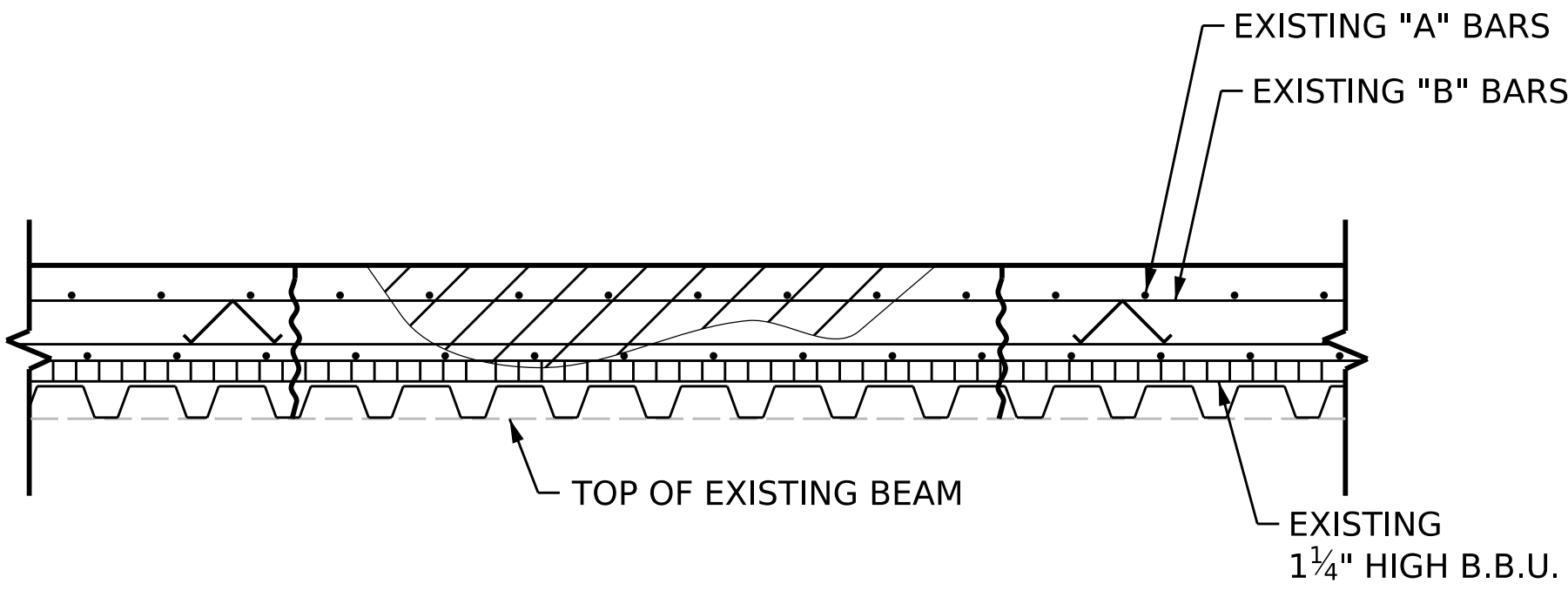
THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING WORK FOR TEMPORARY FORMWORK , FOR SUBMITTALS OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

UPON REMOVAL OF TEMPORARY FORMWORK, ALL VOIDS AND HONEYCOMBS ON THE UNDERSIDE OF DECK SURFACE SHALL BE FILLED WITH THE SAME MATERIAL AS USED FOR THE PATCH, AND FINISHED TO CONFORM TO THE SURROUNDING CONCRETE SURFACE.

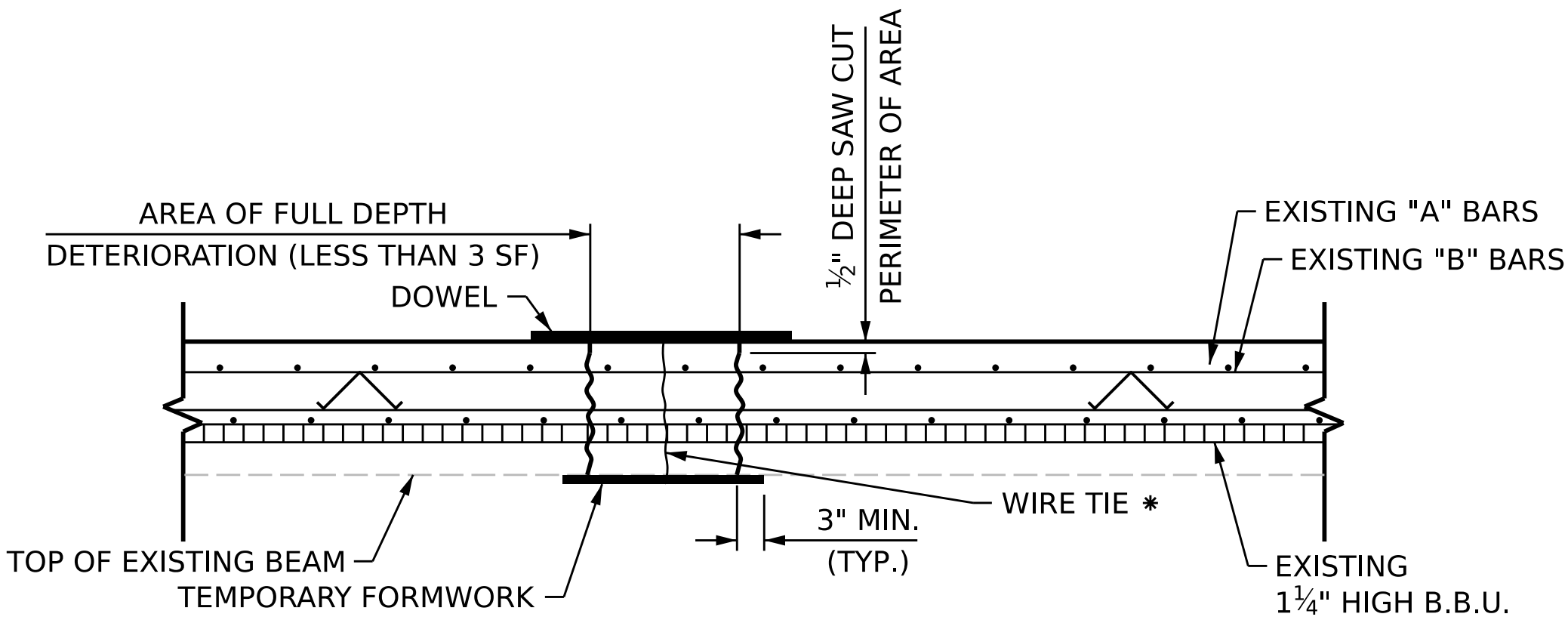
NO FORMWORK SHALL BE LEFT IN PLACE.



CLASS II (PARTIAL DEPTH) REPAIR



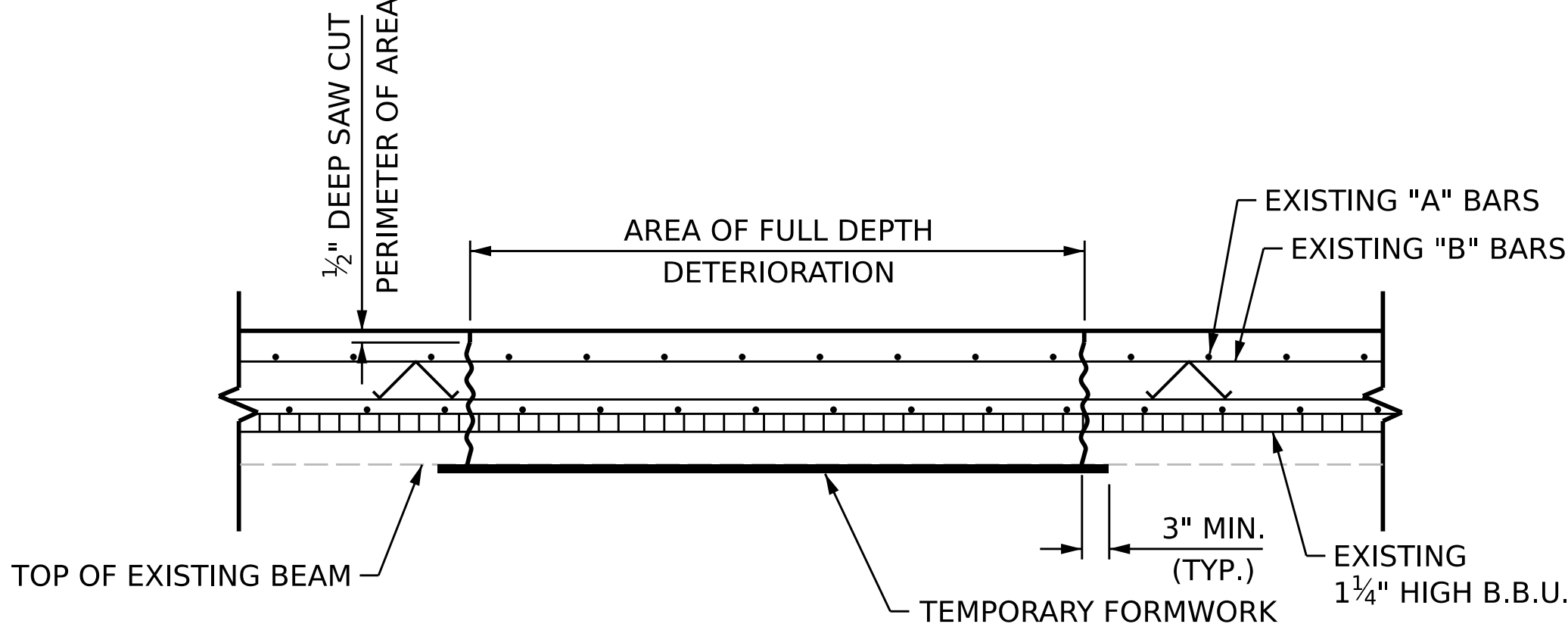
CLASS III (FULL DEPTH) REPAIR



FULL DEPTH REPAIR WITH TEMPORARY FORMWORK

(FOR AREAS OF DETERIORATION LESS THAN OR EQUAL TO 3 SF)

* WIRE TIE TO BE KNOTTED BELOW TEMPORARY FORMWORK AND ATTACHED TO DOWEL THAT IS WIDER THAN FORMED FULL DEPTH HOLE. ROTATE DOWEL TO TIGHTEN FORMWORK AGAINST BOTTOM OF DECK.

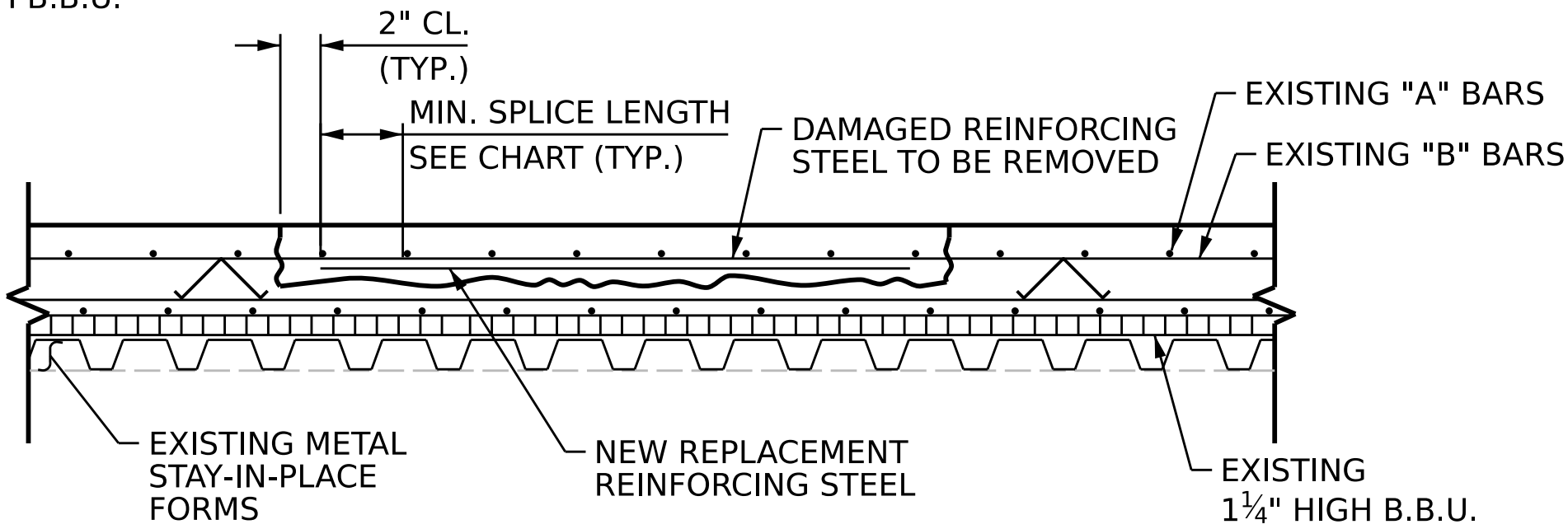


FULL DEPTH REPAIR WITH TEMPORARY FORMWORK

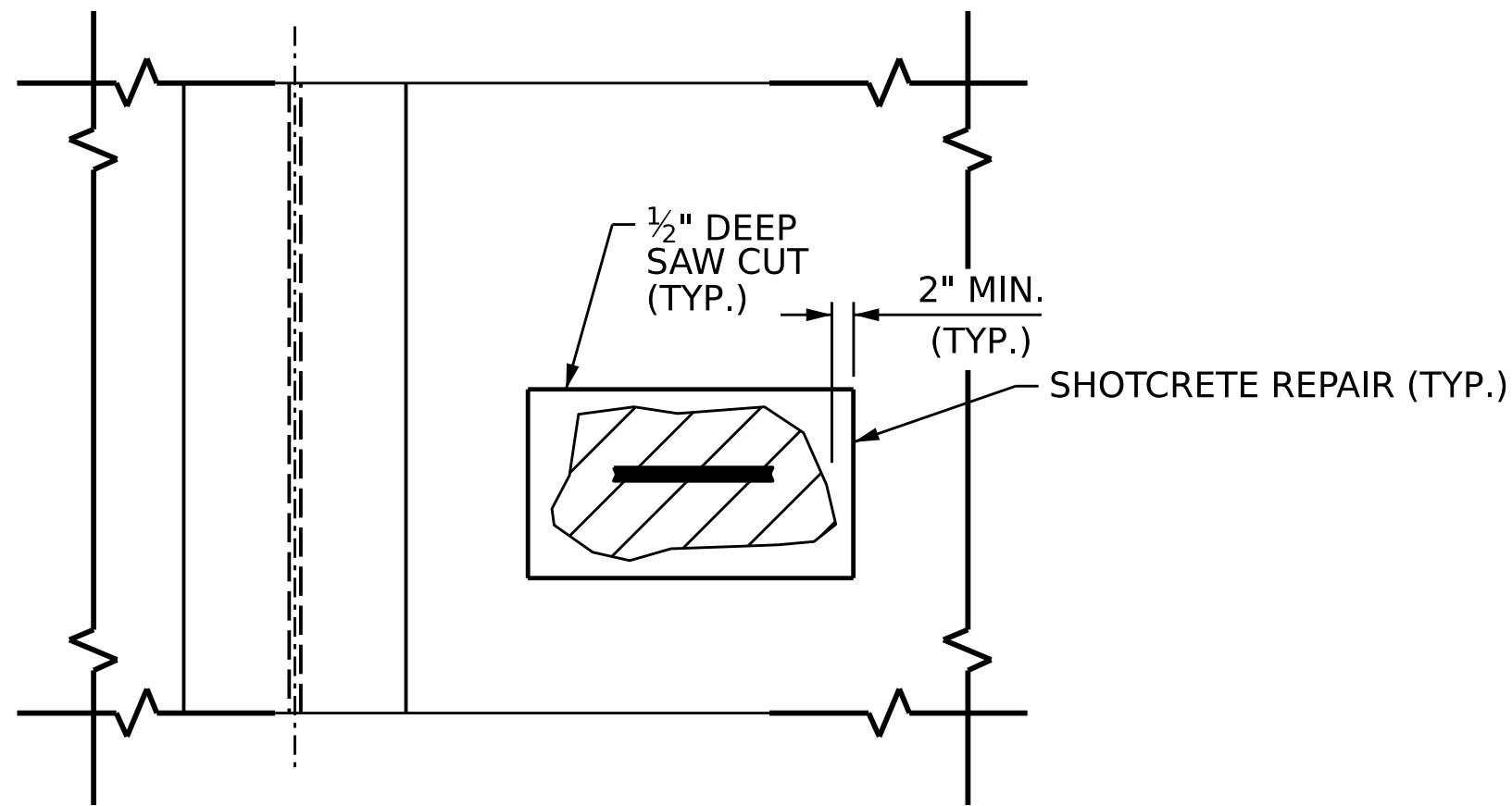
(FOR AREAS OF DETERIORATION LESS THAN OR EQUAL TO 3 SF)

AREA OF DETERIORATION

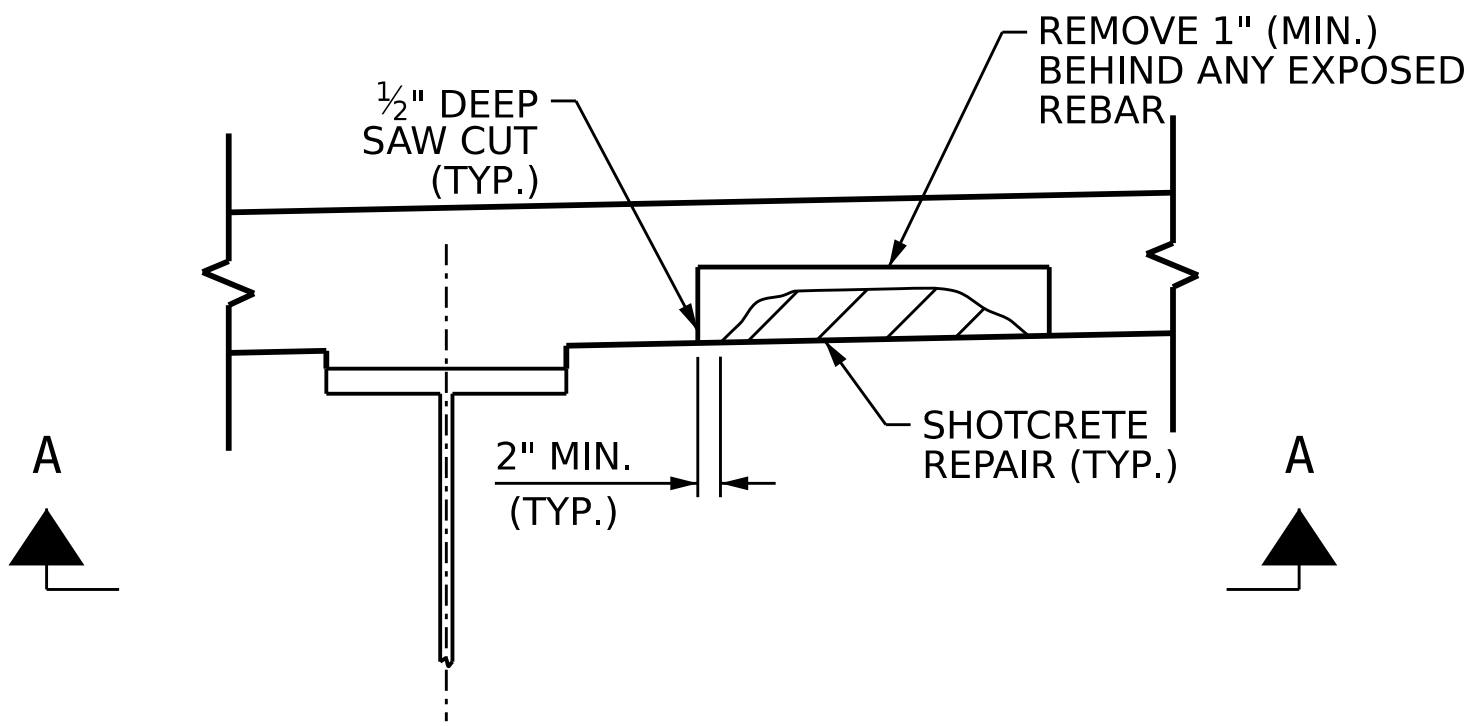
SUPERSTRUCTRE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS					
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			



REINFORCING STEEL REPAIR



SECTION A-A



TYPICAL SECTION

UNDERSIDE OF DECK REPAIR

PROJECT NO. **15BPR.146.3**
CUMBERLAND COUNTY
BRIDGE NO. **250227**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
DECK REPAIR DETAILS

ASSEMBLED BY :	M. AHMED	DATE :	08/2025
CHECKED BY :	WILLIAM C. SMITH	DATE :	08/2025
DRAWN BY :	NAP 09/2018		
CHECKED BY :	DAC 09/2018		

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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



NOTE:
EXISTING REBAR TO REMAIN
IN PLACE. CLEAN AND
REPAIR AS NECESSARY.

SECTION H-H



OVERHANG DETAILS

NOTE: OVERHANG DIAPHRAGMS TO BE REPAIRED, ARE SHOWN ON 'UNDERSIDE DECK REPAIRS' SHEETS.

OVERHANG DIAPHRAGM REPAIR DETAILS

NOTES

THE METHOD USED TO DELINEATE THE AREAS OF UNSOUND CONCRETE TO BE REPAIRED SHALL NOT PERMANENTLY MARK THE CONCRETE, LEAVE ANY RESIDUE AFTER REMOVAL OR REQUIRE HARSH CHEMICALS TO REMOVE.

THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE SPECIAL PROVISIONS AND THE STANDARD SPECIFICATIONS.

REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY,
MINIMUM OF 1"BEHIND REBAR AND MINIMUM OF 2"
CLEARANCE TO SAWCUT.

REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE PATCH SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON SHEET S1-10.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR AREAS TO BE REPAIRED, SEE "UNDERSIDE DECK
REPAIRS" SHEET.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING WORK FOR TEMPORARY FORMWORK. FOR SUBMITTALS OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

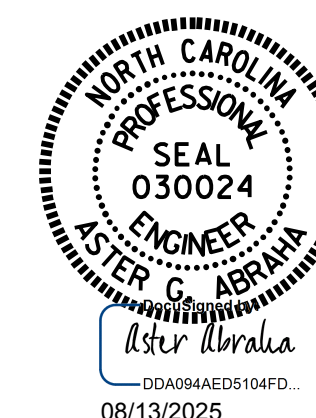
UPON REMOVAL OF TEMPORARY FORMWORK, ALL VOIDS AND HONEYCOMBS ON THE UNDERSIDE OF DECK SURFACE SHALL BE FILLED WITH THE SAME MATERIAL AS USED FOR THE PATCH, AND FINISHED TO CONFORM TO THE SURROUNDING CONCRETE SURFACE.

NO FORMWORK SHALL BE LEFT IN PLACE.

INTERIOR DIAPHRAGM REPAIR DETAILS

PROJECT NO. 15BPR.146.3

CUMBERLAND COUNTY

BRIDGE NO. 250227

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

OVERHANG & DIAPHRAGM DECK REPAIR DETAILS

REVISONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-14 TOTAL SHEETS 20
1			3			
2			4			

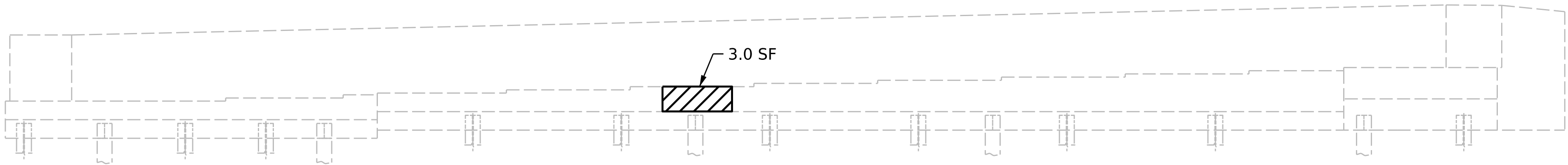
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

DRAWN BY : A.K. IBRAHIM / M. AHMED DATE : 06/2025
 CHECKED BY : WILLIAM C. SMITH DATE : 06/2025
 DESIGN ENGINEER OF RECORD: _____ DATE : _____

7/28/2025
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anr anr nnn

ELEVATION

END BENT 1



ELEVATION

END BENT 2

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

NOTES

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

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

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.

FOR REPAIR DETAILS, SEE ``TYPICAL CAP AND COLUMN REPAIR DETAILS`` SHT. S1-19

REPAIR KEY

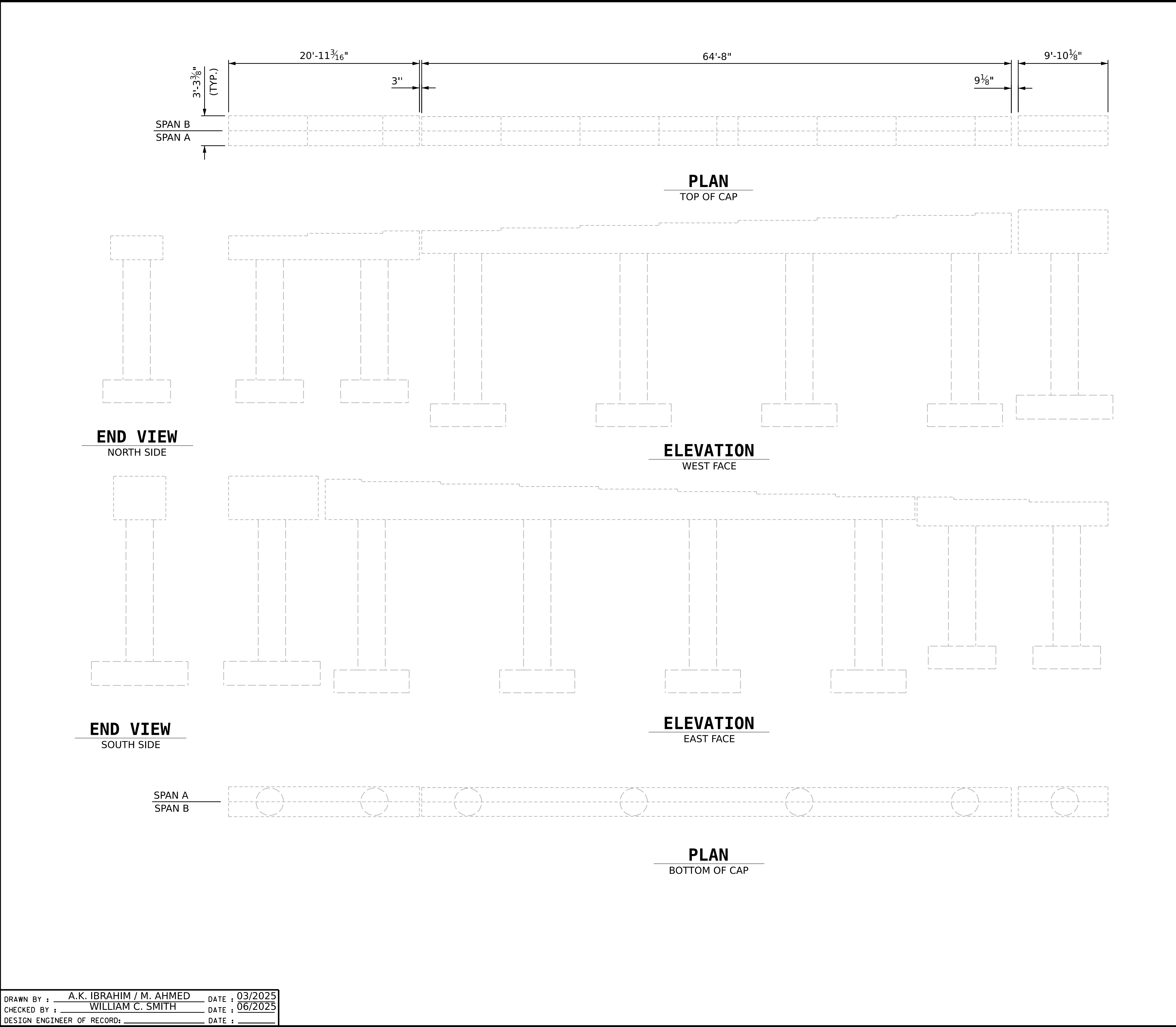
-  SHOTCRETE REPAIR AREA
 CONCRETE REPAIR AREA
 PREVIOUSLY ACCOUNTED FOR AREA
 EPOXY RESIN INJECTION

PROJECT NO. 15BPR.146.3
CUMBERLAND COUNTY
 BRIDGE NO. 250227



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	NO.	BY:	DATE:	NO.	BY:	DATE:	51-15
	1			3			TOTAL SHEETS
	2			4			20

8/26/21



REPAIRS - BENT 1

QUANTITIES

ESTIMATE

ACTUAL

SHOTCRETE REPAIRS

AREA SF

VOLUME CF

AREA SF

VOLUME CF

CAP

0

0

COLUMN

0

0

0

0

CONCRETE REPAIRS

AREA SF

VOLUME CF

AREA SF

VOLUME CF

CAP

0

0

COLUMN

0

0

EPOXY RESIN INJECTION

LINEAR FT

LINEAR FT

CAP

0

COLUMN

0

EPOXY COATING

AREA SF

AREA SF

TOP OF CAP

276.5

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

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITY TABLE.

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FOR REPAIR DETAILS, SEE ``TYPICAL CAP AND COLUMN REPAIR DETAILS`` SHT. S1-19

SHOTCRETE REPAIR AREA

CONCRETE REPAIR AREA

EPOXY RESIN INJECTION

PROJECT NO. 15BPR.146.3

CUMBERLAND COUNTY

BRIDGE NO. 250227

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
BENT 1

NO.1BY:1DATE:1NO.2BY:2DATE:2

NO.3BY:3DATE:3NO.4BY:4DATE:4

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

112

334

SHEET NO.
S1-16
TOTAL SHEETS
20

DRAWN BY : A.K. IBRAHIM / M. AHMED

CHECKED BY : WILLIAM C. SMITH

DESIGN ENGINEER OF RECORD:

DATE : 03/2025

DATE : 06/2025

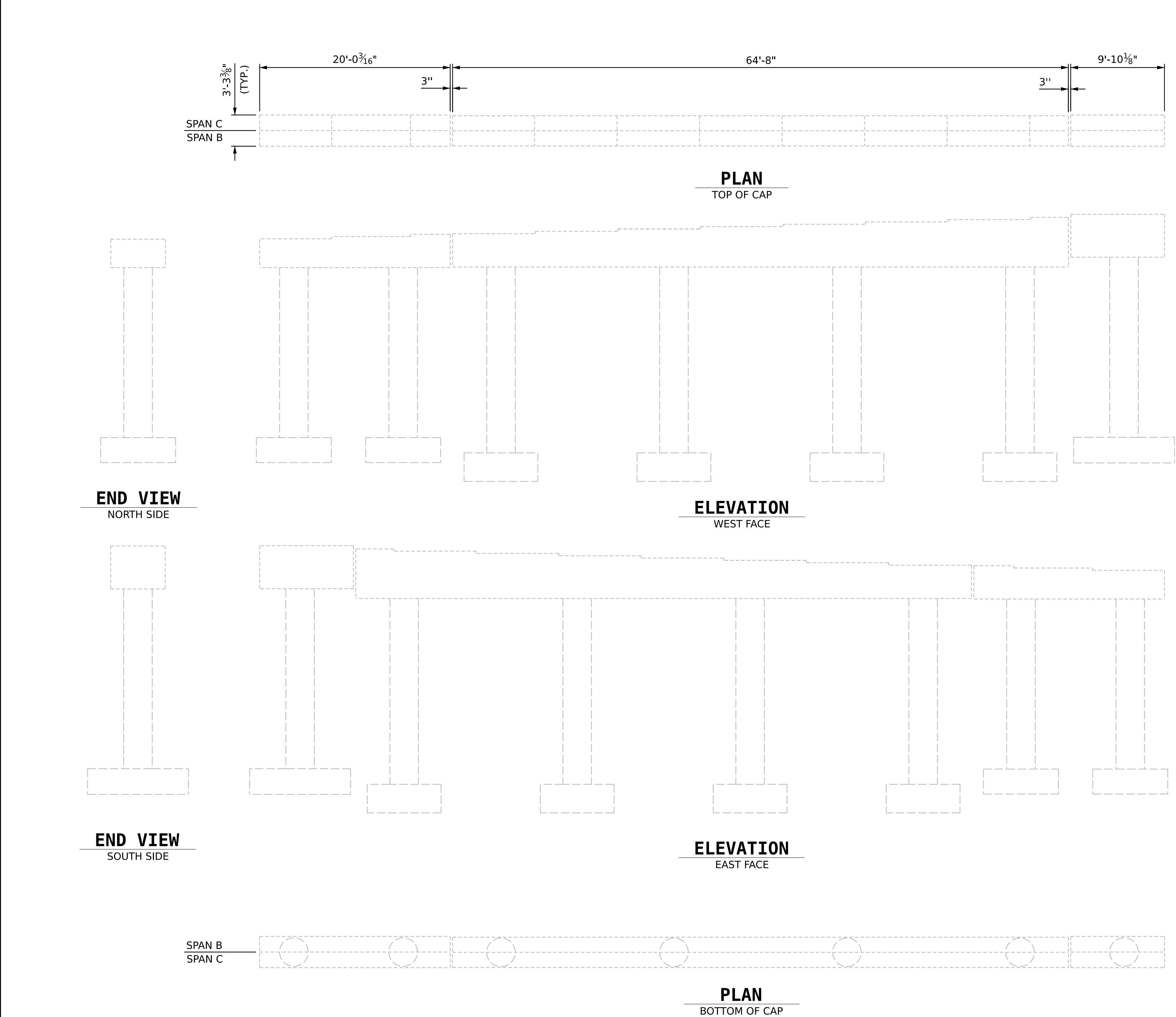
DATE :

1/24/2025

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8/26/21



SUBSTRUCTURE REPAIR QUANTITY TABLE				
REPAIRS - BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY RESIN INJECTION		LINEAR FT		LINEAR FT
CAP		0		
COLUMN		0		
EPOXY COATING		AREA SF		AREA SF
TOP OF CAP		273.5		

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

NOTES

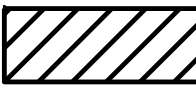
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CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE MASONRY PLATES. FOR EPOXY COATING, SEE SPECIAL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

FOR REPAIR DETAILS, SEE ``TYPICAL CAP AND COLUMN REPAIR DETAILS`` SHT. S1-19

REPAIR KEY

 SHOTCRETE REPAIR AREA

 CONCRETE REPAIR AREA

 EPOXY RESIN INJECTION

PROJECT NO. 15BPR.146.3
CUMBERLAND COUNTY
BRIDGE NO. 250227



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH									
SUBSTRUCTURE BENT 2									
REVISIONS								SHEET NO.	
NO.	BY:	DATE:		NO.	BY:	DATE:		S1-17	
1				3				TOTAL SHEETS	
2				4				20	

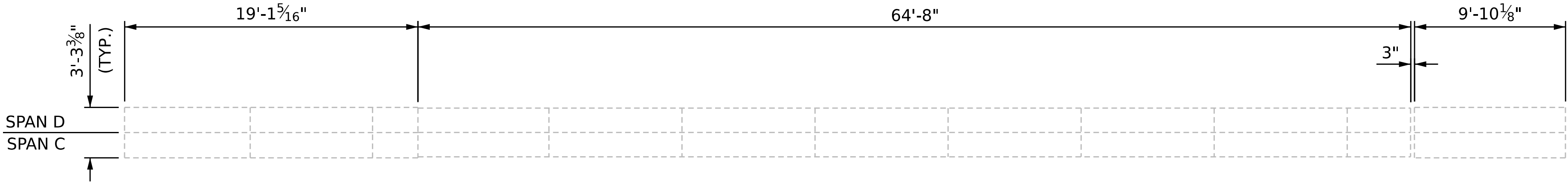
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

DRAWN BY : A.K. IBRAHIM / M. AHMED DATE : 03/2025
CHECKED BY : WILLIAM C. SMITH DATE : 06/2025
DESIGN ENGINEER OF RECORD: _____ DATE : _____

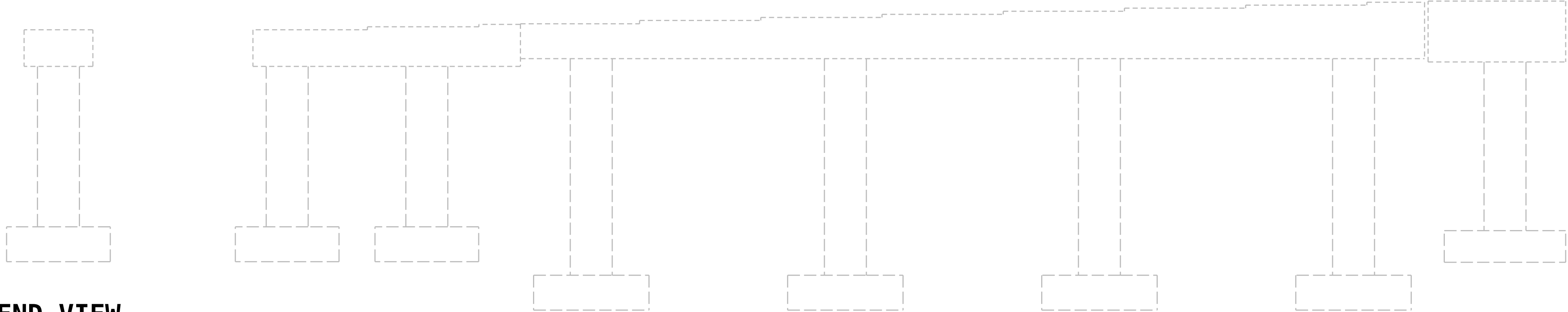
8/26/21

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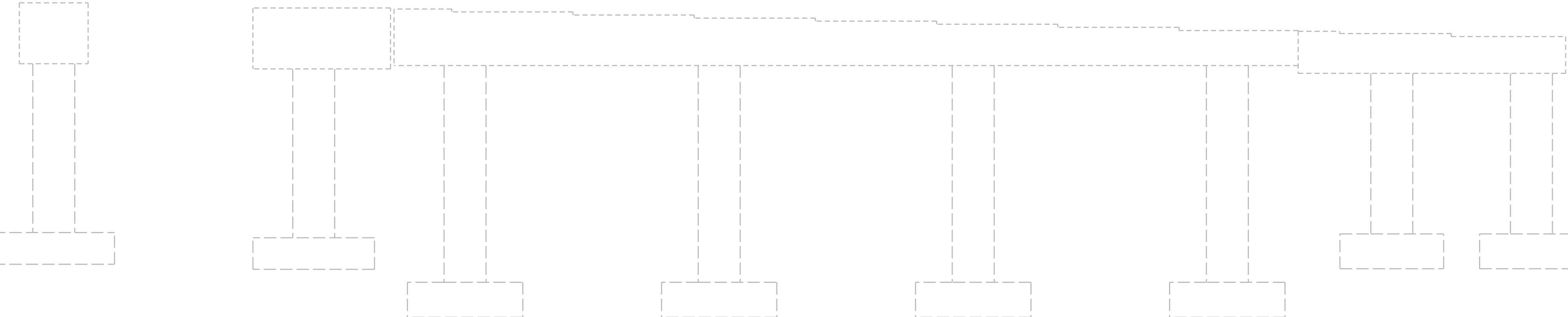
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PLAN
TOP OF CAP



ELEVATION
WEST FACE



ELEVATION
EAST FACE



PLAN
BOTTOM OF CAP

SUBSTRUCTURE REPAIR QUANTITY TABLE				
REPAIRS - BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
	0	0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0	0		
COLUMN	0	0		
EPOXY RESIN INJECTION		LINEAR FT		LINEAR FT
CAP		0		
COLUMN		0		
EPOXY COATING		AREA SF		AREA SF
TOP OF CAP		271.5		

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

NOTES

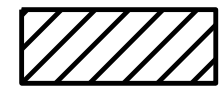
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FOR REPAIR DETAILS, SEE ``TYPICAL CAP AND COLUMN REPAIR DETAILS`` SHT. S1-19

REPAIR KEY

 SHOTCRETE REPAIR AREA

 CONCRETE REPAIR AREA

 EPOXY RESIN INJECTION

PROJECT NO. **15BPR.146.3**

CUMBERLAND COUNTY

BRIDGE NO. **250227**



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH	
SUBSTRUCTURE BENT 3	

DRAWN BY : A.K. IBRAHIM / M. AHMED	DATE : 03/2025
CHECKED BY : WILLIAM C. SMITH	DATE : 06/2025
DESIGN ENGINEER OF RECORD: _____	DATE : _____

1/24/2025
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REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			TOTAL SHEETS 20
2			4			

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

NOTES

TYPICAL BENT CAP REPAIRS ARE SHOWN. REPAIR DETAILS SIMILAR FOR END BENT CAPS AND STRUTS.

THE METHOD USED TO DELINEATE THE AREAS OF UNSOUND CONCRETE TO BE REPAIRED SHALL NOT PERMANENTLY MARK THE CONCRETE, LEAVE ANY RESIDUE AFTER REMOVAL OR REQUIRE HARSH CHEMICALS TO REMOVE.

THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE SPECIAL PROVISIONS AND THE STANDARD SPECIFICATIONS.

REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT.

NO MORE THAN ONE-THIRD OF THE CAP OR COLUMN CROSS SECTIONAL AREA SHALL BE REMOVED AT ONE TIME. SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 30% OF A CAP OR COLUMN CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, IF THE AREAS OF REMOVAL ARE NOT ADJACENT TO OR DIRECTLY OPPOSITE ONE ANOTHER. IF REMOVAL EXTENDS MORE THAN 1½" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

NO MORE THAN 10 VERTICAL FEET OF A COLUMN MAY BE REMOVED AT ONE TIME, PRIOR TO REPAIR, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE REPAIR AREA SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.

THE #4 "U" DOWELS ARE REQUIRED ONLY AROUND THE ANCHOR BOLTS. THE EXISTING REINFORCING STEEL IN THE PEDESTAL WALL SHALL BE CLEANED, STRAIGHTENED AND REMAIN IN PLACE.

FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.

COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING, OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

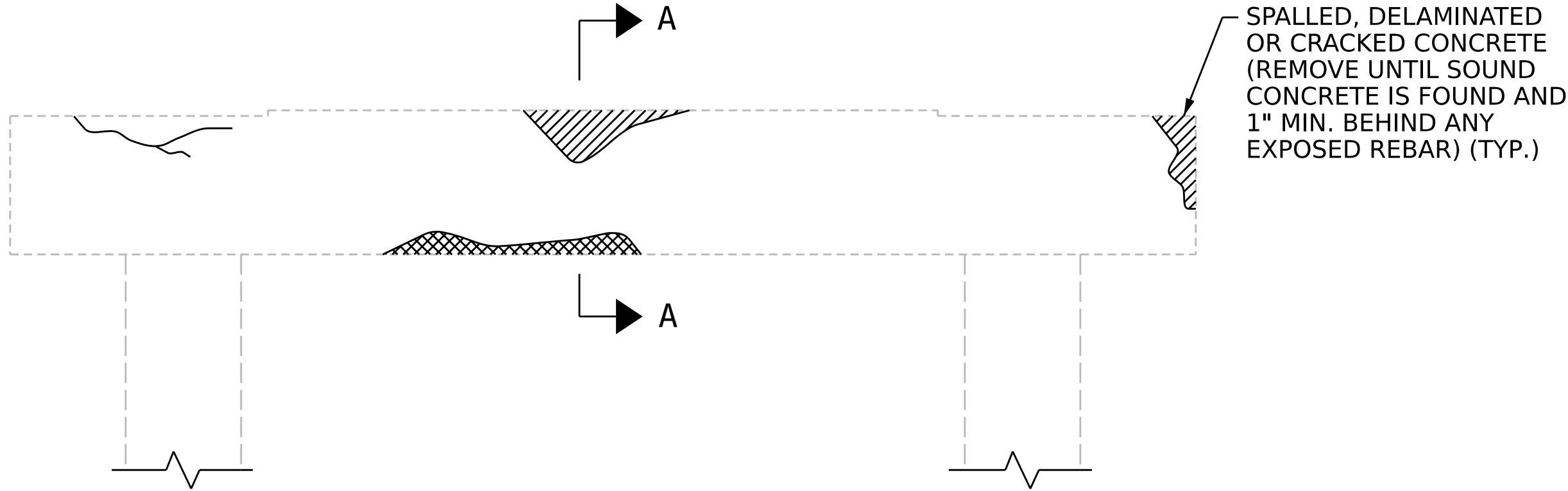
FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

PROJECT NO. **15BPR.146.3**
CUMBERLAND COUNTY
BRIDGE NO. **250227**

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
TYPICAL CAP AND COLUMN REPAIR DETAILS

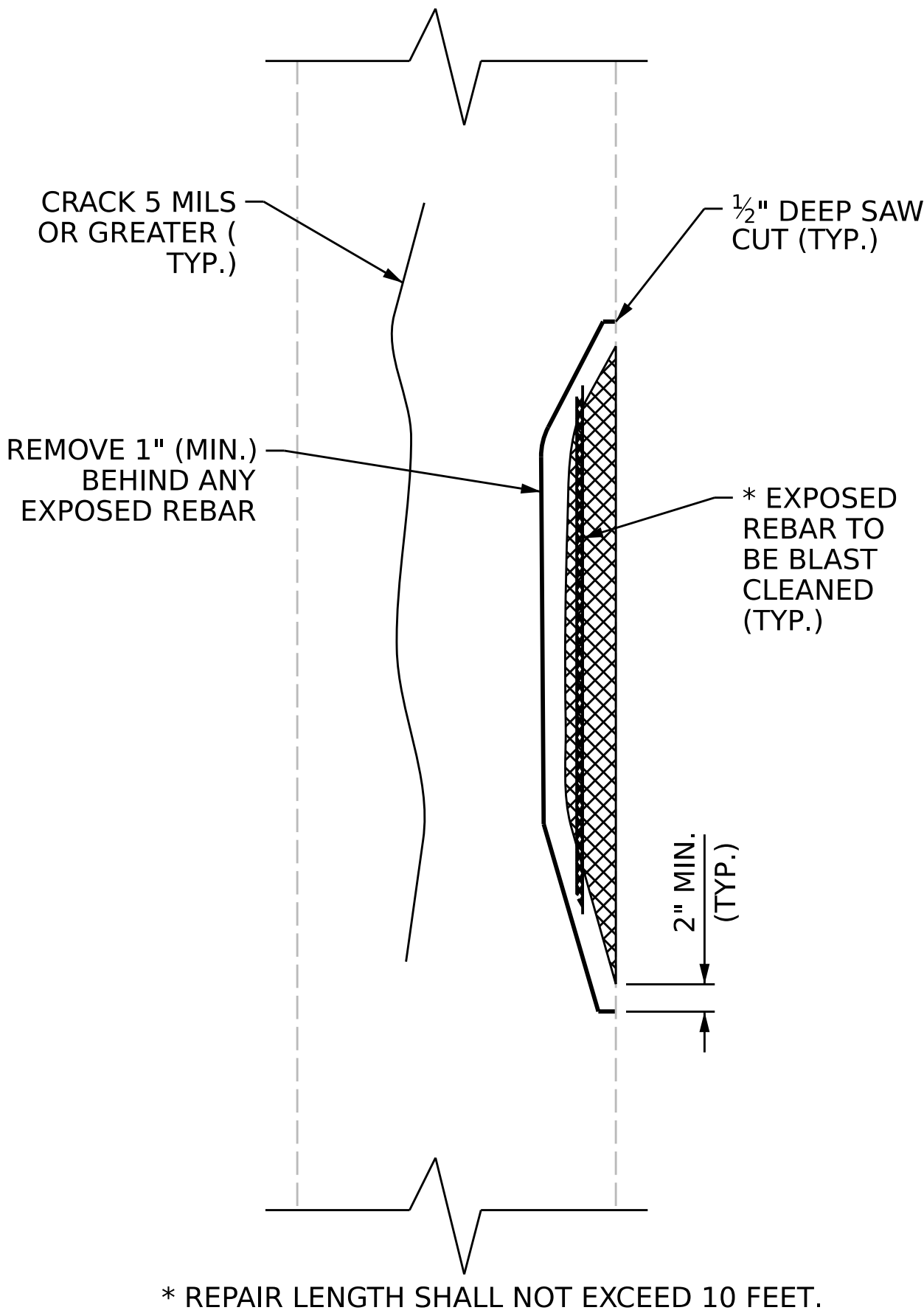
REVISIONS					SHEET NO. S1-19
NO.	BY:	DATE:	NO.	BY:	
1			3		TOTAL SHEETS
2			4		20

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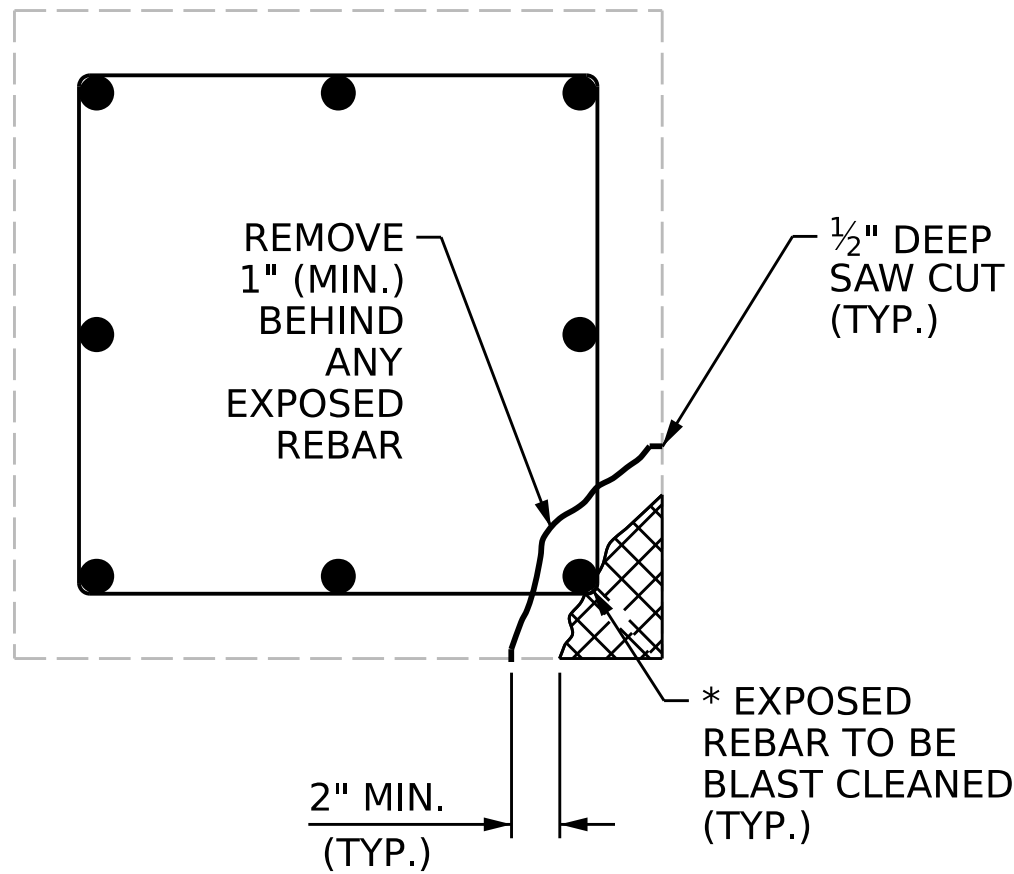


BENT CAP REPAIRS

SPLICE LENGTH TABLE	
BAR SIZE	MIN. SPLICE LENGTH
#4	2'-5"
#5	3'-0"
#6	3'-7"
#7	4'-2"
#8	4'-9"
#9	5'-4"
#10	6'-0"
#11	6'-8"

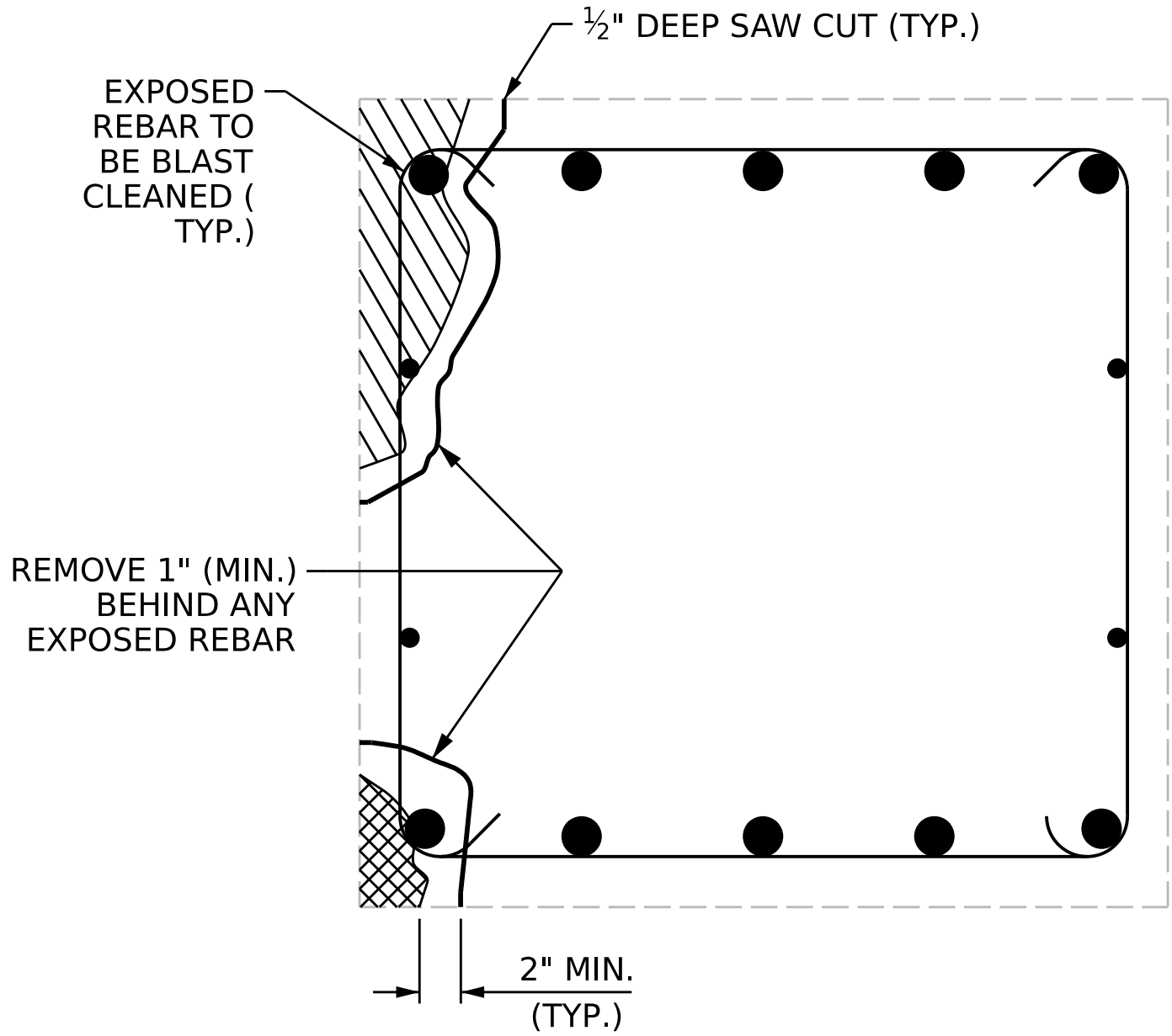


ELEVATION OF COLUMN



PLAN OF COLUMN

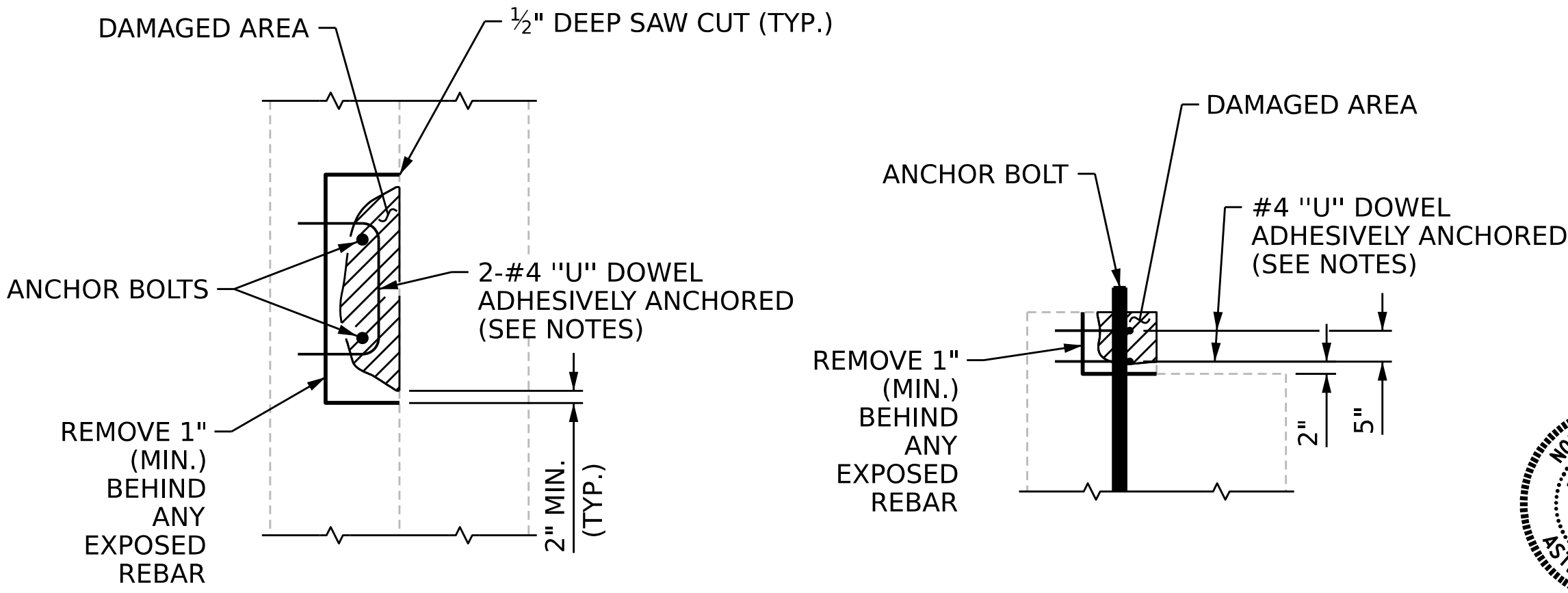
COLUMN REPAIR



SECTION A-A

REPAIR KEY

- CONCRETE REPAIR AREA (FORM AND POUR)
- SHOTCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)



PLAN

ELEVATION

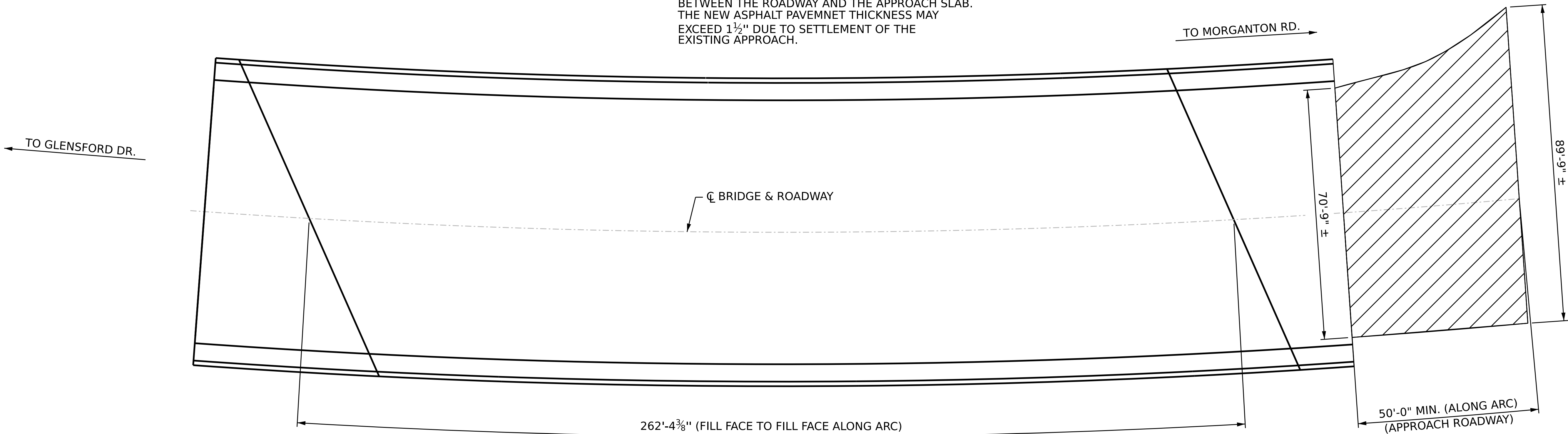
PEDESTAL WALL REPAIR

DRAWN BY : M. AHMED DATE : 08/2025
CHECKED BY : WILLIAM C. SMITH DATE : 08/2025
DESIGN ENGINEER OF RECORD: DATE :

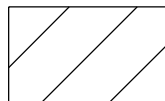
8/26/21

NOTES

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1½" DEPTH OF NEW ASPHALT PAVING. NEW ASPHALT PAVEMENT SHALL BE OF THICKNESS NECESSARY TO PROVIDE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE APPROACH SLAB. THE NEW ASPHALT PAVEMNET THICKNESS MAY EXCEED 1½" DUE TO SETTLEMENT OF THE EXISTING APPROACH.



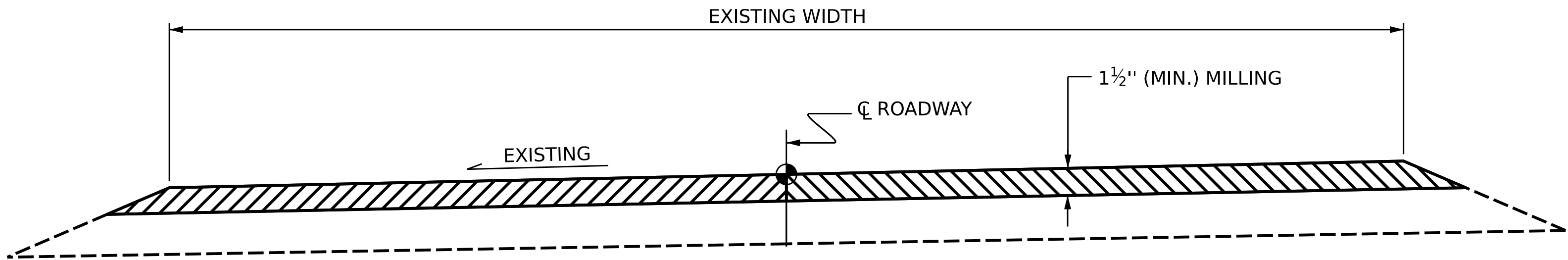
PLAN



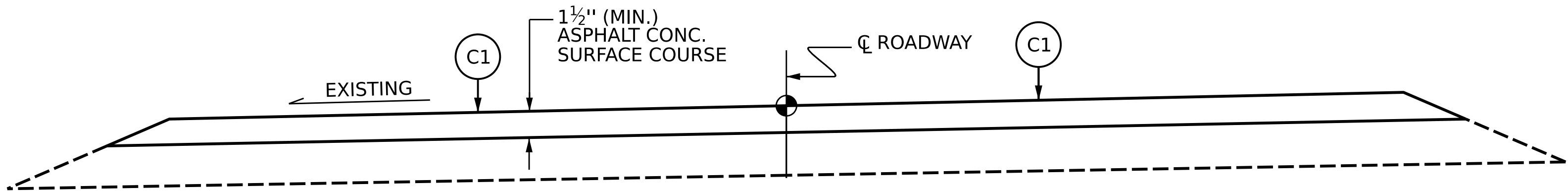
INCIDENTAL MILLING

C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1½" IN DEPTH OF GREATER THAN 2" DEPTH.
----	--

SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
INCIDENTAL MILLING	426.0 SY.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	36.0 TONS	
ASPHALT BINDER FOR PLANT MIX	3.0 TONS	



TYPICAL ROADWAY MILLING SECTION



TYPICAL PROPOSED ROADWAY SECTION

PROJECT NO. **15BPR.146.3**
CUMBERLAND COUNTY
BRIDGE NO. **250227**



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

**APPROACH MILLING
& TYPICAL ROADWAY
SECTIONS**

DRAWN BY : **M. AHMED** DATE : **06/2025**
CHECKED BY : **WILLIAM C. SMITH** DATE : **06/2025**
DESIGN ENGINEER OF RECORD: DATE :

8/25/2025
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FINAL UNLESS ALL
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S1-20
2			4			TOTAL SHEETS 20

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W ...	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE AASHTO
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7⁄8" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7⁄8" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7⁄8" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - 7⁄8"Ø STUDS FOR 4 - ¾" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5⁄16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1⁄16" OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

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

SPECIAL NOTES:

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