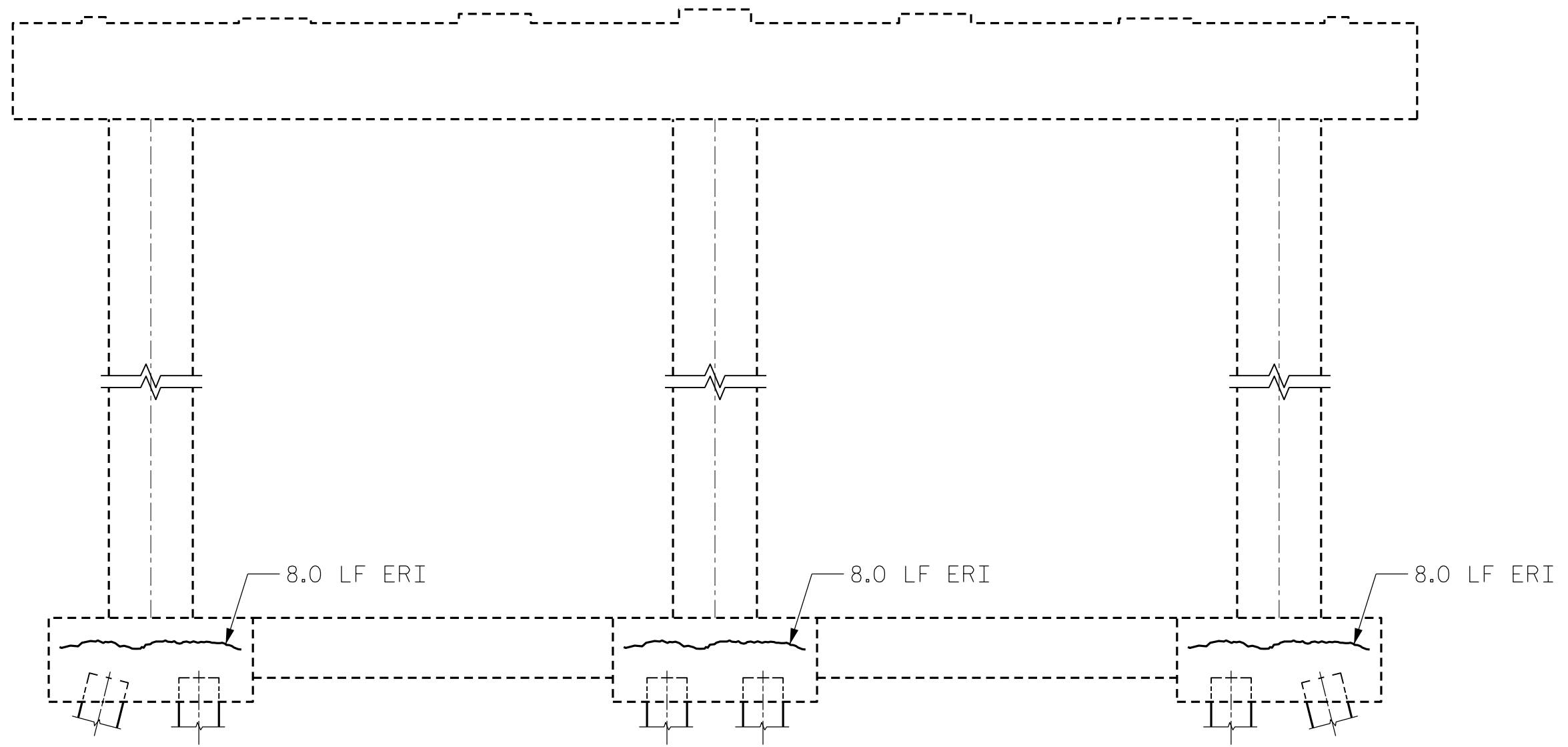
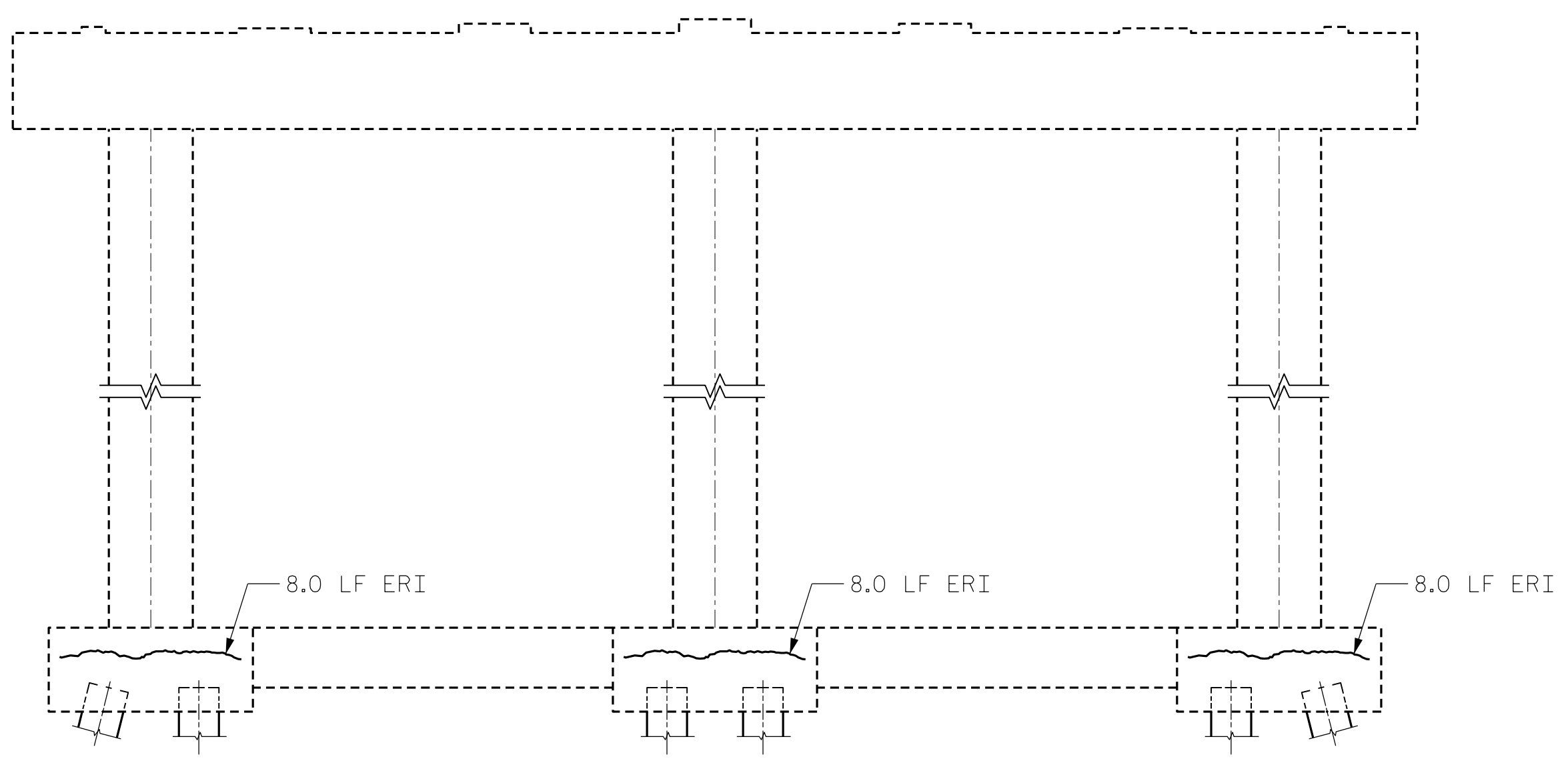


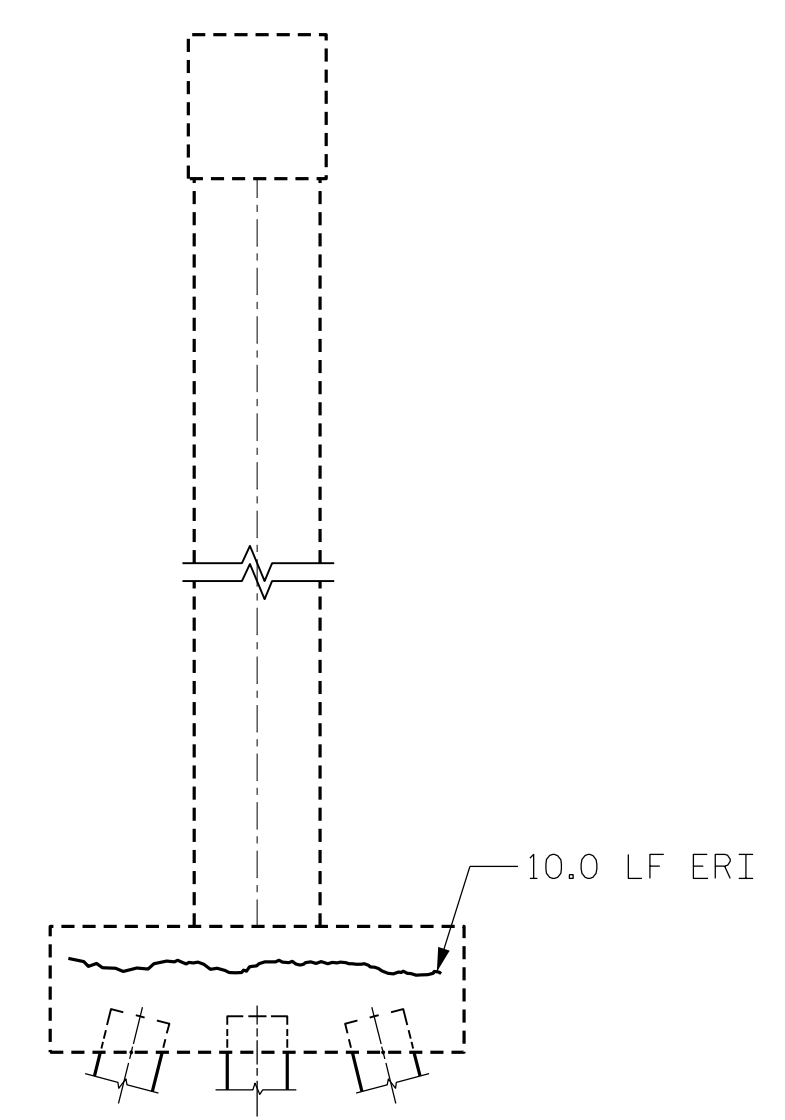
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



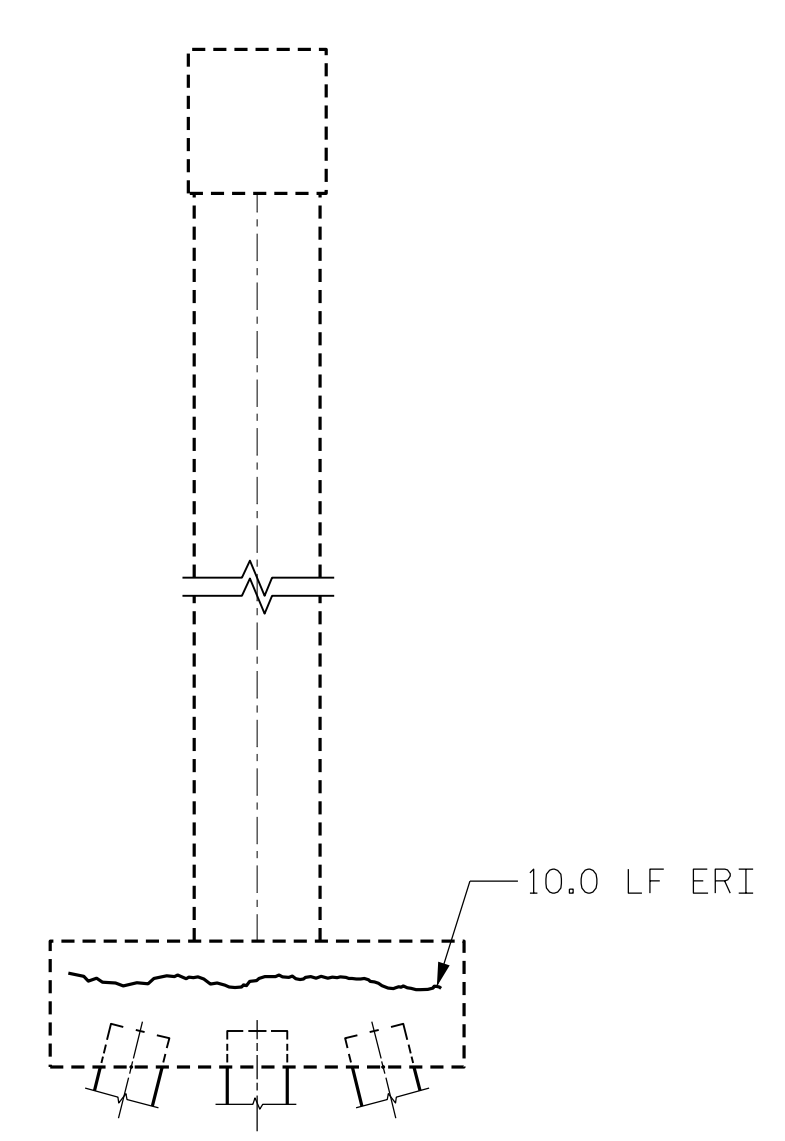
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		68.0			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

**NOTES:**  
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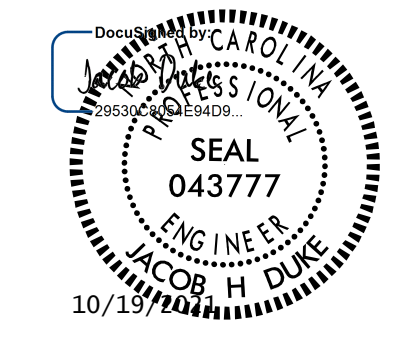
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

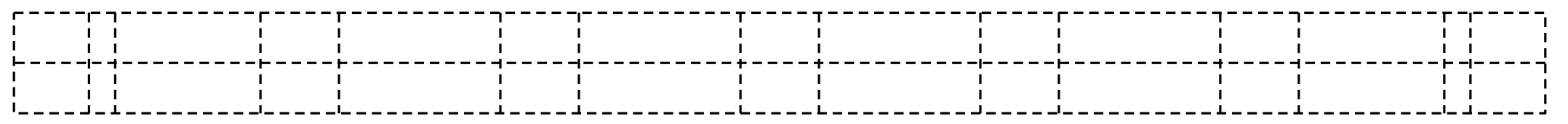
**SUBSTRUCTURE REPAIRS**  
 BENT 5

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

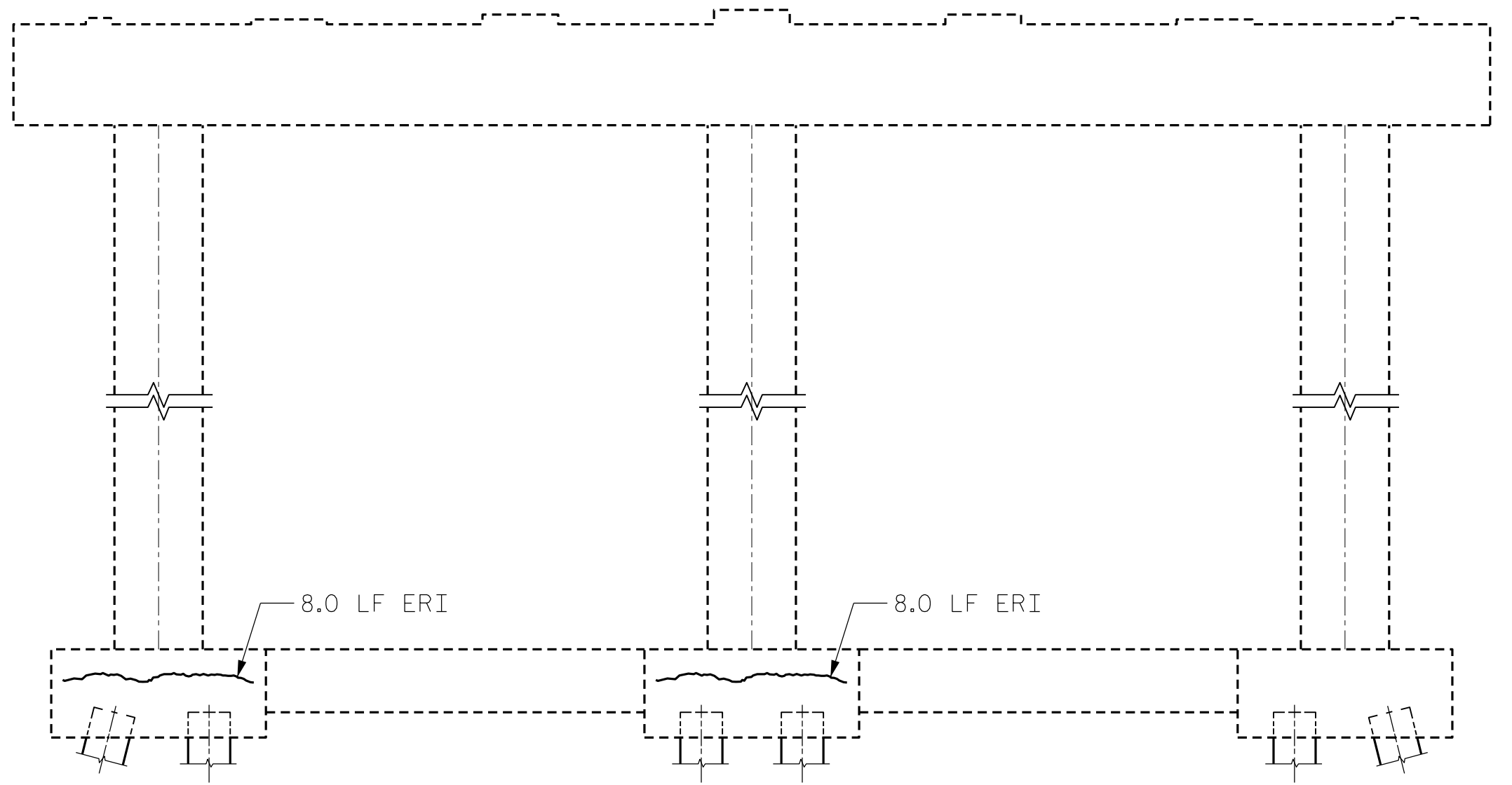
10/19/2021  
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 jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

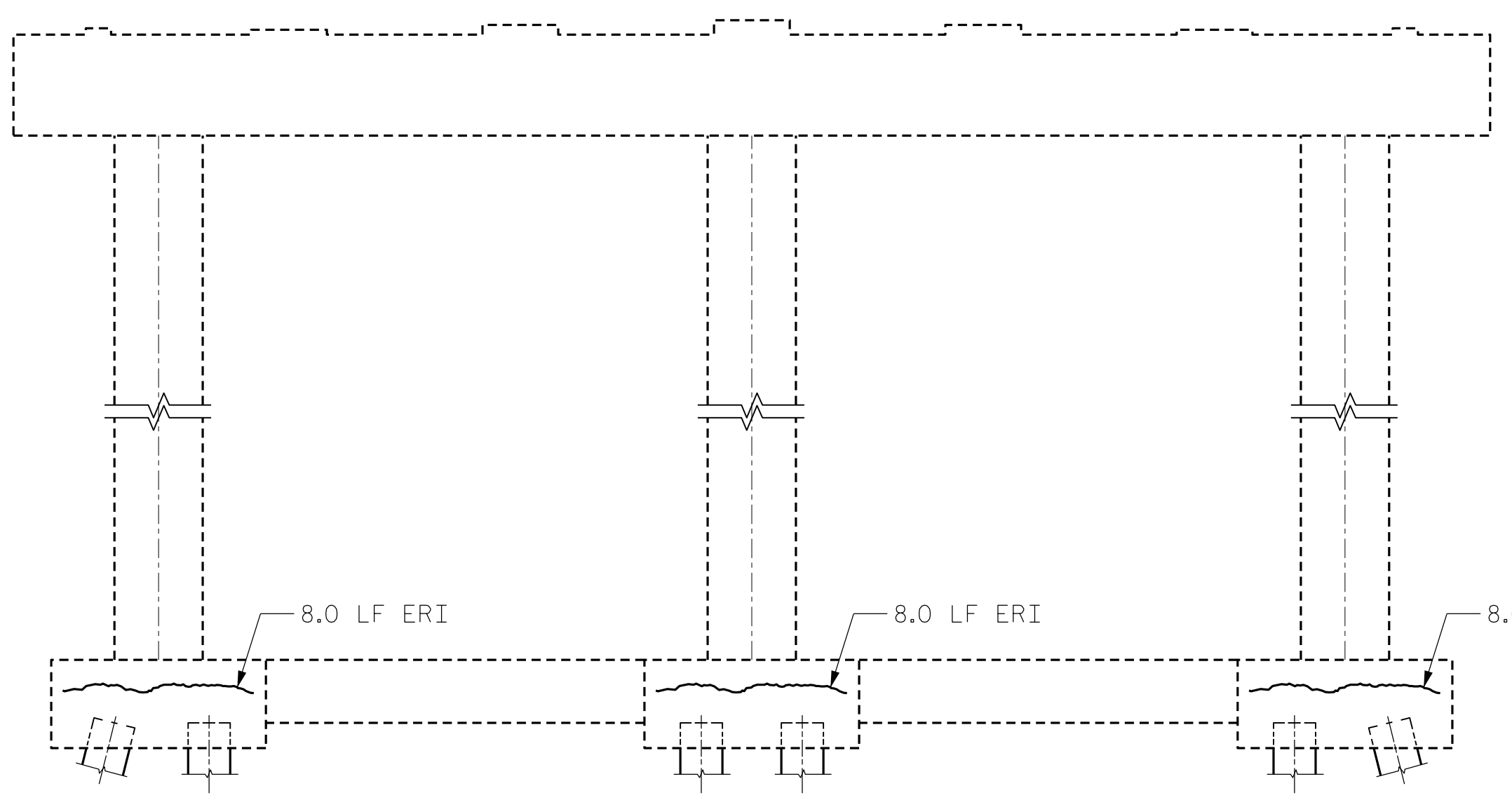
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-70
2			4			TOTAL SHEETS 137



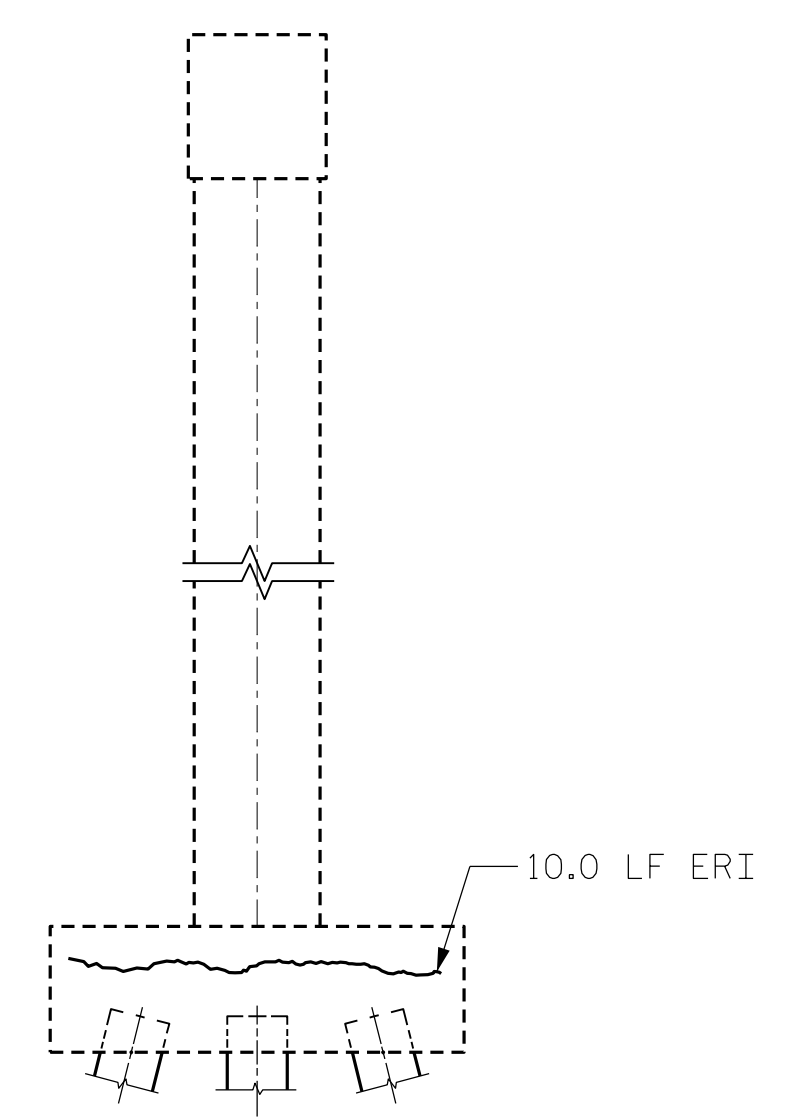
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



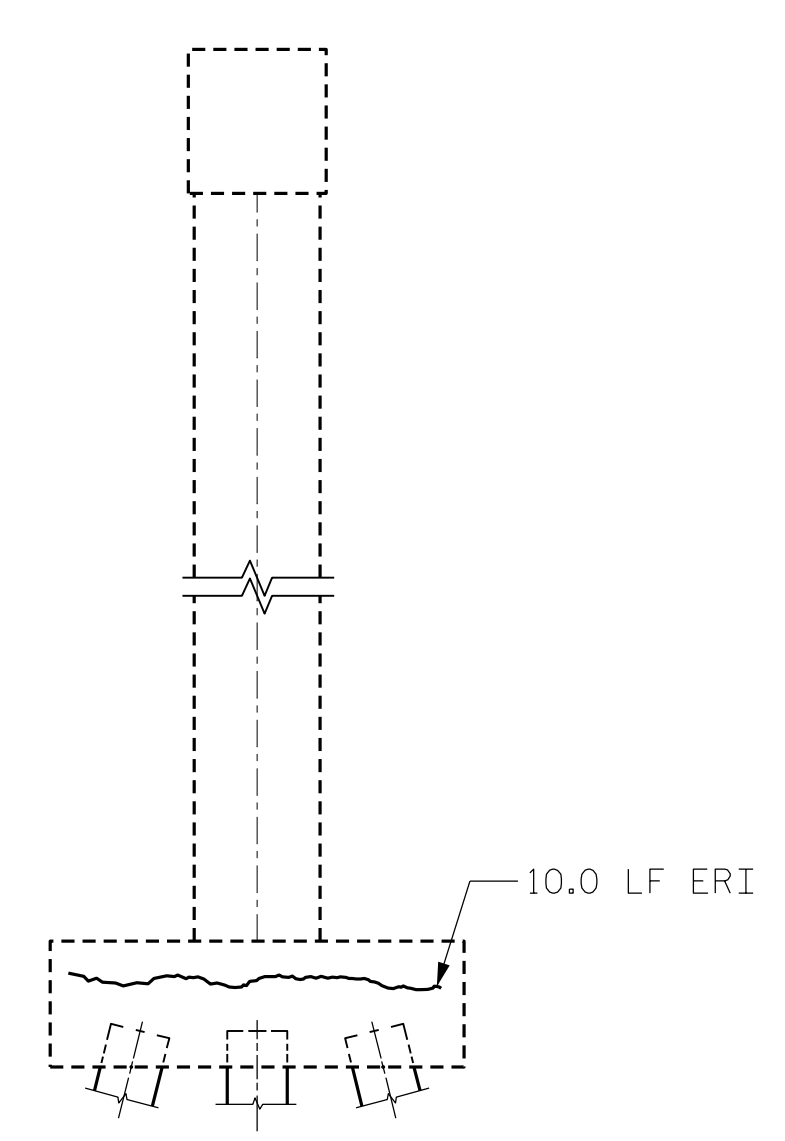
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		60.0			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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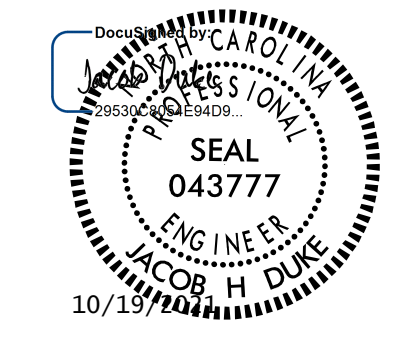
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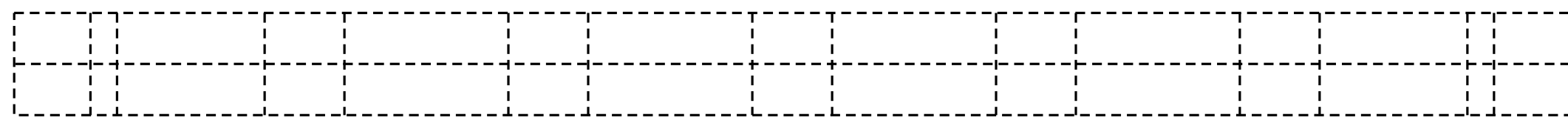
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



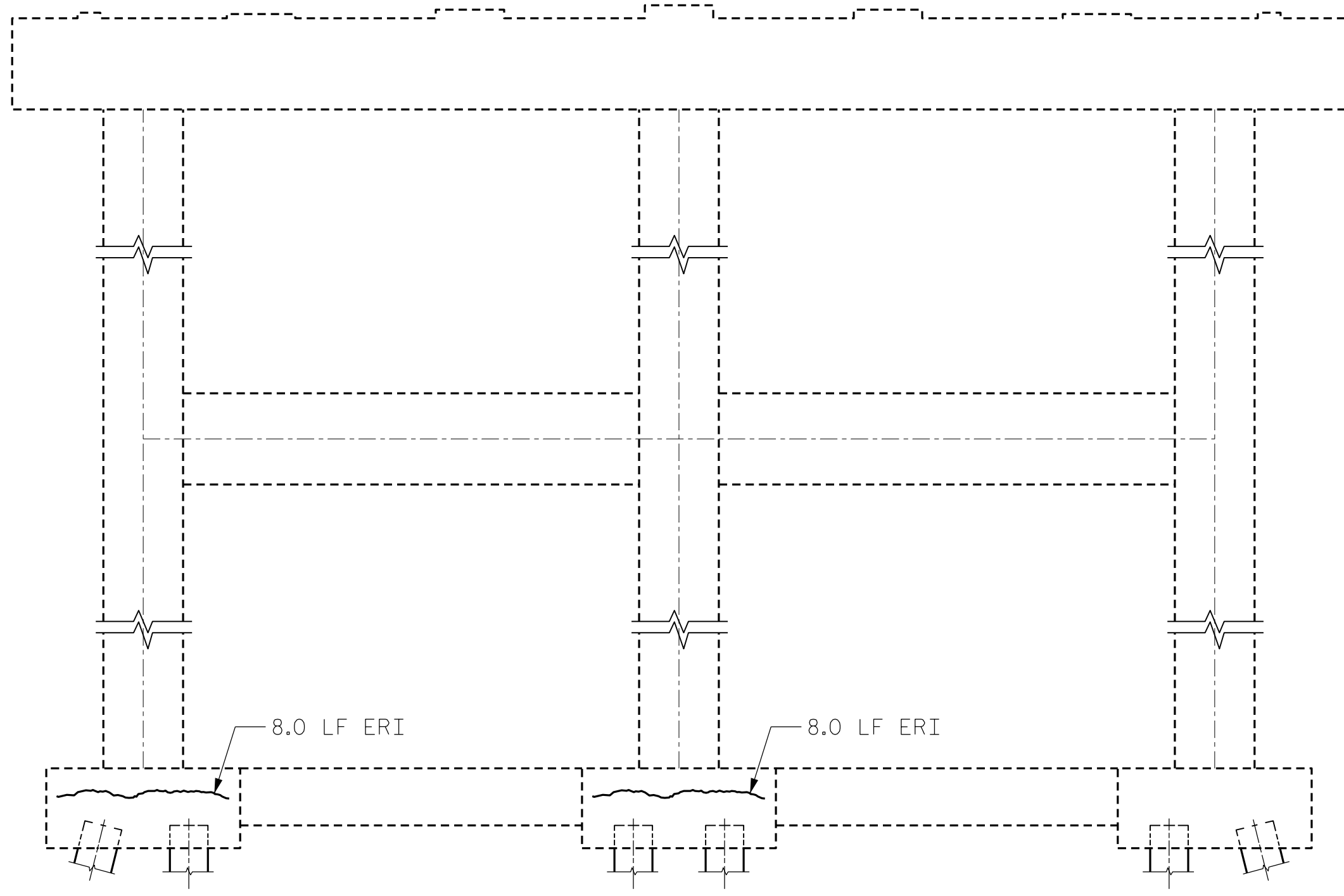
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SUBSTRUCTURE REPAIRS BENT 6					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 137

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

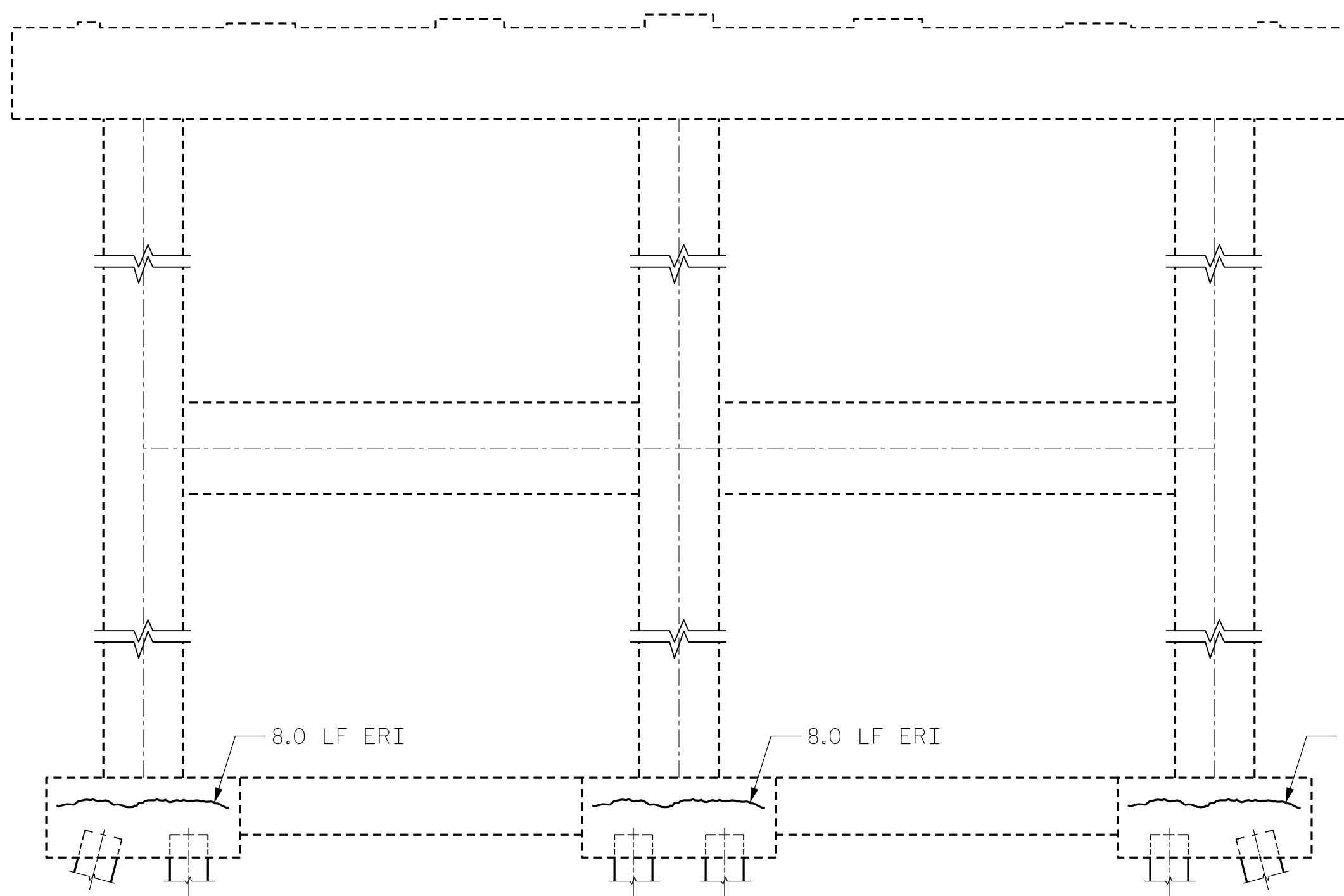
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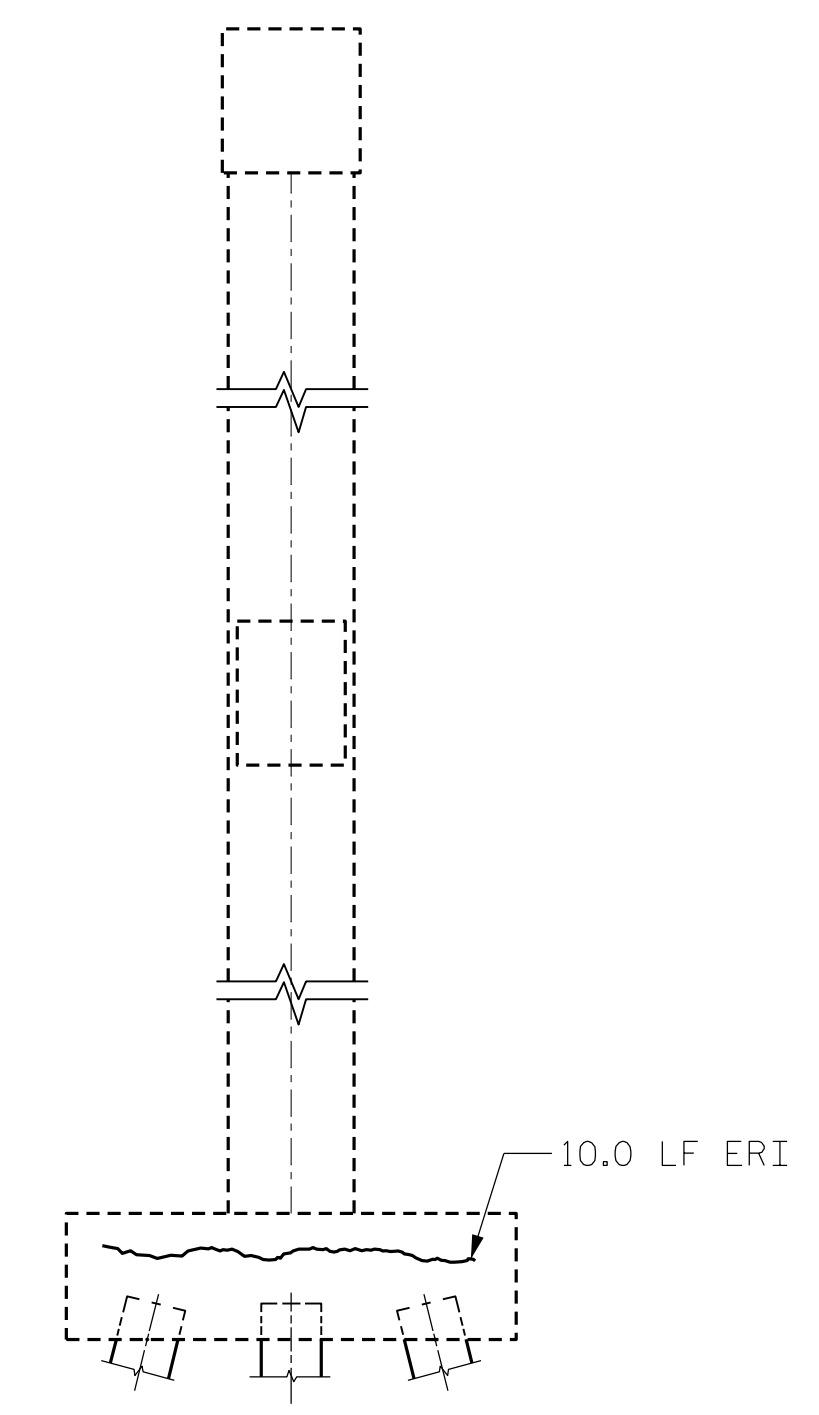
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(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



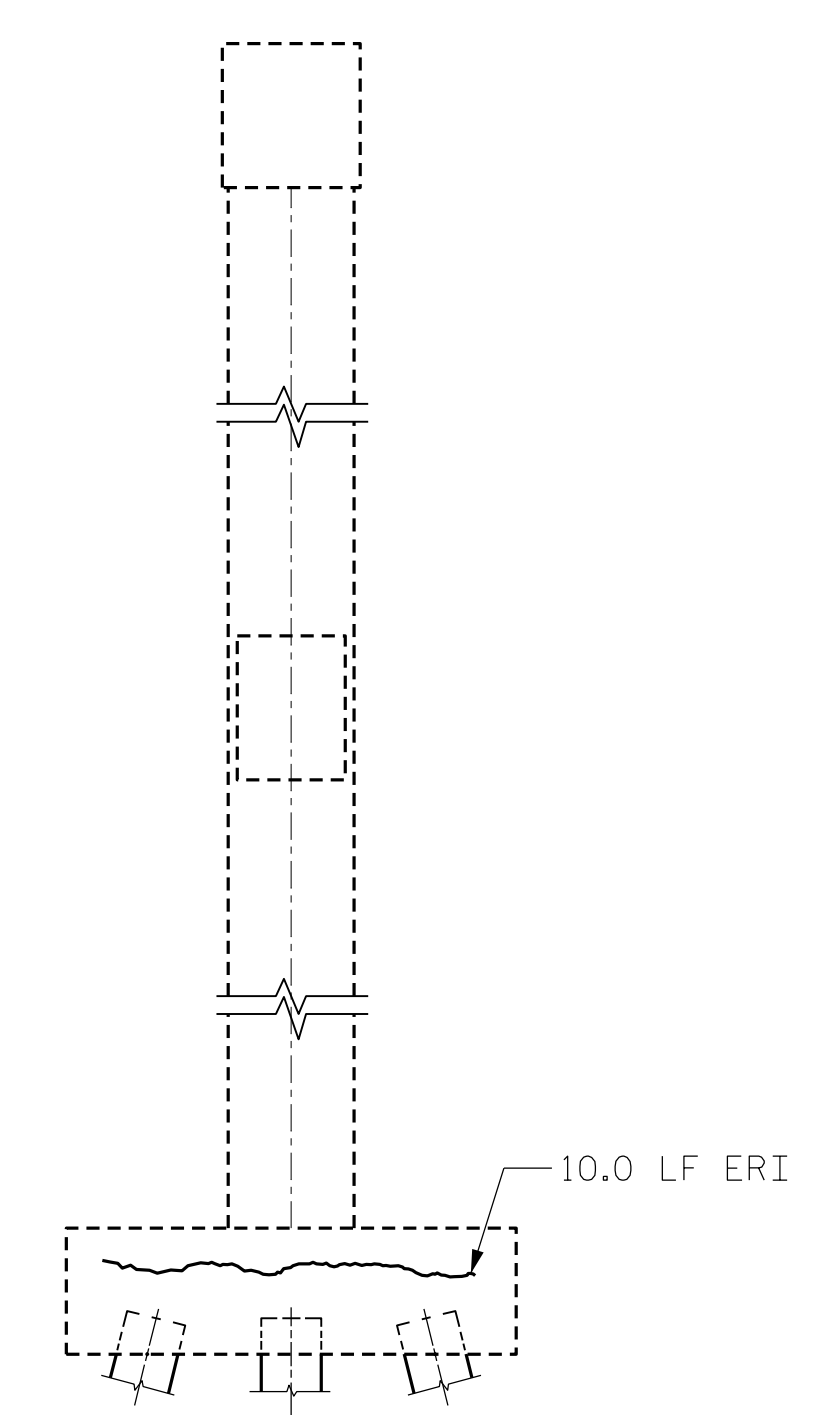
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	60.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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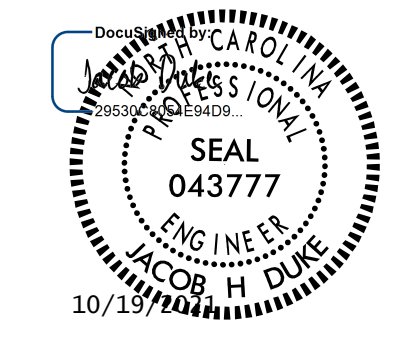
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012

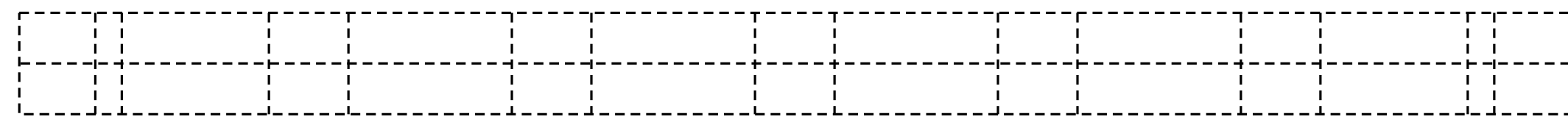


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS					
BENT 7					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		
					TOTAL SHEETS 137

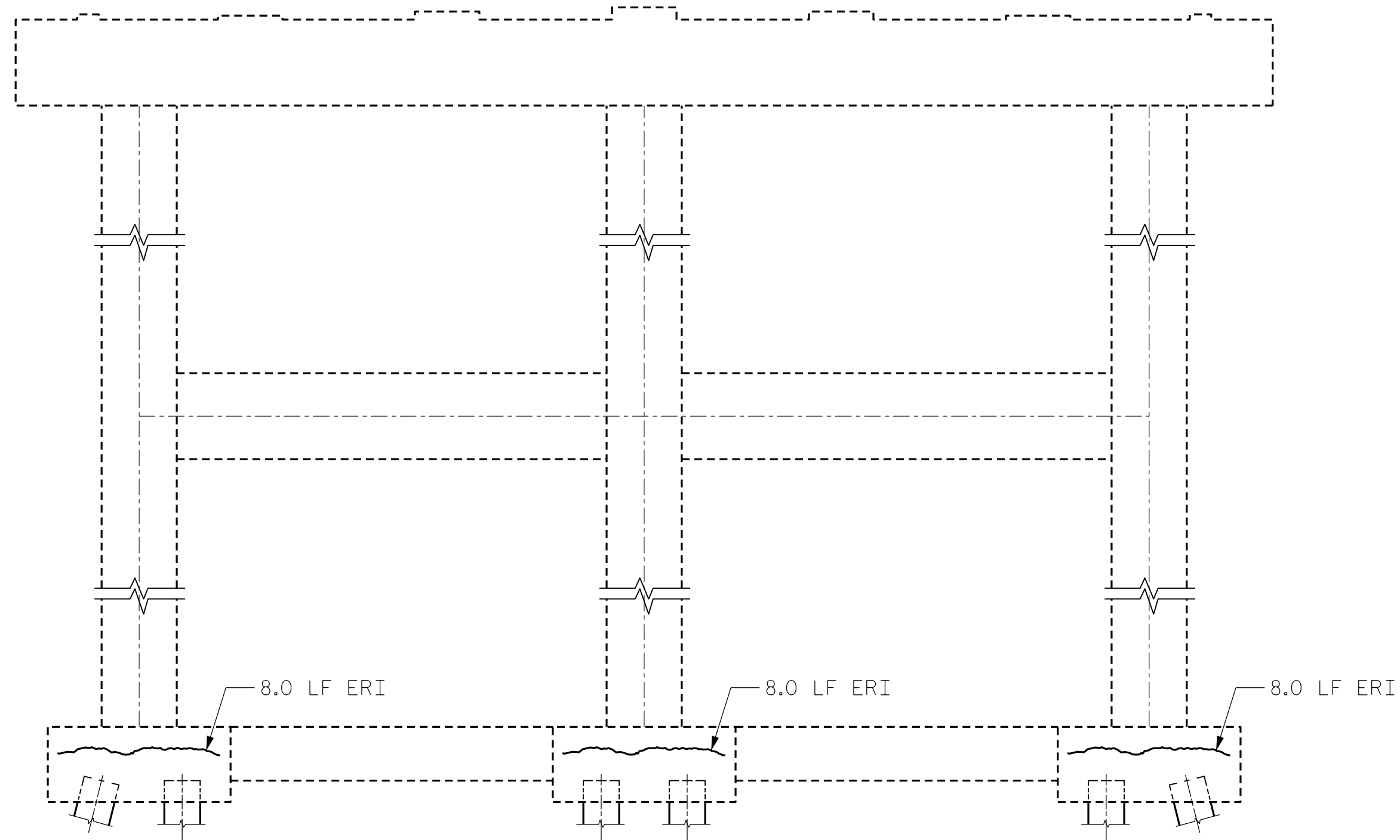
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

10/19/2021  
 15BPR.46.SMU.SBR07.270012.dgn  
 jduke

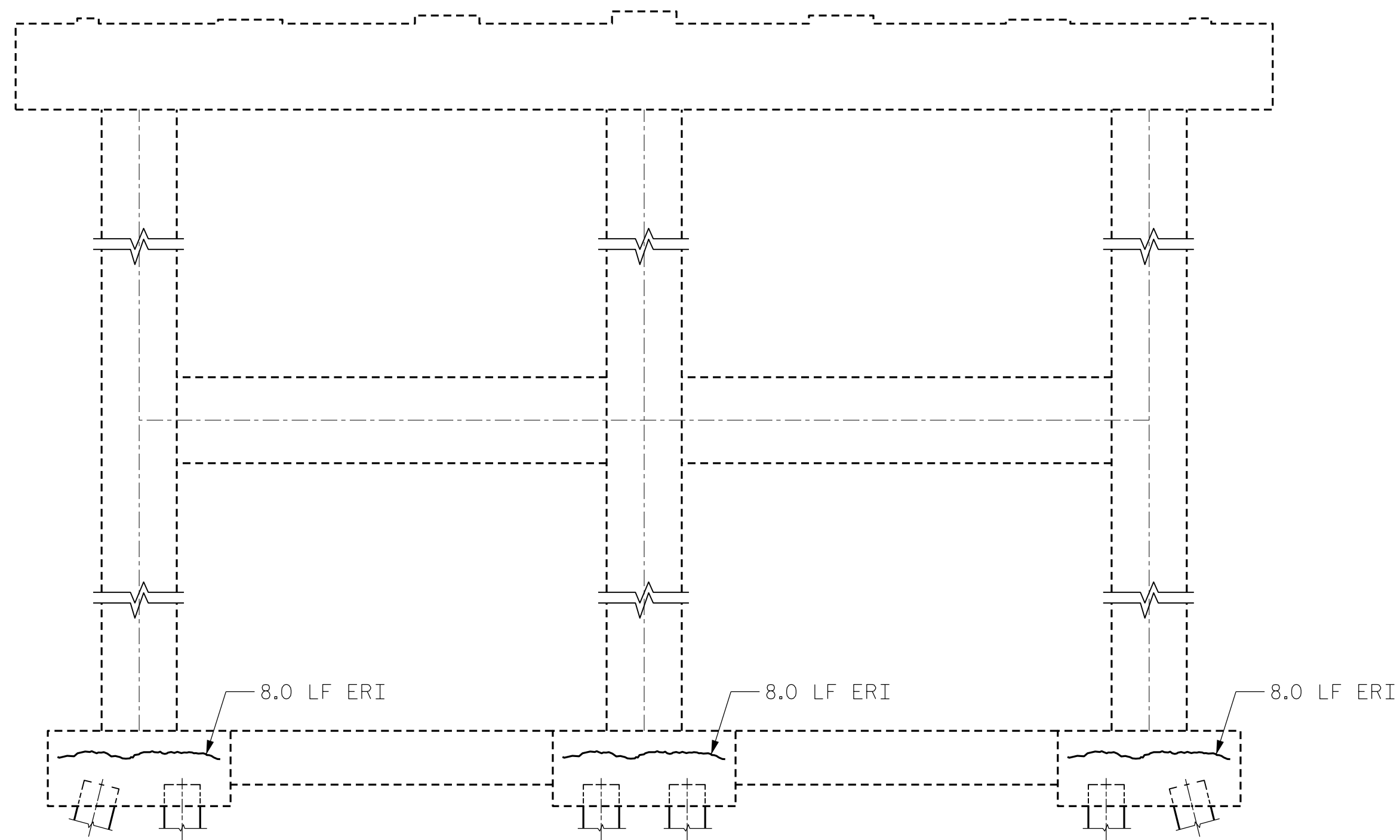
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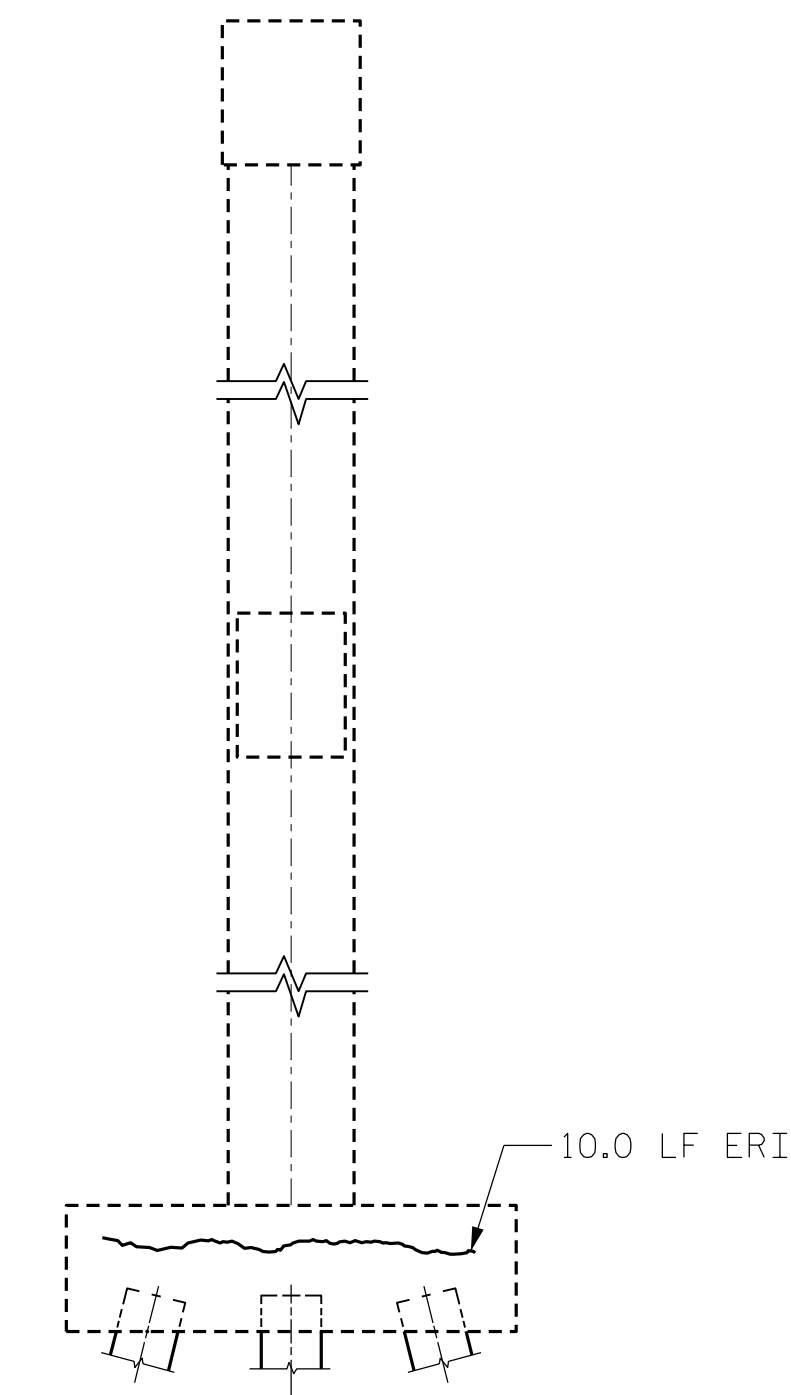
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



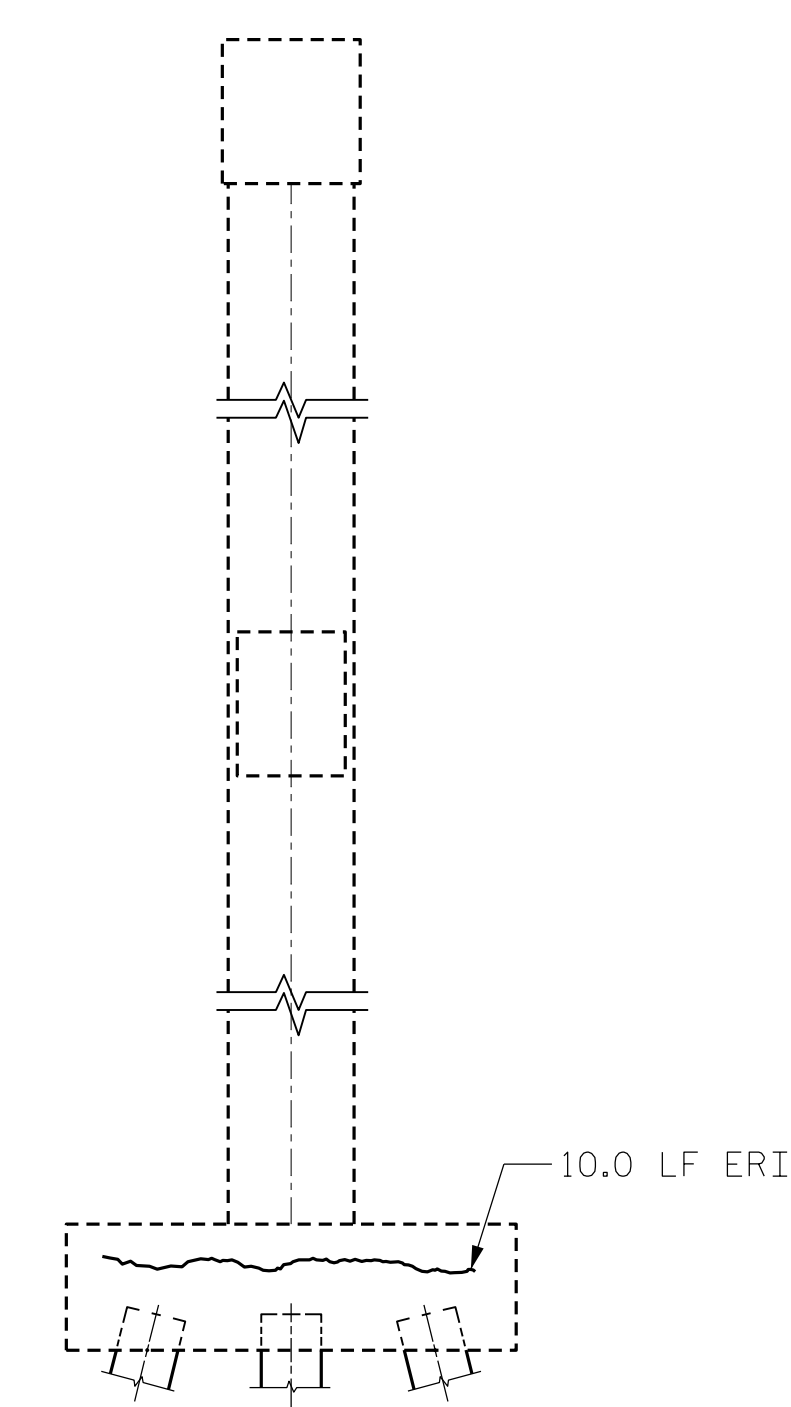
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	68.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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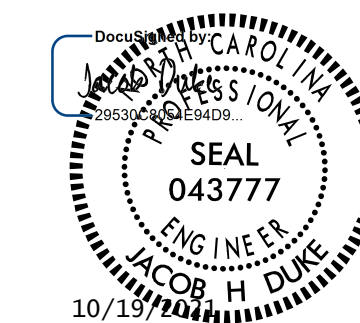
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



301 FAYETTEVILLE ST., SUITE 1500  
 RALEIGH, NC 27601 (919) 882-7839  
 NC FIRM LICENSE: C-1506

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

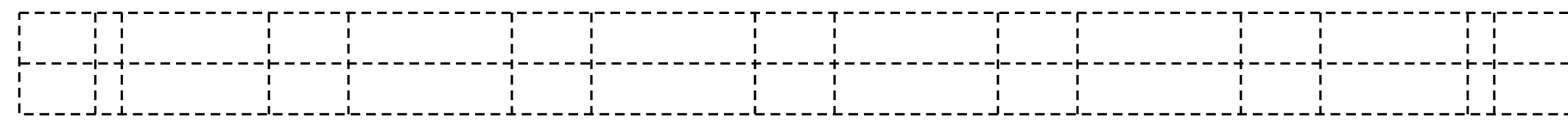
**SUBSTRUCTURE REPAIRS**  
 BENT 8

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

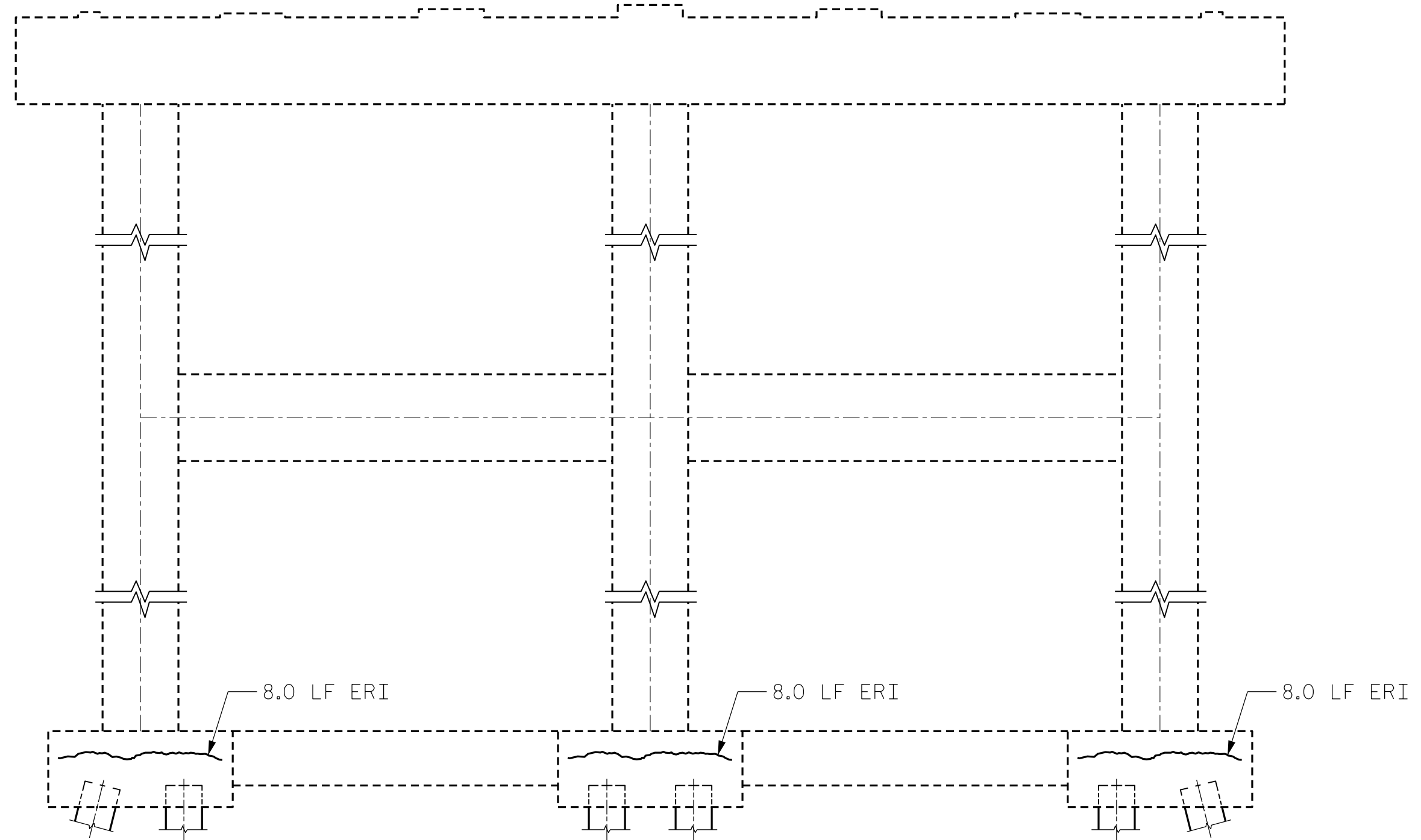
10/19/2021  
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 jduke

DOCUMENT NOT CONSIDERED  
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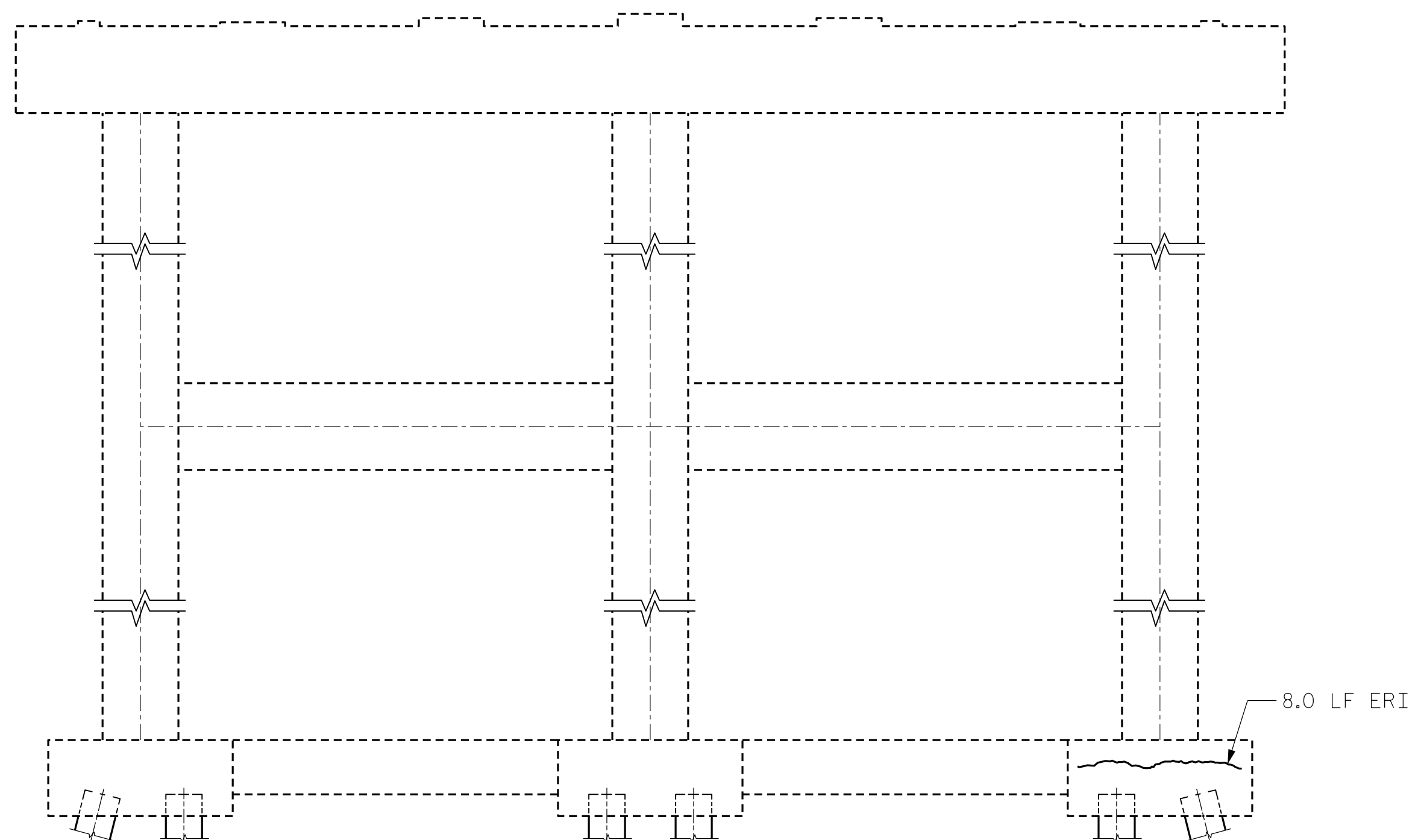
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-73
1			3			TOTAL SHEETS
2			4			137



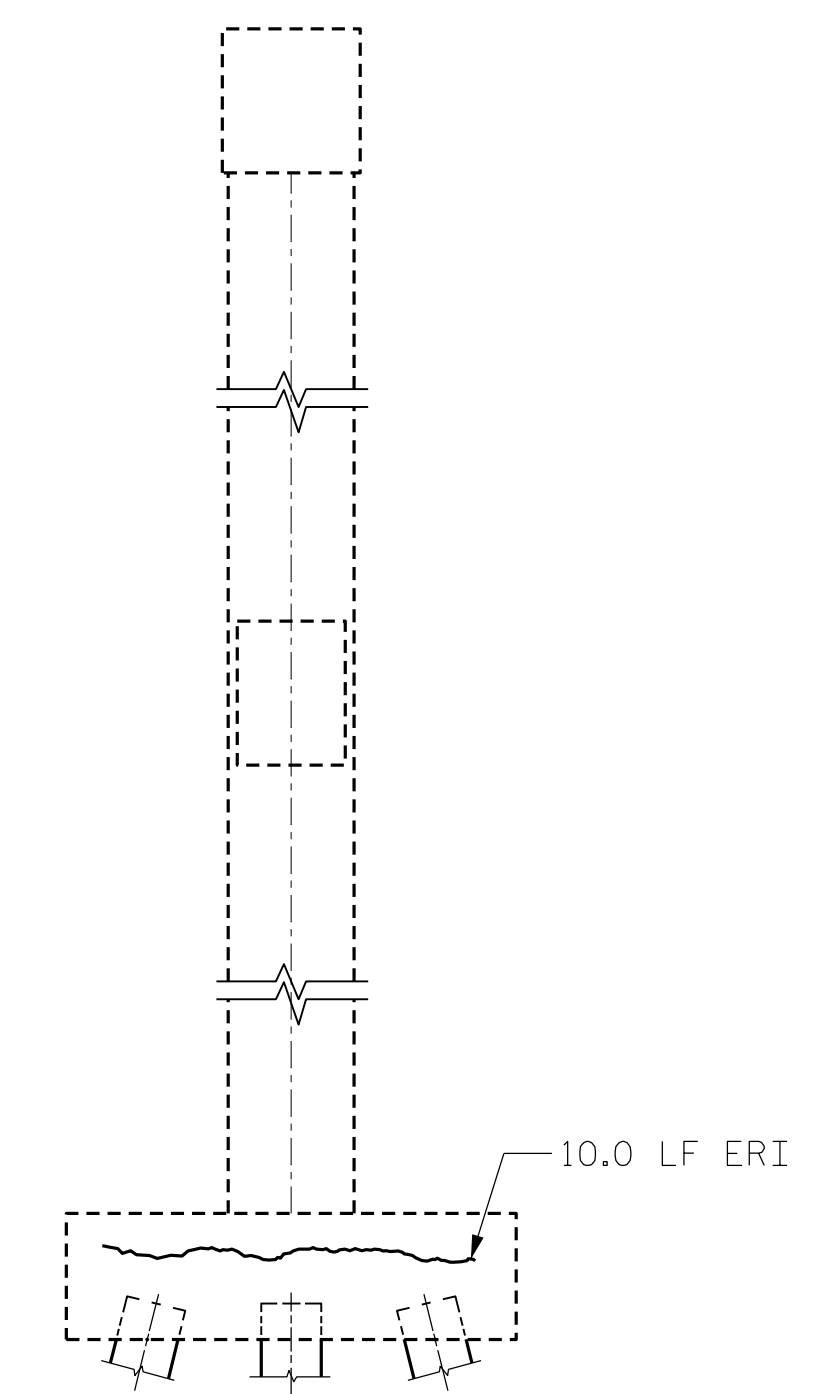
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



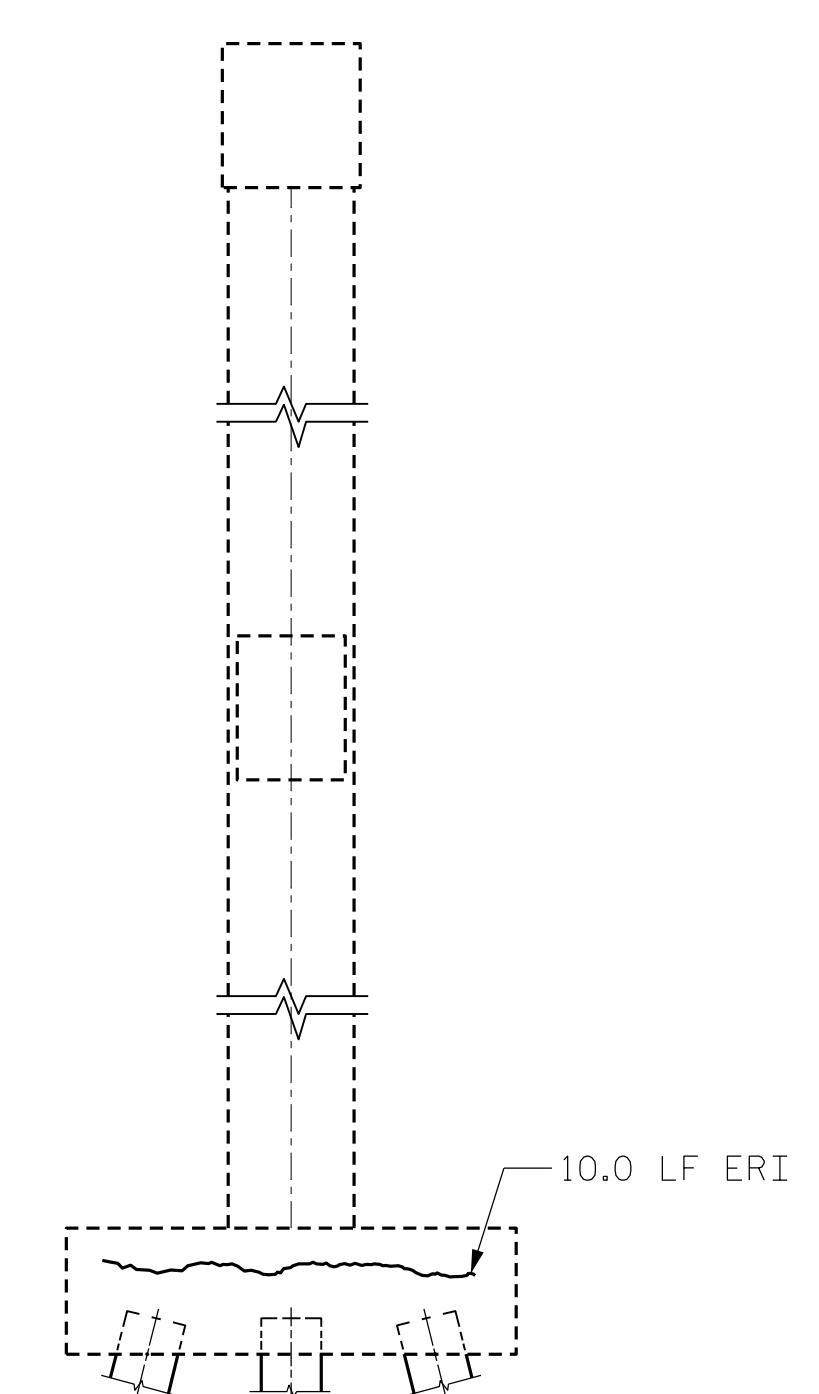
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		52.0			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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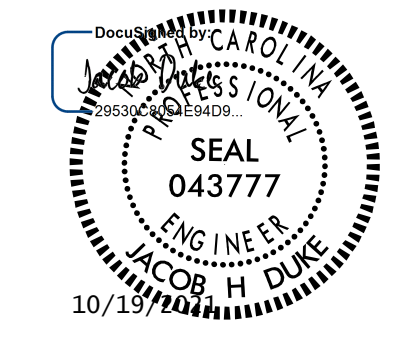
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012

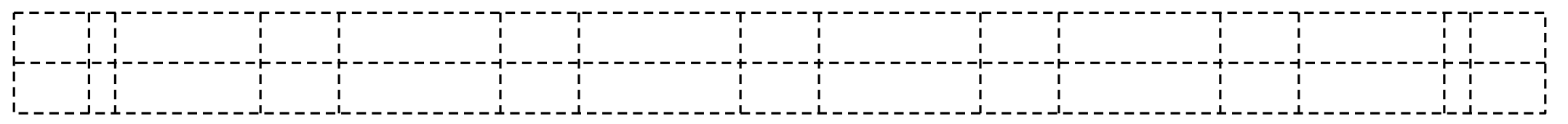


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS					
BENT 9					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 137

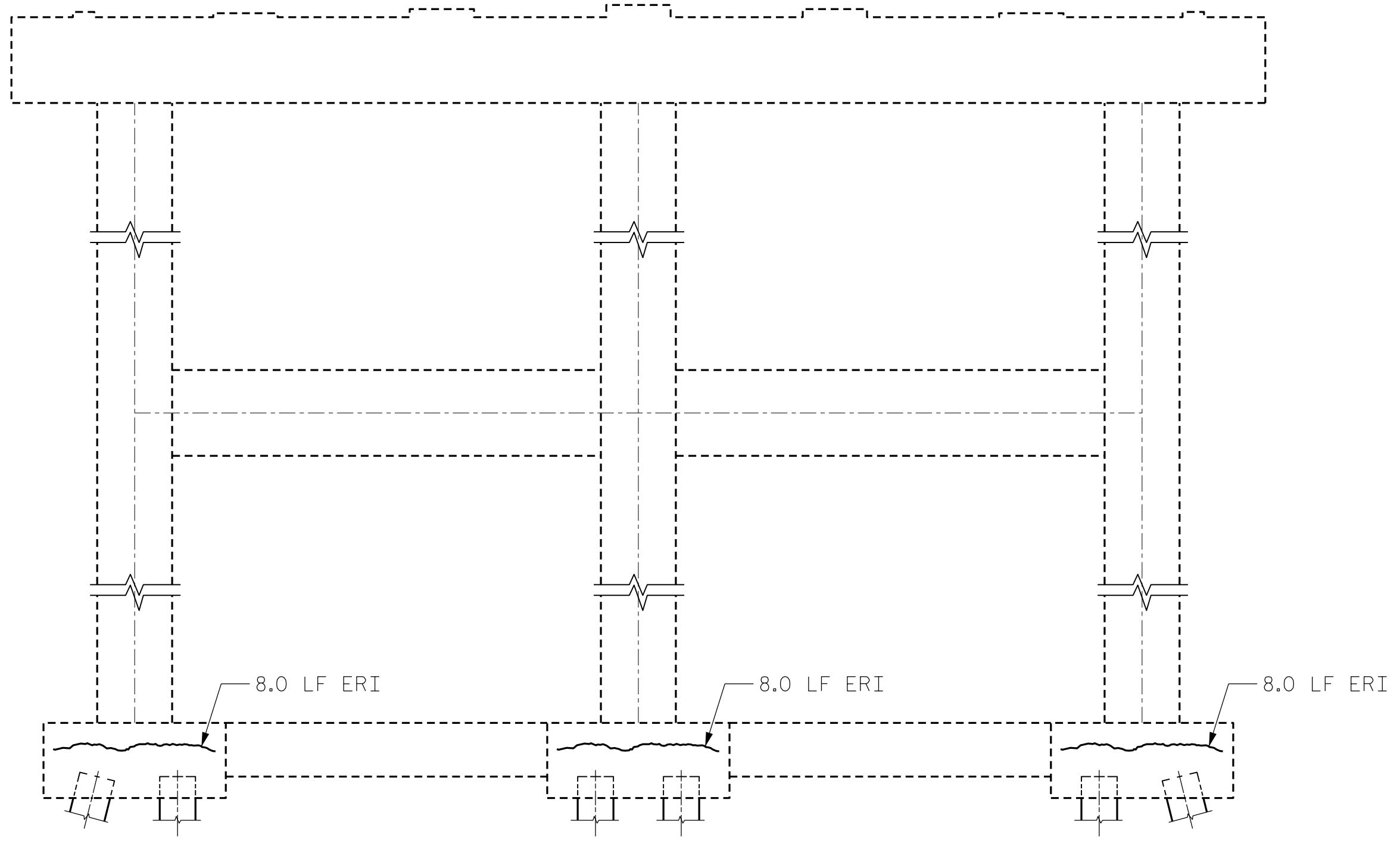
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

10/19/2021  
 15BPR.46.SMU.SBR09.270012.dgn  
 jduke

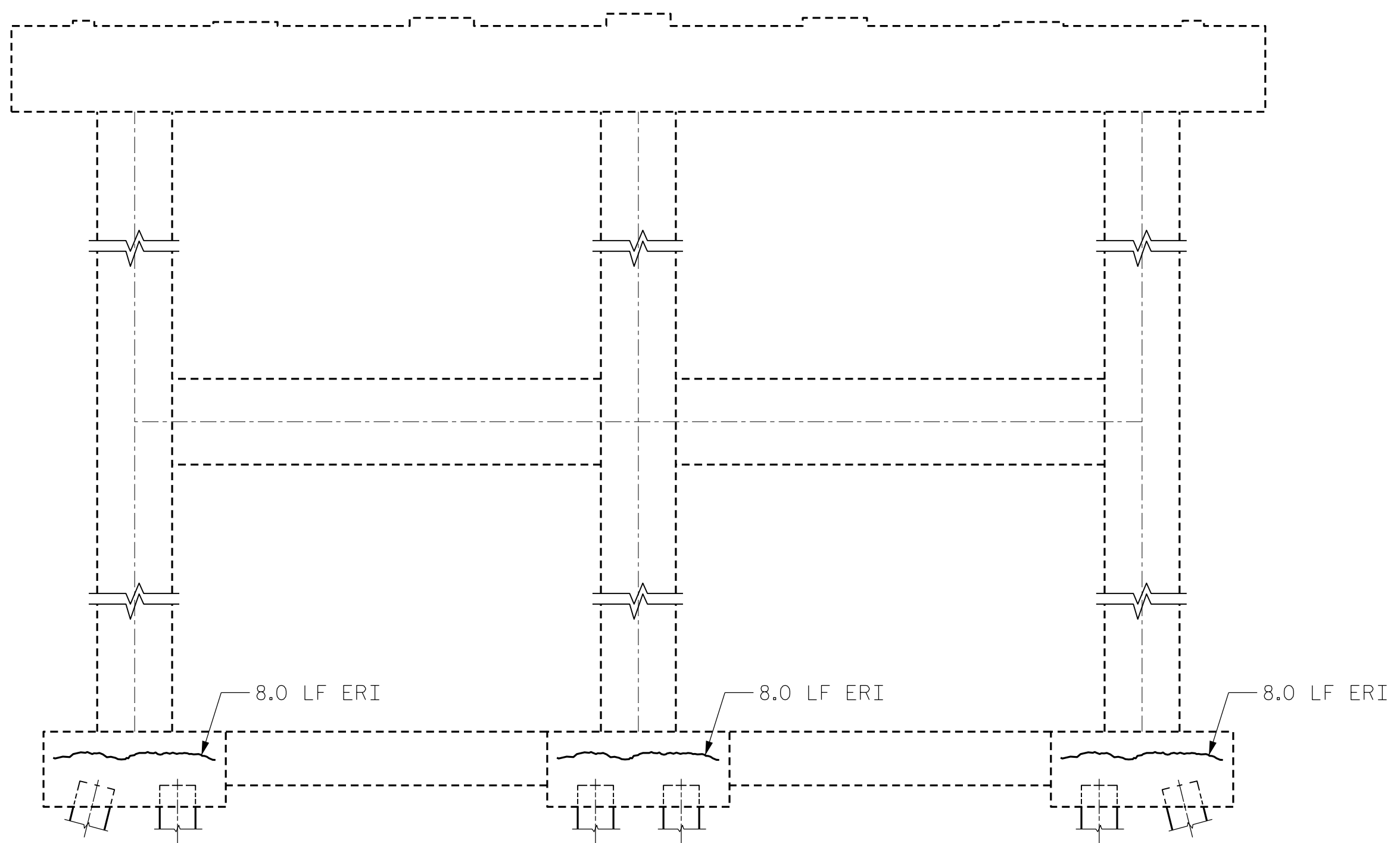
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



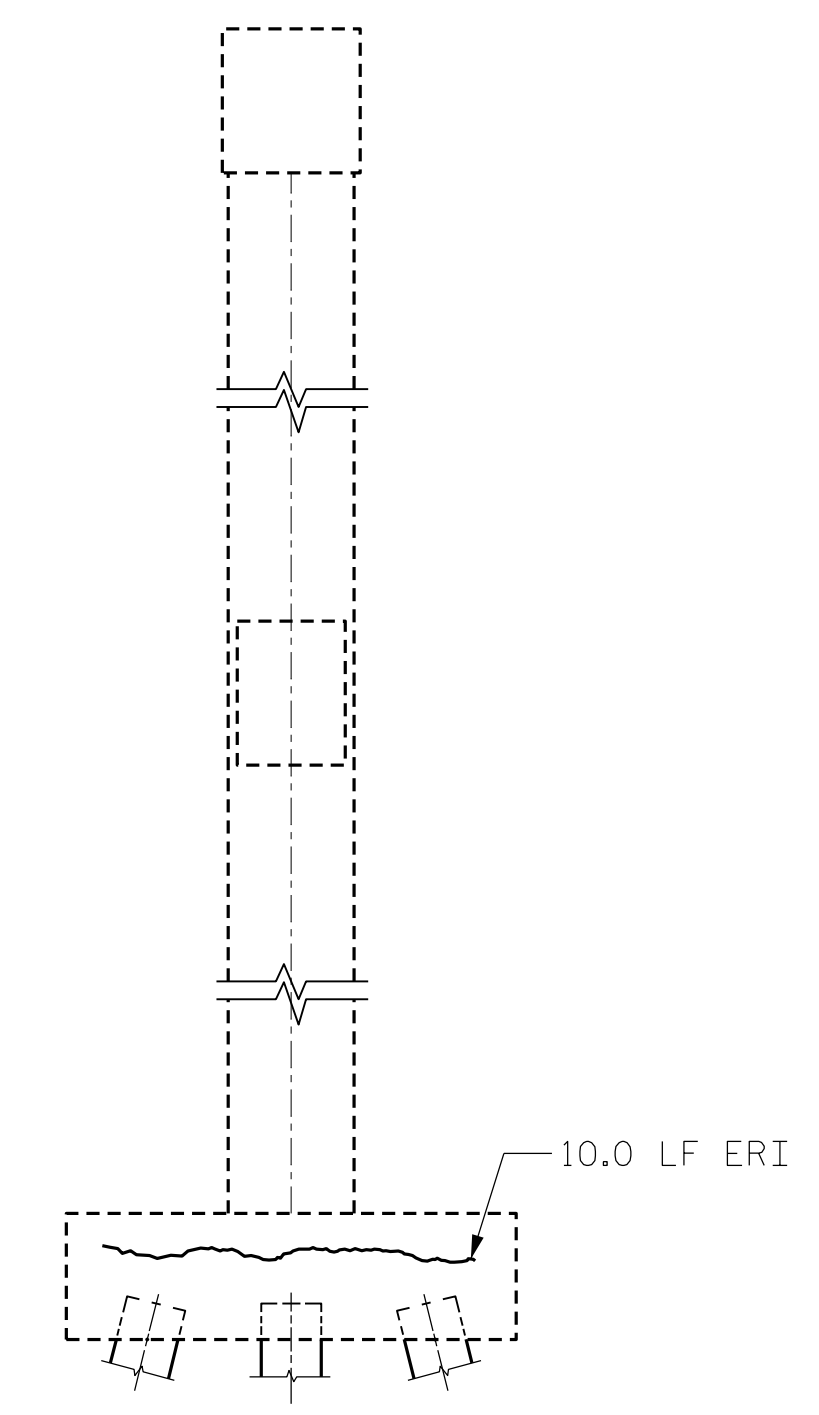
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



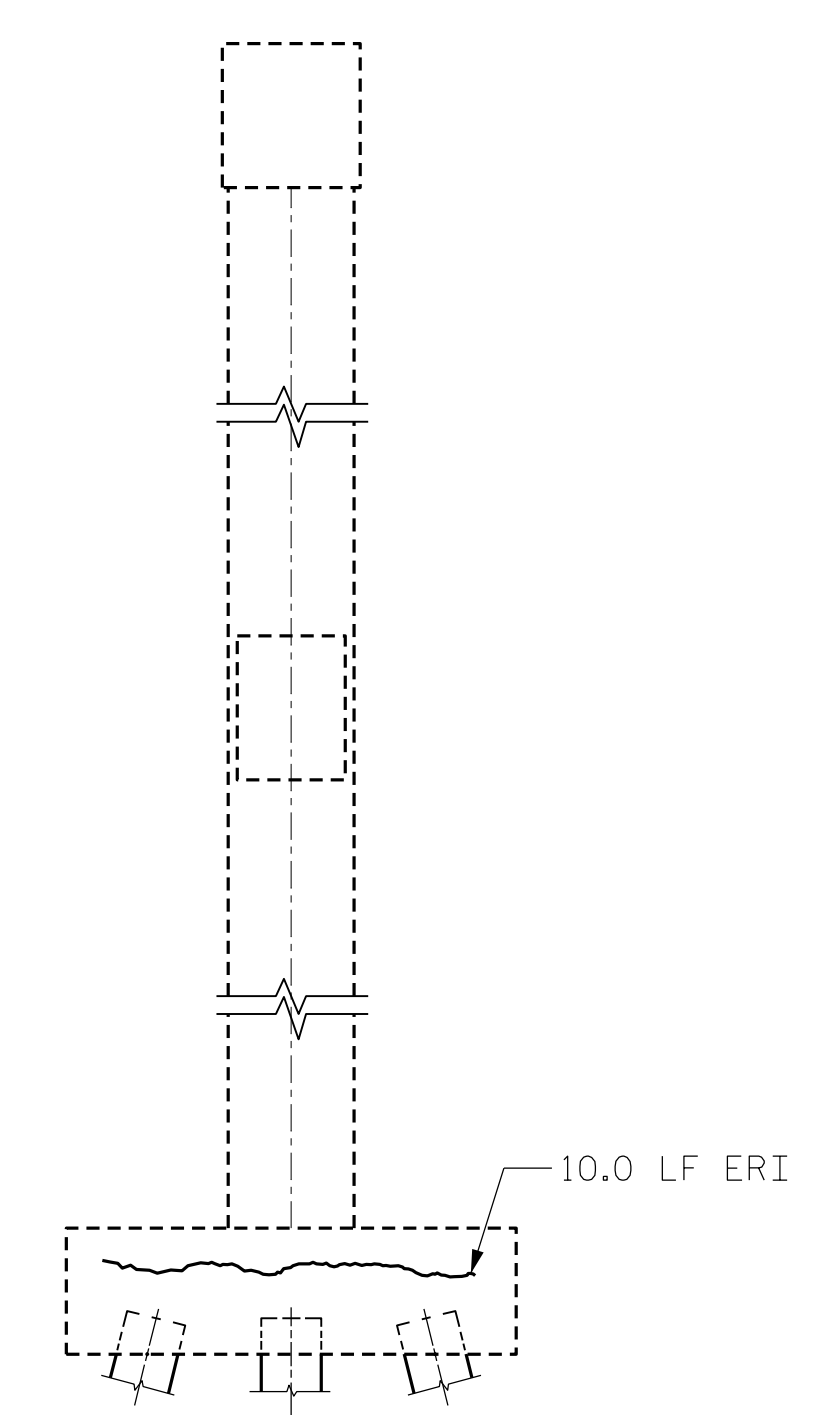
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	68.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

**NOTES:**  
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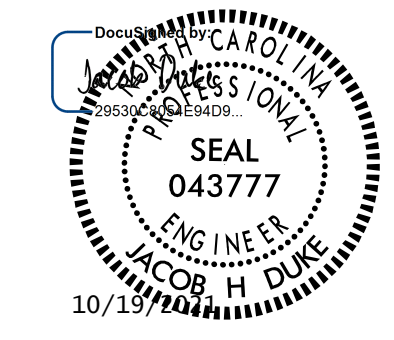
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

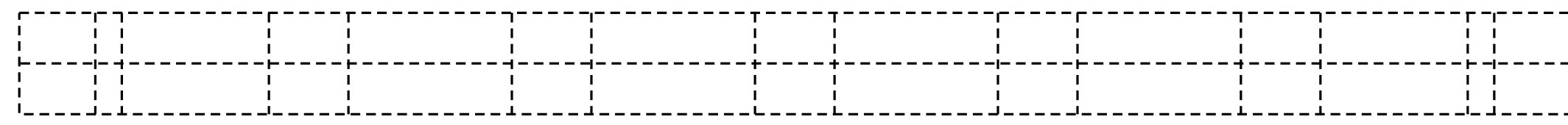
BENT 10

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

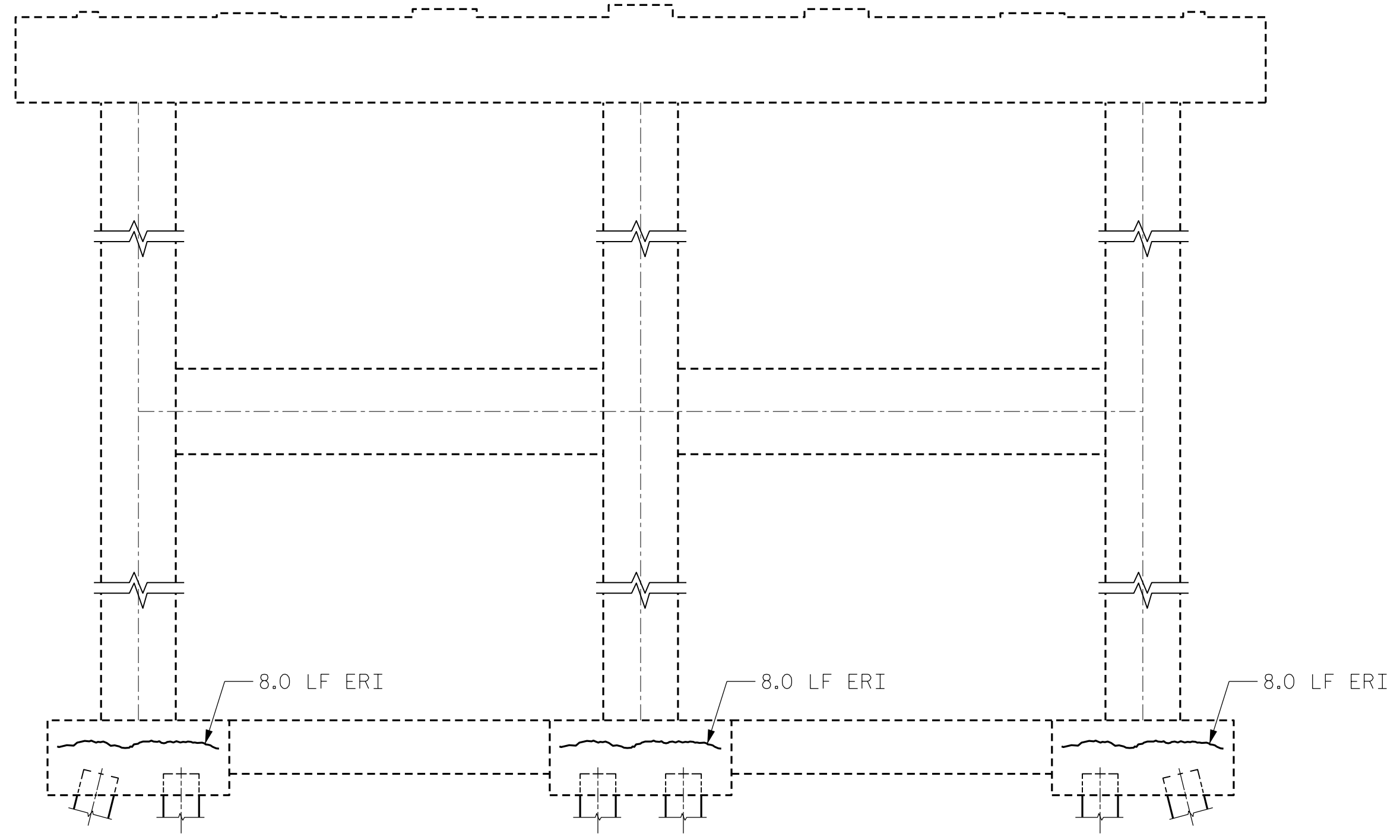
10/19/2021  
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 jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

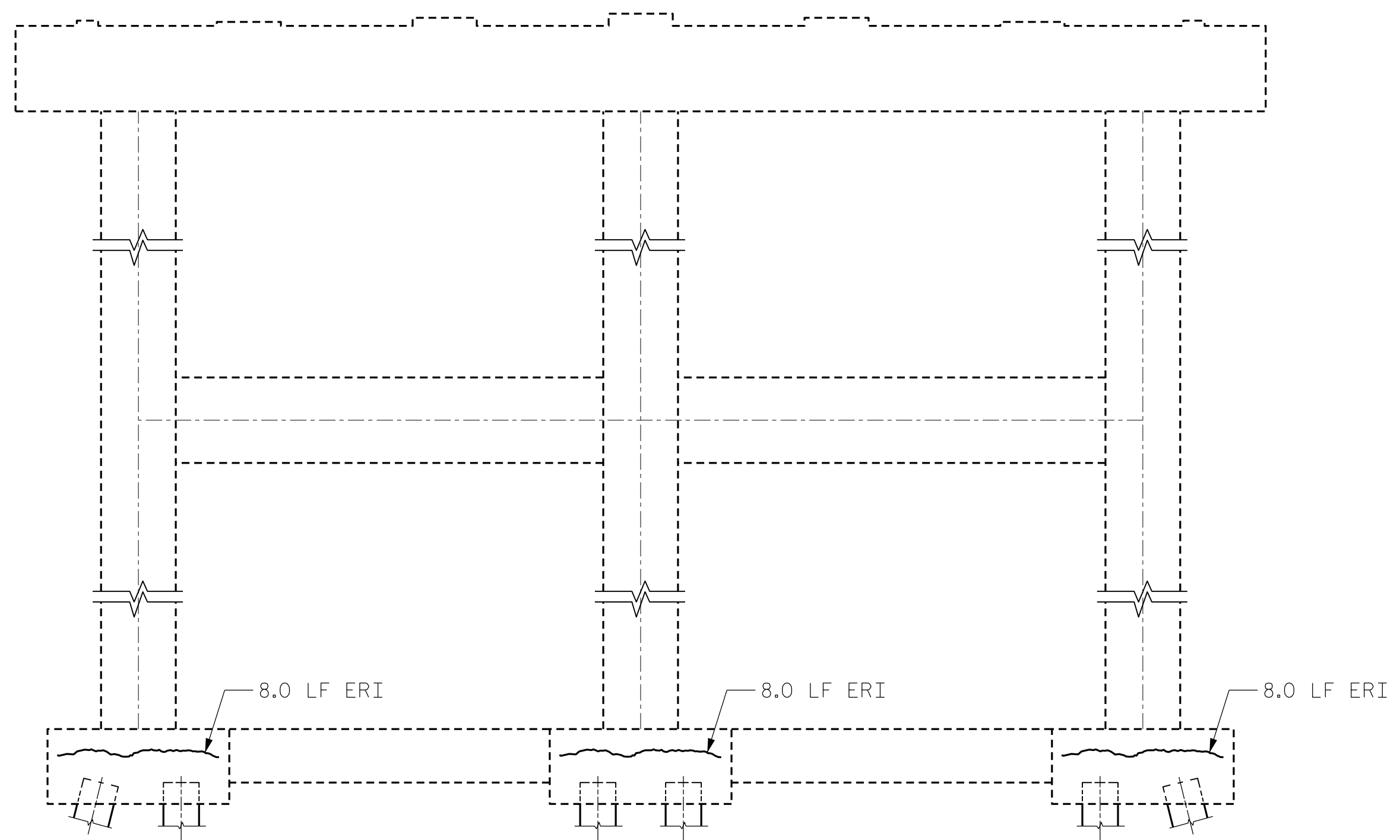
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NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS
2			4			137



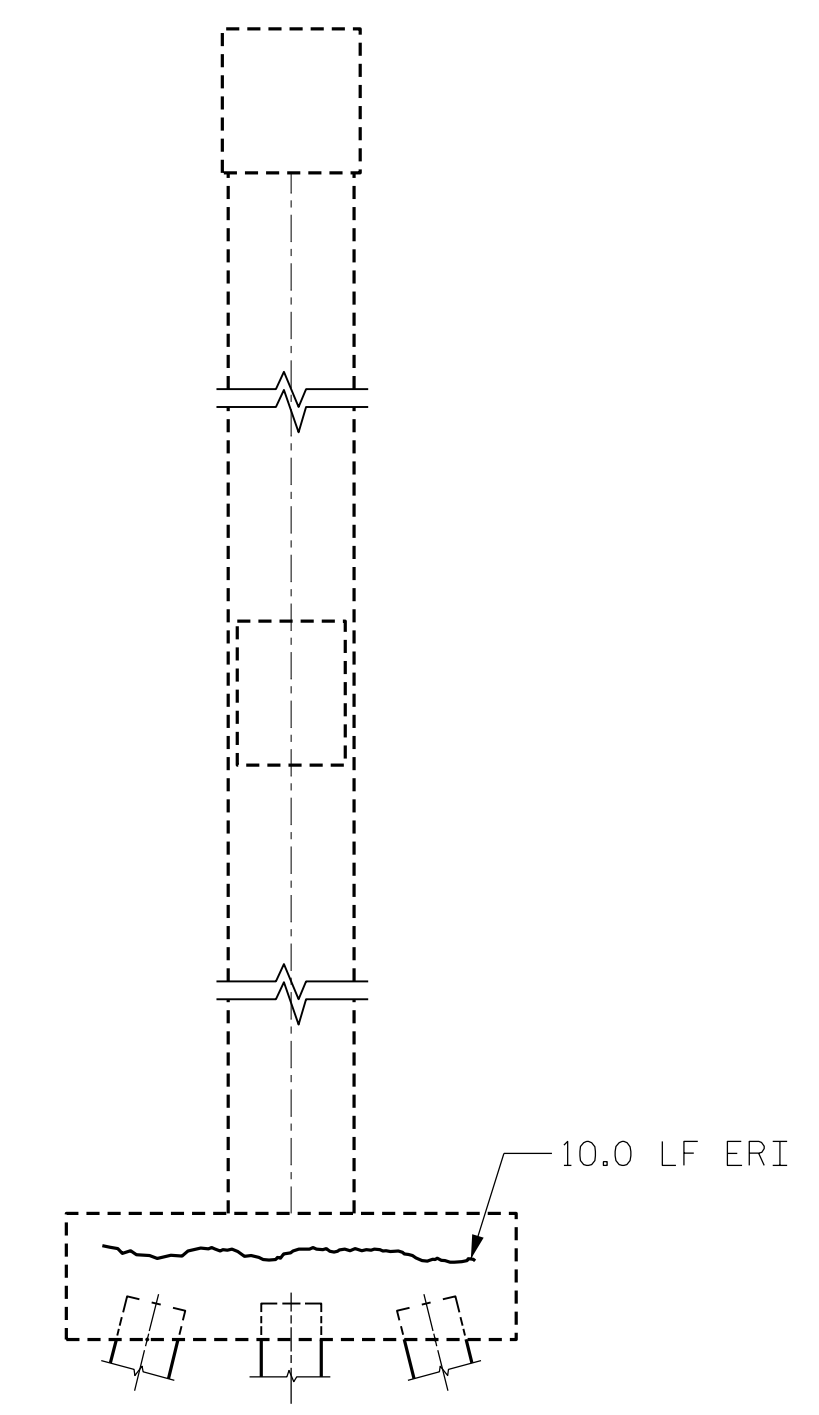
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



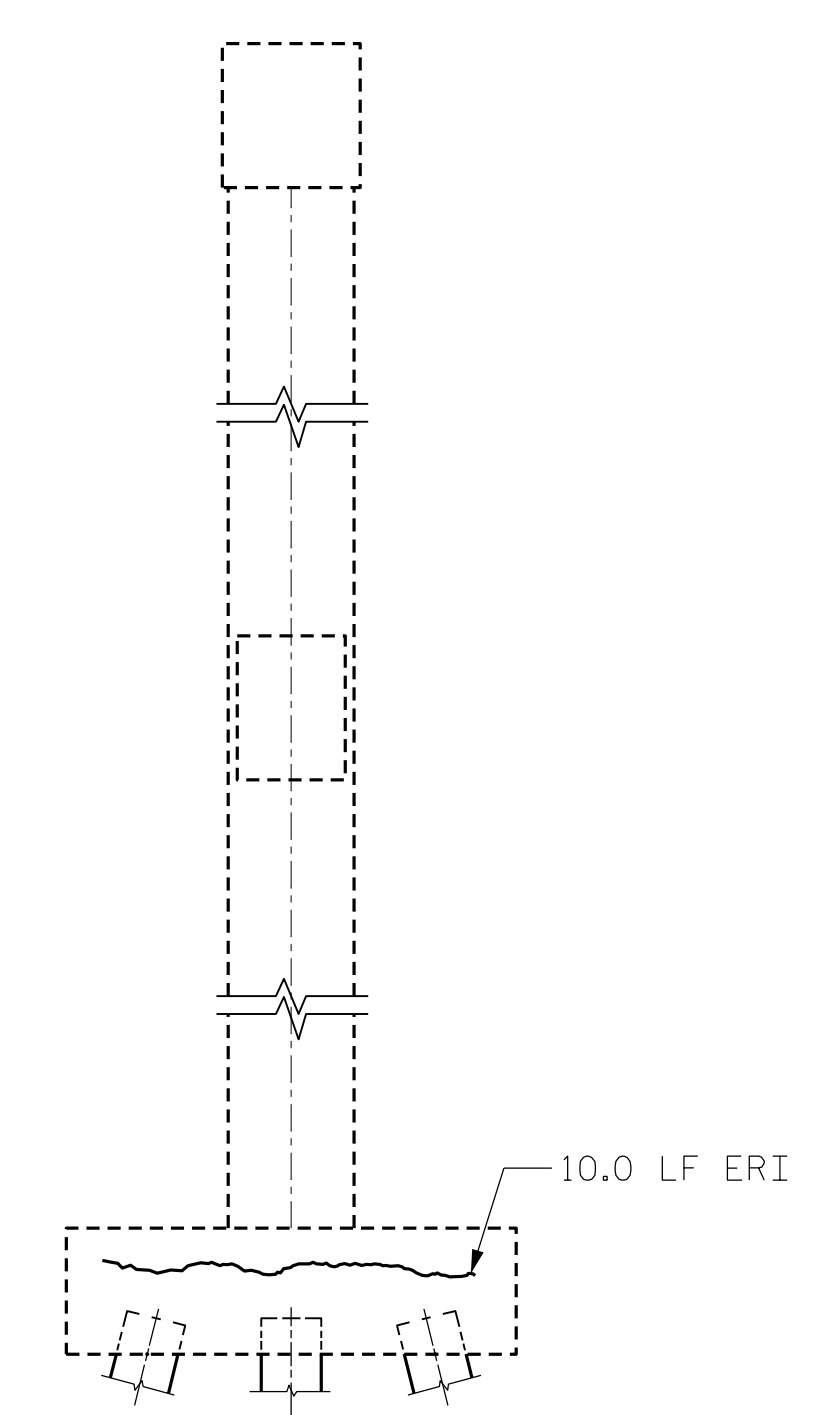
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	68.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

**NOTES:**  
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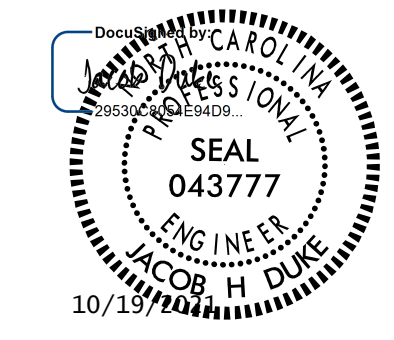
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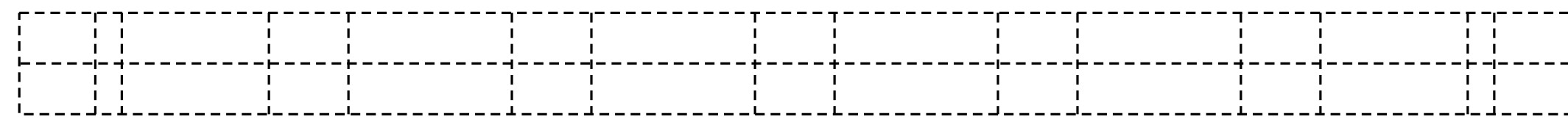
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



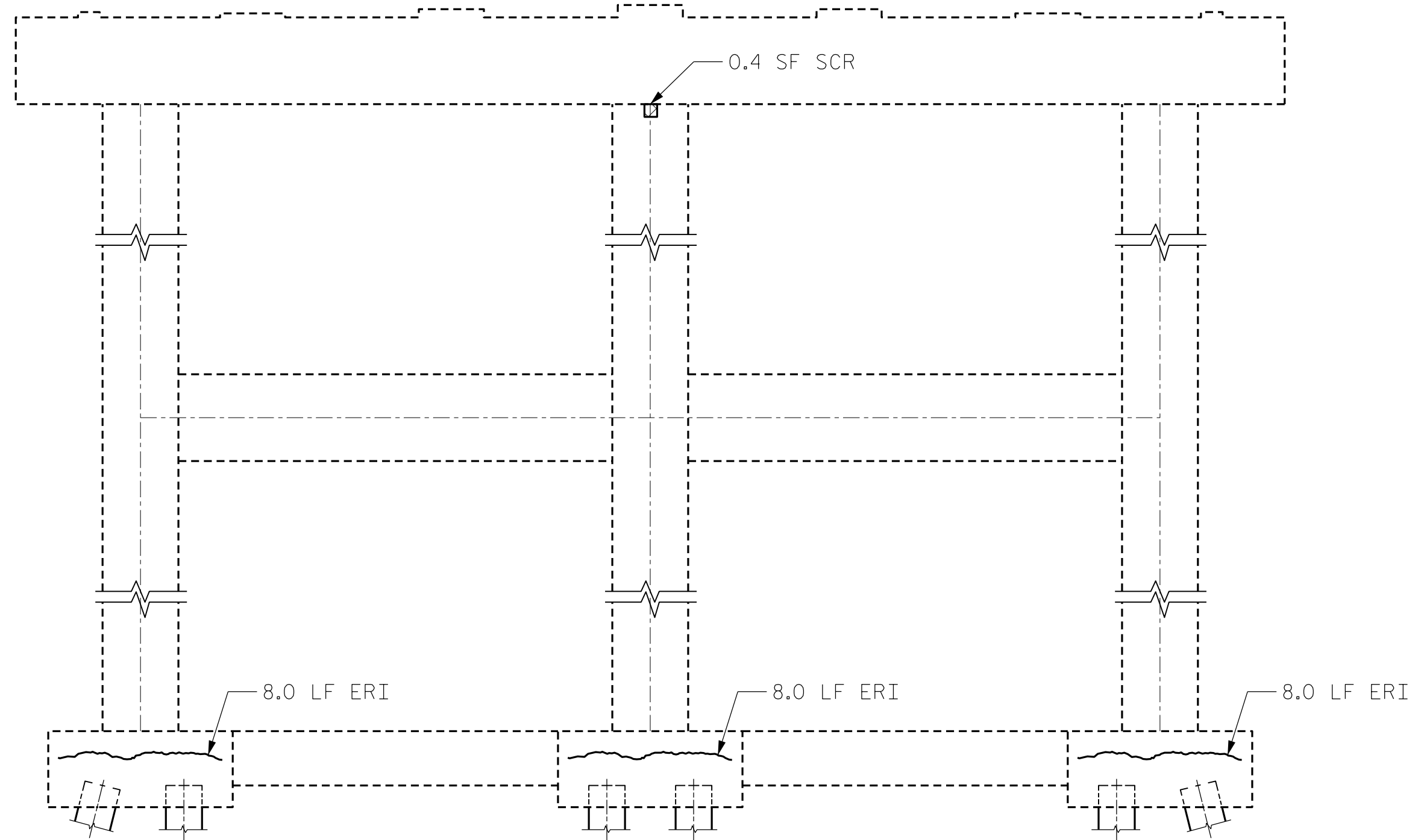
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SUBSTRUCTURE REPAIRS					
BENT 11					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 137

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

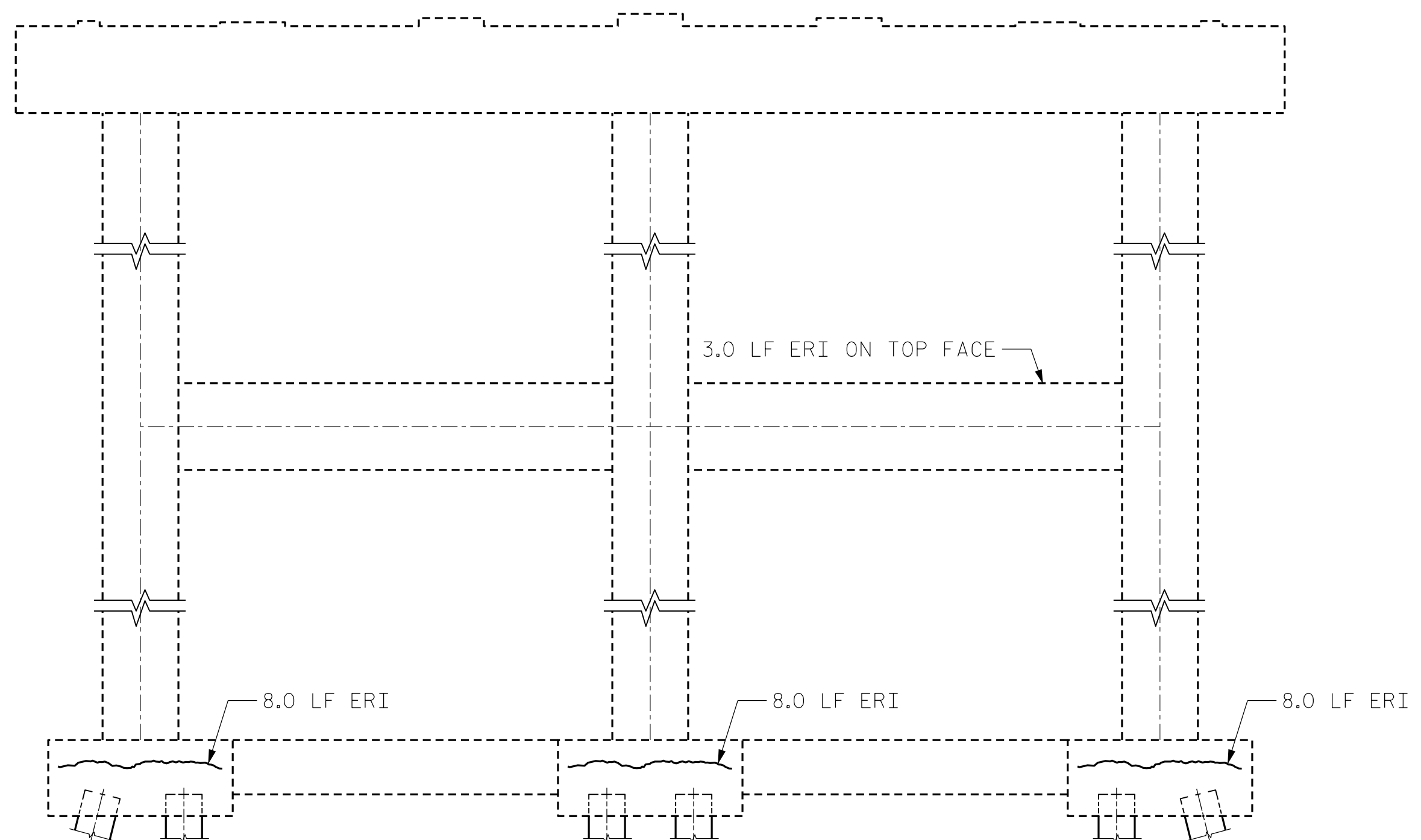
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



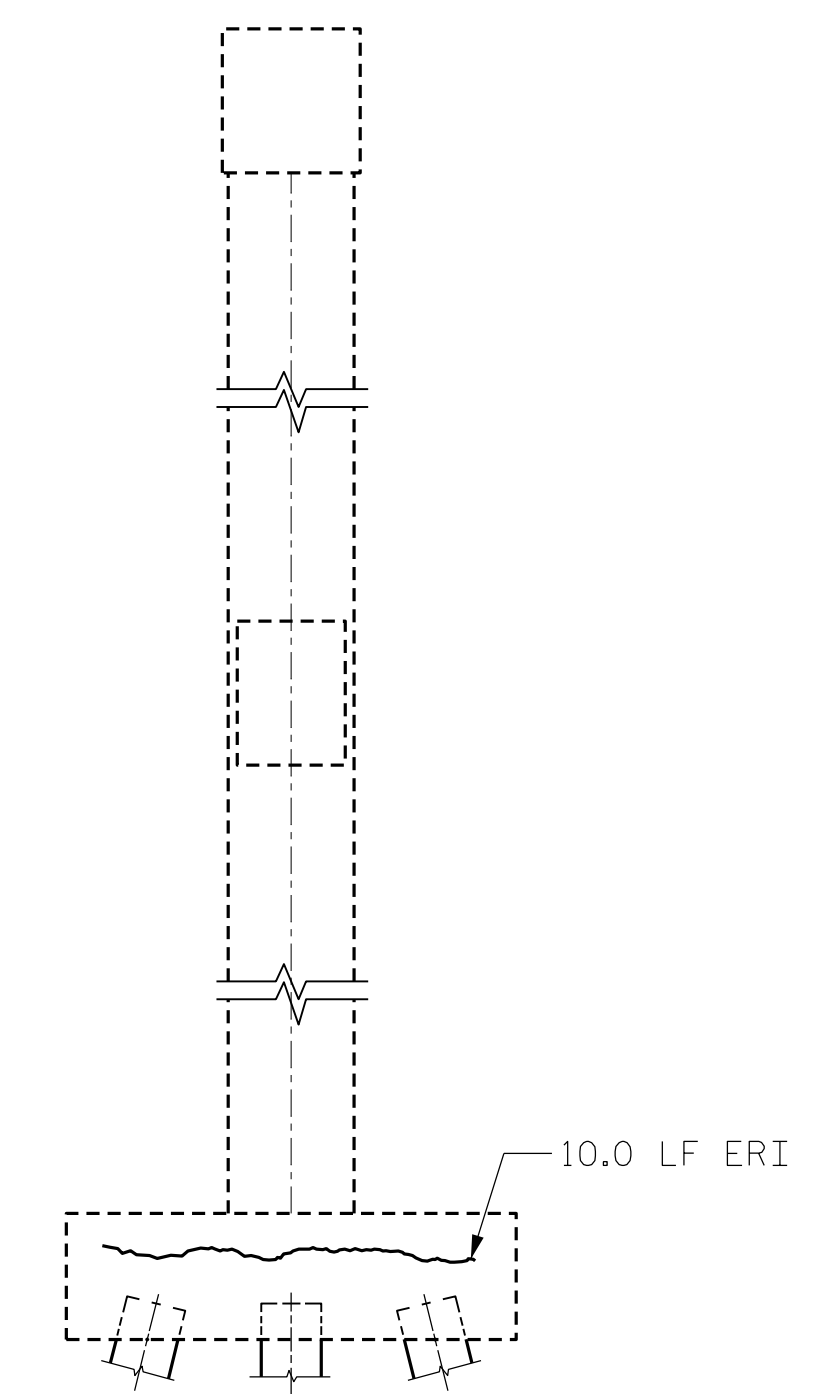
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



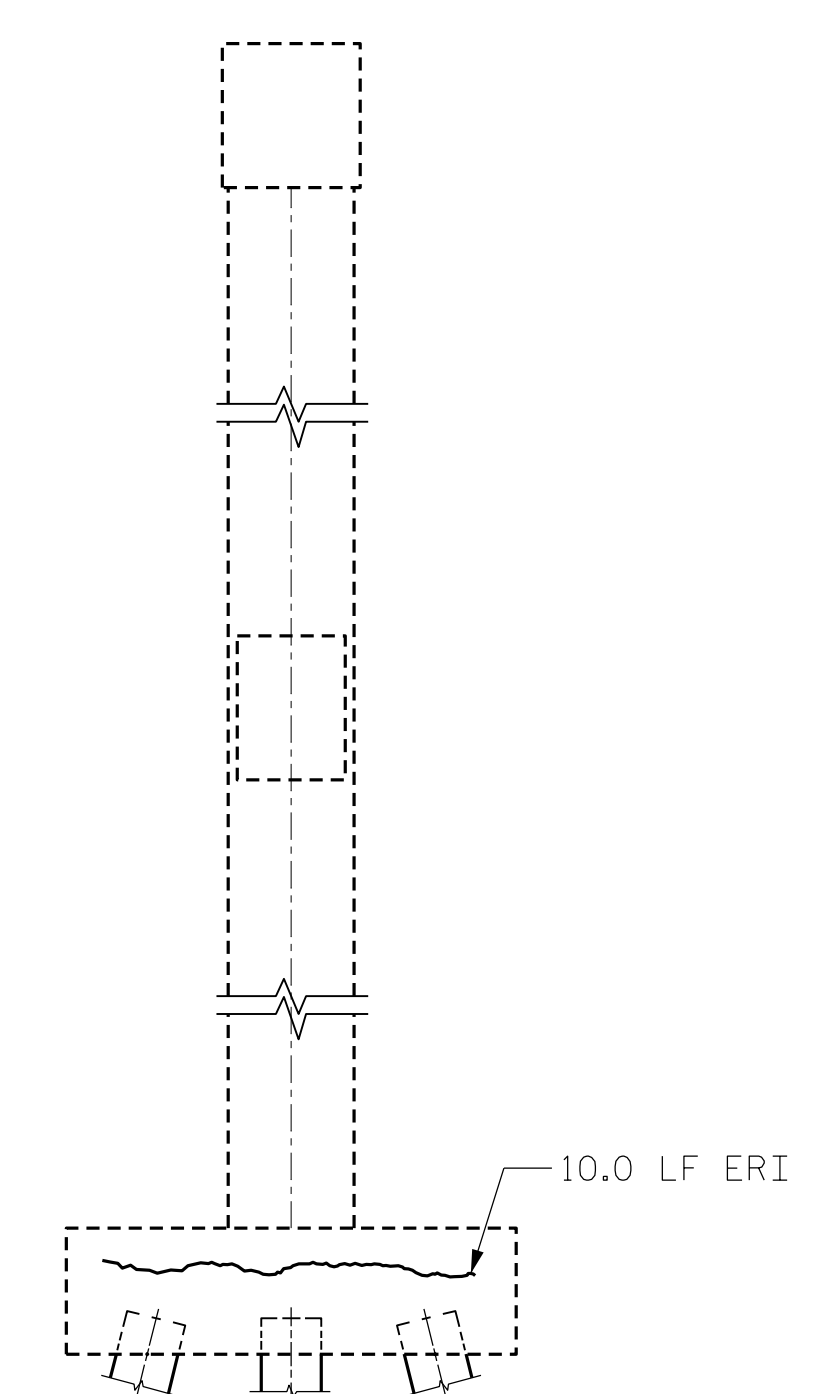
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	0.4	0.2		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	68.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:  
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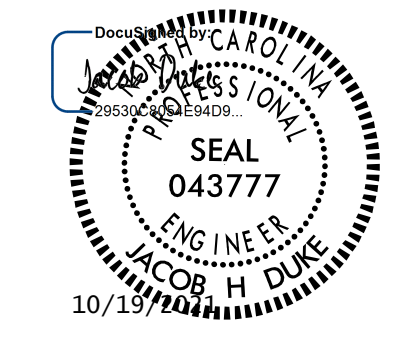
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012

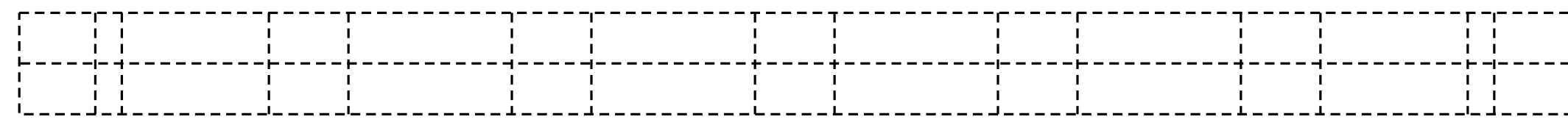


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS					
BENT 12					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 137

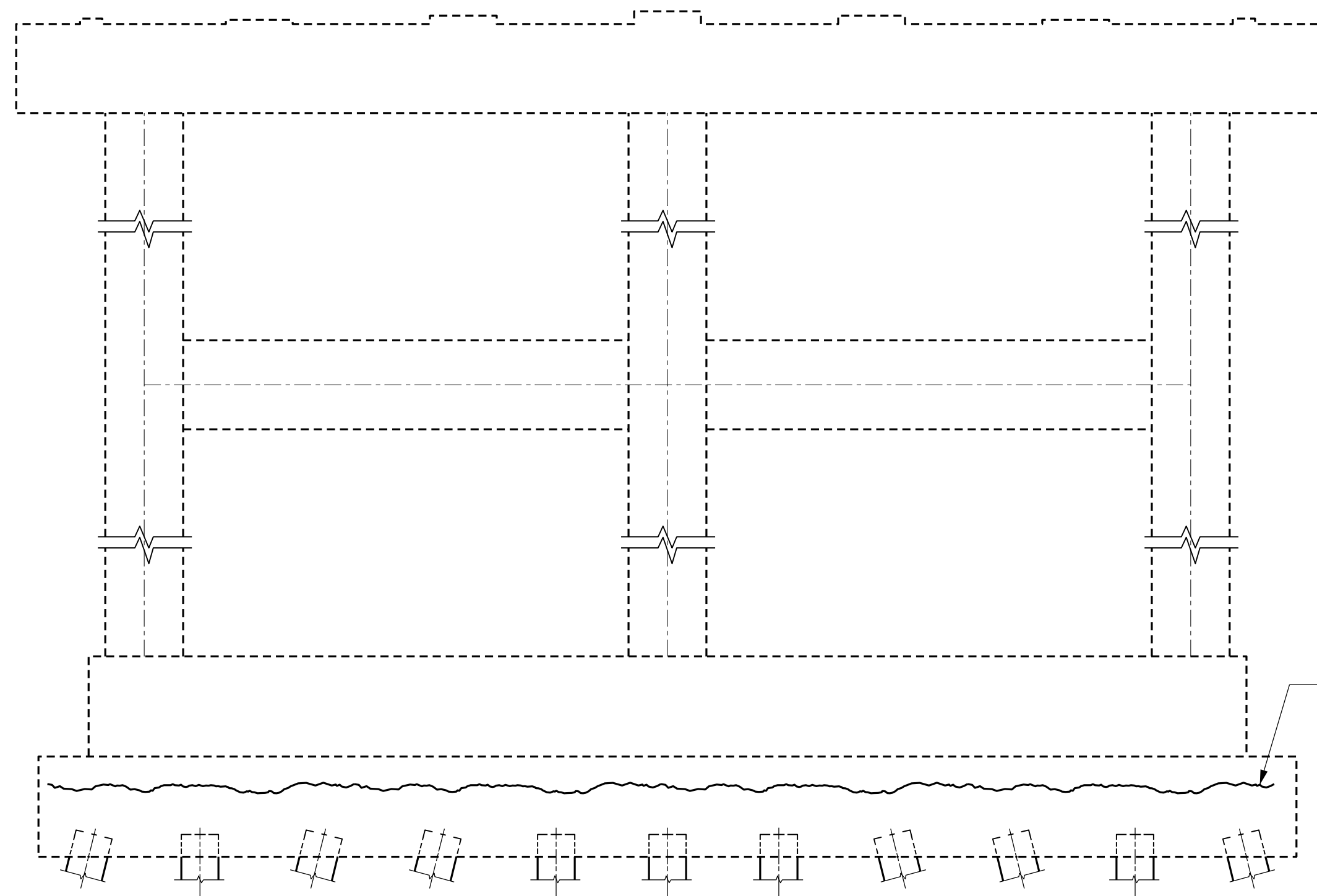
DRAWN BY : FIDEL FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

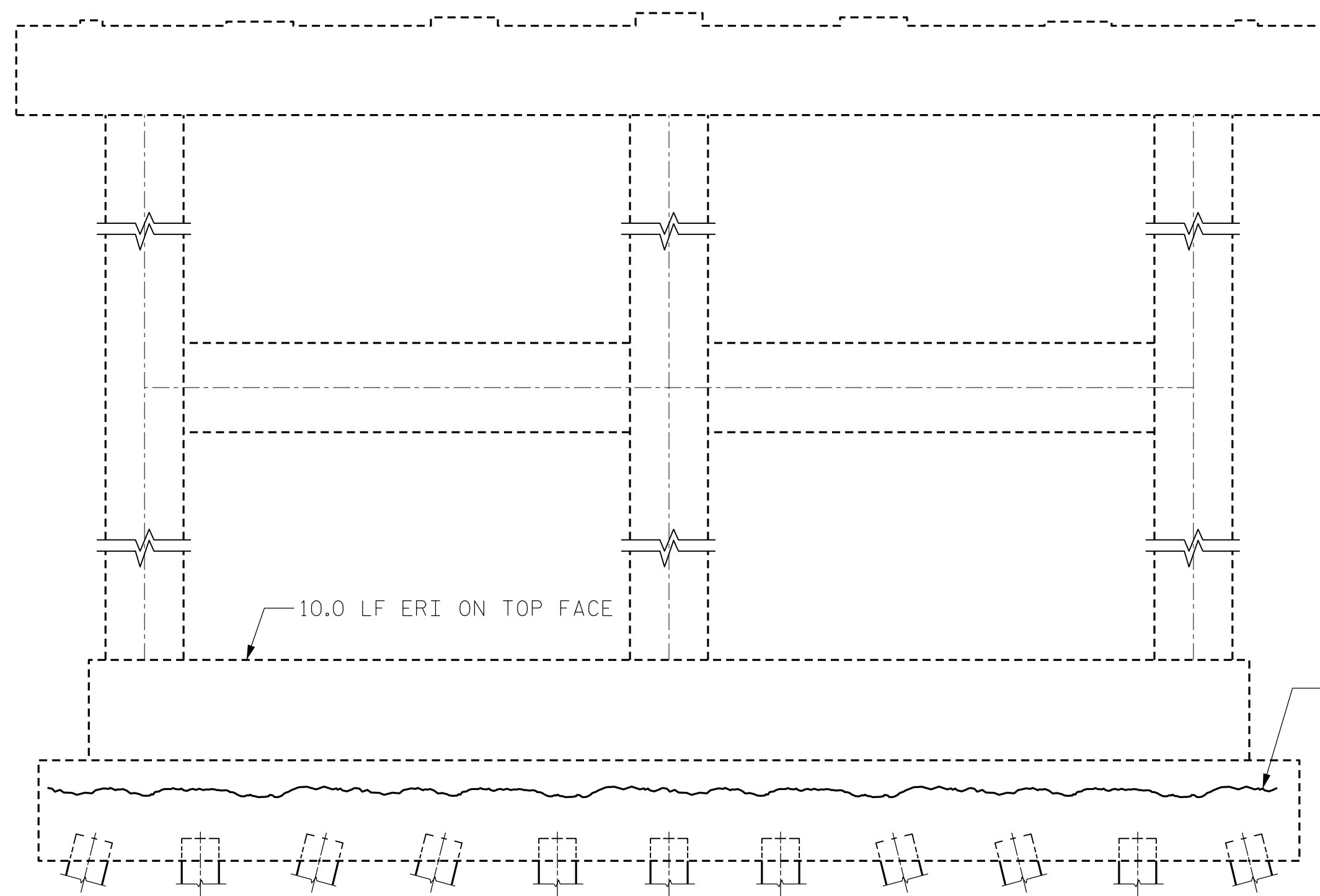




PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



EAST ELEVATION



WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	2.2	1.1		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	148.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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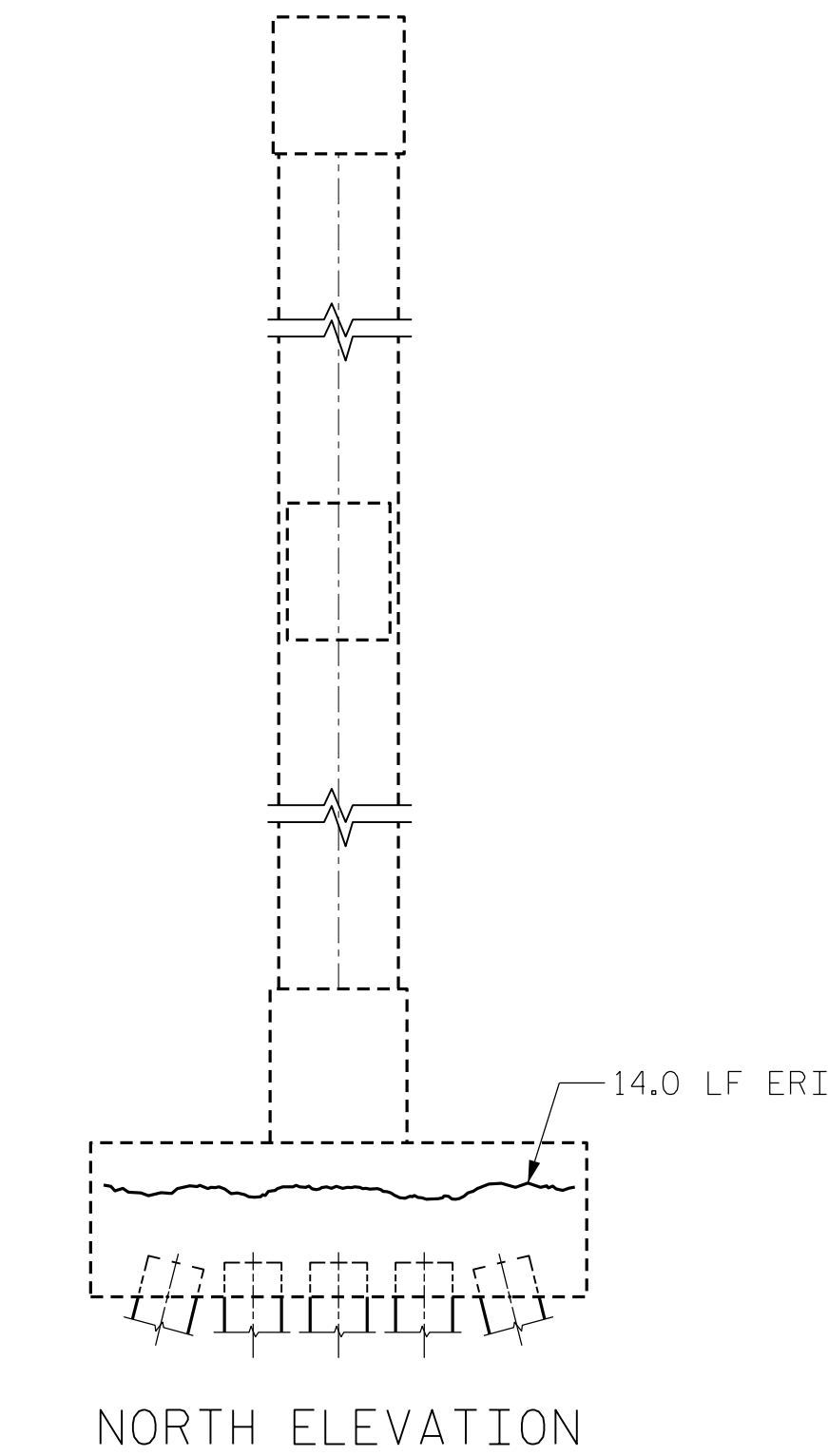
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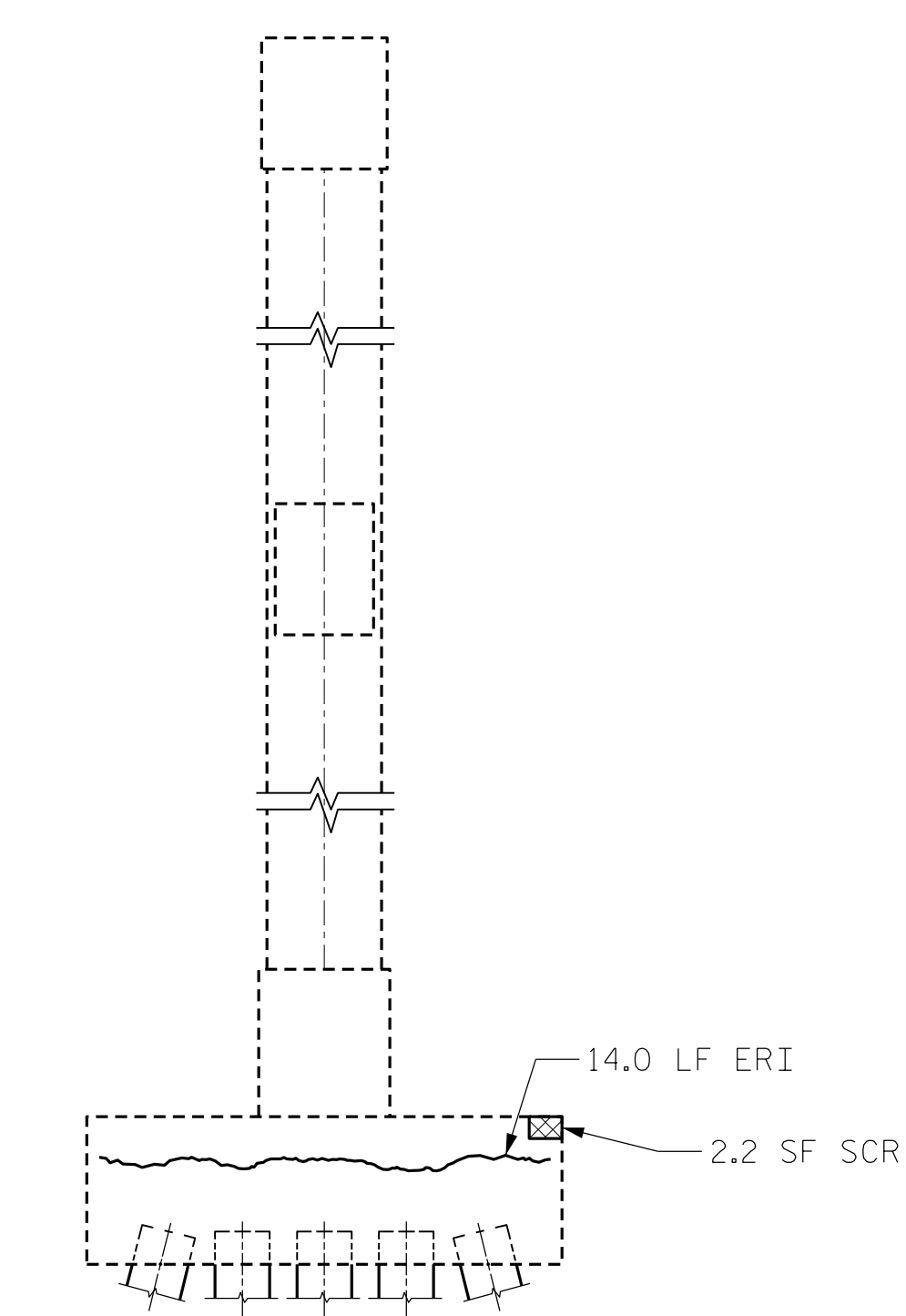
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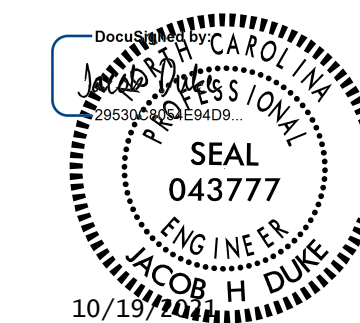


NORTH ELEVATION



SOUTH ELEVATION

PROJECT NO. 15BPR.46  
DARE COUNTY  
BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

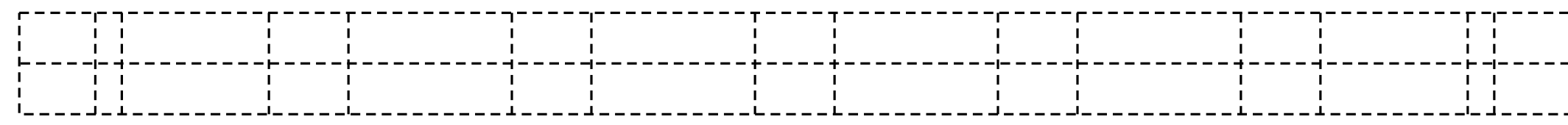
SUBSTRUCTURE REPAIRS  
BENT 13

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

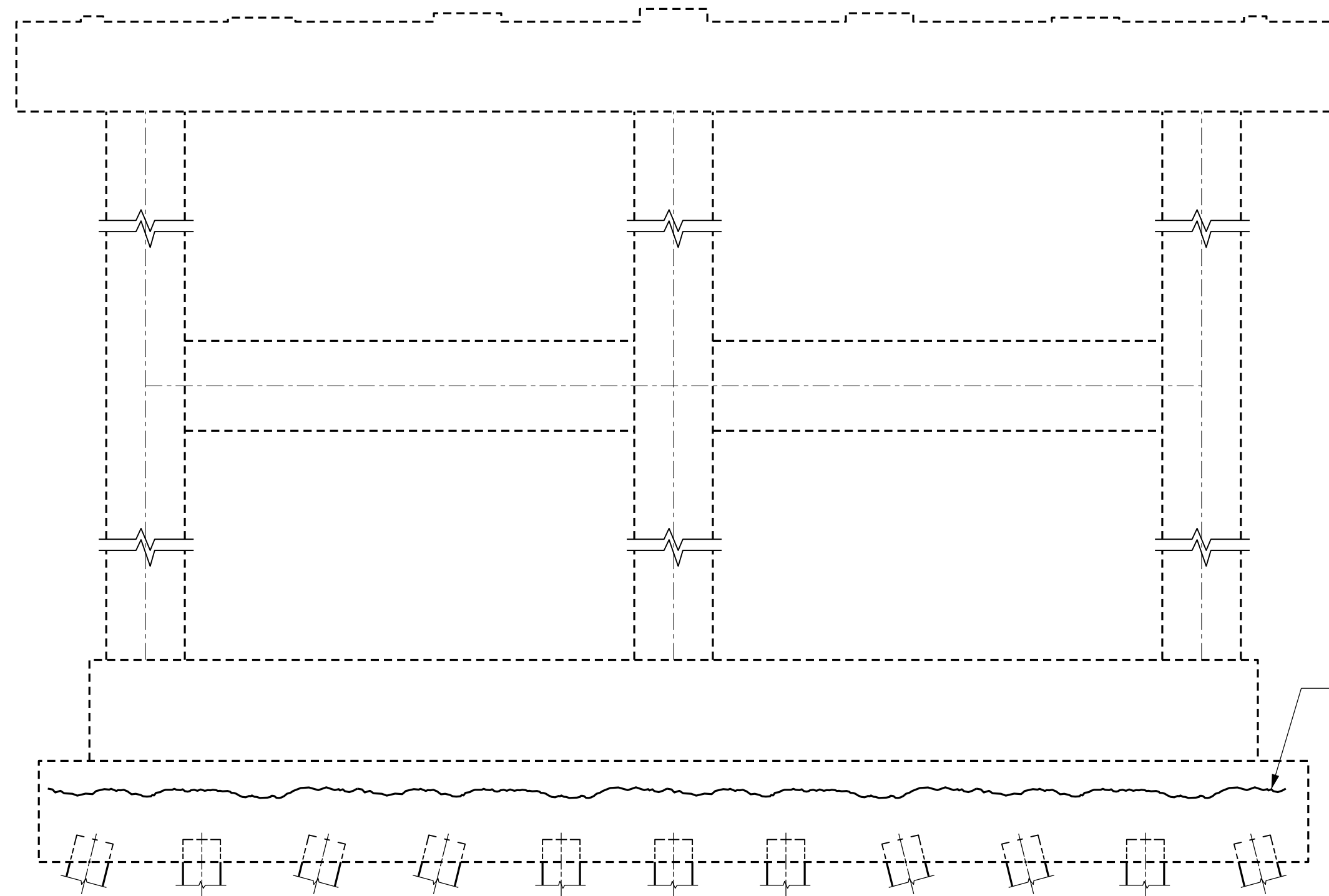
10/19/2021  
15BPR.46.SMU.SBR13.270012.dgn  
jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			

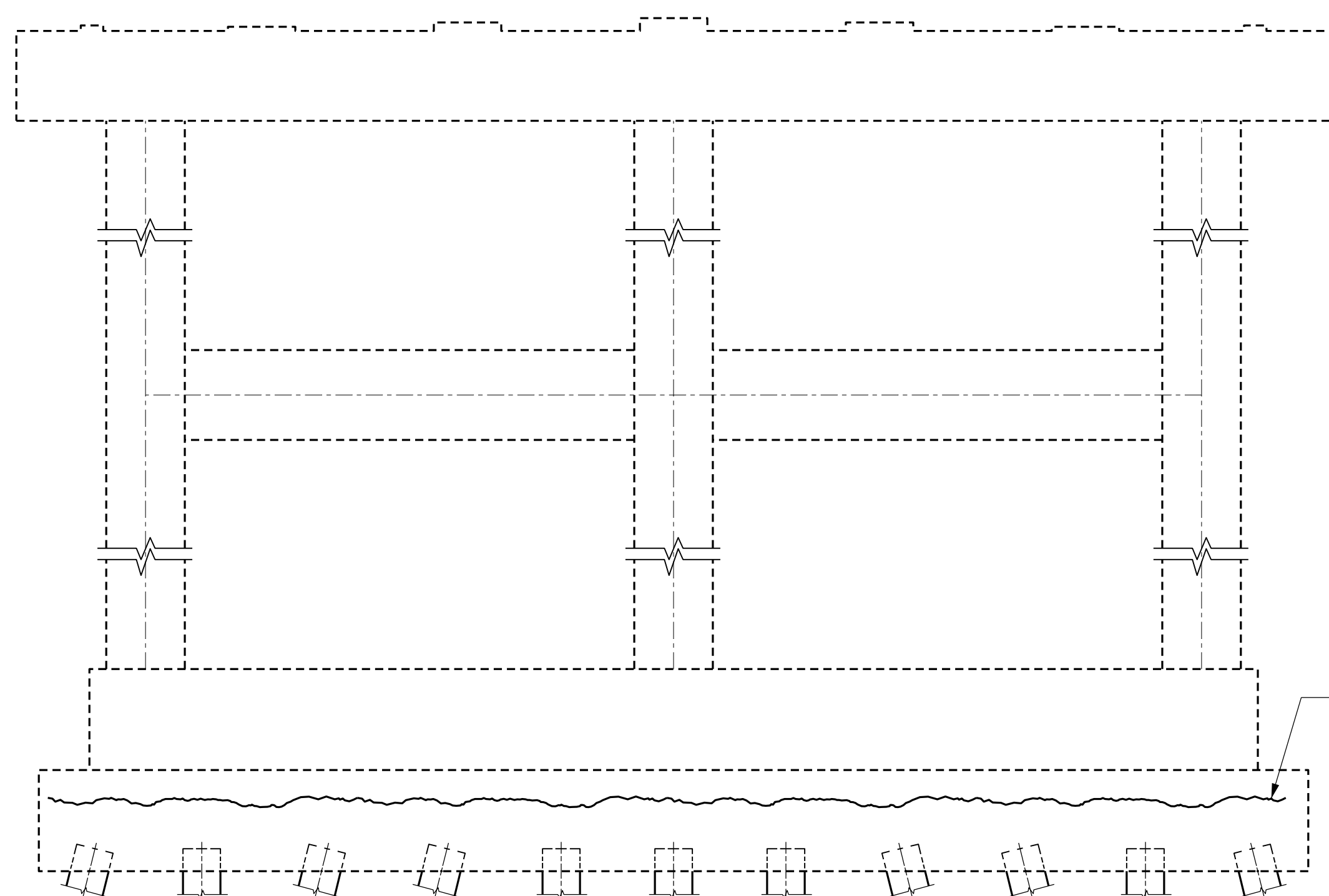


PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



EAST ELEVATION

55.0 LF ERI

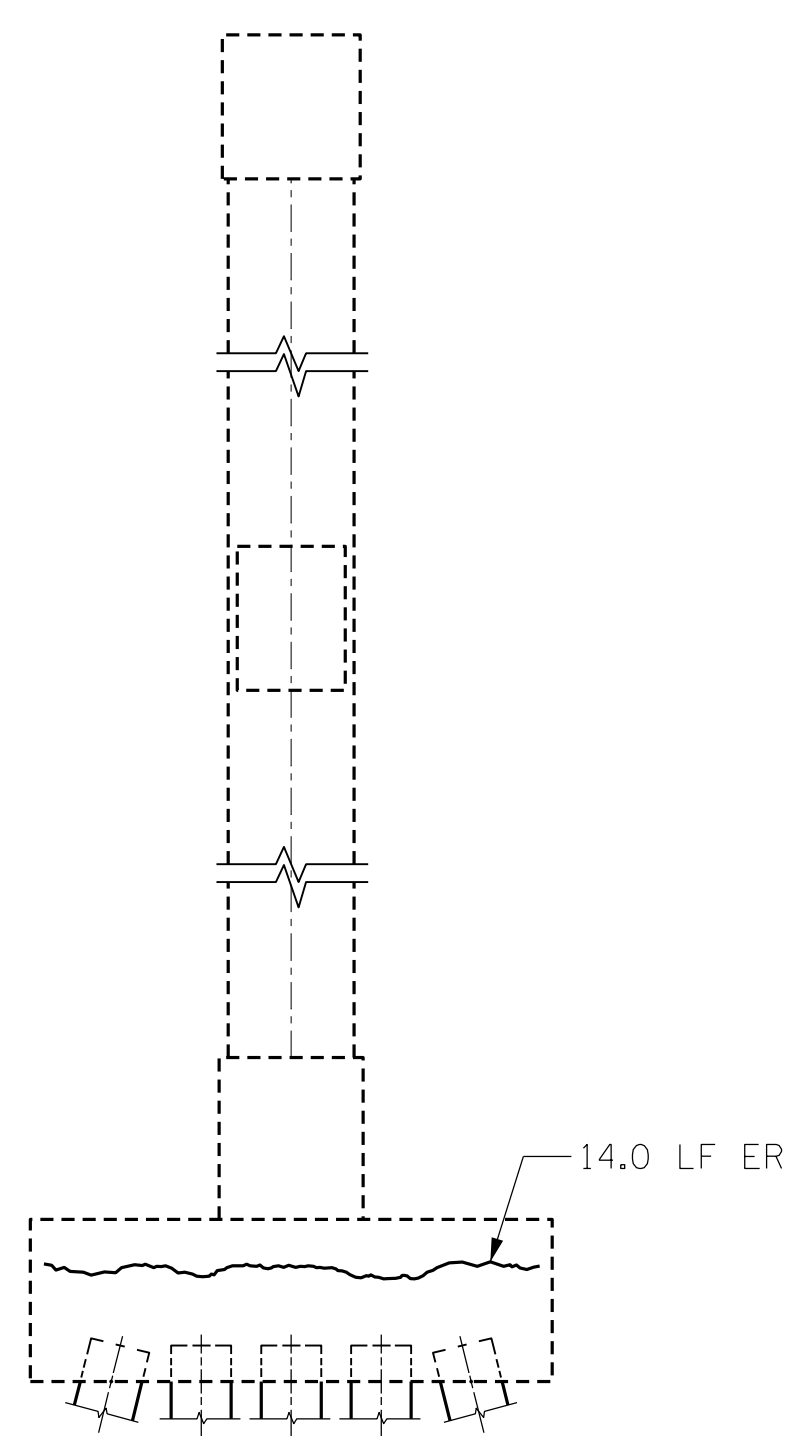


WEST ELEVATION

55.0 LF ERI

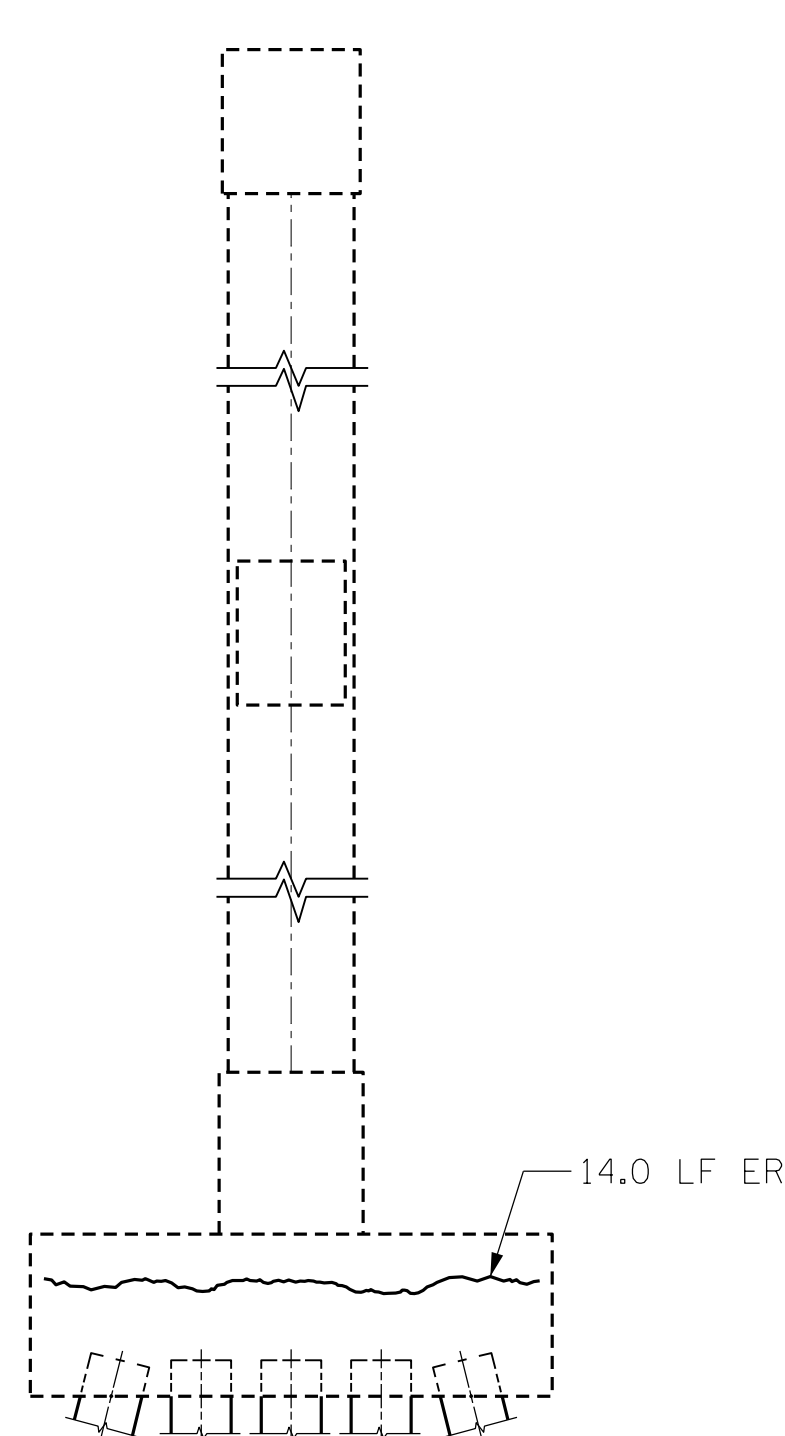
LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	138.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				



NORTH ELEVATION

14.0 LF ERI



SOUTH ELEVATION

14.0 LF ERI

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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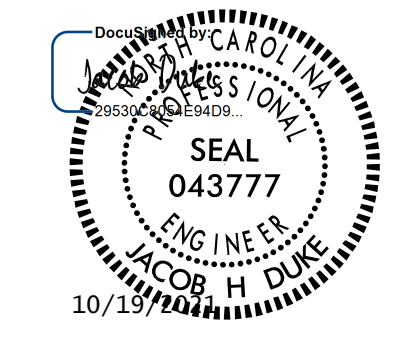
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENTS 14

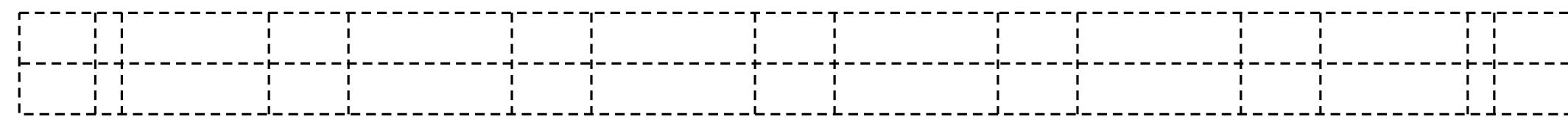


DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

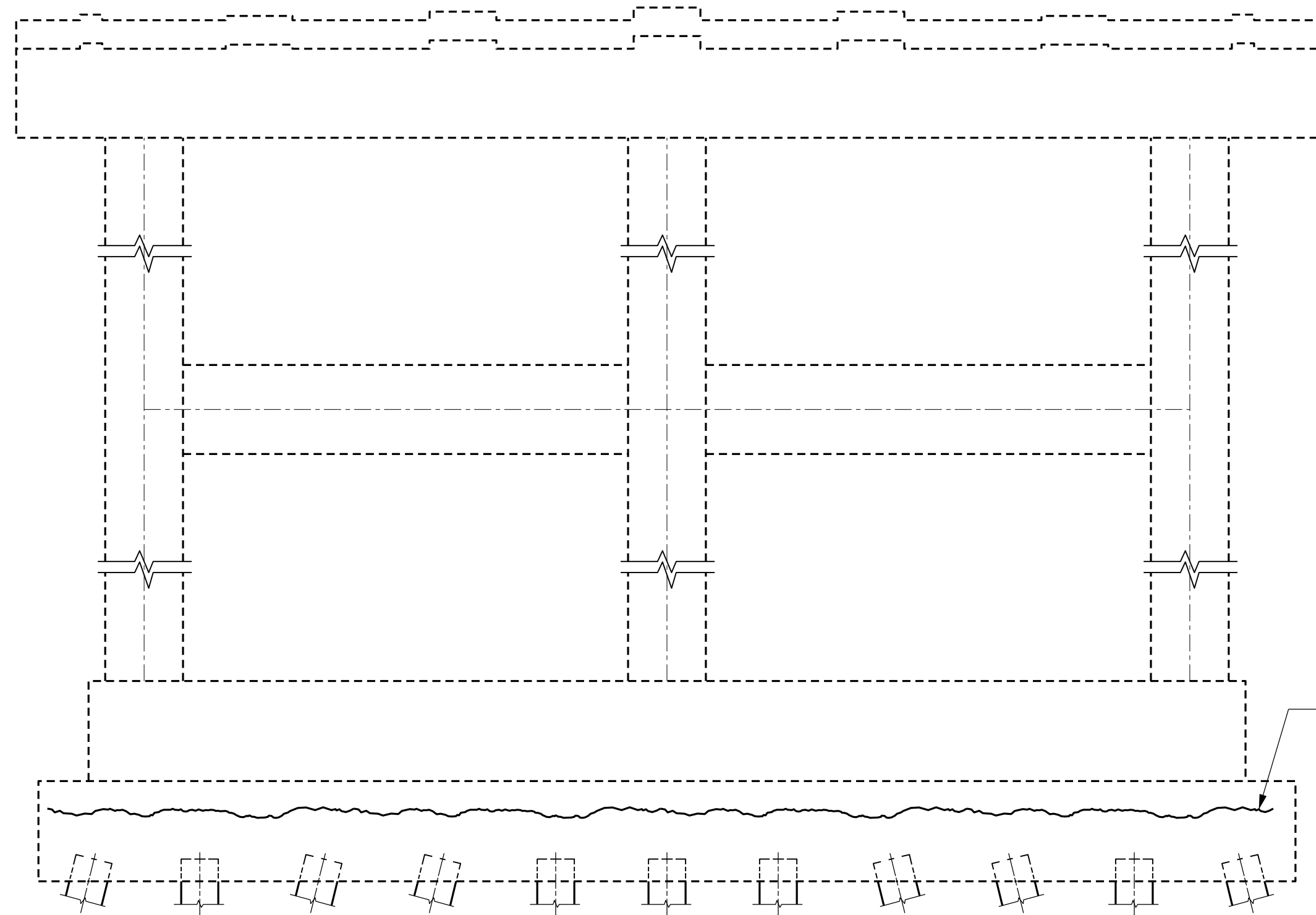
10/19/2021  
 15BPR.46.SMU.SBR14.270012.dgn  
 jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

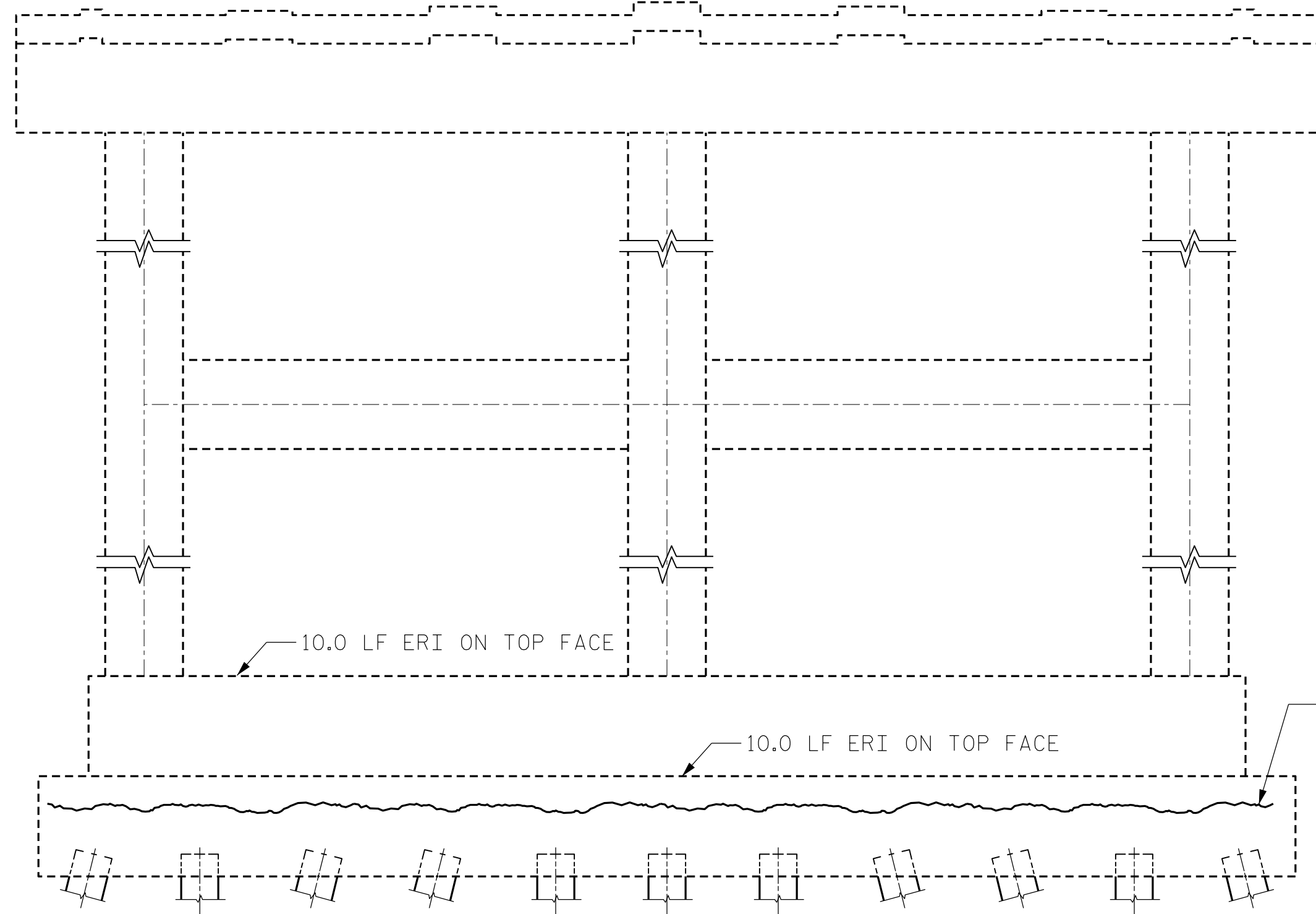
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			TOTAL SHEETS 137



PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



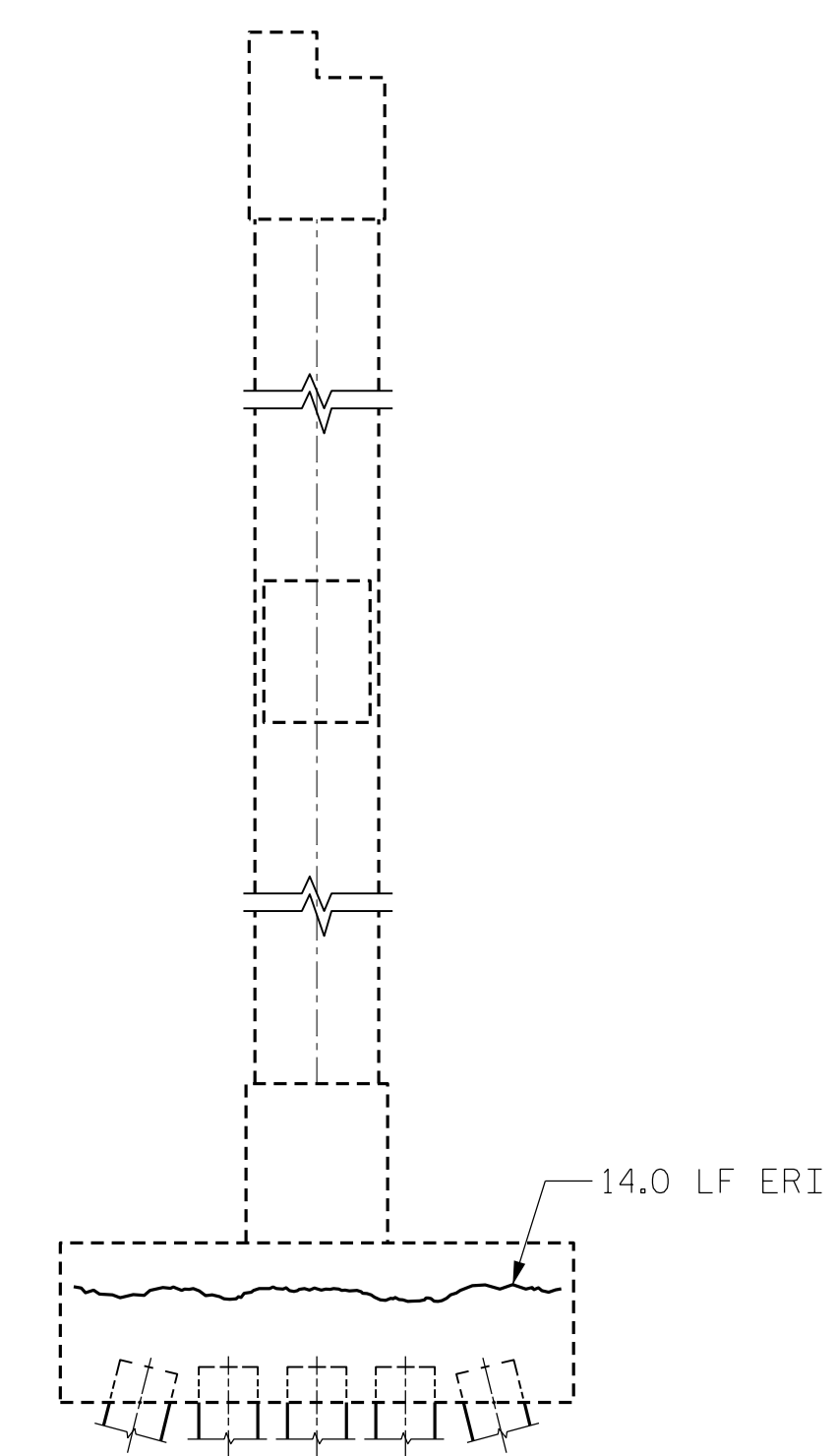
EAST ELEVATION



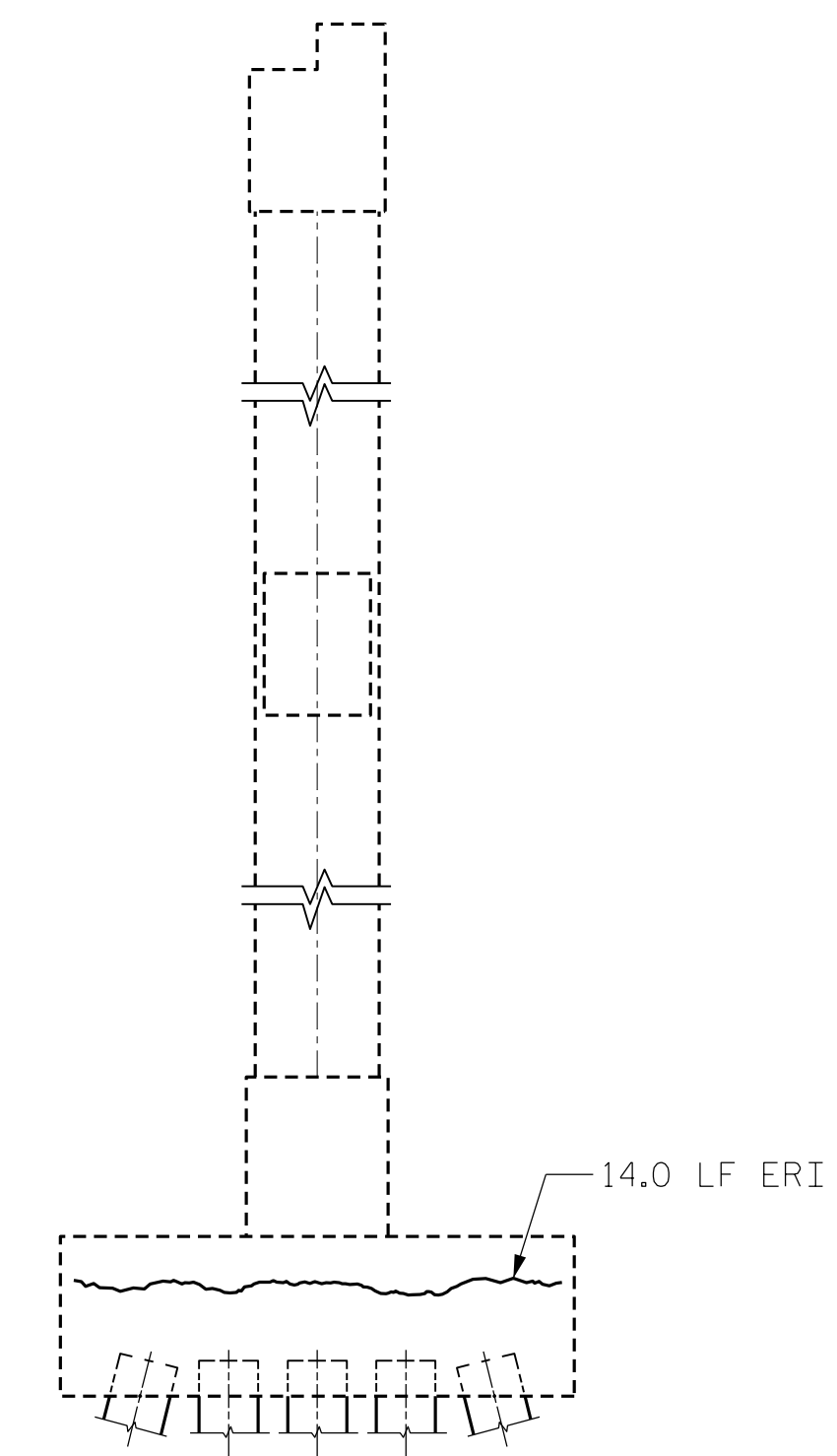
WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	158.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				



NORTH ELEVATION



SOUTH ELEVATION

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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 TABLE ABOVE.

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AVERAGE CONCRETE COVER IS EXPECTED TO BE FROM 2" TO 3" ON THE CAP AND FROM 1 1/2" TO 2" ON THE PILES. ACTUAL CONCRETE COVER SHALL BE DETERMINED BY THE CONTRACTOR AND PRESENTED TO THE ENGINEER PRIOR TO BEGINNING EXCAVATION AND DEMOLITION.

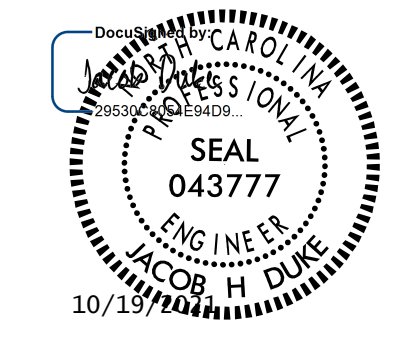
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 15

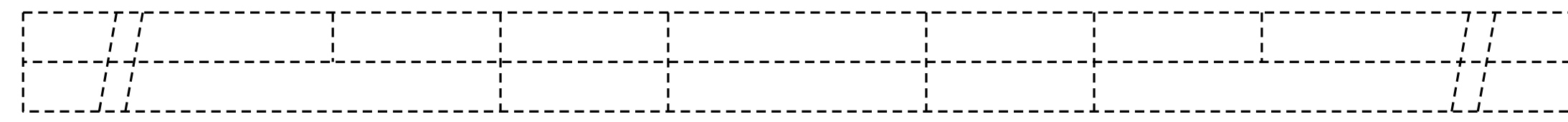


DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

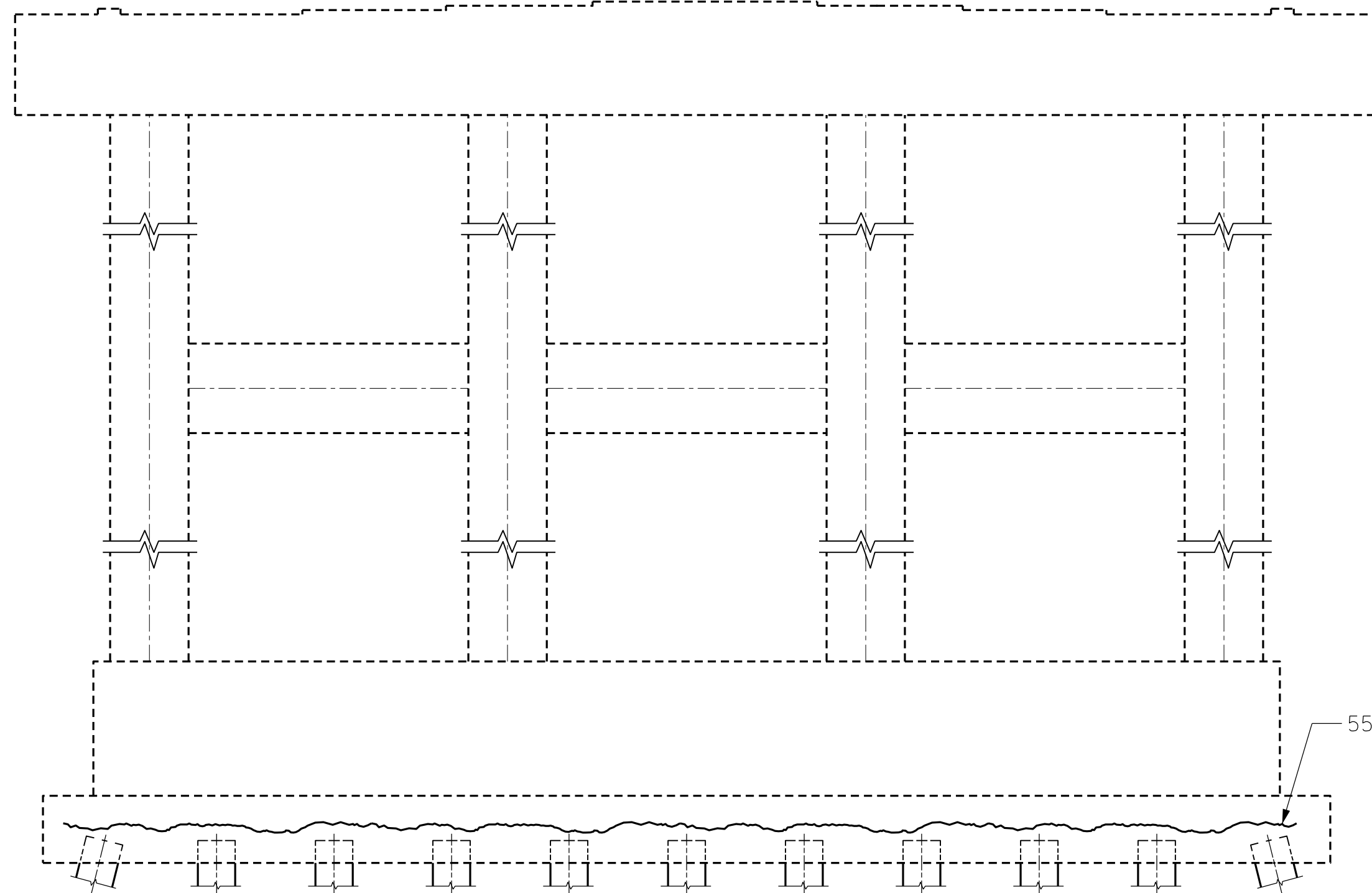
10/19/2021  
 15BPR.46.SMU.SBR15.270012.dgn  
 jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

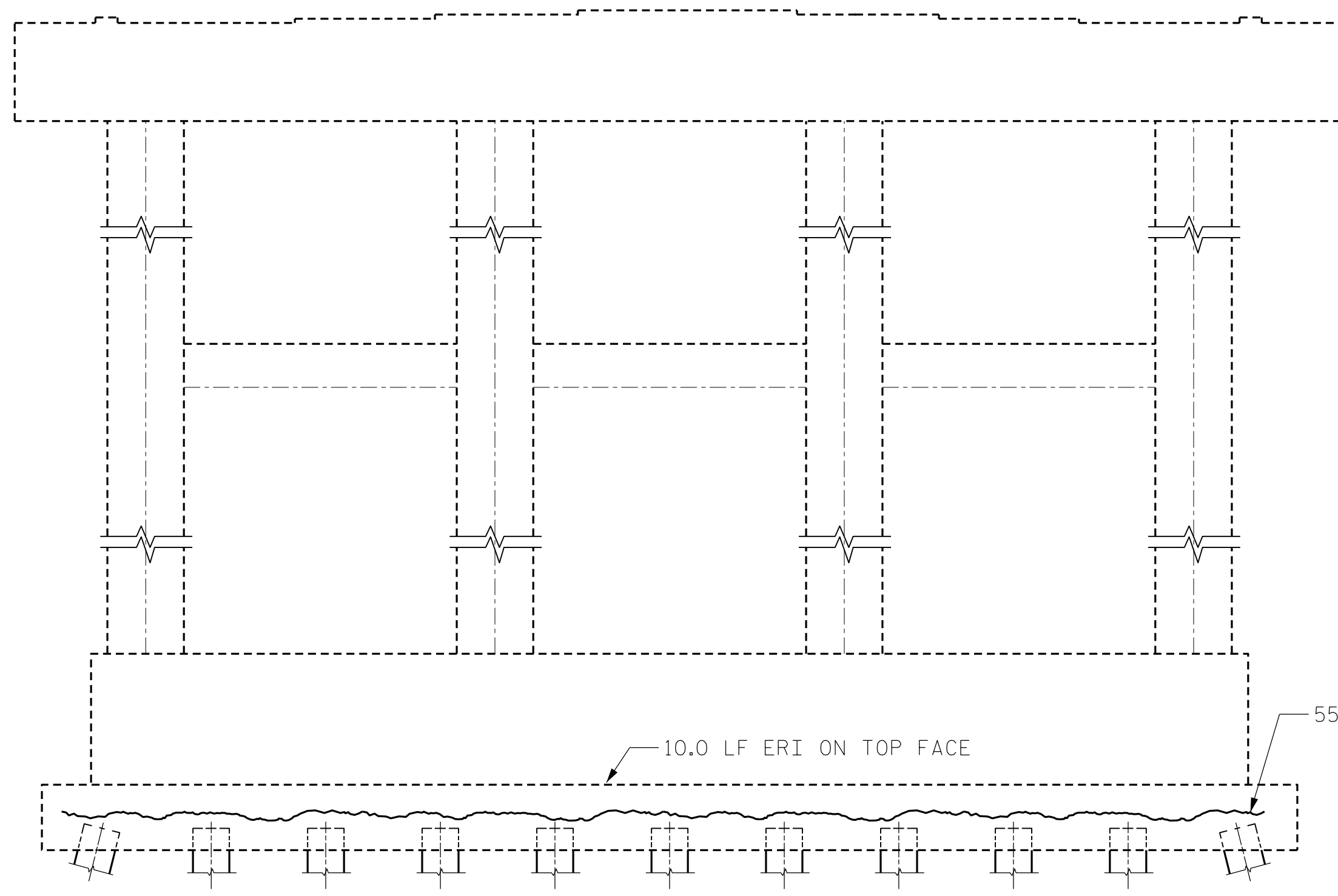
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



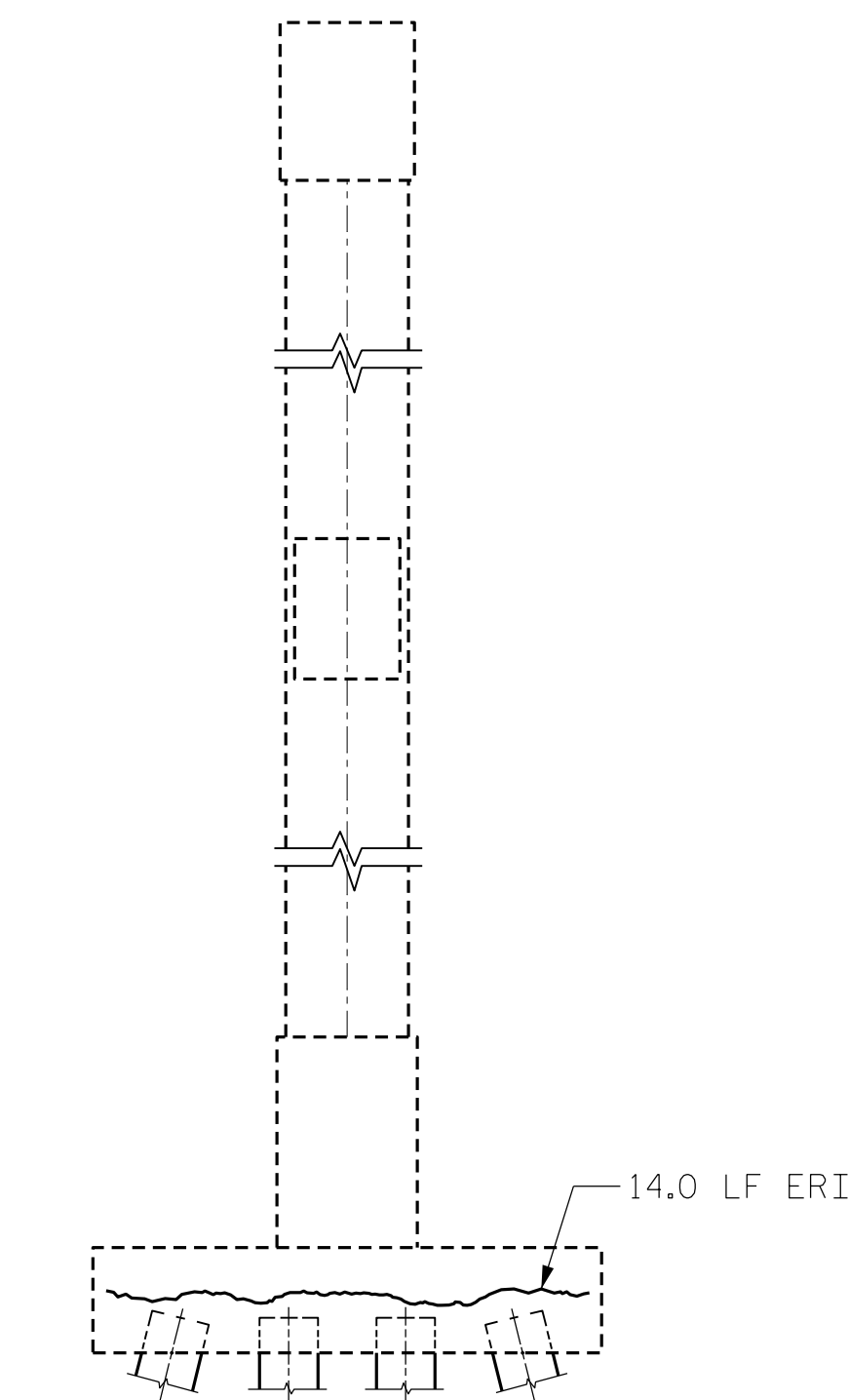
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



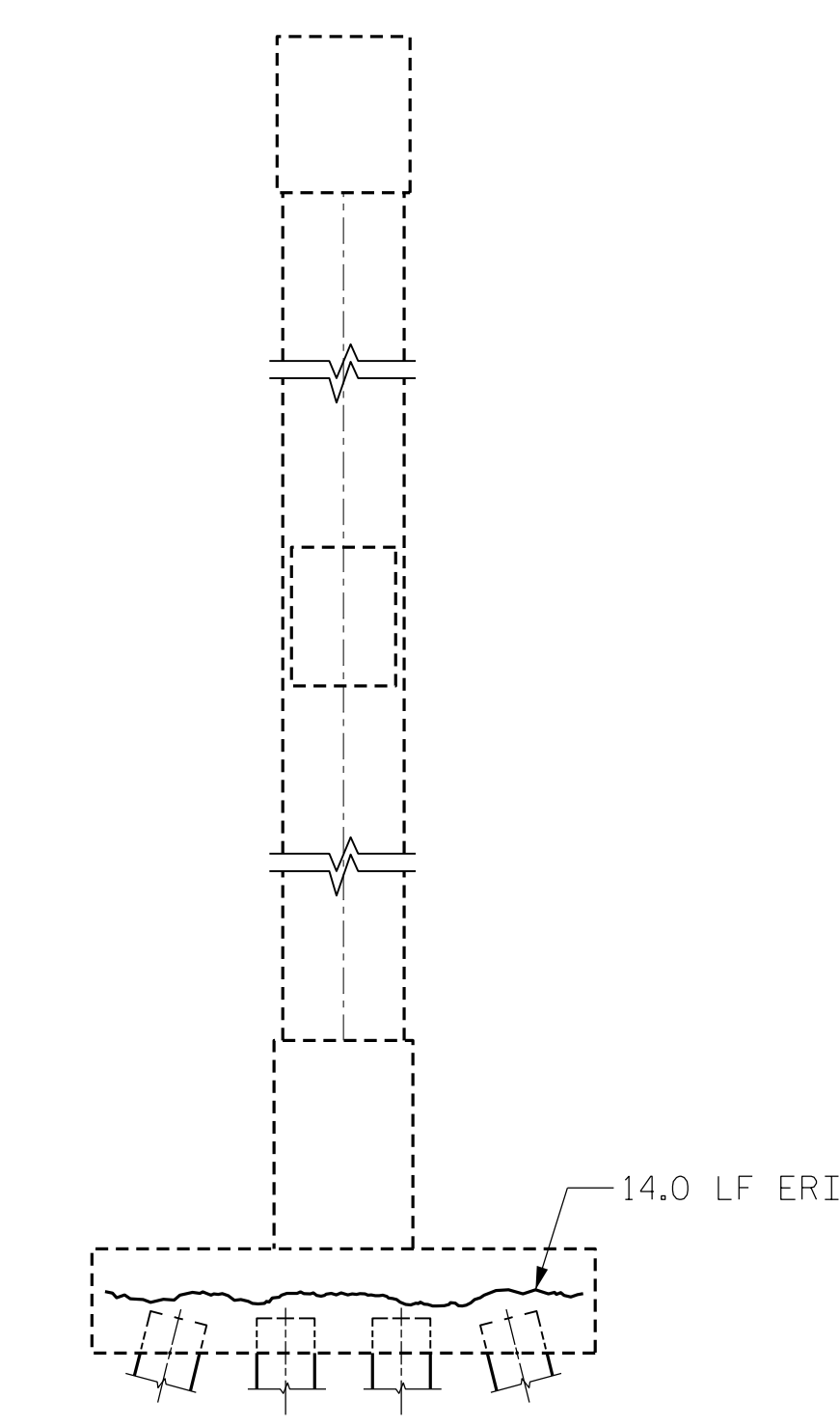
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	148.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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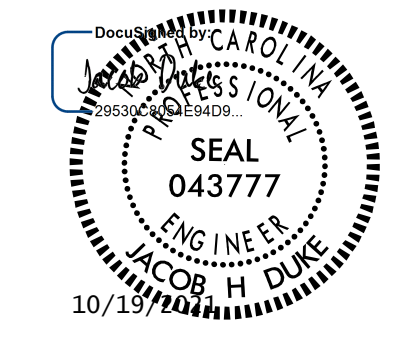
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**  
 BENTS 16

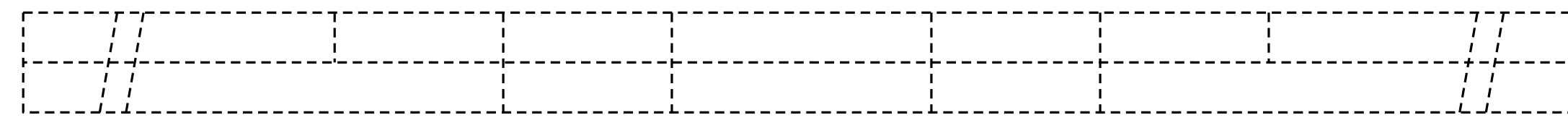


DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

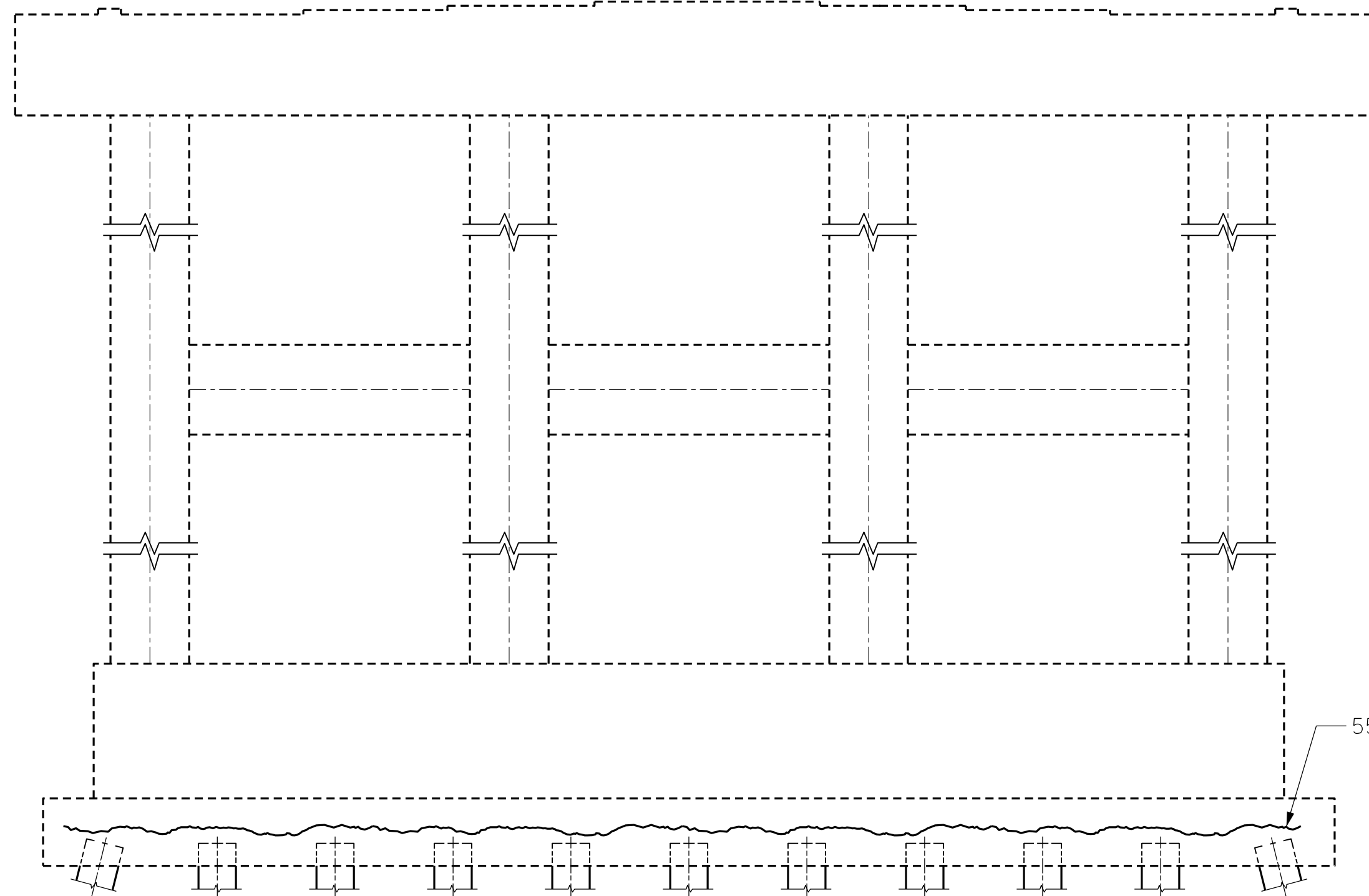
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 jduke

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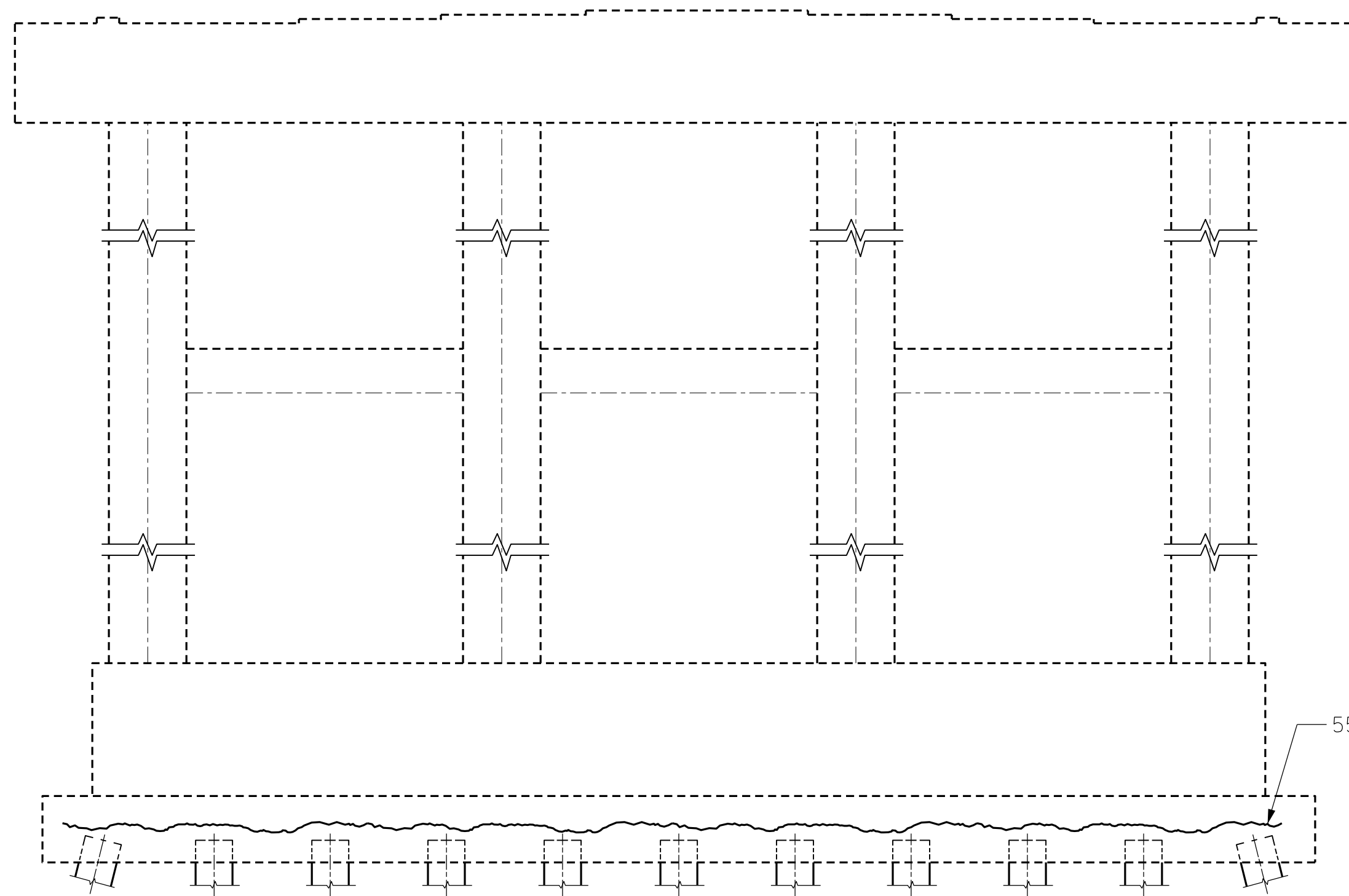
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			TOTAL SHEETS 137



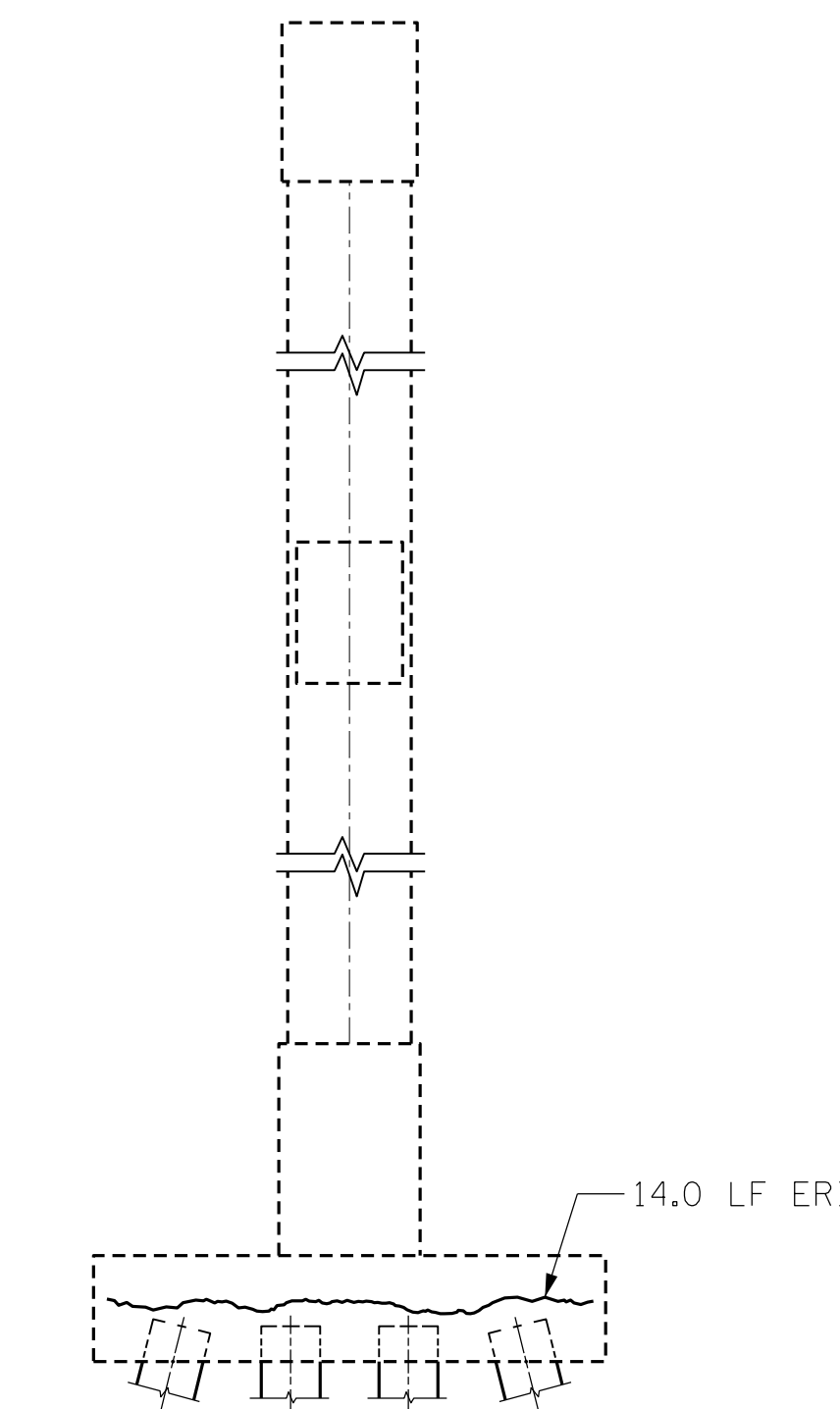
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



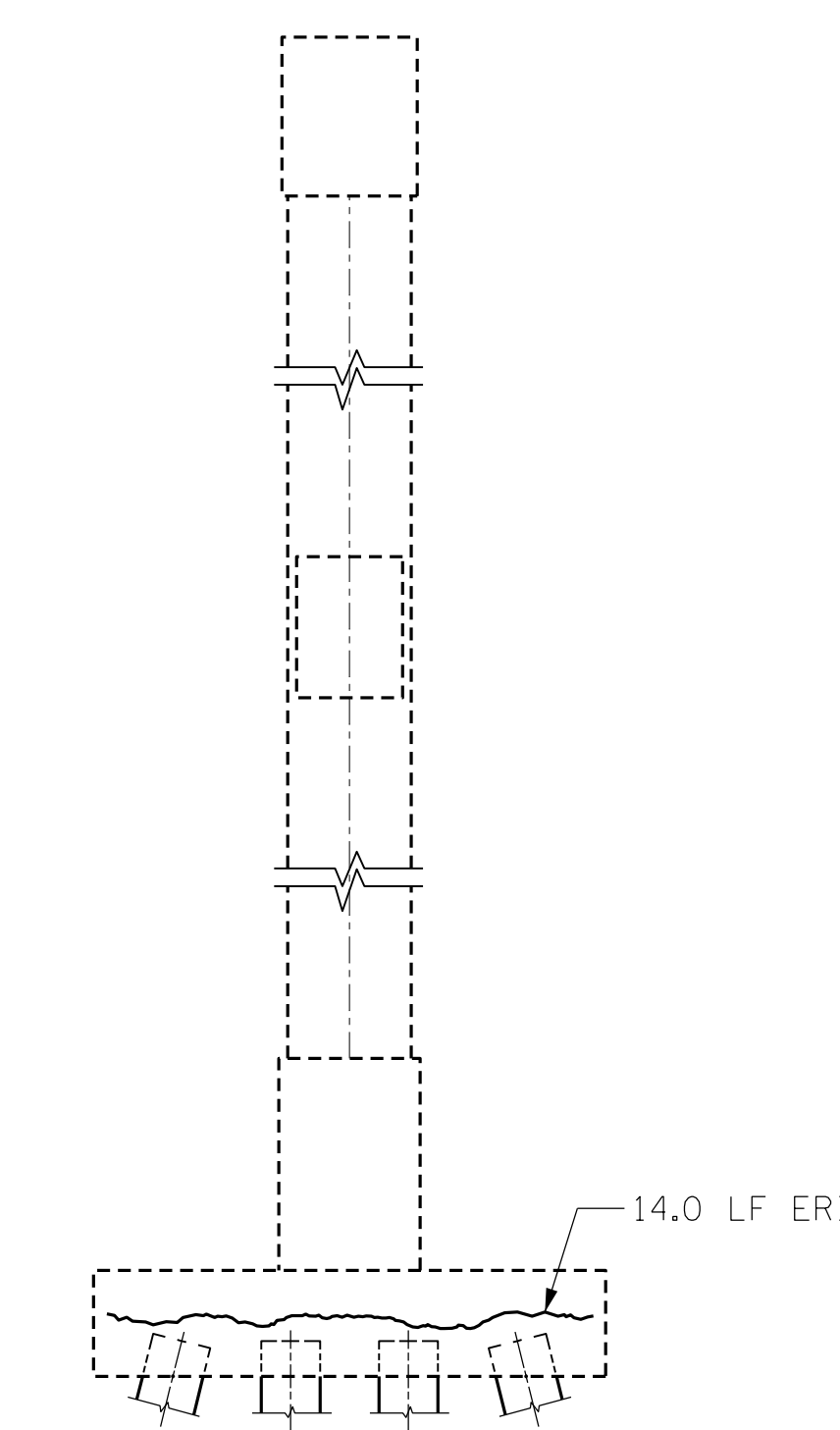
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	138.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

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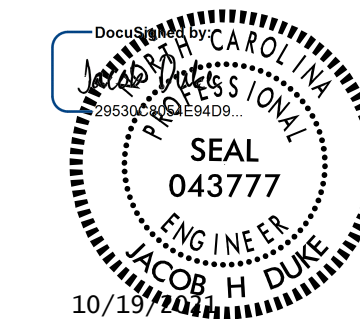
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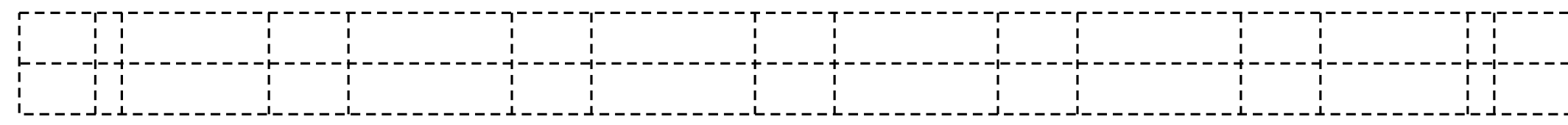
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



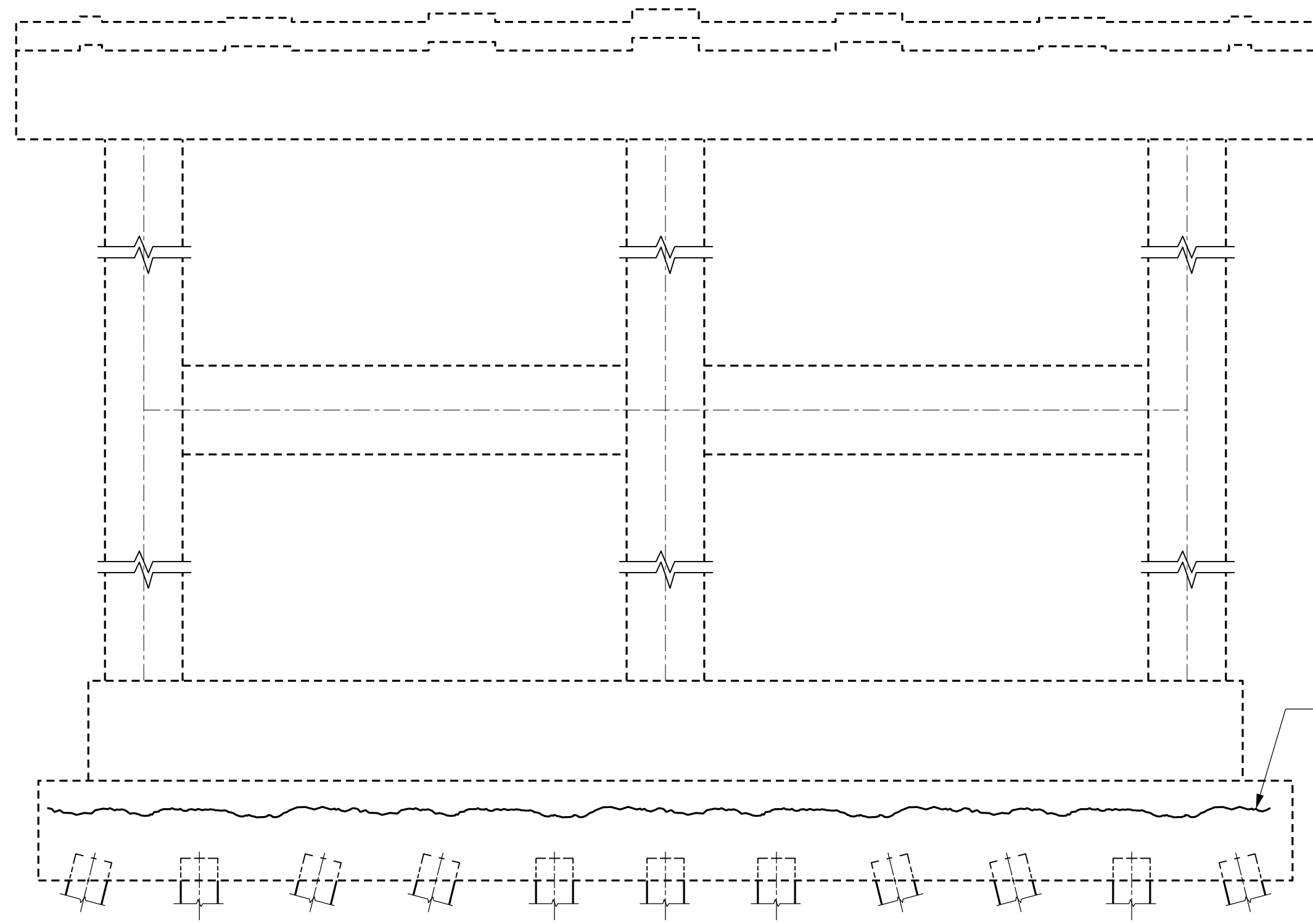
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SUBSTRUCTURE REPAIRS BENTS 17					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 137

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

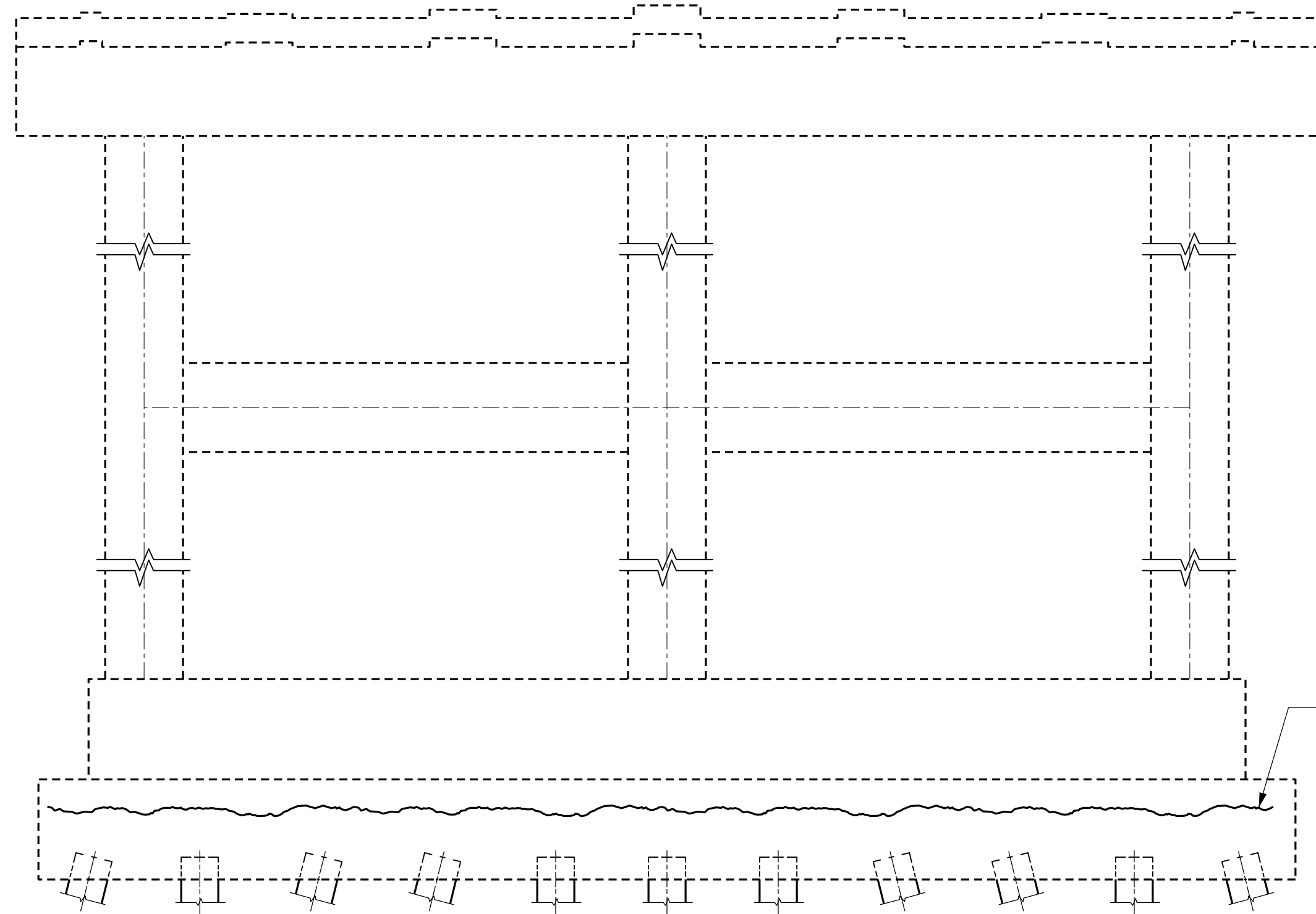
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 FINAL UNLESS ALL  
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PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



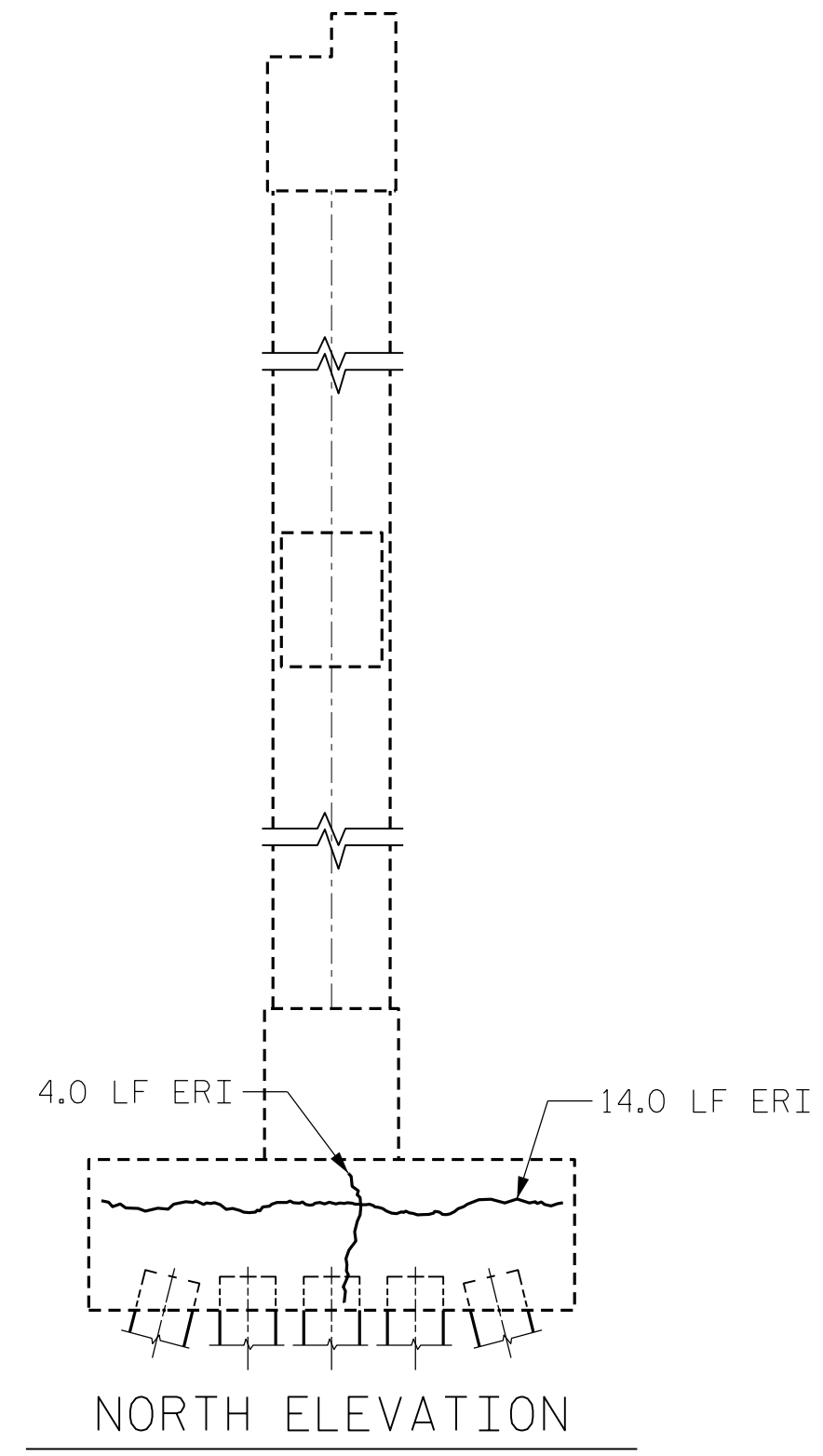
EAST ELEVATION



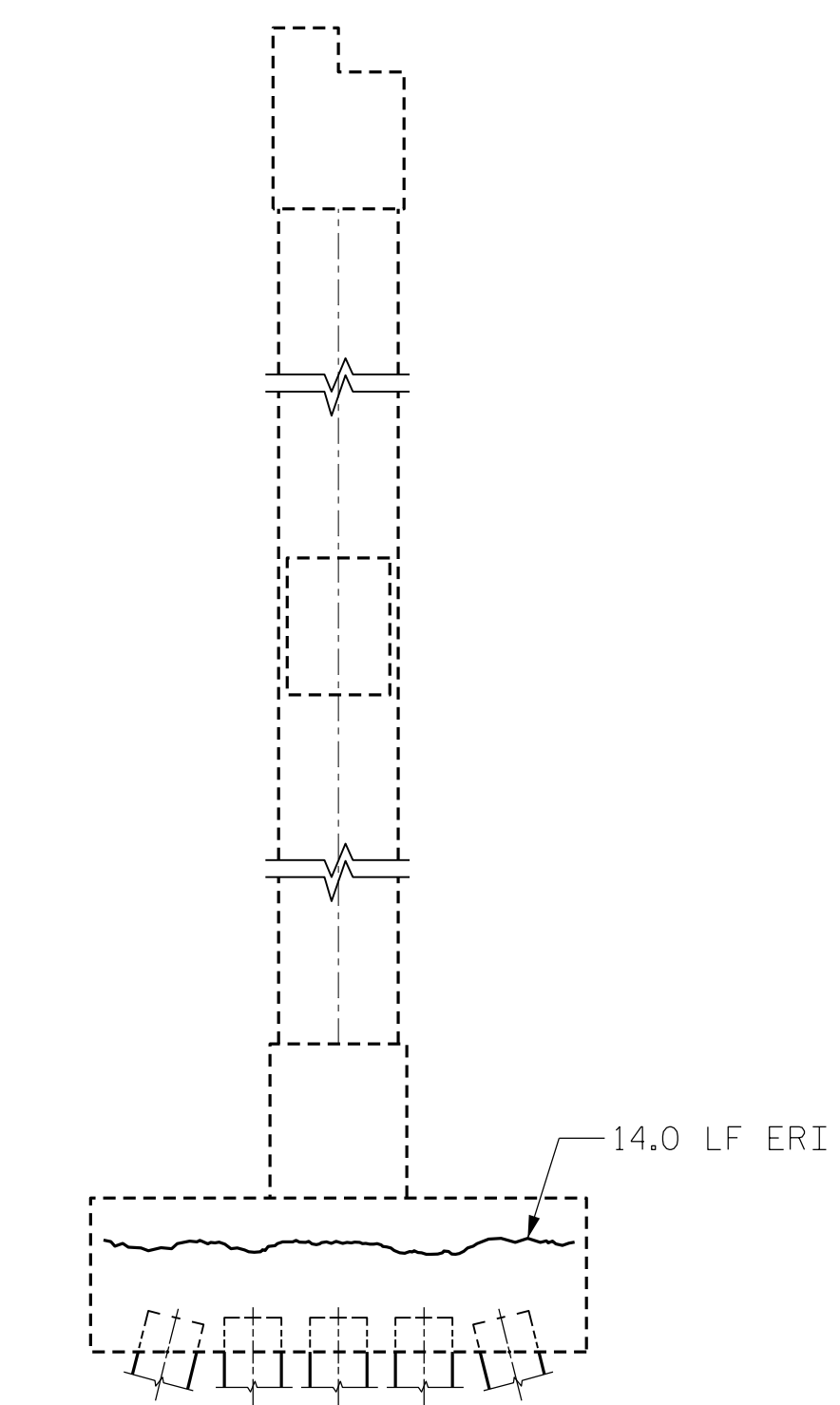
WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	142.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				



NORTH ELEVATION



SOUTH ELEVATION

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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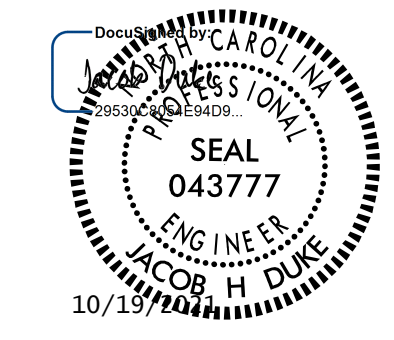
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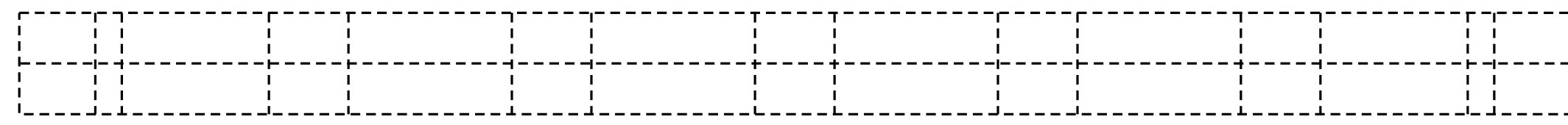
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



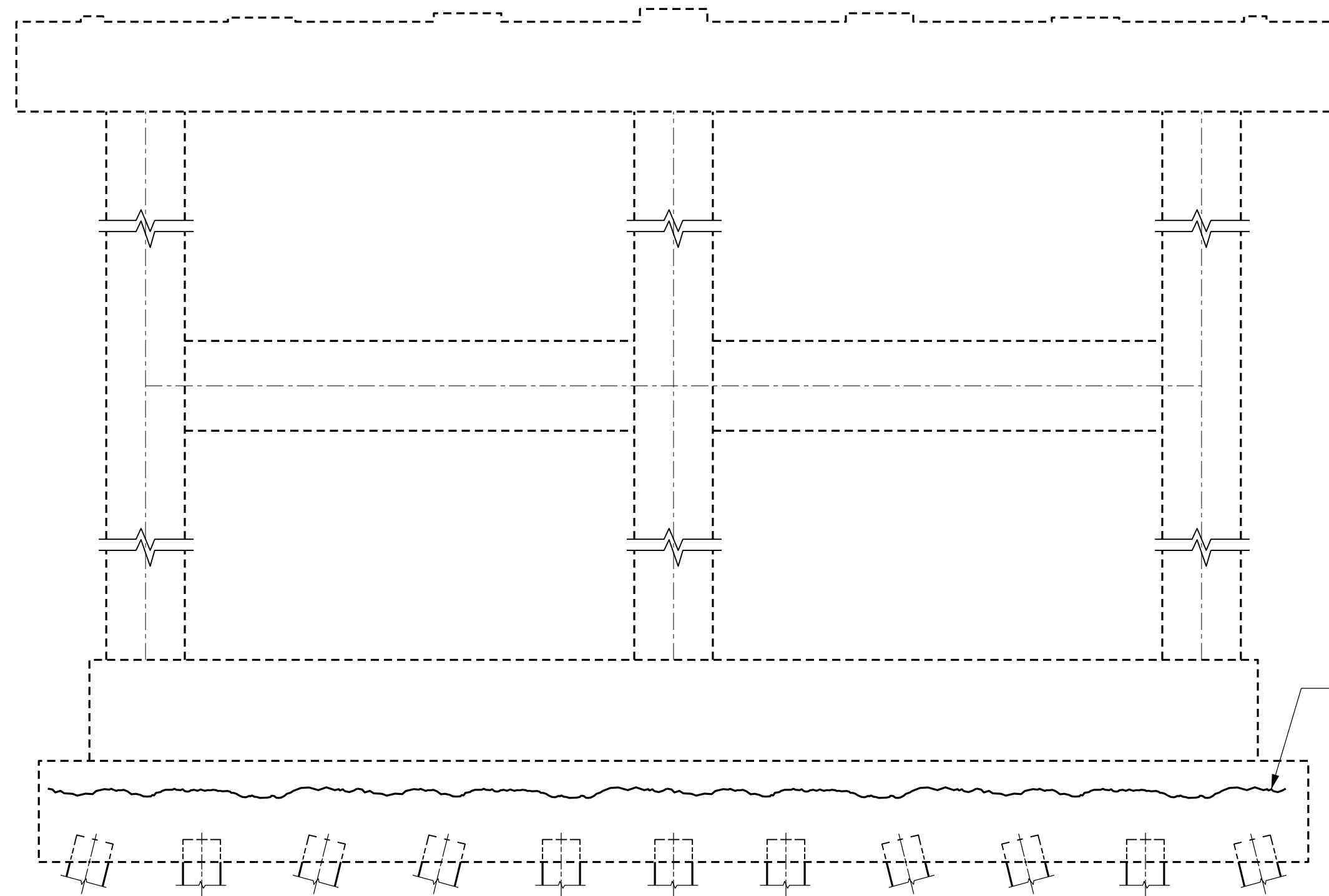
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BENT 18					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
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					TOTAL SHEETS 137

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

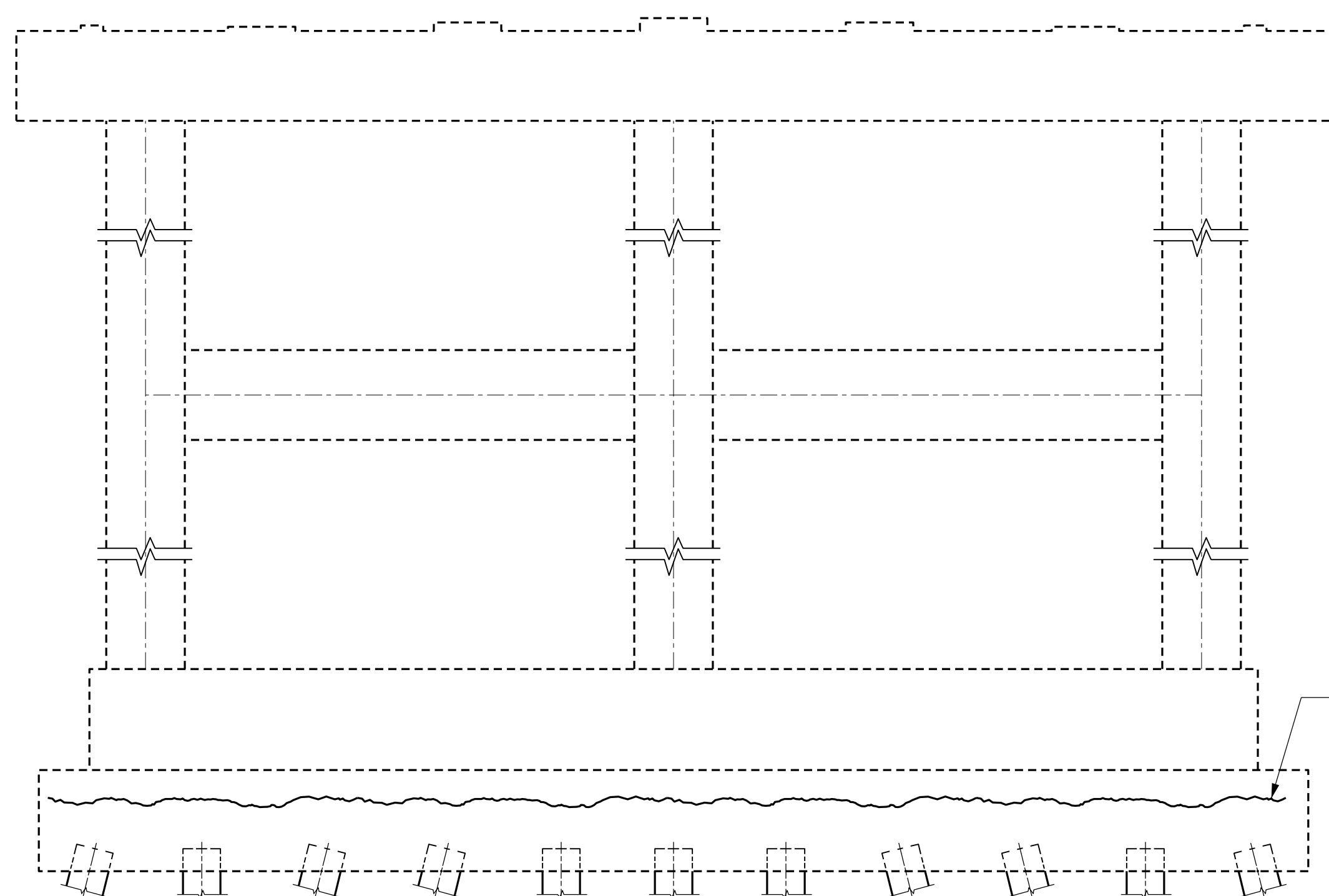
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 FINAL UNLESS ALL  
 SIGNATURES COMPLETED



PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



EAST ELEVATION



WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	144.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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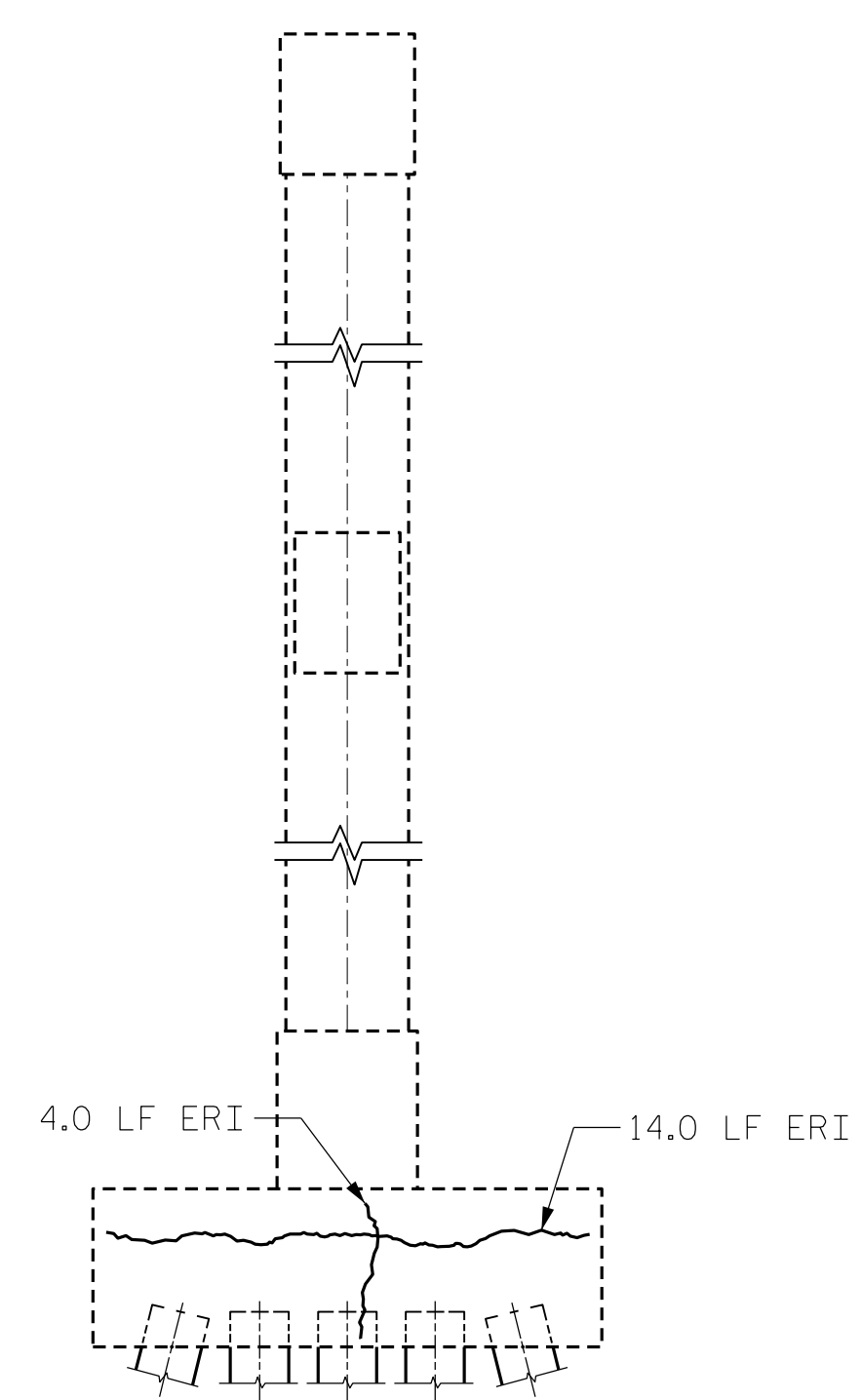
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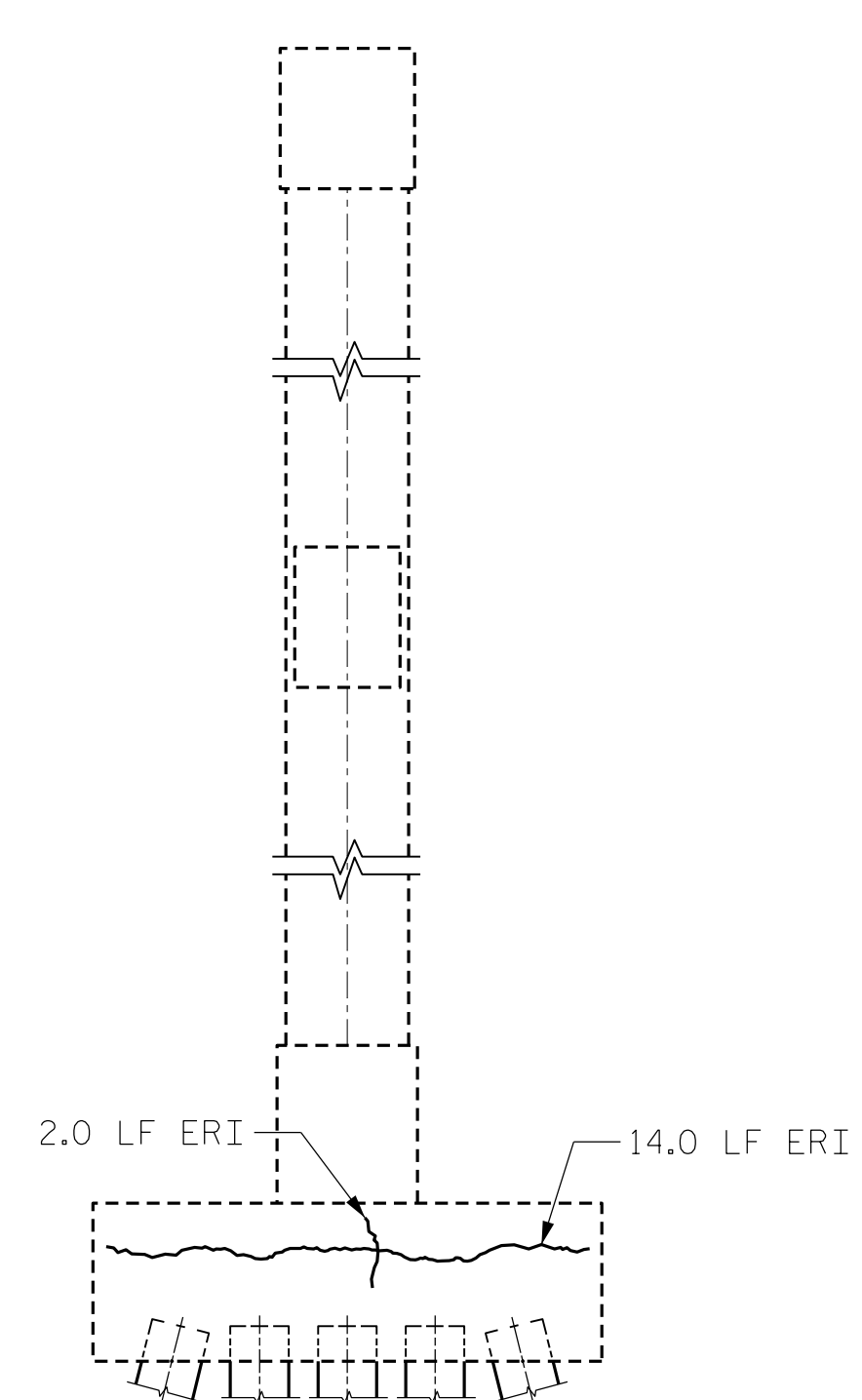
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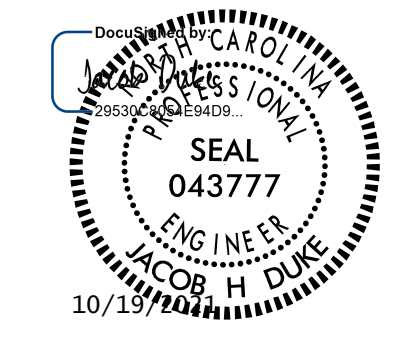


NORTH ELEVATION



SOUTH ELEVATION

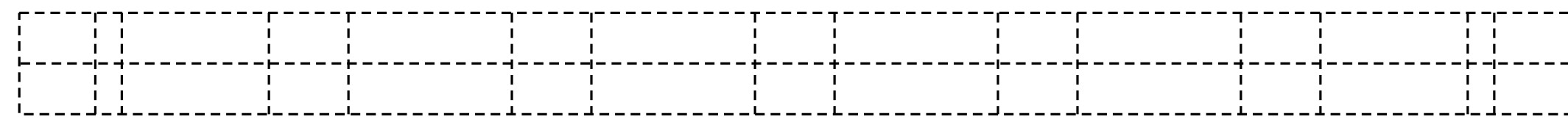
PROJECT NO. 15BPR.46  
DARE COUNTY  
BRIDGE NO. 270012



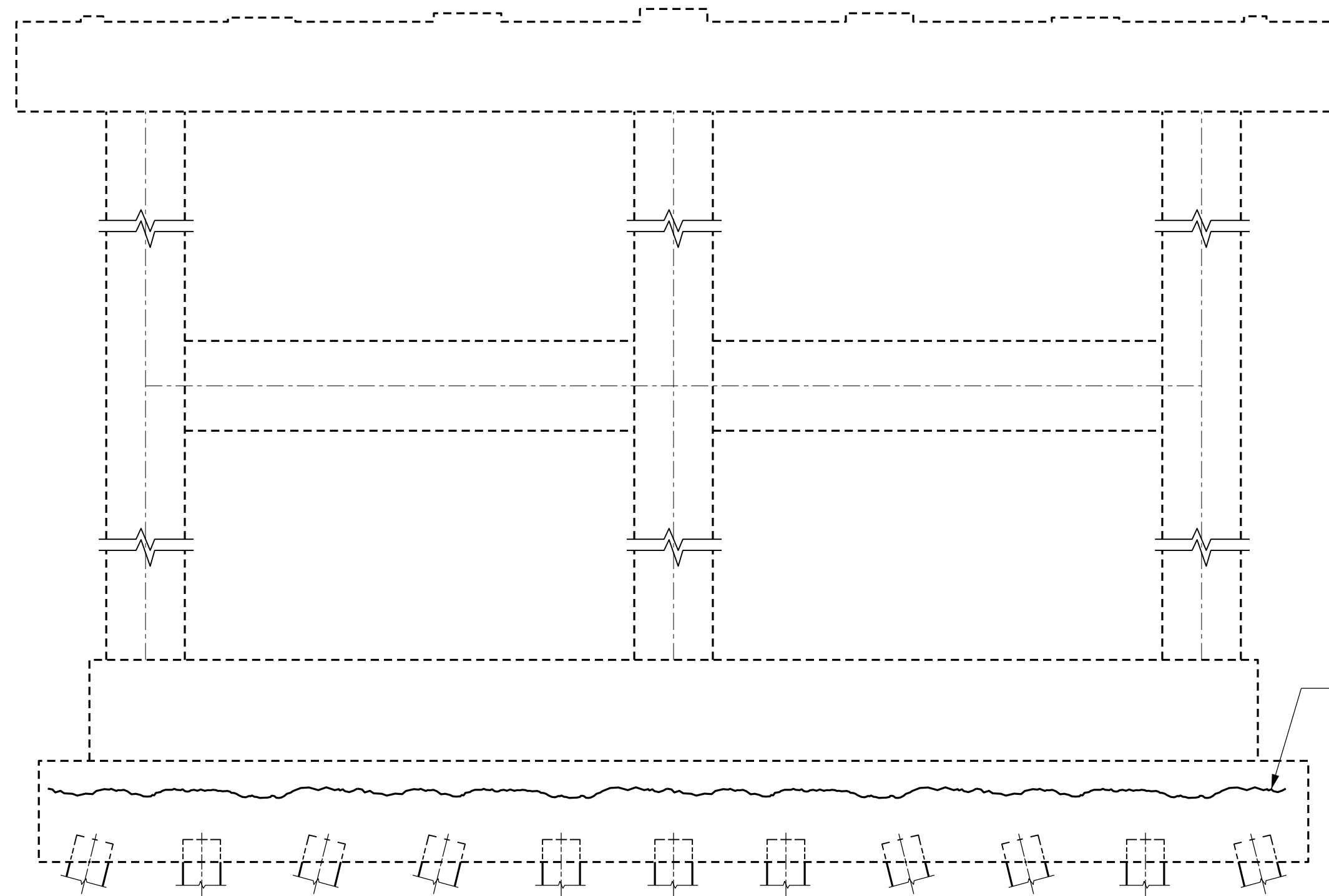
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SUBSTRUCTURE REPAIRS					
BENTS 19					
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 137

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

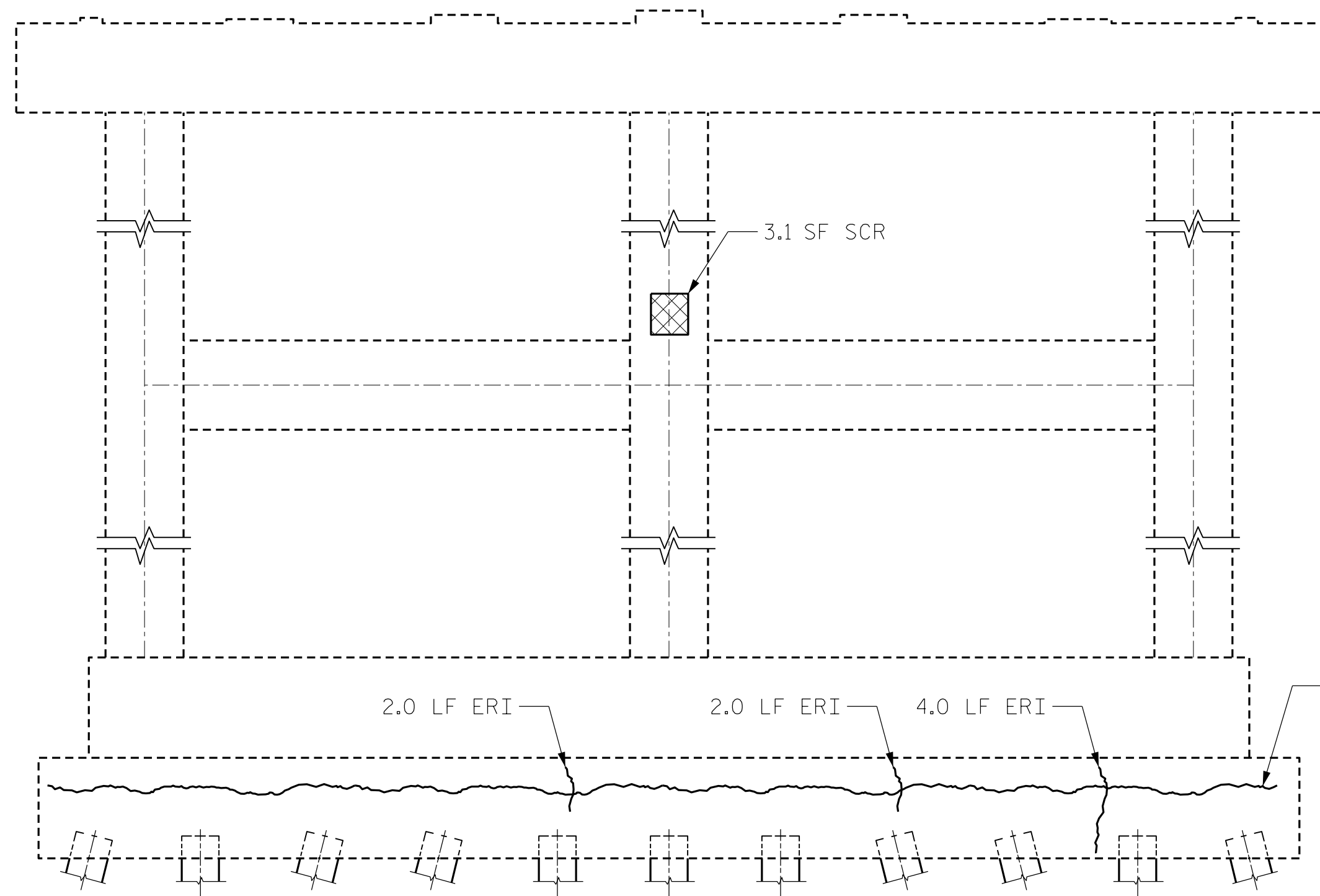
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FINAL UNLESS ALL  
SIGNATURES COMPLETED



PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



EAST ELEVATION



WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	3.1	1.5		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	146.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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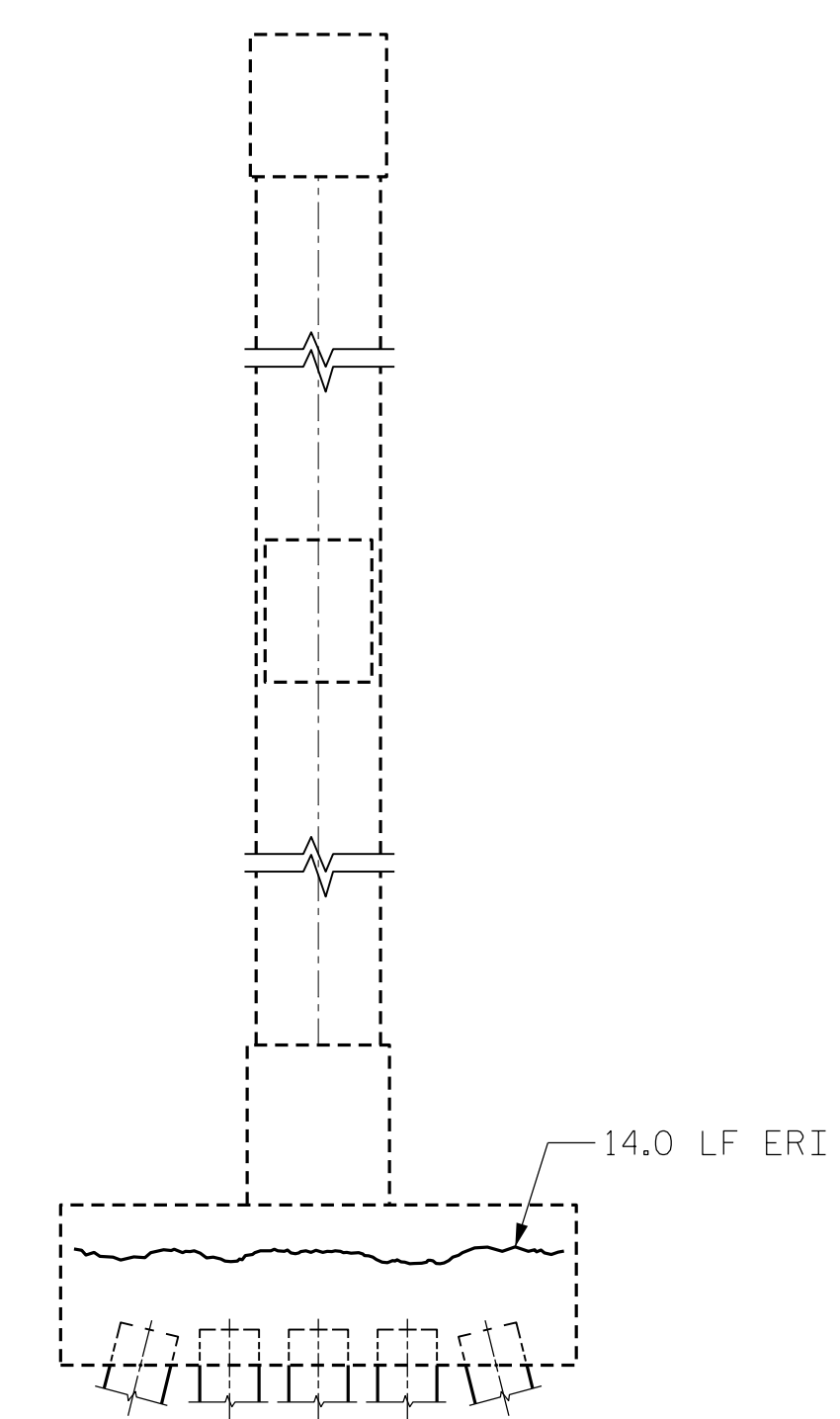
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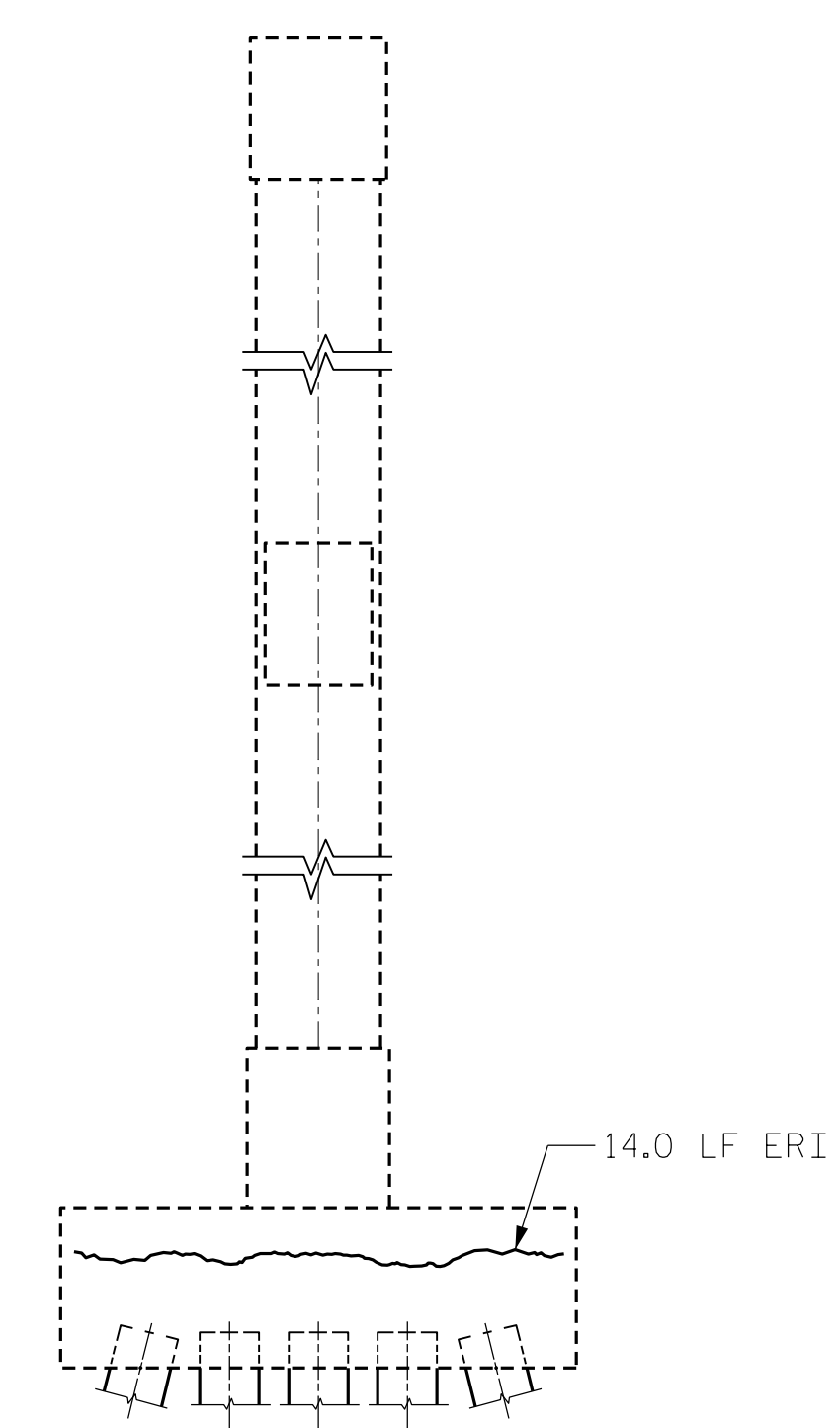
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

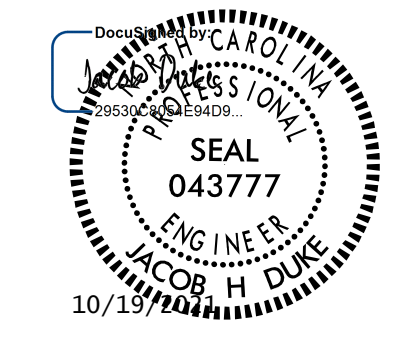


NORTH ELEVATION



SOUTH ELEVATION

PROJECT NO. 15BPR.46  
DARE COUNTY  
BRIDGE NO. 270012



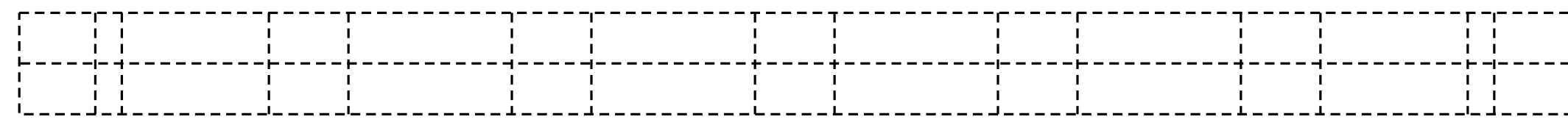
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS BENT 20					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-85
					TOTAL SHEETS 137

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

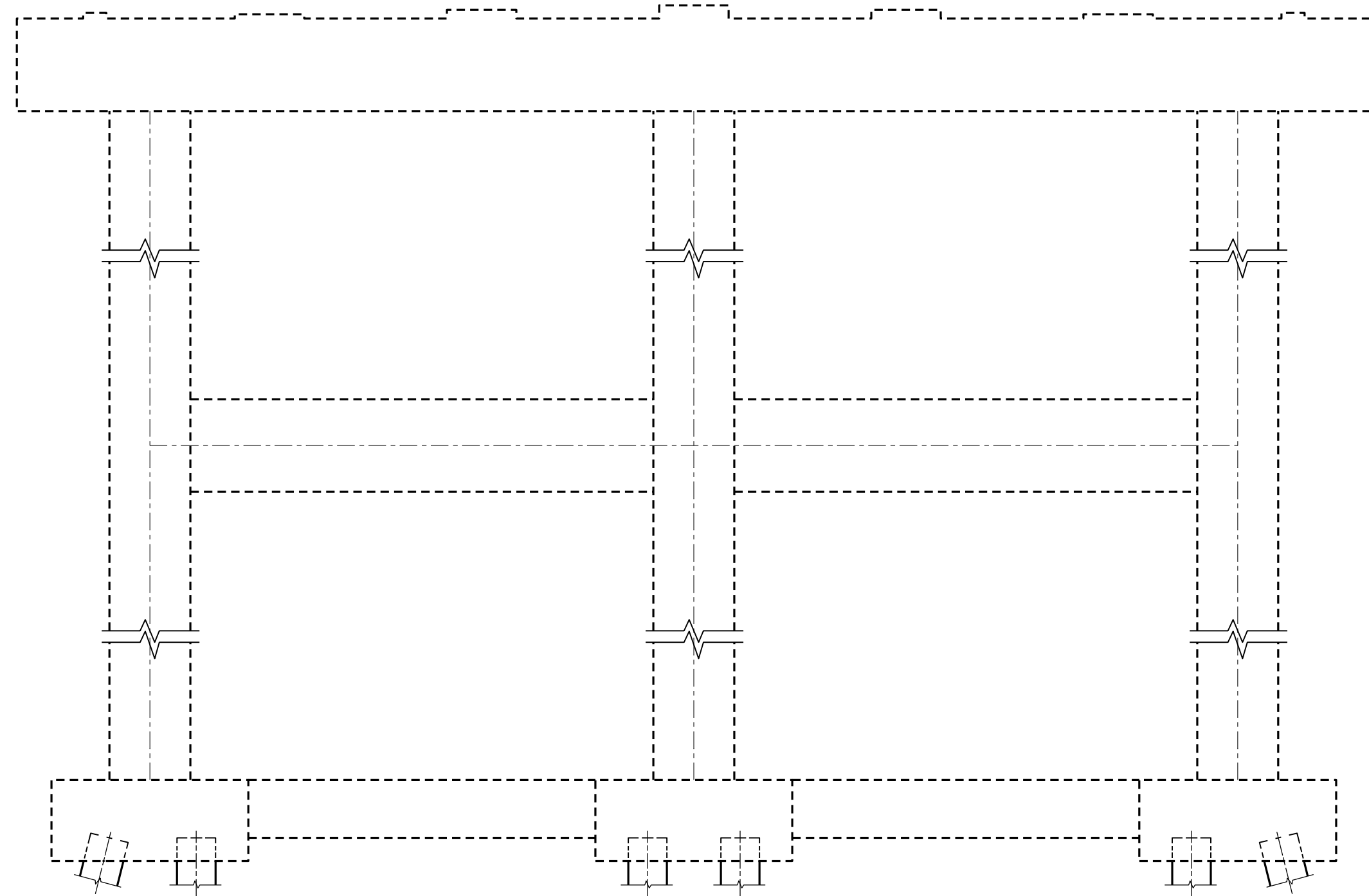
10/19/2021  
15BPR.46.SMU.SBR20.270012.dgn  
jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

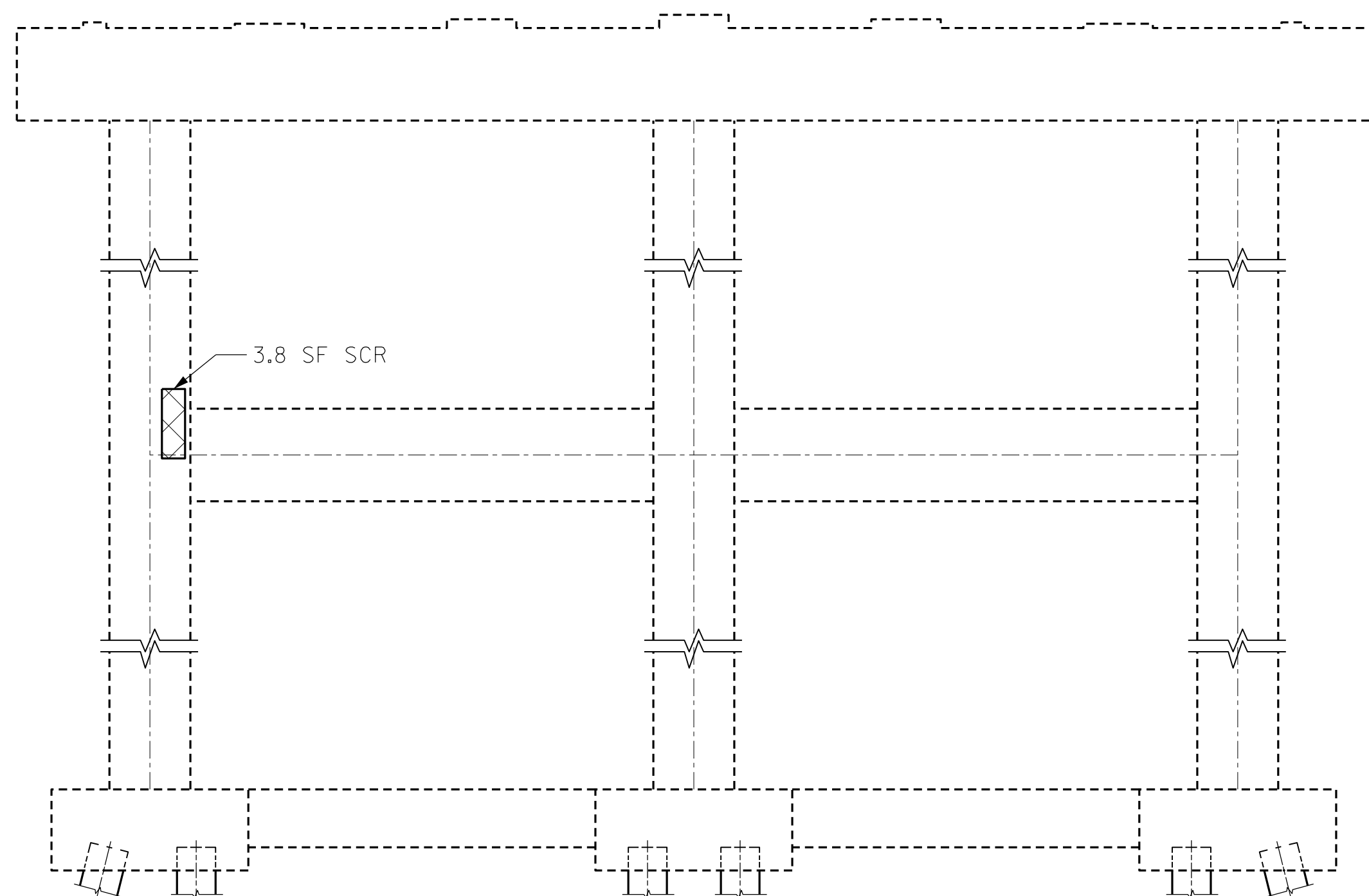




PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



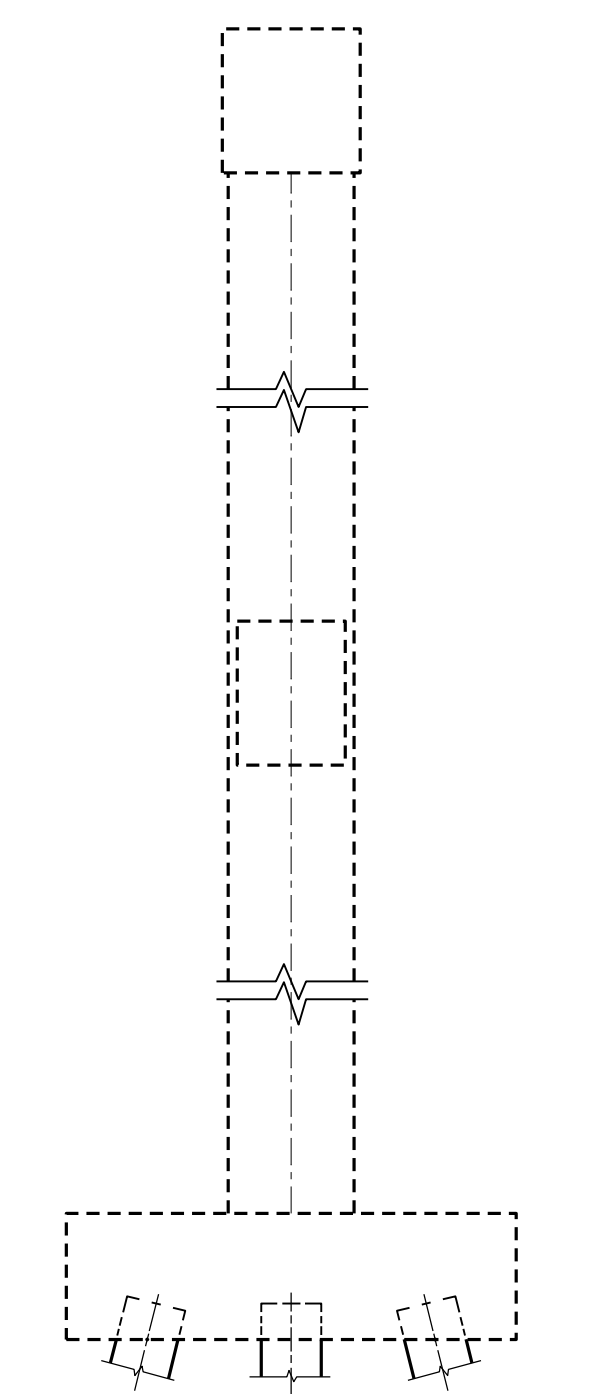
EAST ELEVATION



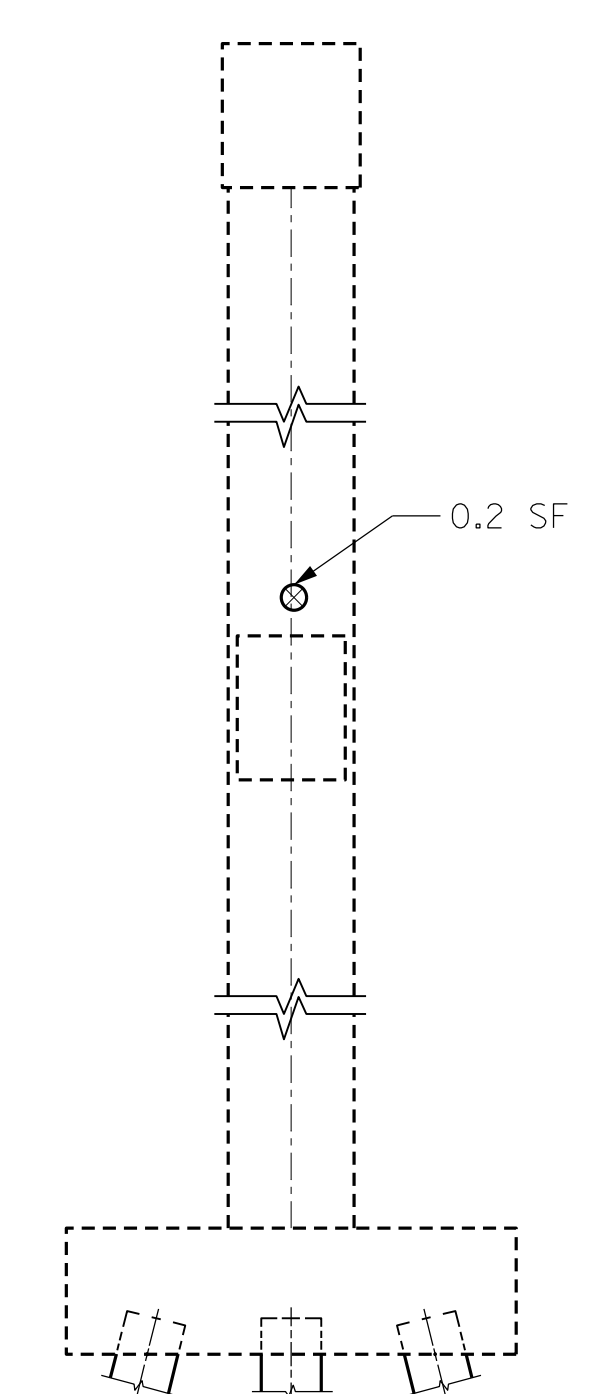
WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	4.0	2.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	-			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				



NORTH ELEVATION



SOUTH ELEVATION

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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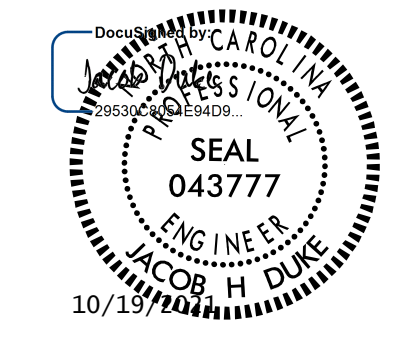
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



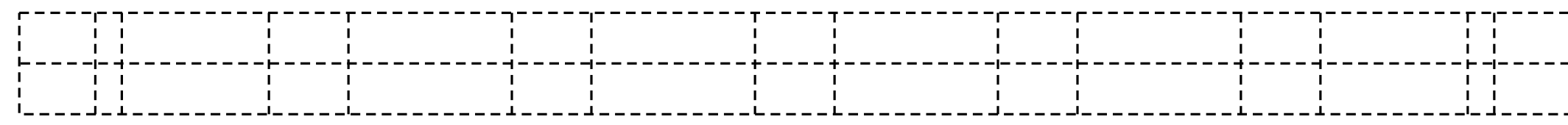
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE REPAIRS**  
 BENT 21

DRAWN BY :	FIDEL L. FLORES	DATE :	9/30/2020
CHECKED BY :	JACOB H. DUKE	DATE :	10/1/2020
DESIGN ENGINEER OF RECORD:	JACOB H. DUKE	DATE :	10/1/2020

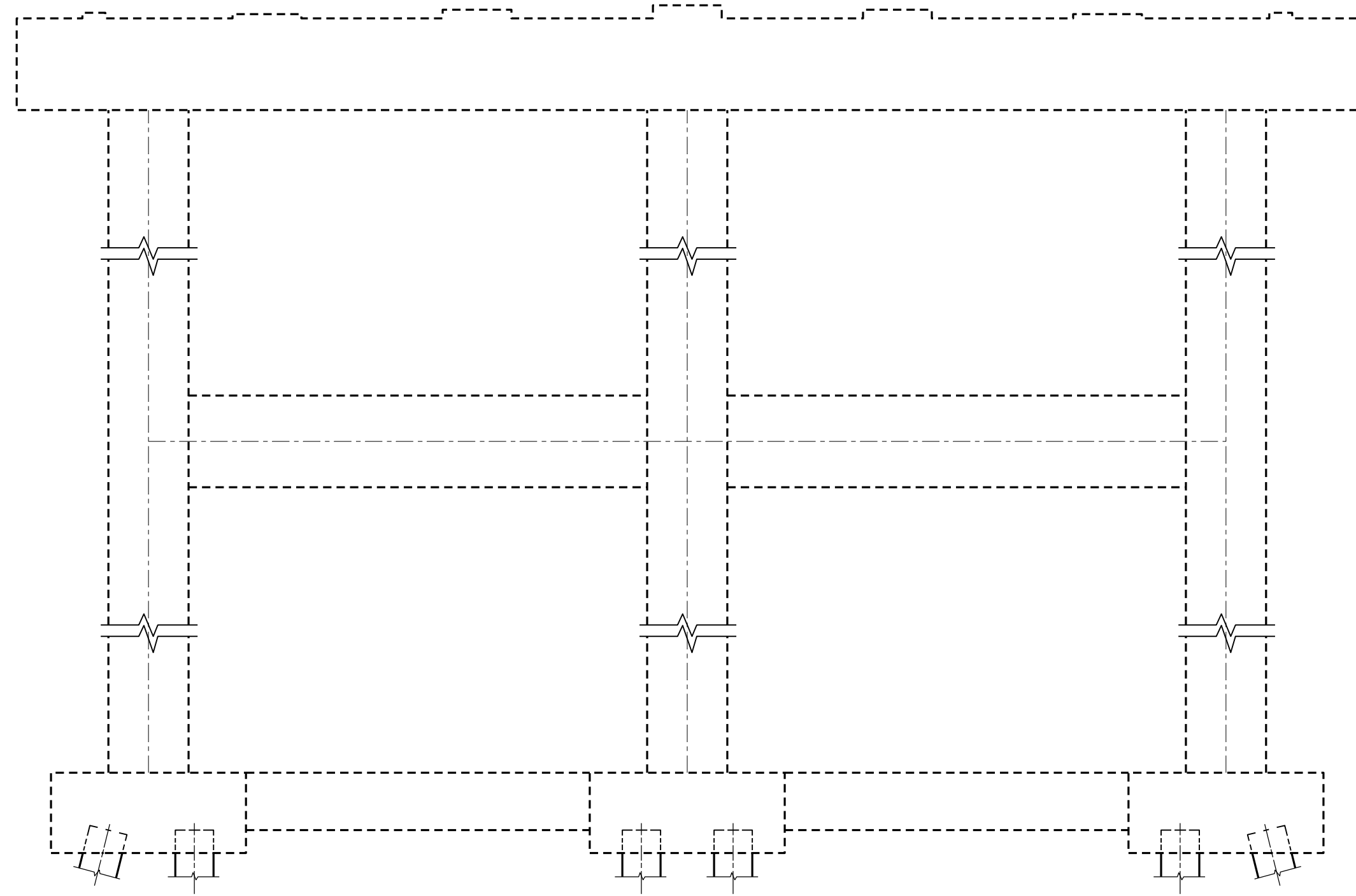
10/19/2021  
 15BPR.46.SMU.SBR21.270012.dgn  
 jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

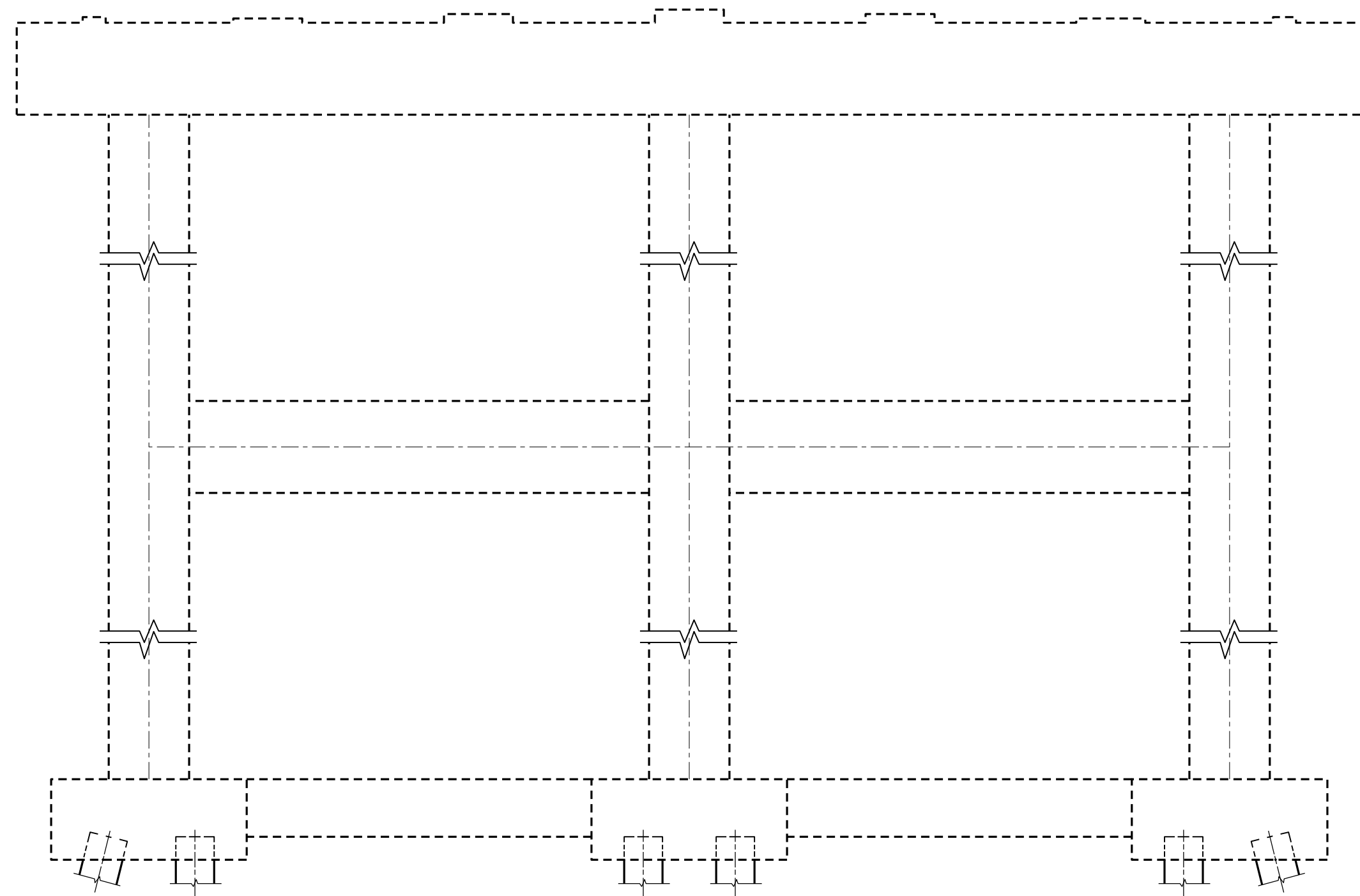
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



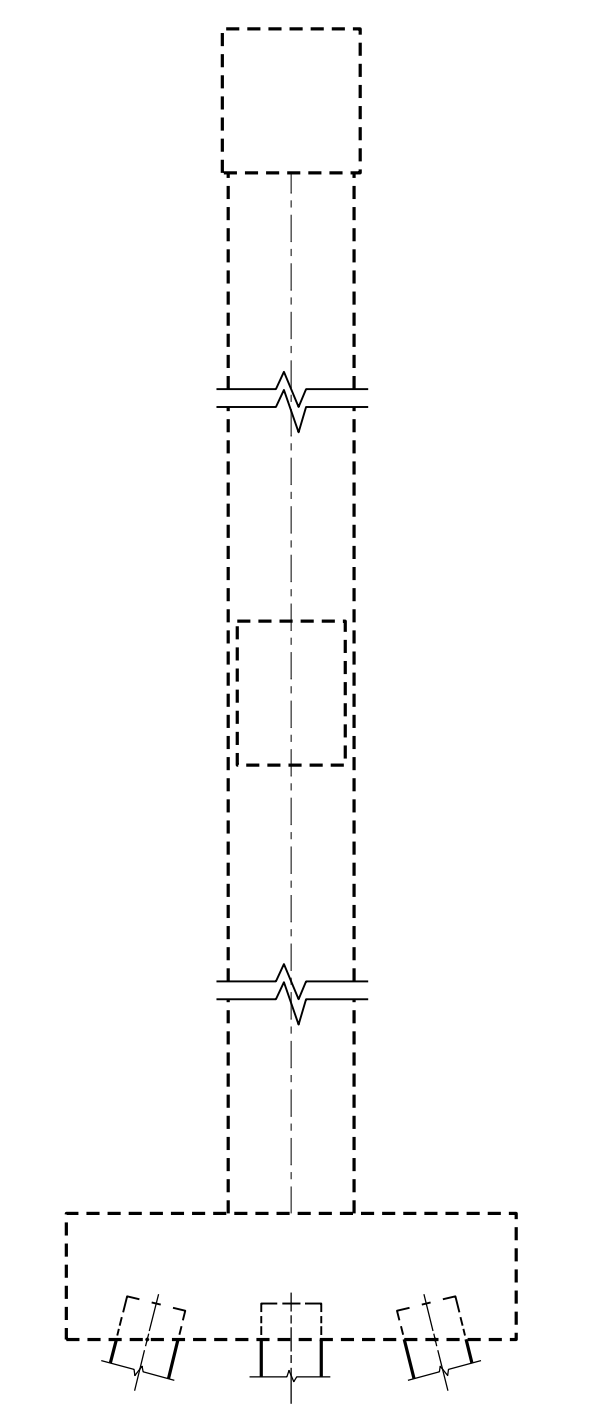
EAST ELEVATION



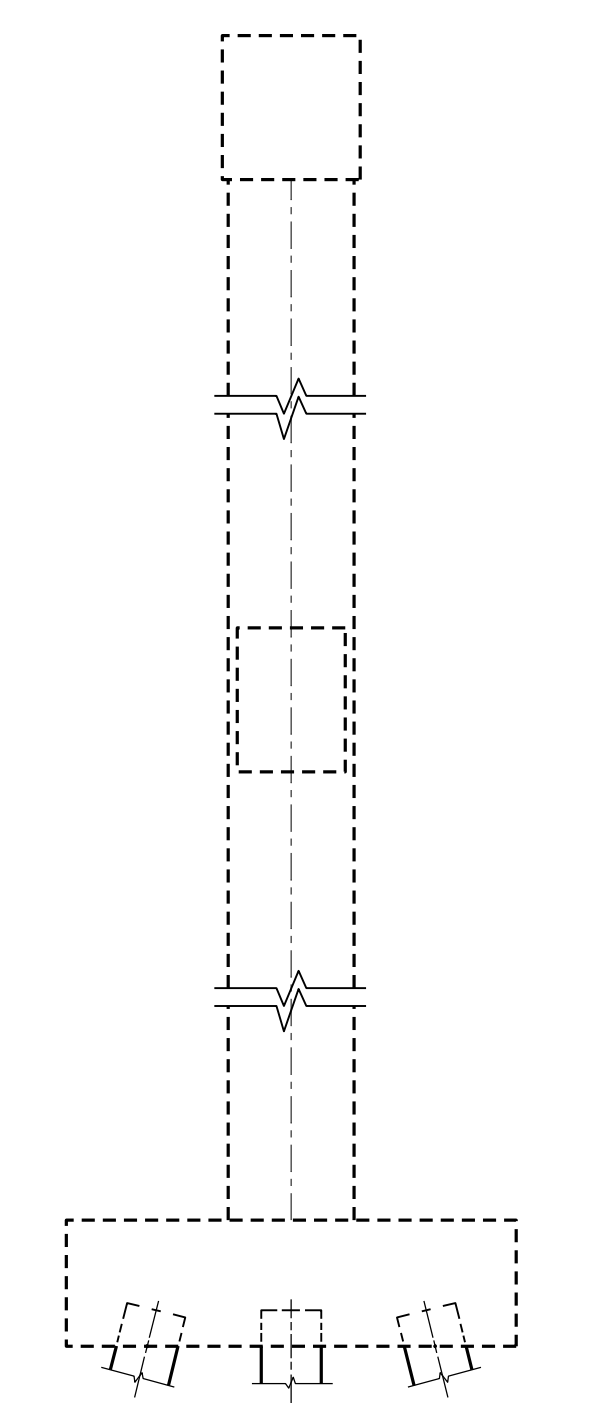
WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	-			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				



NORTH ELEVATION



SOUTH ELEVATION

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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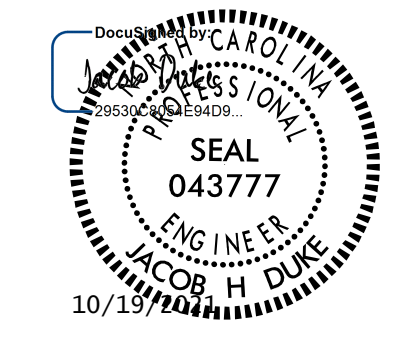
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

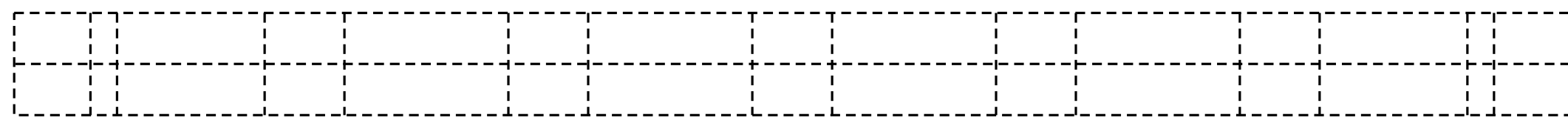
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



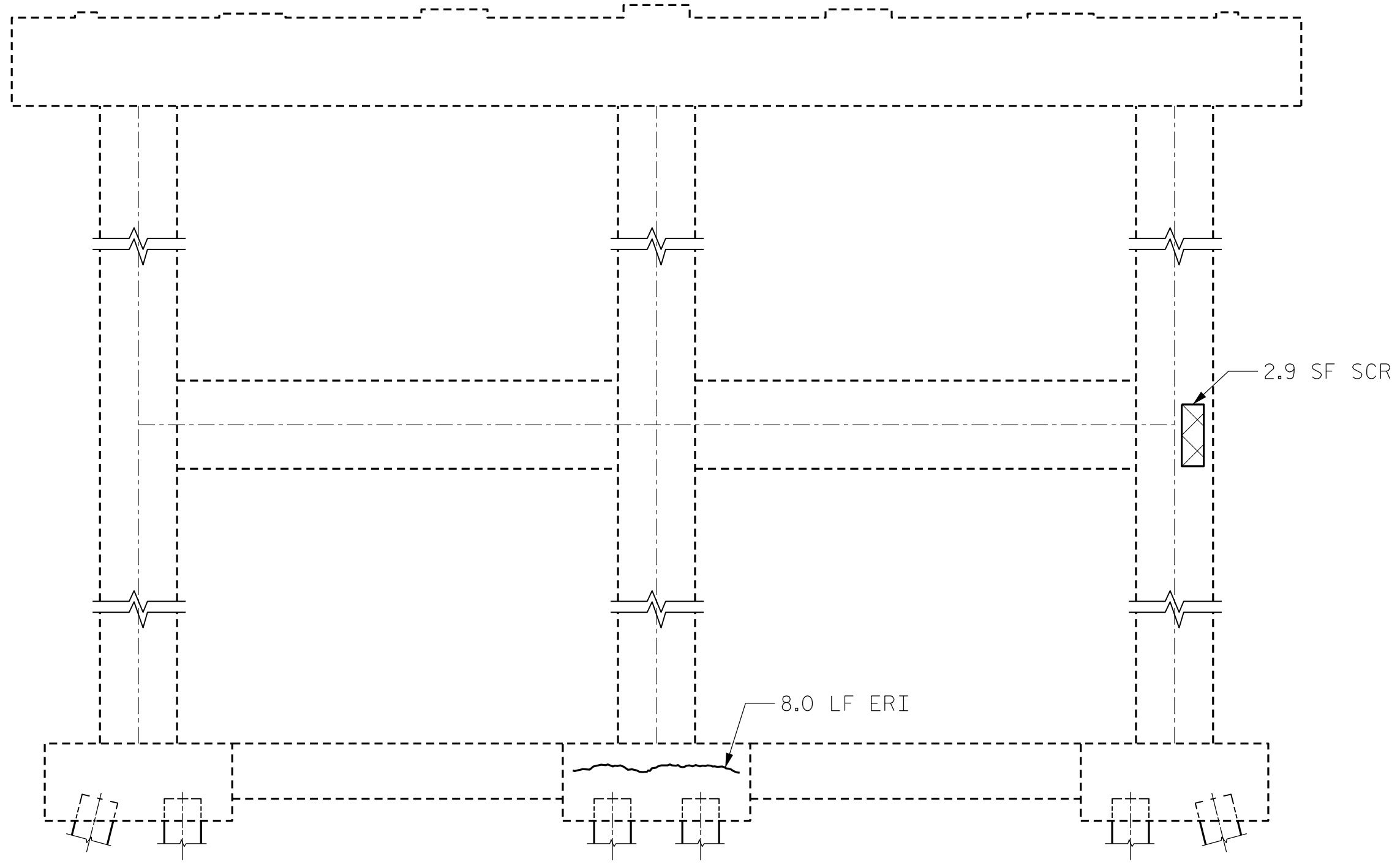
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS					
BENT 22					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					137

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

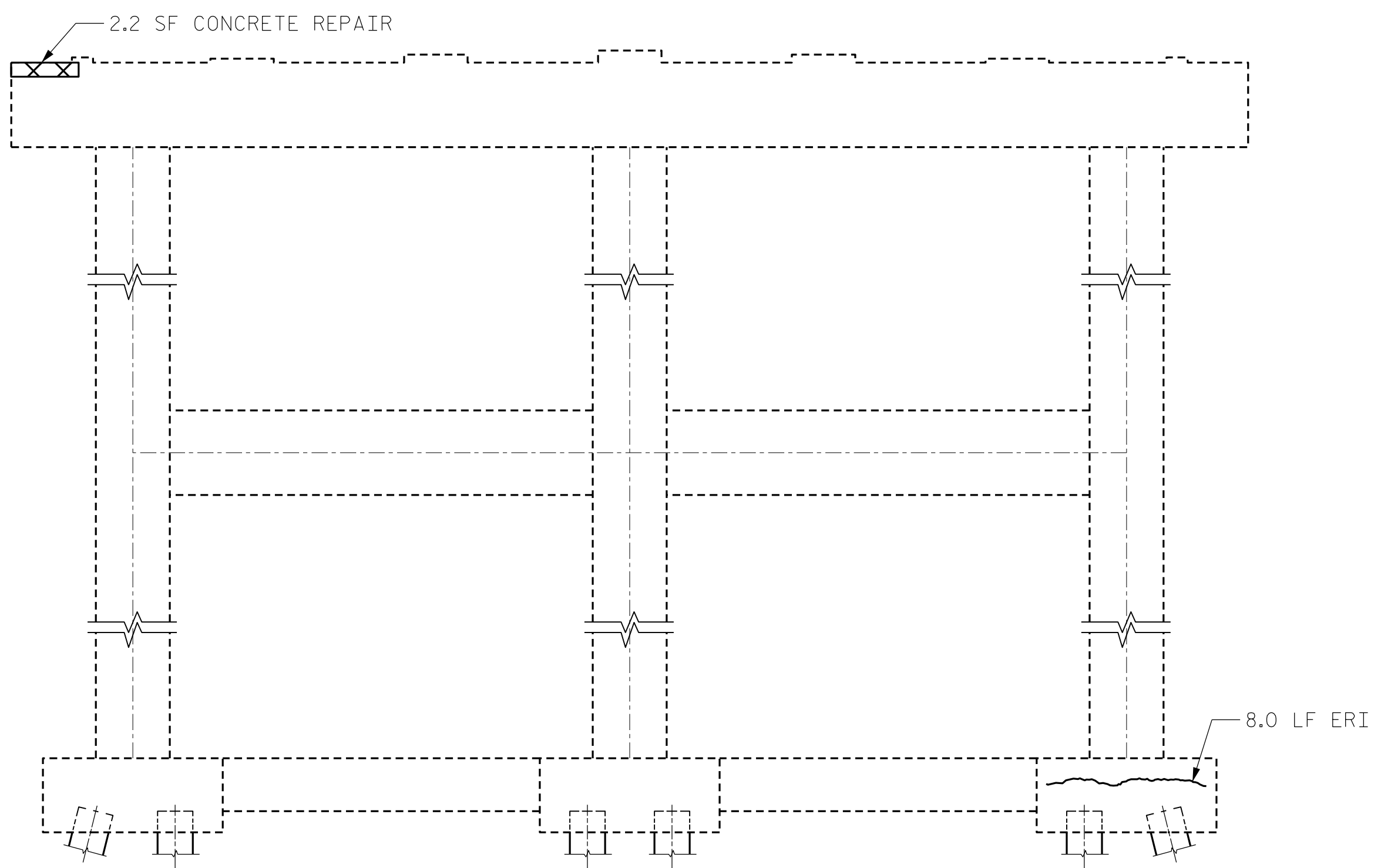
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



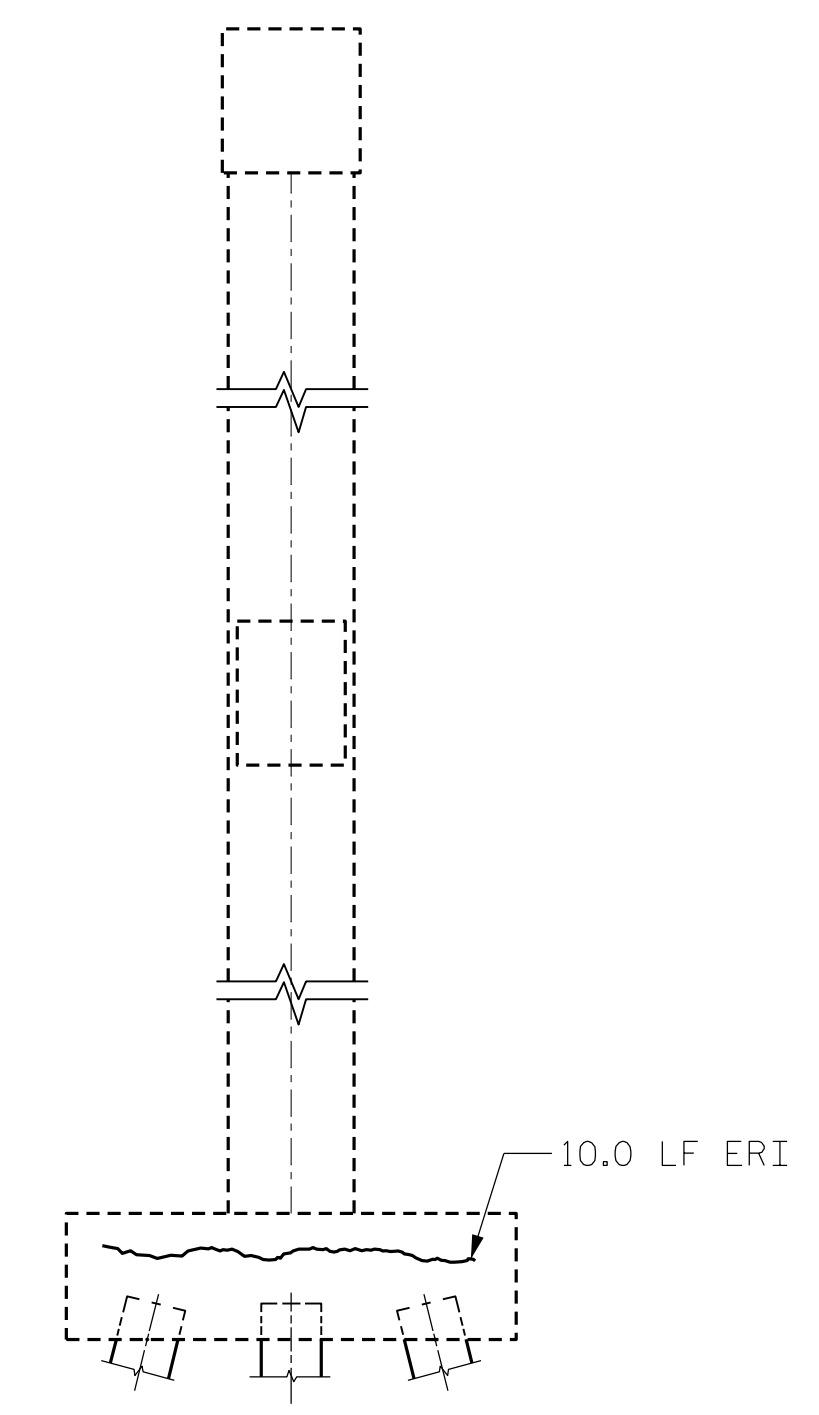
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



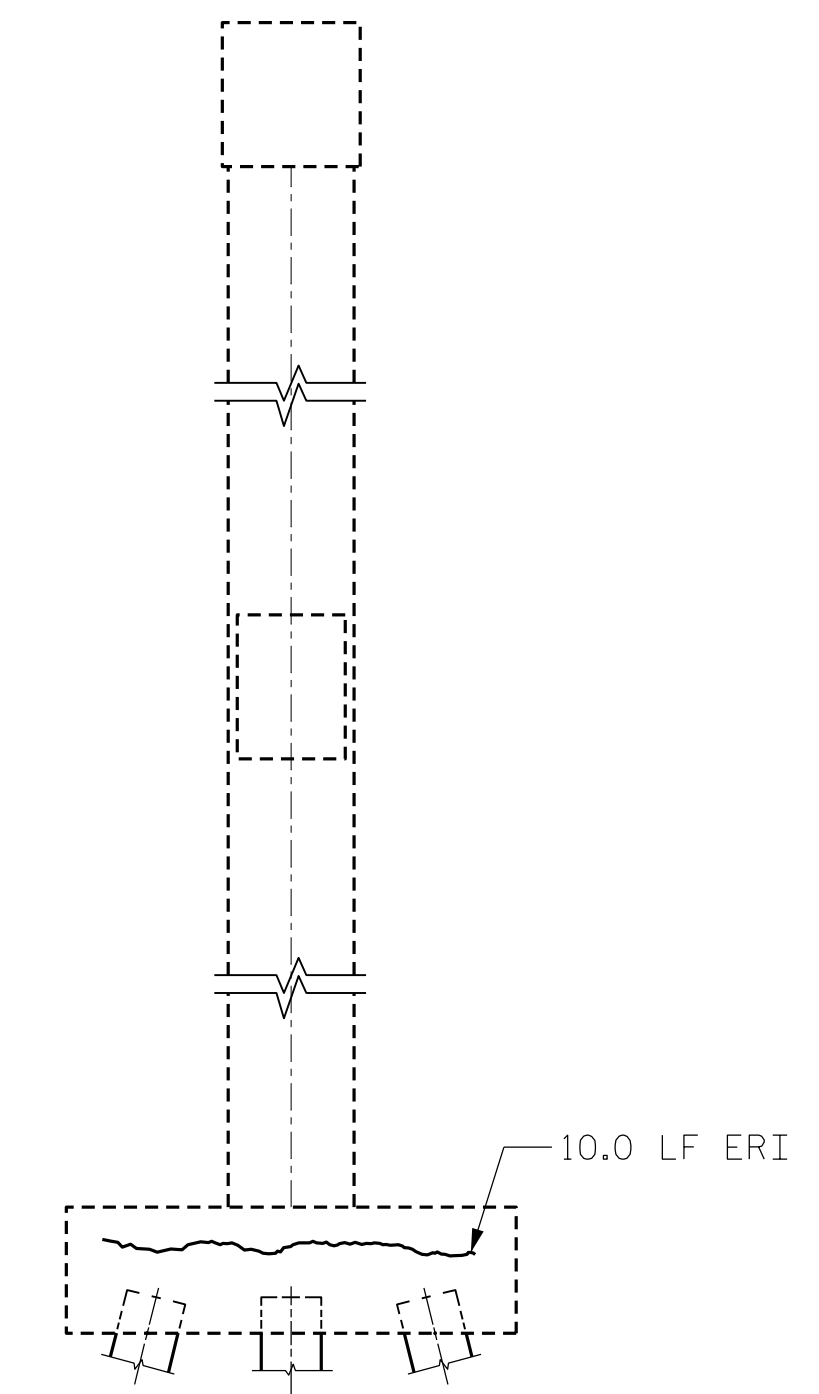
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	2.9	1.5		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	2.2	1.1		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	36.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

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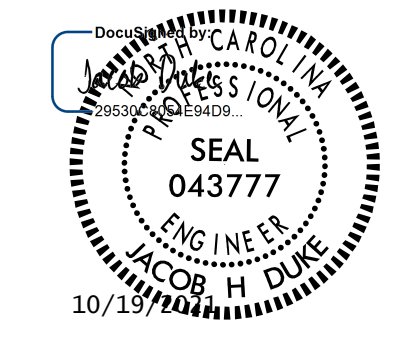
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

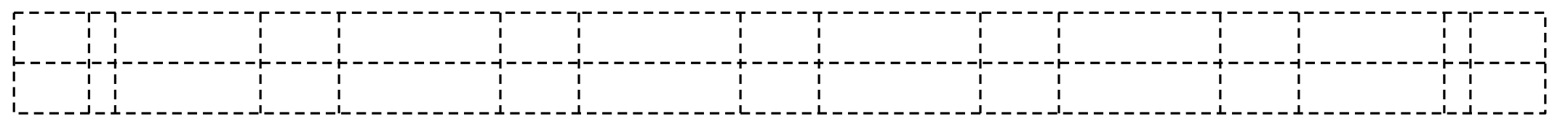
SUBSTRUCTURE REPAIRS  
BENT 23

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

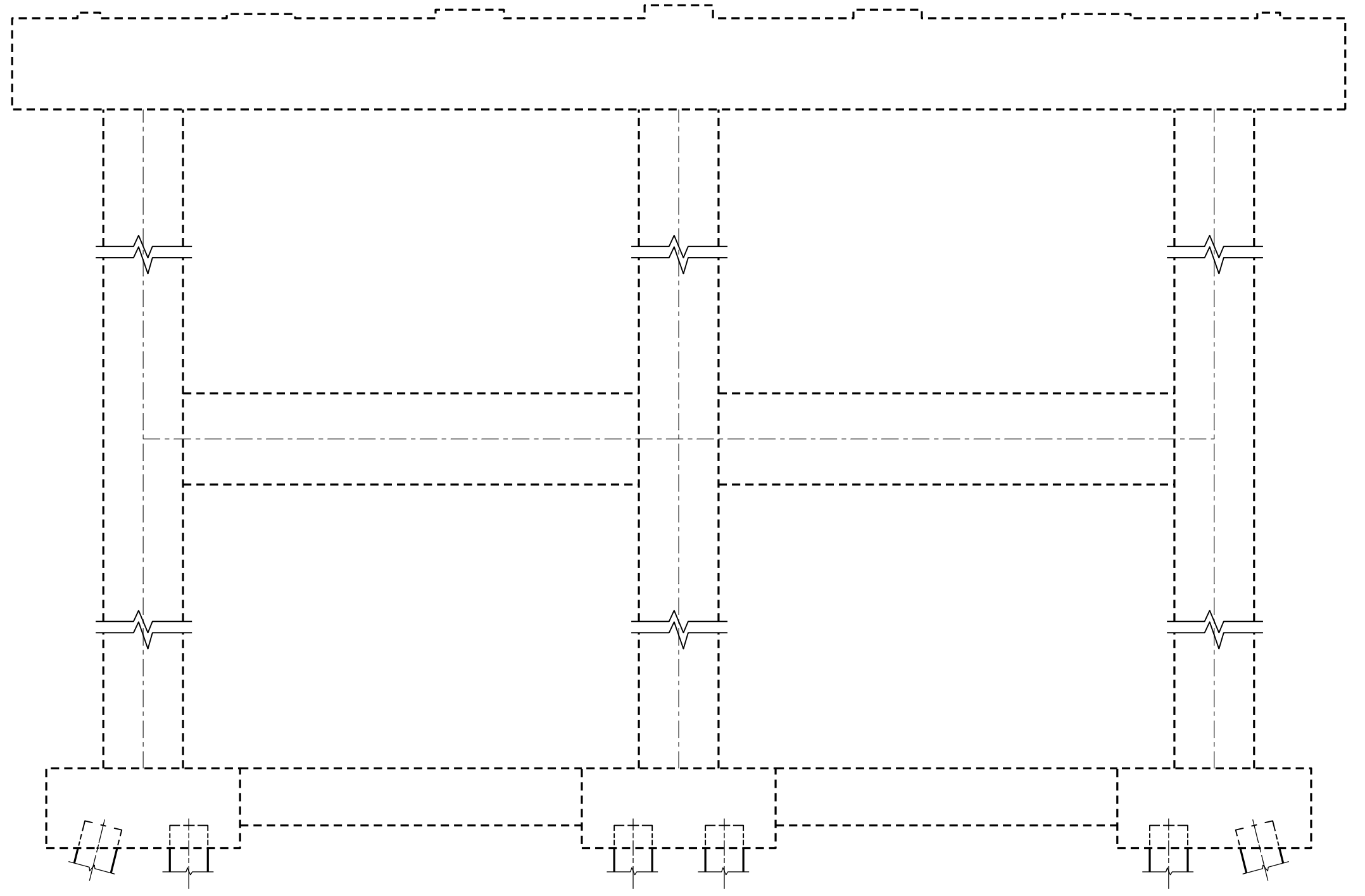
10/19/2021  
15BPR.46.SMU.SBR23.270012.dgn  
jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

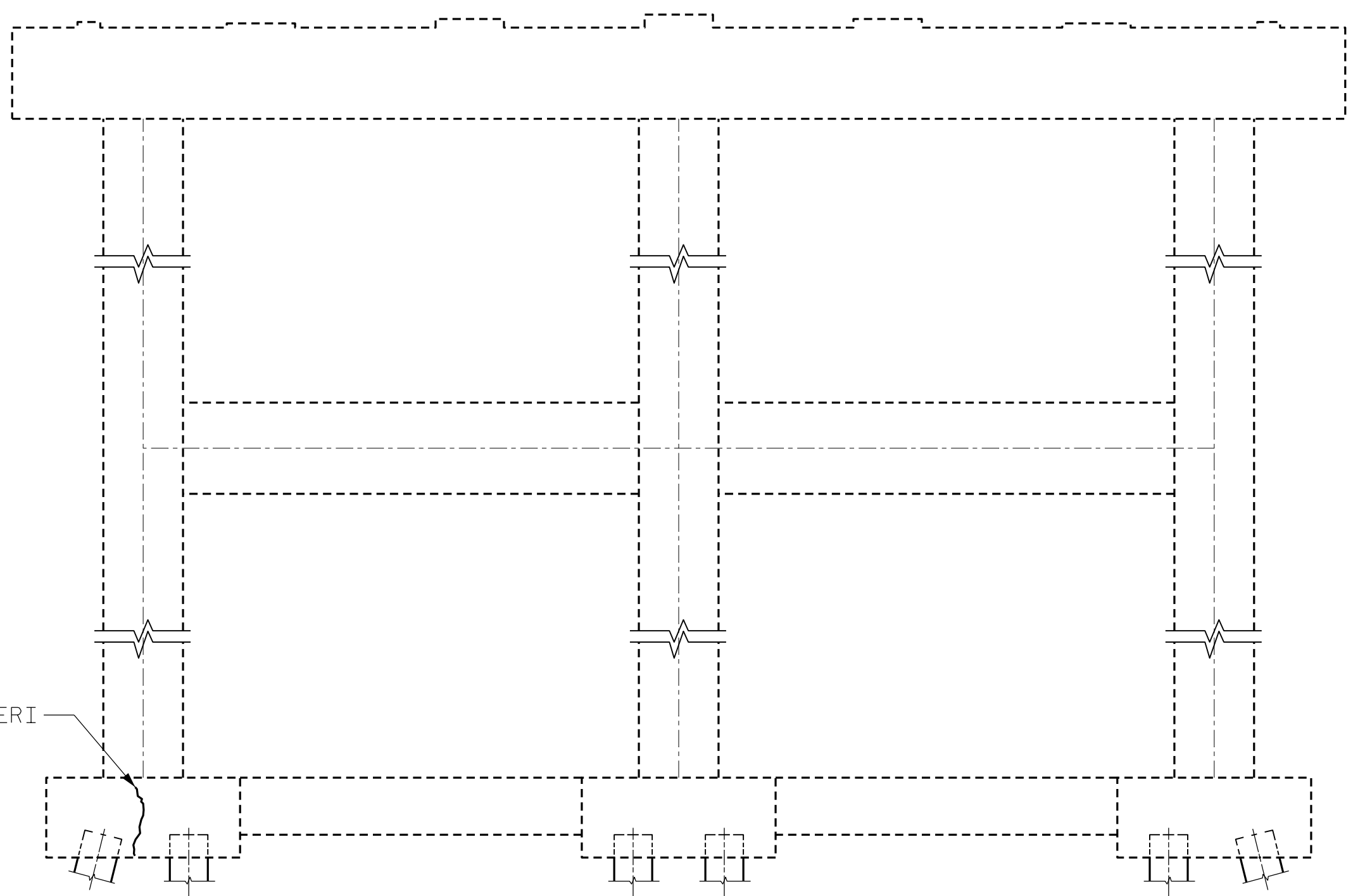
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



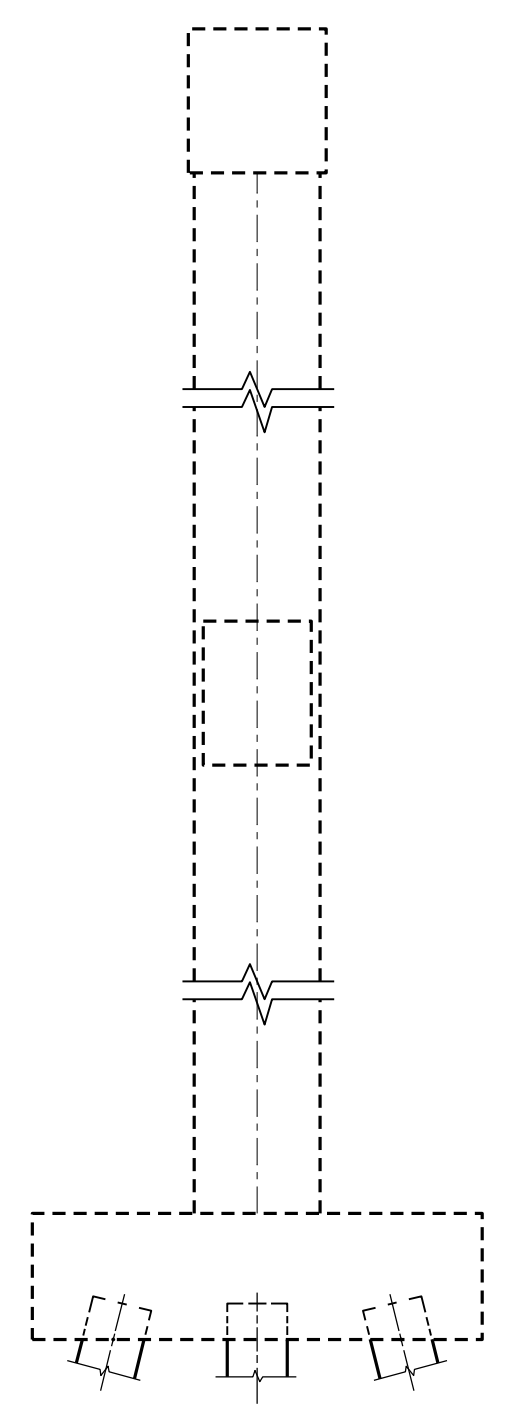
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



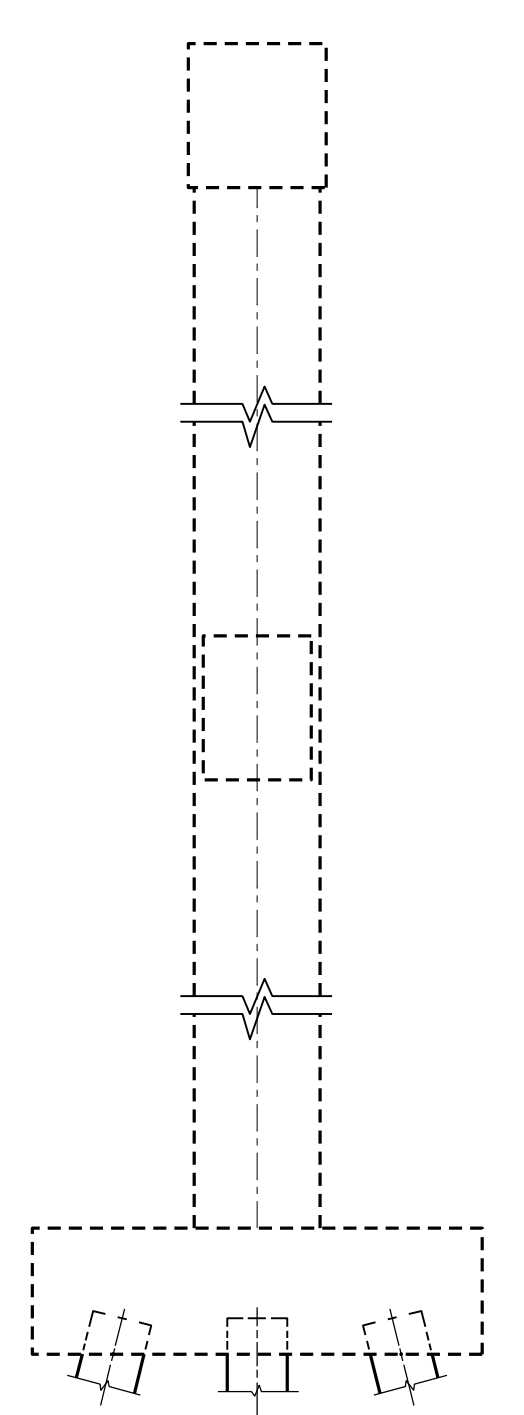
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	3.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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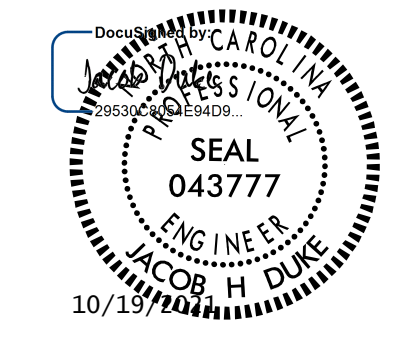
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



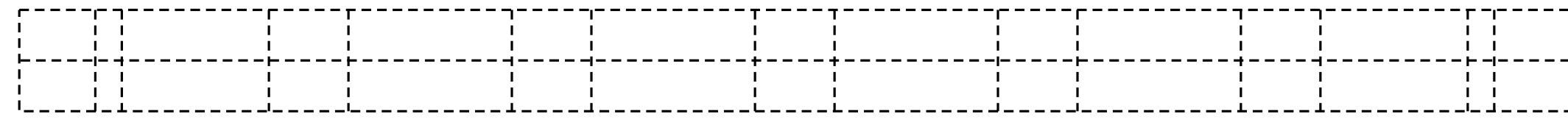
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE REPAIRS**  
 BENTS 24

DRAWN BY :	FIDEL L. FLORES	DATE :	9/30/2020
CHECKED BY :	JACOB H. DUKE	DATE :	10/1/2020
DESIGN ENGINEER OF RECORD:	JACOB H. DUKE	DATE :	10/1/2020

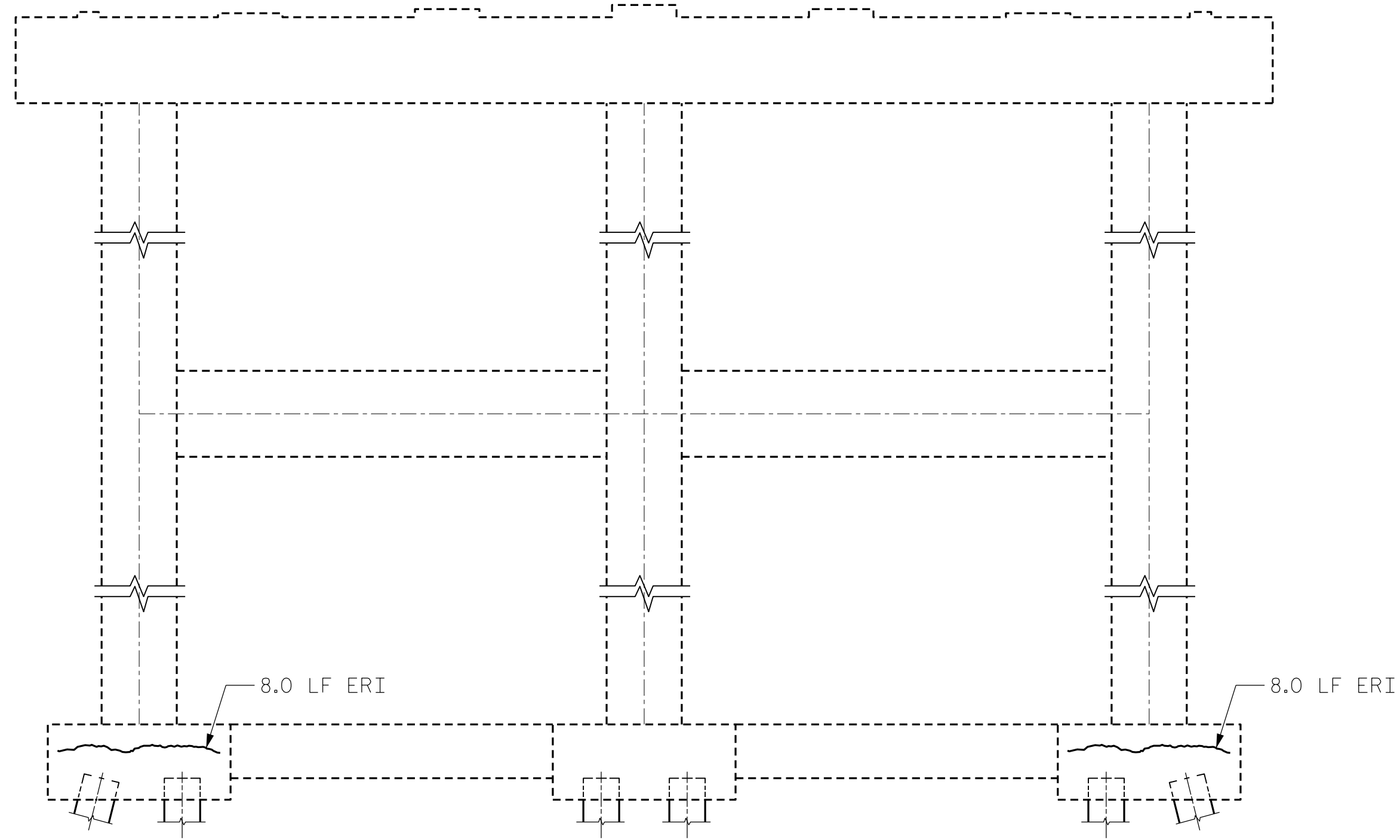
10/19/2021  
 15BPR.46.SMU.SBR24.270012.dgn  
 jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

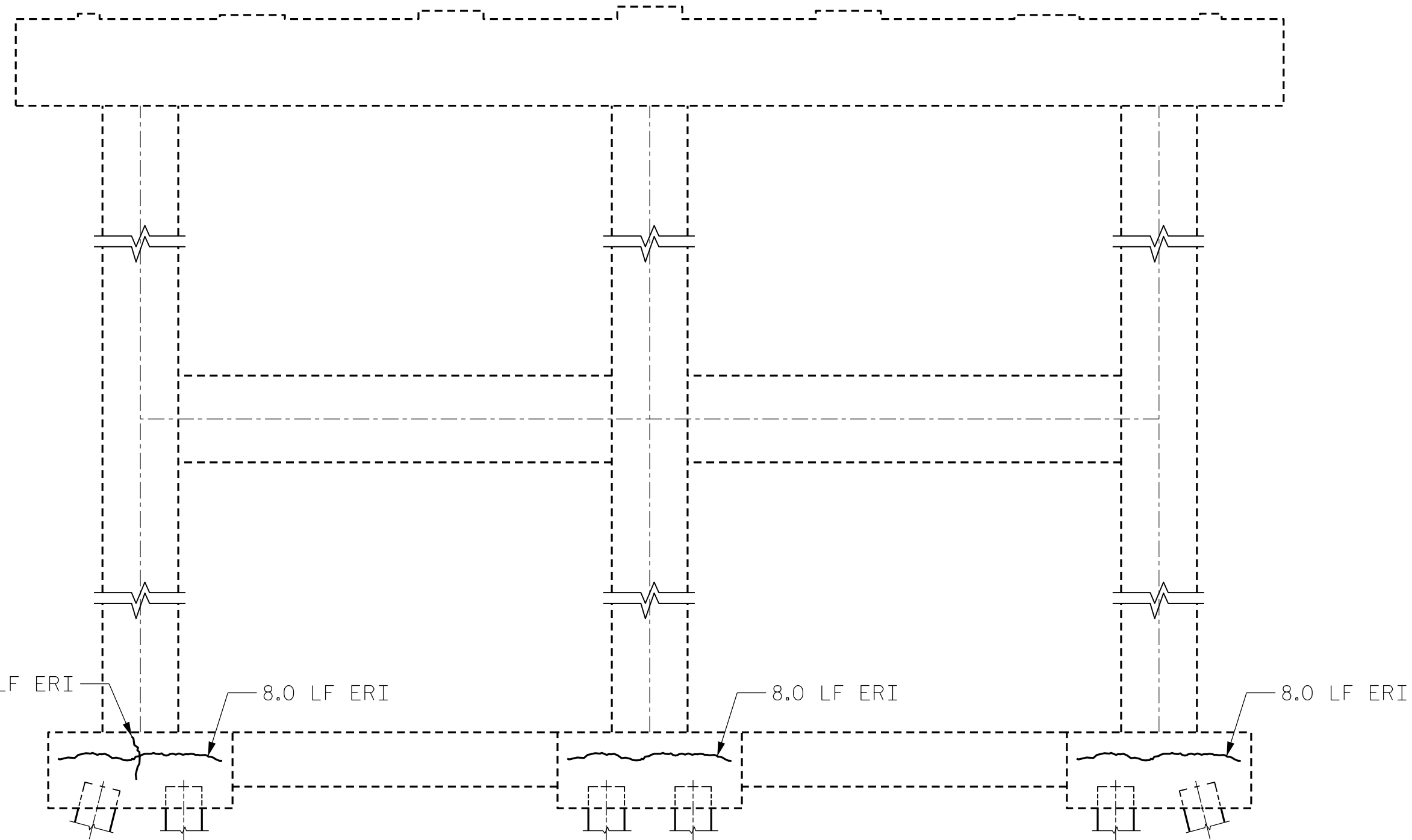
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



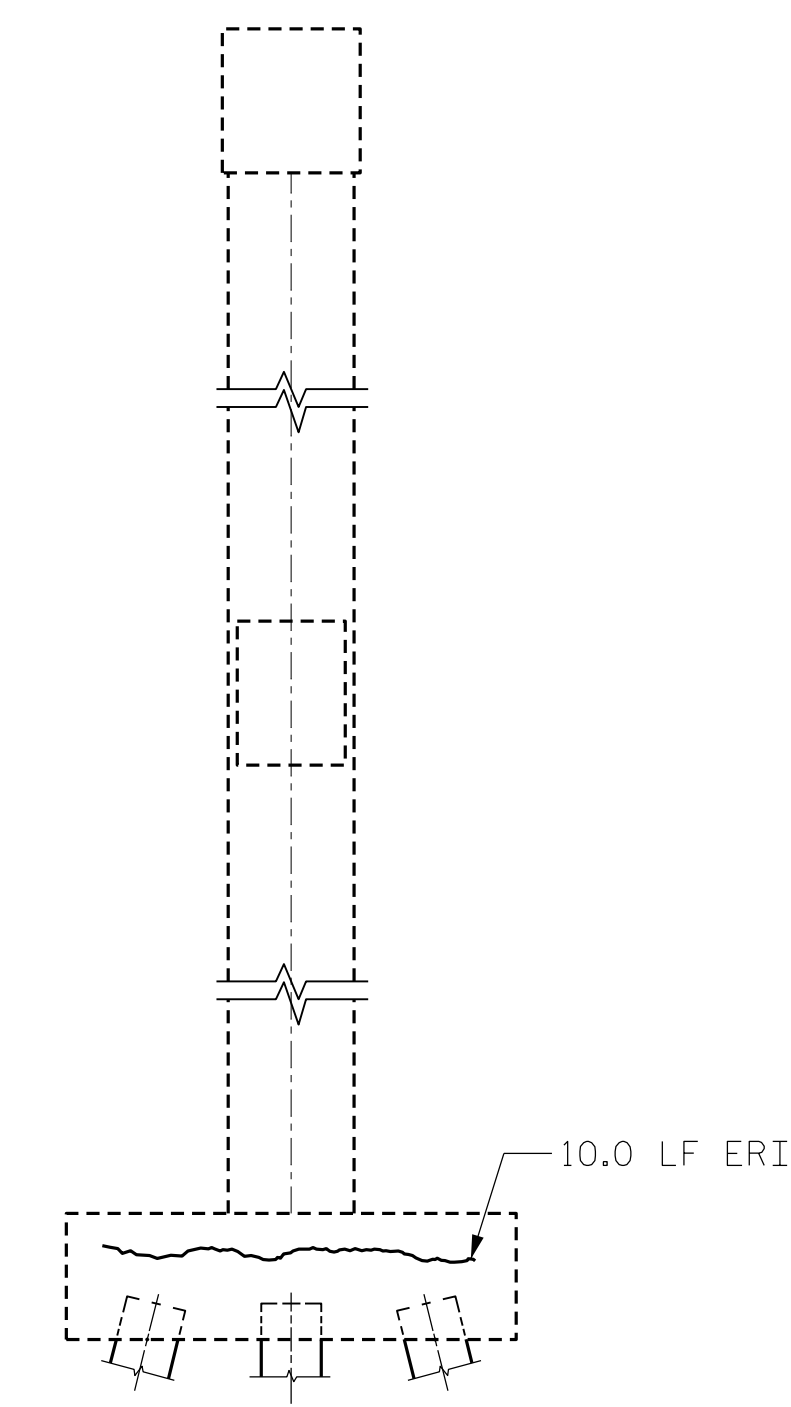
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



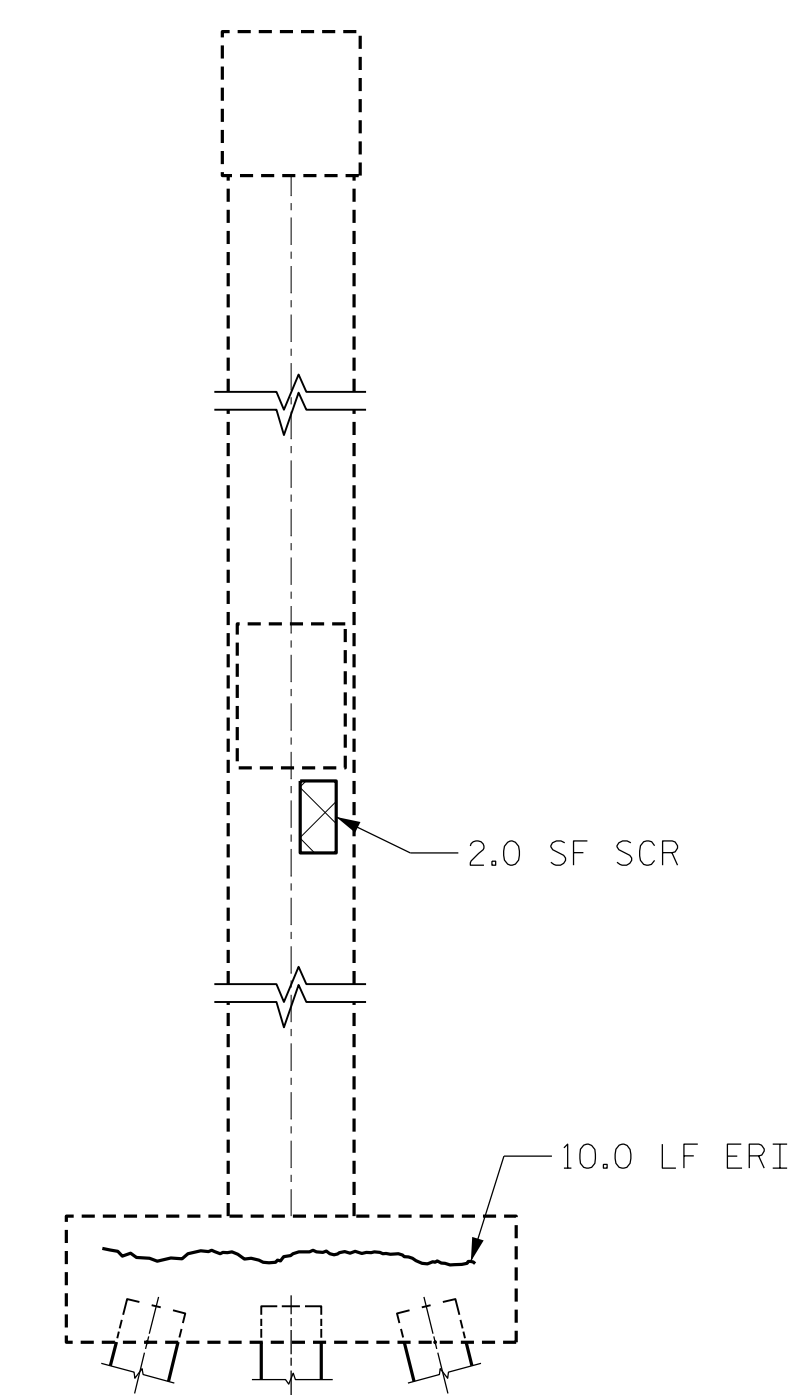
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	2.0	1.0		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	62.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

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CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS  $\geq 1/16"$  AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

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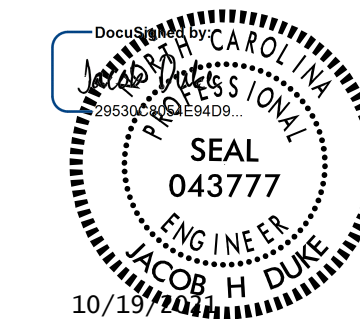
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

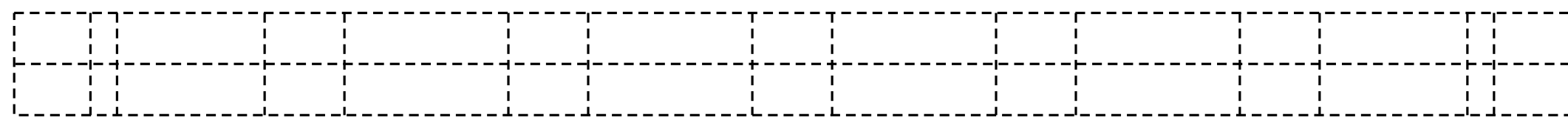
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



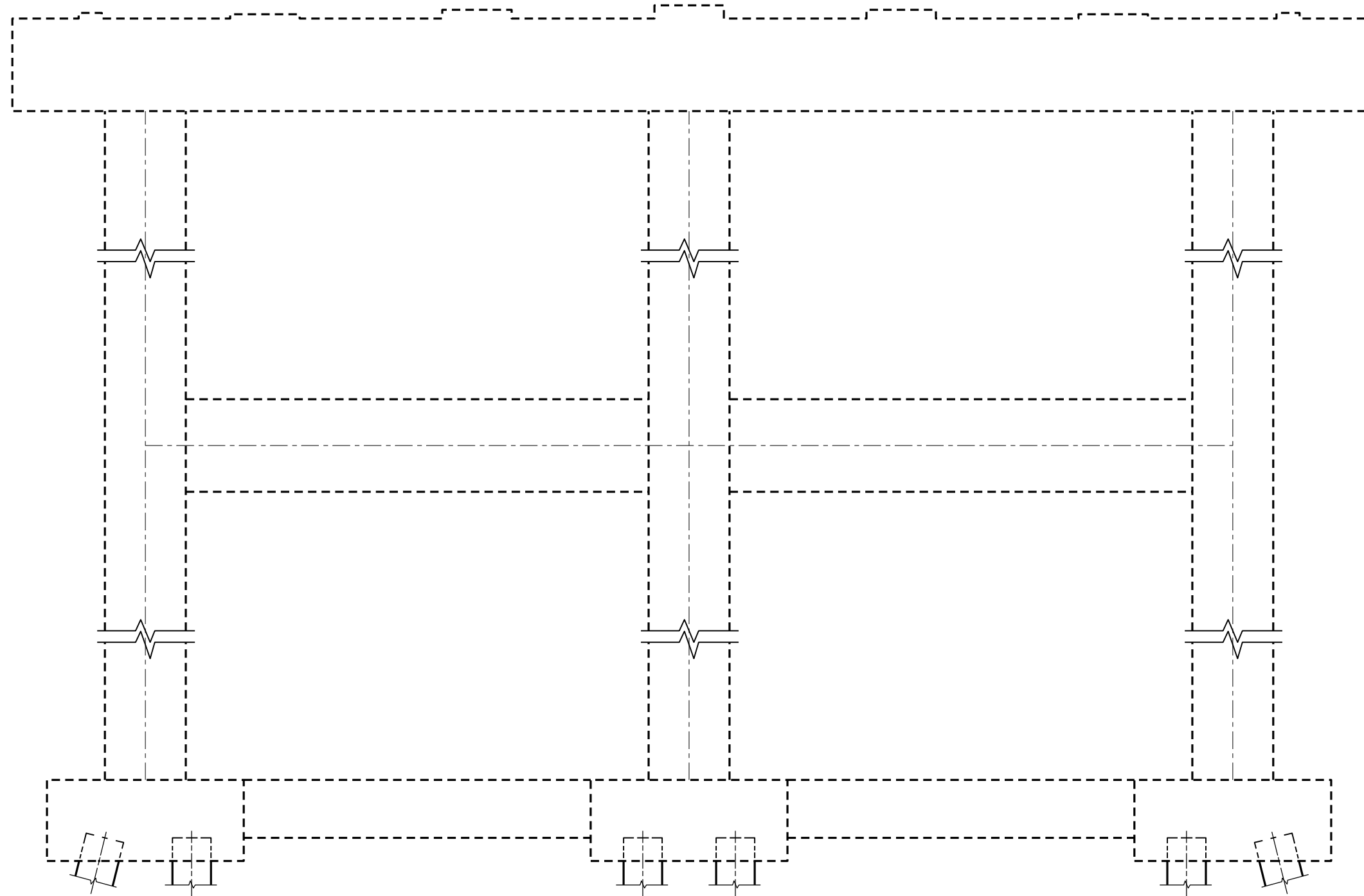
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
<b>SUBSTRUCTURE REPAIRS</b>						S-90
BENT 25						
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			137
2			4			

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

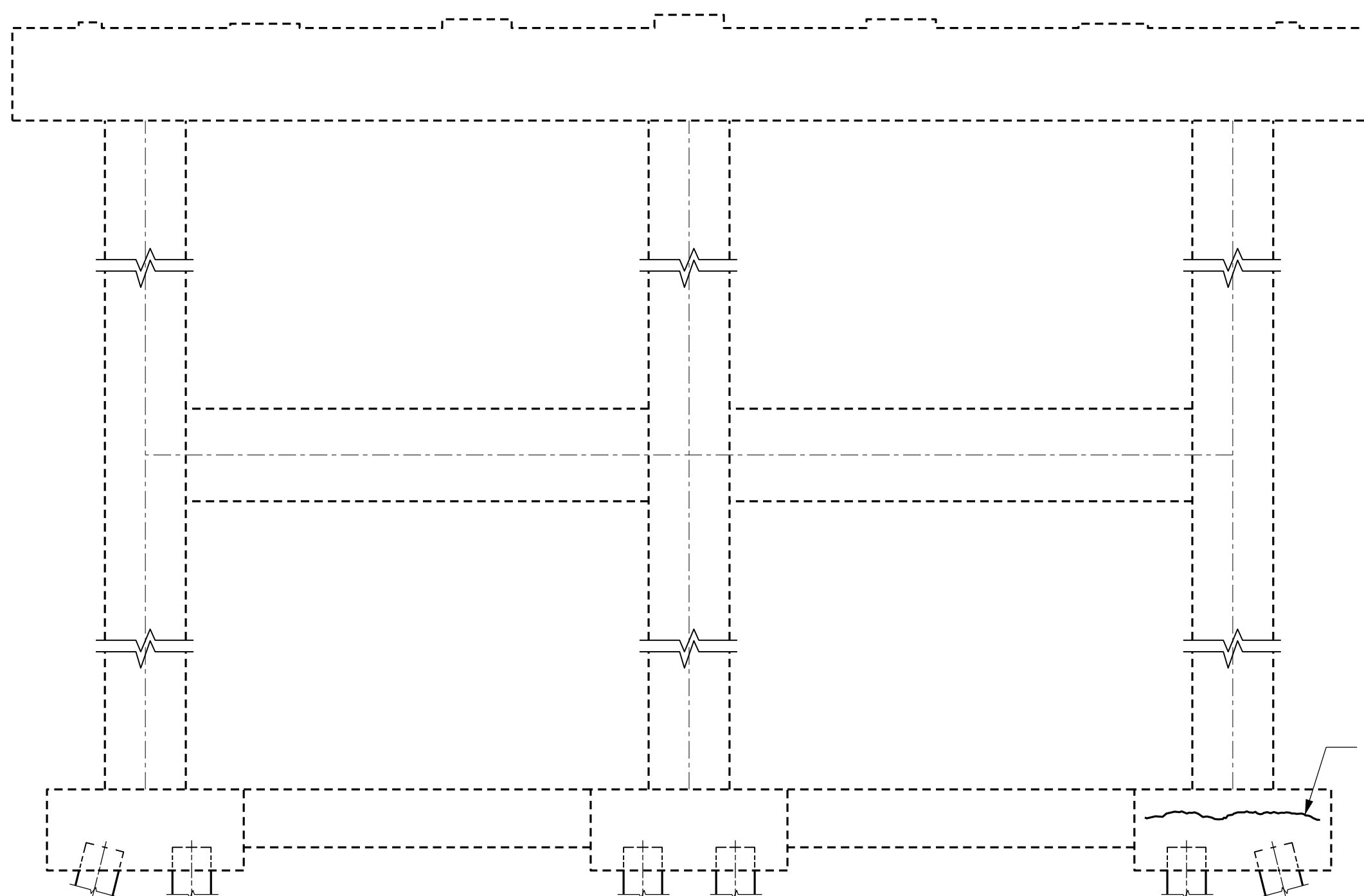
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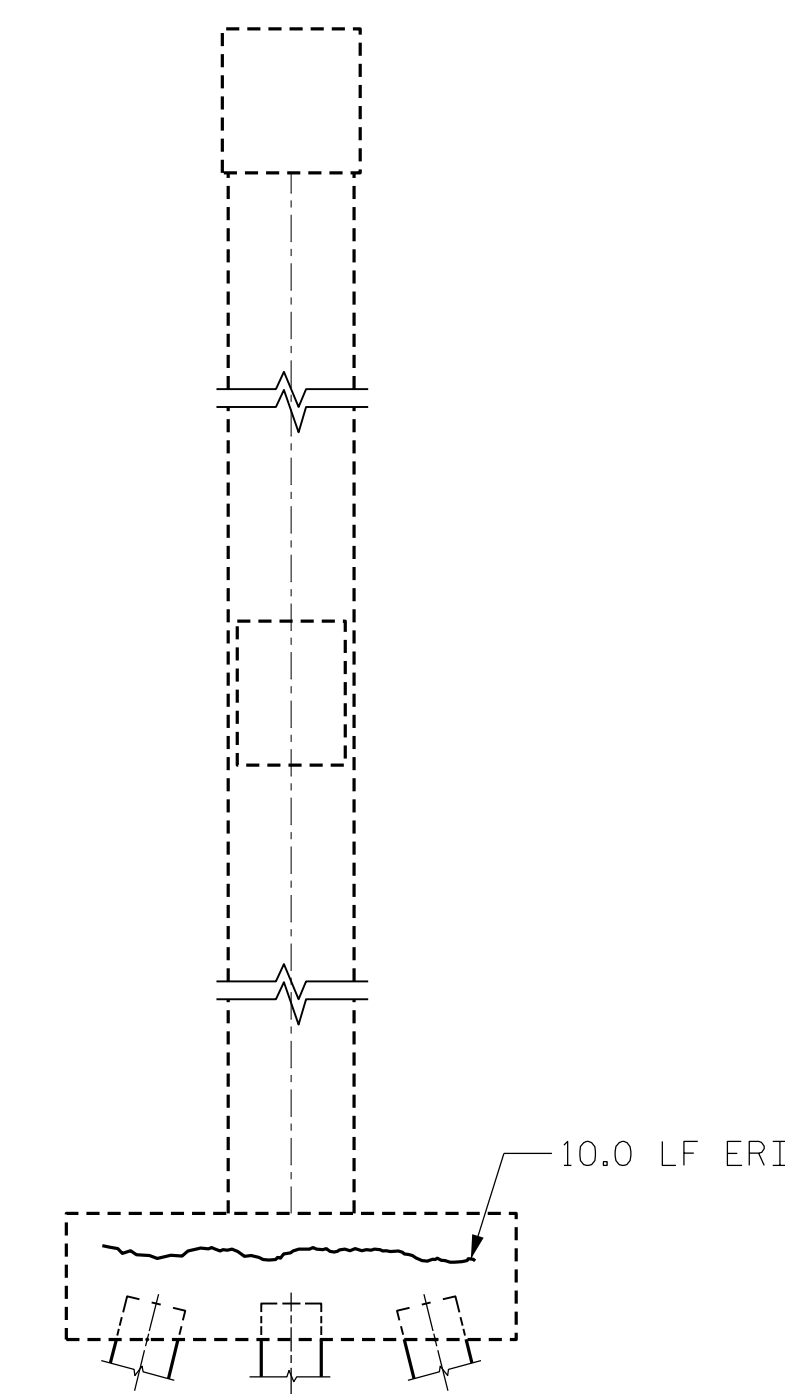
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(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



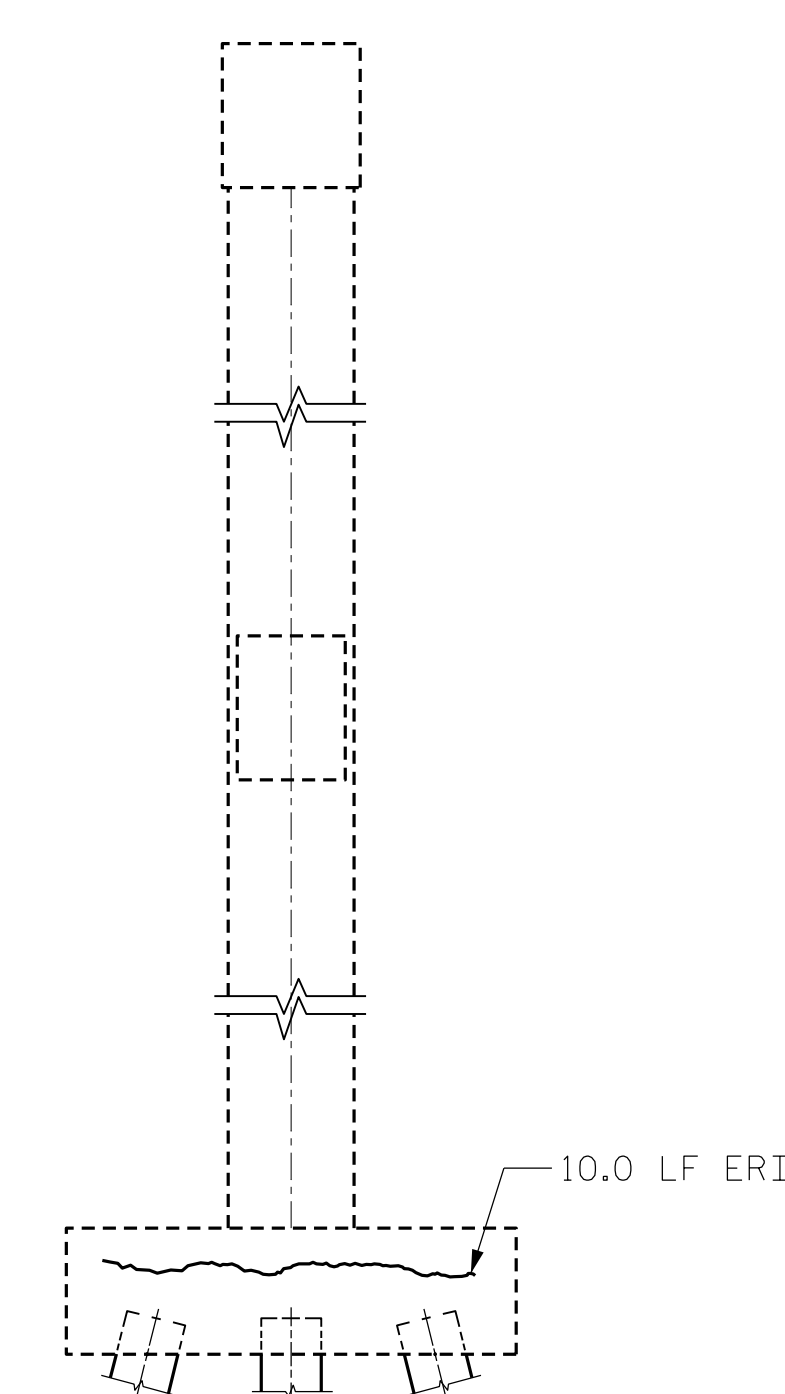
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	28.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

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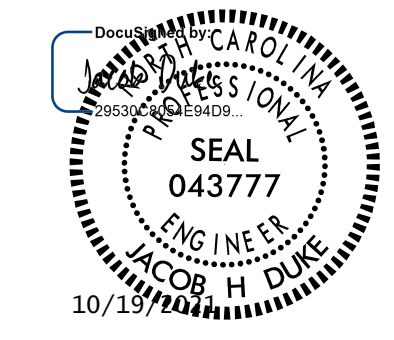
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 26

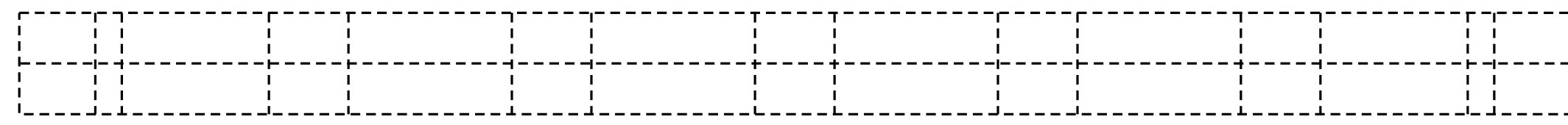
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

10/19/2021  
 15BPR.46.SMU.SBR26.270012.dgn  
 jduke

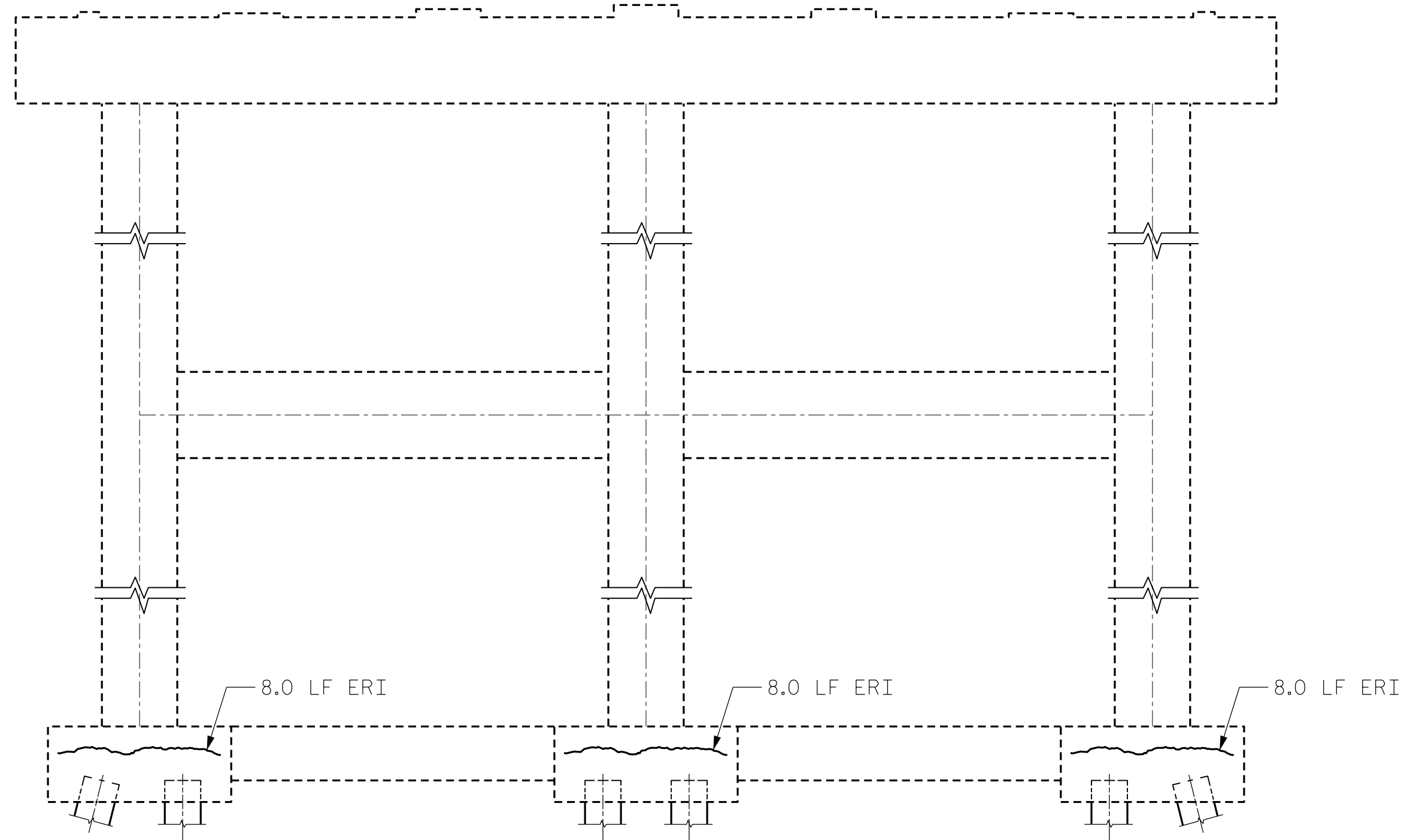
DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

**KCA**  
 KISINGER CAMPO & ASSOCIATES  
 301 FAYETTEVILLE ST., SUITE 1500  
 RALEIGH, NC 27601 (919) 882-7839  
 NC FIRM LICENSE: C-1506

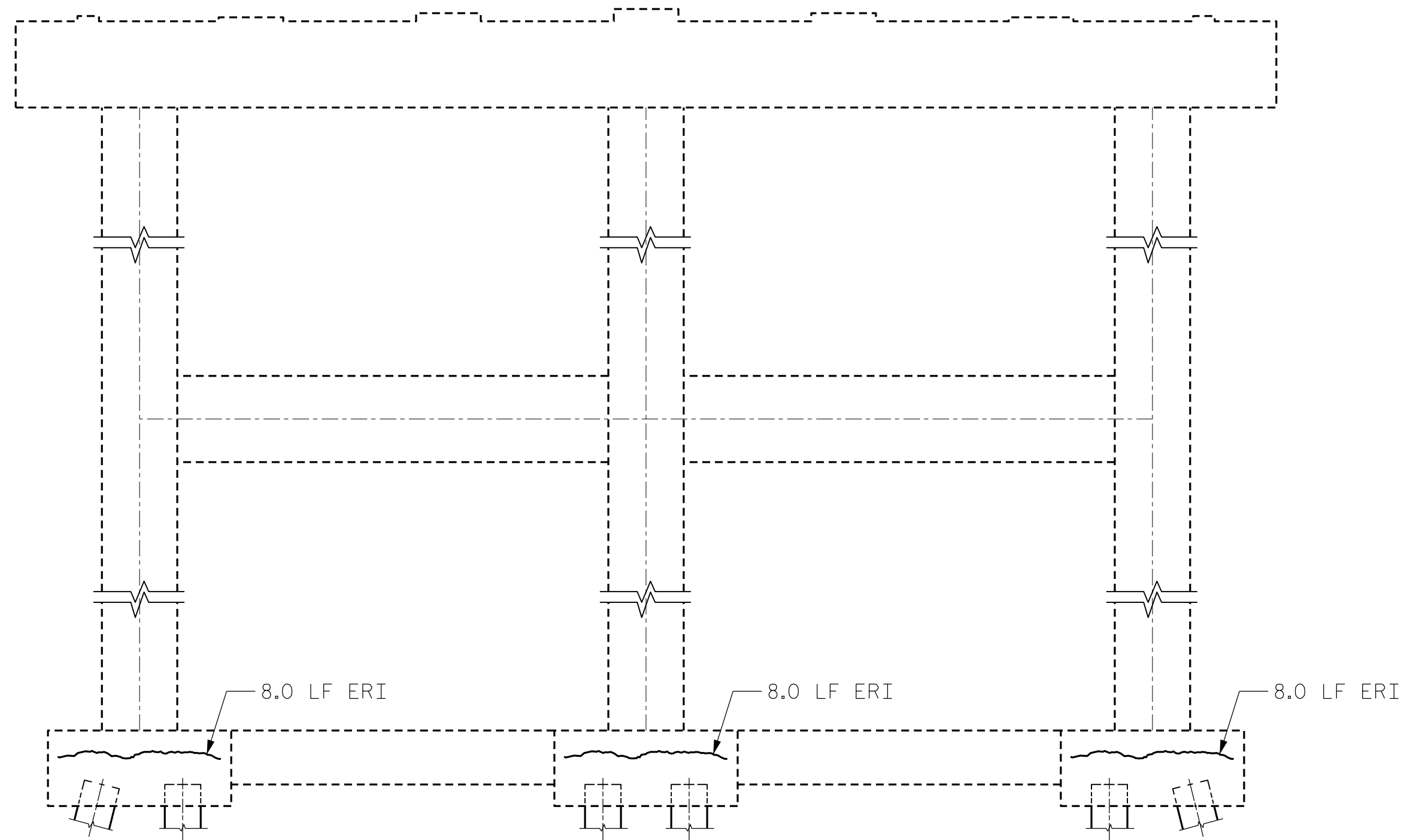
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



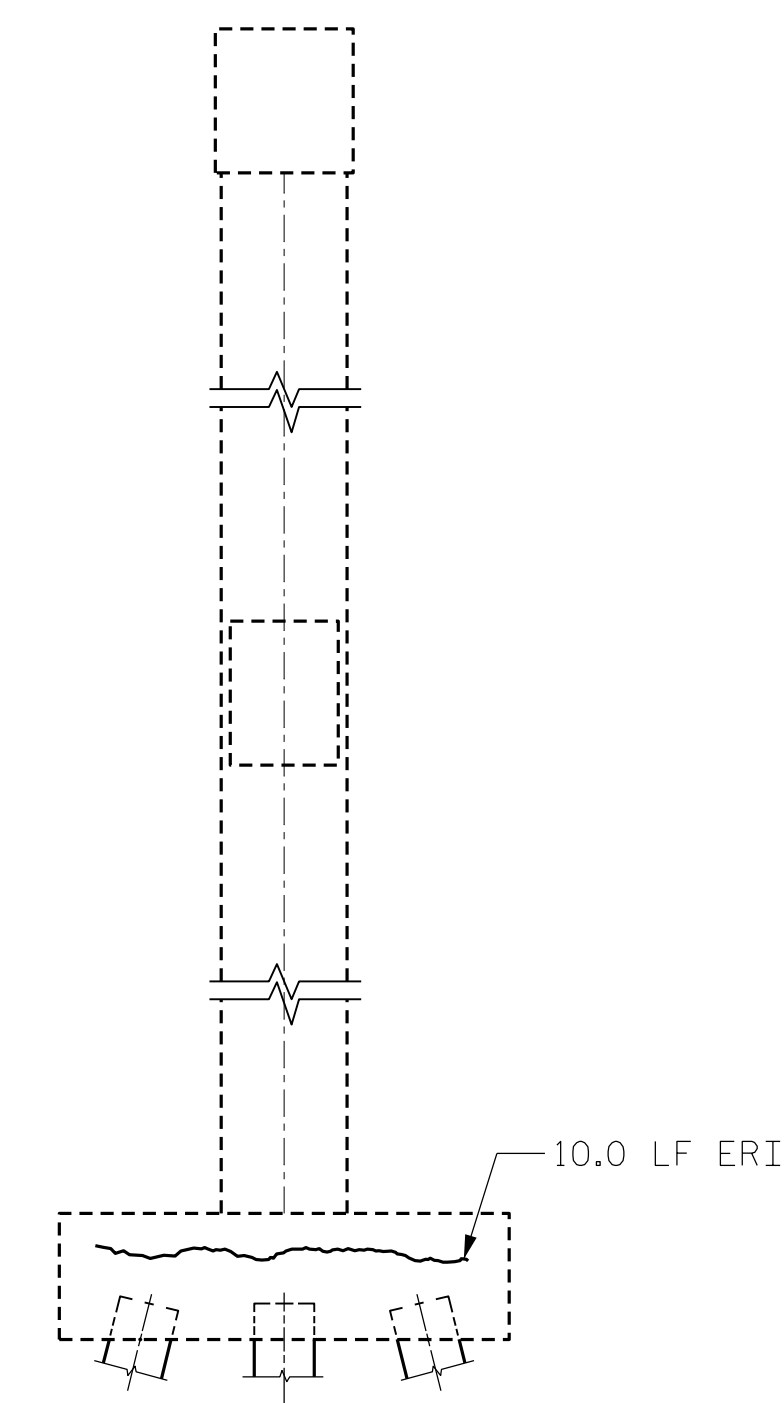
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



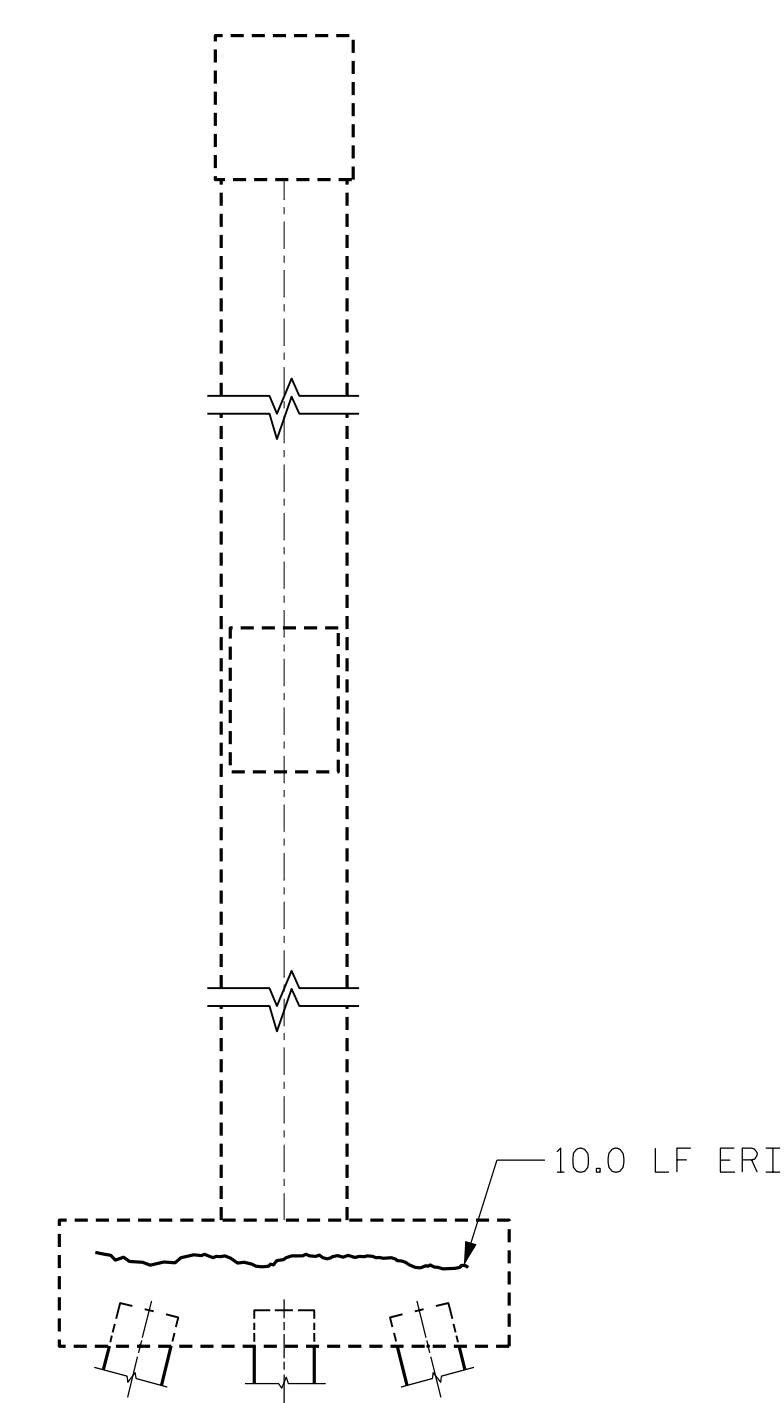
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	68.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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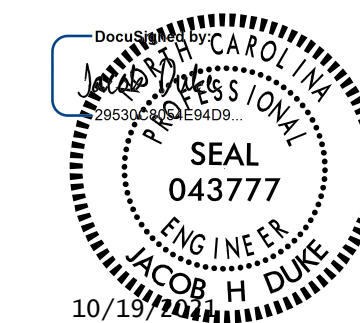
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

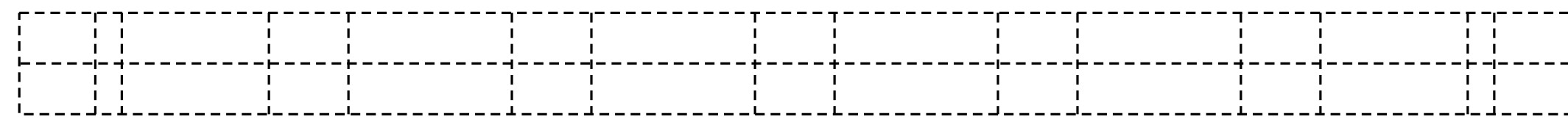
BENT 27

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

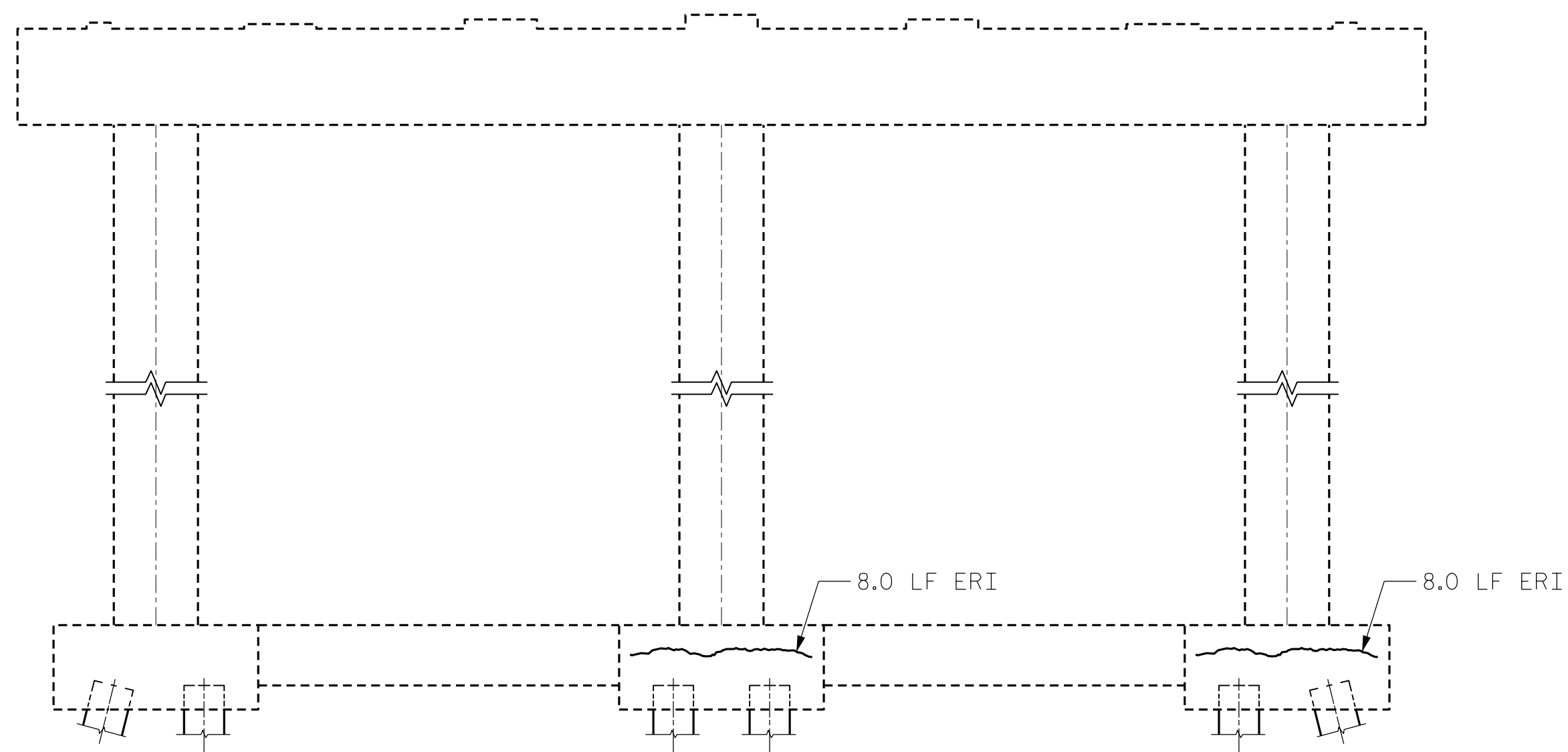
10/19/2021  
 15BPR.46.SMU.SBR27.270012.dgn  
 jduke

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

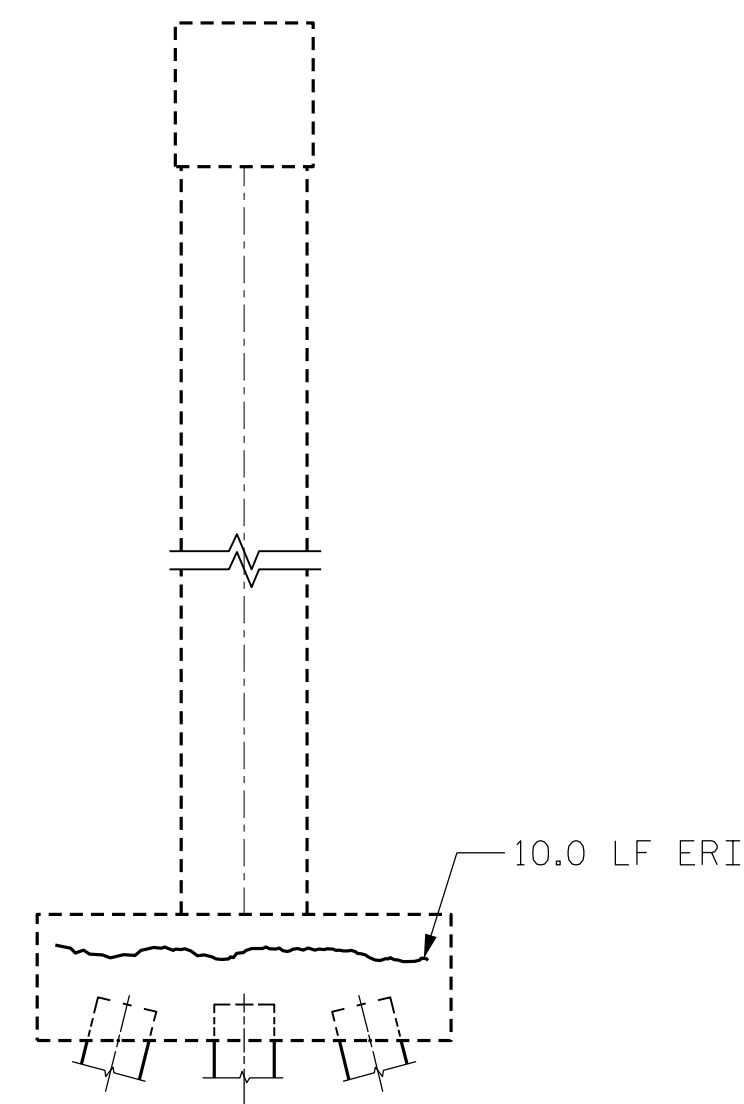
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



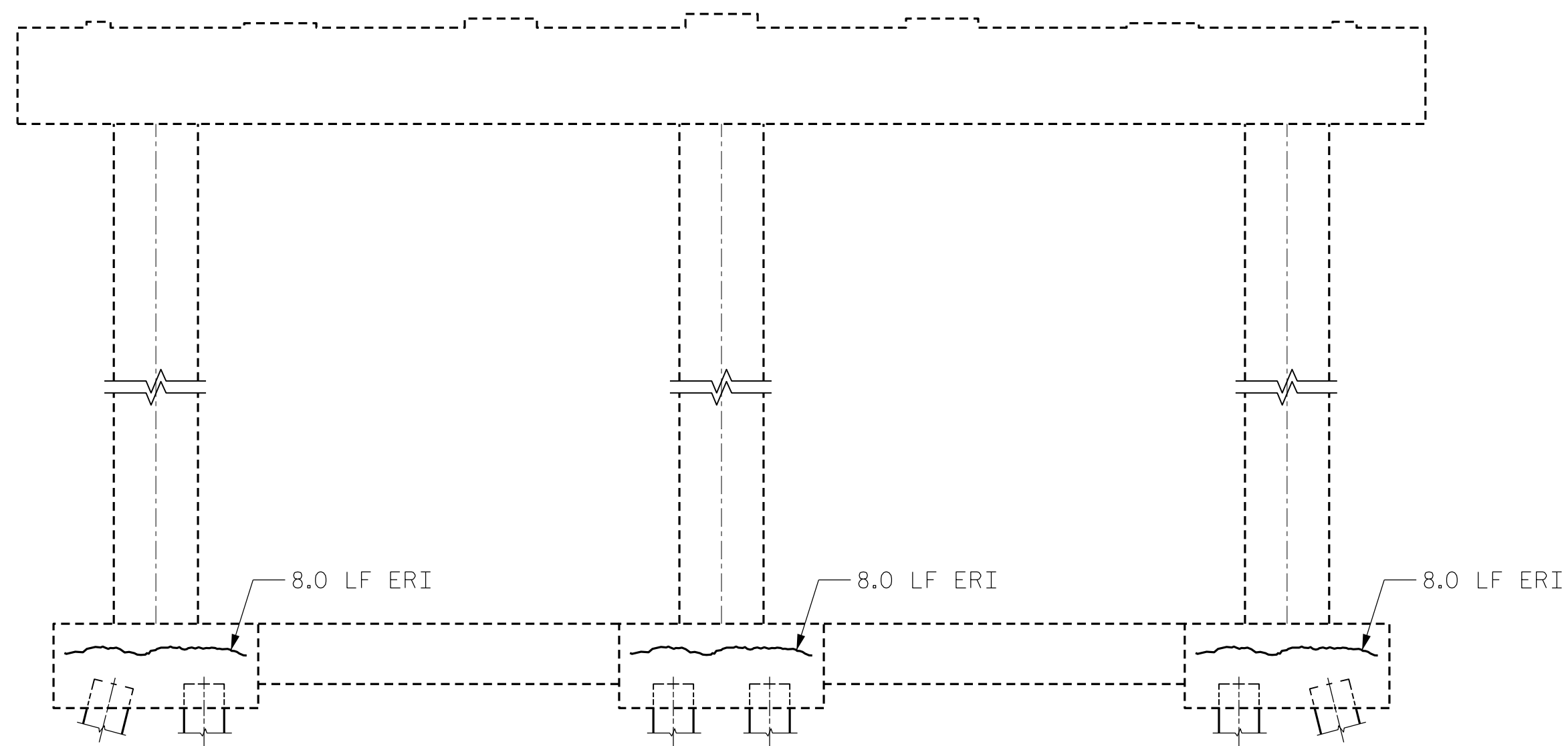
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



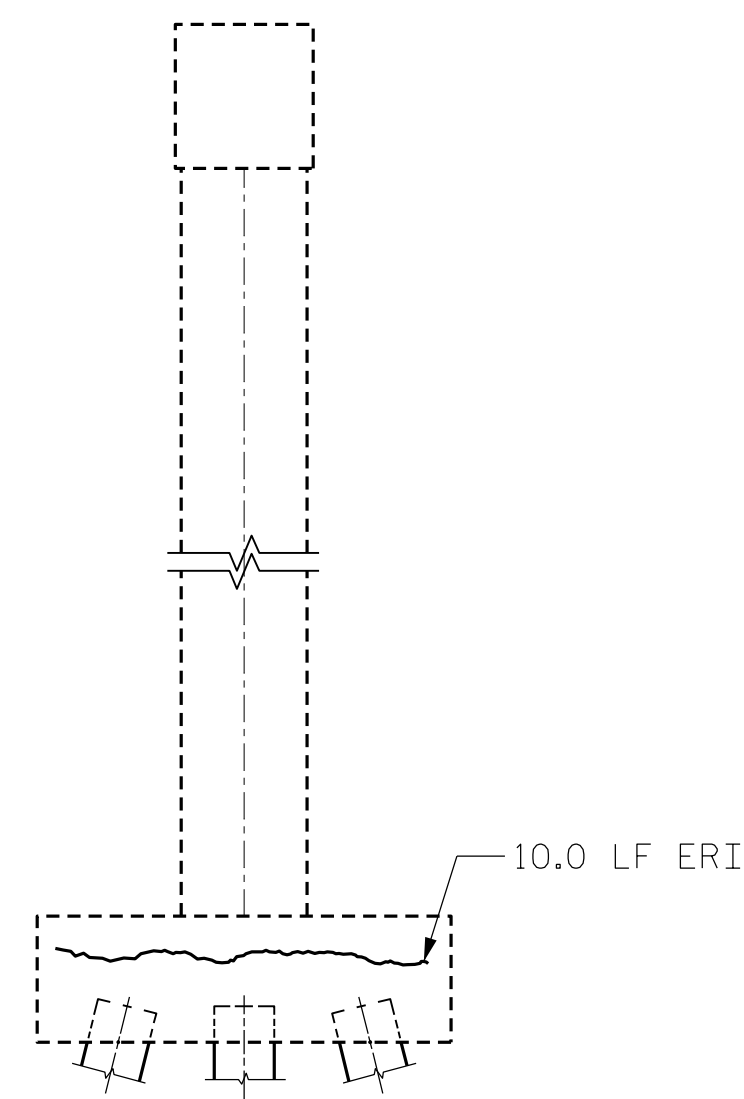
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	60.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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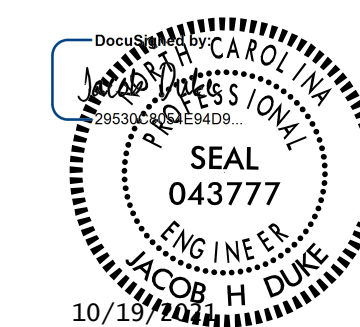
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 28

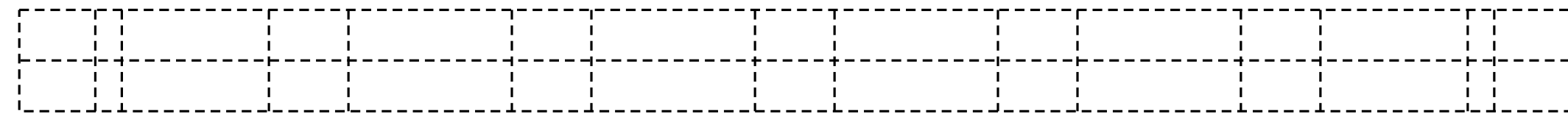
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

10/19/2021  
 15BPR.46.SMU.SBR28.270012.dgn  
 jduke

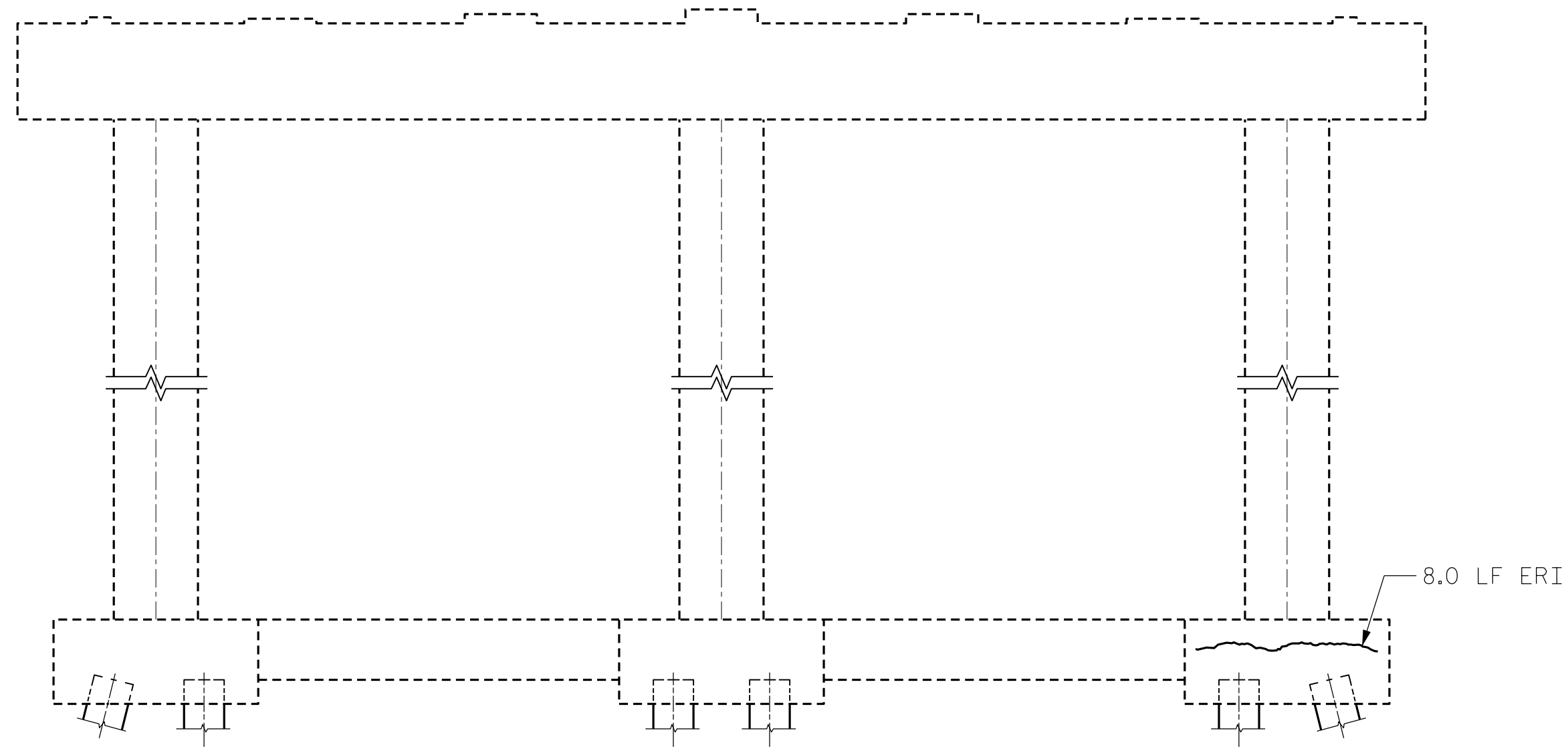
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2			4			TOTAL SHEETS 137

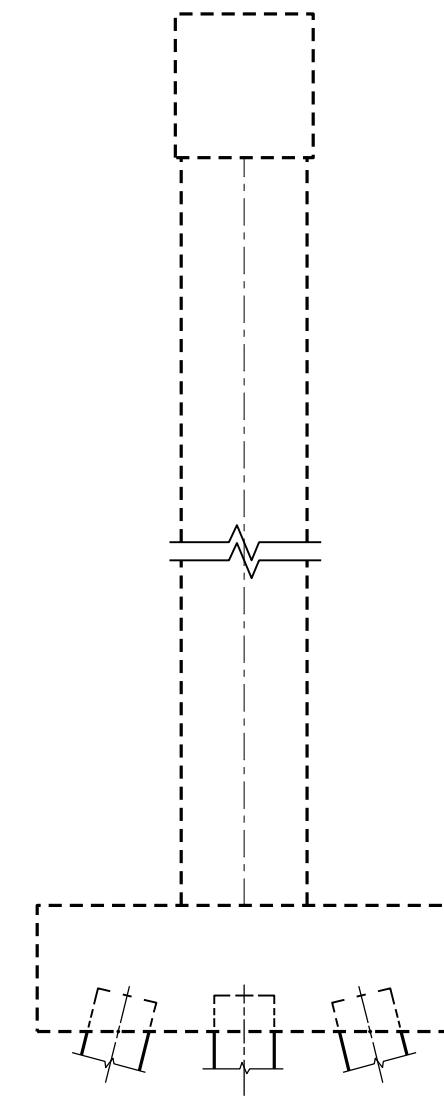




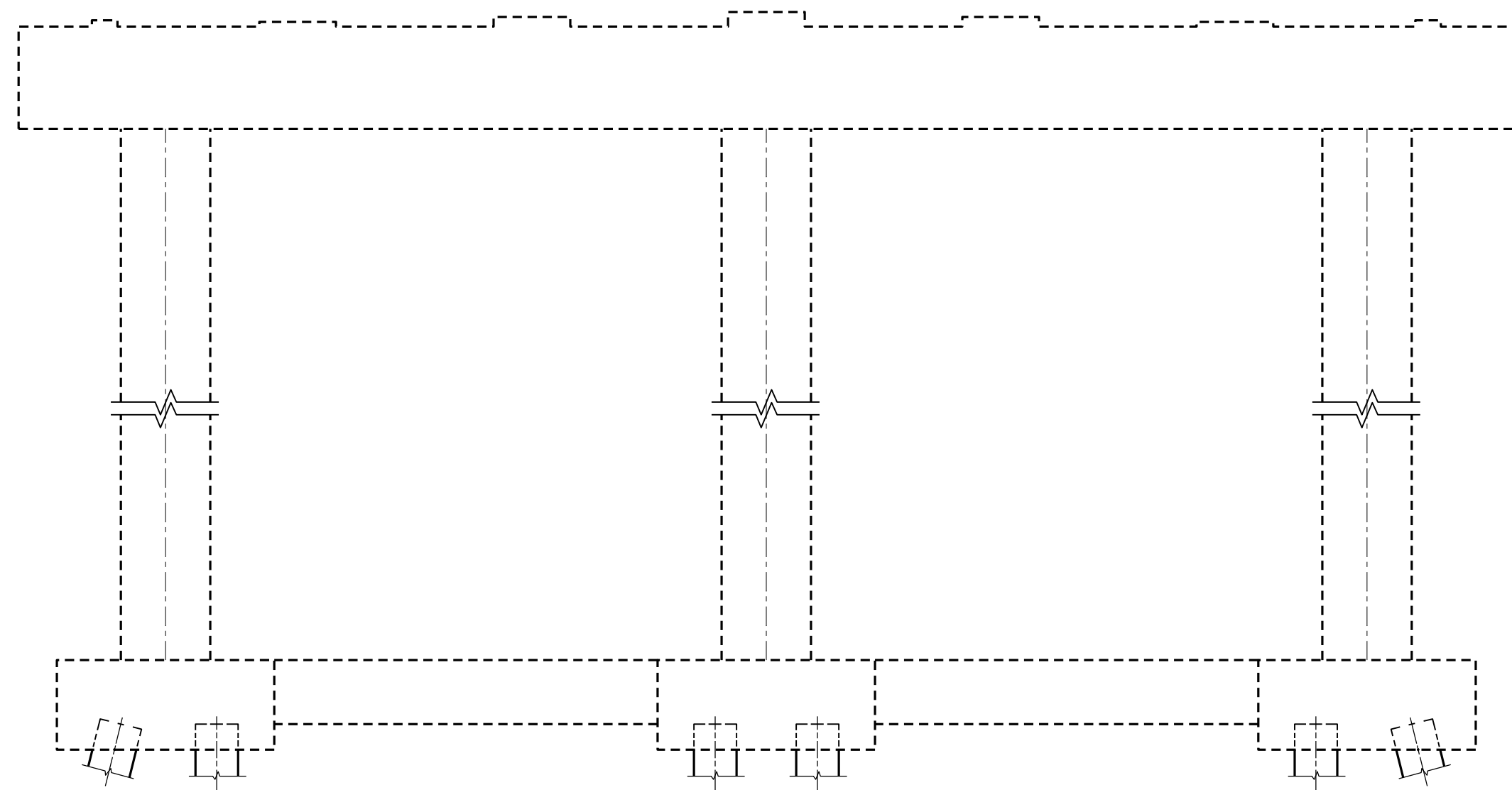
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



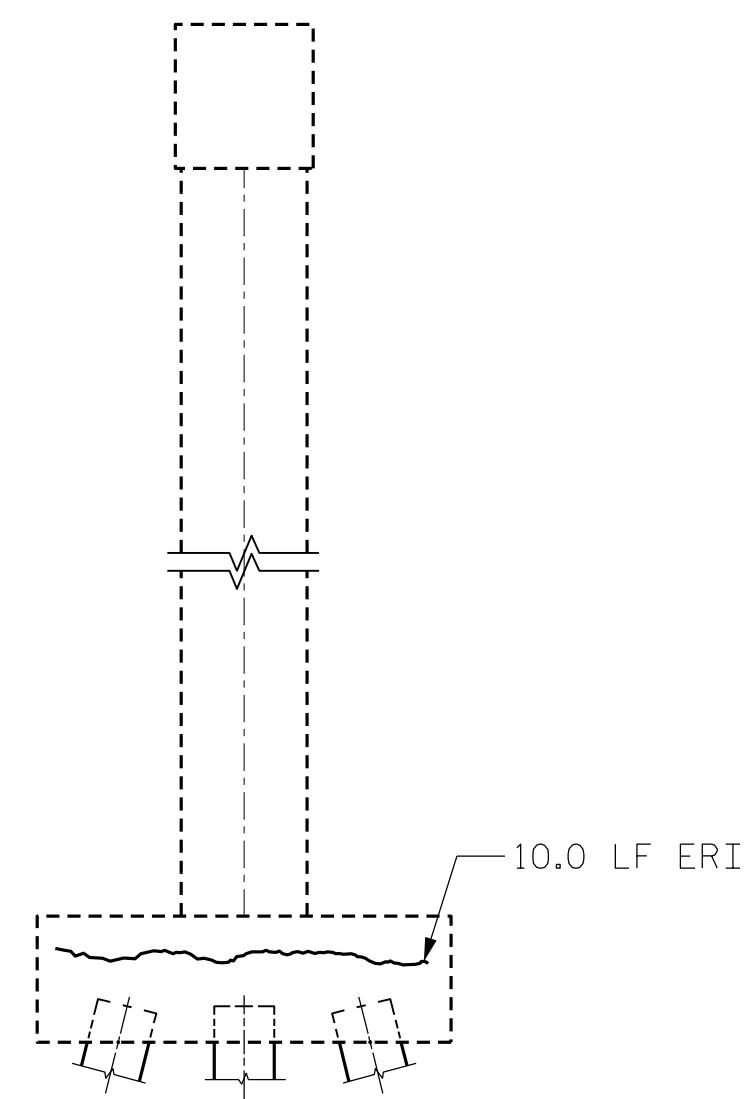
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	18.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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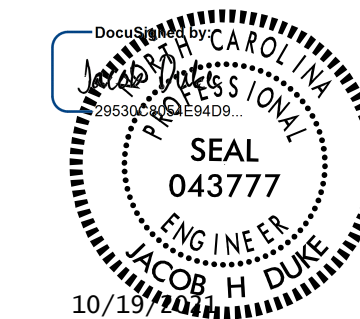
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REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

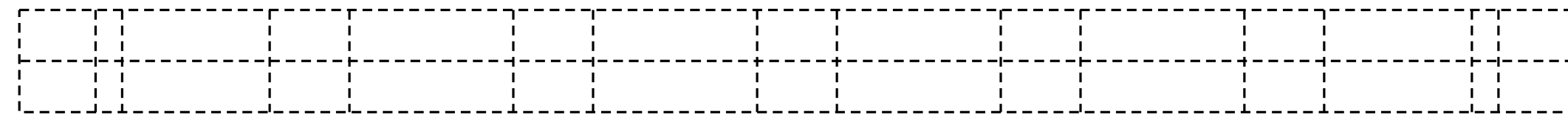
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



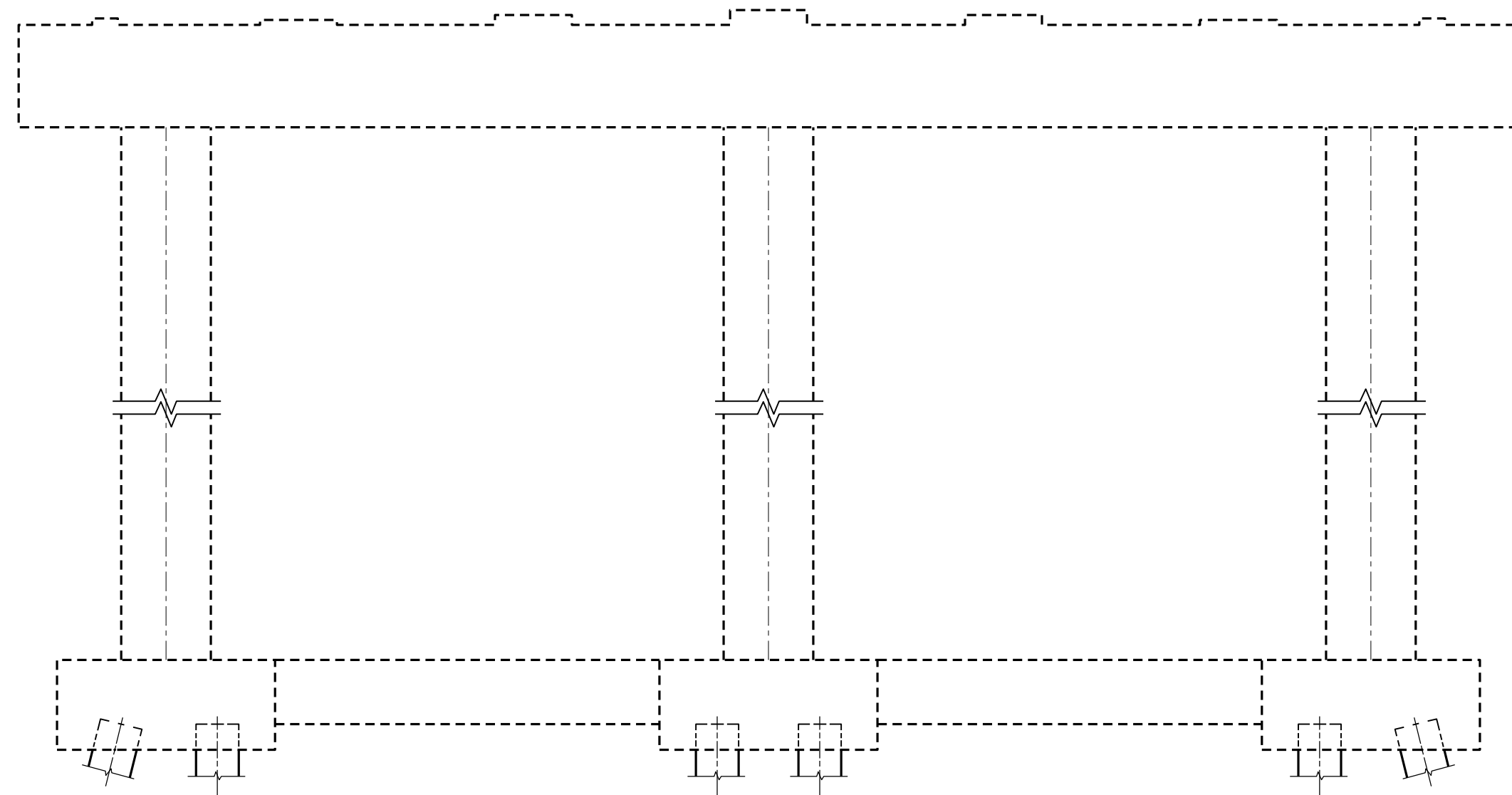
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS					
BENT 29					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
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					137
					S-94

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

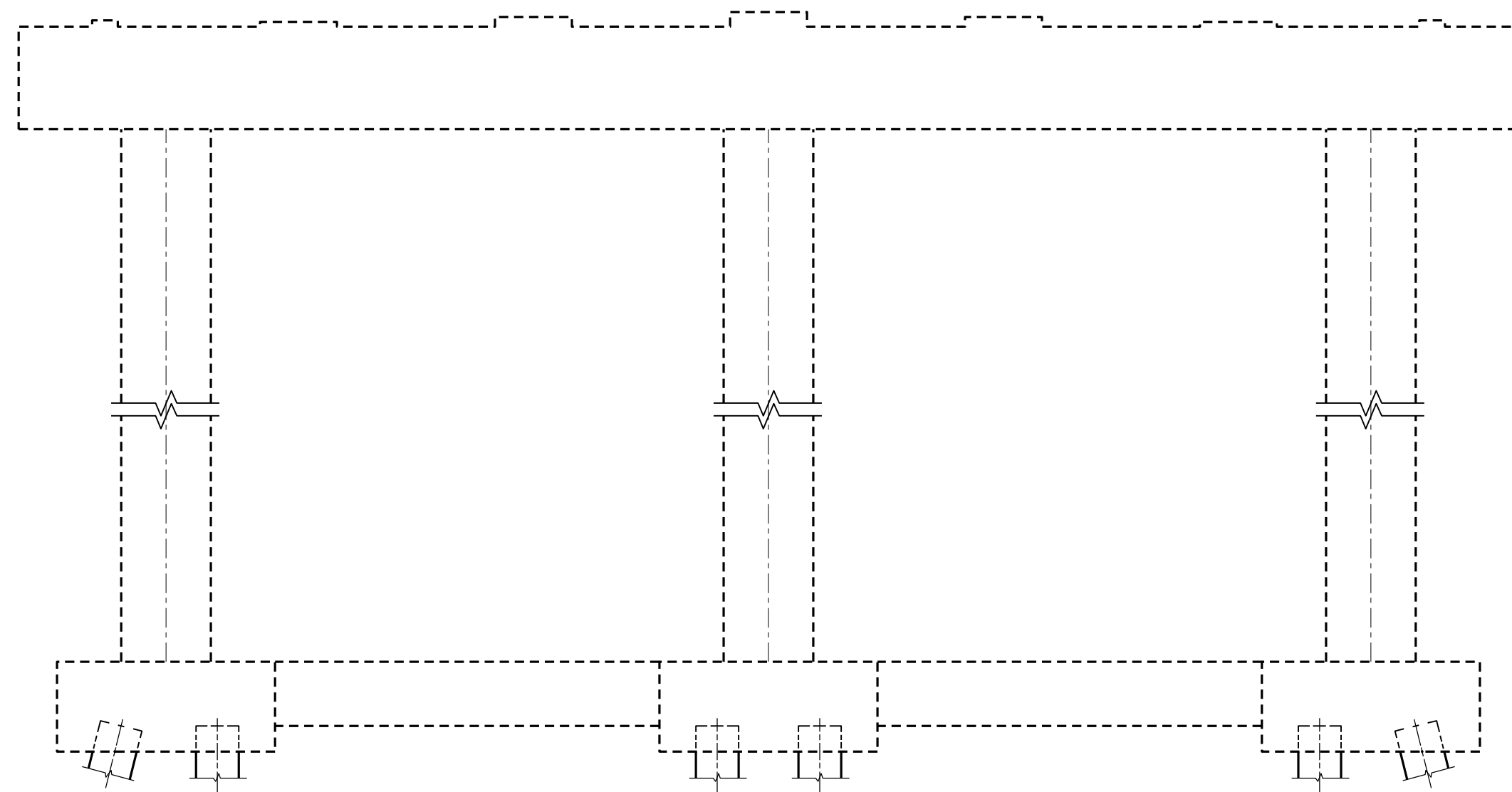
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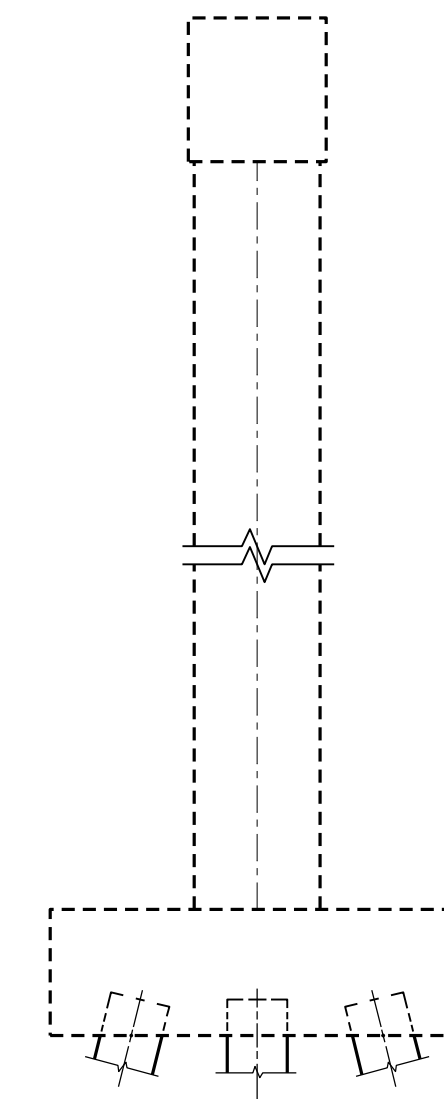
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



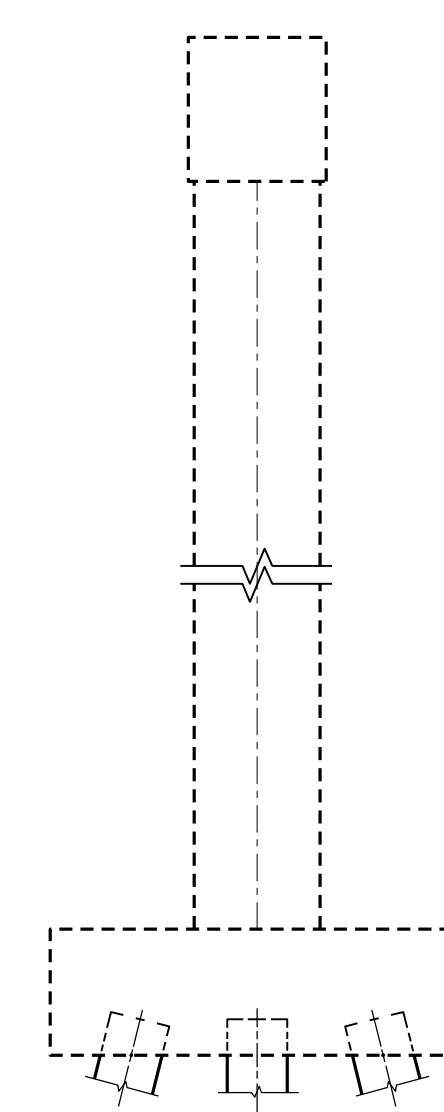
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	-			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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 TABLE ABOVE.

CRACKING LOCATIONS AND QUANTITIES FOR LOCATIONS DESCRIBED AS "SCATTERED THROUGHOUT" IN THE INSPECTION REPORT ARE BASED ON THE BEST INFORMATION AVAILABLE. THE ENGINEER AND CONTRACTOR SHALL IDENTIFY AND REPAIR ALL CRACKS  $\geq 1/16"$  AS DESCRIBED IN THE SPECIAL PROVISIONS AT EACH BENT.

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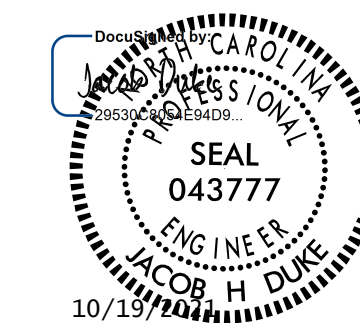
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

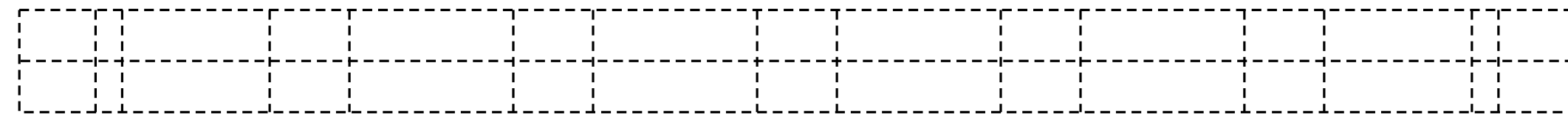
BENT 30

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

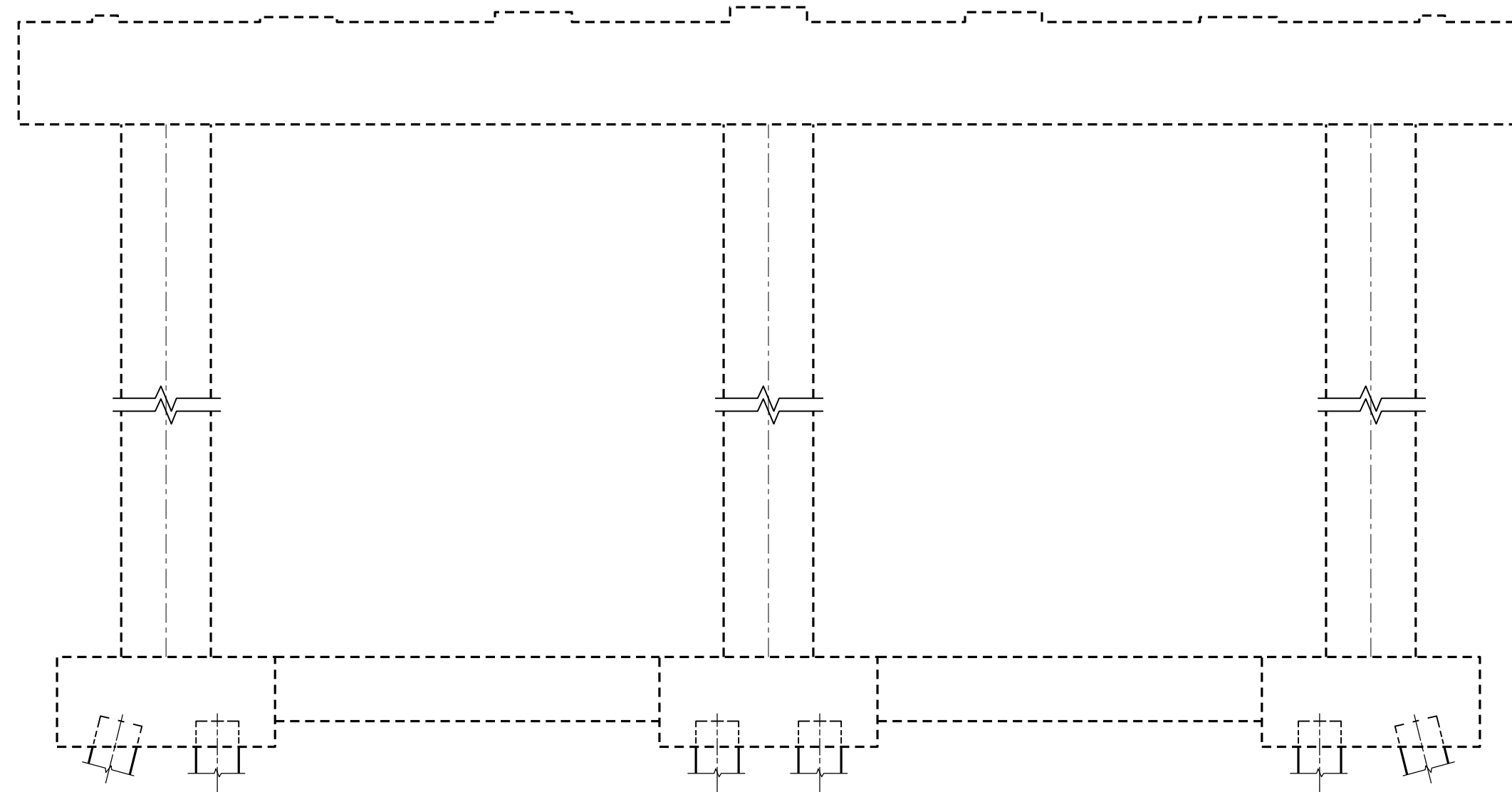
10/19/2021  
 15BPR.46.SMU.SBR30.270012.dgn  
 jduke

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

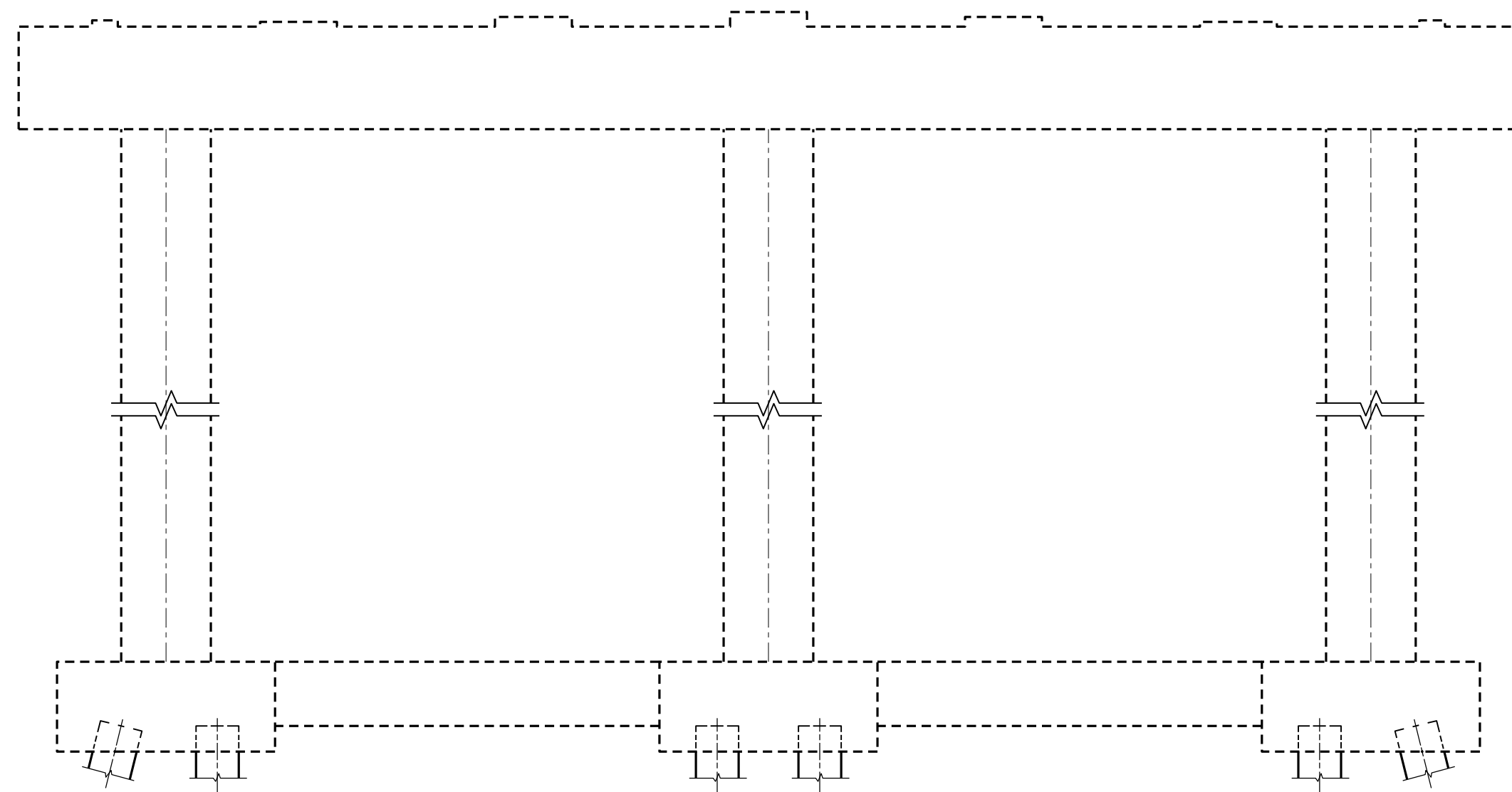
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



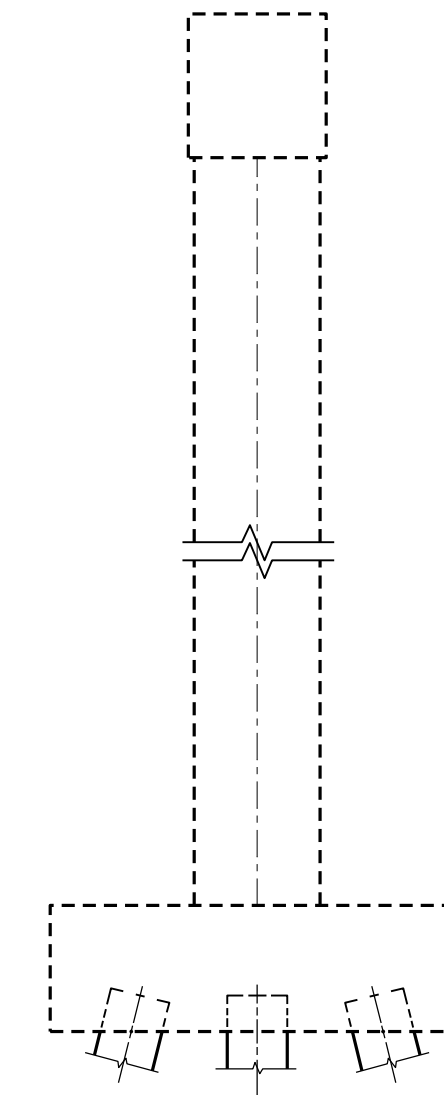
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



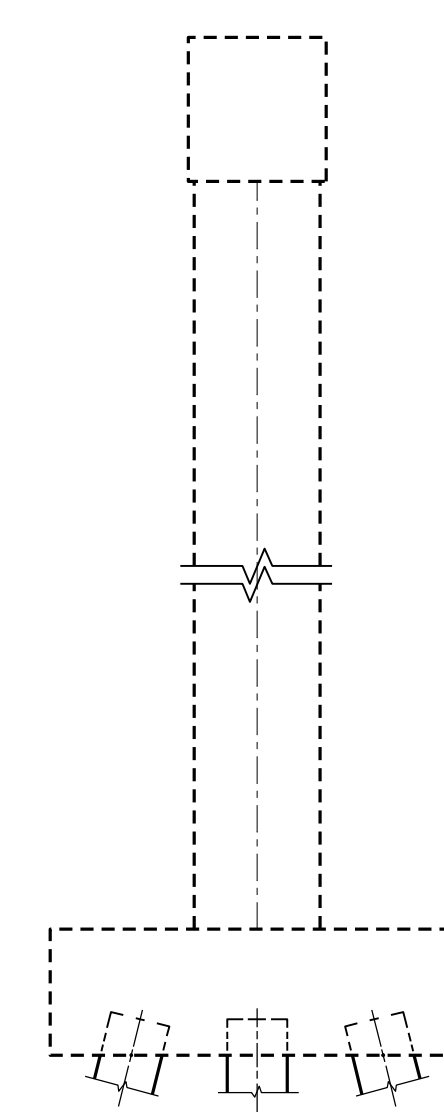
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

**NOTES:**

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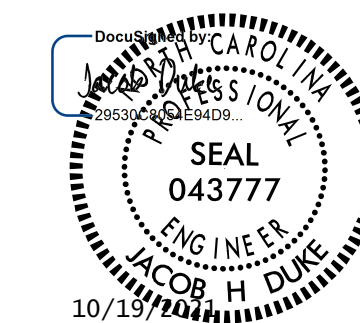
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

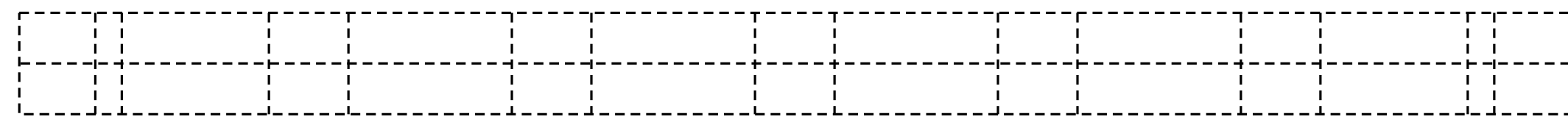
BENT 31

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

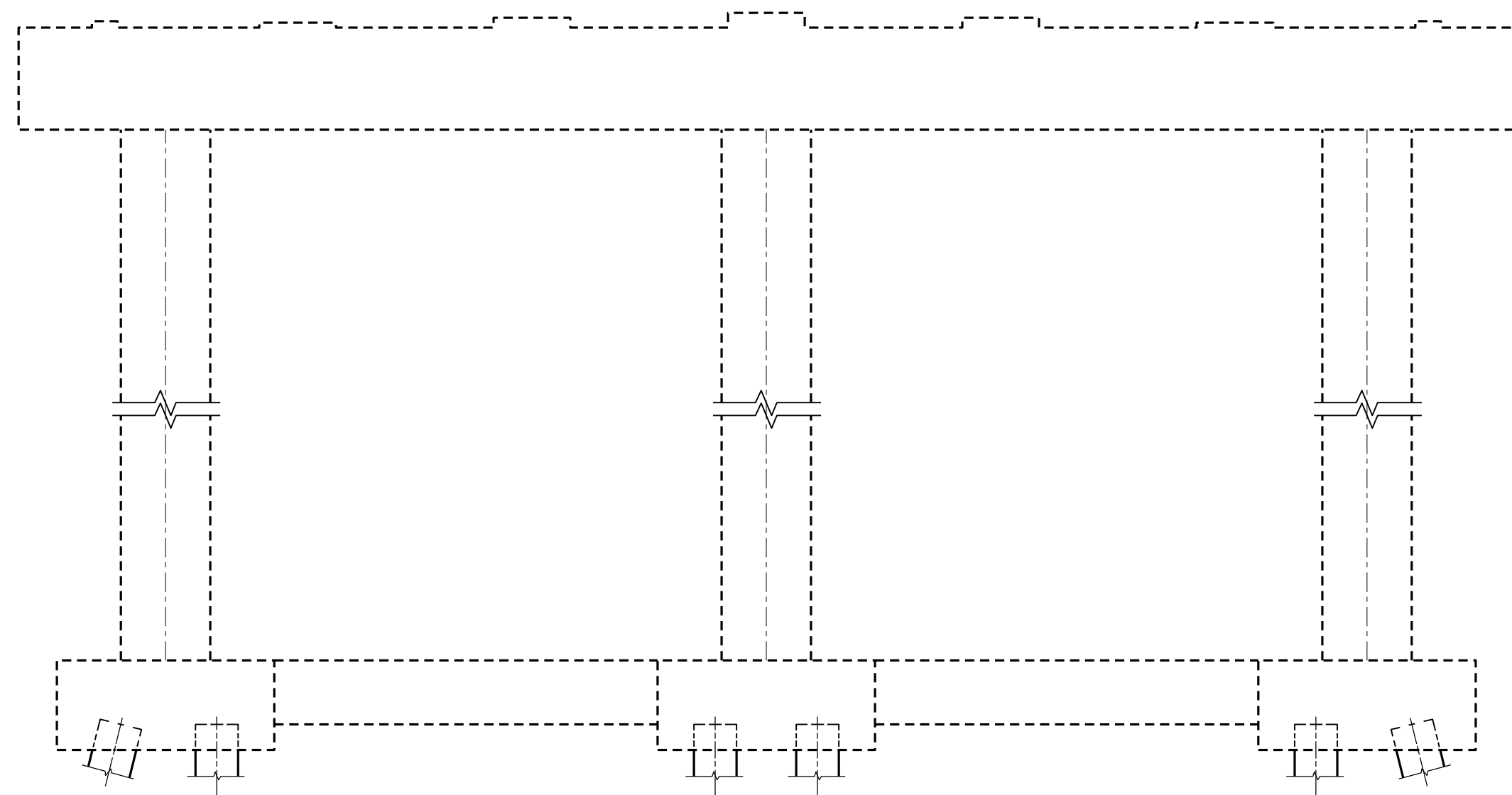
10/19/2021  
 15BPR.46.SMU.SBR31.270012.dgn  
 jduke

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

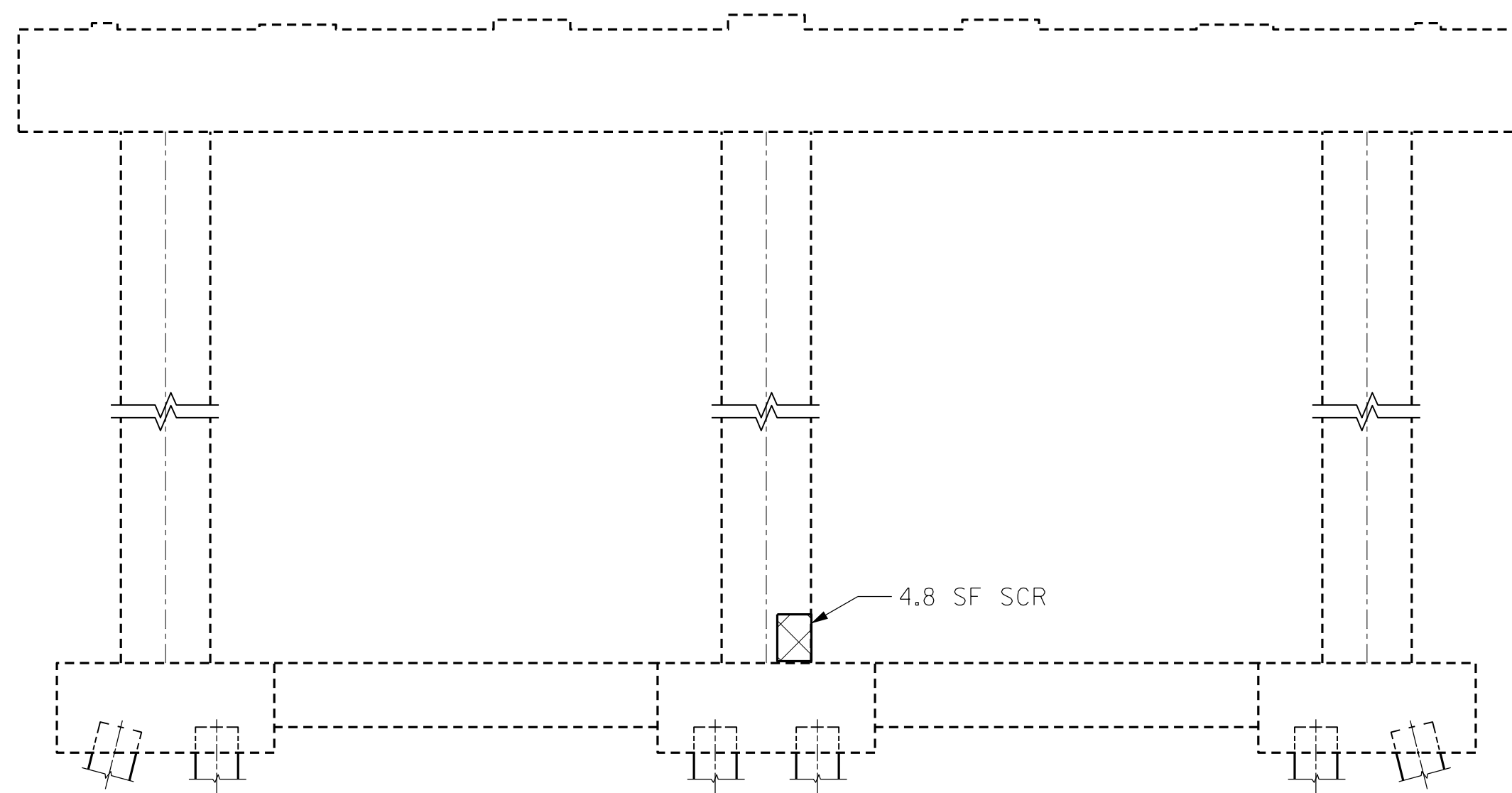
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



EAST ELEVATION



WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	7.8	3.9		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	10.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

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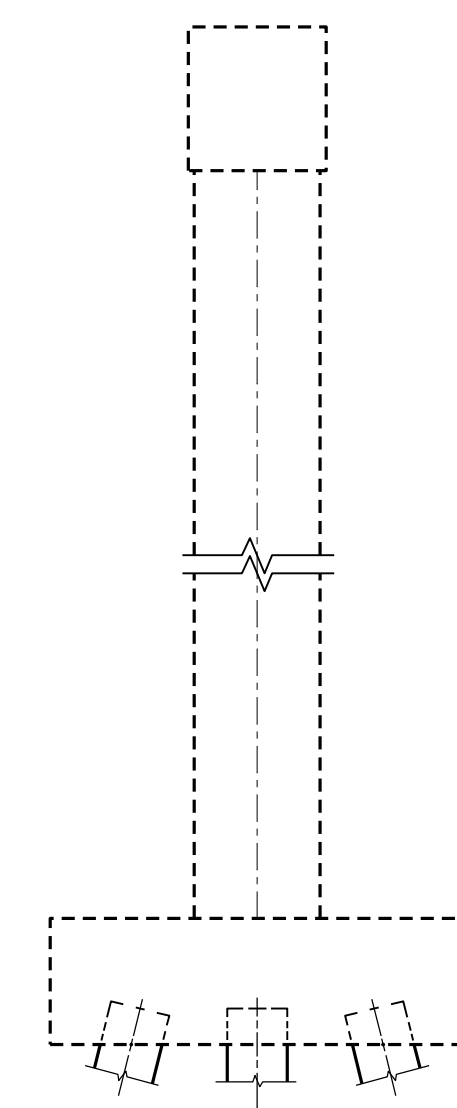
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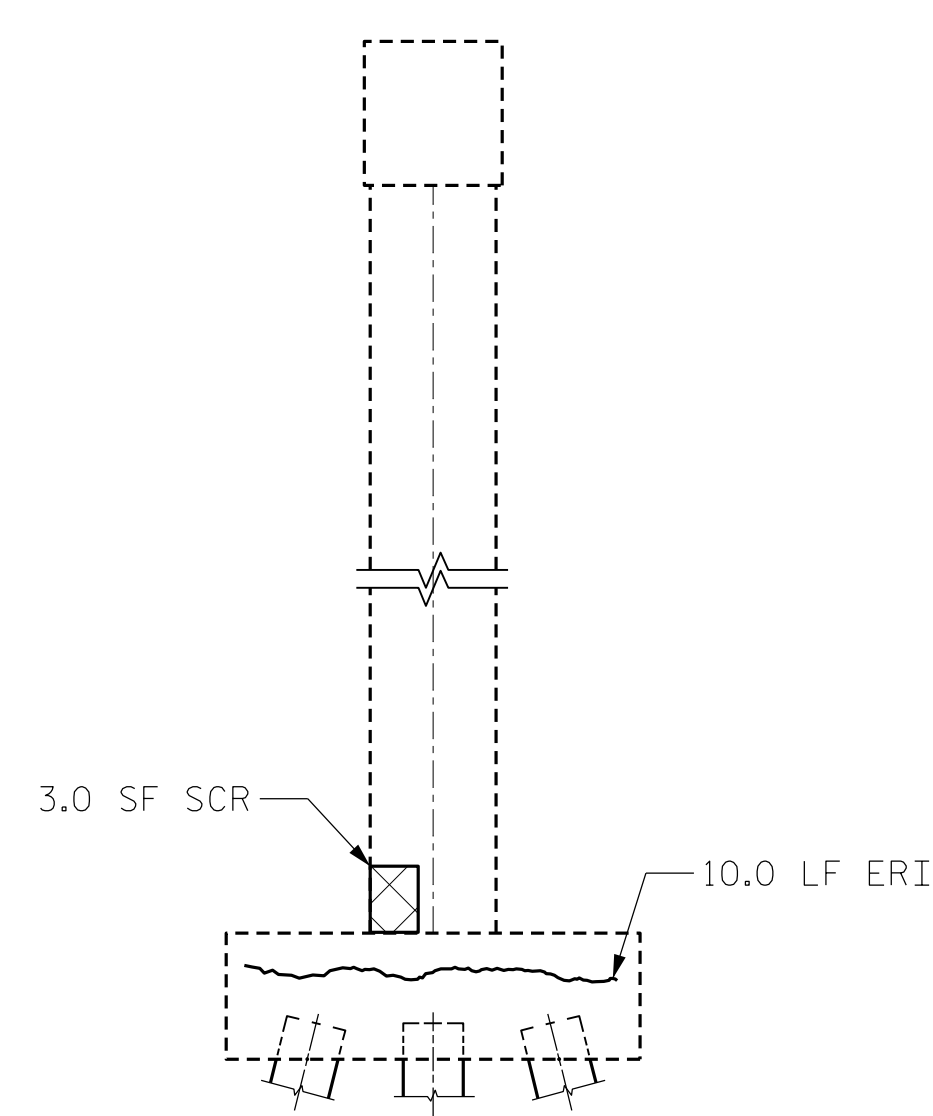
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

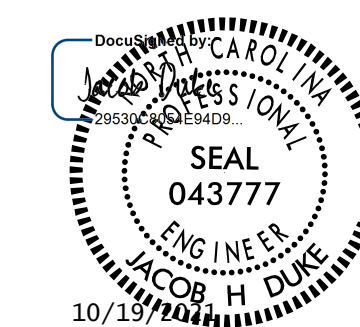


NORTH ELEVATION



SOUTH ELEVATION

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

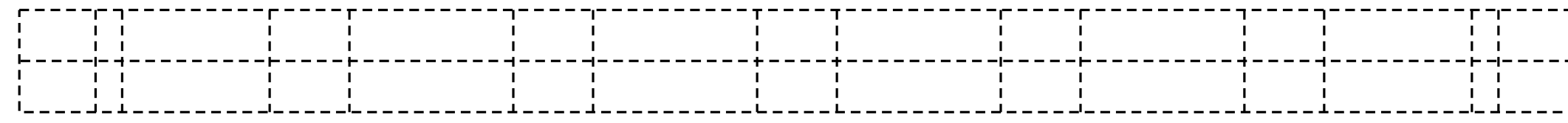
BENT 32

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

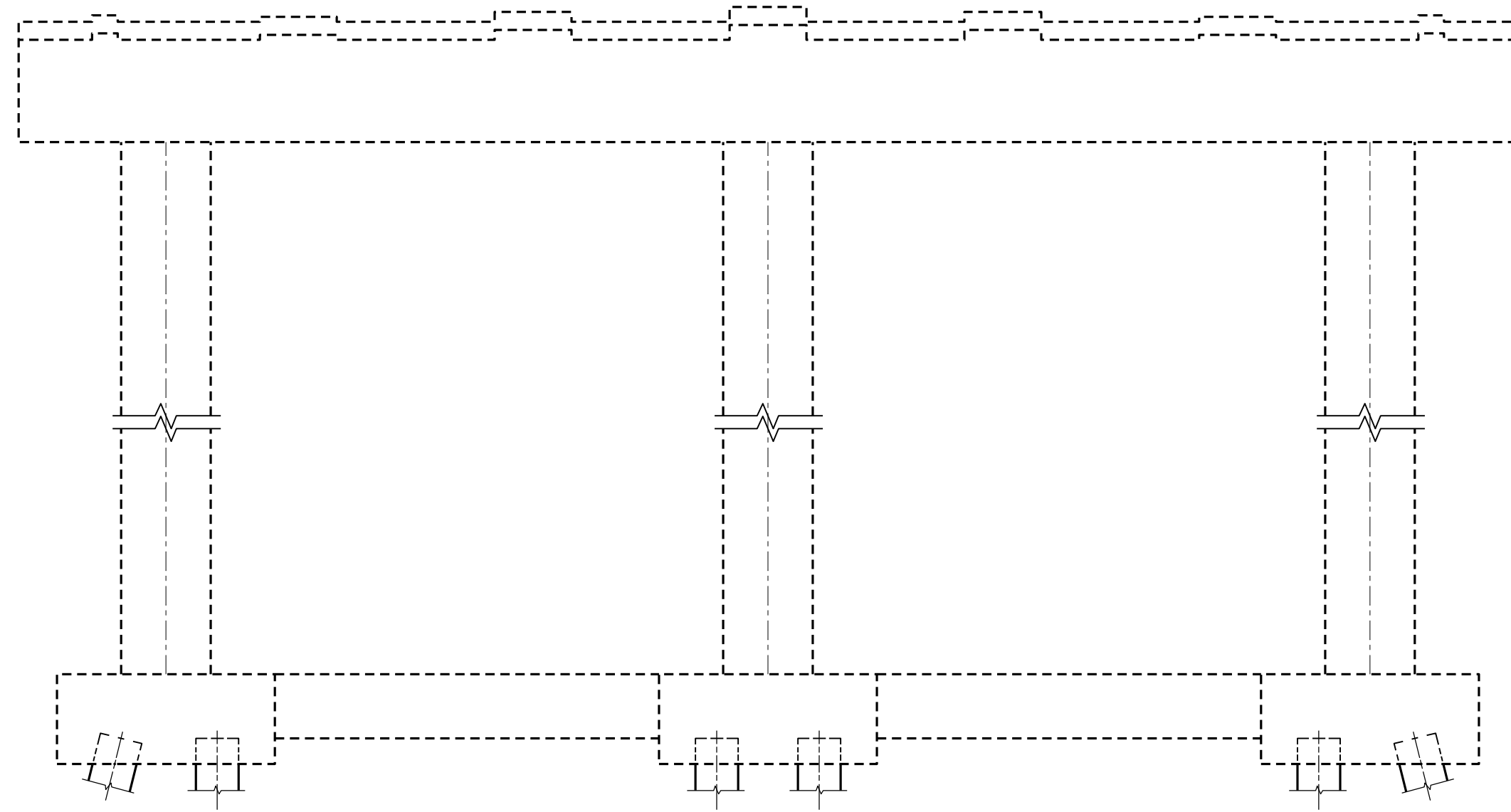
10/19/2021  
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 jduke

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

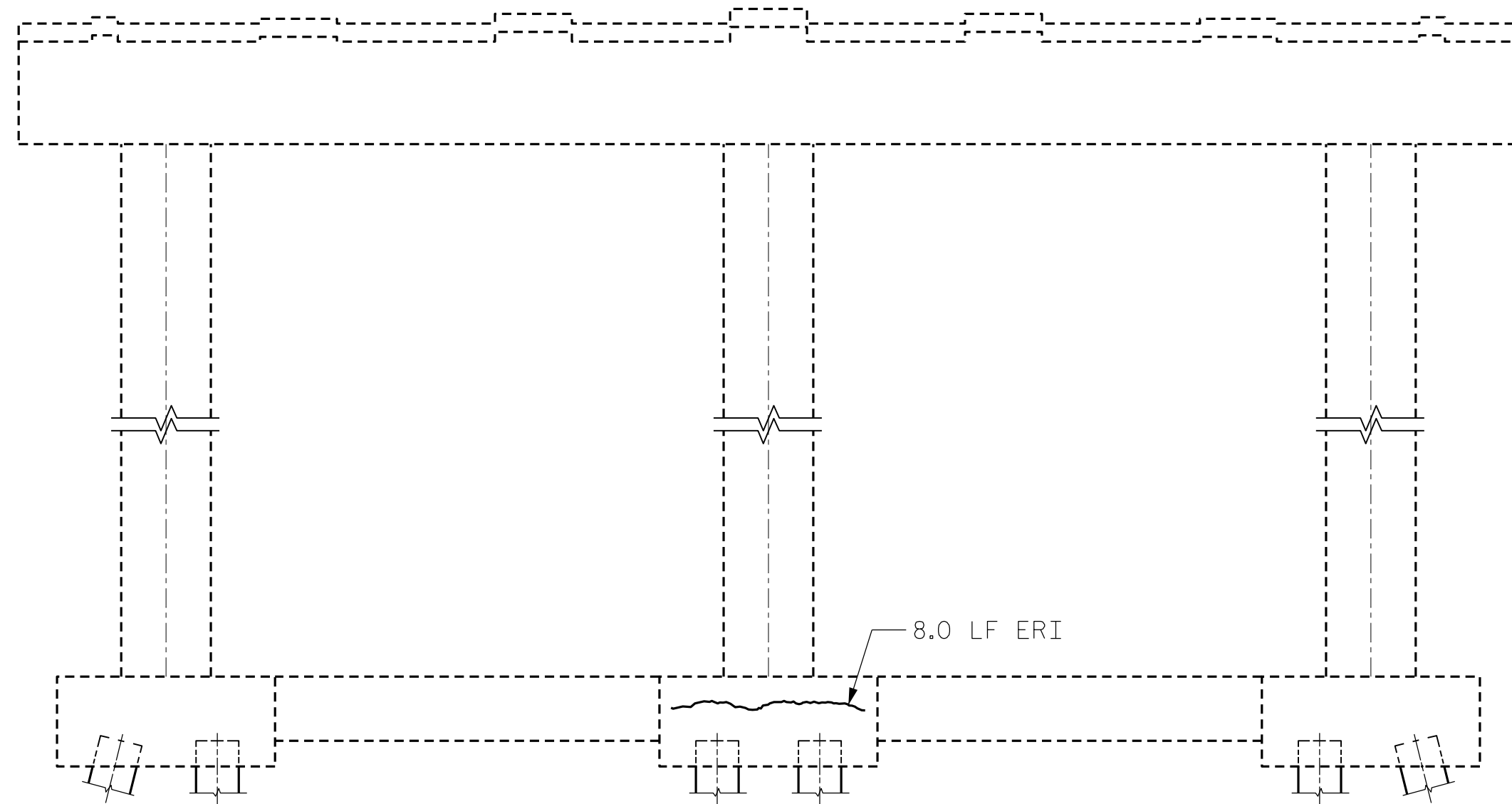
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



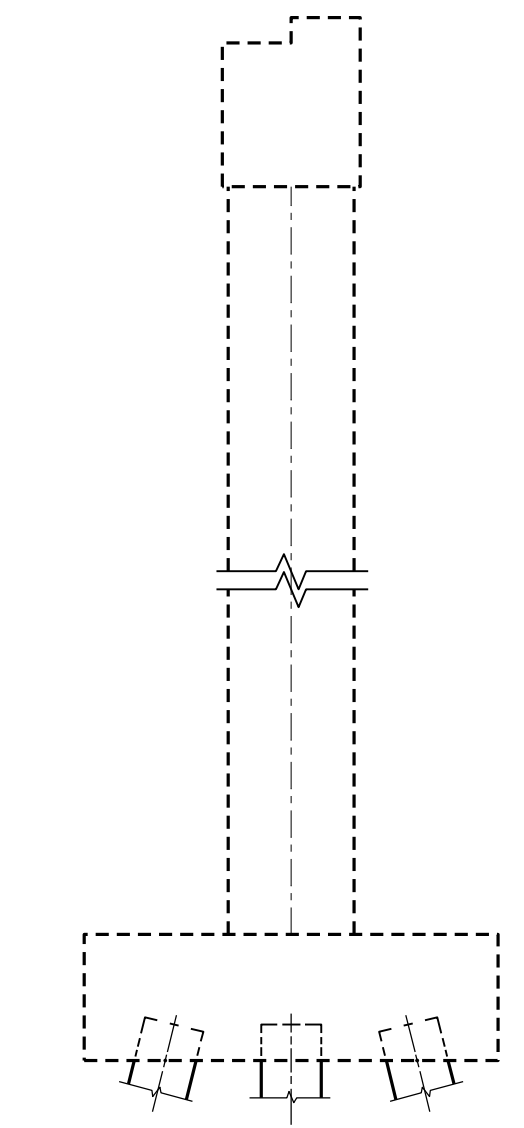
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



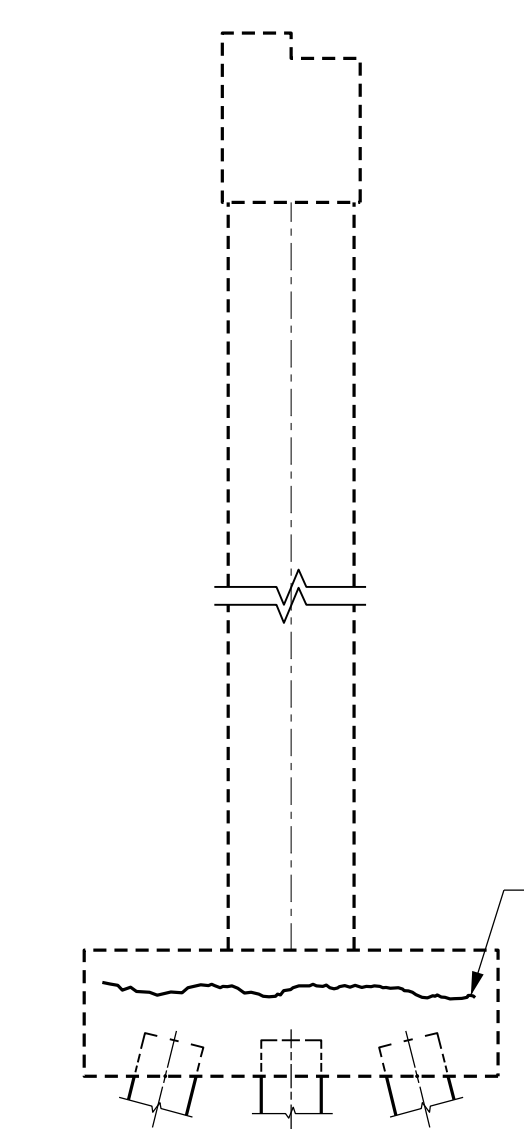
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	18.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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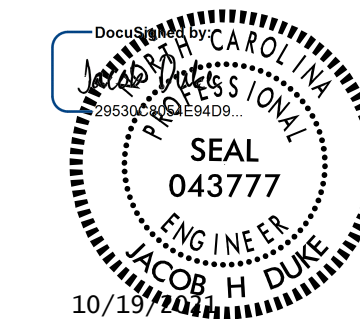
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

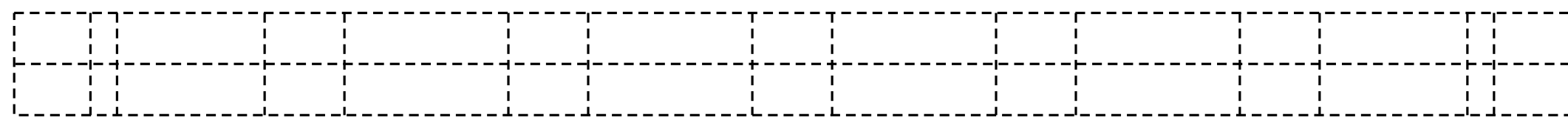
BENTS 33

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

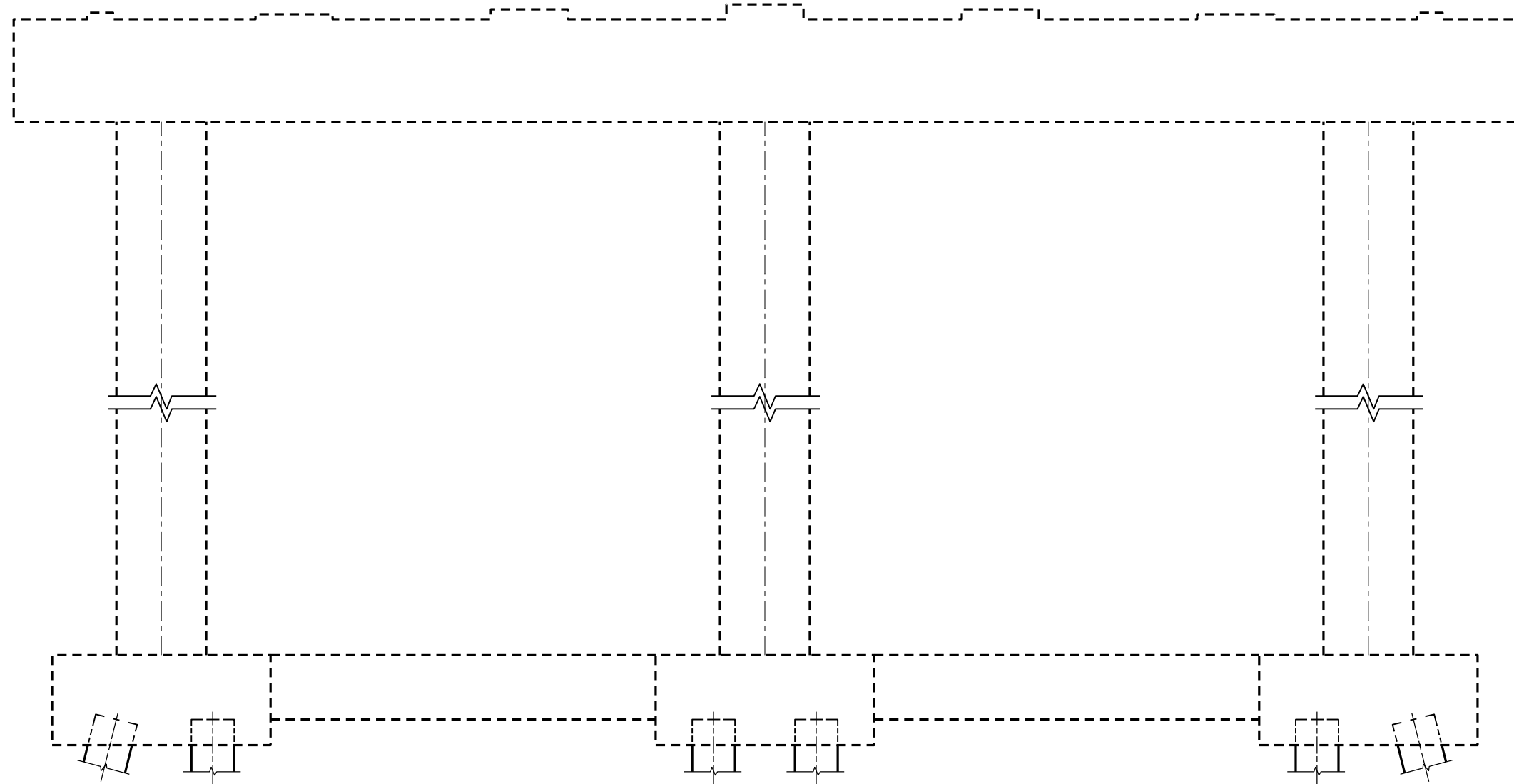
10/19/2021  
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 jduke

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
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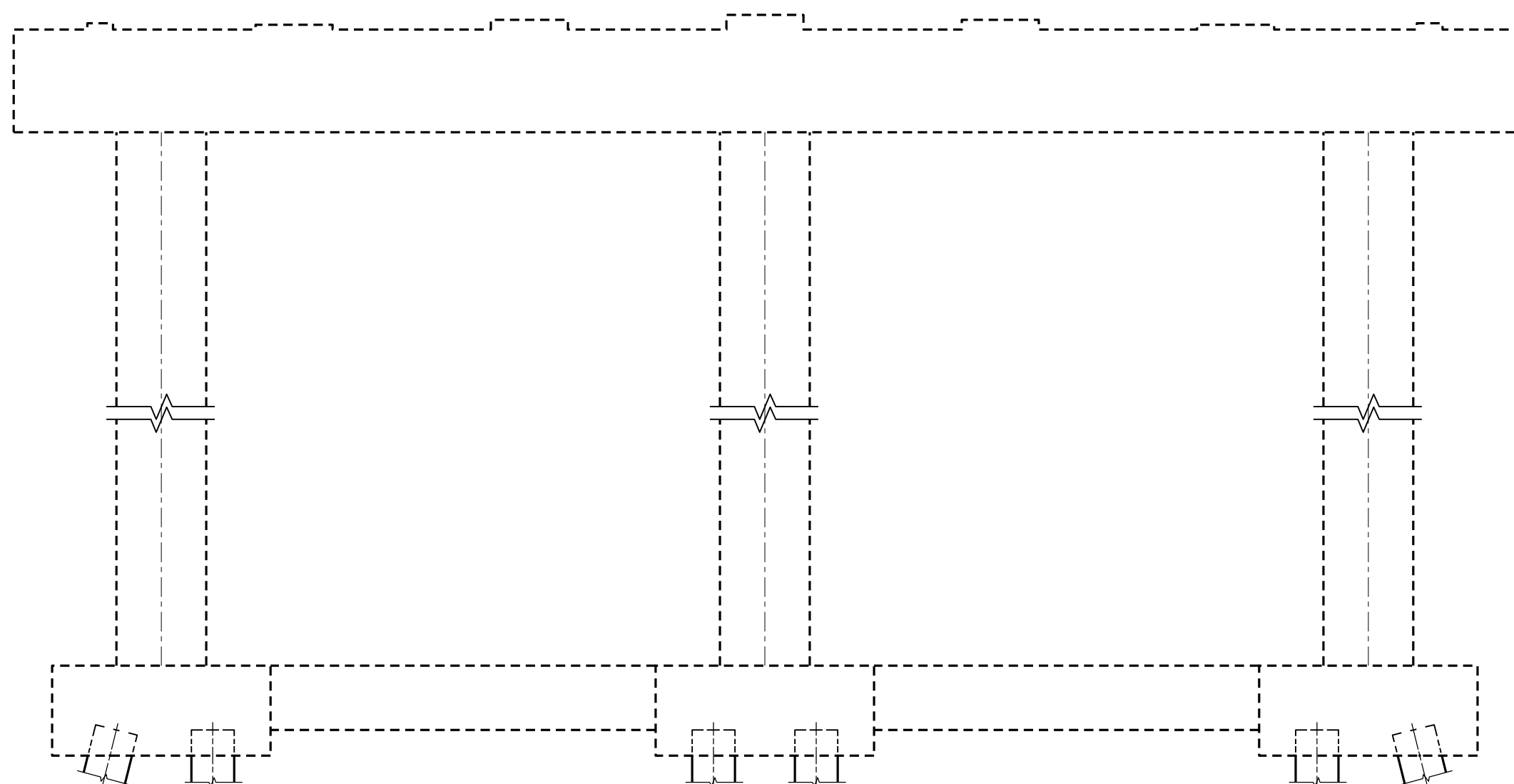
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



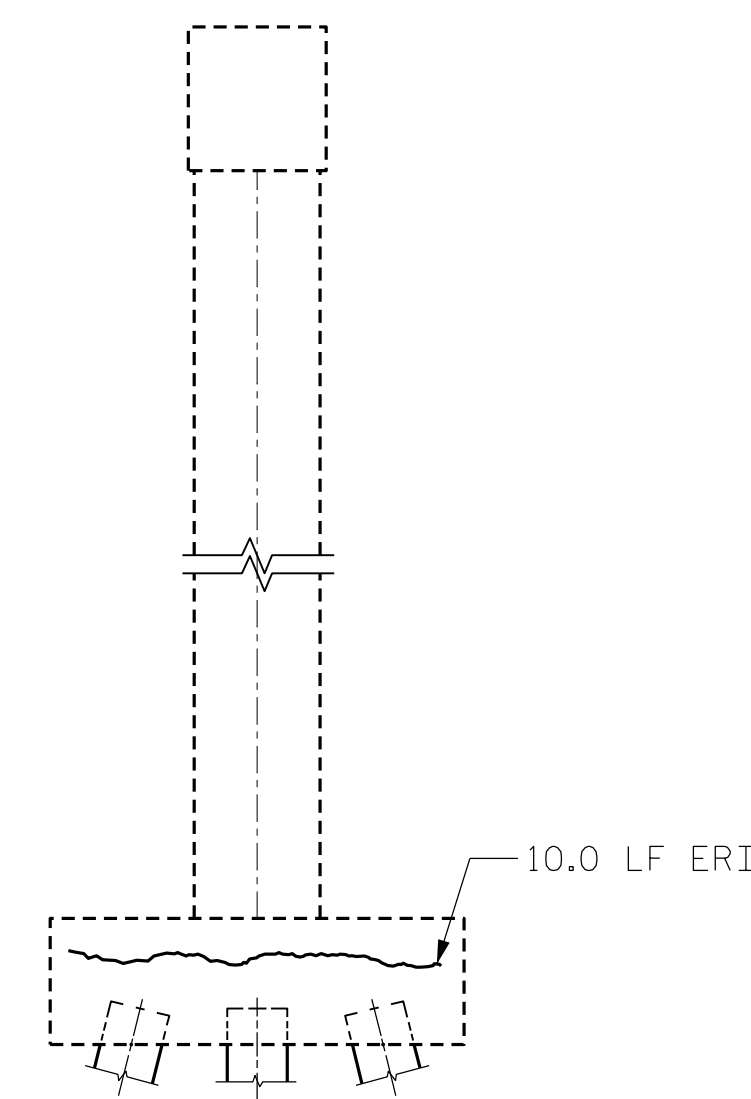
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



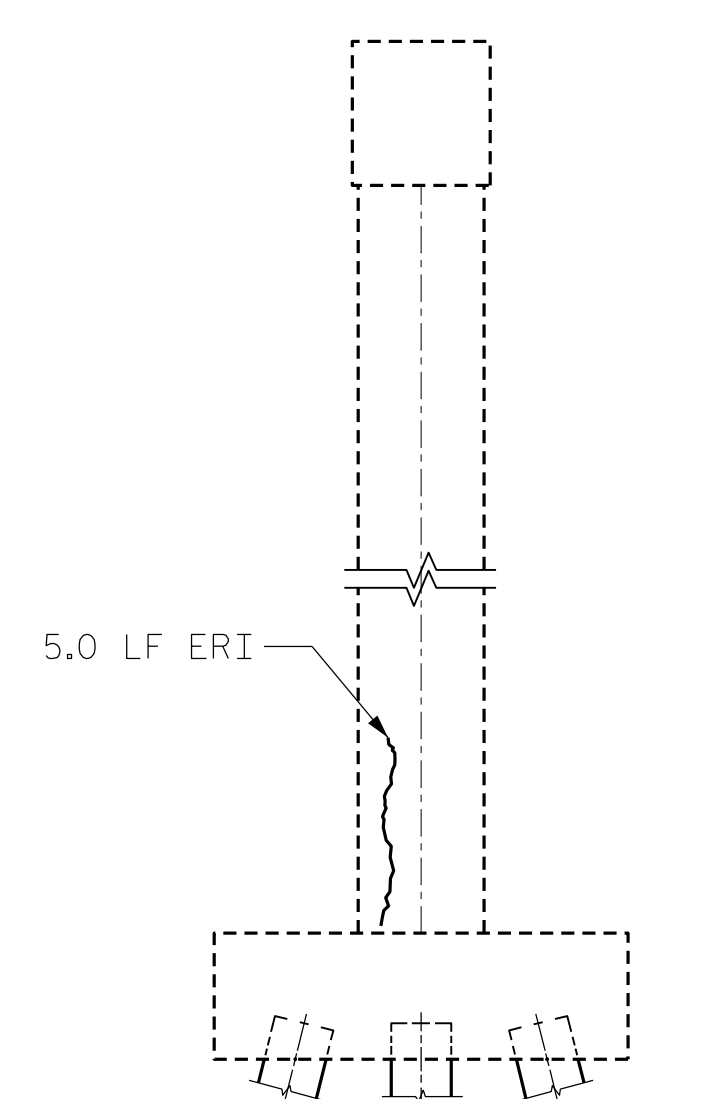
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	5.0			
FOOTING	10.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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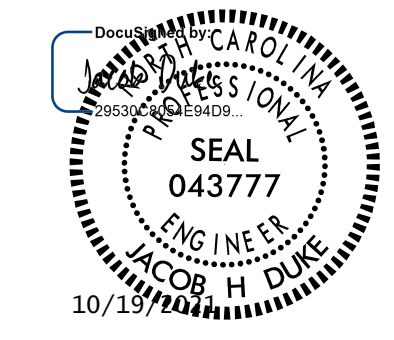
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

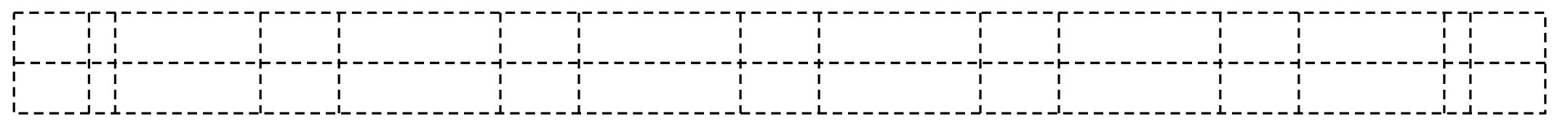
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



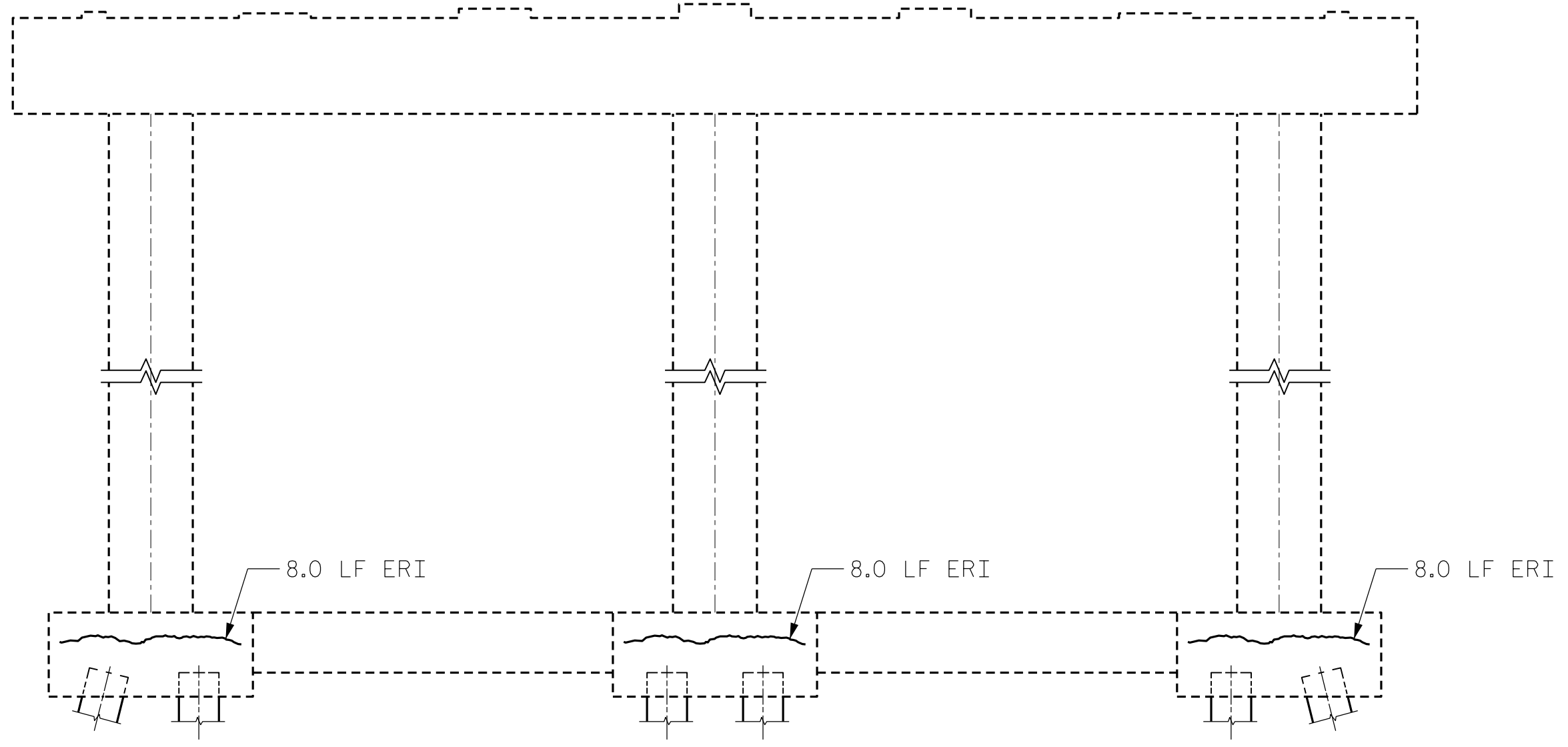
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS					
BENT 34					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 137

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

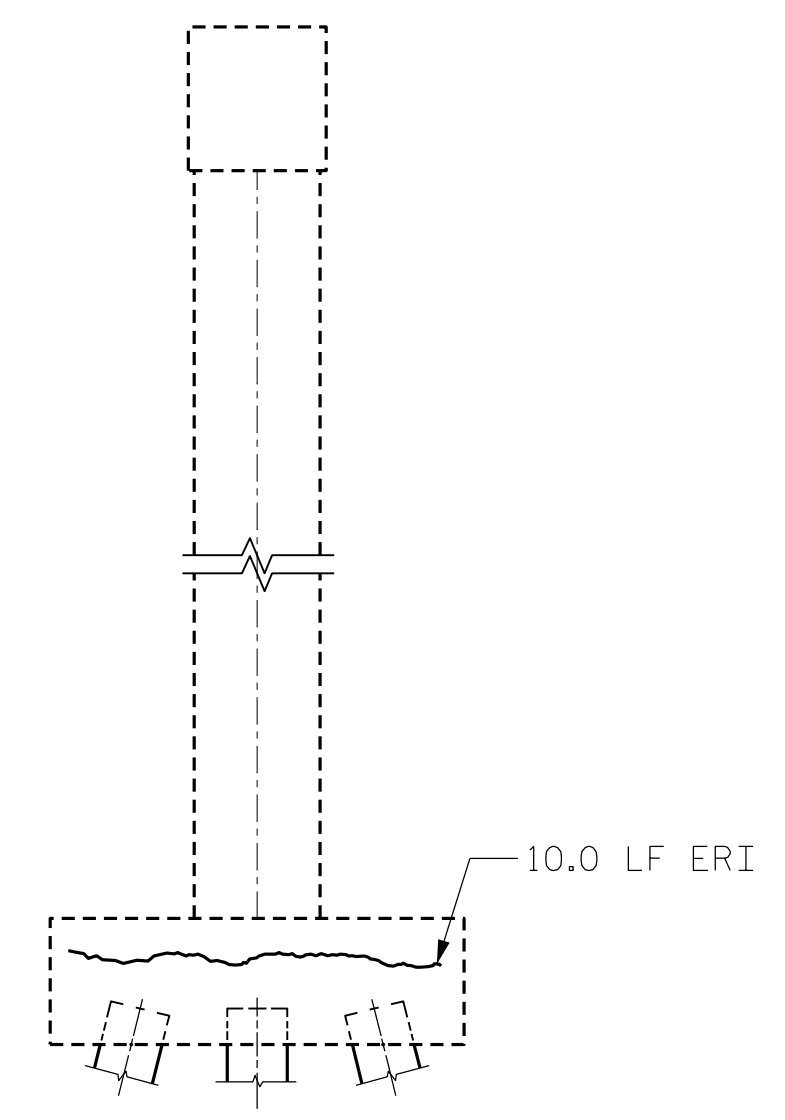
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



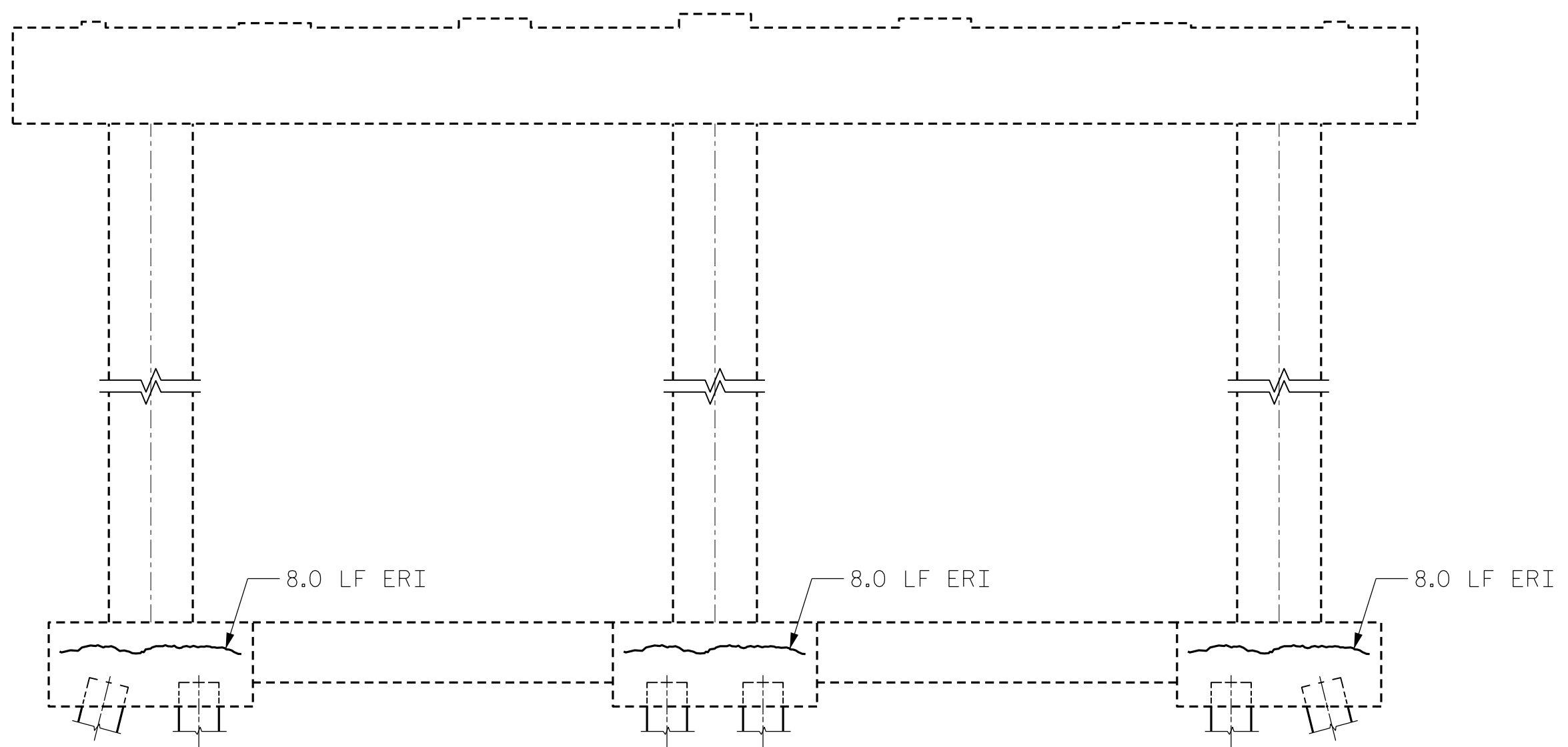
PLAN  
(TOP OF CAP - PILES AND BEAMS NOT SHOWN FOR CLARITY)



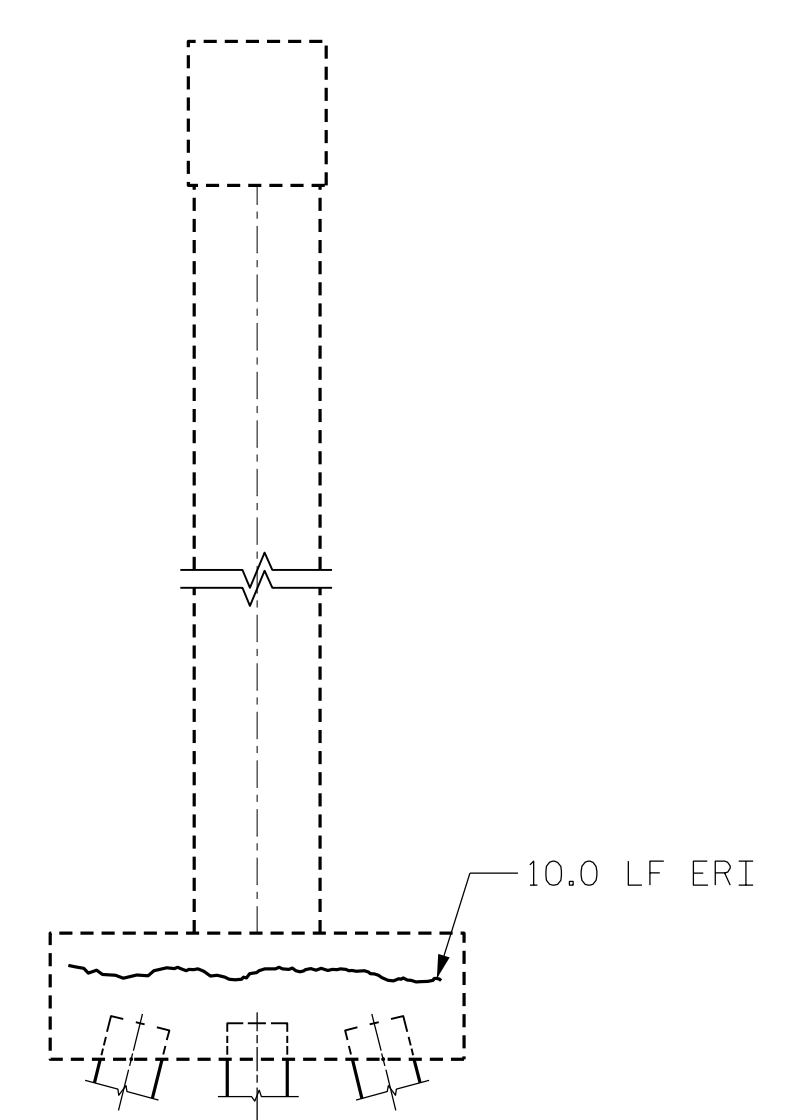
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	68.0			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

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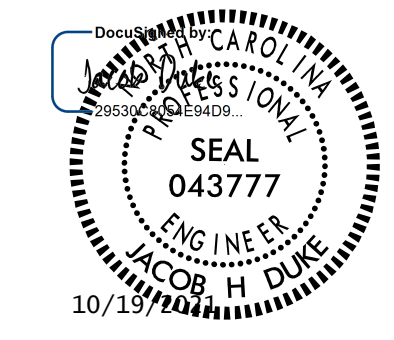
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



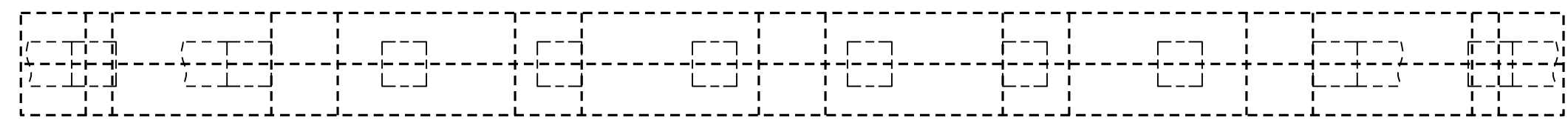
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE REPAIRS**  
 BENT 35

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

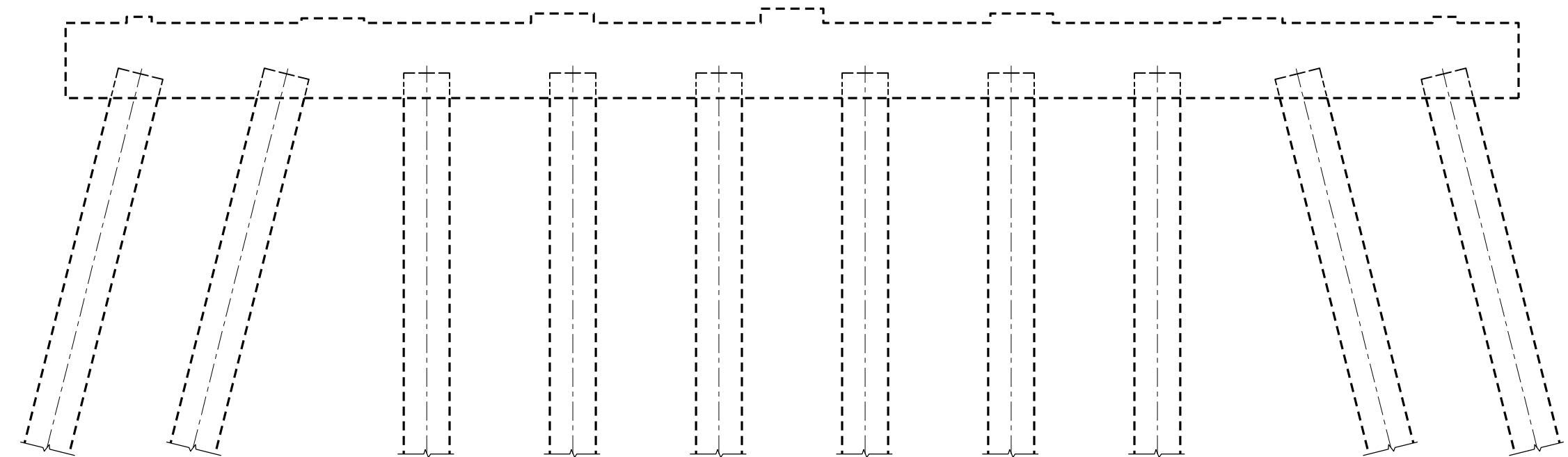
10/19/2021  
 15BPR.46.SMU.SBR35.270012.dgn  
 jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

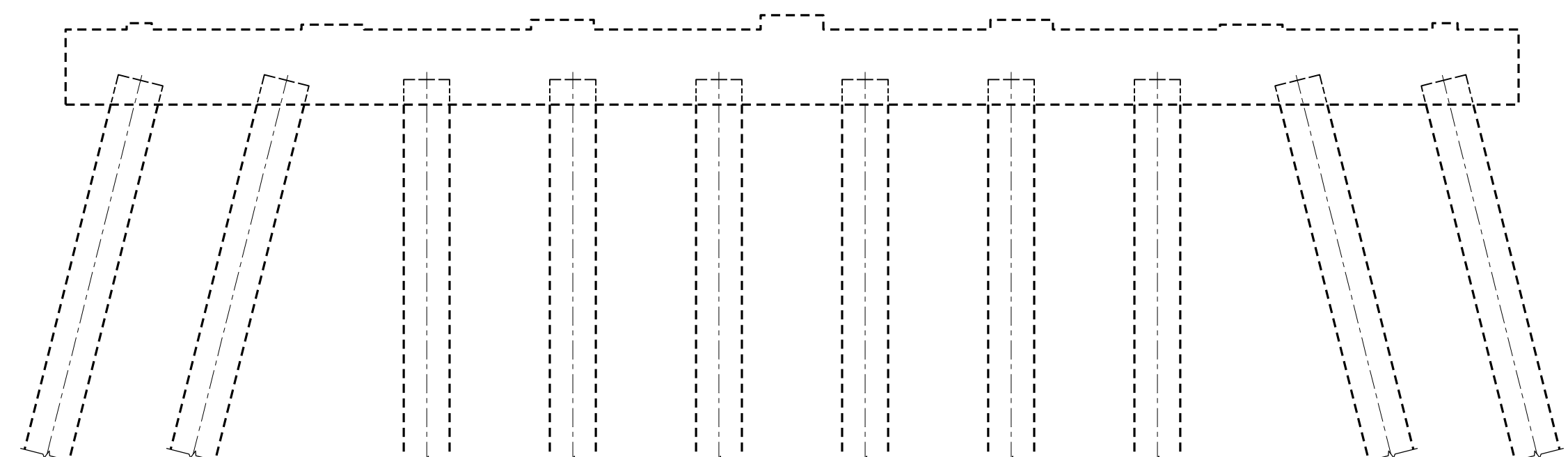
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



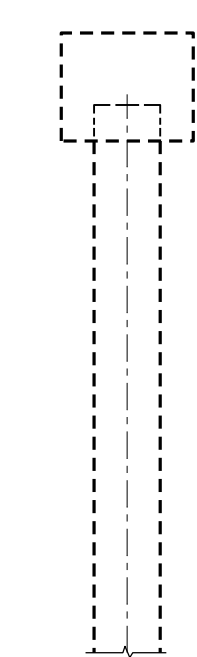
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(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



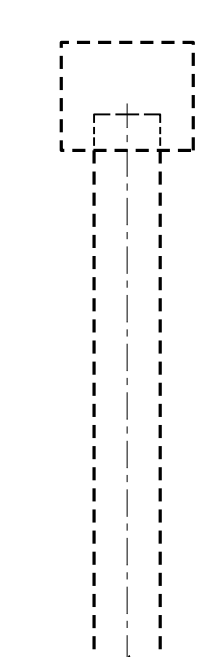
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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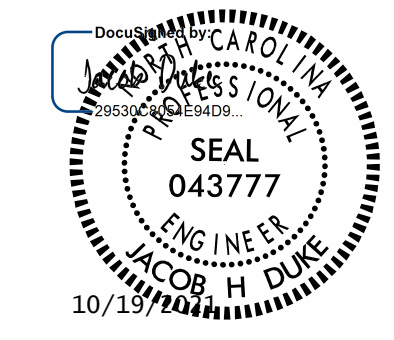
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012

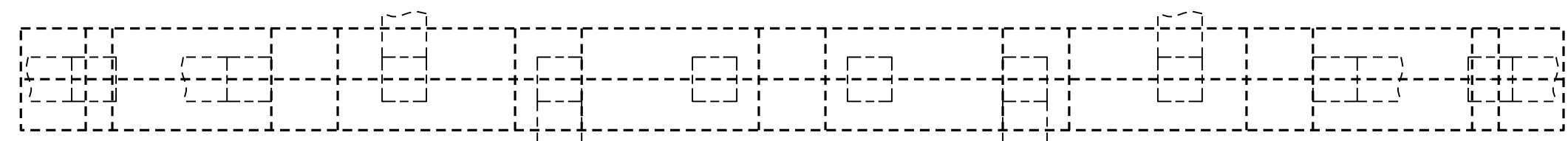


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>SUBSTRUCTURE REPAIRS</b>					
BENT 36					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 137

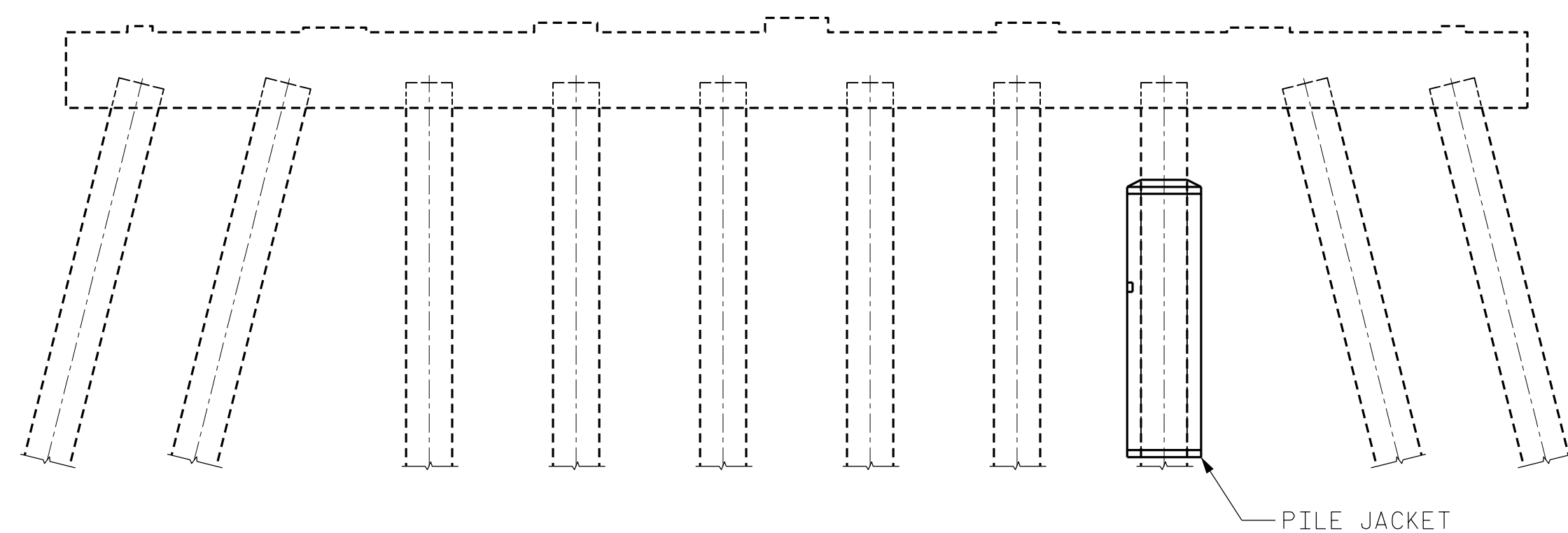
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

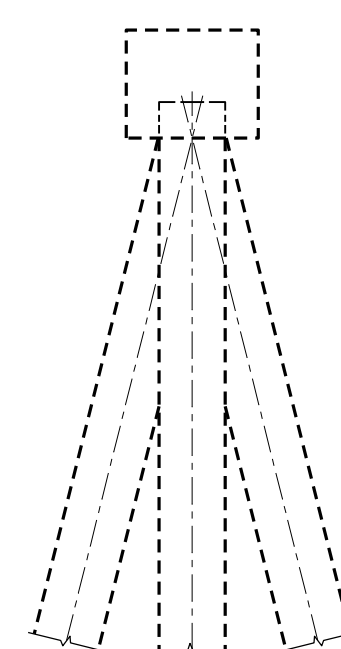




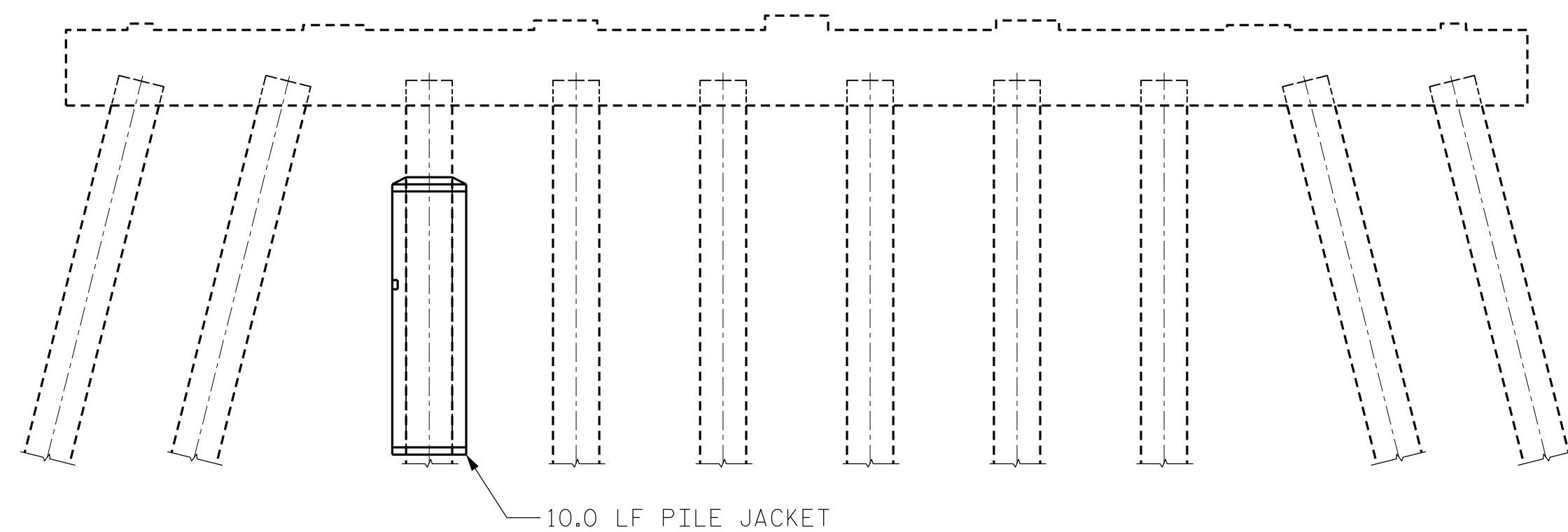
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



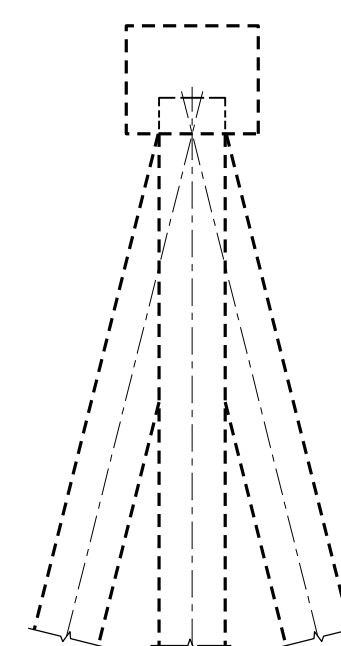
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		10.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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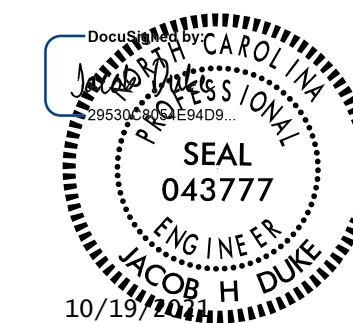
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

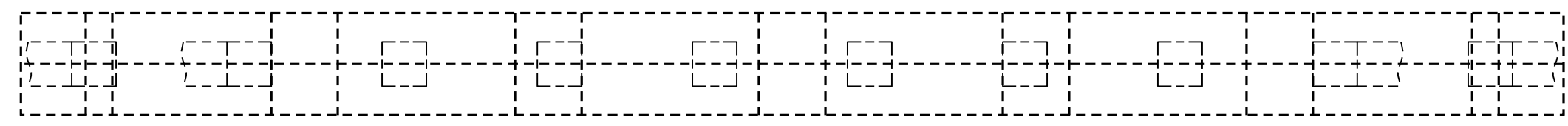
BENT 37

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

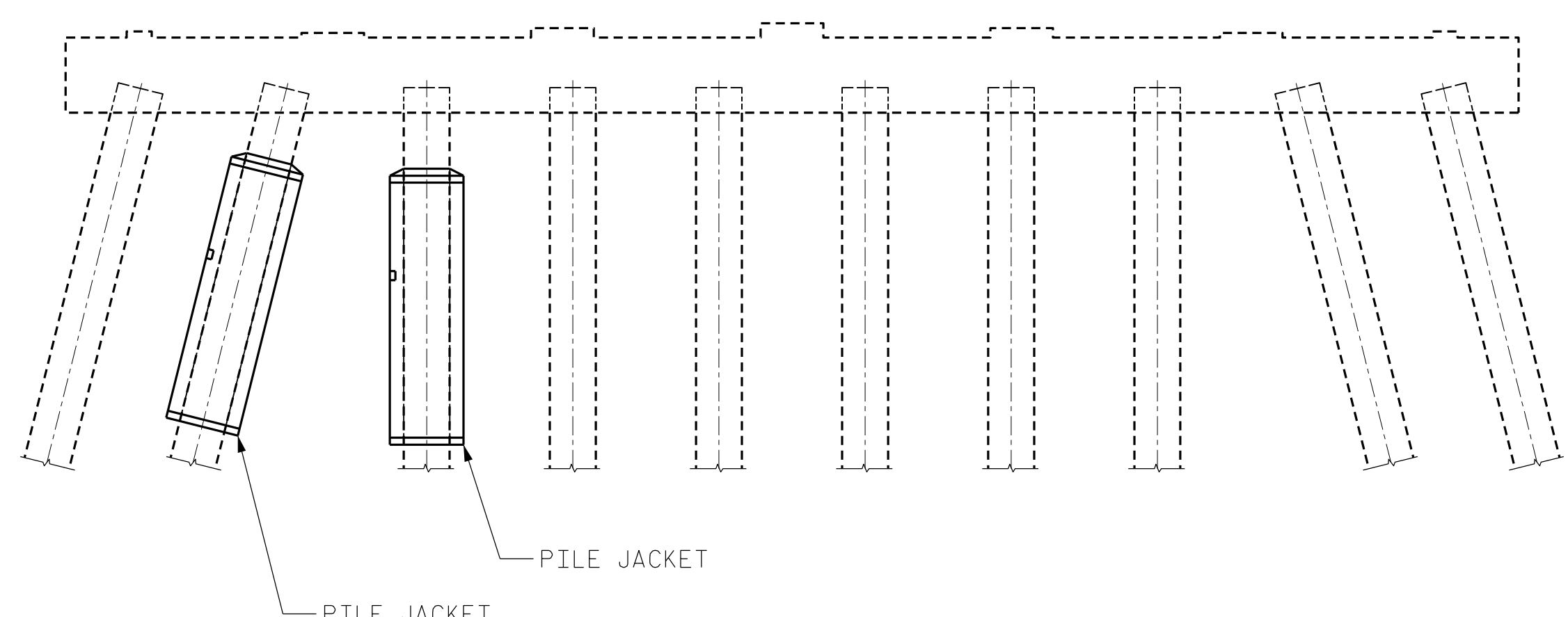
10/19/2021  
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 jduke

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

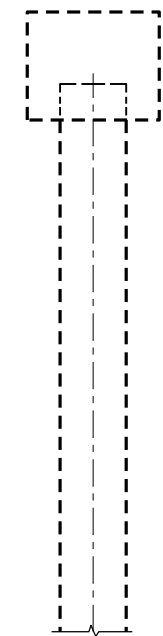
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



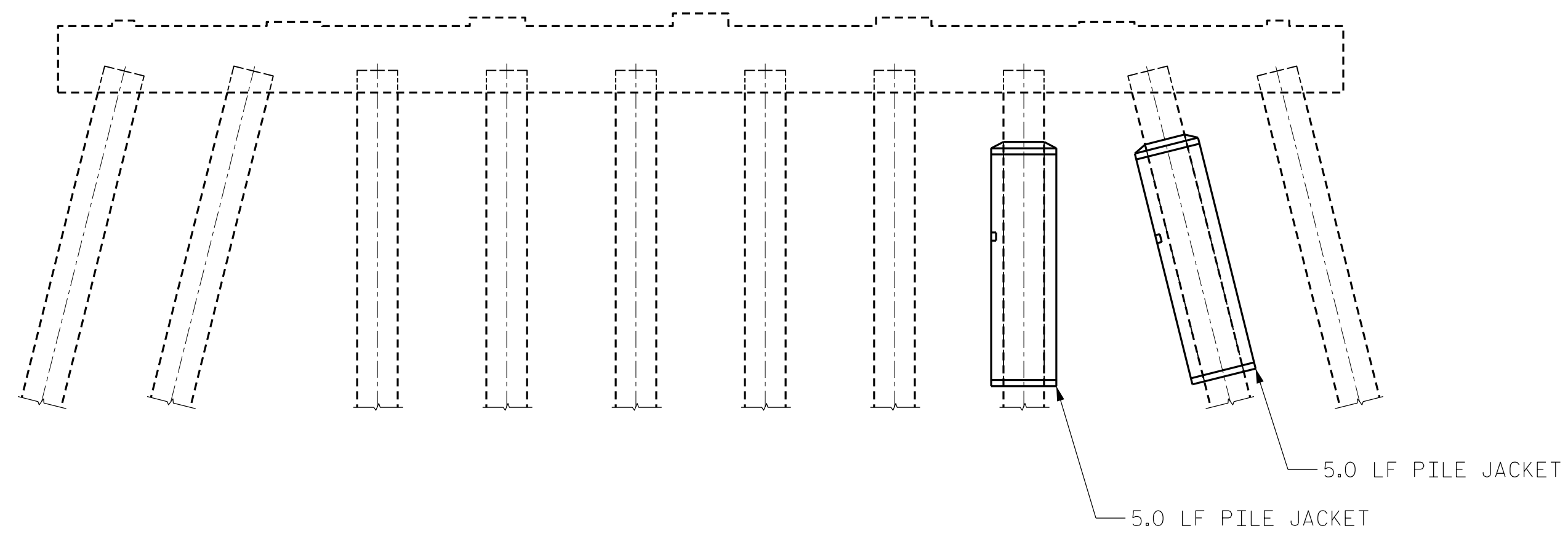
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



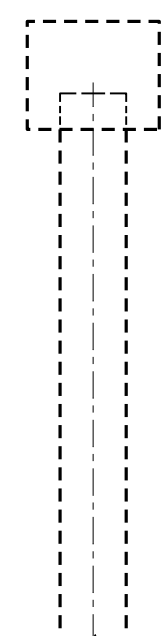
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		10.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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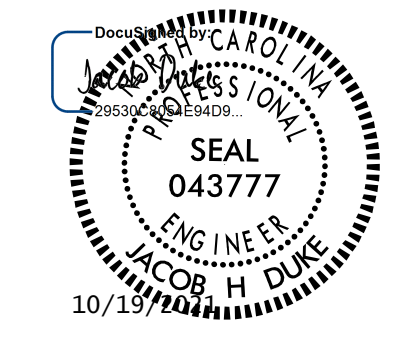
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

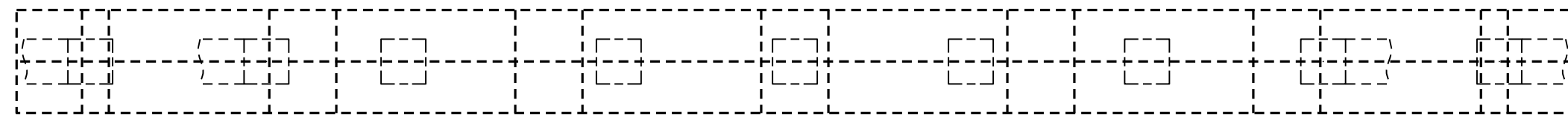
BENT 38



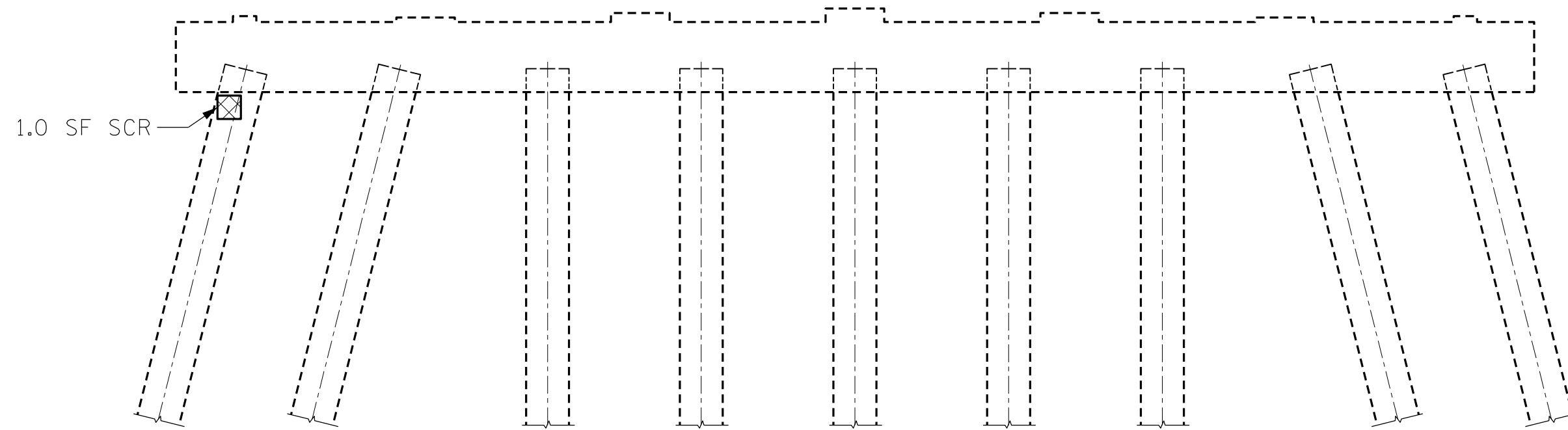
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

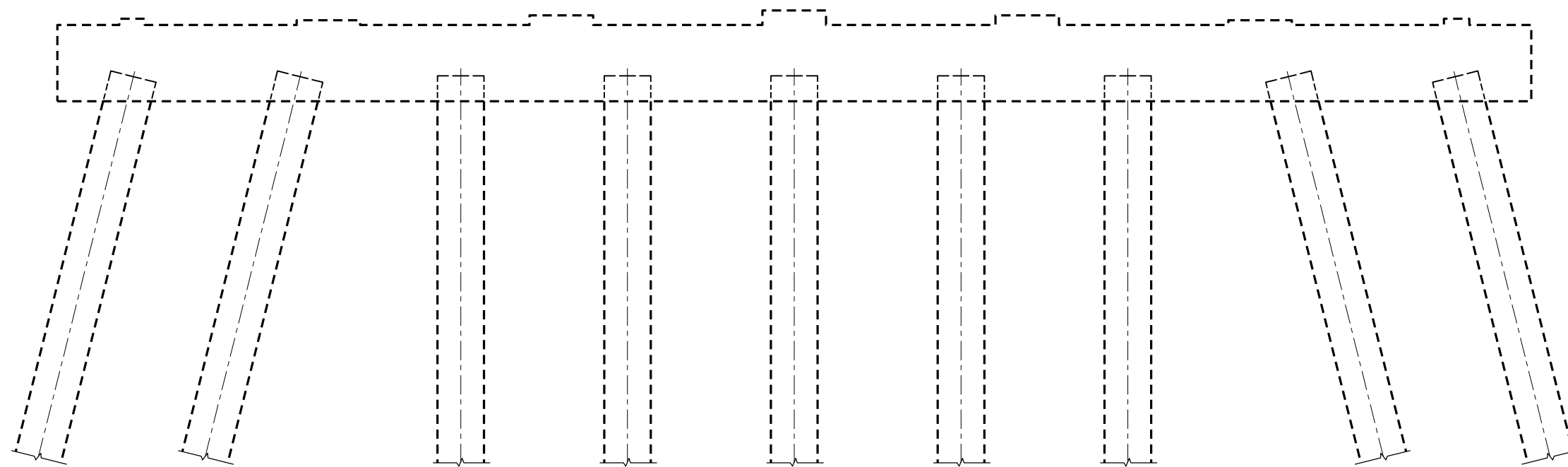
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



EAST ELEVATION



WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		1.0	0.5		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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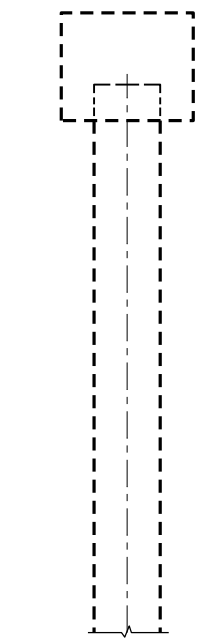
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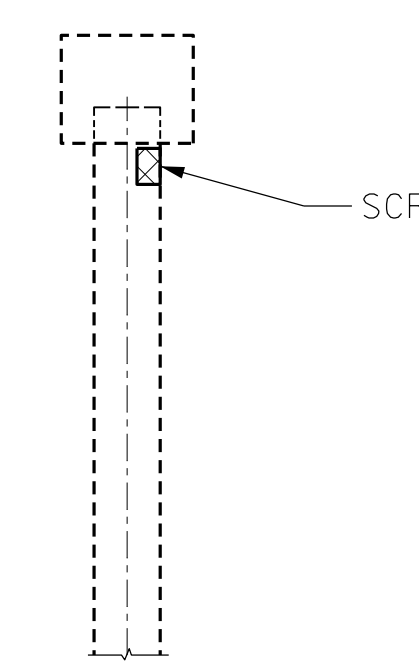
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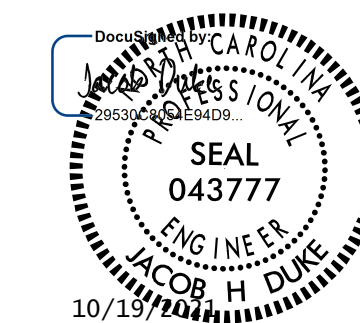


NORTH ELEVATION



SOUTH ELEVATION

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012

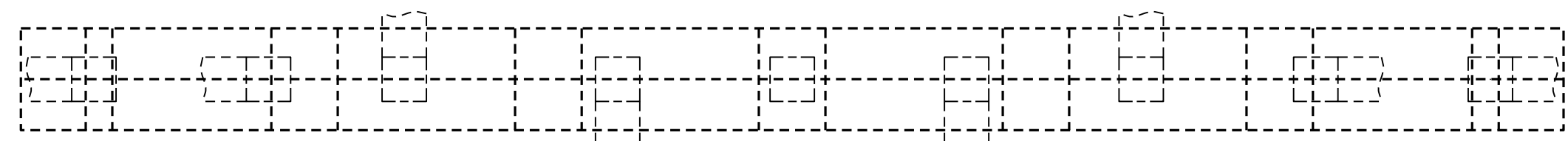


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>SUBSTRUCTURE REPAIRS</b>					
BENT 39					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
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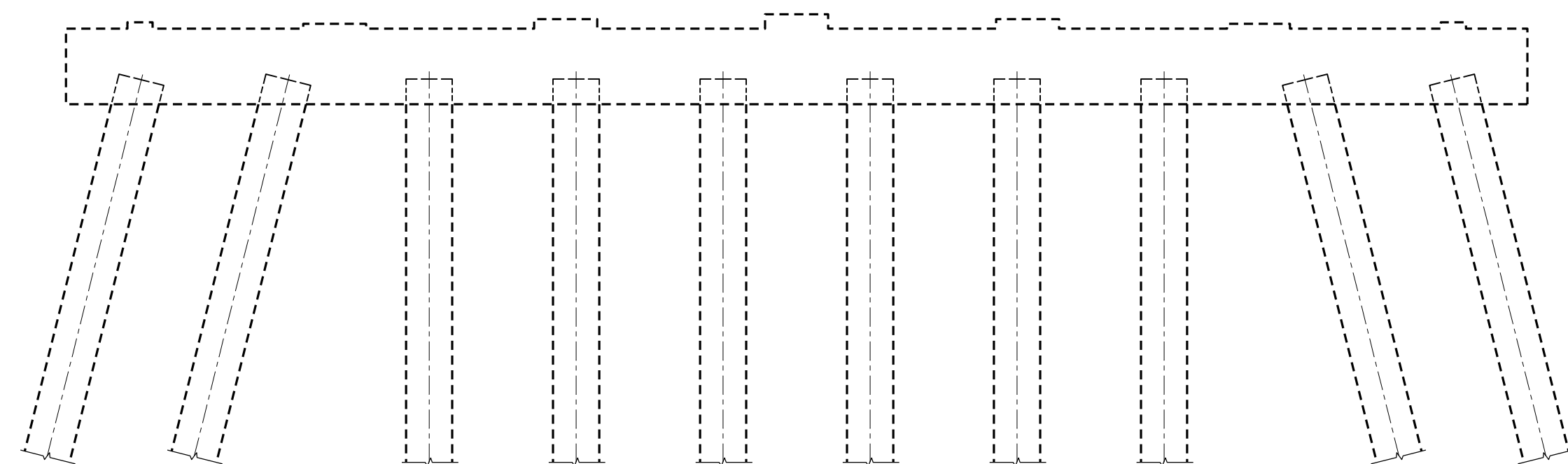
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

10/19/2021  
 15BPR.46.SMU.SBR39.270012.dgn  
 jduke

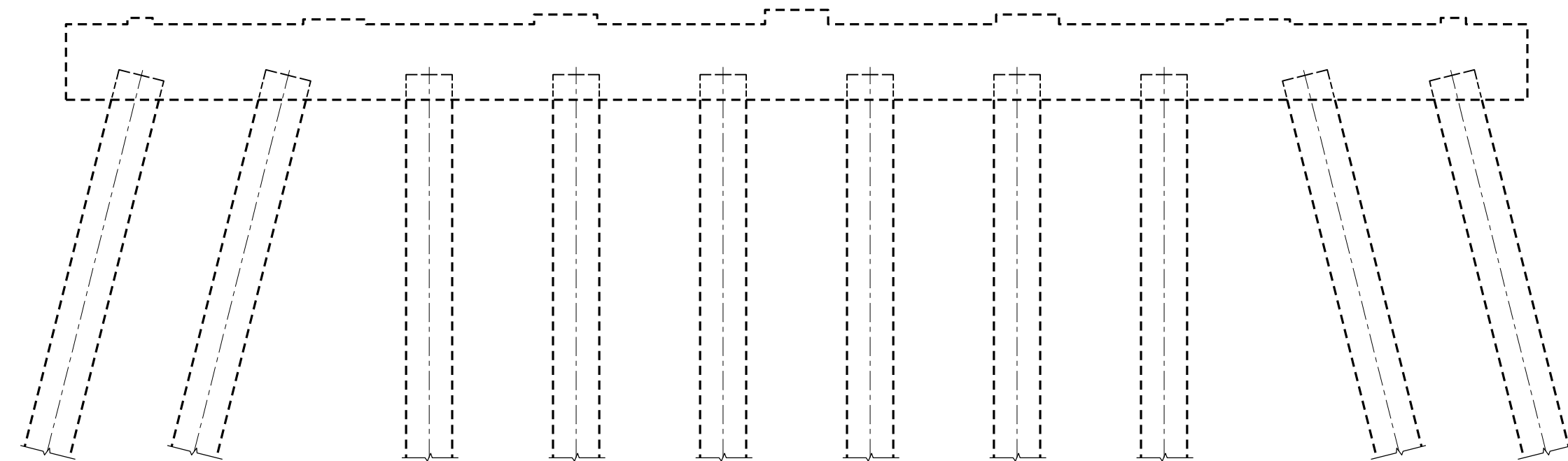
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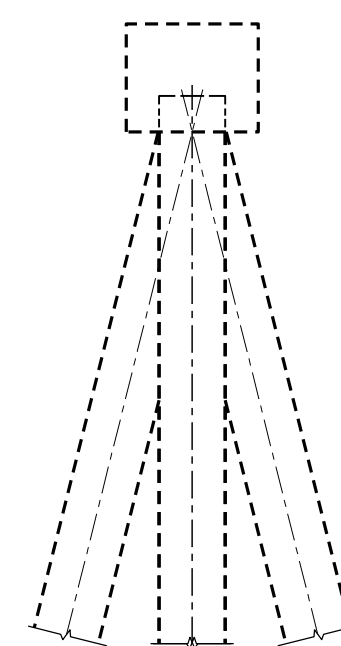
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



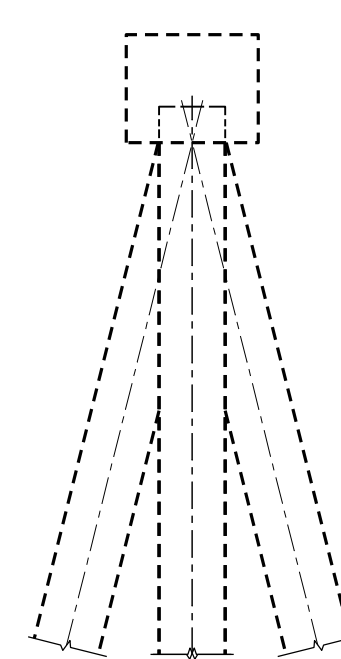
EAST ELEVATION



WEST ELEVATION



NORTH ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

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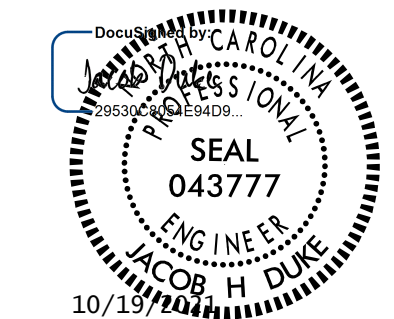
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 40

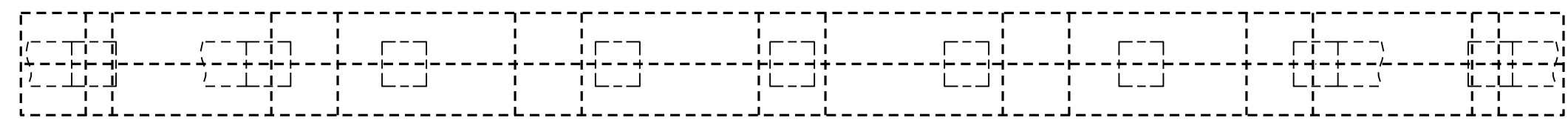


DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

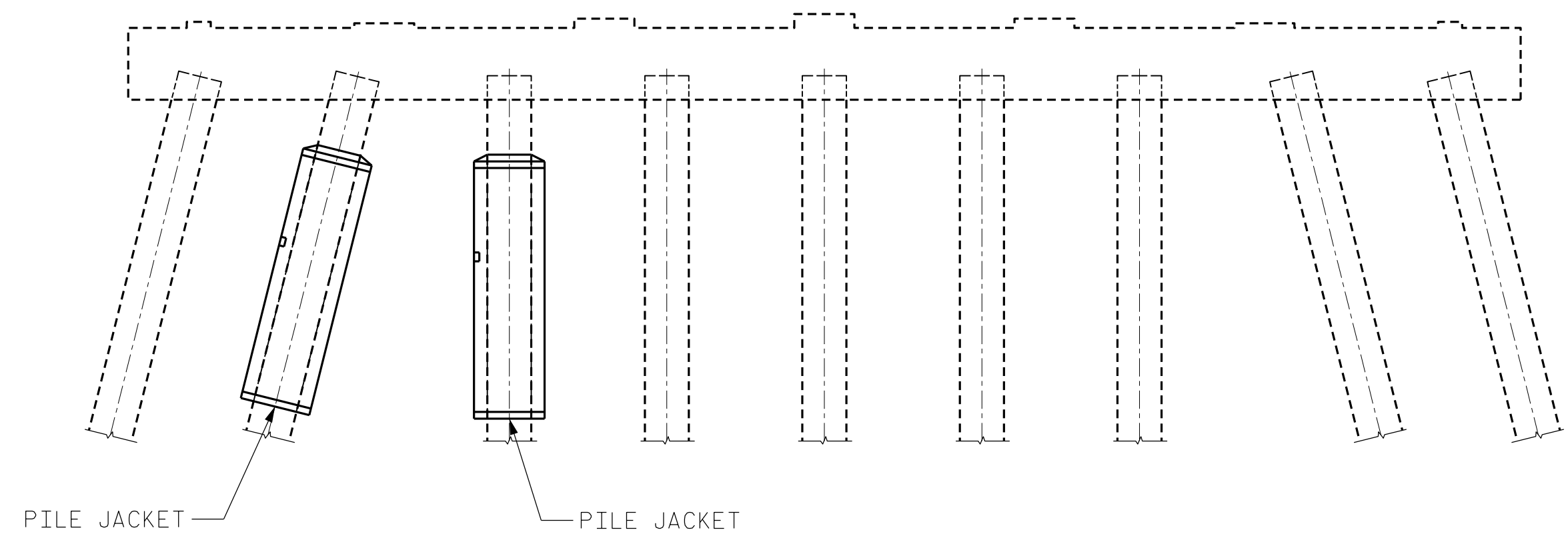
10/19/2021  
 15BPR.46.SMU.SBR40.270012.dgn  
 jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

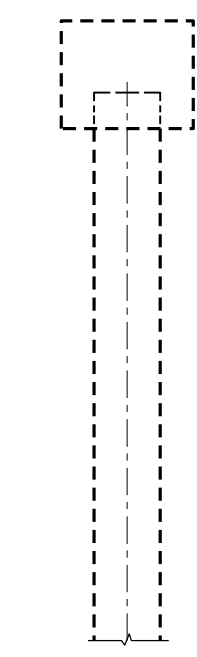
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



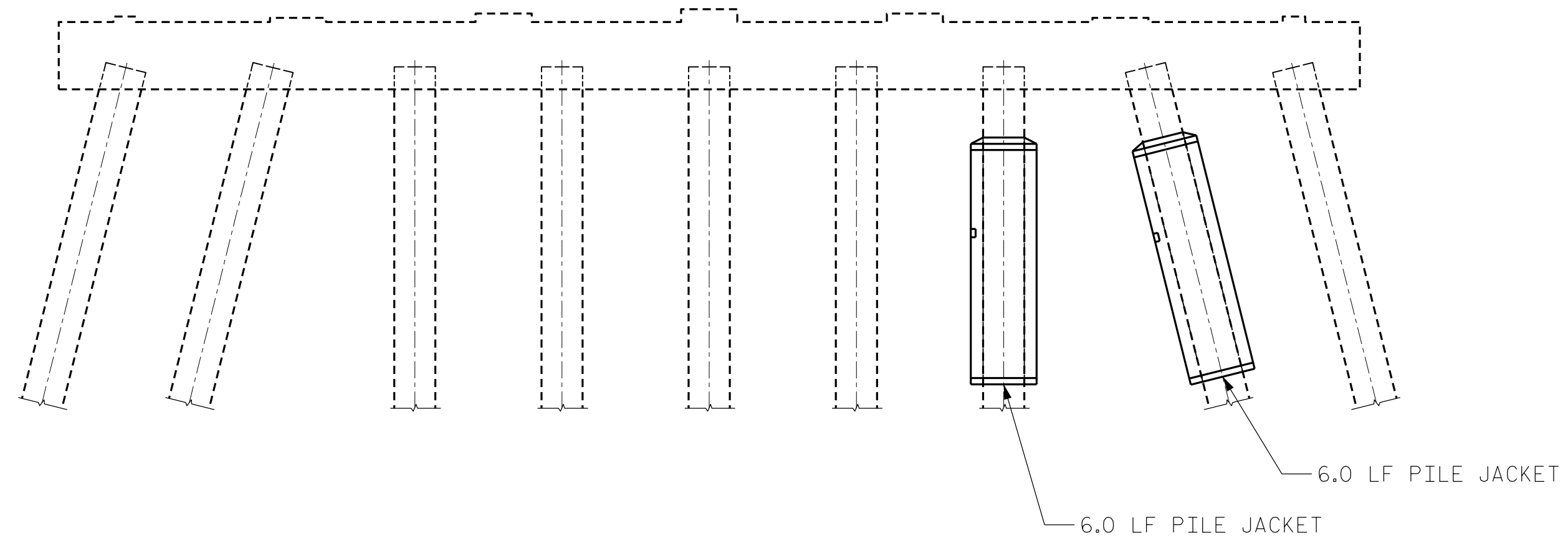
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



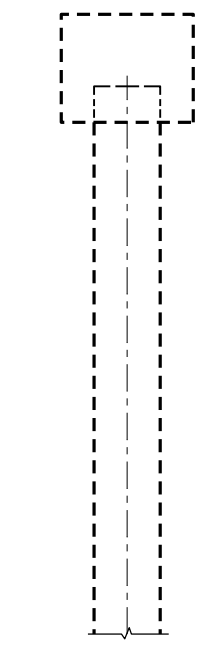
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	-			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE	12.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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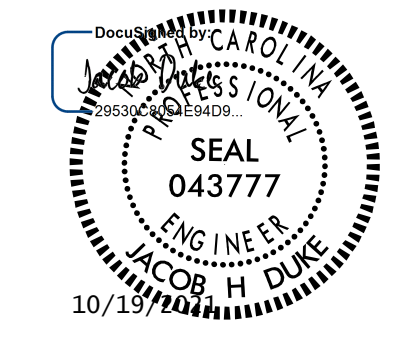
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 41

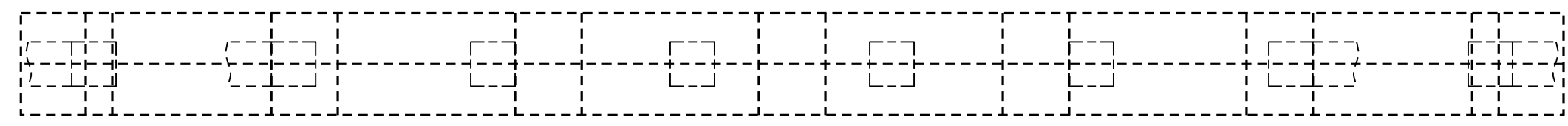
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

10/19/2021  
 15BPR.46.SMU.SBR41.270012.dgn  
 jduke

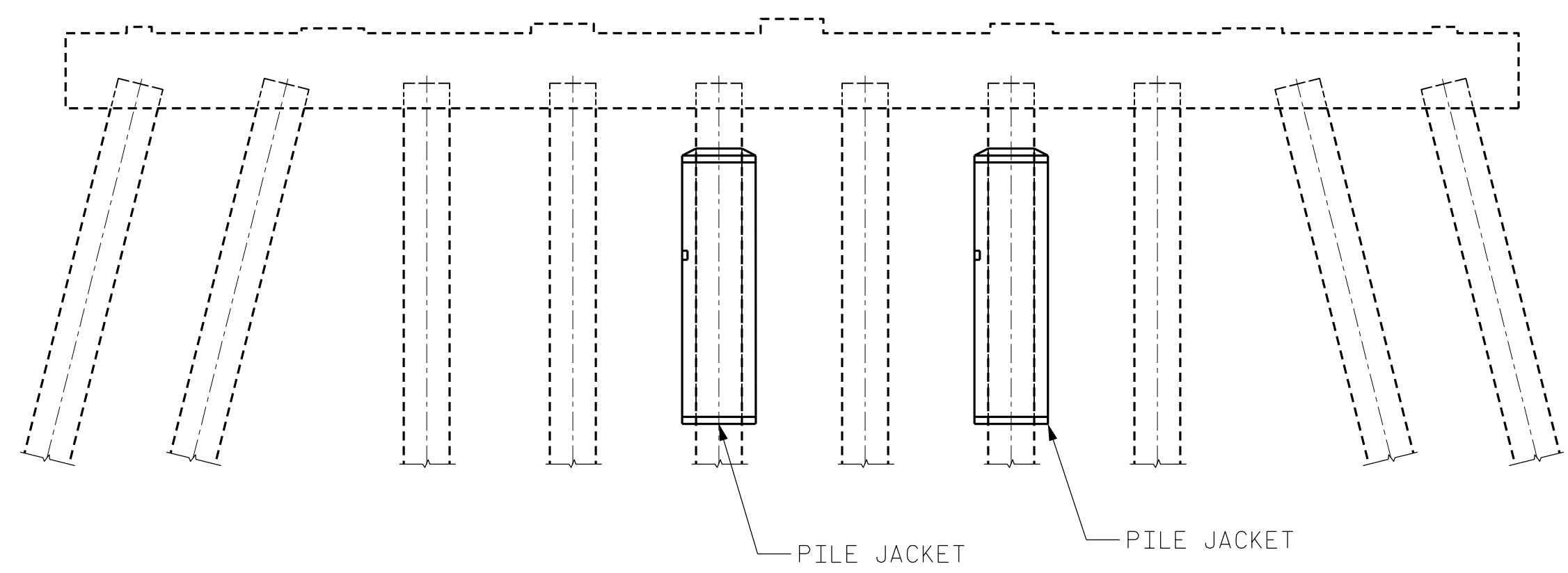
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



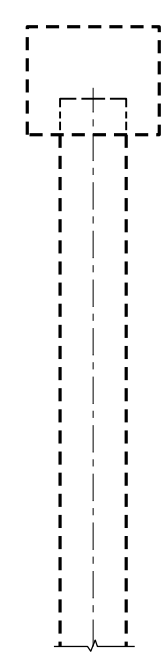
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



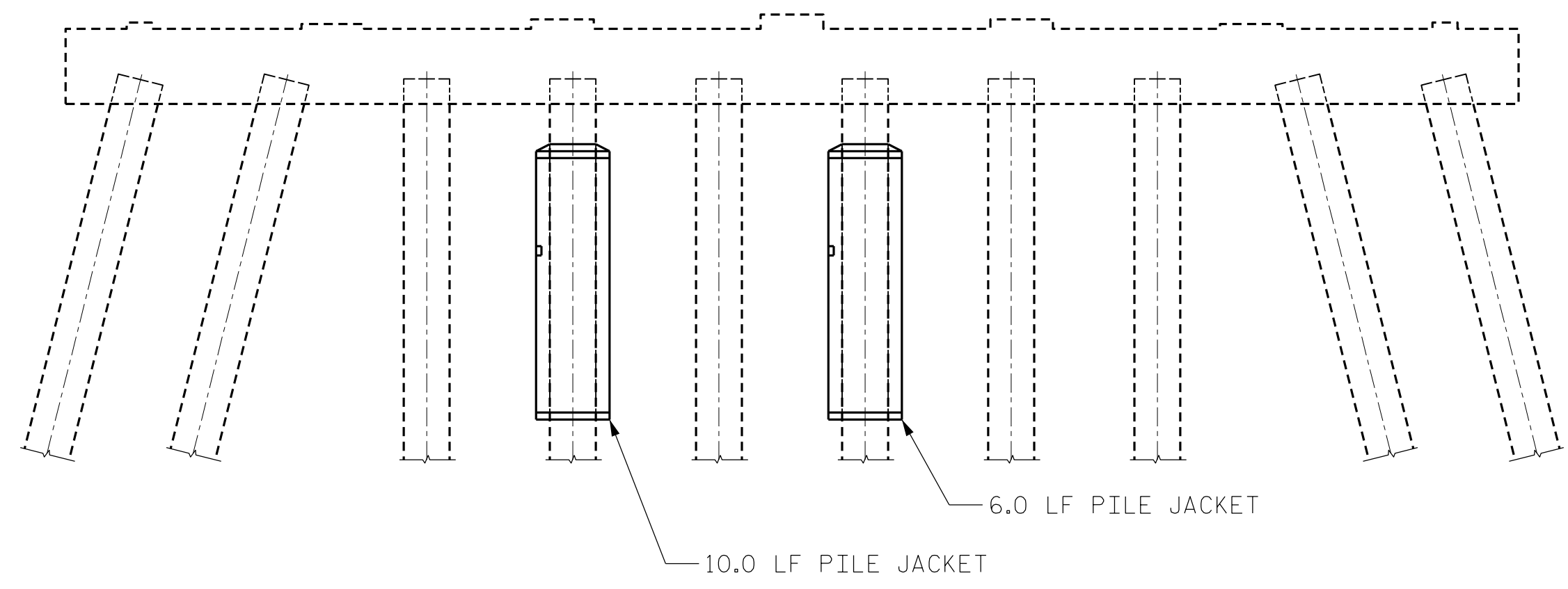
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(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



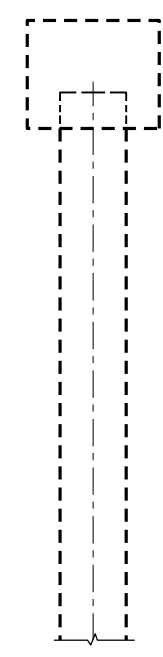
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		16.0			

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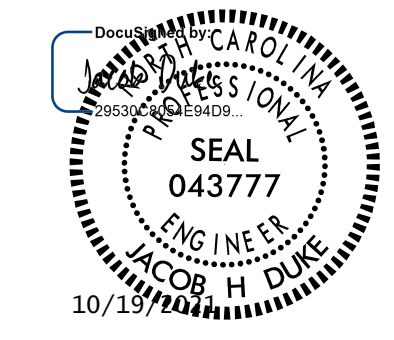
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

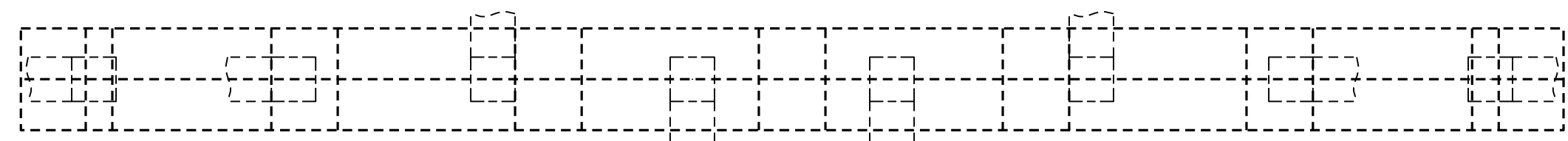
BENT 42



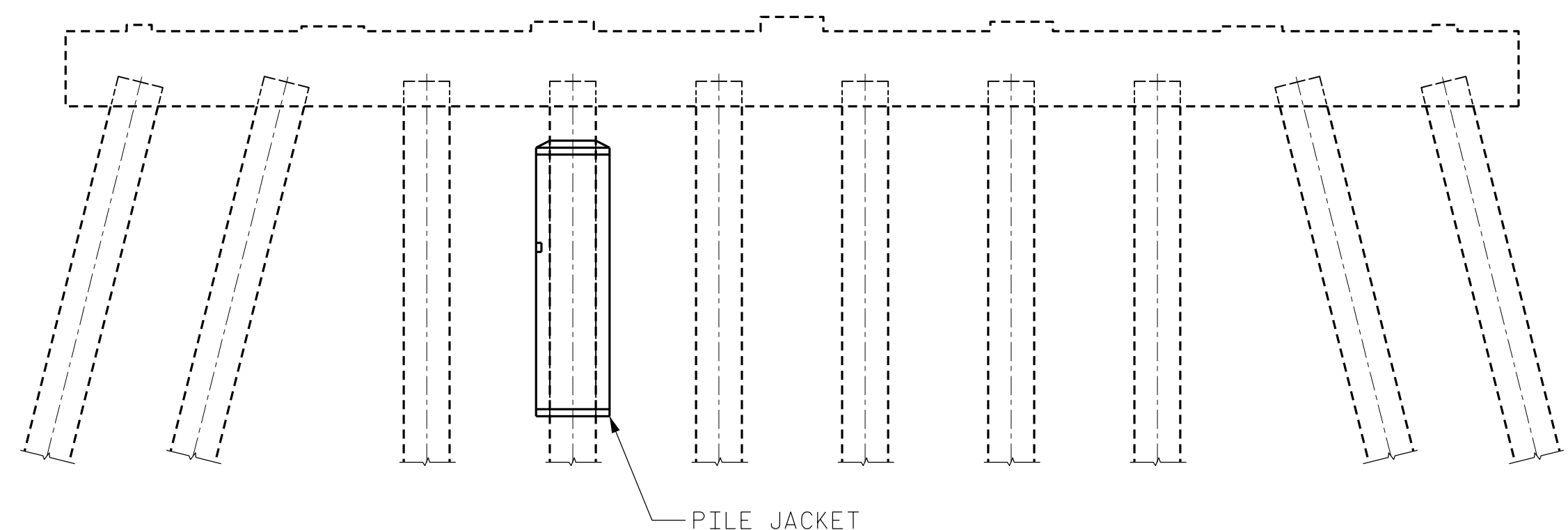
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

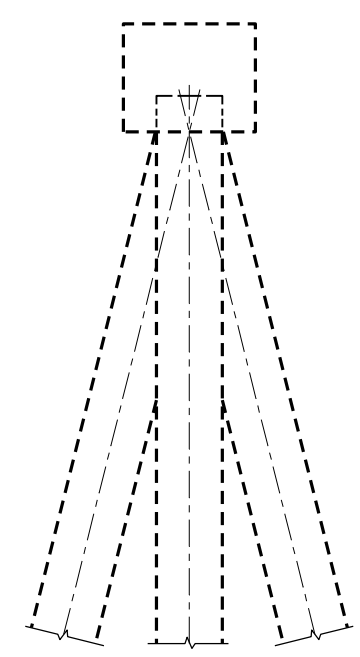
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



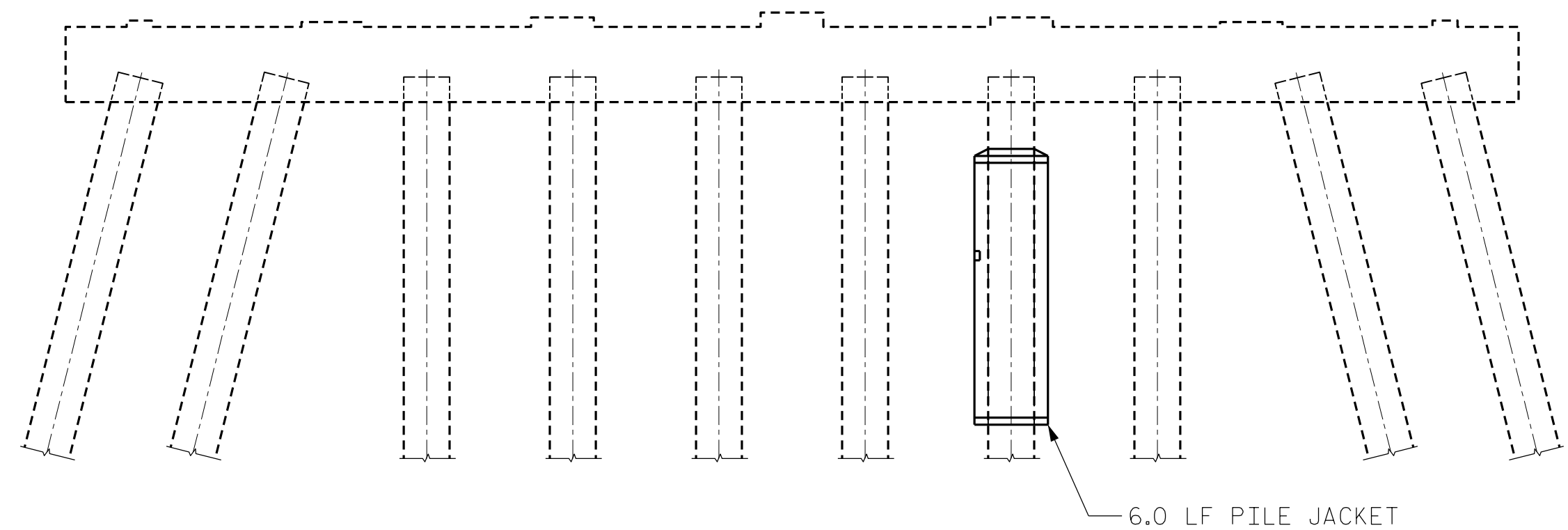
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



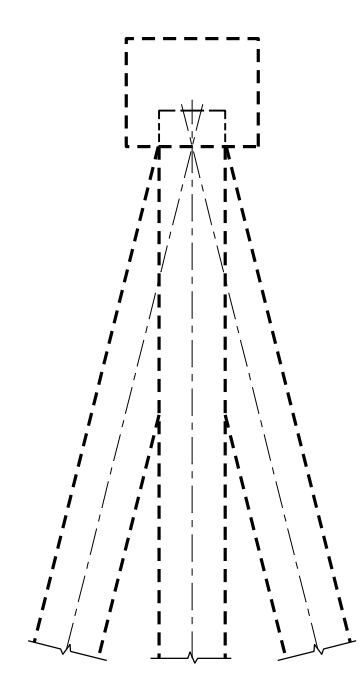
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		6.0			

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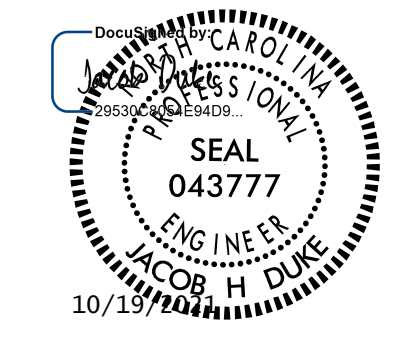
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

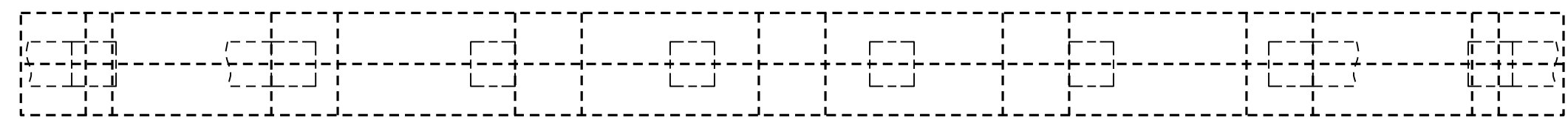
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DRAWN BY :	FIDEL L. FLORES	DATE :	9/30/2020
CHECKED BY :	JACOB H. DUKE	DATE :	10/1/2020
DESIGN ENGINEER OF RECORD:	JACOB H. DUKE	DATE :	10/1/2020

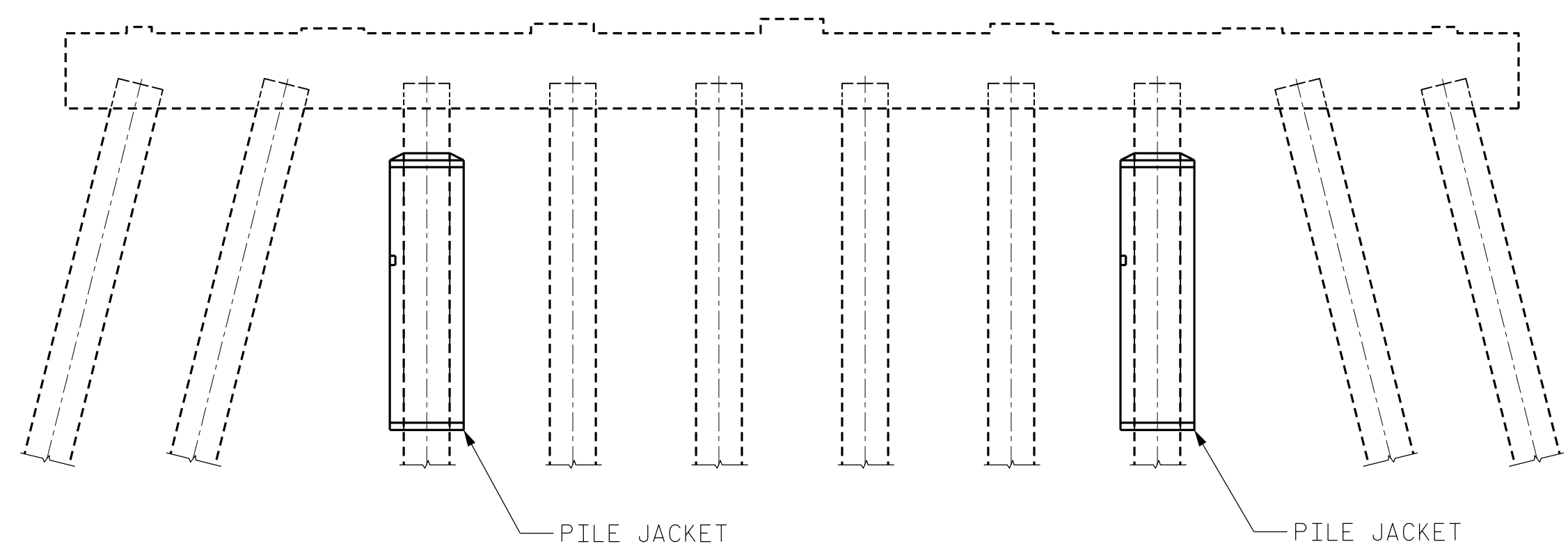
10/19/2021  
 15BPR.46.SMU.SBR43.270012.dgn  
 jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

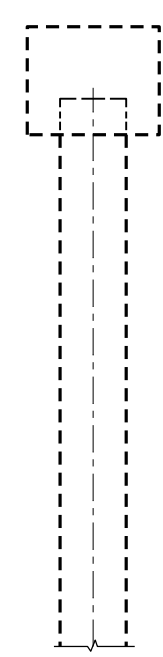
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



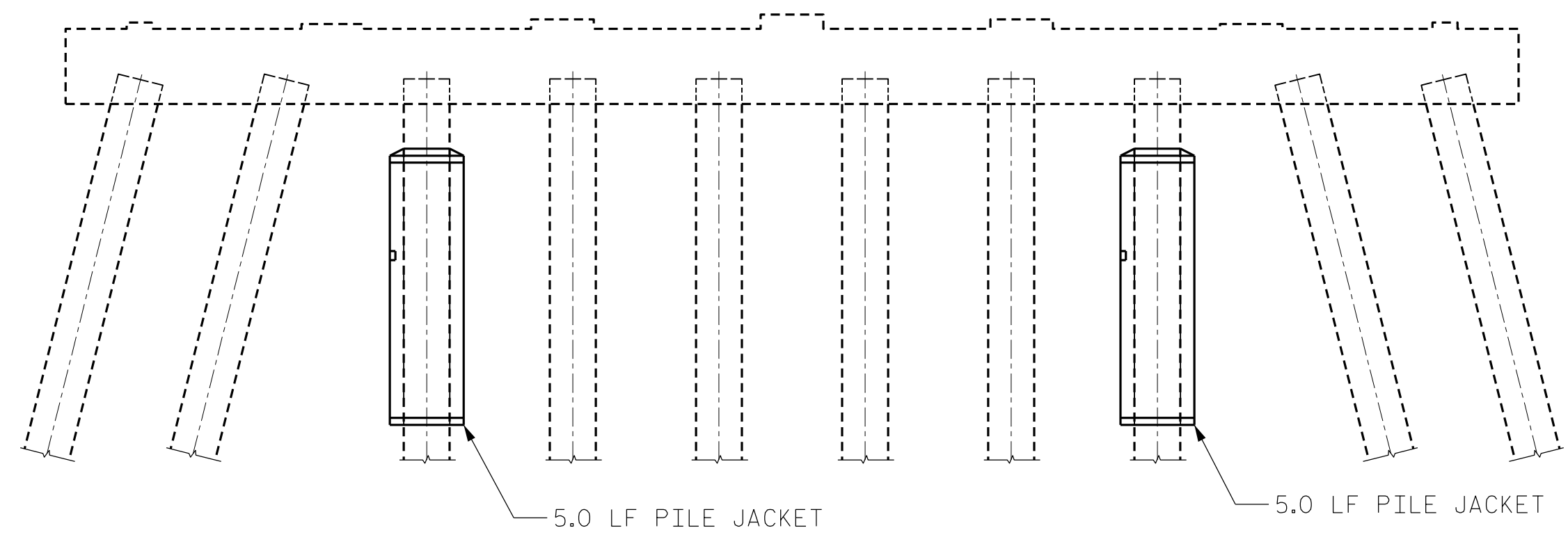
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



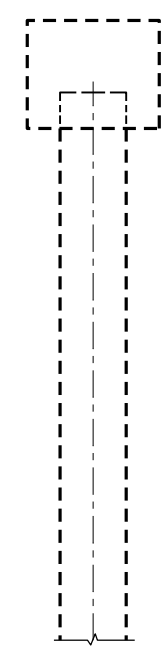
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		10.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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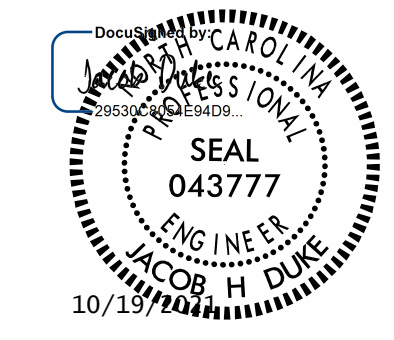
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 44

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

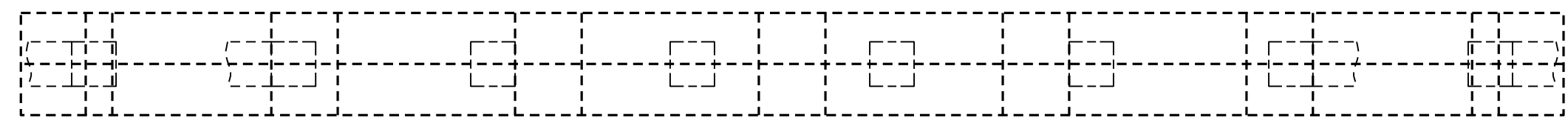
10/19/2021  
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 jduke

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

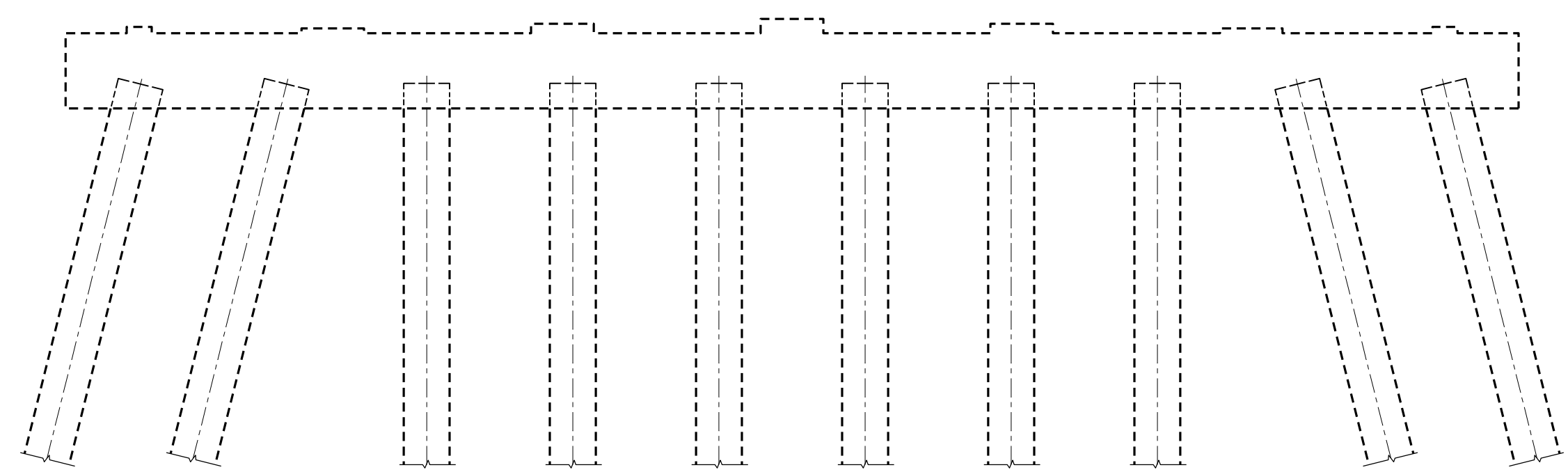


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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			

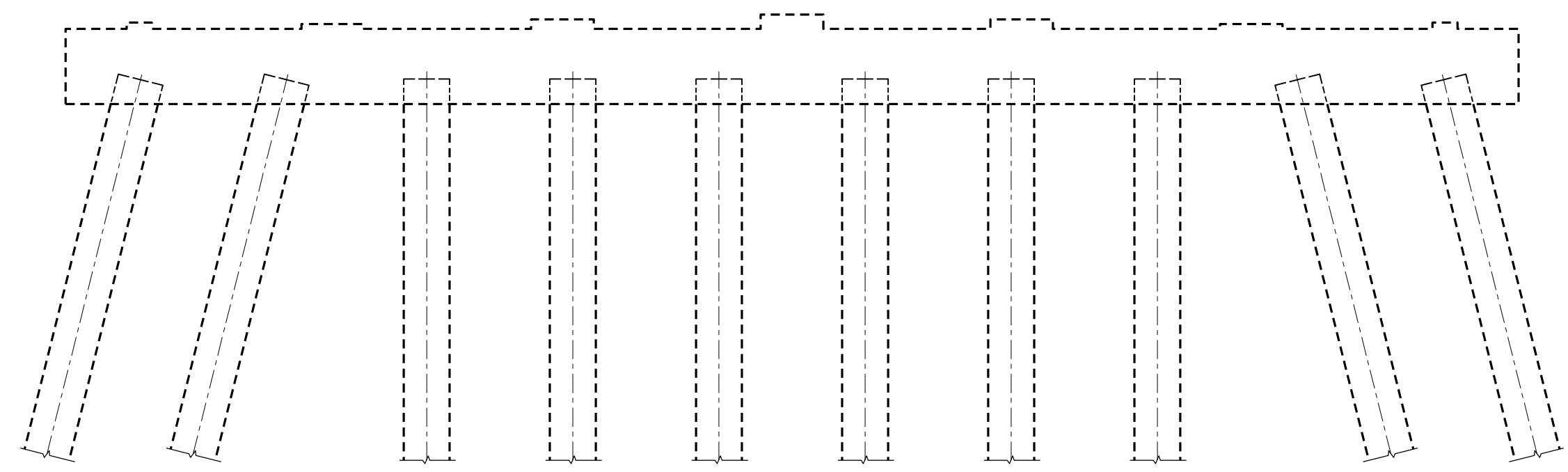




PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



EAST ELEVATION



WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

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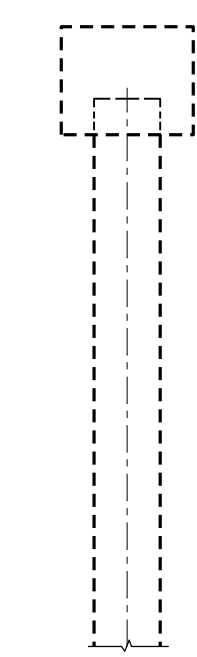
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FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

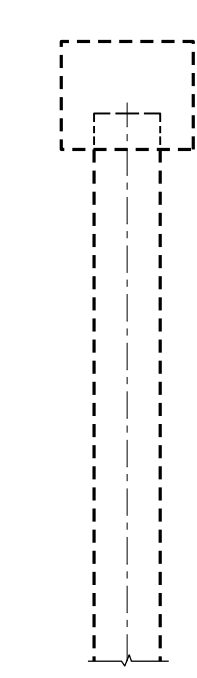
SHOTCRETE REPAIRS MAY BE REPLACED WITH CONCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.



NORTH ELEVATION



SOUTH ELEVATION

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

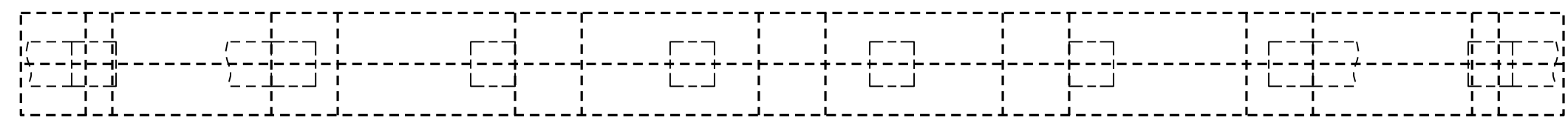
**SUBSTRUCTURE REPAIRS**

BENT 45

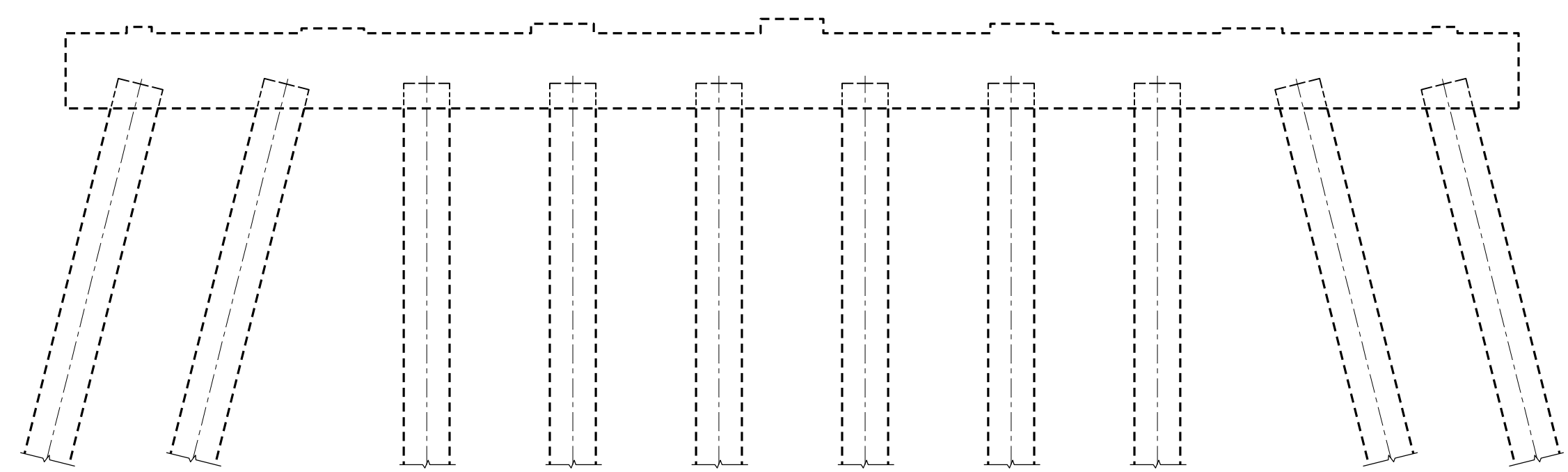
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

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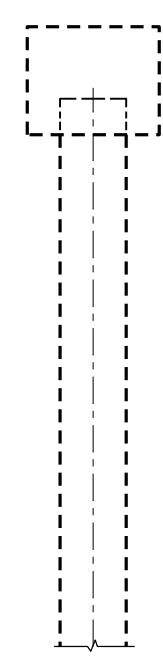
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



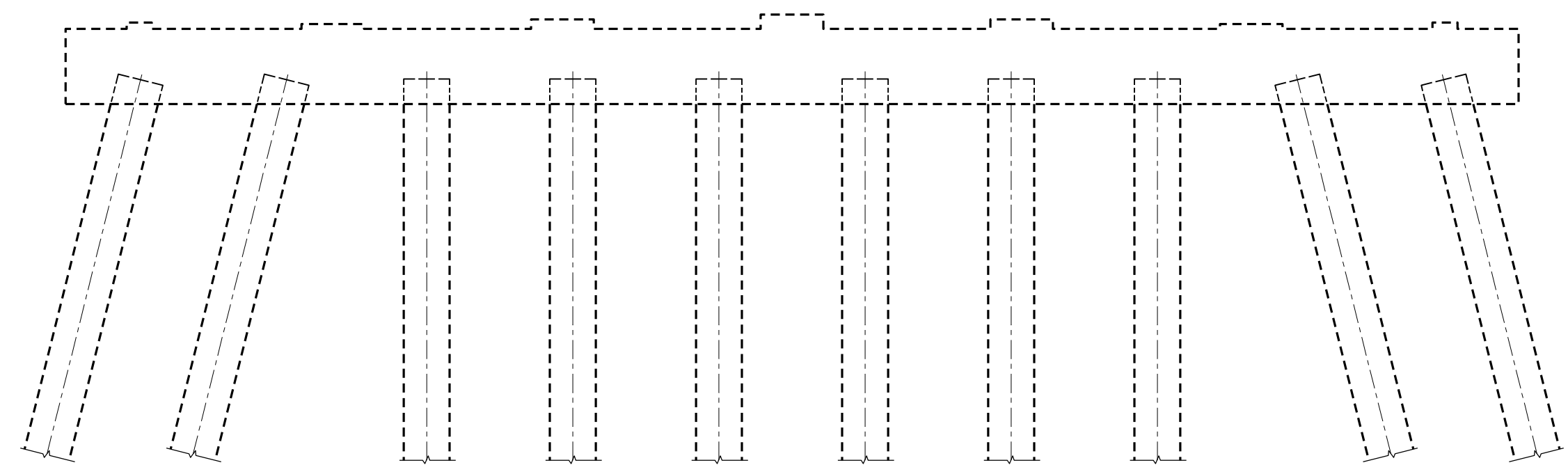
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



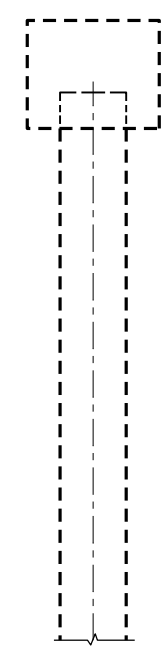
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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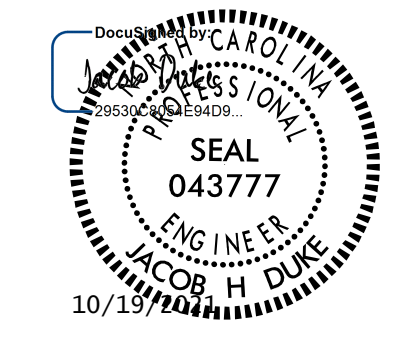
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

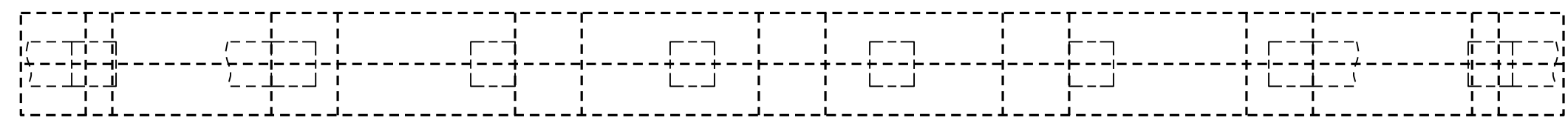
**SUBSTRUCTURE REPAIRS**

BENT 46

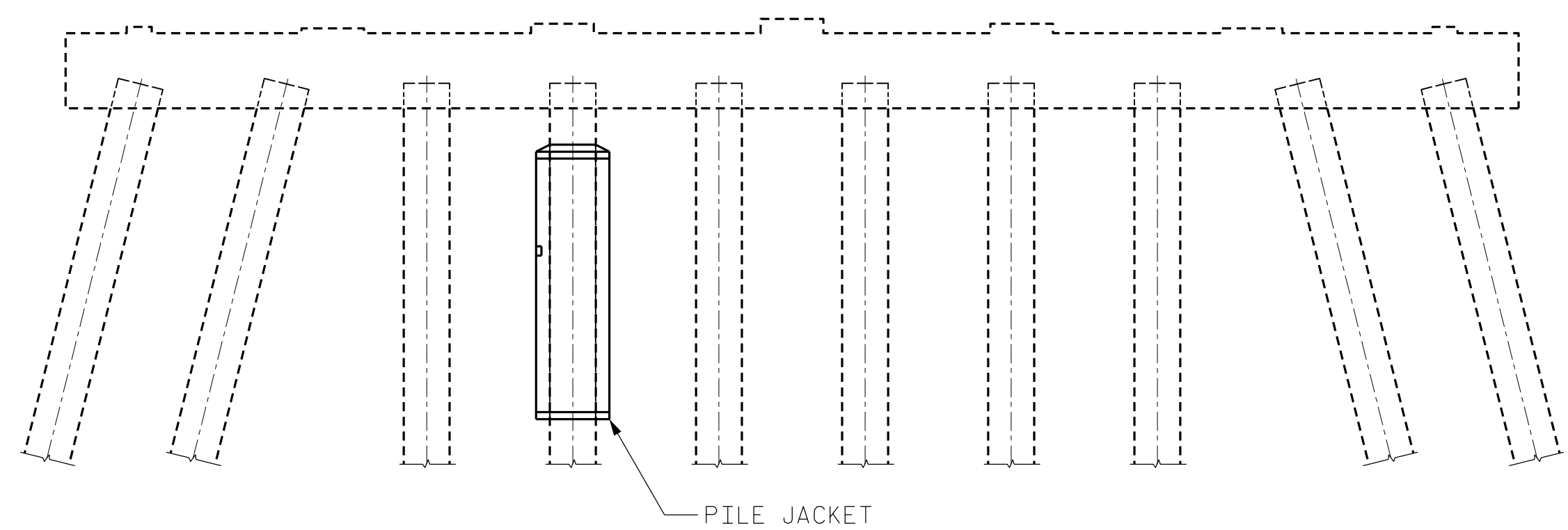
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : DIEGO A. AGUIRRE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

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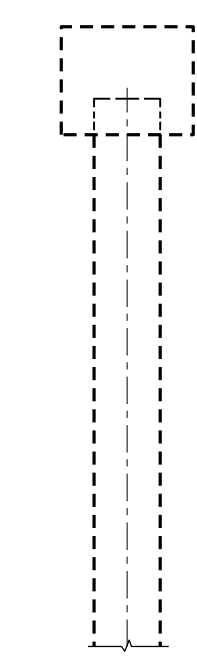
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



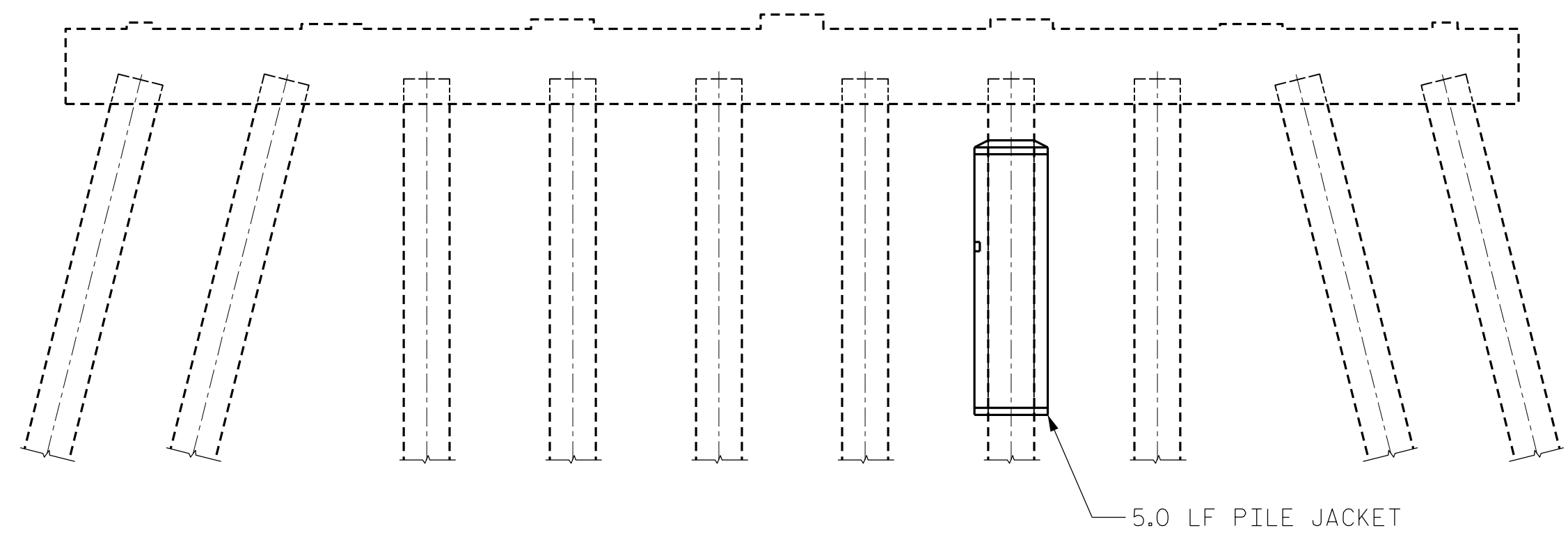
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



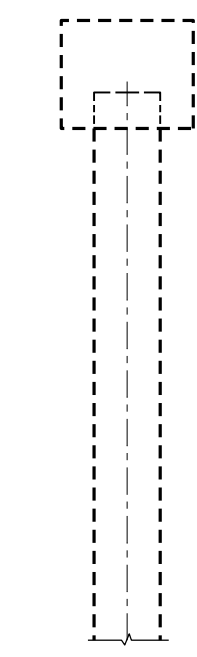
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		5.0			

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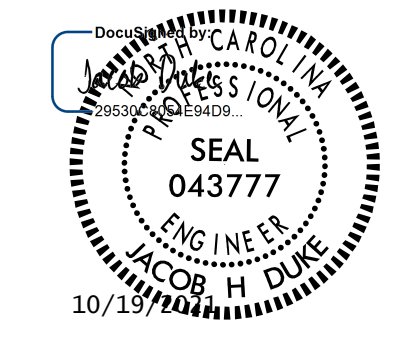
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

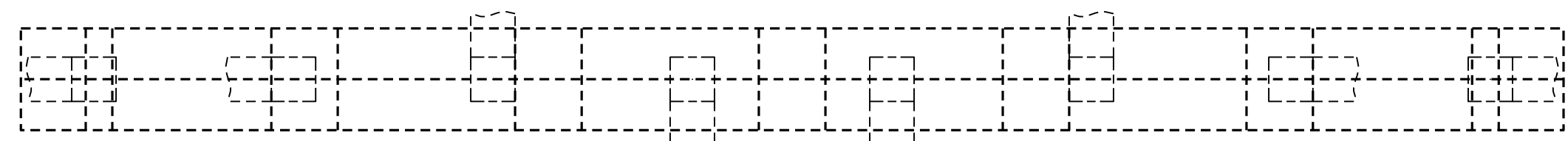
BENT 47



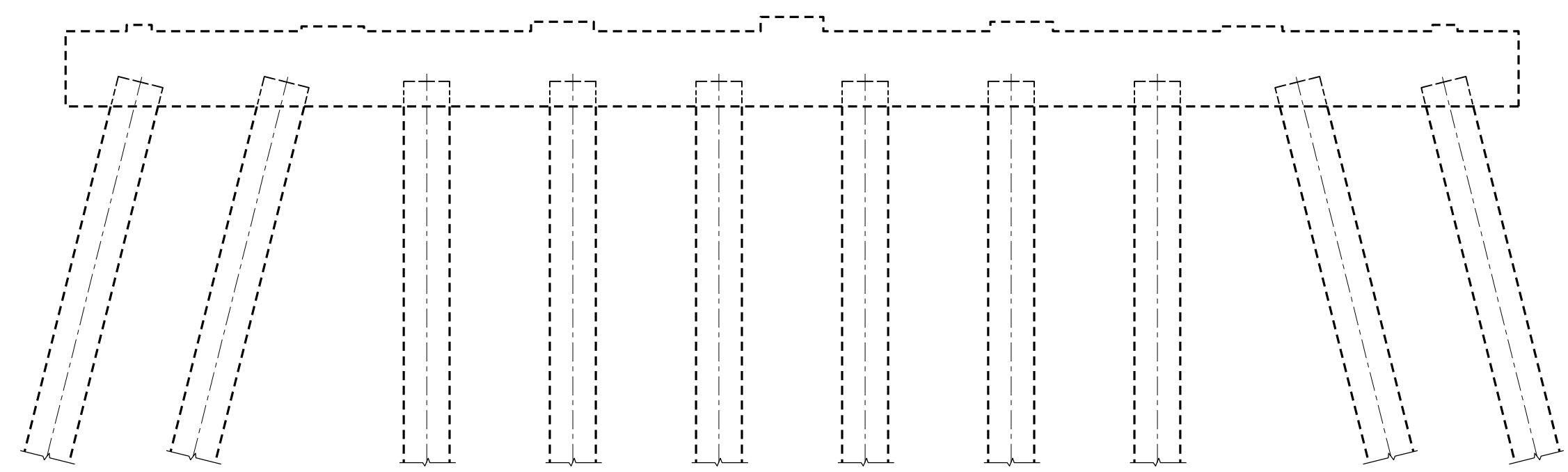
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : DIEGO A. AGUIRRE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

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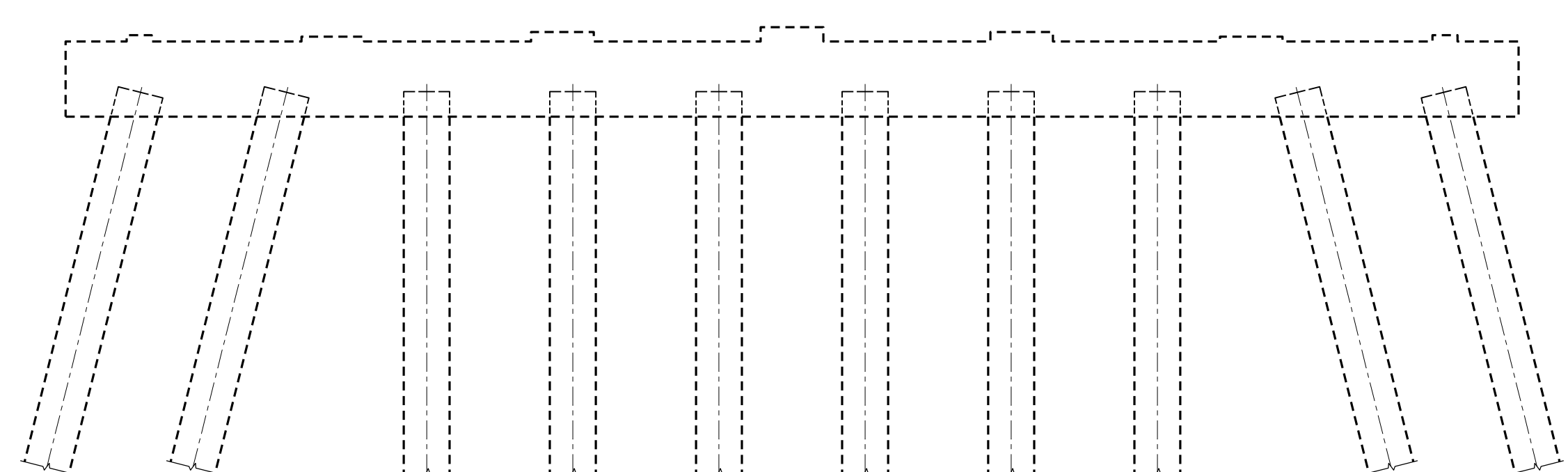
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



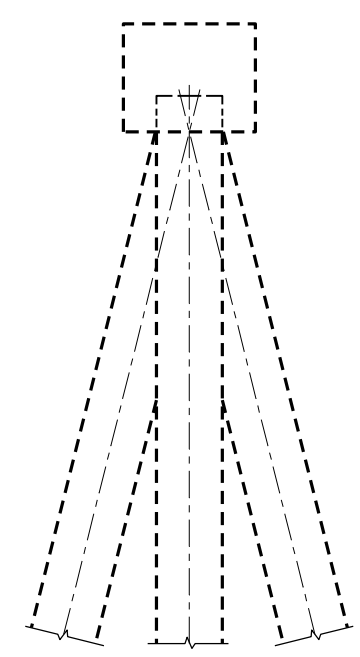
EAST ELEVATION



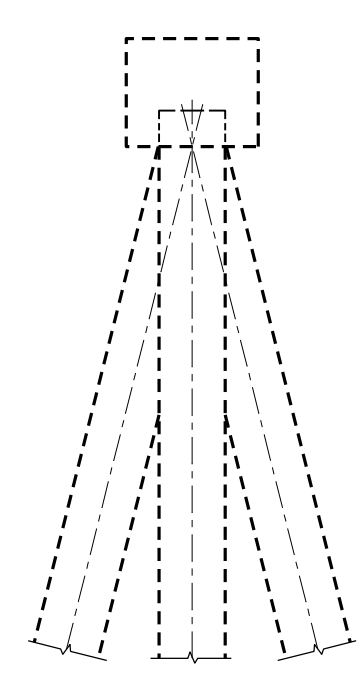
WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	-			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				



NORTH ELEVATION



SOUTH ELEVATION

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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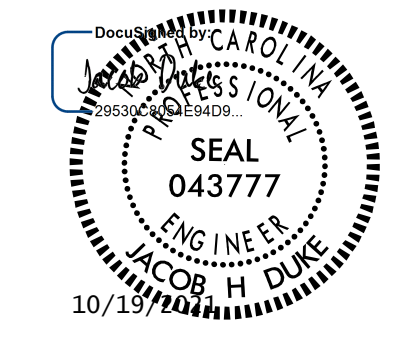
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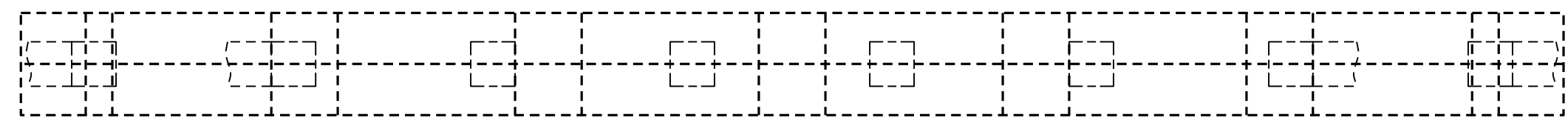
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



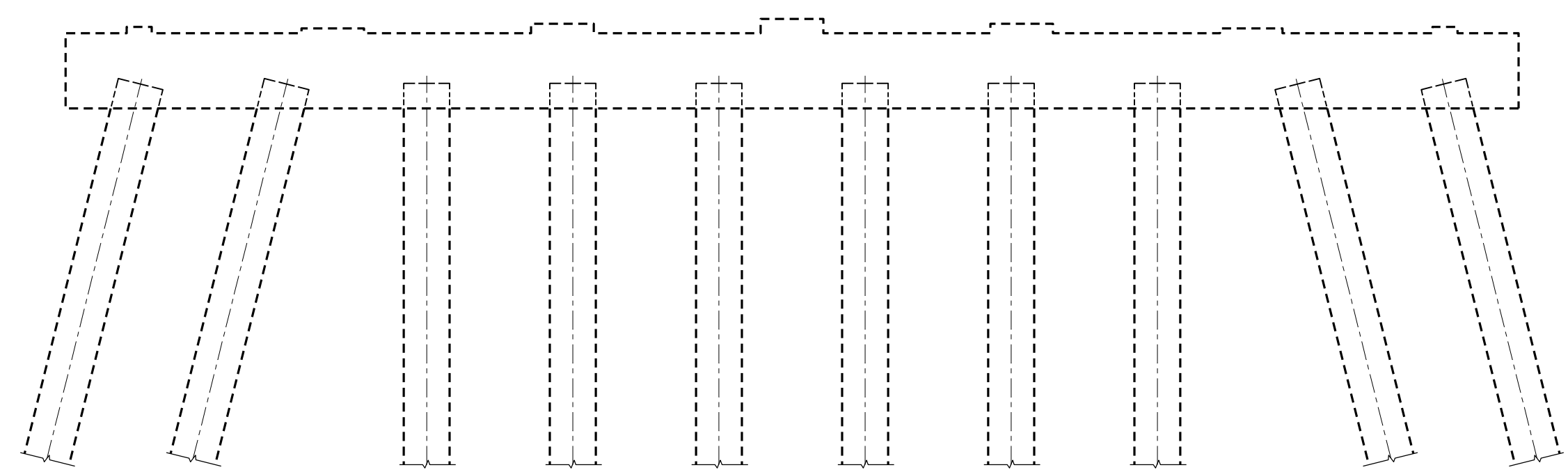
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS BENT 48					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 137

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : DIEGO A. AGUIRRE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

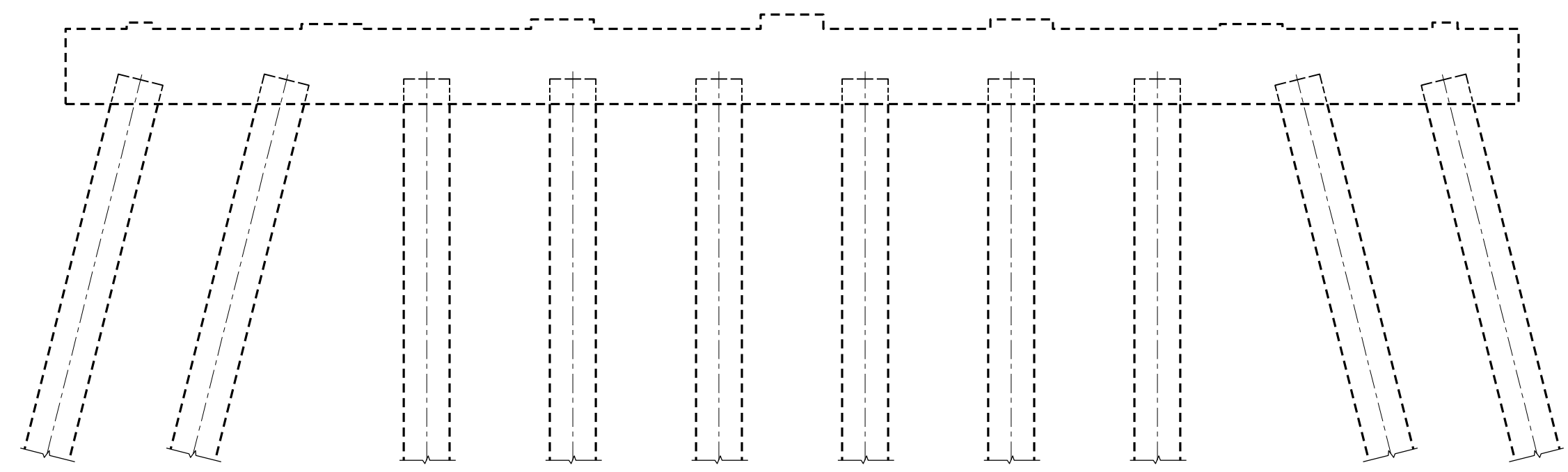
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



EAST ELEVATION



WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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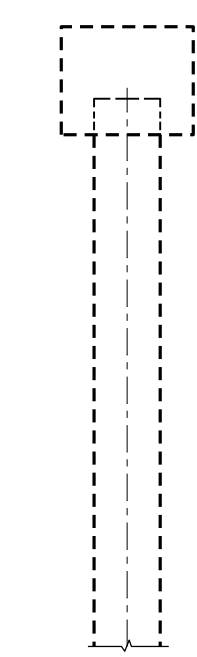
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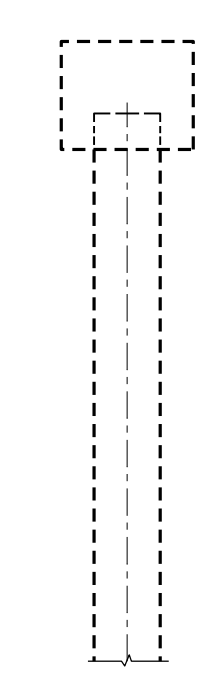
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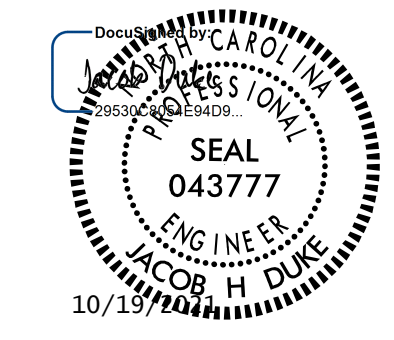


NORTH ELEVATION



SOUTH ELEVATION

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

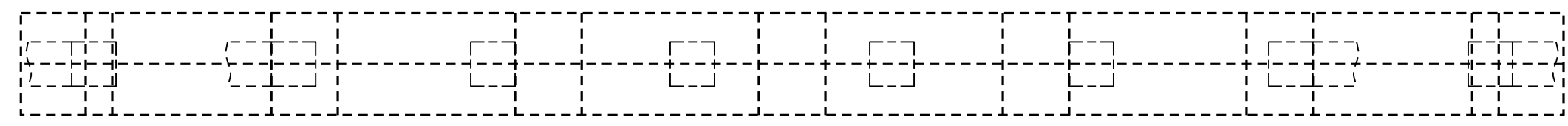
**SUBSTRUCTURE REPAIRS**

BENT 49

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

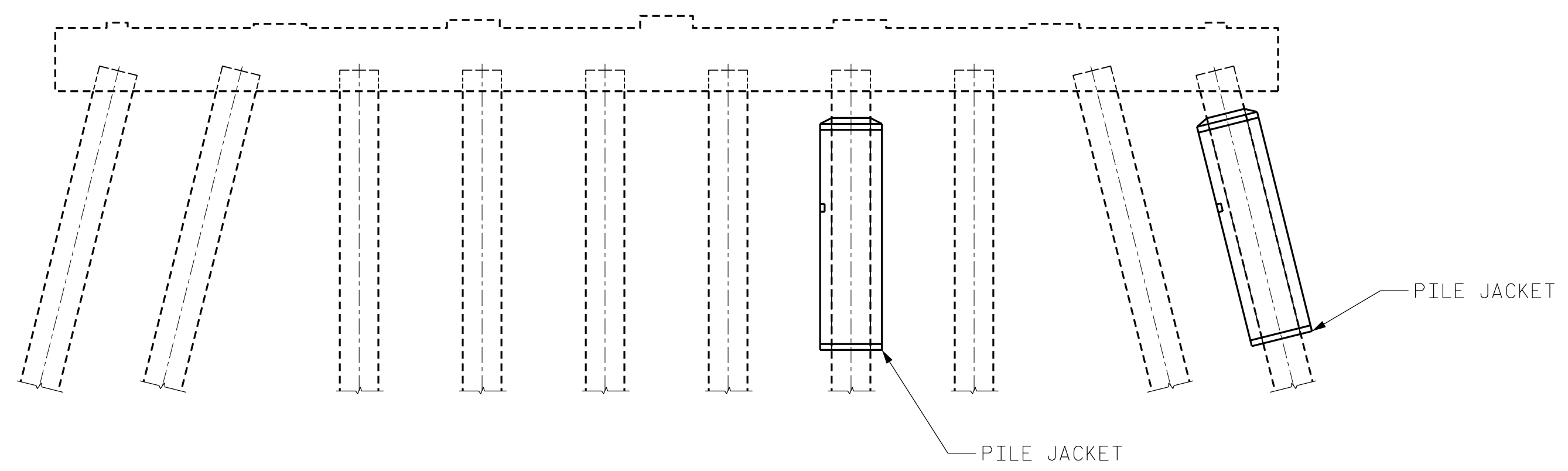
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			

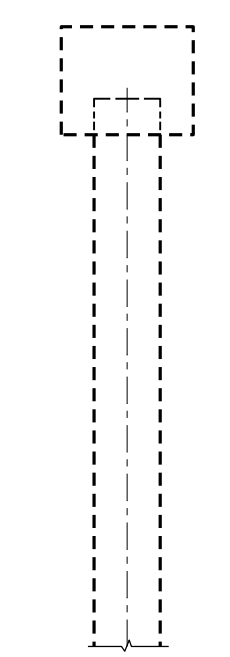


PLAN

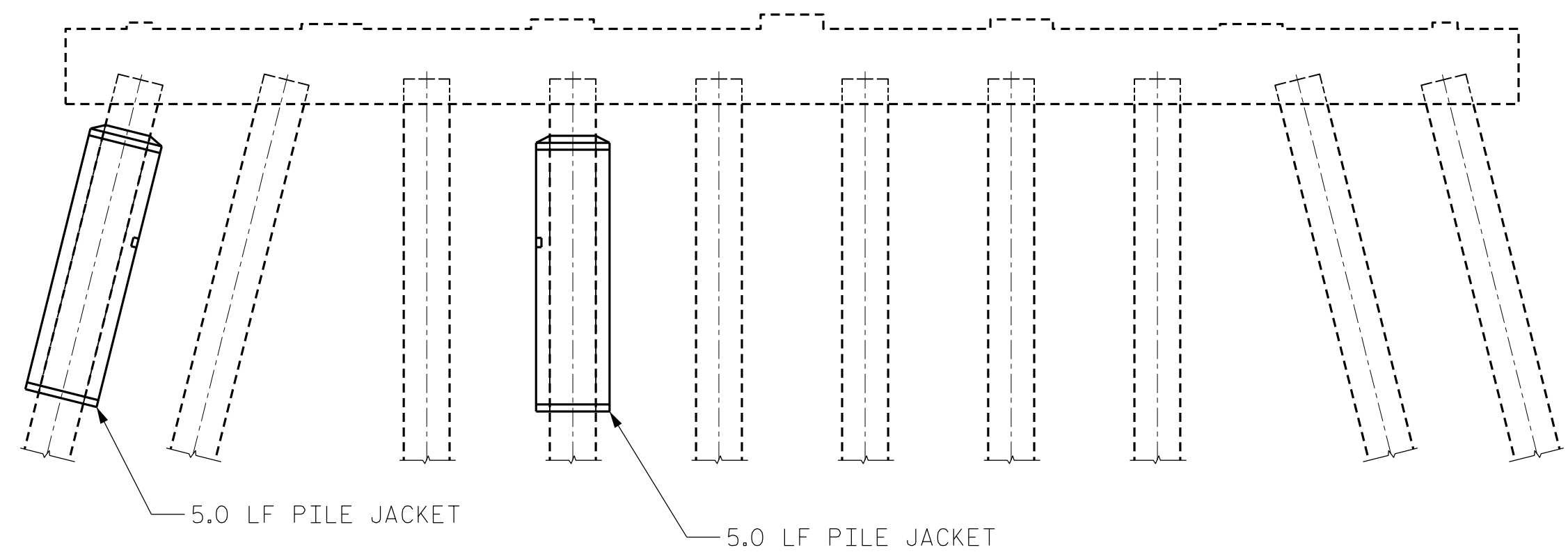
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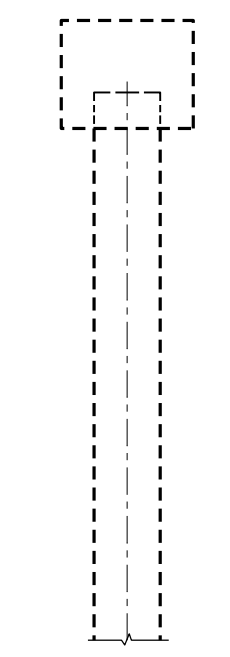
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		10.0			

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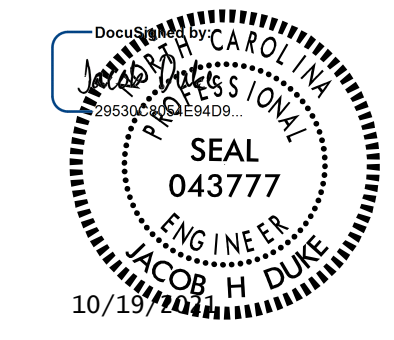
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



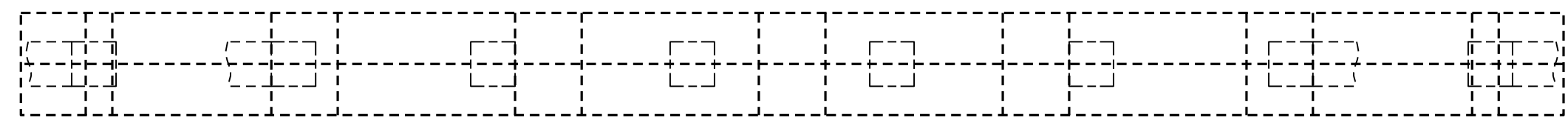
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
**SUBSTRUCTURE REPAIRS**  
 BENT 50

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

10/19/2021  
 15BPR.46.SMU.SBR50.270012.dgn  
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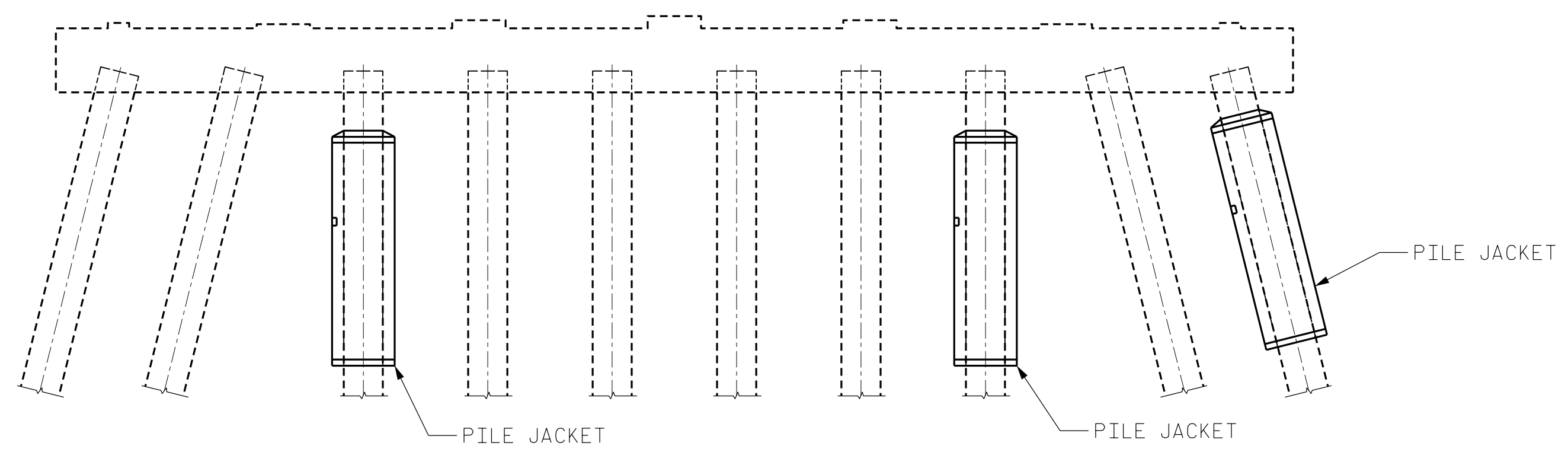
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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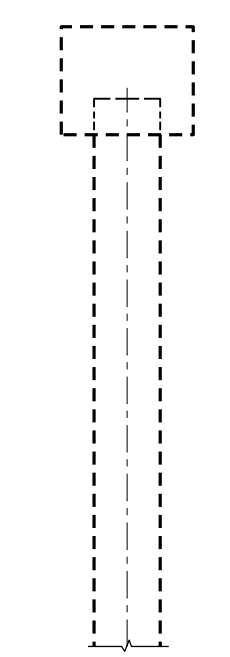


PLAN

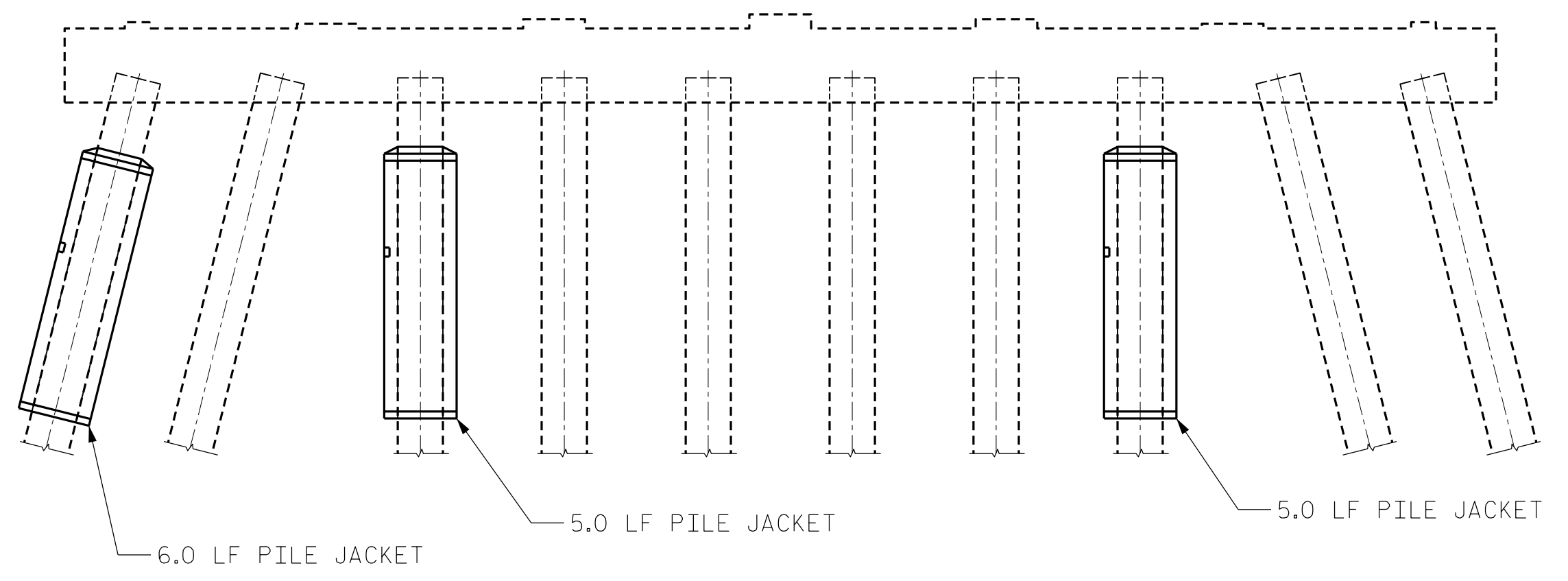
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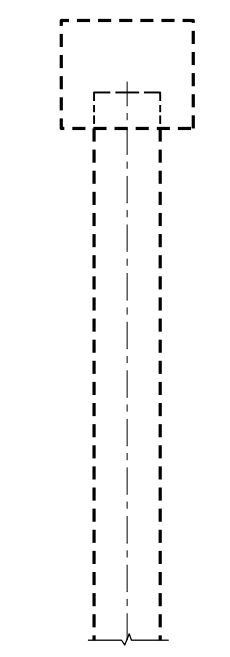
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		16.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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 TABLE ABOVE.

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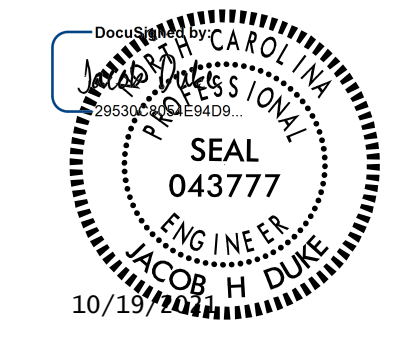
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

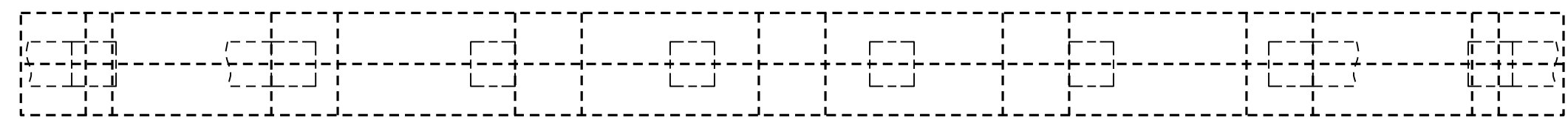
**SUBSTRUCTURE REPAIRS**

BENT 51

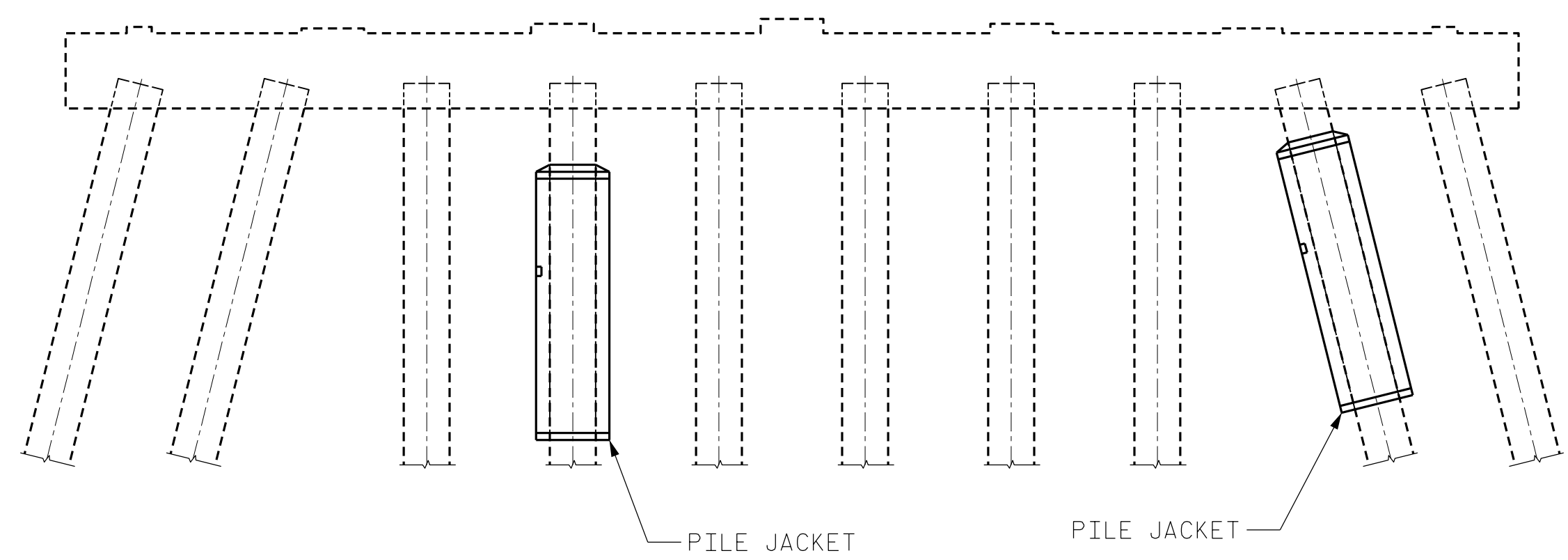
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

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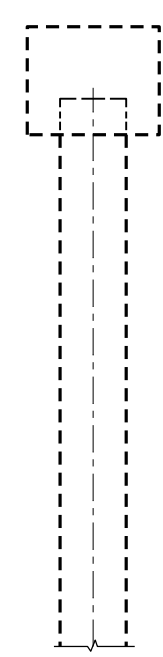
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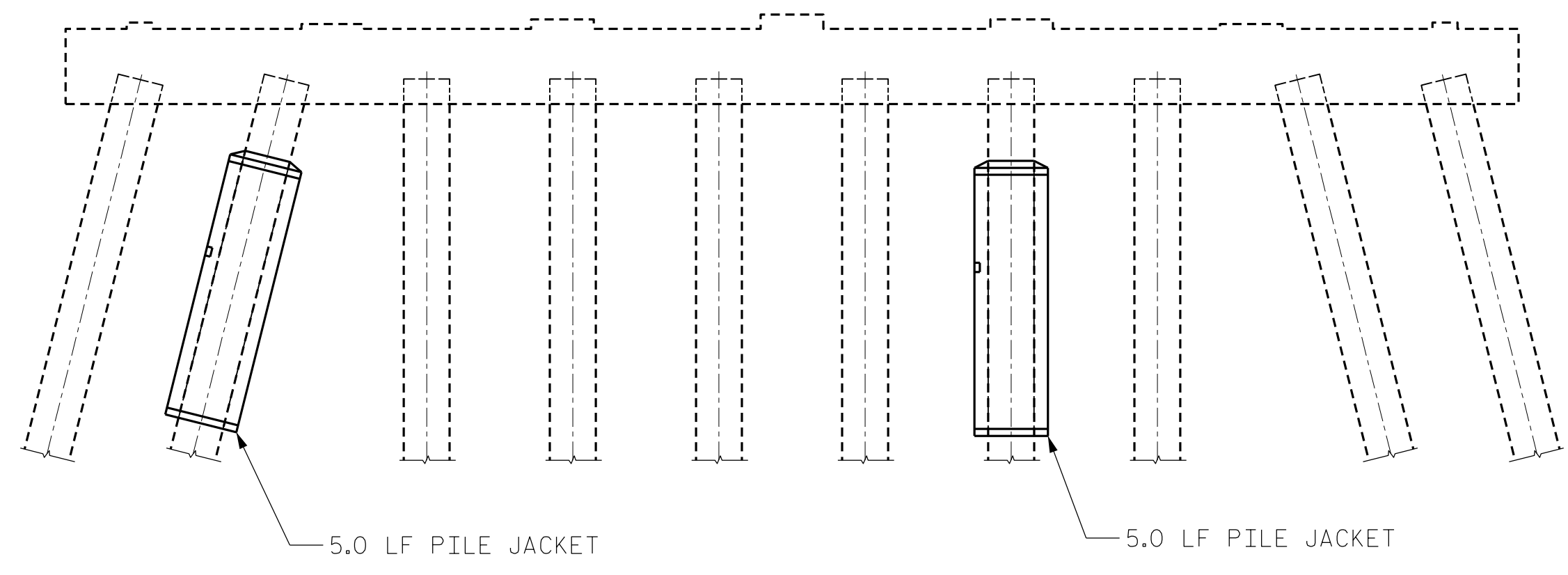
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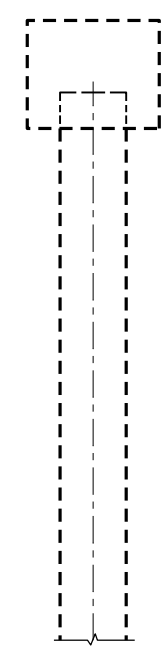
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		10.0			

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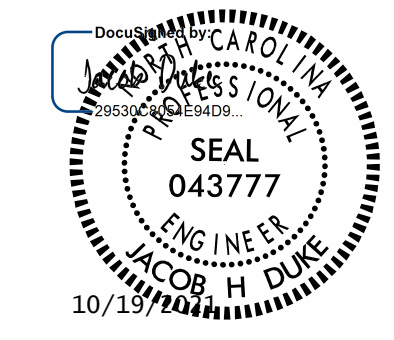
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 52

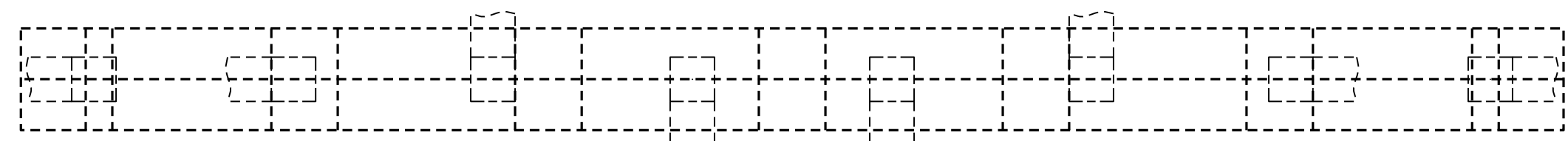


DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

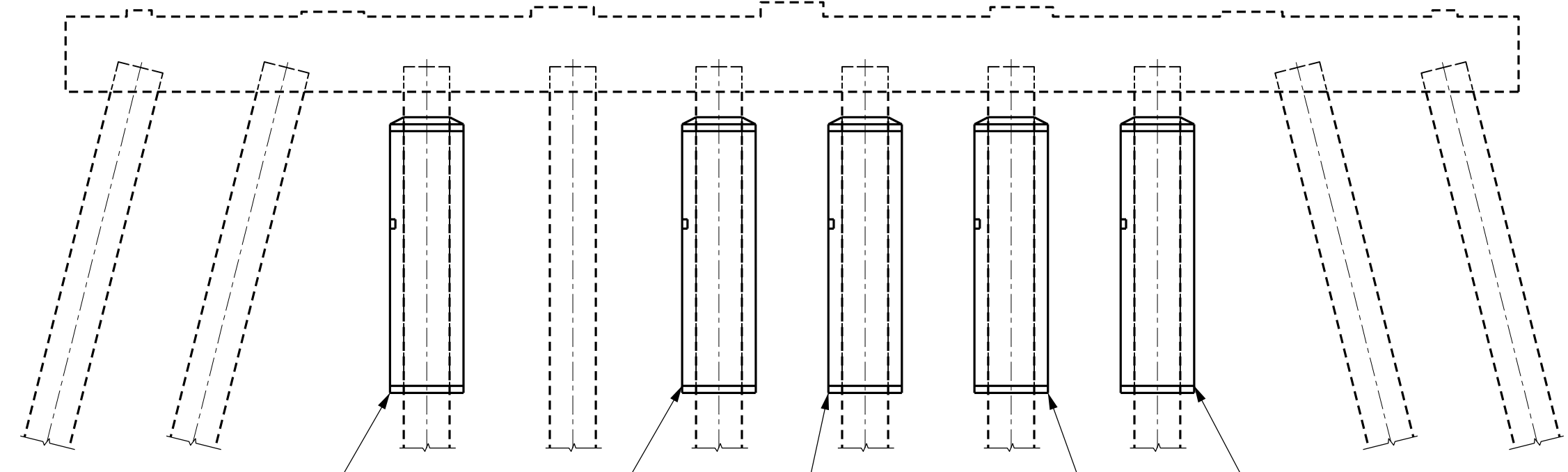
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



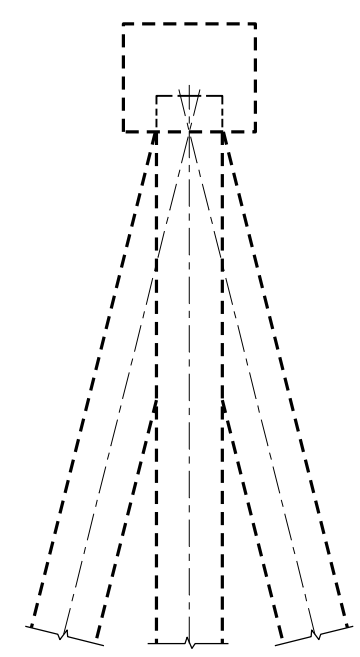


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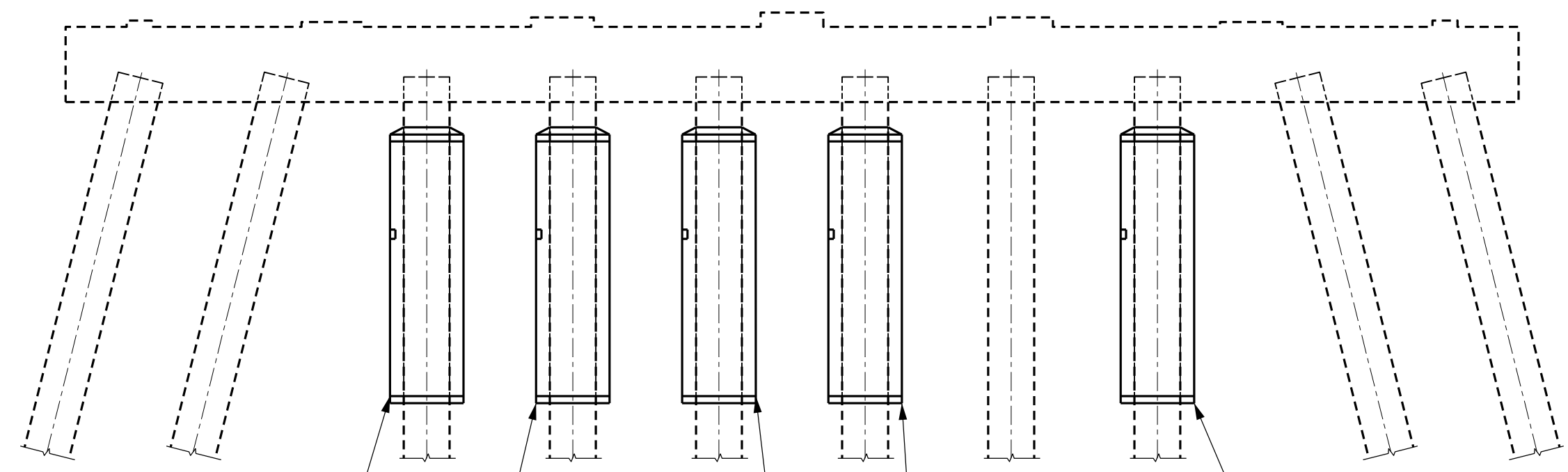


PILE JACKET PILE JACKET PILE JACKET PILE JACKET PILE JACKET

EAST ELEVATION

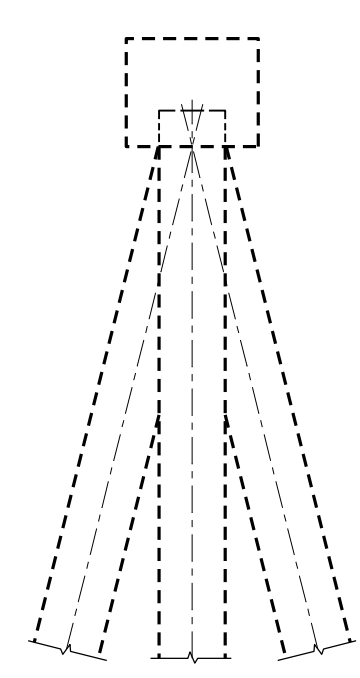


NORTH ELEVATION



5.0 LF PILE JACKET 5.0 LF PILE JACKET 5.0 LF PILE JACKET 5.0 LF PILE JACKET 5.0 LF PILE JACKET

WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	-			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE	25.0			

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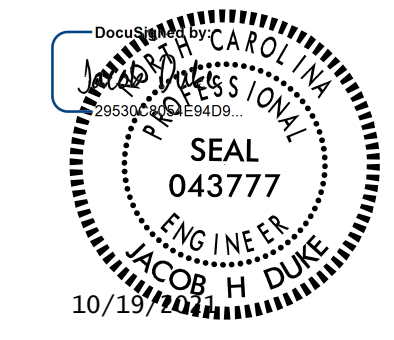
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE REPAIRS**

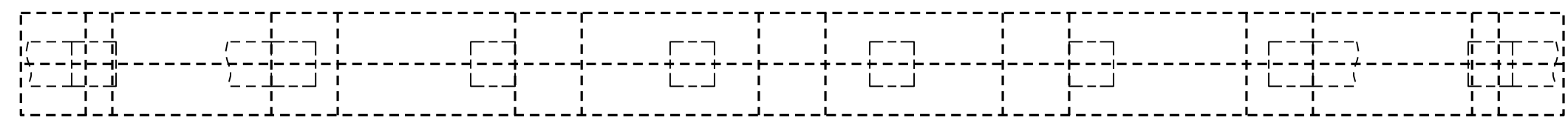
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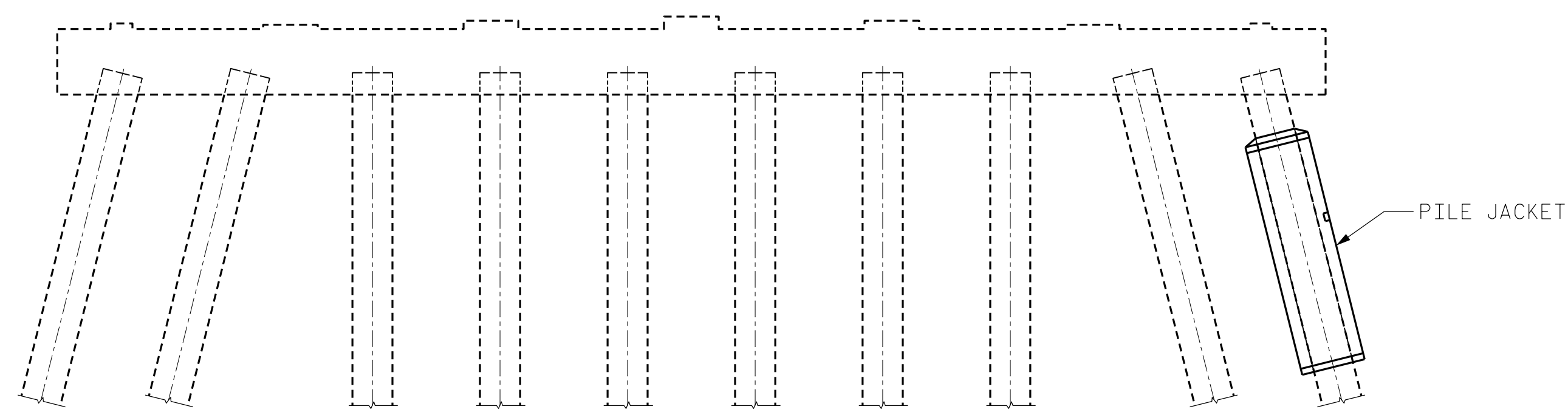
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

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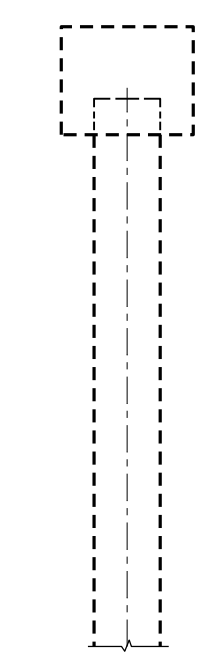
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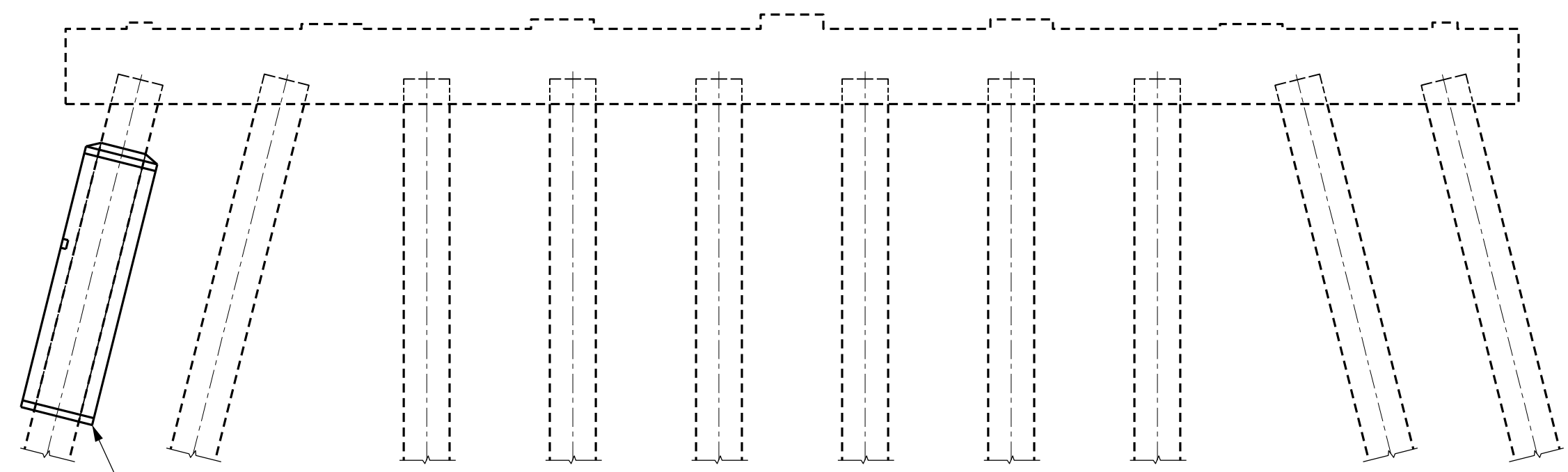
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(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



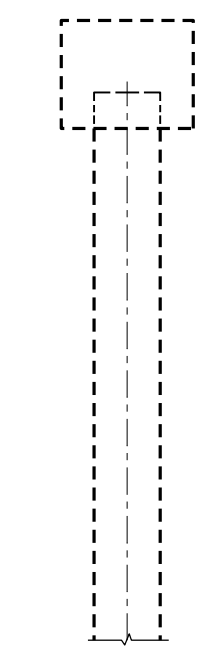
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		5.0			

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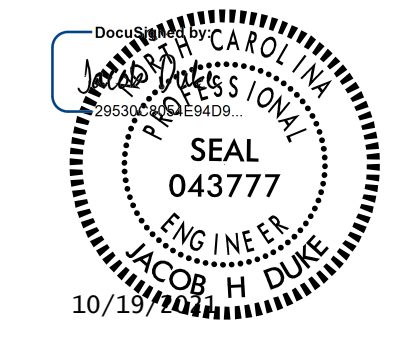
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

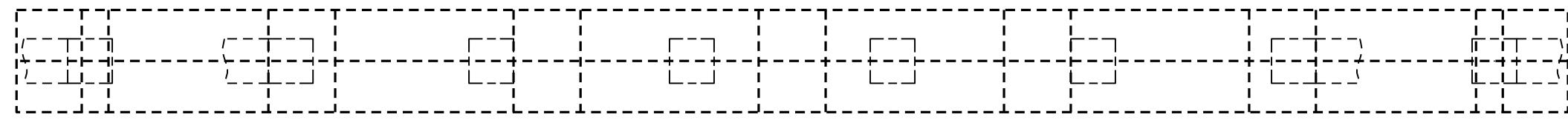
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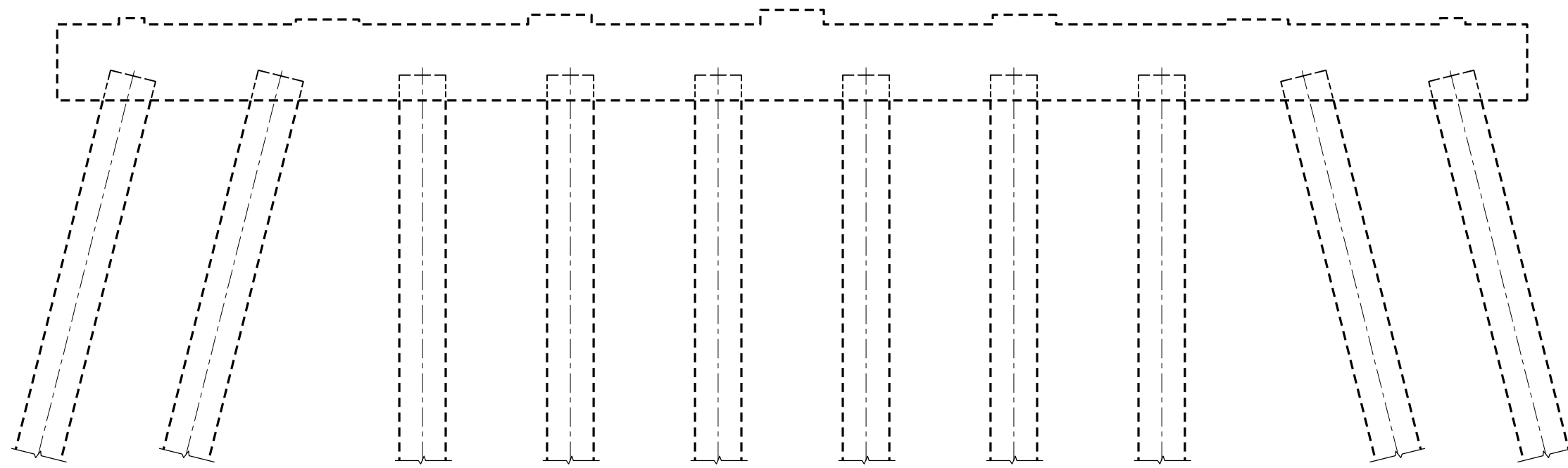
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

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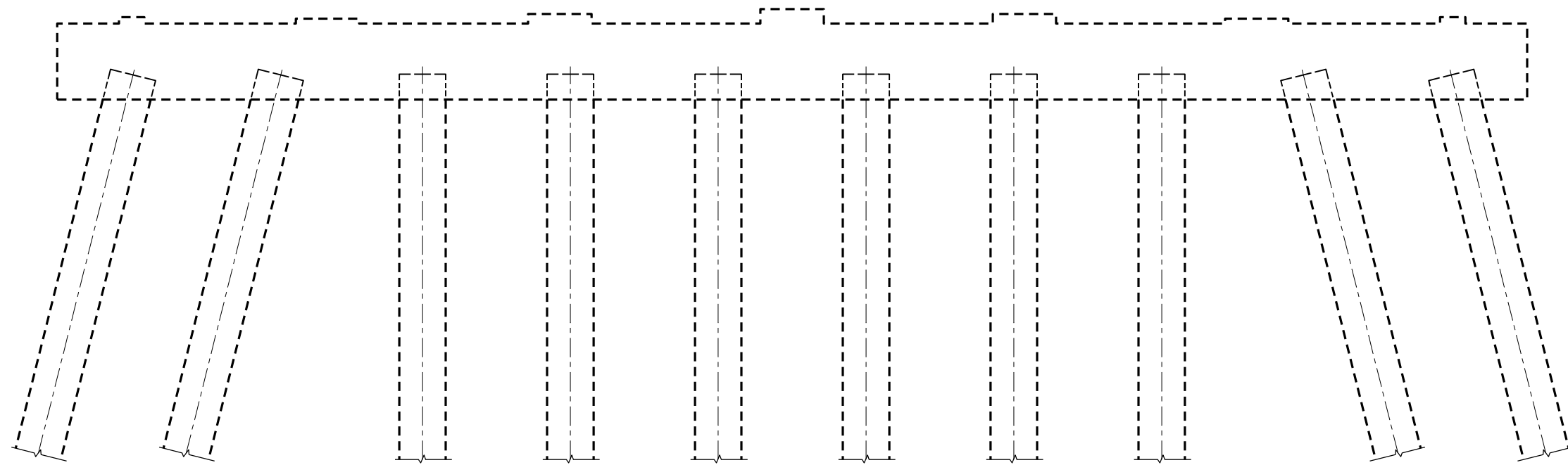
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



EAST ELEVATION



WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	-			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE				

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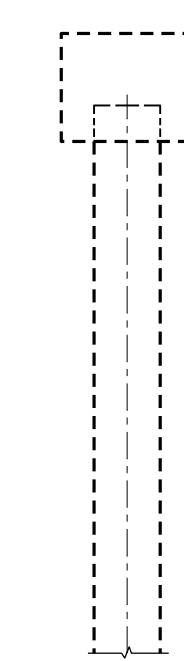
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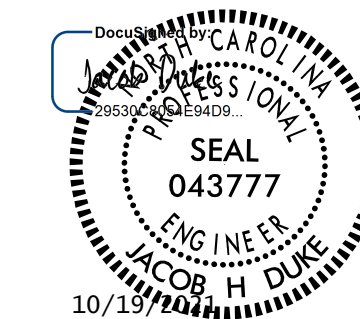


NORTH ELEVATION



SOUTH ELEVATION

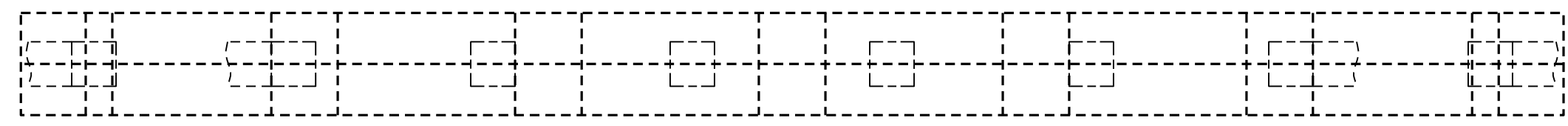
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



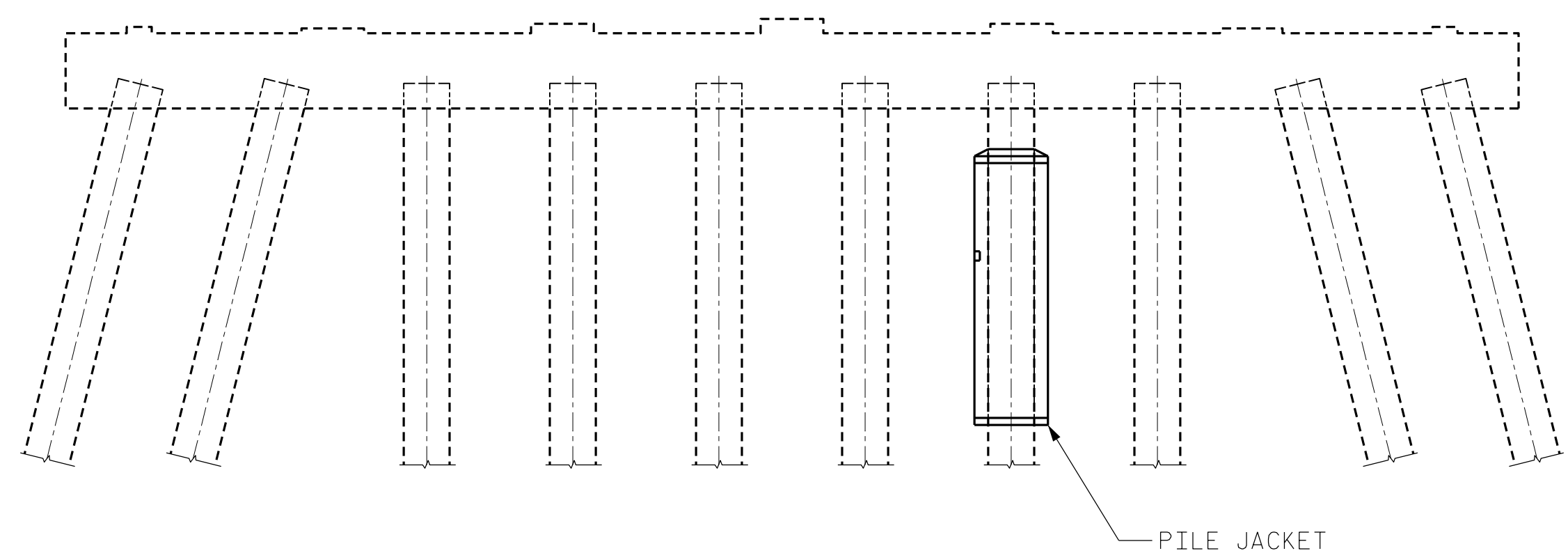
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
SUBSTRUCTURE REPAIRS						S-120
BENT 55						TOTAL SHEETS
REVISIONS						137
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

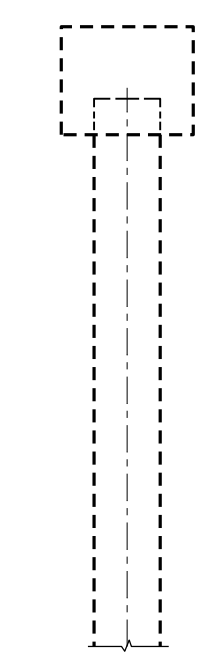
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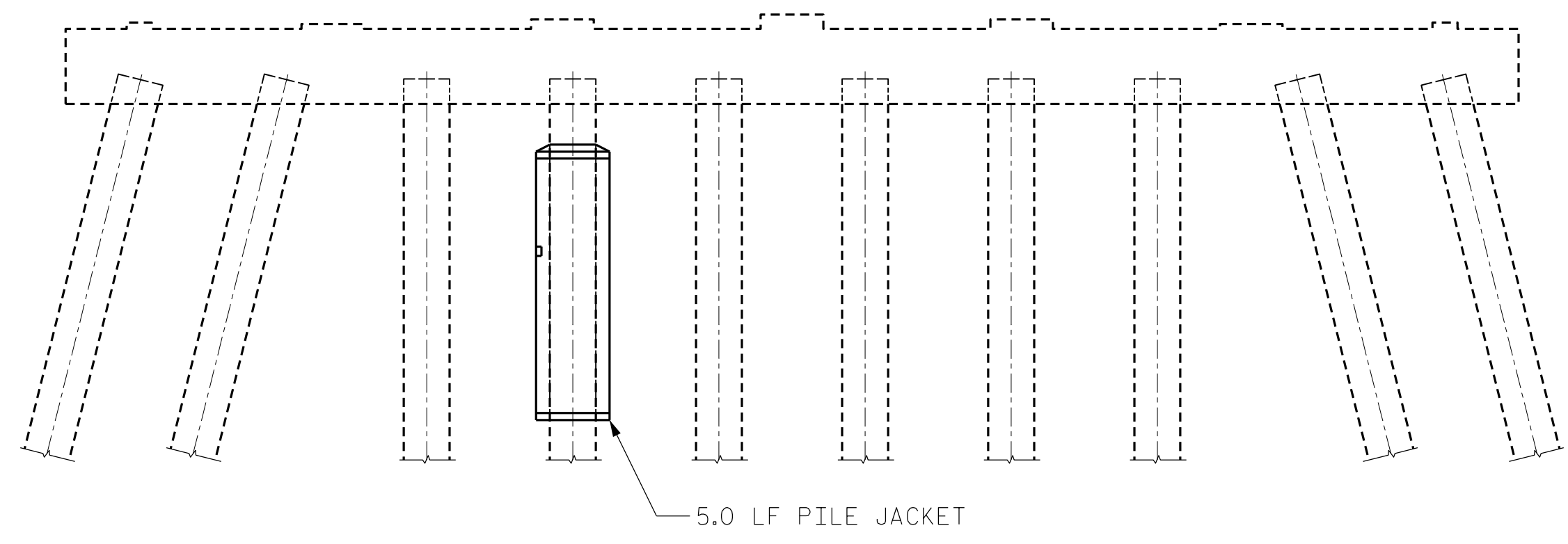
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(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



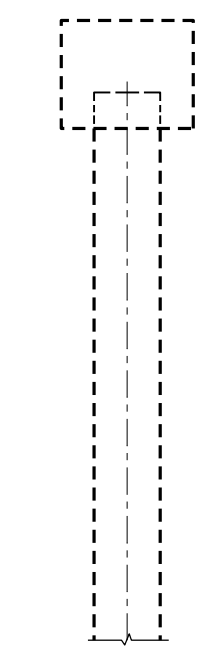
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		5.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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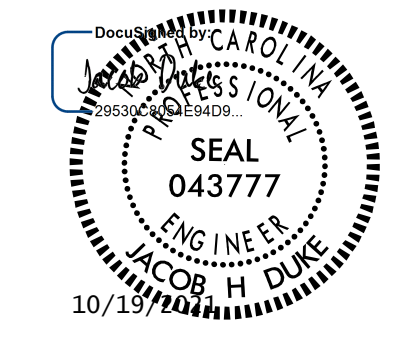
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 56

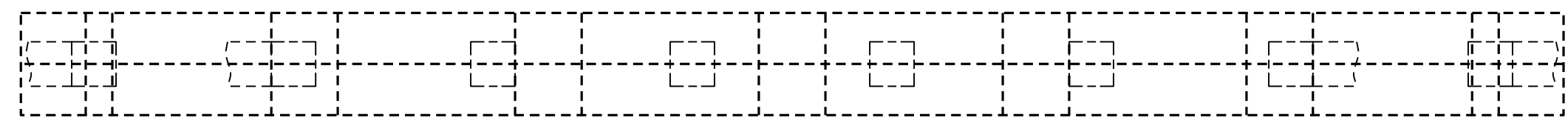


DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

10/19/2021  
 15BPR.46.SMU.SBR56.270012.dgn  
 jduke

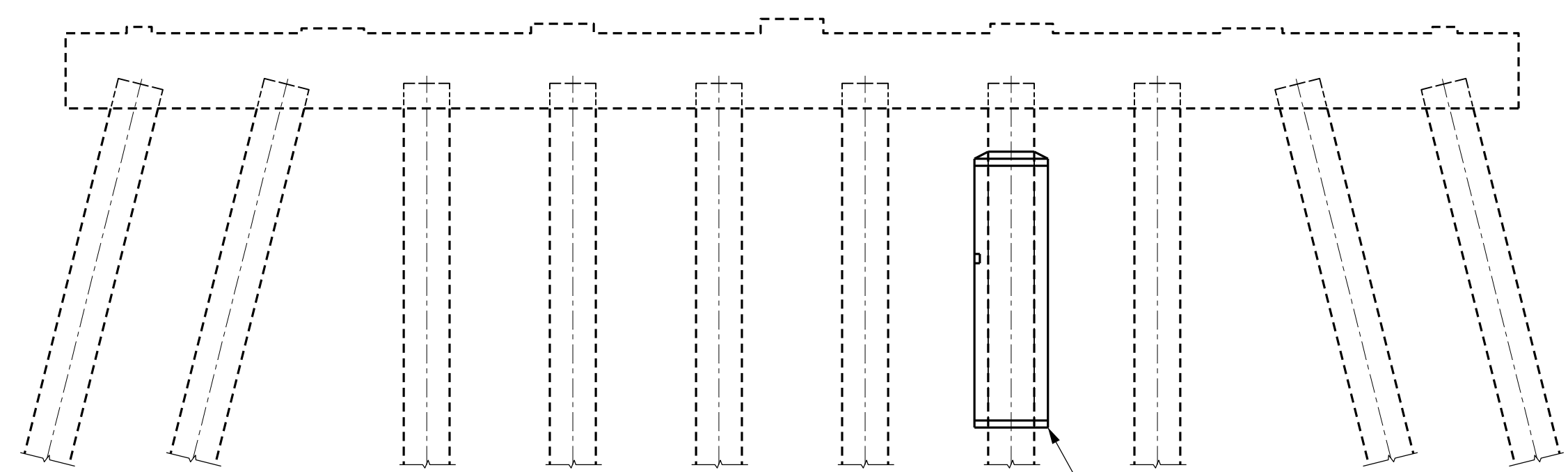
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



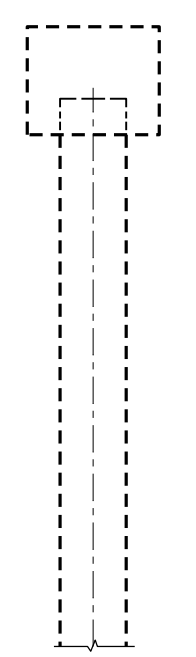
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(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)

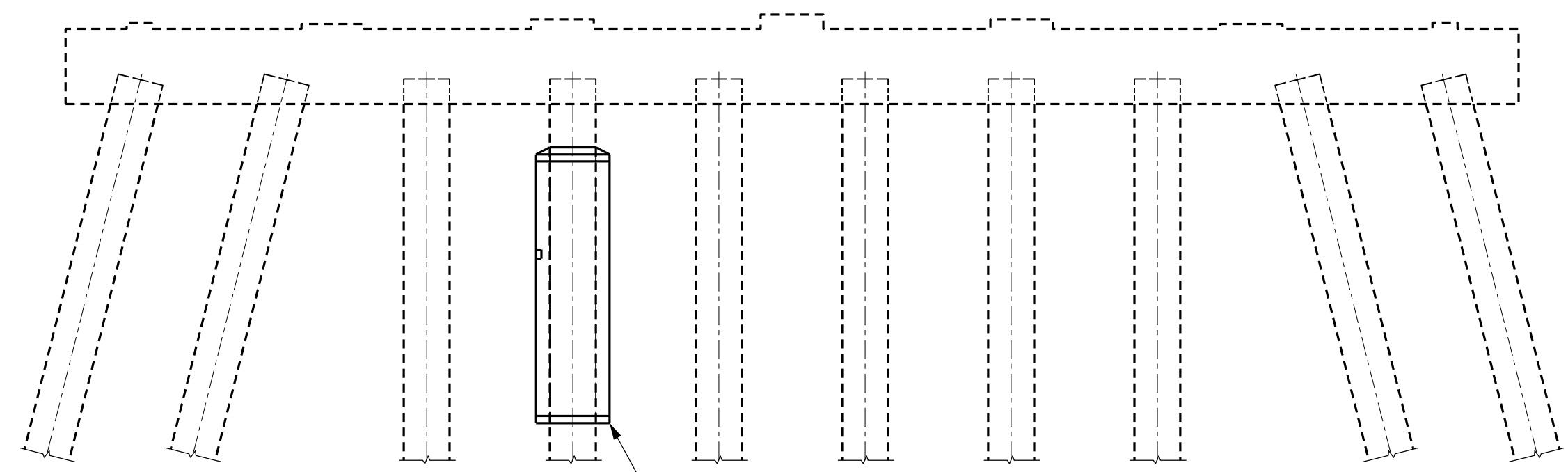


PILE JACKET

EAST ELEVATION

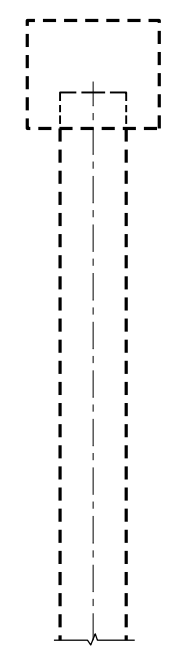


NORTH ELEVATION



5.0 LF PILE JACKET

WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		5.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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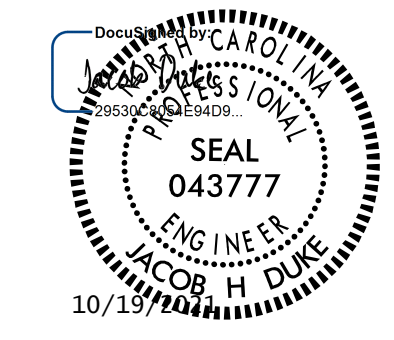
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 57

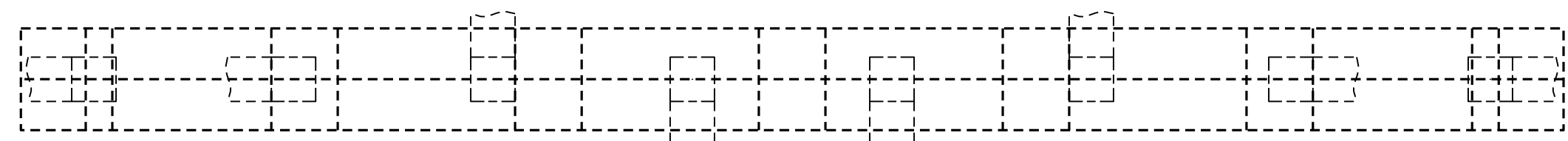
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

10/19/2021  
 15BPR.46.SMU.SBR57.270012.dgn  
 jduke

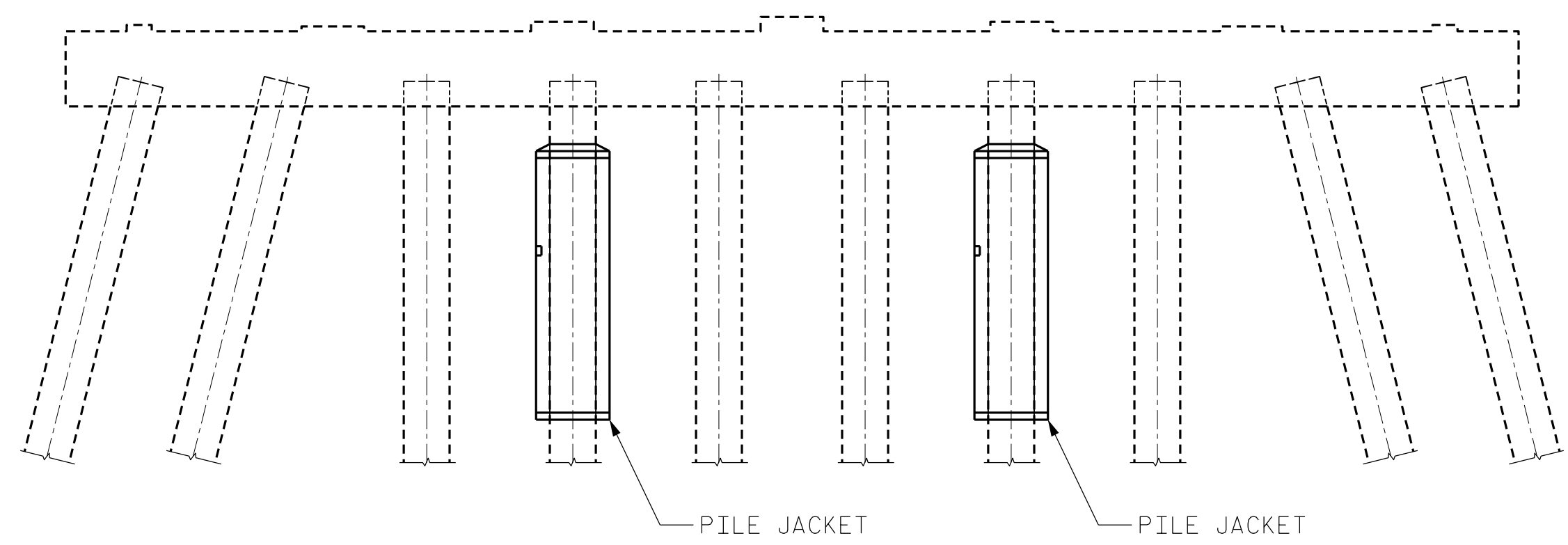
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**KCA**  
 KISINGER CAMPO & ASSOCIATES  
 301 FAYETTEVILLE ST., SUITE 1500  
 RALEIGH, NC 27601 (919) 882-7839  
 NC FIRM LICENSE: C-1506

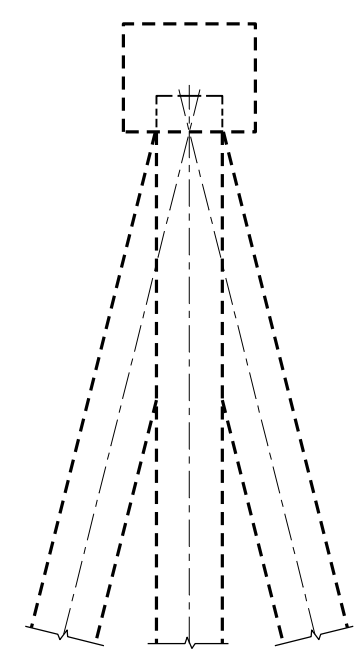
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



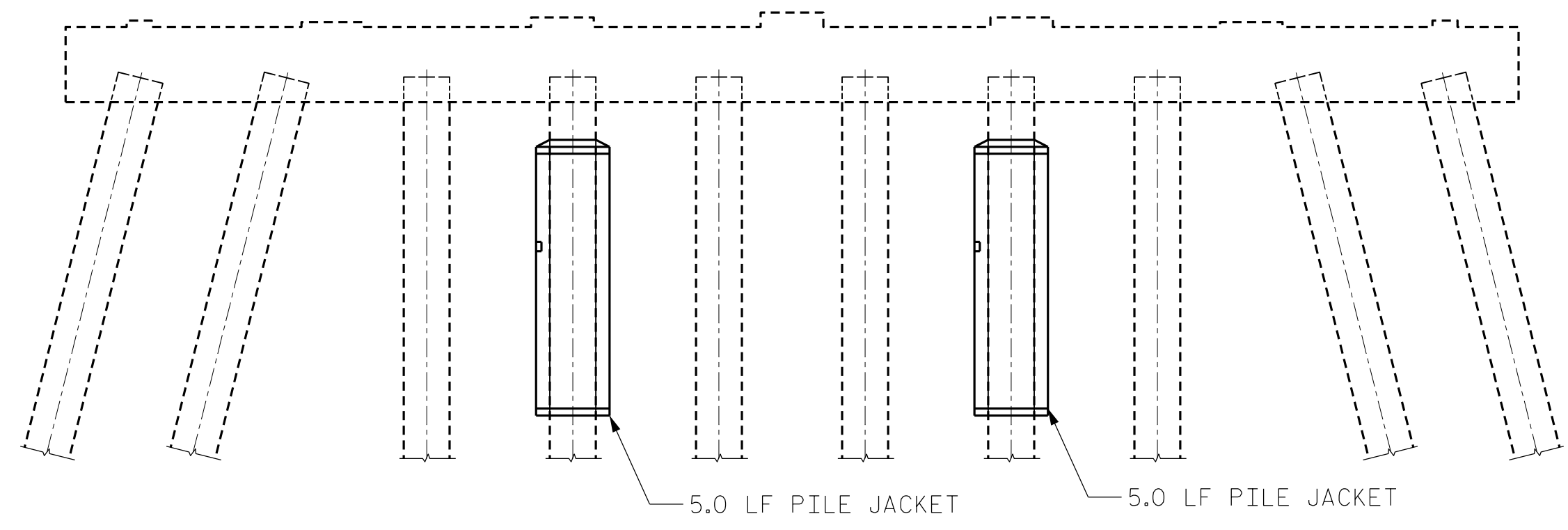
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(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



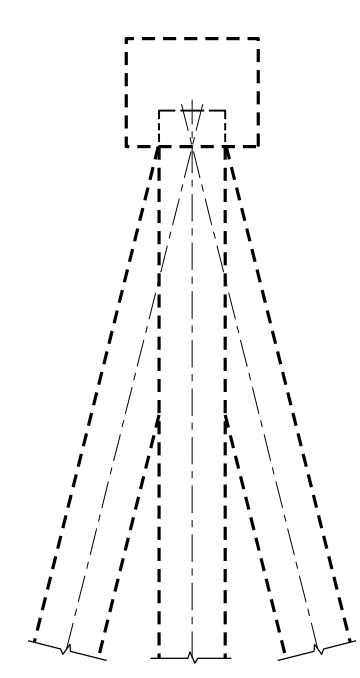
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		10.0			

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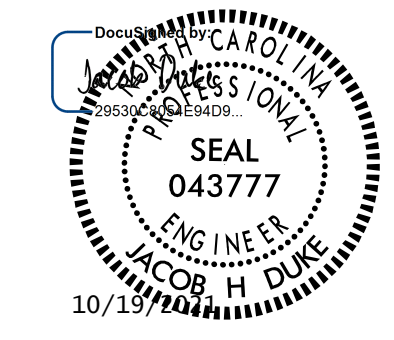
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

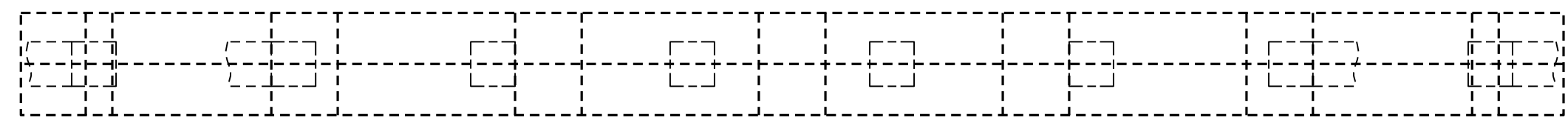
BENT 58



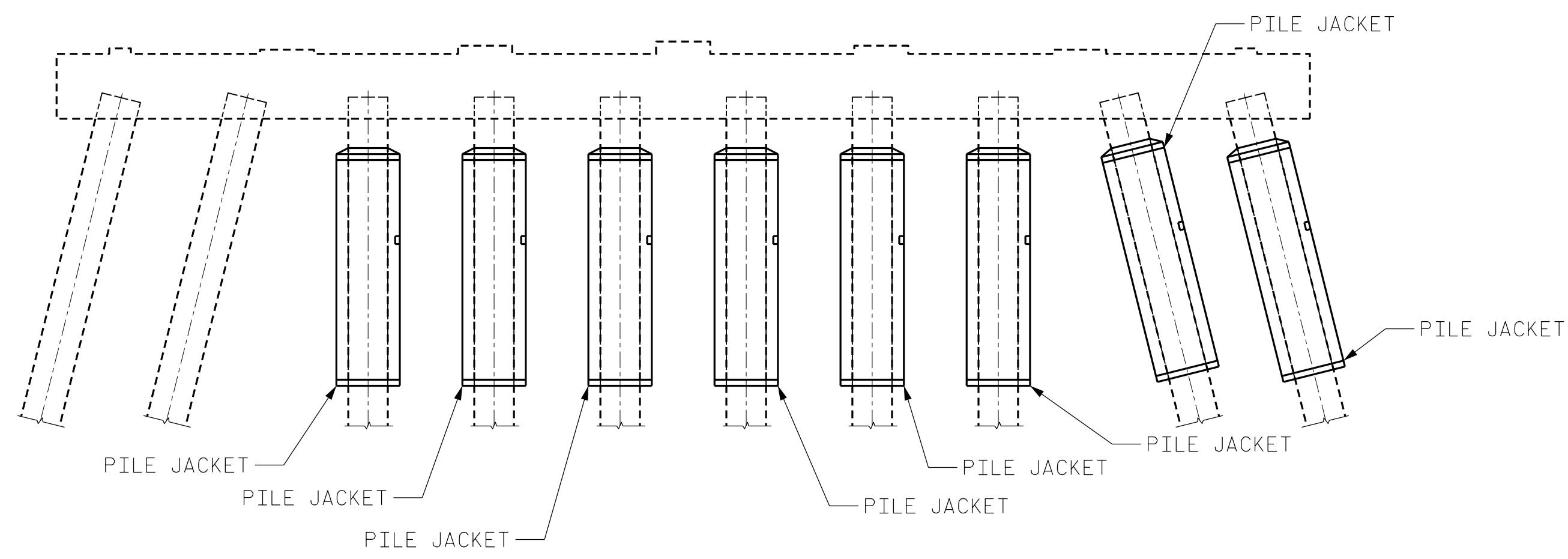
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

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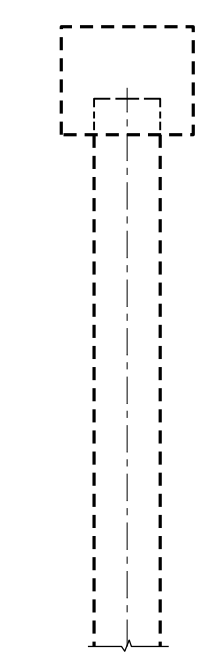
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2			4			



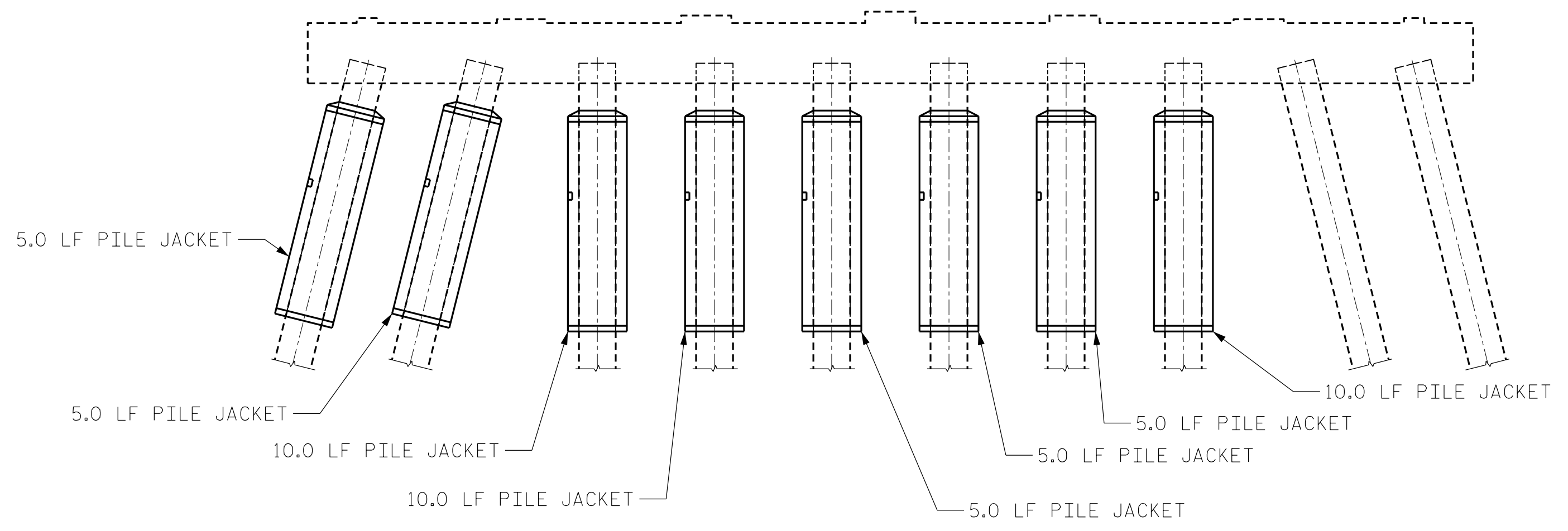
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(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



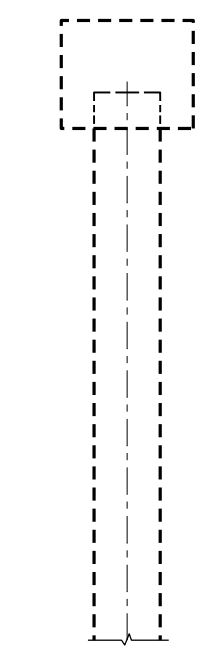
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	-			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE	55.0			

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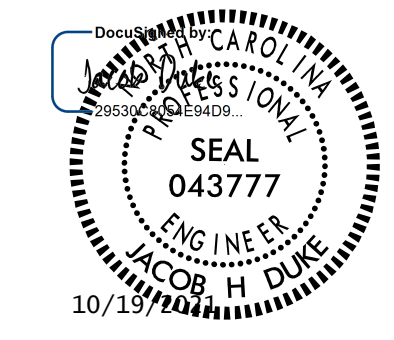
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

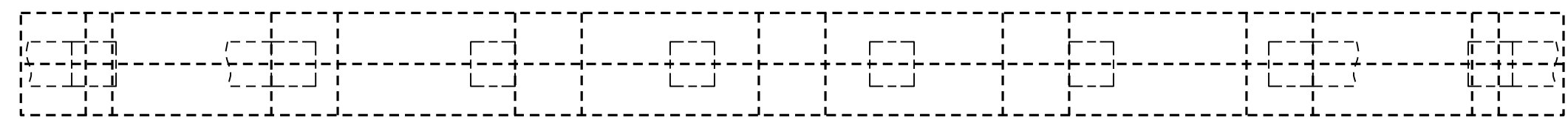
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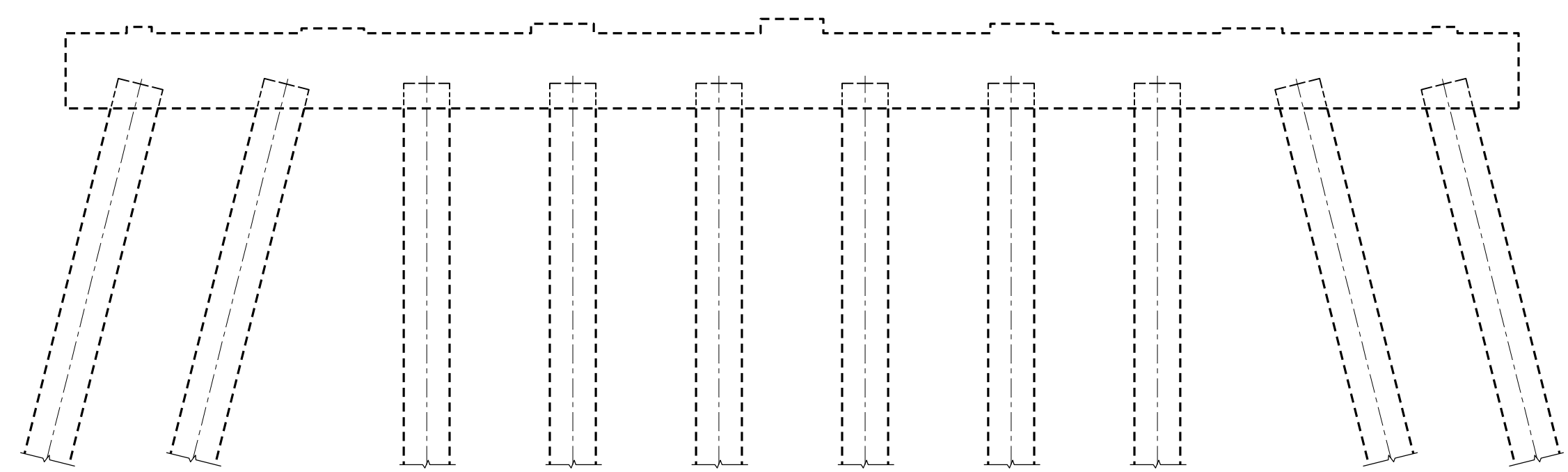
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
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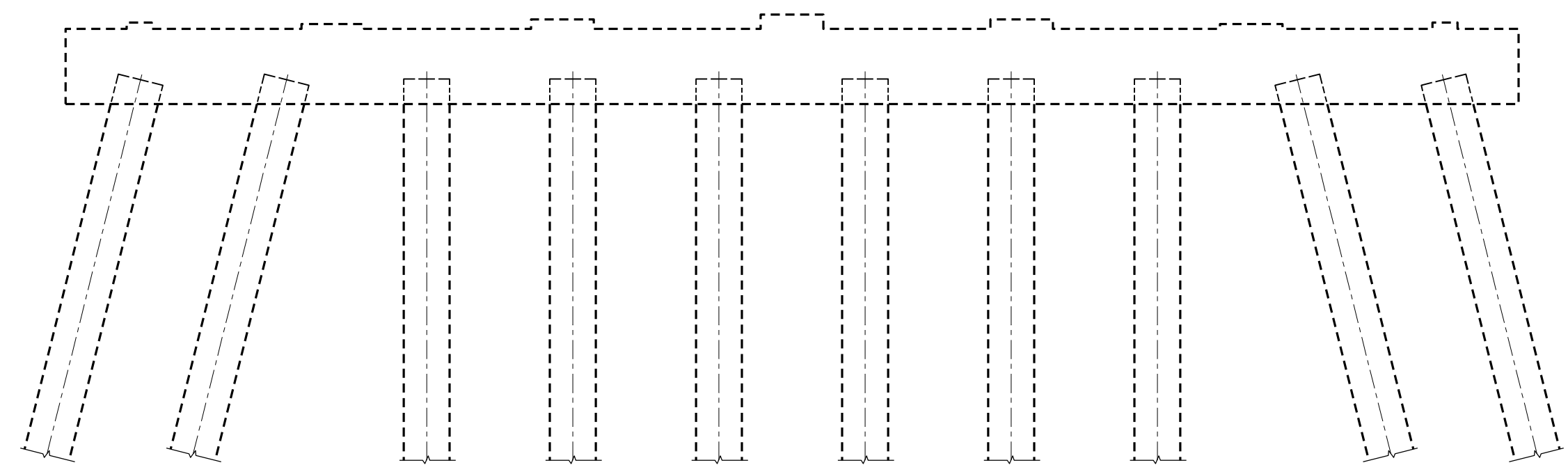
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



EAST ELEVATION



WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

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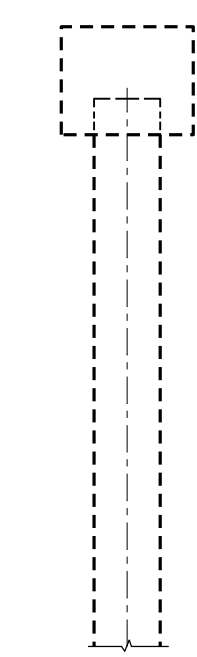
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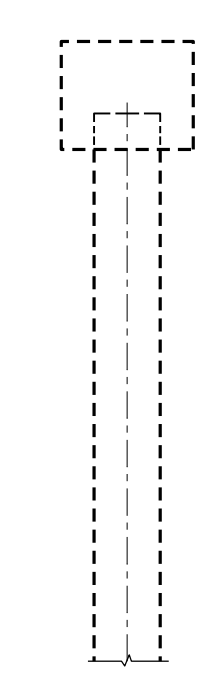
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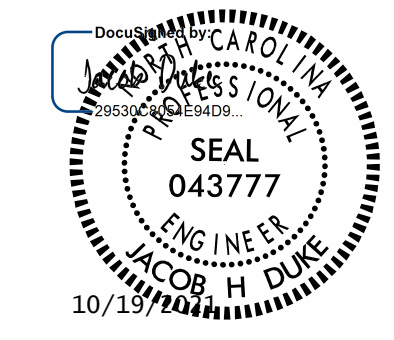


NORTH ELEVATION



SOUTH ELEVATION

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

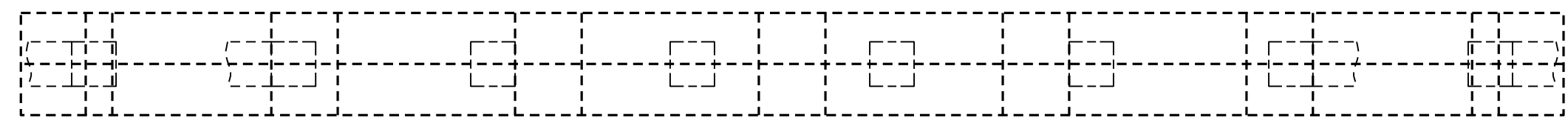
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DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

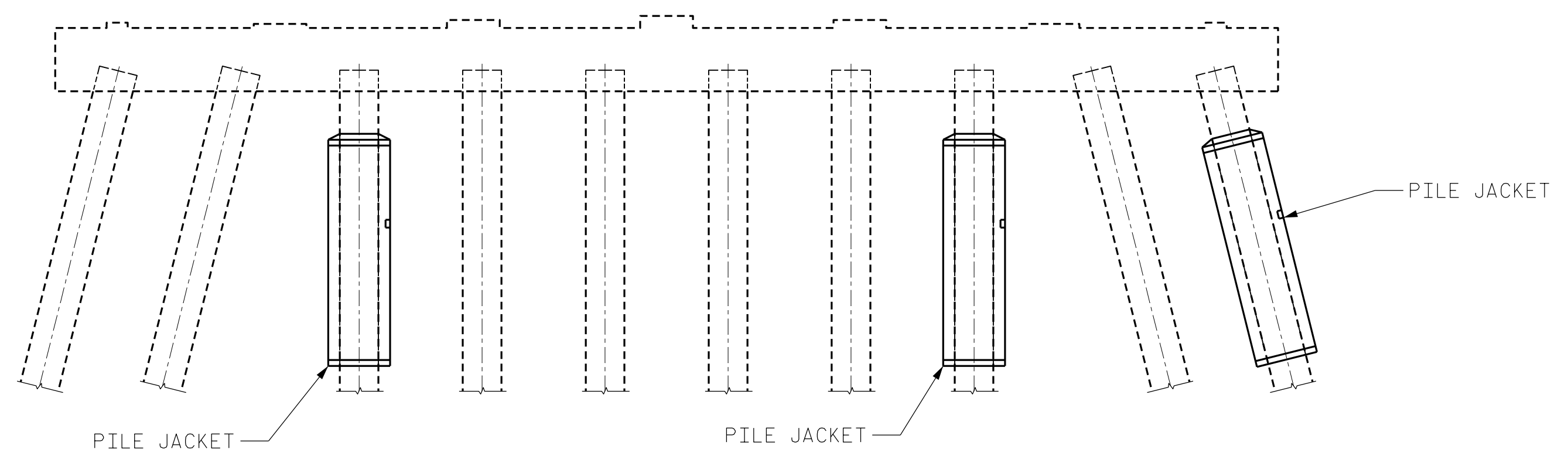
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1			3			137
2			4			

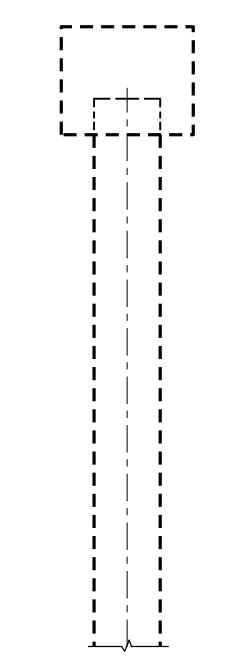




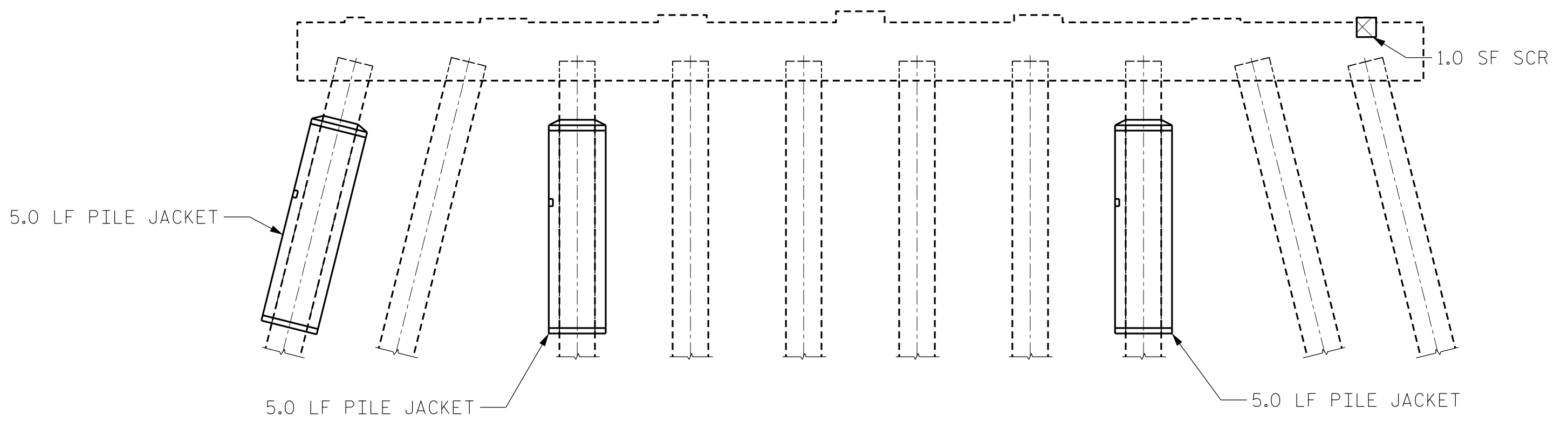
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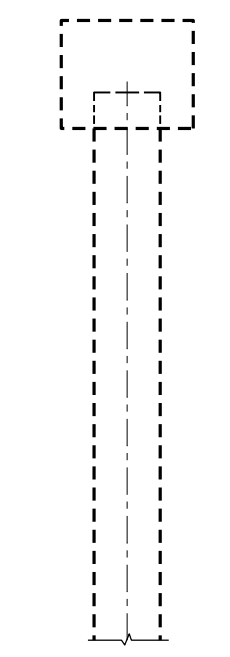
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		1.0	0.5		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		15.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

**NOTES:**  
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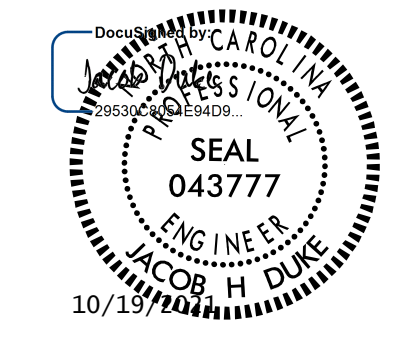
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

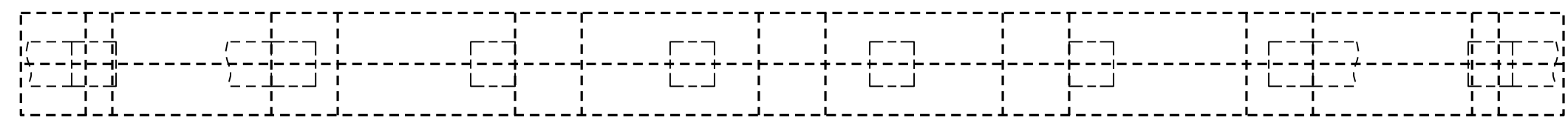
BENT 61



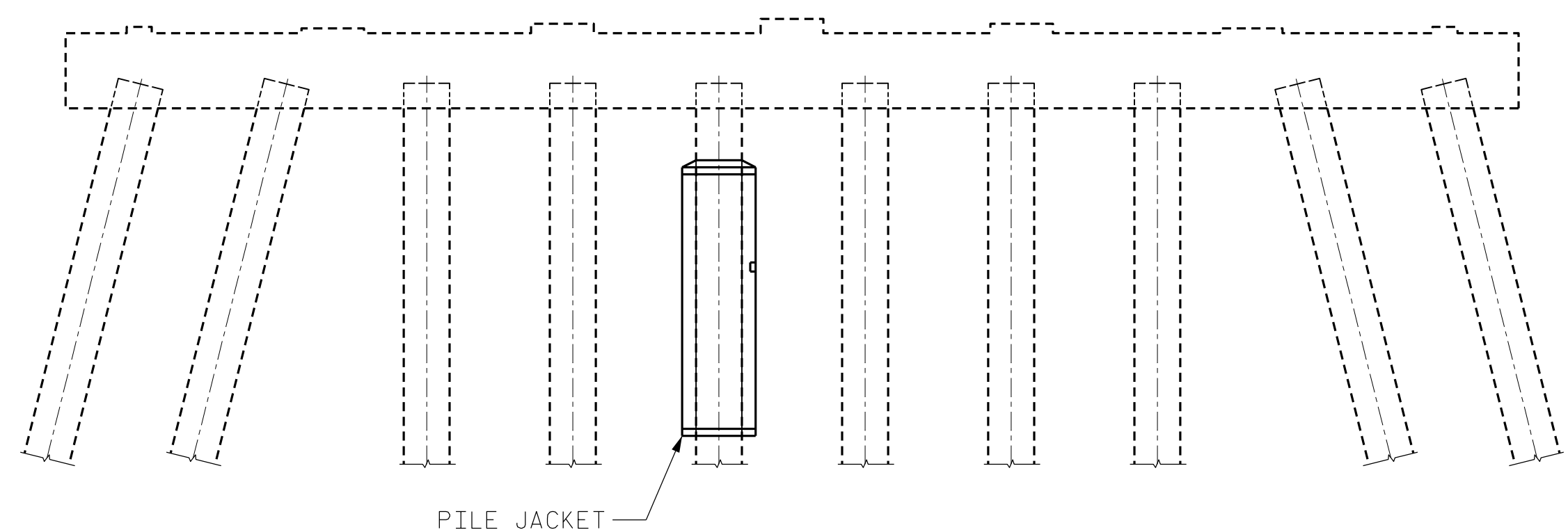
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

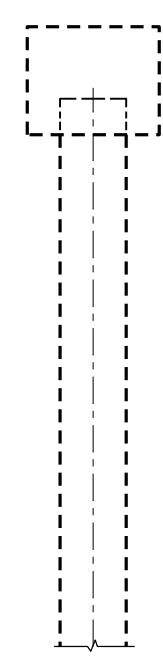
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



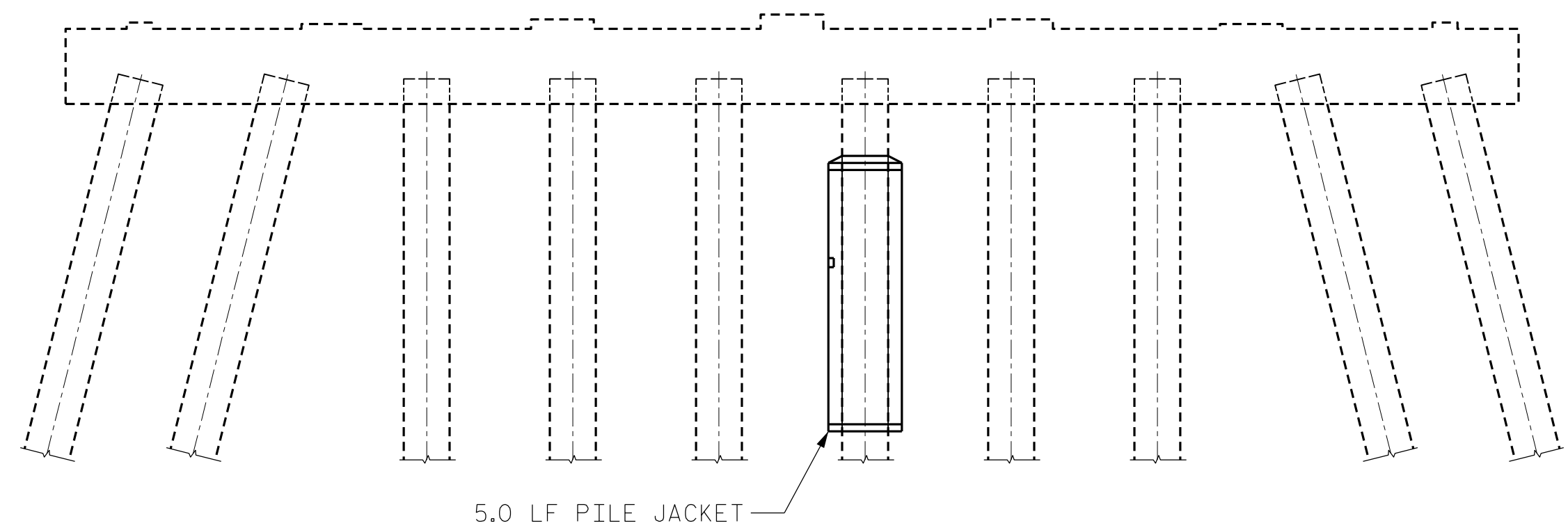
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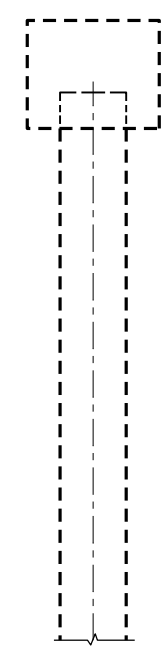
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		5.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

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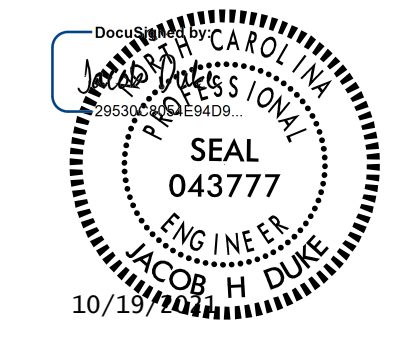
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 62

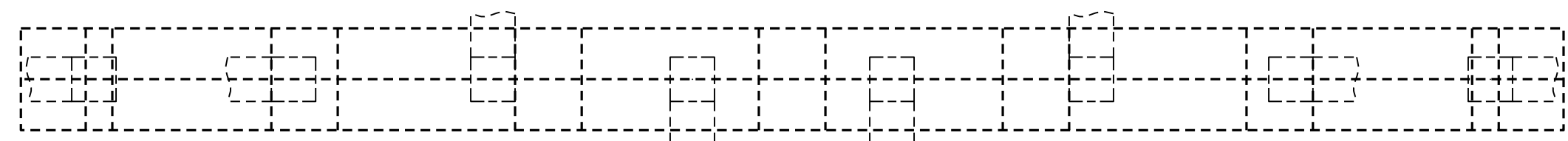


DRAWN BY :	FIDEL L. FLORES	DATE :	9/30/2020
CHECKED BY :	JACOB H. DUKE	DATE :	10/1/2020
DESIGN ENGINEER OF RECORD:	JACOB H. DUKE	DATE :	10/1/2020

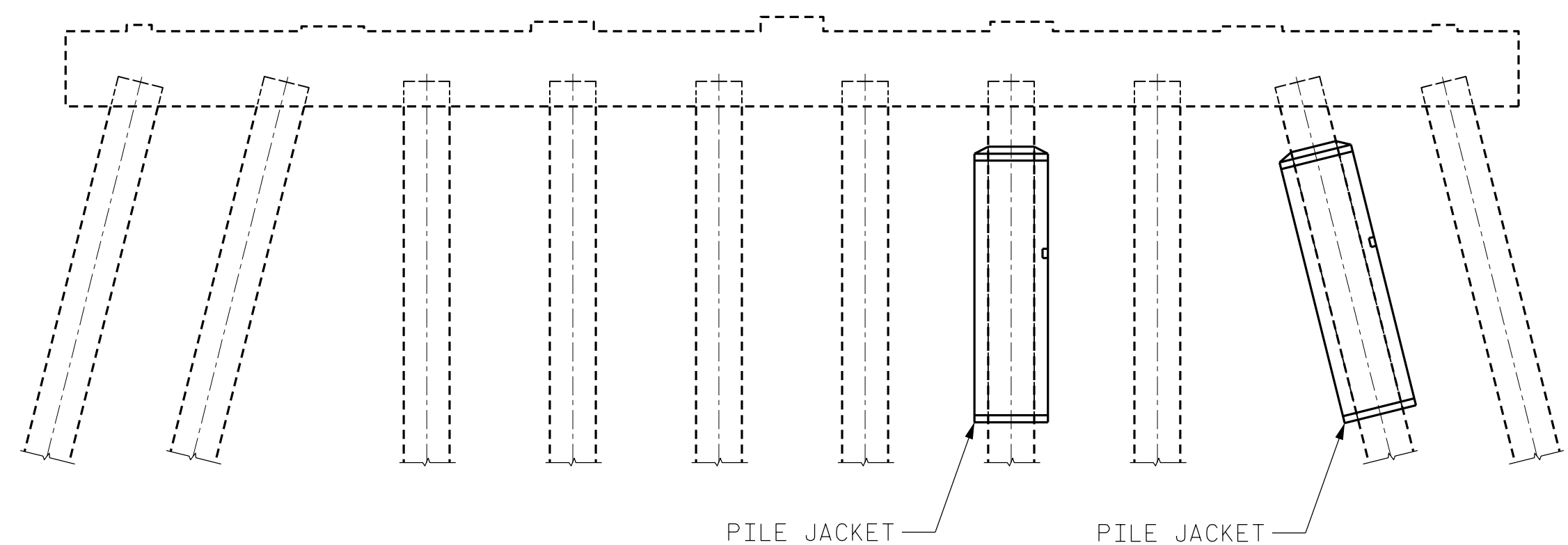
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15BPR.46.SMU.SBR62.270012.dgn  
jduke

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

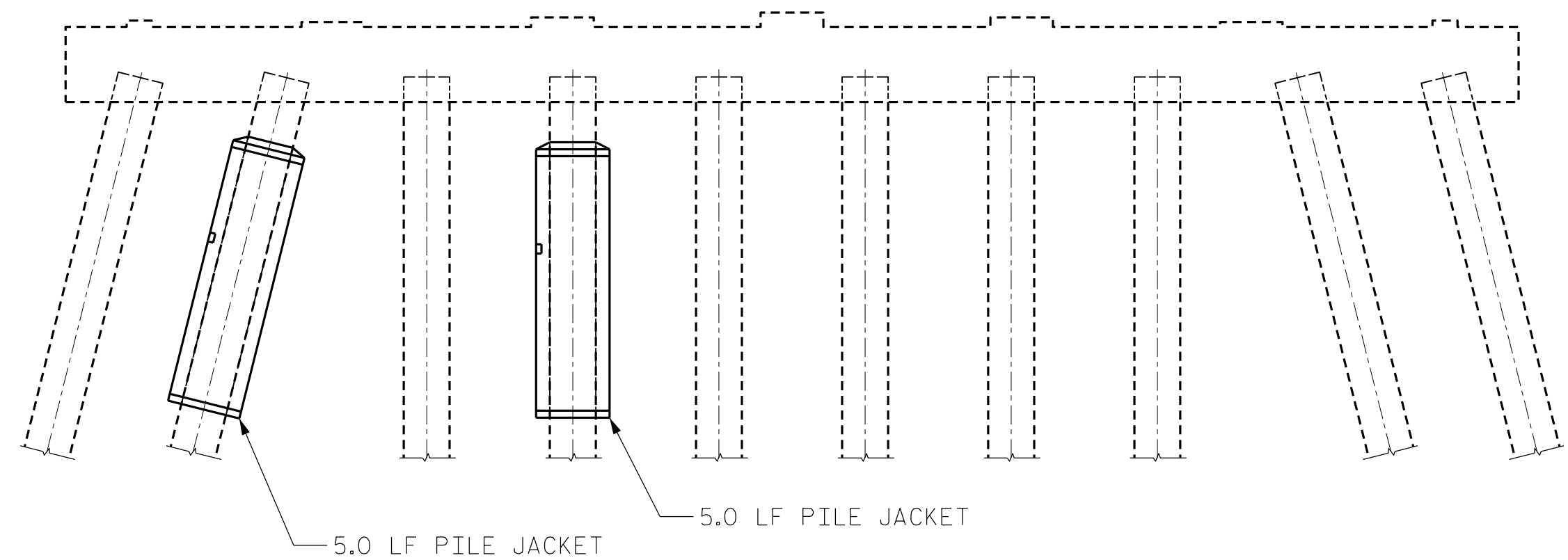
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



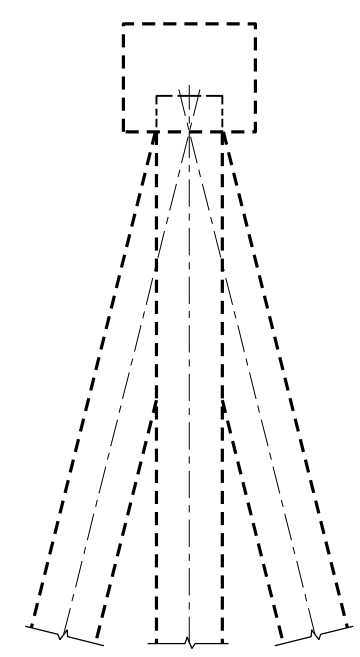
EAST ELEVATION



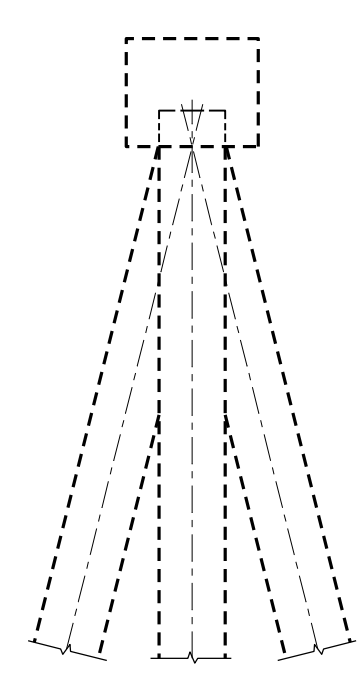
WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	-			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE	10.0			



NORTH ELEVATION



SOUTH ELEVATION

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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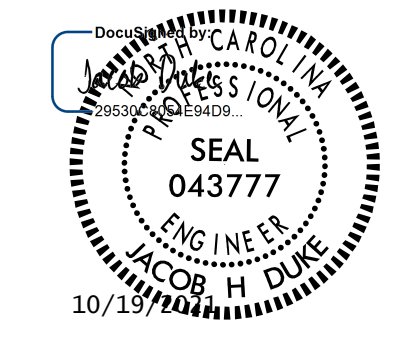
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 63

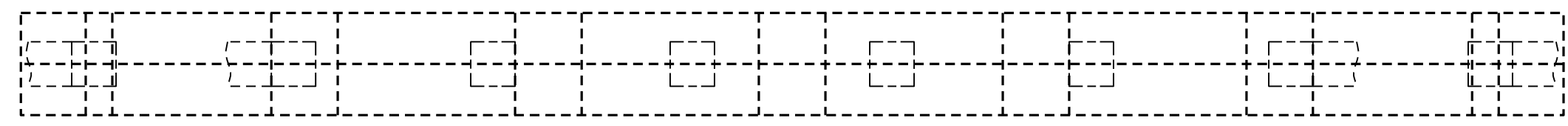
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 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

10/19/2021  
 15BPR.46.SMU.SBR63.270012.dgn  
 jduke

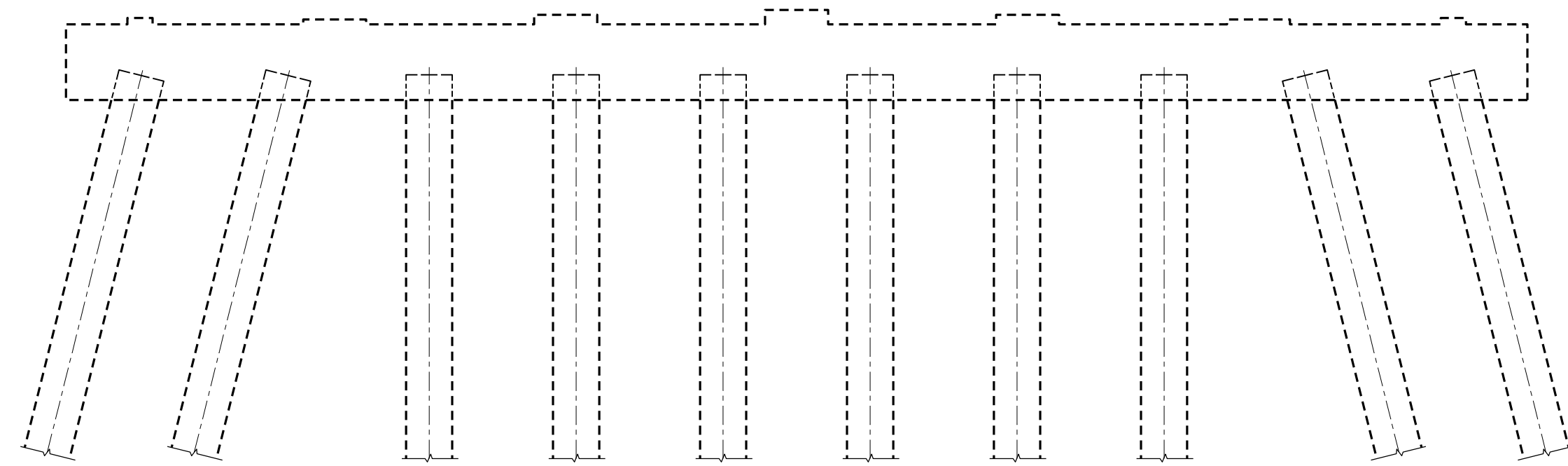
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 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

**KCA**  
 KISINGER CAMPO & ASSOCIATES  
 301 FAYETTEVILLE ST., SUITE 1500  
 RALEIGH, NC 27601 (919) 882-7839  
 NC FIRM LICENSE: C-1506

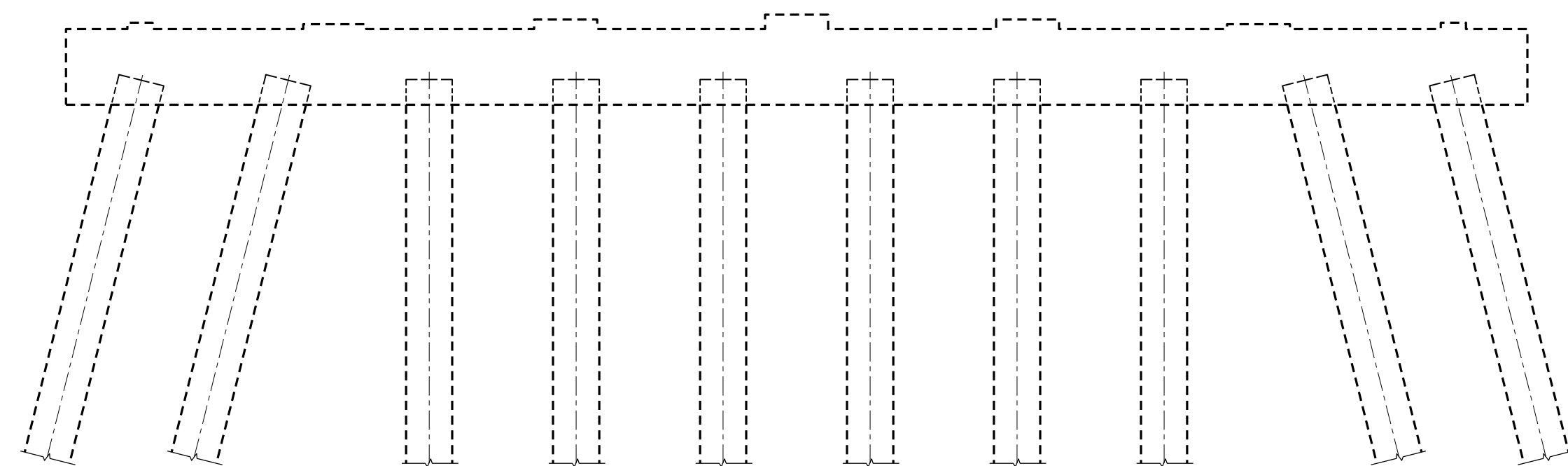
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



EAST ELEVATION



WEST ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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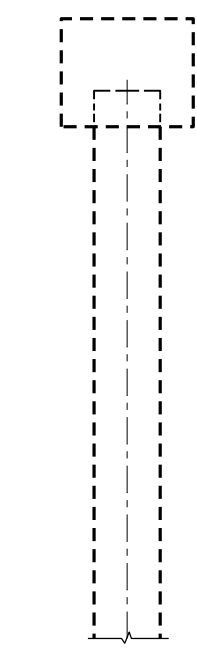
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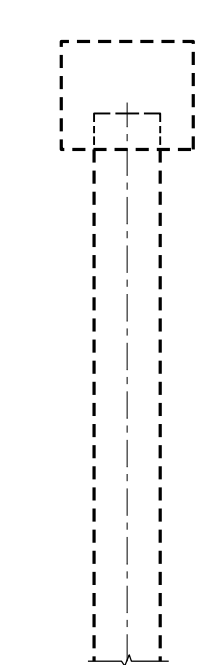
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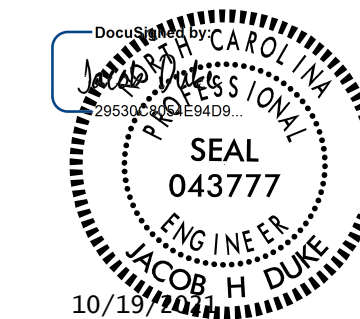


NORTH ELEVATION



SOUTH ELEVATION

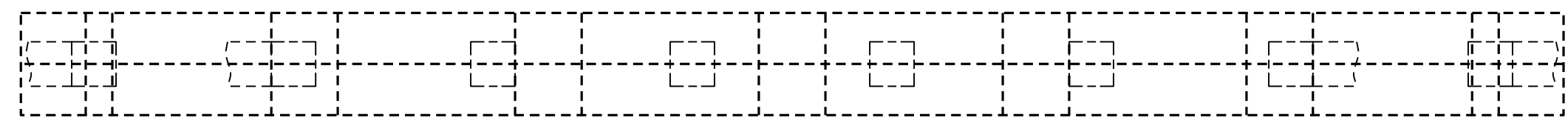
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



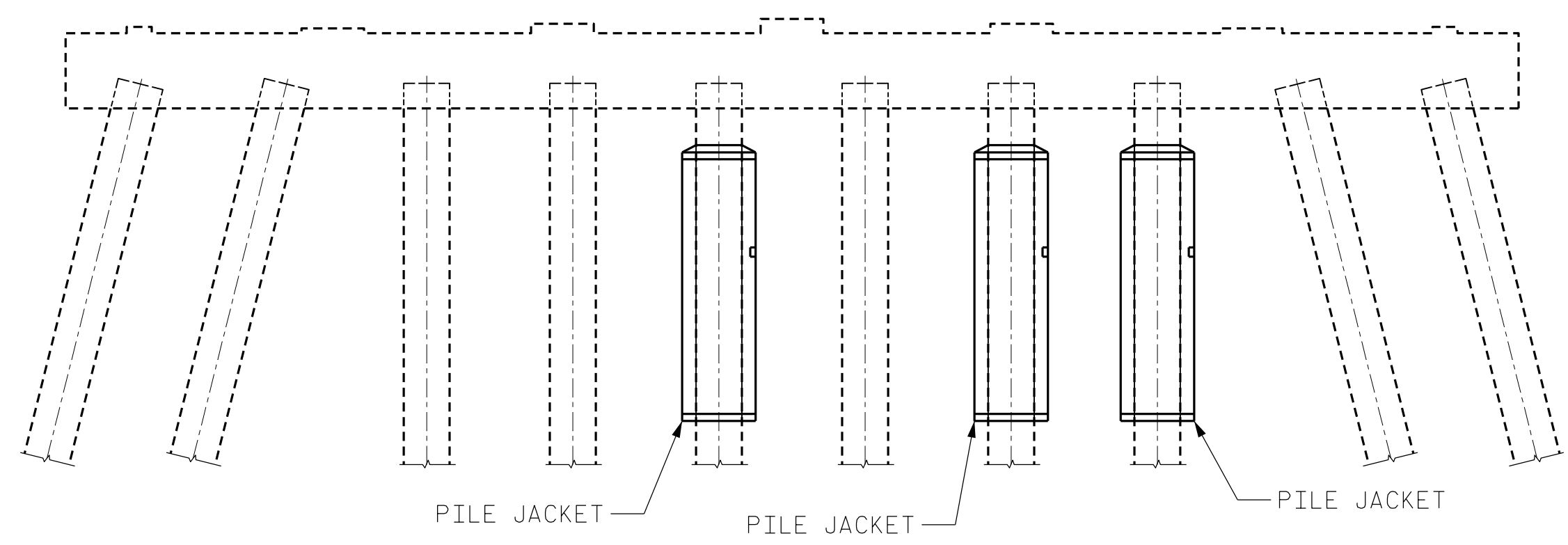
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
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NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
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DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

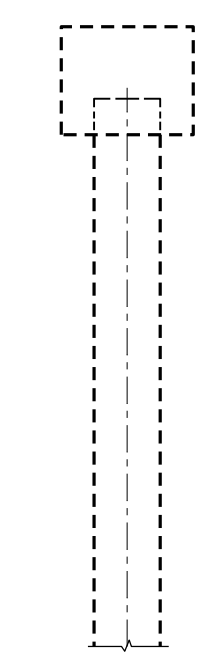
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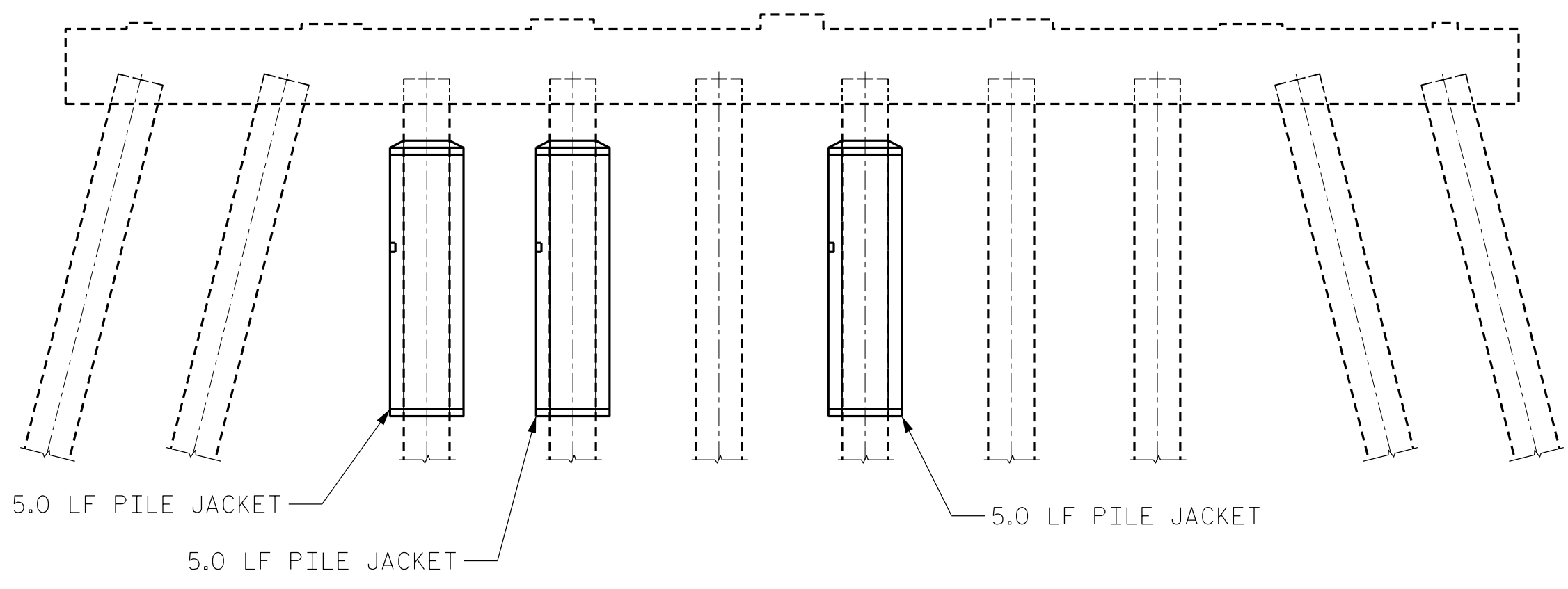
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(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



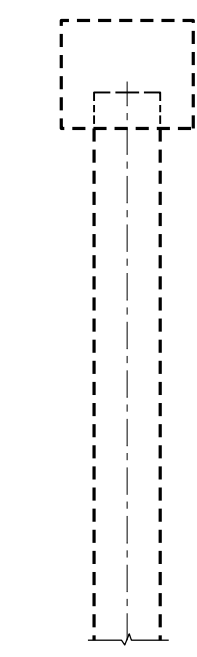
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		15.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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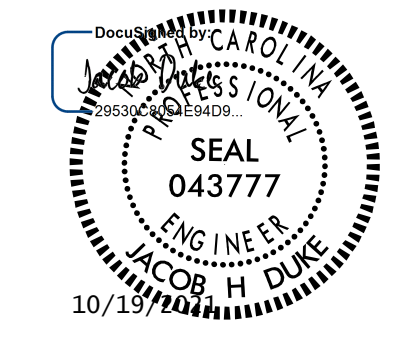
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

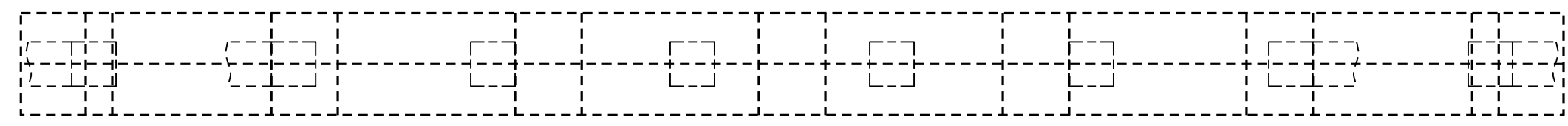
BENT 65



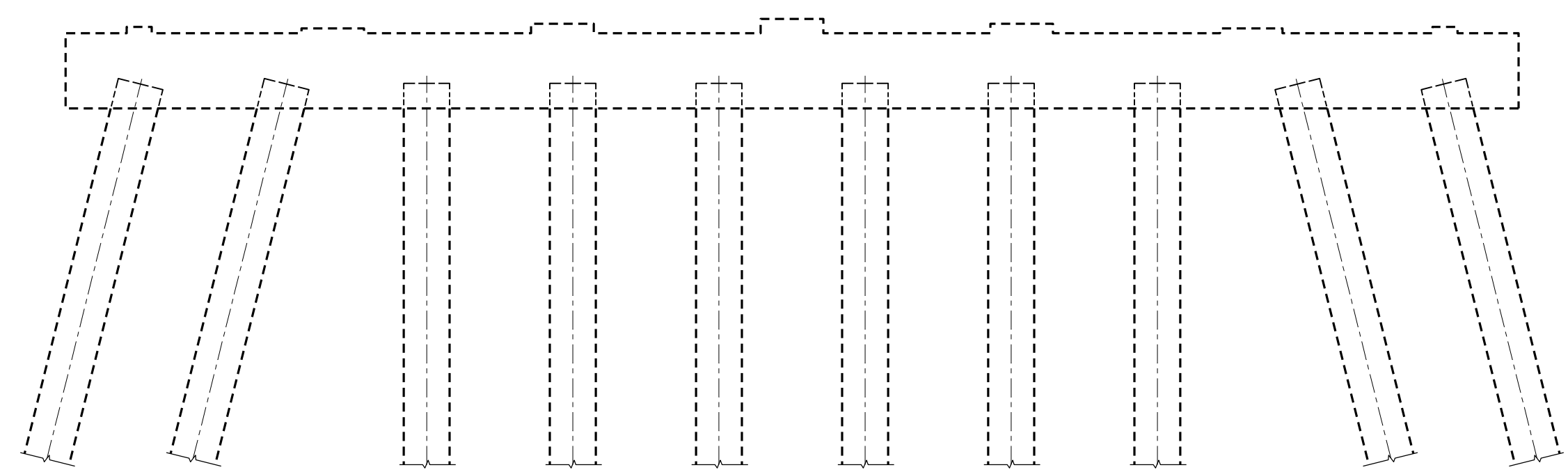
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

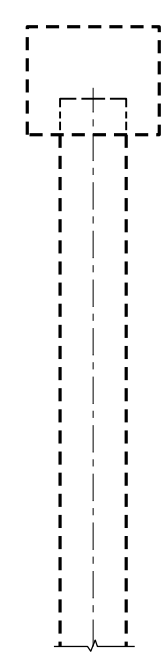
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



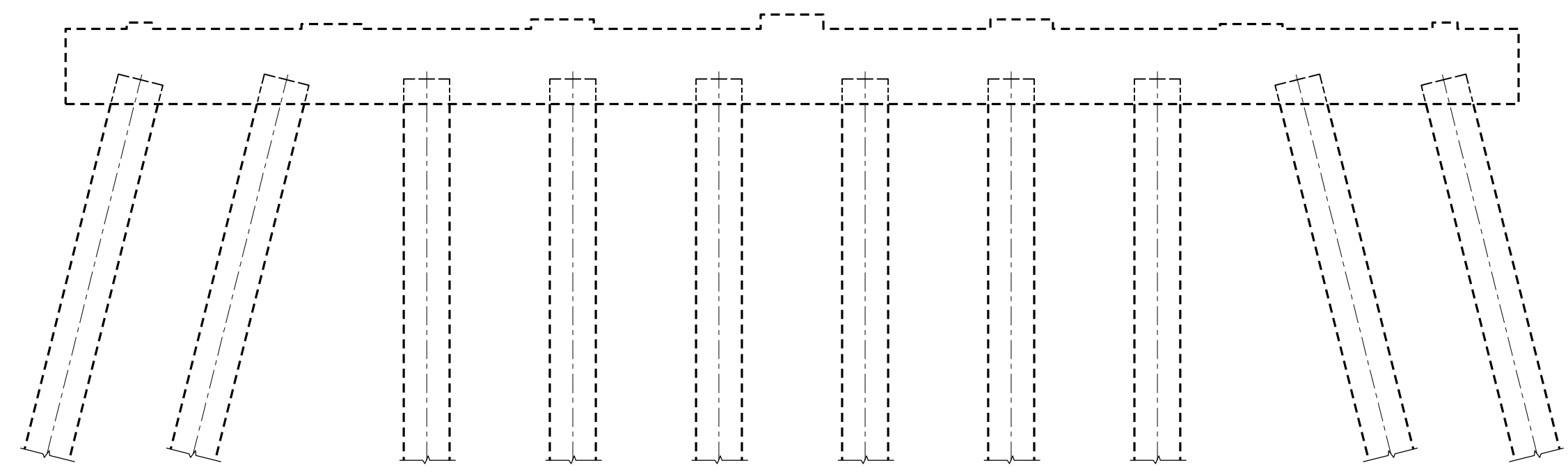
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



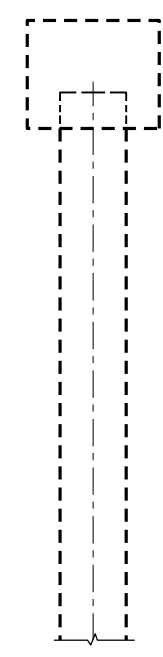
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

**NOTES:**

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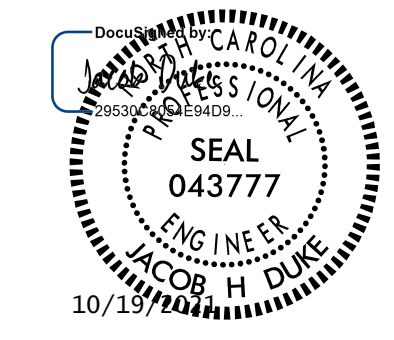
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

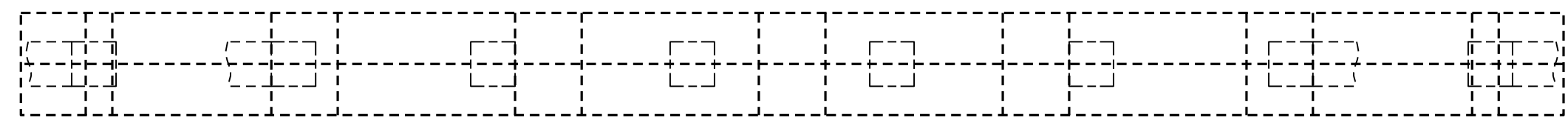
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



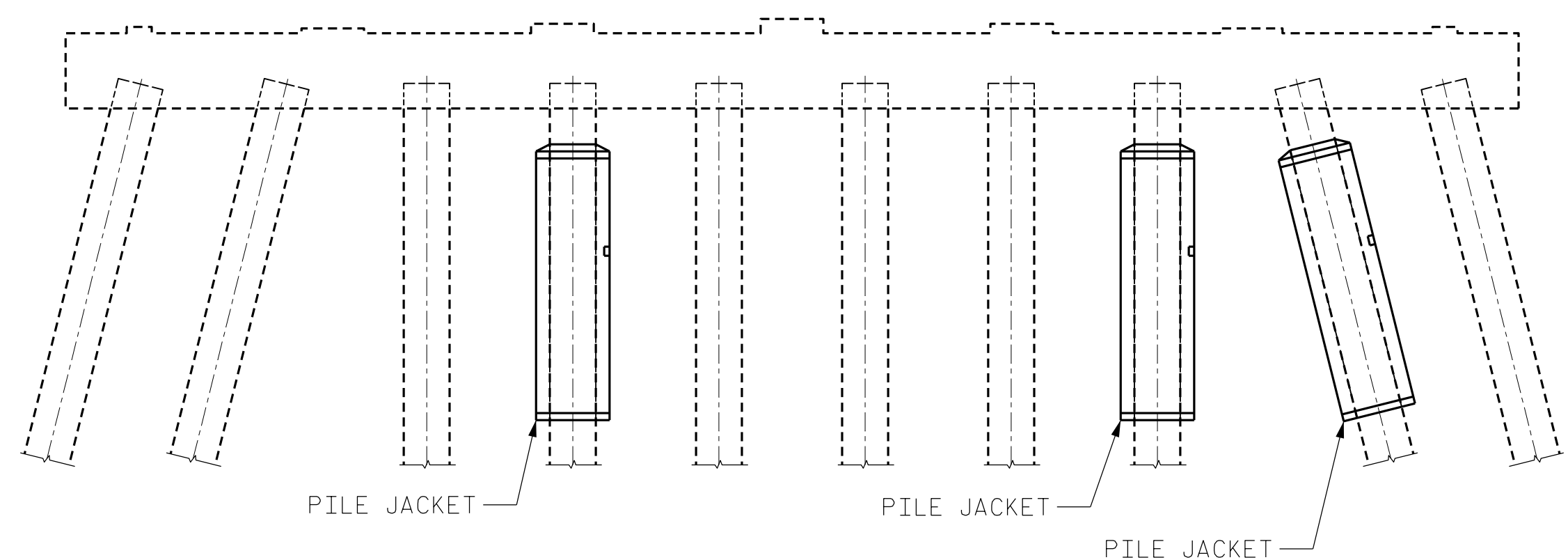
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>SUBSTRUCTURE REPAIRS</b>					
BENT 66					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 137

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

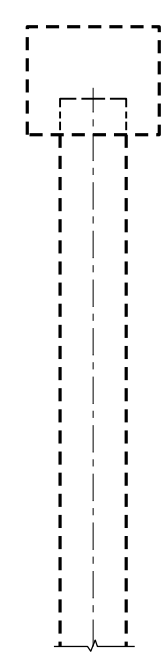
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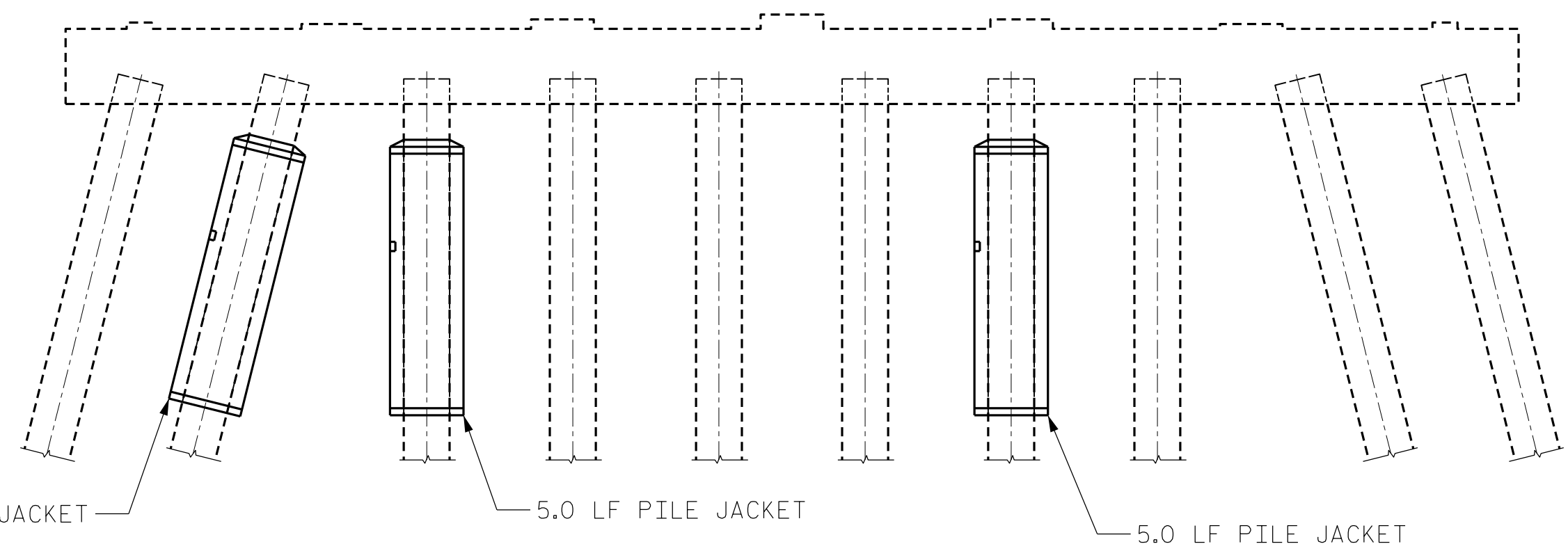
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



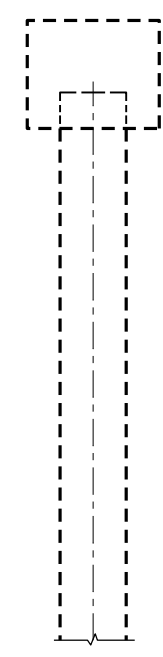
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	-	-		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	-			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE	15.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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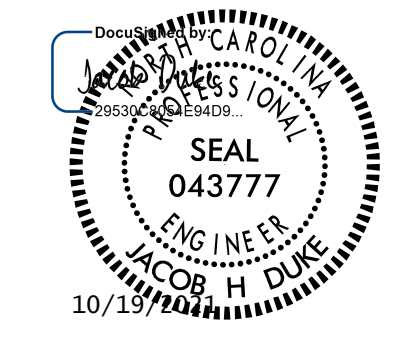
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

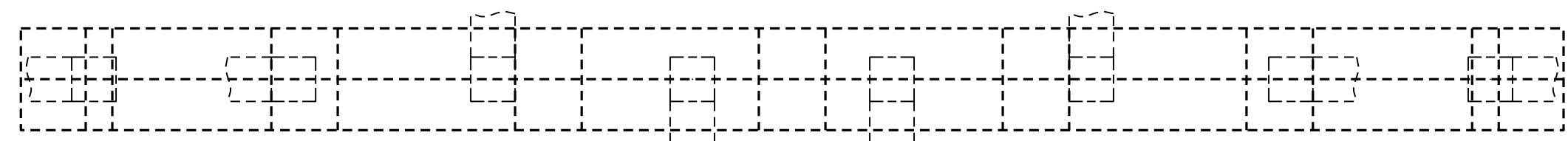
BENT 67



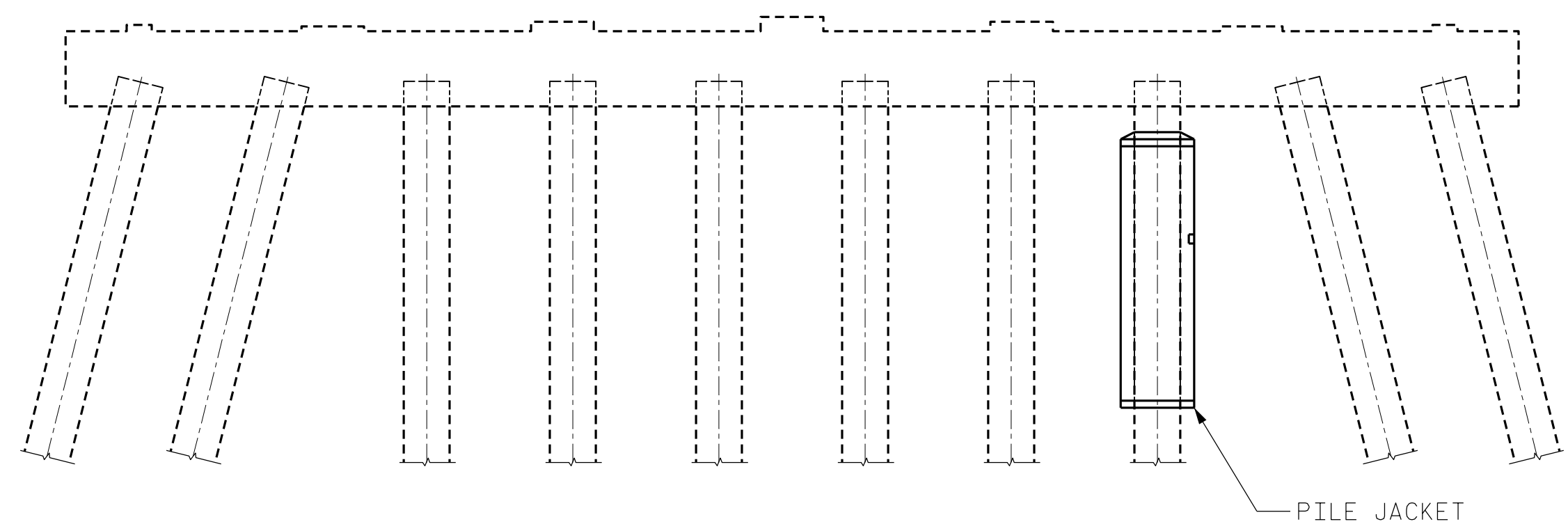
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

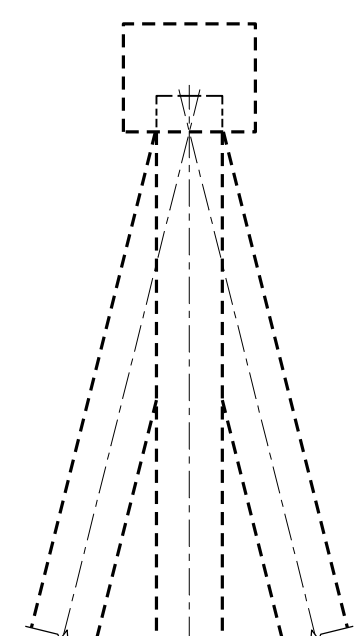
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



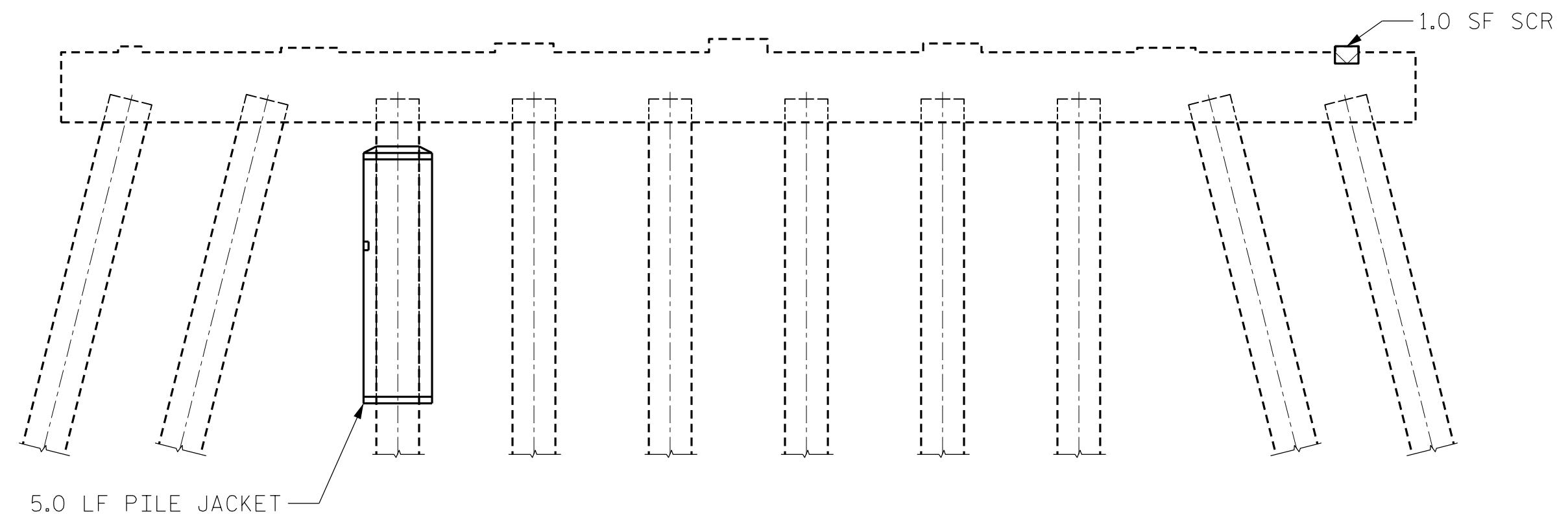
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(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



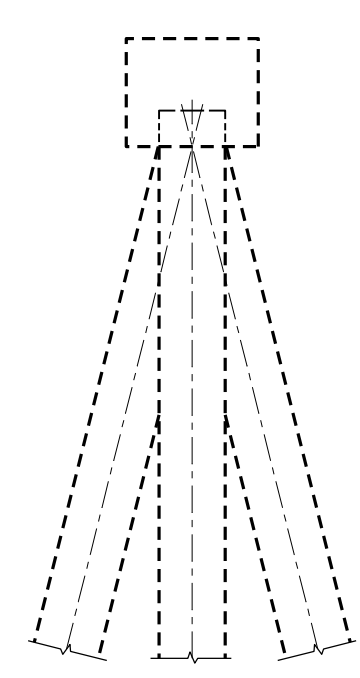
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

	AS-BUILT REPAIR QUANTITY TABLE			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING	-	-		
COLUMN/PILE	-	-		
CONCRETE REPAIRS	AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP	1.0	0.5		
EPOXY RESIN INJECTION	LIN. FT.		LIN. FT.	
CAP	-			
COLUMN/PILE	-			
FOOTING	-			
CP INTEGRAL PILE JACKETS	LIN. FT.		LIN. FT.	
PILE	5.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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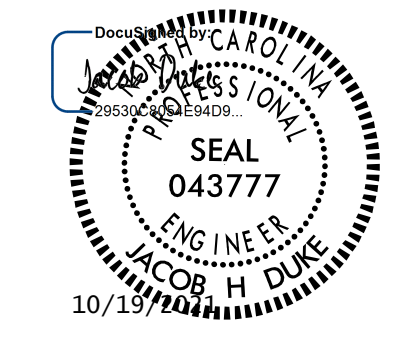
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FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 68

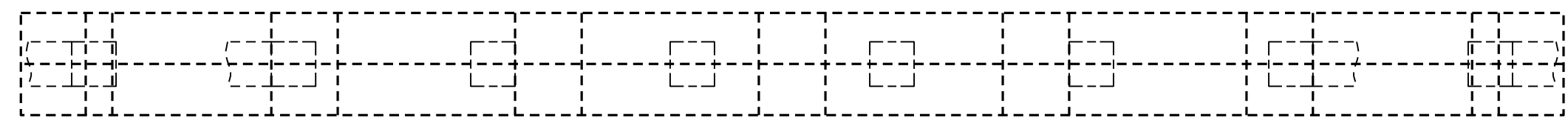


DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

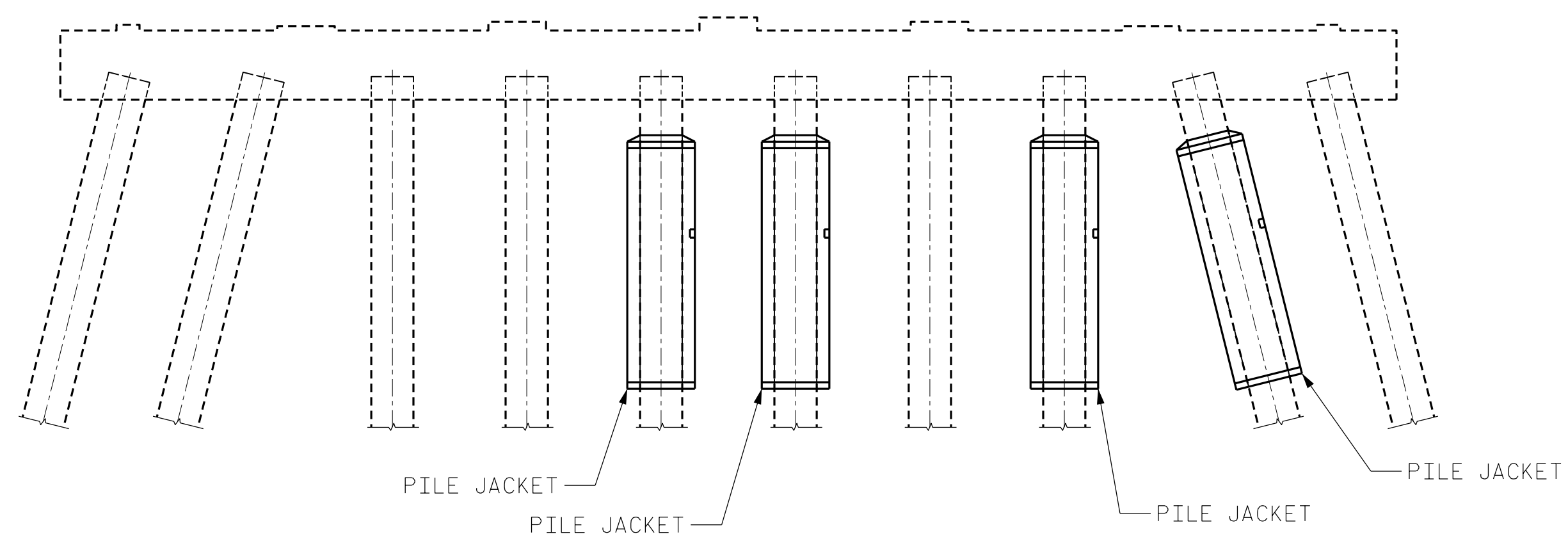
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			

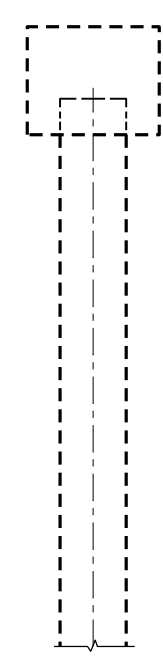




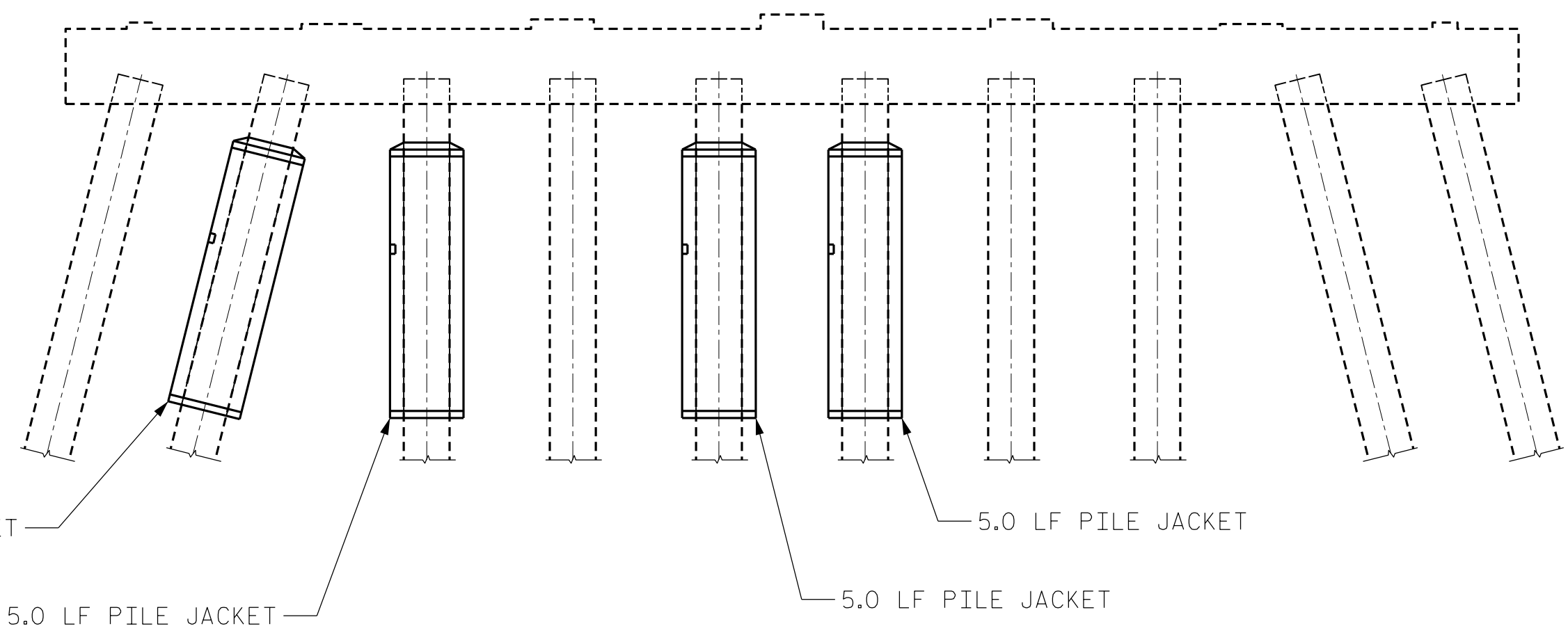
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



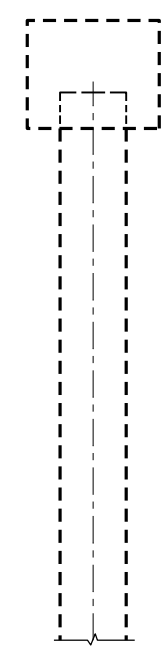
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		20.0			

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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUBSTRUCTURE REPAIRS**

BENT 69

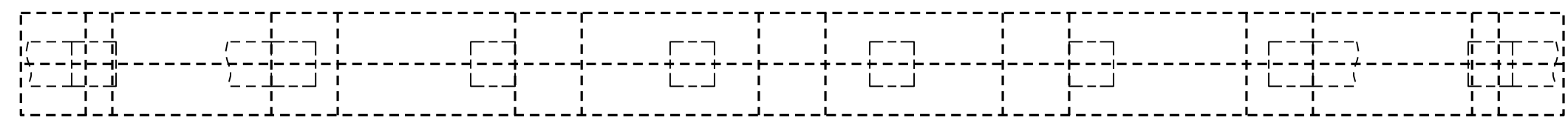
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

10/19/2021  
 15BPR.46.SMU.SBR69.270012.dgn  
 jduke

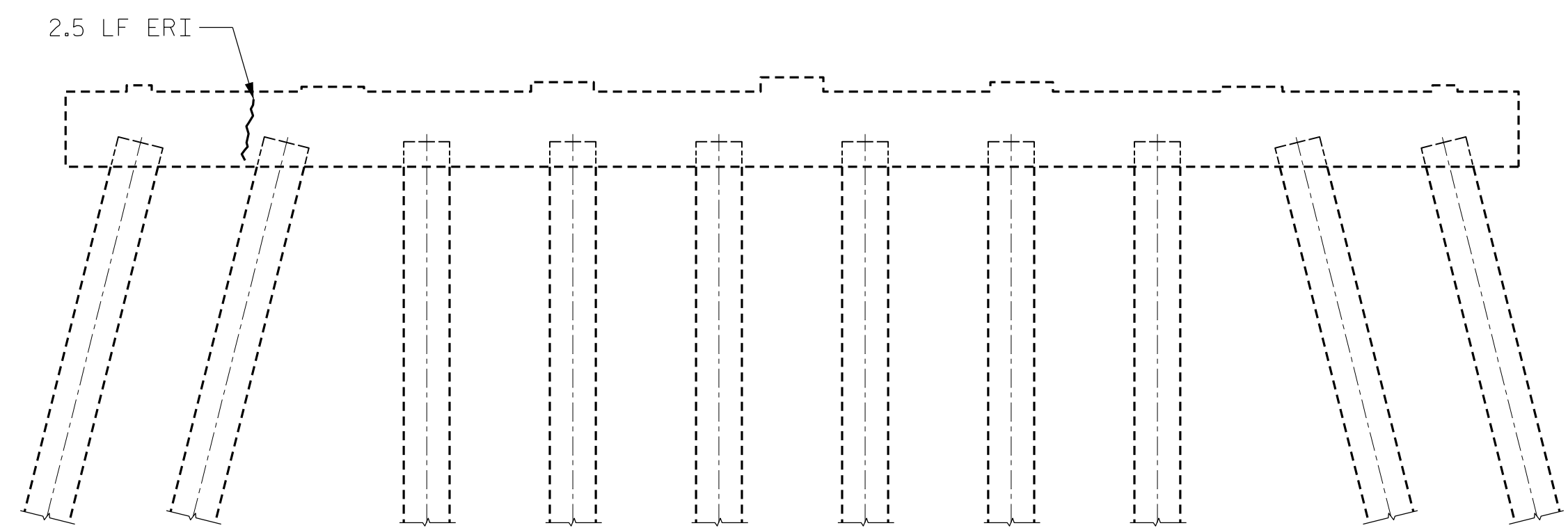
DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

**KCA**  
 KISINGER CAMPO & ASSOCIATES  
 301 FAYETTEVILLE ST., SUITE 1500  
 RALEIGH, NC 27601 (919) 882-7839  
 NC FIRM LICENSE: C-1506

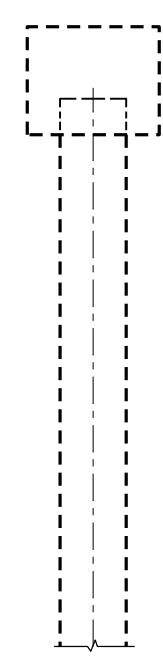
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			



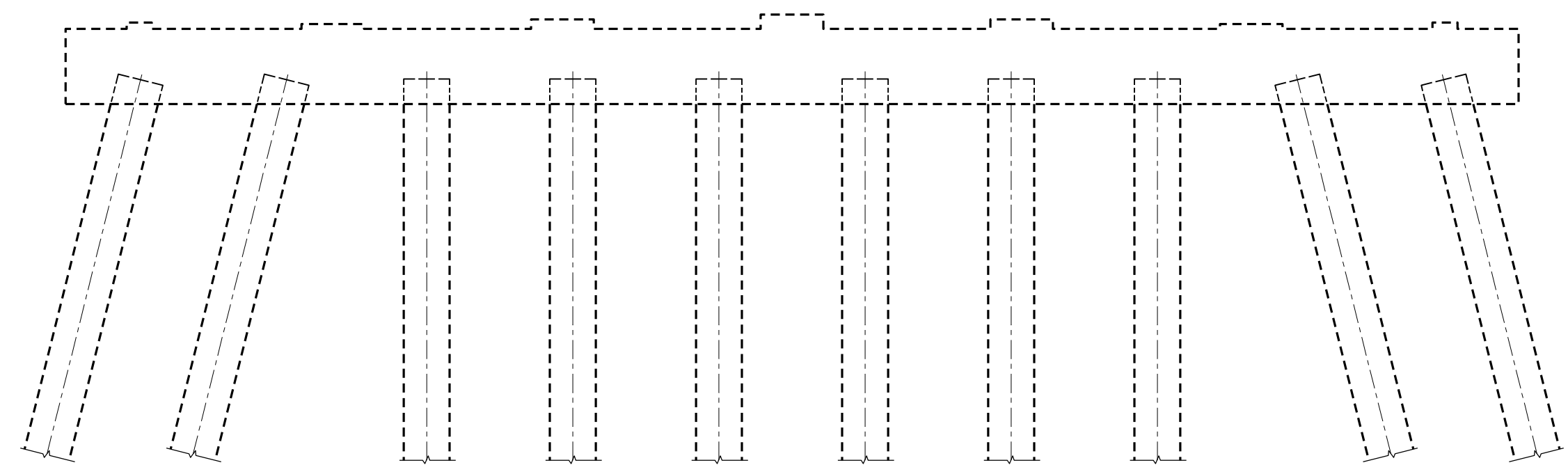
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



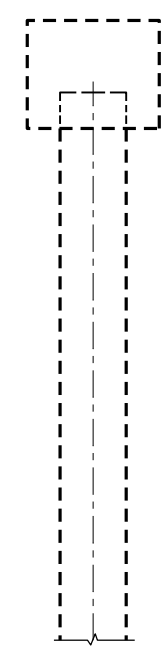
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		2.5			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

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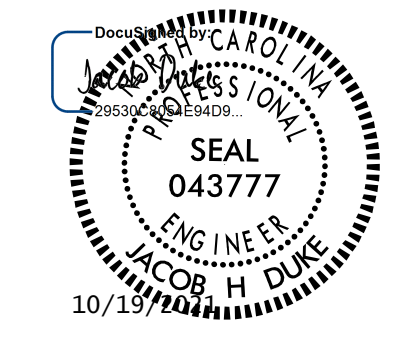
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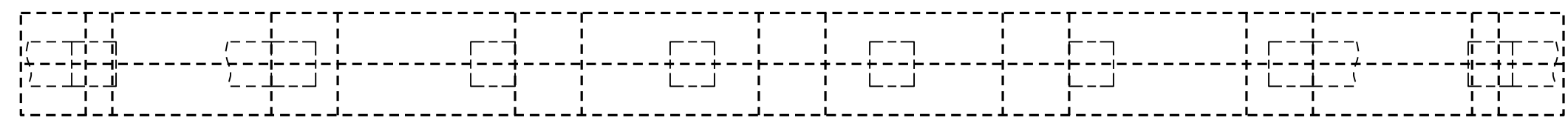
PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



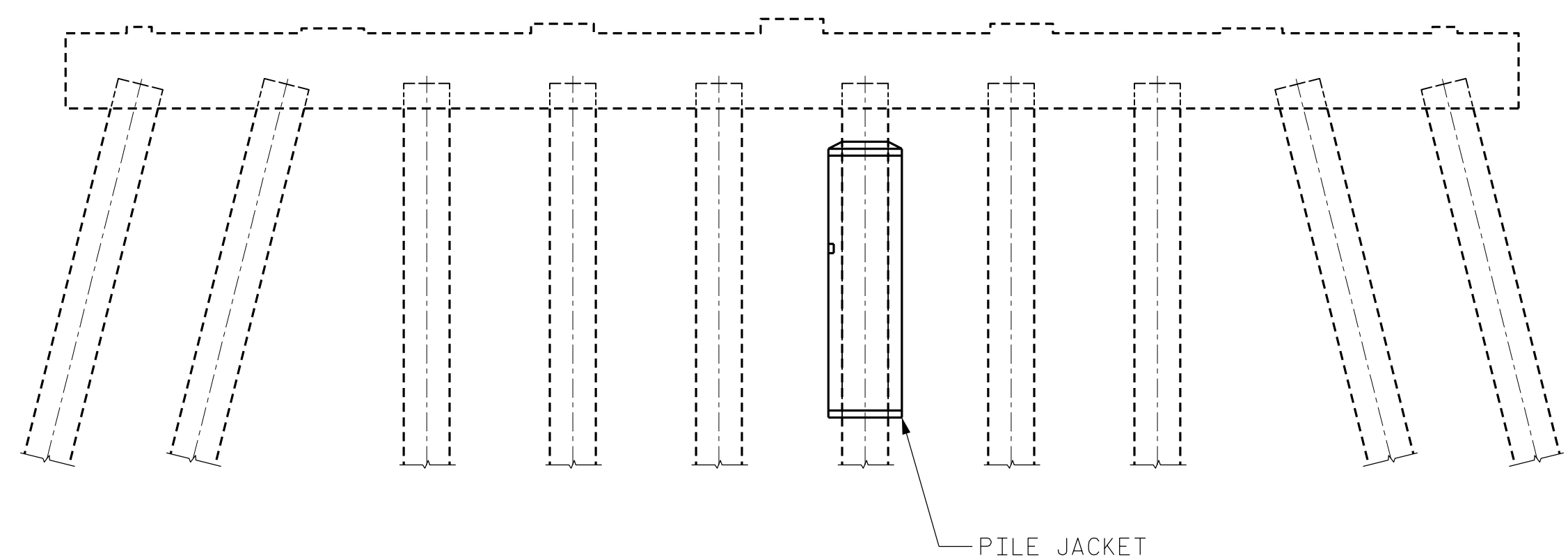
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
<b>SUBSTRUCTURE REPAIRS</b>					
BENT 70					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS
					137

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

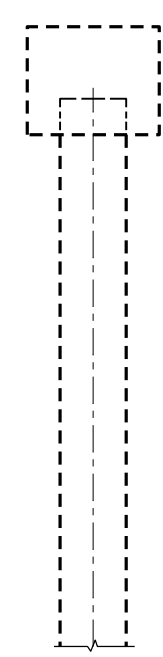
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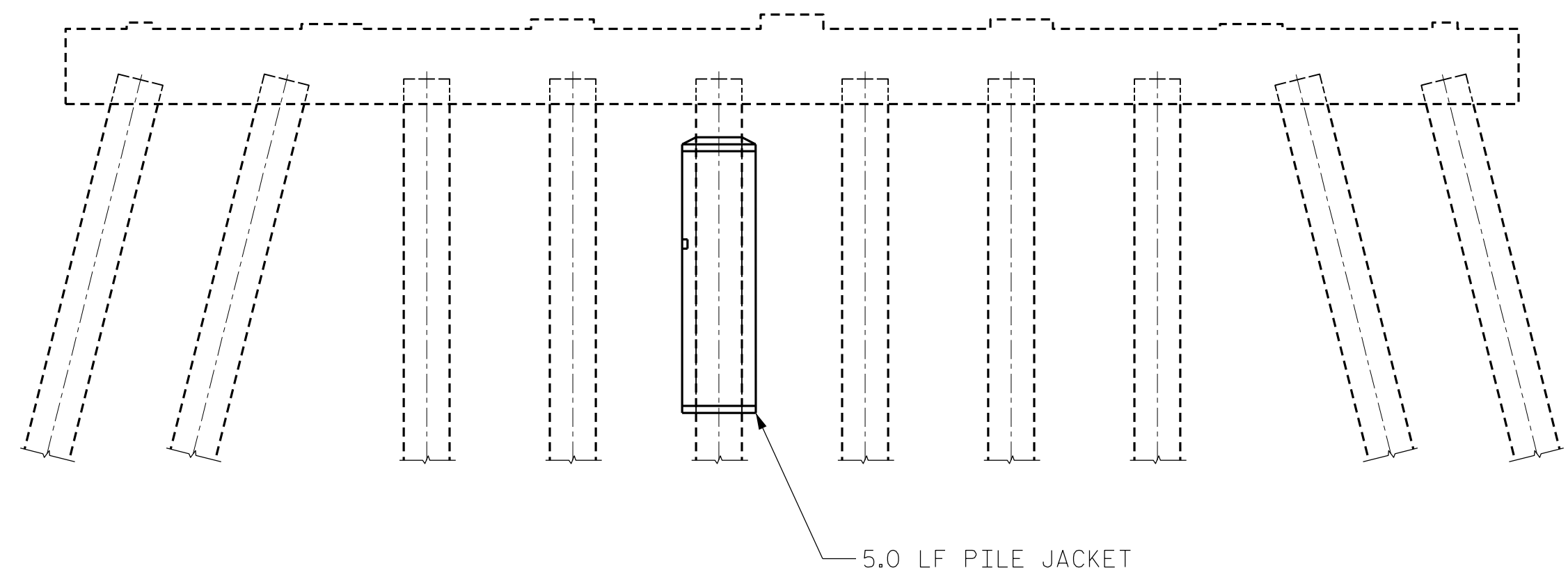
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



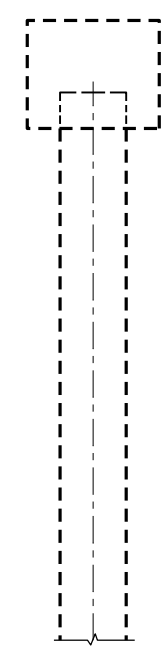
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		-	-		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE		5.0			

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

NOTES:

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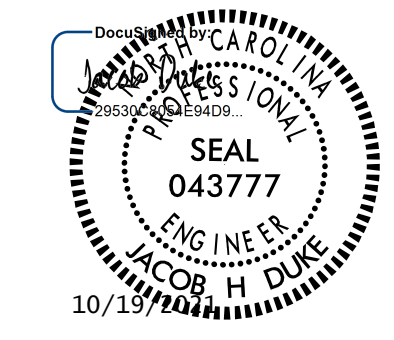
FOR CONCRETE AND SHOTCRETE REPAIRS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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

REPAIRS TO THE BENT CAP MAY REQUIRE BRIDGE JACKING. FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS AND STANDARD SPECIFICATIONS SECTION 420-18.

PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

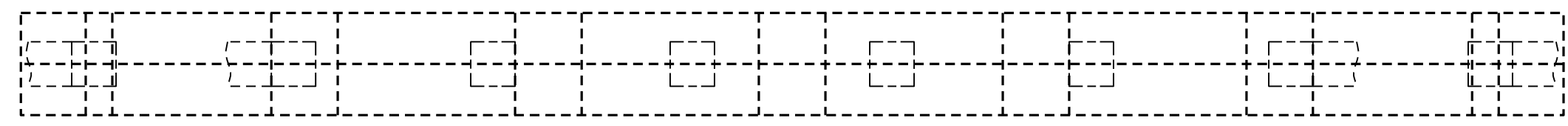
**SUBSTRUCTURE REPAIRS**

BENT 71

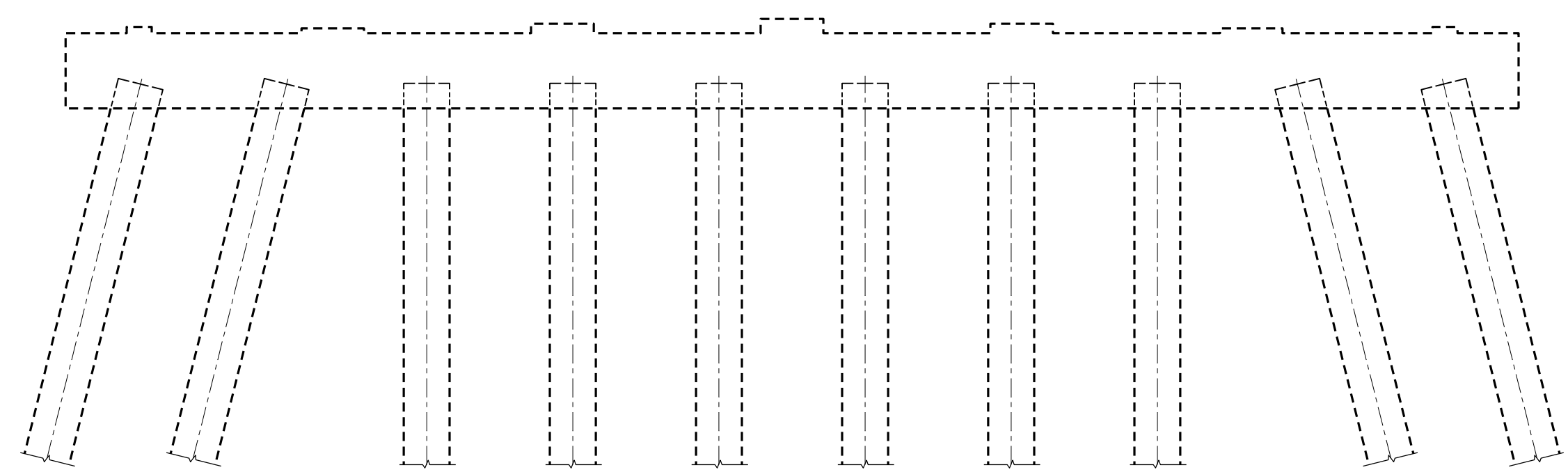
DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
 DESIGN ENGINEER OF RECORD: JACOB H. DUKE DATE : 10/1/2020

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

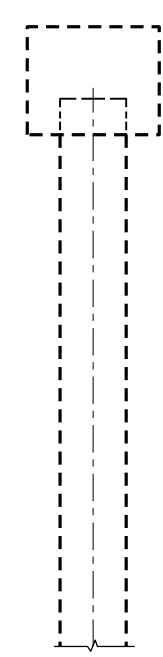
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			137
2			4			



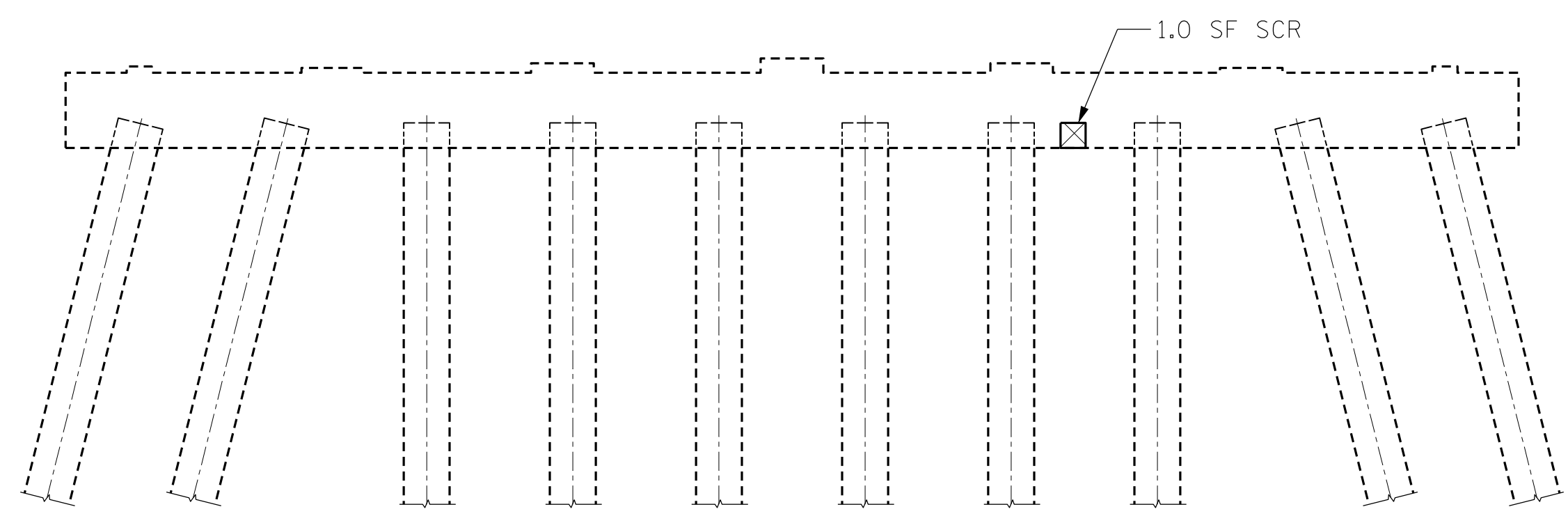
PLAN  
(TOP OF CAP - BEAMS NOT SHOWN FOR CLARITY)



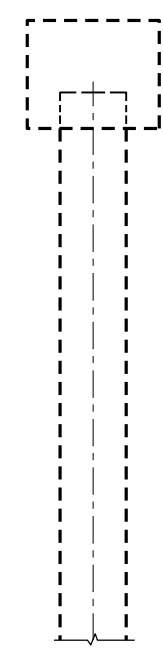
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

LEGEND	
	CONCRETE REPAIR AREA (CR)
	SHOTCRETE REPAIR AREA (SCR)
	EPOXY RESIN INJECTION (ERI)

		AS-BUILT REPAIR QUANTITY TABLE			
		ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
CAP/FOOTING		1.0	0.5		
COLUMN/PILE		-	-		
CONCRETE REPAIRS		AREA SQ. FT.	VOLUME CU. FT.	AREA SQ. FT.	VOLUME CU. FT.
* CAP		-	-		
EPOXY RESIN INJECTION		LIN. FT.		LIN. FT.	
CAP		-			
COLUMN/PILE		-			
FOOTING		-			
CP INTEGRAL PILE JACKETS		LIN. FT.		LIN. FT.	
PILE					

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT. FOR REPAIR DETAILS, SEE "CONCRETE RESTORATION DETAILS" SHEETS.

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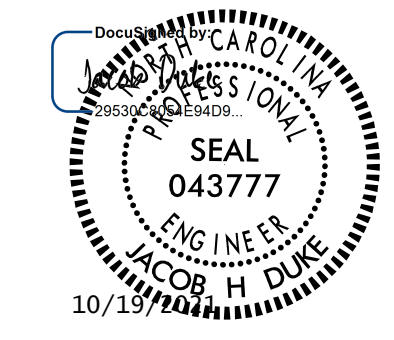
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PROJECT NO. 15BPR.46  
DARE COUNTY  
 BRIDGE NO. 270012



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIRS BENT 72					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 137

DRAWN BY : FIDEL L. FLORES DATE : 9/30/2020  
 CHECKED BY : JACOB H. DUKE DATE : 10/1/2020  
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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  $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A  $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A  $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

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

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

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

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

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

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

### REINFORCING STEEL:

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

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

### STRUCTURAL STEEL:

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

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

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY  $\frac{1}{16}$ " 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. 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.

# ENGLISH

JANUARY, 1990

STD. NO. SN