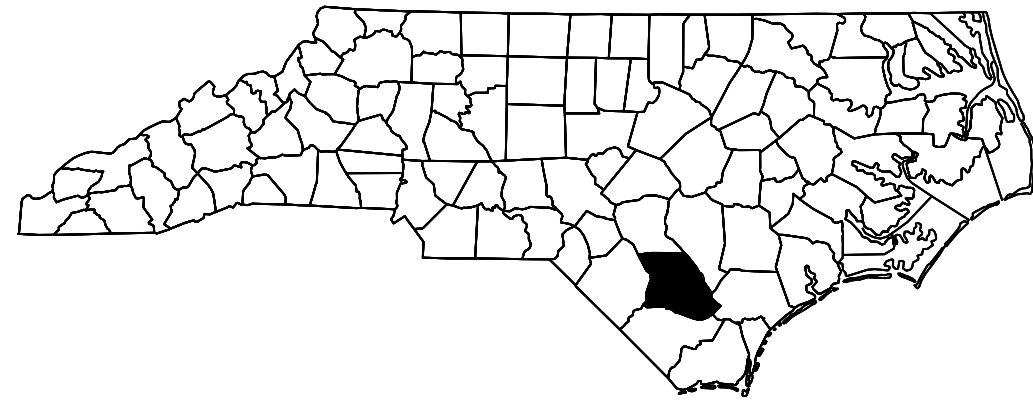


PROJECT: 15BPR.12

CONTRACT: DF00213



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BLADEN COUNTY

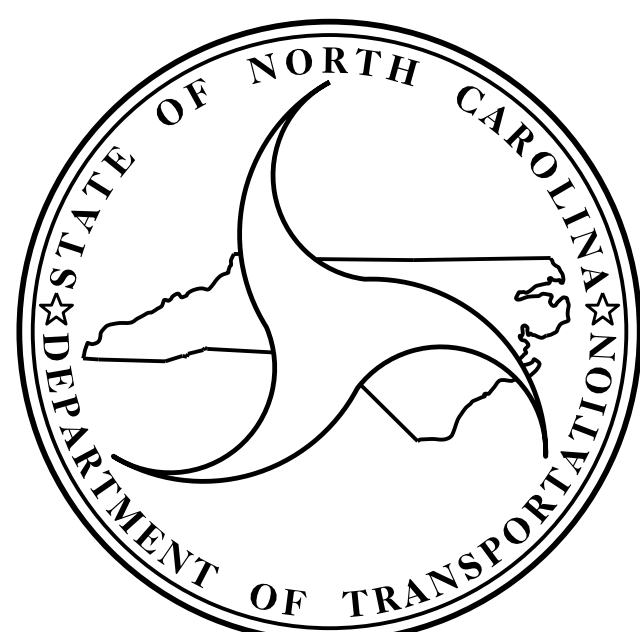
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.12	1	34
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.12		P.E.	
15BPR.12		CONST.	

LOCATION: **BLADEN COUNTY: BRIDGE #16 ON US 701, NC 41 & NC 242 OVER CAPE FEAR RIVER.**

TYPE OF WORK: **CONCRETE BRIDGE DECK REHABILITATION BY SCARIFICATION, SHOTBLAST CLEANING, AND PLACEMENT OF POLYESTER POLYMER CONCRETE; DEMOLITION AND RECONSTRUCTION OF BRIDGE DECK JOINTS AND SEALS; CLEANING AND PAINTING EXISTING WEATHERING STEEL; SUBSTRUCTURE CONCRETE REPAIRS WITH SHOTCRETE, EPOXY RESIN INJECTION AND EPOXY COATING OF TOP OF SUBSTRUCTURE CAPS; PRESTRESSED CONCRETE GIRDER REPAIRS; AND SLOPE PROTECTION REPAIR.**



VICINITY MAP : BLADEN COUNTY



DESIGN DATA

BLADEN COUNTY

BRIDGE #16 ADT 2015 = 11,000

PROJECT LENGTH

BRIDGE #16 = 0.223 MILES

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

GREG DICKEY, P.E.

PROJECT ENGINEER

2018 STANDARD SPECIFICATIONS

LETTING DATE:
MAY 16, 2018



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



LOCATION SKETCH

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

GENERAL NOTES:

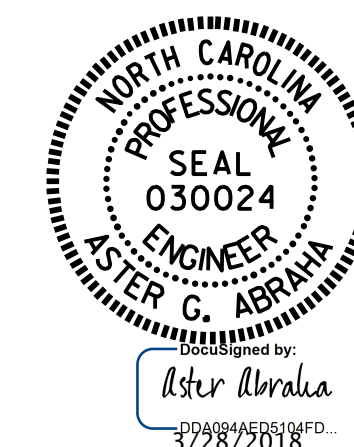
- REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE ENGINEER, THE ENGINEER SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE ACTUAL QUANTITIES ENTERED INTO THE REPAIR QUANTITY TABLE.
- 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.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL STATE AND FEDERAL SAFETY REQUIREMENTS.
- EXISTING JOINTS AND DECK DRAINS SHALL BE SEALED PRIOR TO BEGINNING SURFACE PREPARATION OF BRIDGE DECK.
- LONGITUDINAL CONSTRUCTION JOINTS OF OVERLAYS SHALL BE LOCATED ALONG THE CENTERLINE OR EDGE OF TRAVEL LANES.
- FOR FOAM JOINT SEALS, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CONTROL OF TRAFFIC AND LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLAN.
- FOR CONCRETE DECK REPAIR FOR PPC OVERLAY, PPC MATERIALS, PLACING AND FINISHING PPC OVERLAY, SEE "POLYESTER POLYMER CONCRETE BRIDGE DECK" OVERLAY SPECIAL PROVISIONS.
- FOR SCARIFYING BRIDGE DECK, SHOTBLASTING BRIDGE DECK, AND CLASS II SURFACE PREPARATION, SEE "OVERLAY SURFACE PREPARATION FOR POLYESTER POLYMER CONCRETE".
- FOR CLEANING AND PAINTING EXISTING WEATHERING STEEL, POLLUTION CONTROL AND PAINTING CONTAINMENT, SEE "PAINTING EXISTING WEATHERING STEEL STRUCTURE", SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- TOTAL THERMAL MOVEMENT MEASURED PARALLEL TO THE CENTERLINE OF THE ROADWAY.
- WORK ON BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL BELOW. THE CONTRACTOR SHALL SUBMIT PLANS FOR CONSTRUCTION IN ACCORDANCE TO ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS AND THE PROJECT 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 AND/OR TRAFFIC.
- ANY DAMAGE TO EXISTING REINFORCING STEEL, DURING CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AND PERFORMED AT NO ADDITIONAL COST.
- FOR EPOXY COATING, SEE SPECIAL PROVISIONS.
- FOR REPAIRS TO PRESTRESSED CONCRETE GIRDERS, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

MOBILIZATION	INCIDENTAL MILLING	ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	ASPHALT BINDER FOR PLANT MIX	GROOVING BRIDGE FLOORS	* CLASS II SURFACE PREPARATION	SCARIFYING BRIDGE DECK	SHOTBLASTING BRIDGE DECK	* CONCRETE DECK REPAIR FOR PPC OVERLAY	PPC MATERIALS	PLACING AND FINISHING PPC OVERLAY	CLEANING AND PAINTING EXISTING WEATHERING STEEL	POLLUTION CONTROL	PAINTING CONTAINMENT	FOAM JOINT SEAL	EPOXY COATING	SHOTCRETE REPAIRS	REPAIRS TO PRESTRESSED CONCRETE GIRDERS	CLEANING & PAINTING EXISTING BEARING WITH HRCSA	EPOXY RESIN INJECTION	*57 STONE	GEOTEXTILE FOR DRAINAGE
LUMP SUM	SO. YD.	TONS	TONS	SO. FT.	SO. YD.	SO. YD.	SO. YD.	SO. YD.	CU. YD.	SO. YD.	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	SO. FT.	CU. FT.	CU. FT.	EACH	LIN. FT.	TON	SO. YD.
LUMP SUM	311.0	25.2	1.6	32,912.0	50.0	3965.6	3965.6	50.0	109.5	3965.6	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	1,676.2	29.0	128.5	8	31.0	8.0	13.4

* PAY ITEMS HAVE BEEN INCREASED TO INCLUDE A TOKEN AMOUNT FOR SPANS WITH UNIDENTIFIED REPAIRS.

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16

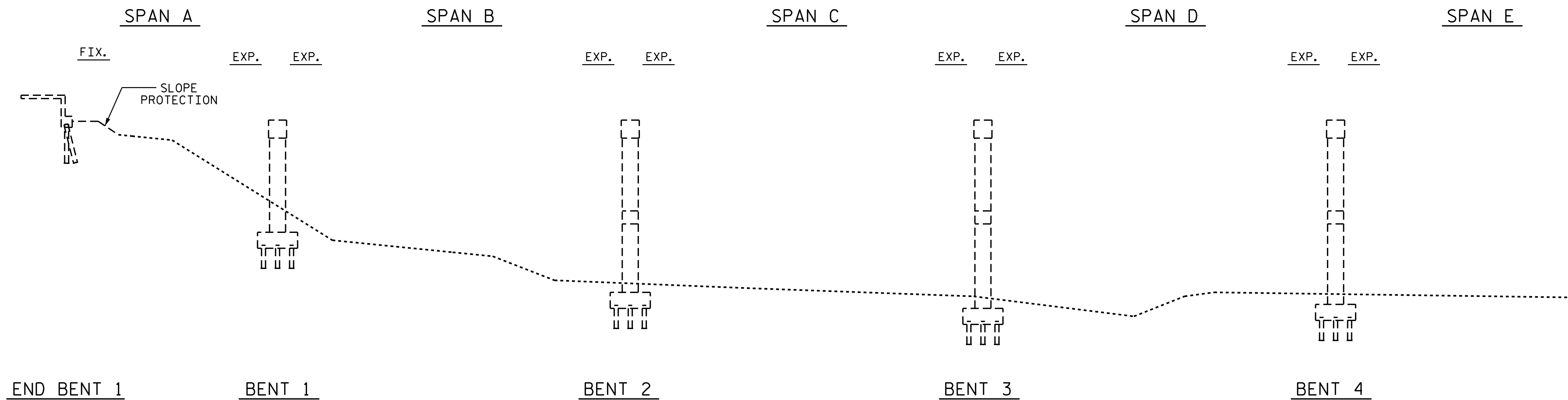


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**GENERAL NOTES
 &
 TOTAL BILL OF MATERIAL**

DRAWN BY : S. T. SANDOR DATE : 02/2018
 CHECKED BY : A. G. ABRAHA DATE : 02/2018

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			34

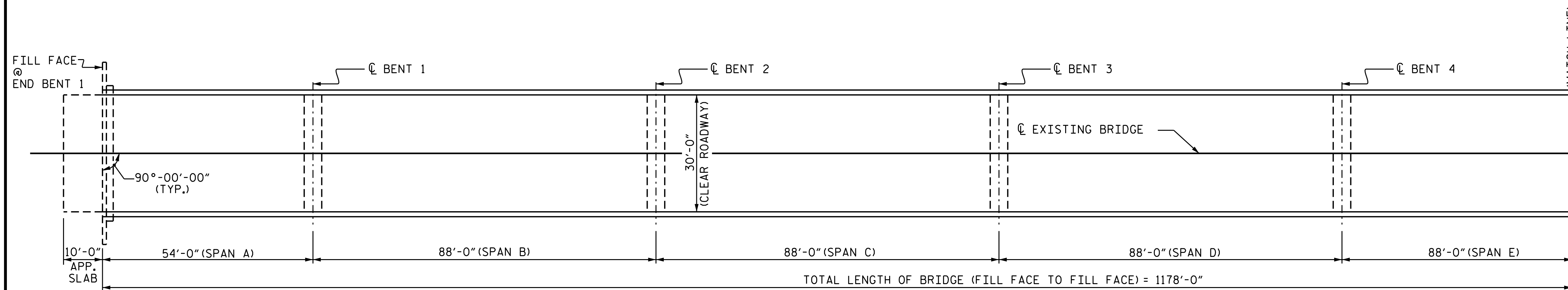
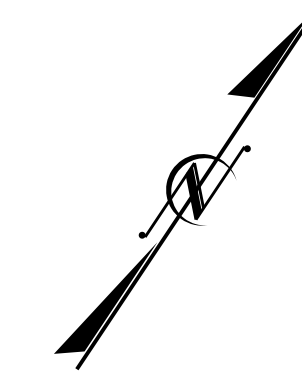


ELEVATION

SECTIONS AT END BENT AND BENTS ARE AT RIGHT ANGLES

SCOPE OF WORK

- PARTIALLY REMOVE BRIDGE DECK CONCRETE BY SCARIFICATION AND SHOTBLASTING METHODS.
- DEMOLISH EXISTING ELASTOMERIC HEADERS.
- PERFORM DECK REPAIRS IN PREPARED AREAS.
- OVERLAY PREPARED BRIDGE DECK WITH POLYESTER POLYMER CONCRETE.
- RECONSTRUCT BRIDGE JOINTS AND INSTALL FOAM JOINT SEALS.
- GROOVE POLYESTER POLYMER CONCRETE.
- SUBSTRUCTURE REPAIRS USING EPOXY RESIN INJECTION AND SHOTCRETE.
- EPOXY COATING OF TOP OF CAPS.



PLAN

COLUMNS AND FOOTINGS NOT SHOWN IN PLAN VIEW FOR CLARITY

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16

SHEET 1 OF 3

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

Resident Engineer _____ Date _____



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 GENERAL DRAWING
 NORTHBOUND LANE BRIDGE OVER
 CAPE FEAR RIVER ON US 701
 NEAR ELIZABETHTOWN

DRAWN BY : S. T. SANDOR DATE : 09/2017
 CHECKED BY : A. G. ABRAHA DATE : 02/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-2
2			4			34

SPAN E

SPAN F

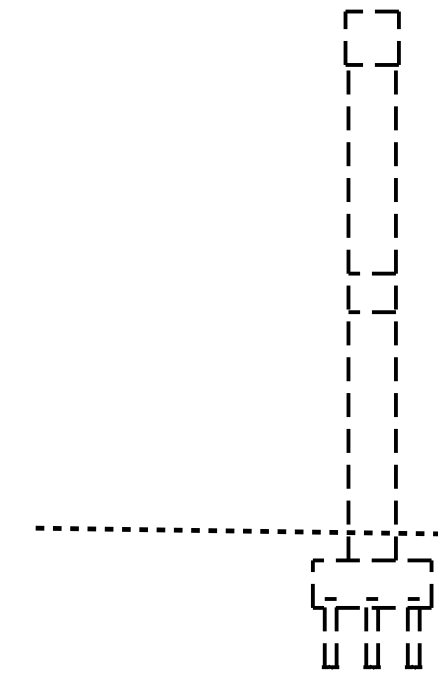
SPAN G

SPAN H

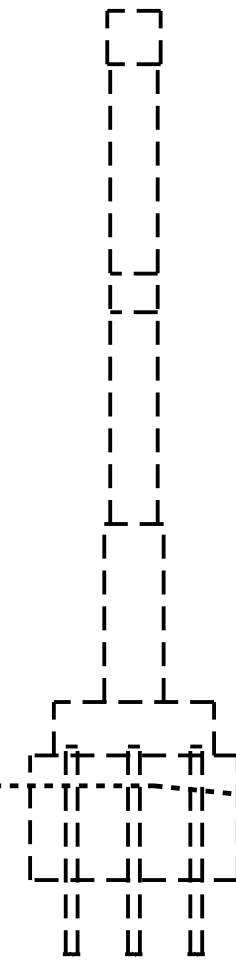
EXP. EXP.

FIX.

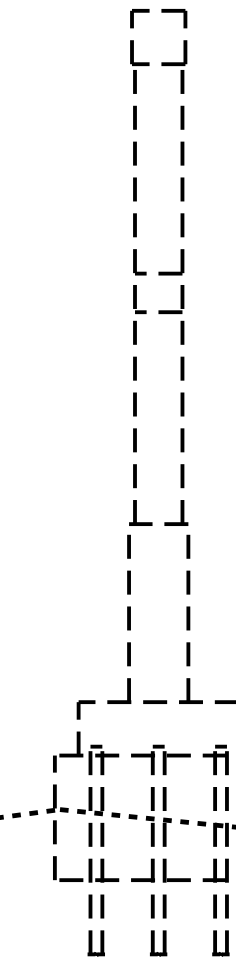
FIX.



BENT 5



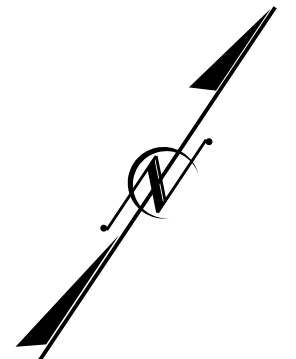
BENT 6



BENT 7

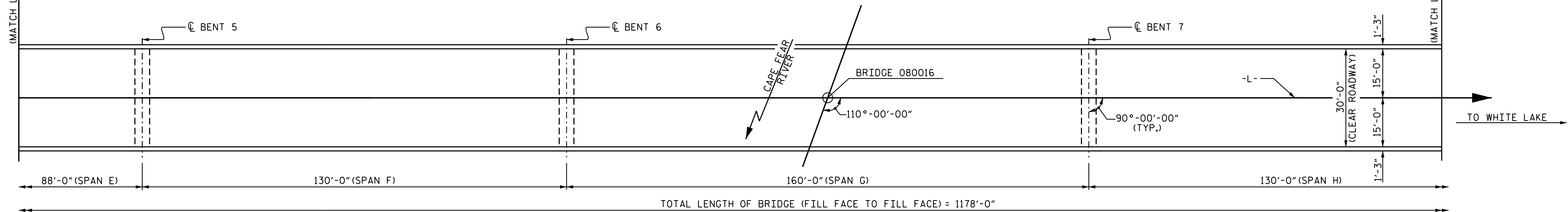
ELEVATION

SECTIONS AT END BENT AND BENTS ARE AT RIGHT ANGLES



(MATCH LINE)

(MATCH LINE)



PLAN

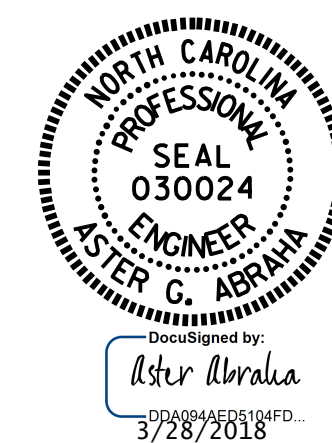
COLUMNS, FOOTINGS AND FENDER SYSTEM NOT SHOWN IN PLAN VIEW FOR CLARITY

PROJECT NO. 15BPR.12

BLADEN COUNTY

BRIDGE NO. 16

SHEET 2 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
GENERAL DRAWING
NORTHBOUND LANE BRIDGE OVER
CAPE FEAR RIVER ON US 701
NEAR ELIZABETHTOWN

DRAWN BY : S. T. SANDOR DATE : 09/2017
CHECKED BY : A. G. ABRAHA DATE : 02/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			34

SPAN H

SPAN I

SPAN J

SPAN K

SPAN L

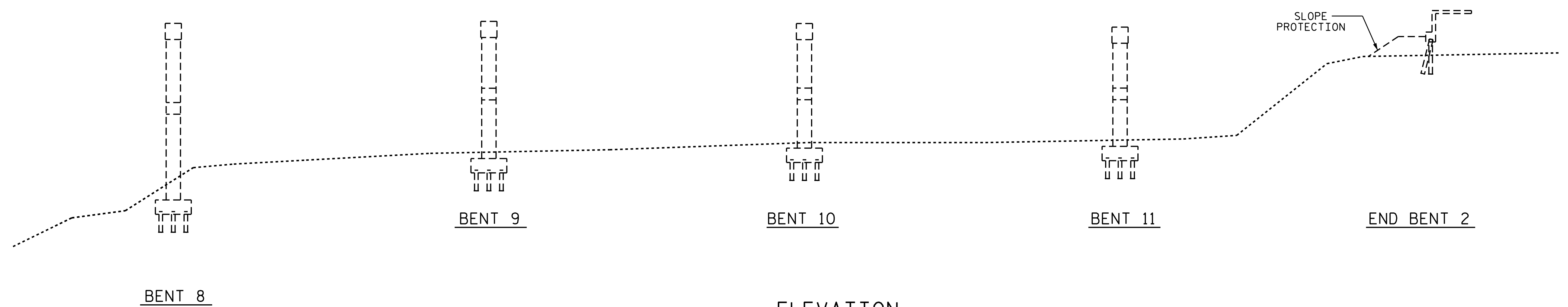
EXP. EXP.

EXP. EXP.

EXP. EXP.

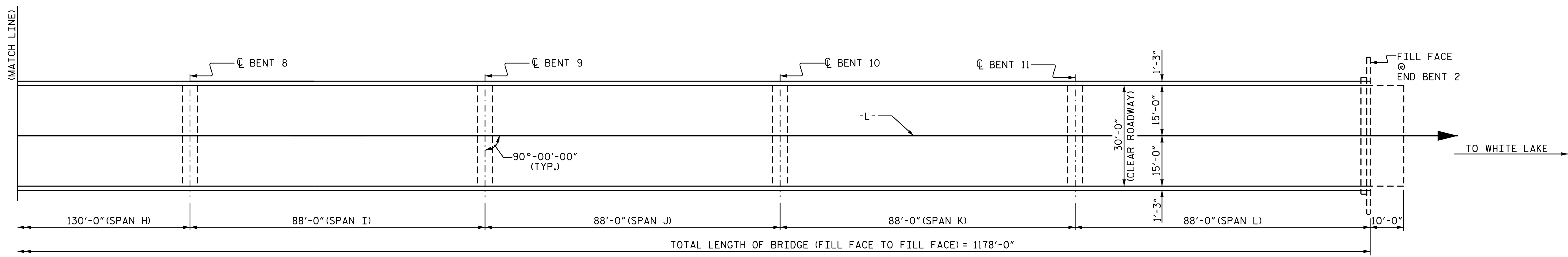
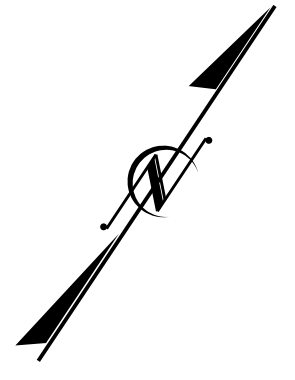
EXP. EXP.

FIX.



ELEVATION

SECTIONS AT END BENT AND BENTS ARE AT RIGHT ANGLES

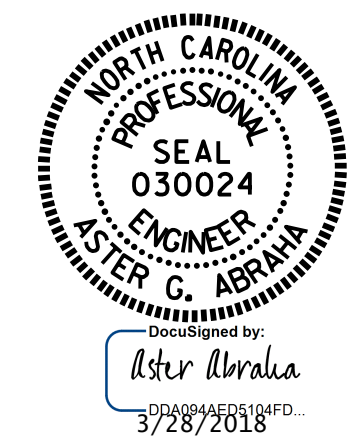


PLAN

COLUMNS AND FOOTINGS NOT SHOWN IN PLAN VIEW FOR CLARITY

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16

SHEET 3 OF 3



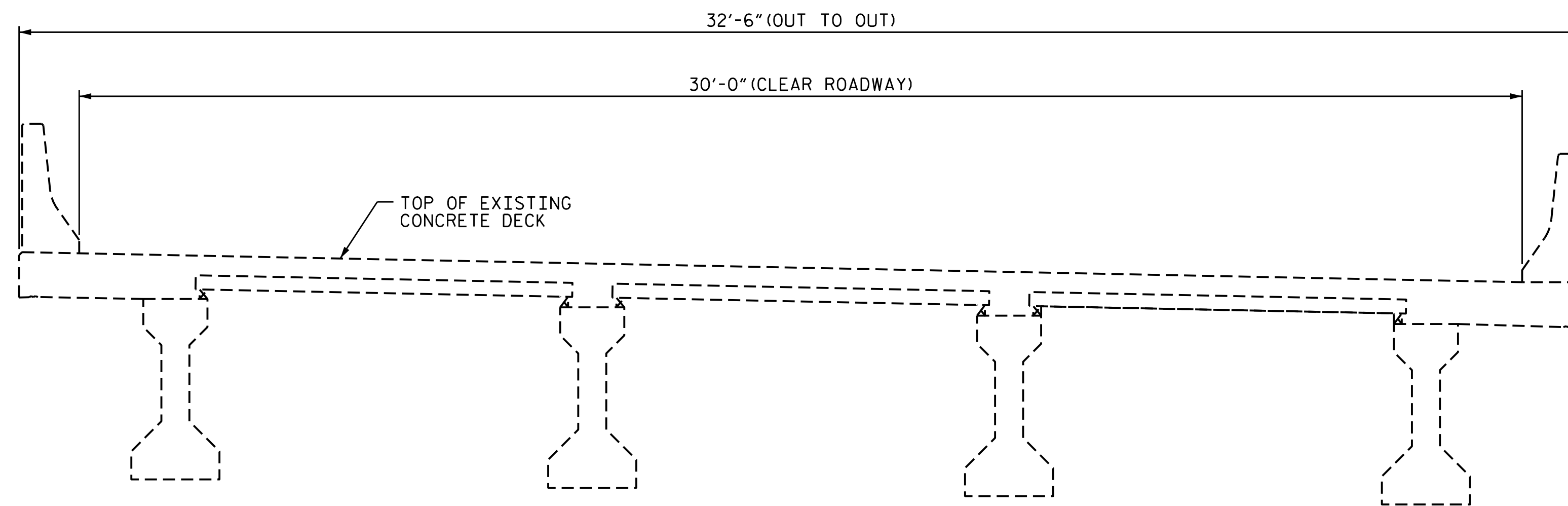
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 NORTHBOUND LANE BRIDGE OVER
 CAPE FEAR RIVER ON US 701
 NEAR ELIZABETHTOWN

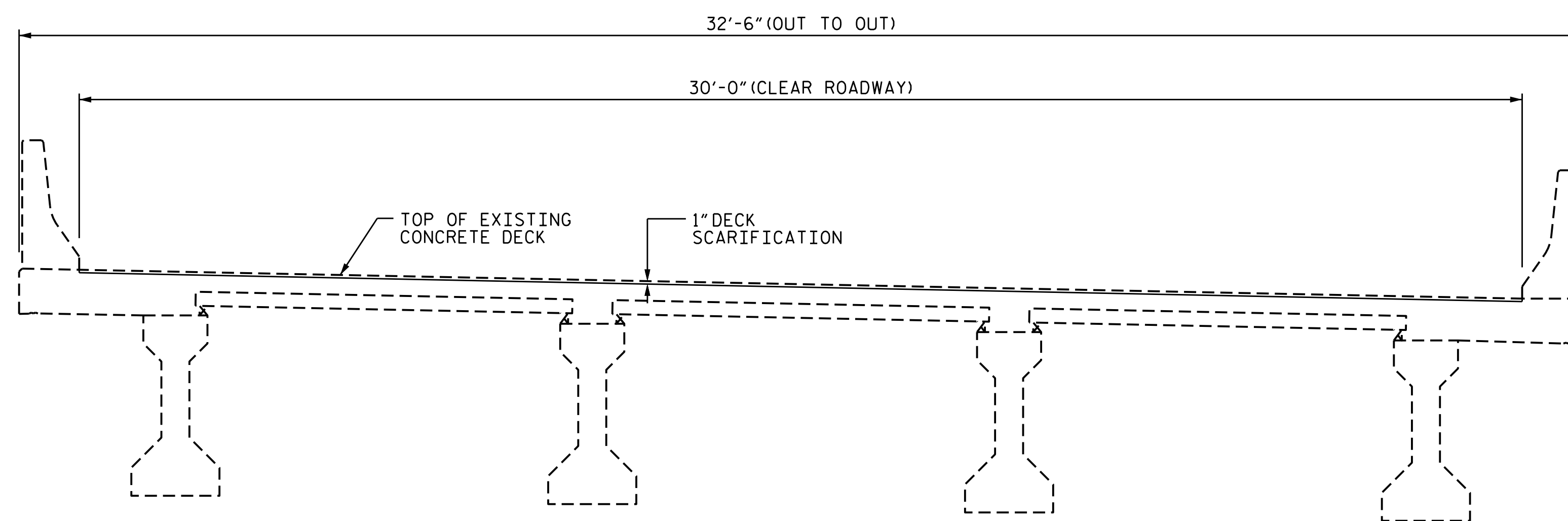
DRAWN BY : S. T. SANDOR DATE : 09/2017
 CHECKED BY : A. G. ABRAHA DATE : 02/2018

DOCUMENT NOT CONSIDERED
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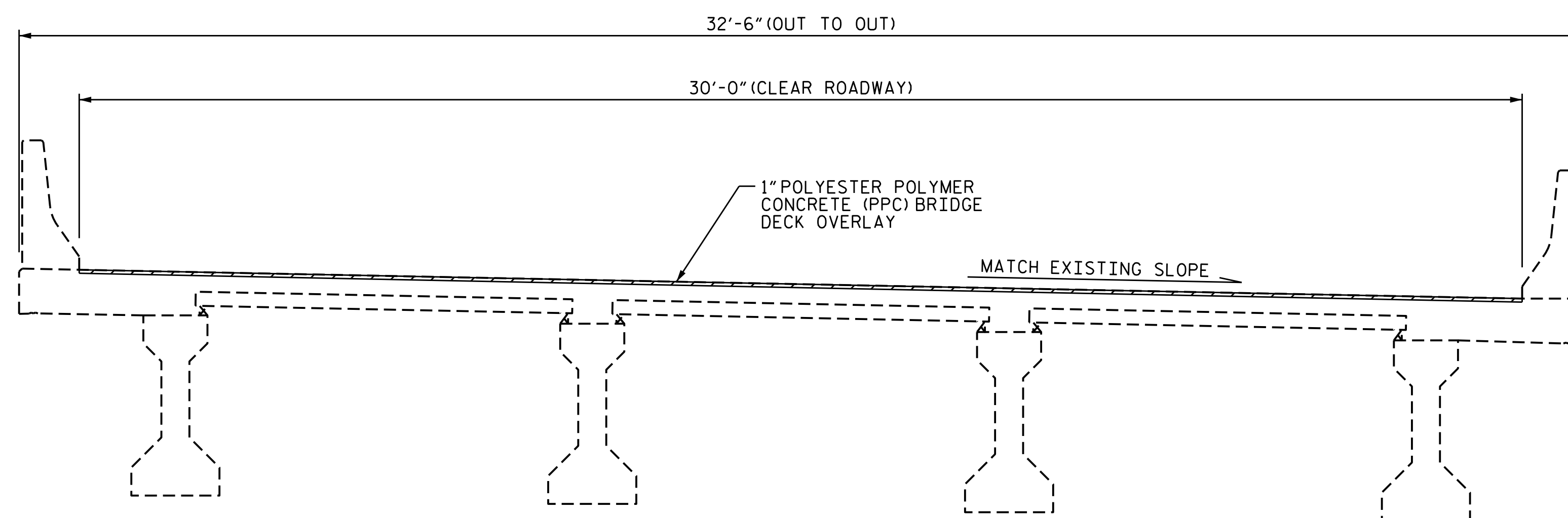
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TYPICAL SECTION - SPAN A -
(EXISTING)



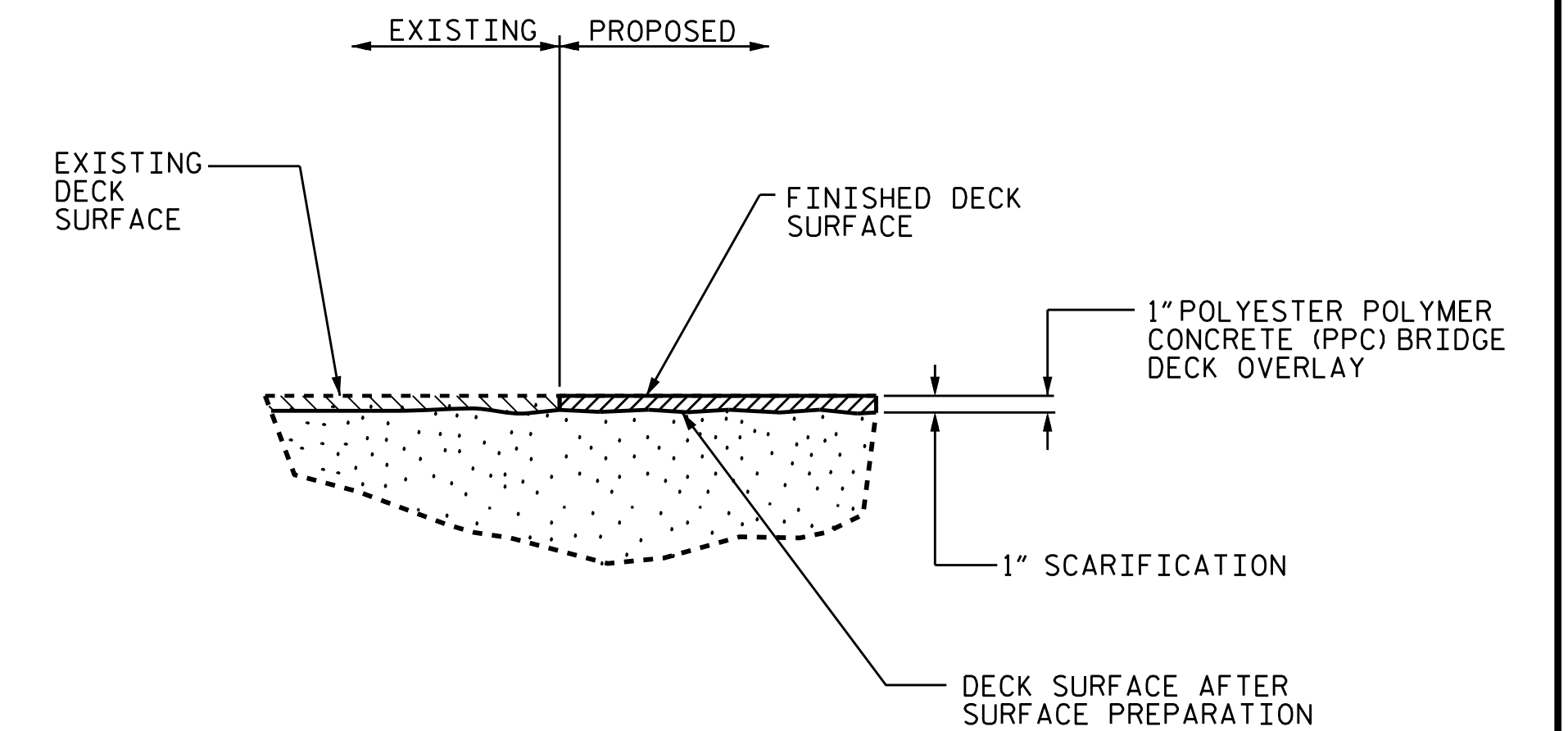
TYPICAL SECTION - SPAN A -
(SCARIFICATION)



TYPICAL SECTION - SPAN A -
(PROPOSED)

NOTES

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYESTER POLYMER CONCRETE (PPC) SYSTEM AND SURFACE PREPARATION.



DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

PROJECT NO. 15BPR.12
BLADEN COUNTY
BRIDGE NO. 16

SHEET 1 OF 3



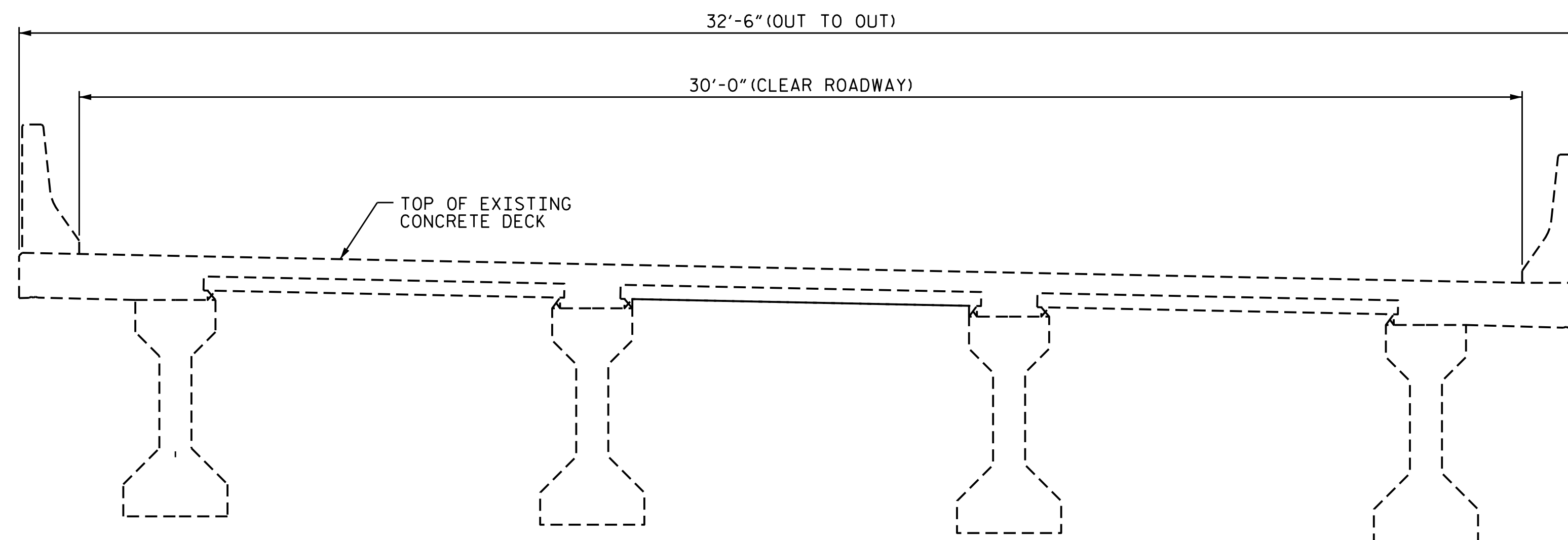
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
TYPICAL SECTION
SPAN A

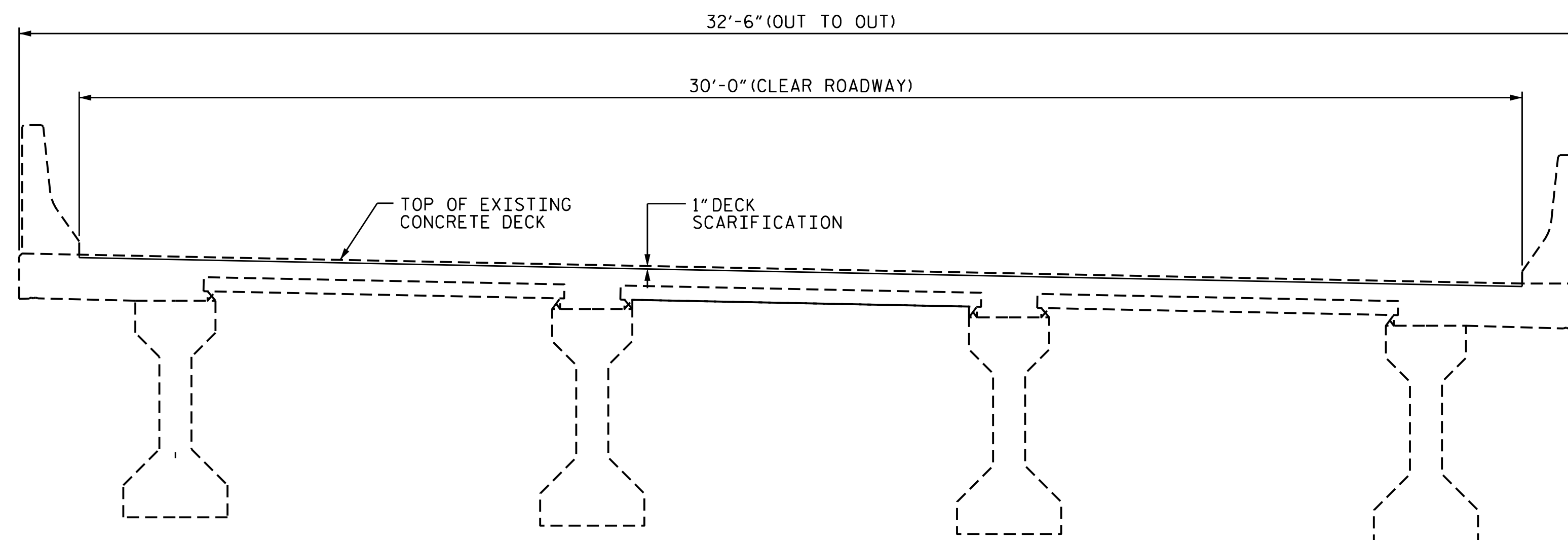
DRAWN BY : S. T. SANDOR DATE : 07/2017
CHECKED BY : A. G. ABRAHA DATE : 01/2018

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

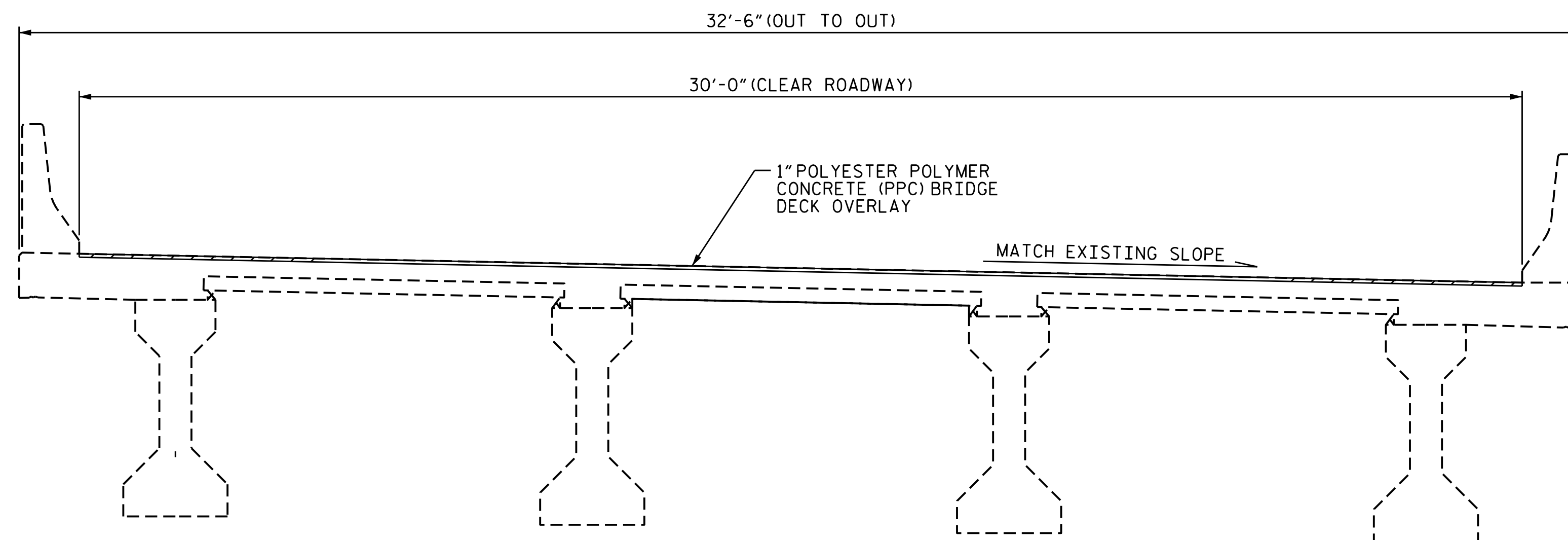
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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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2			4			34



TYPICAL SECTION
(EXISTING)



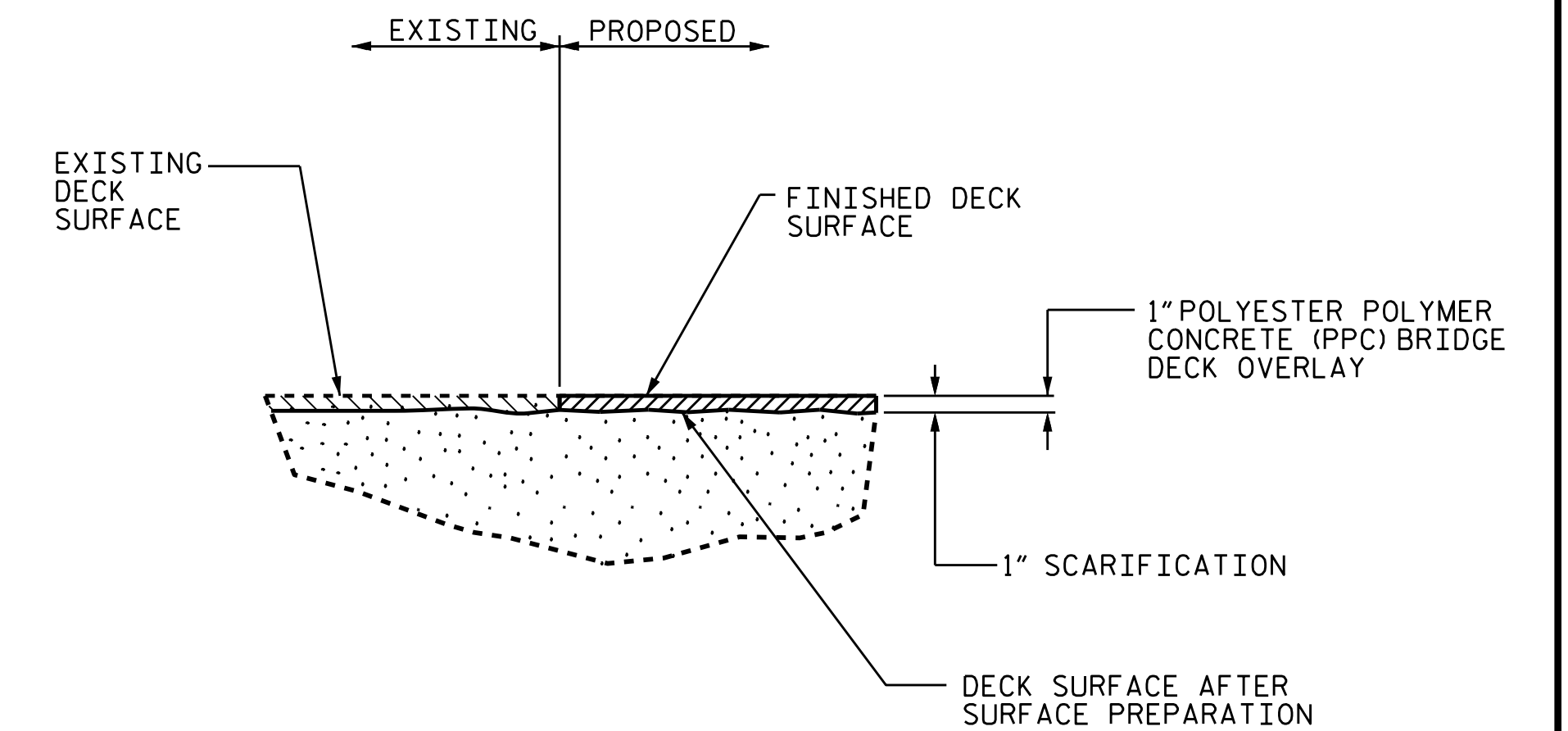
TYPICAL SECTION
(SCARIFICATION)



TYPICAL SECTION
(PROPOSED)

NOTES

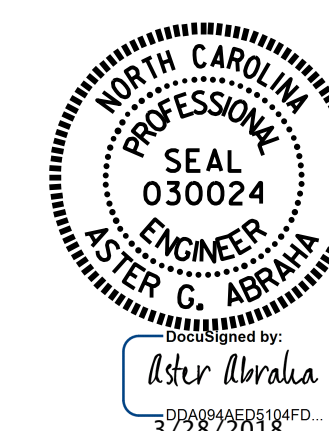
SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYESTER POLYMER CONCRETE (PPC) SYSTEM AND SURFACE PREPARATION.



DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16

SHEET 2 OF 3

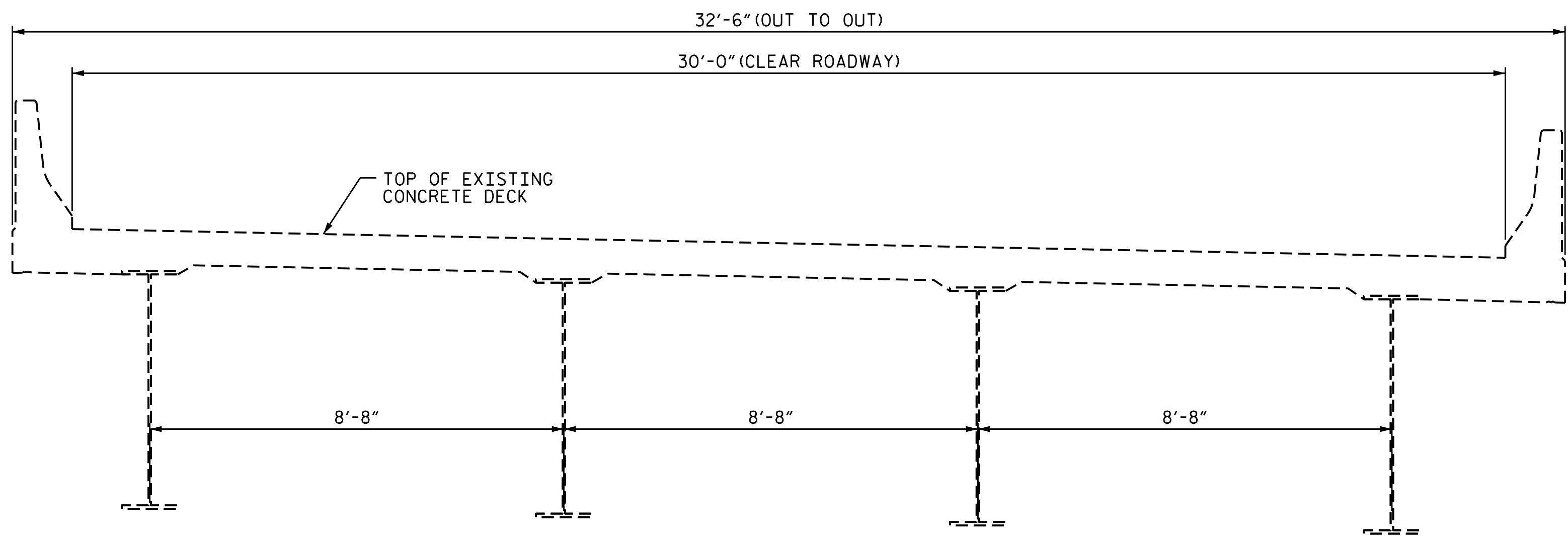


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUPERSTRUCTURE
 TYPICAL SECTION
 SPANS B THRU E &
 SPANS I THRU L

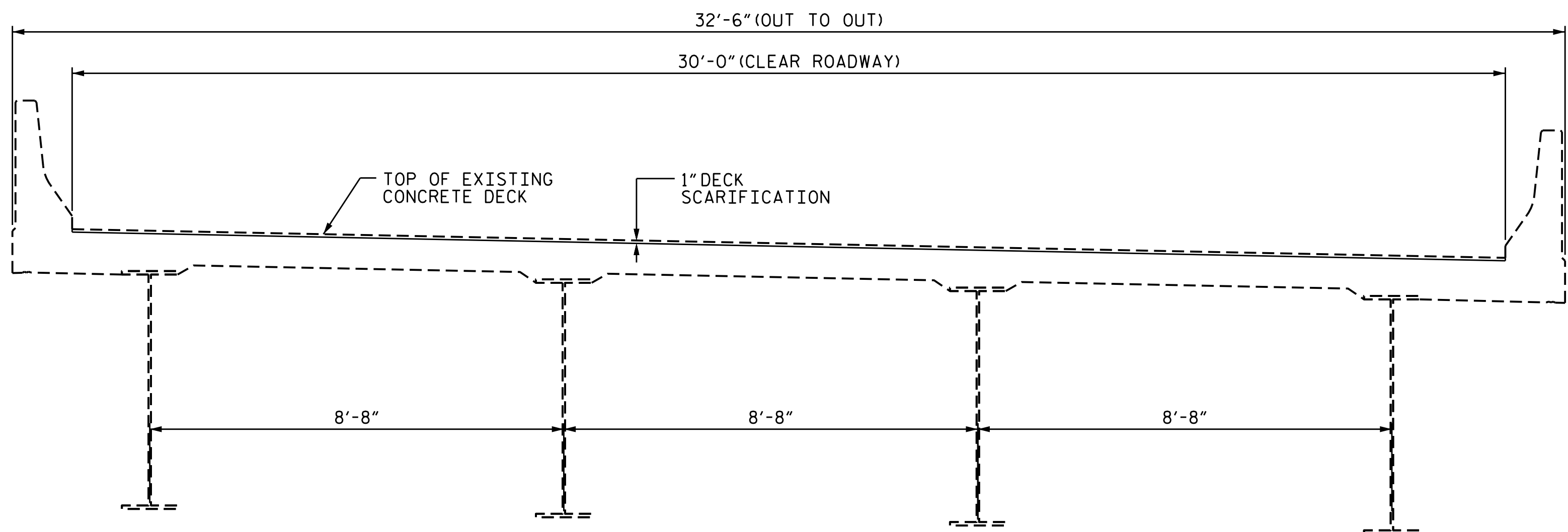
DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA DATE : 01/2018

DOCUMENT NOT CONSIDERED
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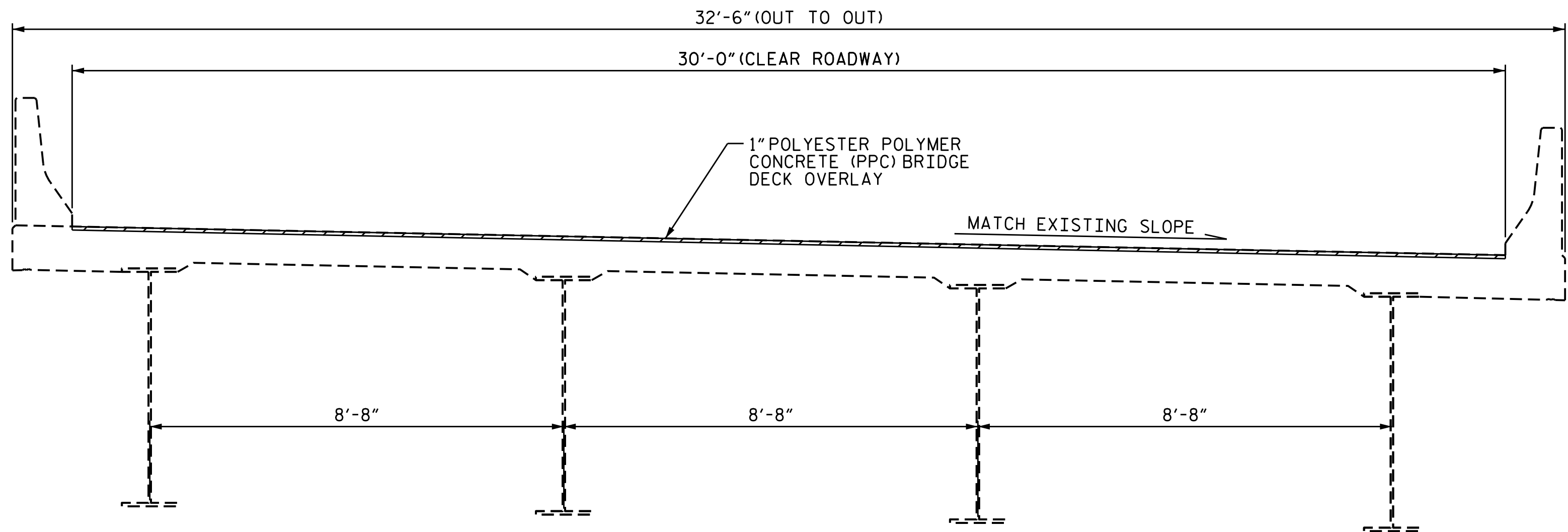
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TYPICAL SECTION - SPANS F THRU H
(EXISTING)



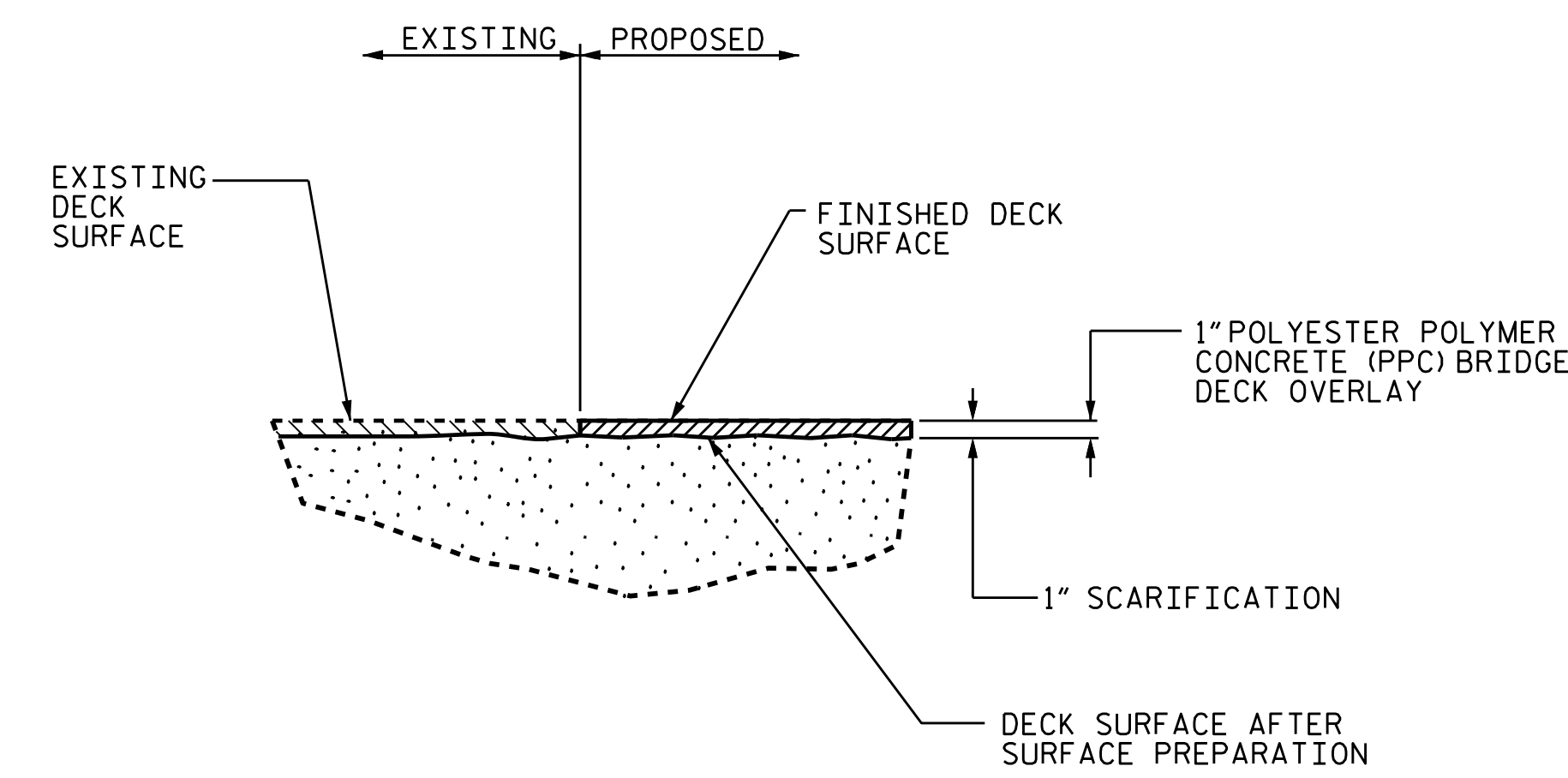
TYPICAL SECTION - SPANS F THRU H
(SCARIFICATION)



TYPICAL SECTION - SPANS F THRU H
(PROPOSED)

NOTES

SEE TRAFFIC MANAGEMENT PLANS FOR LANE WIDTHS, SEQUENCING AND OTHER TRAFFIC CONTROL MEASURES FOR STAGING OF POLYESTER POLYMER CONCRETE (PPC) SYSTEM AND SURFACE PREPARATION.



DETAIL FOR POLYESTER POLYMER CONCRETE OVERLAY

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE

TYPICAL SECTION
 SPANS F THRU H

DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA DATE : 01/2018

DOCUMENT NOT CONSIDERED
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REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7	
1			3			TOTAL SHEETS	
2			4			34	

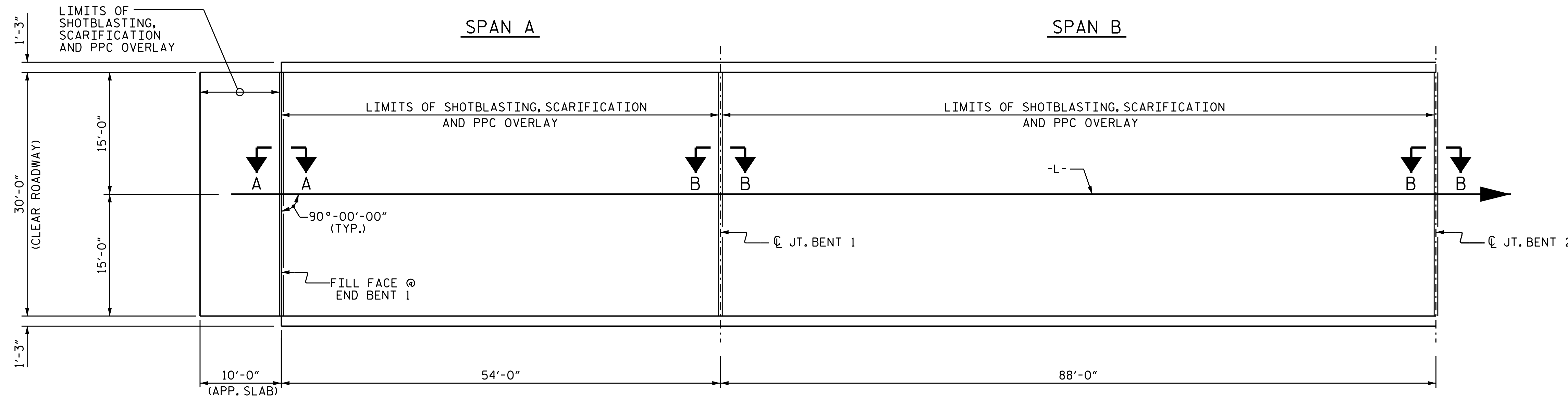
NOTE:
 APPROACH SLAB COVERED WITH THIN LAYER
 OF ASPHALT OVERLAY TO BE REMOVED
 BY SCARIFICATION AND SHOTBLASTING.

SUMMARY OF QUANTITIES

APP. SLAB 1 THRU SPAN D

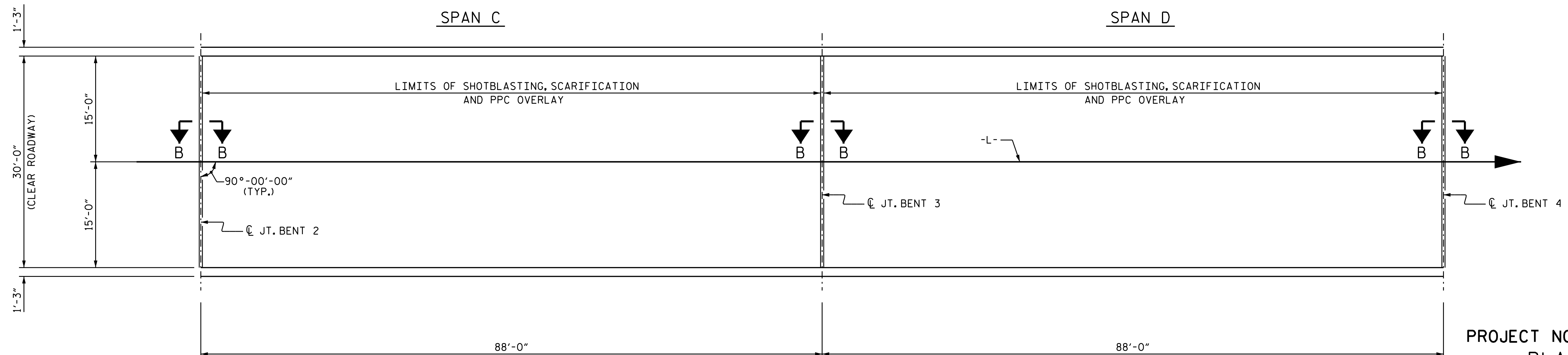
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	1,083.8 SY	
CLASS II SURFACE PREPARATION	* 10.0 SY	
SHOTBLASTING BRIDGE DECK	1,083.8 SY	
PPC MATERIALS	30.1 CY	
PLACING & FINISHING PPC OVERLAY	1,083.8 SY	
BRIDGE DECK GROOVING	8739.0 SF	
CONCRETE DECK REPAIR	* 10.0 SY	

* CLASS II SURFACE PREPARATION AND DECK REPAIR FOR PPC OVERLAY IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE FOR REPAIR AREAS THAT ARE ENCOUNTERED.



PLAN OF SPANS

(FOR SECTIONS A-A & B-B,
 SEE "JOINT DETAILS" SHEET S-13)



PLAN OF SPANS

(FOR SECTION B-B,
 SEE "JOINT DETAILS" SHEET S-13)

PROJECT NO. 15BPR.12

BLADEN COUNTY

BRIDGE No. 16

SHEET 1 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 SURFACE PREPARATION
 & PPC OVERLAY

DRAWN BY : S. T. SANDOR DATE : 09/2017
 CHECKED BY : A. G. ABRAHA DATE : 12/2017

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

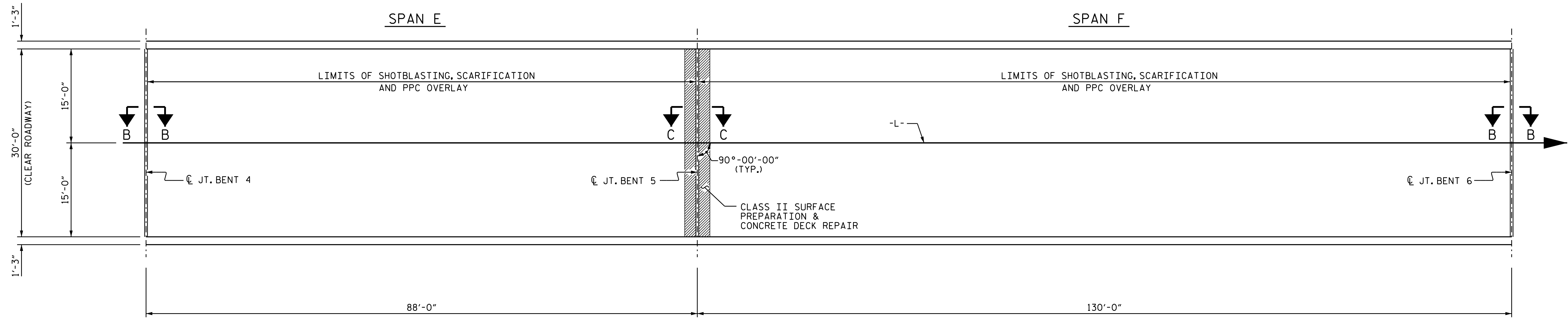
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			34

SUMMARY OF QUANTITIES

SPANS E AND F

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	722.2 SY	
CLASS II SURFACE PREPARATION	* 10.0 SY	
SHOTBLASTING BRIDGE DECK	722.2 SY	
PPC MATERIALS	20.1 CY	
PLACING & FINISHING PPC OVERLAY	722.2 SY	
BRIDGE DECK GROOVING	5,850.0 SF	
CONCRETE DECK REPAIR	* 10.0 SY	

* PAY ITEMS HAVE BEEN INCREASED TO INCLUDE A TOKEN AMOUNT FOR SPANS WITH UNIDENTIFIED REPAIRS.



PLAN OF SPAN

(FOR SECTION B-B & C-C, SEE "JOINT DETAILS" SHEET S-13)

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE No. 16

SHEET 2 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 SURFACE PREPARATION
 & PPC OVERLAY

DRAWN BY : S. T. SANDOR DATE : 09/2017
 CHECKED BY : A. G. ABRAHA DATE : 12/2017

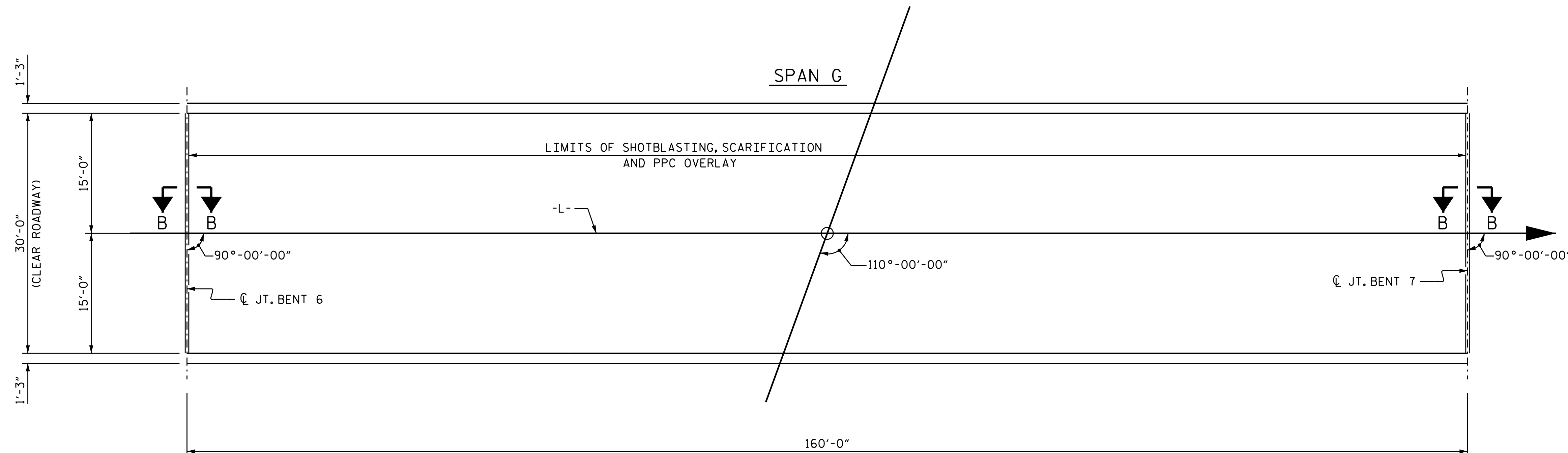
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			34

SUMMARY OF QUANTITIES

SPAN G		
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	533.0 SY	
CLASS II SURFACE PREPARATION	* 10.0 SY	
SHOTBLASTING BRIDGE DECK	533.0 SY	
PPC MATERIALS	14.8 CY	
PLACING & FINISHING PPC OVERLAY	533.0 SY	
BRIDGE DECK GROOVING	4,302.0 SF	
CONCRETE DECK REPAIR	* 10.0 SY	

* CLASS II SURFACE PREPARATION AND DECK REPAIR FOR PPC OVERLAY IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE INDICATED FOR PRICING PURPOSE FOR REPAIR AREAS THAT ARE ENCOUNTERED.



PLAN OF SPAN
(FOR SECTION B-B,
SEE "JOINT DETAILS" SHEET S-13)

PROJECT NO. 15BPR.12
BLADEN COUNTY
BRIDGE No. 16

SHEET 3 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
SURFACE PREPARATION
& PPC OVERLAY

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-10
2			4			TOTAL SHEETS 34

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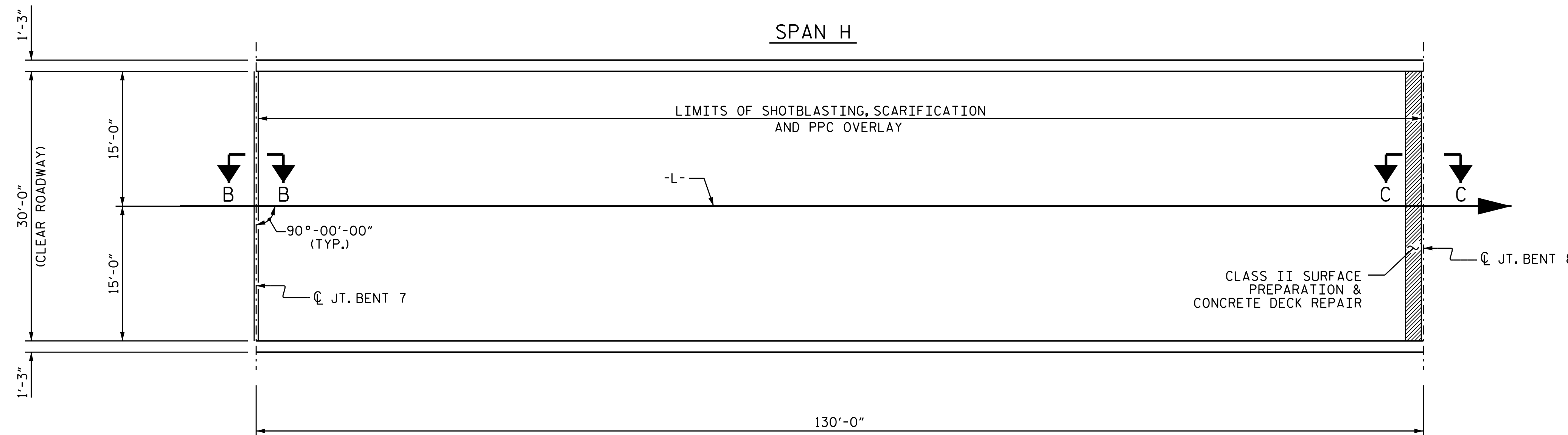
DRAWN BY : S. T. SANDOR DATE : 09/2017
CHECKED BY : A. G. ABRAHA DATE : 12/2017

SUMMARY OF QUANTITIES

SPANS H, I AND J

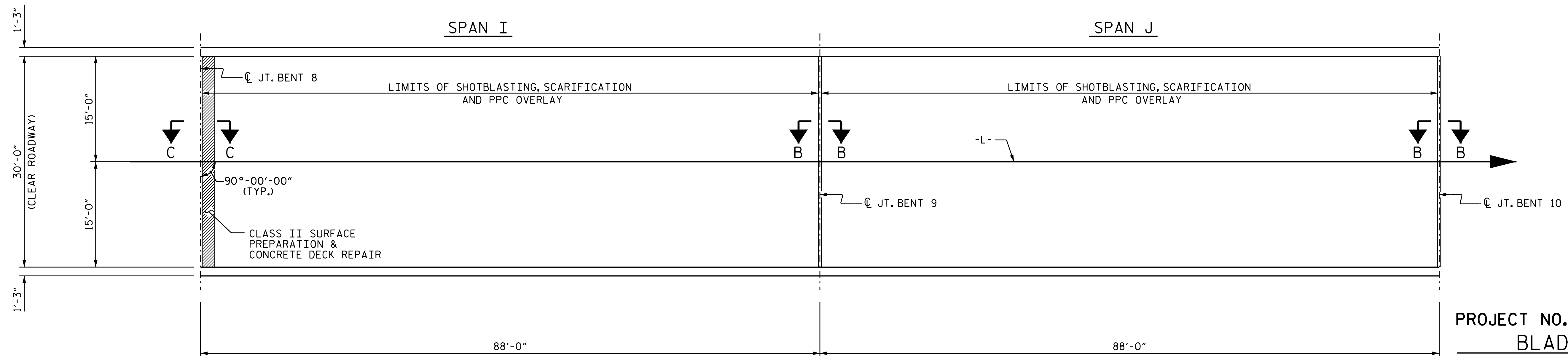
	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	1,013.3 SY	
CLASS II SURFACE PREPARATION	* 10.0 SY	
SHOTBLASTING BRIDGE DECK	1,013.3 SY	
PPC MATERIALS	27.4 CY	
PLACING & FINISHING PPC OVERLAY	1,013.3 SY	
BRIDGE DECK GROOVING	9,120.0 SF	
CONCRETE DECK REPAIR	* 10.0 SY	

* PAY ITEMS HAVE BEEN INCREASED TO INCLUDE A TOKEN AMOUNT FOR SPANS WITH UNIDENTIFIED REPAIRS.



PLAN OF SPAN

(FOR SECTION B-B & C-C, SEE "JOINT DETAILS" SHEET S-13)



PLAN OF SPAN

(FOR SECTION B-B & C-C, SEE "JOINT DETAILS" SHEET S-13)

PROJECT NO. 15BPR.12

BLADEN COUNTY

BRIDGE No. 16

SHEET 4 OF 5



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
SURFACE PREPARATION
& PPC OVERLAY

DRAWN BY : S. T. SANDOR DATE : 09/2017
CHECKED BY : A. G. ABRAHA DATE : 12/2017

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REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			34

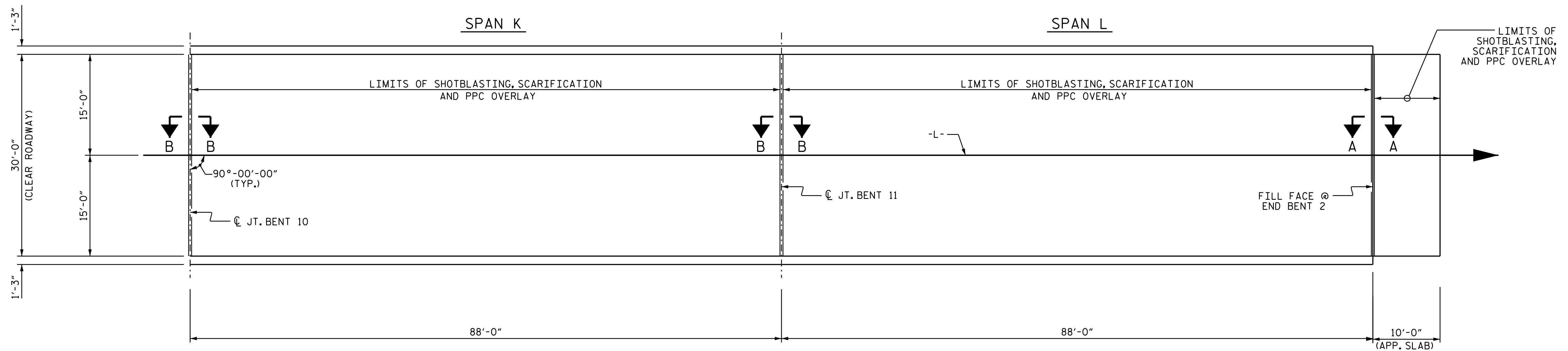
NOTE:
 APPROACH SLAB COVERED WITH A THIN LAYER
 OF ASPHALT OVERLAY TO BE REMOVED
 BY SCARIFICATION AND SHOTBLASTING.

SUMMARY OF QUANTITIES

SPAN K THRU APP. SLAB 2

	ESTIMATE	ACTUAL
SCARIFYING BRIDGE DECK	613.0 SY	
CLASS II SURFACE PREPARATION	* 10.0 SY	
SHOTBLASTING BRIDGE DECK	613.0 SY	
PPC MATERIALS	17.1 CY	
PLACING & FINISHING PPC OVERLAY	613.0 SY	
BRIDGE DECK GROOVING	4,901.0 SF	
CONCRETE DECK REPAIR	* 10.0 SY	

* CLASS II SURFACE PREPARATION AND DECK REPAIR FOR
 PPC OVERLAY IS NOT ANTICIPATED. TOKEN PAY ITEMS ARE
 INDICATED FOR PRICING PURPOSE FOR REPAIR AREAS THAT
 ARE ENCOUNTERED.



PLAN OF SPAN

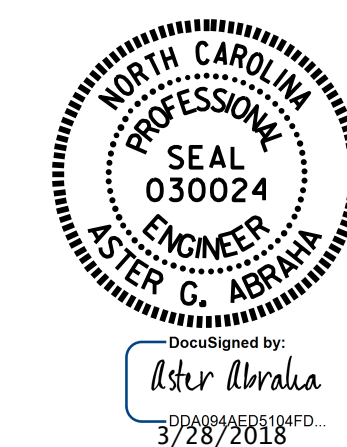
(FOR SECTIONS A-A & B-B,
 SEE "JOINT DETAILS" SHEET S-13)

PROJECT NO. 15BPR.12

BLADEN COUNTY

BRIDGE No. 16

SHEET 5 OF 5



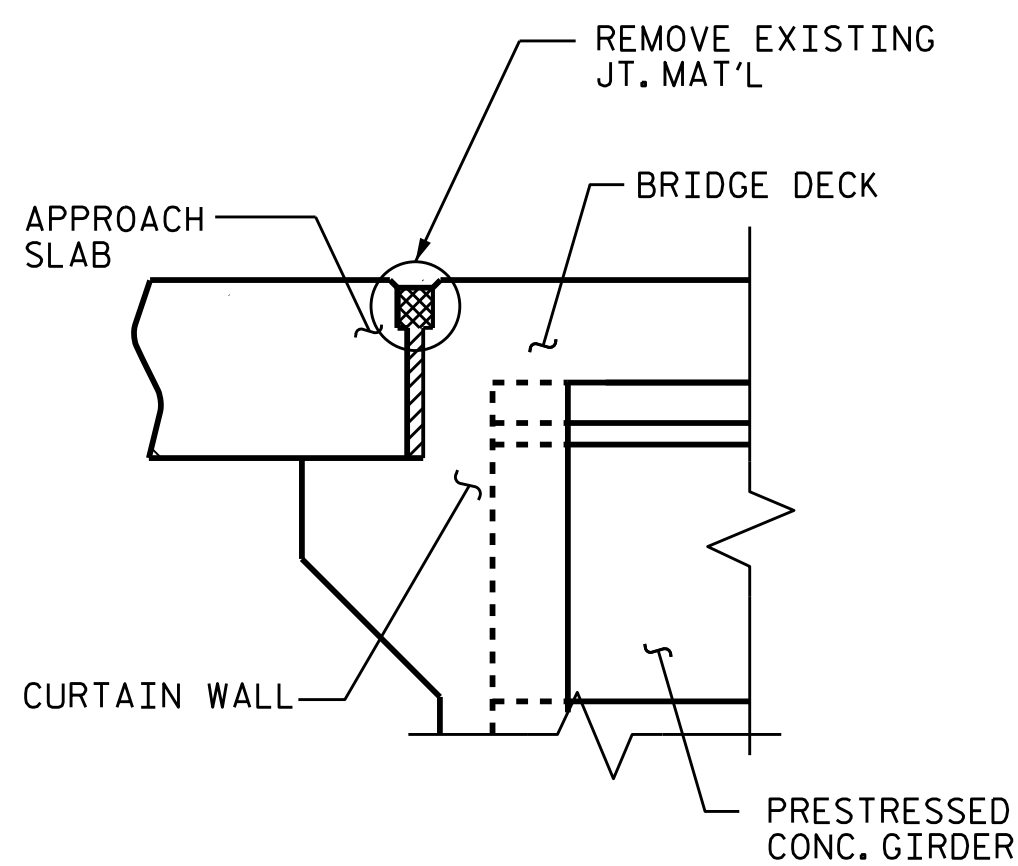
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 SURFACE PREPARATION
 & PPC OVERLAY

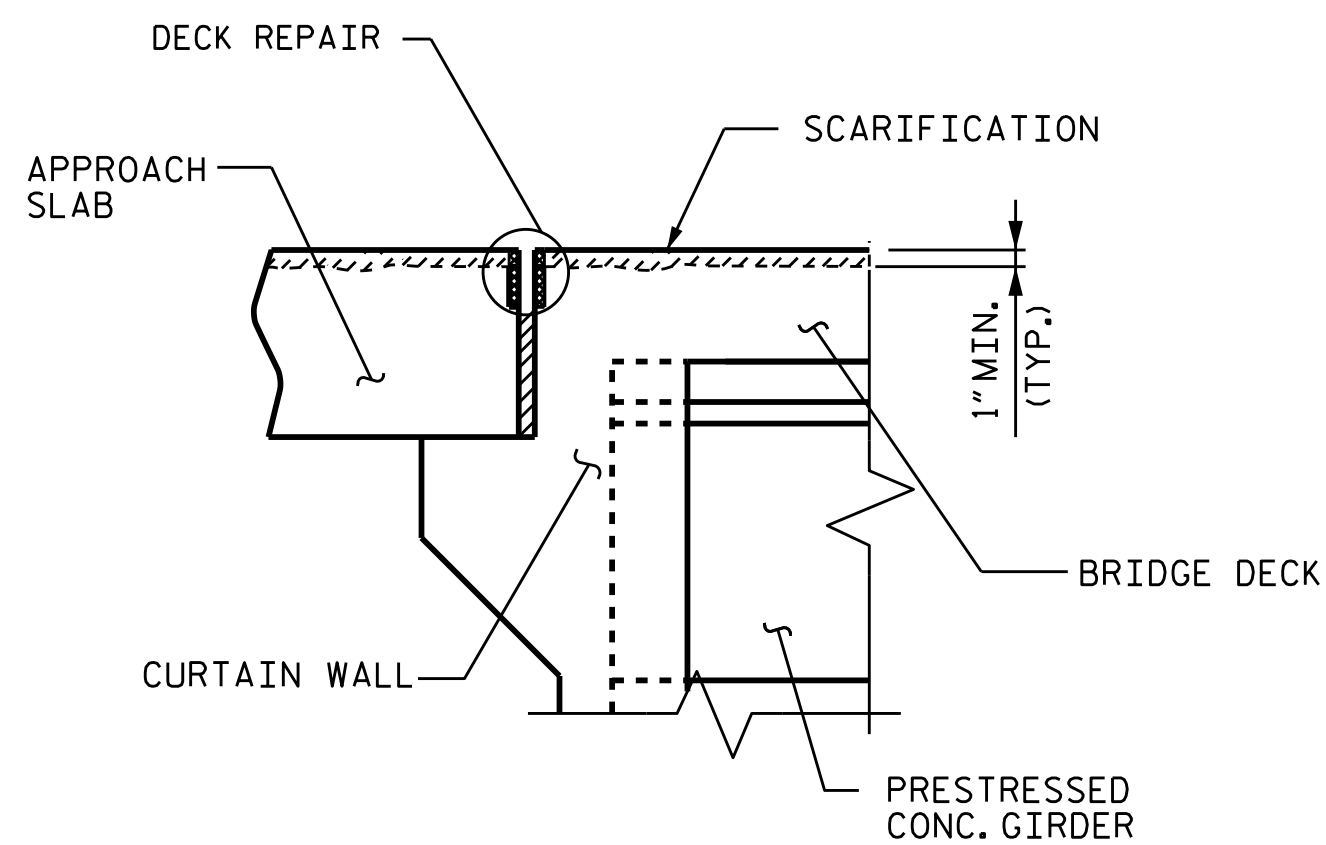
DRAWN BY : S. T. SANDOR DATE : 09/2017
 CHECKED BY : A. G. ABRAHA DATE : 12/2017

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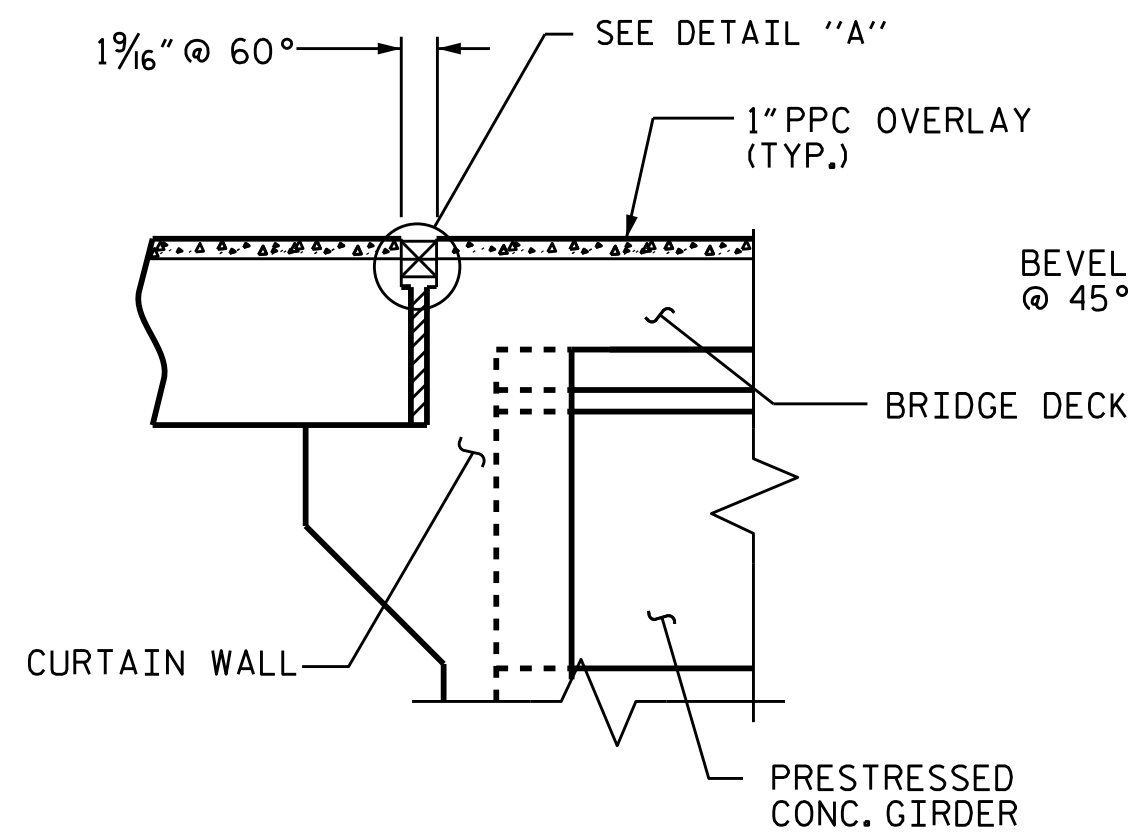
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
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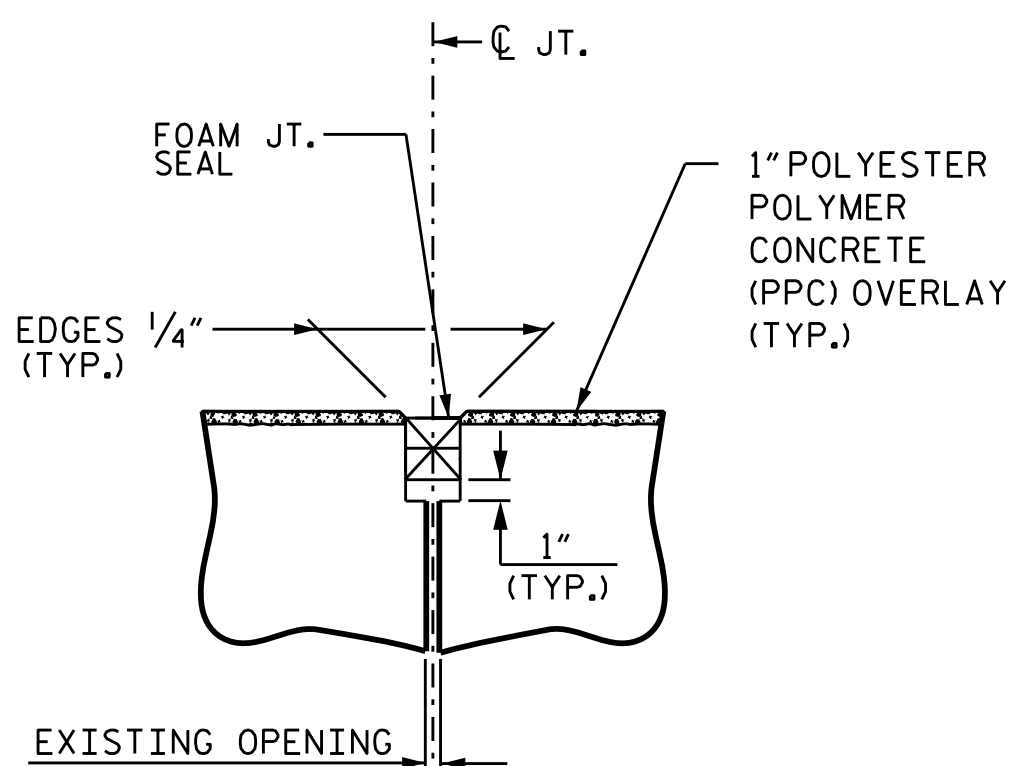
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION



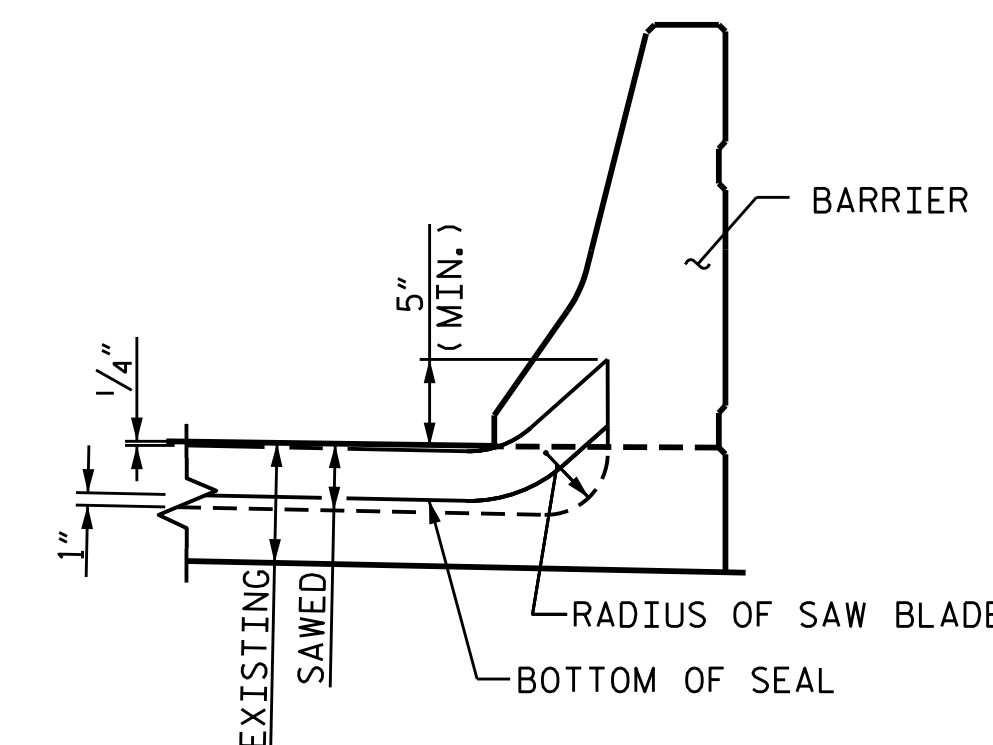
PROPOSED JOINT



DETAIL A (PROPOSED)

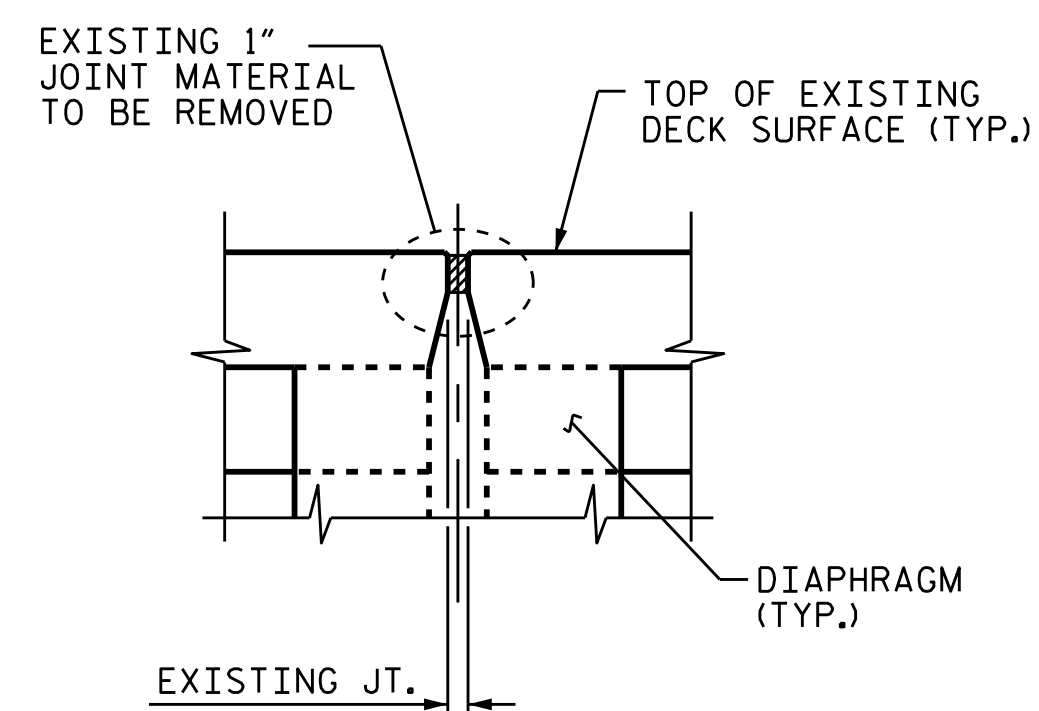
NOTES:

CONTRACTOR SHALL FIELD VERIFY THE EXISTING FORMED OPENING PRIOR TO OBTAINING JOINT MATERIAL. FOR FOAM JOINT SEALS SEE SPECIAL PROVISIONS. UNLESS NOTED OTHERWISE RETAIN ALL EXISTING REINFORCING STEEL. CLEAN AND REPAIR AS NEEDED. THE UNCOMPRESSED SEAL WIDTH AT END BENTS AND BENTS 1, 2, 3, 4, 9, 10 & 11 IS 2". THE UNCOMPRESSED SEAL WIDTH AT BENTS 5 & 8 IS 3 1/2".

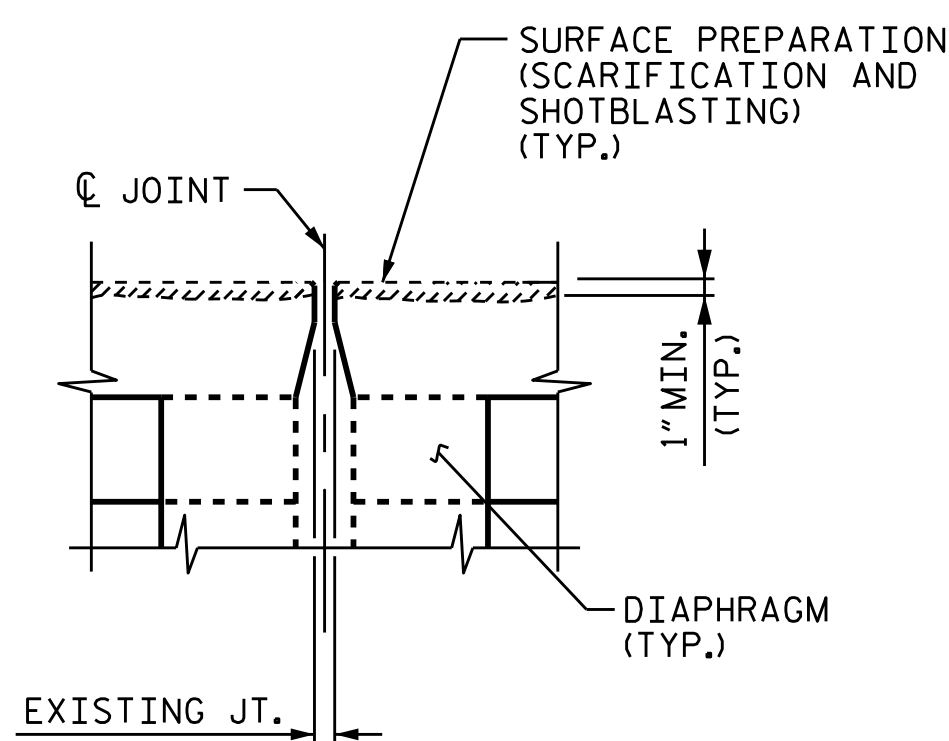


SECTION F-F

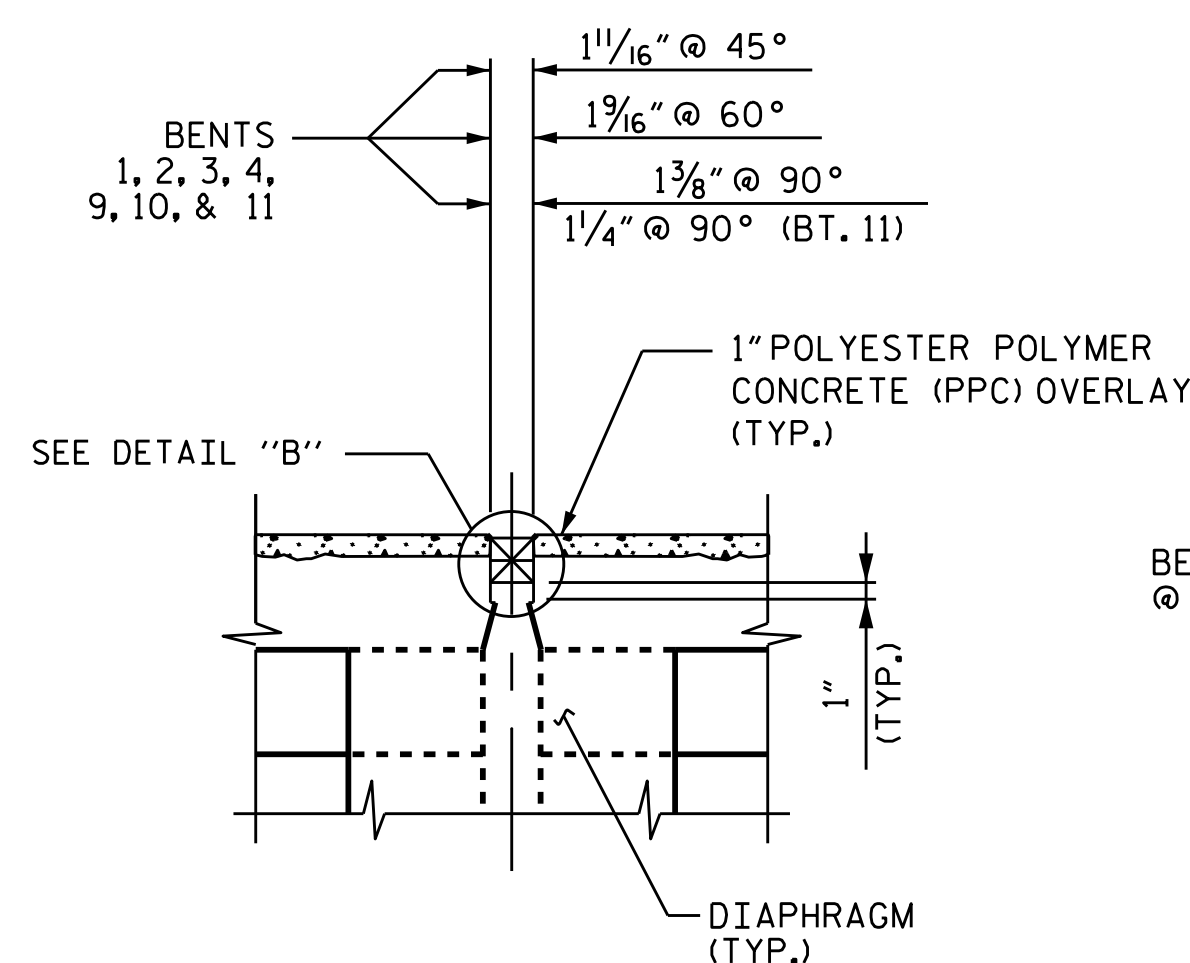
FOAM JOINT SEAL	
	LENGTH (FT.)
END BENTS	60.0
BENTS	330.0
TOTAL	390.0



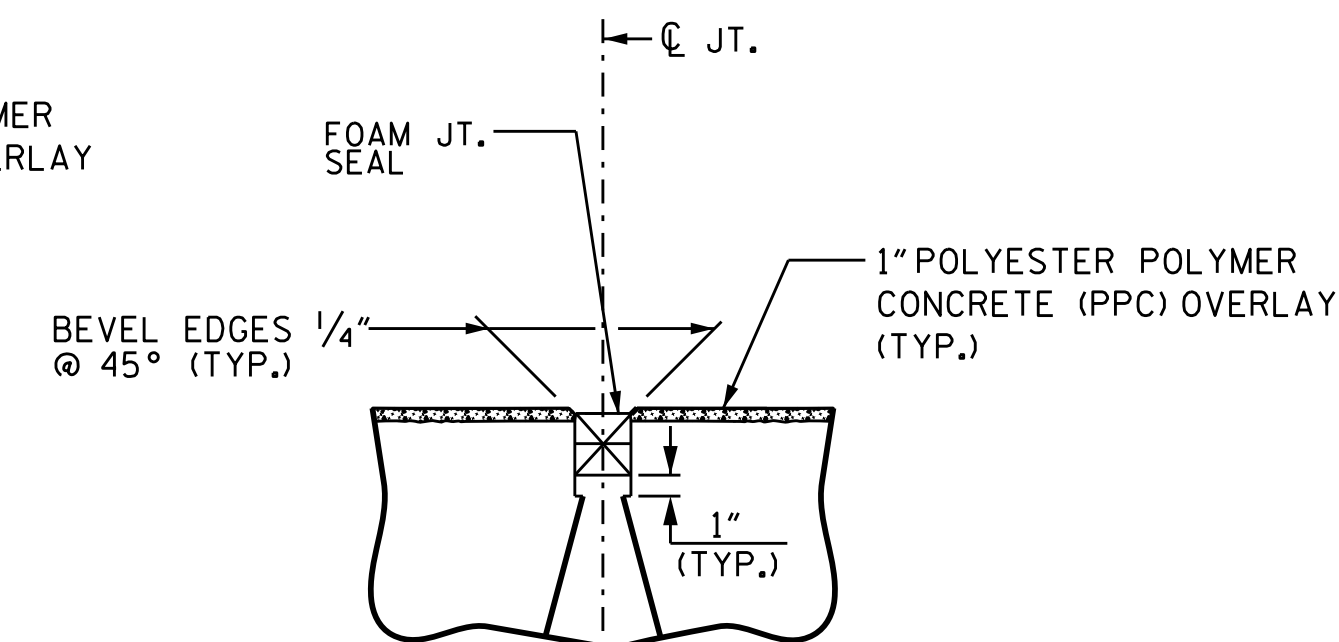
EXISTING JOINT



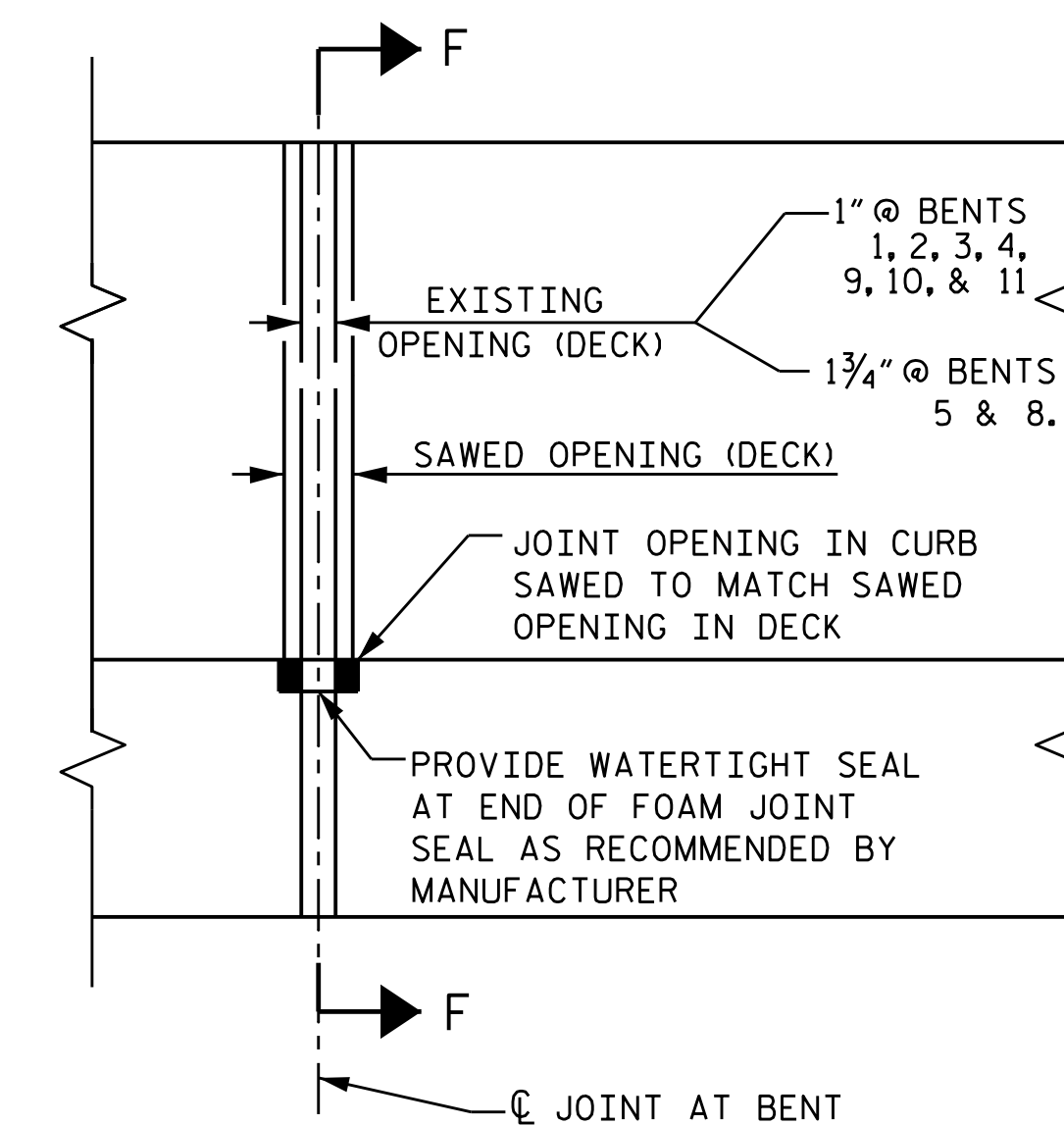
MINIMUM EXISTING JOINT DEMOLITION



PROPOSED JOINT



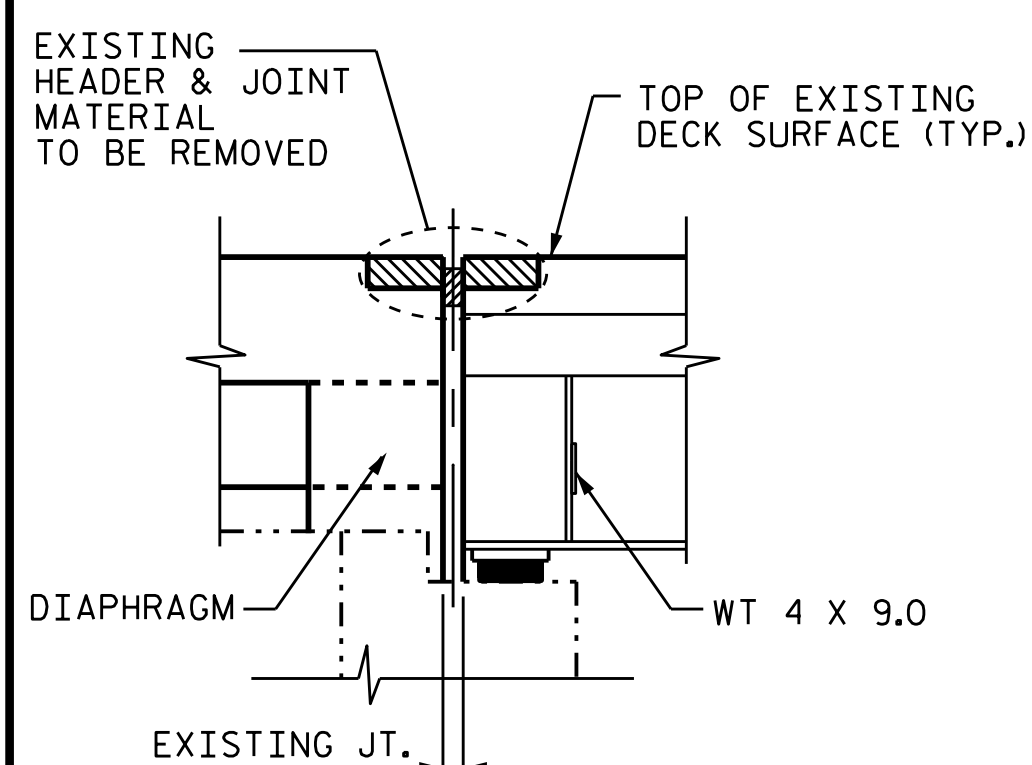
DETAIL B (PROPOSED)



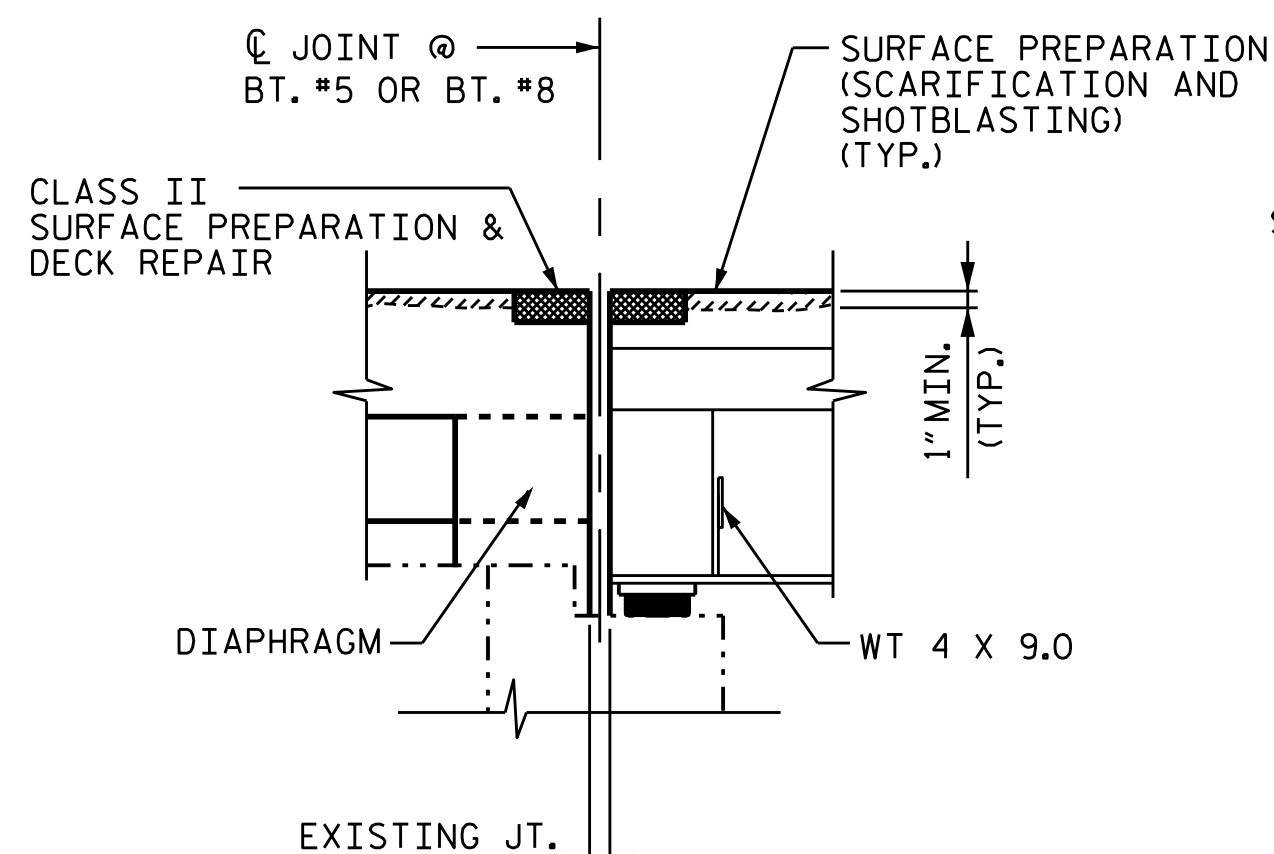
PLAN

JOINT INSTALLATION SEQUENCE AT BENTS

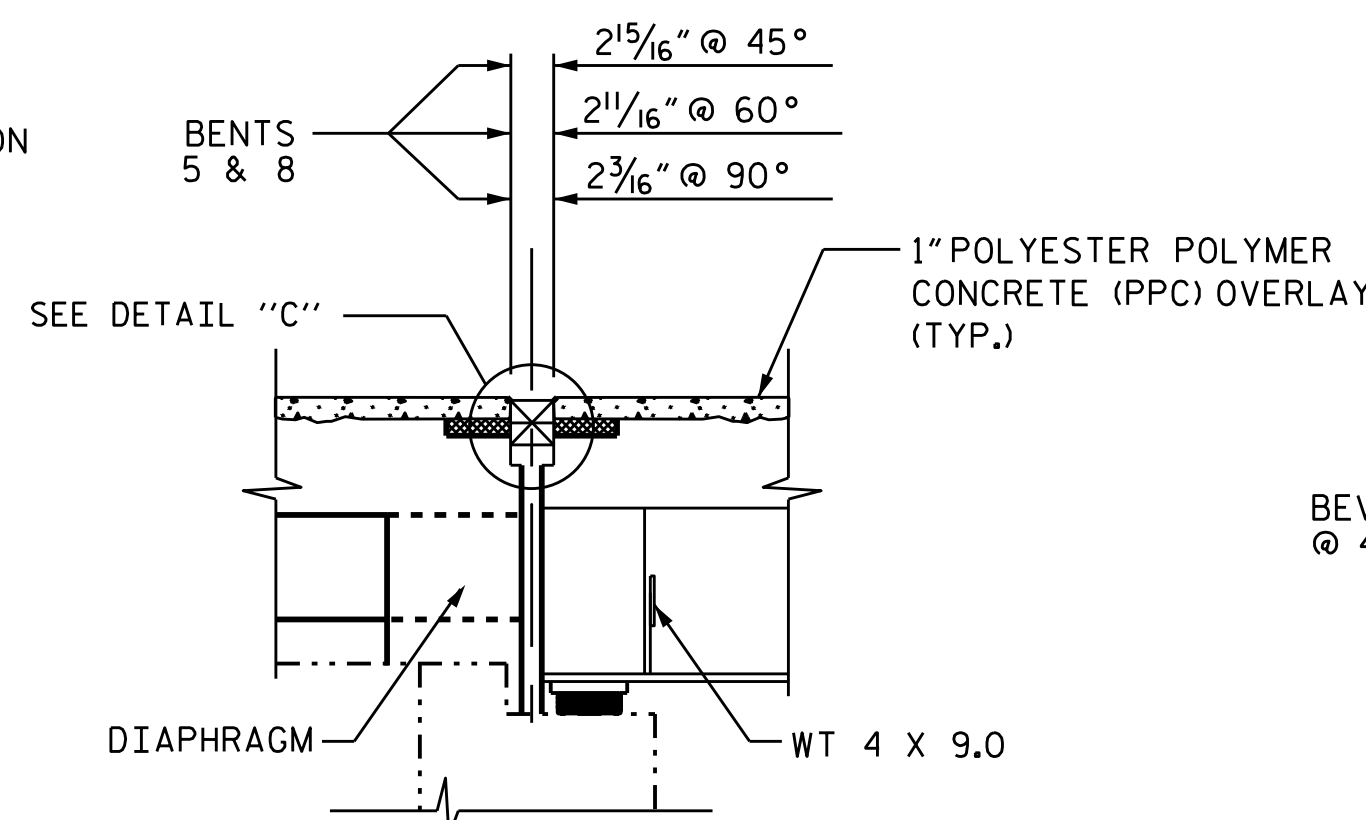
SECTION B-B



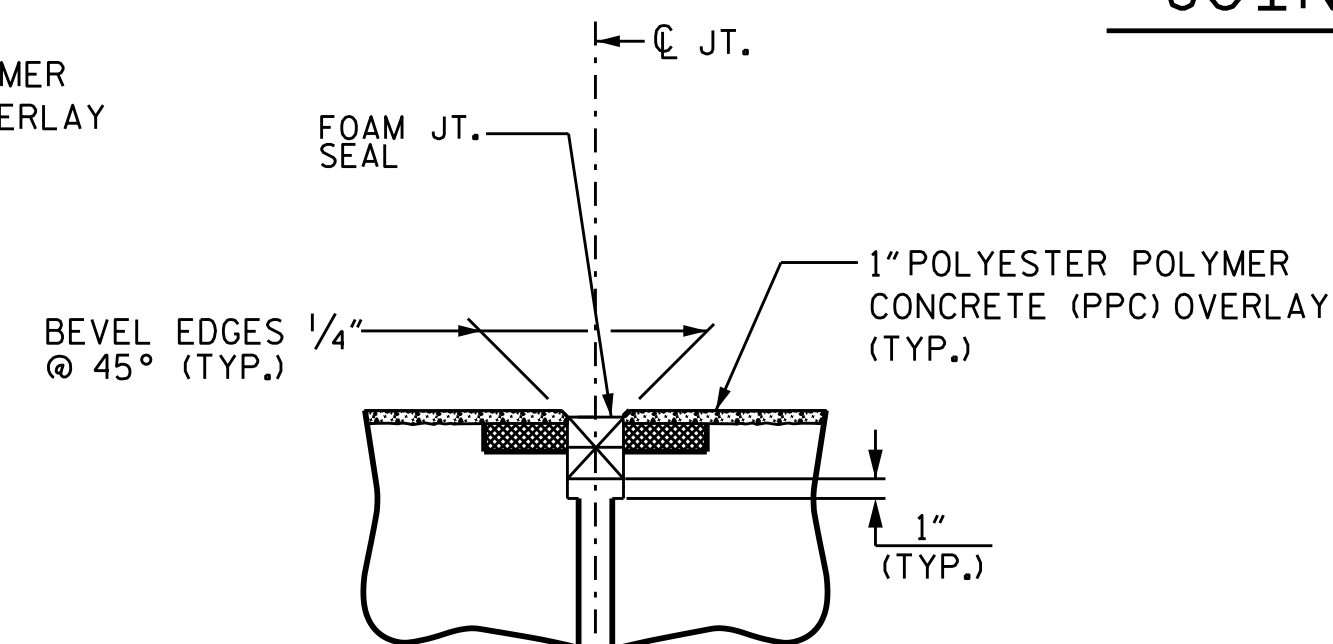
EXISTING JOINT



MINIMUM EXISTING JOINT DEMOLITION



PROPOSED JOINT



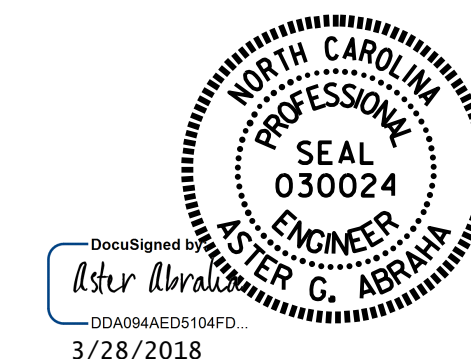
DETAIL C (PROPOSED)

JOINT SEAL DETAILS AT BENT

PROJECT NO. 15BPR.12
 BLADEN COUNTY
 BRIDGE NO. 16

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 JOINT DETAILS



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2			4			

DRAWN BY: S. I. SANDOR DATE: 02/2018
 CHECKED BY: A. G. ABRAHA DATE: 02/2018

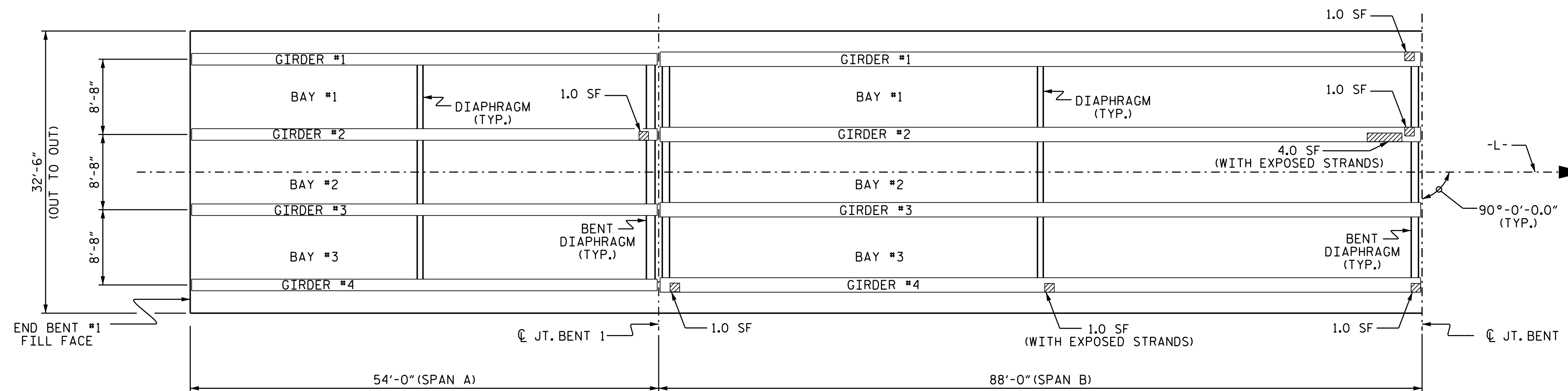
JOINT INSTALLATION SEQUENCE AT BENTS

SECTION C-C

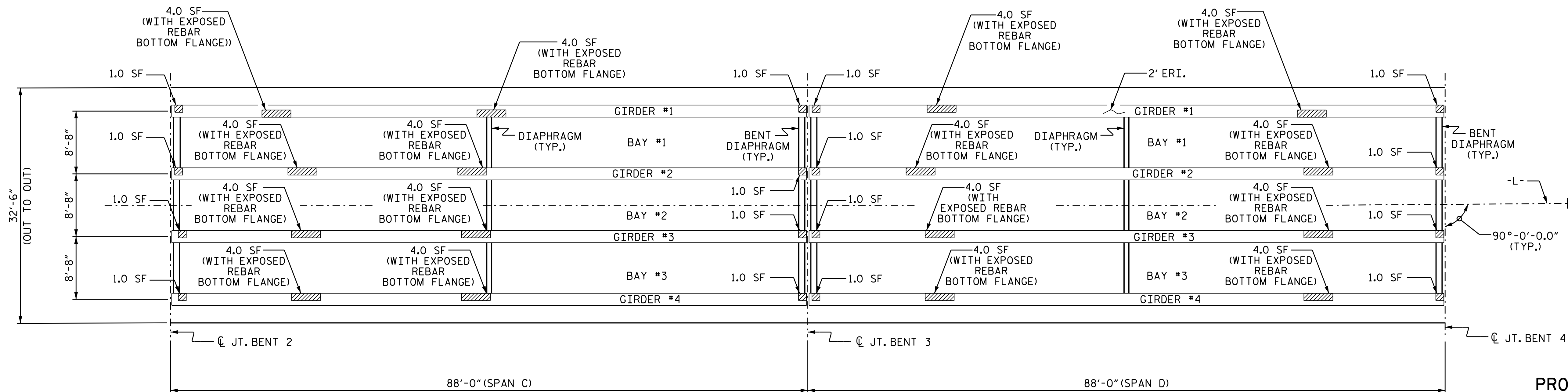
REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	0.0	0.0		
PRESTRESSED CONCRETE GIRDER REPAIRS				
GIRDERS	90.0	45.0		
EPOXY RESIN INJECTION				
BENT DIAPHRAGMS		0.0		LN. FT
GIRDERS		2.0		LN. FT

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.



PLAN OF SPANS (UNDERSIDE)



PLAN OF SPANS (UNDERSIDE)

PROJECT NO. 15BPR.12
 BLADEN COUNTY
 BRIDGE No. 16

SHEET 1 OF 5



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUPERSTRUCTURE GIRDER & DIAPHRAGM REPAIR SPANS A THRU D					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED					TOTAL SHEETS 34

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 BENT DIAPHRAGM AND PRESTRESSED CONCRETE GIRDER REPAIR DETAILS, SEE "TYPICAL GIRDER AND DIAPHRAGM REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

- DIAPHRAGM REPAIR
- PRESTRESSED CONCRETE GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION

DRAWN BY : S. T. SANDOR DATE : 09/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

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.

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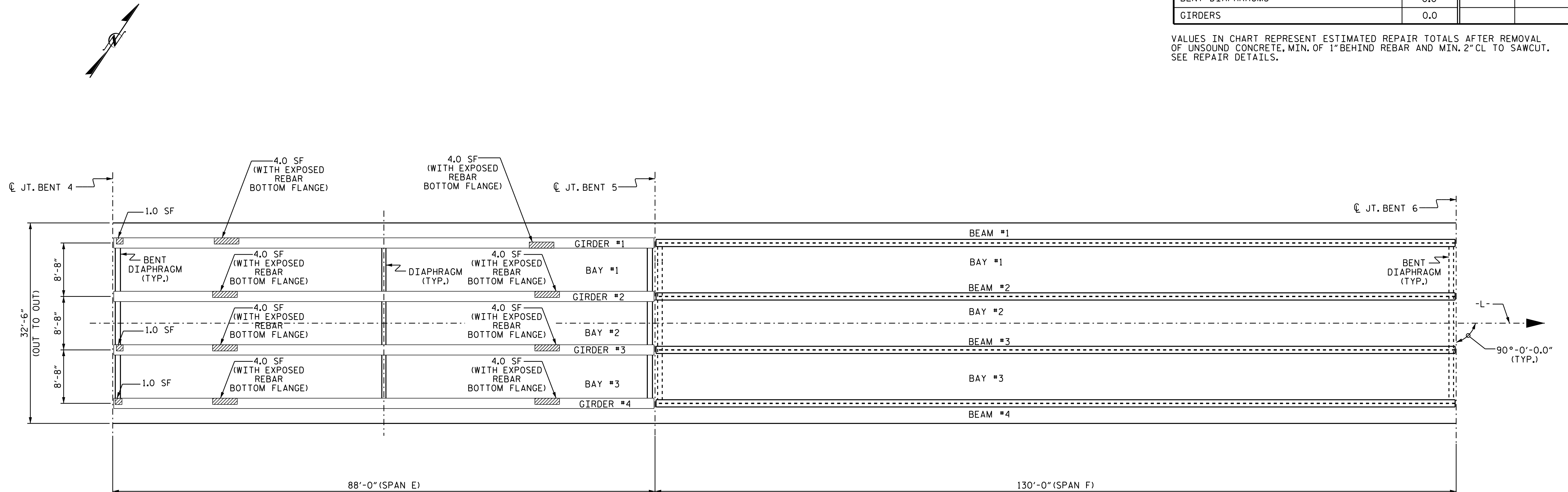
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	0.0	0.0		
PRESTRESSED CONCRETE GIRDER REPAIRS				
GIRDERS	35.0	17.5		
EPOXY RESIN INJECTION		LN. FT	LN. FT	
BENT DIAPHRAGMS		0.0		
GIRDERS		0.0		

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.

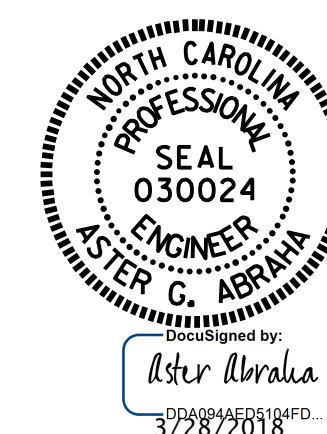


PLAN OF SPANS
(UNDERSIDE)

- DIAPHRAGM REPAIR
- PRESTRESSED CONCRETE GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE No. 16

SHEET 2 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUPERSTRUCTURE
GIRDER & DIAPHRAGM REPAIR
SPAN E & F

DRAWN BY : S. T. SANDOR DATE : 09/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

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1			3			S-15
2			4			34

NOTES:

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FOR BENT DIAPHRAGM REPAIR DETAILS, SEE "TYPICAL GIRDER AND DIAPHRAGM REPAIR DETAILS" SHEET.

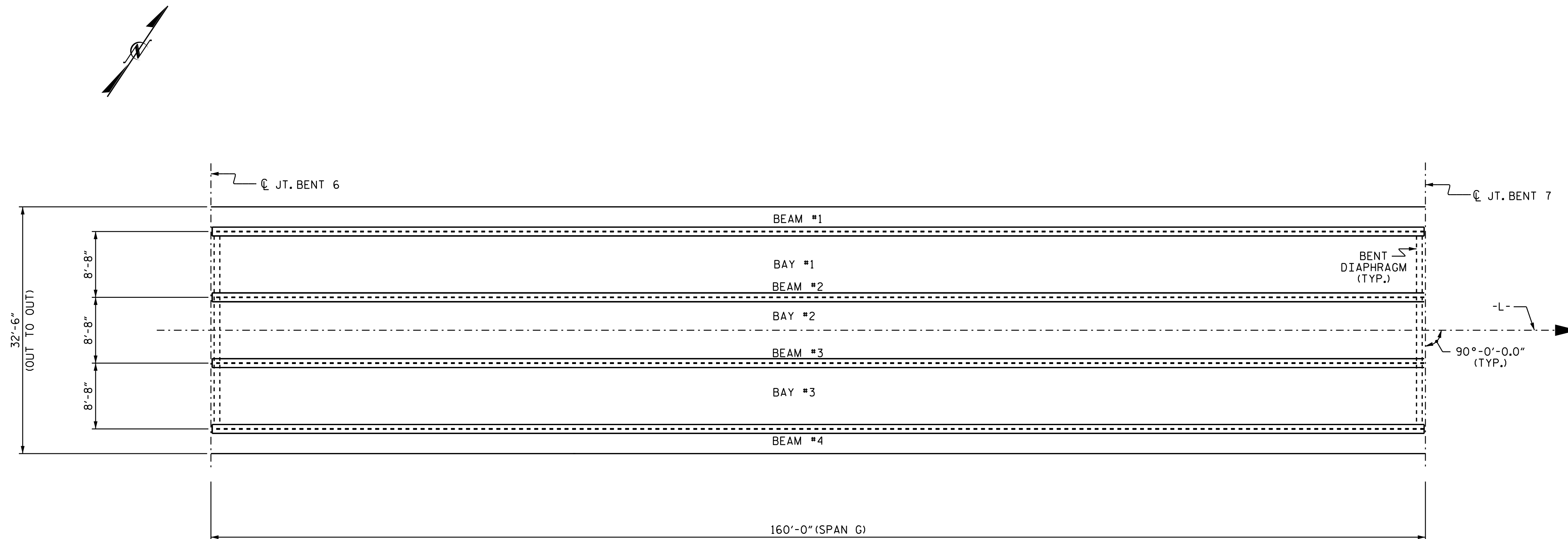
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
UNDERSIDE OF DECK & OVERHANG		0.0		

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.

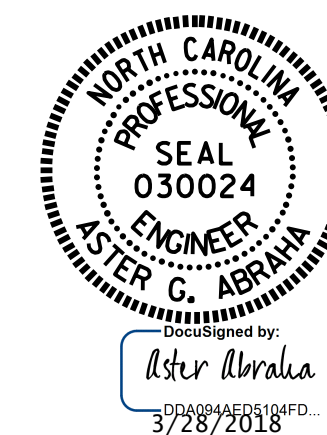


PLAN OF SPANS
(UNDERSIDE)

- DIAPHRAGM REPAIR
- PRESTRESSED CONCRETE GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE No. 16

SHEET 3 OF 5



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUPERSTRUCTURE
GIRDER & DIAPHRAGM REPAIR
SPAN G

DRAWN BY : S. T. SANDOR DATE : 09/2017
 CHECKED BY : A. G. ABRHAHA / M. AHMED DATE : 02/2018

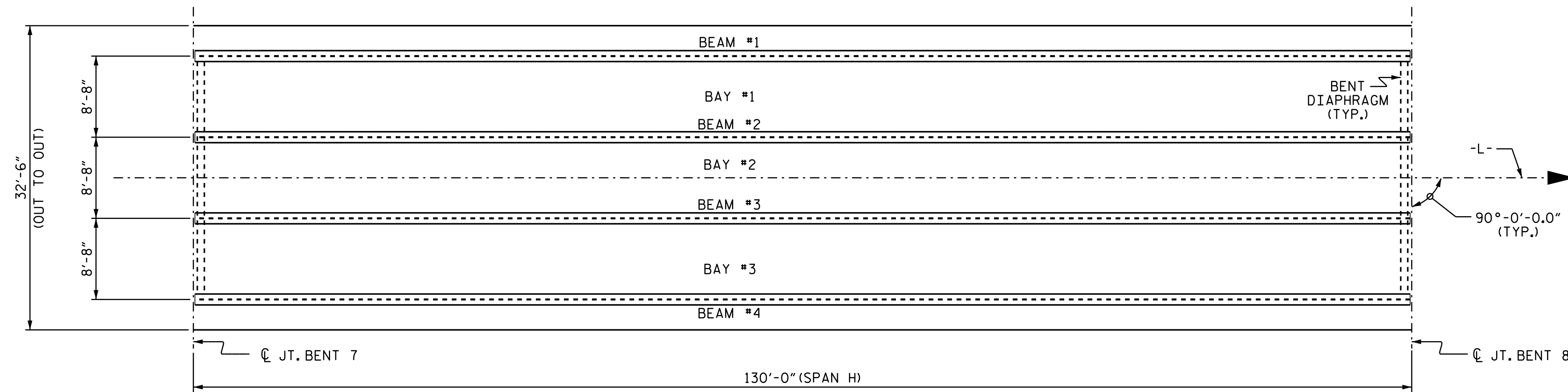
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1			3			S-16
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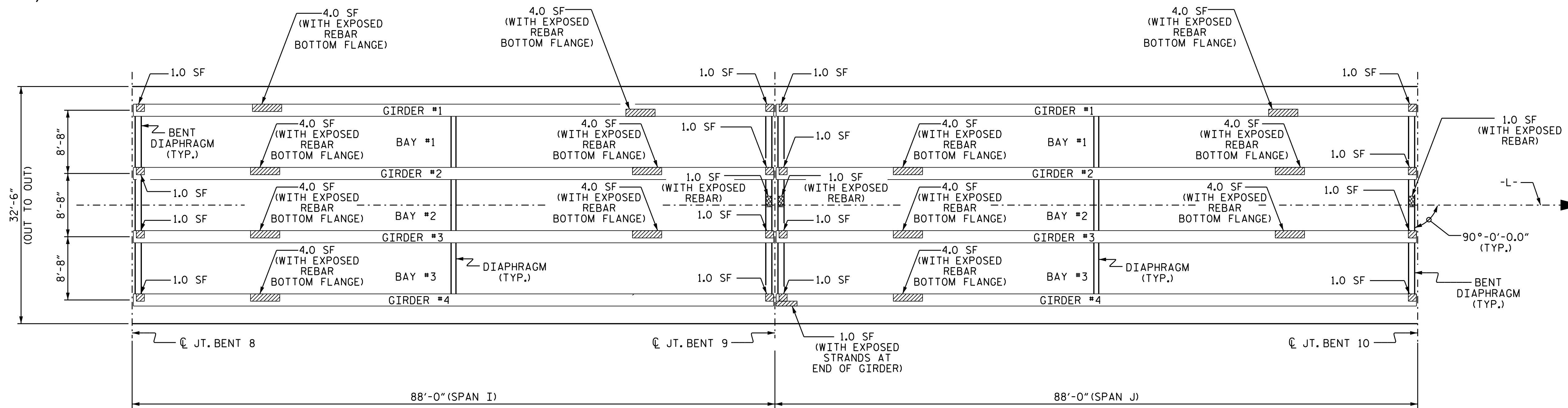
REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	3.0	1.5		
PRESTRESSED CONCRETE GIRDER REPAIRS				
GIRDERS	68.0	39.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
BENT DIAPHRAGMS		0.0		
GIRDERS		0.0		

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.



PLAN OF SPANS (UNDERSIDE)



PLAN OF SPANS (UNDERSIDE)

- ▣ - DIAPHRAGM REPAIR
- ▨ - PRESTRESSED CONCRETE GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION

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 BENT DIAPHRAGM AND PRESTRESSED CONCRETE GIRDER REPAIR DETAILS, SEE "TYPICAL GIRDER AND DIAPHRAGM REPAIR DETAILS" SHEET.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

PROJECT No. 15BPR.12
 BLADEN COUNTY
 BRIDGE No. 16

SHEET 4 OF 5



REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
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 CHECKED BY: A. G. ABRAHA / M. AHMED DATE: 02/2018

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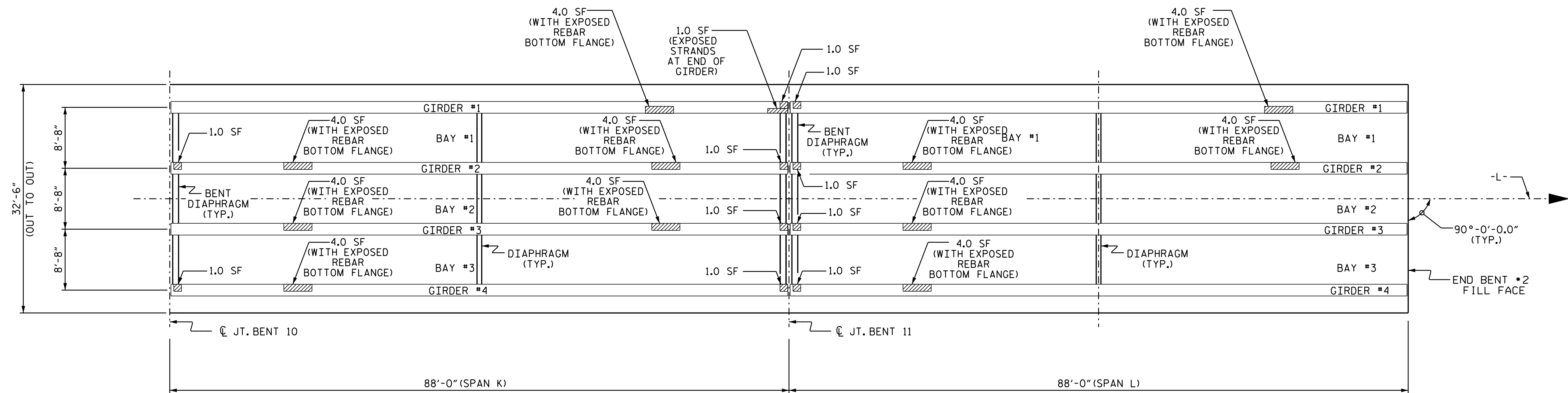
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

UNDERSIDE OF DECK	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
UNDERSIDE OF DECK & OVERHANG	0.0	0.0		
BENT DIAPHRAGMS	0.0	0.0		
PRESTRESSED CONCRETE GIRDER REPAIRS				
GIRDERS	54.0	27.0		
EPOXY RESIN INJECTION		LN. FT		LN. FT
BENT DIAPHRAGMS		0.0		
GIRDERS		0.0		

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.

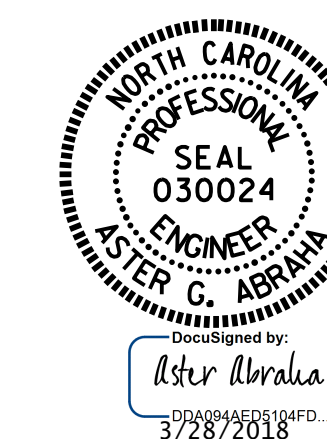


PLAN OF SPANS
(UNDERSIDE)

- DIAPHRAGM REPAIR
- PRESTRESSED CONCRETE GIRDER REPAIR
- ERI - EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE No. 16

SHEET 5 OF 5

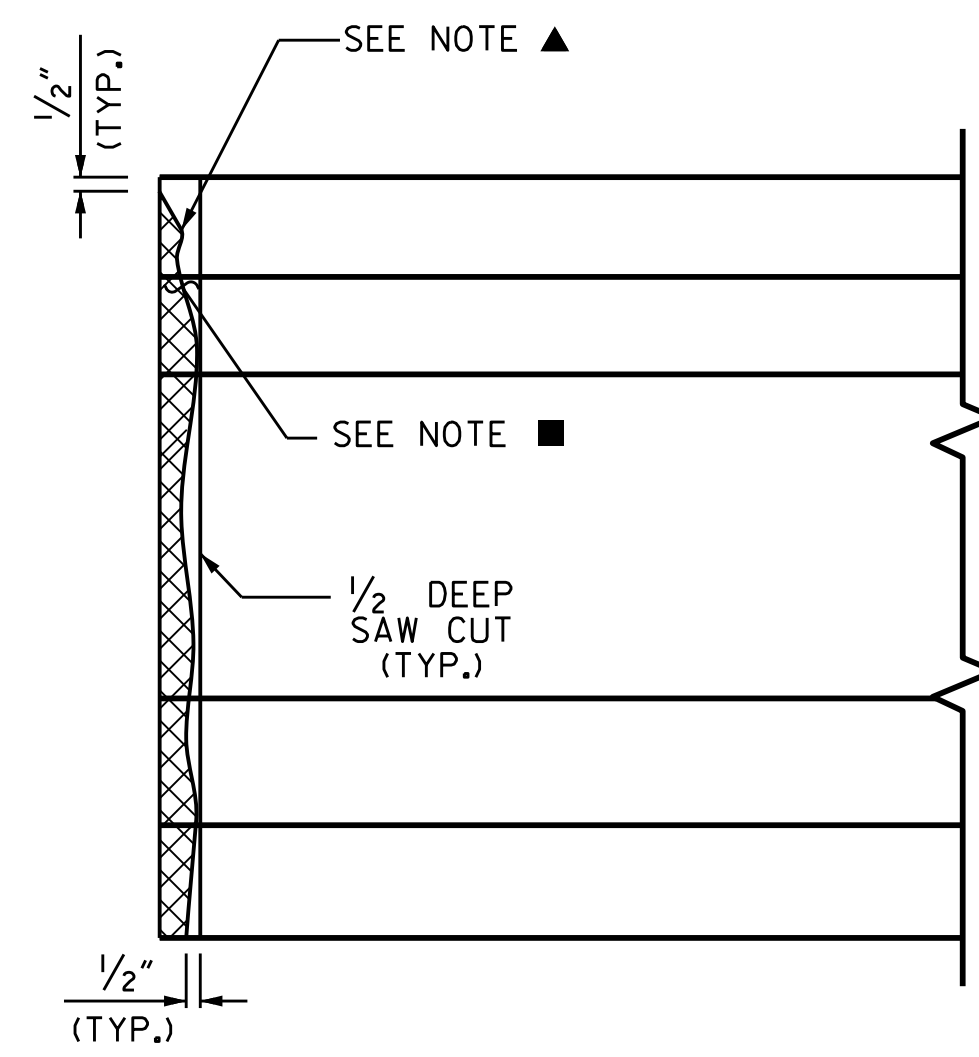


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUPERSTRUCTURE
GIRDER & DIAPHRAGM REPAIR
SPANS K & L

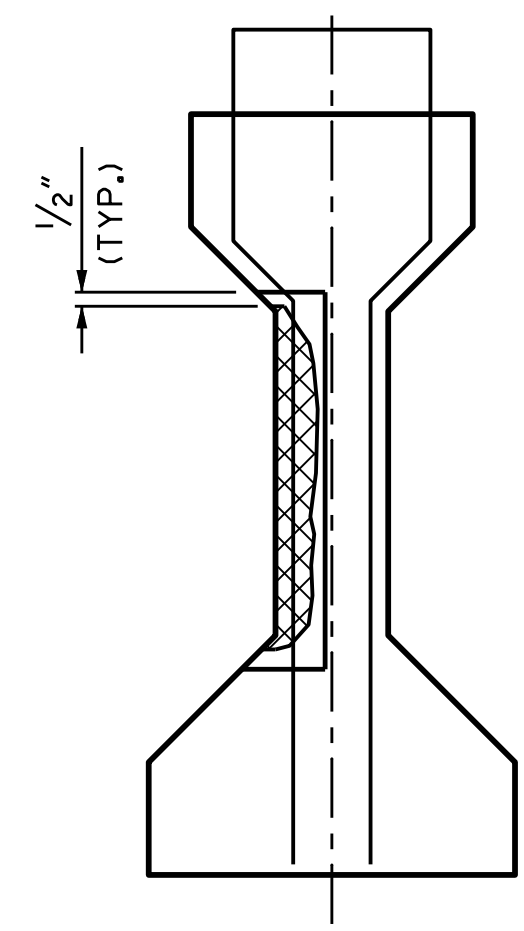
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 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

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ELEVATION



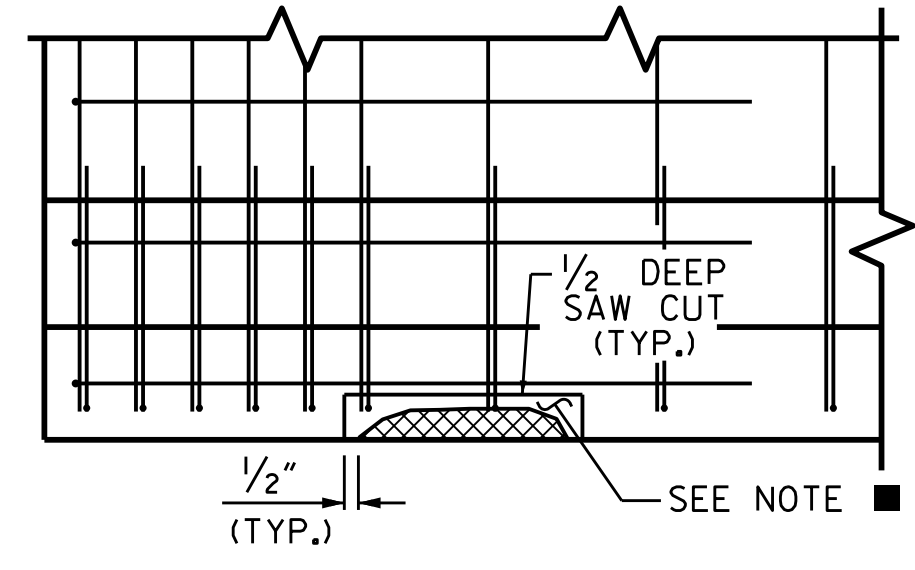
SECTION

GIRDER END REPAIR

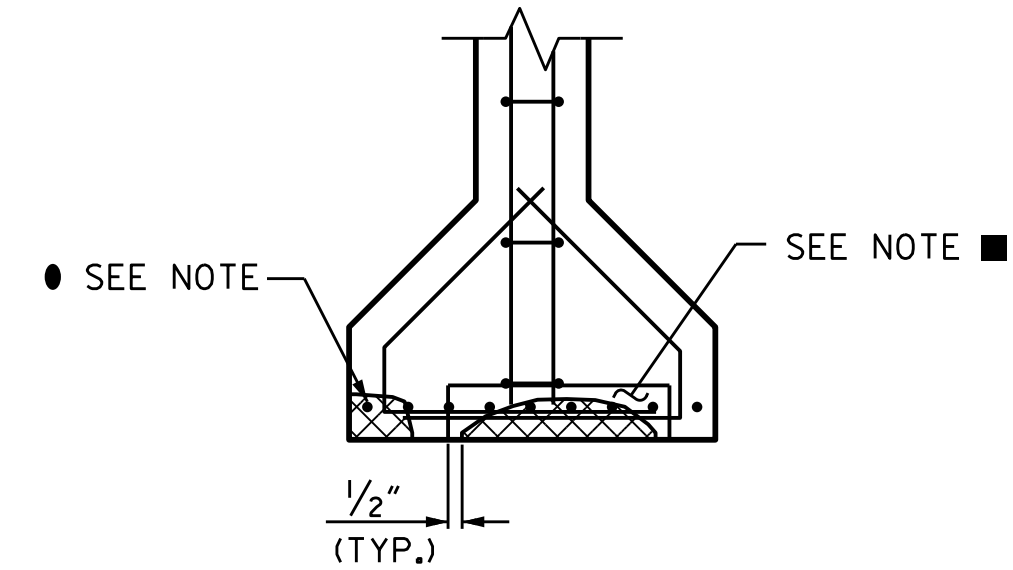
(EXAMPLE DETAILS ONLY. ACTUAL REBAR SIZE & LOCATION MAY VARY)

PRESTRESSED GIRDER REPAIR SEQUENCE:

1. SOUND CONCRETE TO DETERMINE EXTENTS OF REPAIR LOCATION.
2. REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL. SAW CUT AROUND REPAIR AREA TO A MINIMUM DEPTH OF 1/2".
3. REMOVE CONCRETE WITHIN SAW CUT AREA TO MINIMUM 1/2" DEPTH. IF CONCRETE IS DAMAGED BEYOND THE ORIGINAL SAW CUT, A NEW SAW CUT IS REQUIRED.
4. ▲ IF MORE THAN HALF THE CIRCUMFERENCE OF A REINFORCING BAR IS EXPOSED DURING THIS PROCESS, REMOVE ADDITIONAL CONCRETE TO 1" MIN. BEHIND THE BAR.
5. ■ ALL UNSOUND CONCRETE MUST BE REMOVED, HOWEVER, PRESTRESSED STRANDS SHOULD NOT BE DISTURBED UNLESS ABSOLUTELY NECESSARY. USE EXTREME CARE TO NOT DAMAGE STRANDS.
6. ● THE ENGINEER SHALL BE NOTIFIED OF ALL DEBONDED STRANDS. DEBONDED STRANDS OUTSIDE OF REINFORCING STEEL MAYBE CUT BACK TO WHERE THE BOND IS STILL INTACT AT THE ENGINEERS DISCRETION.
7. USE A WIRE BRUSH TO CLEAN ALL EXPOSED REINFORCING BARS AND PRESTRESSED STRANDS. FOR BARS WITH MORE THAN 10% SECTION LOSS, SPLICE AND SECURELY TIE SUPPLEMENTAL REINFORCING BARS AS NEEDED. NOTE AND PROVIDE DETAILED DOCUMENTATION, INCLUDING LOCATION AND SEVERITY, OF ALL DAMAGE TO PRESTRESSED STRANDS THAT EXCEEDS 10% SECTION LOSS. IF FIVE OR MORE STRANDS ARE DAMAGED, NOTIFY THE ENGINEER PRIOR TO PLACEMENT OF REPAIR MATERIAL.
8. REMOVE ALL LOOSE OR WEAKENED MATERIAL THEN CLEAN THE REPAIR AREA OF DIRT, GREASE, OIL, AND FOREIGN MATTER.
9. PREPARE SURFACE AND PLACE APPROVED SHOTCRETE OR PRESTRESSED CONCRETE GIRDER REPAIR MATERIAL ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. MAXIMUM AGGREGATE SIZE FOR SHOTCRETE OR REPAIR MATERIAL SHALL NOT EXCEED 2/3 THE MINIMUM REPAIR DEPTH.
10. FOR DIAPHRAGM REPAIRS, USE SPECIAL PROVISIONS FOR SHOTCRETE REPAIR OR SPECIAL PROVISIONS FOR PRESTRESSED CONCRETE GIRDER REPAIRS.



ELEVATION

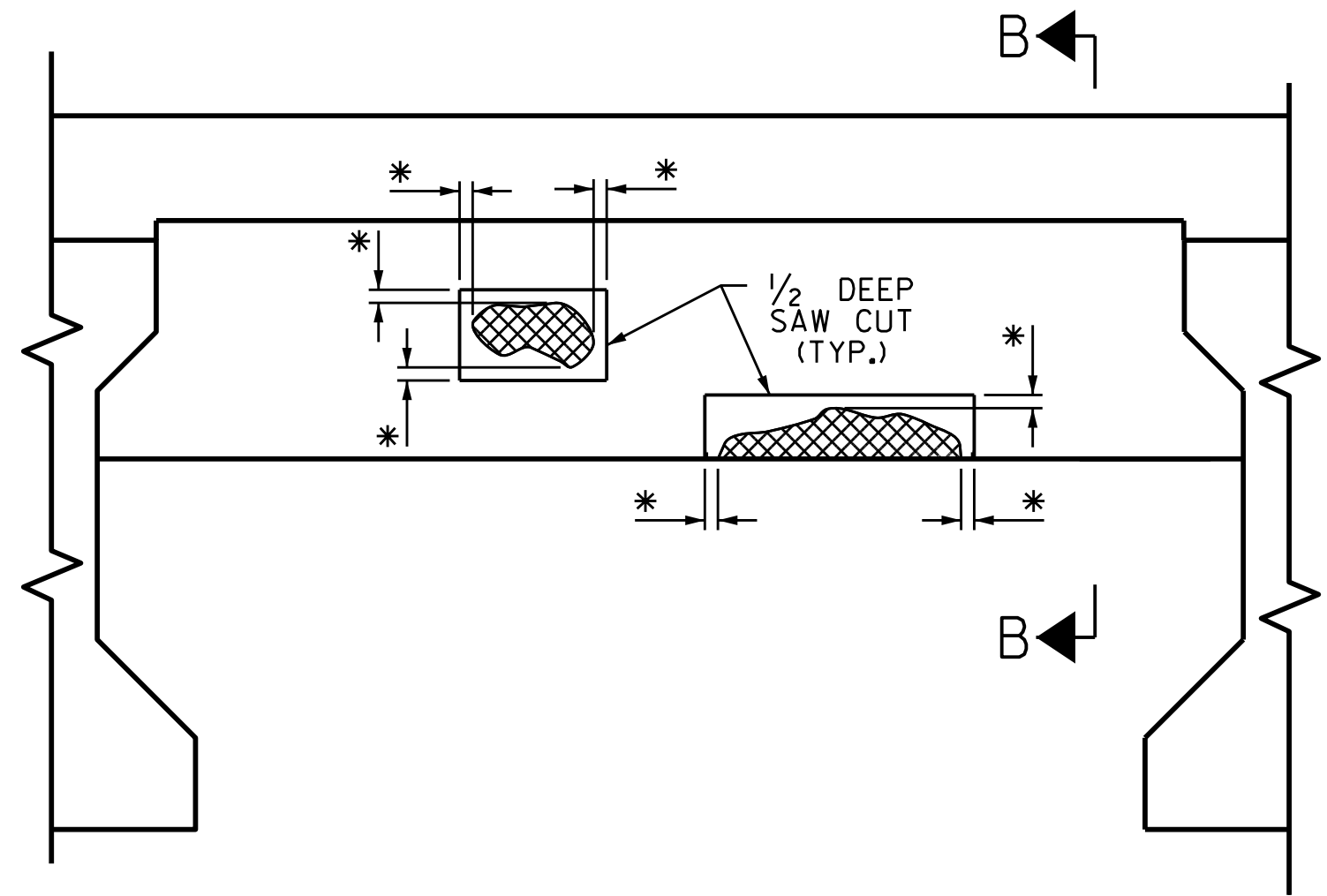


SECTION

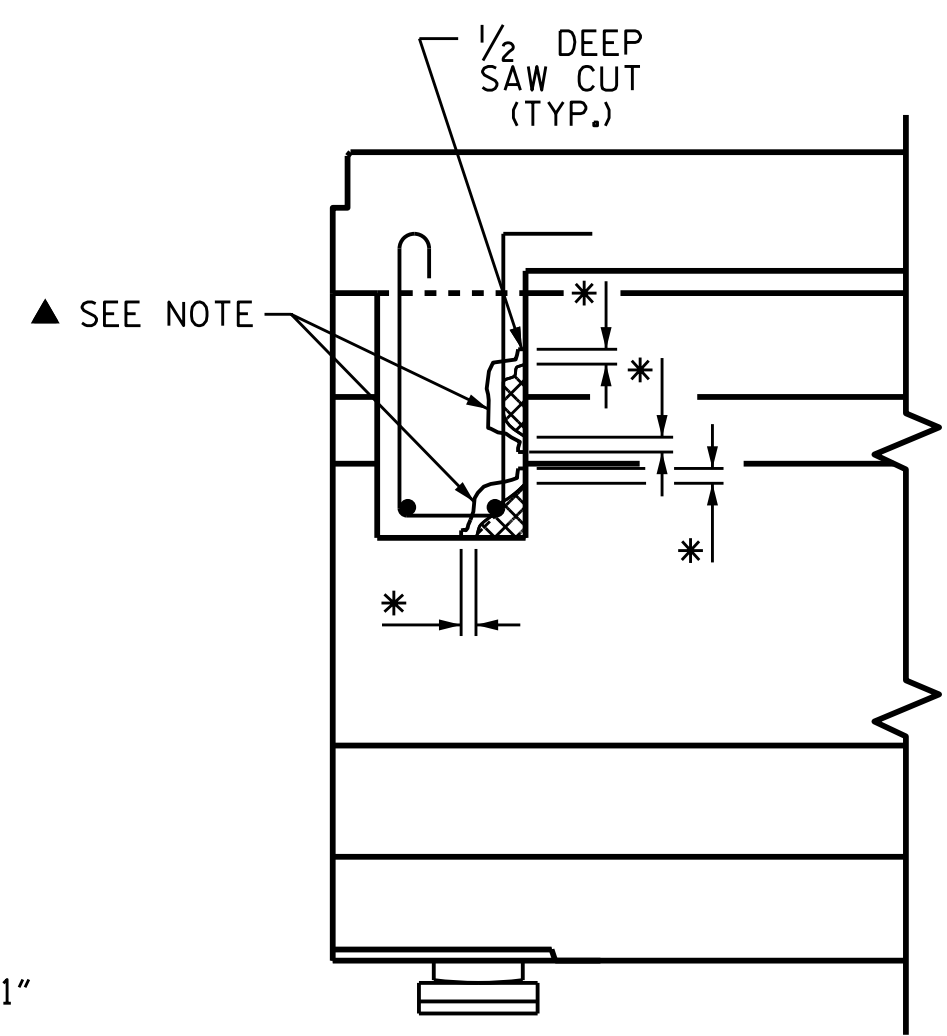
☒ DAMAGED AREA

GIRDER FLANGE REPAIR

(EXAMPLE DETAILS ONLY. ACTUAL REBAR SIZE & LOCATION MAY VARY)



TYPICAL SECTION



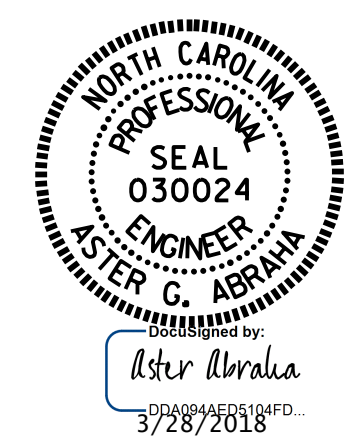
SECTION B-B

* 1/2" DEEP SAW CUT SHALL BE PLACED 1" INTO SOUND CONCRETE.

BENT DIAPHRAGM REPAIR DETAIL

(EXAMPLE DETAILS ONLY. ACTUAL REBAR SIZE & LOCATION MAY VARY)

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BLADEN COUNTY
BRIDGES NO. 16

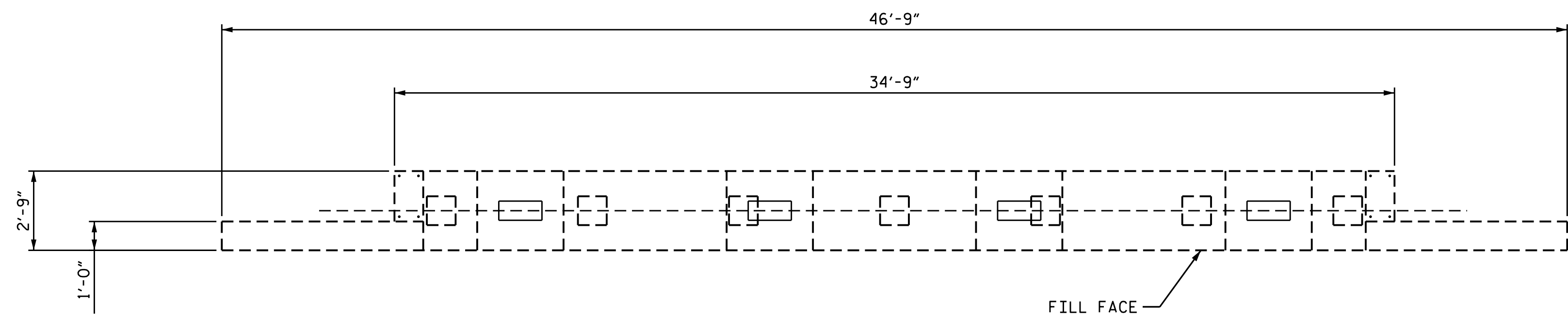


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE
PRESTRESSED CONCRETE
GIRDER AND DIAPHRAGM
REPAIR DETAILS

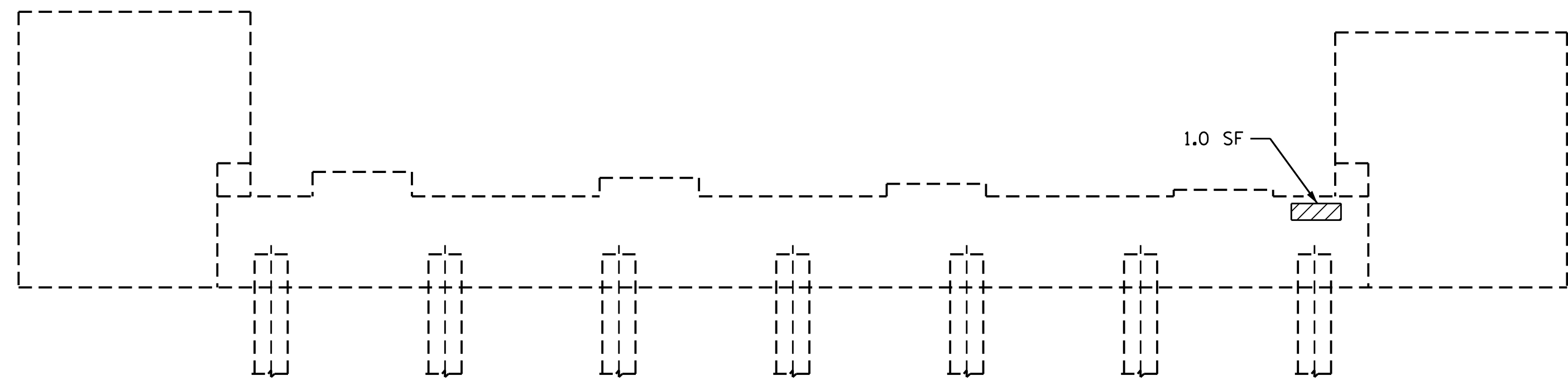
DRAWN BY : S. T. SANDOR DATE : 02/2018
CHECKED BY : A. G. ABRAHA DATE : 02/2018

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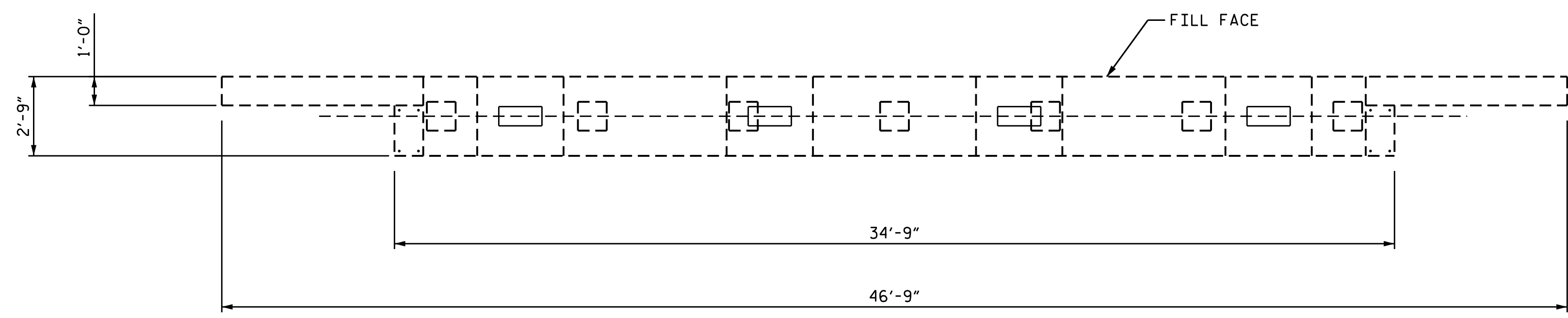
REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19	
1			3			TOTAL SHEETS	
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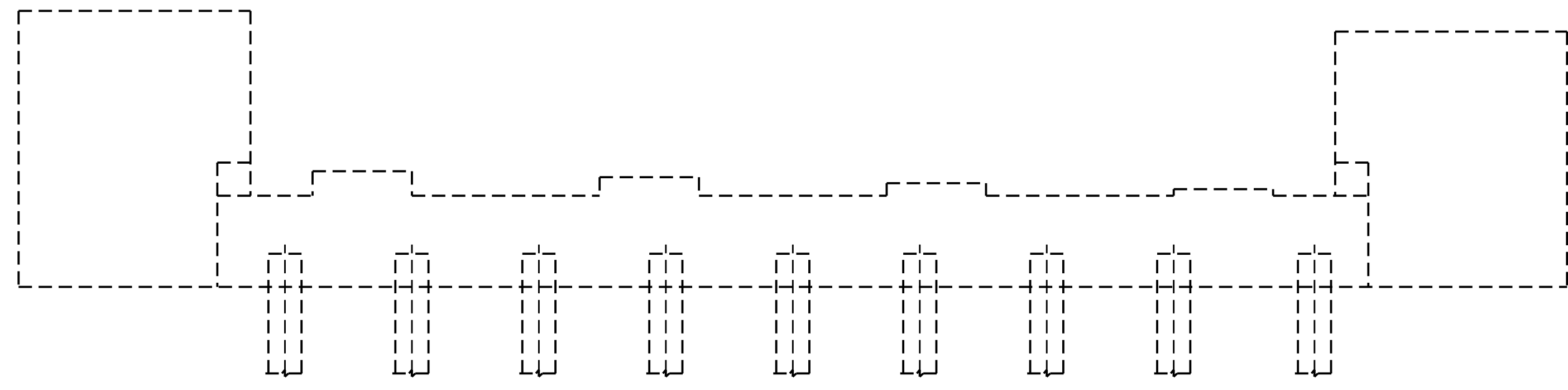
PLAN
END BENT 1



ELEVATION
END BENT 1



PLAN
END BENT 2



ELEVATION
END BENT 2

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

REPAIR QUANTITY TABLE

REPAIRS END BENT 1	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			
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF	
CAP (VERTICAL FACE)	0.0	0.0			
CAP (HORIZONTAL, CORNER)	0.0	0.0			
EPOXY RESIN INJECTION		LN. FT.		LN. FT.	
CAP		0.0			
EPOXY COATING	AREA SF			LN. FT.	
TOP OF CAP	95.6				
REPAIRS END 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			
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF	
CAP (VERTICAL FACE)	0.0	0.0			
CAP (HORIZONTAL, CORNER)	0.0	0.0			
EPOXY RESIN INJECTION		LN. FT.		LN. FT.	
CAP		1.0			
EPOXY COATING	AREA SF			LN. FT.	
TOP OF CAP	95.6				

NOTES:

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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.

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.

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO.: 16



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

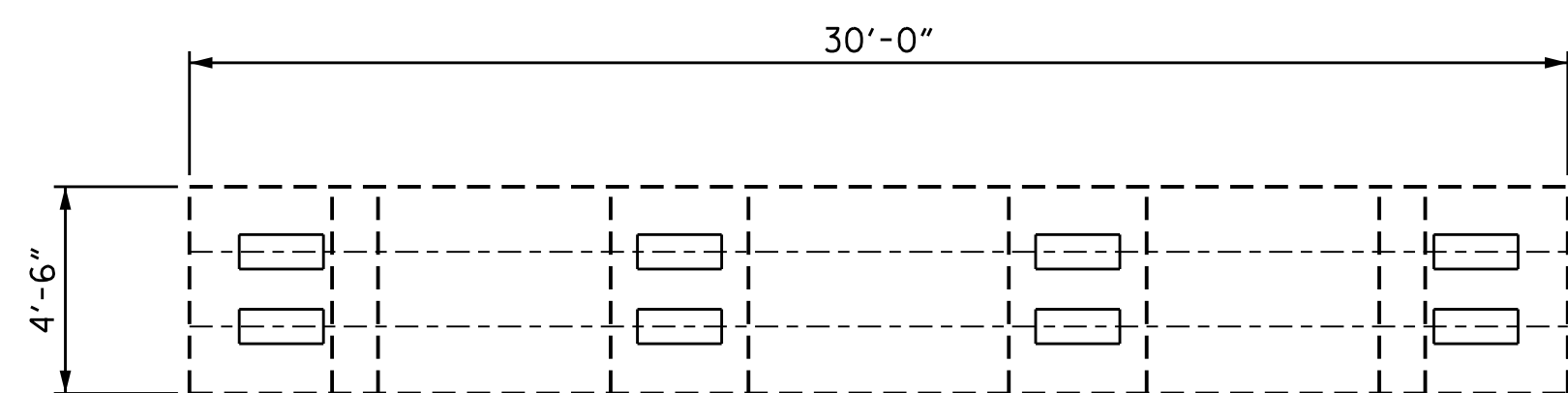
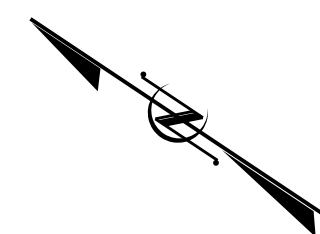
SUBSTRUCTURE

END BENT 1 & 2

DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

REVISIONS						SHEET NO.
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2			4			34

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PLAN
TOP OF CAP

SPAN 2

SPAN 1

NOTES:

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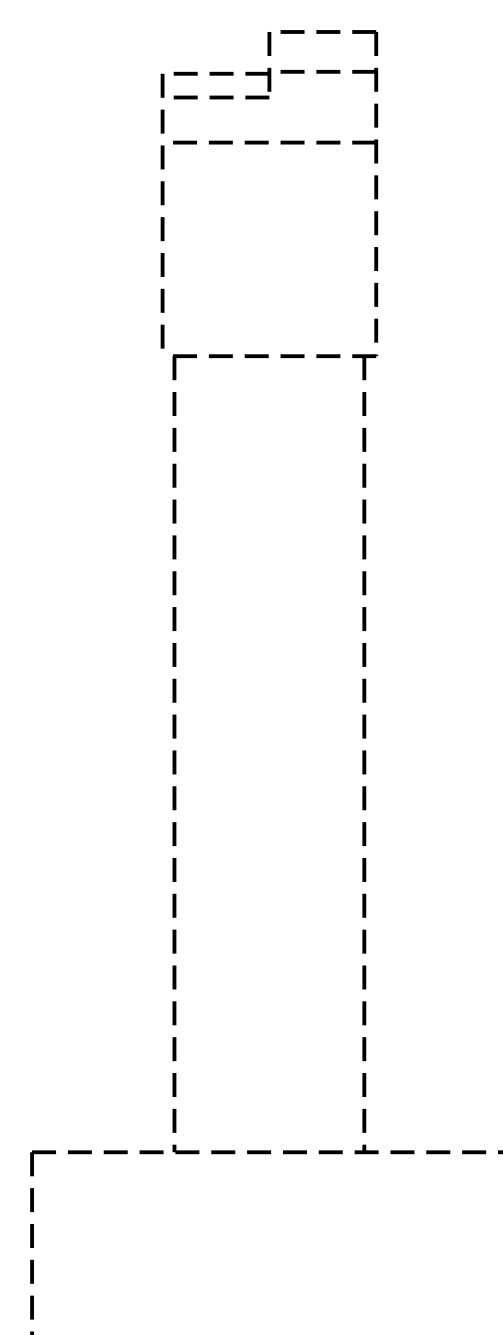
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

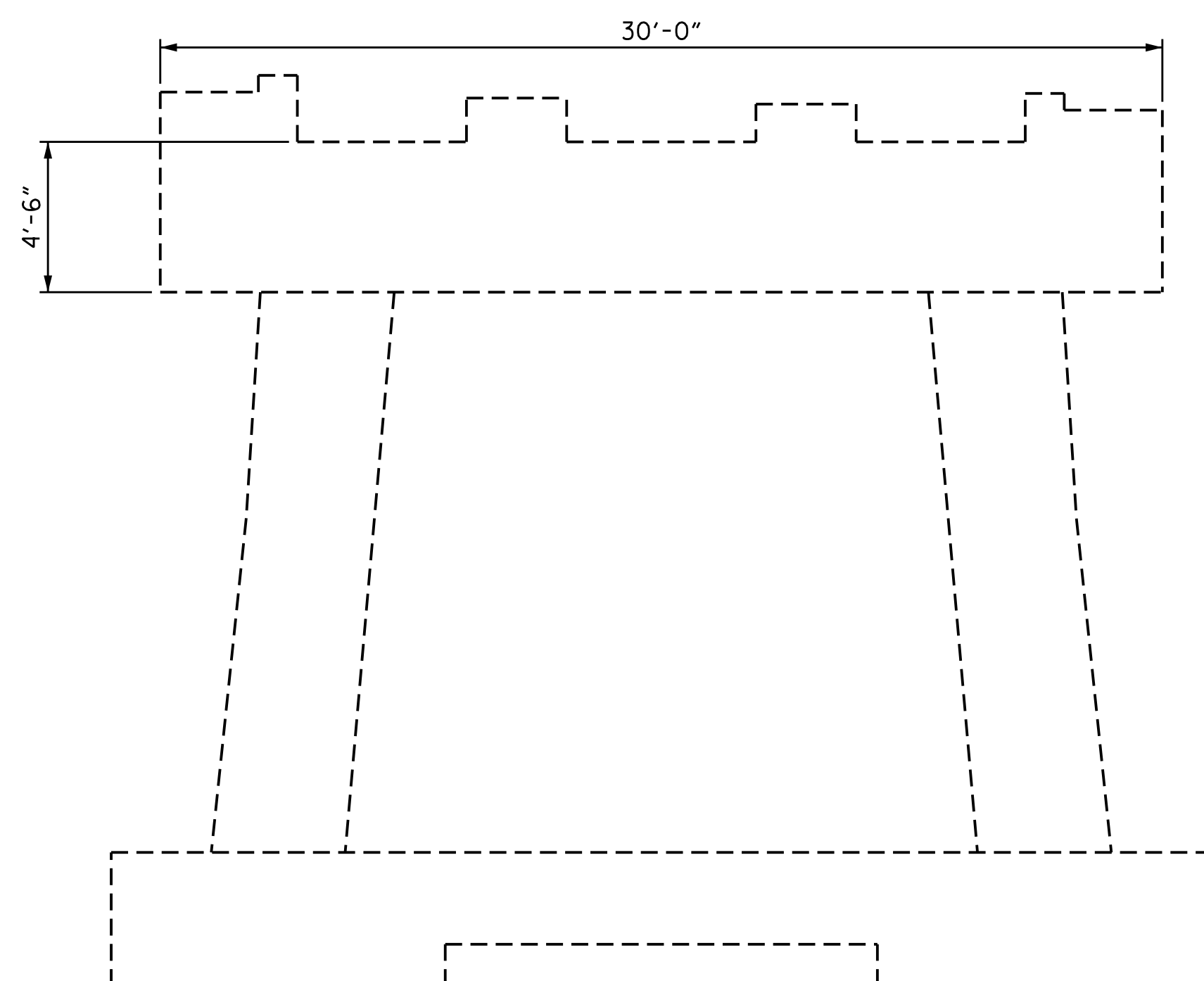
REPAIR QUANTITY TABLE

BENT 1	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE 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		
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		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	135.0			

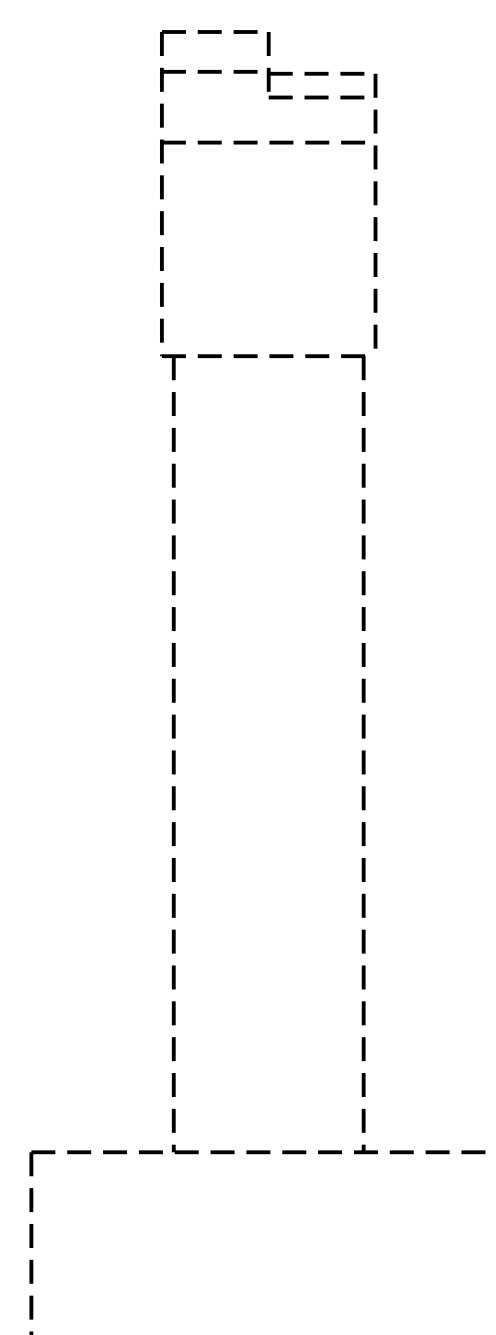
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



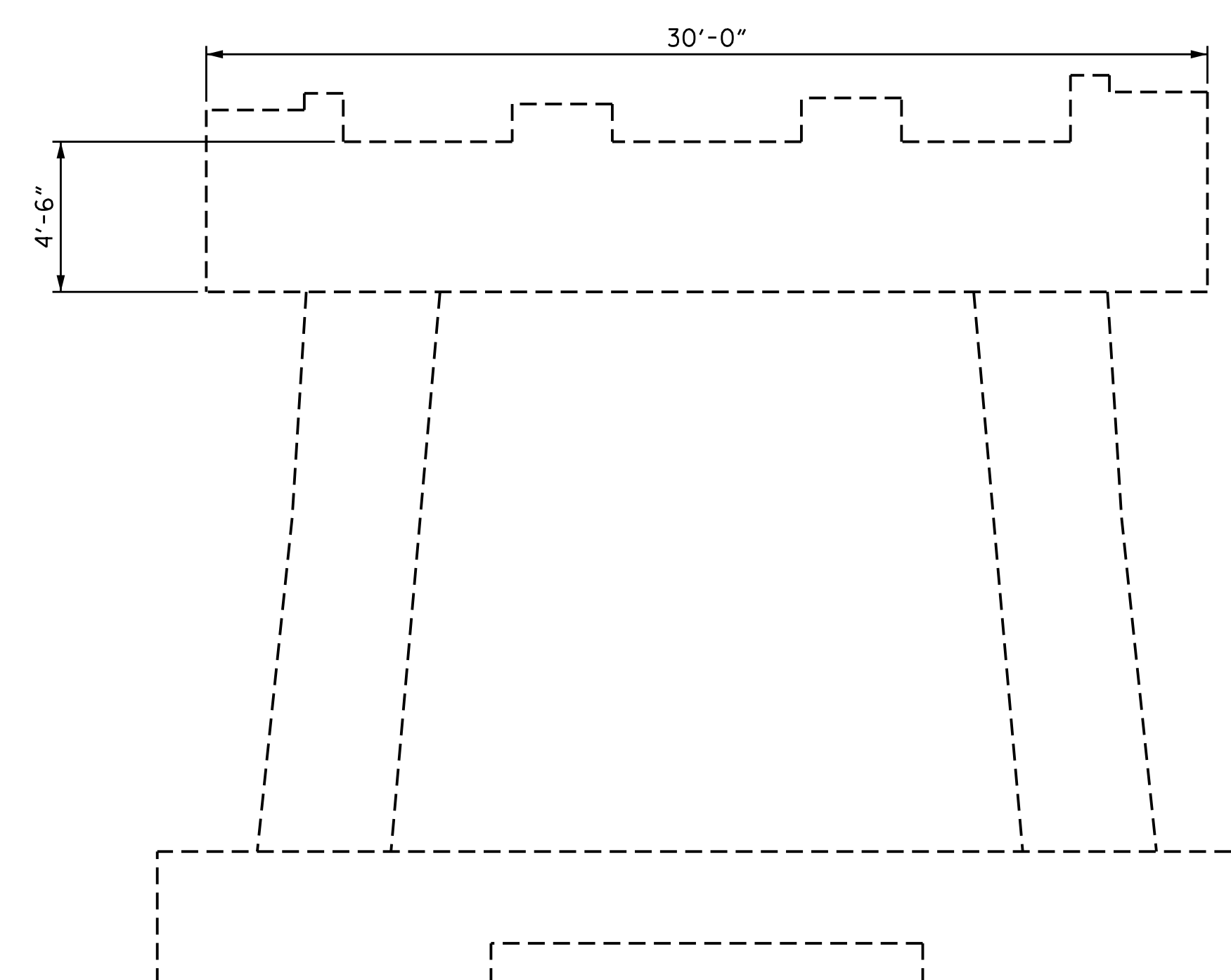
END VIEW
WEST SIDE



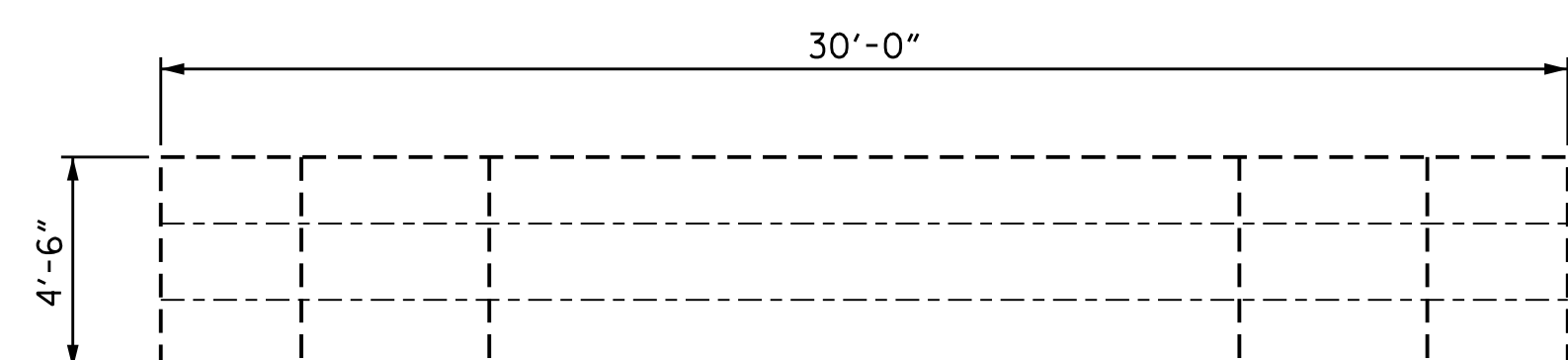
ELEVATION
SOUTH SIDE



END VIEW
EAST SIDE



ELEVATION
NORTH SIDE



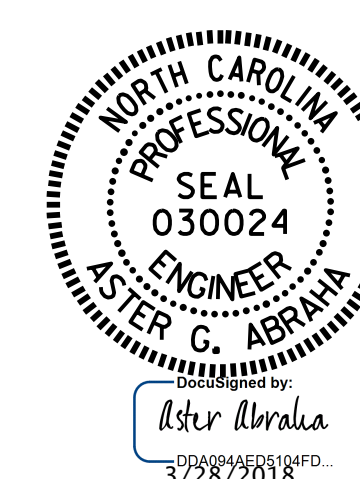
PLAN
BOTTOM OF CAP
(LOOKING UP)

SPAN 1

SPAN 2

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16



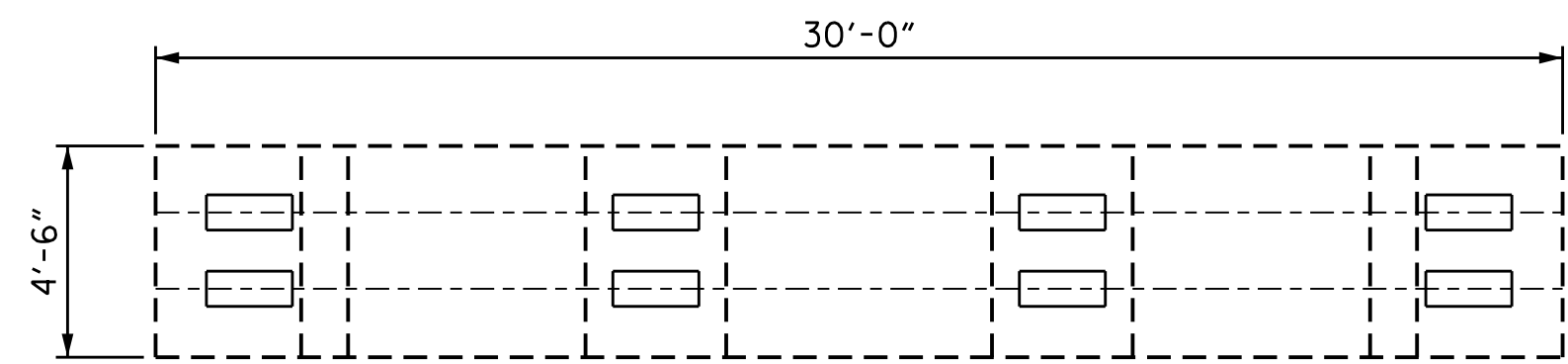
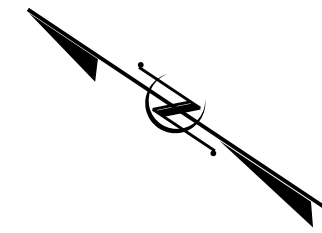
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIR
 BENT 1**

DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

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1			3			S-21
2			4			34



PLAN
TOP OF CAP

SPAN 3

SPAN 2

NOTES:

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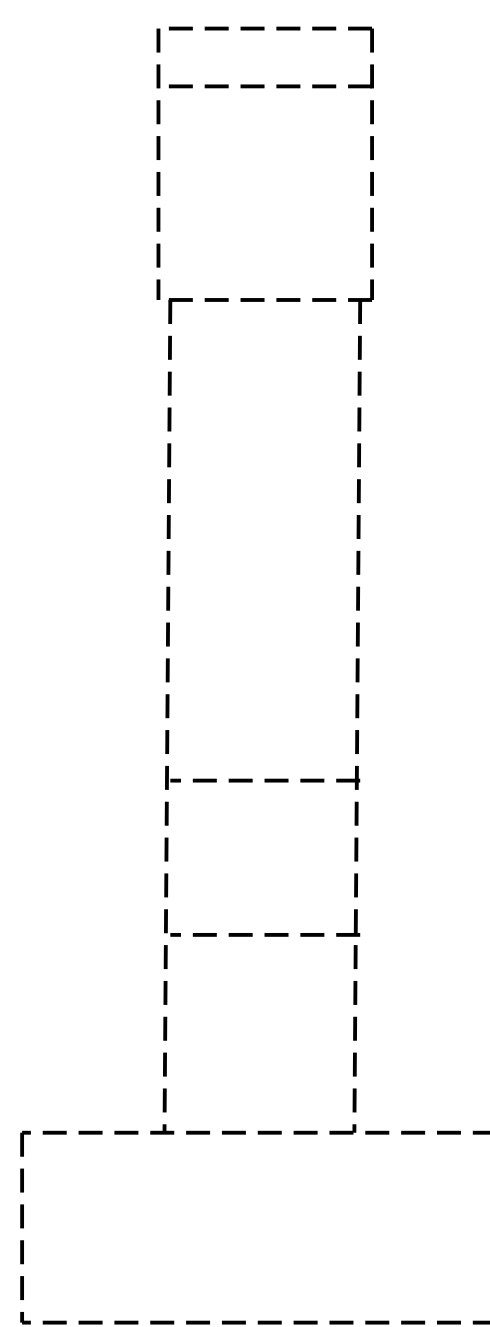
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

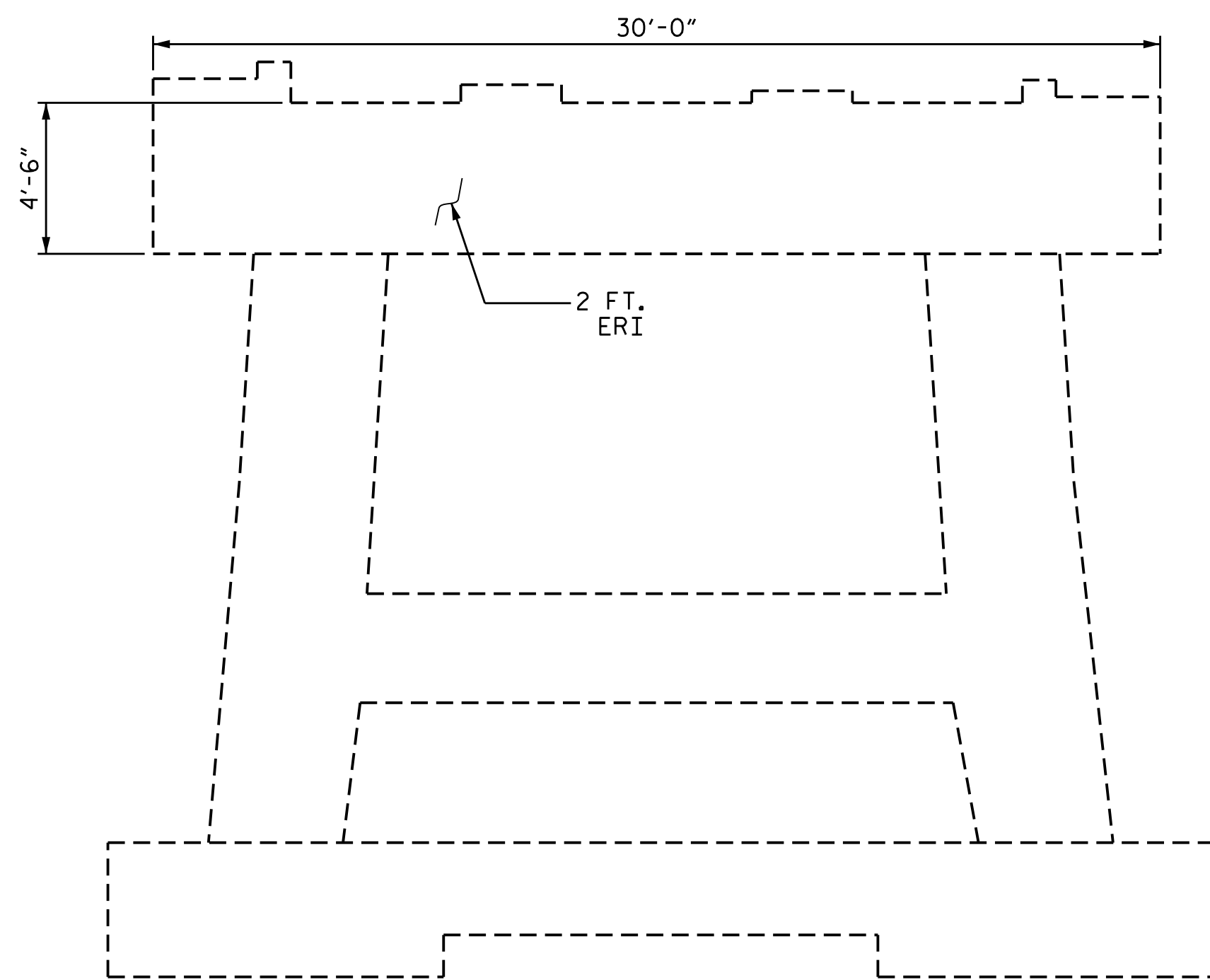
REPAIR QUANTITY TABLE

BENT 2	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	2.0	1.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	3.0	1.5		
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			
CAP	5.0			
COLUMN	0.0			
EPOXY COATING	AREA SF			
TOP OF CAP	135.0			

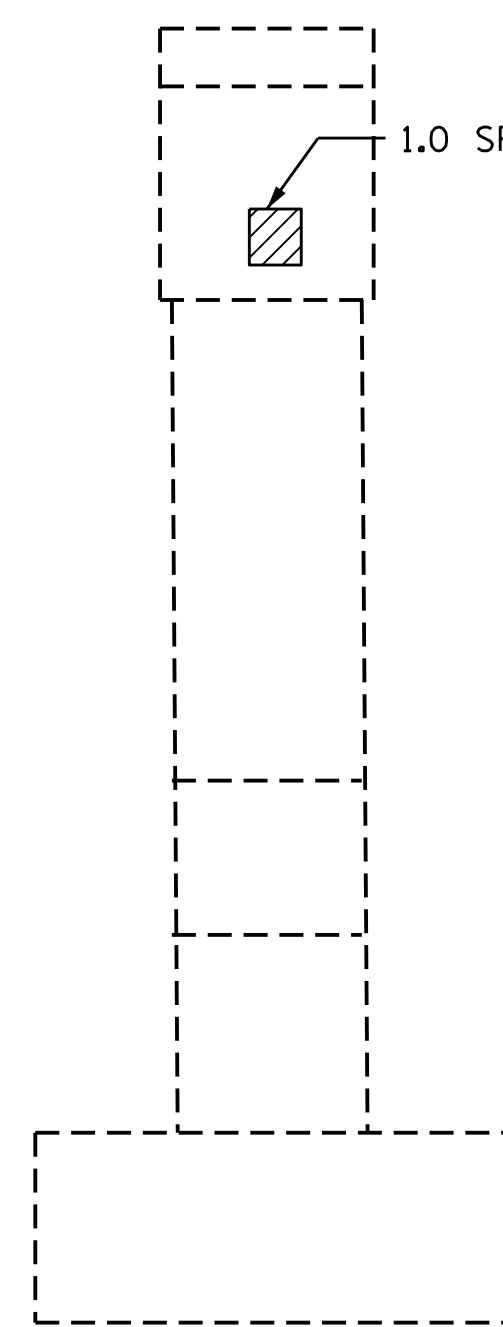
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



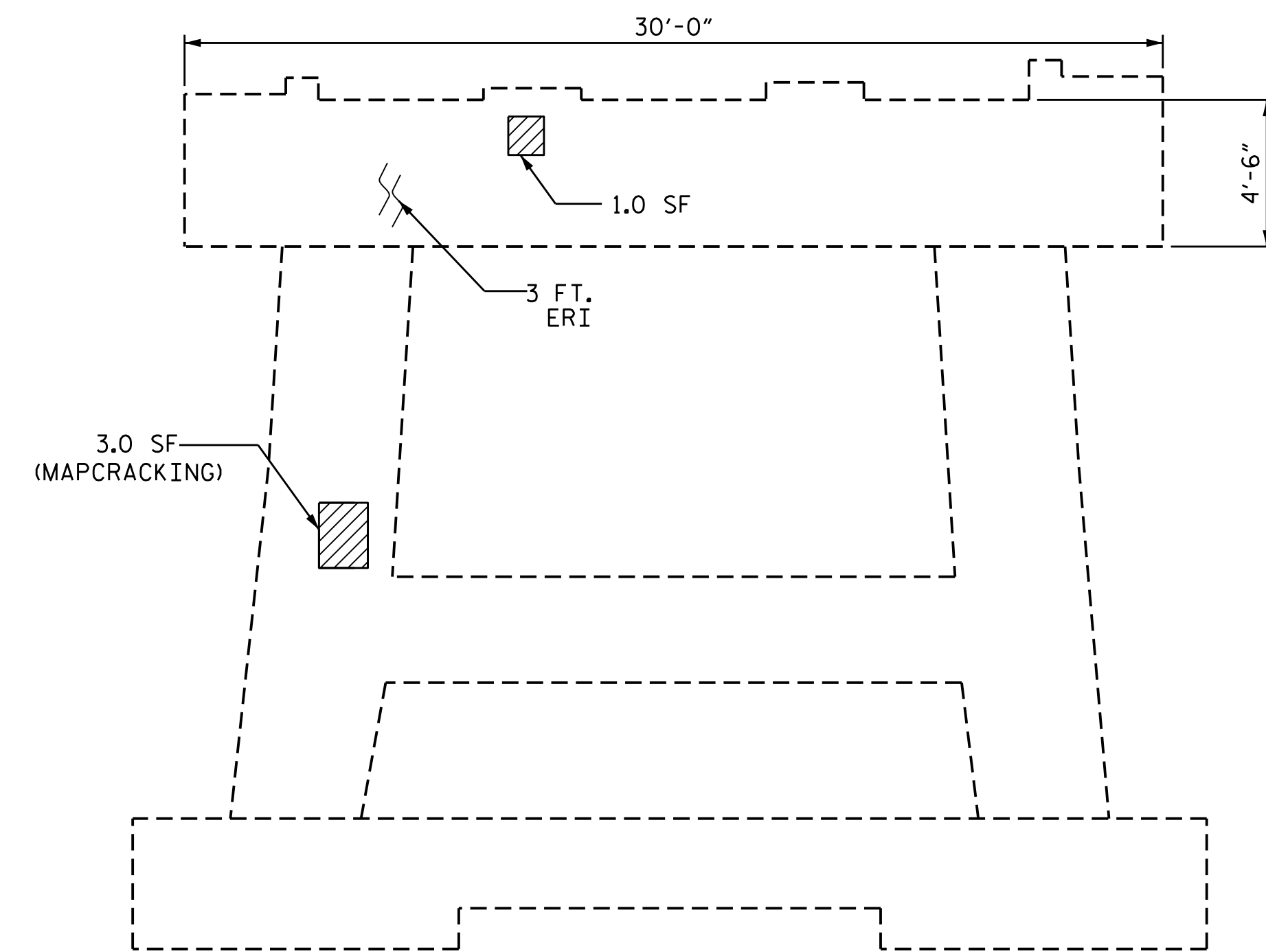
END VIEW
WEST SIDE



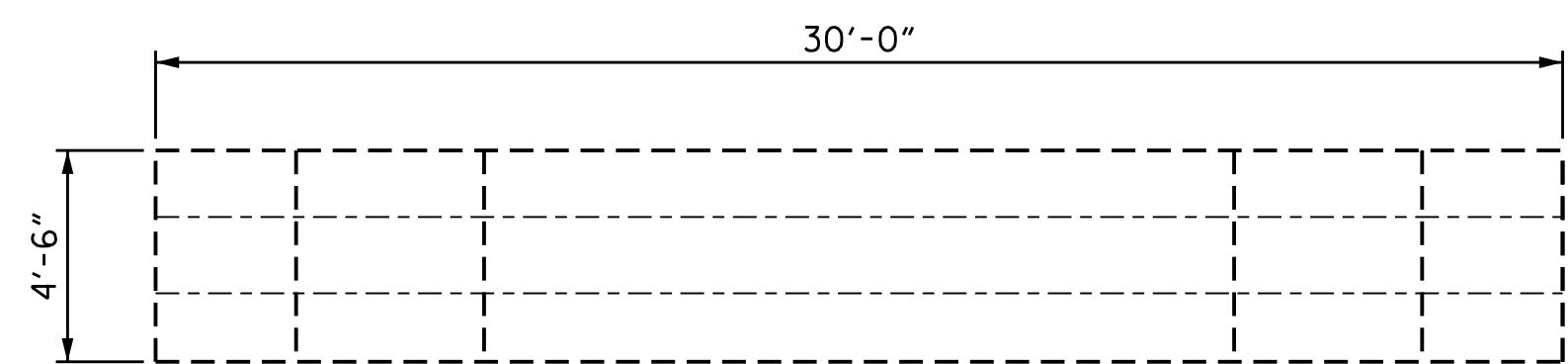
ELEVATION
SOUTH SIDE



END VIEW
EAST SIDE



ELEVATION
NORTH SIDE



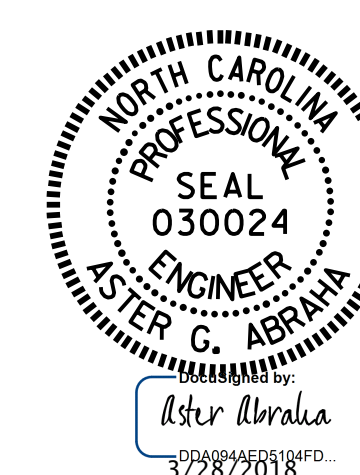
PLAN
BOTTOM OF CAP
(LOOKING UP)

SPAN 2

SPAN 3

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIR
 BENT 2**

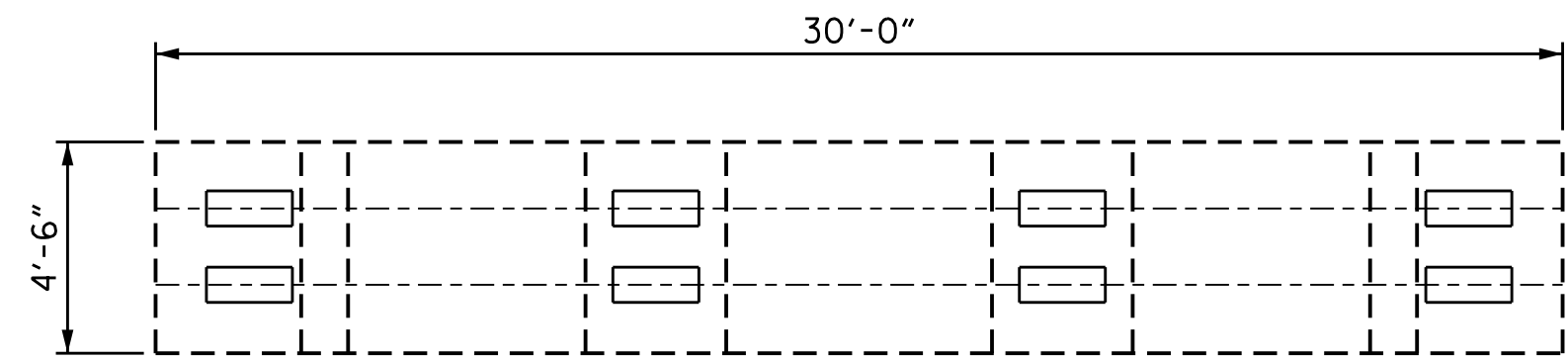
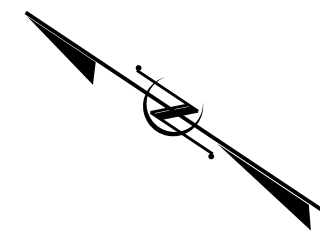
REVISIONS

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2			4		

SHEET NO.
S-22
TOTAL SHEETS
34

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DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018



PLAN
TOP OF CAP

SPAN 4

SPAN 3

NOTES:

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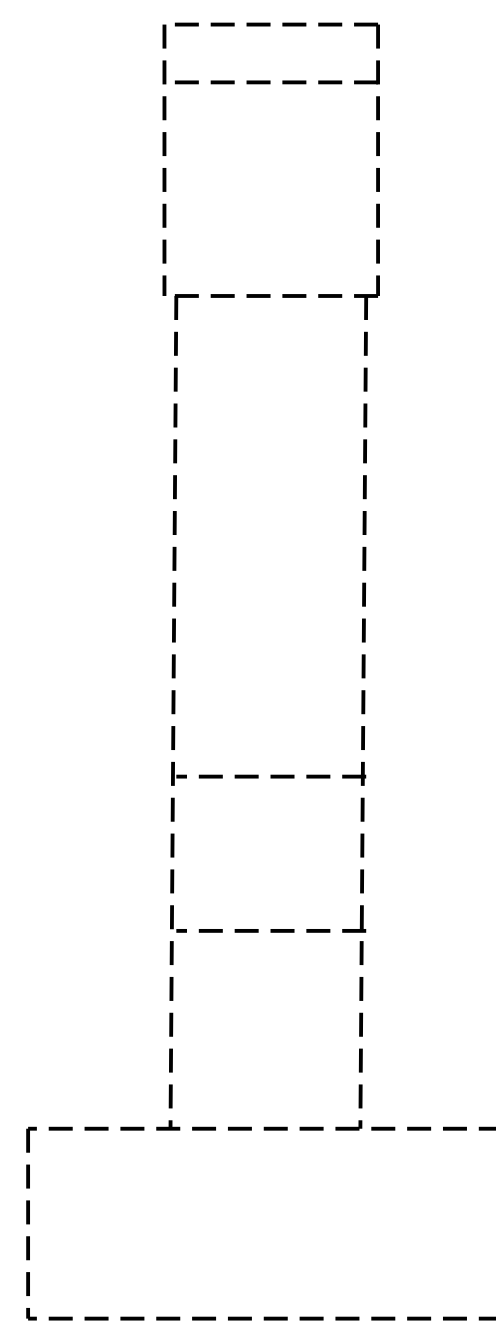
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

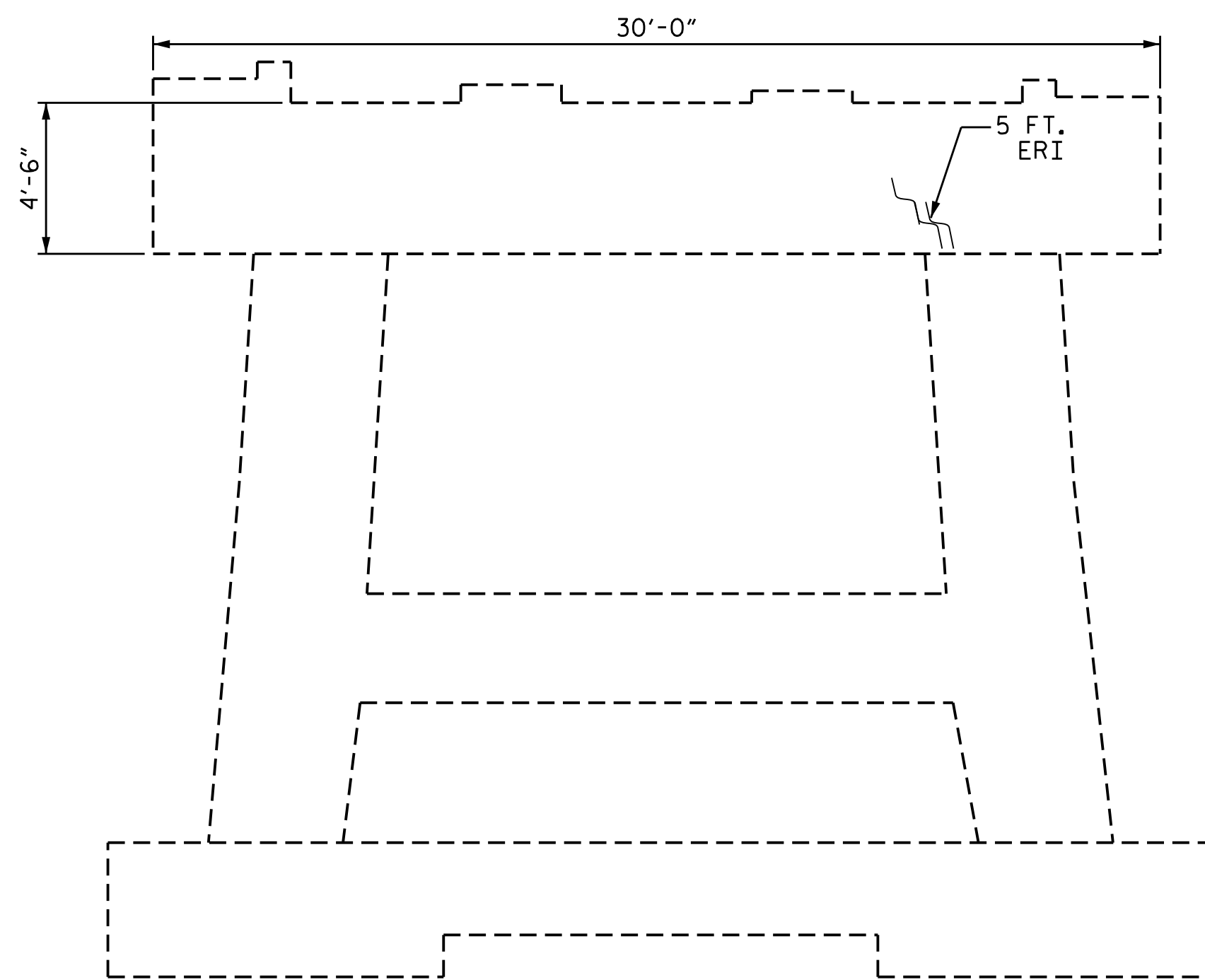
REPAIR QUANTITY TABLE

BENT 3	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE 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	2.0	1.0		
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			
CAP	7.0			
COLUMN	0.0			
EPOXY COATING	AREA SF			
TOP OF CAP	135.0			

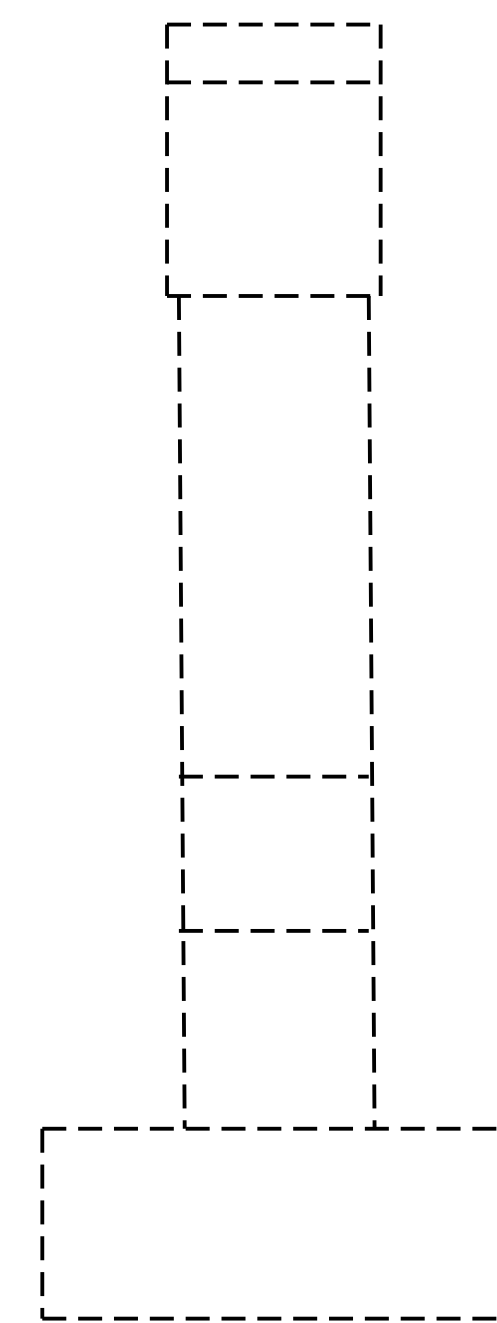
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



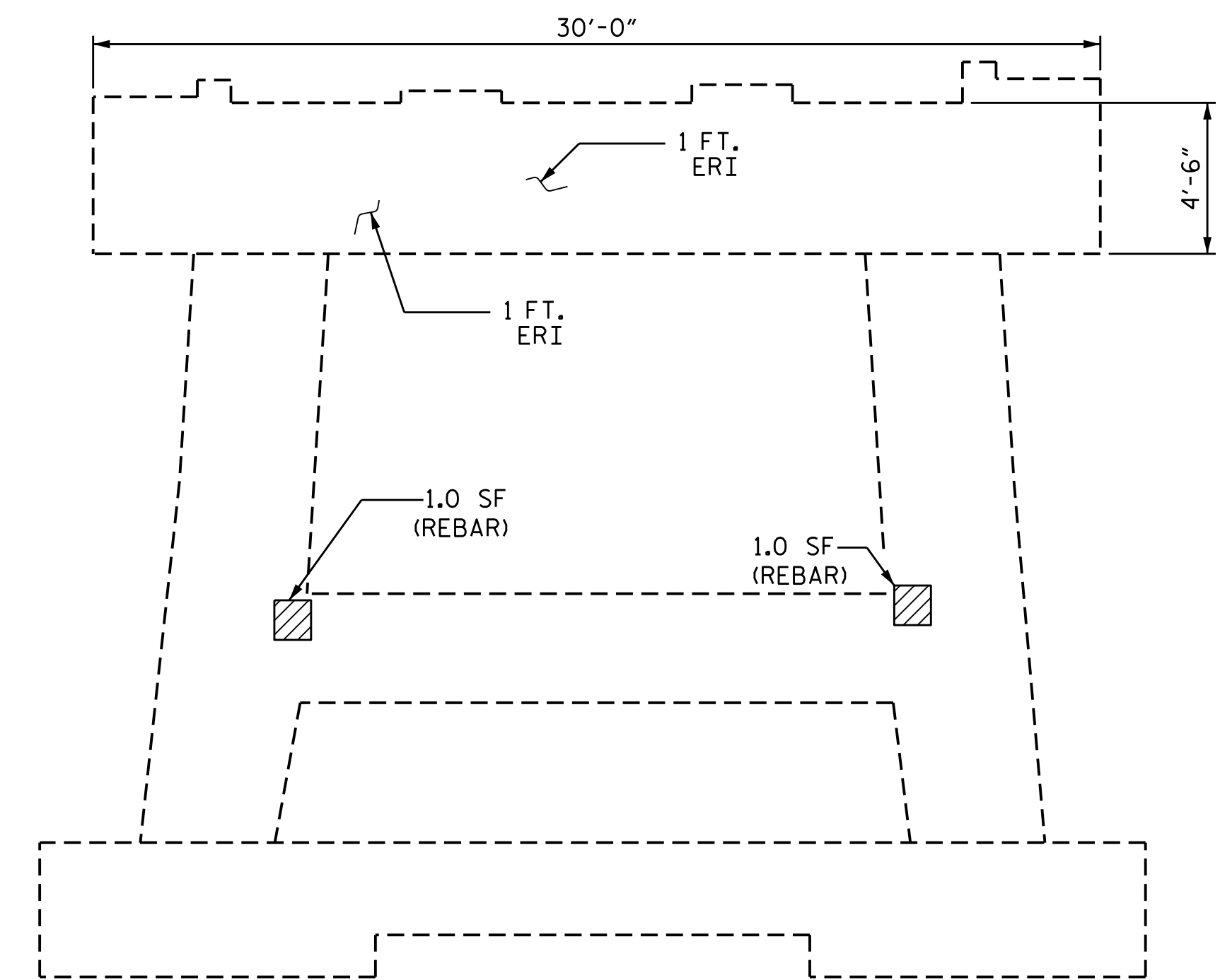
END VIEW
WEST SIDE



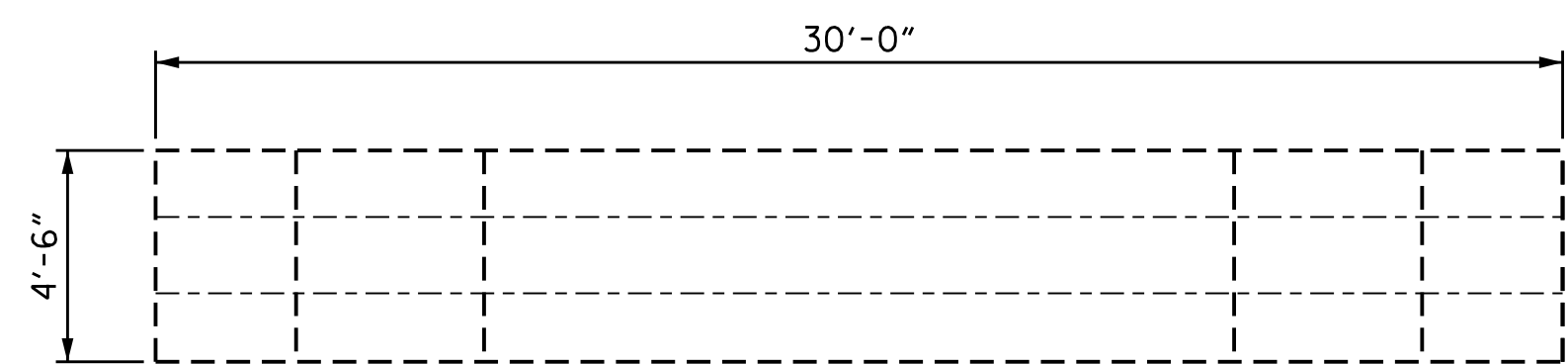
ELEVATION
SOUTH SIDE



END VIEW
EAST SIDE



ELEVATION
NORTH SIDE



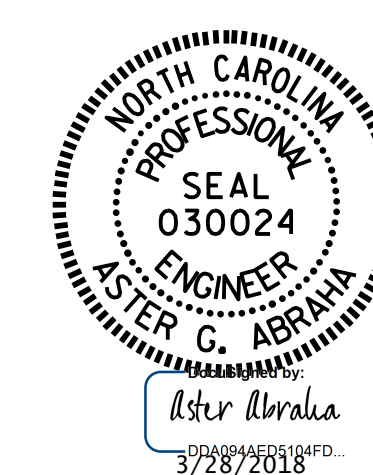
PLAN
BOTTOM OF CAP
(LOOKING UP)

SPAN 3

SPAN 4

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16



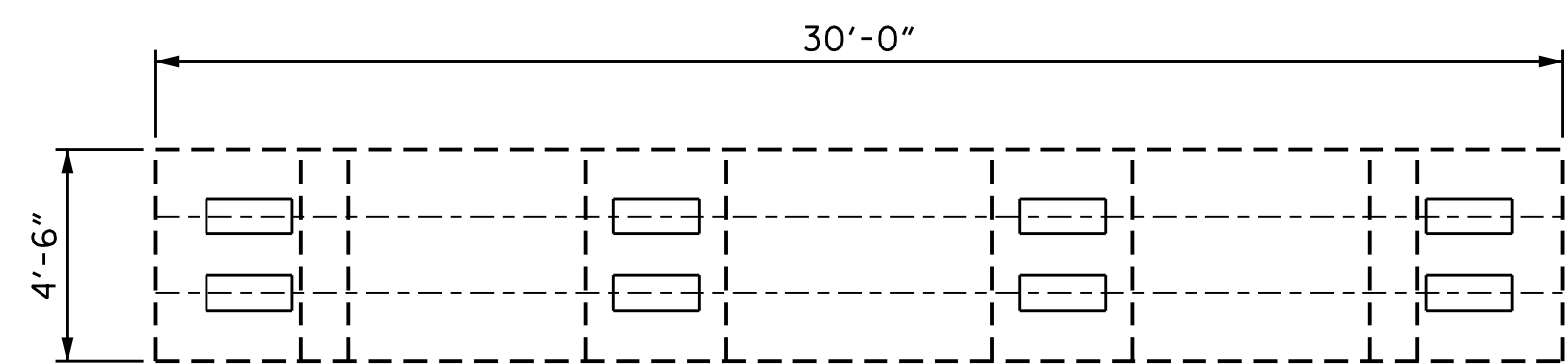
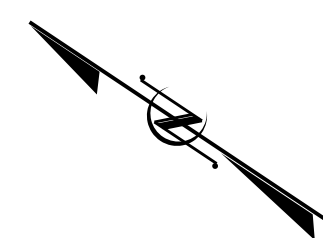
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIR
 BENT 3**

DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

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NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-23
2			4			34



PLAN
TOP OF CAP

SPAN 5

SPAN 4

NOTES:

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

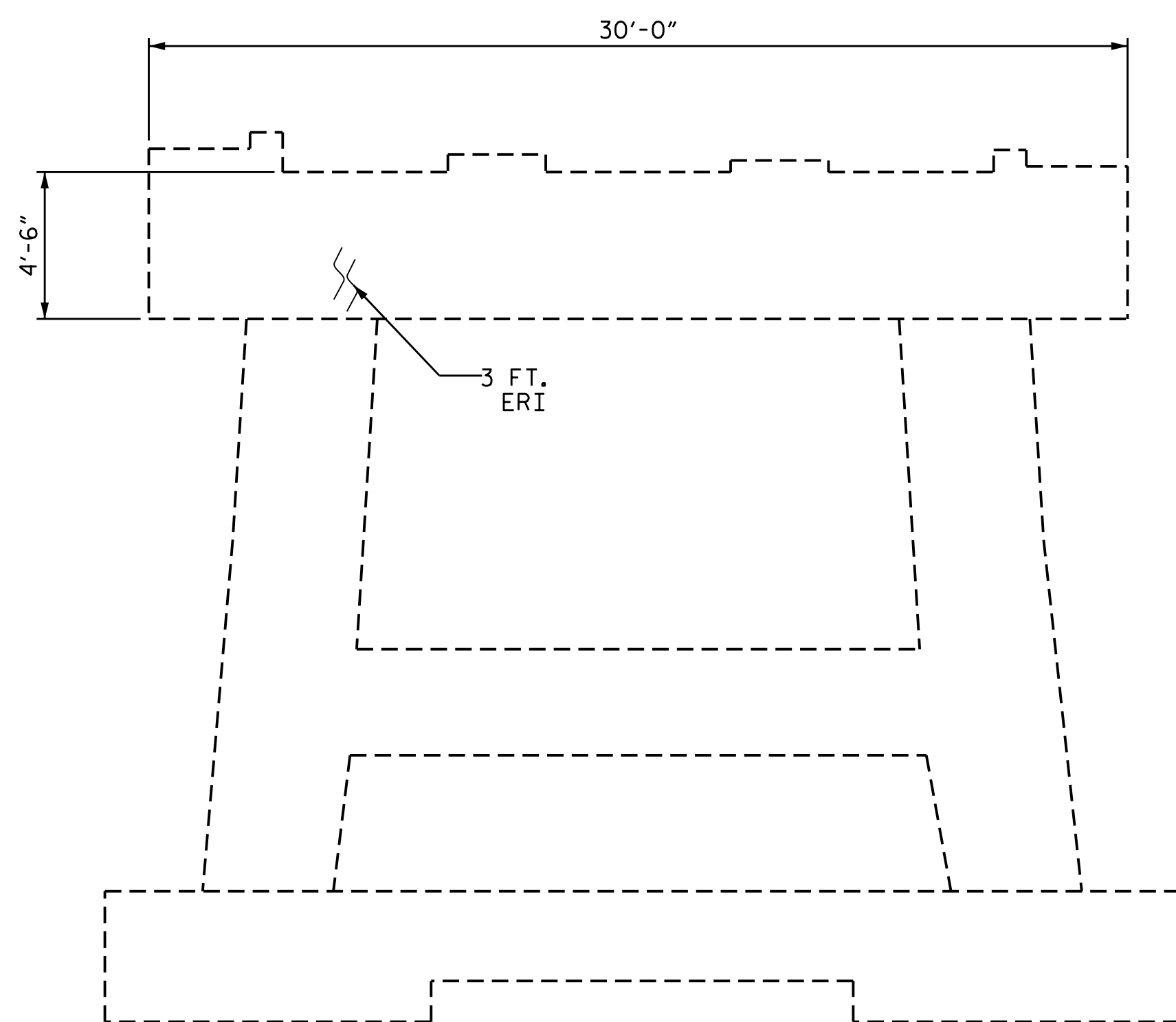
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

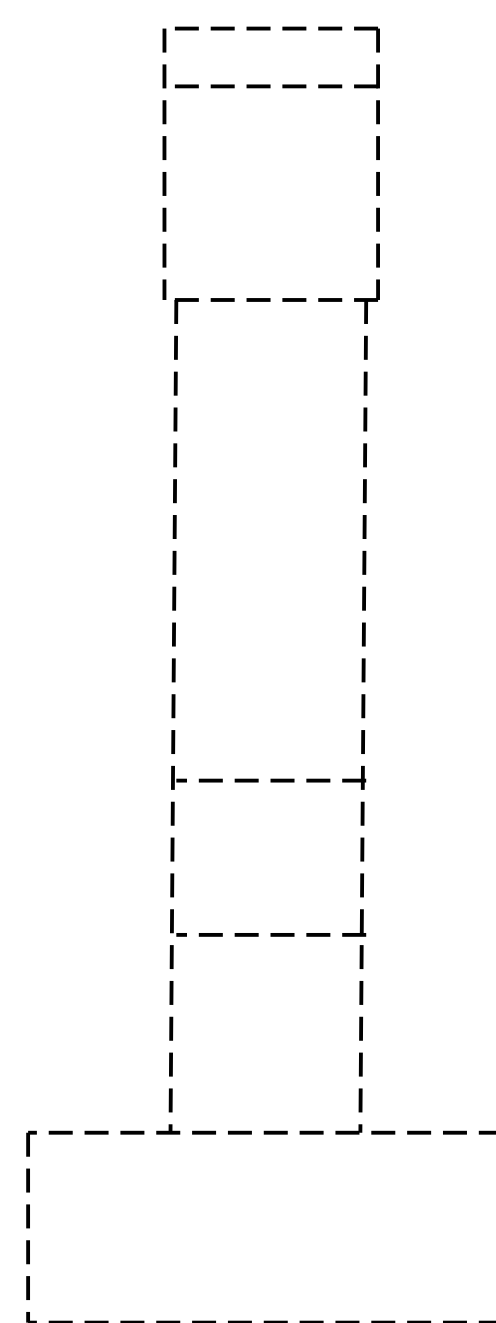
REPAIR QUANTITY TABLE

BENT 4	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	2.0	1.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	3.0	1.5		
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			
CAP	8.0			
COLUMN	0.0			
EPOXY COATING	AREA SF			
TOP OF CAP	135.0			

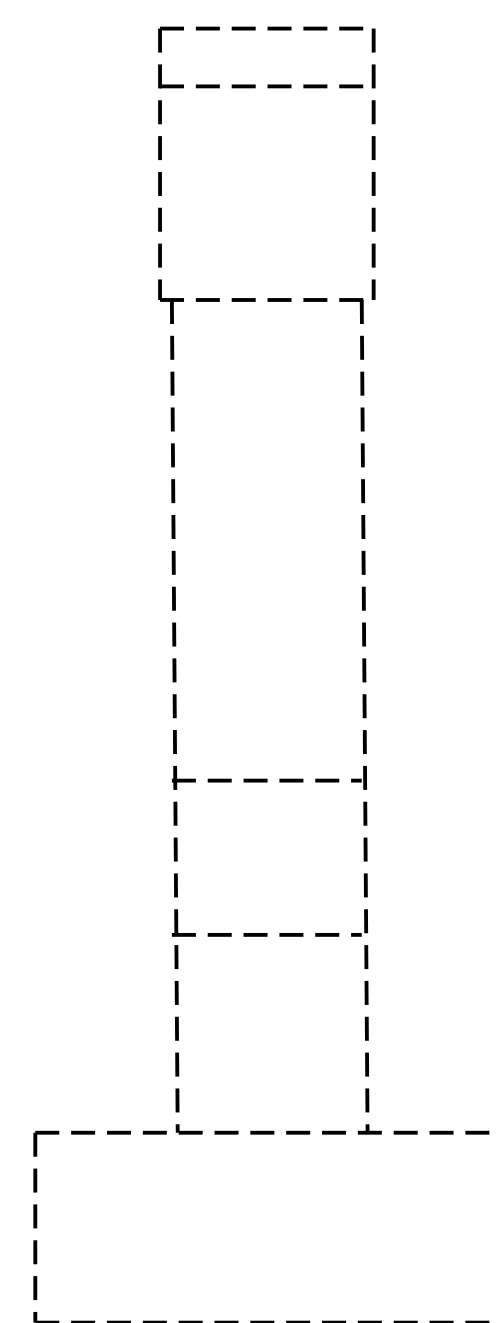
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



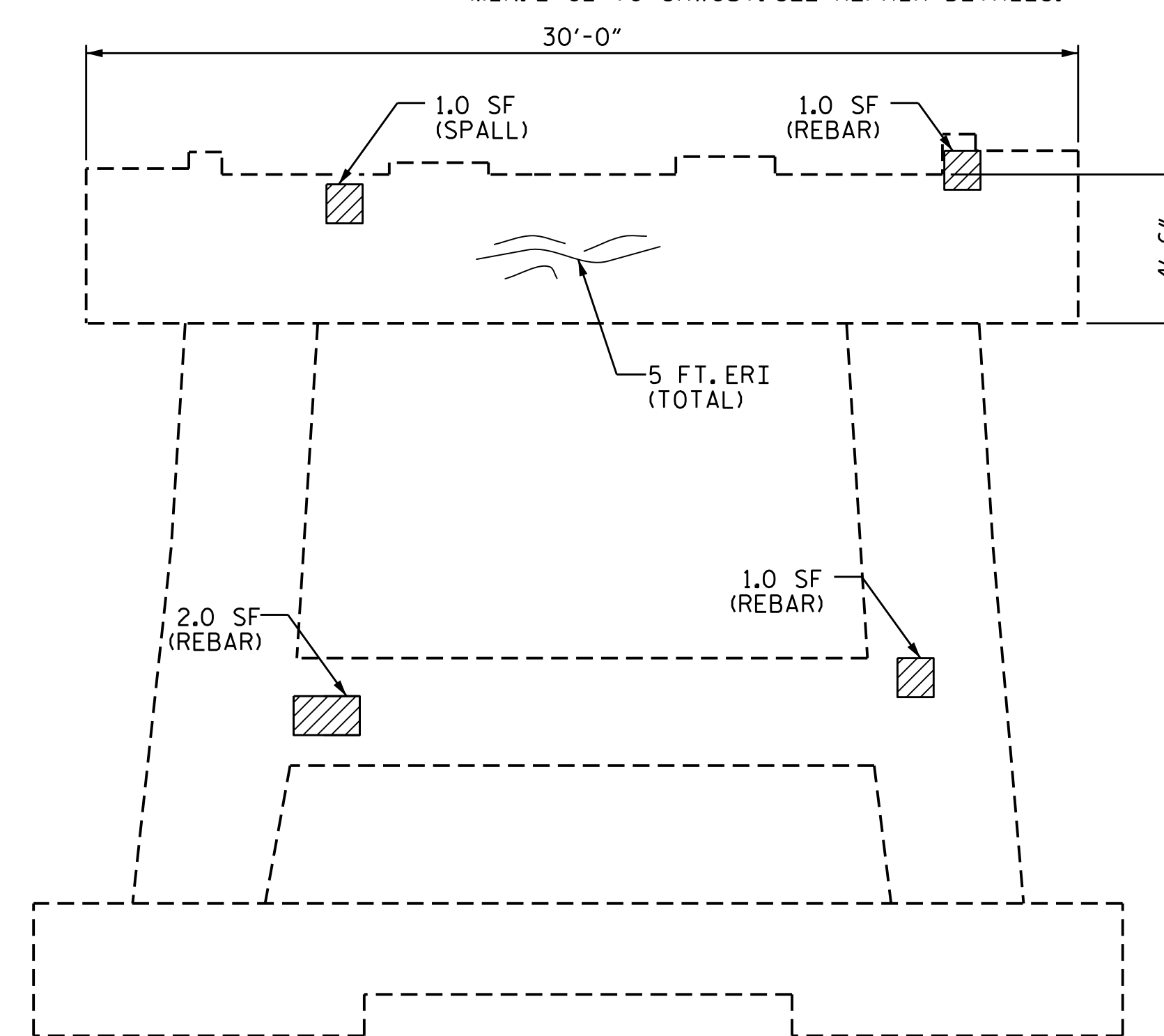
ELEVATION
SOUTH SIDE



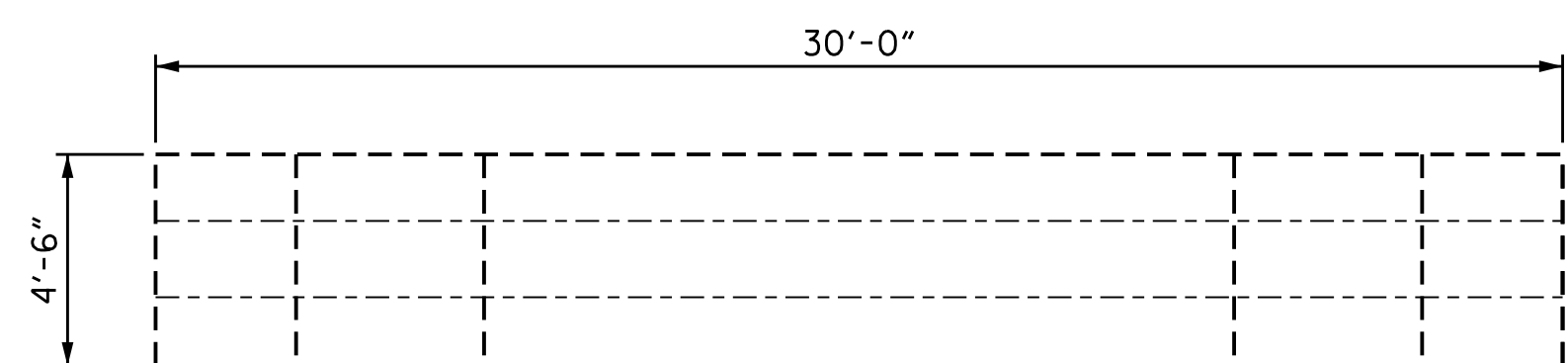
END VIEW
WEST SIDE



END VIEW
EAST SIDE



ELEVATION
NORTH SIDE



PLAN
BOTTOM OF CAP
(LOOKING UP)

SPAN 4

SPAN 5

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16



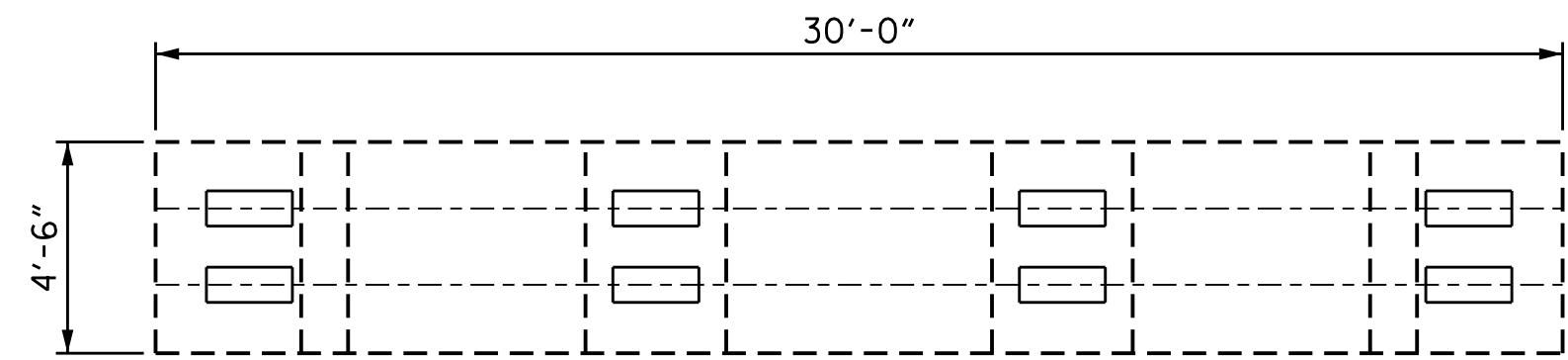
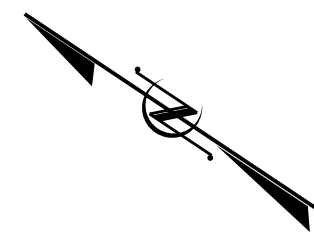
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIR
 BENT 4**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-24
2			4			34

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DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018



PLAN
TOP OF CAP

SPAN 6

SPAN 5

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.

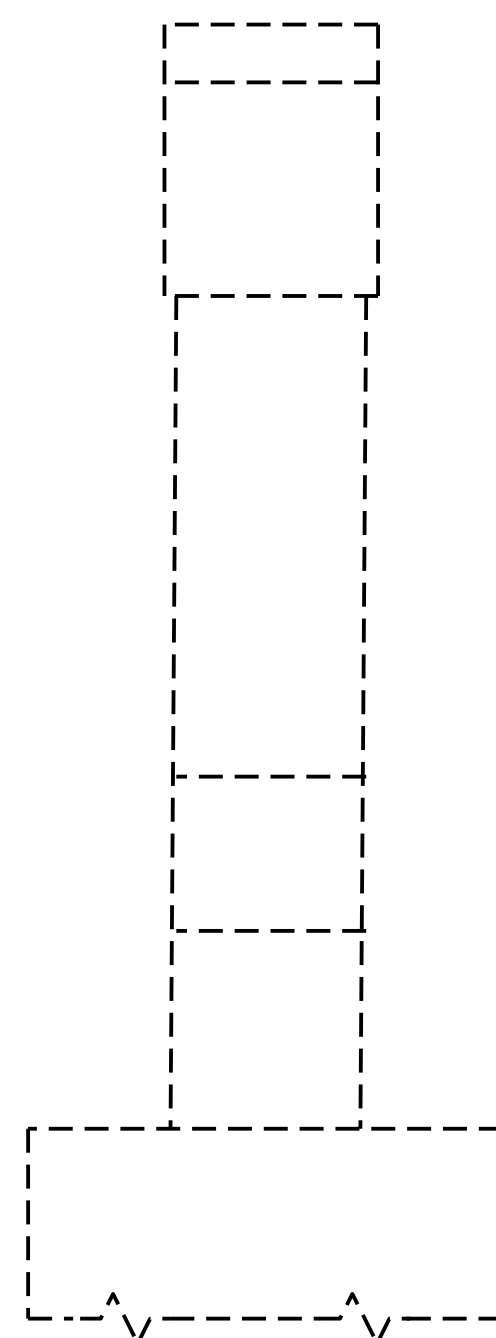
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

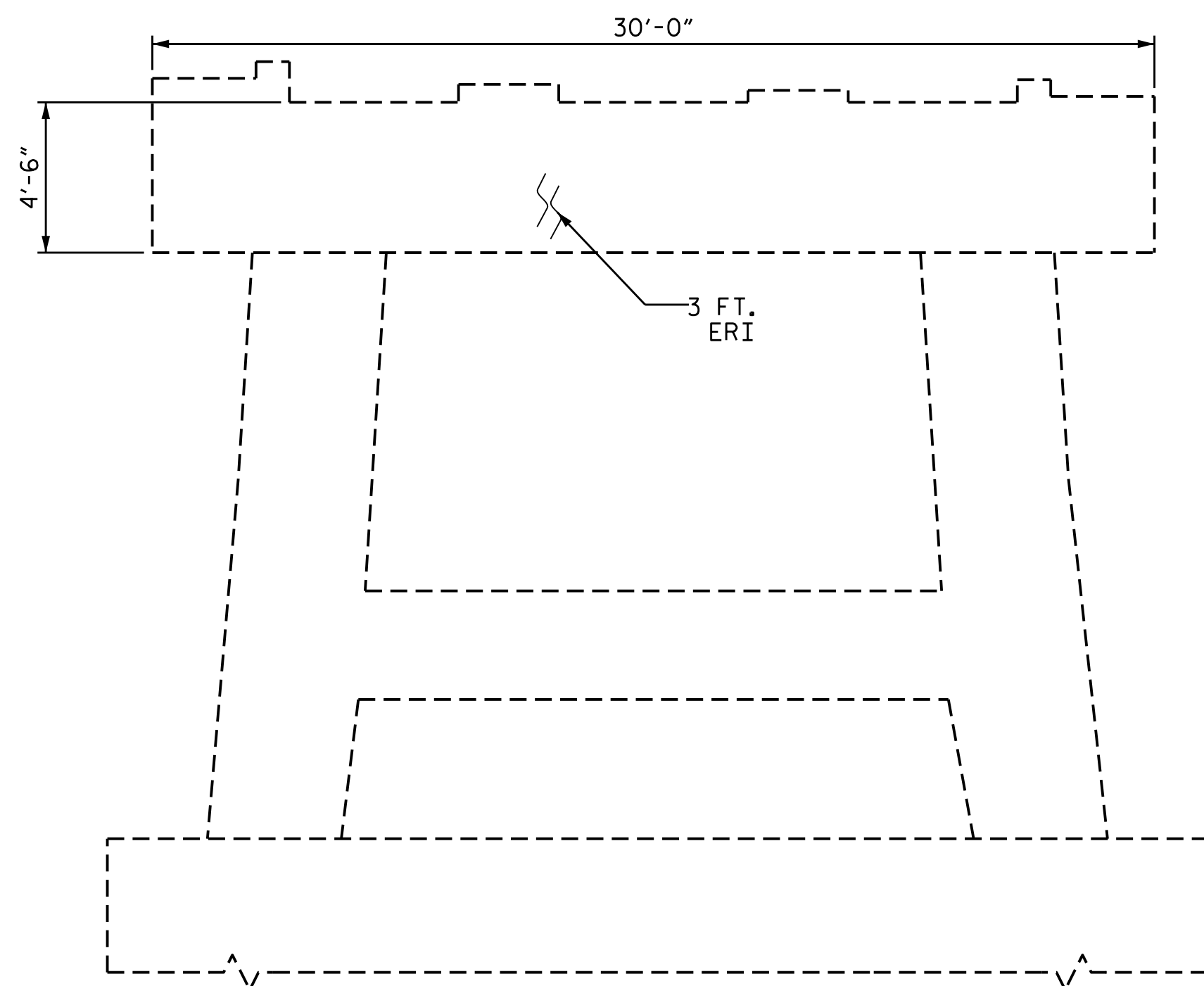
REPAIR QUANTITY TABLE

BENT 5	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE 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		
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		
CAP		3.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	135.0			

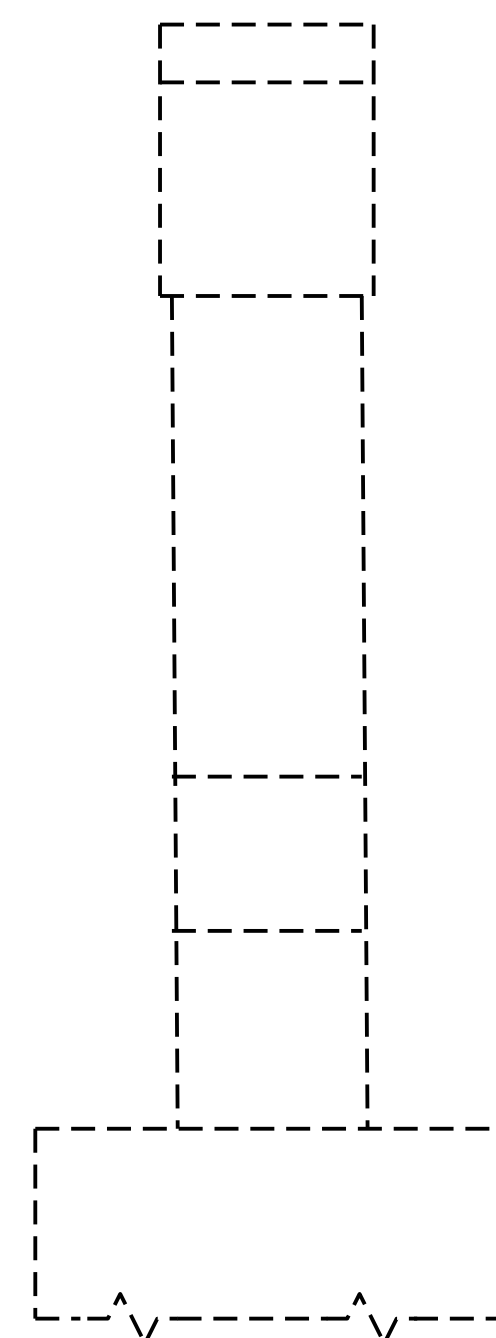
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



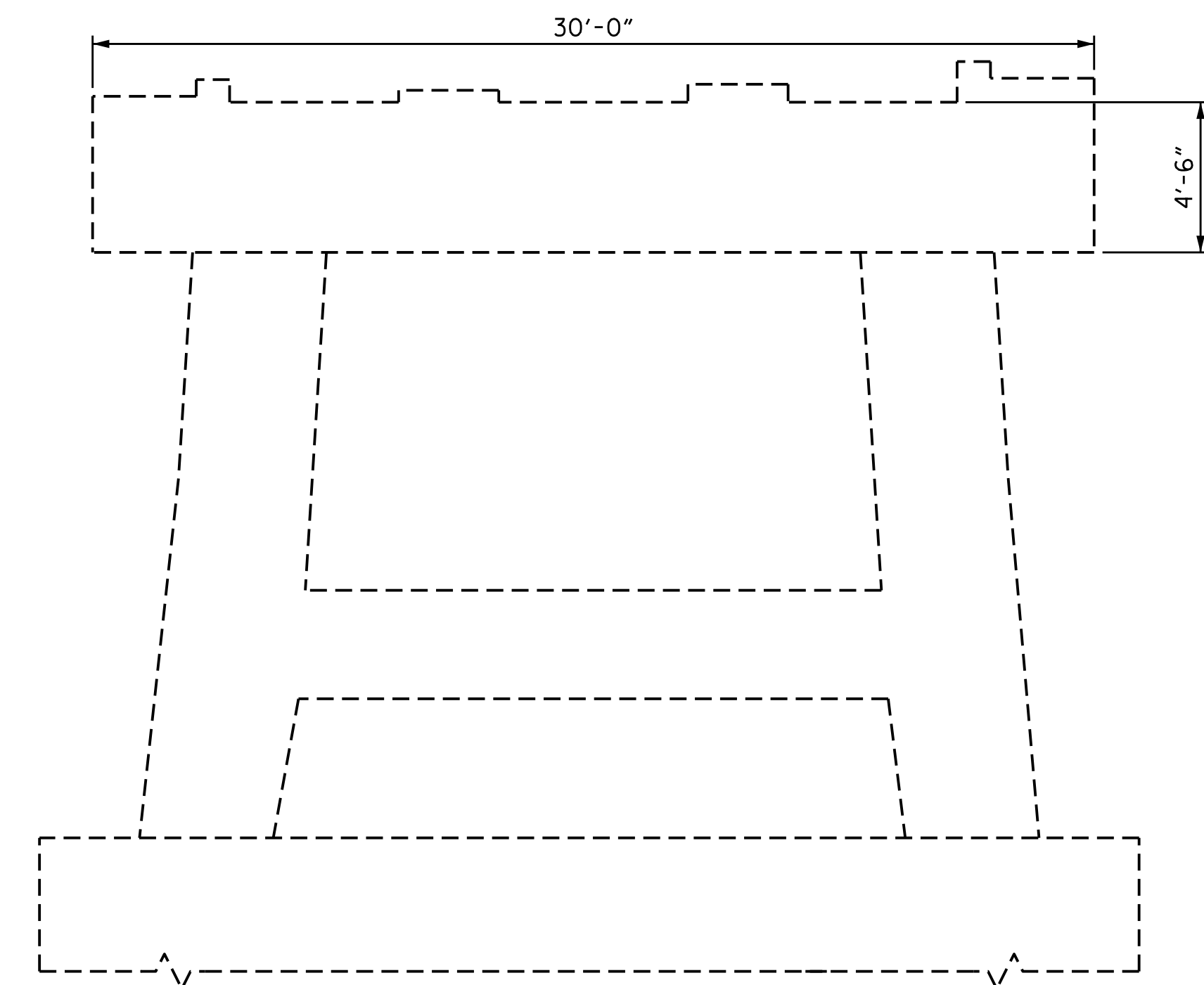
END VIEW
WEST SIDE



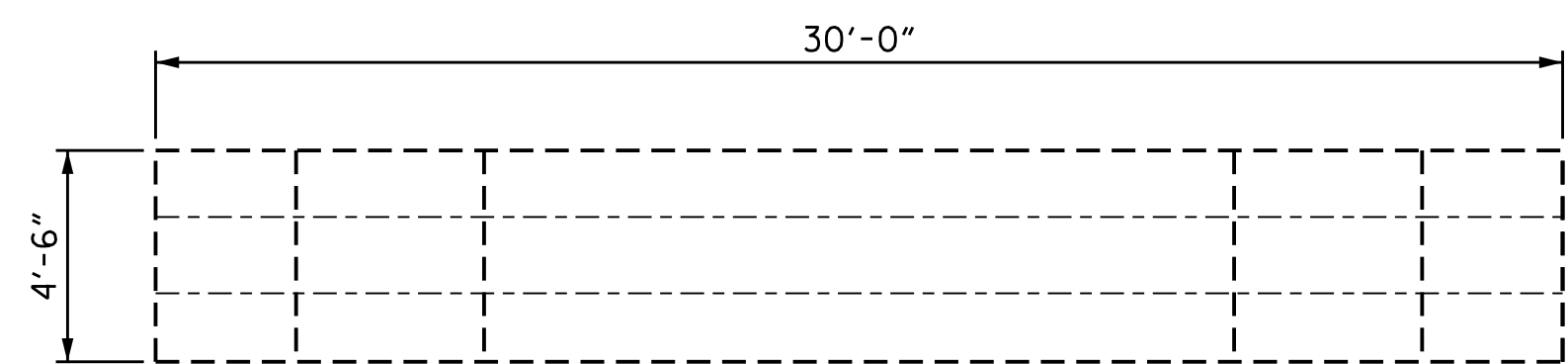
ELEVATION
SOUTH SIDE



END VIEW
EAST SIDE



ELEVATION
NORTH SIDE



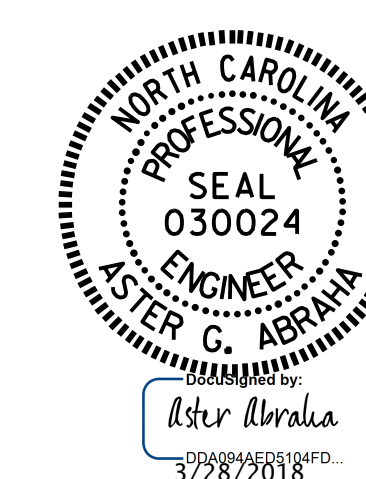
PLAN
BOTTOM OF CAP
(LOOKING UP)

SPAN 5

SPAN 6

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIR
 BENT 5**

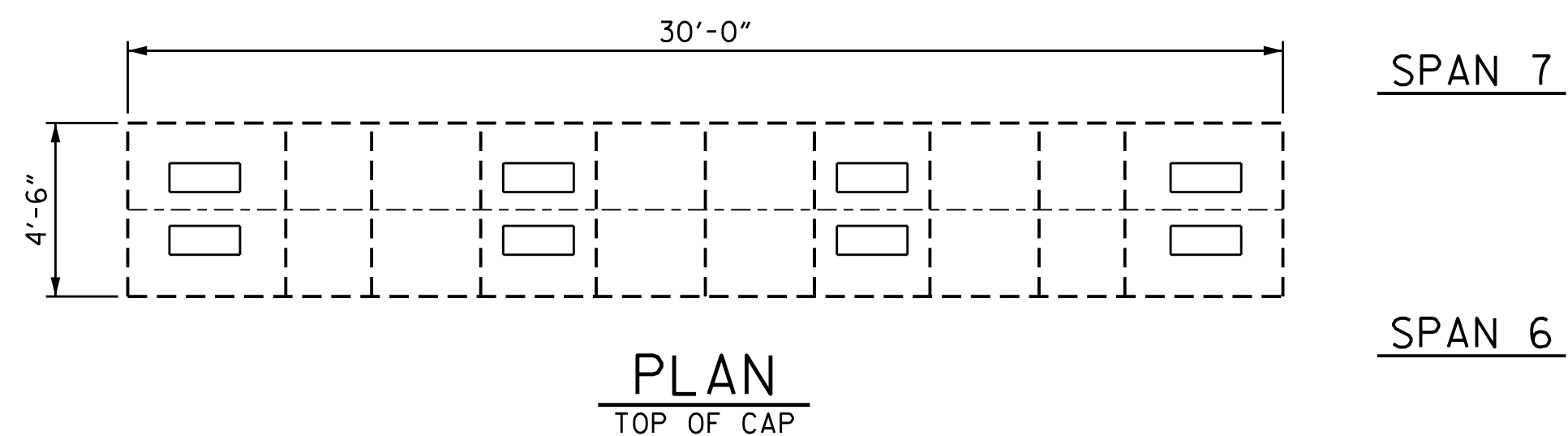
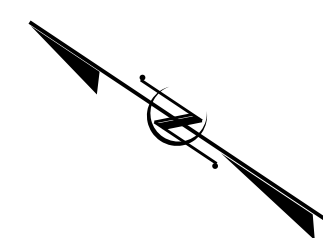
REVISIONS

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

SHEET NO.
 S-25
 TOTAL SHEETS
 34

DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

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NOTES:

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

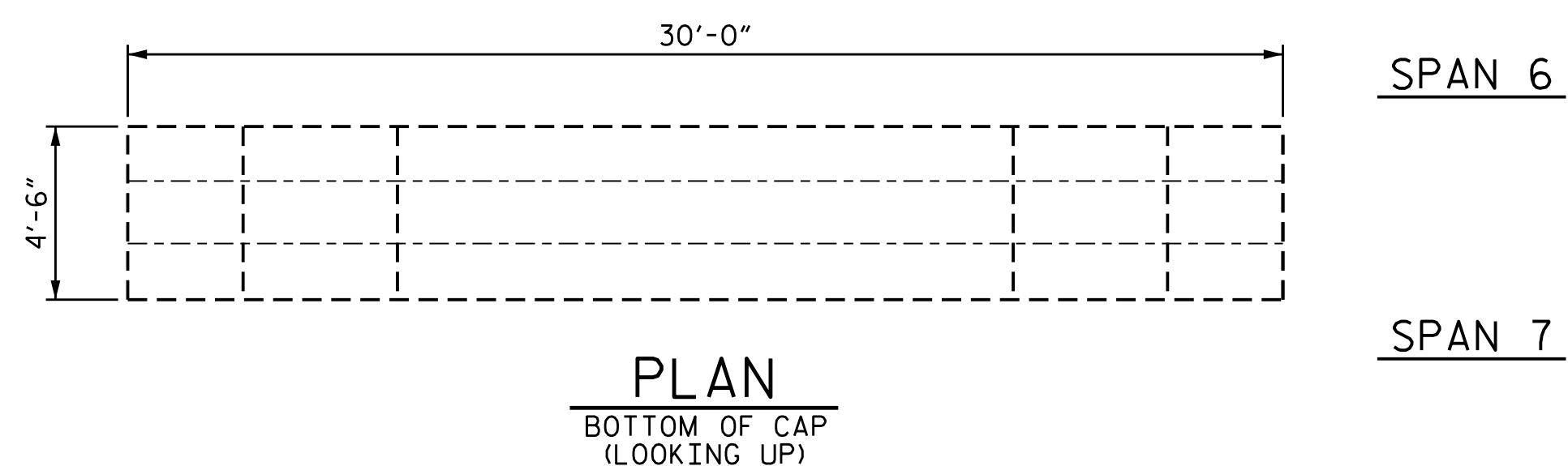
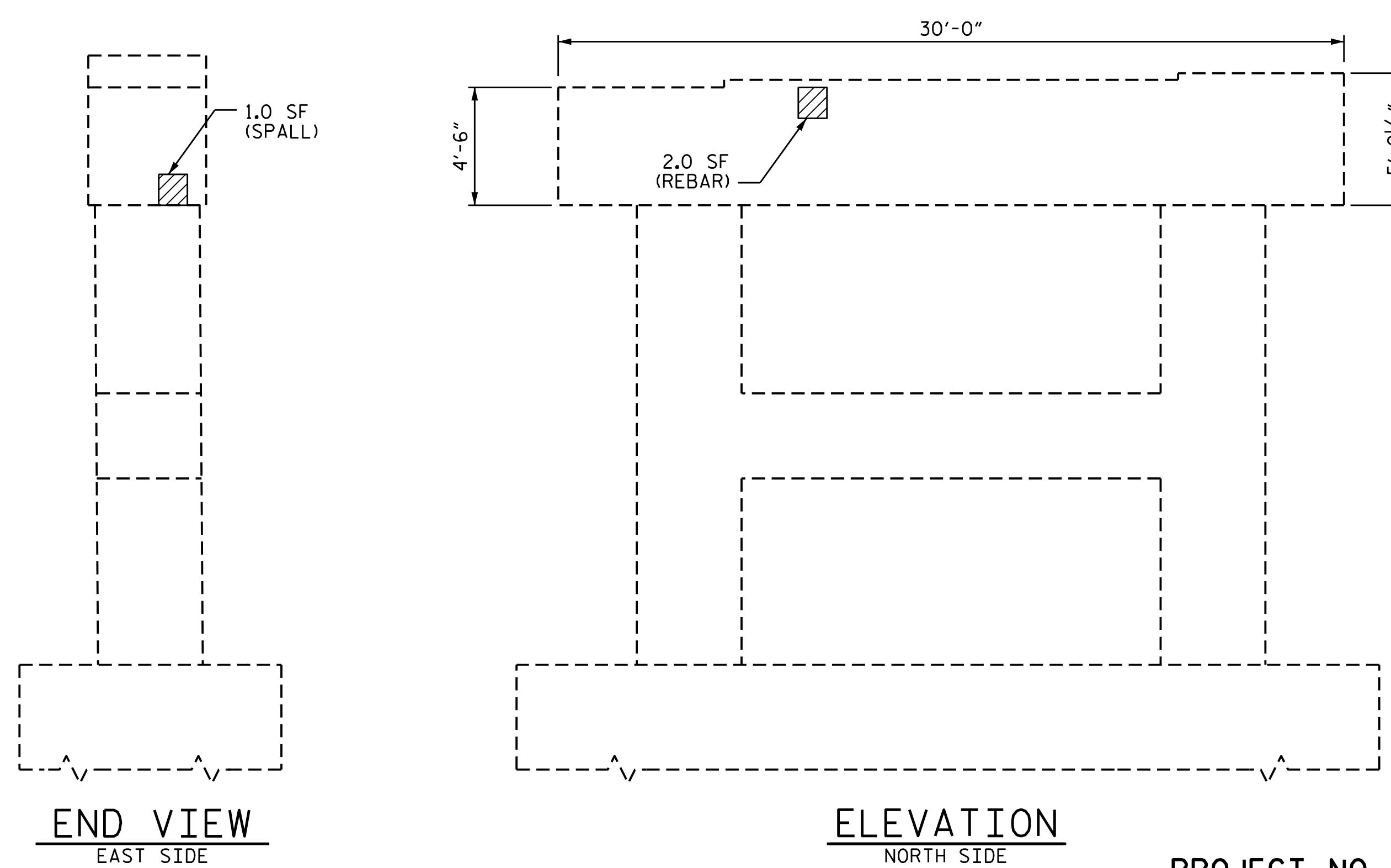
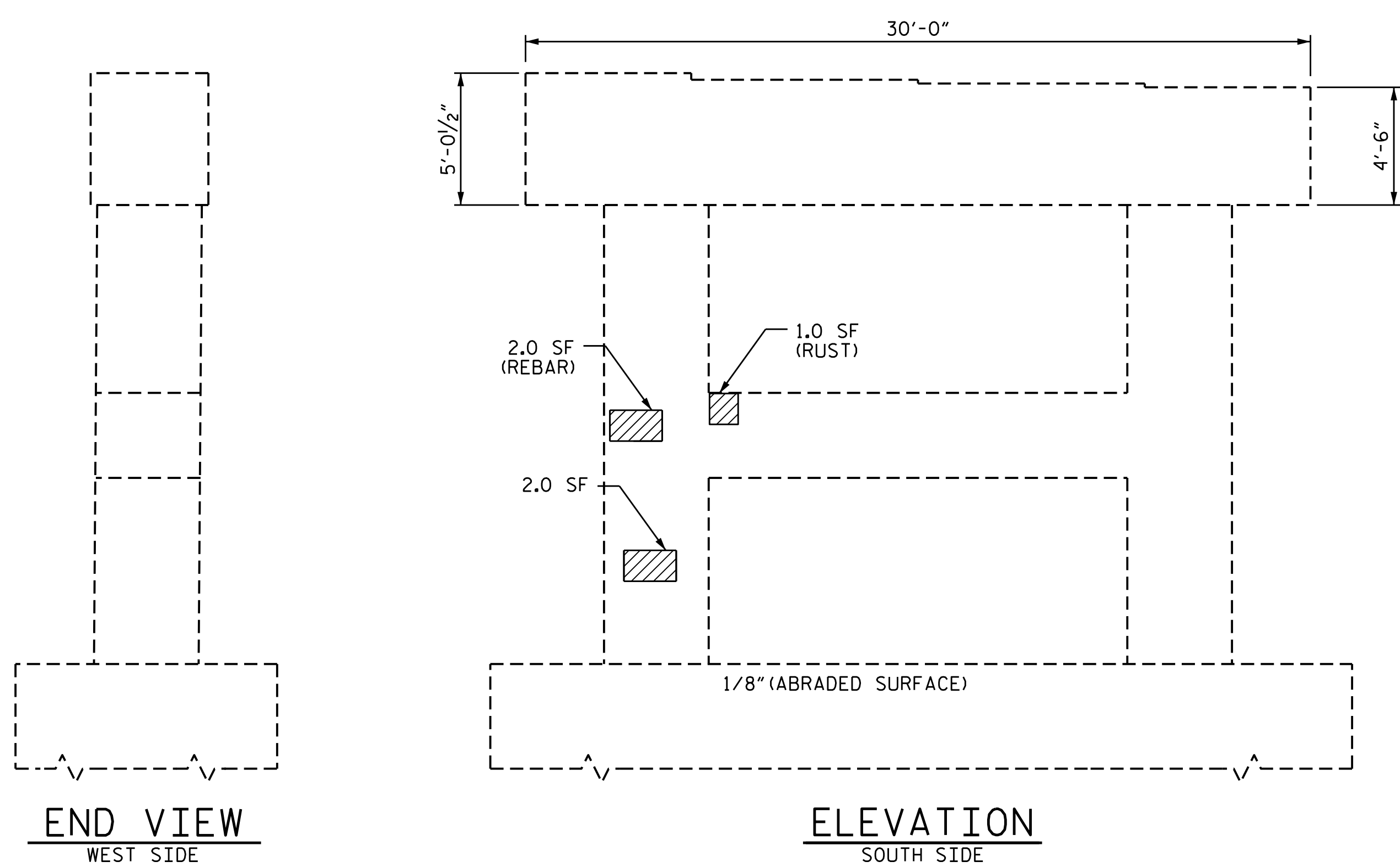
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

BENT 6	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	2.0	1.0		
CAP (HORIZONTAL FACE, CORNER)	1.0	0.5		
COLUMN	5.0	2.5		
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			
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	AREA SF			
TOP OF CAP	135.0			

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.



- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16



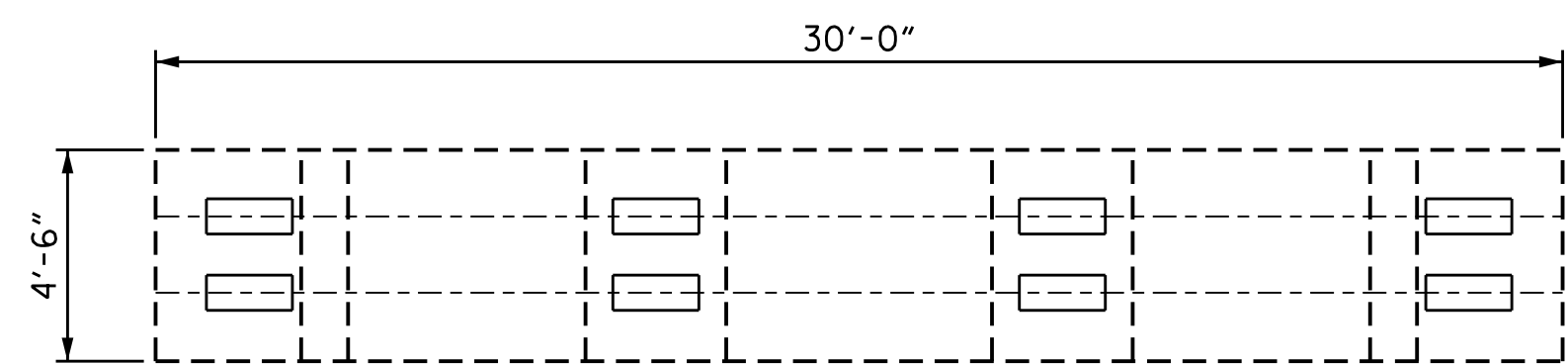
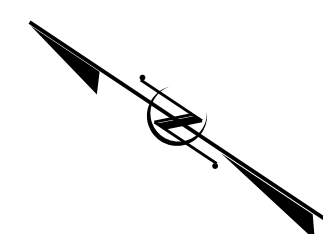
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIR
 BENT 6**

DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-26
2			4			34



PLAN
TOP OF CAP

SPAN 8

SPAN 7

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.

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

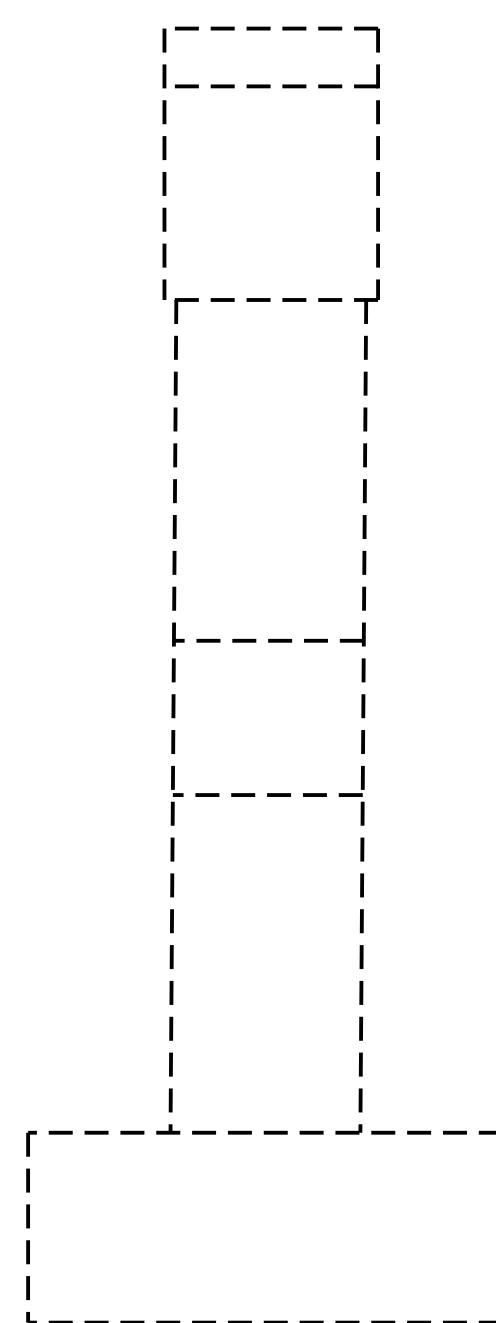
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

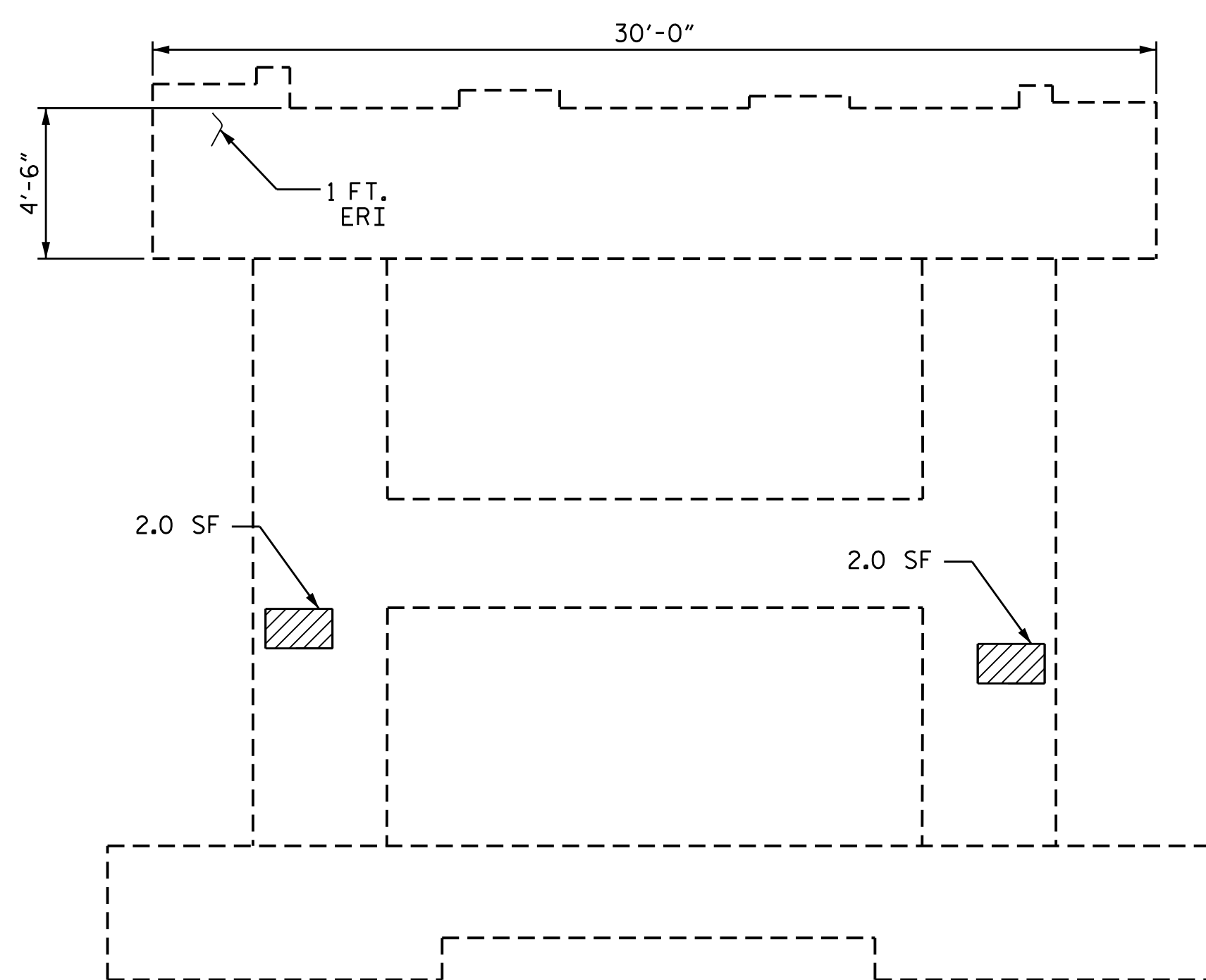
REPAIR QUANTITY TABLE

BENT 7	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE 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	6.0	3.0		
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		
CAP		1.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	135.0			

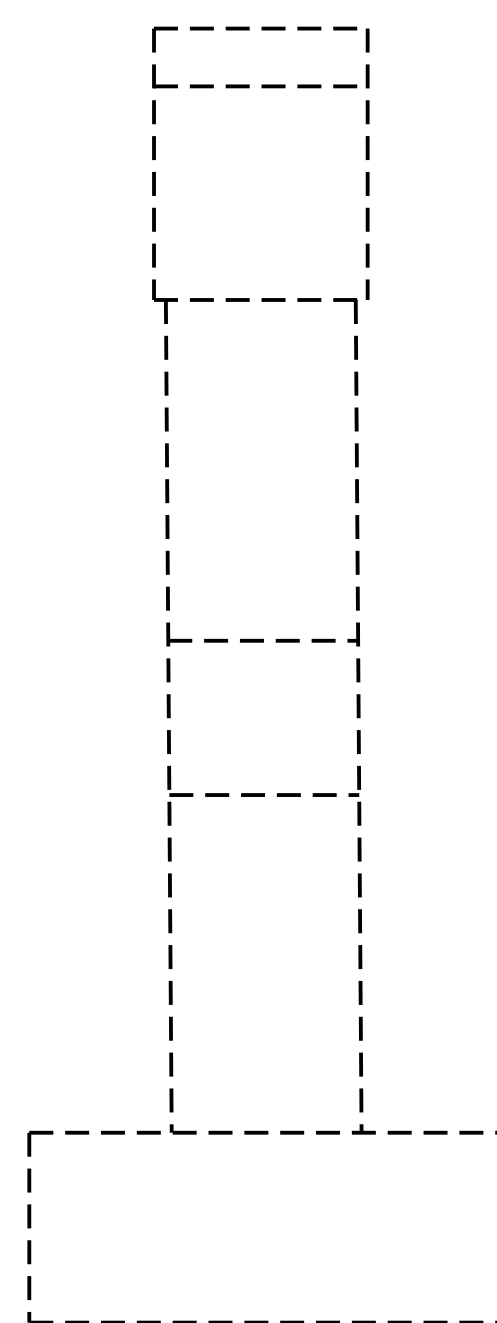
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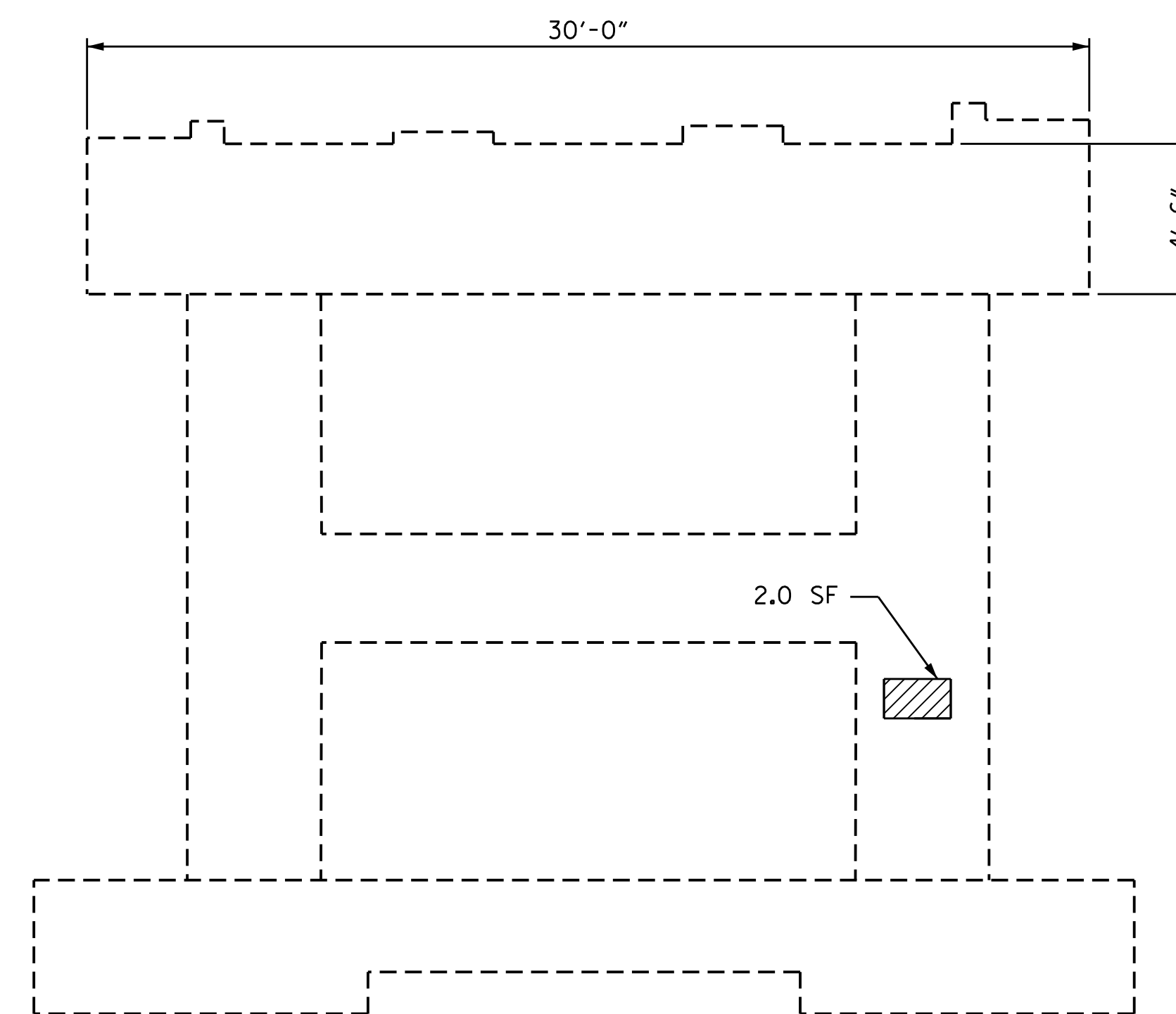
END VIEW
WEST SIDE



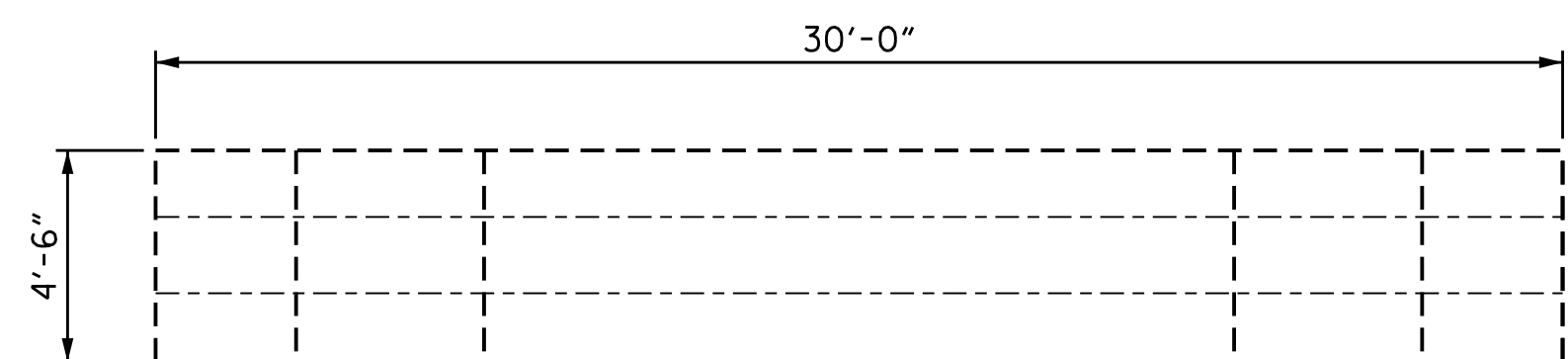
ELEVATION
SOUTH SIDE



END VIEW
EAST SIDE



ELEVATION
NORTH SIDE



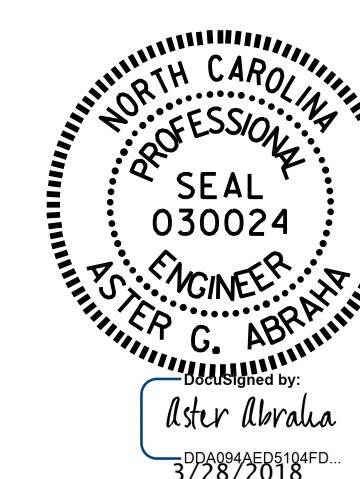
PLAN
BOTTOM OF CAP
(LOOKING UP)

SPAN 7

SPAN 8

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

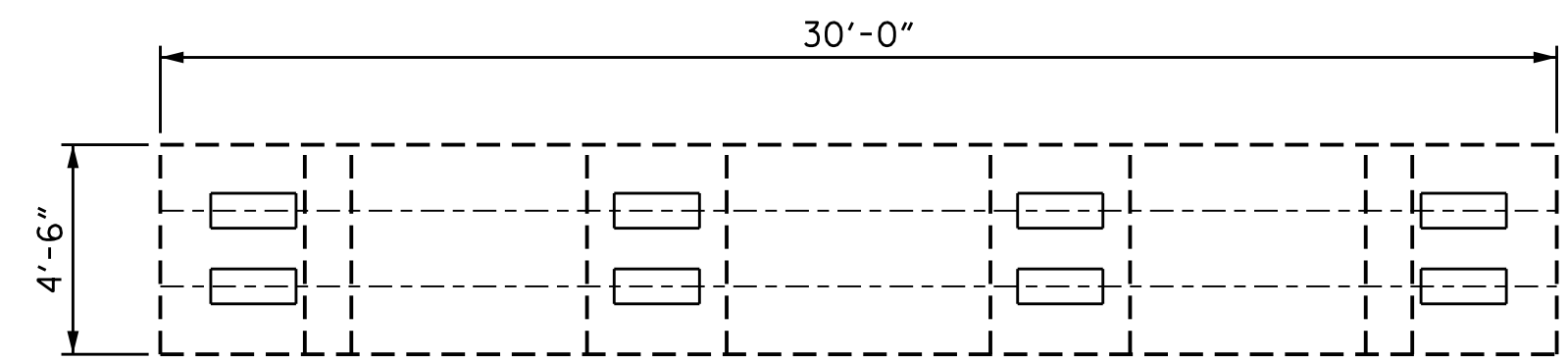
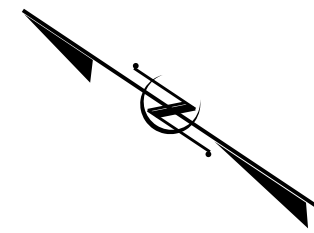
**SUBSTRUCTURE
 REPAIR
 BENT 7**

REVISIONS

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

SHEET NO.
S-27
TOTAL SHEETS
34

DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018



PLAN
TOP OF CAP

SPAN 9

SPAN 8

NOTES:

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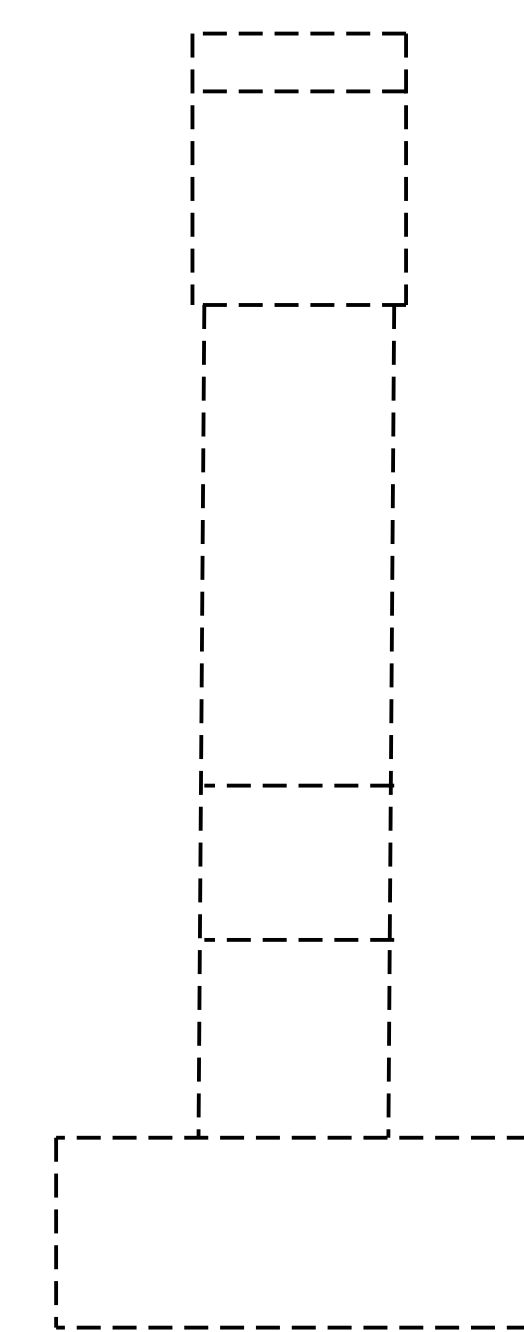
FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

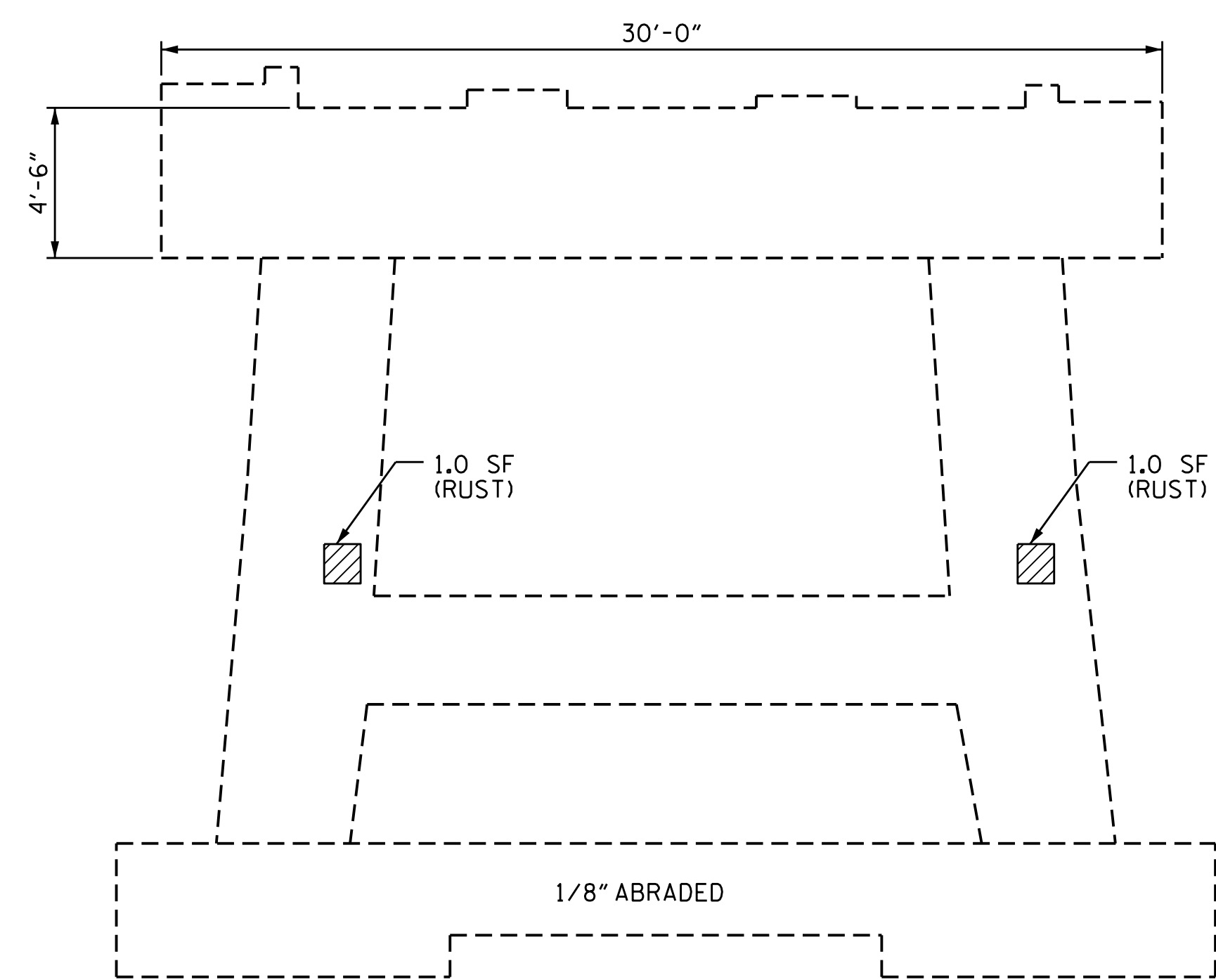
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE				
BENT 8	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE 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	3.0	1.5		
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		
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	135.0			

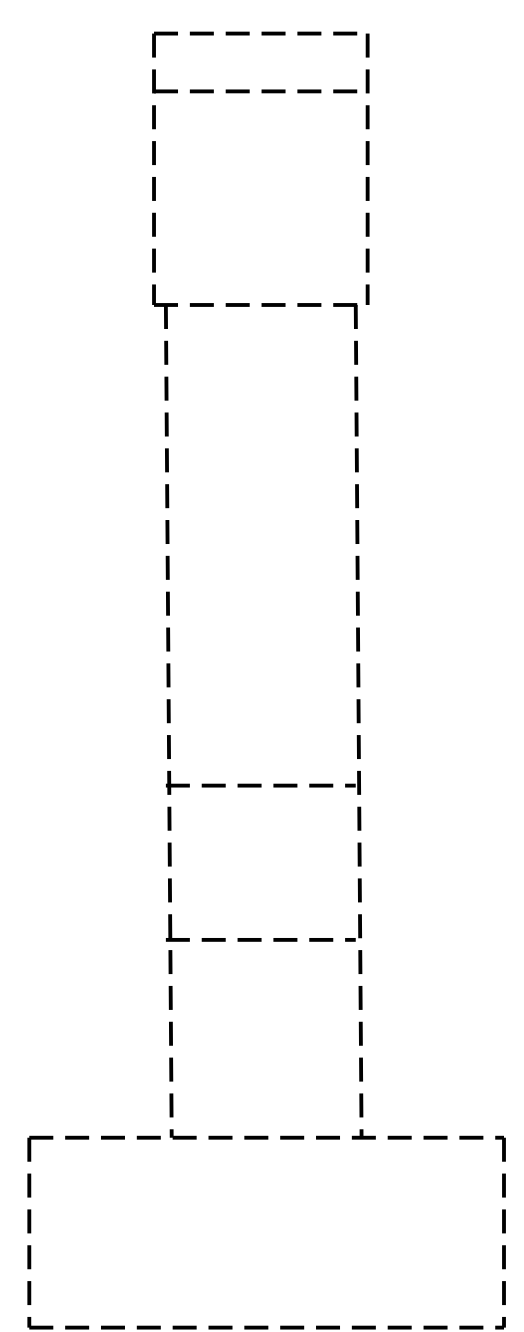
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



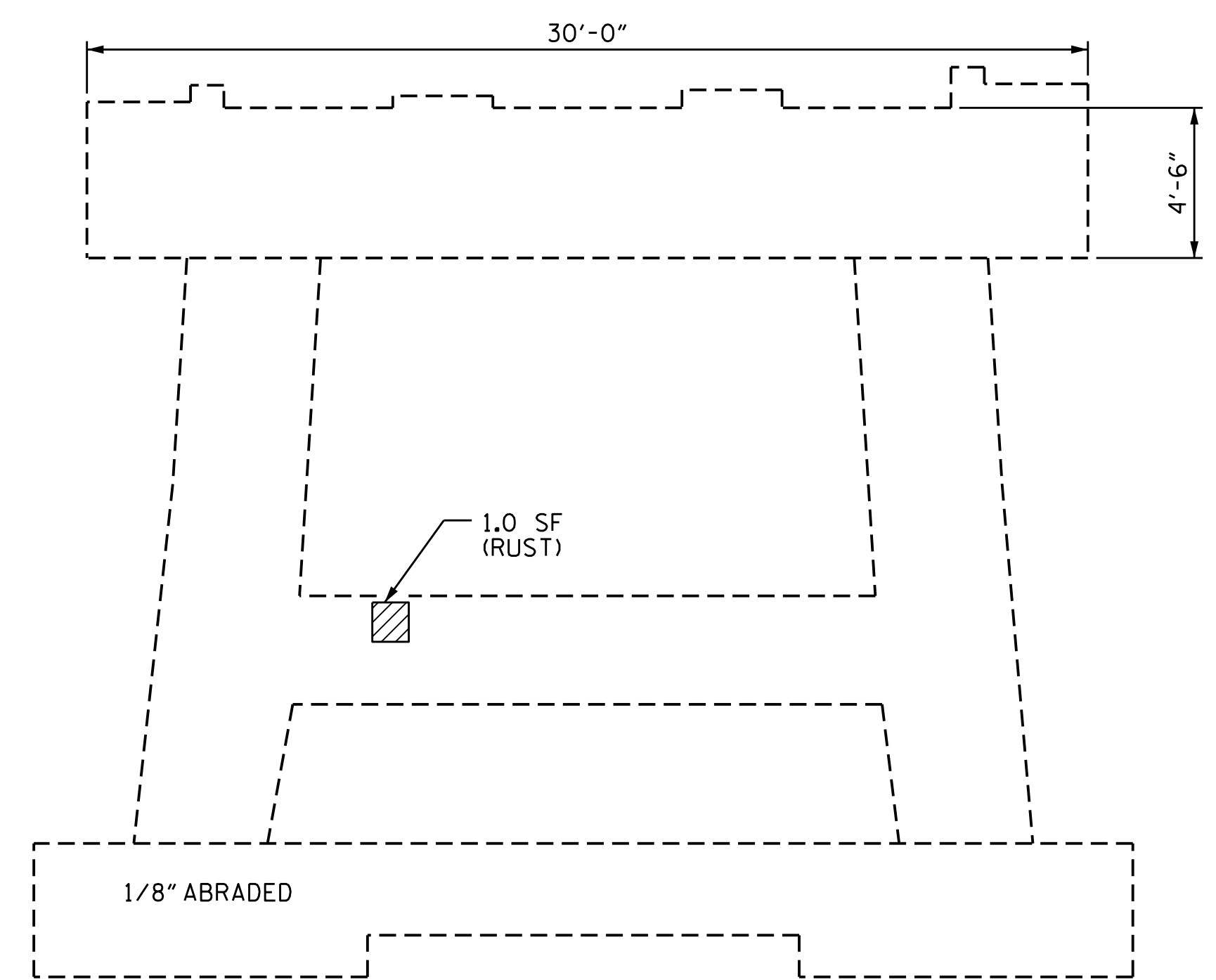
END VIEW
WEST SIDE



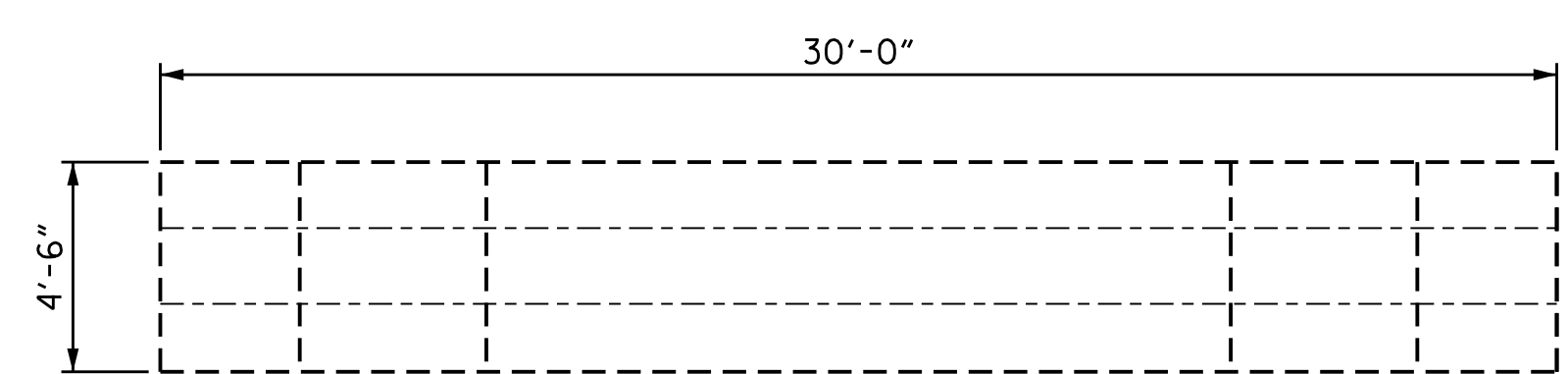
ELEVATION
SOUTH SIDE



END VIEW
EAST SIDE



ELEVATION
NORTH SIDE



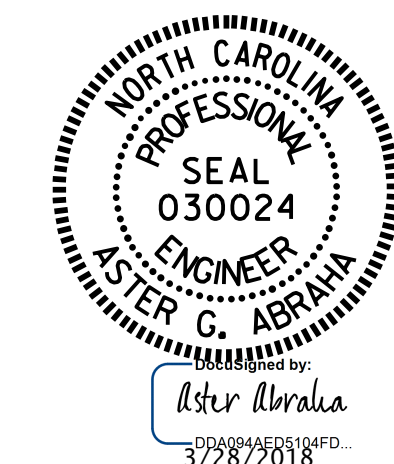
PLAN
BOTTOM OF CAP
(LOOKING UP)

SPAN 8

SPAN 9

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIR
 BENT 8**

DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-28
2			4			34

REPAIR QUANTITY TABLE

BENT 9	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	5.0	2.5		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	8.0	4.0		
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		
CAP		0.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	135.0			

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:

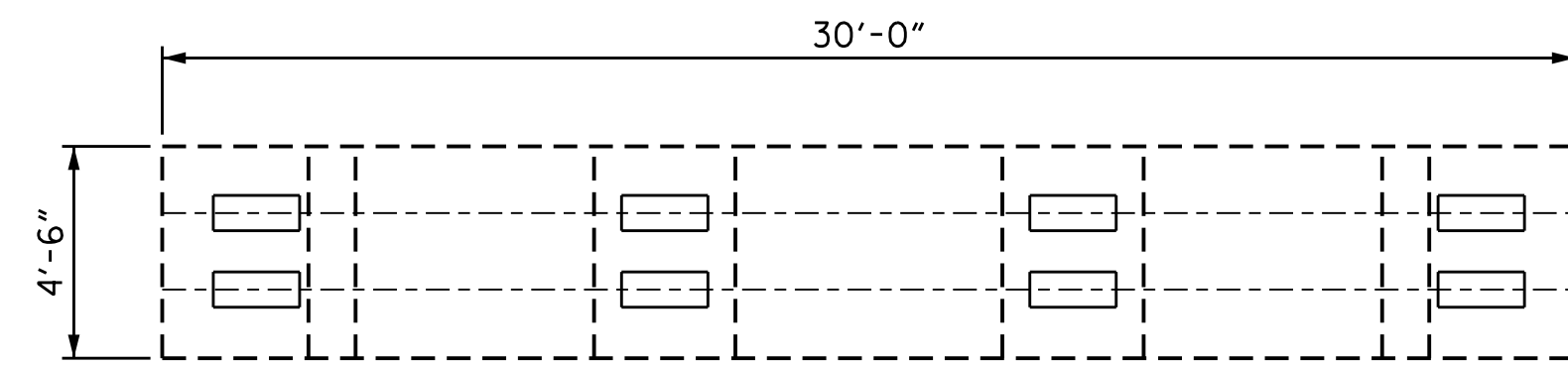
REPAIR LOCATIONS AND ESTIMATE OF QUANTITIES ARE GIVEN WITH THE BEST INFORMATION AVAILABLE. IF ADDITIONAL REPAIRS NOT SHOWN ON THE DRAWINGS ARE DEEMED NECESSARY BY THE INSPECTOR OR ENGINEER, THE CONTRACTOR SHALL NOTE ON THE DRAWINGS THE APPROXIMATE LOCATION AND DESCRIPTION OF THE REPAIRS AND ADJUST THE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

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FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

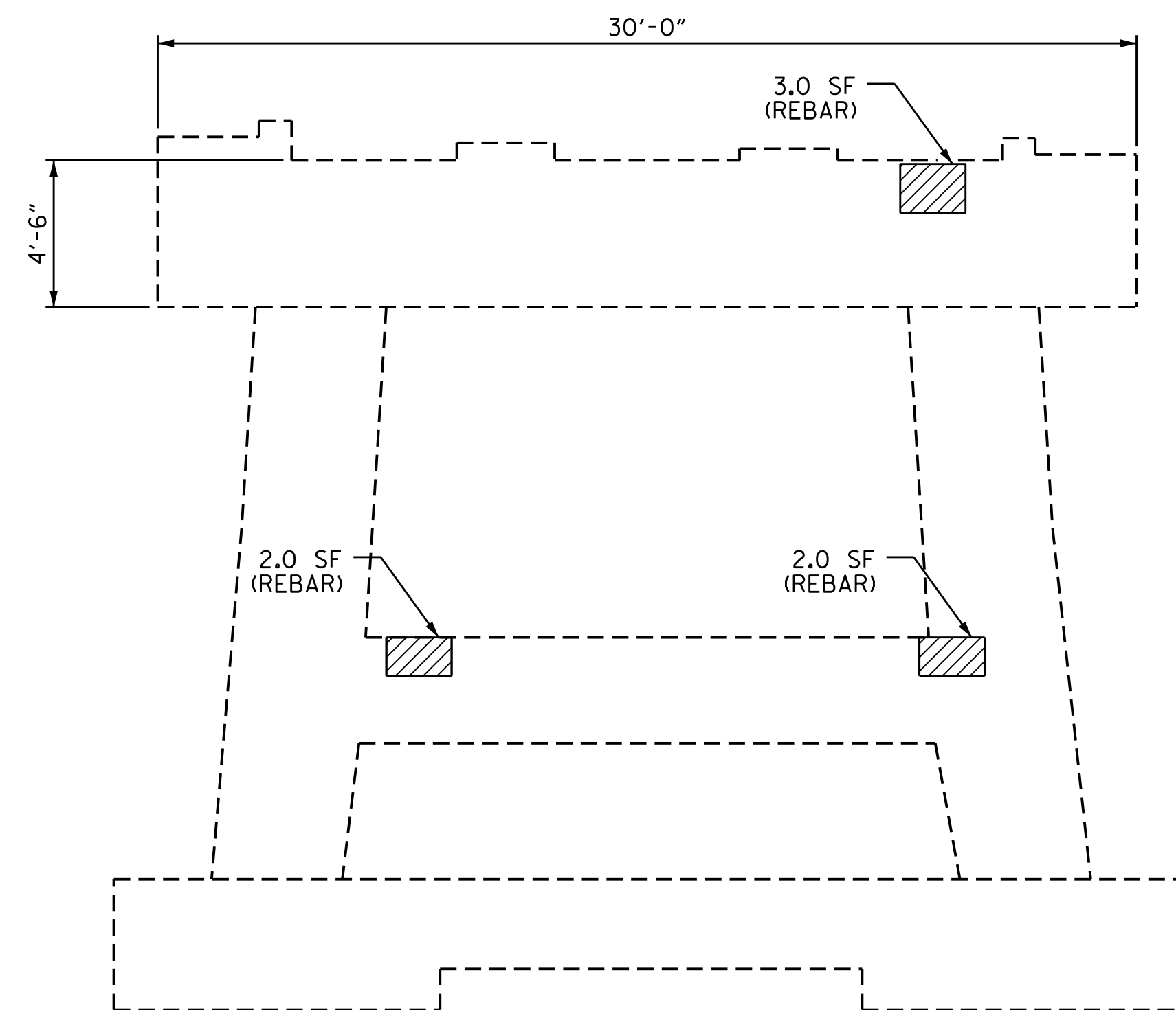
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.



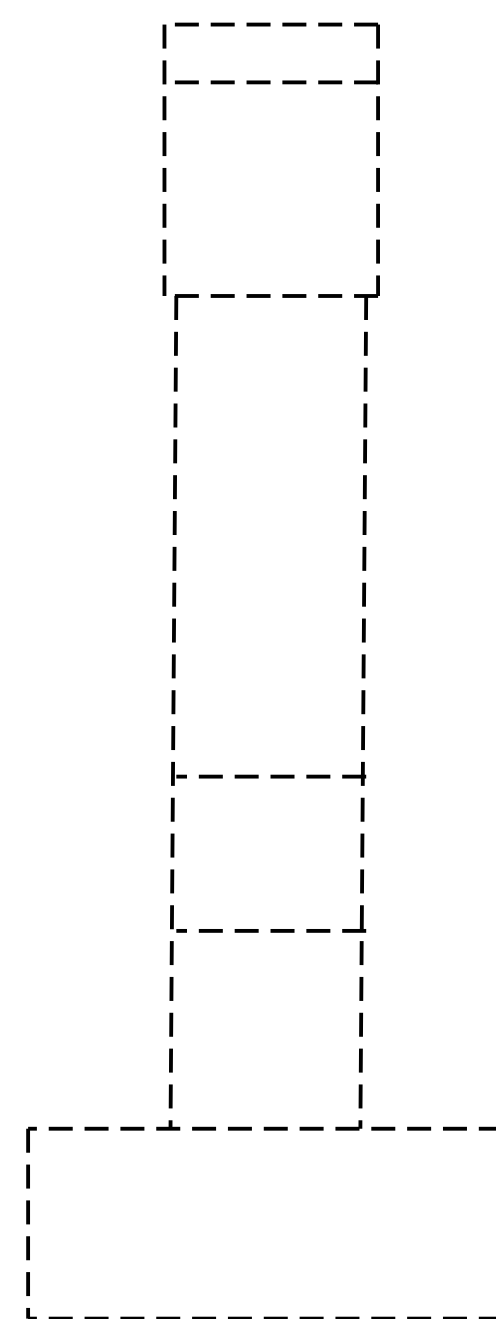
SPAN 10

PLAN
TOP OF CAP

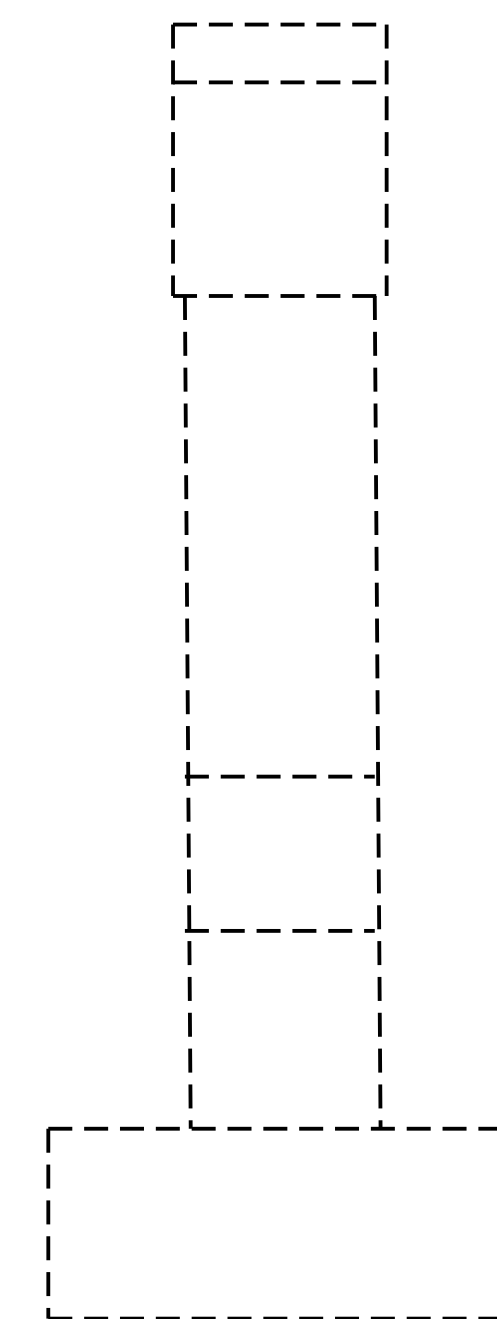
SPAN 9



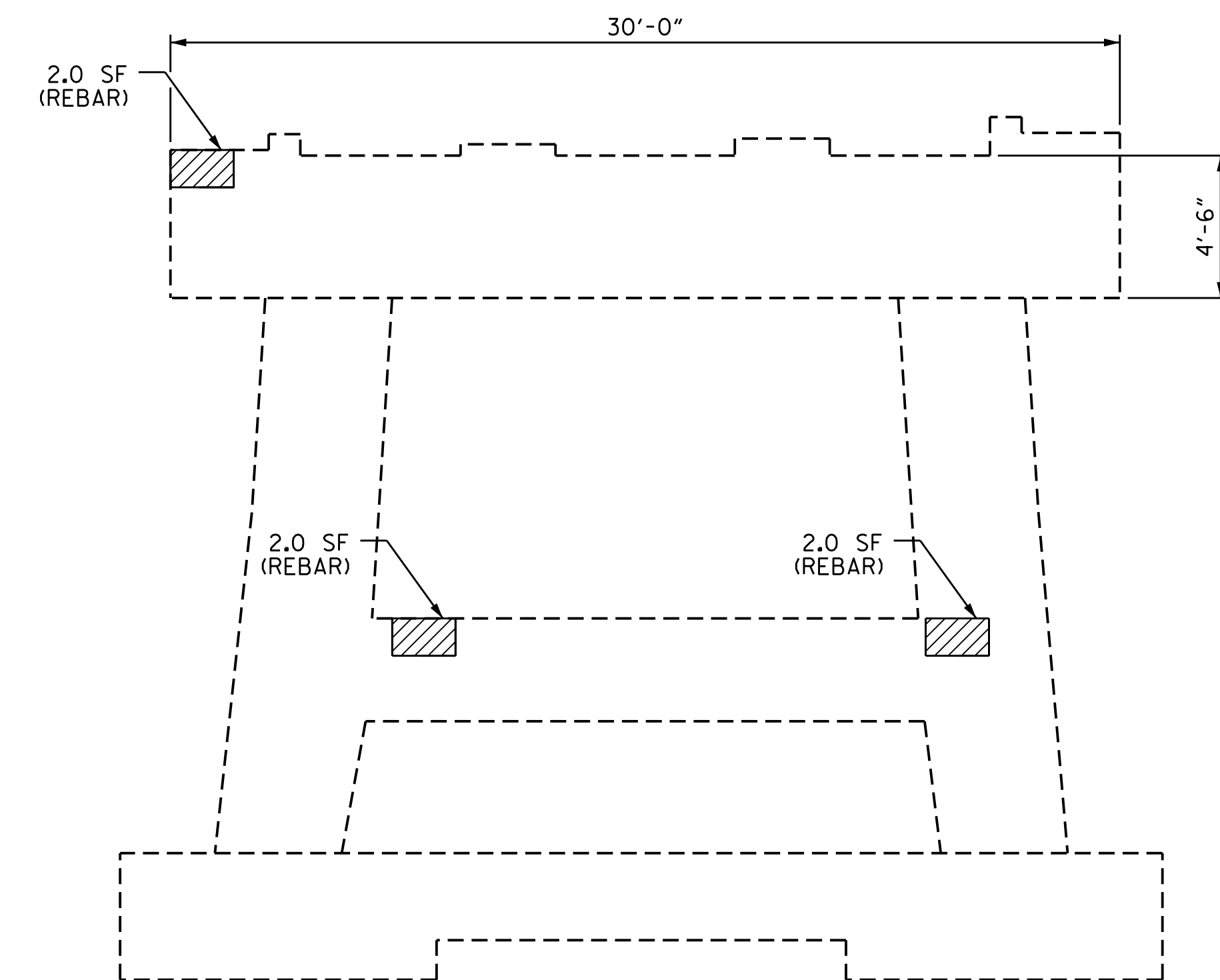
ELEVATION
SOUTH SIDE



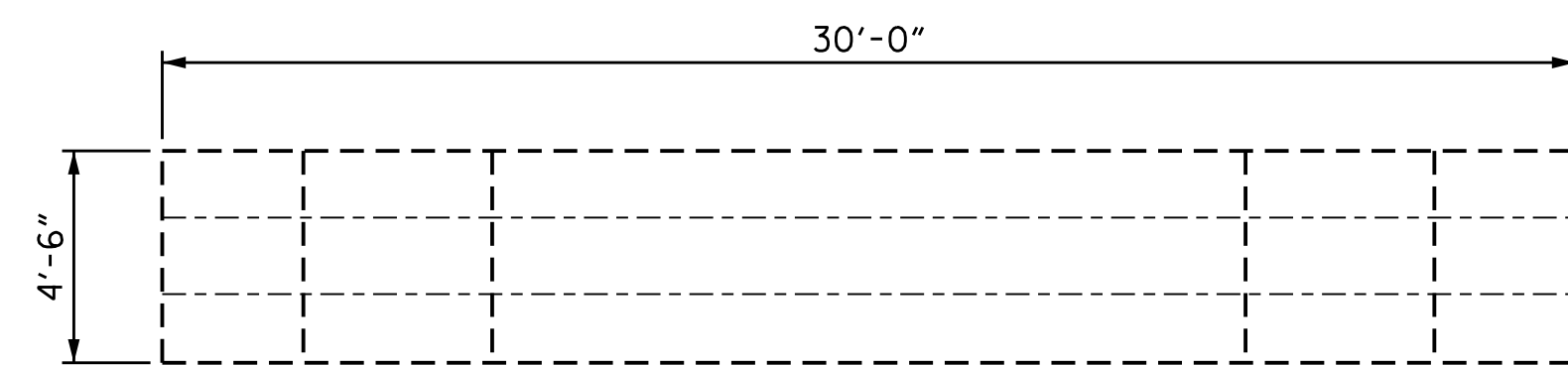
END VIEW
WEST SIDE



END VIEW
EAST SIDE



ELEVATION
NORTH SIDE



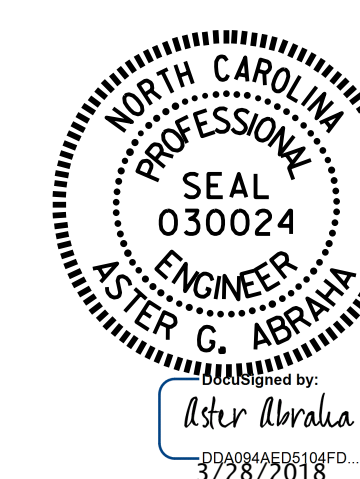
SPAN 9

PLAN
BOTTOM OF CAP
(LOOKING UP)

SPAN 10

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16



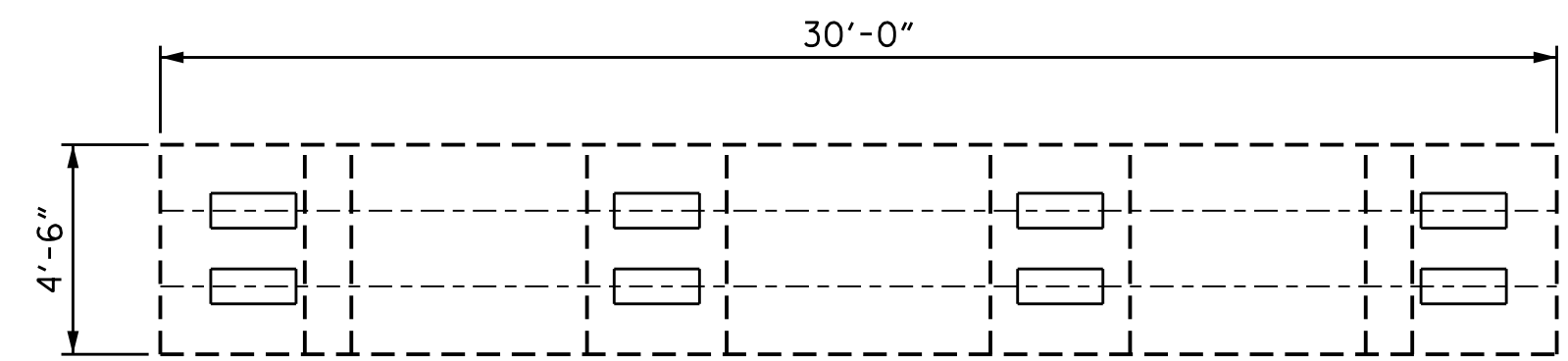
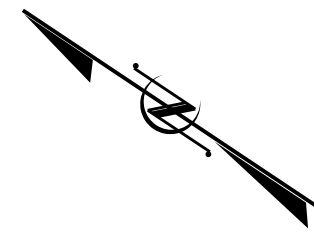
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 REPAIR
 BENT 9

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			S-29
2			4			34

DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

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 SIGNATURES COMPLETED



PLAN
TOP OF CAP

SPAN 11

SPAN 10

NOTES:

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

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

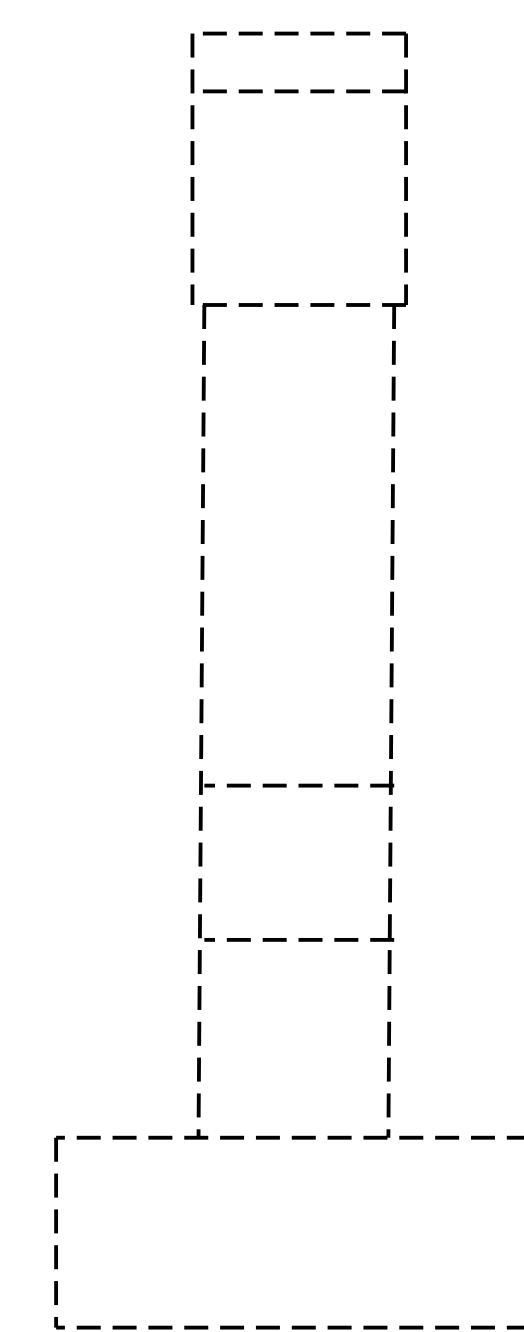
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

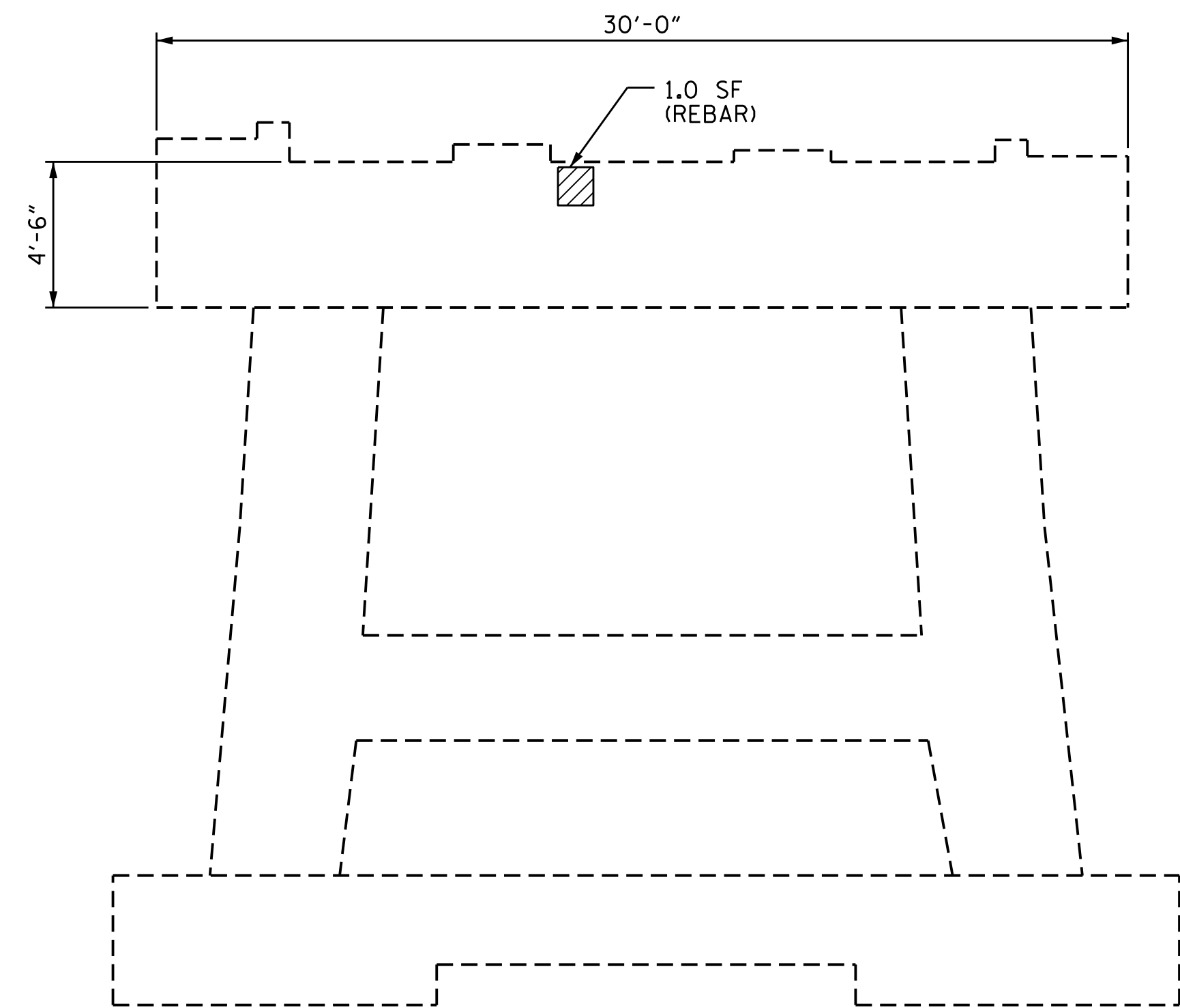
REPAIR QUANTITY TABLE

BENT 10	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	1.0	0.5		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	2.0	1.0		
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			
CAP	0.0			
COLUMN	0.0			
EPOXY COATING	AREA SF			
TOP OF CAP	135.0			

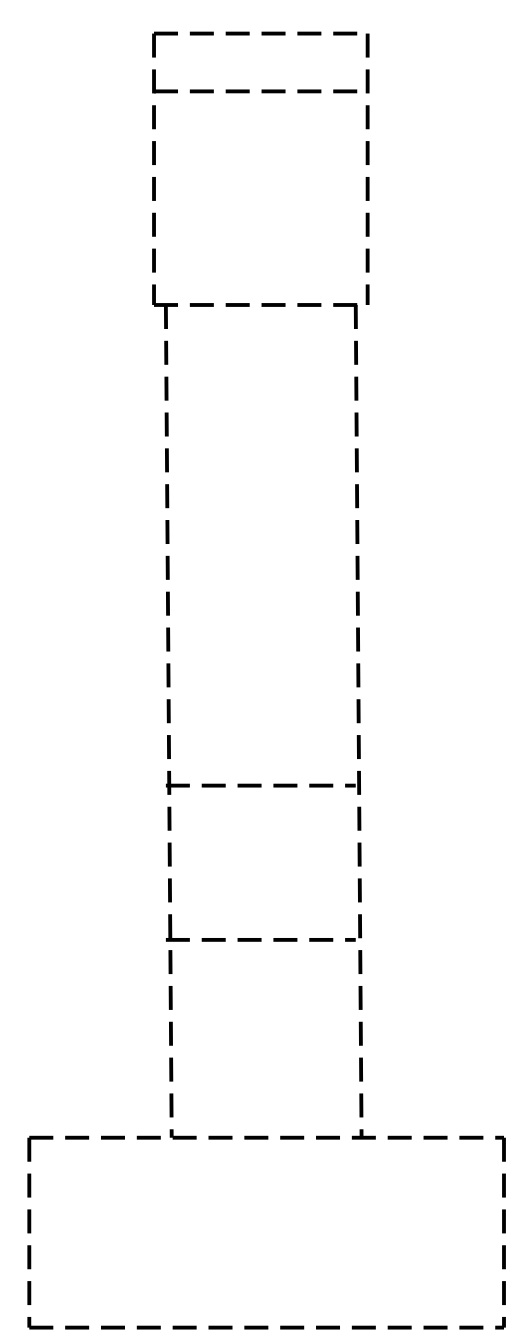
VALUES IN CHART REPRESENT ESTIMATED REPAIR TOTALS AFTER REMOVAL OF UNSOUND CONCRETE, MIN. OF 1" BEHIND REBAR AND MIN. 2" CL TO SAWCUT. SEE REPAIR DETAILS.



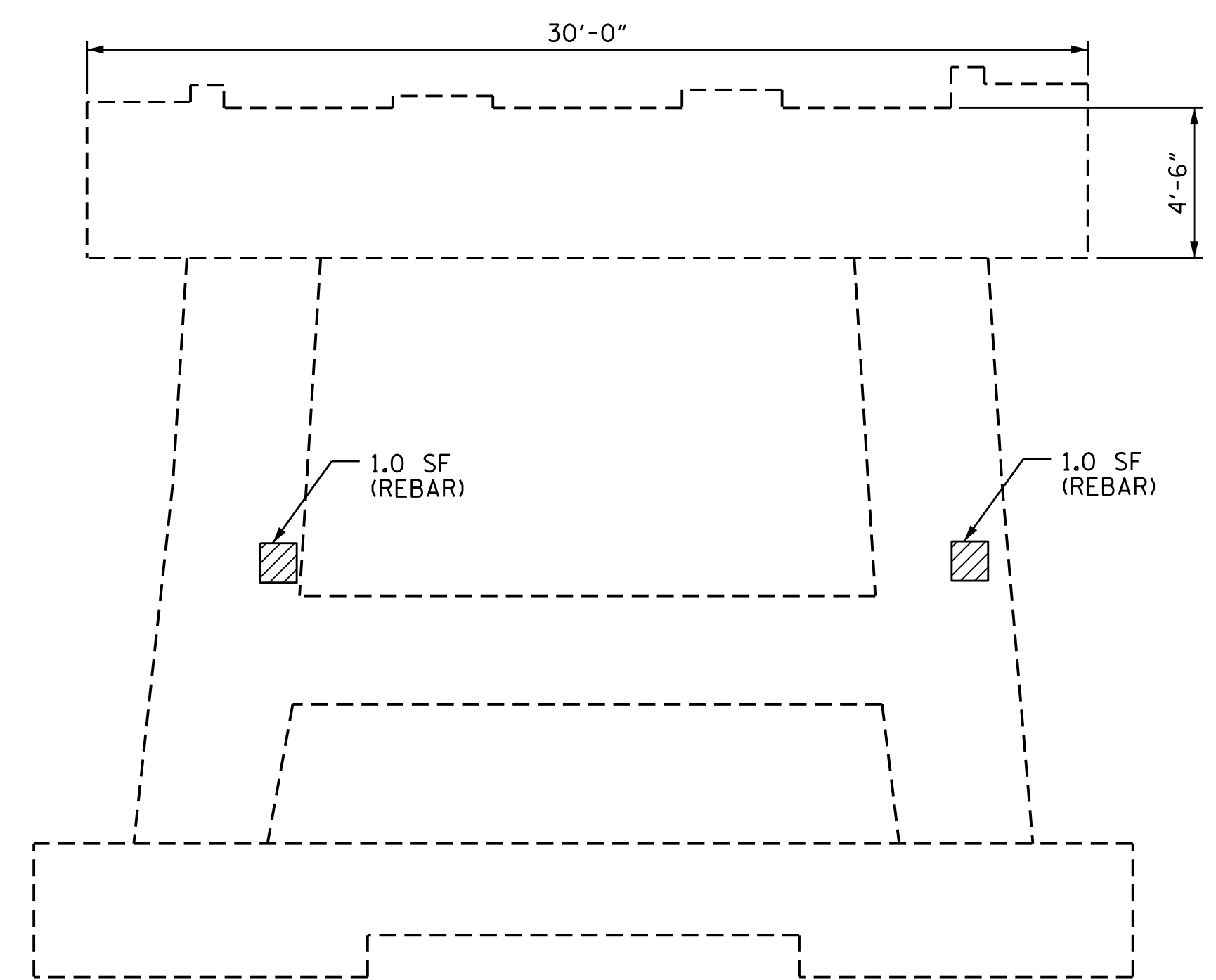
END VIEW
WEST SIDE



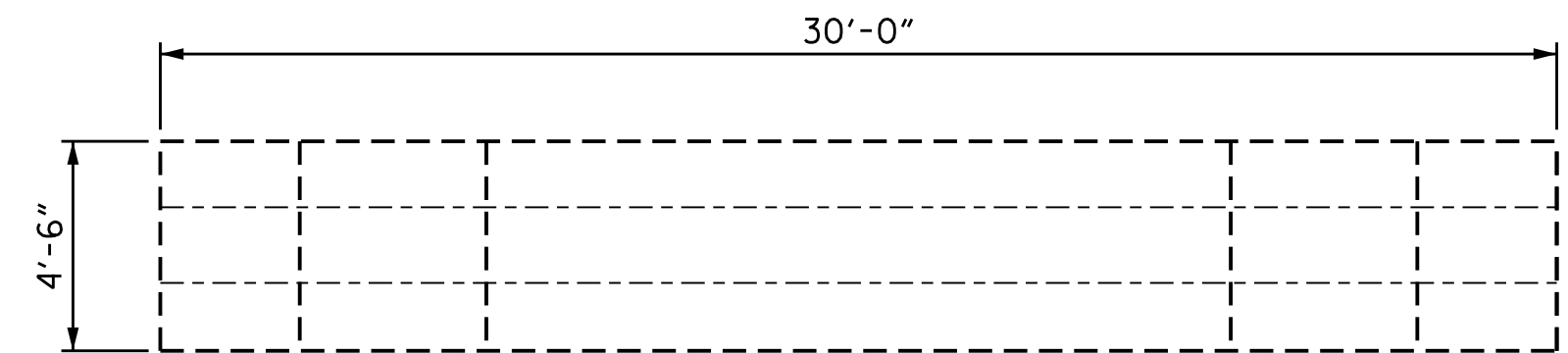
ELEVATION
SOUTH SIDE



END VIEW
EAST SIDE



ELEVATION
NORTH SIDE



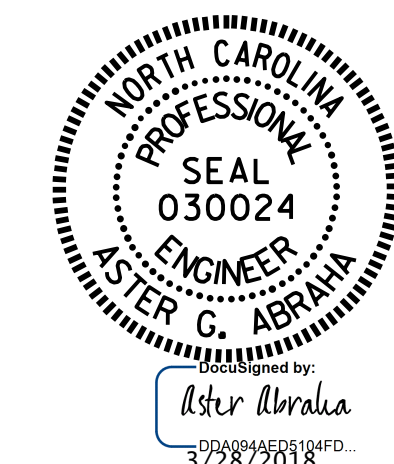
PLAN
BOTTOM OF CAP
(LOOKING UP)

SPAN 10

SPAN 11

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16



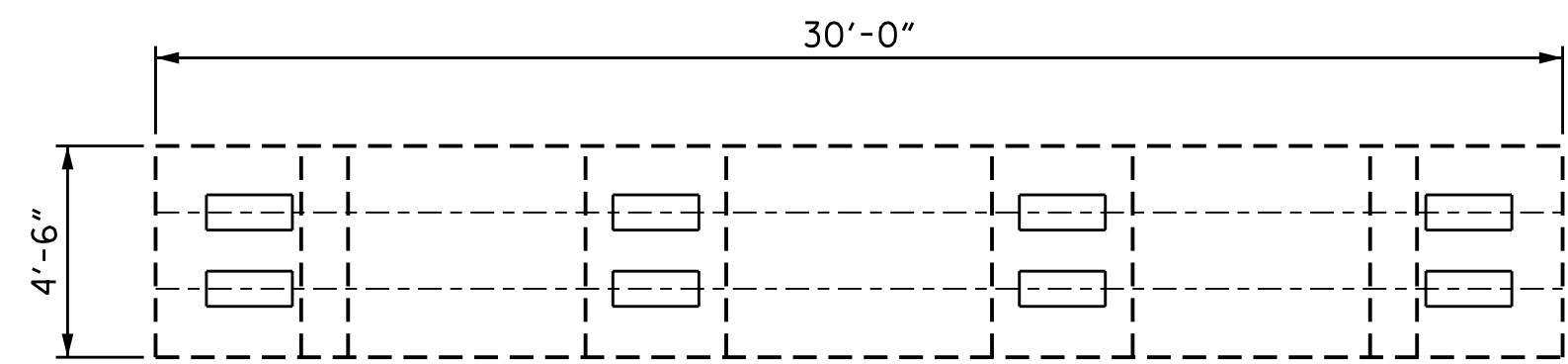
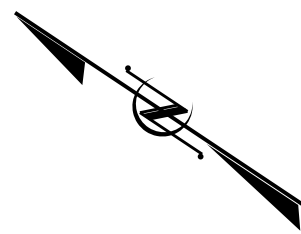
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIR
 BENT 10**

DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

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1			3			S-30
2			4			34



SPAN 12

PLAN
TOP OF CAP

SPAN 11

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.

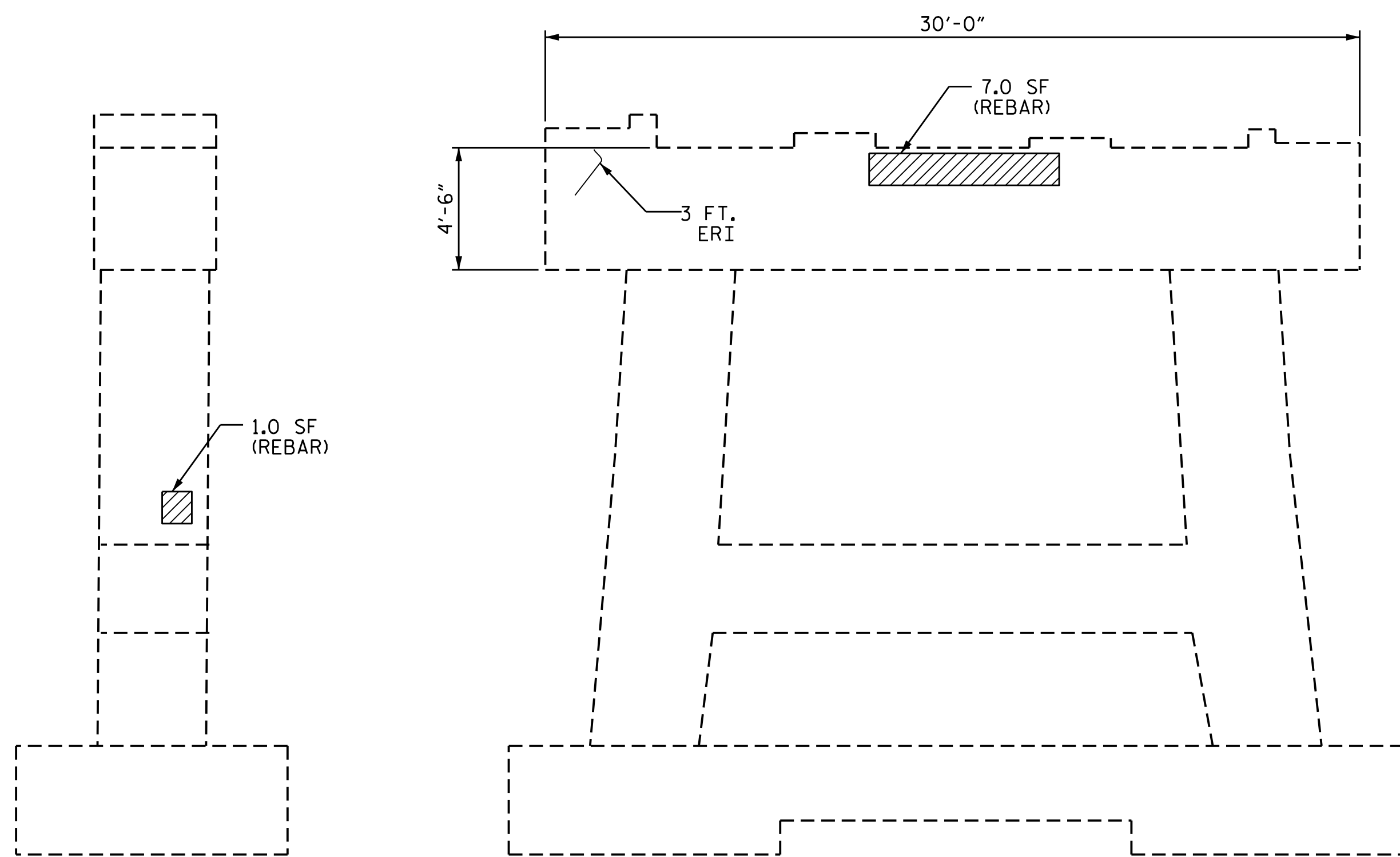
FOR CONCRETE REPAIRS, SEE SPECIAL PROVISIONS.

FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.

REPAIR QUANTITY TABLE

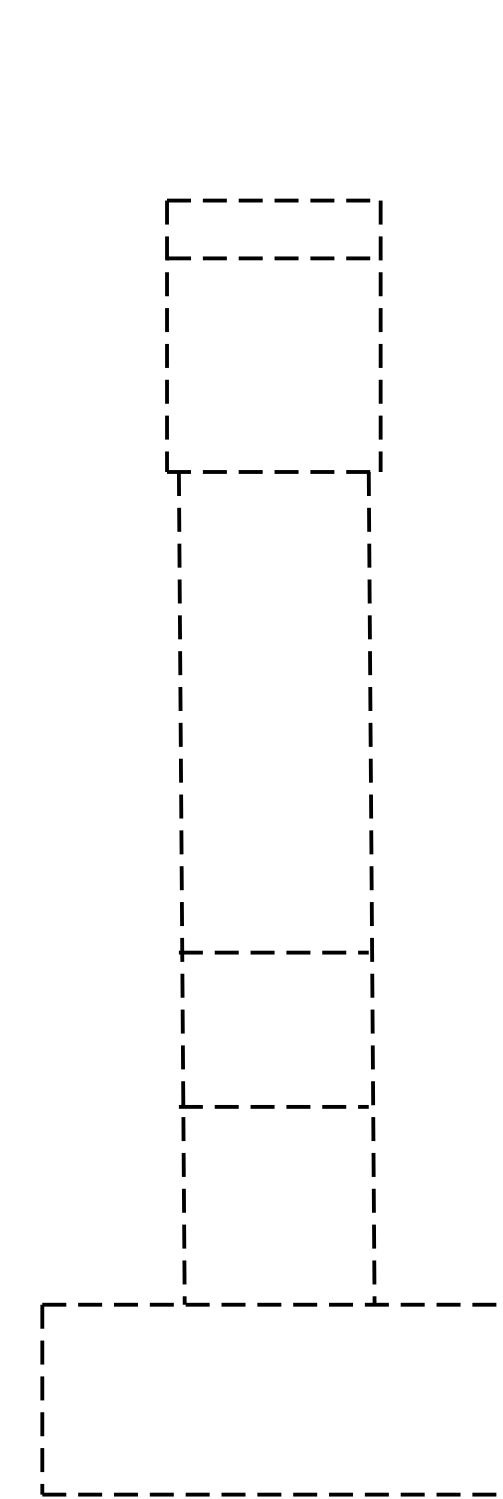
BENT 11	QUANTITIES			
	ESTIMATE		ACTUAL	
SHOTCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	13.0	6.5		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	1.0	0.5		
CONCRETE REPAIRS	AREA SF	VOLUME CF	AREA SF	VOLUME CF
CAP (VERTICAL FACE)	0.0	0.0		
CAP (HORIZONTAL FACE, CORNER)	0.0	0.0		
COLUMN	0.0	0.0		
EPOXY RESIN INJECTION		LN. FT		
CAP		3.0		
COLUMN		0.0		
EPOXY COATING	AREA SF			
TOP OF CAP	135.0			

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.

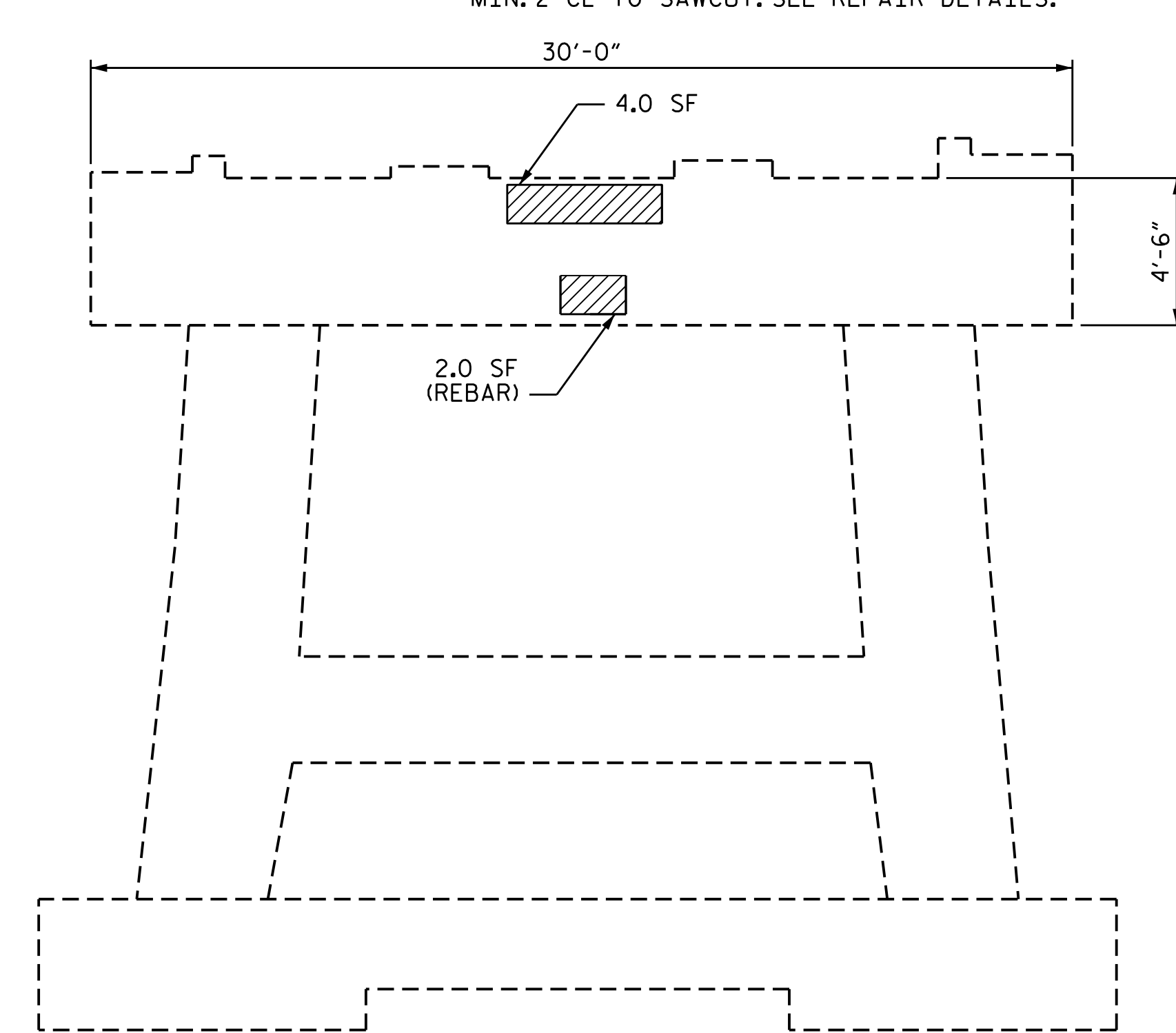


END VIEW
WEST SIDE

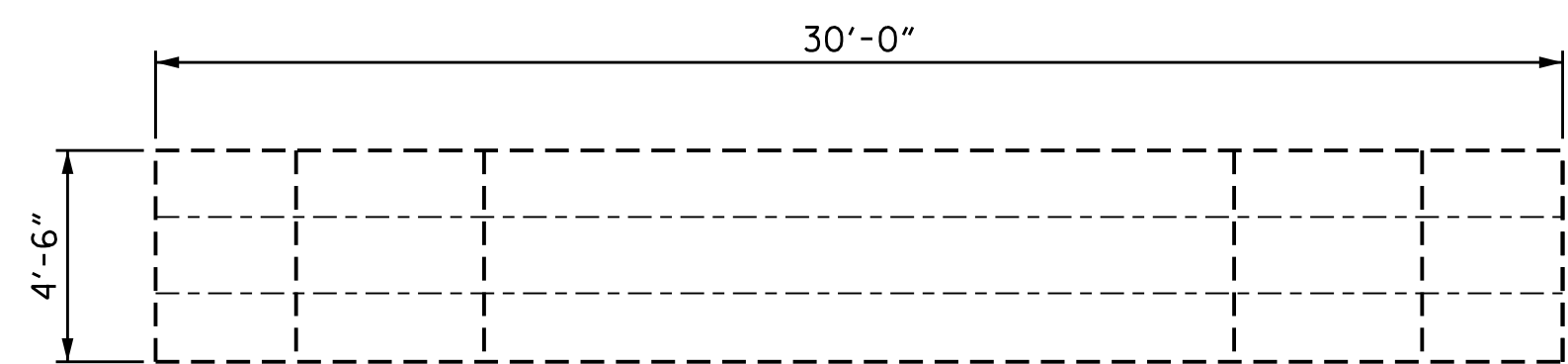
ELEVATION
SOUTH SIDE



END VIEW
EAST SIDE



ELEVATION
NORTH SIDE



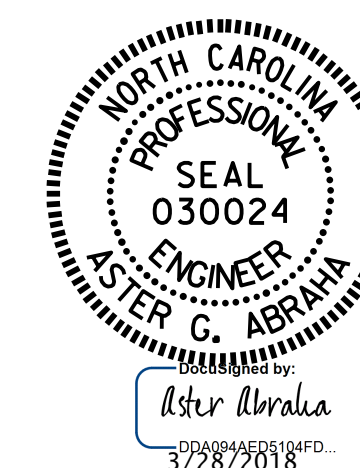
SPAN 11

PLAN
BOTTOM OF CAP
(LOOKING UP)

SPAN 12

- CONCRETE REPAIRS
- SHOTCRETE REPAIRS
- ERI EPOXY RESIN INJECTION

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 REPAIR
 BENT 11**

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2			4			TOTAL SHEETS 34

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DRAWN BY : S. T. SANDOR DATE : 07/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

NOTES

THE CONTRACTOR SHALL SAW CUT TO A NOMINAL DEPTH OF 1/2" BUT REINFORCING STEEL SHALL NOT BE DAMAGED.

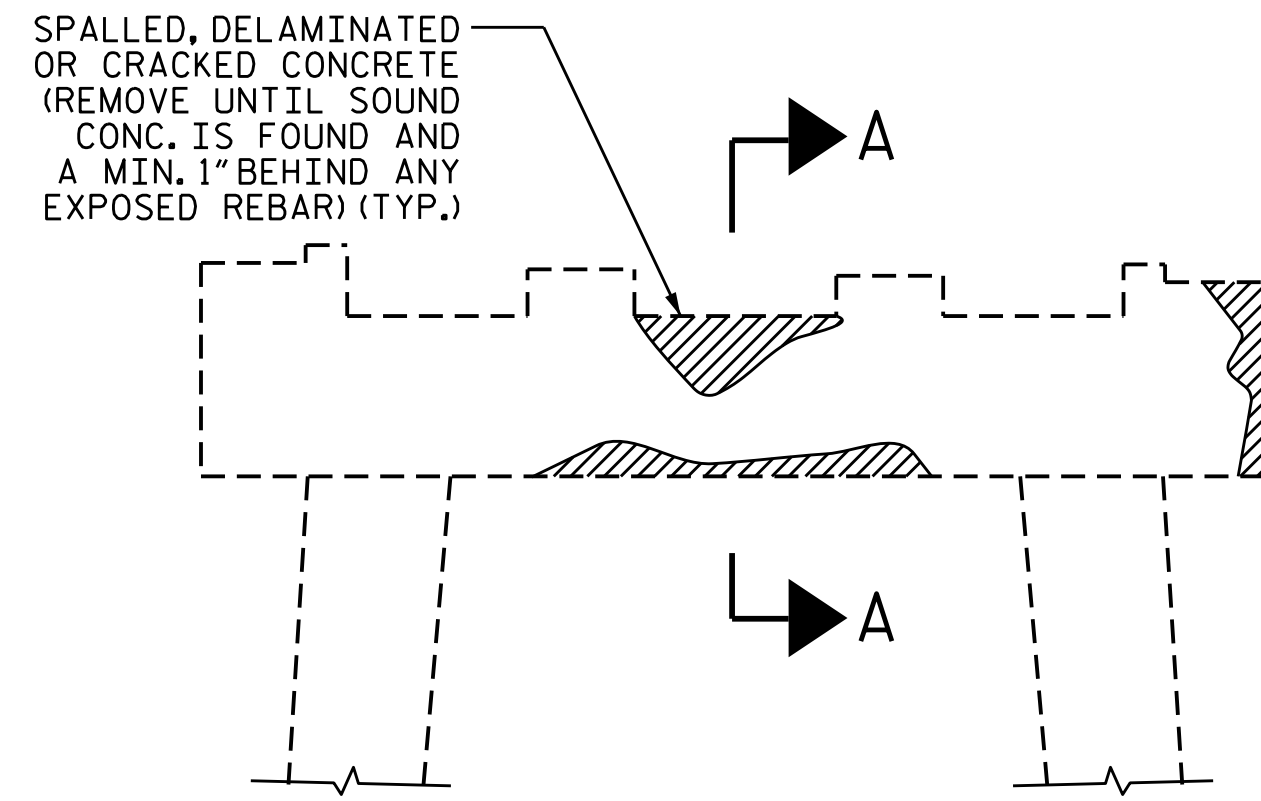
CONTRACTOR SHALL REMOVE SURFACE CONCRETE TO VERIFY THAT SAWCUT DEPTH WILL NOT DAMAGE EXISTING REINFORCING STEEL.

CONTRACTOR SHALL SAW CUT THE REPAIR AREAS SO THAT THE CORNERS ARE SQUARE AS INDICATED IN DETAILS.

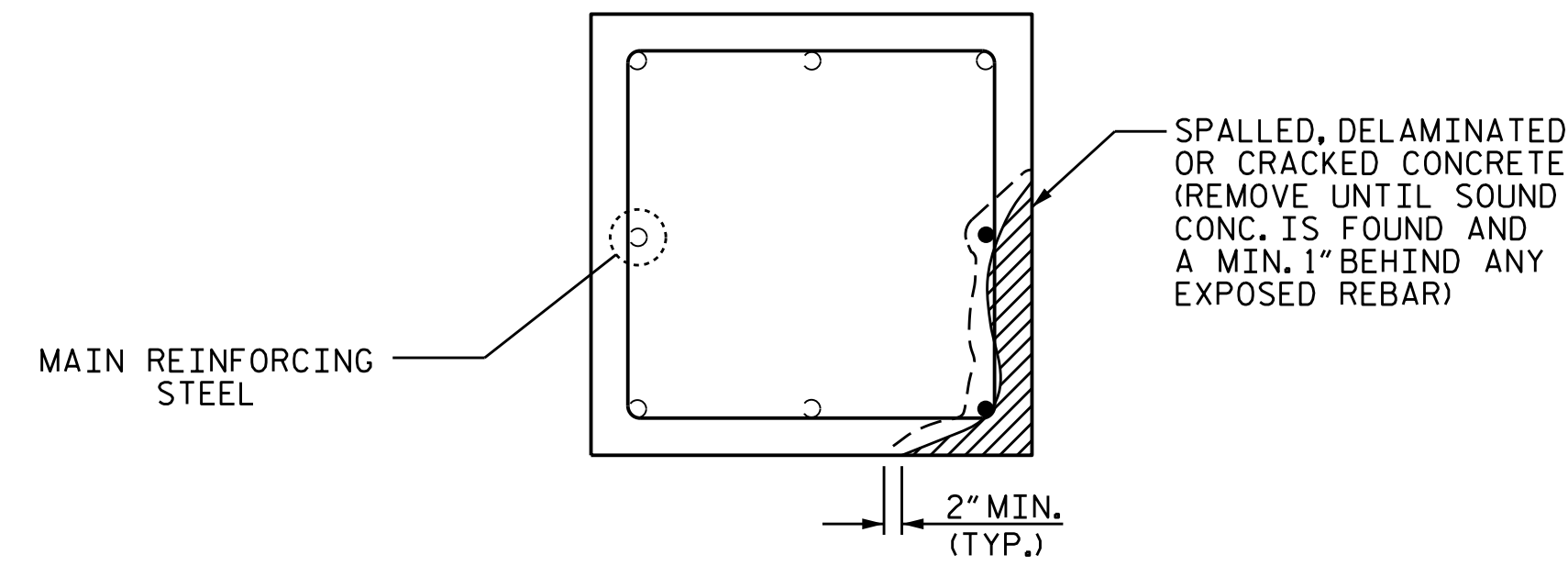
CONCRETE REPAIRS MAY BE SUBSTITUTED IN LIEU OF SHOTCRETE REPAIRS WITH THE APPROVAL OF THE ENGINEER.

FOR SHOTCRETE REPAIRS, SEE SPECIAL PROVISIONS.

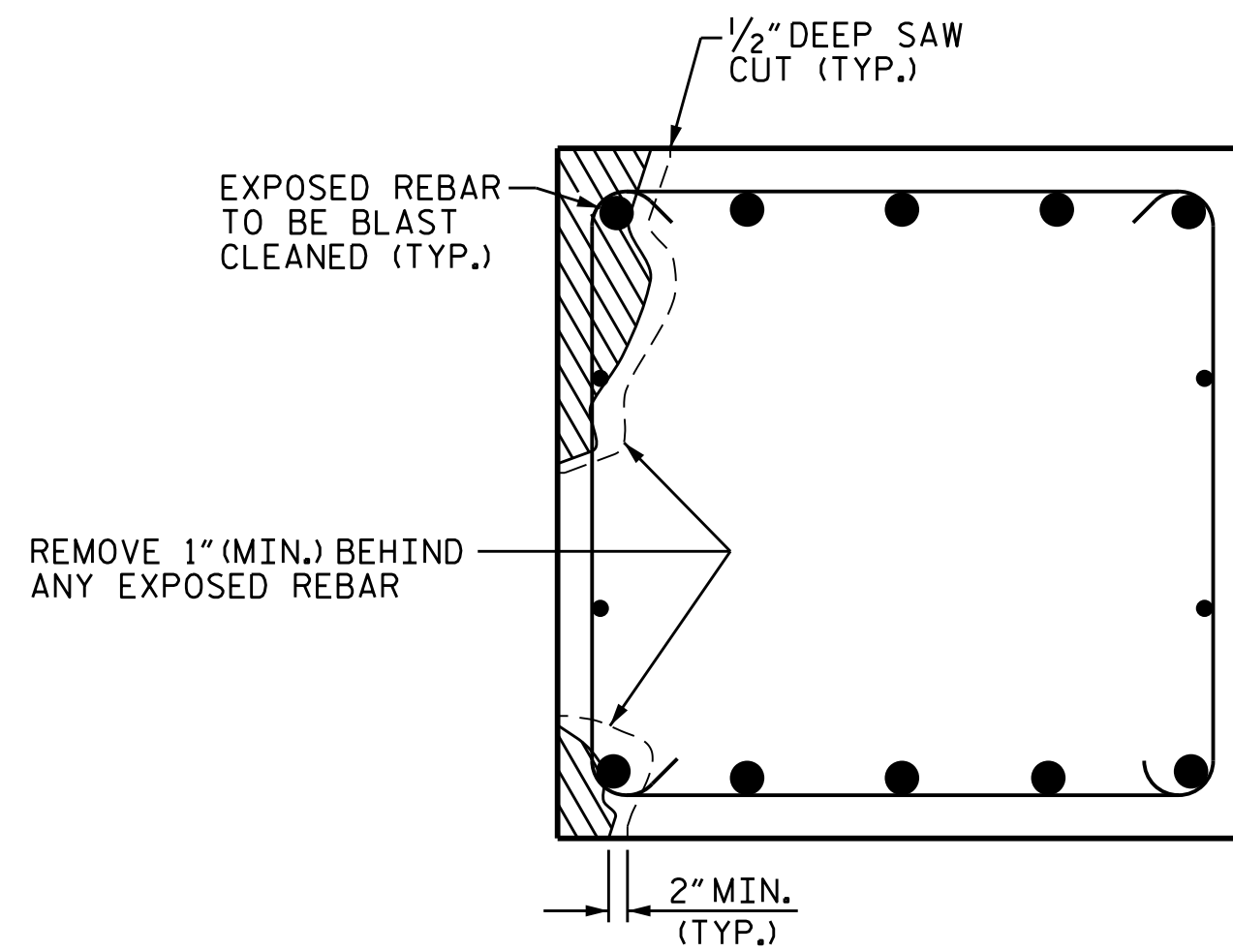
FOR EPOXY RESIN INJECTION, SEE SPECIAL PROVISIONS.



BENT CAP REPAIRS

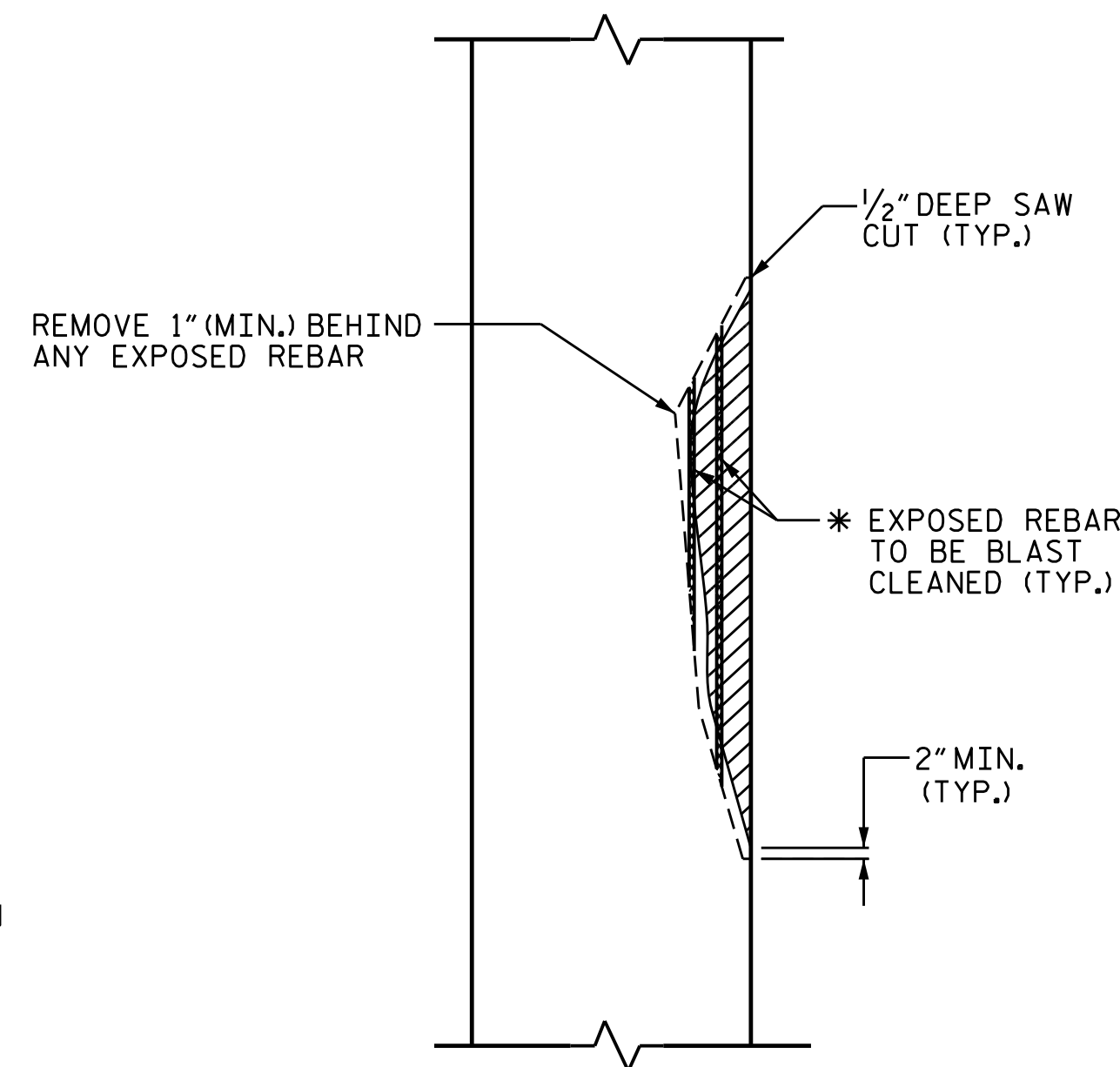


PLAN OF COLUMN



SECTION THRU CAP

CAP REPAIR



ELEVATION OF COLUMN

COLUMN REPAIR

* IF CONFINEMENT STEEL IS NOT PRESENT, THEN REPAIR LENGTH SHALL NOT EXCEED 10'-0".

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO. 16



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

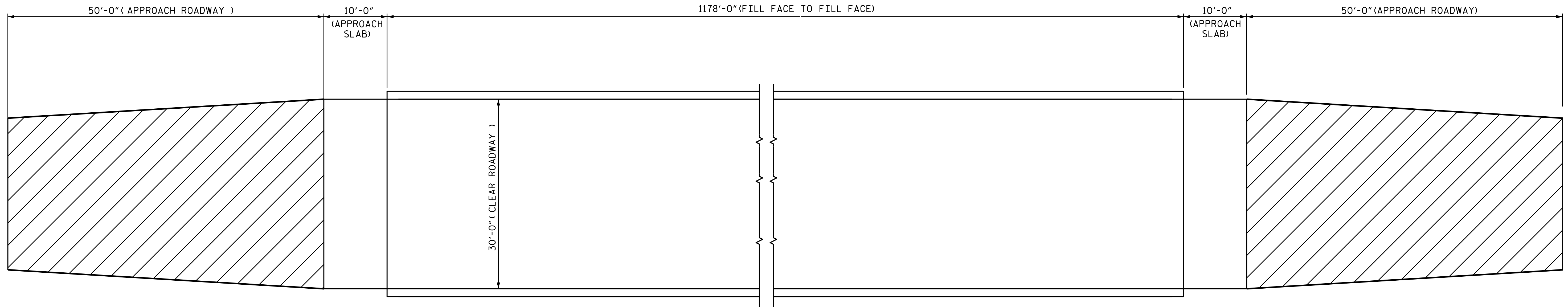
SUBSTRUCTURE
 TYPICAL CAP AND COLUMN
 REPAIR DETAILS

DRAWN BY : S. T. SANDOR DATE : 09/2017
 CHECKED BY : A. G. ABRAHA / M. AHMED DATE : 02/2018

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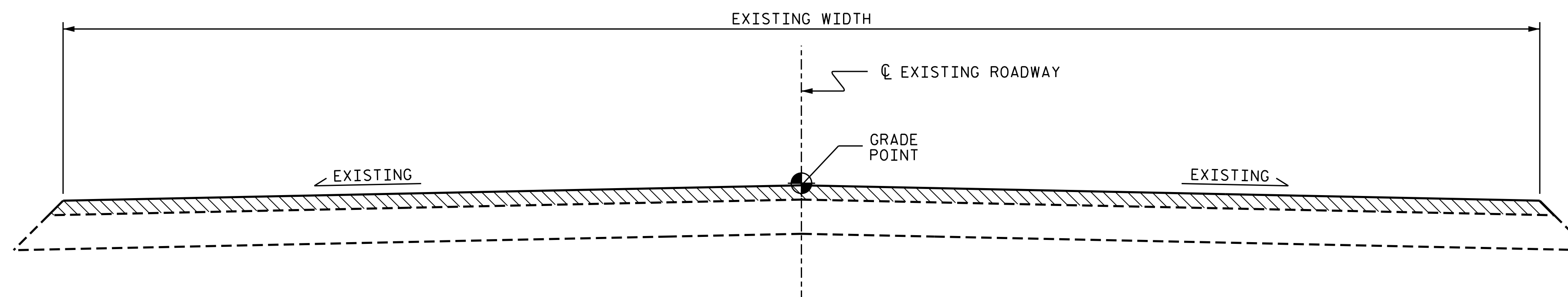
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1			3			TOTAL SHEETS
2			4			34

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.



INCIDENTAL MILLING

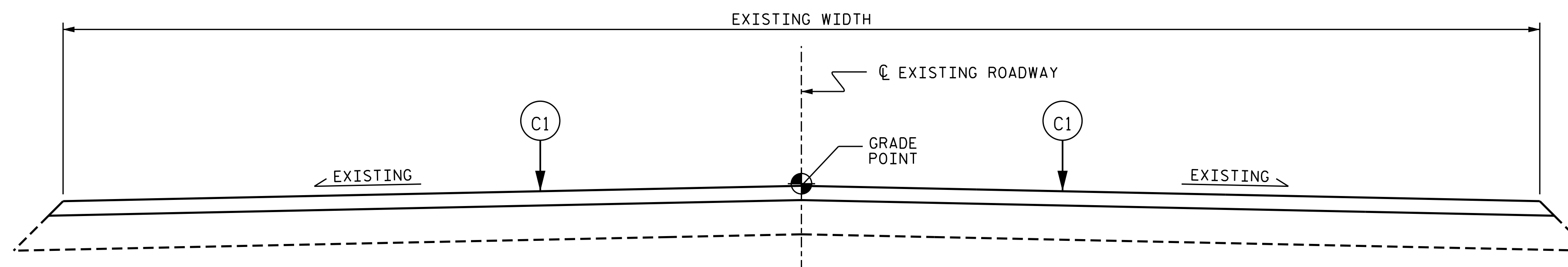
PLAN



TYPICAL ROADWAY MILLING SECTION

SUMMARY OF QUANTITIES BRIDGE #16		
	ESTIMATE	ACTUAL
INCIDENTAL MILLING	312.0 SQ. YDS.	
ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B	25.2 TONS	
ASPHALT BINDER FOR PLANT MIX	1.6 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.12
BLADEN COUNTY
 BRIDGE NO. 16



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**APPROACH MILLING
 AND TYPICAL ROADWAY
 SECTIONS**

DRAWN BY : S. T. SANDOR DATE : 02/2018
 CHECKED BY : A. G. ABRAHA DATE : 02/2018

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2			4			34

NOTES

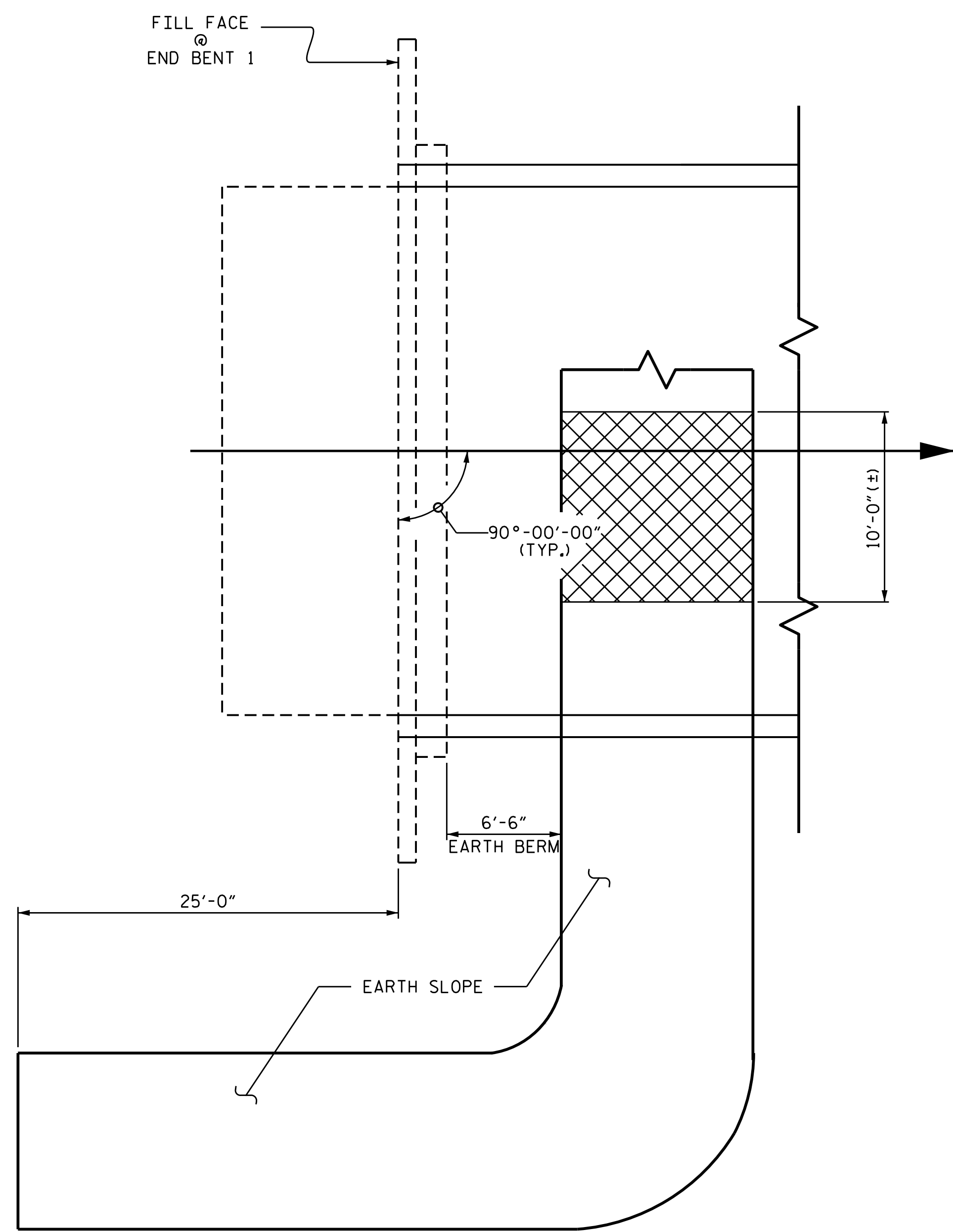
EXCAVATION FOR REPAIRS OF SLOPE PROTECTION SHALL BE DONE AFTER THE THOROUGH REMOVAL OF ALL LOOSE SOIL OF EXISTING EARTH SLOPE.

DEPTH OF EXCAVATION IS FOR REFERENCE ONLY BUT IS PREFERABLE TO EXCAVATE UNTIL REACH A STABLE GROUND.

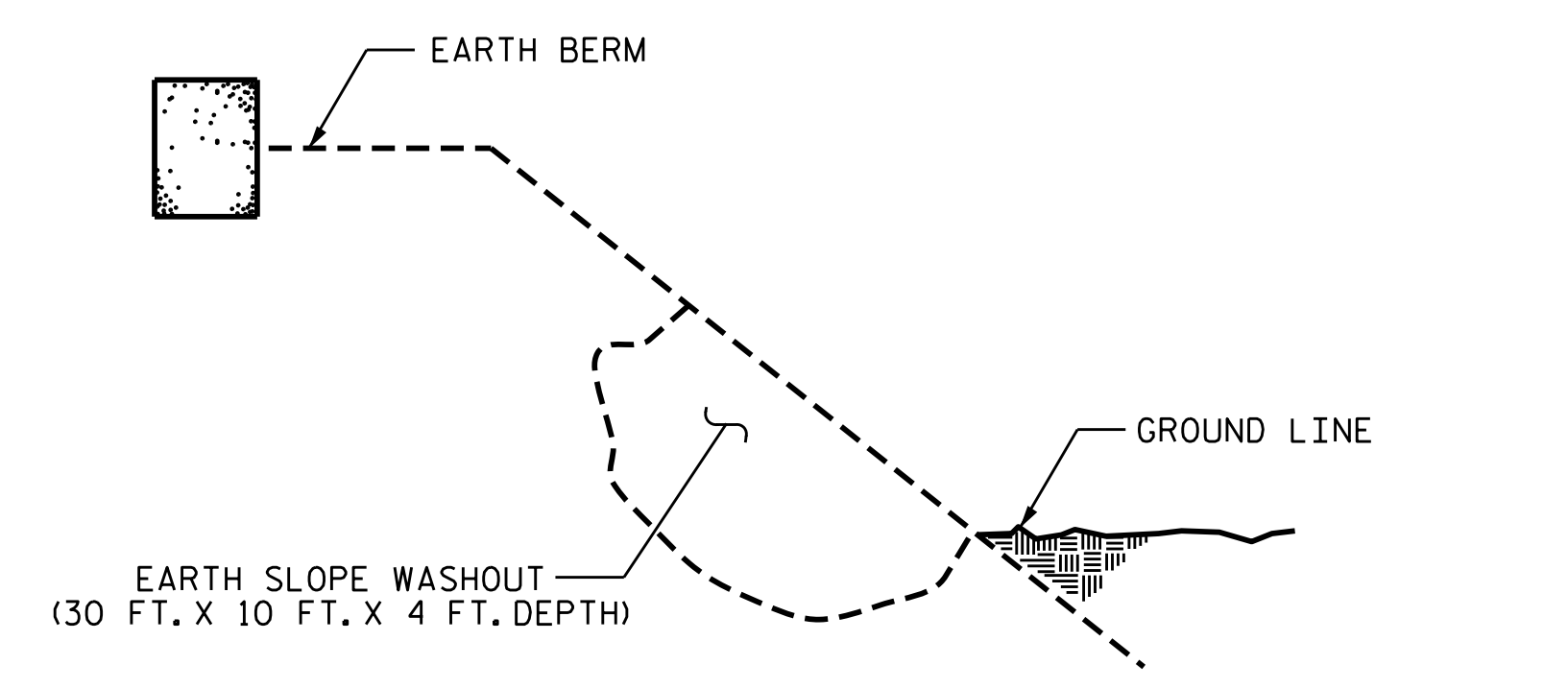
FILTER FABRIC SHALL BE PLACED OVER THE EXCAVATED AREA AND A LAYER OF #57 (OR SIMILAR) STONE SHALL BE PLACED ON TOP OF IT TO A DEPTH OF APPROXIMATIVE SIX INCHES.

WITH ENGINEER APPROVAL RIP RAP CAN BE REPLACED WITH COMPACTED EARTH FILL.

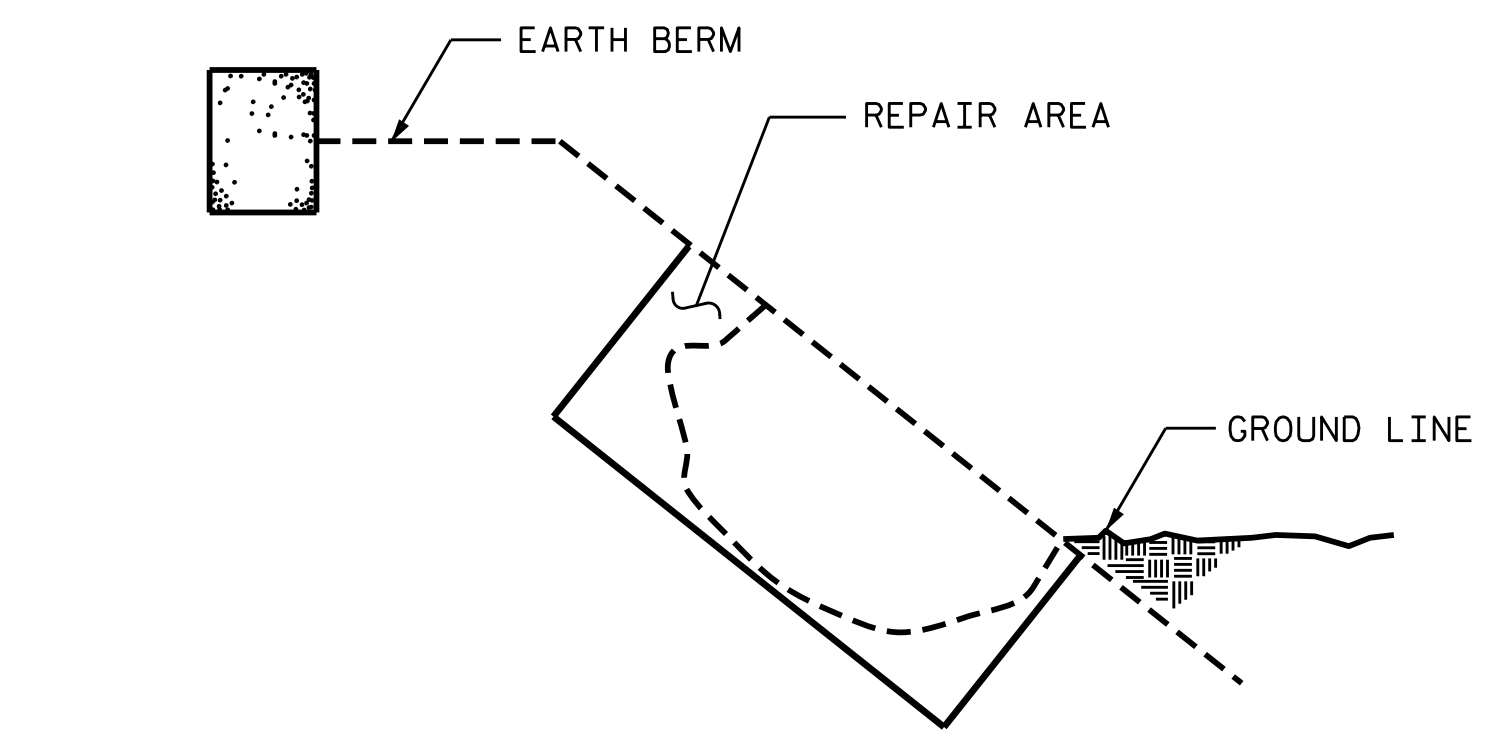
BRIDGE #16	#57 STONE	GEOTEXTILE FOR DRAINAGE
	TON	SQUARE YARDS
END BENT 1	8.0	13.4



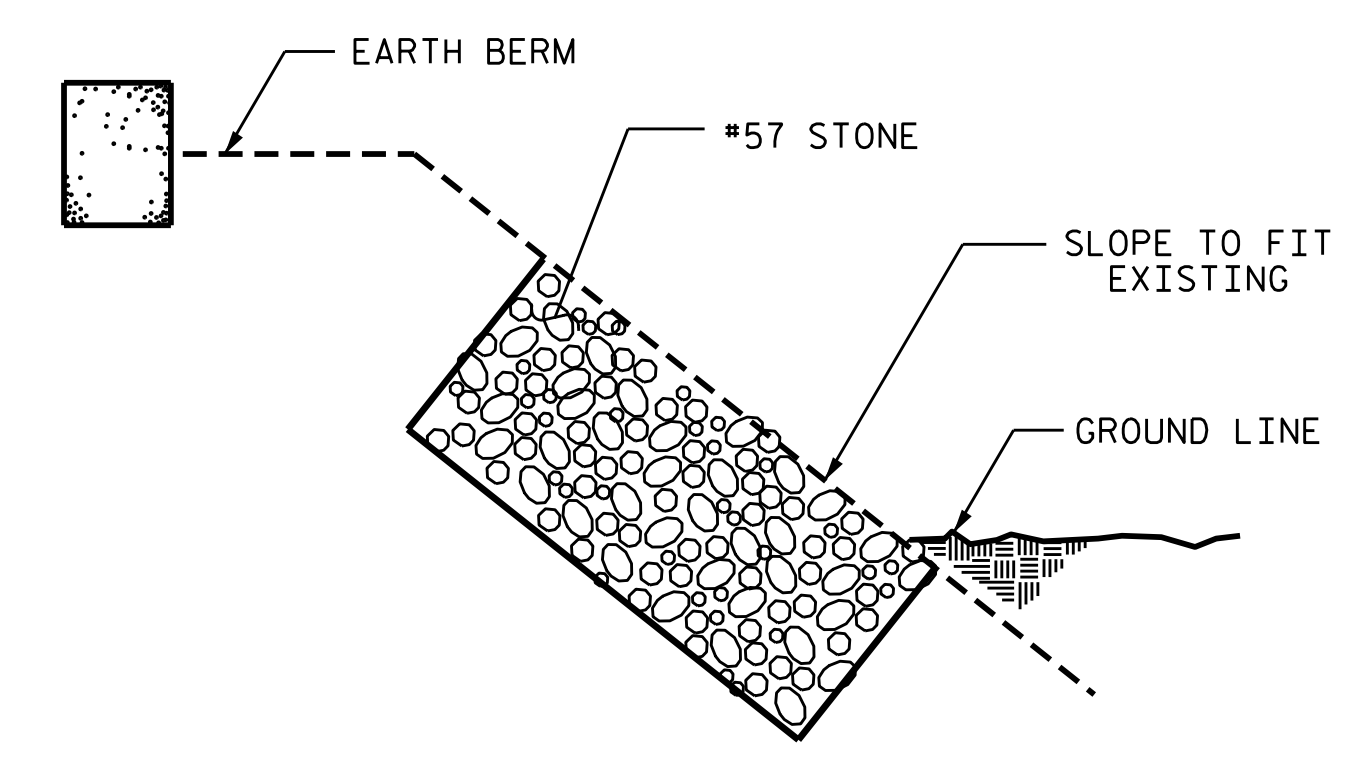
PLAN



EXISTING

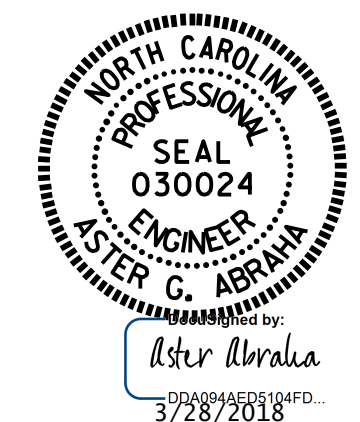


DETAILS OF EXCAVATION



DETAILS OF REPAIR

PROJECT NO. 15BPR.12
BLADEN COUNTY
 BRIDGE NO.: 16



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
SUPERSTRUCTURE
 EARTH SLOPE
 REPAIR END BENT 1

DRAWN BY : S. T. SANDOR DATE : 02/2018
 CHECKED BY : A. G. ABRAHA DATE : 02/2018

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2			4			34