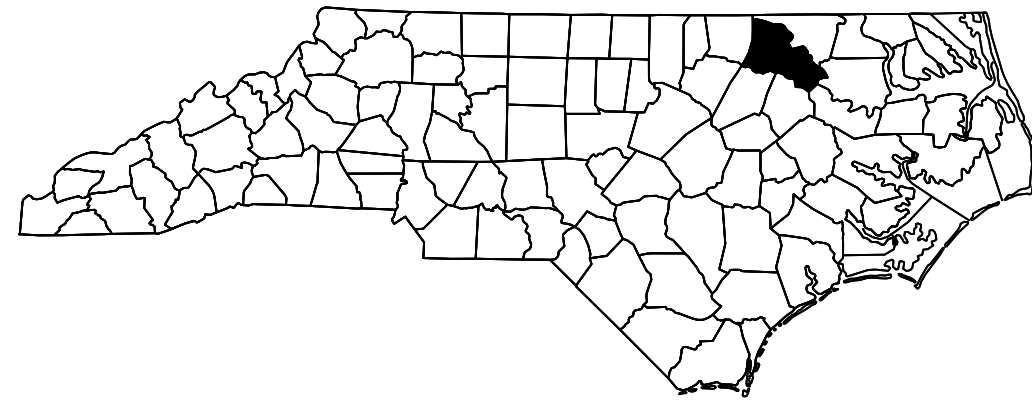


PROJECT: 15BPR.17

CONTRACT: C204213

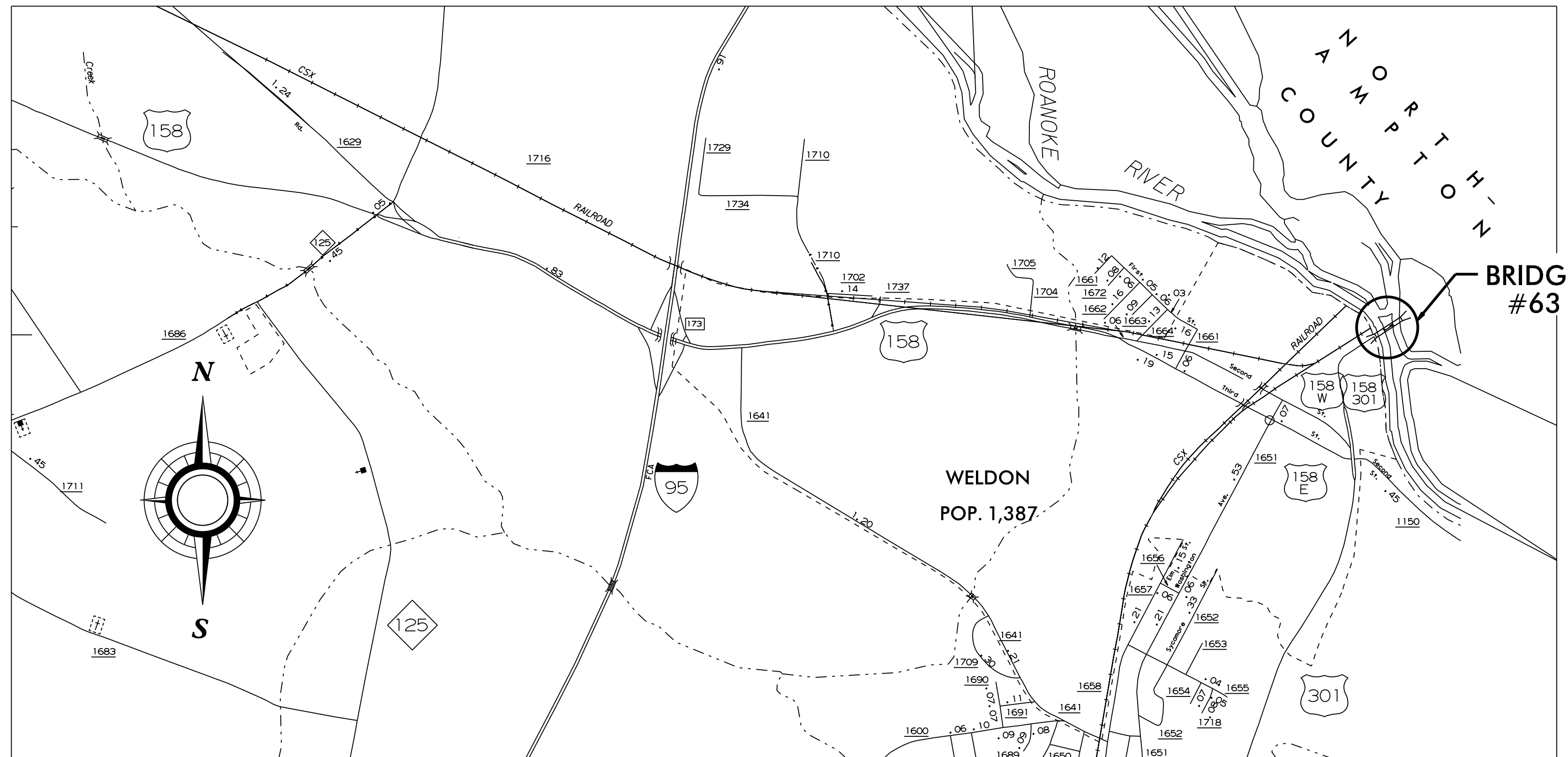


STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
HALIFAX COUNTY

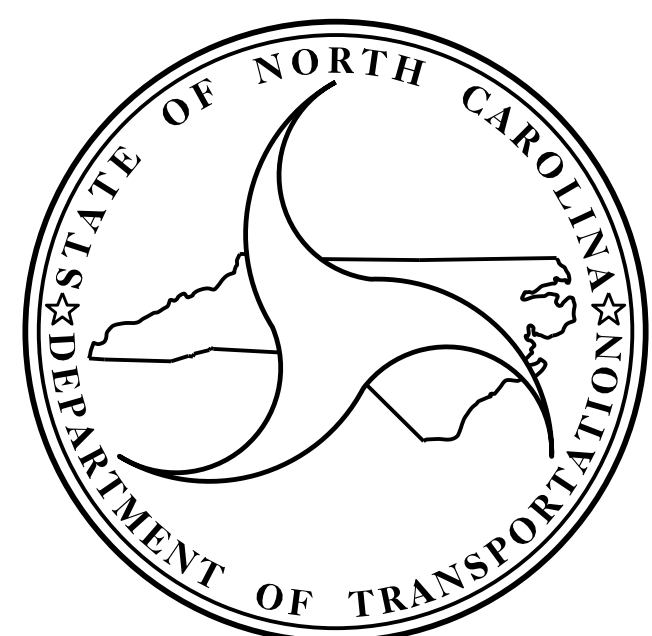
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.17	1	30
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.17		P.E.	
15BPR.17		CONST.	

LOCATION: BRIDGE #410063 ON US 158 /US 301 OVER ROANOKE RIVER.

TYPE OF WORK: CONCRETE BRIDGE DECK REHABILITATION BY SCARIFICATION, HYDRO-DEMOLITION, LATEX MODIFIED CONCRETE; DEMOLITION AND RECONSTRUCTION OF BRIDGE DECK JOINTS AND SEALS; CLEANING AND PAINTING WEATHERING STEEL BEAM ENDS AND BEARINGS; SUBSTRUCTURE CONCRETE REPAIRS WITH SHOTCRETE, EPOXY RESIN INJECTION AND EPOXY COATING OF TOP OF SUBSTRUCTURE CAPS.



VICINITY MAP : HALIFAX COUNTY



DESIGN DATA
 HALIFAX COUNTY

BRIDGE #63 ADT 2015 = 8,000

PROJECT LENGTH

BRIDGE #63 = 0.144 MILES

Prepared in the Office of:
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
 STRUCTURES MANAGEMENT UNIT
 1000 BIRCH RIDGE DR. RALEIGH, N.C. 27610

KRISTY W. ALFORD, P.E.
 PROJECT ENGINEER

2018 STANDARD SPECIFICATIONS

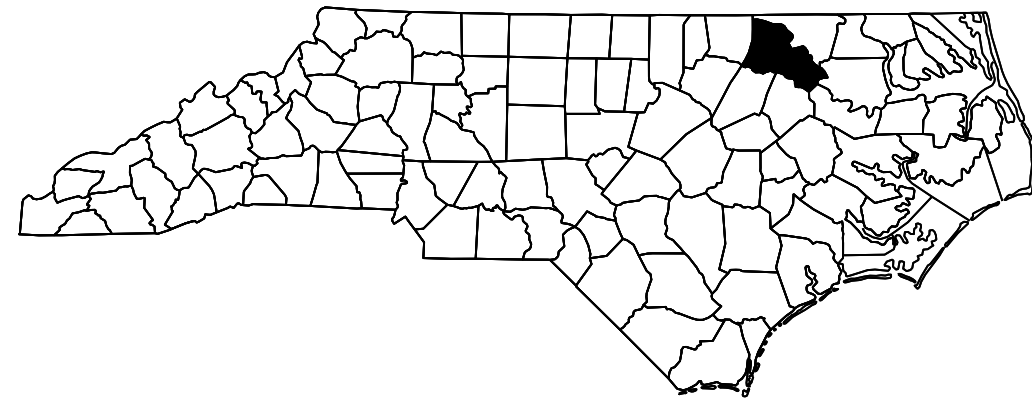
LETTING DATE:
 NOVEMBER 17, 2020



ASTER G. ABRAHA, P.E.
 PROJECT DESIGN ENGINEER

PROJECT: 15BPR.17

CONTRACT: C204213



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HALIFAX COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.17	1A	30
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.17		P.E.	
15BPR.17		CONST.	

LOCATION: BRIDGE #63 ON US 158 /US 301 OVER ROANOKE RIVER.

TYPE OF WORK: CONCRETE BRIDGE DECK REHABILITATION BY SCARIFICATION, HYDRO-DEMOLITION, LATEX MODIFIED CONCRETE; DEMOLITION AND RECONSTRUCTION OF BRIDGE DECK JOINTS AND SEALS; CLEANING AND PAINTING WEATHERING STEEL BEAM ENDS AND BEARINGS; SUBSTRUCTURE CONCRETE REPAIRS WITH SHOTCRETE, EPOXY RESIN INJECTION AND EPOXY COATING OF TOP OF SUBSTRUCTURE CAPS.

INDEX OF SHEETS

SHEET NO.

1
1A
S-1 THRU S-21
SN
TMP-1 THRU TMP-6

DESCRIPTION

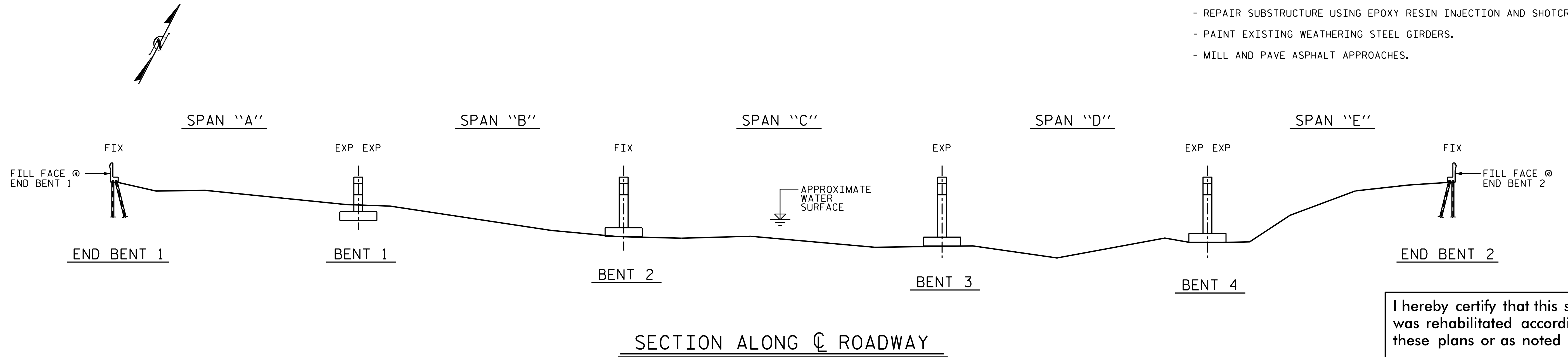
TITLE SHEET
INDEX OF SHEETS
HALIFAX #63 STRUCTURAL PLANS
STANDARD NOTES
TRAFFIC MANAGEMENT PLANS

NOTES

- PROFILE INFORMATION IS TAKEN FROM ORIGINAL PLANS AND ROUTINE INSPECTION REPORT DATED, JANUARY 18, 2017.
- BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

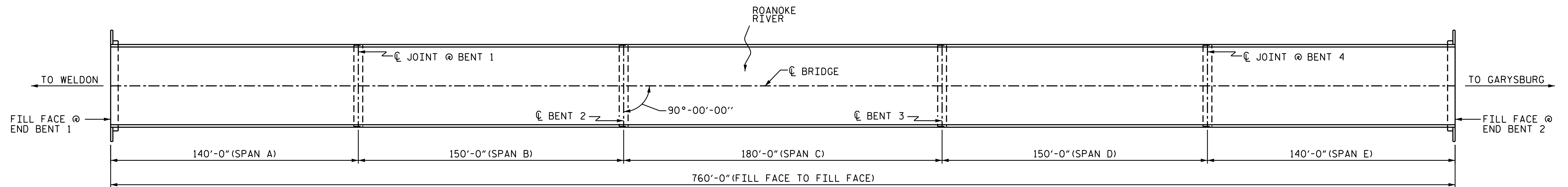
SCOPE OF WORK

- PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND HYDRO-DEMOLITION METHODS.
- DEMOLISH EXISTING BRIDGE DECK JOINTS.
- PERFORM DECK REPAIRS IN PREPARED AREAS.
- OVERLAY PREPARED BRIDGE DECK WITH LATEX MODIFIED CONCRETE.
- RECONSTRUCT BRIDGE JOINTS AND INSTALL STRIP SEALS AND POURABLE SILICONE JOINT SEALANT.
- GROOVE CONCRETE BRIDGE DECK.
- REPAIR SUBSTRUCTURE USING EPOXY RESIN INJECTION AND SHOTCRETE.
- PAINT EXISTING WEATHERING STEEL GIRDERS.
- MILL AND PAVE ASPHALT APPROACHES.



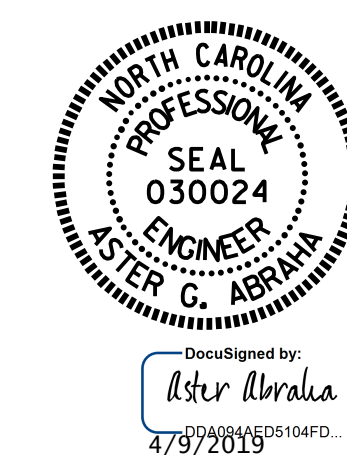
I hereby certify that this structure was rehabilitated according to these plans or as noted therein.

Resident Engineer _____ Date _____



PLAN
(COLUMNS & FOOTINGS NOT SHOWN IN PLAN VIEW FOR CLARITY)

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 410063
 SHEET 1 OF 2

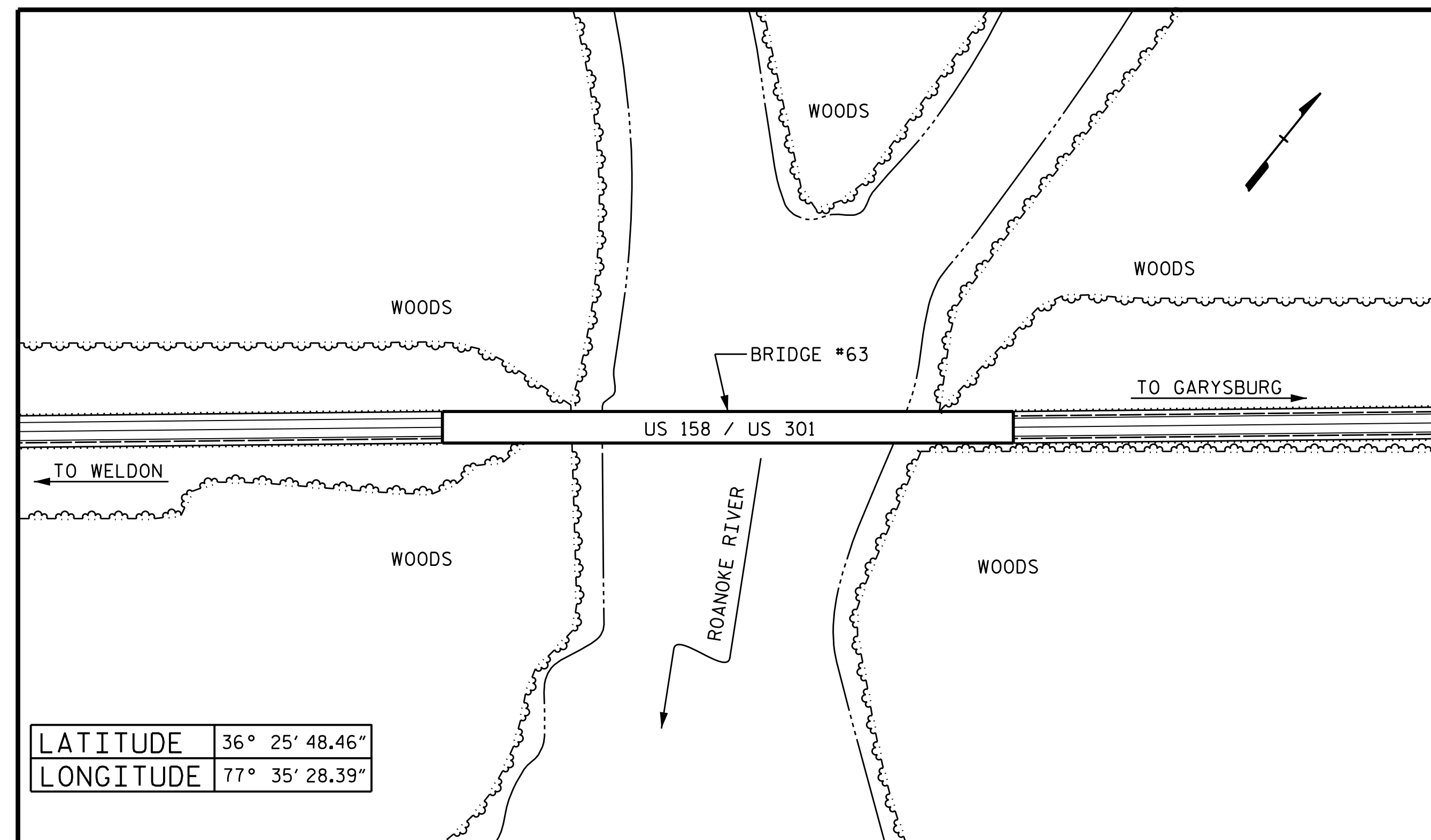


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE 63 ON
 US 158 / US 301
 OVER THE ROANOKE RIVER

DRAWN BY : S. T. SANDOR DATE : 01/2018
 CHECKED BY : M. K. BEARD DATE : 05/02/18

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			21



LATITUDE 36° 25' 48.46"
 LONGITUDE 77° 35' 28.39"

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.

NOTES:

- REPAIR LOCATION AND ESTIMATES OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN IN THE DRAWINGS ARE 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 THE PLANS AND NOTIFY THE ENGINEER IF ACTUAL DIMENSIONS AND CONDITIONS DIFFER.
- EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.
- INCIDENTAL MILLING IS INCLUDED TO ENSURE A SMOOTH TRANSITION ONTO THE BRIDGE FLOOR. DIMENSIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL MILL AS REQUIRED TO PROVIDE A SMOOTH TRANSITION TO THE ROADWAY AT BOTH ENDS OF BRIDGE.
- THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW THROUGH OF THE DECK.
- FOR SCARIFYING BRIDGE DECK, HYDRO-DEMOLITION OF BRIDGE DECK, CLASS II SURFACE PREPARATION AND CLASS III SURFACE PREPARATION SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.
- THE CONTRACTOR MUST COLLECT, TREAT AND DISPOSE OF RUN-OFF WATER FROM THE HYDRO-DEMOLITION PROCESS, SEE "LMC OVERLAY SURFACE PREPARATION" SPECIAL PROVISIONS.
- FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- 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 BRIDGE JOINT DEMOLITION, SEE SPECIAL PROVISIONS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.
- LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE HYDRO-DEMOLITION WATER DOES NOT FLOW OR MIGRATE INTO ACTIVE TRAVEL LANES.
- FOR CONCRETE WORK FOR JOINT REPLACEMENT, SEE SPECIAL PROVISIONS.
- FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.
- FOR CLEANING AND PAINTING EXISTING WEATHERING STEEL, POLLUTION CONTROL AND PAINTING CONTAINMENT, SEE "PAINTING EXISTING WEATHERING STEEL STRUCTURE", SPECIAL PROVISIONS.
- FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.
- FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.
- FOR POURABLE SILICONE JOINT SEALANT, SEE SPECIAL PROVISIONS.
- FOR CLEANING AND PAINTING EXISTING BEARING PLATES, SEE SPECIAL PROVISIONS.
- FOR LATEX MODIFIED OVERLAY, PLACING & FINISHING OF LATEX MODIFIED CONCRETE OVERLAY AND GROOVING BRIDGE FLOORS, SEE "LATEX MODIFIED CONCRETE" SPECIAL PROVISION.
- FOR EPOXY COATING, SEE "EPOXY COATING AND DEBRIS REMOVAL" SPECIAL PROVISION.
- FOR STRIP SEALS FOR PRESERVATION, SEE SPECIAL PROVISIONS.
- AT THE TIME OF PREPARATION OF THESE PLANS, IT WAS NOT ANTICIPATED THAT CLASS III SURFACE PREPARATION AND CONCRETE REPAIRS WOULD BE REQUIRED. HOWEVER, IT MAY BE DETERMINED IN THE FIELD THAT CLASS III SURFACE PREPARATION AND CONCRETE REPAIRS, 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.

TOTAL BILL OF MATERIAL

BRIDGE 410063	INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C	ASPHALT BINDER FOR PLANT MIX	GROOVING BRIDGE FLOORS	EPOXY COATED REINFORCING STEEL	POLLUTION CONTROL	CLASS II SURFACE PREPARATION	LATEX MODIFIED CONCRETE OVERLAY	PLACING & FINISHING OF LATEX MODIFIED CONCRETE OVERLAY	* SHOTCRETE REPAIRS	* EPOXY RESIN INJECTION
	SO. YD.	TONS	TONS	SO. FT.	LB	LUMP SUM	SO. YD.	CU. YD.	SO. YD.	CU. FT.	LN. FT.
TOTAL	134.0	16.0	1.1	32,657.0	2,438.0	LUMP SUM	9.4	136.0	3,852.6	46.0	788.0

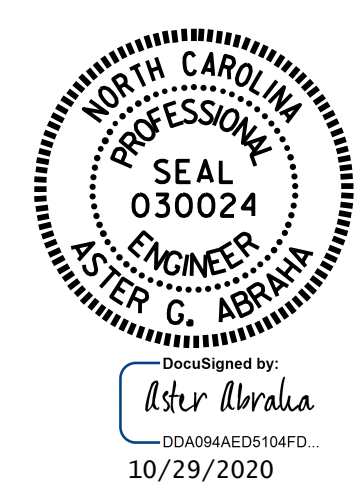
TOTAL BILL OF MATERIAL

BRIDGE 410063	POURABLE SILICONE JOINT SEALANT	STRIP SEALS FOR PRESERVATION	CLEANING AND PAINTING EXISTING WEATHERING STEEL FOR BRIDGE #63	PAINTING CONTAINMENT FOR BRIDGE #63	VOLUMETRIC MIXER	ELASTOMERIC CONCRETE FOR PRESERVATION	BRIDGE JOINT DEMOLITION	CONCRETE WORK FOR JOINT REPLACEMENT	EPOXY COATING	HYDRO-DEMOLITION OF BRIDGE DECK	SCARIFYING BRIDGE DECK	CLEANING & PAINTING EXISTING BEARING PLATES
	LN. FT.	LN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	CU. FT.	SO. FT.	SO. FT.	SO. FT.	SO. YD.	SO. YD.	EA.
TOTAL	88.0	88.0	LUMP SUM	LUMP SUM	LUMP SUM	22.0	88.0	660.0	893.5	3,852.6	3,852.6	48

* TOTAL QUANTITY INCREASED FROM QUANTITIES ON PLAN SHEETS TO ACCOUNT FOR CONDITIONS THAT MAY HAVE WORSENERED AND QUANTITIES THAT MAY HAVE INCREASED SINCE BRIDGE WAS FIELD SCOPED.

PROJECT NO. 15BPR.17
 HALIFAX COUNTY
 BRIDGE NO. : 410063

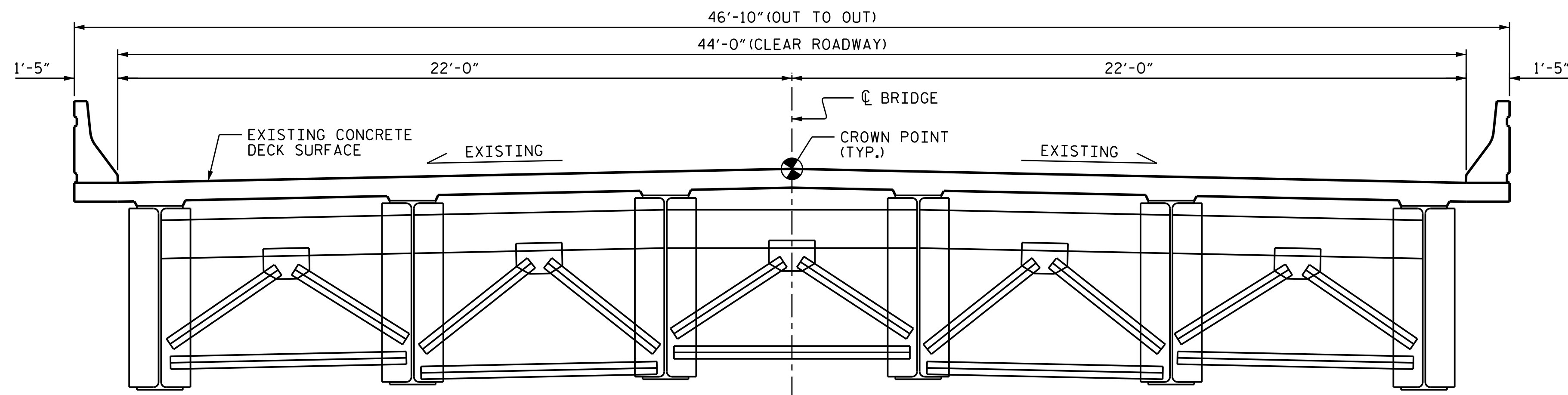
SHEET 2 OF 2



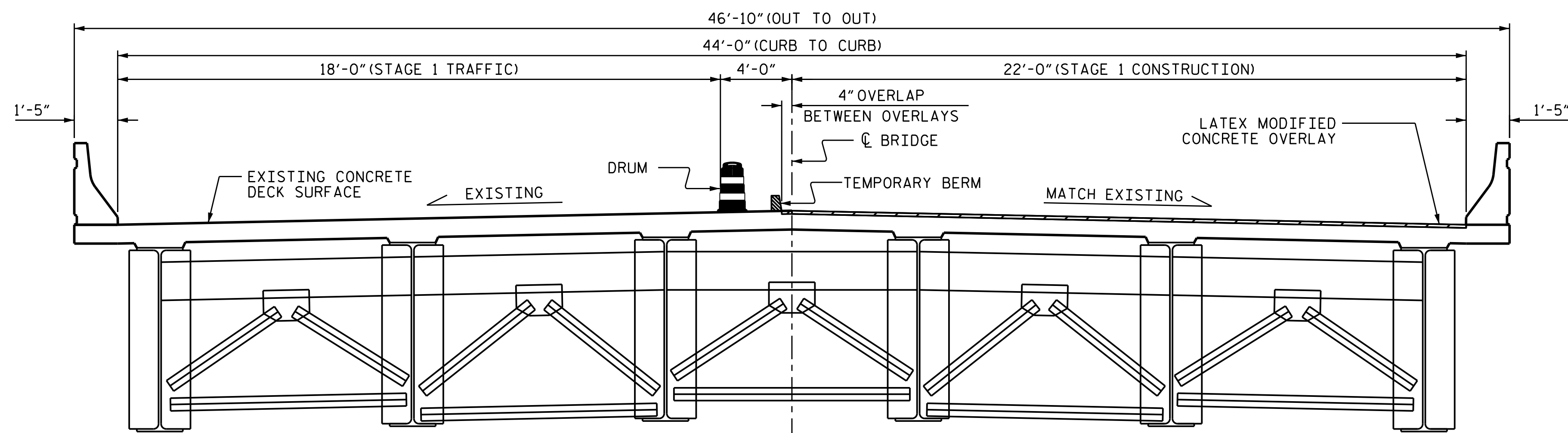
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
GENERAL DRAWING
 FOR BRIDGE 63 ON
 US 158 / US 301
 OVER ROANOKE RIVER

DRAWN BY : S. T. SANDOR DATE : 07/2018
 CHECKED BY : M. K. BEARD DATE : 07/2018

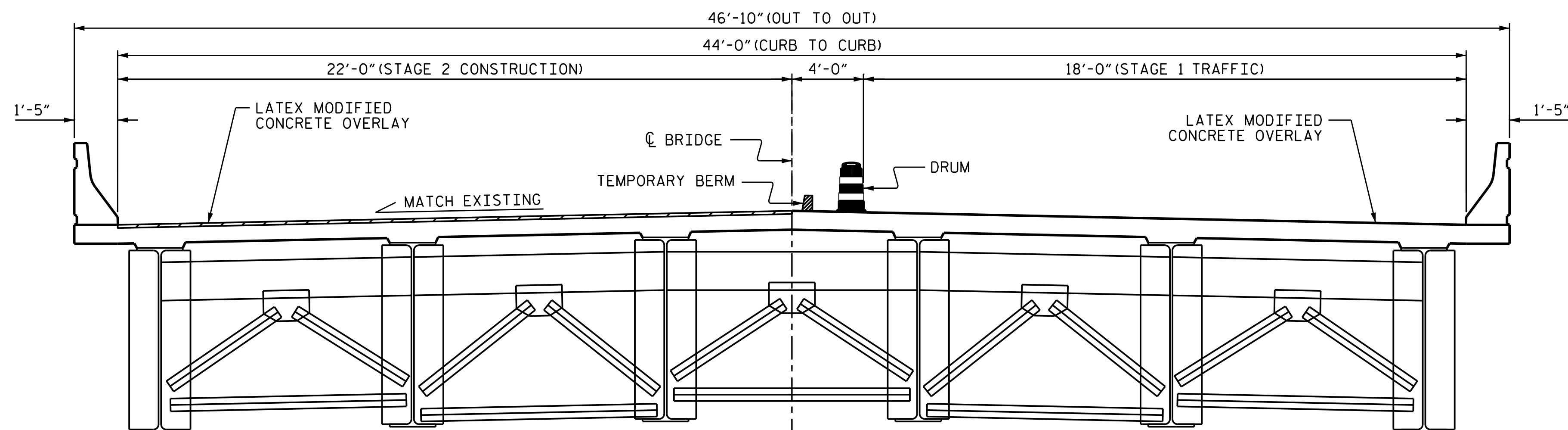
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			21



TYPICAL SECTION
(EXISTING- LOOKING EAST)



TYPICAL SECTION
(STAGE 1- LOOKING EAST)



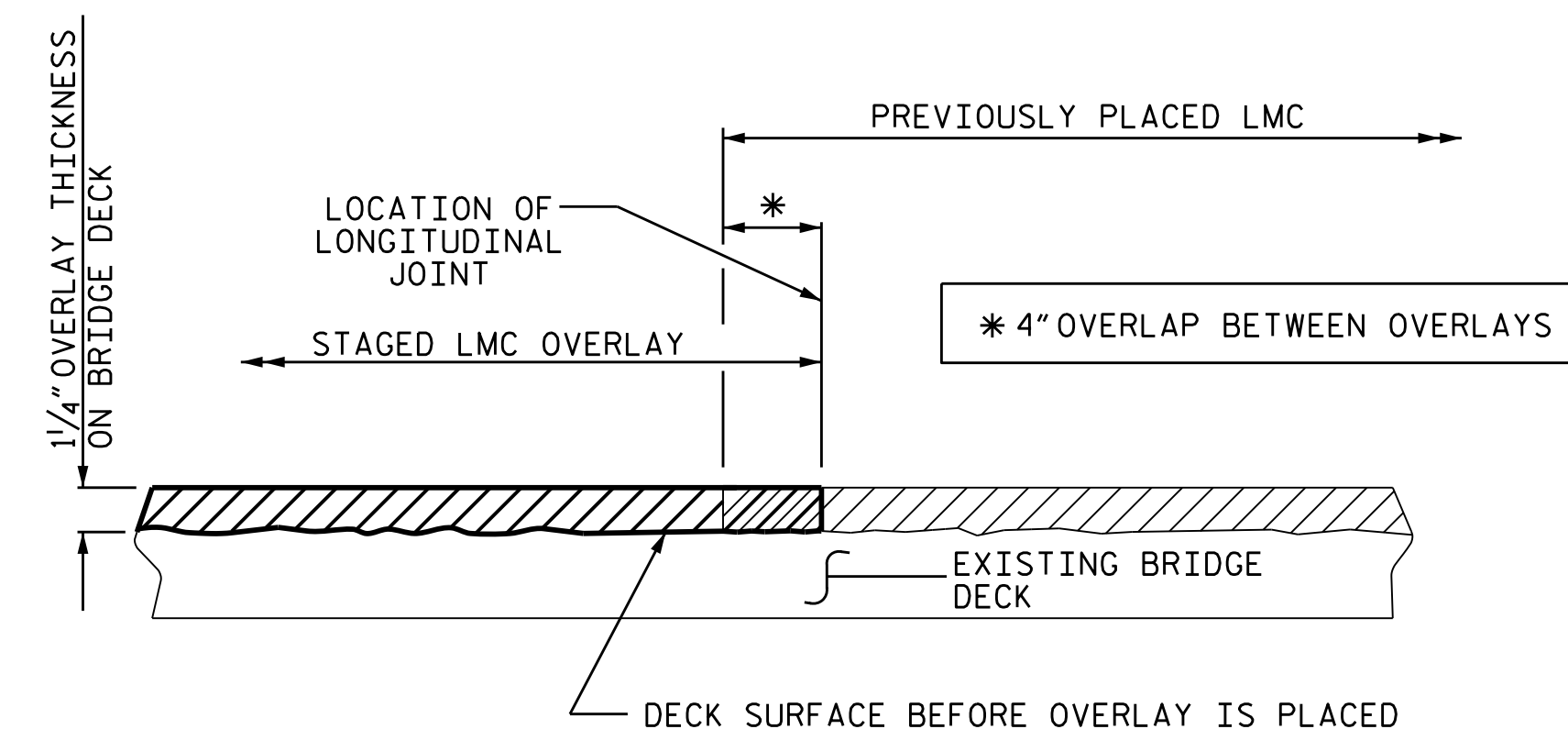
TYPICAL SECTION
(STAGE 2- LOOKING EAST)

NOTES:

WHEN PREPARING THE SURFACE FOR LMC OVERLAY ADJACENT TO THE PREVIOUSLY PLACED LMC STAGE, THE PREVIOUSLY PLACED LMC SHALL BE SAW-CUT TO THE FULL DEPTH OF THE LMC AT THE CENTERLINE OF THE BRIDGE AND ALL LMC IN THE 4" OVERLAP SHALL BE REMOVED WITH HAND TOOLS PRIOR TO PLACEMENT OF LMC IN THE SECOND STAGE.

THE WORK STAGING ON THIS PLAN SHEET INDICATES THAT THE RIGHT LANE LMC WORK IS PERFORMED FIRST, FOLLOWED BY THE LEFT LANE LMC WORK. THE CONTRACTOR MAY ELECT TO SEQUENCE THE WORK DIFFERENTLY, BUT THE DIMENSIONS OF THE WORK ZONE AND CLEAR ROADWAY AREAS SHALL MATCH THAT INDICATED ON THIS PLAN SHEET, RESPECTIVE TO THE LANE WHERE THE LMC WORK IS BEING PERFORMED.

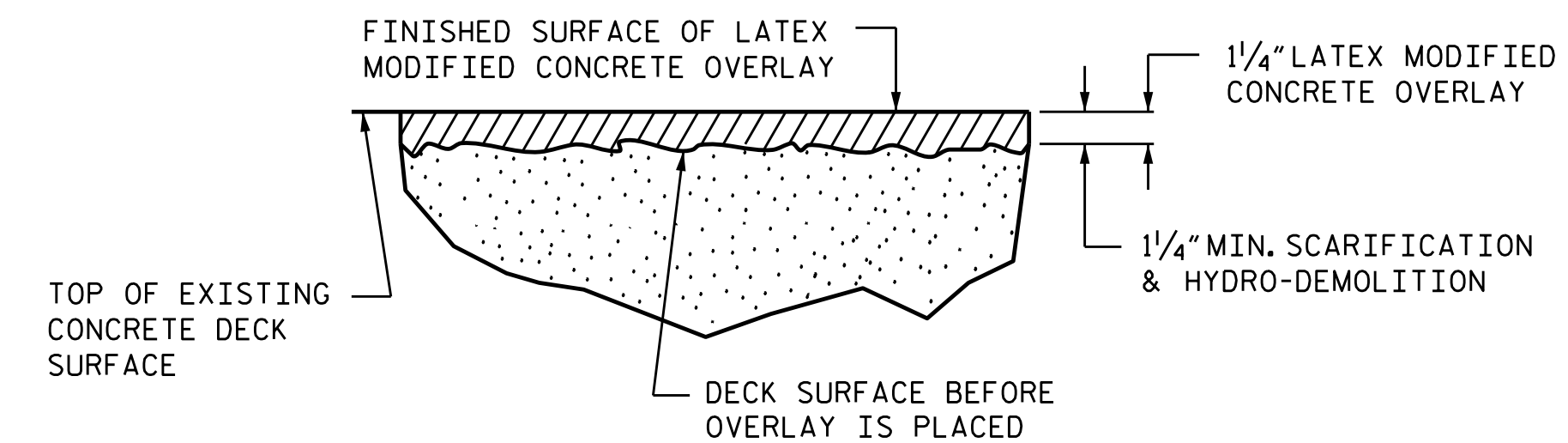
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND OVERLAY PLACEMENT.



SECTION THRU DECK

STAGED LMC OVERLAY JOINT

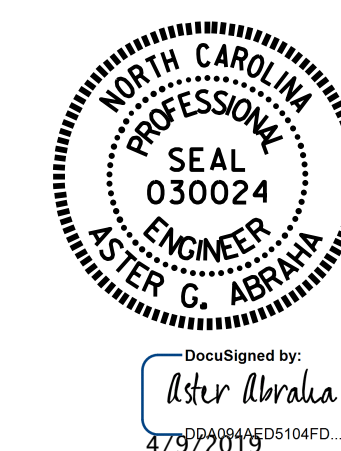
(AS NEEDED)



DETAIL FOR LATEX MODIFIED CONCRETE OVERLAY

(FINISHED SURFACE OF THE LATEX MODIFIED CONCRETE OVERLAY IS APPROX.)

PROJECT NO. 15BPR.17
 HALIFAX COUNTY
 BRIDGE NO. 410063



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 TYPICAL SECTION
 AND SURFACE
 PREPARATION DETAILS

DRAWN BY : S. T. SANDOR DATE : 08/2018
 CHECKED BY : M. K. BEARD DATE : 09/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

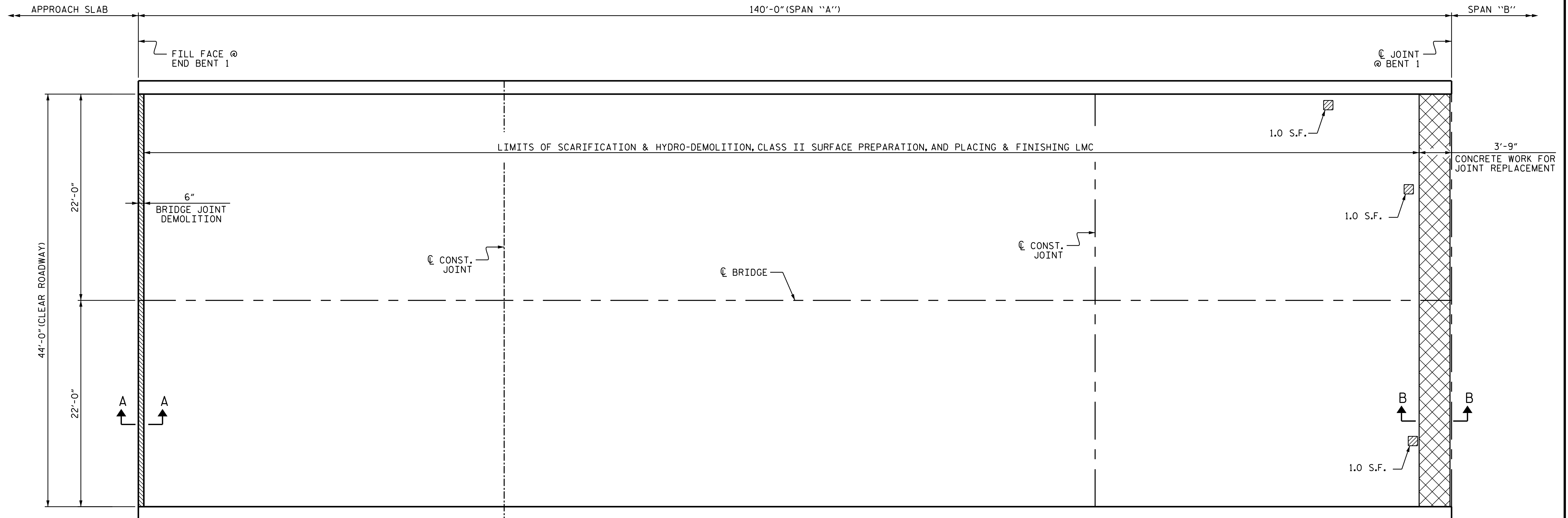
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			21

PAYMENT FOR CLASS II AND CLASS III SURFACE PREP. BASED UPON SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF BRIDGE DECK, SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

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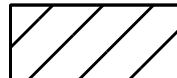


SUMMARY OF QUANTITIES FOR SPAN "A"

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	669.8 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	669.8 SY	
CLASS II SURFACE PREPARATION	0.4 SY	
CLASS III SURFACE PREPARATION	0.0 SY	
GROOVING BRIDGE DECK	5,721.2 SF	
BRIDGE JOINT DEMOLITION	22.0 SF	
LATEX MODIFIED CONCRETE OVERLAY	23.3 CY	
PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY	669.8 SY	
CONCRETE WORK FOR JOINT REPLACEMENT	165.0 SF	

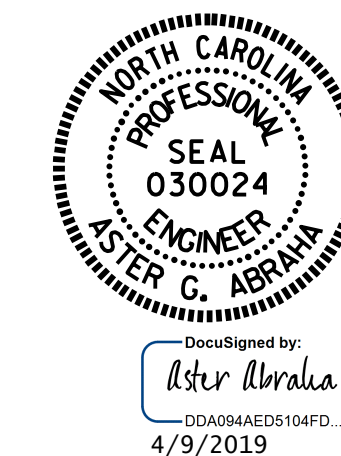


PLAN OF SPAN "A"

(SEE SHEET S-10 FOR SECTION A-A AND SHEET S-11 FOR SECTION B-B)

-  - SCARIFYING BRIDGE DECK
-  - APPROX. AREA CLASS II SURFACE PREPARATION
-  - CONCRETE WORK FOR JOINT REPLACEMENT
-  - BRIDGE JOINT DEMOLITION

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 410063



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SURFACE PREPARATION
 SPAN "A"**

DRAWN BY : S. T. SANDOR DATE : 03/2018
 CHECKED BY : M. K. BEARD DATE : 04/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

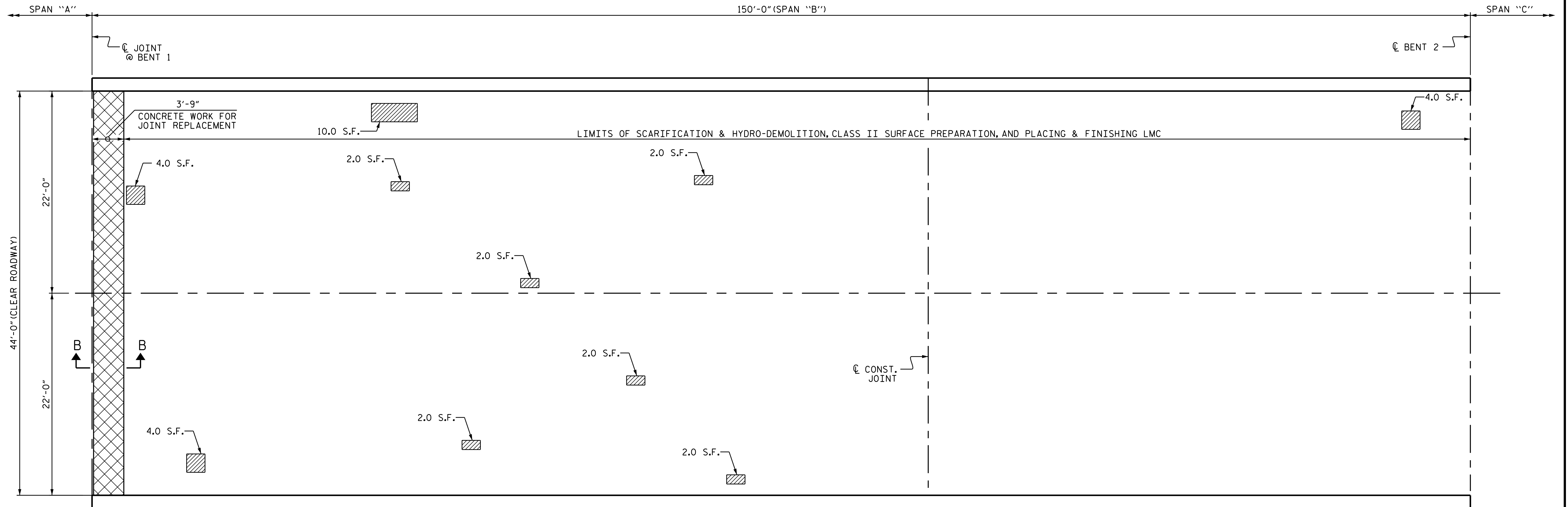
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			21

PAYMENT FOR CLASS II AND CLASS III SURFACE PREP. BASED UPON SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF BRIDGE DECK, SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

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SUMMARY OF QUANTITIES FOR SPAN "B"

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	718.7 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	718.7 SY	
CLASS II SURFACE PREPARATION	3.8 SY	
CLASS III SURFACE PREPARATION	0.0 SY	
GROOVING BRIDGE DECK	6,131.2 SF	
LATEX MODIFIED CONCRETE OVERLAY	25.0 CY	
PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY	718.7 SY	
CONCRETE WORK FOR JOINT REPLACEMENT	165.0 SF	

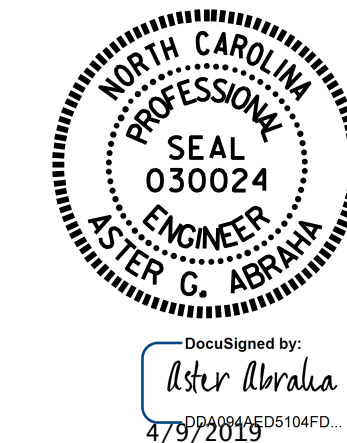


PLAN OF SPAN "B"

(SEE SHEET NO. S-11 FOR SECTION B-B)

- SCARIFYING BRIDGE DECK
- APPROX. AREA CLASS II SURFACE PREPARATION
- CONCRETE WORK FOR JOINT REPLACEMENT

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 410063



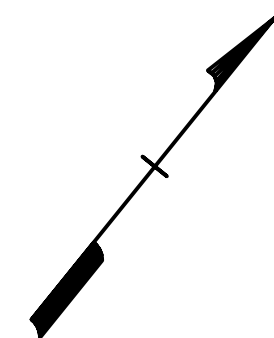
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SURFACE PREPARATION
 SPAN "B"**

DRAWN BY : S. T. SANDOR DATE : 03/2018
 CHECKED BY : M. K. BEARD DATE : 04/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

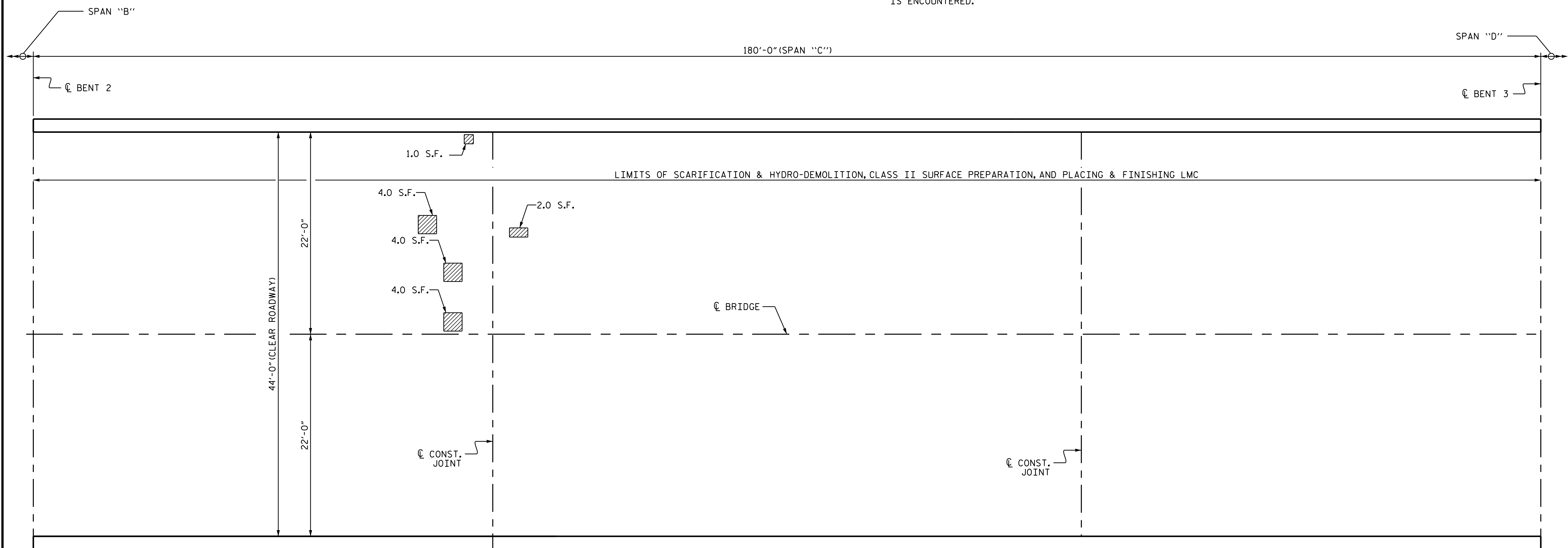
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			21



PAYMENT FOR CLASS II AND CLASS III SURFACE PREP. BASED UPON SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF BRIDGE DECK, SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

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SUMMARY OF QUANTITIES FOR SPAN "C"		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	880.0 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	880.0 SY	
CLASS II SURFACE PREPARATION	1.7 SY	
CLASS III SURFACE PREPARATION	0.0 SY	
GROOVING BRIDGE DECK	7,380.0 SF	
LATEX MODIFIED CONCRETE OVERLAY	30.0 CY	
PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY	880.0 SY	

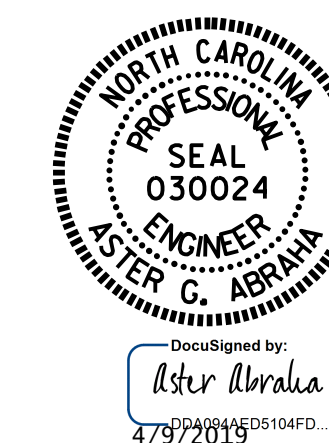


LIMITS OF SCARIFICATION & HYDRO-DEMOLITION, CLASS II SURFACE PREPARATION, AND PLACING & FINISHING LMC

PLAN OF SPAN "C"

- SCARIFYING BRIDGE DECK
- APPROX. AREA CLASS II SURFACE PREPARATION

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 410063



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SURFACE PREPARATION
 SPAN "C"

DRAWN BY : S. T. SANDOR DATE : 03/2018
 CHECKED BY : M. K. BEARD DATE : 04/2018

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
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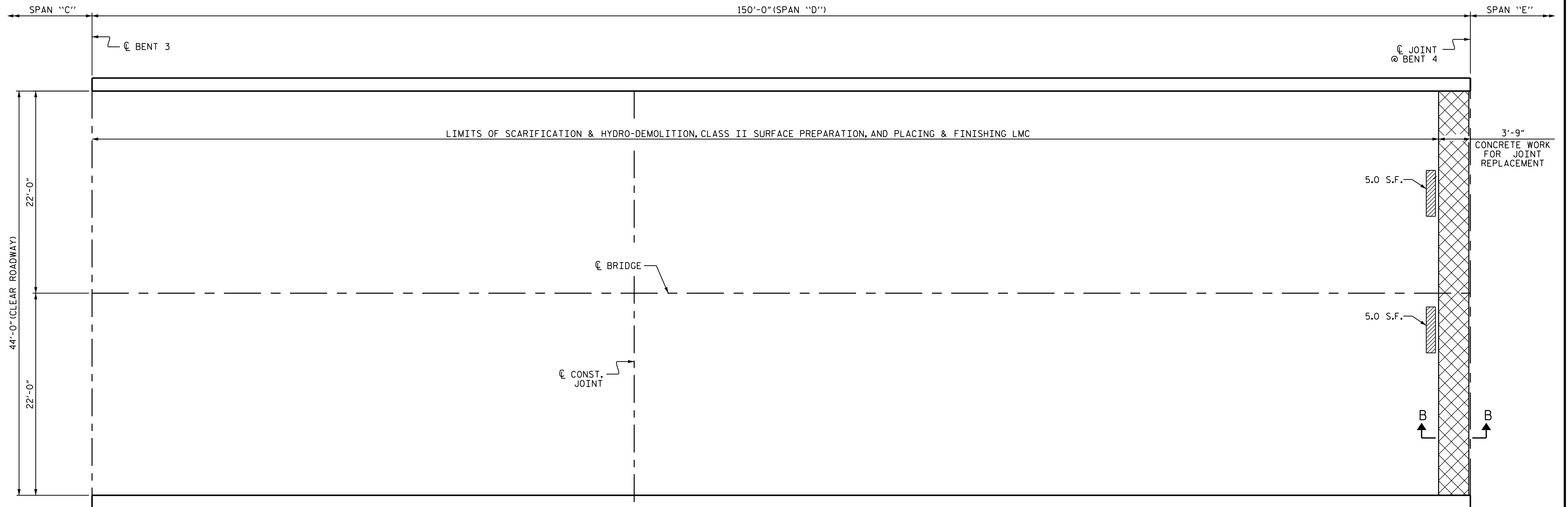
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-6
2			4			21

PAYMENT FOR CLASS II AND CLASS III SURFACE PREP. BASED UPON SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF BRIDGE DECK, SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

AT THE TIME OF PREPARATION OF THESE PLANS, IT WAS NOT ANTICIPATED THAT CLASS III SURFACE PREPARATION AND CONCRETE REPAIRS WOULD BE REQUIRED. HOWEVER, IT MAY BE DETERMINED IN THE FIELD THAT CLASS III SURFACE PREPARATION AND CONCRETE REPAIRS, 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.


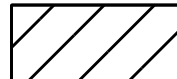

SUMMARY OF QUANTITIES FOR SPAN "D"

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	718.7 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	718.7 SY	
CLASS II SURFACE PREPARATION	1.1 SY	
CLASS III SURFACE PREPARATION	0.0 SY	
GROOVING BRIDGE DECK	6,131.2 SF	
LATEX MODIFIED CONCRETE OVERLAY	25.0 CY	
PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY	718.7 SY	
CONCRETE WORK FOR JOINT REPLACEMENT	165.0 SF	

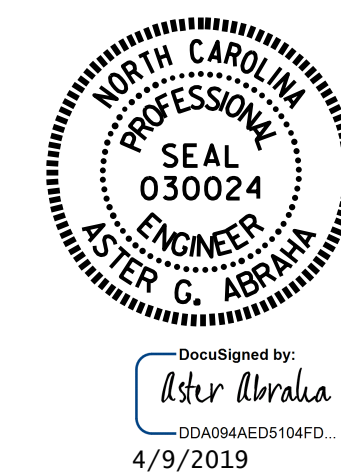


PLAN OF SPAN "D"

(SEE SHEET NO. S-11 FOR SECTION B-B)

-  - SCARIFYING BRIDGE DECK
-  - APPROX. AREA CLASS II SURFACE PREPARATION
-  - CONCRETE WORK FOR JOINT REPLACEMENT

PROJECT NO. 15BPR.17
 HALIFAX COUNTY
 BRIDGE NO. 410063



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SURFACE PREPARATION
 SPAN "D"**

DRAWN BY : S. T. SANDOR DATE : 03/2018
 CHECKED BY : M. K. BEARD DATE : 04/2018

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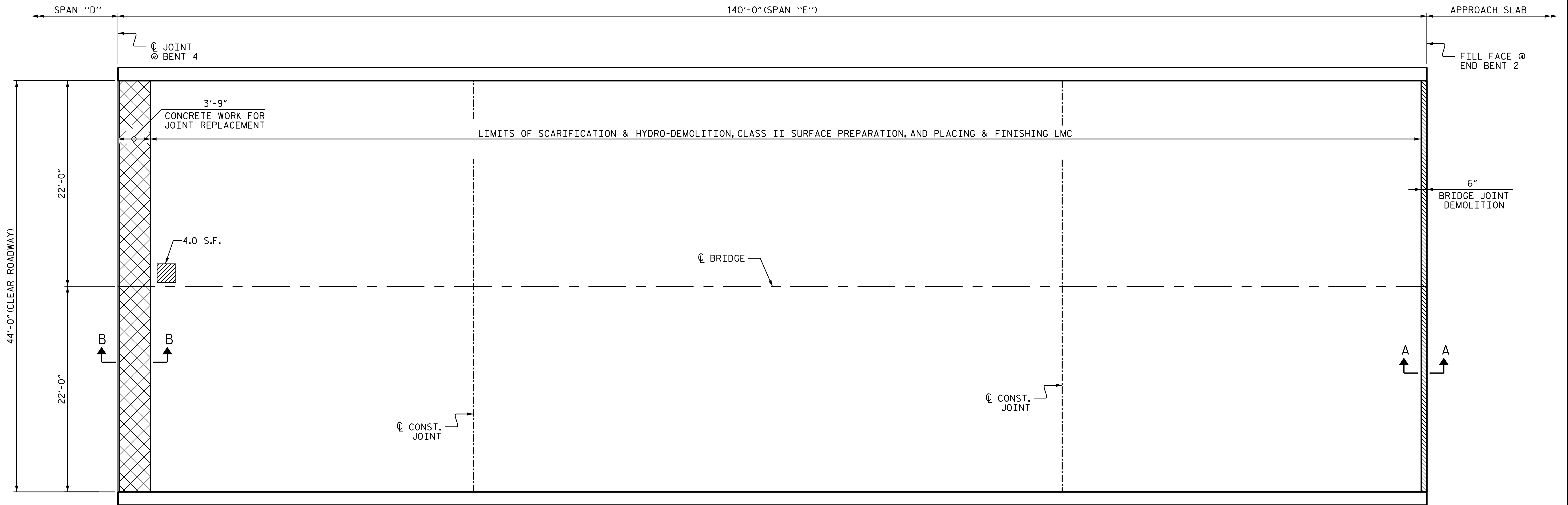
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-7
2			4			21

PAYMENT FOR CLASS II AND CLASS III SURFACE PREP. BASED UPON SQUARE FEET OF ADDITIONAL DEMOLITION REQUIRED FOLLOWING HYDRO-DEMOLITION OF BRIDGE DECK, SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

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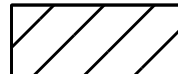


SUMMARY OF QUANTITIES FOR SPAN "E"

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	669.8 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	669.8 SY	
CLASS II SURFACE PREPARATION	0.4 SY	
CLASS III SURFACE PREPARATION	0.0 SY	
GROOVING BRIDGE DECK	5,721.2 SF	
BRIDGE JOINT DEMOLITION	22.0 SF	
LATEX MODIFIED CONCRETE OVERLAY	23.3 CY	
PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY	669.8 SY	
CONCRETE WORK FOR JOINT REPLACEMENT	165.0 SF	

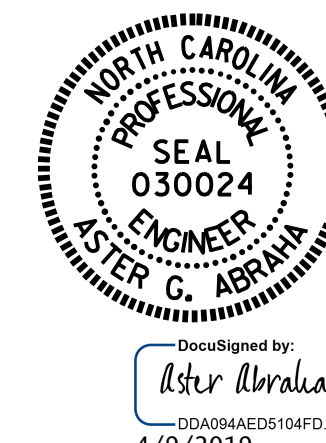


PLAN OF SPAN "E"

(SEE SHEET NO. S-10 FOR SECTION A-A AND SHEET S-11 FOR SECTION B-B)

-  - SCARIFYING BRIDGE DECK
-  - APPROX. AREA CLASS II SURFACE PREPARATION
-  - CONCRETE WORK FOR JOINT REPLACEMENT
-  - BRIDGE JOINT DEMOLITION

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 410063



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SURFACE PREPARATION
 SPAN "E"**

DRAWN BY : S. T. SANDOR DATE : 03/2018
 CHECKED BY : M. K. BEARD DATE : 04/2018

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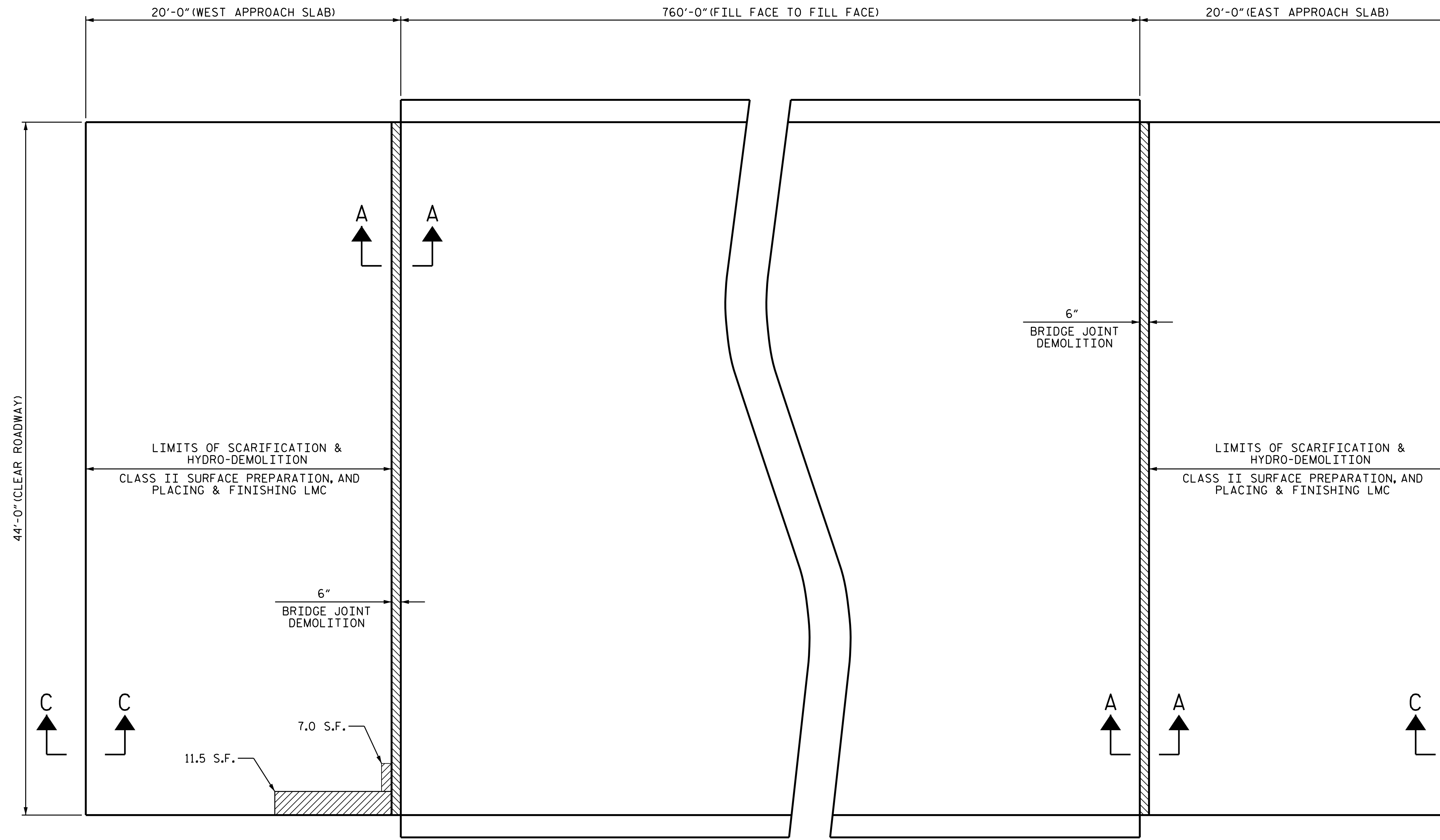
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			21

PAYMENT FOR CLASS II AND CLASS III SURFACE PREP. BASED UPON SQUARE FEET OF ADDITIONAL DEMOLITION EQUIRED FOLLOWING HYDRO-DEMOLITION OF BRIDGE DECK, SEE "OVERLAY SURFACE PREPARATION" SPECIAL PROVISION.

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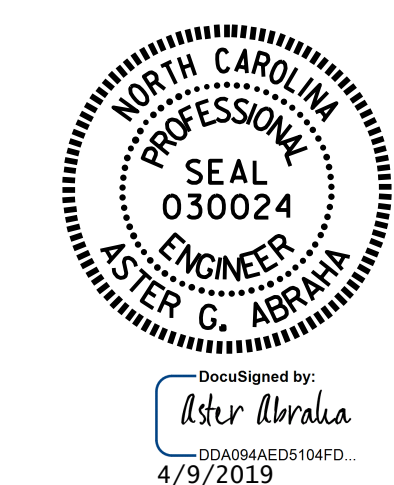
SUMMARY OF QUANTITIES FOR APPROACH SLABS

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	195.6 SY	
HYDRO-DEMOLITION OF BRIDGE DECK	195.6 SY	
CLASS II SURFACE PREPARATION	2.1 SY	
CLASS III SURFACE PREPARATION	0.0 SY	
GROOVING BRIDGE DECK	1,640.0 SF	
BRIDGE JOINT DEMOLITION	44.0 SF	
LATEX MODIFIED CONCRETE OVERLAY	6.8 CY	
PLACING AND FINISHING LATEX MODIFIED CONCRETE OVERLAY	195.6 SY	



- SCARIFYING BRIDGE DECK
- APPROX. AREA CLASS II SURFACE PREPARATION
- BRIDGE JOINT DEMOLITION

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 410063



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

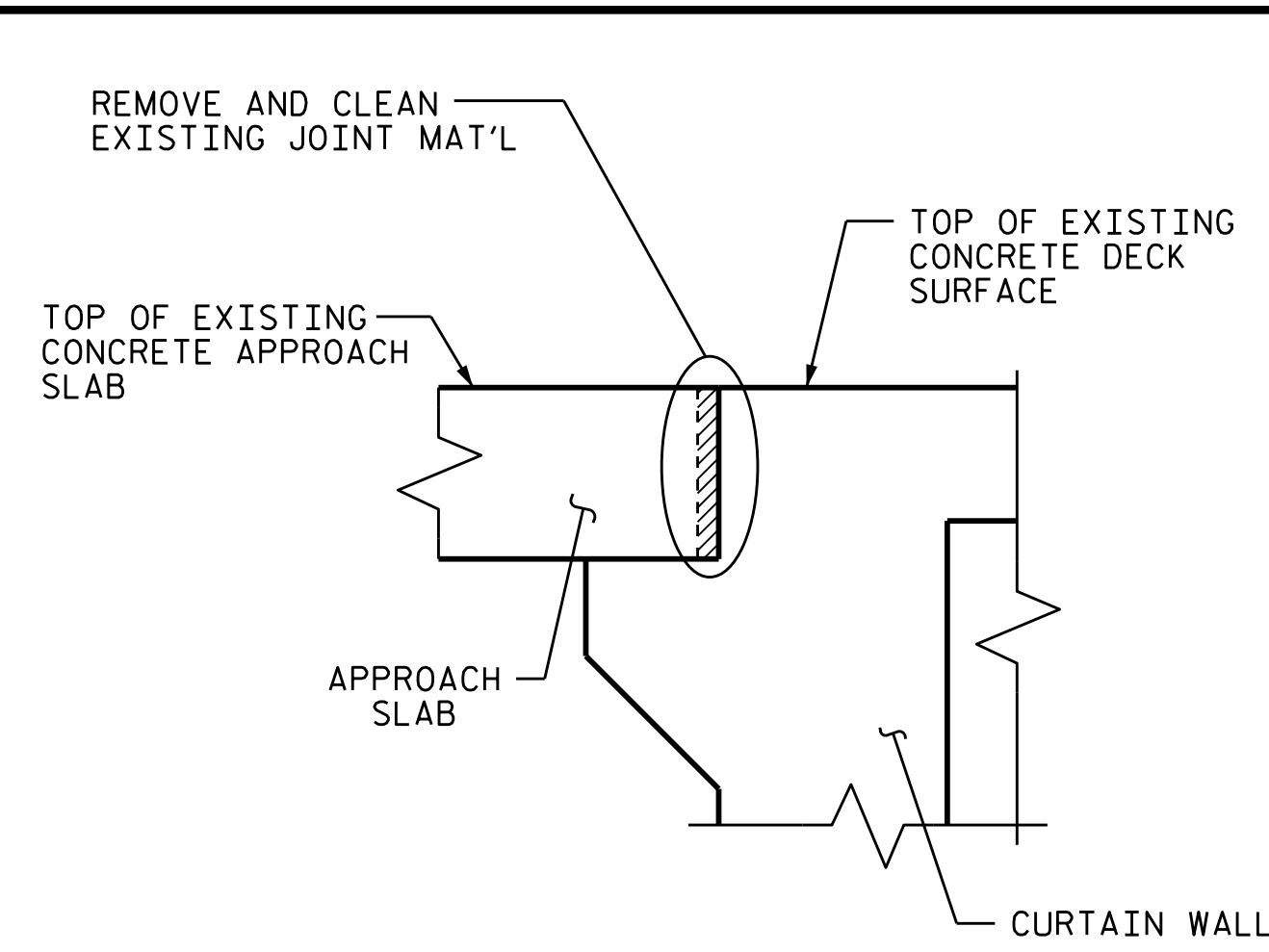
**SURFACE PREPARATION
 APPROACH SLABS**

PLAN OF WEST AND EAST APPROACH
 (SEE SHEET NO. S-10 FOR SECTIONS A-A AND C-C)

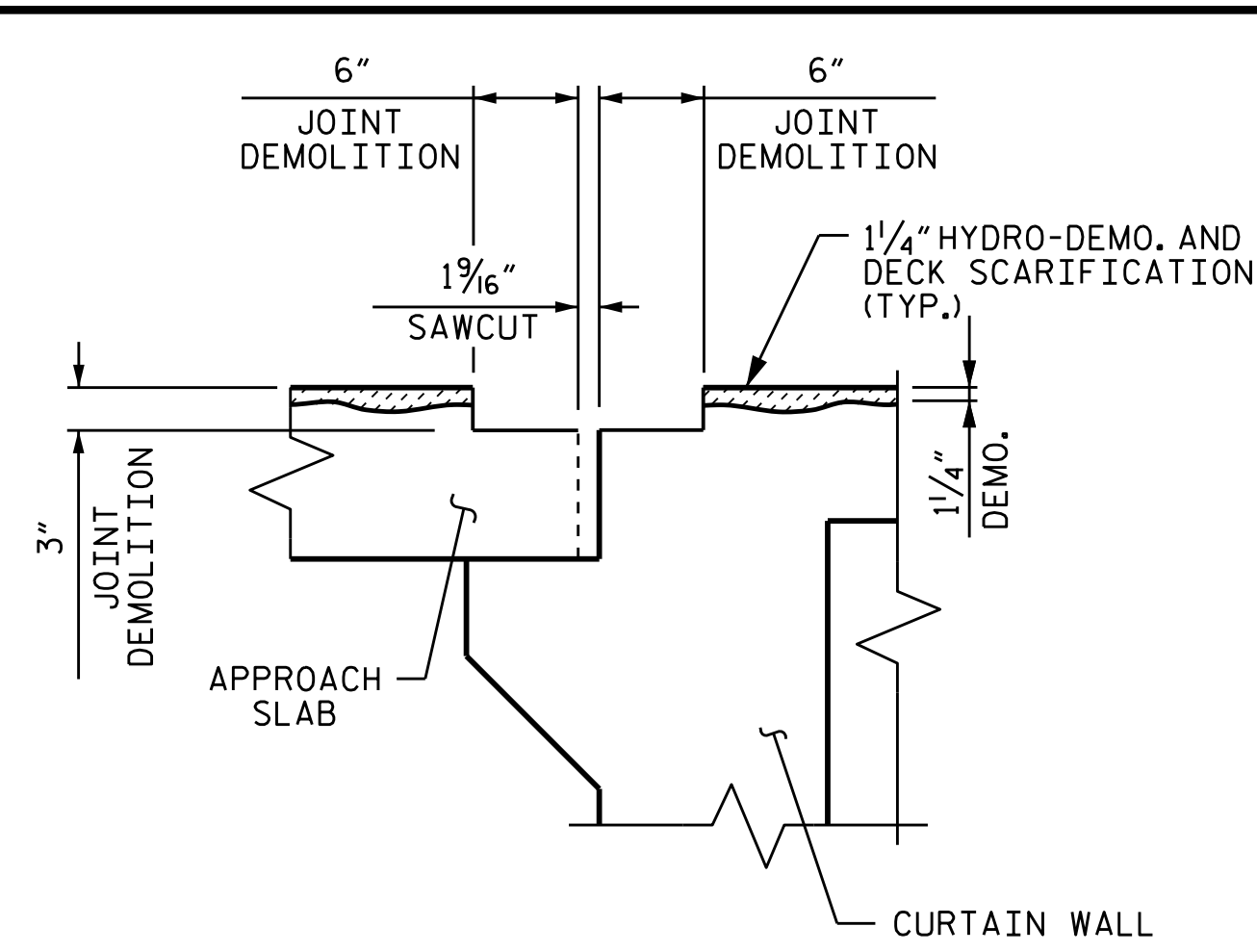
DRAWN BY : S. T. SANDOR DATE : 04/2018
 CHECKED BY : M. K. BEARD DATE : 05/2018

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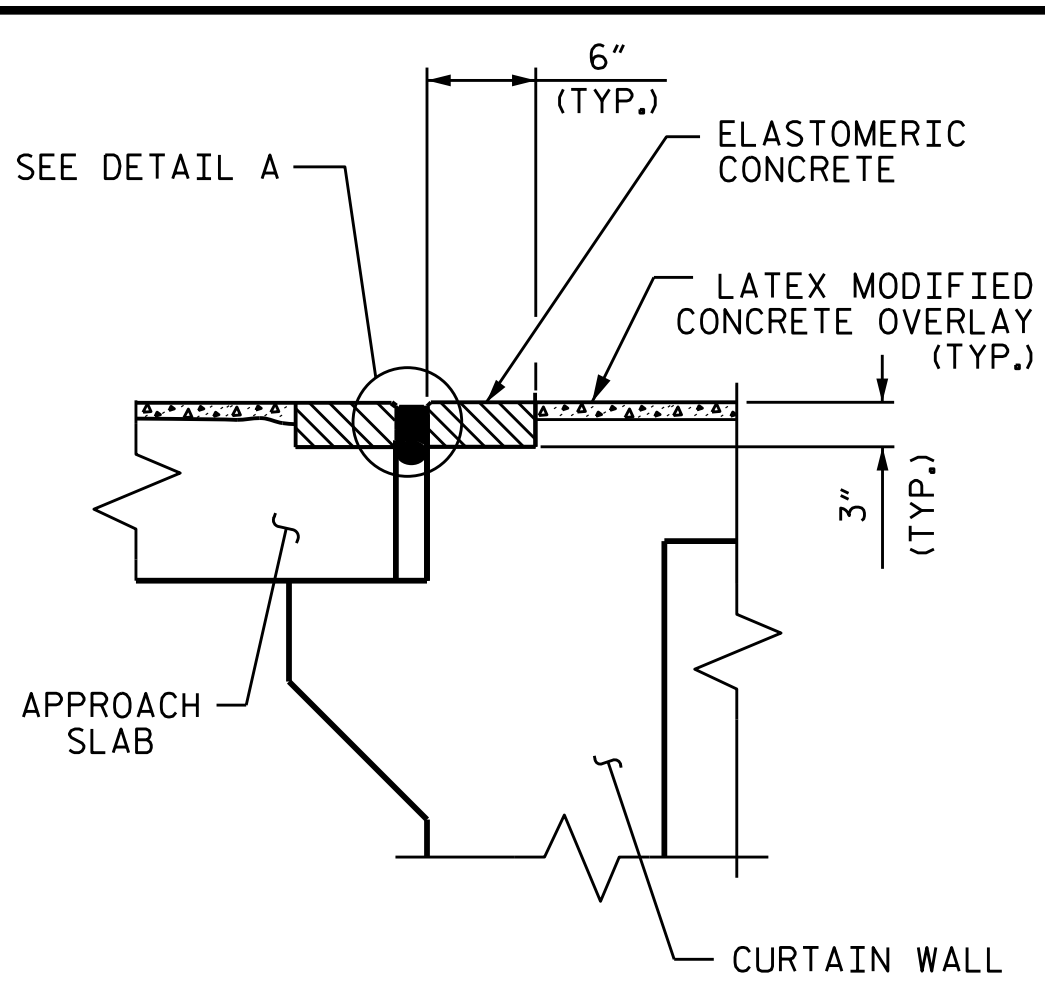
REVISIONS						SHEET NO.
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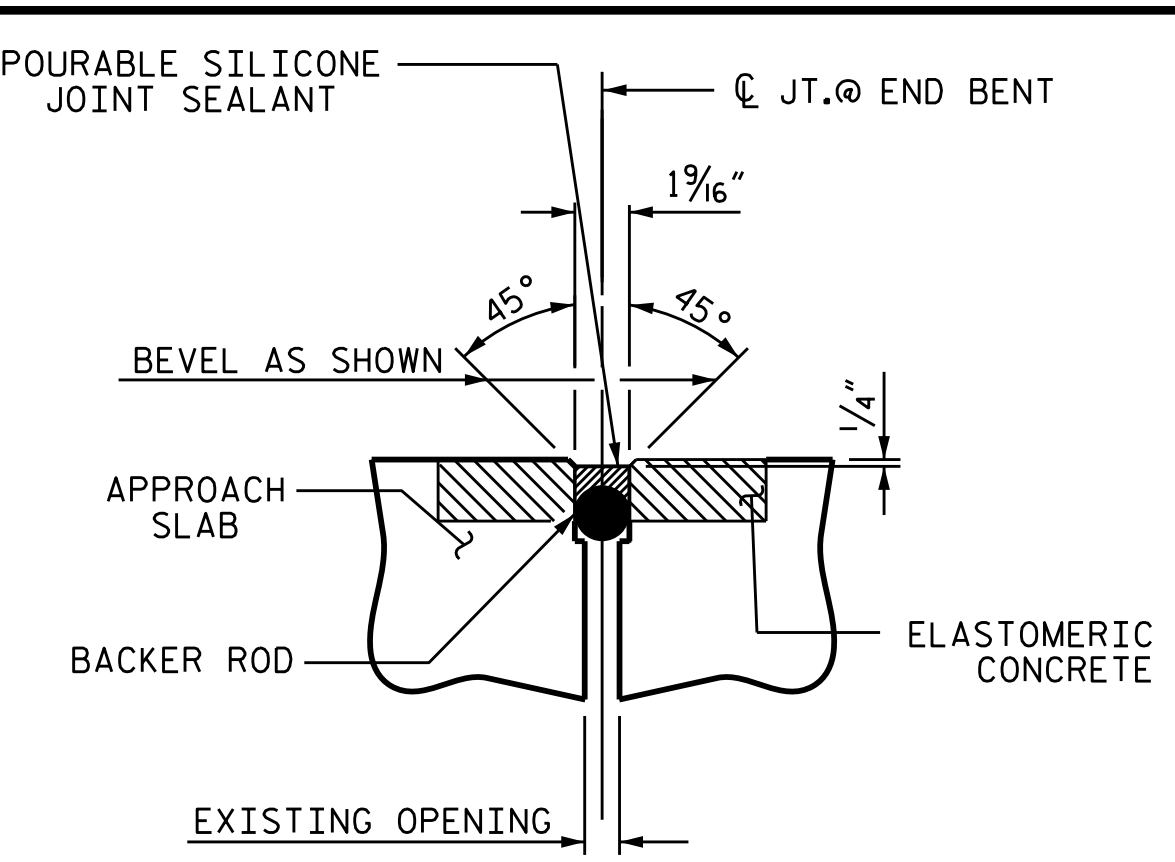
EXISTING



MINIMUM EXISTING JOINT DEMOLITION



PROPOSED

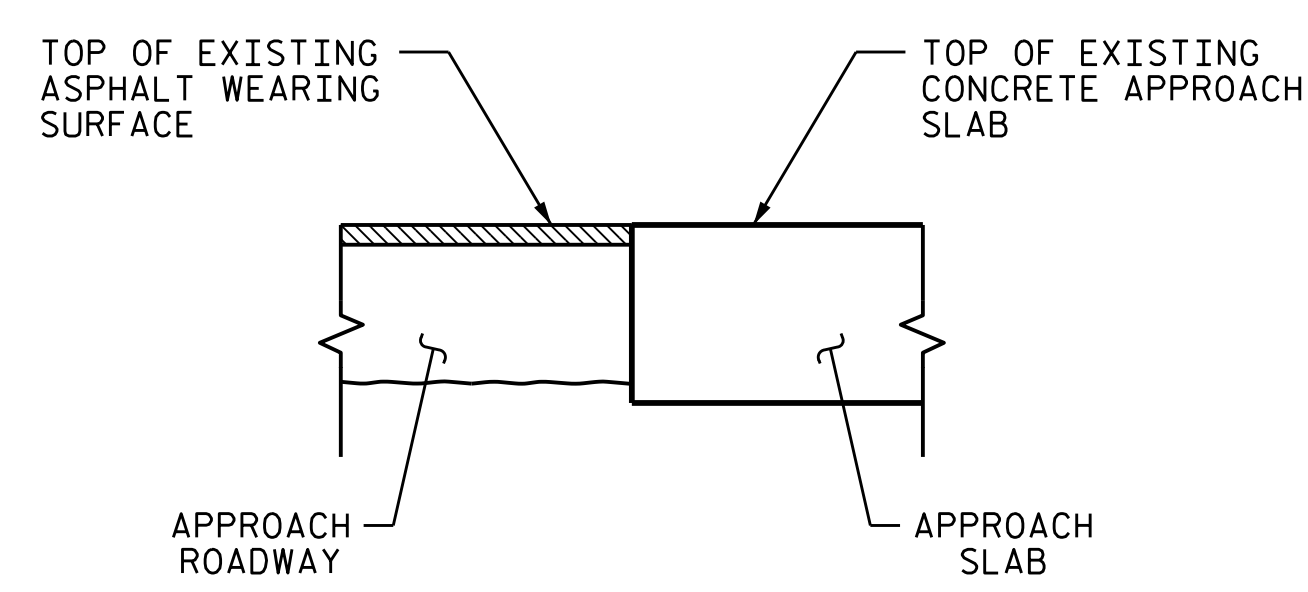


DETAIL A (PROPOSED)

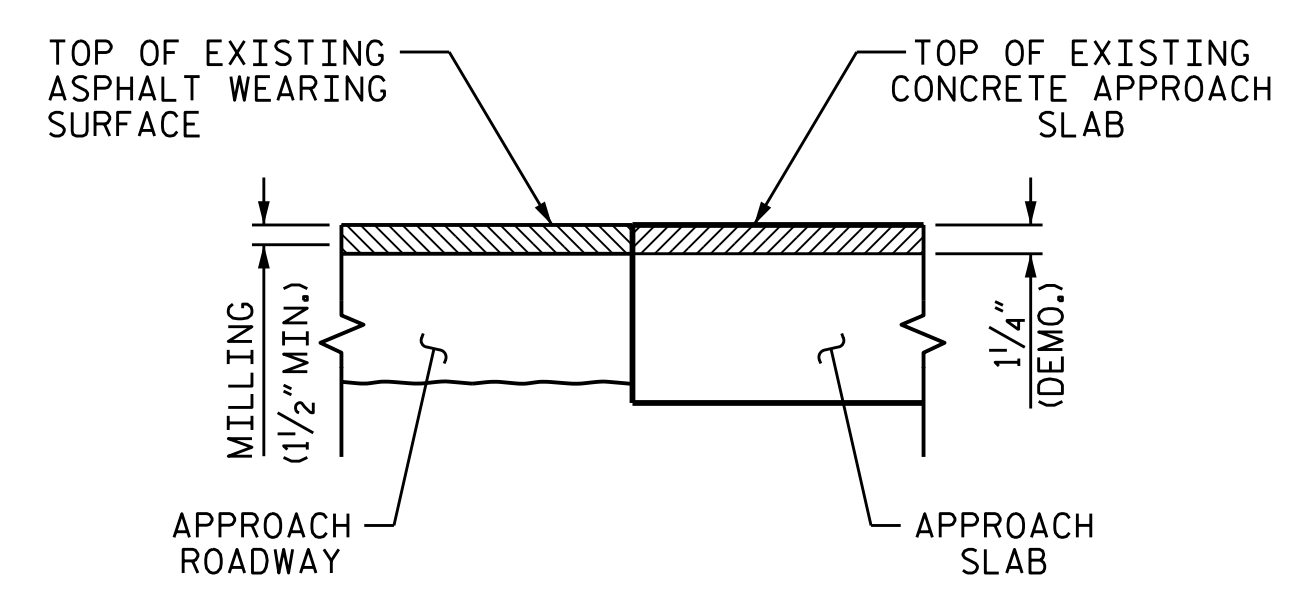
NOTES:
 CONTRACTOR SHALL FIELD VERIFY THE EXISTING JOINT OPENING PRIOR TO OBTAINING JOINT MATERIAL.
 RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED.
 THE INSTALLED SILICONE JOINT SEAL SHALL BE WATER TIGHT.
 FOR ELASTOMERIC CONCRETE FOR PRESERVATION, SEE SPECIAL PROVISIONS.

BILL OF MATERIALS		
	QUANTITIES	UNITS
ELASTOMERIC CONCRETE FOR PRESERVATION	22.0	C.F.
POURABLE SILICONE JOINT SEALANT	88.0	L.F.

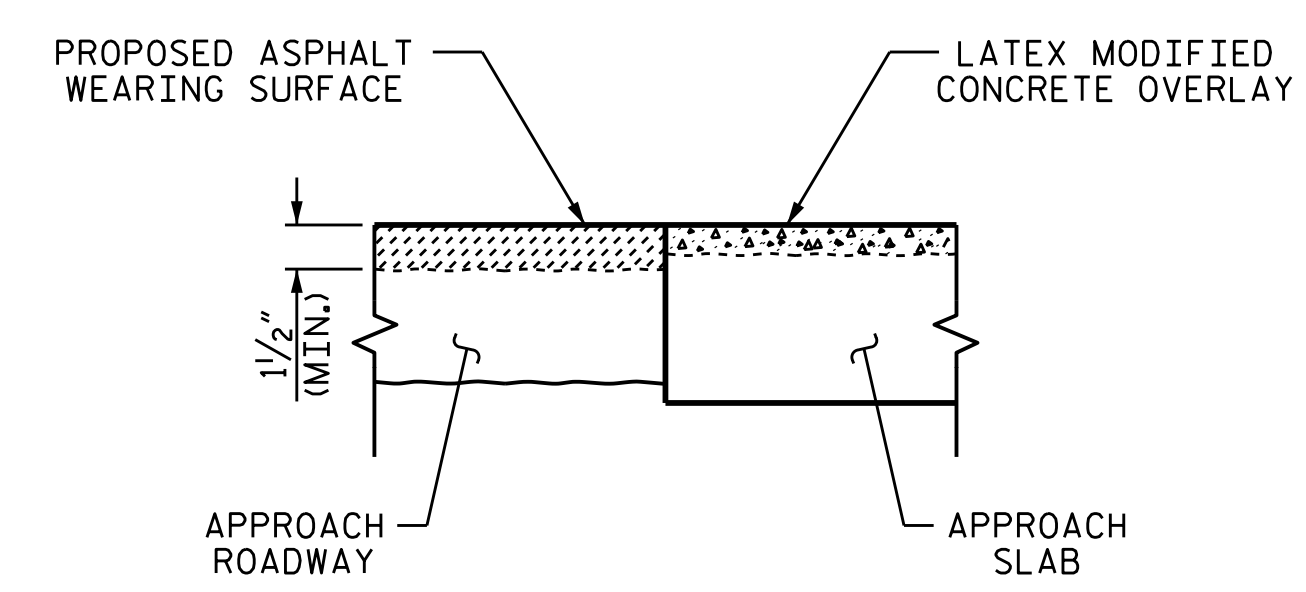
SECTION A-A



EXISTING



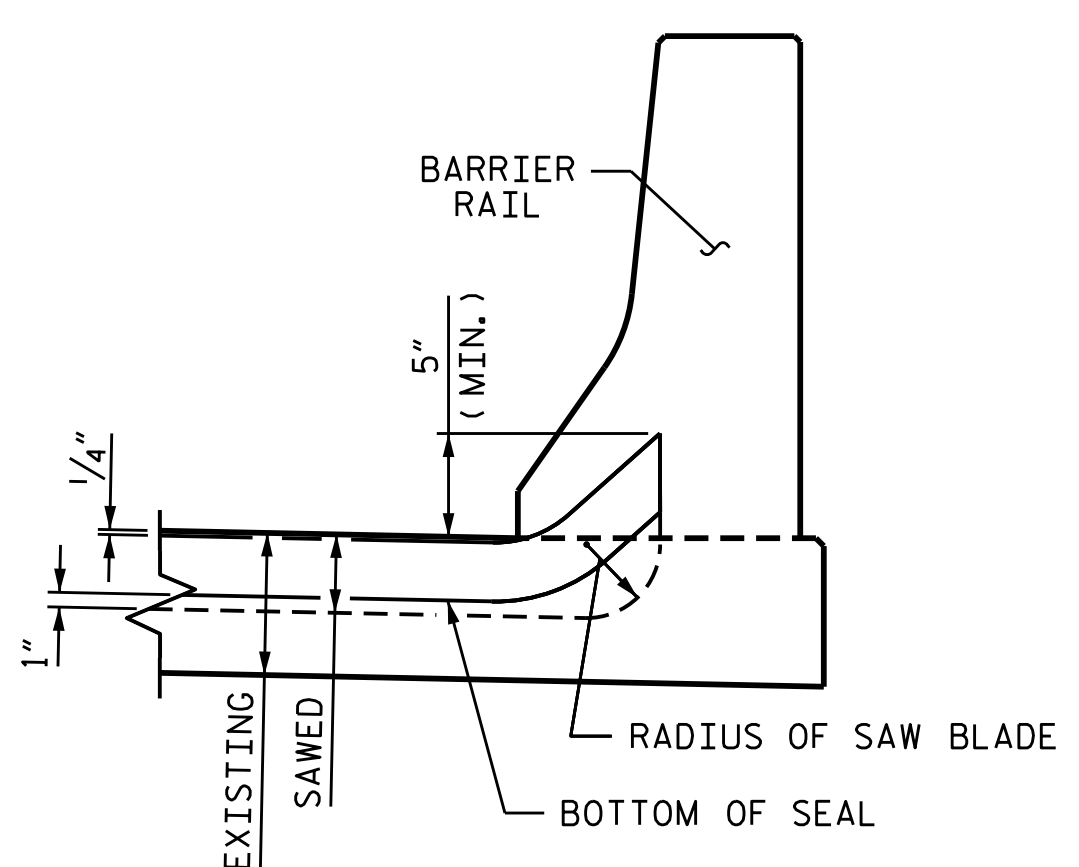
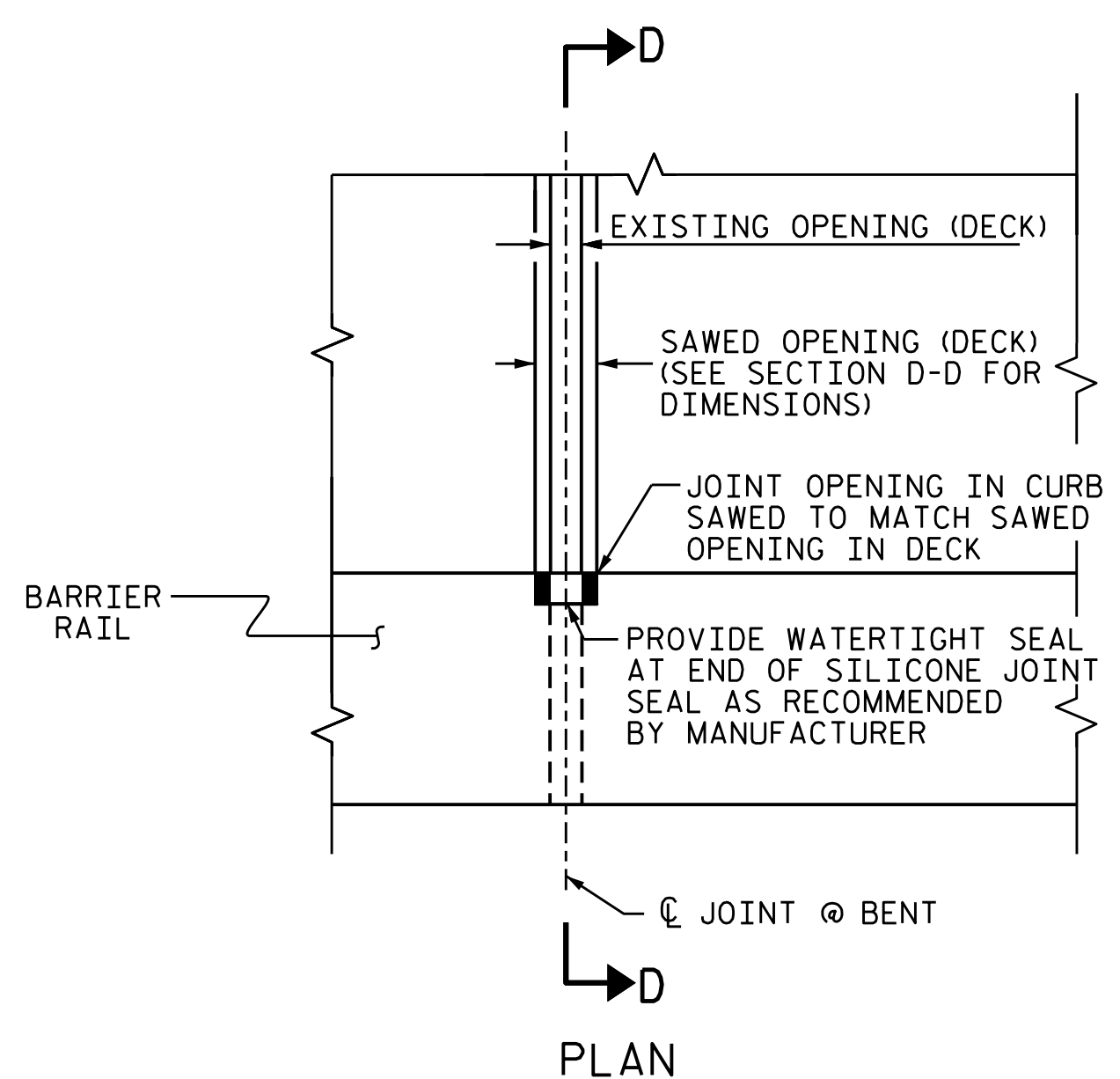
MINIMUM EXISTING JOINT DEMOLITION



PROPOSED

REMOVAL OF CONCRETE AT THE EXISTING JOINT SHALL RESULT IN THE BOTTOM OF THE EXCAVATION BEING REASONABLY FLAT AND LEVEL, TO PROVIDE SUFFICIENT SUBSTRATE FOR PLACEMENT AND SUPPORT OF ELASTOMERIC OR REPAIR CONCRETE.

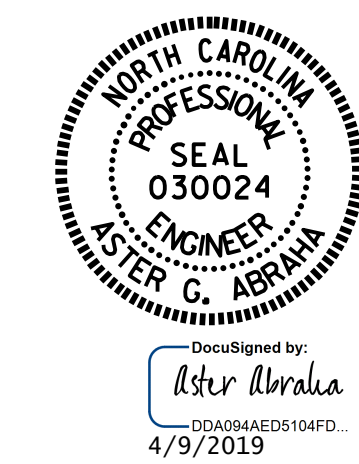
SECTION C-C



SECTION D-D

JOINT DETAILS AT BARRIER RAIL

PROJECT NO. 15BPR.17
 HALIFAX COUNTY
 BRIDGE NO. 410063

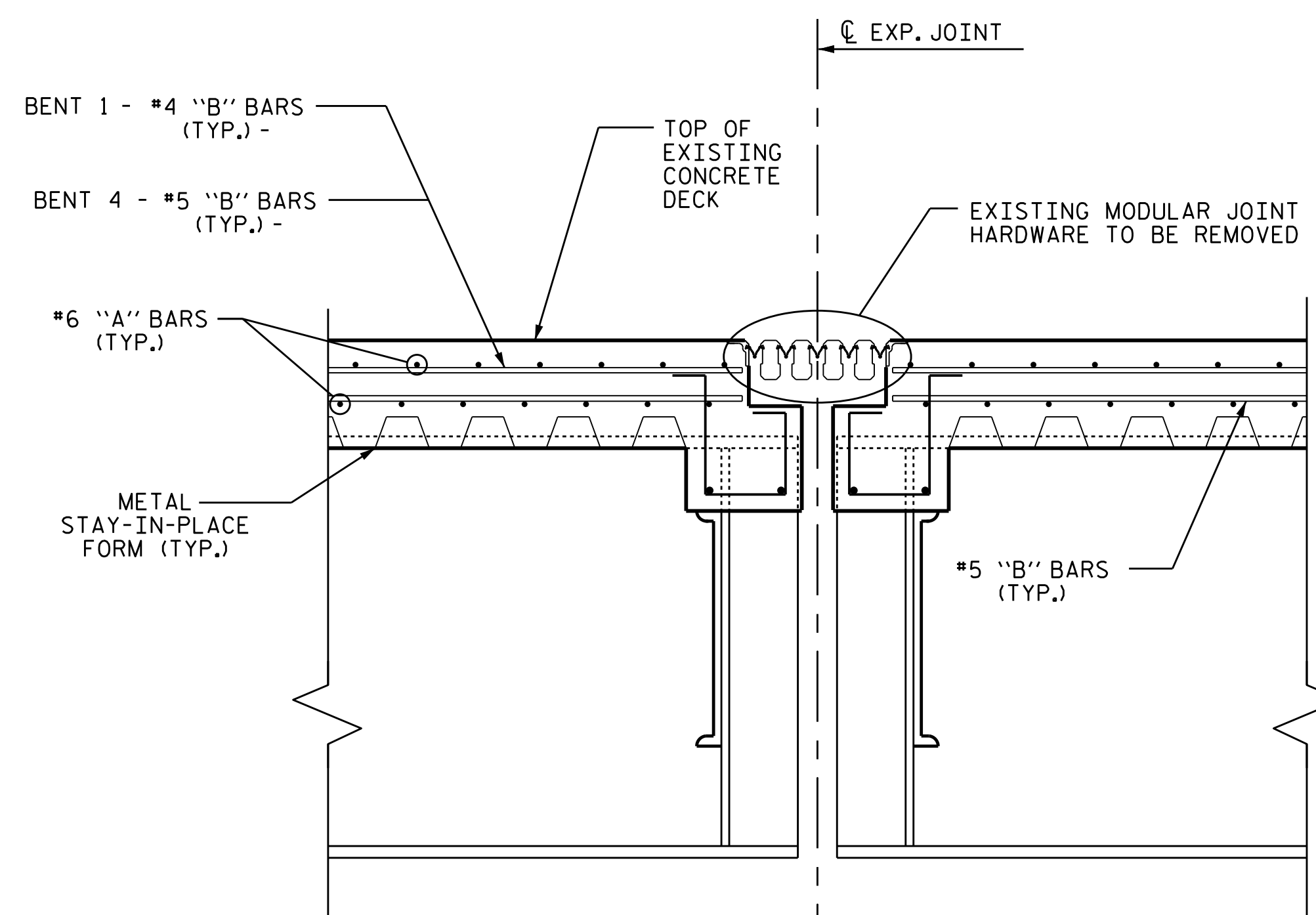


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 JOINT DETAILS
 AT APPROACH SLABS
 & BARRIER RAILS

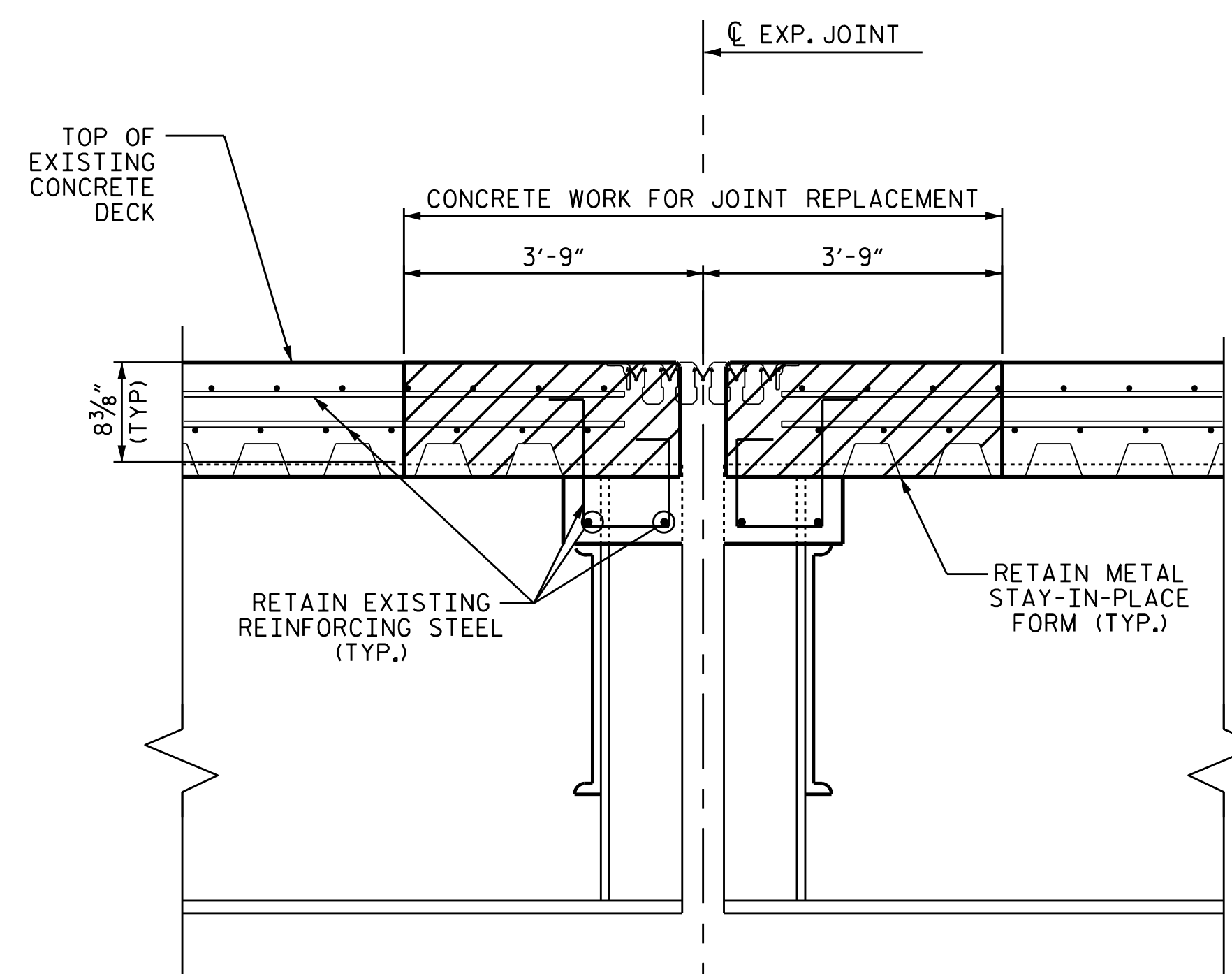
DRAWN BY : S. I. SANDOR DATE : 05/2018
 CHECKED BY : M. K. BEARD / M. AHMED DATE : 05/2018

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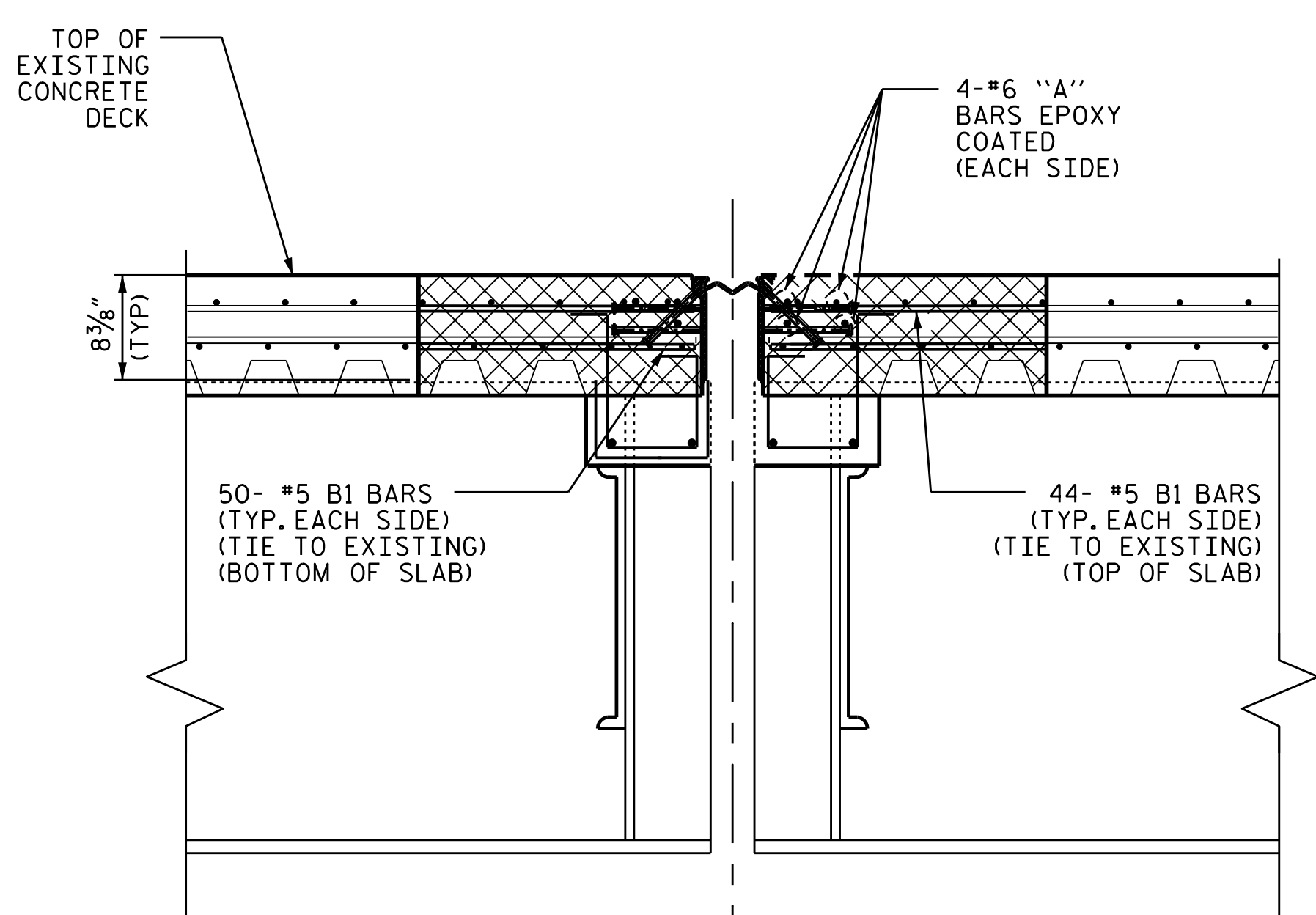
EXPANSION JOINT
(EXISTING JOINT)



EXPANSION JOINT
(EXISTING JOINT DEMOLITION)

SECTION B-B

EXISTING CONCRETE TO BE REMOVED



PROPOSED STRIP SEAL EXPANSION JOINT
(FOR DETAILS, SEE "STRIP SEAL EXPANSION JOINT DETAILS" SHEET)

SECTION B-B

NEW CONCRETE FOR DECK BUILD UP

NOTES:

EXISTING MODULAR EXPANSION JOINT DETAIL ARE SHOWN FOR INFORMATION ONLY. ACTUAL FIELD CONDITIONS MAY VARY. THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT IF ACTUAL CONDITIONS VARY FROM WHAT IS SHOWN ON THESE PLANS.

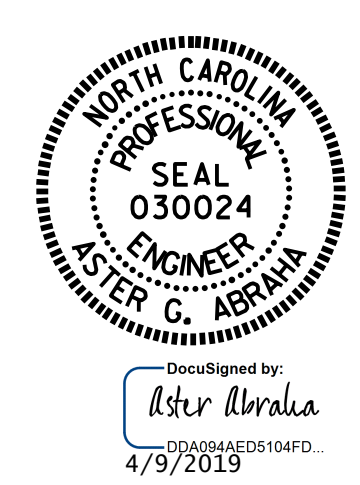
THE CONTRACTOR SHALL HAVE A REPRESENTATIVE FROM THE JOINT MANUFACTURE PRESENT DURING INSTALLATION OF PROPOSED EXPANSION JOINT SEAL.

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

THE CONTRACTOR SHALL PREPARE THE BOTTOM SURFACE OF BLOCK OUT TO BE PARALLEL WITH PLANE OF THE ROADWAY AND PROVIDE A UNIFORM SURFACE.

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 410063

SHEET 1 OF 2



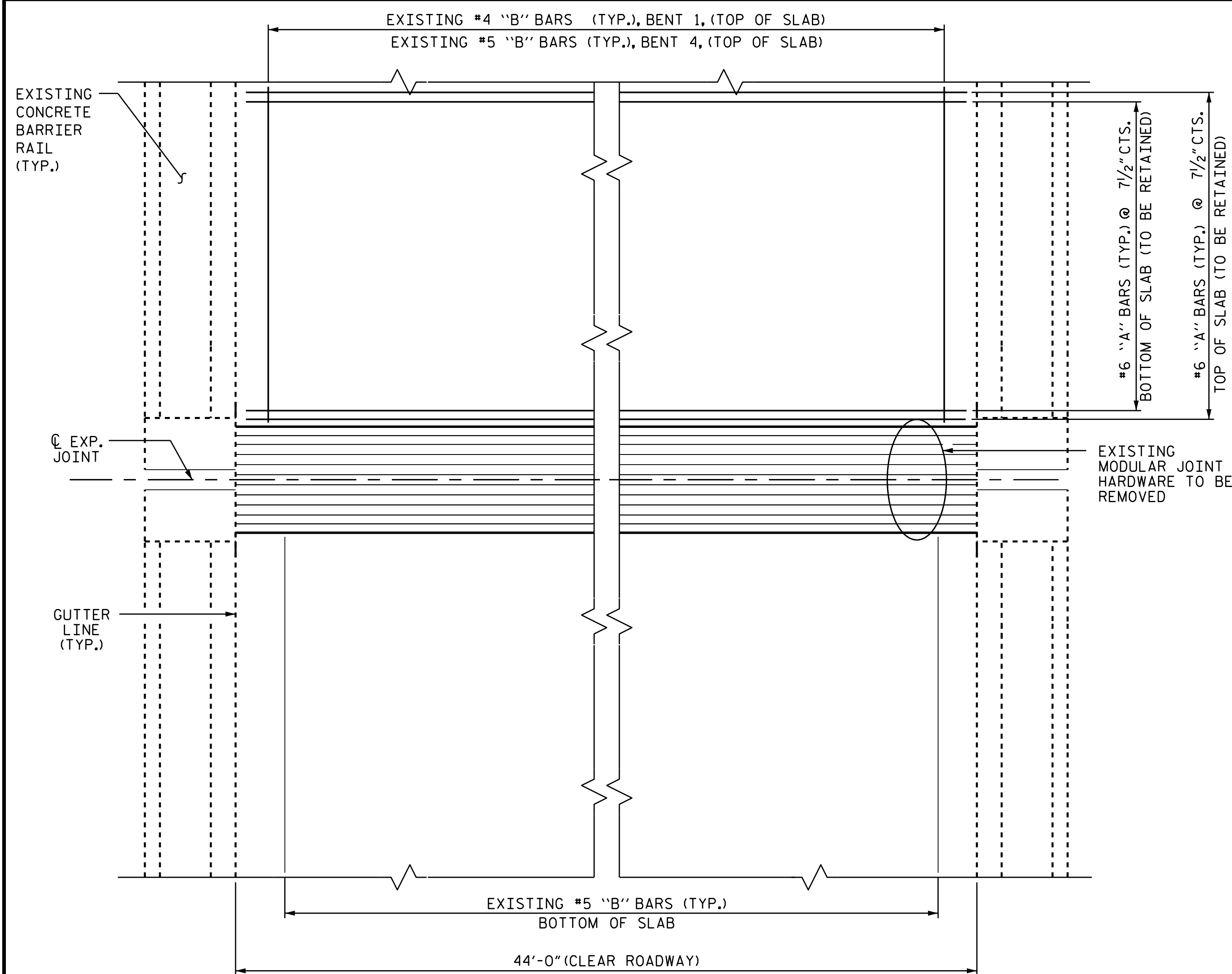
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

MODULAR JOINT
 REPLACEMENT
 BENTS 1 & 4

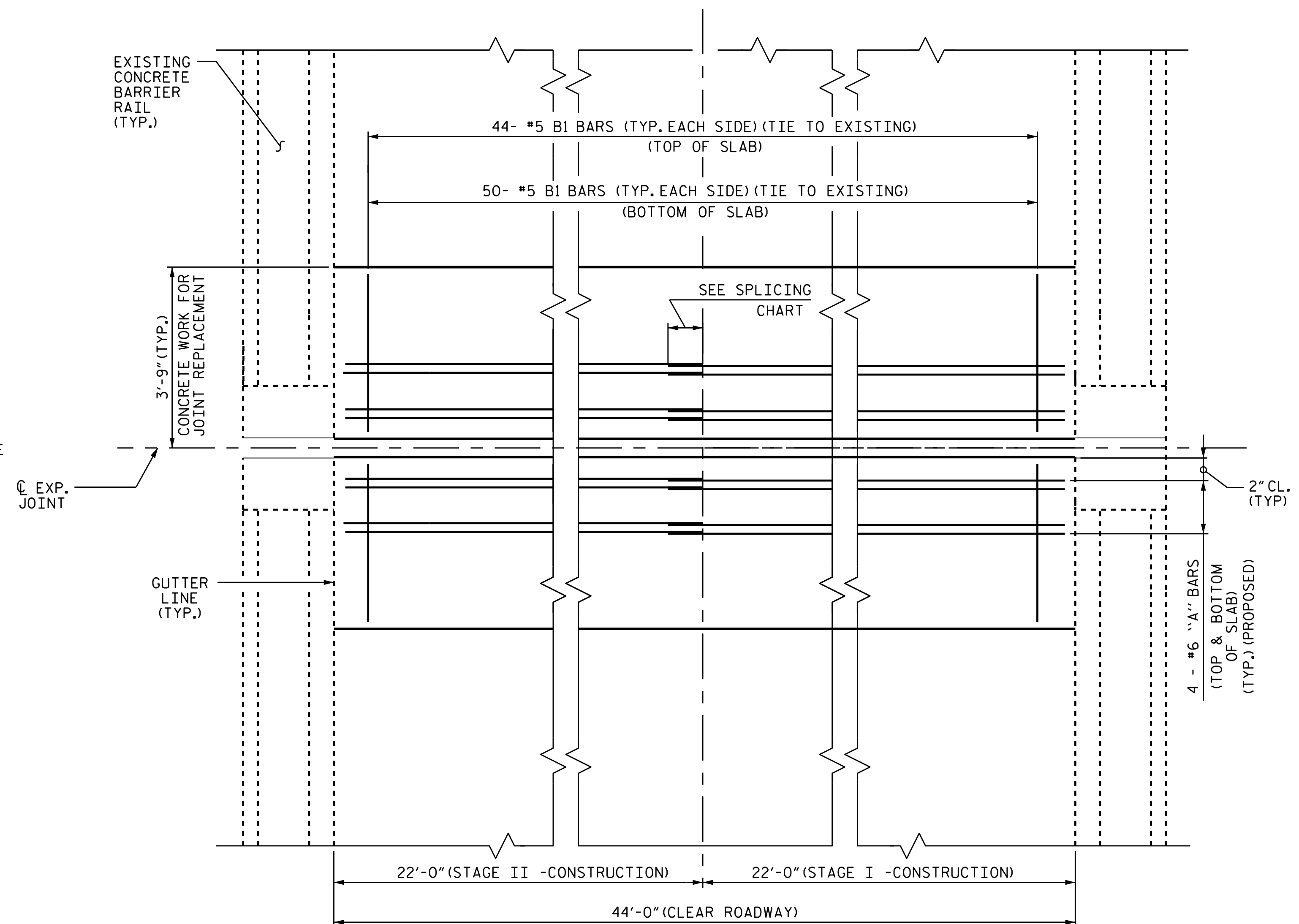
DRAWN BY : S. T. SANDOR DATE : 09/2018
 CHECKED BY : M. AHMED/A. G. ABRAHA DATE : 09/2018

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2			4			21



TYPICAL PLAN OF EXISTING MODULAR JOINT



TYPICAL PROPOSED JOINT

NOTES

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

THE ENGINEER WILL REVIEW EXISTING DECK CONDITIONS. THE CONTRACTOR SHALL REMOVE UNSOUND CONCRETE IN THE DECK, OR AS DIRECTED BY THE ENGINEER.

DECK CONCRETE SHALL BE REPLACED WITH CLASS AA HIGH EARLY STRENGTH PORTLAND CEMENT CONCRETE ACCORDING TO SECTION 1000-5 OF THE STANDARD SPECIFICATIONS.

REMOVE BRIDGE DECK CONCRETE TO THE EXTENT NECESSARY TO REMOVE EXISTING JOINT. INTRODUCE A PARTIAL DEPTH SAWCUT NOT EXCEEDING 1" IN DEPTH. FOLLOWED BY CONCRETE REMOVAL WITHOUT DAMAGE TO EXISTING REINFORCING STEEL AND EXISTING GIRDERS.

RETAIN BRIDGE DECK REINFORCING STEEL. STRAIGHTEN, REPAIR, OR REPLACE REINFORCING STEEL, AS NECESSARY.

THE CONTRACTOR SHALL CONSTRUCT THE OPENING FOR THE STRIP SEAL EXPANSION JOINT BASED UPON THE MANUFACTURER'S RECOMMENDATIONS. FOR ALL TEMPERATURE RANGES, THE JOINT WIDTH MAY NOT BE LESS THAN 1" OR GREATER THAN 3/2". THE CONTRACTOR SHALL INSTALL JOINT SEAL ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

REMOVE EXISTING MODULAR EXPANSION JOINT IN ENTIRETY AND ALL OTHER JOINT HARDWARE.

PROPOSED A1, A2 AND B1 BARS SHALL BE SPACED SO AS TO MATCH SPACING OF EXISTING "A" AND "B" BARS.

THE REPAIR CONCRETE SHALL ATTAIN A STRENGTH OF 3,000 PSI PRIOR TO THE INTRODUCTION OF TRAFFIC.

BILL OF MATERIAL FOR ONE BENT (TWO REQUIRED)					
STAGE 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	8	#6	STR	25'-0"	300
* B1	94	#5	STR	3'-4"	327
* EPOXY COATED REINFORCING STEEL = 627 LBS					
CLASS AA CONCRETE = 8.0 C.Y.					
STAGE 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A2	8	#6	STR	22'-0"	265
* B1	94	#5	STR	3'-4"	327
* EPOXY COATED REINFORCING STEEL = 592 LBS					
CLASS AA CONCRETE = 8.0 C.Y.					

BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 410063

SHEET 2 OF 2



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

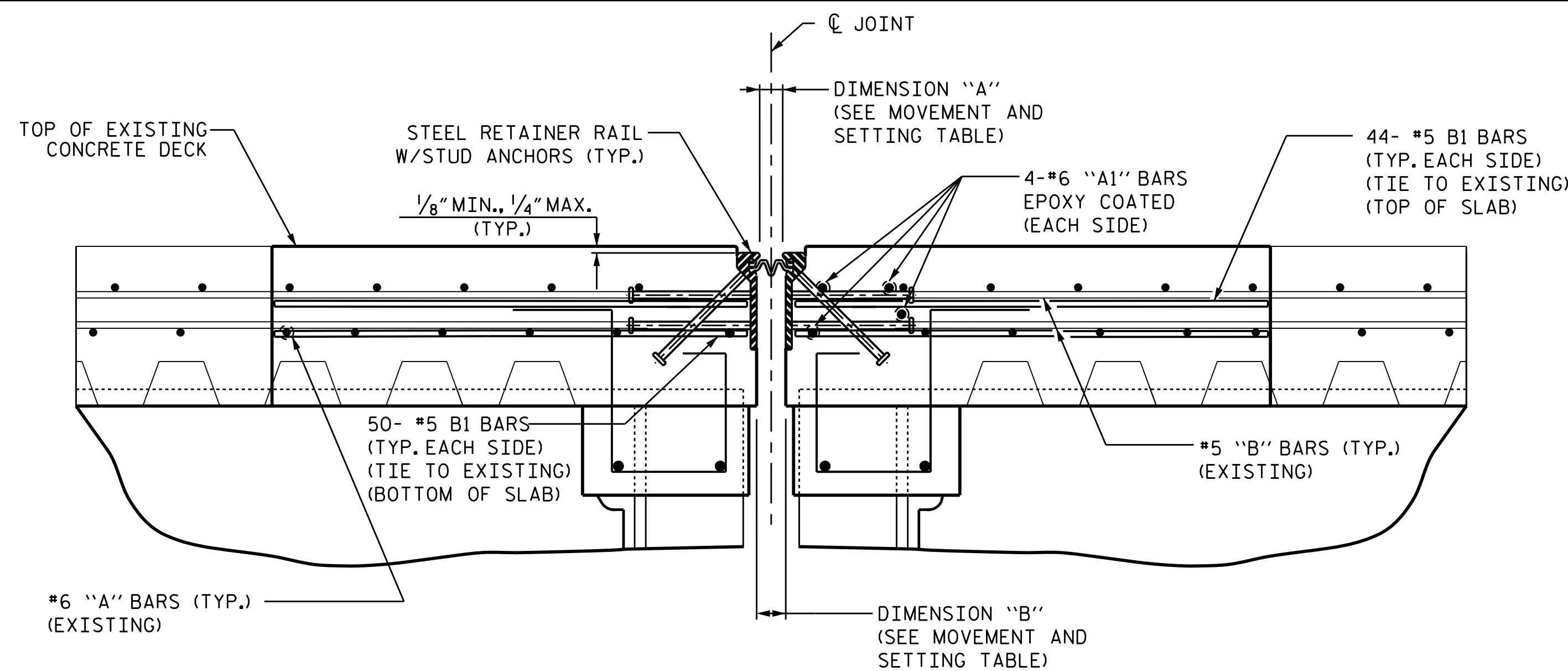
MODULAR JOINT REPLACEMENT

BENTS 1 & 4

DRAWN BY : S. T. SANDOR DATE : 09/2018
 CHECKED BY : M. AHMED/A. G. ABRAHA DATE : 09/2018

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STRIP SEAL EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- STEEL SUPERSTRUCTURE

MOVEMENT AND SETTING TABLE

LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG C RDWY)	DIMENSION "A"				DIMENSION "B"		
			PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F	
BENT 1	90°-00'-00"	1 3/4"	2 1/8"	1 7/8"	1 3/8"	2 5/8"	2 3/8"	1 7/8"	
BENT 4	90°-00'-00"	2 3/8"	2 1/2"	2 3/16"	1 1/2"	3"	2 11/16"	2"	

JOINT INSTALLATION PROCEDURE:

1. INSTALL THE STRIP SEAL EXPANSION JOINT AS RECOMMENDED BY THE STRIP SEAL EXPANSION JOINT MANUFACTURER.
2. A MANUFACTURER'S REPRESENTATIVE IS TO BE PRESENT DURING INSTALLATION OF THE JOINT.
3. PLACE STEEL RETAINER RAILS IN JOINT OPENING. PROPERLY ALIGN THE RAILS BOTH HORIZONTALLY AND VERTICALLY.
4. SHIFT SLIGHTLY, AS NECESSARY, CONFLICTING REINFORCING STEEL.
5. DECK SLAB CONCRETE PLACEMENT OPERATIONS SHALL COMMENCE PER THE POURING SEQUENCE AFTER FINAL JOINT ALIGNMENT IS SET.
6. CARE MUST BE TAKEN DURING THE CONCRETE POUR TO PROTECT THE STEEL RETAINER RAILS FROM BEING FOULED BY CONCRETE SPILLOVER.
7. ON APPROACH SLAB SIDE OF JOINT, RE-LEVEL AND RE-ALIGN STEEL RETAINER RAIL AS REQUIRED.
8. PLACE APPROACH SLAB CONCRETE.
9. 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.
10. COAT THE STRIP SEAL LUGS WITH LUBRICANT-ADHESIVE AND INSTALL THE NEOPRENE STRIP SEAL GLAND AS RECOMMENDED BY THE STRIP SEAL EXPANSION JOINT MANUFACTURER.

GENERAL NOTES

FOR STRIP SEALS FOR PRESENTATION, SEE SPECIAL PROVISIONS.

STEEL RETAINER RAILS SHALL CONFORM TO AASHTO M270 GRADE 36 OR GRADE 50W STEEL. ALL STUD ANCHORS SHALL CONFORM TO AASHTO M169, GRADES 1010 THRU 1020 OR APPROVED EQUAL. ALL CONCRETE INSERTS SHALL BE CLOSEDEND 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.

NEOPRENE STRIP SEAL GLAND SHALL BE CONTINUOUS THROUGHOUT THE JOINT AND SHALL BE COMPATIBLE WITH THE STEEL RETAINER RAILS.

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).

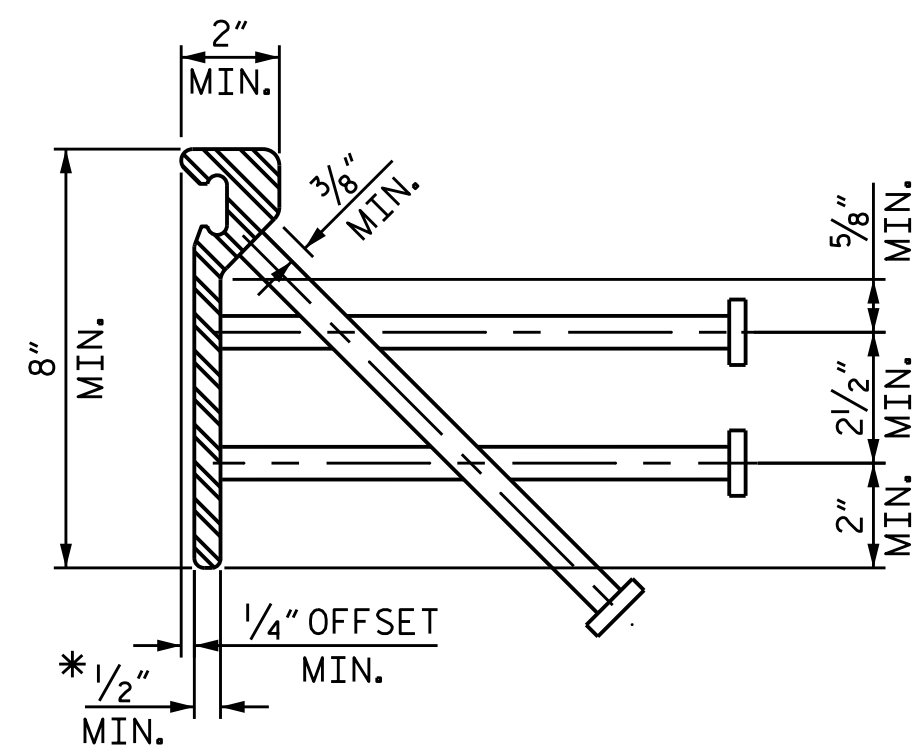
INSTALLED STEEL RETAINER RAILS SHALL FOLLOW THE ROADWAY SLOPE.

FIELD SPLICES OF THE RETAINER RAILS SHALL BE KEPT TO A MINIMUM. CONTRACTOR SHALL FURNISH DETAILED PLANS SHOWING PROPOSED SPLICE LOCATIONS FOR APPROVAL.

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

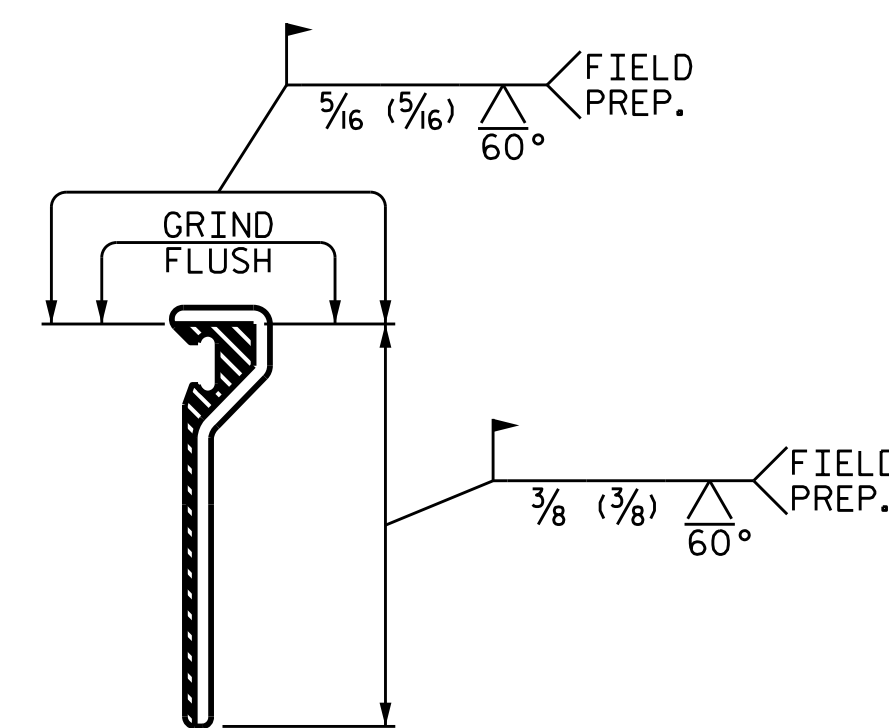
THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF CONCRETE INSERTS FOR COVER PLATES. THE YIELD LOAD OF THE 3/4" Ø BOLT IS 10 KIPS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

BILL OF MATERIALS		
	QUANTITIES	UNITS
STRIP SEAL FOR PRESERVATION	88.0	L.F.

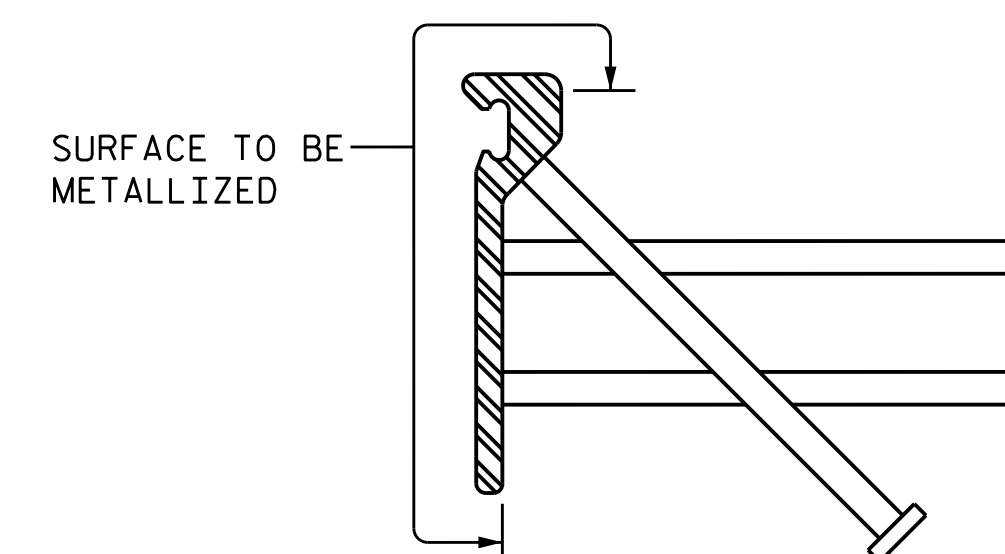


TYPICAL SECTION STEEL RETAINER RAIL

*DIMENSION "B" BASED ON STEEL RETAINER RAIL TOP OFFSET TO FACE OF RAIL OF 1/4" MINIMUM. IF ACTUAL OFFSET IS GREATER ADJUST DIMENSION "B" AS REQUIRED.



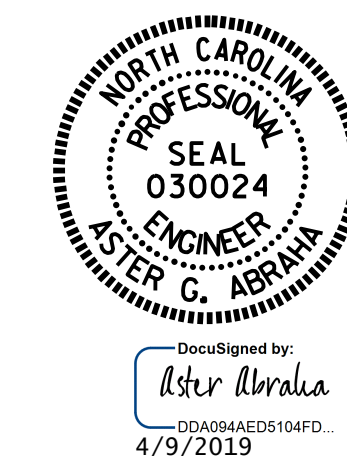
STEEL RETAINER RAIL (FIELD SPLICE DETAIL)



METALLIZING DETAIL

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 410063

SHEET 1 OF 2

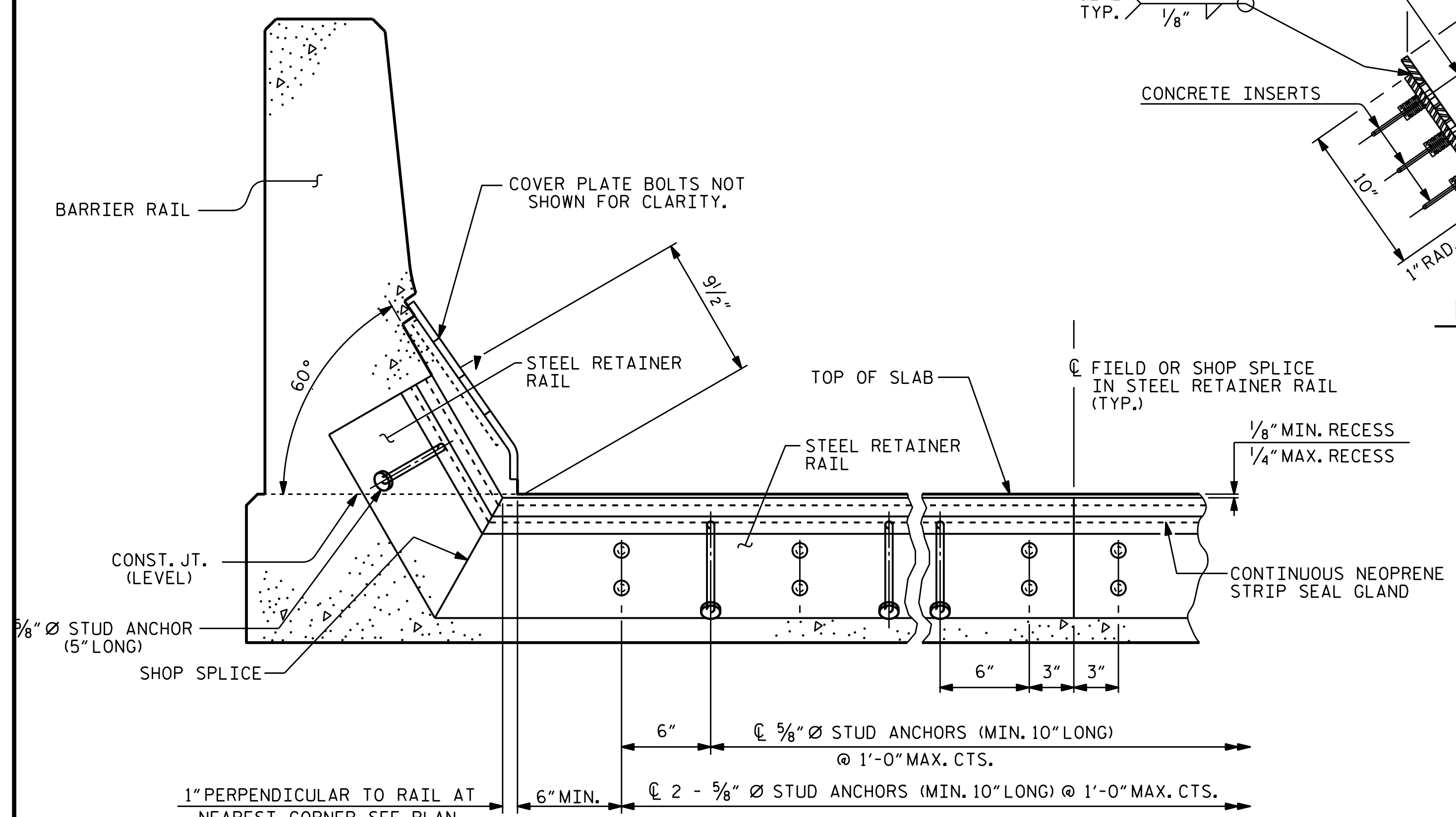


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 STRIP SEAL EXPANSION JOINT DETAILS

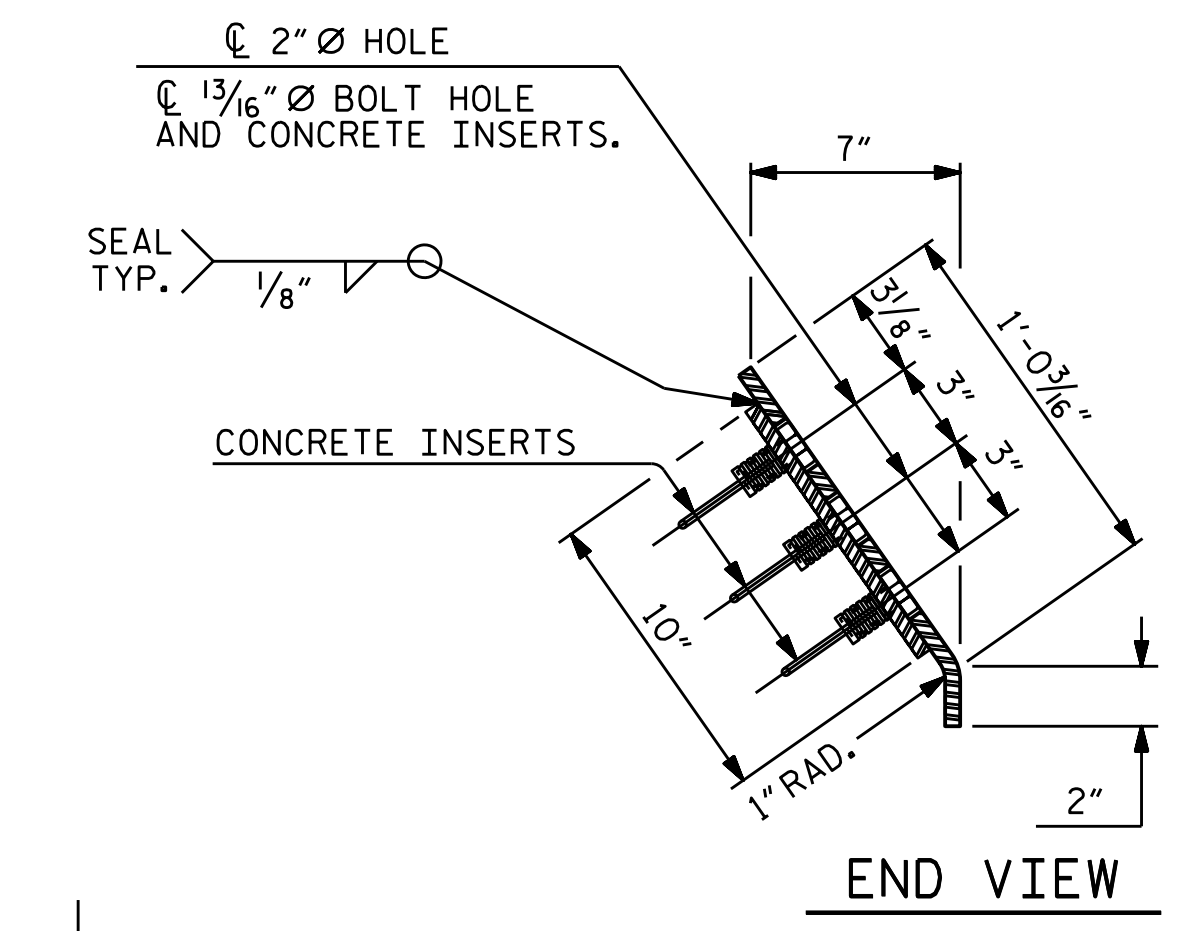
ASSEMBLED BY : S. T. SANDOR	DATE : 09/2018
CHECKED BY : A. G. ABRAHA	DATE : 09/2018
DRAWN BY : MAA	6/17
CHECKED BY : BNB	6/17

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

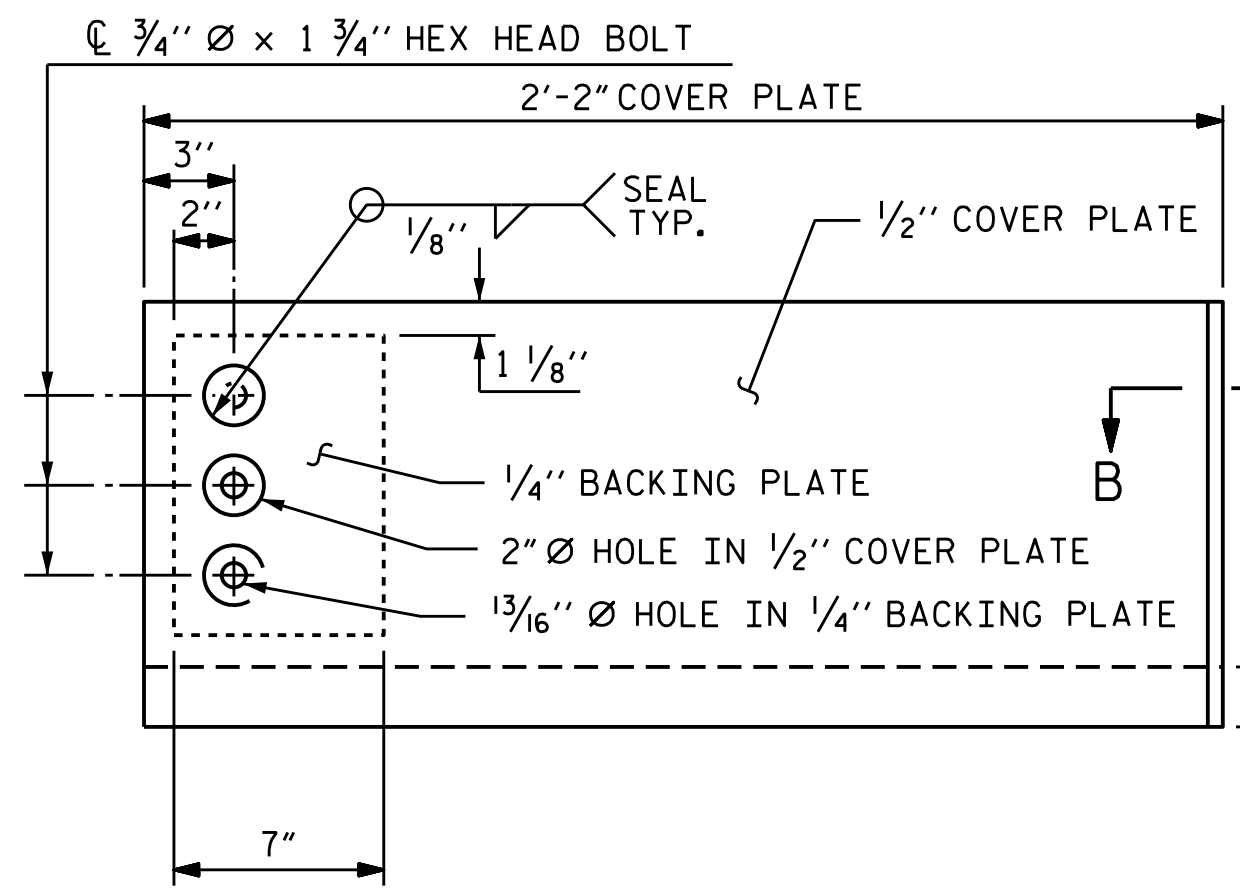
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS 21
2			4			



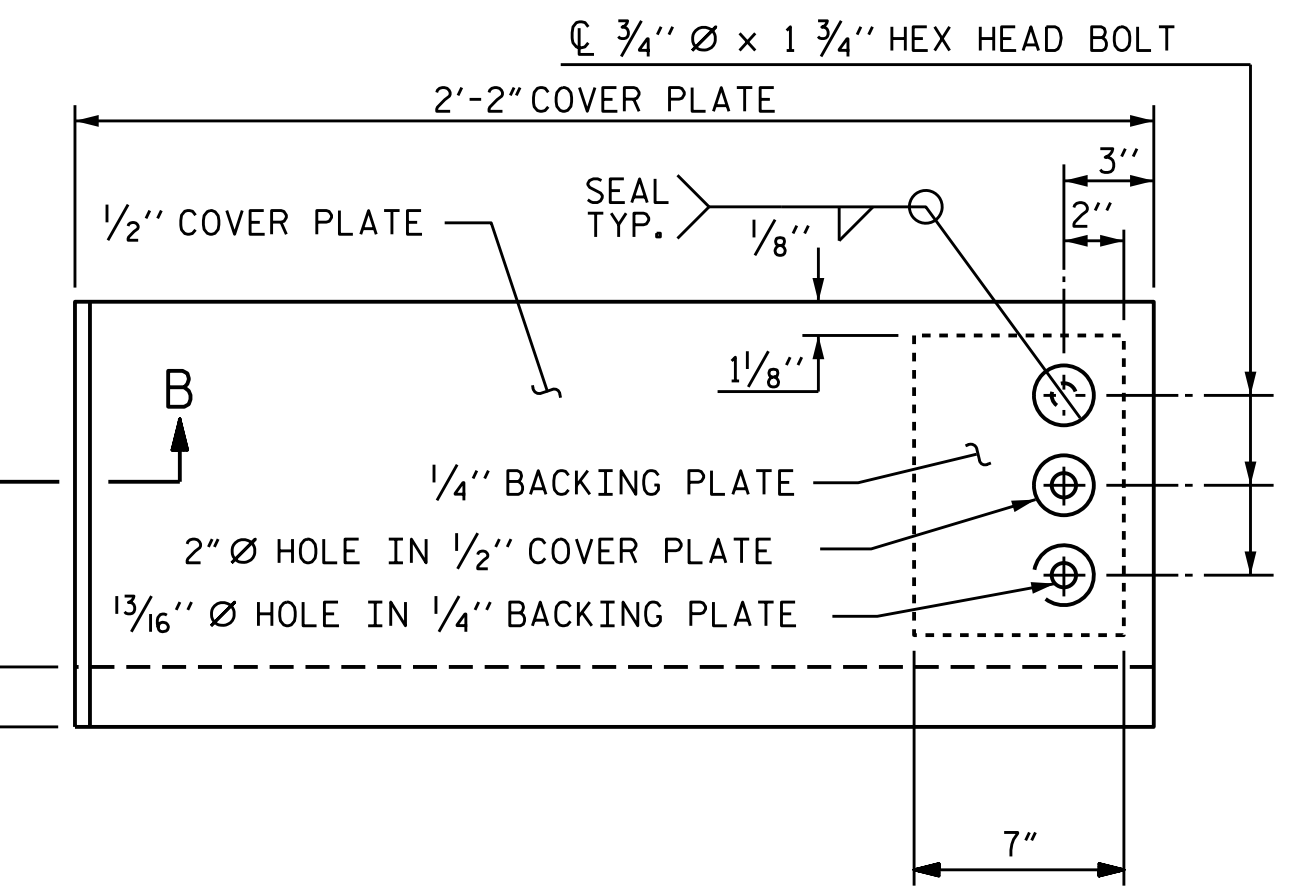
SECTION THRU RAIL NORMAL TO JOINT



END VIEW

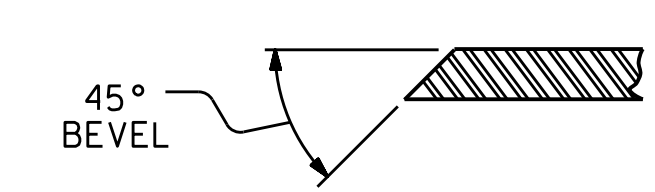


TYPE I - ELEVATION VIEW

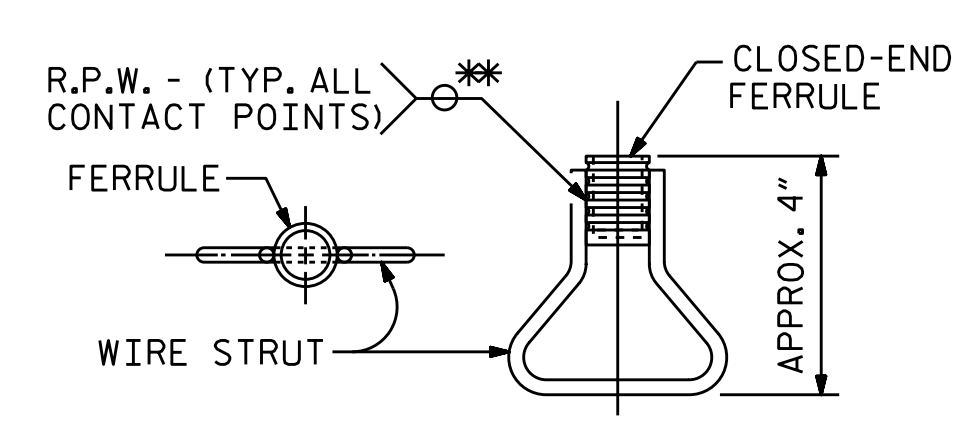


TYPE II - ELEVATION VIEW

COVER PLATE DETAILS

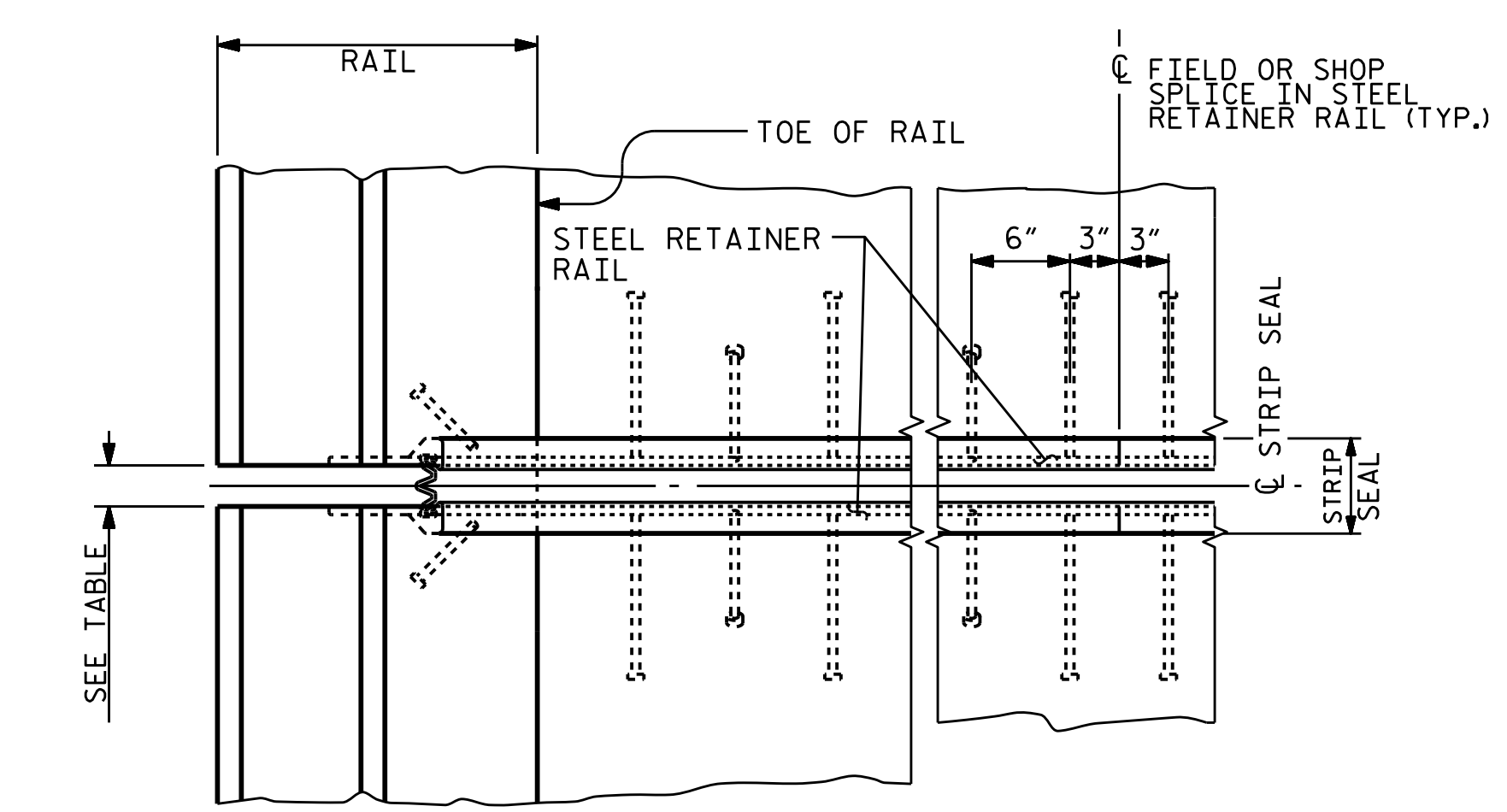


SECTION B - B

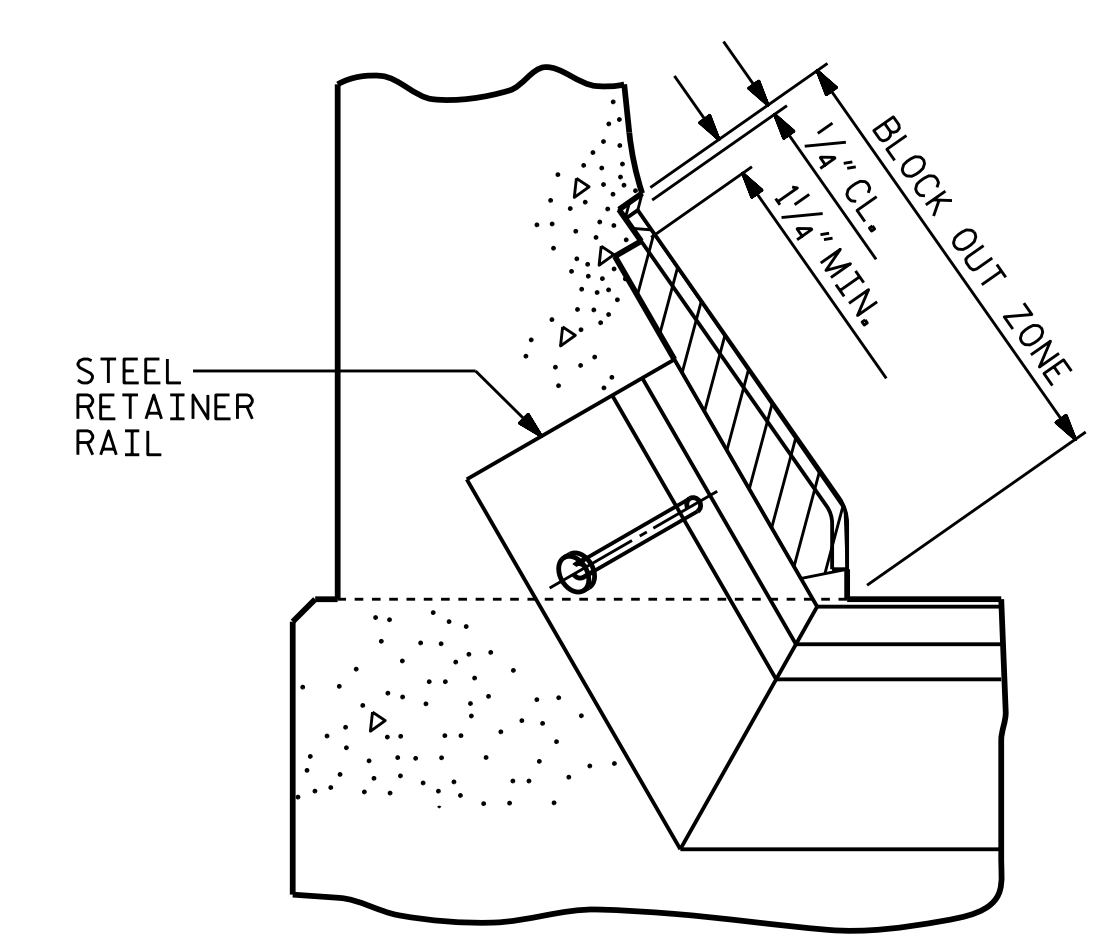


CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



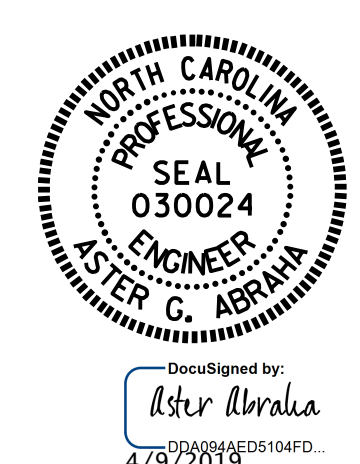
PLAN OF STRIP SEAL EXPANSION JOINT



BLOCK OUT DETAIL

PROJECT NO. 15BPR.17
 HALIFAX COUNTY
 BRIDGE NO. 410063

SHEET 2 OF 2

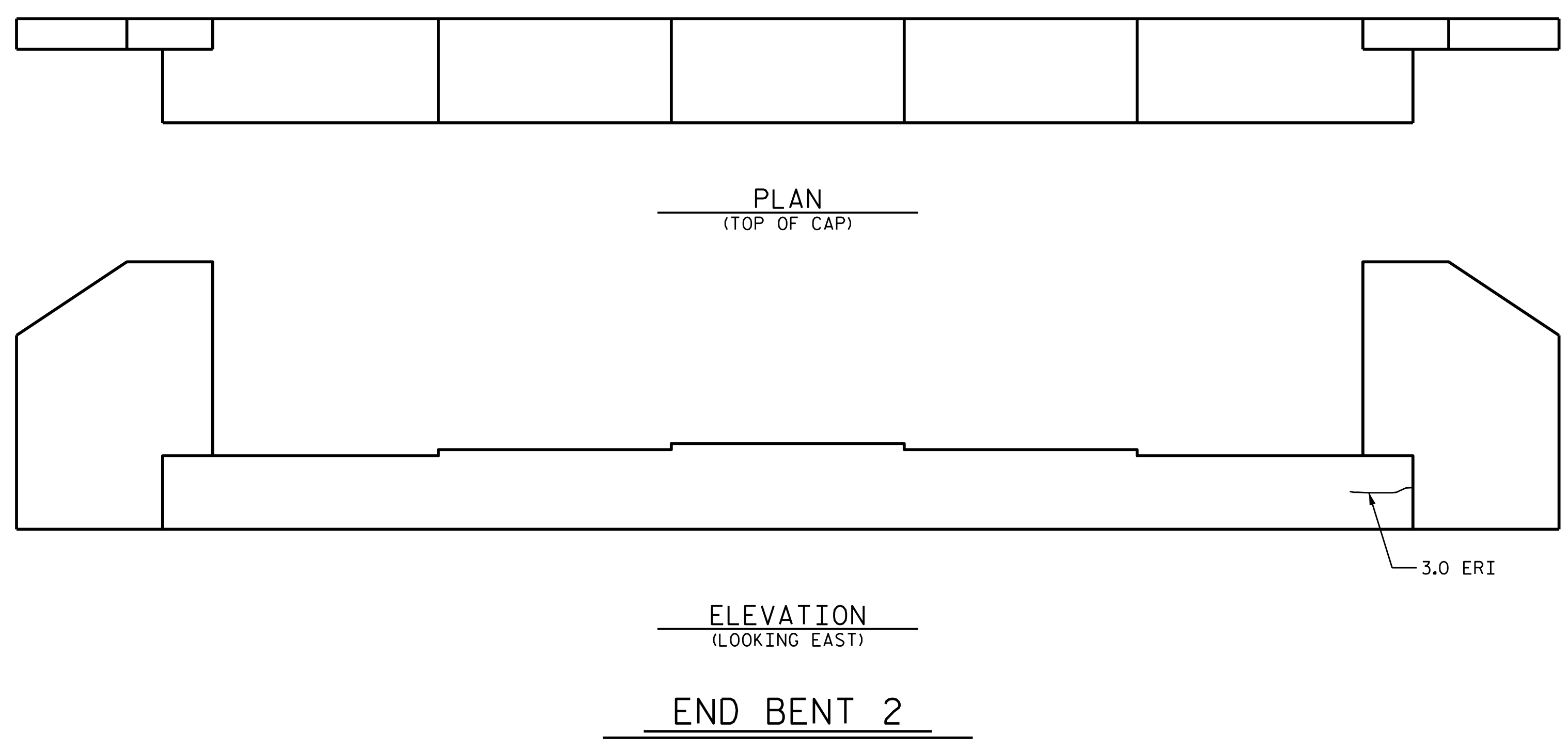
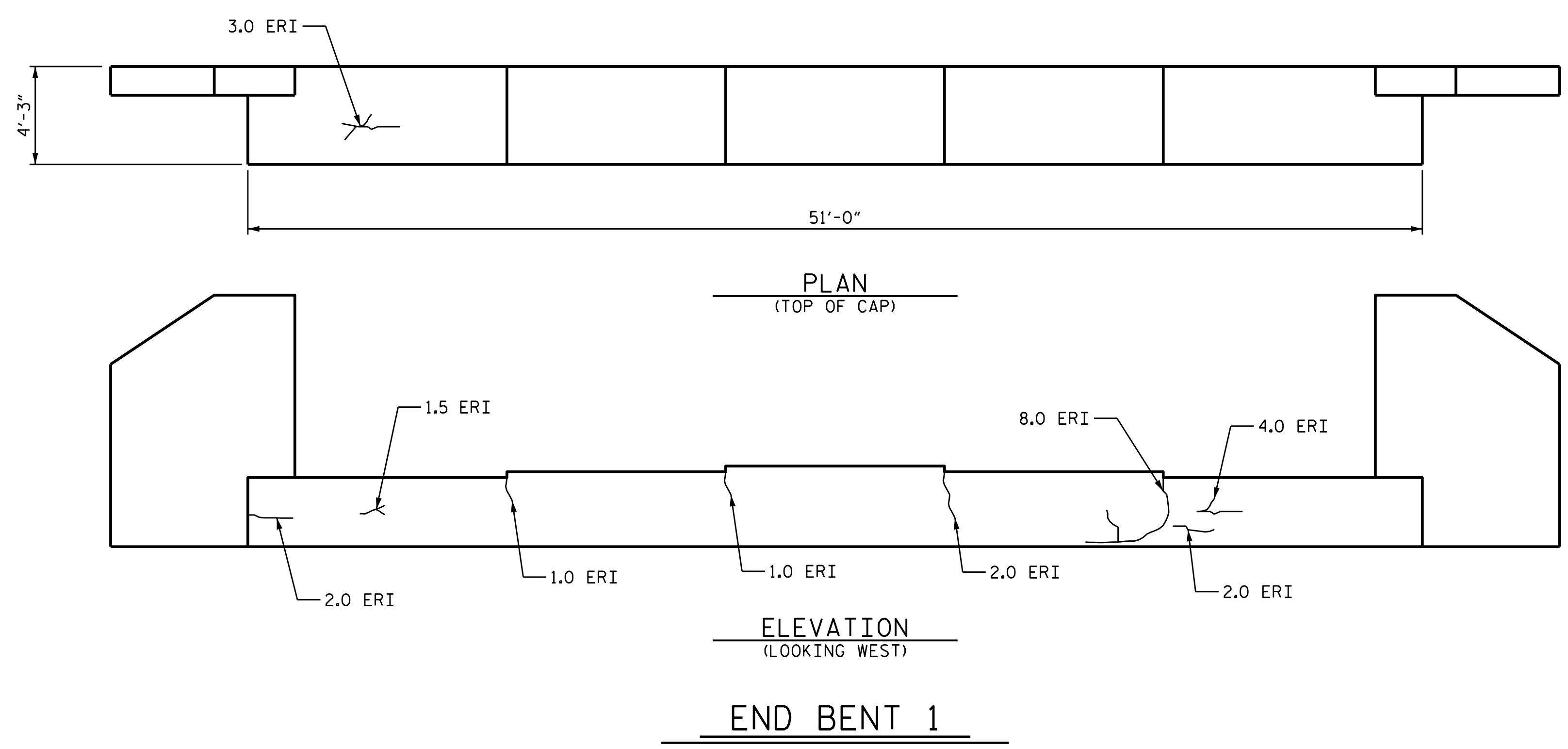


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 STRIP SEAL EXPANSION
 JOINT DETAILS
 FOR BARRIER RAIL

ASSEMBLED BY :	S.T. SANDOR	DATE :	10/18
CHECKED BY :	A. G. ABRAHA, P.E.	DATE :	10/18
DRAWN BY :	MAA	6/17	
CHECKED BY :	BNB	6/17	

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			21

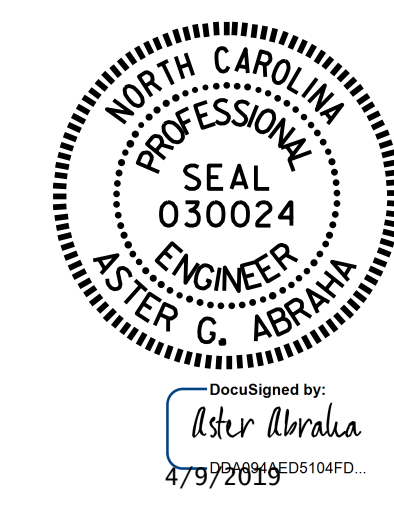


REPAIR QUANTITY TABLE				
REPAIRS END BENT 1 & 2	QUANTITIES			
	ESTIMATE		ACTUAL	
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		27.5		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	433.5			

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

- ERI - EPOXY RESIN INJECTION
- ▨ - SHOTCRETE REPAIRS
- ▩ - CONCRETE REPAIRS

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 63



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIR
 END BENT 1 &
 END BENT 2**

DRAWN BY : S. T. SANDOR DATE : 02/2018
 CHECKED BY : M. K. BEARD DATE : 05/02/18

NO.	REVISIONS			NO.	REVISIONS			SHEET NO.
	BY:	DATE:			BY:	DATE:		
1				3			S-15	
2				4			TOTAL SHEETS 21	

REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	35.0	17.5		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		233.0		
COLUMN		0.0		
EPOXY COATING		AREA SF		AREA SF
TOP OF CAP		230.0		

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

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE 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.

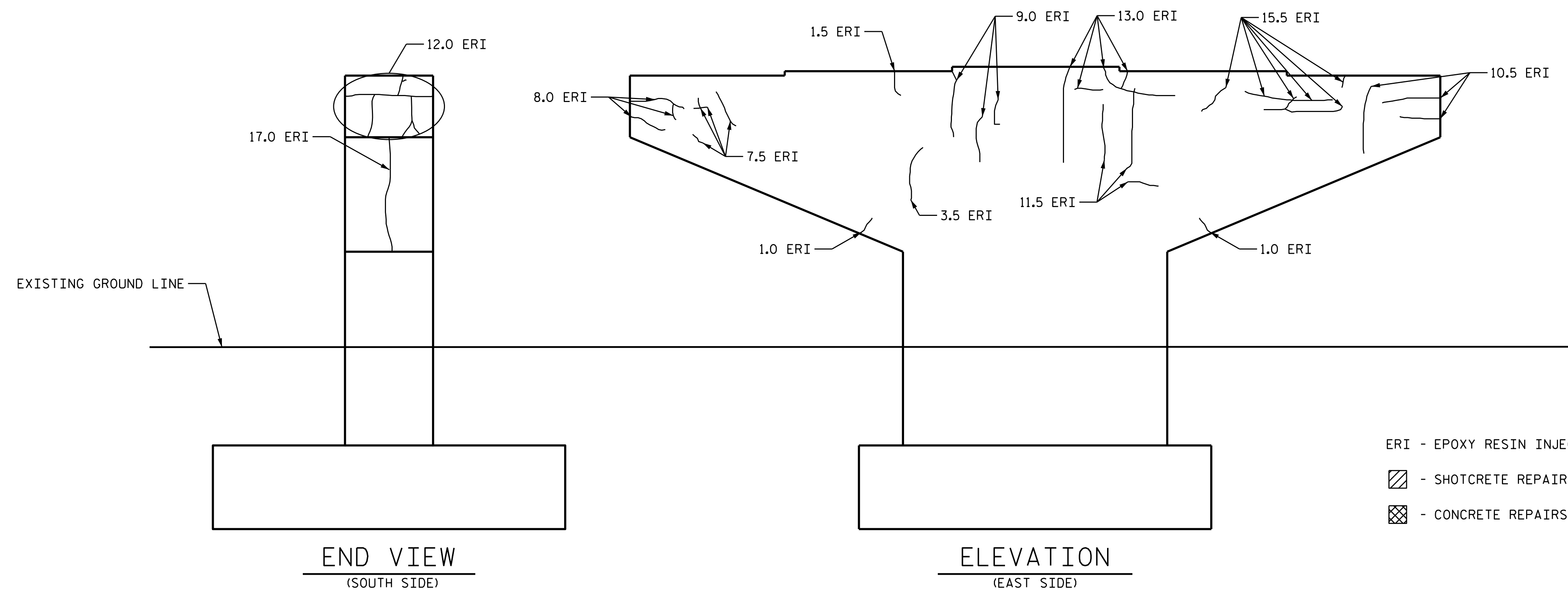
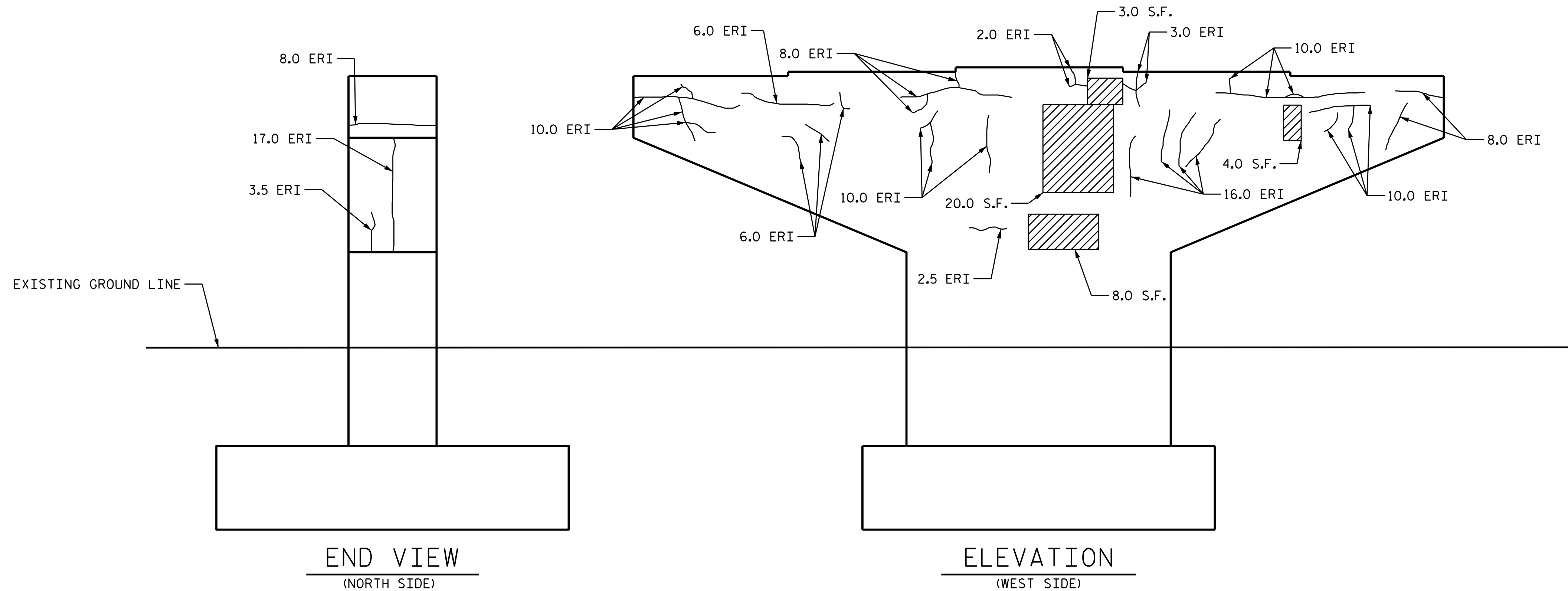
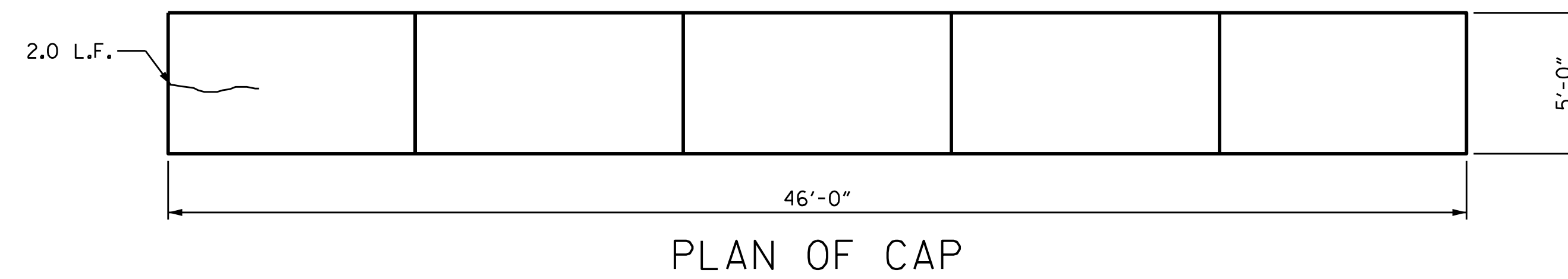
FOR CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

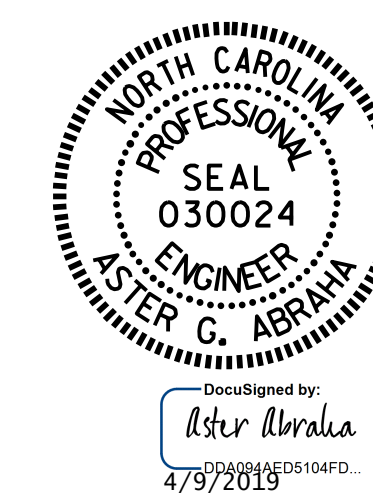
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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



- ERI - EPOXY RESIN INJECTION
- ▨ - SHOTCRETE REPAIRS
- ▣ - CONCRETE REPAIRS

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 63



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIR
 BENT 1**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-16
2			4			21

DRAWN BY : S. T. SANDOR DATE : 04/2018
 CHECKED BY : M. K. BEARD DATE : 05/02/18

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 SIGNATURES COMPLETED

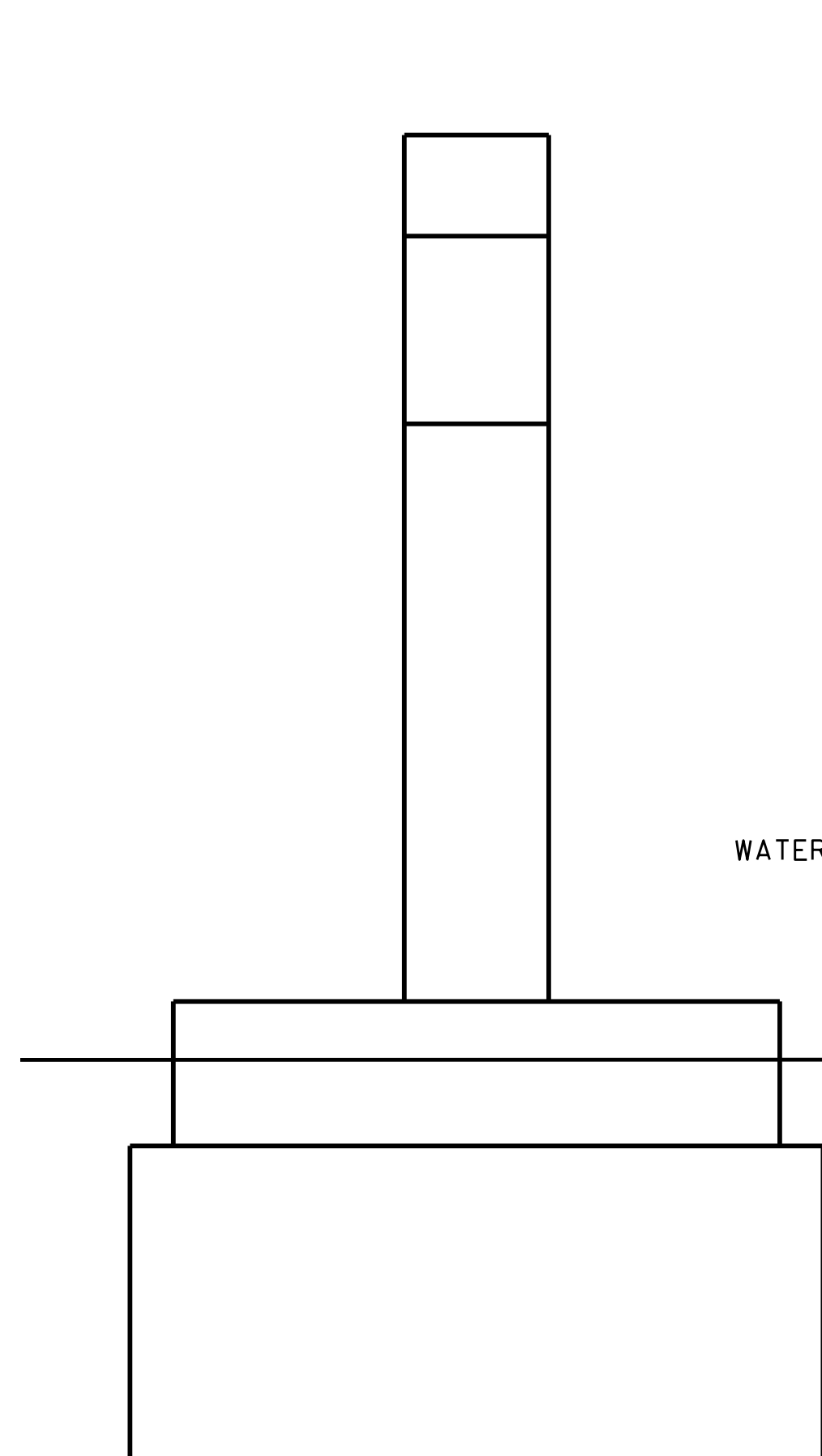
ERI - EPOXY RESIN INJECTION

▨ - SHOTCRETE REPAIRS

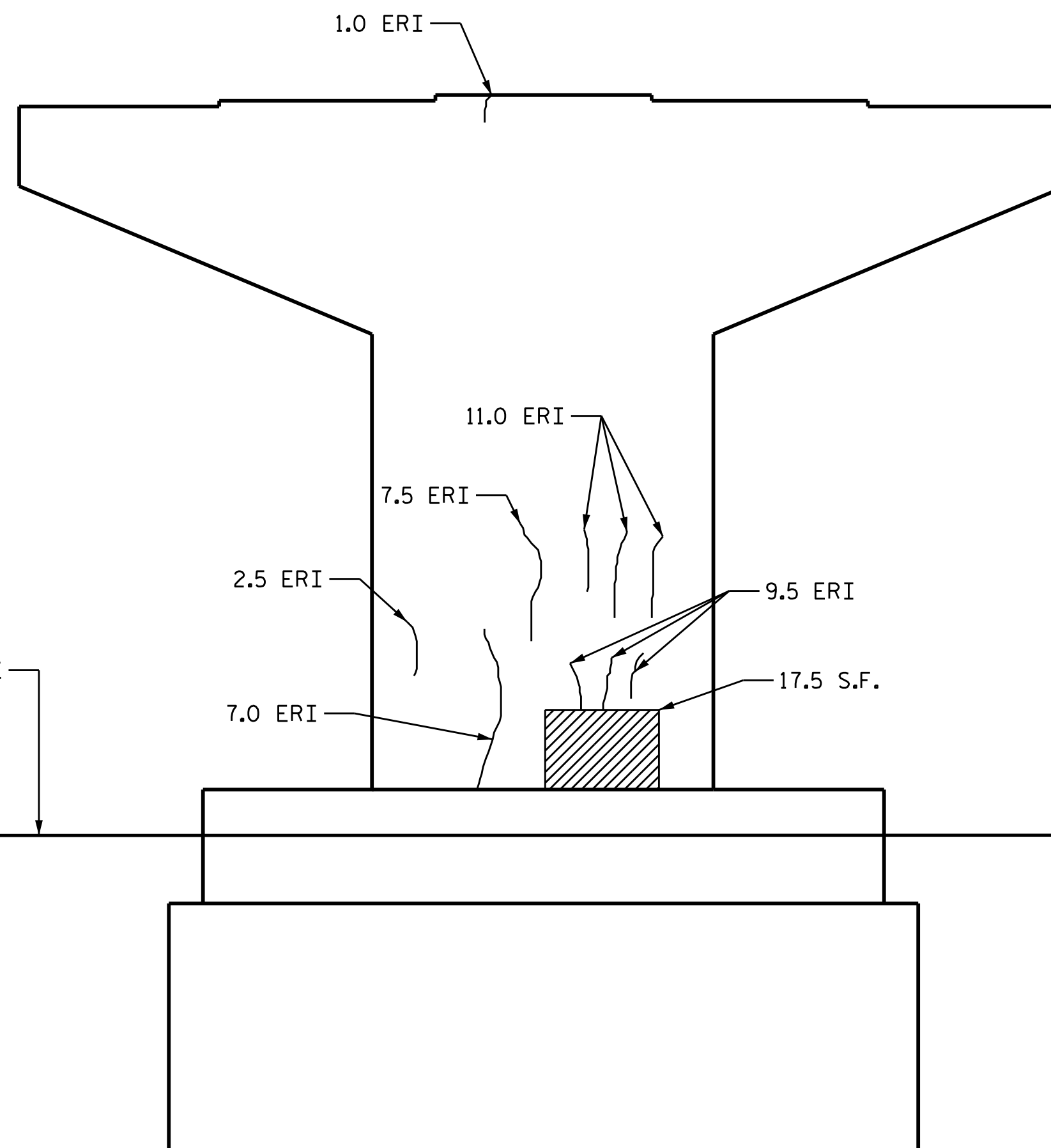
▩ - CONCRETE REPAIRS



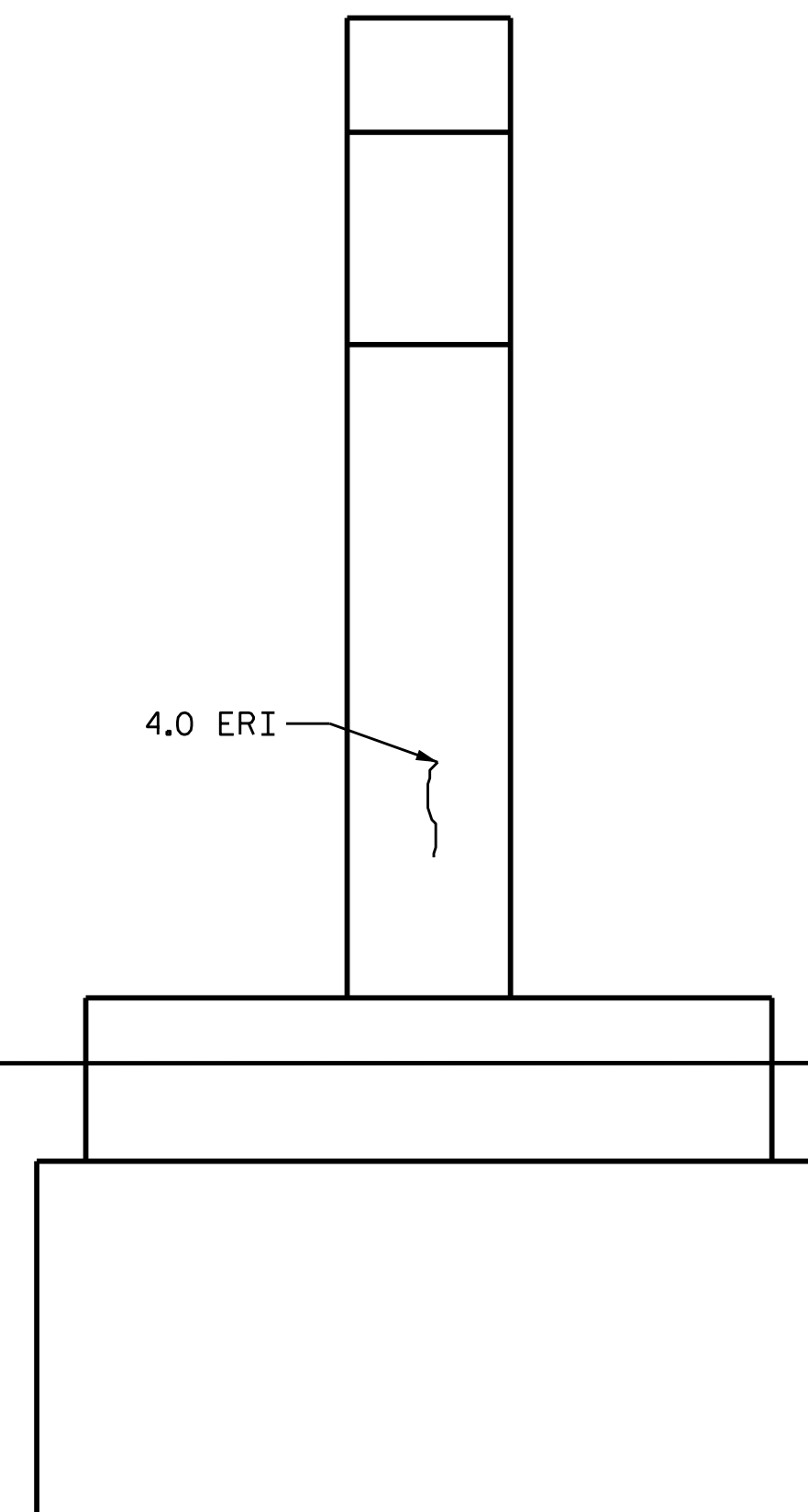
PLAN OF CAP



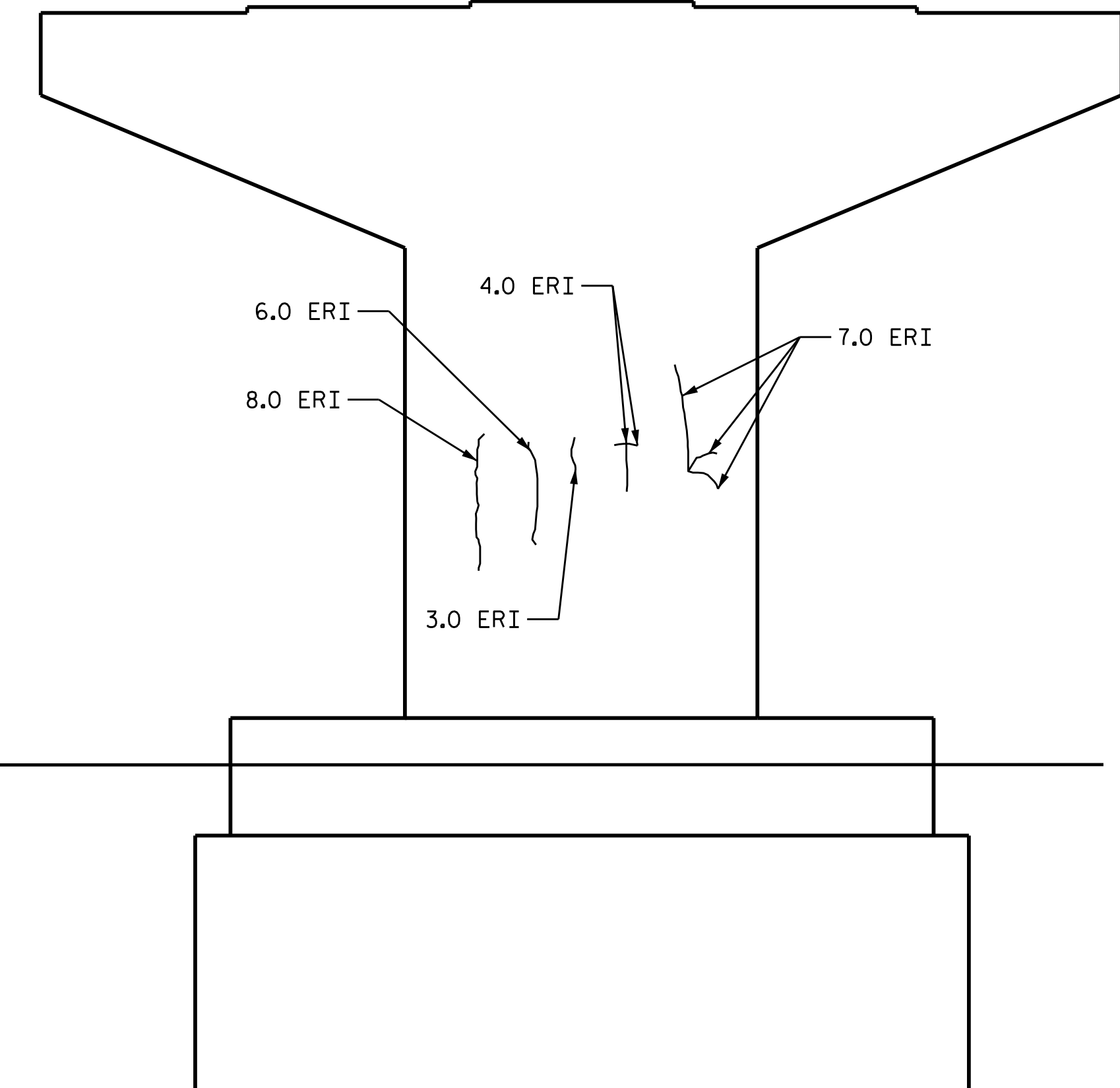
END VIEW
(NORTH SIDE)



ELEVATION
(EAST SIDE)



END VIEW
(SOUTH SIDE)



ELEVATION
(WEST SIDE)

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE 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 CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

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

REPAIR QUANTITY TABLE				
REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	17.5	5.8		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		1.0		
COLUMN		70.5		

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

REPAIR QUANTITY TABLE				
REPAIRS BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
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		

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 63



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE REPAIR BENT 2

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS 21
2			4			

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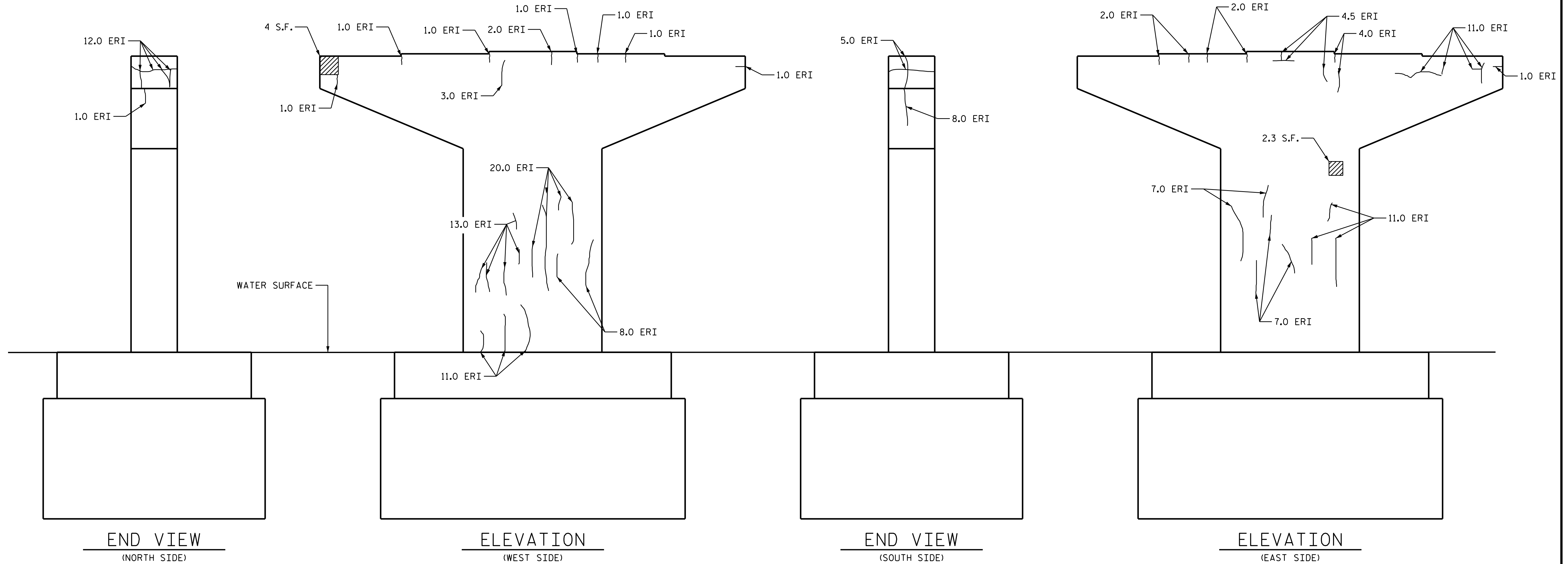
ERI - EPOXY RESIN INJECTION

▨ - SHOTCRETE REPAIRS

▩ - CONCRETE REPAIRS



PLAN OF CAP



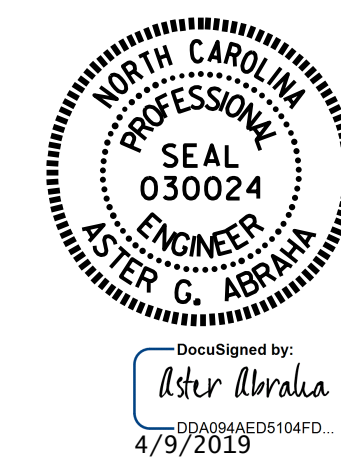
NOTES:
 REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEMEMED NECESSARY BY THE INSPECTOR OR ENGINEER, THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.
 FOR CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.
 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 QUANTITY TABLE				
REPAIRS BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	4.0	2.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	2.3	1.6		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		62.5		
COLUMN		77.0		

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

REPAIR QUANTITY TABLE				
REPAIRS BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
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		

PROJECT NO. 15BPR.17
 HALIFAX COUNTY
 BRIDGE NO. 63



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE REPAIR BENT 3					
SHEET NO. S-18					
TOTAL SHEETS 21					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

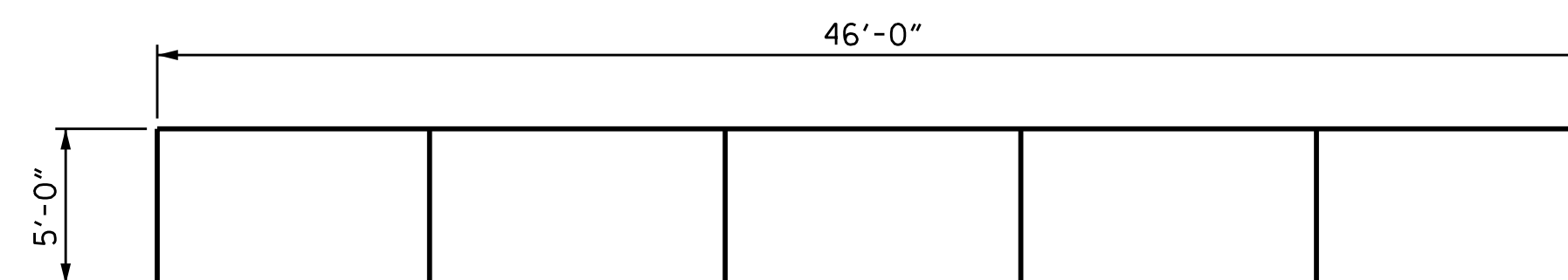
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DRAWN BY : S. T. SANDOR DATE : 02/2018
 CHECKED BY : M. K. BEARD DATE : 05/02/18

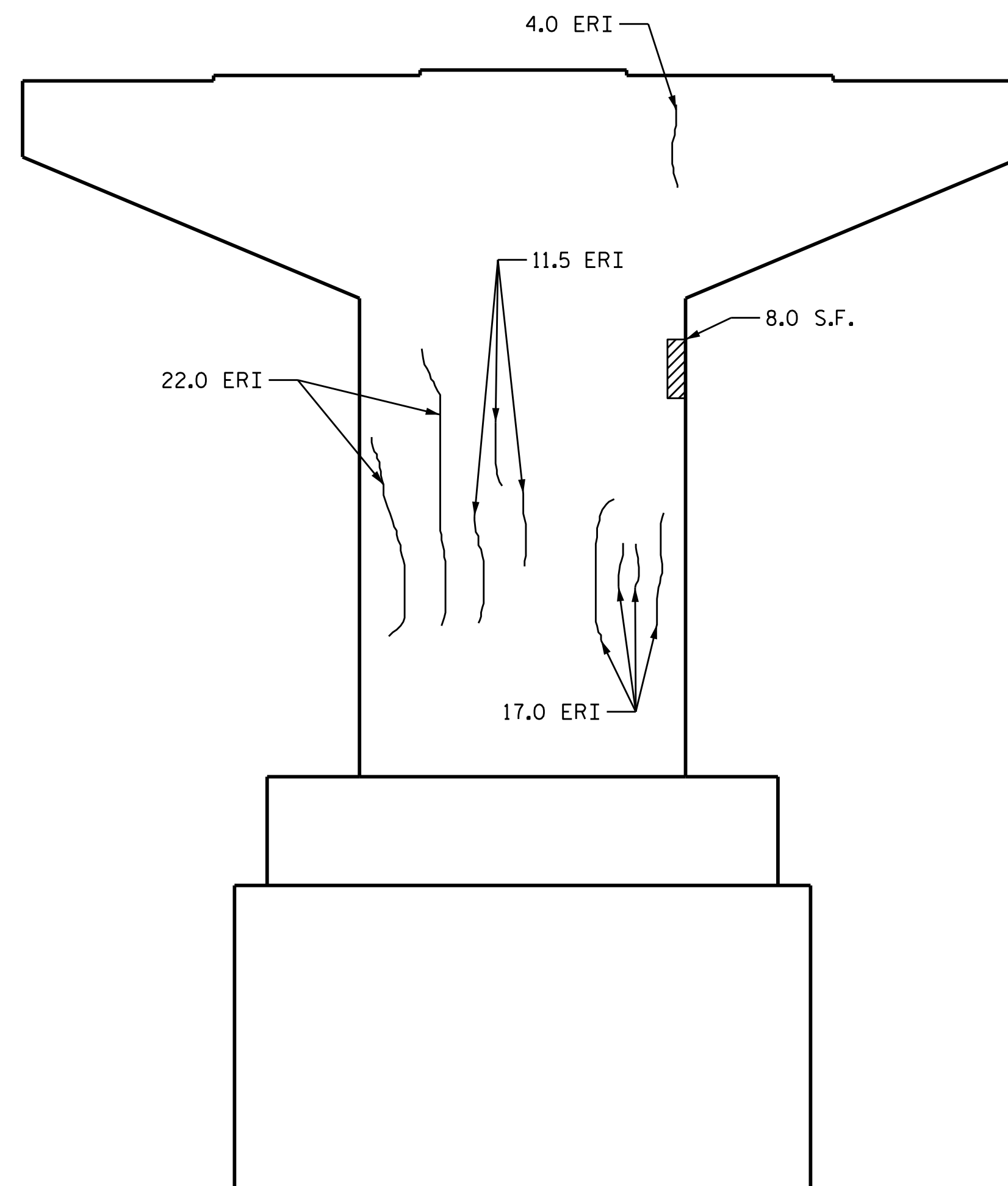
ERI - EPOXY RESIN INJECTION

▨ - SHOTCRETE REPAIRS

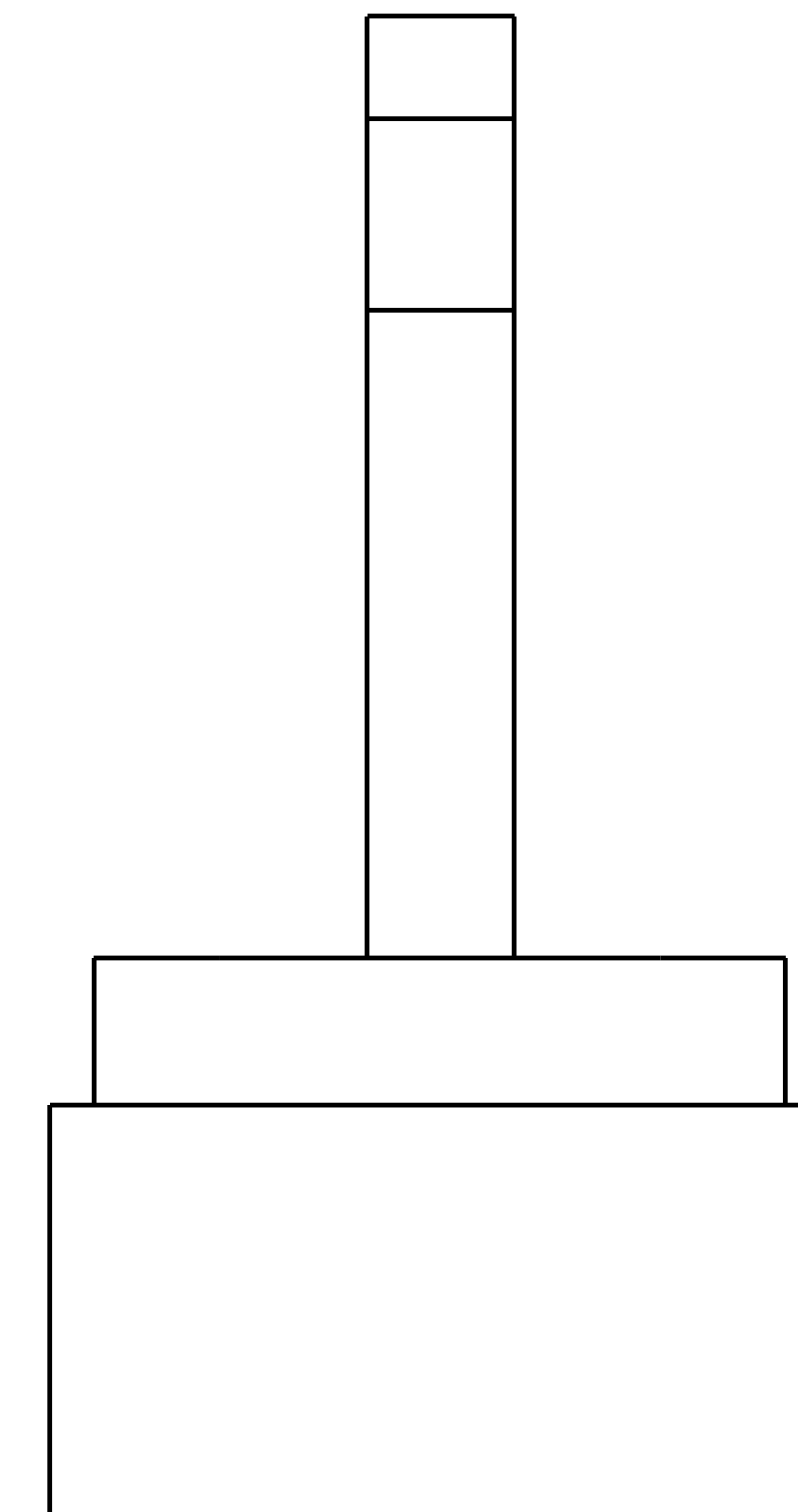
▩ - CONCRETE REPAIRS



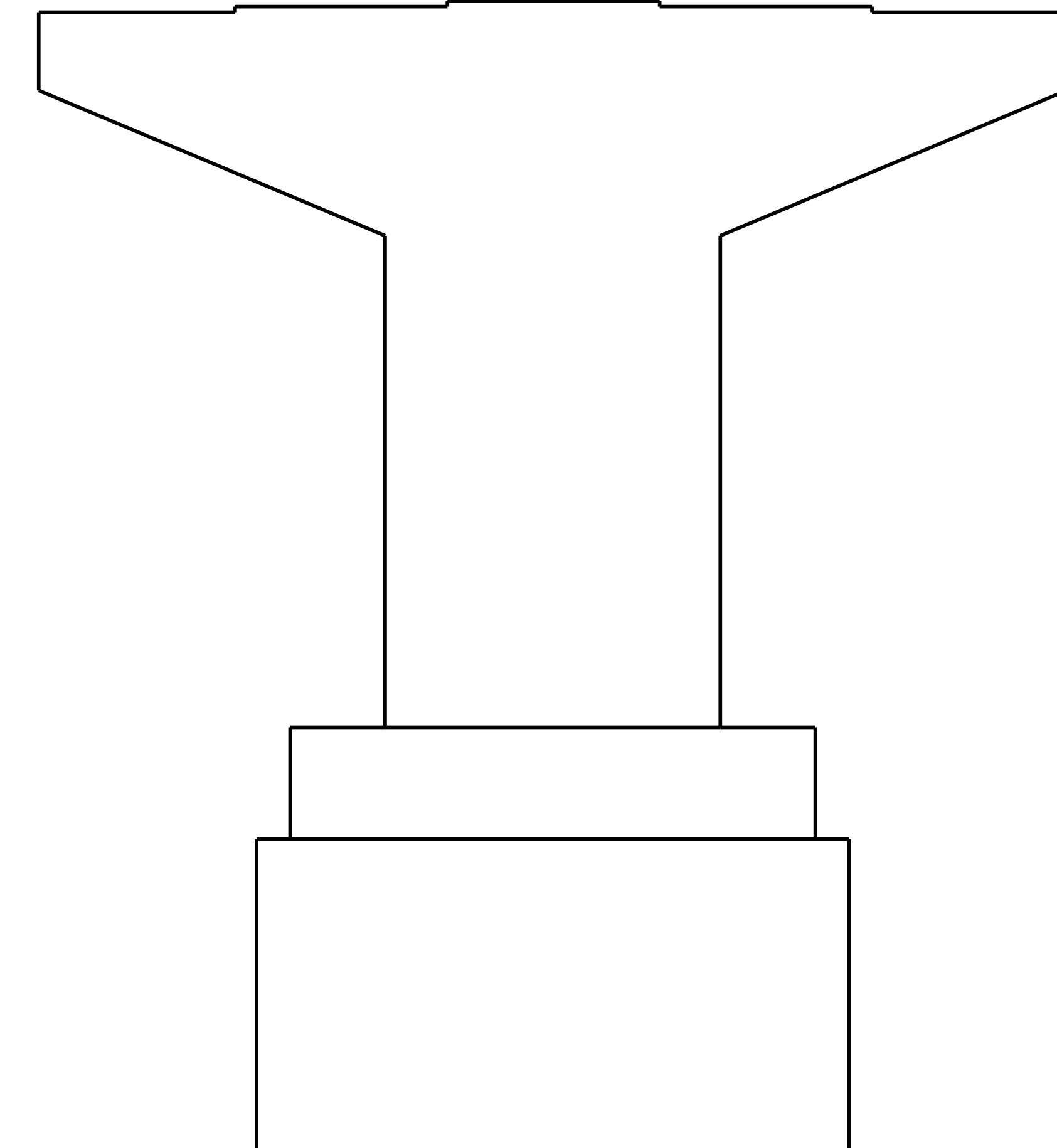
PLAN OF CAP



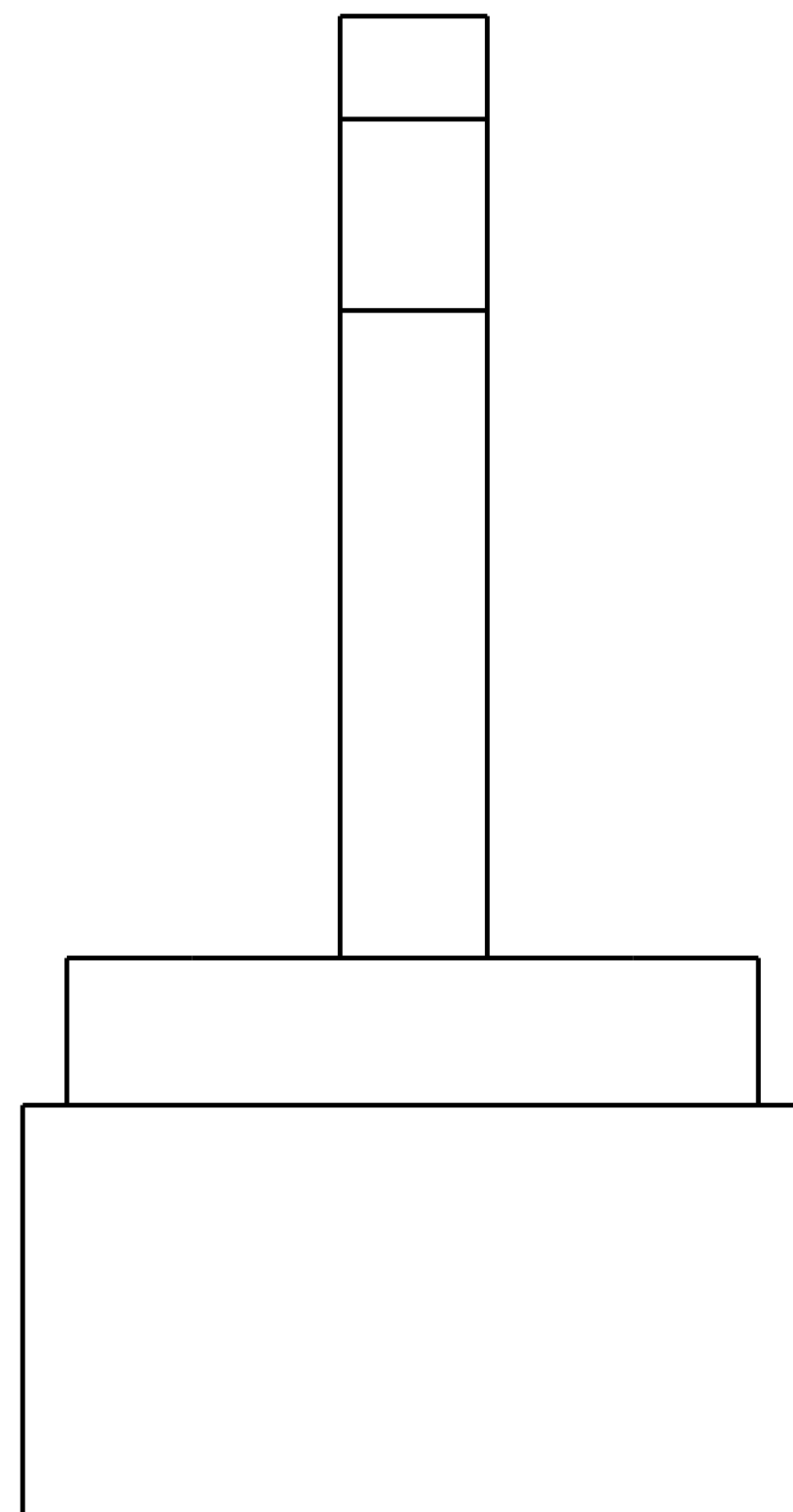
ELEVATION
(WEST SIDE)



END VIEW
(SOUTH SIDE)



ELEVATION
(EAST SIDE)



END VIEW
(NORTH SIDE)

NOTES:

REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE 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 CAP AND COLUMN REPAIR DETAILS, SEE "TYPICAL CAP AND COLUMN REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

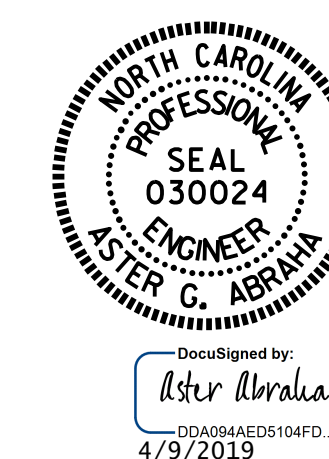
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

REPAIR QUANTITY TABLE				
REPAIRS BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL, CORNER)	0.0	0.0		
COLUMN	8.0	4.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
CAP		4.0		
COLUMN		54.5		
EPOXY COATING	AREA SF		AREA SF	
TOP OF CAP		230.0		

REPAIR QUANTITY TABLE				
REPAIRS BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
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		

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

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 63



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE REPAIR BENT 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-19
2			4			TOTAL SHEETS 21

DRAWN BY : S. I. SANDOR DATE : 02/2018
 CHECKED BY : M. K. BEARD DATE : 05/02/18

NOTES

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

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

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

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

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

SIMULTANEOUS REMOVAL OF UNSOUND CONCRETE MAY BE PERMITTED ON MORE THAN ONE FACE OF A CAP AND/OR COLUMN, IF THE AREAS OF REMOVAL ARE NOT ADJACENT TO OR DIRECTLY OPPOSITE ONE ANOTHER. IF REMOVAL EXTENDS MORE THAN 1 1/2" BEHIND THE MAIN REINFORCING BARS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING.

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

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

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

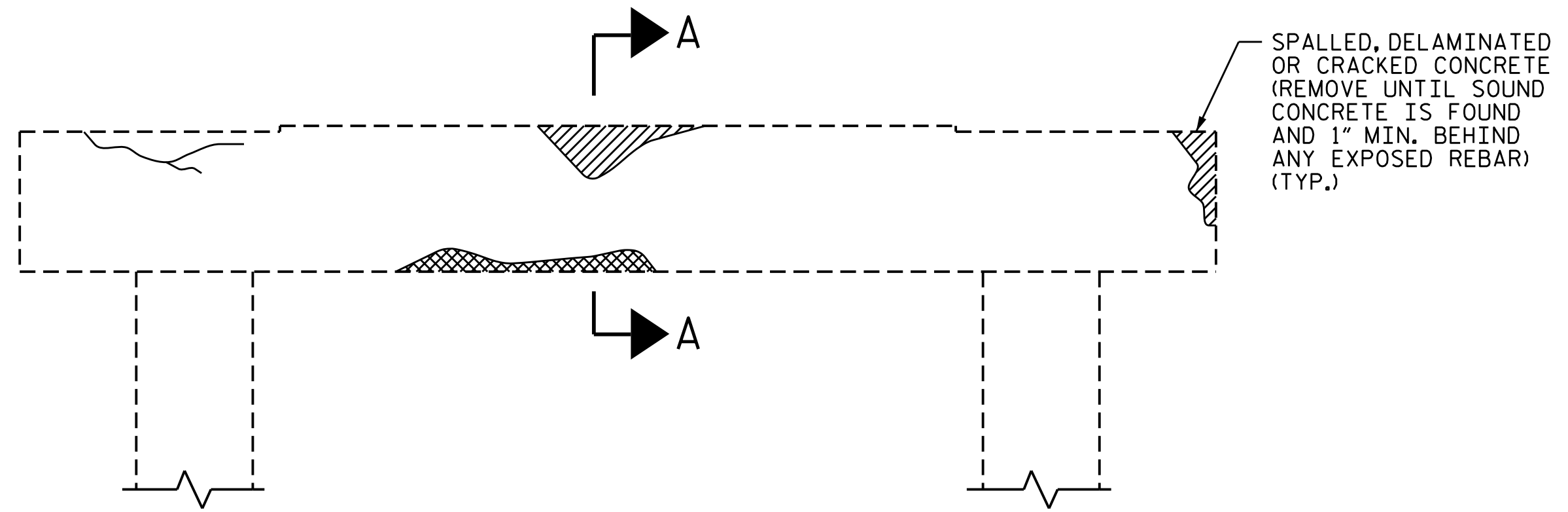
COAT ALL REPAIR SURFACE AREAS ON THE TOP OF CAPS, INCLUDING CHAMFERS, WITH EPOXY PROTECTIVE COATING, OVERLAPPING THE REPAIR AREA BY A MINIMUM OF 3" ON ALL POSSIBLE SIDES.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

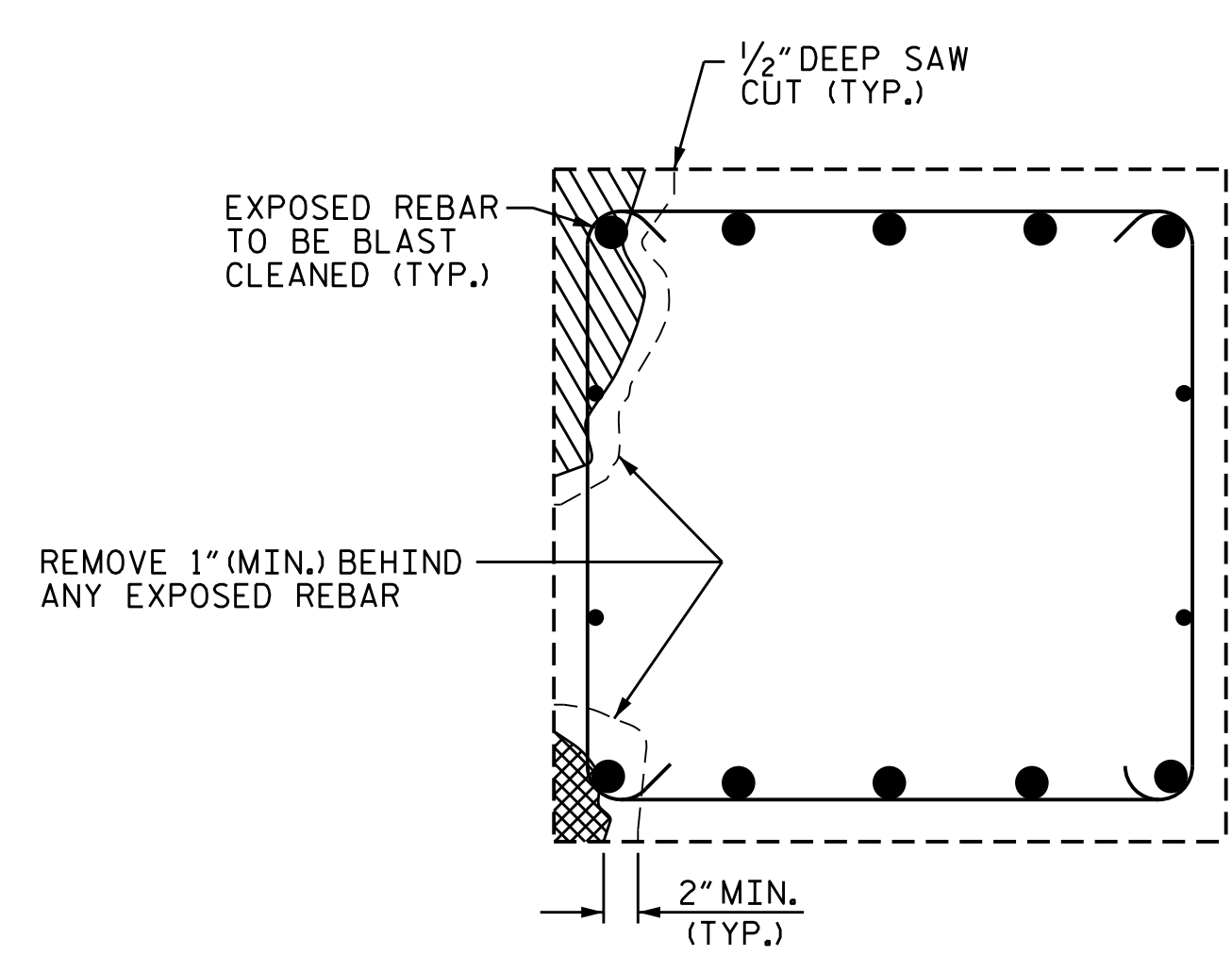
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

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

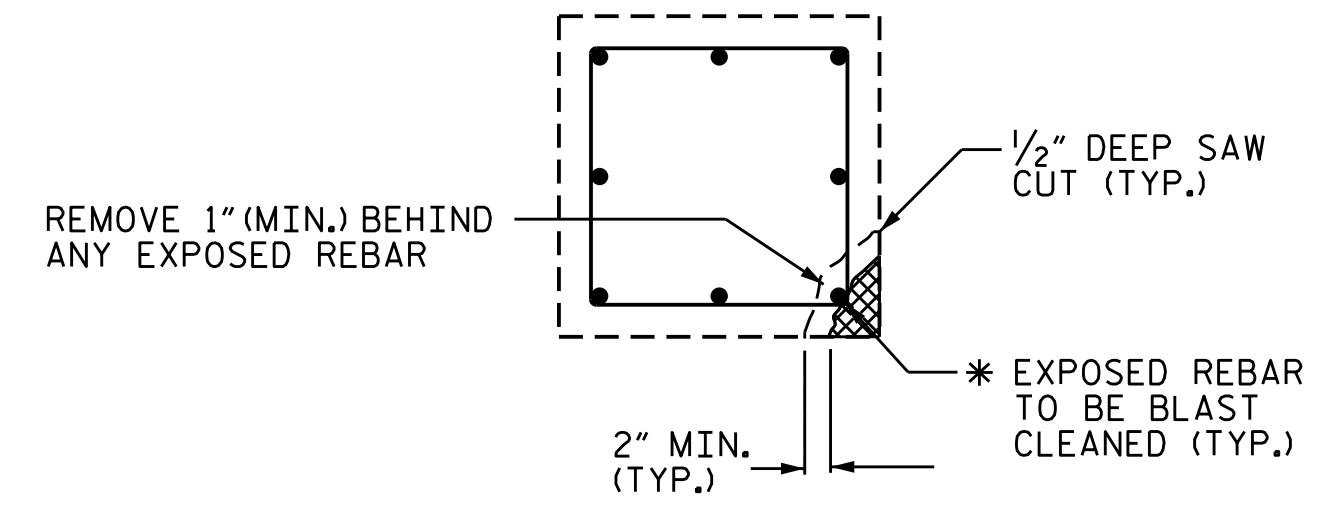


BENT CAP REPAIRS



SECTION A-A

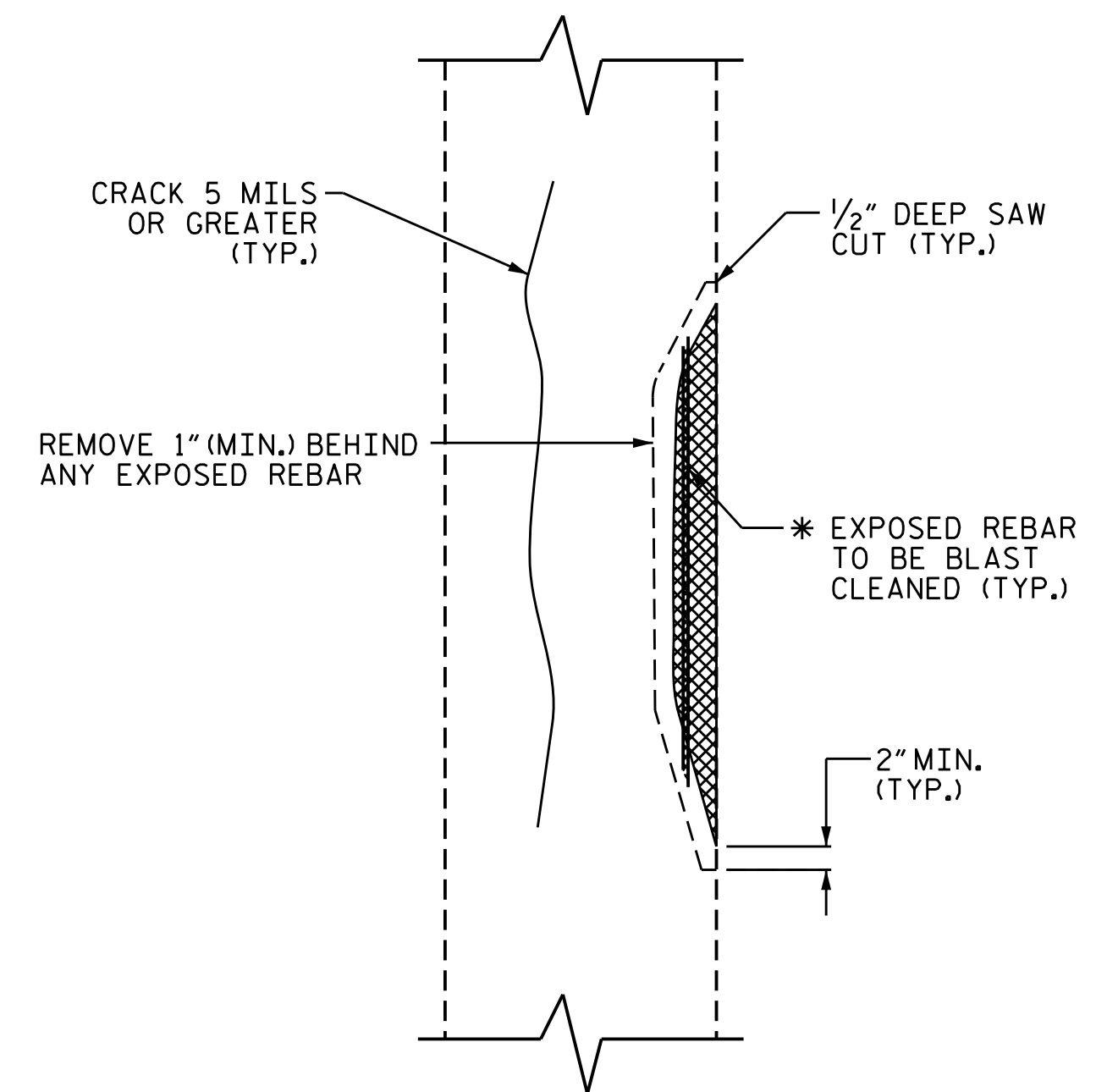
CAP REPAIR



PLAN OF COLUMN

REPAIR KEY

- CONCRETE REPAIR AREA (FORM AND POUR)
- SHOTCRETE REPAIR AREA
- EPOXY RESIN INJECTION (REI)

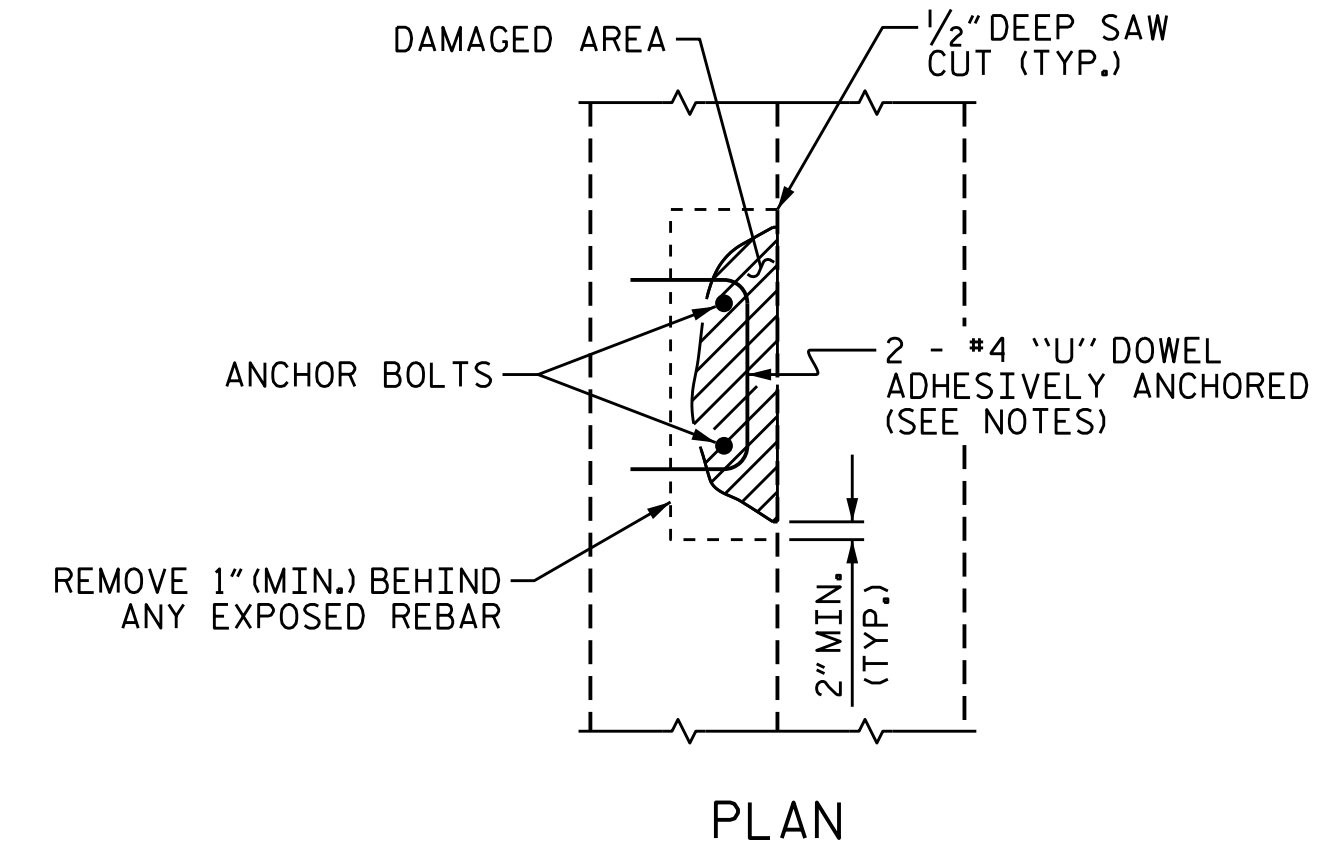


ELEVATION OF COLUMN

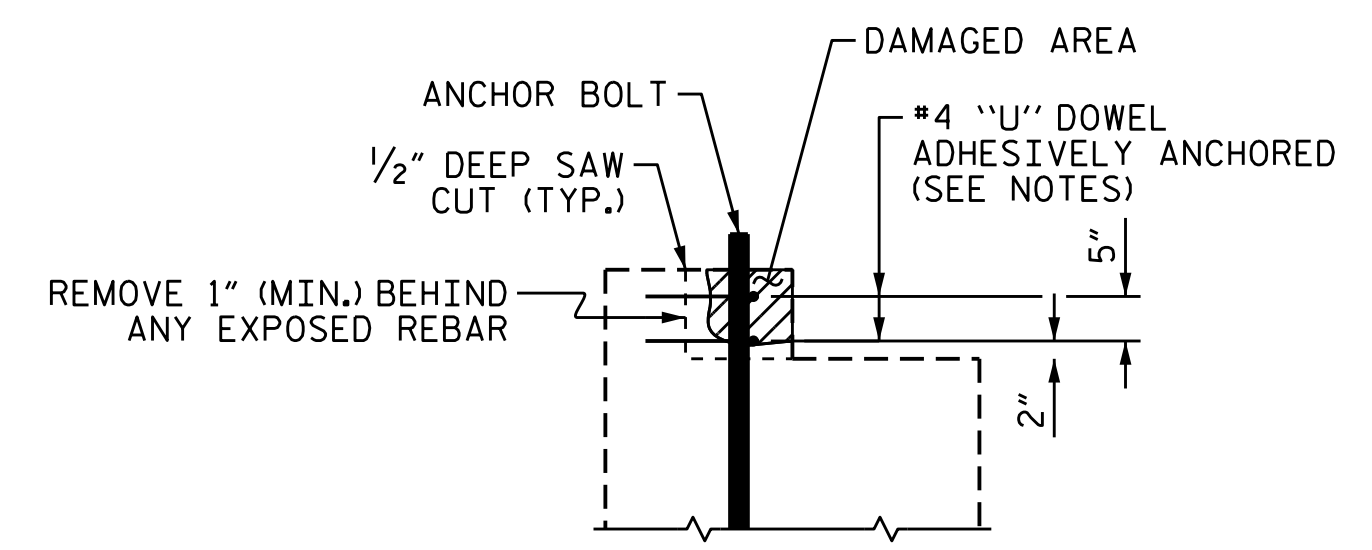
COLUMN REPAIR

* REPAIR LENGTH SHALL NOT EXCEED 10 FEET.

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"



PLAN



ELEVATION

PEDESTAL WALL REPAIR

PROJ. NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 63



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**STANDARD
 TYPICAL CAP
 AND COLUMN
 REPAIR DETAILS**

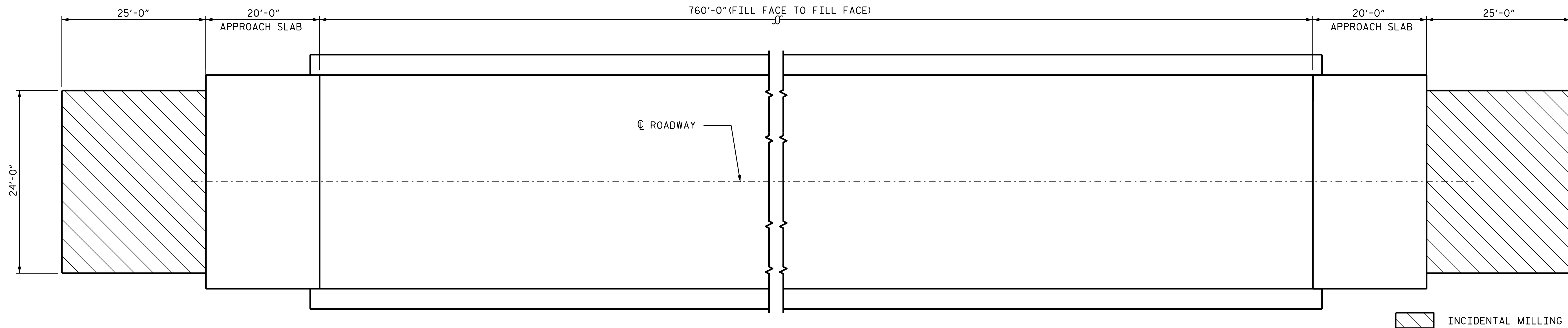
ASSEMBLED BY : S. T. SANDOR DATE : 11/19/2018
 CHECKED BY : A. G. ABRAHA DATE : 11/19/2018
 DRAWN BY : NAP 8/18
 CHECKED BY :

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

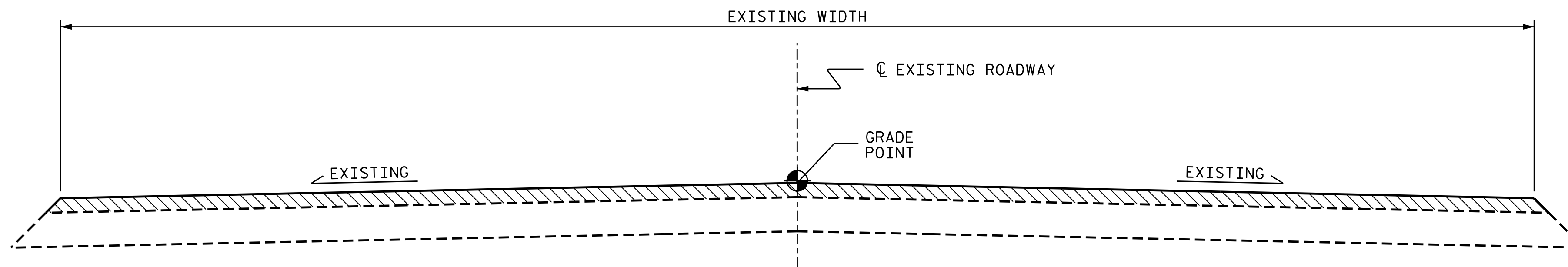
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			21

NOTES:

INCIDENTAL MILLING - EXISTING APPROACH ASPHALT PAVING TO BE MILLED AS NECESSARY TO ATTAIN MINIMUM 1 1/2" DEPTH OF NEW ASPHALT PAVING. PROVIDE NEW ASPHALT PAVING THICKNESS TO CREATE A SMOOTH TRANSITION BETWEEN THE ROADWAY AND THE BRIDGE DECK. NEW ASPHALT PAVING THICKNESS MAY EXCEED 1 1/2" DUE TO SETTLEMENT OF THE EXISTING APPROACH ASPHALT PAVING.



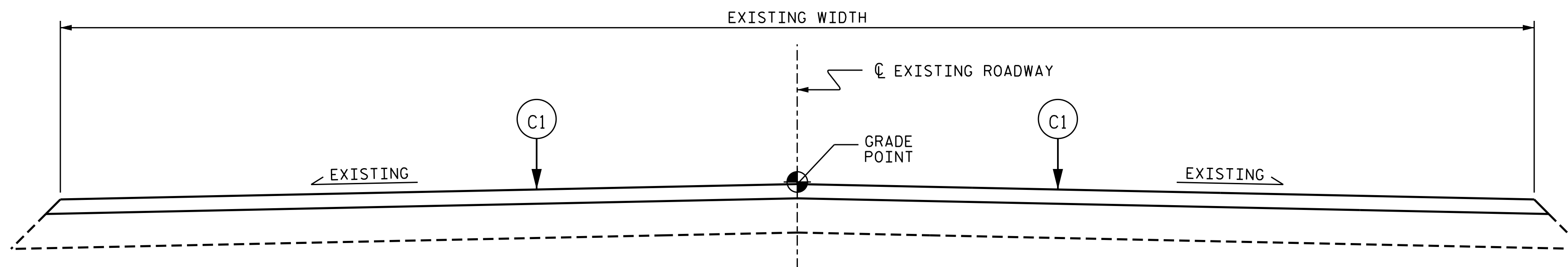
PLAN



TYPICAL ROADWAY MILLING SECTION

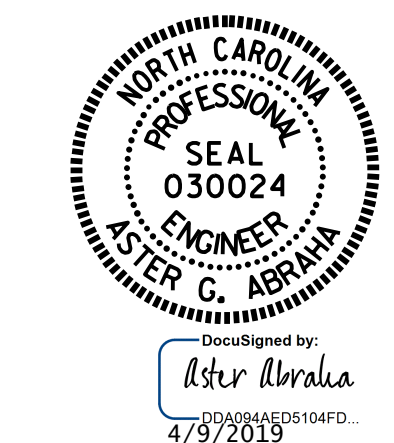
SUMMARY OF QUANTITIES		
	ESTIMATE	ACTUAL
INCIDENTAL MILLING	134 SQ. YDS.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	16 TONS	

C1 PROPOSED VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.



TYPICAL PROPOSED ROADWAY SECTION

PROJECT NO. 15BPR.17
HALIFAX COUNTY
 BRIDGE NO. 63



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

APPROACH MILLING AND TYPICAL ROADWAY SECTIONS

DRAWN BY : S. T. SANDOR DATE : 02/2018
 CHECKED BY : M. K. BEARD DATE : 05/02/18

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			21

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

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

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

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

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST $\frac{5}{16}$ " 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 $\frac{1}{16}$ " INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

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

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN