NOTES:

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THE EXISTING BRIDGE DECK HAS AN ASPHALT WEARING SURFACE (AWS). THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS II (PARTIAL DEPTH) SURFACE PREPARATION ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED AT THE PROJECT SITE. THE ACTUAL LOCATIONS AND QUANTITY SHALL BE CONFIRMED AFTER SCARIFICATION OF THE BRIDGE DECK.

PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED UPON SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING SCARIFICATION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

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FOR SECTION A-A, SEE "POURABLE SILICONE JOINT SEALANT DETAILS" SHEET.

SPAN C CONDITION PHOTO
FROM 2016 INSPECTION REPORT

SPAN C CONDITION PHOTO
FROM 2020 INSPECTION REPORT
(TYPICAL UNDER DECK)

AS-BUILT REPAIR QUANTITY TABLE

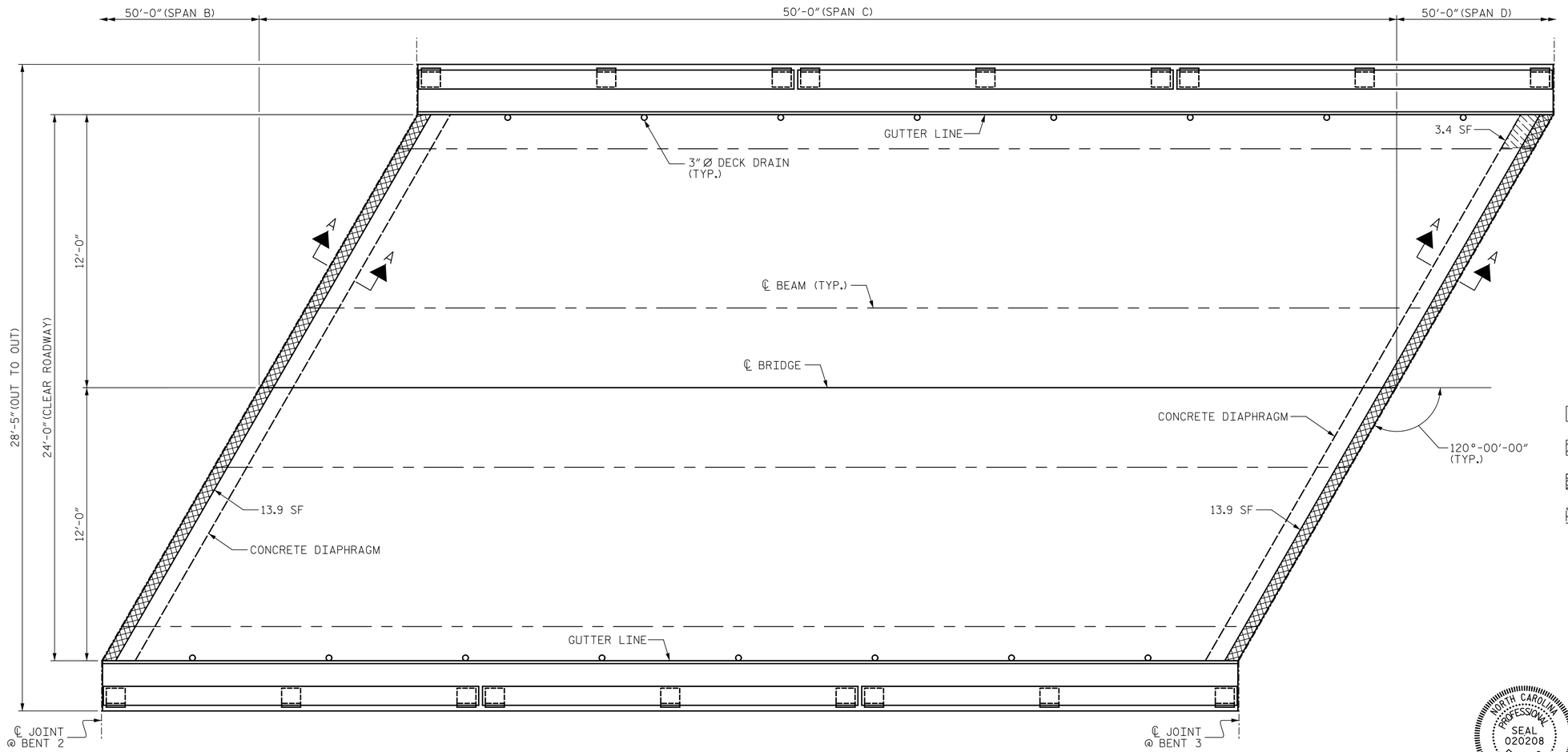
SPAN C TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	130.3 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	130.3 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
BRIDGE JOINT DEMOLITION	27.8 SF	
LMC-VES OVERLAY	9.0 CY	
PLACING & FINISHING OF LMC-VES OVERLAY	130.3 SY	
GROOVING BRIDGE FLOORS	1062 SF	

SPAN C UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOL CF	AREA SF	VOL CF
UNDERSIDE OF DECK	0.0	0.0		
CONCRETE DIAPHRAGMS	3.4	1.7		

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



SPAN C

SCARIFYING AND HYDRO-DEMOLITION OF BRIDGE DECK

APPROX. AREA CLASS II SURFACE PREPARATION

BRIDGE JOINT DEMOLITION

UNDERSIDE OF DECK REPAIR

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIRS

SPAN C

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: Eric B. Nelson Jr. 12/17/2024
ACB80821150740D...

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CHECKED BY : J. YANNACCONE DATE : 03/2022

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-6
1			3			TOTAL SHEETS
2			4			87

NOTES:

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FOR SECTION A-A, SEE "POURABLE SILICONE JOINT SEALANT DETAILS" SHEET.

SPAN D CONDITION PHOTO
FROM 2016 INSPECTION REPORT

AS-BUILT REPAIR QUANTITY TABLE

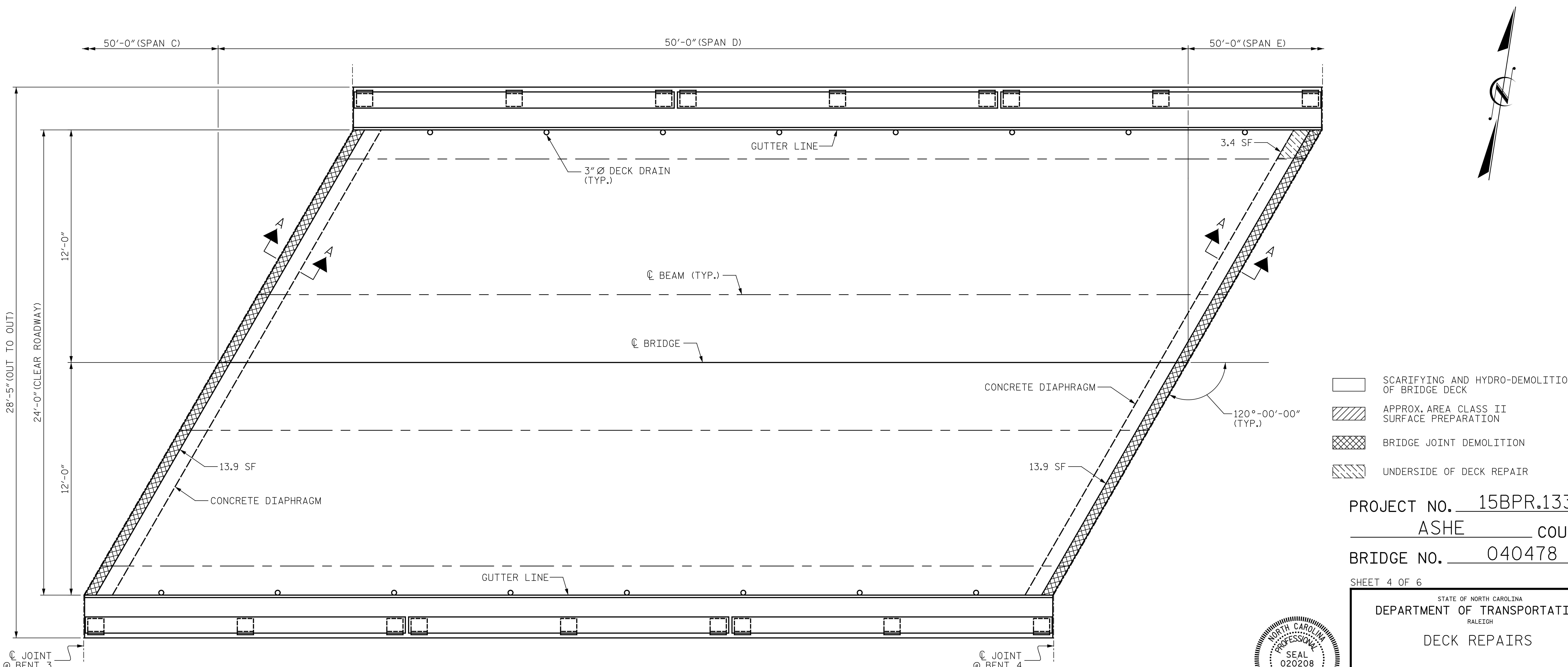
SPAN D TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	130.3 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	130.3 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
BRIDGE JOINT DEMOLITION	27.8 SF	
LMC-VES OVERLAY	9.0 CY	
PLACING & FINISHING OF LMC-VES OVERLAY	130.3 SY	
GROOVING BRIDGE FLOORS	1062 SF	

SPAN D UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOL CF	AREA SF	VOL CF
UNDERSIDE OF DECK	0.0	0.0		
CONCRETE DIAPHRAGMS	3.4	1.7		

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



SPAN D

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 4 OF 6

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: 12/17/2024

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIRS

SPAN D

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1			3			TOTAL SHEETS
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FOR SECTION A-A, SEE "POURABLE SILICONE JOINT SEALANT DETAILS" SHEET.

SPAN E CONDITION PHOTO
FROM 2016 INSPECTION REPORT

AS-BUILT REPAIR QUANTITY TABLE

SPAN E TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	130.3 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	130.3 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
BRIDGE JOINT DEMOLITION	27.8 SF	
LMC-VES OVERLAY	9.0 CY	
PLACING & FINISHING OF LMC-VES OVERLAY	130.3 SY	
GROOVING BRIDGE FLOORS	1062 SF	

SPAN E UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOL CF	AREA SF	VOL CF
UNDERSIDE OF DECK	0.0	0.0		
CONCRETE DIAPHRAGMS	7.8	3.9		

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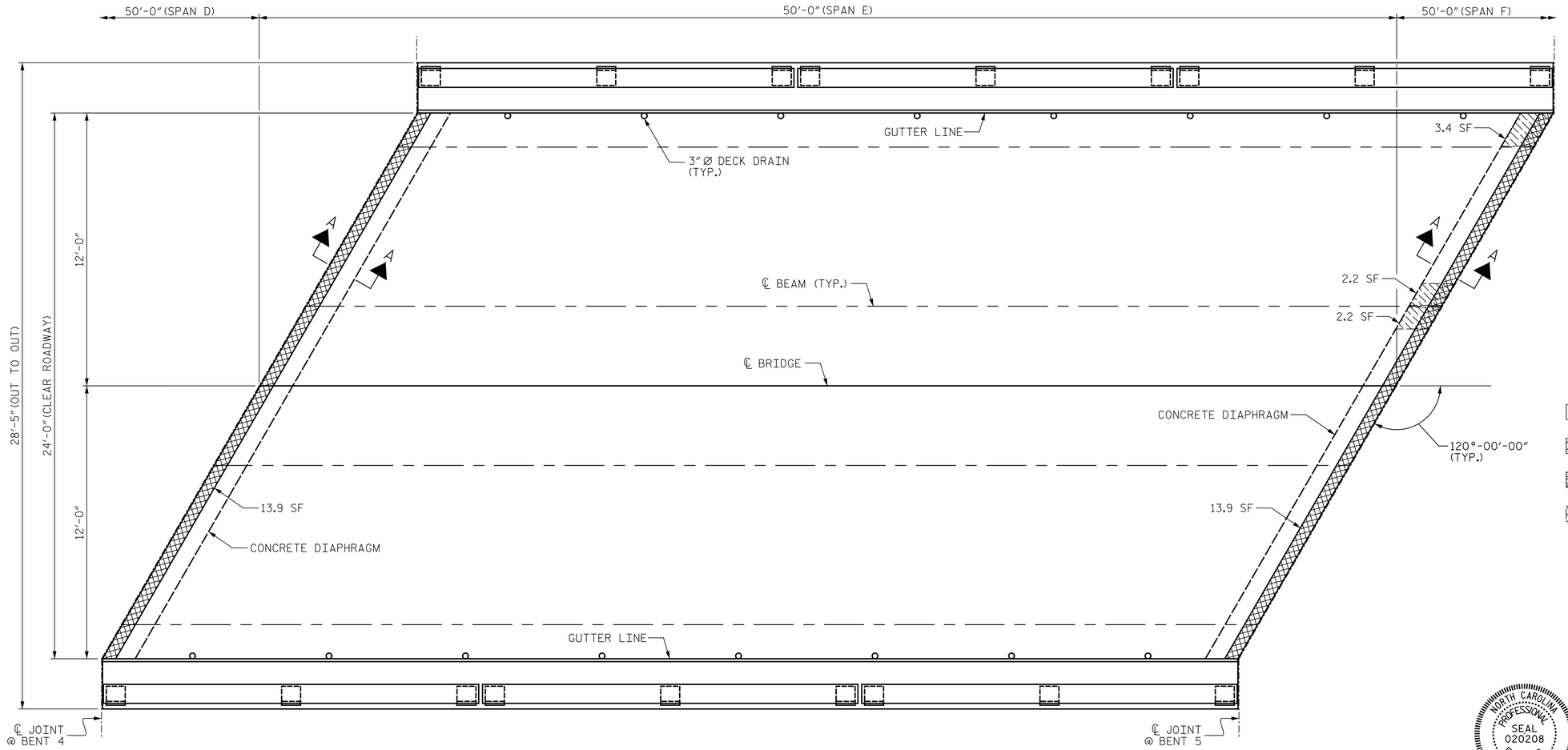

SPAN E

SCARIFYING AND HYDRO-DEMOLITION OF BRIDGE DECK

APPROX. AREA CLASS II SURFACE PREPARATION

BRIDGE JOINT DEMOLITION

UNDERSIDE OF DECK REPAIR

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIRS

SPAN E

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: Eric B. Nelson Jr. ACCB0821190744CD... 12/17/2024

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FOR SECTION A-A, SEE "POURABLE SILICONE JOINT SEALANT DETAILS" SHEET.

SPAN F CONDITION PHOTO
FROM 2016 INSPECTION REPORT

AS-BUILT REPAIR QUANTITY TABLE

SPAN F TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	132.0 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	132.0 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
BRIDGE JOINT DEMOLITION	13.9 SF	
LMC-VES OVERLAY	9.0 CY	
PLACING & FINISHING OF LMC-VES OVERLAY	132.0 SY	
GROOVING BRIDGE FLOORS	1078 SF	

SPAN F UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOL CF	ACTUAL AREA SF	ACTUAL VOL CF
UNDERSIDE OF DECK	0.0	0.0		
CONCRETE DIAPHRAGMS	3.4	1.7		

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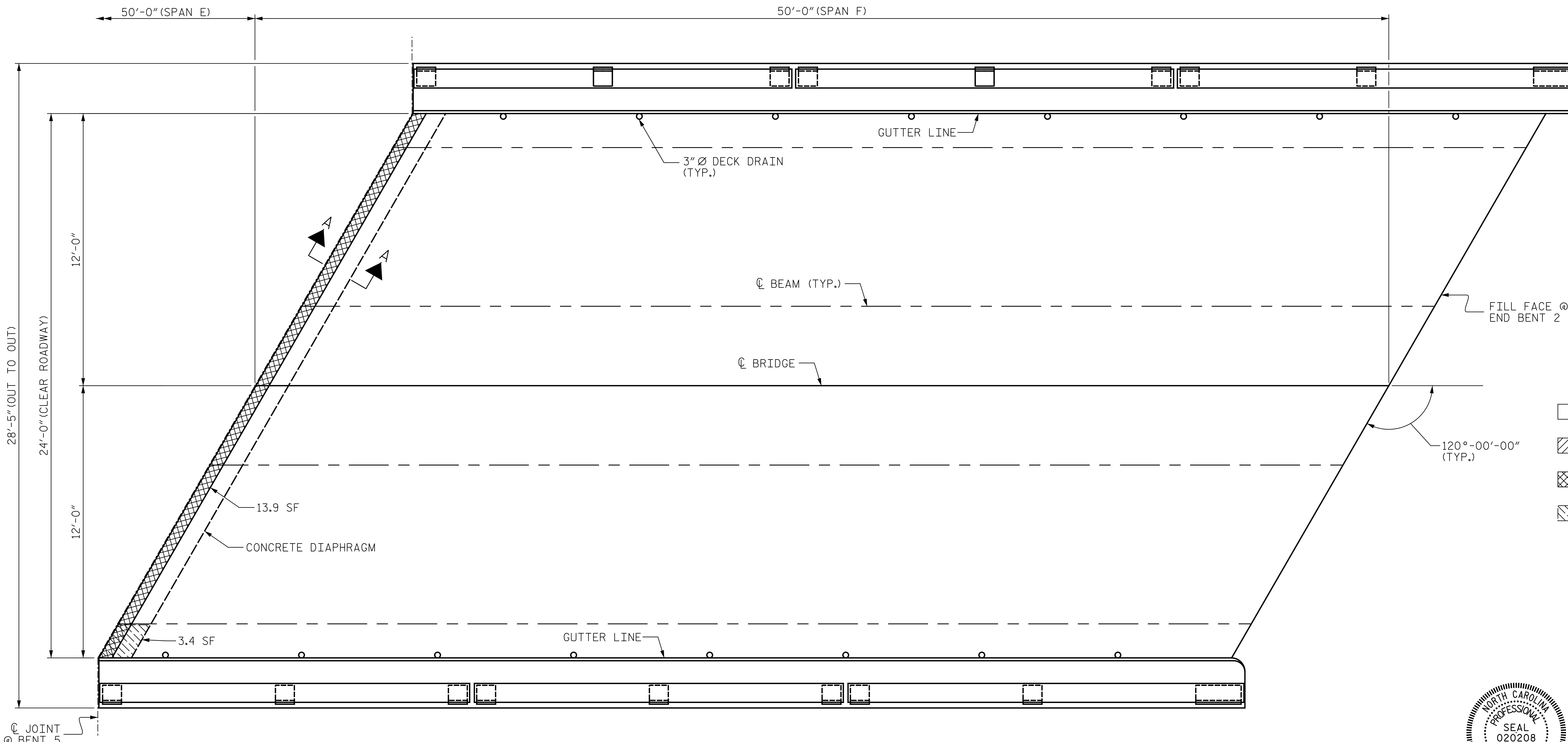

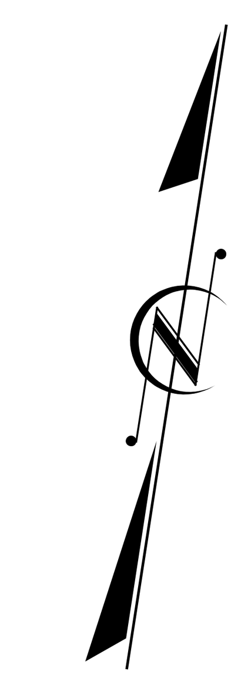

SCARIFYING AND HYDRO-DEMOLITION OF BRIDGE DECK

APPROX. AREA CLASS II SURFACE PREPARATION

BRIDGE JOINT DEMOLITION

UNDERSIDE OF DECK REPAIR

SPAN F

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 6 OF 6

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: 12/17/2024

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIRS

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TOTAL SHEETS 87

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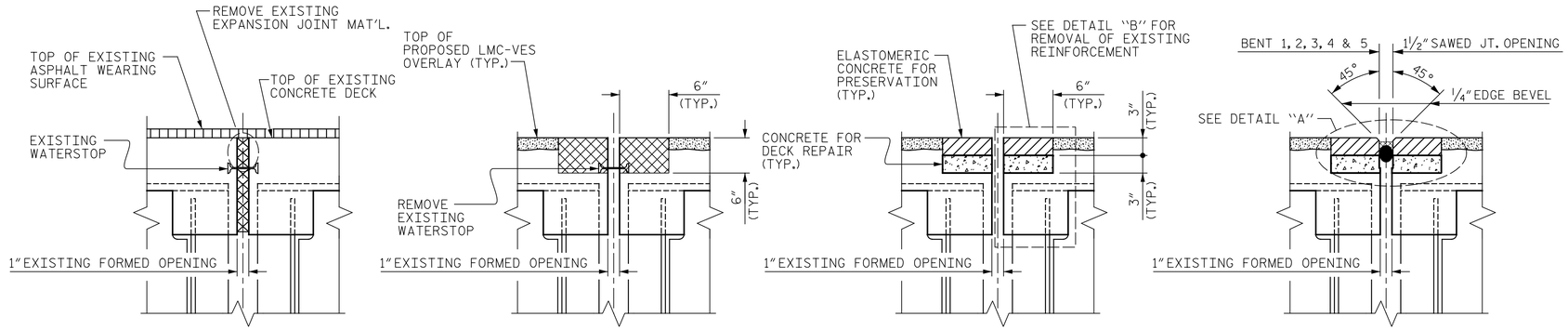


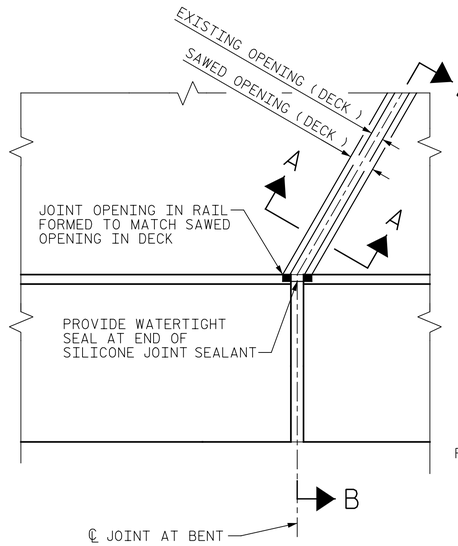
EXISTING

MINIMUM JOINT DEMOLITION

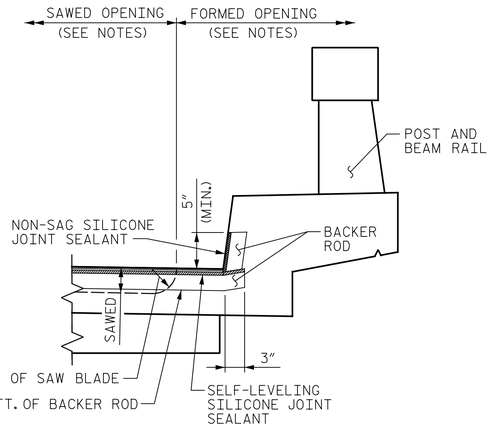
PROPOSED JOINT PRE-SAWED DIMENSIONS

PROPOSED POURABLE SILICONE JOINT SEALANT

SECTION A-A

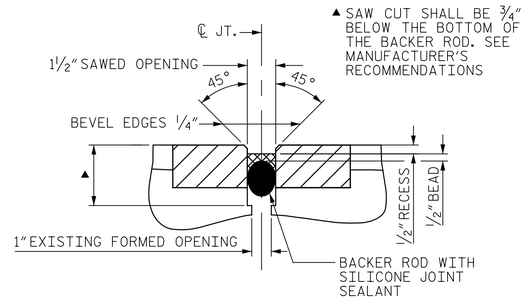


PLAN

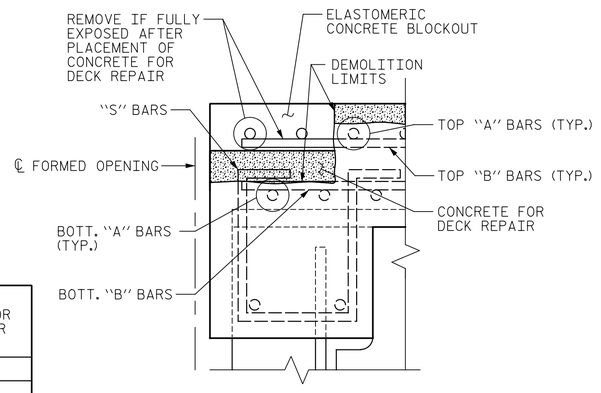


SECTION B-B

JOINT SEAL DETAILS AT BENT



DETAIL "A"
(PROPOSED JOINT WITH SAWED DIMENSIONS)



DETAIL "B"

LOCATION	POURABLE SILICONE JOINT SEALANT	ELASTOMERIC CONCRETE FOR PRESERVATION	CONCRETE FOR DECK REPAIR
	LIN. FT.	CU. FT.	CU. FT.
BENT 1	30.0	7.0	7.0
BENT 2	30.0	7.0	7.0
BENT 3	30.0	7.0	7.0
BENT 4	30.0	7.0	7.0
BENT 5	30.0	7.0	7.0
✳ TOTAL	150.0	35.0	35.0

✳ BASED ON MINIMUM BLOCKOUT SHOWN

NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL. IF ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN DETAIL MORE THAN ¼" NOTIFY THE ENGINEER. REVISION TO THE JOINT SEAL SIZE MAY BE NECESSARY.

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

THE CONTRACTOR WILL BE PERMITTED TO FORM THE JOINT WITH 6" OF THE GUTTERLINE AND UP THE FACE OF THE BARRIER RAIL. IN ALL OTHER SECTIONS OF THE JOINT, THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT IN LIEU OF SAWING THE JOINT.

THE NOMINAL SAW CUT DEPTH FOR BRIDGE JOINT DEMOLITION IS 1½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

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

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR SHALL BE PLACED IN THE EXCAVATED AREA UP TO THE PLANNED BOTTOM ELEVATION OF THE ELASTOMERIC CONCRETE.

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

PRIOR TO PLACEMENT OF ELASTOMERIC CONCRETE REMOVE ANY TOP "A" OR "B" BARS THAT ARE FULLY EXPOSED IN THE ELASTOMERIC CONCRETE BLOCKOUT REGION.

THE CONTRACTOR WILL NOT BE PERMITTED TO CUT EXISTING BOTTOM "A" OR "B" BARS. EXPOSED BOTTOM REINFORCING SHALL BE CLEANED AND REPAIRED IF DAMAGED.

ALL EXPOSED ENDS OF CUT BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT MATERIAL INSTALLATION.

POURABLE SILICONE JOINT SEALANT AND BACKER ROD SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

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

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

THE CONTRACTOR WILL NOT BE PERMITTED TO INSTALL POURABLE SILICONE JOINT SEALANT AT THE BENTS UNTIL ALL BRIDGE JACKING IS COMPLETED AT THOSE BENTS.

THE INSTALLATION OF JOINT SEAL SHALL BE WATERTIGHT.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.133
ASHE COUNTY
BRIDGE NO. 040478

DRAWN BY : J. HARRIS DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON
DocuSigned by: Eric B. Nelson Jr. 12/17/2024
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

POURABLE SILICONE JOINT SEALANT DETAILS

REVISIONS						SHEET NO.
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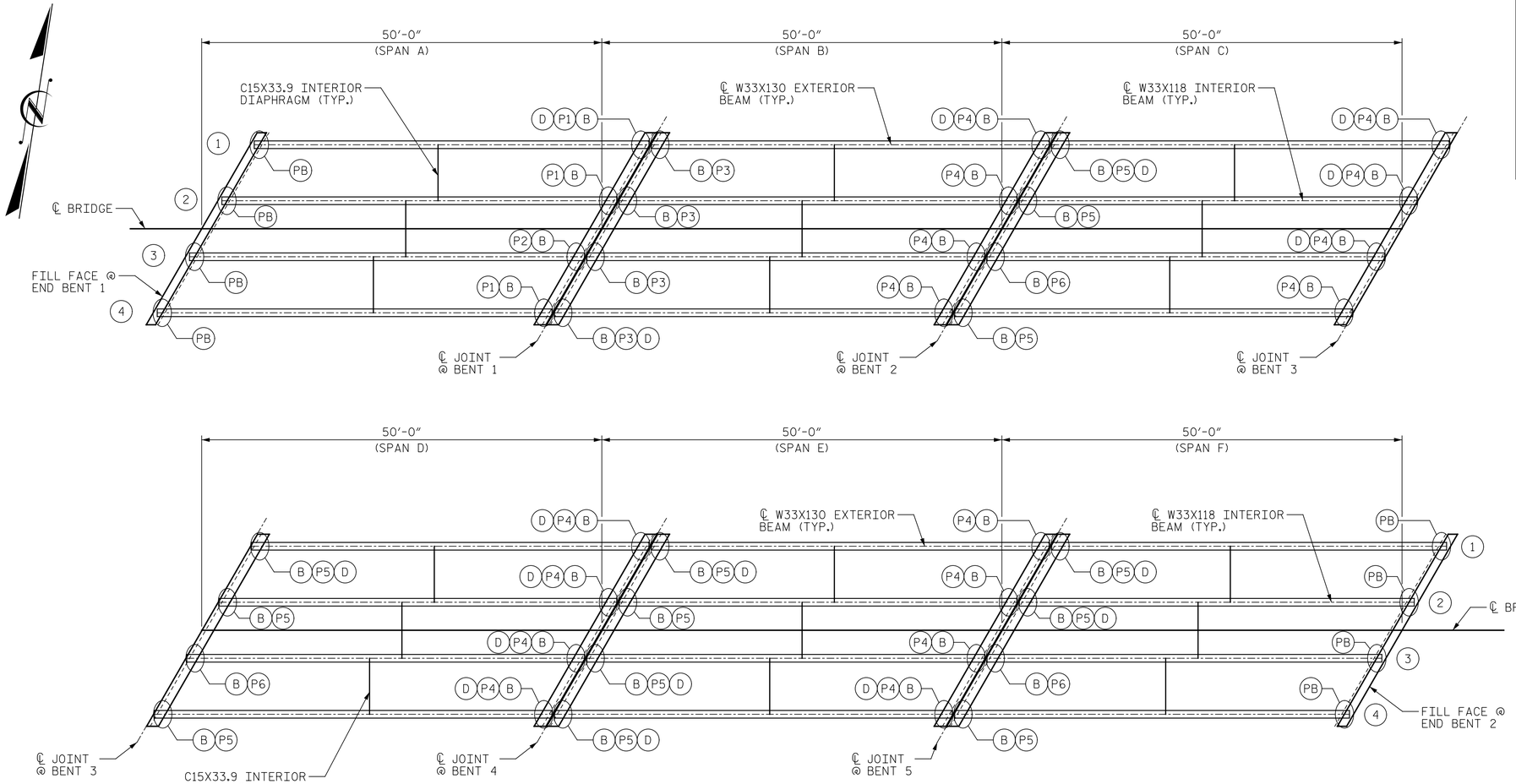
1			3			TOTAL SHEETS
2			4			87



BEAM REPAIR LOCATIONS

(OTHER LOCATIONS MAY EXIST, SEE NOTES)

AS-BUILT REPAIR QUANTITY TABLE

SUPERSTRUCTURE REPAIR

	ESTIMATE	ACTUAL
BEAM END REPAIR	6180 LBS.	
CONNECTION PLATE REPAIR	975 LBS.	
TOTAL BEAM REPAIR CUT-OUT	7155 LBS.	
CONCRETE DIAPHRAGM REPAIR	11.2 CF*	
CLEAN & PAINT BEARINGS WITH HRCSA	8 EA	

LEGEND

- (#) BEAM NUMBER
- (B) BEAM END / CONNECTION PLATE REPAIR
- (D) CONCRETE DIAPHRAGM REPAIR
- (P#) SOLE PLATE (SEE "MODIFIED TYPE I ELASTOMERIC BEARINGS" SHEET)
- (PB) CLEAN & PAINT BEARINGS WITH HRCSA

NOTES

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FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR DETAILS, SEE "BEAM REPAIR CUT-OUT DETAILS" SHEET.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING DETAILS, SEE "BRIDGE JACKING DETAILS" SHEET.

CONCRETE DIAPHRAGM REPAIR LOCATIONS ON THIS SHEET DENOTE AREAS WHERE BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM. THE QUANTITY OF CONCRETE DIAPHRAGM REPAIR REQUIRED AFTER THE BEAM CUT OUT REPAIR IS INCLUDED IN THE PAY ITEM "SHOTCRETE REPAIRS".

FOR CONCRETE DIAPHRAGM REPAIR, SEE SPECIAL PROVISIONS.

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

* THE QUANTITY OF CONCRETE DIAPHRAGM REPAIR IS INCLUDED IN THE QUANTITY FOR SHOTCRETE REPAIRS IN THE TOTAL BILL OF MATERIAL.

ANTICIPATED BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIMENSIONS "A"	"B"	"C"	"D"	"E"
A	1	BENT 1	26"	20"	4"	54"	24 3/8"
A	2	BENT 1	4"	--	--	21 1/2"	3 3/4"
A	3	BENT 1	6"	--	--	16"	6"
A	4	BENT 1	4"	--	--	21 1/2"	3 3/4"
B	1	BENT 1	4"	--	--	53"	3 3/8"
B	2	BENT 1	4"	--	--	53"	3 3/8"
B	3	BENT 1	4"	--	--	28"	3 11/16"
B	4	BENT 1	28"	20"	4"	53"	27 3/8"
B	1	BENT 2	28"	20"	4"	40"	27 1/2"
B	2	BENT 2	7"	--	--	40"	6 1/2"
B	3	BENT 2	10"	--	--	20"	9 3/4"
B	4	BENT 2	13"	20"	4"	40"	12 1/2"
C	1	BENT 2	28"	--	--	35"	27 9/16"
C	2	BENT 2	4"	--	--	45"	3 7/16"
C	3	BENT 2	4"	--	--	16"	3 13/16"
C	4	BENT 2	6"	--	--	45"	5 7/16"
C	1	BENT 3	28"	20"	4"	40"	27 1/2"
C	2	BENT 3	28"	20"	4"	40"	27 1/2"
C	3	BENT 3	28"	20"	4"	30"	27 5/8"
C	4	BENT 3	4"	--	--	40"	3 1/2"

ANTICIPATED BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIMENSIONS "A"	"B"	"C"	"D"	"E"
D	1	BENT 3	28"	20"	4"	45"	27 7/16"
D	2	BENT 3	4"	--	--	35"	3 9/16"
D	3	BENT 3	4"	--	--	16"	3 15/16"
D	4	BENT 3	4"	--	--	45"	3 7/16"
D	1	BENT 4	28"	20"	4"	40"	27 1/2"
D	2	BENT 4	26"	20"	4"	40"	25 1/2"
D	3	BENT 4	26"	--	--	20"	26"
D	4	BENT 4	28"	20"	4"	40"	27 1/2"
E	1	BENT 4	28"	20"	4"	45"	27 7/16"
E	2	BENT 4	4"	--	--	35"	3 9/16"
E	3	BENT 4	26"	20"	4"	35"	25 9/16"
E	4	BENT 4	28"	20"	4"	45"	27 7/16"
E	1	BENT 5	4"	--	--	40"	3 1/2"
E	2	BENT 5	4"	--	--	40"	3 1/2"
E	3	BENT 5	4"	--	--	16"	3 13/16"
E	4	BENT 5	28"	20"	4"	40"	27 1/2"
F	1	BENT 5	28"	20"	4"	45"	27 7/16"
F	2	BENT 5	26"	20"	4"	35"	25 9/16"
F	3	BENT 5	4"	--	--	16"	3 13/16"
F	4	BENT 5	6"	--	--	45"	5 7/16"

PROJECT NO. 15BPR.133
ASHE COUNTY
BRIDGE NO. 040478

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON
DocuSigned by: Eric Black Jr 12/17/2024
ACB80821190740D...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FRAMING PLAN

DRAWN BY : J. HARRIS DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

GANNETT FLEMING
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919-420-7660
NC Lic. No. F-0270

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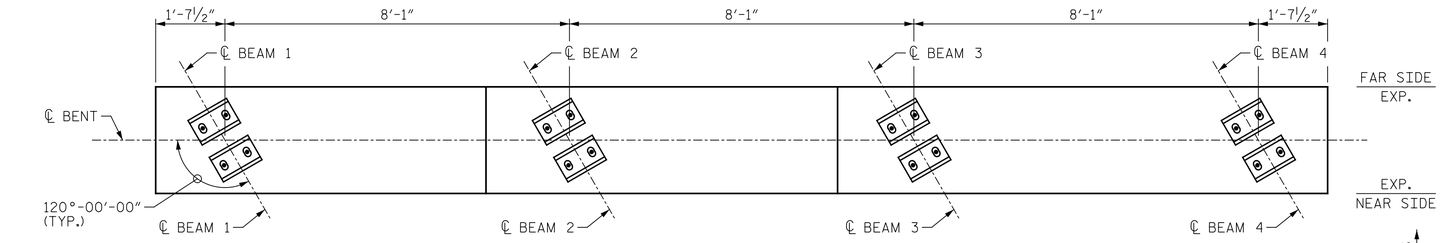
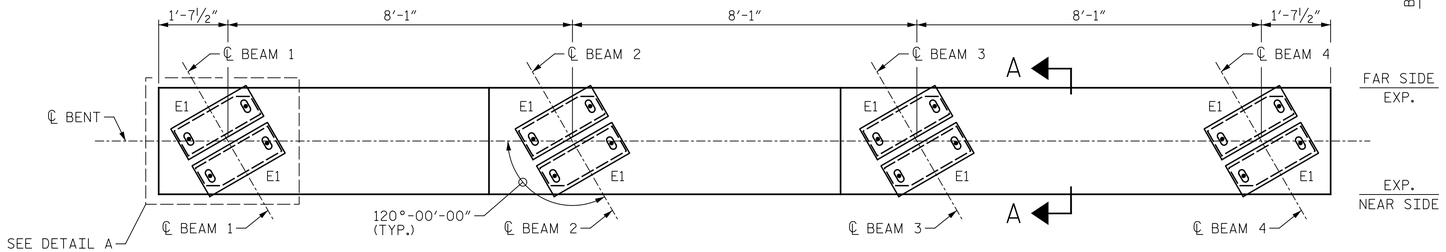
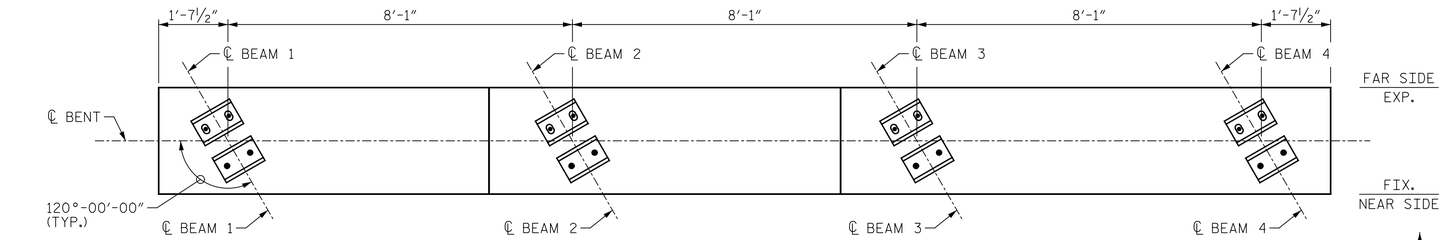
2			4			87



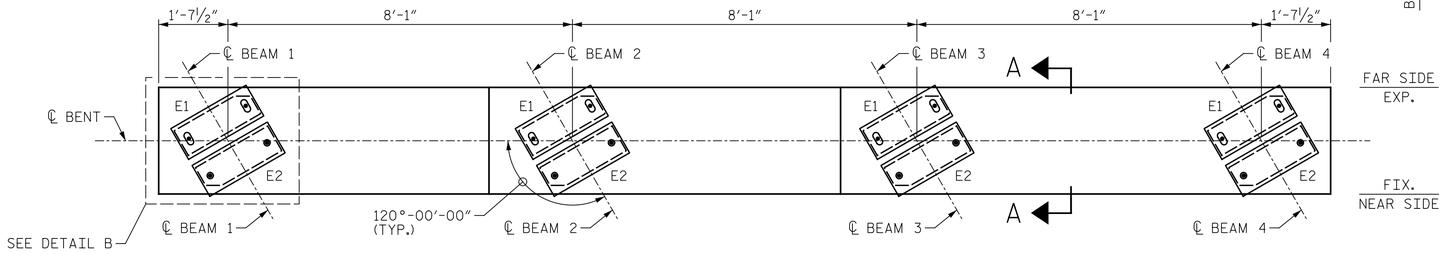
PLAN OF CAP FOR BENT 1
(EXISTING)



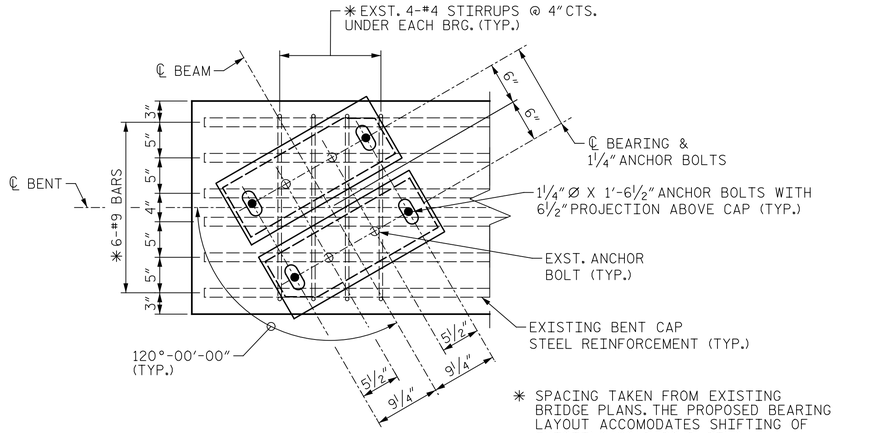
PLAN OF CAP FOR BENT 1
(PROPOSED)



PLAN OF CAP FOR BENTS 2-5
(EXISTING)



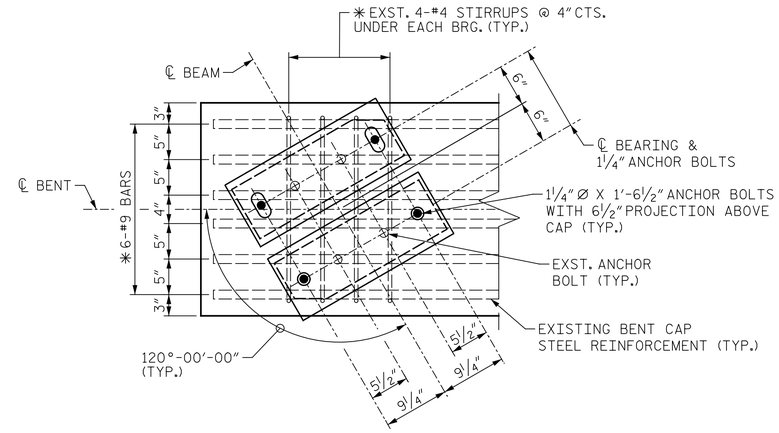
PLAN OF CAP FOR BENTS 2-5
(PROPOSED)



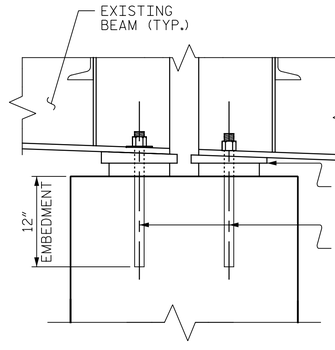
DETAIL A
(PROPOSED BENT 1)

✳ SPACING TAKEN FROM EXISTING BRIDGE PLANS. THE PROPOSED BEARING LAYOUT ACCOMODATES SHIFTING OF EXISTING #9 BARS DURING CONSTRUCTION. NEW ANCHOR BOLTS ARE DETAILED TO MISS EXISTING #9 BARS.

NOTE: EXISTING #4 STIRRUPS MAY BE CUT AS REQUIRED TO INSTALL NEW ANCHOR BOLTS



DETAIL B
(PROPOSED BENTS 2-5)



SECTION A-A
(PROPOSED)

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEARING DETAILS

BEARING LAYOUT

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric B. Nelson Jr. 12/17/2024
ACB8082119D74CD...

GANNETT FLEMING

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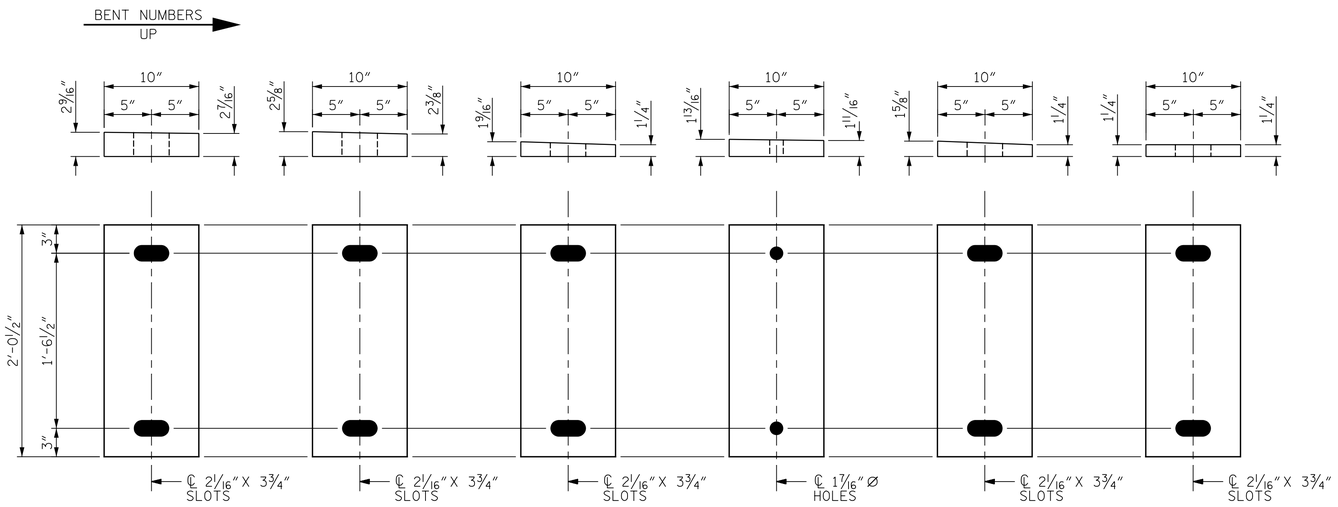
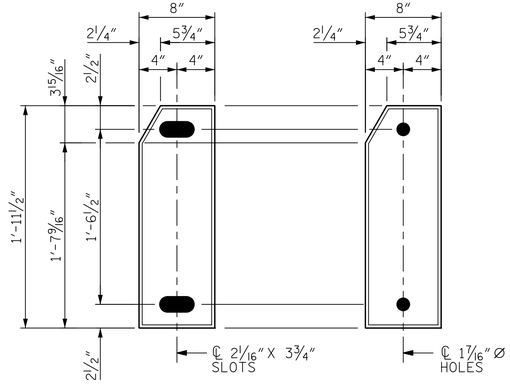
DRAWN BY : M.SPENCER DATE : 03/2022

CHECKED BY : J. YANNACCONE DATE : 03/2022



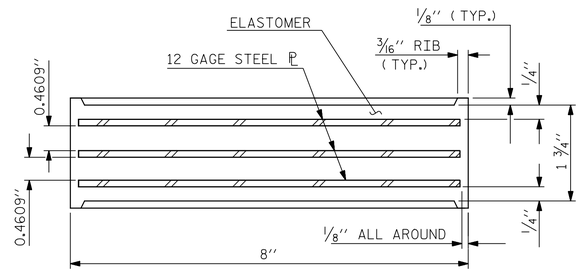
P1 (3 REQ'D) (EXPANSION)
P2 (1 REQ'D) (EXPANSION)
P3 (4 REQ'D) (EXPANSION)
P4 (16 REQ'D) (FIXED)
P5 (13 REQ'D) (EXPANSION)
P6 (3 REQ'D) (EXPANSION)

SOLE ℄ DETAILS



E1 (24 REQ'D) (EXPANSION)
E2 (16 REQ'D) (FIXED)

PLAN VIEW OF ELASTOMERIC BEARING



TYPICAL SECTION OF ELASTOMERIC BEARINGS

NOTES

THE EXISTING BEARINGS SHALL BE REMOVED AND REPLACED WITH BEARINGS AS SHOWN.

CUT EXISTING ANCHOR BOLTS FLUSH TO THE TOP OF CONCRETE. BOLT ENDS SHALL BE COATED WITH AN APPROVED EPOXY PAINT.

THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1 1/4″Ø ANCHOR BOLTS. BOLTS SHALL BE ADHESIVELY ANCHORED BOLTS. ADHESIVE FOR NEW ANCHOR BOLTS SHALL BE AN NCDOT-APPROVED PRODUCT.

EMBEDMENT DEPTH OF ANCHOR BOLT SHALL BE 12″ OR THE DEPTH RECOMMENDED BY THE ADHESIVE MANUFACTURER TO ATTAIN PULL-OUT STRENGTH OF THE TEST LOAD GIVEN BELOW, WHICHEVER DEPTH IS GREATER. FIELD TESTING IS NOT REQUIRED.

DESIGN LOAD SHALL BE 22,500 LBS. TENSION FOR 1 1/4″ ANCHOR BOLTS.

AT ALL POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

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

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

WELDS WILL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TESTS UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

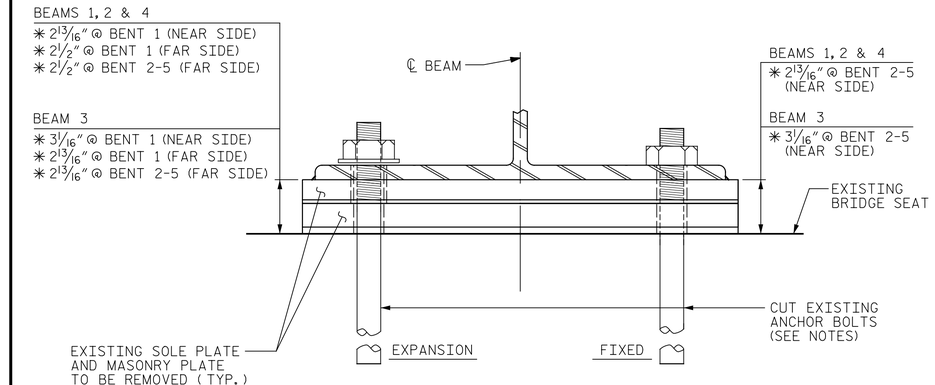
FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.

FOR MODIFIED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

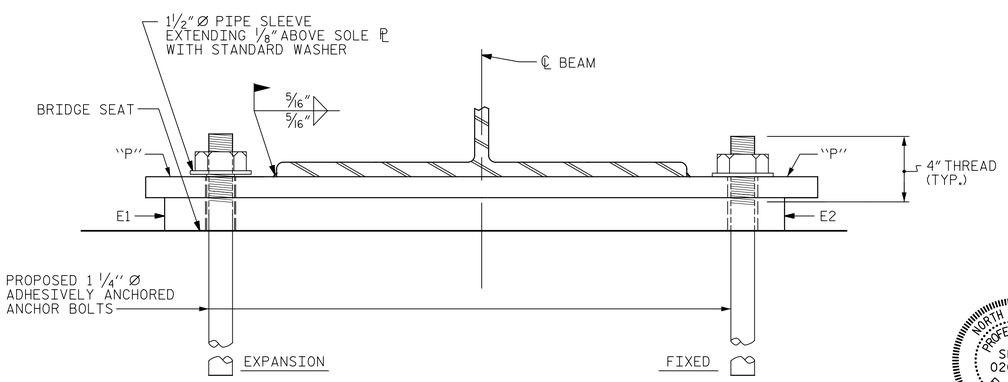
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE I	140 k

MODIFIED TYPE I



END VIEW
(EXISTING BEARINGS)
✳FIELD VERIFY



END VIEW
(PROPOSED BEARINGS)

PROJECT NO. 15BPR.133
ASHE COUNTY
BRIDGE NO. 040478

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEARING DETAILS

MODIFIED TYPE I ELASTOMERIC BEARINGS

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric Black Jr 12/17/2024
ACB80821190740D...

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NC Lic.No.F-0270

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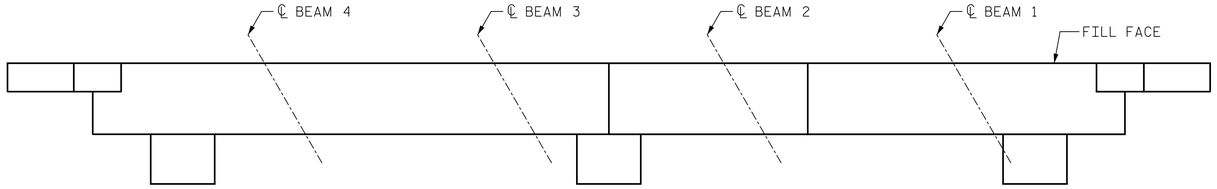
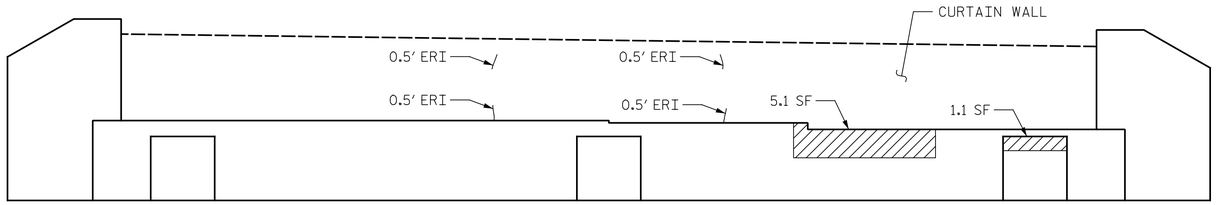
CHECKED BY : J. YANNACCONE DATE : 03/2022



TOP OF CAP



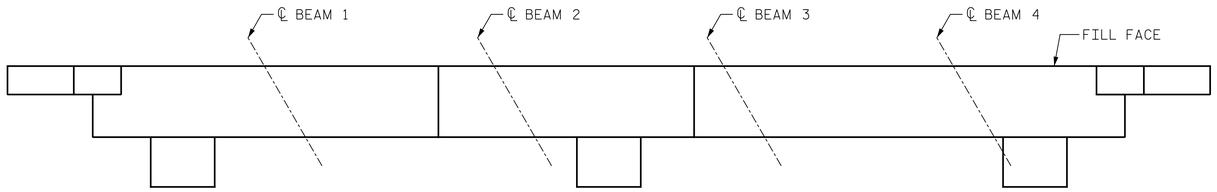
ELEVATION

END BENT 1

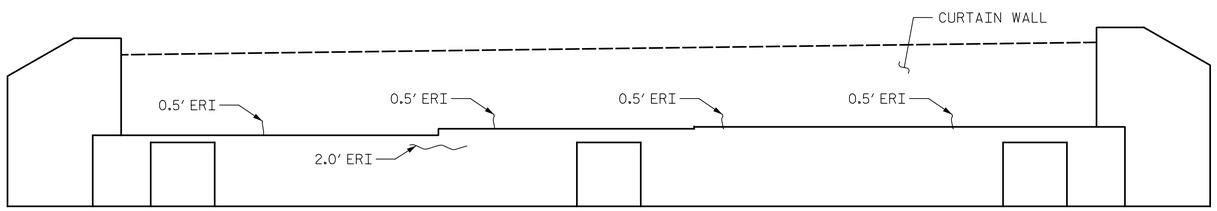
CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



TOP OF CAP



ELEVATION

END BENT 2

AS-BUILT REPAIR QUANTITY TABLE

END BENT 1 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	6.2	3.1			
CURTAIN WALL	0.0	0.0			
CONCRETE REPAIRS	0.0	0.0			
EPOXY RESIN INJECTION		LENGTH LF		LENGTH LF	
CAP		0.0			
CURTAIN WALL		2.0			
EPOXY COATING		SQ. FT		SQ. FT	
TOP OF BENT CAP		0			

END BENT 2 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	0.0	0.0			
CURTAIN WALL	0.0	0.0			
CONCRETE REPAIRS	0.0	0.0			
EPOXY RESIN INJECTION		LENGTH LF		LENGTH LF	
CAP		2.0			
CURTAIN WALL		2.0			
EPOXY COATING		SQ. FT		SQ. FT	
TOP OF BENT CAP		0			

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

NOTES:

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 1 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

END BENT 1 & 2

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC A. NELSON

DocuSigned by: Eric Nelson 12/17/2024
ACB8082119D74CD...

DRAWN BY : J. HARRIS DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

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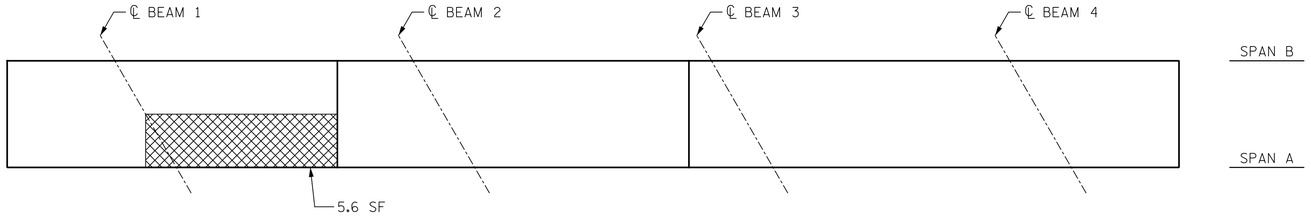
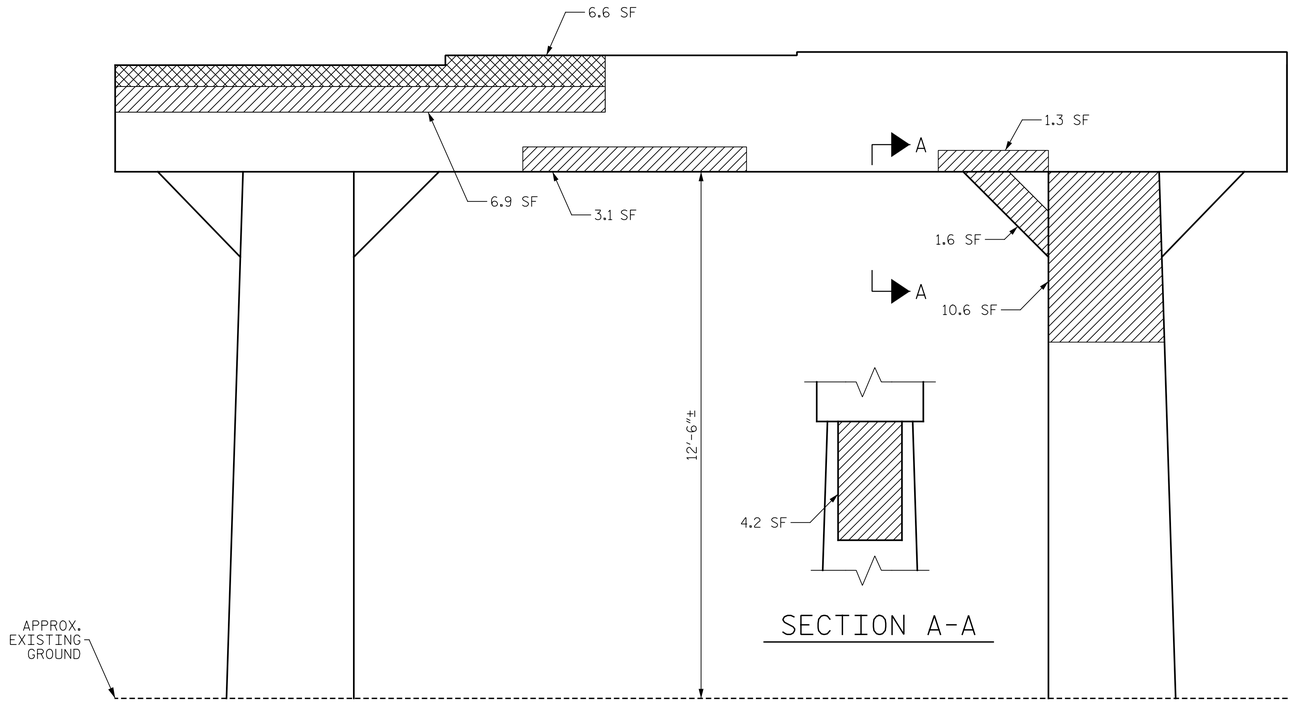
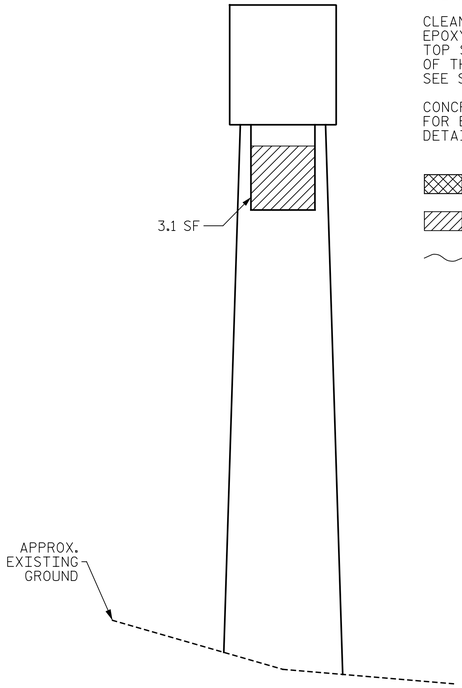


TOP OF CAP



SECTION A-A

ELEVATION



END VIEW
(COLUMN 2)

AS-BUILT REPAIR QUANTITY TABLE

BENT 1 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	11.3	5.7			
COLUMN	42.6	21.3			
CONCRETE REPAIRS	12.2	6.1			
EPOXY RESIN INJECTION		LENGTH LF		LENGTH LF	
CAP		0.0			
COLUMN		0.0			
EPOXY COATING		SQ. FT		SQ. FT	
TOP OF BENT CAP		68			

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

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FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 2 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 1
SPAN A SIDE

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: Eric B Nelson Jr 12/17/2024
ACB80821190740D...

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DRAWN BY : R. LEON/M.SPENCER DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

BOTTOM OF CAP

NOTES:

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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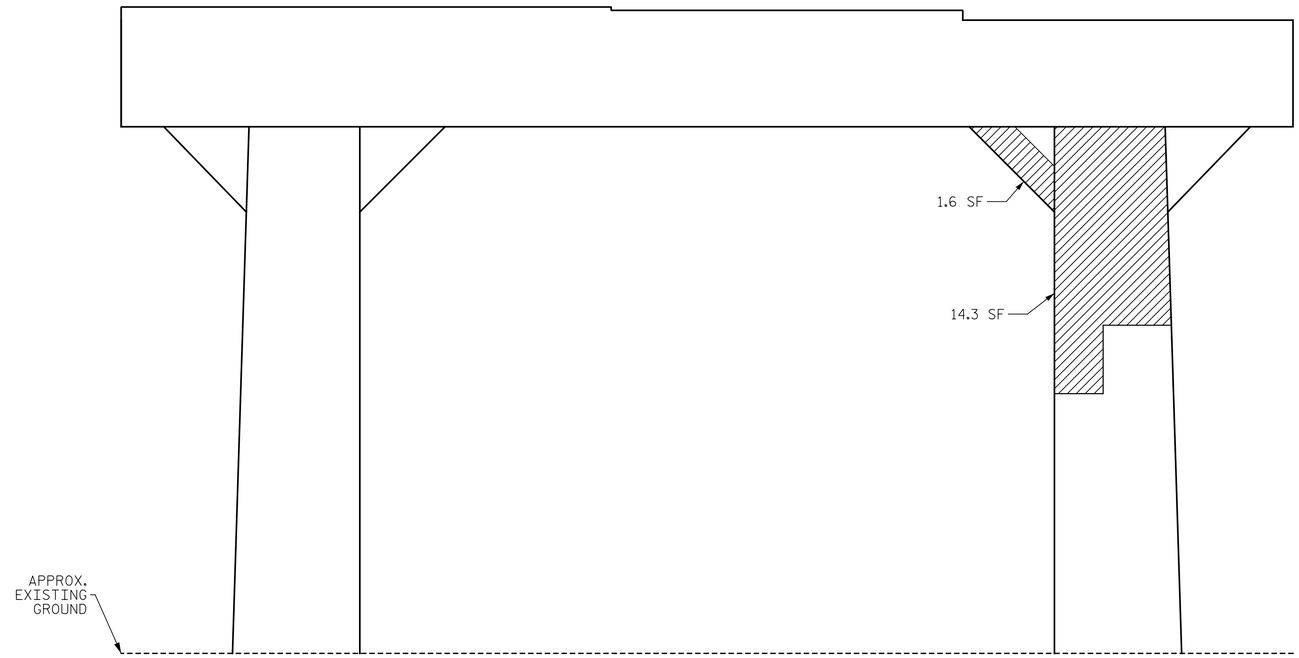
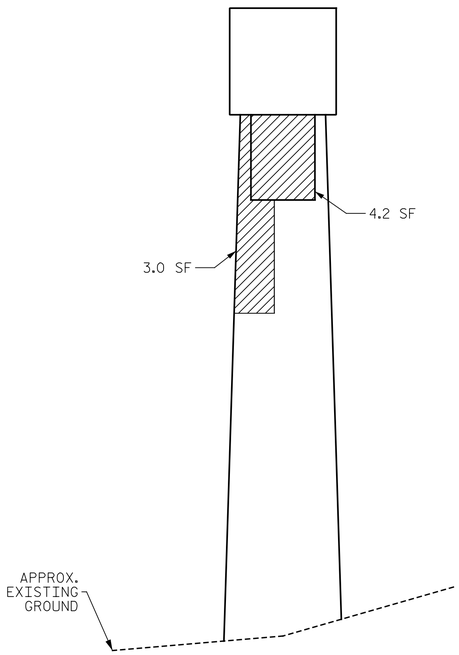
CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



ELEVATION



END VIEW
(COLUMN 1)

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: Eric B Nelson Jr 12/17/2024
ACB80821195D74CD...

PROJECT NO. 15BPR.133
ASHE COUNTY
BRIDGE NO. 040478

SHEET 3 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 1
SPAN B SIDE

REVISIONS						SHEET NO.
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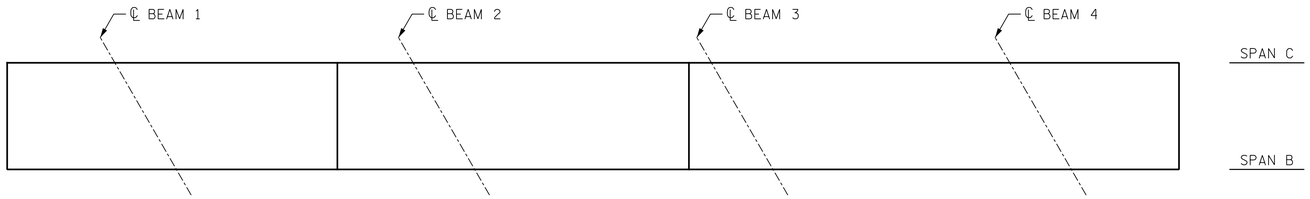
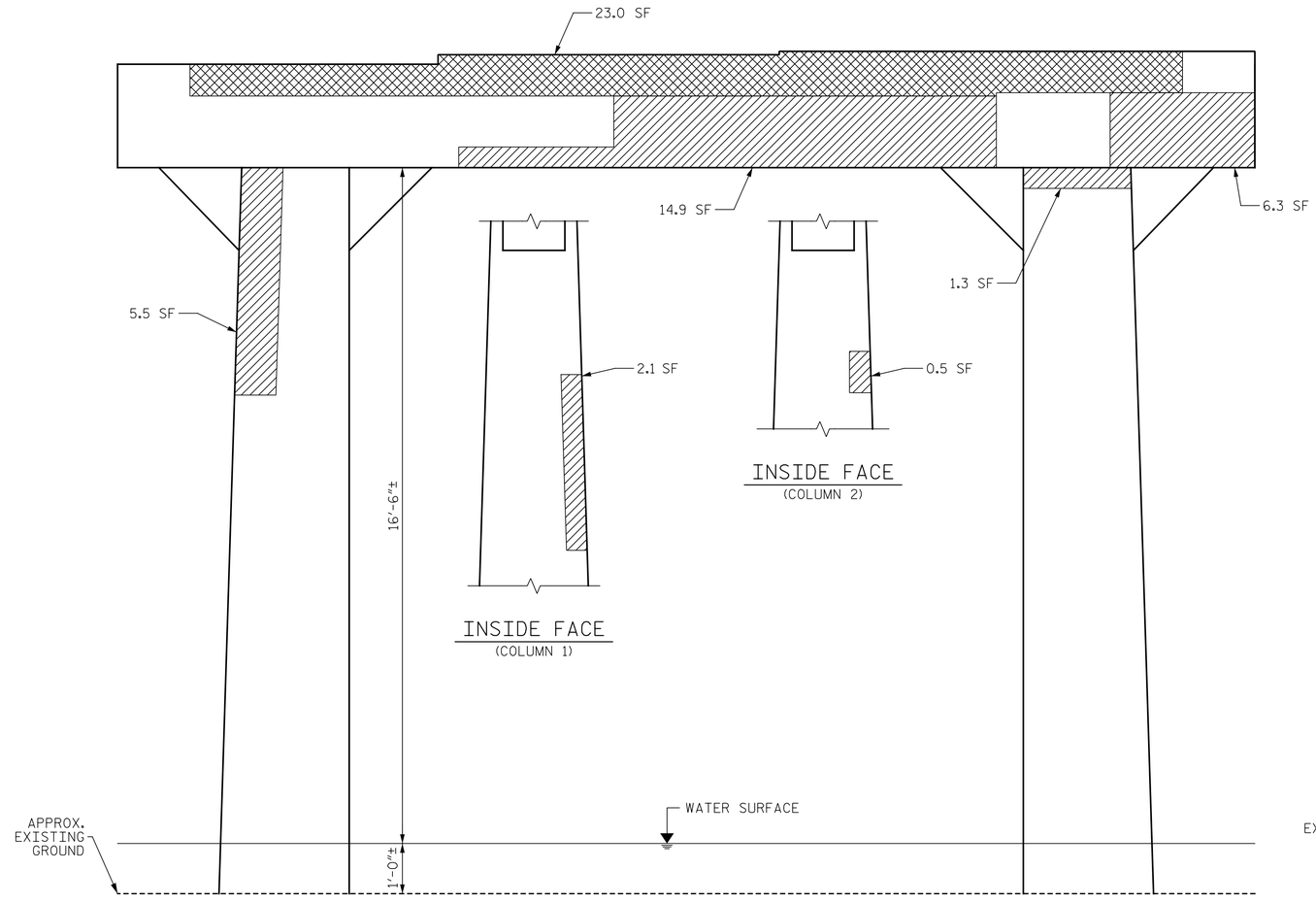
CHECKED BY : J. YANNACCONE DATE : 03/2022



TOP OF CAP



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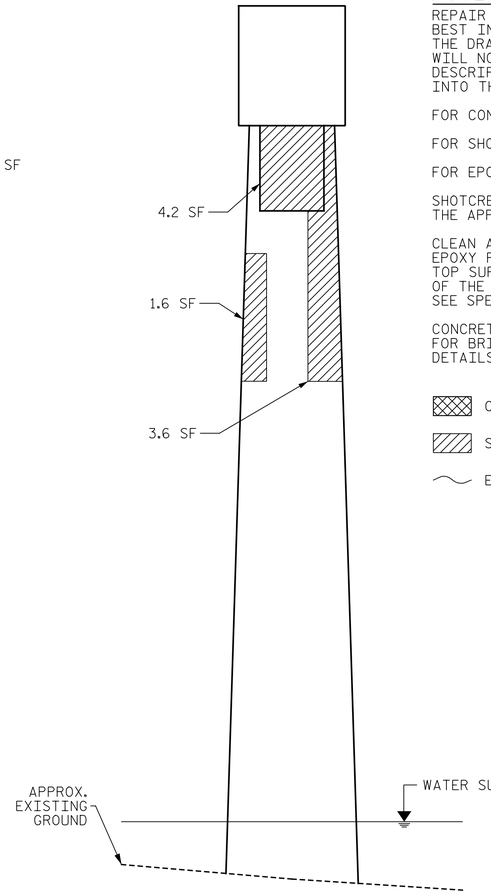

END VIEW
(COLUMN 2)

AS-BUILT REPAIR QUANTITY TABLE

BENT 2 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	25.2	12.6			
COLUMN	58.3	29.2			
CONCRETE REPAIRS	24.5	12.3			
EPOXY RESIN INJECTION		LENGTH LF		LENGTH LF	
CAP		0.0			
COLUMN		0.0			
EPOXY COATING		SQ. FT		SQ. FT	
TOP OF BENT CAP		68			

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

NOTES:

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 4 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 2
SPAN B SIDE

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: Eric Nelson Jr 12/17/2024
ACB8082119D74CD...

DRAWN BY : R. LEON/M.SPENCER DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

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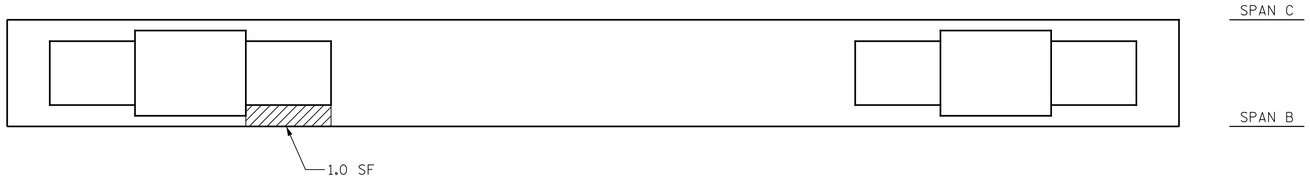
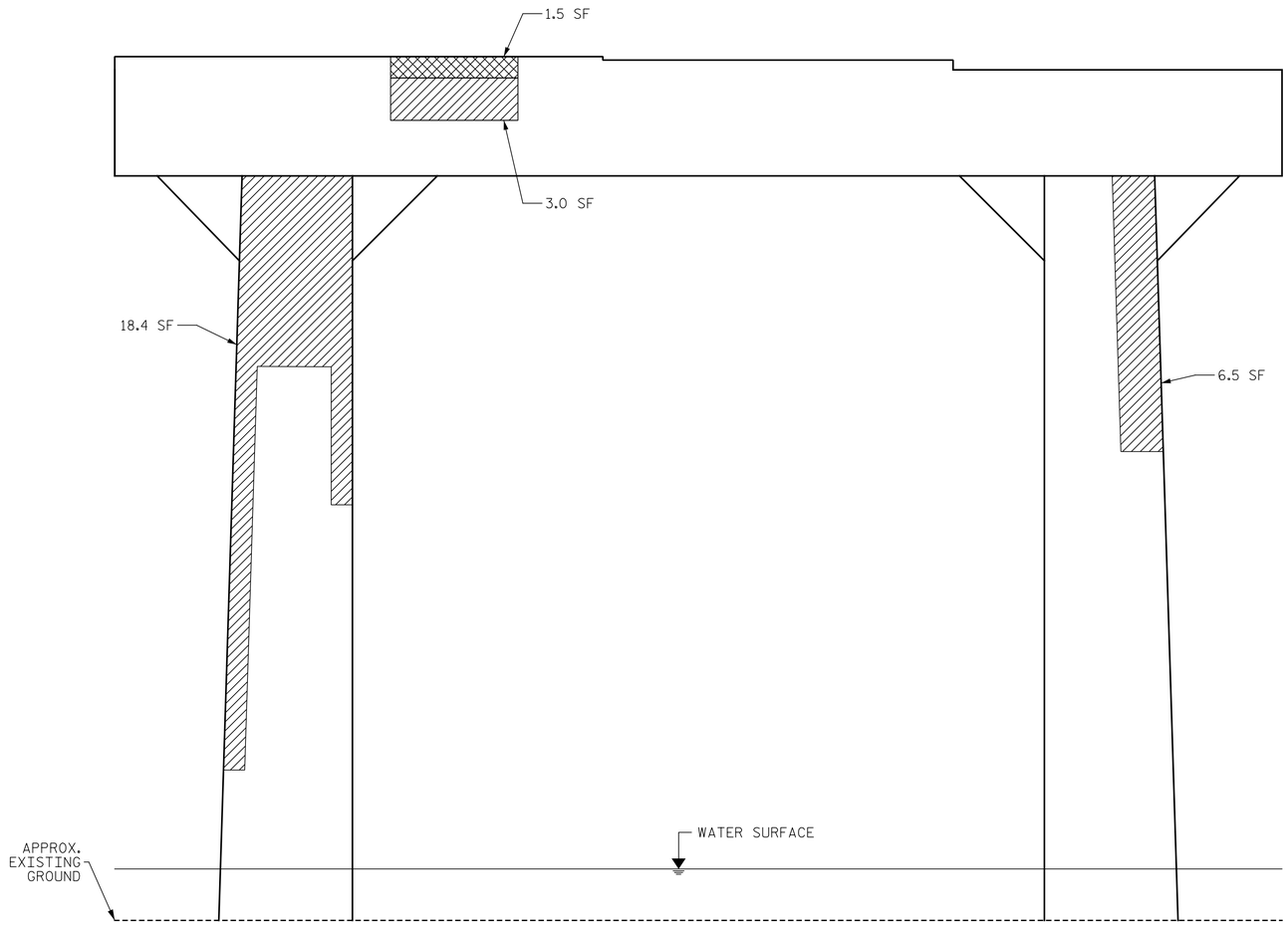
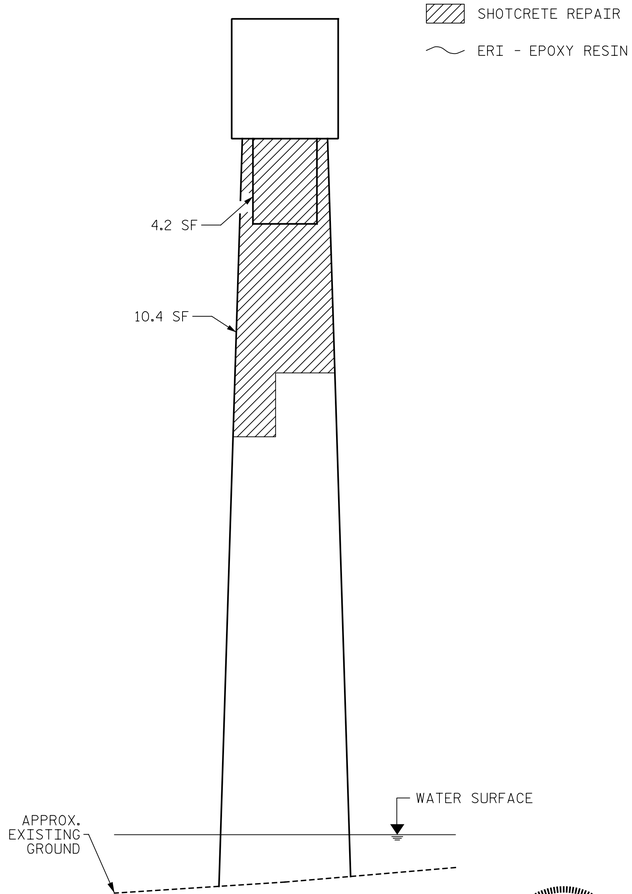


BOTTOM OF CAP



ELEVATION



END VIEW
(COLUMN 1)

NOTES:

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric B Nelson Jr. 12/17/2024
ACB8082119D74CD...

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 5 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 2
SPAN C SIDE

DRAWN BY : R. LEON/M.SPENCER DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

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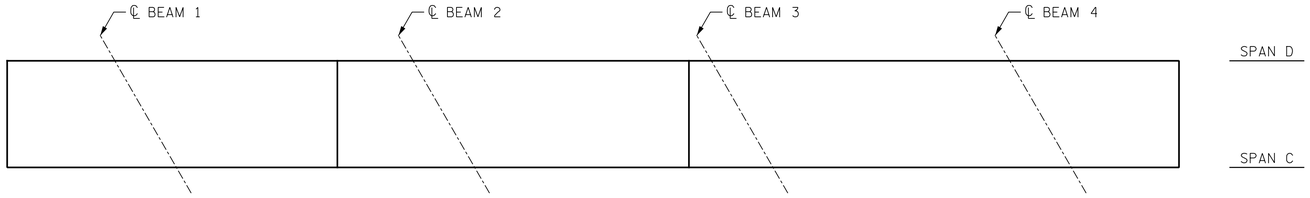
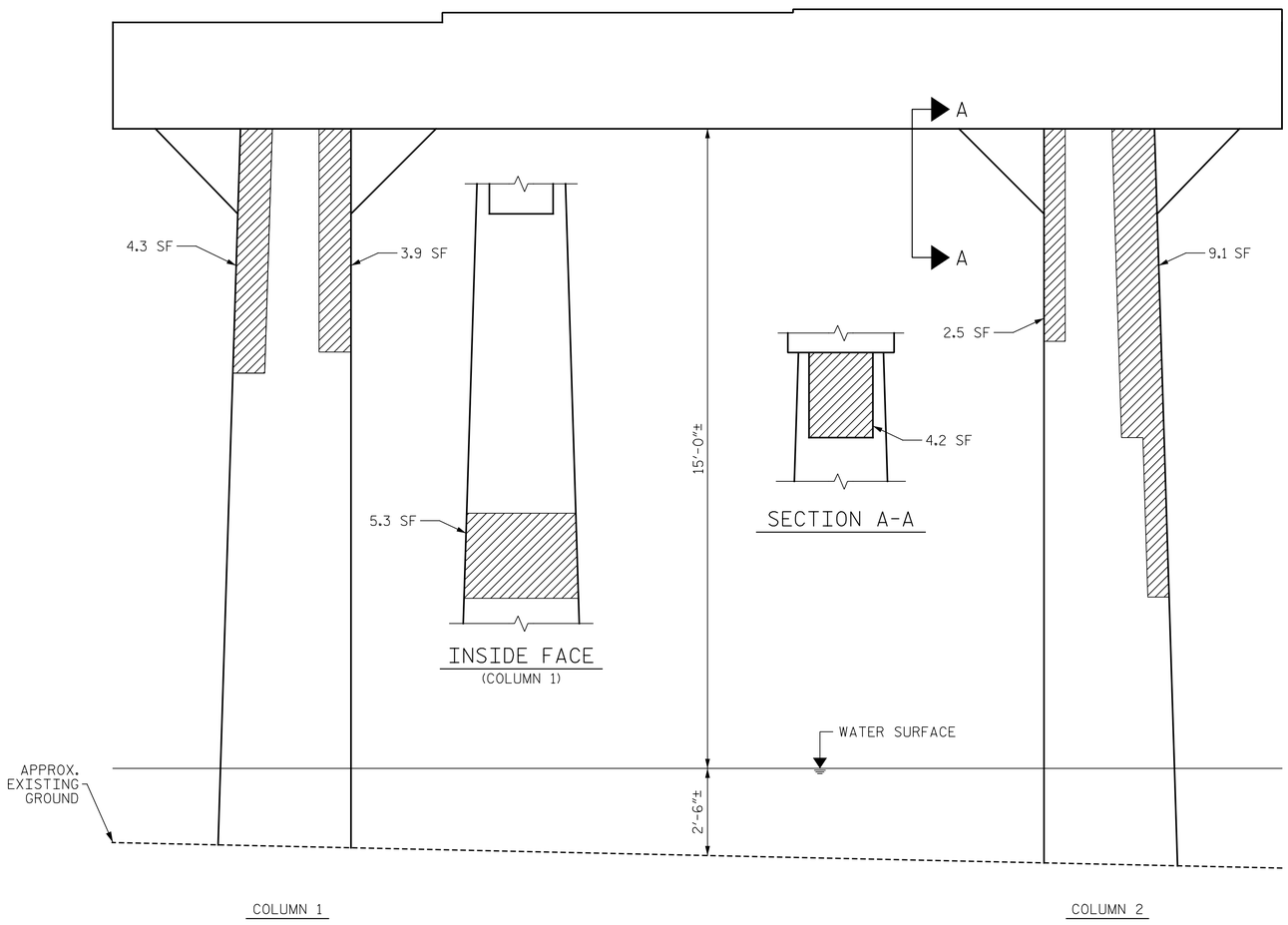
2			4			87



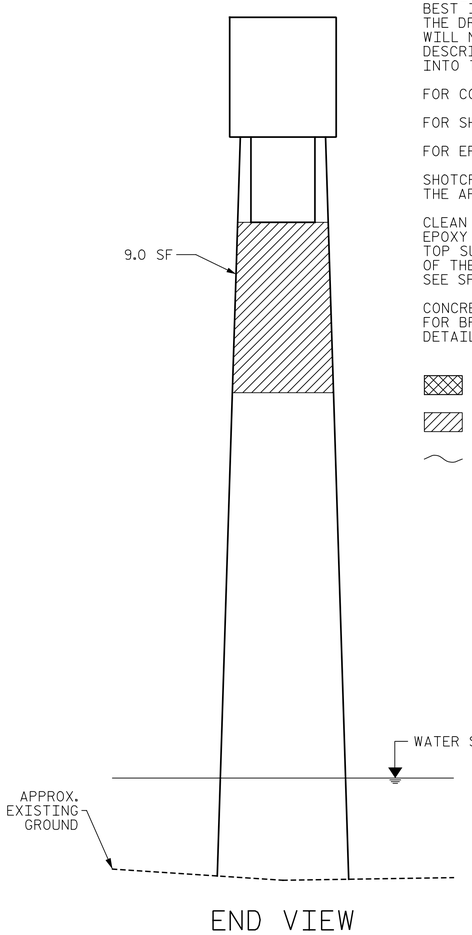
TOP OF CAP



SECTION A-A

INSIDE FACE
(COLUMN 1)

ELEVATION



END VIEW
(COLUMN 2)

AS-BUILT REPAIR QUANTITY TABLE

BENT 3 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	4.3	2.2			
COLUMN	45.0	22.5			
CONCRETE REPAIRS	3.5	1.8			
EPOXY RESIN INJECTION		LENGTH LF		LENGTH LF	
CAP		0.0			
COLUMN		0.0			
EPOXY COATING		SQ. FT		SQ. FT	
TOP OF BENT CAP		68			

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

NOTES:

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 6 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 3
SPAN C SIDE

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: Eric B. Nelson Jr. ACB80821190740D... 12/17/2024

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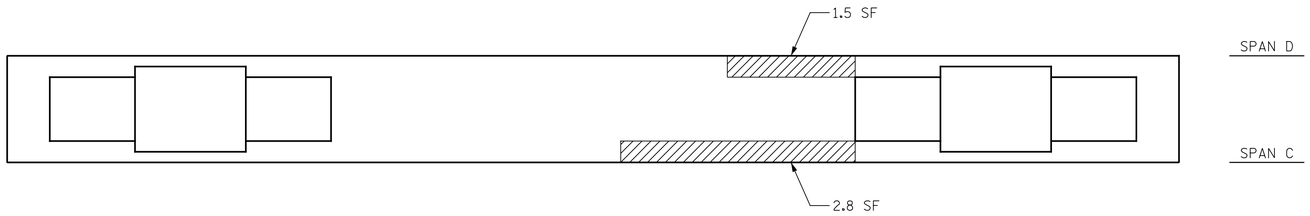
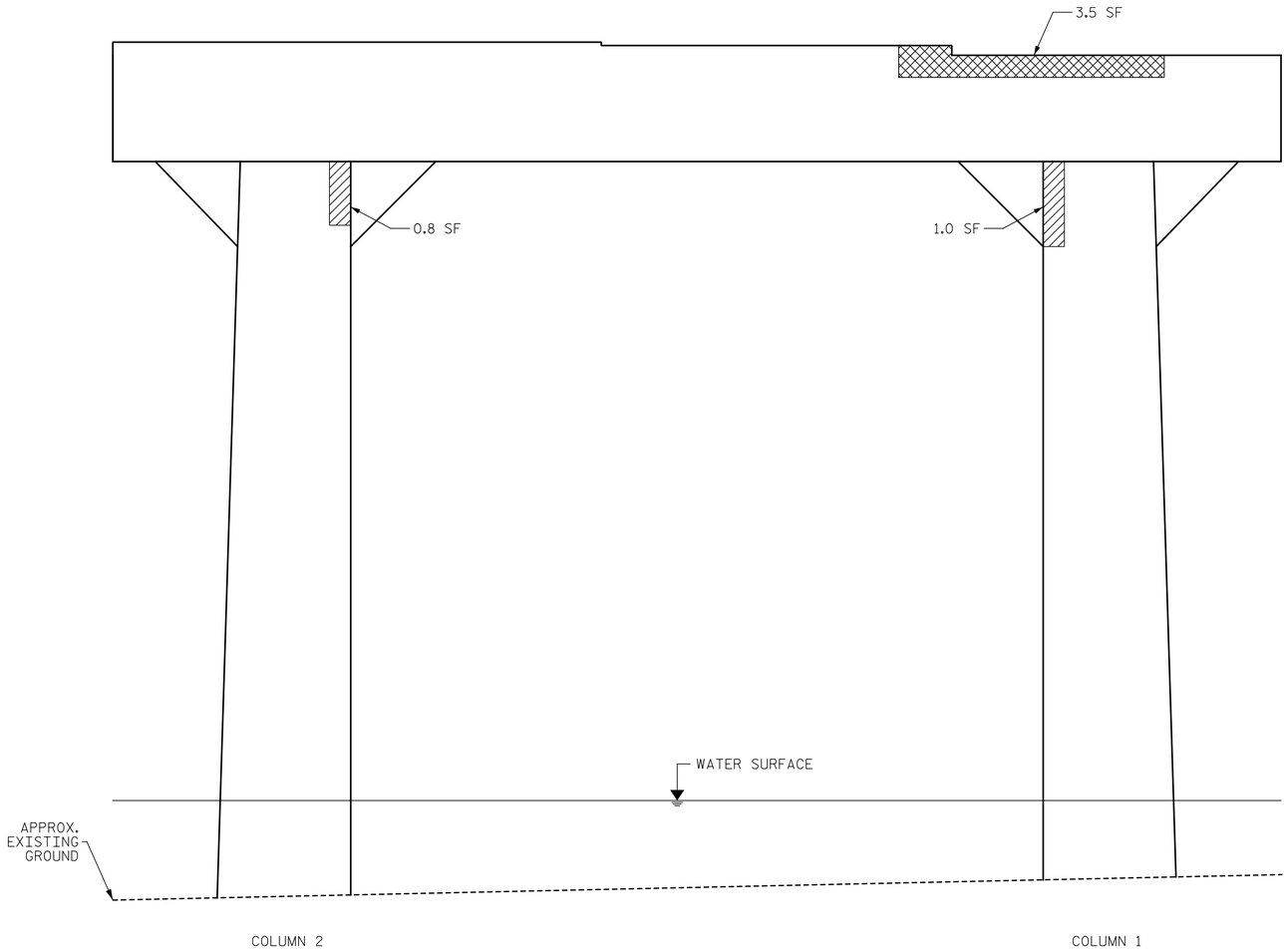


BOTTOM OF CAP



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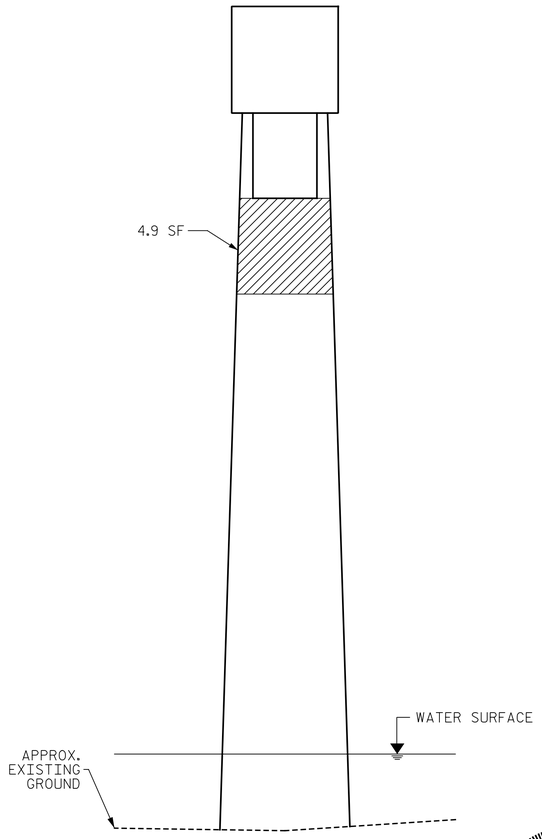

END VIEW
(COLUMN 1)

NOTES:

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric Nelson 12/17/2024
ACB8082119D74CD...

PROJECT NO. 15BPR.133
ASHE COUNTY
BRIDGE NO. 040478
SHEET 7 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 3
SPAN D SIDE

DRAWN BY : R. LEON/M.SPENCER DATE : 03/2022
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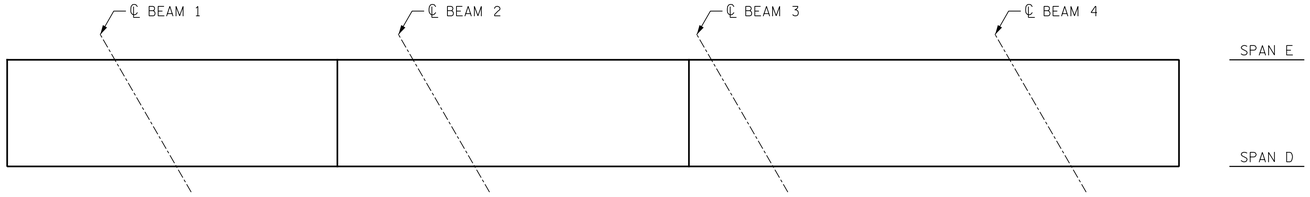
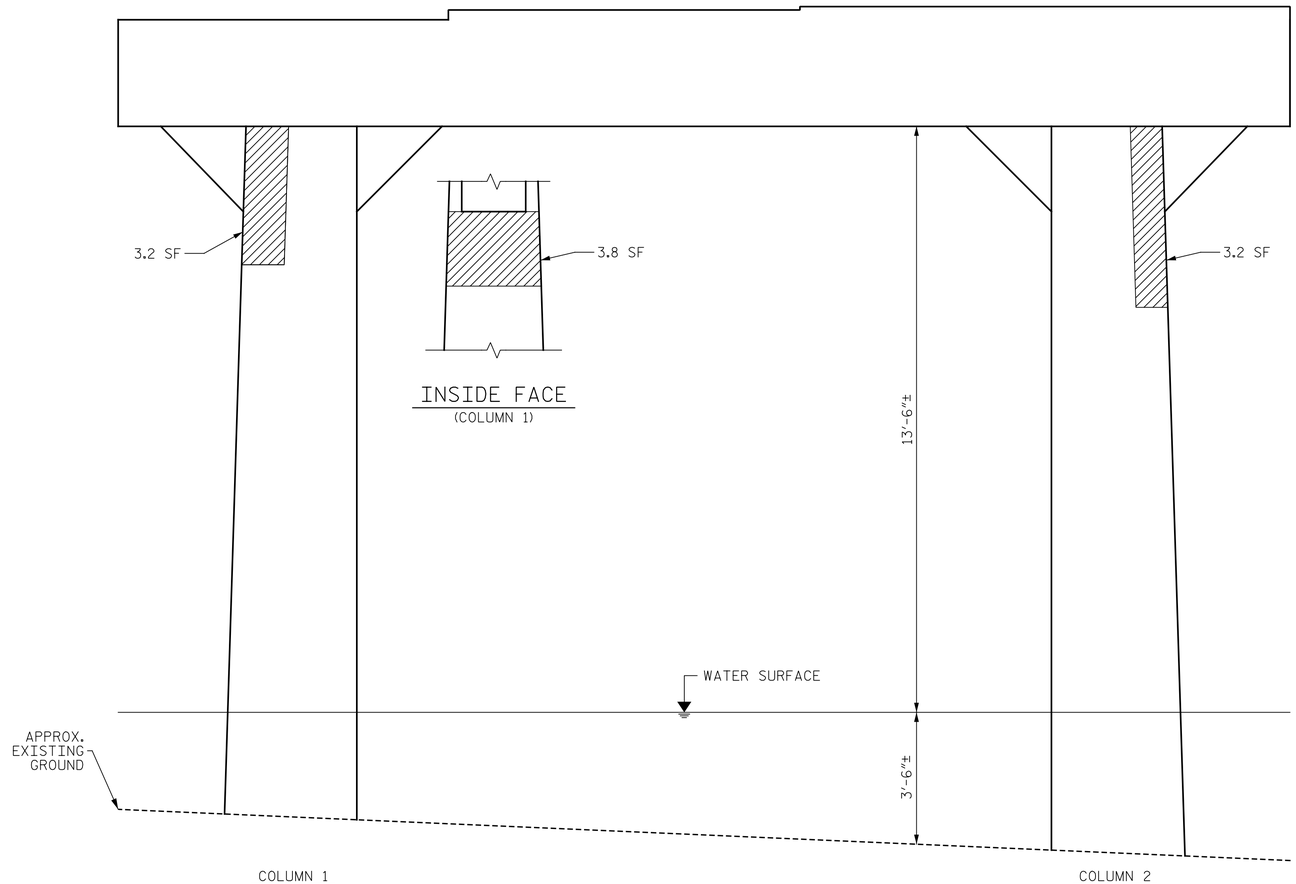


TOP OF CAP



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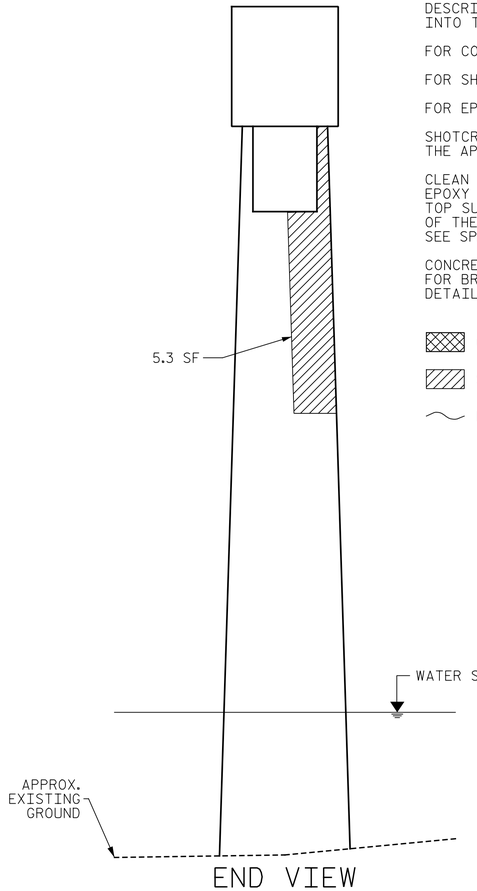

END VIEW
(COLUMN 2)

AS-BUILT REPAIR QUANTITY TABLE

BENT 4 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	34.3	17.2			
COLUMN	23.4	11.7			
CONCRETE REPAIRS	0.0	0.0			
EPOXY RESIN INJECTION		LENGTH LF		LENGTH LF	
CAP		0.0			
COLUMN		0.0			
EPOXY COATING		SQ. FT		SQ. FT	
TOP OF BENT CAP		68			

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

NOTES:

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

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

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 8 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 4
SPAN D SIDE

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: Eric B. Nelson Jr. 12/17/2024
ACB8082119D74CD...

DRAWN BY : R. LEON/M.SPENCER DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

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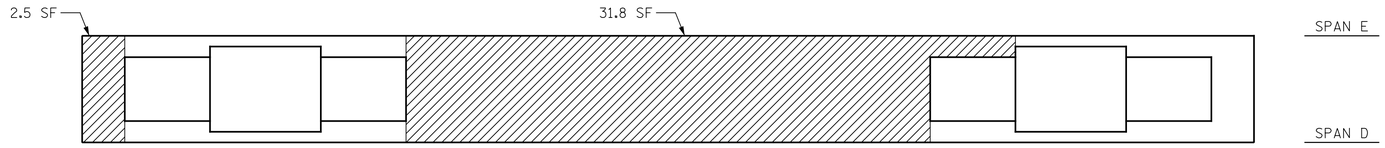
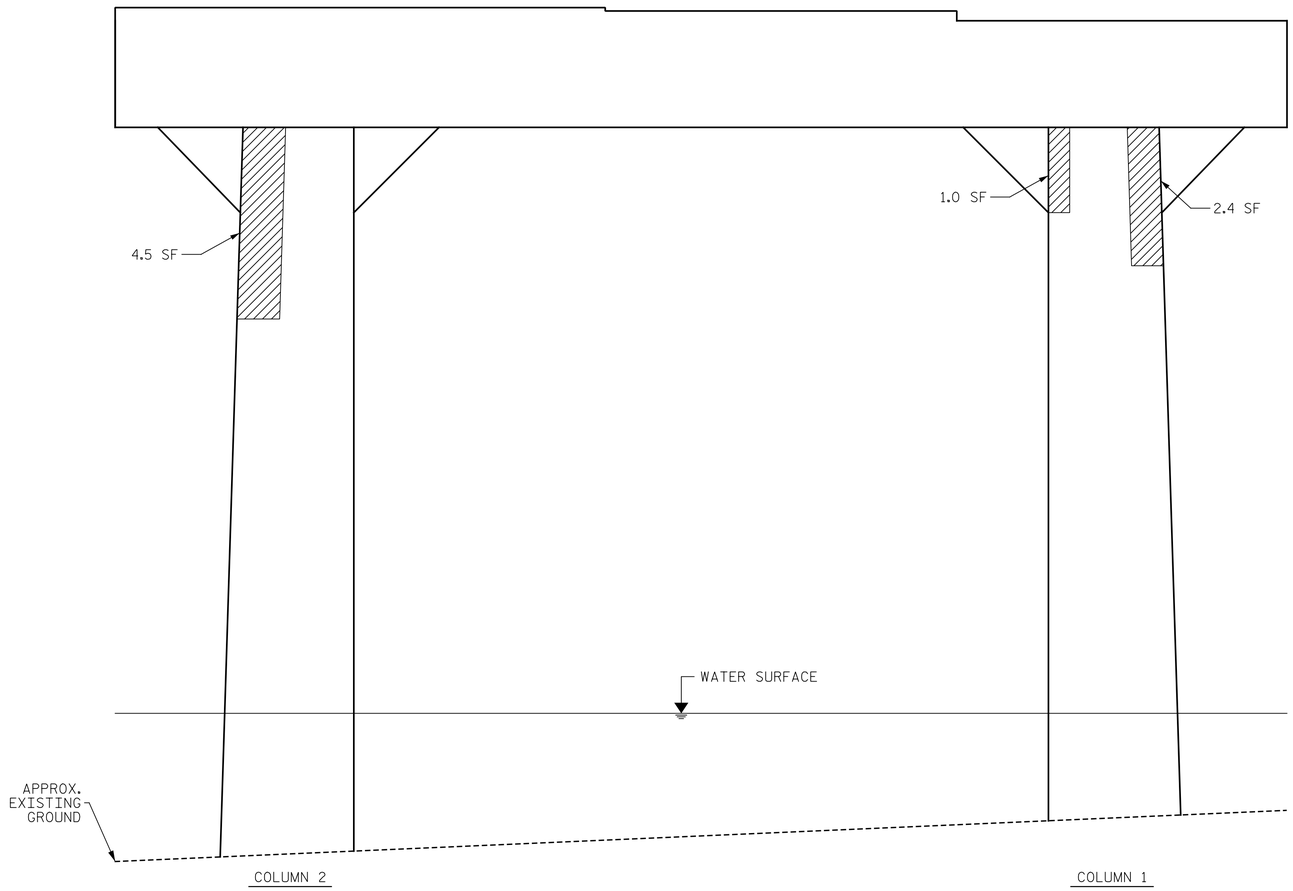
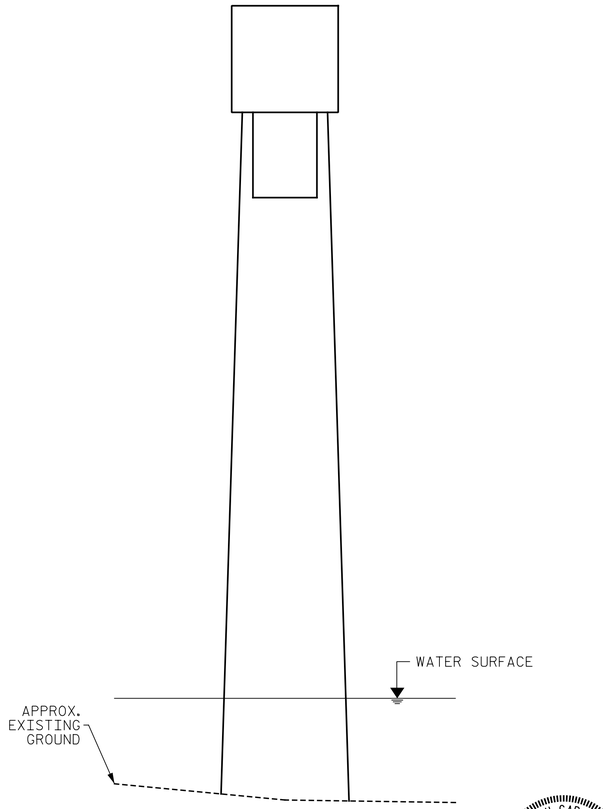


BOTTOM OF CAP



ELEVATION



END VIEW

(COLUMN 1)

NOTES:

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FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric Black Jr. 12/17/2024
AC8808211907 4CD...

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 9 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 4
SPAN E SIDE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S3-22
1			3			TOTAL SHEETS
2			4			87

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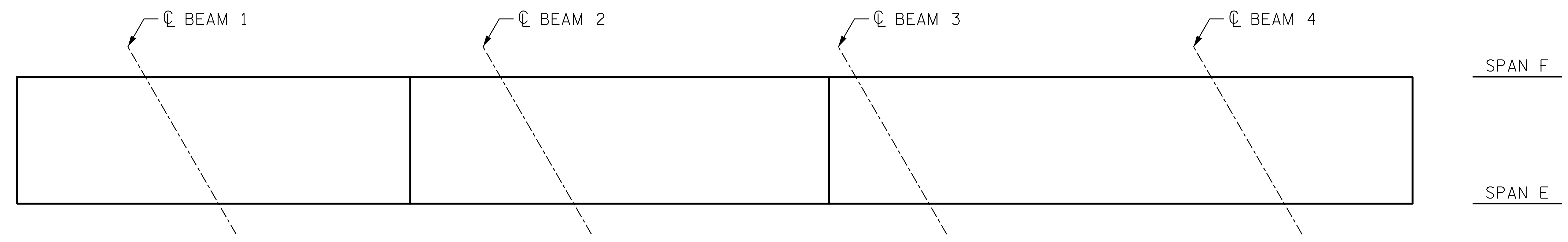
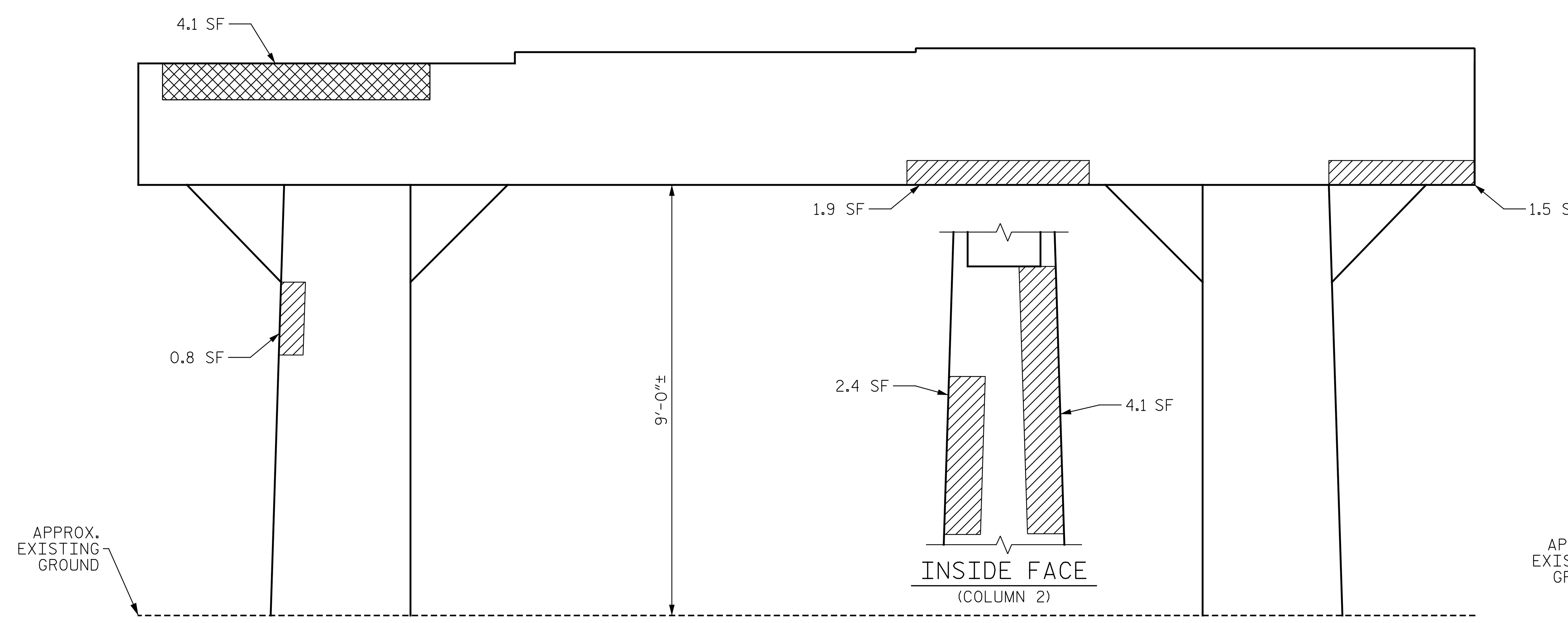
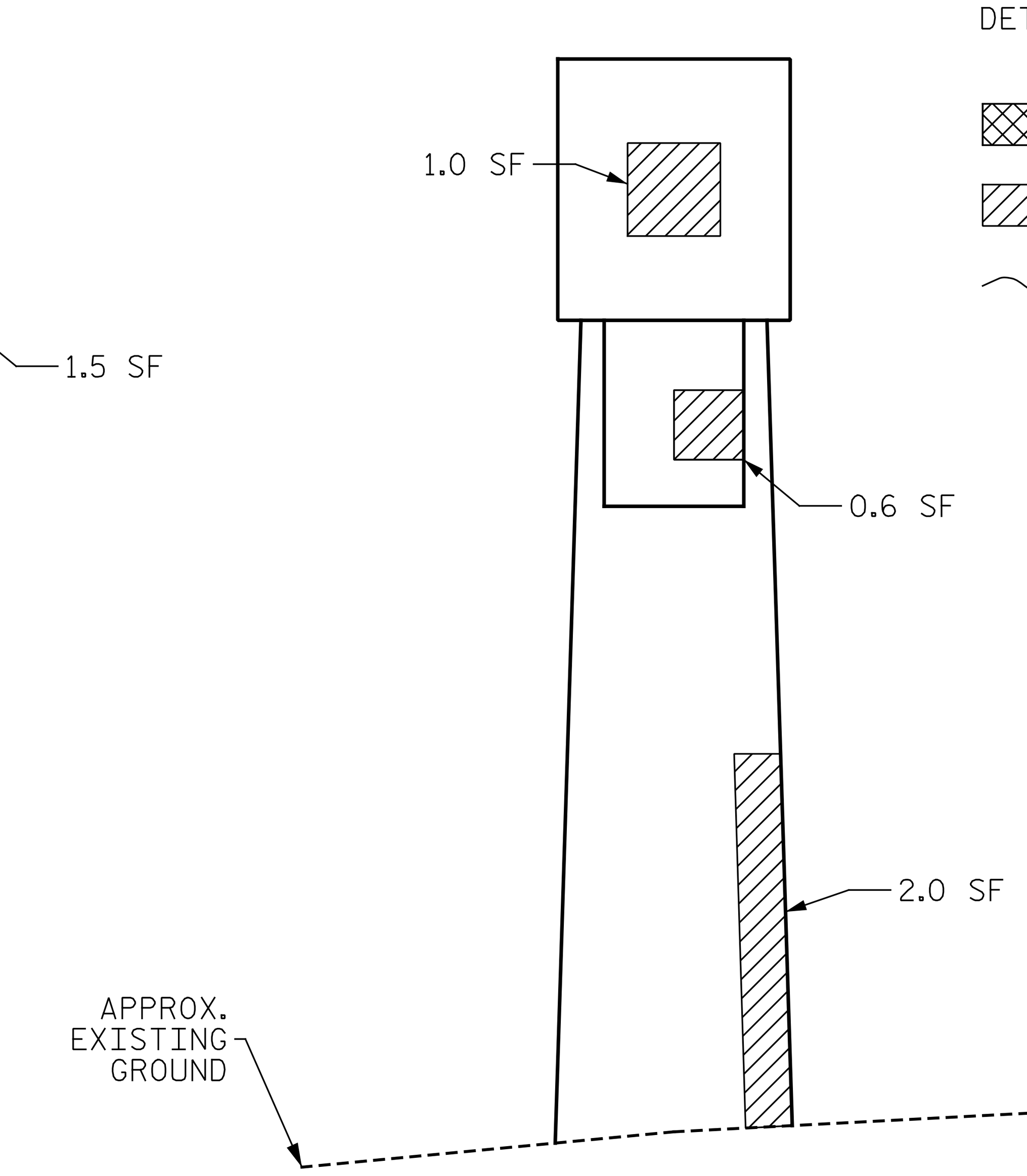


TOP OF CAP



ELEVATION



END VIEW
(COLUMN 2)

AS-BUILT REPAIR QUANTITY TABLE

BENT 5 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	19.1	9.1			
COLUMN	11.4	6.2			
CONCRETE REPAIRS	6.5	3.3			
EPOXY RESIN INJECTION		LENGTH LF	LENGTH LF		
CAP		0.0			
COLUMN		0.0			
EPOXY COATING		SQ. FT	SQ. FT		
TOP OF BENT CAP		68			

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

NOTES:

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 10 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 5
SPAN E SIDE

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: 12/17/2024
ACB8062119D74CD...

GANNETT FLEMING
One Glenwood Avenue
Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic. No. F-0270

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2			4				87

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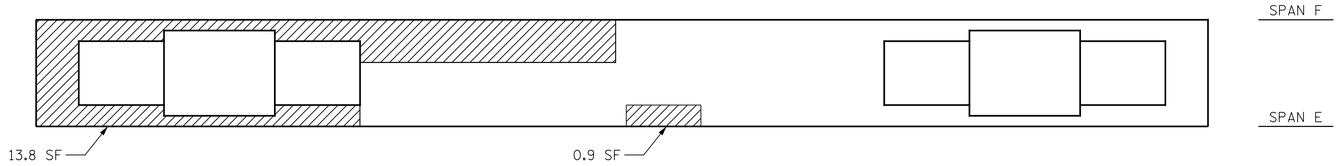
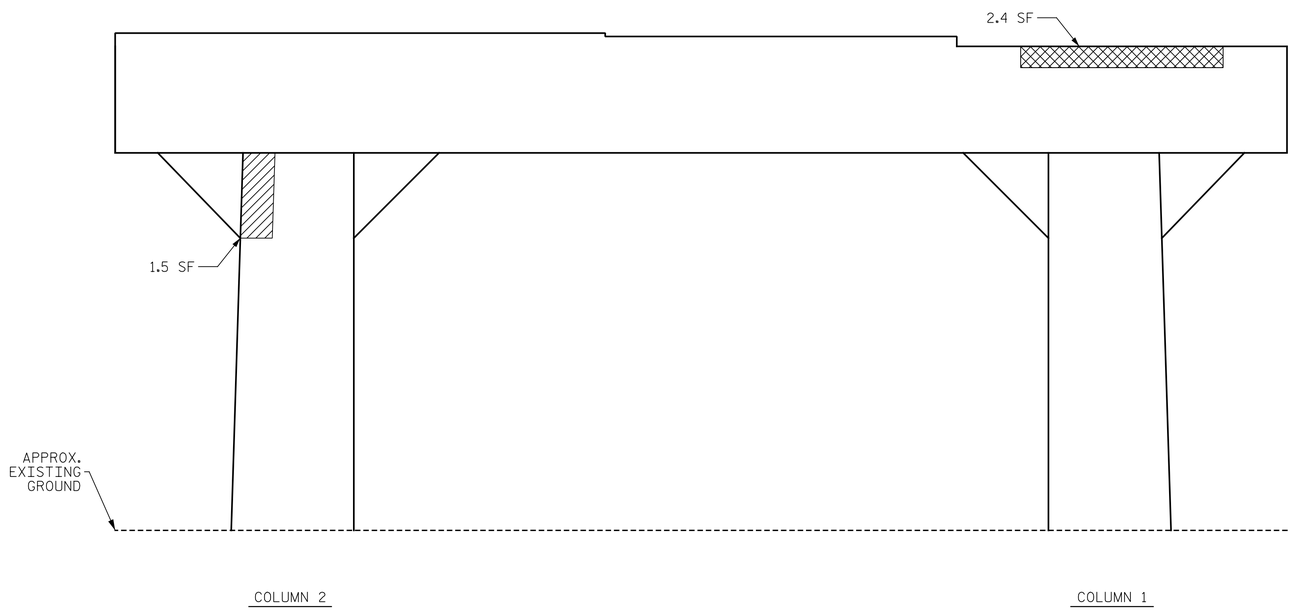
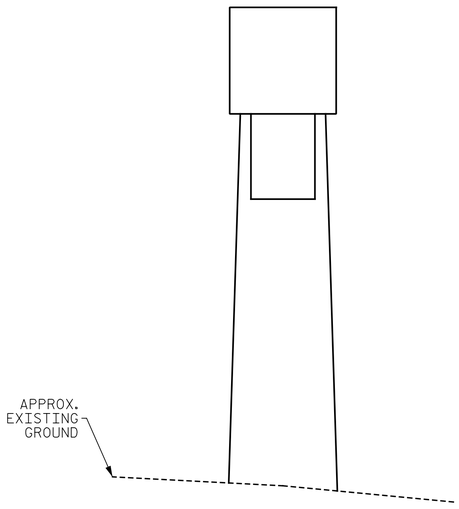


BOTTOM OF CAP



ELEVATION



END VIEW
(COLUMN 1)

NOTES:

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: Eric Nelson Jr. 12/17/2024
ACB8082119D74CD...

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478

SHEET 11 OF 11

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 5
SPAN F SIDE

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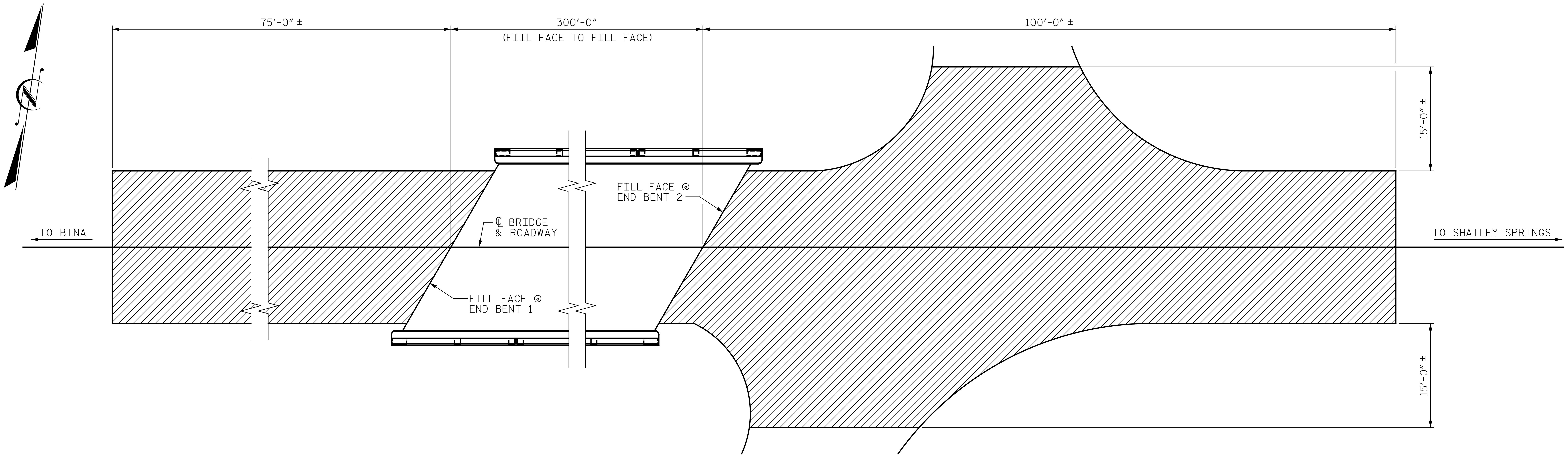
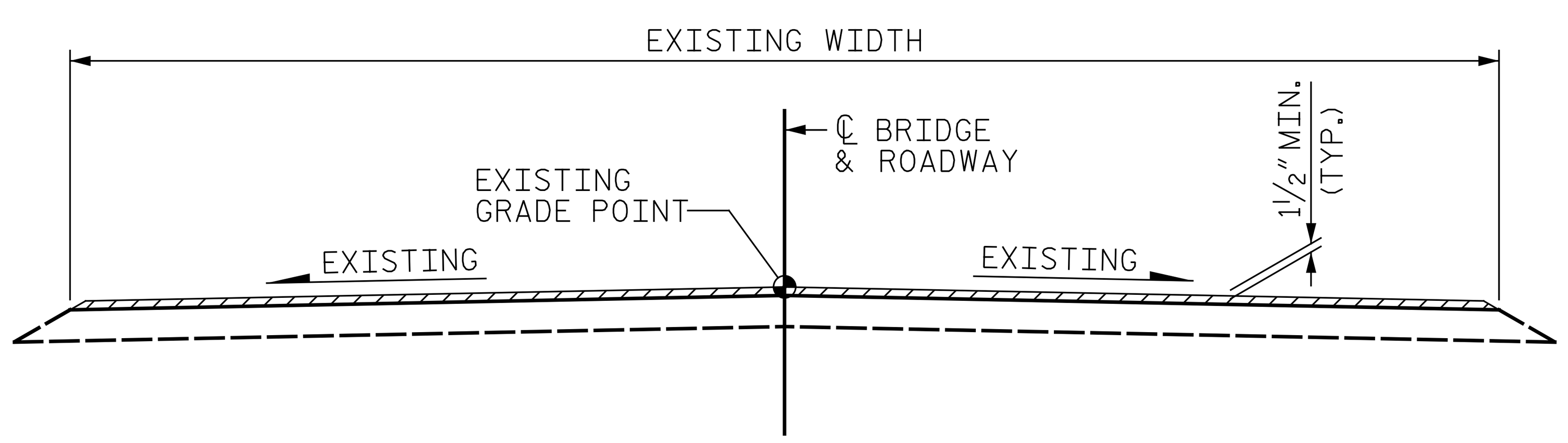


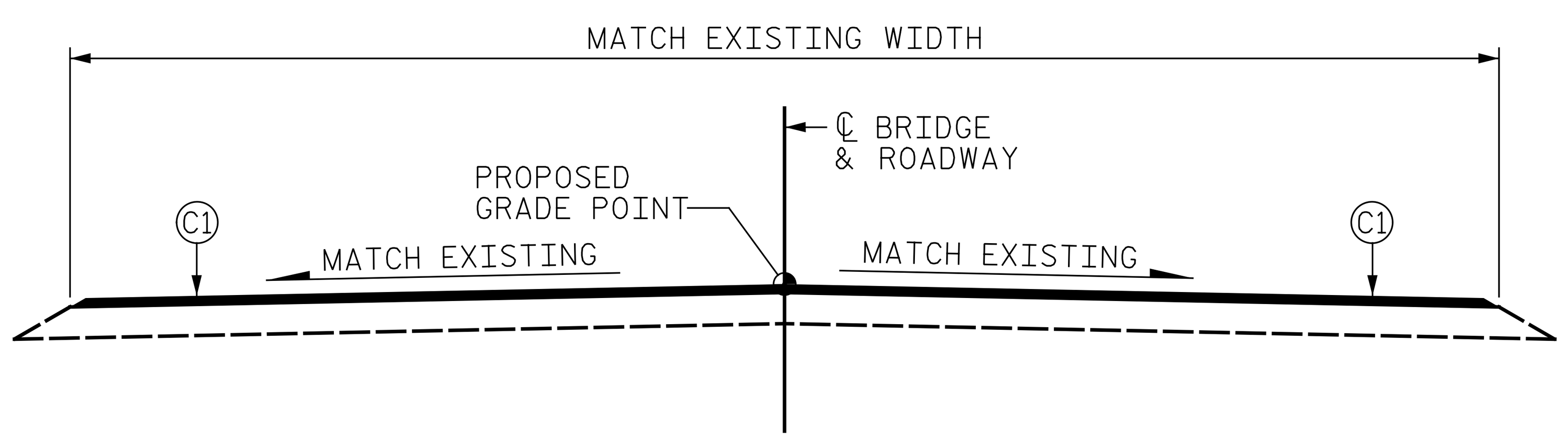
PLAN

AS-BUILT REPAIR QUANTITY TABLE		
DESCRIPTION	ESTIMATE	ACTUAL
INCIDENTAL MILLING	544 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	75 TONS	
ASPHALT BINDER FOR PLANT MIX	5 TONS	



TYPICAL ROADWAY MILLING SECTION

(MILLING DEPTH VARIES, SEE NOTES)



TYPICAL FINAL ROADWAY SECTION

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 CREATE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. NEW ASPHALT PAVING THICKNESS MAY EXCEED 1½" DUE TO SETTLEMENT OF THE EXISTING APPROACH.

AT THE END BENTS, MILL APPROXIMATELY TO A 3" DEPTH AT THE FILL FACE AND TAPER THE DEPTH TO APPROXIMATELY 1½" AT THE ENDS OF THE MILLED AREA.

- INCIDENTAL MILLING

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

PROJECT NO. 15BPR.133
ASHE COUNTY
BRIDGE NO. 040478

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH MILLING AND TYPICAL ROADWAY SECTIONS

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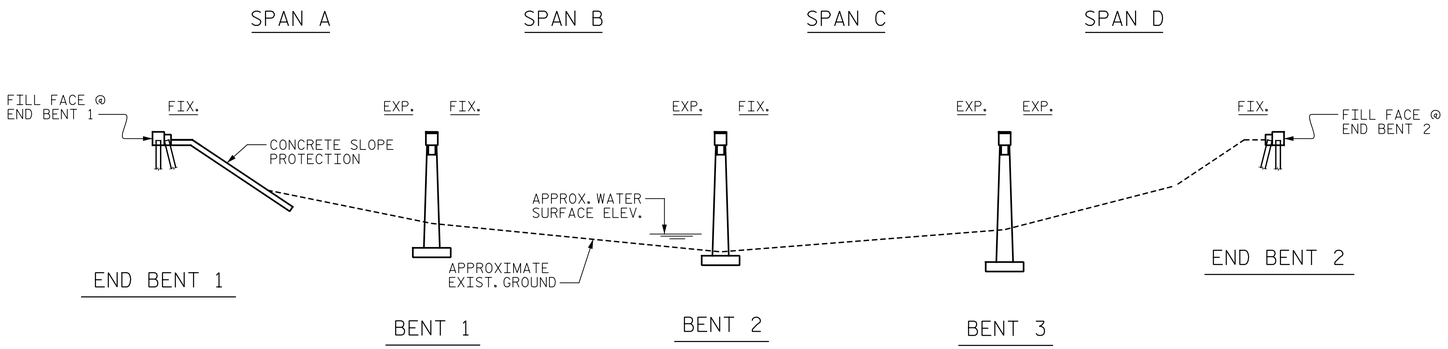
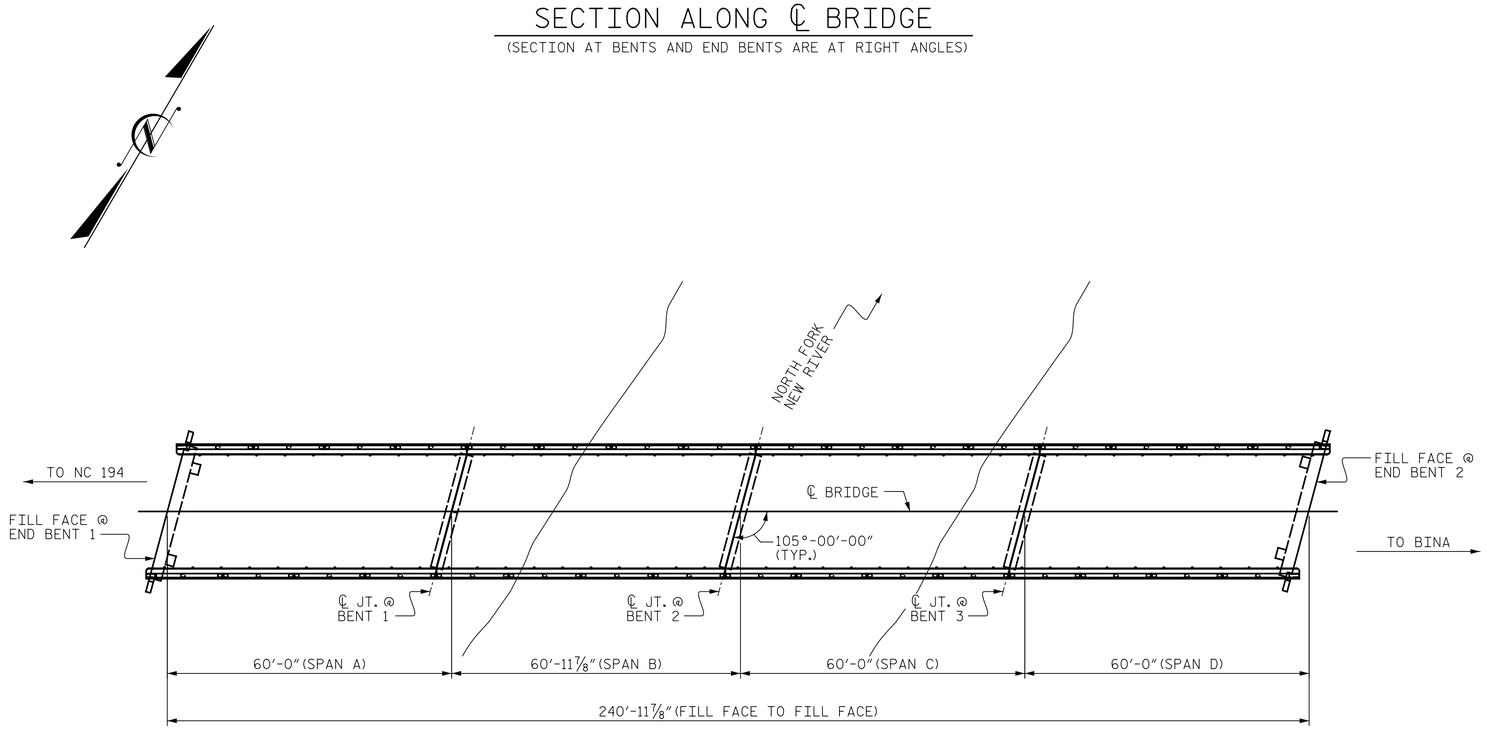


SECTION ALONG ℄ BRIDGE

(SECTION AT BENTS AND END BENTS ARE AT RIGHT ANGLES)



PLAN

(PILES NOT SHOWN FOR CLARITY)

NOTE:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 5/11/2024.

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

SCOPE OF WORK

REMOVE ASPHALT WEARING SURFACE AND PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND HYDRO-DEMOLITION.

OVERLAY PREPARED TOP OF BRIDGE DECK WITH VERY EARLY STRENGTH LATEX MODIFIED CONCRETE (LMC-VES).

REMOVE EXISTING JOINT MATERIAL AND INSTALL POURABLE SILICONE JOINT SEALS WITH ELASTOMERIC CONCRETE HEADERS.

GROOVE LMC-VES BRIDGE DECK.

MILL AND REPAVE ASPHALT APPROACH ROADWAYS.

CLEAN, REPAIR AND PAINT EXISTING STRUCTURAL STEEL BEAMS

CLEAN AND PAINT EXISTING STEEL BEARINGS WITH HRSCA

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

REMOVE UNSOUND CONCRETE AT EXISTING END BENT AND BENT AREAS AND PERFORM SHOTCRETE AND CONCRETE REPAIRS.

CONSTRUCTION SEQUENCE

ALL BEAM END REPAIR WORK SHALL BE COMPLETED PRIOR TO DECK SURFACE PREPARATION AND PLACEMENT OF LMC-VES OVERLAY.

ALL WORK REQUIRING TEMPORARY JACKING AND SUPPORT OF BEAMS SHALL BE COMPLETED PRIOR TO INSTALLATION OF EXPANSION JOINTS.

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

RESIDENT ENGINEER DATE

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON
SR 1644 (MCNEIL ROAD)
OVER NORTH FORK NEW RIVER

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric B. Nelson Jr. 12/17/2024
ACB8082119D74CD...

GANNETT FLEMING

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CHECKED BY : J. YANNACCONE DATE : 03/2022

LOCATION SKETCH

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

BRIDGE COORDINATES	
LATITUDE	LONGITUDE
36°-28'-39.74''	81°-30'-17.19''

GENERAL NOTES

SEE CONTRACT DOCUMENTS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH (LMC-VES) PLACEMENT.

FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

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

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

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

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

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

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

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

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

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

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

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

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

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

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

FOR LATEX MODIFIED CONCRETE OVERLAY-VERY EARLY STRENGTH AND PLACING AND FINISHING OF LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH OVERLAY, SEE LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH SPECIAL PROVISION.

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

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

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

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

FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR-CUT OUT, SEE SPECIAL PROVISIONS.

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

FOR PAINTING EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

SHEET 2 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: Eric B. Nelson Jr. 12/17/2024
ACB80821190D74CD...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON
SR 1644 (MCNEIL ROAD)
OVER NORTH FORK NEW RIVER

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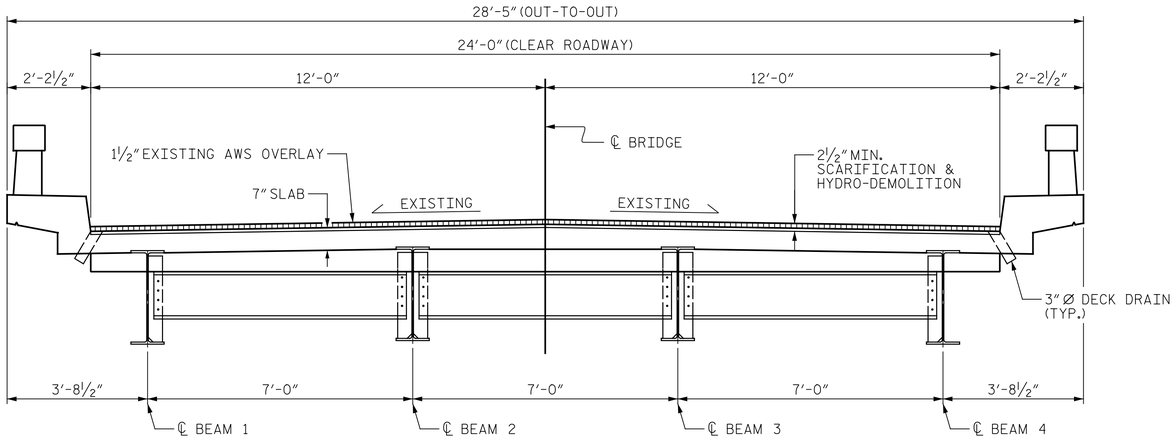
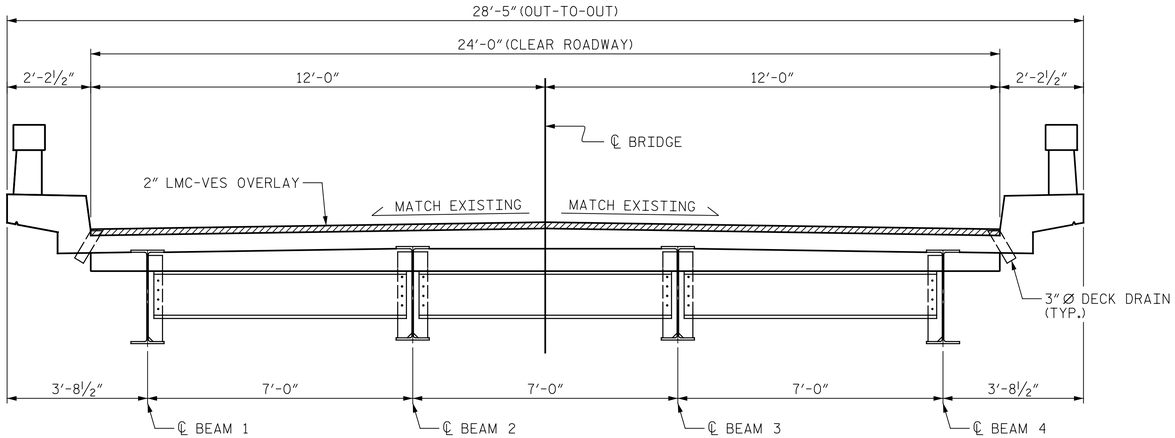


TYPICAL SECTION
(EXISTING)



TYPICAL SECTION
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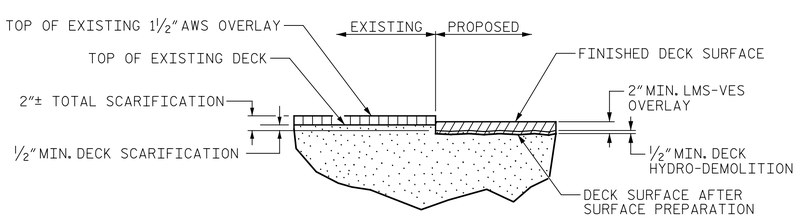
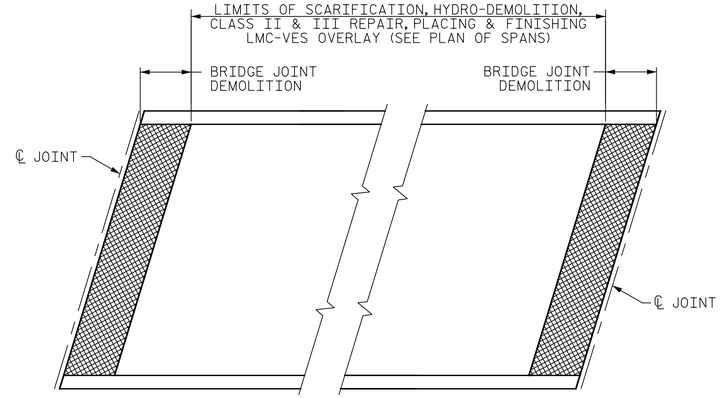


DETAIL FOR LMC-VES OVERLAY

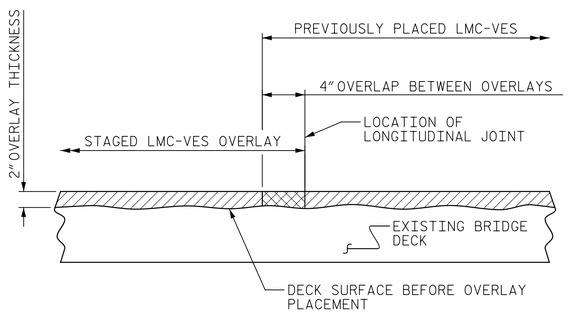
NOTES:

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

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



PAY LIMITS FOR OVERLAY BID ITEMS



STAGED LMC-VES OVERLAY CONSTRUCTION JOINT
(AS NEEDED)

PROJECT NO. 15BPR.133
ASHE COUNTY
BRIDGE NO. 040507

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION AND SURFACE PREPARATION DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

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AC8808211907ACD...

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THE EXISTING BRIDGE DECK HAS AN ASPHALT WEARING SURFACE (AWS). THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS II (PARTIAL DEPTH) SURFACE PREPARATION ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED AT THE PROJECT SITE. THE ACTUAL LOCATIONS AND QUANTITY SHALL BE CONFIRMED AFTER SCARIFICATION OF THE BRIDGE DECK.

PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED UPON SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING SCARIFICATION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

FOR UNDERSIDE OF DECK REPAIRS, CONTRACTOR SHALL SAWCUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

FOR SECTION A-A, SEE "POURABLE SILICONE JOINT SEALANT DETAILS" SHEET.

AS-BUILT REPAIR QUANTITY TABLE

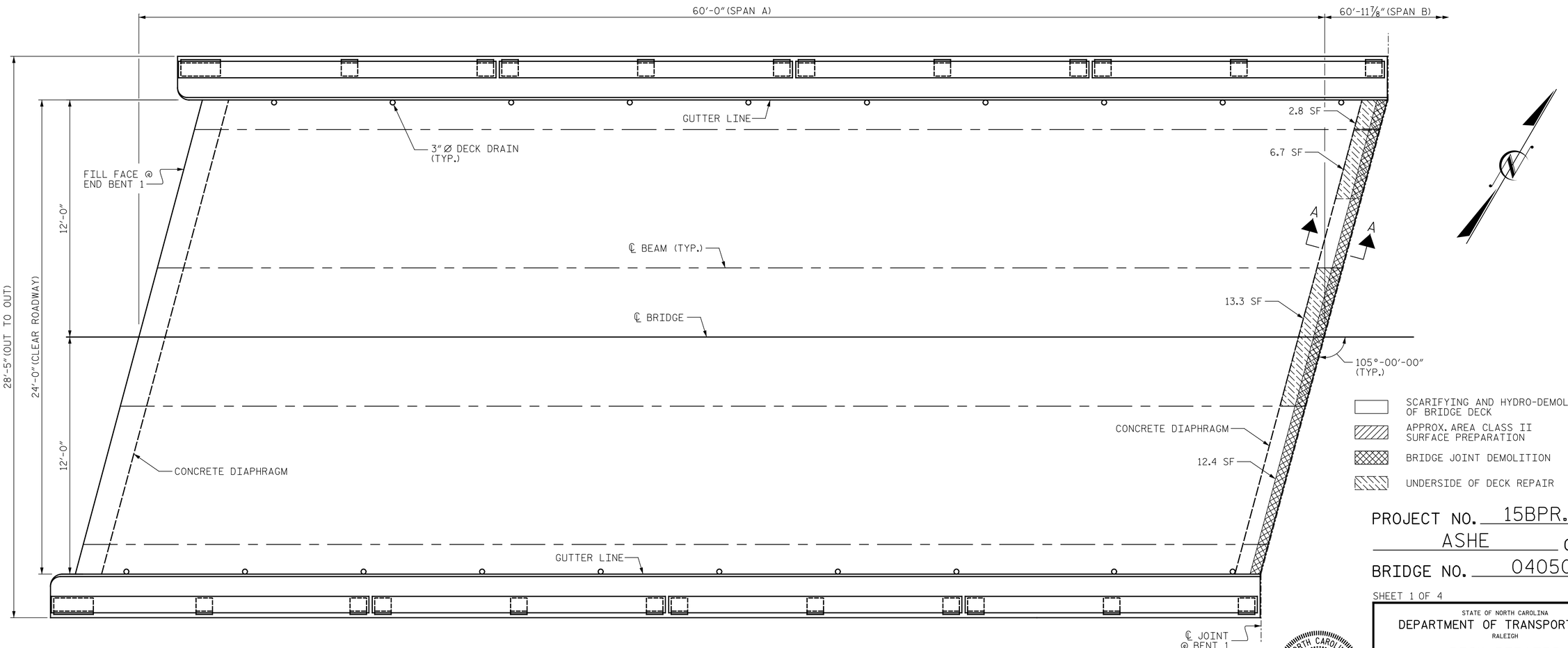
SPAN A TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	158.5 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	158.5 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
BRIDGE JOINT DEMOLITION	12.4 SF	
LMC-VES OVERLAY	9.7 CY	
PLACING & FINISHING OF LMC-VES OVERLAY	158.5 SY	
GROOVING BRIDGE FLOORS	1298 SF	

SPAN A UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOL CF	AREA SF	VOL CF
UNDERSIDE OF DECK	0.0	0.0		
CONCRETE DIAPHRAGMS	22.8	11.4		

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



SPAN A

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIRS

SPAN A

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric Nelson 12/17/2024
ACB8082119D74CD...

DRAWN BY : R. LEON DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

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1			3			TOTAL SHEETS
2			4			87

NOTES:

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

THE EXISTING BRIDGE DECK HAS AN ASPHALT WEARING SURFACE (AWS). THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS II (PARTIAL DEPTH) SURFACE PREPARATION ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED AT THE PROJECT SITE. THE ACTUAL LOCATIONS AND QUANTITY SHALL BE CONFIRMED AFTER SCARIFICATION OF THE BRIDGE DECK.

PAYMENT FOR CLASS II SURFACE PREPARATION IS BASED UPON SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING SCARIFICATION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

FOR UNDERSIDE OF DECK REPAIRS, CONTRACTOR SHALL SAWCUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

FOR SECTION A-A, SEE "POURABLE SILICONE JOINT SEALANT DETAILS" SHEET.

AS-BUILT REPAIR QUANTITY TABLE

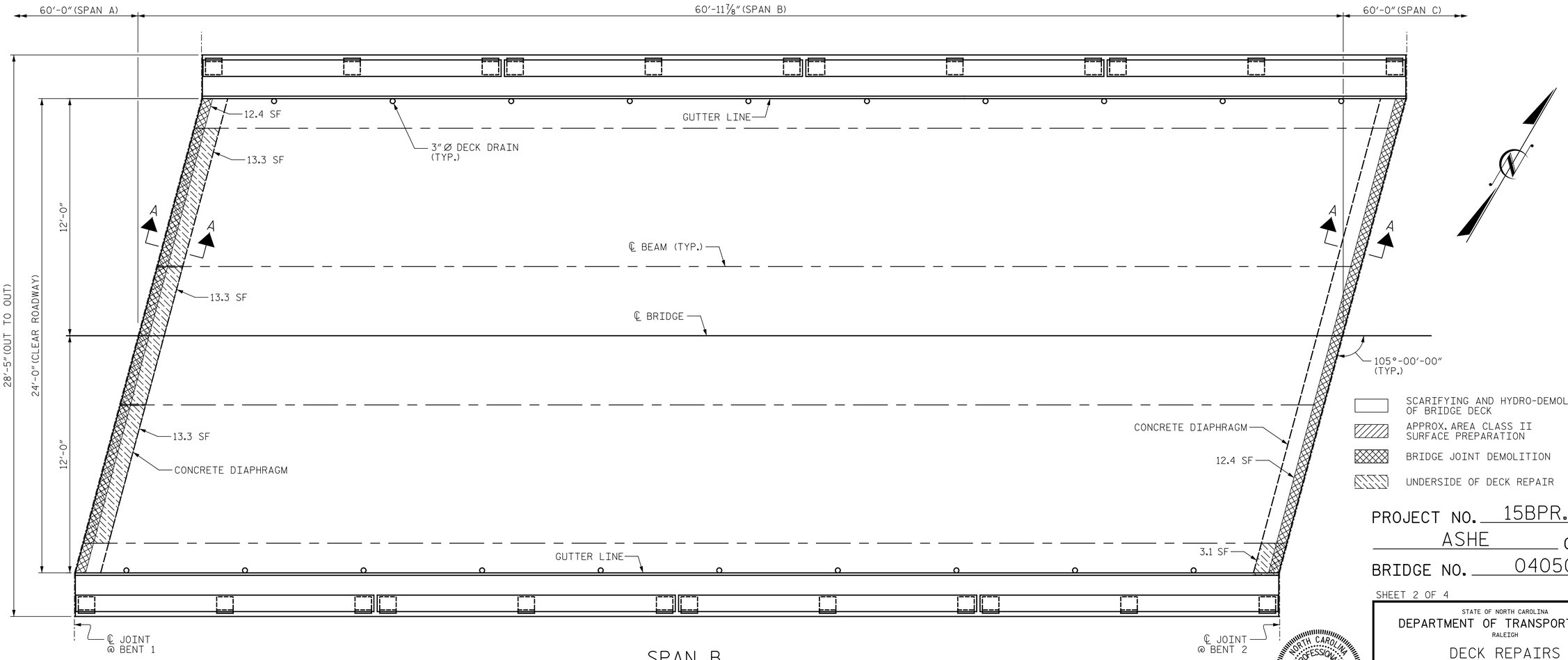
SPAN B TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	160.0 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	160.0 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
BRIDGE JOINT DEMOLITION	24.8 SF	
LMC-VES OVERLAY	9.8 CY	
PLACING & FINISHING OF LMC-VES OVERLAY	160.0 SY	
GROOVING BRIDGE FLOORS	1298 SF	

SPAN B UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOL CF	AREA SF	VOL CF
UNDERSIDE OF DECK	0.0	0.0		
CONCRETE DIAPHRAGMS	43.0	21.5		

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



SPAN B

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIRS

SPAN B

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

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ACB80821190744CD...

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FOR SECTION A-A, SEE "POURABLE SILICONE JOINT SEALANT DETAILS" SHEET.

SPAN C CONDITION PHOTO
FROM 2020 INSPECTION REPORT
(TYPICAL UNDER DECK)

AS-BUILT REPAIR QUANTITY TABLE

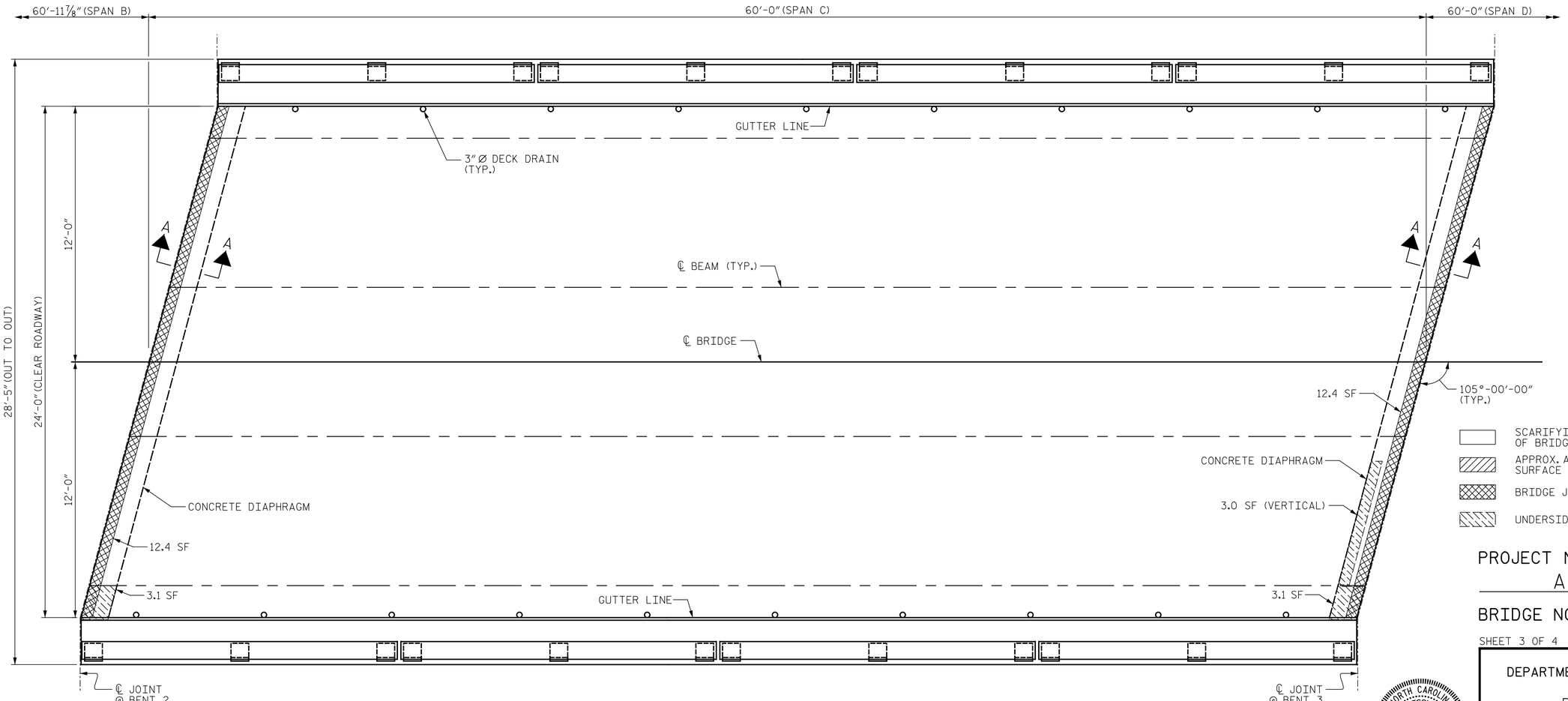
SPAN C TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	157.0 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	157.0 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
BRIDGE JOINT DEMOLITION	24.8 SF	
LMC-VES OVERLAY	9.7 CY	
PLACING & FINISHING OF LMC-VES OVERLAY	157.0 SY	
GROOVING BRIDGE FLOORS	1286 SF	

SPAN C UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOL CF	ACTUAL AREA SF	ACTUAL VOL CF
UNDERSIDE OF DECK	0.0	0.0		
CONCRETE DIAPHRAGMS	9.2	4.6		

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



SPAN C

SCARIFYING AND HYDRO-DEMOLITION OF BRIDGE DECK
APPROX. AREA CLASS II SURFACE PREPARATION
BRIDGE JOINT DEMOLITION
UNDERSIDE OF DECK REPAIR

PROJECT NO. 15BPR.133
ASHE COUNTY
BRIDGE NO. 040507

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIRS

SPAN C

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric B Nelson Jr 12/17/2024
ACB80821190D74CD...

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FOR SECTION A-A, SEE "POURABLE SILICONE JOINT SEALANT DETAILS" SHEET.

AS-BUILT REPAIR QUANTITY TABLE

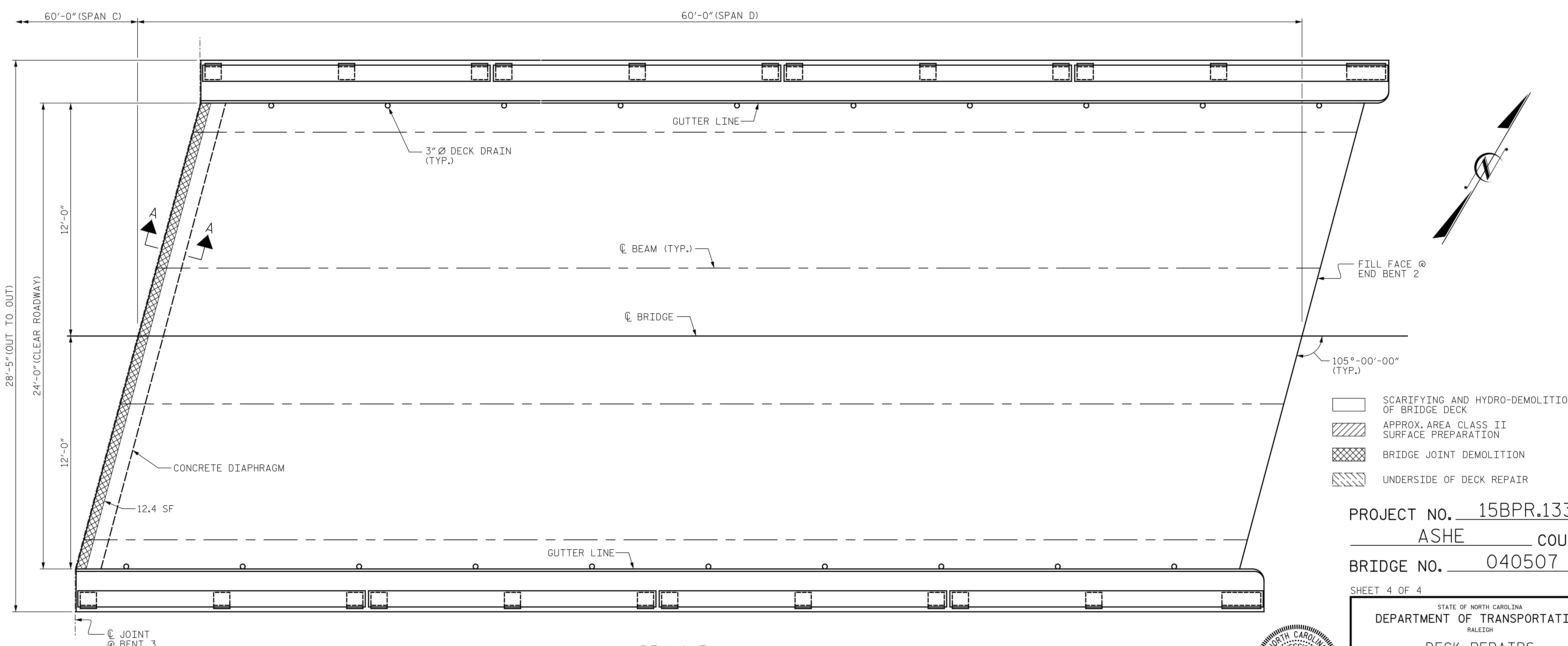
SPAN D TOP OF DECK REPAIRS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	158.5 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	158.5 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
BRIDGE JOINT DEMOLITION	12.4 SF	
LMC-VES OVERLAY	9.7 CY	
PLACING & FINISHING OF LMC-VES OVERLAY	158.5 SY	
GROOVING BRIDGE FLOORS	1298 SF	

SPAN D UNDERSIDE OF DECK REPAIRS

SHOTCRETE REPAIRS	ESTIMATE AREA SF	ESTIMATE VOL CF	ACTUAL AREA SF	ACTUAL VOL CF
UNDERSIDE OF DECK	0.0	0.0		
CONCRETE DIAPHRAGMS	0.0	0.0		

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



SPAN D

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIRS

SPAN D

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.
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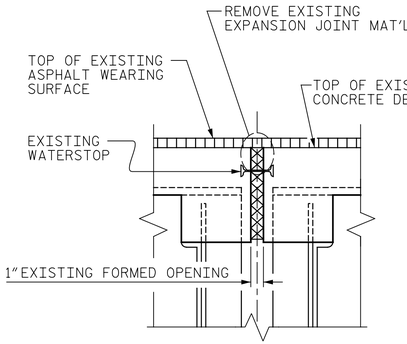
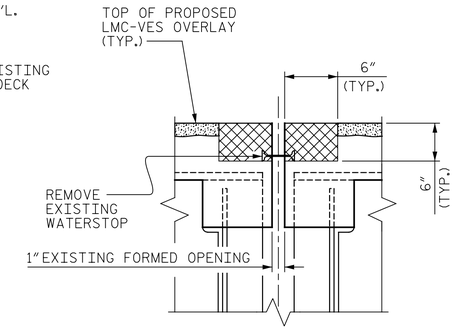
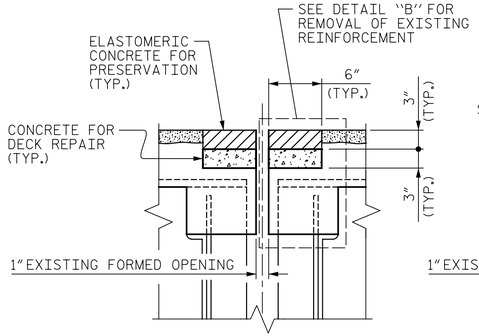


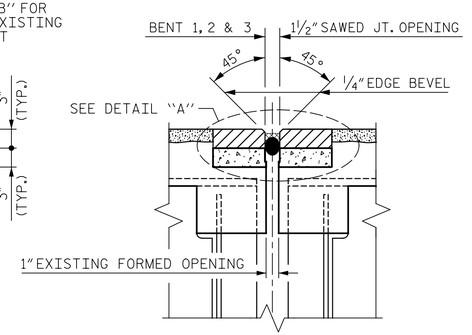
EXISTING



MINIMUM
JOINT DEMOLITION

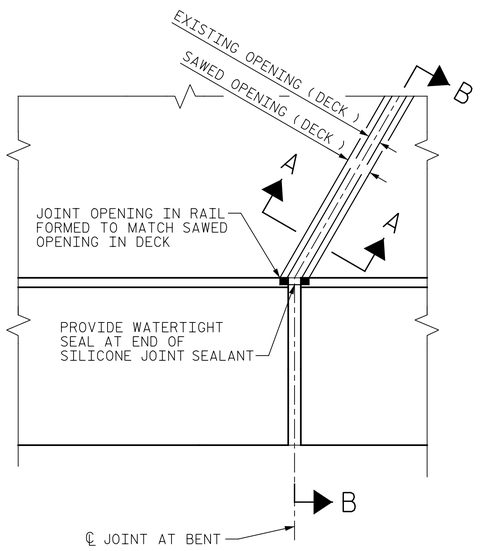


PROPOSED JOINT
PRE-SAWED DIMENSIONS

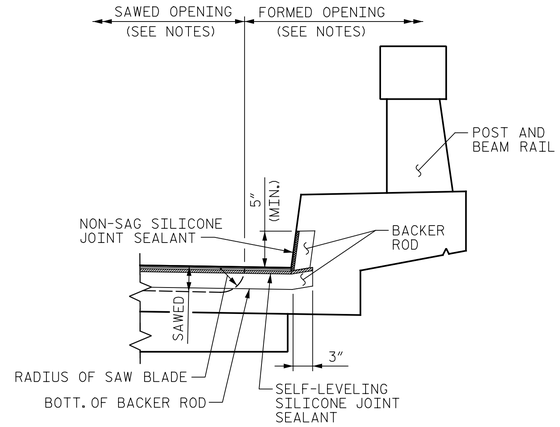


PROPOSED POURABLE
SILICONE JOINT SEALANT

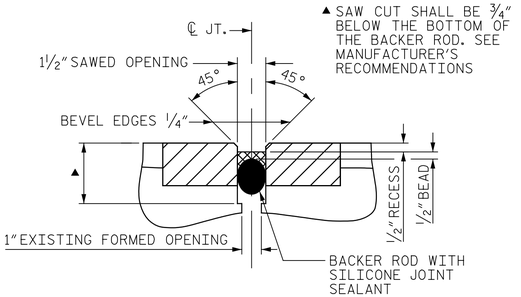
SECTION A-A



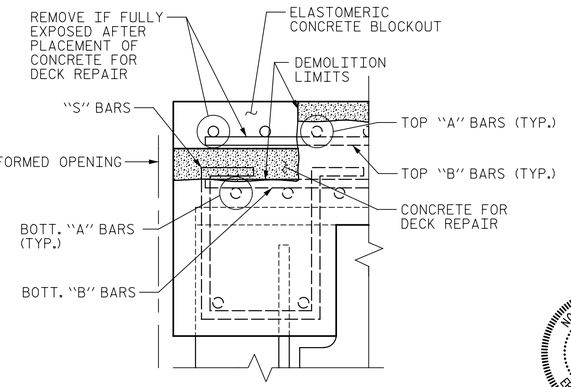
PLAN



SECTION B-B



DETAIL "A"
(PROPOSED JOINT WITH SAWED DIMENSIONS)



DETAIL "B"

JOINT SEAL DETAILS AT BENT

LOCATION	POURABLE SILICONE JOINT SEALANT	ELASTOMERIC CONCRETE FOR PRESERVATION	CONCRETE FOR DECK REPAIR
	LIN. FT.	CU. FT.	CU. FT.
BENT 1	27.0	6.2	6.2
BENT 2	27.0	6.2	6.2
BENT 3	27.0	6.2	6.2
✳ TOTAL	81.0	18.6	18.6

✳ BASED ON MINIMUM BLOCKOUT SHOWN

NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL. IF ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN DETAIL MORE THAN ¼" NOTIFY THE ENGINEER. REVISION TO THE JOINT SEAL SIZE MAY BE NECESSARY.

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

THE CONTRACTOR WILL BE PERMITTED TO FORM THE JOINT WITH 6" OF THE GUTTERLINE AND UP THE FACE OF THE BARRIER RAIL. IN ALL OTHER SECTIONS OF THE JOINT, THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT IN LIEU OF SAWING THE JOINT.

THE NOMINAL SAW CUT DEPTH FOR BRIDGE JOINT DEMOLITION IS 1½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

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

FOR EXCAVATION BELOW THE BOTTOM OF THE PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR SHALL BE PLACED IN THE EXCAVATED AREA UP TO THE PLANNED BOTTOM ELEVATION OF THE ELASTOMERIC CONCRETE.

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

PRIOR TO PLACEMENT OF ELASTOMERIC CONCRETE REMOVE ANY TOP "A" OR "B" BARS THAT ARE FULLY EXPOSED IN THE ELASTOMERIC CONCRETE BLOCKOUT REGION.

THE CONTRACTOR WILL NOT BE PERMITTED TO CUT EXISTING BOTTOM "A" OR "B" BARS. EXPOSED BOTTOM REINFORCING SHALL BE CLEANED AND REPAIRED IF DAMAGED.

ALL EXPOSED ENDS OF CUT BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT MATERIAL INSTALLATION.

POURABLE SILICONE JOINT SEALANT AND BACKER ROD SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.

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

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

THE CONTRACTOR WILL NOT BE PERMITTED TO INSTALL POURABLE SILICONE JOINT SEALANT AT THE BENTS UNTIL ALL BRIDGE JACKING IS COMPLETED AT THOSE BENTS.

THE INSTALLATION OF JOINT SEAL SHALL BE WATERTIGHT.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.133
ASHE COUNTY
BRIDGE NO. 040507

STATE OF NORTH CAROLINA
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RALEIGH

POURABLE SILICONE JOINT SEALANT DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

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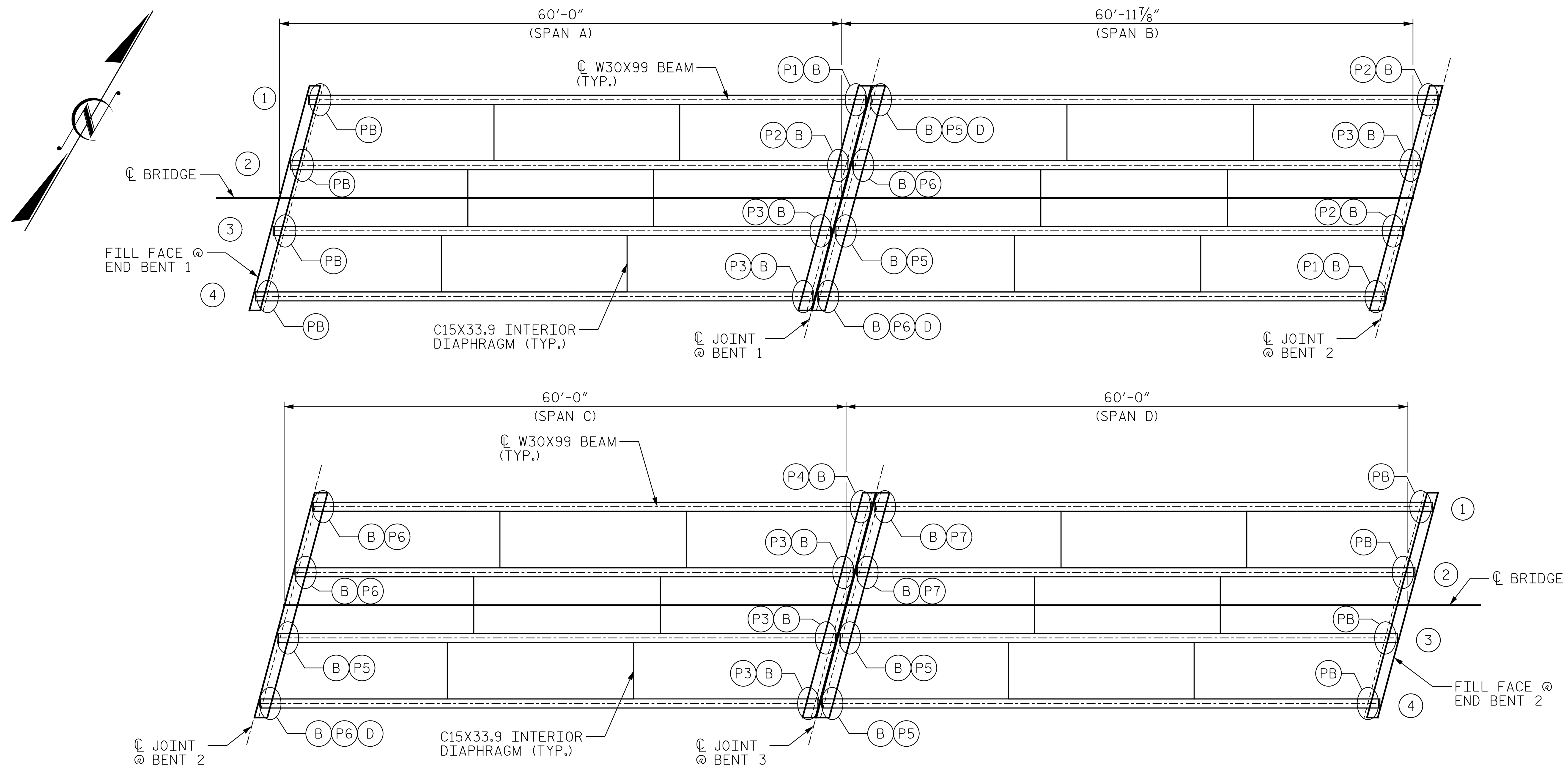

BEAM REPAIR LOCATIONS

(OTHER LOCATIONS MAY EXIST, SEE NOTES)

AS-BUILT REPAIR QUANTITY TABLE

SUPERSTRUCTURE REPAIR

	ESTIMATE	ACTUAL
BEAM END REPAIR	2980 LBS.	
CONNECTION PLATE REPAIR	215 LBS.	
TOTAL BEAM REPAIR CUT-OUT	3195 LBS.	
CONCRETE DIAPHRAGM REPAIR	1.9 CF *	
CLEAN & PAINT BEARINGS WITH HRCSA	8 EA	

LEGEND

- (#) BEAM NUMBER
- (B) BEAM END / CONNECTION PLATE REPAIR
- (D) CONCRETE DIAPHRAGM REPAIR
- (P#) SOLE PLATE (SEE "MODIFIED TYPE I ELASTOMERIC BEARINGS" SHEET)
- (PB) CLEAN & PAINT BEARINGS WITH HRCSA

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FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR DETAILS, SEE "BEAM REPAIR CUT-OUT DETAILS" SHEET.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING DETAILS, SEE "BRIDGE JACKING DETAILS" SHEET.

CONCRETE DIAPHRAGM REPAIR LOCATIONS ON THIS SHEET DENOTE AREAS WHERE BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM. THE QUANTITY OF CONCRETE DIAPHRAGM REPAIR REQUIRED AFTER THE BEAM CUT OUT REPAIR IS INCLUDED IN THE PAY ITEM "SHOTCRETE REPAIRS".

FOR CONCRETE DIAPHRAGM REPAIR, SEE SPECIAL PROVISIONS.

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

* THE QUANTITY OF CONCRETE DIAPHRAGM REPAIR IS INCLUDED IN THE QUANTITY FOR SHOTCRETE REPAIRS IN THE TOTAL BILL OF MATERIAL.

ANTICIPATED BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIMENSIONS "A"	"B"	"C"	"D"	"E"
A	1	BENT 1	6″	--	--	26″	5 3/16″
A	2	BENT 1	13″	18″	5″	26″	12 1/2″
A	3	BENT 1	13″	18″	5″	37″	12 5/16″
A	4	BENT 1	6″	--	--	46″	5 3/8″
B	1	BENT 1	13″	18″	5″	37″	12 9/16″
B	2	BENT 1	6″	--	--	40″	5 11/16″
B	3	BENT 1	6″	--	--	34″	5 9/16″
B	4	BENT 1	13″	18″	5″	40″	12 9/16″
B	1	BENT 2	25″	18″	5″	30″	24 1/4″
B	2	BENT 2	6″	--	--	31″	5 1/2″
B	3	BENT 2	6″	--	--	34″	5 5/16″
B	4	BENT 2	25″	18″	5″	26	24 3/16″

ANTICIPATED BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIMENSIONS "A"	"B"	"C"	"D"	"E"
C	1	BENT 2	6″	--	--	49″	5 9/16″
C	2	BENT 2	6″	--	--	37″	5 11/16″
C	3	BENT 2	6″	--	--	37″	5 9/16″
C	4	BENT 2	25″	18″	5″	49″	24 9/16″
C	1	BENT 3	9″	--	--	68″	8 3/8″
C	2	BENT 3	8″	--	--	37″	7 9/16″
C	3	BENT 3	6″	--	--	49″	5 3/8″
C	4	BENT 3	6″	--	--	50″	5 3/8″
D	1	BENT 3	6″	--	--	64″	5 9/16″
D	2	BENT 3	7″	--	--	49″	6 11/16″
D	3	BENT 3	9″	--	--	37″	8 9/16″
D	4	BENT 3	13″	--	--	37″	12 9/16″

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 020208 ERIC B. NELSON JR.

DocuSigned by: Eric B. Nelson Jr. 12/17/2024

ACB8082119D74CD...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FRAMING PLAN

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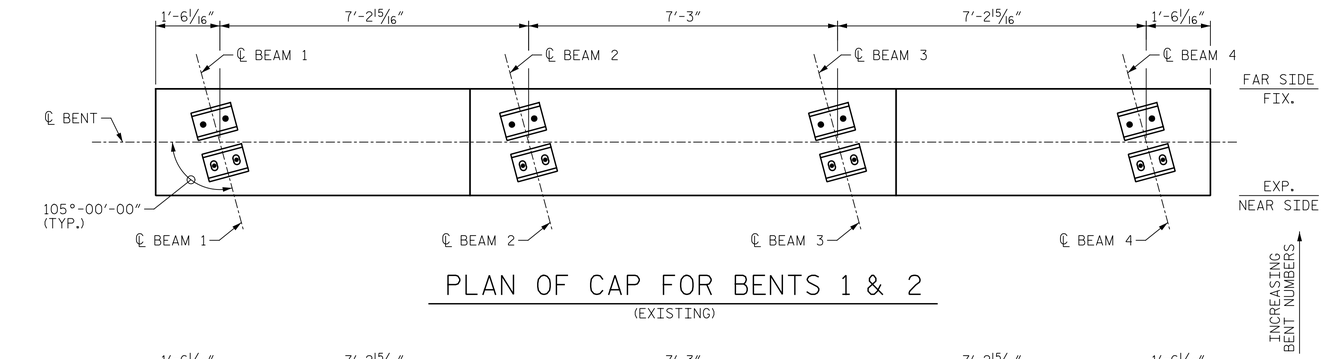
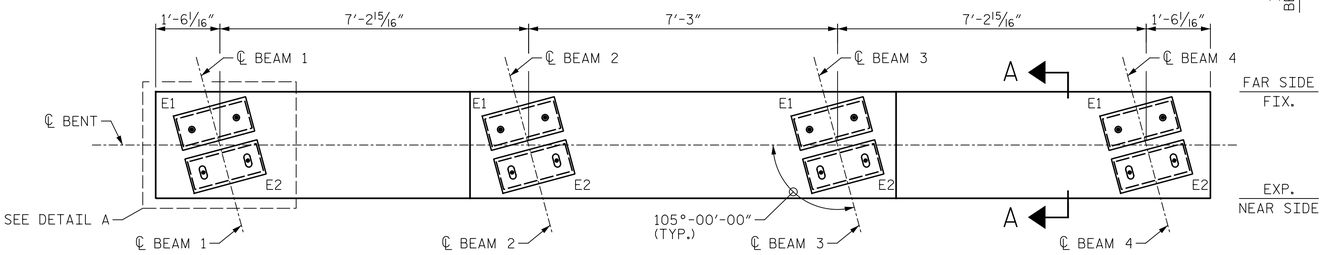
NO.	BY:	DATE:	NO.	BY:	DATE:		S4-9
1			3				TOTAL SHEETS
2			4				87

DRAWN BY : J. HARRIS DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022



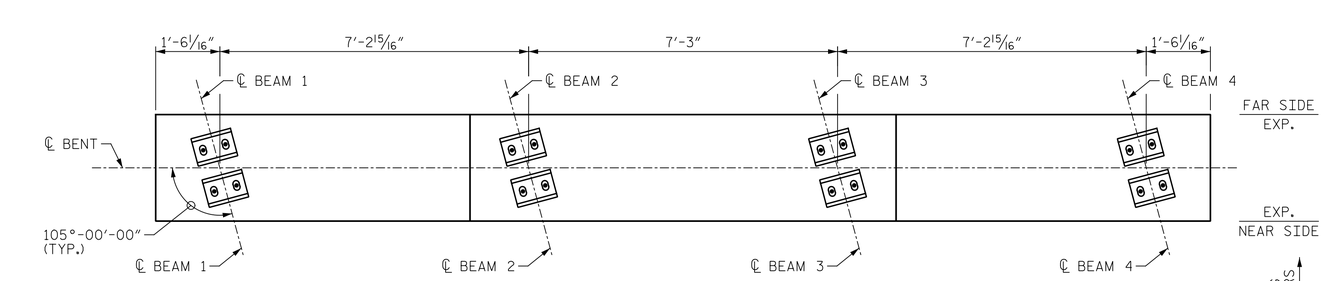
PLAN OF CAP FOR BENTS 1 & 2

(EXISTING)



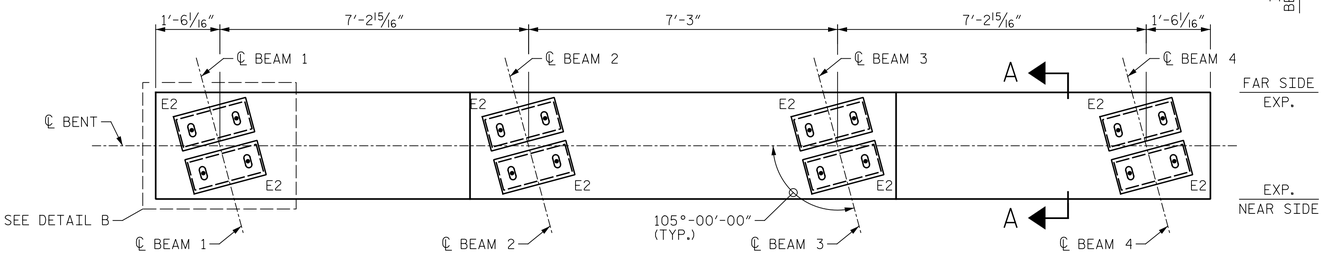
PLAN OF CAP FOR BENTS 1 & 2

(PROPOSED)



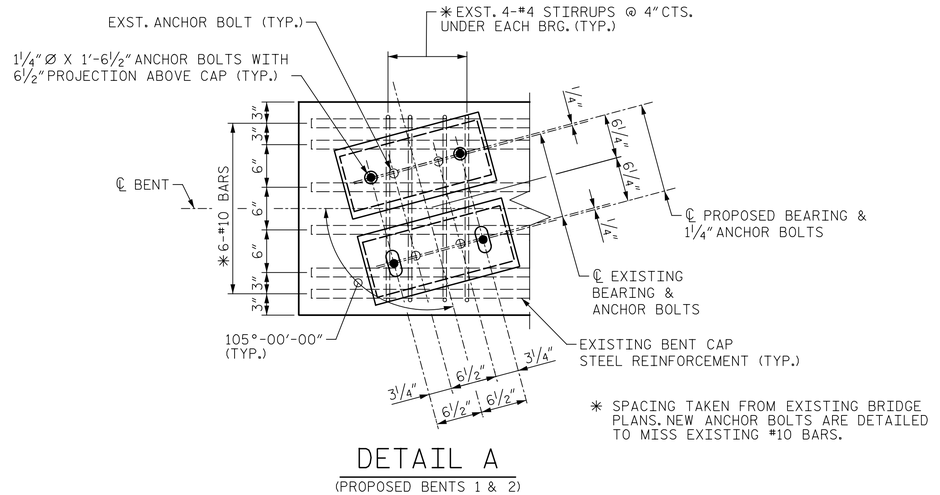
PLAN OF CAP FOR BENT 3

(EXISTING)



PLAN OF CAP FOR BENT 3

(PROPOSED)

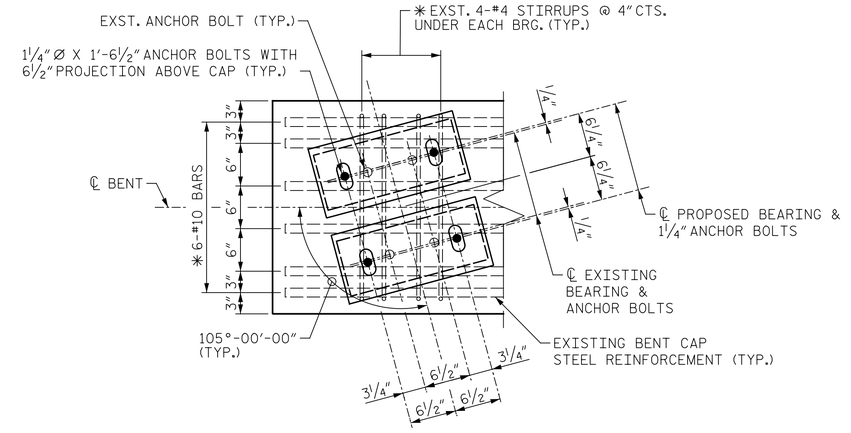


DETAIL A

(PROPOSED BENTS 1 & 2)

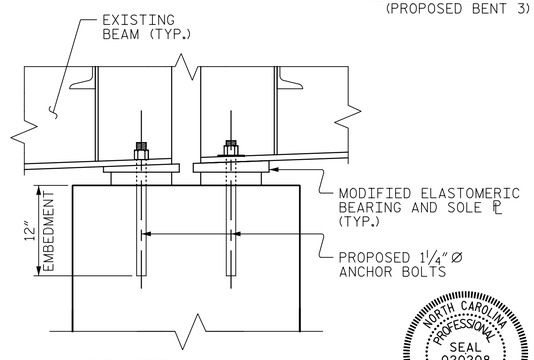
✳ SPACING TAKEN FROM EXISTING BRIDGE PLANS. NEW ANCHOR BOLTS ARE DETAILED TO MISS EXISTING #10 BARS.

NOTE: EXISTING #4 STIRRUPS MAY BE CUT AS REQUIRED TO INSTALL NEW ANCHOR BOLTS



DETAIL B

(PROPOSED BENT 3)



SECTION A-A

(PROPOSED)

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric Nelson 12/17/2024 ACB80821190740D...

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEARING DETAILS

BEARING LAYOUT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-10
1			3			TOTAL SHEETS
2			4			87

DRAWN BY : M.SPENCER DATE : 03/2023

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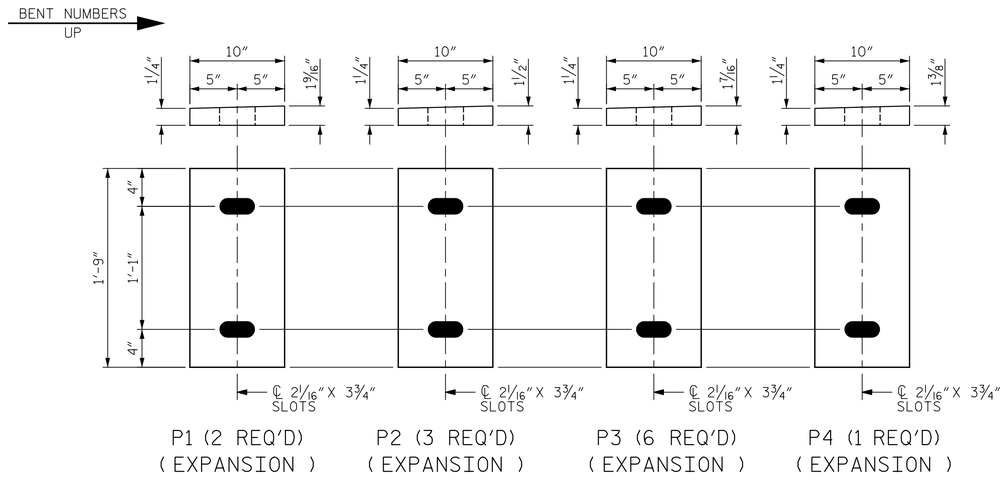
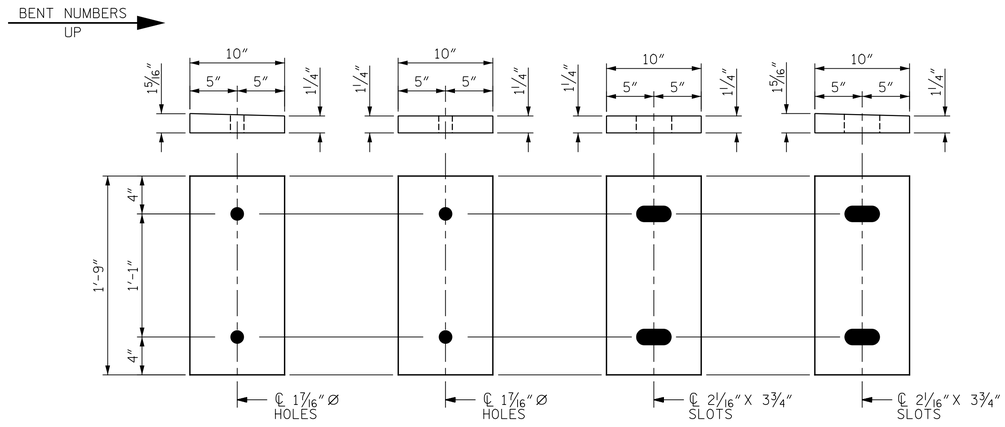
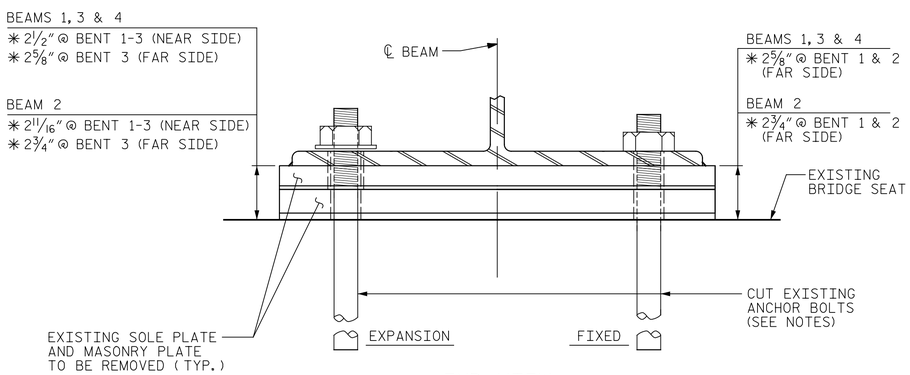


P1 (2 REQ'D) (EXPANSION)
P2 (3 REQ'D) (EXPANSION)
P3 (6 REQ'D) (EXPANSION)
P4 (1 REQ'D) (EXPANSION)

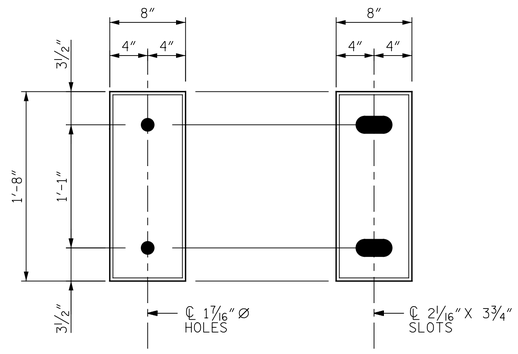


P5 (3 REQ'D) (FIXED)
P6 (5 REQ'D) (FIXED)
P7 (2 REQ'D) (EXPANSION)
P8 (2 REQ'D) (EXPANSION)

SOLE ℙ DETAILS

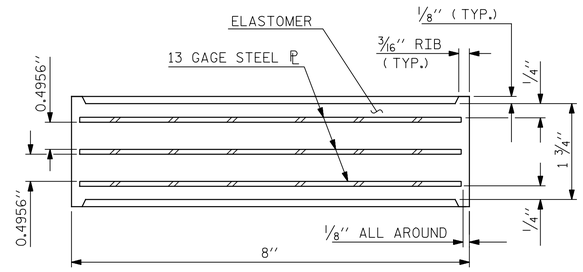


END VIEW
(EXISTING BEARINGS)
✳FIELD VERIFY



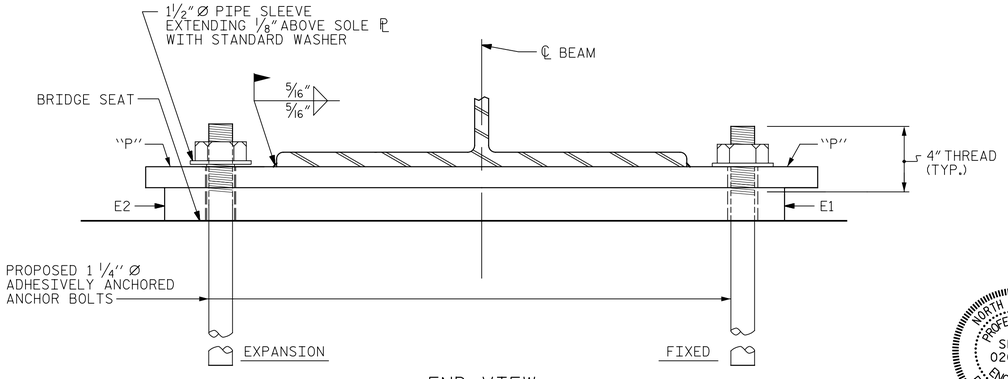
E1 (8 REQ'D) (FIXED)
E2 (16 REQ'D) (EXPANSION)

PLAN VIEW OF ELASTOMERIC BEARING



TYPICAL SECTION OF ELASTOMERIC BEARINGS

MODIFIED TYPE I



END VIEW
(PROPOSED BEARINGS)

NOTES

THE EXISTING BEARINGS SHALL BE REMOVED AND REPLACED WITH BEARINGS AS SHOWN.

CUT EXISTING ANCHOR BOLTS FLUSH TO THE TOP OF CONCRETE. BOLT ENDS SHALL BE COATED WITH AN APPROVED EPOXY PAINT.

THE CONTRACTOR SHALL CORE INTO EXISTING BENT CAP TO INSTALL 1¼"Ø ANCHOR BOLTS. BOLTS SHALL BE ADHESIVELY ANCHORED BOLTS. ADHESIVE FOR NEW ANCHOR BOLTS SHALL BE AN NCDOT-APPROVED PRODUCT.

EMBEDMENT DEPTH OF ANCHOR BOLT SHALL BE 12" OR THE DEPTH RECOMMENDED BY THE ADHESIVE MANUFACTURER TO ATTAIN PULL-OUT STRENGTH OF THE TEST LOAD GIVEN BELOW, WHICHEVER DEPTH IS GREATER. FIELD TESTING IS NOT REQUIRED.

DESIGN LOAD SHALL BE 22,500 LBS. TENSION FOR 1¼" ANCHOR BOLTS.

AT ALL POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

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

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

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

WELDS WILL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TESTS UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.

FOR MODIFIED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE I	140 k

PROJECT NO. 15BPR.133
ASHE COUNTY
BRIDGE NO. 040507

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEARING DETAILS

MODIFIED TYPE I ELASTOMERIC BEARINGS

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric B. Nelson Jr. ACB8082119D74CD... 12/17/2024

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1			3			TOTAL SHEETS
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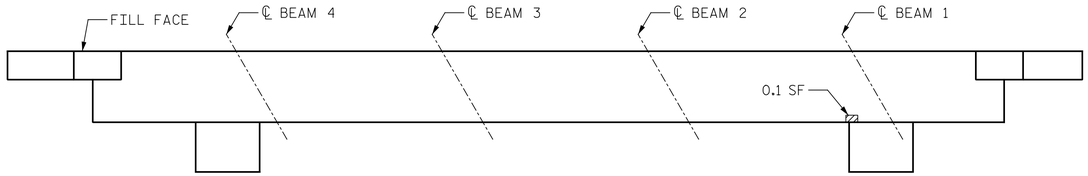
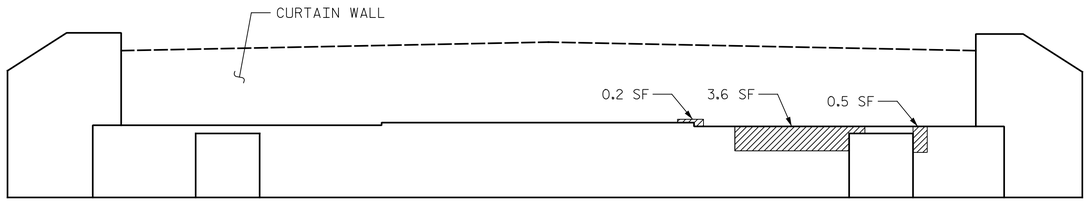
DRAWN BY : M.SPENCER DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022



TOP OF CAP



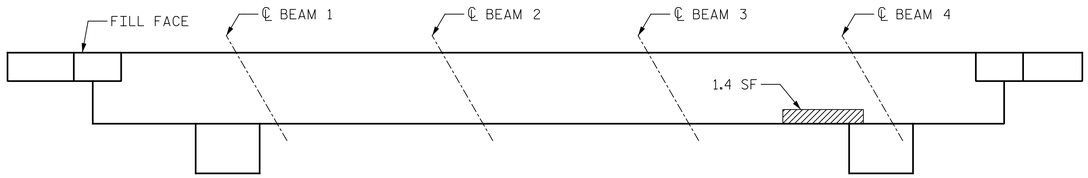
ELEVATION

END BENT 1

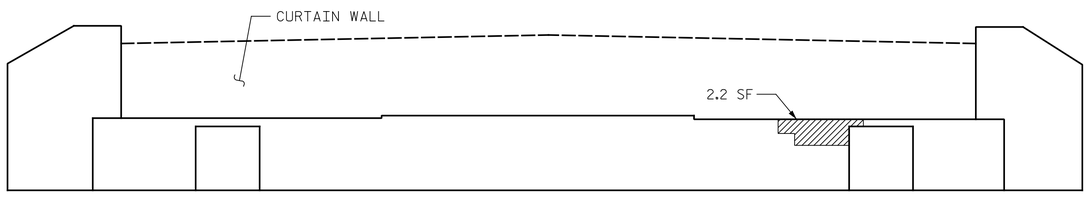
CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



TOP OF CAP



ELEVATION

END BENT 2

AS-BUILT REPAIR QUANTITY TABLE

END BENT 1 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	4.2	2.1			
CURTAIN WALL	0.2	0.1			
CONCRETE REPAIRS	0.0	0.0			
EPOXY RESIN INJECTION		LENGTH LF		LENGTH LF	
CAP		0.0			
CURTAIN WALL		0.0			
EPOXY COATING		SQ. FT		SQ. FT	
TOP OF BENT CAP		0			

END BENT 2 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	3.6	1.8			
CURTAIN WALL	0.0	0.0			
CONCRETE REPAIRS	0.0	0.0			
EPOXY RESIN INJECTION		LENGTH LF		LENGTH LF	
CAP		0.0			
CURTAIN WALL		0.0			
EPOXY COATING		SQ. FT		SQ. FT	
TOP OF BENT CAP		0			

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

NOTES:

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

SHEET 1 OF 7

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC A. NELSON

DocuSigned by: Eric Nelson 12/17/2024
ACB80821190D74CD...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

END BENT 1 & 2

DRAWN BY : J. HARRIS DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

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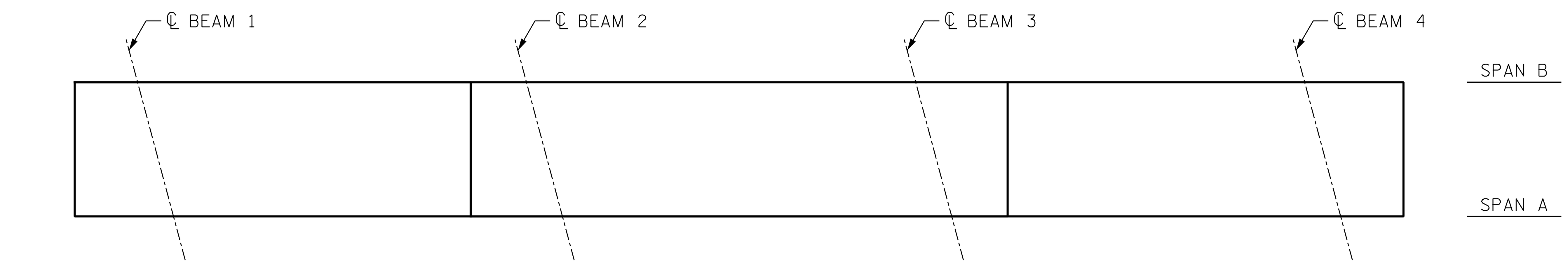
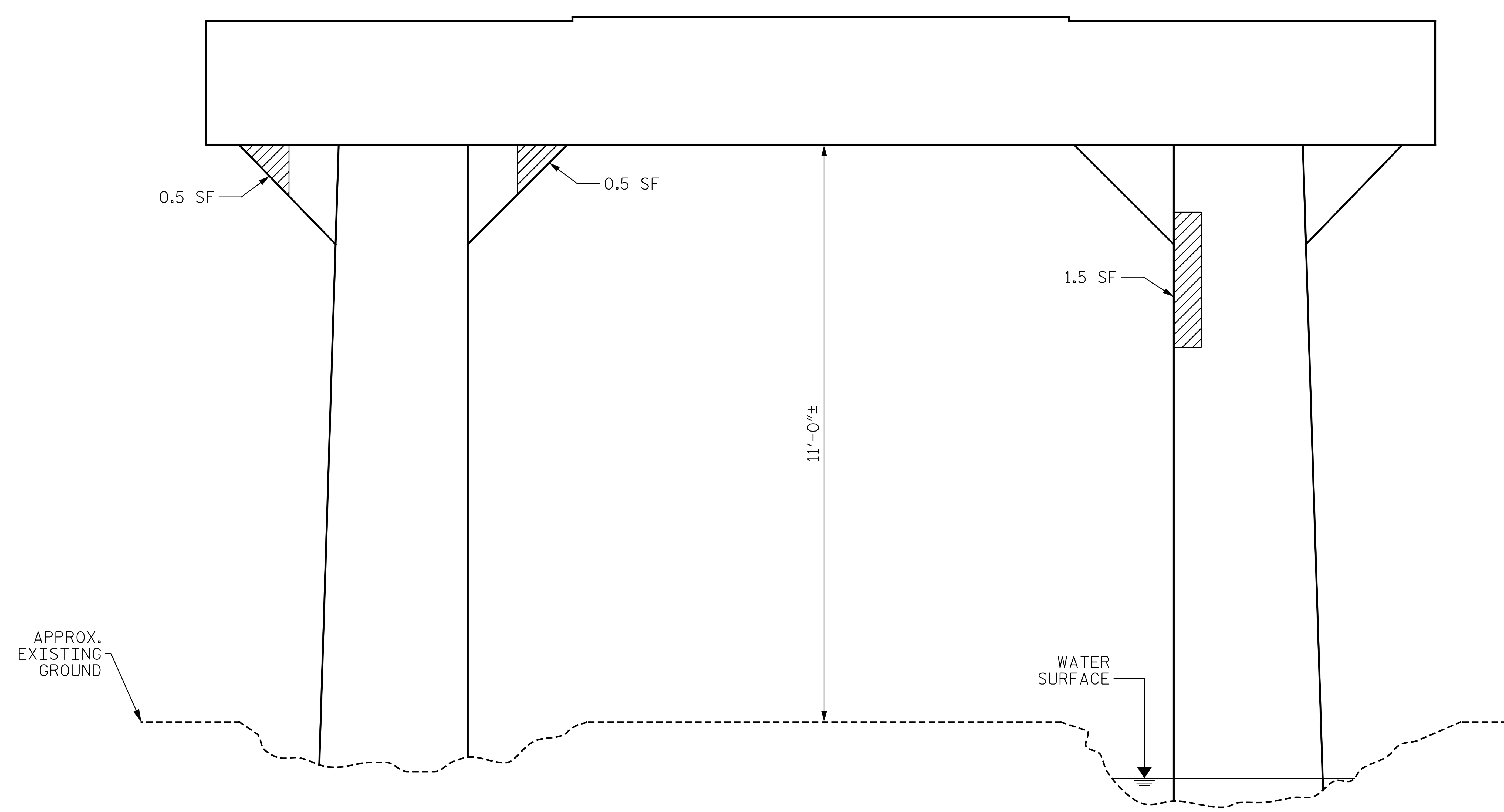
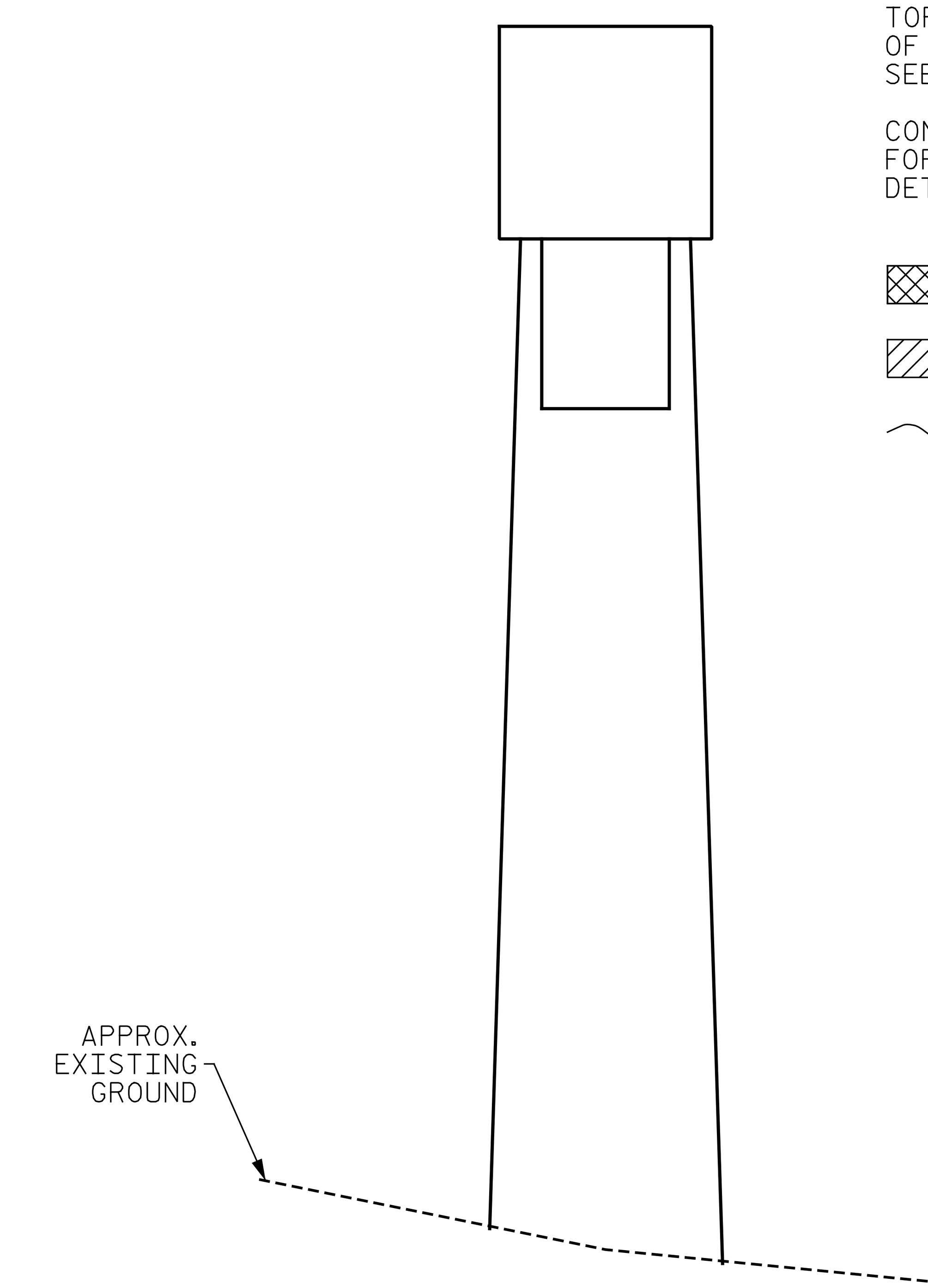
2			4			87



TOP OF CAP



ELEVATION



END VIEW
(COLUMN 2)

AS-BUILT REPAIR QUANTITY TABLE

BENT 1 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	34.5	17.3			
COLUMN	6.1	3.1			
CONCRETE REPAIRS	0.0	0.0			
EPOXY RESIN INJECTION		LENGTH LF	LENGTH LF		
CAP		0.0			
COLUMN		0.0			
EPOXY COATING		SQ. FT	SQ. FT		
TOP OF BENT CAP		61			

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

NOTES:

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

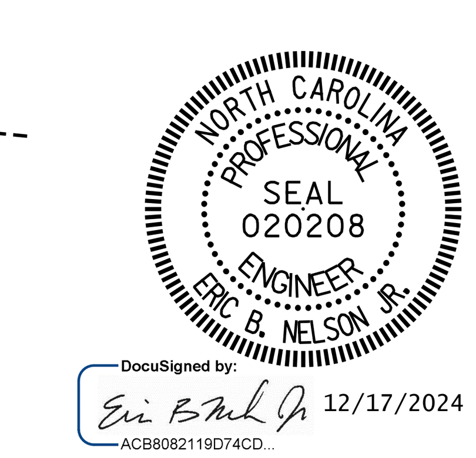
ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

SHEET 2 OF 7



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 1
SPAN A SIDE

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TOTAL SHEETS 87

DRAWN BY : R. LEON DATE : 03/2022

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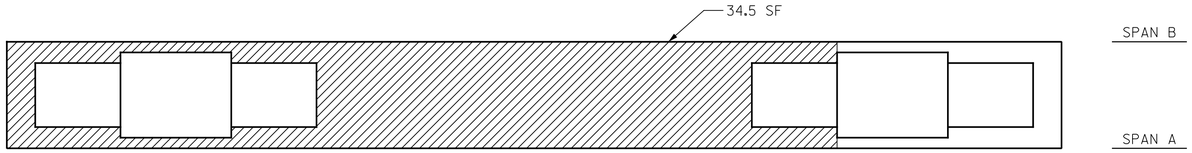
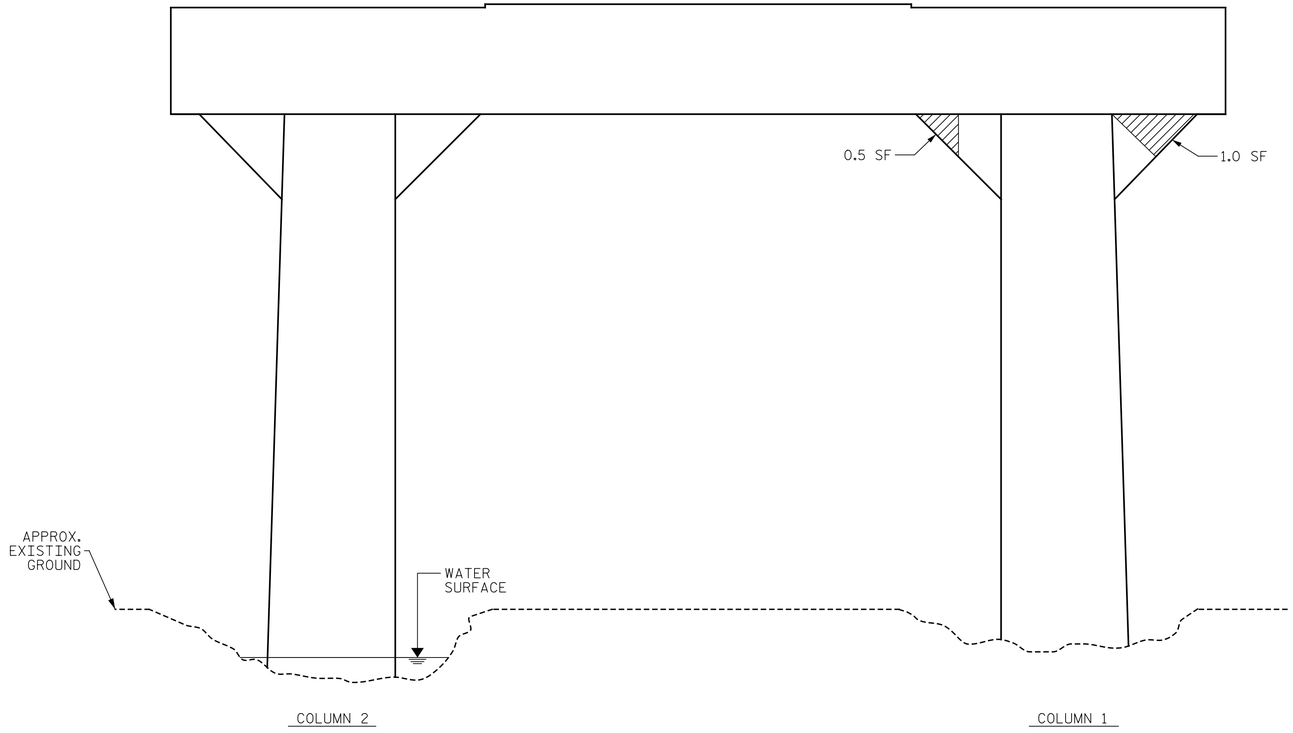
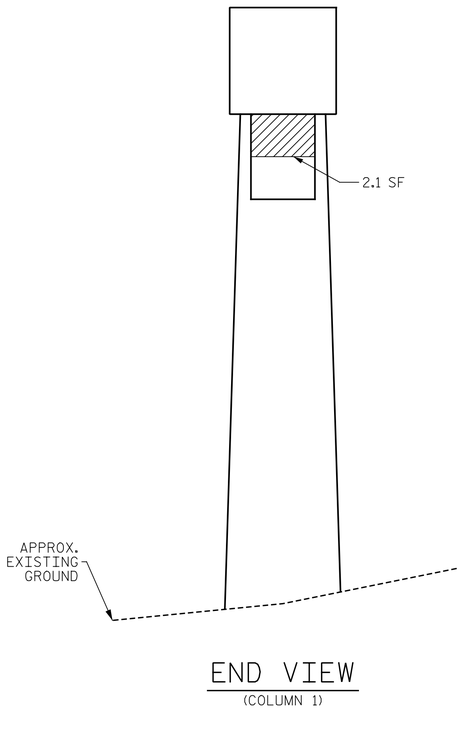


BOTTOM OF CAP



ELEVATION



END VIEW
(COLUMN 1)

NOTES:

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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

CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric Black Jr. 12/17/2024
ACB8082119D74CD...

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

SHEET 3 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 1
SPAN B SIDE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4-14
1			3			TOTAL SHEETS
2			4			87

DRAWN BY : R. LEON DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

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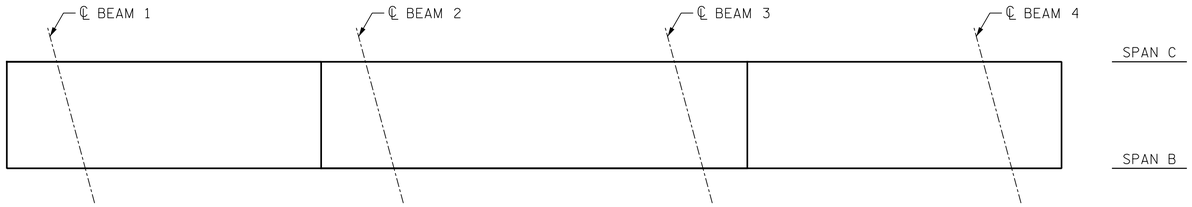
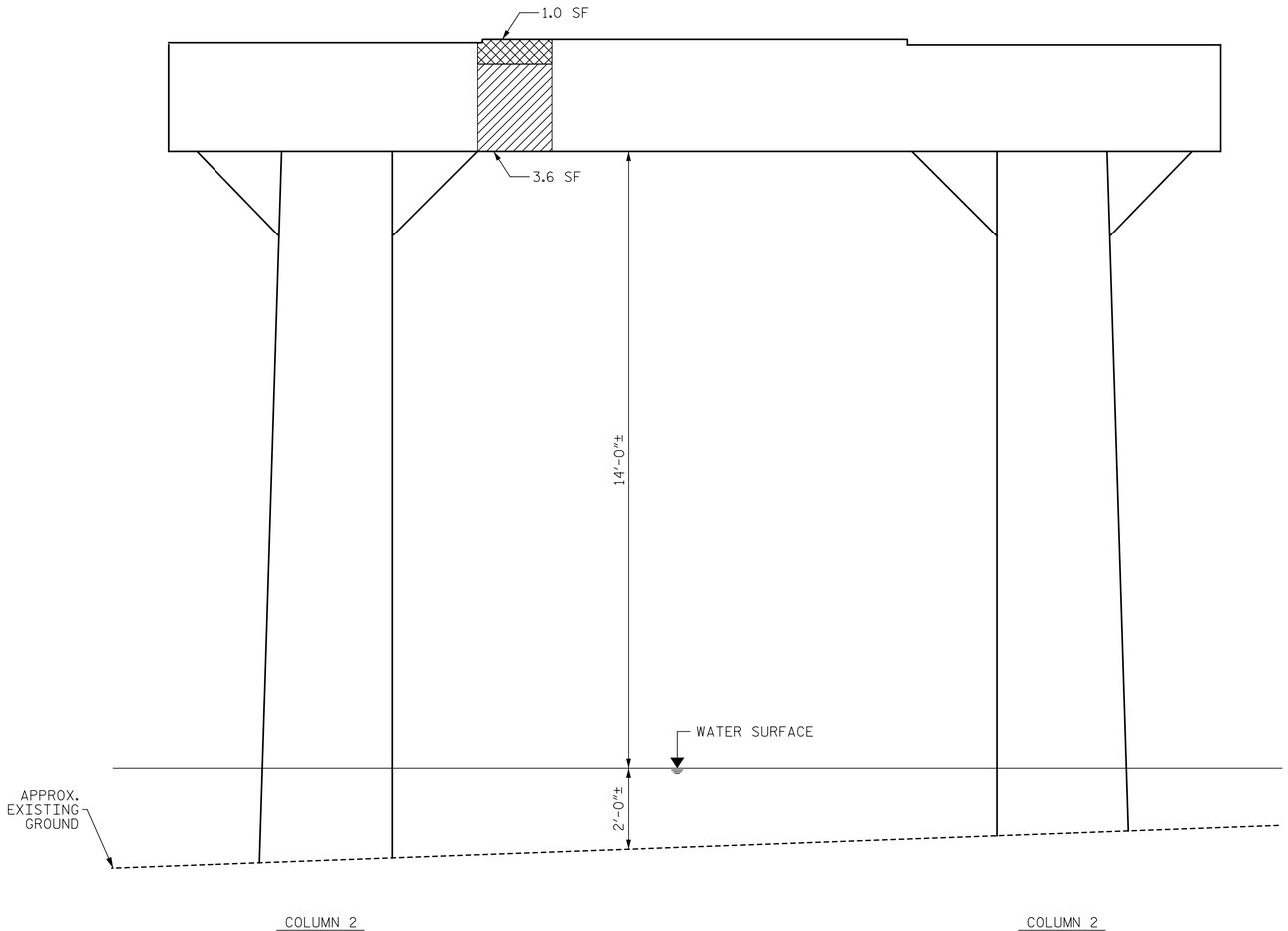


TOP OF CAP



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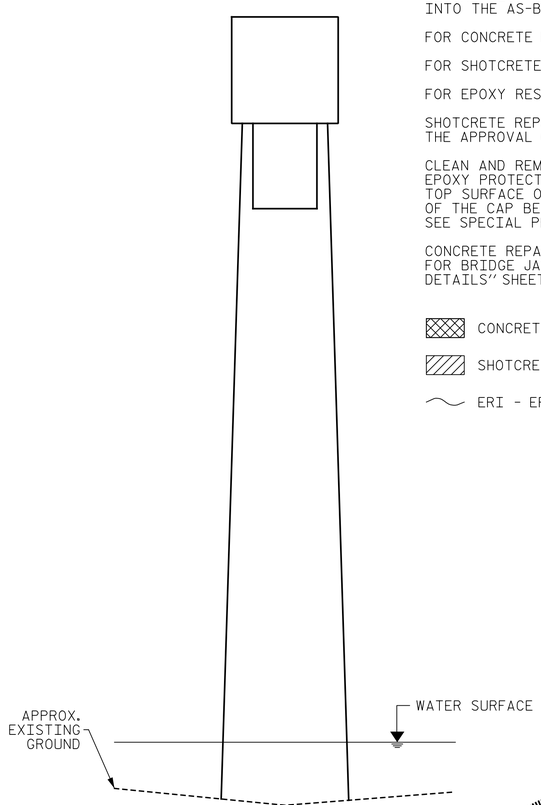

END VIEW
(COLUMN 2)

AS-BUILT REPAIR QUANTITY TABLE

BENT 2 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	29.1	14.6			
COLUMN	0.0	0.0			
CONCRETE REPAIRS	1.0	0.5			
EPOXY RESIN INJECTION		LENGTH LF		LENGTH LF	
CAP		0.0			
COLUMN		0.0			
EPOXY COATING		SQ. FT		SQ. FT	
TOP OF BENT CAP		61			

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

NOTES:

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FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS AND "BRIDGE JACKING DETAILS" SHEET.

CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

SHEET 4 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 2
SPAN B SIDE

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric B. Nelson 12/17/2024
AC880821190744CD...

DRAWN BY : R. LEON DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

GANNETT FLEMING

One Glenwood Avenue
Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic.No.F-0270

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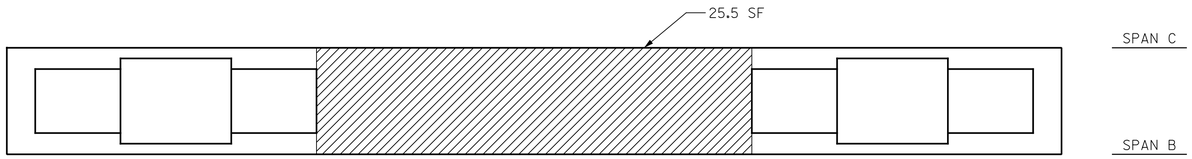
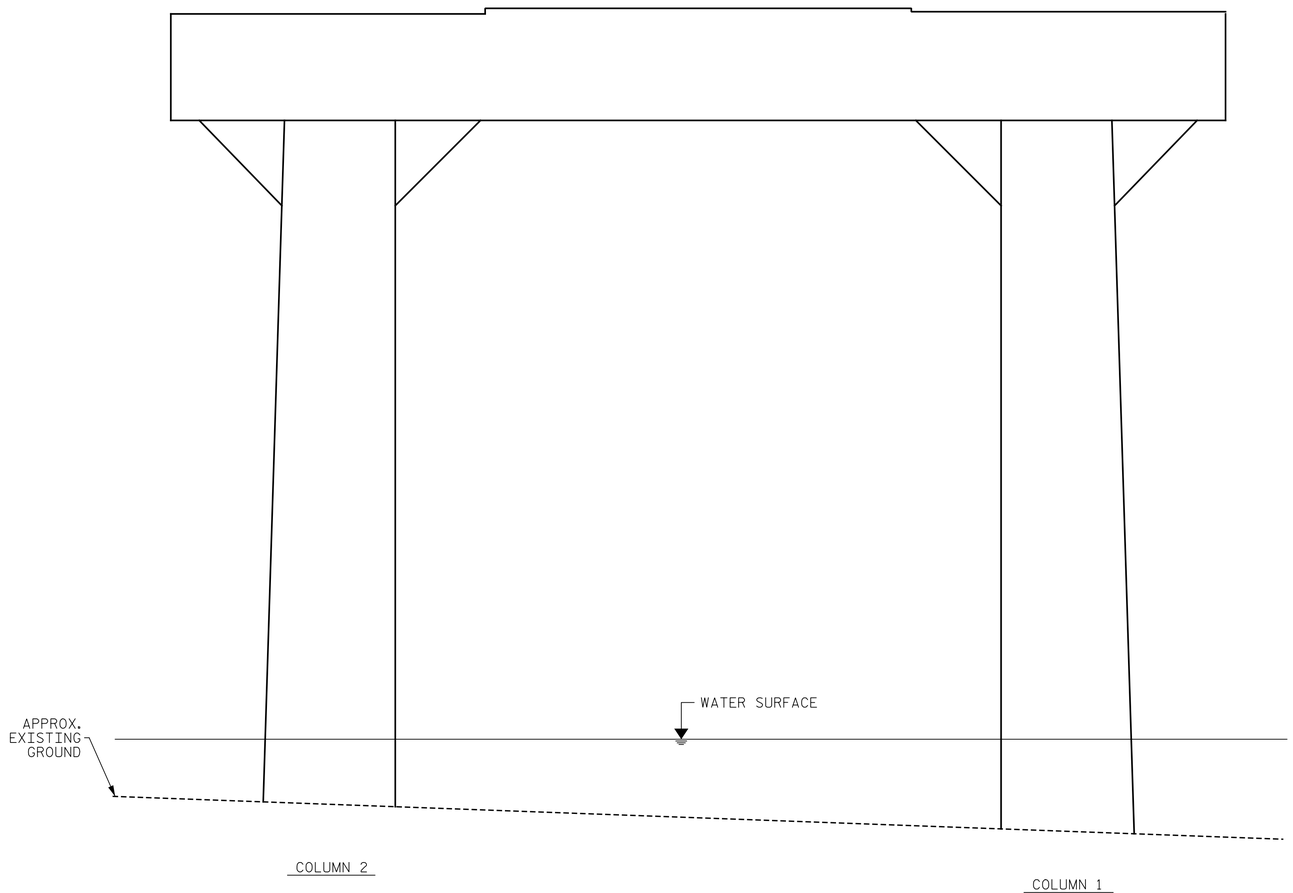


BOTTOM OF CAP



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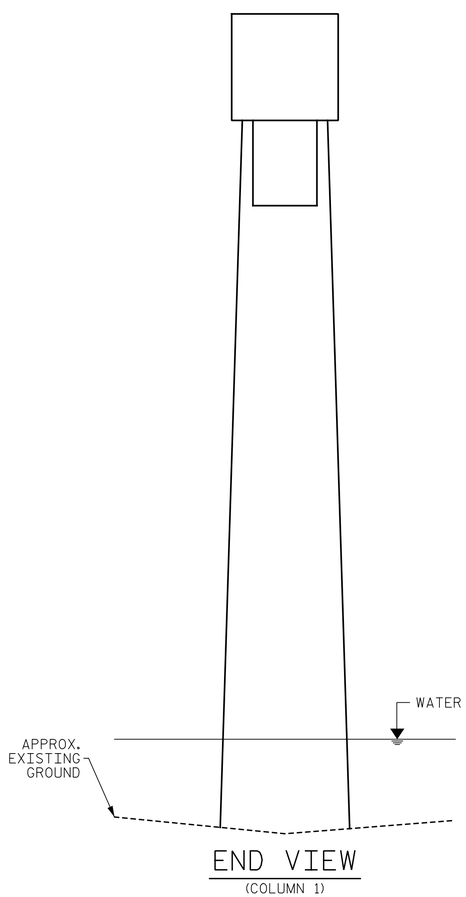

END VIEW
(COLUMN 1)

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CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric B. Nelson Jr. 12/17/2024
ACB8082119D74CD...

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

SHEET 5 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 2
SPAN C SIDE

DRAWN BY : R. LEON DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

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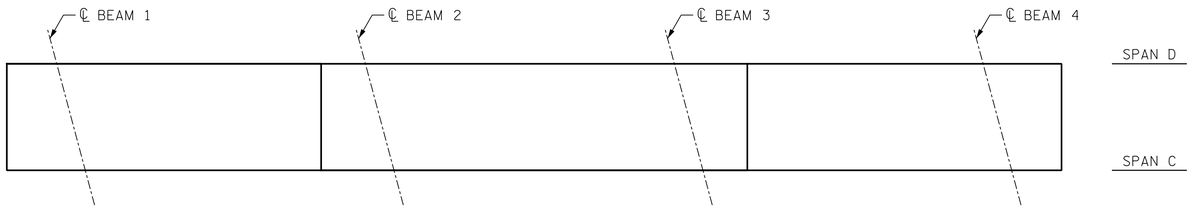
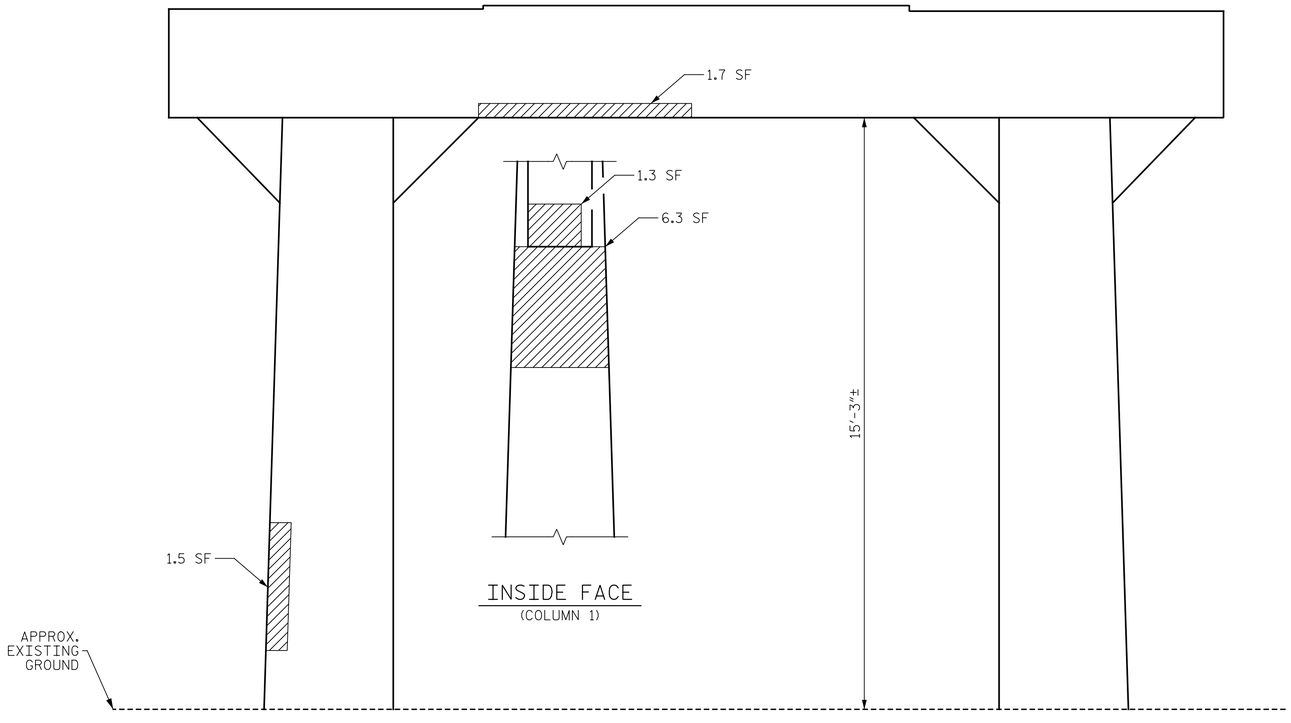


TOP OF CAP



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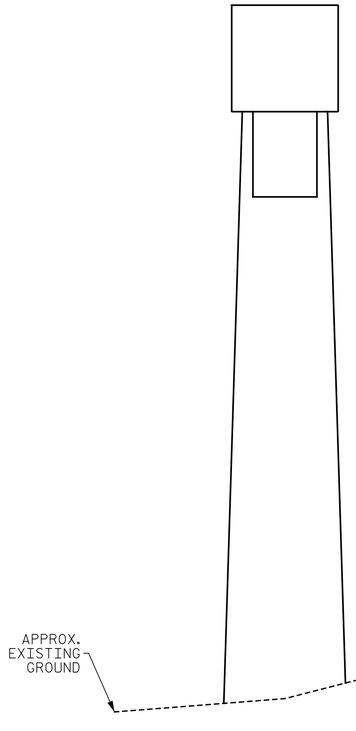

END VIEW
(COLUMN 2)

AS-BUILT REPAIR QUANTITY TABLE

BENT 3 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP	14.5	7.3			
COLUMN	9.1	4.6			
CONCRETE REPAIRS	0.0	0.0			
EPOXY RESIN INJECTION		LENGTH LF		LENGTH LF	
CAP		0.0			
COLUMN		0.0			
EPOXY COATING		SQ. FT		SQ. FT	
TOP OF BENT CAP		61			

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

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CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

SHEET 6 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 3
SPAN C SIDE

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: Eric B Nelson Jr 12/17/2024
AC880521190744CD...

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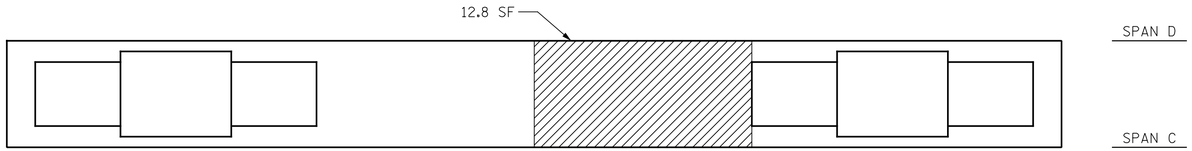

BOTTOM OF CAP

NOTES:

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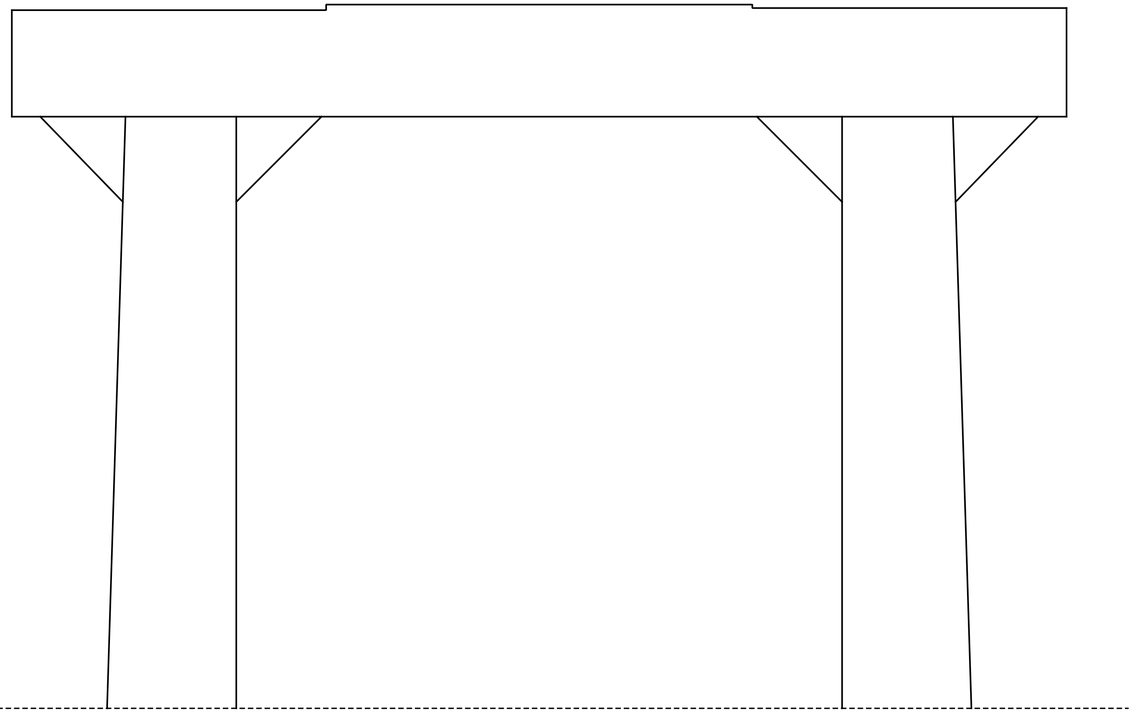
CONCRETE REPAIR (FORM & POUR)

SHOTCRETE REPAIR

ERI - EPOXY RESIN INJECTION



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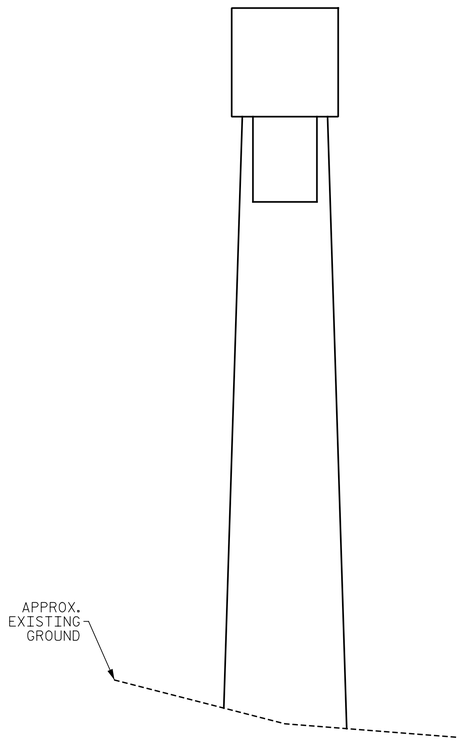

END VIEW
(COLUMN 1)

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by:
Eric Nelson
ACB80821190740D...
12/17/2024

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CHECKED BY : J. YANNACCONE DATE : 03/2022

PROJECT NO. 15BPR.133
ASHE COUNTY
BRIDGE NO. 040507
SHEET 7 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS

BENT 3
SPAN D SIDE

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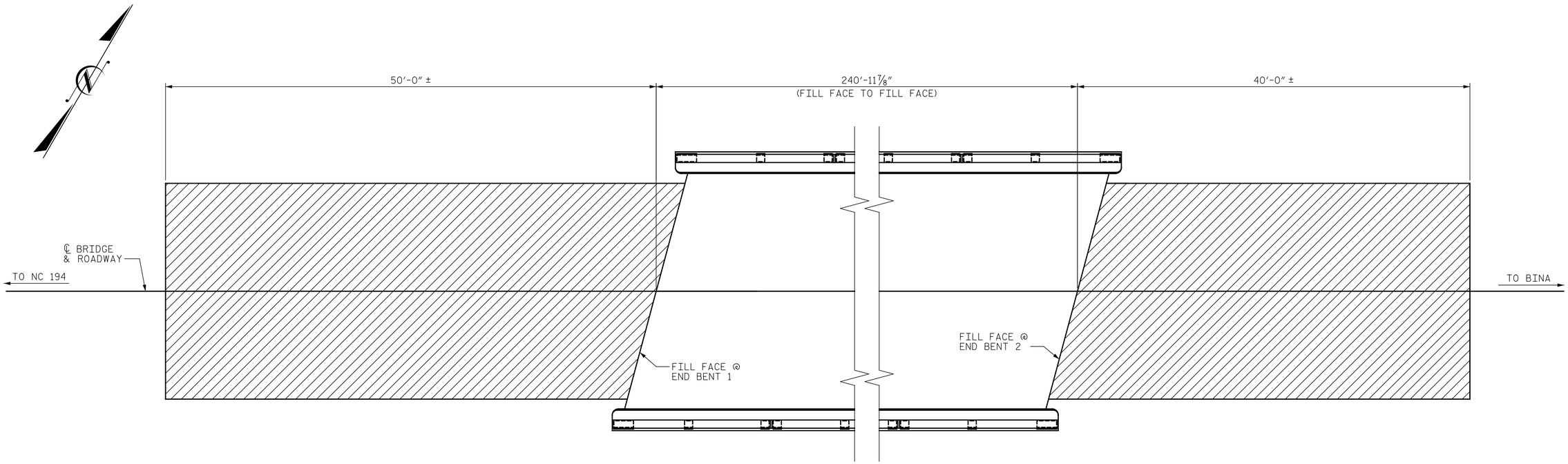
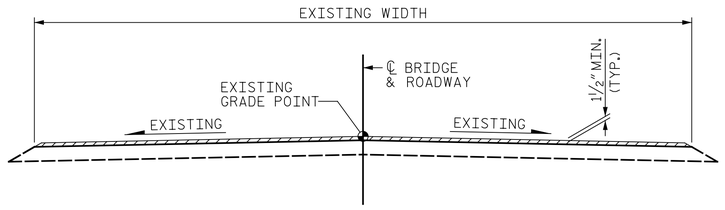
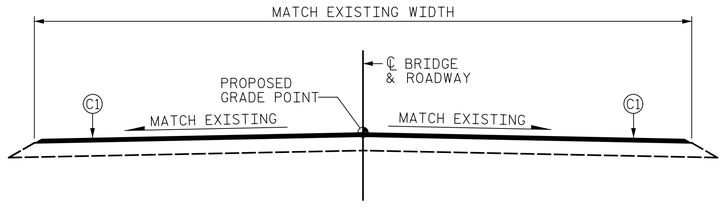


PLAN



TYPICAL ROADWAY MILLING SECTION

(MILLING DEPTH VARIES, SEE NOTES)



TYPICAL FINAL ROADWAY SECTION

AS-BUILT REPAIR QUANTITY TABLE		
DESCRIPTION	ESTIMATE	ACTUAL
INCIDENTAL MILLING	220 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	28 TONS	
ASPHALT BINDER FOR PLANT MIX	2 TONS	

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 CREATE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. NEW ASPHALT PAVING THICKNESS MAY EXCEED 1½" DUE TO SETTLEMENT OF THE EXISTING APPROACH.

AT THE END BENTS, MILL APPROXIMATELY TO A 2½" DEPTH AT THE FILL FACE AND TAPER THE DEPTH TO APPROXIMATELY 1½" AT THE ENDS OF THE MILLED AREA.

▨ - INCIDENTAL MILLING

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

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040507

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric Nelson Jr 12/17/2024 ACB8082119D74CD...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH MILLING AND TYPICAL ROADWAY SECTIONS

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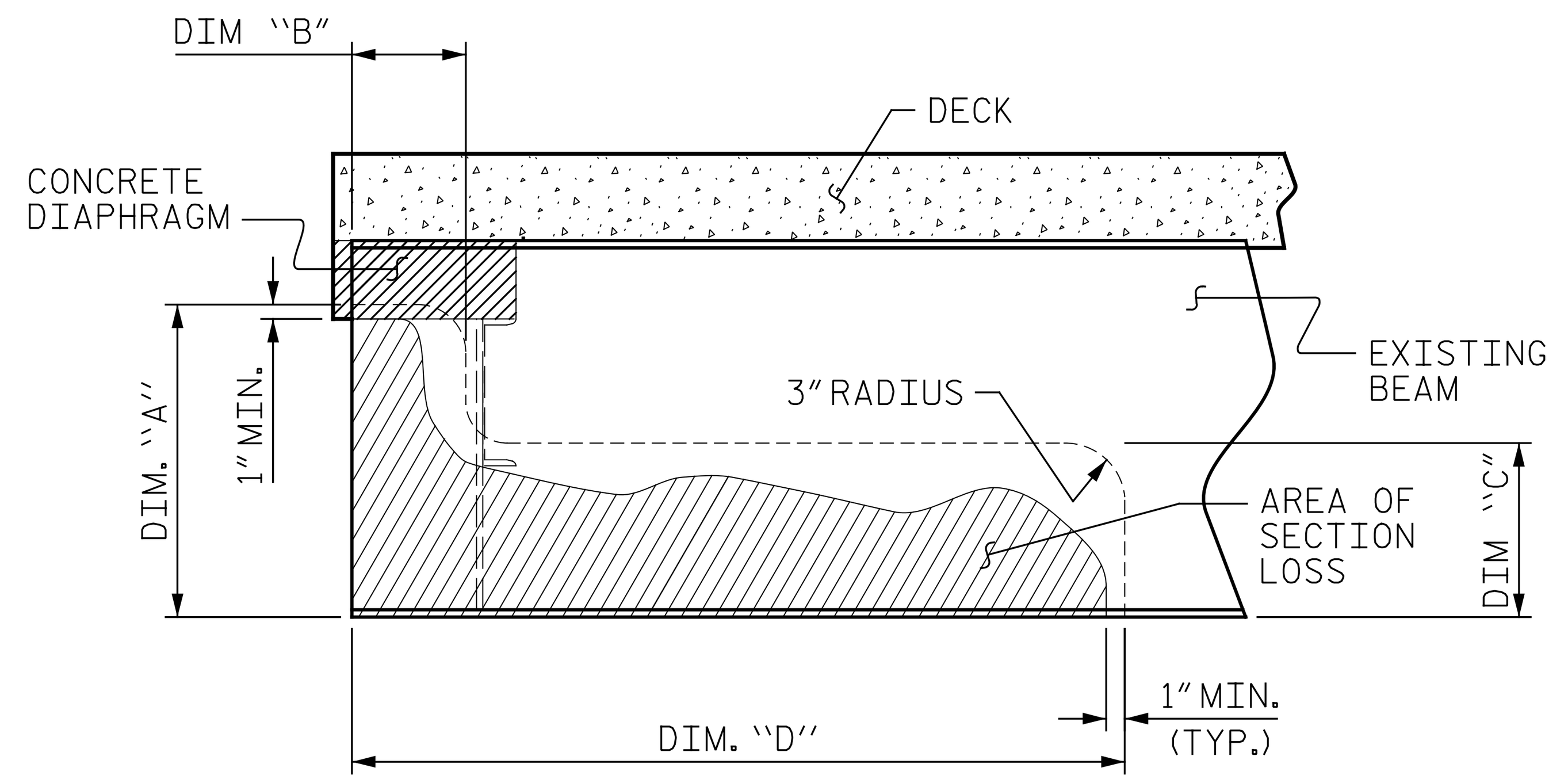
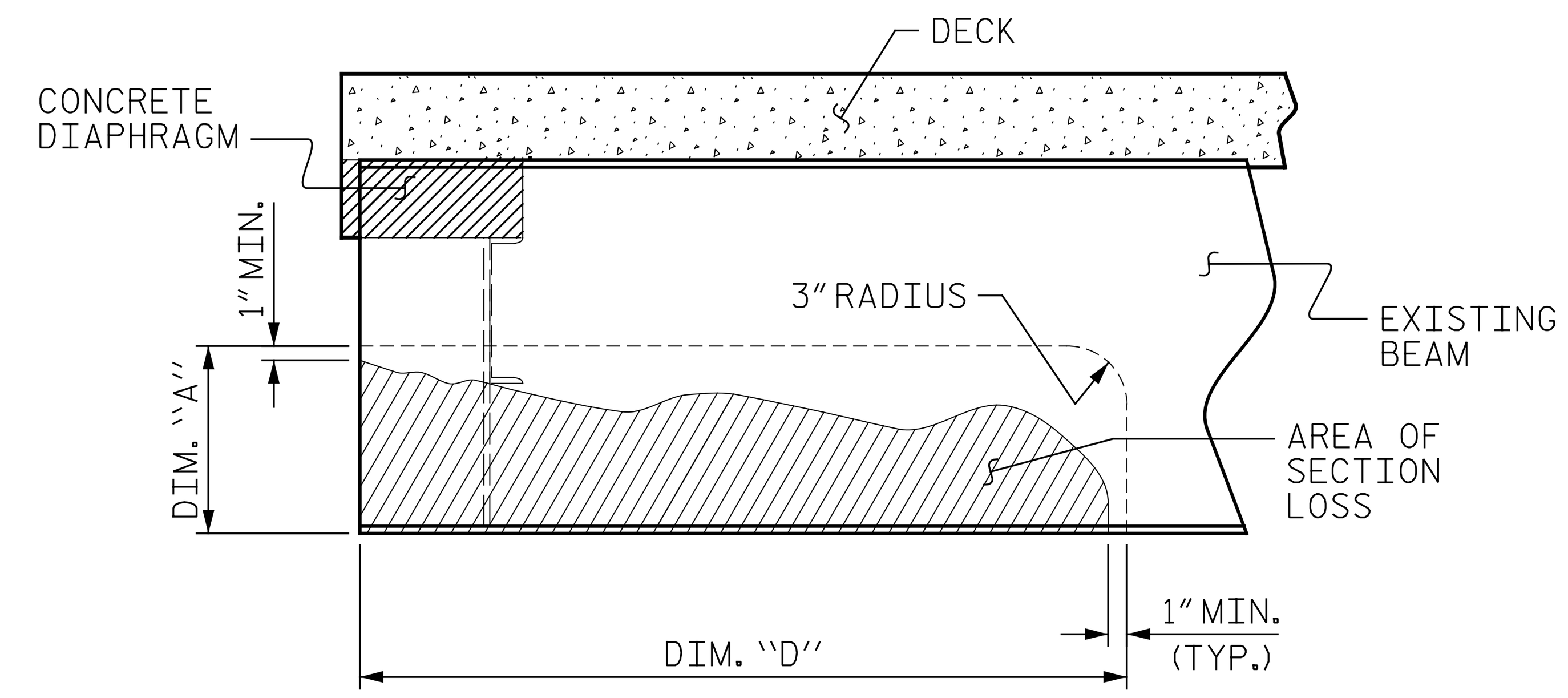
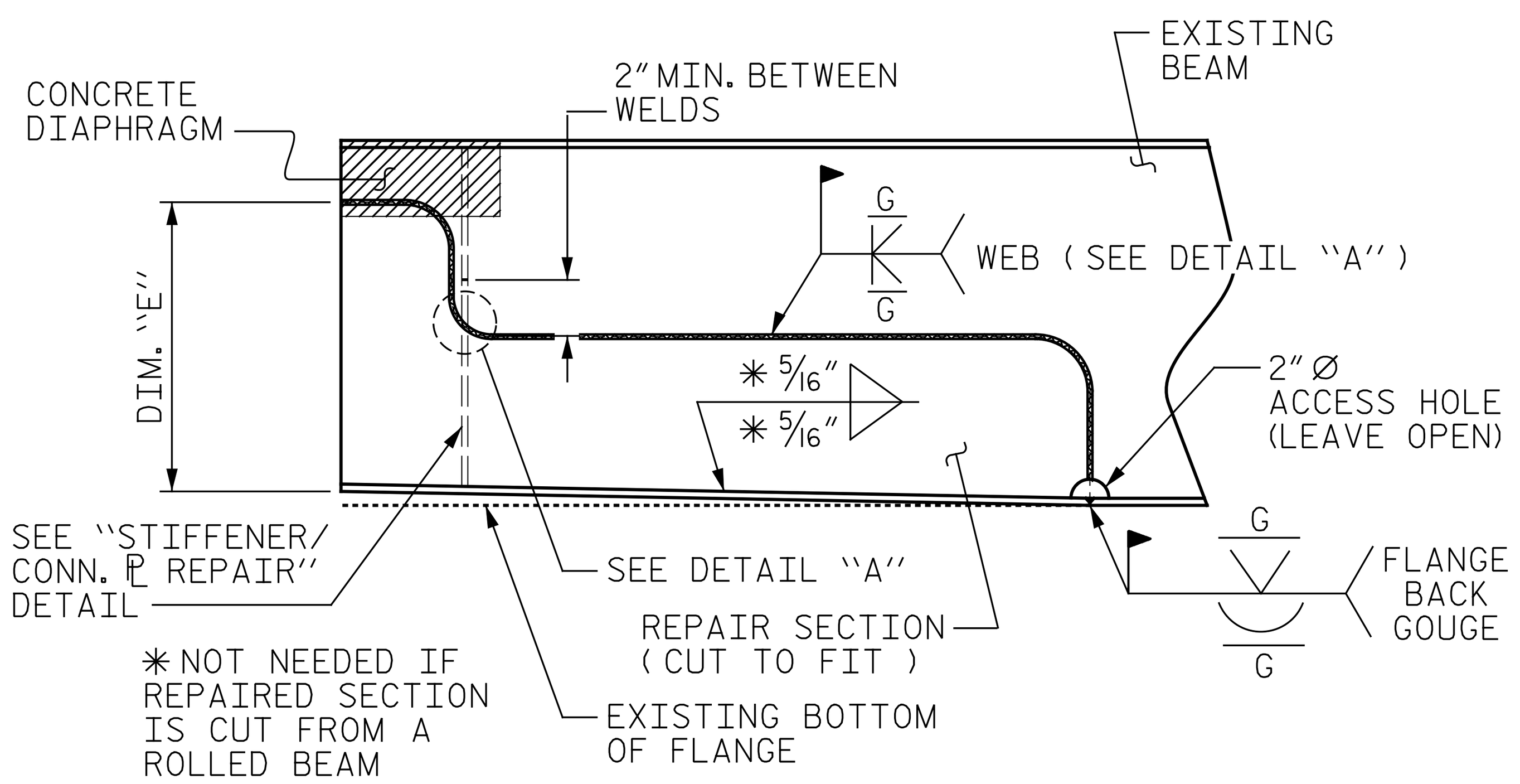


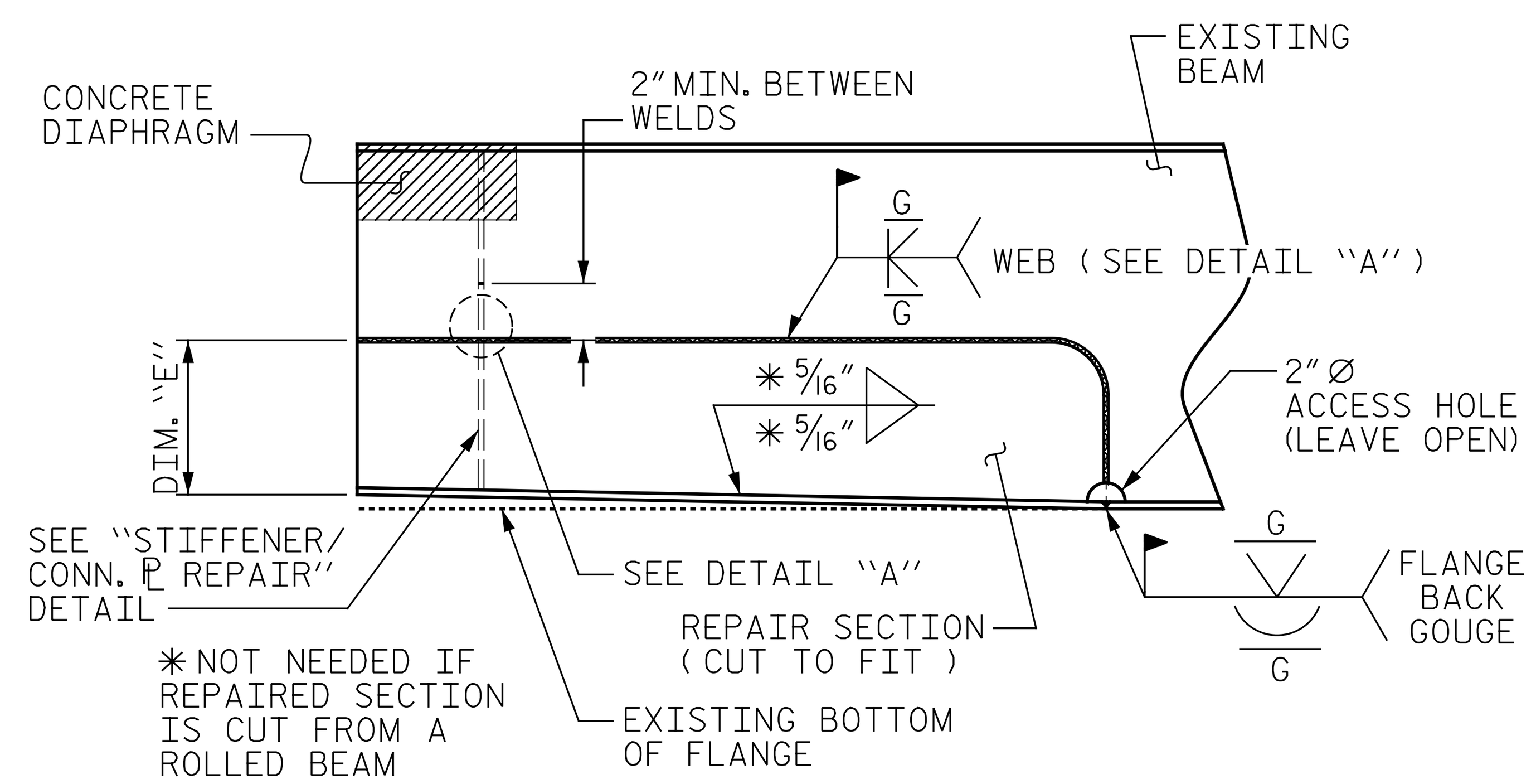
SECTION LOSS REMOVAL



SECTION LOSS REMOVAL



SECTION REPAIR



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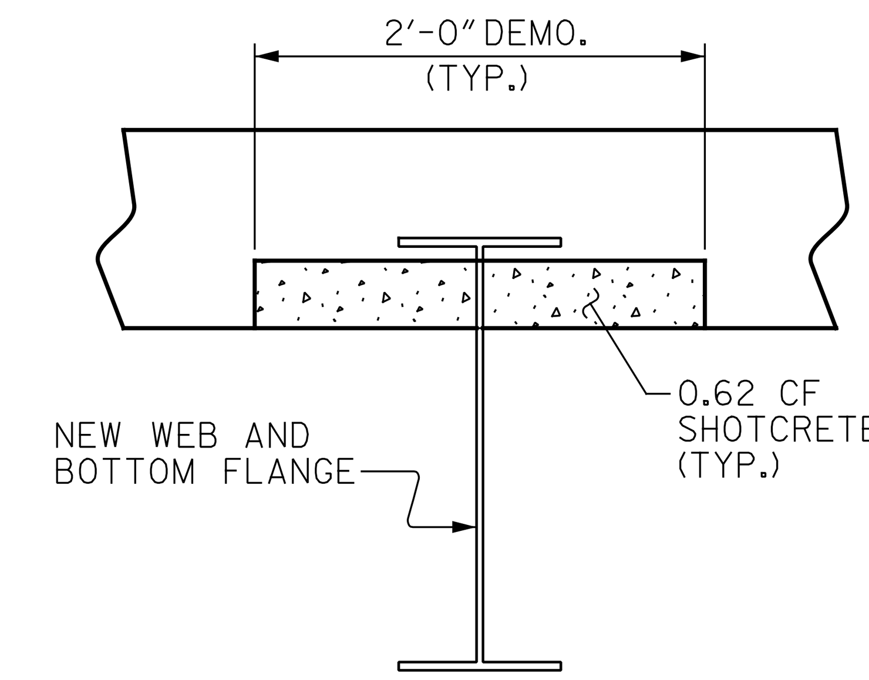
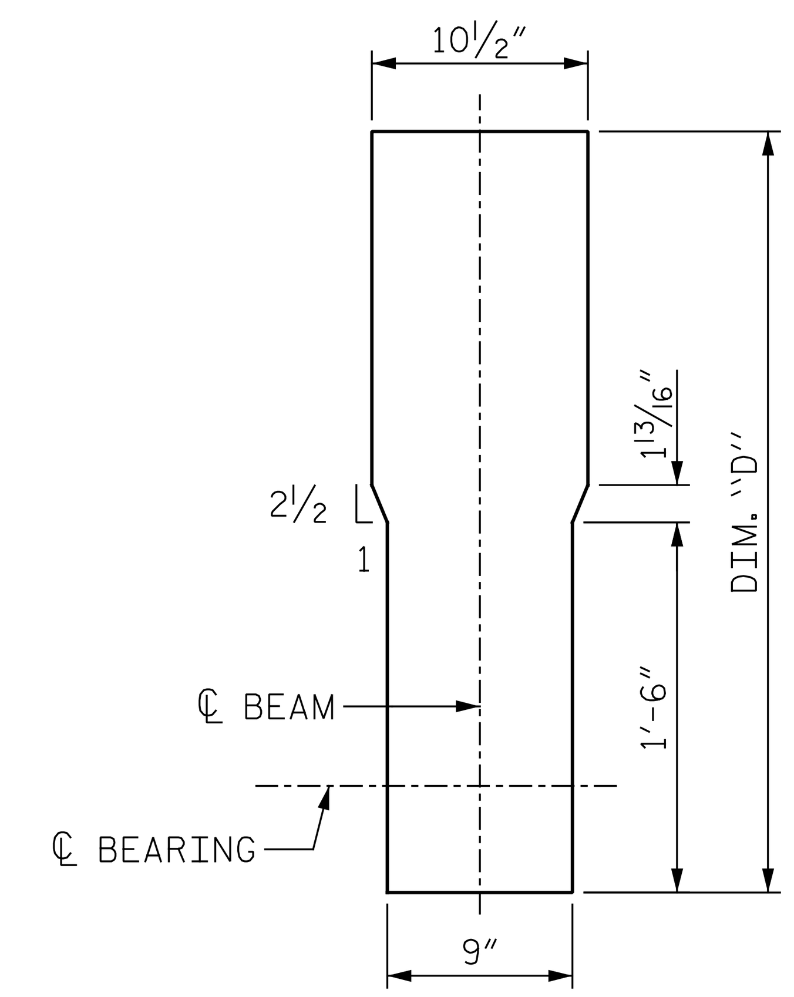


CONCRETE DIAPHRAGM REPAIR

FOR LOCATION SEE, "FRAMING PLAN" SHEET.

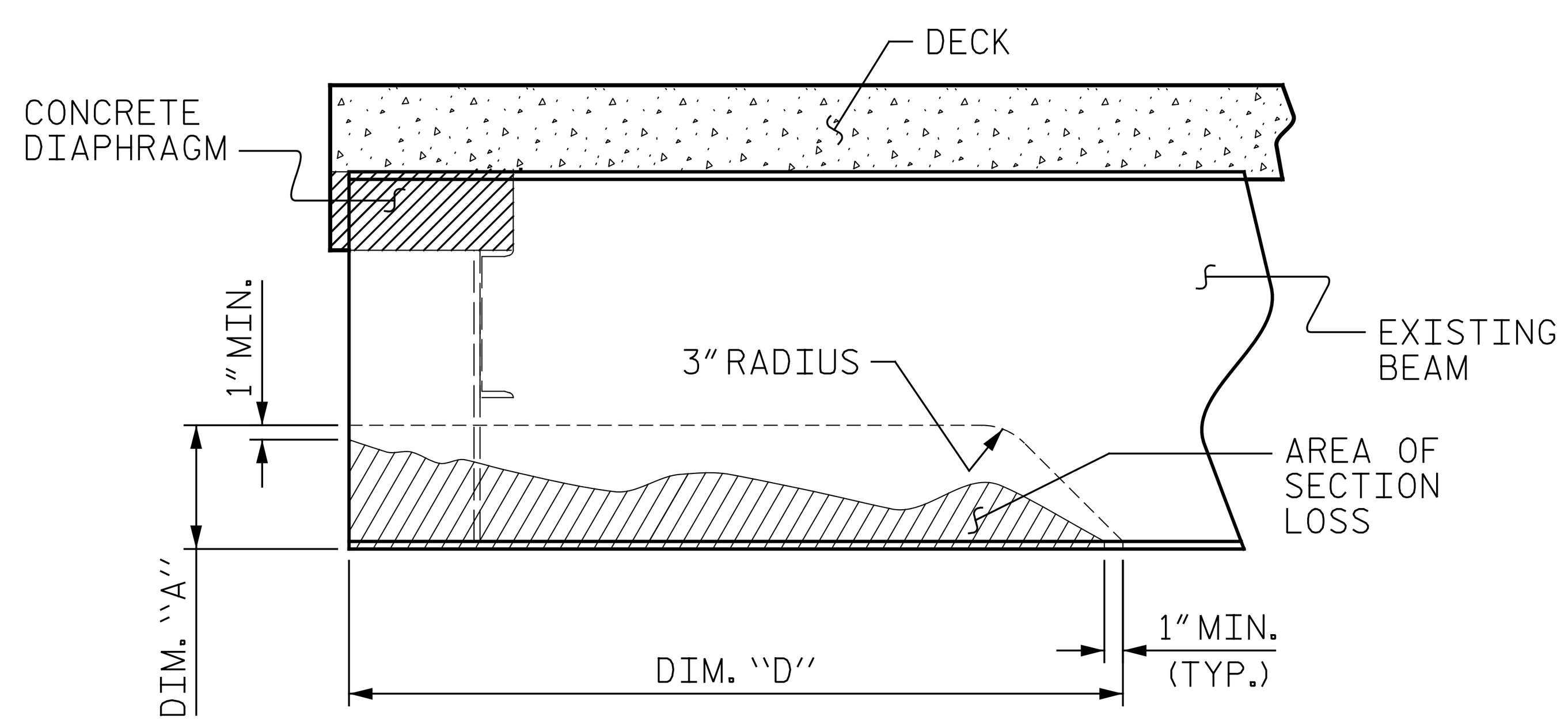


BOTTOM FLANGE TAPER

(BRIDGE 040507 ONLY)

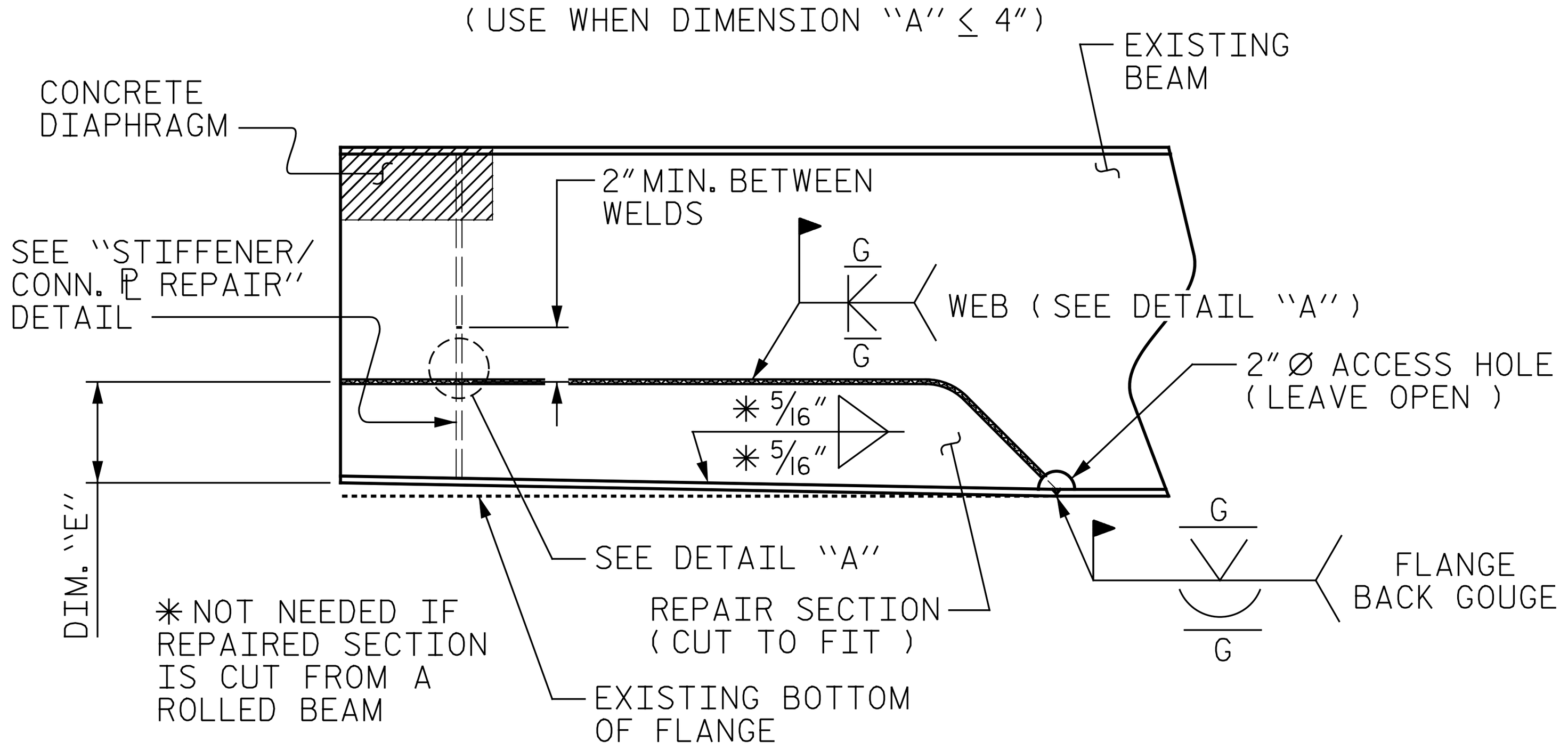
BEAM END REPAIR SEQUENCE:

1. REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.
2. REMOVE DEAD LOAD FROM BEAM BY JACKING AND BLOCKING. CONTRACTOR SHALL SUBMIT JACKING PLAN FOR APPROVAL, PRIOR TO BEGINNING WORK. SEE BRIDGE JACKING SPECIAL PROVISIONS.
3. STEEL DIAPHRAGM CHANNELS AND/OR STIFFENERS MAY BE TEMPORARILY REMOVED, IF NECESSARY, AND REPLACED AFTER BEAM REPAIR.
4. IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM THEN CHIP AWAY CONCRETE TO DETERMINE THE EXTENT OF THE DAMAGE. CUT OUT BY APPROPRIATE MEANS THE DAMAGED BEAM AREA AND/OR BEARING STIFFENER.
5. REMOVE RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.
6. INSTALL NEW CUT-TO-FIT SECTION. REPLACEMENT CUT-TO-FIT BEAM SECTION SHALL BE NEW AND FROM SIMILAR SIZE ROLLED BEAM OR APPROVED EQUIVALENT PLATES. THE GRADE OF STEEL SHALL BE AASHTO M270, GRADE 36 OR BETTER. FULLY WELD ALONG NEW BEAM SECTION AS SHOWN.
7. ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.
8. ALL WELDS SHALL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TEST UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS.
9. IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, AFTER REPAIR, GRIND ALL WELDS FLUSH, THOROUGHLY CLEAN AREA TO REMOVE DEBRIS AND OILS FROM REPAIR PROCESS.
10. CLEANING AND PAINTING OF REPAIRED STRUCTURAL STEEL SHALL BE PERFORMED AS PART OF THE OVERALL CLEANING AND PAINTING CONTRACT.
11. FOR CLEANING AND PAINTING, SEE PAINTING EXISTING STRUCTURE SPECIAL PROVISIONS.
12. AFTER GIRDERS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE CAST BACK. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. SEE CONCRETE DIAPHRAGM REPAIR SPECIAL PROVISION.
13. LOWER SPAN TO BEAR; CHECK FOR DISTRESS.
14. REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.
15. REMOVE ALL TRAFFIC CONTROL DEVICES.



SECTION LOSS REMOVAL

(USE WHEN DIMENSION "A" ≤ 4")



SECTION REPAIR

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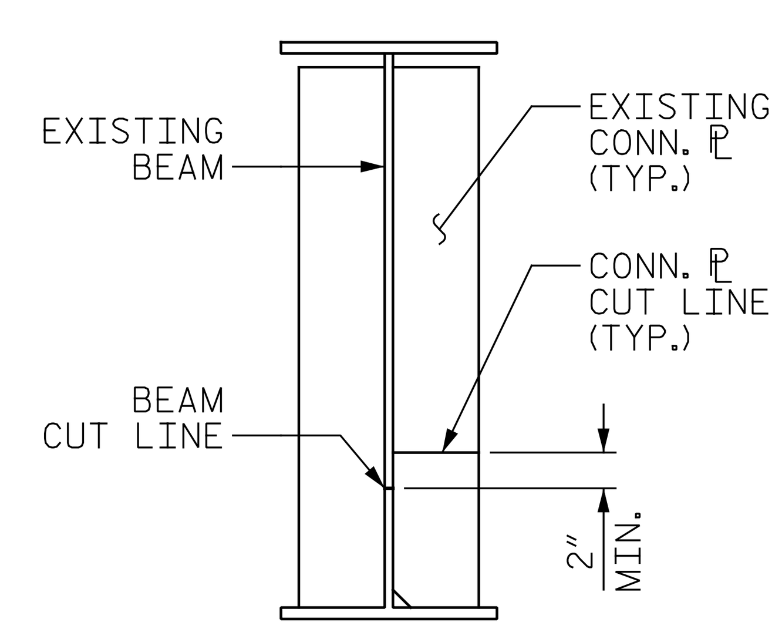
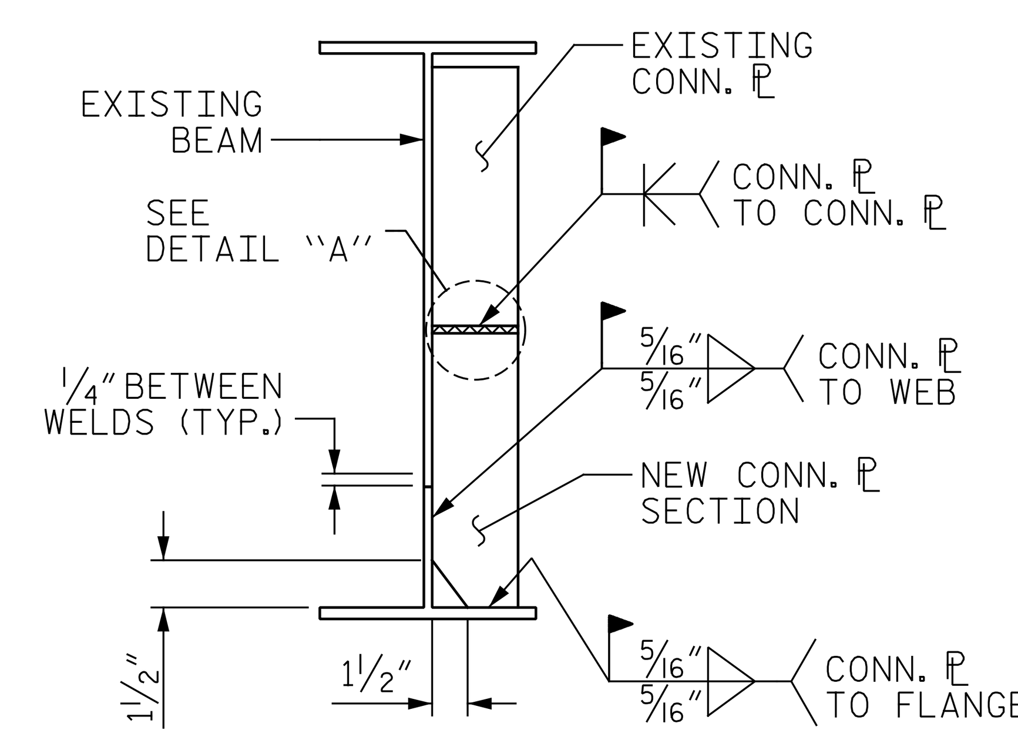
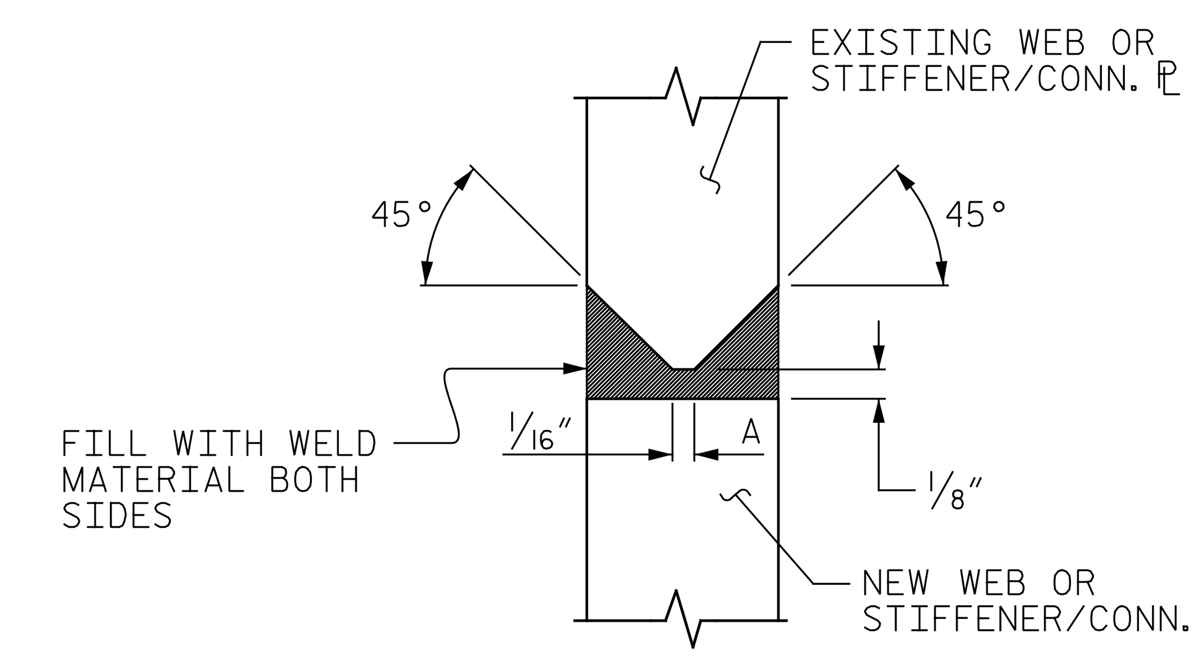


STIFFENER/CONN. ℙ REMOVAL



STIFFENER/CONN. ℙ REPAIR

▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD



DETAIL "A"

NOTES:

AREAS OF EXCESSIVE SECTION LOSS, IN ADDITION TO THOSE INDICATED ON PLAN SHEETS, MIGHT BE ENCOUNTERED. THE CONTRACTOR SHALL HAVE ADDITIONAL REPAIR MATERIALS ON HAND OR READILY AVAILABLE, SO ADDITIONAL AREAS OF EXCESSIVE SECTION LOSS MAY BE REPAIRED IN A TIMELY MANNER.

AFTER THE STRUCTURAL STEEL HAS BEEN BLASTED AND PRIMED, THE STRUCTURAL STEEL AND BEARING SHALL BE INSPECTED FOR EXCESSIVE SECTION LOSS. AREAS THAT EXHIBIT AN EXCESS OF 35% SECTION LOSS SHALL BE REVIEWED BY THE ENGINEER TO DETERMINE IF AREA OF SECTION LOSS SHOULD BE REPAIRED.

AS DETERMINED BY THE ENGINEER, AREAS WITH EXCESSIVE SECTION LOSS OR AREAS WITH TEMPORARY REPAIRS SHALL BE REMOVED AND THE BEAMS SHALL BE REPAIRED AS INDICATED ON THIS PLAN SHEET. CONTRACTOR AND ENGINEER TO DETERMINE ACTUAL DIMENSIONS OF AREA TO BE REMOVED AND REPLACED. REMOVE CONCRETE BENT DIAPHRAGMS AS NEEDED TO EVALUATE LIMITS OF REPAIR.

FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.

FOR CONCRETE DIAPHRAGM REPAIR, SEE SPECIAL PROVISIONS.

PAYMENT FOR THE SECTION REPAIR SHALL BE BASED ON THAT AMOUNT OF REPAIR ACTUALLY PERFORMED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

PROVIDE RUN-OFF WELD TABS, WHERE APPLICABLE, TO PROVIDE PROPER WELD START AND TERMINATION. SEE NCDOT M&T FIELD WELD MANUAL AND AWS D1.5 SECTION 3.12.

FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040478, 040507

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 020208 ERIC B. NELSON JR.

DocuSigned by: ACB6062119D74CD... 12/17/2024

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM REPAIR CUT-OUT DETAILS

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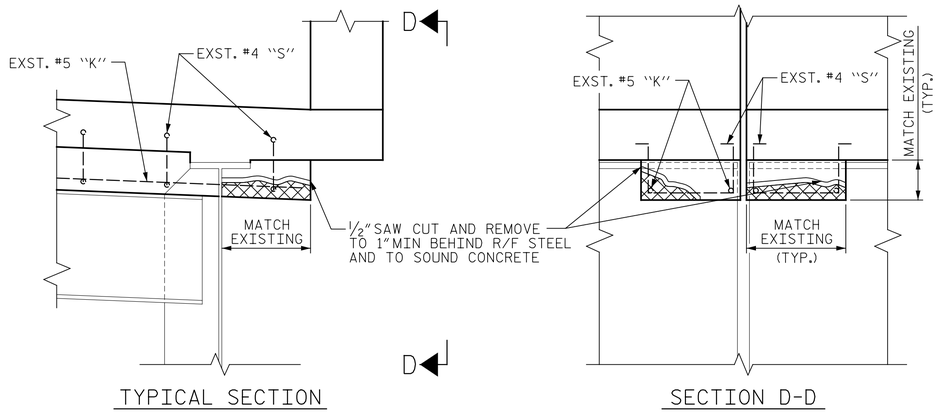
SHEET NO. SD-1
TOTAL SHEETS 87

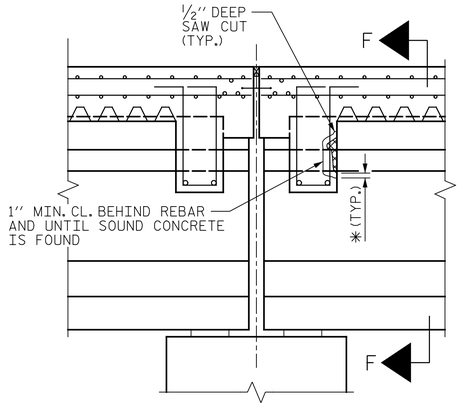
DRAWN BY : M. SPENCER DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022



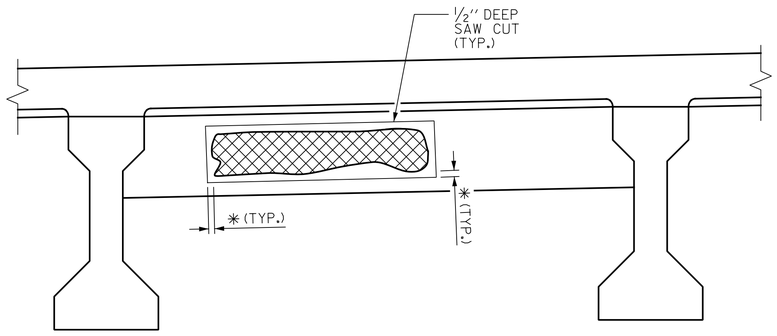
TYPICAL SECTION

SECTION D-D

STEEL SUPERSTRUCTURE



TYPICAL SECTION
AT EXPANSION JOINTS

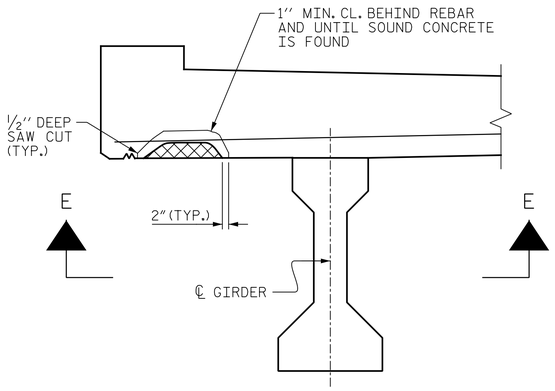


SECTION F-F

CONCRETE SUPERSTRUCTURE

OVERHANG DIAPHRAGM REPLACEMENT DETAILS

(SEE PLAN OF SPANS SHEETS FOR REPAIR LOCATIONS)



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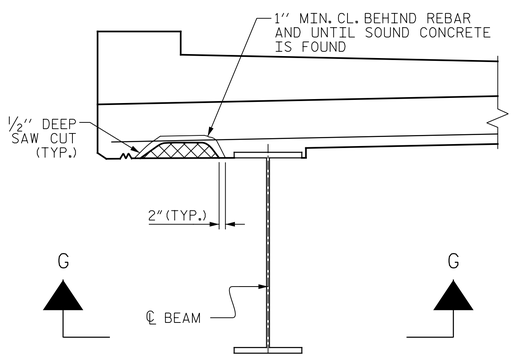
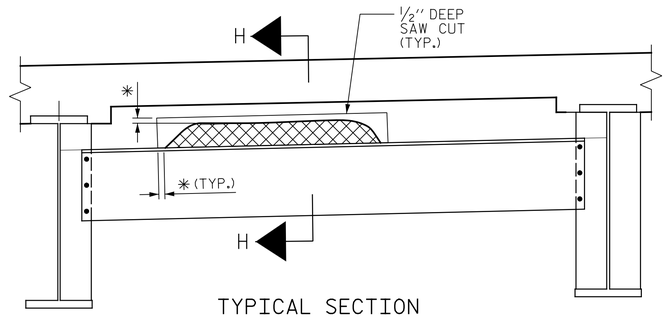
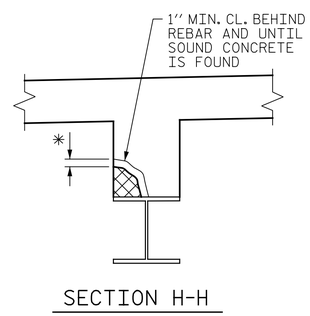


TYPICAL SECTION

STEEL SUPERSTRUCTURE

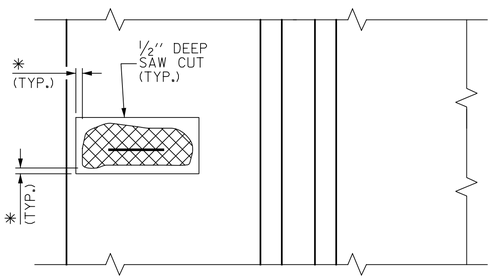


TYPICAL SECTION



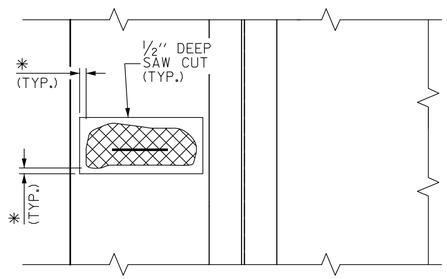
SECTION H-H

INTERIOR DIAPHRAGM REPAIR DETAILS



SECTION E-E

CONCRETE SUPERSTRUCTURE



SECTION G-G

STEEL SUPERSTRUCTURE

* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (1" MIN. DEPTH)

DAMAGED AREA

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

NOTES

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

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE DIAPHRAGM REPAIR, SEE SPECIAL PROVISIONS.

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON JR.

DocuSigned by: Eric B. Nelson Jr. 12/17/2024
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PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040019,040032
040478,040507

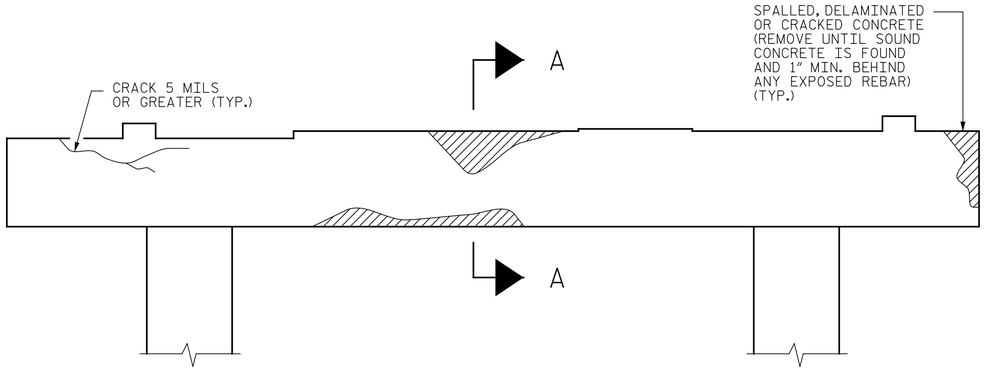
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

OVERHANG AND DIAPHRAGM REPAIR DETAILS

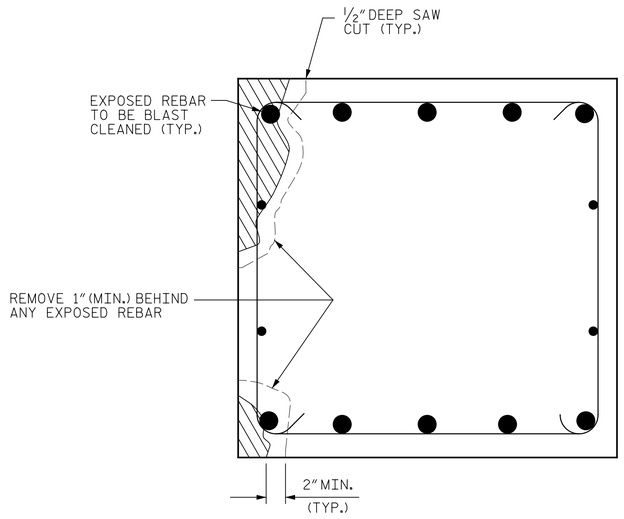
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SD-2
1			3			TOTAL SHEETS
2			4			87

OVERHANG DETAILS

DRAWN BY : M. SPENCER DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022



BENT CAP REPAIRS

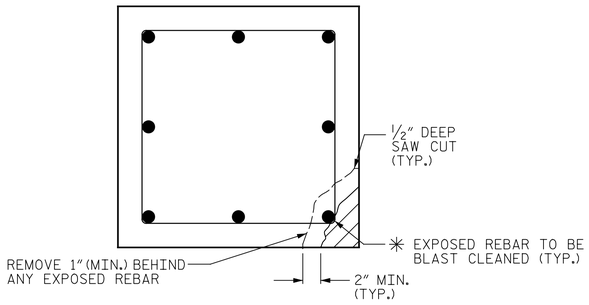


SECTION A-A

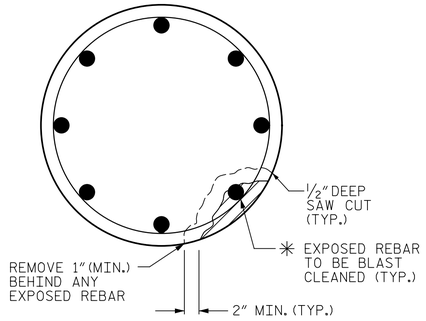
NOTES:

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

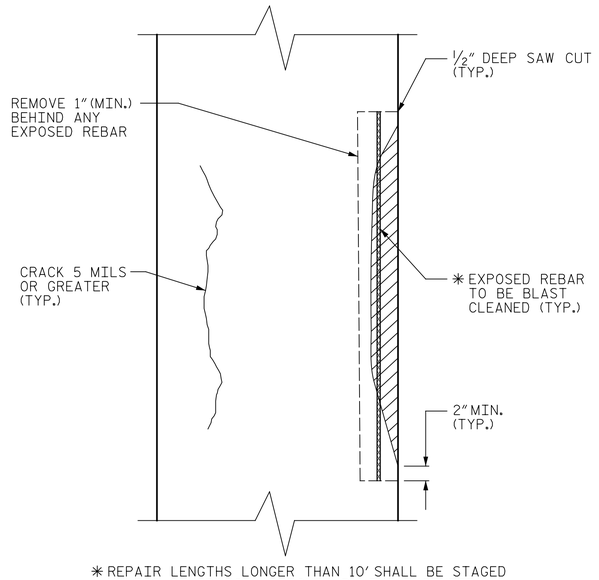
CAP REPAIR



PLAN OF COLUMN
(RECTANGULAR)



PLAN OF COLUMN
(ROUND)



* REPAIR LENGTHS LONGER THAN 10' SHALL BE STAGED UNLESS OTHERWISE APPROVED BY THE ENGINEER.

ELEVATION OF COLUMN

COLUMN REPAIR

NOTES:

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

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

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

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

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

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, IF THE AREAS OF REMOVAL ARE NOT ADJACENT TO OR DIRECTLY OPPOSITE ONE ANOTHER. IF REMOVAL EXTENDS MORE THAN 1 1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

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

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

CLEAN ALL EXPOSED REINFORCING BARS IN ACCORDANCE WITH APPROPRIATE SPECIAL PROVISIONS. FOR BARS WITH MORE THAN 10% SECTION LOSS, SPLICE AND SECURELY TIE SUPPLEMENTAL REINFORCING BARS AS NEEDED.

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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

SPLICE LENGTH TABLE

BAR SIZE	MINIMUM SPLICE LENGTH
#4	2'-4"
#5	2'-9"
#6	4'-0"
#7	5'-3"
#8	6'-9"
#9	8'-6"
#10	10'-11"
#11	13'-4"

EPOXY RESIN INJECTION (ERI)

CONCRETE REPAIR AREA

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040019,040032
040478,040507

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL CAP AND COLUMN REPAIR DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric Bak Jr 12/17/2024
ACB6082119D74CD...

DRAWN BY : M. SPENCER DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

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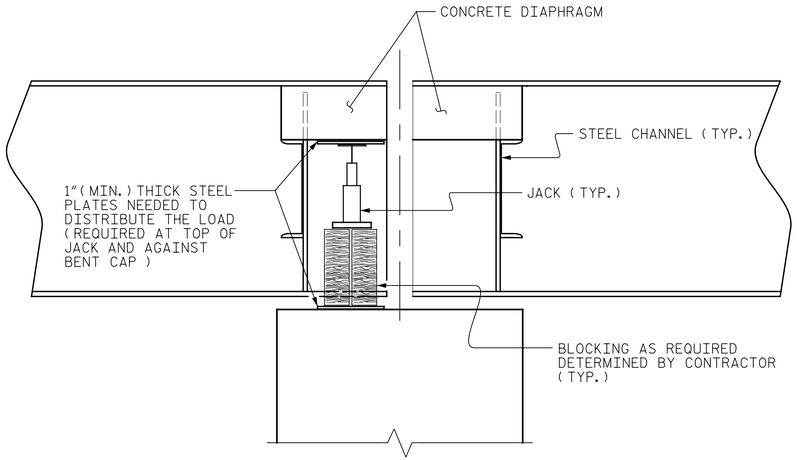
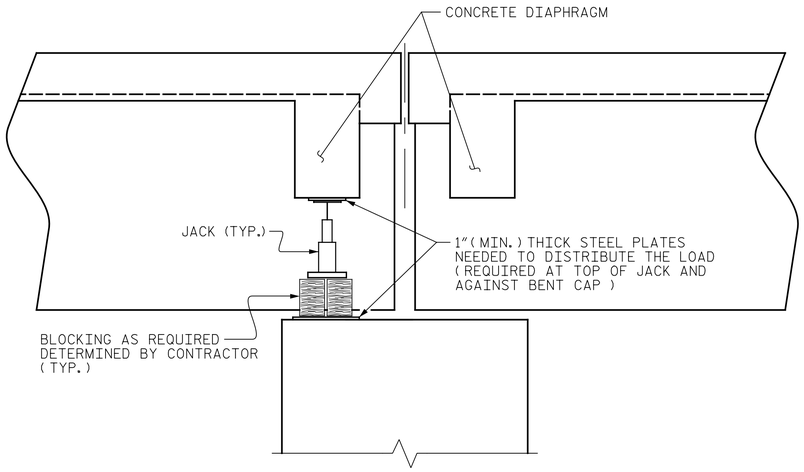


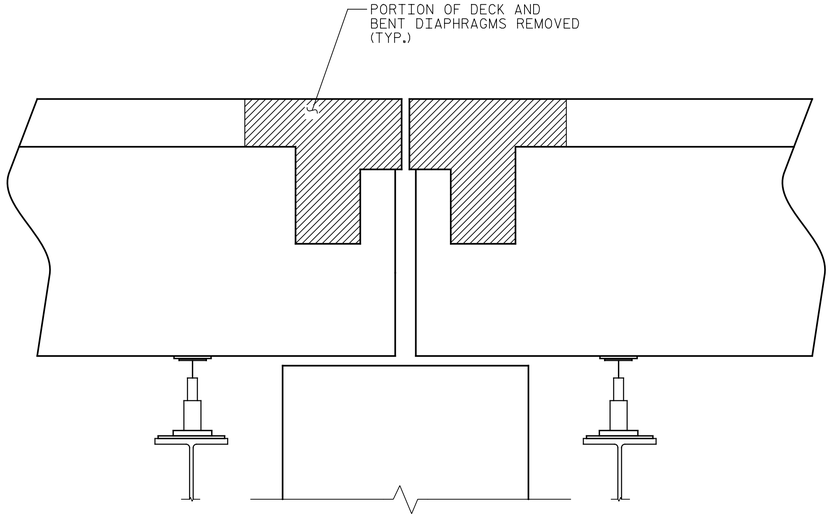
SECTION THROUGH DIAPHRAGM

(STEEL BEAMS)



SECTION THROUGH DIAPHRAGM

(CONCRETE GIRDERS)
(TYPE I BRIDGE JACKING)



SECTION THROUGH DIAPHRAGM

(CONCRETE GIRDERS)
(EXTERNALLY SUPPORTED TYPE II BRIDGE JACKING)

BRIDGE JACKING TABLE

PRELIMINARY GIRDER REACTIONS (MAXIMUM)

BRIDGE NO.	LOCATION	BEAMS	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)
040019	BENT 1	1 & 4	I	56
	BENT 2	1 & 4	II	56
	BENT 2	2 & 3	II	62
040032	BENTS 1-3	1 & 5	II	93
	BENTS 1-3	2-4	II	103
040478	BENTS 1-5	1-4	I	33
040507	BENTS 1-3	1-4	I	39

NOTE: LOADS ARE UNFACTORED

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 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 HYDRAULIC 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.

FOR TYPE II JACKING, THE CONTRACTOR SHALL USE ONE OF THE FOLLOWING EXTERNALLY SUPPORTED JACKING SYSTEMS: JACKING SADDLE, JACKING CORBEL OR JACKING TOWER.

PROJECT NO. 15BPR.133

ASHE COUNTY

BRIDGE NO. 040019,040032
040478,040507

NORTH CAROLINA PROFESSIONAL SEAL 020208 ENGINEER ERIC B. NELSON

DocuSigned by: Eric B. Nelson Jr. 12/17/2024
AC880821190740D...

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE JACKING DETAILS

DRAWN BY : M. SPENCER DATE : 03/2022
CHECKED BY : J. YANNACCONE DATE : 03/2022

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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE ⅞" ∅ SHEAR STUDS FOR THE ¾" ∅ STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" ∅ STUDS FOR 4 - ¾" ∅ STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" ∅ STUDS ALONG THE BEAM AS SHOWN FOR ¾" ∅ STUDS BASED ON THE RATIO OF 3 - ⅞"∅ STUDS FOR 4 - ¾" ∅ STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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