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PROJECT LENGTH		Prepared DEPARTMENT O
BRIDGE #500106 BRIDGE #500107	= 0.077 MILES = 0.077 MILES	DIVISION STRUCTURES 1000 BIRCH RIDG
LENGTH OF STRUCTURES TIP PROJECT HI–0008 LENGTH OF ROADWAY TIP PROJECT HI–0008 TOTAL LENGTH OF TIP PROJECT HI–0008	$= 0.077 \text{ MILES} \\ = 2.363 \text{ MILES} \\ = 2.440 \text{ MILES}$	KRISTY W. A Proj. 2018 STANDA
		<i>Lett</i> Septembe

STATE	STA1	B PROJECT REFERENCE NO.	SHEET NO.	TOTAL Sheets
N.C.	H	I-0008	1	49
STAT	E PROJ. NO.	F. A. PROJ. NO.	DESCRI	PTION
496	33.1.1	0095077	P.	E.
496	33.1.1	0095077	CON	NST.



STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

JOHNSTON COUNTY

BRIDGE #500106 ON I-95 NBL OVER SR1927, SR2305, NSRR. BRIDGE #500107 ON I-95 SBL OVER SR1927, SR2305, NSRR.

TYPE OF WORK: CONCRETE BRIDGE DECK REHABILITATION BY SCARIFICATION, SHOTBLASTING AND PLACEMENT OF POLYMER CONCRETE, RECONSTRUCTION OF BRIDGE DECK JOINTS AND SEALS, CLEANING AND PAINTING EXISTING STEEL BEAMS AND BEARINGS, SUBSTRUCTURE CONCRETE REPAIRS WITH SHOTCRETE, CONCRETE, AND EPOXY RESIN INJECTION, BRIDGE JACKING, AND SLOPE PROTECTION REPAIR.

INDEX OF STRUCTURES SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
1A	INDEX OF SHEETS
S–1	LOCATION SKETCHES
S –2	TOTAL BILL OF MATERIAL
STRUCTURE No. 500106	6
<i>S1–1</i>	GENERAL DRAWING
<i>S1–2</i>	TYPICAL SECTION
S1–3 THRU S1–8	SURFACE PREPARATION
S1–9 THRU S1–10	DECK UNDERSIDE REPAIRS
SI–11 THRU S1–13	JOINT REPAIR
<i>S1–14</i>	END BENTS
S1–15 THRU S1–19	BENTS
<i>S1–20</i>	TYPICAL CAP AND COLUMN REPAIR DETAILS
<i>S1–21</i>	BRIDGE JACKING DETAILS
STRUCTURE No. 500107	7
<i>S2–1</i>	GENERAL DRAWING
S 2–2	TYPICAL SECTION
S2–3 THRU S2–8	SURFACE PREPARATION
S2–9 THRU S2–10	DECK UNDERSIDE REPAIRS
S2–11 THRU S2–13	JOINT REPAIR
<i>S2–14</i>	END BENTS
S2–15 THRU S2–19	BENTS
<i>S2–20</i>	TYPICAL CAP AND COLUMN REPAIR DETAILS
<i>S2–21</i>	BRIDGE JACKING DETAILS
STRUCTURE No. 500106	& No. 500107
S 2–22	SLOPE PROTECTION REPAIR
STANDARD SHEETS	
SN	STANDARD NOTES

STATE	STA1		SHEET NO.	TOTAL SHEETS				
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49	633.2.1	0095077		CONST.				
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LOCATION SKETCH

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

DRAWN BY :	SWAN	_ DATE : _06/2021_
CHECKED BY	A. G. ABRAHA	_ DATE : <u>05/2021</u>

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NOTES:

REPAIR LOCATION AND ESTIMATES OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE.IF ADDITIONAL REPAIRS NOT SHOWN IN THE DRAWINGS DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE IN THE DRAWING THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED IN TO REPAIR QUANTITIES TABLE.

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

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

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

ANY DAMAGE TO EXISTING REINFORCING STEEL DURING CONTRACTOR OPERATIONS SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDI COST TO THE DEPARTMENT.

FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

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

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SUP PREPARATION OF BRIDGE DECK.THE CONTRACTOR SHALL TAKE CARE THAT ANY CONSTRUCTION DEBRIS THAT COLLECTS IN THE DRAINS IS CONTAINED.DRAINS I SHOULDERS AND ADJACENT LANES SHALL BE KEPT FREE AND CLEAR OF DEBRIS.

FOR STRIP SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.

FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.

S ARE	FOR CONCRETE WORK FO SPECIAL PROVISIONS.	OR JOINT REPLACEMENT, SEE	
NG HE	FOR OVERLAY SURFACE SEE SPECIAL PROVISIC	PREPARATION FOR POLYMER CO	DNCRETE,
THE	FOR POLYMER CONCRETE FOR VOLUMETRIC MIXER	E DECK OVERLAY, SEE SPECIAL R, SEE SPECIAL PROVISIONS.	PROVISIONS.
FER.	FOR PAINTING CONTAIN PAINTING EXISTING S	NMENT AND POLLUTION CONTRO	L,SEE /ISION.
	FOR PAINTING EXISTIN	NG STRUCTURE, SEE SPECIAL PF	ROVISION.
	FOR EPOXY RESIN INJE	CTION, SEE SPECIAL PROVISIO	INS.
OF	FOR SHOTCRETE REPAIR	RS, SEE SPECIAL PROVISIONS.	
S	FOR CONCRETE REPAIRS	S, SEE SPECIAL PROVISIONS.	
ITIONAL	FOR BRIDGE JACKING, S	SEE SPECIAL PROVISIONS.	
IE	THE RAILROAD TRACK T VERTICAL CLEARANCES INFORMATION AVAILAB CONSTRUCTION, VERIFY BEAM CLEARANCES AND ENGINEER. ANY PLAN R THE REQUIRED MINIMUN THE DEPARTMENT.	OP OF RAIL TO BOTTOM OF BE ON THE PLANS ARE FROM THE LE. PRIOR TO BEGINNING BRID THE TOP OF RAIL TO BOTTOM REPORT ANY VARIATIONS TO EVISIONS NECESSARY TO ACHI M CLEARANCE WILL BE PROVIDE	EAM BEST OGE OF THE EVE ED BY
IRF ACE I N	AT THE TIME OF PREPA NOT ANTICIPATED THAT WOULD BE REQUIRED.HO IN THE FIELD THAT TH OTHER WORK WILL BE N THE INTENDED BRIDGE THE CONTRACTOR SHALL WORK IN A TIMELY MAN SUCH WORK SHALL BE C BE ADDRESSED AS PER SPECIFICATIONS.PROJE REQUIREMENTS FOR THE HAVE BEEN PROVIDED I QUANTITIES HAVE BEEN QUANTITIES, AND COSTS IF EXTRA WORK IS END	ARATION OF THESE PLANS, IT W T THE FOLLOWING ITEM(S) LIST OWEVER, IT MAY BE DETERMINED E FOLLOWING ITEM(S) LISTED, NECESSARY TO PROPERLY COMPL PRESERVATION/REHABILITATIC BE PREPARED TO PERFORM SL NNER, AS DETERMINED IN THE M ONSIDERED EXTRA WORK AND S ARTICLE 104-7 OF THE STANDA ECT SPECIAL PROVISIONS THAT ESE POTENTIAL ADDITIONAL WO IN THE PROJECT DOCUMENTS, BL N LISTED. ACTUAL PAY ITEMS, S WILL BE ESTABLISHED, AS RE COUNTERED. UNANTICIPATED ITE	VAS ED OR ETE ON WORK. JCH FIELD. HALL ARD FOUTLINE ORK ITEMS JT NO EQUIRED. EMS:
	ITEM NO. DESCRI	PTION	UNIT
	1 CLASS	III SURFACE PREPARATION	SQ. YD.
		PROJECT NO. <u>HI</u>	-0008
		JOHNSTON	
			0106
		& 5	00107

I-95 NBL & SBL OVER NORFOLK SOUTHERN RAILWAY, SR 2305 AND SR 1927	
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	TOTAL BILL OF MATERIAL																		
BRIDGE NO.	GROOVING BRIDGE FLOORS	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	CONCRETE REPAIRS	SHOTCRETE REPAIRS	EPOXY RESIN INJECTION	STRIP SEALS FOR PRESERVATION	PAINTING CONTAINMENT FOR BRIDGE #	CLEANING AND REPAINTING OF BRIDGE #	VOLUMETRIC MIXER	POURABLE SILICONE JOINT SEALANT	POLYESTER POLYMER CONCRETE MATERIALS	EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	SLOPE PROTECTION VOID FILLING	CONCRETE WORK FOR JOINT REPLACEMENT	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	PLACING & FINISHING POLYMER CONCRETE OVERLAY	TYPE I BRIDGE JACKING BRIDGE NO
	SQ.FT.	LUMP SUM	SQ.YD.	CU.FT.	CU.FT.	LN.FT.	LN.FT.	LUMP SUM	LUMP SUM	LUMP SUM	LN.FT.	CU.YD.	CU.YD.	LBS	SQ.FT.	SQ. YD.	SQ.YD.	SQ.YD.	EA
500106	15,785	LUMP SUM	27.6	16.0	26.9	19.0	46.4	LUMP SUM	LUMP SUM	LUMP SUM	272.1	105.7	105.7	13,918.5	100.6	1,898	1,898	1,898	6
500107	15,785	LUMP SUM	26.7	4.6	22.2	28.7	46.4	LUMP SUM	LUMP SUM	LUMP SUM	266.1	105.7	105.7	13,918.5	100.6	1,898	1,898	1,898	1
TOTAL	31,570	LUMP SUM	54.3	20.6	49.1	47.7	92.8	LUMP SUM	LUMP SUM	LUMP SUM	538.2	211.4	211.4	27,837	201.2	3,796	3,796	3,796	7

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DRAWN BY :	G. AYES	DATE :05/2021	
CHECKED BY :_	A.G. ABRAHA/S. WANCE	DATE :	

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

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SOUTHERN NA THERN		64°-54'-00" (TYP.)	1927	CROV	VN POINT LINE	
₩ ₩ ¹ /2" (SPAN C)		50'-2" (SPAN D)	59'-10 ¹ /2" (SPA)	N E) 60'-	07/8"(SPAN F)	
-2 ¹ /4″(FILL F	ACE TO FILL FACE)					

SCOPE OF WORK

- PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOT-BLASTING METHODS.
- DEMOLISH AND REMOVE EXISTING BRIDGE DECK JOINTS.
- PERFORM CONCRETE DECK REPAIRS IN PREPARED AREAS.
- OVERLAY PREPARED BRIDGE DECK WITH POLYMER CONCRETE.
- RECONSTRUCT BRIDGE JOINTS AND INSTALL STRIP SEAL EXPANSION JOINTS AND POURABLE SILICONE JOINT SEALS.
- GROOVE CONCRETE BRIDGE DECK.
- REPAIR SUBSTRUCTURE USING EPOXY RESIN INJECTION, CONCRETE AND SHOTCRETE.
- CLEAN AND PAINT EXISTING STRUCTURAL STEEL BEAMS.

NOTES

- PROFILE INFORMATION IS TAKEN FROM ORIGINAL PLANS, WIDENING PLANS, AND INSPECTION REPORT DATED 04/16/2020.
- BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.
- FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer

Date

SR 1001

	PROJECT NO. <u>HI-0008</u> <u>JOHNSTON</u> COUNTY BRIDGE NO. <u>500106</u>
SEAL 29441 W. ALTINIA W. ALTINIA Motor BESSION W. ALTINIA Motor BESSION W. ALTINIA Motor BESSION Motor BESSION C. ABRITINA Docusies Motor Bosion Motor Bosio Motor Bosion Moto	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH GENERAL DRAWING FOR BRIDGE 106 ON I-95 NORTHBOUND OVER NORFOLK SOUTHERN RAILWAY, SR 2305 AND SR 1927
8/3/2021	REVISIONS SHEET NO.
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STAGED POLYMER CONCRETE OVERLAY JOINT (AS NEEDED)

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

POLYMER CONCRETE OVERLAY DETAIL

└─ DECK SURFACE BEFORE OVERLAY PLACEMENT

TH CAR

SEESSION &

SEAL 030024

Aster Abraha

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PROJECT NO. HI-0008 JOHNSTON COUNTY BRIDGE NO. 500106

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

TYPICAL SECTION & POLYMER CONCRETE OVERLAY DETAILS

REVISIONS

DATE:

BY:

NO. BY:

SHEET NO

S1-2

total sheets 48

DATE:



RAWN BY :	G. AYES	DATE :	05/2021
HECKED BY :	S. WANCE	DATE :	07/2021

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SUMMARY OF QUANTITIES FOR SPAN A AND APPROACH SLAB 1

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	288 SY	
POLYESTER POLYMER CONCRETE MATERIALS	16.1 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	16.1 CY	
SHOTBLASTING BRIDGE DECK	288 SY	
PLACING & FINISHING PC OVERLAY	288 SY	
CLASS II SURFACE PREPARATION	13.9 SY	
GROOVING BRIDGE DECK	2379 SF	

NOTES:

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN IN DRAWINGS ARE DEEMED NECESSARY BY ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO SUMMARY OF REPAIR QUANTITIES TABLE. FOR POLYMER CONCRETE BRIDGE DECK OVERLAY, SEE SPECIAL

PROVISIONS. FOR OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE, SEE SPECIAL PROVISIONS.

POURABLE SILICONE JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY IS COMPLETE.

FOR CONCRETE WORK FOR JOINT REPLACEMENT, SEE SPECIAL PROVISIONS.

REPAIR KEY





- APPROXIMATE AREA CLASS II SURFACE PREPARATION

	PROJECT NO. <u>HI-0008</u>					
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DRAWN BY :	G. AYES	DATE : 05/2021
CHECKED BY :	S. WANCE	DATE : 07/2021

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PLAN OF SPAN B

(SEE SHEET S1-11 FOR SECTIONS B-B)

SUMMARY OF QUANTITIES FOR SPAN B

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	310 SY	
POLYESTER POLYMER CONCRETE MATERIALS	17.3 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	17.3 CY	
SHOTBLASTING BRIDGE DECK	310 SY	
PLACING & FINISHING PC OVERLAY	310 SY	
CLASS II SURFACE PREPARATION	2.0 SY	
GROOVING BRIDGE DECK	2578 SF	

NOTES:

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



- APPROXIMATE AREA CLASS II SURFACE PREPARATION

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SUMMARY OF QUANTITIES FOR SPAN C

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	503 SY	
POLYESTER POLYMER CONCRETE MATERIALS	28.0 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	28.0 CY	
SHOTBLASTING BRIDGE DECK	503 SY	
PLACING & FINISHING PC OVERLAY	503 SY	
CLASS II SURFACE PREPARATION	1.0 SY	
GROOVING BRIDGE DECK	4201 SF	

NOTES:

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

REPAIR KEY

SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY

- APPROXIMATE AREA CLASS II SURFACE PREPARATION

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SUMMARY OF QUANTITIES FOR SPAN D

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	232 SY	
POLYESTER POLYMER CONCRETE MATERIALS	12.7 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	12.7 CY	
SHOTBLASTING BRIDGE DECK	232 SY	
PLACING & FINISHING PC OVERLAY	232 SY	
CLASS II SURFACE PREPARATION	1.7 SY	
GROOVING BRIDGE DECK	1939 SF	
CONCRETE WORK FOR JOINT REPLACEMENT	50.3 SF	

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







- APPROXIMATE AREA CLASS II SURFACE PREPARATION



- CONCRETE WORK FOR JOINT REPLACEMENT

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SUMMARY OF QUANTITIES FOR SPAN E

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	277 SY	
POLYESTER POLYMER CONCRETE MATERIALS	15 . 5 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	15 . 5 CY	
SHOTBLASTING BRIDGE DECK	277 SY	
PLACING & FINISHING PC OVERLAY	277 SY	
CLASS II SURFACE PREPARATION	3.6 SY	
GROOVING BRIDGE DECK	2307 SF	
CONCRETE WORK FOR JOINT REPLACEMENT	50.3 SF	

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







- APPROXIMATE AREA CLASS II SURFACE PREPARATION

- CONCRETE WORK FOR JOINT REPLACEMENT

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SUMMARY OF QUANTITIES FOR SPAN F AND APPROACH SLAB 2

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	288 SY	
POLYESTER POLYMER CONCRETE MATERIALS	16.1 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	16.1 CY	
SHOTBLASTING BRIDGE DECK	288 SY	
PLACING & FINISHING PC OVERLAY	288 SY	
CLASS II SURFACE PREPARATION	5.4 SY	
GROOVING BRIDGE DECK	2381 SF	

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





SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY



- APPROXIMATE AREA CLASS II SURFACE PREPARATION

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REPAIR KEY



DIAPHRAGM REPAIR



UNDERSIDE OF DECK REPAIR

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EPOXY RESIN INJECTION (ERI)



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DRAWN BY :	G. AYES	DATE : 07/2021
CHECKED BY :	S. WANCE	DATE : <u>07/2021</u>



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

FOR OVERHANG AND DIAPHRAGM SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITIES TABLE					
		QUAN	ITIES		
UNDERSIDE OF DECK	EST	IMATE	ACT	UAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF	
UNDERSIDE OF DECK	3.8	1.3			
BENT DIAPHRAGMS 3.6		1.2			
EPOXY RESIN INJECT	LF	LF	LF		
UNDERSIDE OF DECK	0.0				
BENT DIAPHRAGMS	0.0				

REPAIR KEY



DIAPHRAGM REPAIR



UNDERSIDE OF DECK REPAIR

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EPOXY RESIN INJECTION (ERI)



DRAWN BY :	G. AYES	DATE : <u>07/2021</u>
CHECKED BY :	S. WANCE	DATE : <u>07//2021</u>
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REPAIR QUANTITIES TABLE					
		QUANT	ITIES		
UNDERSIDE OF DECK	EST	IMATE	ACT	UAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF	
UNDERSIDE OF DECK 6.0		2.1			
BENT DIAPHRAGMS 18.7		6.3			
EPOXY RESIN INJECT	LF	LF	LF		
UNDERSIDE OF DECK	0.0				
BENT DIAPHRAGMS		0.0			

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

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CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.IF ACTUAL JOINT OPENINGS VARIES FROM THE OPENING INDICATED IN DETAIL MORE THAN 1/2" NOTIFY ENGINEER. REVISION TO THE JOINT SEAL SIZE MAY BE

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

UNLESS NOTED OTHERWISE RETAIN ALL EXISTING REINFORCING STEEL.CLEAN AND REPAIR

ALL EXPOSED ENDS OF CUT BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE

FOR POURABLE SILICONE EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

SILICONE JOINT SEALANT AND BACKER ROD SHALL BE INSTALLED AS PER MANUFACTURER'S

THE INSTALLATION OF JOINT SEAL SHALL BE WATERTIGHT.

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

DURING JOINT INSTALLATION PROCEDURE, THE JOINT AND SURROUNDING AREA HALL BE KEPT CLEAN AND FREE OF DEBRIS.

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



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JOINT INSTALLATION PROCEDURE:

- 1. INSTALL THE STRIP SEAL EXPANSION JOINT AS RECOMMENDED BY THE MANUFACTURER.
- 2. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT DURING INSTALLATION OF THE JOINT.
- 3. PLACE STEEL RETAINER RAILS IN JOINT OPENING. PROPERLY ALIGN THE RAILS BOTH HORIZONTALLY AND VERTICALLY. DO NOT WELD SUPPORT SYSTEM TO THE METALLIZED SURFACES OF THE STEEL RETAINER RAILS.
- 4. CONFLICTING REINFORCING STEEL MAY BE SHIFTED SLIGHTLY WHEN NECESSARY.
- 5. DECK SLAB CONCRETE PLACEMENT OPERATIONS SHALL COMMENCE PER THE POURING SEQUENCE AFTER FINAL JOINT ALIGNMENT IS SET.
- 6. PROTECT THE STEEL RETAINER RAILS FROM BEING FOULED BY CONCRETE SPILLOVER DURING THE DECK POUR.
- 7. LOOSEN THE STEEL RETAINER RAIL SUPPORT SYSTEM TO ALLOW MOVEMENT WHILE CONCRETE CURES.
- 8. RE-LEVEL AND RE-ALIGN STEEL RETAINER RAIL AS REQUIRED ON OPPOSITE SIDE OF JOINT.
- 9. PLACE DECK SLAB CONCRETE.
- 10. ONCE THE CONCRETE HAS HARDENED SUFFICIENTLY ON BOTH SIDES OF JOINT. STEEL RETAINER RAILS SHALL BE CLEANED THOROUGHLY AND SEAL CHANNELS SHALL BE INSPECTED TO ASCERTAIN THE ABSENCE OF CONCRETE AND DEBRIS.
- 11. COAT THE STRIP SEAL LUGS WITH LUBRICANT-ADHESIVE AND INSTALL THE NEOPRENE STRIP SEAL GLAND AS RECOMMENDED BY THE STRIP SEAL EXPANSION JOINT MANUFACTURER.



EXISTING CONCRETE TO BE REMOVED AS NECESSARY TO INSTALL STRIP SEAL EXPANSION JOINT SEAL. ANCHORS TO BE IMBEDDED IN SOUND CONCRETE BELOW TOP LAYER OF STEEL AS SHOWN. EXTRA REINFORCING STEEL #5 ``G'' BARS TO BE ADDED AS INDICATED ABOVE. THE COST OF THIS WORK, THE NEW CLASS AA CONCRETE, REINFORCING STEEL, AND EPOXY COATING OF ALL REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "CONCRETE WORK FOR JOINT REPLACEMENT."



	DIMENSION ``B''					
AR NG	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F			
	27⁄8''	2 ⁵ ⁄8''	1 ¹⁵ ⁄16′′			

GENERAL NOTES

FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.

FOR CONCRETE WORK FOR JOINT REPLACEMENT, SEE SPECIAL PROVISIONS.

STEEL RETAINER RAILS AND COVER PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR GRADE 50 STEEL.ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169. GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MIN.

ONLY STEEL RETAINER RAILS OF ONE-PIECE CONSTRUCTION ARE PERMITTED. STEEL RETAINER RAILS CONSISTING OF TWO OR MORE COMPONENTS WELDED TOGETHER TO OBTAIN THEIR FINAL CROSS-SECTIONAL SHAPE ARE NOT PERMITTED.

STUD ANCHORS SHALL BE SHOP WELDED AND SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.

SURFACES COMING IN CONTACT WITH STRIP SEAL GLAND SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.

UPON COMPLETION OF SHOP FABRICATION. THE STEEL RETAINER RAILS SHALL BE METALLIZED AS SHOWN IN THE "METALLIZING DETAIL". SEE SPECIAL PROVISIONS FOR THERMAL SPRAYED COATINGS (METALLIZATION).

INSTALLED STEEL RETAINER RAILS SHALL FOLLOW THE ROADWAY SLOPE.

FIELD SPLICES OF THE RETAINER RAILS SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL.FINISHED WELDS SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

NEOPRENE STRIP SEAL GLAND SHALL BE CONTINUOUS THROUGHOUT THE JOINT AND SHALL BE COMPATIBLE WITH THE STEEL RETAINER RAILS. FIELD SPLICING THE GLAND IS NOT PERMITTED.

NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.

THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE $\frac{3}{4}$ " Ø BOLT IS 10 KIPS.FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



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REPAIR QUANTITIES TABLE				
REPAIRS		QUANT	ITIES	
END BENT 1 & 2	ESTI	ΜΑΤΕ	ACT	UAL
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	1.0	0.5		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN.FT		LN.FT
САР	9.5			
COLUMN		0.0		

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

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITIES TABLE.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

REPAIR KEY

CONCRETE REPAIR AREA (FORM AND POUR)



SHOTCRETE REPAIR AREA

EPOXY RESIN INJECTION (ERI)

PROJECT NO. HI-0008 JOHNSTON COUNTY BRIDGE NO. 500106

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NOTES:





REPAIR QUANTITY TABLE				
		QUANT	ITIES	
BENII	EST	IMATE	ACT	UAL
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	1.0	0.5		
CAP (HORIZONTAL FACE)	8.0	4.0		
COLUMN	1.0	0.5		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	10.0	5.0		
CAP (HORIZONTAL FACE)	10.5	5.3		
COLUMN	0.0	0.0		
EPOXY RESIN INJECT	LF	LF	LF	
САР	2.5			
COLUMN	COLUMN			

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

ELEVATION (NORTH FACE)	PROJECT NO. <u>HI-0008</u> <u>JOHNSTON</u> county BRIDGE NO. <u>500106</u>
	SHEET 1 OF 5
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REPAIR QUANTITY TABLE				
DENT	QUANT	ITIES		
BENIZ	EST	IMATE	ACT	UAL
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.5	0.3		
COLUMN	3.0	1.5		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0			
EPOXY RESIN INJECTION			LF	LF
CAP	0.0			
COLUMN	2.0			





REPAIR QUANTITY TABLE				
	QUANT	ITIES		
BENT 3	EST	IMATE	ACT	UAL
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	1.0	0.5		
CAP (HORIZONTAL FACE)	0.6	0.3		
COLUMN	2.5	1.3		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE)	0.0	0.0		
COLUMN	0.0			
EPOXY RESIN INJECT	LF	LF	LF	
САР	5.0			
COLUMN	0.0			



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END VIEW (EAST FACE) SPAN E SPAN D

REPAIR KEY



CONCRETE REPAIR AREA (FORM AND POUR)



SHOTCRETE REPAIR AREA

EPOXY RESIN INJECTION (ERI)

REPAIR QUANTITY TABLE						
QU			QUANTITIES			
BENI 4	EST	IMATE	ACT	UAL		
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF		
CAP (VERTICAL FACE)	6.0	3.0				
CAP (HORIZONTAL FACE)	0.0	0.0				
COLUMN	0.0	0.0				
CONCRETE REPAIR						
CAP (VERTICAL FACE)	0.0	0.0				
CAP (HORIZONTAL FACE)	1.0	0.5				
COLUMN	0.0					
EPOXY RESIN INJECT	LF	LF	LF			
САР	0.0					
COLUMN	0.0					

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



REPAIR QUANTITY TABLE				
		QUANT	ITIES	
BENI 5	EST	IMATE	ACT	UAL
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	3.5	1.8		
CAP (HORIZONTAL FACE)	1.0	0.5		
COLUMN	3.5	1.8		
CONCRETE REPAIR				
CAP (VERTICAL FACE)	10.5	5.3		
CAP (HORIZONTAL FACE)	3.8	1.9		
COLUMN	0.0			
EPOXY RESIN INJECT	LF	LF	LF	
САР	0.0			
COLUMN	0.0			



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REPAIR KEY

SECTION A-A

CAP REPAIR

SHOTCRETE REPAIR AREA

EPOXY RESIN INJECTION (ERI)

CONCRETE REPAIR AREA (FORM AND POUR)







PEDESTAL	WALL	REPAIR

ELEVATION

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

NOTES

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

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

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

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

NO MORE THAN ONE-THIRD OF THE CAP OR COLUMN CIRCUMFERENCE SHALL BE REMOVED AT ONE TIME.SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 30% OF A CAP OR COLUMN CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, BUT NO MORE THAN 3 OF THE CIRCUMFERENCE SHALL BE REMOVED AT ONE TIME. IF REMOVAL EXTENDS MORE THAN 11/2 "BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING. ON COLUMNS AND PILES, NO MORE THAN 10 VERTICAL FEET MAY BE EXPOSED AT ONE TIME BEFORE PLACEMENT OF REPAIR CONCRETE.

REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE PATCH SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.

THE #4 ``U'' DOWELS ARE REQUIRED ONLY AROUND THE ANCHOR BOLTS. THE EXISTING REINFORCING STEEL IN THE PEDESTAL WALL SHALL BE CLEANED, STRAIGHTENED AND REMAIN IN PLACE.

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

COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING, OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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

CLEAN ALL EXPOSED REINFORCING BARS AND PRESTRESSED STRANDS IN ACCORDANCE WITH APPROPRIATE SPECIAL PROVISIONS.FOR BARS WITH MORE THAN 10% SECTION LOSS, SPLICE AND SECURELY TIE SUPPLEMENTAL REINFORCING BARS AS NEEDED.NOTE AND PROVIDE DETAILED DOCUMENTATION, INCLUDING LOCATION AND SEVERITY, OF ALL DAMAGE TO PRESTRESSED STRANDS THAT EXCEEDS 10% SECTION LOSS. IF FIVE OR MORE STRANDS ARE DAMAGED, NOTIFY THE ENGINEER PRIOR TO PLACEMENT OF REPAIR MATERIAL.

PROJ. NO. <u>HI-0008</u>

JOHNSTON COUNTY

BRIDGE NO. 500106



	1" (MIN.) THICK STEEL PLATES NEEDED TO DISTRIBUTE THE LOAD (REQUIRED AT TOP OF JACK AND AGAINST
	BENT CAP)
	LOCA
	BEN BEN BEN

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SECTION THRU DIAPHRAGM

	BR.	IDGE J	ACKING TAB	LE
ON	SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)
1	А	2,3,5	TYPE I	
4	E	4	TYPE I	
5	F	4,5	TYPE I	

BRIDGE JACKING NOTES:

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

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

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

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

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

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

THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED IS ${}^{\prime\prime}_{8}{}^{\prime\prime}.$

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

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

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

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

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

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

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

PROJ. NO. <u>HI-0008</u>

JOHNSTON COUNTY

BRIDGE NO. 500106

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD

BRIDGE JACKING DETAILS

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SIGNATURES COMPLETED	2			4			48



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SCOPE OF WORK

- PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION SHOT-BLASTING METHODS.
- DEMOLISH AND REMOVE EXISTING BRIDGE DECK JOINTS.
- PERFORM CONCRETE DECK REPAIRS IN PREPARED AREAS.
- OVERLAY PREPARED BRIDGE DECK WITH POLYMER CONCRETE.
- RECONSTRUCT BRIDGE JOINTS AND INSTALL STRIP SEAL EXPANSION JOINTS AND POURABLE SILICONE JOINT SEALS.
- GROOVE CONCRETE BRIDGE DECK.
- REPAIR SUBSTRUCTURE USING EPOXY RESIN INJECTION, CONCRETE AND SHOTCRETE.
- CLEAN AND PAINT EXISTING STRUCTURAL STEEL BEAMS.

NOTES

- PROFILE INFORMATION IS TAKEN FROM ORIGINAL PLANS, WIDENING PLANS, AND INSPECTION REPORT DATED 04/16/2020.
- BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.
- FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK AND CLASS II SURFACE PREPARATION, SEE OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE SPECIAL PROVISION.

I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer

Date

TO SR 1001

-FILL FACE @ END BENT 2

	PROJECT NO. <u>HI-0008</u> <u>JOHNSTON</u> COUNTY BRIDGE NO. <u>500107</u>
SEAL 29441 W. ALTING Maty R. W. ayun F2458389300EF40E	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH GENERAL DRAWING FOR BRIDGE 107 ON I-95 SOUTHBOUND OVER NORFOLK SOUTHERN RAILWAY, SR 2305 AND SR 1927
8/5/2021	REVISIONS SHEET NO.
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SIGNATURES COMPLETED	②



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POLYMER CONCRETE OVERLAY DETAIL
N OF
EXISTING BRIDGE
GED POLYMER CONCRETE OVERLAY JOINT (AS NEEDED)
PROJECT NO. <u>HI-0008</u> <u>JOHNSTON</u> COUNTY BRIDGE NO. <u>500107</u>
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH TYPICAL SECTION & POLYMER CONCRETE (PC) OVERLAY DETAILS
BDA094AED5104FD 8/5/2021 REVISIONS SHEET NO. DOCUMENT NOT CONSIDERED NO. BY: DATE: NO. BY: DATE: SIGNATURES COMPLETED TOTAL SIGNATURES COMPLETED 2 4 48

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

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SUMMARY OF QUANTITIES FOR SPAN A AND APPROACH SLAB 1

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	288 SY	
POLYESTER POLYMER CONCRETE MATERIALS	16.1 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	16.1 CY	
SHOTBLASTING BRIDGE DECK	288 SY	
PLACING & FINISHING PC OVERLAY	288 SY	
CLASS II SURFACE PREPARATION	10.0 SY	
GROOVING BRIDGE DECK	2379 SF	

NOTES:

PROVISIONS.

REPAIR LOCATIONS AND ESTIMATED QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN IN DRAWINGS ARE DEEMED NECESSARY BY ENGINEER, THE ENGINEER WILL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO SUMMARY OF REPAIR QUANTITIES TABLE. FOR POLYMER CONCRETE BRIDGE DECK OVERLAY, SEE SPECIAL

FOR OVERLAY SURFACE PREPARATION FOR POLYMER CONCRETE, SEE SPECIAL PROVISIONS.

POURABLE SILICONE JOINT SEALS SHALL NOT BE INSTALLED UNTIL THE OVERLAY IS COMPLETE.

FOR CONCRETE WORK FOR JOINT REPLACEMENT, SEE SPECIAL PROVISIONS.

REPAIR KEY

- APPROX.AREA CLASS II SURFACE PREPARATION

	PROJEC	T NO.	<u> </u>	<u>I-000</u>	8
	J	<u>OHNS</u>	TON	CO	UNTY
	BRIDGE	E NO	50	0107	
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DRAWN BY :	G. AYES	DATE : 05/2021
CHECKED BY :	S. WANCE	DATE : <u>07/2021</u>

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PLAN OF SPAN B

(SEE SHEET S2-11 FOR SECTIONS B-B)

SUMMARY OF QUANTITIES FOR SPAN B

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	310 SY	
POLYESTER POLYMER CONCRETE MATERIALS	17.3 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	17.3 CY	
SHOTBLASTING BRIDGE DECK	310 SY	
PLACING & FINISHING PC OVERLAY	310 SY	
CLASS II SURFACE PREPARATION	2.3 SY	
GROOVING BRIDGE DECK	2578 SF	

NOTES:

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

- APPROX.AREA CLASS II SURFACE PREPARATION

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HECKED BY	S. WANCE	DATE	:	07/2021

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SUMMARY OF QUANTITIES FOR SPAN C

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	503 SY	
POLYESTER POLYMER CONCRETE MATERIALS	28.0 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	28.0 CY	
SHOTBLASTING BRIDGE DECK	503 SY	
PLACING & FINISHING PC OVERLAY	503 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
GROOVING BRIDGE DECK	4201 SF	

NOTES:

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

- APPROX.AREA CLASS II SURFACE PREPARATION

	PROJEC J BRIDGE	CT NO. <u>OHNS</u> E NO	<u>H</u> TON 50	<u>E-000</u> co 0107	8 UNTY
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					TION
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SUMMARY OF QUANTITIES FOR SPAN D

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	232 SY	
POLYESTER POLYMER CONCRETE MATERIALS	12.7 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	12.7 CY	
SHOTBLASTING BRIDGE DECK	232 SY	
PLACING & FINISHING PC OVERLAY	232 SY	
CLASS II SURFACE PREPARATION	0.0 SY	
GROOVING BRIDGE DECK	1939 SF	
CONCRETE WORK FOR JOINT REPLACEMENT	50.3 SF	

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

REPAIR KEY

- APPROX.AREA CLASS II SURFACE PREPARATION

- CONCRETE WORK FOR JOINT REPLACEMENT

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SUMMARY OF QUANTITIES FOR SPAN E

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	277 SY	
POLYESTER POLYMER CONCRETE MATERIALS	15 . 5 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	15 . 5 CY	
SHOTBLASTING BRIDGE DECK	277 SY	
PLACING & FINISHING PC OVERLAY	277 SY	
CLASS II SURFACE PREPARATION	1.1 SY	
GROOVING BRIDGE DECK	2307 SF	
CONCRETE WORK FOR JOINT REPLACEMENT	50.3 SF	

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SUMMARY OF QUANTITIES FOR SPAN F AND APPROACH SLAB 2

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	288 SY	
POLYESTER POLYMER CONCRETE MATERIALS	16.1 CY	
EPOXY POLYMER CONCRETE MATERIALS (ALTERNATE)	16.1 CY	
SHOTBLASTING BRIDGE DECK	288 SY	
PLACING & FINISHING PC OVERLAY	288 SY	
CLASS II SURFACE PREPARATION	13.3 SY	
GROOVING BRIDGE DECK	2381 SF	

NOTES:

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

SCARIFYING AND SHOTBLASTING OF BRIDGE DECK FOR PC OVERLAY

- APPROX.AREA CLASS II SURFACE PREPARATION

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REPAIR KEY

DIAPHRAGM REPAIR

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UNDERSIDE OF DECK REPAIR

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EPOXY RESIN INJECTION (ERI)

DRAWN BY :	G. AYES	DATE : 07/2021
CHECKED BY :	S. WANCE	DATE : <u>07/2021</u>

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

FOR OVERHANG AND DIAPHRAGM SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITIES TABLE					
		QUAN	TITIES		
UNDERSIDE OF DECK	EST	IMATE	ACT	UAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF	
UNDERSIDE OF DECK	2.0	0.7			
BENT DIAPHRAGMS	1.2	0.4			
EPOXY RESIN INJECTION		LF	L	F	
UNDERSIDE OF DECK	0.0				
BENT DIAPHRAGMS		3.2			

REPAIR KEY

DIAPHRAGM REPAIR

UNDERSIDE OF DECK REPAIR

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EPOXY RESIN INJECTION (ERI)

G. AYES	DATE : <u>07/2021</u>
S. WANCE	DATE : <u>07/2021</u>
	G. AYES S. WANCE

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REPAIR QUANTITIES TABLE					
		QUANT	ITIES		
UNDERSIDE OF DECK	EST	IMATE	ACT	UAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF	
UNDERSIDE OF DECK	5.0	1.7			
BENT DIAPHRAGMS	10.0	3.4			
EPOXY RESIN INJECTION		LF	L	F	
UNDERSIDE OF DECK	0.0				
BENT DIAPHRAGMS		0.0			

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

CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL.IF ACTUAL JOINT OPENINGS VARIES FROM THE OPENING INDICATED IN DETAIL MORE THAN 1/2" NOTIFY ENGINEER. REVISION TO THE JOINT SEAL SIZE MAY BE

THE CONTRACTOR SHALL TAKE CARE DURING JOINT REHAB OPERATIONS NOT TO DROP ANY MATERIAL BELOW THE BRIDGE WITHOUT PROTECTIVE DEVICES BELOW TO CATCH THE MATERIAL ANY MATERIAL THAT FALLS BELOW THE BRIDGE SHALL BE CONTAINED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO EXTRA COST TO THE DEPARTMENT. IF THE ENGINEER DETERMINES THAT THE PROTECTIVE DEVICES ARE NOT ADEQUATE OR NOT BEING EMPLOYED, THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED.

UNLESS NOTED OTHERWISE RETAIN ALL EXISTING REINFORCING STEEL.CLEAN AND REPAIR

ALL EXPOSED ENDS OF CUT BARS SHALL BE COATED WITH EPOXY PRIOR TO THE NEW JOINT

THE CONTRACTOR WILL NOT BE PERMITTED TO FORM THE JOINTS IN LIEU OF SAWING THE

FOR POURABLE SILICONE EXPANSION JOINT SEALS, SEE SPECIAL PROVISIONS.

SILICONE JOINT SEALANT AND BACKER ROD SHALL BE INSTALLED AS PER MANUFACTURER'S

THE INSTALLATION OF JOINT SEAL SHALL BE WATERTIGHT.

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

DURING JOINT INSTALLATION PROCEDURE, THE JOINT AND SURROUNDING AREA HALL BE KEPT CLEAN AND FREE OF DEBRIS.

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

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JANTITIES			PR(JJEC	I NO.			-000	<u> </u>
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JOINT INSTALLATION PROCEDURE:

- 1. INSTALL THE STRIP SEAL EXPANSION JOINT AS RECOMMENDED BY THE MANUFACTURER.
- 2. A MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT DURING INSTALLATION OF THE JOINT.
- 3. PLACE STEEL RETAINER RAILS IN JOINT OPENING. PROPERLY ALIGN THE RAILS BOTH HORIZONTALLY AND VERTICALLY. DO NOT WELD SUPPORT SYSTEM TO THE METALLIZED SURFACES OF THE STEEL RETAINER RAILS.
- 4. CONFLICTING REINFORCING STEEL MAY BE SHIFTED SLIGHTLY WHEN NECESSARY.
- 5. DECK SLAB CONCRETE PLACEMENT OPERATIONS SHALL COMMENCE PER THE POURING SEQUENCE AFTER FINAL JOINT ALIGNMENT IS SET.
- 6. PROTECT THE STEEL RETAINER RAILS FROM BEING FOULED BY CONCRETE SPILLOVER DURING THE DECK POUR.
- 7. LOOSEN THE STEEL RETAINER RAIL SUPPORT SYSTEM TO ALLOW MOVEMENT WHILE CONCRETE CURES.
- 8. RE-LEVEL AND RE-ALIGN STEEL RETAINER RAIL AS REQUIRED ON OPPOSITE SIDE OF JOINT.
- 9. PLACE DECK SLAB CONCRETE.
- 10. ONCE THE CONCRETE HAS HARDENED SUFFICIENTLY ON BOTH SIDES OF JOINT. STEEL RETAINER RAILS SHALL BE CLEANED THOROUGHLY AND SEAL CHANNELS SHALL BE INSPECTED TO ASCERTAIN THE ABSENCE OF CONCRETE AND DEBRIS.
- 11. COAT THE STRIP SEAL LUGS WITH LUBRICANT-ADHESIVE AND INSTALL THE NEOPRENE STRIP SEAL GLAND AS RECOMMENDED BY THE STRIP SEAL EXPANSION JOINT MANUFACTURER.

EXISTING CONCRETE TO BE REMOVED AS NECESSARY TO INSTALL STRIP SEAL EXPANSION JOINT SEAL. ANCHORS TO BE IMBEDDED IN SOUND CONCRETE BELOW TOP LAYER OF STEEL AS SHOWN. EXTRA REINFORCING STEEL #5 ``G'' BARS TO BE ADDED AS INDICATED ABOVE. THE COST OF THIS WORK, THE NEW CLASS AA CONCRETE, REINFORCING STEEL, AND EPOXY COATING OF ALL REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "CONCRETE WORK FOR JOINT REPLACEMENT."

	DIMENSION ``B''					
AR NG	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F			
	2 7⁄ 8''	2 ⁵ ⁄8''	1 ¹⁵ / ₁₆ ′′			

IF ACTUAL OFFSET IS GREATER ADJUST

GENERAL NOTES

FOR STRIP SEAL EXPANSION JOINTS, SEE SPECIAL PROVISIONS.

FOR CONCRETE WORK FOR JOINT REPLACEMENT, SEE SPECIAL PROVISIONS.

STEEL RETAINER RAILS AND COVER PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR GRADE 50 STEEL.ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169. GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSED END AND SHALL CONFORM TO AASHTO M169, GRADE 12L14. TENSILE CAPACITY SHALL BE 3000 LBS. MIN.

ONLY STEEL RETAINER RAILS OF ONE-PIECE CONSTRUCTION ARE PERMITTED. STEEL RETAINER RAILS CONSISTING OF TWO OR MORE COMPONENTS WELDED TOGETHER TO OBTAIN THEIR FINAL CROSS-SECTIONAL SHAPE ARE NOT PERMITTED.

STUD ANCHORS SHALL BE SHOP WELDED AND SHALL BE ELECTRIC ARC END WELDED WITH COMPLETE FUSION.

SURFACES COMING IN CONTACT WITH STRIP SEAL GLAND SHALL BE GROUND SMOOTH PRIOR TO METALLIZING.

UPON COMPLETION OF SHOP FABRICATION. THE STEEL RETAINER RAILS SHALL BE METALLIZED AS SHOWN IN THE "METALLIZING DETAIL". SEE SPECIAL PROVISIONS FOR THERMAL SPRAYED COATINGS (METALLIZATION).

INSTALLED STEEL RETAINER RAILS SHALL FOLLOW THE ROADWAY SLOPE.

FIELD SPLICES OF THE RETAINER RAILS SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL.FINISHED WELDS SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR THERMAL SPRAYED COATINGS (METALLIZATION).

NEOPRENE STRIP SEAL GLAND SHALL BE CONTINUOUS THROUGHOUT THE JOINT AND SHALL BE COMPATIBLE WITH THE STEEL RETAINER RAILS. FIELD SPLICING THE GLAND IS NOT PERMITTED.

NO ALTERNATE JOINT DETAILS SHALL BE PERMITTED IN LIEU OF THOSE SHOWN ON THESE PLANS.

THE COVER PLATES SHALL BE GALVANIZED OR METALLIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE $\frac{3}{4}$ " Ø BOLT IS 10 KIPS.FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

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REPAIR QUANTITY TABLE				
REPAIRS		QUANT	ITIES	
END BENT 1 & 2	ESTI	ΜΑΤΕ	ACT	UAL
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	7.0	3.5		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN.FT		LN.FT
САР		7.0		
COLUMN		0.0		

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

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE BASED ON THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATIONS AND DESCRIPTION OF THE REPAIRS AND ENTER THE ACTUAL QUANTITIES INTO THE REPAIR QUANTITIES TABLE.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

REPAIR KEY

CONCRETE REPAIR AREA (FORM AND POUR)

SHOTCRETE REPAIR AREA

EPOXY RESIN INJECTION (ERI)

PROJECT NO. <u>HI-0008</u> JOHNSTON COUNTY BRIDGE NO. 500107

(SOUTH FACE)

REPAIR QUANTITY TABLE					
		QUAN	TITIES		
BENII	EST	IMATE	ACT	UAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF	
CAP (VERTICAL FACE)	1.3	0.7			
CAP (HORIZONTAL FACE)	0.0	0.0			
COLUMN	7.0	3.5			
CONCRETE REPAIR					
CAP (VERTICAL FACE)	3.9	2.0			
CAP (HORIZONTAL FACE)	5.1	2.6			
COLUMN	0.0	0.0			
EPOXY RESIN INJECT	LF	LF	LF		
САР	4.0				
COLUMN		0.0			

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

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REPAIR QUANTITY TABLE					
		QUANT	ITIES		
BENI 2	EST	IMATE	ACT	UAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF	
CAP (VERTICAL FACE)	0.0	0.0			
CAP (HORIZONTAL FACE)	0.0	0.0			
COLUMN	3.0	1.5			
CONCRETE REPAIR					
CAP (VERTICAL FACE)	0.0	0.0			
CAP (HORIZONTAL FACE)	0.0	0.0			
COLUMN	0.0	0.0			
EPOXY RESIN INJECT	LF	LF	LF		
САР	0.0				
COLUMN		5.0			

REPAIR QUANTITY TABLE					
			QUANTITIES		
BENI 3	EST	IMATE	ACT	UAL	
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF	
CAP (VERTICAL FACE)	0.0	0.0			
CAP (HORIZONTAL FACE)	0.0	0.0			
COLUMN	0.0	0.0			
CONCRETE REPAIR					
CAP (VERTICAL FACE)	0.0	0.0			
CAP (HORIZONTAL FACE)	0.0	0.0			
COLUMN	0.0	0.0			
EPOXY RESIN INJECT	LF	LF	LF		
CAP	0.0				
COLUMN		0.0			

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

	PROJEC J BRIDGE SHEET 3 C	CT NO. OHNS E NO df 5	<u></u>	<u>+I-000</u> cc 00107)8)UNTY	
ACT ALDRALA BDA094AED5104FD 8/5/2021	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH SUBSTRUCTURE BENT 3					
0, 3, 2022		REVI	SIONS		SHEET NO.	
OCUMENT NOT CONSTDERED	NO. BY:	DATE:	NO. BY:	DATE:	S2-17	
FINAL UNLESS ALL	1		3		TOTAL SHEETS	
SIGNATURES COMPLETED	2		4 }		48	

REPAIR QUANTITY TABLE							
		QUAN	TITIES				
BENI 4	EST	IMATE	ACT	UAL			
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF			
CAP (VERTICAL FACE)	2.5	1.3					
CAP (HORIZONTAL FACE)	0.0	0.0					
COLUMN	6.0	3.0					
CONCRETE REPAIR							
CAP (VERTICAL FACE)	0.0	0.0					
CAP (HORIZONTAL FACE)	0.0	0.0					
COLUMN	0.0	0.0					
EPOXY RESIN INJECT	LF	LF	LF				
САР	7.5						
COLUMN		2.0					

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

		ROJEC J RIDGE	CT NO. OHNS E NO of 5	•	H] 0N 50	<u>-000</u> co 0107	8 UNTY
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REPAIR QUANTITY TABLE						
	QUANT	TITIES				
BENI 5	EST	IMATE	ACT	UAL		
SHOTCRETE REPAIR	AREA SF	VOLUME CF	AREA SF	VOLUME CF		
CAP (VERTICAL FACE)	0.0	0.0				
CAP (HORIZONTAL FACE)	0.0	0.0				
COLUMN	5.0	2.5				
CONCRETE REPAIR						
CAP (VERTICAL FACE)	0.0	0.0				
CAP (HORIZONTAL FACE)	0.0	0.0				
COLUMN	0.0	0.0				
EPOXY RESIN INJECT	LF	LF	LF			
САР	0.0					
COLUMN		0.0				

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

	PROJE(J	CT NO. OHNS	T	HI ON	<u>-000</u>	8 UNTY		
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		REVIS		NS		SHEET NO.		
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REPAIR KEY

SECTION A-A

CAP REPAIR

SHOTCRETE REPAIR AREA

EPOXY RESIN INJECTION (ERI)

CONCRETE REPAIR AREA (FORM AND POUR)

PEDESTAL	WALL	REPAIR

ELEVATION

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

NOTES

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

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

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

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

NO MORE THAN ONE-THIRD OF THE CAP OR COLUMN CIRCUMFERENCE SHALL BE REMOVED AT ONE TIME. SHOULD IT BECOME NECESSARY TO REMOVE MORE THAN 30% OF A CAP OR COLUMN CROSS SECTIONAL AREA, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, BUT NO MORE THAN ½ OF THE CIRCUMFERENCE SHALL BE REMOVED AT ONE TIME. IF REMOVAL EXTENDS MORE THAN 11/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING. ON COLUMNS AND PILES, NO MORE THAN 10 VERTICAL FEET MAY BE EXPOSED AT ONE TIME BEFORE PLACEMENT OF REPAIR CONCRETE.

REINFORCING STEEL WHICH IS DETERMINED BY THE ENGINEER TO BE REPLACED, SHALL BE REMOVED TO A POINT WHERE IT IS SOUND. THE PATCH SHALL EXTEND A SUFFICIENT DISTANCE BEYOND THIS POINT TO DEVELOP A SPLICE LENGTH SPECIFIED IN THE TABLE ON THIS SHEET.

THE #4 "U" DOWELS ARE REQUIRED ONLY AROUND THE ANCHOR BOLTS. THE EXISTING REINFORCING STEEL IN THE PEDESTAL WALL SHALL BE CLEANED, STRAIGHTENED AND REMAIN IN PLACE.

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

COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING. OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING. SEE SPECIAL PROVISIONS.

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

CLEAN ALL EXPOSED REINFORCING BARS AND PRESTRESSED STRANDS IN ACCORDANCE WITH APPROPRIATE SPECIAL PROVISIONS.FOR BARS WITH MORE THAN 10% SECTION LOSS, SPLICE AND SECURELY TIE SUPPLEMENTAL REINFORCING BARS AS NEEDED. NOTE AND PROVIDE DETAILED DOCUMENTATION, INCLUDING LOCATION AND SEVERITY, OF ALL DAMAGE TO PRESTRESSED STRANDS THAT EXCEEDS 10% SECTION LOSS. IF FIVE OR MORE STRANDS ARE DAMAGED, NOTIFY THE ENGINEER PRIOR TO PLACEMENT OF REPAIR MATERIAL.

	PROJ.N J BRIDGE	NO OHNS E NO	<u>HI</u> TON 50	<u>-0008</u> co 20107	<u>}</u> UNTY
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FINAL UNLESS ALL	1		3		TOTAL SHEETS
SIGNATURES COMPLETED	2		A		48

	D (I	1" (MIN.) THICK STEEL PLATES NEEDED TO ISTRIBUTE THE LOAD REQUIRED AT TOP OF JACK AND AGAINST BENT CAP)
		LOC

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SECTION THRU DIAPHRAGM

	BR.	IDGE J	ACKING TAB	LE
ON	SPAN	BEAM(S)	BRIDGE JACKING TYPE	DEAD LOAD (DC+DW) (KIPS)
1	Α	6	TYPE I	

BRIDGE JACKING NOTES:

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

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

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

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

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

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

THE MAXIMUM DIFFERENTIAL BETWEEN ADJACENT BEAMS THAT ARE BEING JACKED IS ${}^{\prime\prime}_{8}{}^{\prime\prime}.$

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

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

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

FOR WORKING DRAWING SUBMITTALS, SEE SPECIAL PROVISIONS.

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

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

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

PROJ. NO. <u>HI-0008</u>

JOHNSTON COUNTY

BRIDGE NO. 500107

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD

BRIDGE JACKING DETAILS

		REVISIONS					SHEET NO.
DOCUMENT NOT CONSTDERED	NO.	BY:	DATE:	NO.	BY:	DATE:	S2-21
FINAL UNLESS ALL	1			3			TOTAL SHEETS
SIGNATURES COMPLETED	2			4			48

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	REPAIR QU	ANTI	ΓΥ ΤΑΕ	BLE					
	SLOPE PROTECTION @ BRIDGES 500106 & 500107	SLO PROTE VOID F	OPE CTION ILLING	POURABLE SILICONE JOINT SEALANT					
		LI	35	LN.	FT.				
		ESTIMATE	ACTUAL	ESTIMATE	ACTUAL				
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PROJECT NO. <u>HI-0008</u> <u>JOHNSTON</u> county Station: 500106, 500107									
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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 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 1/2" 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.

STANDARD NOTES

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 $\frac{7}{8}$ " Ø SHEAR STUDS FOR THE ¾″Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{1}{8}$ " Ø STUDS FOR 4 - $\frac{3}{4}$ " Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " Ø STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " Ø STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " Ø STUDS FOR 4 - $\frac{3}{4}$ " Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-O".

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

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES.ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY VIGINCH 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