8/26/21

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.

GENERAL NOTES

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

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE RAILROAD TRACK TOP OF RAIL TO BOTTOM OF BEAM VERTICAL CLEARANCES ON THE PLANS ARE 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.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

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

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.

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

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 UP TO THE LIMITS SHOWN ON THE PLANS.

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

FOR PAINTING EXISTING STURCTURE, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURES, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR OVERLAY OF BRIDGE WITH LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH, SEE SPECIAL PROVISIONS.

FOR LMC OVERLAY SURFACE PREPARATION, SEE SPECIAL PROVISIONS.

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

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.

FOR MODIFIED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

FOR PEDESTRIAN PROTECTION, SEE SPECIAL PROVISIONS.

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

BRIDGE COORDINATES	
LATITUDE	LONGITUDE
35°-47'-28.14"	78°-35'-09.89"

PROJECT NO. **15BPR.144**

WAKE COUNTY

BRIDGE: **910538**

SHEET 2 OF 2

DocuSigned by: John Yannaccone 7813617546784 56

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

8/11/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 2911 EBL (NEW BERN AVE) OVER CRABTREE CREEK, CRABTREE CREEK GREENWAY AND CAROLINA COASTAL RAILWAY

DRAWN BY : Z. BLINSON DATE : 9/2024

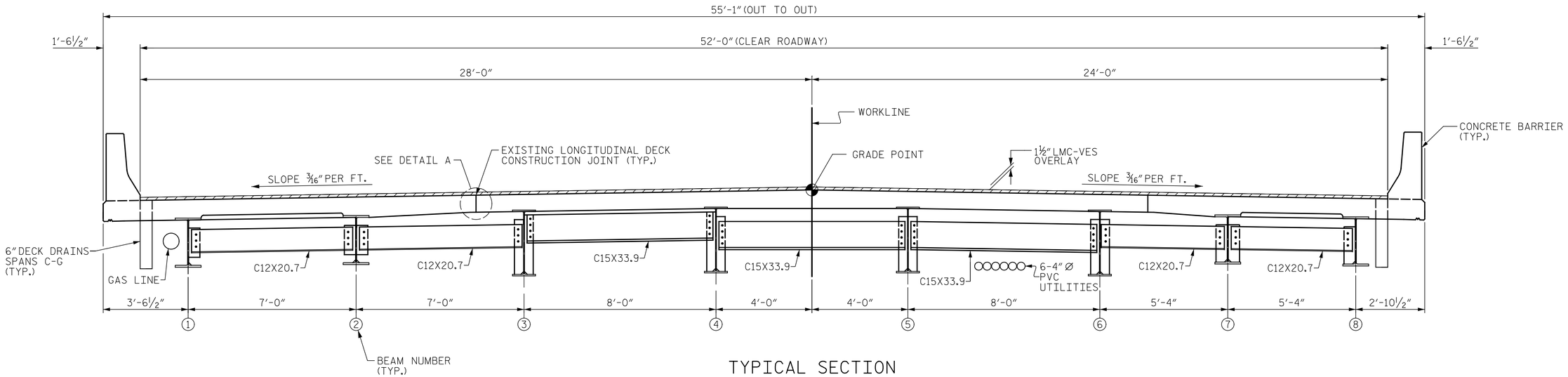
CHECKED BY : J. YANNACCONE DATE : 9/2024

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

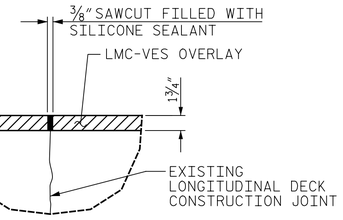
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-2
1			3			TOTAL SHEETS
2			4			30

8/26/21



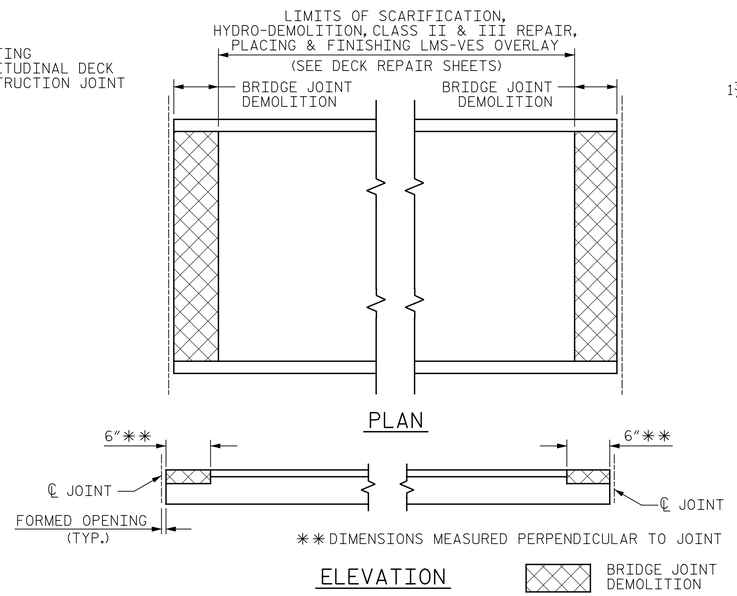
TYPICAL SECTION

(PROPOSED)

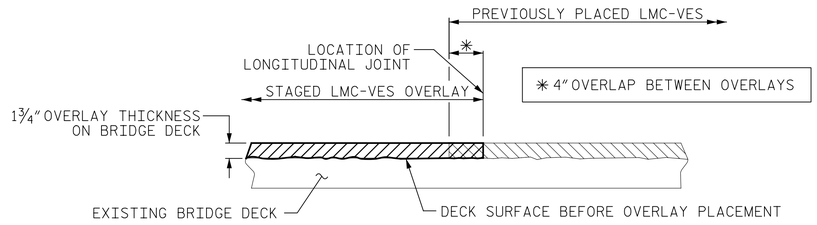


DETAIL A

(TYP. @ ALL EXISTING LONGITUDINAL DECK CONSTRUCTION JOINTS)



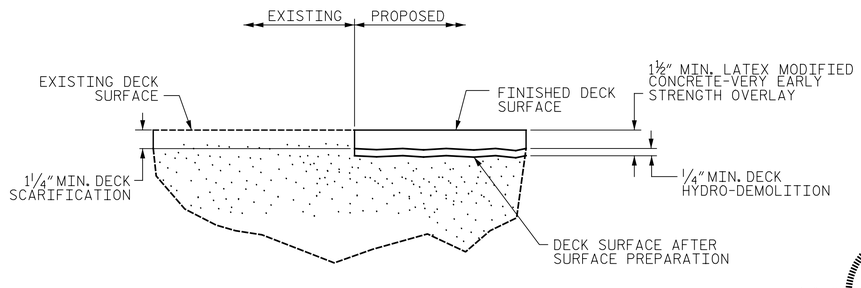
PAY LIMITS FOR OVERLAY



SECTION THRU DECK

STAGED LMC-VES OVERLAY JOINT

(AS NEEDED)



DETAIL FOR LMC-VES OVERLAY

NOTES:

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

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

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.

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

PROJECT NO. 15BPR.144

WAKE COUNTY

BRIDGE: 910538

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

DocuSigned by: John Yannaccone 781361754678456

8/22/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION AND SURFACE PREPARATION DETAILS

DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

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

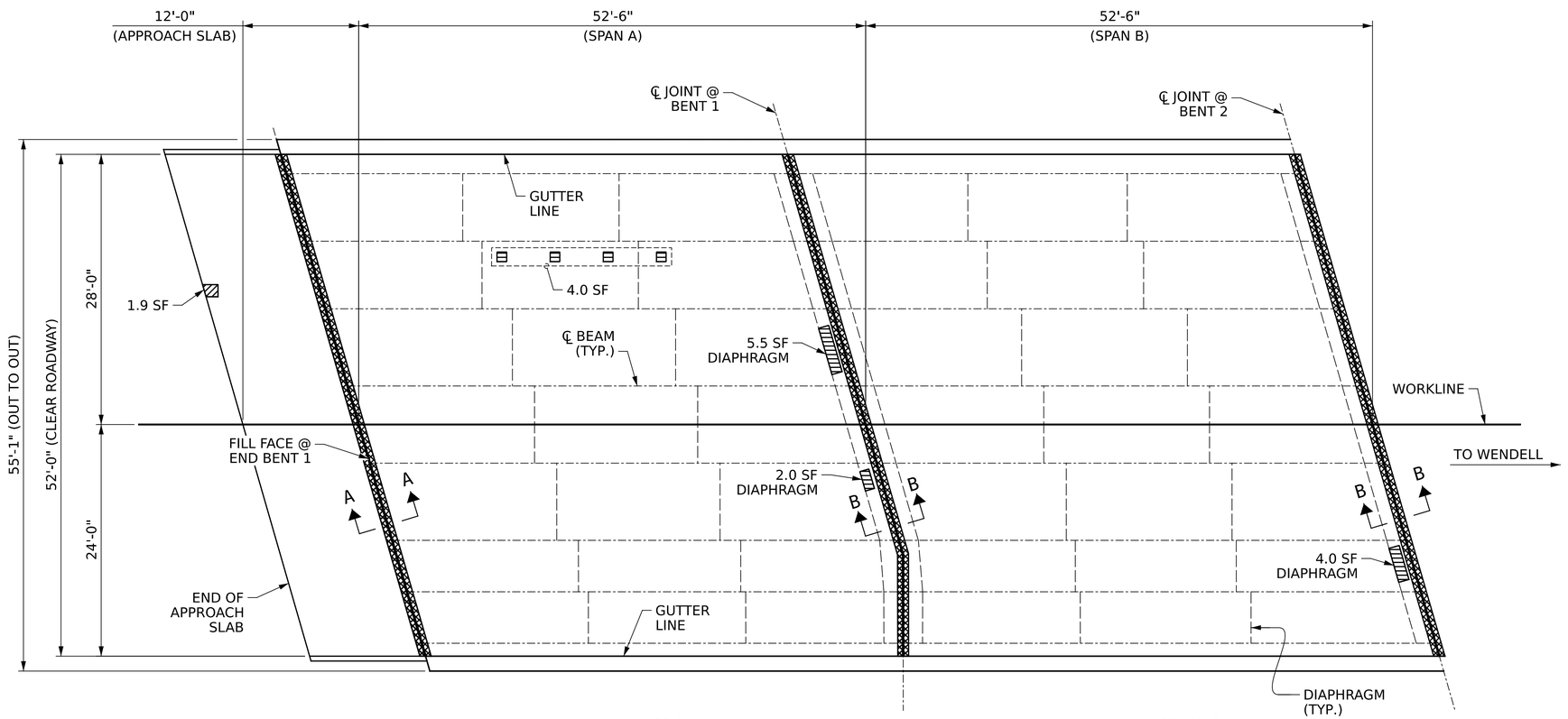
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-3
1			3			TOTAL SHEETS
2			4			30

8/26/21

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAW CUT. SEE REPAIR DETAILS.

PAYMENT FOR CLASS II AND CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.



PLAN

NOTES:

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

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 2½" PER THE EXISTING BRIDGE PLANS.

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

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

THE QUANTITY OF SCARIFYING BRIDGE DECK INCLUDES THE CONCRETE BRIDGE DECK AND CONCRETE APPROACH SLABS AT EACH END OF THE BRIDGE.

FOR LMC OVERLAY SURFACE PREPARATION, SEE SPECIAL PROVISIONS.

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

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

	SCARIFYING BRIDGE DECK
	BRIDGE JOINT DEMOLITION
	CLASS II SURFACE PREPARATION
	UNDERSIDE OF DECK REPAIR
ERI	EPOXY RESIN INJECTION

AS-BUILT QUANTITY REPAIR TABLE

DECK SURFACE REPAIR & APPROACH SLAB REPAIR

		ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	APPROACH SLAB @ END BENT 1	65.8 SQ. YDS.	
	SPAN A	295.3 SQ. YDS.	
	SPAN B	298.4 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	APPROACH SLAB @ END BENT 1	65.8 SQ. YDS.	
	SPAN A	295.3 SQ. YDS.	
	SPAN B	298.4 SQ. YDS.	
BRIDGE JOINT DEMOLITION	APPROACH SLAB @ END BENT 1	27 SQ. FT.	
	SPAN A	54 SQ. FT.	
	SPAN B	54 SQ. FT.	
CLASS II SURFACE PREPARATION	APPROACH SLAB @ END BENT 1	0.2 SQ. YDS.	
	SPAN A	0.0 SQ. YDS.	
	SPAN B	0.0 SQ. YDS.	
LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH	APPROACH SLAB @ END BENT 1	3.2 CU. YDS.	
	SPAN A	14.4 CU. YDS.	
	SPAN B	14.5 CU. YDS.	
PLACING AND FINISHING LMC-VES	APPROACH SLAB @ END BENT 1	65.8 SQ. YDS.	
	SPAN A	295.3 SQ. YDS.	
	SPAN B	298.4 SQ. YDS.	
GROOVING BRIDGE FLOORS	APPROACH SLAB @ END BENT 1	542 SQ. FT.	
	SPAN A	2490 SQ. FT.	
	SPAN B	2511 SQ. FT.	

DECK UNDERSIDE REPAIR

SHOTCRETE REPAIRS		ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK	SPAN A	4.0	2.0		
	SPAN B	0.0	0.0		
INTERIOR DIAPHRAGMS	SPAN A	7.5	3.7		
	SPAN B	4.0	2.0		
OVERHANG DIAPHRAGMS	SPAN A	0.0	0.0		
	SPAN B	0.0	0.0		
UNDERSIDE OF OVERHANG	SPAN A	0.0	0.0		
	SPAN B	0.0	0.0		

		ESTIMATE	ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	SPAN A	0.0 LIN.FT.	
	SPAN B	0.0 LIN.FT.	

PROJECT NO. 15BPR.144

WAKE COUNTY

BRIDGE: 910538

SHEET 1 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIRS
SPANS A & B
WITH APPROACH SLAB

DocuSigned by: John Yannaccone 7813617546784S8
NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE
8/11/2025

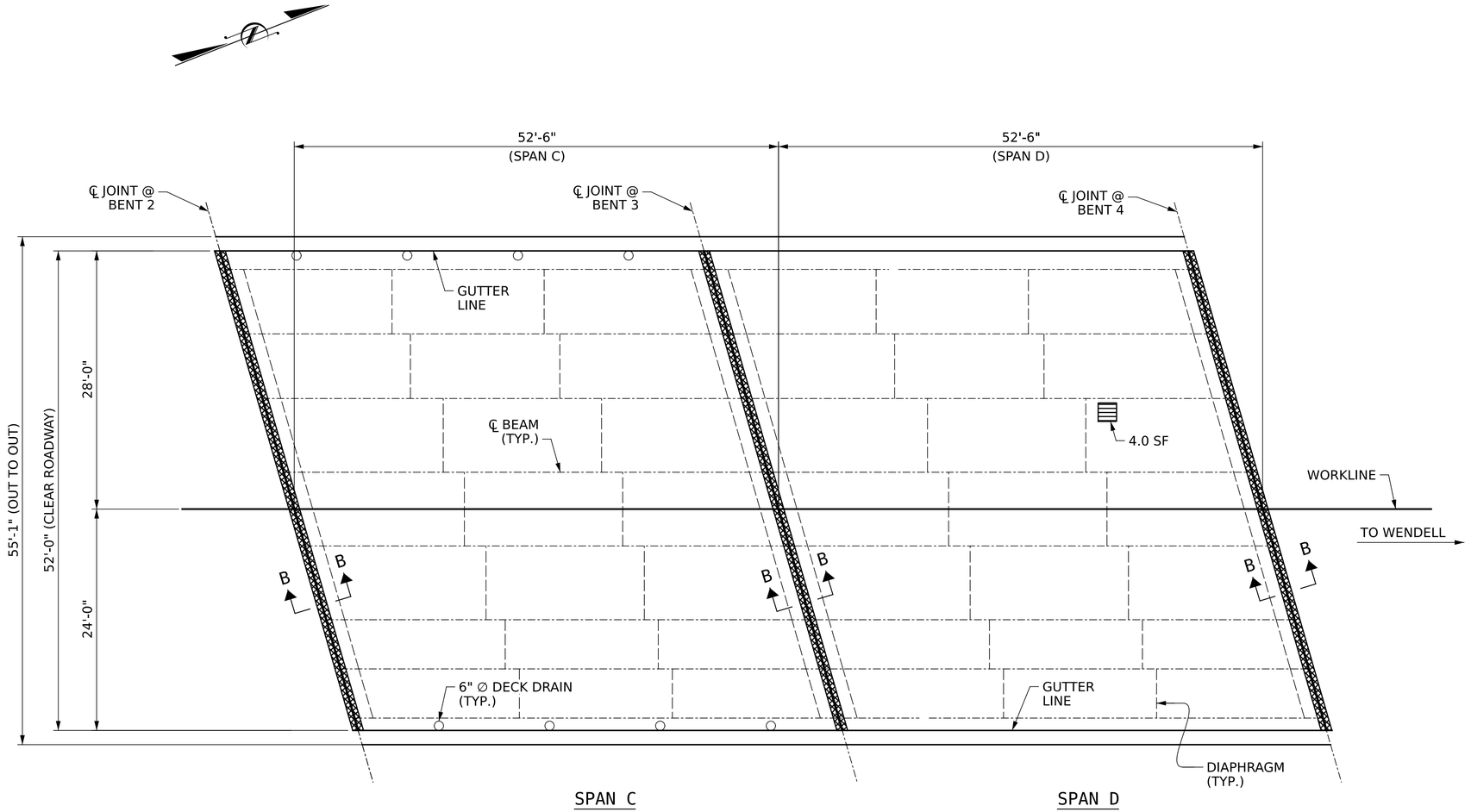
DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-4
1			3			TOTAL SHEETS
2			4			30

8/26/21



PLAN

NOTES:

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

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 2½" PER THE EXISTING BRIDGE PLANS.

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

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

THE QUANTITY OF SCARIFYING BRIDGE DECK INCLUDES THE CONCRETE BRIDGE DECK AND CONCRETE APPROACH SLABS AT EACH END OF THE BRIDGE.

FOR LMC OVERLAY SURFACE PREPARATION, SEE SPECIAL PROVISIONS.

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

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

AS-BUILT QUANTITY REPAIR TABLE

DECK SURFACE REPAIR & APPROACH SLAB REPAIR

		ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	SPAN C	296.8 SQ. YDS.	
	SPAN D	296.8 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	SPAN C	296.8 SQ. YDS.	
	SPAN D	296.8 SQ. YDS.	
BRIDGE JOINT DEMOLITION	SPAN C	54 SQ. FT.	
	SPAN D	54 SQ. FT.	
CLASS II SURFACE PREPARATION	SPAN C	0.0 SQ. YDS.	
	SPAN D	0.0 SQ. YDS.	
LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH	SPAN C	14.4 CU. YDS.	
	SPAN D	14.4 CU. YDS.	
PLACING AND FINISHING LMC-VES	SPAN C	296.8 SQ. YDS.	
	SPAN D	296.8 SQ. YDS.	
GROOVING BRIDGE FLOORS	SPAN C	2500 SQ. FT.	
	SPAN D	2500 SQ. FT.	

DECK UNDERSIDE REPAIR

SHOTCRETE REPAIRS		ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK	SPAN C	0.0	0.0		
	SPAN D	4.0	2.0		
INTERIOR DIAPHRAGMS	SPAN C	0.0	0.0		
	SPAN D	0.0	0.0		
OVERHANG DIAPHRAGMS	SPAN C	0.0	0.0		
	SPAN D	0.0	0.0		
UNDERSIDE OF OVERHANG	SPAN C	0.0	0.0		
	SPAN D	0.0	0.0		

		ESTIMATE	ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	SPAN C	0.0 LIN.FT.	
	SPAN D	0.0 LIN.FT.	

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAW CUT. SEE REPAIR DETAILS.

PAYMENT FOR CLASS II AND CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

SCARIFYING BRIDGE DECK

BRIDGE JOINT DEMOLITION

CLASS II SURFACE PREPARATION

UNDERSIDE OF DECK REPAIR

ERI EPOXY RESIN INJECTION

DocuSigned by: John Yannaccone 781361754678456

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

8/11/2025

PROJECT NO. 15BPR.144

WAKE COUNTY

BRIDGE: 910538

SHEET 2 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
DECK REPAIRS
SPANS C & D

DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

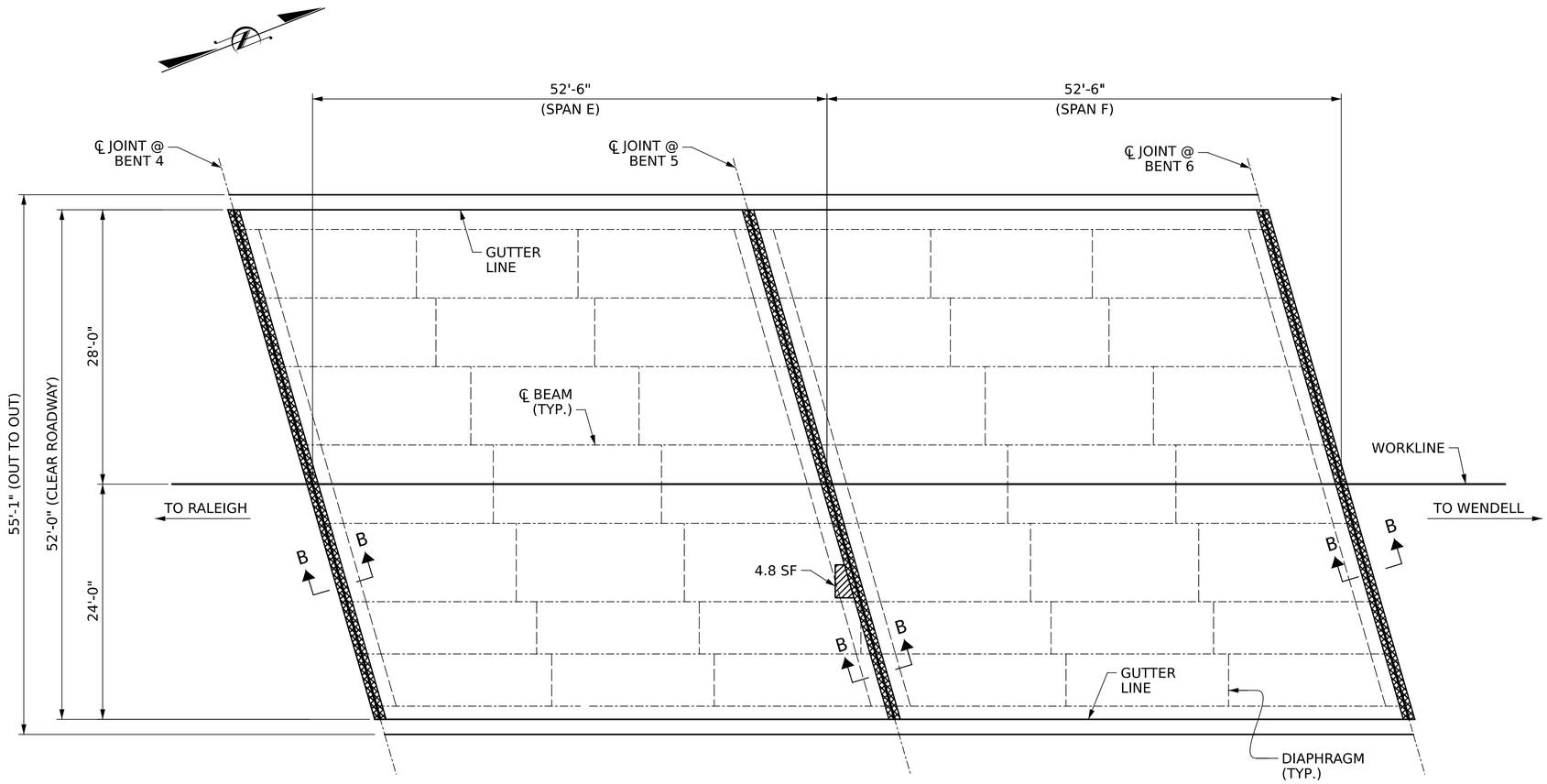
GANNETT FLEMING

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-5
1			3			TOTAL SHEETS
2			4			30

8/26/21



PLAN

NOTES:

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

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 2½" PER THE EXISTING BRIDGE PLANS.

FOR SECTION B-B, SEE "JOINT DETAILS'' SHEET.

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

THE QUANTITY OF SCARIFYING BRIDGE DECK INCLUDES THE CONCRETE BRIDGE DECK AND CONCRETE APPROACH SLABS AT EACH END OF THE BRIDGE.

FOR LMC OVERLAY SURFACE PREPARATION, SEE SPECIAL PROVISIONS.

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

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

SCARIFYING BRIDGE DECK

BRIDGE JOINT DEMOLITION

CLASS II SURFACE PREPARATION

UNDERSIDE OF DECK REPAIR

ERI EPOXY RESIN INJECTION

AS-BUILT QUANTITY TABLE

DECK SURFACE REPAIR & APPROACH SLAB REPAIR

		ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	SPAN E	296.8 SQ. YDS.	
	SPAN F	296.8 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	SPAN E	296.8 SQ. YDS.	
	SPAN F	296.8 SQ. YDS.	
BRIDGE JOINT DEMOLITION	SPAN E	54 SQ. FT.	
	SPAN F	54 SQ. FT.	
CLASS II SURFACE PREPARATION	SPAN E	0.5 SQ. YDS.	
	SPAN F	0.0 SQ. YDS.	
LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH	SPAN E	14.4 CU. YDS.	
	SPAN F	14.4 CU. YDS.	
PLACING AND FINISHING LMC-VES	SPAN E	296.8 SQ. YDS.	
	SPAN F	296.8 SQ. YDS.	
GROOVING BRIDGE FLOORS	SPAN E	2500 SQ. FT.	
	SPAN F	2500 SQ. FT.	

DECK UNDERSIDE REPAIR

SHOTCRETE REPAIRS		ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK	SPAN E	0.0	0.0		
	SPAN F	0.0	0.0		
INTERIOR DIAPHRAGMS	SPAN E	0.0	0.0		
	SPAN F	0.0	0.0		
OVERHANG DIAPHRAGMS	SPAN E	0.0	0.0		
	SPAN F	0.0	0.0		
UNDERSIDE OF OVERHANG	SPAN E	0.0	0.0		
	SPAN F	0.0	0.0		

		ESTIMATE	ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	SPAN E	0.0 LIN.FT.	
	SPAN F	0.0 LIN.FT.	

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAW CUT. SEE REPAIR DETAILS.

PAYMENT FOR CLASS II AND CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION'' SPECIAL PROVISION.

PROJECT NO. **15BPR.144**

WAKE COUNTY

BRIDGE: **910538**

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIRS

SPANS E & F

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

DocuSigned by: John Yannaccone 7813617546784 8/11/2025

DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

GANNETT FLEMING

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

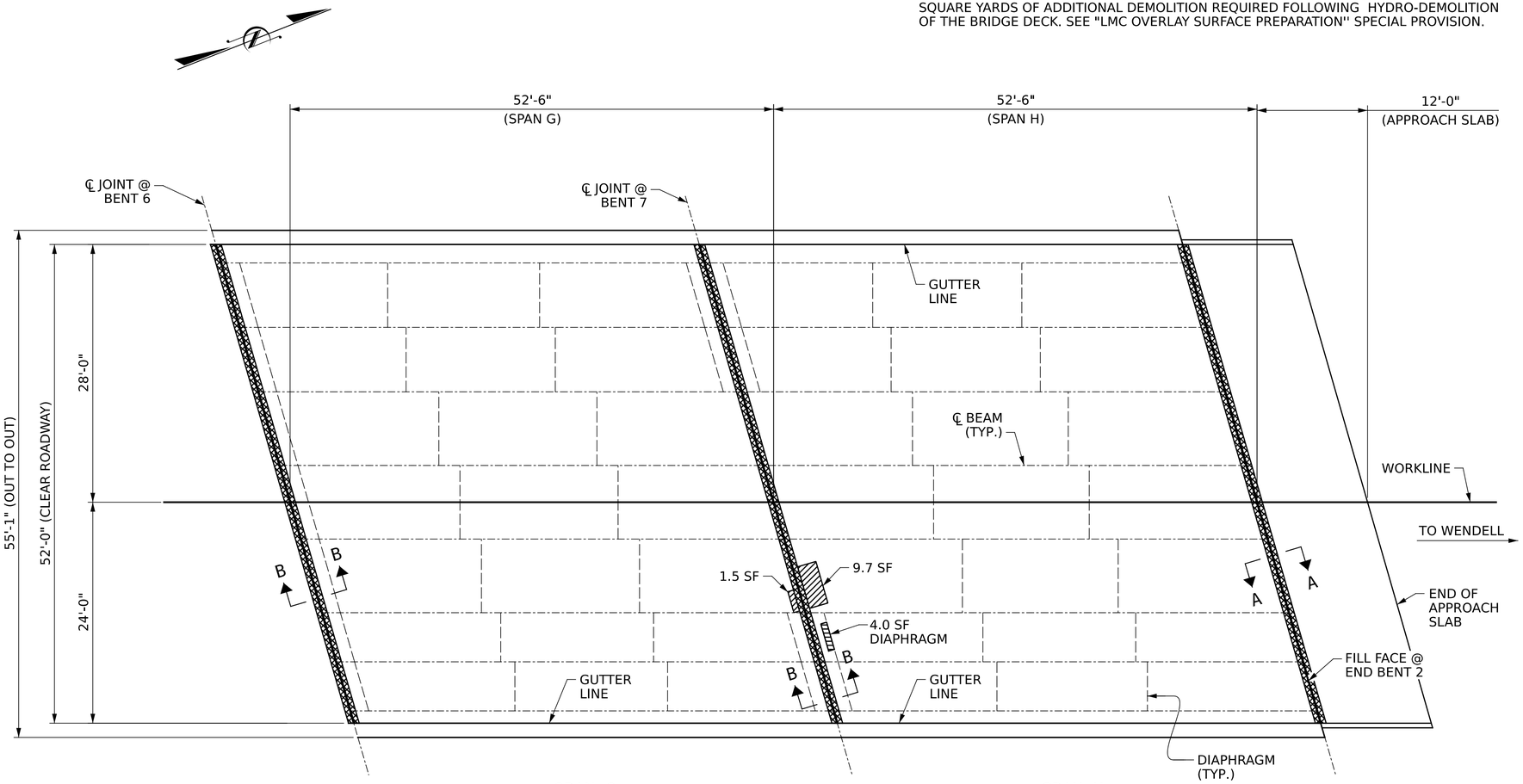
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-6
1			3			TOTAL SHEETS
2			4			30

8/26/21

VALUES IN CHART REPRESENT ESTIMATED UNDERSIDE OF DECK REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEAR TO SAW CUT. SEE REPAIR DETAILS.

PAYMENT FOR CLASS II AND CLASS III SURFACE PREPARATION IS BASED ON THE SQUARE YARDS OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF THE BRIDGE DECK. SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.



PLAN

NOTES:

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

CONCRETE COVER FOR TOP BARS IN THE DECK SLAB IS 2½" PER THE EXISTING BRIDGE PLANS.

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

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

THE QUANTITY OF SCARIFYING BRIDGE DECK INCLUDES THE CONCRETE BRIDGE DECK AND CONCRETE APPROACH SLABS AT EACH END OF THE BRIDGE.

FOR LMC OVERLAY SURFACE PREPARATION, SEE SPECIAL PROVISIONS.

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

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

AS-BUILT QUANTITY REPAIR TABLE

DECK SURFACE REPAIR & APPROACH SLAB REPAIR

		ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	SPAN G	296.8 SQ. YDS.	
	SPAN H	297.3 SQ. YDS.	
	APPROACH SLAB @ END BENT 2	65.8 SQ. YDS.	
HYDRO-DEMOLITION OF BRIDGE DECK	SPAN G	296.8 SQ. YDS.	
	SPAN H	297.3 SQ. YDS.	
	APPROACH SLAB @ END BENT 2	65.8 SQ. YDS.	
BRIDGE JOINT DEMOLITION	SPAN G	54 SQ. FT.	
	SPAN H	54 SQ. FT.	
	APPROACH SLAB @ END BENT 2	27 SQ. FT.	
CLASS II SURFACE PREPARATION	SPAN G	0.2 SQ. YDS.	
	SPAN H	1.1 SQ. YDS.	
	APPROACH SLAB @ END BENT 2	0.0 SQ. YDS.	
LATEX MODIFIED CONCRETE-VERY EARLY STRENGTH	SPAN G	14.4 CU. YDS.	
	SPAN H	14.5 CU. YDS.	
	APPROACH SLAB @ END BENT 2	3.2 CU. YDS.	
PLACING AND FINISHING LMC-VES	SPAN G	296.8 SQ. YDS.	
	SPAN H	297.3 SQ. YDS.	
	APPROACH SLAB @ END BENT 2	65.8 SQ. YDS.	
GROOVING BRIDGE FLOORS	SPAN G	2500 SQ. FT.	
	SPAN H	2504 SQ. FT.	
	APPROACH SLAB @ END BENT 2	542 SQ. FT.	

DECK UNDERSIDE REPAIR

SHOTCRETE REPAIRS		ESTIMATE AREA SF	ESTIMATE VOLUME CF	ACTUAL AREA SF	ACTUAL VOLUME CF
UNDERSIDE OF DECK	SPAN G	0.0	0.0		
	SPAN H	0.0	0.0		
INTERIOR DIAPHRAGMS	SPAN G	0.0	0.0		
	SPAN H	4.0	2.0		
OVERHANG DIAPHRAGMS	SPAN G	0.0	0.0		
	SPAN H	0.0	0.0		
UNDERSIDE OF OVERHANG	SPAN G	0.0	0.0		
	SPAN H	0.0	0.0		

		ESTIMATE	ACTUAL
UNDERSIDE EPOXY RESIN INJECTION	SPAN G	0.0 LIN.FT.	
	SPAN H	0.0 LIN.FT.	

SCARIFYING BRIDGE DECK

BRIDGE JOINT DEMOLITION

CLASS II SURFACE PREPARATION

UNDERSIDE OF DECK REPAIR

ERI — EPOXY RESIN INJECTION

PROJECT NO. 15BPR.144

WAKE COUNTY

BRIDGE: 910538

SHEET 4 OF 4

DocuSigned by: John Yannaccone 7813617546784S6...

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

8/11/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

DECK REPAIRS
SPANS G & H
WITH APPROACH SLAB

DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

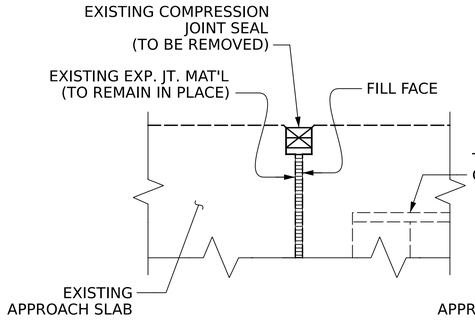
GANNETT FLEMING

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

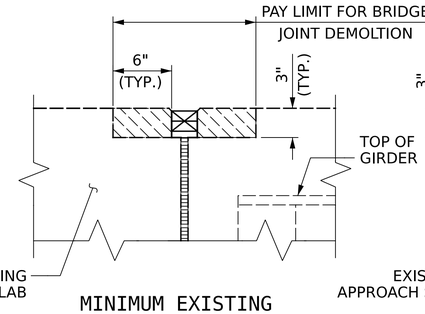
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-7
1			3			TOTAL SHEETS
2			4			30

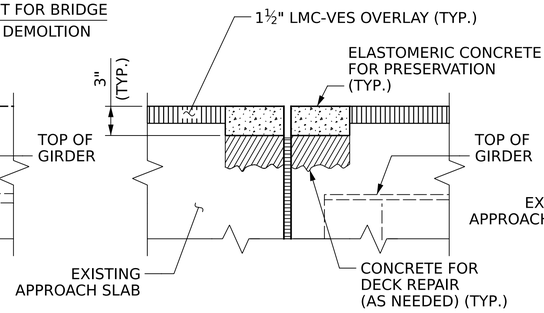
8/26/21



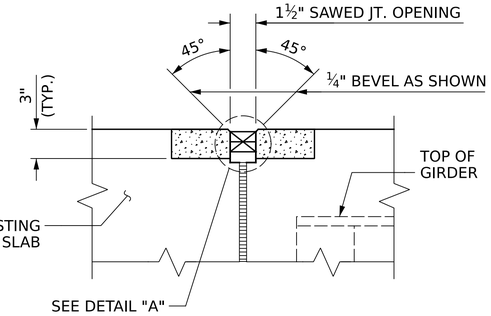
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION



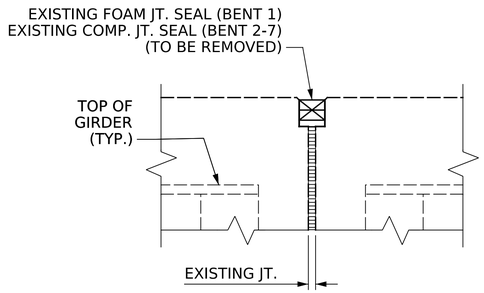
PROPOSED JOINT PRIOR TO SAWING



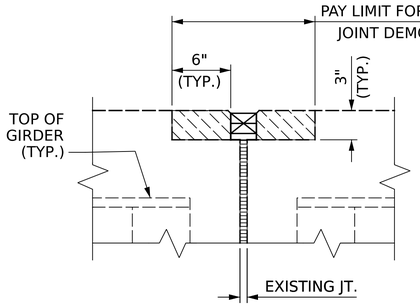
PROPOSED FOAM JOINT SEAL

SECTION A-A

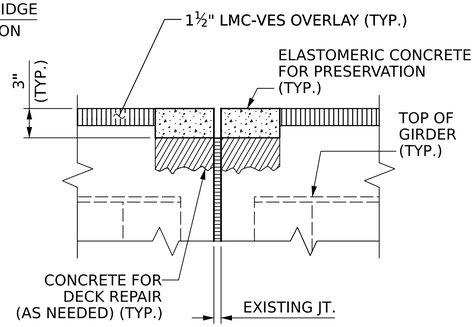
NOTE: RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS REQ'D.



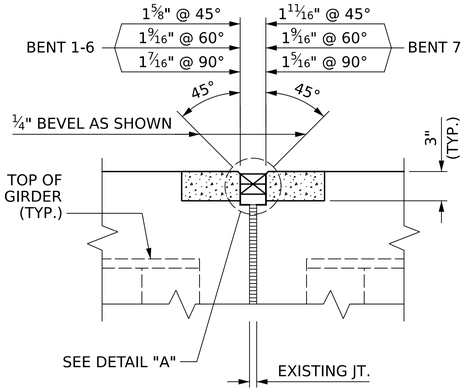
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION

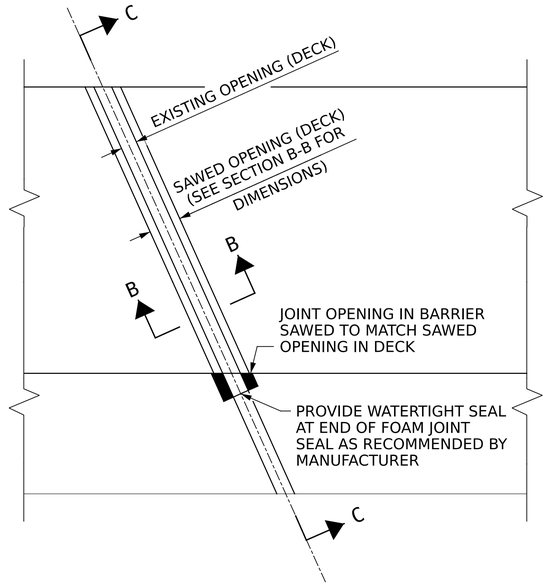


PROPOSED JOINT PRIOR TO SAWING

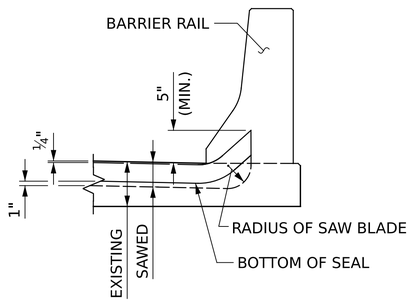


PROPOSED FOAM JOINT SEAL

SECTION B-B



PLAN

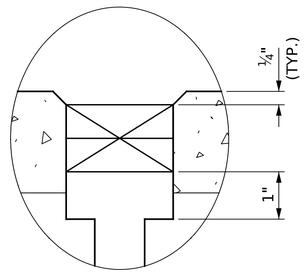


SECTION C-C

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

LOCATION	ELASTOMERIC CONCRETE FOR PRESERVATION	FOAM JOINT SEALS FOR PRESERVATION
	CU. FT.	LIN. FT.
END BENT 1	13.5	56.1
BENT 1	13.4	55.7
BENT 2	13.5	56.1
BENT 3	13.5	56.1
BENT 4	13.5	56.1
BENT 5	13.5	56.1
BENT 6	13.5	56.1
BENT 7	13.5	56.1
END BENT 2	13.5	56.1
TOTAL	121.4	504.5

✻ BASED ON MINIMUM BLOCKOUT SHOWN



DETAIL "A"

NOTES:

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

THE CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO ORDERING JOINT SEAL MATERIAL. IF THE ACTUAL JOINT OPENING VARIES FROM THE OPENING INDICATED IN THE DETAILS BY MORE THAN ¼", 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 ½" BUT REINFORCING STEEL SHALL NOT BE DAMAGED. CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

QUANTITIES SHOWN IN THE ELASTOMERIC CONCRETE FOR PRESERVATION TABLE ARE BASED ON THE MINIMUM JOINT DEMOLITION SHOWN.

FOR EXCAVATION BELOW THE BOTTOM OF PLANNED JOINT DEMOLITION, CONCRETE FOR DECK REPAIR SHALL BE PLACED IN THE EXCAVATED AREA TO THE ELEVATION AT THE BOTTOM OF THE PROPOSED ELASTOMERIC CONCRETE FOR PRESERVATION HEADERS SHOWN.

FOR BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR, SEE SPECIAL PROVISIONS.

FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR FOAM JOINT SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.144

WAKE COUNTY

BRIDGE: 910538

DocuSigned by: John Yannaccone 7813617546784567...

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

9/11/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

JOINT DETAILS

DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

GANNETT FLEMING

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-8
1			3			TOTAL SHEETS
2			4			30

8/26/21

ANTICIPATED BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIM "A"	DIM "B"	DIM "C"	DIM "D"
A	4	BENT 1	8"	-	-	15"
B	4	BENT 1	8"	-	-	24"
C	6	BENT 2	7"	-	-	20"
D	4	BENT 3	7"	-	-	24"

AS-BUILT QUANTITY REPAIR TABLE

BEAM REPAIR

	ESTIMATE	ACTUAL
BEAM END REPAIR	450 LBS.	
CONNECTION PLATE REPAIR	65 LBS.	
TOTAL BEAM REPAIR CUT-OUT	515 LBS.	

NOTES:

FOR BOTTOM FLANGE REPAIR DETAILS, SEE "BOTTOM FLANGE REPAIR DETAILS" SHEET.

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 FIELD MEASURING, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR DETAILS, SEE "BEAM REPAIR DETAILS" SHEET.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

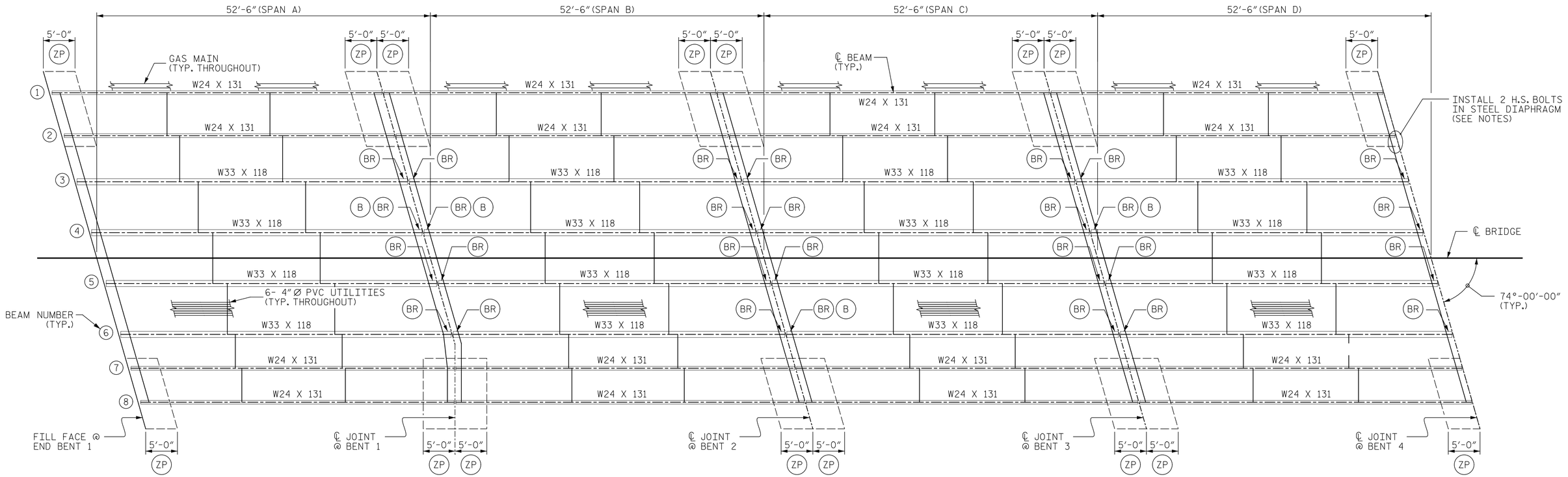
FOR BRIDGE JACKING DETAILS, SEE "BRIDGE JACKING DETAILS" SHEET.

CONTRACTOR SHALL ENSURE THAT EXISTING UTILITIES ADJACENT TO THE BRIDGE ARE NOT DAMAGED DURING THE REPAIR OPERATIONS.

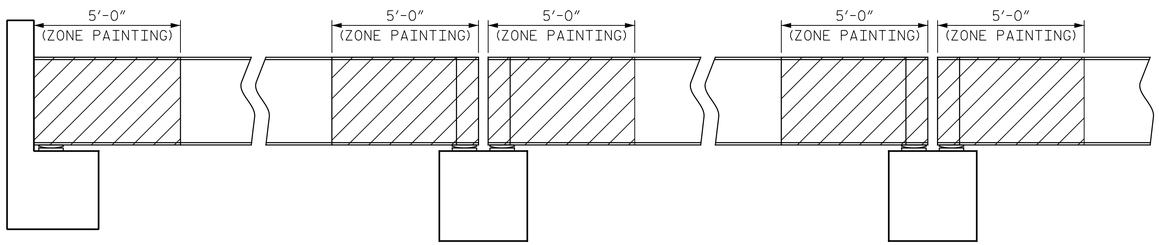
ALL BOLTED CONNECTIONS SHALL BE 7/8" Ø HIGH STRENGTH BOLTS.

TENSION OF THE ASTM A325 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

FURNISHING AND INSTALLING THE HIGH STRENGTH BOLTS, NUTS, WASHERS AND DIRECT TENSION INDICATORS WILL BE INCIDENTAL TO THE WORK COVERED BY THE VARIOUS CONTRACT ITEMS.



FRAMING PLAN



LIMITS OF ZONE PAINTING

(ZP) - ZONE PAINTING FOR WEATHERING STEEL

(B) - BEAM REPAIR CUT-OUT

(BR) - BEARING REPLACEMENT

DocuSigned by: John Yannaccone 781361754678456...

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

8/11/2025

PROJECT NO. 15BPR.144

WAKE COUNTY

BRIDGE: 910538

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM REPAIR LOCATIONS

DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

GANNETT FLEMING

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SHEET NO. S2-9

TOTAL SHEETS 30

8/26/21

ANTICIPATED BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	DIM "A"	DIM "B"	DIM "C"	DIM "D"
F	6	BENT 5	7"	-	-	32"

NOTES:

FOR BOTTOM FLANGE REPAIR DETAILS, SEE "BOTTOM FLANGE REPAIR DETAILS" SHEET.

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 FIELD MEASURING, SEE SPECIAL PROVISIONS.

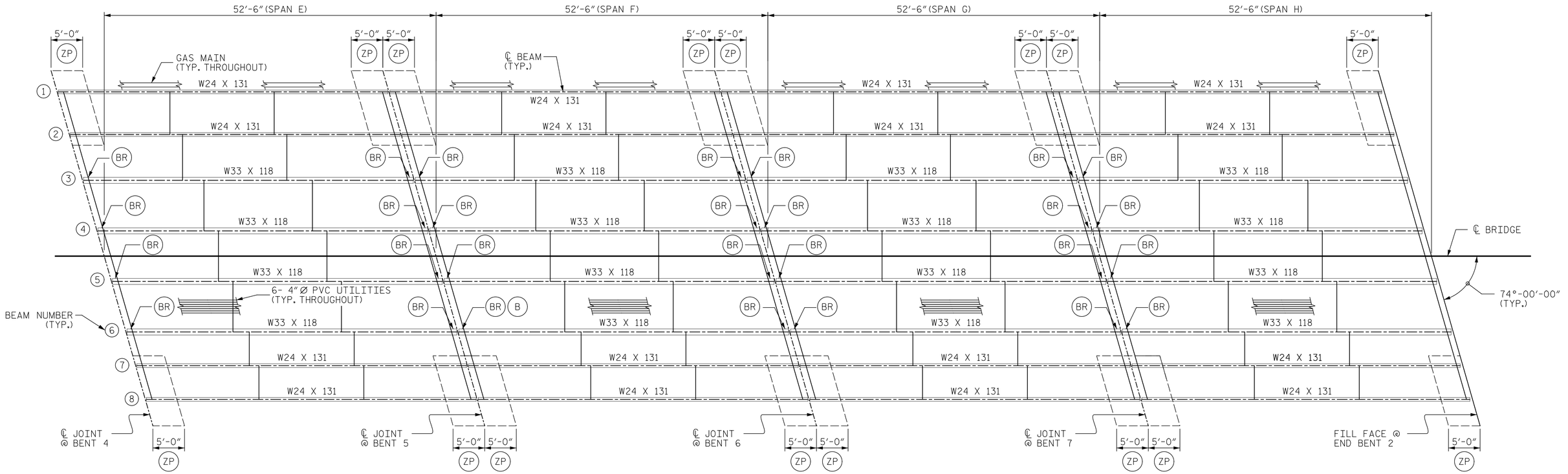
FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.

FOR BEAM REPAIR DETAILS, SEE "BEAM REPAIR DETAILS" SHEET.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

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

CONTRACTOR SHALL ENSURE THAT EXISTING UTILITIES ADJACENT TO THE BRIDGE ARE NOT DAMAGED DURING THE REPAIR OPERATIONS.

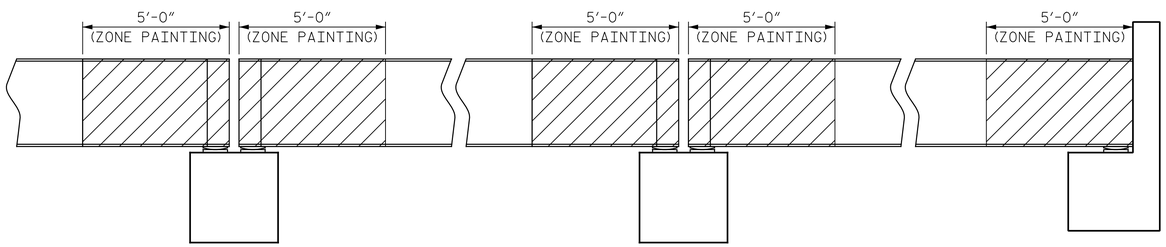


FRAMING PLAN

ZP - ZONE PAINTING FOR WEATHERING STEEL

B - BEAM REPAIR CUT-OUT

BR - BEARING REPLACEMENT



LIMITS OF ZONE PAINTING

PROJECT NO. 15BPR.144

WAKE COUNTY

BRIDGE: 910538

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEAM REPAIR LOCATIONS

DocuSigned by: John Yannaccone 781361754678456

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

8/11/2025

DRAWN BY : J. MYA DATE : 9/2024

CHECKED BY : J. YANNACCONE DATE : 9/2024

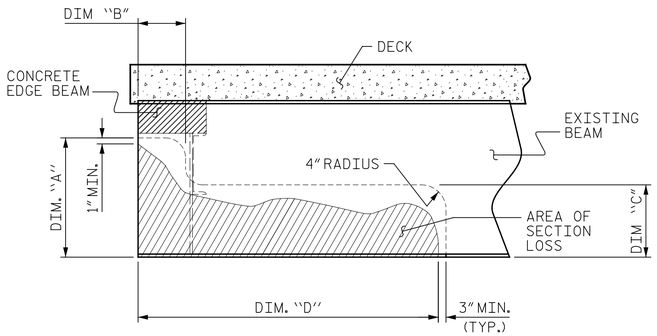
GANNETT FLEMING

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

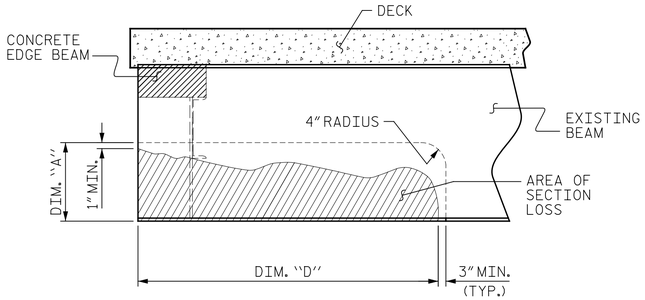
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-10
1			3			TOTAL SHEETS
2			4			30

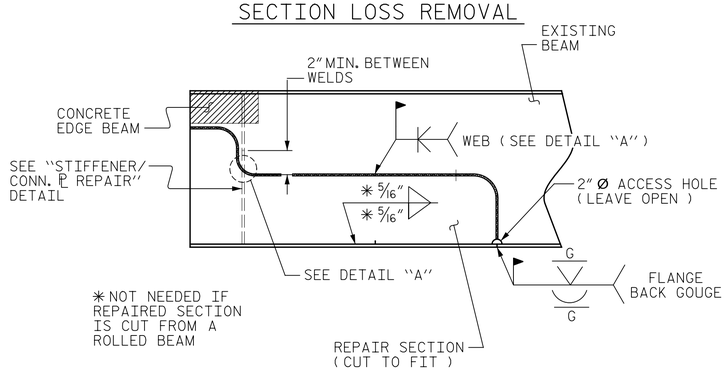
8/26/21



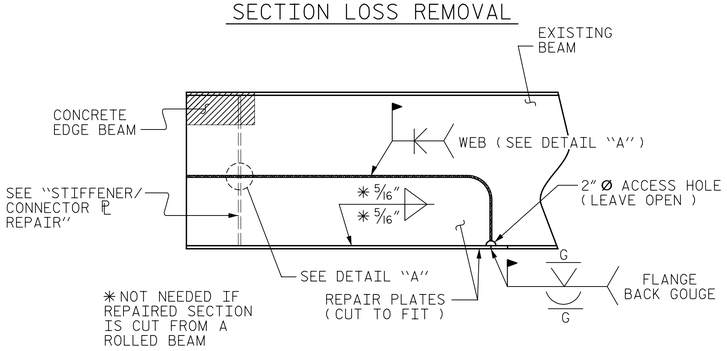
SECTION LOSS REMOVAL



SECTION LOSS REMOVAL



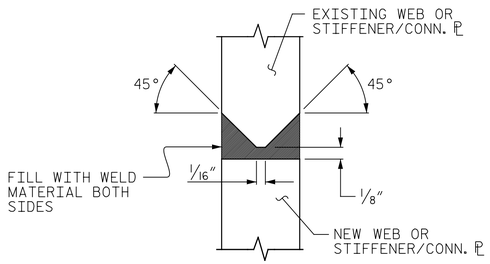
SECTION REPAIR



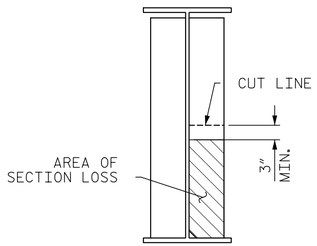
SECTION REPAIR

BEAM END REPAIR SEQUENCE:

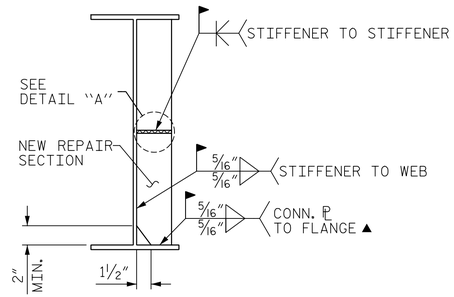
1. COORDINATE SCHEDULE WITH MATERIALS AND TESTS UNIT WELD INSPECTOR AT LEAST FOUR DAYS PRIOR TO ANTICIPATED WORK.
2. REMOVE TRAFFIC LOAD FROM REPAIR AREA BY EITHER CLOSING BRIDGE TO TRAFFIC OR SHIFTING TRAFFIC AWAY FROM REPAIR AREA.
3. JACK BEAM AND SUPPORT WITH BLOCKING TO FREE BEAM END FROM BEARING. LIMIT DIFFERENTIAL JACKING BETWEEN ADJACENT BEAMS TO 1/8".
4. STEEL DIAPHRAGM CHANNELS AND/OR STIFFENERS MAY BE TEMPORARILY REMOVED, IF NECESSARY, AND REPLACED AFTER BEAM REPAIR.
5. 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 REMOVE DAMAGED GIRDER END.
6. MECHANICALLY CLEAN RUST, SCALE, AND EXISTING PAINT TO AT LEAST 9" BEYOND REPAIR AREA.
7. INSTALL THE CUT-TO-FIT SECTION, FULLY WELD ALONG ALL SIDES OF PLATE AS SHOWN.
8. ALL WELDING SHALL IN ACCORDANCE WITH CURRENT APPLICABLE AWS AND NCDOT STANDARD SPECIFICATIONS.
9. 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.
10. ONCE THE REPAIR IS COMPLETE, GRIND ALL GROOVE WELDS FLUSH. ANY GOUGES OR INDENTATIONS FROM IMPACT ON GIRDERS SHALL BE GROUND SMOOTH. CLEAN AREA TO REMOVE DEBRIS AND OILS FROM REPAIR PROCESS PRIOR TO CLEANING AND PAINTING.
11. LOWER SPAN TO BEAR; CHECK FOR DISTRESS.
12. REMOVE JACKING EQUIPMENT AND TEMPORARY SUPPORTS.
13. CLEAN AND PAINT STRUCTURAL STEEL.
14. 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.
15. RETURN TRAFFIC TO NORMAL PATTERN.



DETAIL "A"



STIFFENER/CONN. ℄ REMOVAL



STIFFENER/CONN. ℄ REPAIR

▲ FOR STIFFENERS, MILL TO BEAR AND DO NOT WELD

NOTES:

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

FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.

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

FOR CONCRETE DIAPHRAGM REPAIR, SEE SPECIAL PROVISIONS.

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

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

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

STEEL FOR GIRDER REPAIR PLATE SHALL BE GRADE 50W.

THE CONTRACTOR MAY ELECT TO REPLACE THE ENTIRE STIFFENER/CONNECTOR PLATE.

FOR BEAM REPAIR CUT-OUT, SEE SPECIAL PROVISIONS.

FOR PAINTING EXISTING WEATHERING STEEL STRUCTURE, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.144

WAKE COUNTY

BRIDGE: 910538

DocuSigned by: John Yannaccone 7813617546784B6...

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

8/22/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STEEL BEAM REPAIR DETAILS

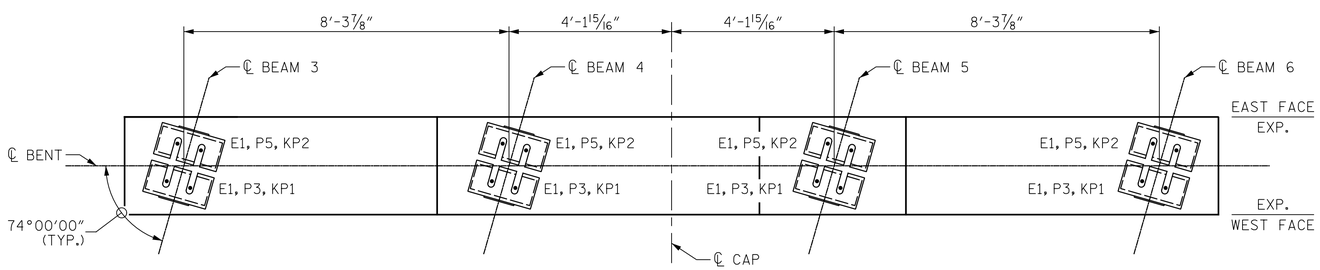
DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

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

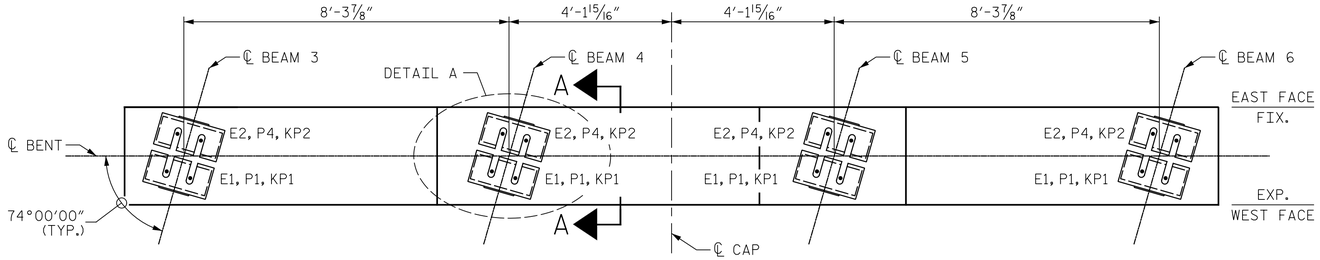
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-11
1			3			TOTAL SHEETS
2			4			30

8/26/21

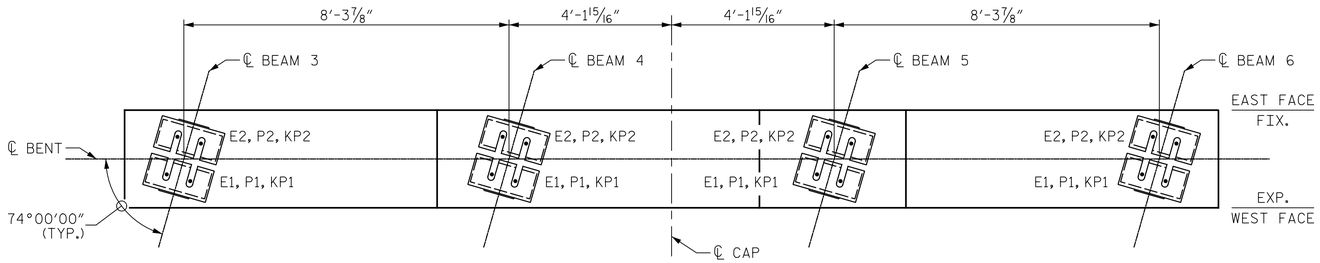


BENT 7



BENT 6

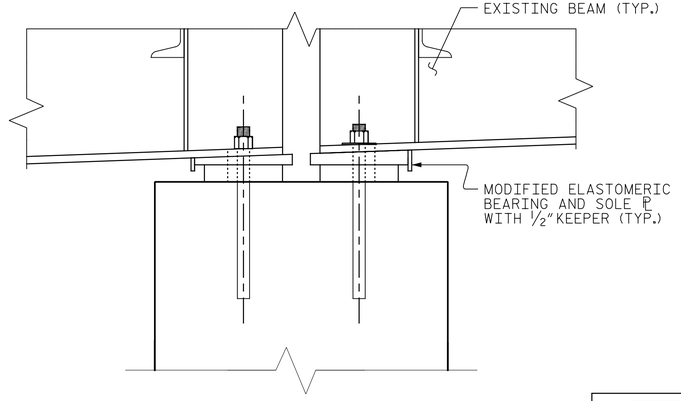
BENT NUMBERS UP



BENTS 1-5

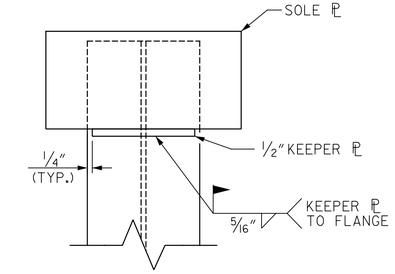
(BENT 1 SHOWN, 2-5 SIMILAR)

PROPOSED BEARING LAYOUT



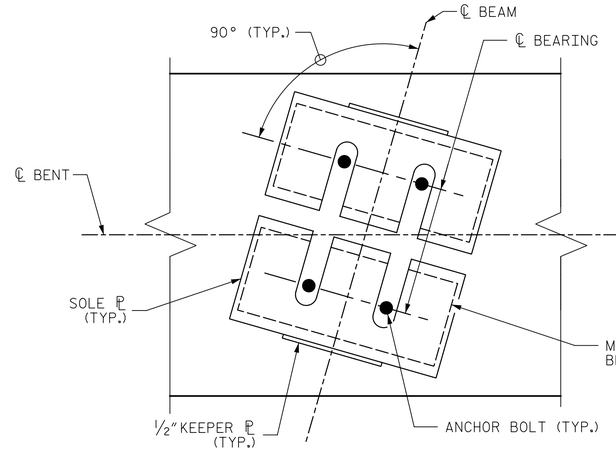
SECTION A-A

(PROPOSED TYP.)



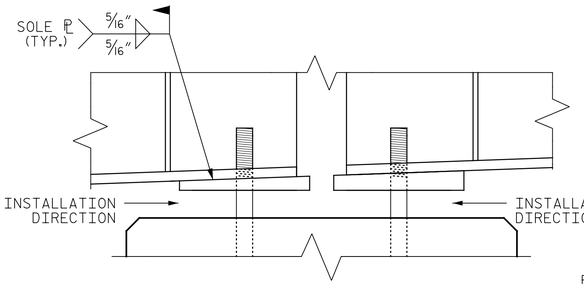
KEEPER ℙ DETAIL

(ELASTOMERIC PAD NOT SHOWN FOR CLARITY)

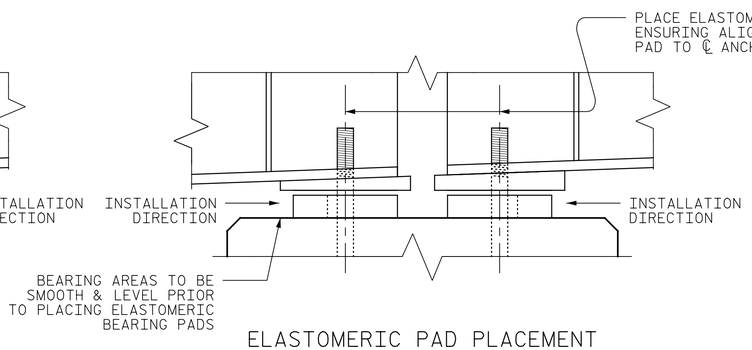


DETAIL A

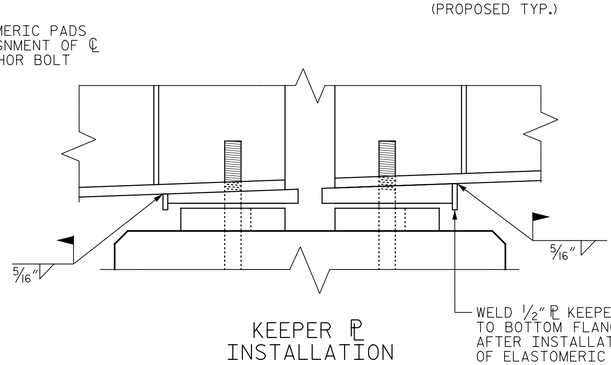
(PROPOSED TYP.)



SOLE ℙ INSTALLATION



ELASTOMERIC PAD PLACEMENT



KEEPER ℙ INSTALLATION

SOLE PLATE AND ELASTOMERIC BEARING PLACEMENT

DocuSigned by: John Yannaccone 781361754678456...

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN MARK YANNACCONE

8/11/2025

PROJECT NO. 15BPR.144

WAKE COUNTY

BRIDGE: 910538

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEARING DETAILS

BEARING LAYOUT

DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

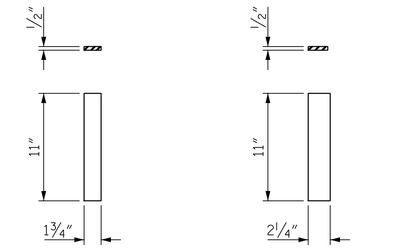
GANNETT FLEMING

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

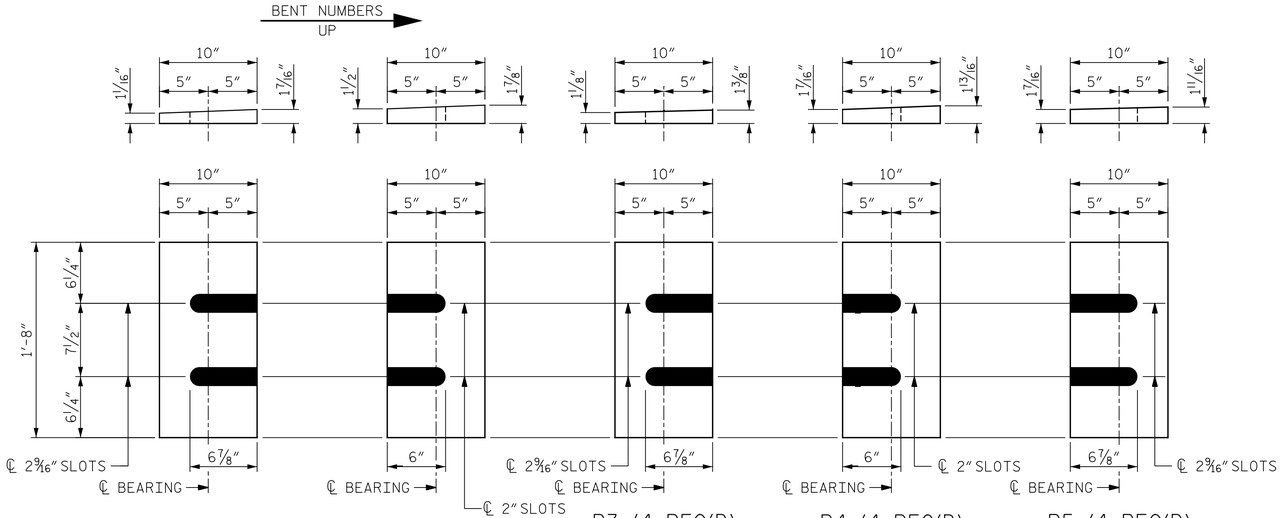
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-12
1			3			TOTAL SHEETS
2			4			30

8/26/21



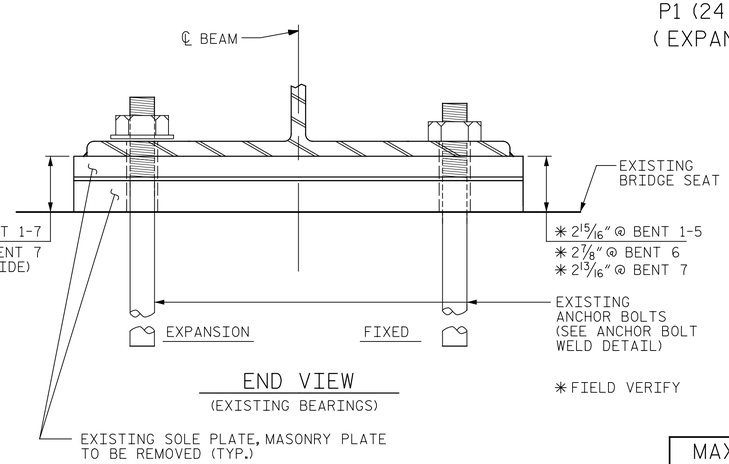
KP1 (28 REQ'D) KP2 (28 REQ'D)

KEEPER ℄ DETAILS



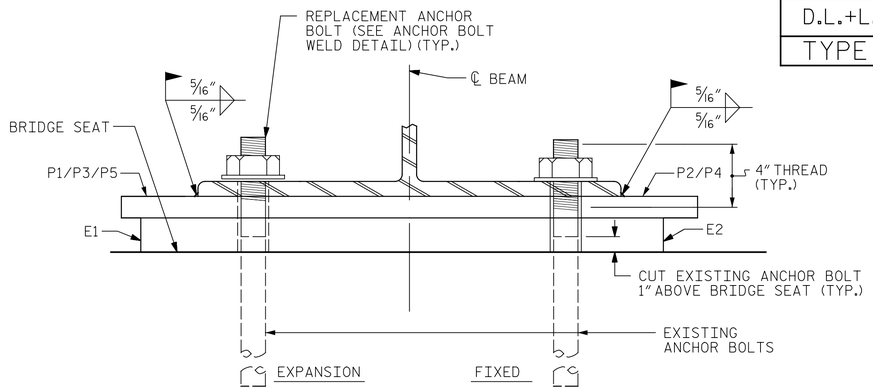
P1 (24 REQ'D) P2 (20 REQ'D) P3 (4 REQ'D) P4 (4 REQ'D) P5 (4 REQ'D)
(EXPANSION) (FIXED) (EXPANSION) (FIXED) (EXPANSION)

SOLE ℄ DETAILS

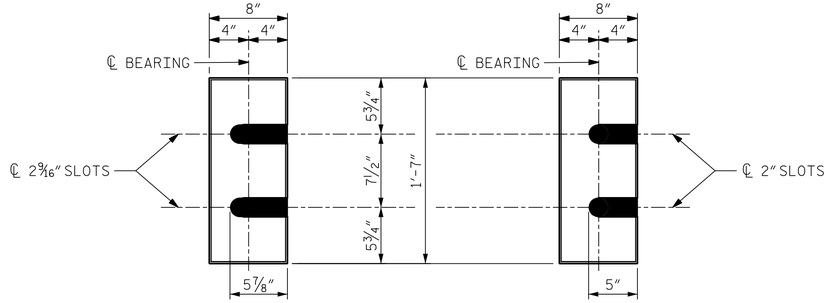


END VIEW
(EXISTING BEARINGS)

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

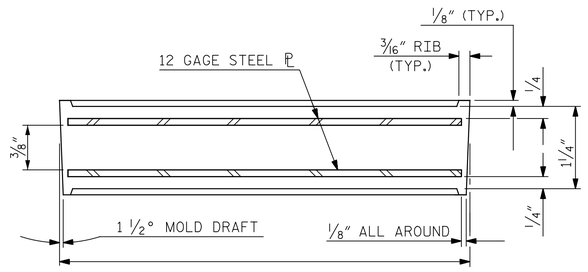


END VIEW
(PROPOSED BEARINGS)



E1 (32 REQ'D) E2 (24 REQ'D)
(EXPANSION) (FIXED)

PLAN VIEW OF ELASTOMERIC BEARING



TYPICAL SECTION OF ELASTOMERIC BEARINGS

MODIFIED TYPE I

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS

NOTES

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

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

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

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

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

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

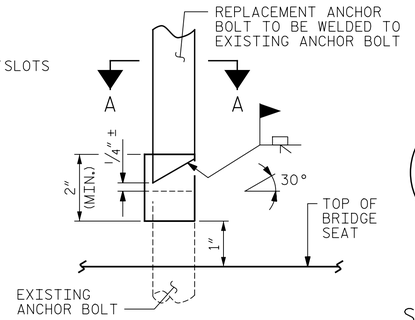
ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

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

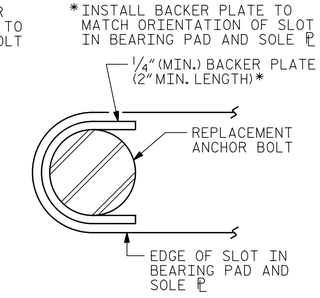
FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.

FOR MODIFIED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

WHEN INSTALLATION OF THE ELASTOMERIC BEARINGS IS COMPLETED, CLEAN AND REMOVE DEBRIS FROM THE TOP OF THE BENT CAPS AND APPLY EPOXY PROTECTIVE COATING TO THE TOP SURFACE OF THE CAPS. THE CONTRACTOR SHALL NOT COAT THE AREA OF THE CAP BENEATH THE ELASTOMERIC BEARINGS. FOR EPOXY COATING, SEE SPECIAL PROVISIONS.



DETAIL A



SECTION A-A

ANCHOR BOLT WELD DETAIL

PROJECT NO. 15BPR.144

WAKE COUNTY

BRIDGE: 910538

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BEARING DETAILS
MODIFIED TYPE I ELASTOMERIC BEARINGS

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE
DocuSigned by: John Yannaccone 7813617546784A6...
8/11/2025

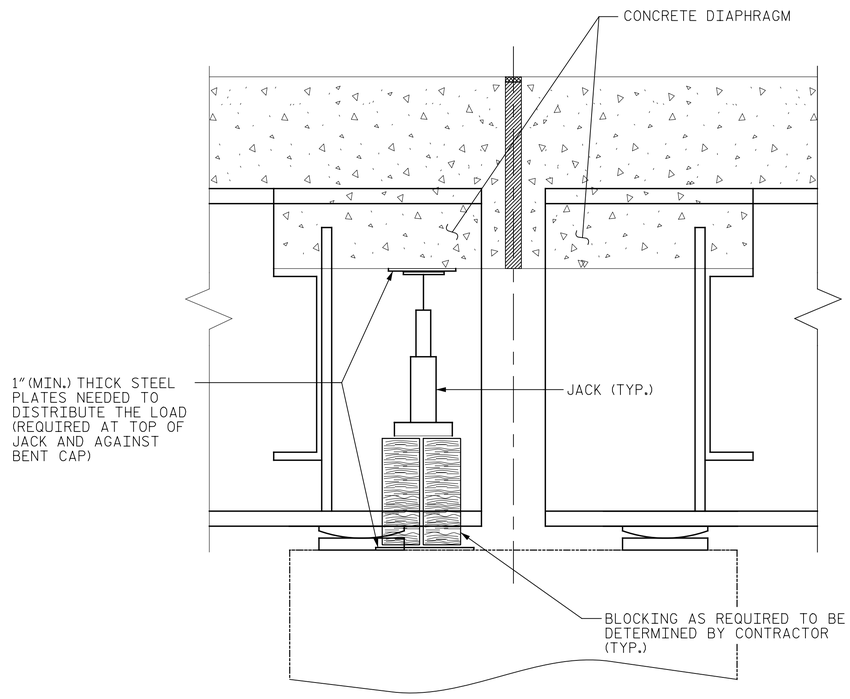
DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-13
1			3			TOTAL SHEETS
2			4			30

8/26/21



SECTION THRU DIAPHRAGM

BRIDGE JACKING DETAILS

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 PROVISIONS.

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

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

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

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

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

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

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

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

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

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

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

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

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

BRIDGE JACKING TABLE
PRELIMINARY GIRDER REACTIONS (MAXIMUM)

LOCATION	BEAMS	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)
BENTS 1-7	3-6	II	35

NOTE: LOADS ARE UNFACTORED

PROJECT NO. **15BPR.144**

WAKE COUNTY

BRIDGE: **910538**

DocuSigned by: John Yannaccone 781361754678456

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

8/11/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE JACKING DETAILS

GANNETT FLEMING

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

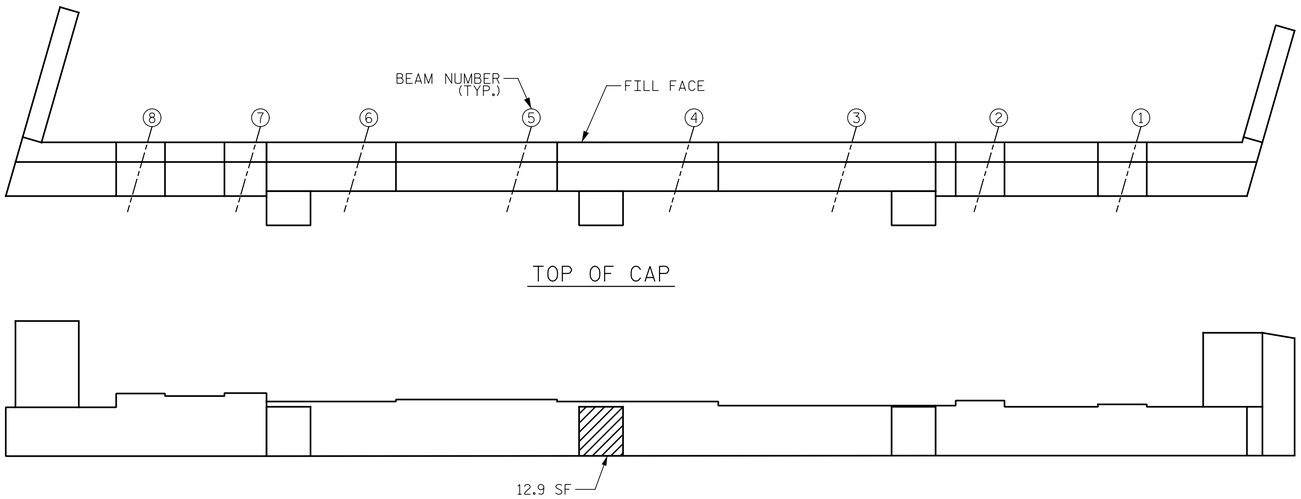
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-14
1			3			TOTAL SHEETS
2			4			30

DRAWN BY : J. MYA DATE : 9/2024

CHECKED BY : J. YANNACCONE DATE : 9/2024

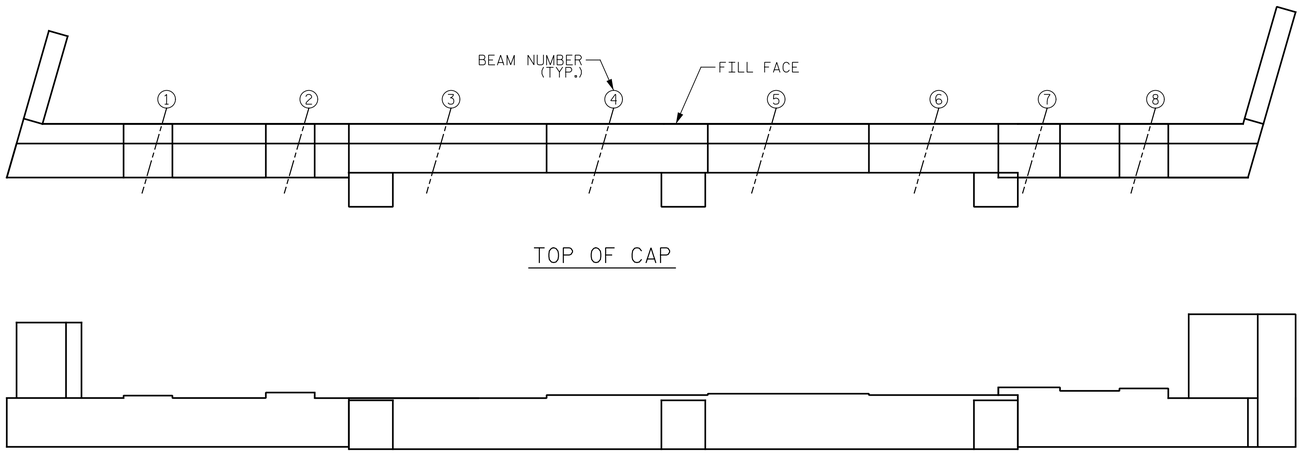
8/26/21



TOP OF CAP

ELEVATION

END BENT 1



TOP OF CAP

ELEVATION

NO REPAIRS NOTED FOR END BENT 2 DURING FIELD SCOPING. THE CONTRACTOR AND ENGINEER SHALL INSPECT END BENT 2 PRIOR TO BEGINNING WORK.

END BENT 2

AS-BUILT REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	12.9	6.4		
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		

END BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP	0.0	0.0		
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		

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

NOTES:

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

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIR DETAILS, SEE "TYPICAL CAP & COLUMN REPAIR DETAILS" SHEET.

▨ - SHOTCRETE REPAIRS

THE ESTIMATED AREA OF EPOXY COATING IS 62 SQ. FT. PER BENT (BENT 1 THRU 7).

PROJECT NO. **15BPR.144**

WAKE COUNTY

BRIDGE: **910538**

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

DocuSigned by: John Yannaccone 7813617546784S6

8/11/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE REPAIRS
END BENT 1 & 2

DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

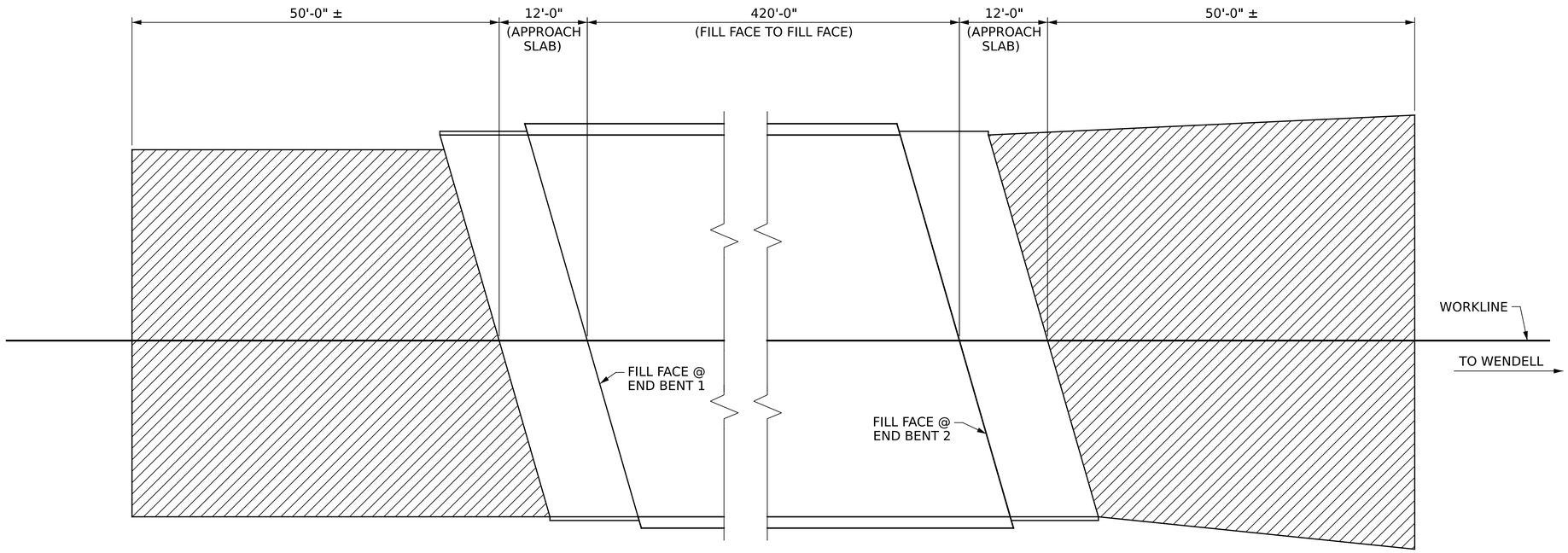
GANNETT FLEMING

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

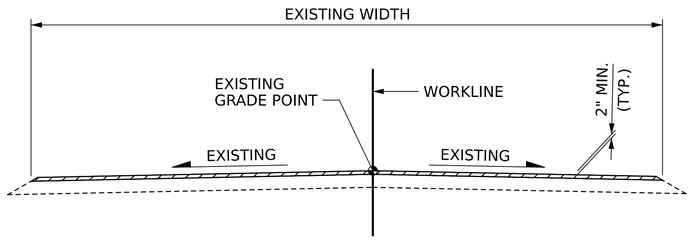
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-15
1			3			TOTAL SHEETS
2			4			30

8/26/21

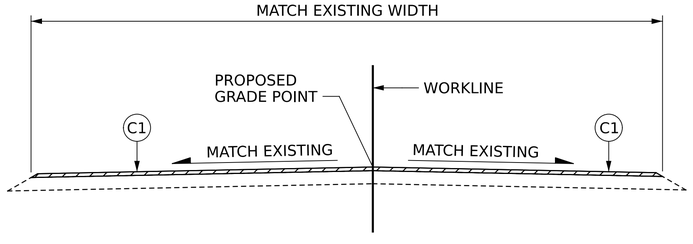


PLAN



TYPICAL ROADWAY MILLING SECTION

(MILLING DEPTH VARIES, SEE NOTES)



TYPICAL FINAL ROADWAY SECTION

NOTES:

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVEMENT TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 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.

INCIDENTAL MILLING

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 1½" IN DEPTH OR GREATER THAN 2" IN DEPTH.

AS-BUILT QUANTITY REPAIR TABLE		
DESCRIPTION	ESTIMATE	ACTUAL
INCIDENTAL MILLING	595 SY	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	69 TONS	
ASPHALT BINDER FOR PLANT MIX	5 TONS	

PROJECT NO. 15BPR.144

WAKE COUNTY

BRIDGE: 910538

DocuSigned by: John Yannaccone 781361754678456

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

8/11/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

APPROACH MILLING AND TYPICAL ROADWAY SECTIONS

DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

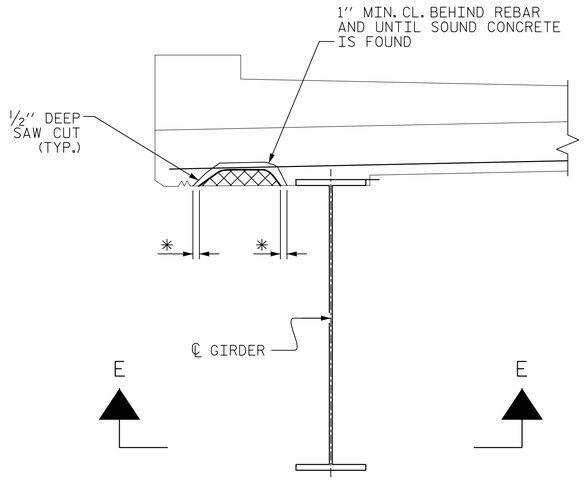
GANNETT FLEMING

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

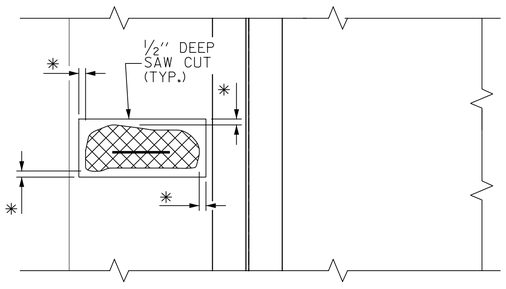
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-16
1			3			TOTAL SHEETS
2			4			30

8/26/21



TYPICAL SECTION

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



SECTION E-E

OVERHANG DETAILS

NOTES

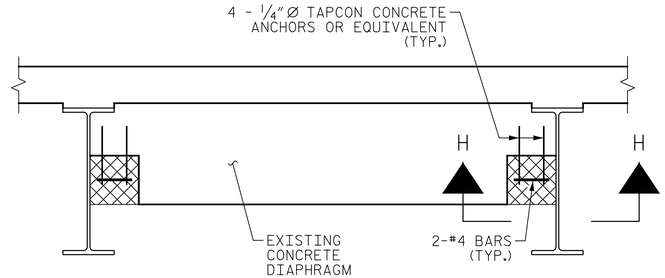
CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2'' BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

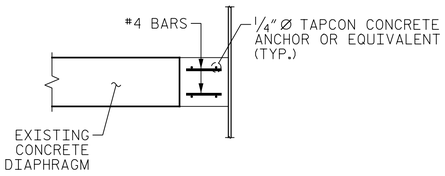
CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED ON THE DETAILS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE DIAPHRAGM REPAIR, SEE SPECIAL PROVISIONS.



ELEVATION



SECTION H-H

INTERMEDIATE DIAPHRAGM REPAIR

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

DAMAGED AREA

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

PROJECT NO. **15BPR.144**

WAKE COUNTY

BRIDGE: **910001,910538**

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

DocuSigned by: John Yannaccone 781361754678456...

8/11/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

OVERHANG, UNDERSIDE AND DIAPHRAGM REPAIR DETAILS

GANNETT FLEMING

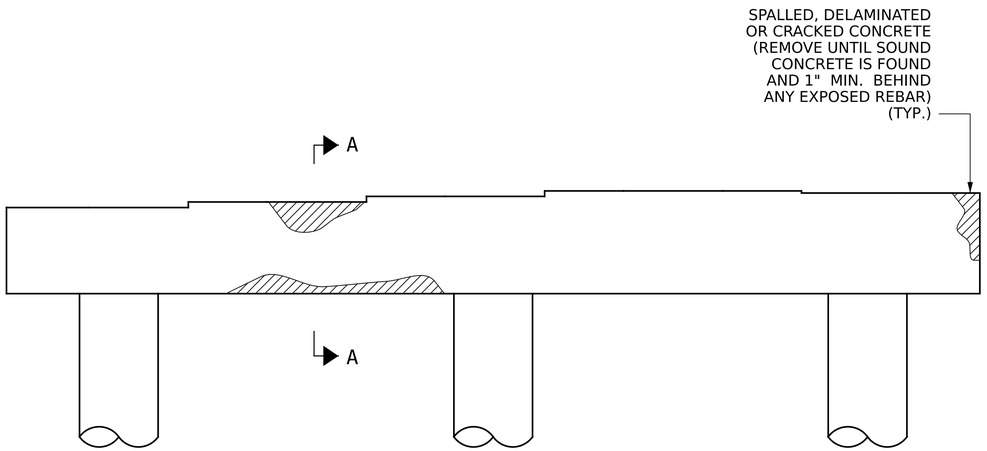
One Glenwood Avenue
Suite 900
Raleigh, NC 27603
919-420-7660
NC Lic.No. F-0270

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

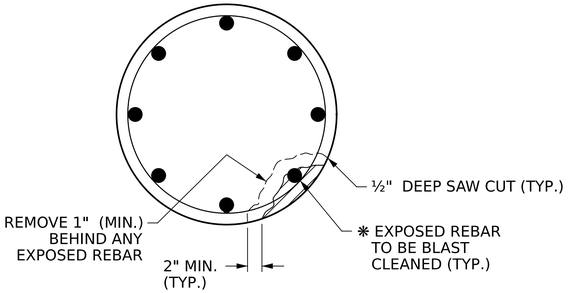
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SD-1
1			3			TOTAL SHEETS
2			4			30

DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

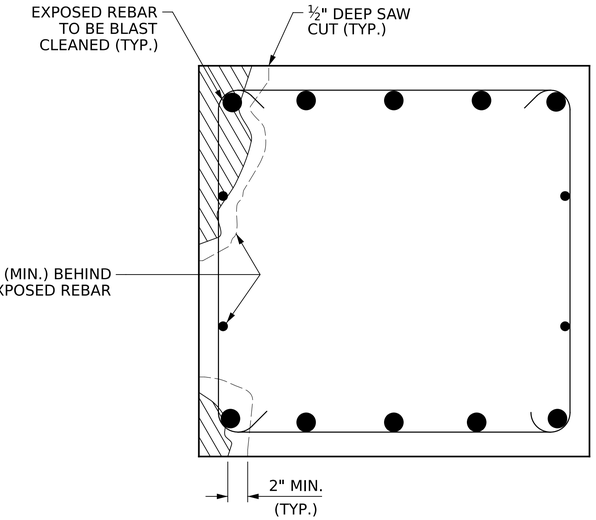
8/26/21



BENT CAP REPAIRS



PLAN OF COLUMN



SECTION A-A

NOTES:

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

CAP REPAIR

ELEVATION OF COLUMN

COLUMN REPAIR

NOTES:

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

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

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

REMOVE UNSOUND CONCRETE TO THE EXTENT NECESSARY, MINIMUM OF 1" BEHIND REBAR AND MINIMUM OF 2" CLEARANCE TO 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 1½" 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.

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 EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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

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

PROJECT NO. **15BPR.144**

WAKE COUNTY

BRIDGE: **910001, 910538**

NORTH CAROLINA PROFESSIONAL SEAL 032492 ENGINEER JOHN A. YANNACCONE

DocuSigned by: John Yannaccone 7813617546784067...

8/11/2025

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL CAP AND COLUMN REPAIR DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SD-2
1			3			TOTAL SHEETS
2			4			30

DRAWN BY : J. MYA DATE : 9/2024
CHECKED BY : J. YANNACCONE DATE : 9/2024

GANNETT FLEMING

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/26/21

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

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

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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