

PROJECT: 41665.5D

CONTRACT NO:



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

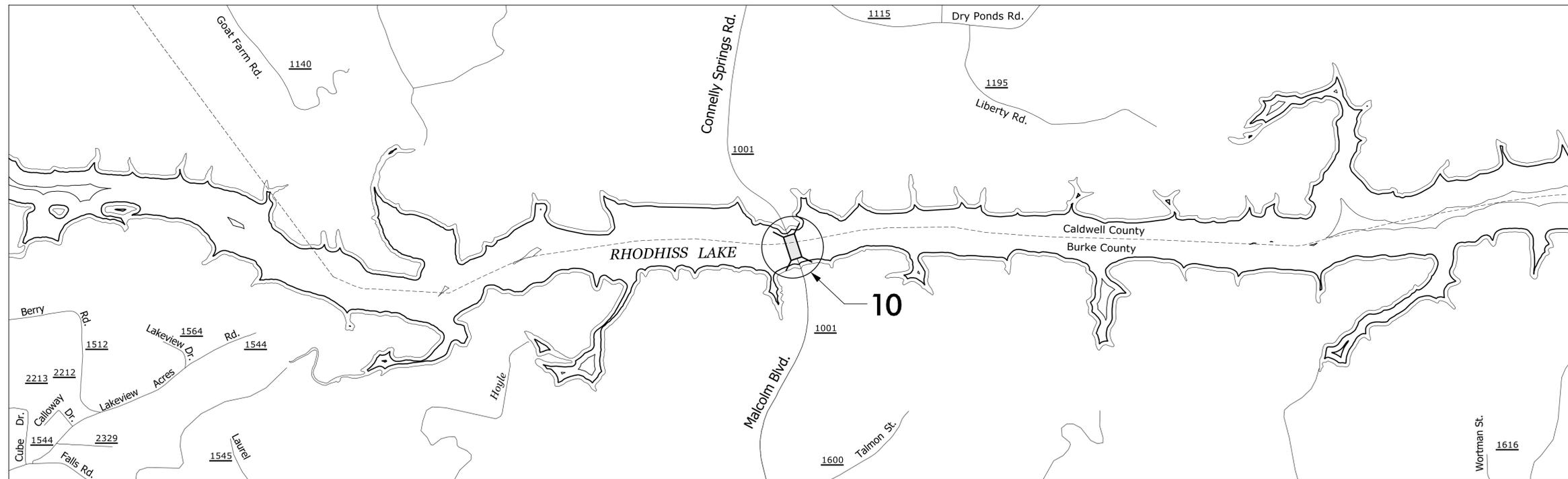
BURKE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	41665.5D	1	18
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41665.5D	-	P.E./CONST.	

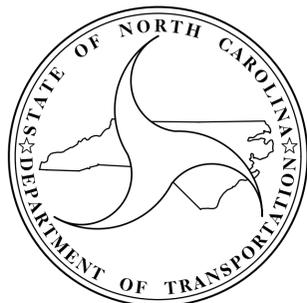
LOCATION: BURKE COUNTY:

BRIDGE #110010 ON SR 1001 (CONNELLY SPRINGS ROAD / MALCOLM BOULEVARD) OVER RHODHISS LAKE

TYPE OF WORK: BRIDGE PRESERVATION - STRUCTURAL STEEL REPAIRS AND PAINTING OF EXISTING STRUCTURAL STEEL



VICINITY MAP - BURKE COUNTY



DESIGN DATA
BURKE COUNTY
#10 ADT 2015 = 8900

PROJECT LENGTH
BURKE COUNTY
#10 = 0.172 MILES

PLANS PREPARED BY:
 Gannett Fleming
Excellence Delivered *As Promised* NC Lic. No. F-0270
2610 Wycliff Road
Suite 102
Raleigh NC 27607-3073
(919) 420-7660

RICK NELSON, P.E.
PROJECT DESIGN ENGINEER

2018 STANDARD SPECIFICATIONS

LETTING DATE:
-

DocuSigned by:
 8/2/2018

RICK NELSON, P.E.
PROJECT DESIGN ENGINEER

PROJECT: 41665.5D

CONTRACT NO:



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BURKE COUNTY

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N.C.	41665.5D	1A	18
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TYPE OF WORK: BRIDGE PRESERVATION - STRUCTURAL STEEL REPAIRS AND PAINTING OF EXISTING STRUCTURAL STEEL

INDEX OF SHEETS

SHEET NO.

1
1A
S-1
S-2 THRU S-18
SN

DESCRIPTION

TITLE SHEET
INDEX OF SHEETS
TOTAL BILL OF MATERIAL
STRUCTURAL PLANS - BRIDGE NO. 110010
STANDARD NOTES

TOTAL BILL OF MATERIAL												
BRIDGE NO.	MOBILIZATION	POLLUTION CONTROL	FIELD MEASURING	UNDER STRUCTURE WORK PLATFORM	PAINTING CONTAINMENT FOR ZONE PAINTING BRIDGE NO. 110010	SPOT CLEAN & PRIME STEEL REPAIR AREAS	ZONE PAINTING OF EXISTING STRUCTURE, BRIDGE NO. 110010	CONCRETE DIAPHRAGM REPAIR	BEAM BOLTED REPAIR	*BEAM PLATED REPAIR	STEEL CONNECTION HARDWARE	STEEL DIAPHRAGM REPLACEMENT
	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FT.	LUMP SUM	EA.	LBS.	LBS.	LBS.	LBS.
110010	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	39.1	LUMP SUM	4	1322	974	121	1926

*INCLUDES 100 LBS OF STEEL PLATE FOR ADDITIONAL REPAIR AREAS AS DIRECTED BY THE ENGINEER

PROJECT NO. 41665.5D
BURKE COUNTY
BRIDGE NO. 10



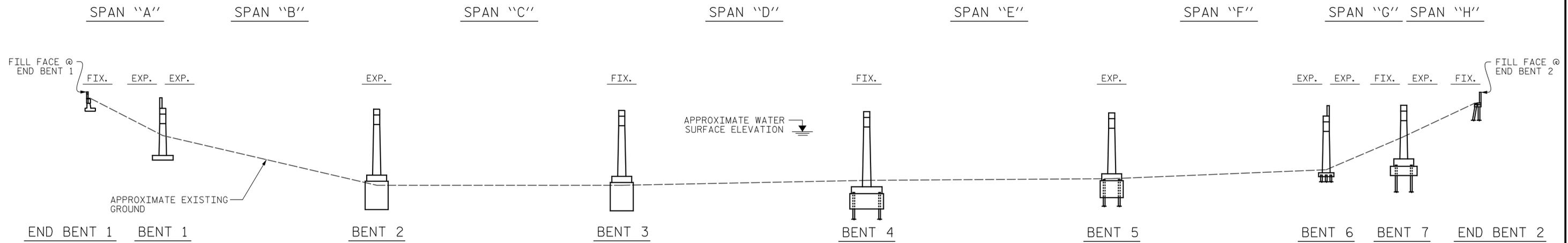
DocuSigned by:
Eric B. Nelson 8/14/2018
AC88082118074CD

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TOTAL BILL OF MATERIAL					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-1
					TOTAL SHEETS 18

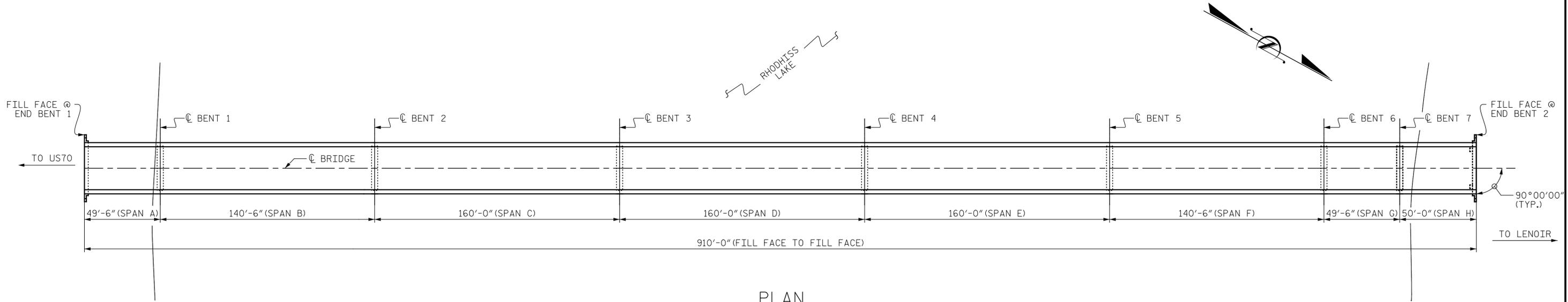
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(919) 420-7660
NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : T. HARTLEY DATE : 05/2018
CHECKED BY : M. LEE DATE : 07/2018



SECTION ALONG CL BRIDGE
(SECTION AT BENTS AND END BENTS ARE AT RIGHT ANGLES)



PLAN
(PILES NOT SHOWN FOR CLARITY)

NOTES:

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 12/04/2017.
BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.

SCOPE OF WORK

- STRUCTURAL STEEL REPAIRS
- SPOT OR ZONE PAINT STRUCTURAL STEEL

CONSTRUCTION SEQUENCE

- 1.) FIELD VERIFY AND MEASURE PROPOSED STRUCTURAL STEEL REPAIR AREAS.
- 2.) REMOVE LEAD BASED PAINT IN AREAS RECEIVING STEEL REPAIRS AND PERFORM STRUCTURAL STEEL REPAIRS.
- 3.) SPOT OR ZONE PAINT STRUCTURAL STEEL.

I HEREBY CERTIFY THAT THIS STRUCTURE WAS REHABILITATED ACCORDING TO THESE PLANS OR AS NOTED HEREIN.
RESIDENT ENGINEER _____ DATE _____

PROJECT NO. 41665.5D
BURKE COUNTY
BRIDGE NO. 10

SHEET 1 OF 2



DocuSigned by:
Eric B. Nelson
8/2/2018
ACB88062119074CD

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE #10 ON SR 1001
OVER RHODHISS LAKE

DRAWN BY : T. HARTLEY DATE : 05/2018
CHECKED BY : M. LEE DATE : 07/2018

PLANS PREPARED BY:
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1			3			TOTAL SHEETS	
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GENERAL NOTES

- EXISTING DIMENSIONS AND BRIDGE CONDITION ARE FROM THE 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.
- FOR FIELD MEASURING, SEE SPECIAL PROVISIONS.
- FOR BEAM PLATE REPAIR, SEE BEAM REPAIR SPECIAL PROVISION.
- FOR BEAM BOLTED REPAIR, SEE BEAM REPAIR SPECIAL PROVISION.
- FOR DESCRIPTION OF BRIDGES FOR ZONE PAINTING, SEE SPECIAL PROVISIONS.
- FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.
- FOR STEEL DIAPHRAGM REPLACEMENT, SEE BEAM REPAIR SPECIAL PROVISION.
- FOR STEEL CONNECTION HARDWARE, SEE BEAM REPAIR SPECIAL PROVISION.
- FOR UNDER STRUCTURE WORK PLATFORM, SEE SPECIAL PROVISIONS.
- FOR CONCRETE DIAPHRAGM REPAIR, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR SPOT CLEAN & PRIME STEEL REPAIR AREAS, SEE SPECIAL PROVISIONS.
- FOR ZONE PAINTING OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.
- FOR SUBMITTAL OF WORKING DRAWING, SEE SPECIAL PROVISIONS.
- FOR CONTROL OF TRAFFIC & LIMITS ON PHASING OF CONSTRUCTION, SEE TRANSPORTATION MANAGEMENT PLANS.

LOCATION SKETCH

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

PROJECT NO. 41665.5D
BURKE COUNTY
 BRIDGE NO. 10

SHEET 2 OF 2



DocuSigned by:
Eric B. Nelson 8/2/2018
 ACB908219074CD

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

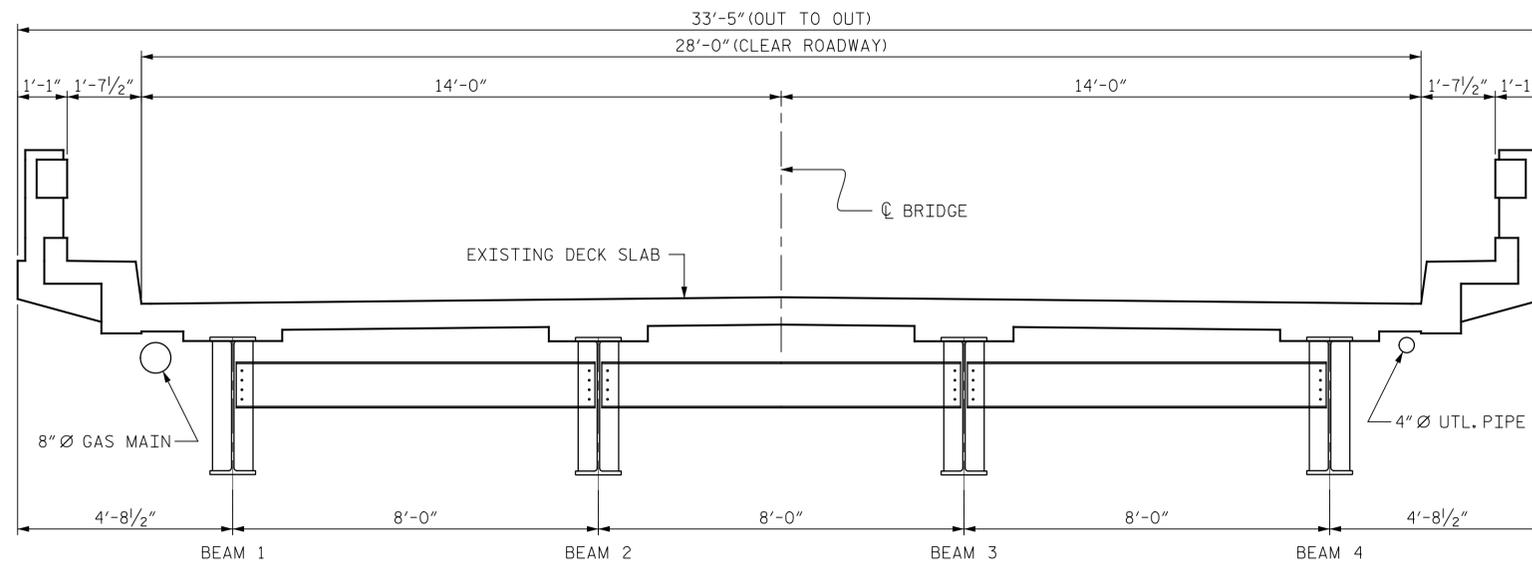
GENERAL DRAWING
 BRIDGE #10 ON SR 1001
 OVER RHODHISS LAKE

DRAWN BY : T. HARTLEY DATE : 05/2018
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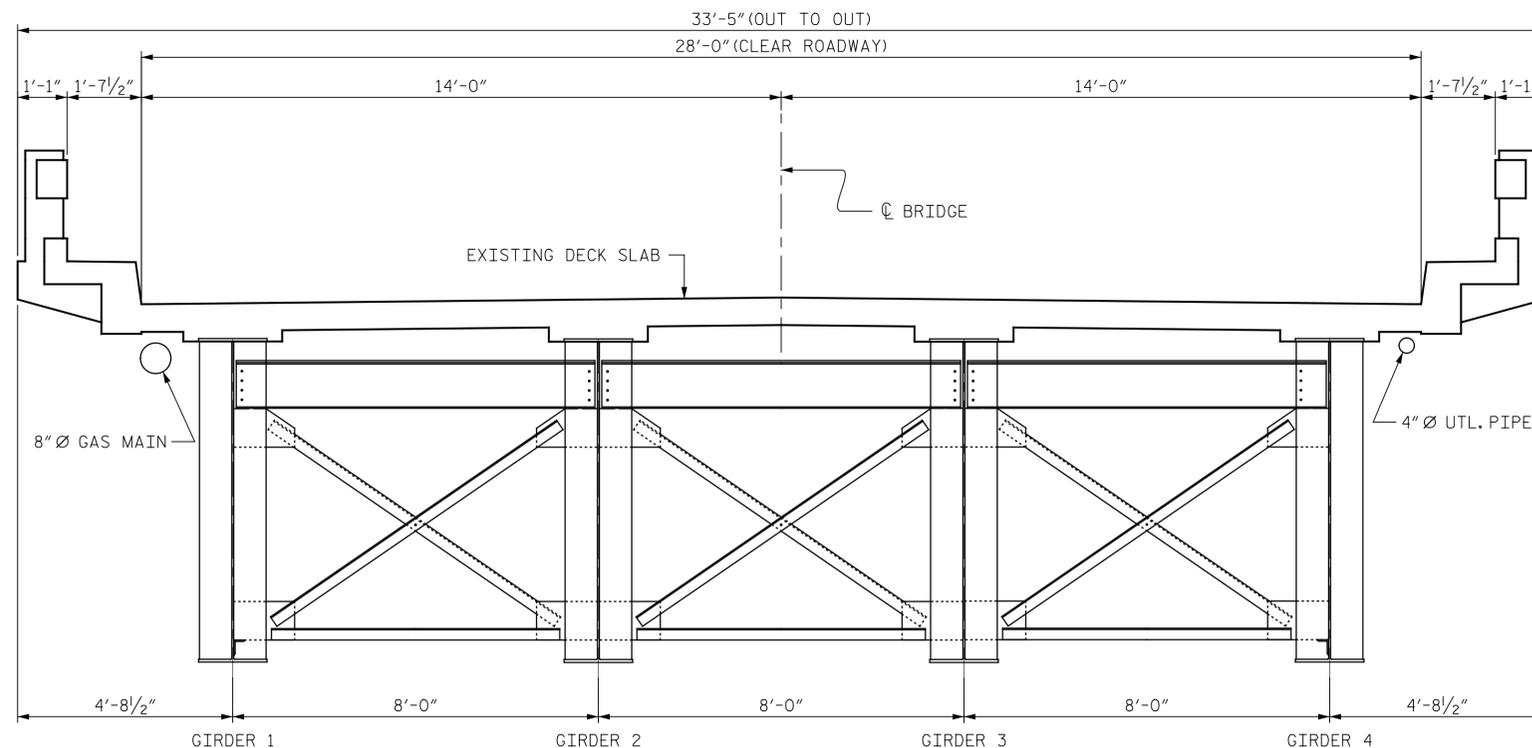
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TYPICAL SECTION
(EXISTING SPANS A,G,H)



TYPICAL SECTION
(EXISTING SPANS B THRU F)

PROJECT NO. 41665.5D
BURKE COUNTY
 BRIDGE NO. 10



DocuSigned by:
Eric B. Nelson 8/2/2018
 ACB8682119074CD

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

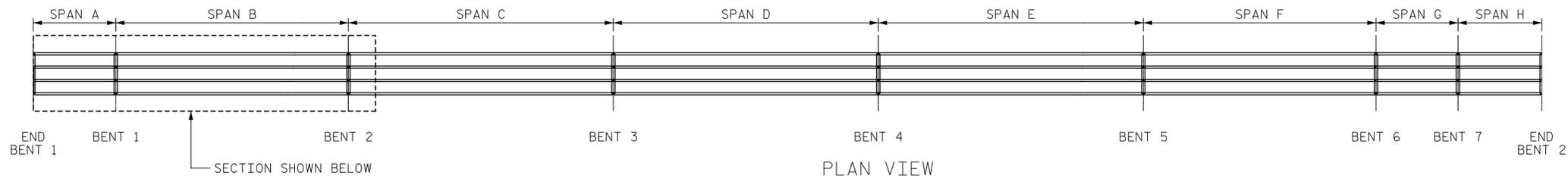
TYPICAL SECTION

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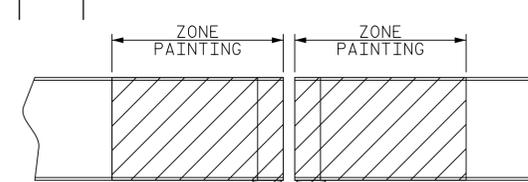
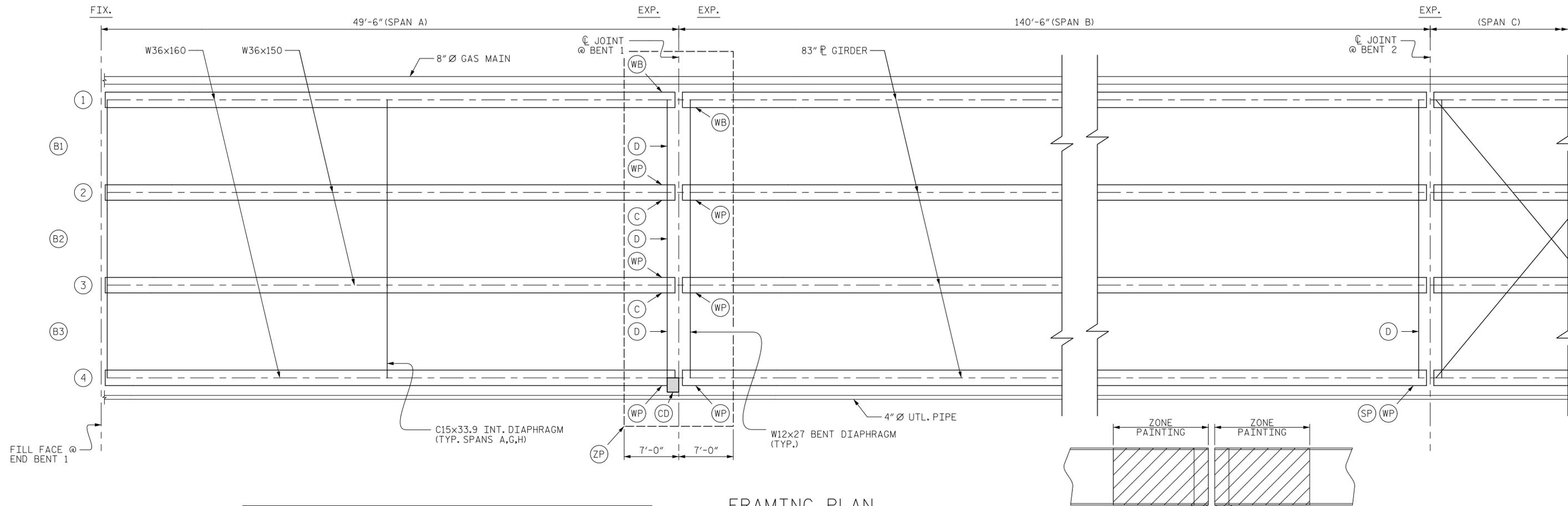
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NOTES:
 FOR REPAIR DETAILS, SEE SHEET "S-9 THRU S-18."
 THE LOCATIONS AND DIMENSIONS OF THE AREAS FOR REPAIR ARE BASED ON THE BEST INFORMATION AVAILABLE. THE CONTRACTOR SHALL VERIFY THE LOCATION, AND EXTENT OF REPAIR AREAS PRIOR TO STEEL FABRICATION.
 CONTRACTOR SHALL ENSURE THAT EXISTING UTILITIES ADJACENT TO THE BRIDGE ARE NOT DAMAGED DURING THE REPAIR OPERATIONS.



- ① - BEAM/GIRDER NUMBER
- B1 - BAY NUMBER
- WB - WEB BOLTED REPAIR
- WP - WEB PLATE REPAIR
- C - CONNECTOR PLATE REMOVAL
- D - DIAPHRAGM REPAIR
- CD + [shaded square] - CONCRETE DIAPHRAGM REPAIR
- ZP - ZONE PAINTING
- SP - SPOT CLEAN & PRIME

BEAM REPAIR LOCATIONS								
SPAN	BEAM	LOCATION		REPAIR TYPE	DIMENSIONS			
					"A"	"B"	"C"	"D"
A	1	BENT 1	EXT.	WB	-	-	-	-
A	2	BENT 1	BAY 2	C	-	7"	-	-
A	2	BENT 1	BAY 1	WP (DETAIL 2)	3'-3"	6"	-	-
A	3	BENT 1	BAY 2	WP (DETAIL 2)	3'-0"	8"	-	-
A	3	BENT 1	BAY 3	C	-	8"	-	-
A	4	BENT 1	EXT.	WP (DETAIL 3)	6'-2"	1'-4"	2'-0"	8"
B	1	BENT 1	BAY 1	WB	-	-	-	-
B	2	BENT 1	BAY 2	WP (DETAIL 6)	2'-0"	6"	-	-
B	3	BENT 1	BAY 3	WP (DETAIL 6)	2'-0"	6"	-	-
B	4	BENT 1	EXT.	WP (DETAIL 4)	6'-3"	9"	-	-
B	4	BENT 2	EXT.	WP (DETAIL 6)	1'-6"	8"	-	-

DIAPHRAGM REPAIR LOCATIONS			
SPAN	BAY	LOCATION	REPAIR TYPE
A	1	BENT 1	PLATE
A	2	BENT 1	PLATE
A	3	BENT 1	PLATE
B	3	BENT 2	REPLACE

QUANTITY REPAIR TABLE		
	ESTIMATED	ACTUAL
WEB BOLTED REPAIR	610 LBS.	-
WEB I REPAIR	323 LBS.	-
STEEL CONN. HARDWARE	61.0 LBS.	-
STEEL DIA. REPLACEMENT	214 LBS.	-
STEEL DIA. REPAIR	64 LBS.	-
CONCRETE DIA. REPAIR	1 EACH (0.2 CF)	-
SPOT CLEAN & PRIME	2.9 SF	-

PROJECT NO. 41665.5D
BURKE COUNTY
 BRIDGE NO. 10

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BEAM REPAIR LOCATIONS

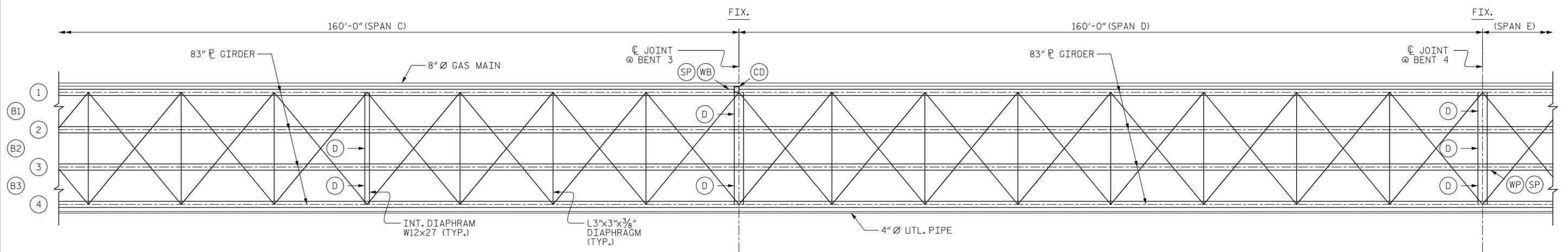
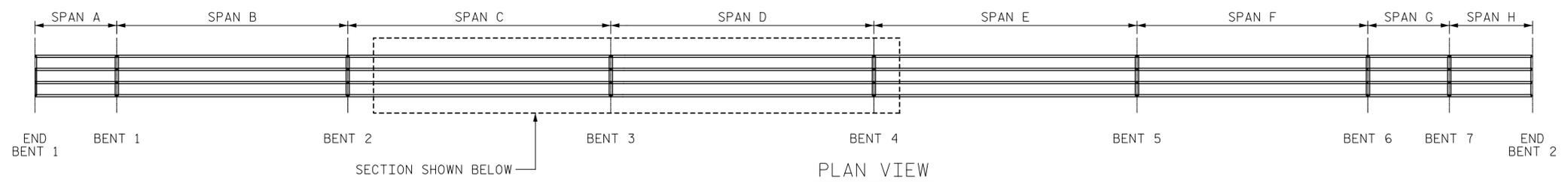
DocuSigned by:
Eric B. Nelson 8/2/2018
 NC EITC B. NELSON JR.
 SEAL 020208
 PROFESSIONAL ENGINEER
 NORTH CAROLINA

DRAWN BY: T. HARTLEY DATE: 05/2018
 CHECKED BY: M. SPENCER DATE: 07/2018

PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered As Promised
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FRAMING PLAN

- (1) - BEAM/GIRDER NUMBER
- (B1) - BAY NUMBER
- (WB) - WEB BOLTED REPAIR
- (WP) - WEB PLATE REPAIR
- (C) - CONNECTOR PLATE REMOVAL
- (D) - DIAPHRAGM REPAIR
- (CD) + [] - CONCRETE DIAPHRAGM REPAIR
- (ZP) - ZONE PAINTING
- (SP) - SPOT CLEAN & PRIME

SPAN	BEAM	LOCATION		REPAIR TYPE	DIMENSIONS			
					"A"	"B"	"C"	"D"
C	1	BENT 3	EXT.	WB	-	-	-	-
E	3	BENT 4	BAY 3	WP (DETAIL 6)	1'-0"	7"	-	-

SPAN	BAY	LOCATION	REPAIR TYPE
C	2	MIDSPAN	REPLACE
C	3	MIDSPAN	REPLACE
C	1	BENT 3	PLATE
C	3	BENT 3	REPLACE
D	1	BENT 4	REPLACE
D	2	BENT 4	PLATE
D	3	BENT 4	REPLACE

	ESTIMATED	ACTUAL
WEB BOLTED REPAIR	391 LBS.	-
WEB I REPAIR	9 LBS.	-
STEEL CONN. HARDWARE	36 LBS.	-
STEEL DIA. REPLACEMENT	1070 LBS.	-
STEEL DIA. REPAIR	18 LBS.	-
CONCRETE DIA. REPAIR	1 EACH (0.2 CF)	-
SPOT CLEAN & PRIME	30.6 SF	-

PROJECT NO. 41665.5D
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 SHEET 2 OF 4



STATE OF NORTH CAROLINA
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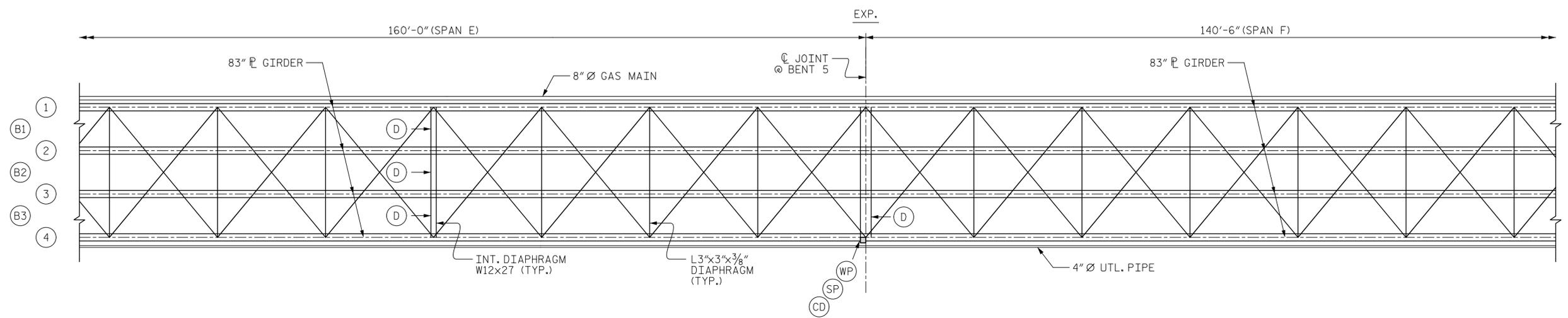
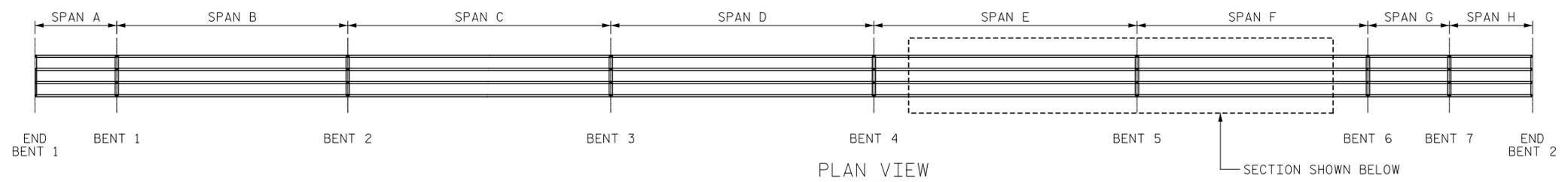
BEAM REPAIR LOCATIONS

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FRAMING PLAN

- ① - BEAM/GIRDER NUMBER
- B1 - BAY NUMBER
- WB - WEB BOLTED REPAIR
- WP - WEB PLATE REPAIR
- ⊖ - CONNECTOR PLATE REMOVAL
- ⊙ - DIAPHRAGM REPAIR
- ⊕ - CONCRETE DIAPHRAGM REPAIR
- ZP - ZONE PAINTING
- SP - SPOT CLEAN & PRIME

BEAM REPAIR LOCATIONS								
SPAN	BEAM	LOCATION		REPAIR TYPE	DIMENSIONS			
					"A"	"B"	"C"	"D"
E	4	BENT 5	EXT.	WP (DETAIL 6)	1'-8"	8"	9"	1'-0"

DIAPHRAGM REPAIR LOCATIONS			
SPAN	BAY	LOCATION	REPAIR TYPE
E	1	MIDSPAN	REPLACE
E	2	MIDSPAN	REPLACE
E	3	MIDSPAN	PLATE
F	3	BENT 5	REPLACE

QUANTITY REPAIR TABLE		
	ESTIMATED	ACTUAL
WEB BOLTED REPAIR	- LBS.	-
WEB I REPAIR	29 LBS.	-
STEEL CONN. HARDWARE	- LBS.	-
STEEL DIA. REPLACEMENT	642 LBS.	-
STEEL DIA. REPAIR	9 LBS.	-
CONCRETE DIA. REPAIR	1 EACH (0.2 CF)	-
SPOT CLEAN & PRIME	5.6 SF	-

PROJECT NO. 41665.5D
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 SHEET 3 OF 4



STATE OF NORTH CAROLINA
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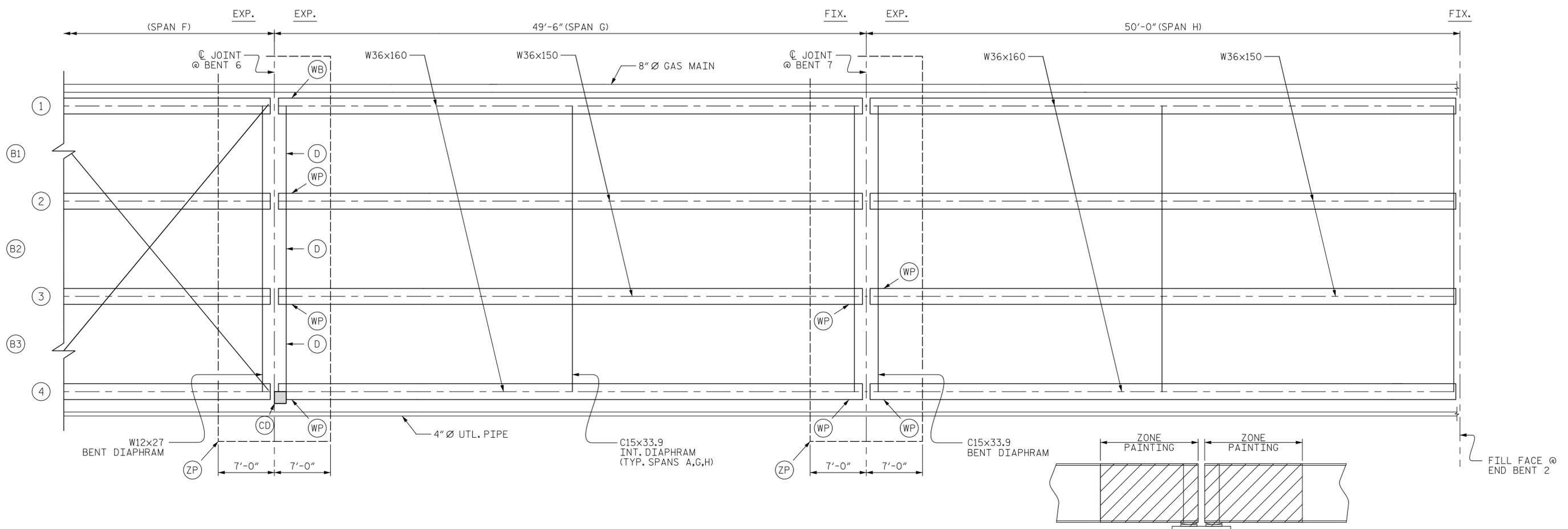
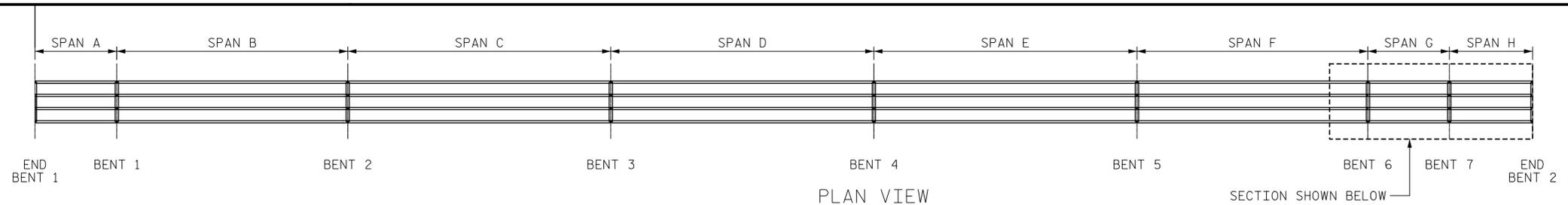
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- ① - BEAM/GIRDER NUMBER
- B1 - BAY NUMBER
- WB - WEB BOLTED REPAIR
- WP - WEB PLATE REPAIR
- C - CONNECTOR PLATE REMOVAL
- D - DIAPHRAGM REPAIR
- CD + [square] - CONCRETE DIAPHRAGM REPAIR
- ZP - ZONE PAINTING
- SP - SPOT CLEAN & PRIME

BEAM REPAIR LOCATIONS

SPAN	BEAM	LOCATION	REPAIR TYPE	DIMENSIONS			
				"A"	"B"	"C"	"D"
G	1	BENT 6 EXT.	WB	-	-	-	-
G	2	BENT 6 BAY 1	WP (DETAIL 2)	4'-9"	9"	-	-
G	3	BENT 6 BAY 3	WP (DETAIL 2)	3'-4"	9"	-	-
G	4	BENT 6 EXT.	WP (DETAIL 3)	6'-6"	1'-0"	2'-3"	1'-0"
G	3	BENT 7 BAY 3	WP (DETAIL 1)	2'-4"	9"	-	-
G	4	BENT 7 EXT.	WP (DETAIL 3)	4'-7"	9"	-	-
H	3	BENT 7 BAY 2	WP (DETAIL 1)	2'-0"	6"	-	-
H	4	BENT 7 EXT.	WP (DETAIL 3)	4'-7"	9"	-	-

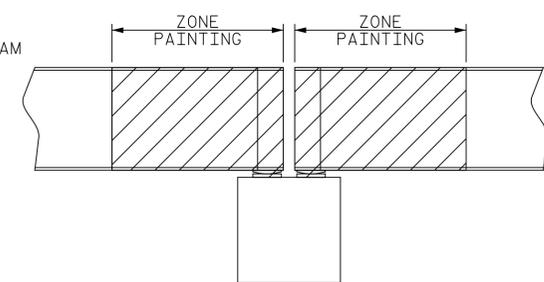
DIAPHRAGM REPAIR LOCATIONS

SPAN	BAY	LOCATION	REPAIR TYPE
G	1	BENT 6	PLATE
G	2	BENT 6	PLATE
G	3	BENT 6	PLATE

QUANTITY REPAIR TABLE

	ESTIMATED	ACTUAL
WEB BOLTED REPAIR	321 LBS.	-
WEB PLATE REPAIR	377 LBS.	-
STEEL CONN. HARDWARE	24 LBS.	-
STEEL DIA. REPLACEMENT	- LBS.	-
STEEL DIA. REPAIR	45 LBS.	-
CONCRETE DIA. REPAIR	1 EACH (0.2 CF)	-
SPOT CLEAN & PRIME	- SF	-

LIMITS OF ZONE PAINTING



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SHEET 4 OF 4



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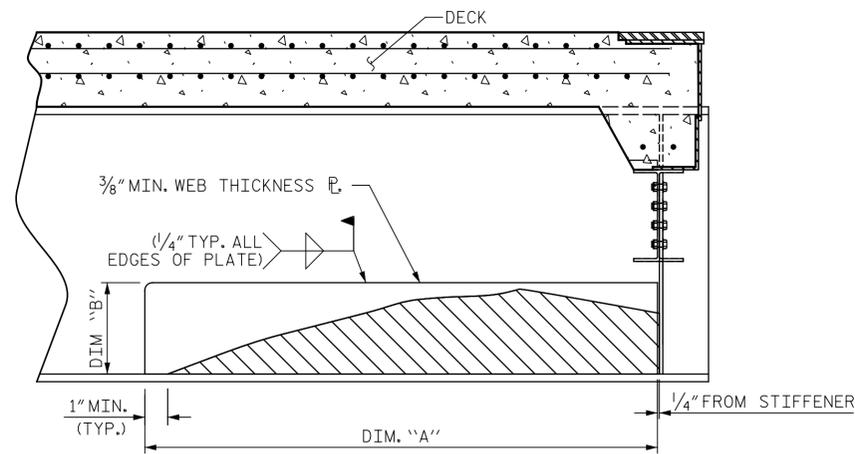
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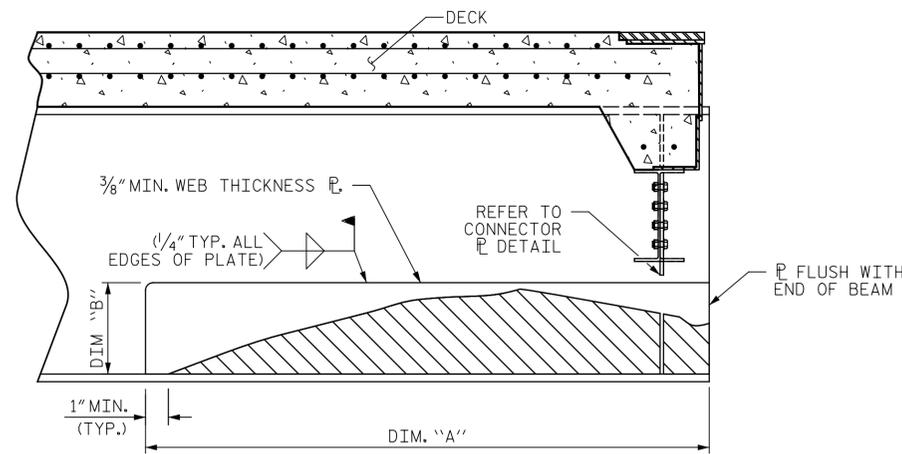
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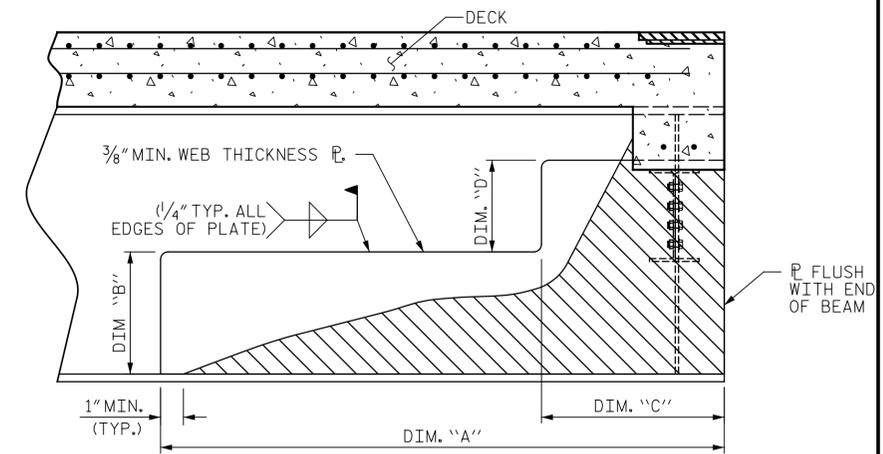
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1			3			TOTAL SHEETS
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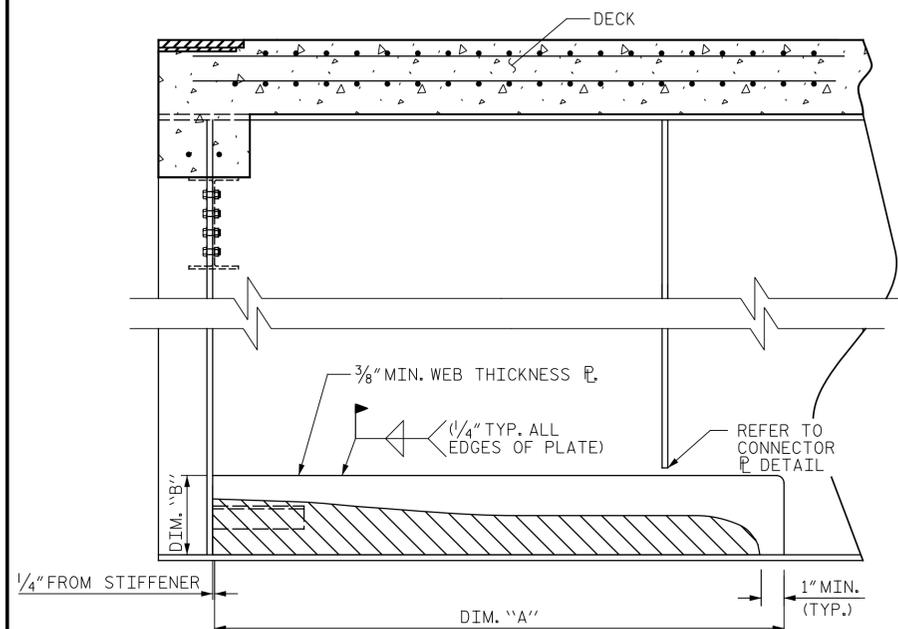
WEB PLATE REPAIR DETAIL 1



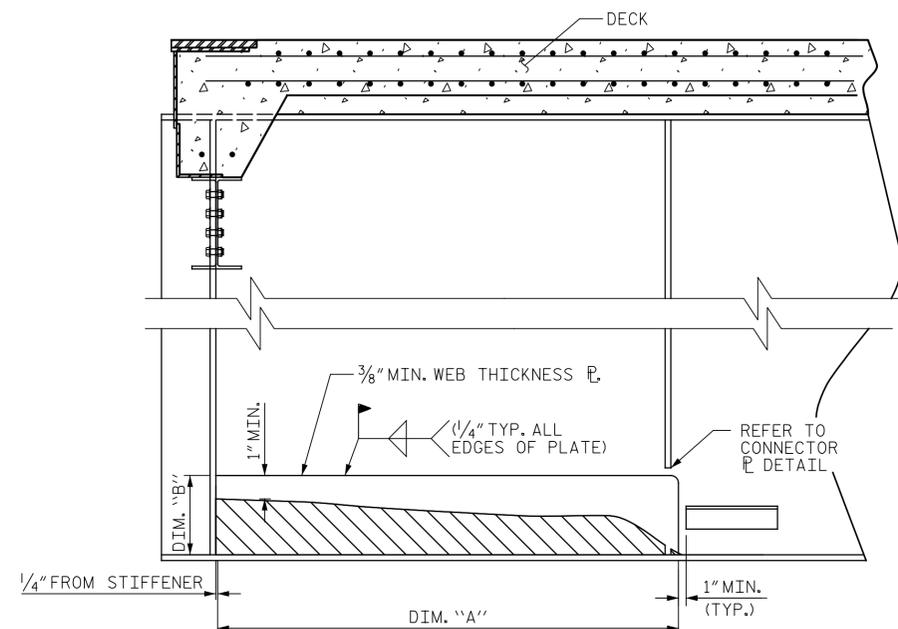
WEB PLATE REPAIR DETAIL 2



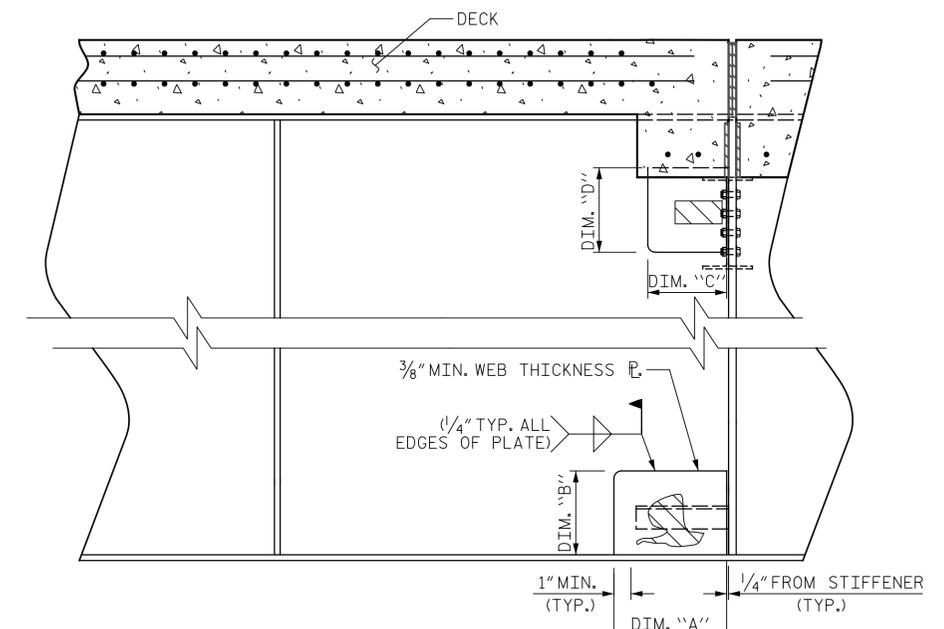
WEB PLATE REPAIR DETAIL 3



WEB PLATE REPAIR DETAIL 4



WEB PLATE REPAIR DETAIL 5



WEB PLATE REPAIR DETAIL 6

NOTES:

ALL CONDITIONS AND DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION OR INSTALLATION OF ANY COMPONENTS. FOR FIELD VERIFICATION SEE "FIELD MEASURING" SPECIAL PROVISION.

REPAIR PLATES SHALL BE NEW AND MINIMUM 36 KSI STEEL.

COORDINATE WITH MATERIALS AND TESTS UNIT AT LEAST 4 DAYS PRIOR TO ANTICIPATED WORK.

REMOVE PORTIONS OF CONCRETE DIAPHRAGMS AS NOTED TO ACCESS REPAIR AREAS.

FOR REPAIR AREAS ASSOCIATED WITH SPOT PAINTING: PREPARE AREAS FOR WELDING BY MECHANICALLY CLEANING RUST, SCALE, AND EXISTING PAINT FOR A 8" STRIP CENTERED ON REPAIR PLATE EDGES.

FOR REPAIR AREAS ASSOCIATED WITH ZONE PAINTING: PREPARE AREAS FOR WELDING BY BLAST CLEANING ENTIRE REPAIR AREA OF RUST, SCALE, AND EXISTING PAINT TO AT LEAST 4" BEYOND REPAIR PLATE EDGES.

ONE PLATE SHALL BE PLACED, AS INDICATED IN THE PLANS ON ONE SIDE OF THE BEAM OR GIRDER WEB UNLESS OTHERWISE NOTED. PLACE PLATE ON SIDE WITH GREATER SECTION LOSS.

FULLY WELD ALONG ALL PLATE EDGES AS SHOWN.

ALL WELDING SHALL BE IN ACCORDANCE WITH CURRENT APPLICABLE AWS CODE AND NCDOT STANDARD SPECIFICATIONS.

WELDED REPAIRS SHALL BE INSPECTED BY THE NCDOT MATERIALS AND TESTS UNIT.

PAINT REPAIRED AREAS IN ACCORDANCE WITH "ZONE PAINTING OF EXISTING STRUCTURE" OR "SPOT CLEAN & PRIME STEEL REPAIR AREAS" SPECIAL PROVISIONS AS SHOWN IN THE PLANS.

AFTER BEAMS ARE REPAIRED AND PAINTED, ANY CONCRETE REMOVED FROM BENT DIAPHRAGMS SHALL BE REPLACED. FOR BENT DIAPHRAGM REPAIRS, SEE "CONCRETE DIAPHRAGM REPAIR" SPECIAL PROVISIONS.

- SECTION LOSS

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 1 OF 2



DocuSigned by:
Eric B. Nelson
8/2/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

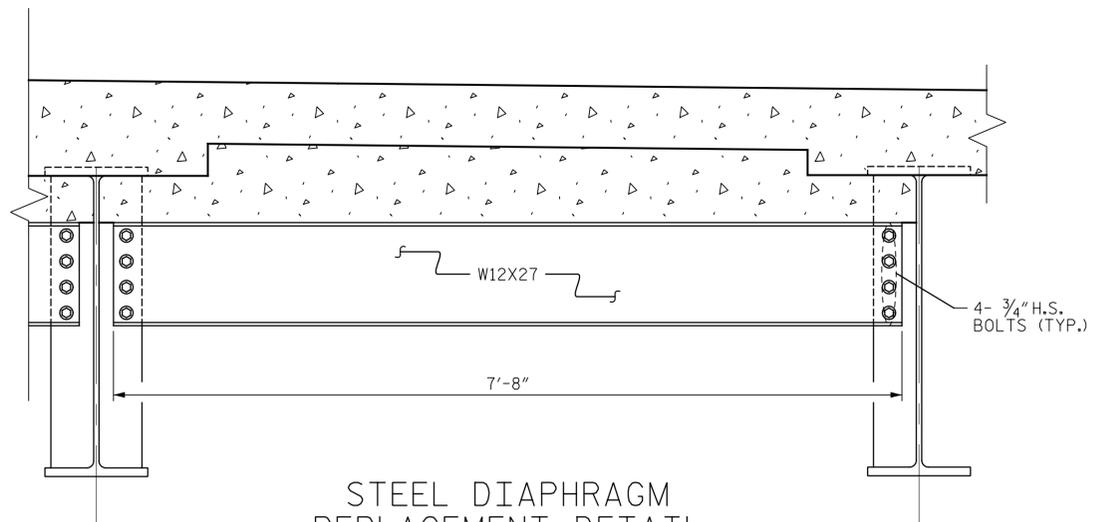
WELDED PLATE REPAIR DETAILS

PLANS PREPARED BY:
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2610 Wycliff Road
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Raleigh NC 27607-3073
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NC Lic. No. F-0270
Excellence Delivered As Promised

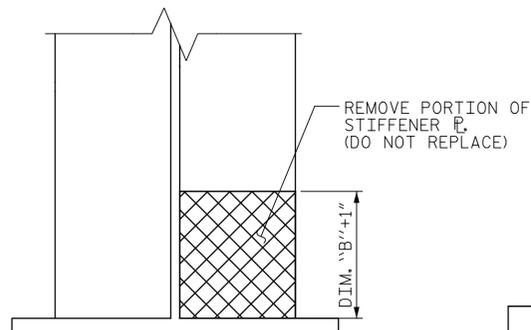
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1			3			TOTAL SHEETS
2			4			18

DRAWN BY : T. HARTLEY DATE : 05/2018
CHECKED BY : R. NELSON DATE : 07/2018



STEEL DIAPHRAGM REPLACEMENT DETAIL



STIFFENER PLATE DETAIL

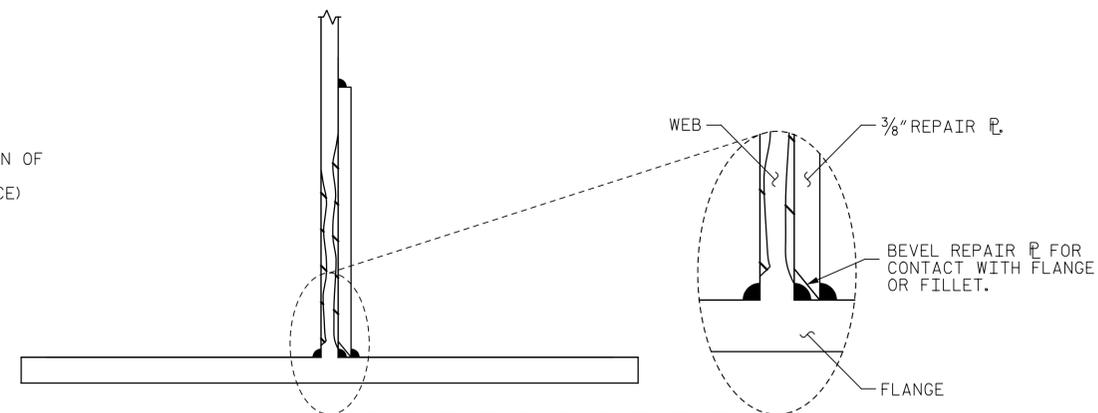
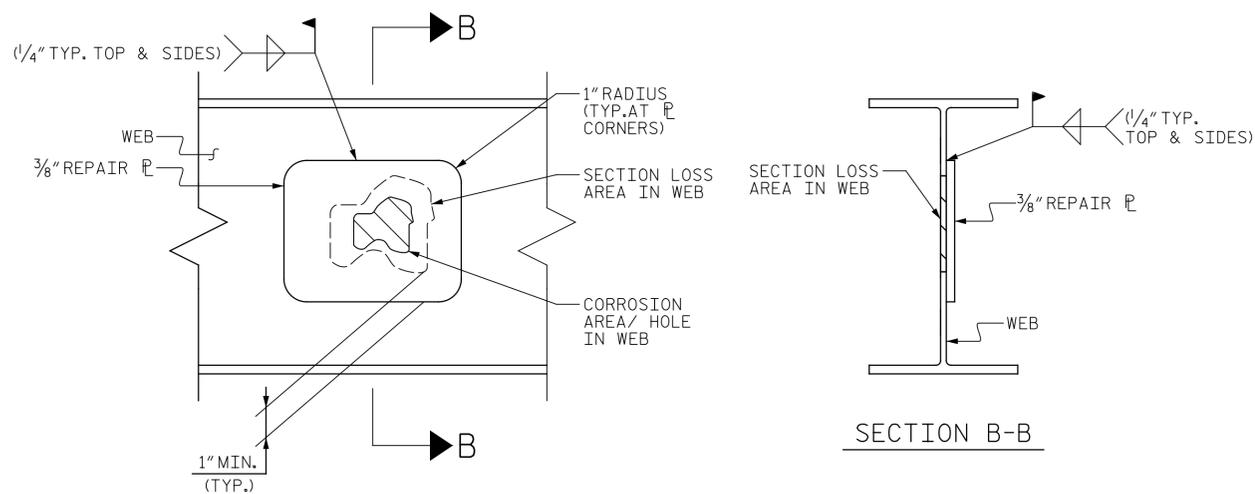
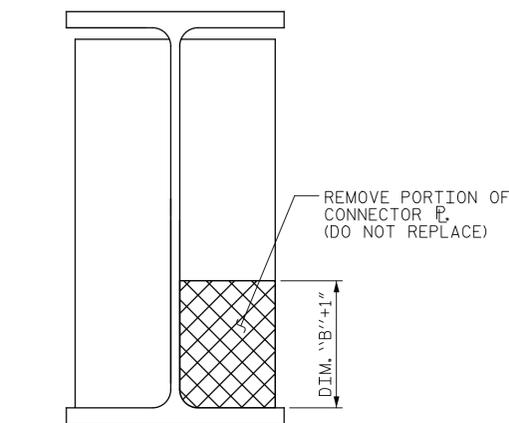


PLATE DETAIL (PLATE GIRDER)



WEB PLATE REPAIR DETAIL
(TO BE USED FOR I-BEAM, PLATE GIRDER; DIAPHRAGM REPAIRS)



CONNECTOR PLATE DETAIL

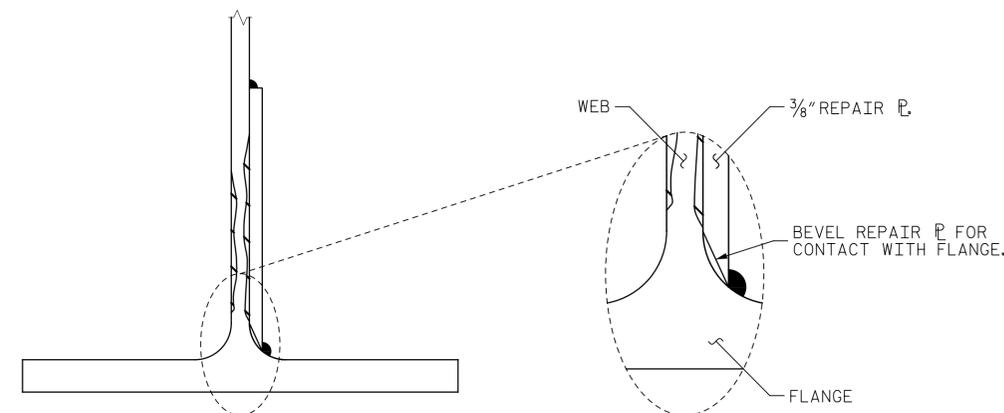
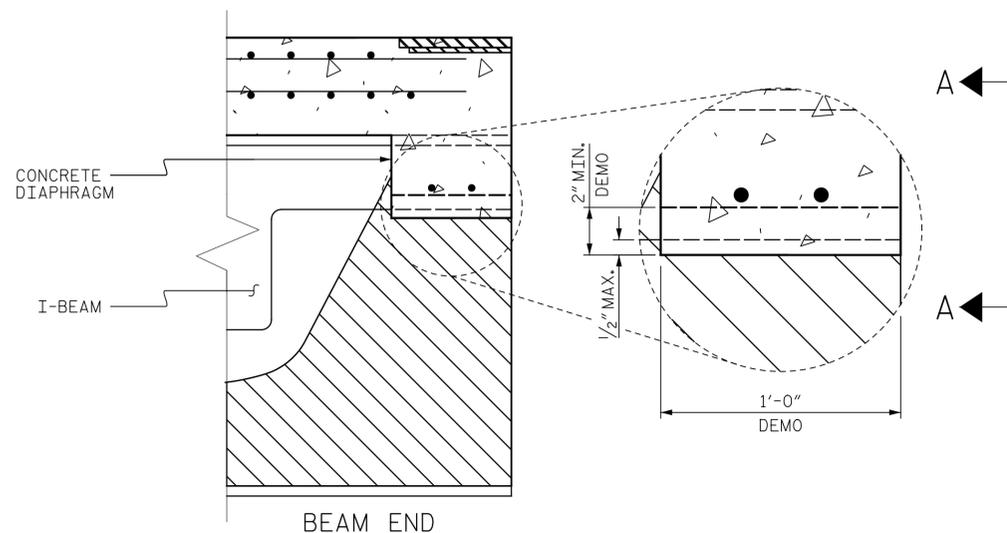
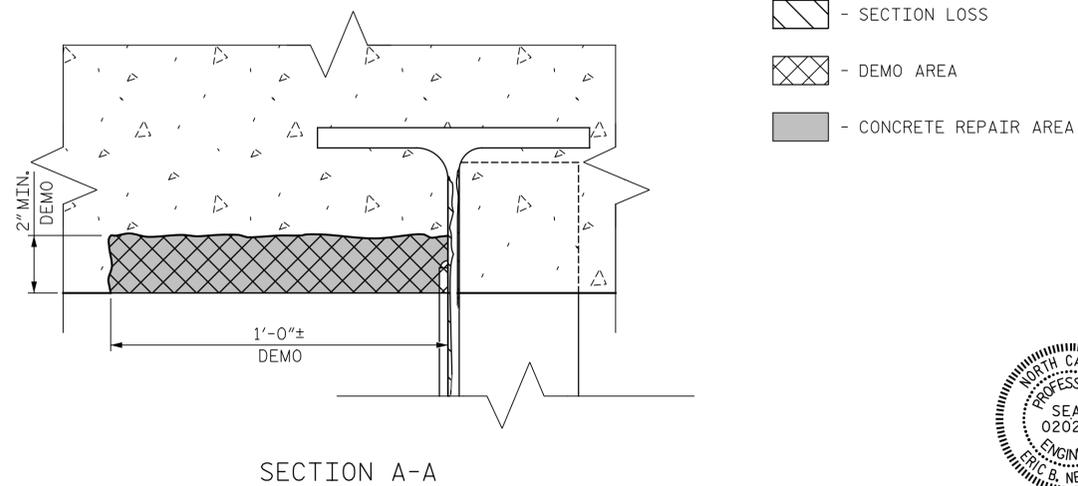


PLATE DETAIL (I-BEAM)



CONCRETE DIAPHRAGM REPAIR DETAIL



SECTION A-A

- SECTION LOSS
- DEMO AREA
- CONCRETE REPAIR AREA

PROJECT NO. 41665.5D
BURKE COUNTY
BRIDGE NO. 10

SHEET 2 OF 2



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Eric B. Nelson Jr.
8/2/2018
ACB908219074CD

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DEPARTMENT OF TRANSPORTATION
RALEIGH

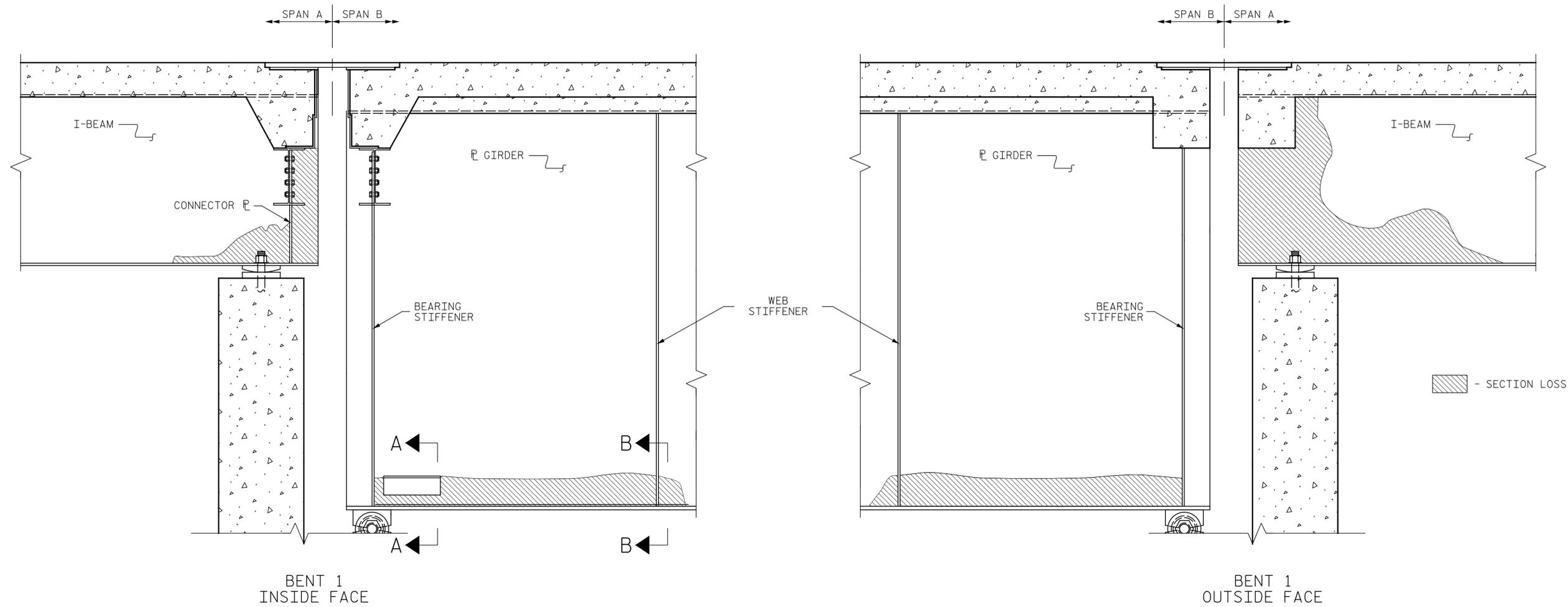
WELDED PLATE
REPAIR DETAILS

DRAWN BY: T. HARTLEY DATE: 05/2018
CHECKED BY: R. NELSON DATE: 07/2018

PLANS PREPARED BY:
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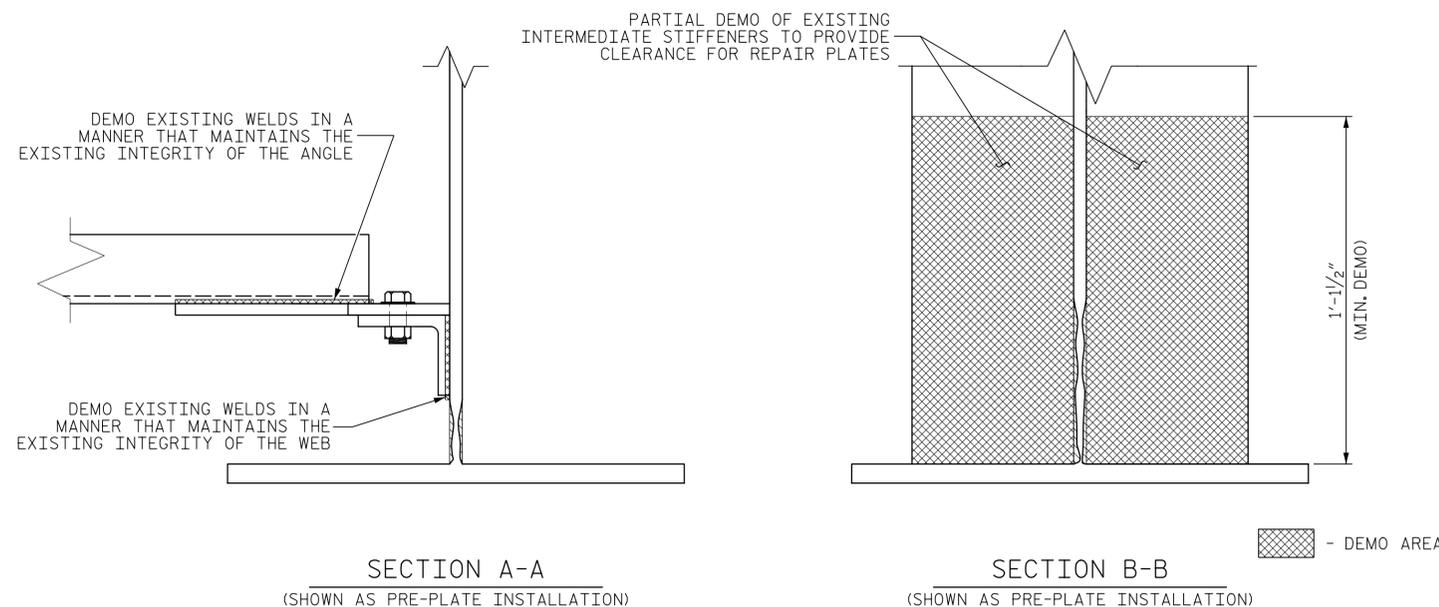
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			18



BENT 1
INSIDE FACE

BENT 1
OUTSIDE FACE

SECTION LOSS



PRE-INSTALLATION DEMO DETAILS

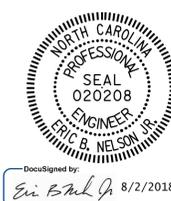
BENT 1/SPAN A & B

NOTES:

- REPAIR SEQUENCE:
- FOR REPAIR AREAS ASSOCIATED WITH SPOT PAINTING: MECHANICALLY CLEAN ENTIRE REPAIR AREA OF RUST, SCALE, AND EXISTING PAINT TO AT LEAST 4" BEYOND REPAIR PLATE EDGES.
- FOR REPAIR AREAS ASSOCIATED WITH ZONE PAINTING: PREPARE AREAS FOR WELDING BY BLAST CLEANING ENTIRE REPAIR AREA OF RUST, SCALE, AND EXISTING PAINT TO AT LEAST 4" BEYOND REPAIR PLATE EDGES.
- MARK REPAIR AREA AND BOLT LOCATIONS FOR INSPECTION AND APPROVAL BY THE ENGINEER.
- FIELD DRILL HOLES FOR BOLTS.
- HAND LAY UP PLATES TO CHECK FIT. SLIGHT REAMING OF HOLES MAY BE REQUIRED FOR FIT UP AND BOLTING. TORCHING OF HOLES WILL NOT BE ALLOWED.
- EPOXY STEEL FILLER PUTTY SHALL BE USED TO BUILD UP CORRODED STEEL AREAS TO PROVIDE A SMOOTH FAYING SURFACE. EPOXY STEEL FILLER SHALL BE LOCTITE OR EQUAL WITH A MINIMUM SHEAR STRENGTH OF 2000 PSI @ 24 HOURS.
- PRIOR TO PLACEMENT OF THE REPAIR PLATES, APPLY WET EPOXY MASTIC AROUND THE TOP AND SIDE PLATE EDGES THAT ARE TO BE IN CONTACT WITH THE BEAM. THE AMOUNT OF EPOXY MASTIC SHALL BE SUFFICIENT TO SEAL THE PLATE AND BEAM INTERFACE AFTER BOLTING. DO NOT APPLY MASTIC ALONG BOTTOM EDGES. WHILE MASTIC IS STILL WET INSTALL REPAIR PLATES AND PROPERLY TIGHTEN BOLTS.
- EPOXY MASTIC USED FOR THIS WORK SHALL BE COMPATIBLE WITH THE PAINT SYSTEM USED FOR FINAL COATING OF THE STEEL AND SHALL BE APPROVED BY THE NCDOT MATERIALS AND TESTS UNIT. EPOXY MASTIC ACCEPTANCE WILL BE BASED UPON MANUFACTURER'S WRITTEN CERTIFICATION THAT THE BATCH PRODUCED MEETS THEIR PRODUCT SPECIFICATION.
- PAINT REPAIRED AREAS IN ACCORDANCE WITH "ZONE PAINTING OF EXISTING STRUCTURE" OR "SPOT CLEANING AND PAINTING STEEL REPAIR AREAS" SPECIAL PROVISIONS AS SHOWN IN THE PLANS.
- CONTRACTOR SHALL FIELD VERIFY DIMENSIONS. PLATE DIMENSIONS SHALL BE ADJUSTED TO FIT IN THE SPACE FROM BOTTOM OF CONCRETE DIAPHRAGM TO TOP OF THE BOTTOM FLANGE. PLATE SHALL BE PLACED SNUG TO THE BOTTOM OF THE DIAPHRAGM. FOR FIELD VERIFICATION SEE "FIELD MEASURING" SPECIAL PROVISION.
- REPAIR PLATES SHALL BE NEW AND MINIMUM 36 KSI STEEL AND SHOP PRIMED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
- BOLTS SHALL MEET ASTM A325.
- NUTS SHALL MEET ASTM A194.
- FLAT WASHERS SHALL MEET ASTM F436.
- TENSION ON THE BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATING WASHERS (DTI) IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS. DTI SHALL MEET ASTM F959.

PROJECT NO. 41665.5D
BURKE COUNTY
 BRIDGE NO. 10

SHEET 1 OF 3



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ACB802118D74CD

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DEPARTMENT OF TRANSPORTATION
RALEIGH

BOLTED PLATE
REPAIR DETAILS

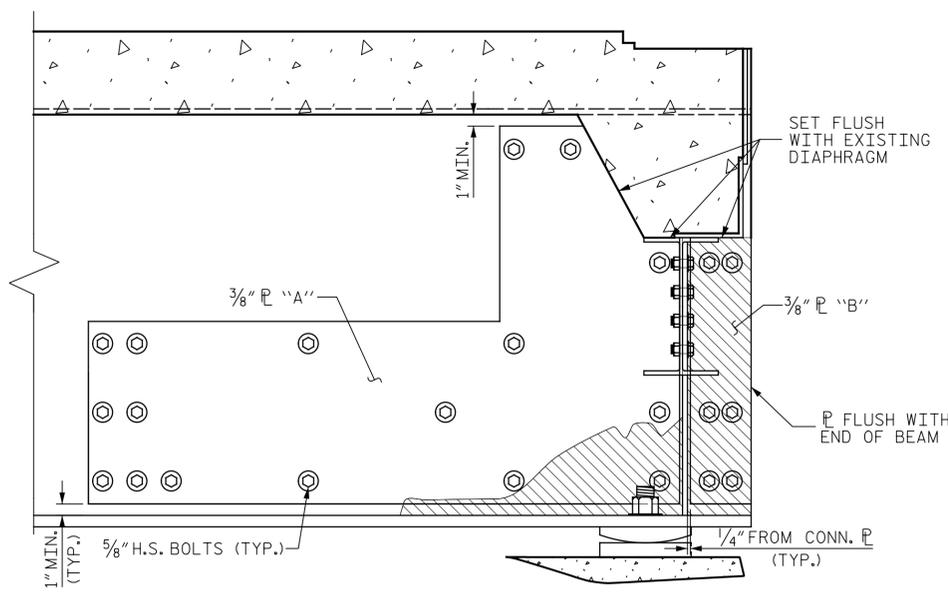
DRAWN BY : M. SPENCER DATE : 06/2018
 CHECKED BY : R. NELSON DATE : 06/2018

PLANS PREPARED BY:
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 Excellence Delivered As Promised
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 Suite 102
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 NC Lic. No. F-0270

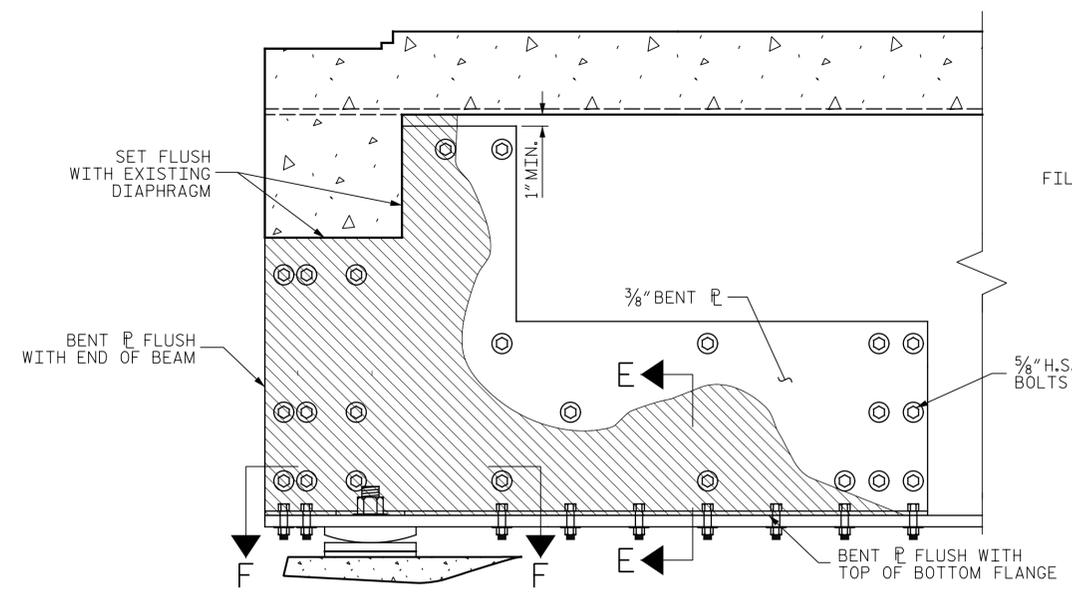
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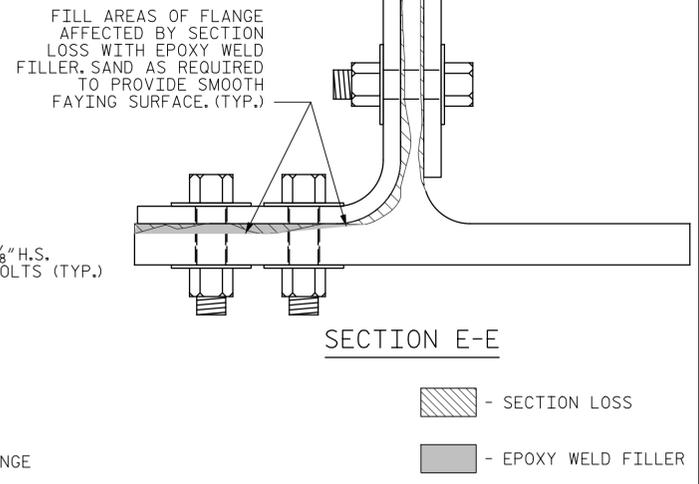
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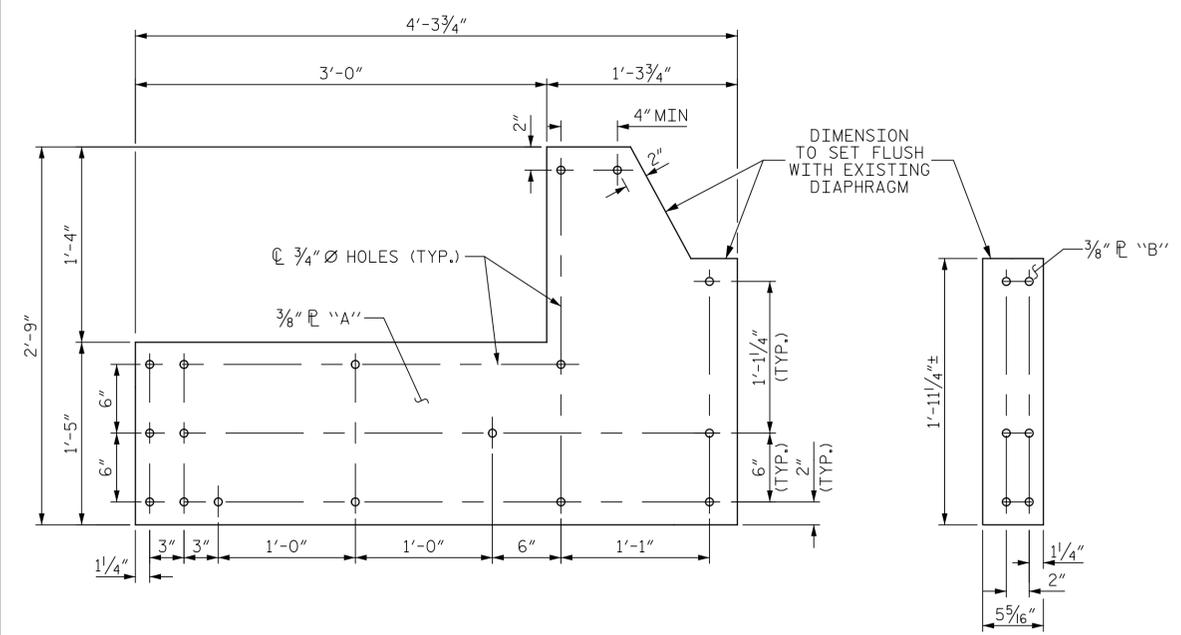
SPAN A INSIDE FACE PLATE PLACEMENT
(POST INSTALLATION SHOWN)



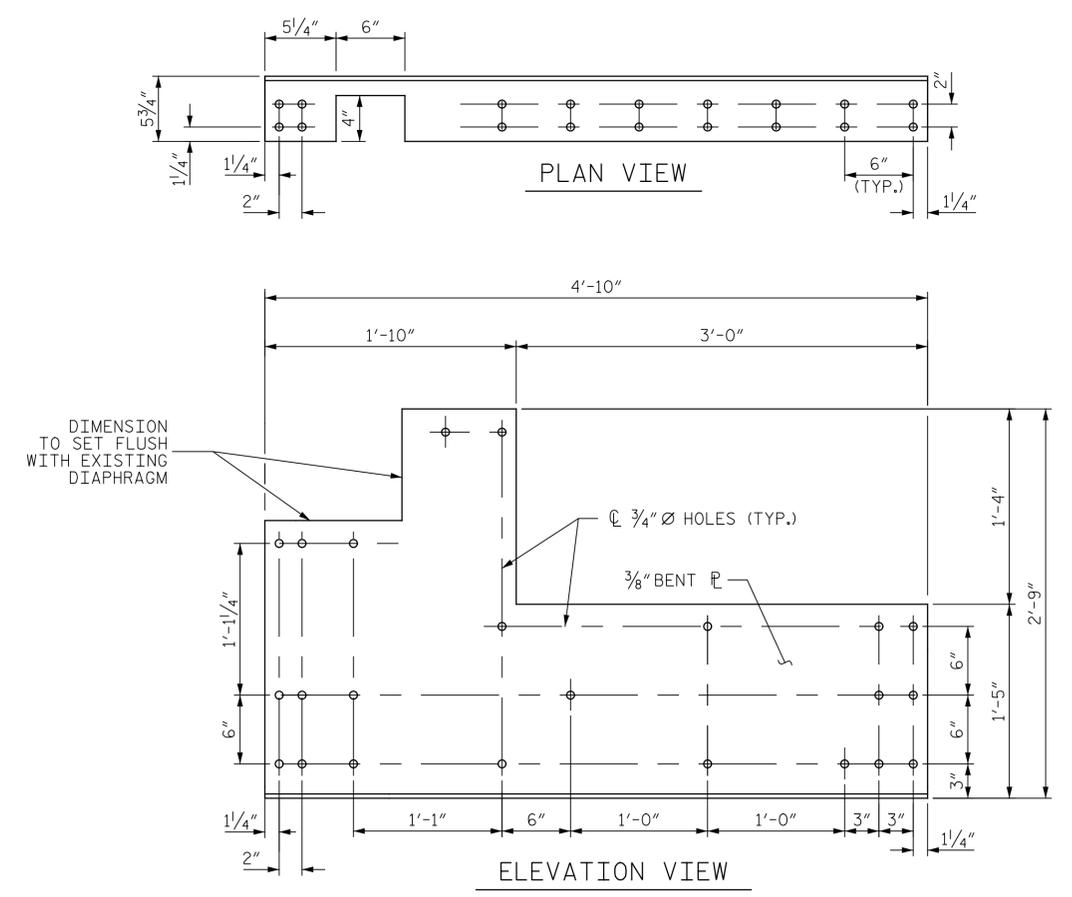
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(POST INSTALLATION SHOWN)



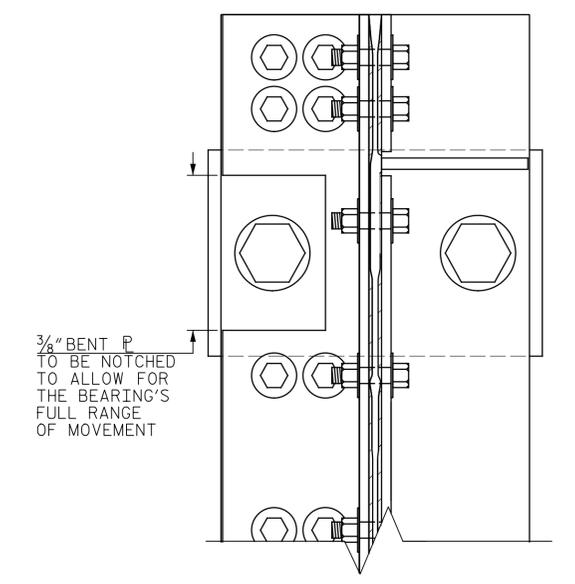
SECTION E-E
 - SECTION LOSS
 - EPOXY WELD FILLER



SPAN A INSIDE FACE REPAIR PLATES
(PRE-INSTALLATION SHOWN)



SPAN A OUTSIDE FACE REPAIR PLATE
(PRE-INSTALLATION SHOWN)



SECTION F-F

PROJECT NO. 41665.5D
 BURKE COUNTY
 BRIDGE NO. 10

SHEET 2 OF 3



DocuSigned by:
 Eric B. Nelson Jr.
 8/2/2018
 ACB909219074CD

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BOLTED PLATE
 REPAIR DETAILS**

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

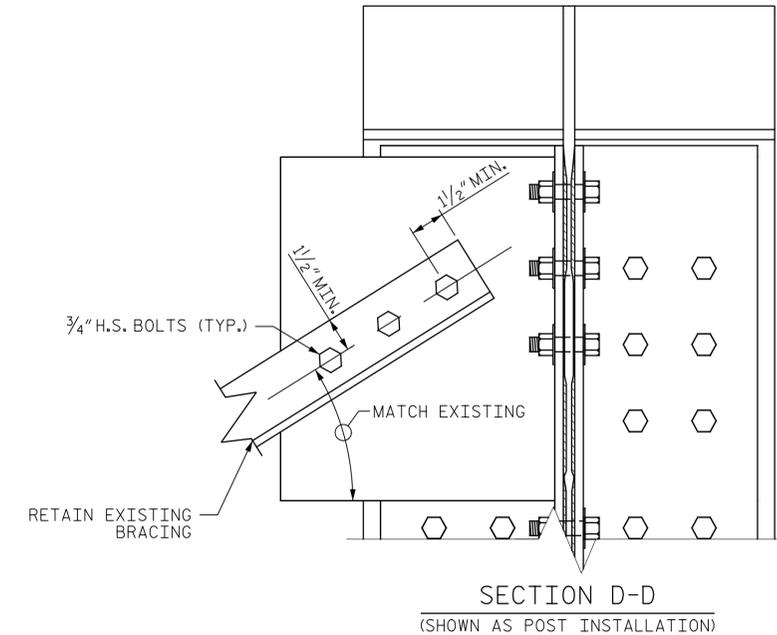
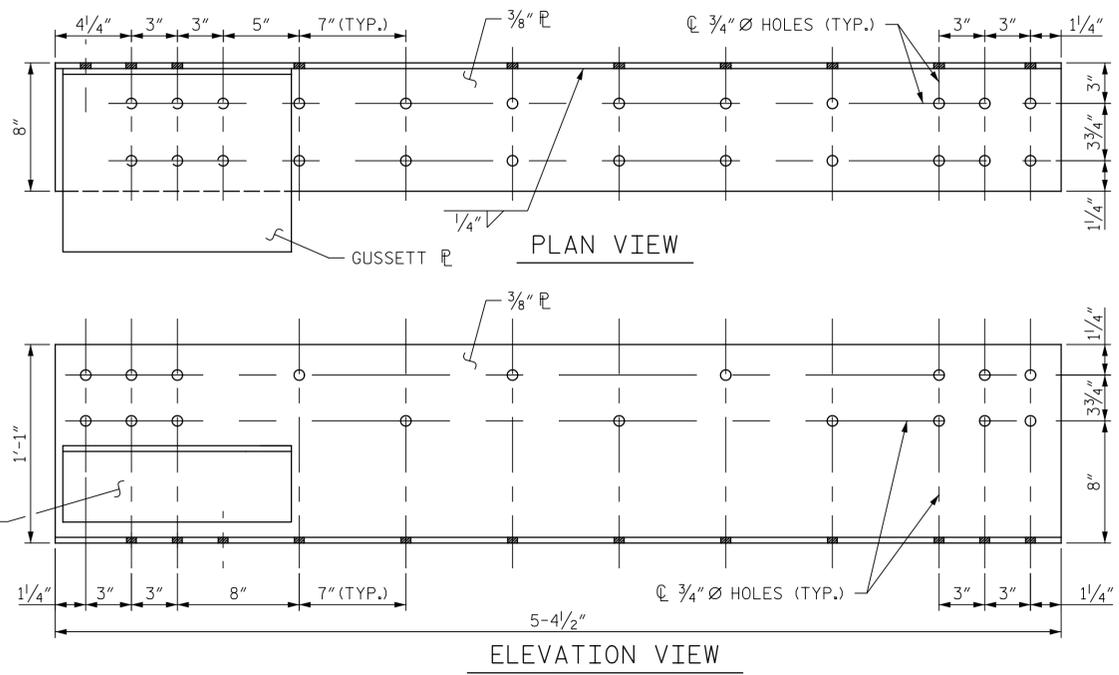
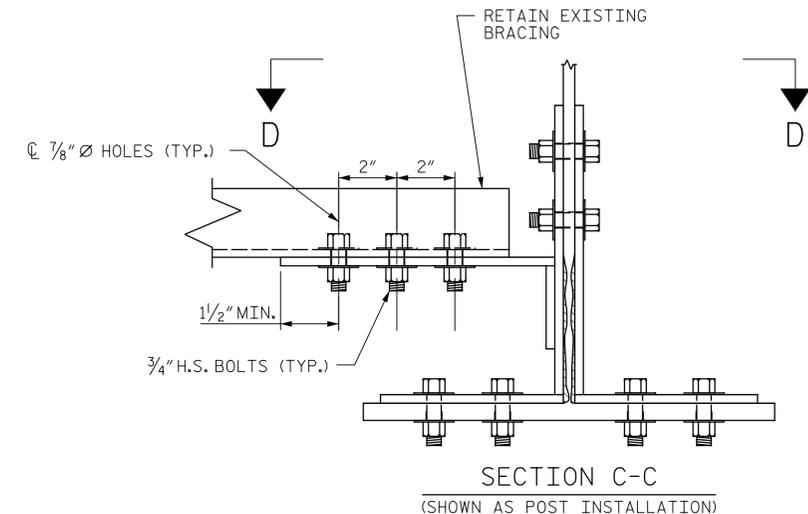
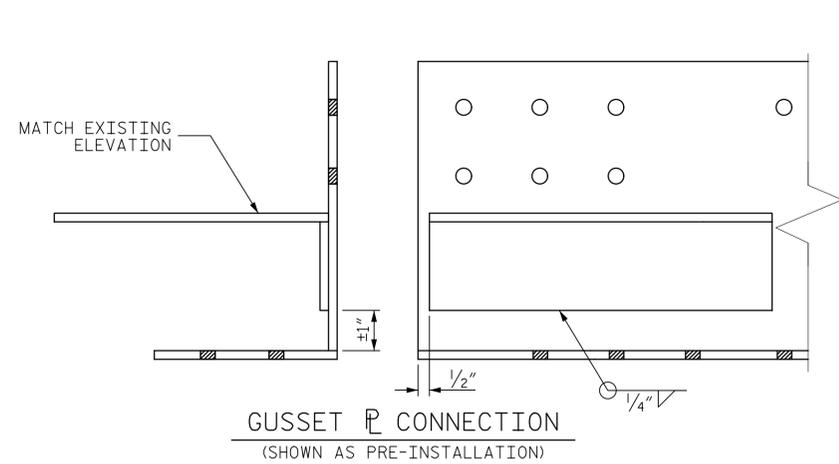
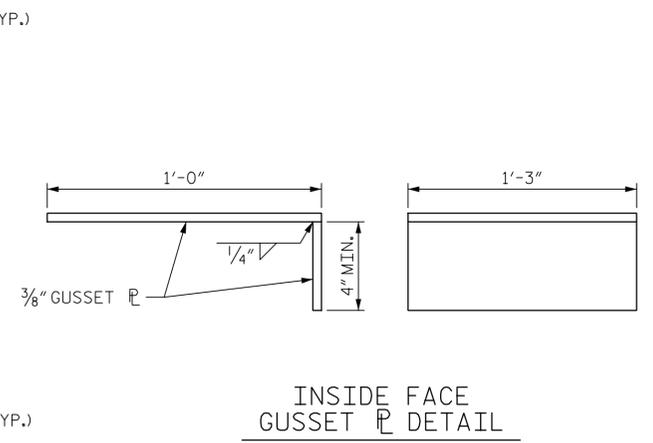
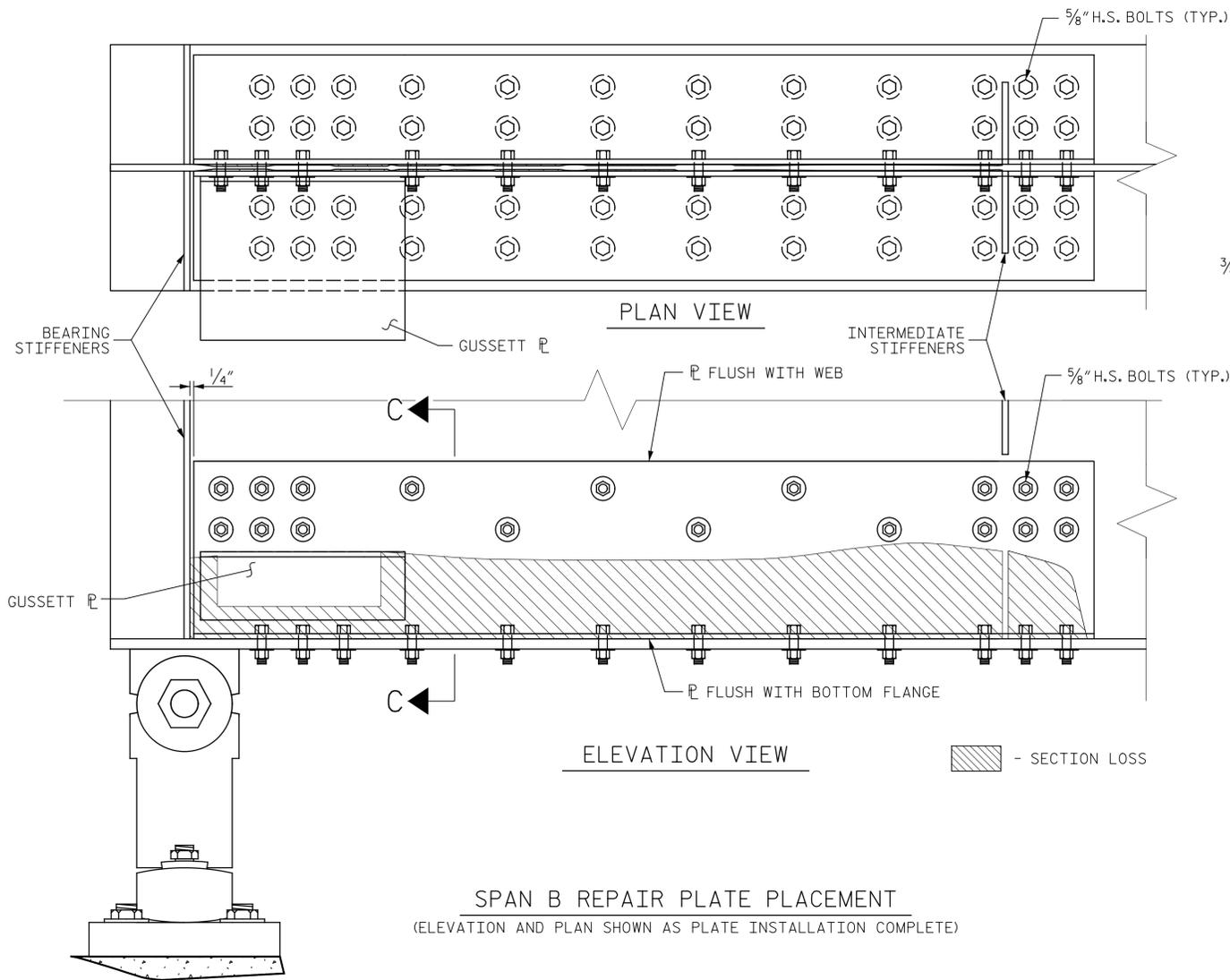
SHEET NO.	S-12
TOTAL SHEETS	18

DRAWN BY: M. SPENCER DATE: 06/2018
 CHECKED BY: R. NELSON DATE: 06/2018

BENT 1/SPAN A/BEAM 1
 (I-BEAM REPAIR)

PLANS PREPARED BY:
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 NC Lic. No. F-0270

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PROJECT NO. 41665.5D
 BURKE COUNTY
 BRIDGE NO. 10

SHEET 3 OF 3



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BOLTED PLATE
 REPAIR DETAILS**

DRAWN BY: M. SPENCER DATE: 06/2018
 CHECKED BY: R. NELSON DATE: 06/2018

(PRE-INSTALLATION/INSIDE FACE SHOWN, OUTSIDE SIMILAR)

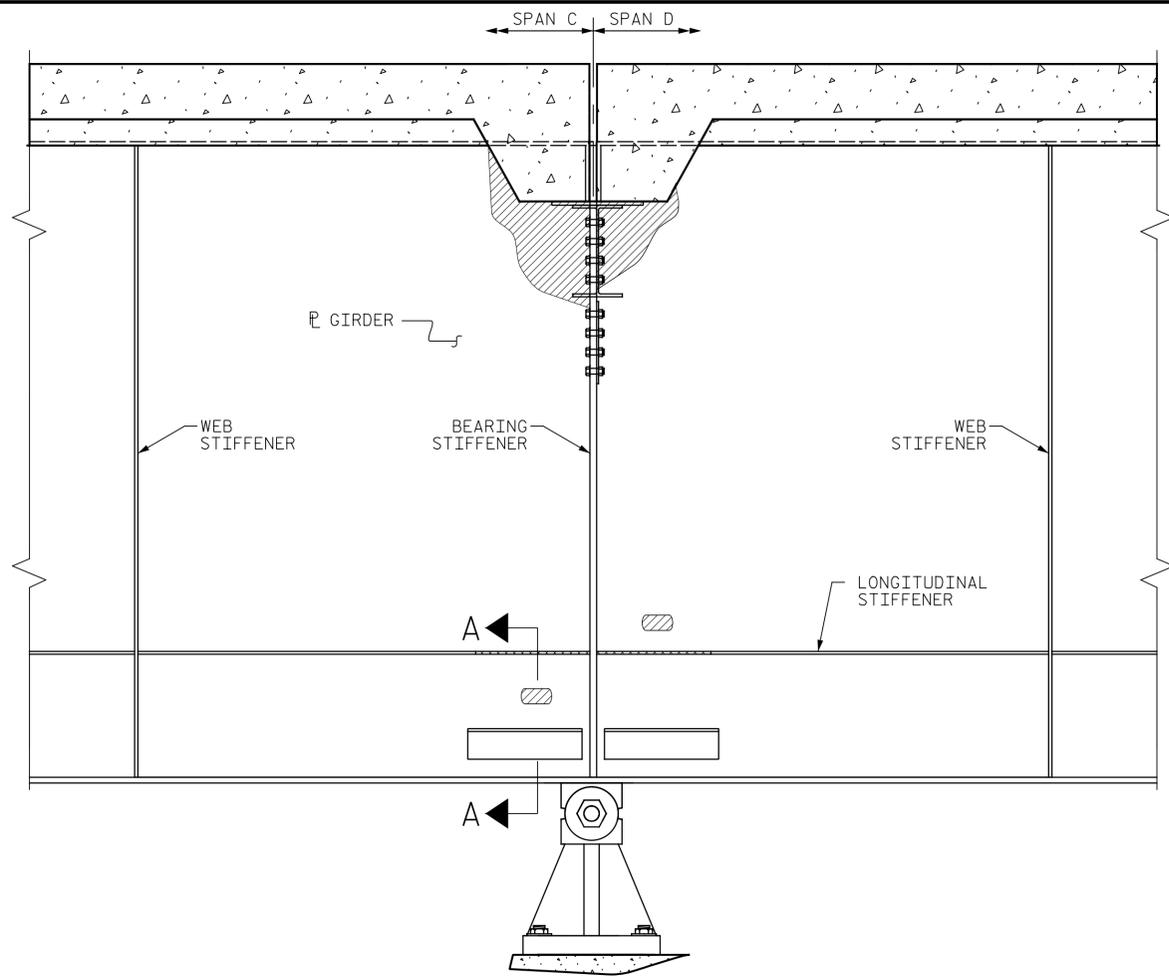
BENT 1/SPAN B/GIRDER 1

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Gannett Fleming
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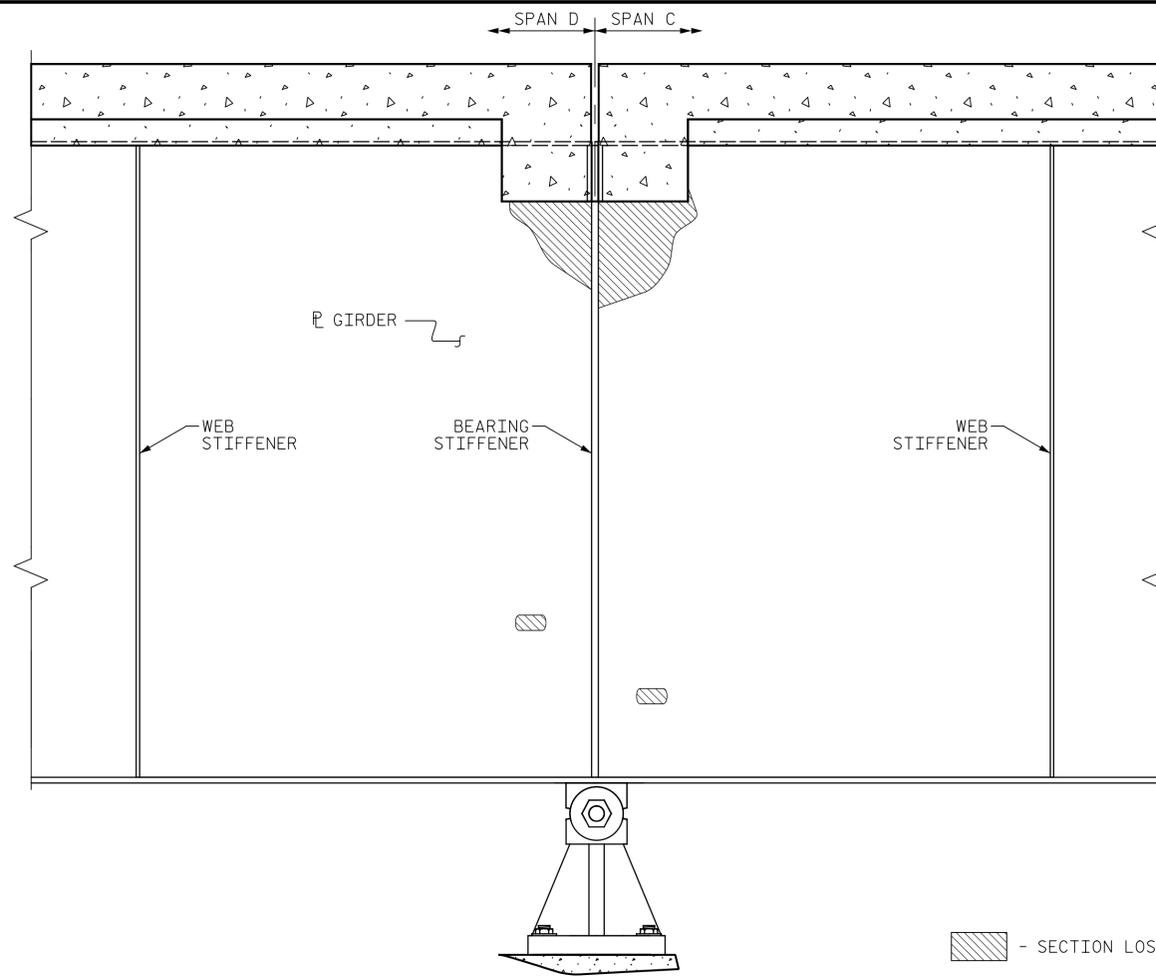
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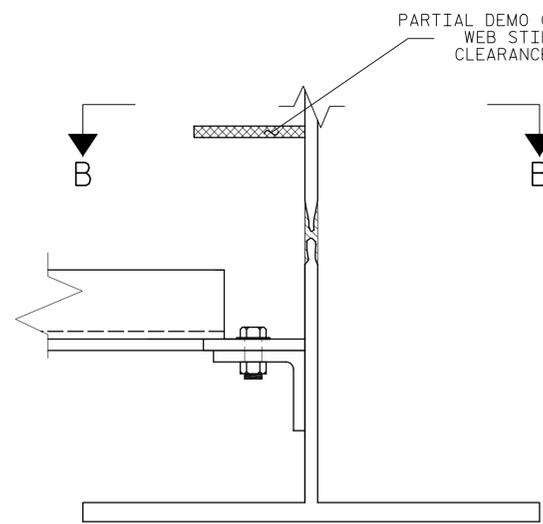


GIRDER 1
INSIDE FACE

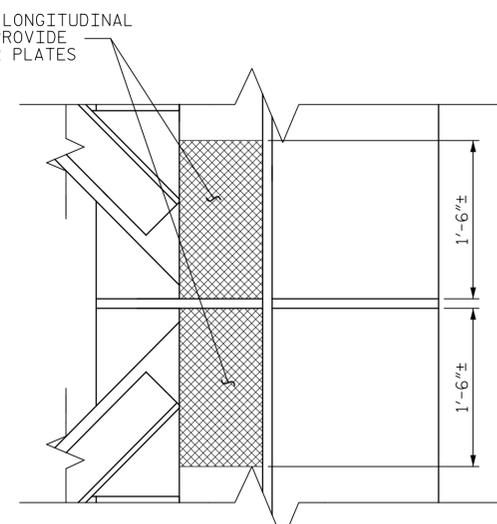


GIRDER 1
OUTSIDE FACE

- SECTION LOSS



SECTION A-A
(SHOWN AS PRE-PLATE INSTALLATION)



SECTION B-B
(SHOWN AS PRE-PLATE INSTALLATION)

- DEMO AREA

PRE-INSTALLATION DEMO DETAILS

BENT 3/SPANS C & D

PROJECT NO. 41665.5D
BURKE COUNTY
 BRIDGE NO. 10

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BOLTED PLATE
 REPAIR DETAILS



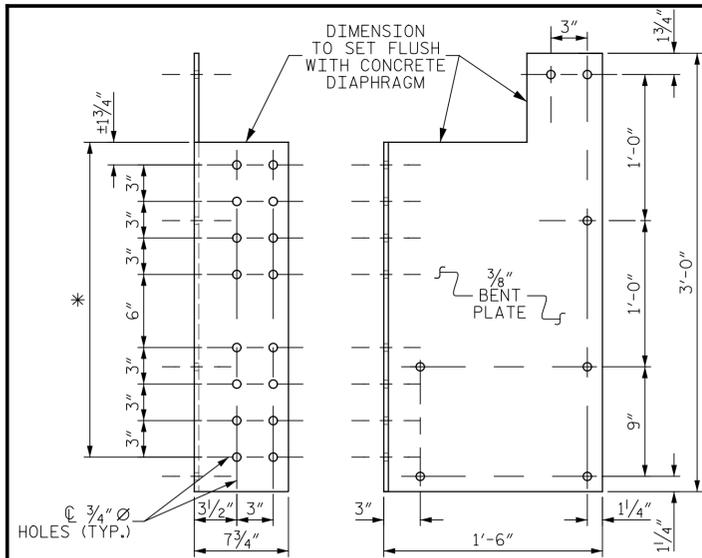
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 Eric B. Nelson
 8/2/2018
 ACB8082119D74CD

DRAWN BY : M. SPENCER DATE : 06/2018
 CHECKED BY : R. NELSON DATE : 06/2018

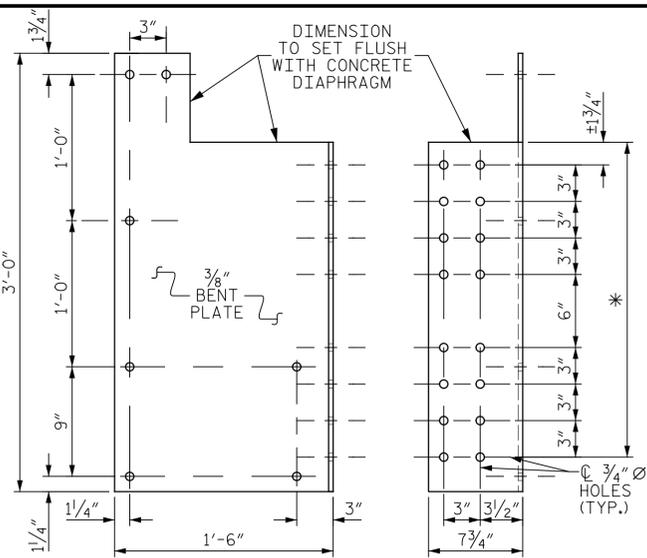
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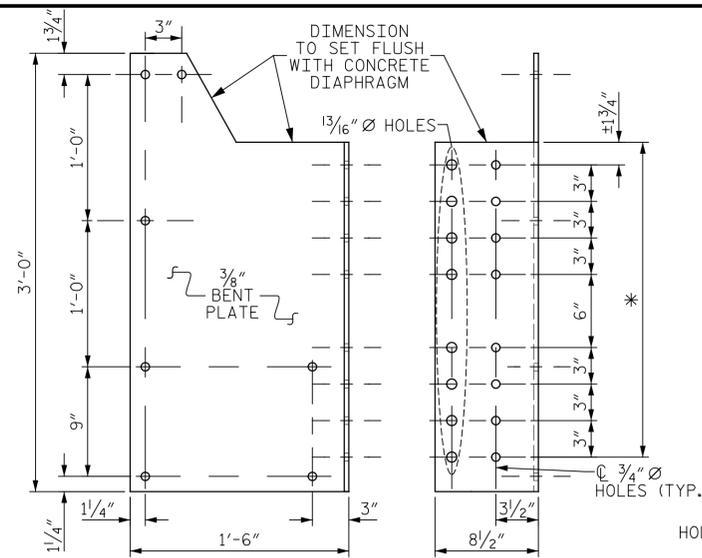
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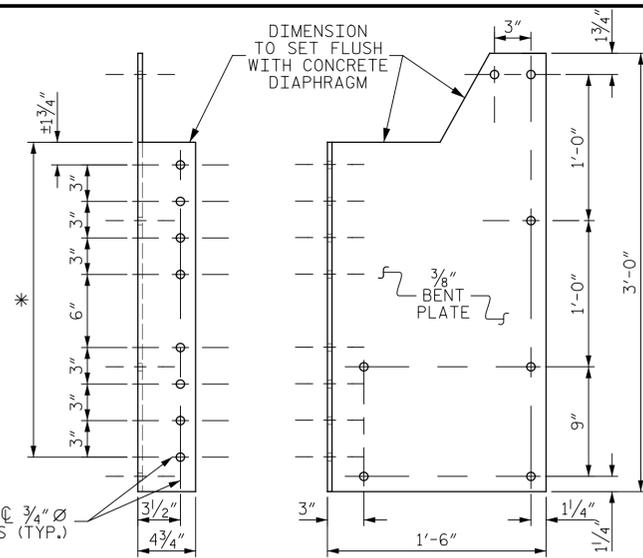
REPAIR PLATE
SPAN C OUTSIDE FACE



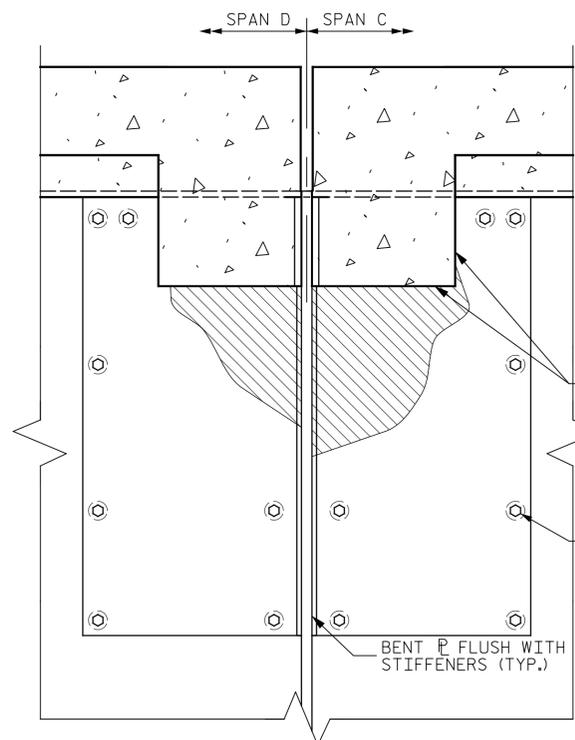
REPAIR PLATE
SPAN D OUTSIDE FACE



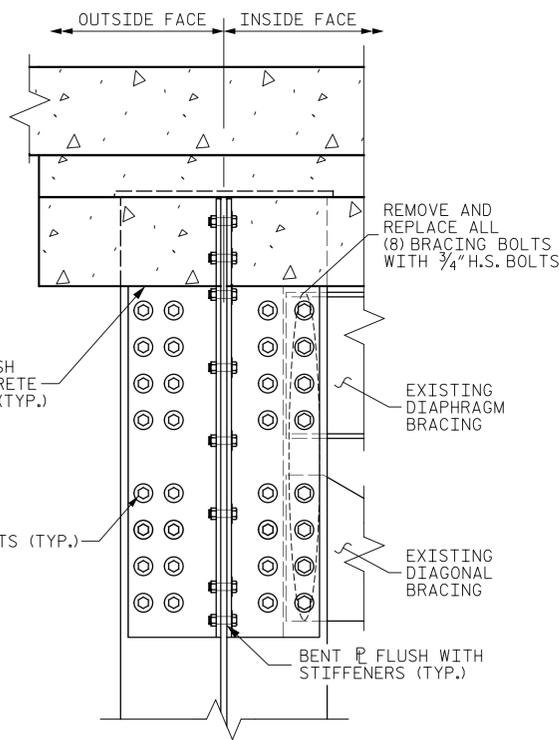
REPAIR PLATE
SPAN C INSIDE FACE



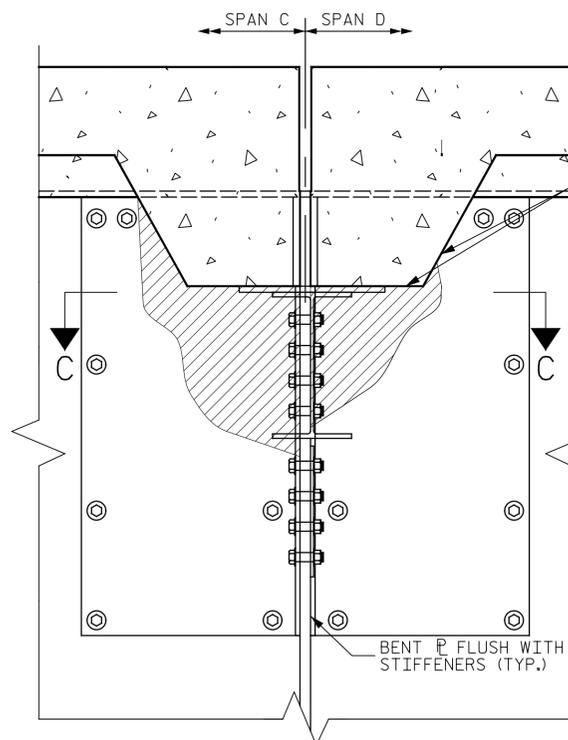
REPAIR PLATE
SPAN D INSIDE FACE



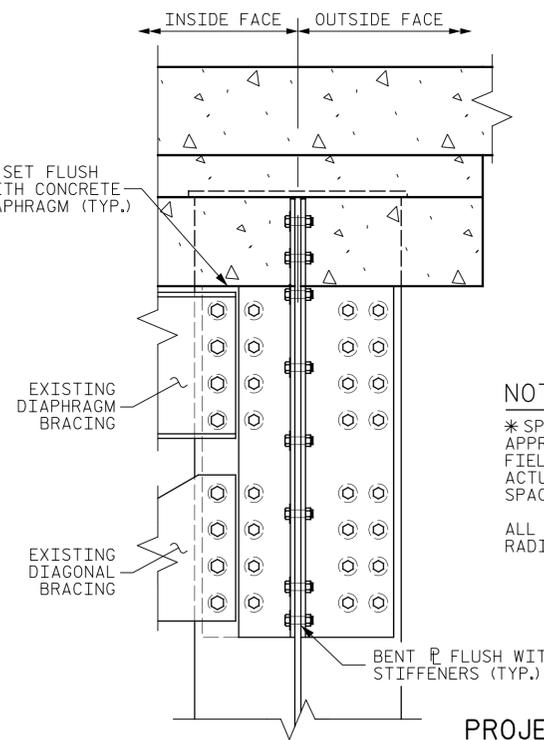
OUTSIDE FACE



SPAN C SIDE



INSIDE FACE



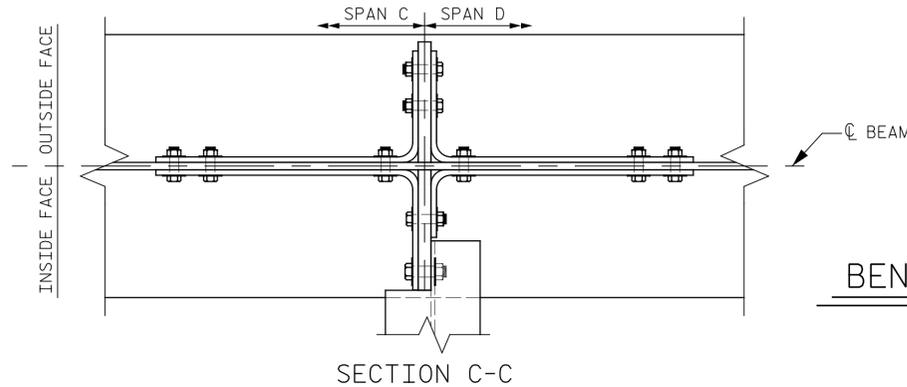
SPAN D SIDE

NOTES:

* SPACING DIMENSIONS BASED ON APPROXIMATED EXISTING BOLT PLACEMENT. FIELD VERIFY IN ORDER TO DETERMINE ACTUAL EDGE AND CENTER TO CENTER BOLT SPACING REQUIRED.
ALL BENT PLATES TO HAVE A MINIMUM 1" RADIUS AND A MAXIMUM 1 3/4" RADIUS.

PROJECT NO. 41665.5D
BURKE COUNTY
BRIDGE NO. 10

SHEET 2 OF 3



SECTION C-C

BENT 3/GIRDER 1



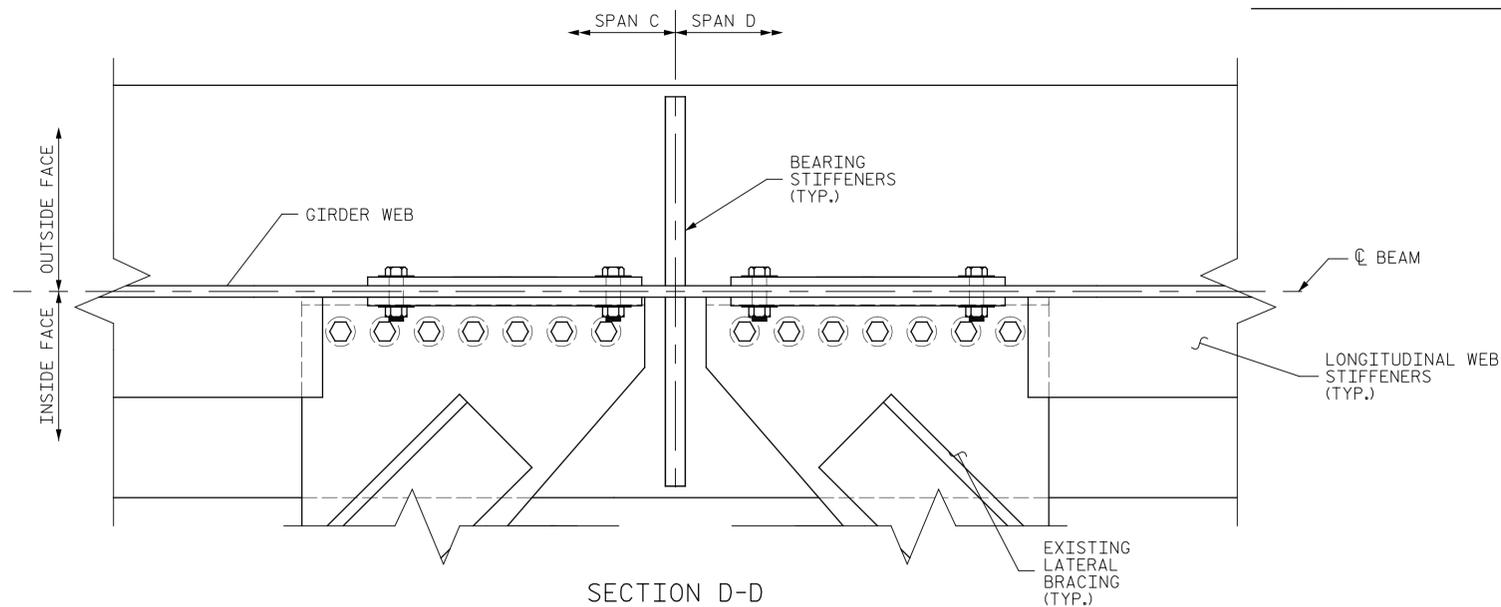
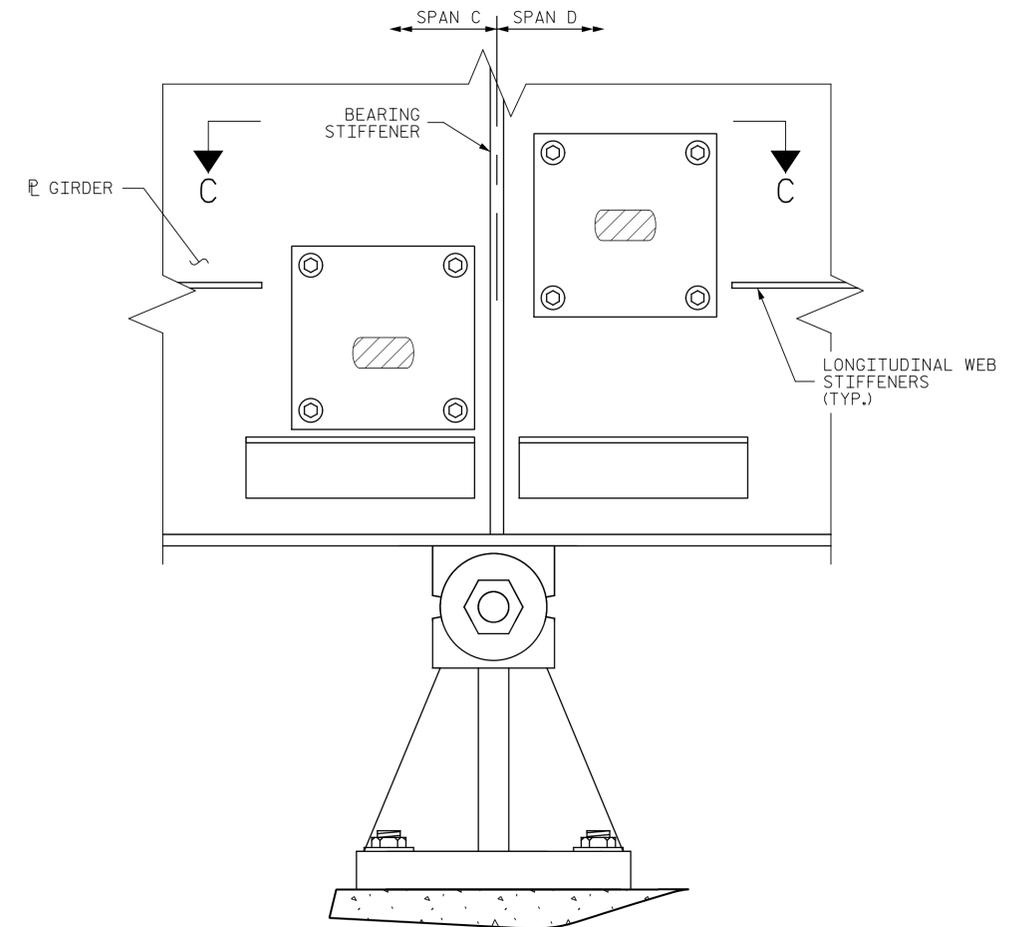
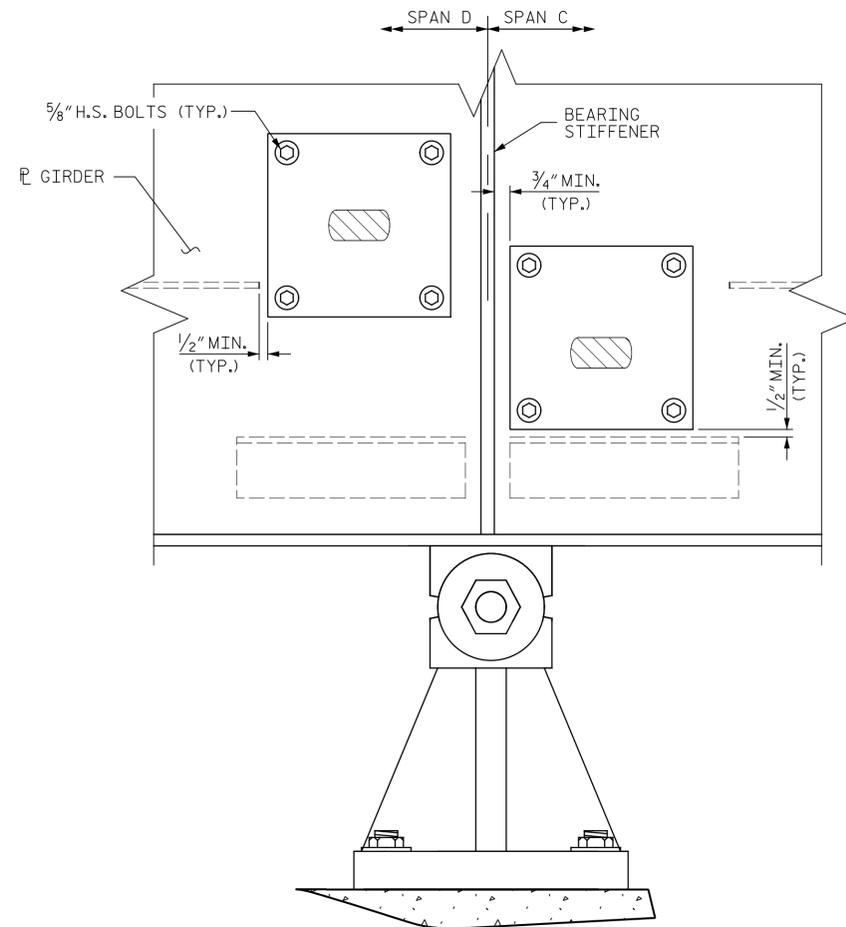
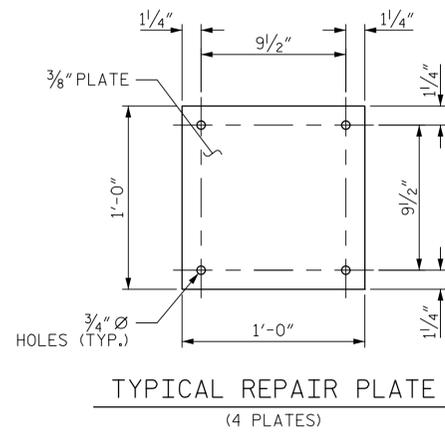
DocuSigned by:
Eric B. Nelson
8/2/2018

DRAWN BY: M. SPENCER DATE: 06/2018
CHECKED BY: R. NELSON DATE: 06/2018

PLANS PREPARED BY:
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Raleigh, NC 27607-3073
(919) 420-7660
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NC Lic. No. F-0270

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1			3			TOTAL SHEETS
2			4			18



BENT 3/GIRDER 1
(GIRDER REPAIR)

PROJECT NO. 41665.5D
BURKE COUNTY
BRIDGE NO. 10

SHEET 3 OF 3



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

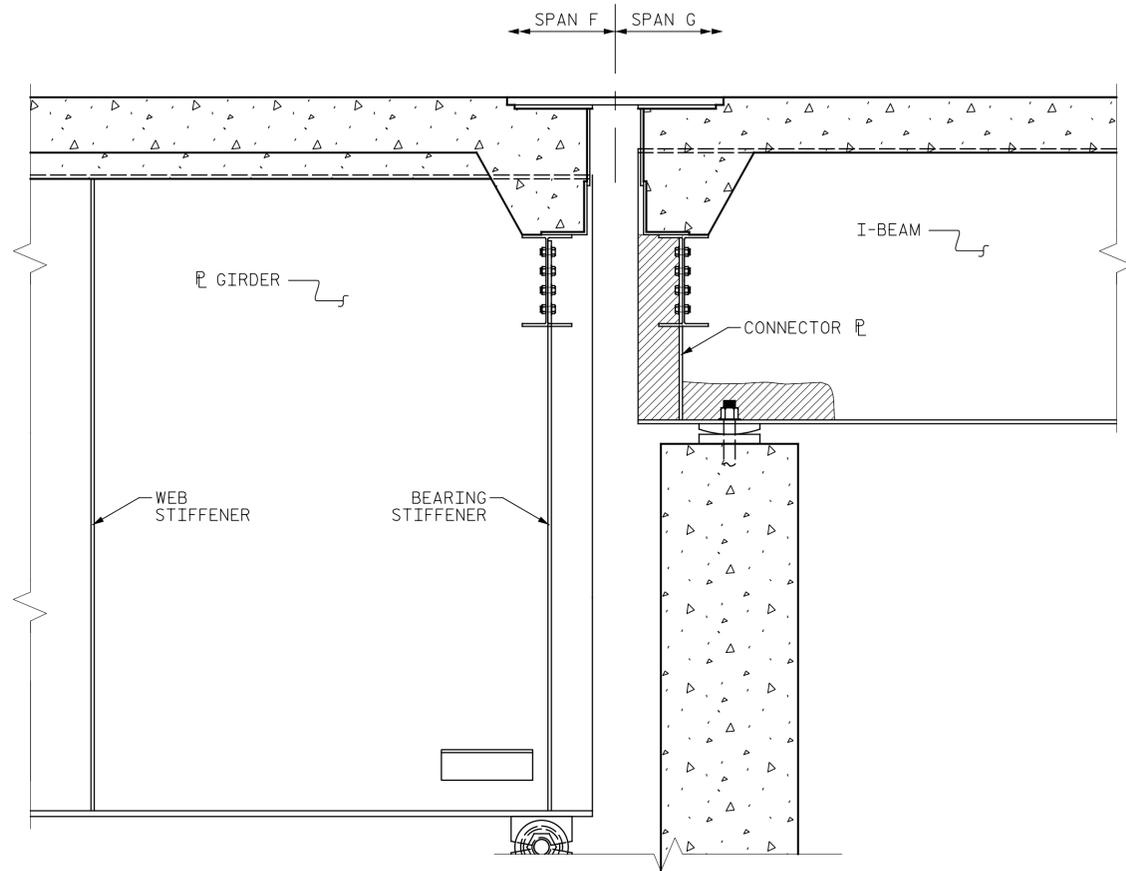
BOLTED PLATE
REPAIR DETAILS

DRAWN BY: M. SPENCER DATE: 06/2018
CHECKED BY: R. NELSON DATE: 06/2018

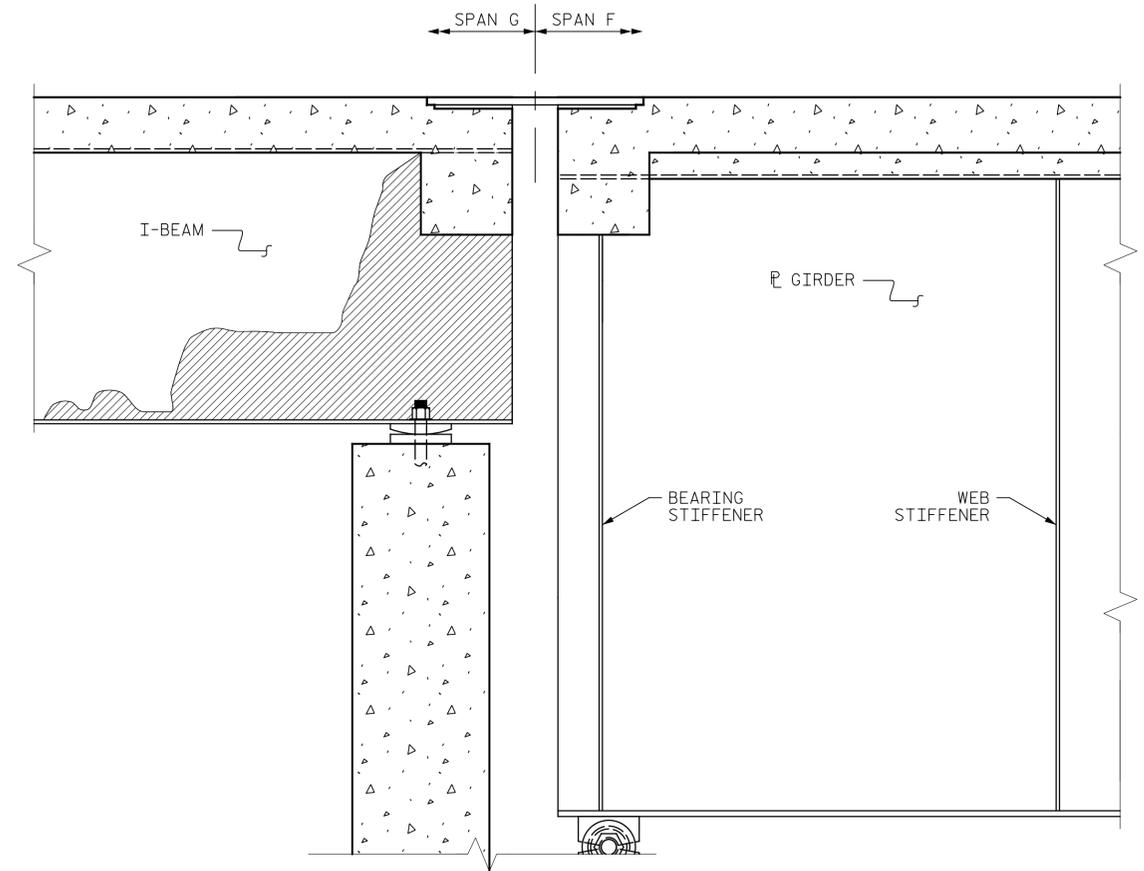
PLANS PREPARED BY:
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NC Lic. No. F-0270

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1			3			TOTAL SHEETS
2			4			18



BENT 6
INSIDE FACE



BENT 6
OUTSIDE FACE

- SECTION LOSS

NO DEFICIENCIES NOTED FOR SPAN F SIDE PLATE GIRDER ON SUPPLIED FIELD SCOPING INSPECTION REPORT. THE CONTRACTOR AND ENGINEER SHALL INSPECT THE PLATE GIRDER FOR POTENTIAL SECTION LOSS REPAIRS.

BENT 6/SPANS F & G

PROJECT NO. 41665.5D
BURKE COUNTY
 BRIDGE NO. 10

SHEET 1 OF 2



DocuSigned by:
 Eric B. Nelson
 8/2/2018
 ACB8082119074CD

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

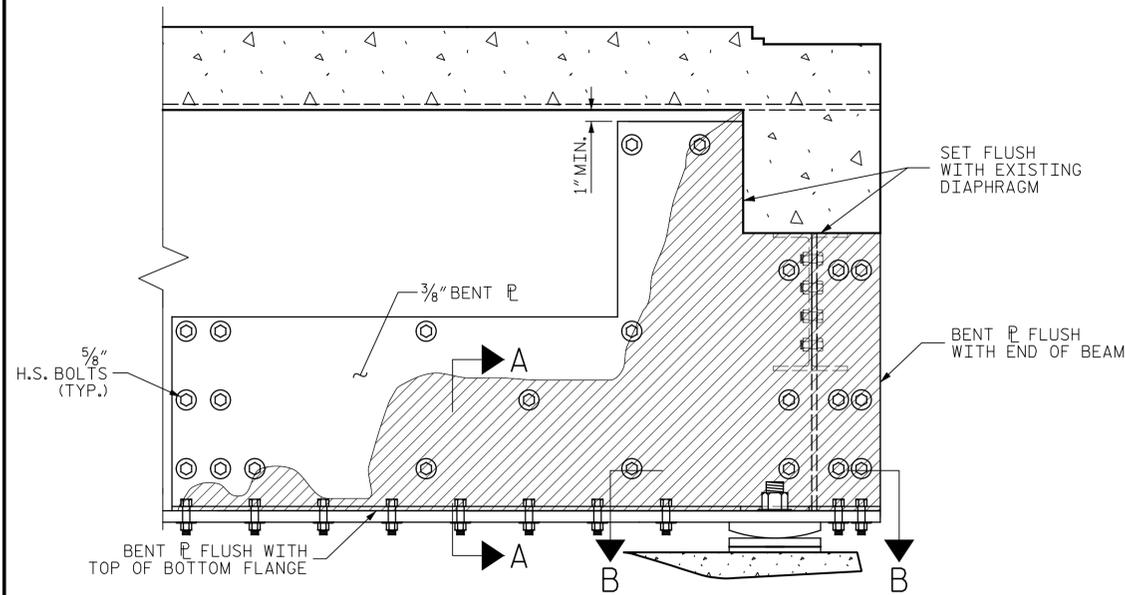
BOLTED PLATE
 REPAIR DETAILS

DRAWN BY : M. SPENCER DATE : 06/2018
 CHECKED BY : R. NELSON DATE : 06/2018

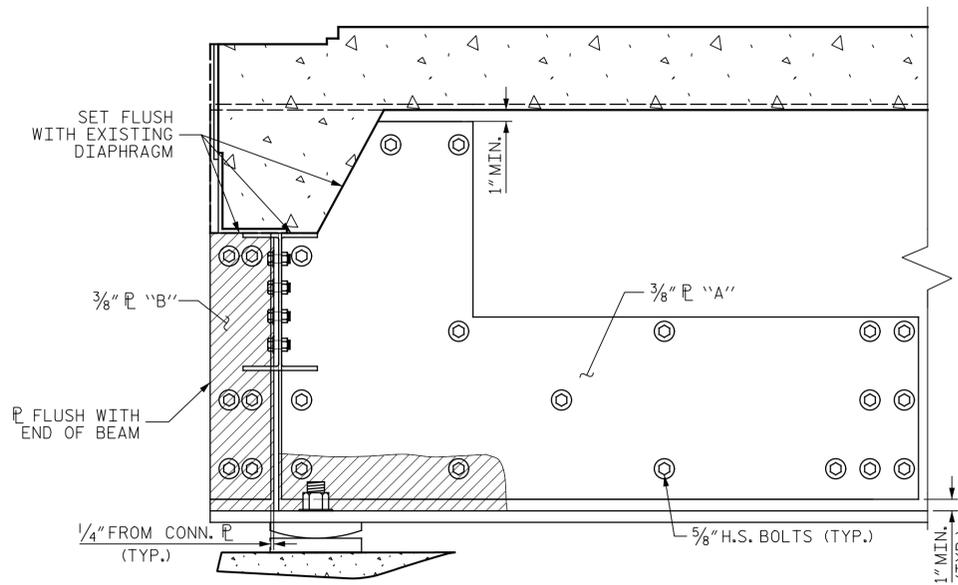
PLANS PREPARED BY:
Gannett Fleming
 Excellence Delivered *As Promised*
 2610 Wycliff Road
 Suite 102
 Raleigh, NC 27607-3073
 (919) 420-7660
 NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

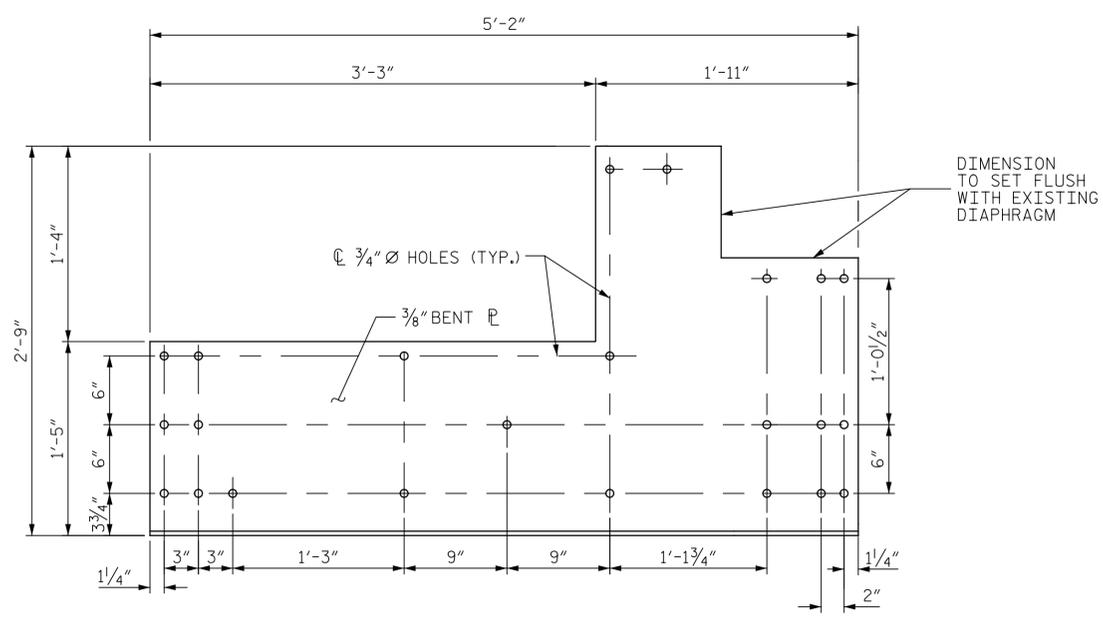
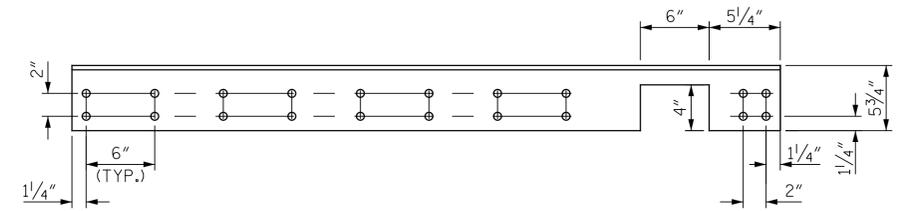
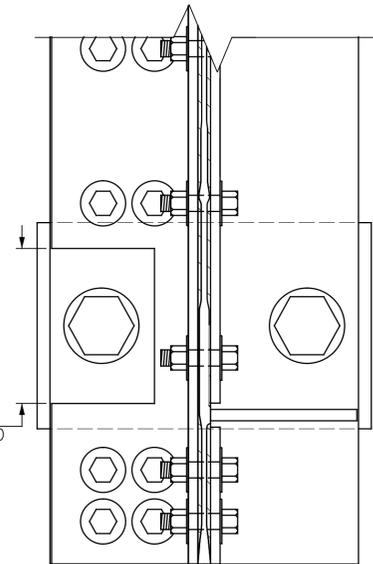
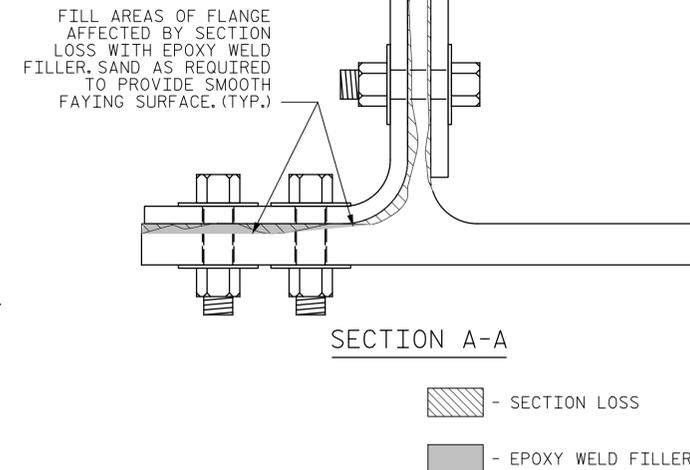
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			18



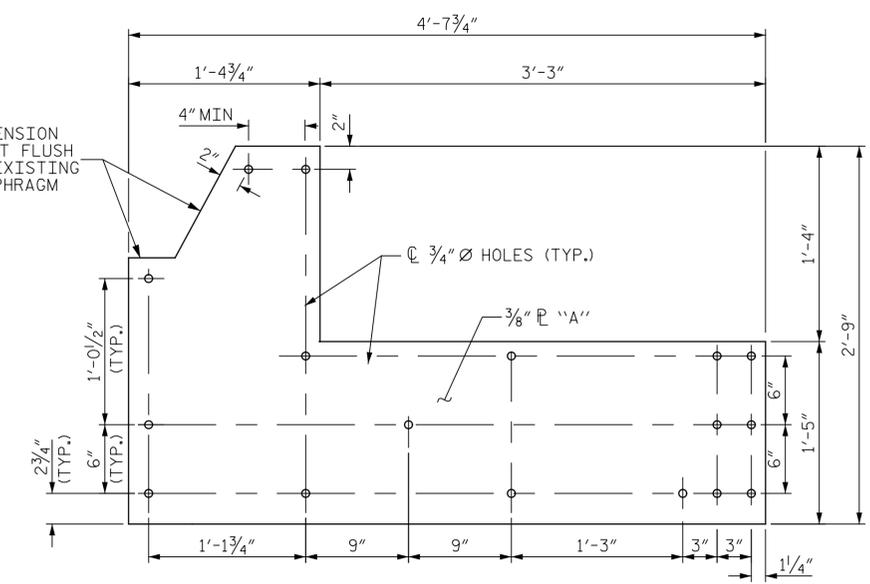
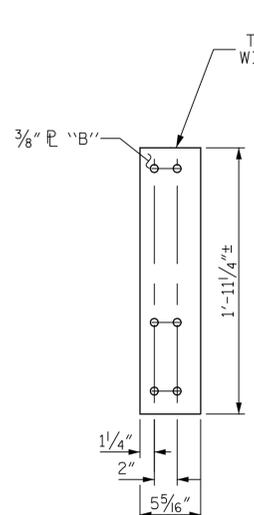
SPAN G OUTSIDE FACE PLATE PLACEMENT
(POST INSTALLATION SHOWN)



SPAN G INSIDE FACE PLATE PLACEMENT
(POST INSTALLATION SHOWN)



SPAN G OUTSIDE FACE REPAIR PLATES
(PRE-INSTALLATION SHOWN)



SPAN G INSIDE FACE REPAIR PLATES
(PRE-INSTALLATION SHOWN)

PROJECT NO. 41665.5D
BURKE COUNTY
BRIDGE NO. 10

SHEET 2 OF 2



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BOLTED PLATE
REPAIR DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			18

DRAWN BY: M. SPENCER DATE: 06/2018
CHECKED BY: R. NELSON DATE: 06/2018

BENT 6/SPAN G/BEAM 1
(I-BEAM REPAIR)

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Excellence Delivered As Promised
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Raleigh NC 27607-3073
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STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "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 1-1/2" 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 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

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