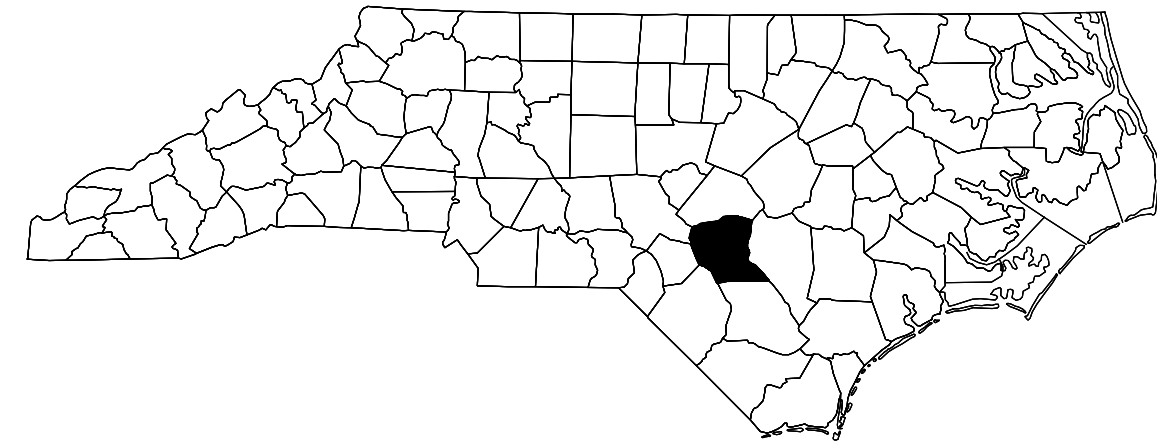


CONTRACT NO: C205009 PROJECT: 15BPR.126.3/6B.102611



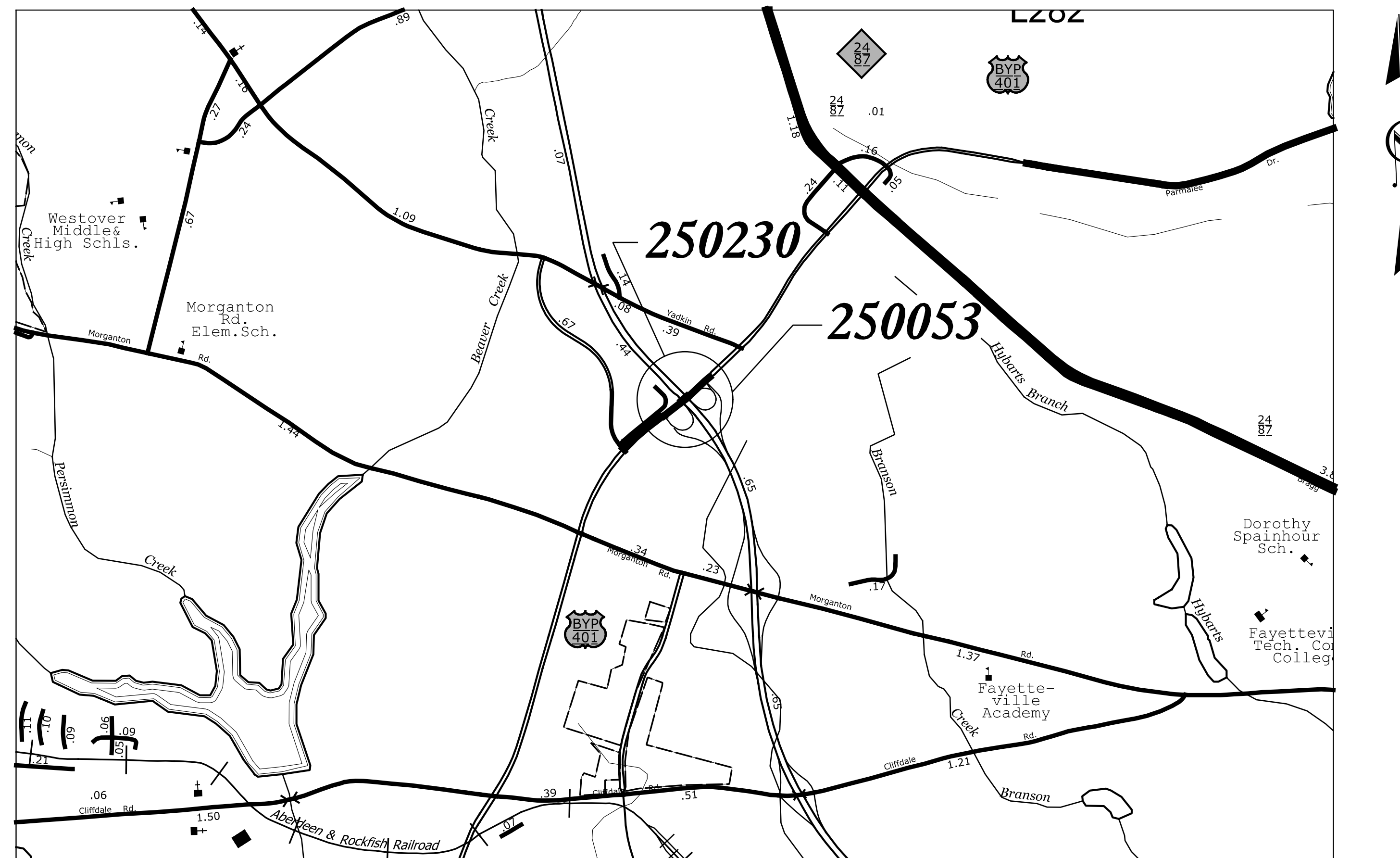
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

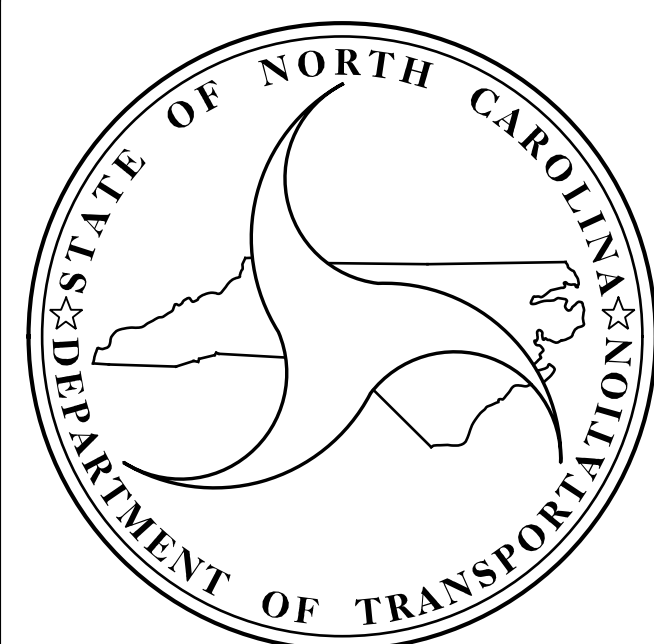
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N.C.	15BPR.126.3 / 6B.102611	1	20
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.126.1	-	P.E.	
15BPR.126.3	-	CONST.	
6B.102611	-	P.E.	
6B.102611	-	CONST.	

LOCATION: 15BPR.126.3 - BRIDGE #250053 ON US 401 BYPASS (SKIBO ROAD) OVER SR 1007 (ALL AMERICAN FREEWAY).
 6B.102611 - BRIDGE #250230 CARRYING ABANDONED RR OVER SR 1007 (ALL AMERICAN FREEWAY).

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



VICINITY MAP - CUMBERLAND COUNTY



DESIGN DATA
 CUMBERLAND COUNTY
 #250053 ADT 2021 = 53,000

PROJECT LENGTH
 CUMBERLAND COUNTY
 #250053 = 0.04 MILE
 #250230 = 0.04 MILE



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

TIMOTHY M. SHERRILL, P.E.
 NCDOT PROJECT ENGINEER

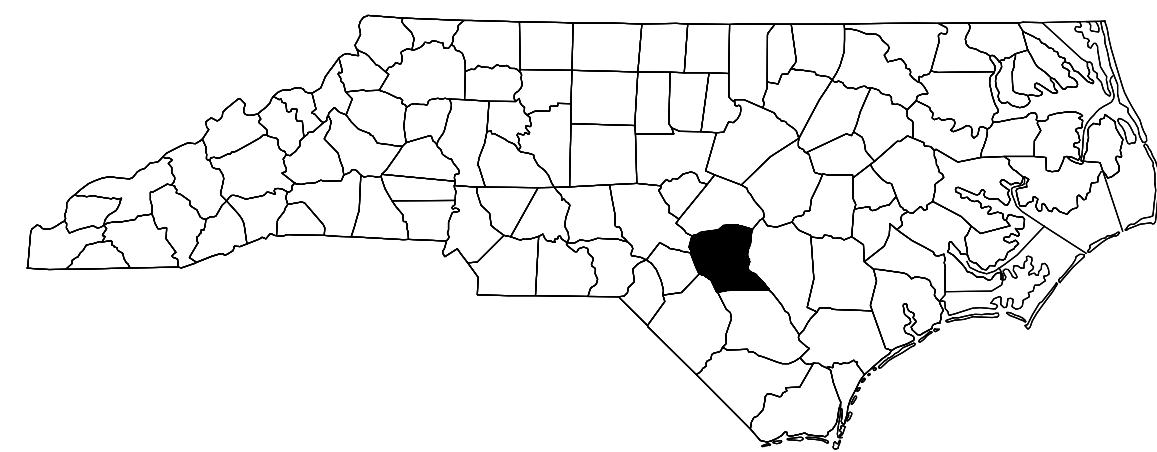
2024 STANDARD SPECIFICATIONS

LETTING DATE:
 NOVEMBER 19, 2024



Documented by: *Eric B. Nelson, Jr.* 10/29/2024
RICK NELSON, P.E.
 PROJECT DESIGN ENGINEER

CONTRACT NO: C205009 PROJECT: 15BPR.126.3/6B.102611



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.126.3 / 6B.102611	1A	20
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
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15BPR.126.3	-	CONST.	
6B.102611	-	P.E.	
6B.102611	-	CONST.	

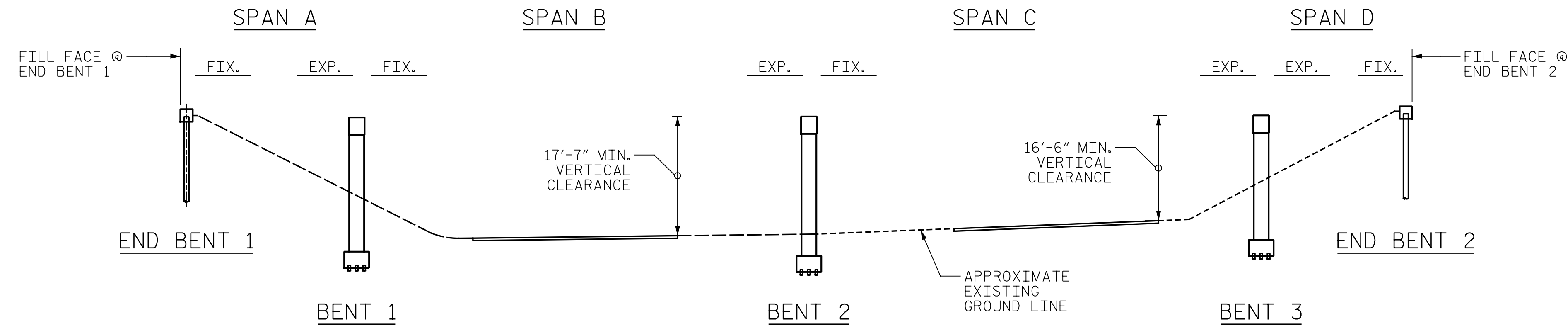
LOCATION: 15BPR.126.3 - BRIDGE #250053 ON US 401 BYPASS (SKIBO ROAD) OVER SR 1007 (ALL AMERICAN FREEWAY).
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TYPE OF WORK: BRIDGE REHABILITATION - DECK REPAIRS, POLYMER CONCRETE OVERLAY, JOINT REPLACEMENTS, BEARING REPLACEMENTS, SUBSTRUCTURE REPAIR, CLEANING AND ZONE PAINTING AND PAINTING OF EXISTING STEEL BRIDGE STRUCTURE.

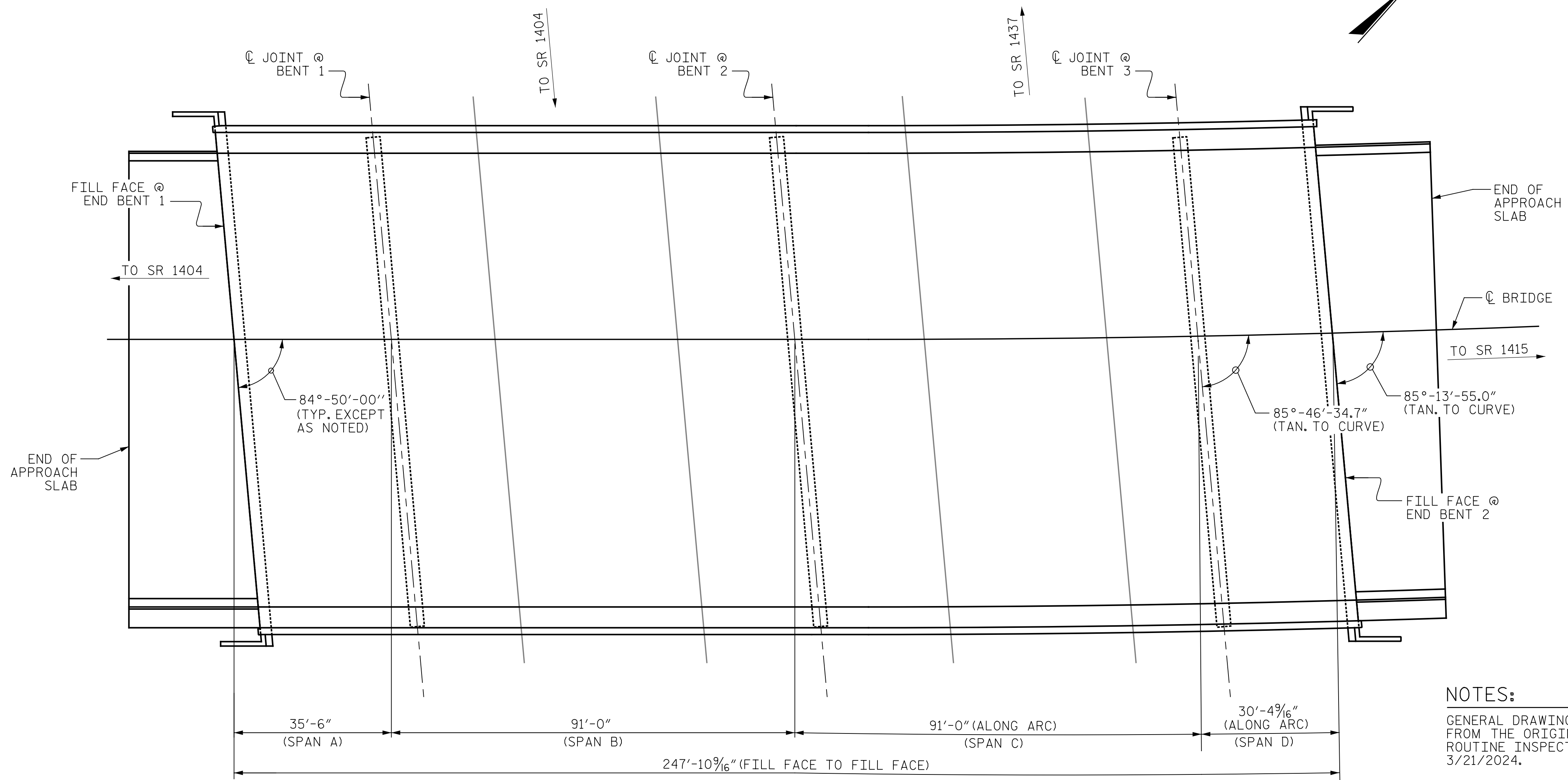
INDEX OF DRAWINGS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
1A	INDEX OF DRAWINGS
S-1	TOTAL BILL OF MATERIAL
SI-1 TO SI-2	GENERAL DRAWING 250053
SI-3	TYPICAL SECTION AND SURFACE PREPARATION DETAILS
SI-4 TO SI-5	DECK REPAIRS
SI-6	JOINT DETAILS
SI-7 TO SI-8	BEARING DETAILS
SI-9	SUBSTRUCTURE REPAIRS - END BENT 1 & 2
SI-10 TO SI-11	SUBSTRUCTURE REPAIRS - BENT 1
SI-12 TO SI-13	SUBSTRUCTURE REPAIRS - BENT 2
SI-14 TO SI-15	SUBSTRUCTURE REPAIRS - BENT 3
SI-16	APPROACH MILLING AND TYPICAL ROADWAY SECTIONS
SI-17	TYPICAL CAP AND COLUMN REPAIR DETAILS
SI-18	OVERHANG, DIAPHRAGM AND CURB AND GUTTER REPAIR DETAILS
SI-19	BRIDGE JACKING DETAILS
S2-1	GENERAL DRAWING 250230
SN	STANDARD NOTES

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SECTION ALONG $\text{\textcircled{C}}$ 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

1. FIELD VERIFY AND MEASURE EXISTING BEARING HEIGHTS FOR PREPARATION OF SHOP DRAWINGS.
2. PERFORM BEAM OR SPAN JACKING AS REQUIRED. PERFORM BEARING REPLACEMENTS. PERFORM NECESSARY CONCRETE REPAIRS TO DELAMINATED OR OTHERWISE DETERIORATED AREAS OF CAP UNDER OR ADJACENT TO BEARINGS.
3. PERFORM SHOTCRETE, CONCRETE OR EPOXY RESIN INJECTION REPAIRS TO THE SUBSTRUCTURE.
4. PERFORM DECK SURFACE PREPARATION AND PLACE PC OVERLAY.
5. RECONSTRUCT CURB AND GUTTER ALONG APPROACH SLABS. PERFORM ROADWAY APPROACH MILLING. PLACE ASPHALT RESURFACING TO TIE APPROACHES TO BRIDGE DECK.
6. INSTALL FOAM JOINTS.
7. 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.126.3
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 3/21/2024.

BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
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1			3			S1-1
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DRAWN BY: J. MYA DATE: 01/2021
 CHECKED BY: J. YANACCONO DATE: 01/2021

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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.

BRIDGE COORDINATES	
BRIDGE 250053	
LATITUDE	LONGITUDE
35°-04'-37.13"	78°-57'-35.30"

BRIDGE COORDINATES	
BRIDGE 250230	
LATITUDE	LONGITUDE
35°-04'-37.62"	78°-57'-35.60"

GENERAL NOTES

SEE CONTRACT DOCUMENTS 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 CONTRACT DOCUMENTS.

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

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 CONTRACT DOCUMENTS.

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 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 PC 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.

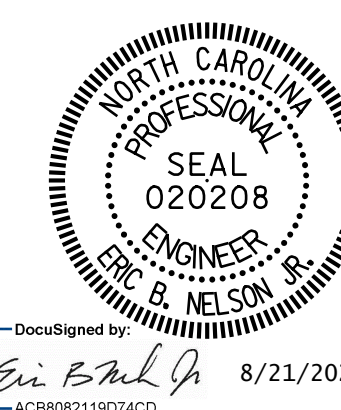
FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

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

PROJECT NO. 15BPR.126.3
CUMBERLAND COUNTY
 BRIDGE NO. 250053

SHEET 2 OF 2



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

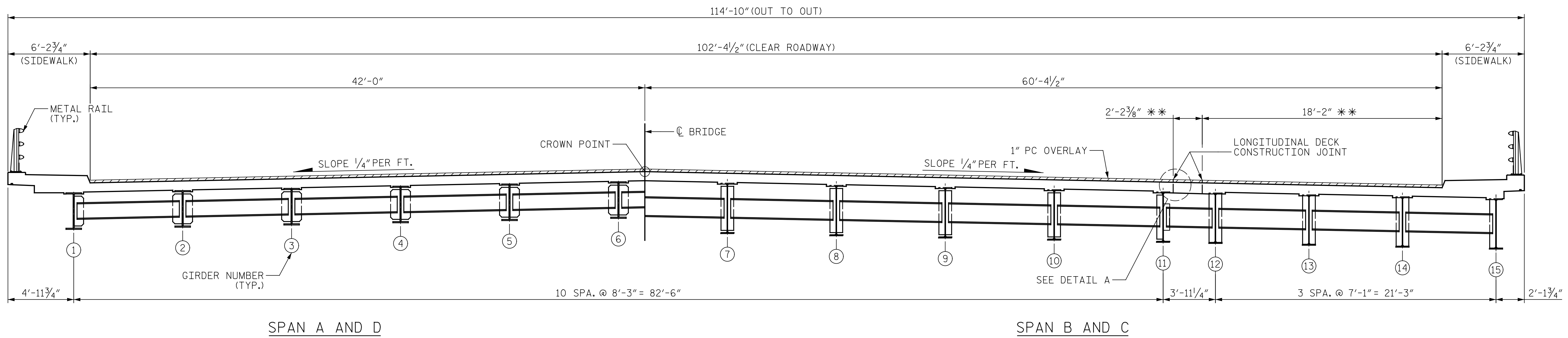
DRAWN BY : J. MYA DATE : 01/2021
 CHECKED BY : J. YANACCONI DATE : 01/2021



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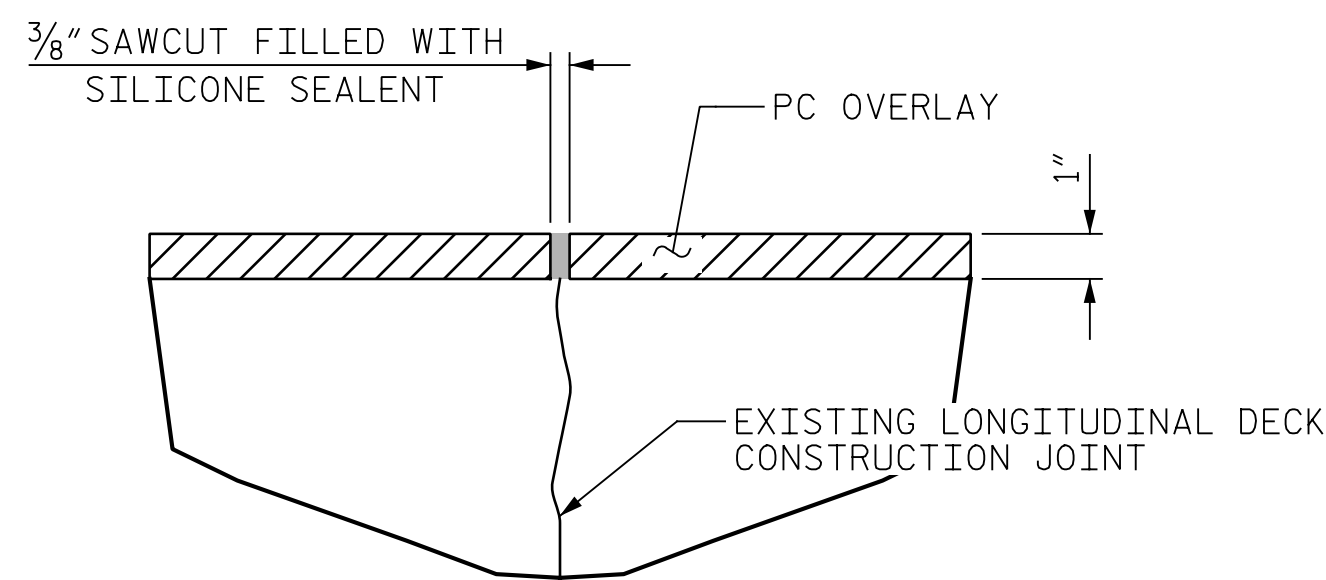


SPAN A AND D

SPAN B AND C

TYPICAL SECTION
(PROPOSED)

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



DETAIL A
(TYP. ALL LONGITUDINAL DECK CONSTRUCTION JOINTS)

NOTES:

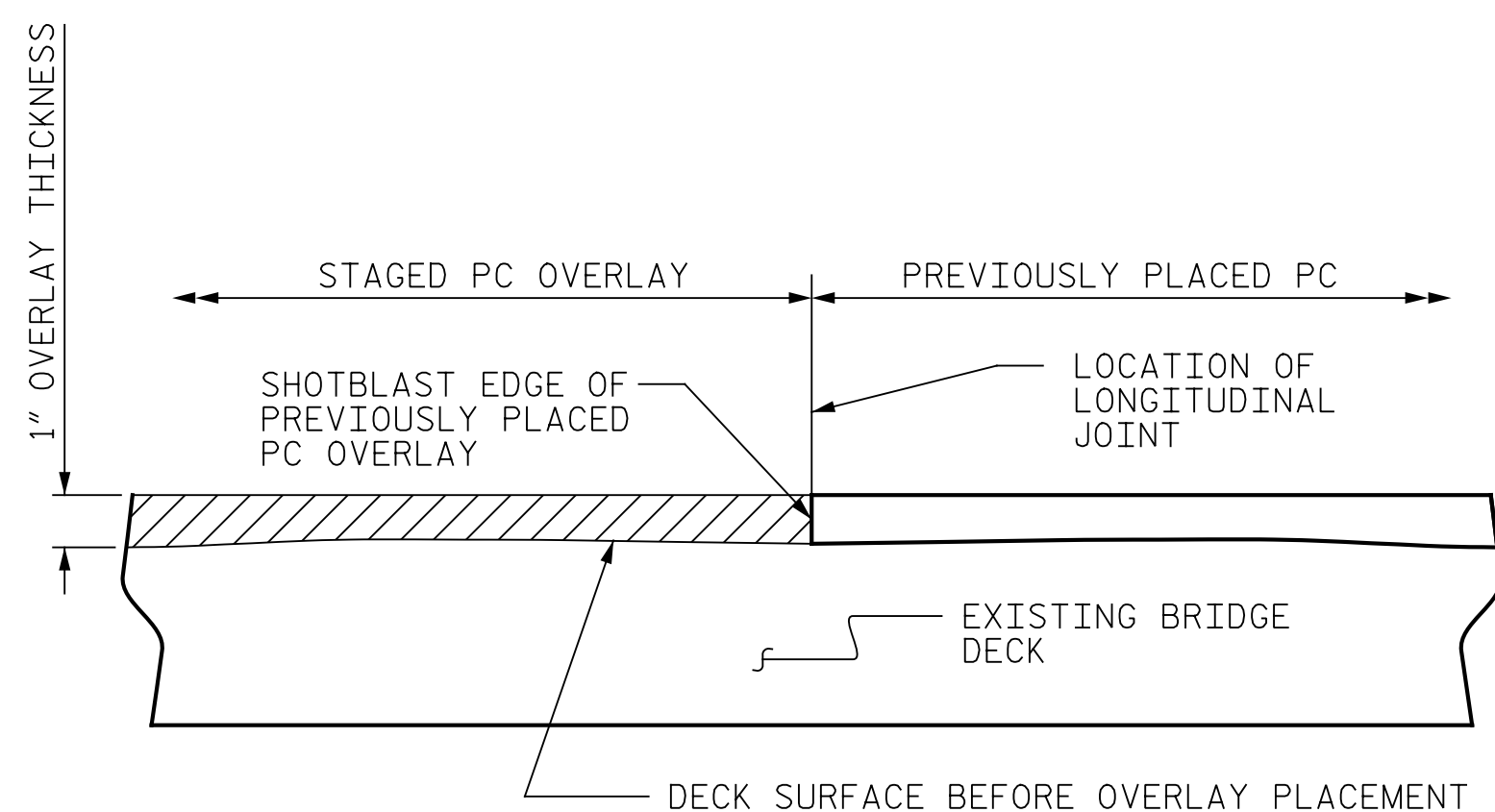
SEE CONTRACT DOCUMENTS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND POLYMER CONCRETE PLACEMENT.

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.

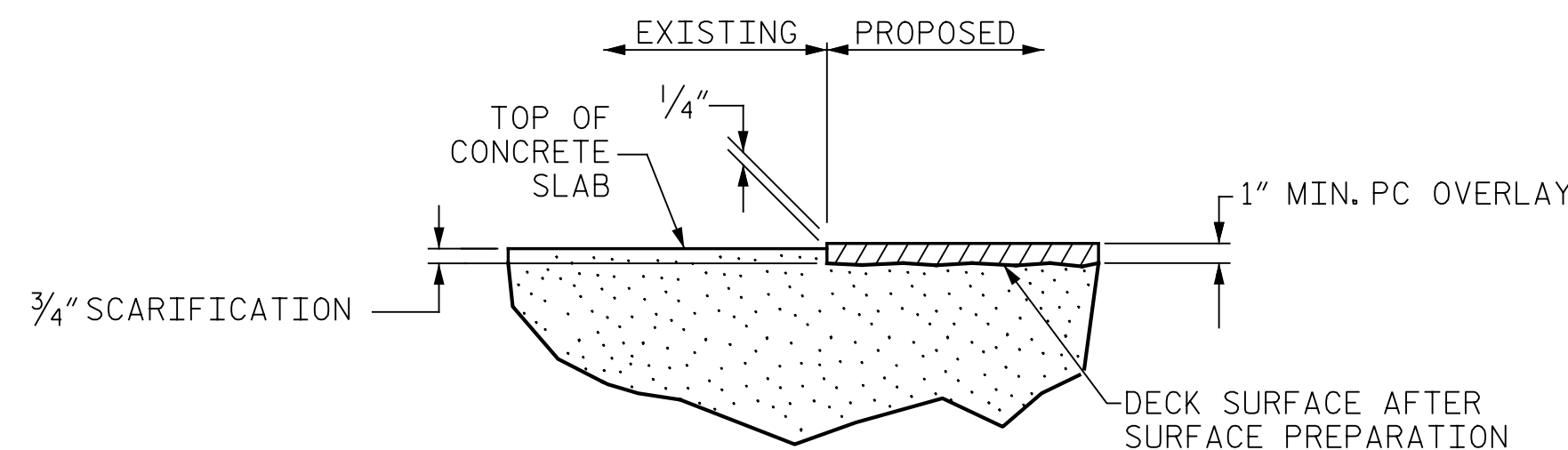
THE LONGITUDINAL JOINT IN THE NEWLY PLACED OVERLAY SHALL BE SAWED PRIOR TO TRAFFIC BEING PLACED ON THE OVERLAY. THE JOINT SHALL BE CLEANED OF ALL DEBRIS BEFORE THE SEALANT IS APPLIED. THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE SL LOW MODULUS SILICONE SEALANT.

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.

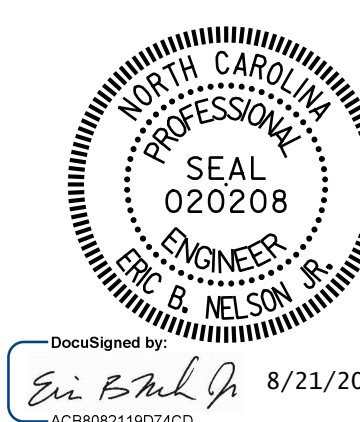


STAGED PC OVERLAY CONSTRUCTION JOINT



DETAIL FOR POLYMER CONCRETE OVERLAY

PROJECT NO. 15BPR.126.3
CUMBERLAND COUNTY
 BRIDGE NO. 250053



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
TYPICAL SECTION AND SURFACE PREPARATION DETAILS

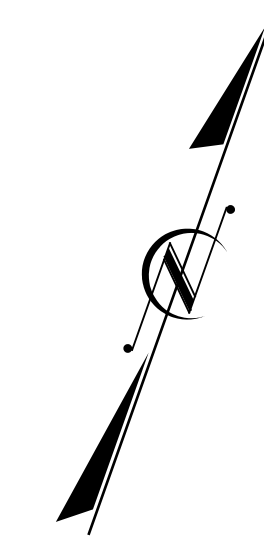
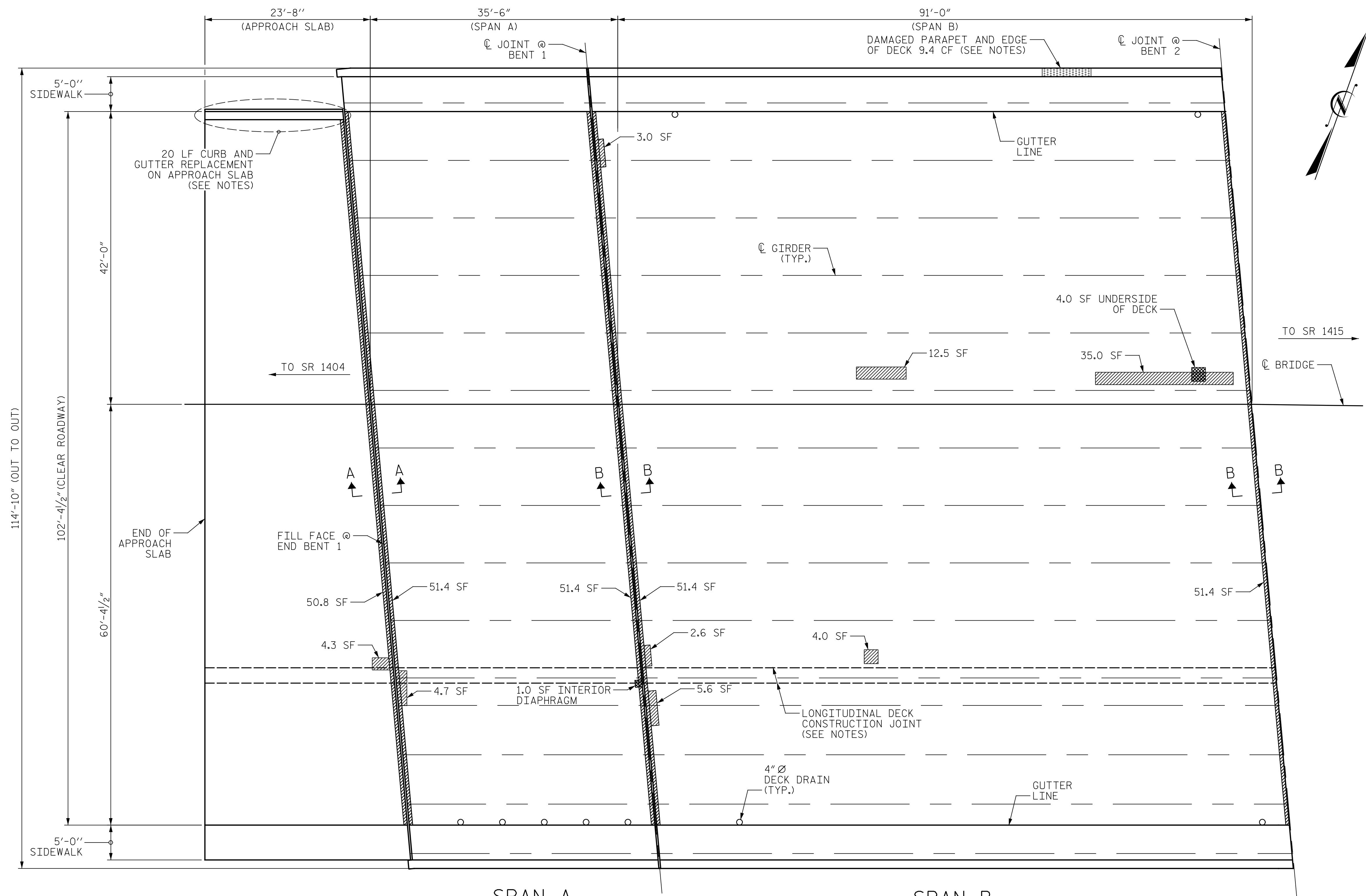
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REPAIR QUANTITY TABLE				
TOP OF DECK REPAIR				
	ESTIMATE		ACTUAL	
SCARIFYING BRIDGE DECK		1708 SY		
CLASS II SURFACE PREPARATION		36.5 SY		
CONCRETE DECK REPAIR FOR POLYMER CONCRETE OVERLAY		36.5 SY		
SHOTBLASTING BRIDGE DECK		1708 SY		
PC MATERIALS		53.4 CY		
PLACING AND FINISHING POLYMER CONCRETE OVERLAY		1708 SY		
GROOVING BRIDGE FLOORS		14575 SF		
CONCRETE REPAIRS		9.4 CF		
UNDERSIDE OF DECK REPAIR				
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	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		

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

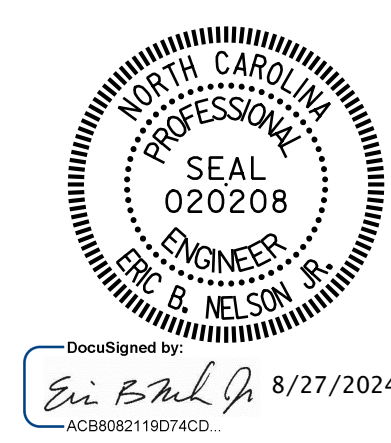
- SCARIFYING AND SHOTBLASTING OF BRIDGE DECK
- APPROX. CLASS II SURFACE PREPARATION
- UNDERSIDE OF DECK SHOTCRETE REPAIR
- CONCRETE REPAIRS

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.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
 SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.
 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.126.3
 CUMBERLAND COUNTY
 BRIDGE NO. 250053

SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 DECK REPAIRS
 SPAN A, B AND
 APPROACH SLAB

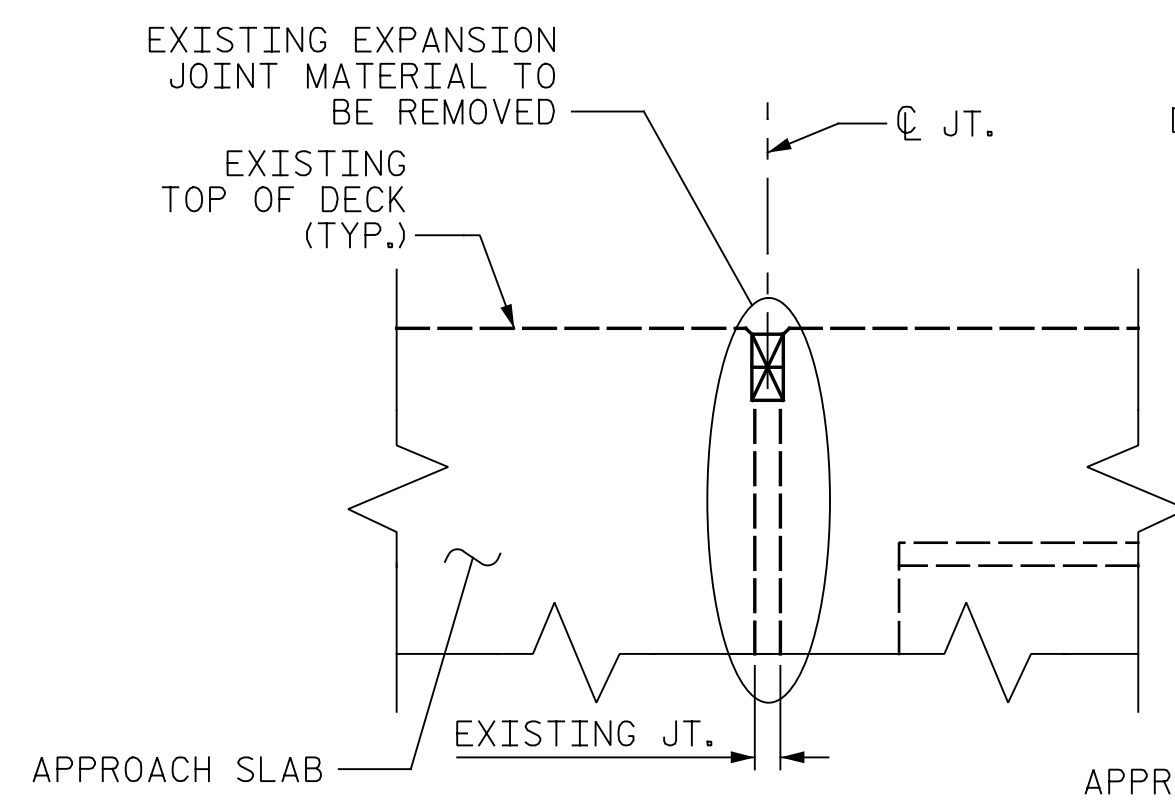
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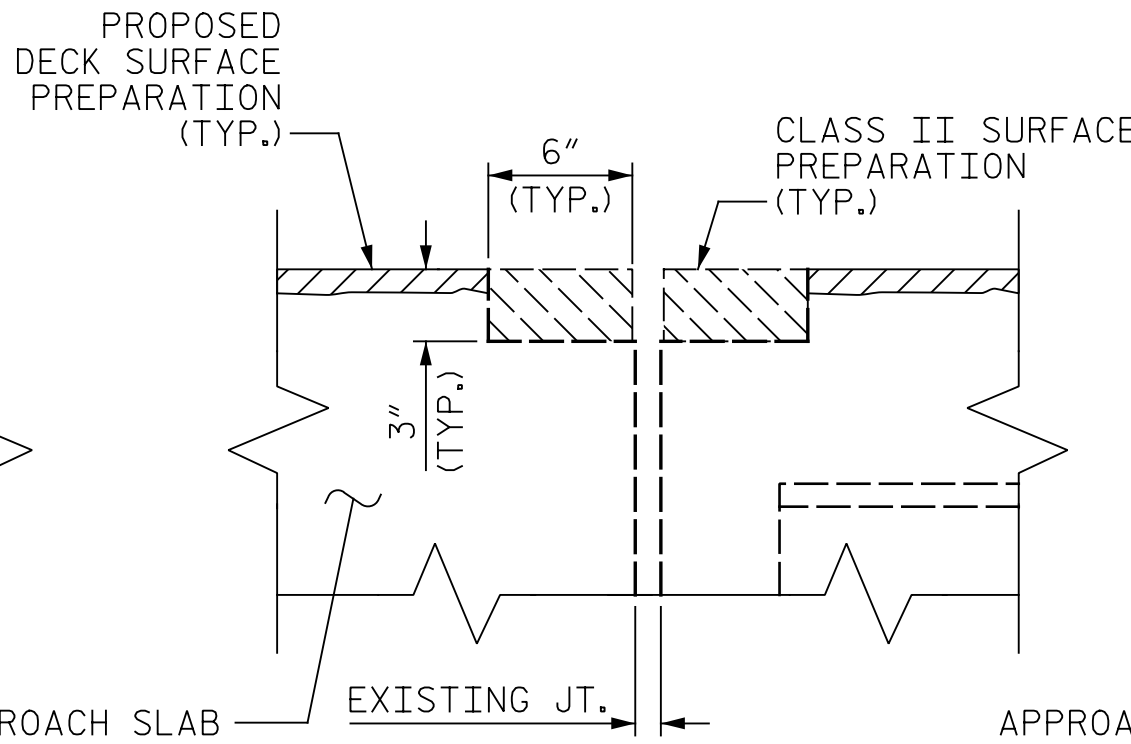
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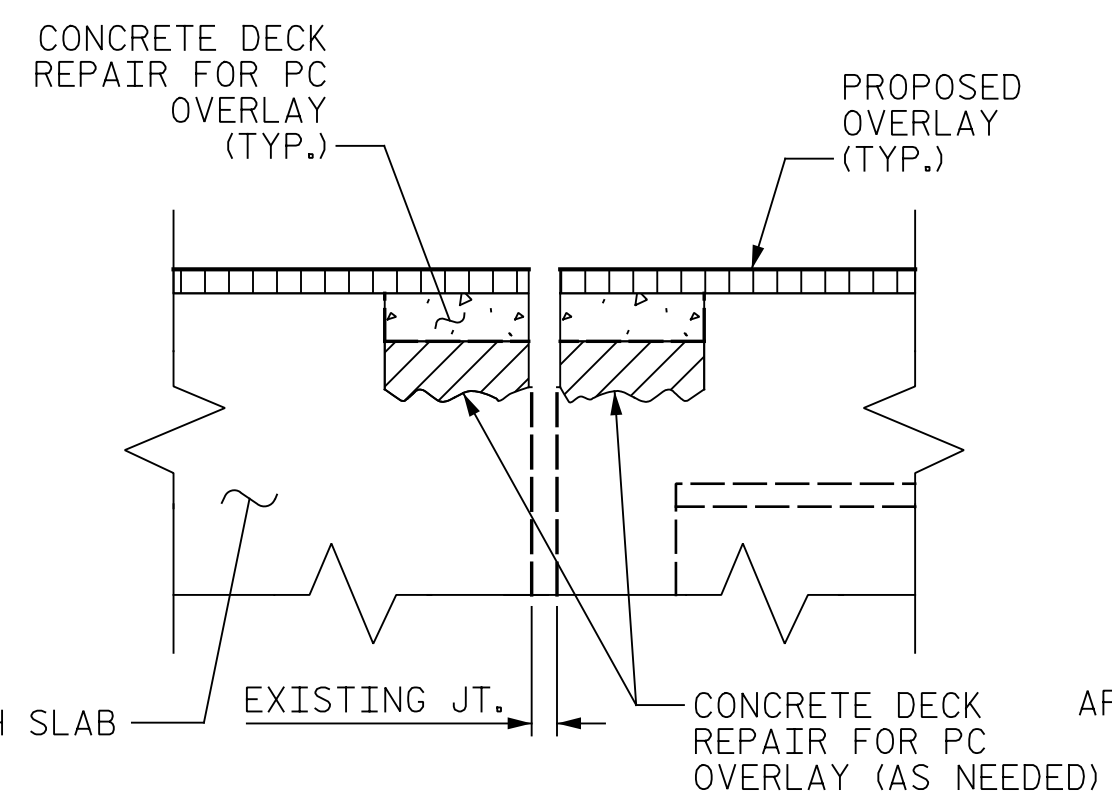


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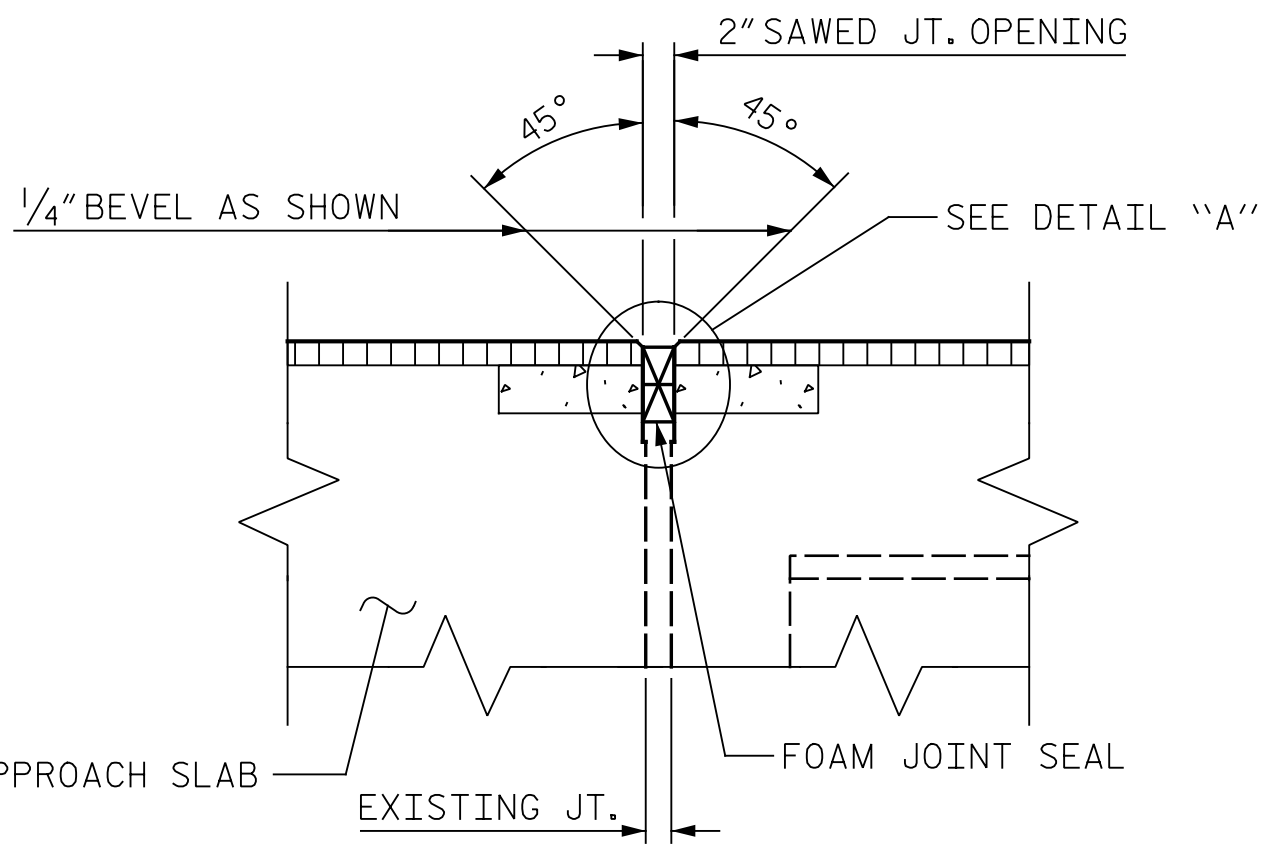
NOTE: RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS REQ'D.



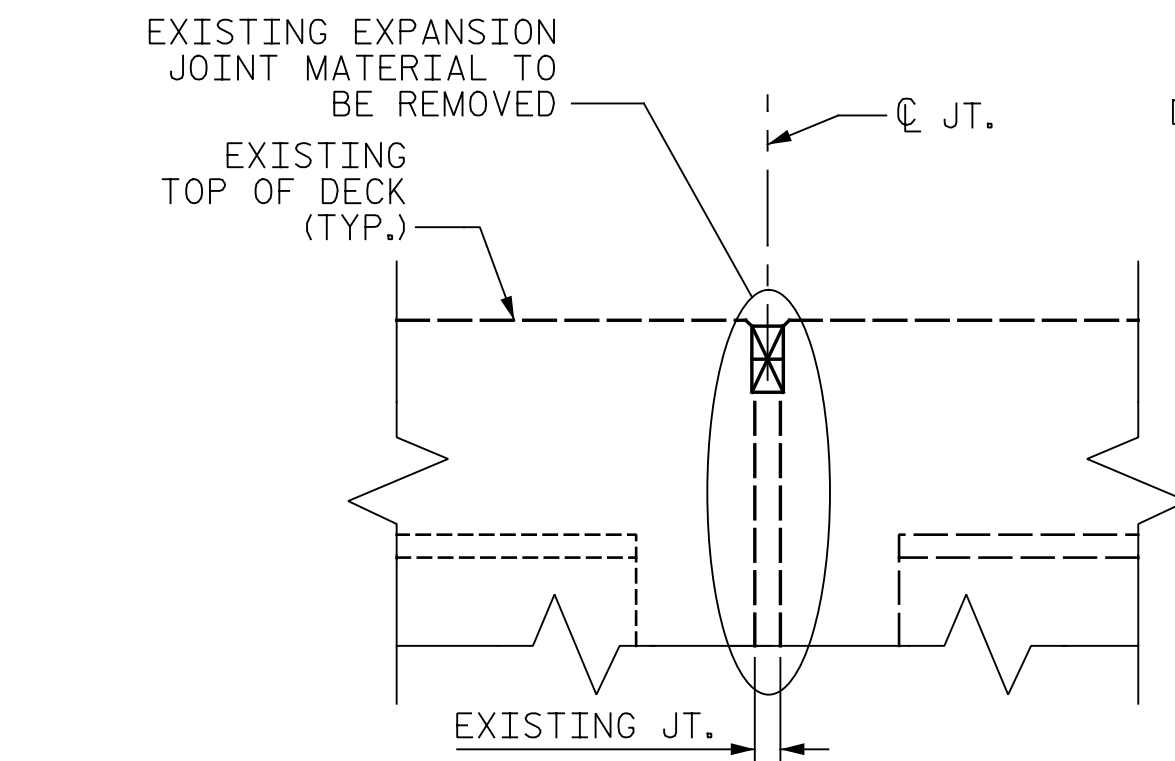
EXISTING JOINT AFTER JOINT DEMOLITION



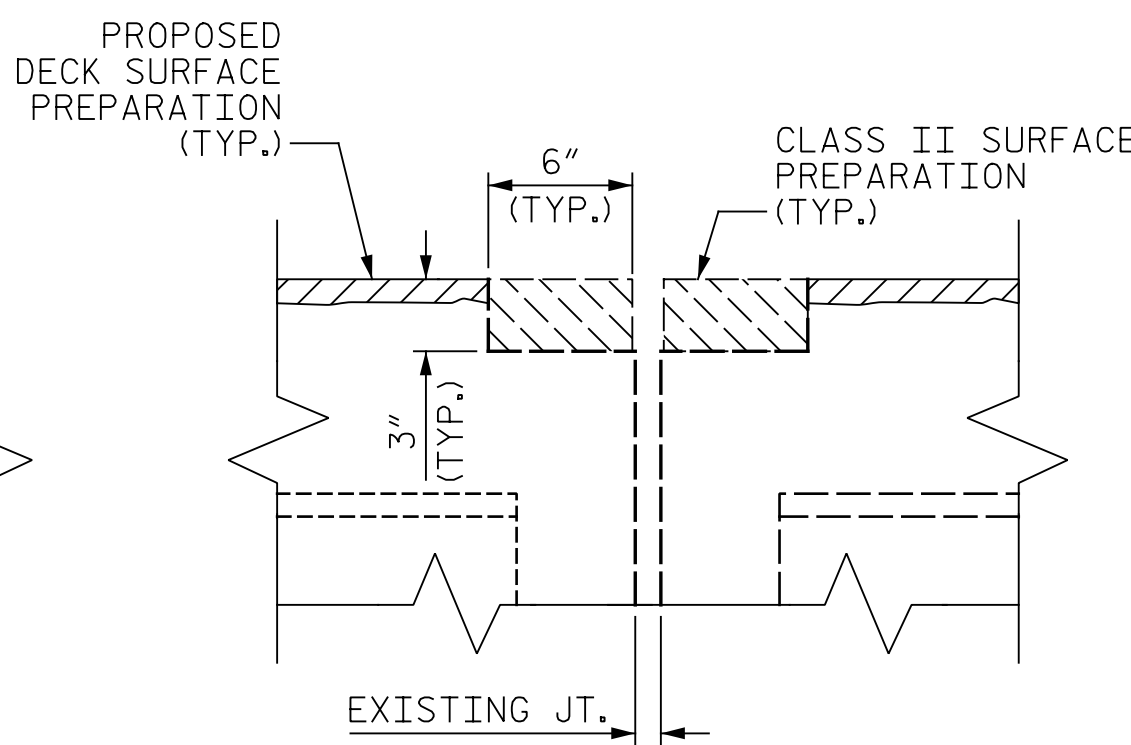
PROPOSED JOINT PRIOR TO SAWING



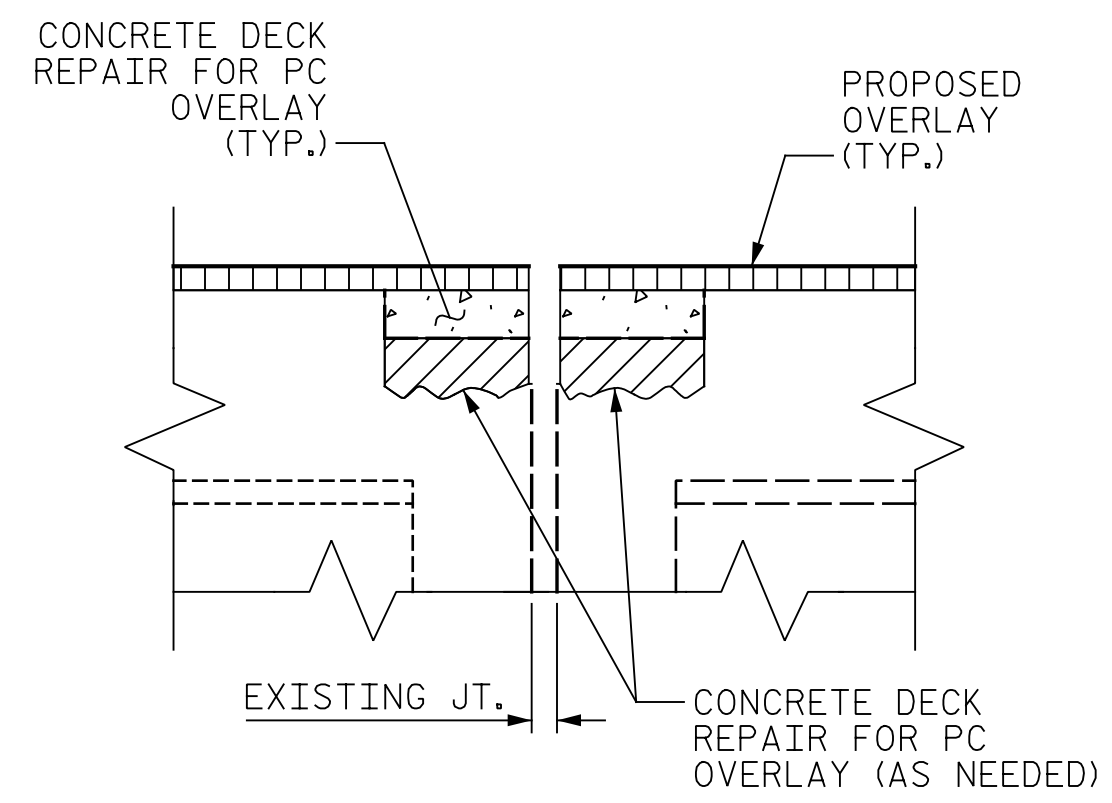
PROPOSED FOAM JOINT SEAL



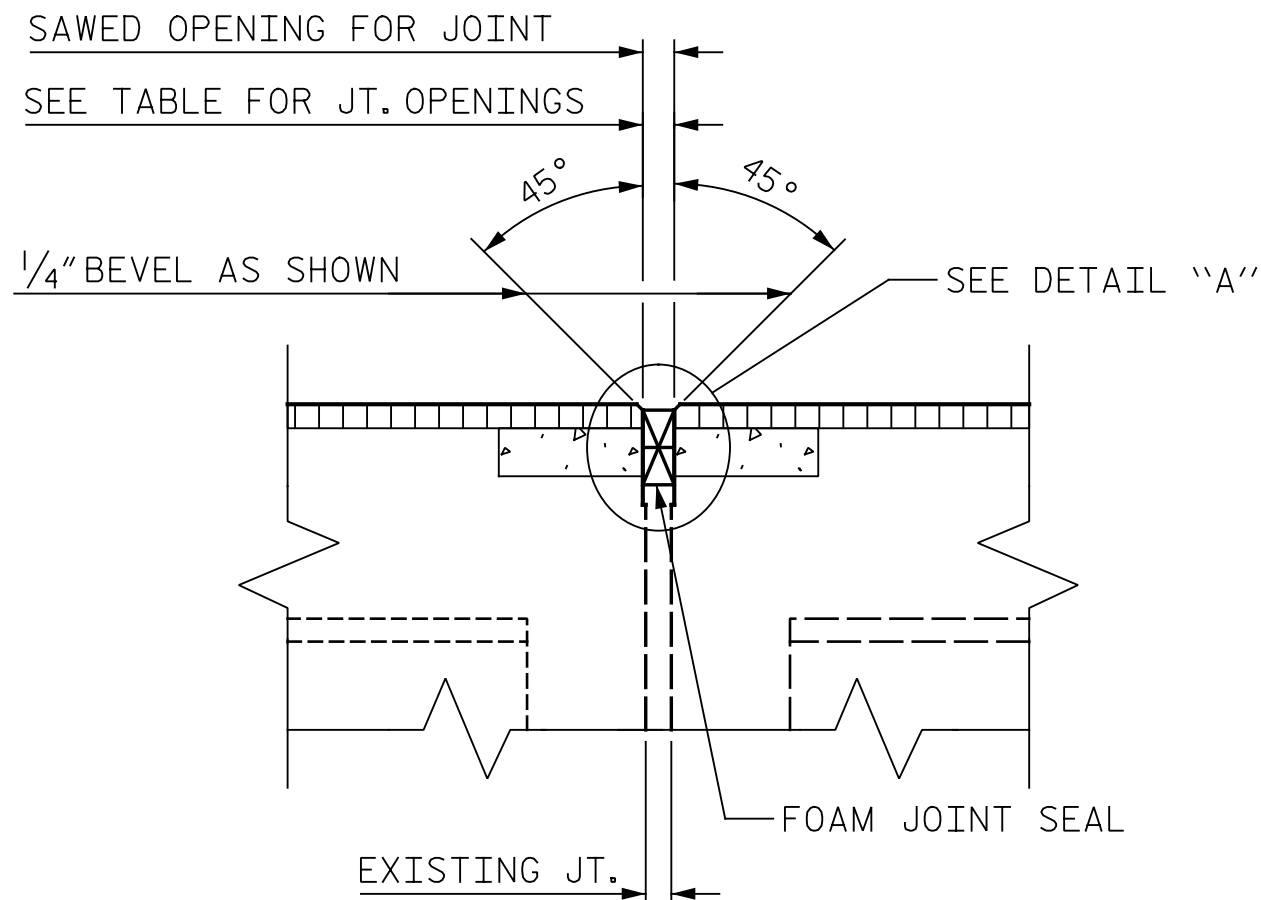
EXISTING JOINT SEAL



EXISTING JOINT AFTER JOINT DEMOLITION



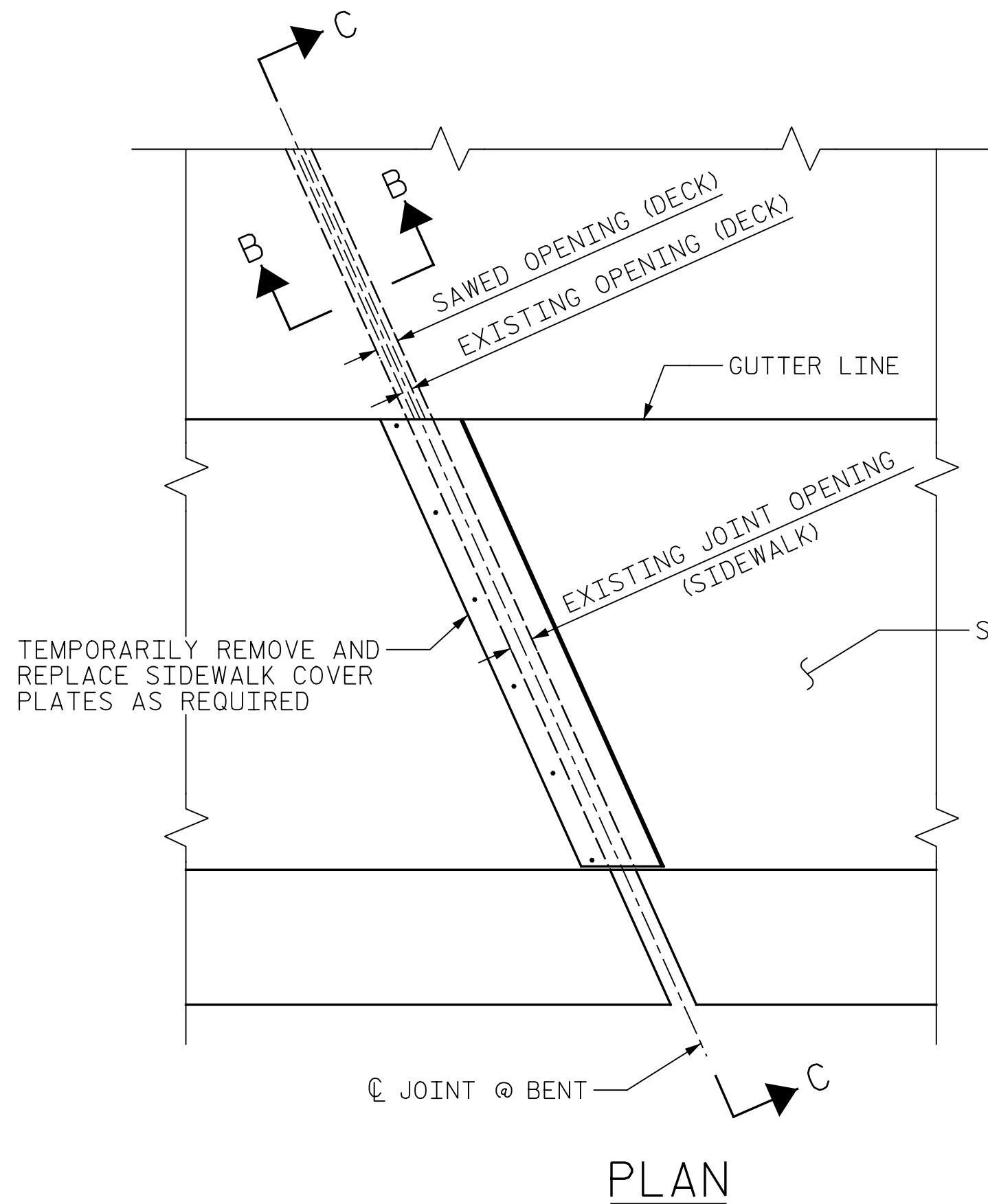
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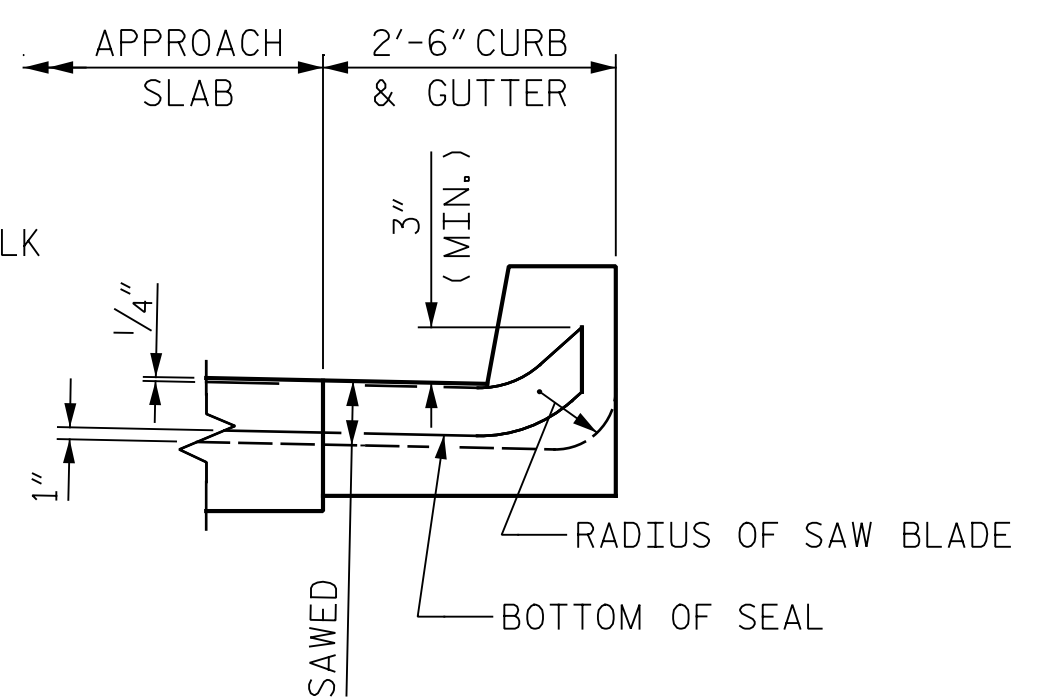
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SECTION A-A

SECTION B-B



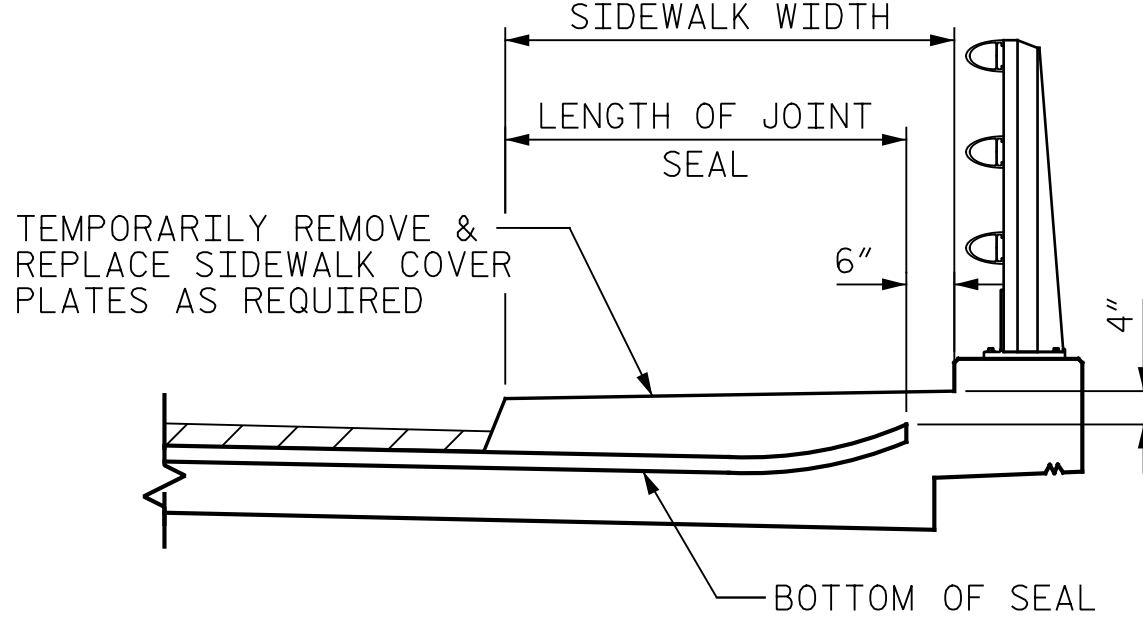
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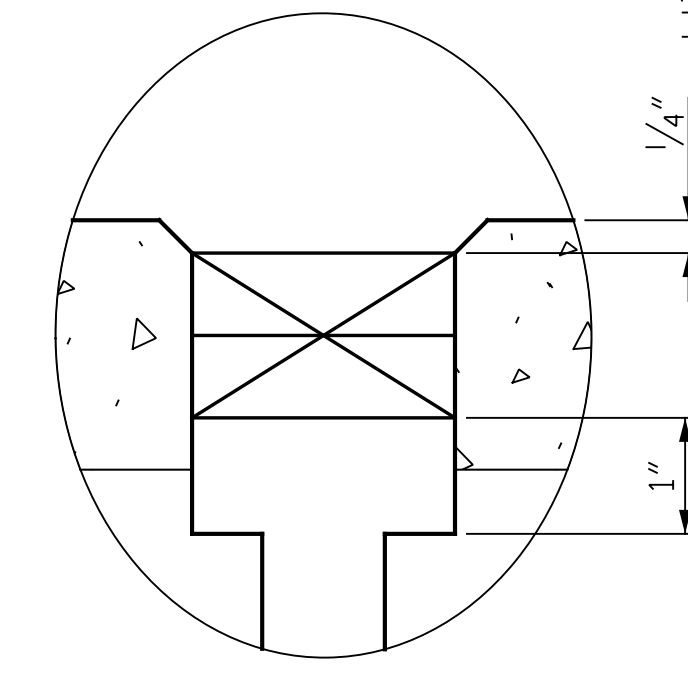
SECTION AT CURB & GUTTER

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

LOCATION	SAWED 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"

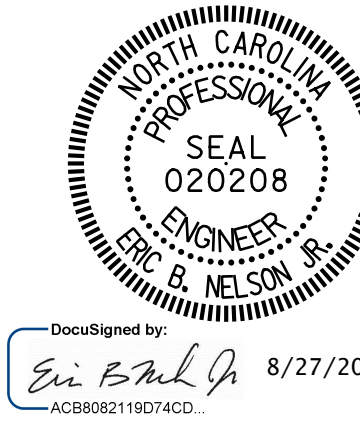


SECTION C-C



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



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NOTES:
 FINAL JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY OR SEALANT WORK IS COMPLETE.
 THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT MATERIAL OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT OPENING 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 POLYMER CONCRETE BRIDGE DECK OVERLAY SPECIAL PROVISION.
 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.

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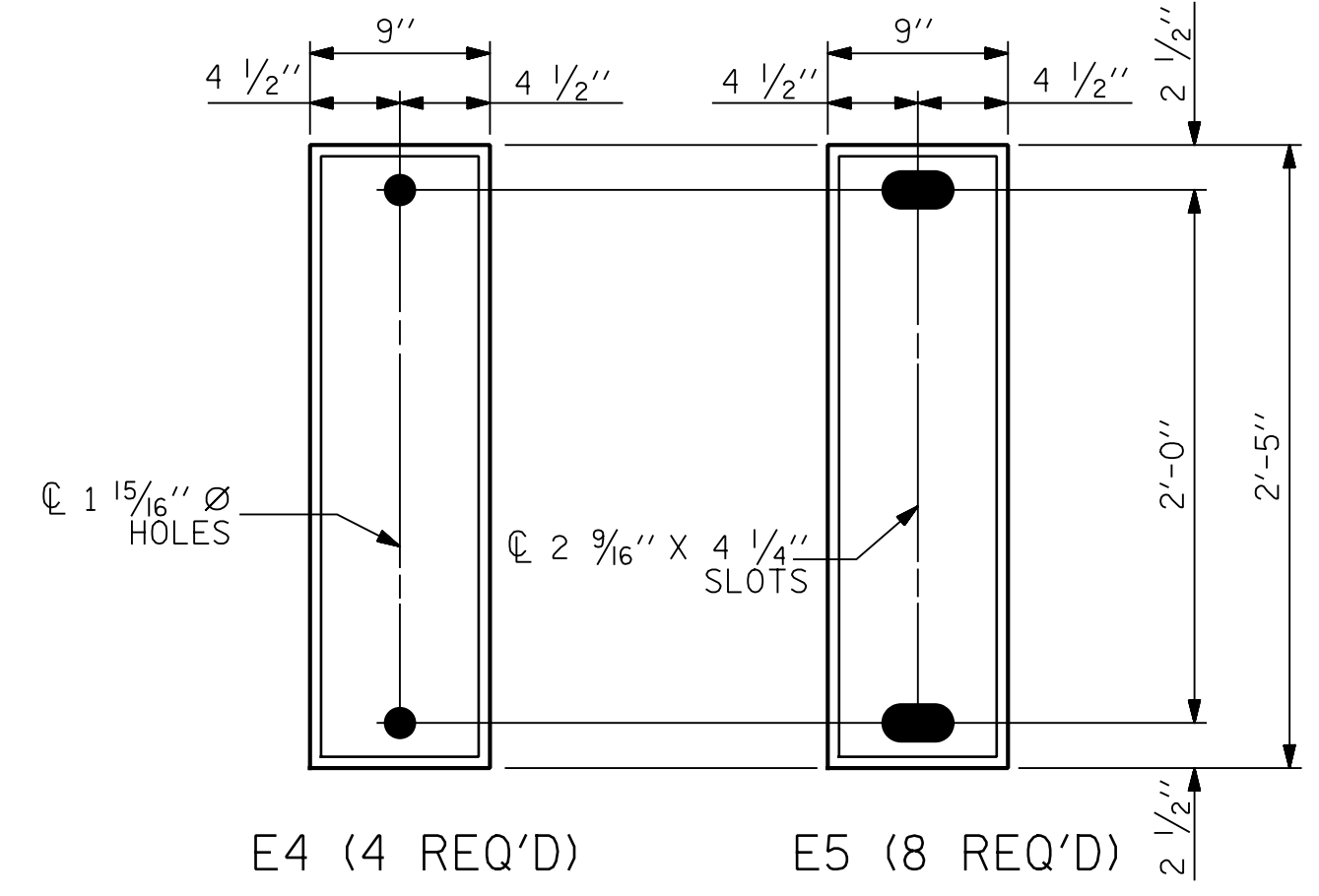
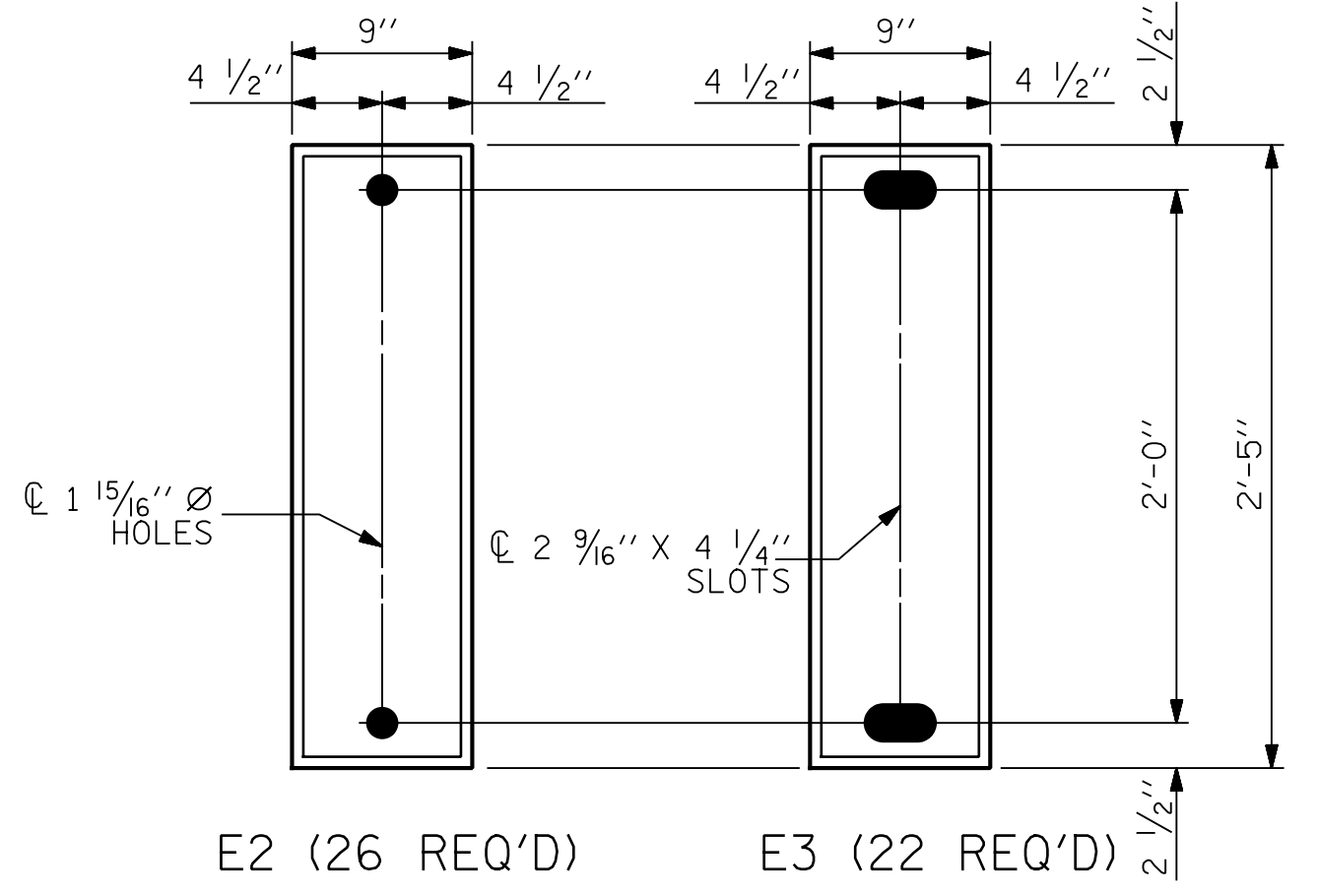
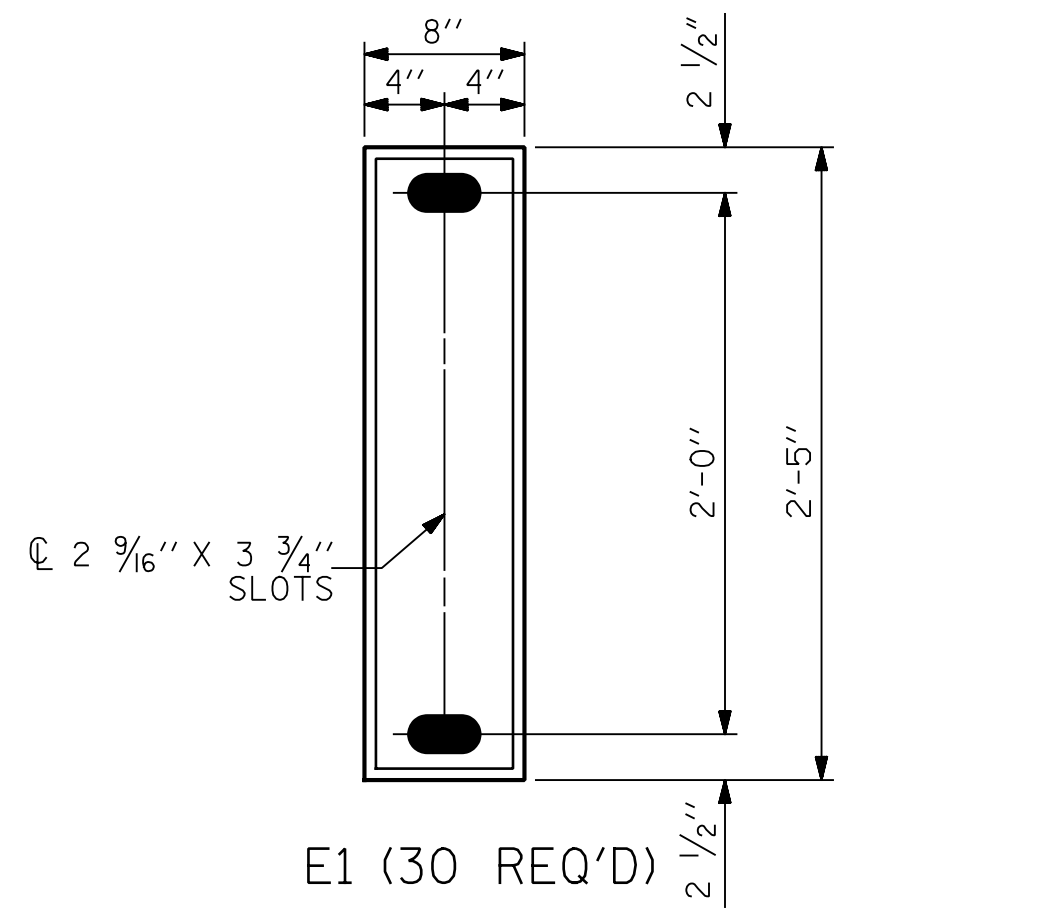
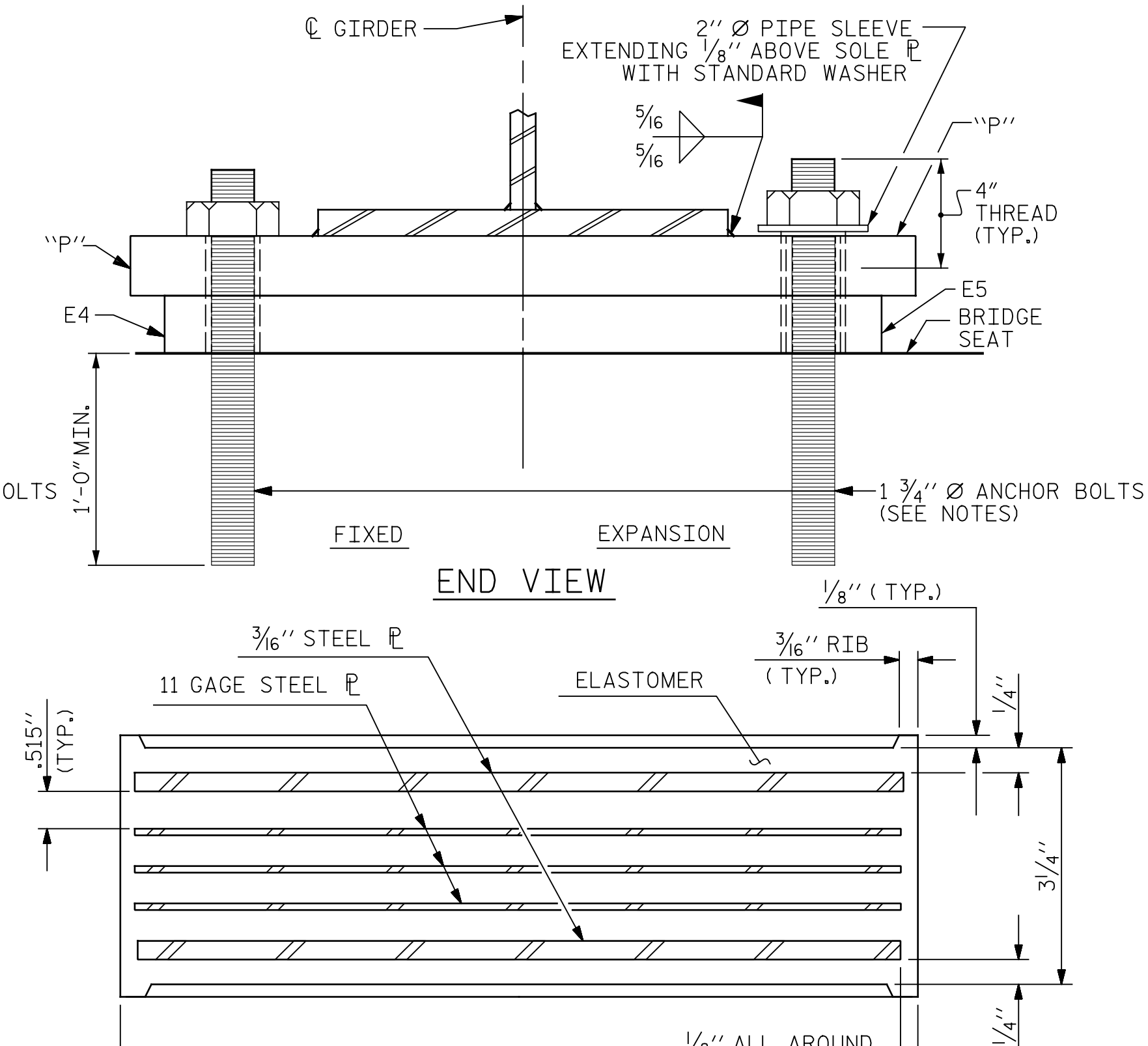
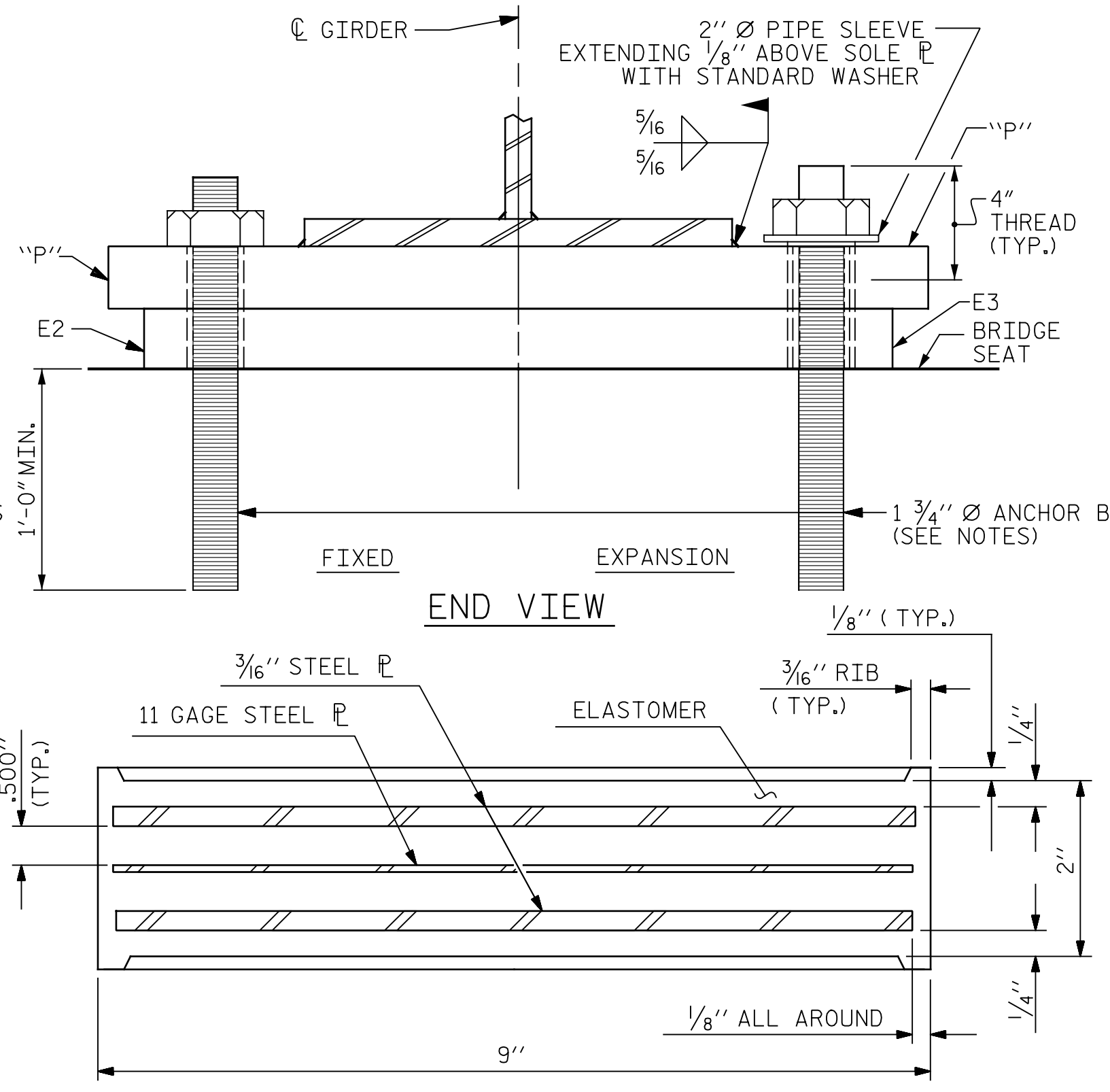
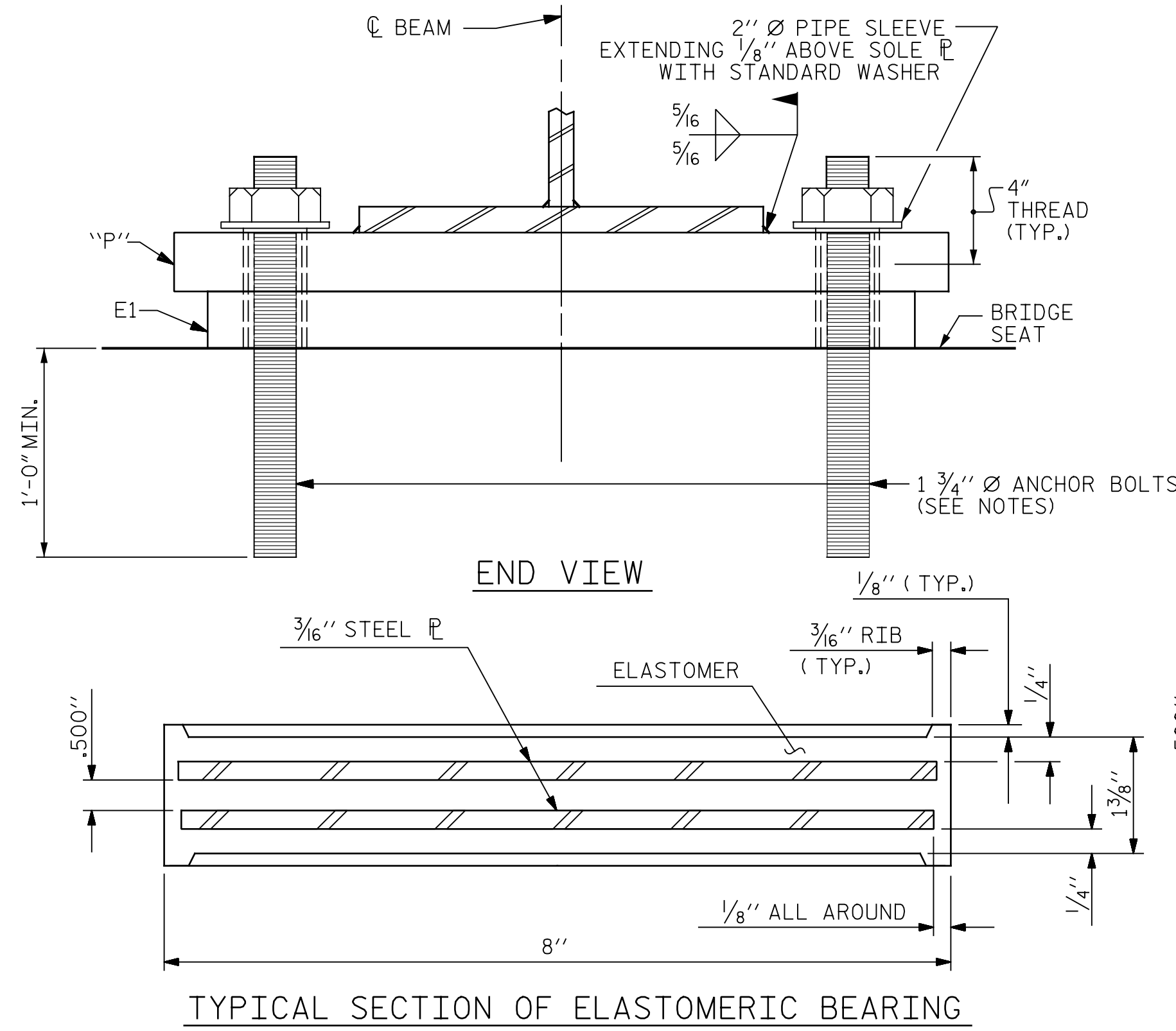
JOINT DETAILS

REVISIONS						SHEET NO.
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2			4			TOTAL SHEETS 20

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



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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.

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.

PRIOR TO WELDING, GRIND THE GALVANIZED SURFACE OF THE PORTION OF THE SOLE PLATE AND GIRDER BOTTOM FLANGE. AFTER WELDING, DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE 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.

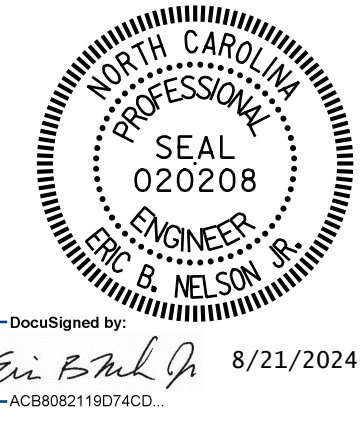
FOR MODIFIED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

FOR ADDITIONAL NOTES, SEE SHEET 2 OF 2.

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SHEET 1 OF 2



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 RALEIGH
**ELASTOMERIC BEARING
 DETAILS**

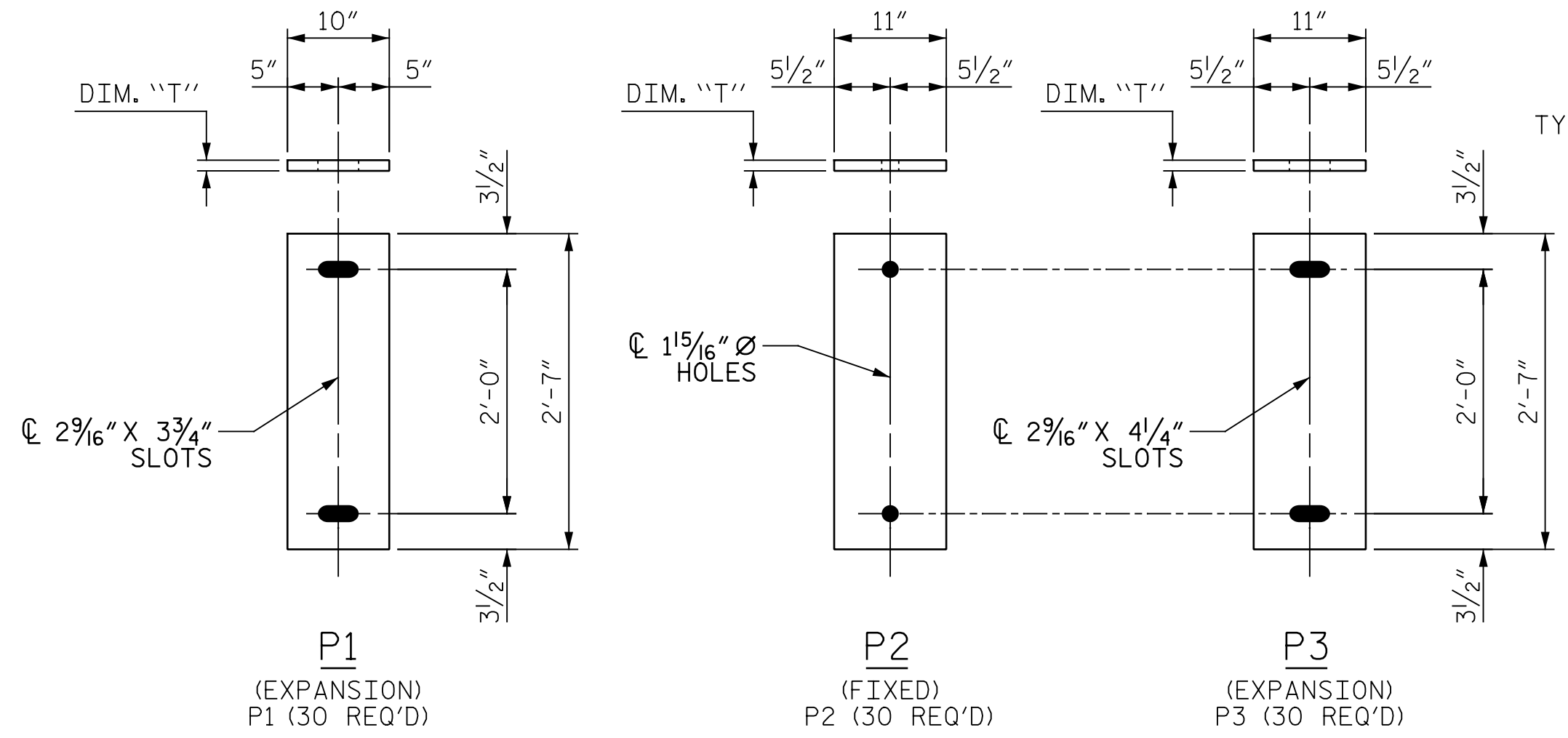
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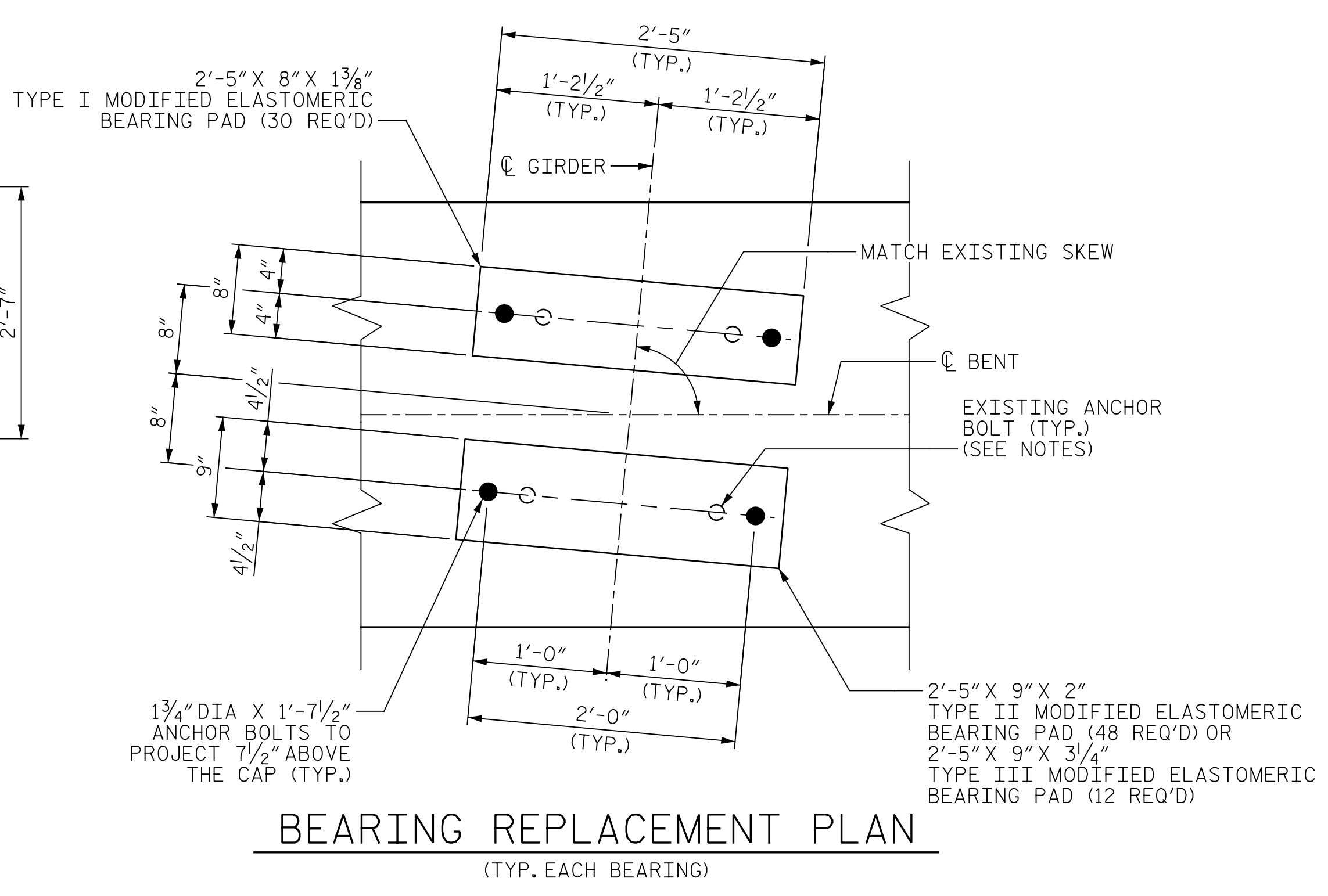
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SOLE PLATE FOR TYPE I MODIFIED BEARINGS
 SOLE PLATE FOR TYPE II AND III MODIFIED BEARINGS

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. APPLY EPOXY COATING TO CUT ENDS OF REMAINING ANCHOR BOLTS PRIOR TO PLACEMENT OF NEW BEARINGS. PAYMENT FOR EPOXY COATING ON ANCHOR BOLTS IS INCIDENTAL TO OTHER PAY ITEMS.
- 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.
- THE PROPOSED ANCHOR BOLT LOCATIONS ARE DESIGNED TO MISS EXISTING #10 AND #11 "B" BARS PER THE EXISTING BRIDGE PLANS. EXISTING #4 "S" BARS MAY BE CUT AS REQUIRED TO INSTALL NEW ANCHOR BOLTS.
- 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 A MINIMUM OF 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.

GIRDER NO.	BEARING AND SOLE PLATE TABLE *																	
	BENT 1						BENT 2						BENT 3					
	SPAN A			SPAN B			SPAN C			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.

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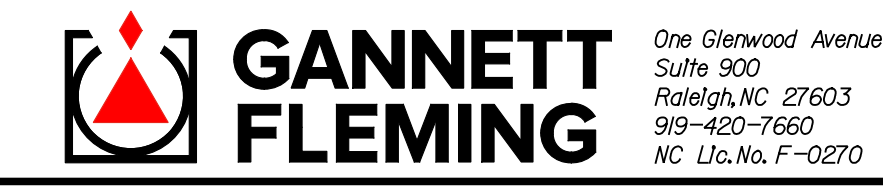
SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

ELASTOMERIC BEARING
 DETAILS

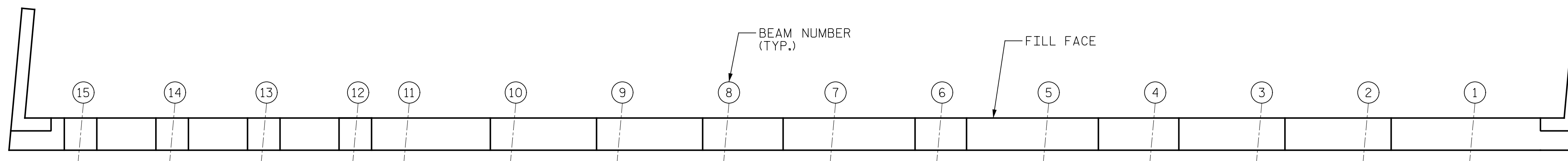
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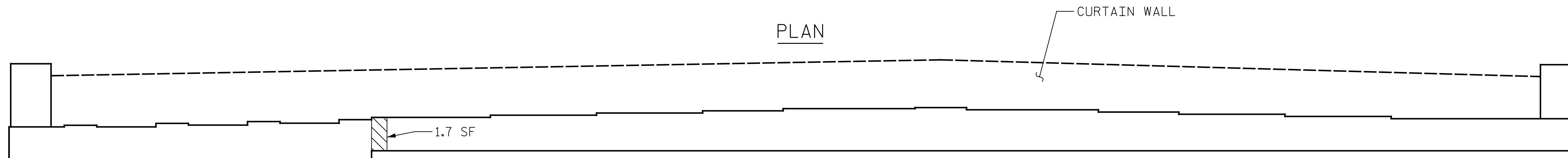
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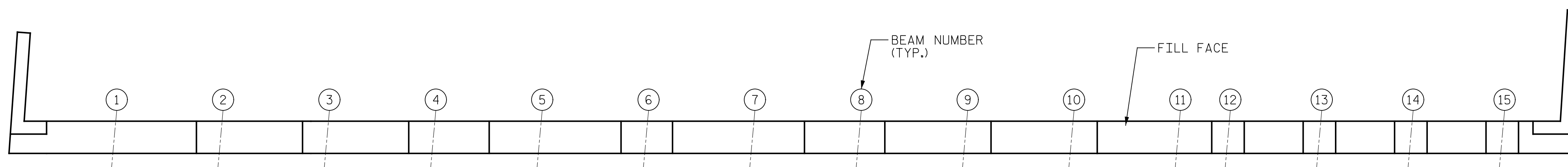
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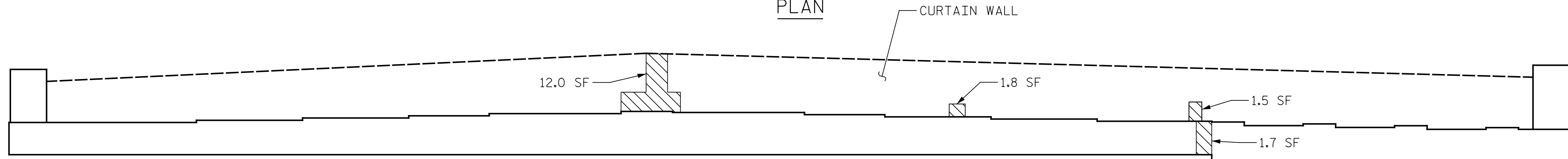
PLAN



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.

AS-BUILT
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 REPAIRS
- CONCRETE REPAIRS (FORM & POUR)
- EPOXY RESIN INJECTION

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SHEET 1 OF 7



DocuSigned by:
Eric B. Nelson
8/21/2024
ACB80821190740D

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE REPAIRS
 END BENT 1 & 2

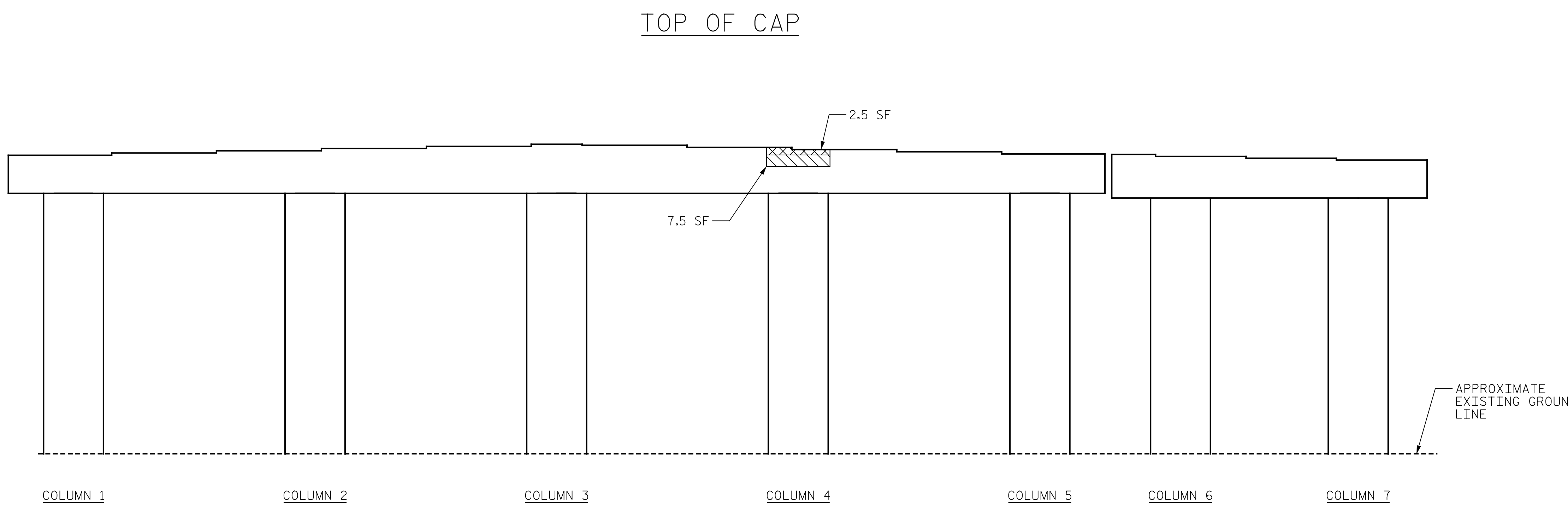
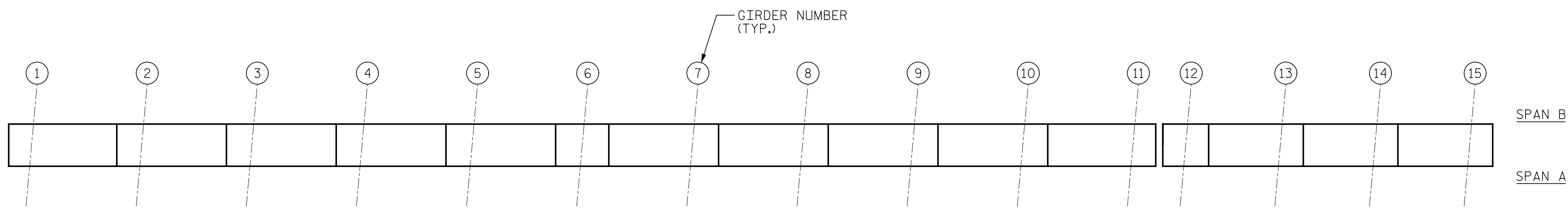
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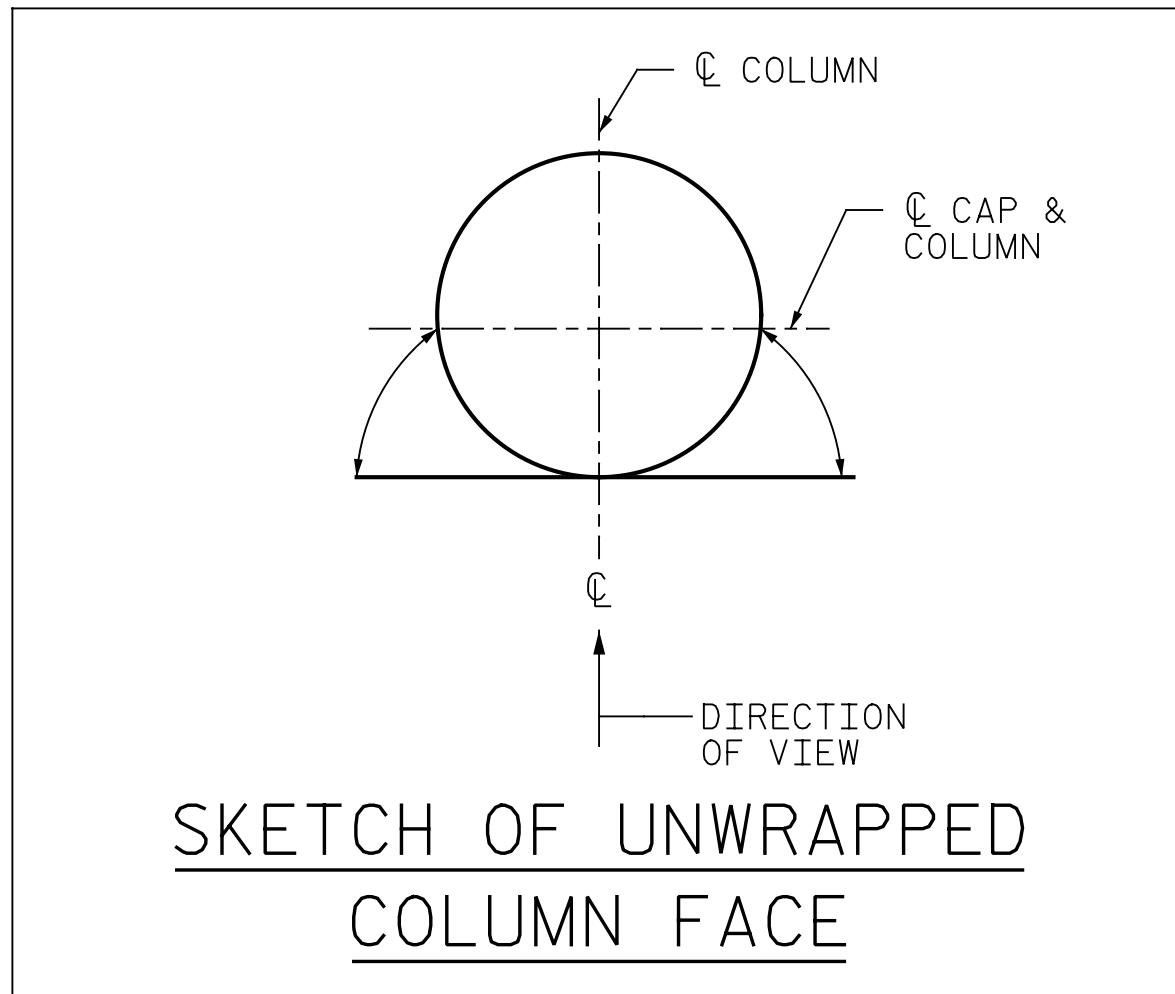
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ELEVATION
 (COLUMN FACE IS SHOWN UNWRAPPED FOR CLARITY)



SKETCH OF UNWRAPPED COLUMN FACE

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.

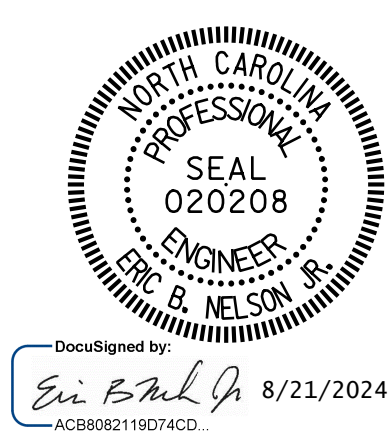
CONCRETE REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE "JACKING DETAILS" SHEET.

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

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

PROJECT NO. 15BPR.126.3
CUMBERLAND COUNTY
 BRIDGE NO. 250053

SHEET 2 OF 7



DocuSigned by:
 Eric B. Nelson 8/21/2024
 AC8800219074CD

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE REPAIRS
 BENT 1
 SPAN "A" SIDE

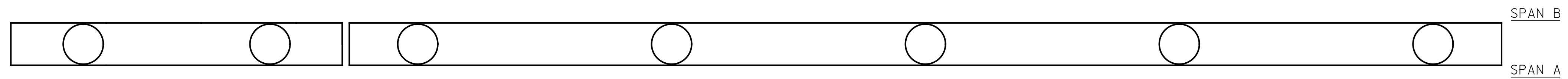
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 CHECKED BY : J. YANACCONE DATE : 01/2021



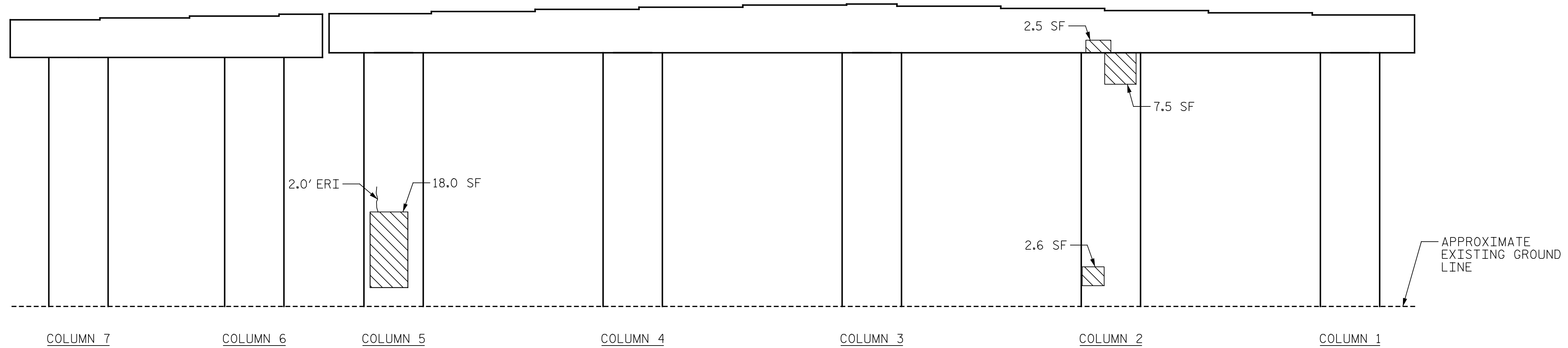
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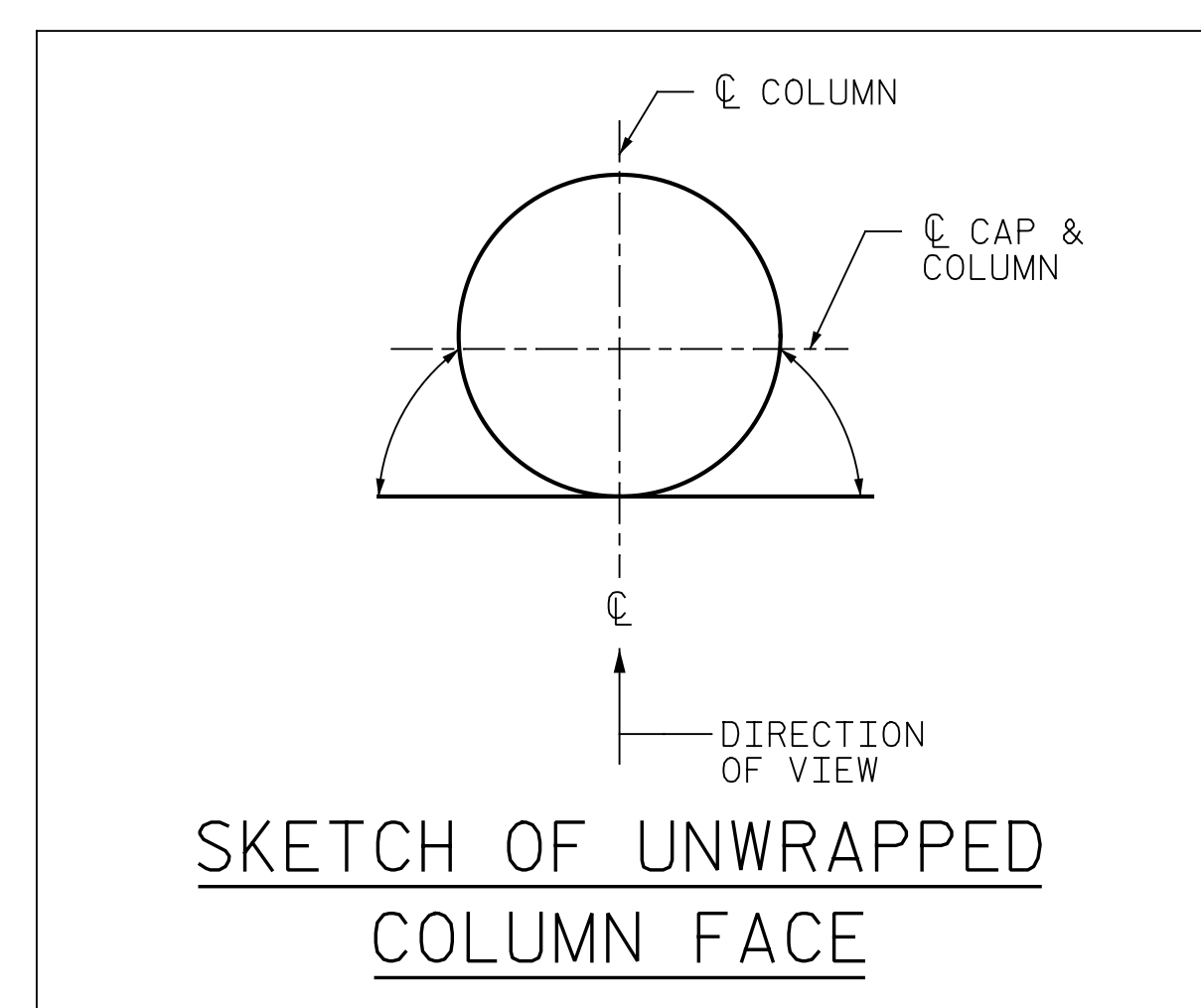


BOTTOM OF CAP



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

ELEVATION
 (COLUMN FACE IS SHOWN UNWRAPPED FOR CLARITY)



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 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.

PROJECT NO. 15BPR.126.3
CUMBERLAND COUNTY
 BRIDGE NO. 250053

SHEET 3 OF 7
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE REPAIRS
 BENT 1
 SPAN "B" SIDE



DocuSigned by:
 Eric B. Nelson Jr.
 8/21/2024
 AC88082119074CD



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 CHECKED BY : J. YANACCONE DATE : 01/2021

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AS-BUILT REPAIR QUANTITY TABLE

BENT 2 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
SHOTCRETE REPAIRS					
CAP (VERTICAL)	7.7	3.2			
CAP (HORIZONTAL)	0.0	0.0			
COLUMN	2.0	0.8			
CONCRETE REPAIRS	1.8	0.8			
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.

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

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FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.




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

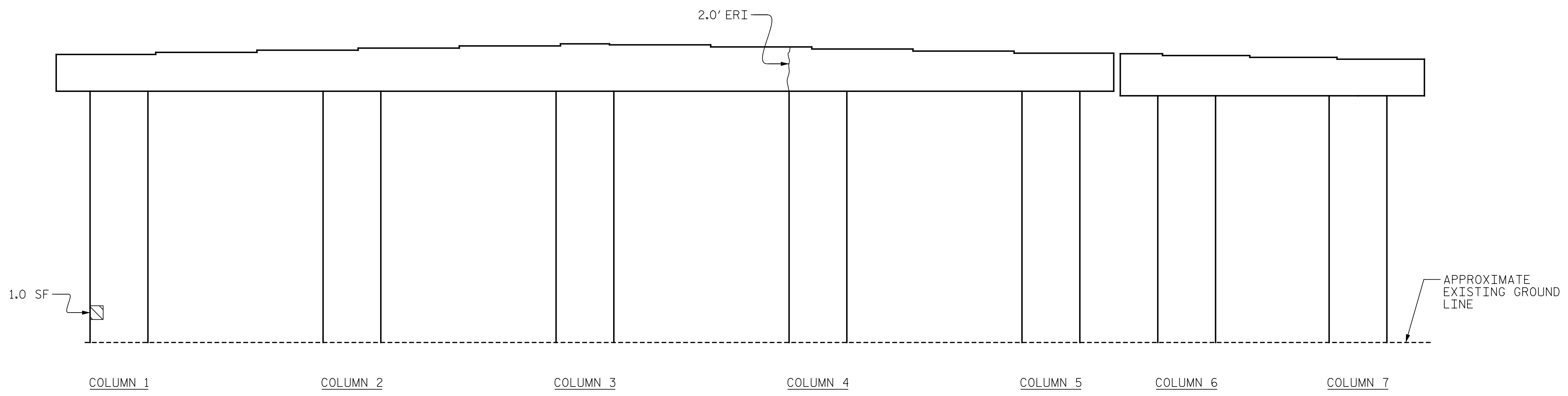
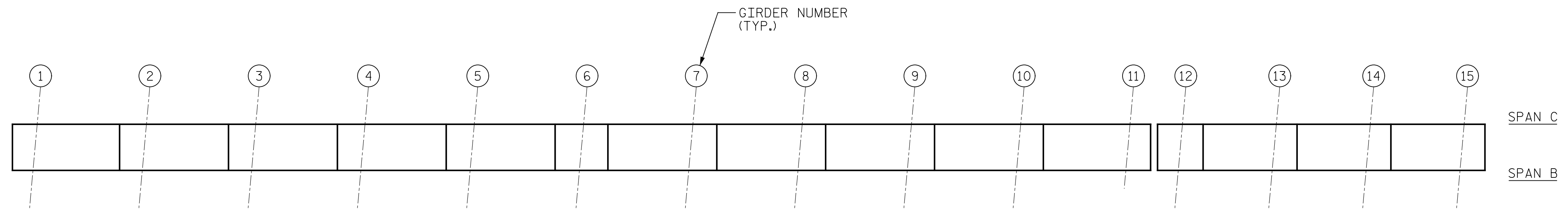
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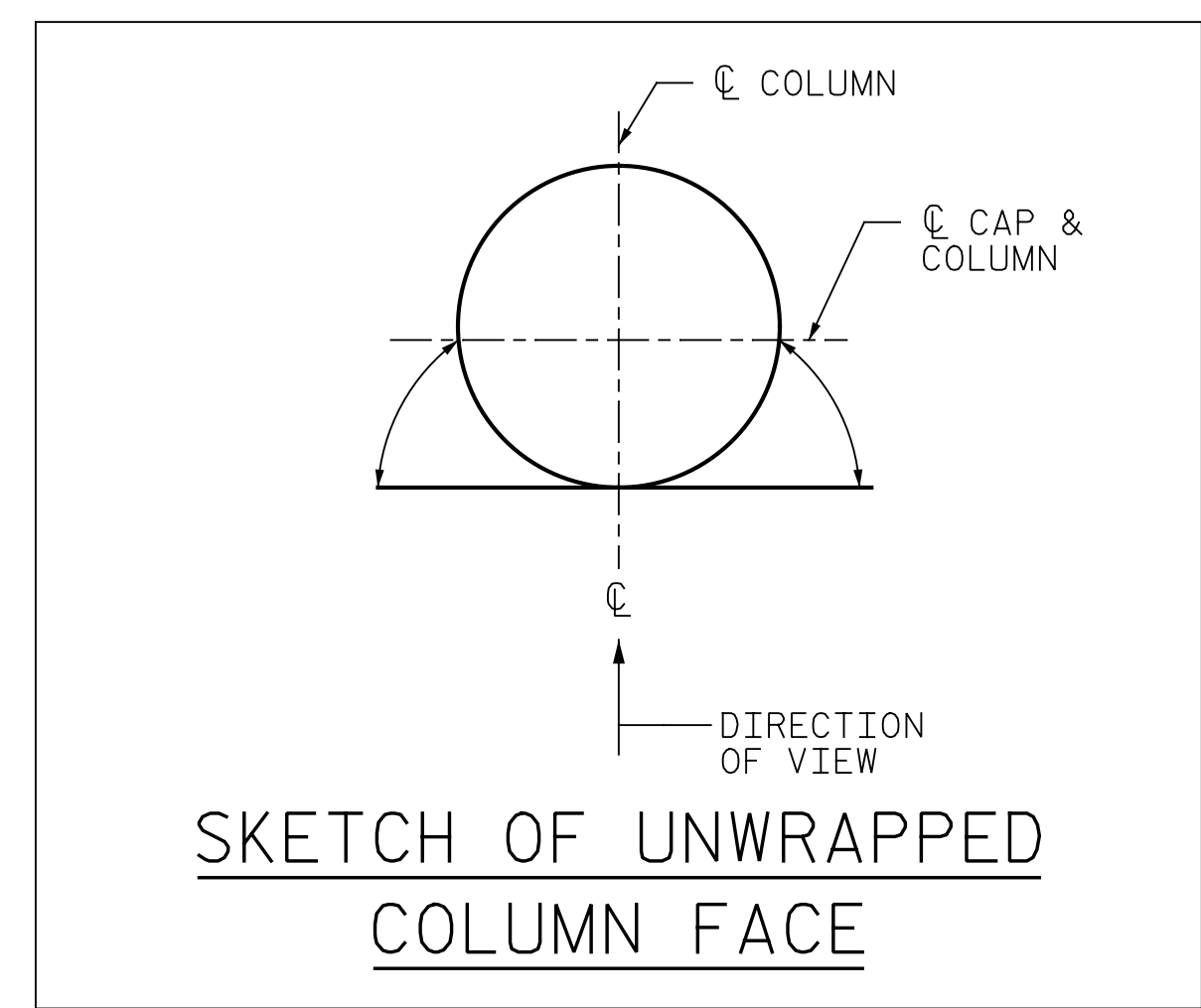
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-  - SHOTCRETE REPAIRS
-  - CONCRETE REPAIRS (FORM & POUR)
-  - EPOXY RESIN INJECTION



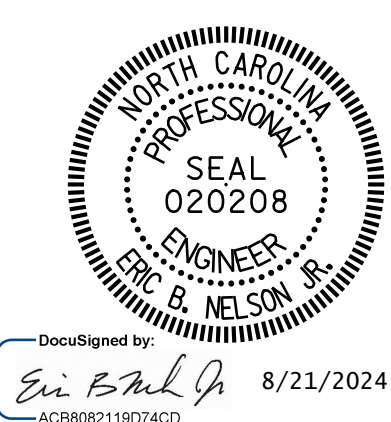
ELEVATION
 (COLUMN FACE IS SHOWN UNWRAPPED FOR CLARITY)



SKETCH OF UNWRAPPED
 COLUMN FACE

PROJECT NO. 15BPR.126.3
CUMBERLAND COUNTY
 BRIDGE NO. 250053

SHEET 4 OF 7



DocuSigned by:
 Eric B. Nelson
 8/21/2024

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE REPAIRS
 BENT 2
 SPAN "B" SIDE

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






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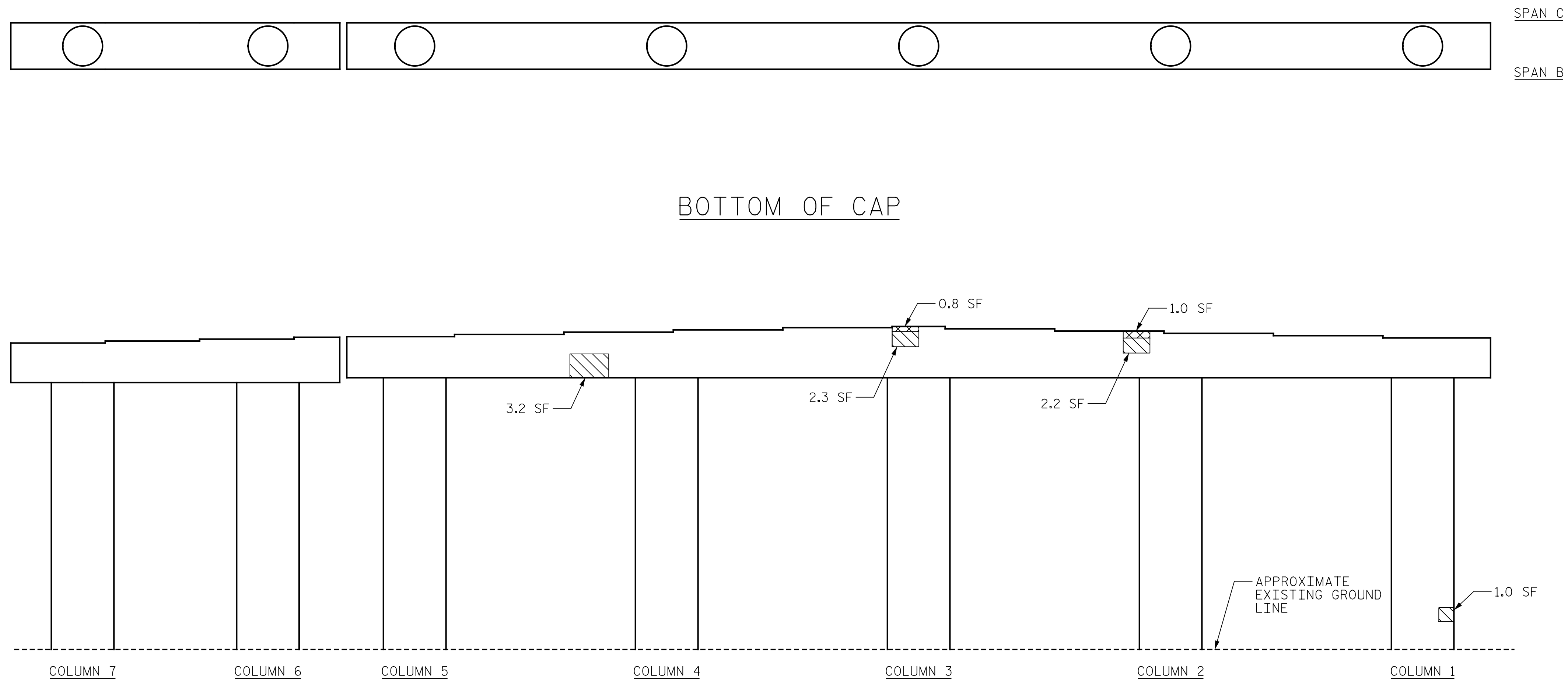
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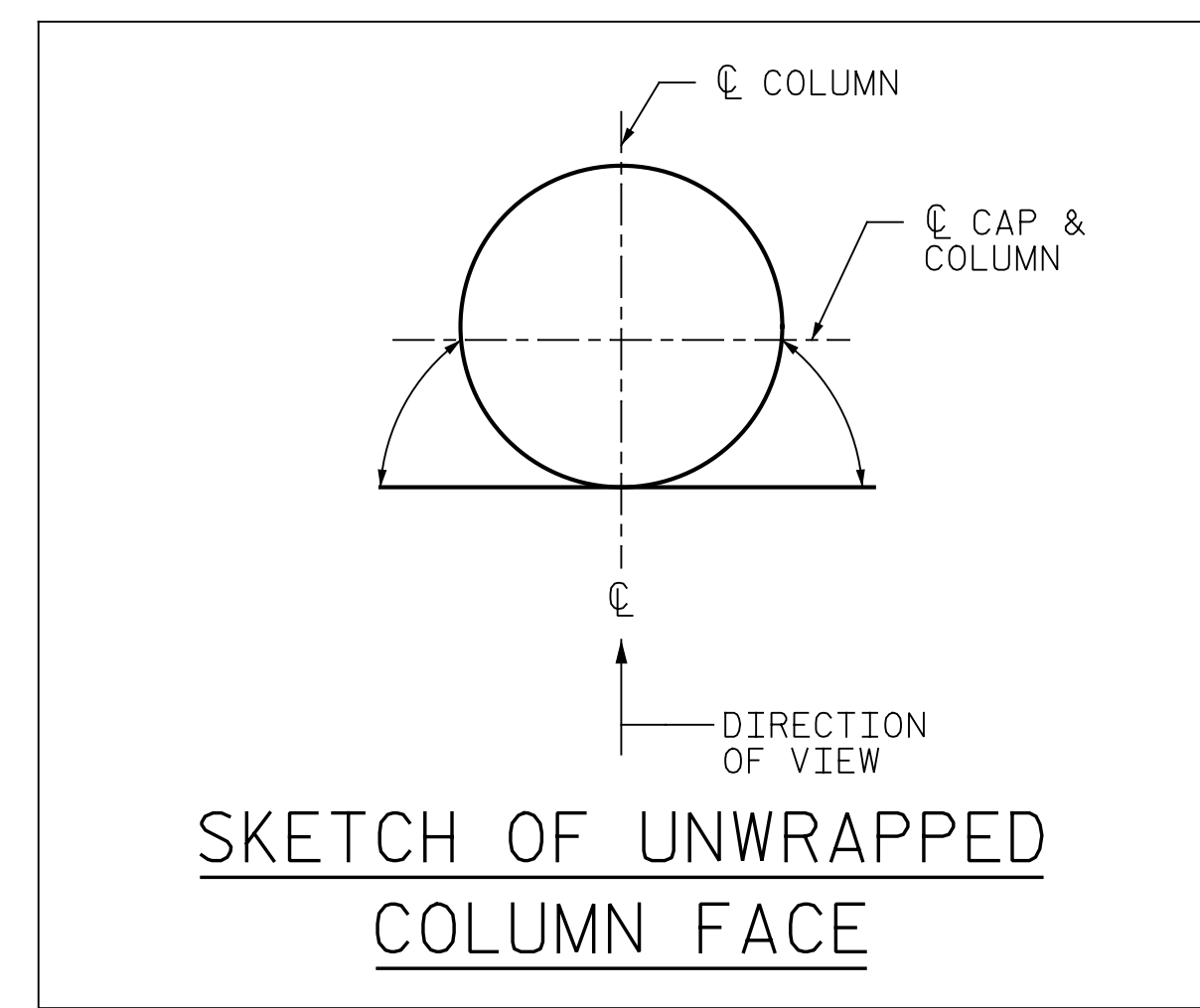
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-  - SHOTCRETE REPAIRS
-  - CONCRETE REPAIRS (FORM & POUR)
-  - EPOXY RESIN INJECTION



ELEVATION
 (COLUMN FACE IS SHOWN UNWRAPPED FOR CLARITY)



PROJECT NO. 15BPR.126.3
CUMBERLAND COUNTY
 BRIDGE NO. 250053
 SHEET 5 OF 7



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE REPAIRS
 BENT 2
 SPAN "C" SIDE

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



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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 INJECTON		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:

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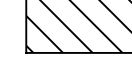
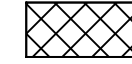

SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

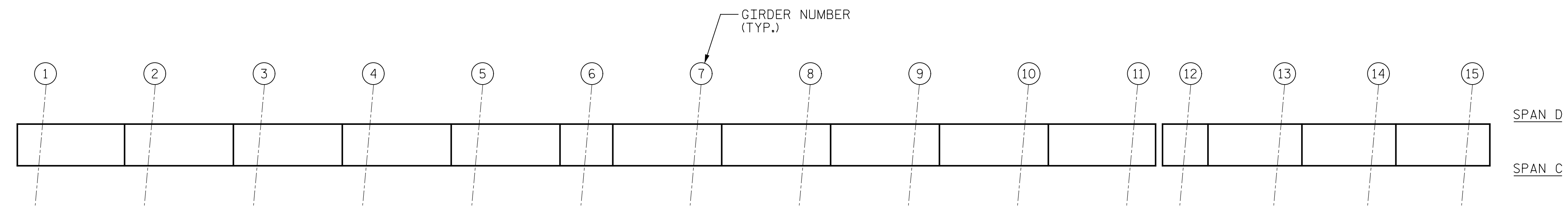
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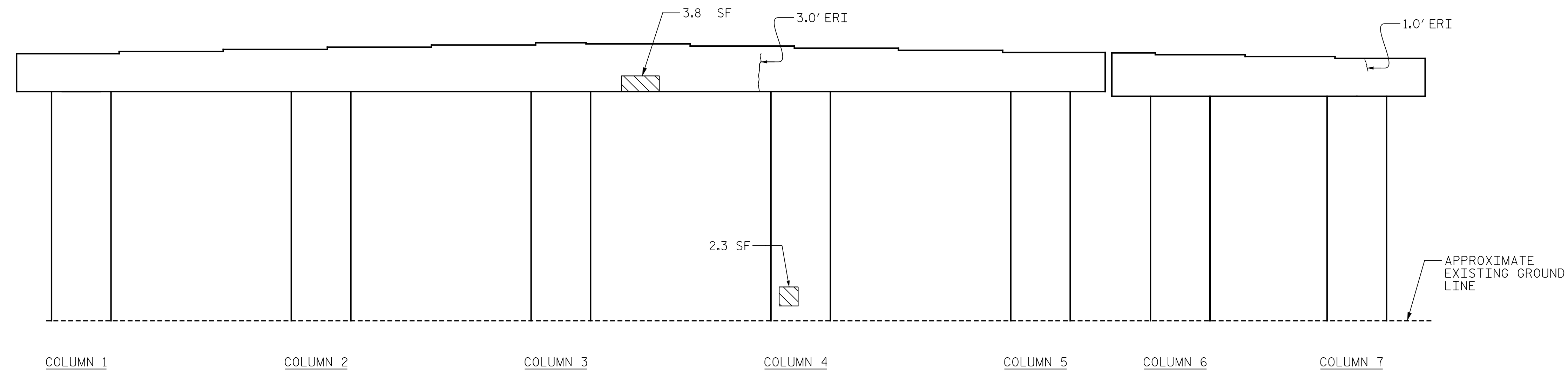
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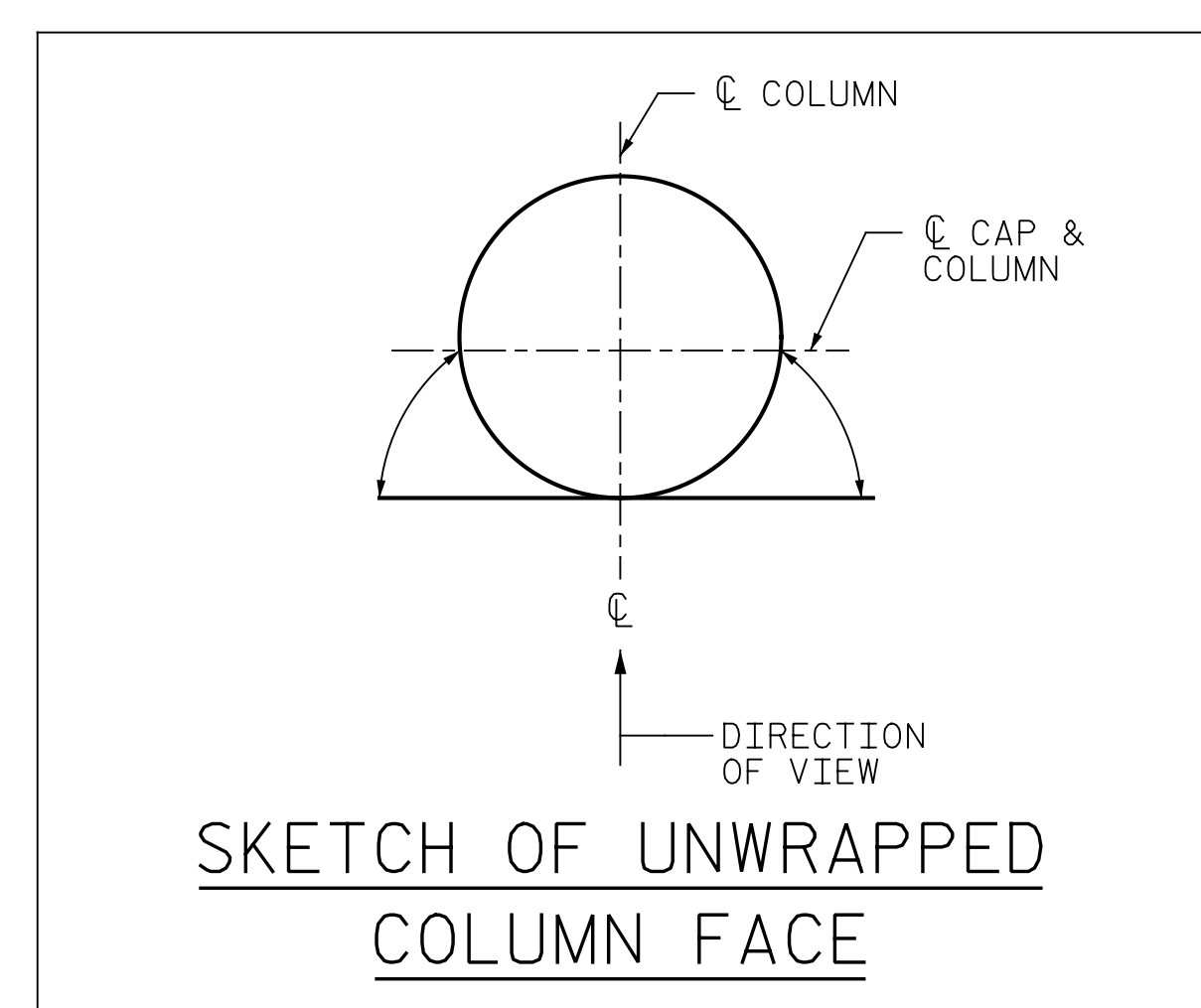
-  - SHOTCRETE REPAIRS
-  - CONCRETE REPAIRS (FORM & POUR)
-  - EPOXY RESIN INJECTION



TOP OF CAP



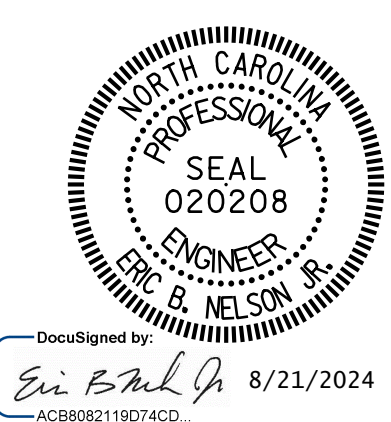
ELEVATION
 (COLUMN FACE IS SHOWN UNWRAPPED FOR CLARITY)



SKETCH OF UNWRAPPED
 COLUMN FACE

PROJECT NO. 15BPR.126.3
CUMBERLAND COUNTY
 BRIDGE NO. 250053

SHEET 6 OF 7



DocuSigned by:
 Eric B. Nelson
 8/21/2024

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE REPAIRS
 BENT 3
 SPAN "C" SIDE

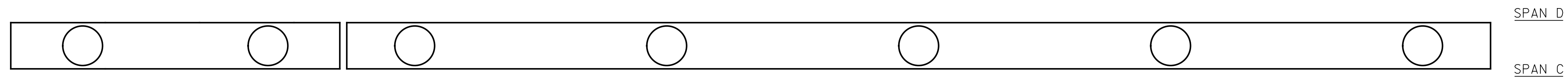
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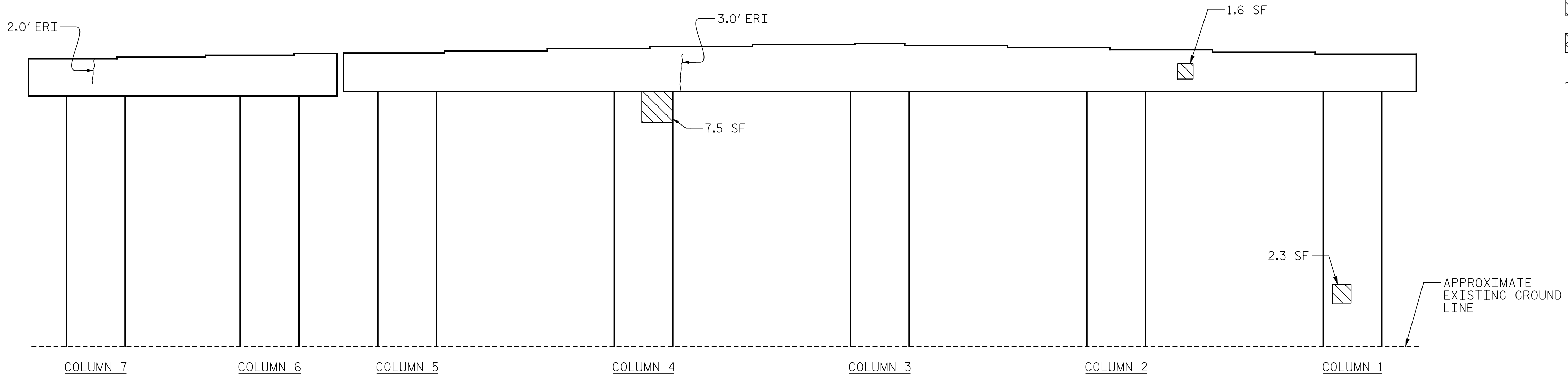
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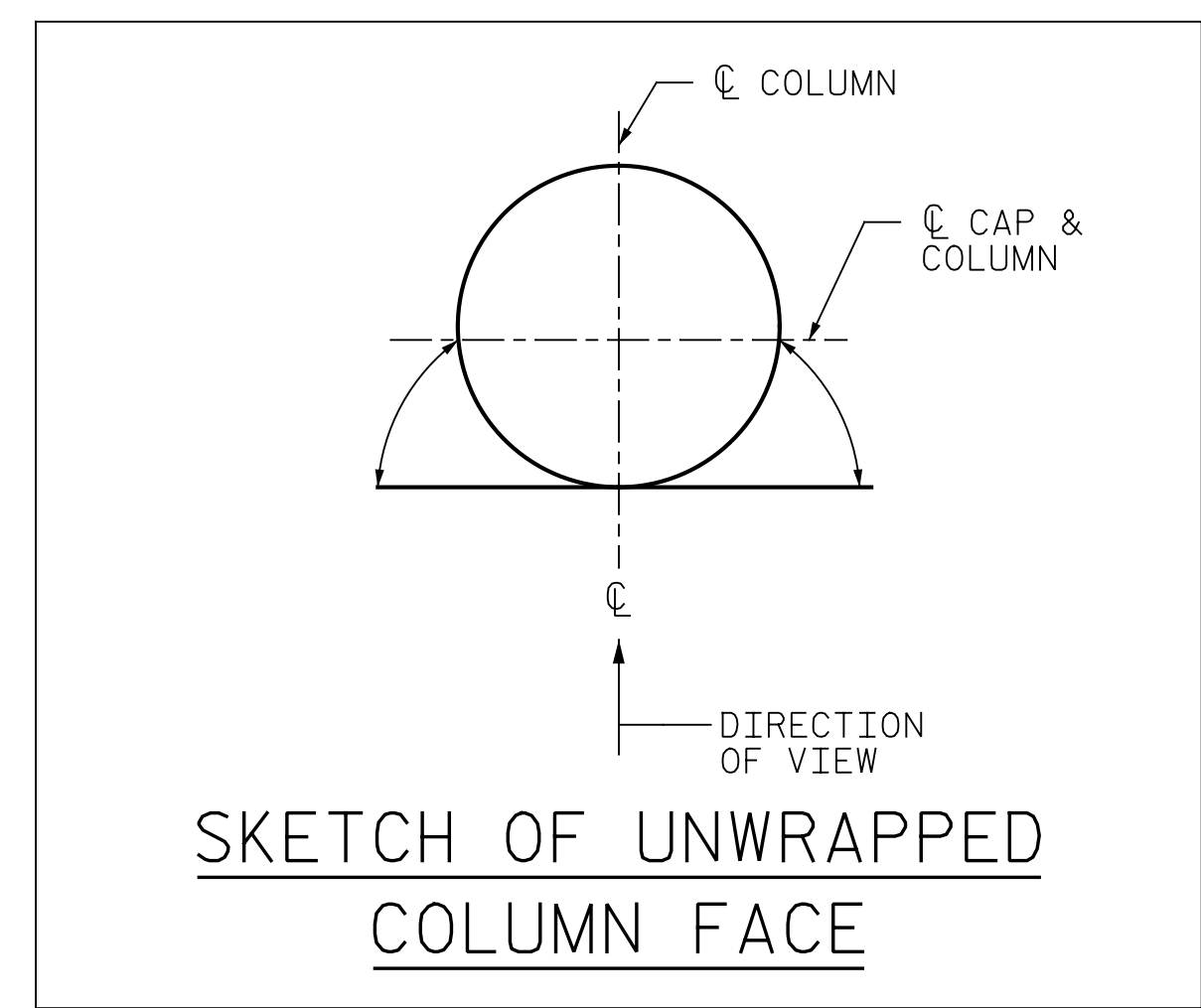


SPAN D
 SPAN C

BOTTOM OF CAP



ELEVATION
 (COLUMN FACE IS SHOWN UNWRAPPED FOR CLARITY)



SKETCH OF UNWRAPPED COLUMN FACE

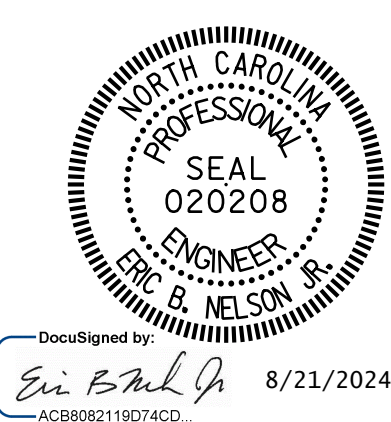
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- SHOTCRETE REPAIRS
- CONCRETE REPAIRS (FORM & POUR)
- EPOXY RESIN INJECTION

PROJECT NO. 15BPR.126.3
CUMBERLAND COUNTY
 BRIDGE NO. 250053

SHEET 7 OF 7



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE REPAIRS
 BENT 3
 SPAN "D" SIDE

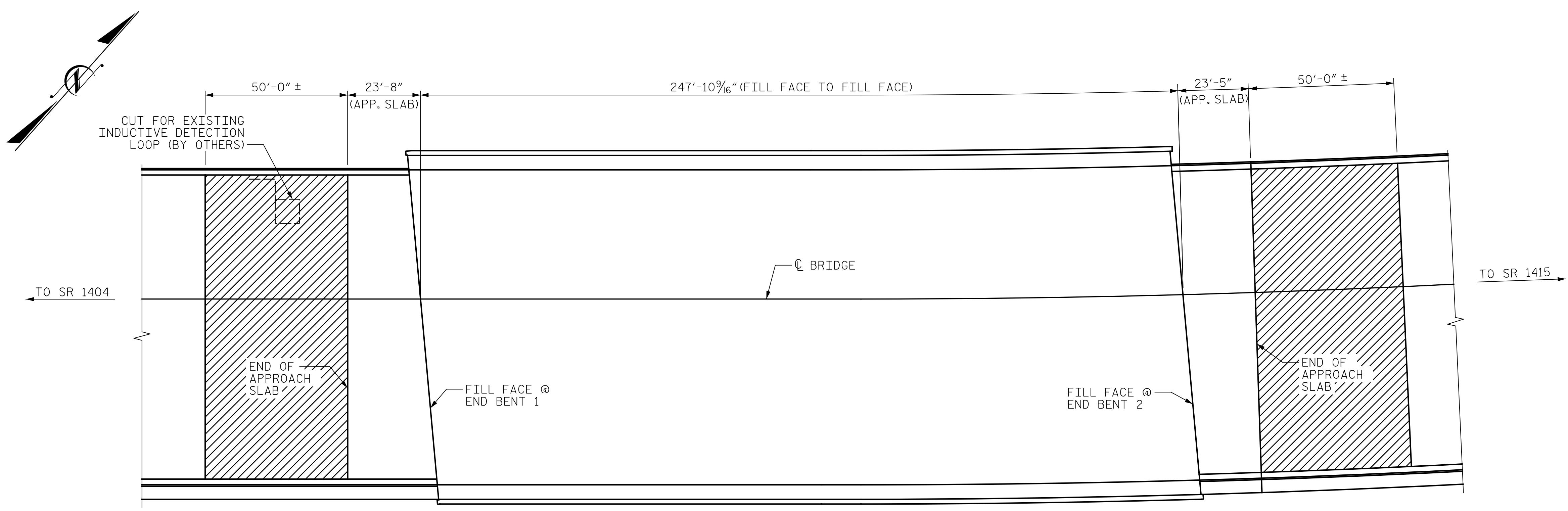


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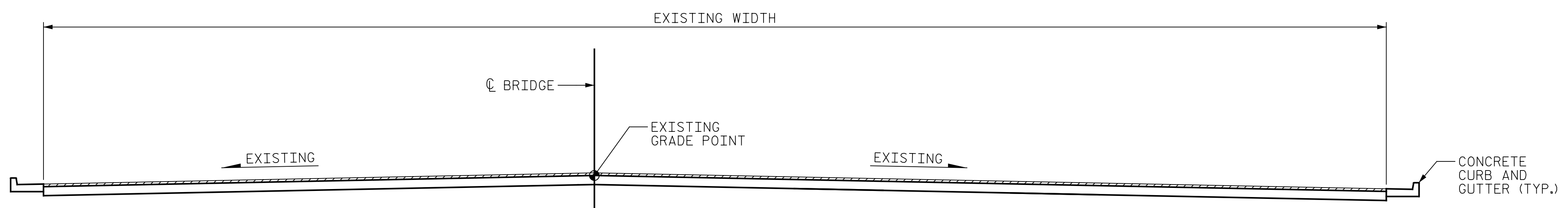
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 CHECKED BY : J. YANNACCONE DATE : 01/2021

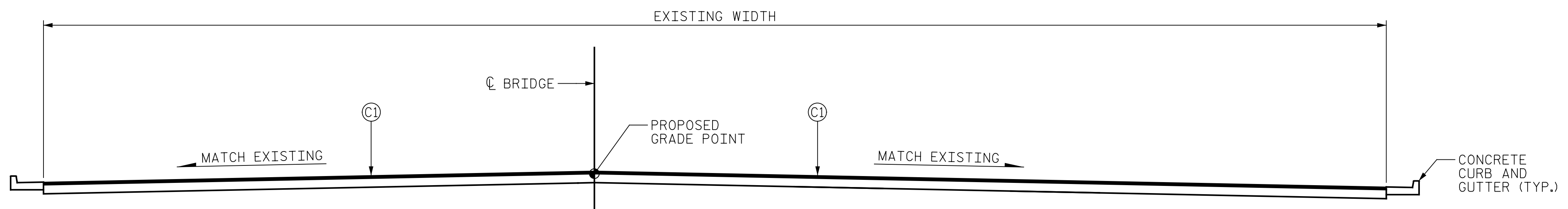
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PLAN



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.

SUMMARY OF QUANTITIES

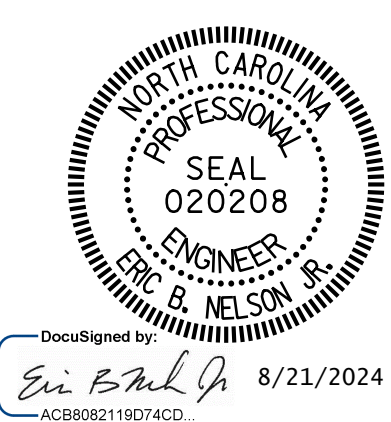
	ESTIMATE	ACTUAL
INCIDENTAL MILLING	1093 SQ. YDS.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	92 TONS	
ASPHALT BINDER FOR PLANT MIX	6 TONS	

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

PROJECT NO. 15BPR.126.3
CUMBERLAND COUNTY
 BRIDGE NO. 250053



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

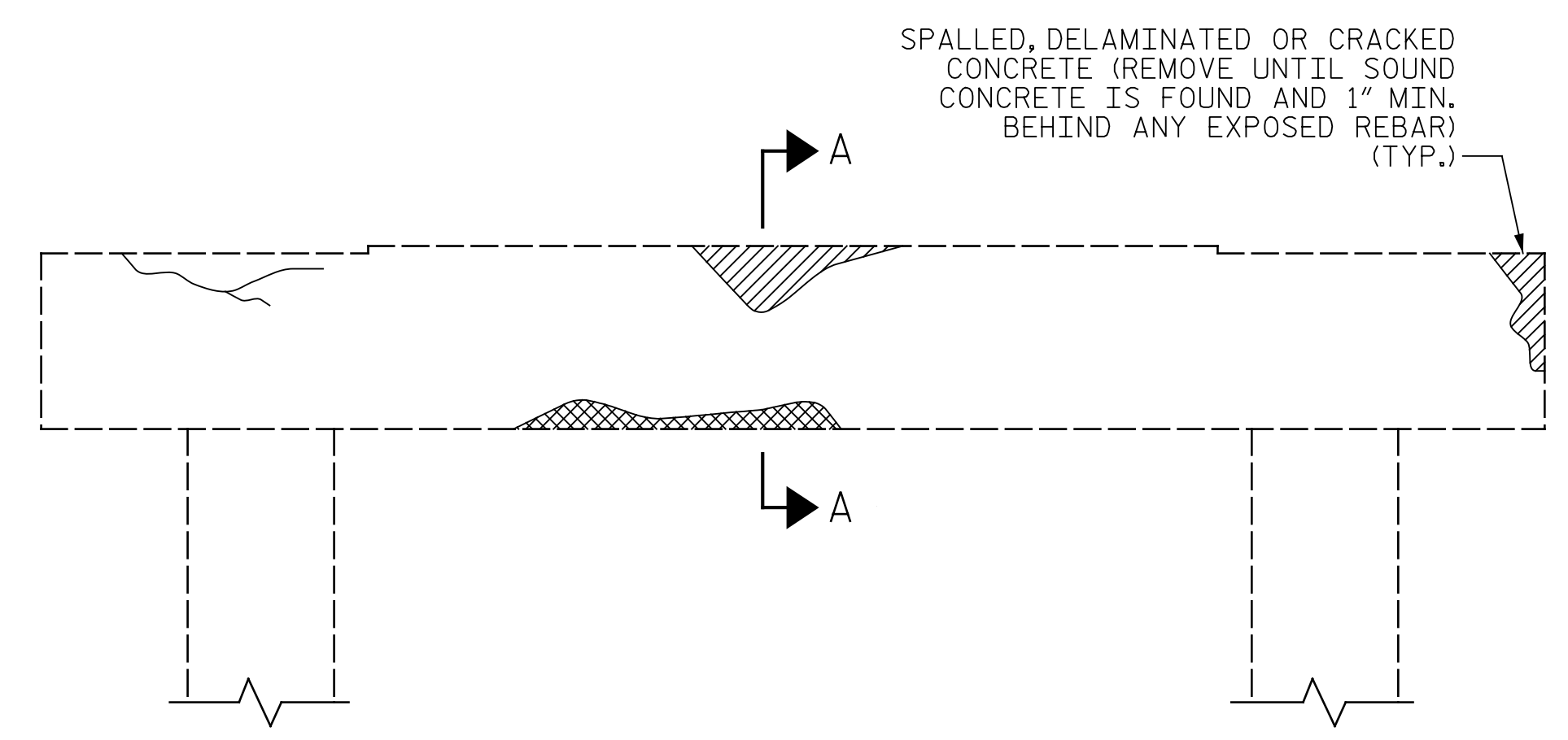
DRAWN BY : T. HARTLEY DATE : 01/2021
 CHECKED BY : J. YANNACCONE DATE : 01/2021



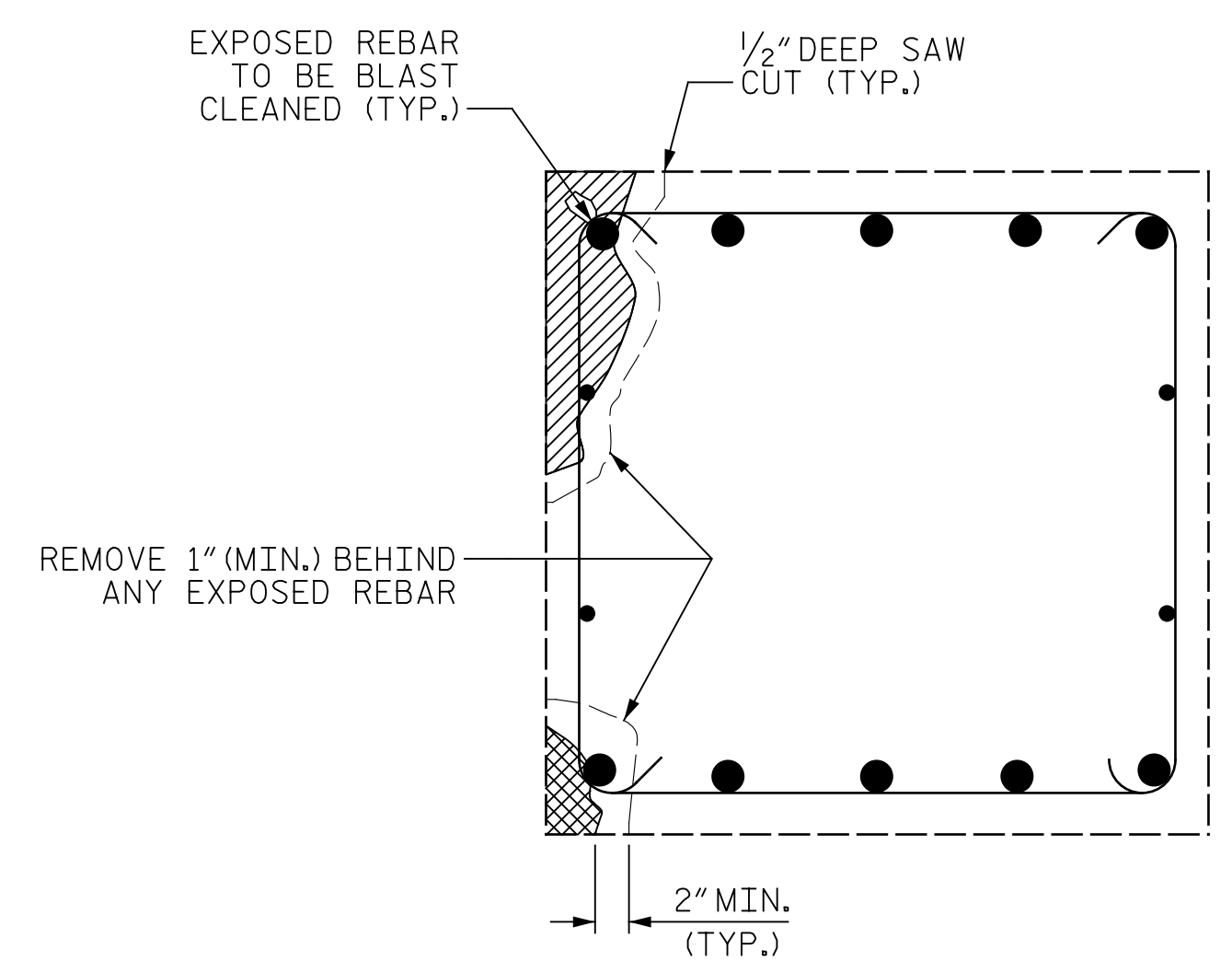
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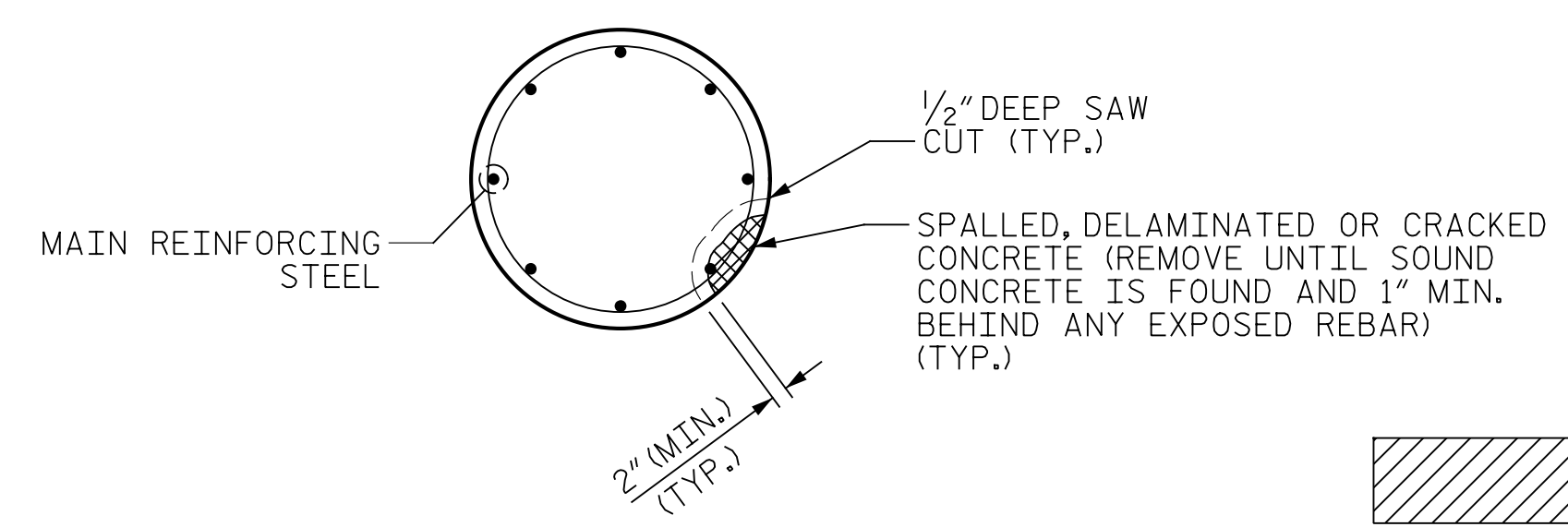


BENT CAP REPAIRS



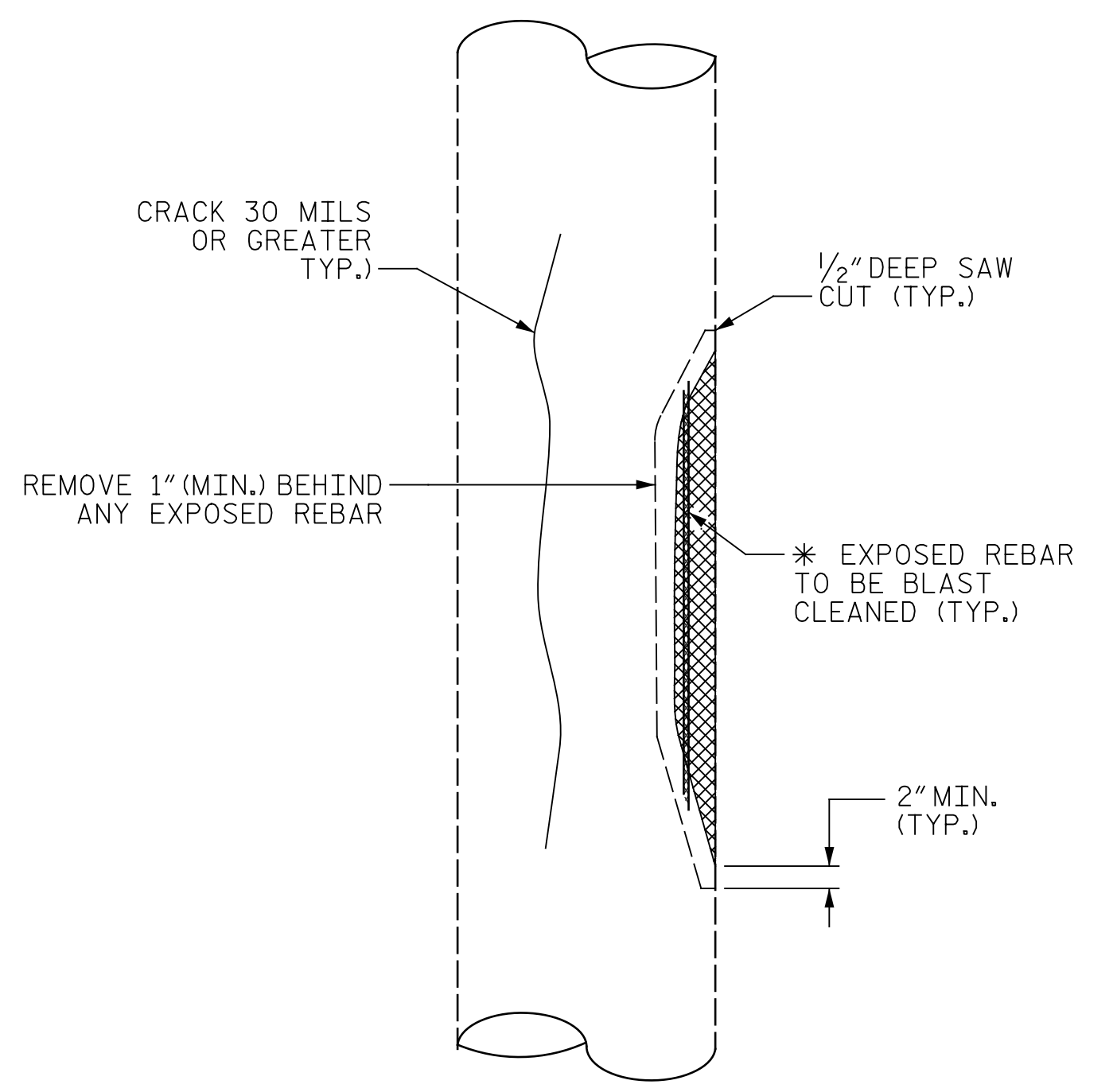
CAP REPAIR

SECTION A-A



REPAIR KEY

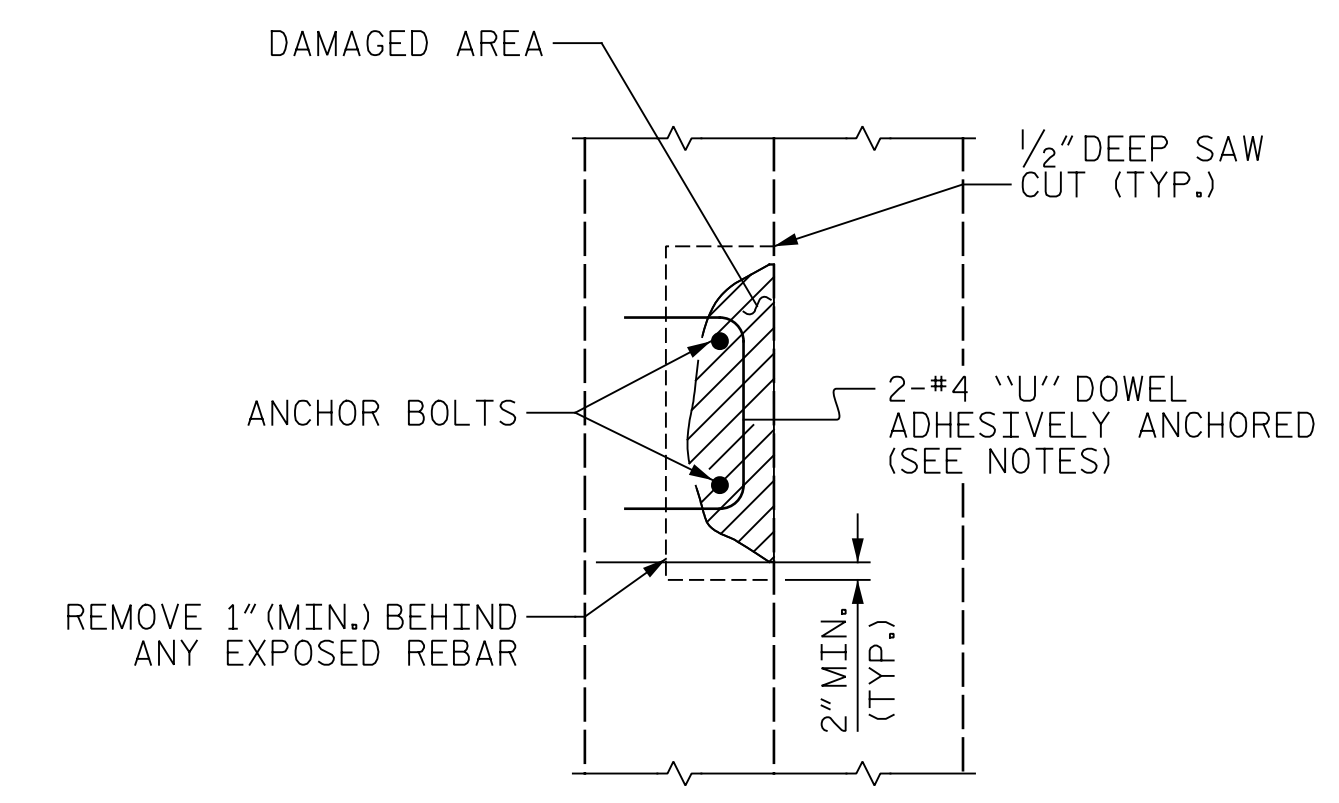
- CONCRETE REPAIR AREA (FORM AND POUR)
- SHOTCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)



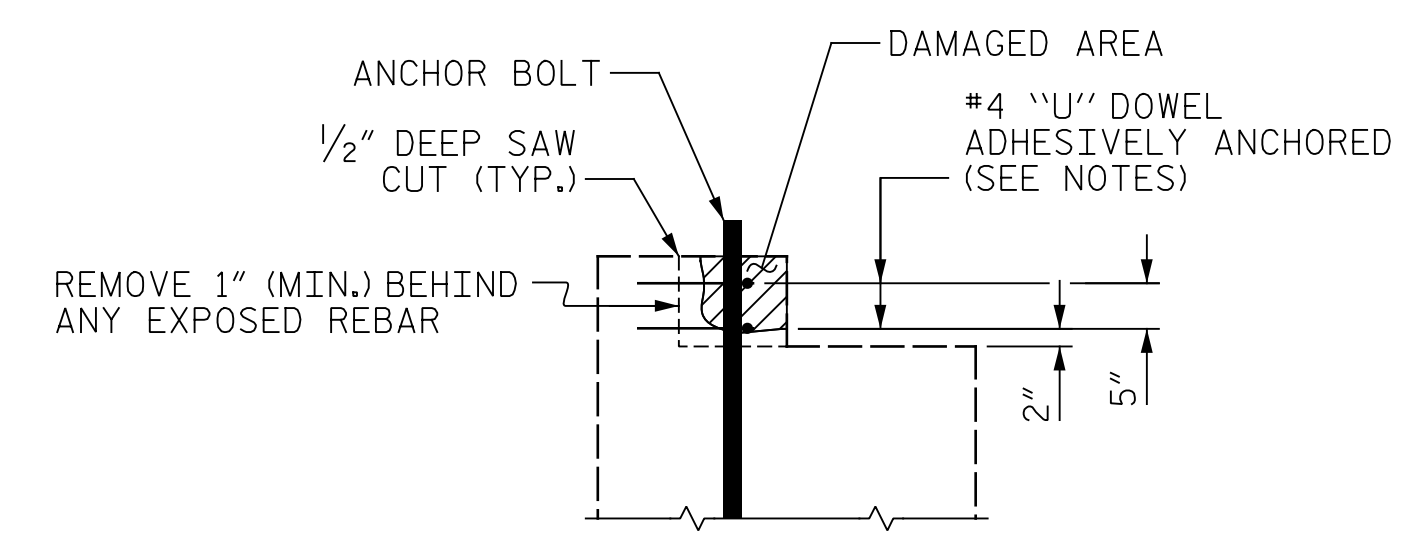
ELEVATION OF COLUMN
COLUMN REPAIR

* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

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

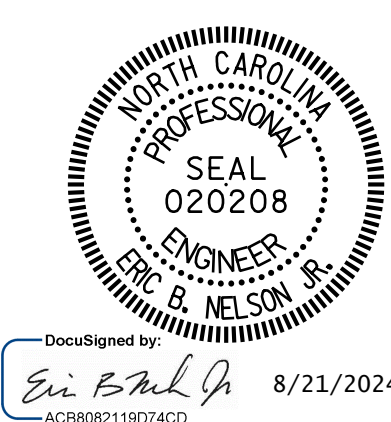


ELEVATION
PEDESTAL WALL REPAIR

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.126.3
CUMBERLAND COUNTY
BRIDGE NO. 250053



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL
CAP AND COLUMN
REPAIR DETAILS

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



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NOTES

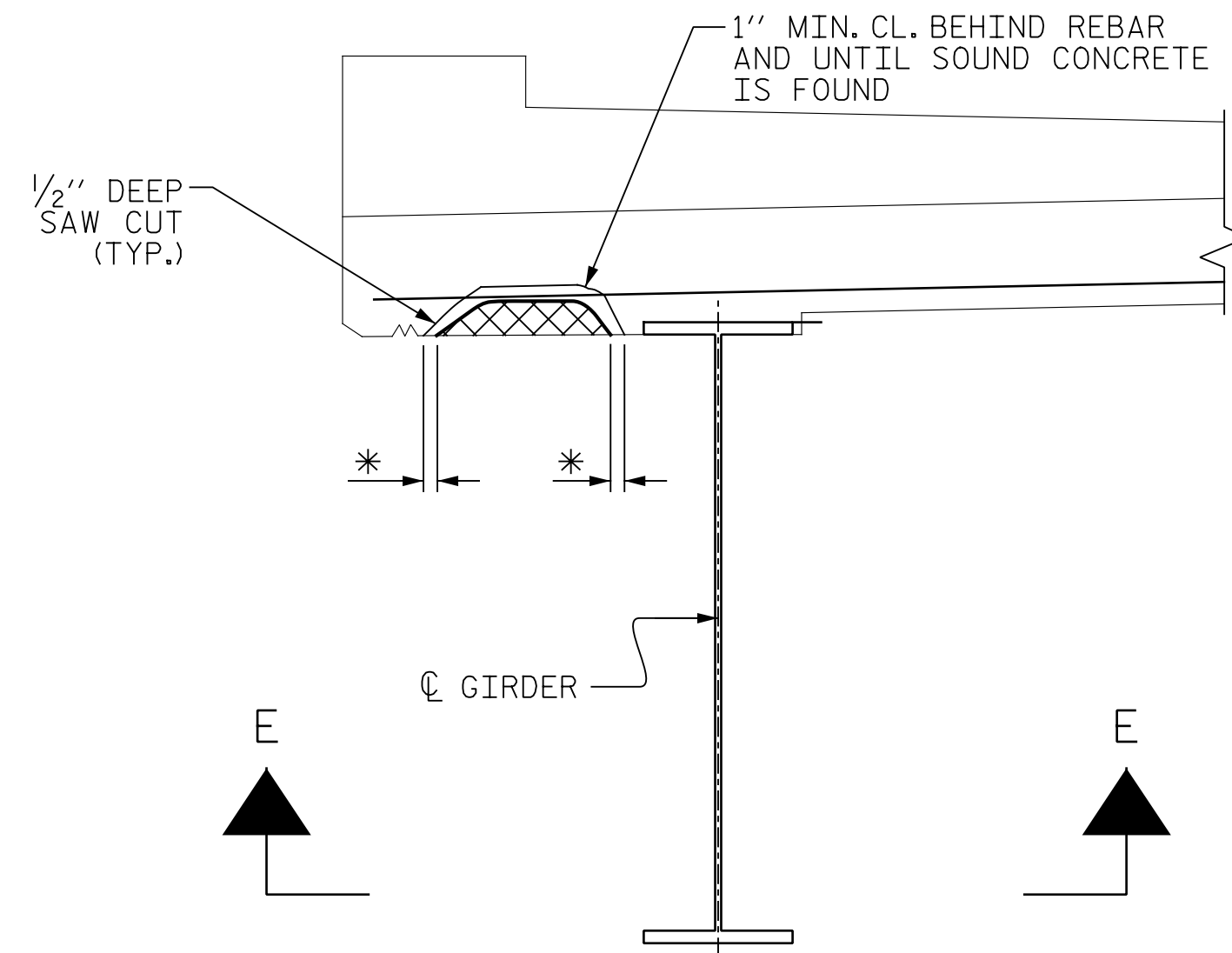
CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

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.

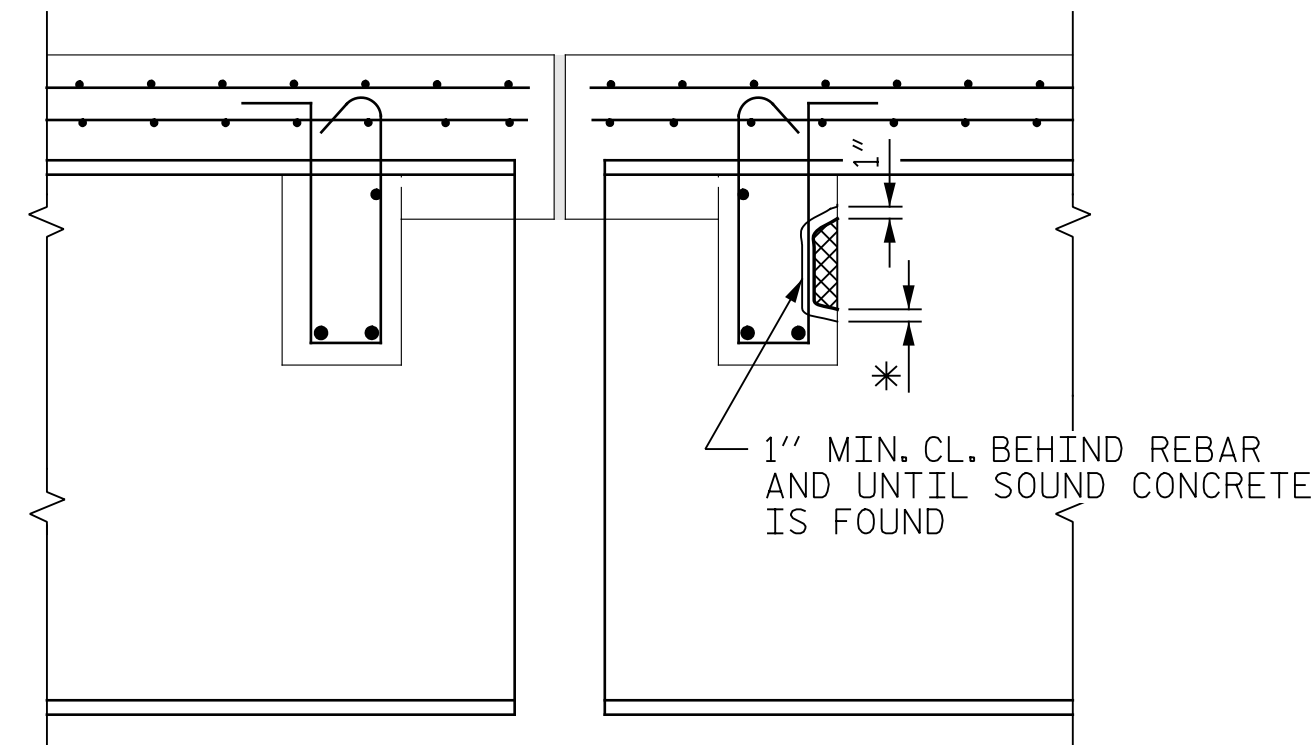
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE DIAPHRAGM REPAIR, SEE SPECIAL PROVISIONS.



TYPICAL SECTION

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

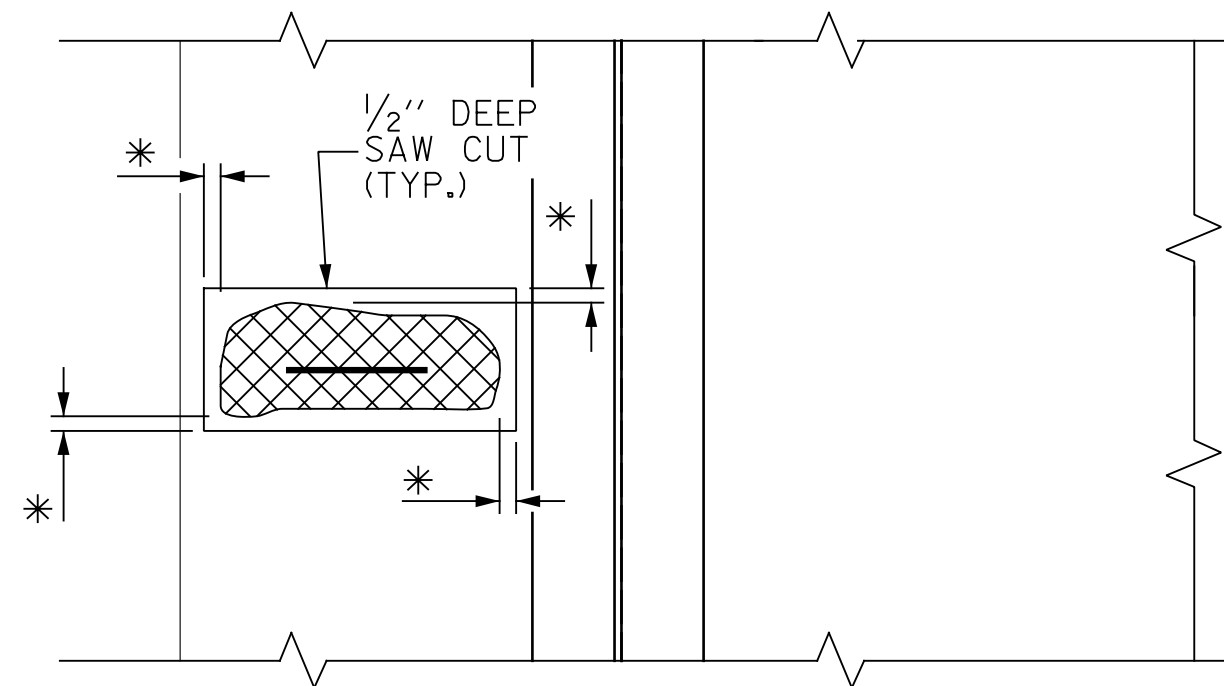


TYPICAL SECTION AT EXPANSION JOINTS

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

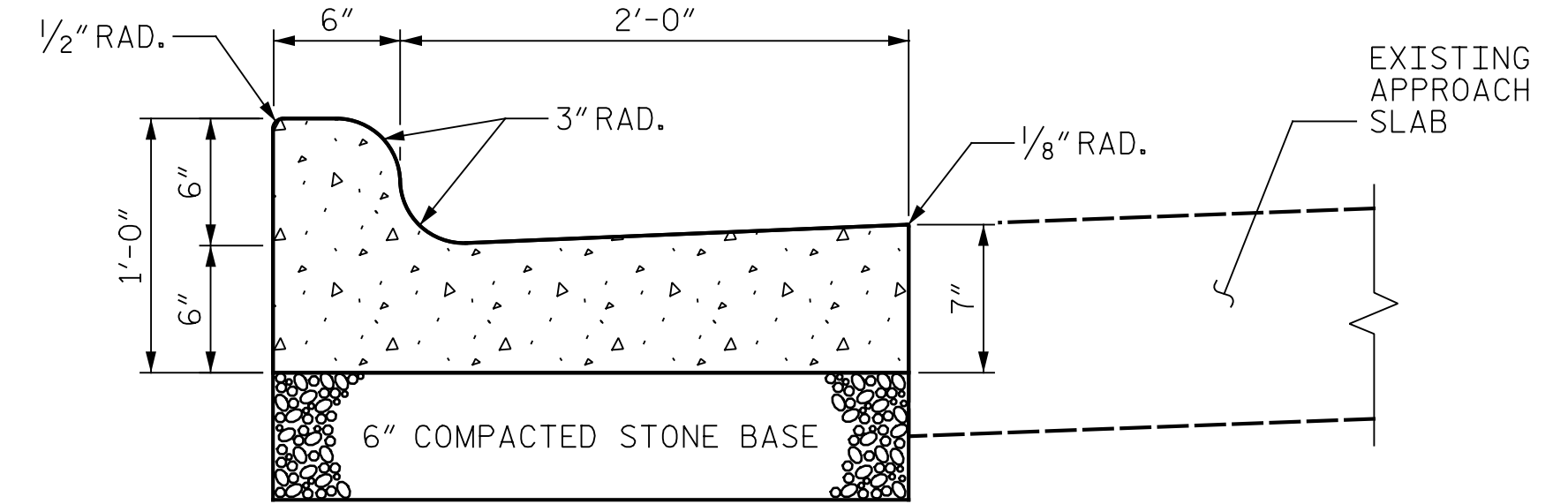


NOTE:
EXISTING REBAR TO REMAIN IN PLACE.
CLEAN AND REPAIR AS NECESSARY.



SECTION E-E

OVERHANG DETAILS



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 ID REQUIRED BY THE ENGINEER.

CONTRACTION JOINTS MAY BE INSTALLED WITH THE USED 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.

PROJECT NO. 15BPR.126.3
CUMBERLAND COUNTY
 BRIDGE NO. 250053



DocuSigned by:
Eric B. Nelson
8/21/2024

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

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

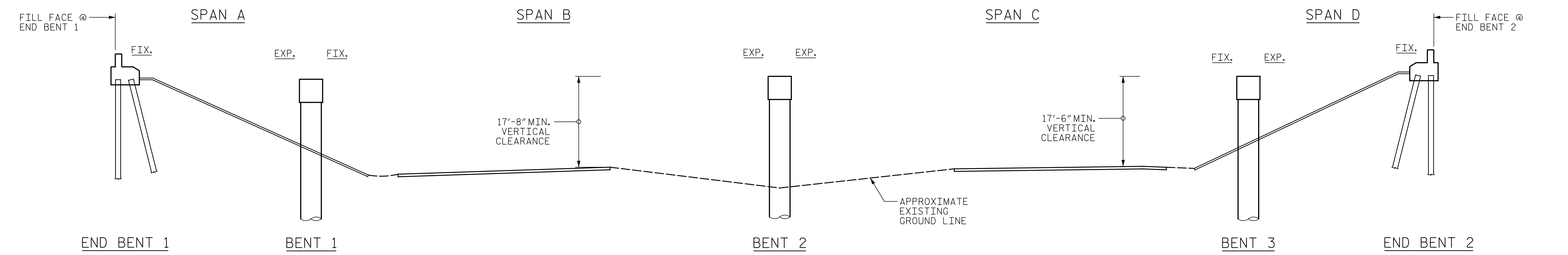
DRAWN BY : J. MYA DATE : 01/2021
 CHECKED BY : J. YANNAACONE DATE : 01/2021



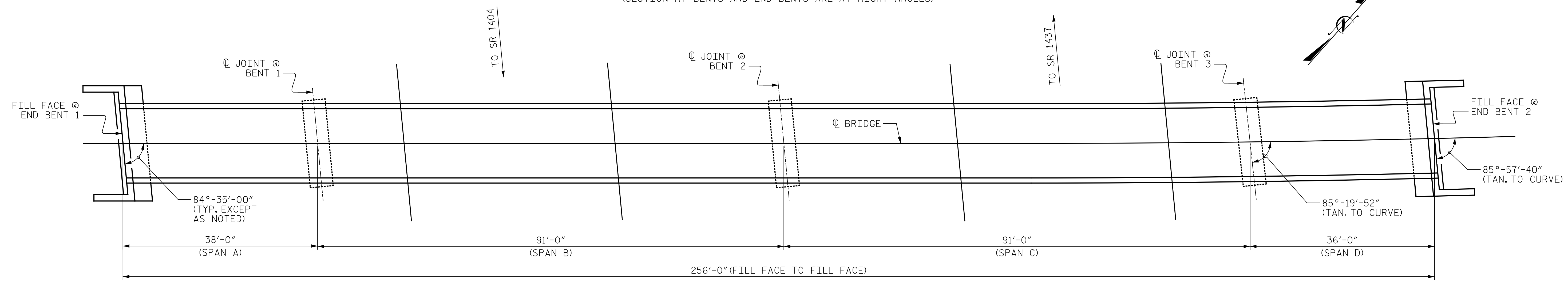
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SECTION ALONG C BRIDGE
 (SECTION AT BENTS AND END BENTS ARE AT RIGHT ANGLES)



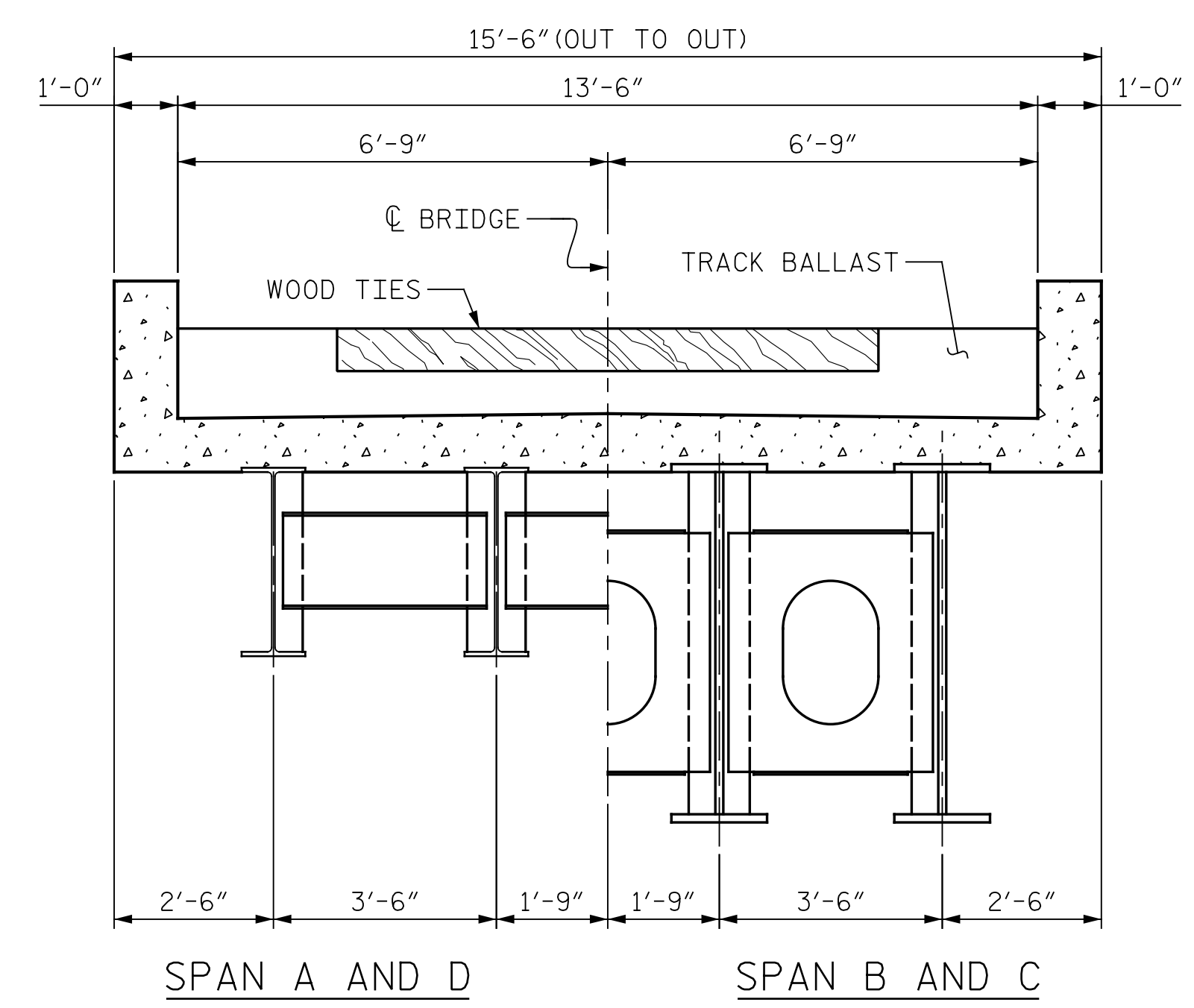
PLAN
 (PILES NOT SHOWN FOR CLARITY)

SCOPE OF WORK

CLEAN AND ZONE PAINT EXISTING STRUCTURAL STEEL BEAMS AND GIRDERS.

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

RESIDENT ENGINEER _____ DATE _____



TYPICAL SECTION

NOTES:

- GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 01/24/2024.
- BRIDGE ORIENTATION CONFORMS TO THE EXISTING BRIDGE PLANS.
- FOR GENERAL NOTES, LOCATION SKETCH, AND BRIDGE COORDINATES, SEE SHEET S1-2.
- ZONE PAINTING SHALL EXTEND 10'-0" FROM THE END OF EACH BEAM AND SHALL INCLUDE DIAPHRAGMS, BEARINGS, STIFFENERS AND ALL OTHER STEEL COMPONENTS WITHIN THE 10'-0" AREA.
- FOR ZONE PAINTING OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

PROJECT NO. 6B.102611
CUMBERLAND COUNTY
 BRIDGE NO. 250230



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 FOR BRIDGE CARRYING
 ABANDONED RR OVER SR 1007
 (ALL AMERICAN FREEWAY)

DRAWN BY: J. MYA DATE: 08/2024
 CHECKED BY: J. YANACCONI DATE: 08/2024



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2			4			TOTAL SHEETS 20

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED $\frac{3}{4}$ " 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 $\frac{3}{16}$ " 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 $\frac{1}{16}$ " OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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