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PROJECT: 41665.11A

CONTRACT NO: DE00291



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

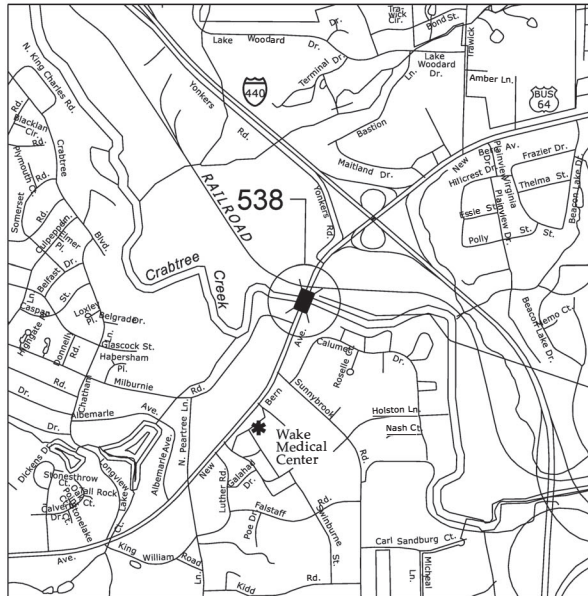
WAKE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	41665.11A	1	29
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41665.11A	-	P.E.	
41665.11A	-	CONST.	

LOCATION: WAKE COUNTY:

BRIDGE #910538 ON NEW BERN AVE. (SR2911) EBL OVER CRABTREE CREEK, CRABTREE CREEK GREENWAY, NORFOLK SOUTHERN RAILROAD AND CAROLINA COASTAL RAILWAY.

TYPE OF WORK: BRIDGE REHABILITATION - CLEANING AND PAINTING OF EXISTING BEARINGS, AND CLEANING AND EPOXY COATING THE TOPS OF CONCRETE BENT CAPS, AND SUBSTRUCTURE REPAIRS.



VICINITY MAP - WAKE COUNTY



DESIGN DATA
WAKE COUNTY
#910538 ADT 2013 = 20500

PROJECT LENGTH
WAKE COUNTY
#910538 = 0.08 MILE

TIMOTHY M. SHERRILL, P.E.
PROJECT DESIGN ENGINEER
2018 STANDARD SPECIFICATIONS

LETTING DATE:
DECEMBER 14, 2022

DocuSigned by:
Timothy M. Sherrill
AD50B10877484CC 10/14/2022



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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WAKE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	41665.11A	1A	26
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41665.11A	-	P.E.	
41665.11A	-	CONST.	



LOCATION: WAKE COUNTY:

BRIDGE #910538 ON NEW BERN AVE. (SR2911) EBL OVER CRABTREE CREEK, CRABTREE CREEK GREENWAY, NORFOLK SOUTHERN RAILROAD AND CAROLINA COASTAL RAILWAY.

TYPE OF WORK: BRIDGE REHABILITATION - CLEANING AND PAINTING OF EXISTING BEARINGS, AND CLEANING AND EPOXY COATING THE TOPS OF CONCRETE BENT CAPS, AND SUBSTRUCTURE REPAIRS.

SHEET NO.

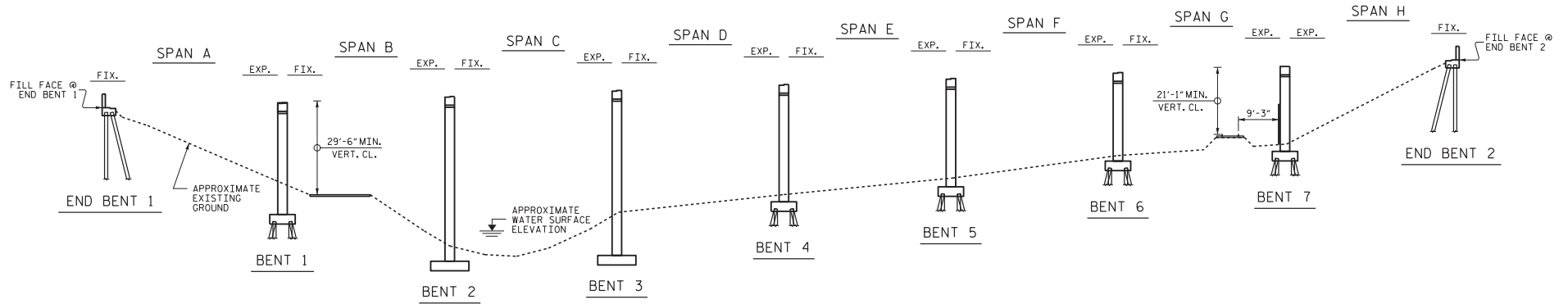
1
1A
S-1 THRU S-2
S-3 THRU S-23
S-24
S-25 THRU S-26
SN

DESCRIPTION

TITLE SHEET
INDEX OF SHEETS
GENERAL DRAWING & TOTAL BILL OF MATERIAL
STRUCTURAL PLANS - BRIDGE NO. 910538
STRUCTURAL PLANS - JACKING DETAIL
STRUCTURAL PLANS - TYPICAL CAP AND COLUMN DETAIL
STANDARD NOTES

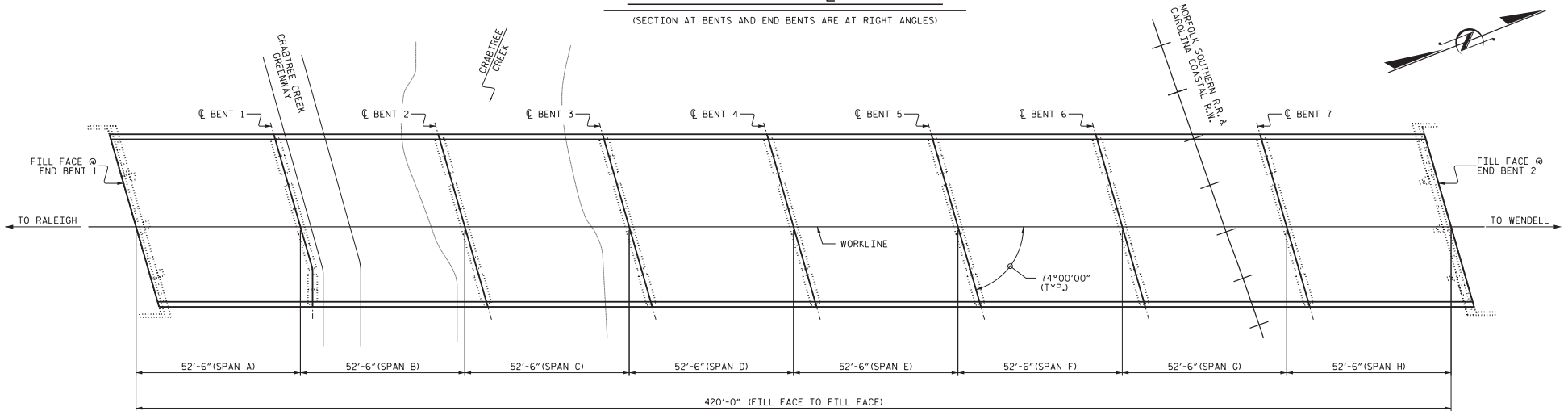
PROJECT: 41665.11A

CONTRACT NO: DE00291



SECTION ALONG C BRIDGE

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



PLAN

(PILES NOT SHOWN FOR CLARITY)

NOTE:

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 07/20/2016.

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

SCOPE OF WORK

- SUBSTRUCTURE CONCRETE REPAIRS
- CLEAN AND PAINT EXISTING BEARINGS
- CLEAN AND EPOXY COAT THE TOPS OF ALL CONCRETE BENT CAPS.

CONSTRUCTION SEQUENCE

- 1.) COORDINATE PROPOSED CONSTRUCTION ACTIVITIES WITH CAROLINA COASTAL RAILWAY, CITY OF RALEIGH, AND UTILITY OWNER.
- 2.) PERFORM FIELD MEASURING AND VERIFY PROPOSED SUBSTRUCTURE CONCRETE AND SHOTCRETE REPAIRS. PREPARE AND SUBMIT WORKING DRAWINGS AND JACKING PLANS FOR REVIEW AND APPROVAL.
- 3.) DEMOLISH AND PERFORM CONCRETE REPAIRS ON BENT CAPS, AS APPROPRIATE, AS INDICATED.
- 4.) CLEAN AND PAINT BEARINGS AS INDICATED.
- 5.) COMPLETE CONCRETE REPAIRS OF DEMOLISHED BENT CAPS.
- 6.) PERFORM SHOTCRETE REPAIRS TO SUBSTRUCTURE ELEMENTS.
- 7.) CLEAN AND EPOXY COAT THE TOPS OF ALL CONCRETE BENT CAPS.

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

RESIDENT ENGINEER

DATE



PROJECT NO. 41665.11A
WAKE COUNTY
BRIDGE NO. 910538

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
BRIDGE #910538 ON
NEW BERN AVE. (SR2911) EBL
OVER CRABTREE CREEK,
CRABTREE CREEK GREENWAY
NORFOLK SOUTHERN R.R. &
CAROLINA COASTAL R.W.

DRAWN BY : M. WELDON DATE : 6/2/2021
CHECKED BY : T. SHERRILL DATE : 6/2/2021

NO.	REVISIONS		REVISIONS		SHEET NO.
	BY:	DATE:	BY:	DATE:	
1			3		S1-01
2			4		TOTAL SHEETS 26

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



COORDINATES: LAT. 35°47'28.18" LONG. 78°35'9.86"

LOCATION SKETCH

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

TOTAL BILL OF MATERIAL

POLLUTION CONTROL	CONCRETE REPAIRS	SHOTCRETE REPAIRS	FIELD MEASURING	CLEANING AND PAINTING EXISTING BEARINGS	PAINTING CONTAINMENT FOR BRIDGE #910538	PEDESTRIAN PROTECTION	EPOXY COATING	TYPE II BRIDGE JACKING BRIDGE NO. 910538
LUMP SUM	CU. FT.	CU. FT.	LUMP SUM	EACH	LUMP SUM	LUMP SUM	SO. FT.	EA.
LUMP SUM	377.4	217.3	LUMP SUM	56	LUMP SUM	LUMP SUM	848.9	14

GENERAL NOTES

- 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.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.
- FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR MAINTENANCE AND PROTECTION OF TRAFFIC BENEATH BRIDGE, SEE SPECIAL PROVISIONS.
- FOR PROTECTION OF GREENWAY TRAFFIC, SEE PEDESTRIAN PROTECTION SPECIAL PROVISIONS.
- FOR PROTECTION OF RAILWAY INTEREST, SEE SPECIAL PROVISIONS.
- FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR DESCRIPTION OF BRIDGE, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR CLEANING AND PAINTING EXISTING BEARINGS, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

PROJECT NO. 41665.11A
WAKE COUNTY
 BRIDGE NO. 910538

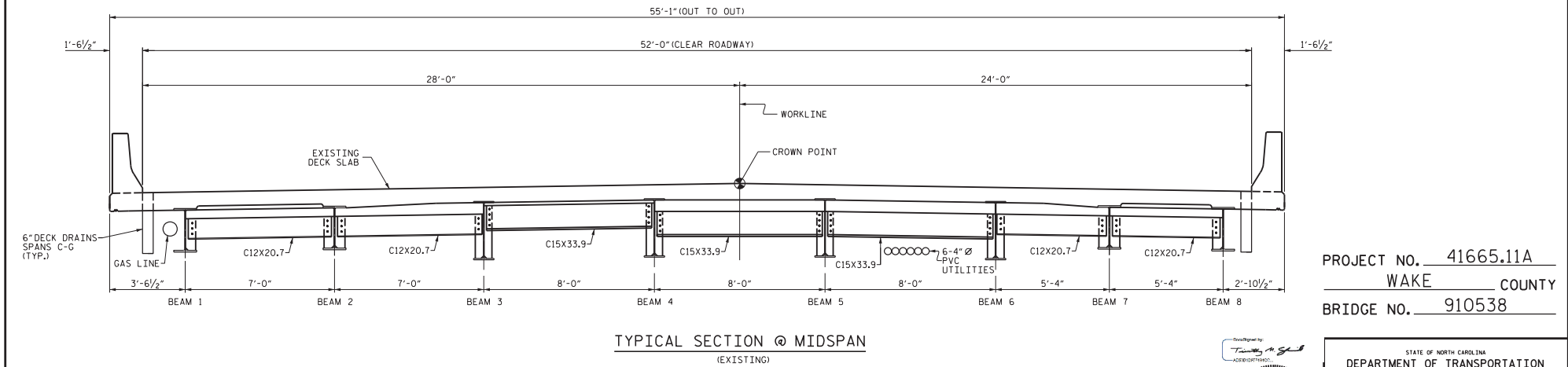
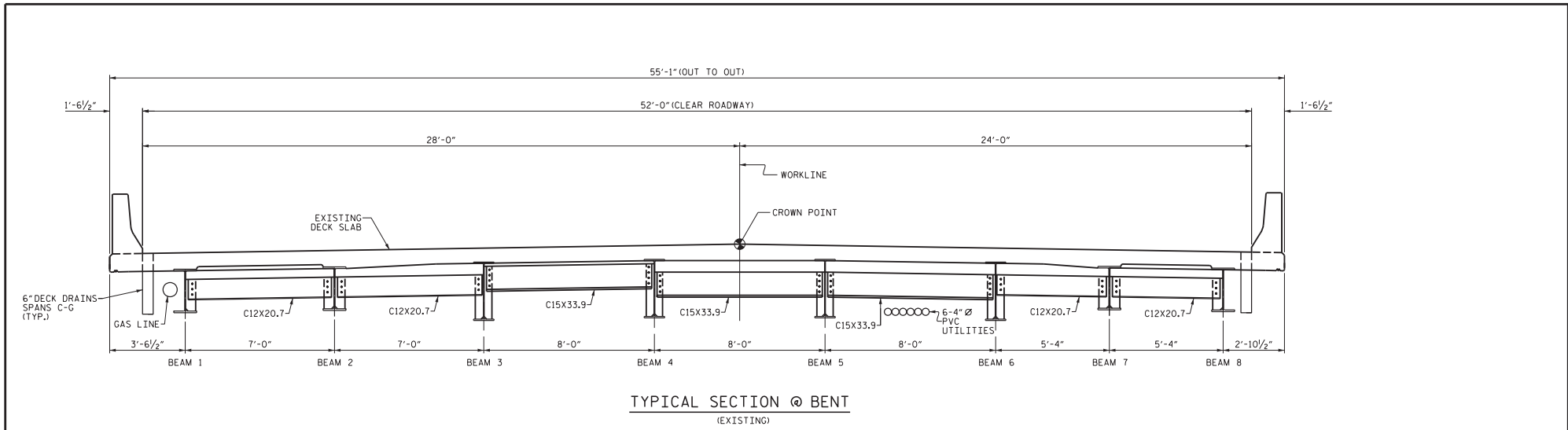
SHEET 2 OF 2



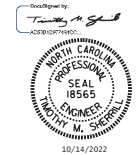
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 BRIDGE #910538 ON
 NEW BERN AVE. (SR2911) EBL
 OVER CRABTREE CREEK,
 NORFOLK SOUTHERN R.R. &
 CAROLINA COASTAL R.W.

DRAWN BY : M. WELDON DATE : 6/2021
 CHECKED BY : T. SHERBILL DATE : 6/2021

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
	BY:	DATE:			BY:	DATE:		
1				3			S1-02	
2				4			TOTAL SHEETS 26	



PROJECT NO. 41665.11A
WAKE COUNTY
 BRIDGE NO. 910538



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL SECTION

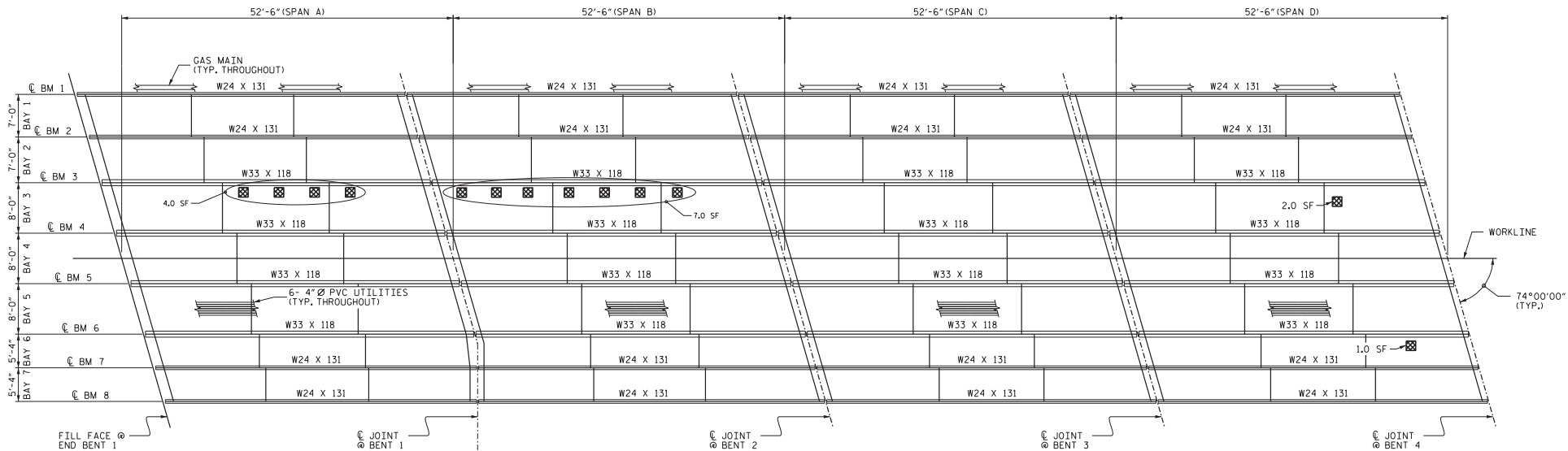
DRAWN BY : M. WELDON DATE : 06/2021
 CHECKED BY : T. SHERRILL DATE : 06/2021

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-03
1			3			TOTAL SHEETS 26
2			4			

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AS-BUILT REPAIR QUANTITY TABLE				
SPANS A-D REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
	14.0	4.7		

NOTES:
 THE LOCATIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR, IN CONJUNCTION WITH THE ENGINEER, SHALL VERIFY LOCATION AND EXTENT OF REPAIR AREAS PRIOR TO PERFORMING REPAIR WORK.
 CONTRACTOR SHALL ENSURE THAT EXISTING UTILITIES ADJACENT TO THE BRIDGE ARE NOT DAMAGED DURING THE REPAIR OPERATIONS.
 FOR BRIDGE JACKING DETAILS, SEE "JACKING DETAILS" SHEET.



▨ - SHOTCRETE REPAIR

FRAMING PLAN

PROJECT NO. 41665.11A
WAKE COUNTY
 BRIDGE NO. 910538

SHEET 1 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

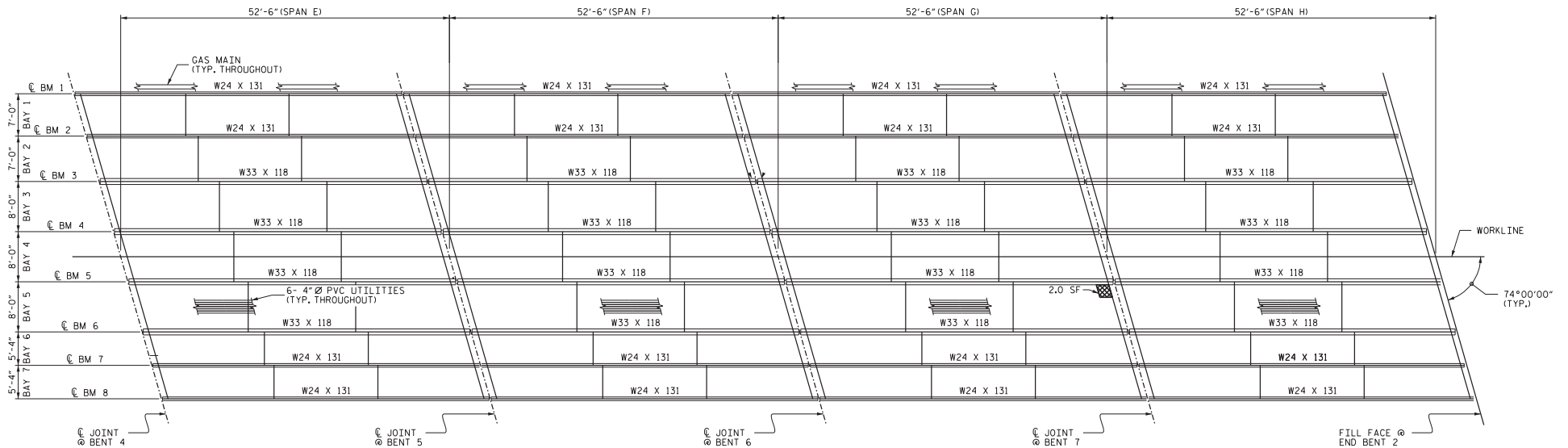
UNDERDECK REPAIR LOCATIONS

DRAWN BY: M. WELDON DATE: 06/2021
 CHECKED BY: T. SHERRILL DATE: 06/2021

NO.	REVISIONS				SHEET NO.
	BY:	DATE:	NO.	DATE:	
1			3		S1-04
2			4		TOTAL SHEETS 26

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

AS-BUILT REPAIR QUANTITY TABLE				
SPANS E-H REPAIRS	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
	2.0	0.7		



▨ - SHOTCRETE REPAIR

FRAMING PLAN

PROJECT NO. 41665.11A
WAKE COUNTY
 BRIDGE NO. 910538

SHEET 2 OF 2



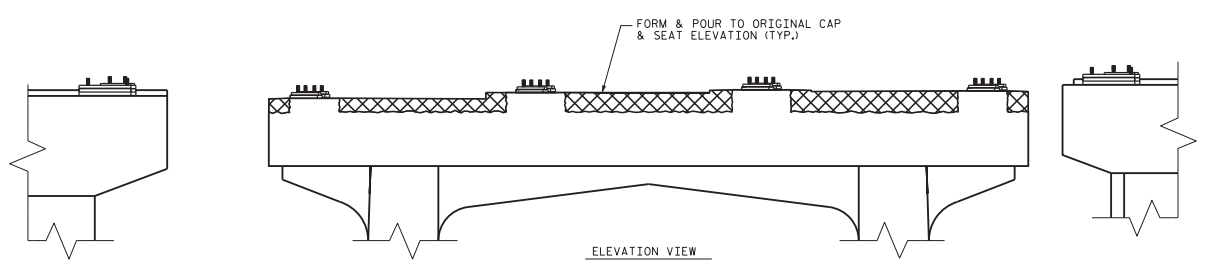
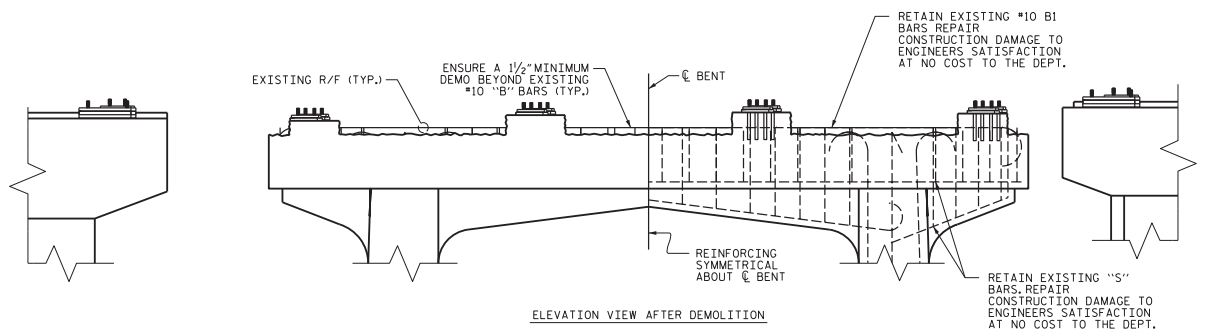
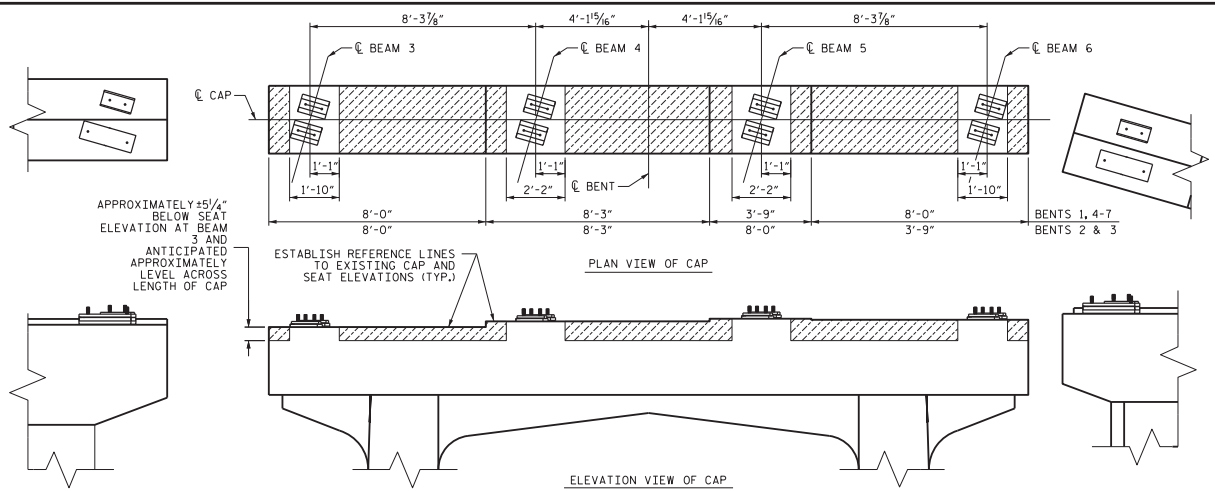
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 UNDERDECK REPAIR
 LOCATIONS

DRAWN BY: M. WELDON DATE: 06/2021
 CHECKED BY: T. SHERBILL DATE: 06/2021

NO.	REVISIONS				SHEET NO.
	BY:	DATE:	NO.	DATE:	
1			3		S1-05
2			4		TOTAL SHEETS 26

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NOTES:
BENT 1 SHOWN, BENTS 2-7 SIMILAR.



STAGE 1

- DEMO
- CONCRETE REPAIRS (FORM & POUR)



10/14/2022

PROJECT NO. 41665.11A
WAKE COUNTY
BRIDGE NO. 910538

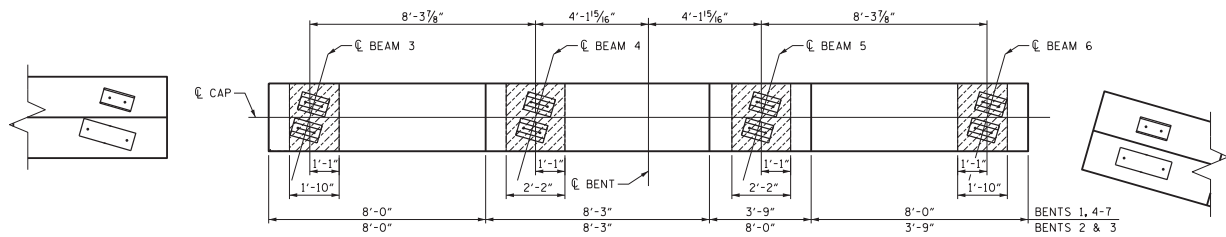
SHEET 1 OF 3
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**STAGED CAP REPAIRS
ON CENTER BENT CAP**

DRAWN BY : M. WELDON DATE : 06/2021
CHECKED BY : T. SHERRILL DATE : 06/2021

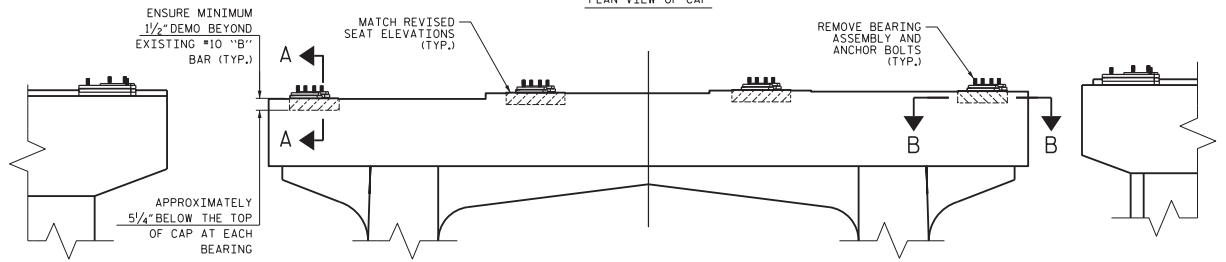
8/25/2022
S:\Common Share\910538\OF DGN\401.011.4166511A_SMU_SCR.S1.06.910538.DGN
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NO.	REVISIONS		NO.	REVISIONS		SHEET NO.
	BY:	DATE:		BY:	DATE:	
1			3			S1-06
2			4			TOTAL SHEETS 26

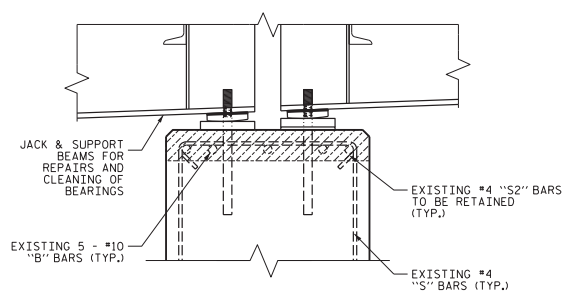
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



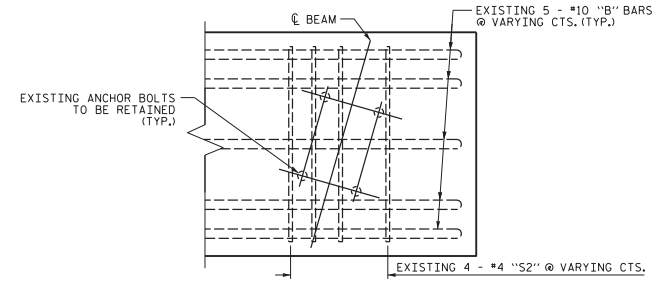
PLAN VIEW OF CAP



ELEVATION VIEW OF CAP



SECTION A-A



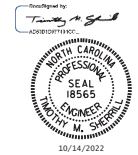
SECTION B-B

NOTES:
 AFTER CONCRETE DEMOLITION, LOOSEN MASONRY FROM SOLE PLATE, MECHANICALLY CLEAN ALL BEARING COMPONENTS AND ANCHOR BOLTS AND PAINT WITH ORGANIC RICH REPAIR PAINT PRIOR TO REASSEMBLY, CONCRETE REPAIRS, AND LOWERING OF JACKING.
 FOR CLEANING AND PAINTING EXISTING BEARINGS, SEE SPECIAL PROVISIONS.

- DEMO
 - CONCRETE REPAIRS (FORM & POUR)

PROJECT NO. 41665.11A
 WAKE COUNTY
 BRIDGE NO. 910538

SHEET 2 OF 3

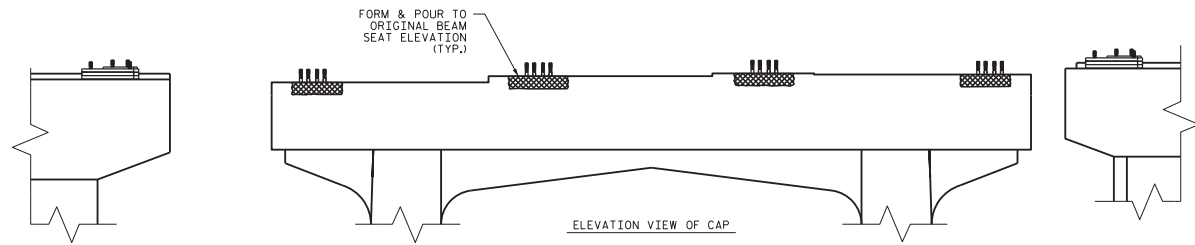
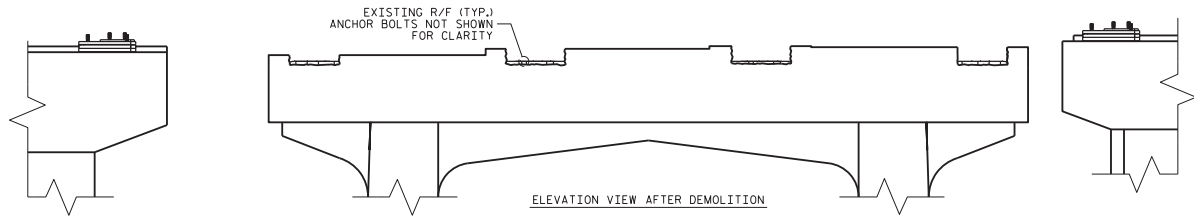


STEP 1: DEMOLITION
 STAGE 2

DRAWN BY: M. WELDON DATE: 06/2021
 CHECKED BY: T. SHERRILL DATE: 06/2021

NO.	REVISIONS		NO.	REVISIONS		SHEET NO.
	BY:	DATE:		BY:	DATE:	
1			3			S1-07
2			4			TOTAL SHEETS 26

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- DEMO
- CONCRETE REPAIRS
(FORM & POUR)

PROJECT NO. 41665.11A
WAKE COUNTY
 BRIDGE NO. 910538

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

STAGED CAP REPAIRS
 ON CENTER BENT CAP

STEP 2: CONCRETE REPAIRS

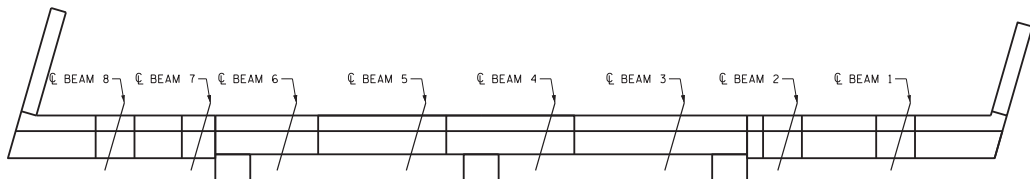
STAGE 2

DRAWN BY : M. WELDON DATE : 06/2021
 CHECKED BY : T. SHERRILL DATE : 06/2021

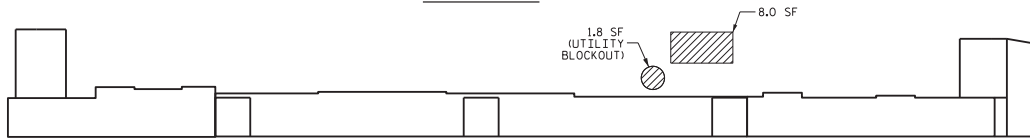
NO.	REVISIONS				SHEET NO.
	BY:	DATE:	NO.	DATE:	
1			3		S1-08
2			4		TOTAL SHEETS 26

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

8/25/2022
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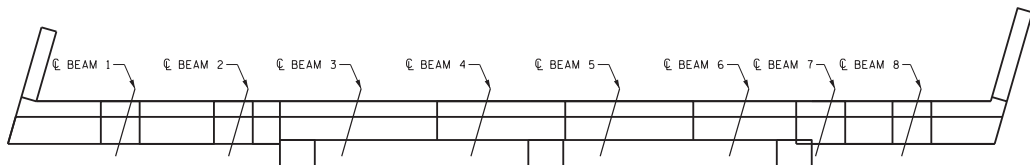


TOP OF CAP



ELEVATION
(EAST FACE)

END BENT 1



TOP OF CAP



ELEVATION
(WEST FACE)

END BENT 2

AS-BUILT REPAIR QUANTITY TABLE

END BENT 1	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
BACKWALL	9.8	4.9			

END BENT 2	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
BACKWALL	1.8	0.9			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL DEPTH OF 6" AND MIN. 2" CLEARANCE 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 REPAIR DETAILS, SEE "TYPICAL CAP & COLUMN REPAIR DETAILS" SHEET.

- SHOTCRETE REPAIR

PROJECT NO. 41668.11A
WAKE COUNTY
 BRIDGE NO. 910538



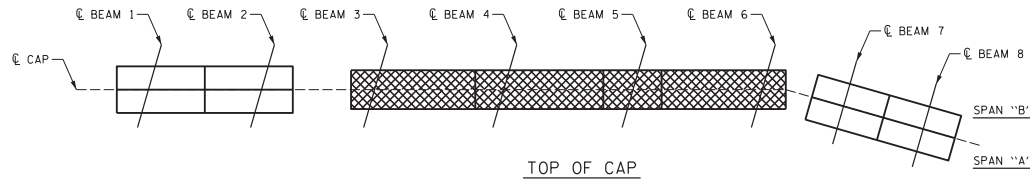
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

END BENT 1 & 2

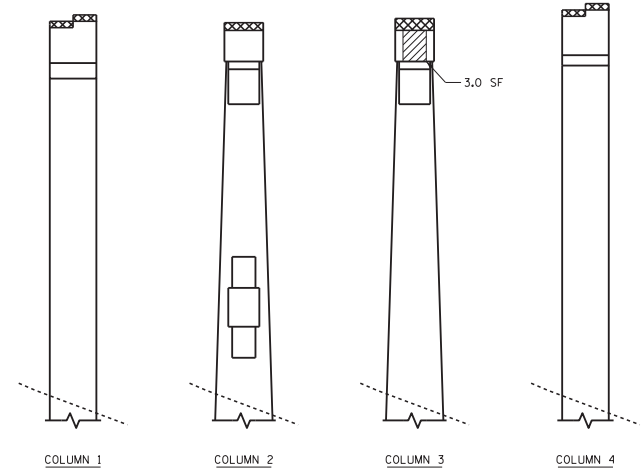
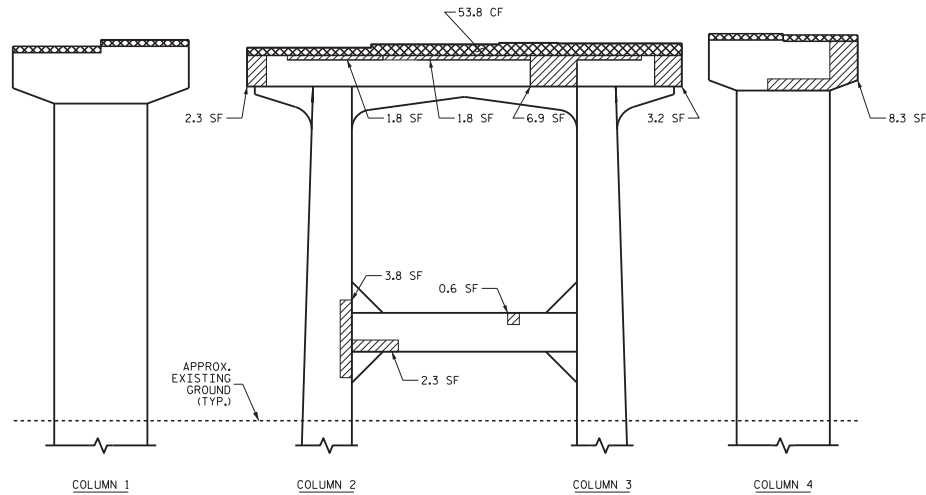
DRAWN BY : M. WELDON DATE : 06/2021
 CHECKED BY : T. SHERRELL DATE : 06/2021

NO.	REVISIONS				SHEET NO.
	BY:	DATE:	NO.	DATE:	
1			3		S1-09 TOTAL SHEETS 26
2			4		

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- CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR



ELEVATION
(WEST FACE)

END VIEWS
(SOUTH FACES)

BENT 1
(SPAN "A" SIDE)

AS-BUILT REPAIR QUANTITY TABLE					
BENT 1 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
		65.2	32.6		
CONCRETE REPAIRS	VOLUME CF		VOLUME CF		
	53.8				
EPOXY COATING	AREA SF		AREA SF		
	122.3				

PROJECT NO. 41668.11A
WAKE COUNTY
 BRIDGE NO. 910538

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 CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR 1' MIN. BELOW GROUND LINE.

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL DEPTH OF 6" AND MIN. 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

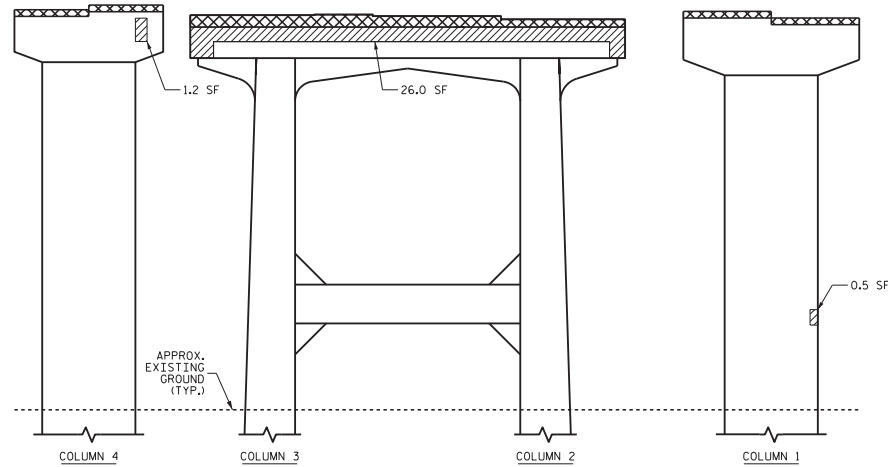
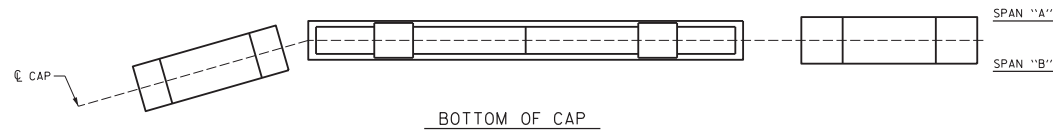
BENT 1
SPAN "A" SIDE

DRAWN BY : M. WELDON DATE : 06/2021
 CHECKED BY : T. SHERBELL DATE : 06/2021

NO.	REVISIONS				SHEET NO.
	BY:	DATE:	NO.	DATE:	
1			3		S1-10
2			4		TOTAL SHEETS 26

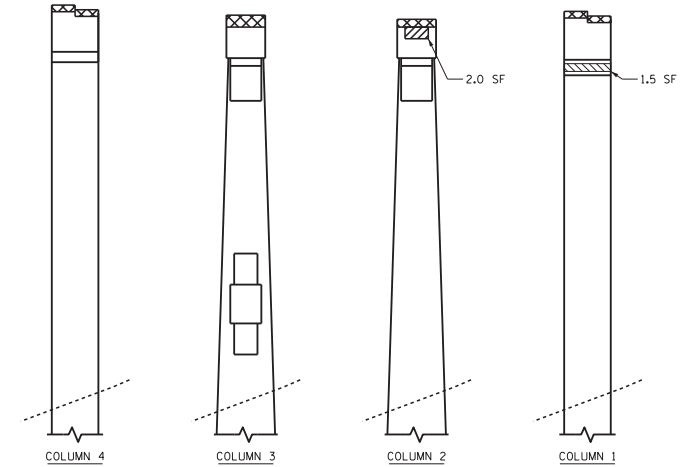
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 - CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR



ELEVATION
(EAST FACE)

BENT 1
(SPAN "B" SIDE)



END VIEWS
(NORTH FACES)

PROJECT NO. 41668.11A
WAKE COUNTY
 BRIDGE NO. 910538



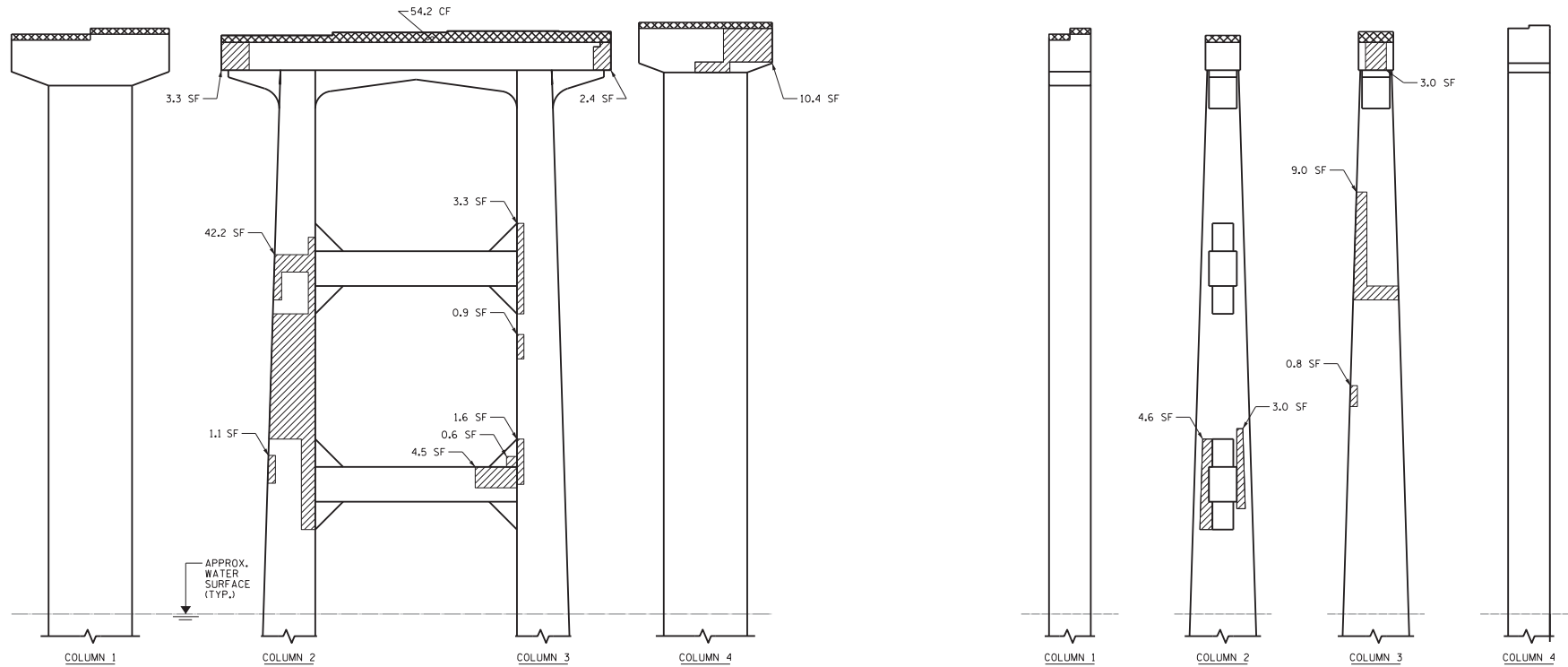
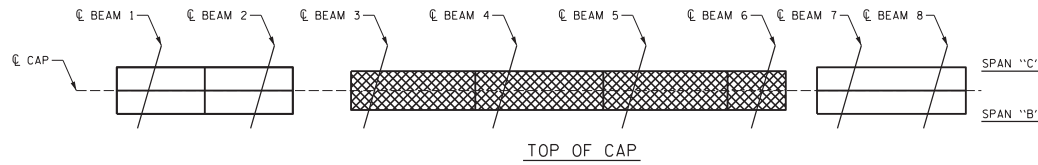
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

 BENT 1
 SPAN "B" SIDE

DRAWN BY : M. WELDON DATE : 06/2021
 CHECKED BY : T. SHERRILL DATE : 06/2021

NO.	REVISIONS				SHEET NO.
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1			3		S1-11
2			4		TOTAL SHEETS 26

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ELEVATION
(WEST FACE)

BENT 2
(SPAN "B" SIDE)

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 CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR 1' MIN. BELOW GROUND LINE.

AS-BUILT REPAIR QUANTITY TABLE

BENT 2 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
SHOTCRETE REPAIRS	134.5	67.3			
CONCRETE REPAIRS		VOLUME CF			VOLUME CF
		54.2			
EPOXY COATING	AREA SF				AREA SF
	122.2				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL DEPTH OF 6" AND MIN. 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

END VIEWS
(SOUTH FACES)

PROJECT NO. 41668.11A
WAKE COUNTY
BRIDGE NO. 910538

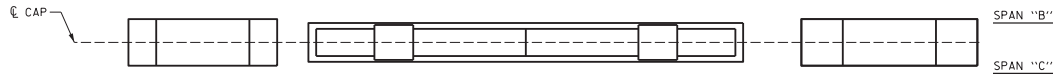


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2
SPAN "B" SIDE

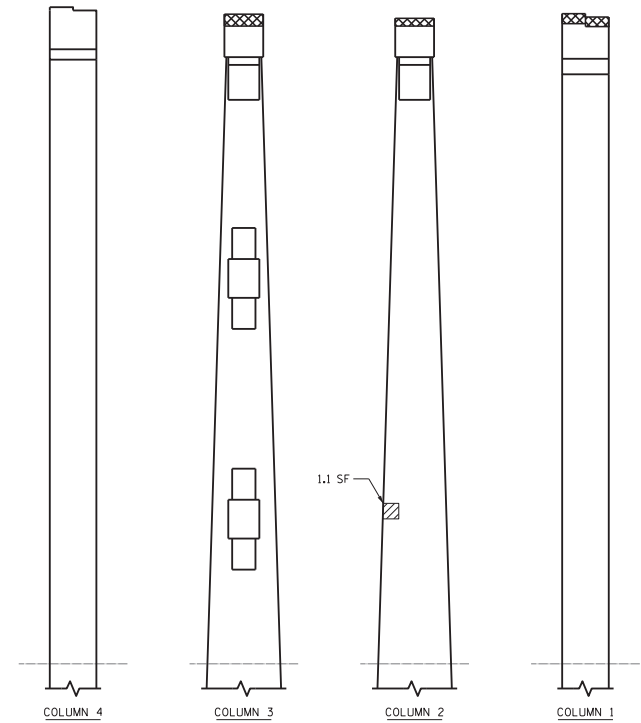
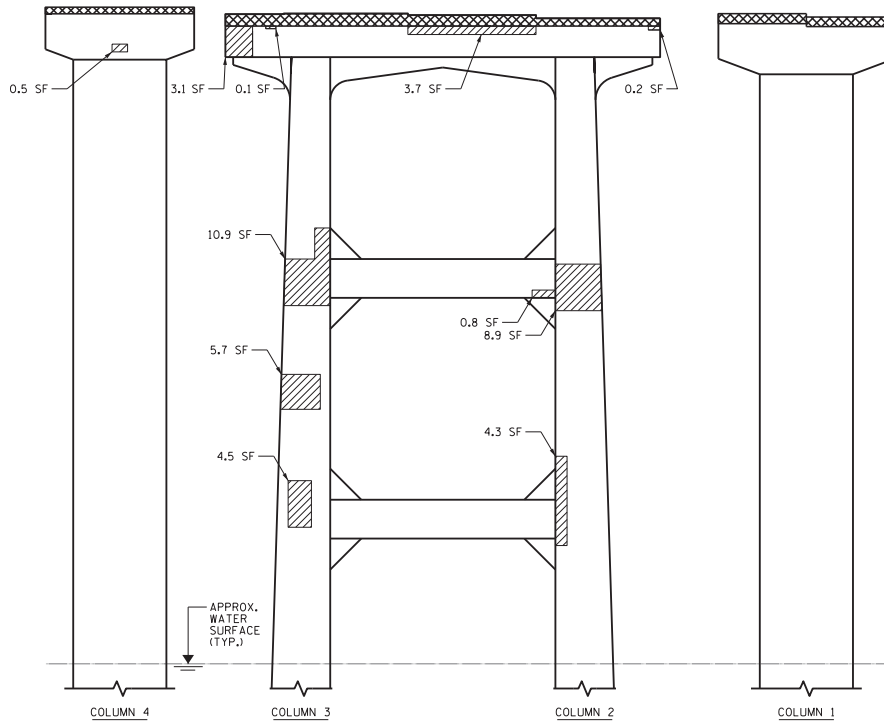
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CHECKED BY : T. SHERRILL DATE : 06/2021

NO.	REVISIONS		SHEET NO.
	BY:	DATE:	
1			S1-12
2			TOTAL SHEETS 26



- CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR

BOTTOM OF CAP



ELEVATION (EAST FACE)

BENT 2 (SPAN "C" SIDE)

PROJECT NO. 41668.11A
 WAKE COUNTY
 BRIDGE NO. 910538

END VIEWS (NORTH FACES)



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

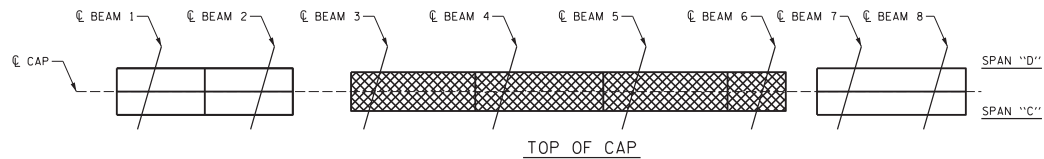
BENT 2
 SPAN "C" SIDE

DRAWN BY : M. WELDON DATE : 06/2021
 CHECKED BY : T. SHERRILL DATE : 06/2021

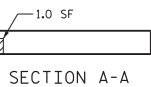
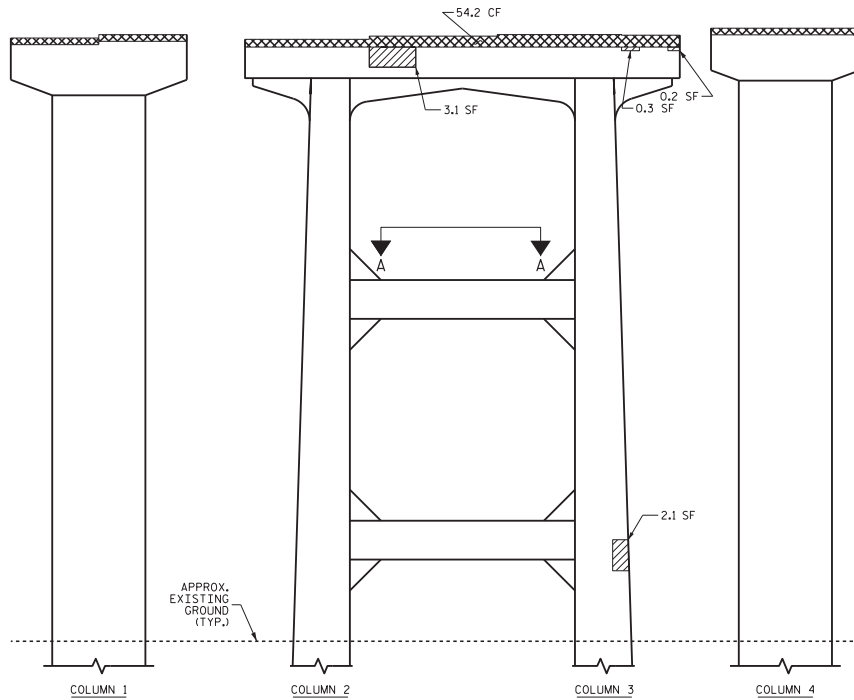
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NO.	REVISIONS		NO.	REVISIONS		SHEET NO.
	BY:	DATE:		BY:	DATE:	
1			3			S1-13
2			4			TOTAL SHEETS 26

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- CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR



ELEVATION
(WEST FACE)

BENT 3
(SPAN "C" SIDE)

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 CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

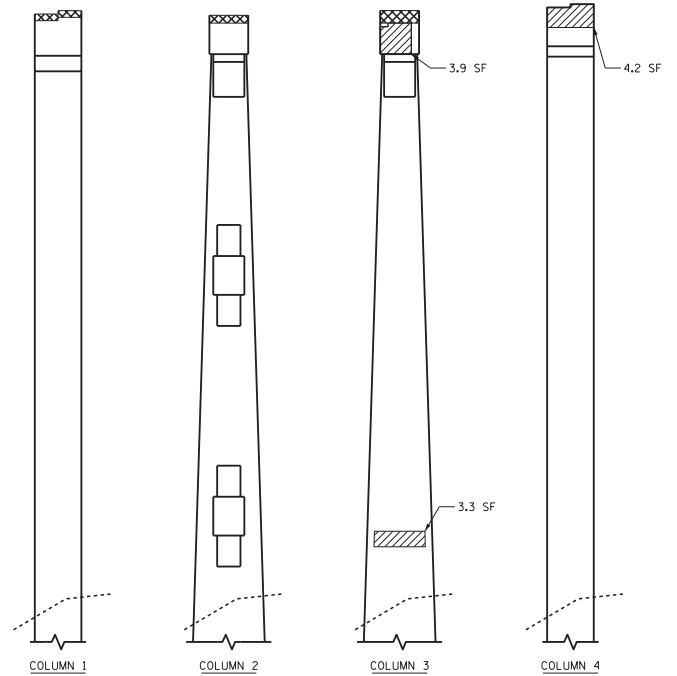
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR 1' MIN. BELOW GROUND LINE.

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END VIEWS
(SOUTH FACES)

PROJECT NO. 41668.11A
 WAKE COUNTY
 BRIDGE NO. 910538

AS-BUILT REPAIR QUANTITY TABLE					
BENT 3 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
SHOTCRETE REPAIRS	27.0	13.5			
CONCRETE REPAIRS		VOLUME CF			VOLUME CF
		54.2			
EPOXY COATING	AREA SF				AREA SF
	122.2				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL DEPTH OF 6" AND MIN. 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

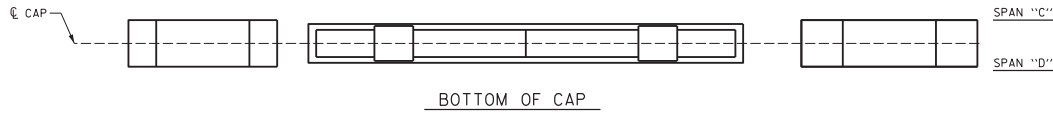


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

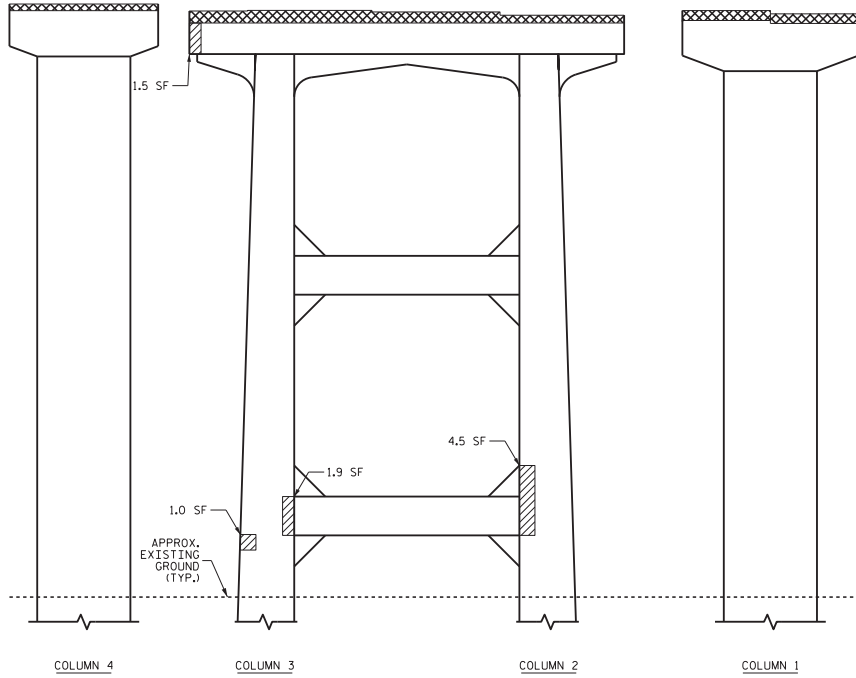
BENT 3
 SPAN "C" SIDE

NO.	REVISIONS				SHEET NO.
	BY:	DATE:	NO.	DATE:	
1			3		S1-14
2			4		TOTAL SHEETS 26

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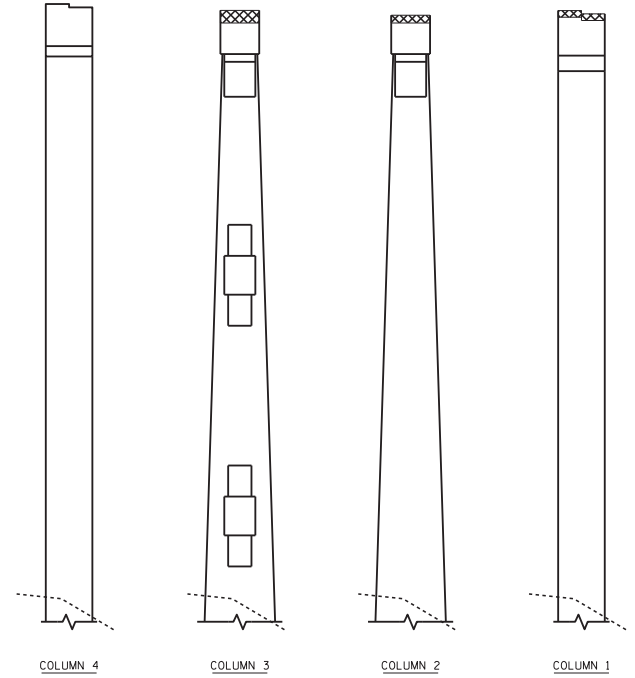


- CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR



ELEVATION
(EAST FACE)

BENT 3
(SPAN "D" SIDE)



END VIEWS
(NORTH FACES)

PROJECT NO. 41668.11A
 WAKE COUNTY
 BRIDGE NO. 910538



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

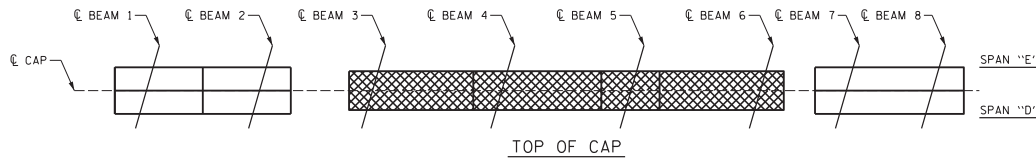
 BENT 3
 SPAN "D" SIDE

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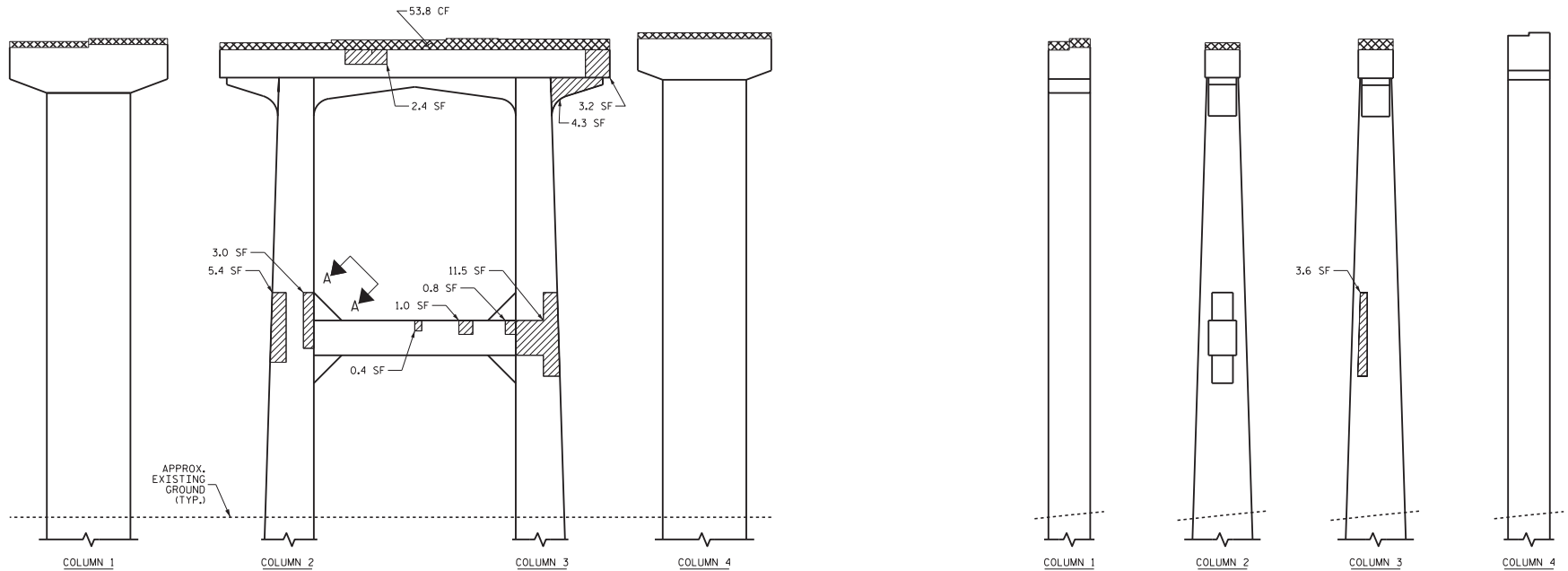
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2			4			TOTAL SHEETS 26

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- CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR



SECTION A-A
 ELEVATION
 (WEST FACE)
 BENT 4
 (SPAN "D" SIDE)

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 CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR 1' MIN. BELOW GROUND LINE.

AS-BUILT REPAIR QUANTITY TABLE

BENT 4 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
SHOTCRETE REPAIRS	56.3	28.2			
CONCRETE REPAIRS		VOLUME CF			VOLUME CF
		53.8			
EPOXY COATING	AREA SF				AREA SF
	122.2				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL DEPTH OF 6" AND MIN. 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

END VIEWS
(SOUTH FACES)

PROJECT NO. 41668.11A
 WAKE COUNTY
 BRIDGE NO. 910538

Drawn by:
 T. M. Sherrill
 10/14/2022



10/14/2022

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 4
SPAN "D" SIDE

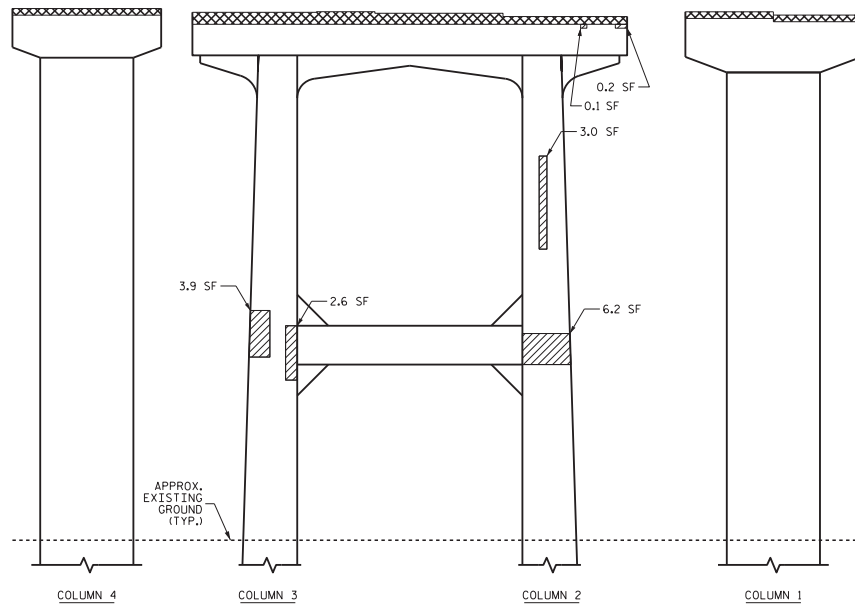
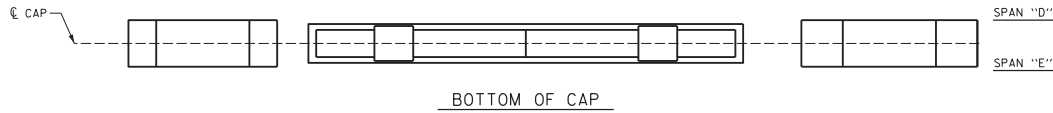
DRAWN BY : M. WELDON DATE : 06/2021
 CHECKED BY : T. SHERRILL DATE : 06/2021

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2			4		TOTAL SHEETS 26

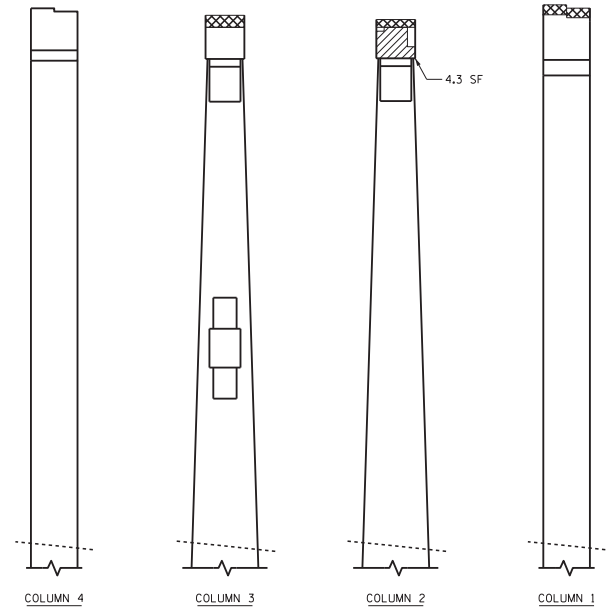
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 - CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR



ELEVATION
(EAST FACE)

BENT 4
(SPAN "E" SIDE)



END VIEWS
(NORTH FACES)

PROJECT NO. 41668.11A
 WAKE COUNTY
 BRIDGE NO. 910538

Drawn by:
 T. Sherrill
 Checked by:
 M. Weldon



10/14/2022

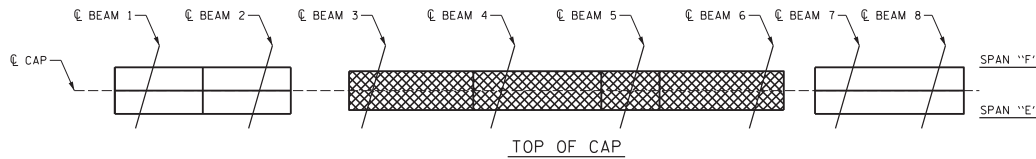
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 BENT 4
 SPAN "E" SIDE

DRAWN BY : M. WELDON DATE : 06/2021
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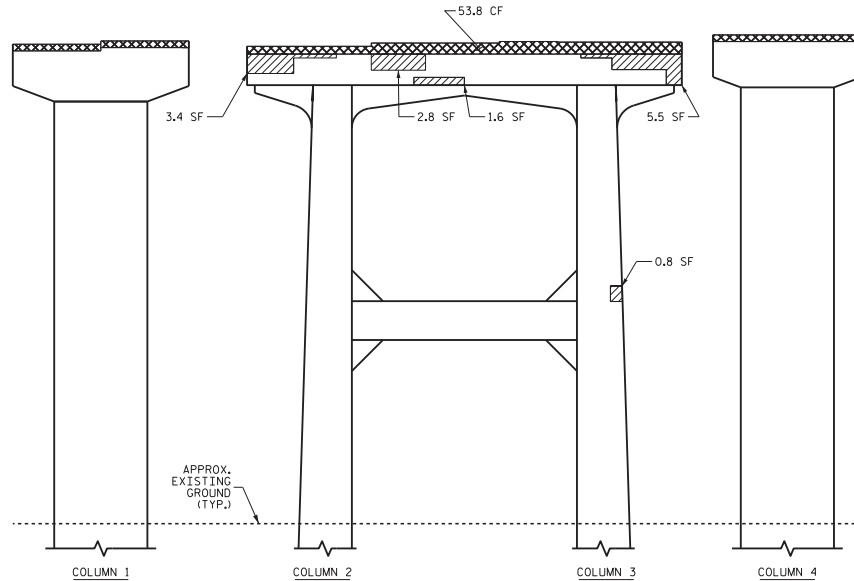
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NO.	REVISIONS				SHEET NO.
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1			3		S1-17
2			4		TOTAL SHEETS 26

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- CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR



ELEVATION
(WEST FACE)

BENT 5
(SPAN "E" SIDE)

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.

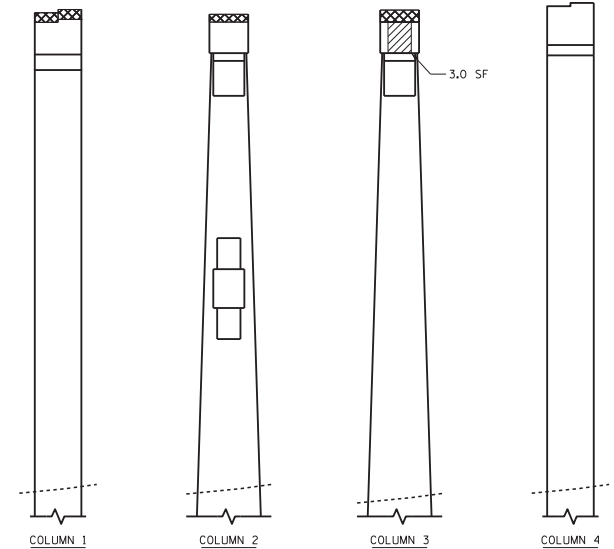
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR 1' MIN. BELOW GROUND LINE.



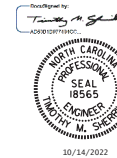
END VIEWS
(SOUTH FACES)

AS-BUILT REPAIR QUANTITY TABLE

BENT 5 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
SHOTCRETE REPAIRS	29.3	14.7			
CONCRETE REPAIRS		VOLUME CF			VOLUME CF
		53.8			
EPOXY COATING	AREA SF		AREA SF		
	122.2				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL DEPTH OF 6" AND MIN. 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. 41668.11A
 WAKE COUNTY
 BRIDGE NO. 910538



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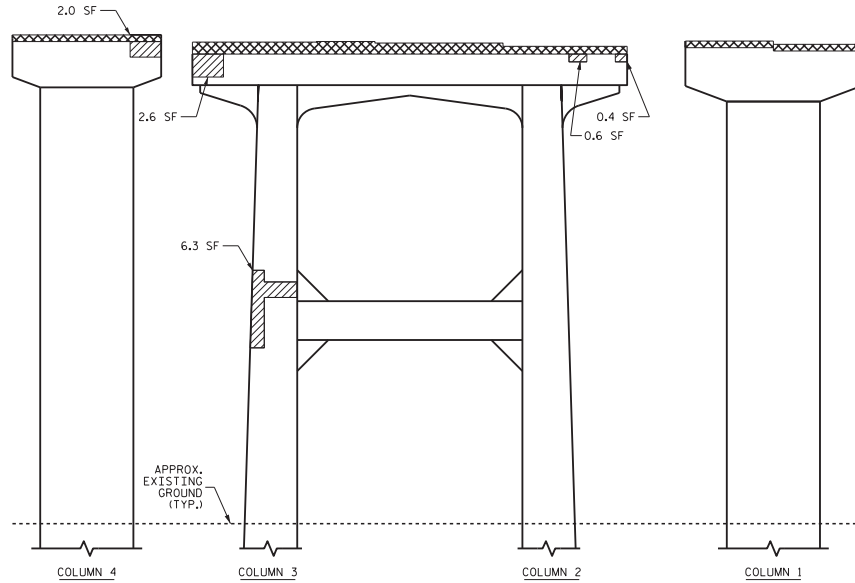
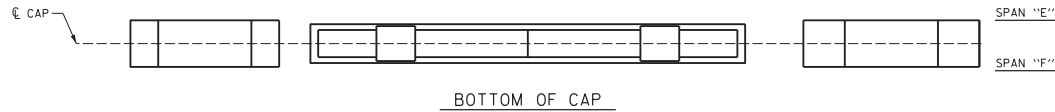
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BENT 5
SPAN "E" SIDE**

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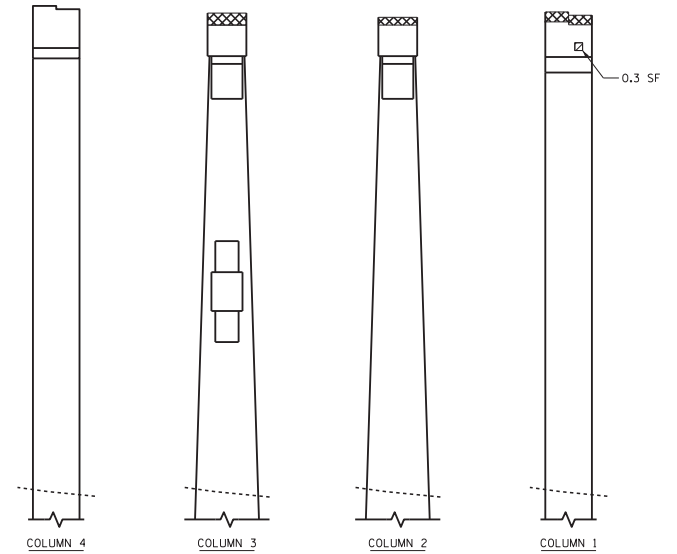
NO.	REVISIONS				SHEET NO.
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1			3		S1-18
2			4		TOTAL SHEETS 26

 - CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR



ELEVATION
(EAST FACE)

BENT 5
(SPAN "F" SIDE)



END VIEWS
(NORTH FACES)

PROJECT NO. 41668.11A
 WAKE COUNTY
 BRIDGE NO. 910538

Drawn by: *T. Sherrill*
 Checked by:



10/14/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

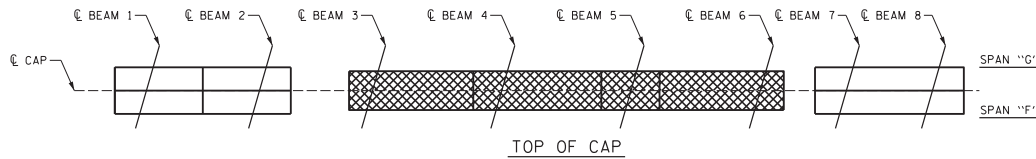
BENT 5
 SPAN "F" SIDE

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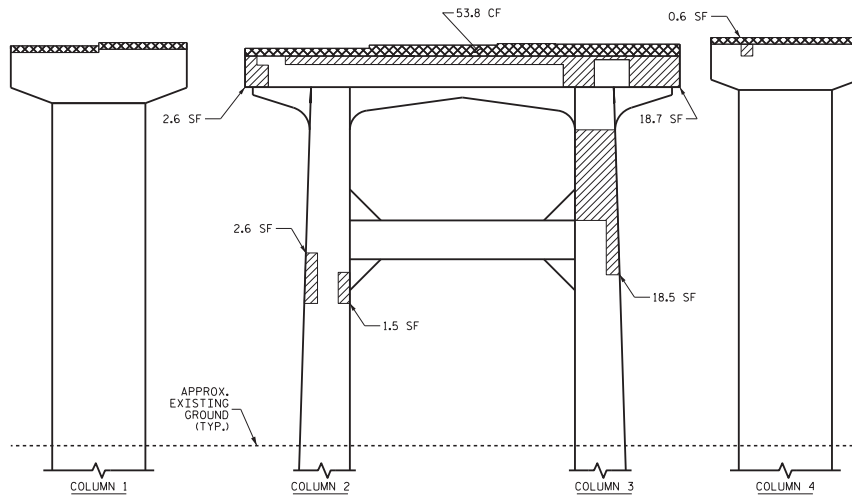
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-19
1			3			TOTAL SHEETS
2			4			26

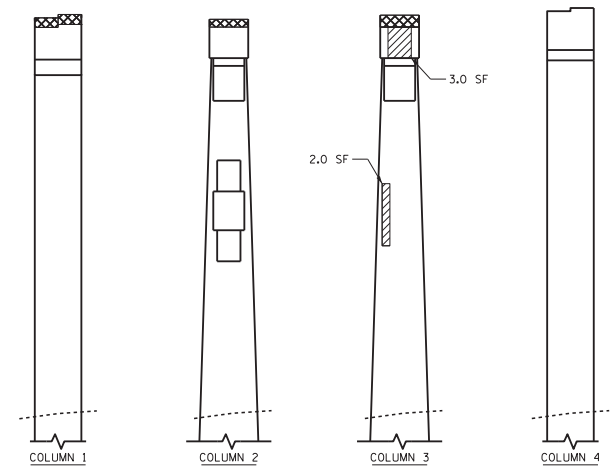


- CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR



ELEVATION
(WEST FACE)

BENT 6
(SPAN "F" SIDE)



END VIEWS
(SOUTH FACES)

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 CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR 1' MIN. BELOW GROUND LINE.

AS-BUILT REPAIR QUANTITY TABLE

BENT 6 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
SHOTCRETE REPAIRS	71.2	35.6			
CONCRETE REPAIRS		VOLUME CF			VOLUME CF
		53.8			
EPOXY COATING	AREA SF				AREA SF
	122.2				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL DEPTH OF 6" AND MIN. 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. 41668.11A
WAKE COUNTY
BRIDGE NO. 910538



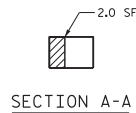
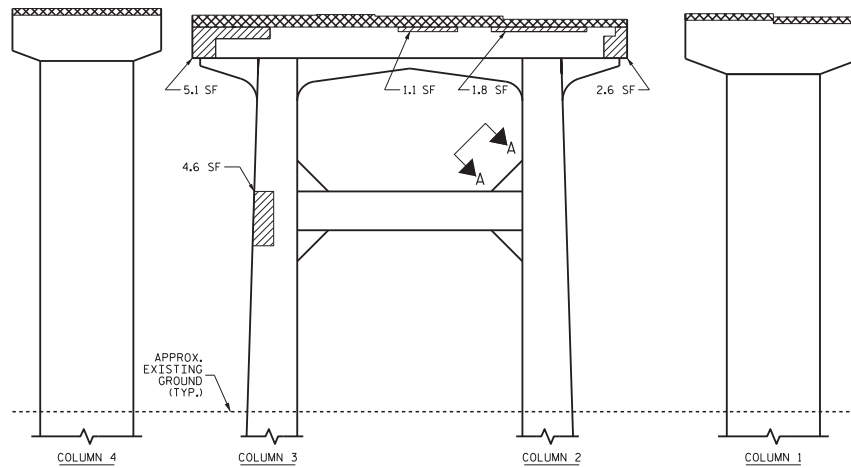
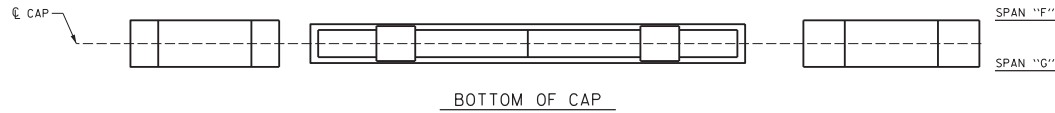
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 6
SPAN "F" SIDE

DRAWN BY: M. WELDON DATE: 06/2021
CHECKED BY: T. SHERRILL DATE: 06/2021

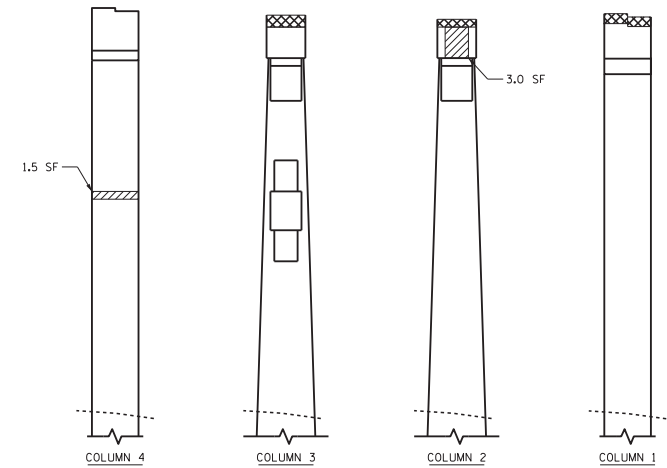
NO.	REVISIONS				SHEET NO.
	BY	DATE	NO.	DATE	
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2			4		TOTAL SHEETS 26

 - CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR



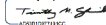
ELEVATION
(EAST FACE)

BENT 6
(SPAN "G" SIDE)



END VIEWS
(NORTH FACES)

PROJECT NO. 41668.11A
 WAKE COUNTY
 BRIDGE NO. 910538

Drawn/Seal by:

 ARCHITECT/ENGINEER



10/14/2022

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

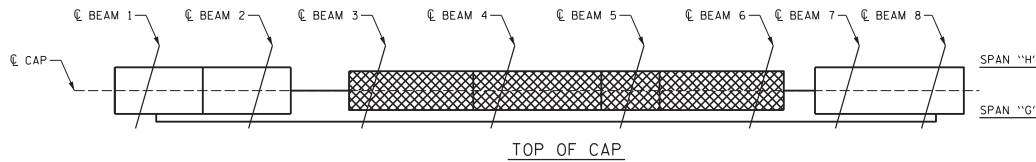
BENT 6
 SPAN "G" SIDE

DRAWN BY : M. WELDON DATE : 06/2021
 CHECKED BY : T. SHERRILL DATE : 06/2021

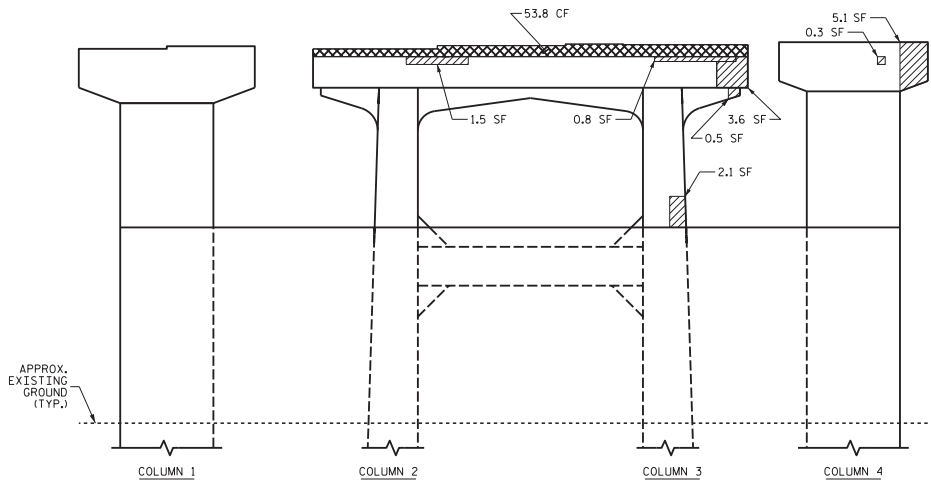
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 FINAL UNLESS ALL
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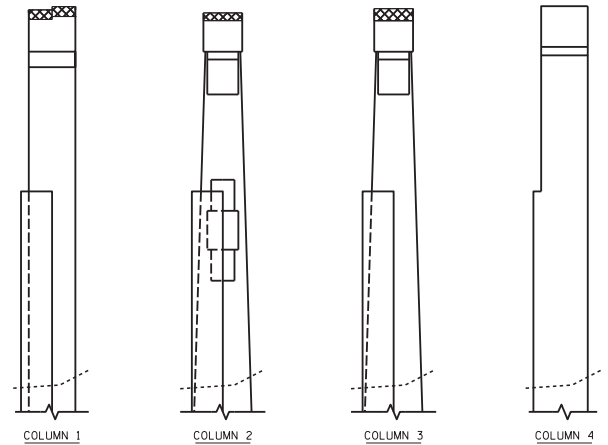
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-21
1			3			TOTAL SHEETS
2			4			26



- CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR



ELEVATION
(WEST FACE)



END VIEWS
(SOUTH FACES)

BENT 7
(SPAN "G" SIDE)

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 CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

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

WHEN COLUMN REPAIRS ARE INDICATED TO GROUND LINE, EXTEND REPAIR 1' MIN. BELOW GROUND LINE.

AS-BUILT REPAIR QUANTITY TABLE

BENT 7 REPAIRS	QUANTITIES				
	ESTIMATE		ACTUAL		
	AREA SF	VOLUME CF	AREA SF	DEPTH FT	VOLUME CF
SHOTCRETE REPAIRS	37.0	18.5			
CONCRETE REPAIRS		VOLUME CF			VOLUME CF
		53.8			
EPOXY COATING	AREA SF				AREA SF
	115.6				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL DEPTH OF 6" AND MIN. 2" CLEARANCE TO SAWCUT. SEE REPAIR DETAILS.

PROJECT NO. 41668.11A
WAKE COUNTY
BRIDGE NO. 910538



10/14/2022

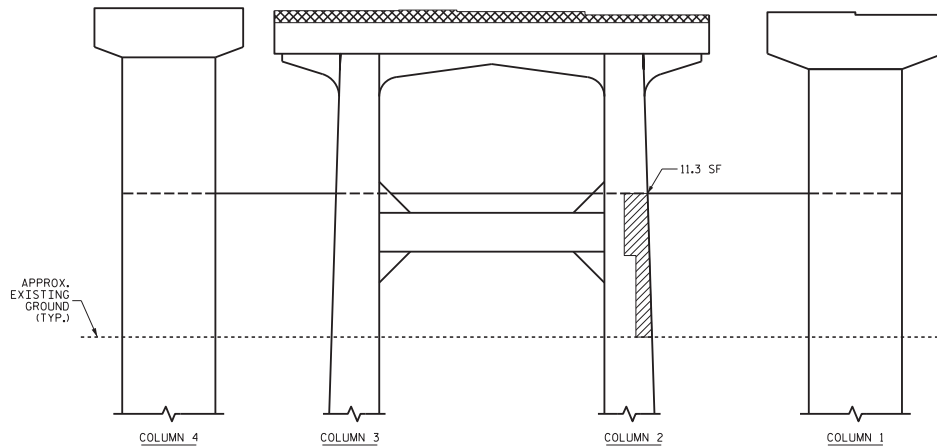
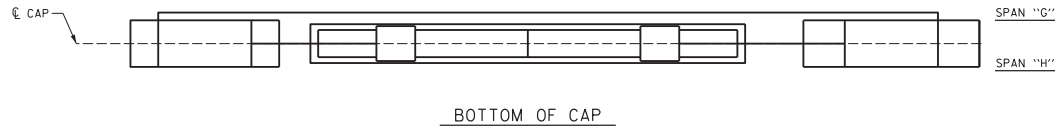
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 7
SPAN "G" SIDE

DRAWN BY: M. WELDON DATE: 06/2021
CHECKED BY: T. SHERRILL DATE: 06/2021

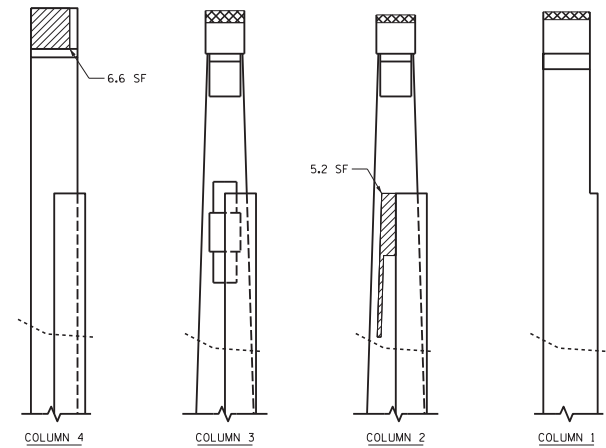
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1			3		S1-22
2			4		TOTAL SHEETS 26

 - CONCRETE REPAIRS (FORM & POUR)
 - SHOTCRETE REPAIR



ELEVATION
(EAST FACE)

BENT 7
(SPAN "H" SIDE)



END VIEWS
(NORTH FACES)

PROJECT NO. 41668.11A
WAKE COUNTY
 BRIDGE NO. 910538

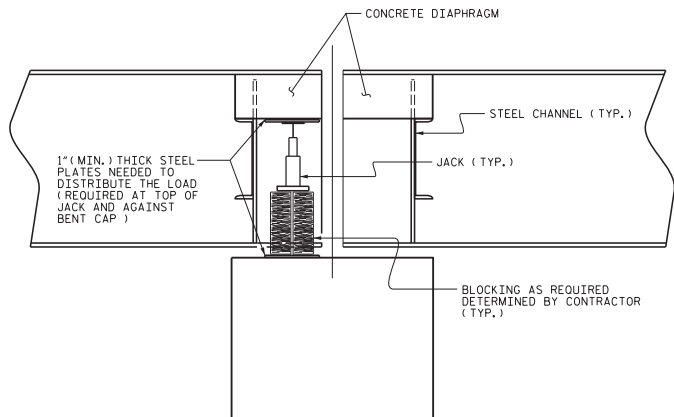


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

 BENT 7
 SPAN "H" SIDE

DRAWN BY : M. WELDON DATE : 06/2021
 CHECKED BY : T. SHERRILL DATE : 06/2021

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1			3		S1-23 TOTAL SHEETS 26
2			4		
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SECTION THRU DIAPHRAGM

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)	LIVE LOAD (W/IMPACT) (KIPS)	
BENTS 1-7	1-8	II	35	97	

NOTE: LOADS ARE UNFACTORED

PROJECT NO. 41668.11A
WAKE COUNTY
 BRIDGE NO. 910538

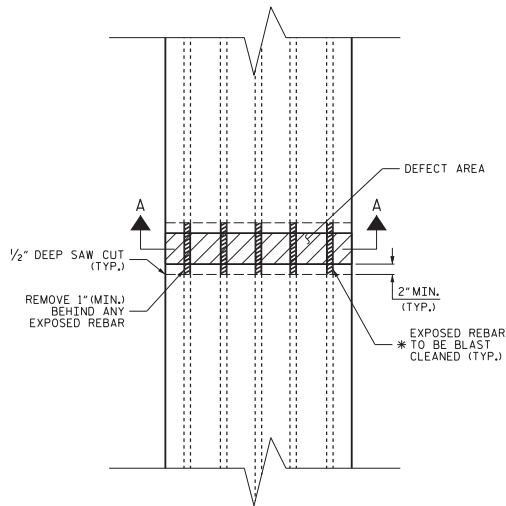


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 DEPARTMENT OF TRANSPORTATION
 RALEIGH

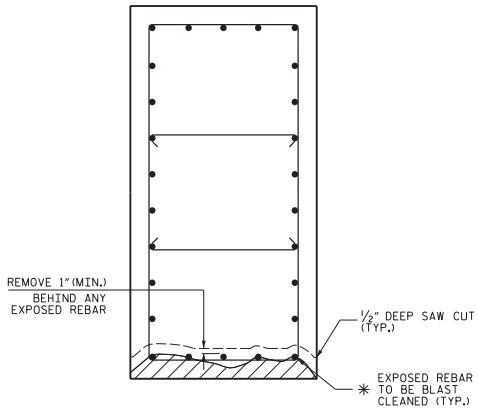
JACKING -DETAILS

DRAWN BY : M. WELDON DATE : 06/2021
 CHECKED BY : T. SHERRELL DATE : 06/2021

NO.	REVISIONS				SHEET NO.
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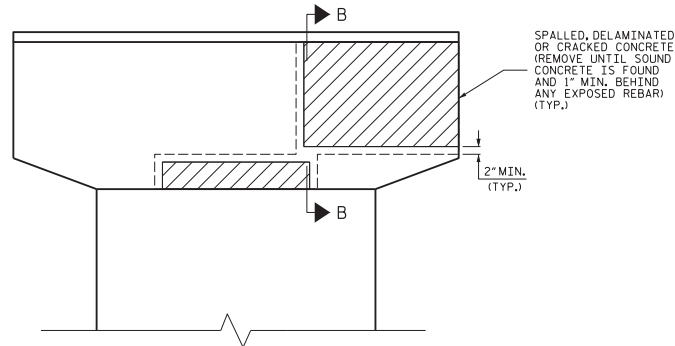
ELEVATION OF COLUMN
(STIRRUPS NOT SHOWN FOR CLARITY)



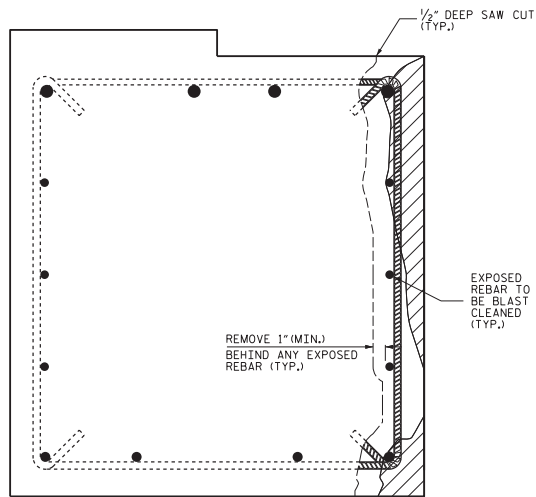
SECTION A-A

COLUMNS 1 & 4

* IF REPAIR AREA EXPOSES MORE THAN 10 MAIN COLUMN BARS THEN REPAIR LENGTH SHALL NOT EXCEED 10 FEET PER REPAIR SECTION. STAGE ADDITIONAL REPAIRS AS REQUIRED.



BENT CAP REPAIRS



SECTION B-B

CAPS AT COLUMNS 1 & 4

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 1/2\"/>

NO MORE THAN ONE-THIRD OF THE CAP OR COLUMN CIRCUMFERENCE 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, BUT NO MORE THAN ONE-THIRD OF THE CIRCUMFERENCE SHALL BE REMOVED AT ONE TIME. IF REMOVAL EXTENDS MORE THAN 1/2\"/>

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 THE SPLICE LENGTH SPECIFIED IN THE PLANS.

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

COAT ALL SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING.

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.

CLEAN ALL EXPOSED REINFORCING BARS IN ACCORDANCE WITH APPROPRIATE SPECIAL PROVISIONS. FOR BARS WITH MORE THAN 20% SECTION LOSS, SPLICE AND SECURELY TIE SUPPLEMENTAL REINFORCING BARS AS NEEDED.

PROJECT NO. 41668.11A
WAKE COUNTY
 BRIDGE NO. 910538

SHEET 1 OF 2



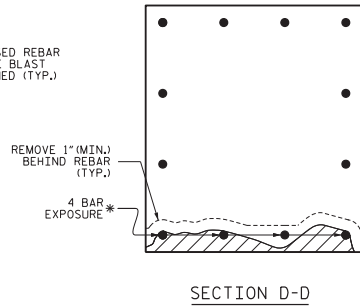
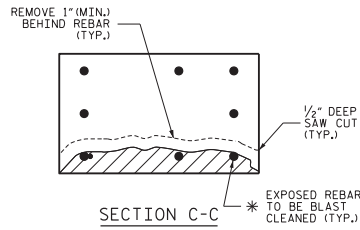
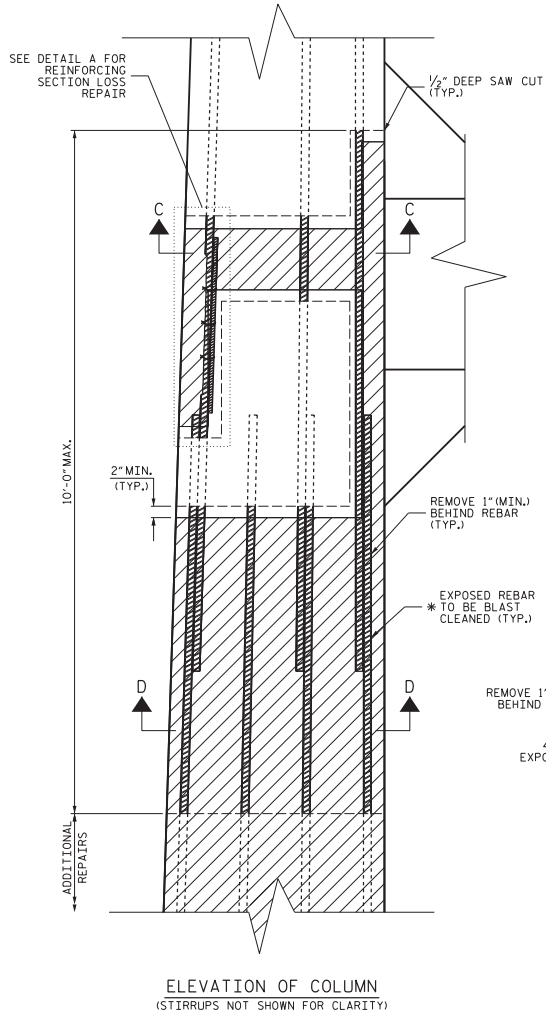
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TYPICAL CAP
 AND COLUMN
 REPAIR DETAILS

DRAWN BY : M. WELDON DATE : 06/2021
 CHECKED BY : T. SHERBILL DATE : 06/2021

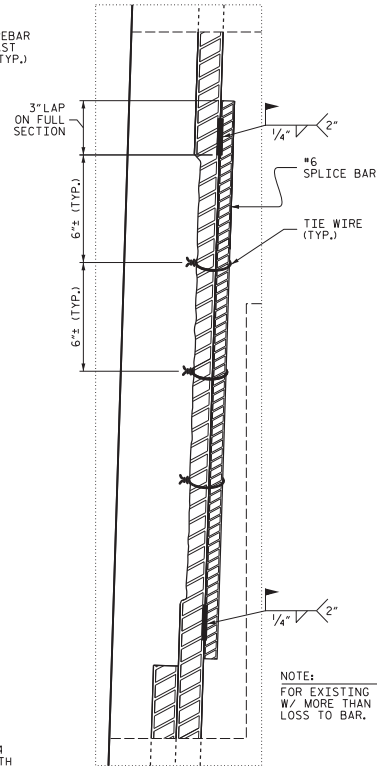
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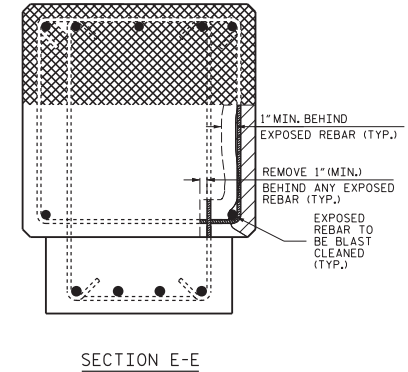
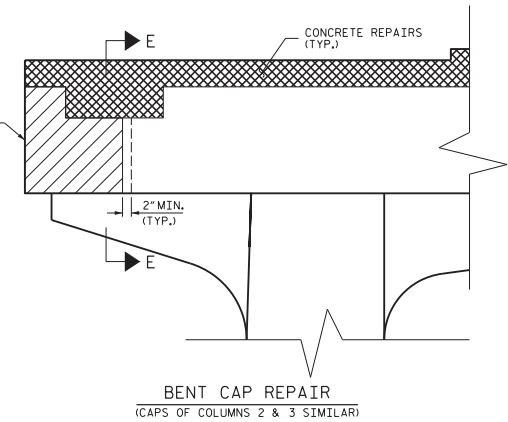


* IF REPAIR AREA EXPOSES MORE THAN 4 MAIN COLUMN BARS THEN REPAIR LENGTH SHALL NOT EXCEED 10 FEET PER REPAIR SECTION; STAGE ADDITIONAL REPAIRS AS REQUIRED.

COLUMNS 2 & 3



SPALLED, DELAMINATED OR CRACKED CONCRETE (REMOVE UNTIL SOUND CONCRETE IS FOUND AND 1" MIN. BEHIND ANY EXPOSED REBAR) (TYP.)



CAPS AT COLUMNS 2 & 3

PROJECT NO. 41668.11A
WAKE COUNTY
BRIDGE NO. 910538

SHEET 2 OF 2



TYPICAL CAP AND COLUMN REPAIR DETAILS

DRAWN BY: M. WELDON DATE: 06/2021
CHECKED BY: T. SHERRILL DATE: 06/2021

NO.	REVISIONS				SHEET NO.
	BY:	DATE:	NO.	DATE:	
1			3		S1-26
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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

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

CONCRETE:

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

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST $\frac{3}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

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

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

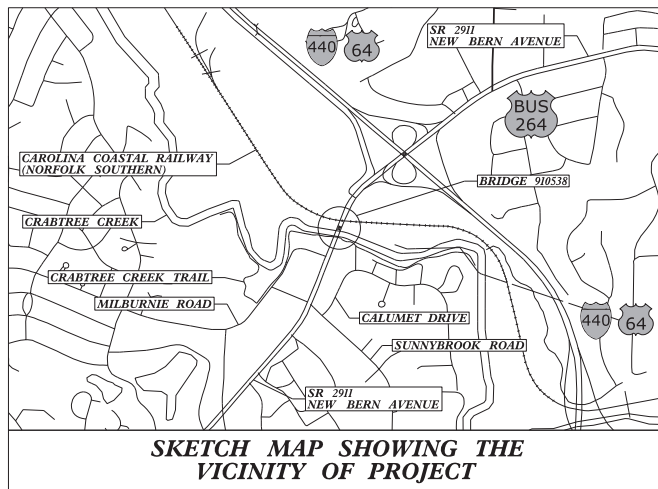
TRANSPORTATION MANAGEMENT PLAN

WAKE COUNTY



LOCATION: BRIDGE #910538 ON SR 2911 (NEW BERN AVE) EBL OVER CRABTREE CREEK, CRABTREE BREEZEWAY AND CAROLINA COASTAL RAILWAY/NORFOLK SOUTHERN RAILROAD

TYPE OF WORK: TRAFFIC MANAGEMENT FOR BRIDGE REHABILITATION



SKETCH MAP SHOWING THE VICINITY OF PROJECT

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, INDEX OF SHEETS AND TRAFFIC MANAGEMENT STRATEGY
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (GENERAL NOTES AND PHASING)
TMP-4	PHASE I DETAIL

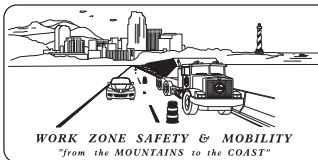
TRAFFIC MANAGEMENT STRATEGY

REHABILITATION ON BRIDGE 910538 IN WAKE COUNTY WILL BE PERFORMED USING TEMPORARY LANE CLOSURES.

SHEET NO.
TMP-1

TIP PROJECT: 41665.IIA

9/19/2022 1:24:00 PM User: BWHITE



PLANS PREPARED BY:

RICK NELSON, PE
PROJECT ENGINEER

BENJAMIN A. WHITE, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACTS:

KENNETH C. THORNEWELL, PE
PROJECT ENGINEER

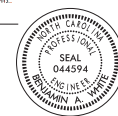
MIKE STEELMAN
PROJECT DESIGN ENGINEER



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APPROVED: 
DATE: 9/21/2022

SEAL



ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

<u>STD. NO.</u>	<u>TITLE</u>
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1165.01	TRUCK MOUNTED ATTENUATOR

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)

- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY
- PORTABLE

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

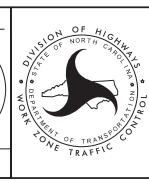
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APPROVED: DATE: 9/21/2022

SEAL



**ROADWAY STANDARD
DRAWINGS & LEGEND**

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- B) EXCEPT AS SHOWN ON TMP-4, LANE CLOSURES WILL NOT BE PERMITTED ON SR 2911 (NEW BERN AVENUE).

TRAFFIC PATTERN ALTERATIONS

- C) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- D) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- E) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

PHASING

PHASE I

- STEP 1: ALONG SR 2911 (NEW BERN AVE), INSTALL WORK ZONE ADVANCE WARNING SIGNS USING ROADWAY STANDARD DRAWING 1101.01 SHEET 2 OF 3. INSTALL PROTECTIVE CANOPY AS SHOWN IN PROJECT SPECIAL PROVISIONS ALONG CRABTREE CREEK TRAIL UNDERNEATH BRIDGE 910538. SEE SHEET TMP-4 FOR MORE DETAILS.
- STEP 2: INSTALL LEFT LANE CLOSURE AS SHOWN ON SHEET TMP-4 (REFER TO APPLICABLE GENERAL NOTES ON ROADWAY STANDARD DRAWING 1101.02 SHEET 3 OF 14). PERFORM REQUIRED BRIDGE REHABILITATION WORK ON BENTS AND SPANS.

THE CONTRACTOR SHALL KEEP CRABTREE CREEK TRAIL CLEAR OF ANY OBSTACLES AT ALL TIMES.
- STEP 3: ONCE WORK IS COMPLETE, REMOVE ALL TRAFFIC CONTROL DEVICES AND REMOVE PROTECTIVE CANOPY ALONG CRABTREE CREEK TRAIL.

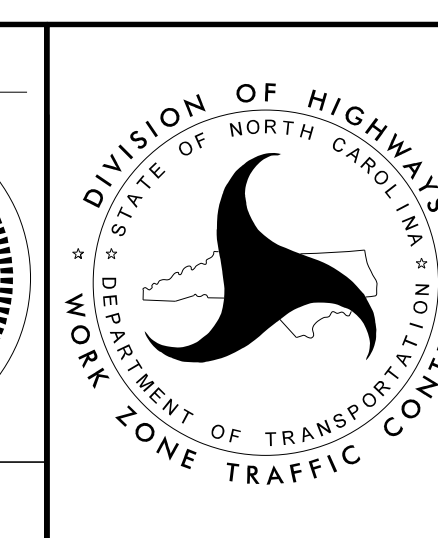
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APPROVED: *Benjamin A. White*
DATE: 11/10/2022

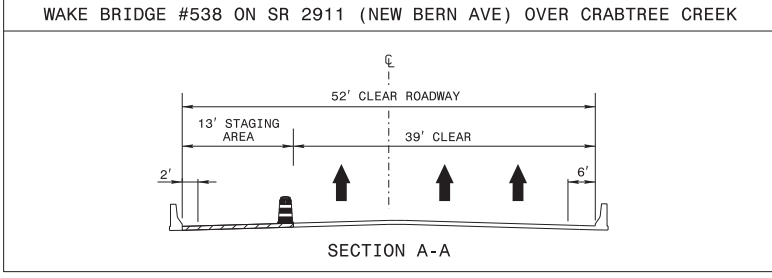
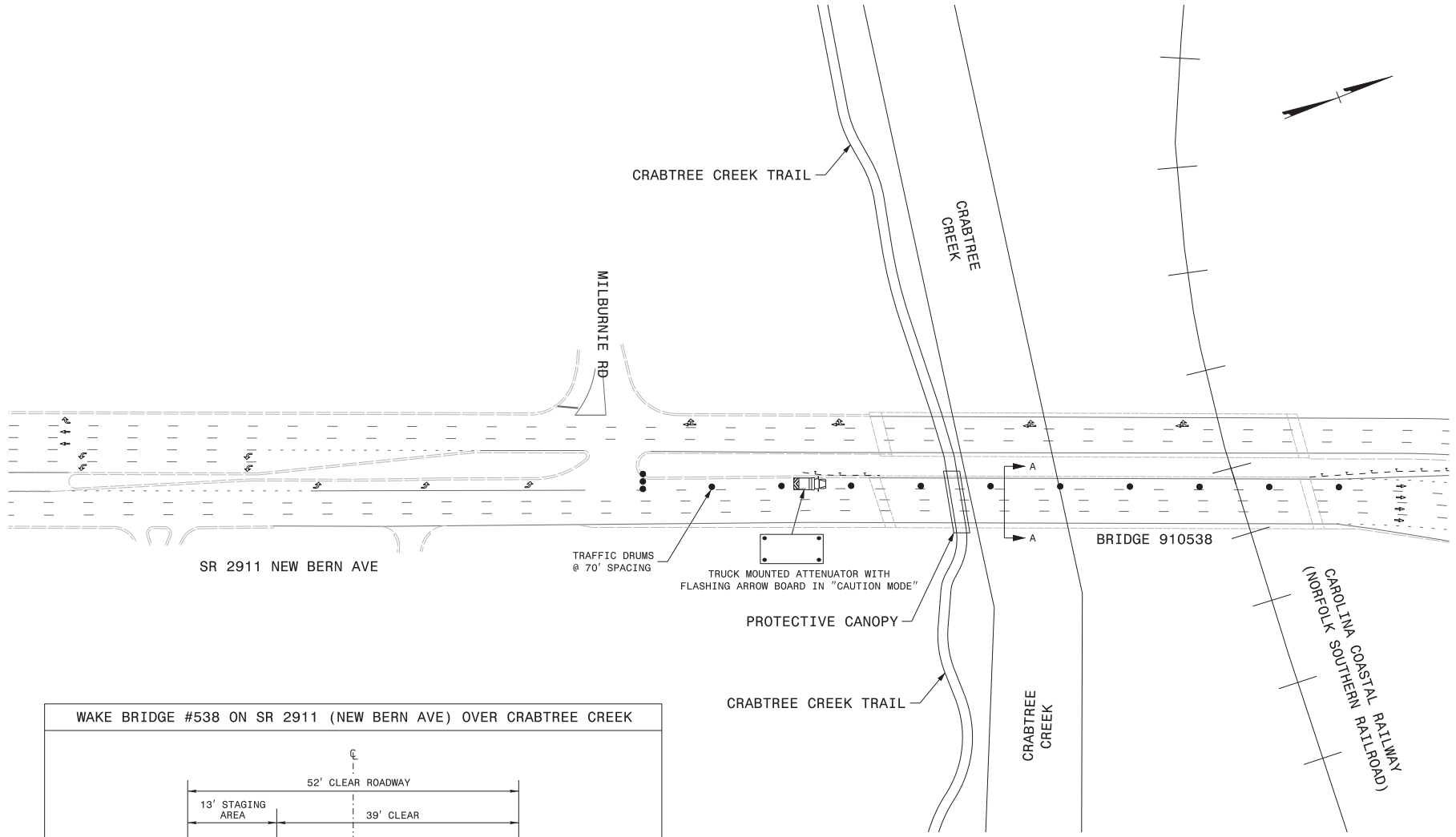
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GENERAL &
LOCAL NOTES

PHASING



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PHASE 1
DETAIL