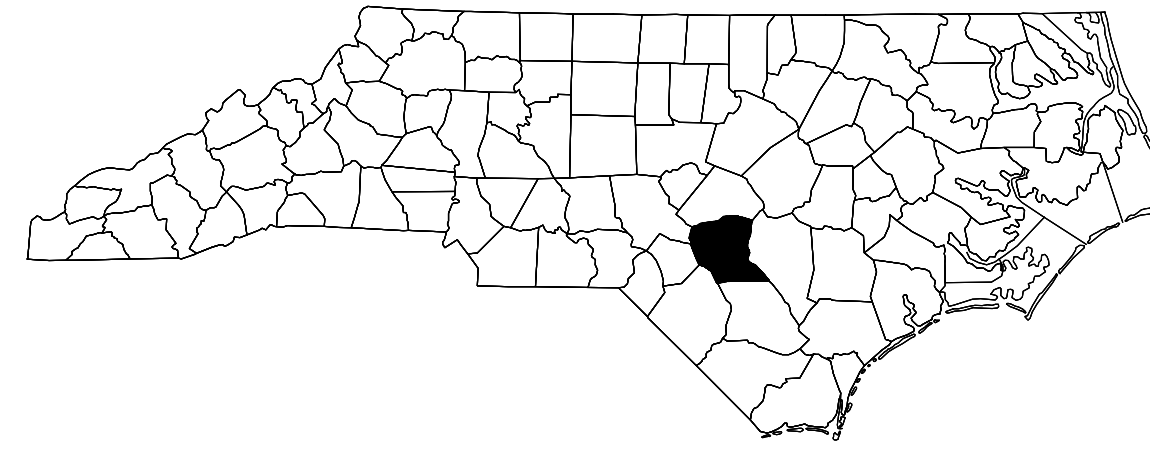


**CONTRACT NO: C204448 PROJECT: 15BPR.44**



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

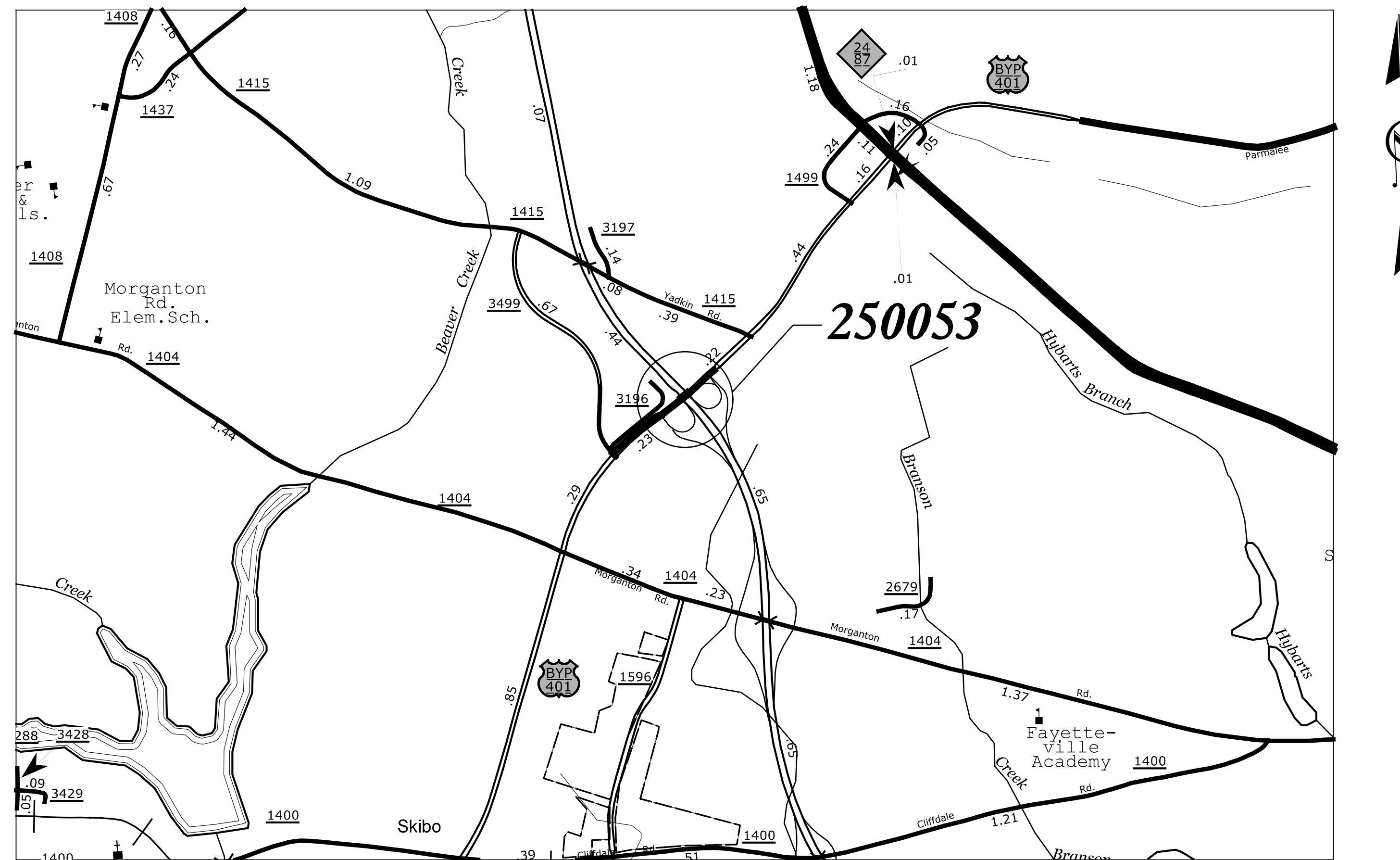
**CUMBERLAND COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.44	1	19
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.44	-	P.E.	
15BPR.44	-	CONST.	

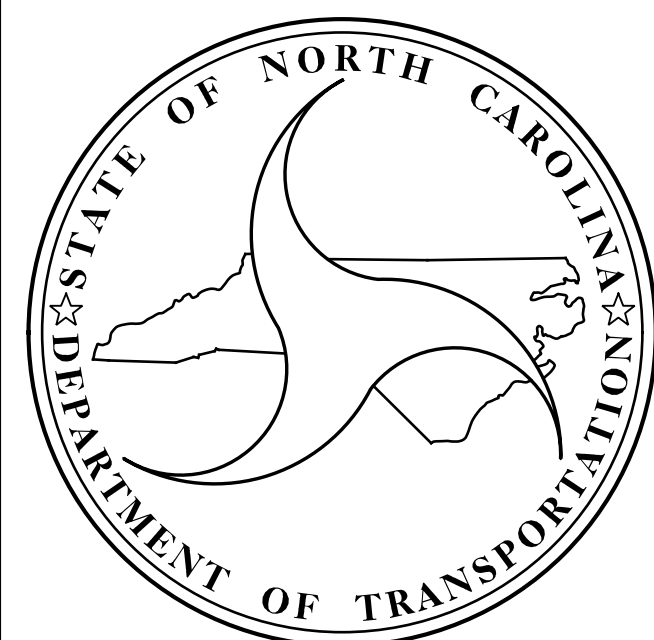
**LOCATION: CUMBERLAND COUNTY**

**BRIDGE #250053 ON US 401 BYPASS OVER SR 1007 (ALL AMERICAN FREEWAY).**

**TYPE OF WORK: BRIDGE REHABILITATION - DECK REPAIRS, POLYMER CONCRETE OVERLAY, JOINT REPLACEMENTS, BEARING REPLACEMENTS, SUBSTRUCTURE REPAIR, CLEANING AND PAINTING OF EXISTING STEEL BRIDGE STRUCTURE.**



**VICINITY MAP - CUMBERLAND COUNTY**



**DESIGN DATA**  
CUMBERLAND COUNTY  
#250053 ADT 2018 = 50,500

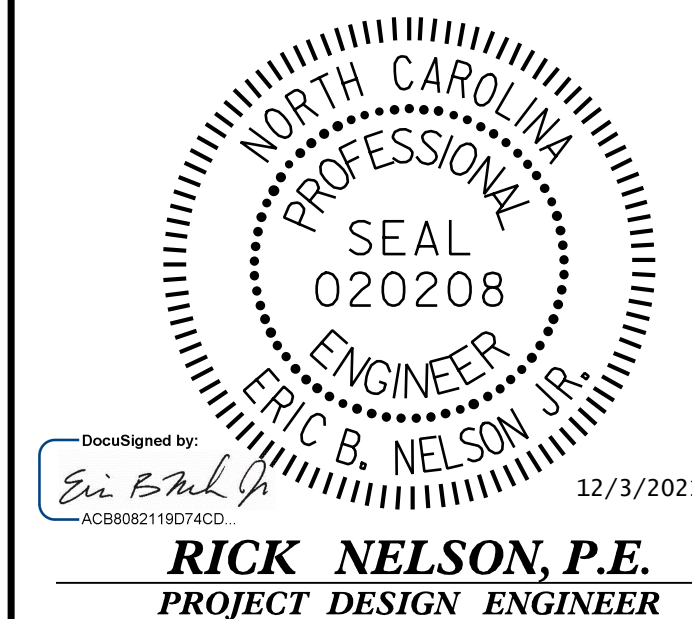
**PROJECT LENGTH**  
CUMBERLAND COUNTY  
#250053 = 0.04 MILE

PLANS PREPARED BY:  
**Gannett Fleming**  
Excellence Delivered *As Promised*  
2610 Wycliff Road  
Suite 102  
Raleigh NC 27607-3073  
(919) 420-7660  
NC Lic. No. F-0270

**RICK NELSON, P.E.**  
PROJECT DESIGN ENGINEER

2018 STANDARD SPECIFICATIONS

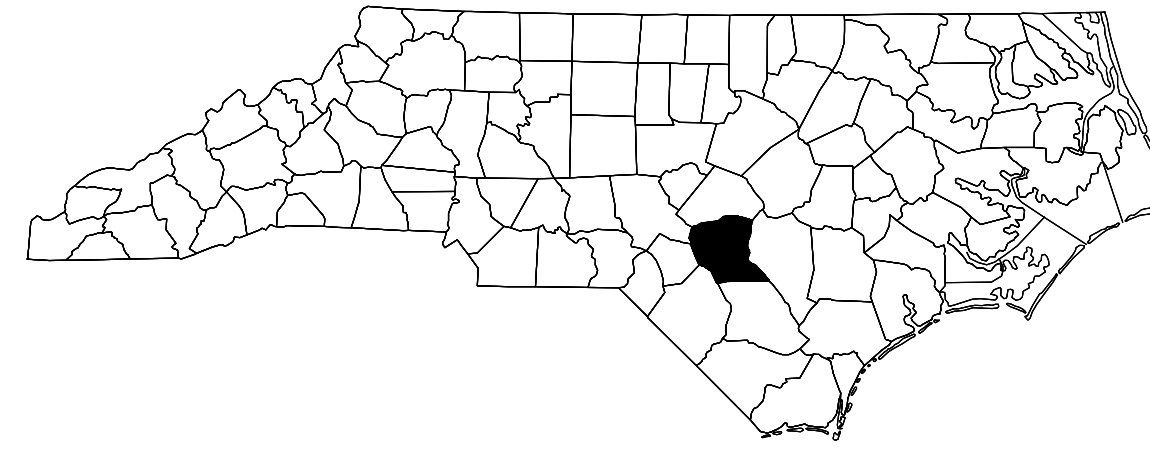
LETTING DATE:  
FEBRUARY 15, 2022



**RICK NELSON, P.E.**  
PROJECT DESIGN ENGINEER

**PROJECT: 15BPR.44**

**CONTRACT NO: C204448**



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**CUMBERLAND COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.44	1A	19
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.44	-	P.E.	
15BPR.44	-	CONST.	

**LOCATION: CUMBERLAND COUNTY:**

**BRIDGE #250053 ON US 401 BYPASS OVER SR 1007 (ALL AMERICAN FREEWAY).**

**TYPE OF WORK: BRIDGE REHABILITAION - DECK REPAIRS, POLYMER CONCRETE OVERLAY, JOINT REPLACEMENTS, BEARING REPLACEMENTS, SUBSTRUCTURE REPAIR, CLEANING AND PAINTING OF EXISTING STEEL BRIDGE STRUCTURE.**

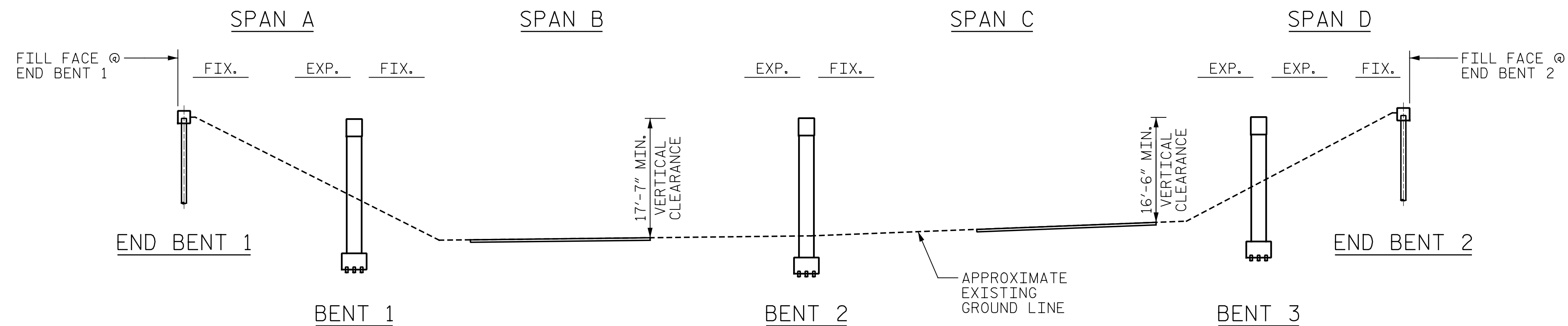
**INDEX OF DRAWINGS**

SHEET NO.

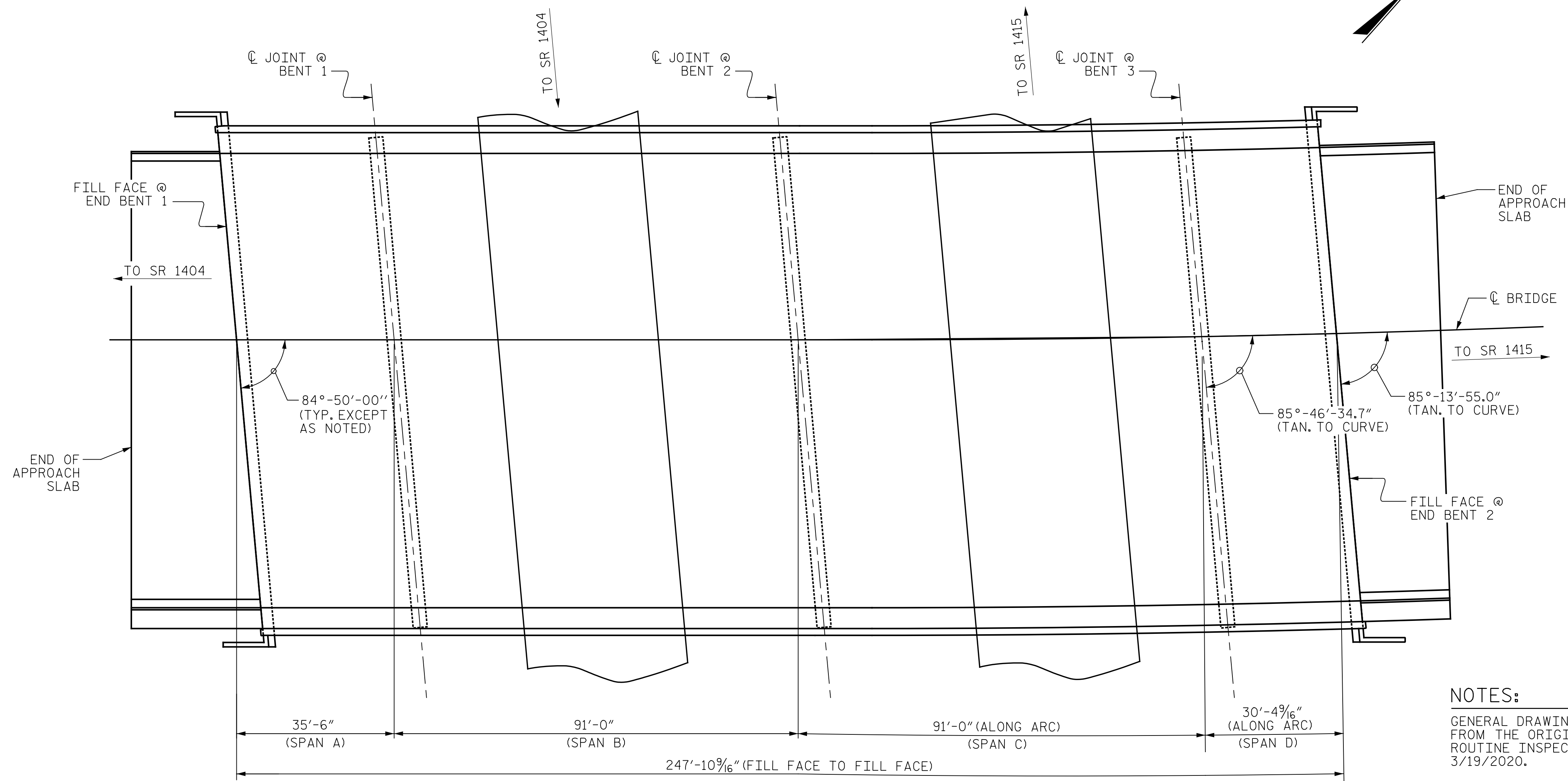
S-1 TO S-2  
S-3  
S-4 TO S-5  
S-6  
S-7 TO S-8  
S-9  
S-10 TO S-11  
S-12 TO S-13  
S-14 TO S-15  
S-16  
S-17  
S-18  
S-19  
SN

DESCRIPTION

GENERAL DRAWING  
TYPICAL SECTION AND SURFACE PREPARATION DETAILS  
PLAN OF SPANS  
JOINT DETAILS  
BEARING DETAILS  
END BENT 1 & 2  
BENT 1  
BENT 2  
BENT 3  
APPROACH MILLING AND TYPICAL ROADWAY SECTIONS  
TYPICAL CAP AND COLUMN REPAIR DETAILS  
OVERHANG, DIAPHRAGM AND CURB AND GUTTER REPAIR DETAILS  
JACKING DETAILS  
STANDARD NOTES



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



PLAN  
(PILES NOT SHOWN FOR CLARITY)

SCOPE OF WORK

- PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING.
- OVERLAY PREPARED TOP OF BRIDGE DECK WITH POLYMER CONCRETE (PC).
- REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
- GROOVE PC BRIDGE DECK.
- MILL AND REPAVE ASPHALT APPROACH ROADWAYS.
- CLEAN AND PAINT EXISTING STRUCTURAL STEEL BEAMS.
- REPLACE EXISTING BEARINGS.
- REMOVE DEBRIS FROM TOP OF EXISTING END BENT AND BENT CAPS AND APPLY EPOXY COATING.
- EPOXY RESIN INJECTION OF CONCRETE CRACKS.
- REMOVE UNSOUND CONCRETE AND PROPERLY PREPARE EXISTING END BENT AND BENT AREAS FOR SHOTCRETE AND CONCRETE REPAIRS.
- REPLACE CURB AND GUTTER ON THE APPROACH SLABS.

CONSTRUCTION SEQUENCE

- FIELD VERIFY AND MEASURE EXISTING BEARING HEIGHTS FOR PREPARATION OF SHOP DRAWINGS.
- PERFORM BEARING REPLACEMENTS. PERFORM BEAM OR SPAN JACKING AS REQUIRED. PERFORM NECESSARY CONCRETE REPAIRS TO DELAMINATED OR OTHERWISE DETERIORATED AREAS OF CAP UNDER OR ADJACENT TO BEARINGS.
- PERFORM SHOTCRETE, CONCRETE OR EPOXY RESIN INJECTION REPAIRS TO THE SUBSTRUCTURE.
- PERFORM ROADWAY APPROACH MILLING AND DECK SURFACE PREPARATION AND PLACE PC OVERLAY.
- RECONSTRUCT CURB AND GUTTER ALONG APPROACH SLABS. PERFORM ASPHALT RESURFACING TO TIE APPROACHES TO BRIDGE DECK.
- INSTALL FOAM JOINTS.
- CLEAN AND PAINT EXISTING STEEL BEAMS.

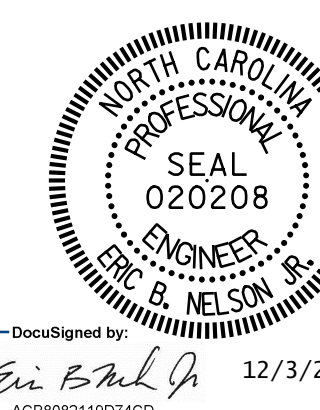
I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.

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

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
 BRIDGE NO. 250053

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 GENERAL DRAWING  
 FOR BRIDGE ON US 401 BYPASS  
 OVER SR 1007 (ALL AMERICAN  
 FREEWAY)



NOTES:

GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 3/19/2020.

BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS.

PLANS PREPARED BY:  
**Gannett Fleming**  
 Excellence Delivered As Promised  
 2610 Wycliff Road  
 Suite 102  
 Raleigh NC 27607-3073  
 (919) 420-7660  
 NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DRAWN BY: J. MYA DATE: 01/2021  
 CHECKED BY: J. YANNACCONE DATE: 01/2021



**LOCATION SKETCH**

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

**GENERAL NOTES**

SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND POLYMER CONCRETE PLACEMENT

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 PLANS 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.

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

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

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

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

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE ELEVATIONS AND CLEARANCES SHOWN ON THE PLANS AT THE POINTS OF MINIMUM VERTICAL CLEARANCE ARE FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE ELEVATIONS ON THE EXISTING PAVEMENT AND CHECK THE CLEARANCE. REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM VERTICAL CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH BRIDGE, SEE SPECIAL PROVISIONS.

ALL PAVEMENT MARKING WILL BE IN ACCORDANCE WITH THE TRANSPORTATION MANAGEMENT PLANS.

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

ALL STRUCTURAL STEEL SHALL BE CLEANED AND PAINTED.

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

FOR CLEANING AND PAINTING OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

FOR NEW ASPHALT PLACEMENT, SEE STANDARD SPECIFICATIONS.

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

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

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

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

FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR MODIFIED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR REMOVE AND REPLACE 2'-6" CURB & GUTTER, SEE SPECIAL PROVISIONS.

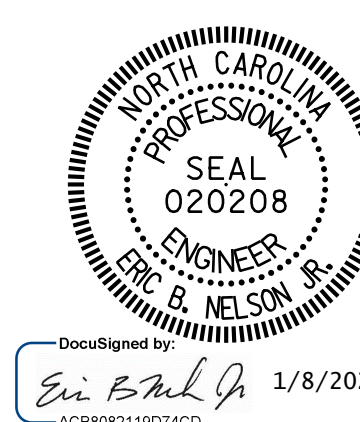
BRIDGE COORDINATES	
LATITUDE	LONGITUDE
35°04'37.24"	78°57'35.13"

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
 BRIDGE NO. 250053

SHEET 2 OF 2

TOTAL BILL OF MATERIAL										
INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	ASPHALT BINDER FOR PLANT MIX	REMOVE AND REPLACE 2'-6" CURB & GUTTER	GROOVING BRIDGE FLOORS	CLASS II SURFACE PREPARATION	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	CLEANING AND REPAINTING OF BRIDGE #250053	PAINTING CONTAINMENT FOR BRIDGE #250053
SQ. YDS.	TONS	TONS	LIN. FT.	SQ. FT.	SQ. YDS.	CU. FT.	CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM
1,093	92	6	46.0	28,477	76.6	10.8	35.3	13.0	LUMP SUM	LUMP SUM

TOTAL BILL OF MATERIAL											
POLLUTION CONTROL	FIELD MEASURING	FOAM JOINT SEALS FOR PRESERVATION	POLYESTER POLYMER CONCRETE MATERIALS	EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	EPOXY COATING	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	PLACING & FINISHING POLYMER CONCRETE OVERLAY	ELASTOMERIC BEARING, MODIFIED	TYPE I BRIDGE JACKING BRIDGE #250053
LUMP SUM	LUMP SUM	LIN. FT.	CU. YDS.	CU. YDS.	SQ. FT.	SQ. YDS.	SQ. YDS.	SQ. YDS.	SQ. YDS.	EA.	EA.
LUMP SUM	LUMP SUM	551.0	104.3	104.3	1,053	3,336	3,336	76.6	3,336	90	90



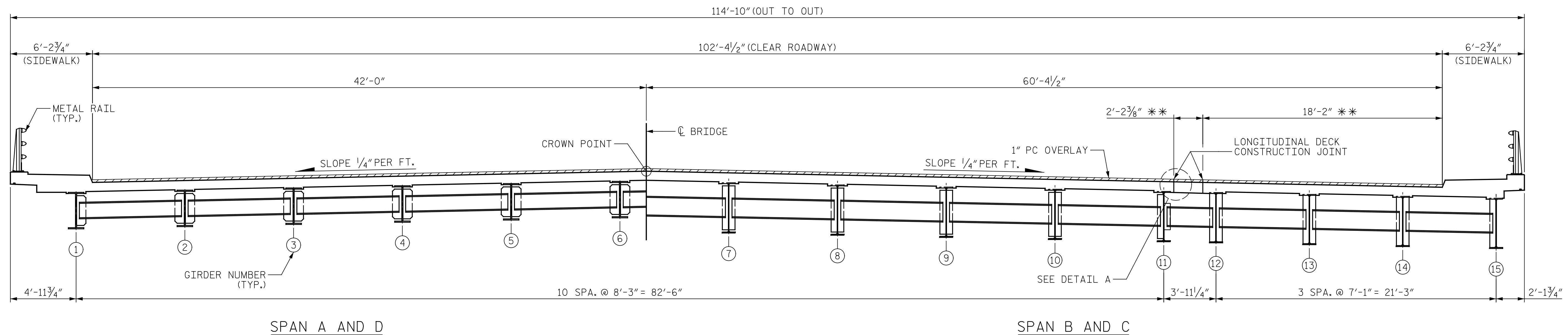
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**GENERAL DRAWING**  
 FOR BRIDGE ON US 401 BYPASS  
 OVER SR 1007 (ALL AMERICAN  
 FREEWAY)

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

DRAWN BY : J. MYA DATE : 01/2021  
 CHECKED BY : J. YANNAKONE DATE : 01/2021

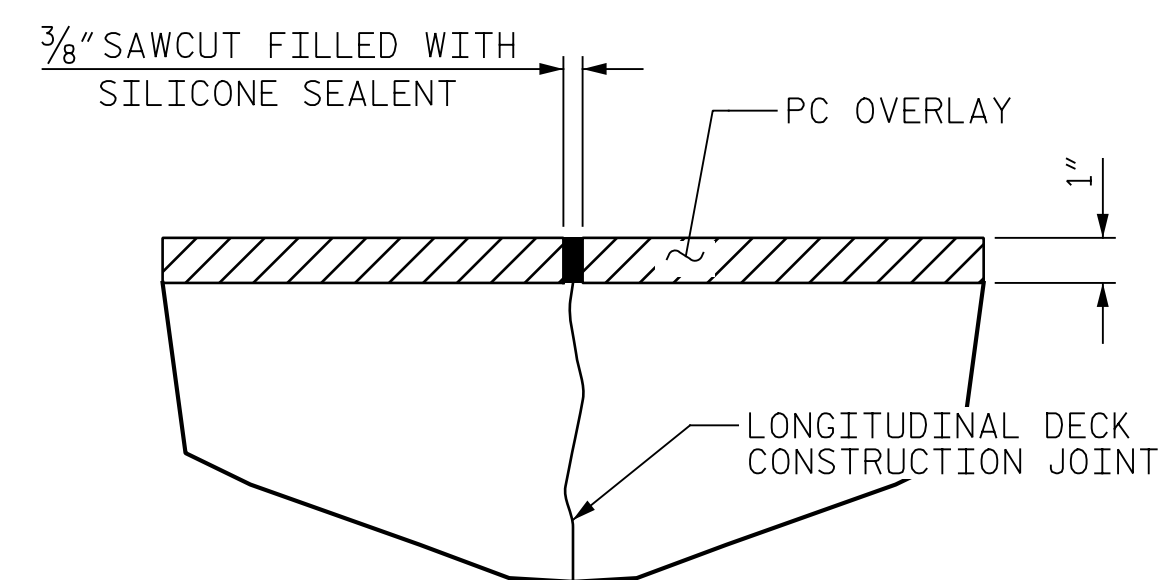
PLANS PREPARED BY:  
**Gannett Fleming**  
 Excellence Delivered As Promised  
 2610 Wycliff Road Suite 102 Raleigh NC 27607-3073 (919) 420-7660 NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



**TYPICAL SECTION**  
(PROPOSED)

\*\* FIELD VERIFY DIMENSION TO LONGITUDINAL DECK CONSTRUCTION JOINT (SEE NOTES)



**DETAIL A**  
(TYP. ALL LONGITUDINAL DECK CONSTRUCTION JOINTS)

**NOTES:**

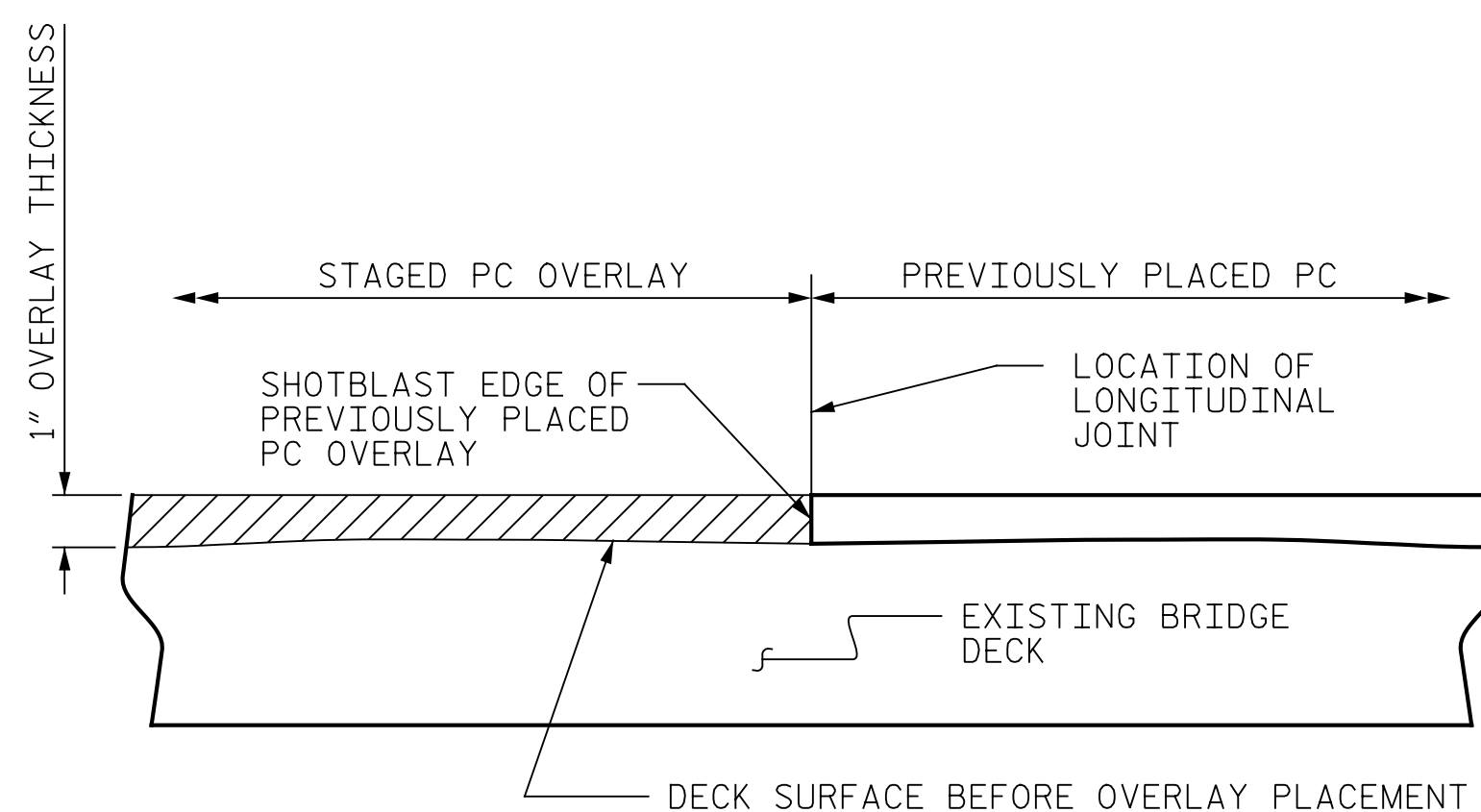
SEE TRANSPORTATION MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND POLYMER CONCRETE PLACEMENT.

CONTRACTOR SHALL VERIFY THE PLAN DIMENSIONS TO THE DECK CONSTRUCTION JOINT AND USE THIS VERIFIED DIMENSION FOR SAWING THE LONGITUDINAL JOINT AFTER PLACEMENT OF THE OVERLAY.

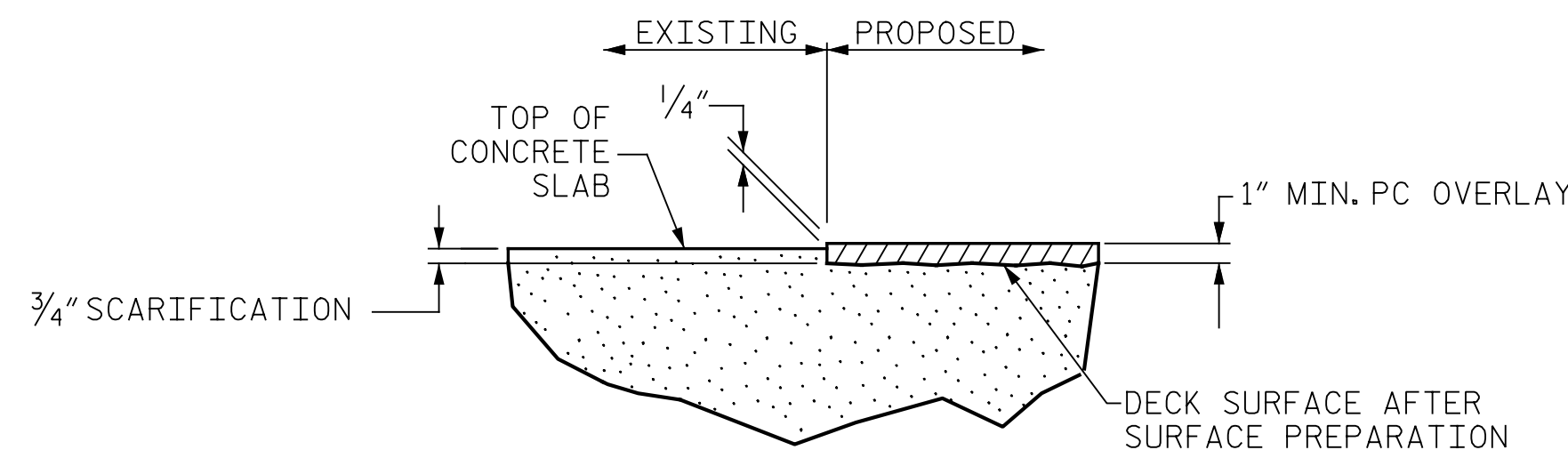
THE LONGITUDINAL JOINT IN THE NEWLY PLACED OVERLAY SHALL BE SAWED PRIOR TO TRAFFIC BEING PLACED ON THE OVERLAY. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT.

VERIFY HORIZONTAL DIMENSION FROM THE GUTTER LINE TO EXISTING LONGITUDINAL DECK CONSTRUCTION JOINT AT FILL FACE OF END BENTS AND C BENTS.

THE CONTRACTOR SHALL ENSURE THAT THE SAWCUT FOLLOWS THE LINE OF THE EXISTING LONGITUDINAL CONSTRUCTION JOINT.



**STAGED PC OVERLAY CONSTRUCTION JOINT**



**DETAIL FOR POLYMER CONCRETE OVERLAY**

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
 BRIDGE NO. 250053



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

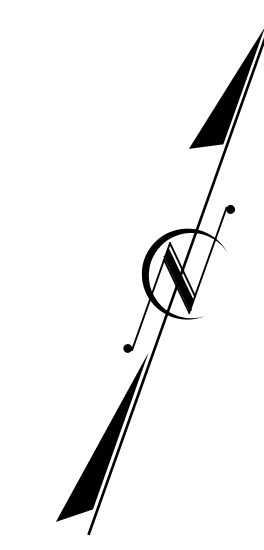
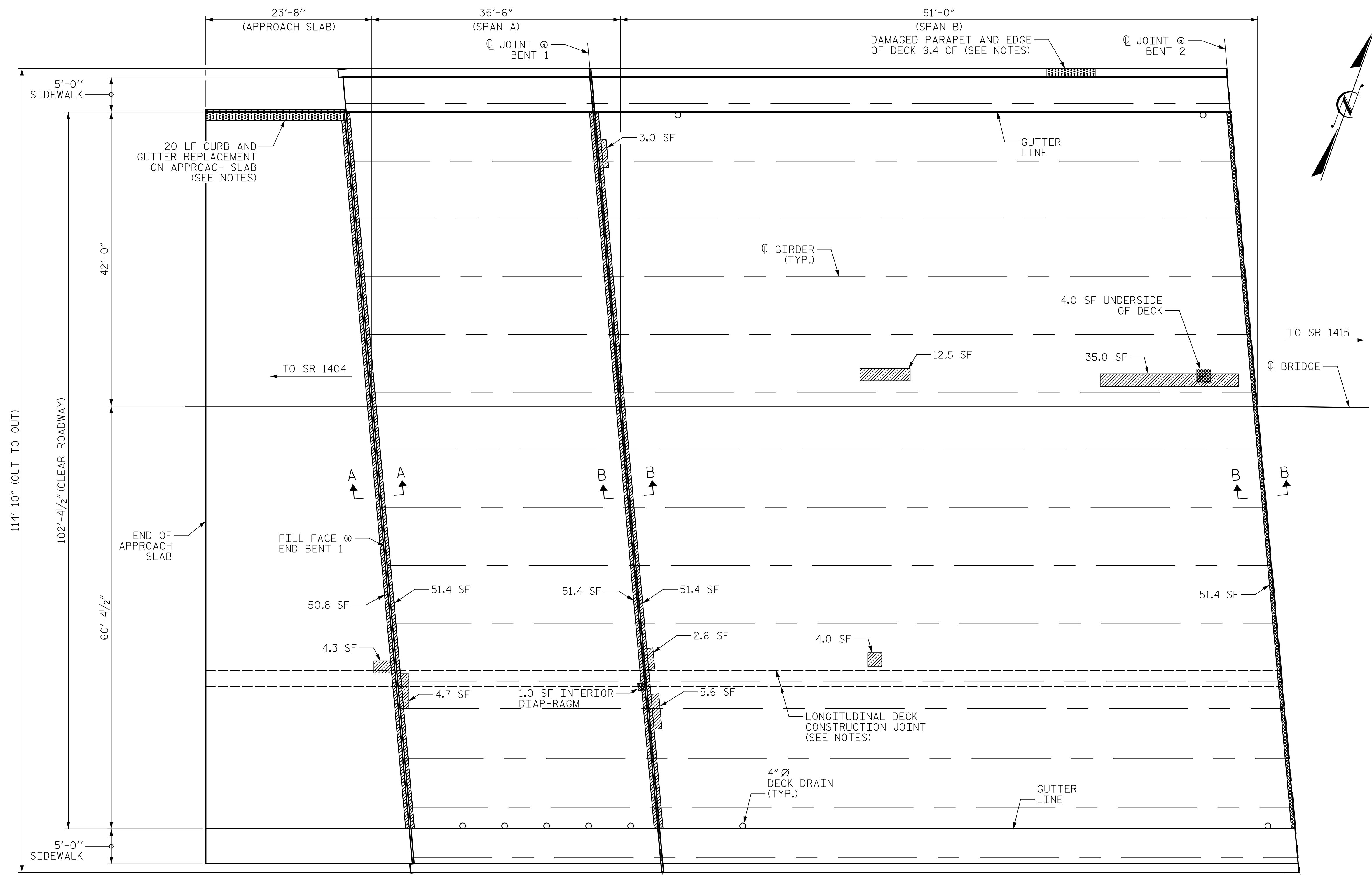
**TYPICAL SECTION AND SURFACE PREPARATION DETAILS**

DRAWN BY : J. MYA DATE : 01/2021  
 CHECKED BY : J. YANNAACONE DATE : 01/2021

PLANS PREPARED BY:  
**Gannett Fleming**  
 Excellence Delivered As Promised  
 2610 Wycliff Road  
 Suite 102  
 Raleigh NC 27607-3073  
 (919) 420-7660  
 NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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



REPAIR QUANTITY TABLE				
TOP OF DECK REPAIR				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK	1708	SY		
CLASS II SURFACE PREPARATION	30.7	SY		
CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY	30.7	SY		
SHOTBLASTING BRIDGE DECK	1708	SY		
PC MATERIALS	53.4	CY		
PLACING AND FINISHING POLYMER CONCRETE OVERLAY	1708	SY		
GROOVING BRIDGE FLOORS	14575	SF		
CONCRETE REPAIR	9.4	CF		
UNDERSIDE OF DECK REPAIR				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	4.0	1.2		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	1.0	0.5		
	ESTIMATE		ACTUAL	
UNDERSIDE EPOXY RESIN INJECTION	0.0	LF		

- SCARIFYING AND SHOTBLASTING OF BRIDGE DECK
- APPROX. CLASS II SURFACE PREPARATION
- UNDERSIDE OF DECK REPAIR

**NOTES:**

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

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 2 1/2" +/- 1/4" PER FIELD MEASUREMENTS.

FOR SECTION A-A AND B-B, SEE "JOINT DETAILS" SHEET.

FOR CURB AND GUTTER REPLACEMENT, SEE "OVERHANG, DIAPHRAGM AND CURB AND GUTTER REPAIR DETAILS" SHEET.

FOR DETAILS ON LONGITUDINAL DECK CONSTRUCTION JOINT, SEE "TYPICAL SECTION AND SURFACE PREPARATION DETAILS" SHEET.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

CONTRACTOR SHALL SAWCUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

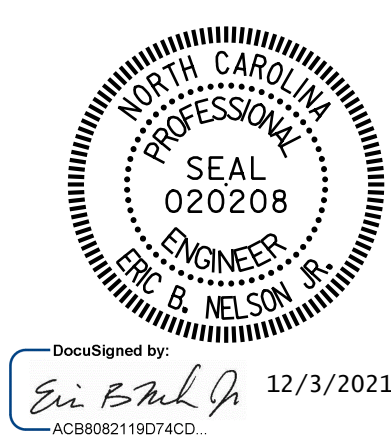
THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS II SURFACE PREPARATION ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED AT THE PROJECT SITE.

FOR OVERHANG AND UNDERSIDE OF DECK REPAIRS, SEE "OVERHANG, DIAPHRAGM AND CURB AND GUTTER REPAIR DETAILS" SHEET.

AT DAMAGED PORTION OF PARAPET AND EDGE OF DECK, REMOVE UNSOUND CONCRETE 1" MIN. BEHIND REBAR. CONTOUR CONCRETE REPAIR TO MATCH SHAPE OF EXISTING PARAPET AND DECK. REPAIR OF THE PARAPET AND EDGE OF DECK WILL BE PAID FOR AS PART OF THE CONTRACT UNIT PRICE BID FOR CONCRETE REPAIR.

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
 BRIDGE NO. 250053

SHEET 1 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF SPANS  
 SPAN A, B AND  
 APPROACH SLAB

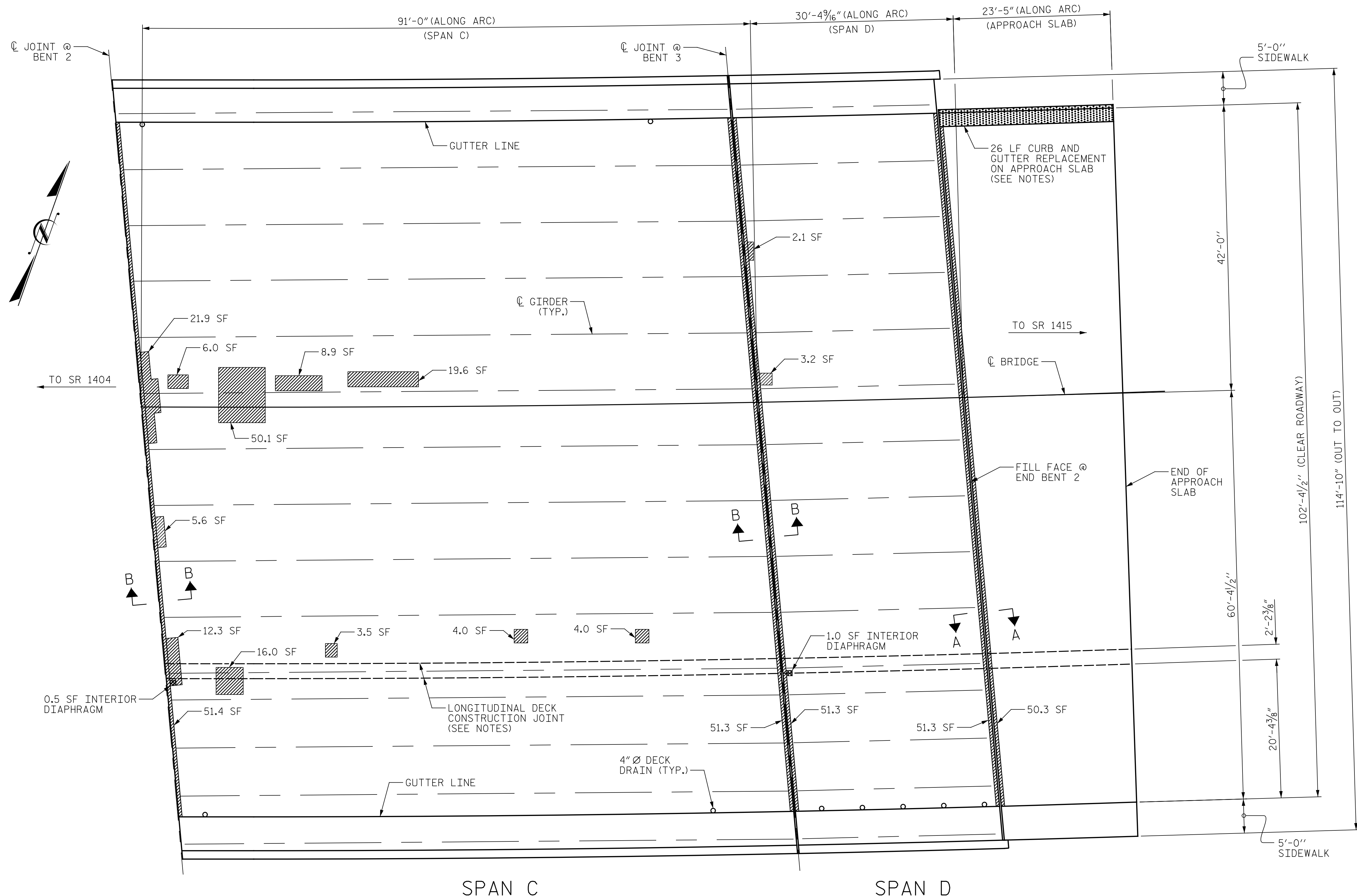
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-4
2			4			TOTAL SHEETS 19

DRAWN BY: J. MYA DATE: 01/2021  
 CHECKED BY: J. YANACCONE DATE: 01/2021

PLANS PREPARED BY:  
**Gannett Fleming**  
 Excellence Delivered As Promised

2610 Wycliff Road  
 Suite 102  
 Raleigh NC 27607-3073  
 (919) 420-7660  
 NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED



REPAIR QUANTITY TABLE				
TOP OF DECK REPAIR				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK		1628 SY		
CLASS II SURFACE PREPARATION		45.9 SY		
CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY		45.9 SY		
SHOTBLASTING BRIDGE DECK		1628 SY		
PC MATERIALS		50.9 CY		
PLACING AND FINISHING POLYMER CONCRETE OVERLAY		1628 SY		
GROOVING BRIDGE FLOORS		13902 SF		
UNDERSIDE OF DECK REPAIR				
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK	0.0	0.0		
OVERHANG DIAPHRAGMS	0.0	0.0		
UNDERSIDE OF OVERHANG	0.0	0.0		
INTERIOR DIAPHRAGMS	1.5	0.8		
		ESTIMATE		ACTUAL
UNDERSIDE EPOXY RESIN INJECTION		0.0 LF		

- SCARIFYING AND SHOTBLASTING OF BRIDGE DECK
- APPROX. CLASS II SURFACE PREPARATION
- UNDERSIDE OF DECK REPAIR

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
 BRIDGE NO. 250053

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

PLAN OF SPANS  
 SPAN C, D AND  
 APPROACH SLAB

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTALS
2			4			19

**NOTES:**

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

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 2 1/4" +/- 1/4" PER FIELD MEASUREMENTS.

FOR SECTION A-A AND B-B, SEE "JOINT DETAILS" SHEET.

FOR CURB AND GUTTER REPLACEMENT, SEE "OVERHANG, DIAPHRAGM, AND CURB AND GUTTER REPAIR DETAILS" SHEET.

FOR DETAILS ON LONGITUDINAL DECK CONSTRUCTION JOINT, SEE "TYPICAL SECTION AND SURFACE PREPARATION DETAILS" SHEET.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS. CONTRACTOR SHALL SAWCUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

THE BOUNDARIES OF AREAS IDENTIFIED FOR CLASS II SURFACE PREPARATION ARE APPROXIMATE AND MAY NOT REFLECT ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED AT THE PROJECT SITE.

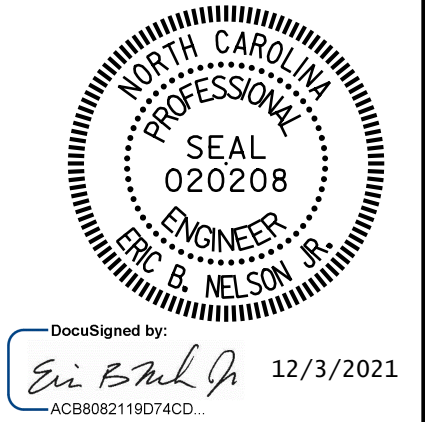
FOR OVERHANG AND UNDERSIDE OF DECK REPAIRS, SEE "OVERHANG, DIAPHRAGM, AND CURB AND GUTTER REPAIR DETAILS" SHEET.

DRAWN BY : J. MYA DATE : 01/2021  
 CHECKED BY : J. YANACCONE DATE : 01/2021

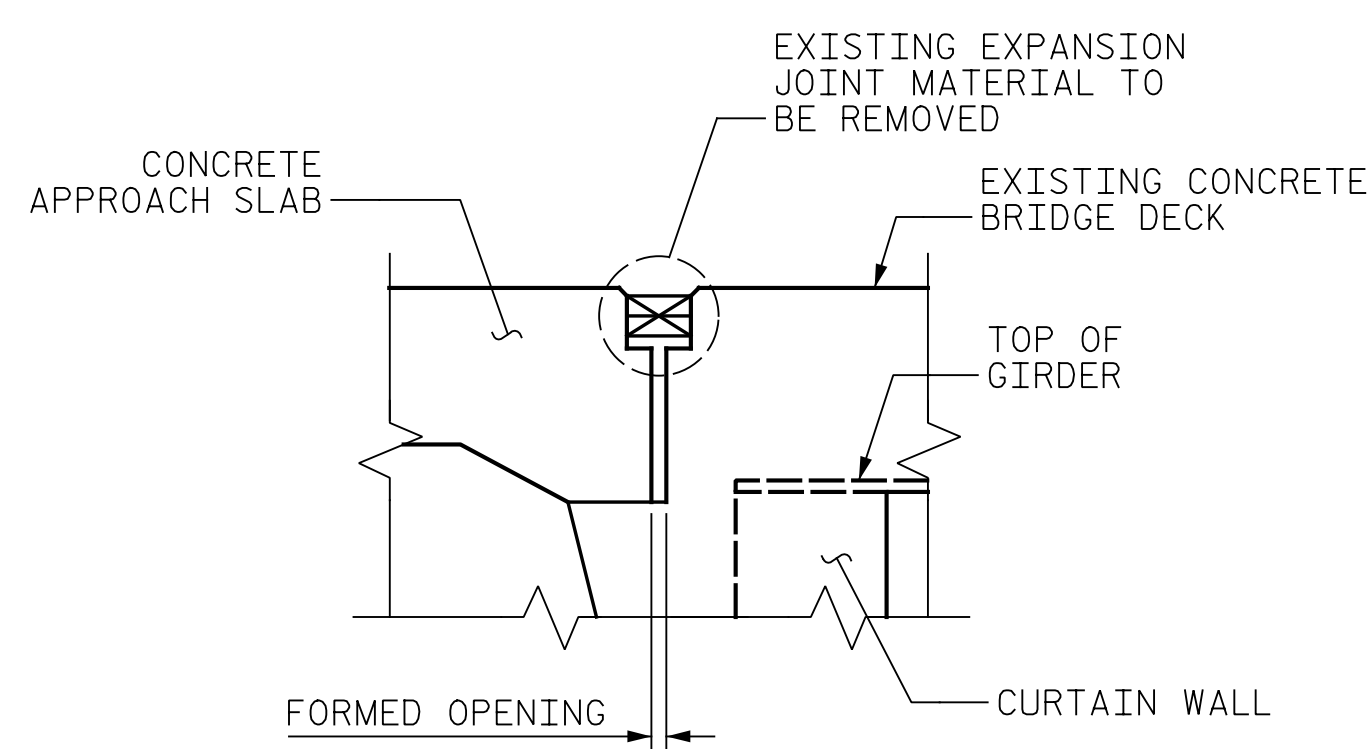
PLANS PREPARED BY:

**Gannett Fleming**  
 Excellence Delivered As Promised

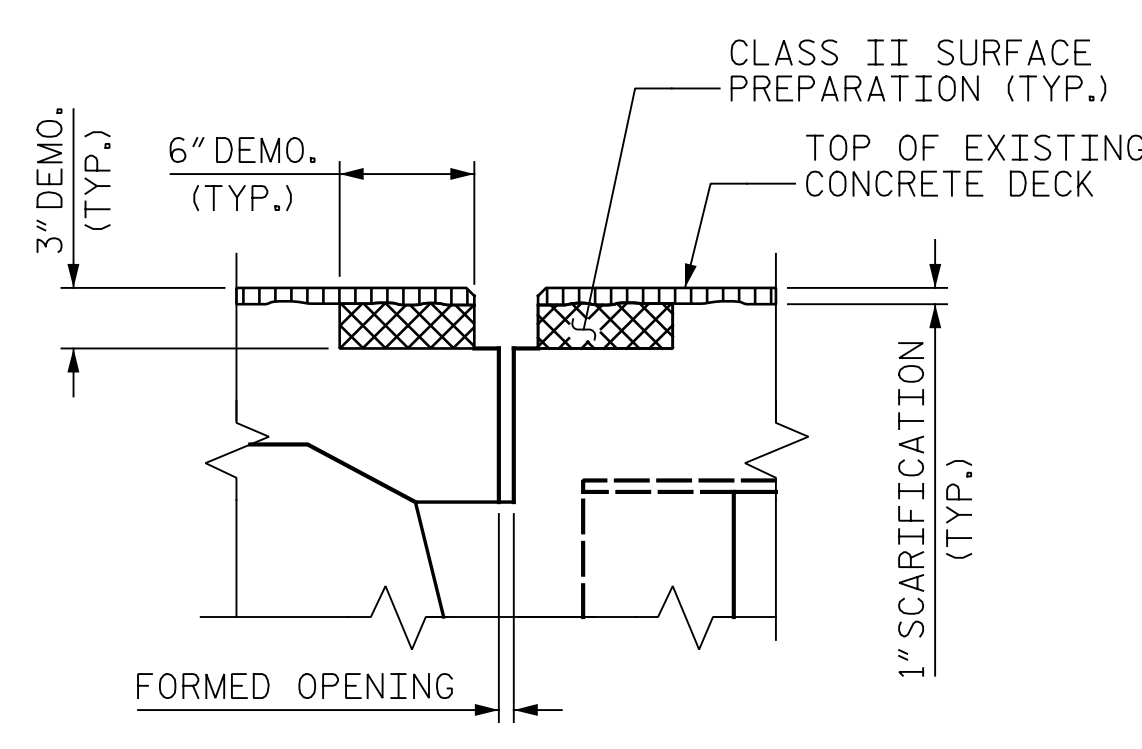
2610 Wycliff Road  
 Suite 102  
 Raleigh NC 27607-3073  
 (919) 420-7660  
 NC Lic. No. F-0270



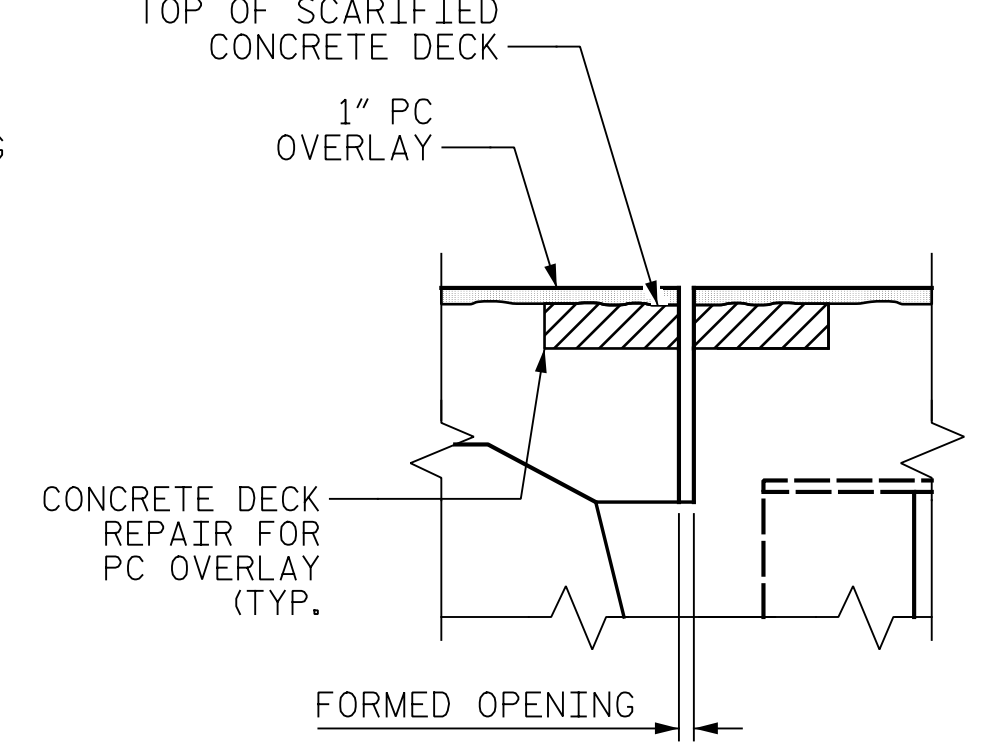
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



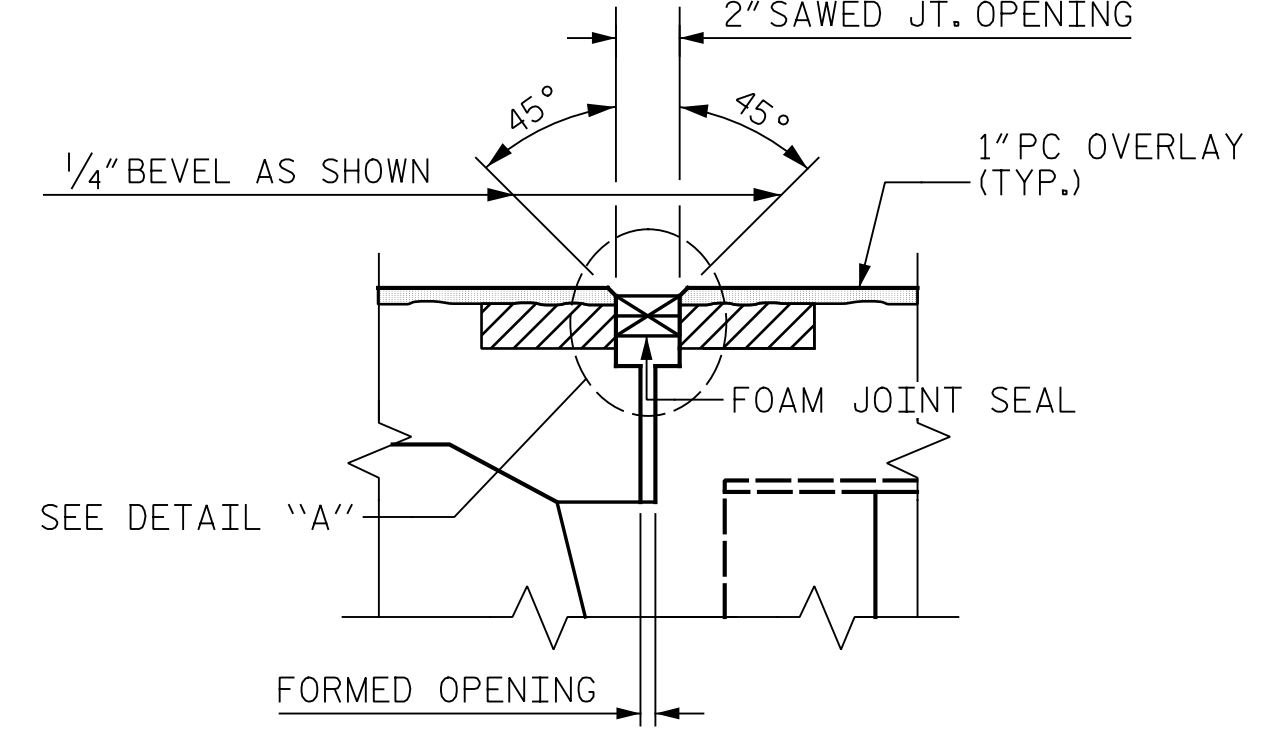
EXISTING



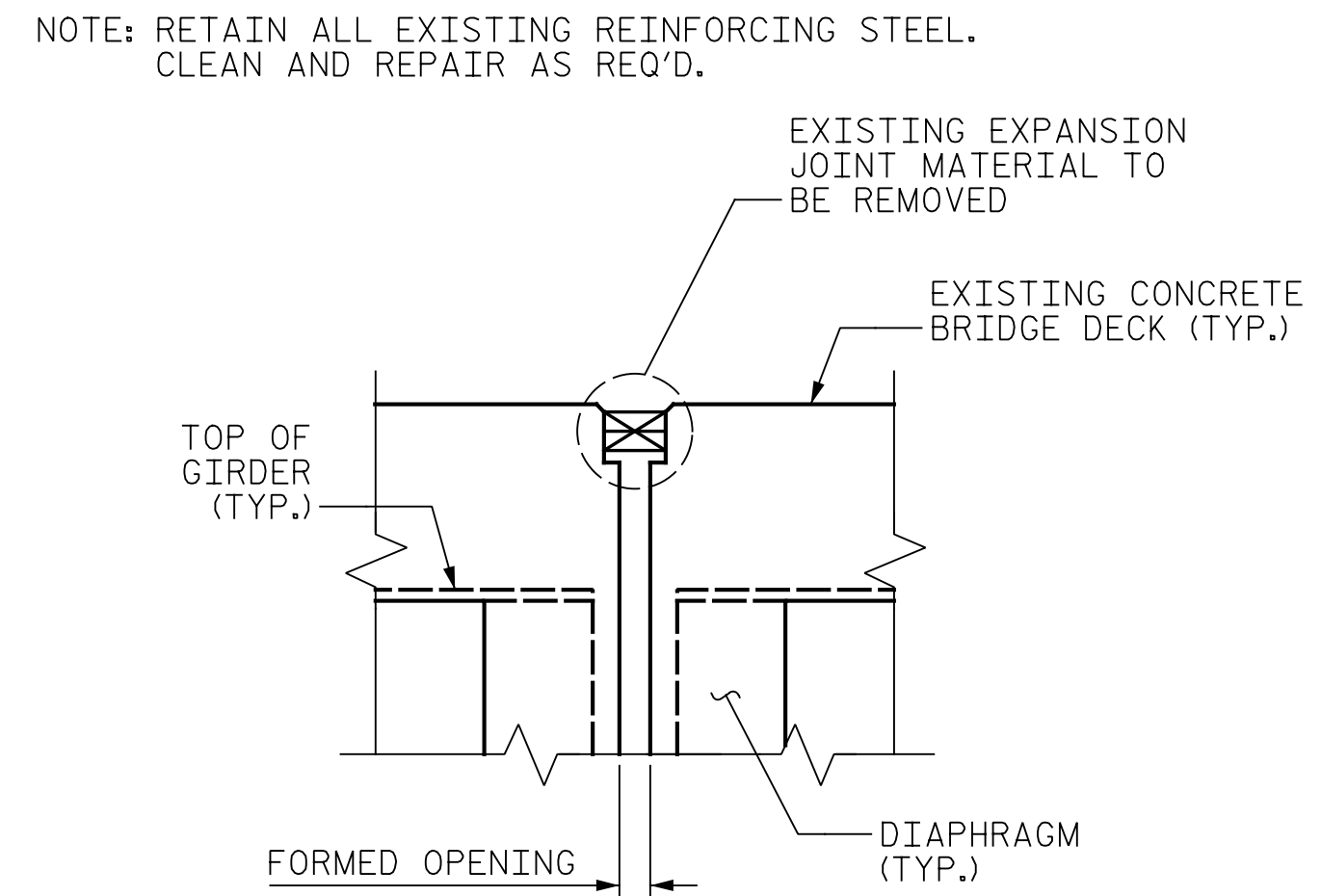
MINIMUM CLASS II SURFACE PREPARATION & SCARIFICATION



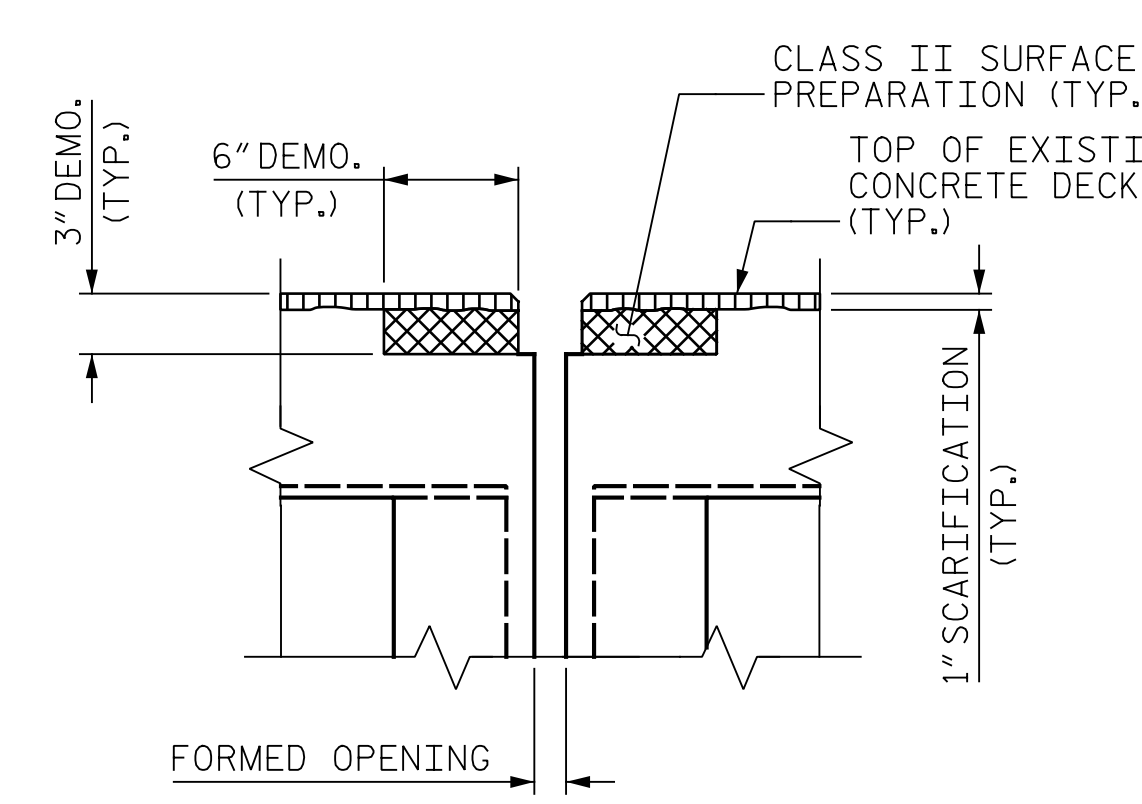
PROPOSED JOINT PRE-SAWED & PC OVERLAY



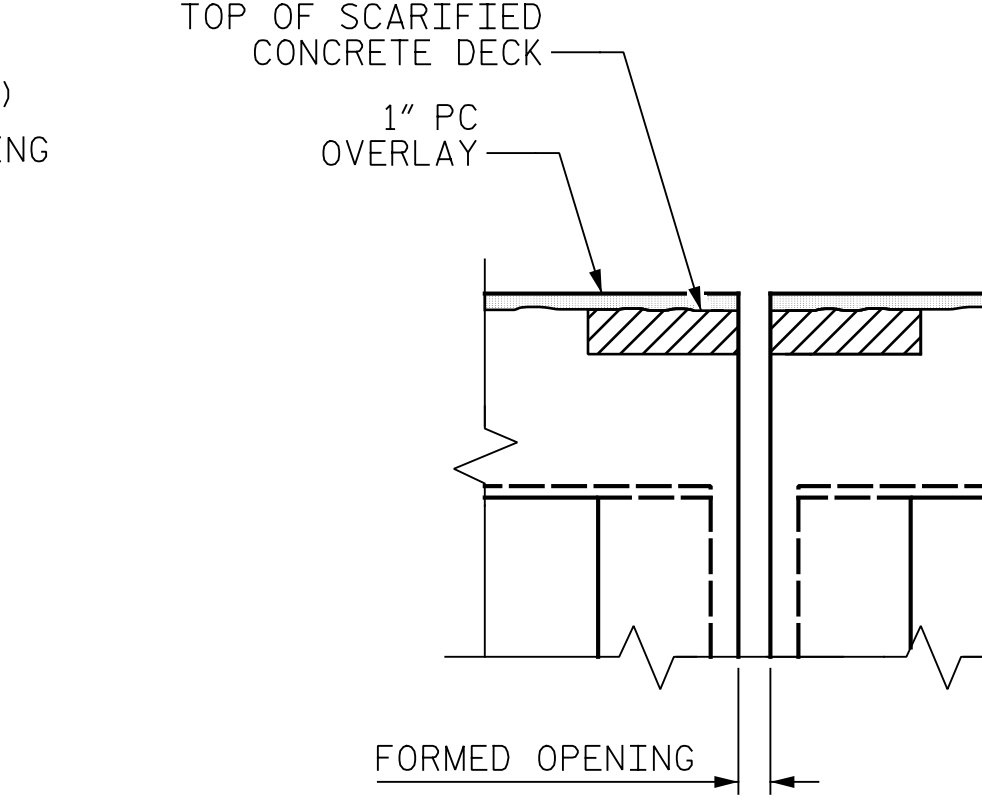
PROPOSED JOINT WITH SAWEED DIMENSIONS



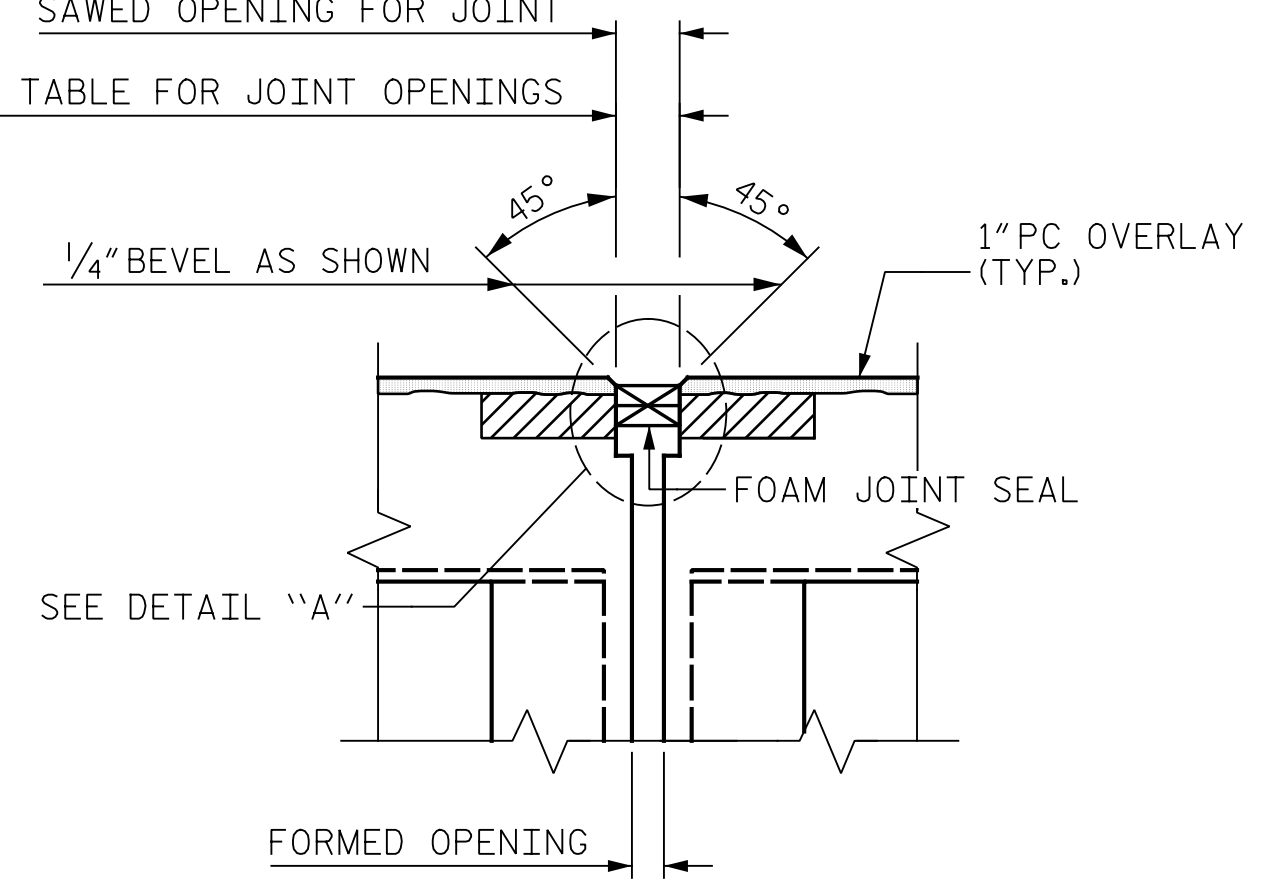
EXISTING



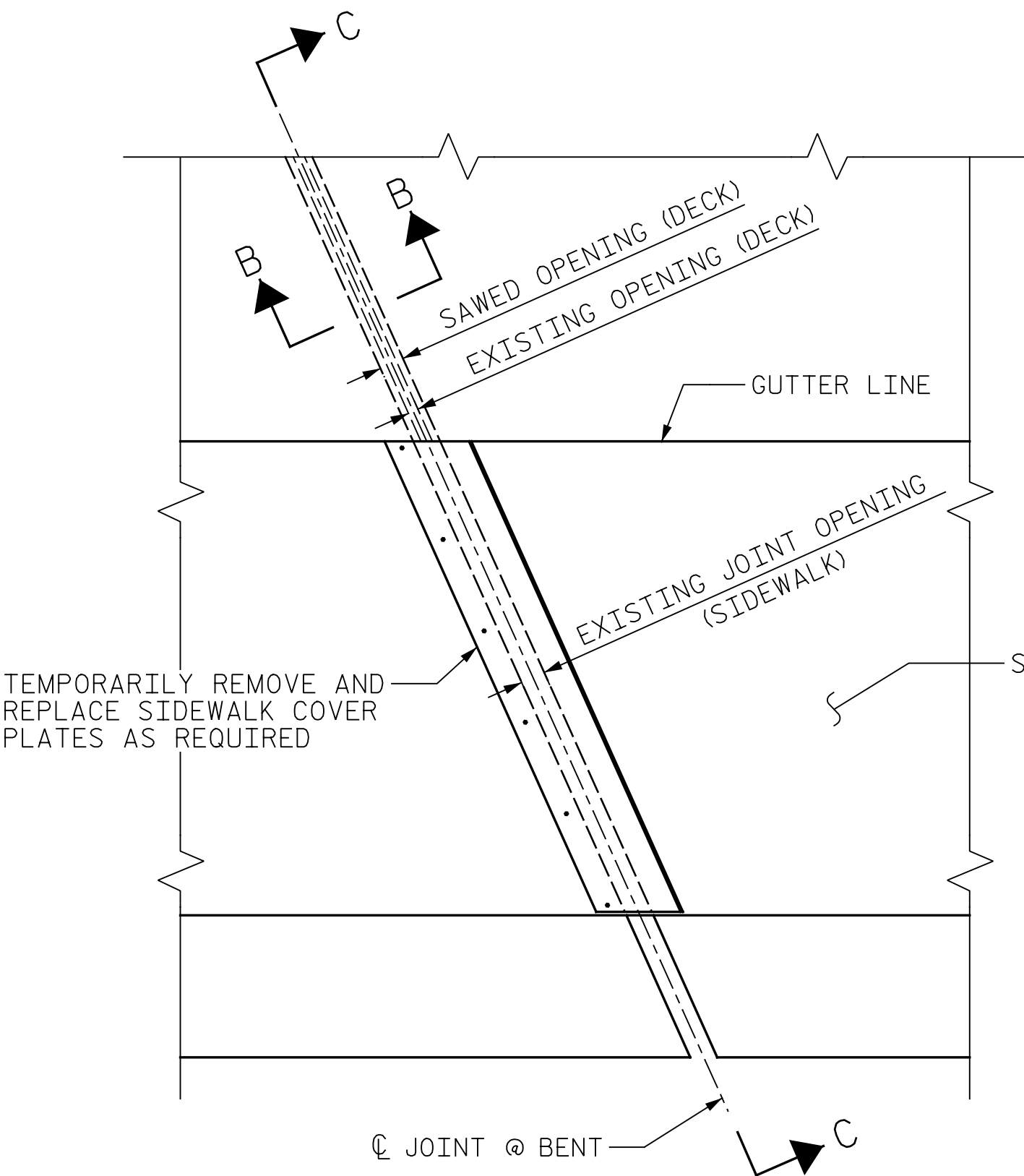
MINIMUM CLASS II SURFACE PREPARATION & SCARIFICATION



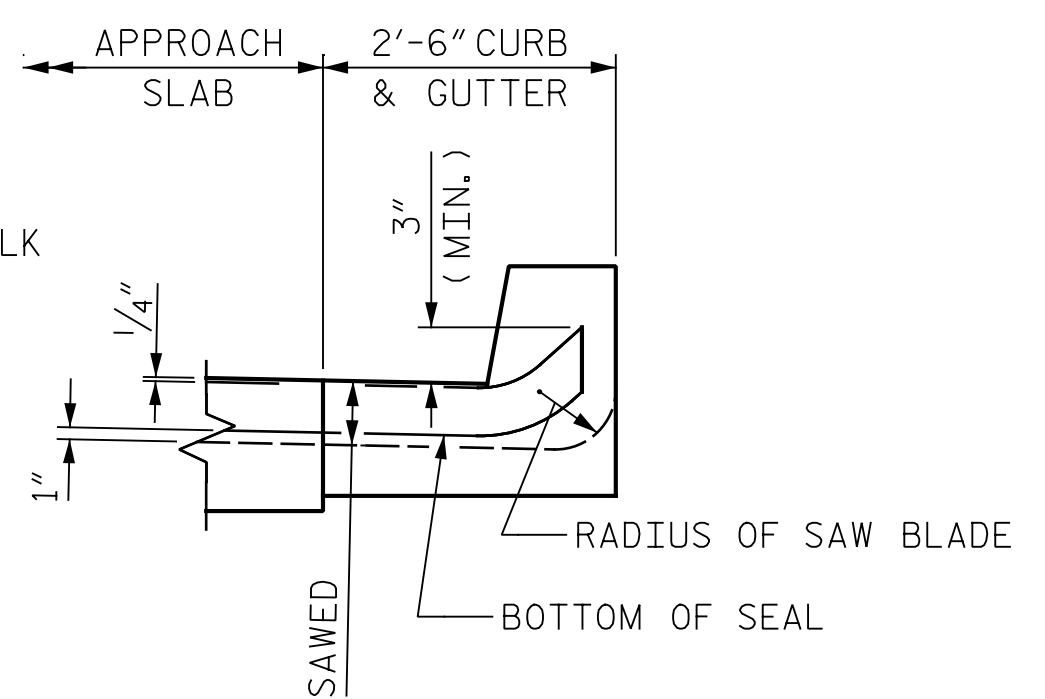
PROPOSED JOINT PRE-SAWED & PC OVERLAY



PROPOSED JOINT WITH SAWEED DIMENSIONS



PLAN

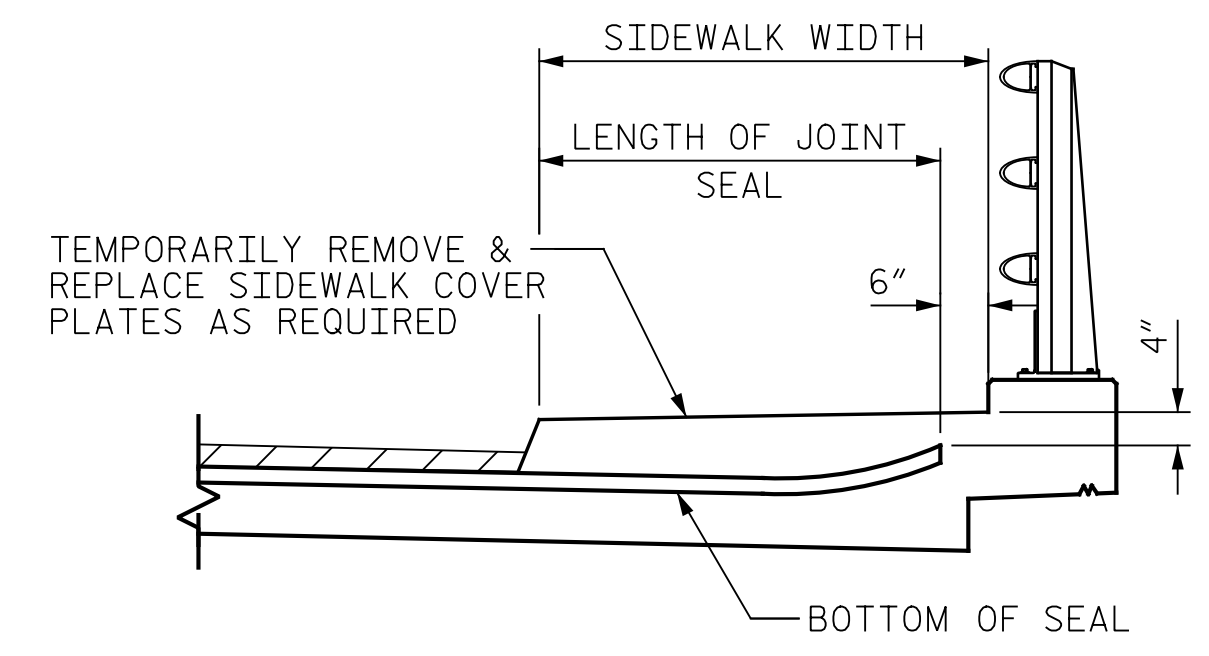


SECTION AT CURB & GUTTER

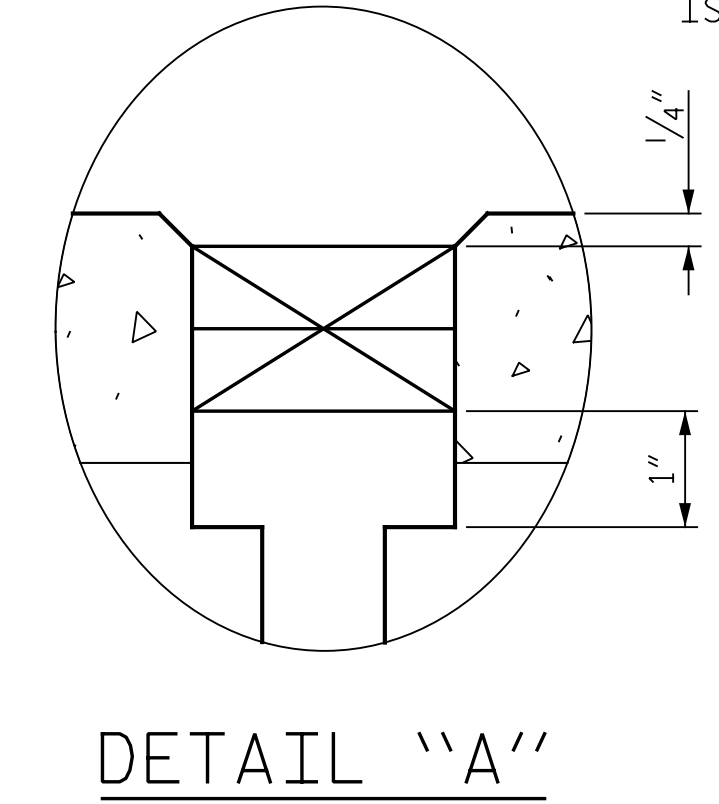
FOAM JOINT SEAL SHALL BE FACTORY FORMED OR CUT, HEAT WELDED AND TURNED UP PARALLEL TO SLOPED FACE OF CURB.

SECTION B-B

LOCATION	SAWEED JT. OPENING (PERPENDICULAR TO JT.)		
	AT 45°	AT 60°	AT 90°
BENT 1	1 5/8"	1 9/16"	1 1/2"
BENT 2	1 1/16"	1 9/16"	1 3/8"
BENT 3	1 1/16"	1 9/16"	1 1/4"

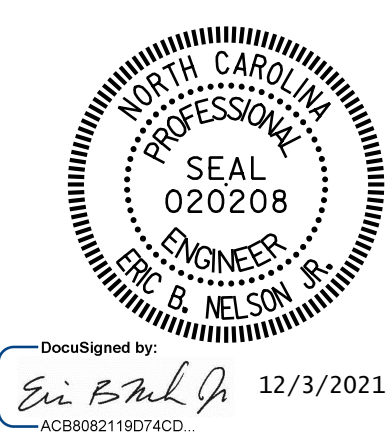


SECTION C-C



DETAIL "A"

LOCATION	FOAM JOINT SEALS FOR PRESERVATION LIN. FT.
END BENT 1	108.0
BENT 1	112.0
BENT 2	112.0
BENT 3	111.5
END BENT 2	107.5
TOTAL	551.0



DocuSigned by: Eric B. Nelson 12/3/2021

**NOTES:**  
 FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY OR SEALANT WORK IS COMPLETE.  
 THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT SEAL VARIES FROM THE OPENING INDICATED IN THE DETAILS BY MORE THAN 1/4", NOTIFY THE ENGINEER.  
 THE MANUFACTURER IS TO PROVIDE THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE FOAM JOINT SEAL FOR THE SIZE OF THE OPENING ON THE PLANS AND ACCOMMODATE THE MINIMUM EXPANSION SHOWN ON THE PLANS.  
 FOAM JOINTS SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS.  
 THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL. ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.  
 THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINT IN LIEU OF SAWING THE JOINT.  
 THE INSTALLED FOAM JOINTS SHALL BE WATERTIGHT.  
 THE CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.  
 FOR CLASS II SURFACE PREPARATION, SEE SPECIAL PROVISIONS.  
 FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.  
 FOR CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY, SEE SPECIAL PROVISIONS.  
 THE CONTRACTOR WILL NOT BE PERMITTED TO INSTALL JOINT SEALS AT BENTS 1, 2 AND 3 UNTIL ALL BEARING REPLACEMENTS AND BRIDGE JACKING IS COMPLETED AT THOSE BENTS.

PROJECT NO. 15BPR.44  
 CUMBERLAND COUNTY  
 BRIDGE NO. 250053

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**JOINT DETAILS**

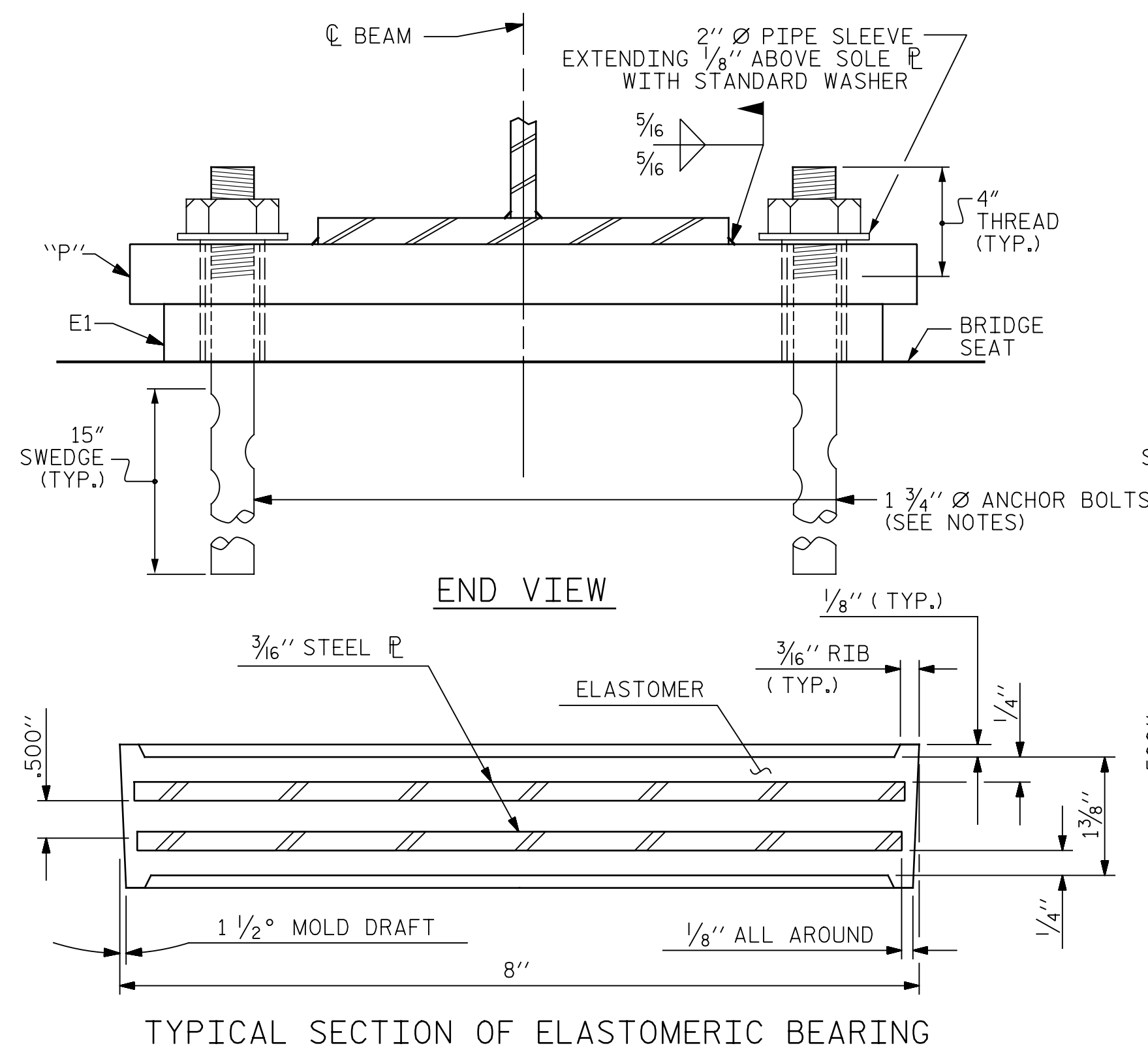
DRAWN BY: T. HARTLEY DATE: 01/2021  
 CHECKED BY: J. YANACCONO DATE: 01/2021

PLANS PREPARED BY:  
**Gannett Fleming**  
 Excellence Delivered As Promised  
 2610 Wycliff Road Suite 102 Raleigh NC 27607-3073 (919) 420-7660 NC Lic. No. F-0270

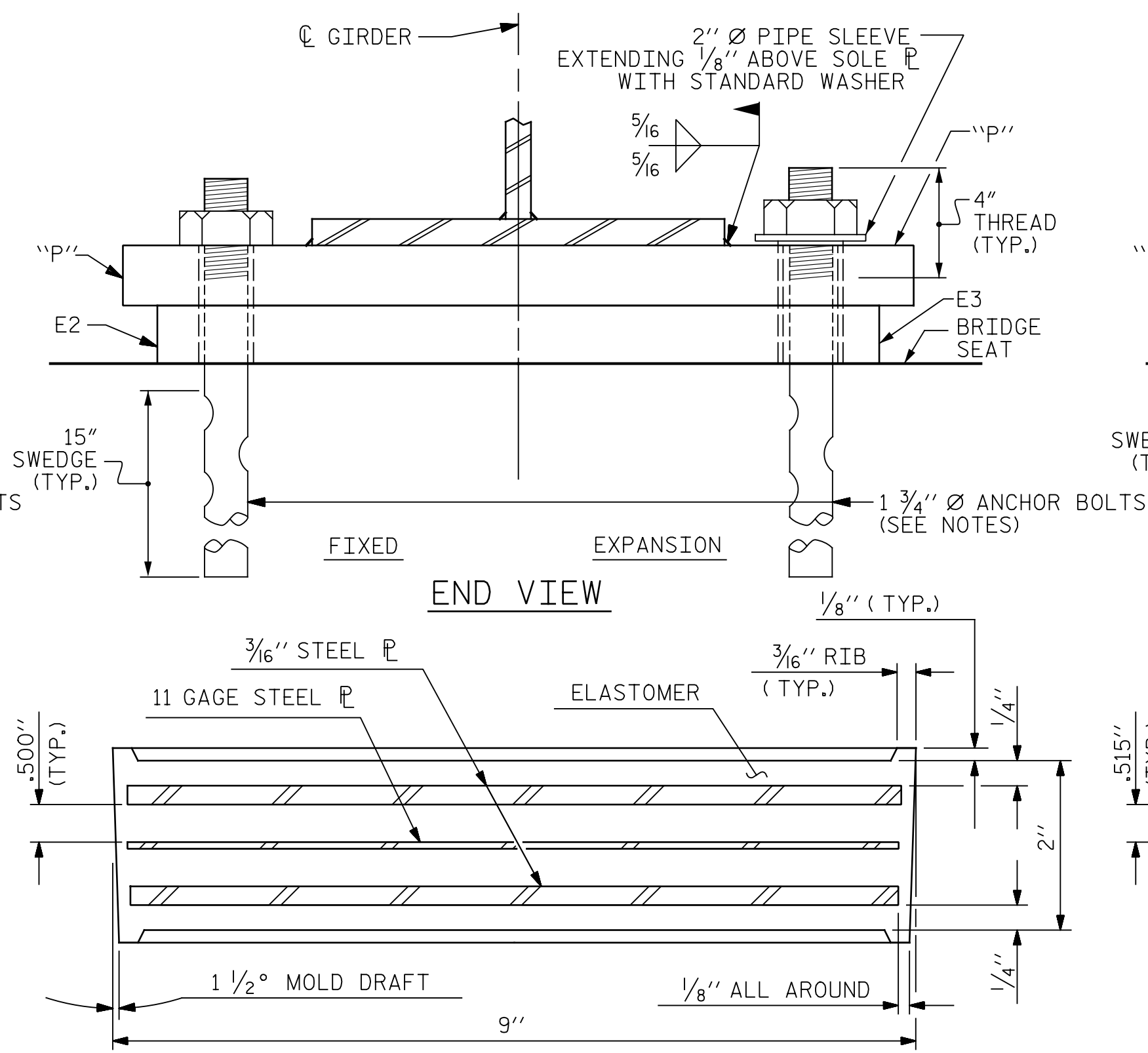
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			19

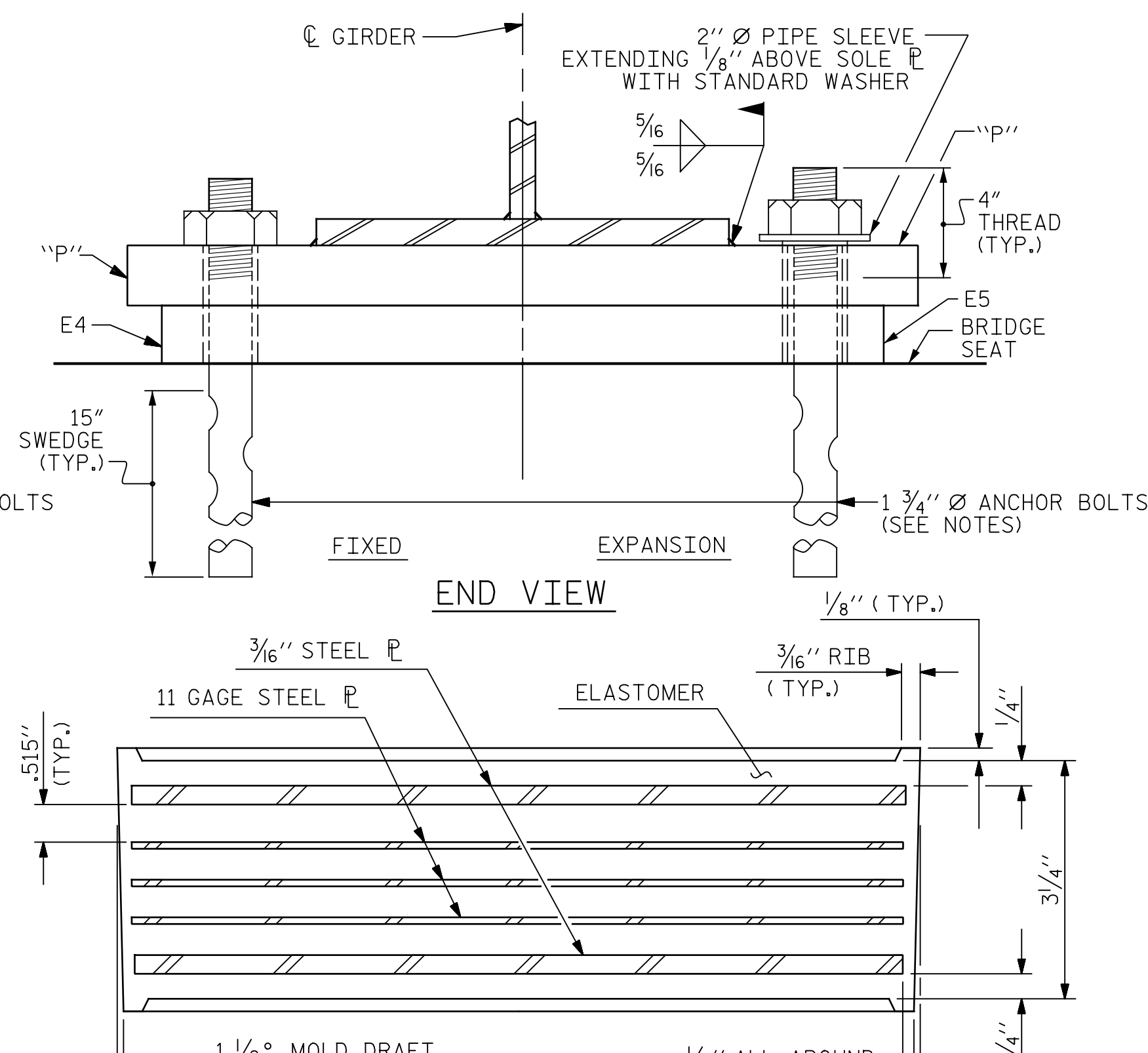




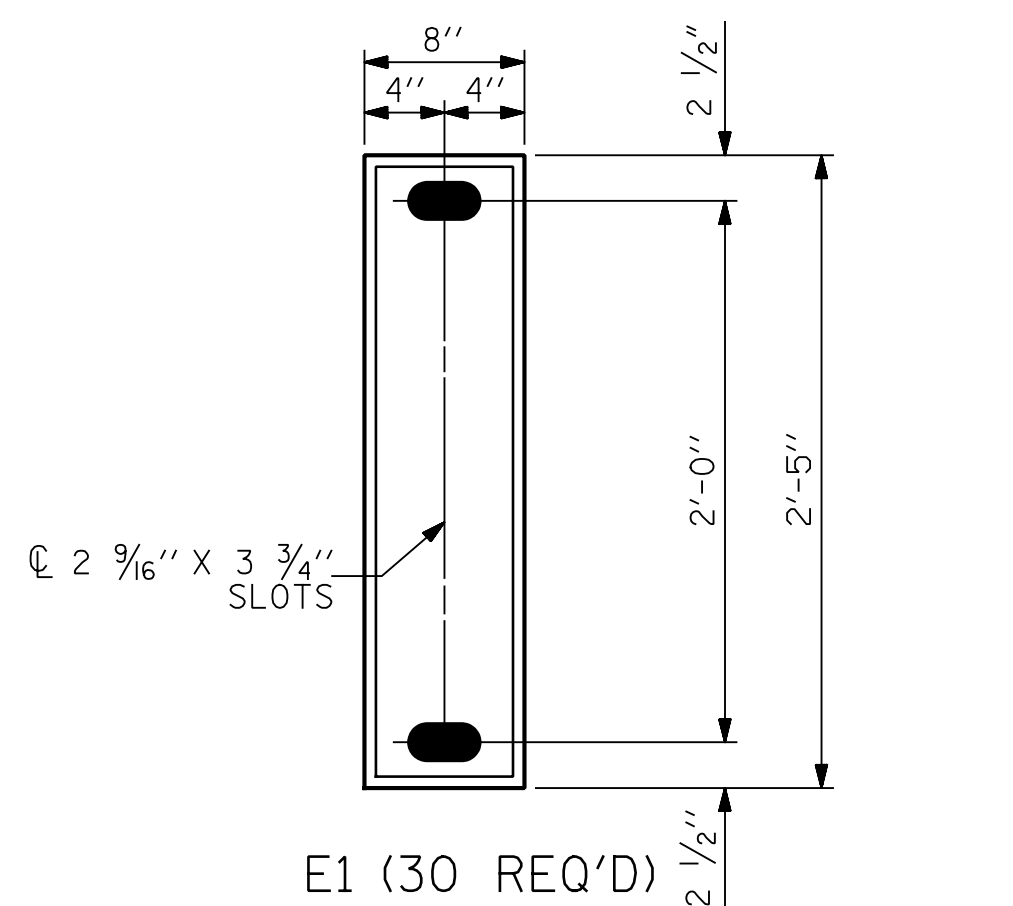
TYPICAL SECTION OF ELASTOMERIC BEARING



TYPICAL SECTION OF ELASTOMERIC BEARING

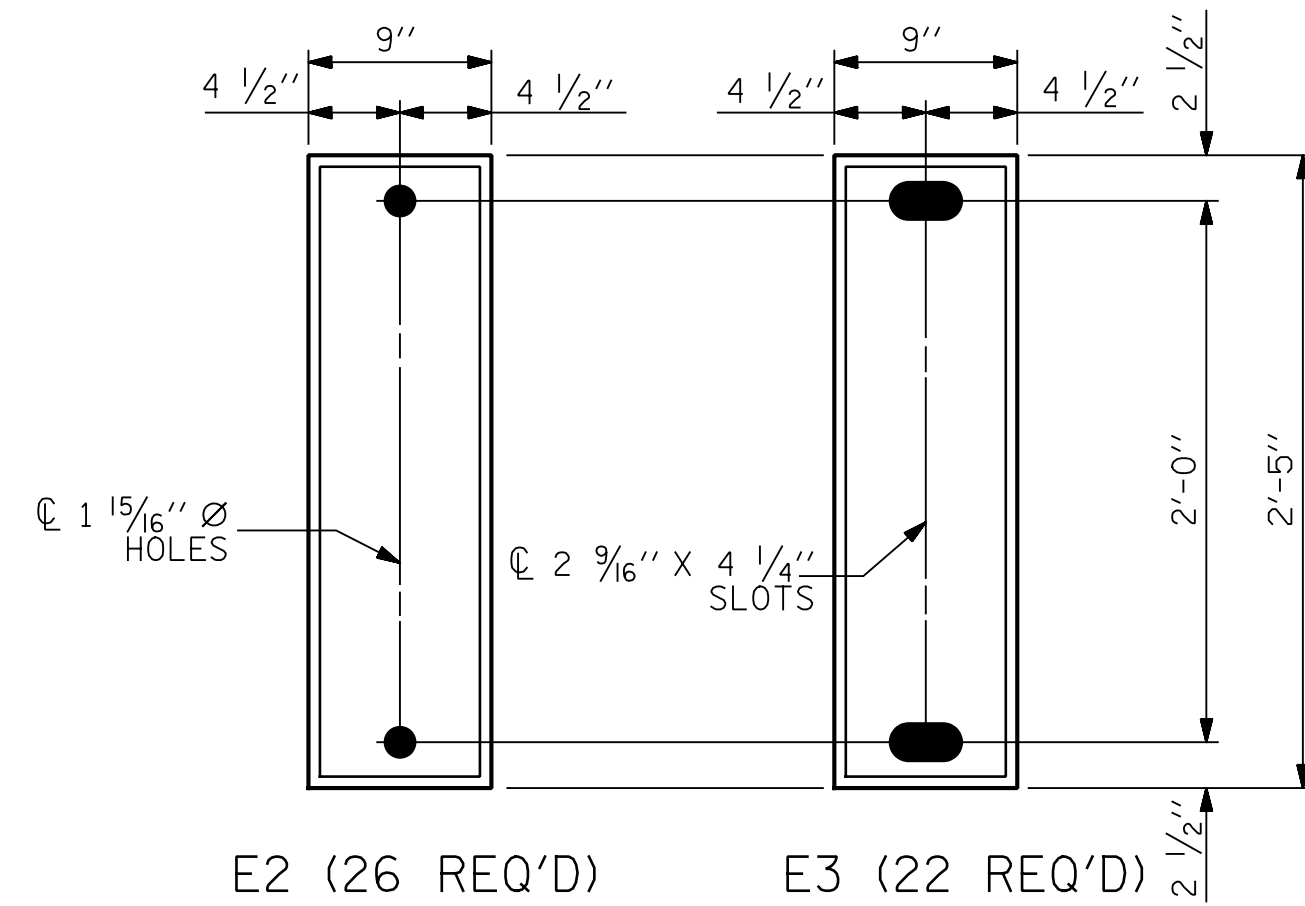


TYPICAL SECTION OF ELASTOMERIC BEARING



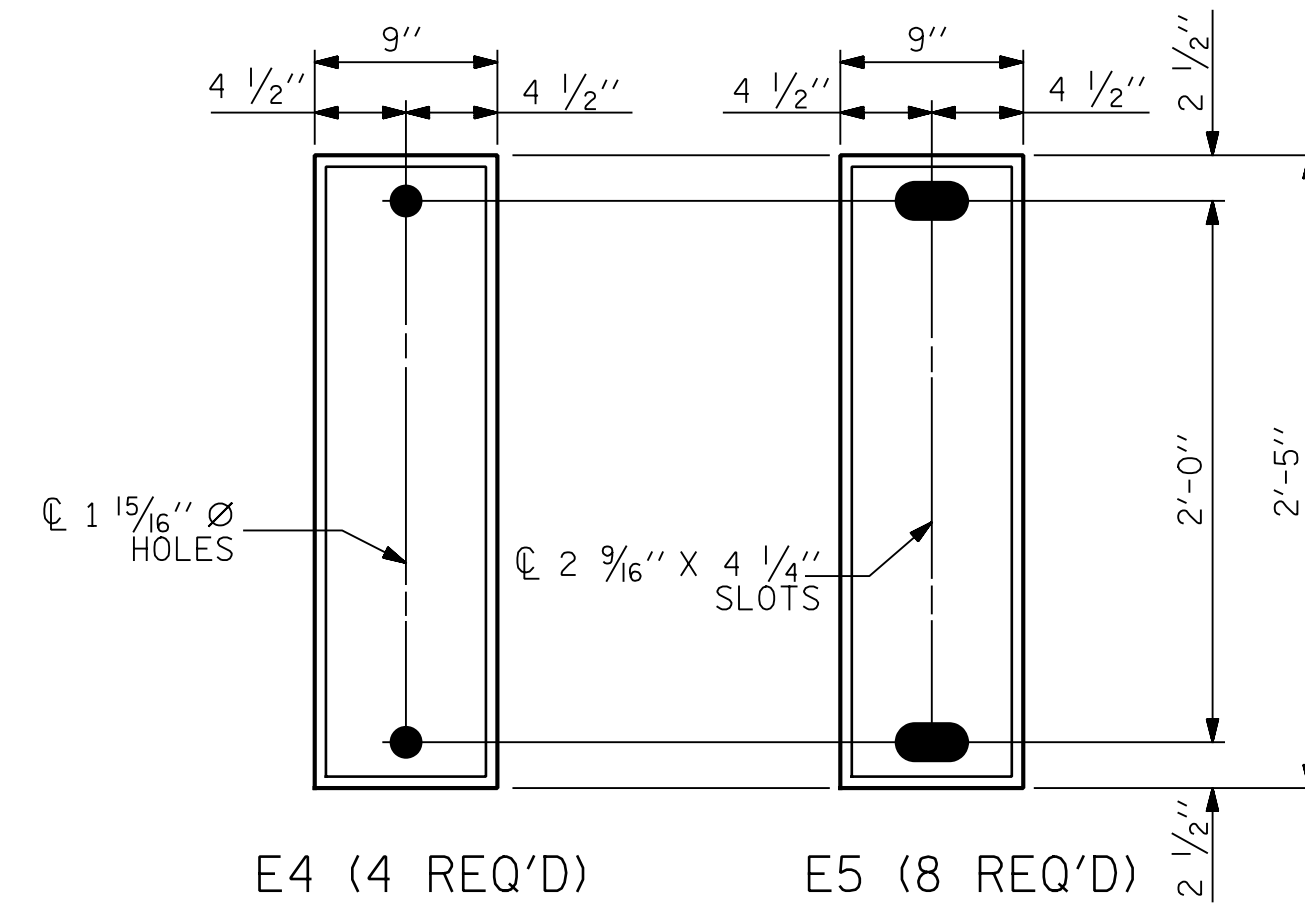
PLAN VIEW OF ELASTOMERIC BEARING

TYPE I MODIFIED



PLAN VIEW OF ELASTOMERIC BEARING

TYPE II MODIFIED



PLAN VIEW OF ELASTOMERIC BEARING

TYPE III MODIFIED

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1#2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR PAINTED STRUCTURAL STEEL (EXCLUDING AASHTO M270 GRADE 50W), SOLE PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. 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.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

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 MODIFIED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

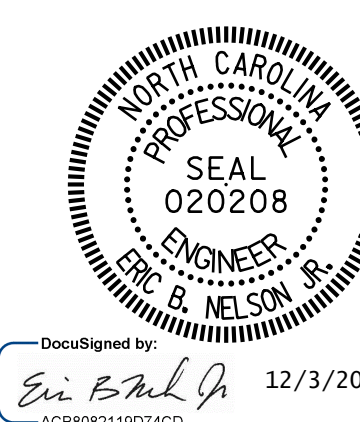
ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FOLLOWING PROCEDURE, WHICH MAY BE REQUIRED BY THE ENGINEER, TO RESET ELASTOMERIC BEARINGS DUE TO GIRDER TRANSLATION AND END ROTATION:

1. ONCE THE DECK HAS CURED, THE GIRDERS SHALL BE JACKED AND THE ELASTOMERIC BEARING SLOTS CENTERED AS NEARLY AS PRACTICAL ABOUT THE BEARING STIFFENER. THIS OPERATION SHALL BE PERFORMED AT APPROXIMATELY 60° F.

THE CONTRACTOR MAY PROPOSE ALTERNATE METHODS, PROVIDED DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

FOR ADDITIONAL NOTES, SEE SHEET 2 OF 2.



PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
BRIDGE NO. 250053

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

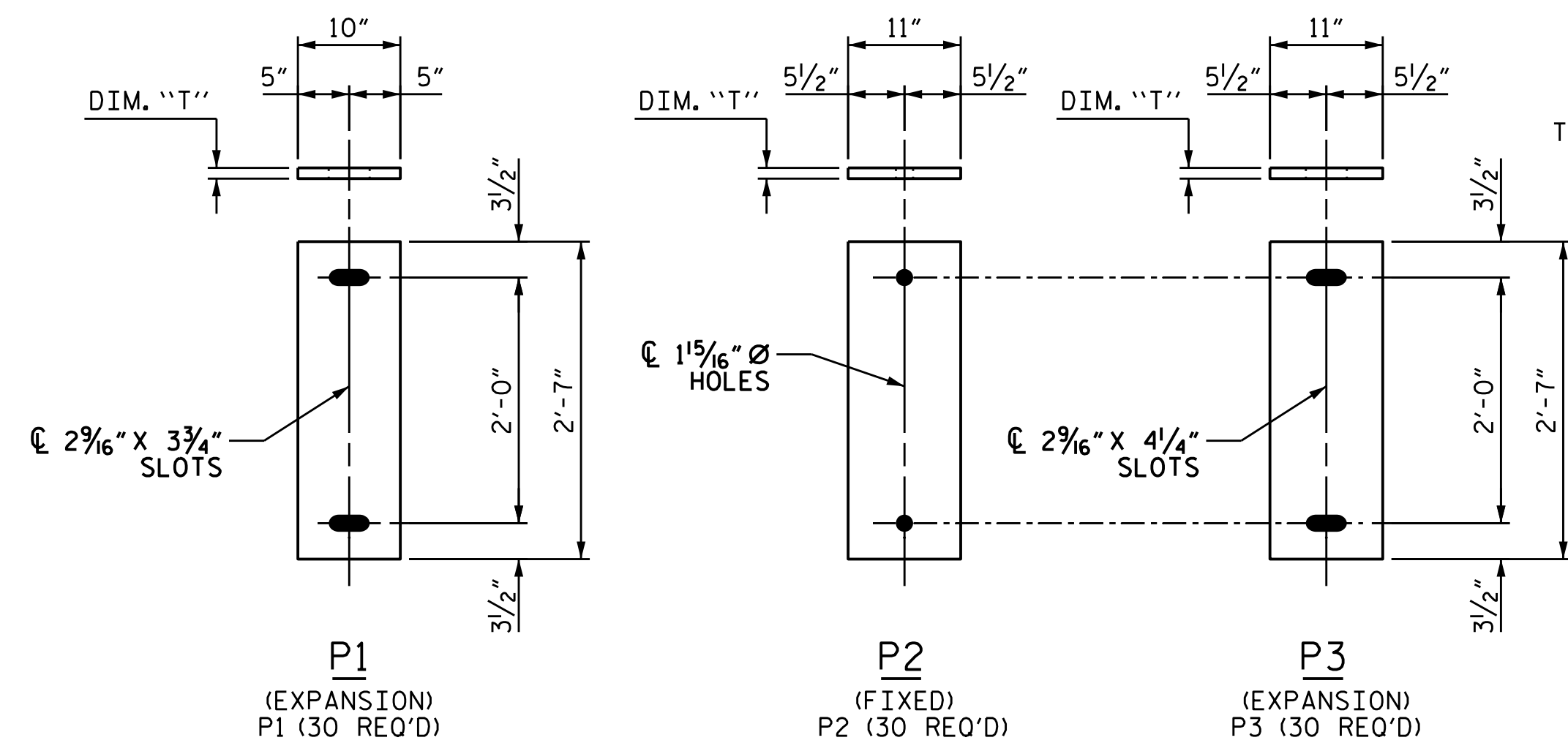
ELASTOMERIC BEARING  
DETAILS

DRAWN BY: J. MYA DATE: 01/2021  
CHECKED BY: J. YANACCONE DATE: 01/2021

PLANS PREPARED BY:  
**Gannett Fleming**  
2610 Wycliff Road  
Suite 102  
Raleigh NC 27607-3073  
(919) 420-7660  
NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

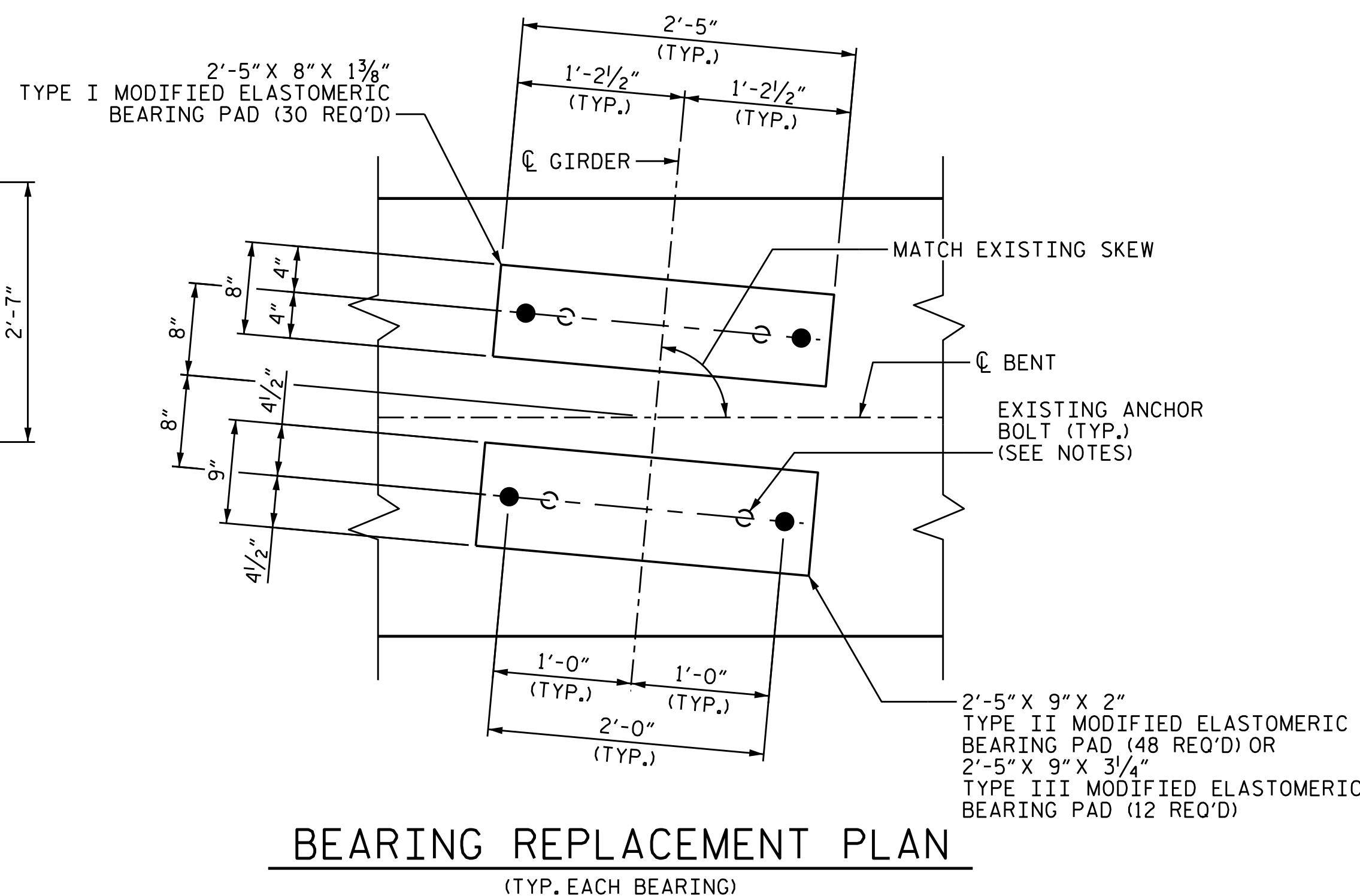
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-7
2			4			TOTAL SHEETS 19



SOLE PLATE FOR TYPE I MODIFIED BEARINGS

SOLE PLATE FOR TYPE II AND III MODIFIED BEARINGS

SOLE PLATE DETAILS



BEARING REPLACEMENT PLAN (TYP. EACH BEARING)

NOTES:

- THE EXISTING METAL BEARINGS SHALL BE REMOVED AND REPLACED WITH ELASTOMERIC BEARINGS AND SOLE PLATES AS SHOWN.
- LOOSEN OR REMOVE EXISTING ANCHOR BOLT NUTS AS REQUIRED TO ALLOW JACKING OF THE GIRDERS.
- WITH GIRDERS IN A JACKED AND SUPPORTED CONDITION, REMOVE EXISTING METAL BEARINGS. FOR JACKING DETAILS, SEE "JACKING DETAILS" SHEET.
- CUT EXISTING ANCHOR BOLTS AND GRIND THEM SMOOTH FLUSH WITH THE TOP OF THE BENT CAP.
- ATTACH SOLE PLATES TO THE STEEL GIRDERS AND INSTALL THE ELASTOMERIC BEARINGS AS SHOWN.
- WHEN WELDING THE SOLE PLATE TO THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.
- LOWER GIRDER ONTO NEW BEARING PADS, TIGHTEN ANCHOR BOLT NUTS TO FINGER TIGHT AND THEN BACK THEM OFF 1/2 TURN.
- THE CONTRACTOR SHALL DRILL OR CORE INTO THE EXISTING BENT CAP TO INSTALL ANCHOR BOLTS. THE ANCHOR BOLTS SHALL BE ADHESIVELY ANCHORED.
- FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.
- ADHESIVE FOR ANCHORING SHALL BE ON THE NCDOT APPROVED PRODUCTS LIST. EXISTING "S" BAR STIRRUPS MAY BE CUT TO INSTALL ANCHOR BOLTS.
- THE EMBEDMENT DEPTH OF THE ANCHOR BOLT SHALL BE 12" OR THE DEPTH RECOMMENDED BY THE ADHESIVE MANUFACTURER TO ATTAIN THE PULL-OUT STRENGTH OF THE DESIGN LOAD BELOW, WHICHEVER IS GREATER. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.
- ANCHOR DESIGN YIELD LOAD: 20 KIPS.
- FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.
- FOR ADDITIONAL NOTES, SEE SHEET 1 OF 2.

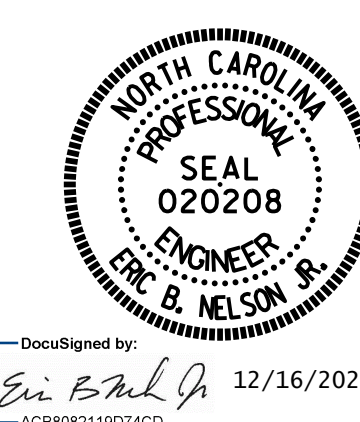
BEARING AND SOLE PLATE TABLE \*

GIRDER NO.	BENT 1						BENT 2						BENT 3					
	SPAN A			SPAN B			SPAN C			SPAN D			SPAN D					
	BEARING TYPE	SOLE PLATE TYPE	DIM "T"	BEARING TYPE	SOLE PLATE TYPE	DIM "T"	BEARING TYPE	SOLE PLATE TYPE	DIM "T"	BEARING TYPE	SOLE PLATE TYPE	DIM "T"	BEARING TYPE	SOLE PLATE TYPE	DIM "T"	BEARING TYPE	SOLE PLATE TYPE	DIM "T"
1	E1	P1	1.375"	E2	P2	1.250"	E3	P3	1.750"	E2	P2	1.750"	E3	P3	1.625"	E1	P1	1.375"
2	E1	P1	1.375"	E2	P2	1.250"	E3	P3	1.750"	E2	P2	1.750"	E3	P3	1.625"	E1	P1	1.250"
3	E1	P1	1.375"	E2	P2	1.250"	E3	P3	1.750"	E2	P2	1.750"	E3	P3	1.750"	E1	P1	1.250"
4	E1	P1	1.375"	E2	P2	1.250"	E3	P3	1.750"	E2	P2	1.750"	E3	P3	1.750"	E1	P1	1.250"
5	E1	P1	1.375"	E2	P2	1.250"	E3	P3	1.750"	E2	P2	1.750"	E3	P3	1.500"	E1	P1	1.250"
6	E1	P1	1.375"	E2	P2	1.250"	E3	P3	1.750"	E2	P2	1.750"	E3	P3	1.750"	E1	P1	1.375"
7	E1	P1	1.375"	E2	P2	1.250"	E3	P3	1.750"	E2	P2	1.750"	E3	P3	1.625"	E1	P1	1.250"
8	E1	P1	1.375"	E2	P2	1.250"	E3	P3	1.750"	E2	P2	1.750"	E3	P3	1.750"	E1	P1	1.375"
9	E1	P1	1.375"	E2	P2	1.250"	E3	P3	1.750"	E2	P2	1.750"	E3	P3	1.625"	E1	P1	1.250"
10	E1	P1	1.375"	E2	P2	1.250"	E3	P3	1.750"	E2	P2	1.750"	E3	P3	1.750"	E1	P1	1.375"
11	E1	P1	1.375"	E2	P2	1.250"	E3	P3	1.750"	E2	P2	1.750"	E3	P3	1.750"	E1	P1	1.375"
12	E1	P1	1.875"	E2	P2	1.500"	E5	P3	1.500"	E4	P2	1.250"	E5	P3	1.500"	E1	P1	2.250"
13	E1	P1	1.875"	E2	P2	1.625"	E5	P3	1.500"	E4	P2	1.500"	E5	P3	1.500"	E1	P1	2.250"
14	E1	P1	1.875"	E2	P2	1.625"	E5	P3	1.250"	E4	P2	1.250"	E5	P3	1.500"	E1	P1	2.125"
15	E1	P1	1.875"	E2	P2	1.625"	E5	P3	1.250"	E4	P2	1.250"	E5	P3	1.500"	E1	P1	2.375"

\* ALL SOLES PLATES ARE UNIFORM THICKNESS, "T", AND NOT BEVELED. SOLE PLATE THICKNESSES BASED ON EXISTING BEARING HEIGHTS MEASURED IN THE FIELD.

PROJECT NO. 15BPR.44  
 CUMBERLAND COUNTY  
 BRIDGE NO. 250053

SHEET 2 OF 2



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

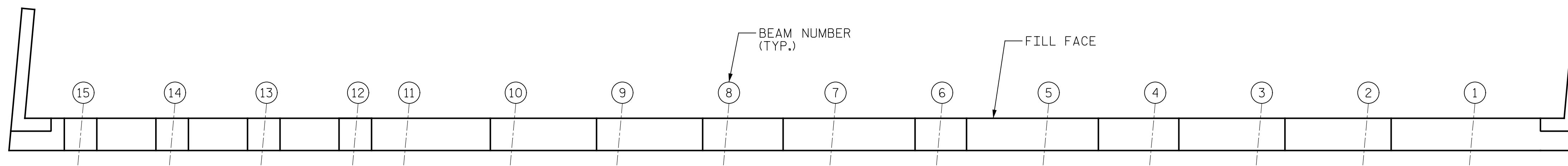
ELASTOMERIC BEARING DETAILS

DRAWN BY: J. MYA DATE: 01/2021  
 CHECKED BY: J. YANACCONI DATE: 01/2021

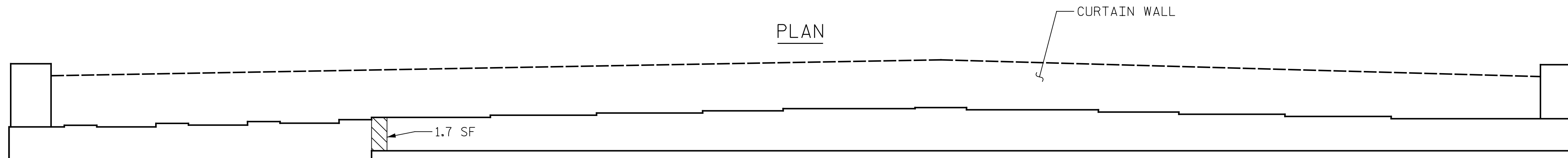
PLANS PREPARED BY:  
**Gannett Fleming**  
 Excellence Delivered As Promised  
 2610 Wycliff Road Suite 102 Raleigh NC 27607-3073 (919) 420-7660 NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

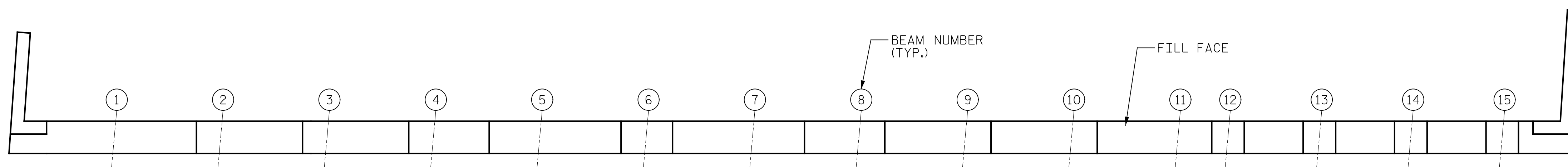
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			19



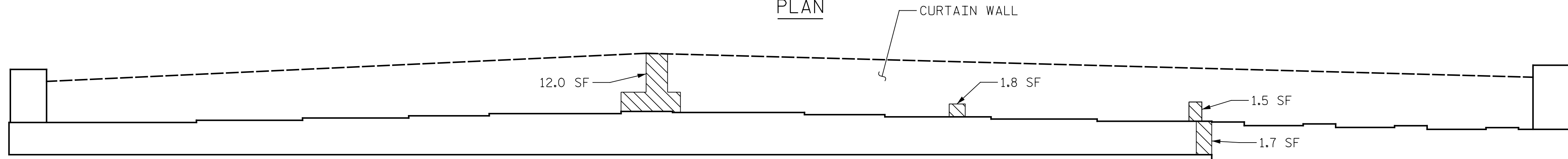
PLAN



ELEVATION  
END BENT 1



PLAN



ELEVATION  
END BENT 2

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	1.7	0.7		
CURTAIN WALL	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
CURTAIN WALL	0.0	0.0		
EPOXY RESIN INJECTION	LN, FT		LN, FT	
CAP	0.0			
CURTAIN WALL	0.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF END BENT CAP	0.0			
END BENT 2	QUANTITIES			
SHOTCRETE REPAIRS	ESTIMATE		ACTUAL	
	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	1.7	0.7		
CURTAIN WALL	15.3	5.1		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
CURTAIN WALL	0.0	0.0		
EPOXY RESIN INJECTION	LN, FT		LN, FT	
CAP	0.0			
CURTAIN WALL	0.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF END BENT CAP	0.0			

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

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

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
 BRIDGE NO. 250053



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

END BENT 1 & 2

DRAWN BY : J. MYA DATE : 01/2021  
 CHECKED BY : J. YANACCONE DATE : 01/2021

PLANS PREPARED BY:  
**Gannett Fleming**  
 Excellence Delivered As Promised  
 2610 Wycliff Road Suite 102 Raleigh NC 27607-3073 (919) 420-7660 NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO. S-9
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 19
2			4			

AS BUILT REPAIR QUANTITY TABLE

BENT 1 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL)	10.0	4.2			
CAP (HORIZONTAL)	0.0	0.0			
COLUMN	28.1	11.7			
CONCRETE REPAIRS	2.5	1.0			
EPOXY RESIN INJECTION		LENGTH LF		LENGTH LF	
CAP		0.0			
COLUMN		2.0			
EPOXY COATING		AREA SF		AREA SF	
TOP OF BENT CAP		351			

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

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE 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 REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

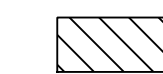
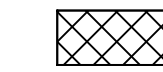

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

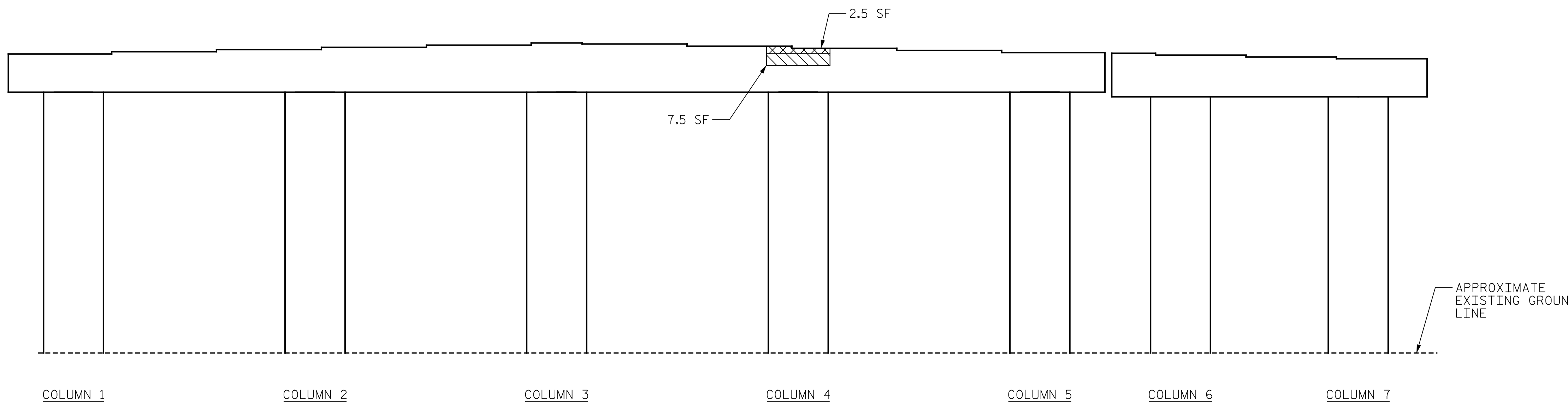
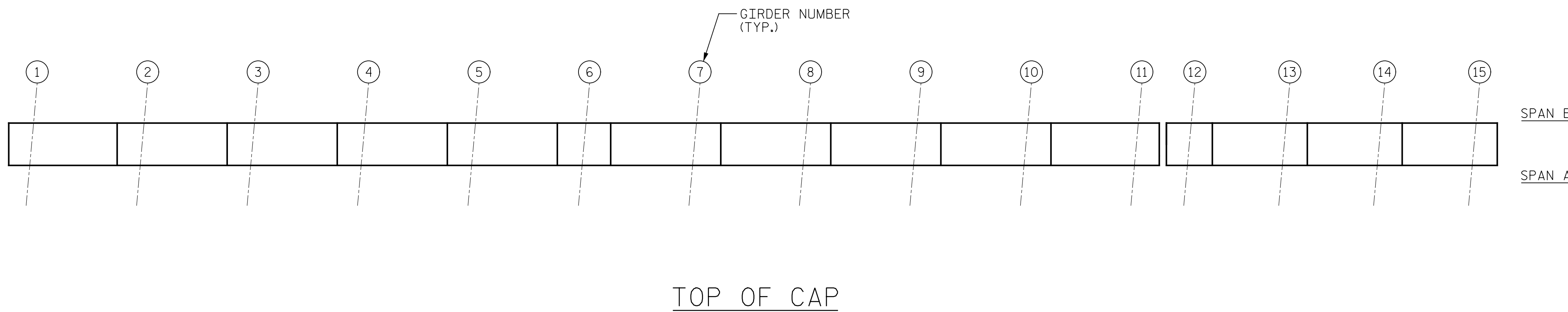
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE ELASTOMERIC BEARINGS. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

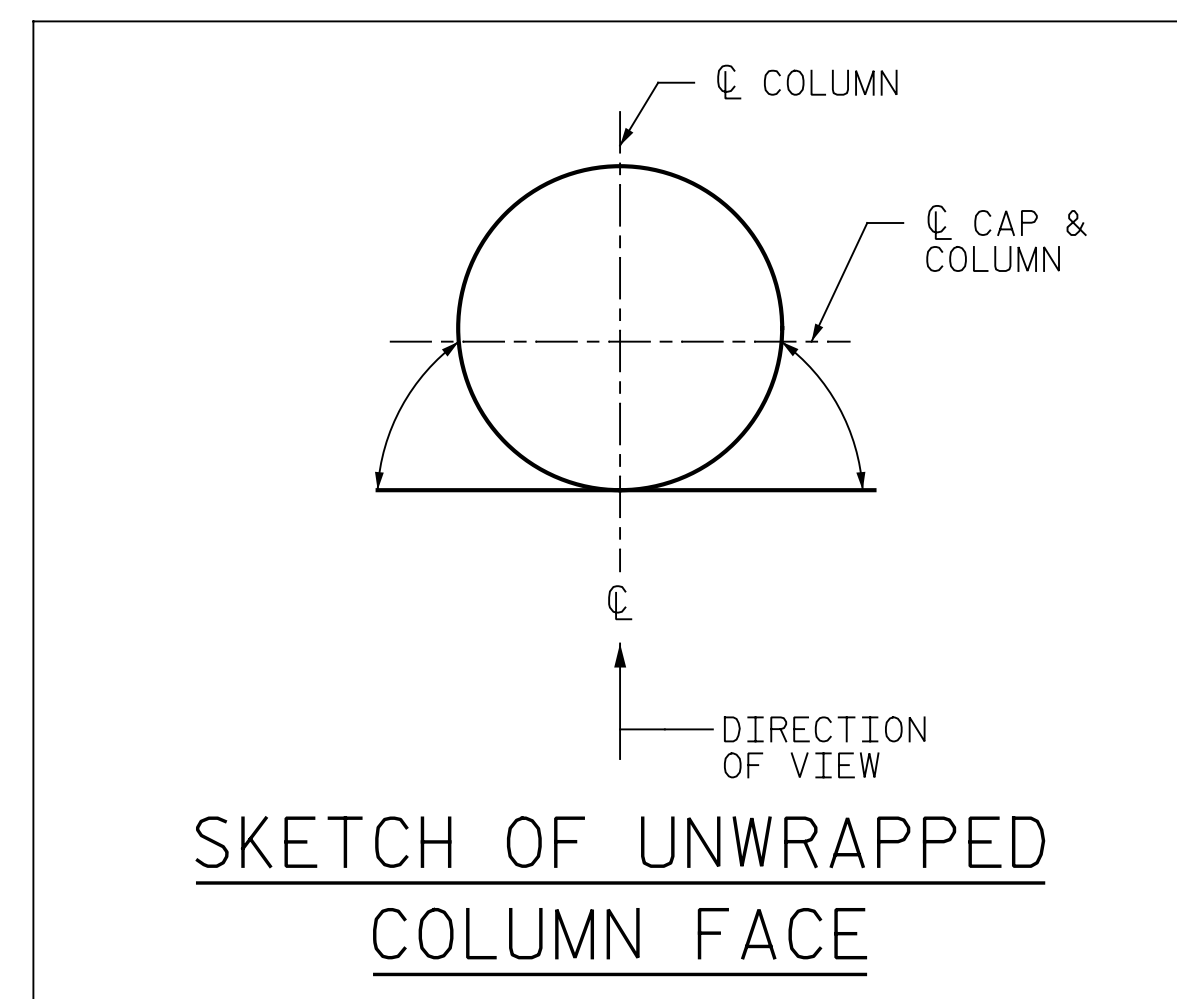
CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE "JACKING DETAILS" SHEET.

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

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



ELEVATION  
(COLUMN FACE IS SHOWN UNWRAPPED FOR CLARITY)



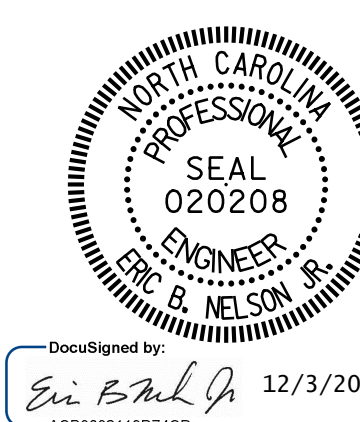
SKETCH OF UNWRAPPED  
COLUMN FACE

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
 BRIDGE NO. 250053

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 1  
 SPAN "A" SIDE



DocuSigned by:  
 Eric B. Nelson 12/3/2021

DRAWN BY: J. MYA DATE: 01/2021  
 CHECKED BY: J. YANACCONO DATE: 01/2021

PLANS PREPARED BY:  
 2610 Wycliff Road  
 Suite 102  
 Raleigh NC 27607-3073  
 (919) 420-7660  
 Excellence Delivered As Promised [NC Lic. No. F-0270]

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

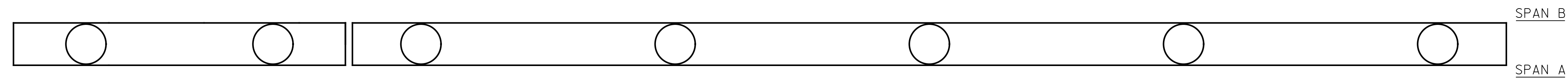
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

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.

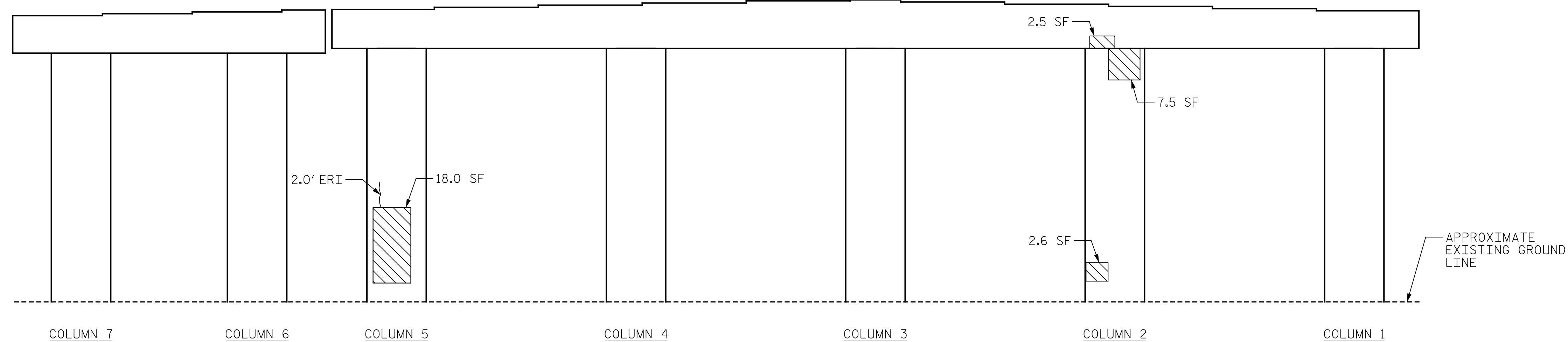
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

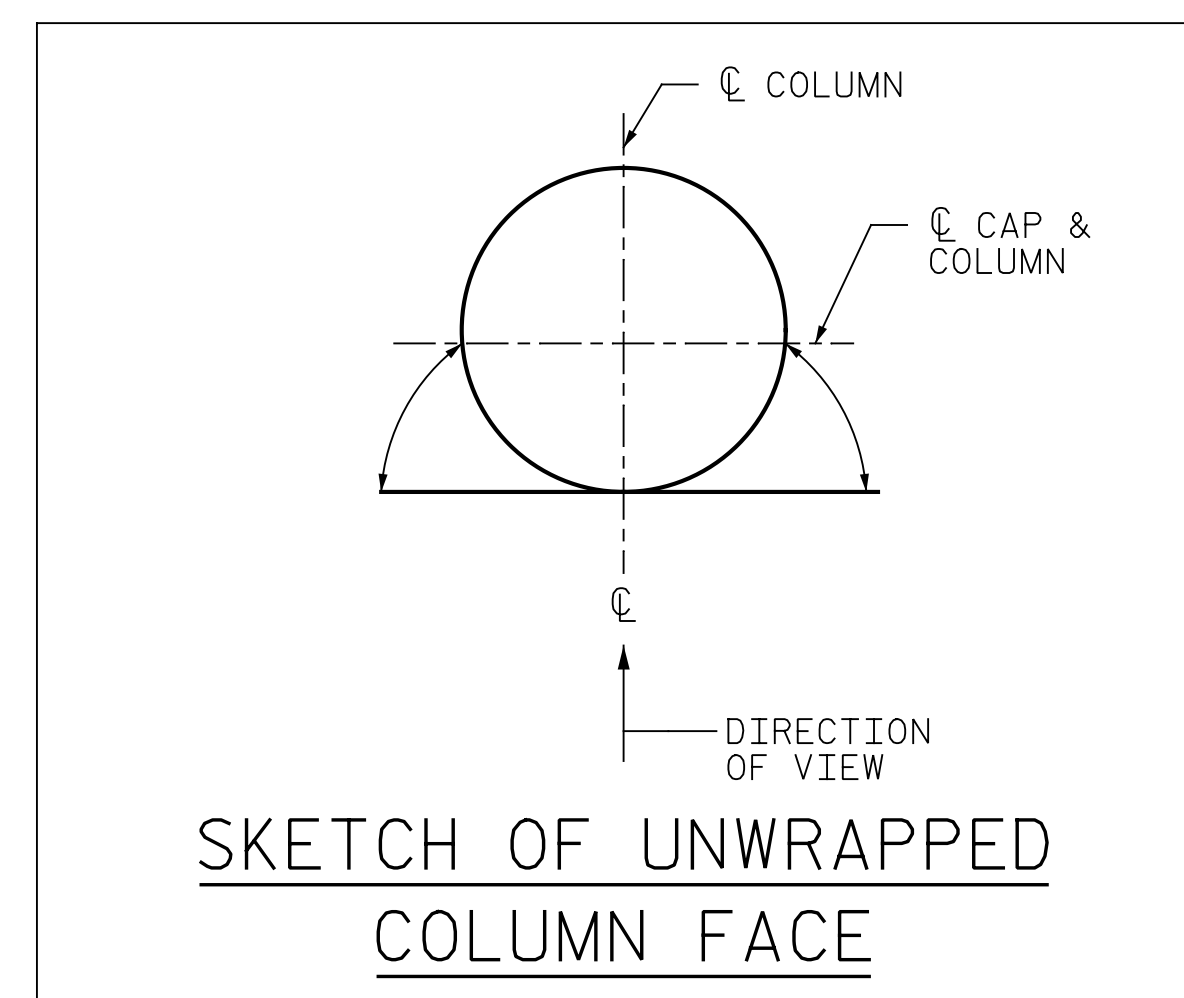


BOTTOM OF CAP



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

ELEVATION  
(COLUMN FACE IS SHOWN UNWRAPPED FOR CLARITY)

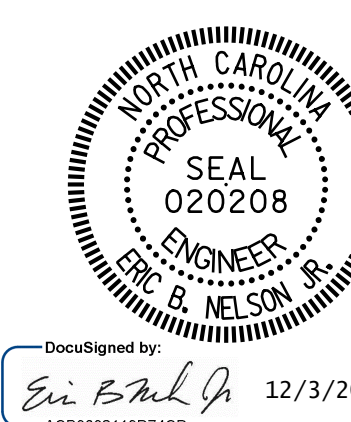


PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
 BRIDGE NO. 250053

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 1  
 SPAN "B" SIDE



DocuSigned by:  
 Eric B. Nelson 12/3/2021  
 AC889211674CD

DRAWN BY : J. MYA DATE : 01/2021  
 CHECKED BY : J. YANACCONI DATE : 01/2021

PLANS PREPARED BY:  
**Gannett Fleming**  
 Excellence Delivered As Promised  
 2610 Wycliff Road  
 Suite 102  
 Raleigh NC 27607-3073  
 (919) 420-7660  
 NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			19

AS BUILT REPAIR QUANTITY TABLE

BENT 2 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL)	5.4	2.3			
CAP (HORIZONTAL)	0.0	0.0			
COLUMN	2.0	0.8			
CONCRETE REPAIRS	1.0	0.4			
EPOXY RESIN INJECTION		LENGTH LF	LENGTH LF		
CAP		2.0			
COLUMN		0.0			
EPOXY COATING	AREA SF		AREA SF		
TOP OF BENT CAP	351				

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

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE 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 REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.




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

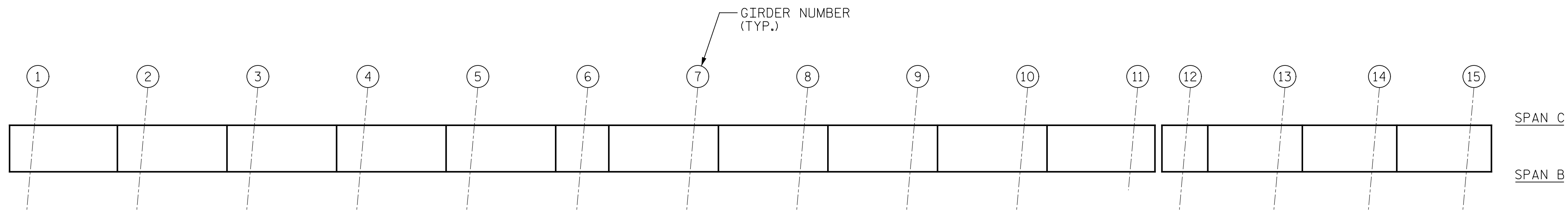
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE ELASTOMERIC BEARINGS. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

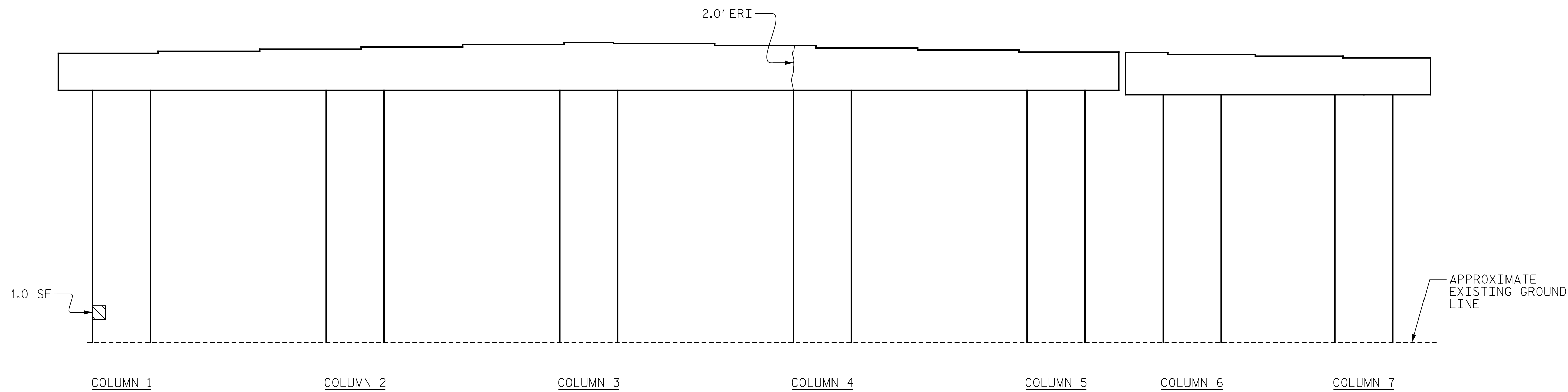
CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE "JACKING DETAILS" SHEET.

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

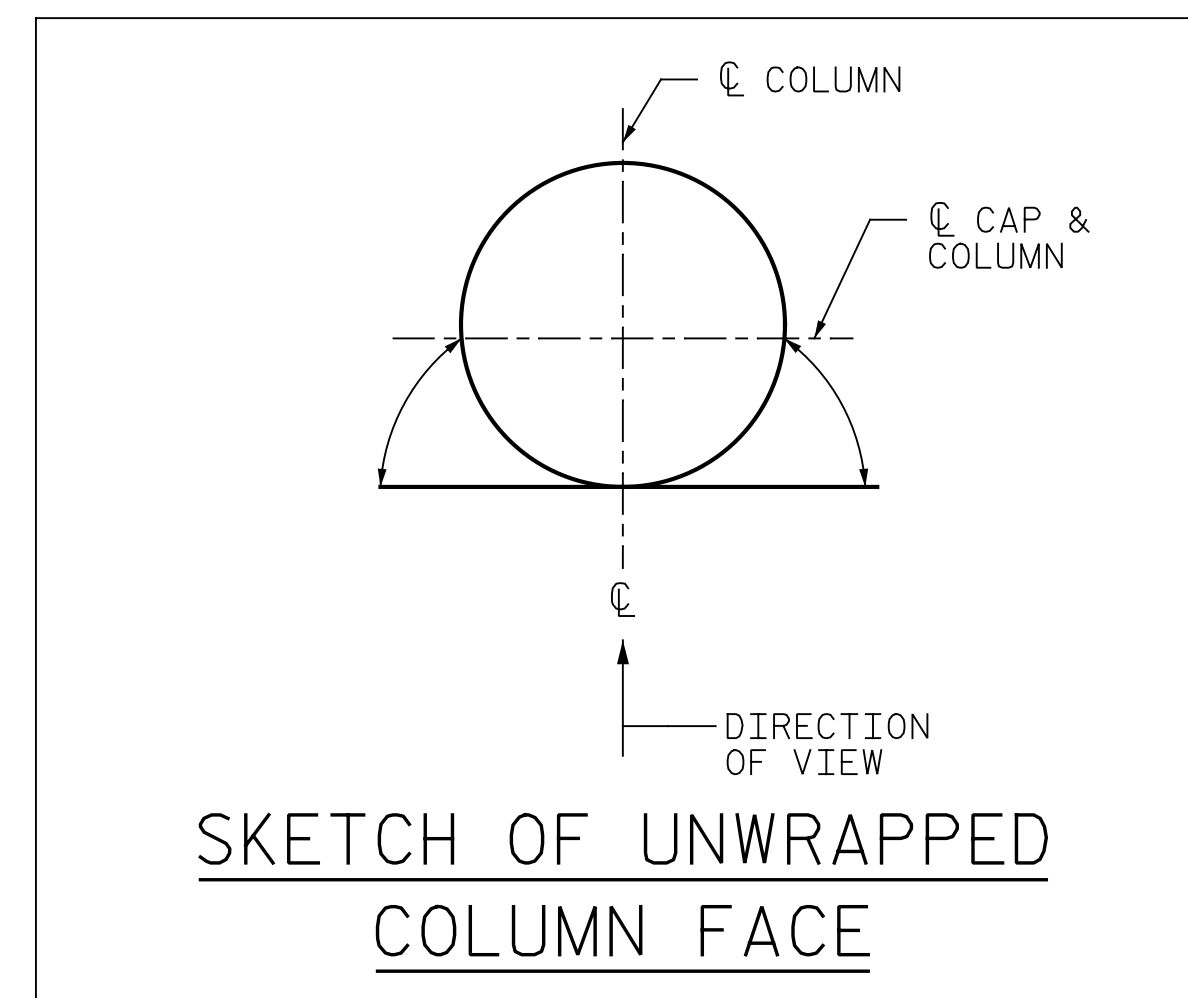
-  - SHOTCRETE REPAIR
-  - CONCRETE REPAIRS (FORM & POUR)
-  - EPOXY RESIN INJECTION



TOP OF CAP



ELEVATION  
(COLUMN FACE IS SHOWN UNWRAPPED FOR CLARITY)



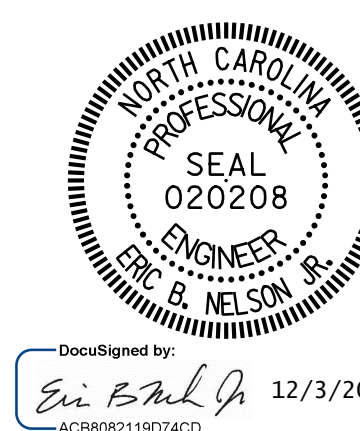
SKETCH OF UNWRAPPED  
COLUMN FACE

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
 BRIDGE NO. 250053

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 2  
 SPAN "B" SIDE



DocuSigned by:  
 Eric B. Nelson 12/3/2021

DRAWN BY : J. MYA DATE : 01/2021  
 CHECKED BY : J. YANACCONE DATE : 01/2021

PLANS PREPARED BY:  
  
 Excellence Delivered As Promised

2610 Wycliff Road  
 Suite 102  
 Raleigh NC 27607-3073  
 (919) 420-7660  
 NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			19

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

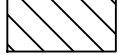


SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

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.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

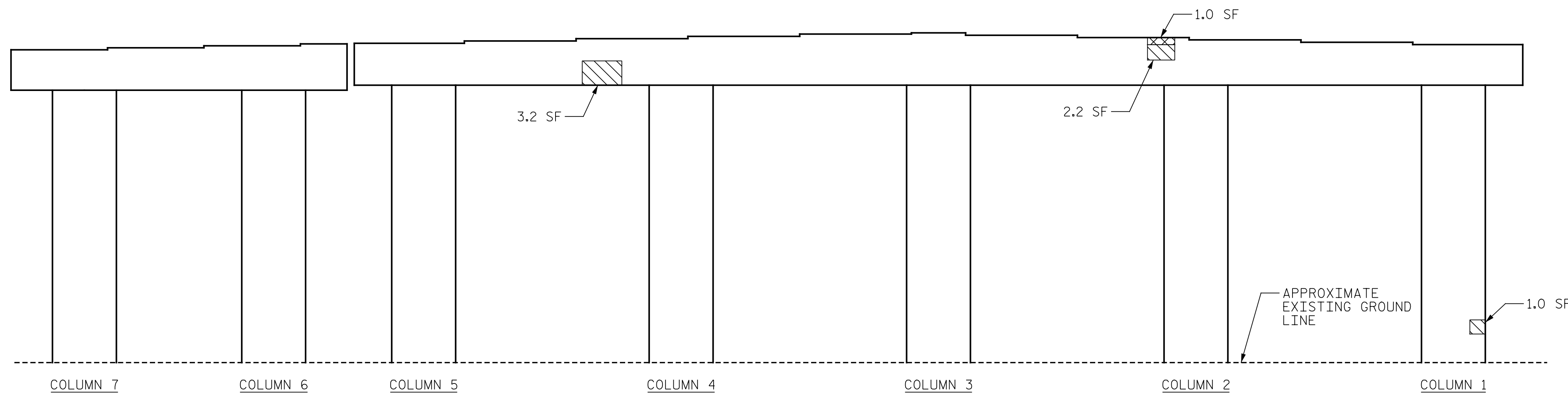
-  - SHOTCRETE REPAIR
-  - CONCRETE REPAIRS (FORM & POUR)
-  - EPOXY RESIN INJECTION

SPAN C

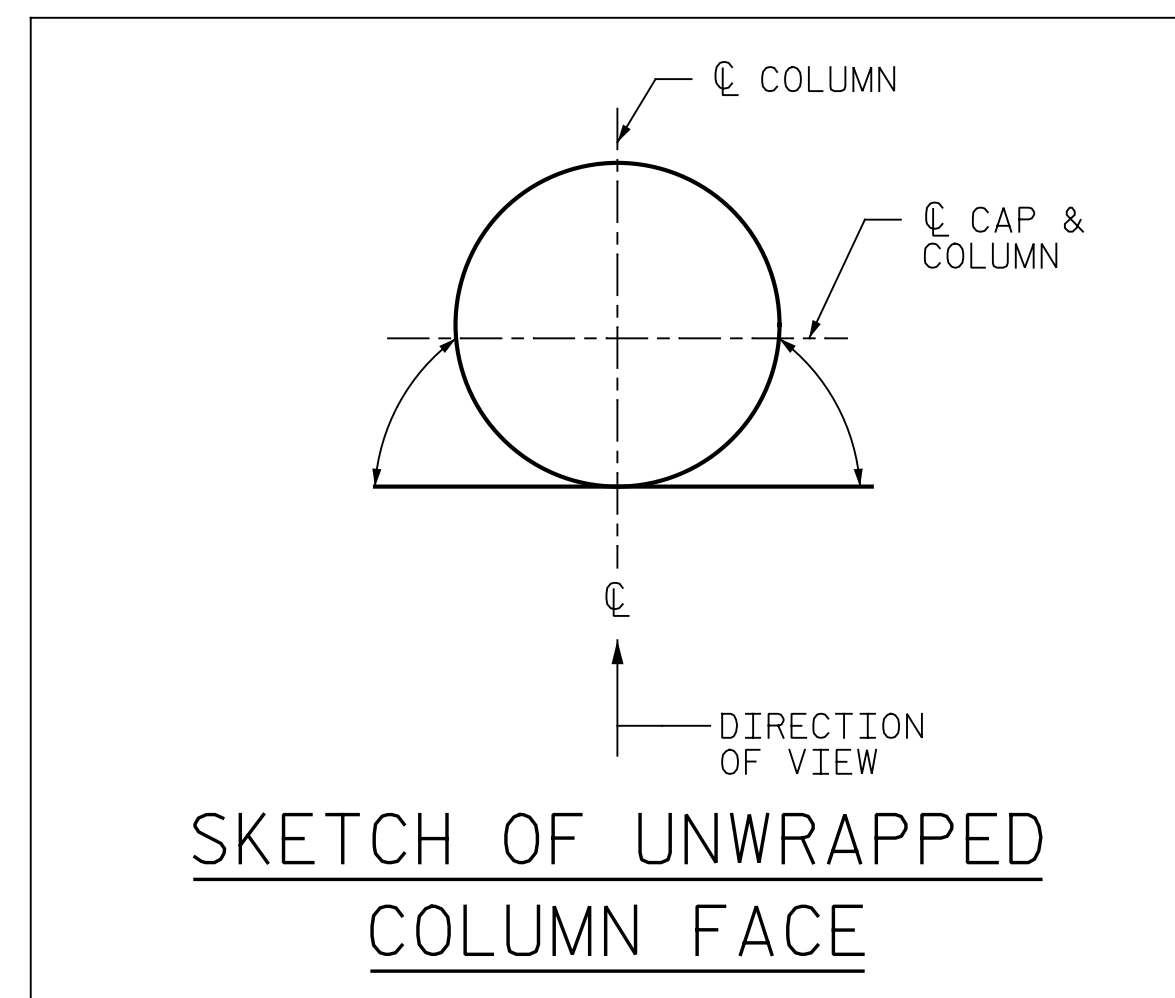
SPAN B



BOTTOM OF CAP



ELEVATION  
(COLUMN FACE IS SHOWN UNWRAPPED FOR CLARITY)



PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
BRIDGE NO. 250053

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 2  
SPAN "C" SIDE



DocuSigned by:  
*Eric B. Nelson* 12/3/2021  
ACB08211907ACD

DRAWN BY : J. MYA DATE : 01/2021  
CHECKED BY : J. YANACONE DATE : 01/2021

PLANS PREPARED BY:  
 **Gannett Fleming**  
Excellence Delivered As Promised  
2610 Wycliff Road  
Suite 102  
Raleigh NC 27607-3073  
(919) 420-7660  
NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			19

AS BUILT REPAIR QUANTITY TABLE

BENT 3 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
CAP (VERTICAL)	5.4	2.3			
CAP (HORIZONTAL)	0.0	0.0			
COLUMN	12.1	5.0			
CONCRETE REPAIRS	0.0	0.0			
EPOXY RESIN INJECTION		LENGTH LF	LENGTH LF		
CAP		9.0			
COLUMN		0.0			
EPOXY COATING		AREA SF	AREA SF		
TOP OF BENT CAP		351			

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

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE 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 REPAIRS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

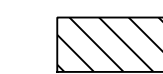
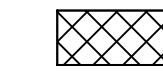

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

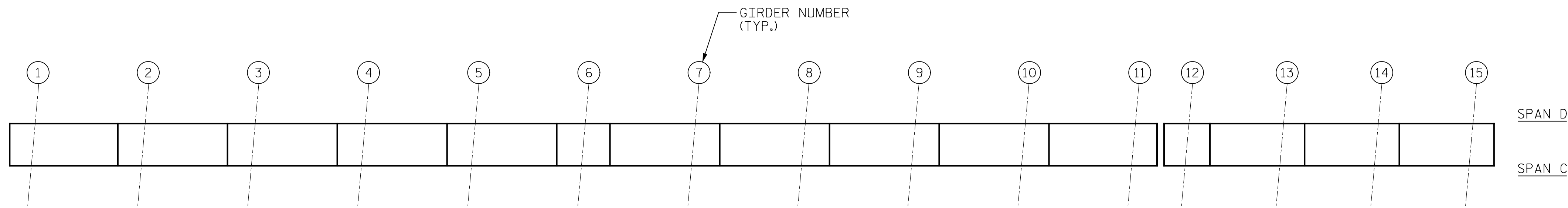
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE ELASTOMERIC BEARINGS. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

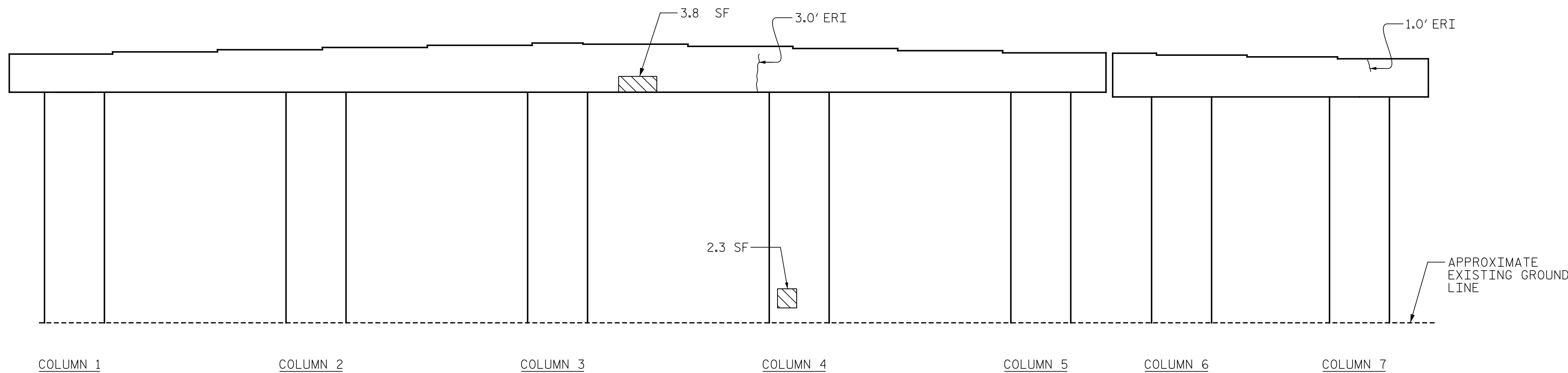
CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE "JACKING DETAILS" SHEET.

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

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

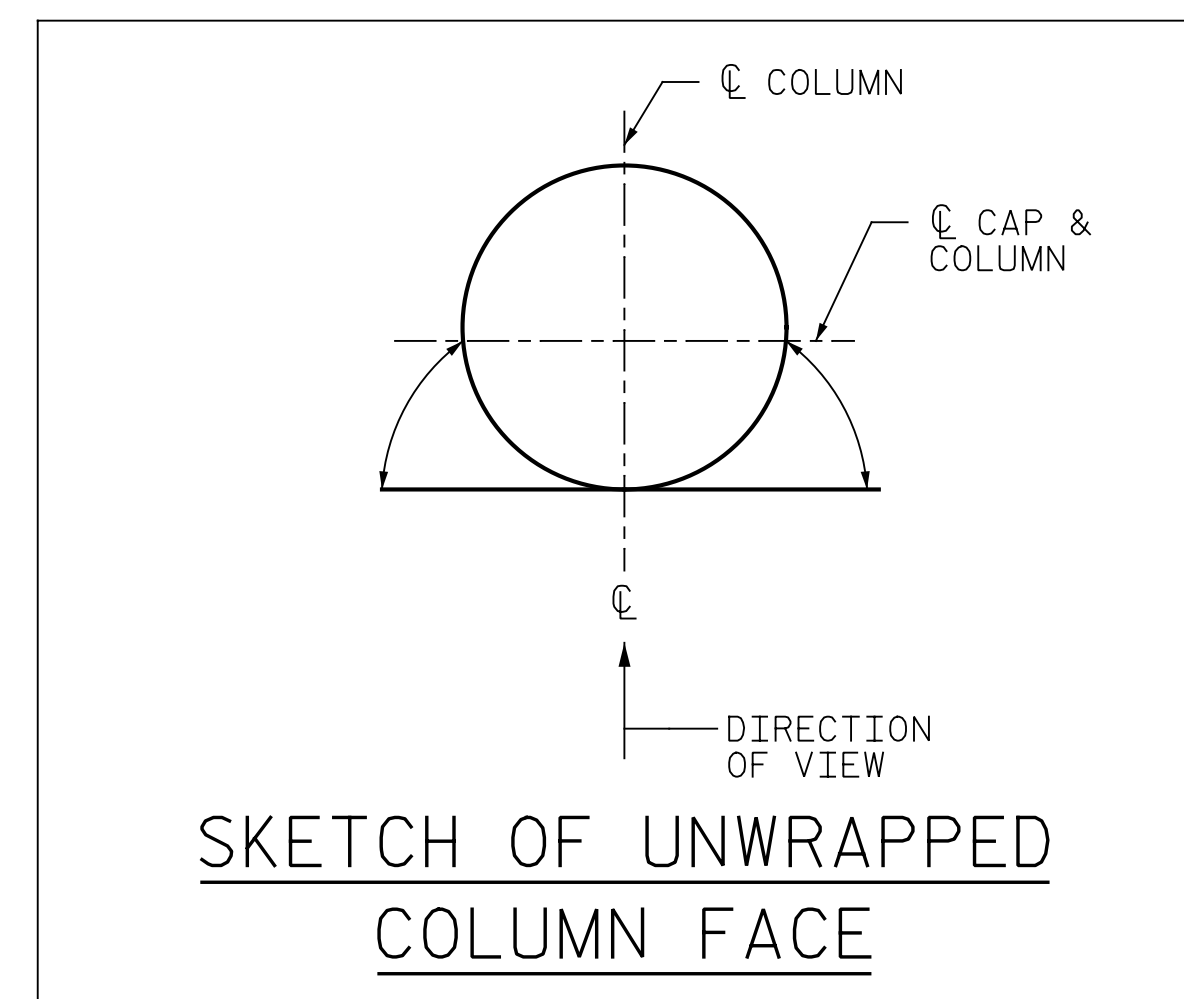


TOP OF CAP



ELEVATION

(COLUMN FACE IS SHOWN UNWRAPPED FOR CLARITY)



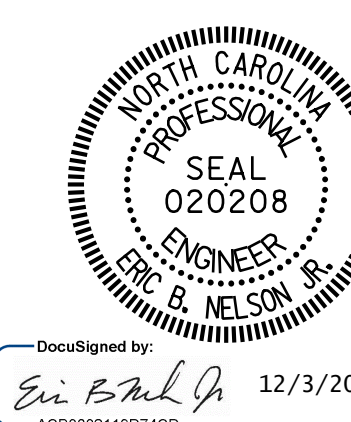
SKETCH OF UNWRAPPED COLUMN FACE

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
 BRIDGE NO. 250053

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

BENT 3  
 SPAN "C" SIDE



DocuSigned by:  
 Eric B. Nelson  
 12/3/2021

PLANS PREPARED BY:  
 2610 Wycliff Road  
 Suite 102  
 Raleigh NC 27607-3073  
 (919) 420-7660  
 Excellence Delivered As Promised [NC Lic. No. F-0270]

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			19

DRAWN BY: J. MYA DATE: 01/2021  
 CHECKED BY: J. YANACCONI DATE: 01/2021



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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

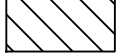

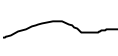
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

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.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR ONE (1) FOOT MIN. BELOW GROUND LINE.

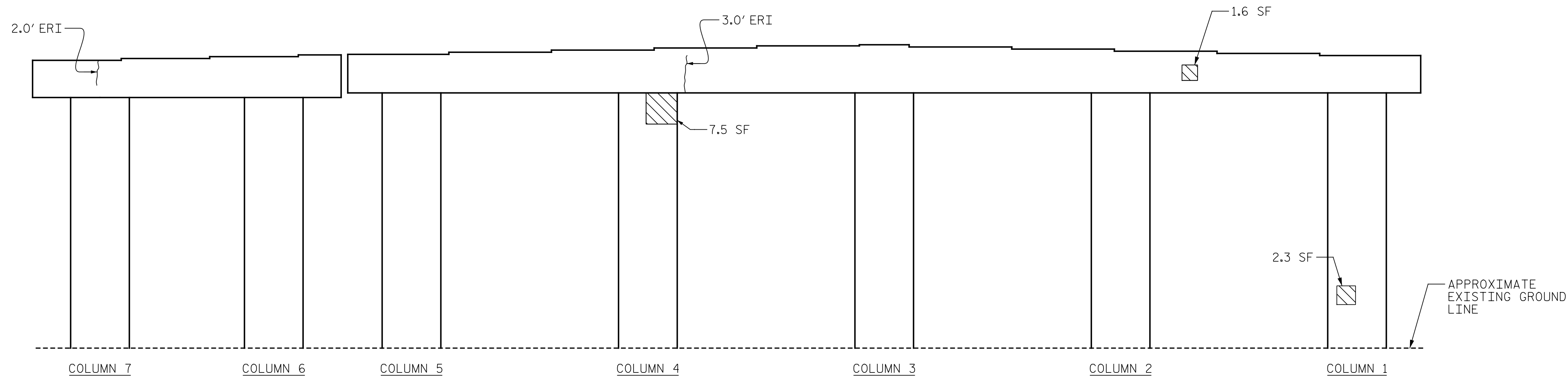
-  - SHOTCRETE REPAIR
-  - CONCRETE REPAIRS (FORM & POUR)
-  - EPOXY RESIN INJECTION

SPAN D

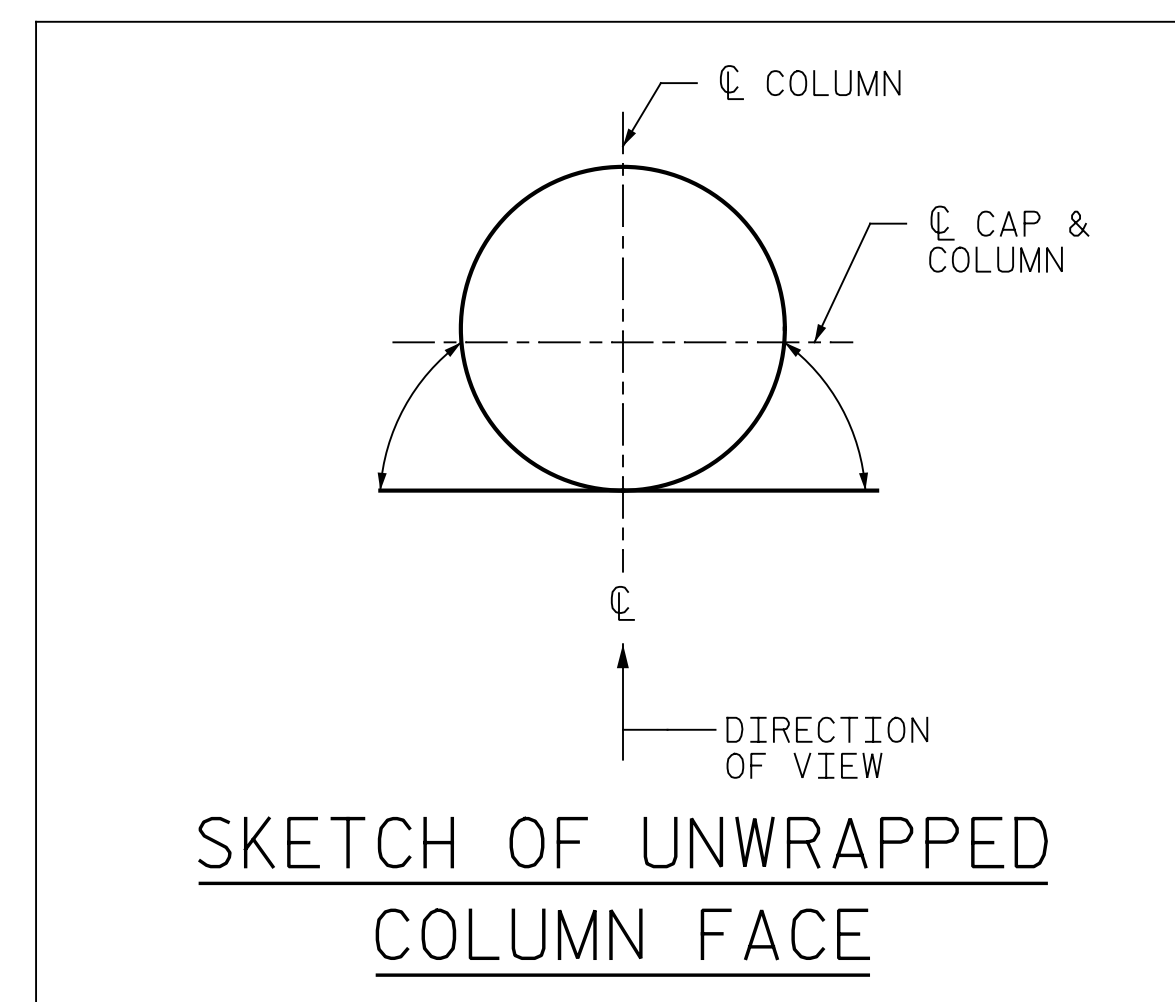
SPAN C



BOTTOM OF CAP



ELEVATION  
(COLUMN FACE IS SHOWN UNWRAPPED FOR CLARITY)



PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
BRIDGE NO. 250053

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

BENT 3  
SPAN "D" SIDE



DocuSigned by:  
*Eric B. Nelson* 12/3/2021  
ACB992118204CD...

DRAWN BY : J. MYA DATE : 01/2021  
CHECKED BY : J. YANACCONO DATE : 01/2021

PLANS PREPARED BY:  
 **Gannett Fleming**  
Excellence Delivered *As Promised*  
2610 Wycliff Road  
Suite 102  
Raleigh NC 27607-3073  
(919) 420-7660  
NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED


REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			19

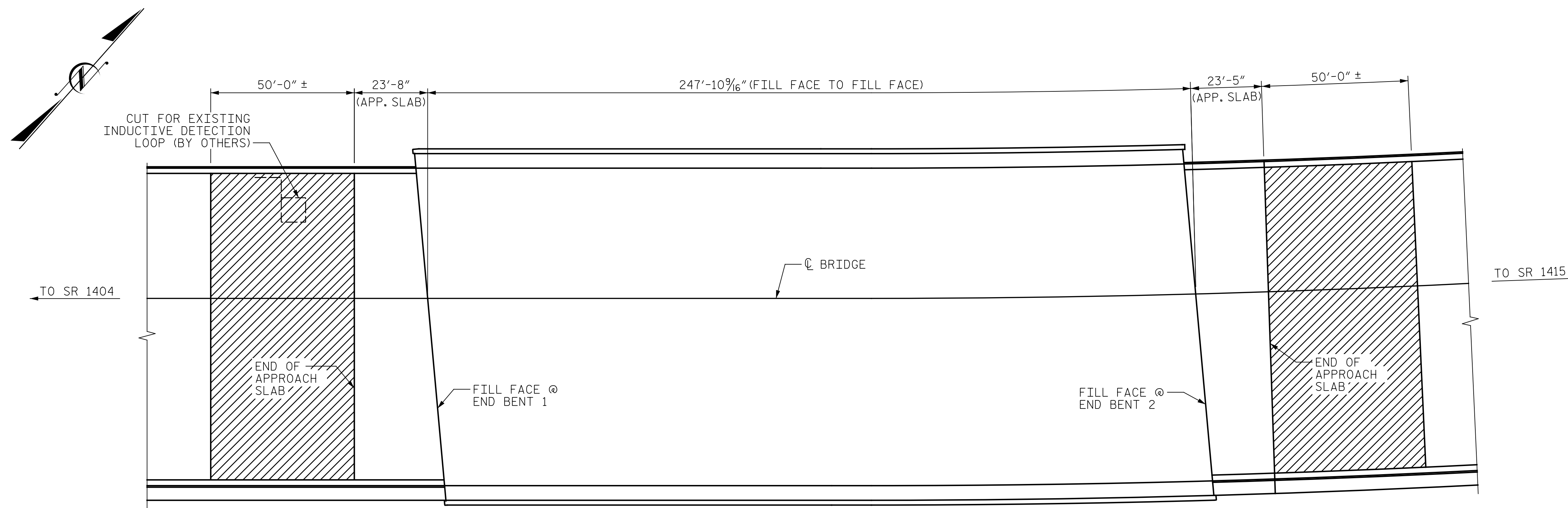
SUMMARY OF QUANTITIES

	ESTIMATE	ACTUAL
INCIDENTAL MILLING	1093 SQ. YDS.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	92 TONS	
ASPHALT BINDER FOR PLANT MIX	6 TONS	

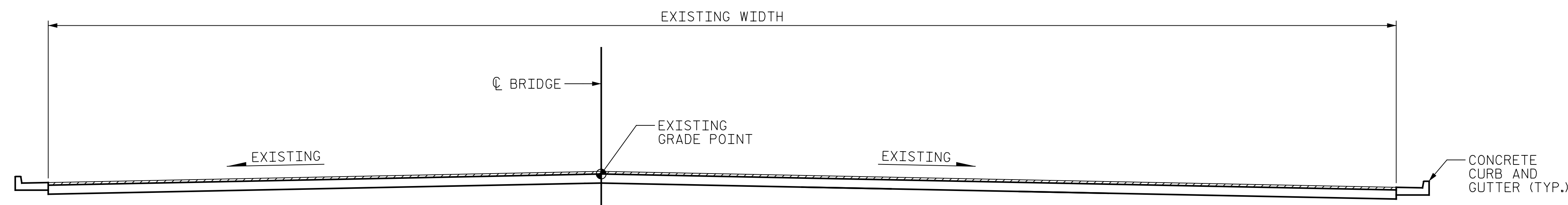
NOTES:

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1/2" 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 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH.

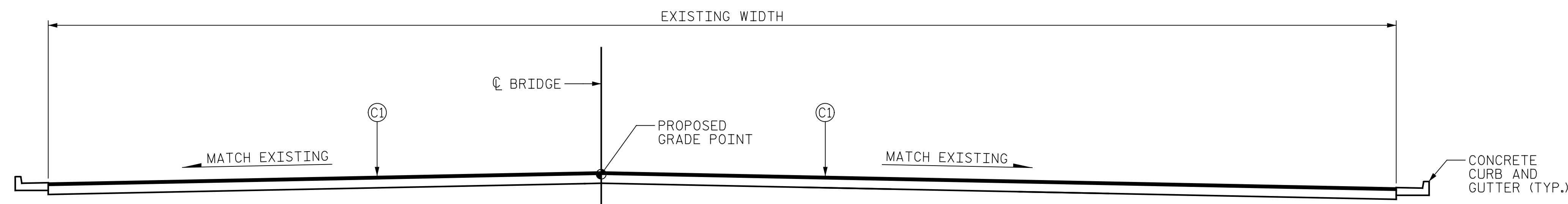
 - INCIDENTAL MILLING



PLAN



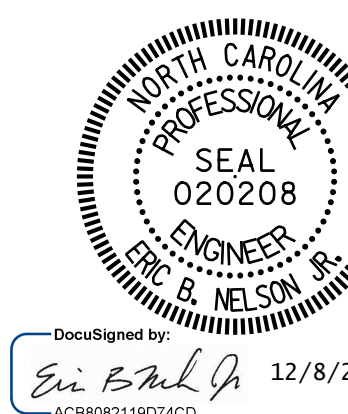
TYPICAL ROADWAY MILLING SECTION  
(MILL TO APPROX. 1/2" DEPTH)



TYPICAL FINAL ROADWAY SECTION

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

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
BRIDGE NO. 250053



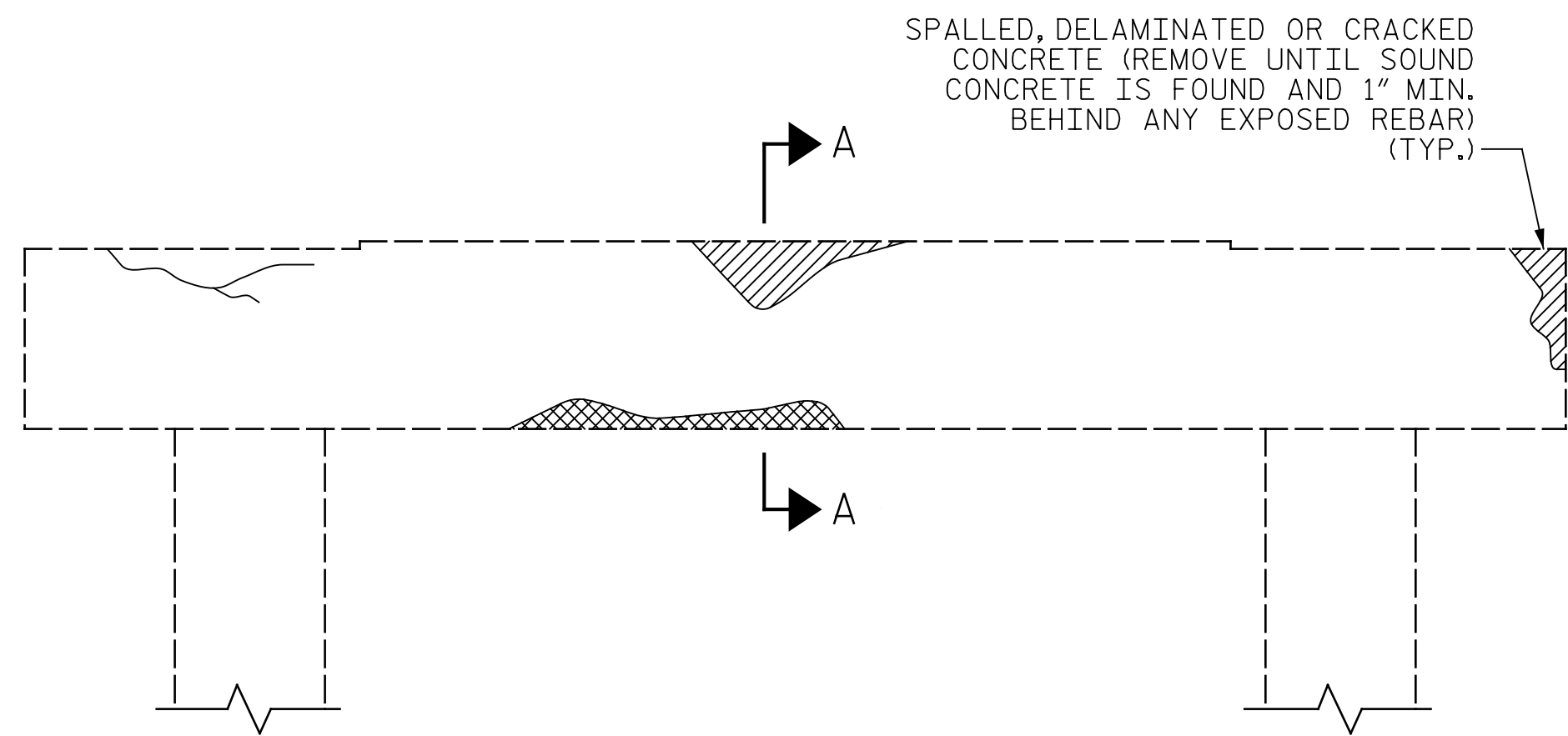
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
APPROACH MILLING  
AND TYPICAL ROADWAY  
SECTIONS

DRAWN BY : T. HARTLEY DATE : 01/2021  
CHECKED BY : J. YANNAKONE DATE : 01/2021

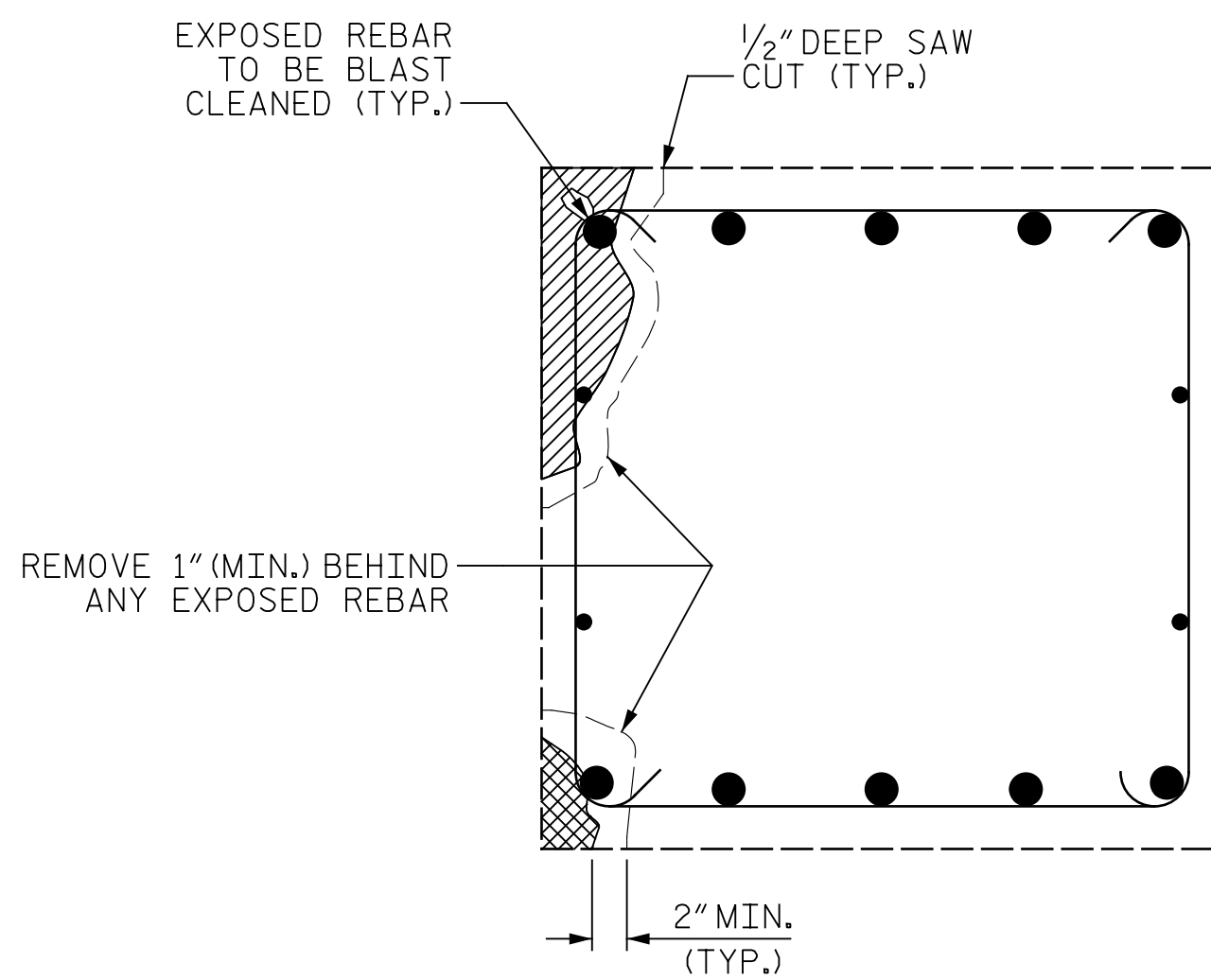
PLANS PREPARED BY:  
**Gannett Fleming**  
2610 Wycliff Road  
Suite 102  
Raleigh NC 27607-3073  
(919) 420-7660  
NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-16
2			4			19

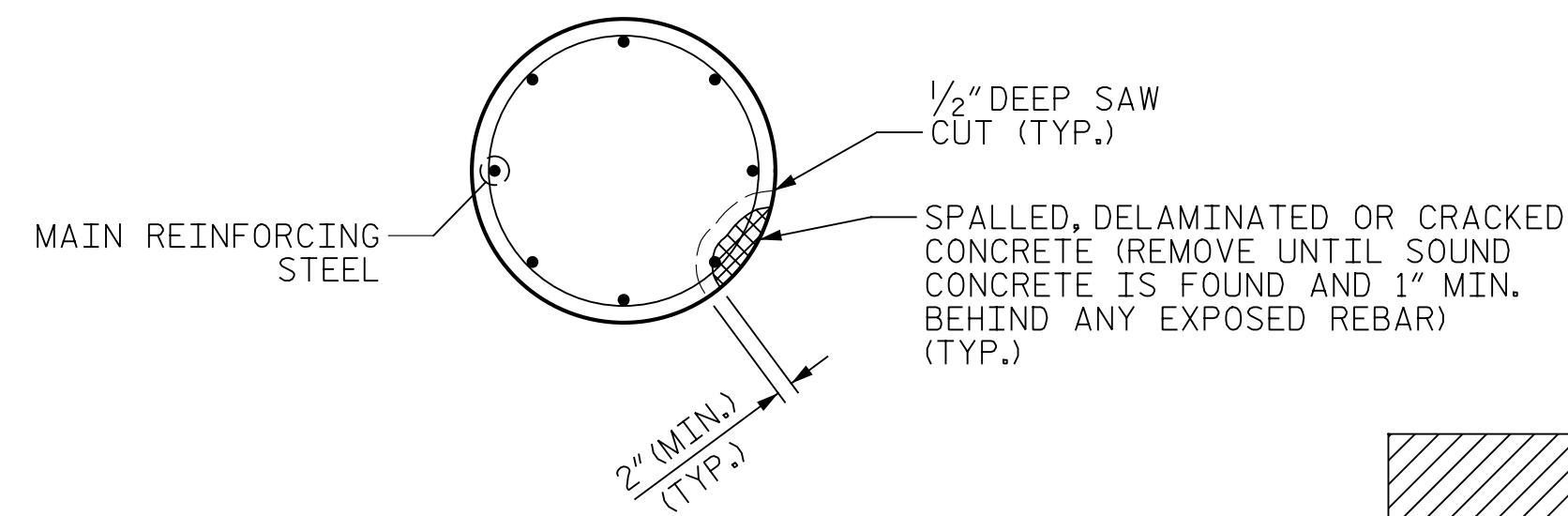


BENT CAP REPAIRS



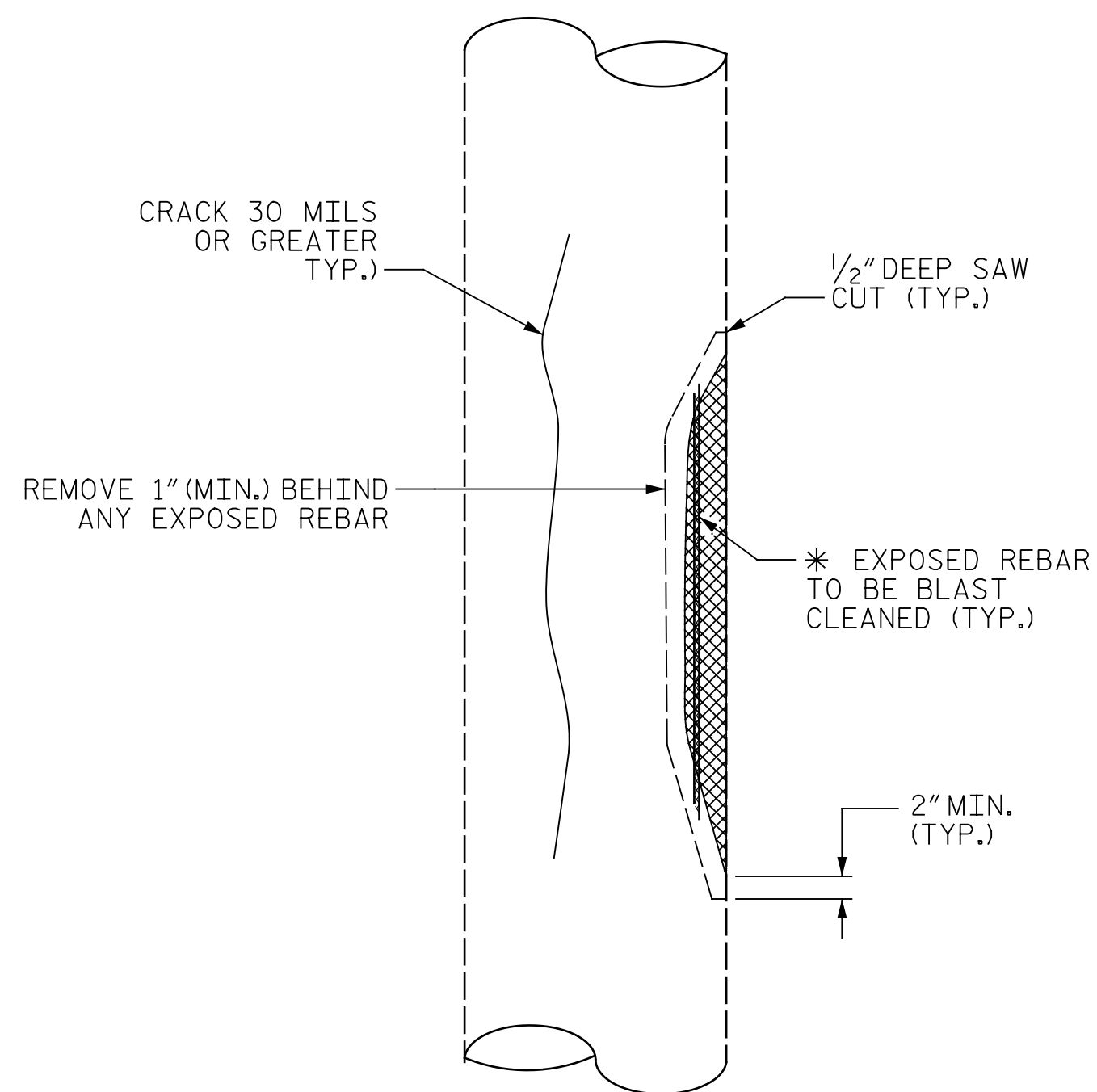
CAP REPAIR

SECTION A-A



REPAIR KEY

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

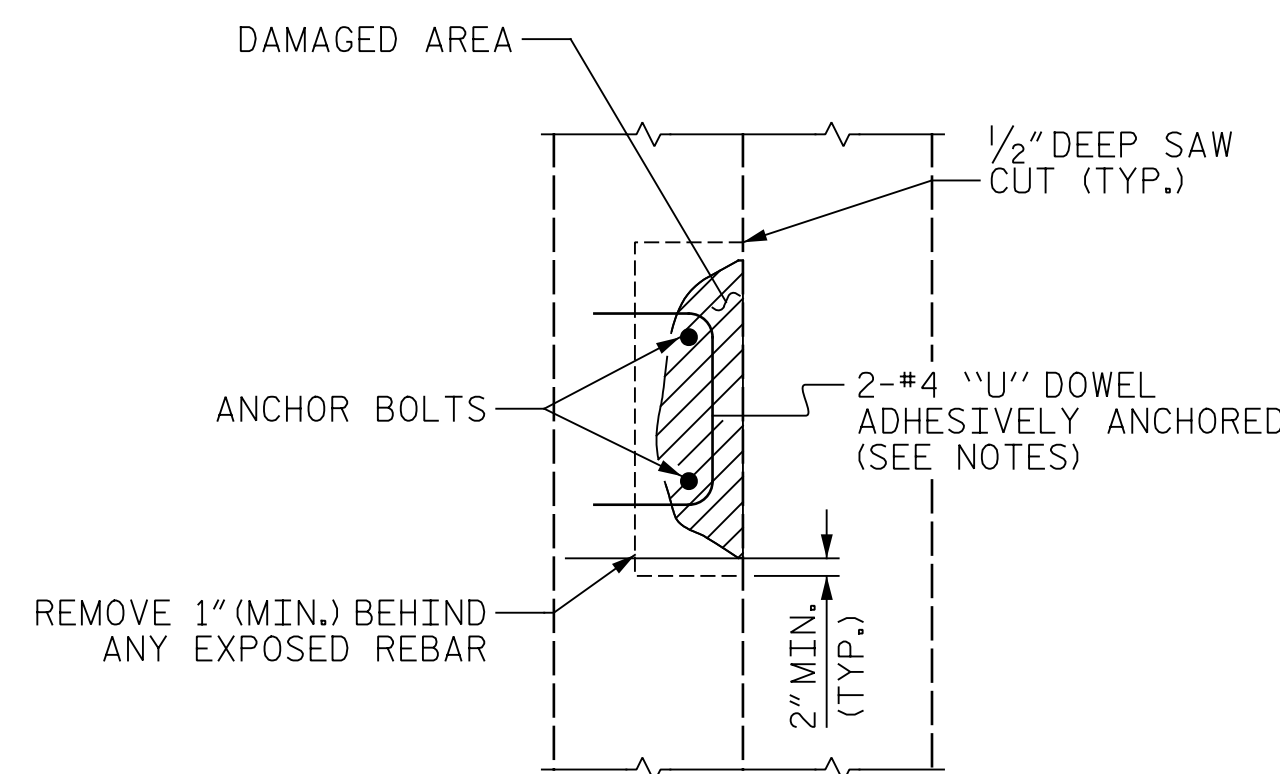


\* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

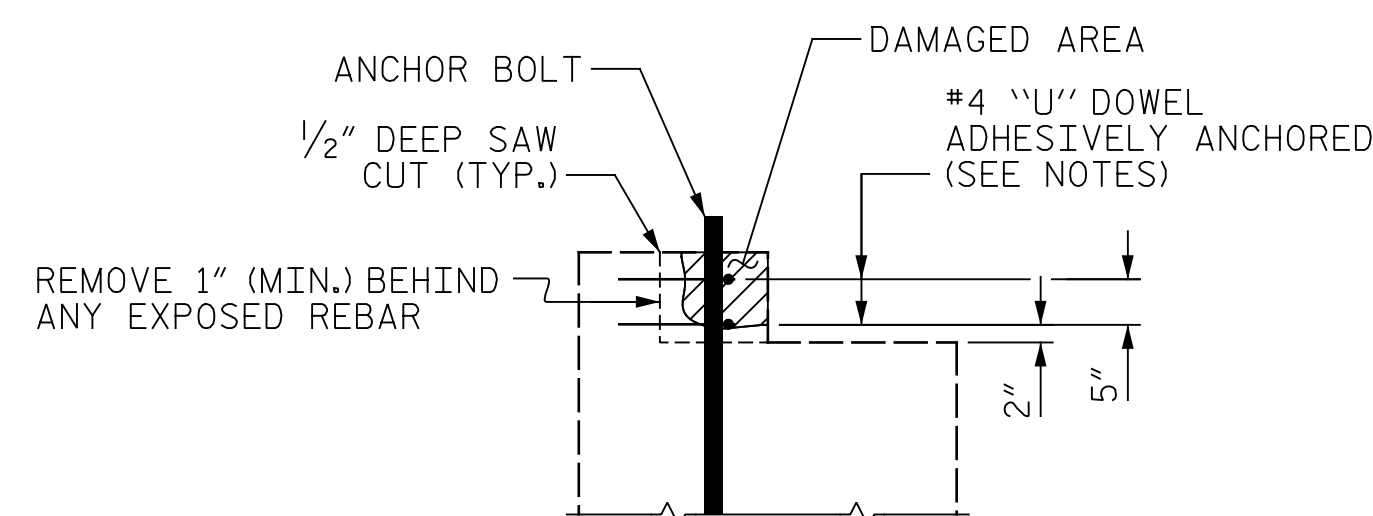
ELEVATION OF COLUMN

COLUMN REPAIR

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"



PLAN



ELEVATION

PEDESTAL WALL 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 SAWCUT.

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

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

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

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

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
 BRIDGE NO. 250053



DocuSigned by:  
 Eric B. Nelson 12/3/2021

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

TYPICAL  
 CAP AND COLUMN  
 REPAIR DETAILS

DRAWN BY : J. MYA DATE : 01/2021  
 CHECKED BY : J. YANACCONI DATE : 01/2021

PLANS PREPARED BY:  
 2610 Wycliff Road  
 Suite 102  
 Raleigh NC 27607-3073  
 (919) 420-7660  
 Excellence Delivered As Promised [NC Lic. No. F-0270]

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-17
2			4			TOTAL SHEETS 19

**NOTES**

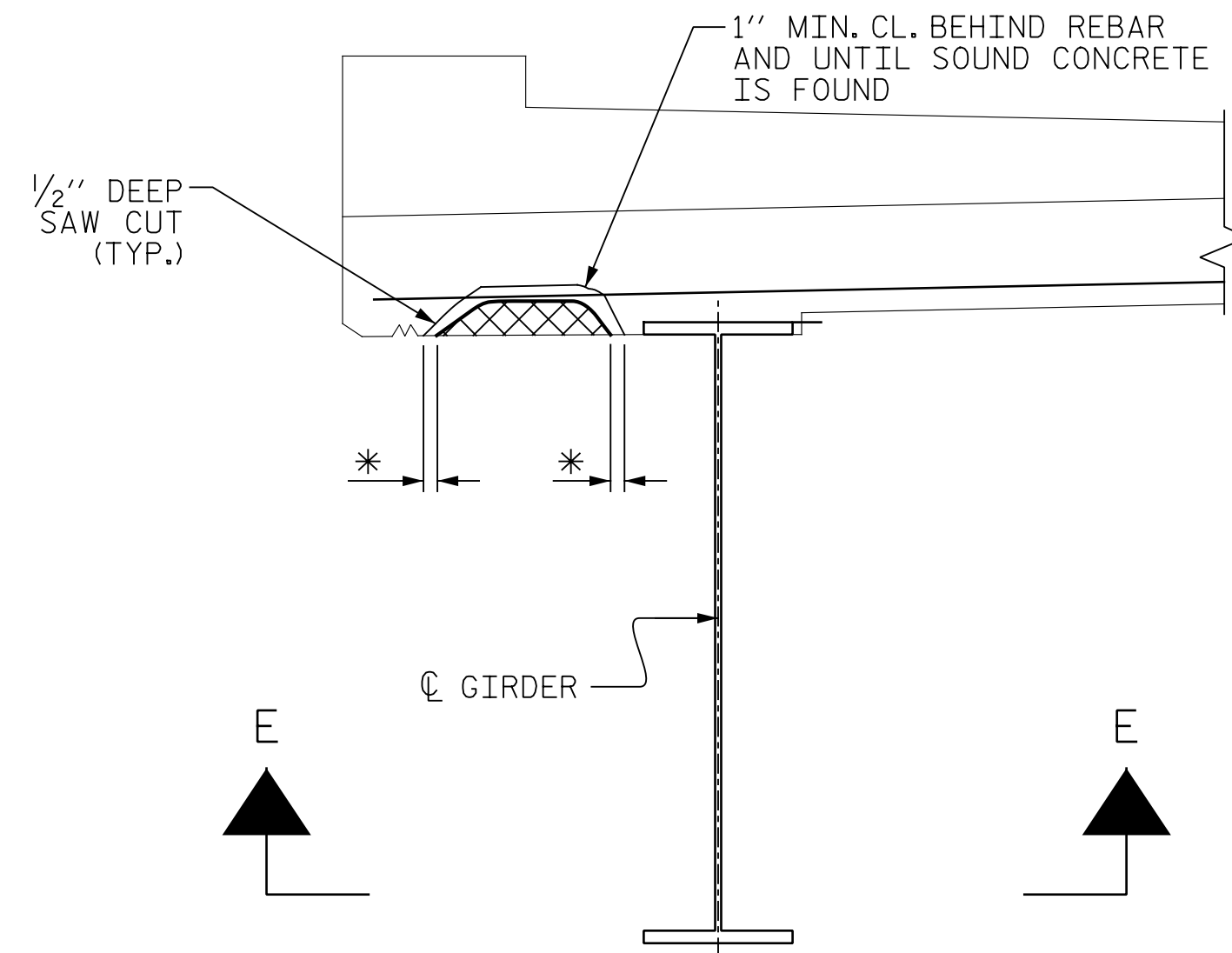
CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" 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.

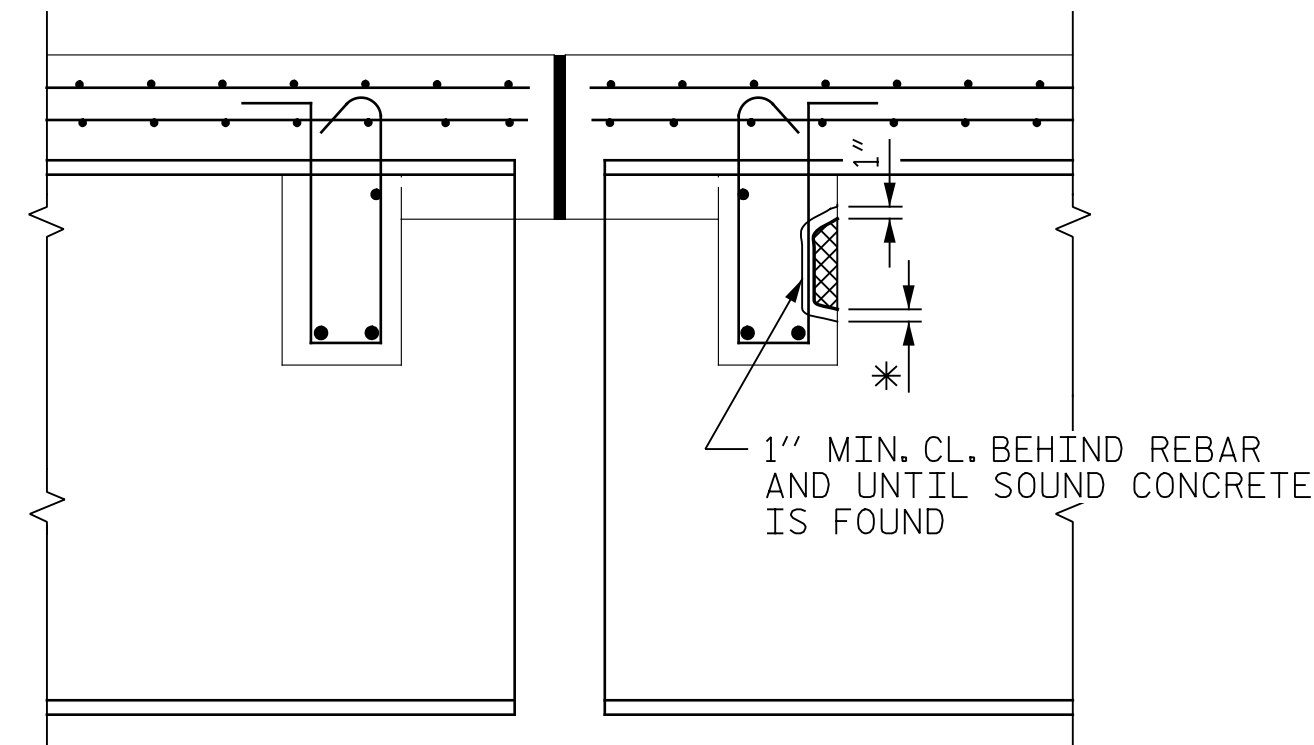
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE DIAPHRAGM REPAIR, SEE SPECIAL PROVISIONS.

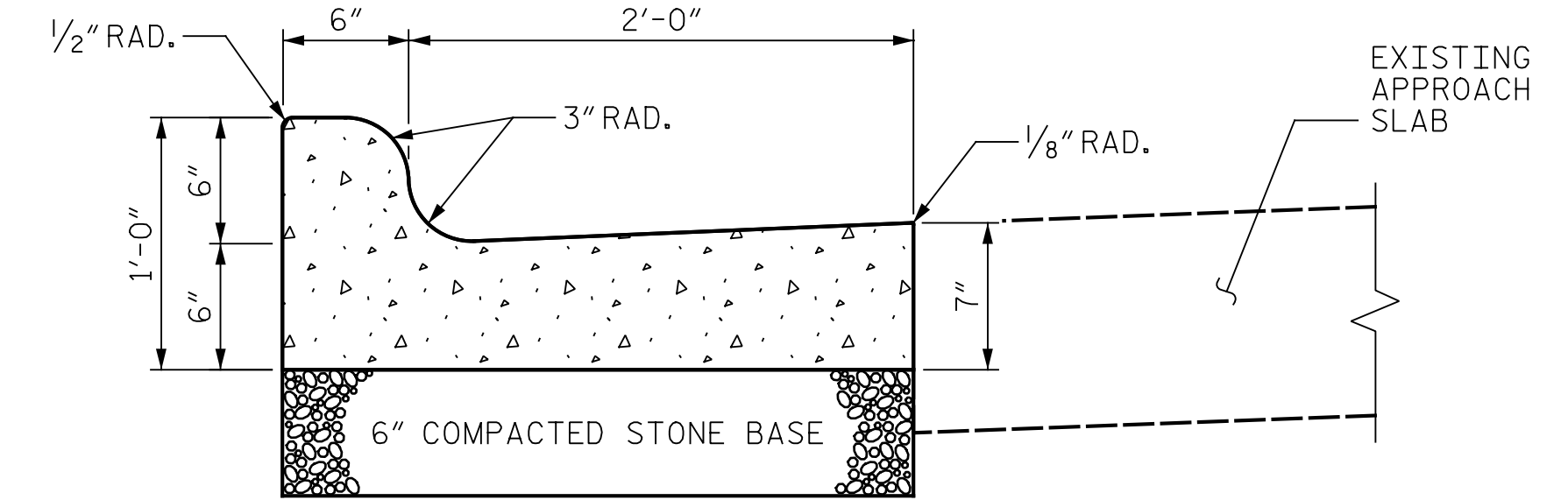


**TYPICAL SECTION**

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



**TYPICAL SECTION AT EXPANSION JOINTS**



**2'-6" CURB AND GUTTER REPLACEMENT**

**NOTES:**

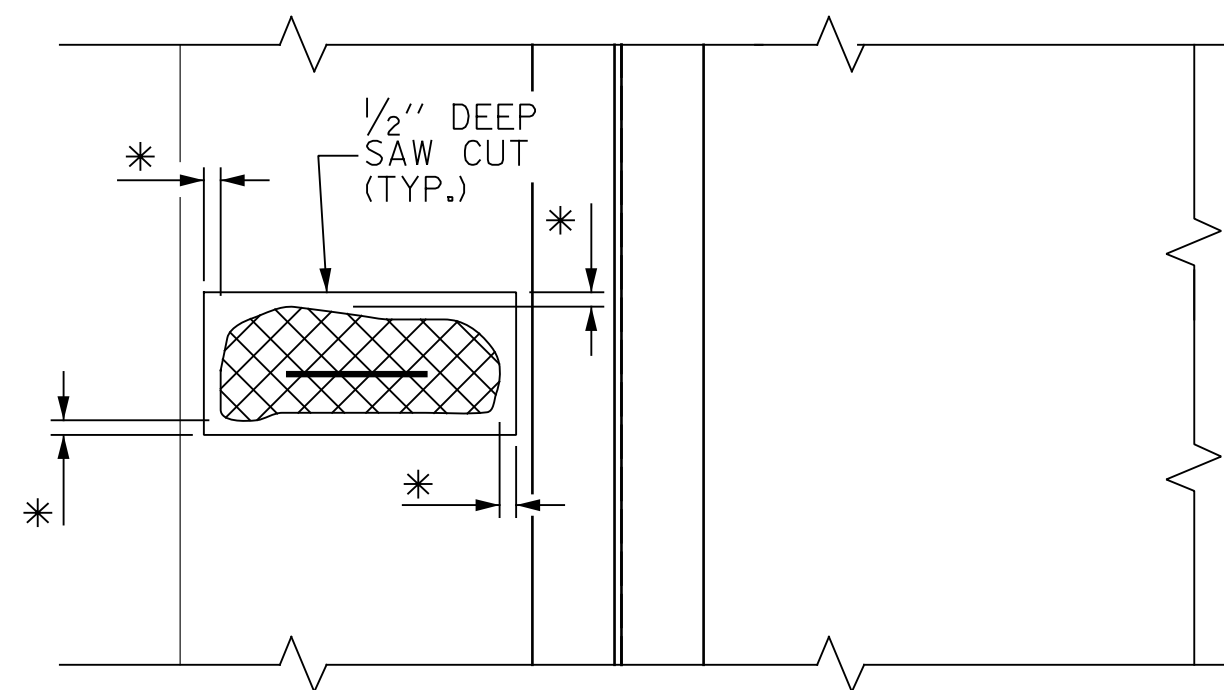
PLACE CONTRACTION JOINTS AT 10' INTERVALS. EXPECT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR SATISFACTORY SUPPORT FOR THE FACE FROM CAN BE OBTAINED WITH THE USE OF TEMPLATES AT 10' INTERVALS.

JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.

CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1/2" DEEP.

FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.

COMPACTED STONE BASE WILL BE PAID FOR AS PART OF THE CONTRACT UNIT PRICE BID FOR 2'-6" CURB & GUTTER.



**SECTION E-E**

**OVERHANG DETAILS**

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



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

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
BRIDGE NO. 250053



DocuSigned by:  
*Eric B. Nelson* 12/3/2021

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

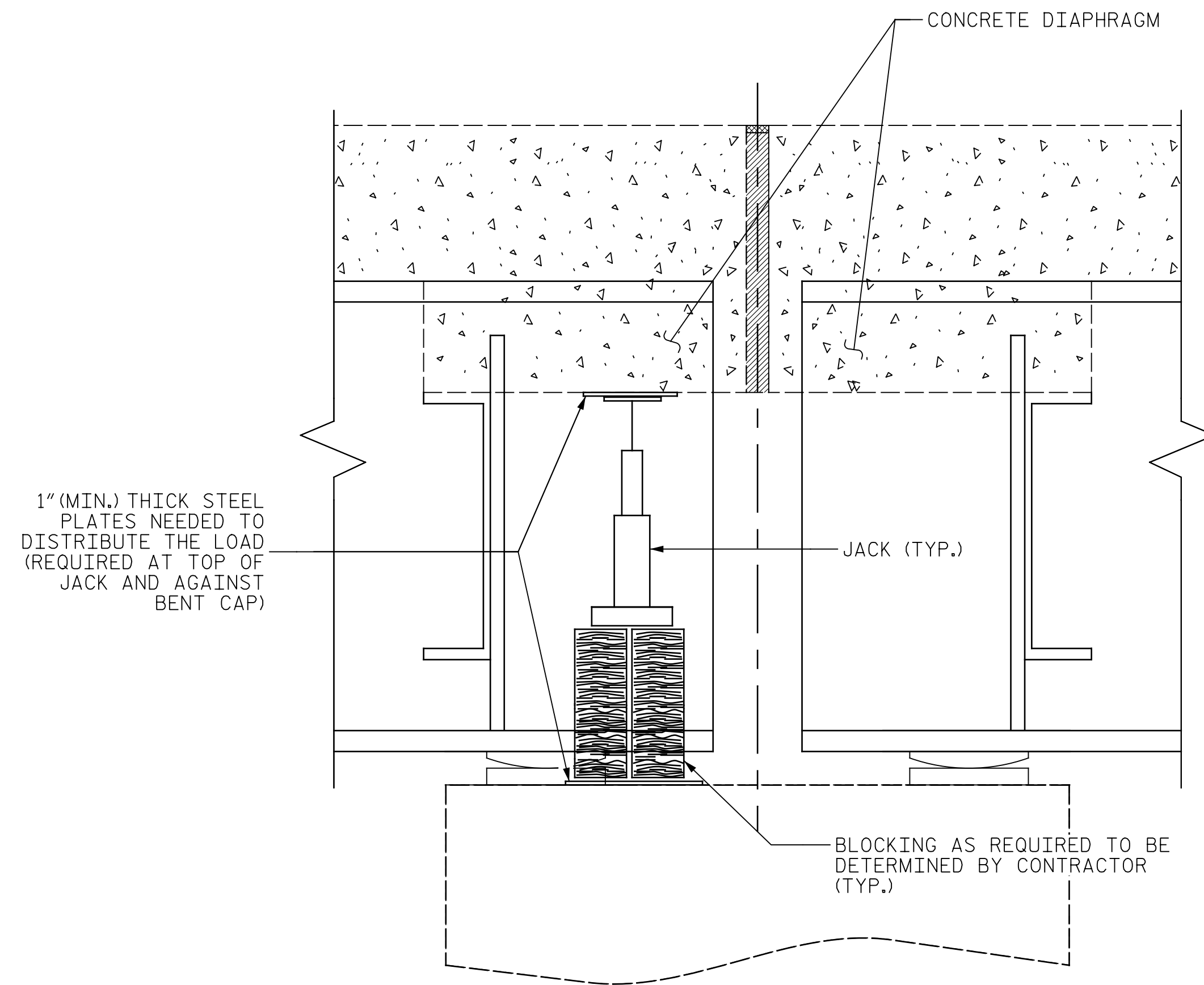
**OVERHANG,  
DIAPHRAGM, AND  
CURB AND GUTTER  
REPAIR DETAILS**

DRAWN BY : J. MYA DATE : 01/2021  
CHECKED BY : J. YANACCONO DATE : 01/2021

PLANS PREPARED BY:  
**Gannett Fleming**  
2610 Wycliff Road  
Suite 102  
Raleigh NC 27607-3073  
(919) 420-7660  
NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-18
2			4			19



SECTION THRU DIAPHRAGM

**JACKING NOTES:**

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

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

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

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

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

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

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

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

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

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

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

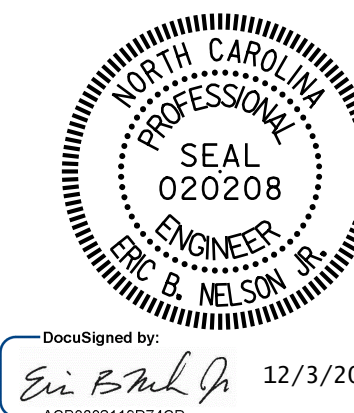
ANY STEEL THAT HAS BEEN WELDED TO THE EXISTING STRUCTURE SHALL REMAIN IN PLACE.

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

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

PROJECT NO. 15BPR.44  
CUMBERLAND COUNTY  
 BRIDGE NO. 250053

BRIDGE JACKING TABLE				
LOCATION	SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)
BENT 1	A	1-15	I	23.6
	B	1-15	I	62.6
BENT 2	B	1-15	I	62.6
	C	1-15	I	62.6
BENT 3	C	1-15	I	62.6
	D	1-15	I	21.7



DocuSigned by:  
 Eric B. Nelson  
 12/3/2021  
 ACB80211907ACD

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**JACKING DETAILS**

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

DRAWN BY : J. MYA DATE : 01/2021  
 CHECKED BY : J. YANACCONE DATE : 01/2021

PLANS PREPARED BY:  
**Gannett Fleming**  
 Excellence Delivered As Promised  
 2610 Wycliff Road  
 Suite 102  
 Raleigh NC 27607-3073  
 (919) 420-7660  
 NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

## STANDARD NOTES

### DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
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 A.A.S.H.T.O.
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 2018 "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  $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO  $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A  $\frac{1}{4}$ " 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  $\frac{1}{4}$ " 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  $\frac{7}{8}$ "  $\emptyset$  SHEAR STUDS FOR THE  $\frac{3}{4}$ "  $\emptyset$  STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF  $\frac{7}{8}$ "  $\emptyset$  STUDS ALONG THE BEAM AS SHOWN FOR  $\frac{3}{4}$ "  $\emptyset$  STUDS BASED ON THE RATIO OF 3 -  $\frac{7}{8}$ "  $\emptyset$  STUDS FOR 4 -  $\frac{3}{4}$ "  $\emptyset$  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  $\frac{5}{16}$ " 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  $\frac{1}{16}$ " INCH 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. FINISHES 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.

ENGLISH

JANUARY, 1990