

AS CONSTRUCTED PLANS

SHEET NO.

INDEX

PROJECT NO. :

F. A. NO.:

T.I.P. NO.:

BRIDGE NO.:

COUNTY:

DESCRIPTION:

DIVISION NO.:

DESIGN-BUILD FIRM:

DIVISION ENGINEER:

RESIDENT ENGINEER:

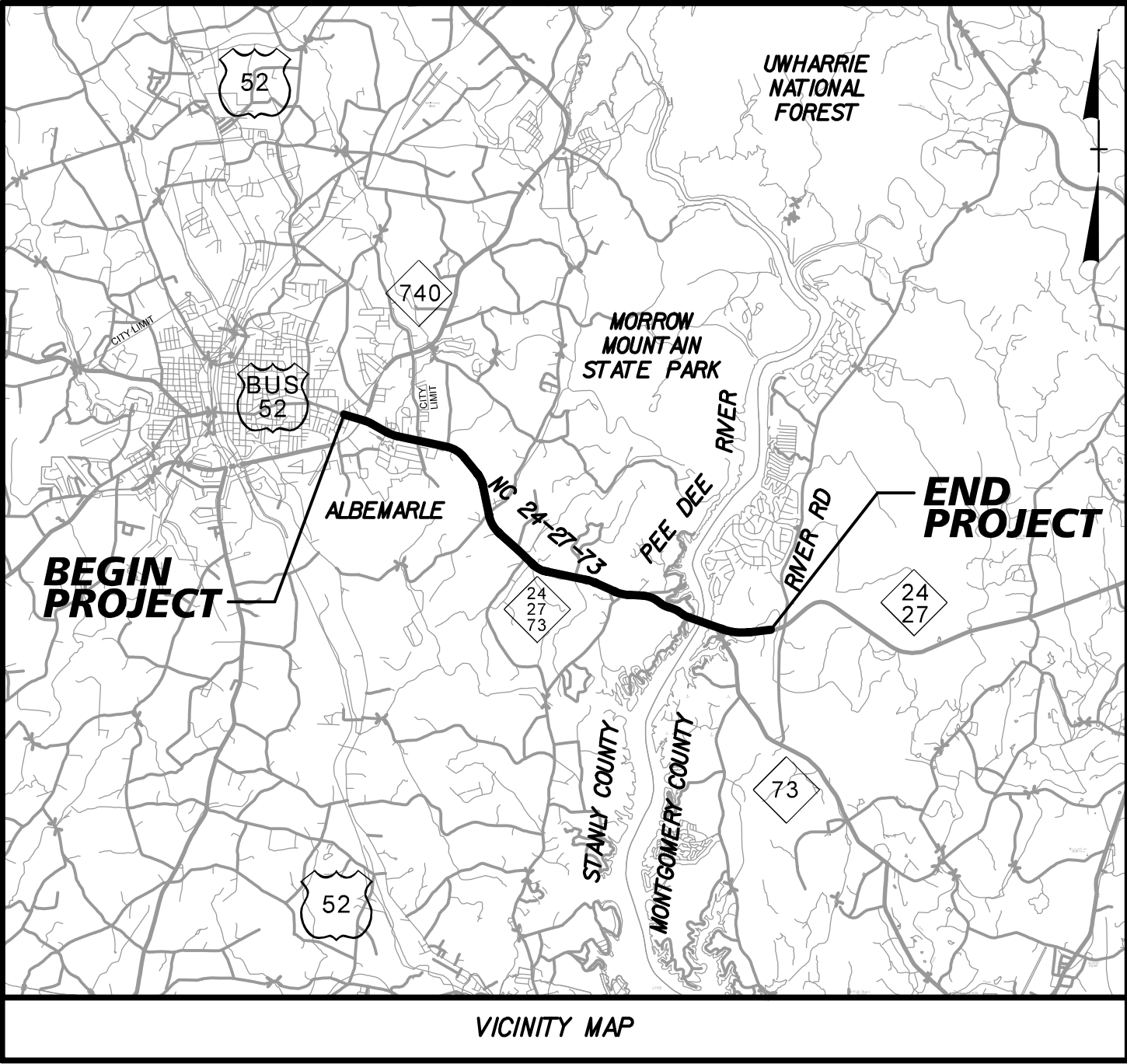
DESIGNBUILD MNGR:

10/25/17

USFR: stump
Date: \\usralf3r\p001\nca\aecom\el.com\data\Proj\edcs\60579778 - ASR Lake Tiller\900_CAD_GIS\910_CAD\70_NCDOT_TIP\Structures\04_Drawings\401_001_15BPR.43_SMU_15H.dgn

TIP PROJECT: 15BPR.43

CONTRACT:



VICINITY MAP

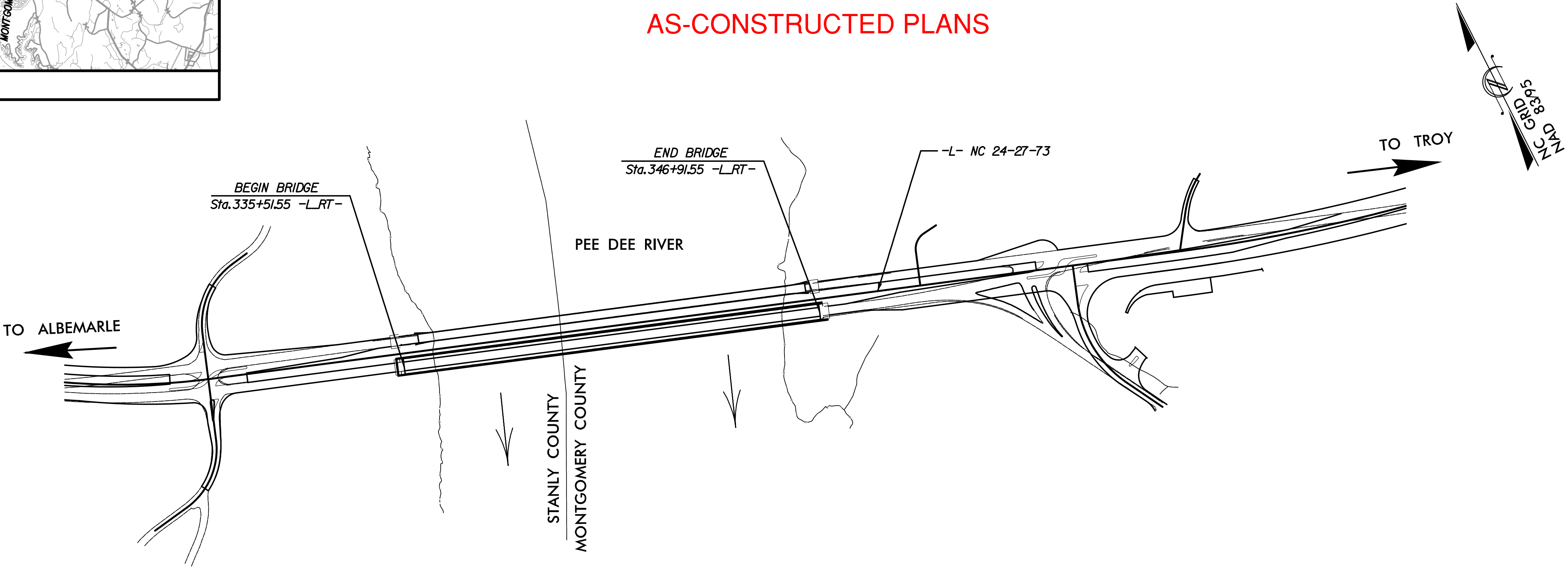
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STANLY & MONTGOMERY COUNTIES

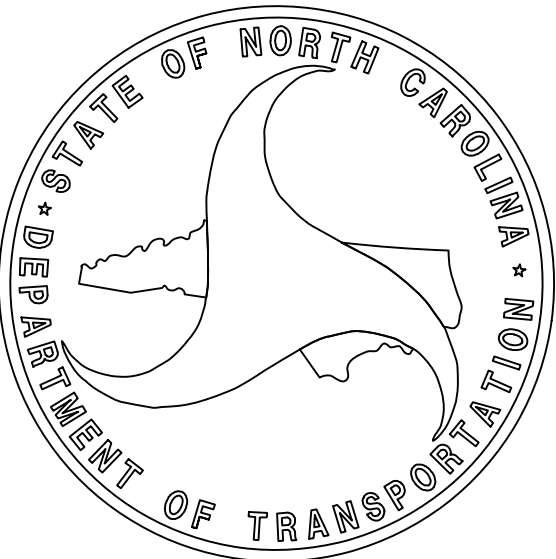
LOCATION: NC 24-27 FROM NC 740 IN ALBEMARLE TO EAST OF THE PEE DEE RIVER

TYPE OF WORK: BRIDGE PRESERVATION: POLYESTER POLYMER CONCRETE (PCC) OVERLAY,
JOINT REPLACEMENT, BEARING REPLACEMENT, PAINTING OF EXISTING
WEATHERING STEEL, UNDERWATER CONCRETE PLACEMENT, EPOXY REPAIRS,
SUBSTRUCTURE REPAIRS, APPROACH SLAB RECONSTRUCTION

AS-CONSTRUCTED PLANS



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA	
AADT 2019 =	16,400
AADT 2039 =	21,500
K =	9%
D =	55%
T =	10%*
V =	50/60 MPH
* (TTST 4% + DUAL 6%)	
FUNCTIONAL CLASSIFICATION:	
URBAN/RURAL ARTERIAL	
REGIONAL TIER	

PROJECT LENGTH

LENGTH STRUCTURE TIP PROJECT 15BPR.43 = 0.225 MILES



Prepared in the Office of:
AECOM Technical Services of North Carolina, Inc.
701 Corporate Center Drive, Suite 475
Raleigh, NC 27607
(919) 854-6200 - (919) 854-6259 (FAX)
NC FIRM LICENSE No: F-0342

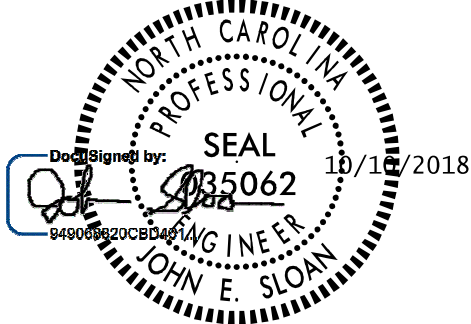
DIVISION OF HIGHWAYS	
1000 Birch Ridge Dr., Raleigh NC, 27610	
2018 STANDARD SPECIFICATIONS	
LETTING DATE: NOV. 20, 2018	JOHN E. SLOAN, PE STRUCTURAL ENGINEER GREGORY R. COLS, PE PROJECT ENGINEER

STRUCTURAL ENGINEER
SUPERSTRUCTURE



SIGNATURE: _____ P.E.

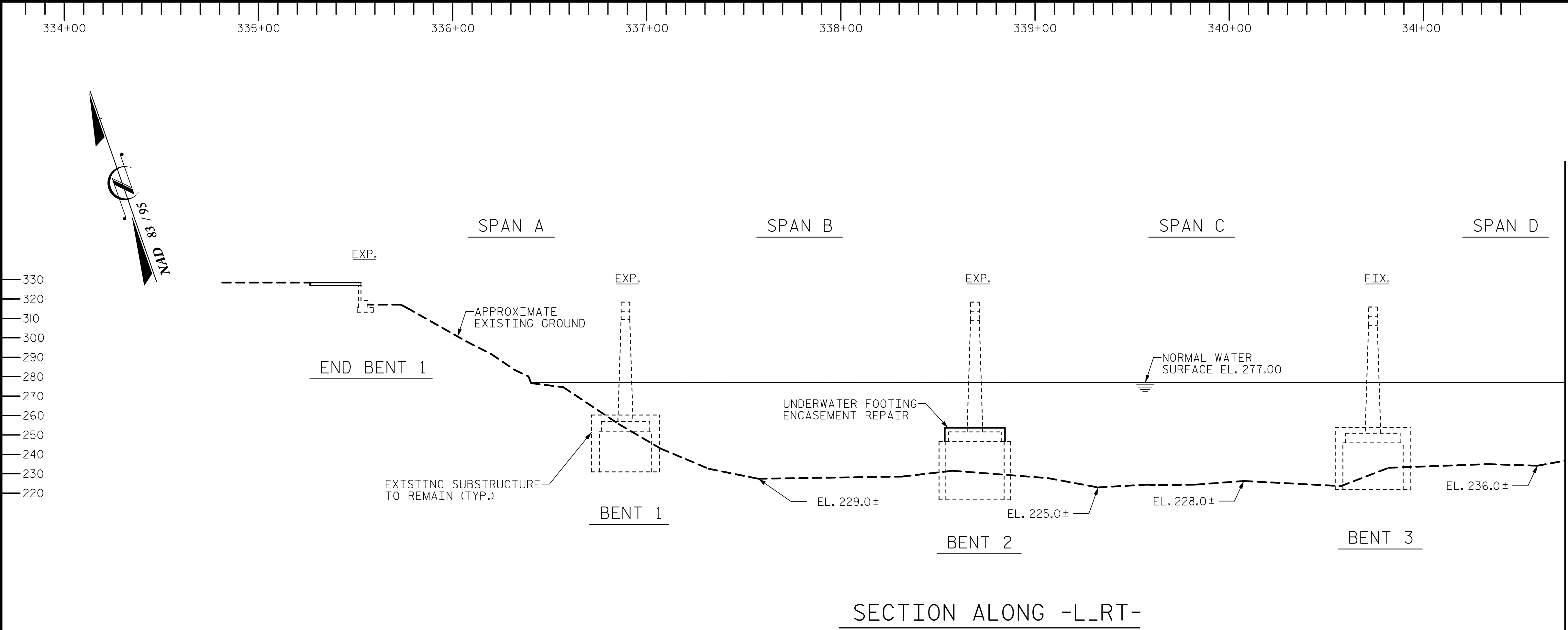
STRUCTURAL ENGINEER
SUBSTRUCTURE & REHABILITATION



SIGNATURE: _____ P.E.

DATE: 10/10/2018
TIME: 14:46 PM

USER: gump
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NOTES:

DATA ON EXISTING STRUCTURE IS TAKEN FROM THE AS-BUILT PLANS DATED APRIL 6, 1979, REHABILITATION PLANS DATED JULY 1981, AND DECEMBER 15, 1987.

EXISTING GROUNDLINE BASED ON BEST INFORMATION AVAILABLE.

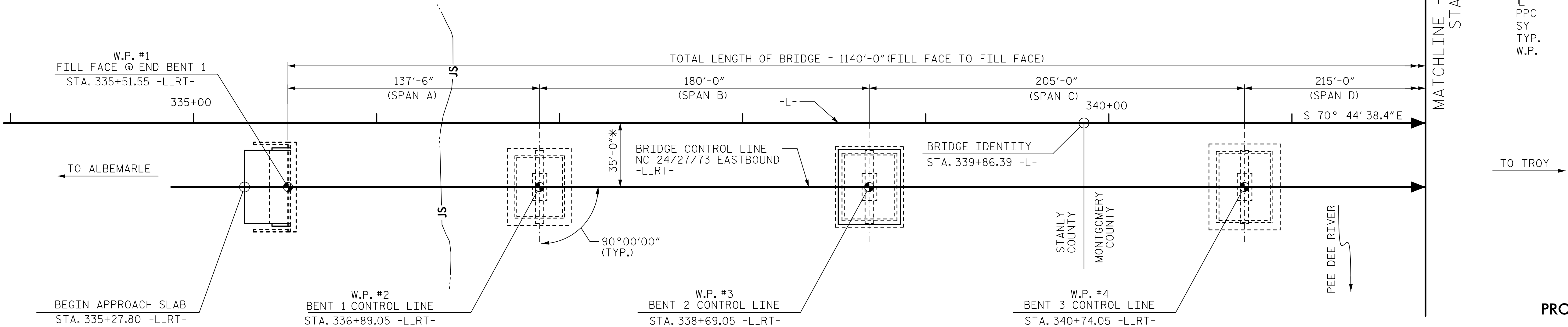
NO PROFILE HAS BEEN DESIGNED FOR THE EXISTING BRIDGE. DECK REHABILITATION SHALL MATCH EXISTING BRIDGE ELEVATIONS, PROFILE, AND SUPERELEVATION.

*OFFSET FROM -L- TO -L-RT- IS BASED ON BEST AVAILABLE SURVEY INFORMATION. ACTUAL CONDITIONS MAY DIFFER.

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

RESIDENT ENGINEER DATE

ABBREVIATIONS	
ADJ.	ADJACENT
BT	BENT
C	CENTERLINE
CONST.	CONSTRUCTION
CY	CUBIC YARD(S)
EB	END BENT
ERI	EPOXY RESIN INJECTION
ICT	INTERMEDIATE CONTRACT TIME
JT.	JOINT
LF	LINEAR FOOT (FEET)
MIN.	MINIMUM
P	PLATE
PPC	POLYESTER POLYMER CONCRETE
SY	SQUARE YARD(S)
TYP.	TYPICAL
W.P.	WORKPOINT



MATCHLINE - SEE SHEET 2 OF 3
STA. 341+73.01

PROJECT NO. 15BPR.43

STANLY/MONTGOMERY COUNTY

STATION: 339+86.39 -L-

REHABILITATION OF
BRIDGE NO. 830050

SHEET 1 OF 3

AECOM

AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC.
701 CORPORATE CENTER DRIVE, SUITE 415
RALEIGH, NC 27607
(919) 854-4200 www.aecom.com
AECOM License No. F-0342

SUBSTRUCTURE & REHABILITATION

SUPERSTRUCTURE

SEAL
085062
10/15/2018
JOHN E. SLOAN
PROFESSIONAL ENGINEER

SEAL
041343
10/15/2018
GREGORY R. COLS
PROFESSIONAL ENGINEER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

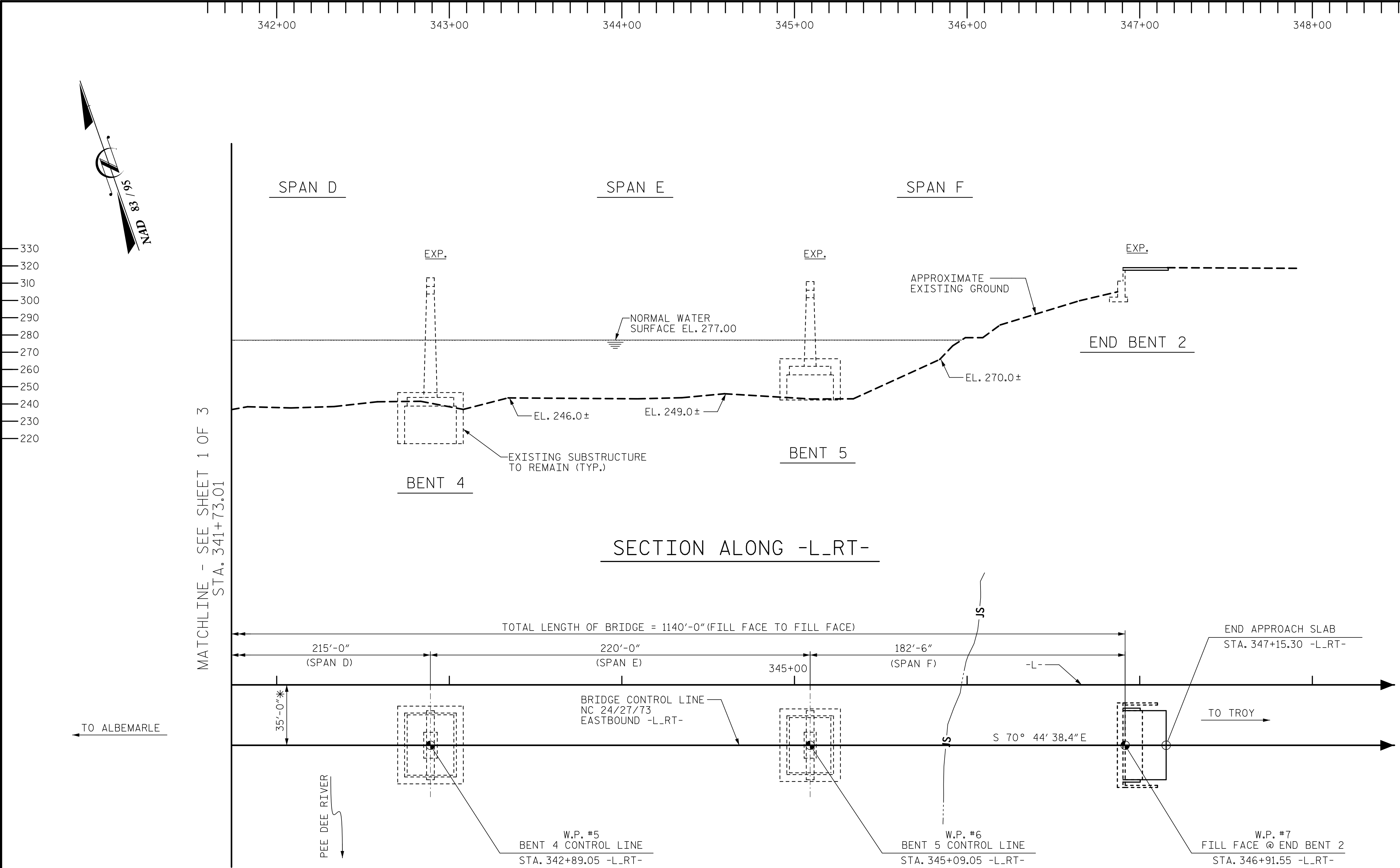
BRIDGE ON NC 24/27/73
EASTBOUND OVER
PEE DEE RIVER

REVISIONS						SHEET NO. S-02
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

DATE: 08/08/2018
TIME: 14:35:54 PM

USER: g:\unp\...
DRAWN BY: K. DONALD
CHECKED BY: G. COLS
DESIGNED BY: K. DONALD
DESIGN CHECKED BY: G. COLS



NOTES:
FOR OTHER NOTES, SEE SHEET 1.
*OFFSET FROM -L- TO -L-RT- IS BASED ON BEST AVAILABLE SURVEY INFORMATION. ACTUAL CONDITIONS MAY DIFFER.

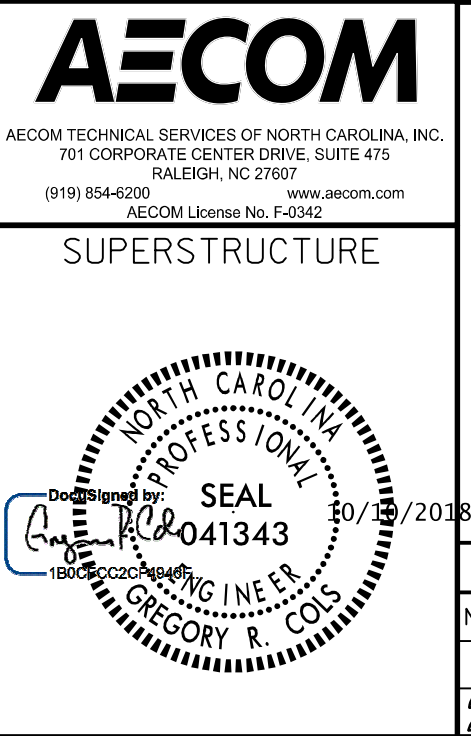
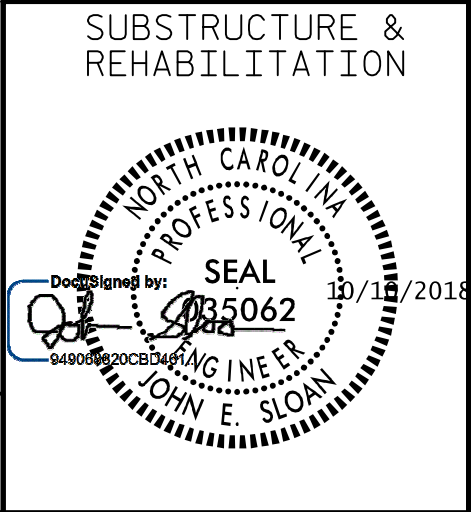
PLAN

PROJECT NO. 15BPR.43
STANLY/MONTGOMERY COUNTY
STATION: 339+86.39 -L-

SHEET 2 OF 3

DRAWN BY : K. DONALD	DATE : 08/2018
CHECKED BY : G. COLS	DATE : 08/2018
DESIGNED BY : K. DONALD	DATE : 08/2018
DESIGN CHECKED BY : G. COLS	DATE : 08/2018

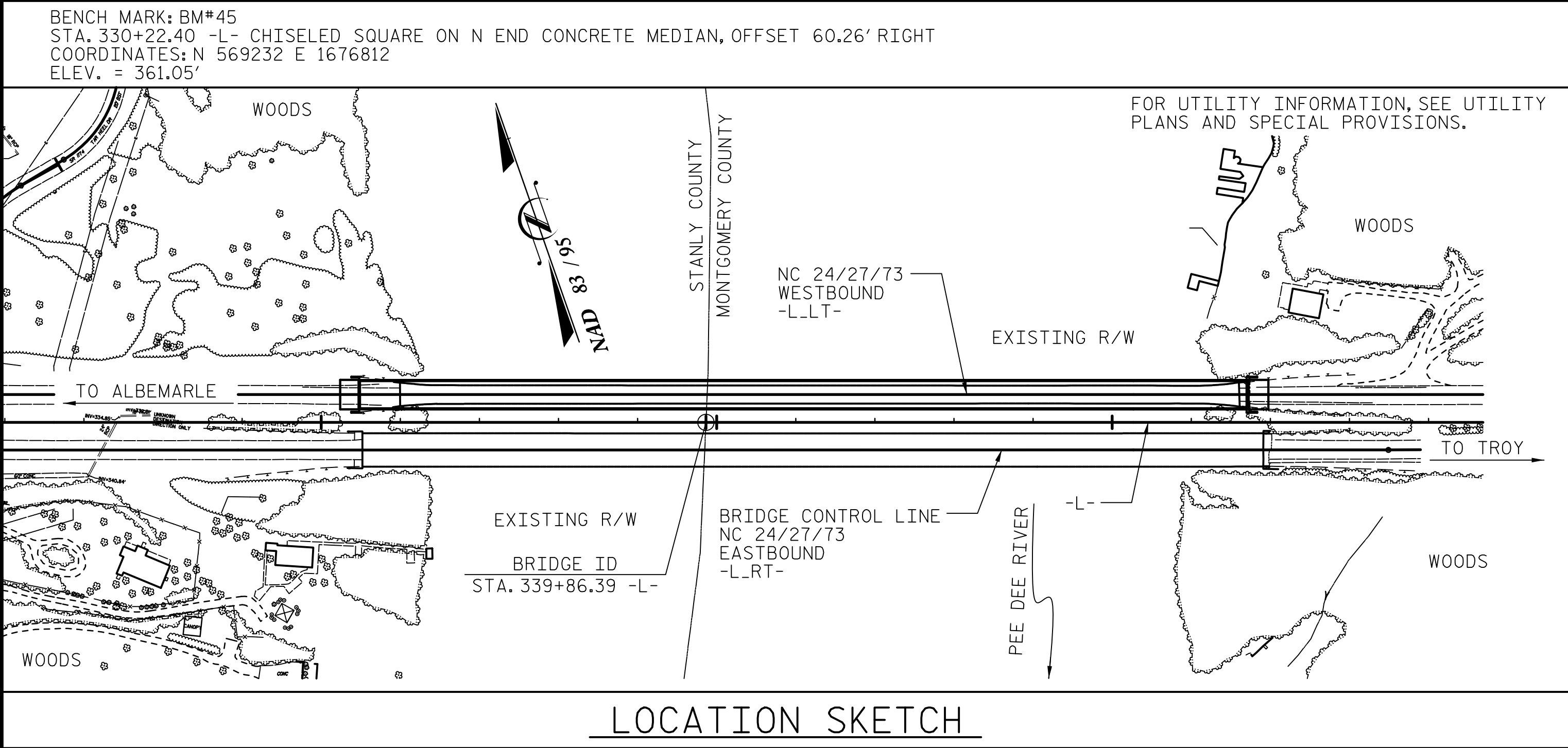
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
BRIDGE ON NC 24/27/73 EASTBOUND OVER PEE DEE RIVER					
REVISIONS					SHEET NO. S-03
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					38

DATE: 04/18/2018
TIME: 3:28:13 PM

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CHECKED: C:\BPR\GIS\DATA\PROJ\BPR\BPR43\BPR43.dgn
DESIGNED BY: K. DONALD
DESIGN CHECKED BY: G. COLS



GENERAL SCOPE AND SEQUENCE OF WORK FOR ICT #1:

ALL WORK FOR ICT #1 SHALL BE PERFORMED WITH AT LEAST ONE LANE OF TRAFFIC OPEN.

JACK BRIDGE AT END BENTS AND REPLACE BEARINGS AT END BENTS.

IN STAGES, REMOVE EXISTING MODULAR JOINTS, PORTIONS OF BRIDGE DECK, PORTIONS OF BARRIER RAIL, END DIAPHRAGM CONCRETE AT END BENTS, APPROACH SLABS, AND BARRIER END BLOCK. RECONSTRUCT DECK, END DIAPHRAGM CONCRETE, BARRIER RAIL, APPROACH SLABS, AND BARRIER ON APPROACH. INSTALL TEMPORARY JOINT PLATES.

IN STAGES, PARTIALLY REMOVE TOP OF BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS. REMOVE AND REPAIR UNSOUND AREAS OF CONCRETE IN THE DECK (CLASS II REPAIRS).

IN STAGES, OVERLAY TOP OF BRIDGE DECK WITH POLYESTER POLYMER CONCRETE (PPC). GROOVE PPC BRIDGE DECK AND APPROACH SLABS.

IN STAGES, REMOVE TEMPORARY JOINT PLATES AND INSTALL FINAL MOLDED RUBBER SEGMENTAL EXPANSION JOINTS.

IN STAGES, APPLY SILANE TREATMENT TO BARRIER RAIL.

TAKE 2 CORES FROM THE BENT COLUMNS AND DETERMINE THE CONCRETE STRENGTH.

GENERAL SCOPE OF WORK FOR REMAINING CONTRACT TIME:

ALL WORK FOR REMAINING CONTRACT TIME SHALL BE PERFORMED WITH TWO LANES OF TRAFFIC OPEN, EXCEPT THAT NIGHTTIME LANE CLOSURES MAY BE USED AS PERMITTED IN THE TRANSPORTATION MANAGEMENT PLAN.

PERFORM PREPARATION FOR REHABILITATION TASKS.

JACK BRIDGE AT BENTS AND REPLACE BEARINGS AT BENTS.

CLEAN AND PAINT EXISTING WEATHERING STEEL AT END BENTS.

PERFORM BEAM REPAIRS TO VARIOUS STEEL SUPERSTRUCTURE ELEMENTS.

INSTALL UNDERWATER FOOTING ENCASEMENT REPAIR AT BENT 2 FOOTING.

REMOVE UNSOUND CONCRETE AND PREPARE EXISTING END BENT AND BENT AREAS FOR VARIOUS REPAIRS. PERFORM EPOXY RESIN INJECTION OF CRACKS IN SUBSTRUCTURE AS DIRECTED BY THE ENGINEER. PERFORM EPOXY MORTAR REPAIRS AND CONCRETE REPAIRS IN PREPARED AREAS ON SUBSTRUCTURE. INSTALL UNDERWATER STRUCTURAL EPOXY JACKET TO COLUMNS. APPLY EPOXY COATING OF SUBSTRUCTURE TO CAPS AND END BENTS. APPLY SILANE TREATMENT FOR SUBSTRUCTURE TO COLUMNS.

APPLY SILANE TREATMENT FOR DECK TO BACK FACE OF BARRIER AND DECK OVERHANG SOFFIT.

REPLACE NAVIGATION SIGNS ON BENT COLUMNS.

NOTES:

THIS STRUCTURE HAS NOT BEEN ANALYZED OR LOAD RATED FOR CURRENT OR PAST DESIGN SPECIFICATIONS, WITH THE EXCEPTION OF THE REPLACEMENT OF DISC BEARINGS WHICH ARE DESIGNED FOR ASSUMED LIVE LOAD = HL93 OR ALTERNATE LOADING.

NO HYDRAULIC ANALYSIS HAS BEEN PERFORMED AND NO HYDRAULIC DATA HAS BEEN SHOWN.

FOR OTHER DESIGN DATA AND GENERAL NOTES SEE SHEET SN.

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

THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION OR AECOM FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THAT SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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

DURING CONSTRUCTION, BERMS OR APPROPRIATE MEASURES SHALL BE USED TO ENSURE CONSTRUCTION DEBRIS AND SHOTBLASTING OR SIMILAR MATERIAL DOES NOT ENTER ACTIVE TRAVEL LANES OR WATERWAY AREAS.

EXISTING DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK. SEALS SHALL BE REMOVED UPON COMPLETION OF DECK OVERLAY. CONTRACTOR SHALL TAKE CARE THAT ANY CONSTRUCTION DEBRIS THAT COLLECTS IN THE DRAINS IS CONTAINED. DRAINS IN SHOULDERS ADJACENT TO ACTIVE TRAVEL LANE(S) SHALL BE KEPT FREE AND CLEAR OF DEBRIS.

THE CONTRACTOR SHALL PROVIDE A METHOD OF HANDLING UNEXPECTED BLOW-THROUGH OF THE DECK.

REHABILITATION OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR ANY DEMOLITION WORK IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

CONTRACTOR SHALL FIELD VERIFY STATIONS, DIMENSIONS, AND ELEVATIONS BEFORE ORDERING OR FABRICATING ANY MATERIALS.

THE CONCRETE FOR DECK REPAIR CONCRETE IN THE BRIDGE DECK AND SUPERSTRUCTURE PORTIONS BEING REPLACED AND CLASS AA CONCRETE IN THE APPROACH SLABS SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE CONCRETE FOR DECK REPAIR OR CLASS AA CONCRETE.

ALL DIMENSIONS ARE FOR THE STRUCTURE AT 60 DEGREES FAHRENHEIT. INSTALLATION OF JOINTS AND REPLACEMENT OF BEARINGS SHALL BE PERFORMED AT A TEMPERATURE BETWEEN 40 AND 90 DEGREES FAHRENHEIT. THE CONTRACTOR SHALL MAKE ADJUSTMENTS AS DIRECTED BY THE ENGINEER FOR INSTALLATION AT TEMPERATURES OTHER THAN 60 DEGREES. SUCH ADJUSTMENTS OR PROCEDURES SHALL BE INDICATED IN ALL WORKING DRAWING SUBMITTALS.

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

FOR CLEANING AND PAINTING OF EXISTING WEATHERING STEEL AND PAINTING CONTAINMENT, SEE SPECIAL PROVISIONS.

FOR JOINT REPAIR, SEE SPECIAL PROVISIONS.

FOR CONCRETE FOR DECK REPAIR FOR JOINT REPAIR, SEE SPECIAL PROVISIONS.

FOR PPC MATERIALS AND PLACING & FINISHING PPC OVERLAY, SEE POLYESTER POLYMER CONCRETE OVERLAY SPECIAL PROVISIONS.

FOR CLASS II SURFACE PREPARATION, SCARIFYING BRIDGE DECK, AND SHOTBLASTING OF BRIDGE DECK, SEE OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE SPECIAL PROVISION.

FOR MOLDED RUBBER SEGMENTAL EXPANSION JOINTS, SEE JOINT REPAIR SPECIAL PROVISION.

FOR VOLUMETRIC MIXER, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

FOR EPOXY MORTAR REPAIRS, SEE SPECIAL PROVISIONS.

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR SILANE TREATMENTS AND SURFACE PREPARATION FOR SILANE, SEE SPECIAL PROVISIONS.

FOR REPLACEMENT OF NAVIGATION SIGNS ON COLUMNS, SEE SPECIAL PROVISIONS.

FOR CONCRETE DECK REPAIR FOR PPC OVERLAY, SEE SPECIAL PROVISIONS.

FOR UNDERWATER FOOTING ENCASEMENT REPAIR, SEE SPECIAL PROVISIONS.

FOR UNDERWATER STRUCTURAL EPOXY JACKET, SEE SPECIAL PROVISIONS.

FOR MAINTENANCE OF WATER TRAFFIC, SEE SPECIAL PROVISIONS.

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

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

RIPRAP AT BOTH ENDS SHALL BE PLACED IN ACCORDANCE WITH PLANS FOR BRIDGE #51. NO PAYMENT WILL BE MADE UNDER BRIDGE #50.

TOTAL BILL OF MATERIAL																			
	ASBESTOS ASSESSMENT	GROOVING BRIDGE FLOOR	BRIDGE APPROACH SLAB	REINFORC- ING STEEL	EPOXY COATED REINFORC- ING STEEL	POLLUTION CONTROL	CONCRETE BARRIER RAIL	CLASS II SURFACE PREPARATION	DISC BEARINGS	CONCRETE REPAIRS	EPOXY RESIN INJECTION	EPOXY MORTAR REPAIRS	BEAM REPAIR FOR BRIDGE 50	CLEANING AND PAINTING EXISTING WEATHERING STEEL	CONCRETE DECK REPAIR FOR PPC OVERLAY	CONCRETE FOR DECK REPAIR	EPOXY COATING	UNDERWATER FOOTING ENCASEMENT REPAIR	JOINT REPAIR
	*	*	*	*	*	*	*	*	*					*	*	*	*	*	*
	LUMP SUM	SQ. FT.	LUMP SUM	LBS.	LBS.	LUMP SUM	LIN. FT.	SQ. YDS.	LUMP SUM	CU. FT.	LIN. FT.	SQ. FT.	LBS.	LUMP SUM	SQ. YDS.	CU. FT.	SQ. FT.	CU. YDS.	SQ. FT.
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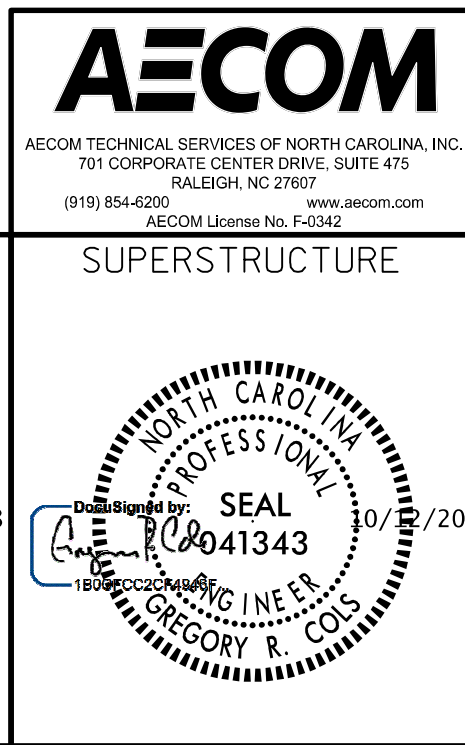
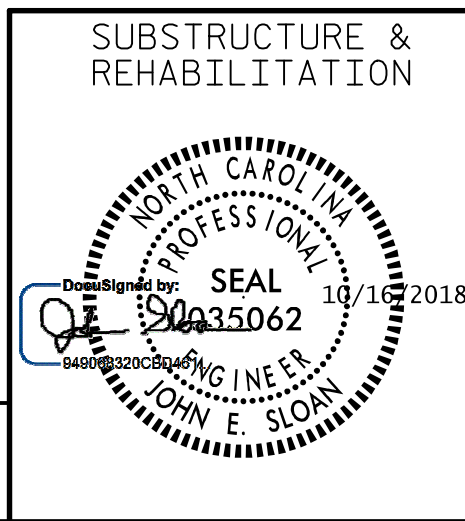
TOTAL BILL OF MATERIAL (CONT.)												
	MOLDED RUBBER SEGMENTAL EXPANSION JOINTS	PAINTING CONTAINMENT	PLACING AND FINISHING PPC OVERLAY	PPC MATERIALS	REPLACEMENT OF NAVIGATION SIGNS ON COLUMNS	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	SILANE TREATMENT	UNDERWATER STRUCTURAL EPOXY JACKET	SURFACE PREPARATION FOR SILANE	TYPE II BRIDGE JACKING	VOLUMETRIC MIXER
	*	*	*	*	*	*	*	*	*	*	*	*
	LUMP SUM	LUMP SUM	SQ. YDS.	CU. FT.	LUMP SUM	SQ. YDS.	SQ. YDS.	SQ. FT.	CU. FT.	SQ. FT.	EA.	LUMP SUM
TOTAL	1	1	5041.5	210.1	1	5041.5	5041.5	29,850	230	29,850	35	1

* PAYMENT SHALL BE MADE UNDER THE PAY ITEM "DESIGN AND CONSTRUCTION 15BPR.43" AS A LUMP SUM.

DRAWN BY : K. DONALD
CHECKED BY : G. COLS
DESIGNED BY : K. DONALD
DESIGN CHECKED BY : G. COLS

DATE : 08/2018
DATE : 08/2018
DATE : 08/2018
DATE : 08/2018

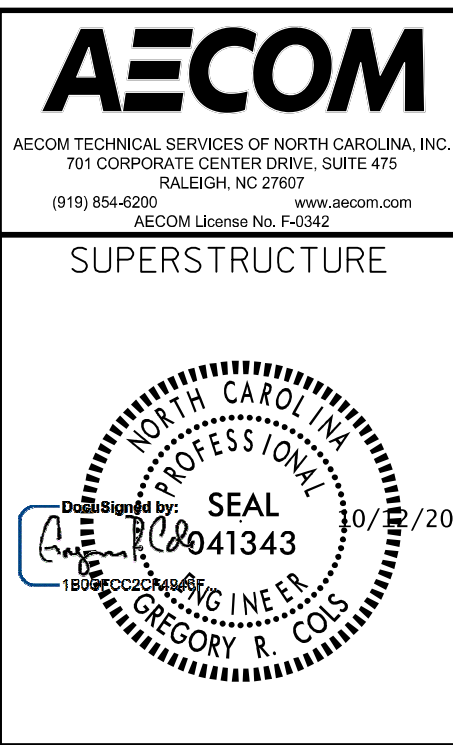
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REVISIONS						SHEET NO. S-04
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

PROJECT NO. 15BPR.43
STANLY/MONTGOMERY COUNTY
STATION: 339+86.39 -L-

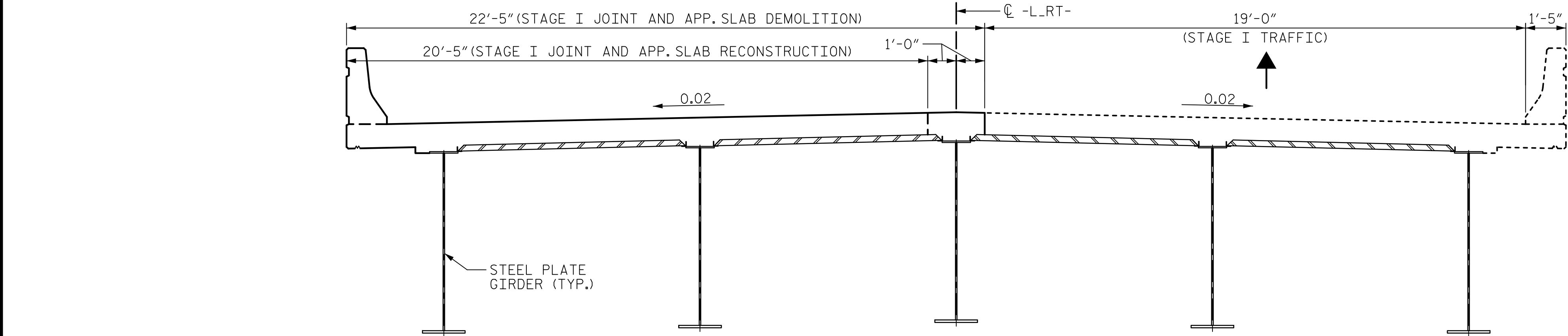
SHEET 3 OF 3



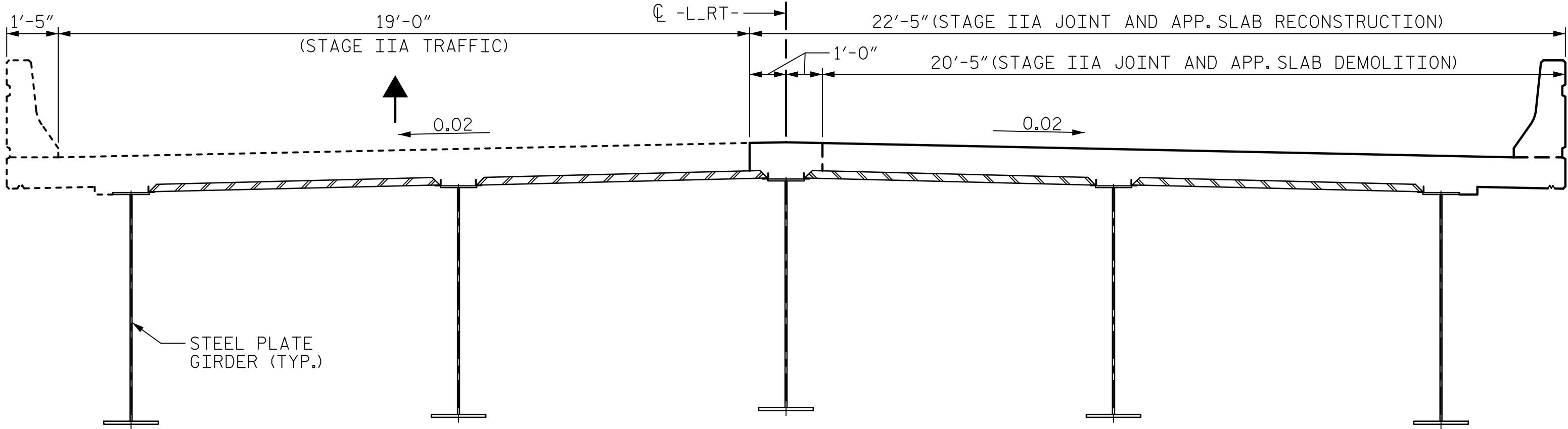
STATE OF NORTH CAROLINA	
DEPARTMENT OF TRANSPORTATION	
RALEIGH	
GENERAL DRAWING	
BRIDGE ON NC 24/27/73 EASTBOUND OVER PEE DEE RIVER	

DATE: 10/10/2018
TIME: 1:46:26 PM

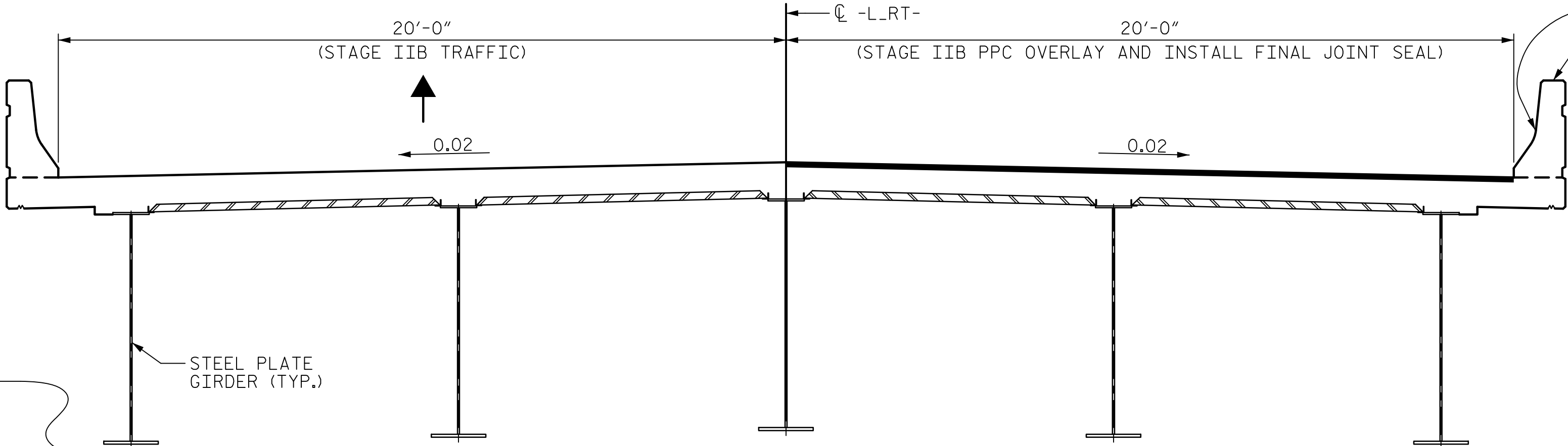
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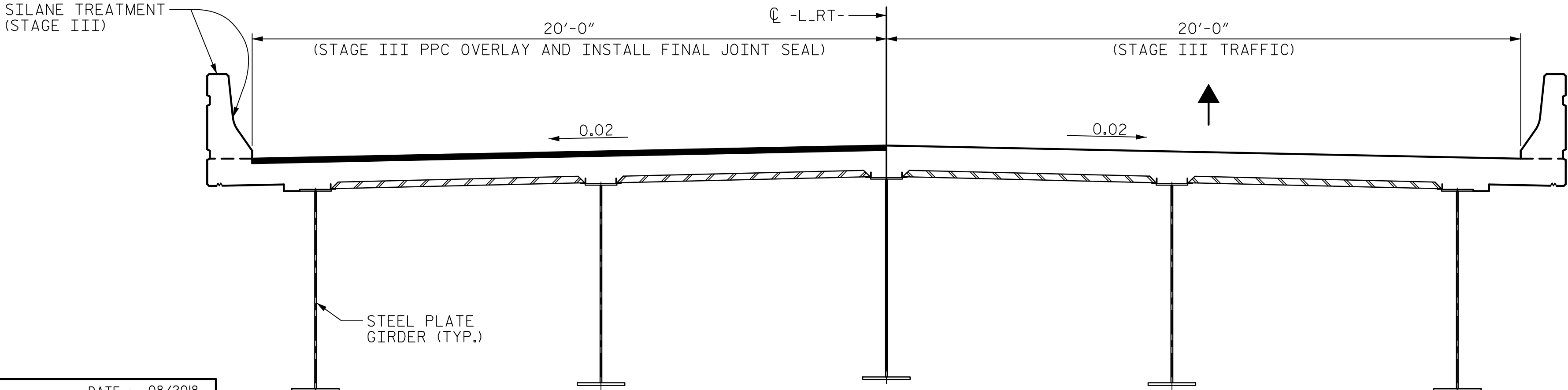
STAGE I CONSTRUCTION



STAGE IIA CONSTRUCTION



STAGE IIB CONSTRUCTION



STAGE III CONSTRUCTION

NOTES:

THIS CONSTRUCTION SEQUENCE SHALL APPLY TO THE END BENT BEARING REPLACEMENT, JOINT REPAIR, OVERLAY SURFACE PREPARATION, PPC OVERLAY, SILANE TREATMENT ON BARRIER, AND APPROACH SLAB RECONSTRUCTION. FOR THE CONSTRUCTION SEQUENCE OF OTHER REHABILITATION ITEMS, REFER TO THE VARIOUS SPECIAL PROVISIONS AND PLAN SHEETS.

THE FINAL MOLDED RUBBER SEGMENTAL EXPANSION JOINT SHALL NOT BE INSTALLED IN UNTIL THE FOLLOWING TASKS ARE COMPLETED: BRIDGE JACKING AND REPLACEMENT OF BEARINGS AT END BENTS (BOTH STAGES), SURFACE PREPARATION FOR PPC, PPC OVERLAY, AND SILANE TREATMENT ON BARRIER TRAFFIC FACE (IN THAT STAGE).

THE RECONSTRUCTED APPROACH SLAB SHALL NOT RECEIVE A PPC OVERLAY.

THE BARRIER ON APPROACH SLAB SHALL RECIEVE SILANE TREATMENT ON ALL FACES.

FOR BEARING REPLACEMENT, SEE DISC BEARING SHEETS AND SPECIAL PROVISIONS.

FOR TEMPORARY LANE WIDTHS AND OFFSETS, LANE SHIFTS, CHANNELIZATION DEVICES, AND OTHER MAINTENANCE OF TRAFFIC MEASURES, SEE TRANSPORTATION MANAGEMENT PLANS.

STAGE I CONSTRUCTION

1. MAINTAIN ONE LANE OF EASTBOUND TRAFFIC ON RIGHT SIDE OF BRIDGE AS SHOWN.
2. REMOVE DECK PORTION AND END DIAPHRAGMS AT END BENTS. RECONSTRUCT AS SHOWN ON JOINT REPLACEMENT SHEETS.
3. REMOVE AND RECONSTRUCT APPROACH SLAB AS SHOWN ON APPROACH SLAB REPLACEMENT SHEETS.
4. INSTALL TEMPORARY JOINT PLATES.

STAGE IIA CONSTRUCTION

1. SHIFT TRAFFIC TO LEFT SIDE AS SHOWN.
2. REMOVE DECK PORTION AND END DIAPHRAGMS AT END BENTS. RECONSTRUCT AS SHOWN ON JOINT REPLACEMENT SHEETS.
3. REMOVE AND RECONSTRUCT APPROACH SLAB AS SHOWN ON APPROACH SLAB REPLACEMENT SHEETS.
4. INSTALL TEMPORARY JOINT PLATES.

STAGE IIB CONSTRUCTION

1. MAINTAIN TRAFFIC ON LEFT SIDE.
2. PREPARE TOP AND TRAFFIC FACES OF BARRIER RAIL FOR SILANE TREATMENT AND APPLY SILANE TREATMENT.
2. PREPARE DECK SURFACE FOR OVERLAY AND INSTALL PPC OVERLAY. GROOVE DECK.
3. REMOVE TEMPORARY PLATE JOINT AS NECESSARY.
4. INSTALL FINAL JOINT SEAL TO CROWN. EPOXY-SET JOINT ANCHORS.

STAGE III CONSTRUCTION

1. SHIFT TRAFFIC TO RIGHT SIDE AS SHOWN.
2. PREPARE TOP AND TRAFFIC FACES OF BARRIER RAIL FOR SILANE TREATMENT AND INSTALL SILANE TREATMENT.
2. PREPARE DECK SURFACE FOR OVERLAY AND INSTALL PPC OVERLAY. GROOVE DECK.
3. REMOVE TEMPORARY PLATE JOINT AS NECESSARY.
4. INSTALL FINAL JOINT SEAL TO CROWN. EPOXY-SET JOINT ANCHORS.

PROJECT NO. 15BPR.43

STANLY/MONTGOMERY COUNTY

STATION: 339+86.39 -L-

DRAWN BY : T.B. STUMP	DATE : 08/2018
CHECKED BY : G.R. COLS	DATE : 08/2018
DESIGNED BY : G.R. COLS	DATE : 08/2018
DESIGN CHECKED BY : K.J. MUENCH	DATE : 08/2018

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Professional Engineer
Gregory R. Cos
041343
10/10/2018

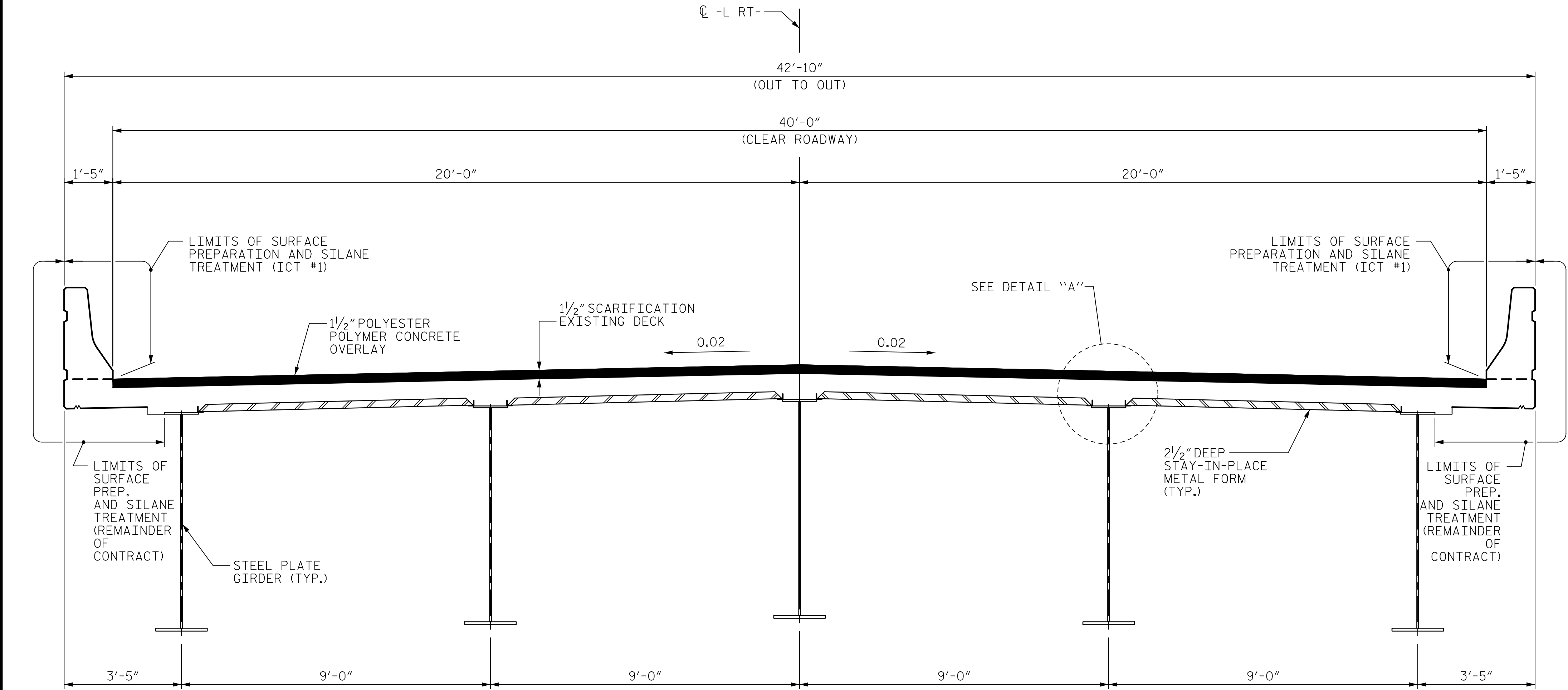
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TOPSIDE
CONSTRUCTION
SEQUENCE

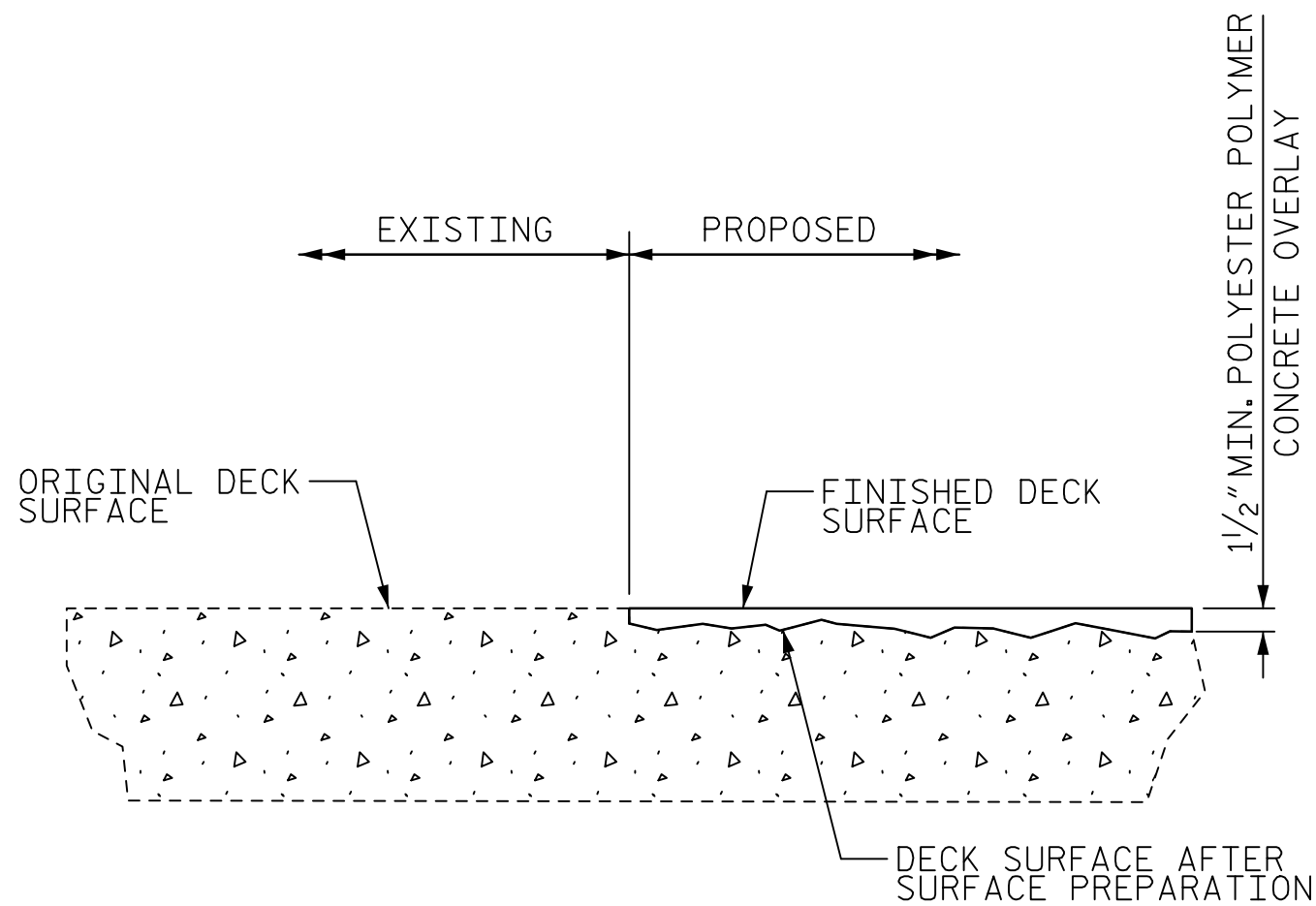
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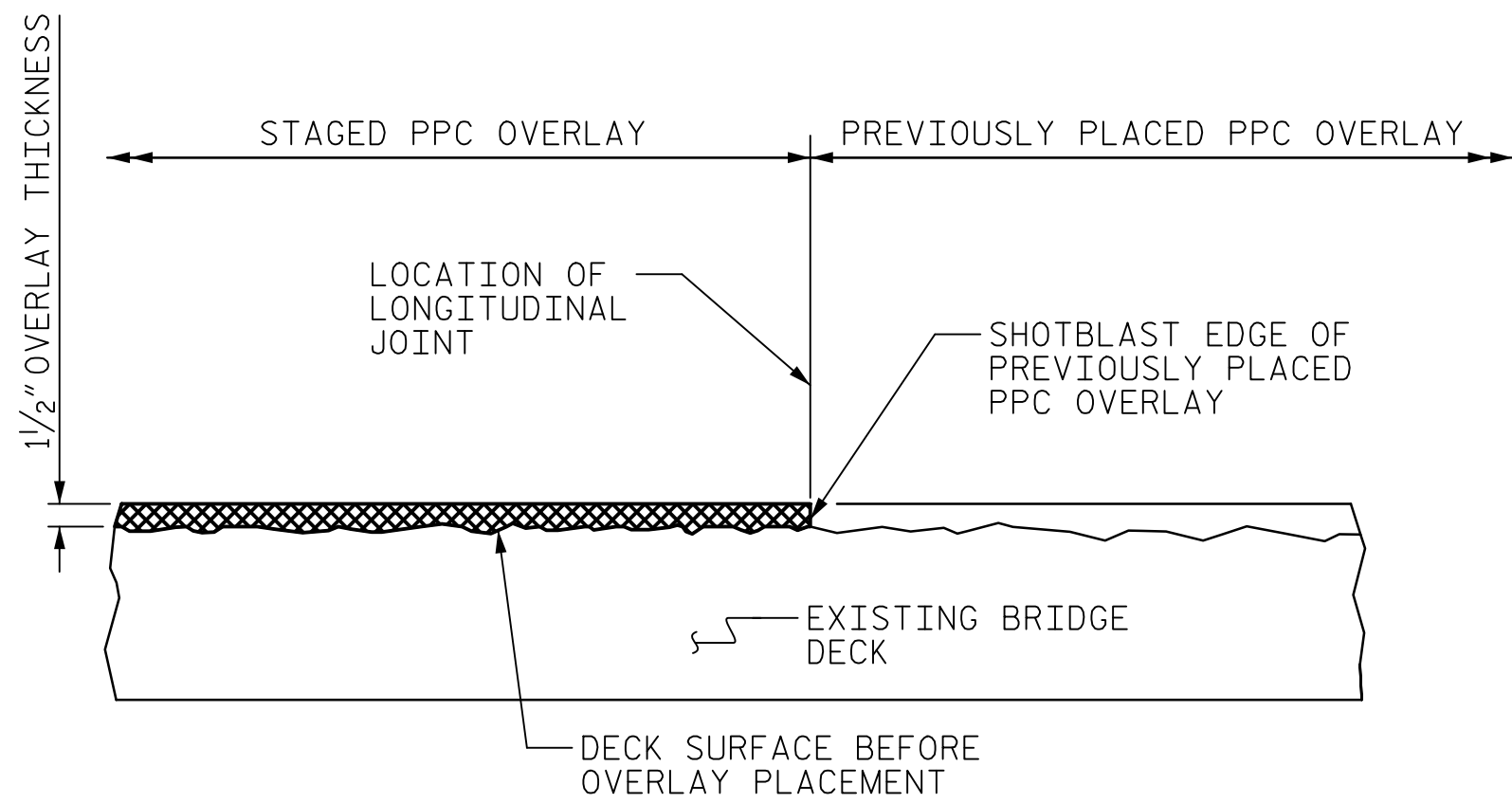
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TYPICAL SECTION



DETAIL FOR POLYESTER
POLYMER CONCRETE OVERLAY



STAGED PPC OVERLAY JOINT
(AS NEEDED)

NOTES:

SEE TRANSPORTATION MANAGEMENT PLANS AND STRUCTURE CONSTRUCTION SEQUENCE SHEET FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF OVERLAY SURFACE PREPARATION AND POLYESTER POLYMER CONCRETE PLACEMENT.

SILANE TREATMENT SHALL BE APPLIED TO BARRIER RAIL TOP & TRAFFIC FACE FOR FULL LENGTH OF BRIDGE AND APPROACH SLAB FOLLOWING REPLACEMENT OF BARRIER AND RECONSTRUCTION OF APPROACH SLABS DURING ICT #1.

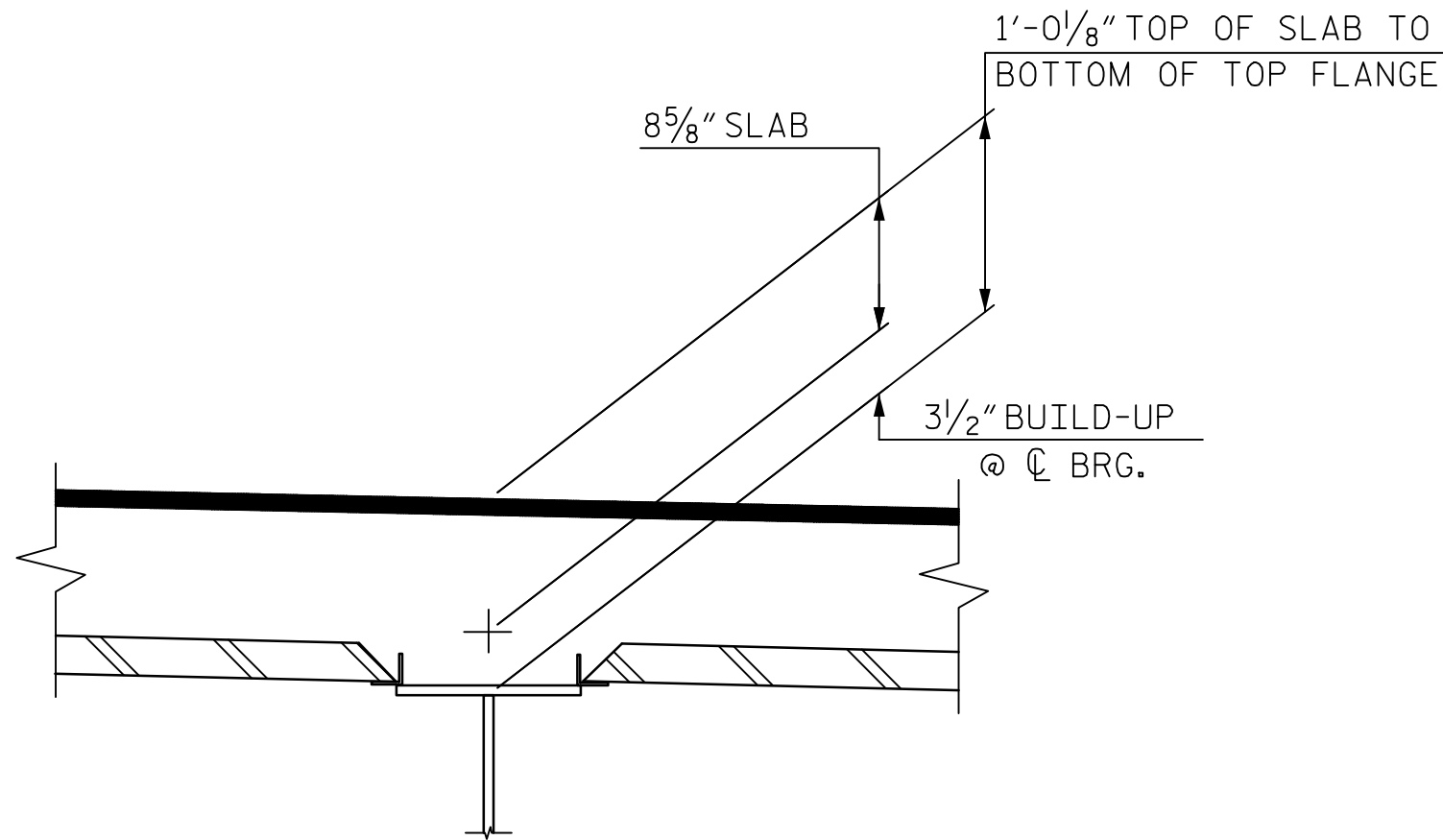
SILANE TREATMENT SHALL BE APPLIED TO DECK SOFFIT AT OVERHANGS, RECONSTRUCTED END DIAPHRAGMS, & BACK OF BARRIER PRIOR TO PROJECT COMPLETION.

FOR SILANE TREATMENTS & SURFACE PREPARATION FOR SILANE, SEE SPECIAL PROVISIONS.

FOR ADDITIONAL REHABILITATION AND REPAIR DETAILS, SEE REHABILITATION DETAILS SHEET.

TOTAL SILANE TREATMENT	
SILANE TREATMENT FOR ICT #1 =	8,200 SF
SURFACE PREPARATION FOR ICT #1 =	8,200 SF
SILANE TREATMENT FOR REMAINDER OF CONTRACT =	16,200 SF
SURFACE PREPARATION FOR REMAINDER OF CONTRACT=	16,200 SF

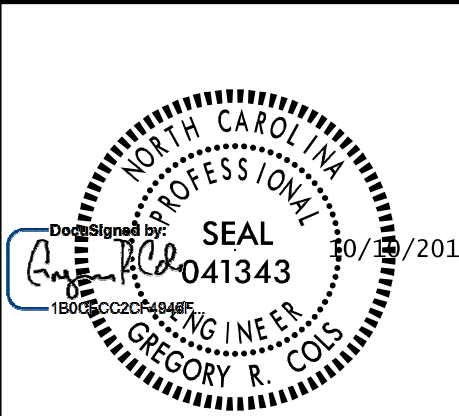
INCLUDES BARRIER ON APPROACH SLAB



DETAIL "A"

PROJECT NO. 15BPR.43
STANLY/MONTGOMERY COUNTY
STATION: 339+86.39 -L-

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RALEIGH

SUPERSTRUCTURE
TYPICAL SECTION
AND
PPC OVERLAY
DETAILS

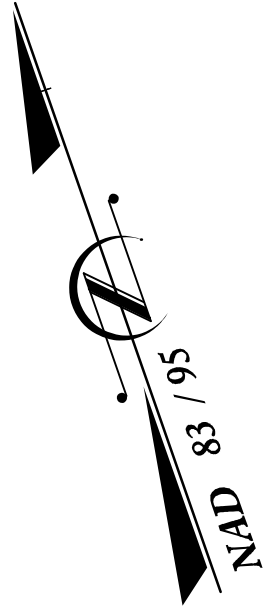
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CHECKED BY : G.R. COLS
DESIGNED BY : G.R. COLS
DESIGN CHECKED BY : K.J. MUENCH
DATE : 08/2018
DATE : 08/2018
DATE : 08/2018
DATE : 08/2018

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TYPE	DESCRIPTION
CL II	CLASS II CONCRETE REPAIR
EMR	EPOXY MORTAR REPAIR

NOTES:

EXISTING BRIDGE CONCRETE DECK SHALL BE REPAIRED PRIOR TO THE SURFACE PREPARATION AND APPLICATION OF THE PPC OVERLAY AT LOCATIONS SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER. IF NECESSARY, SUCH LOCATIONS MAY BE REPAIRED WITH PPC. PPC SHALL NOT BE USED FOR THE RECONSTRUCTION OF THE JOINTS, BARRIERS, OR APPROACH SLABS.

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

QUANTITIES IN TABLES REPRESENT ESTIMATED VALUES OF CLASS II SURFACE PREPARATION AND CONCRETE DECK REPAIR FOR PPC OVERLAY AFTER REMOVAL OF UNSOUND CONCRETE (MIN. 2" CLEAR TO SAW CUT). SEE SPECIAL PROVISIONS.

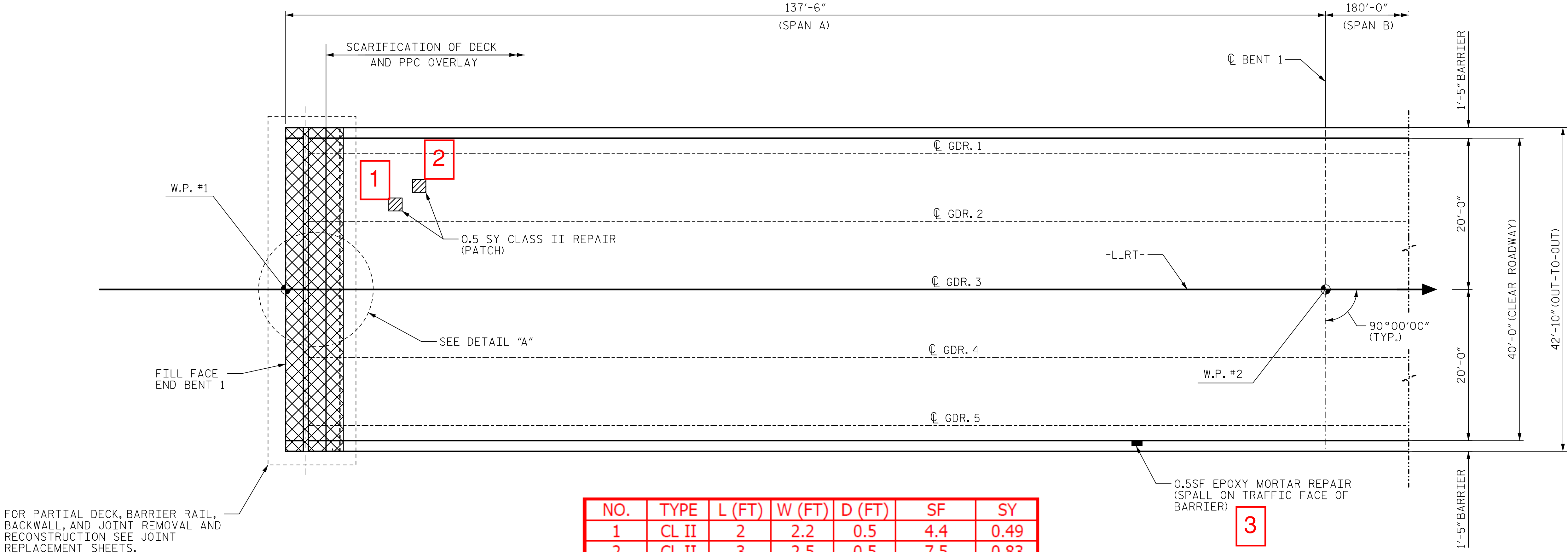
LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CROWN OF THE DECK OR EDGE OF TRAVEL LANES.

FOR LIMITS OF SILANE COATINGS AND PPC DETAILS, SEE "TYPICAL SECTION AND PPC OVERLAY" SHEET.

FOR ADDITIONAL REHABILITATION AND REPAIR DETAILS, SEE REHABILITATION DETAILS SHEET.

FOR STAGING LIMITS, SEE CONSTRUCTION SEQUENCE SHEET.

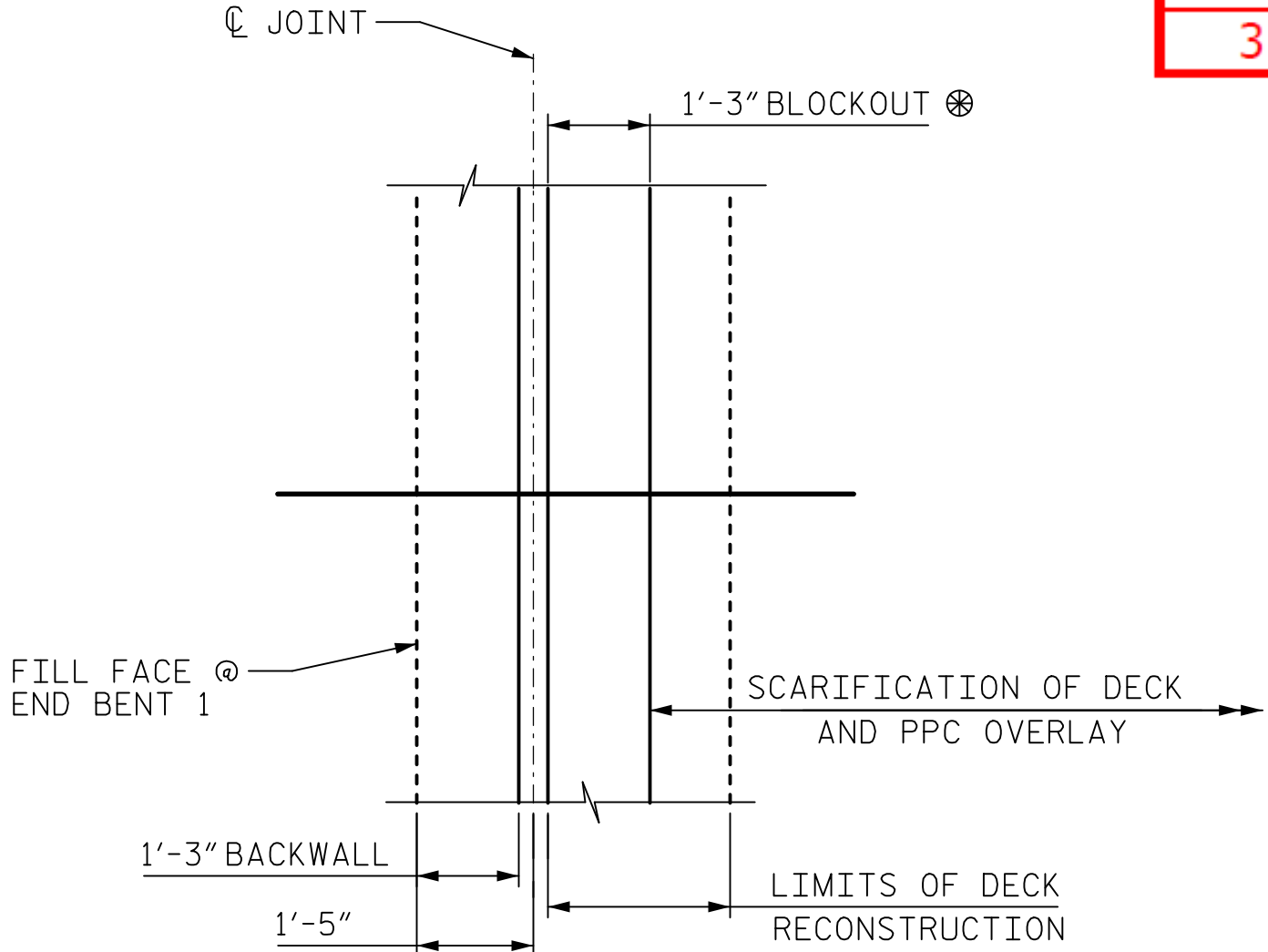
REPAIR QUANTITY TABLE		
SPAN A		
TOP OF DECK REPAIRS		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	598.5 SY	598.5 SY
CLASS II SURFACE PREPARATION	1.0 SY	1.32 SY
CONCRETE DECK REPAIR FOR PPC OVERLAY	1.0 SY	1.32 SY
SHOTBLASTING BRIDGE DECK	598.5 SY	598.5 SY
PPC MATERIAL	24.9 CY	24.9 CY
PLACING AND FINISHING PPC OVERLAY	598.5 SY	598.5 SY
GROOVING BRIDGE FLOORS	4977 SF	4977 SF
BARRIER REPAIRS		
EPOXY MORTAR REPAIRS	0.5 SF	0.8 SF



SPAN	CONCRETE COVER (AVERAGE)
A	3 1/8"

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 08/05/18. FOR ADDITIONAL DATA, SEE SPECIAL PROVISIONS.

NO.	TYPE	L (FT)	W (FT)	D (FT)	SF	SY
1	CL II	2	2.2	0.5	4.4	0.49
2	CL II	3	2.5	0.5	7.5	0.83
3	EMR	1.5	0.5	0.25	0.8	



PLAN OF SPAN A

- APPROXIMATE CLASS II REPAIR
- JOINT RECONSTRUCTION AREA
- EPOXY MORTAR REPAIR (ON BARRIER)
- DIMENSION AT 60°F

DRAWN BY : K. DONALD	DATE : 08/2018
CHECKED BY : G. COLS	DATE : 08/2018
DESIGNED BY : K. DONALD	DATE : 08/2018
DESIGN CHECKED BY : G. COLS	DATE : 08/2018

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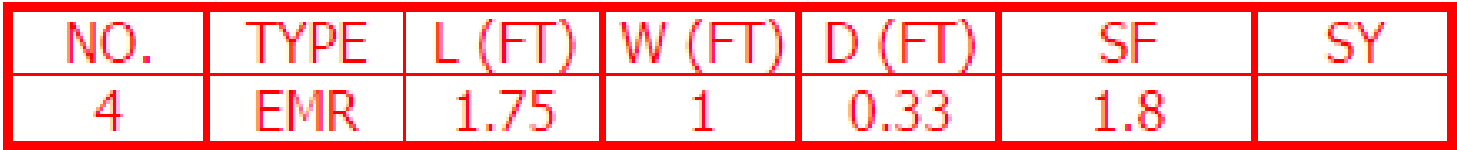
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RALEIGH
SUPERSTRUCTURE
PLAN OF SPANS
SPAN A

REVISIONS						SHEET NO. S-07
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

FOR NOTES, SEE SHEET 1.

Plan view of the bridge deck showing dimensions and components:

- Overall width: 42'-10" (OUT-TO-OUT)
- Clear roadway width: 40'-0" (CLEAR ROADWAY)
- Dimensions from centerline to barriers: 20'-0" (each side)
- Barrier height: 1'-5" BARRIER
- Span C length: 205'-0" (SPAN C)
- Components: W.P. #3, BENT 2



■ EPOXY MORTAR REPAIR
(ON BARRIER)

SPAN	CONCRETE COVER (AVERAGE)
B	2 ⁵ / ₁₆ "

INFORMATION IN CHART TAKEN
FROM DECK EVALUATION DATED
08/05/18. FOR ADDITIONAL DATA,
SEE SPECIAL PROVISIONS.

STATION: 339+86.39 -L-

SHEET 2 OF 6

PLAN OF SPANS
SPAN B

REVISIONS					SHEET NO.
BY:	DATE:	NO.	BY:	DATE:	S-08
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DESIGNED BY : <u>K. DONALD</u>	DATE : <u>08/2018</u>
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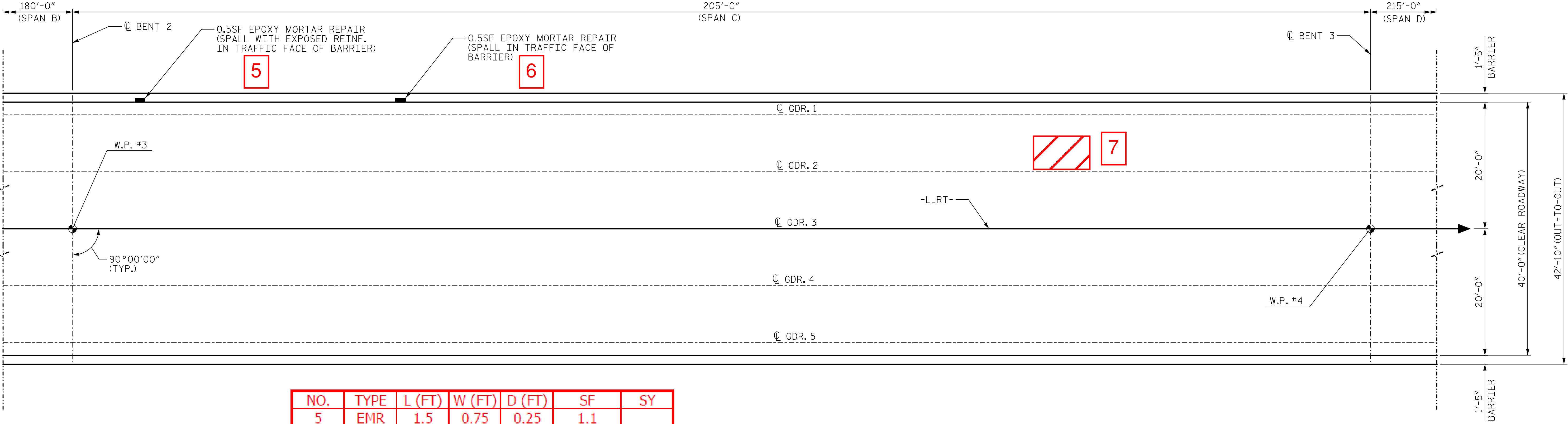
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NOTES:

FOR NOTES, SEE SHEET 1.

REPAIR QUANTITY TABLE

SPAN C		
TOP OF DECK REPAIRS		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	911.1 SY	911.1 SY
CLASS II SURFACE PREPARATION	0.0 SY	1.33 SY
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY	1.33 SY
SHOTBLASTING BRIDGE DECK	911.1 SY	911.1 SY
PPC MATERIAL	38.0 CY	38 CY
PLACING AND FINISHING PPC OVERLAY	911.1 SY	911.1 SY
GROOVING BRIDGE FLOORS	7585 SF	7585 SF
BARRIER REPAIRS		
EPOXY MORTAR REPAIR	1 SF	1.6 SF



PLAN OF SPAN C

EPOXY MORTAR REPAIR (ON BARRIER)

SPAN	CONCRETE COVER (AVERAGE)
C	2 ¹³ / ₁₆ "

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 08/05/18. FOR ADDITIONAL DATA, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.43

STANLY/MONTGOMERY COUNTY

STATION: 339+86.39 -L-

SHEET 3 OF 6

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PLAN OF SPANS
SPAN C

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DESIGNED BY : K. DONALD	DATE : 08/2018
DESIGN CHECKED BY : G. COLS	DATE : 08/2018

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FOR NOTES, SEE SHEET 1.

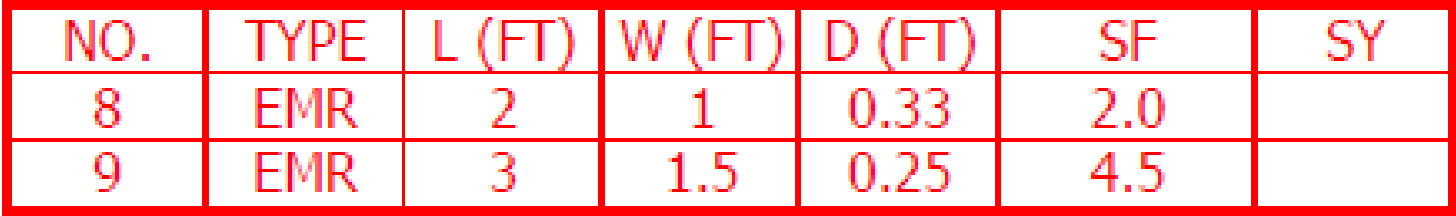
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Professional Engineer
Gregory R. Cosentino
License No. 041343
Expires 10/12/2018

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SHEET NO. S-10	TOTAL SHEETS 38
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SPAN	CONCRETE COVER (AVERAGE)
D	2 ¹⁵ / ₁₆ "

INFORMATION IN CHART TAKEN
FROM DECK EVALUATION DATED
08/05/18. FOR ADDITIONAL DATA,
SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.43

STANLY/MONTGOMERY COUNTY

STATION: 339+86.39 -L-

SHEET 4 OF 6

PLAN OF SPAN D

EPOXY MORTAR REPAIR
(ON BARRIER)

DRAWN BY : K. DONALD DATE : 08/2018
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 DESIGNED BY : K. DONALD DATE : 08/2018
 DESIGN CHECKED BY : G. COLS DATE : 08/2018

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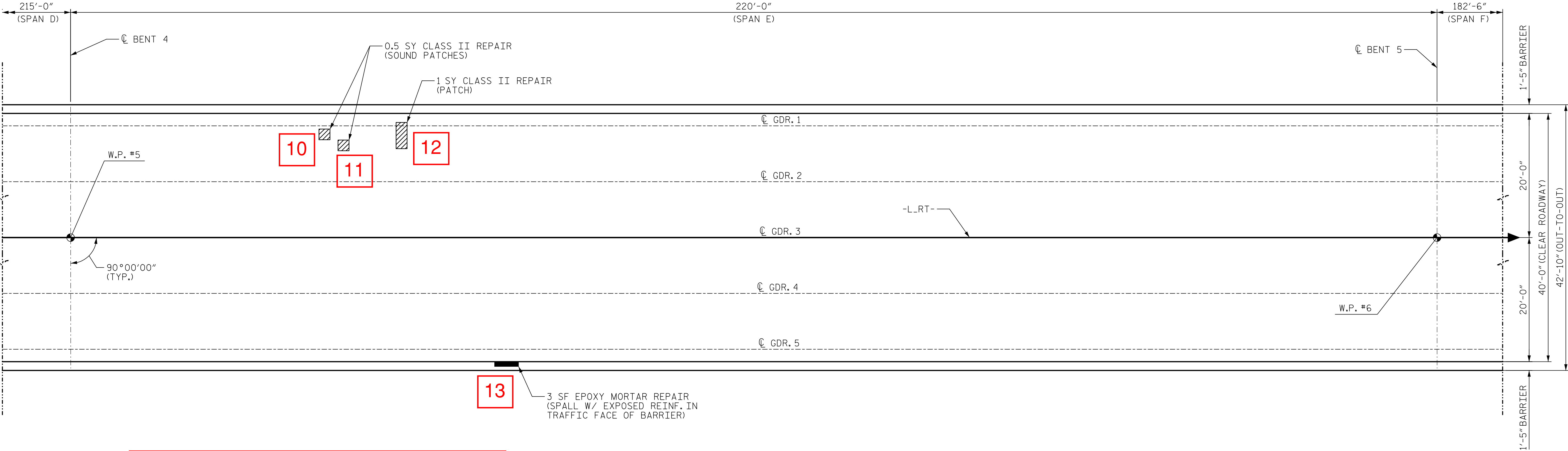
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NOTES:

FOR NOTES, SEE SHEET 1.

REPAIR QUANTITY TABLE

SPAN E		
TOP OF DECK REPAIRS		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	977.8 SY	977.8 SY
CLASS II SURFACE PREPARATION	1.5 SY	2.63 SY
CONCRETE DECK REPAIR FOR PPC OVERLAY	1.5 SY	2.63 SY
SHOTBLASTING BRIDGE DECK	977.8 SY	977.8 SY
PPC MATERIAL	40.7 CY	40.7 CY
PLACING AND FINISHING PPC OVERLAY	977.8 SY	977.8 SY
GROOVING BRIDGE FLOORS	8140 SF	8140 SF
BARRIER REPAIRS		
EPOXY MORTAR REPAIR	3 SF	5 SF



NO.	TYPE	L (FT)	W (FT)	D (FT)	SF	SY
10	CL II	2	2	0.33	4.0	0.44
11	CL II	3	2.5	0.33	7.5	0.83
12	CL II	3.5	3.5	0.4	12.3	1.36
13	EMR	2.5	2	0.25	5.0	

PLAN OF SPAN E

- APPROXIMATE CLASS II REPAIR
- EPOXY MORTAR REPAIR (ON BARRIER)

SPAN	CONCRETE COVER (AVERAGE)
E	3"

INFORMATION IN CHART TAKEN FROM DECK EVALUATION DATED 08/05/18. FOR ADDITIONAL DATA, SEE SPECIAL PROVISIONS.

PROJECT NO. 15BPR.43
STANLY/MONTGOMERY COUNTY
STATION: 339+86.39 -L-

SHEET 5 OF 6



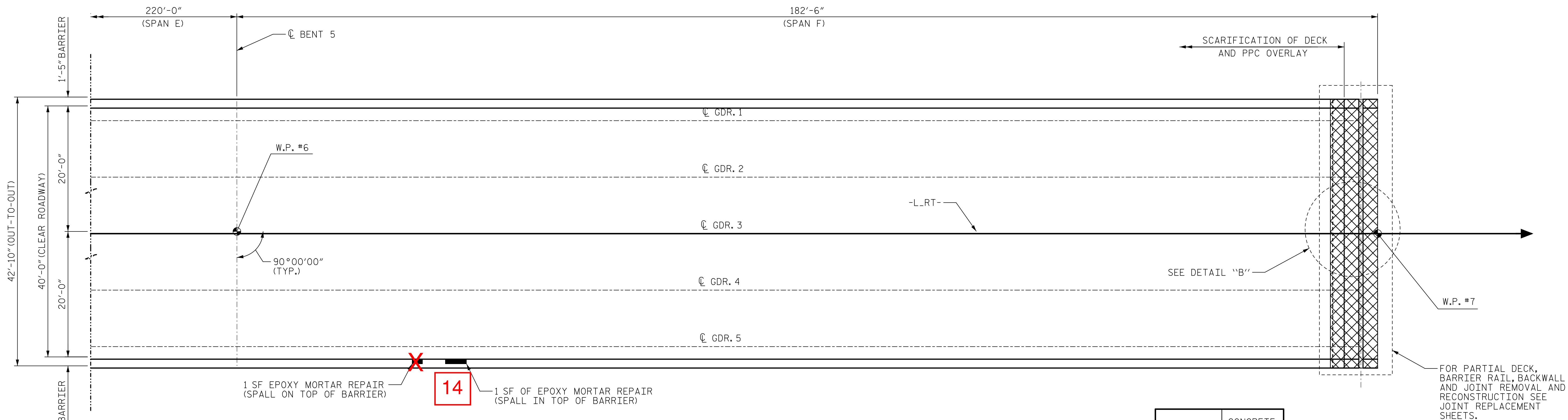
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TOTAL SHEETS					38

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DESIGN CHECKED BY : G. COLS	DATE : 08/2018

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FOR NOTES, SEE SHEET 1.

TOP OF DECK REPAIRS		
SPAN F		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	798.5 SY	798.5 SY
CLASS II SURFACE PREPARATION	0.0 SY	0 SY
CONCRETE DECK REPAIR FOR PPC OVERLAY	0.0 SY	0 SY
SHOTBLASTING BRIDGE DECK	798.5 SY	798.5 SY
PPC MATERIAL	33.3 CY	33.3 CY
PLACING AND FINISHING PPC OVERLAY	798.5 SY	798.5 SY
GROOVING BRIDGE FLOORS	6641 SF	6641 SF
BARRIER REPAIRS		
EPOXY MORTAR REPAIRS	2 SF	2 SF



NO.	TYPE	L (FT)	W (FT)	D (FT)	SF	SY
14	EMR	2	1	0.33	2.0	

SPAN	CONCRETE COVER (AVERAGE)
F	3 1/8"

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FROM DECK EVALUATION DATED
08/05/18.FOR ADDITIONAL DATA,
SEE SPECIAL PROVISIONS.

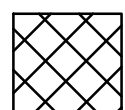
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STATION: 339+86.39 -L-

SHEET 6 OF 6

PLAN OF SPAN F



JOINT RECONSTRUCTION AREA



EPOXY MORTAR REPAIR
(IN BARRIER)



DIMENSION AT 60°F

Diagram illustrating the limits of deck reconstruction and backwall location:

- 1'-3" BLOCKOUT**: Indicated by a dimension line at the top left.
- CL JOINT**: Indicated by a dimension line at the top right.
- SCARIFICATION OF DECK AND PPC OVERLAY**: Indicated by a dimension line on the left side.
- LIMITS OF DECK RECONSTRUCTION**: Indicated by a dimension line at the bottom left.
- 1'-3" BACKWALL**: Indicated by a dimension line at the bottom right.
- 1'-5"**: Indicated by a dimension line at the bottom right, below the backwall dimension.
- FILL FACE @ END BENT 2**: Indicated by an arrow pointing to the right side of the diagram.

DETAIL B

DRAWN BY : <u>K. DONALD</u>	DATE : <u>08/2018</u>
CHECKED BY : <u>G. COLS</u>	DATE : <u>08/2018</u>
DESIGNED BY : <u>K. DONALD</u>	DATE : <u>08/2018</u>
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPANS

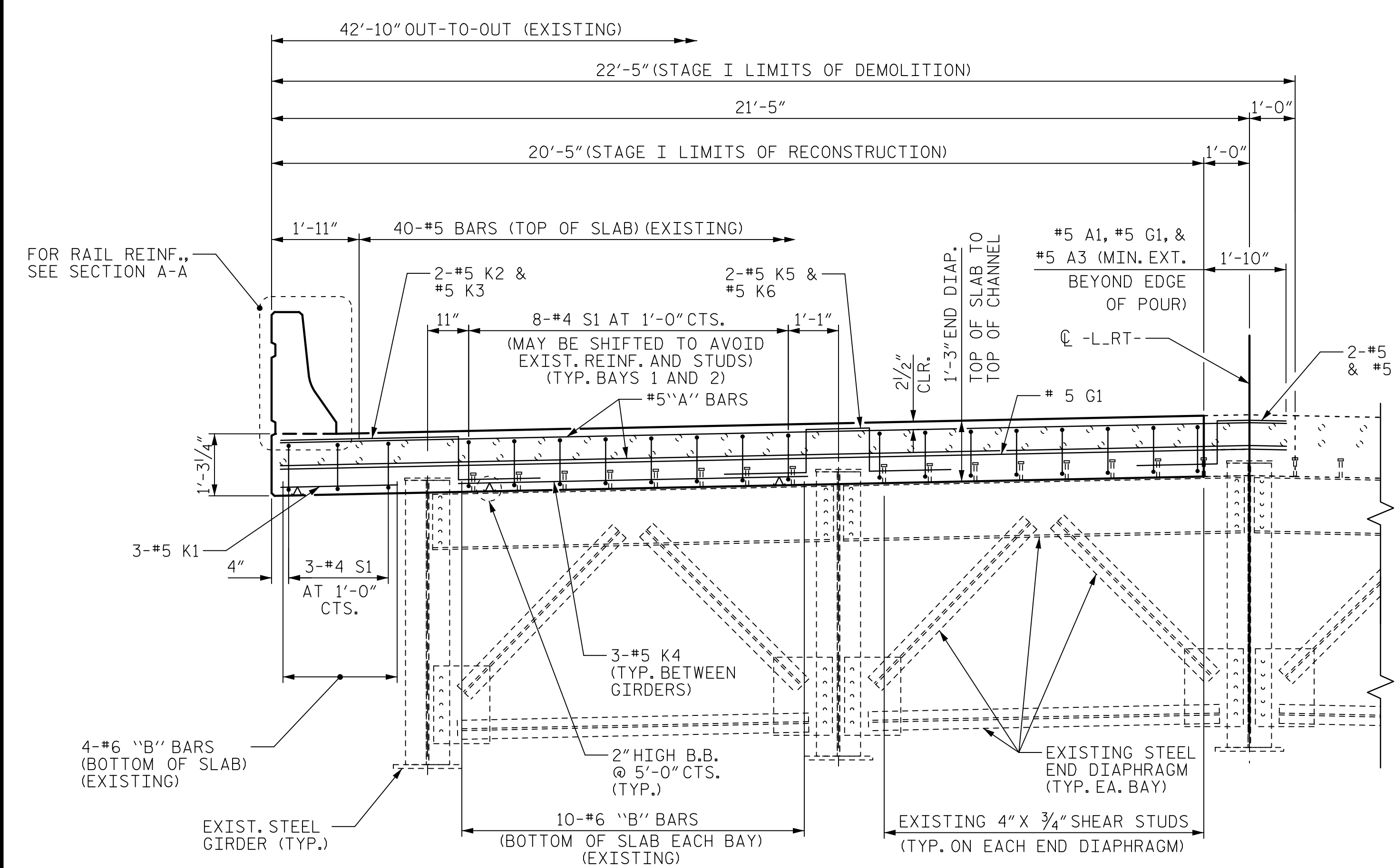
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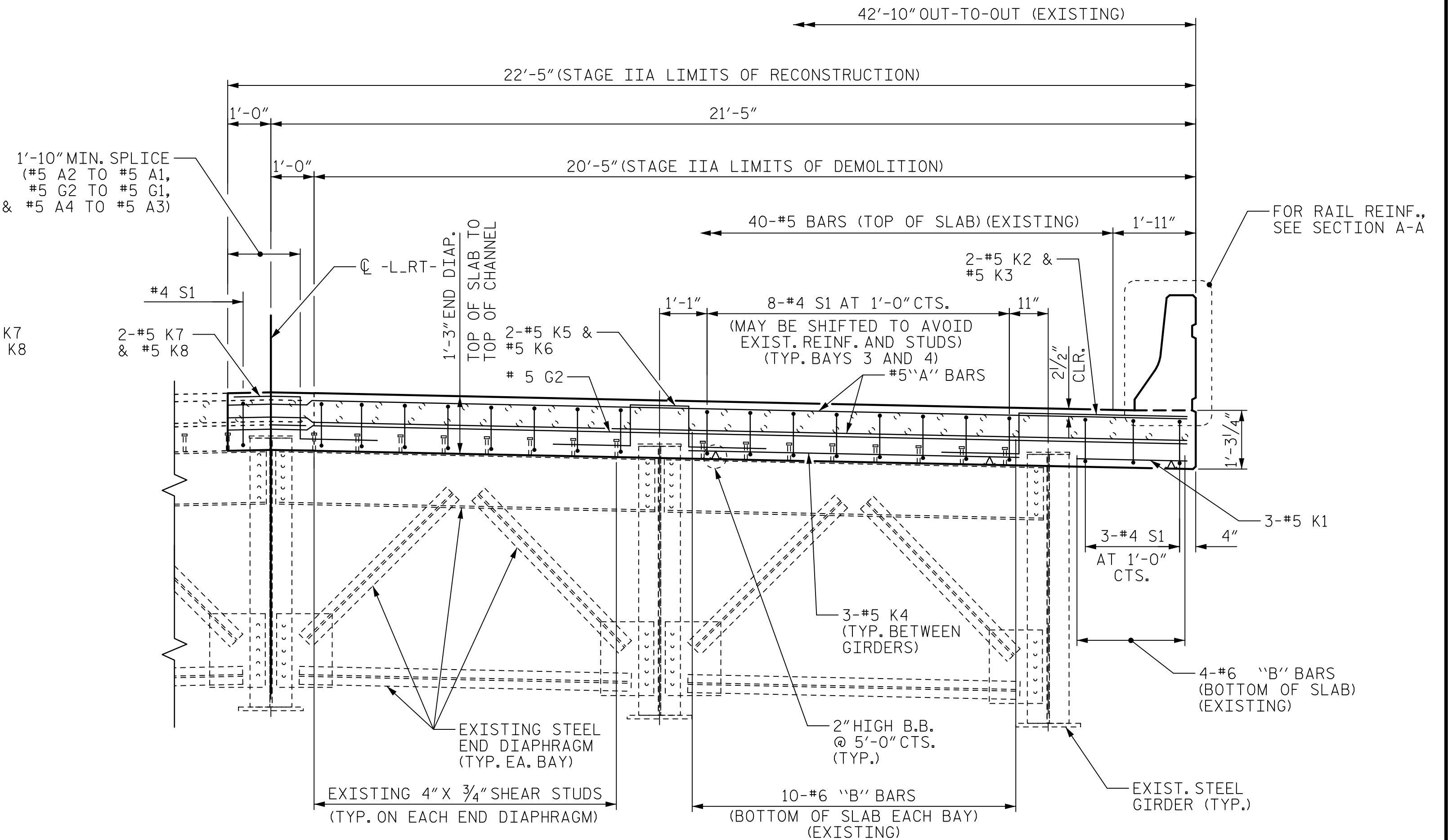
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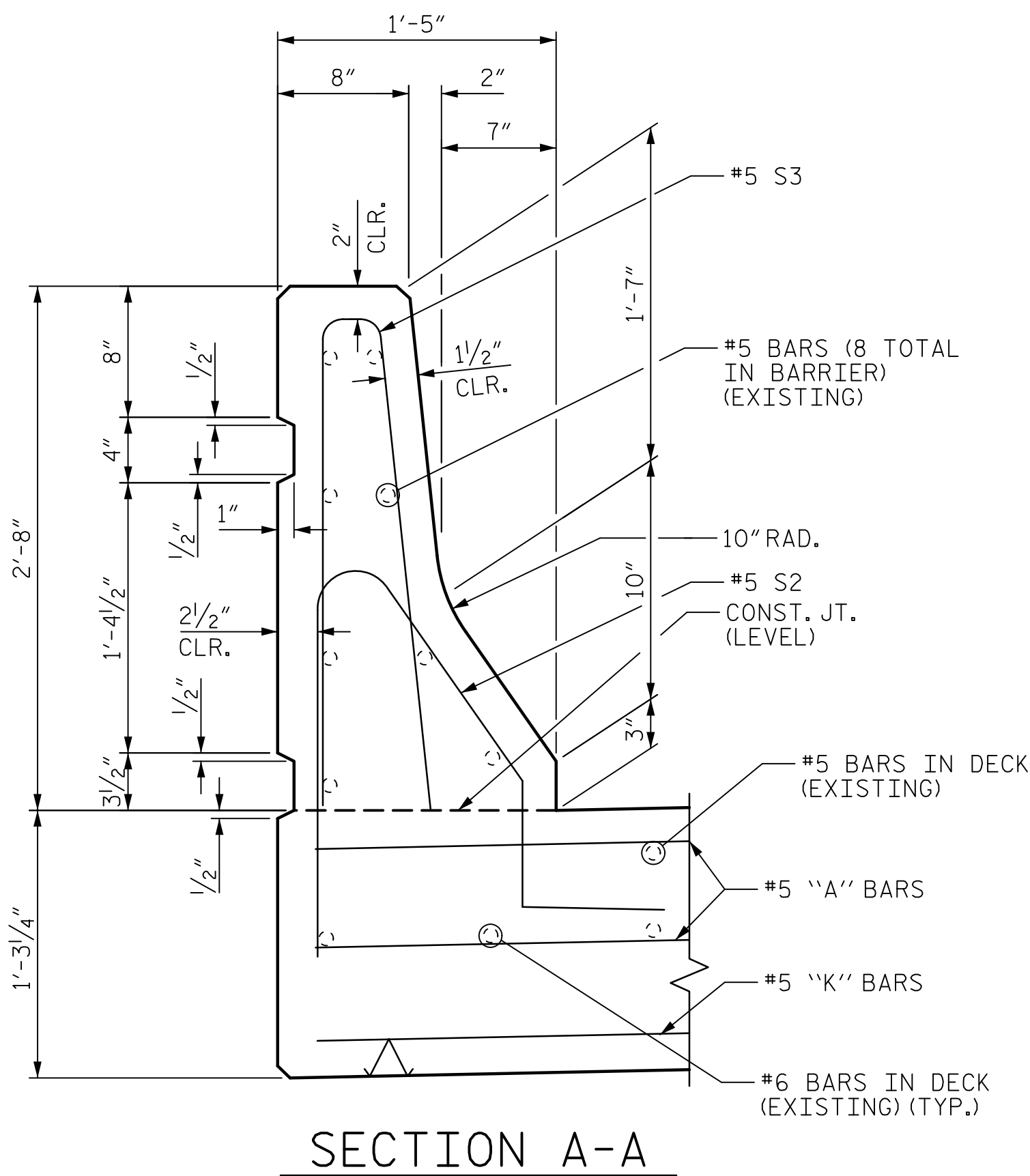
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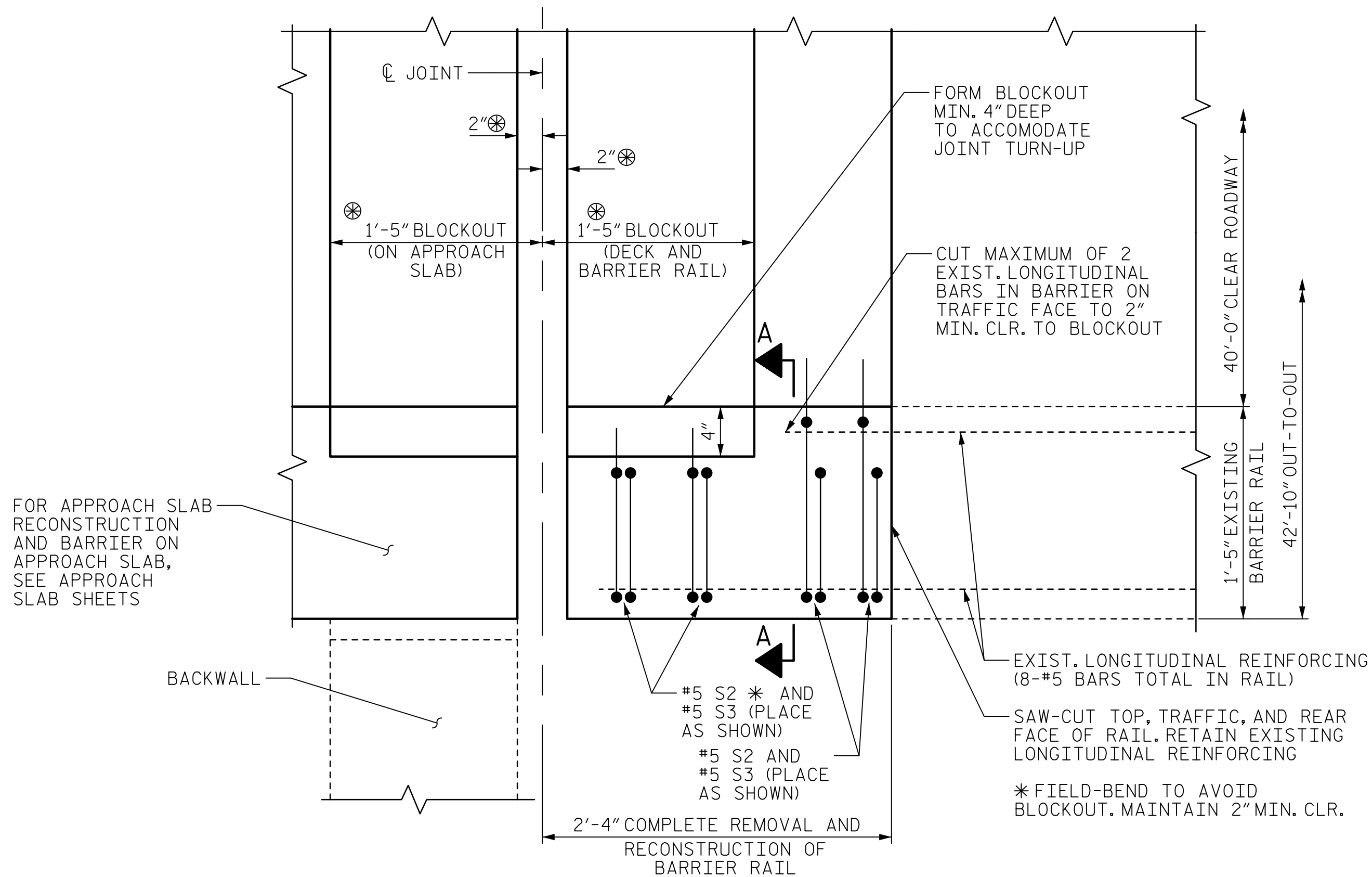
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(SEE TYPICAL SECTION SHEET FOR ADDITIONAL DIMENSIONS)



TYPICAL SECTION - STAGE IIA
(SEE TYPICAL SECTION SHEET FOR ADDITIONAL DIMENSIONS)



SECTION A-A

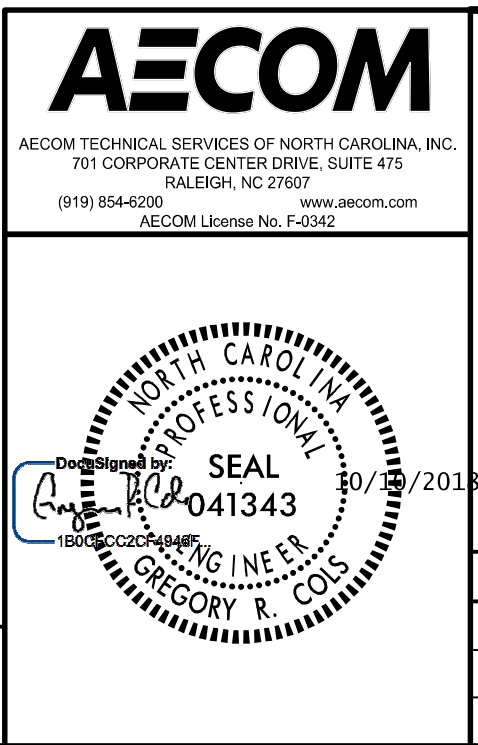


PLAN OF BARRIER RAIL RECONSTRUCTION

⊗ DIMENSION AT 60° F.

DRAWN BY : T.B. STUMP	DATE : 08/2018
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DESIGNED BY : G.R. COLS	DATE : 08/2018
DESIGN CHECKED BY : K. J. MUENCH	DATE : 08/2018

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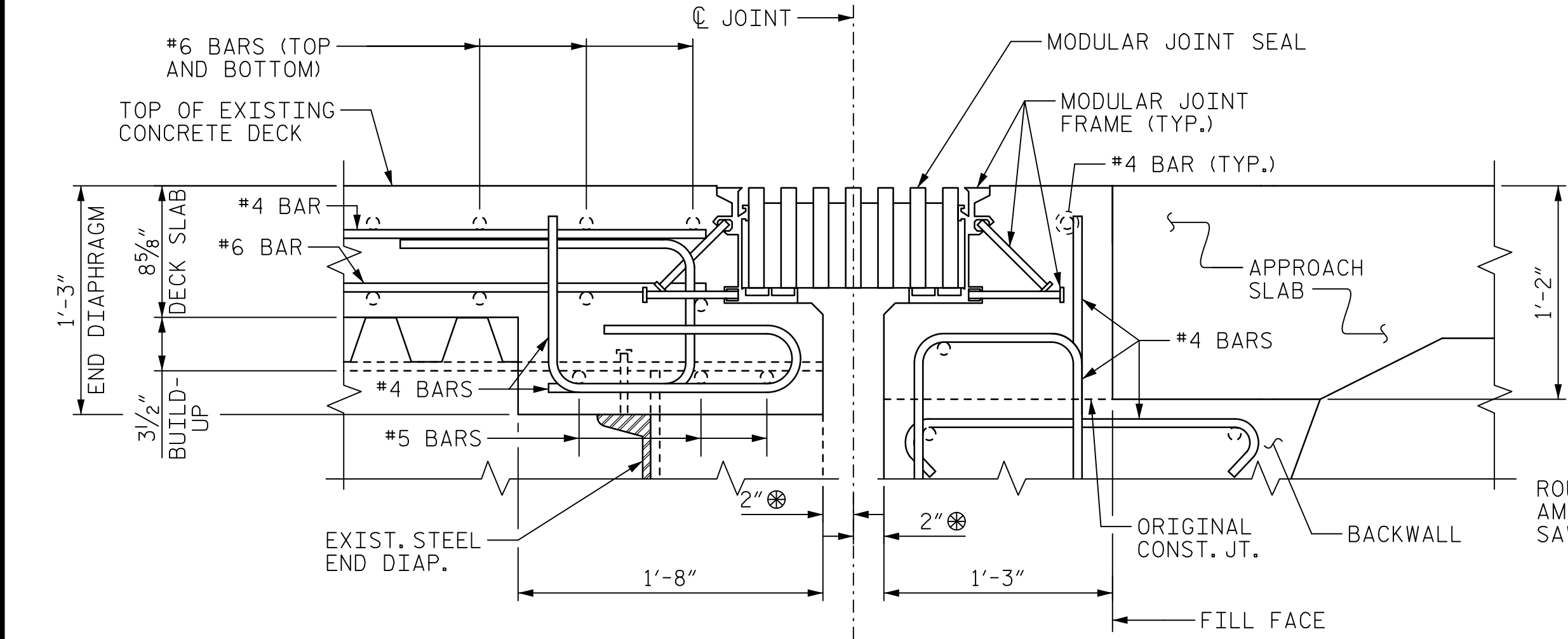


PROJECT NO. 15BPR.43
STANLY/MONTGOMERY COUNTY
STATION: 339+86.39 -L-
SHEET 1 OF 4

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SUPERSTRUCTURE					
JOINT REPLACEMENT TYPICAL SECTION AND DETAILS					
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NO.	BY:	DATE:	NO.	BY:	DATE:
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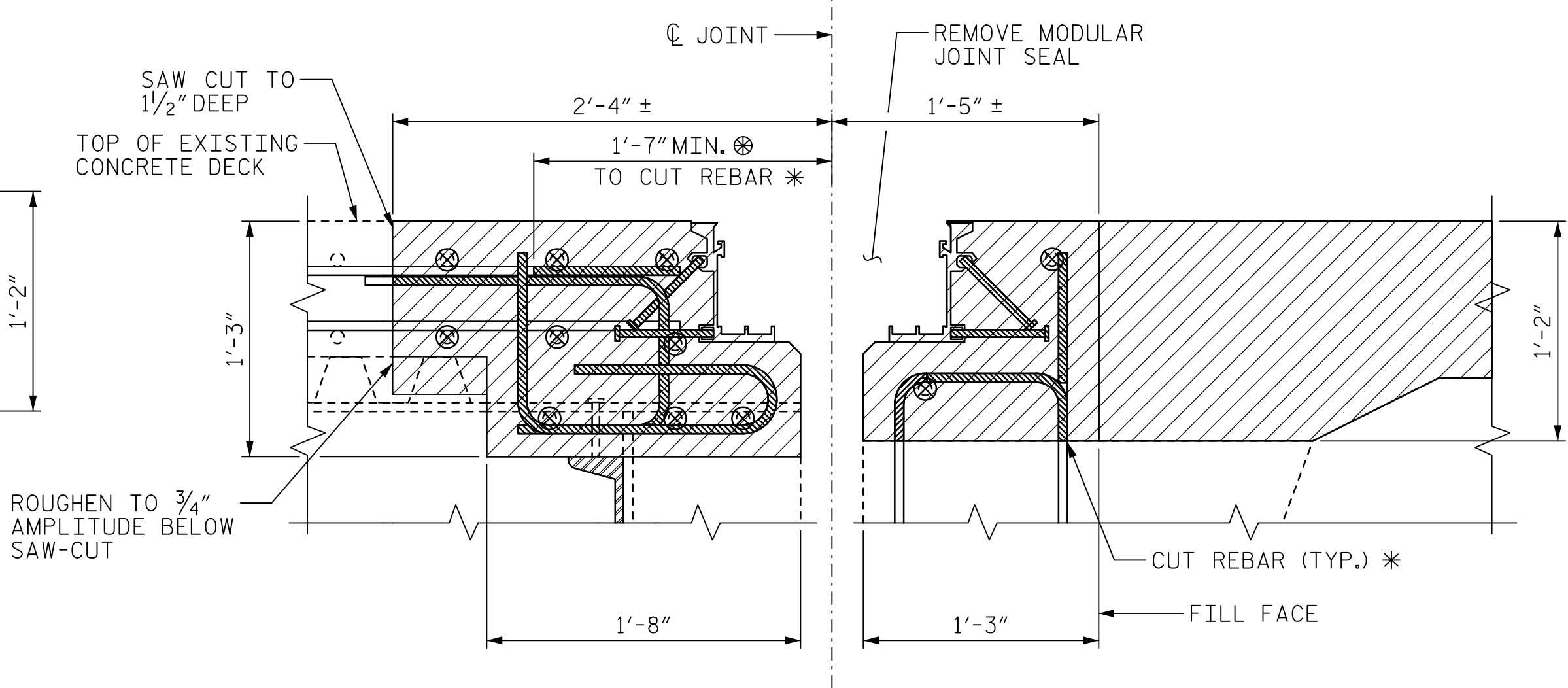
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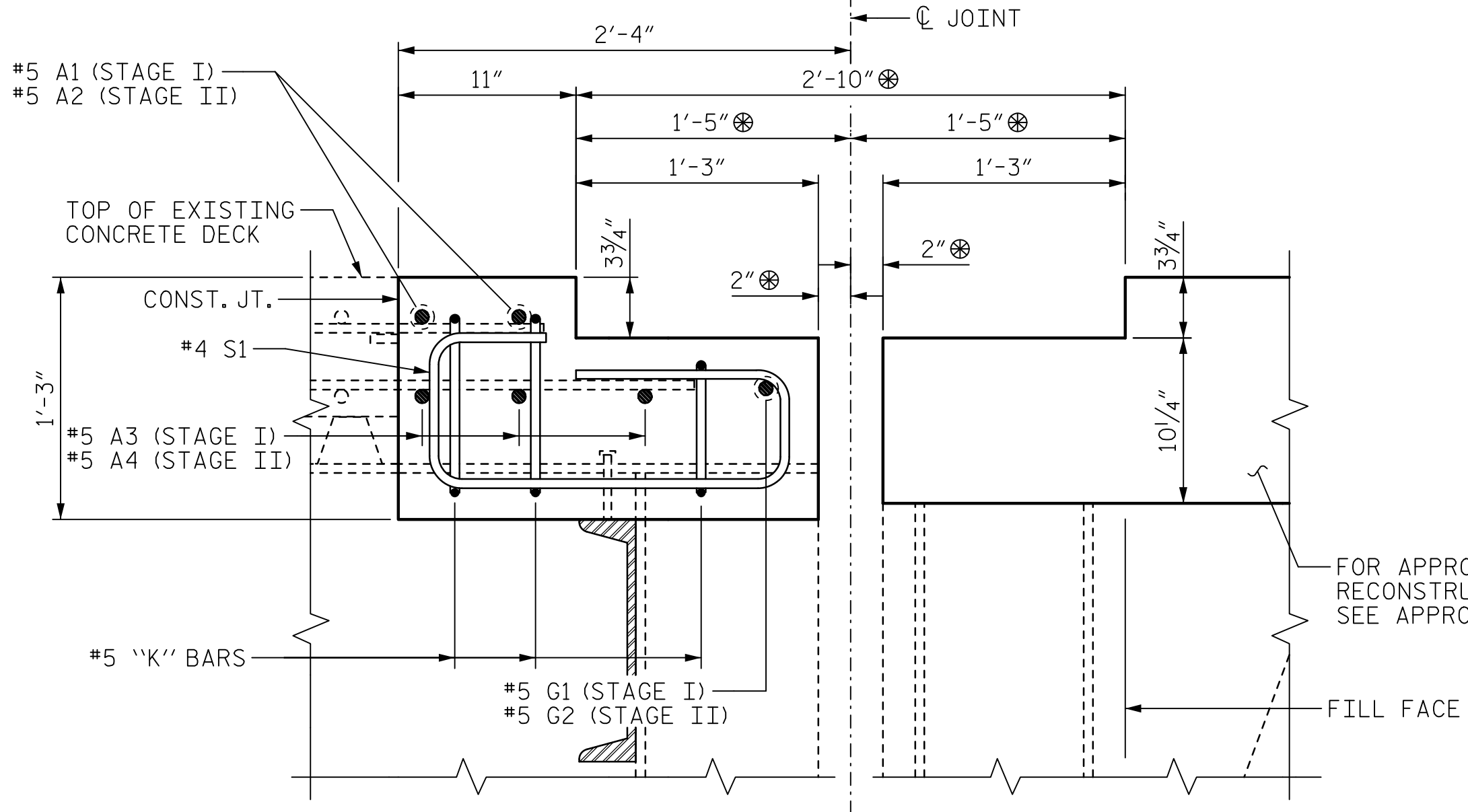
EXISTING JOINT CONDITIONS

INFORMATION SHOWN BASED ON BEST DATA AVAILABLE.



EXISTING TO BE REMOVED

- EXISTING CONCRETE TO BE REMOVED
- EXISTING REBAR TO BE REMOVED
- EXISTING REBAR TO BE REMOVED
- EPOXY-COAT ENDS OF CUT REBAR



DECK AND END DIAPHRAGM RECONSTRUCTION

- PROPOSED CONCRETE
- PROPOSED REBAR
- PROPOSED REBAR

NOTES

CONTRACTOR SHALL VERIFY EXISTING BAR COVER PRIOR TO SAW CUT AND SHALL SET CUT DEPTH AS SPECIFIED IN THE SPECIAL PROVISION.

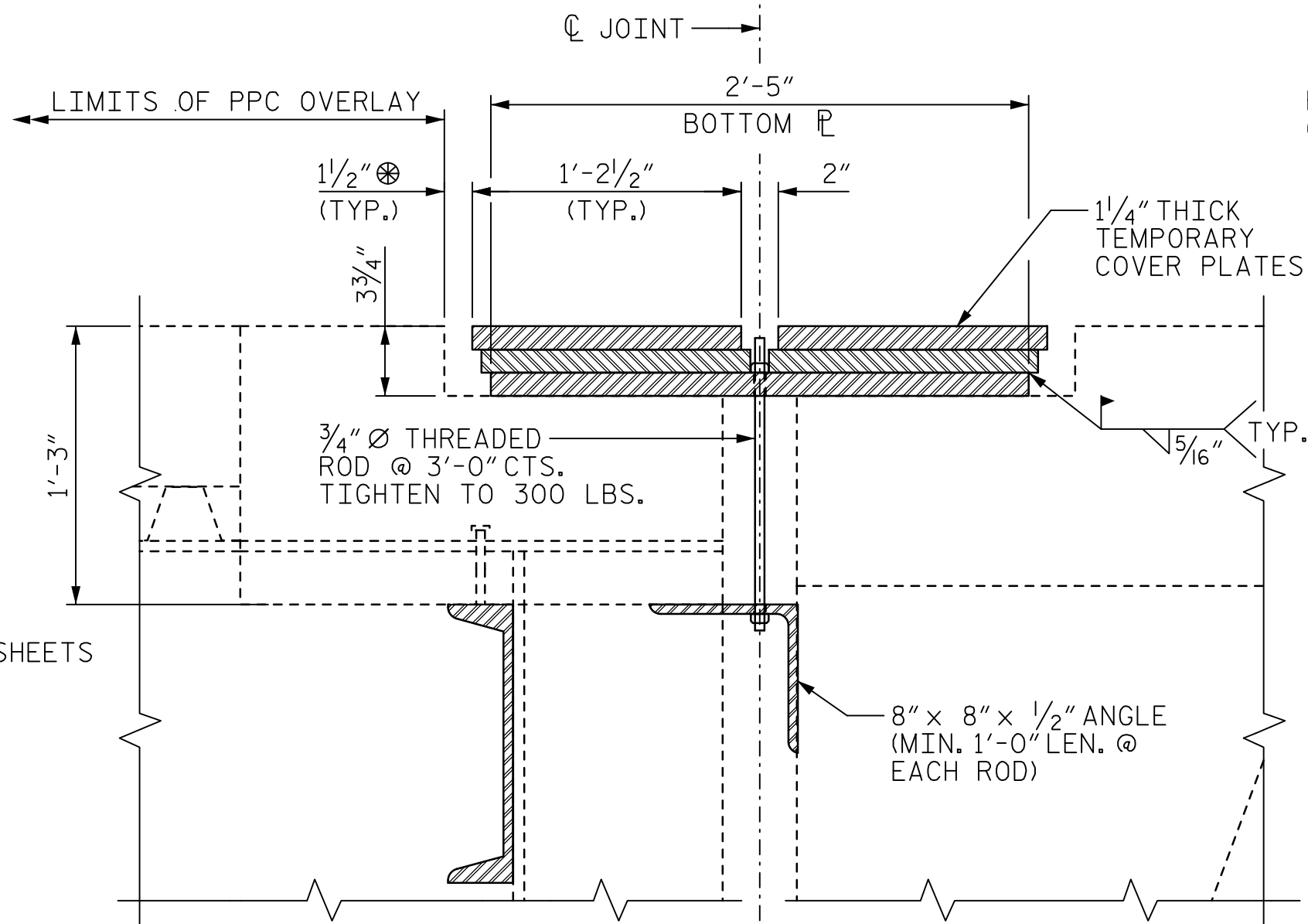
ANY DAMAGE TO THE EXISTING REINFORCING STEEL, DURING CONTRACTORS OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST. EPOXY-COAT ALL TOP MAT REINFORCING STEEL CUT OR NICKED DURING CONSTRUCTION.

FOR JOINT REPAIR, SEE SPECIAL PROVISIONS.

THE CONTRACTOR IS TO FIELD VERIFY THAT THE DETAILS SHOWN ON THE PLANS MATCH THE EXISTING JOINT CLEAR OPENINGS BEFORE ORDERING ANY MATERIALS. THE MANUFACTURER IS TO CONFIRM THE MODEL SPECIFIED IN SPECIAL PROVISIONS IS THE CORRECT MODEL SYSTEM FOR THE CONTRACTOR-VERIFIED JOINT OPENINGS, PLUS AN ADDITIONAL 1/4" ANTICIPATED CONTRACTION DUE TO THE DESIGN TEMPERATURES.

EXISTING MODULAR JOINT AND DECK REINFORCING STEEL SHOWN IS BASED ON BEST INFORMATION AVAILABLE.

FINAL JOINT SHALL NOT BE INSTALLED UNTIL PPC OVERLAY IS COMPLETE.



TEMPORARY JOINT REPLACEMENT

SECTION B-B

SEE SHEET 3 FOR PLAN OF JOINT REPLACEMENT.

FOR BAR DETAILS, SEE SUPERSTRUCTURE BILL OF MATERIAL SHEET.

ALL PROPOSED EXPANSION JOINT DIMENSIONS, OPENINGS, AND BLOCKOUTS ARE SHOWN AT 60°F AND BASED ON BEST AVAILABLE INFORMATION OF THE EXISTING STRUCTURE. DIFFERENCES IN ACTUAL JOINT OPENINGS AND INSTALLATION TEMPERATURES SHALL BE REPORTED TO THE ENGINEER. CONTRACTOR SHALL FOLLOW MANUFACTURER'S INSTALLATION GUIDELINES AND MAKE ANY NECESSARY ADJUSTMENTS TO ACCOUNT FOR SUCH DIFFERENCES.

TEMPORARY JOINT SHALL BE INSTALLED IN THE EVENT OF ANY OF THE FOLLOWING:
- TRAFFIC (CONSTRUCTION OR PUBLIC) IS EXPECTED TO CROSS THE JOINT IN THAT STAGE PRIOR TO COMPLETION OF PPC OVERLAY.
- END BENT BEARINGS ARE REPLACED AFTER DECK/APPROACH SLAB RECONSTRUCTION.

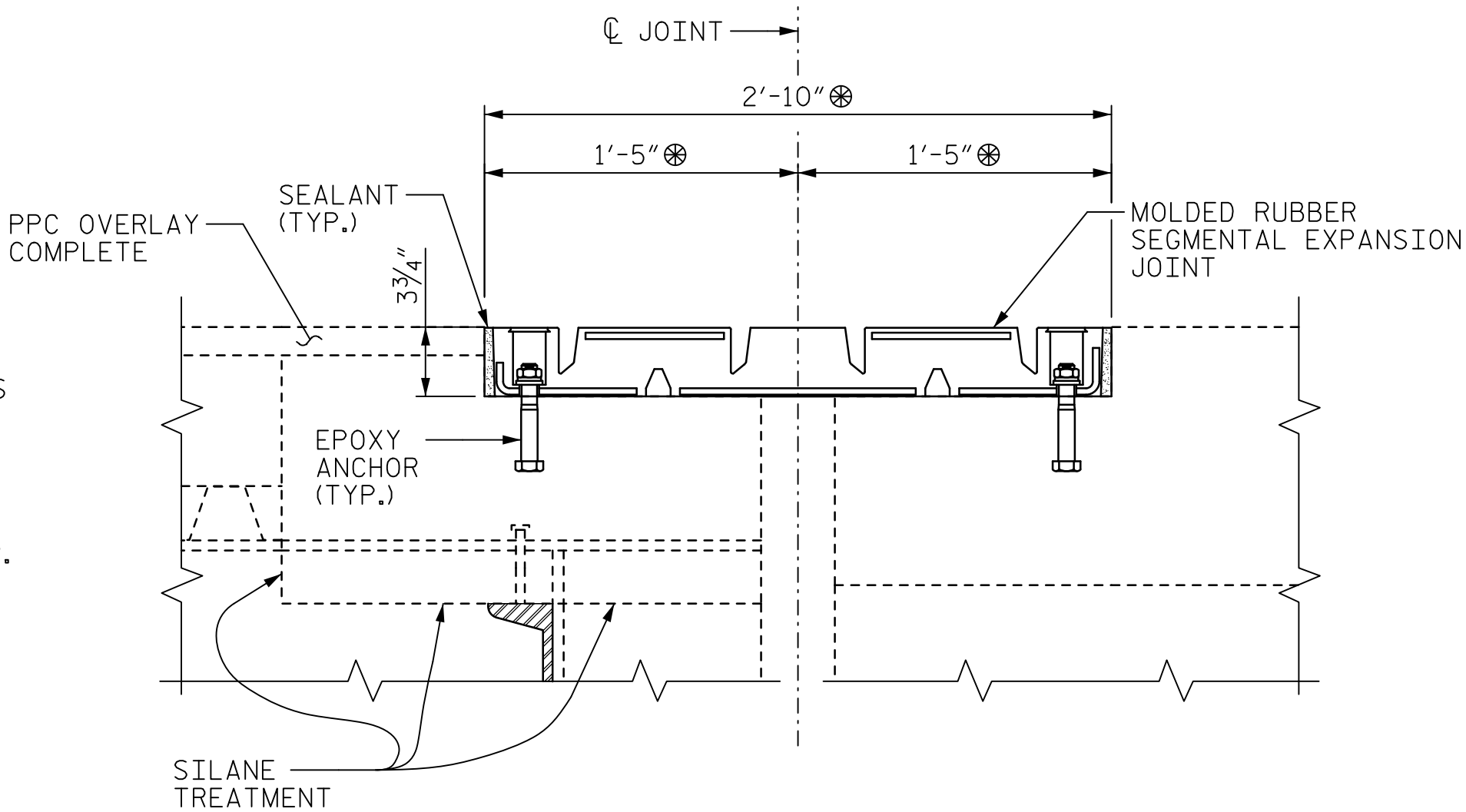
CONTRACTOR SHALL HAVE A REPRESENTATIVE FROM THE JOINT MANUFACTURER PRESENT DURING INSTALLATION OF THE PROPOSED MOLDED RUBBER SEGMENTAL EXPANSION JOINT.

ADHESIVE ANCHOR BOLTS AND HARDWARE FROM THE PROPOSED EXPANSION JOINT SHALL BE GALVANIZED PER ASTM A 153 AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

JOINT DEMOLITION AND CONSTRUCTION SEQUENCE

- REMOVE EXISTING MODULAR JOINT SEAL.
- SAW-CUT DECK TO MIN. 1 1/2" DEEP.
- MECHANICALLY REMOVE CONCRETE IN AREAS INDICATED AND CUT REINFORCEMENT TO LIMITS SHOWN. CARE SHALL BE TAKEN NOT TO DAMAGE SHEAR STUDS OR STRUCTURAL STEEL. REMOVE APPROACH SLAB.
- PLACE PROPOSED REINFORCEMENT AND POUR NEW DECK AND END DIAPHRAGM. ALLOW CONCRETE TO REACH A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI BEFORE REMOVING FORMWORK. CONSTRUCT NEW APPROACH SLAB.
- INSTALL TEMPORARY PLATE JOINT IF REQUIRED.
- AFTER DECK OVERLAY IS COMPLETE IN BOTH STAGES, REMOVE TEMPORARY JOINT PLATES. INSTALL MOLDED RUBBER SEGMENTAL EXPANSION JOINT PER MANUFACTURER'S SPECIFICATIONS.



FINAL JOINT CONDITIONS

PROJECT NO. 15BPR.43

STANLY/MONTGOMERY COUNTY

STATION: 339+86.39 -L-

SHEET 2 OF 4

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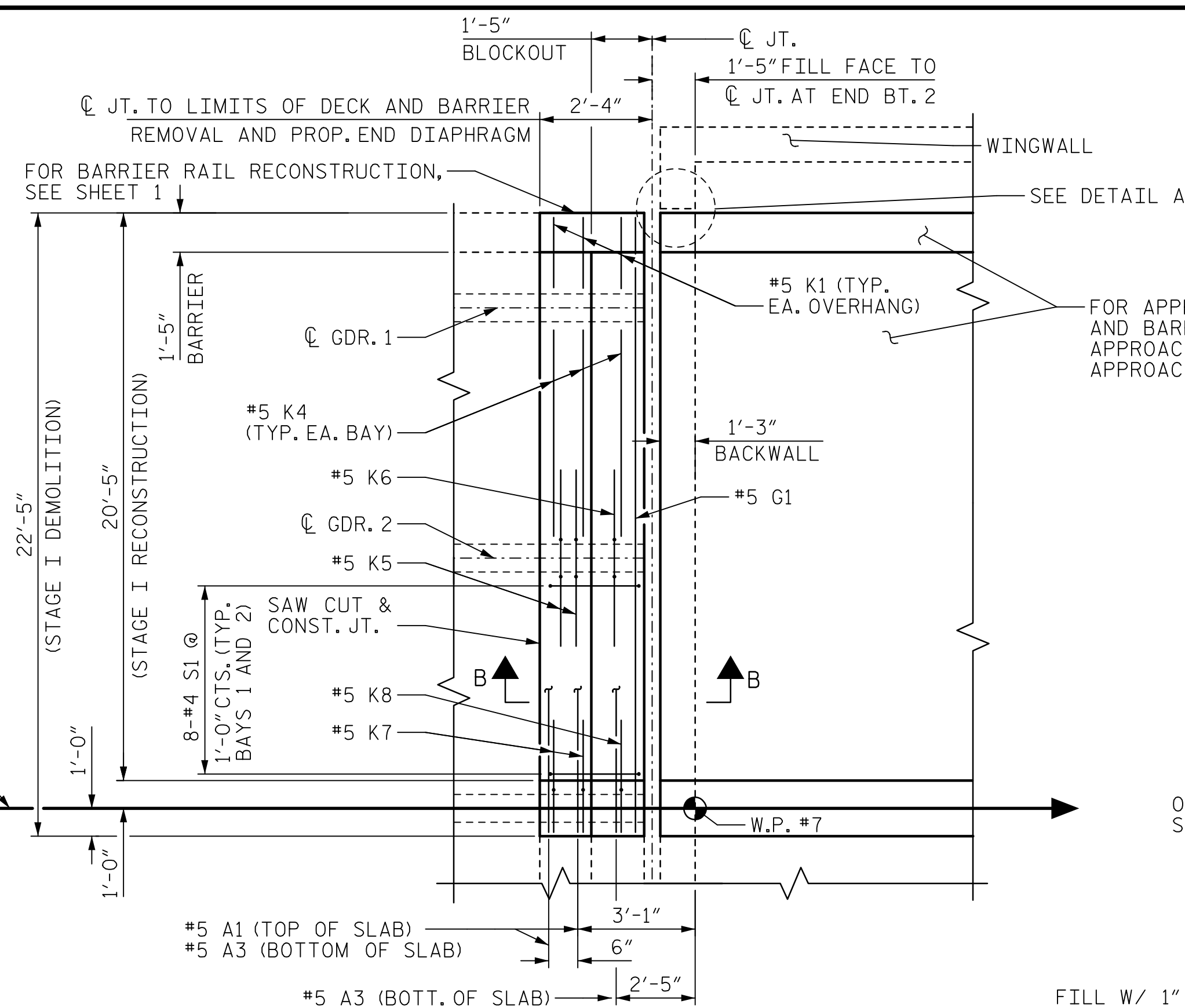
SEAL
041343
GREGORY R. COLS
ENGINEER
30/10/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
JOINT REPLACEMENT
CONSTRUCTION
SEQUENCE

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

SHEET NO.
S-14
TOTAL SHEETS
38



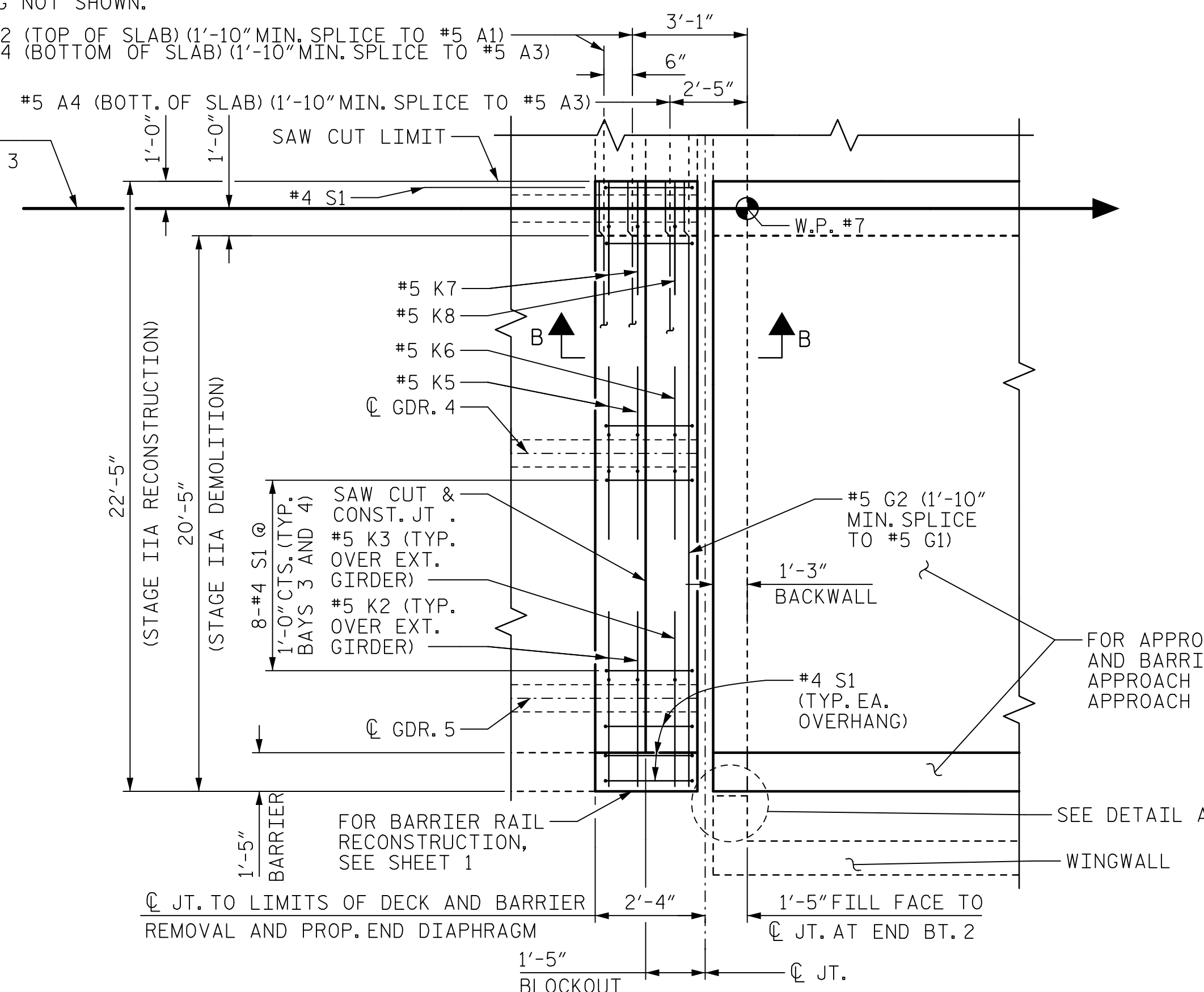
FOR SECTION B-B, SEE SHEET 2.

SAW CUT 1" FROM EXISTING OUTSIDE
EDGE OF SUPERSTRUCTURE. PAINT ENDS
OF EXPOSED BARS WITH EPOXY.



PARTIAL PLAN AT END BENT 2
(SEE STAGE I PLAN FOR OTHER TYPICAL BARS NOT SHOWN)

EXISTING DECK REINFORCING NOT SHOWN.



PARTIAL PLAN AT END BENT 2

(SEE STAGE II PLAN FOR OTHER TYPICAL BARS NOT SHOWN)

EXISTING DECK REINFORCING NOT SHOWN.

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS 38
2			4			

USER: stump
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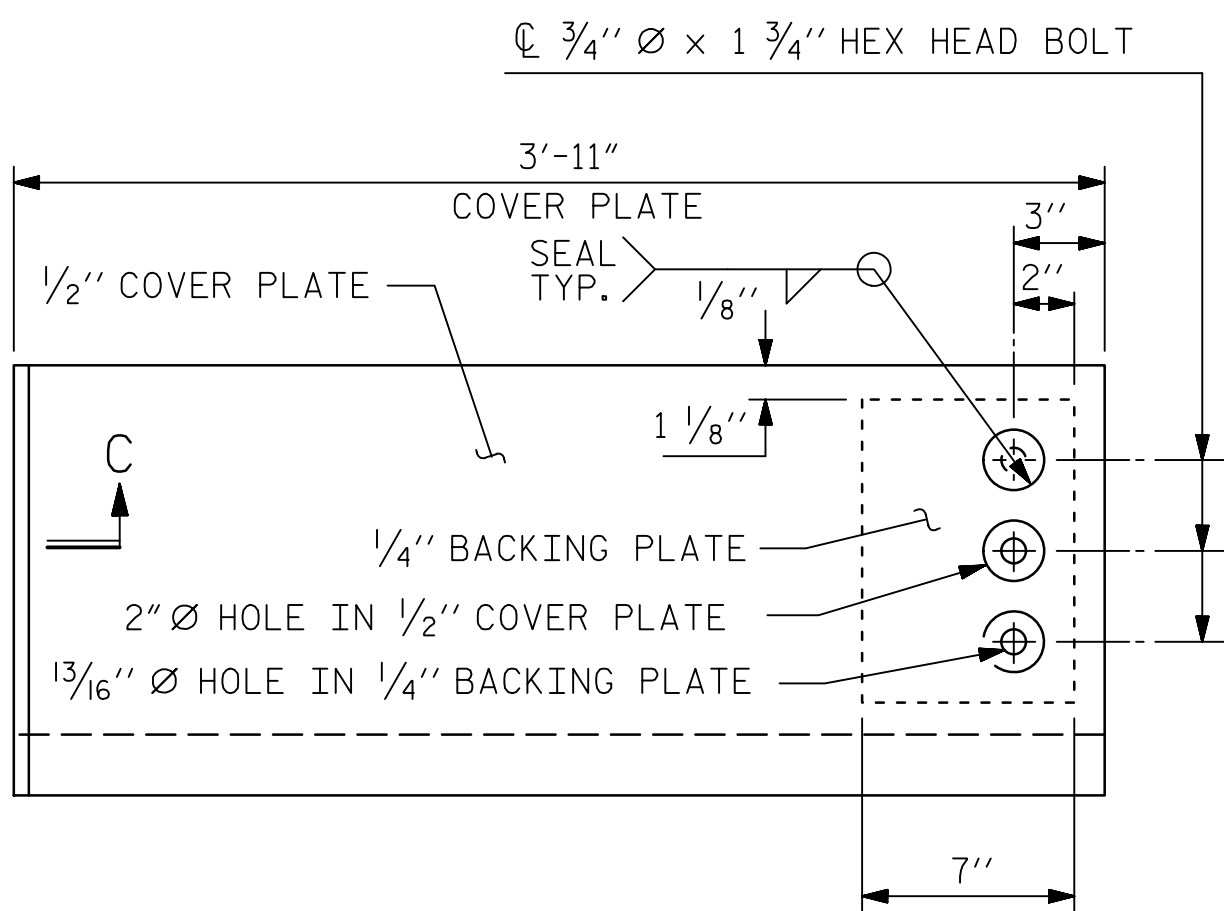
FOR MOLDED RUBBER SEGMENTAL EXPANSION JOINTS,
SEE SPECIAL PROVISIONS.

THE STEEL PLATES SHALL CONFORM TO AASHTO M270 GRADE 36 OR APPROVED EQUAL AND BE PAINTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. AT THE CONTRACTOR'S OPTION, THE PLATES MAY BE METALLIZED AFTER FABRICATION. SEE SPECIAL PROVISIONS FOR THERMAL SPRAYED COATINGS (METALLIZATION).

THE 3/4" Ø HEX HEAD BOLTS SHALL CONFORM TO
ASTM F593 ALLOY 304 STAINLESS STEEL.

THE 3/4" CONCRETE INSERTS SHALL BE CLOSED-END FERRULES WITH LOOPED WIRE STRUTS ATTACHED TO THEM. THE INSERTS SHALL CONFORM TO AASHTO M169, GRADE 12L14 AND SHALL HAVE A TENSILE WORKING LOAD CAPACITY OF 3000 LBS.

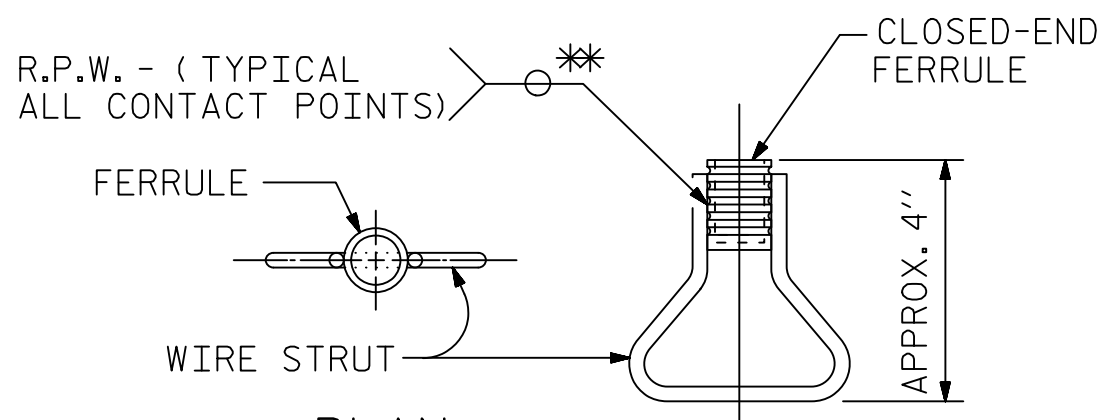
NO SEPARATE PAYMENT WILL BE MADE FOR
FURNISHING AND INSTALLING THE COVER PLATE.



TYPE II - ELEVATION VIEW

SECTION C-C

	SKUEW ANGLE	TOTAL MOVEMENT ALONG $\mathbb{C}$ ROADWAY
END BENT #1	90°-00'-00"	4 $\frac{1}{8}$ "
END BENT #2	90°-00'-00"	4 $\frac{7}{8}$ "

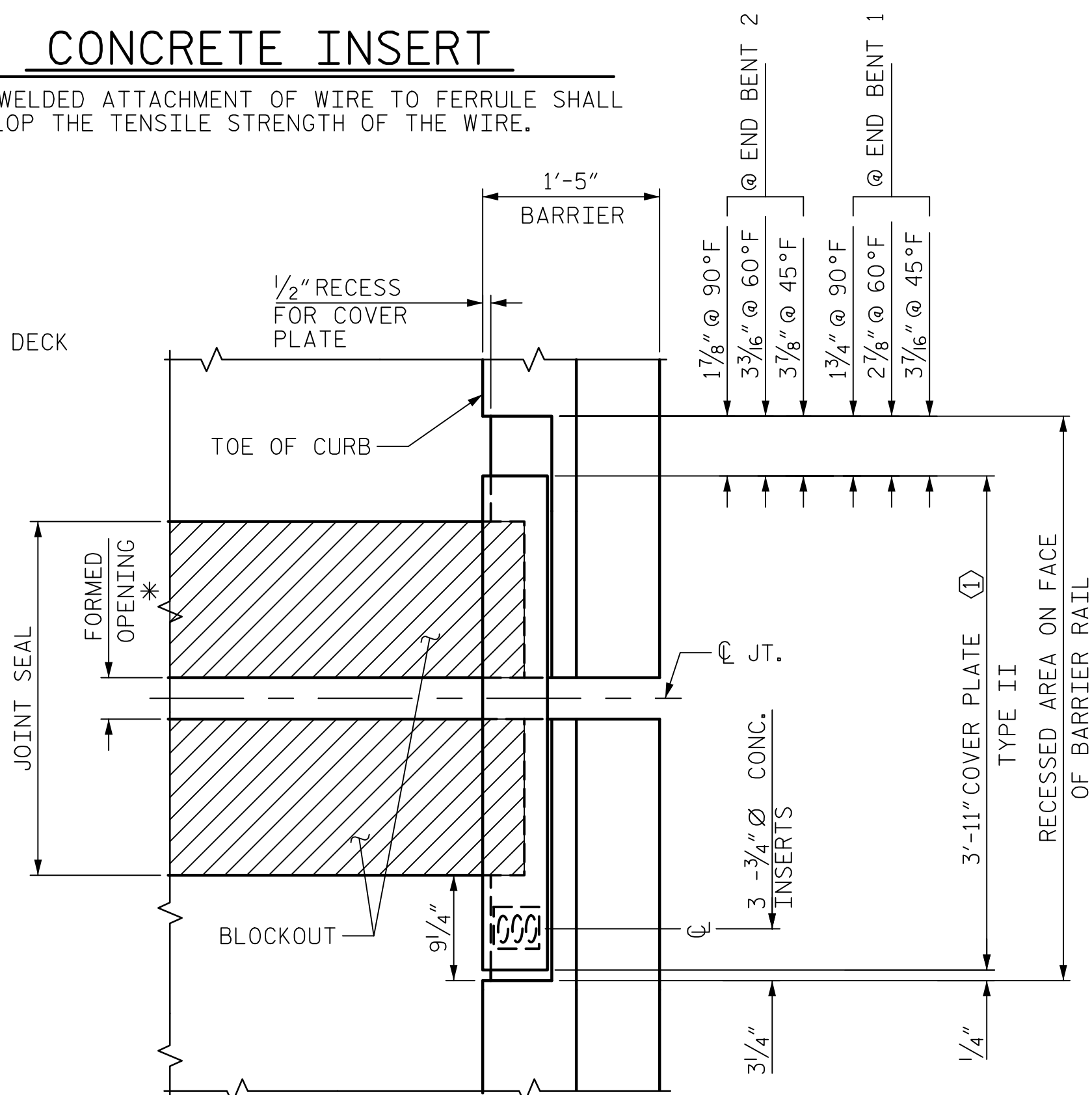


ELEVATION

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



PLAN OF JOINT - LEFT SIDE



PLAN OF JOINT - RIGHT SIDE

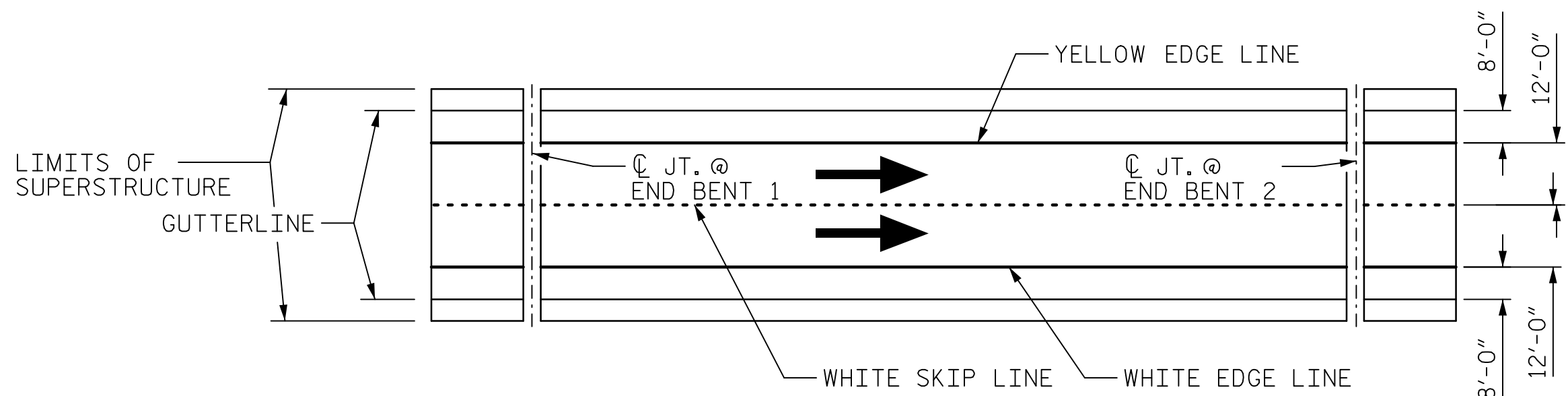


Diagram illustrating the proposed molded rubber segmental expansion joint. The joint is shown between two concrete slabs. The joint seal is labeled "LIMITS OF JOINT SEAL". The joint is filled with a "PROPOSED MOLDED RUBBER SEGMENTAL EXPANSION JOINT". A bent-up bar is shown with a "SHOP-BEND SEAL TO FOLLOW BARRIER (TYP.)". The bent-up bar is supported by a "4 3/8" BLOCK-OUT (TYP.)". The joint is labeled "7 1/2 (TYP.)".

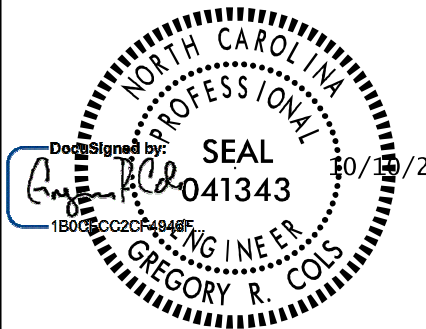
SKETCH SHOWING LIMITS OF JOINT
SEAL AT BARRIER RAIL

PROJECT NO. 15BPR.43

STANLY/MONTGOMERY COUNTY

STATION: 339+86.39 -L-

SHEET 4 OF 4



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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SUPERSTRUCTURE

JOINT REPLACEMENT DETAILS

REVISIONS						SHEET NO. S-16
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1			3			TOTAL SHEETS 38
2			4			

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DRAWN BY : T.B. STUMP DATE : 8/2018
 CHECKED BY : G.R. COLS DATE : 8/2018
 DESIGNED BY : G.R. COLS DATE : 8/2018
 DESIGN CHECKED BY : K.J. MUENCH DATE : 8/2018

① SEE COVER PLATE ELEVATIONS FOR DETAILS AND DIMENSIONS. COVERPLATE DIMENSIONS BASED ON BEST AVAILABLE INFORMATION REGARDING EXISTING RAIL. CONTRACTOR SHALL VERIFY EXISTING RAIL DIMENSIONS FOR COMPATIBILITY WITH RAIL COVER PLATE PRIOR TO FABRICATION AND SHALL REPORT ANY DEVIATIONS TO THE ENGINEER.

USER: stumpf
 DGN: \usr\3f\pool\naeconnect.com\data\Pro\techs\60579778 - ASR Lake Tillery\300_CAD_GIS\910_CAD\70_MCDOT_TIP\Structures\04 Drawings\401_069_15BPR\43_SMU_BAS1.dgn



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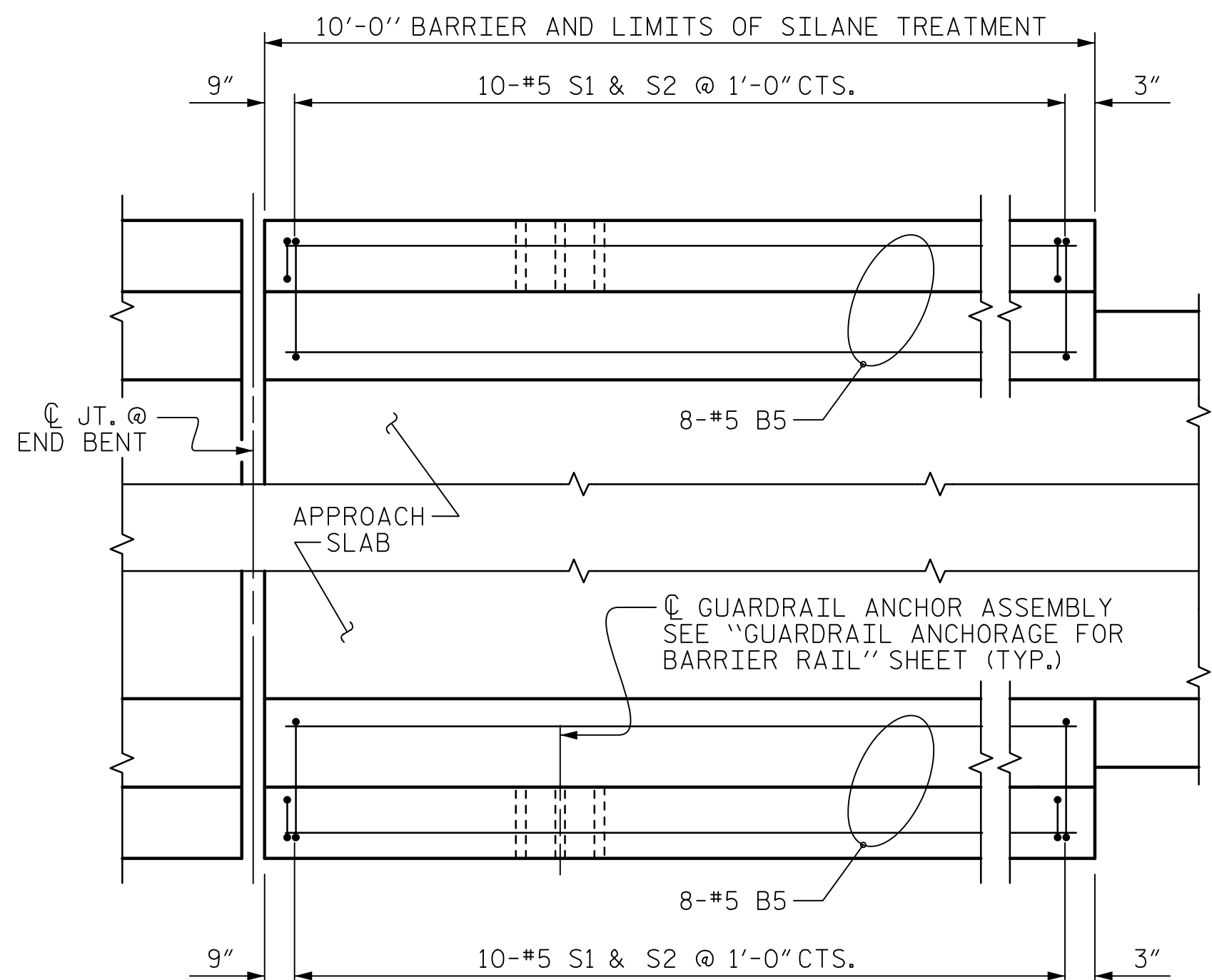
SUPERSTRUCTURE

BRIDGE

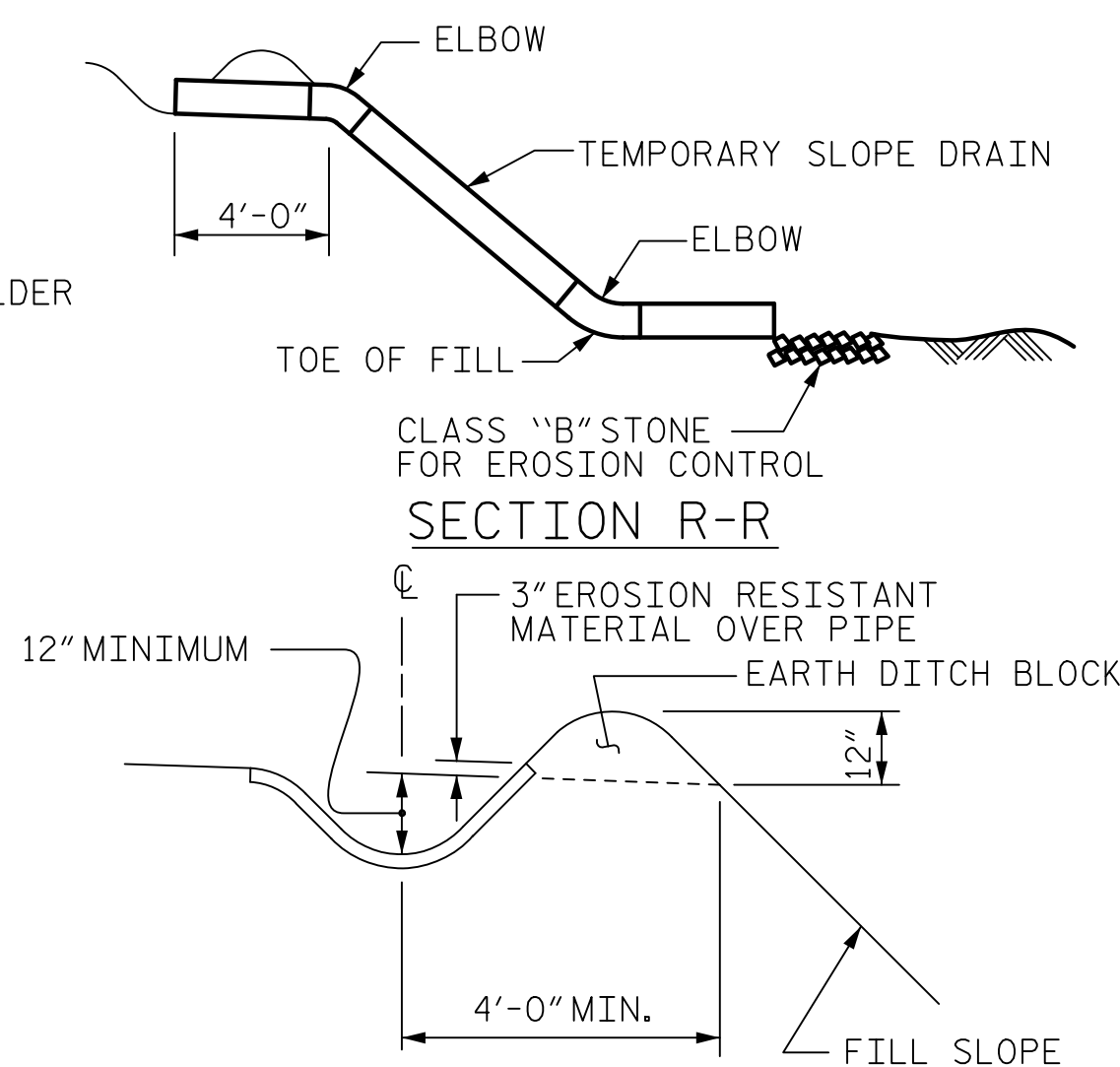
APPROACH SLAB

REPLACEMENT

USER: stump
DGN: \\server13r.p001.na.aecom.net.com\data\Projects\60579778 - ASR Lake Tillery\900_CAD_GIS\910_CAD\70_WCDDOT_TIP\Structures\04_Drawings\401_073_15BPR_43_SIWU_BAS3.dgn



END BENT #2



TEMPORARY BERM AND SLOPE DRAIN DETAILS

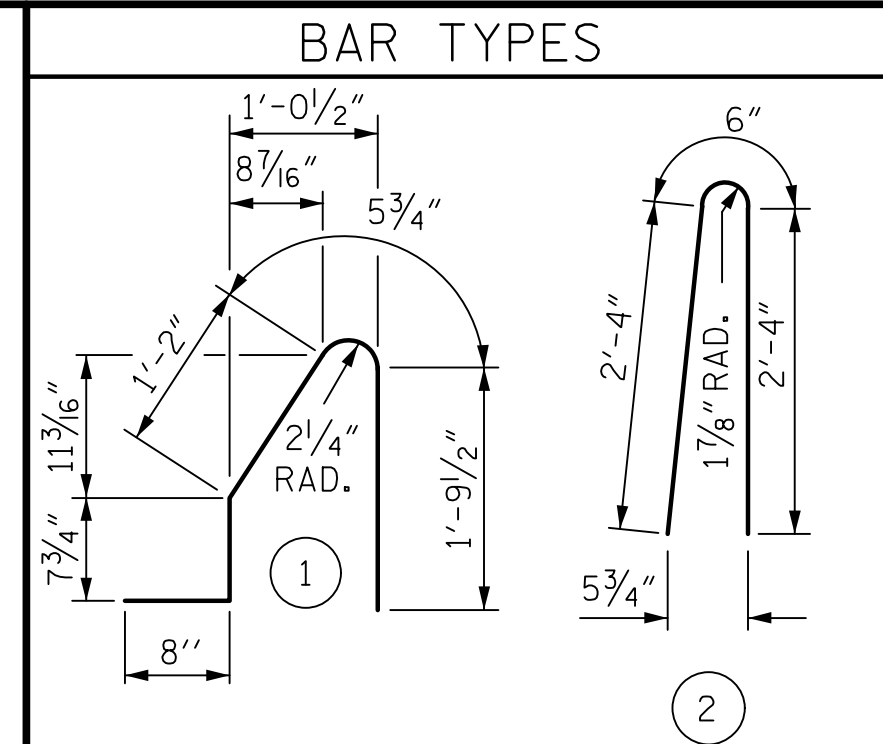
(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

THE BARRIER RAIL ON EACH APPROACH SLAB SHALL NOT BE CAST UNTIL ALL APPROACH SLAB CONCRETE IN THAT STAGE HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

THE #5 S1 AND S2 BARS MAY BE BENT AS NECESSARY TO AVOID THE JOINT
BLOCKOUT NOT SHOWN.

BARRIER ON APPROACH SLAB SHALL BE TREATED WITH SILANE AS SHOWN IN THE SECTION THRU RAIL, THIS SHEET. SEE SPECIAL PROVISIONS.

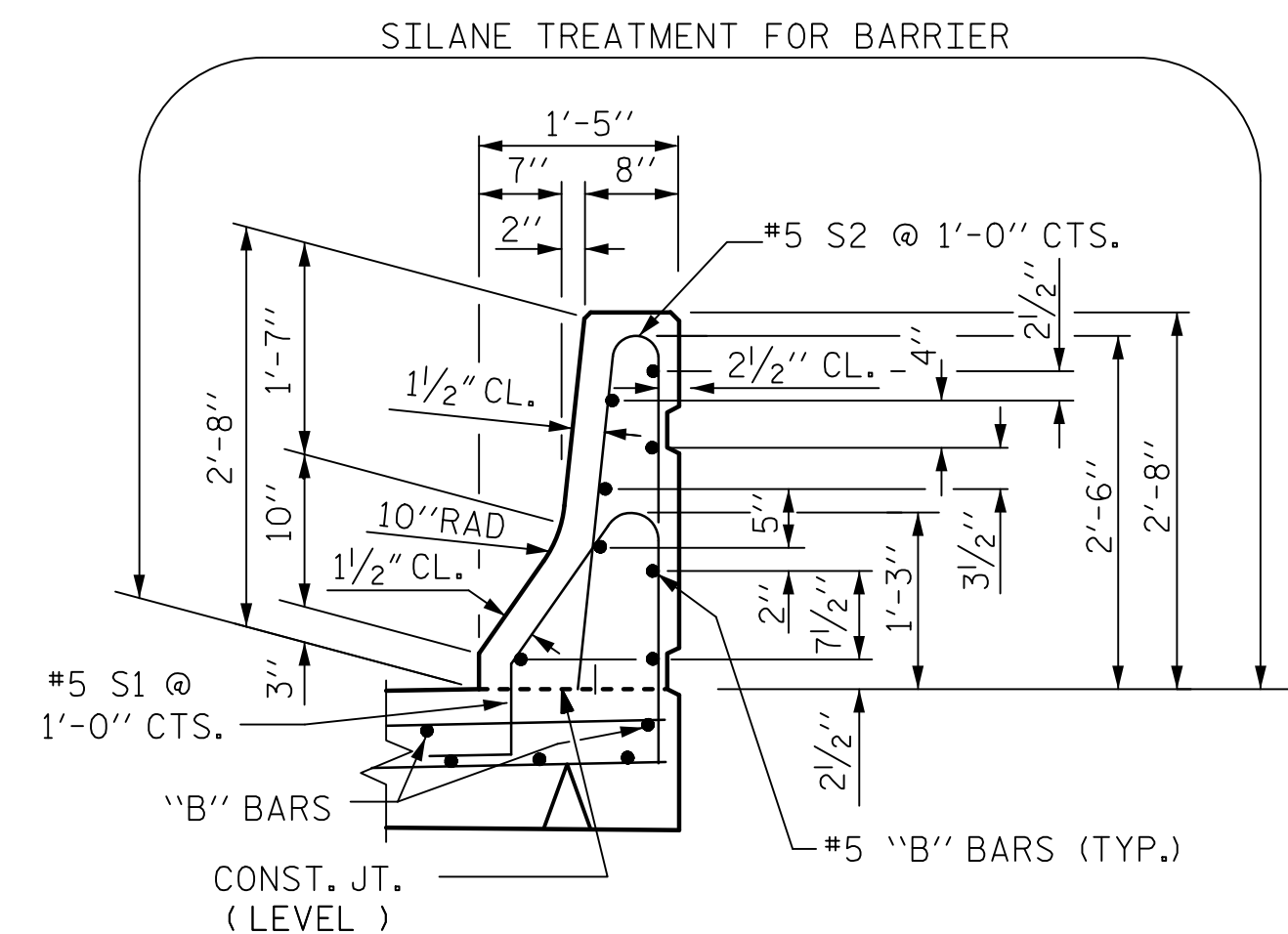
FOR CONCRETE USED IN THE BARRIER, SEE APPROACH SLAB REPLACEMENT SPECIAL PROVISION.



ALL BAR DIMENSIONS ARE OUT TO OUT

BARRIER RAIL ONLY

*EPOXY COATED REINFORCING STEEL	LBS.	737
CLASS AA CONCRETE	C. Y.	4.0
CONCRETE BARRIER RAIL	40 LIN. FT.	



SEE JOINT REPLACEMENT SHEET #1 FOR
ADDITIONAL DIMENSIONS. OMIT RECESS
AT GUARDRAIL ANCHORAGE POINTS.

STANLY/MONTGOMERY COUNTY

SHEET 3 OF 3

STANDARD

BRIDGE APPROACH SLAB DETAILS

REVISIONS						SHEET NO. S-19
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
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NORTH CAROLINA
PROFESSIONAL
SEAL
041343
ENGINEER
GREGORY R. COLES

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[Signature]
10/20/2004

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NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD-DOWN PLATE AND 4 - 7/8" Ø BOLTS WITH NUTS AND WASHERS, RUBRAIL, AND ADHESIVELY ANCHORED BOLTS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

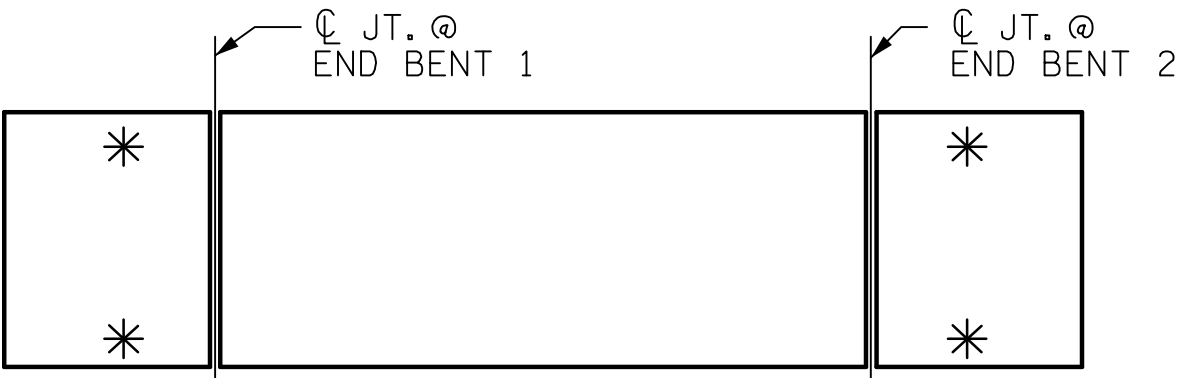
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY CONSIDERED INCIDENTAL TO THE COST OF THE CONCRETE BARRIER RAIL.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS AND LOCATION OF THE RUBRAIL.



SKETCH SHOWING POINTS OF ATTACHMENTS

* DENOTES GUARDRAIL ANCHOR ASSEMBLY

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STANLY/MONTGOMERY COUNTY
STATION: 339+86.39 -L-

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Seal of Gregory R. Cos

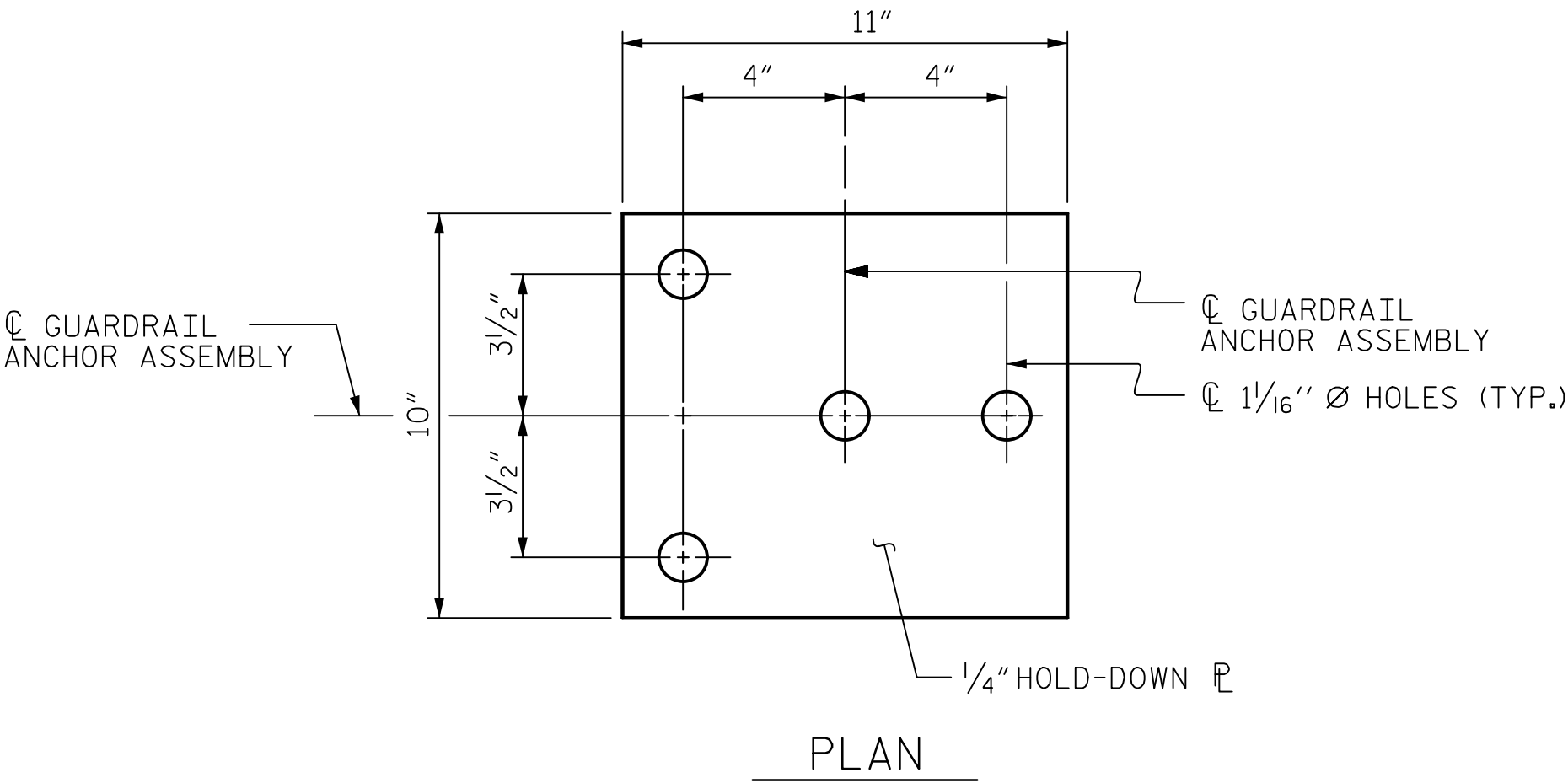
Professional Engineer
No. 041343
Exp. 03/31/2018

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RALEIGH
STANDARD

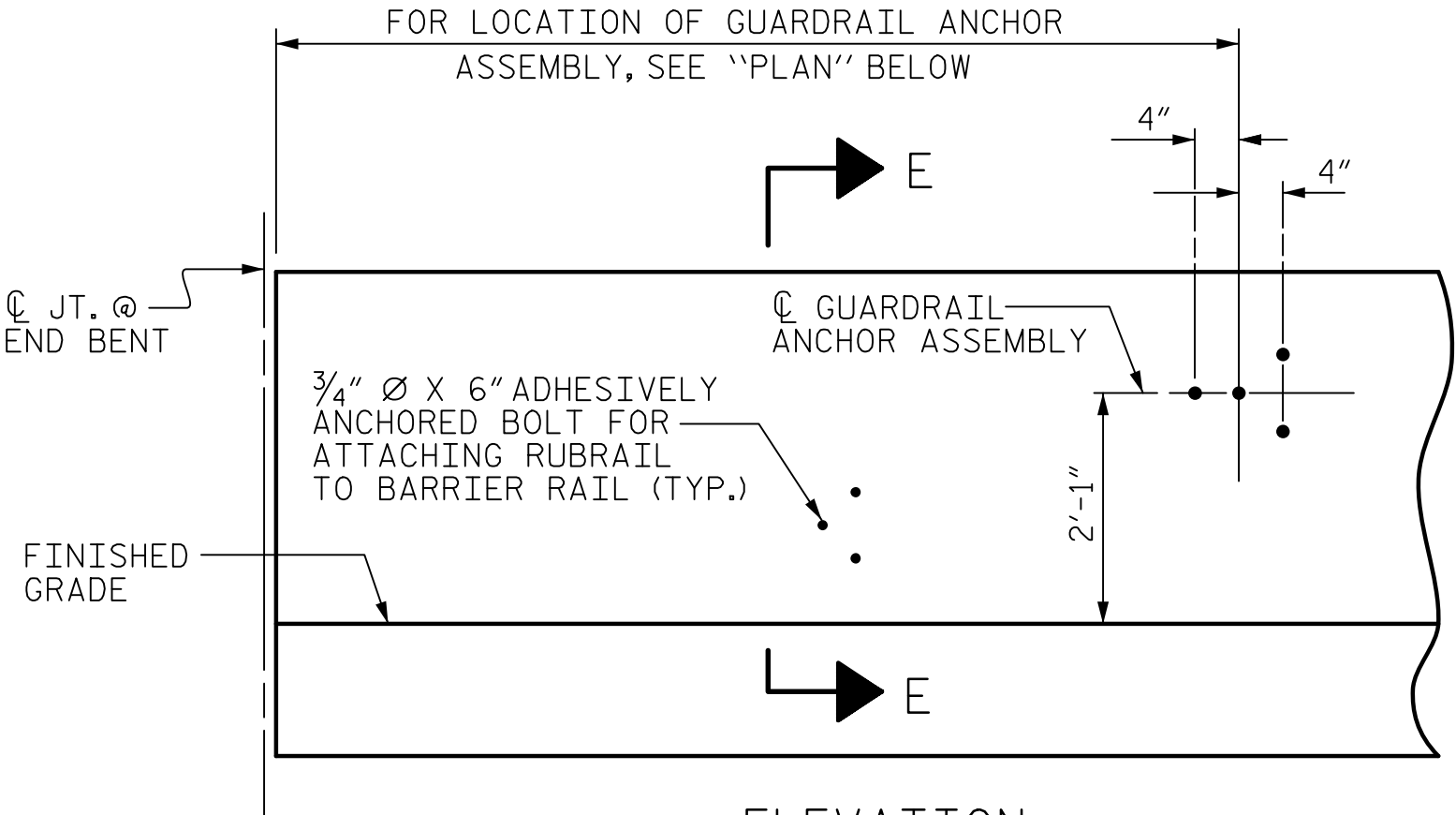
GUARDRAIL ANCHORAGE
FOR BARRIER RAIL

REVISIONS						SHEET NO. S-20
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

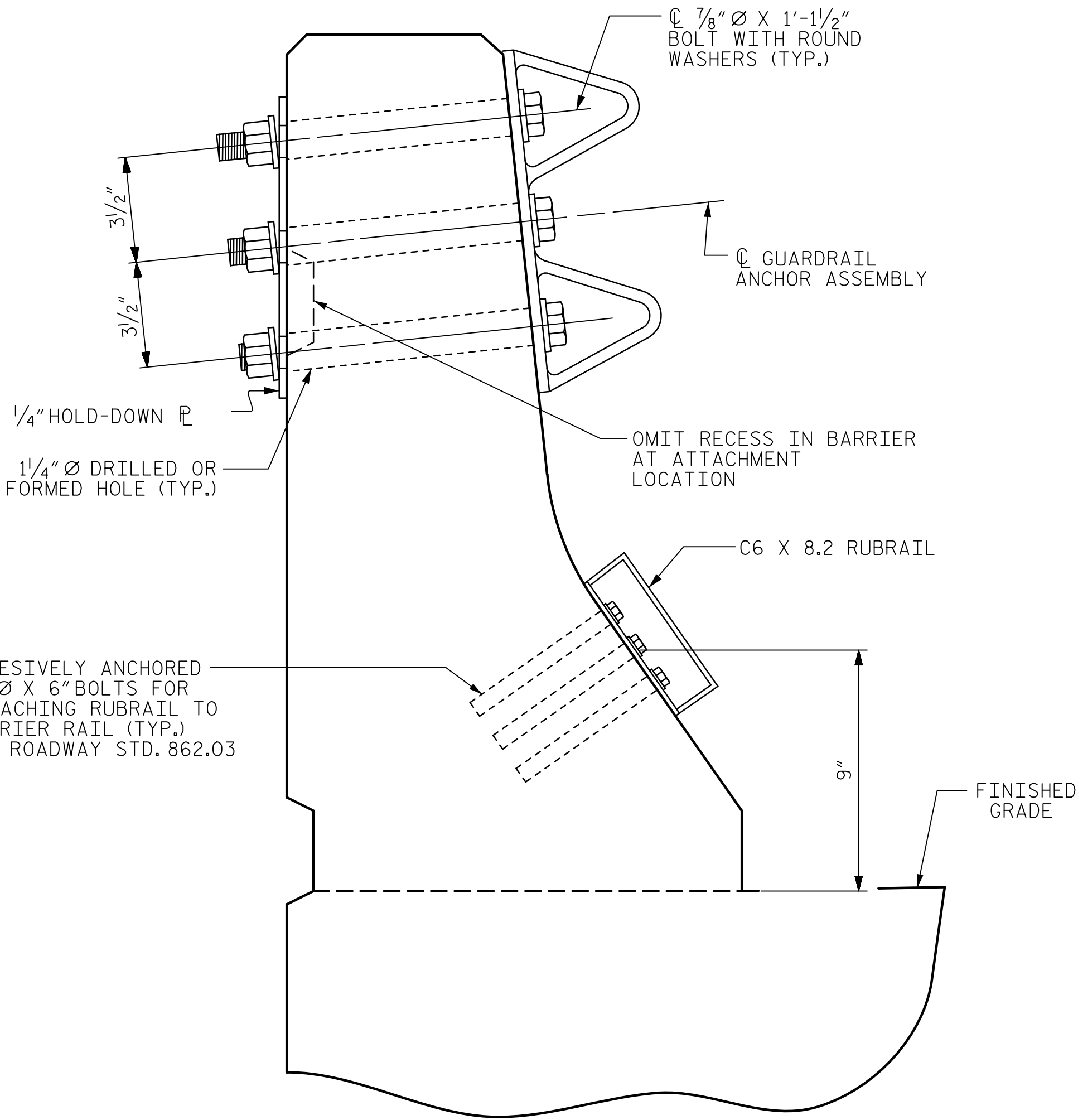
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PLAN

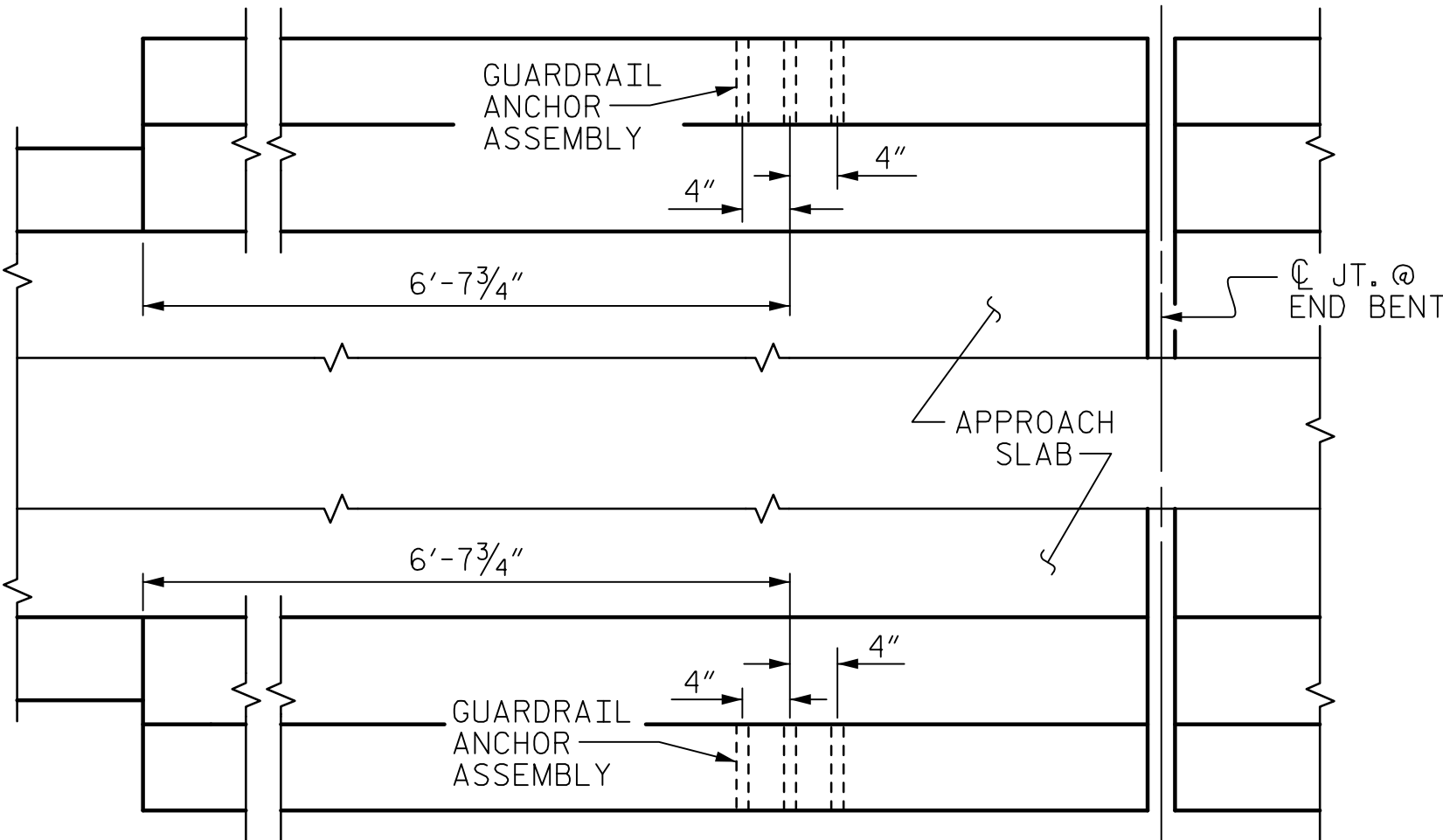


ELEVATION



SECTION E-E

GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.

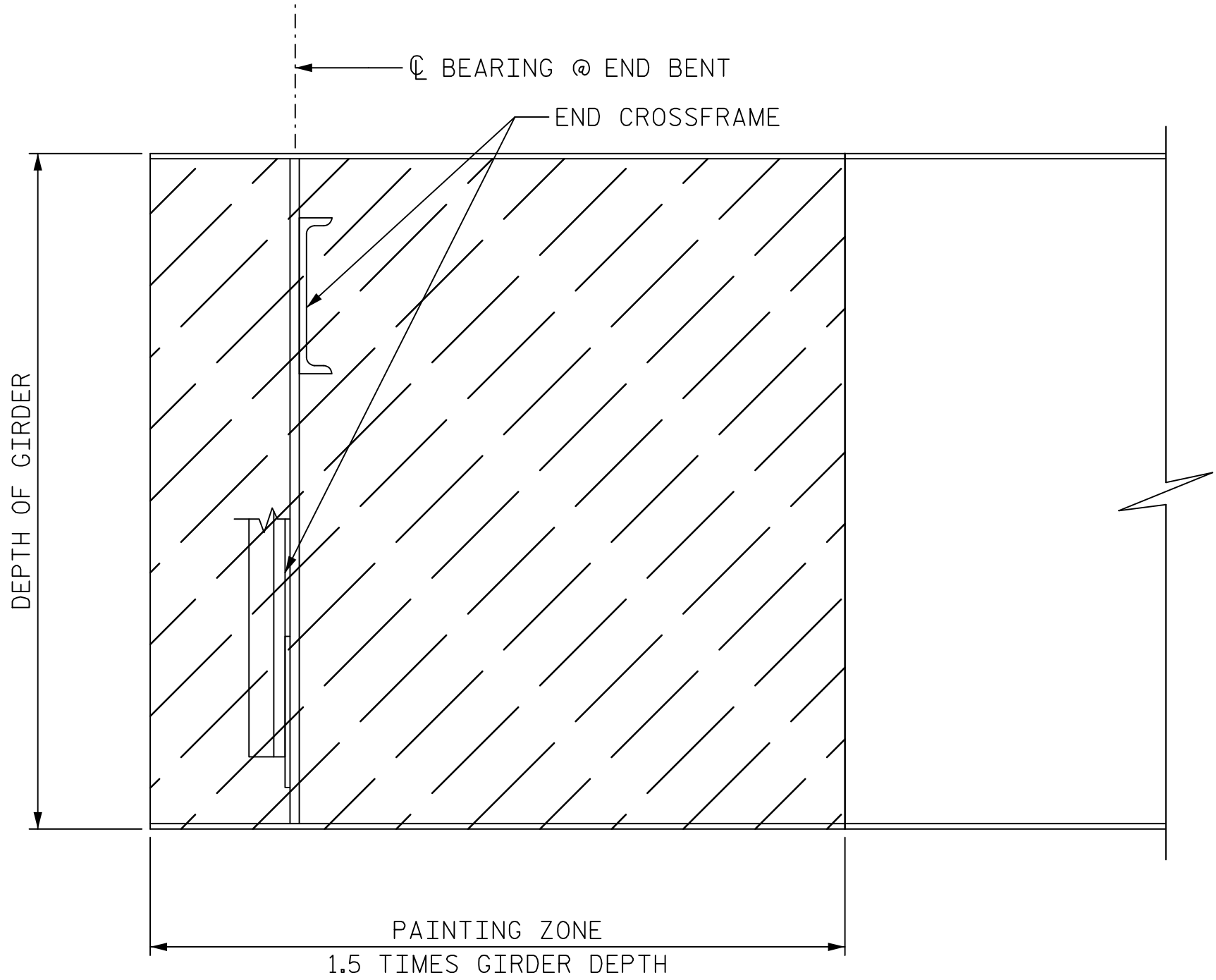
DRAWN BY : H.T. ROSEMOND	DATE : 09/2018
CHECKED BY : G.R. COLS	DATE : 09/2018
DESIGNED BY : G.R. COLS	DATE : 09/2018
DESIGN CHECKED BY : K.J. MUENCH	DATE : 09/2018

DATE: 10/10/2018
TIME: 1:46:48 PM

USER: gump
D:\Users\gump\OneDrive\Documents\Projects\15BPR.43\Drawings\401_075_15BPR.43_SML_GRAIL.dgn

DATE: 04/01/2018
TIME: 14:01 PM

USER: gregory.gregory@ncdot.com
DRAWING: 15BPR43_SML_SSI.dgn
PROJECT: 15BPR43_SML_SSI.dgn
SHEET: 22



BEAM PAINTING DETAIL

BEAM PAINTING NOTES:

FOR PAINTING EXISTING WEATHERING STEEL, SEE SPECIAL PROVISIONS.

BEAM PAINTING WORK SHALL NOT BEGIN UNTIL BEARING REPLACEMENTS ARE COMPLETED.

NEW BEARINGS SHALL BE PROTECTED DURING CLEANING, SURFACE PREPARATION, AND PAINTING OPERATIONS.

APPOX. AREA OF BEAM PAINTING = 2330 SQ. FT.

BEAM REPAIR NOTES:

FOR BEAM REPAIRS, SEE SPECIAL PROVISIONS.

CONTRACTOR SHALL LOCATE AND REPLACE ALL LOOSE CONNECTION BOLTS AT CROSSFRAME CONNECTIONS, AS LISTED IN TABLE OR AS DIRECTED BY THE ENGINEER. BOLTS AND INSTALLATION SHALL CONFORM TO ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

AT ALL LOOSE BOLT LOCATIONS, BOLTS SHALL BE REMOVED. THE CONTRACTOR SHALL REPLACE THE BOLT WITH A LIKE HIGH-STRENGTH BOLT AND TIGHTEN IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. DIRECT TENSION INDICATORS SHALL BE USED.

CONTRACTOR SHALL LOCATE AND REPLACE ALL DAMAGED CROSSFRAME & LATERAL BRACING MEMBERS (AS LISTED IN THE TABLE OR AS DIRECTED BY THE ENGINEER.) ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W OR APPROVED EQUAL. CONTRACTOR SHALL DETERMINE SIZE AND SHAPE OF EXISTING MEMBERS. REPLACEMENT MEMBERS SHALL BE THE SAME SHAPE AS THE ORIGINAL.

IF THE SAME SHAPE IS NOT READILY AVAILABLE, REPLACEMENT SHAPE SHALL MEET OR EXCEED SECTION PROPERTIES AND BE WITHIN 5% OF THE WEIGHT OF THE ORIGINAL MEMBER. SEE SPECIAL PROVISIONS.

FOR MEMBER REPLACEMENTS, CONNECTION BOLTS SHALL BE REPLACED AND INSTALLED IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

DEFECTS AND BOLT LOCATIONS SHOWN IN THE TABLE ARE BASED ON THE BEST INFORMATION AVAILABLE AND ARE PRESENTED FOR THE CONVENIENCE OF THE CONTRACTOR. IT SHALL BE THE ENGINEER'S RESPONSIBILITY TO INSPECT AND SPECIFY ADDITIONAL REPAIRS.

CONTRACTOR SHALL SUBMIT WORKING DRAWINGS FOR EACH REPAIR TO THE ENGINEER. SEE SPECIAL PROVISIONS.

APPROX. WEIGHT OF BEAM REPAIR = 364 LBS.

LOCATION	DEFECT DESCRIPTION	REPAIR DESCRIPTION	EST. LBS.	ACTUAL LBS.
SPAN 2 BAY 3 BOTTOM LATERAL BRACING 30FT FROM BENT 1 4TH INT. DIAPHRAGM	MEMBER BENT (2 LOC.)	REPLACE MEMBER & CONNECTION BOLT	240 LBS.	280 LBS.
SPAN 2 BAY 4 BOTTOM LATERAL BRACING 2ND INT. DIAPHRAGM, GIRDER 5 SIDE	LOOSE CONNECTION BOLT	REPLACE BOLT	2 LBS.	2 LBS.
SPAN 2 BAY 2 BOTTOM LATERAL BRACING BRACING POINT 2	LOOSE CONNECTION BOLT	REPLACE BOLT	2 LBS.	2 LBS.
SPAN 3 BAY 2 DIAPHRAGM 2 BOTTOM LATERAL BRACING	MEMBER BENT (1 LOC.)	REPLACE MEMBER & CONNECTION BOLT	120 LBS.	120 LBS.

STEEL REPAIR LOCATIONS

PROJECT NO. 15BPR.43

STANLY/MONTGOMERY COUNTY

STATION: 339+86.39 -L-

DRAWN BY : K. DONALD	DATE : 08/2018
CHECKED BY : G. COLS	DATE : 08/2018
DESIGNED BY : K. DONALD	DATE : 08/2018
DESIGN CHECKED BY : G. COLS	DATE : 08/2018

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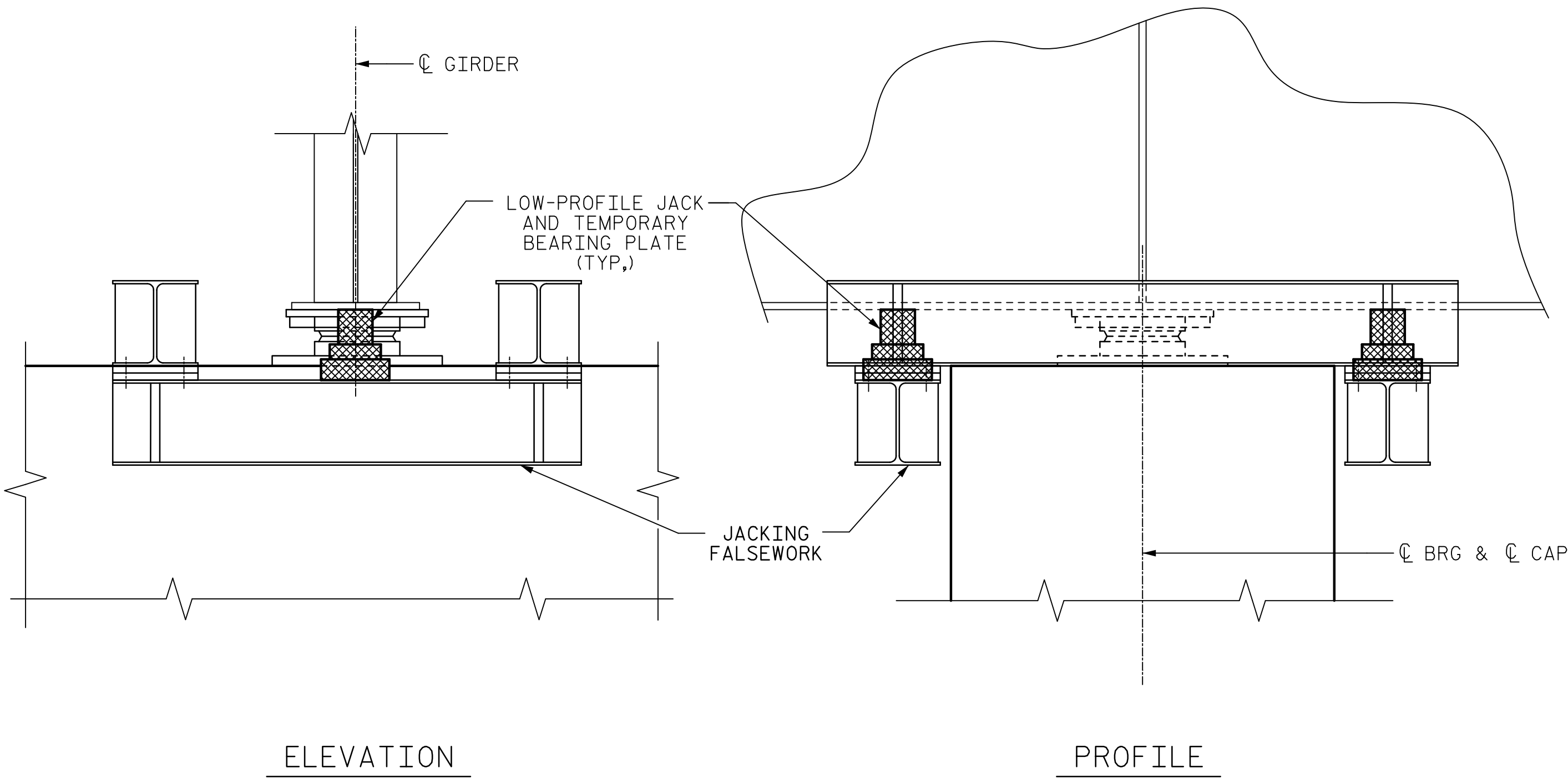
SUPERSTRUCTURE

**BEAM PAINTING
AND REPAIRS**

REVISIONS						SHEET NO. S-21
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

ESTIMATED JACKING LOADS				
FOR ONE BEARING (KIPS)				
LOCATION	DEAD		LIVE	JACKING
	DC	DW	LL+IM	* ADD'L
EB 1	77	11	114	1.0
BT 1	280	42	239	3.5
BT 2	319	46	259	3.4
BT 3	359	51	270	3.1
BT 4	366	52	272	3.0
BT 5	384	54	270	2.5
EB 2	104	15	126	0.6

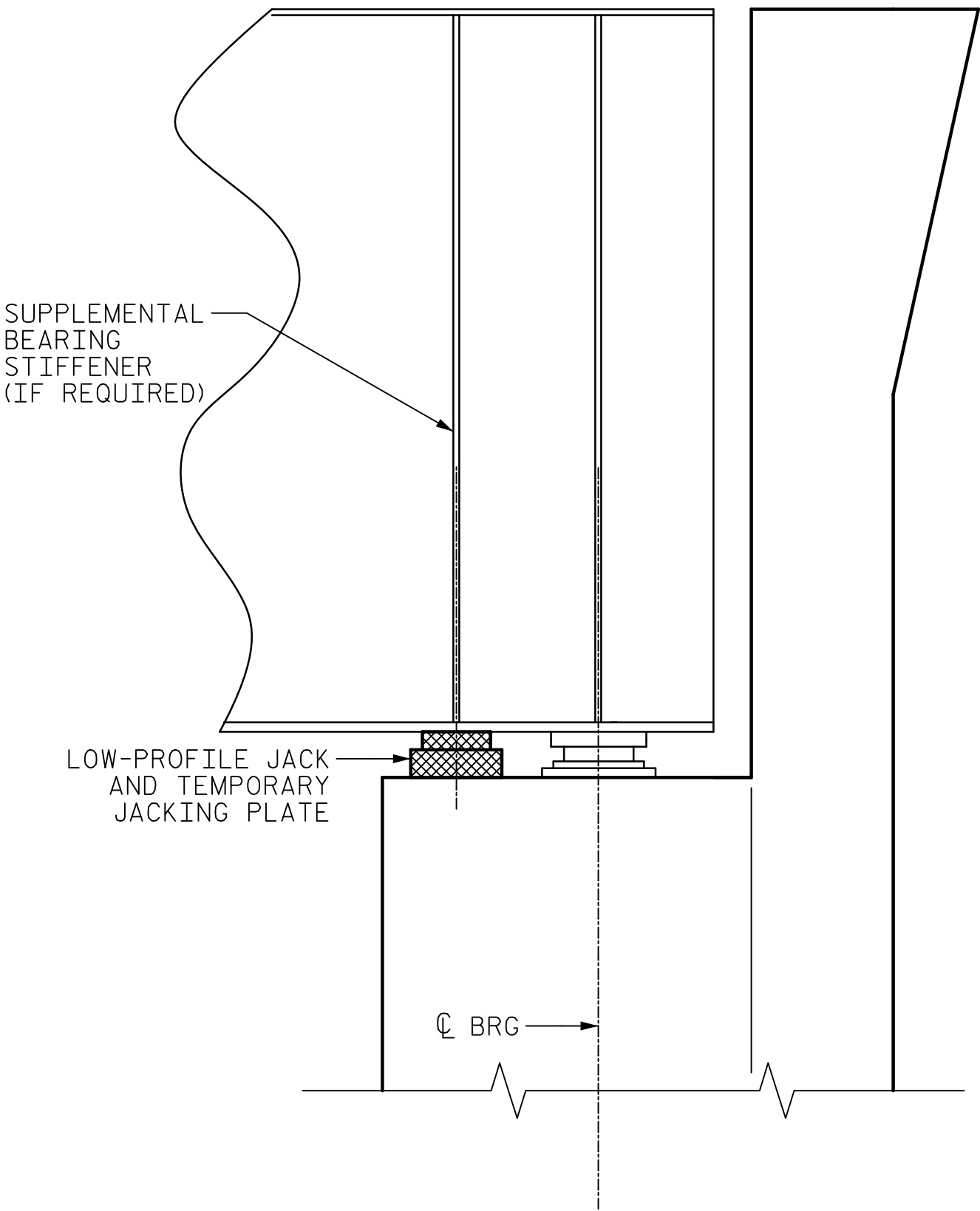
* ADDITIONAL FORCE REQUIRED TO RAISE BEAM 1/2"



ELEVATION

PROFILE

JACKING SCHEMATIC AT BENTS



JACKING SCHEMATIC AT END BENT

NOTES:

FOR BRIDGE JACKING, SEE SPECIAL PROVISIONS.

THE CONTRACTOR SHALL SUBMIT JACKING PLANS AND CALCULATIONS FOR REVIEW AND APPROVAL PRIOR TO MATERIAL PURCHASE OR FABRICATION OF THE JACKING SYSTEM. JACKING PLANS AND CALCULATIONS SHALL BE SEALED BY A PROFESSIONAL ENGINEER LICENSED IN NORTH CAROLINA.

ALL BEAMS AT A SUBSTRUCTURE UNIT SHALL BE LIFTED AT THE SAME TIME WITH A HYDRAULIC JACKING SYSTEM AND THE SAME DISPLACEMENT (TYPE II JACKING).

THE BEAMS SHALL BE LIFTED ENOUGH THAT THE BEAMS CLEAR THE BEARINGS AND ALL LOAD IS SUPPORTED BY THE JACKS. AFTER JACKING IS COMPLETE THE CONTRACTOR SHALL PROVIDE A METHOD TO SUPPORT THE BEAM FOR DEAD AND LIVE LOADS AND REMOVE THE JACKS DURING 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, THE BRIDGE SHALL BE CLOSED TO TRAFFIC, AND THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.

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

THE MAXIMUM JACKING AT THE END BENT IS 1/4" WITHOUT INSTALLING TRAFFIC BEARING SHIM PLATES. SEE SPECIAL PROVISIONS.

REACTIONS AND ESTIMATED JACKING FORCES LISTED ARE FOR THE CONVENIENCE OF THE CONTRACTOR AND SHALL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY TO PREPARE AND SUBMIT JACKING PLANS AND CALCULATIONS PRIOR TO BEGINNING WORK.

JACKING SCHEMATICS SHOWN ARE FOR REPRESENTATION ONLY AND ARE NOT WORKING DETAILS. CONTRACTOR SHALL COMPLETELY DESIGN JACKING PLAN. SEE SPECIAL PROVISIONS.

BRIDGE SHALL BE CLOSED TO TRAFFIC DURING HYDRAULIC LIFTING OPERATIONS UNTIL LIFTING IS COMPLETE AND BEAMS ARE SUPPORTED BY MEANS OTHER THAN HYDRAULICS, UNLESS ALLOWED BY THE ENGINEER. ALL TRAFFIC CLOSURES SHALL BE COORDINATED WITH THE ENGINEER TWO WEEKS PRIOR TO JACKING OPERATIONS.

IF SUPPLEMENTAL BEARING STIFFENERS ARE REQUIRED, THEY SHALL BE DESIGNED TO AASHTO HL-93 LOADING PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND SHALL BE INSTALLED PER AASHTO AND NCDOT STANDARD SPECIFICATIONS. ALL STEEL SHALL BE CLEANED PRIOR TO WELDING. ADDITIONAL BEARING STIFFENERS IF USED, SHALL BE INSTALLED ON BOTH SIDES OF THE WEB AT ALL BEAMS AT THAT LOCATION, SHALL BE AASHTO M270 GRADE 50N STEEL, AND SHALL BE PAINTED (IF AT AN END BENT) IN ACCORDANCE WITH THESE PLANS FOR BEAM PAINTING AND REPAIRS.

TEMPORARY BEARING PLATES SHALL NOT BE WELDED TO THE BEAMS.

THE STEEL USED IN ANY ADDED STIFFENER OR ADDED MEMBER TO BE WELDED TO AN EXISTING MEMBER SHALL BE VERIFIED FOR WELD COMPATIBILITY WITH THE EXISTING STEEL.

ANY STEEL THAT HAS BEEN WELDED TO THE EXISTING STRUCTURE SHALL REMAIN IN PLACE AND BE PAINTED AS PER THE SPECIAL PROVISIONS.

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

PROJECT NO. 15BPR.43

STANLY/MONTGOMERY COUNTY

STATION: 339+86.39 -L-

DRAWN BY : H.T. ROSEMOND	DATE : 08/2018
CHECKED BY : G.R. COLS	DATE : 08/2018
DESIGNED BY : G.R. COLS	DATE : 08/2018
DESIGN CHECKED BY : K.J. MUENCH	DATE : 08/2018

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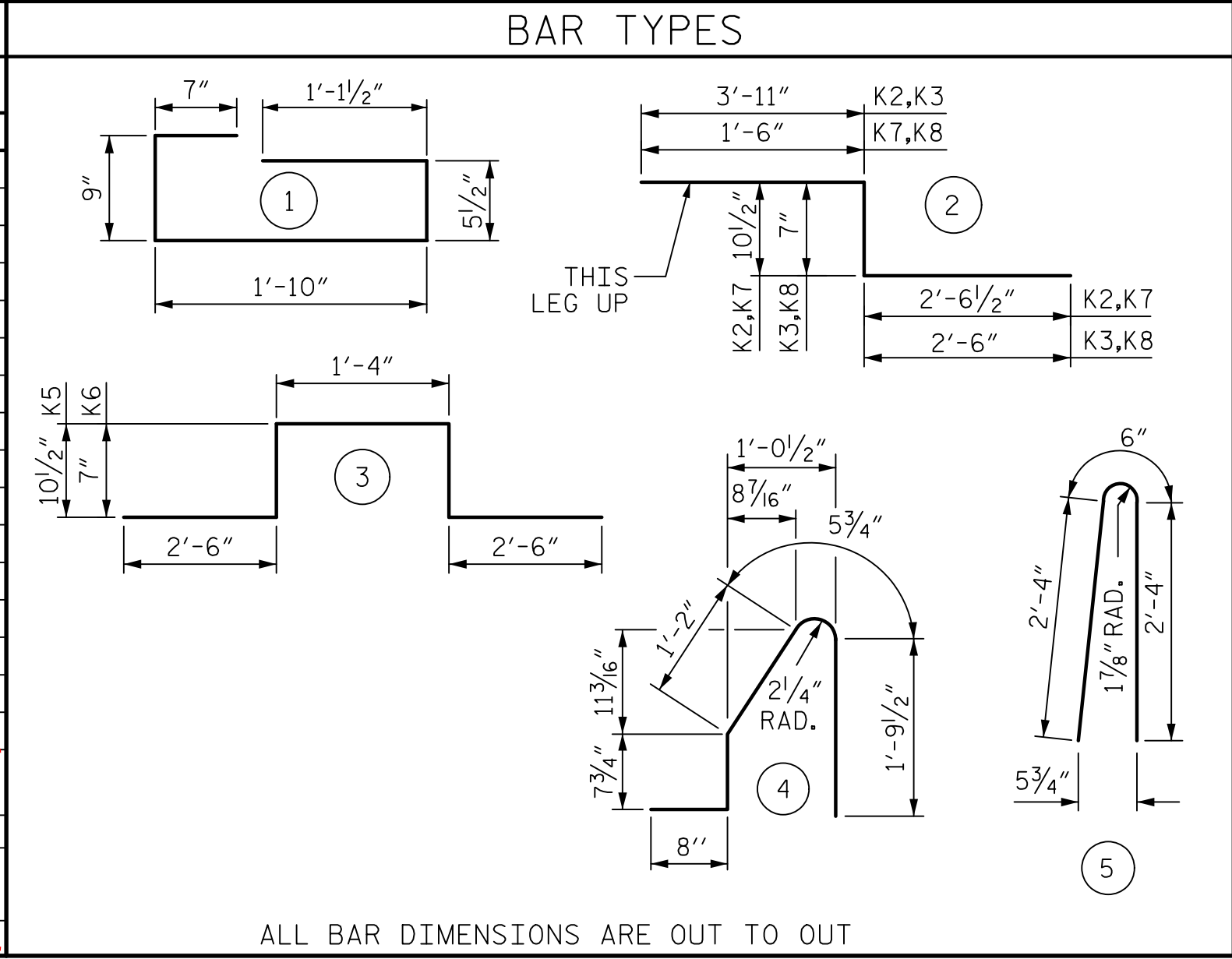
Professional Engineer
Gregory R. Cols
041343
08/20/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
BRIDGE JACKING
DETAILS

REVISIONS						SHEET NO. S-23
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

DATE: 08/08/2018
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DGN: \\usred19prod\naecomnet.com\data\Pro\proj\160579718 - ASF Lake Tillery\900_CAD_GIS\900_CAD\70_MCDOT\TIP\Structures\04_Drawings\401_03T_15BPR.43_SML.DWG

REINFORCING BAR SCHEDULE																	
STAGE I						STAGE IIA						BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
*A1	4	#5	STR	22'-1"	92	*A2	4	#5	STR	22'-3"	93	*S2	16	#5	4	4'-9"	79
A3	6	#5	STR	22'-1"	138	A4	6	#5	STR	22'-3"	139	*S3	16	#5	5	5'-2"	86
*G1	2	#5	STR	22'-1"	46	*G2	2	#5	STR	22'-3"	46						
*K1	6	#5	STR	2'-7"	16	*K1	6	#5	STR	2'-7"	16						
*K2	4	#5	2	7'-4"	31	*K2	4	#5	2	7'-4"	31						
*K3	2	#5	2	7'-0"	15	*K3	2	#5	2	7'-0"	15						
*K4	12	#5	STR	7'-8"	96	*K4	12	#5	STR	7'-8"	96						
*K5	4	#5	3	8'-1"	34	*K5	4	#5	3	8'-1"	34						
*K6	2	#5	3	7'-6"	16	*K6	2	#5	3	7'-6"	16						
*K7	4	#5	2	4'-11"	21	*K7	4	#5	2	4'-11"	21						
*K8	2	#5	2	4'-7"	10	*K8	2	#5	2	4'-7"	10						
*S1	38	#4	1	4'-9"	121	*S1	40	#4	1	4'-9"	127						
TOTAL REINFORCING STEEL LBS. 138						TOTAL REINFORCING STEEL LBS. 139						*EPOXY COATED REINFORCING STEEL LBS. 165					
*EPOXY COATED REINFORCING STEEL LBS. 498						*EPOXY COATED REINFORCING STEEL LBS. 505											
CONCRETE FOR DECK REPAIR C. Y. 3.5						CONCRETE FOR DECK REPAIR C. Y. 4.0						CONCRETE FOR DECK REPAIR C. Y. 1.0					
												CONCRETE BARRIER RAIL 8.7 LIN. FT.					



SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

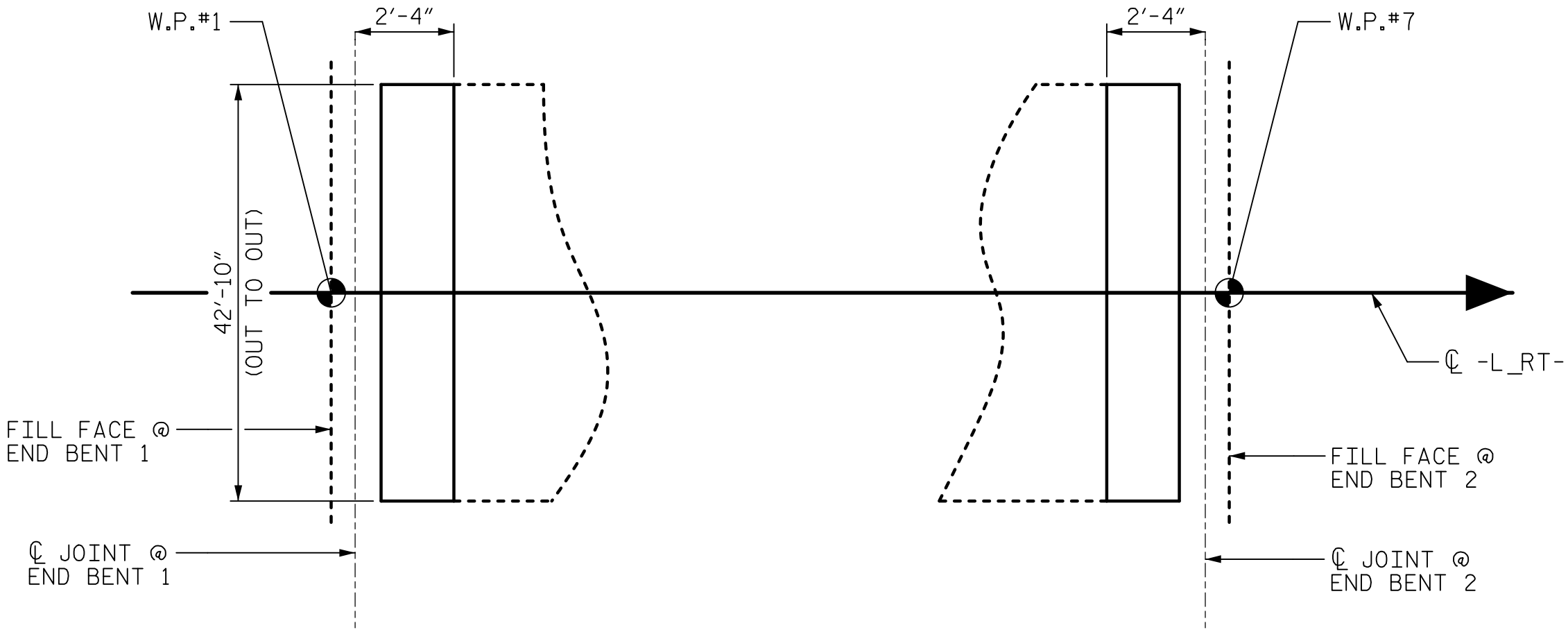
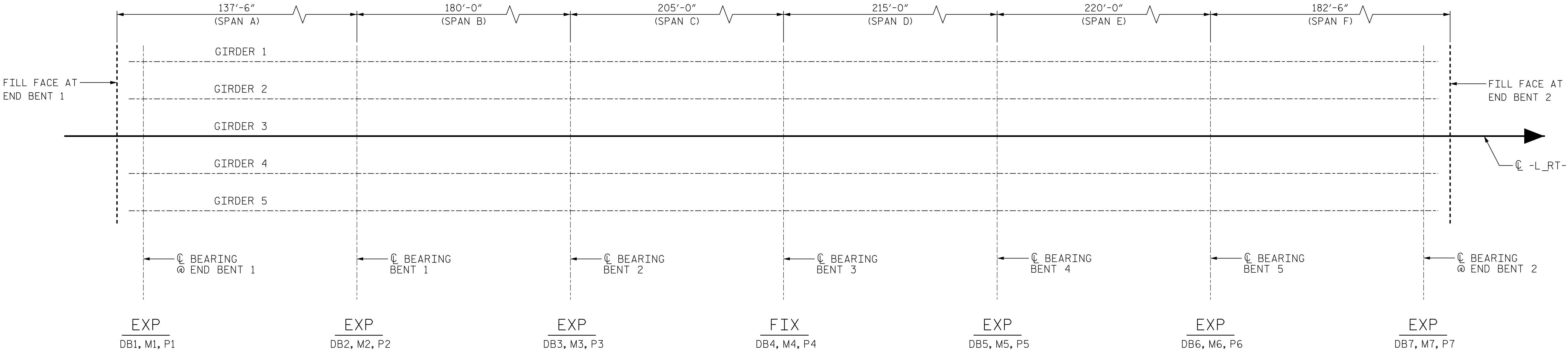
BAR SIZE	SUPERSTRUCTURE EXCEPT APPROACH SLABS, PARAPET, AND BARRIER RAIL		APPROACH SLABS		PARAPET AND BARRIER RAIL
	EPOXY COATED	UNCOATED	EPOXY COATED	UNCOATED	
#4	2'-0"	1'-9"	2'-0"	1'-9"	2'-9"
#5	2'-6"	2'-2"	2'-6"	2'-2"	3'-5"
#6	3'-0"	2'-7"	3'-10"	2'-7"	4'-4"
#7	5'-3"	3'-6"			
#8	6'-10"	4'-7"			

(EXCEPT AS NOTED OTHERWISE)

SUPERSTRUCTURE BILL OF MATERIAL

STAGE I			STAGE IIA		
CONCRETE FOR DECK REPAIR	REINFORCING STEEL (LBS)	EPOXY COATED REINFORCING STEEL (LBS)	CONCRETE FOR DECK REPAIR	REINFORCING STEEL (LBS)	EPOXY COATED REINFORCING STEEL (LBS)
3.5	138	498	4.0	139	505

(QUANTITIES FOR BARRIER RAIL NOT INCLUDED)



SQ. FT = 200

PROJECT NO. 15BPR.43
STANLY/MONTGOMERY COUNTY
STATION: 339+86.39 -L-



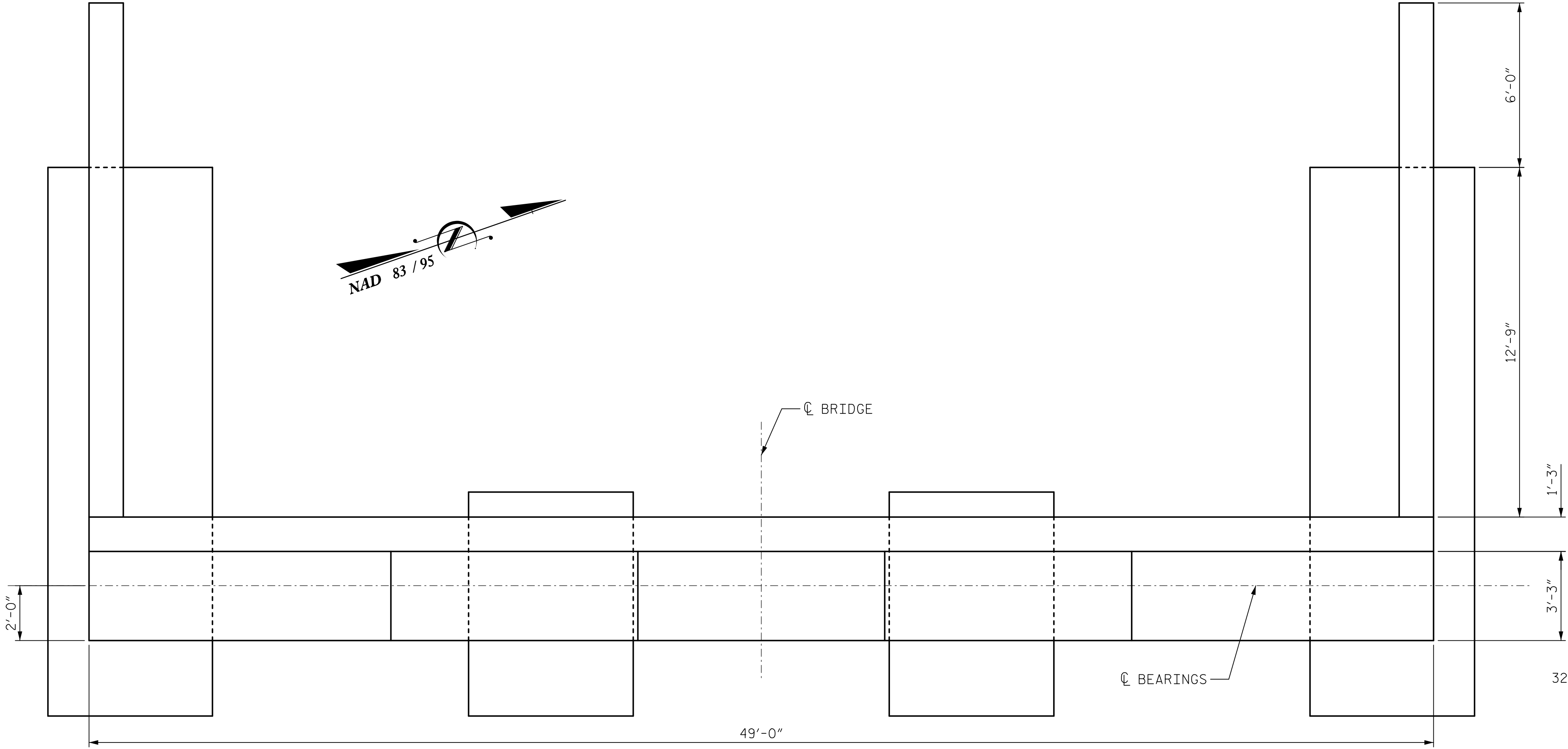
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BILL OF MATERIAL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-24					TOTAL SHEETS 38

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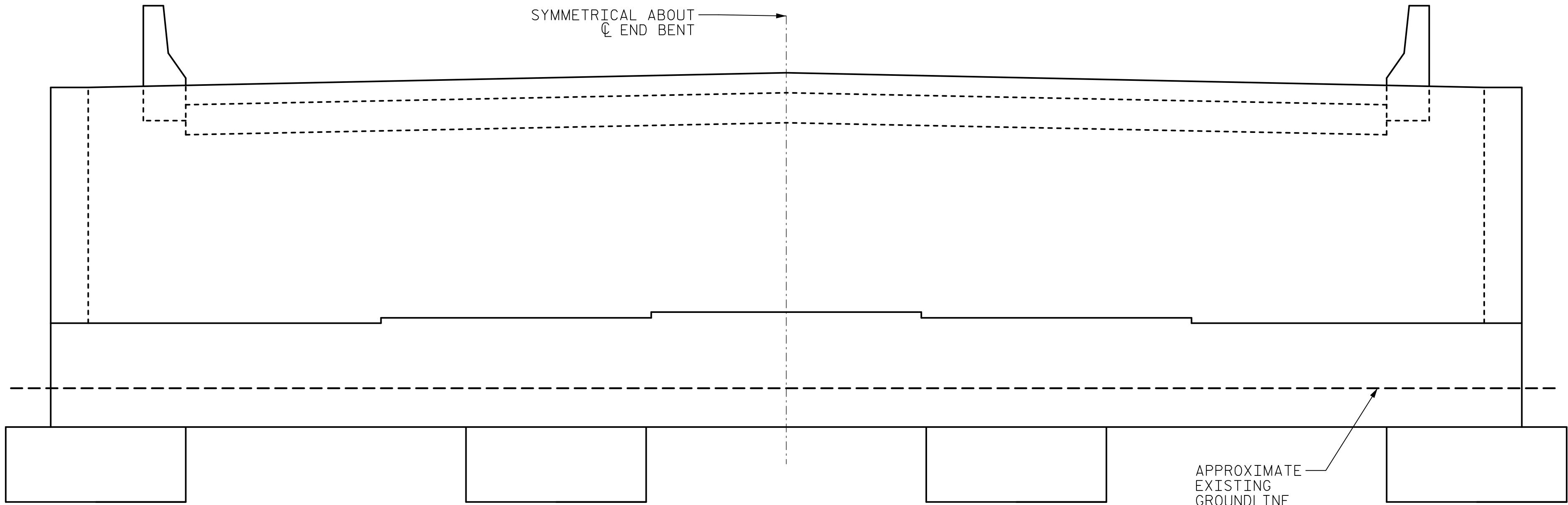
DRAWN BY : H.T. ROSEMOND	DATE : 09/2018
CHECKED BY : G.R. COLS	DATE : 09/2018
DESIGNED BY : G.R. COLS	DATE : 09/2018
DESIGN CHECKED BY : K.W. MUENCH	DATE : 09/2018

DATE: 10/10/2018
TIME: 14:37 PM

USER: dunnj
D:\Users\dunnj\OneDrive\Documents\Projects\15BPR.43\Drawings\15BPR.43_SML.EB.dgn



PLAN



ELEVATION

REPAIR QUANTITY TABLE

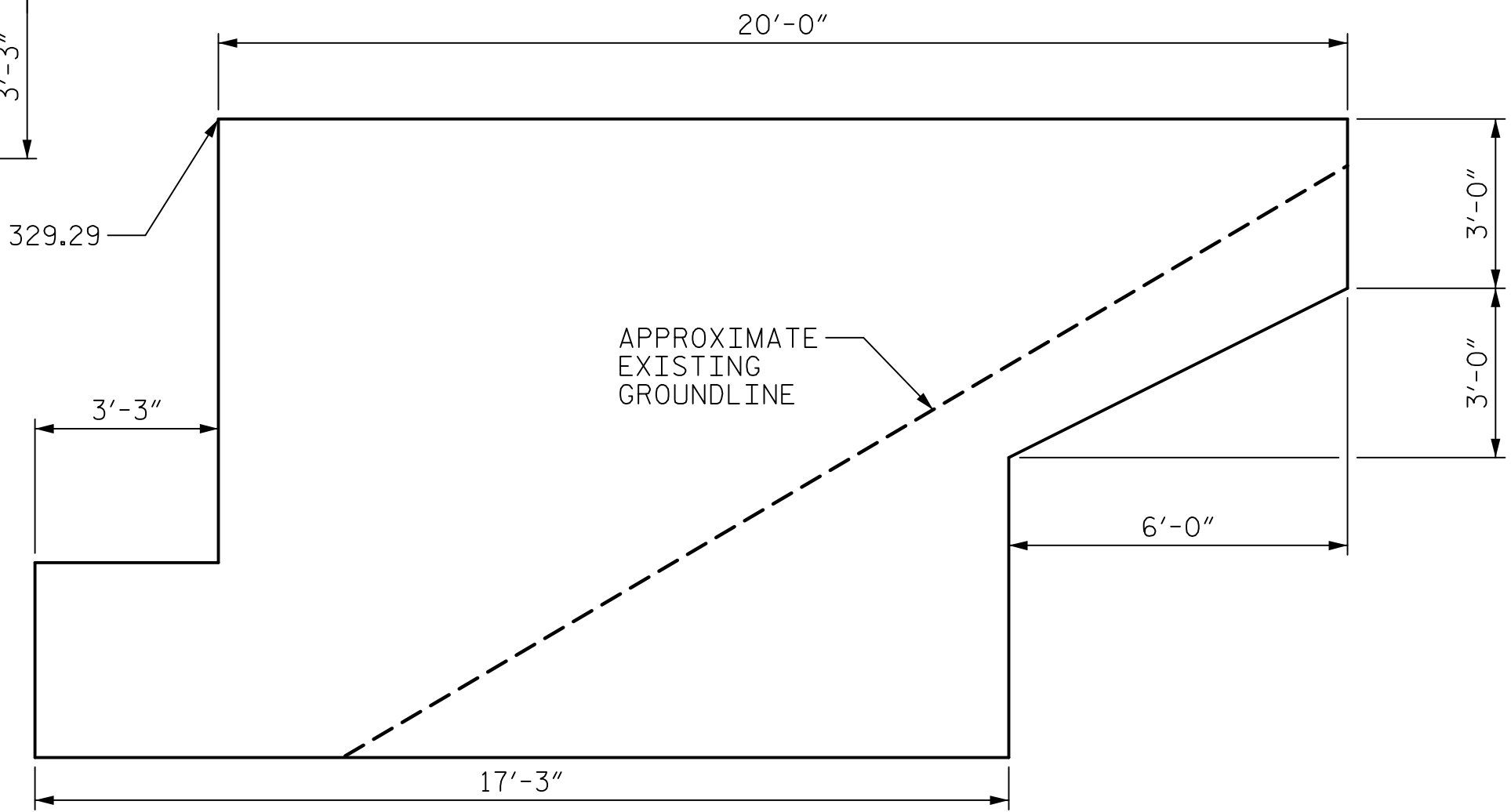
BENT REPAIRS		
END BENT 1		
	ESTIMATE	ACTUAL
EPOXY MORTAR REPAIRS		
CAP	0 CF	0 SF
CONCRETE REPAIRS		
CAP	0 CF	6 CF
EPOXY RESIN INJECTION		
CAP	0 CF	0 LF
EPOXY COATING		
CAP	750± SF	750 SF

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

NOTES:

FOR NOTES AND TYPICAL REPAIR DETAILS, SEE REHABILITATION DETAILS SHEET.

COAT ALL ABOVE GROUND FACES OF THE END BENT WITH TYPE 4 EPOXY COATING. FOR DETAILS, SEE SPECIAL PROVISIONS.



TYPICAL
WING WALL

PROJECT NO. 15BPR.43
STANLY/MONTGOMERY COUNTY
STATION: 339+86.39 -L-

DRAWN BY : K. DONALD	DATE : 08/2018
CHECKED BY : G. COLS	DATE : 08/2018
DESIGNED BY : G. COLS	DATE : 08/2018
DESIGN CHECKED BY : J. SLOAN	DATE : 08/2018

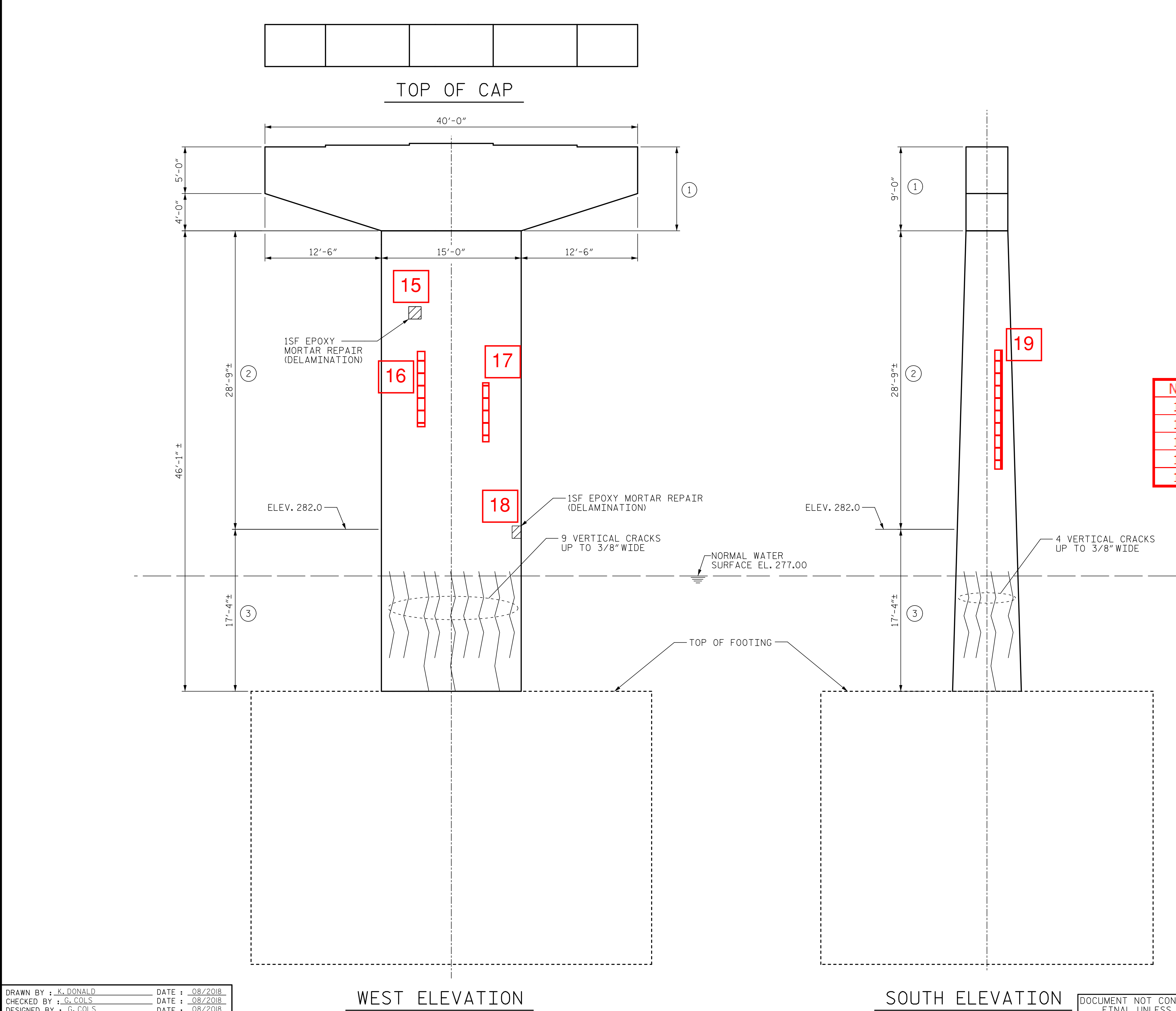
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					38

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TIME: 1:44:45 PM

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NOTES:

FOR NOTES AND TYPICAL REPAIR DETAILS, SEE SUBSTRUCTURE REHABILITATION DETAILS SHEET.

CRACKS

EPOXY MORTAR REPAIR AREA

CONCRETE REPAIR AREA

① LIMITS OF EPOXY COATING

② LIMITS OF SILANE COATING

③ LIMITS OF UNDERWATER STRUCTURAL EPOXY JACKET

EPOXY RESIN INJECTION

NO.	TYPE	L (FT)	W (FT)	D (FT)	SF	CF
15	EMR	1.5	1.5	0.33	2.3	
16	ERI	10.5				
17	ERI	9				
18	EMR	2.25	1.5	0.33	3.4	
19	ERI	12.25				

PROJECT NO. 15BPR.43

STANLY/MONTGOMERY COUNTY

STATION: 339+86.39 -L-

SHEET 1 OF 2

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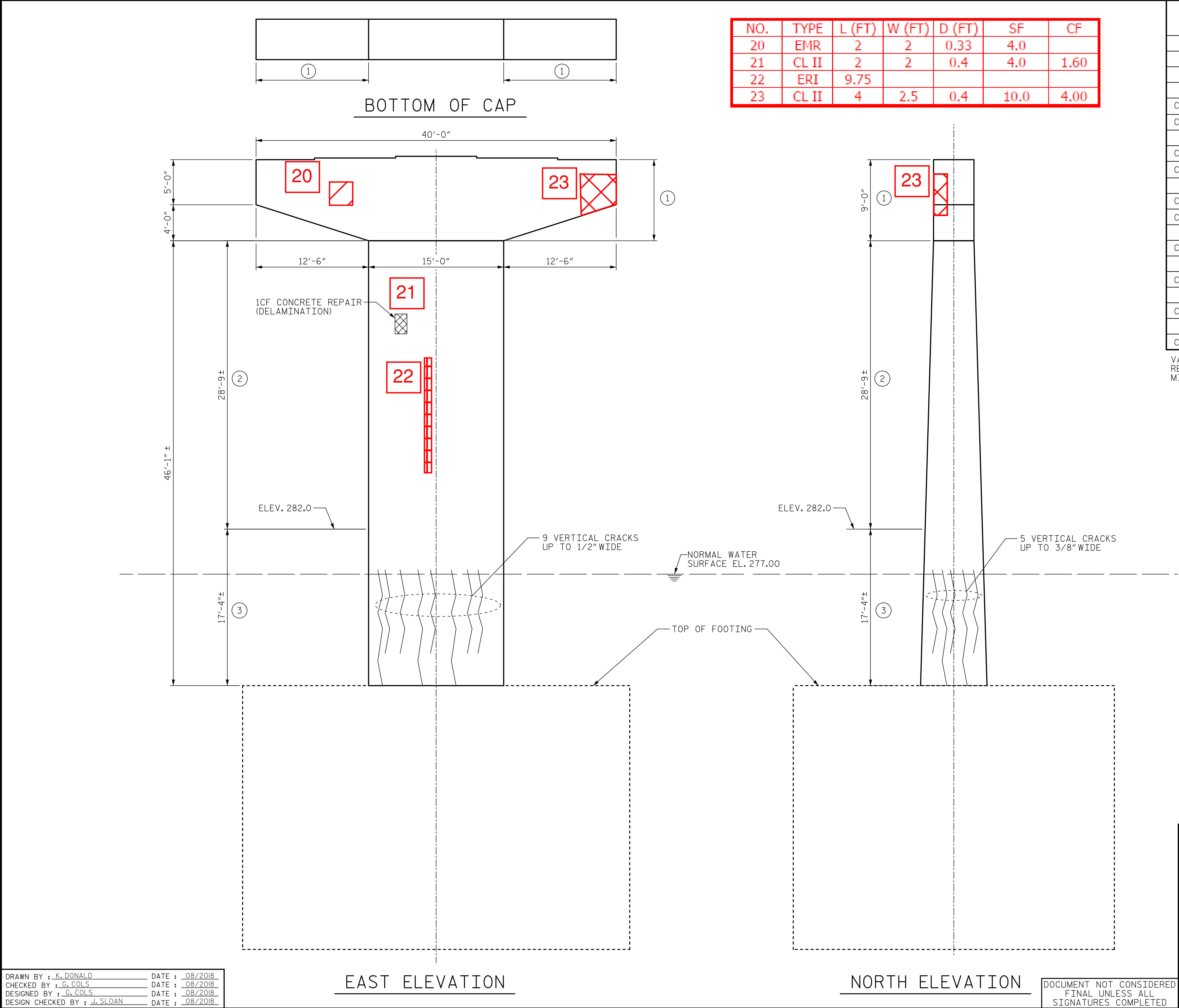
Seal of the State of North Carolina
Professional Engineer
JOHN E. SLOAN
10/18/2018
085062

REVISIONS						SHEET NO. S-26
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

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NO.	TYPE	L (FT)	W (FT)	D (FT)	SF	CF
20	EMR	2	2	0.33	4.0	
21	CL II	2	2	0.4	4.0	1.60
22	ERI	9.75				
23	CL II	4	2.5	0.4	10.0	4.00

REPAIR QUANTITY TABLE

BENT REPAIRS		
BENT 1		
	ESTIMATE	ACTUAL
EPOXY MORTAR REPAIR		
CAP	0 SF	4 SF
COLUMN	1 SF	5.7 SF
CONCRETE REPAIRS		
CAP	0 CF	4 CF
COLUMN	1 CF	1.6 CF
EPOXY RESIN INJECTION		
CAP	0 LF	0 LF
COLUMN	0 LF	41.5 LF
EPOXY COATING		
CAP	800 SF	800 SF
SILANE COATING		
COLUMN	1180 SF	1180 SF
SURFACE PREPARATION FOR SILANE		
COLUMN	1180 SF	1180 SF
UNDERWATER STRUCTURAL EPOXY JACKET		
COLUMN	40 CF	40 CF

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT.

NOTES:

FOR NOTES AND TYPICAL REPAIR DETAILS, SEE REHABILITATION DETAILS SHEET.

- CRACKS
- EPOXY MORTAR REPAIR AREA
- CONCRETE REPAIR AREA
- ① LIMITS OF EPOXY COATING
- ② LIMITS OF SILANE COATING
- ③ LIMITS OF UNDERWATER STRUCTURAL EPOXY JACKET
- EPOXY RESIN INJECTION

PROJECT NO. 15BPR.43
STANLY/MONTGOMERY COUNTY
STATION: 339+86.39 -L-

SHEET 2 OF 2

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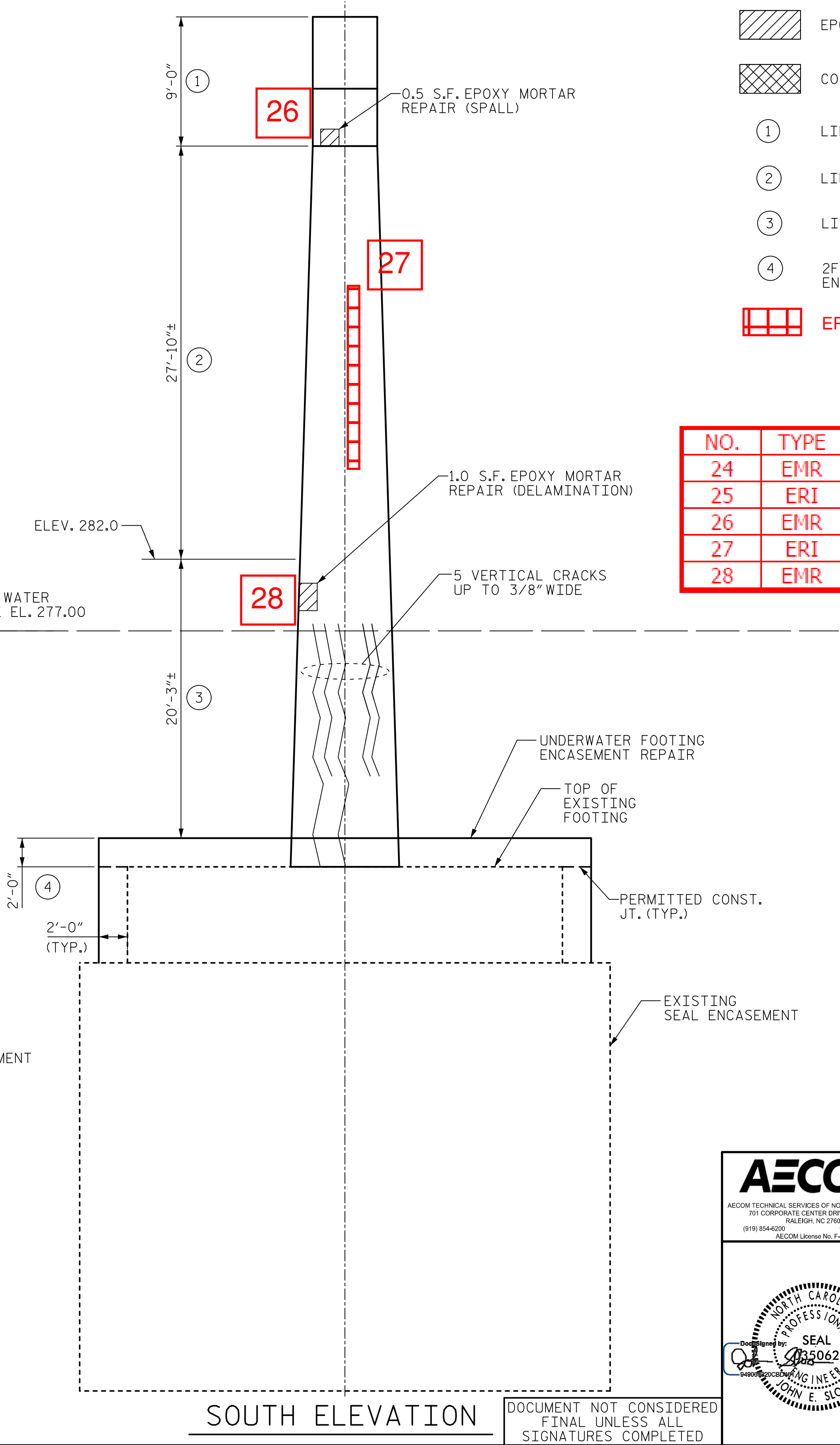
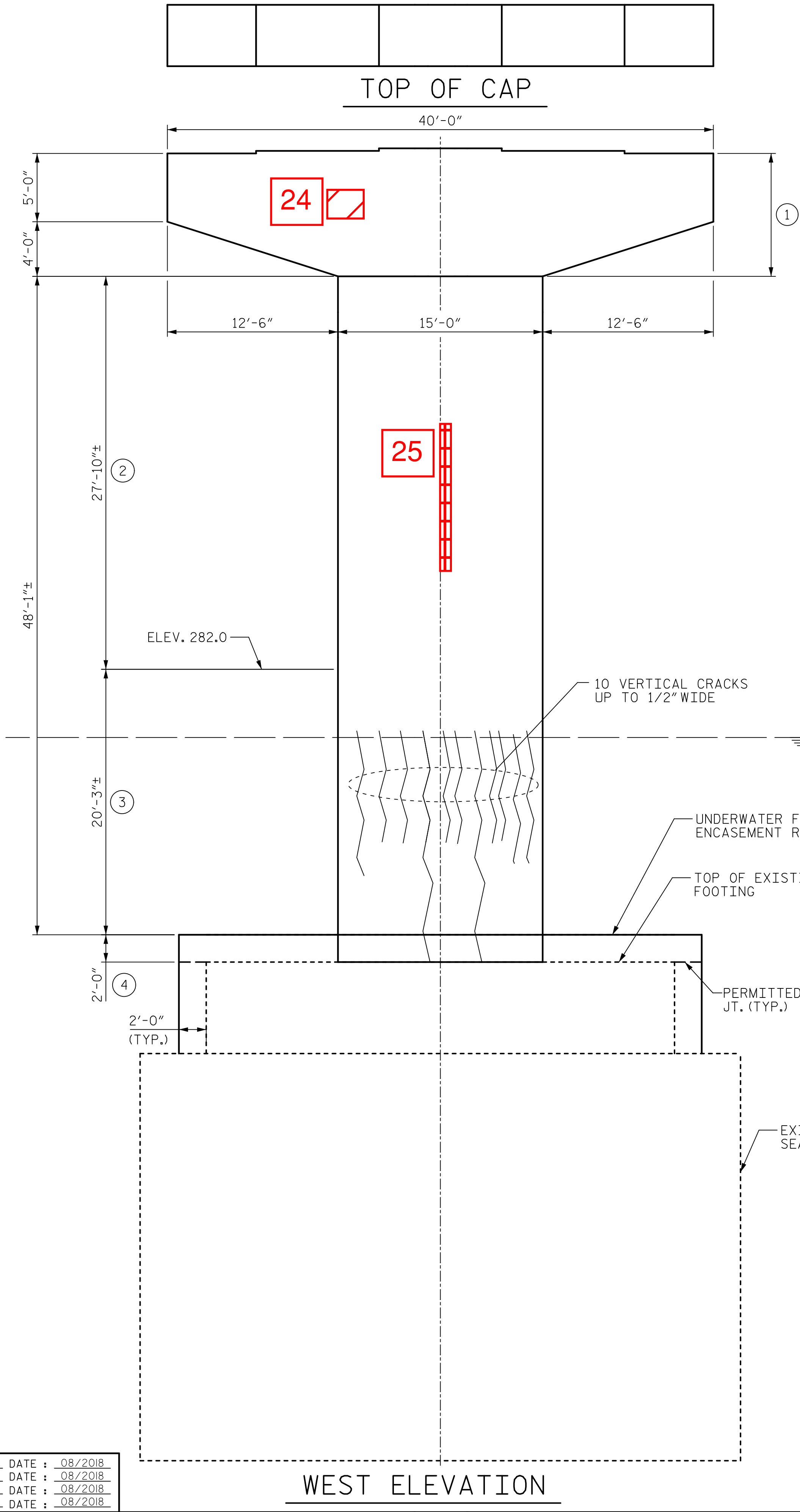
SEAL
10/18/2018
JOHN E. SLOAN
Professional Engineer

DESIGNED BY: [Signature]
CHECKED BY: [Signature]

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
BENT 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-27					TOTAL SHEETS 38

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TIME: 14:03 PM
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DRAWN BY: K. DONALD
CHECKED BY: G. COLS
DESIGNED BY: G. COLS
DESIGN CHECKED BY: J. SLOAN

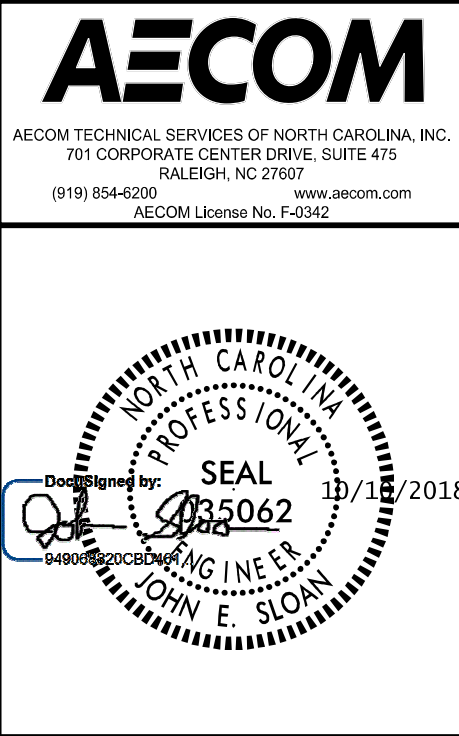


- NOTES:
- FOR NOTES AND TYPICAL REPAIR DETAILS, SEE REHABILITATION DETAILS SHEET.
- CRACKS
 - EPOXY MORTAR REPAIR AREA
 - CONCRETE REPAIR AREA
 - LIMITS OF EPOXY COATING
 - LIMITS OF SILANE COATING
 - LIMITS OF UNDERWATER STRUCTURAL EPOXY JACKET
 - 2FT THICK UNDERWATER FOOTING ENCASEMENT REPAIR (SEE SHEET 3)
 - EPOXY RESIN INJECTION

NO.	TYPE	L (FT)	W (FT)	D (FT)	SF	CF
24	EMR	1.5	2	0.33	3.0	
25	ERI	8.75				
26	EMR	1.25	1	0.33	1.3	
27	ERI	11.5				
28	EMR	1.5	0.75	0.33	1.1	

PROJECT NO. 15BPR.43
STANLY/MONTGOMERY COUNTY
STATION: 339+86.39 -L-

SHEET 1 OF 3



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			
TOTAL SHEETS						38

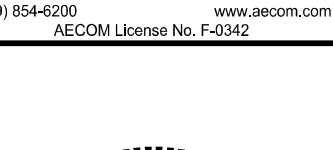
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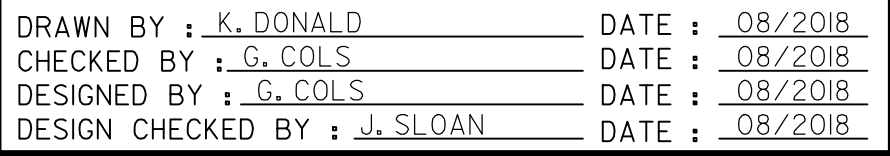
REPAIR QUANTITY TABLE		
BENT REPAIRS		
BENT 2		
	ESTIMATE	ACTUAL
EPOXY MORTAR REPAIRS		
CAP	0.5 SF	4.3 SF
COLUMN	1.0 SF	1.1 SF
CONCRETE REPAIRS		
CAP	0 CF	0 CF
COLUMN	0 CF	6.4 CF
EPOXY RESIN INJECTION		
CAP	0 LF	0 LF
COLUMN	0 LF	32.8 LF
EPOXY COATING		
CAP	800 SF	800 SF
SILANE COATING		
COLUMN	1140 SF	1140 SF
SURFACE PREPARATION FOR SILANE		
COLUMN	1140 SF	1140 SF
UNDERWATER STRUCTURAL EPOXY JACKET		
COLUMN	50 CF	50 CF

NOTES:

FOR NOTES AND TYPICAL REPAIR DETAILS, SEE REHABILITATION
DETAILS SHEET.

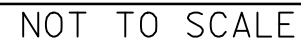
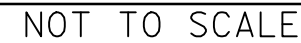
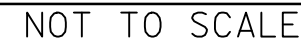
- PROJECT NO. 15BPR.43
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	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				
AECOM TECHNICAL SERVICES OF NORTH CAROLINA, INC. 701 CORPORATE CENTER DRIVE, SUITE 475 RALEIGH, NC 27607 (919) 854-6200 www.aecom.com AECOM License No. F-0342	SUBSTRUCTURE				
	BENT 2				
REVISIONS					
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1			3		
2			4		
SHEET NO. S-29 TOTAL SHEETS 38					



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#6 T1, #6 T2, #6 T3, AND #6 T4 BARS ON TOP
OF FOOTING NOT SHOWN.

* MAY BE BENT OR SPLAYED AS NECESSARY TO MAINTAIN 6" MAX. SPACING AND 4" MAX. DISTANCE TO TOP OF EXISTING SEAL.

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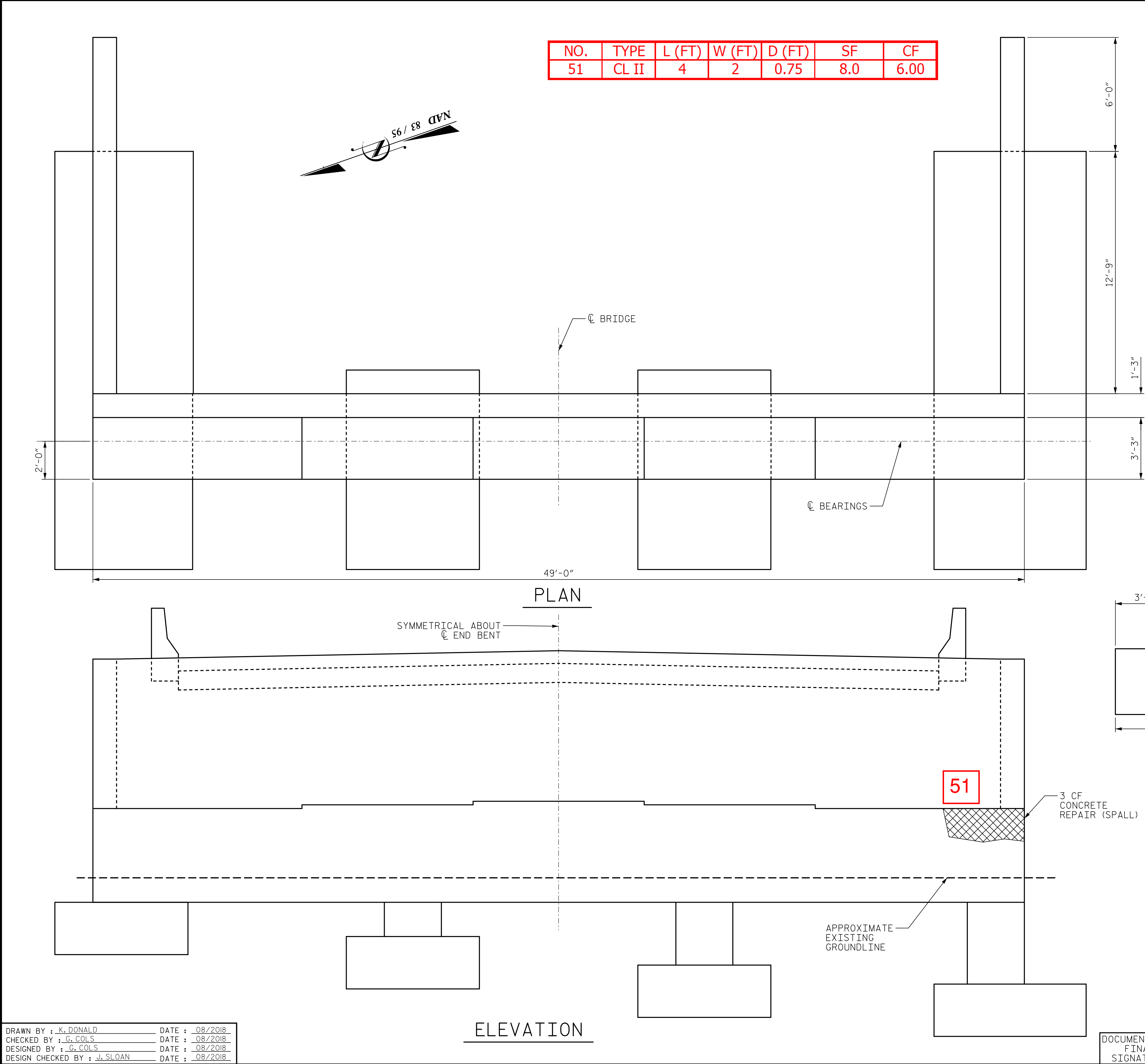
Seal of the Professional Engineer
State of North Carolina
No. 35062
John E. Sloan
Professional Engineer
11/18/2011

BENT 2 FOOTING ENCASEMENT DETAILS

REVISIONS						SHEET NO. S-30
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 38
2			4			

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DATE: 10/10/2018
TIME: 14:59 PM
USER: dunn
DRAWN BY: K. DONALD
CHECKED BY: G. COLS
DESIGNED BY: G. COLS
DESIGN CHECKED BY: J. SLOAN



NO.	TYPE	L (FT)	W (FT)	D (FT)	SF	CF
51	CL II	4	2	0.75	8.0	6.00

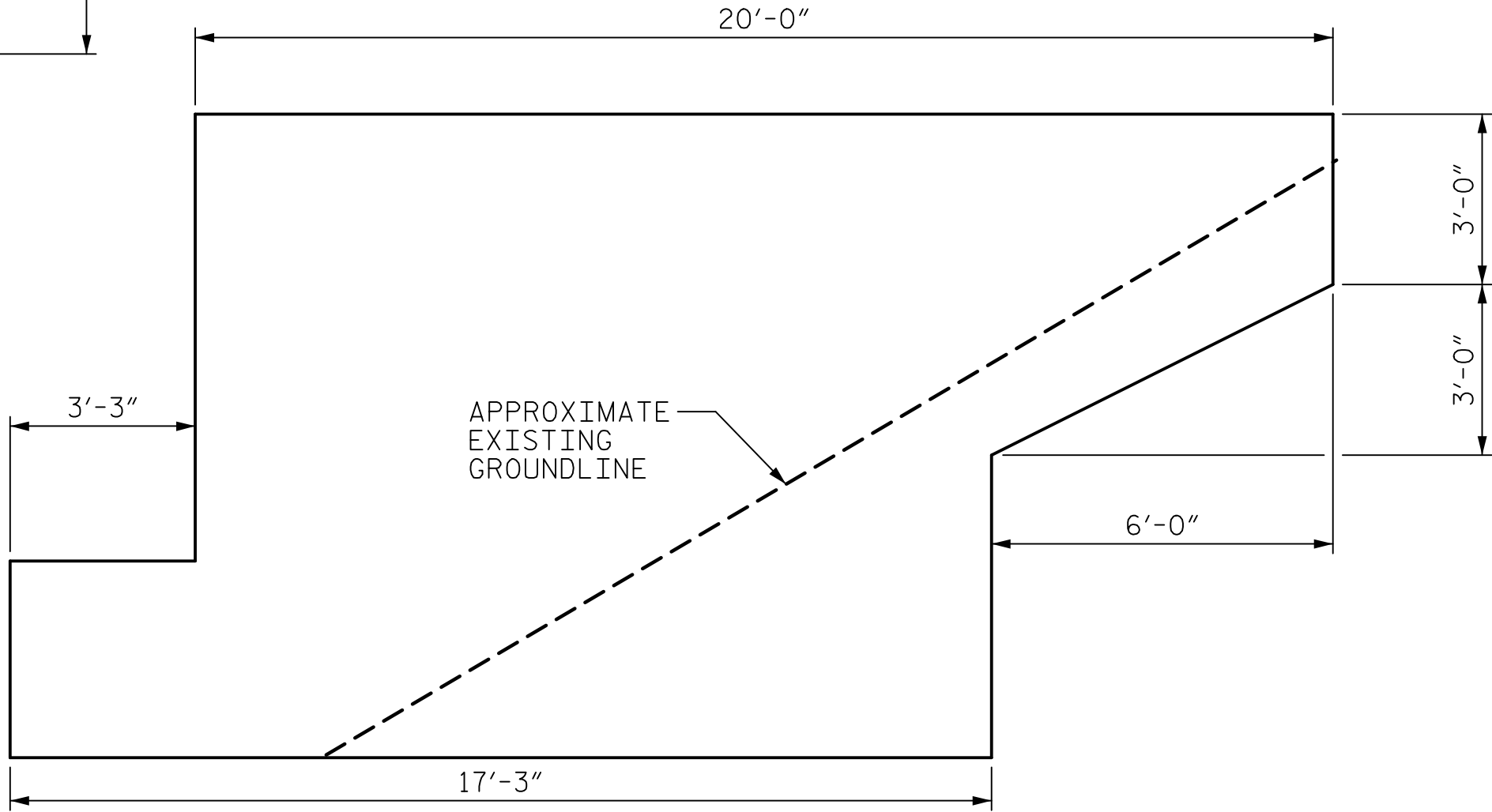
REPAIR QUANTITY TABLE		
BENT REPAIRS		
END BENT 2		
	ESTIMATE	ACTUAL
EPOXY MORTAR REPAIRS		
CAP	0 CF	0 SF
CONCRETE REPAIRS		
CAP	3.0 CF	6 CF
EPOXY RESIN INJECTION		
CAP	0 CF	0 LF
EPOXY COATING		
CAP	750 SF ±	750 SF

VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE. MINIMUM OF 1" BEHIND REBAR AND MINIMUM 2" CLEARANCE TO SAWCUT.

NOTES:

FOR NOTES AND TYPICAL REPAIR DETAILS, SEE REHABILITATION DETAILS SHEET.

COAT ALL ABOVE GROUND FACES OF THE END BENT WITH TYPE 4 EPOXY COATING. FOR DETAILS, SEE SPECIAL PROVISIONS.



TYPICAL WING WALL

PROJECT NO. 15BPR.43
STANLY/MONTGOMERY COUNTY
STATION: 339+86.39 -L-

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Seal of Professional Engineer
JOHN E. SLOAN
10/18/2018
085062

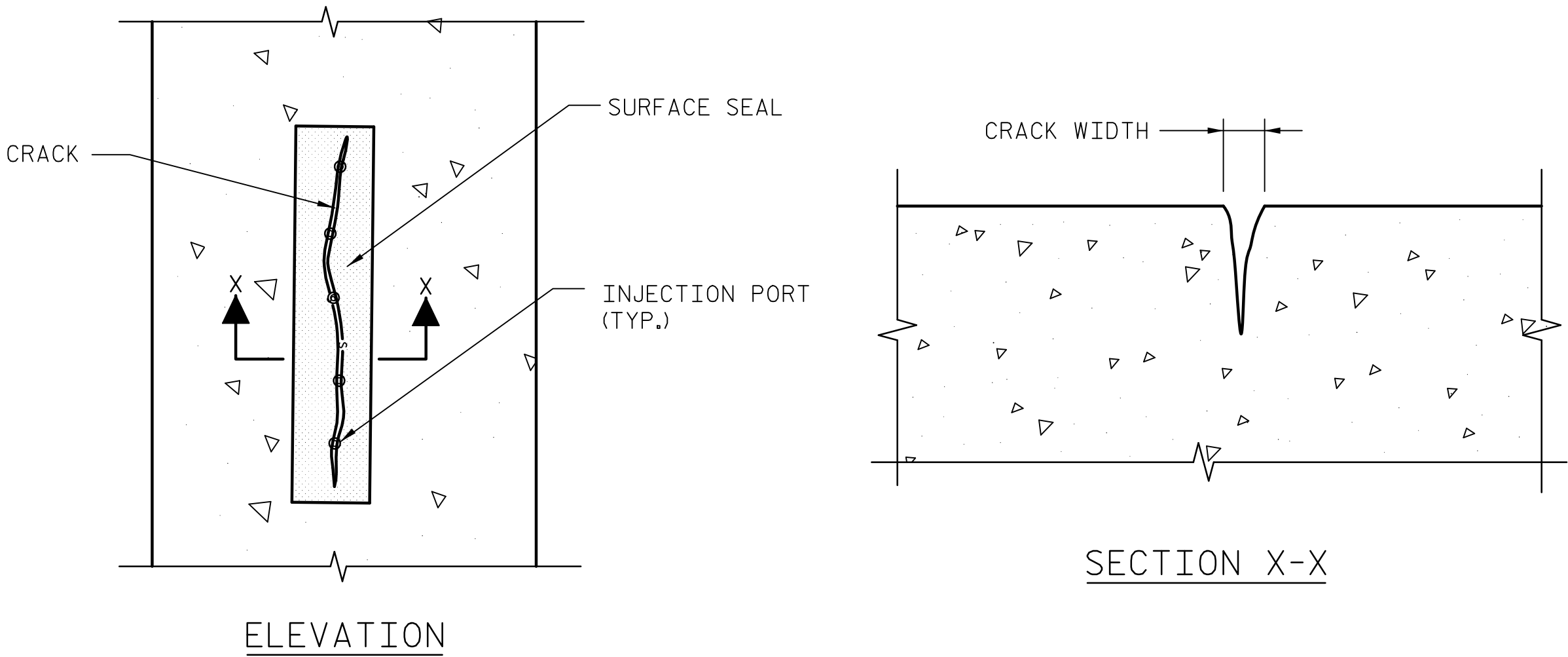
DESIGNED BY: JOHN E. SLOAN
CHECKED BY: G. COLS

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 38

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

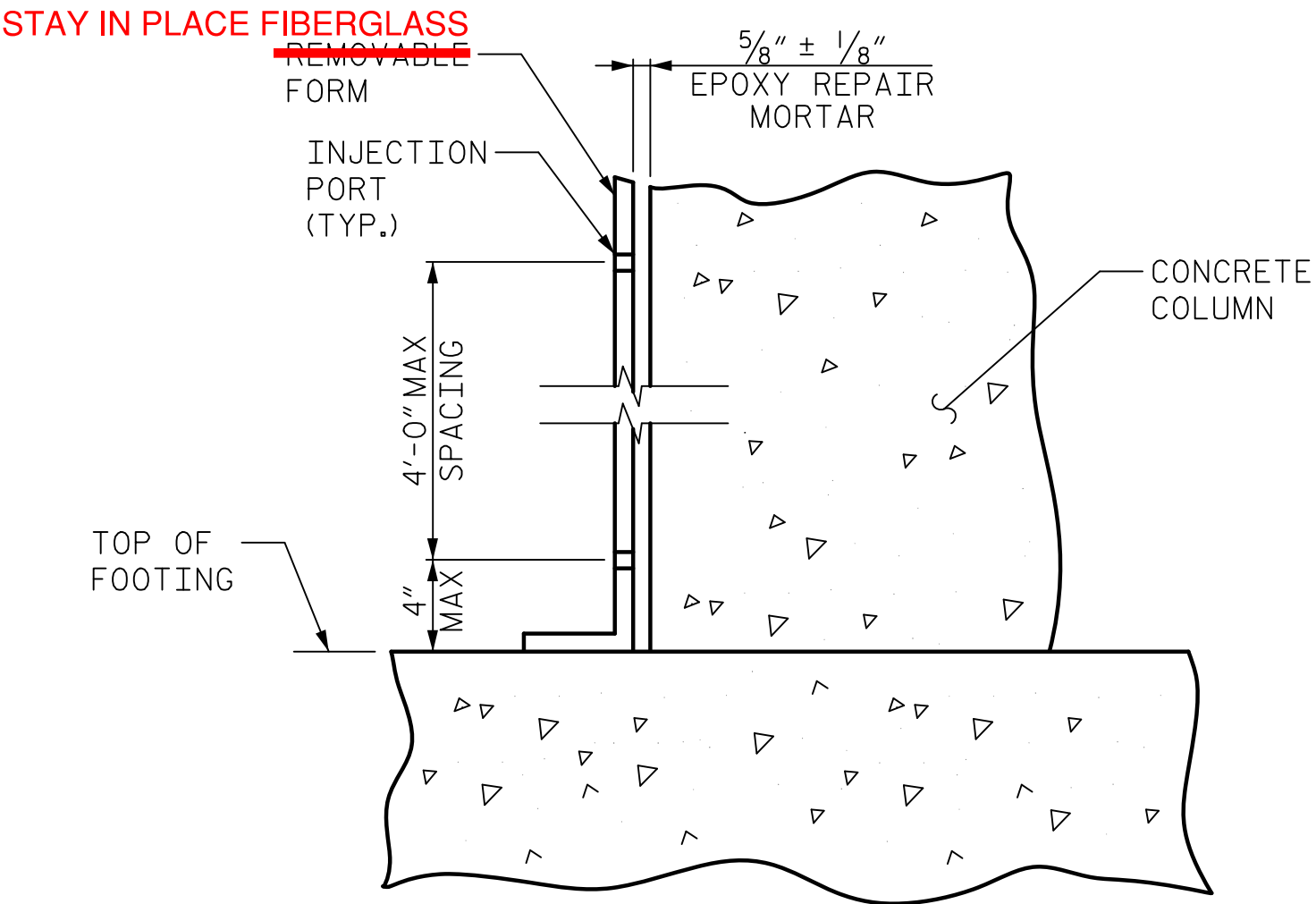
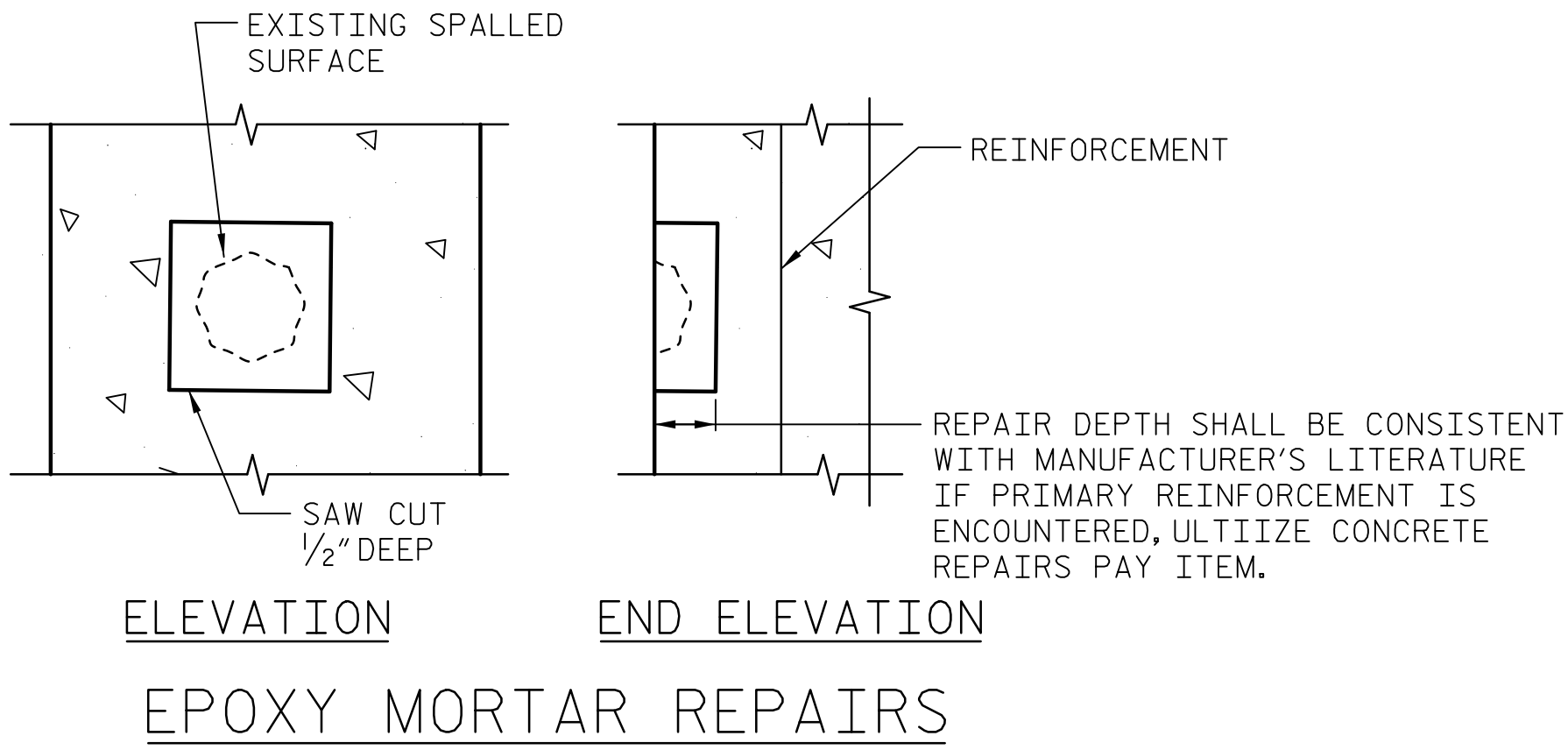
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EPOXY RESIN INJECTION DETAIL

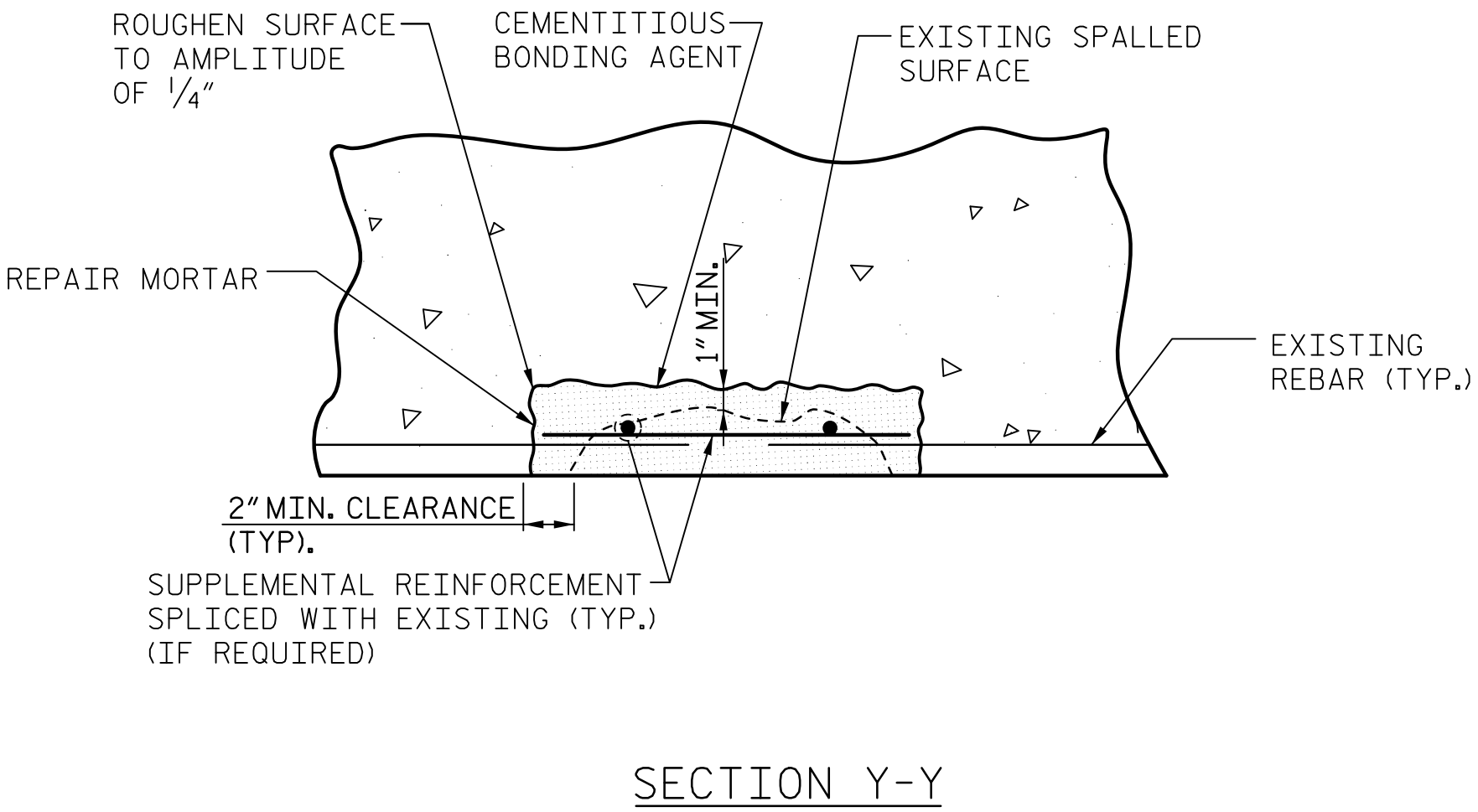
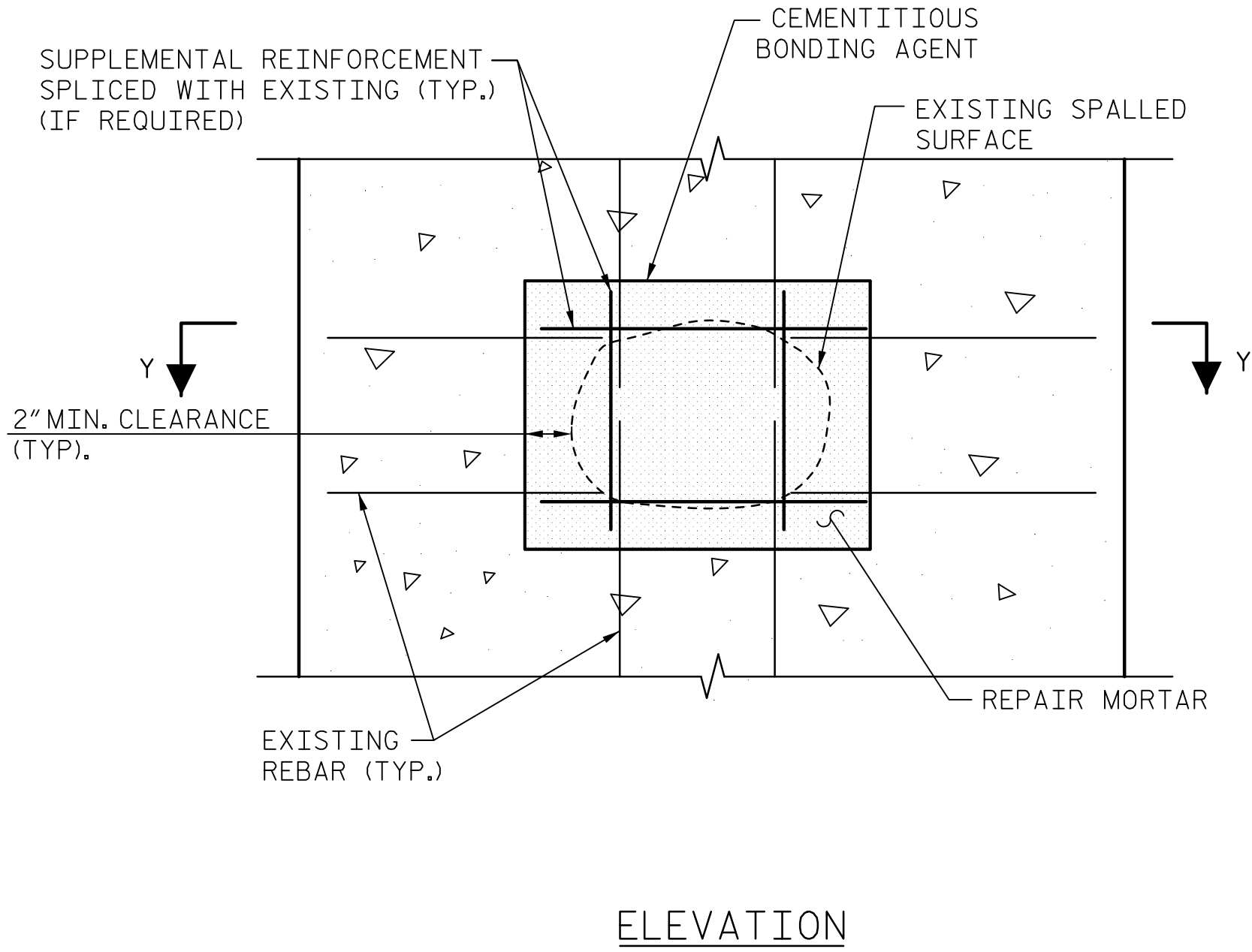
REPAIR CRACKS AS DIRECTED BY THE ENGINEER
IN ACCORDANCE WITH THE EPOXY RESIN
INJECTION SPECIAL PROVISION.



UNDERWATER STRUCTURAL EPOXY JACKET

***SEE PAGE 34 FOR DETAILS**

PROJECT NO. 15BPR.43
STANLY/MONTGOMERY COUNTY
STATION: 339+86.39 -L-



CONCRETE REPAIR WITH EXPOSED REBAR

SUPPLEMENTAL REINFORCING SHALL BE INSTALLED IF
REQUIRED IN ACCORDANCE WITH THE SPECIAL PROVISION

NOTES

FOR SILANE TREATMENT AND SURFACE PREPARATION FOR SILANE, SEE SPECIAL PROVISIONS.

FOR EPOXY COATING (SUBSTRUCTURE), SEE SPECIAL PROVISIONS.

FOR UNDERWATER STRUCTURAL EPOXY JACKET, SEE SPECIAL PROVISIONS.

NAVIGATION SIGNS SHALL BE INSTALLED ON THE BENT COLUMNS FOLLOWING THE COMPLETION OF ALL OTHER REPAIR WORK. FOR REPLACEMENT OF NAVIGATION SIGNS ON COLUMNS, SEE SPECIAL PROVISIONS.

DEFECTS SHOWN ON THE REHABILITATION PLANS WERE RECORDED DURING AN INSPECTION IN JULY, 2018. THE CONTRACTOR'S ATTENTION IS BROUGHT TO THE FACT THAT THE CONDITION OF THE STRUCTURE DURING THE REHABILITATION MAY DIFFER FROM THE CONDITION OF THE STRUCTURE DURING THE INSPECTION.

ASSUMED APPROXIMATE REPAIR DIMENSIONS ARE SHOWN IN THE DEFECT TABLES. THE DIMENSIONS SHOWN ARE ONLY FOR DETERMINING AN APPROXIMATE REPAIR QUANTITY FOR THE BID TABULATION. CONTRACTOR SHALL PERFORM ACTUAL REPAIR VOLUME REQUIRED BY THE ENGINEER.

THE ENGINEER SHALL DETERMINE THE ACTUAL REQUIRED DEFECT DIMENSIONS AND THE REPAIR TYPE TO BE PERFORMED FOR EACH DEFECT, IN A MANNER THAT IS CONSISTENT WITH THE INFORMATION SHOWN IN THESE PLANS.

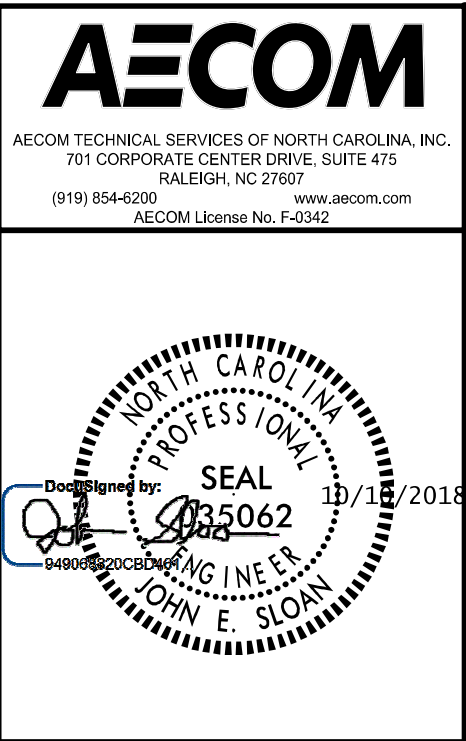
CONTRACTOR SHALL THOROUGHLY CLEAN THE STRUCTURE AND REMOVE ALL VEGETATION, SOIL, DISCOLORATION, AND GREASE, PRIOR TO MAKING REPAIRS.

CONTRACTOR SHALL CLIP ALL NAILS, OLD INJECTION PORTS, NAVIGATION SIGNS, OR OTHER METAL ITEMS PROJECTING OUT OF THE STRUCTURE AT THE SURFACE OF THE CONCRETE, PRIOR TO MAKING REPAIRS.

WHEN DETERMINING CONCRETE REPAIR VOLUME, THE REPAIR DEPTH FOR MOST DEFECTS HAS BEEN ASSUMED TO BE 4". THE ENGINEER SHALL DETERMINE THE ACTUAL REPAIR DEPTH IN ACCORDANCE WITH THE SPECIAL PROVISION.

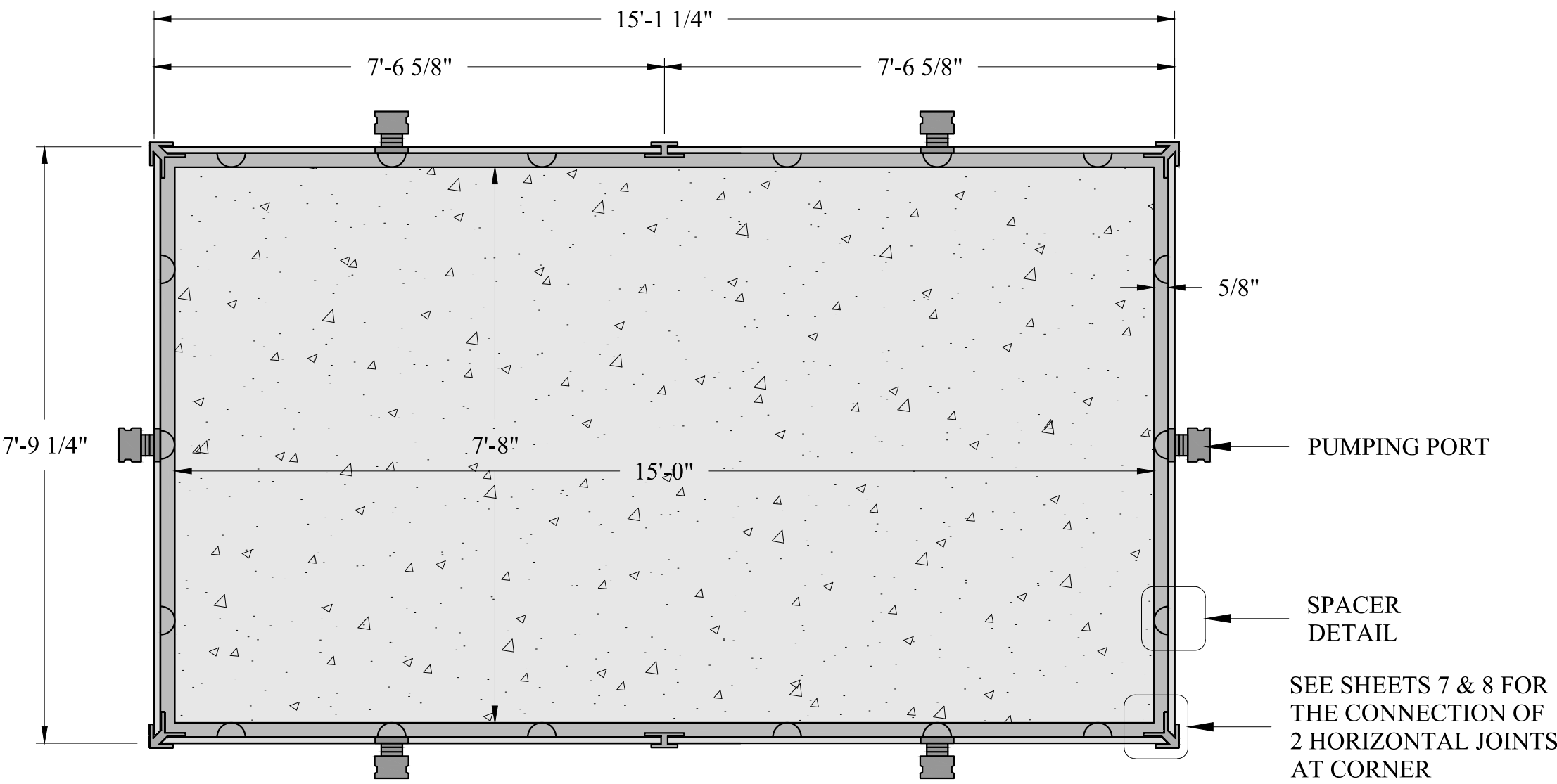
DRAWN BY : H.T. ROSEMOND	DATE : 09/2018
CHECKED BY : G.R. COLS	DATE : 09/2018
DESIGNED BY : G.R. COLS	DATE : 09/2018
DESIGN CHECKED BY : J. SLOAN	DATE : 09/2018

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

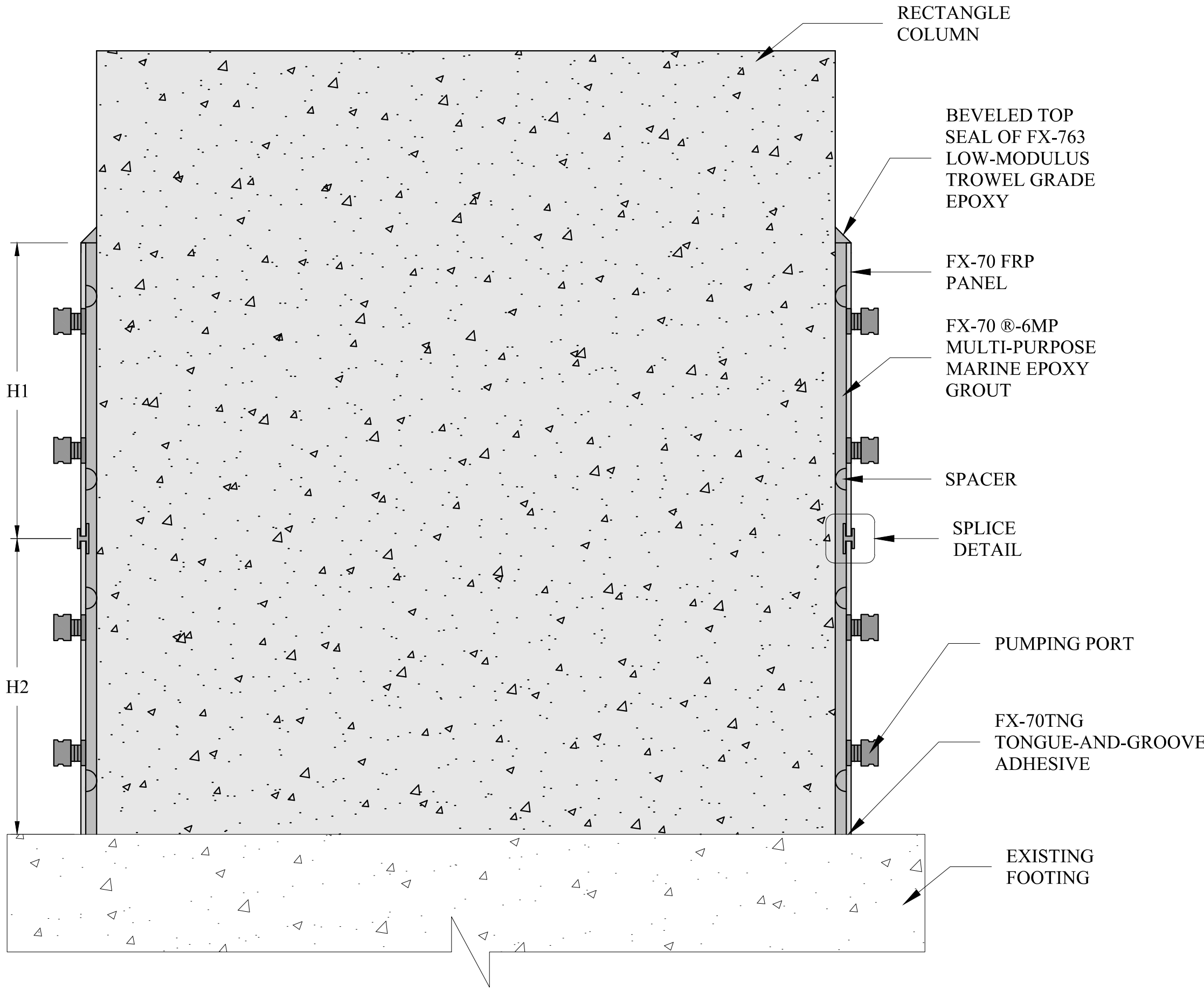


REVISIONS						SHEET NO.
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2			4			
TOTAL SHEETS						38

UNDERWATER STRUCTURAL
EPOXY JACKET DETAIL



PLAN



EAST - WEST ELEVATION

Customer Approval: _____
Customer Name: _____
Approval Date: _____

Lake Tillery Pier 1

Albemarle, NC
ES-192900D

Date: 05/27/2020

Scale: N.T.S.

Sheet no.: 1

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 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 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 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 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø 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 3/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

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