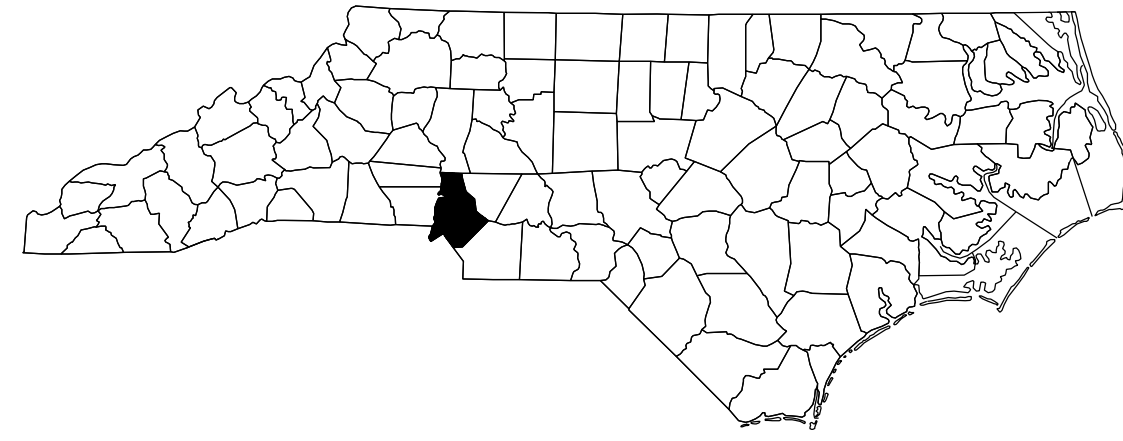


CONTRACT NO: DJ00538 PROJECT: 10BPR.401



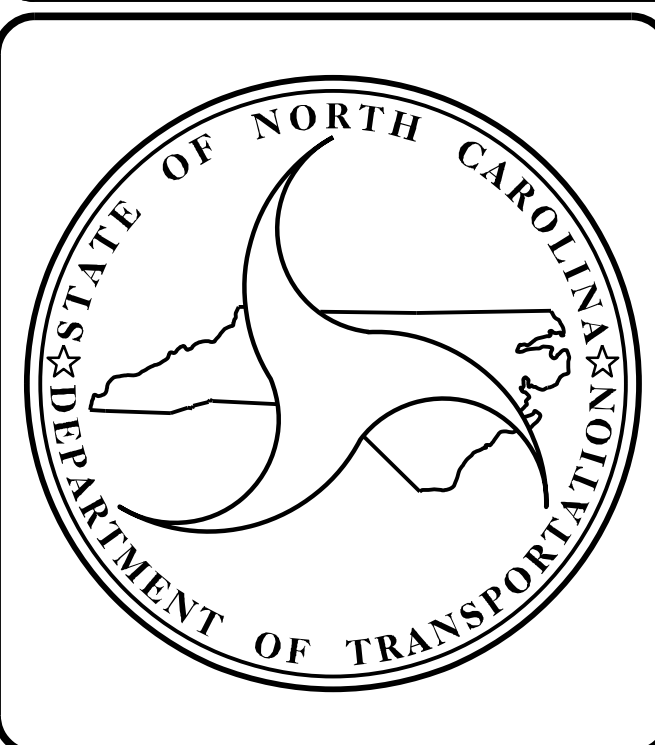
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	10BPR.401	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
10BPR.401.1	—	P.E.	
10BPR.401.3	—	CONST.	

LOCATION: BRIDGE #590348 ON BEATTIES FORD ROAD OVER NC-16 & CSX RAILROAD (CSX RR MILEPOST SF 332 AND DOT# 631416G)

TYPE OF WORK: BRIDGE PRESERVATION - DECK REPAIRS, LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH (LMC-VES) OVERLAY, JOINT REPLACEMENTS, STRUCTURAL STEEL REPAIRS, CLEANING AND PAINTING OF EXISTING STEEL BEAMS, BEARING REPLACEMENTS, CONCRETE DIAPHRAGM REPAIRS, EPOXY COATING AND DEBRIS REMOVAL, SUBSTRUCTURE REPAIRS, SIDEWALK REPAIRS



DESIGN DATA
MECKLENBURG COUNTY
BRIDGE #590348 - ADT 2022 = 15,500

PROJECT LENGTH
MECKLENBURG COUNTY
BRIDGE #590348 - 0.067 MILE

Prepared In the Office of:
benesch NC FIRM LICENSE No: F-1320
8000 REGENCY PARKWAY, STE 175
CARY, NC 27518
(984) 275-2490

2024 STANDARD SPECIFICATIONS

LETTING DATE : DECEMBER 2024

ALEXANDER FORFA, PE
PROJECT ENGINEER

PROJECT: 10BPR.401

CONTRACT NO: DJ00538

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

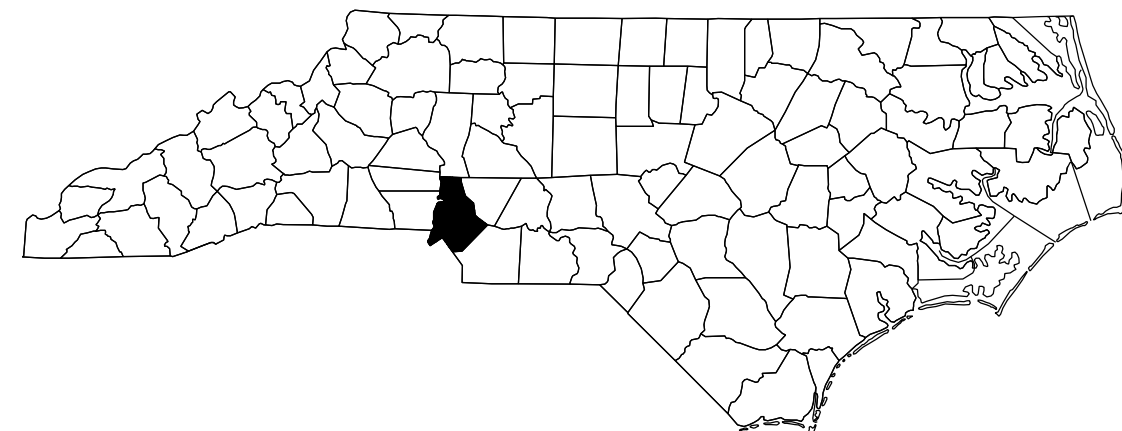
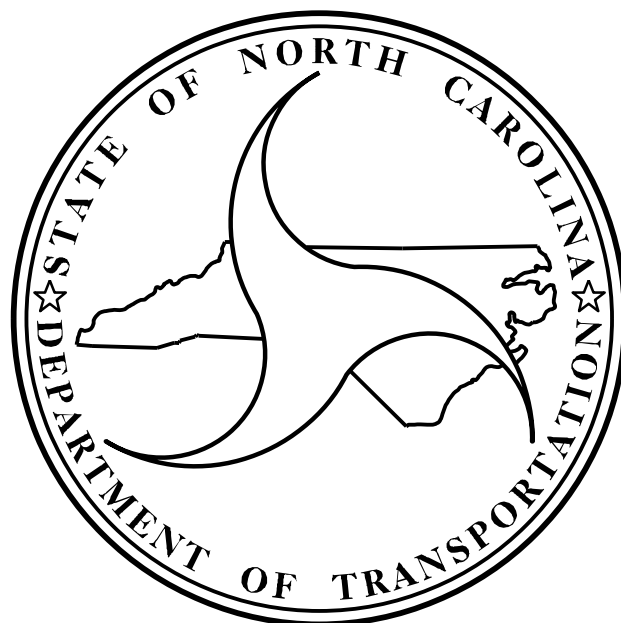
MECKLENBURG COUNTY

**LOCATION: BRIDGE #590348 ON BEATTIES FORD ROAD OVER NC-16
& CSX RAILROAD (CSX RR MILEPOST SF 332 AND DOT# 631416G)**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	10BPR.401	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
10BPR.401.1	—	P.E.	
10BPR.401.3	—	CONST.	

INDEX OF SHEETS

<u>SHEET No.</u>	<u>DESCRIPTION</u>	<u>SHEET No.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET	S-11	STRUCTURAL STEEL WELDED PLATE REPAIR DETAILS
1A	INDEX OF SHEETS	S-12	ELASTOMERIC BEARING DETAILS
S-01	LOCATION SKETCH AND TOTAL BILL OF MATERIALS	S-13	ELASTOMERIC BEARING DETAILS
S-02	GENERAL NOTES	S-14	JACKING DETAILS
S-03	GENERAL DRAWING	S-15	END BENT 1 & 2
S-04	TYPICAL SECTION AND SURFACE PREPARATION DETAILS	S-16	BENT 1
S-05	DECK REPAIRS	S-17	BENT 1
S-06	DECK REPAIRS	S-18	BENT 4
S-07	DECK REPAIRS	S-19	BENT 4
S-08	JOINT DETAILS	S-20	TYPICAL CAP AND COLUMN REPAIR DETAILS
S-09	STRUCTURAL STEEL REPAIR LOCATIONS	S-21	SIDEWALK REPAIRS
S-10	STRUCTURAL STEEL REPAIR LOCATIONS	SN	STANDARD NOTES



TYPE OF WORK:
BRIDGE PRESERVATION - DECK REPAIRS, LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH (LMC-VES) OVERLAY, JOINT REPLACEMENTS, STRUCTURAL STEEL REPAIRS, CLEANING AND PAINTING OF EXISTING STEEL BEAMS, BEARING REPLACEMENTS, CONCRETE DIAPHRAGM REPAIRS, EPOXY COATING AND DEBRIS REMOVAL, SUBSTRUCTURE REPAIRS, SIDEWALK REPAIRS

Prepared In the Office of:
benesch
NC FIRM LICENSE No: F-1320
 8000 REGENCY PARKWAY, STE 175
 CARY, NC 27518
 (984) 275-2490



BRIDGE COORDINATES	
LATITUDE	LONGITUDE
35°-14'-59.08"	80°-51'-23.25"

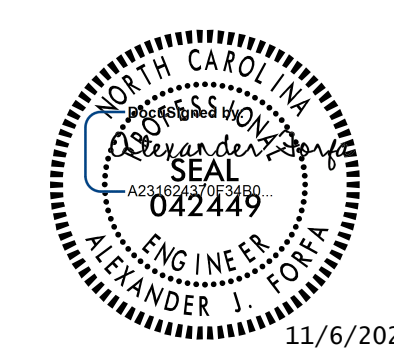
LOCATION SKETCH

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

TOTAL BILL OF MATERIAL

GROOVING BRIDGE FLOORS	POLLUTION CONTROL	FIELD MEASURING	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	PAINTING STRUCTURAL STEEL	PAINTING CONTAINMENT FOR BRIDGE 590348	FOAM JOINT SEALS FOR PRESERVATION	LATEX MODIFIED CONCRETE OVERLAY - VERY EARLY STRENGTH	ELASTOMERIC CONCRETE FOR PRESERVATION	BEAM REPAIR-CUT OUT	BRIDGE JOINT DEMOLITION	EPOXY COATING AND DEBRIS REMOVAL	SCARIFYING BRIDGE DECK	HYDRO-DEMOLITION OF BRIDGE DECK	PLACING & FINISHING LMC-VES OVERLAY	ELASTOMERIC BEARING, MODIFIED	TYPE I BRIDGE JACKING FOR BRIDGE NO. 590348	SIDEWALK REPAIRS
SQ.FT.	LUMP SUM	LUMP SUM	CU. FT.	CU. FT.	LIN. FT.	LUMP SUM	LUMP SUM	LIN. FT.	CU. YDS.	CU. FT.	LB.	SO. FT.	SO. FT.	SO. YDS.	SO. YDS.	SO. YDS.	EA.	EA.	LUMP SUM
17348	LUMP SUM	LUMP SUM	1.8	78.0	199.7	LUMP SUM	LUMP SUM	156.8	70.8	34.0	975	136.0	487.8	2040.3	2040.3	2040.3	32	32	LUMP SUM

PROJECT NO. 10BPR.401
MECKLENBURG COUNTY
 BRIDGE NO. 590348



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

 LOCATION SKETCH
 AND TOTAL BILL
 OF MATERIALS

DRAWN BY : T. STUMP DATE : 03/2024
 CHECKED BY : A. FORFA DATE : 03/2024
 DESIGN ENGINEER OF RECORD : A. FORFA DATE : 11/2024

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-01
1			3			TOTAL SHEETS
2			4			22

GENERAL NOTES

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

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

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

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

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

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.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE ELEVATIONS AND CLEARANCES SHOWN ON THE PLANS AT THE POINT 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 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.

THE RAILROAD TRACK TOP OF RAIL TO BOTTOM OF BEAM VERTICAL CLEARANCE ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. PRIOR TO BEGINNING BRIDGE CONSTRUCTION, VERIFY THE TOP OF RAIL TO BOTTOM OF BEAM CLEARANCES AND REPORT ANY VARIATIONS TO THE ENGINEER. ANY PLAN REVISIONS NECESSARY TO ACHIEVE THE REQUIRED MINIMUM CLEARANCE WILL BE PROVIDED BY THE DEPARTMENT.

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

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

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

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

- UNANTICIPATED ITEMS:
- CLASS II SURFACE PREPARATIONS. SQ. YDS.
 - CLASS III SURFACE PREPARATIONS. SQ. YDS.
 - CONCRETE FOR DECK REPAIR. CU. FT.
 - VOLUMETRIC MIXER. LUMP SUM.
 - TYPE II BRIDGE JACKING. EACH.

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.

THE CONTRACTOR SHALL SCHEDULE CLEANING AND REPAINTING OPERATIONS SUCH THAT THE STEEL REPAIR IS PERFORMED AFTER THE STEEL HAS BEEN CLEANED AND PRIMED. AFTER STEEL REPAIRS HAVE BEEN COMPLETED, THE REPAIRS SHALL BE BLAST-CLEANED ACCORDING TO THE SPECIAL PROVISIONS. PROPER PAINTING PREPARATION AND APPLICATION OPERATIONS SHALL BE RESUMED AFTER STEEL REPAIRS ARE COMPLETED.

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

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

FOR LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

FOR ANCHOR BOLT NUT REPLACEMENT AND TIGHTENING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR - CUT OUT, SEE SPECIAL PROVISIONS.

FOR MODIFIED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

FOR SIDEWALK REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIRS, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

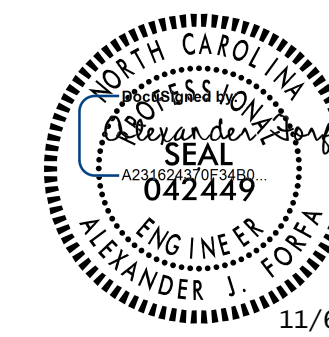
USE OF THE CSXT RIGHT OF WAY WILL BE LIMITED TO THE IMMEDIATE PROJECT VICINITY.

CONTRACTOR SHALL NOT BE PERMITTED TO TRAVEL ALONG THE CSXT RIGHT OF WAY FOR ACCESS TO PROJECT LOCATION.

PROJECT NO. 10BPR.401
MECKLENBURG COUNTY
 BRIDGE NO. 590348

DRAWN BY : T. STUMP DATE : 03/2024
 CHECKED BY : A. FORFA DATE : 03/2024
 DESIGN ENGINEER OF RECORD : A. FORFA DATE : 11/2024

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 Suite 175
 Cary, NC 27518
 984-275-2490
 benesch.com
 NC License No. F-1320



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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL NOTES					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					22
					S-02

CSX GENERAL NOTES

THE CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIAL OF ANY KIND ON CSXT RIGHT-OF-WAY (ROW) OR WHERE THEY MAY HAVE THE POTENTIAL TO INTERFERE WITH CSXT OPERATIONS UNLESS CONTRACTOR HAS RECEIVED PRIOR WRITTEN AUTHORIZATION BY CSXT REPRESENTATIVE.

BASED ON THE PROJECT SCOPE, CSXT WILL DETERMINE THE LEVEL OF TRACK/ROW PROTECTION REQUIRED. HOWEVER, NO WORK ON OR WITH IMPACTS TO CSXT ROW IS PERMITTED WITHOUT SAID TRACK/ROW PROTECTION.

UNDER NO CONDITIONS SHALL WORK AFFECT THE SAFE PASSAGE OF TRAINS OR OTHER ON TRACK EQUIPMENT.

CONTRACTOR AND ALL SUBCONTRACTORS (IF APPLICABLE) SHALL PROCURE AND MAINTAIN RAILROAD PROTECTIVE LIABILITY INSURANCE AND COVERAGE OF INSURANCE BEFORE ACCESSING CSXT RIGHT-OF-WAY (ROW).

CONTRACTOR SHALL REFER TO THE CSXT PUBLIC PROJECTS MANUAL, MOST RECENT EDITION, FOR CONSTRUCTION REQUIREMENTS WHILE WITHIN THE CSXT RIGHT-OF-WAY (ROW).

CONTRACTOR MUST HAVE AN EMERGENCY ACTION AND HURRICANE PREPAREDNESS PLAN AND MEANS AND METHODS, WHICH SHOULD BE SITE SPECIFIC AND MUST INCLUDE COORDINATION WITH CSXT AND CSXT REPRESENTATIVE, WHILE WORKING WITHIN THE CSXT ROW LIMITS. THESE PLANS MUST BE PROVIDED TO CSXT FOR REVIEW AND ACCEPTANCE PRIOR TO WORK COMMENCING WHICH MAY IMPACT CSXT RIGHT-OF-WAY (ROW) OR FACILITIES.

AGENCY AND CONTRACTOR ARE NOT PERMITTED TO CROSS CSXT'S PROPERTY OR TRACKS, EXCEPT ON EXISTING PUBLIC ROAD CROSSINGS, WITH VEHICLES, MEN, OR EQUIPMENT OF ANY KIND WITHOUT PRIOR AUTHORIZATION FROM CSXT OR AUTHORIZED REPRESENTATIVE.

IF ANY ISSUE OR INCIDENT OCCURS WITHIN CSXT RIGHT-OF-WAY (ROW), CONTRACTOR MUST IMMEDIATELY CONTACT THE CSXT PUBLIC SAFETY COORDINATION CENTER AT 800-232-0144 AND NOTIFY CSXT REPRESENTATIVE.

PER THE CSXT PUBLIC PROJECTS MANUAL, CONTRACTOR MUST SUBMIT DEBRIS SHIELD AND CONTAINMENT SYSTEM FOR CSXT REVIEW PRIOR TO COMMENCING ANY WORK WITHIN CSXT ROW.

PROVIDE CSX WITH A 45 DAY ADVANCE NOTICE OF BEGINNING WORK WITHIN THE RAILROAD RIGHT OF WAY TO ALLOW FOR THE SCHEDULING OF TRACK/ROW PROTECTION. FAILURE BY THE CONTRACTOR TO MEET THE REQUIREMENTS OF THIS NOTE CONSTITUTES A FULL, COMPLETE ABSOLUTE AND IRREVOCABLE WAIVER BY THE CONTRACTOR OF ANY RIGHT TO CLAIM FOR ADDITIONAL COMPENSATION OR A TIME EXTENSION RELATED TO WORK WITHIN THE RAILROAD RIGHT OF WAY.

THE CONTRACTOR MUST PLAN AND PERFORM THE WORK IN A MANNER SUCH THAT THE CSXT TRACKS AT THE PROJECT LOCATION REMAIN FULLY CAPABLE OF CARRYING RAIL TRAFFIC THROUGHOUT THE WORK PERIOD AND RAIL TRAFFIC IS NOT DELAYED OR OTHERWISE IMPACTED DUE TO THE WORK BEING PERFORMED.

THE CONTRACTOR SHALL NOT BE PERMITTED TO USE THE CSXT RIGHT-OF-WAY FOR STORAGE OF MATERIALS OR EQUIPMENT DURING CONSTRUCTION. THE CSXT RIGHT-OF-WAY MUST REMAIN CLEAR AT ALL TIMES.

NO EQUIPMENT WILL BE PERMITTED TO BE STAGED WITHIN FIFTEEN FEET (15) OF TRACK CENTERLINE AT ANY TIME DURING THE PERFORMANCE OF THE PROJECT WORK.

THE CONTRACTOR SHALL BE REQUIRED TO FULLY COMPLY WITH ALL FEDERAL, STATE, AND LOCAL ENVIRONMENTAL LAWS, REGULATIONS, STATUTES, AND ORDINANCES AT ALL TIMES.

CSXT FACILITIES ARE NOT SUBJECT TO "MISS UTILITY" PROGRAMS SUCH AS NORTH CAROLINA 811. CONTRACTOR SHALL COORDINATE WITH CSXT TO HAVE ITS FACILITIES MARKED IN THE FIELD PRIOR TO PERFORMING WORK WITH THE POTENTIAL TO IMPACT BELOW-GRADE FACILITIES. CSXT WILL MARK OUT EXISTING CSXT FACILITIES AT PROJECT EXPENSE.

A CSXT FLAGMAN MAY BE REQUIRED FOR ANY WORK WHICH REQUIRES ENTRY ONTO THE CSXT RIGHT-OF-WAY, ANY WORK THAT HAS POTENTIAL TO FOUL CSXT TRACK, AND ANY WORK TO BE PERFORMED WITHIN FIFTY FEET (50) OF THE CENTERLINE OF TRACK. CSXT SHALL HAVE SOLE AUTHORITY TO DETERMINE THE NEED FOR FLAGGING REQUIRED TO PROTECT ITS OPERATIONS AND PROPERTY.

THE CONTRACTOR MUST ADHERE TO THE PROVISIONS OF THE CSXT INSURANCE REQUIREMENTS, CSXT SPECIAL PROVISIONS, CSXT CONSTRUCTION SUBMISSION CRITERIA, CSXT SOIL AND WATER MANAGEMENT POLICY, AND PROJECT-SPECIFIC CONSTRUCTION REQUIREMENTS. IN THE EVENT THERE IS ANY DISCREPANCY OR PERCEIVED VARIANCE BETWEEN THE PROVISIONS WITHIN THE CSXT DOCUMENTS AND THOSE OF THE NCDOT AS RELATED TO THIS PROJECT, THEN THE PROVISIONS OF THE CSXT DOCUMENTS SHALL GOVERN.

CSXT DOES NOT PERMIT ANY REDUCTION TO THE EXISTING HORIZONTAL OR VERTICAL CLEARANCES AT ANY TIME DURING CONSTRUCTION, OR IN THE FINAL CONDITION. ANY PROPOSED TEMPORARY REDUCTION OF THE EXISTING HORIZONTAL OR VERTICAL CLEARANCE MUST BE REVIEWED BY CSXT WITH NO GUARANTEE OF APPROVAL.

CSXT TYPICALLY REQUIRES A MINIMUM HORIZONTAL CLEARANCE OF FIFTEEN FEET (15) FROM CENTERLINE OF TRACK TO ANY TEMPORARY MEASURES TO BE INSTALLED BY THE CONTRACTOR. ANY TEMPORARY REDUCTIONS FROM THE EXISTING HORIZONTAL CLEARANCE ARE SUBJECT TO REVIEW BY CSXT, WITH NO GUARANTEE OF APPROVAL.

USE OF THE CSXT RIGHT-OF-WAY WILL BE LIMITED TO THE IMMEDIATE PROJECT VICINITY.

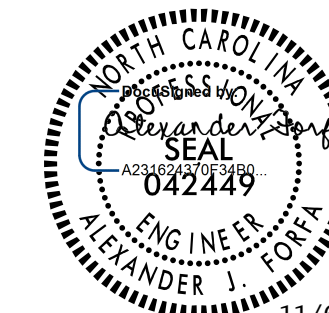
THE CONTRACTOR SHALL NOT BE PERMITTED TO TRAVEL ALONG THE CSXT RIGHT-OF-WAY FOR ACCESS TO THE PROJECT LOCATION.

THE CONTRACTOR SHALL UTILIZE PROPER EROSION CONTROL TECHNIQUES ON AND ADJACENT TO THE CSXT RIGHT-OF-WAY TO PREVENT SEDIMENT MOVEMENT THAT COULD AFFECT RAILROAD ACTIVITIES AND/OR PROPERTY.

INSTALLATION AND USE OF A TEMPORARY AT-GRADE CROSSING FOR CONSTRUCTION ACCESS ACROSS THE EXISTING TRACK, IF DESIRED, MUST BE FORMALLY REQUESTED BY THE CONTRACTOR VIA APPLICATION TO CSXT REAL ESTATE. APPROVAL OF SUCH REQUEST/APPLICATION IS NOT ONLY NOT GUARANTEED BUT ALSO IS EXTREMELY HIGHLY UNLIKELY.

DRAWN BY : N. ROHRBAUGH DATE : 06/2024
 CHECKED BY : A. FORFA DATE : 06/2024
 DESIGN ENGINEER OF RECORD : A. FORFA DATE : 11/2024

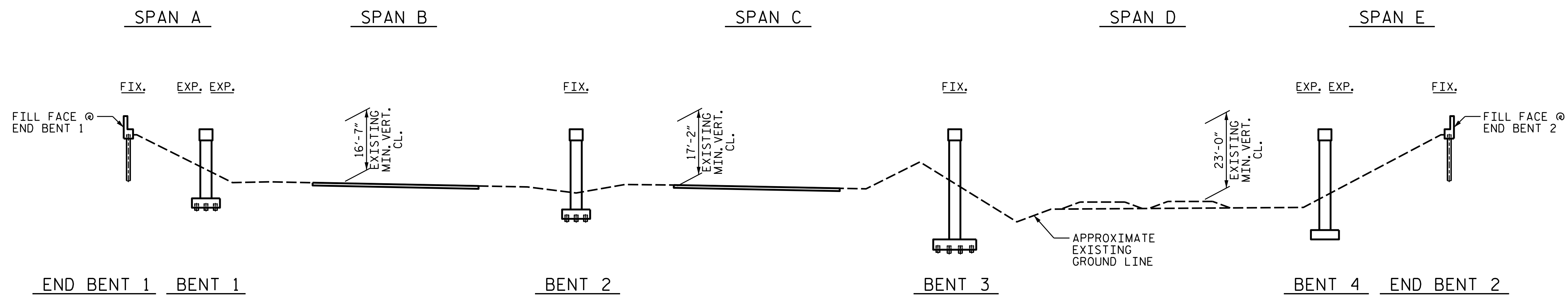
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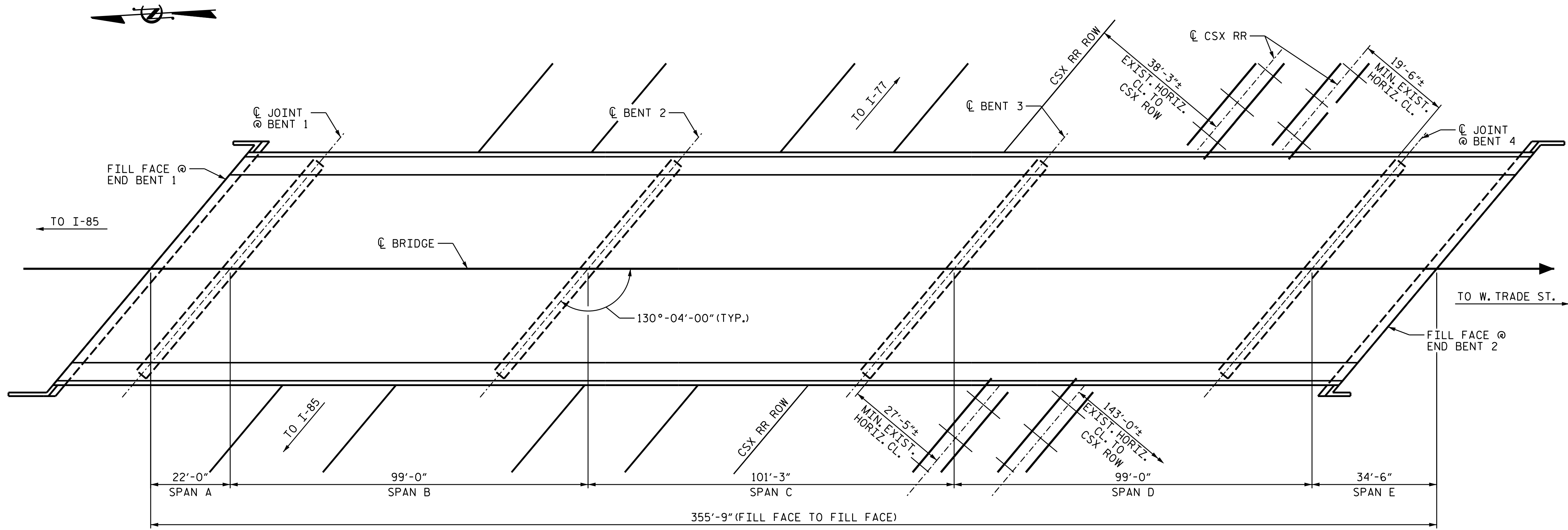
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PROJECT NO. 10BPR.401
MECKLENBURG COUNTY
 BRIDGE NO. 590348

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
NOTES FOR WORKING OVER CSXT RIGHT OF WAY					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					22
					S-02A



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



PLAN
(PILES NOT SHOWN FOR CLARITY)

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

RESIDENT ENGINEER _____ DATE _____

8000 Regency Parkway
Suite 175
Cary, NC 27518
984-275-2490
benesch.com
NC License No. F-1320



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NOTES

- GENERAL DRAWING INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 9/7/2022.
- BRIDGE ORIENTATION CONFORMS TO THE ORIGINAL BRIDGE PLANS.
- SCOPE OF WORK**
- INSTALL BALLAST PROTECTION AND CONTAINMENT SYSTEM AS NEEDED TO PREVENT DEBRIS FROM FALLING ONTO CSX ROW.
 - PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY HYDRO-DEMOLITION. SEE GENERAL NOTES SHEET FOR RESTRICTIONS OVER CSX RAILROAD.
 - OVERLAY PREPARED TOP OF BRIDGE DECK WITH VERY EARLY STRENGTH LATEX MODIFIED CONCRETE (LMC-VES).
 - REMOVE EXISTING JOINT MATERIAL AND INSTALL FOAM JOINTS.
 - GROOVE LMC-VES BRIDGE DECK.
 - CLEAN, REPAIR AND PAINT EXISTING STRUCTURAL STEEL BEAMS.
 - REPLACE EXISTING BEARINGS.
 - REMOVE DEBRIS FROM TOP OF EXISTING 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.
 - REPAIR SIDEWALK.

CONSTRUCTION SEQUENCE

- FIELD VERIFY AND MEASURE PROPOSED STRUCTURAL STEEL REPAIR AREAS AND EXISTING BEARING HEIGHTS FOR PREPARATION OF SHOP DRAWINGS.
- REMOVE LEAD BASED PAINT IN AREAS RECEIVING STEEL REPAIRS.
- PERFORM BEARING REPLACEMENTS. PERFORM BEAM OR SPAN JACKING AS REQUIRED. PERFORM STRUCTURAL STEEL BEAM END REPAIRS AND CONCRETE REPAIRS TO DELAMINATED OR OTHERWISE DETERIORATED AREAS OF CAP UNDER OR ADJACENT TO BEARINGS.
- REPAIR SETTLEMENT TO SIDEWALK AT THE APPROACHES.
- PERFORM SHOTCRETE, CONCRETE OR EPOXY RESIN INJECTION REPAIRS TO SUBSTRUCTURE AND DECK UNDERSIDE.
- PERFORM DECK SURFACE PREPARATION AND PLACE LMC-VES OVERLAY.
- INSTALL FOAM JOINTS.
- CLEAN AND PAINT EXISTING STEEL BEAMS.
- REMOVE DEBRIS FROM TOP OF EXISTING BENT CAPS AND APPLY EPOXY COATING

PROJECT NO. 10BPR.401
MECKLENBURG COUNTY
BRIDGE NO. 590348

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE
ON BEATTIES FORD RD.
OVER NC-16 & CSX RR

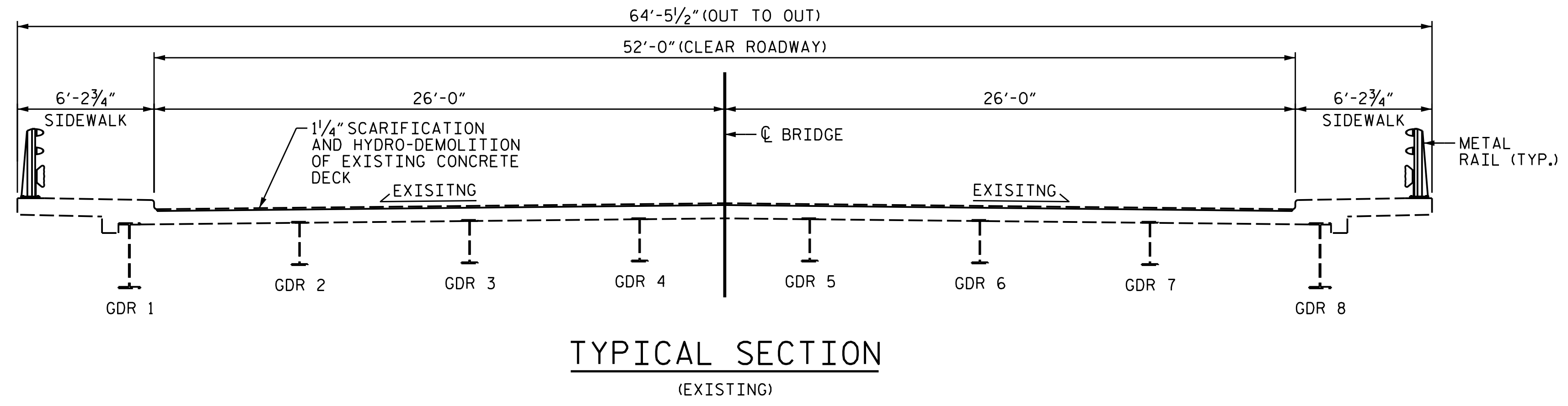
DRAWN BY :	T. STUMP	DATE :	03/2024
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DESIGN ENGINEER OF RECORD :	A. FORFA	DATE :	11/2024

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2			4			

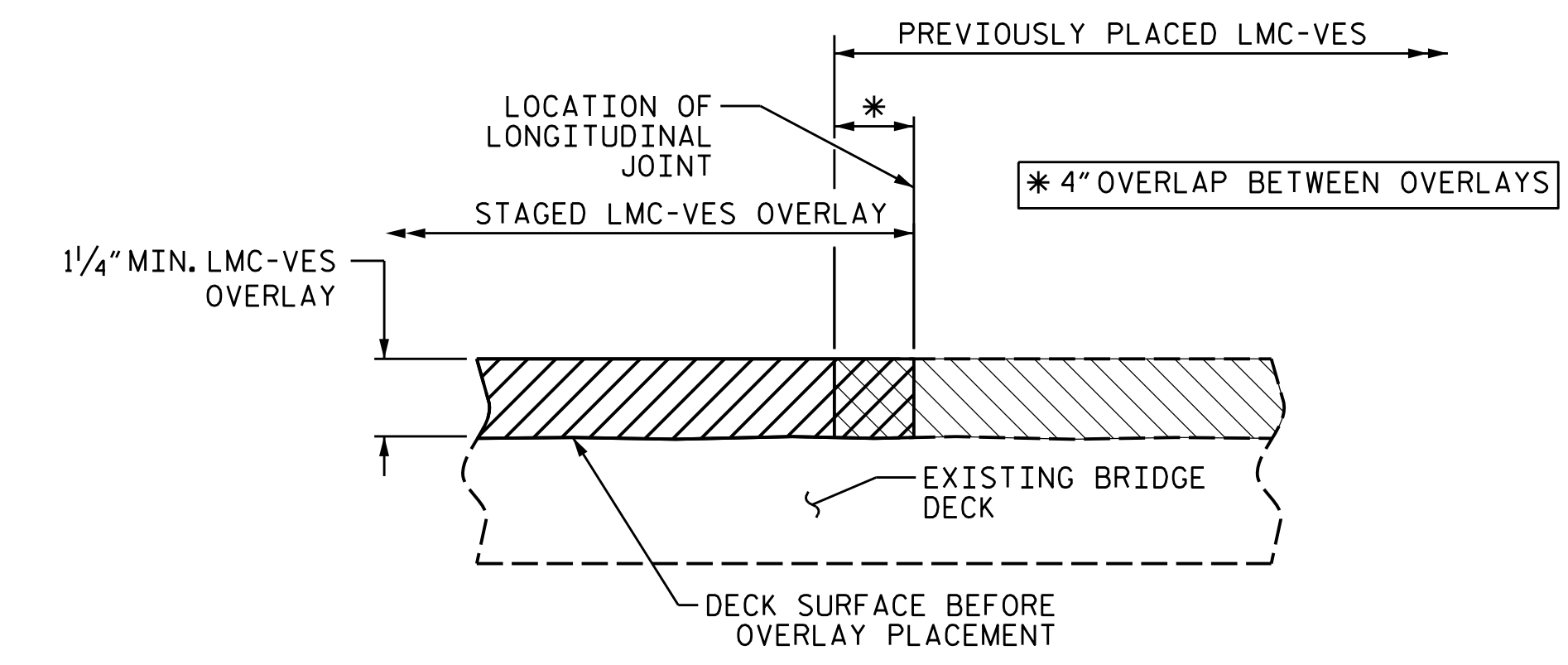
NOTES:

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

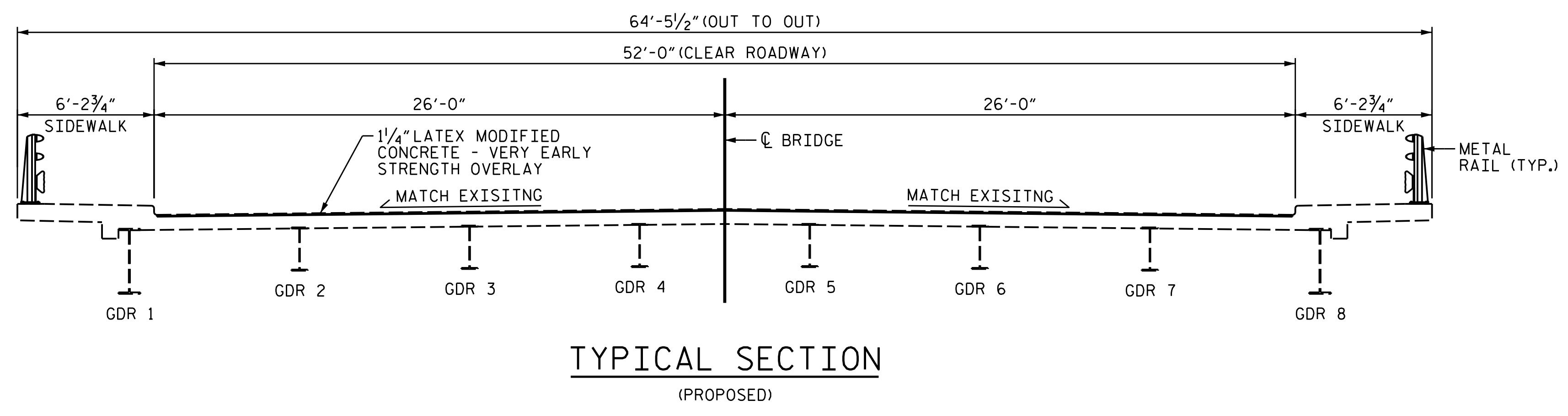
PREVIOUSLY PLACED LMC-VES OVERLAY AT STAGED EDGES SHALL BE DEMOLISHED BACK A MINIMUM OF 4 INCHES AND RECAST WITH LMC-VES. SEE STAGED LMC-VES OVERLAY JOINT DETAIL ON THIS SHEET.



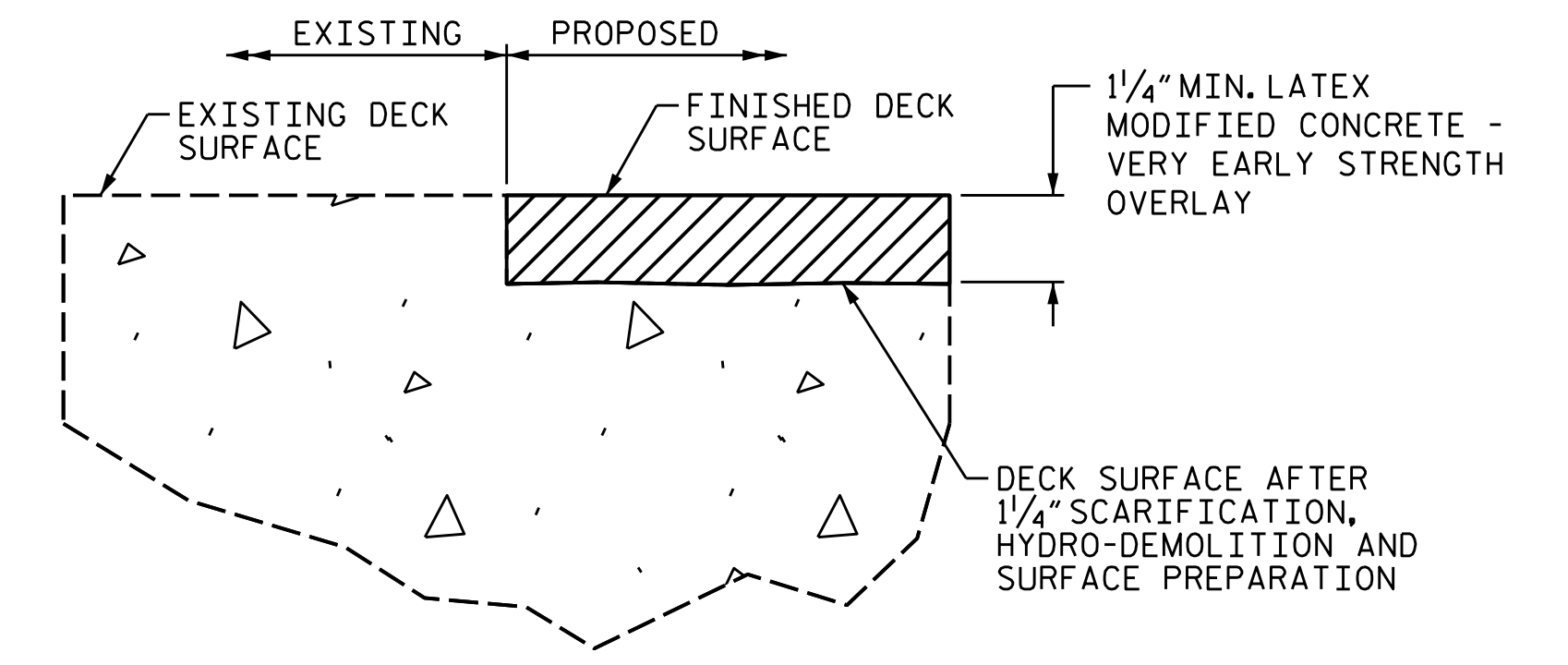
TYPICAL SECTION
(EXISTING)



SECTION THRU DECK
STAGED LMC-VES OVERLAY JOINT



TYPICAL SECTION
(PROPOSED)



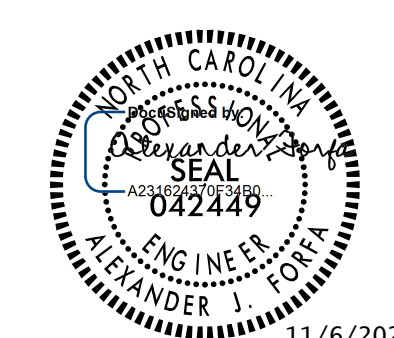
DETAIL FOR LMC-VES OVERLAY

FINISHED SURFACE OF THE LATEX MODIFIED CONCRETE - VERY EARLY STRENGTH OVERLAY SHALL MATCH EXISTING CONCRETE SURFACE ELEVATION. ACTUAL THICKNESS OF LMC-VES OVERLAY MAY VARY.

PROJECT NO. 10BPR.401
MECKLENBURG COUNTY
BRIDGE NO. 590348

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION AND SURFACE PREPARATION DETAILS



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1			3			TOTAL SHEETS
2			4			22

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DESIGN ENGINEER OF RECORD : A. FORFA DATE : 11/2024

NOTES:

REPAIR LOCATIONS AND ESTIMATED 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.

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 1 1/2" PER EXISTING PLANS.

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

FOR DETAILS ON STAGED LMC-VES OVERLAY JOINT, SEE "TYPICAL SECTION AND SURFACE PREPARATION DETAILS" SHEET.

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

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

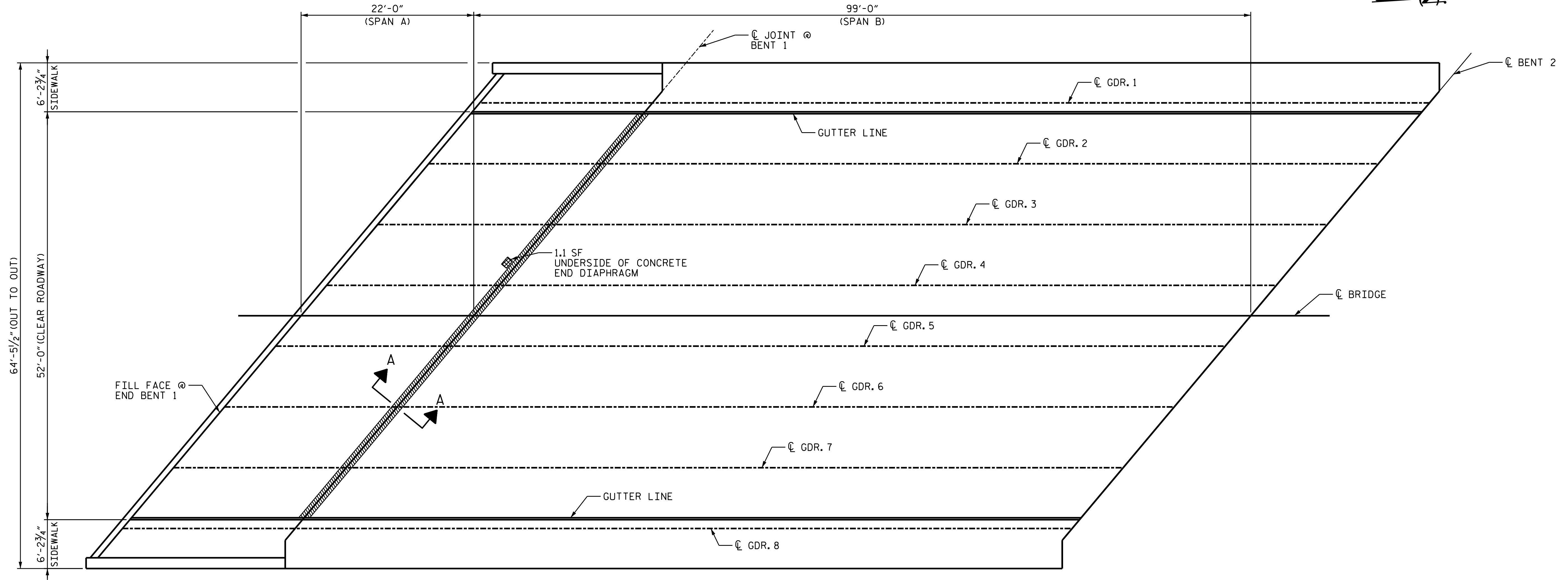
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.




FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE END DIAPHRAGM REPAIRS, SEE SHEET 2 OF 3.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIR					UNDERSIDE OF DECK REPAIR				
SPAN A	QUANTITIES				SPAN B	QUANTITIES			
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL		ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF	SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE DIAPHRAGMS	1.1	0.3			CONCRETE DIAPHRAGMS	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT		LN. FT		EPOXY RESIN INJECTION	LN. FT		LN. FT	
UNDERSIDE OF DECK	0.0				UNDERSIDE OF DECK	0.0			

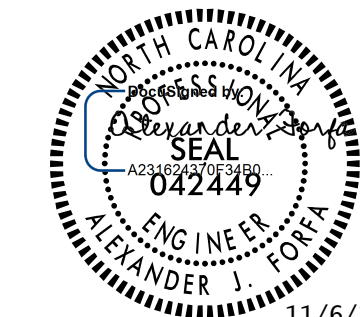


-  - BRIDGE JOINT DEMOLITION
-  - UNDERSIDE OF DECK REPAIR (SHOTCRETE)
-  - EPOXY RESIN INJECTION (ERI)

REPAIR QUANTITY TABLE					
DECK SURFACE REPAIR			DECK SURFACE REPAIR		
SPAN A	QUANTITIES		SPAN B	QUANTITIES	
	ESTIMATE	ACTUAL		ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	123.3 SY		SCARIFYING BRIDGE DECK	568.2 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	123.3 SY		HYDRO-DEMOLITION OF BRIDGE DECK	568.2 SY	
LMC-VES MATERIALS	4.3 CY		LMC-VES MATERIALS	19.7 CY	
PLACING AND FINISHING LMC-VES OVERLAY	123.3 SY		PLACING AND FINISHING LMC-VES OVERLAY	568.2 SY	
GROOVING BRIDGE FLOORS	1057 SF		GROOVING BRIDGE FLOORS	4830 SF	
BRIDGE JOINT DEMOLITION	34.0 SF		BRIDGE JOINT DEMOLITION	34.0 SF	

DRAWN BY : H. DREW DATE : 02/2024
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 DESIGN ENGINEER OF RECORD : A. FORFA DATE : 11/2024

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PROJECT NO. 10BPR.401
MECKLENBURG COUNTY
 BRIDGE NO. 590348

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**DECK REPAIRS
 SPANS A & B**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-05
1			3			TOTAL SHEETS
2			4			22

NOTES:

REPAIR LOCATIONS AND ESTIMATED 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.

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 1 1/2" PER EXISTING PLANS.

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THE CONTRACTOR SHALL REMOVE THE DETERIORATED CONCRETE IN ACCORDANCE WITH THE GUIDELINES SET IN THESE NOTES, IN THE SPECIAL PROVISIONS AND THE STANDARD NOTES. REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO SAWCUT.

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

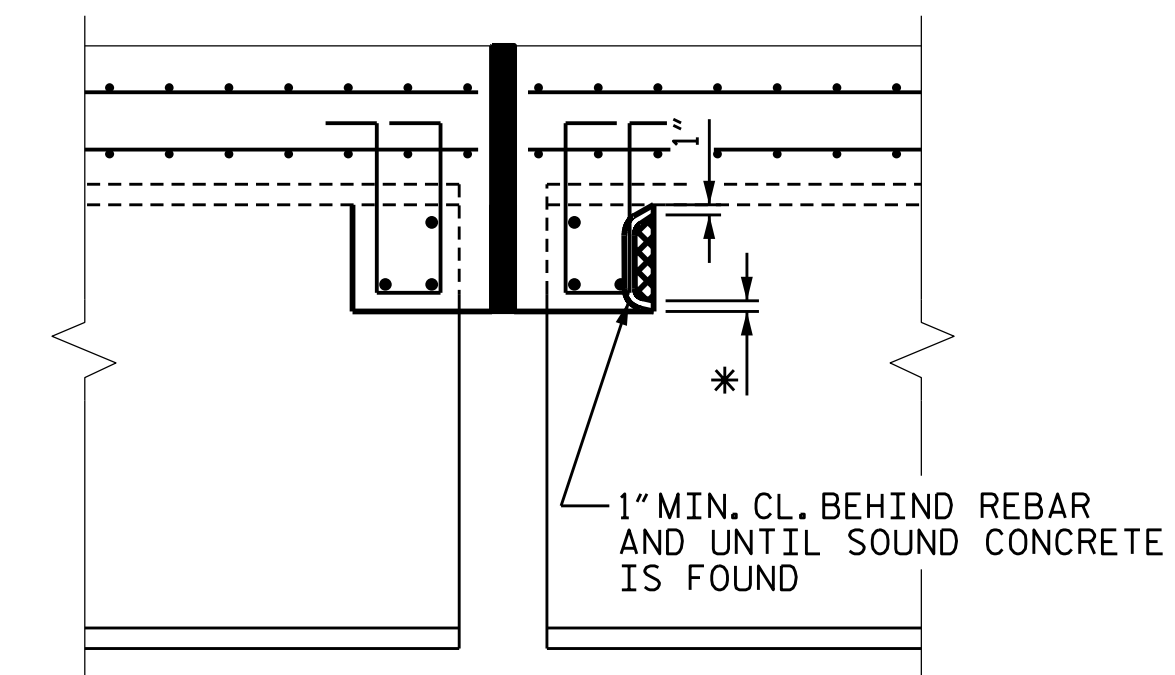
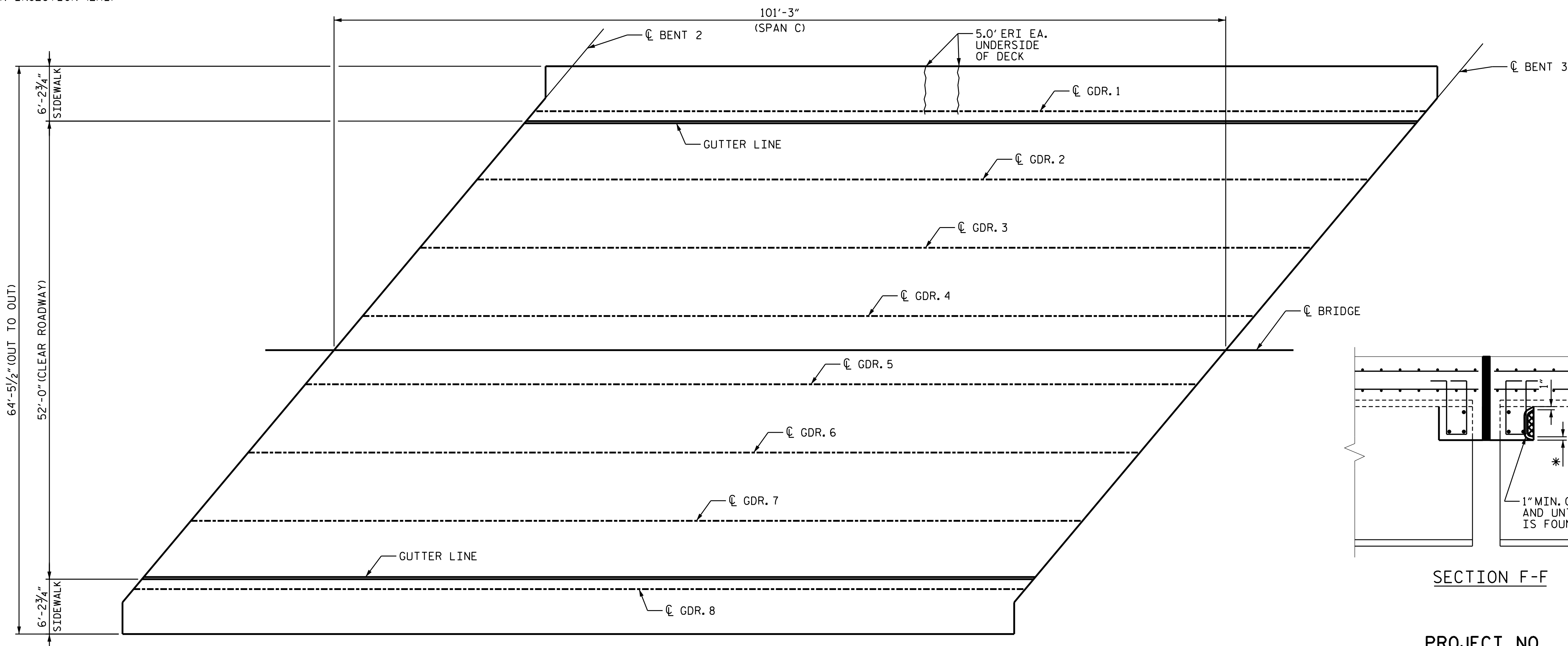
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE END DIAPHRAGM REPAIRS, DETAILS THIS SHEET.

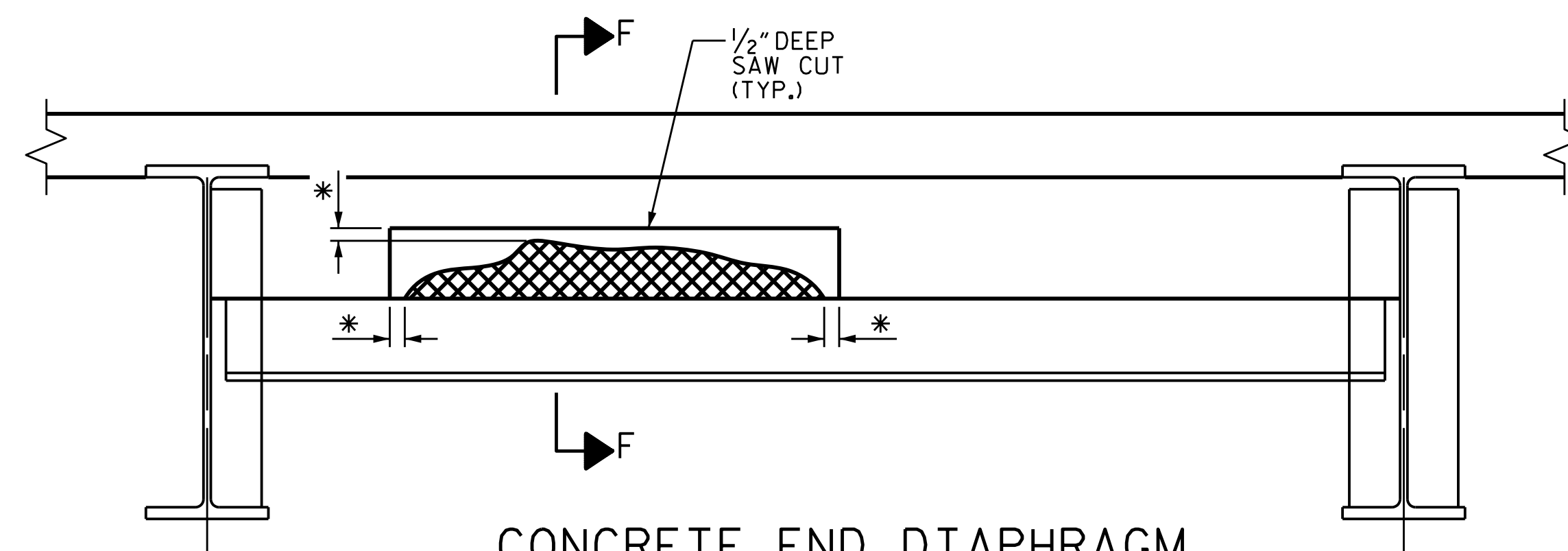
REPAIR QUANTITY TABLE					
DECK SURFACE REPAIR			UNDERSIDE OF DECK REPAIR		
SPAN C	QUANTITIES		SPAN C	QUANTITIES	
	ESTIMATE	ACTUAL		ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	585.0 SY		SHOTCRETE REPAIRS	AREA SF	VOLUME CF
HYDRO-DEMOLITION OF BRIDGE DECK	585.0 SY		CONCRETE DIAPHRAGMS	0.0	0.0
LMC-VES MATERIALS	20.3 CY		EPOXY RESIN INJECTION	LN. FT	LN. FT
PLACING AND FINISHING LMC-VES OVERLAY	585.0 SY		UNDERSIDE OF DECK	10.0	
GROOVING BRIDGE FLOORS	4961 SF				
BRIDGE JOINT DEMOLITION	0.0 SF				

 - UNDERSIDE OF DECK REPAIR (SHOTCRETE)

 - EPOXY RESIN INJECTION (ERI)



SECTION F-F



CONCRETE END DIAPHRAGM REPAIR DETAILS

* REMOVE CONCRETE UNTIL SOUND CONCRETE IS FOUND (2" MIN. CL.)

 DAMAGED AREA

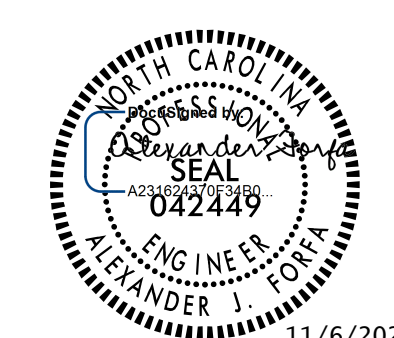
NOTE:
EXISTING REBAR TO REMAIN IN PLACE.
CLEAN AND REPAIR AS NECESSARY.

PROJECT NO. 10BPR.401
MECKLENBURG COUNTY
BRIDGE NO. 590348

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIRS
SPAN C



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DESIGN ENGINEER OF RECORD : A. FORFA DATE : 11/2024

NOTES:

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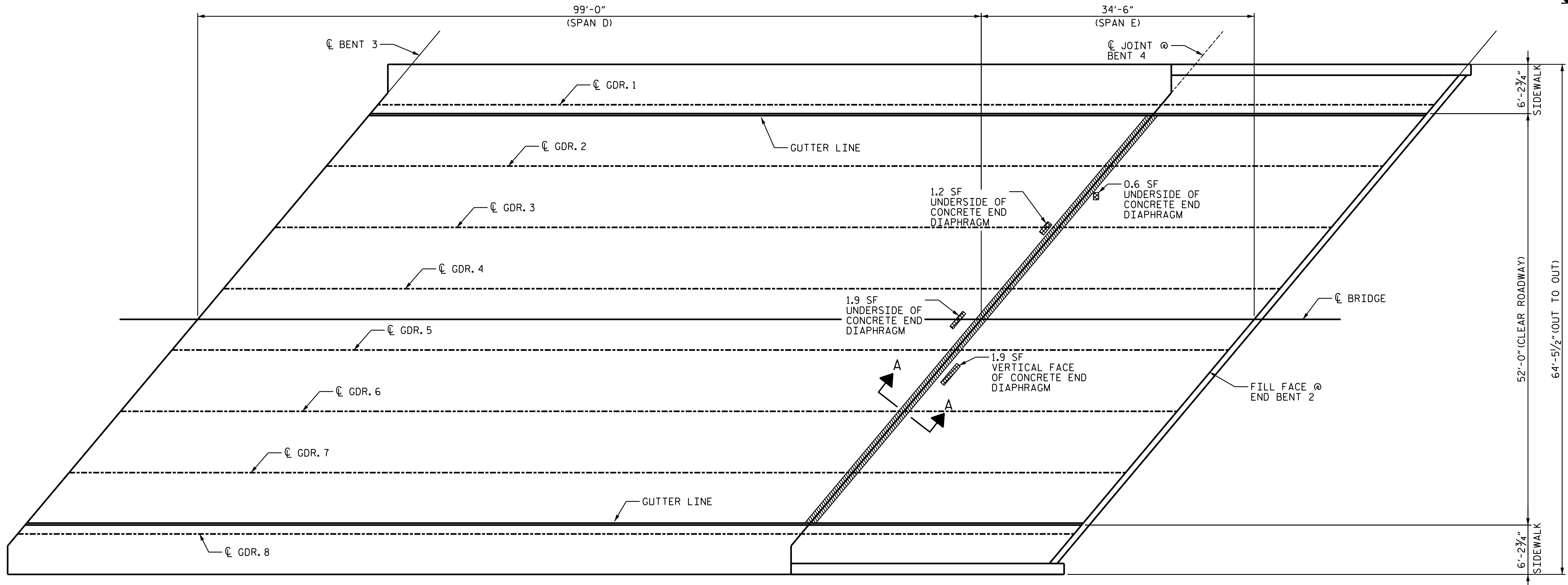
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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE END DIAPHRAGM REPAIRS, SEE SHEET 2 OF 3.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK REPAIR					UNDERSIDE OF DECK REPAIR				
SPAN D	QUANTITIES				SPAN E	QUANTITIES			
	ESTIMATE	ACTUAL	ESTIMATE	ACTUAL		ESTIMATE	ACTUAL	ESTIMATE	ACTUAL
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF	SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CONCRETE DIAPHRAGMS	3.1	1.8			CONCRETE DIAPHRAGMS	2.5	0.8		
EPOXY RESIN INJECTION	LN. FT		LN. FT		EPOXY RESIN INJECTION	LN. FT		LN. FT	
UNDERSIDE OF DECK	0.0				UNDERSIDE OF DECK	0.0			



PROJECT NO. 10BPR.401
MECKLENBURG COUNTY
 BRIDGE NO. 590348

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
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**DECK REPAIRS
 SPANS D & E**

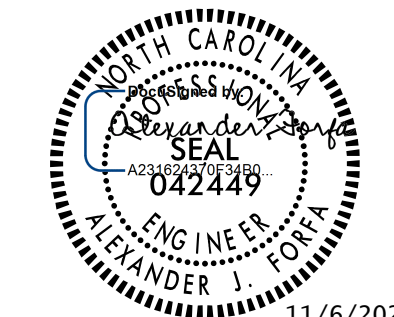
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-07
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2			4			22

- BRIDGE JOINT DEMOLITION
- UNDERSIDE OF DECK REPAIR (SHOTCRETE)
- EPOXY RESIN INJECTION (ERI)

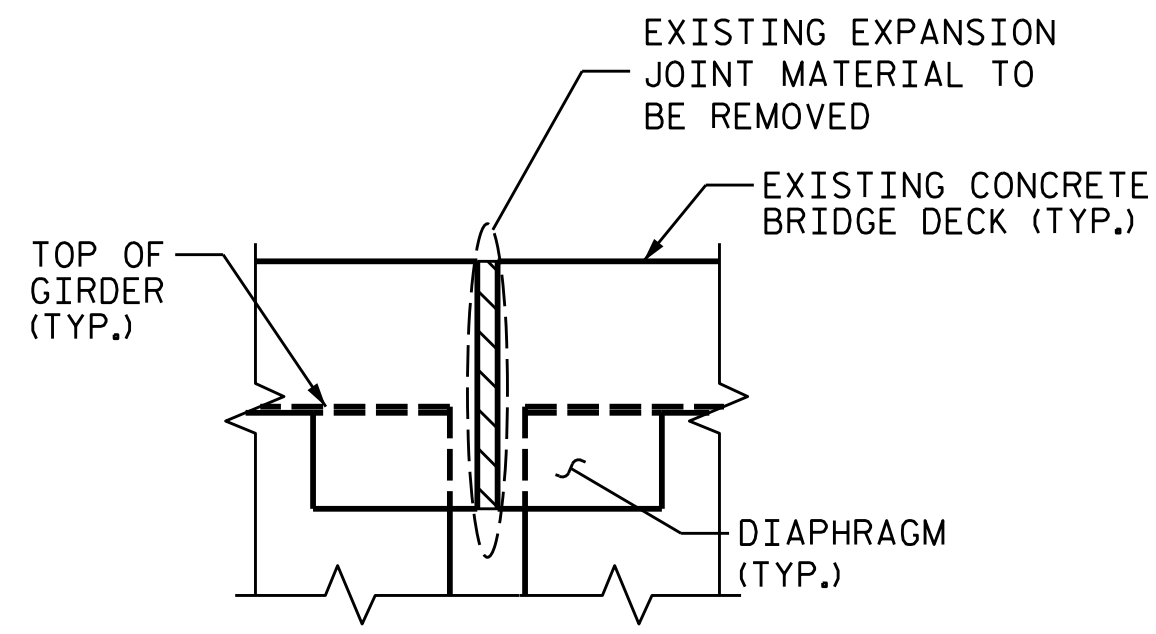
REPAIR QUANTITY TABLE					
DECK SURFACE REPAIR			DECK SURFACE REPAIR		
SPAN D	QUANTITIES		SPAN E	QUANTITIES	
	ESTIMATE	ACTUAL		ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	568.2 SY		SCARIFYING BRIDGE DECK	195.6 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	568.2 SY		HYDRO-DEMOLITION OF BRIDGE DECK	195.6 SY	
LMC-VES MATERIALS	19.7 CY		LMC-VES MATERIALS	6.8 CY	
PLACING AND FINISHING LMC-VES OVERLAY	568.2 SY		PLACING AND FINISHING LMC-VES OVERLAY	195.6 SY	
GROOVING BRIDGE FLOORS	4830 SF		GROOVING BRIDGE FLOORS	1670 SF	
BRIDGE JOINT DEMOLITION	34.0 SF		BRIDGE JOINT DEMOLITION	34.0 SF	

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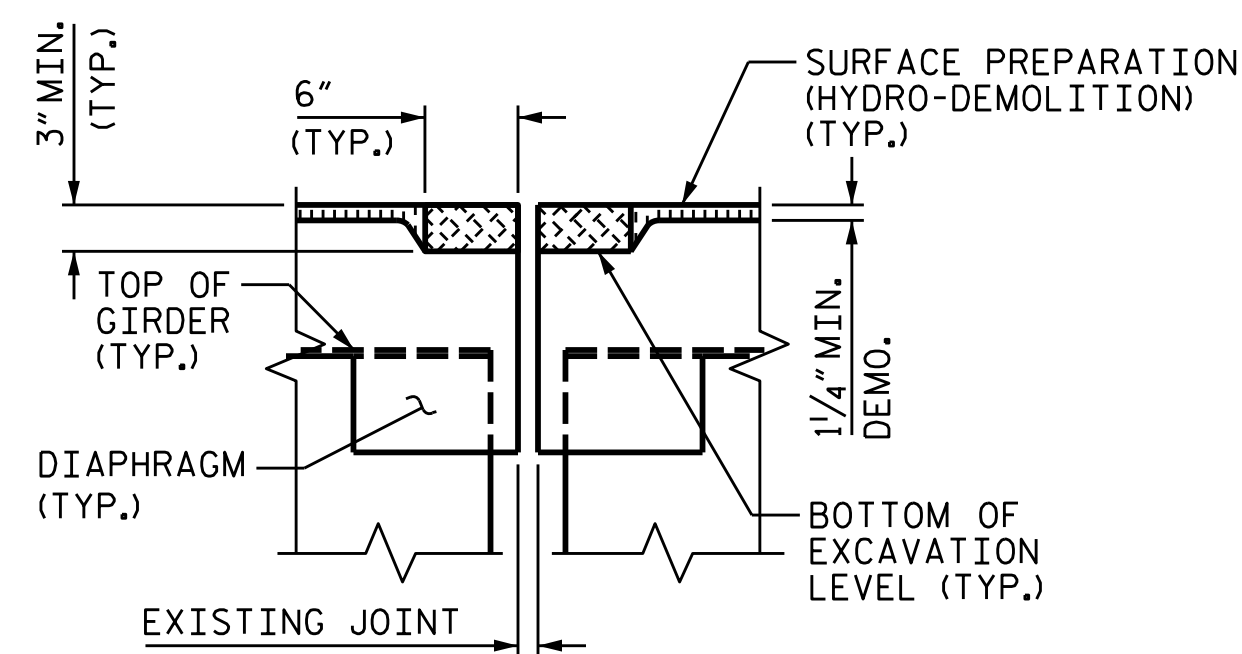
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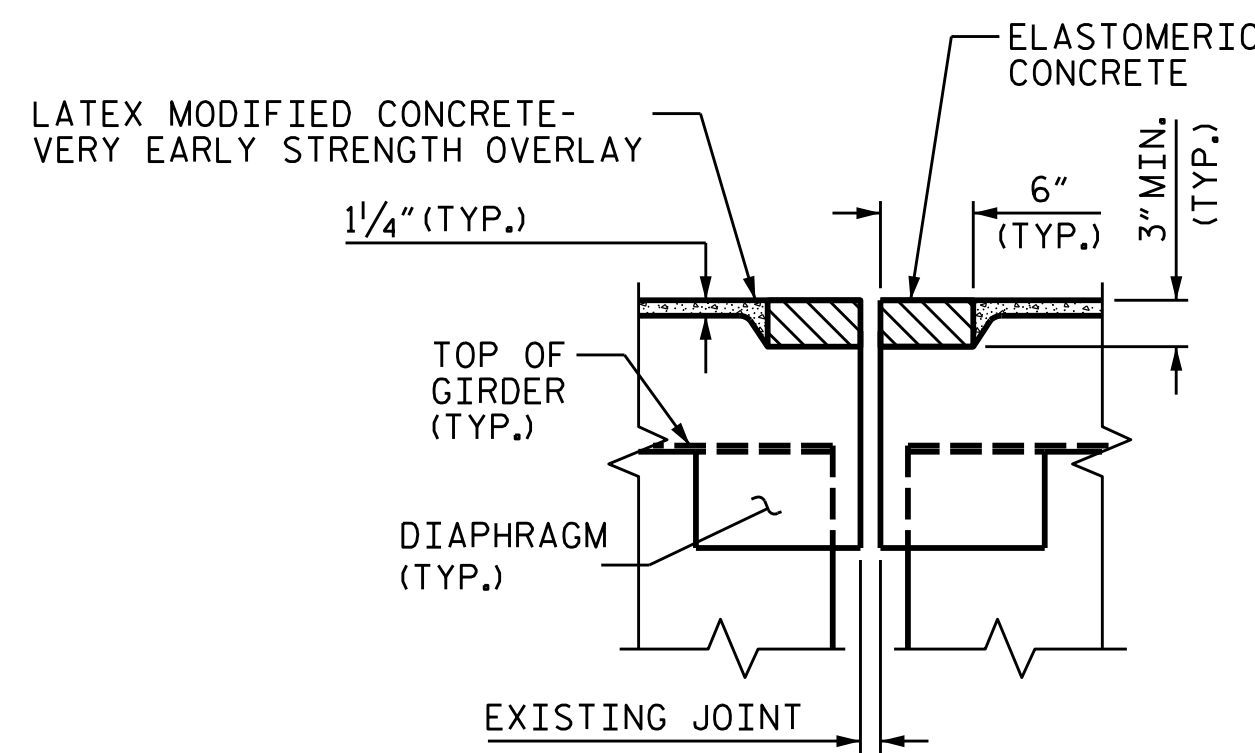
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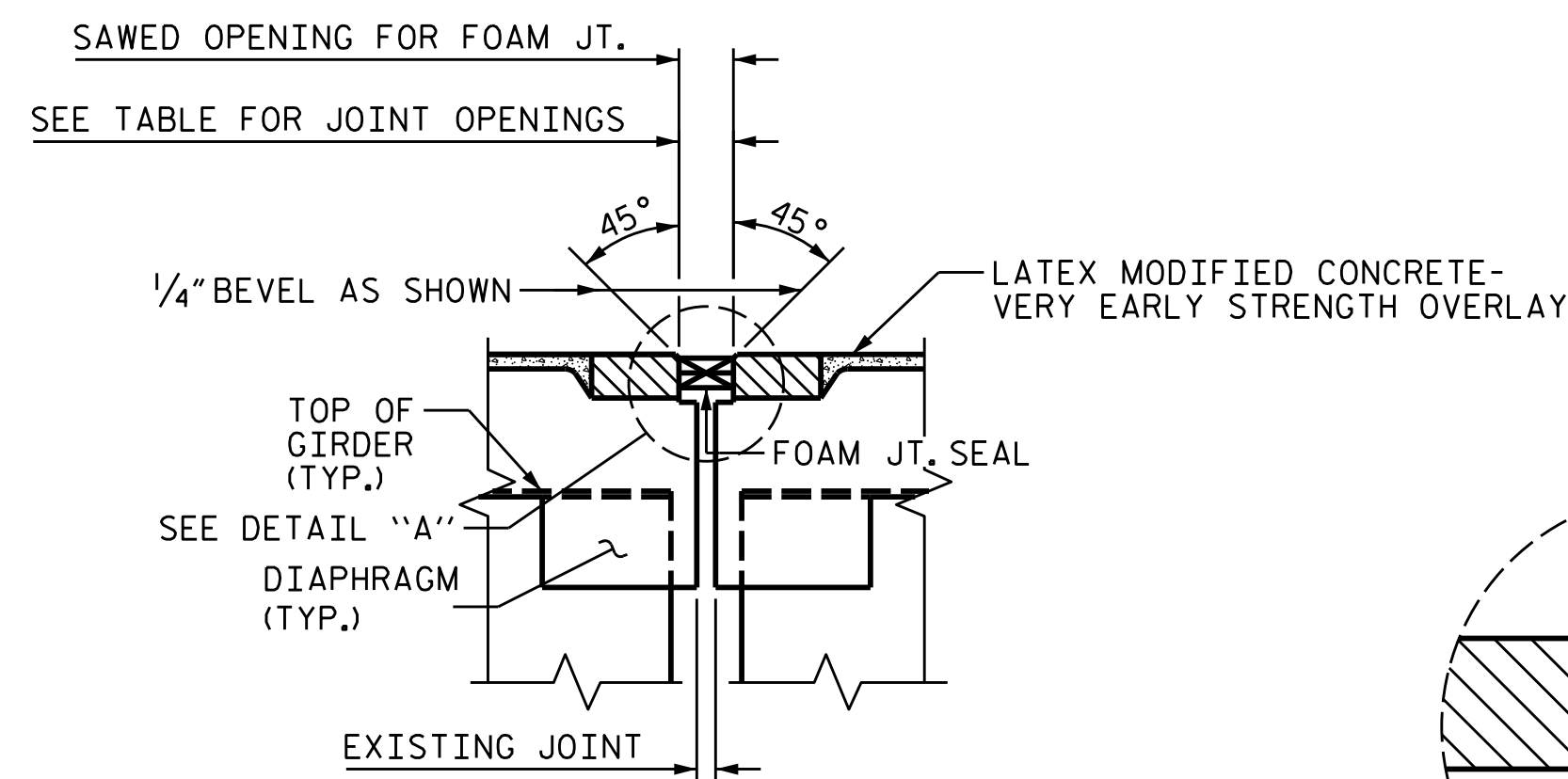
EXISTING JOINT



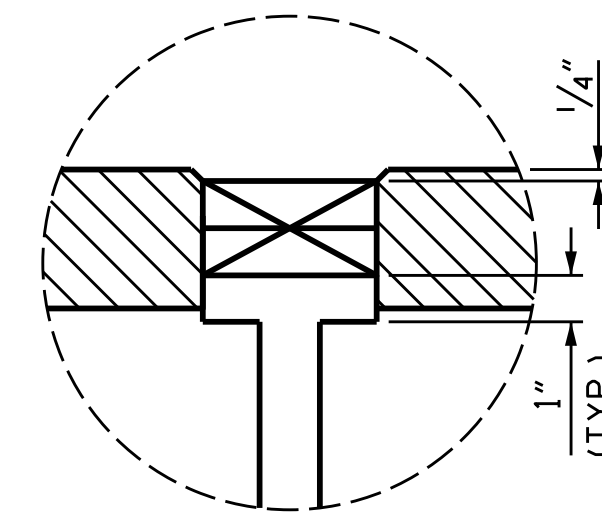
MINIMUM EXISTING JOINT DEMOLITION



PROPOSED JOINT PRIOR TO SAWING

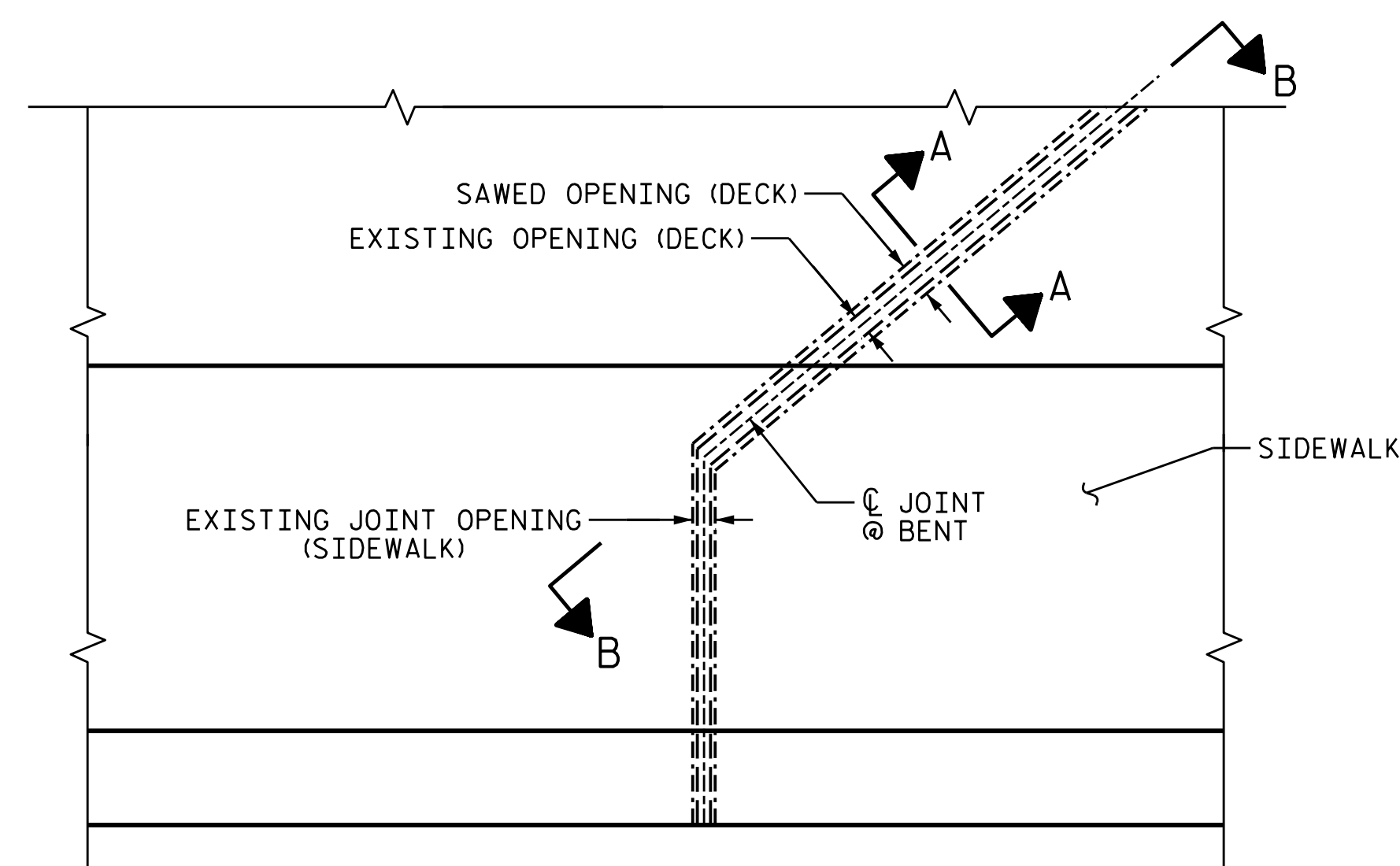


PROPOSED FOAM JOINT SEAL

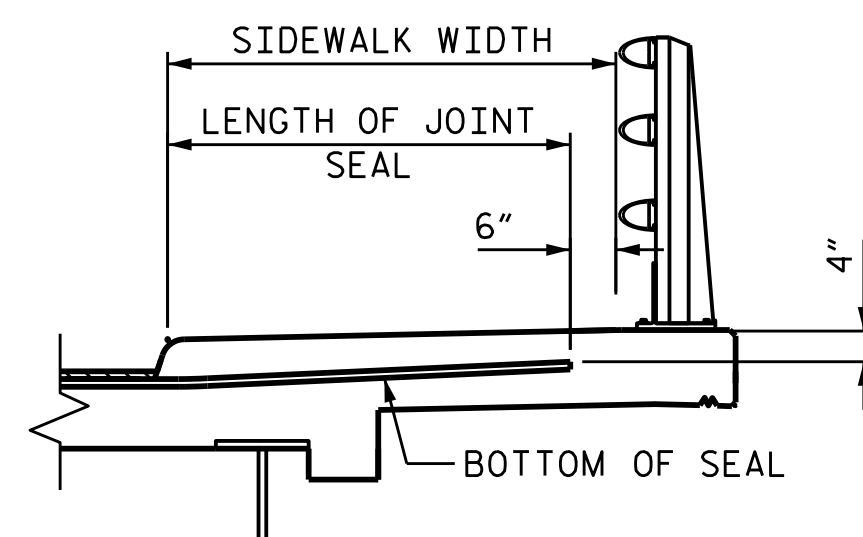


DETAIL "A"

SECTION A-A



PLAN AT SIDEWALK



SECTION B-B

SAWED JOINT OPENING TABLE

LOCATION	SAWED JOINT OPENING (PERPENDICULAR TO JOINT)		
	AT 45°	AT 60°	AT 90°
BENT 1	2 1/16"	1 5/16"	1 5/8"
BENT 4	2 1/8"	1 5/16"	1 5/8"

LOCATION	FOAM JOINT SEAL FOR PRESERVATION	ELASTOMERIC CONCRETE FOR PRESERVATION	
	LIN. FT.	ESTIMATED CU. FT.	ACTUAL CU. FT.
BENT 1	78.4	17.0	
BENT 4	78.4	17.0	
TOTAL	156.8	34.0	

PROJECT NO. 10BPR.401
MECKLENBURG COUNTY
BRIDGE NO. 590348

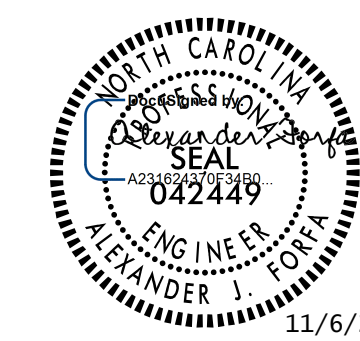
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DEPARTMENT OF TRANSPORTATION
RALEIGH

JOINT DETAILS

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2			4			22

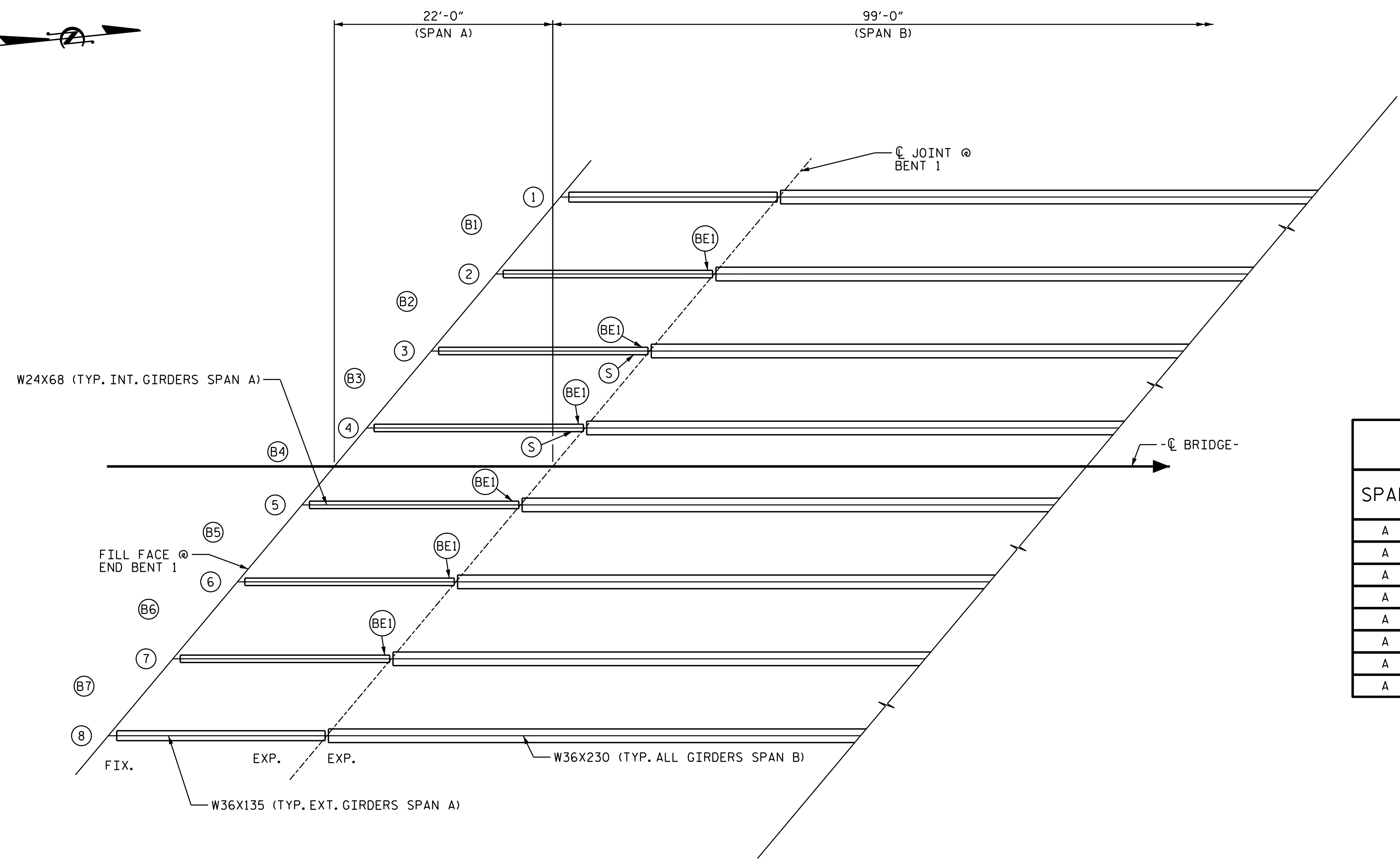
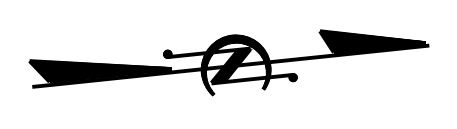
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PLAN VIEW

NOTES:

FOR REPAIR DETAILS, SEE SHEET 3 OF 3
 FOR BRIDGE JACKING DETAILS, SEE "JACKING DETAILS" SHEET.
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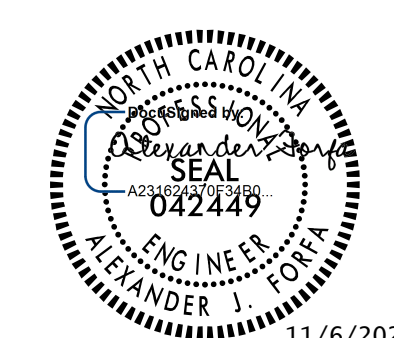
QUANTITY REPAIR TABLE		
	QUANTITIES	
	ESTIMATED	ACTUAL
BEAM END REPAIR	242 LBS.	
STIFFENER REPAIR	10 LBS	

BEAM REPAIR LOCATIONS						
SPAN	BEAM	LOCATION	REPAIR TYPE	ESTIMATED		
				"A"	"B"	
A	2	BENT 1 -	BE1	1"	8"	
A	3	BENT 1 -	BE1	6"	1'-10"	
A	3	BENT 1 BAY 3	S	8"	-	
A	4	BENT 1 -	BE1	4"	10"	
A	4	BENT 1 BAY 4	S	6"	-	
A	5	BENT 1 -	BE1	4"	9"	
A	6	BENT 1 -	BE1	4"	1'-4"	
A	7	BENT 1 -	BE1	1"	9"	

- ① - BEAM/GIRDER NUMBER
- ⓑ - BAY NUMBER
- ⓔⓔ1 - BEAM END REPAIR "BE1"
- Ⓢ - STIFFENER REPAIR

DRAWN BY : N. ROHRBAUGH DATE : 02/2024
 CHECKED BY : A. FORFA DATE : 02/2024
 DESIGN ENGINEER OF RECORD : A. FORFA DATE : 11/2024

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 MECKLENBURG COUNTY
 BRIDGE NO. 590348

SHEET 1 OF 3

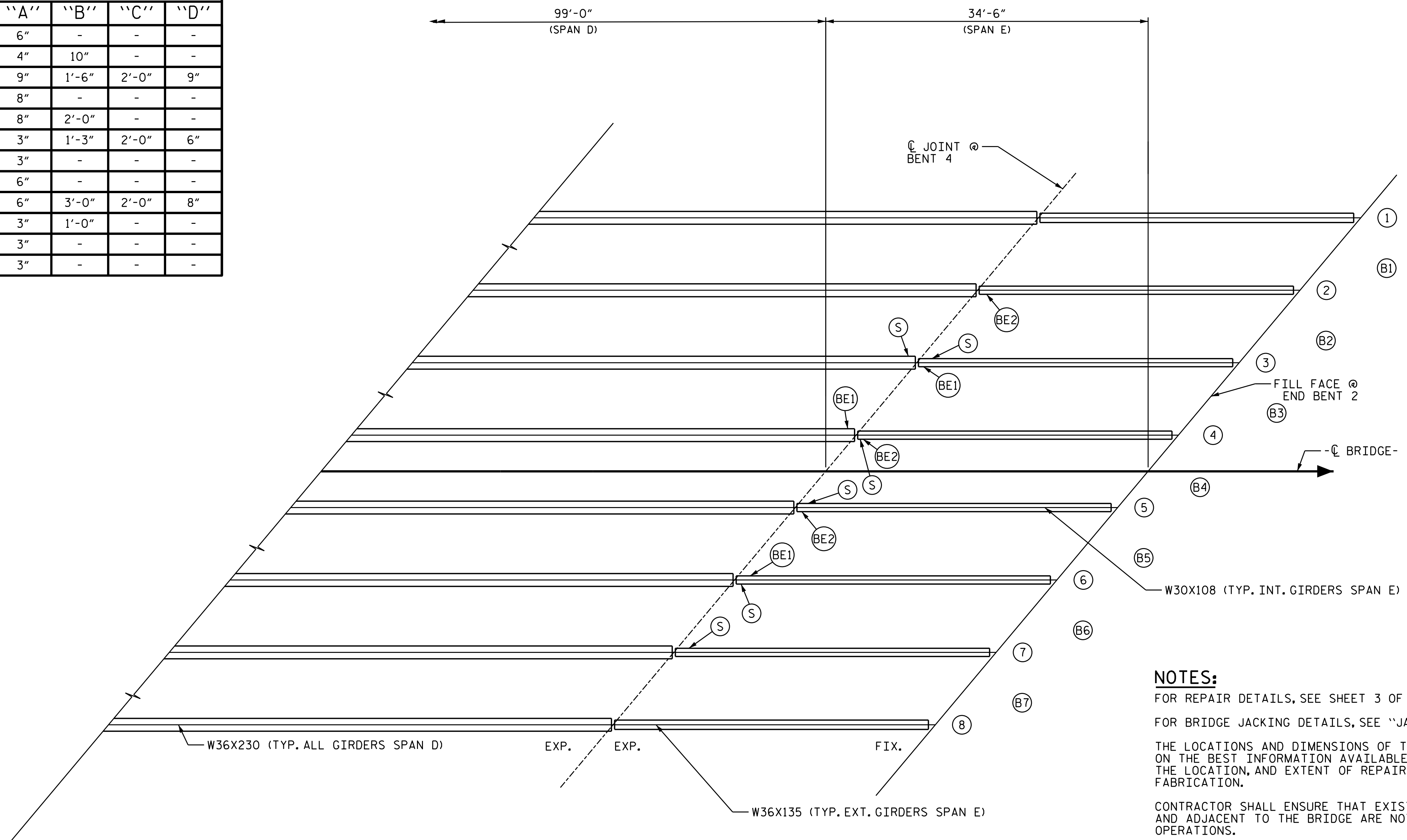
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STRUCTURAL STEEL
 REPAIR LOCATIONS
 SPANS A & B

REVISIONS						SHEET NO. S-09
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 22
2			4			

BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION		REPAIR TYPE	DIMENSIONS			
					"A"	"B"	"C"	"D"
D	3	BENT 4	BAY 2	S	6"	-	-	-
D	4	BENT 4	-	BE1	4"	10"	-	-
E	2	BENT 4	-	BE2	9"	1'-6"	2'-0"	9"
E	3	BENT 4	BAY 2	S	8"	-	-	-
E	3	BENT 4	-	BE1	8"	2'-0"	-	-
E	4	BENT 4	-	BE2	3"	1'-3"	2'-0"	6"
E	4	BENT 4	BAY 4	S	3"	-	-	-
E	5	BENT 4	BAY 4	S	6"	-	-	-
E	5	BENT 4	-	BE2	6"	3'-0"	2'-0"	8"
E	6	BENT 4	BAY 6	BE1	3"	1'-0"	-	-
E	6	BENT 4	BAY 6	S	3"	-	-	-
E	7	BENT 4	BAY 6	S	3"	-	-	-



PLAN VIEW

NOTES:

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QUANTITY REPAIR TABLE		
	QUANTITIES	
	ESTIMATED	ACTUAL
BEAM END REPAIR	684 LBS.	
STIFFENER REPAIR	39 LBS.	

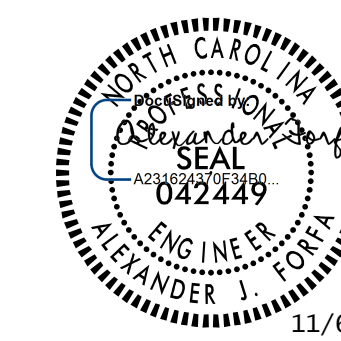
- ① - BEAM/GIRDER NUMBER
- ⓑ1 - BAY NUMBER
- ⓑE1 - BEAM END REPAIR "BE1"
- ⓑE2 - BEAM END REPAIR "BE2"
- Ⓢ - STIFFENER REPAIR

PROJECT NO. 10BPR.401
MECKLENBURG COUNTY
 BRIDGE NO. 590348

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STRUCTURAL STEEL
 REPAIR LOCATIONS
 SPANS D & E

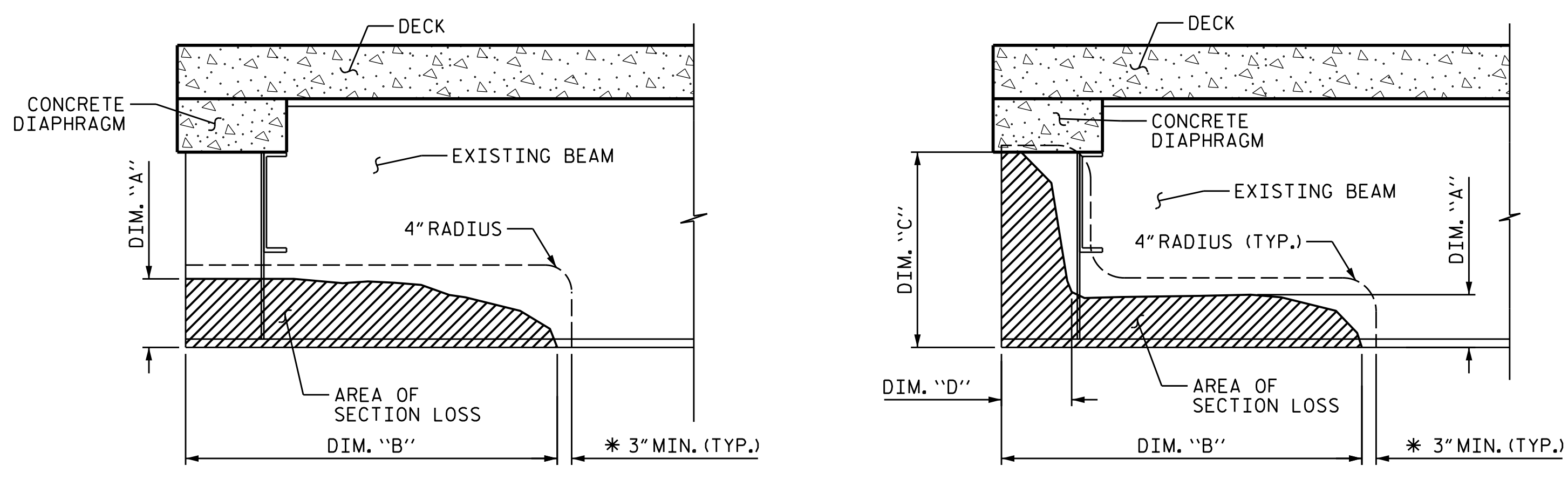


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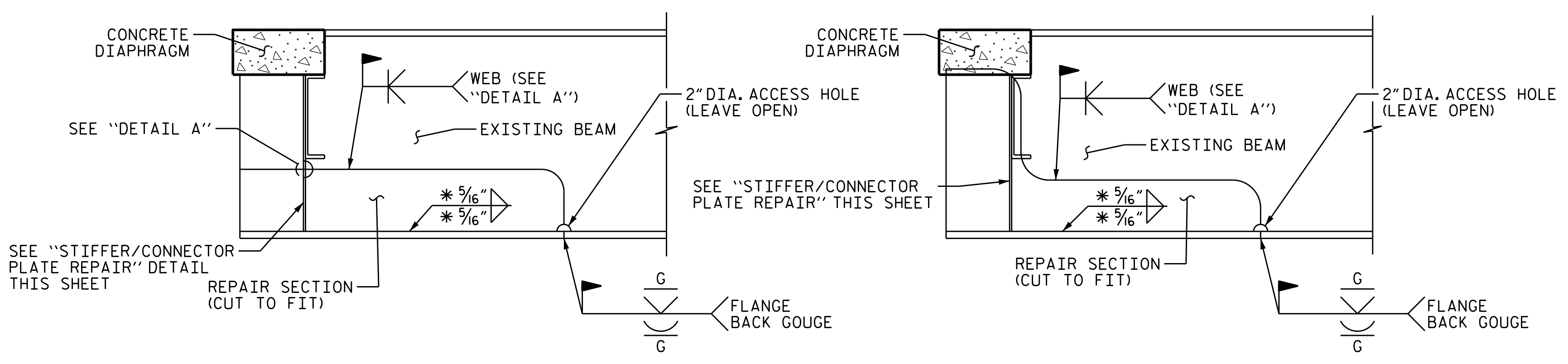
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DRAWN BY : N. ROHRBAUGH DATE : 02/2024
 CHECKED BY : A. FORFA DATE : 02/2024
 DESIGN ENGINEER OF RECORD : A. FORFA DATE : 11/2024

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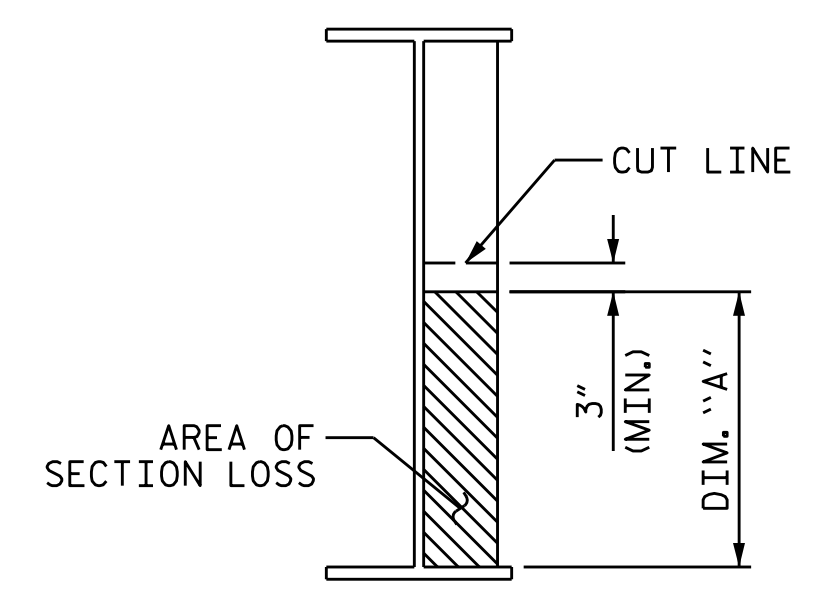
BEAM END SECTION LOSS REMOVAL



REPAIR "BE1"

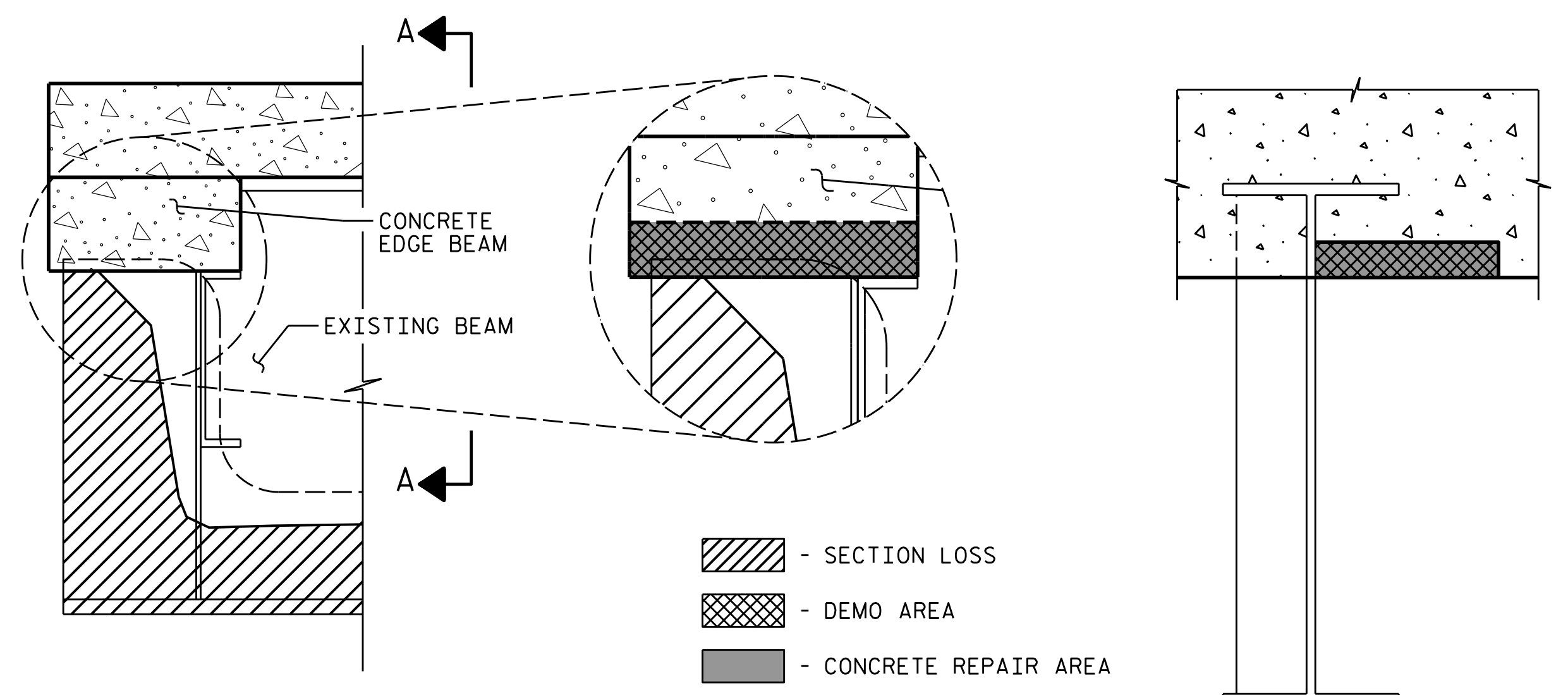
*NOT NEEDED IF REPAIRED SECTION IS CUT FROM A ROLLED BEAM

REPAIR "BE2"



STIFFENER/CONN. PLATE REMOVAL

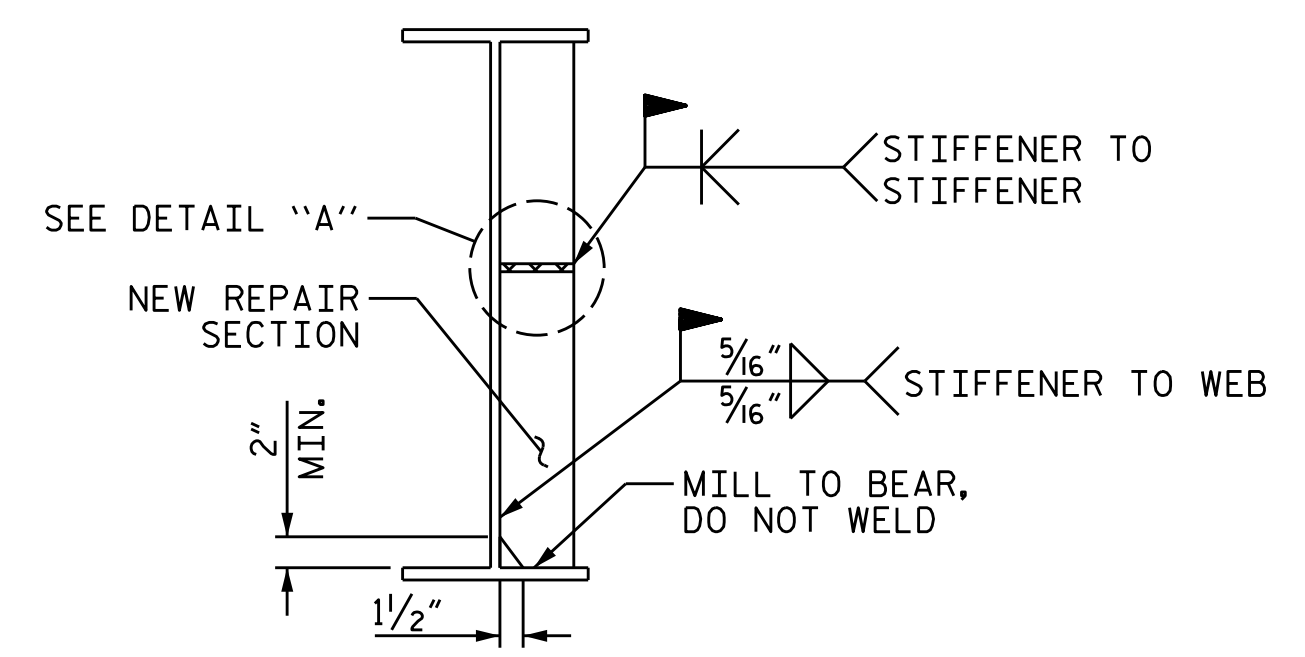
BEAM END SECTION REPAIR



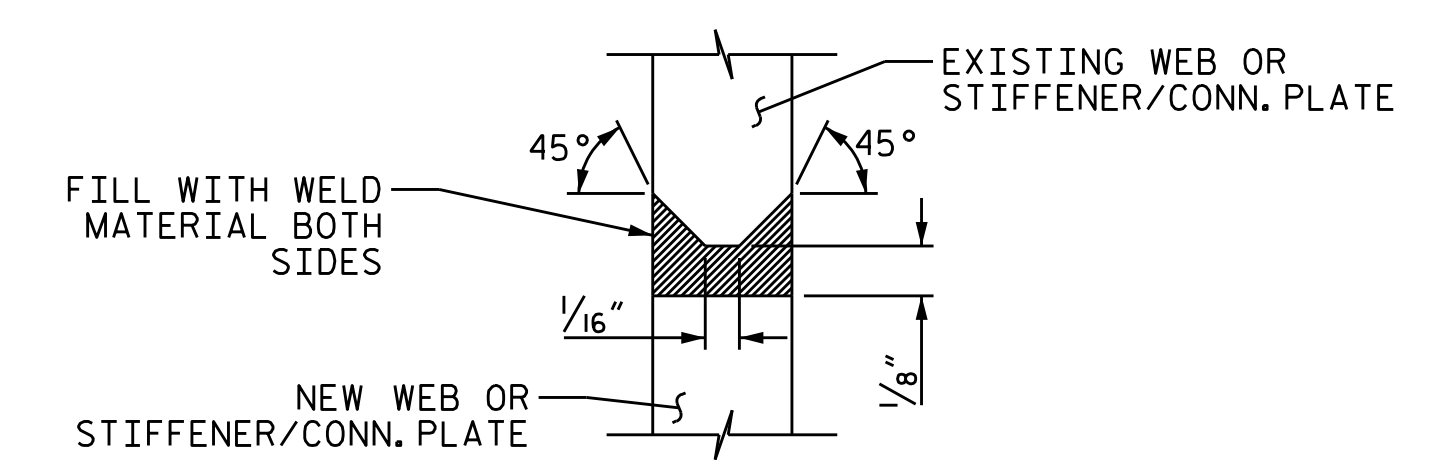
BEAM END

SECTION A-A

CONCRETE DIAPHRAGM REPAIR DETAIL



STIFFENER/CONN. PLATE REPAIR



DETAIL A

NOTES:

ALL CONDITIONS AND DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OR INSTALLATION OF ANY COMPONENTS. FOR FIELD VERIFICATION SEE "FIELD MEASURING" SPECIAL PROVISION.

STEEL FOR BEAM REPAIR SECTION SHALL EQUAL OR EXCEED THE YIELD STRENGTH OF EXISTING BEAM. USE NEW STEEL ONLY.

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

PAYMENT FOR BEAM REPAIR SHALL BE BASED ON THE AMOUNT OF REPAIR ACTUALLY PERFORMED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. SEE "BEAM REPAIR" SPECIAL PROVISION.

END REPAIR SEQUENCE

COORDINATE SCHEDULE WITH THE MATERIALS AND TESTS UNIT WELD INSPECTOR AT LEAST FOUR DAYS PRIOR TO ANTICIPATED WORK.

JACK BEAM AND SUPPORT WITH BLOCKING TO FREE BEAM END FROM BEARING. LIMIT DIFFERENTIAL JACKING BETWEEN ADJACENT BEAMS TO 1/8". REMOVE LIVE LOAD FROM REPAIR AREA BY EITHER CLOSING THE BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA IF POSSIBLE.

STEEL DIAPHRAGM CHANNELS AND/OR STIFFENERS MAY BE TEMPORARILY REMOVED, IF NECESSARY, AND REPLACED AFTER BEAM REPAIR.

CUT OUT BY APPROPRIATE MEANS THE DAMAGED BEAM AREA AND/OR BEARING STIFFENER. IF BEAM DETERIORATION EXTENDS INTO THE CONCRETE DIAPHRAGM, CHIP AWAY CONCRETE AND REMOVED DAMAGED BEAM END.

IF PAINTING THE STEEL, CLEAN AND BLAST STEEL AS REQUIRED, PRIOR TO PREFORMING STEEL REPAIRS. OTHERWISE, MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 3" BEYOND REPAIR AREA.

INSTALL THE CUT-TO-FIT SECTION, FULLY WELD ALONG TOP AND SIDES OF PLATE AS SHOWN.

ALL WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS. THE USE OF ACETYLENE GAS IS PROHIBITED FOR USE ON OR OVER CSXT PROPERTY. TORCH CUTTING OR WELDING SHALL BE PERFORMED UTILIZING OTHER MATERIALS, SUCH AS PROPANE.

ALL WELDS SHALL BE INSPECTED AND TESTED BY THE NCDOT MATERIALS AND TESTS UNIT IN ACCORDANCE WITH THE CURRENT AWS BRIDGE WELDING CODE AND STANDARD SPECIFICATIONS. SUBMIT APPLICABLE REPAIR DETAIL SIGNED BY THE WELD INSPECTOR WITH REPAIR PHOTOS.

ONCE THE REPAIR IS COMPLETE, GRIND ALL WELDS FLUSH, ANY GOUGES OR INDENTATIONS FROM IMPACT ON BEAMS SHALL BE GROUND SMOOTH. CLEAN AREA TO REMOVE DEBRIS AND OILS FROM REPAIR PROCESS PRIOR TO CLEANING AND PAINTING.

LOWER SPAN TO BEAR; CHECK FOR DISTRESS.

REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.

CLEAN AND PAINT REPAIRED STRUCTURAL STEEL.

AFTER GIRDERS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM THE BENT DIAPHRAGMS SHALL BE CAST BACK. ANY REINFORCING STEEL CUT DURING THE REMOVAL PROCESS SHALL BE SPLICED WITH A SIMILAR SIZE BAR WITH AT LEAST A ONE FOOT SPLICE TO THE EXISTING STEEL. FOR BENT DIAPHRAGM REPAIRS, SEE "CONCRETE DIAPHRAGM REPAIR" SPECIAL PROVISION.

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SHEET 3 OF 3

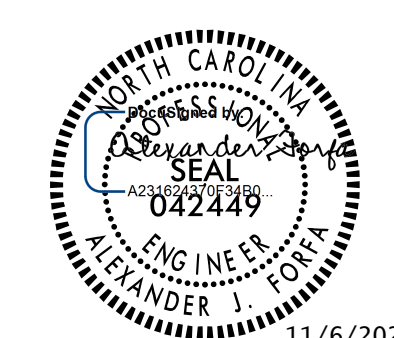
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**STRUCTURAL STEEL
 WELDED PLATE
 REPAIR DETAILS**

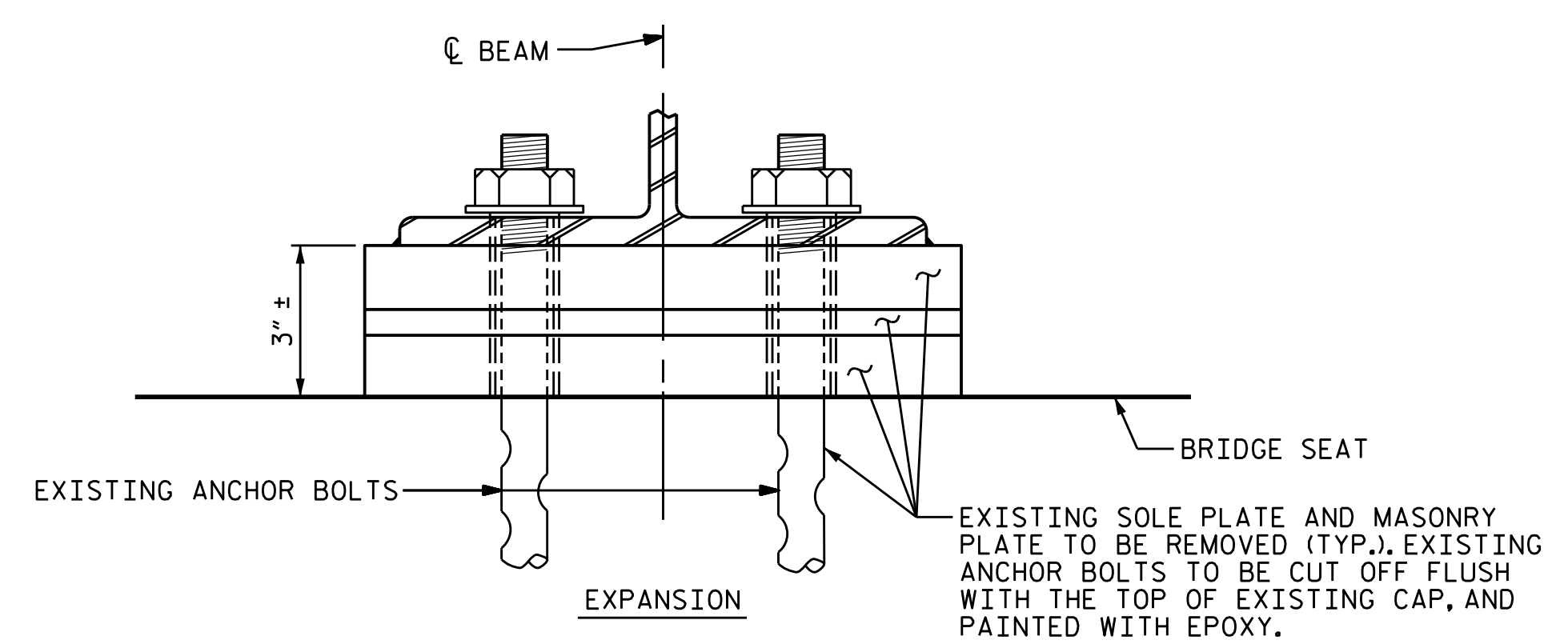
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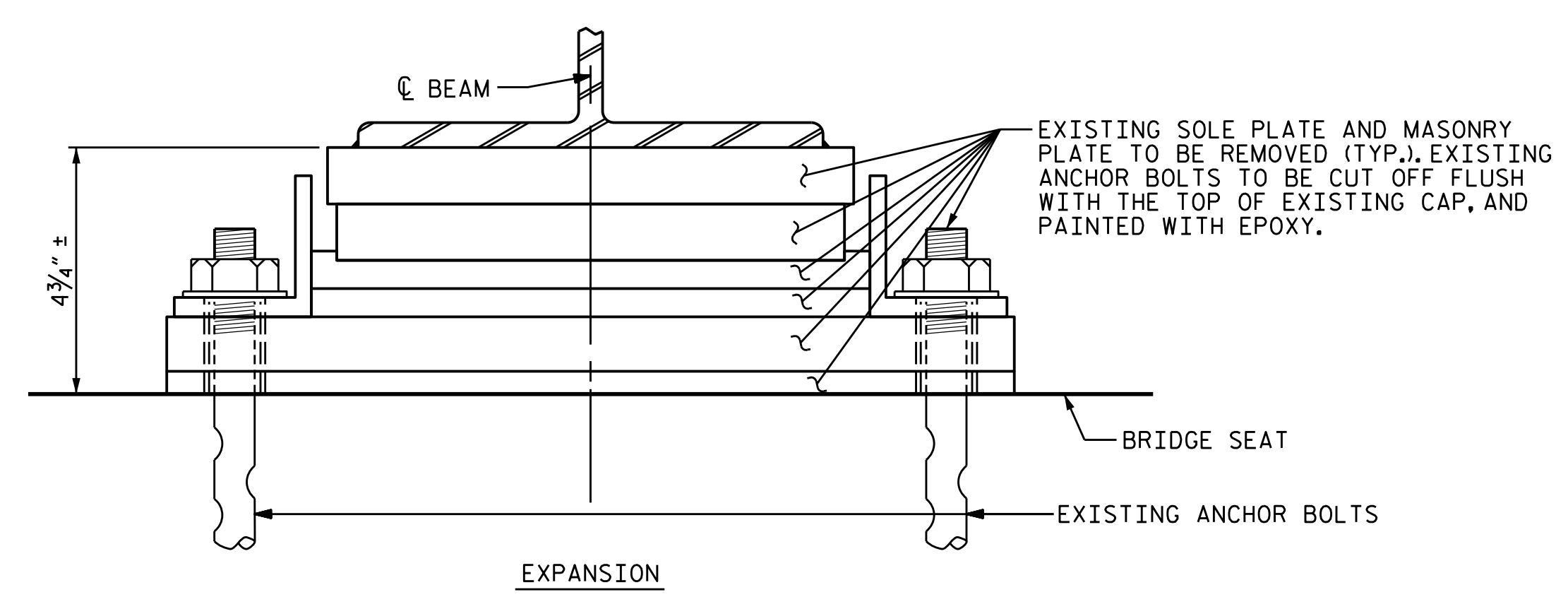
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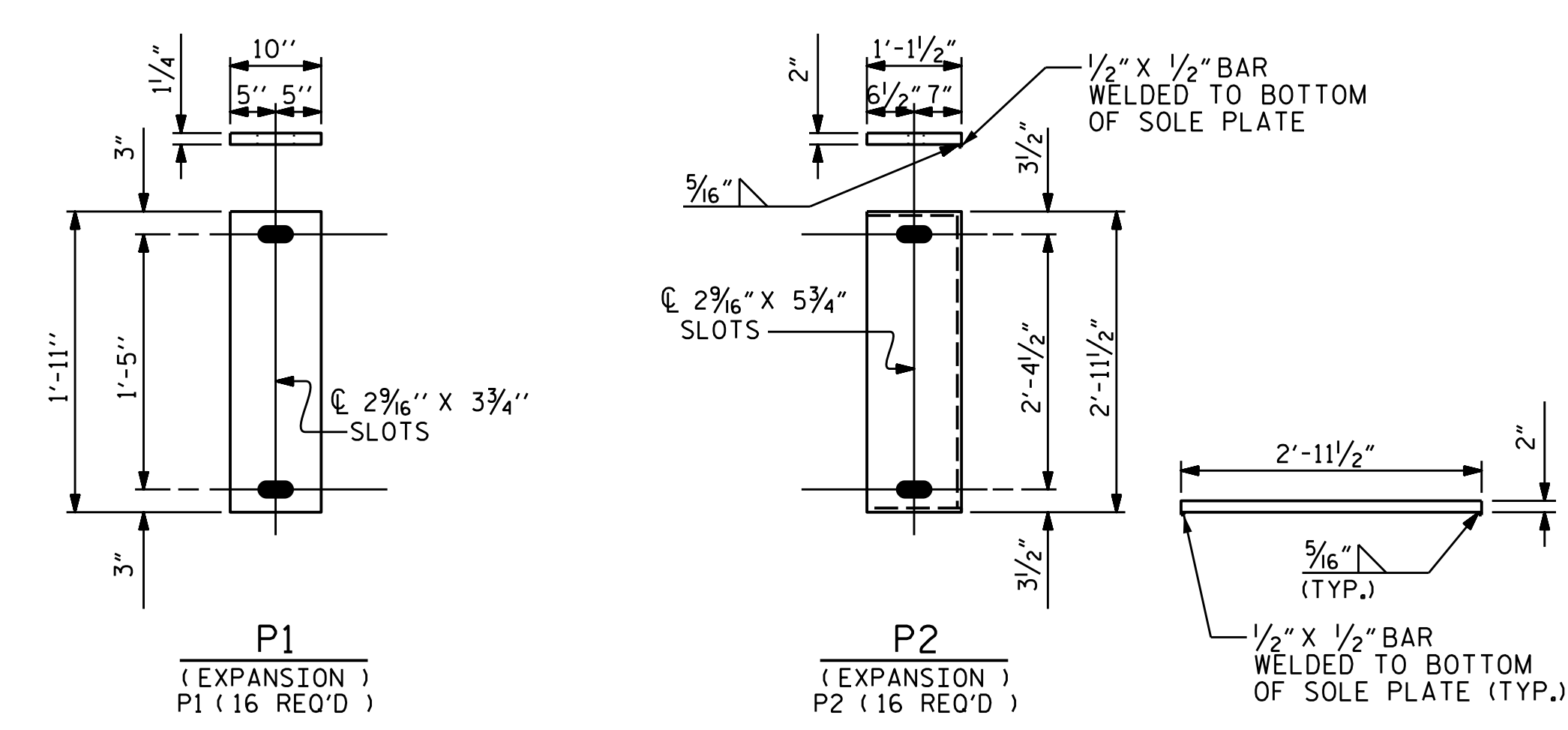
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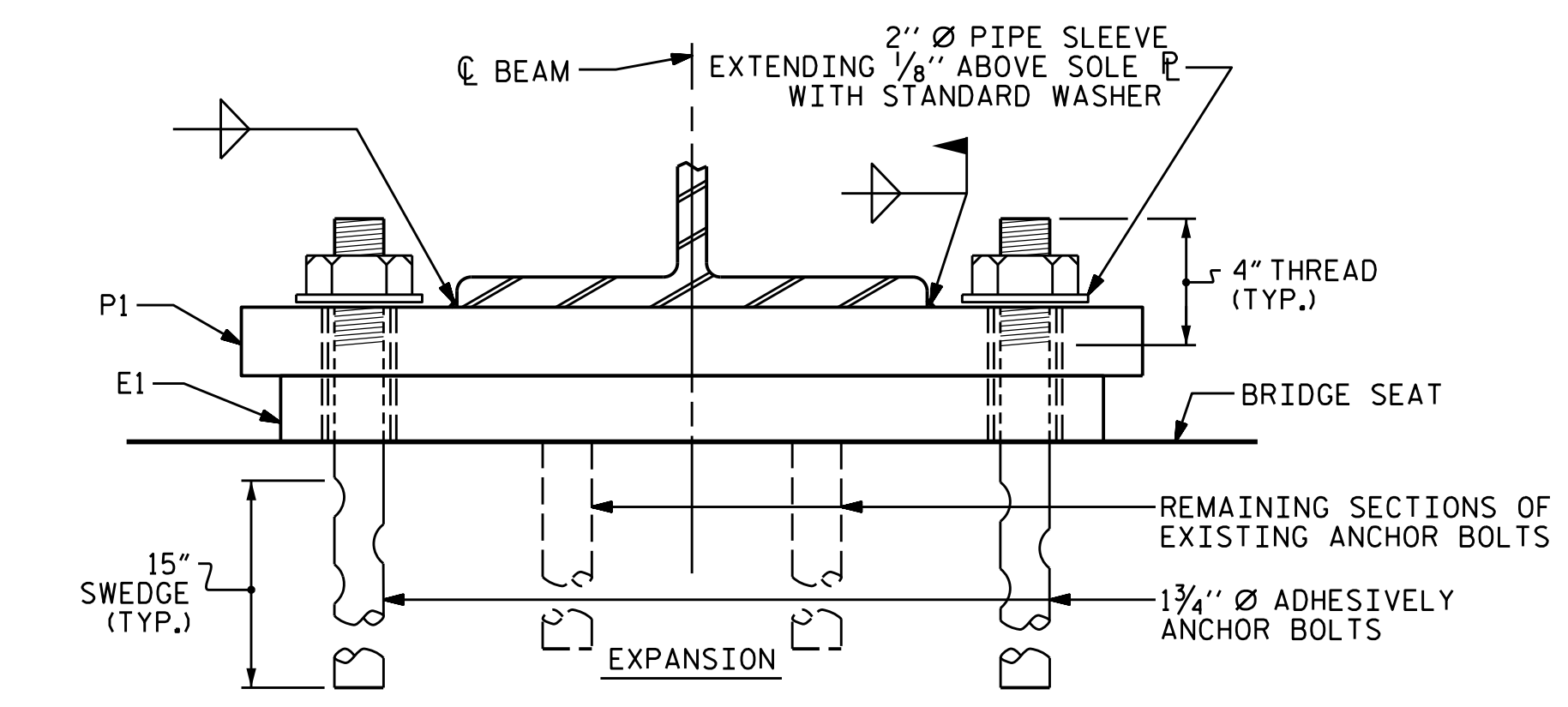
END VIEW
(EXISTING BEARINGS AT BENT 1 SPAN 1 & BENT 4 SPAN 5)



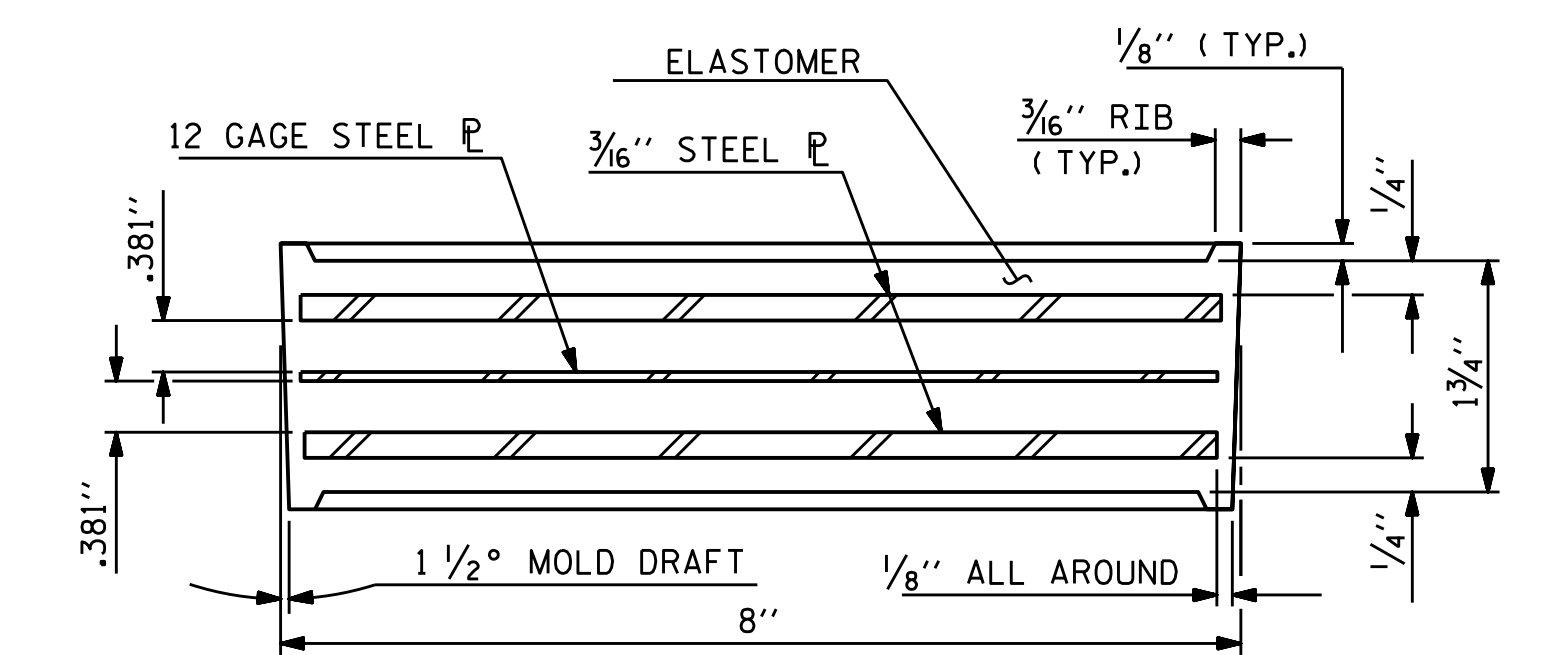
END VIEW
(EXISTING BEARINGS AT BENT 1 SPAN 2 & BENT 4 SPAN 4)



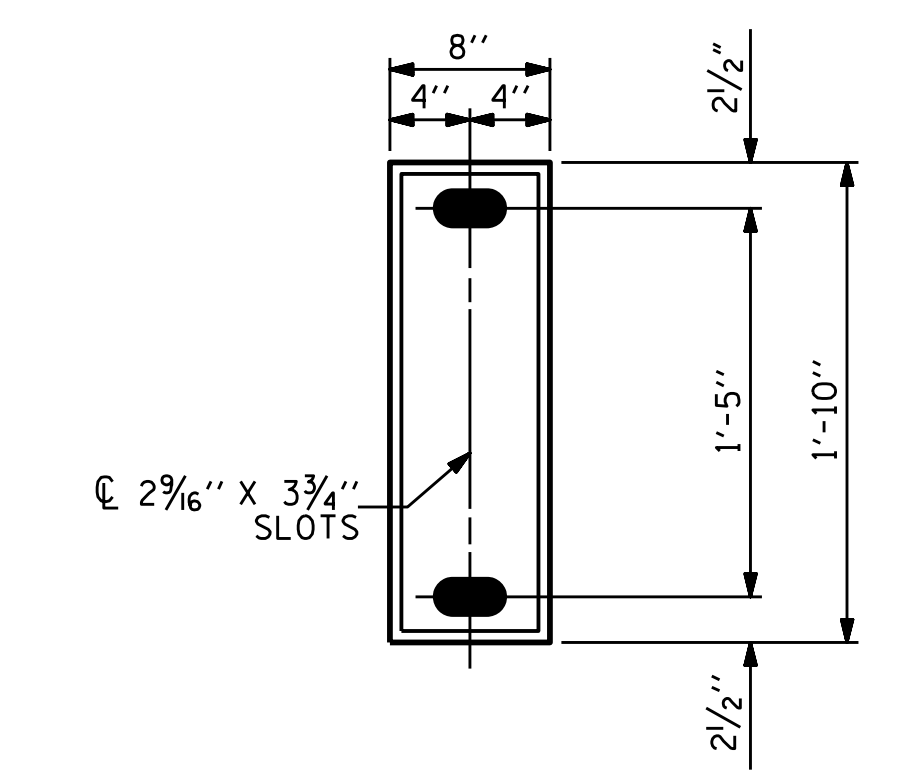
SOLE PLATE DETAILS



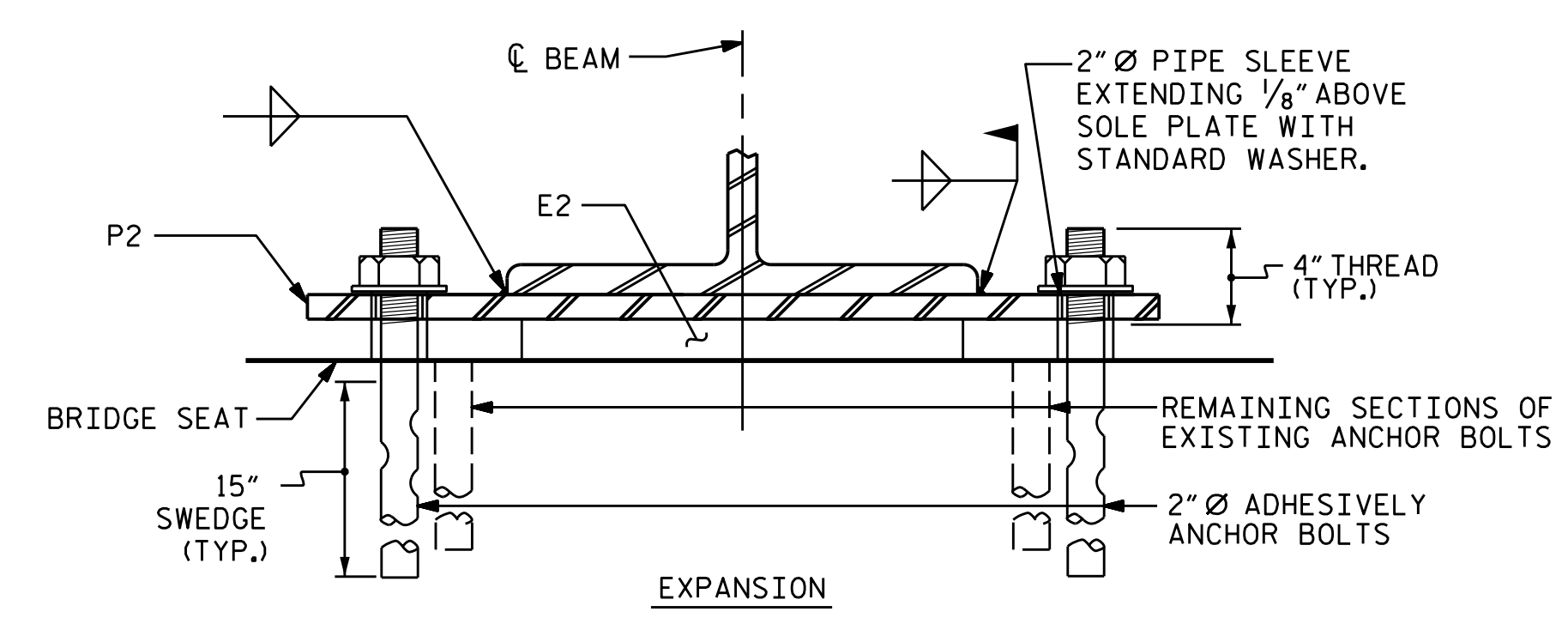
END VIEW
(PROPOSED BEARINGS AT BENT 1 SPAN 1 & BENT 4 SPAN 5)



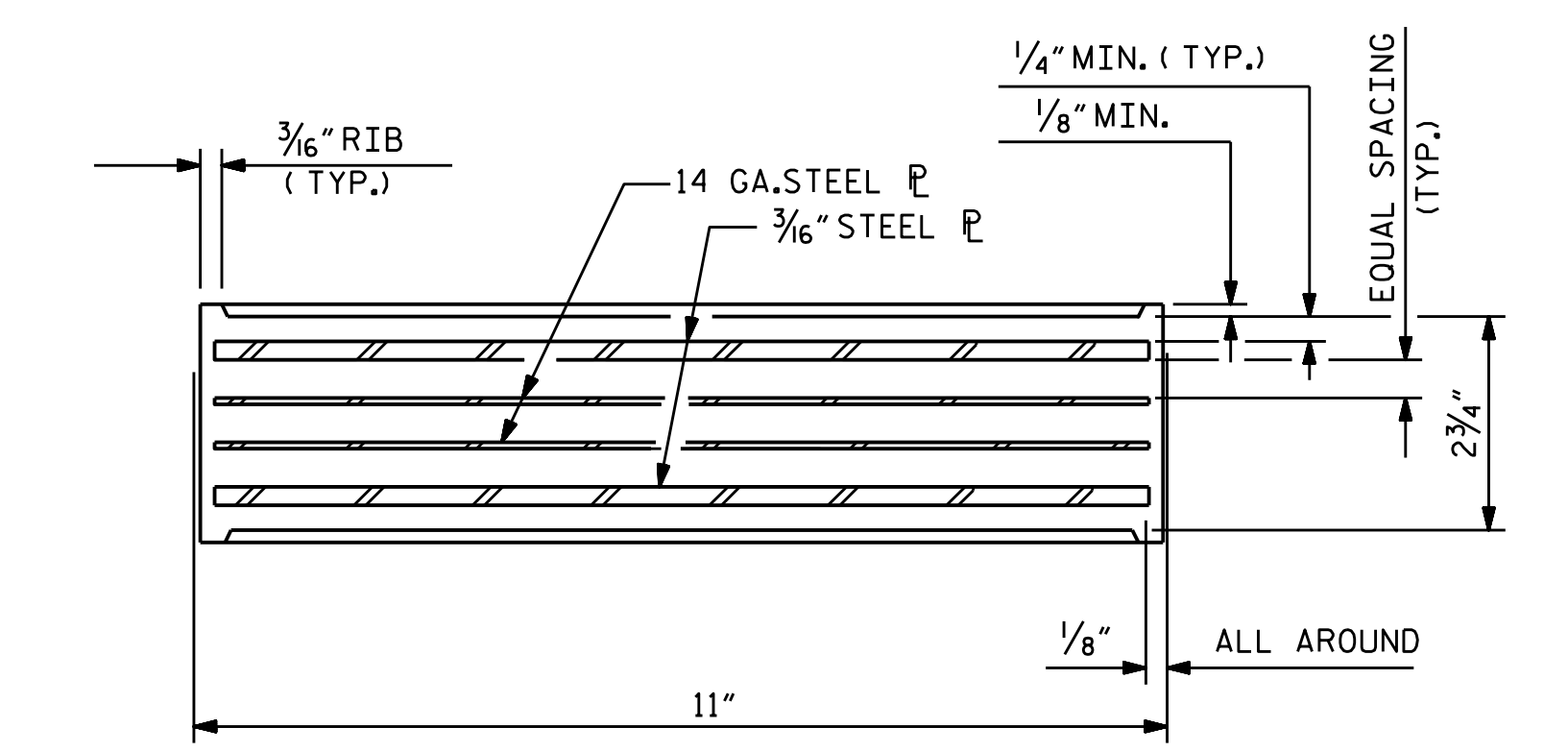
TYPICAL SECTION OF ELASTOMERIC BEARINGS



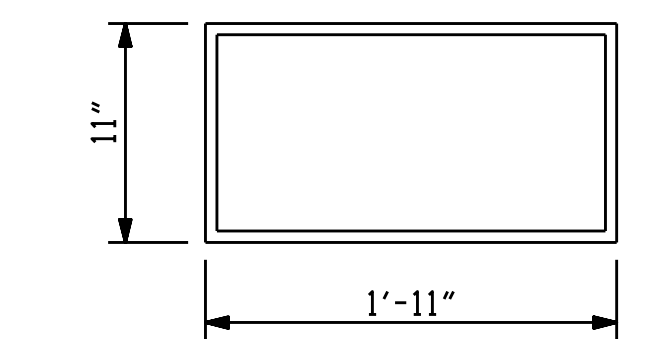
PLAN VIEW OF ELASTOMERIC BEARING TYPE I



END VIEW
(PROPOSED BEARINGS AT BENT 1 SPAN 2 & BENT 4 SPAN 4)

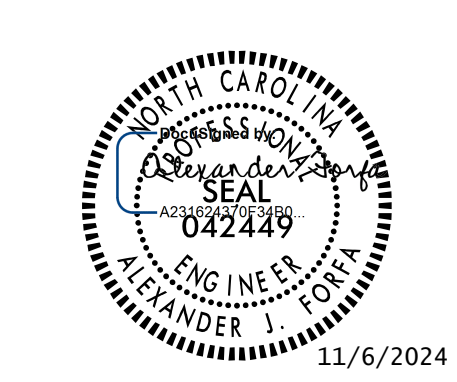


TYPICAL SECTION OF ELASTOMERIC BEARINGS



E2 (16 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING TYPE VI MODIFIED

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE I	140 k
TYPE VI	420 k



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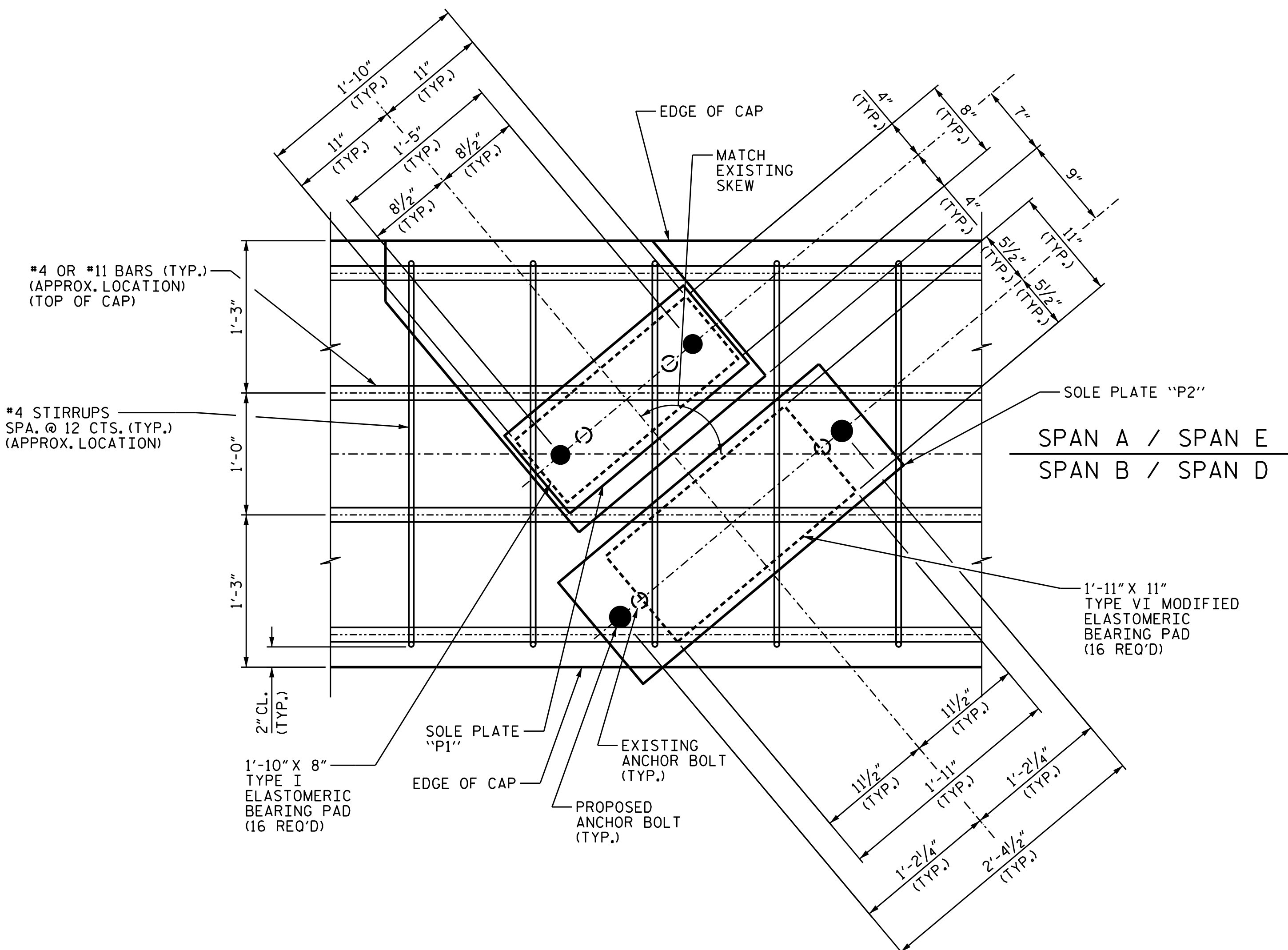
SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

ELASTOMERIC BEARING DETAILS

REVISIONS						SHEET NO.
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2			4			22

DRAWN BY : T. STUMP DATE : 03/2024
CHECKED BY : N. BROWN DATE : 03/2024
DESIGN ENGINEER OF RECORD : A. FORFA DATE : 11/2024



BEARING REPLACEMENT PLAN
(TYP. EACH BEARING AT BENTS 1 & 4)

BEARING AND SOLE PLATE TABLE								
GIRDER NO.	BENT 1				BENT 4			
	SPAN A		SPAN B		SPAN D		SPAN E	
	BEARING TYPE	SOLE PLATE TYPE	BEARING TYPE	SOLE PLATE TYPE	BEARING TYPE	SOLE PLATE TYPE	BEARING TYPE	SOLE PLATE TYPE
1	E1	P1	E2	P2	E2	P2	E1	P1
2	E1	P1	E2	P2	E2	P2	E1	P1
3	E1	P1	E2	P2	E2	P2	E1	P1
4	E1	P1	E2	P2	E2	P2	E1	P1
5	E1	P1	E2	P2	E2	P2	E1	P1
6	E1	P1	E2	P2	E2	P2	E1	P1
7	E1	P1	E2	P2	E2	P2	E1	P1
8	E1	P1	E2	P2	E2	P2	E1	P1

* SOLE PLATES ARE DETAILED WITH UNIFORM THICKNESS. SOLE PLATE THICKNESSES BASED ON EXISTING PLANS. EXISTING BEARING HEIGHTS ARE TO BE FIELD MEASURED AND CONFIRMED BY CONTRACTOR. DURING FIELD MEASUREMENT, IT SHOULD BE CONFIRMED WHETHER OR NOT A BEVEL IS REQUIRED FOR THE SOLE PLATES.

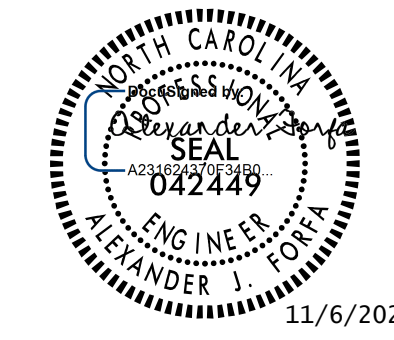
NOTES:

- 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 MODIFIED ELASTOMERIC BEARING PAY ITEM.
- 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.
- 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.
- ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.
- THE CONTRACTORS 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:
 - ONCE ALL JACKING REPAIRS ARE COMPLETE, INCLUDING BUT NOT LIMITED TO STRUCTURAL STEEL REPAIRS AND CONCRETE REPAIRS TO THE BENT CAP AND/OR PEDESTALS, 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.
- CONTRACTOR SHALL CONFIRM THE BOTTOM OF BEAM ELEVATION WILL EQUAL EXISTING ELEVATION AFTER BEARING REPLACEMENT.
- THE ELASTOMERIC 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 BENT CAP AND PAINT WITH EPOXY.
- 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.
- 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 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.
- LOCATIONS OF EXISTING CAP REINFORCING BARS ARE APPROXIMATE. CARE SHOULD BE TAKEN NOT TO DAMAGE THE EXISTING REINFORCING STEEL, IF ANY REINFORCING STEEL IS AFFECTED OR IS PLACED IN CONFLICT WITH THE PROPOSED ANCHOR BOLT LOCATIONS, CONTACT THE ENGINEER PRIOR TO PROCEEDING WITH ANCHOR BOLT INSTALLATION.
- THE EMBEDMENT DEPTH OF THE ANCHOR BOLTS 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.
- LOWER GIRDER ONTO NEW BEARING PADS. TIGHTEN ANCHOR BOLT NUTS TO FINGER TIGHT AND THEN BACK THEM OFF 1/2 TURN.
- FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.
- FOR MODIFIED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.
- FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.

DRAWN BY : T. STUMP DATE : 03/2024
 CHECKED BY : N. BROWN DATE : 03/2024
 DESIGN ENGINEER OF RECORD : A. FORFA DATE : 11/2024

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SHEET 2 OF 2

STATE OF NORTH CAROLINA
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ELASTOMERIC BEARING DETAILS

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BRIDGE JACKING NOTES:

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

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

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

THE BEAM SHALL BE LIFTED ENOUGH 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 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.

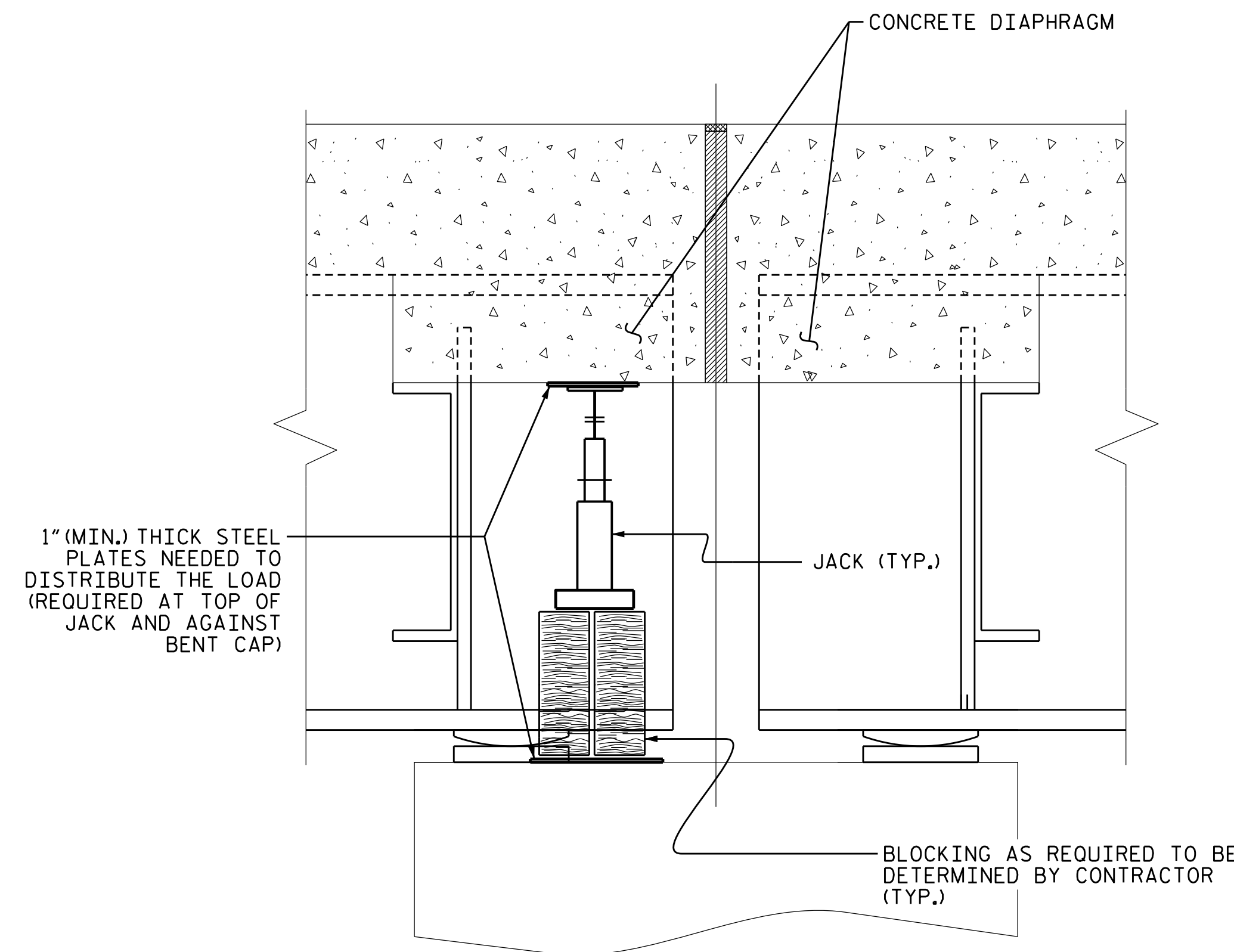
ANY STEEL THAT HAS BEEN WELDED TO THE EXISTING STRUCTURE SHALL REMAIN IN PLACE.

TYPE II BRIDGE JACKING SHALL BE DONE WITH A HYDRULIC 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.

ASSUMED LOAD FOR JACKING = HL-93

PROJECT NO. 10BPR.401
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 BRIDGE NO. 590348



SECTION THRU DIAPHRAGM

BRIDGE JACKING TABLE					
LOCATION	SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)	LIVE LOAD (LL+PL) (KIPS)
BENT 1	A	EXTERIOR	I	17.9	52.2
	A	INTERIOR	I	20.7	64.2
	B	EXTERIOR	I	45.8	80.8
	B	INTERIOR	I	53.0	89.9
BENT 4	D	EXTERIOR	I	45.8	80.8
	D	INTERIOR	I	53.0	89.9
	E	EXTERIOR	I	17.9	52.2
	E	INTERIOR	I	20.7	64.2

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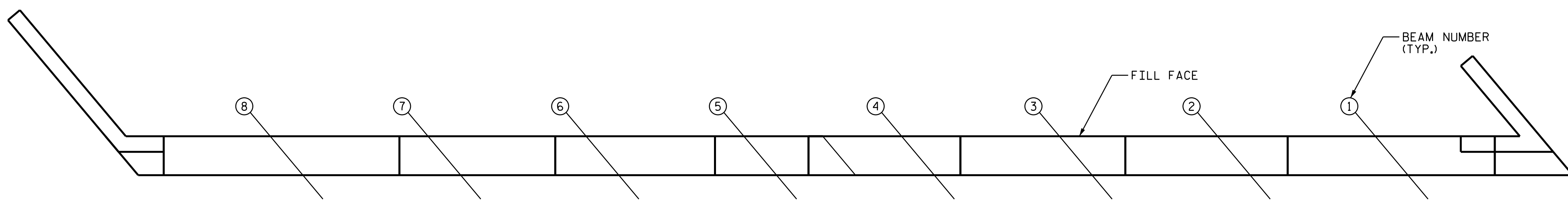


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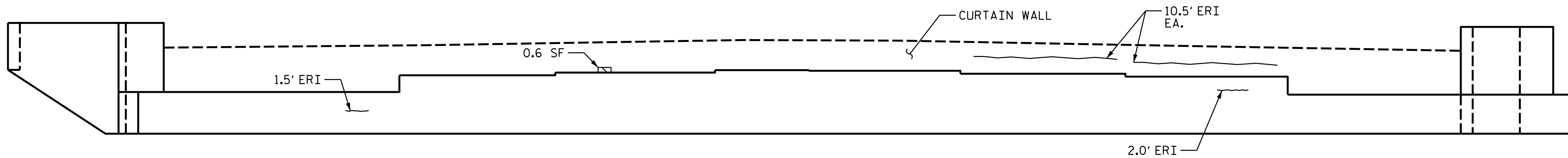
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JACKING DETAILS

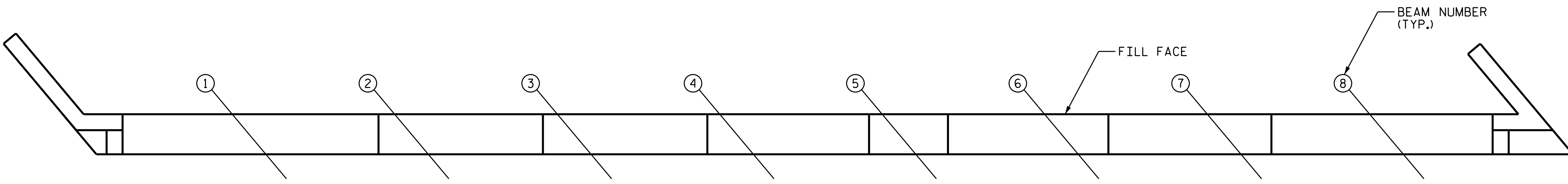
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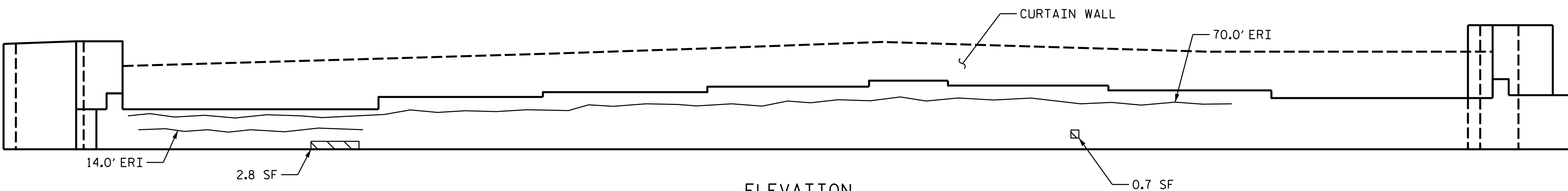
PLAN



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 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.

REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.6	0.2		
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	3.5			
CURTAIN WALL	21.0			
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	3.5	0.9		
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	84.0			
CURTAIN WALL	0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF END BENT CAP	0.0			

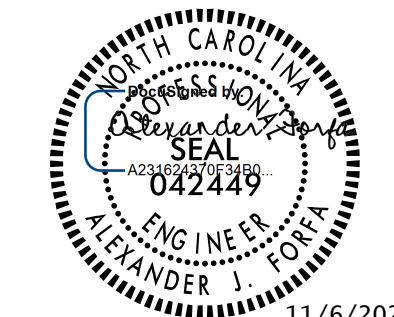
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. FOR REPAIR DETAILS SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)

PROJECT NO. 10BPR.401
MECKLENBURG COUNTY
 BRIDGE NO. 590348

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END BENT 1 & 2

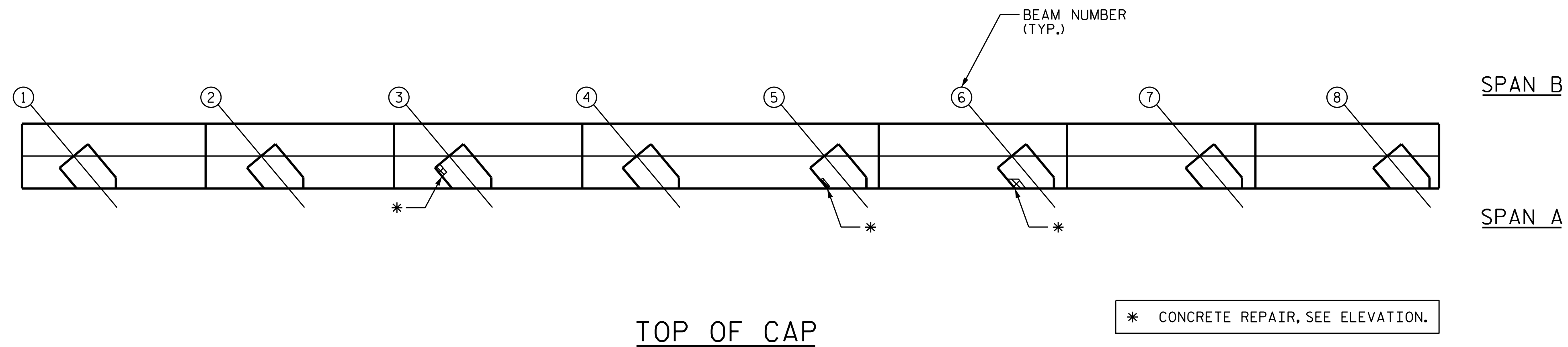


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REPAIR QUANTITY TABLE				
BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	77.2	20.3		
COLUMN	28.3	7.1		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	3.3	0.9		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT		LN. FT	
CAP	49.0			
COLUMN	2.7			
EPOXY COATING	AREA SF		AREA SF	
TOP OF BENT CAP	243.9			

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

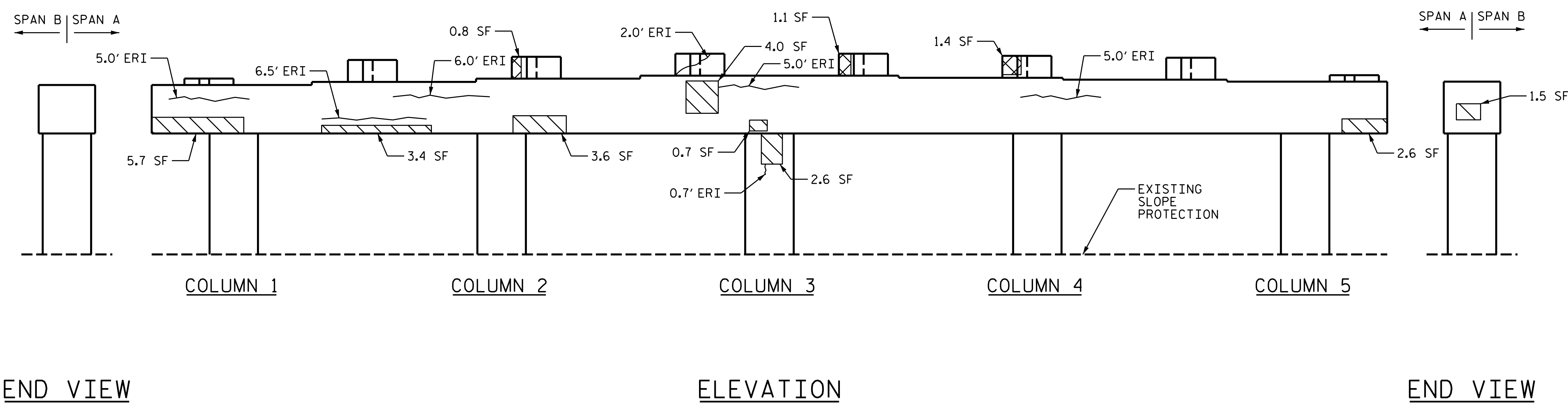
NOTES:
 REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES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

FOR 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.

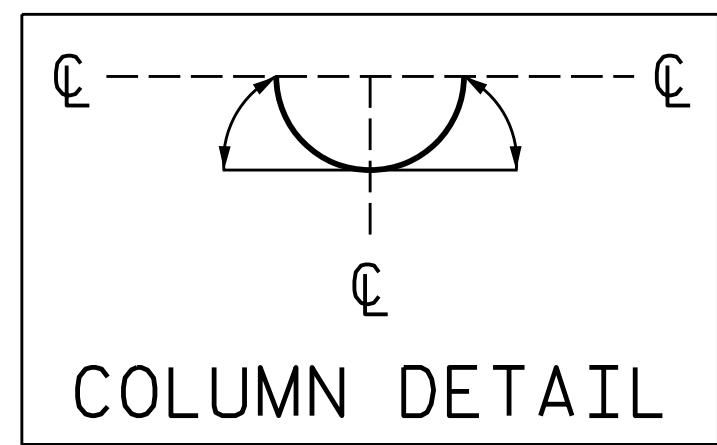
CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE CAP AND APPLY EPOXY PROTECTIVE COATING. EPOXY COATING SHALL BE APPLIED TO THE TOP SURFACE OF THE CAP. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE ELASTOMERIC BEARINGS. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
 CONCRETE REPAIRS TO THE BENT CAP AND PEDESTALS 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 AREA
- CONCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)



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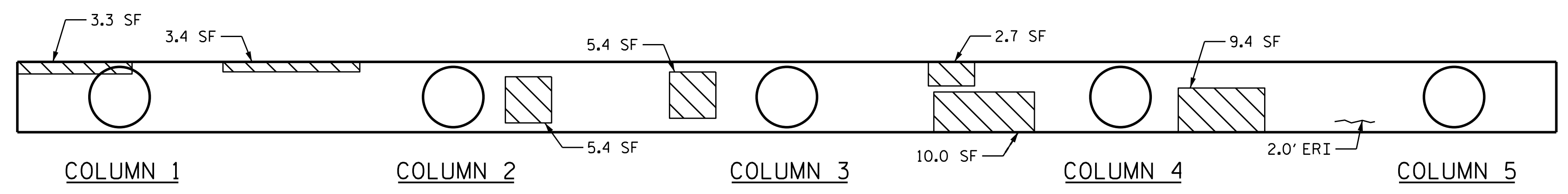
PROJECT NO. 10BPR.401
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 BRIDGE NO. 590348

SHEET 1 OF 2

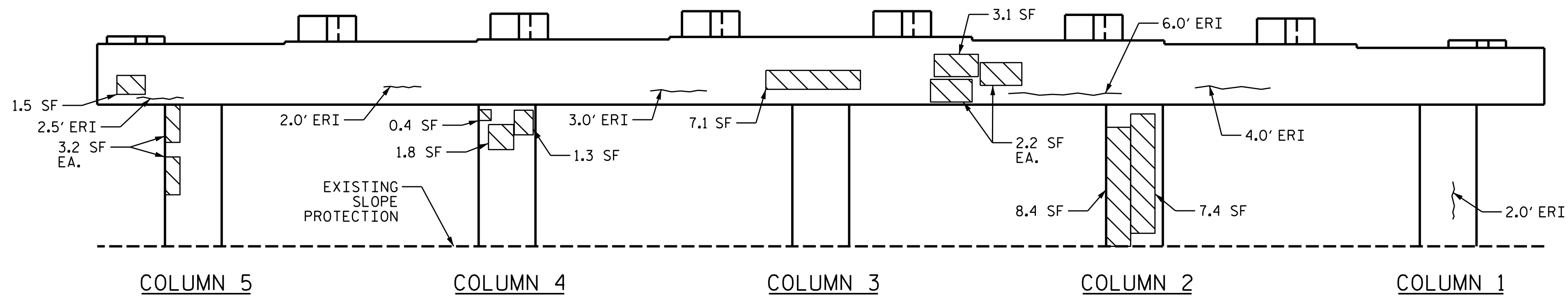
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 RALEIGH

BENT 1
 SPAN "A" SIDE

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BOTTOM OF CAP



ELEVATION

NOTES:

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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 AND PEDESTALS MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE "JACKING DETAILS" SHEET.

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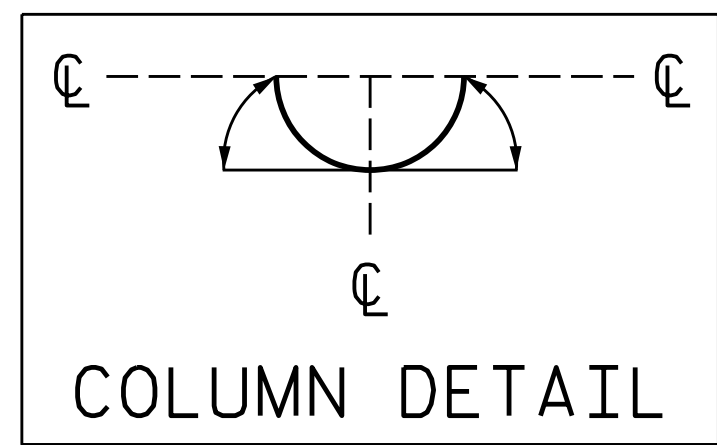
- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)

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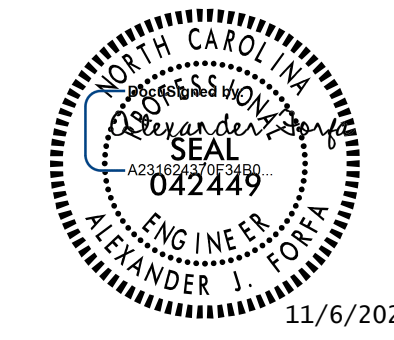
SHEET 2 OF 2

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BENT 1
SPAN "B" SIDE



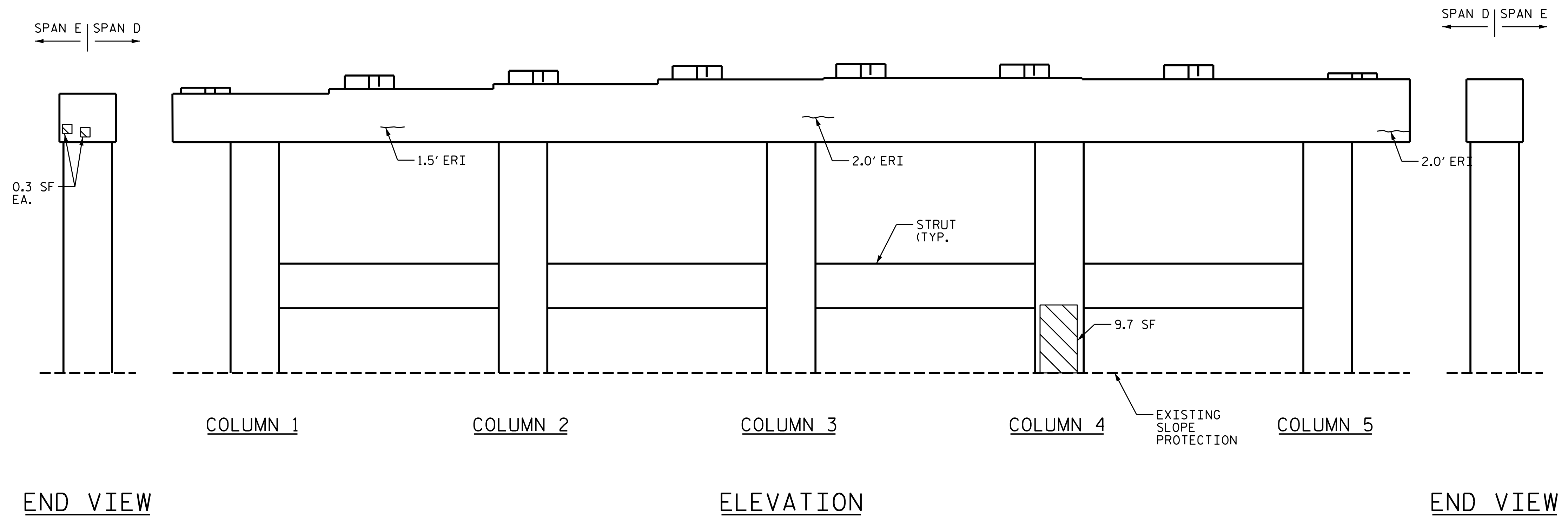
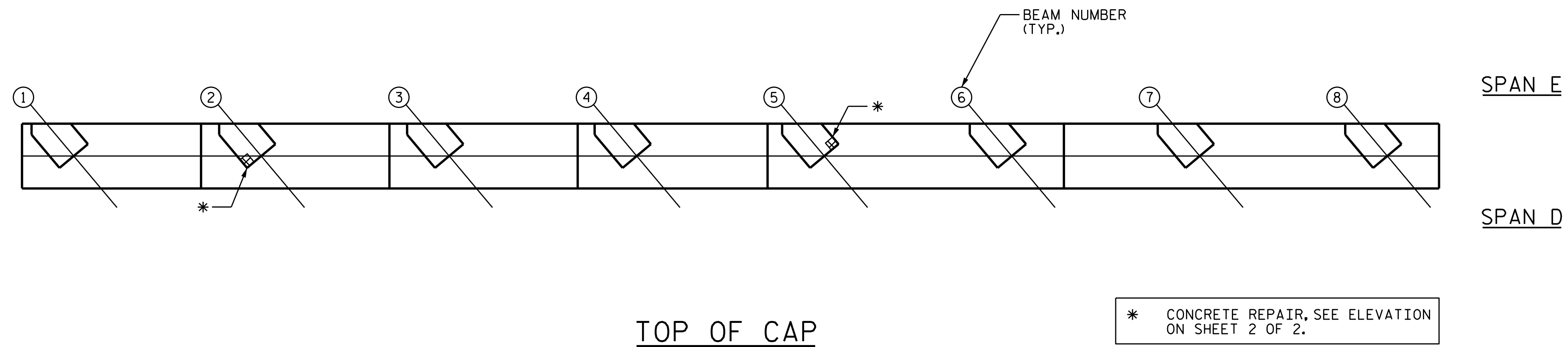
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REPAIR QUANTITY TABLE				
BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	147.9	37.2		
COLUMN	37.5	9.4		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	1.4	0.9		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION	LN. FT		LN. FT	
CAP	25.5			
COLUMN	4.0			
EPOXY COATING	AREA SF		AREA SF	
TOP OF BENT CAP	243.9			

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

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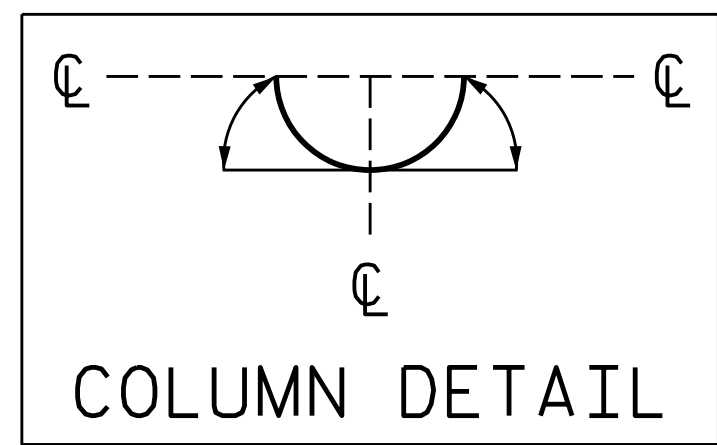
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FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

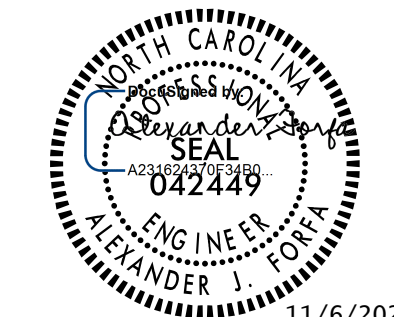
CONCRETE REPAIRS TO THE BENT CAP AND PEDESTALS MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE "JACKING DETAILS" SHEET.

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

- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)



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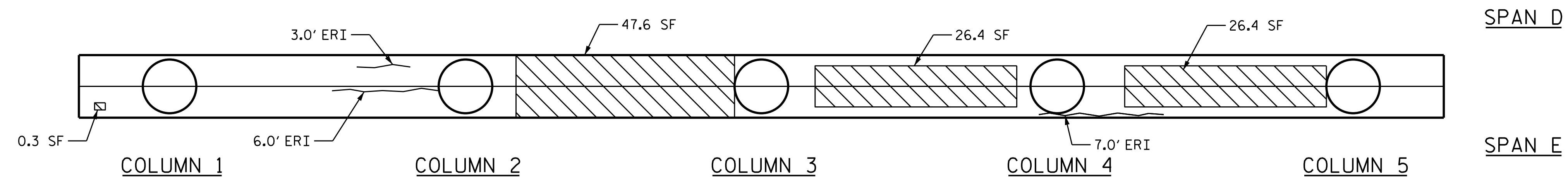
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 MECKLENBURG COUNTY
 BRIDGE NO. 590348

SHEET 1 OF 2

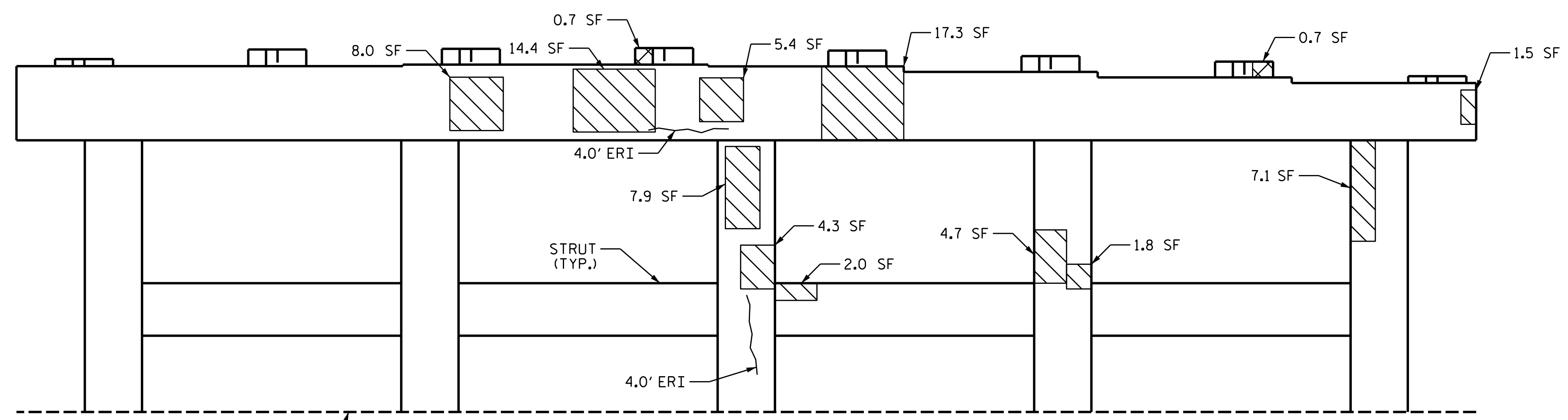
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BENT 4
 SPAN "D" SIDE

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2			4			



BOTTOM OF CAP



ELEVATION

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.

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FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS TO THE BENT CAP AND PEDESTALS 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.

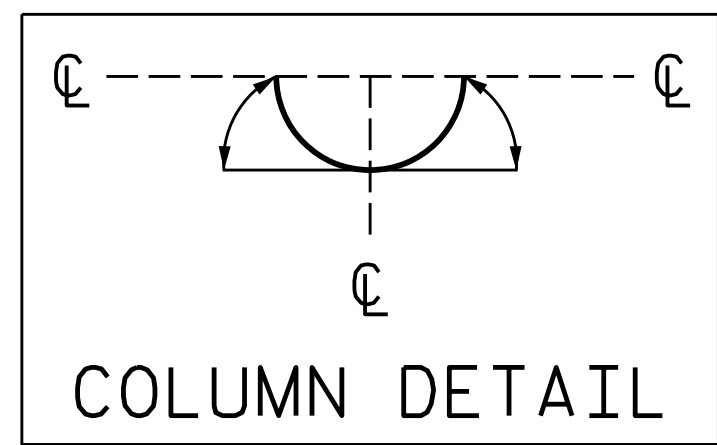
- SHOTCRETE REPAIR AREA
- CONCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)

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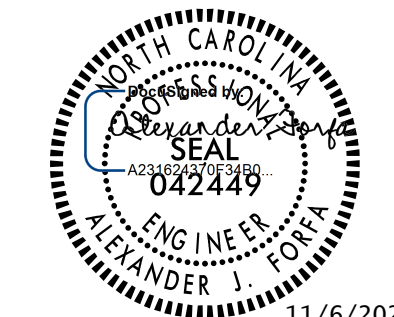
SHEET 2 OF 2

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BENT 4
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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.

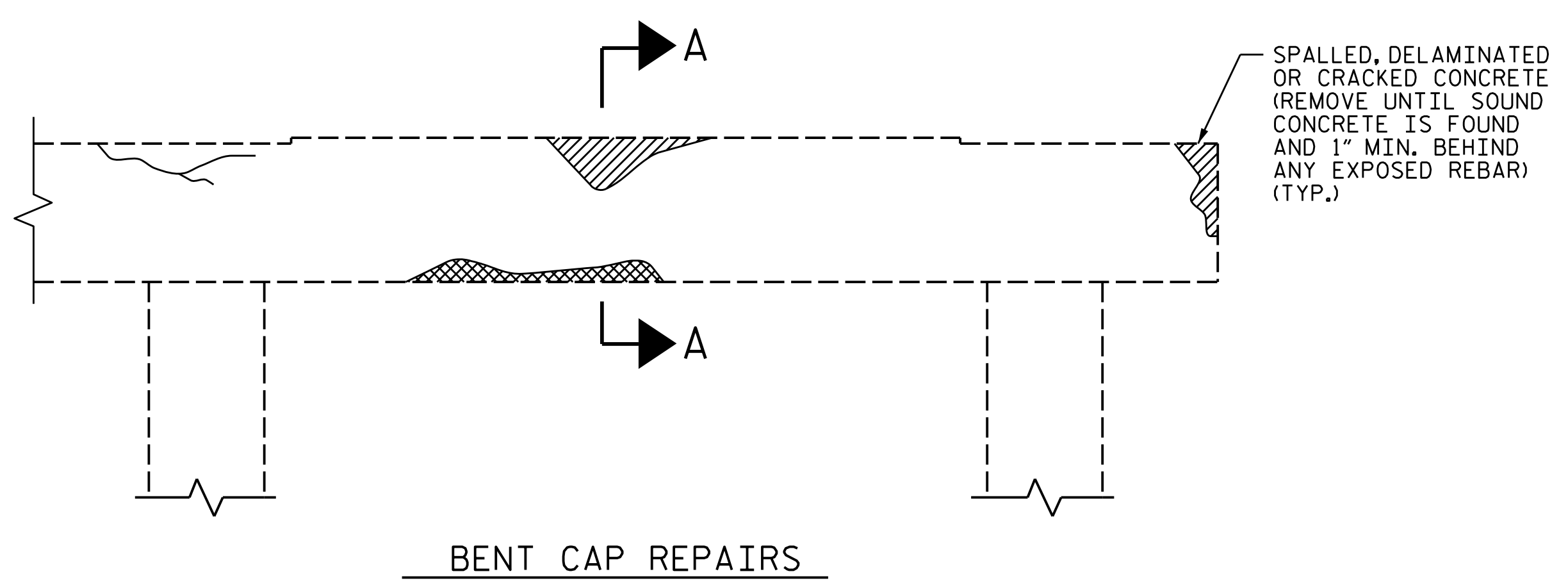
NO MORE THAN 10 FEET OF VERTICAL COLUMN REBAR SHALL BE REPAIRED AT ONE TIME. SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 10 FEET, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

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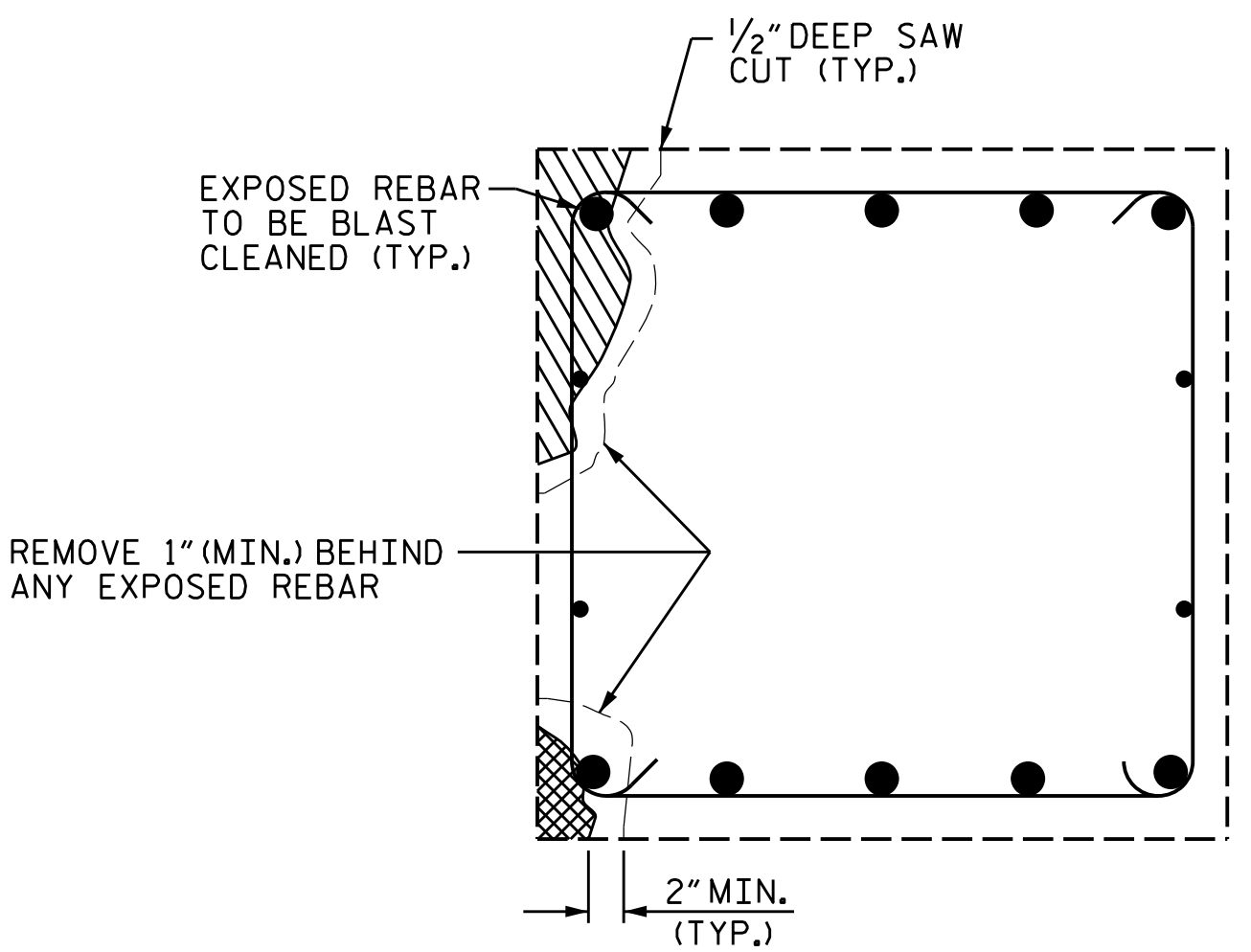
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TYPICAL CAP AND COLUMN REPAIR DETAILS

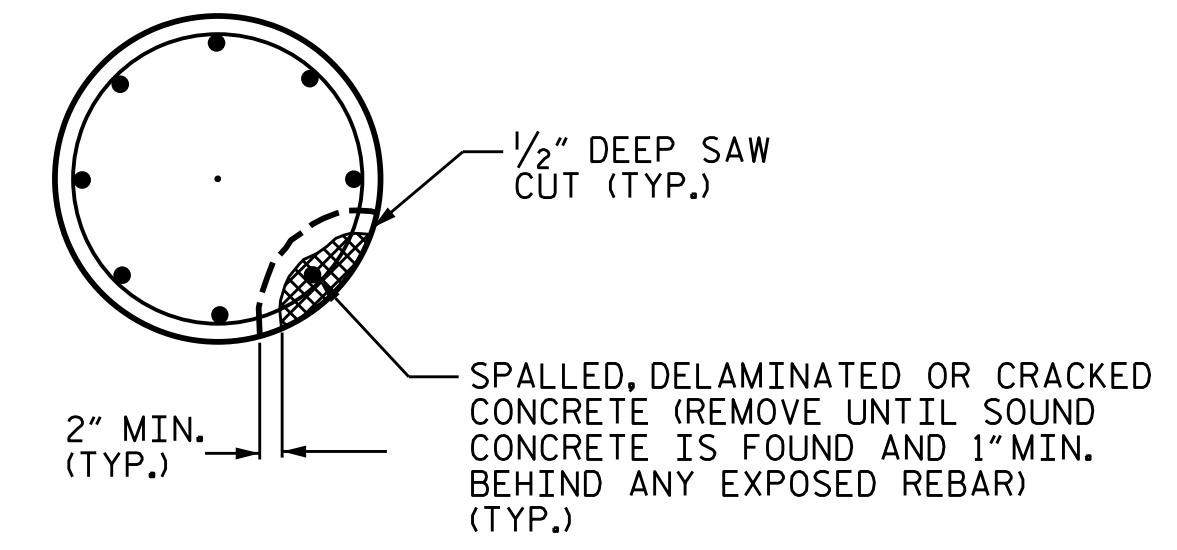
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BENT CAP REPAIRS



SECTION A-A



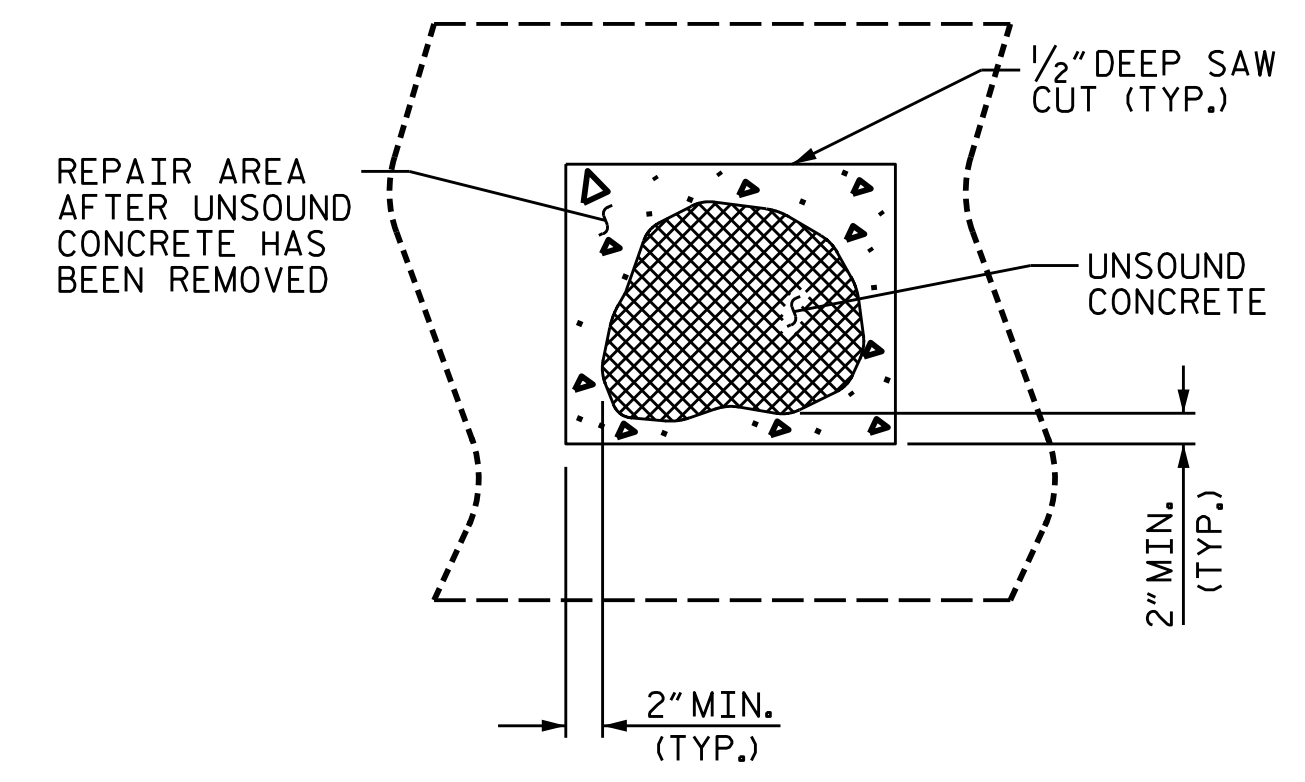
PLAN OF COLUMN

REPAIR KEY

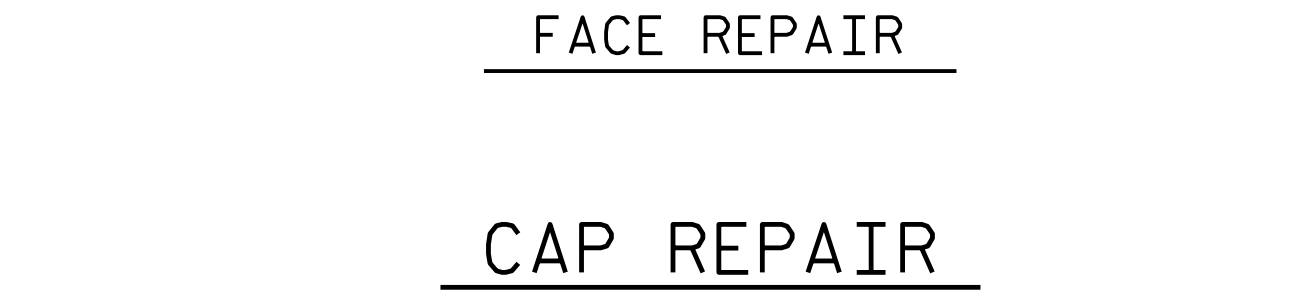
- CONCRETE REPAIR AREA
- SHOTCRETE REPAIR AREA
- EPOXY RESIN INJECTION (ERI)

SPLICE LENGTH TABLE

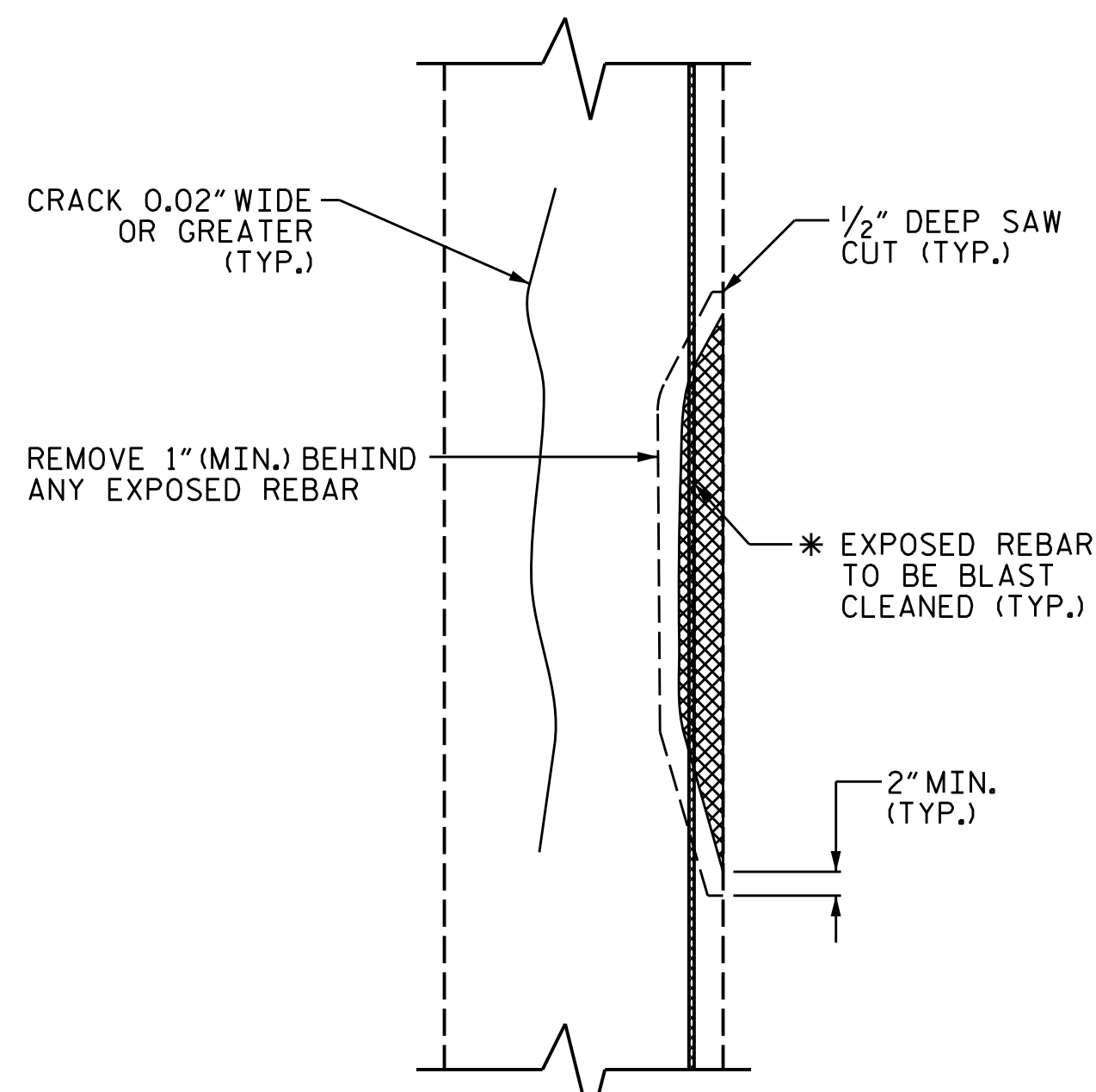
BAR SIZE	MIN. SPLICE LENGTH
#4	2'-4"
#5	2'-9"
#6	4'-0"
#7	5'-3"
#8	6'-9"
#9	8'-6"
#10	10'-11"
#11	13'-4"



FACE REPAIR



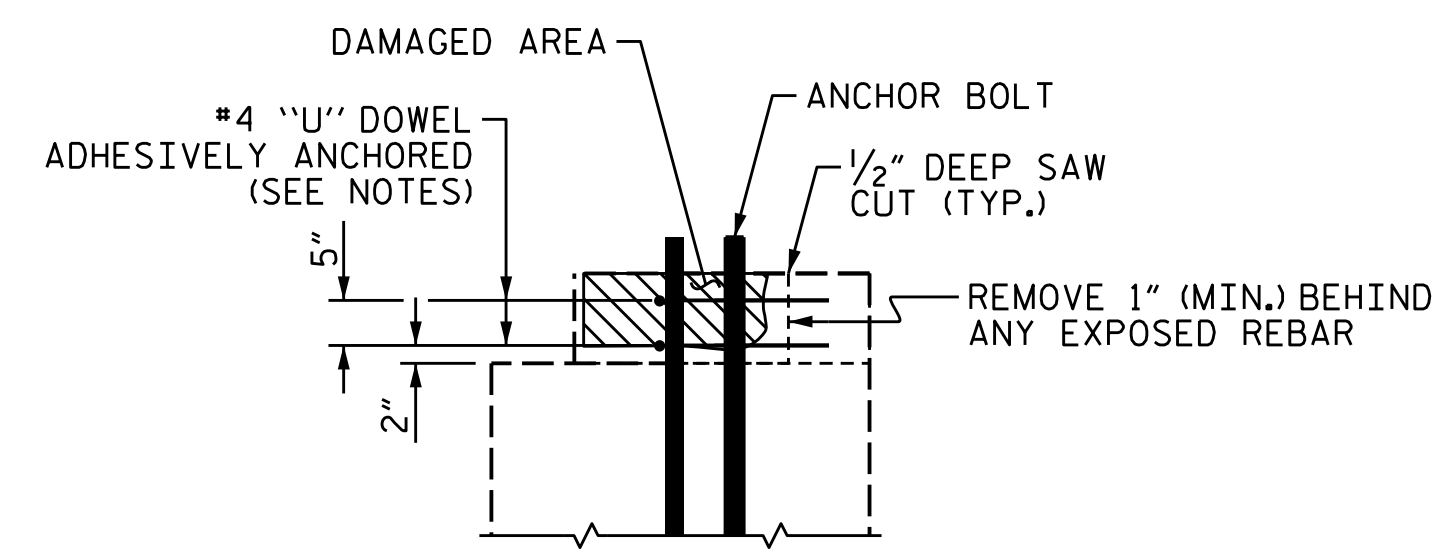
CAP REPAIR



ELEVATION OF COLUMN

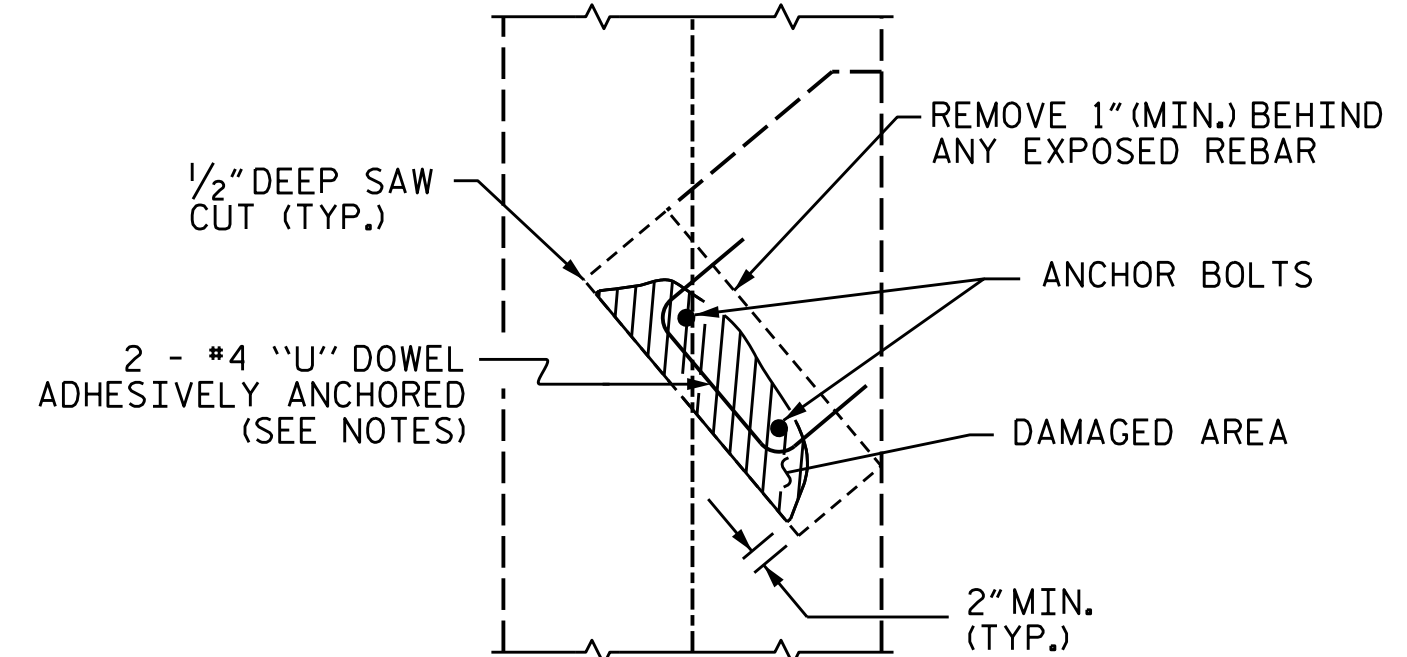
COLUMN REPAIR

* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.



ELEVATION

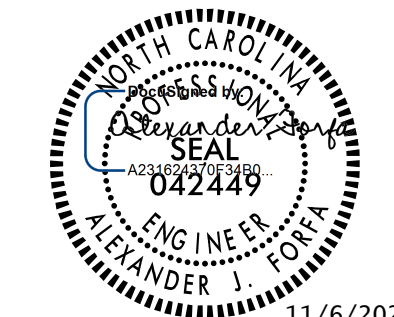
PEDESTAL WALL REPAIR



PLAN

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 CHECKED BY : A. FORFA DATE : 03/2024
 DESIGN ENGINEER OF RECORD : A. FORFA DATE : 11/2024

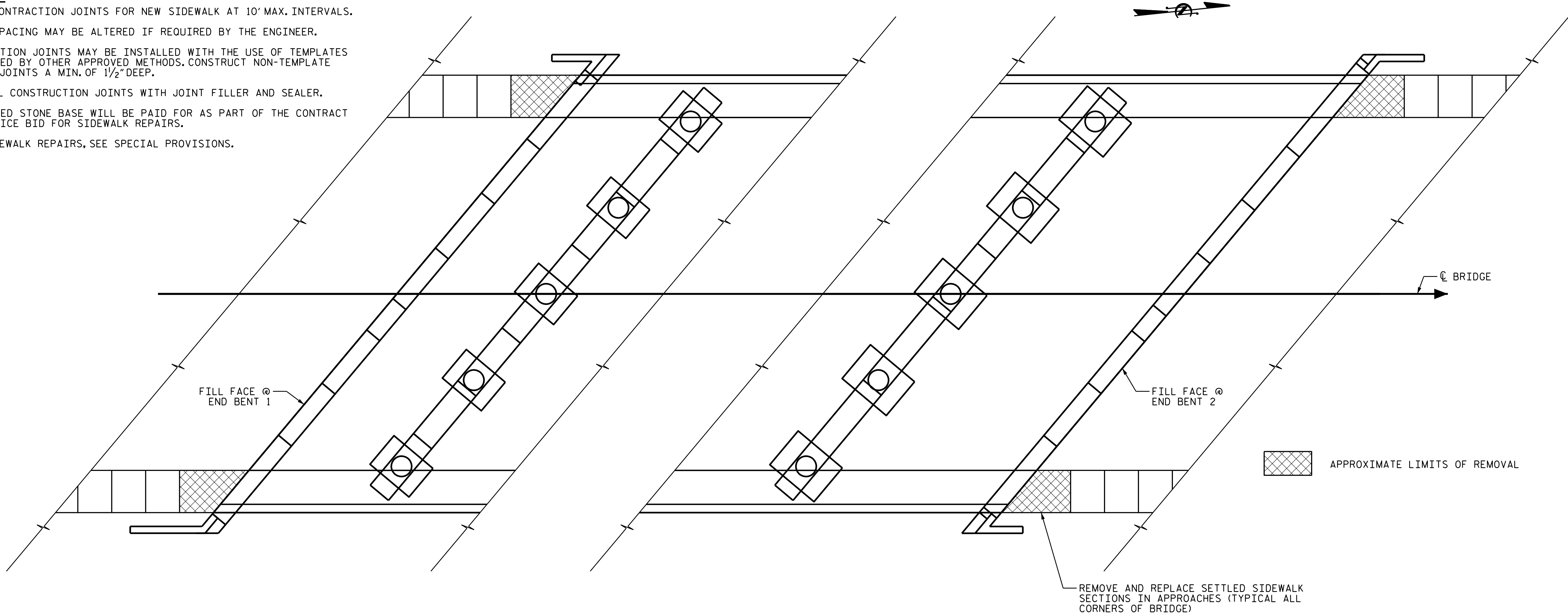
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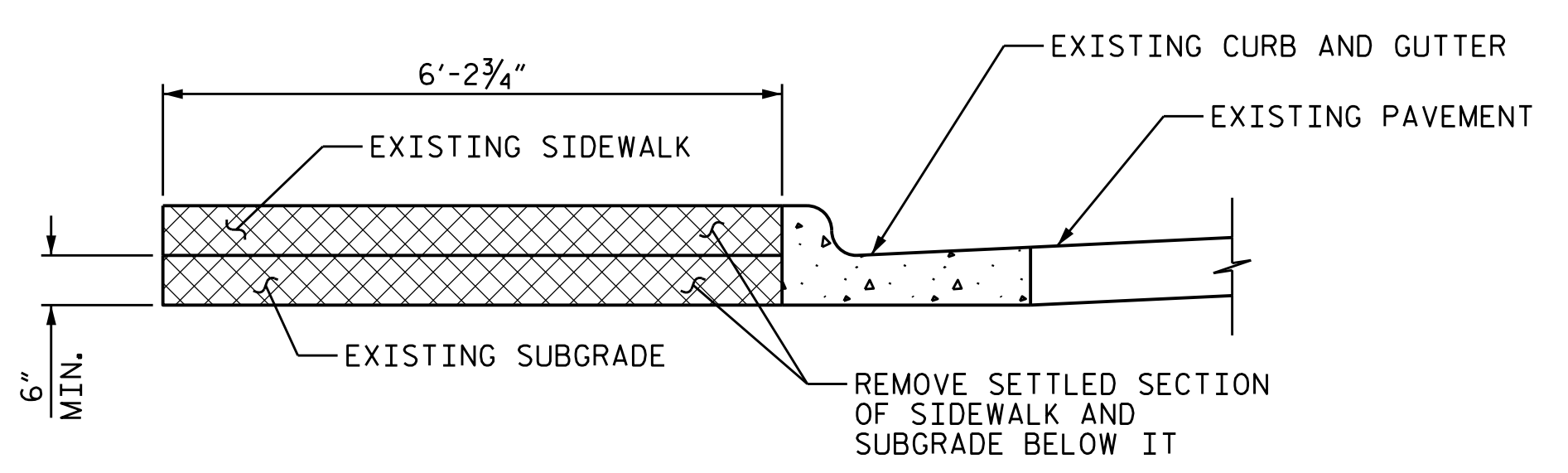
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NOTES:

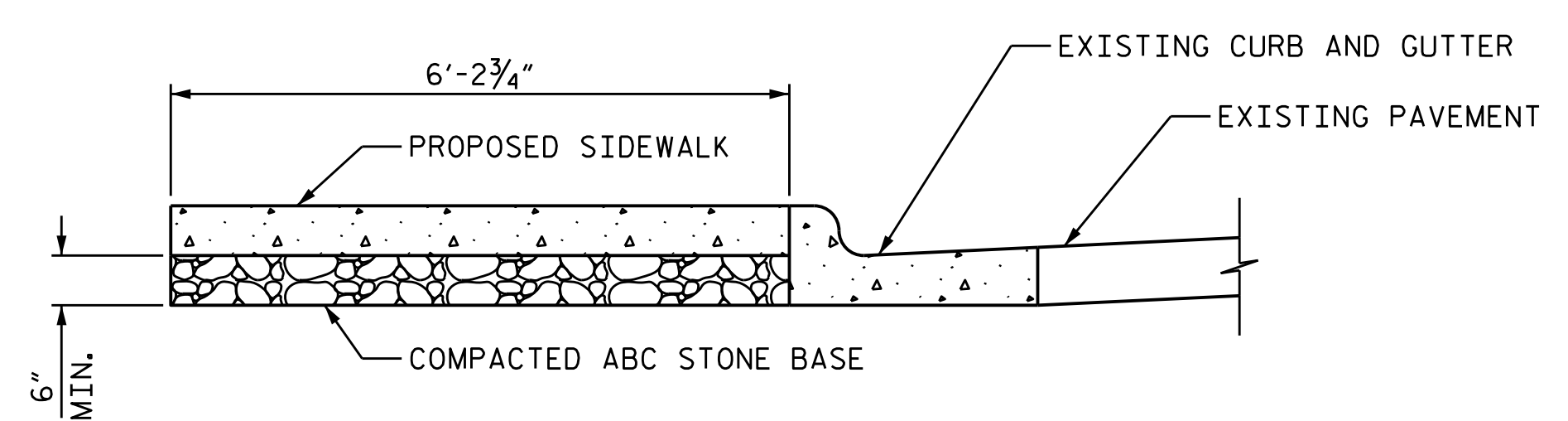
PLACE CONTRACTION JOINTS FOR NEW SIDEWALK AT 10' MAX. INTERVALS.
 JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
 CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. CONSTRUCT NON-TEMPLATE FORMED JOINTS A MIN. OF 1 1/2" DEEP.
 FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
 COMPACTED STONE BASE WILL BE PAID FOR AS PART OF THE CONTRACT UNIT PRICE BID FOR SIDEWALK REPAIRS.
 FOR SIDEWALK REPAIRS, SEE SPECIAL PROVISIONS.



PLAN VIEW



EXISTING SIDEWALK SECTION



PROPOSED SIDEWALK SECTION

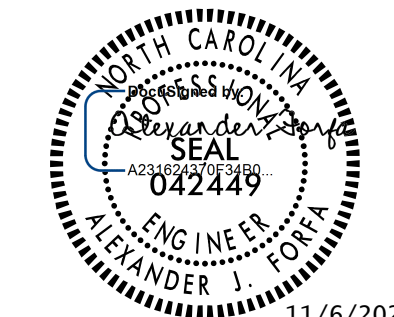
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SIDEWALK REPAIRS

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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 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 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 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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