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TIP PROJECT: I-5915B

CONTRACT: C204804

STATE OF NORTH CAROLINA

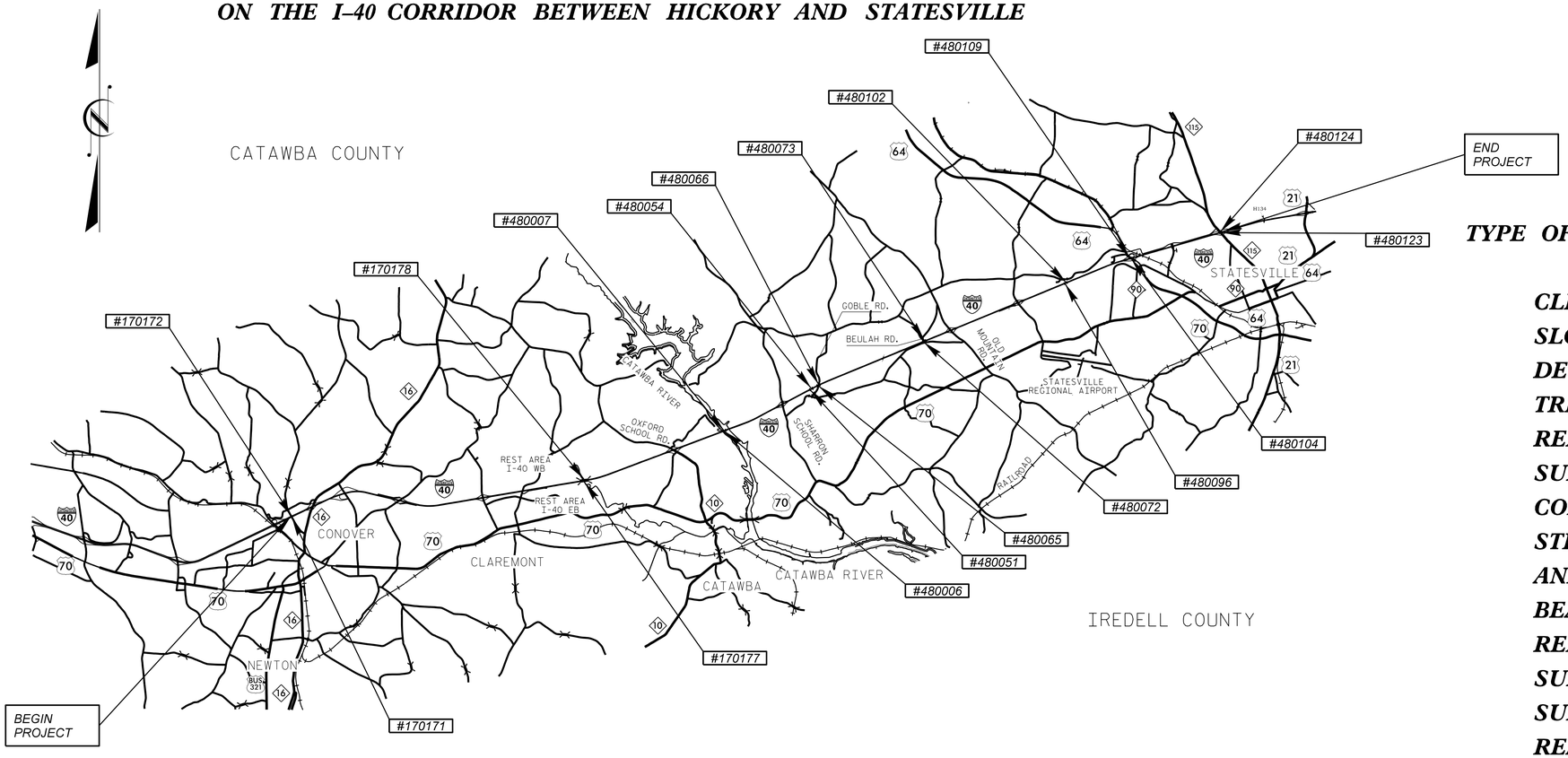
DIVISION OF HIGHWAYS

CATAWBA & IREDELL COUNTIES

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5915B	1	214

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45919.1.1	0040102	P.E.
45919.3.3	0040102	CONST.

LOCATION: BRIDGES 170171, 170172, 170177, 170178, 480006, 480007, 480051, 480054, 480065, 480066, 480072, 480073, 480096, 480102, 480104, 480109, 480123, 480124 ON THE I-40 CORRIDOR BETWEEN HICKORY AND STATESVILLE



TYPE OF WORK: BRIDGE PRESERVATION

CLEANING DEBRIS FROM SHOULDERS, SLOPES, AND SUBSTRUCTURE; DECK REPAIRS; SILANE DECK TREATMENT; JOINT REPAIRS / REPLACEMENT; ADD ASPHALT WEARING SURFACE (AWS); LATEX MODIFIED CONCRETE OVERLAY – VERY EARLY STRENGTH; BRIDGE JACKING, CLEANING AND PAINTING EXISTING STEEL BEARINGS AND GIRDER ENDS; BEARING REPAIR; EPOXY RESIN INJECTION; SUPERSTRUCTURE REPAIRS; SUBSTRUCTURE REPAIRS, EROSION REMEDIATION, APPROACH ROADWAY MILLING AND RESURFACING

STRUCTURES

DESIGN DATA & PROJECT LENGTH

BRIDGE #170171	ADT	2017	=	30,000	LENGTH	=	0.026 MI.	BRIDGE #480072	ADT	2013	=	20,250	LENGTH	=	0.023 MI.
BRIDGE #170172	ADT	2017	=	30,000	LENGTH	=	0.030 MI.	BRIDGE #480073	ADT	2013	=	20,250	LENGTH	=	0.023 MI.
BRIDGE #170177	ADT	2019	=	21,000	LENGTH	=	0.034 MI.	BRIDGE #480096	ADT	2013	=	21,500	LENGTH	=	0.034 MI.
BRIDGE #170178	ADT	2019	=	21,000	LENGTH	=	0.034 MI.	BRIDGE #480102	ADT	2013	=	21,500	LENGTH	=	0.034 MI.
BRIDGE #480006	ADT	2013	=	19,500	LENGTH	=	0.172 MI.	BRIDGE #480104	ADT	2013	=	24,000	LENGTH	=	0.045 MI.
BRIDGE #480007	ADT	2013	=	19,500	LENGTH	=	0.173 MI.	BRIDGE #480109	ADT	2013	=	22,750	LENGTH	=	0.045 MI.
BRIDGE #480051	ADT	2013	=	19,500	LENGTH	=	0.034 MI.	BRIDGE #480123	ADT	2013	=	25,250	LENGTH	=	0.025 MI.
BRIDGE #480054	ADT	2013	=	19,500	LENGTH	=	0.034 MI.	BRIDGE #480124	ADT	2013	=	26,500	LENGTH	=	0.025 MI.
BRIDGE #480065	ADT	2013	=	19,500	LENGTH	=	0.035 MI.								
BRIDGE #480066	ADT	2013	=	19,500	LENGTH	=	0.035 MI.								

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Prepared for the Office of:

DIVISION OF HIGHWAYS

STRUCTURES MANAGEMENT UNIT

1000 BIRCH RIDGE DR.

RALEIGH, N.C. 27610

2018 STANDARD SPECIFICATIONS

LETTING DATE :

JANUARY 17, 2023

DIEGO A. AGUIRRE, PhD, PE

PROJECT ENGINEER

FIDEL L. FLORES, E.I.

PROJECT DESIGN ENGINEER

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5915B	1A	214

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45919.1.1	0040102	P.E.
45919.3.3	0040102	CONST.

INDEX OF SHEETS

F.A. PROJECT NO.: 0040102

STRUCTURES

TOTAL BILL OF MATERIAL

DESCRIPTION	BORROW EXCAVATION	INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	ASPHALT BINDER FOR PLANT MIX	FLOWABLE FILL	GROOVING BRIDGE FLOORS	POLLUTION CONTROL	CLASS II, SURFACE PREPARATION	CLASS III, SURFACE PREPARATION	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	ZONE PAINTING OF EXISTING STRUCTURE	PAINTING CONTAINMENT FOR BRIDGE *	PAINTING CONTAINMENT FOR ZONE PAINTING
BRIDGE NO.	CU. YD.	SQ. YD.	TON	TON	CU. YD.	SQ. FT.	LUMP SUM	SQ. YD.	SQ. YD.	CU. FT.	CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LUMP SUM
170171	-	490	41	2.5	-	-	-	0.1	-	2	8.6	135	-	-	-
170172	-	490	41	2.5	-	-	-	-	-	5.9	4.1	104.7	-	-	-
170177	-	1402	261	15.9	-	-	LUMP SUM	39.2	0	41.3	20.8	10.1	-	LUMP SUM	-
170178	-	1377	257	15.6	-	-	LUMP SUM	82.2	0.8	4.5	9.1	31	-	LUMP SUM	-
480006	-	1565	641	39.1	-	-	LUMP SUM	0	0	0.9	19.9	24	LUMP SUM	-	LUMP SUM
480007	-	1529	603	36.8	-	-	LUMP SUM	12.7	0	5.7	36	12.5	LUMP SUM	-	LUMP SUM
480051	4.1	1538	280	17	1.9	-	LUMP SUM	8.6	5.8	25.2	17.5	9.5	LUMP SUM	-	LUMP SUM
480054	2.4	1498	274	16.6	1.1	-	LUMP SUM	3.1	4.5	7.1	43.8	9	LUMP SUM	-	LUMP SUM
480065	8.5	1545	284	17.2	4.9	-	LUMP SUM	1.7	3	2.2	9.6	10.3	LUMP SUM	-	LUMP SUM
480066	8.5	1518	280	16.9	4.5	-	LUMP SUM	0.1	15.1	6.2	42.1	28.5	LUMP SUM	-	LUMP SUM
480072	-	311	26	1.6	-	3360	LUMP SUM	18	38.3	3.4	55.6	21	LUMP SUM	-	LUMP SUM
480073	-	331	28	1.7	-	3360	LUMP SUM	10.7	77.2	21.5	46.7	12	LUMP SUM	-	LUMP SUM
480096	-	314	27	1.6	-	-	LUMP SUM	0	0	0.7	20.5	13	LUMP SUM	-	LUMP SUM
480102	-	318	27	1.6	-	-	LUMP SUM	3.6	12.9	7.6	15.3	0	LUMP SUM	-	LUMP SUM
480104	-	-	-	-	-	-	LUMP SUM	0	0	17.1	32.1	151	-	LUMP SUM	-
480109	-	-	-	-	-	-	LUMP SUM	3.9	0	0	5.5	1	-	LUMP SUM	-
480123	-	-	-	-	-	-	-	0	4.5	21.1	13.6	4.2	-	-	-
480124	-	-	-	-	-	-	-	0	0	26.4	8.8	31	-	-	-
TOTALS	23.5	14226	3070	186.6	12.4	6720	LUMP SUM	183.9	162.1	198.8	409.6	607.8	LUMP SUM	LUMP SUM	LUMP SUM

STRUCTURES

TOTAL BILL OF MATERIAL - CONT.

DESCRIPTION	VOLUMETRIC MIXER	UNCLASSIFIED STRUCTURE EXCAVATION AT BRIDGE *	ASPHALT JOINT REPAIR/REPLACE MENT	FOAM JOINT SEALS FOR PRESERVATION	ELASTOMERIC CONCRETE FOR PRESERVATION	BRIDGE JOINT DEMOLITION	HYDRO-DEMOLITION OF BRIDGE DECK	LATEX MODIFIED CONCRETE OVERLAY- VERY EARLY STRENGTH	PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	SILANE DECK TREATMENT	BEARING REPAIRS	CLEANING AND PAINTING EXISTING BEARINGS WITH HRSCA	TYPE I BRIDGE JACKING FOR BRIDGE *
BRIDGE NO.	LUMP SUM	LUMP SUM	LIN. FT.	LIN. FT.	CU. FT.	SQ. FT.	SQ. YD.	CU. YD.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	EA	EA	EA
170171	LUMP SUM	-	-	-	-	-	-	-	-	-	-	-	-	-	2
170172	LUMP SUM	-	-	-	-	-	-	-	-	-	-	-	-	-	3
170177	LUMP SUM	-	156.4	-	-	-	-	-	-	-	560	560	-	24	-
170178	LUMP SUM	-	156.4	-	-	-	-	-	-	-	-	-	-	24	-
480006	LUMP SUM	-	101.5	101.5	-	-	-	-	-	-	-	-	1	20	1
480007	LUMP SUM	-	101.5	101.5	-	-	-	-	-	-	-	-	7	20	7
480051	LUMP SUM	LUMP SUM	169.2	-	-	-	-	-	-	560	-	-	-	24	-
480054	LUMP SUM	LUMP SUM	169.2	-	-	-	-	-	-	560	-	-	-	24	-
480065	LUMP SUM	LUMP SUM	188.7	-	-	-	-	-	-	576	-	-	-	24	-
480066	LUMP SUM	LUMP SUM	188.7	-	-	-	-	-	-	576	-	-	-	24	1
480072	LUMP SUM	-	-	128	30.4	121.3	375	21	375	375	-	-	-	16	-
480073	LUMP SUM	-	-	128	30.4	121.3	375	21	375	375	-	-	-	16	-
480096	LUMP SUM	-	-	118	35.2	140	-	-	-	-	-	-	-	16	-
480102	LUMP SUM	-	-	118	32.8	130.7	-	-	-	-	561	561	-	16	-
480104	LUMP SUM	-	-	202	49	194.1	-	-	-	-	-	-	-	24	-
480109	LUMP SUM	-	-	286	70	278.4	-	-	-	-	-	-	-	36	-
480123	LUMP SUM	-	-	184	44.8	177.6	-	-	-	-	-	-	-	-	4
480124	LUMP SUM	-	-	131	31.2	124.4	-	-	-	-	-	-	-	-	-
TOTALS	LUMP SUM	LUMP SUM	1231.6	1498	323.8	1287.8	750	42	750	3022	1121	1121	8	308	18

NOTES:

1. THE ROADWAY PAY ITEMS LISTED HEREIN COINCIDE WITH THE BRIDGE PRESERVATION WORK ONLY. FOR COMPLETE LIST OF ROADWAY PAY ITEMS, NOTES AND PROVISIONS, SEE ROADWAY PLANS.

2. IF A CONTAINMENT PLAN FOR ZONE PAINTING OF EXISTING STRUCTURE IS SUBMITTED FOR A BRIDGE THAT WILL HAVE ITS BEARINGS CLEANED AND PAINTED WITH HRCSA, THE CONTAINMENT PLAN FOR THAT STRUCTURAL STEEL PAINTING OPERATION WILL SUFFICE FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA. IF THE STRUCTURAL STEEL OF A BRIDGE IS NOT TO BE CLEANED AND PAINTED, AND NO CONTAINMENT PLAN HAS BEEN SUBMITTED FOR THAT BRIDGE, AND THAT BRIDGE WILL HAVE ITS BEARINGS CLEANED AND PAINTED WITH HRCSA, A CONTAINMENT PLAN FOR CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.

BRIDGES: 170171, 170172, 170177, 170178
480006, 480007, 480051, 480054
480065, 480066, 480072, 480073
480096, 480102, 480104, 480109
480123, 480124

PROJECT NO. I-5915B
CATAWBA/IREDELL COUNTY
BRIDGE NO. MULTIPLE

DocuSigned by: Diego A. Aguirre
10/19/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A. AGUIRRE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TOTAL BILL OF MATERIAL

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2
1			3			TOTAL SHEETS
2			4			9

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

10/13/2022
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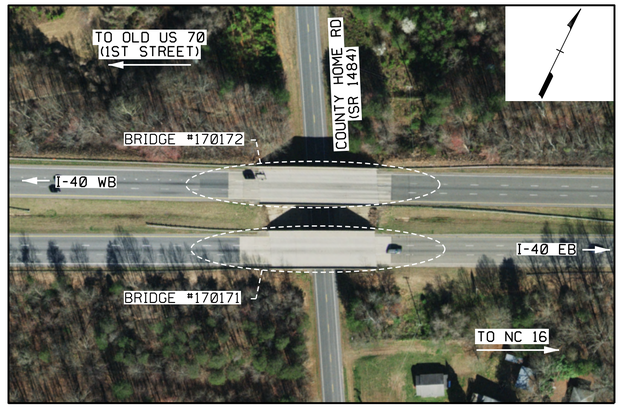
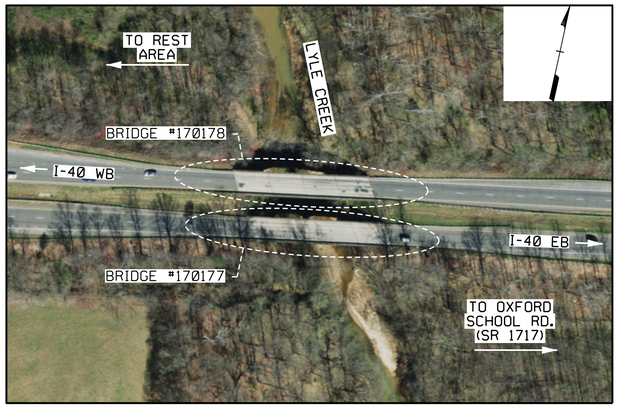
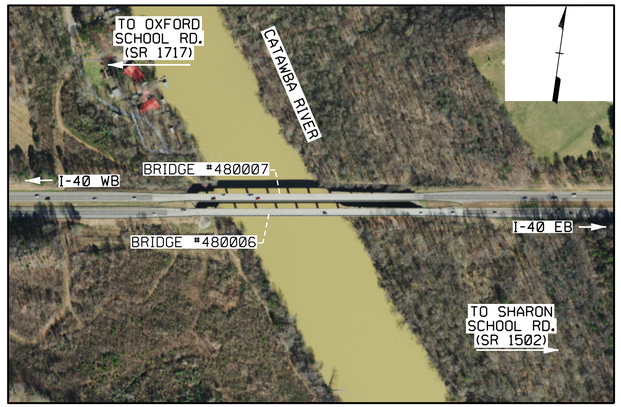
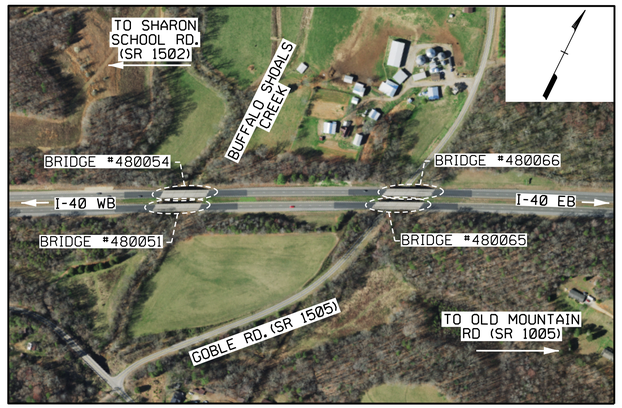
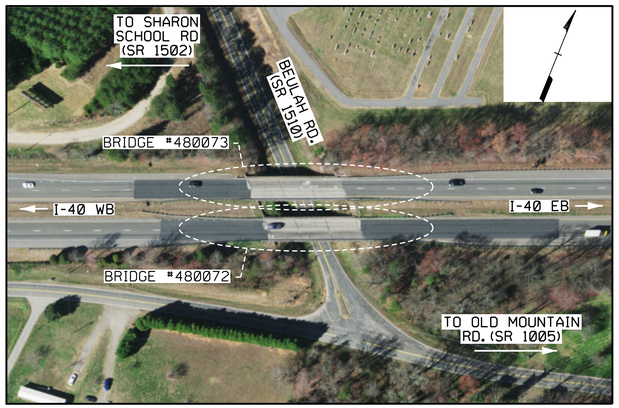
daguirre

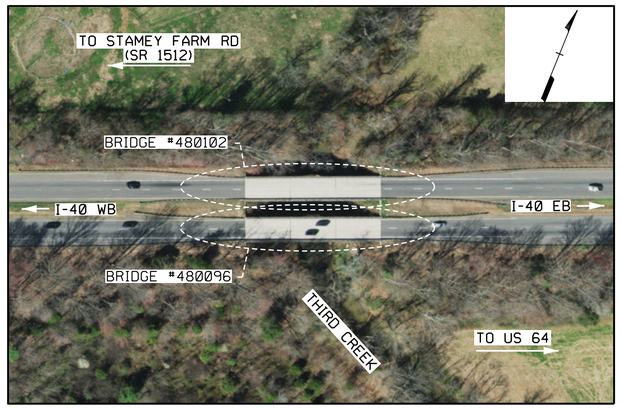


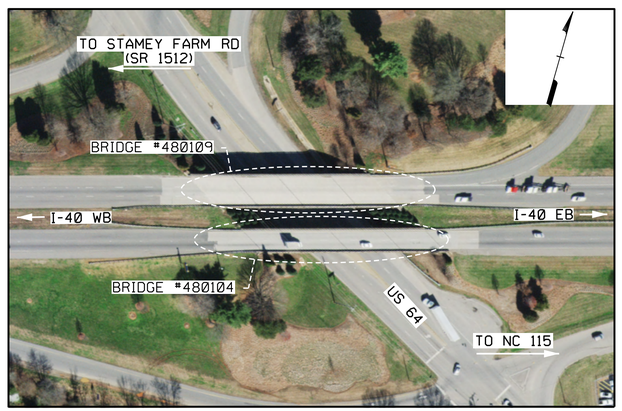


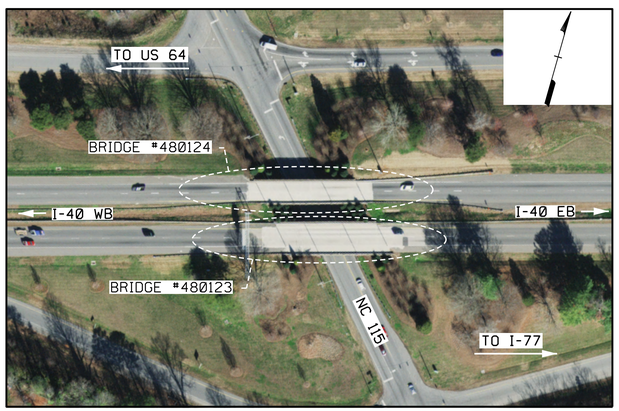












BRIDGES: 170171, 170172, 170177, 170178
480006, 480007, 480051, 480054
480065, 480066, 480072, 480073
480096, 480102, 480104, 480109
480123, 480124

PROJECT NO. I-5915B

CATAWBA/IREDELL COUNTY

BRIDGE NO. MULTIPLE

LOCATION SKETCHES

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.

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE
DocuSigned by: Diego A Aguirre
4/29/2022

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

BRIDGE LOCATION SKETCHES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3
1			3			TOTAL SHEETS
2			4			9

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
I5915B_SMU_GD01.dgn
daguirre

GENERAL NOTES

ASSUMED LIVE LOAD FOR REPAIRS = HL93

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORTS.

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

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT DUE TO THE NATURE OF THE 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.

THE 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(S) SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW, EXCEPT WHERE THE CONTRACTOR'S PLANS 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.

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 AND 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 THE DEPARTMENT.

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

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.

REMOVING VEGETATION AND DEBRIS TO IMPROVE DRAINAGE FROM THE BRIDGE CORNERS, AND/OR TO CLEAR THE SUBSTRUCTURE OR SLOPES, SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS PAY ITEMS FOR THIS PROJECT. THE ENGINEER SHALL DIRECT VEGETATION REMOVAL AND NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS.

ALL PAVEMENT MARKINGS WILL BE IN ACCORDANCE WITH THESE PLANS.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATIONS OF THE BRIDGE. 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 ANY BRIDGE(S) WHERE AN ASPHALT WEARING SURFACE (AWS) OVERLAY IS TO BE PLACED OVER THE EXISTING DECK SURFACE, THE CONTRACTOR SHALL TAKE CARE THAT THE DECK DRAINS ARE NOT BLOCKED OUT WITH ASPHALT.

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

INFORMATION INDICATED ON THE LOCATION SKETCH SHALL BE CONSIDERED GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL CONFIRM SKETCHES 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.

FOR PAINTING CONTAINMENT AND POLLUTION CONTROL, SEE CLEANING AND PAINTING EXISTING BEARINGS WITH HRCSA SPECIAL PROVISION.

FOR PAINTING CONTAINMENT FOR ZONE PAINTING AND POLLUTION CONTROL, SEE ZONE PAINTING OF EXISTING STRUCTURE SPECIAL PROVISION.

FOR SUBMITTAL OF WORKING DRAWINGS, FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR SCARIFYING BRIDGE DECKS, HYDRODEMOLITION OF BRIDGE DECKS AND PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAYS - VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.

FOR SHOTBLASTING BRIDGE DECKS AND SILANE DECK TREATMENTS, SEE SPECIAL PROVISIONS.

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

FOR ZONE PAINTING OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

FOR TYPE I BRIDGE JACKING, SEE SPECIAL PROVISIONS.

IN AS MUCH AS THE PAINT SYSTEM ON THE THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTORS ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR ITEMS ASSOCIATED WITH THE CLEANING AND REPAINTING OF THE FOLLOWING BRIDGES:

170171
170172
480006
480007
480051
480054
480065
480066
480072
480073
480096
480102
480104
480109
480123

THE CONTRACTOR SHALL SCHEDULE CLEANING AND REPAINTING OPERATIONS SUCH THAT THE STEEL REPAIR IS PERFORMED AFTER THE STEEL HAS BEEN CLEANED AND PRIMED. AFTER STEEL REPAIRS HAVE BEEN COMPLETED, THE REPAIR AREAS AND THE REMAINING STEEL SHALL BE PROPERLY PREPARED AND PAINTED ACCORDING TO THE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT REINFORCING STEEL BARS MAY HAVE BEEN REMOVED IN PRIOR DECK REPAIRS, PARTICULARLY IN FULL DEPTH DECK REPAIRS. THESE REPAIRS CAN BE IDENTIFIED BY FORMWORK THAT HAS BEEN LEFT IN PLACE UNDER THE DECK. THE CONTRACTOR SHALL FIELD VERIFY SUCH PRIOR REPAIRS, THAT ARE NOT ALREADY SHOWN IN THESE PLANS, AND NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PERFORM REPAIRS AS SHOWN IN THE "DECK REPAIR DETAILS" SHEET, AND AS DESCRIBED IN THE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISIONS. MISSING REINFORCING STEEL THAT IS DETERMINED BY THE ENGINEER TO BE SUPPLIED, SHALL BE PROVIDED IN KIND TO A POINT WHERE EXISTING REINFORCING STEEL IS FOUND AND IT IS SOUND, THIS MAY REQUIRE EXTENSION OF PRIOR REPAIRS. UNSOUND REINFORCING STEEL THAT 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 SPLICED LENGTH AS SPECIFIED IN THE "DECK REPAIR DETAILS" SHEET. THE CONTRACTOR AND/OR THE DEPARTMENT SHALL HAVE NO CLAIM WHATSOEVER AGAINST DESIGNER FIRM OR THE ENGINEER OF RECORD IF SUCH PRIOR DECK REPAIRS FAIL OR BECOME UNSOUND, OR IF NEW REPAIRS ARE NOT IN ACCORDANCE WITH THESE PLANS AND THE PROJECT SPECIAL PROVISIONS.

BRIDGE COORDINATES		
	LATITUDE	LONGITUDE
170171	35°42′ 58.63″ N	81°13′ 23.66″ W
170172	35°42′ 59.33″ N	81°13′ 24.17″ W
170177	35°43′ 41.53″ N	81°7′ 22.73″ W
170178	35°43′ 42.08″ N	81°7′ 23.01″ W
480006	35°44′ 35.09″ N	81°4′ 28.94″ W
480007	35°44′ 35.49″ N	81°4′ 29.67″ W
480051	35°45′ 18.89″ N	81°2′ 43.06″ W
480054	35°45′ 19.51″ N	81°2′ 43.05″ W
480065	35°45′ 22.86″ N	81°2′ 34.02″ W
480066	35°45′ 23.54″ N	81°2′ 33.78″ W
480072	35°46′ 9.72″ N	81°0′ 23.56″ W
480073	35°46′ 10.10″ N	81°0′ 24.07″ W
480096	35°47′ 11.37″ N	80°57′ 29.77″ W
480102	35°47′ 11.85″ N	80°57′ 30.04″ W
480104	35°47′ 37.63″ N	80°56′ 9.35″ W
480109	35°47′ 38.07″ N	80°56′ 10.32″ W
480123	35°48′ 5.53″ N	80°54′ 18.79″ W
480124	35°48′ 5.99″ N	80°54′ 19.31″ W

SAMPLE BAR REPLACEMENT	
SIZE	LENGTH
#3	6′-2″
#4	7′-4″
#5	8′-6″
#6	9′-8″
#7	10′-10″
#8	12′-0″
#9	13′-2″
#10	14′-6″
#11	15′-10″

NOTE:
SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30″ (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND f_y = 60ksi.

BRIDGES: 170171, 170172, 170177, 170178
480006, 480007, 480051, 480054
480065, 480066, 480072, 480073
480096, 480102, 480104, 480109
480123, 480124

PROJECT NO. I-5915B
CATAWBA/IREDELL COUNTY
BRIDGE NO. MULTIPLE

DocuSigned by:
Diego A Aguirre
ECF43B83073D4FB...
10/13/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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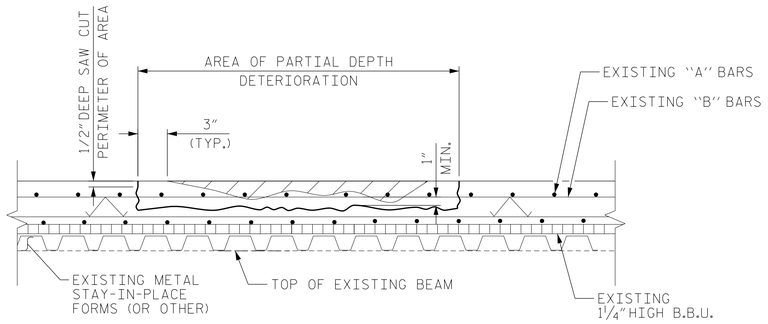
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL NOTES

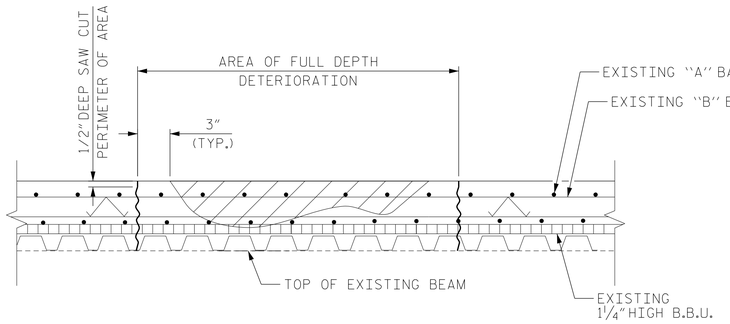
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4
1			3			TOTAL SHEETS
2			4			9

DRAWN BY : FIDEL L. FLORES DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

10/13/2022
I5915B_SMU_GN01.dgn
daguirre



CLASS II (PARTIAL DEPTH) REPAIR



CLASS III (FULL DEPTH) REPAIR

NOTES

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

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

FOR CLASS II AND CLASS III SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATIONS SPECIAL PROVISION.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

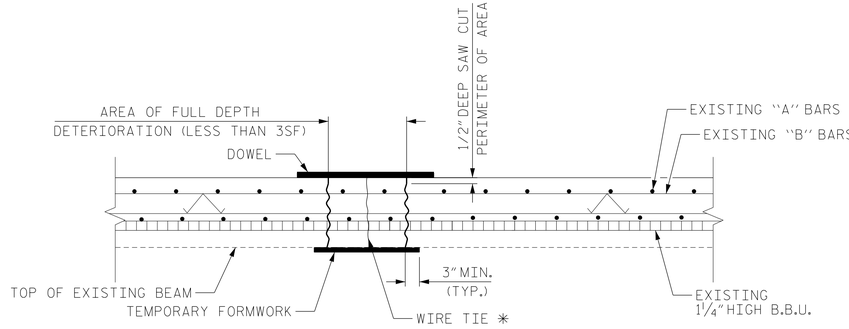
FOR SHOTCRETE REPAIR, SEE SPECIAL PROVISIONS.

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.

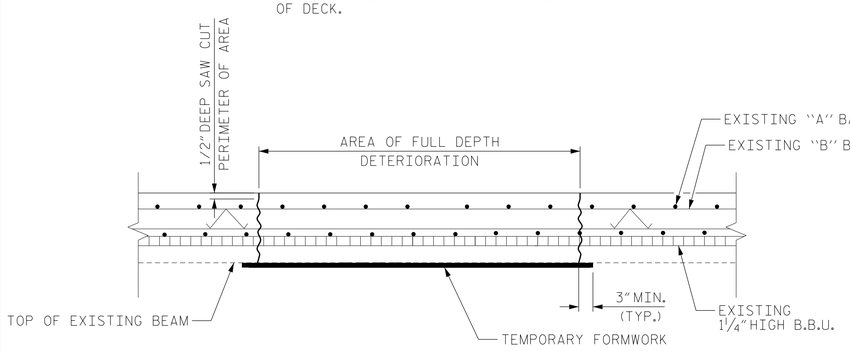
FOR ADDITIONAL "CONCRETE REPAIR NOTES", SEE "CONCRETE RESTORATION DETAILS" SHEET.



FULL DEPTH REPAIR WITH TEMPORARY FORMWORK

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

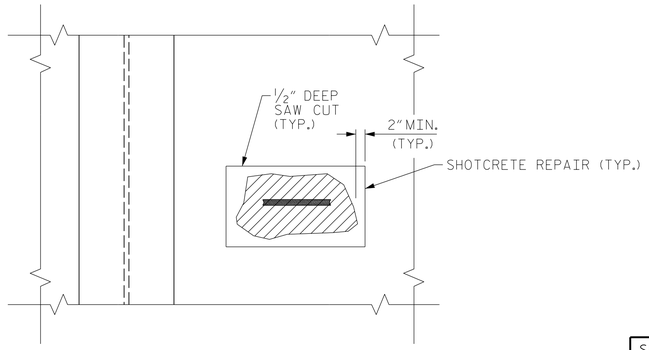
* WIRE TIE TO BE KNOTTED BELOW TEMPORARY FORMWORK AND ATTACHED TO DOWEL THAT IS WIDER THAN FORMED FULL DEPTH HOLE. ROTATE DOWEL TO TIGHTEN FORMWORK AGAINST BOTTOM OF DECK.



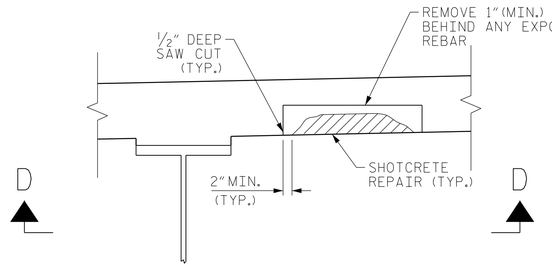
FULL DEPTH REPAIR WITH TEMPORARY FORMWORK

(FOR AREAS OF DETERIORATION GREATER THAN 3SF)

AREA OF DETERIORATION

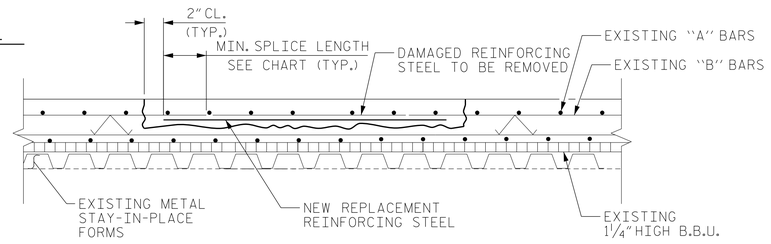


SECTION D-D



TYPICAL SECTION

UNDERSIDE OF DECK REPAIR



REINFORCING STEEL REPAIR

SUPERSTRUCTURE 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"			

BRIDGES: 170171, 170172, 170177, 170178
480006, 480007, 480051, 480054
480065, 480066, 480072, 480073
480096, 480102, 480104, 480109
480123, 480124

PROJECT NO. I-5915B

COUNTY

BRIDGE NO. MULTIPLE

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A. AGUIRRE
Digitally signed by Diego A. Aguirre
4/29/2022

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301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

DECK REPAIR DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5
1			3			TOTAL SHEETS
2			4			9

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/29/2022
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daguirre

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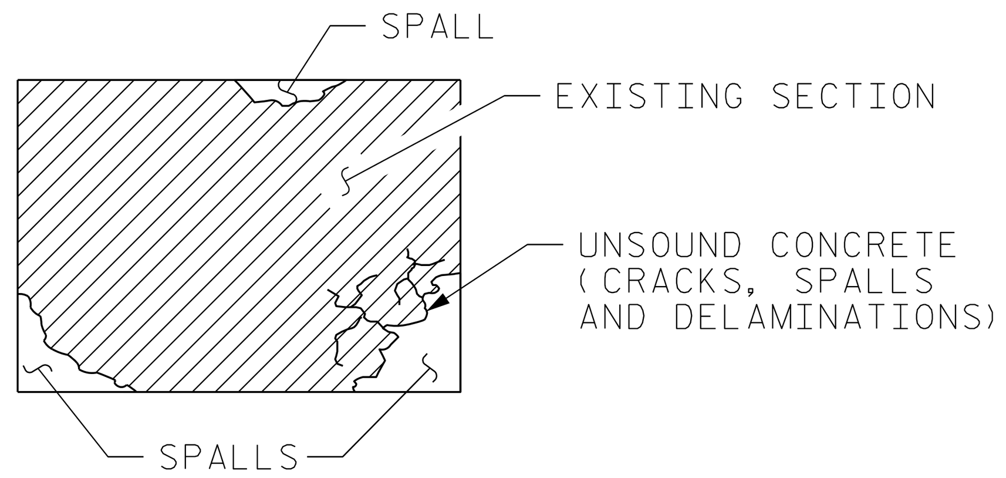
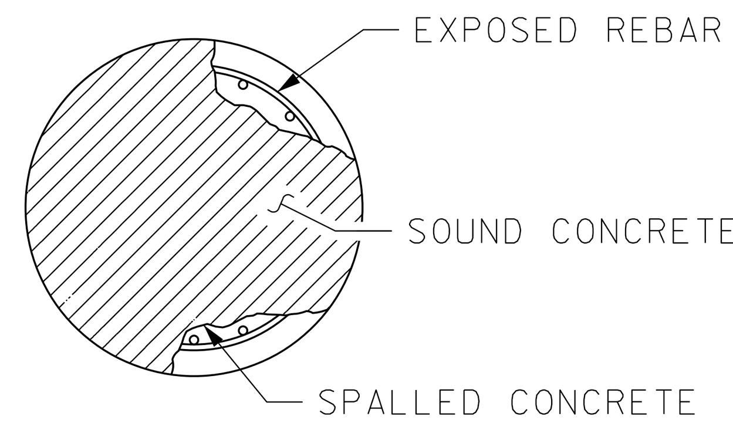
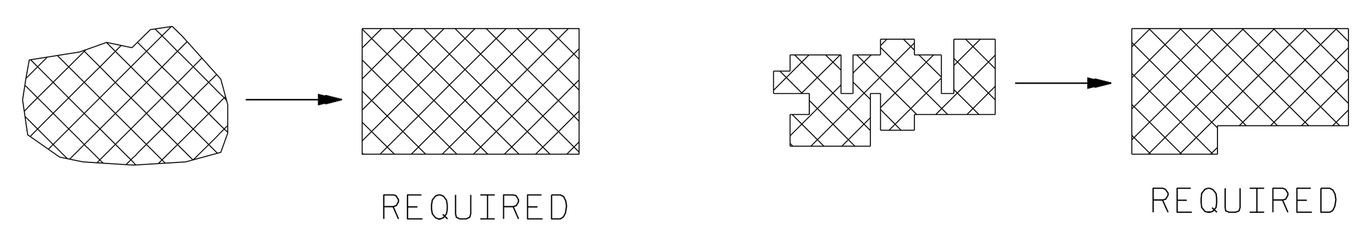


TYPICAL DELAMINATIONS AND SPALLS

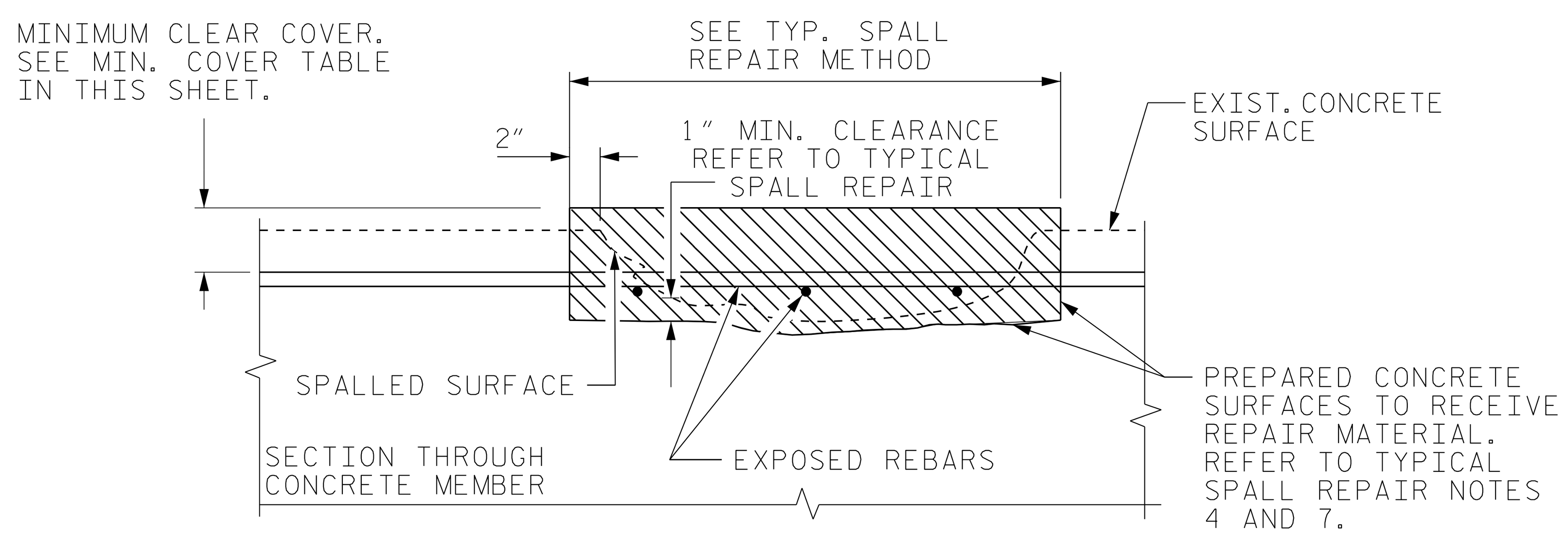


TYPICAL SPALL WITH EXPOSED REBAR



SIMPLE PATCH CONFIGURATION

AT CORNER LOCATIONS PROVIDE RIGHT ANGLE CUTS. PATCH CONFIGURATION SHALL BE KEPT AS SIMPLE AS POSSIBLE. INDIVIDUAL REPAIR AREAS WITHIN 2 FEET SHALL BE JOINED AT THE DIRECTION OF THE ENGINEER.



EXPOSING AND UNDERCUTTING REINFORCING STEEL

APPLICABLE TO HORIZONTAL, VERTICAL, AND OVERHEAD LOCATIONS

MIN. CONCRETE COVER TABLE

STRUCTURE ELEMENT	COVER	
	ALL OTHER SITES	CORROSIVE SITES
Bridge Deck		
to top of slab	2 1/2" (65mm)	2 1/2" (65mm)
to bottom of slab	1 1/4" (32mm)	1 1/4" (32mm)*
Footings and Pile Caps		
to top face	2" (50mm)	4" (100mm)
to all other faces	3" (75mm)	4" (100mm)
Bent Caps		
to bottom of cap	3" (75mm)	4" (100mm)
to ends of cap	2" (50mm)	3" (75mm)
to top of cap	2" (50mm)	3" (75mm)
to sides of cap	2" (50mm)	3" (75mm)
Columns (spiral)	2" (50mm)	3" (75mm)
Drilled Piers (spiral)	5" (125mm)**	6" (150mm)**
Culverts		
to bottom of bootom slabs and footings	3" (75mm)	3" (75mm)
to all other faces	2" (50mm)	2" (50mm)
Approach Slabs	2" (50mm)	2" (50mm)

* WHEN USING REMOVEABLE FORMS, COVER SHALL BE INCREASED TO 2 1/2"

** IN THE EVENT THE DRILLED PIER EXTENDS INTO A BENT CAP OR PILE CAP, THE COVER MAY BE REDUCED TO 4"

TYPICAL SPALL REPAIR

1. FOR CONCRETE RESTORATION, REMOVE AND REPAIR UNSOUND CONCRETE FROM AREAS TO BE REPAIRED IN ACCORDANCE WITH THIS SHEET AND THE PROJECT SPECIAL PROVISIONS. AREAS WELL ADHERED TO EXISTING STRAND OR REINFORCEMENT SHALL REMAIN.
2. ALL UNSOUND CONCRETE MUST BE REMOVED. HOWEVER, PRESTRESSED STRANDS SHOULD NOT BE DISTURBED UNLESS ABSOLUTELY NECESSARY. USE EXTREME CARE TO NOT DAMAGE STRANDS.
3. ALL REPAIRS SHALL BE MARKED FOR APPROVAL OF APPROXIMATE PERIMETER PRIOR TO INITIATION OF WORK.
4. THE CONTRACTOR SHALL SUBMIT A PLAN FOR CONTROL AND DISPOSAL OF DEBRIS TO THE ENGINEER FOR APPROVAL.
5. ANY REINFORCEMENT WHICH IS LOOSE SHALL BE SECURED IN PLACE BY TYING TO OTHER SECURED BARS OR BY OTHER APPROVED METHODS. LAP SPLICES SHALL BE INSTALLED IN ACCORDANCE WITH THE TABLE BELOW. REFER TO GENERAL NOTES FOR DOWEL DETAIL (IF NECESSARY).
6. CLEAN EXPOSED REBARS AND ANY LOOSE CONCRETE OR ABRASIVES BY SANDBLASTING OR APPROVED ALTERNATE. CLEANED STEEL SHALL NOT BE LEFT EXPOSED FOR MORE THAN 72 HOURS PRIOR TO ENCAPSULATION OF CONCRETE.
7. AN APPROVED CEMENTITIOUS BASED BONDING AGENT SHALL BE USED ON ALL EXPOSED CONCRETE SURFACES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS BEFORE THE REPAIR MATERIAL IS APPLIED.
8. FILL VOIDS WITH REPAIR MATERIAL IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS AND NCDOT SPECIFICATIONS. NOTE THAT ANY REPAIR MATERIAL APPLIED TO OVERHEAD LOCATIONS SHALL BE SPECIFICALLY DESIGNATED FOR OVERHEAD USE BY THE MANUFACTURER'S SPECIFICATIONS.

TYPICAL CRACK REPAIR

1. OBTAIN ENGINEER'S APPROVAL TO CARRY OUT CRACK REPAIR (IN LIEU OF SPALL REPAIR) FOR CASES WHERE ADJACENT CONCRETE IS OTHERWISE SOUND AND CRACKING IS NOT A RESULT OF CORRODING REINFORCEMENT.
2. ADDRESS CRACKS IN NEW CONSTRUCTION IN ACCORDANCE WITH PROJECT SPECIAL PROVISIONS. ADDRESS EXISTING CRACKS IN ACCORDANCE WITH THIS SHEET AND PROJECT SPECIAL PROVISIONS.
3. REMOVE UNSOUND CONCRETE FROM CRACK AREA.
4. THE CONTRACTOR SHALL SUBMIT A PLAN FOR CONTROL AND DISPOSAL OF DEBRIS TO THE ENGINEER FOR APPROVAL.
5. FOR CRACKS UP TO 1/8" USE AN EPOXY RESIN WITH MINIMUMS OF VISCOSITY OF 325 CPS, 28 DAY COMPRESSIVE STRENGTH OF 13000 PSI. FOR CRACKS 1/8" TO 1/4", USE AN INJECTION GEL OR EQUAL NON-SAG PASTE WITH 28 DAY COMPRESSIVE STRENGTH OF 10000 PSI.
6. TO SEAL CRACK SURFACES PRIOR TO CRACK INJECTION, USE INJECTION GEL WITH MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 12000 PSI.
7. ENGINEER TO APPROVE CRACK AND CAP SEAL MATERIAL PRIOR TO BEGINNING OF CONSTRUCTION.
8. APPLY CLASS II FINISH AT COMPLETION OF CRACK REPAIR TO REMOVE FINS OR KNOBS.

DOWEL DETAILS & NOTES

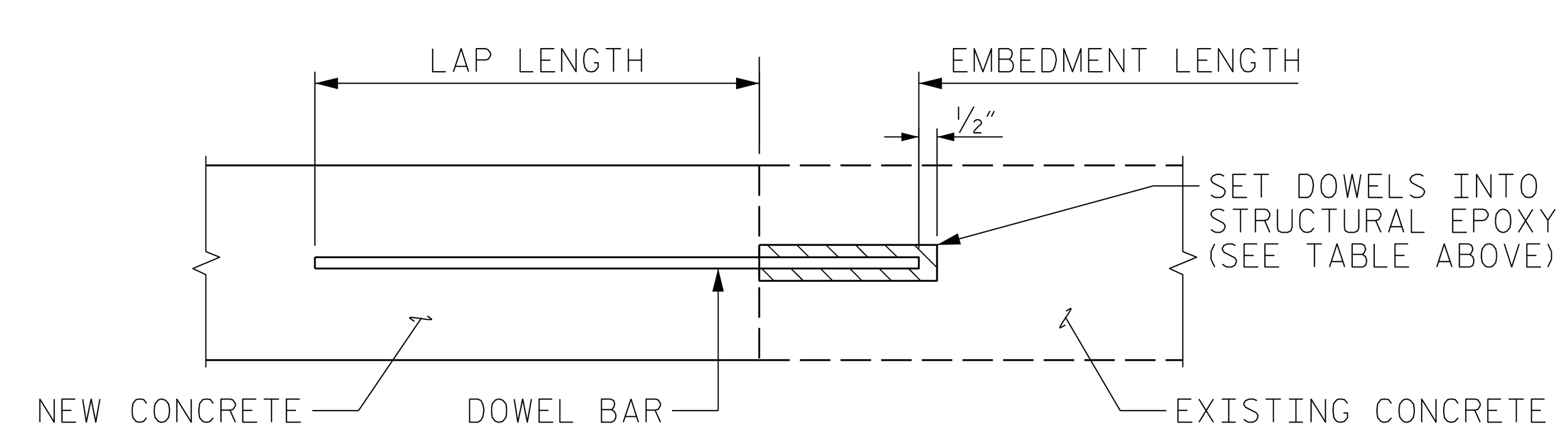
DOWEL DIMENSIONS (UNLESS OTHERWISE NOTED)

DOWEL SIZE	HOLE DIAMETER	EMBEDMENT LENGTH	MIN LAP LENGTH
4	5/8"	8"	1'-9"
5	3/4"	9"	2'-2"
6	7/8"	11"	2'-7"
8	1 1/8"	1'-4"	4'-6"

NOTES: ANY REQUIRED DOWEL HOLES SHALL BE DRILLED INTO EXISTING CONCRETE ACCORDING TO THE DETAIL AND NCDOT SPECIFICATIONS.

NOTIFY THE ENGINEER OF ANY BROKEN BARS OR BARS WHICH ARE DETERMINED TO HAVE A SECTION LOSS OF 25% OR GREATER.

INSTALL DOWELS IN ACCORDANCE WITH NCDOT SPECIFICATIONS.



CONCRETE REPAIR NOTES

1. PERFORM A SOUNDING SURVEY IN THE PRESENCE OF THE ENGINEER TO IDENTIFY ALL LOCATIONS IN NEED OF CONCRETE REPAIR.
2. GAIN CONCURRENCE ON ALL REPAIR AREAS AT EACH LOCATION PRIOR TO COMMENCING WORK AT THE BENT.
3. THE DETERIORATED AREAS SHOWN ON OTHER SHEETS ARE BASED ON THE BRIDGE INSPECTION REPORT, AND PARTIAL FIELD REVIEWS OF THE STRUCTURE. AS SUCH, THEY ARE FOR INFORMATIONAL PURPOSES, SUBJECT TO CHANGE BASED ON CONTINUING DETERIORATION.
4. GENERALLY EXTEND REPAIR AREAS 2"-3" INTO SOUND CONCRETE BEYOND EDGE OF SPALLS AND SQUARE OFF AREAS IN ACCORDANCE WITH DETAILS ON THIS SHEET.
5. 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.
6. THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE PROJECT SPECIAL PROVISIONS, AND THE STANDARD SPECIFICATIONS.
7. REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY. MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT.
8. 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 THIS SHEET.
9. FOR REPAIRS OVER TRAFFIC AND SHALLOW REPAIRS THAT DO NOT ENGAGE REINFORCEMENT, ANCHOR PATCH MATERIAL USING 1/4" GALVANIZED BOLTS, EPOXY ANCHORED WITH 2" EMBEDMENT. PLACE BOLTS IN A 6" GRID. USE A LATEX OR EPOXY PATCH MATERIAL FOR IMPROVED BOND.
10. CONCRETE COVER SHOWN IN THE PLANS DOES NOT INCLUDE PLACEMENT OR FABRICATION TOLERANCES UNLESS SHOWN AS "MINIMUM COVER". SEE NCDOT SPECIFICATIONS FOR ALLOWABLE REINFORCEMENT PLACEMENT TOLERANCES.
11. WHEN PROPOSED CONCRETE REPAIRS (OR DETERMINED LOCATIONS) ARE ADJACENT TO A CORNER, REPAIR ON THE ADJACENT EDGE SHOULD BE ANTICIPATED IN ADDITION TO THE AREA SHOWN ON SUBSTRUCTURE CONCRETE REPAIR SHEETS. THE CONTRACTOR IS RESPONSIBLE FOR THIS REPAIR AT ALL LOCATIONS REGARDLESS OF CALL-OUT(S) ON RESPECTIVE SHEET(S).
12. FINISH CONCRETE SURFACES IN ACCORDANCE WITH THE LATEST NCDOT SPECIFICATIONS. MATCH EXISTING FINISH ON ALL EXPOSED EDGES UNLESS OTHERWISE NOTED. A CLASS 5 FINISH COATING SHALL BE APPLIED TO THE BEAM ENDS WHERE CONCRETE REPAIRS HAVE BEEN PERFORMED, MATCHING THE COLOR OF SURROUNDING CONCRETE.
13. ALL REINFORCING STEEL SHALL BE ASTM A615-96, GRADE 60. REINFORCEMENT DETAIL DIMENSIONS ARE OUT-TO-OUT OF BARS. ALL DIMENSIONS PERTAINING TO LOCATION OF REINFORCEMENT ARE TO CENTERLINE OF BARS EXCEPT WHERE THE CLEAR DIMENSION IS SHOWN TO FACE OF CONCRETE. 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 THE DEPARTMENT.
14. FOR ADHESIVELY ANCHORED DOWELS OR ANCHOR BOLTS, SE STANDARD SPECIFICATIONS.
15. FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
16. FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
17. FOR EPOXY RESIN INJECTION (ERI), SEE SPECIAL PROVISIONS.

LAP SPLICE TABLE

BAR SIZE	LAP SPLICE LENGTH
4	1'-9"
5	2'-2"
6	2'-7"
7	3'-6"
8	4'-6"
9	5'-10"
10	7'-4"

BRIDGES: 170171, 170172, 170177, 170178, 480006, 480007, 480051, 480054, 480065, 480066, 480072, 480073, 480096, 480102, 480104, 480109, 480123, 480124

PROJECT NO. I-5915B

COUNTY

BRIDGE NO. MULTIPLE

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE RESTORATION DETAILS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048223 DIEGO A. AGUIRRE
DocuSigned by: Diego A. Aguirre 4/29/2022

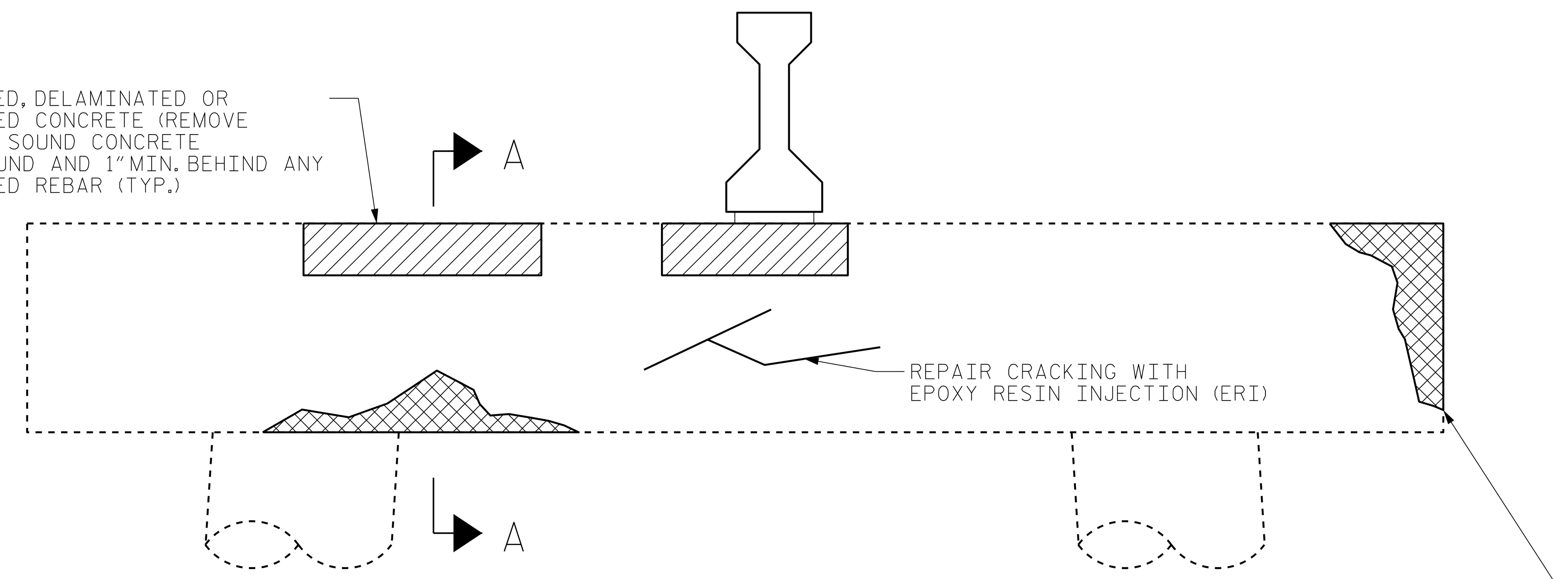
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S6
1			3			TOTAL SHEETS
2			4			9

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

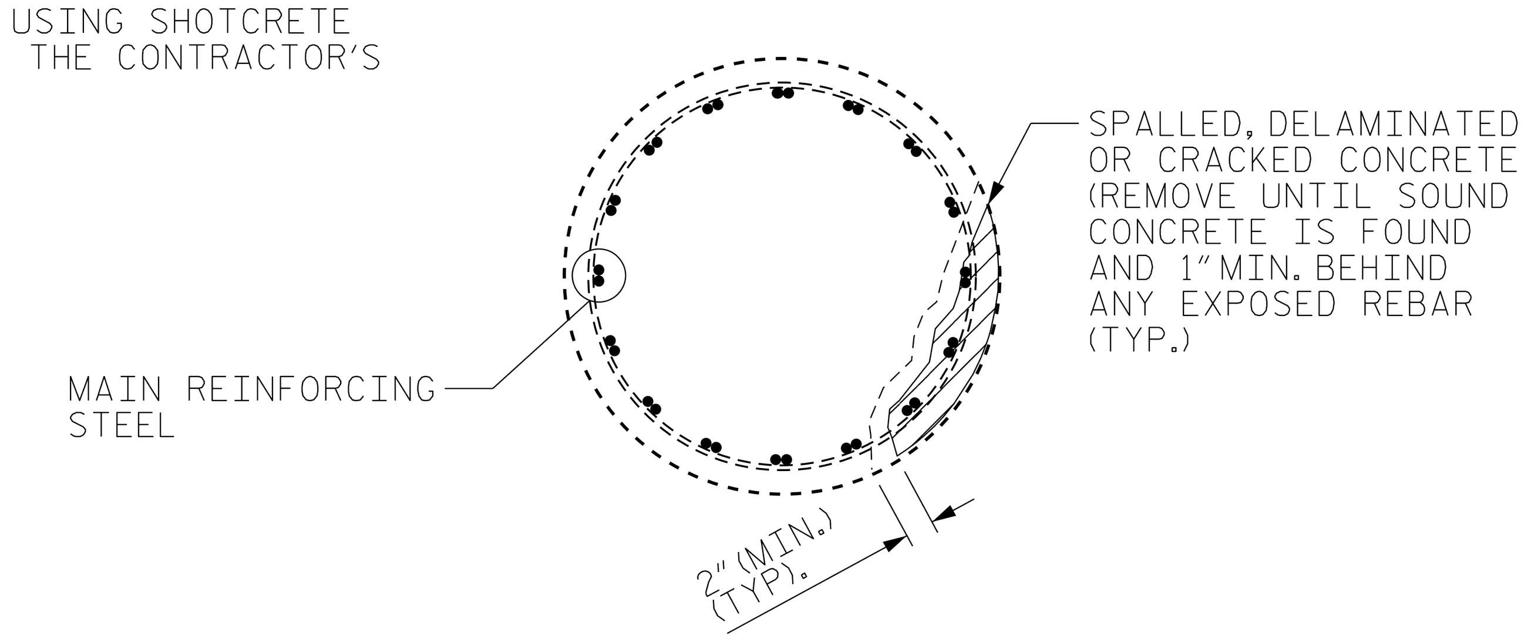
4/21/2022
I5915B_SMU_CR01.dgn
daguirre



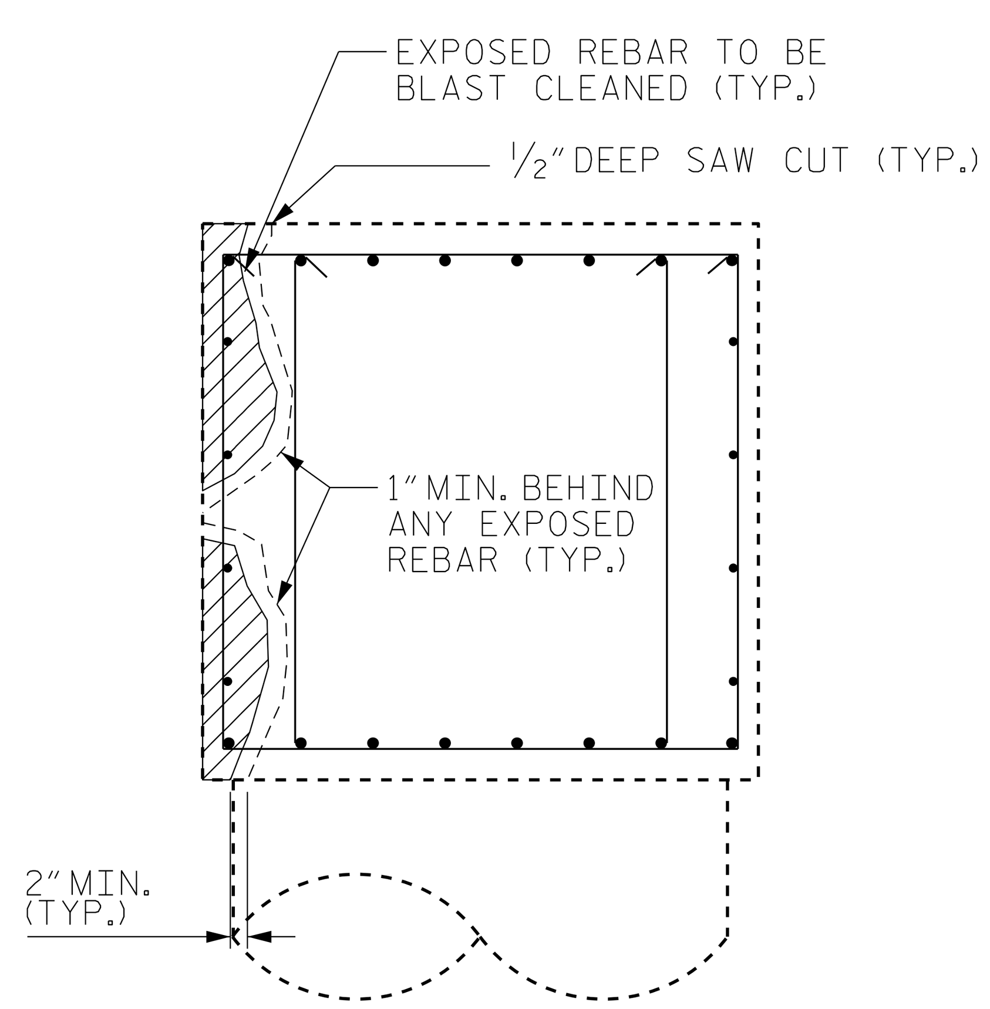
CAP REPAIRS

(COLUMN BENT SHOWN
PILE BENTS SIMILAR)

REPAIR ALL SPALLED, DELAMINATED OR CRACKED CONCRETE AREAS NOT OCCURRING AT BEAM BEARING AREAS PER PLANS AND PER THE ENGINEER USING SHOTCRETE OR "FORM AND POUR" AT THE CONTRACTOR'S OPTION (SEE NOTES)

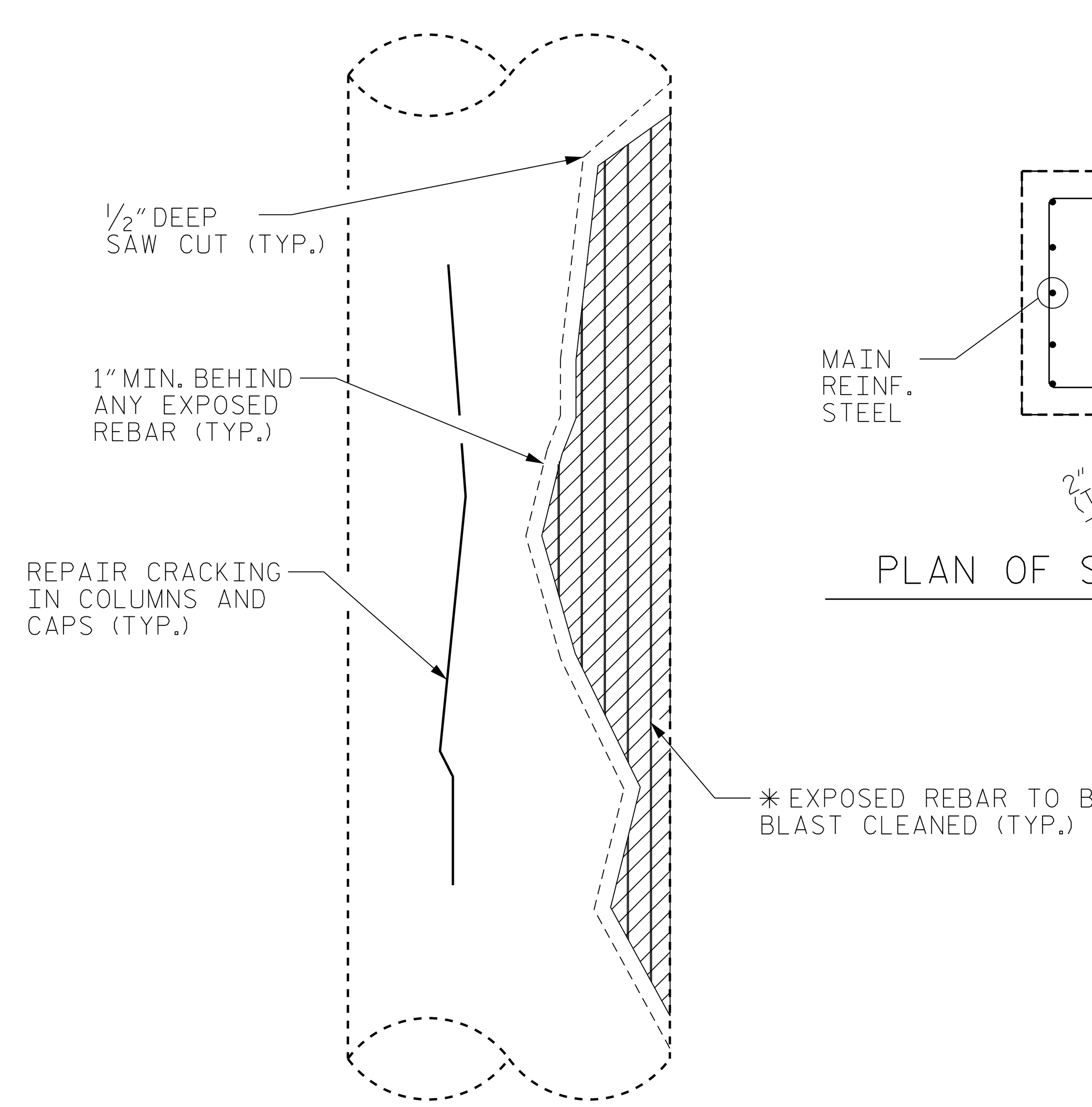


PLAN OF CIRCULAR COLUMN



SECTION A-A

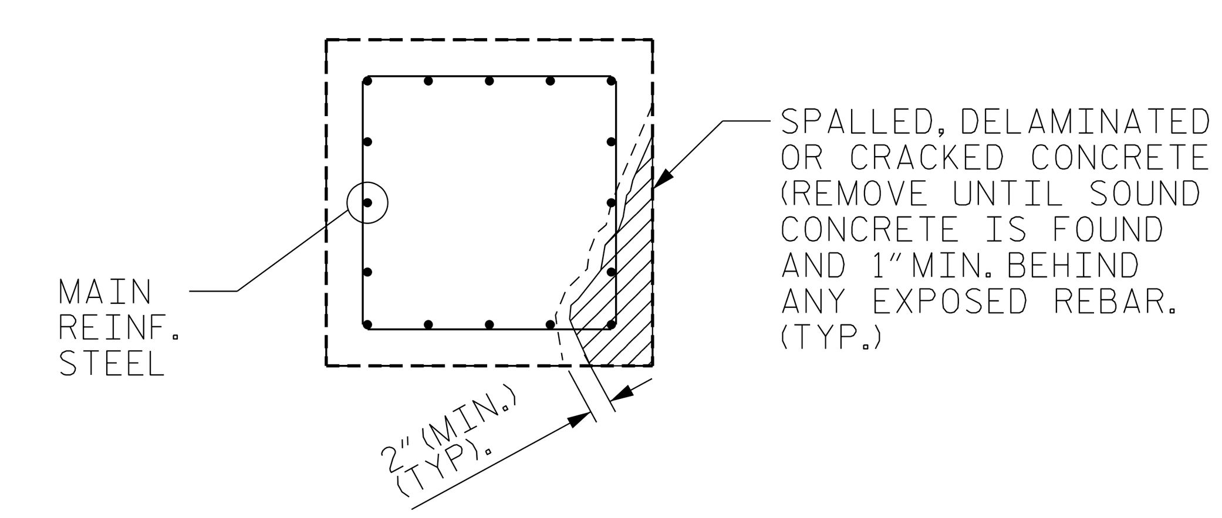
BENT CAP REPAIRS



ELEVATION OF COLUMN (SQUARE COLUMNS SIMILAR)

✳ REPAIR LENGTH SHALL NOT EXCEED 10 VERTICAL FEET AT ONCE OR ½ COLUMN DIAMETER.

COLUMN REPAIRS



PLAN OF SQUARE COLUMN

SUBSTRUCTURE REPAIR NOTES:

1. WORK THIS SHEET WITH REPAIR METHODS AND CONCRETE REPAIR NOTES IN "CONCRETE RESTORATION DETAILS" SHEET 1.
2. TYPICAL BENT CAP REPAIRS ARE SHOWN IN THIS SHEET. REPAIR DETAILS SIMILAR FOR END BENT CAPS.
3. 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.
4. THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE SPECIAL PROVISIONS, AND THE STANDARD SPECIFICATIONS.
5. REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY, A MINIMUM OF 1" BEHIND REBAR AND MINIMUM CLEARANCE OF 2" TO SAWCUT.
6. 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 THIS SHEET.
7. IF ANY AREA IS DETERMINED TO BE UNSTABLE DURING THE REPAIR PROCESS AS DETERMINED BY THE ENGINEER, STOP THE CURRENT REPAIR PROCEDURE, SHORE THE AREA AND PERFORM A "FORM AND POUR" CONCRETE REPAIR.
8. NO MORE THAN ⅓ OF THE CAP OR PILE CROSS SECTIONAL AREA SHALL BEREMOVED AT ONE TIME. SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 30% OF THE CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.
9. SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR PILE, BUT NO MORE THAN ⅓ OF THE CIRCUMFERENCE SHALL BE REMOVED AT A TIME. IF REMOVAL EXTENDS MORE THAN 1-½" BEHIND THE MAIN REINFORCING BARS. NOTIFY THE ENGINEER PRIOR TO PROCEEDING.
10. REPAIRS TO THE BENT CAPS MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.
11. FOR SUBSTRUCTURE REPAIRS, SEE "SUBSTRUCTURE REPAIRS" SHEETS.

LEGEND	
(hatched)	CONCRETE REPAIR AREA
(cross-hatched)	SHOTCRETE REPAIR AREA
(line)	EPOXY RESIN INJECTION (ERI)

BRIDGES: 170171, 170172, 170177, 170178
480006, 480007, 480051, 480054
480065, 480066, 480072, 480073
480096, 480102, 480104, 480109
480123, 480124

PROJECT NO. I-5915B

COUNTY

BRIDGE NO. MULTIPLE

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048223 DIEGO A. AGUIRRE
DocuSigned by: Diego Aguirre
4/29/2022

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONCRETE RESTORATION DETAILS

SUBSTRUCTURE

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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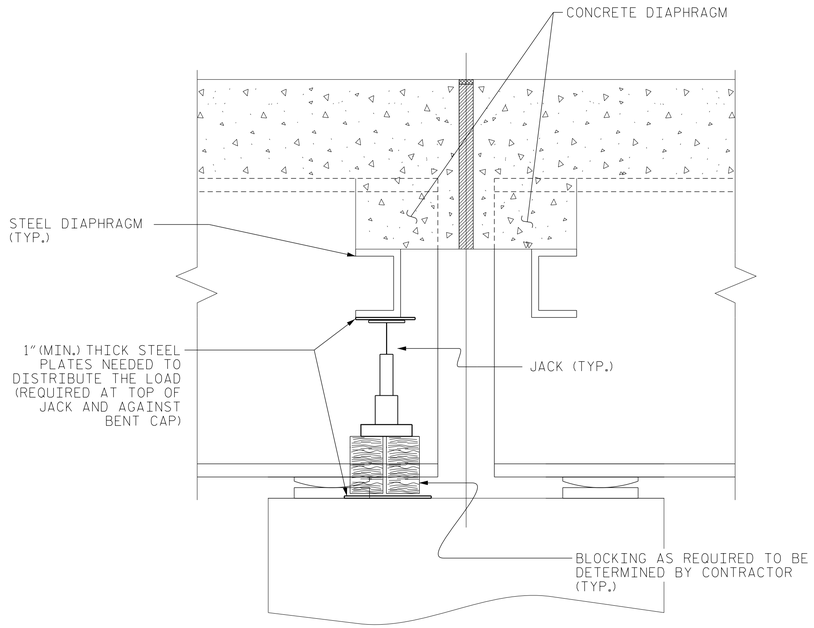
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S7
1			3			TOTAL SHEETS
2			4			9

DRAWN BY : JACOB H. DUKE DATE : 01/2022
CHECKED BY : DIEGO A. AGUIRRE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
I5915B_SMU_CR02.dgn
daguirre



SECTION THRU DIAPHRAGM

BRIDGE JACKING NOTES:

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

PRIOR TO BRIDGE JACKING OPERATIONS, THE ENGINEER AND CONTRACTOR SHALL INSPECT THE STRUCTURE FOR ANY NOTABLE DEFECTS TO THE PRIMARY AND SECONDARY STRUCTURAL MEMBERS. ALL NOTABLE DEFECTS SHALL BE DOCUMENTED AND REPORTED TO THE AREA BRIDGE MAINTENANCE ENGINEER PRIOR TO COMMENCEMENT OF ANY BRIDGE JACKING. THE CONTRACTOR SHALL PROVIDE SAFE AND SUFFICIENT ACCESS TO ALL STRUCTURAL MEMBERS FOR THE ENGINEER TO ESTABLISH PROPER DOCUMENTATION.

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

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

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

BEARINGS ADJACENT TO THE BEAM BEING JACKED MAY BE LOOSENED TO DECREASE THE RESISTANCE OF THE DECK SLAB DURING JACKING. ALL BEARINGS LOOSENED SHALL BE TIGHTENED BACK AFTER REPAIR OPERATIONS ARE COMPLETED AND THE JACKS AND BLOCKING HAVE BEEN REMOVED.

THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED IS $\frac{1}{8}$".

LOADS PROVIDED IN THE "BRIDGE JACKING TABLE" ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR'S ENGINEER SHALL DETERMINE THE EXPECTED LOADS TO BE LIFTED DURING THE BRIDGE JACKING OPERATIONS.

THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS AND CALCULATIONS OF THE JACKING PROCEDURE(S) SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA TO THE ENGINEER FOR APPROVAL PRIOR TO BRIDGE JACKING OPERATIONS.

FOR TYPE I OR TYPE II BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

ANY STEEL THAT HAS BEEN WELDED TO THE EXISTING STRUCTURE SHALL REMAIN IN PLACE.

TYPE II BRIDGE JACKING SHALL BE DONE WITH A HYDRUALIC JACKING SYSTEM THAT LIFTS EACH BEAM ALONG ENTIRE SPAN END WITH EQUAL FORCE AND AT AN EQUAL RATE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED TO THE EXISTING STRUCTURE BY BRIDGE JACKING OPERATIONS AT NO ADDITIONAL COST TO THE DEPARTMENT.

BRIDGE NO: 170171
BRIDGE JACKING TABLE

SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)	LL & DL (IMPACT) (DC+DW) (KIPS)	MINIMUM JACK CAPACITY (LL & DL) (TONS)
1&3	INTERIOR	TYPE I	21.8	140.0	100
1&3	EXTERIOR	TYPE I	18.9	88.0	75

BRIDGE NO: 170172
BRIDGE JACKING TABLE

SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)	LL & DL (IMPACT) (DC+DW) (KIPS)	MINIMUM JACK CAPACITY (LL & DL) (TONS)
1&3	INTERIOR	TYPE I	27.1	159.0	100
1&3	EXTERIOR	TYPE I	23.9	101.8	75

BRIDGE NO: 480006
BRIDGE JACKING TABLE

SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)	LL & DL (IMPACT) (DC+DW) (KIPS)	MINIMUM JACK CAPACITY (LL & DL) (TONS)
1-6	INTERIOR	TYPE I	56.5	290.0	165
1-6	EXTERIOR	TYPE I	47.8	229.6	135

BRIDGE NO: 480007
BRIDGE JACKING TABLE

SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)	LL & DL (IMPACT) (DC+DW) (KIPS)	MINIMUM JACK CAPACITY (LL & DL) (TONS)
1&6	INTERIOR	TYPE I	56.5	290.0	165
1&6	EXTERIOR	TYPE I	47.8	229.6	135

BRIDGE NO: 480066
BRIDGE JACKING TABLE

SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)	LL & DL (IMPACT) (DC+DW) (KIPS)	MINIMUM JACK CAPACITY (LL & DL) (TONS)
1&3	INTERIOR	TYPE I	20.6	116.2	80
1&3	EXTERIOR	TYPE I	17.0	89.5	65

BRIDGE NO: 480123
BRIDGE JACKING TABLE

SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)	LL & DL (IMPACT) (DC+DW) (KIPS)	MINIMUM JACK CAPACITY (LL & DL) (TONS)
1&3	INTERIOR	TYPE I	20.6	112.4	75
1&3	EXTERIOR	TYPE I	16.1	86.2	65

BRIDGES: 170171, 170172, 480006, 480007, 480123, 480124

PROJECT NO. I-5915B

CATAWBA/IREDELL COUNTY

BRIDGE NO. MULTIPLE

DocuSigned by: Diego A Aguirre 10/13/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE JACKING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S8
1			3			TOTAL SHEETS
2			4			9

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

10/13/2022
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daguirre

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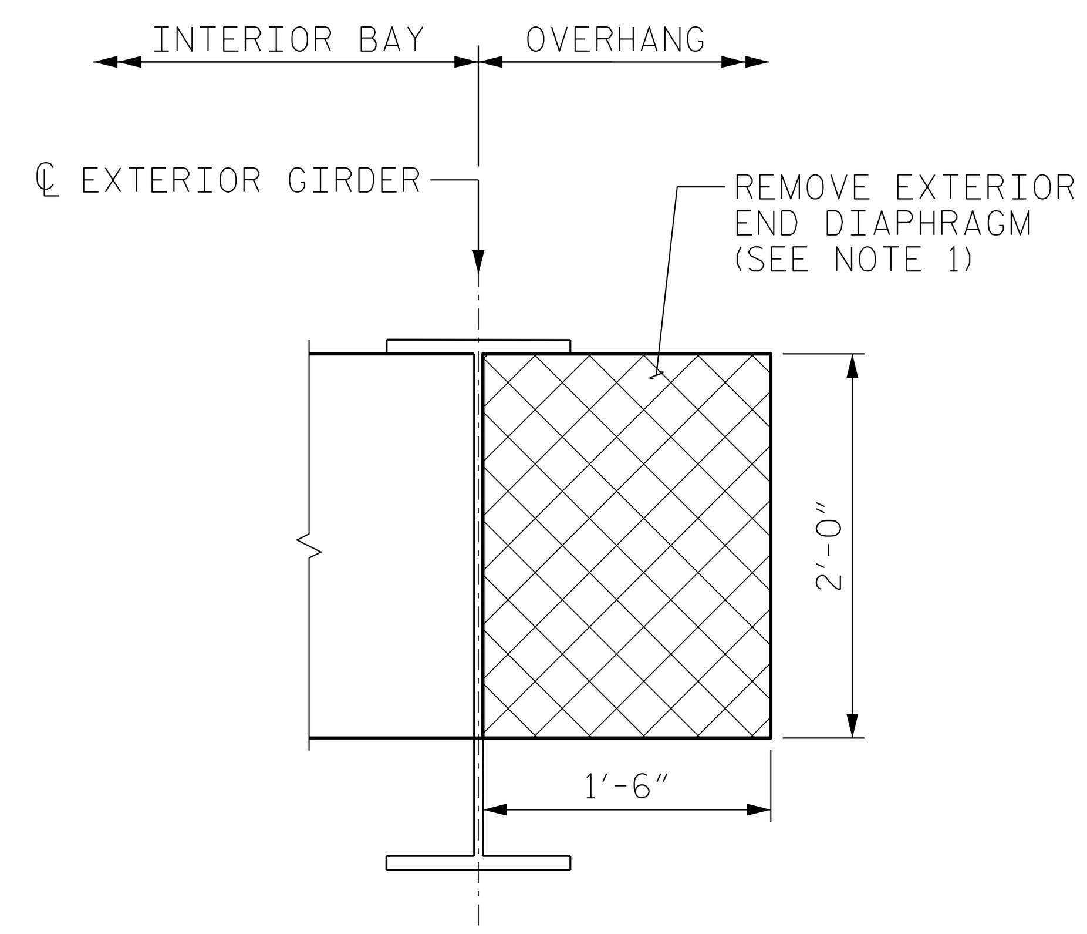
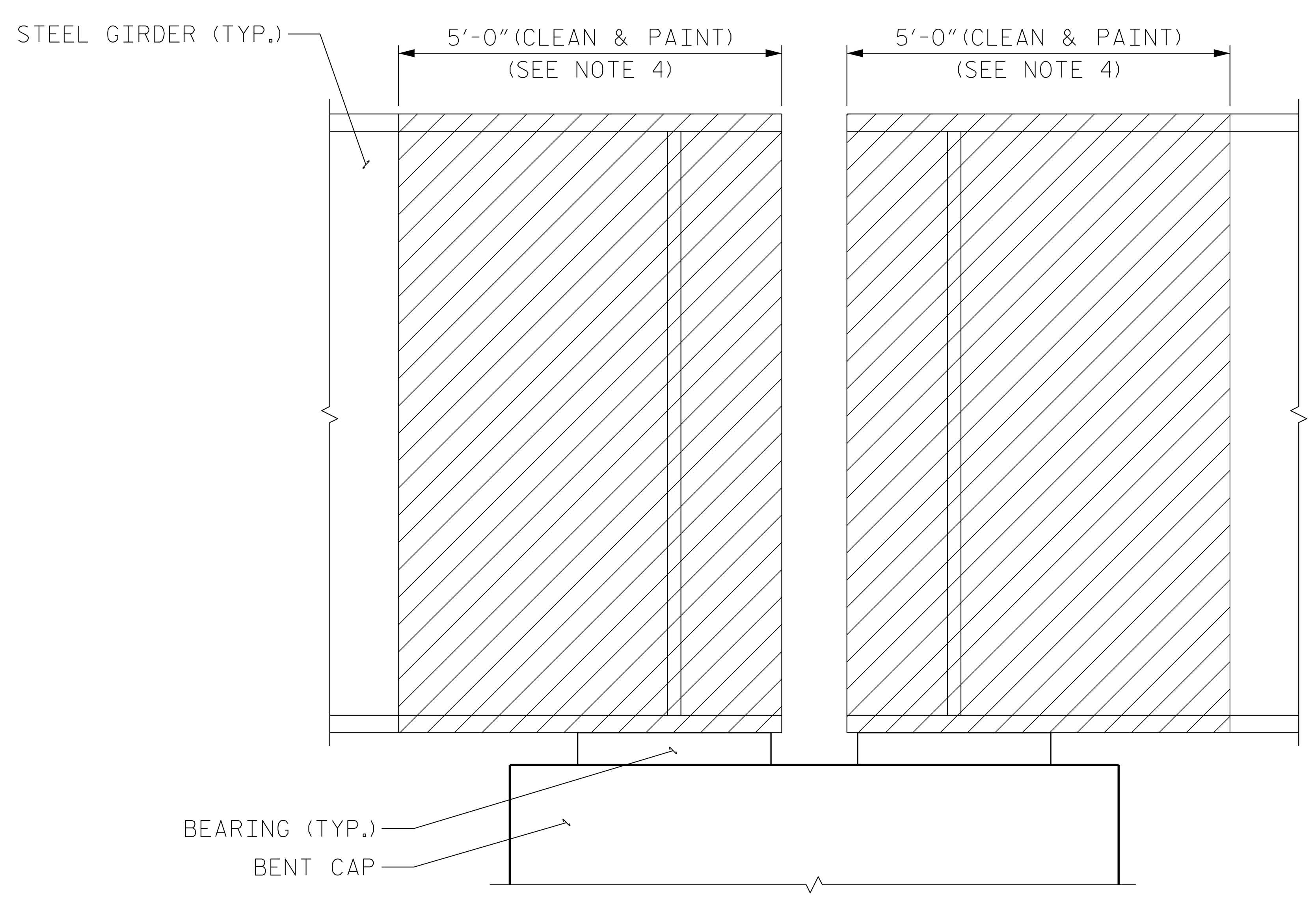


DETAIL "RD"
REMOVE DIAPHRAGMS

(APPLIES TO END DIAPHRAGMS AT OVERHANGS)
(DECK NOT SHOWN FOR CLARITY)

CONCRETE DIAPHRAGM REPAIRS



CLEAN AND PAINT GIRDER ENDS

(GIRDERS AT INTERMEDIATE BENTS SHOWN, SIMILAR AT END BENTS)
(DECK NOT SHOWN FOR CLARITY)

NOTES:

1. AFTER REMOVAL OF EXTERIOR END DIAPHRAGMS CUT ANY EXPOSED REBAR FLUSH WITH THE DECK. COAT THE REMAINING EXPOSED REBAR WITH EPOXY.
2. ALL LABOR, TOOLS, AND MATERIALS REQUIRED FOR THE REMOVAL OF END DIAPHRAGMS SHALL BE INCIDENTAL TO THE PAY ITEM OF "CONCRETE REPAIRS". NO ADDITIONAL PAYMENTS WILL BE MADE FOR THIS WORK.
3. INTERIOR END DIAPHRGAM REPAIRS ARE CONSIDERED "CONCRETE REPAIRS". QUANTITIES ARE INCLUDED IN THE "SUPERSTRUCTURE REPAIRS" SHEETS.
4. CLEAN AND PAINT EXISTING GIRDER ENDS TO THE LIMITS SHOWN HEREIN AND IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR ZONE PAINTING OF EXISTING STRUCTURE.
5. FOR ZONE PAINTING OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

BRIDGES: 480006, 480007, 480051, 480054
480065, 480066, 480072, 480073
480096, 480102.

PROJECT NO. I-5915B
CATAWBA&IREDELL COUNTY
BRIDGE NO. MULTIPLE

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048223 DIEGO A. AGUIRRE
DocuSigned by: Diego A. Aguirre
4/29/2022

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

MISCELLANEOUS REPAIRS

KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S9
1			3			TOTAL SHEETS
2			4			9

DRAWN BY :	DIEGO A. AGUIRRE	DATE :	01/2022
CHECKED BY :	SAMUEL L. CULLUM	DATE :	01/2022
DESIGN ENGINEER OF RECORD:	DIEGO A. AGUIRRE	DATE :	01/2022

4/21/2022
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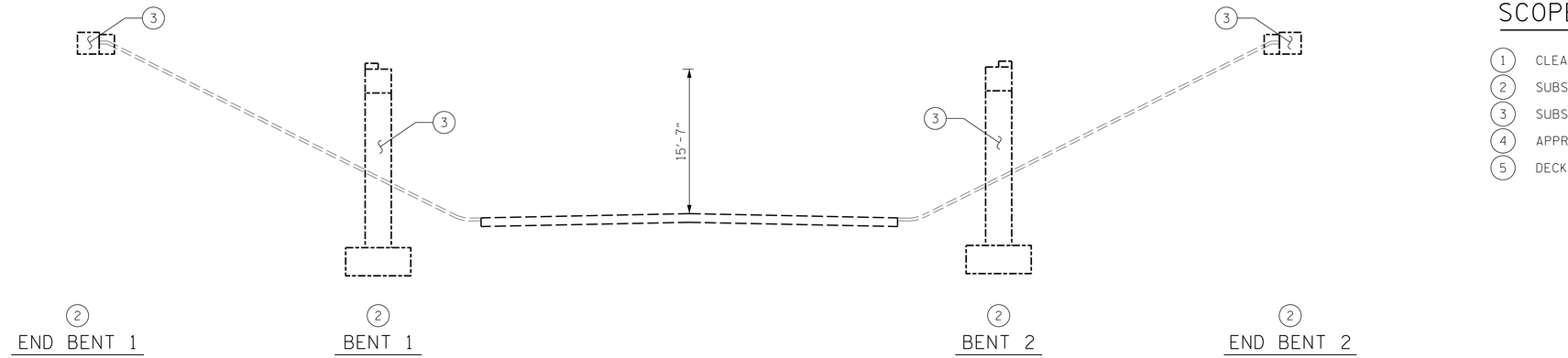
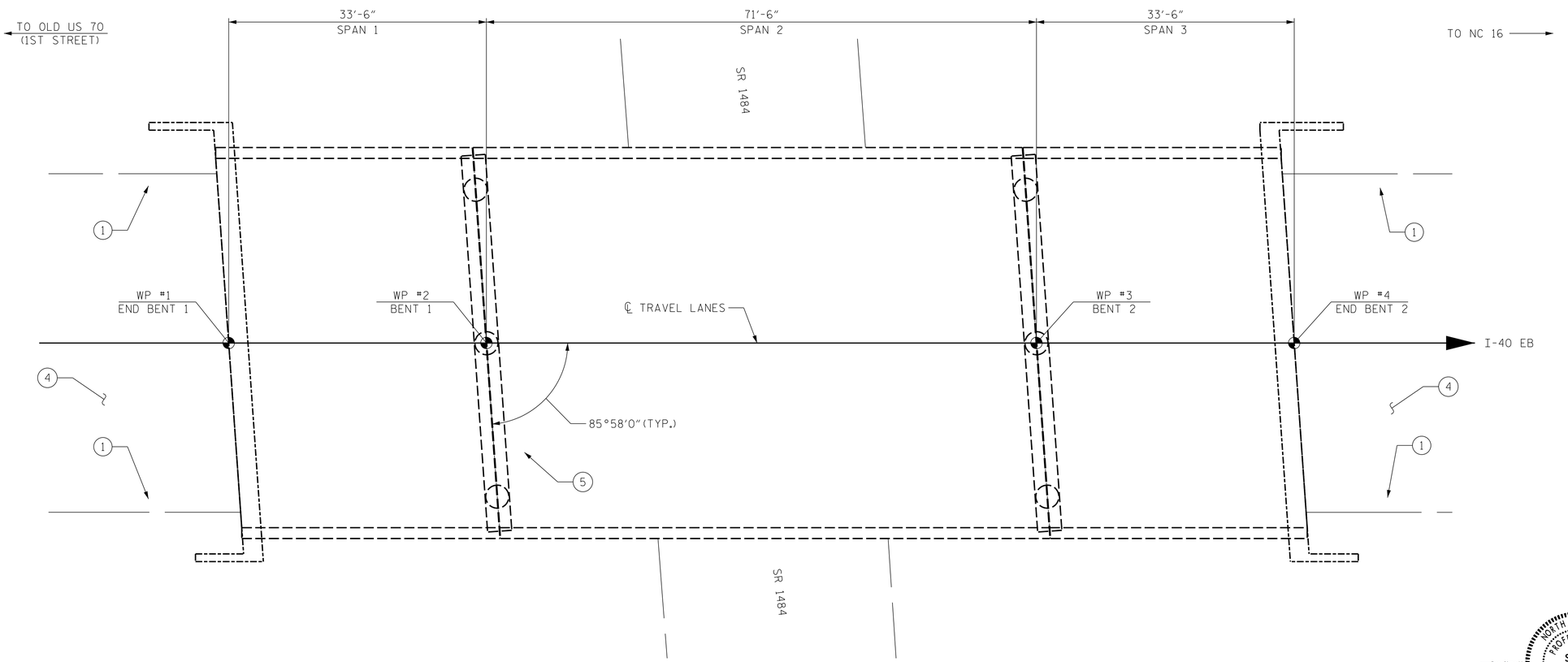


SECTION ALONG ROADWAY

SCOPE LEGEND:

1. CLEAR SHOULDERS OF DEBRIS AND VEGETATION
2. SUBSTRUCTURE CONCRETE REPAIRS
3. SUBSTRUCTURE EPOXY RESIN INJECTION
4. APPROACH ROADWAY MILLING AND RESURFACING
5. DECK REPAIRS



PLAN

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 04/16/2021.

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

RESIDENT ENGINEER DATE

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170171

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-40 EB OVER SR 1484

DRAWN BY :	DIEGO A. AGUIRRE	DATE :	01/2022
CHECKED BY :	FIDEL L. FLORES	DATE :	01/2022
DESIGN ENGINEER OF RECORD:	DIEGO A. AGUIRRE	DATE :	01/2022

4/29/2022
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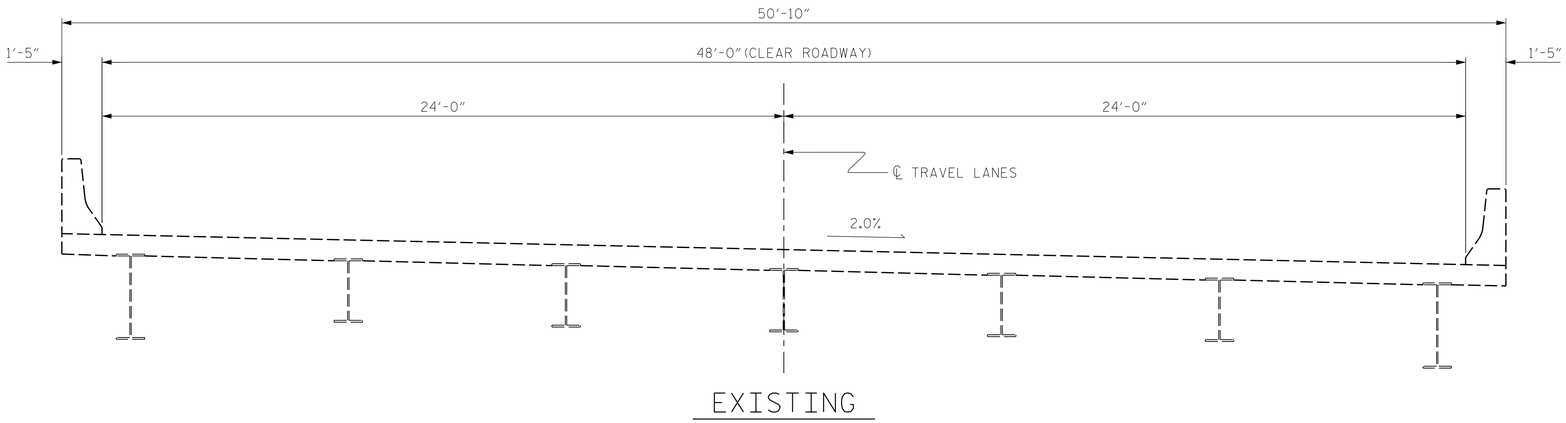
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-1
1			3			TOTAL SHEETS
2			4			7



EXISTING

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170171

DocuSigned by:
Diego A Aguirre
4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-2
1			3			TOTAL SHEETS
2			4			7

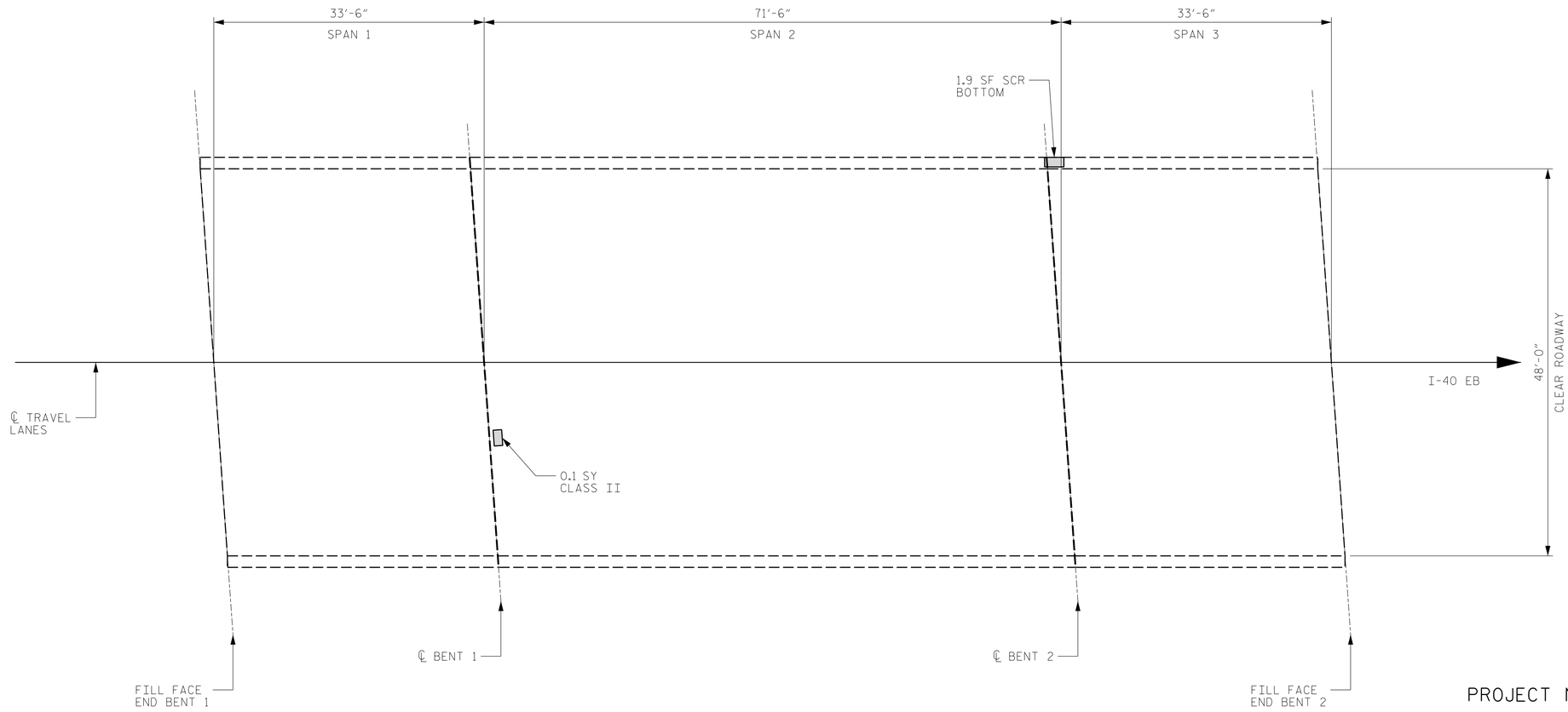
AS-BUILT REPAIR QUANTITY TABLE

SUPERSTRUCTURE REPAIRS

	SPAN 1				SPAN 2				SPAN 3			
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME
SHOTCRETE REPAIR AREA (SCR)	-- SF	-- CF			-- SF	-- CF			1.9 SF	0.7 CF		
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
CLASS II REPAIR	-- SY				0.1 SY				-- SY			

LEGEND:

SCR SHOTCRETE REPAIR AREA



PLAN

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170171

NOTES:

PRIOR TO SURFACE PREPARATION, REMOVE ALL LOOSE, DISINTEGRATED, UNSOUND OR CONTAMINATED CONCRETE FROM THE BRIDGE DECK.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR SCARIFYING BRIDGE DECK, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

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

DEFECTS (SEE PLAN CALLOUT FOR DETAILS)

DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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daguirre

DocuSigned by: Diego A. Aguirre 4729/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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NC FIRM LICENSE: C-1506

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS

DECK REPAIRS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-3
1			3			TOTAL SHEETS
2			4			7

AS-BUILT REPAIR QUANTITY TABLE

	ESTIMATE	ACTUAL
INCIDENTAL MILLING	490 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	41 TON	
ASPHALT BINDER FOR PLANT MIX	2.5 TON	

NOTES:

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

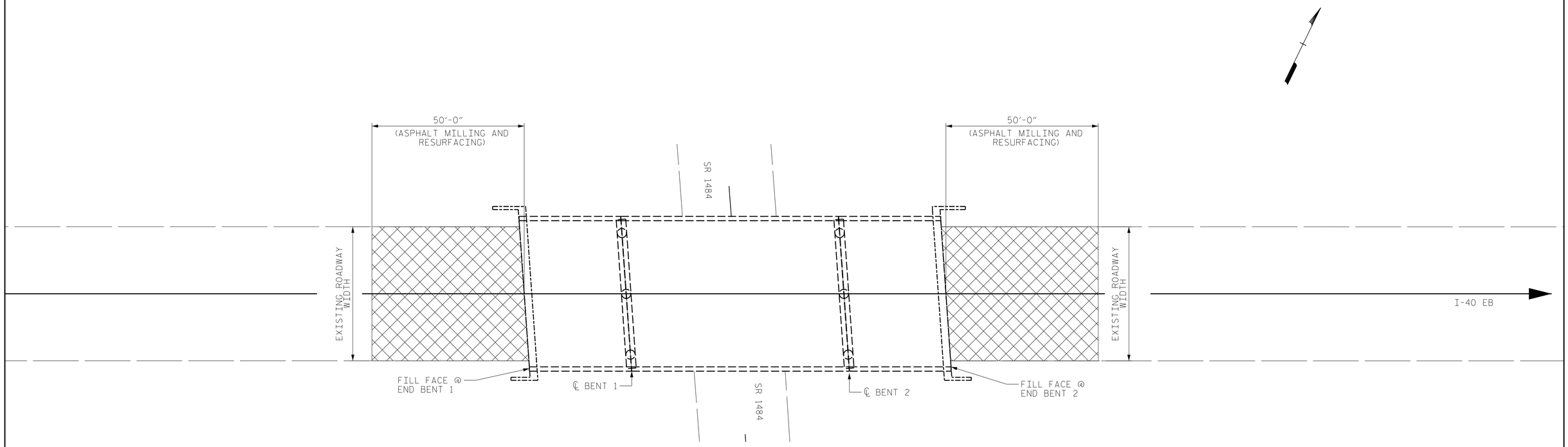
FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.

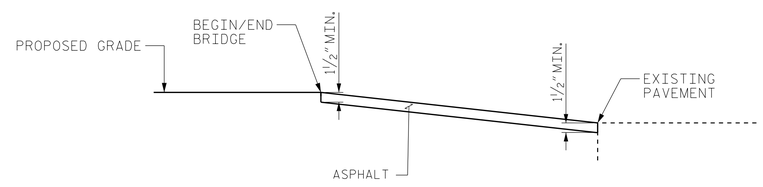
C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 2" IN DEPTH.

INCIDENTAL MILLING

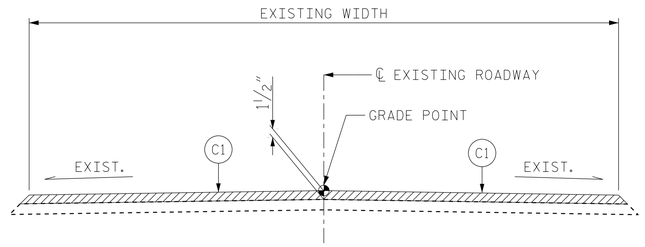
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C (C1)



PLAN



PAVEMENT KEY-IN DETAIL FOR BOTH END BENTS



ROADWAY SECTION

BEGIN/END BRIDGE

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170171

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH ROADWAY

MILLING AND RESURFACING

DocuSigned by: Diego A. Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

KISINGER CAMPO & ASSOCIATES
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NC FIRM LICENSE: C-1506

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-4
1			3			TOTAL SHEETS
2			4			7

DRAWN BY : FIDEL L. FLORES DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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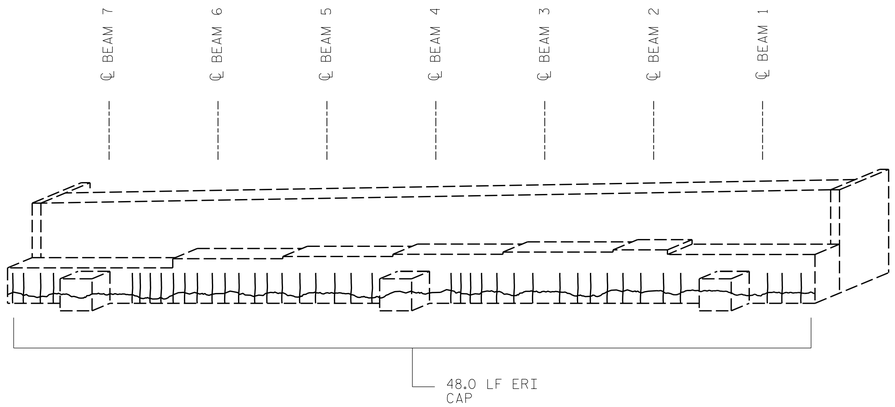
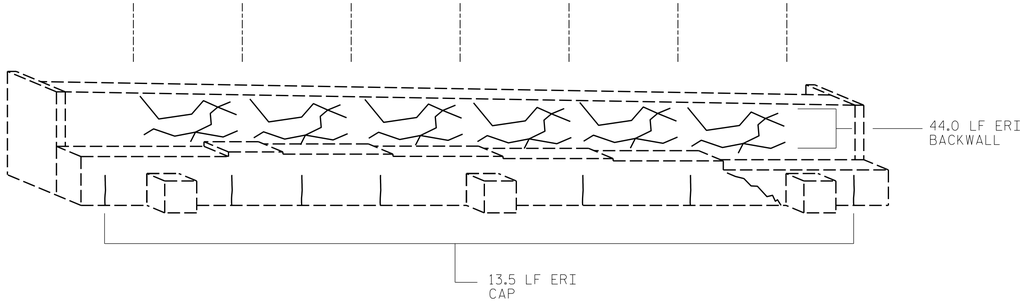
daguirre



END BENT 1

(EAST FACE)



END BENT 2

(WEST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	105.5			
COLUMN/PILE	-			

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

NOTES:

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

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS >=1/16" AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170171

SHEET 1 OF 3

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

END BENTS 1 & 2

DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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NC FIRM LICENSE: C-1506

REVISIONS						SHEET NO.
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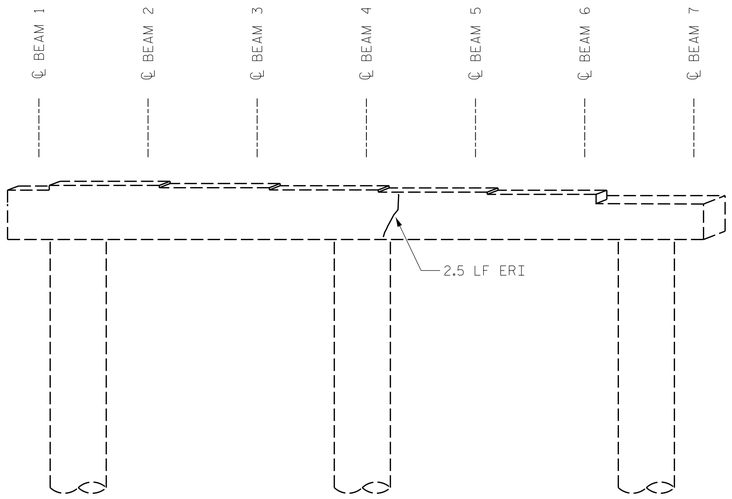
1			3			TOTAL SHEETS
2			4			7



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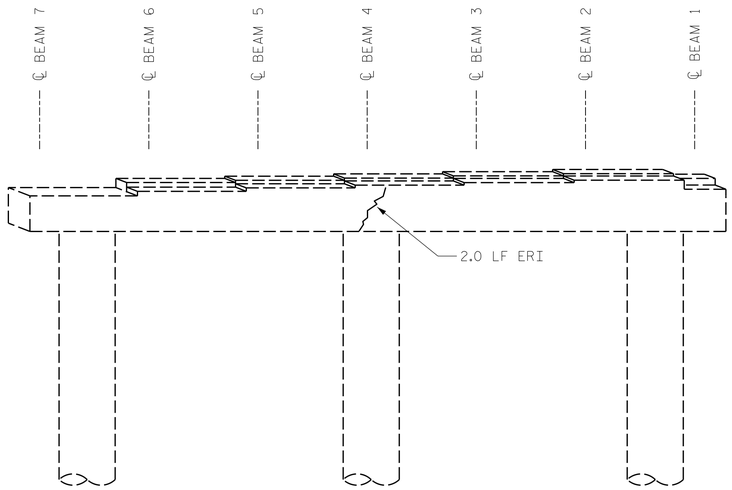

BENT 1

(EAST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	4.5			
COLUMN/PILE	-			

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

NOTES:

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FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170171

SHEET 2 OF 3

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 1

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NO.	BY:	DATE:	NO.	BY:	DATE:	S1-6
1			3			TOTAL SHEETS
2			4			7

DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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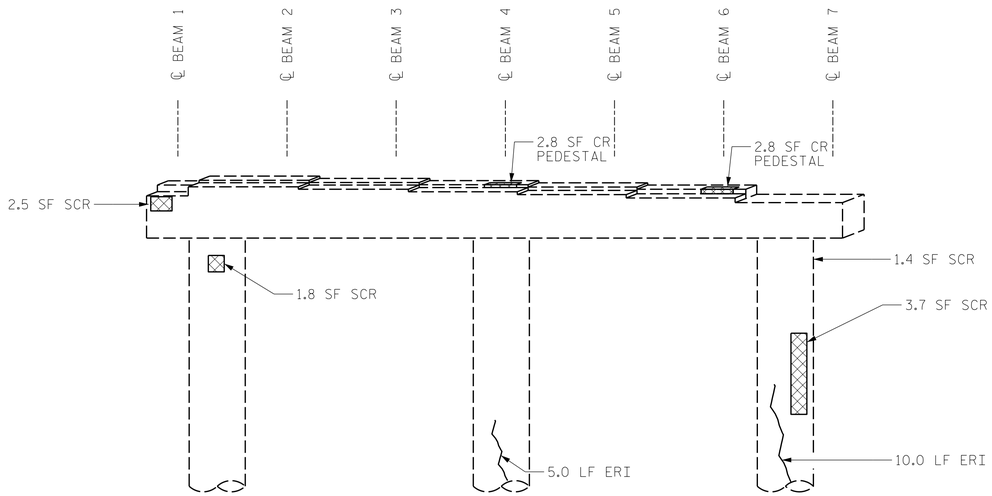

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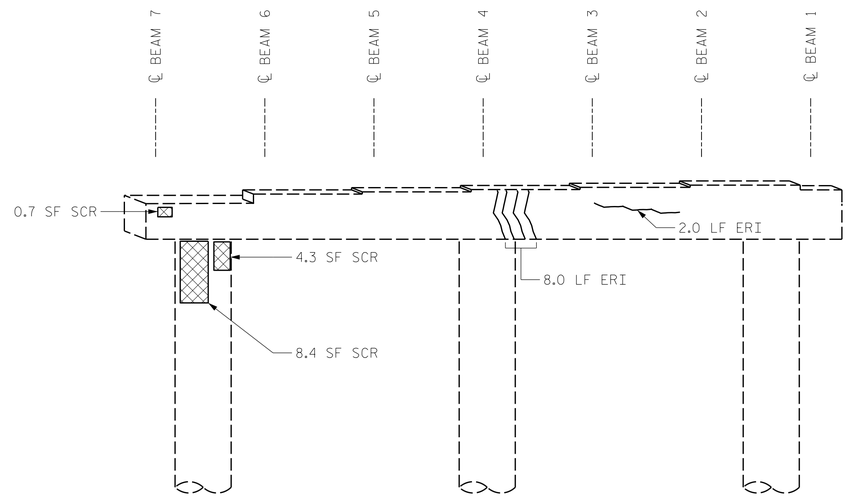
(WEST FACE)



BENT 2

(EAST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	3.2	1.2		
COLUMN/PILE	19.6	6.7		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	5.6	2.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	10.0			
COLUMN/PILE	15.0			

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

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AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170171

SHEET 3 OF 3

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
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DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-7
1			3			TOTAL SHEETS
2			4			7

DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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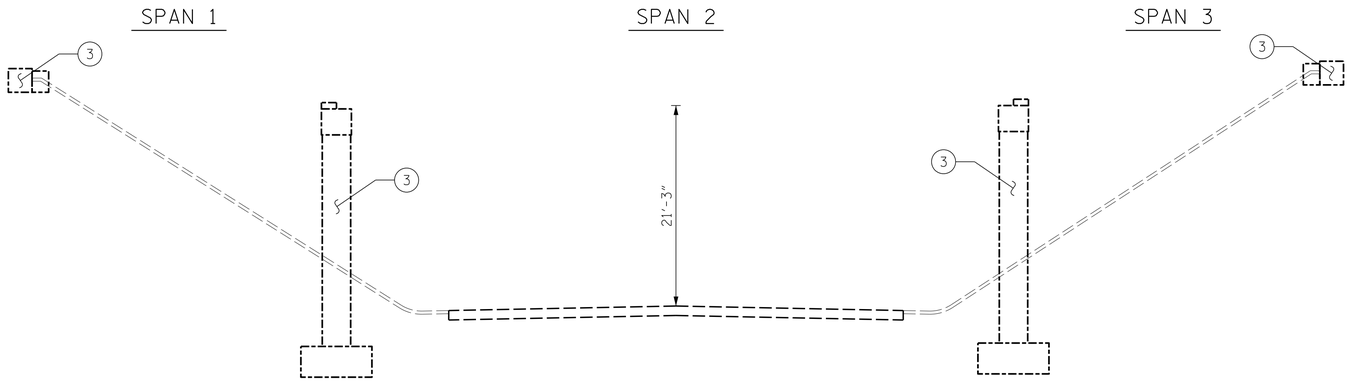
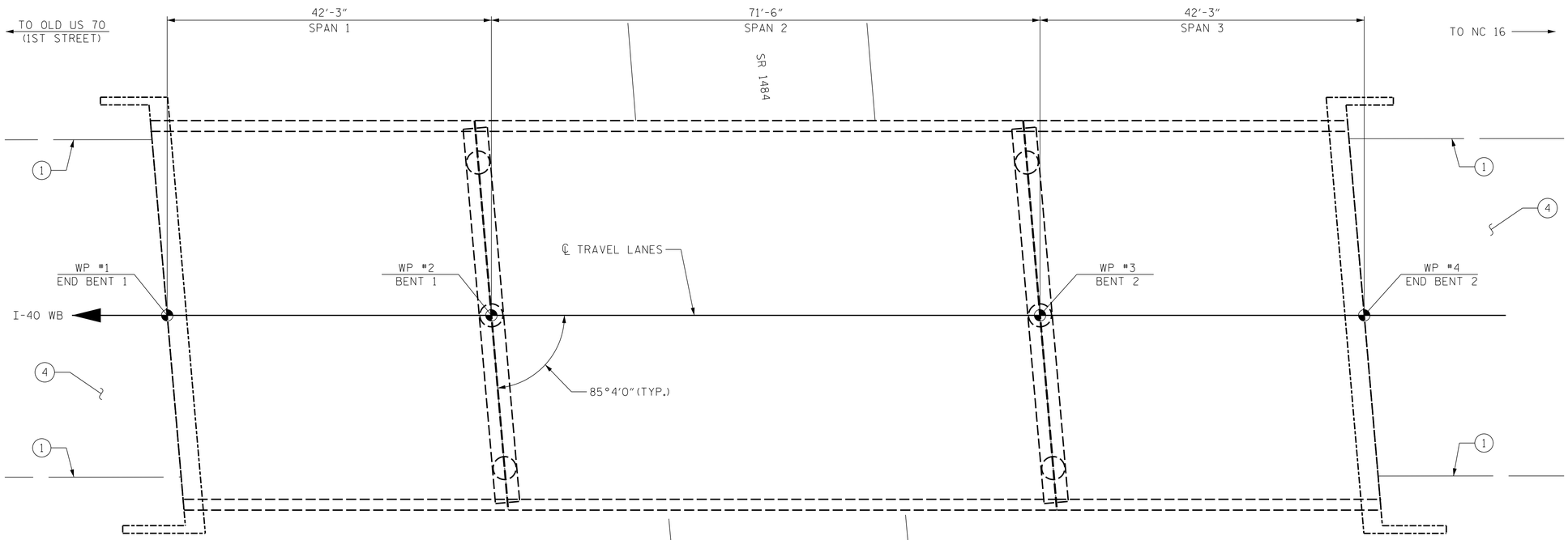


SECTION ALONG ROADWAY

SCOPE LEGEND:

1. CLEAR SHOULDERS OF DEBRIS AND VEGETATION
2. SUBSTRUCTURE CONCRETE REPAIRS
3. SUBSTRUCTURE EPOXY RESIN INJECTION
4. APPROACH ROADWAY MILLING AND RESURFACING



PLAN

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 04/15/2021

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

RESIDENT ENGINEER DATE

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170172

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

DocuSigned by: Diego A Aguirre 4729/2022

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RALEIGH, NC 27601 (919) 882-7839
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RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-40 WB OVER SR 1484

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

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DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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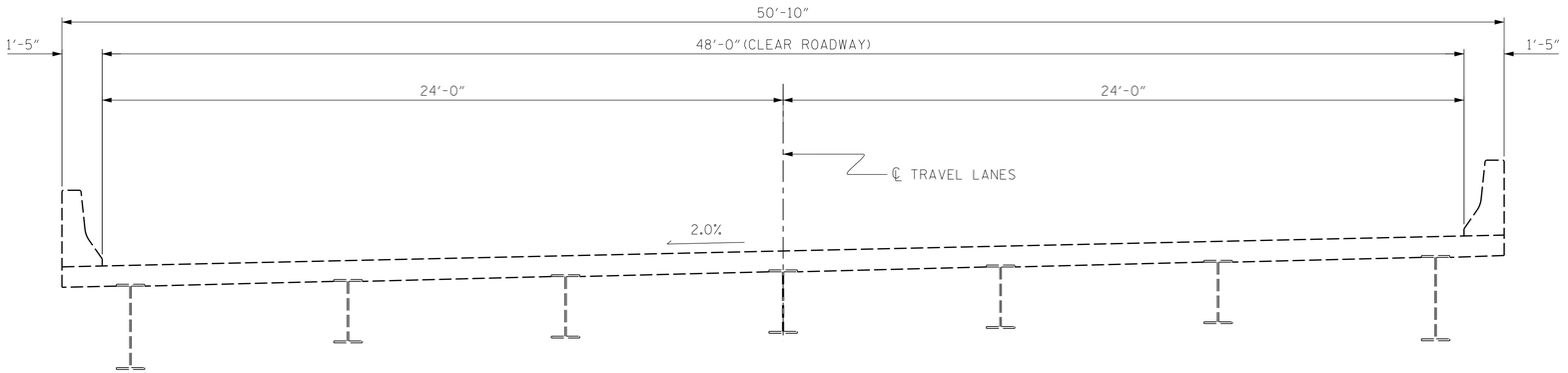

EXISTING

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170172

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

DocuSigned by: Diego A Aguirre 4/29/2022

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1			3			TOTAL SHEETS
2			4			6

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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dagulrre

AS-BUILT REPAIR QUANTITY TABLE

	ESTIMATE	ACTUAL
INCIDENTAL MILLING	490 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	41 TON	
ASPHALT BINDER FOR PLANT MIX	2.5 TON	

NOTES:

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

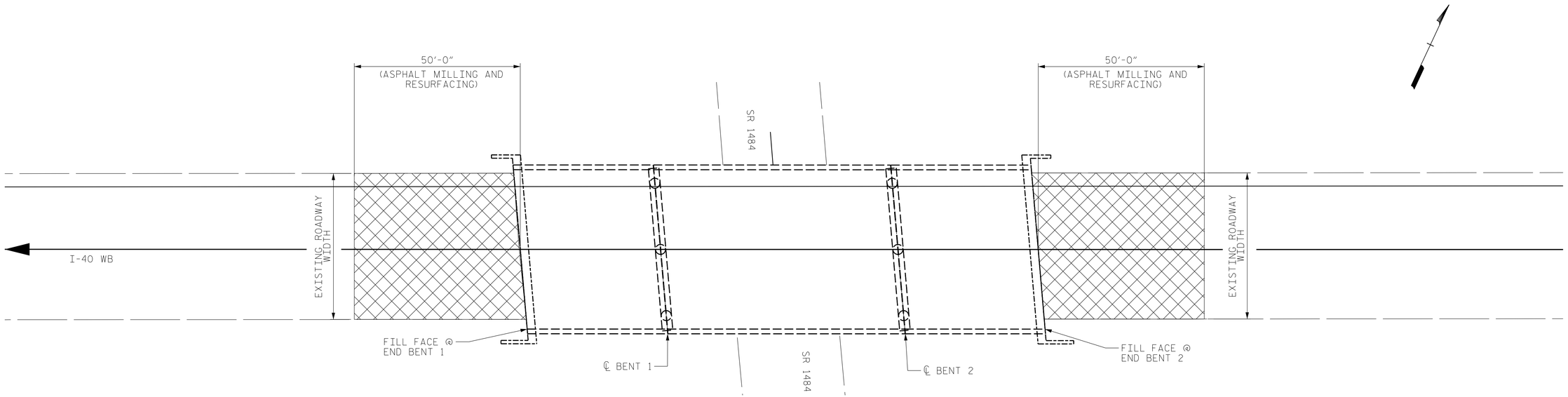
FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.

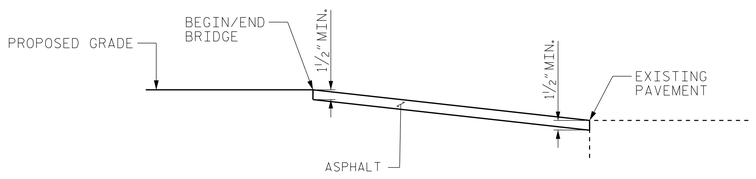
C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1"DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1"OR GREATER THAN 2"IN DEPTH.

INCIDENTAL MILLING

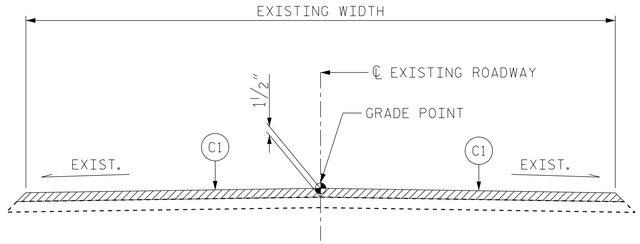
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C (C1)



PLAN



PAVEMENT KEY-IN DETAIL FOR BOTH END BENTS



ROADWAY SECTION

BEGIN/END BRIDGE

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170172

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH ROADWAY

MILLING AND RESURFACING

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NC FIRM LICENSE: C-1506

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			6

DRAWN BY : FIDEL L. FLORES DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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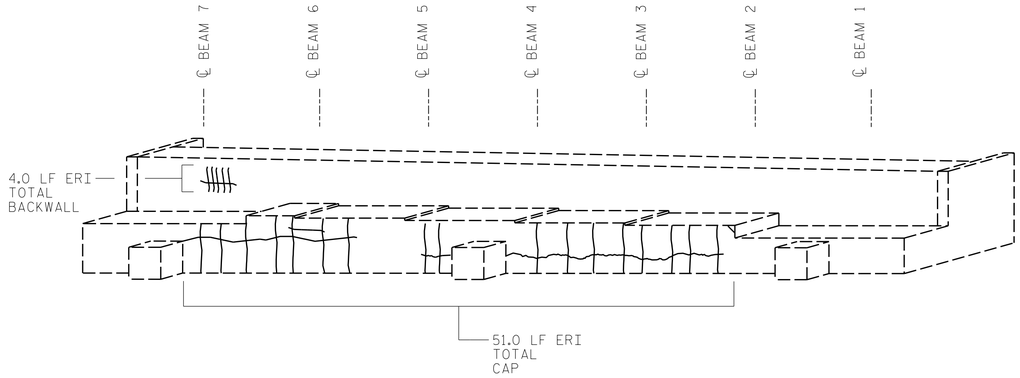
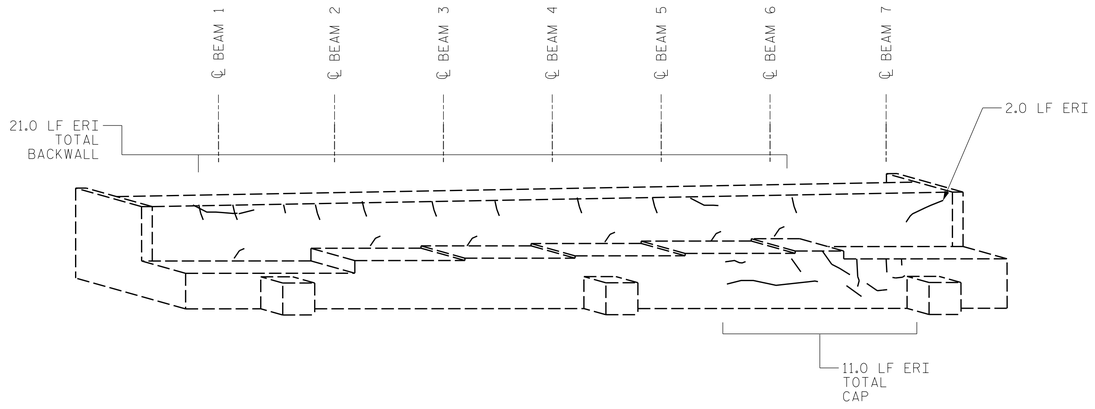


END BENT 1

(EAST FACE)



END BENT 2

(WEST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	89.0			
COLUMN/PILE	-			

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

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FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170172

SHEET 1 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

DocuSigned by: Diego A Aguirre 4/29/2022

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RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

END BENTS 1 & 2

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

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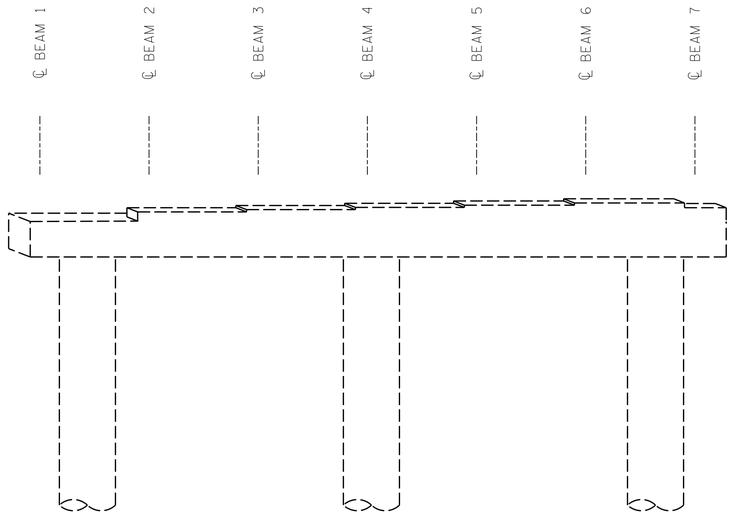

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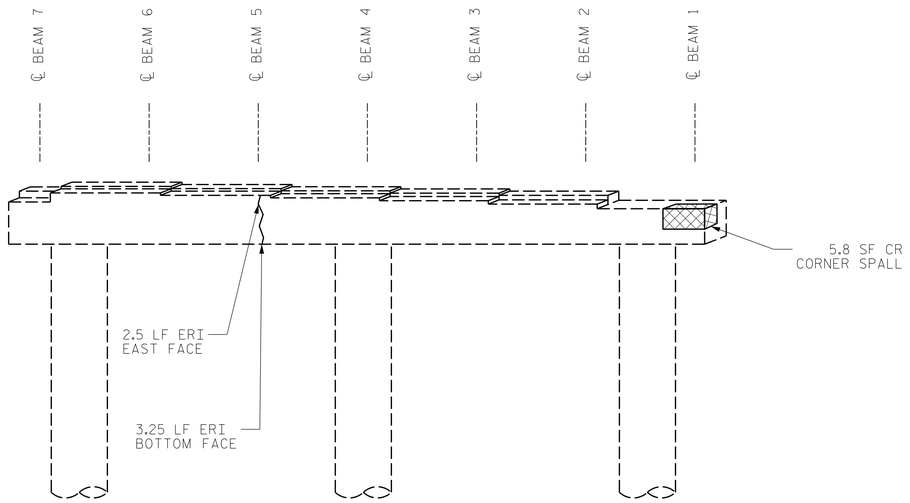
(WEST FACE)



BENT 1

(EAST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	5.8	2.9		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	5.7			
COLUMN/PILE	-			

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

NOTES:

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

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS >=1/16" AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170172

SHEET 2 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

DocuSigned by: Diego A Aguirre 4/29/2022

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-5
1			3			TOTAL SHEETS
2			4			6

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DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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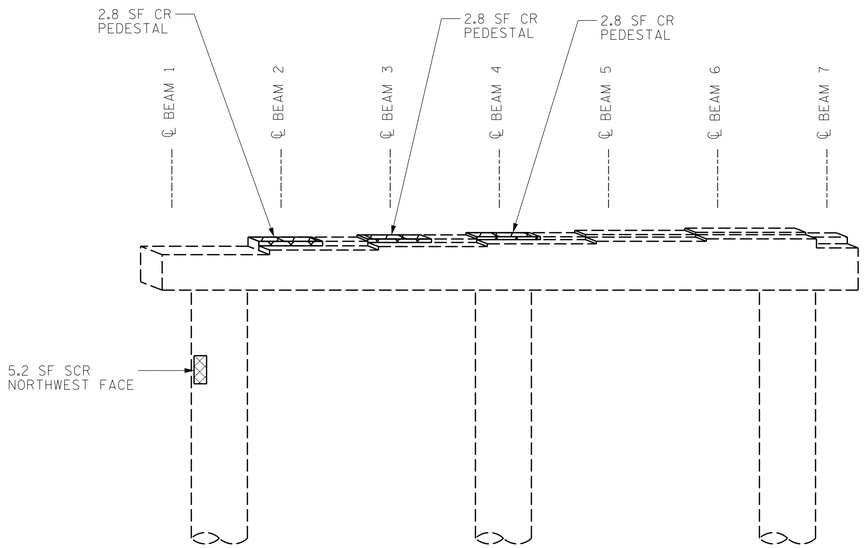
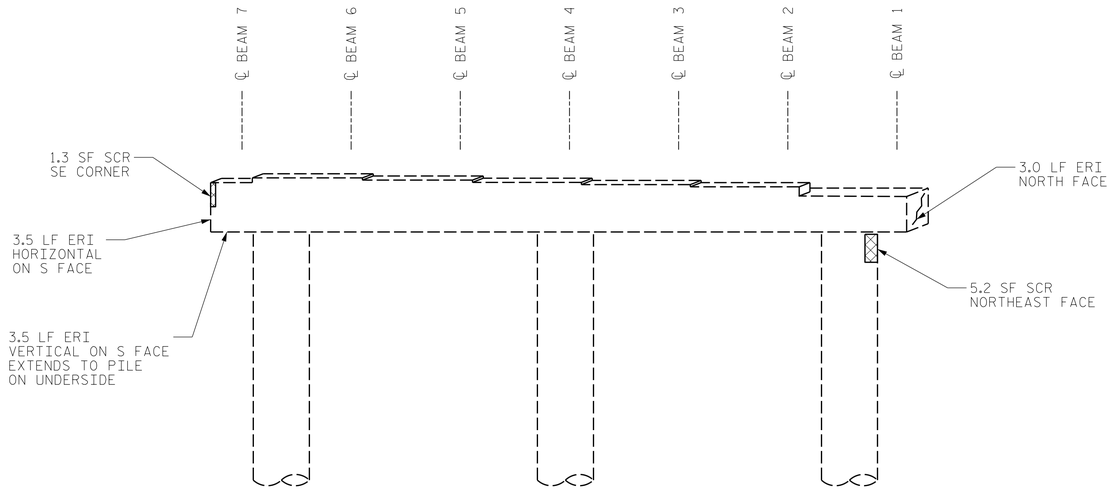


BENT 2

(WEST FACE)



BENT 2

(EAST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	1.3	0.5		
COLUMN/PILE	10.4	3.6		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	8.4	3.0		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	10.0			
COLUMN/PILE	-			

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

NOTES:

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

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS >=1/16" AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170172

SHEET 3 OF 3

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
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DEPARTMENT OF TRANSPORTATION
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SUBSTRUCTURE REPAIRS

BENT 2

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

DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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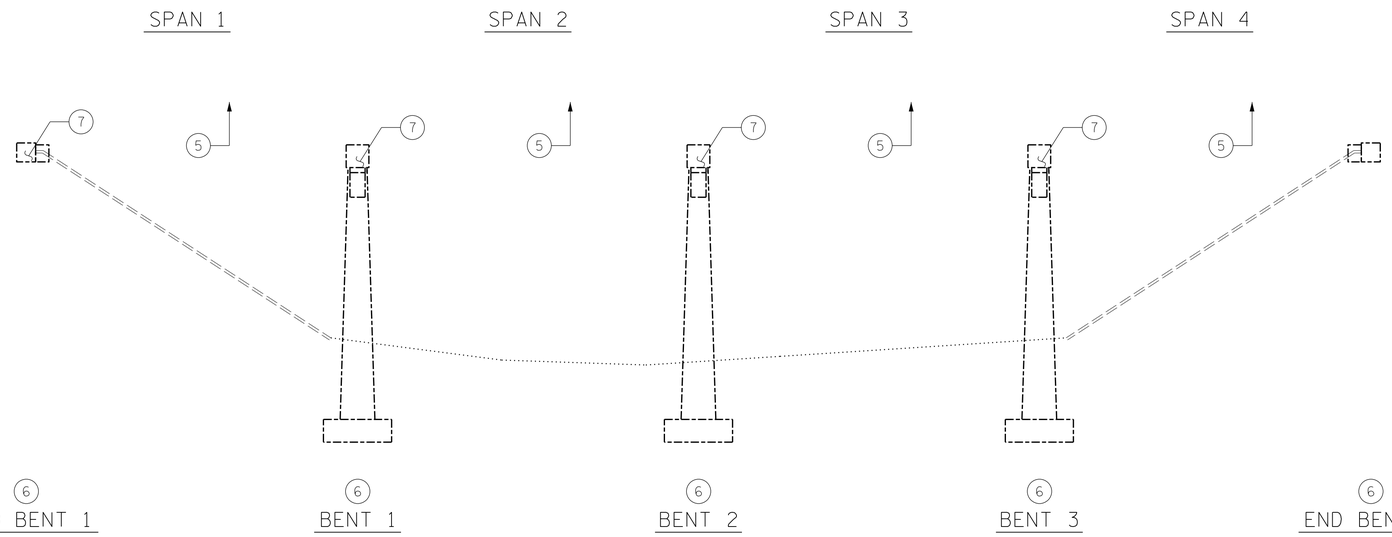
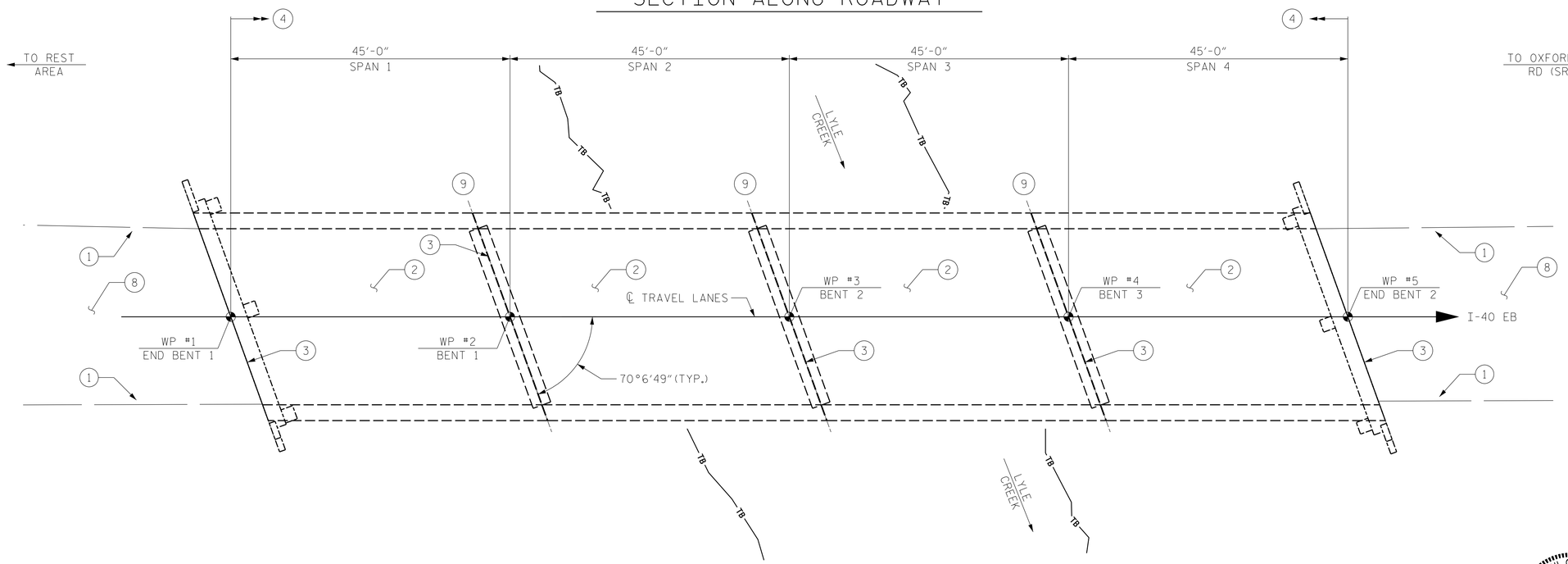


SECTION ALONG ROADWAY



PLAN

SCOPE LEGEND:

1. CLEAR SHOULDERS OF DEBRIS AND VEGETATION
2. CONCRETE DECK REPAIRS AND SILANE DECK TREATMENT
3. ASPHALT JOINT REPAIR/REPLACEMENT
4. ADD ASPHALT WEARING SURFACE
5. REINFORCED CONCRETE GIRDER REPAIRS
6. SUBSTRUCTURE CONCRETE REPAIRS
7. SUBSTRUCTURE EPOXY RESIN INJECTION
8. APPROACH ROADWAY MILLING AND RESURFACING
9. CLEAN AND PAINT EXISTING BEARINGS WITH HRCSA

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 03/20/2021.

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

RESIDENT ENGINEER DATE

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170177

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-40 EB OVER LYLE CREEK

KISINGER CAMPO & ASSOCIATES
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-1
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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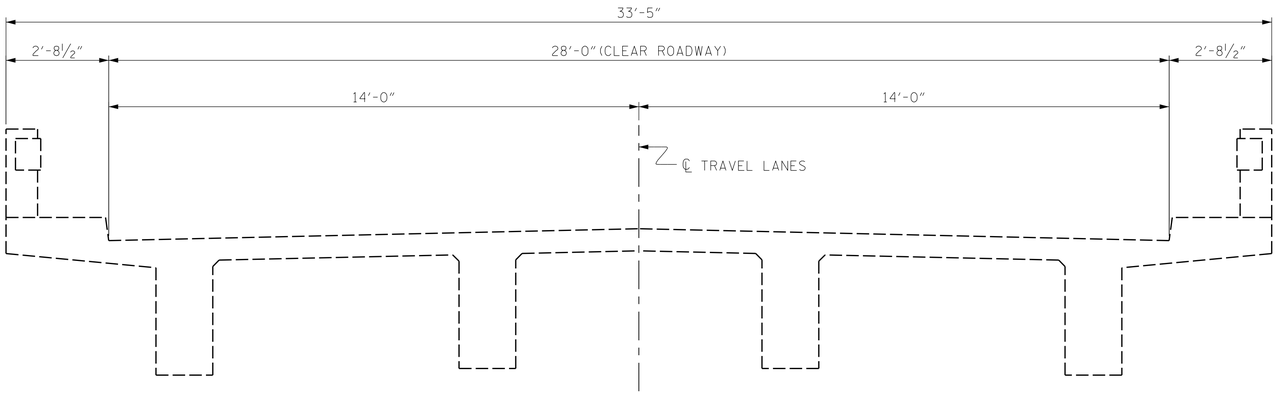
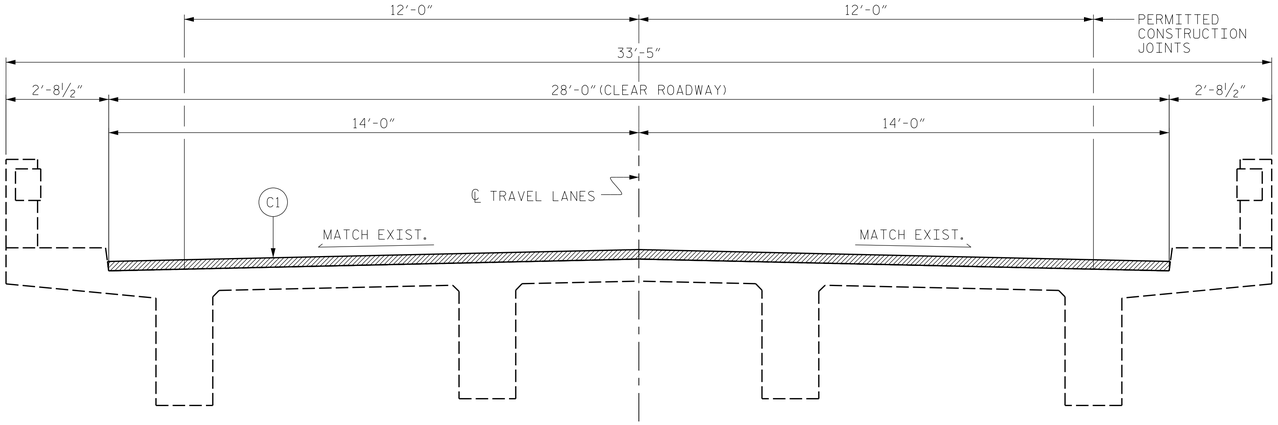


EXISTING



PROPOSED

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170177

NOTES:

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

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF ASHPALT WEARING SURFACE (AWS) OVERLAY.

FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

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

ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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DocuSigned by: Diego A Aguirre 4/29/2022 3046...

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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STATE OF NORTH CAROLINA
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RALEIGH

TYPICAL SECTION

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

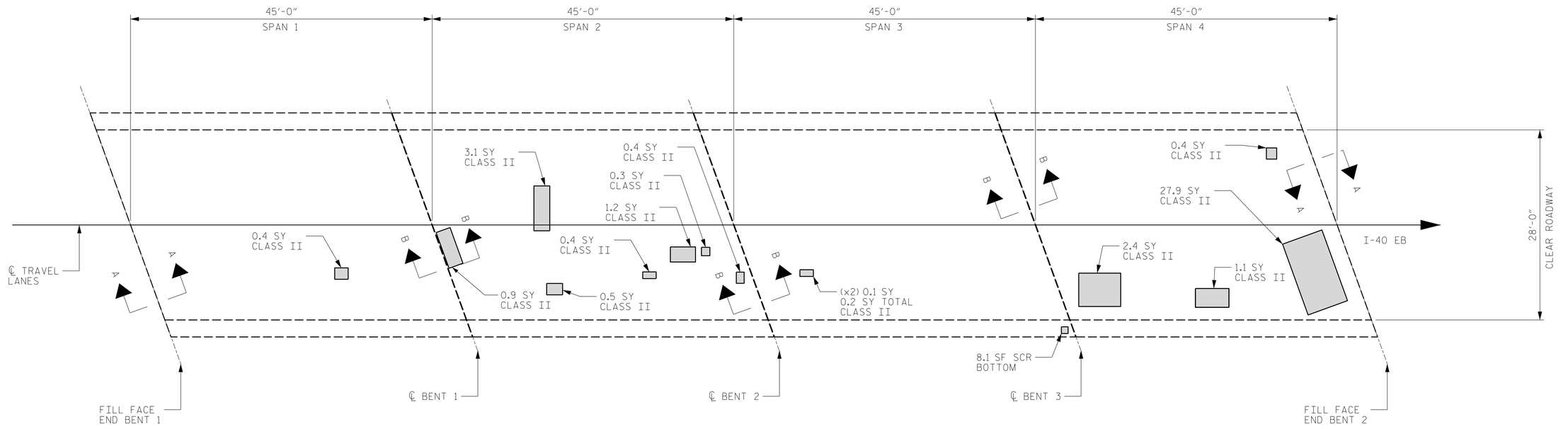
AS-BUILT REPAIR QUANTITY TABLE

DECK REPAIRS

	SPAN 1				SPAN 2				SPAN 3				SPAN 4			
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
CLASS II SURFACE PREPARATION	0.4 SY				6.8 SY				0.2 SY				31.8 SY			
CLASS III SURFACE PREPARATION	-- SY				-- SY				-- SY				-- SY			
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME
SHOTCRETE REPAIR AREA (SCR)	-- SF	-- CF			-- SF	-- CF			8.1 SF	2.7 CF			-- SF	-- CF		
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
SHOTBLASTING BRIDGE DECK	140 SY				140 SY				140 SY				140 SY			
SILANE DECK TREATMENT	140 SY				140 SY				140 SY				140 SY			

LEGEND:

SCR SHOTCRETE REPAIR AREA



PLAN

NOTES:

PRIOR TO SURFACE PREPARATION, REMOVE ALL LOOSE, DISINTEGRATED, UNSOUND OR CONTAMINATED CONCRETE FROM THE BRIDGE DECK.

BRIDGE DECK SHOTBLASTING AND SILANE SEAL LIMITS ARE THE FULL CLEAR ROADWAY WIDTH (INSIDE FACE OF EACH BRIDGE RAIL).

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR SILANE DECK TREATMENT AND SHOTBLASTING BRIDGE DECK, SEE SPECIAL PROVISIONS.

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

SILANE SEAL DECK TREATMENT

DEFECTS (SEE PLAN CALLOUT FOR DETAILS)

DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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daguirre

PROJECT NO. I-5915B
CATAWBA COUNTY
BRIDGE NO. 170177
SHEET 1 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE
DocuSigned by: Diego A Aguirre
4/29/2022

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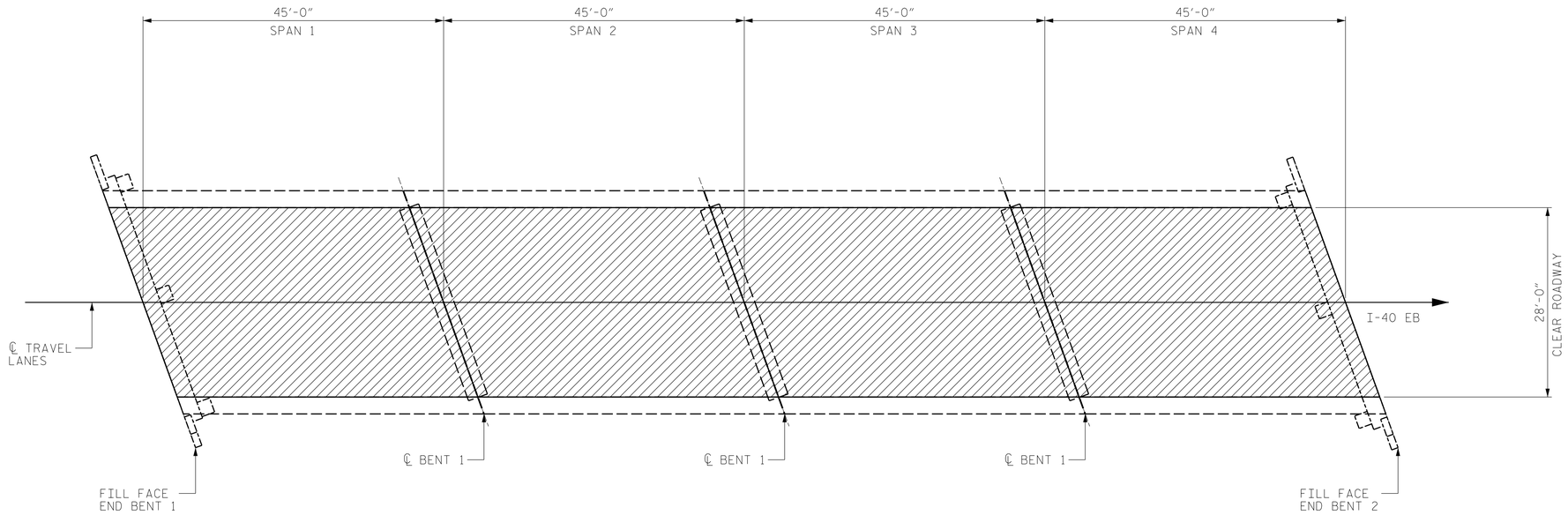
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS
DECK REPAIRS

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

AS-BUILT REPAIR QUANTITY TABLE

	SPAN 1		SPAN 2		SPAN 3		SPAN 4	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	16 TON		16 TON		16 TON		16 TON	
ASPHALT BINDER FOR PLANT MIX	1.0 TON		1.0 TON		1.0 TON		1.0 TON	



PLAN

NOTES:

WORK THIS SHEET WITH "JOINT DETAILS" SHEET.

WORK THIS SHEET WITH "TYPICAL SECTION" SHEET.

WORK THIS SHEET WITH "DECK REPAIR DETAILS" SHEET.

FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

DRAWN BY : FIDEL L. FLORES DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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dagulrre

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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PROJECT NO. I-5915B
CATAWBA COUNTY
BRIDGE NO. 170177

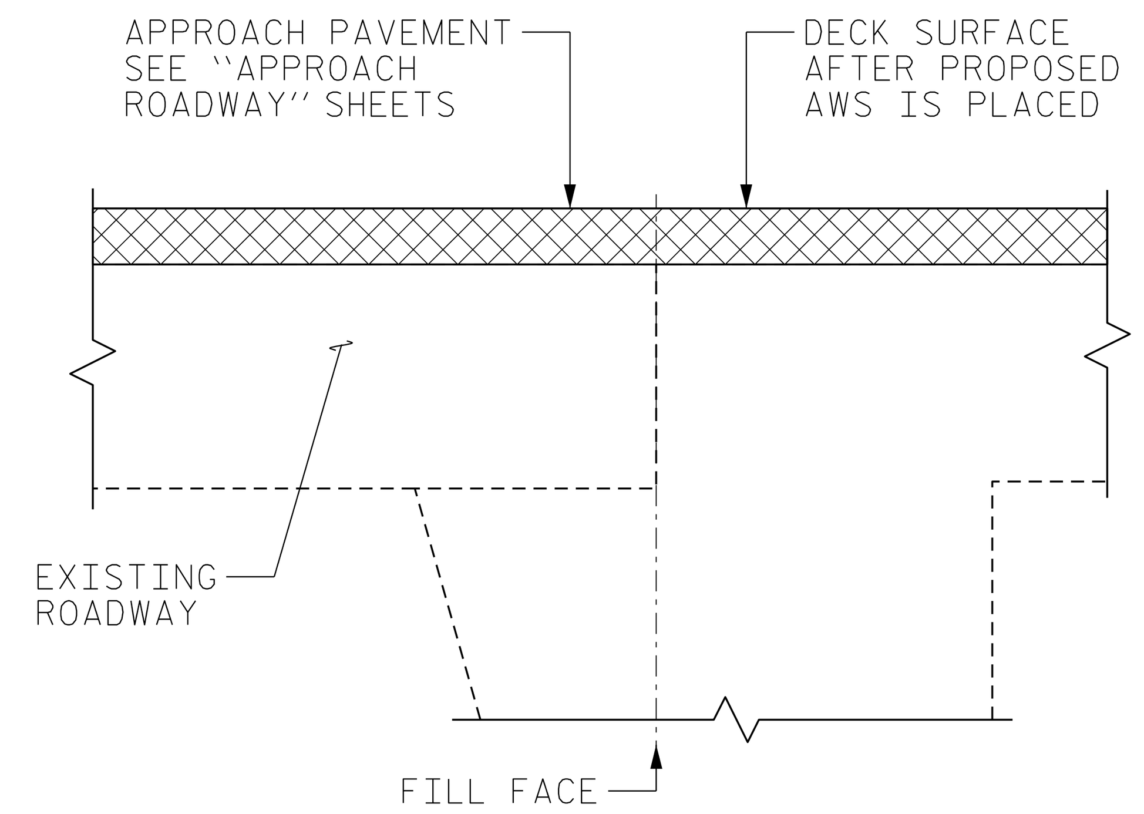
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS

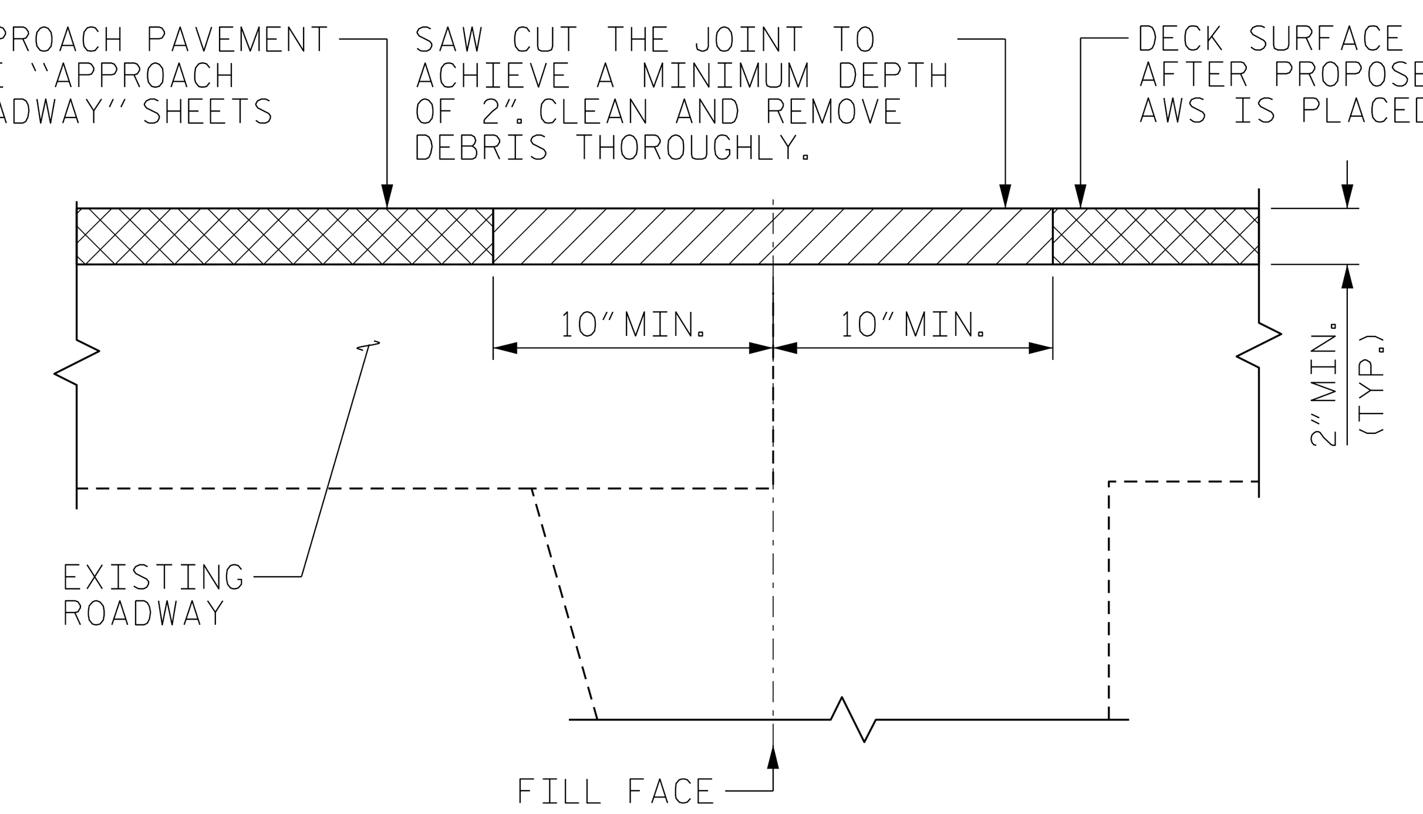
ASPHALT WEARING SURFACE

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



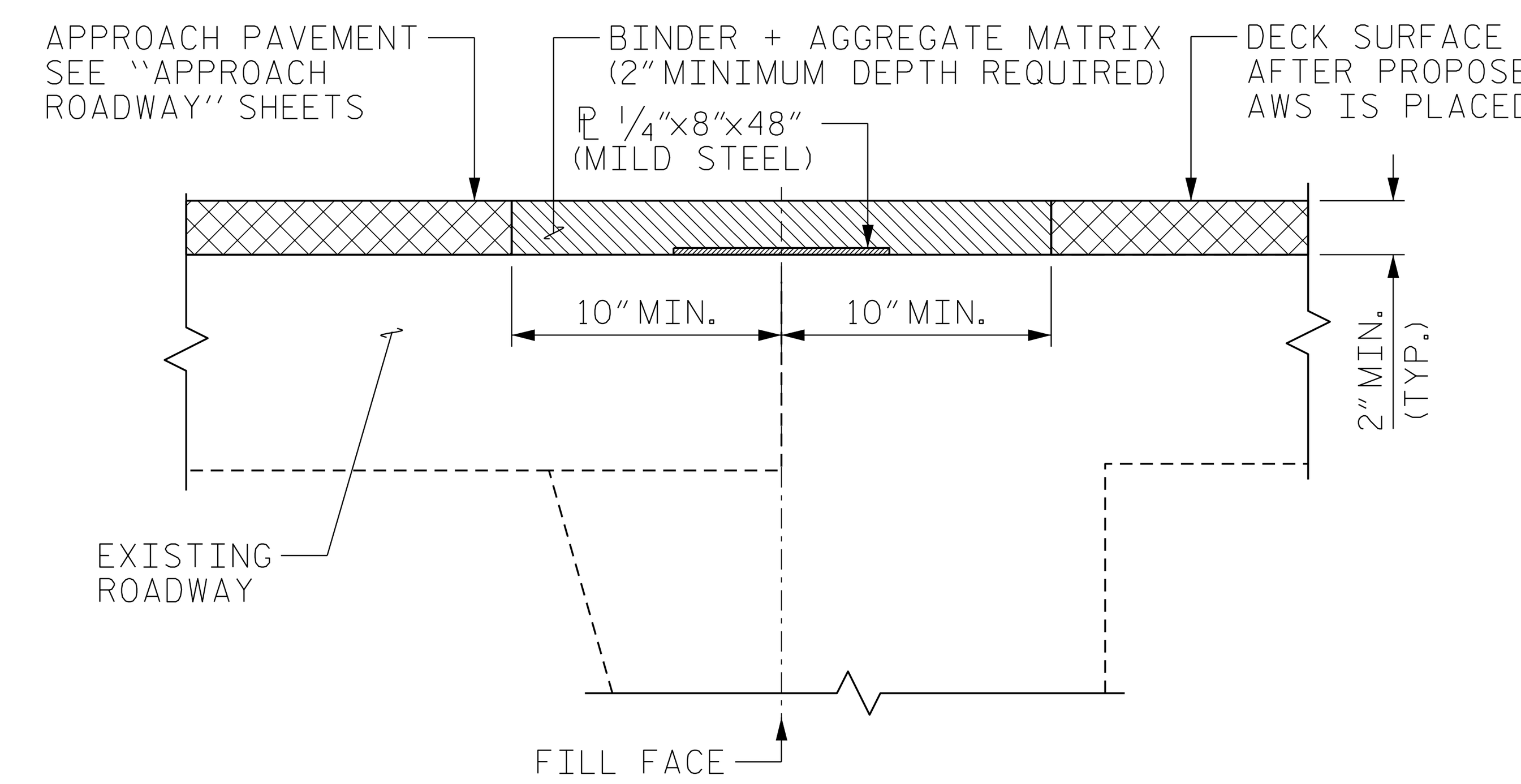
SECTION A-A

(EXISTING DETAIL, NO JOINT)



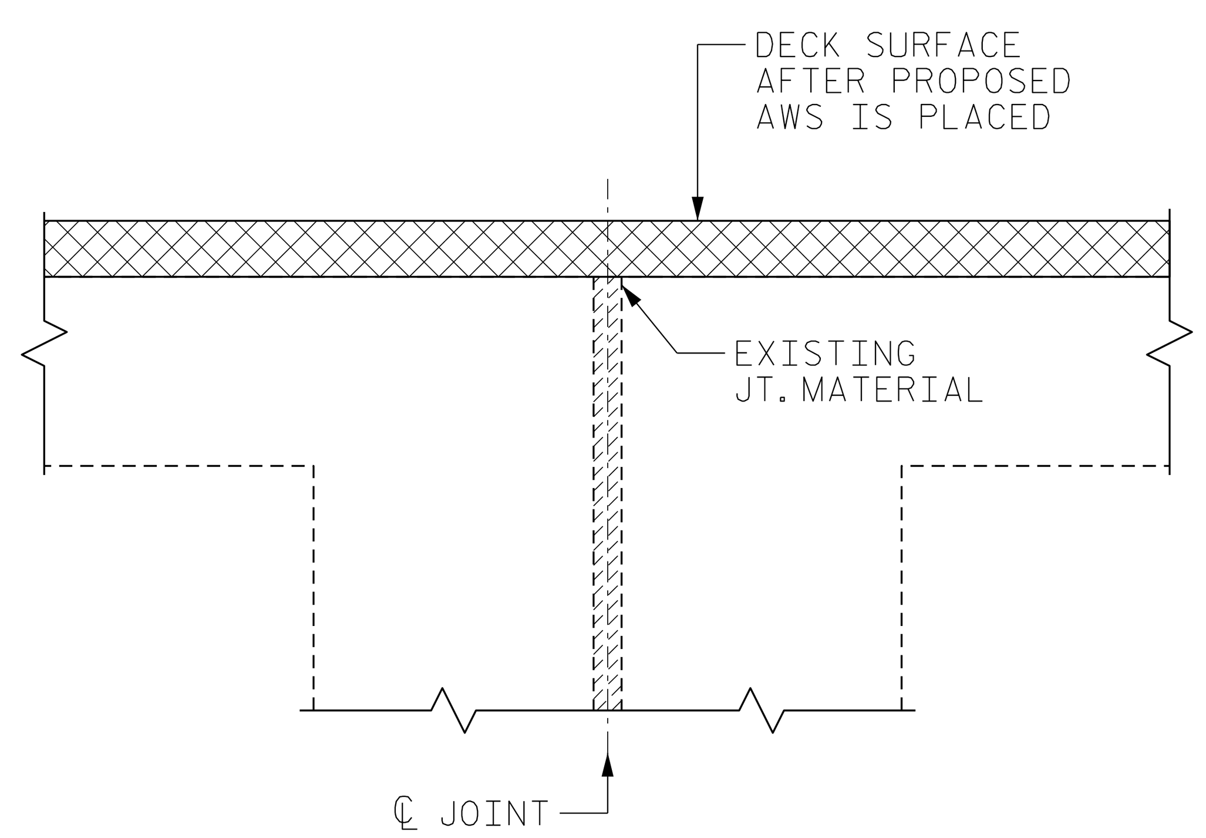
SECTION A-A

(DEMOLITION PREPARATION)



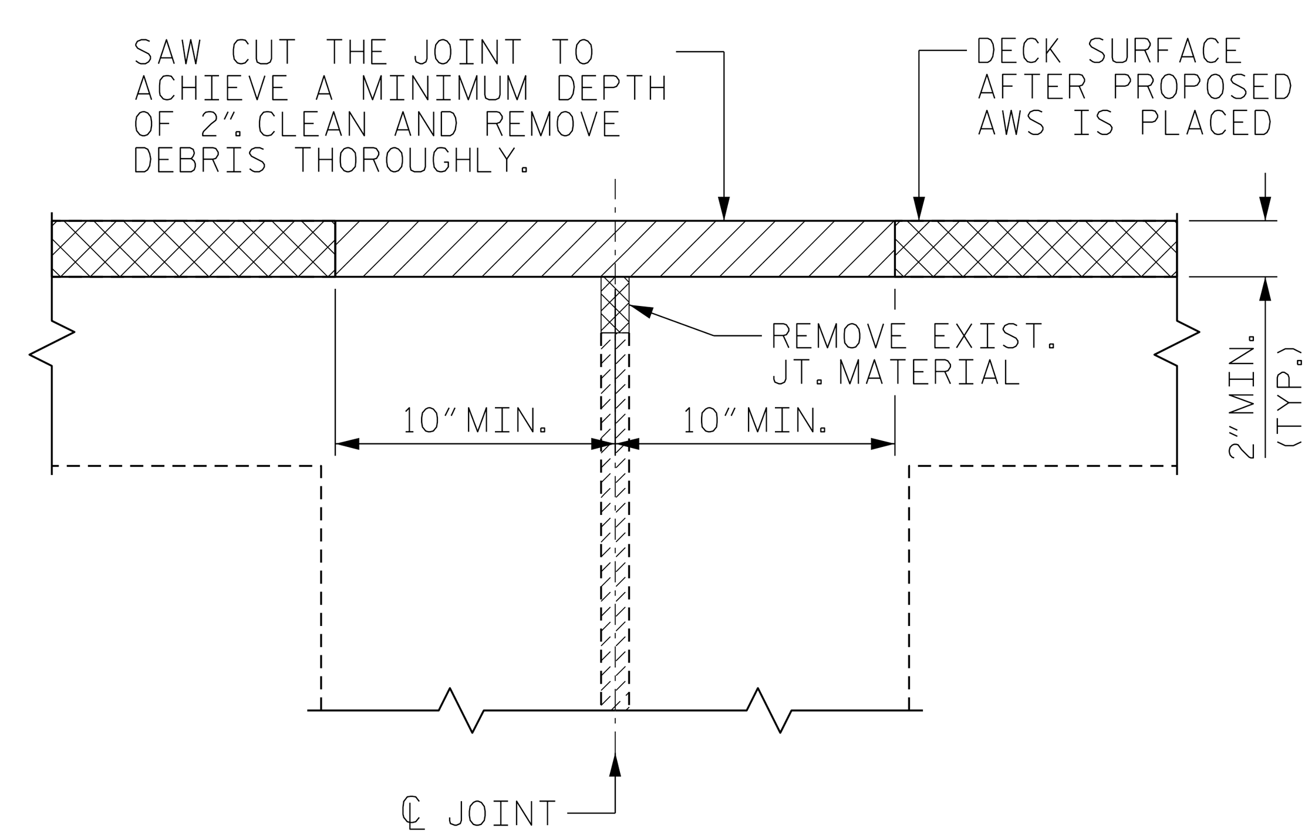
SECTION A-A

(PROPOSED JOINT)



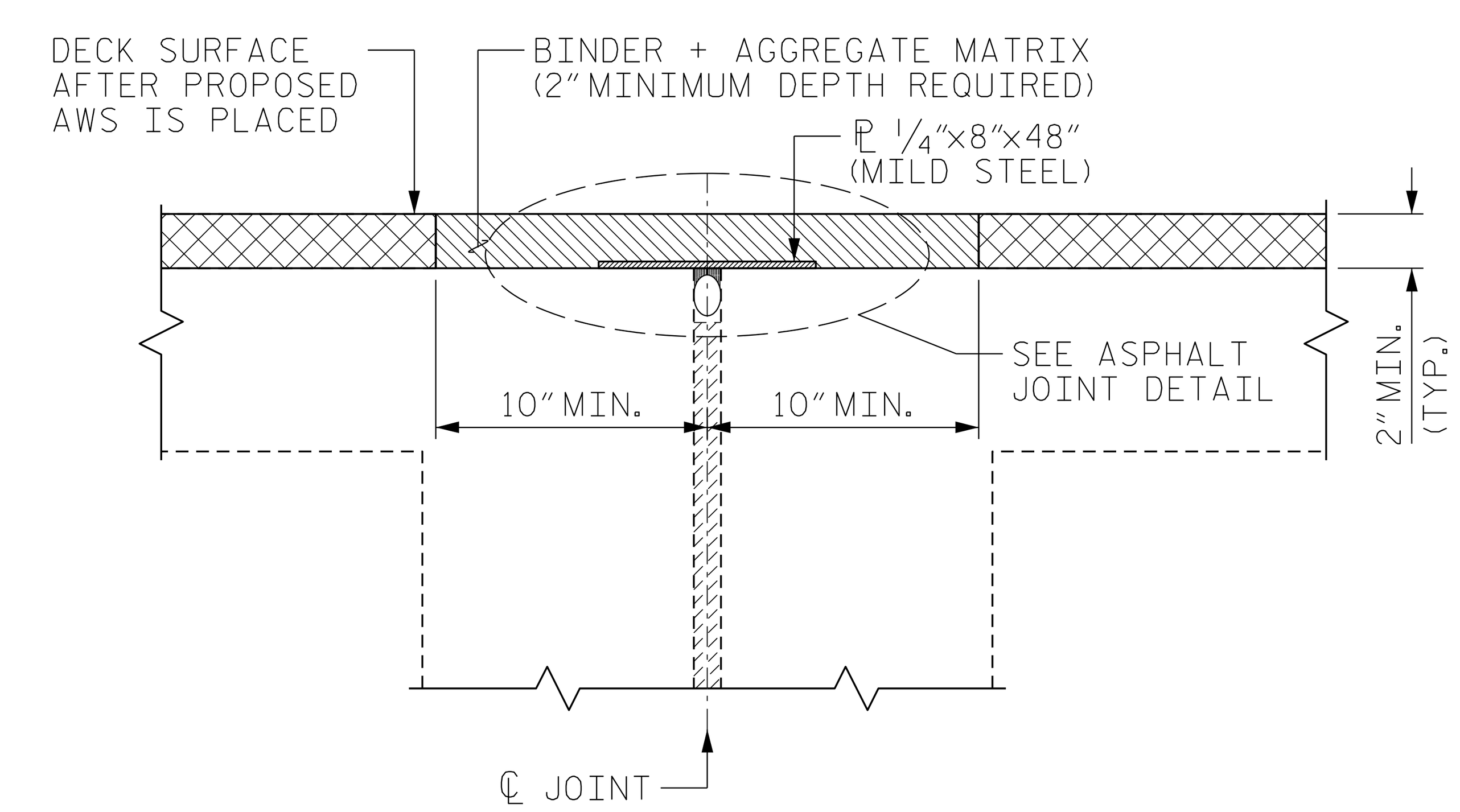
SECTION B-B

(EXISTING JOINT AFTER AWS IS PLACED)



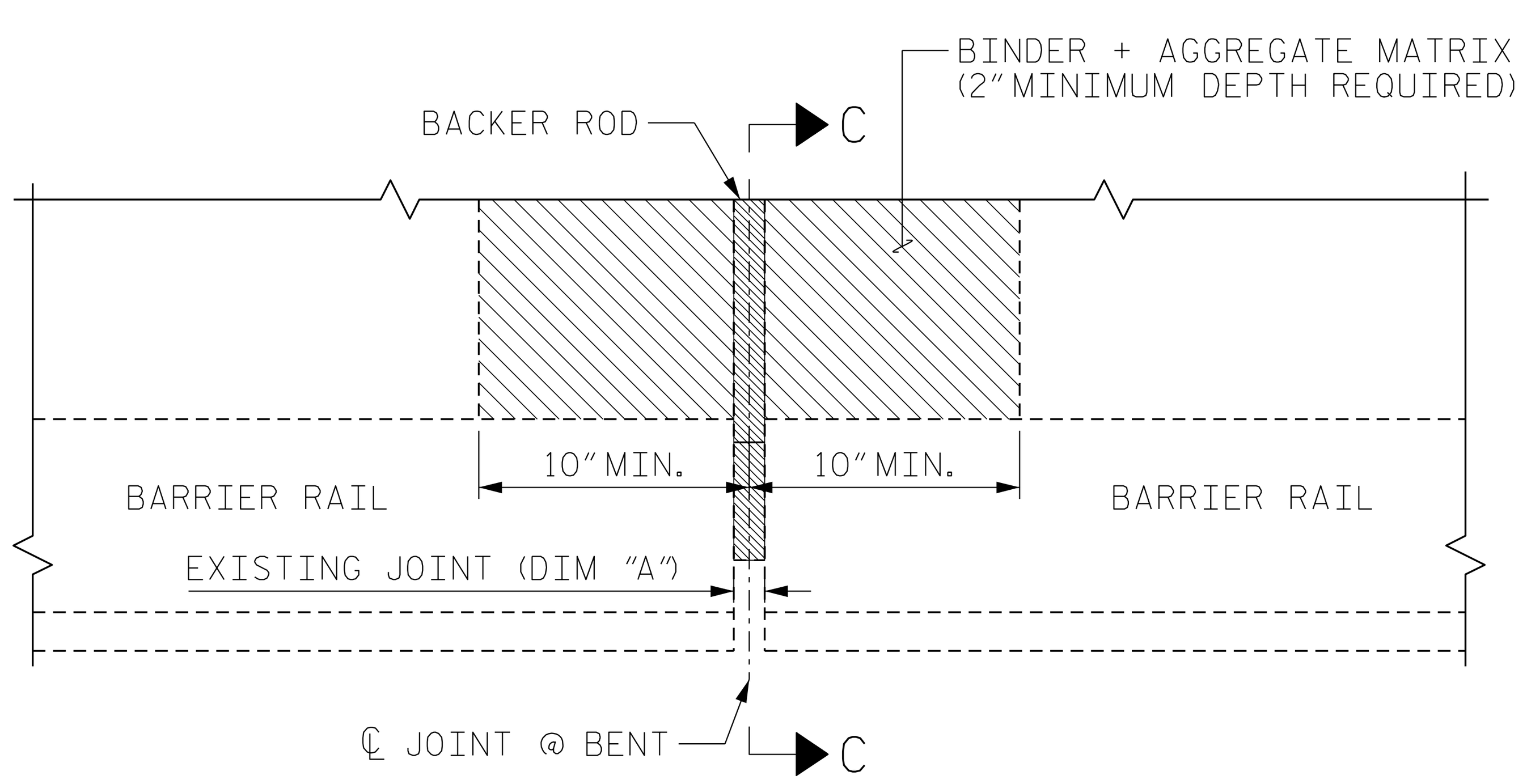
SECTION B-B

(DEMOLITION PREPARATION)



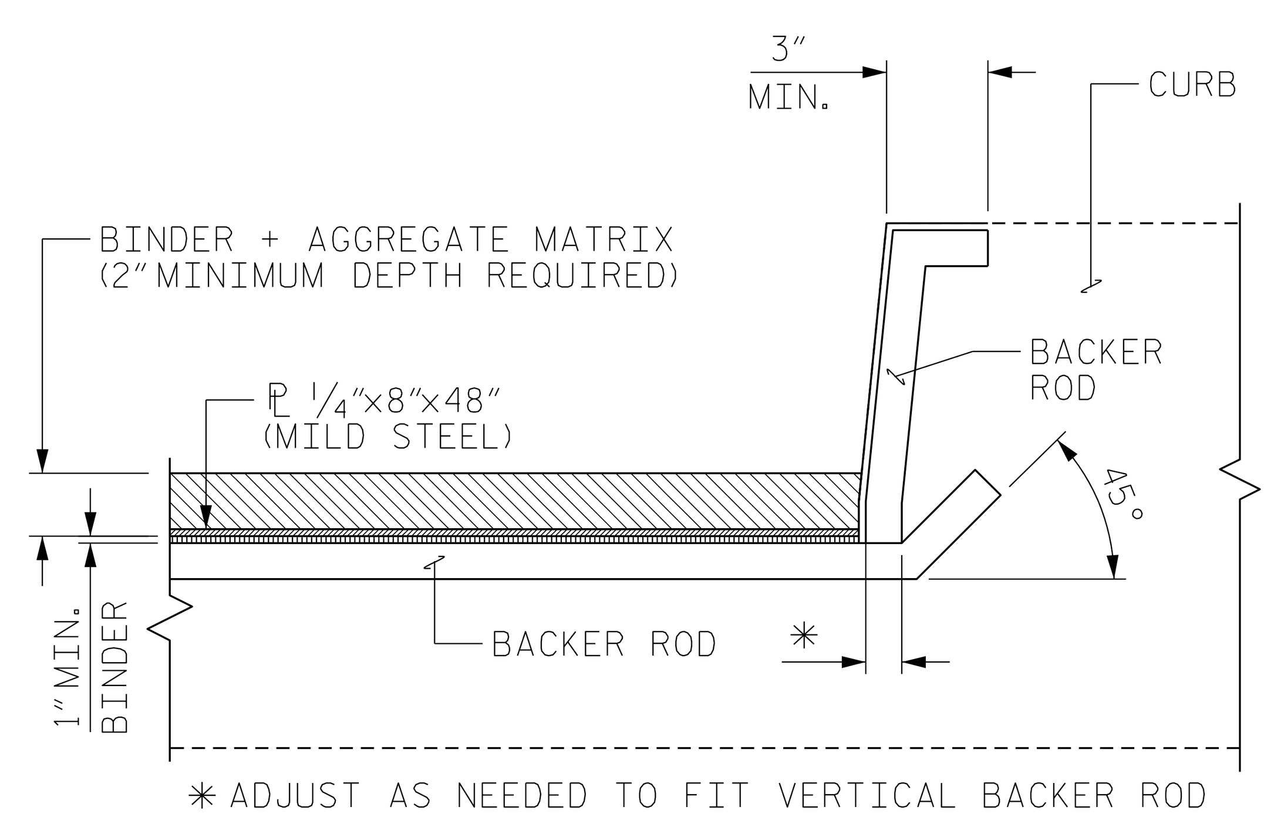
SECTION B-B

(PROPOSED JOINT)



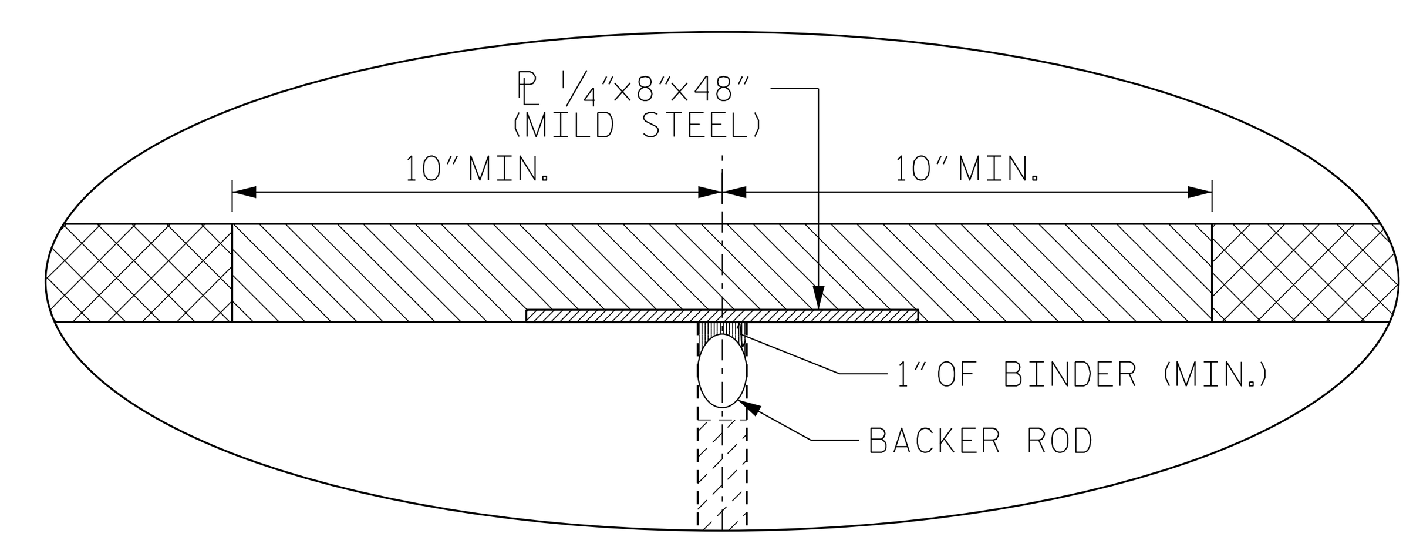
PLAN AT BARRIER

(PROPOSED JOINT SEAL, STEEL ℄ NOT SHOWN FOR CLARITY)



SECTION C-C

(PROPOSED JOINT SEAL)



ASPHALT JOINT DETAIL

NOTES:

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

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REPAIR OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRDIGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRATCTOR 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 BACKER ROD AND SILICONE SEALANT SHALL BE WATER TIGHT.

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DECK DEMOLITION, CONCRETE FOR DECK REPAIRS SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT BOTTOM OF THE PROPOSED ASPHALT JOINT DETAIL SHOWN.

DEMOLISH BRIDGE JOINT AREA SUCH THAT THE BOTTOM OF THE EXCAVATION SHALL BE REASONABLY FLAT AND LEVEL AND TO THE NECESSARY DEPTH, SUCH THAT ASPHALT JOINT SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE.

PRIOR TO ASPHALT JOINT REPAIR/REPLACEMENT, PERFORM DECK SURFACE REPAIRS IN ACCORDANCE WITH "PLAN OF SPAN" SHEETS.

BACKER ROD SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.

FOR ASPHALT JOINT REPAIR/REPLACEMENT, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

PROPOSED JOINT QUANTITY

	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
ASPHALT JOINT REPAIR/REPLACEMENT	156.4	

PROJECT NO. I-5915B
CATAWBA COUNTY
BRIDGE NO. 170177

TABLE 1

Table Date 02-2022

BENT/ JOINTS	DIM "A" @ 60°F
END BENT 1	1 1/2"
1	1"
2	1"
3	1"
END BENT 2	3/4"

DocuSigned by: Diego A. Aguirre 5/5/2022
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048223 DIEGO A. AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
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STATE OF NORTH CAROLINA
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RALEIGH

JOINT DETAILS

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

SHEET NO. S3-5
TOTAL SHEETS 11

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

5/5/2022
I5915B_SMU_JT01_170177.dgn
daguirre

AS-BUILT REPAIR QUANTITY TABLE

	ESTIMATE	ACTUAL
INCIDENTAL MILLING	1402 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	197 TON	
ASPHALT BINDER FOR PLANT MIX	11.9 TON	

NOTES:

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

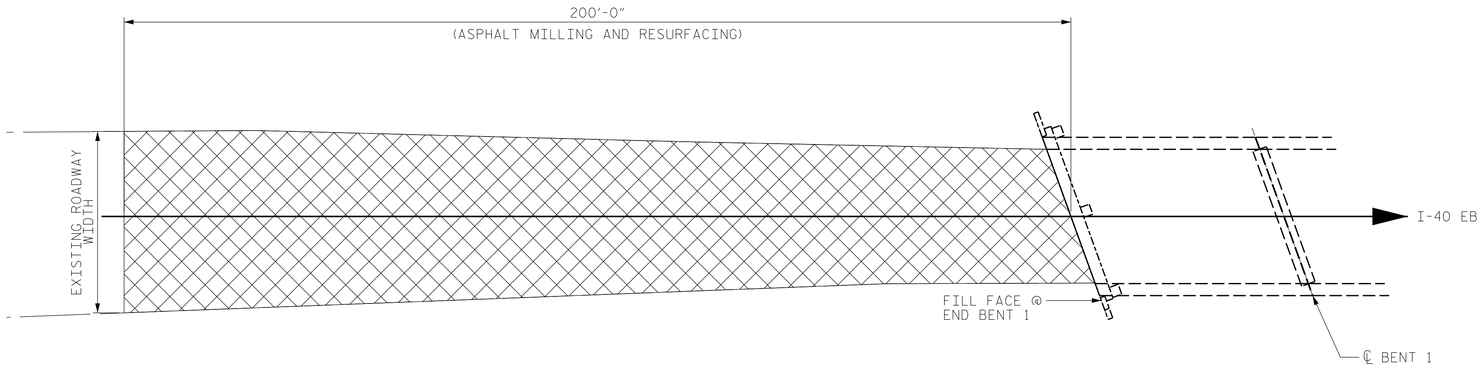
FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.

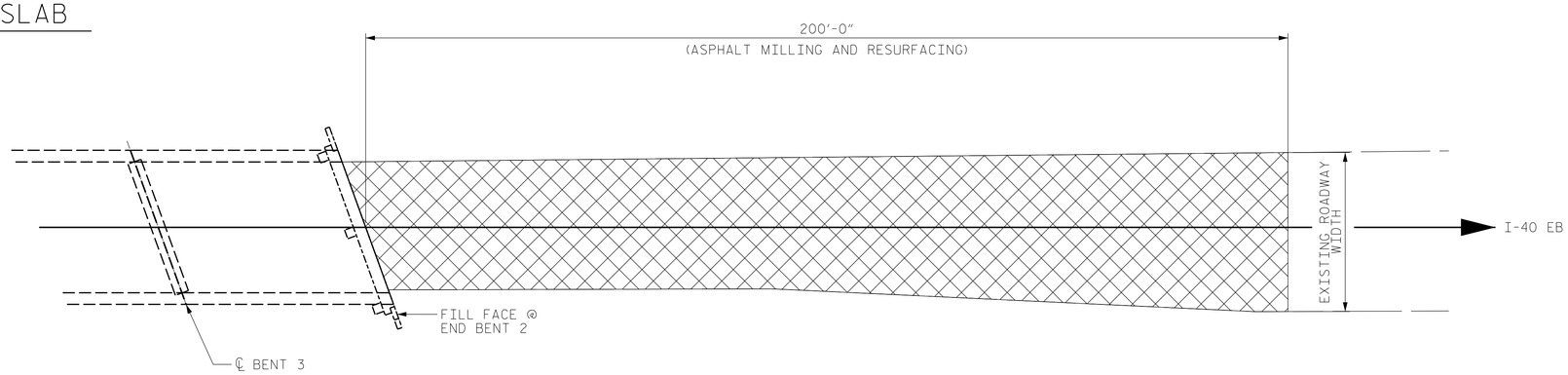
C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 2" IN DEPTH.

INCIDENTAL MILLING

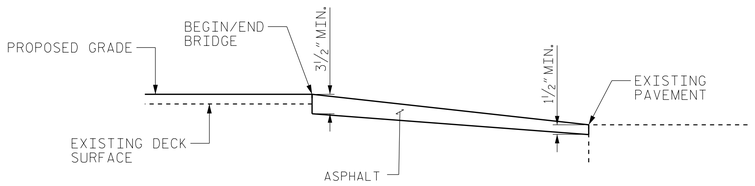
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C (C1)



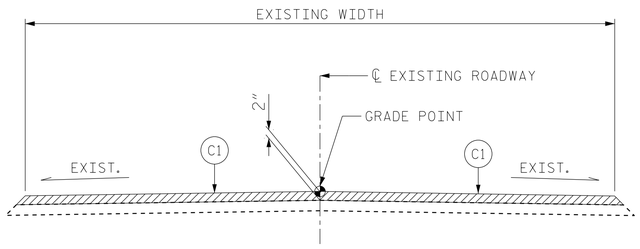
BEGIN APPROACH SLAB



END APPROACH SLAB



PAVEMENT KEY-IN DETAIL FOR BOTH END BENTS



ROADWAY SECTION

BEGIN/END BRIDGE

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170177

DocuSigned by: Diego A. Aguirre 4729/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A. AGUIRRE

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RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH ROADWAY

MILLING AND RESURFACING

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-6
1			3			TOTAL SHEETS
2			4			11

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DRAWN BY : FIDEL L. FLORES DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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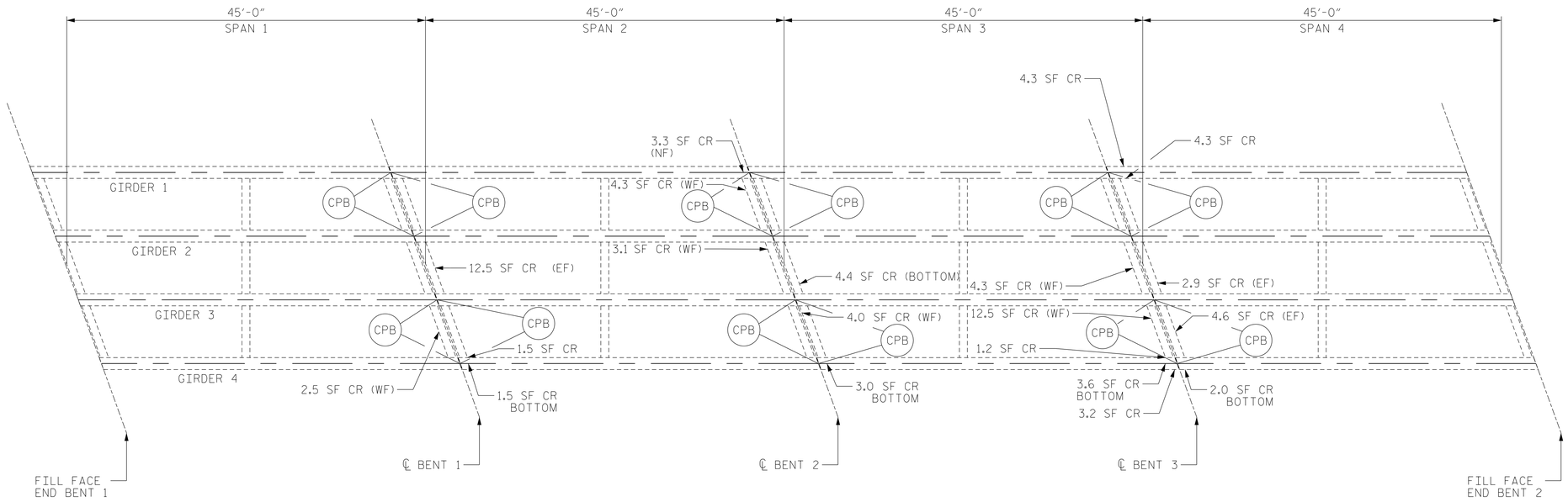
daguirre

AS-BUILT REPAIR QUANTITY TABLE

SUPERSTRUCTURE REPAIRS

	SPAN 1				SPAN 2				SPAN 3				SPAN 4			
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	
CONCRETE REPAIR AREA (CR)	2.5 SF	0.9 CF			26.2 SF	8.9 CF			36.2 SF	17.0 CF			18.0 SF	8.0 CF		
SHOTCRETE REPAIR AREA (SCR)	-- SF	-- CF			-- SF	-- CF			-- SF	-- CF			-- SF	-- CF		
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
CLEANING & PAINTING EXISTING BEARINGS WITH HRSCA	4 EA				8 EA				8 EA				4 EA			



PLAN

NOTES:

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

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS >= 1/16" AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

LEGEND:

CR	CONCRETE REPAIR
SCR	SHOTCRETE REPAIR
CPB	CLEAN AND PAINT BEARINGS
NF	NORTH FACE
SF	SOUTH FACE
WF	WEST FACE
EF	EAST FACE

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170177

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048223 DIEGO A AGUIRRE

DocuSigned by: Diego A Aguirre 4/29/2022

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RALEIGH

SUPERSTRUCTURE REPAIRS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-7
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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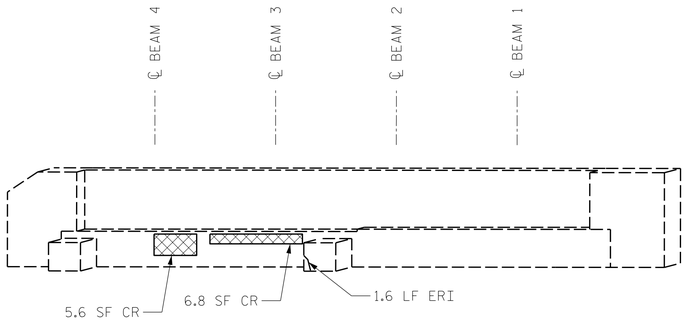
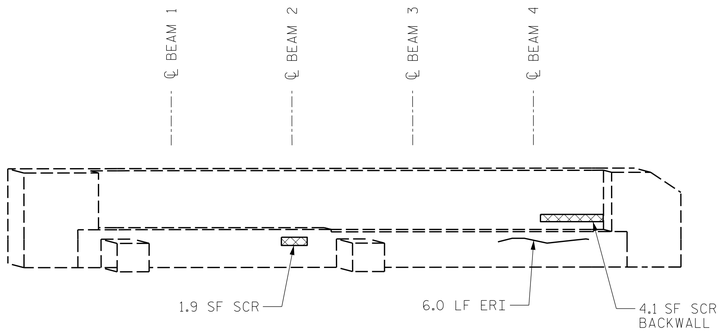


END BENT 1

(EAST FACE)



END BENT 2

(WEST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	6.0	2.1		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	12.4	6.5		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	7.6			
COLUMN/PILE	-			

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

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170177

SHEET 1 OF 4

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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NC FIRM LICENSE: C-1506

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DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

END BENTS 1 & 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-8
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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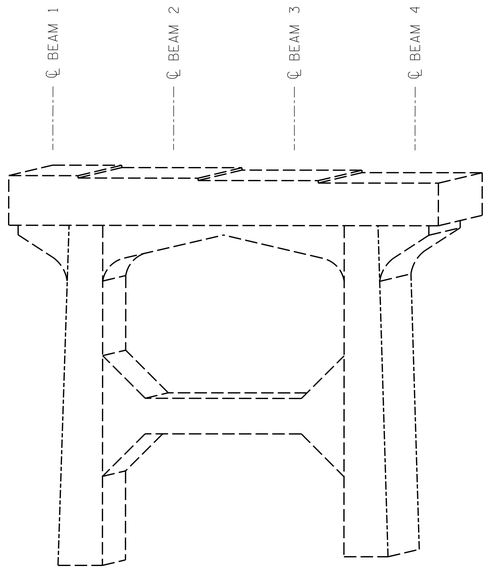
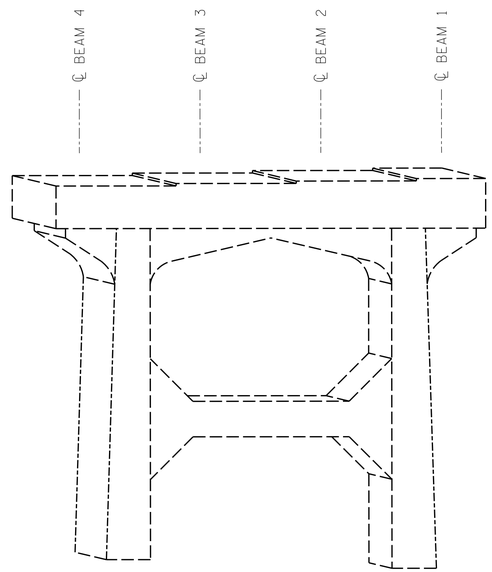


BENT 1

(WEST FACE)



BENT 1

(EAST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	-			
COLUMN/PILE	-			

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

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REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170177

SHEET 2 OF 4

DocuSigned by: Diego A Aguirre 4729/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-9
1			3			TOTAL SHEETS
2			4			11

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DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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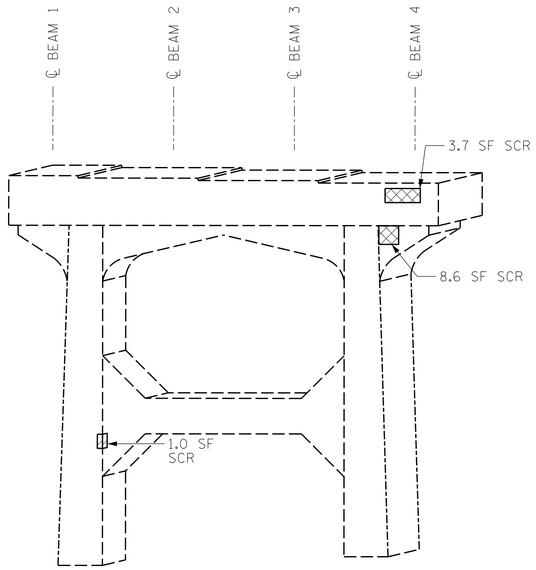
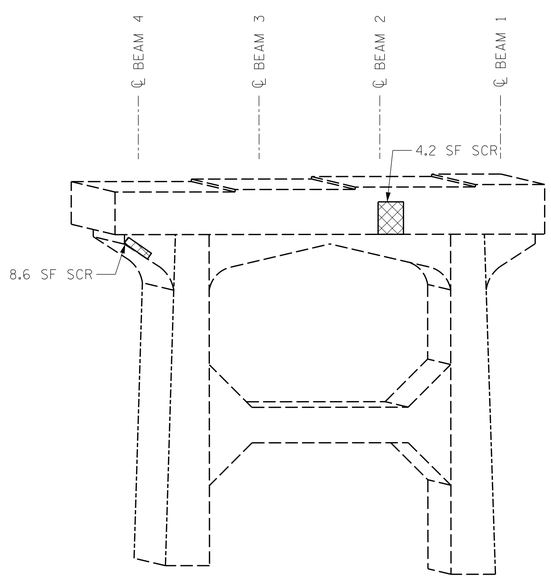


BENT 2

(WEST FACE)



BENT 2

(EAST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	25.1	8.5		
COLUMN/PILE	1.0	0.5		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	-			
COLUMN/PILE	-			

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

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PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170177

SHEET 3 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

DocuSigned by: Diego A Aguirre 4/29/2022

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NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-10
1			3			TOTAL SHEETS
2			4			11

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DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
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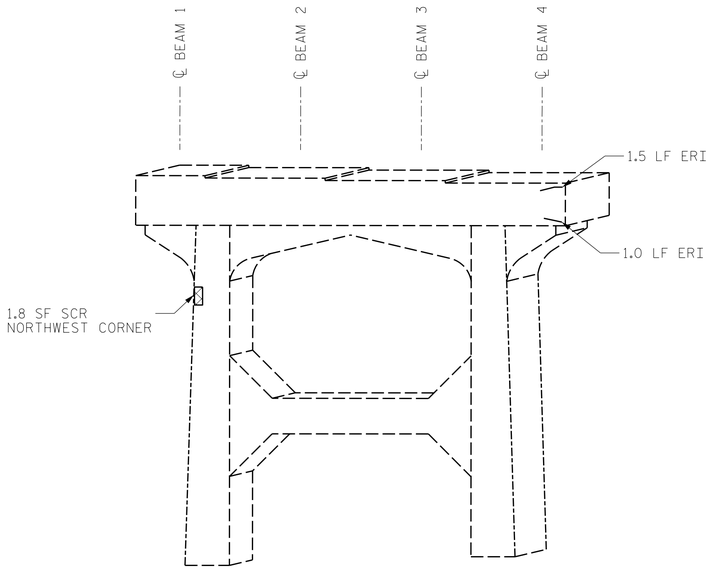
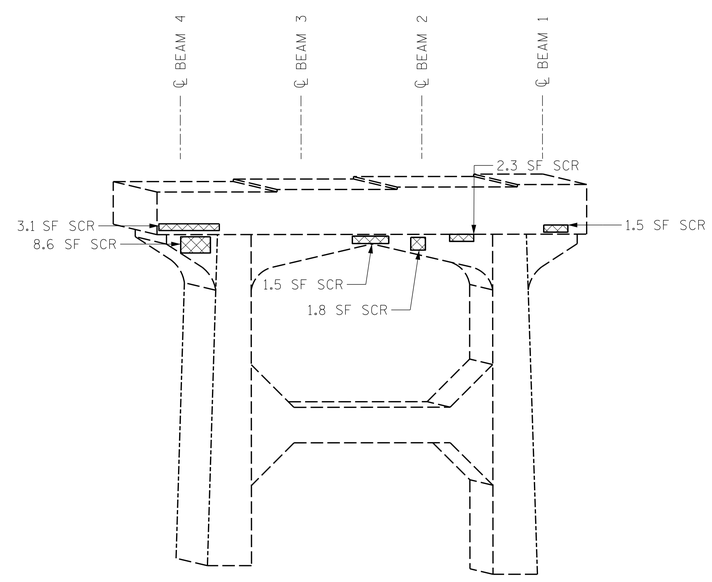


BENT 3

(WEST FACE)



BENT 3

(EAST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	18.8	6.4		
COLUMN/PILE	1.8	0.6		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	2.5			
COLUMN/PILE	-			

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

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PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170177

SHEET 4 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

DocuSigned by: Diego A Aguirre 4/29/2022

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 3

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

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DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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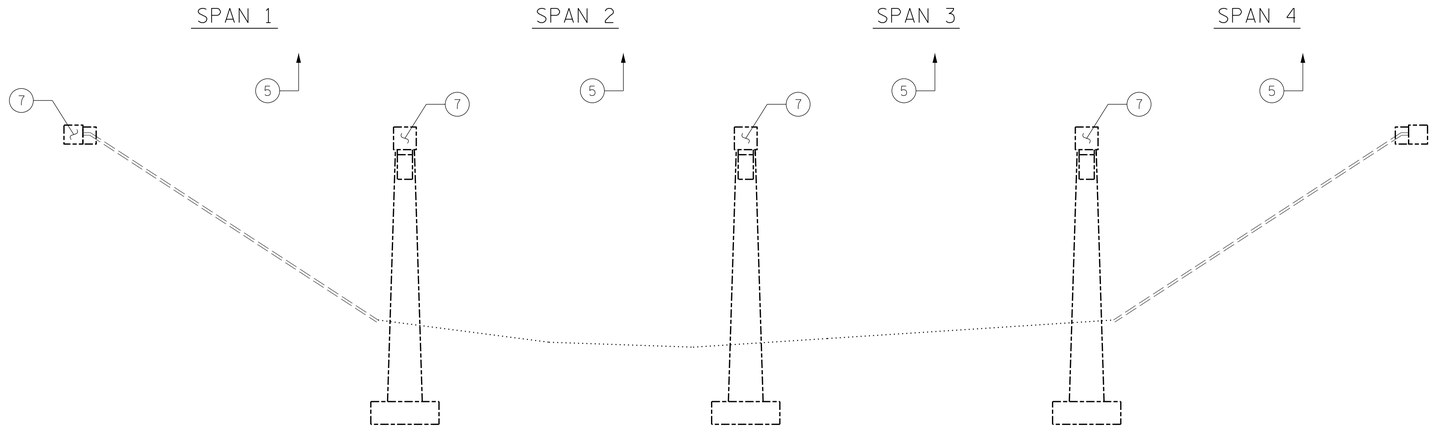
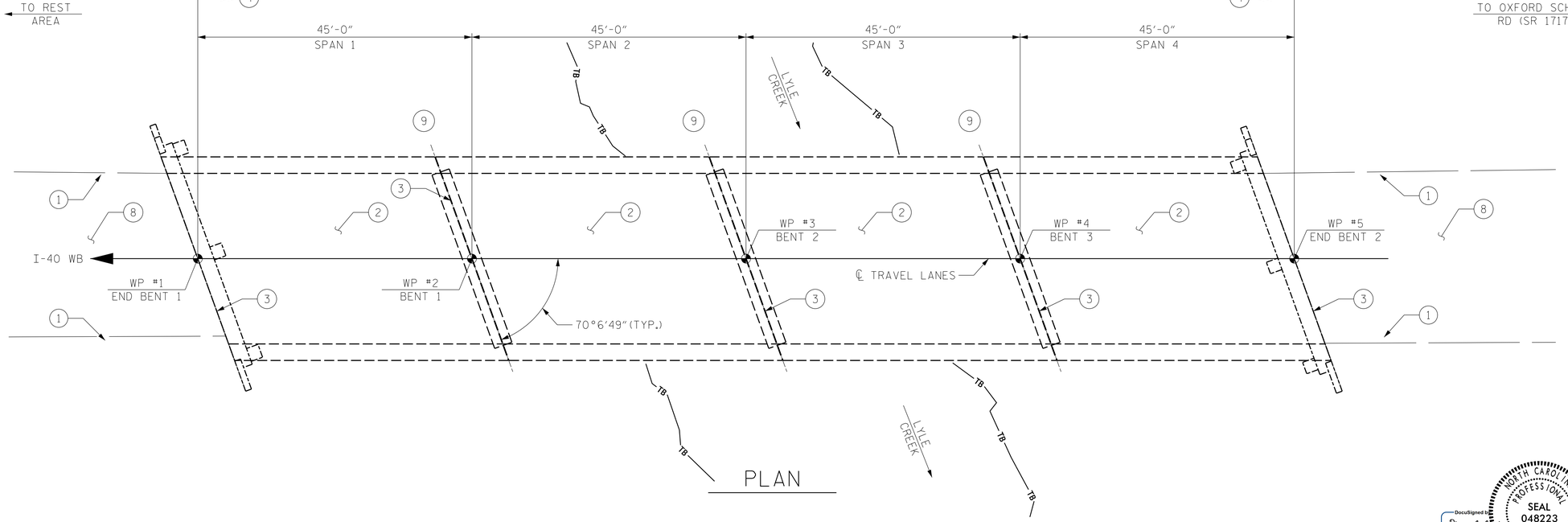
dagulrre



SECTION ALONG ROADWAY

SCOPE LEGEND:

1. CLEAR SHOULDERS OF DEBRIS AND VEGETATION
2. CONCRETE DECK REPAIRS
3. ASPHALT JOINT REPAIR/REPLACEMENT (TYP.)
4. ADD ASPHALT WEARING SURFACE
5. REINFORCED CONCRETE GIRDER REPAIRS
6. SUBSTRUCTURE CONCRETE REPAIRS
7. SUBSTRUCTURE EPOXY RESIN INJECTION
8. APPROACH ROADWAY MILLING AND RESURFACING
9. CLEAN AND PAINT EXISTING BEARINGS WITH HRSCA



PLAN

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

RESIDENT ENGINEER DATE

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170178

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 03/21/2021.

DocuSigned by: Diego A. Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
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RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-40 WB OVER LYLE CREEK

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-1
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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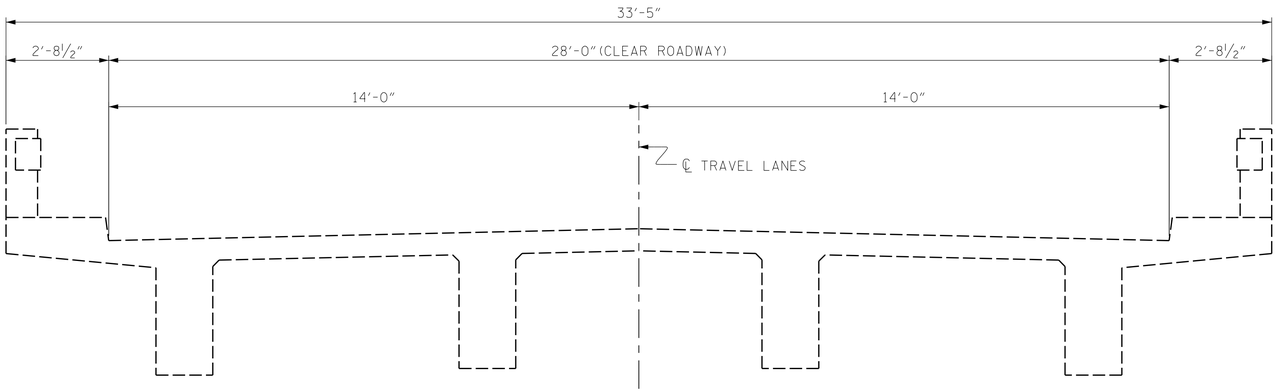
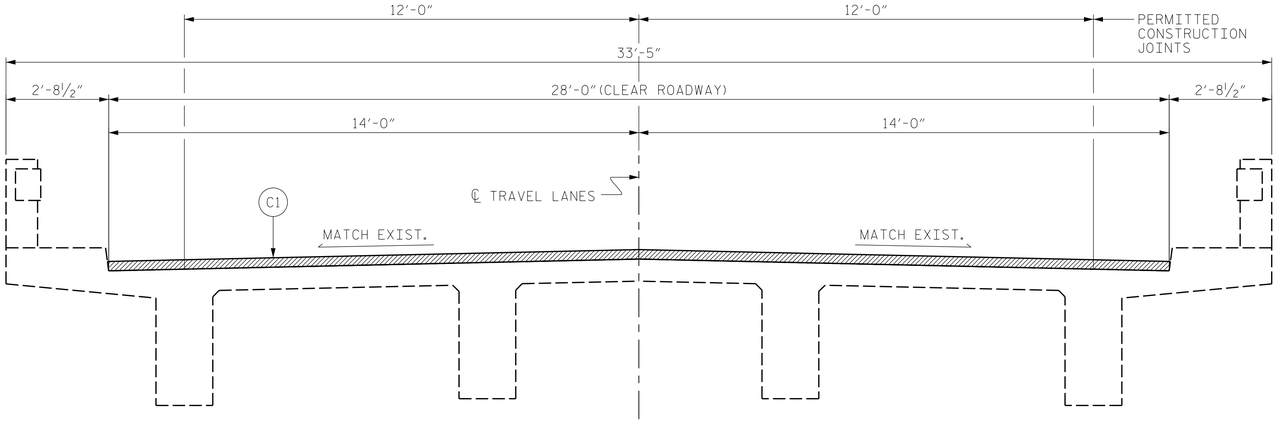


EXISTING



PROPOSED

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170178

NOTES:

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

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF ASHPALT WEARING SURFACE (AWS) OVERLAY.

FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

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

ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

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NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-2
1			3			TOTAL SHEETS
2			4			11

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DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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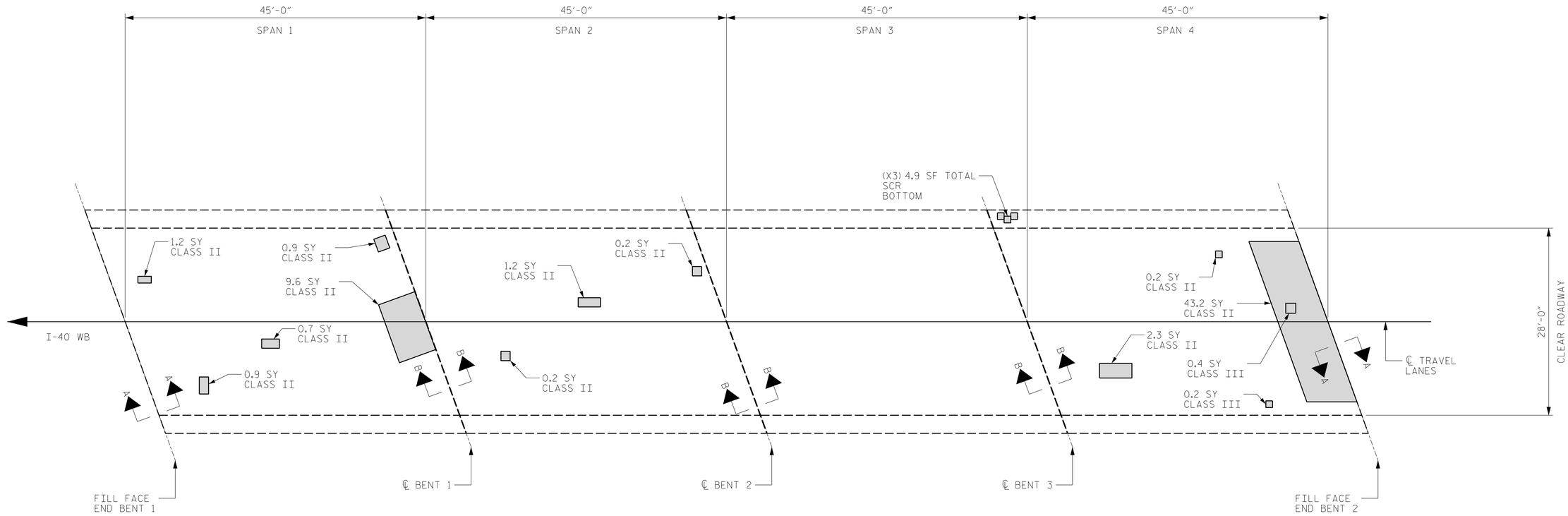
AS-BUILT REPAIR QUANTITY TABLE

DECK REPAIRS

	SPAN 1				SPAN 2				SPAN 3				SPAN 4			
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
CLASS II SURFACE PREPARATION	13.3 SY				1.6 SY				-- SY				45.7 SY			
CLASS III SURFACE PREPARATION	-- SY				-- SY				-- SY				0.6 SY			
	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME
SHOTCRETE REPAIR AREA (SCR)	-- SF	-- CF			-- SF	-- CF			-- SF	-- CF			4.9 SF	1.7 CF		

LEGEND:

SCR SHOTCRETE REPAIR



PLAN

NOTES:

PRIOR TO SURFACE PREPARATION, REMOVE ALL LOOSE, DISINTEGRATED, UNSOUND OR CONTAMINATED CONCRETE FROM THE BRIDGE DECK.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR SCARIFYING BRIDGE DECK, SEE OVERLAY SURFACE PREPARATION SPECIAL PROVISION.

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

DEFECTS (SEE PLAN CALLOUT FOR DETAILS)

DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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PROJECT NO. I-5915B
CATAWBA COUNTY
BRIDGE NO. 170178
SHEET 1 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE
DocuSigned by: Diego A. Aguirre 4/29/2022

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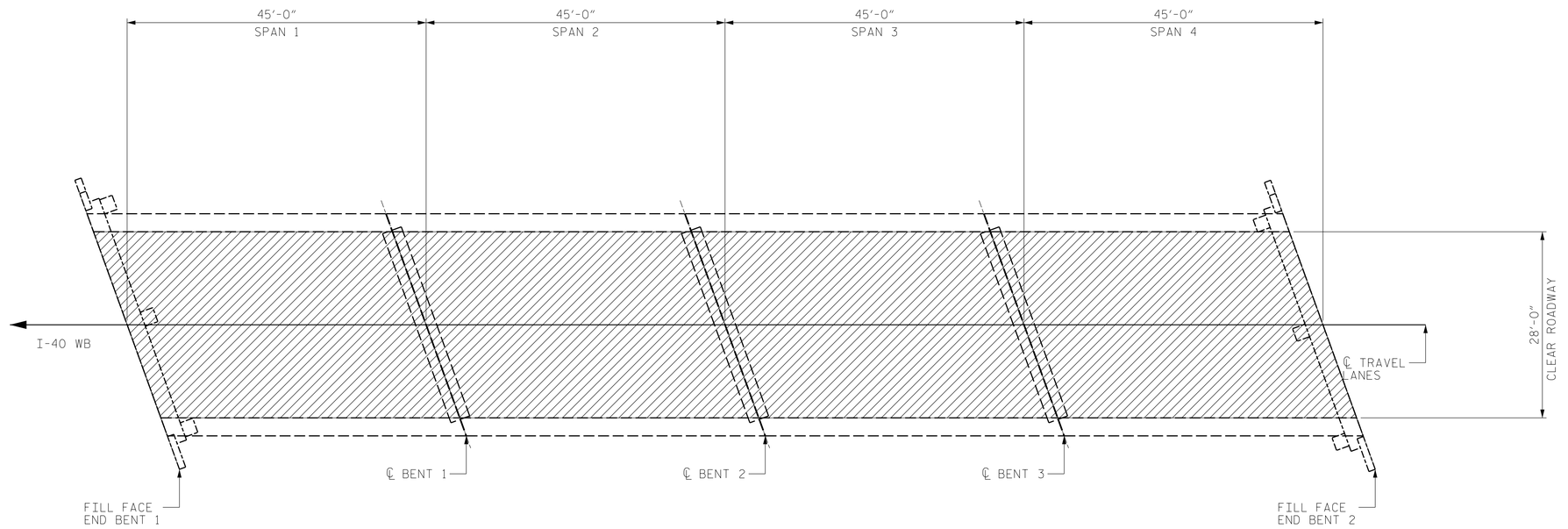
RALEIGH

PLAN OF SPANS
DECK REPAIRS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-3
1			3			TOTAL SHEETS
2			4			11

AS-BUILT REPAIR QUANTITY TABLE

	SPAN 1		SPAN 2		SPAN 3		SPAN 4	
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	16 TON		16 TON		16 TON		16 TON	
ASPHALT BINDER FOR PLANT MIX	1.0 TON		1.0 TON		1.0 TON		1.0 TON	



PLAN

NOTES:

WORK THIS SHEET WITH "JOINT DETAILS" SHEET.

WORK THIS SHEET WITH "TYPICAL SECTION" SHEET.

WORK THIS SHEET WITH "DECK REPAIR DETAILS" SHEET.

FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

DRAWN BY : FIDEL L. FLORES DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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PROJECT NO. I-5915B
CATAWBA COUNTY
BRIDGE NO. 170178
SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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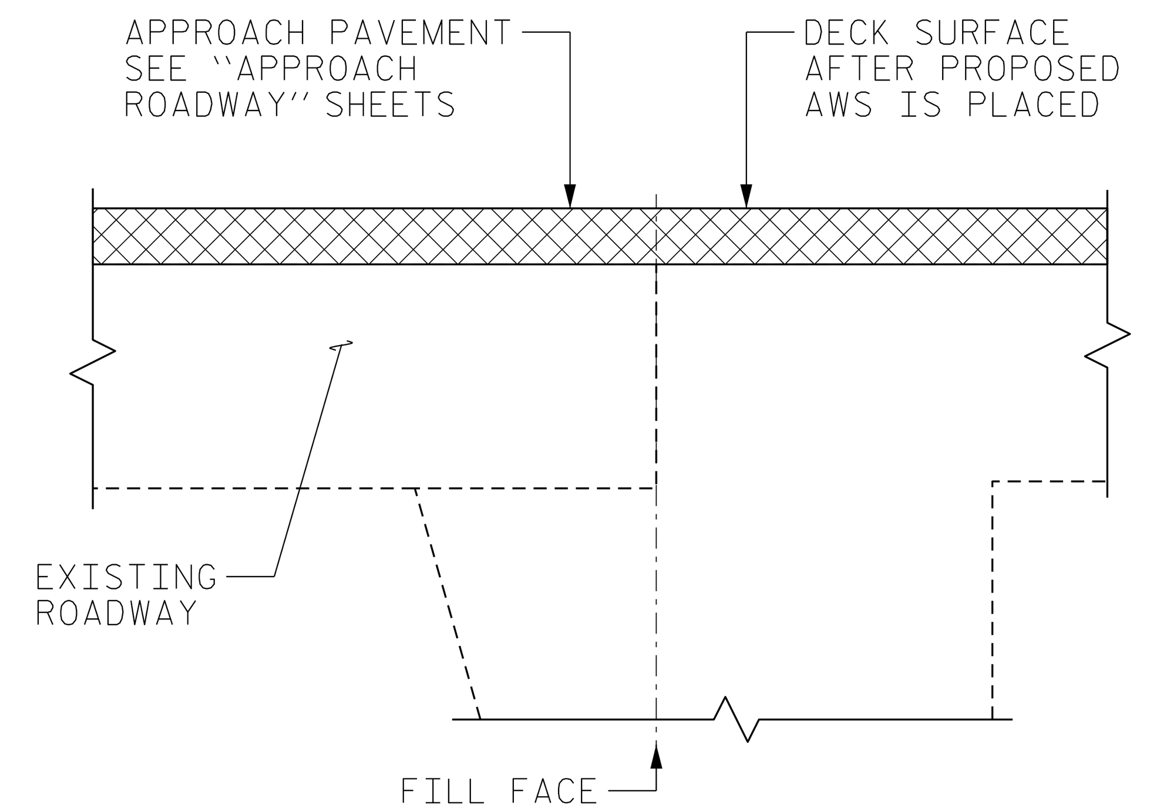
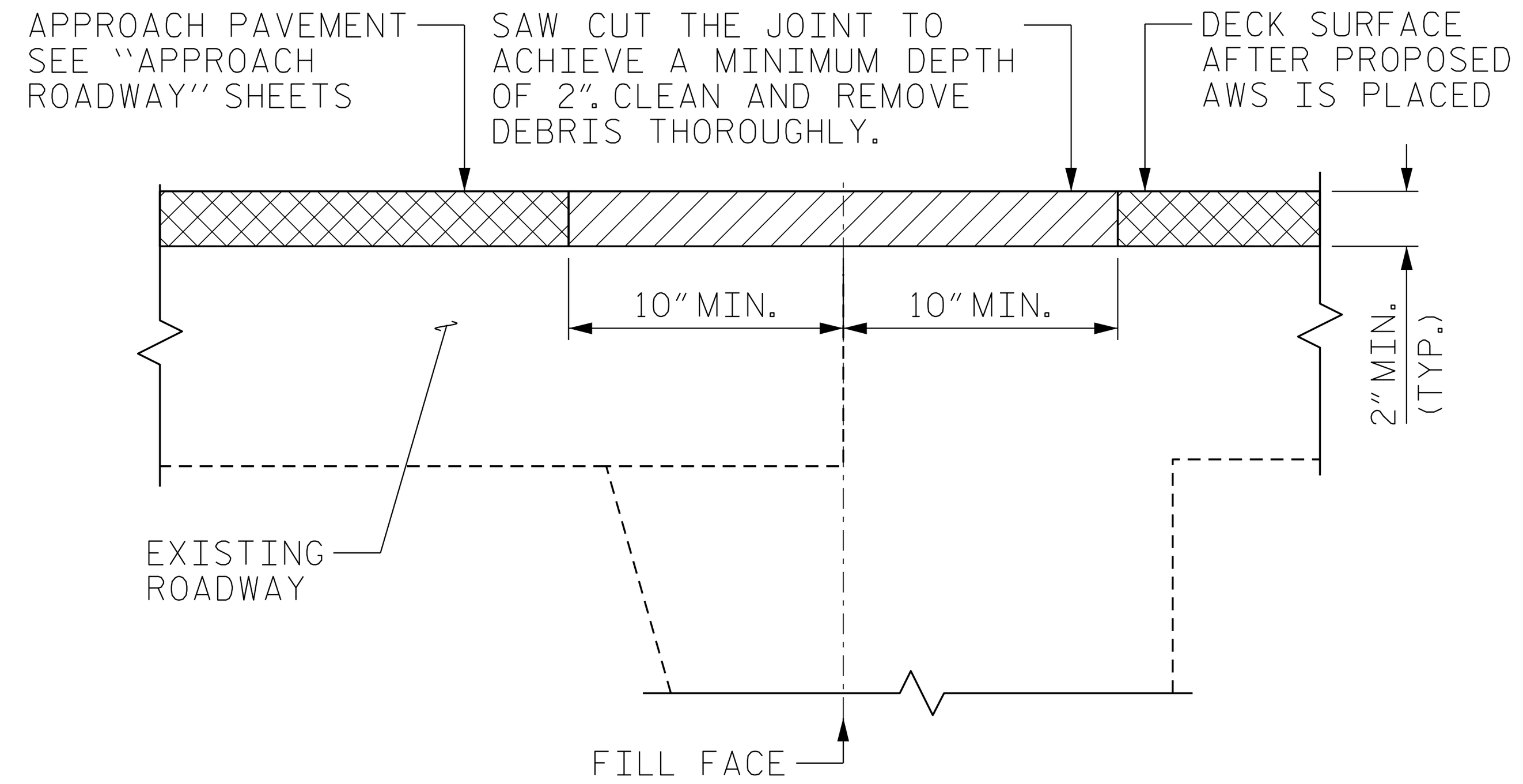
PLAN OF SPANS
ASPHALT WEARING SURFACE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-4
1			3			TOTAL SHEETS
2			4			11



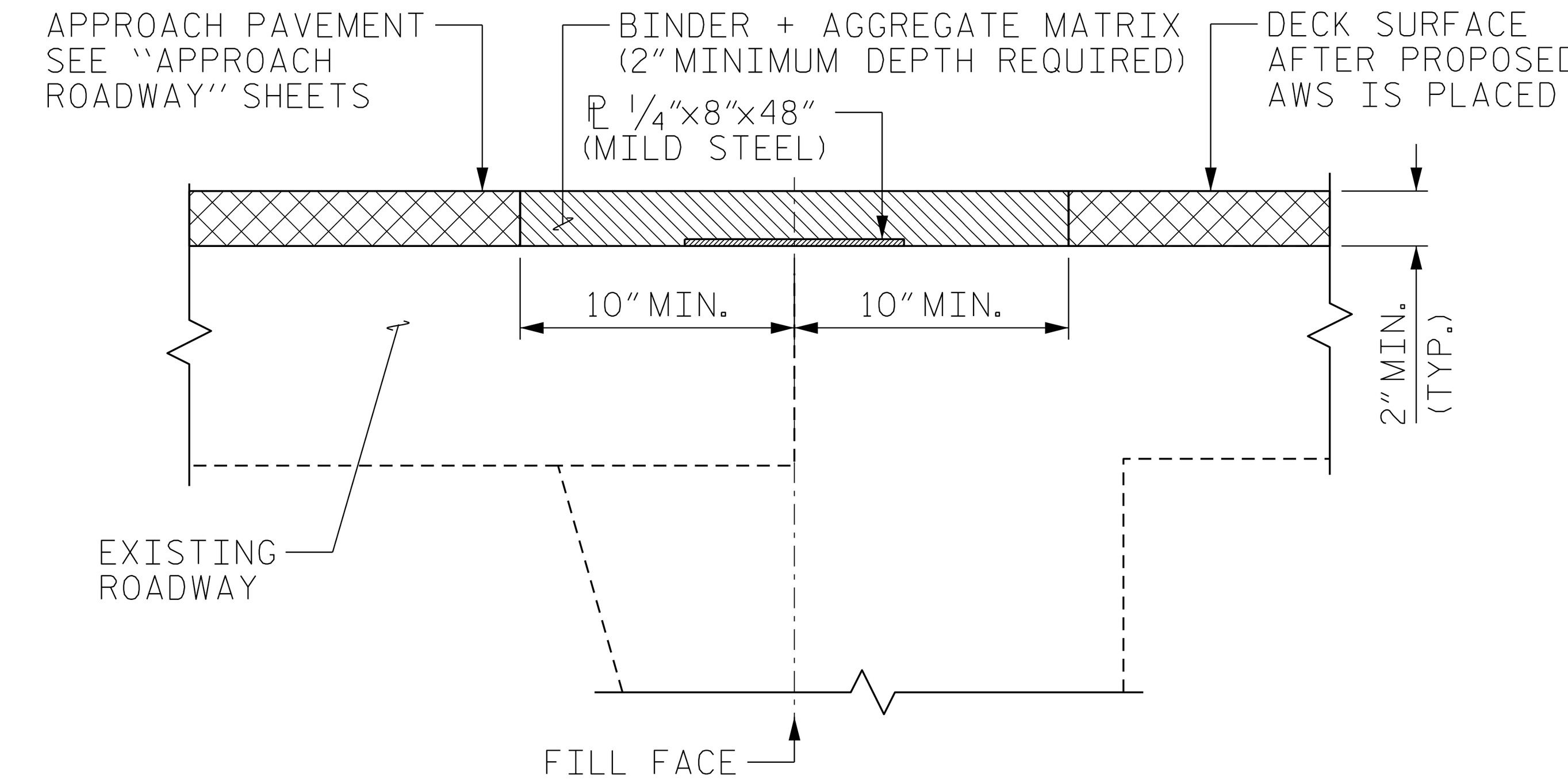
SECTION A-A

(EXISTING DETAIL, NO JOINT)



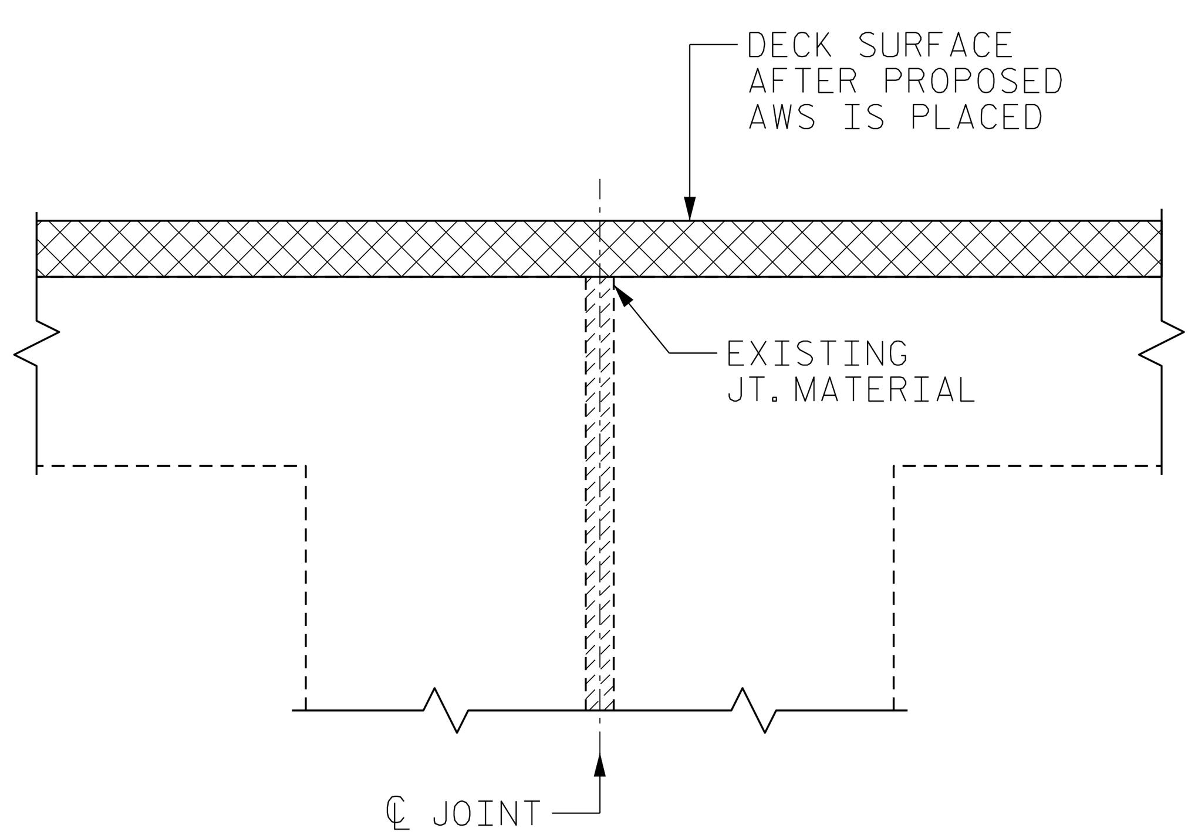
SECTION A-A

(DEMOLITION PREPARATION)



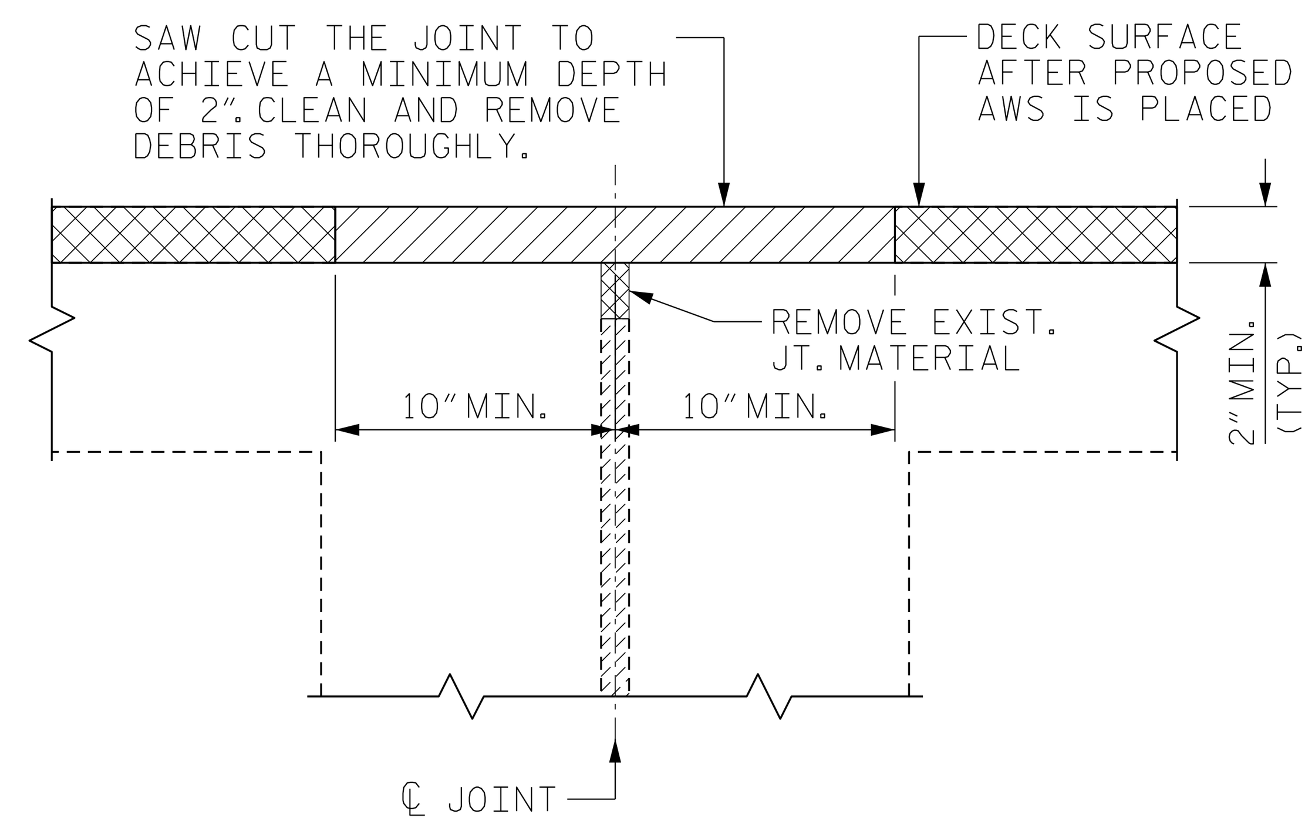
SECTION A-A

(PROPOSED JOINT)



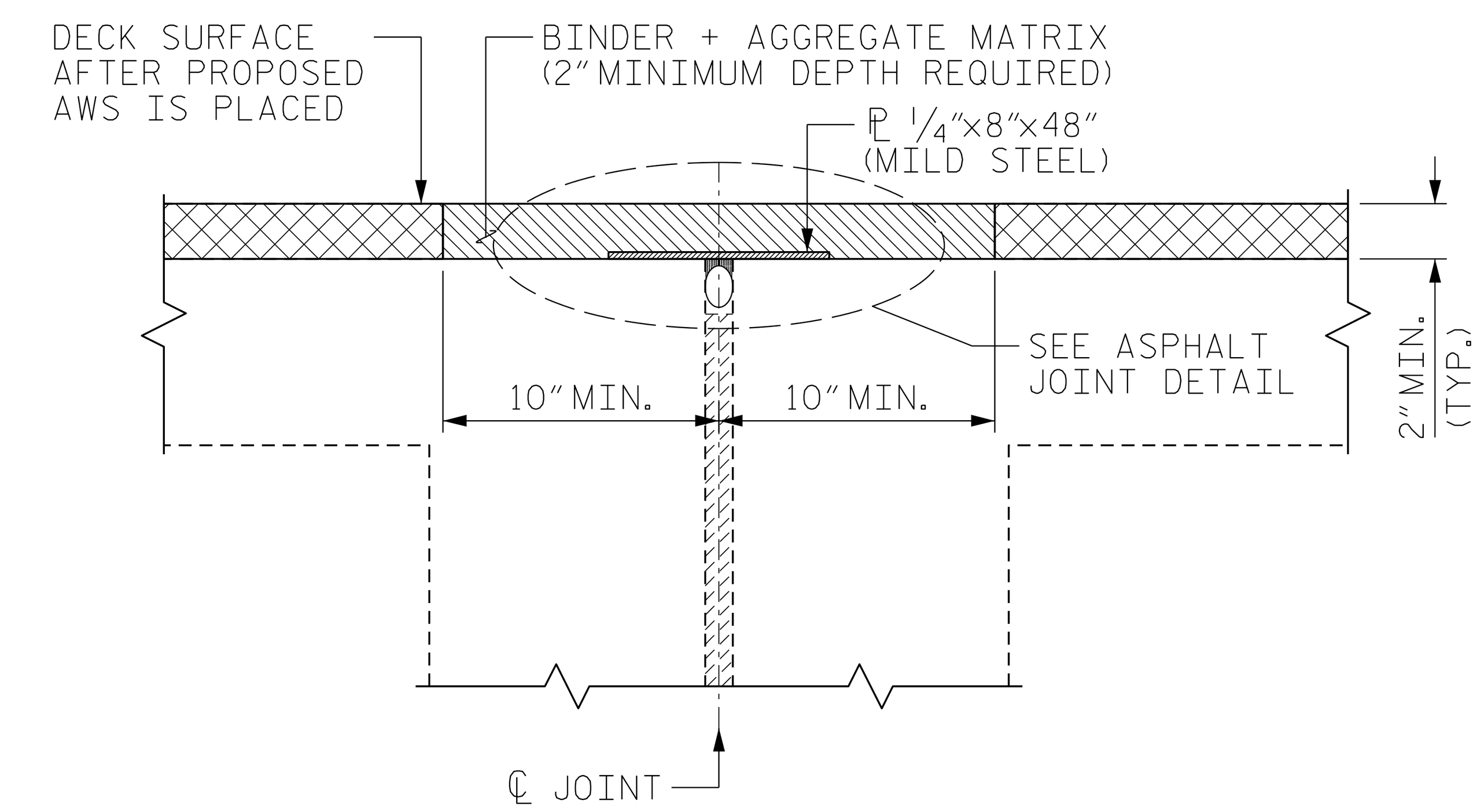
SECTION B-B

(EXISTING JOINT AFTER AWS IS PLACED)



SECTION B-B

(DEMOLITION PREPARATION)



SECTION B-B

(PROPOSED JOINT)

NOTES:

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

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REPAIR OPERATIONS NOT TO DROP ANY MATERIAL THAT FALLS BELOW THE BRIDGE, WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRDIGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRATCTOR 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 BACKER ROD AND SILICONE SEALANT SHALL BE WATER TIGHT.

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DECK DEMOLITION, CONCRETE FOR DECK REPAIRS SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT BOTTOM OF THE PROPOSED ASPHALT JOINT DETAIL SHOWN.

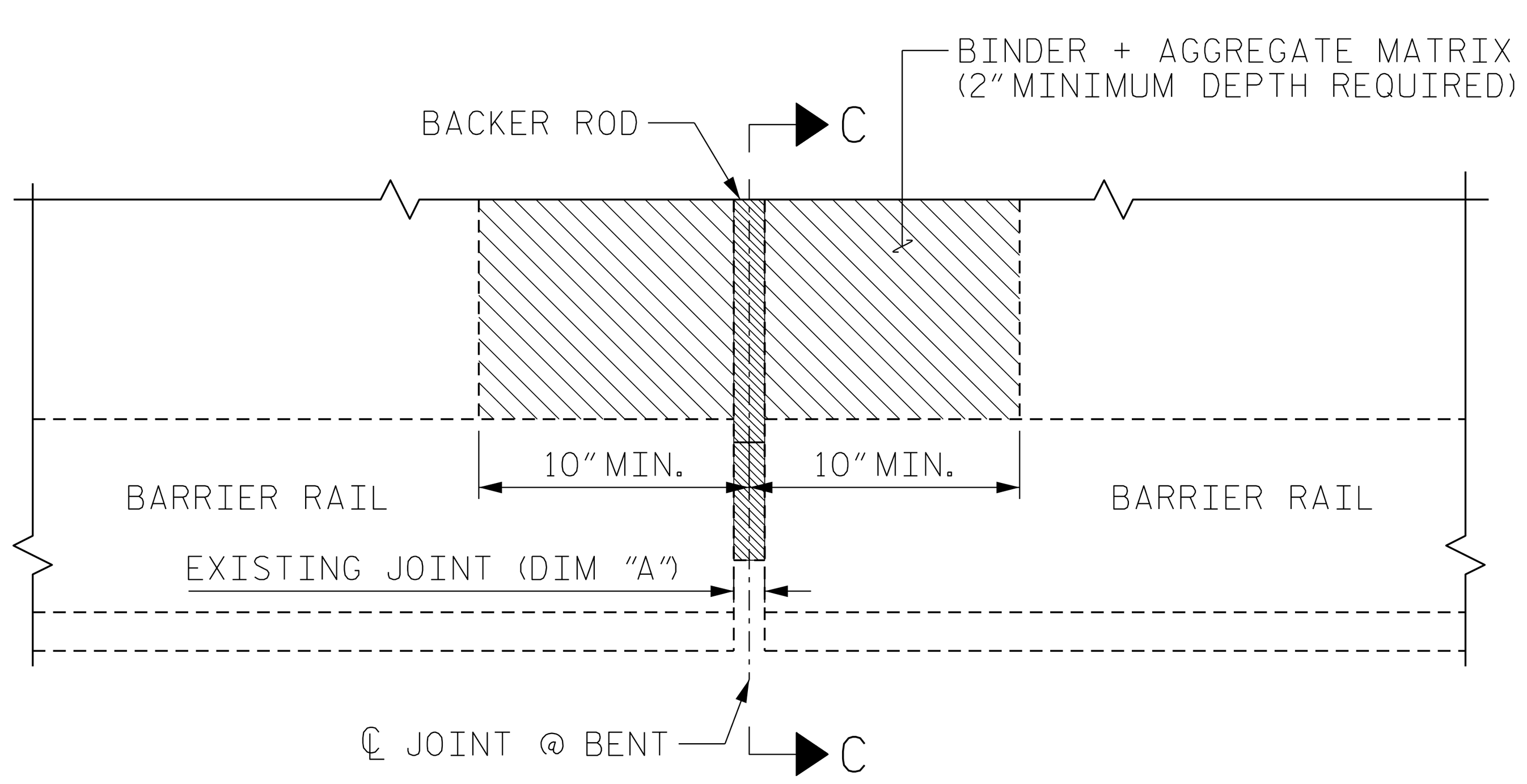
DEMOLISH BRIDGE JOINT AREA SUCH THAT THE BOTTOM OF THE EXCAVATION SHALL BE REASONABLY FLAT AND LEVEL AT THE NECESSARY DEPTH, SUCH THAT ASPHALT JOINT SHALL BE FOUNDED ON CONCRETE OR REPAIR CONCRETE SUBSTRATE.

PRIOR TO ASPHALT JOINT REPAIR/REPLACEMENT, PERFORM DECK SURFACE REPAIRS IN ACCORDANCE WITH "PLAN OF SPAN" SHEETS.

BACKER ROD SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.

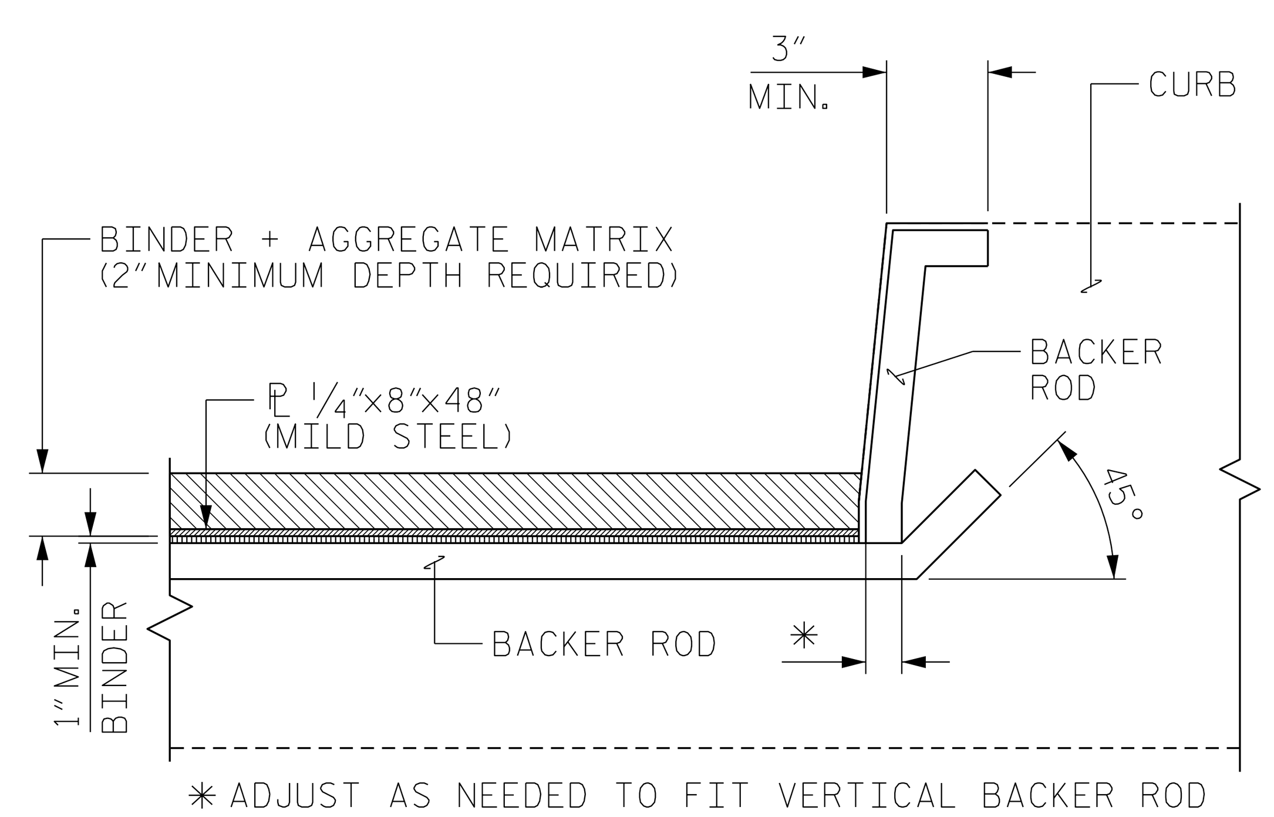
FOR ASPHALT JOINT REPAIR/REPLACEMENT, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.



PLAN AT BARRIER

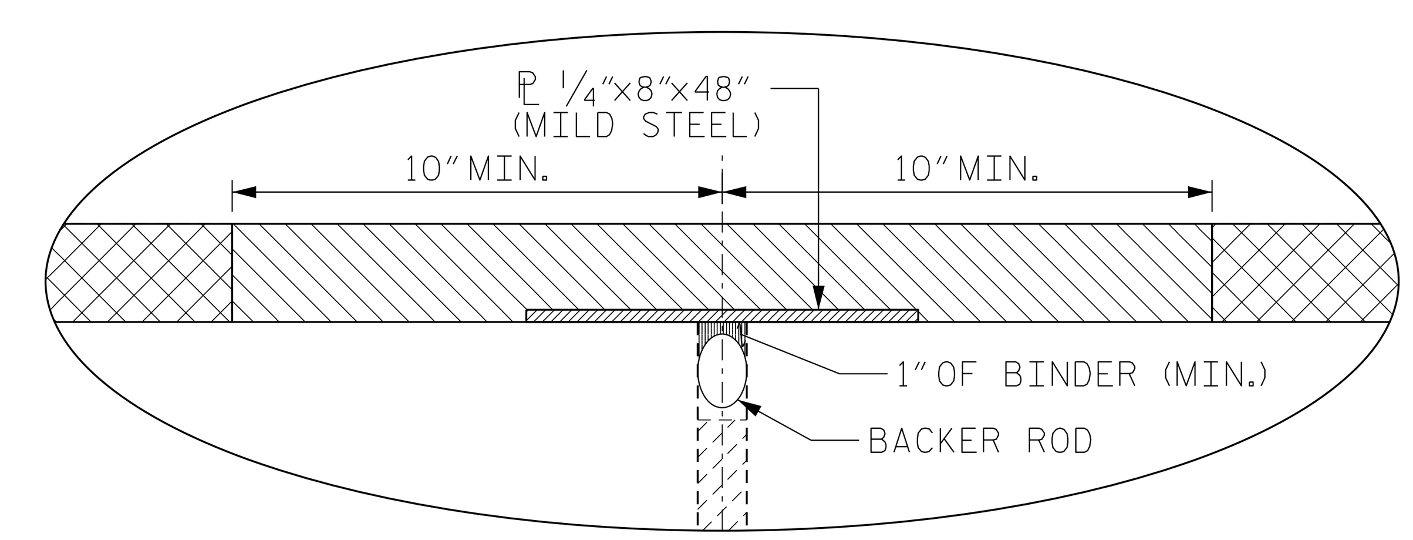
(PROPOSED JOINT SEAL, STEEL ℘ NOT SHOWN FOR CLARITY)



* ADJUST AS NEEDED TO FIT VERTICAL BACKER ROD

SECTION C-C

(PROPOSED JOINT SEAL)



ASPHALT JOINT DETAIL

PROPOSED JOINT QUANTITY		
	ESTIMATED (LIN.FT.)	ACTUAL (LIN.FT.)
ASPHALT JOINT REPAIR/REPLACEMENT	156.4	

TABLE 1	
Table Date 02-2022	
BENT/ JOINTS	DIM "A" @ 60°F
END BENT 1	1 1/2"
1	1"
2	1"
3	1"
END BENT 2	1 1/2"

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170178

DocuSigned by: Diego A. Aguirre
5/5/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A. AGUIRRE

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JOINT DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-5
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

5/5/2022
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AS-BUILT REPAIR QUANTITY TABLE

	ESTIMATE	ACTUAL
INCIDENTAL MILLING	1377 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	193 TON	
ASPHALT BINDER FOR PLANT MIX	11.6 TON	

NOTES:

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

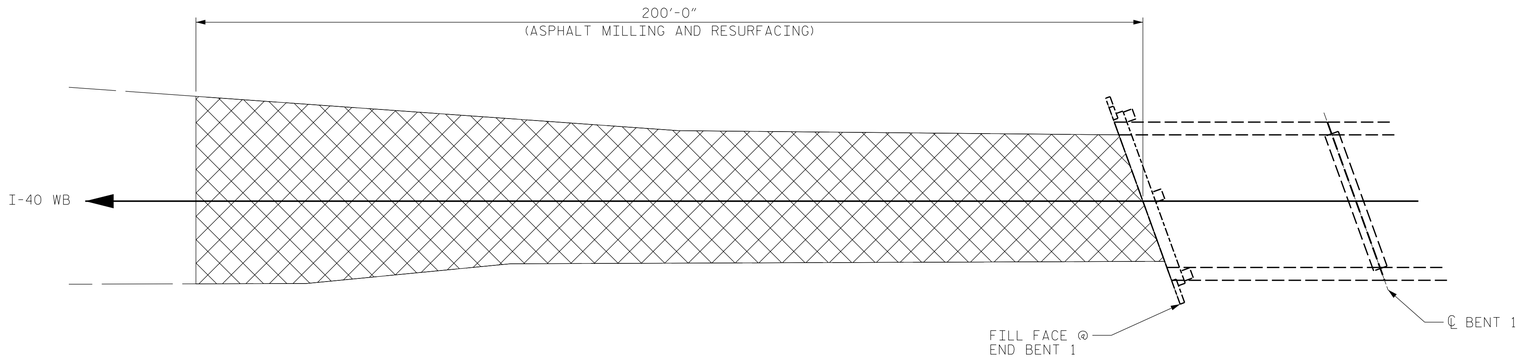
FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

GRADE MAY BE ADJUSTED BY THE ENGINEER TO ENSURE PROPER TIE-IN AT THE END BENTS.

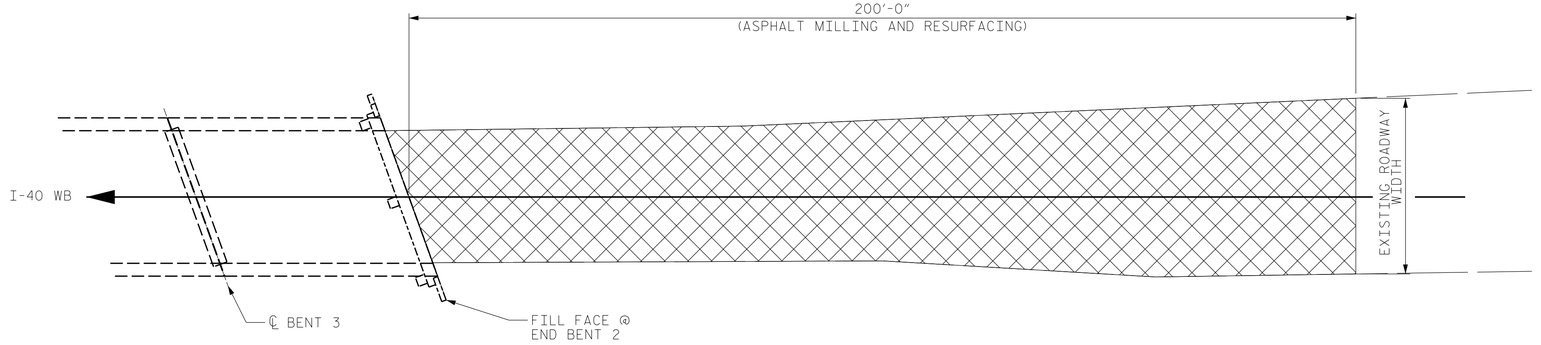
C1	PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 2" IN DEPTH.

INCIDENTAL MILLING

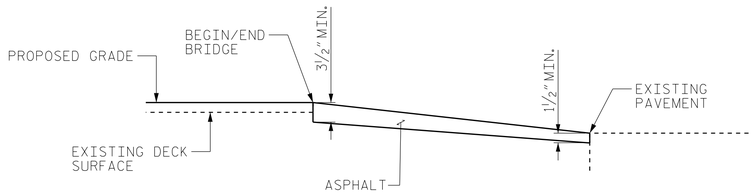
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C (C1)



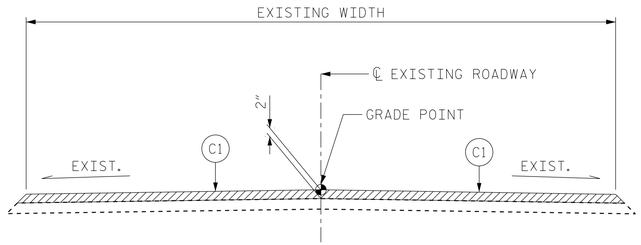
BEGIN APPROACH SLAB



END APPROACH SLAB



PAVEMENT KEY-IN DETAIL FOR BOTH END BENTS



ROADWAY SECTION

BEGIN/END BRIDGE

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170178

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
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RALEIGH

APPROACH ROADWAY
MILLING AND RESURFACING

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-6
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : FIDEL L. FLORES DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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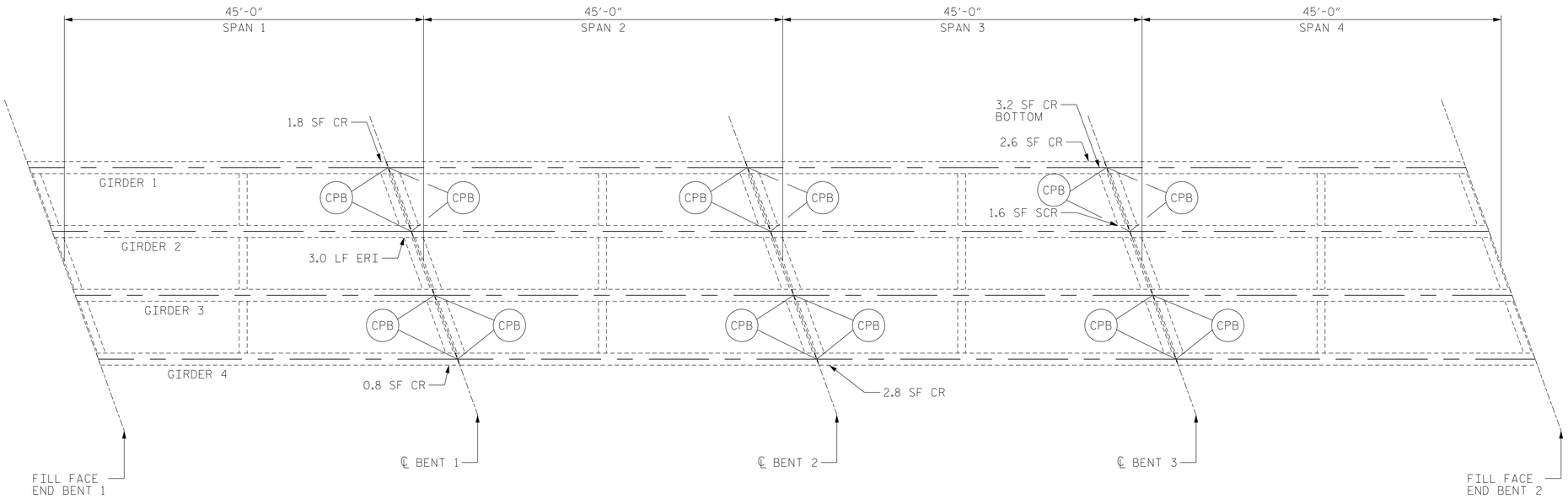
AS-BUILT REPAIR QUANTITY TABLE

SUPERSTRUCTURE REPAIRS

	SPAN 1				SPAN 2				SPAN 3				SPAN 4			
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME	AREA	VOLUME
CONCRETE REPAIR AREA (CR)	2.6 SF	0.9 CF			-- SF	-- CF			10.2 SF	3.6 CF			-- SF	-- CF		
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
EPOXY RESIN INJECTION (ERI)	3.0 LF				-- LF				-- LF				-- LF			
	ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL		ESTIMATE		ACTUAL	
CLEANING & PAINTING EXISTING BEARINGS WITH HRSCA	4 EA				8 EA				8 EA				4 EA			

LEGEND:

CR	CONCRETE REPAIR
SCR	SHOTCRETE REPAIR
ERI	EXOXY RESIN INJECTION
(CPB)	CLEAN AND PAINT BEARINGS



PLAN

NOTES:

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

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS >= 1/16" AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

PROJECT NO. I-5915B
CATAWBA COUNTY
BRIDGE NO. 170178

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE REPAIRS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-7
1			3			TOTAL SHEETS
2			4			11

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DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : JACOB H. DUKE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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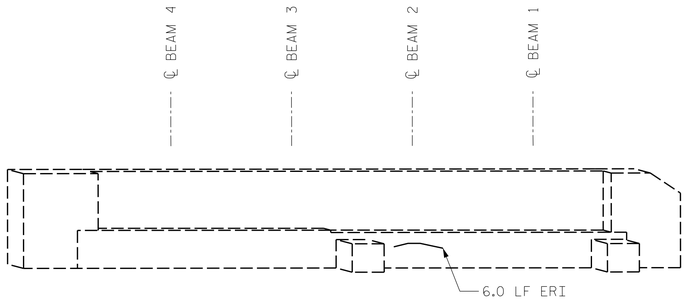
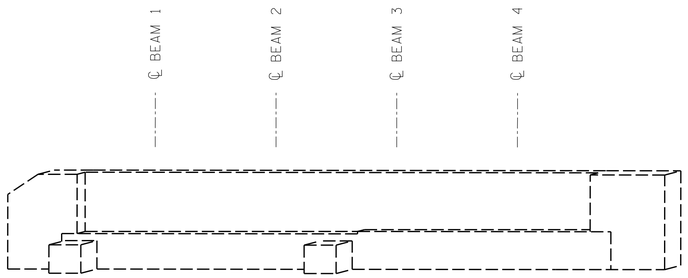


END BENT 1

(EAST FACE)



END BENT 2

(WEST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	6.0			
COLUMN/PILE	-			

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

NOTES:

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

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS >=1/16" AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION/ DEMOLITION.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170178

SHEET 1 OF 4

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
301 FAYETTEVILLE ST., SUITE 1500
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NC FIRM LICENSE: C-1506

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

END BENTS 1 & 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-8
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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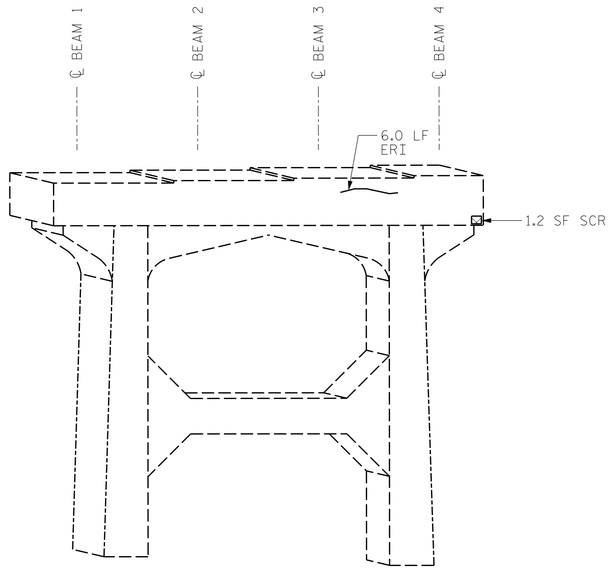
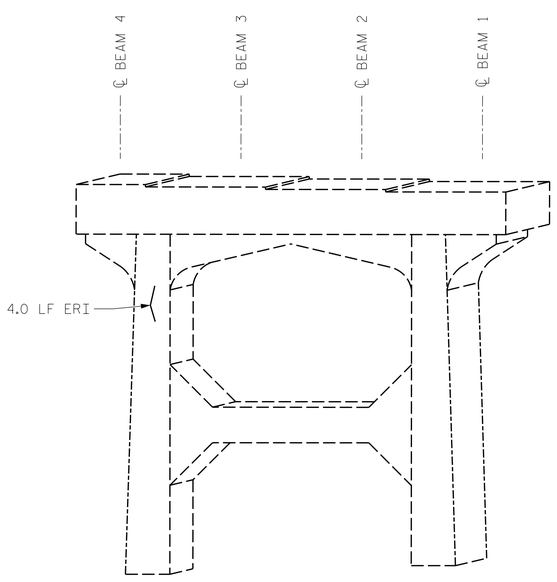
daguirre



BENT 1

(WEST FACE)



BENT 1

(EAST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	1.2	0.4		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	6.0			
COLUMN/PILE	4.0			

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

NOTES:

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REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170178

SHEET 2 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

DocuSigned by: Diego A Aguirre 4729/2022

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NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-9
1			3			TOTAL SHEETS
2			4			11

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DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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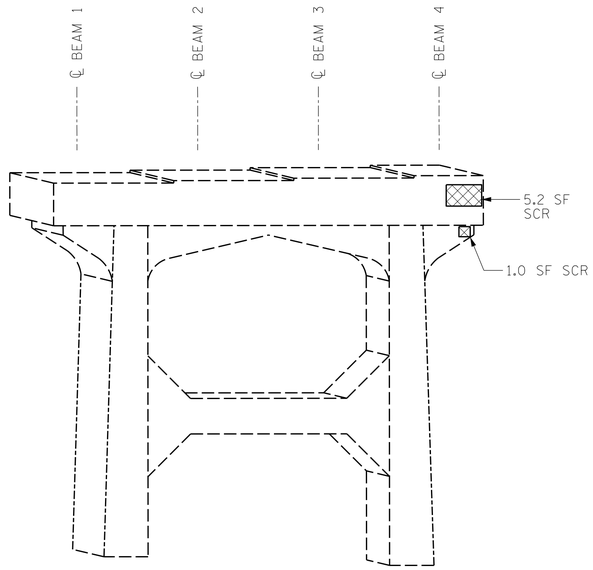
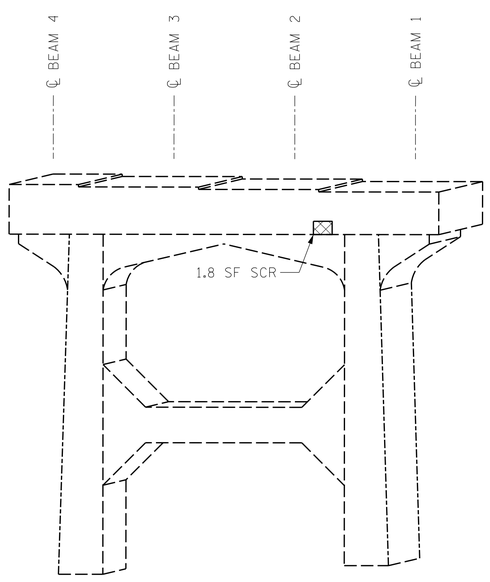


BENT 2

(WEST FACE)



BENT 2

(EAST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	8.0	2.8		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	-			
COLUMN/PILE	-			

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

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REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170178

SHEET 3 OF 4

DocuSigned by: Diego A Aguirre 4729/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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RALEIGH, NC 27601 (919) 882-7839
NC FIRM LICENSE: C-1506

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DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 2

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-10
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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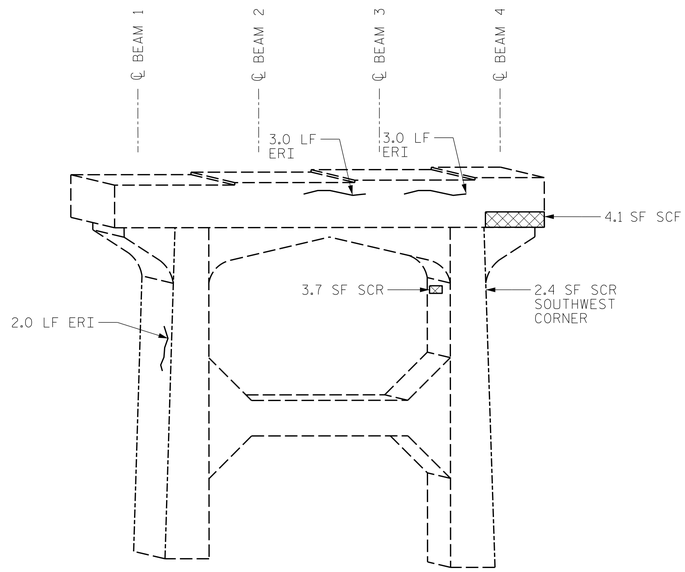
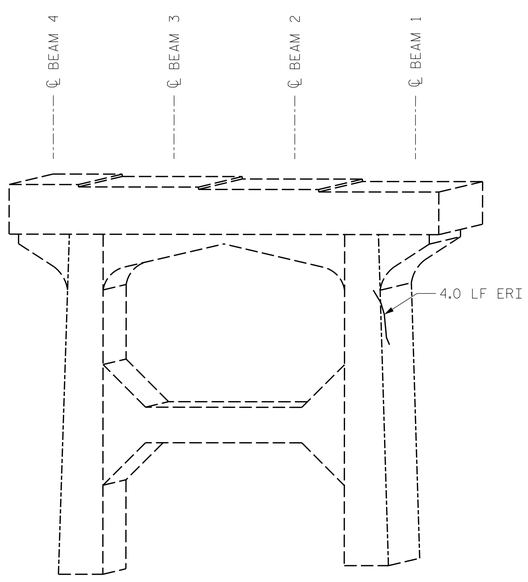


BENT 3

(WEST FACE)



BENT 3

(EAST FACE)

LEGEND

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

AS-BUILT REPAIR QUANTITY TABLE

	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/BACKWALL	4.1	2.1		
COLUMN/PILE	6.1	2.1		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP/BACKWALL	6.0			
COLUMN/PILE	6.0			

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PROJECT NO. I-5915B

CATAWBA COUNTY

BRIDGE NO. 170178

SHEET 4 OF 4

DocuSigned by: Diego A Aguirre 4/29/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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NC FIRM LICENSE: C-1506

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-11
1			3			TOTAL SHEETS
2			4			11

DRAWN BY : ALLEN J. MCSWAIN DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

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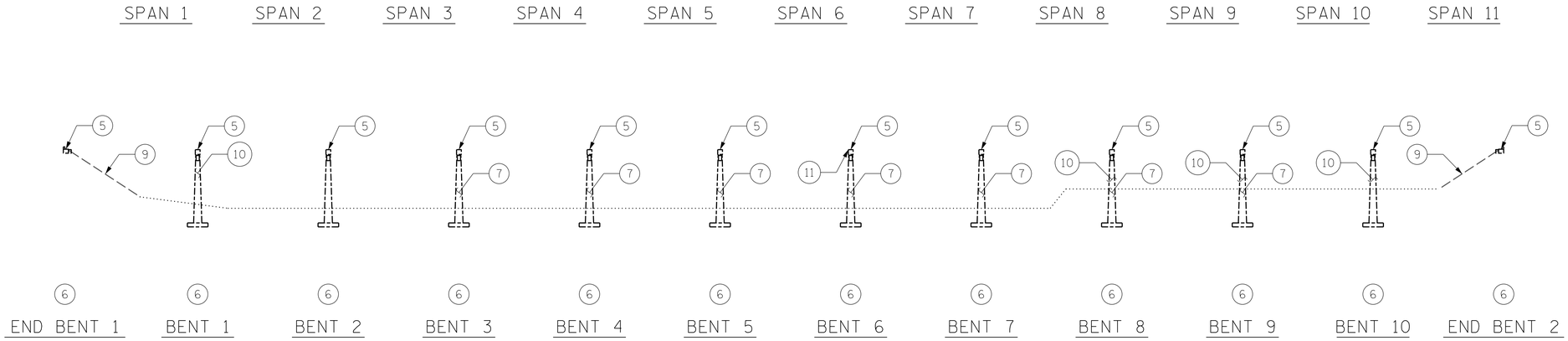
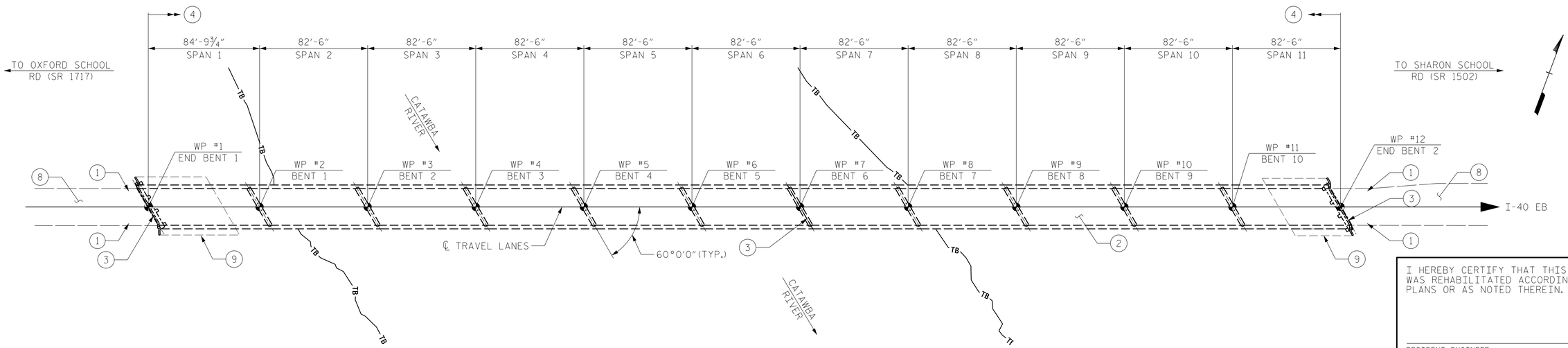


SECTION ALONG ROADWAY



PLAN

SCOPE LEGEND:

1. CLEAR SHOULDERS OF DEBRIS AND VEGETATION
2. CONCRETE DECK REPAIRS AND SILANE DECK TREATMENT
3. ASPHALT JOINT REPAIR/REPLACEMENT
4. ADD ASPHALT WEARING SURFACE
5. PAINT EXISTING STEEL GIRDER ENDS AND ROCKER BEARINGS
6. SUBSTRUCTURE CONCRETE REPAIRS
7. SUBSTRUCTURE EPOXY RESIN INJECTION
8. APPROACH ROADWAY MILLING AND RESURFACING
9. CLEAR SLOPES AT END BENTS OF DEBRIS AND VEGETATION
10. CLEAR INTERMEDIATE BENTS OF DEBRIS AND VEGETATION
11. BEARING REPAIRS

NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE MOST UP TO DATE ROUTINE INSPECTION REPORT DATED 09/26/2021.

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

RESIDENT ENGINEER DATE

PROJECT NO. I-5915B

IREDELL COUNTY

BRIDGE NO. 480006

DocuSigned by: Diego A. Aguirre 4729/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A. AGUIRRE

KCA KISINGER CAMPO & ASSOCIATES
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON I-40 EB OVER THE CATAWBA RIVER

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-1
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : FIDEL L. FLORES DATE : 01/2022
CHECKED BY : DIEGO A. AGUIRRE DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

4/21/2022
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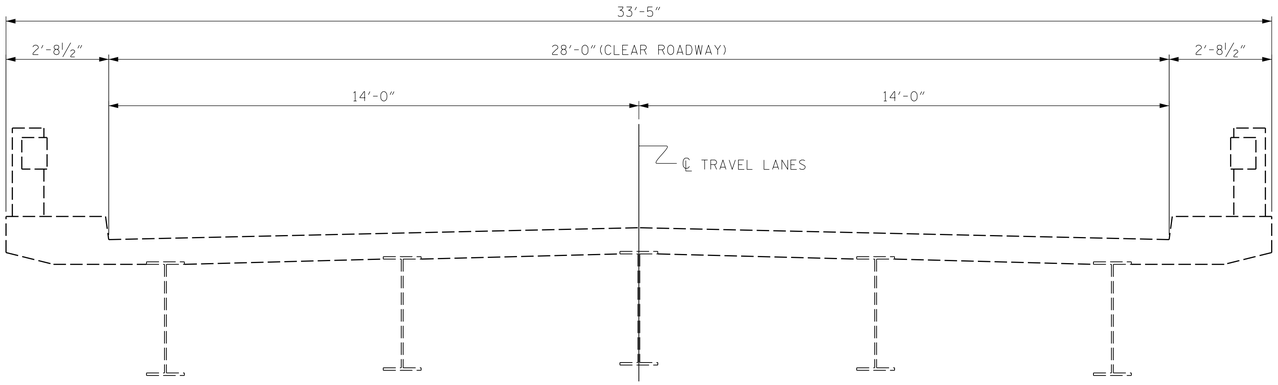

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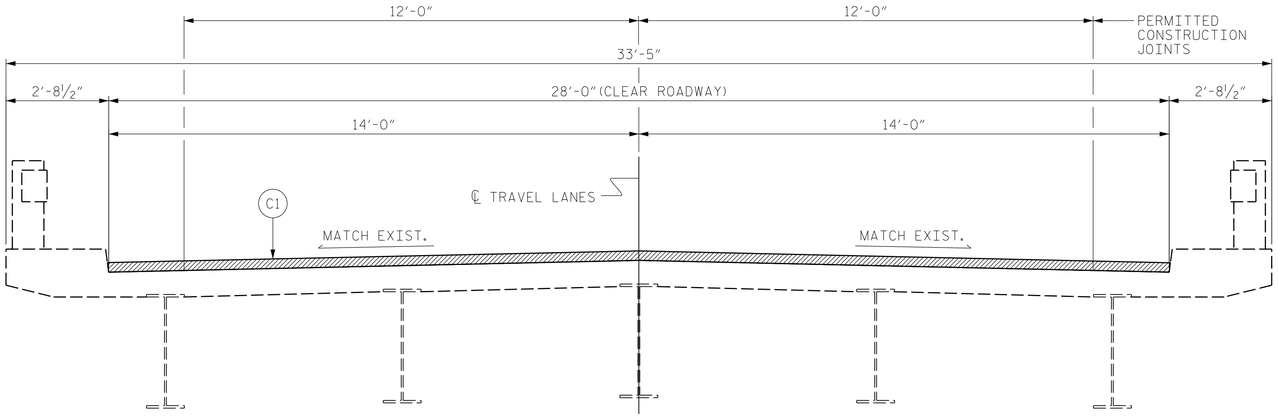

PROPOSED

NOTES:

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

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING, AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF ASHPALT WEARING SURFACE (AWS) OVERLAY.

FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

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

ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C

PROJECT NO. I-5915B
IREDELL COUNTY
BRIDGE NO. 480006

DocuSigned by: Diego A Aguirre ECF438B3073D4EB... 10/13/2022

NORTH CAROLINA PROFESSIONAL SEAL 048223 ENGINEER DIEGO A AGUIRRE

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RALEIGH

TYPICAL SECTION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S5-2
1			3			TOTAL SHEETS
2			4			24

DRAWN BY : DIEGO A. AGUIRRE DATE : 01/2022
CHECKED BY : FIDEL L. FLORES DATE : 01/2022
DESIGN ENGINEER OF RECORD: DIEGO A. AGUIRRE DATE : 01/2022

10/13/2022
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