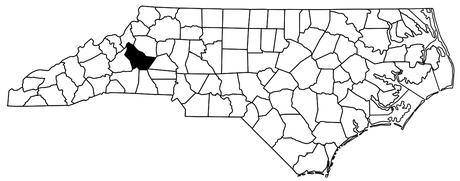
PROJECT: 41665.5D

CONTRACT: DM00240



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

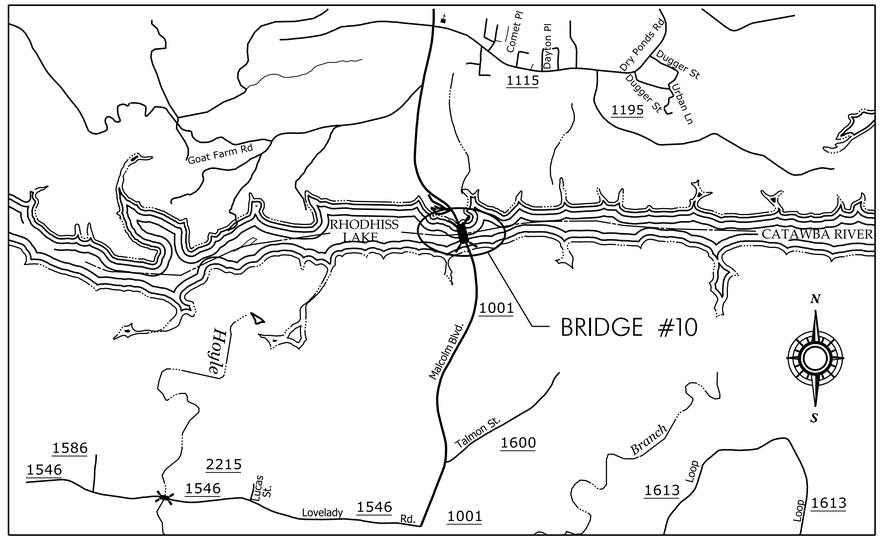
BURKE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	41665.5D		

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
41665.5D		P.E.
41665.5D		CONST.

LOCATION: ***BRIDGE #10 ON SR 1001 OVER RHODHISS LAKE***

TYPE OF WORK: ***BRIDGE PRESERVATION – SUPERSTRUCTURE REPLACEMENT***



VICINITY MAP – BURKE CO.

DESIGN DATA

ADT 2025 =17,800

PROJECT LENGTH

PROJECT 41665.5D STRUCTURE LENGTH = 0.172 MILE

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

2018 STANDARD SPECIFICATIONS

LETTING DATE :

FEBRUARY 21, 2018

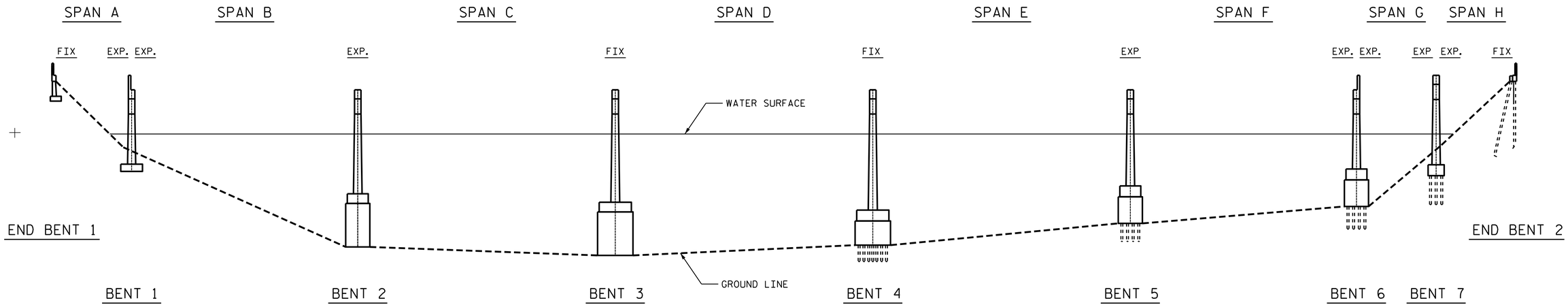
A. KEITH PASCHAL, P.E.
PROJECT ENGINEER

A. M. LEE, P.E.
PROJECT DESIGN ENGINEER

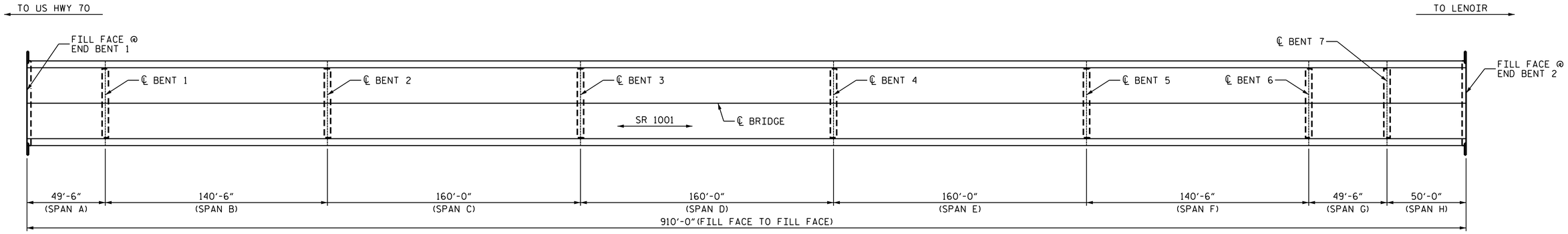
NOTES

PROFILE INFORMATION IS TAKEN FROM THE ORIGINAL PLANS AND THE ROUTINE INSPECTION REPORT DATED 12/07/2015.

BRIDGE ORIENTATION CONFORMS TO EXISTING BRIDGE PLANS.



SECTION ALONG ℄ ROADWAY



SCOPE OF WORK

-SUPERSTRUCTURE REPLACEMENT
-CONCRETE CAP BUILD-UP ON INTERIOR BENTS

PLAN

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

RESIDENT ENGINEER DATE

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Miller 804B544F2FAD484...

1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

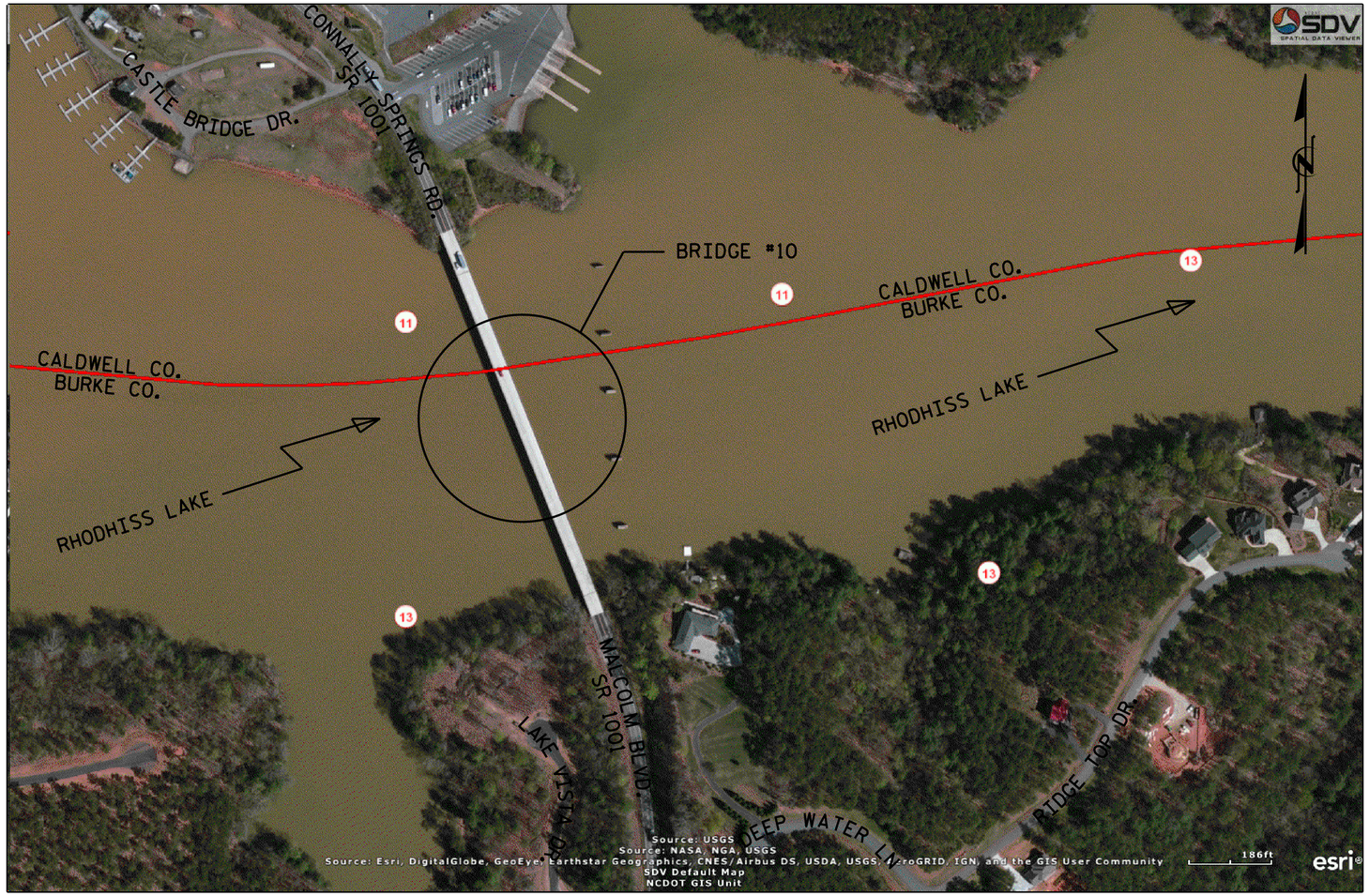
GENERAL DRAWING

FOR BRIDGE ON SR 1001 OVER RHODHISS LAKE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : R.L. PUTEK DATE : 12/2017
CHECKED BY : A. COLE DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_001_416655D_SMU_GD1_110010.dgn
amlee



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.

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.

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS SUPERSTRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

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

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

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

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

REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 5 OR SYSTEM 6 OF THE STRUCTURAL STEEL SHOP COATINGS PROGRAM AND SECTION 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

STRUCTURAL STEEL FOR TOP AND BOTTOM FLANGE PLATES FOR THE PLATE GIRDERS SHALL BE AASHTO M270 GRADE 70W AND PAINTED IN ACCORDANCE WITH SYSTEM 5 OR SYSTEM 6 OF THE STRUCTURAL STEEL SHOP COATINGS PROGRAM AND SECTION 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR SAND LIGHTWEIGHT CONCRETE, SEE SPECIAL PROVISIONS.

FOR SECURING OF VESSELS, SEE SPECIAL PROVISIONS.

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

FOR EPOXY COATING AND DEBRIS REMOVAL, SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	REINFORCED CONCRETE DECK SLAB (SAND LIGHTWEIGHT CONCRETE)	ASBESTOS ASSESSMENT	GROOVING BRIDGE FLOORS	CLASS AA CONCRETE	REINFORCING STEEL	STRUCTURAL STEEL APPROX. 1,086,000 LBS.	42" OREGON RAIL	DISC BEARINGS	ELASTOMERIC BEARINGS	STRIP SEALS	EPOXY COATING AND DEBRIS REMOVAL
	LUMP SUM	SQ. FT.	LUMP SUM	SQ. FT.	CU. YD.	LBS.	LUMP SUM	LIN. FT.	LUMP SUM	LUMP SUM	LUMP SUM	SQ. FT.
SUPERSTRUCTURE	LUMP SUM	30,474	LUMP SUM	24,505			LUMP SUM	1,819.33	LUMP SUM	LUMP SUM	LUMP SUM	
BENT 1					4.7	1,505						240
BENT 2					8.0	2,273						
BENT 3					8.0	2,273						
BENT 4					8.0	2,273						
BENT 5					8.0	2,273						
BENT 6					4.7	1,505						240
TOTAL	LUMP SUM	30,474	LUMP SUM	24,505	41.4	12,102	LUMP SUM	1,819.33	LUMP SUM	LUMP SUM	LUMP SUM	480

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON SR 1001
OVER RHODHISS LAKE

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

Docusigned by:
B04B54AF2FAD484...

1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : R.L.PUTEK DATE : 12/2017
CHECKED BY : A.M.LEE DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_003_416655D_SMU_GD2_110010.dgn
amlee

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE II LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR					MOMENT						
							LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93 (INVENTORY)	N/A	1	1.03	--	1.75	0.900	1.06	B	EL	140.50	0.900	1.03	B	EL	140.50	1.30	0.900	1.24	B	EL	140.50	
		HL-93 (OPERATING)	N/A		1.33	--	1.35	0.900	1.38	B	EL	140.50	0.900	1.33	B	EL	140.50	1.00	0.900	1.61	B	EL	140.50	
		HS-20 (INVENTORY)	36.00	2	1.67	60.12	1.75	0.900	2.08	H	EL	0.00	0.900	1.67	B	EL	140.50	1.30	0.900	2.61	A	EL	24.75	
		HS-20 (OPERATING)	36.00		2.17	78.12	1.35	0.900	2.70	H	EL	0.00	0.900	2.17	B	EL	140.50	1.00	0.900	3.39	A	EL	24.75	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		5.40	72.90	1.40	0.900	5.78	H	EL	0.00	0.900	5.40	B	EL	140.50	1.30	0.900	5.32	A	EL	24.75	
		SNGARBS2	20.000		3.70	74.00	1.40	0.900	4.43	H	EL	0.00	0.900	3.70	B	EL	140.50	1.30	0.900	4.19	A	EL	24.75	
		SNAGRIS2	22.000		3.38	74.36	1.40	0.900	4.25	H	EL	0.00	0.900	3.38	B	EL	140.50	1.30	0.900	4.02	A	EL	19.80	
		SNCOTTS3	27.250		2.68	73.03	1.40	0.900	2.70	H	EL	0.00	0.900	2.68	B	EL	140.50	1.30	0.900	2.65	A	EL	24.75	
		SNAGGRS4	34.925		2.13	74.39	1.40	0.900	2.17	H	EL	0.00	0.900	2.13	B	EL	140.50	1.30	0.900	2.30	A	EL	24.75	
		SNS5A	35.550		2.10	74.66	1.40	0.900	2.15	H	EL	0.00	0.900	2.10	B	EL	140.50	1.30	0.900	2.25	A	EL	24.75	
		SNS6A	39.950		1.89	75.51	1.40	0.900	1.97	H	EL	0.00	0.900	1.89	B	EL	140.50	1.30	0.900	2.10	A	EL	24.75	
		SNS7B	42.000		1.81	76.02	1.40	0.900	1.88	H	EL	0.00	0.900	1.81	B	EL	140.50	1.30	0.900	2.00	A	EL	24.75	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.28	75.24	1.40	0.900	2.40	H	EL	0.00	0.900	2.28	B	EL	140.50	1.30	0.900	2.57	A	EL	24.75	
		TNT4A	33.075		2.26	74.75	1.40	0.900	2.41	H	EL	0.00	0.900	2.26	B	EL	140.50	1.30	0.900	2.59	A	EL	24.75	
		TNT6A	41.600		1.85	76.96	1.40	0.900	1.99	H	EL	0.00	0.900	1.85	B	EL	140.50	1.30	0.900	2.16	A	EL	24.75	
		TNT7A	42.000		1.83	76.86	1.40	0.900	1.98	H	EL	0.00	0.900	1.83	B	EL	140.50	1.30	0.900	2.19	A	EL	24.75	
		TNT7B	42.000		1.80	75.60	1.40	0.900	2.02	H	EL	0.00	0.900	1.80	B	EL	140.50	1.30	0.900	2.29	A	EL	24.75	
		TNAGRIT4	43.000		1.76	75.68	1.40	0.900	1.89	H	EL	0.00	0.900	1.76	B	EL	140.50	1.30	0.900	2.17	A	EL	24.75	
		TNAGT5A	45.000		1.69	76.05	1.40	0.900	1.83	H	EL	0.00	0.900	1.69	B	EL	140.50	1.30	0.900	2.03	A	EL	24.75	
		TNAGT5B	45.000	3	1.67	75.15	1.40	0.900	1.77	H	EL	0.00	0.900	1.67	B	EL	140.50	1.30	0.900	1.99	A	EL	24.75	
FATIGUE		HL-93 (INVENTORY)	γ_{LL}=0.75																					

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.

ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93) **

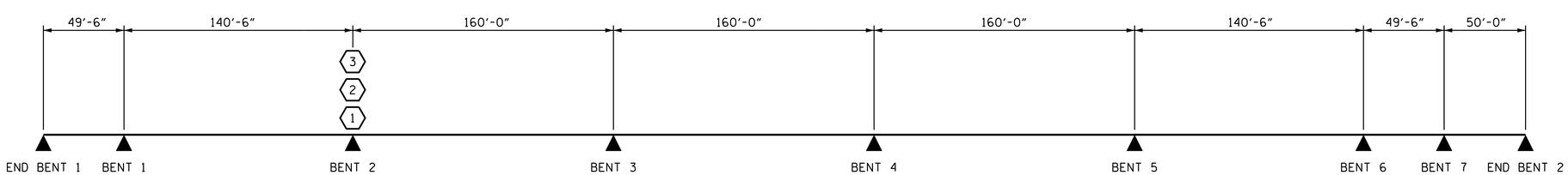
(2) DESIGN LOAD RATING (HS-20) **

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...

1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

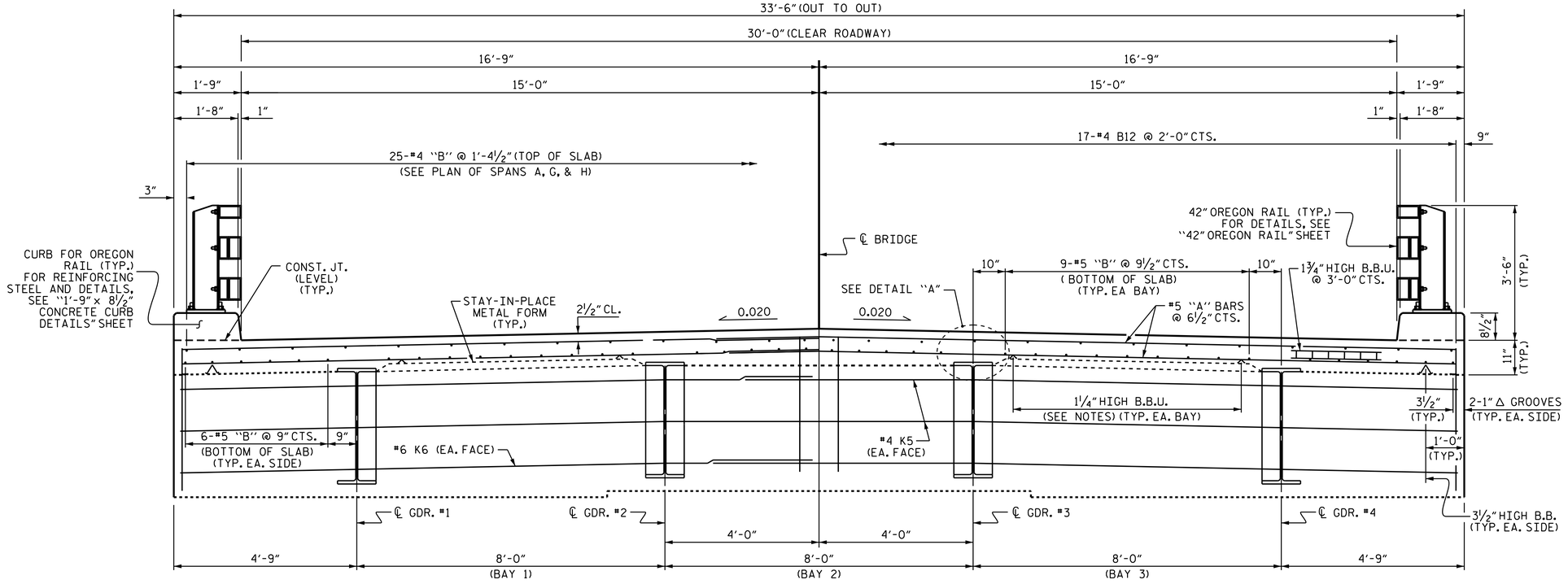
LRFR SUMMARY FOR STEEL GIRDERS
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			39

STD. NO. LRFR3

ASSEMBLED BY : T.L. AVERETTE DATE : 10/2017
CHECKED BY : H.A. LOCKLEAR DATE : 12/2017
DRAWN BY : MAA 1/08
CHECKED BY : GM/DI 2/08
REV. 11/12/08RR MAA/GM
REV. 10/1/11 MAA/GM

10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_007_416655D_SMU_LRFR_110010.dgn
amlee



TYPICAL SECTION

NOTES

PROVIDE 1 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2" ABOVE THE TOP OF THE REMOVABLE FORM.

PVC DECK DRAINS SHALL BE PAINTED WITH TWO COATS OF BROWN PRIMER MEETING THE REQUIREMENTS OF ARTICLE 1080-11 OF THE STANDARD SPECIFICATIONS. EACH COAT SHALL BE 2 DRY MILS THICK. DECK DRAINS SHALL BE ROUGHENED PRIOR TO PAINTING. NO SEPARATE PAYMENT SHALL BE MADE FOR PAINTING PVC DECK DRAINS AS THIS IS CONSIDERED INCIDENTAL TO THE PAY ITEM FOR REINFORCED CONCRETE DECK SLAB (SAND LIGHTWEIGHT CONCRETE).

METAL STAY-IN-PLACE FORMS SHALL NOT BE WELDED TO BEAM OR GIRDER FLANGES IN THE ZONES REQUIRING CHARPY V-NOTCH TEST. SEE STRUCTURAL STEEL DETAIL SHEETS.

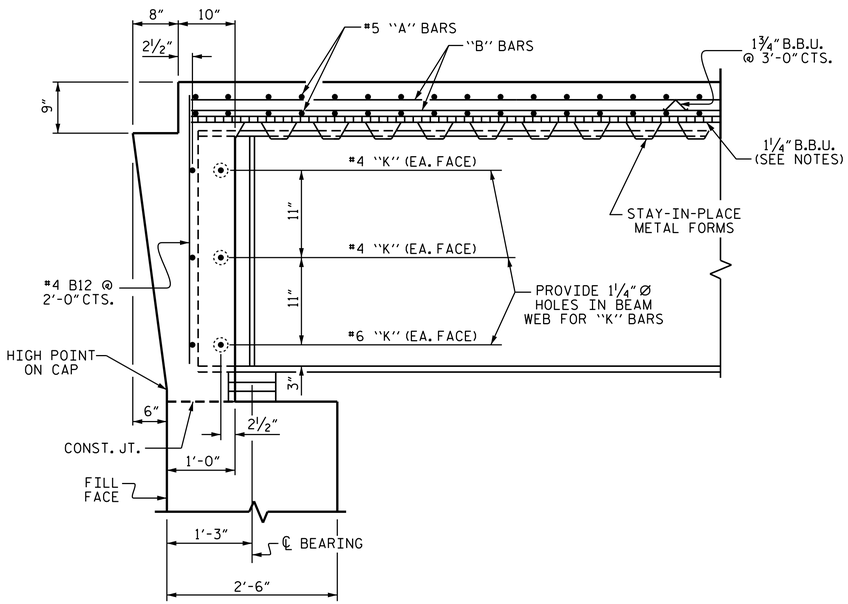
PREVIOUSLY CAST CONCRETE IN A CONTINUOUS UNIT SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE UNIT.

CONCRETE CURB IN A CONTINUOUS UNIT SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE UNIT HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

STRUCTURAL STEEL ERECTION IN A CONTINUOUS UNIT SHALL BE COMPLETE BEFORE FALSEWORK OR FORMS ARE PLACED ON THE UNIT.

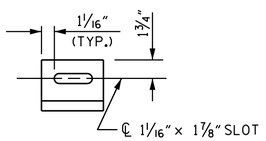
THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND BEAM/GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

CONCRETE CURB IN SPAN A SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

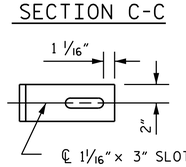


END OF GIRDER DETAIL AT END BENT

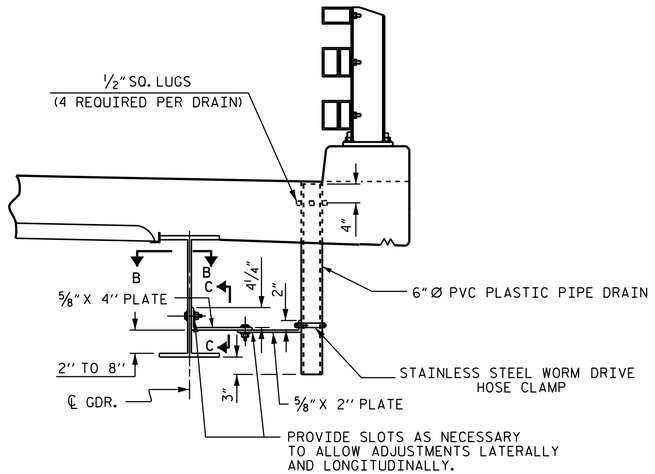
TYPICAL SECTION
(@ END BENTS)

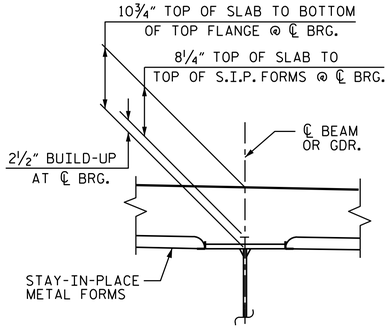


SECTION C-C



SECTION B-B





DETAIL "A"

DRAIN CONNECTOR DETAIL
(152 DRAINS REQUIRED)

COUPLING IN DRAIN PIPE WILL BE PERMITTED AS APPROVED BY THE ENGINEER.

TOP OF FLOOR DRAIN TO BE SET ⅜" BELOW SURFACE OF SLAB.

4 - ½" SQUARE LUGS TO BE GLUED TO THE PVC PLASTIC PIPE AT EQUAL SPACES AROUND THE PIPE DRAIN APPROXIMATELY 4" FROM THE TOP OF THE PIPE.

BOLT SIZE TO BE SAME AS DIAPHRAGM AND CROSSFRAME CONNECTIONS. STAINLESS STEEL WORM DRIVE HOSE CLAMP SHALL BE COMMERCIAL QUALITY.

THE 6" Ø PVC PLASTIC PIPE AND FITTINGS SHALL BE SCHEDULE 40 AND CONFORM TO ASTM D1785.

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION SPANS "A" & "H"

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

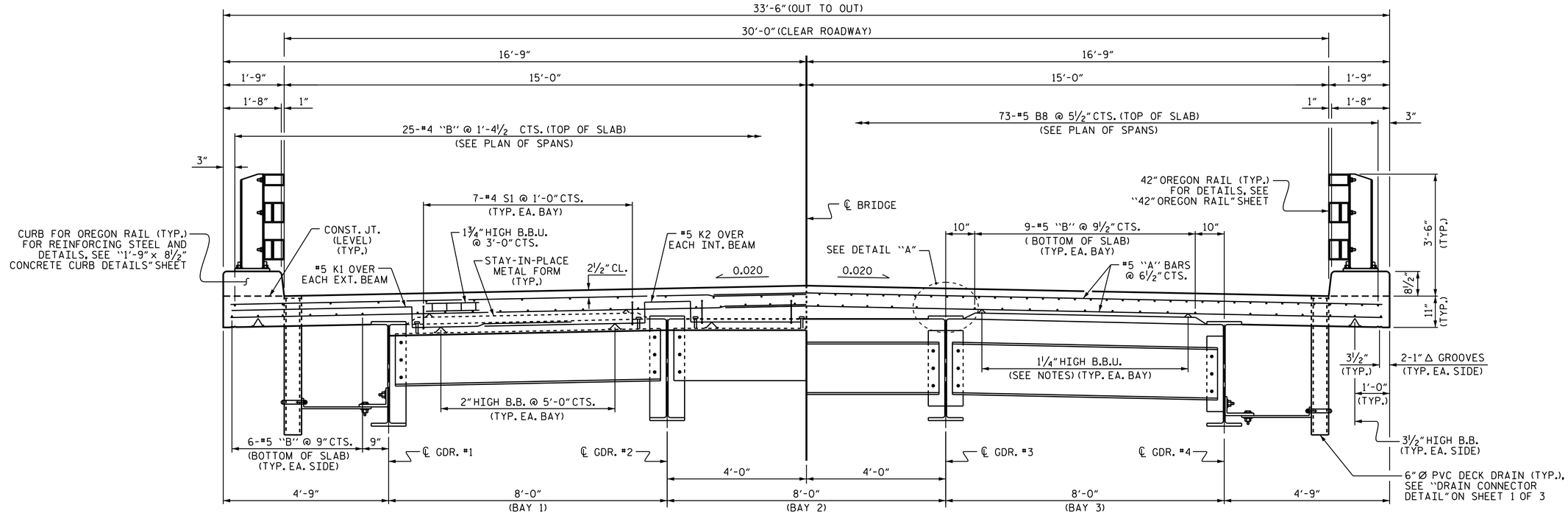
DocuSigned by: Amber M. Lee
804B5A4F2FAD484...
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 6/2017
CHECKED BY : H.A. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

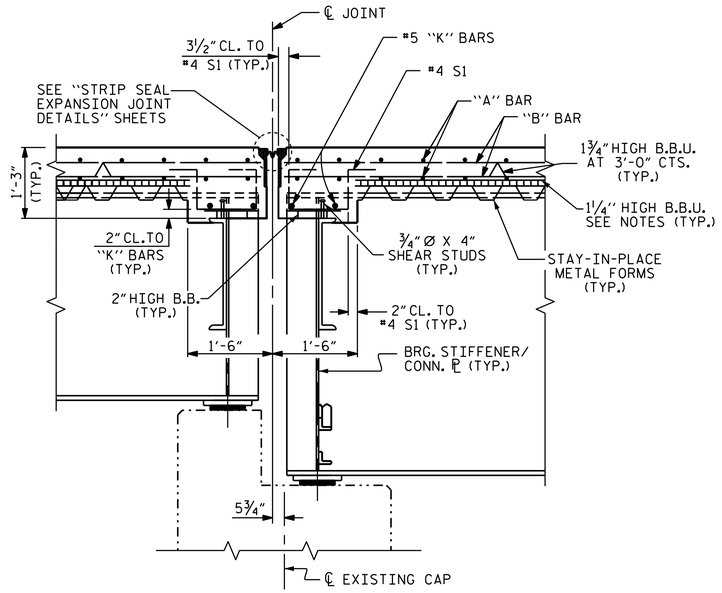
10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_017_416655D_SMU_TSI_110010.dgn
amlee



HALF SECTION
SHOWING DIAPHRAGMS @ SPAN "A" SIDE OF BENT 1,
& DIAPHRAGMS @ SPAN "G" SIDE OF BENT 6

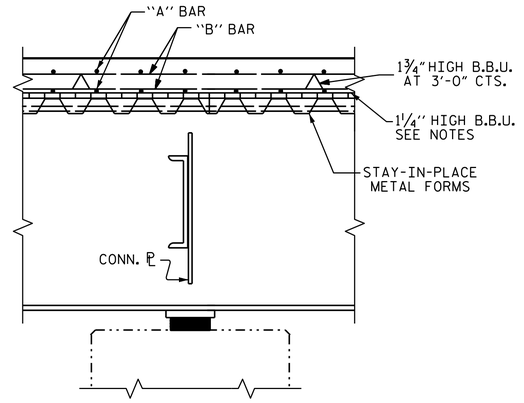
HALF SECTION
SHOWING DIAPHRAGMS @ BENT 7
& INTERMEDIATE DIAPHRAGMS

TYPICAL SECTION
(SPANS "A", "G" & "H")

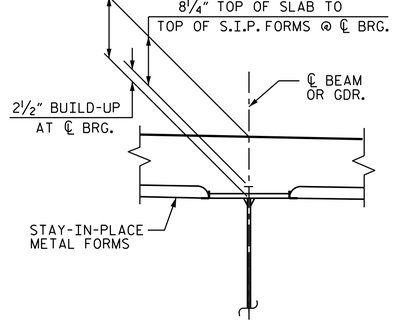


SECTION THRU BENT 1

(FOR BENT 6 SEE SHEET 3)



SECTION THRU BENT 7



DETAIL "A"

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION
SPANS "A", "G" & "H"

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

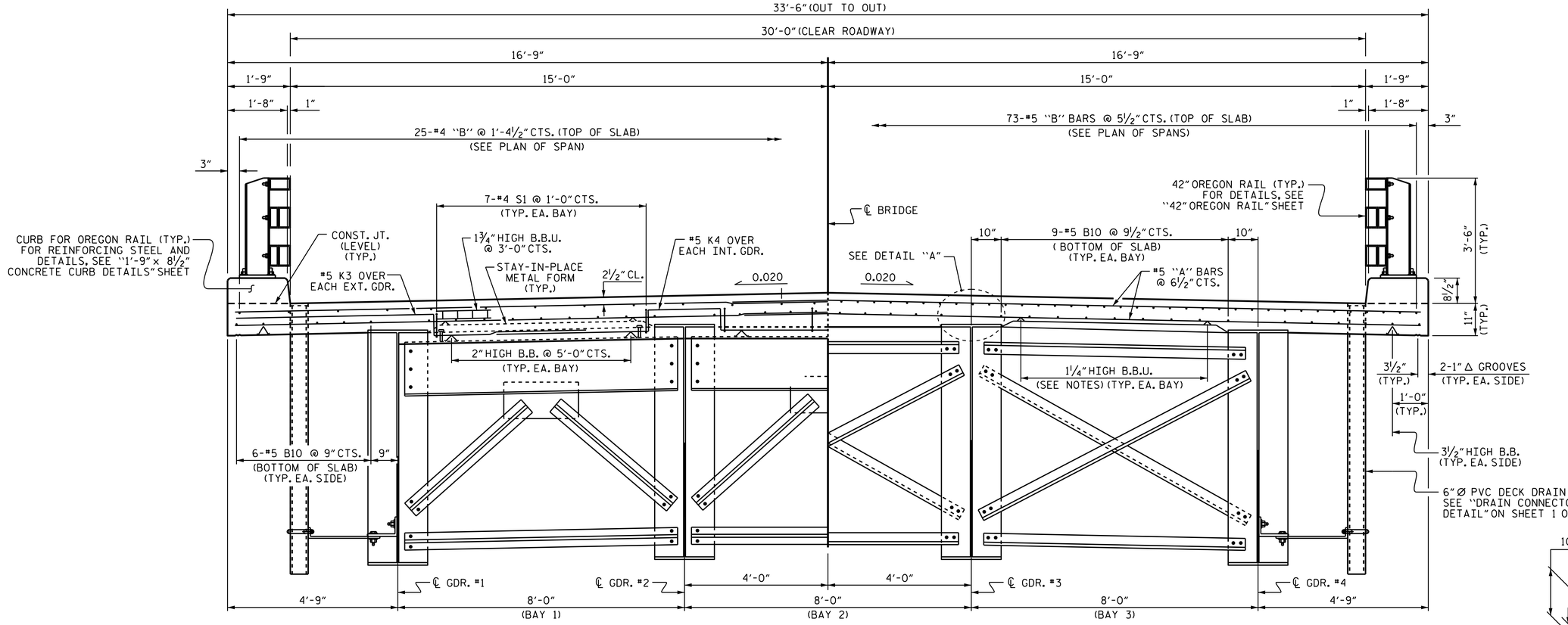
DocuSigned by:
B04B54AF2FAD484...
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 6/2017
CHECKED BY : H.A. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

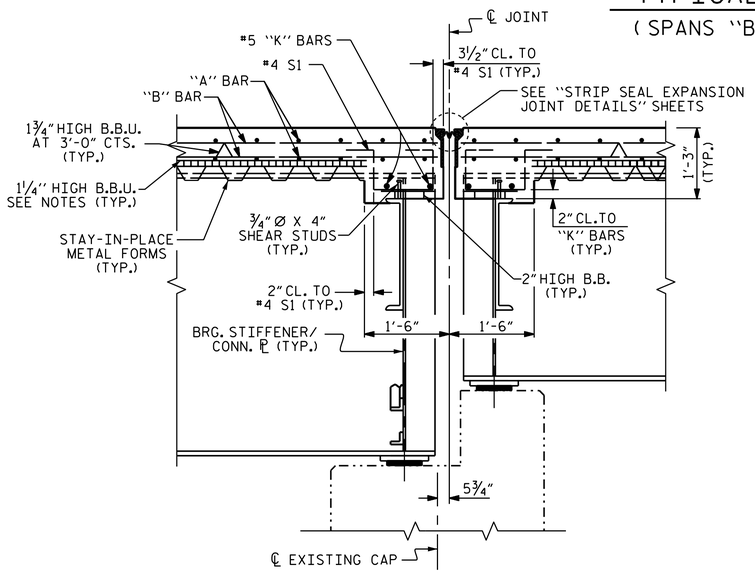
10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_019_416655D_SMU_TS2_110010.dgn
amlee



HALF SECTION
SHOWING DIAPHRAGMS @ SPAN "B" SIDE OF BENT 1,
& DIAPHRAGMS @ SPAN "F" SIDE OF BENT 6

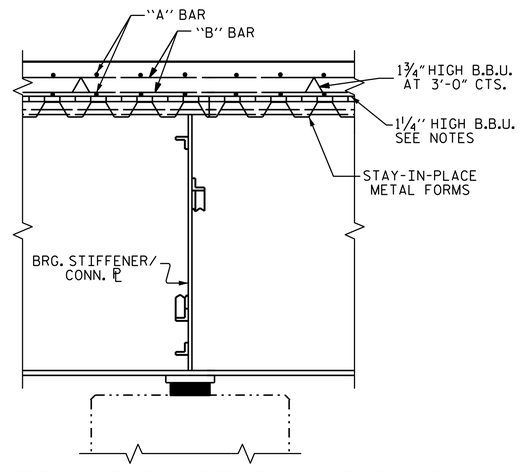
HALF SECTION
SHOWING DIAPHRAGMS @ BENTS 2 THRU 5
& INTERMEDIATE DIAPHRAGMS

TYPICAL SECTION
(SPANS "B" THRU "F")

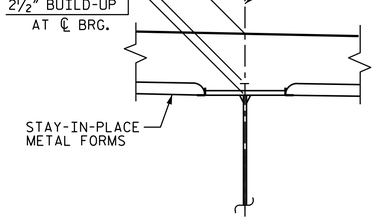


SECTION THRU BENT 6

(FOR BENT 1 SEE SHEET 2)



SECTION THRU BENTS 2 THRU 5



DETAIL "A"

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TYPICAL SECTION SPANS "B" THRU "F"

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

Docusigned by:
B04B54AF2FAD484...

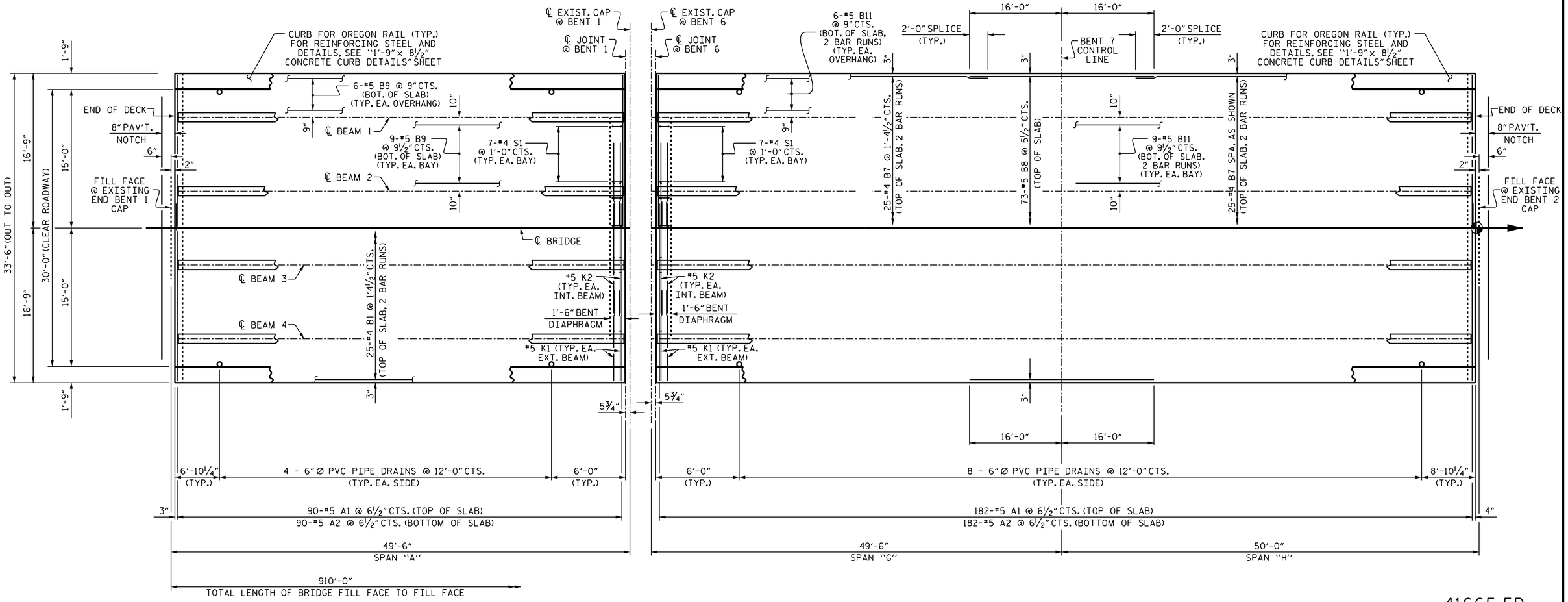
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 6/2017
CHECKED BY : H.A. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_021_416655D_SMU_TS3_110010.dgn
amlee



PLAN OF SPAN "A"

FOR "K" BARS AND #4 B12 BARS IN CURTAIN WALL, SEE "TYPICAL SECTION" SHEET 1 OF 3

PLAN OF SPANS "G" & "H"

FOR "K" BARS AND #4 B12 BARS IN CURTAIN WALL, SEE "TYPICAL SECTION" SHEET 1 OF 3

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PLAN OF SPANS A, G & H

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: B04B5A4F2FAD484...

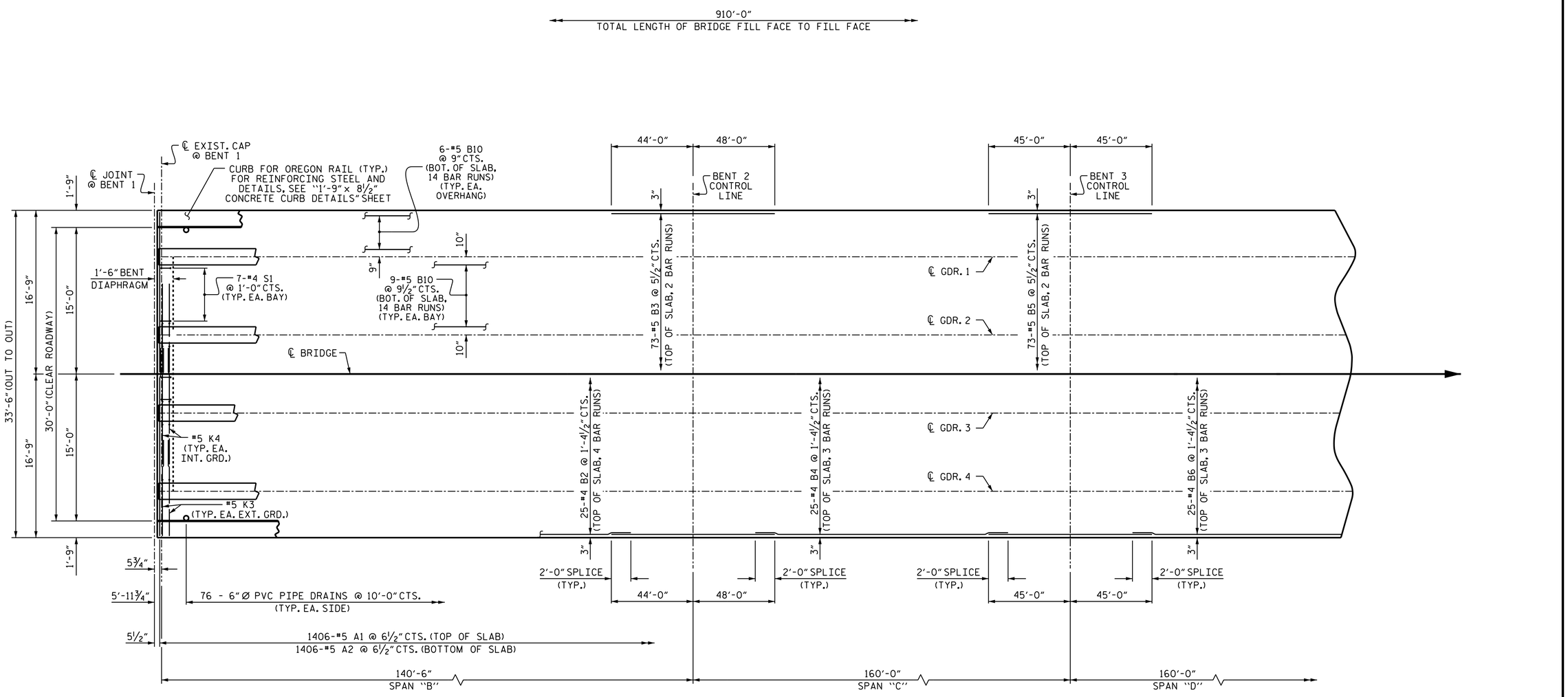
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 7/2017
CHECKED BY : A. A. COLE DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_023_416655D_SMU_S1_110010.dgn
amlee



PARTIAL PLAN OF SPANS "B", "C" & "D"

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PARTIAL PLAN OF SPANS B, C & D

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

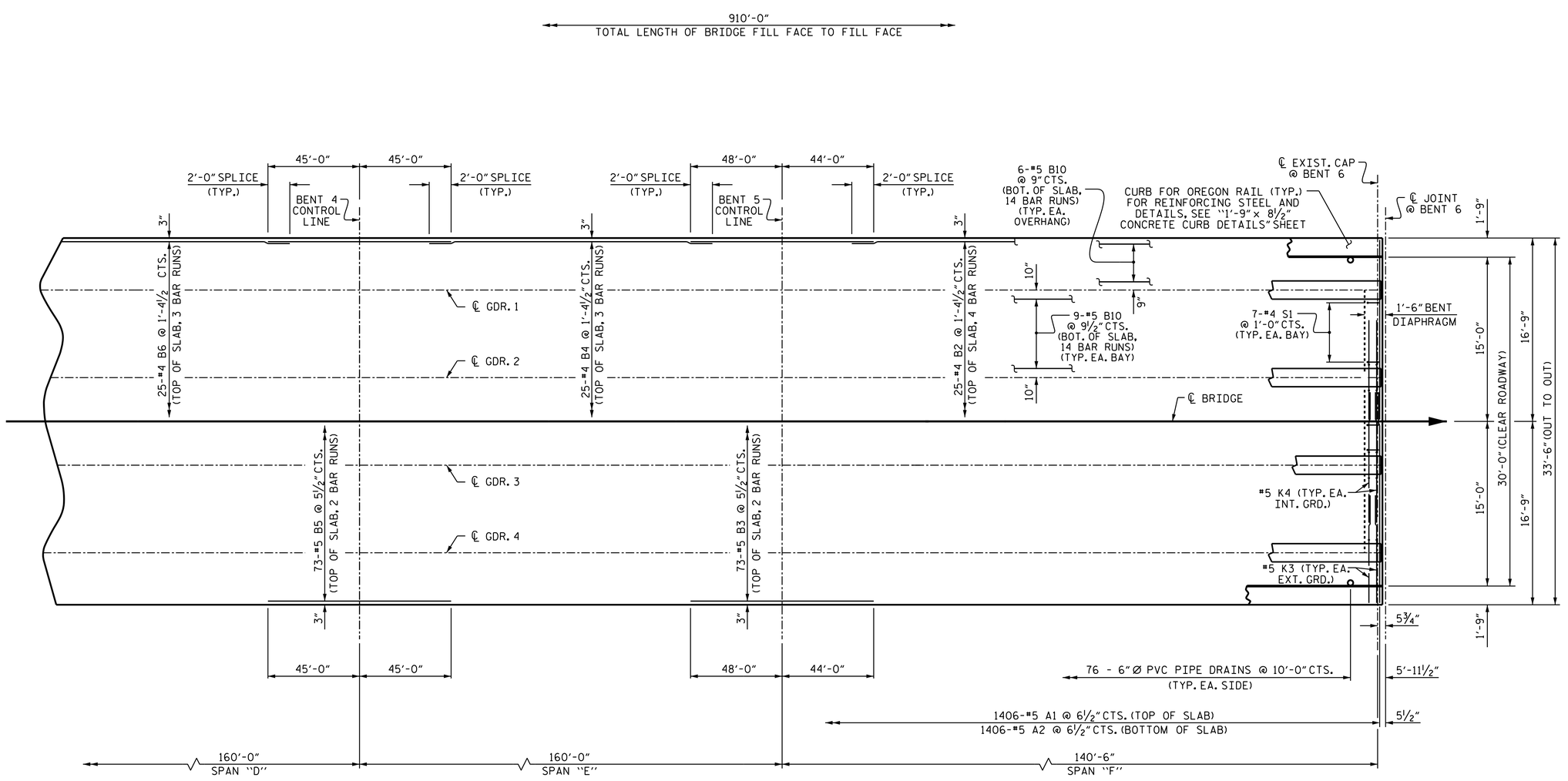
Docusigned by:
B04B54AF2FAD484...
1/10/2018

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			39

DRAWN BY : T.L. AVERETTE DATE : 7/2017
CHECKED BY : A. A. COLE DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_025_416655D_SMU_S2_110010.dgn
amlee



PARTIAL PLAN OF SPANS "D", "E" & "F"

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PARTIAL PLAN OF SPANS D, E & F

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

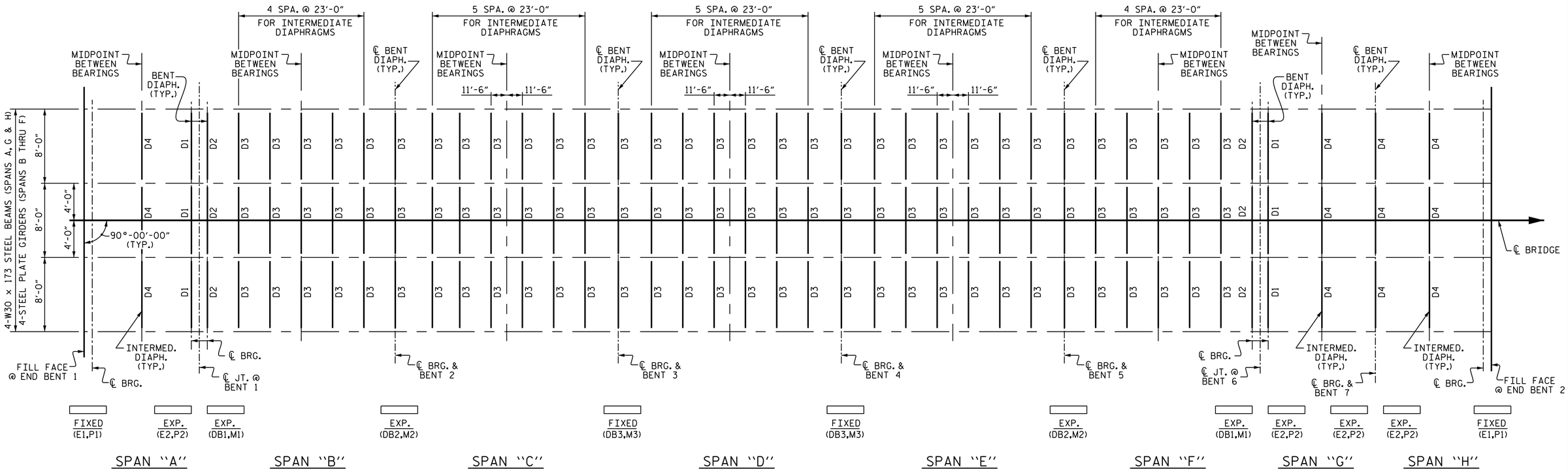
Docusigned by:
B04B54AF2FAD484...
1/10/2018

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			39

DRAWN BY : T.L. AVERETTE DATE : 7/2017
CHECKED BY : A. A. COLE DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_027_41665D_SMU_S3_110010.dgn
amlee



FRAMING PLAN

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

FRAMING PLAN

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...

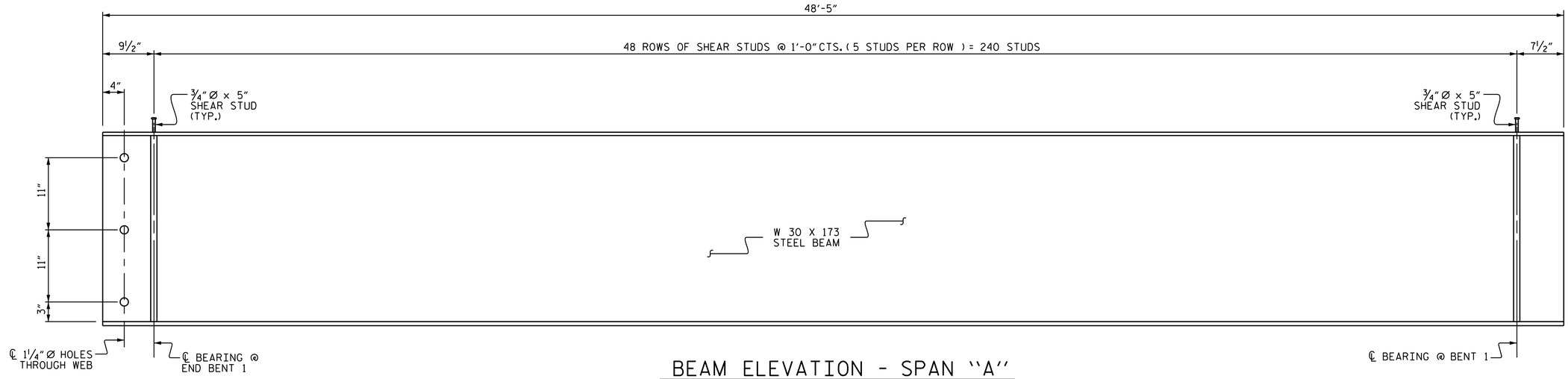
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

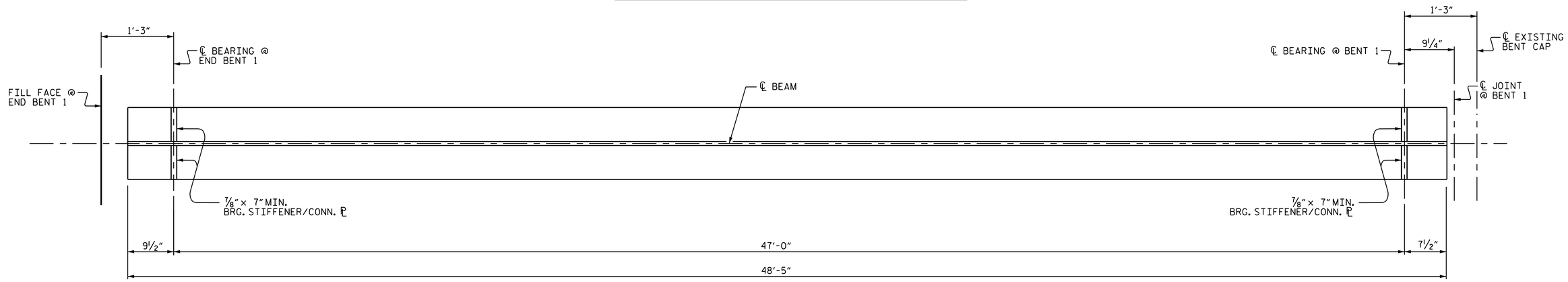
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 7/2017
CHECKED BY : H.A. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_029_416655D_SMU_FP_110010.dgn
amlee



BEAM ELEVATION - SPAN ''A''



BOTTOM FLANGE DETAIL - SPAN ''A''

NOTES

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W AND PAINTED IN ACCORDANCE WITH SYSTEM 5 OR 6 OF THE STRUCTURAL STEEL SHOP COATINGS PROGRAM AND SECTION 442-8 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

STRUCTURAL STEEL FOR TOP AND BOTTOM FLANGE PLATES FOR THE PLATE GIRDERS SHALL BE AASHTO M270 GRADE 70W AND PAINTED IN ACCORDANCE WITH SYSTEM 5 OR 6 OF THE STRUCTURAL STEEL SHOP COATINGS PROGRAM AND SECTION 442-8 OF THE STANDARD SPECIFICATIONS.

ALL DIMENSIONS SHOWN ARE HORIZONTAL OR VERTICAL, UNLESS OTHERWISE NOTED.

ALL FIELD CONNECTIONS TO BE ⅞" DIA. HIGH STRENGTH BOLTS UNLESS OTHERWISE NOTED.

STIFFENERS ARE NOT REQUIRED ON THE OUTSIDE OF EXTERIOR BEAMS.

FOR THE W 30X173 STEEL BEAMS, A CHARPY V-NOTCH TEST IS REQUIRED ON ALL BEAM SECTIONS, COVER PLATES AND SPLICE PLATES AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS.

FOR CHARPY V-NOTCH TESTS FOR CONTINUOUS PLATE GIRDERS, SEE STRUCTURAL STEEL DETAILS SHEET 5 OF 6.

TENSION ON THE ASTM A325 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

END OF BEAMS AND GIRDERS SHALL BE PLUMB.

BEARING STIFFENER MAY REQUIRE COPING IF WIDER THAN BOTTOM FLANGE.

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 1 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

STRUCTURAL STEEL DETAILS SPAN ''A''

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber M. Lee
B04B5A4F2FAD484...

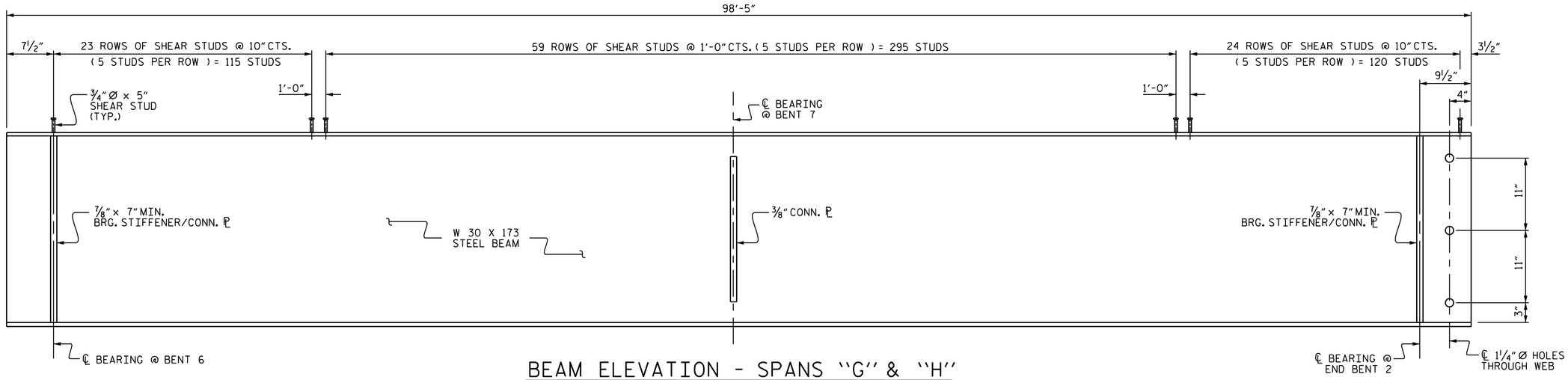
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

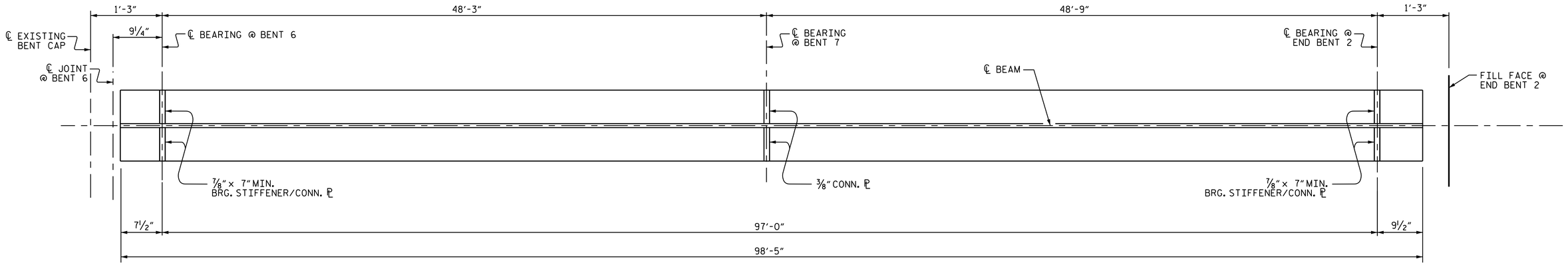
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 06/2017
CHECKED BY : A.A. COLE DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

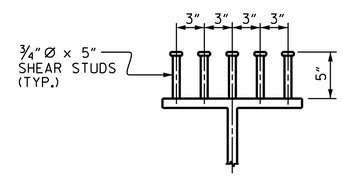
10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_031_416655D_SMU_SS1_110010.dgn
amlee



BEAM ELEVATION - SPANS "G" & "H"



BOTTOM FLANGE DETAIL - SPANS "G" & "H"



SHEAR STUD DETAILS

(TYPICAL ALL BEAMS)

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 2 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
STRUCTURAL STEEL DETAILS
SPANS "G" & "H"

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: B04B5A4F2FAD484...

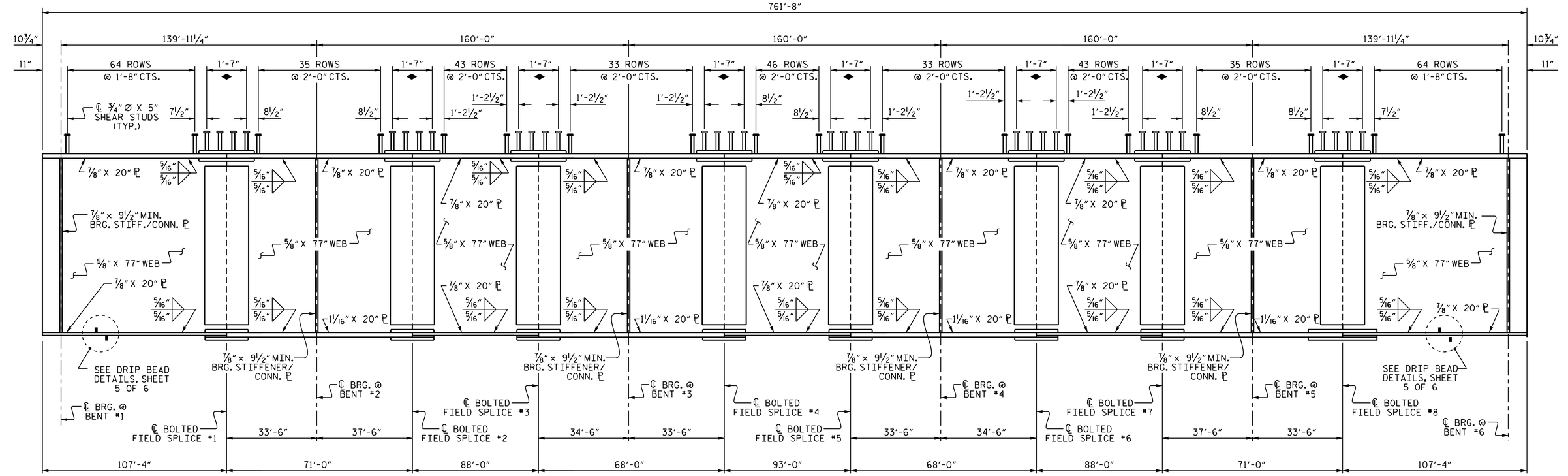
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			39

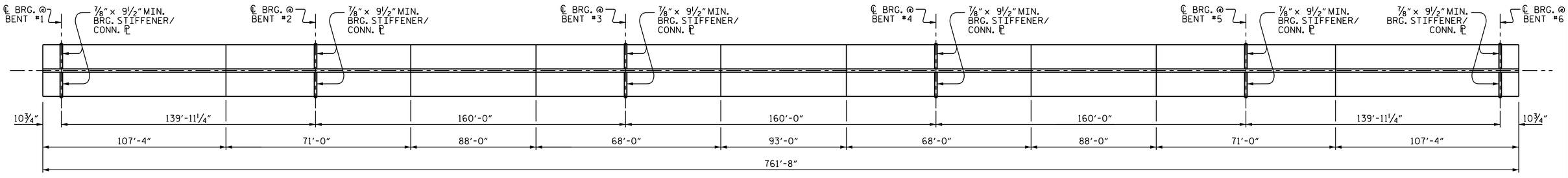
DRAWN BY : T.L. AVERETTE DATE : 06/2017
CHECKED BY : A.A. COLE DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_033_416655D_SMU_SS2_110010.dgn
amlee

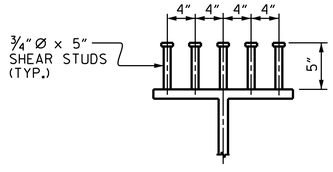


GIRDER ELEVATION

◆ SEE BOLTED FIELD SPLICE SHEET 5 SHEAR STUDS PER ROW



BOTTOM FLANGE DETAIL



SHEAR STUD DETAILS

(TYPICAL ALL GIRDERS)

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 3 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
STRUCTURAL STEEL DETAILS
SPANS "B" THRU "F"

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: 80485AAF2FAD484...

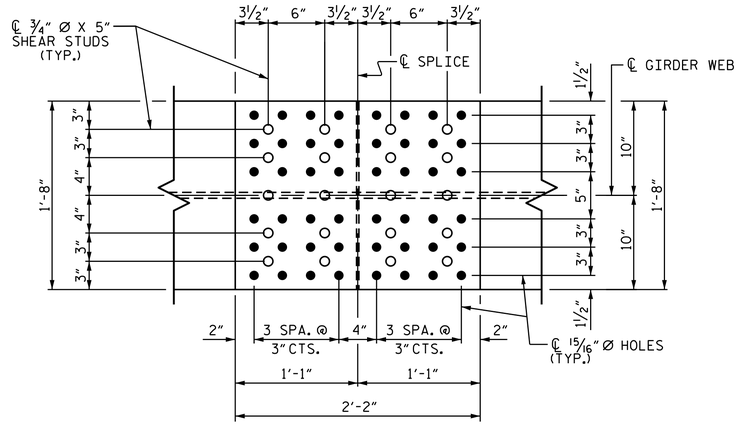
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

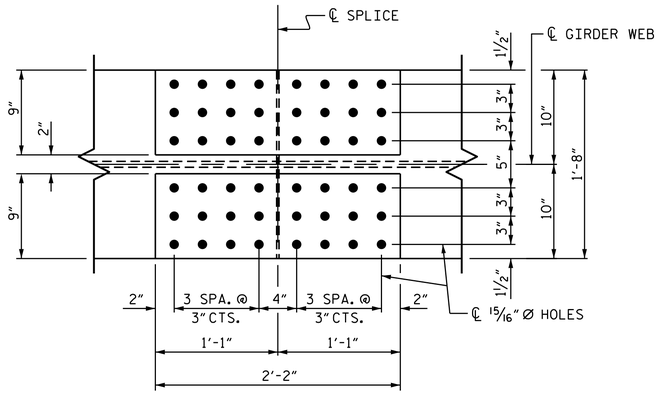
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 08/2017
CHECKED BY : A.A. COLE DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

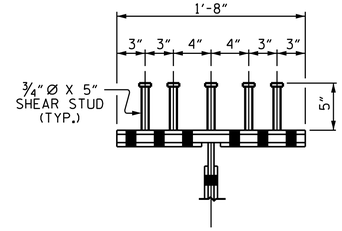
10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_035_416655D_SMU_SS3_110010.dgn
amlee



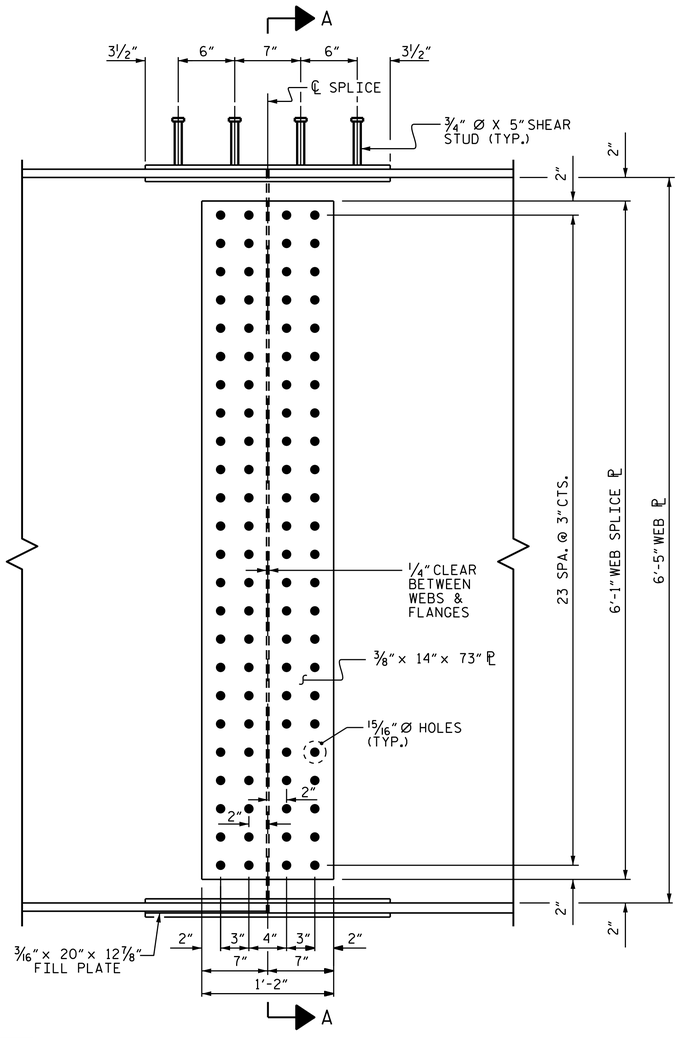
PLAN (TOP OF TOP FLANGE)



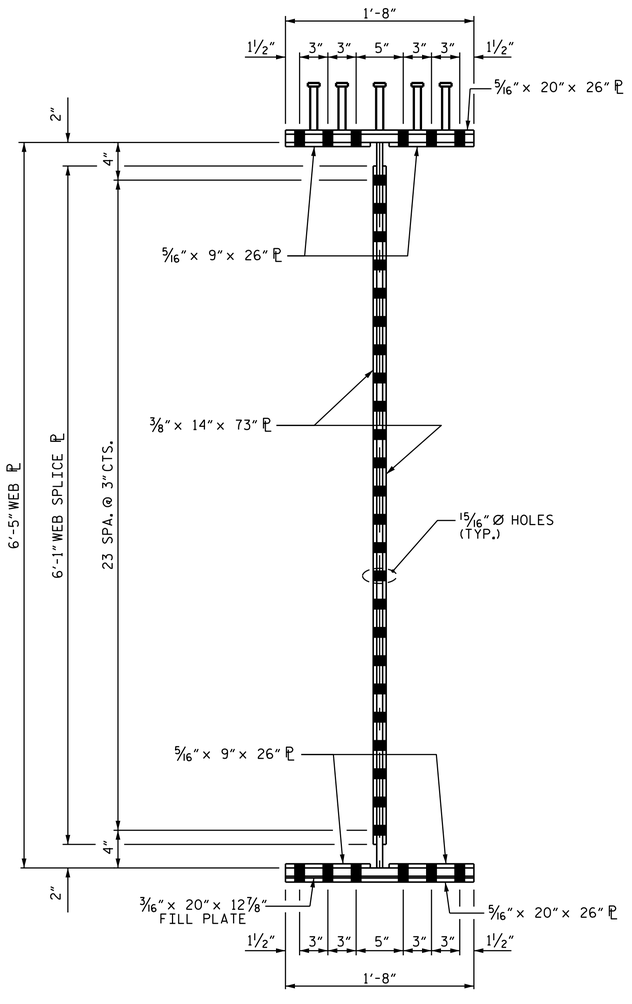
PLAN (TOP OF BOTTOM FLANGE)



SHEAR STUD DETAIL FOR TOP FLANGE SPLICE PLATE



ELEVATION



SECTION A-A

BOLTED FIELD SPLICE DETAILS

DRAWN BY : T.L. AVERETTE DATE : 10/2017
CHECKED BY : A.A. COLE DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:20
R:\Structures\FinalPlans\NOT STAGED\DGNs\401_037_416655D_SMU_SS4_110010.dgn
amlee

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
B04B5AAF2FAD484...
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

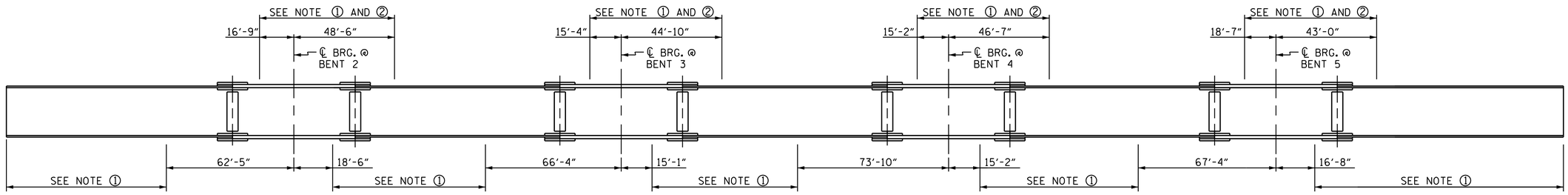
PROJECT NO. 41665.5D
BURKE COUNTY
BRIDGE NO. 10

SHEET 4 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
SUPERSTRUCTURE

STRUCTURAL STEEL BOLTED FIELD SPLICE DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			39

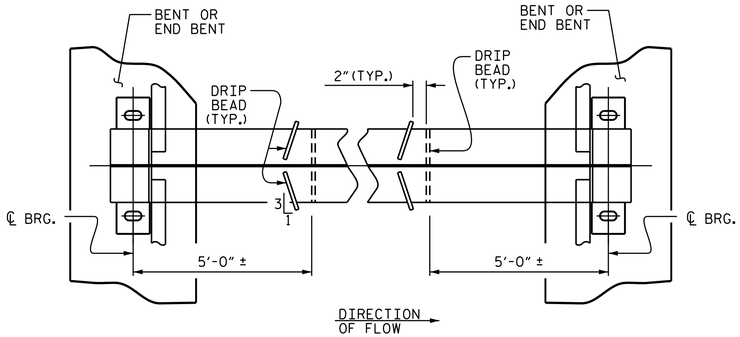


GIRDER MAKE UP

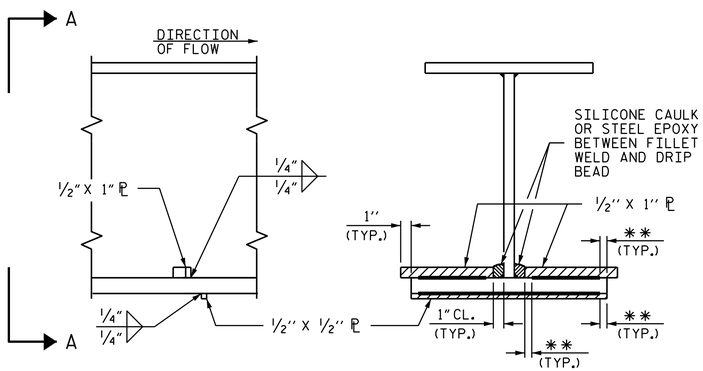
NOTE ①: CHARPY V-NOTCH TESTS ARE REQUIRED FOR ALL TOP OR BOTTOM FLANGE PLATES WHICH FALL WITHIN THESE LIMITS, ALL WEB PLATES, AND ALL SPLICE PLATES. IF A PERMITTED SHOP FLANGE SPLICE IS NOT USED, CHARPY V-NOTCH TESTS WILL BE REQUIRED FOR THE ENTIRE FLANGE PLATE. FOR CHARPY V-NOTCH TESTS, SEE ARTICLE 1072-7 OF THE STANDARD SPECIFICATIONS.

NOTE ②: NO WELDING OF FORMS OR FALSEWORK TO THE TOP FLANGE WILL BE PERMITTED IN THIS REGION.

CHARPY V-NOTCH TESTS FOR CONTINUOUS PLATE GIRDERS



PART PLAN - BOTTOM FLANGE

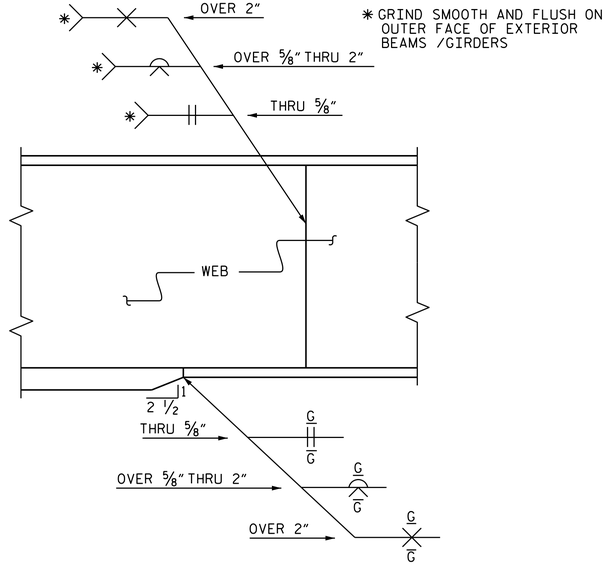


SECTION

VIEW A-A

**SEE "WELD TERMINATION DETAILS"

DRIP BEAD DETAILS



*GRIND SMOOTH AND FLUSH ON OUTER FACE OF EXTERIOR BEAMS /GIRDERS

ELEVATION

TYPICAL FLANGE AND WEB BUTT JOINT

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 5 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
STRUCTURAL STEEL DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

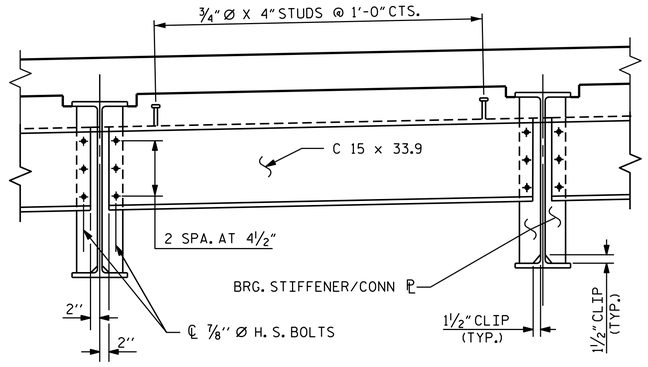
DocuSigned by: Amber Lee
B04B54AF2FAD484...
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

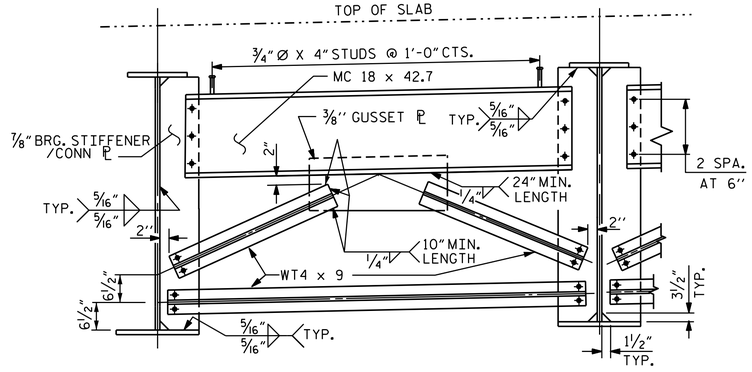
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-15
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 7/2017
CHECKED BY : H.A. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

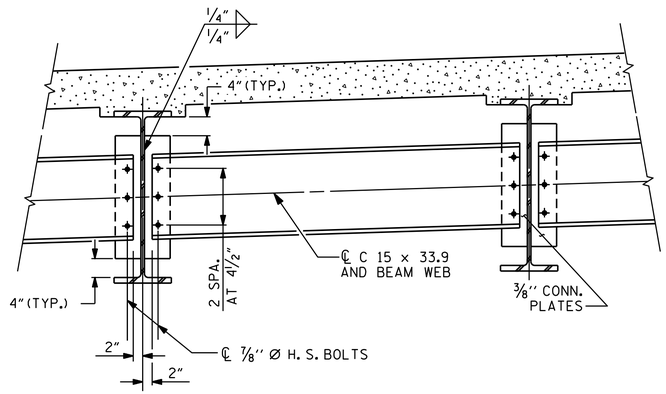
10-JAN-2018 13:20
R:\Structures\Final Plans\NOT STAGED\DGNs\401_039_4166550_SMU_SS5_110010.dgn
amlee



TYPICAL BENT DIAPHRAGM - D1

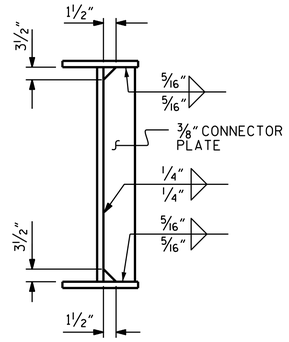


TYPICAL BENT DIAPHRAGM - D2



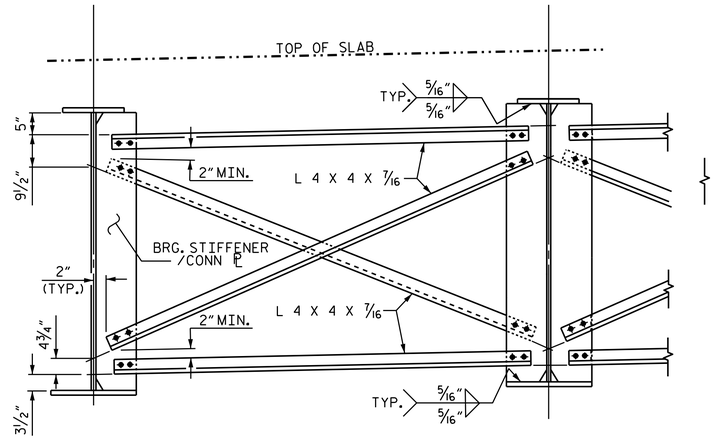
TYPICAL INTERMEDIATE DIAPHRAGM - D4

ALSO TYPICAL BENT DIAPHRAGM FOR BENT 7 ONLY

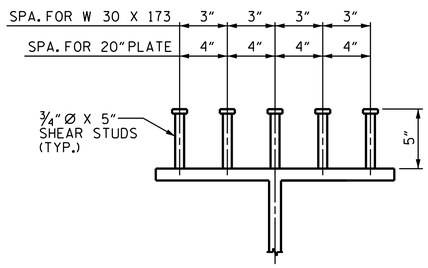


CONNECTOR PLATE

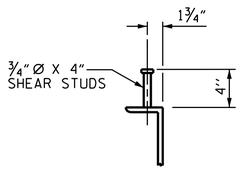
(@ INTERMEDIATE DIAPHRAGMS)



TYPICAL CROSSFRAME - D3

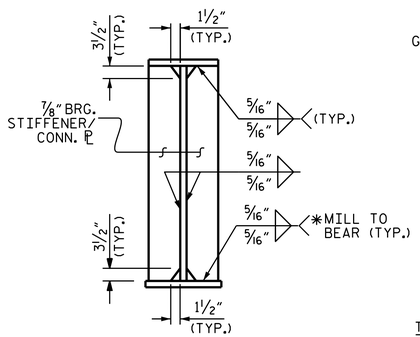


ON GIRDERS



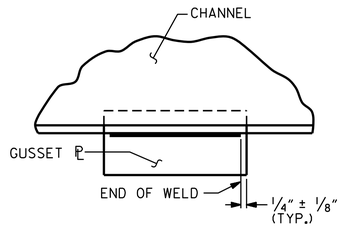
ON CHANNELS

SHEAR STUD DETAILS

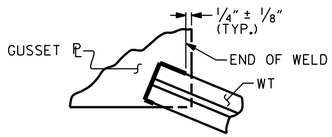


BEARING STIFFENER / CONNECTOR PLATE

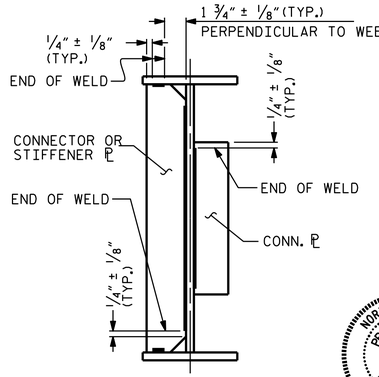
(@ END BENT & INTERIOR BENT DIAPHRAGMS)
* WELD ONLY WHEN USED AS A CONNECTOR PLATE



TYPICAL GUSSET PLATE CONNECTION



TYPICAL "TEE" TO GUSSET PLATE CONNECTION



TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS

WELD TERMINATION DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee 804B544F2FAD484...

1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRAWN BY :	T.L. AVERETTE — DATE : 6/2017
CHECKED BY :	H.A. LOCKLEAR — DATE : 12/2017
DESIGN ENGINEER OF RECORD:	H.A. LOCKLEAR — DATE : 12/2017

10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_041_416655D_SMU_SS6_110010.dgn
amlee

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

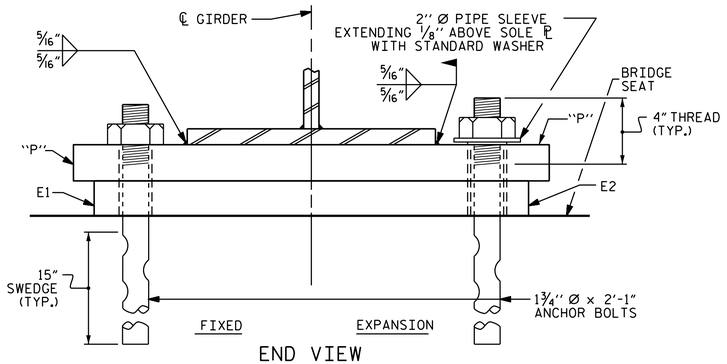
SHEET 6 OF 6

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

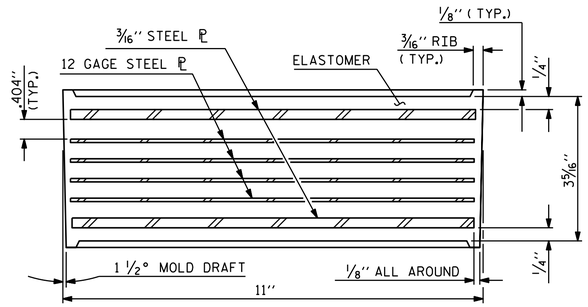
SUPERSTRUCTURE

STRUCTURAL STEEL DETAILS

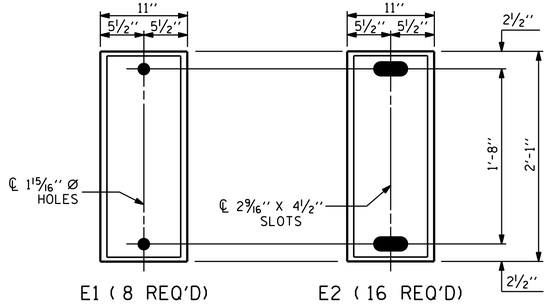
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			39



END VIEW

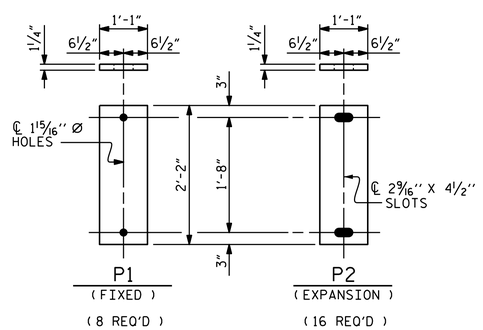


TYPICAL SECTION OF ELASTOMERIC BEARING



PLAN VIEW OF ELASTOMERIC BEARING

TYPE IV



SOLE PLATE DETAILS ("P")

NOTES

AT ALL FIXED POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS ARE TO BE TIGHTENED FINGER TIGHT AND THEN BACKED OFF 1/2 TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

THE 2" Ø PIPE SLEEVE SHALL BE CUT FROM SCHEDULE 40 PVC PLASTIC PIPE. THE PVC PLASTIC PIPE SHALL MEET THE REQUIREMENTS OF ASTM D1785.

THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

FOR PAINTED STRUCTURAL STEEL (EXCLUDING AASHTO M270 GRADE 50W), SOLE PLATES, ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

FOR AASHTO M270 GRADE 50W STRUCTURAL STEEL, SOLE PLATE SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED. ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

WHEN FIELD WELDING THE SOLE PLATE TO THE GIRDER FLANGE, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE SOLE PLATE DOES NOT EXCEED 300°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE ELASTOMER.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

THE ELASTOMER IN THE STEEL REINFORCED BEARINGS SHALL HAVE A SHEAR MODULUS OF 0.160 KSI, IN ACCORDANCE WITH AASHTO M251.

FOR STEEL REINFORCED ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FOLLOWING PROCEDURE, WHICH MAY BE REQUIRED BY THE ENGINEER, TO RESET ELASTOMERIC BEARINGS DUE TO GIRDER TRANSLATION AND END ROTATION:

1. ONCE THE DECK HAS CURED, THE GIRDERS SHALL BE JACKED AND THE ELASTOMERIC BEARING SLOTS CENTERED AS NEARLY AS PRACTICAL ABOUT THE BEARING STIFFENER. THIS OPERATION SHALL BE PERFORMED AT APPROXIMATELY 60° F.

THE CONTRACTOR MAY PROPOSE ALTERNATE METHODS, PROVIDED DETAILS ARE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

MAXIMUM ALLOWABLE SERVICE LOADS	
D.L.+L.L. (NO IMPACT)	
TYPE IV	310 k

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD

ELASTOMERIC BEARING DETAILS

(STEEL SUPERSTRUCTURE)

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...

1/10/2018

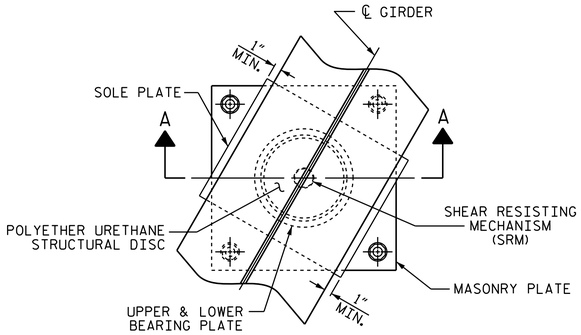
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-17
1			3			TOTAL SHEETS
2			4			39

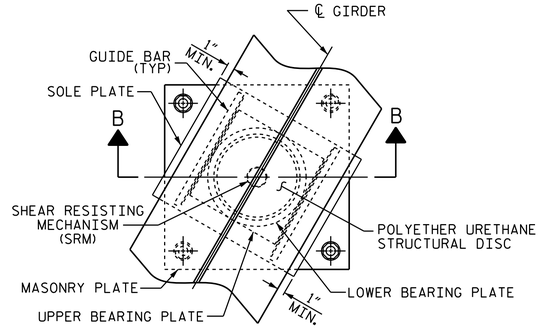
ASSEMBLED BY : T.L. AVERETTE	DATE : 10/2017		
CHECKED BY : H.A. LOCKLEAR	DATE : 12/2017		
DRAWN BY : EEM 10/95	REV. 5/1/06	TLA/GM	
CHECKED BY : PEK 10/95	REV. 10/1/11	MAA/GM	
	REV. 6/13	AAC/MAA	

10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_043_416655D_SMU_BGI_110010.dgn
amlee

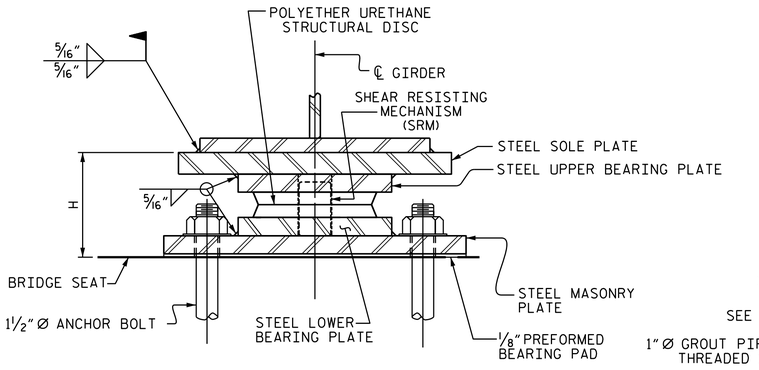
STD. NO. EB2



PLAN

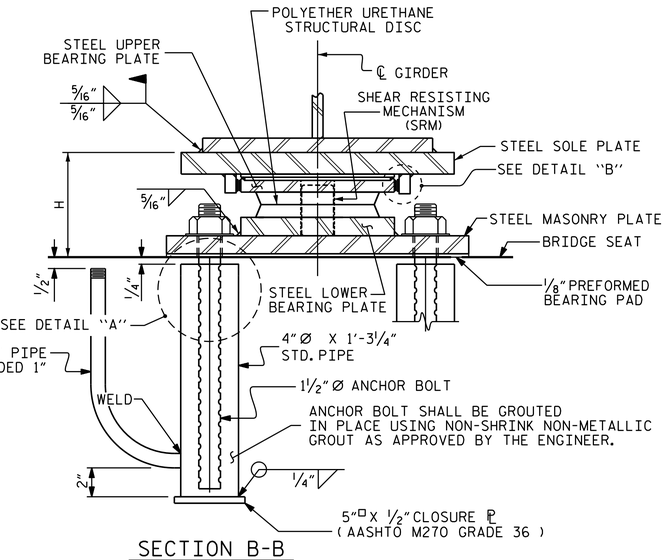


PLAN



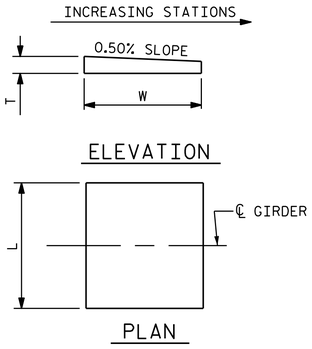
SECTION A-A

DB3, FIXED



SECTION B-B

DB1 & DB2, EXP.



ELEVATION

PLAN

NOTE:
DIMENSIONS "W" AND "T" SHALL BE DETERMINED BY THE BEARING MANUFACTURER.

SOLE PLATE DETAILS

NOTES

FOR DISC BEARINGS, SEE SPECIAL PROVISIONS.

ALL BEARING PLATES SHALL BE AASHTO M270 GRADE 50W OR GRADE 50.

AT ALL POINTS OF SUPPORT, NUTS FOR ANCHOR BOLTS SHALL BE FINGER-TIGHTENED PLUS AN ADDITIONAL ¼ TURN. THE THREAD OF THE NUT AND BOLT SHALL THEN BE BURRED WITH A SHARP POINTED TOOL.

WHEN WELDING THE SOLE PLATE TO THE GIRDER, USE TEMPERATURE INDICATING WAX PENS, OR OTHER SUITABLE MEANS, TO ENSURE THAT THE TEMPERATURE OF THE BEARING DOES NOT EXCEED 250°F. TEMPERATURES ABOVE THIS MAY DAMAGE THE TFE OR URETHANE DISC.

AFTER BEARING ASSEMBLY IS IN PLACE AND ANCHOR BOLTS HAVE BEEN FINALLY POSITIONED, THEY SHALL BE GROUTED IN PLACE AS SHOWN.

THE CLOSURE PLATE, GROUT PIPE, AND STANDARD PIPE FOR THIS ASSEMBLY NEED NOT BE GALVANIZED.

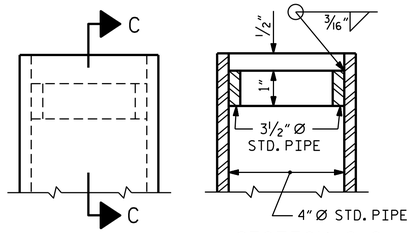
SOLE PLATES SHOULD BE WELDED TO GIRDER FLANGES AND ANCHOR BOLTS SHOULD BE GROUTED BEFORE FALSEWORK IS PLACED.

ALL SURFACES OF BEARING PLATES SHALL BE SMOOTH AND STRAIGHT.

FOR ATTACHMENT OF THE STAINLESS STEEL SHEETS TO THE STEEL SOLE PLATE AND GUIDE BARS, AS WELL AS THE TOP AND SIDE PTFE SHEETS TO THE STEEL UPPER BEARING PLATE, SEE SPECIAL PROVISIONS.

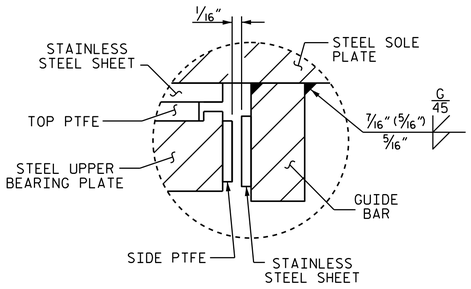
FOR THERMAL SPRAYED COATINGS (METALLIZATION), SEE SPECIAL PROVISIONS.

THE MINIMUM ROTATIONAL CAPACITY FOR ALL BEARINGS SHALL BE 0.02 RADIANS.

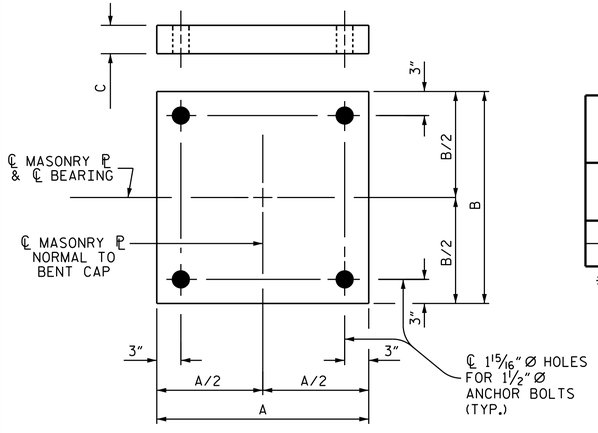


SECTION C-C

DETAIL "A"



DETAIL "B"



PLAN

MASONRY PLATE DETAILS

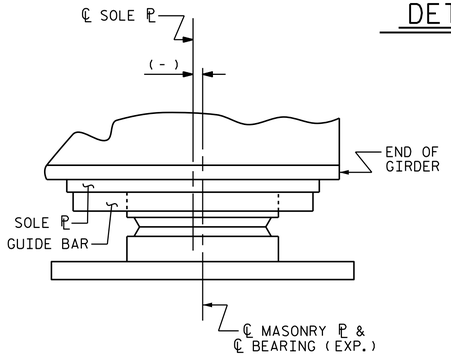
PLATE SETTING DATA

(EXPANSION DISC BEARINGS)

LOCATION	TEMPERATURE AT TIME OF SETTING			*
	45° F	60° F	90° F	
BENT 1 & 6	-7/16"	0	7/8"	-1/8"
BENT 2 & 5	-5/16"	0	9/16"	-1/8"

* CORRECTION FOR END ROTATION DUE TO WEIGHT OF SLAB AND COMPOSITE DEAD LOAD.

TEMPERATURE SETTING DETAIL



DESIGNATIONS		LOCATION	NUMBER OF BEARINGS	DIMENSIONS						LOADS AND MOVEMENT				
				BEARING	MASONRY PLATE			SOLE PLATE		UNFACTORED VERTICAL LOAD (KIPS)			FACTORED HORIZONTAL LOAD (KIPS)	ONE-WAY MOVEMENT (IN.)
BEARINGS	MASONRY ℙ			H (IN.)	A (IN.)	B (IN.)	C (IN.)	TOP SLOPE (%)	L (IN.)	DEAD		LIVE		
										DC	DW	LL+IM		
DB1 (EXP.)	M1	BENT 1, 6	8	5½"	25½"	25½"	¾"	-0.50	21"	71	13	116	36	3"
DB2 (EXP.)	M2	BENT 2, 5	8	7⅜"	30½"	30½"	1"	-0.50	21"	224	38	233	95	1⅞"
DB3 (FIXED)	M3	BENT 3, 4	8	5½"	22½"	22½"	¾"	-0.50	21"	212	36	234	92	0"

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

DISC BEARING DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18
1			3			TOTAL SHEETS
2			4			39

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: B04B54AF2FAD484...

1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : T.L. AVERETTE DATE : 10/2017
CHECKED BY : H.A. LOCKLEAR DATE : 12/2017

DRAWN BY : TMG 08/13 REV.
CHECKED BY : EKP 10/13 REV. REV.

10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_045_416655D_SMU_BG2_110010.dgn
amlee

STD. NO. DB1

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN A										
	ALL GIRDERS										
TWENTIETH POINTS	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0.000	0.003	0.005	0.007	0.009	0.009	0.009	0.007	0.005	0.003	0.000
DEFLECTION DUE TO WEIGHT OF SLAB * ↓	0.000	0.033	0.047	0.058	0.066	0.068	0.066	0.058	0.047	0.033	0.000
DEFLECTION DUE TO WEIGHT OF SUPERIMPOSED DEAD LOAD ↓	0.000	0.003	0.006	0.008	0.009	0.010	0.009	0.008	0.006	0.003	0.000
TOTAL DEAD LOAD DEFLECTION ↓	0.000	0.039	0.058	0.073	0.084	0.087	0.084	0.073	0.058	0.039	0.000
VERTICAL CURVE ORDINATE ↑	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER ↑	0	7/16"	11/16"	7/8"	1"	1 1/16"	1"	7/8"	11/16"	7/16"	0

	SPAN G										
	ALL GIRDERS										
TWENTIETH POINTS	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0.000	0.001	0.003	0.003	0.004	0.004	0.003	0.002	0.001	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB * ↓	0.000	0.007	0.012	0.016	0.017	0.017	0.014	0.010	0.005	0.002	0.000
DEFLECTION DUE TO WEIGHT OF SUPERIMPOSED DEAD LOAD ↓	0.000	0.002	0.003	0.004	0.004	0.004	0.003	0.002	0.001	0.000	0.000
TOTAL DEAD LOAD DEFLECTION ↓	0.000	0.010	0.018	0.023	0.025	0.025	0.020	0.014	0.007	0.002	0.000
VERTICAL CURVE ORDINATE ↑	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER ↑	0	1/8"	3/16"	1/4"	5/16"	5/16"	1/4"	3/16"	1/16"	0	0

	SPAN H										
	ALL GIRDERS										
TWENTIETH POINTS	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0.000	0.000	0.001	0.002	0.003	0.004	0.004	0.004	0.003	0.002	0.000
DEFLECTION DUE TO WEIGHT OF SLAB * ↓	0.000	0.002	0.006	0.011	0.015	0.018	0.019	0.017	0.013	0.007	0.000
DEFLECTION DUE TO WEIGHT OF SUPERIMPOSED DEAD LOAD ↓	0.000	0.000	0.001	0.003	0.004	0.004	0.004	0.004	0.003	0.002	0.000
TOTAL DEAD LOAD DEFLECTION ↓	0.000	0.002	0.008	0.016	0.022	0.026	0.027	0.025	0.019	0.011	0.000
VERTICAL CURVE ORDINATE ↑	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER ↑	0	0	1/8"	3/16"	1/4"	5/16"	5/16"	5/16"	1/4"	1/8"	0

* INCLUDES SLAB, BUILDUPS, AND STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS SHOWN IN INCHES (FRACTION FORM).

FABRICATORS SHALL DETAIL DIAPHRAGM MEMBERS AND CONNECTIONS FOR STEEL DEAD LOAD FIT UP.

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 1 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

Docusigned by:
B04B54AF2FAD484...

1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

DEAD LOAD DEFLECTIONS SPANS A, G & H

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 10/2017
CHECKED BY : A.A. COLE DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_046_416655D_SMU_ DL_110010.dgn
amlee

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

SPAN B

ALL GIRDERS

TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0.000	0.009	0.017	0.025	0.031	0.037	0.041	0.044	0.046	0.046	0.044	0.042	0.038	0.034	0.028	0.022	0.016	0.011	0.006	0.002	0.000
DEFLECTION DUE TO WEIGHT OF SLAB * ↓	0.000	0.025	0.049	0.070	0.090	0.106	0.118	0.127	0.131	0.132	0.128	0.121	0.110	0.097	0.081	0.065	0.048	0.031	0.017	0.006	0.000
DEFLECTION DUE TO WEIGHT OF SUPERIMPOSED DEAD LOAD ↓	0.000	0.007	0.013	0.019	0.024	0.028	0.031	0.033	0.035	0.035	0.034	0.032	0.029	0.026	0.021	0.017	0.013	0.008	0.005	0.002	0.000
TOTAL DEAD LOAD DEFLECTION ↓	0.000	0.041	0.079	0.114	0.145	0.171	0.190	0.204	0.212	0.213	0.206	0.195	0.177	0.157	0.130	0.104	0.077	0.050	0.028	0.010	0.000
VERTICAL CURVE ORDINATE ↑	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER ↑	0	1/2"	15/16"	1 3/8"	1 3/4"	2 1/16"	2 1/4"	2 7/16"	2 9/16"	2 9/16"	2 1/2"	2 5/16"	2 1/8"	1 7/8"	1 9/16"	1 1/4"	15/16"	5/8"	5/16"	1/8"	0

SPAN C

ALL GIRDERS

TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0.000	0.000	0.002	0.006	0.010	0.015	0.019	0.023	0.027	0.029	0.029	0.029	0.027	0.025	0.021	0.016	0.012	0.007	0.003	0.001	0.000
DEFLECTION DUE TO WEIGHT OF SLAB * ↓	0.000	0.000	0.006	0.016	0.028	0.041	0.054	0.065	0.074	0.080	0.082	0.081	0.077	0.069	0.058	0.046	0.033	0.020	0.009	0.002	0.000
DEFLECTION DUE TO WEIGHT OF SUPERIMPOSED DEAD LOAD ↓	0.000	0.000	0.002	0.004	0.007	0.011	0.014	0.017	0.020	0.021	0.022	0.021	0.020	0.018	0.015	0.012	0.009	0.005	0.003	0.001	0.000
TOTAL DEAD LOAD DEFLECTION ↓	0.000	0.000	0.010	0.026	0.045	0.067	0.087	0.105	0.121	0.130	0.133	0.131	0.124	0.112	0.094	0.074	0.054	0.032	0.015	0.004	0.000
VERTICAL CURVE ORDINATE ↑	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER ↑	0	0	1/8"	5/16"	9/16"	1 3/16"	1 1/16"	1 1/4"	1 7/16"	1 9/16"	1 5/8"	1 9/16"	1 1/2"	1 3/8"	1 1/8"	7/8"	5/8"	3/8"	3/16"	1/16"	0

SPAN D

ALL GIRDERS

TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0.000	0.002	0.005	0.010	0.015	0.020	0.025	0.030	0.033	0.035	0.036	0.035	0.033	0.030	0.025	0.020	0.015	0.010	0.005	0.002	0.000
DEFLECTION DUE TO WEIGHT OF SLAB * ↓	0.000	0.005	0.015	0.028	0.043	0.058	0.073	0.085	0.094	0.100	0.102	0.100	0.094	0.085	0.073	0.058	0.043	0.028	0.015	0.005	0.000
DEFLECTION DUE TO WEIGHT OF SUPERIMPOSED DEAD LOAD ↓	0.000	0.001	0.004	0.007	0.011	0.015	0.019	0.022	0.025	0.026	0.027	0.026	0.025	0.022	0.019	0.015	0.011	0.007	0.004	0.001	0.000
TOTAL DEAD LOAD DEFLECTION ↓	0.000	0.008	0.024	0.045	0.069	0.093	0.117	0.137	0.152	0.161	0.165	0.161	0.152	0.137	0.117	0.093	0.069	0.045	0.024	0.008	0.000
VERTICAL CURVE ORDINATE ↑	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER ↑	0	1/8"	5/16"	9/16"	1 3/16"	1 1/8"	1 3/8"	1 5/8"	1 13/16"	1 15/16"	2"	1 15/16"	1 13/16"	1 5/8"	1 3/8"	1 1/8"	1 3/16"	9/16"	5/16"	1/8"	0

* INCLUDES SLAB, BUILDUPS, AND STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS SHOWN IN INCHES (FRACTION FORM).

FABRICATORS SHALL DETAIL DIAPHRAGM MEMBERS AND CONNECTIONS FOR STEEL DEAD LOAD FIT UP.

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

DEAD LOAD DEFLECTIONS SPANS B, C & D

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
B04B54AF2FAD484...

1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 10/2017
CHECKED BY : A.A. COLE DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:21
R:\Structures\FinalPlans\NOT STAGED\DGNs\401_047_416655D_SMU_ DL_110010.dgn
amlee

DEAD LOAD DEFLECTION TABLE FOR GIRDERS

	SPAN E																				
	ALL GIRDERS																				
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0.000	0.001	0.003	0.007	0.012	0.016	0.021	0.025	0.027	0.029	0.029	0.029	0.027	0.023	0.019	0.015	0.010	0.006	0.002	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SLAB * ↓	0.000	0.002	0.009	0.020	0.033	0.046	0.058	0.069	0.077	0.081	0.082	0.080	0.074	0.065	0.054	0.041	0.028	0.016	0.006	0.000	0.000
DEFLECTION DUE TO WEIGHT OF SUPERIMPOSED DEAD LOAD ↓	0.000	0.001	0.003	0.005	0.009	0.012	0.015	0.018	0.020	0.021	0.022	0.021	0.020	0.017	0.014	0.011	0.007	0.004	0.002	0.000	0.000
TOTAL DEAD LOAD DEFLECTION ↓	0.000	0.004	0.015	0.032	0.054	0.074	0.094	0.112	0.124	0.131	0.133	0.130	0.121	0.105	0.087	0.067	0.045	0.026	0.010	0.000	0.000
VERTICAL CURVE ORDINATE ↑	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER ↑	0	1/16"	3/16"	3/8"	5/8"	7/8"	1 1/8"	1 3/8"	1 1/2"	1 9/16"	1 5/8"	1 9/16"	1 7/16"	1 1/4"	1 1/16"	1 3/16"	9/16"	5/16"	1/8"	0	0

	SPAN F																				
	ALL GIRDERS																				
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0.000	0.002	0.006	0.011	0.016	0.022	0.028	0.034	0.038	0.042	0.044	0.046	0.046	0.044	0.041	0.037	0.031	0.025	0.017	0.009	0.000
DEFLECTION DUE TO WEIGHT OF SLAB * ↓	0.000	0.006	0.017	0.031	0.048	0.065	0.081	0.097	0.110	0.121	0.128	0.132	0.131	0.127	0.118	0.106	0.090	0.070	0.049	0.025	0.000
DEFLECTION DUE TO WEIGHT OF SUPERIMPOSED DEAD LOAD ↓	0.000	0.002	0.005	0.008	0.013	0.017	0.021	0.026	0.029	0.032	0.034	0.035	0.035	0.033	0.031	0.028	0.024	0.019	0.013	0.007	0.000
TOTAL DEAD LOAD DEFLECTION ↓	0.000	0.010	0.028	0.050	0.077	0.104	0.130	0.157	0.177	0.195	0.206	0.213	0.212	0.204	0.190	0.171	0.145	0.114	0.079	0.041	0.000
VERTICAL CURVE ORDINATE ↑	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REQUIRED CAMBER ↑	0	1/8"	5/16"	5/8"	15/16"	1 1/4"	1 9/16"	1 7/8"	2 1/8"	2 5/16"	2 1/2"	2 9/16"	2 9/16"	2 7/16"	2 1/4"	2 1/16"	1 3/4"	1 3/8"	1 5/16"	1/2"	0

* INCLUDES SLAB, BUILDUPS, AND STAY-IN-PLACE FORMS.
ALL VALUES ARE SHOWN IN FEET (DECIMAL FORM), EXCEPT "FINAL CAMBER", WHICH IS SHOWN IN INCHES (FRACTION FORM).

FABRICATORS SHALL DETAIL DIAPHRAGM MEMBERS AND CONNECTIONS FOR STEEL DEAD LOAD FIT UP.

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

DEAD LOAD DEFLECTIONS SPANS E & F

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

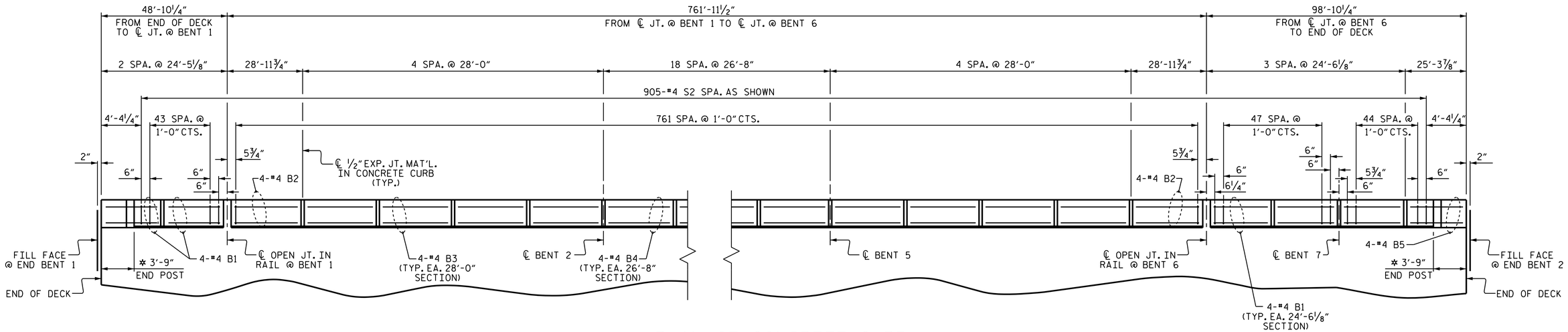
DocuSigned by:
B04B544F2FAD484...
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-21
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 10/2017
CHECKED BY : A.A. COLE DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

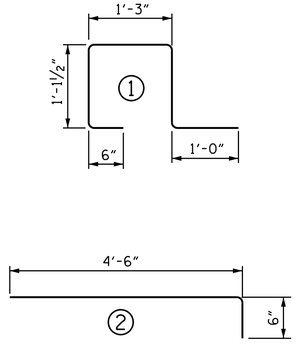
10-JAN-2018 13:21
R:\Structures\FinalPlans\NOT STAGED\DGNs\401_048_416655D_SMU_ DL_110010.dgn
amlee



PLAN OF CONCRETE CURB

LEFT SIDE SHOWN, RIGHT SIDE SIMILAR.
✲ FOR ADDITIONAL REINFORCING STEEL IN THIS AREA, SEE SHEET 2 OF 2.

BAR TYPES



BILL OF MATERIAL

CURBS AND 4 END POSTS

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✲ A5	1248	#5	2	5′-0″	6508
✲ B1	40	#4	STR	24′-0″	641
✲ B2	16	#4	STR	28′-6″	305
✲ B3	64	#4	STR	27′-7″	1179
✲ B4	144	#4	STR	26′-3″	2525
✲ B5	8	#4	STR	24′-11″	133
✲ E1	8	#7	STR	2′-5″	40
✲ E2	8	#7	STR	2′-9″	45
✲ E3	8	#7	STR	3′-0″	49
✲ E4	8	#7	STR	3′-3″	53
✲ E5	8	#7	STR	3′-6″	57
✲ F1	40	#6	STR	3′-5″	205
✲ F2	8	#6	STR	1′-3″	15
✲ S2	1810	#4	1	5′-0″	6045
✲ S3	32	#4	STR	1′-8″	36
✲ EPOXY COATED REINF. STEEL					17,836 LBS.
CLASS AA CONCRETE					83.7 C.Y.
1′-9″ X 8½″ CONCRETE CURB					1819.33 L.F.

ALL BAR DIMENSIONS ARE OUT TO OUT

FOR LOCATION OF #5 A5 BARS, SEE SHEET 2 OF 2 AND "RAIL POST SPACINGS" SHEET.

NOTES

ALL REINFORCING STEEL IN CURBS AND END POSTS SHALL BE EPOXY COATED.

GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE CURB AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN CURB EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF CURB SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

CURB IN THE SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THE SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

THE COST OF THE METAL RAIL ANCHOR ASSEMBLY CAST WITH THE DECK SLAB SHALL BE INCLUDED IN THE PRICE BID FOR REINFORCED CONCRETE DECK SLAB.

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

1′-9″ X 8½″
CONCRETE CURB

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
Amber Miller
B0485A4F2FAD484...

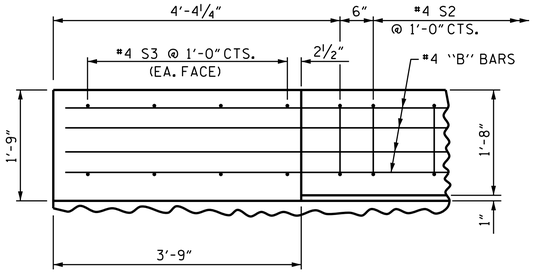
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

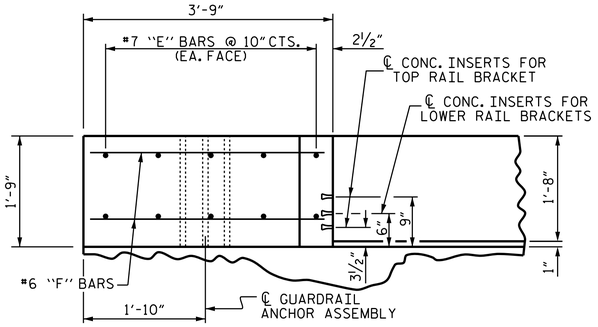
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-22
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 6/2017
CHECKED BY : H.A. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

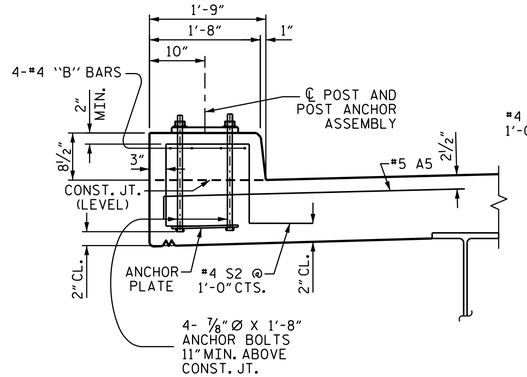
10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_049_416655D_SMU_OR1_110010.dgn
amlee



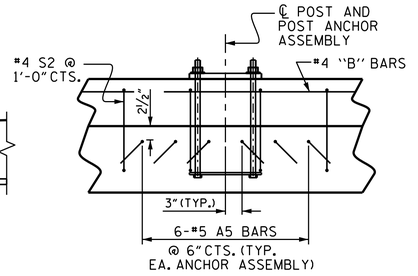
PLAN OF CURB



PLAN OF END POST

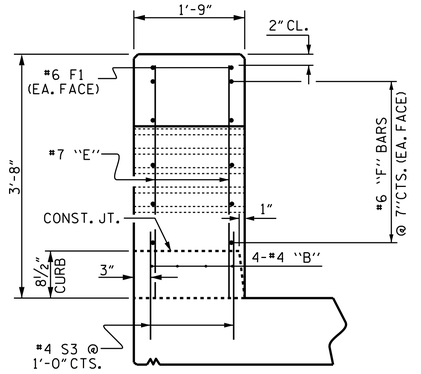


SECTION THRU CURB

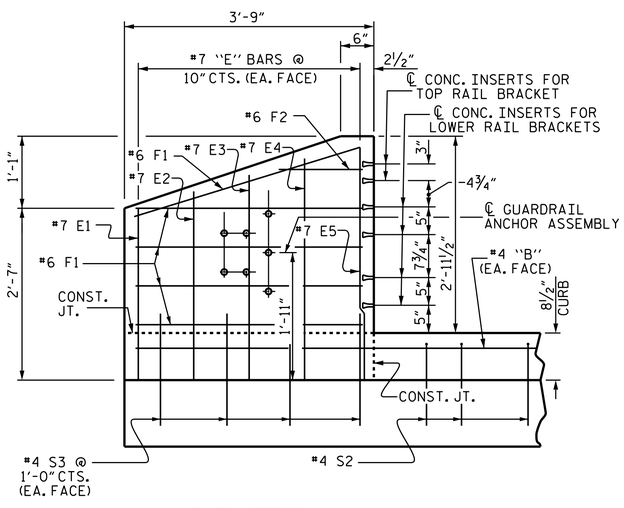


SIDE VIEW AT
POST LOCATION

FOR LOCATION OF POSTS AND POST ANCHOR ASSEMBLIES, SEE "RAIL POST SPACINGS" SHEET.

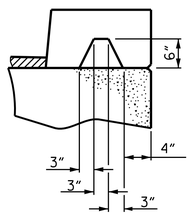


END VIEW

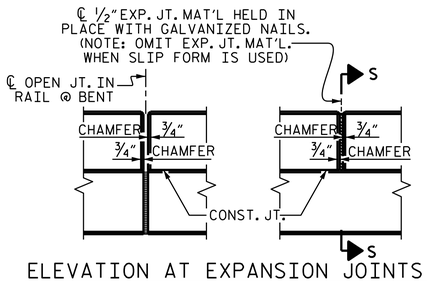


ELEVATION

CURB AND END POST FOR 42" OREGON RAIL



SECTION S-S
AT DAM IN OPEN JOINT
(THIS IS TO BE USED ONLY
WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS

PROJECT NO. 41665.5D
BURKE COUNTY
BRIDGE NO. 10

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

1'-9" X 8½" CONCRETE CURB DETAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

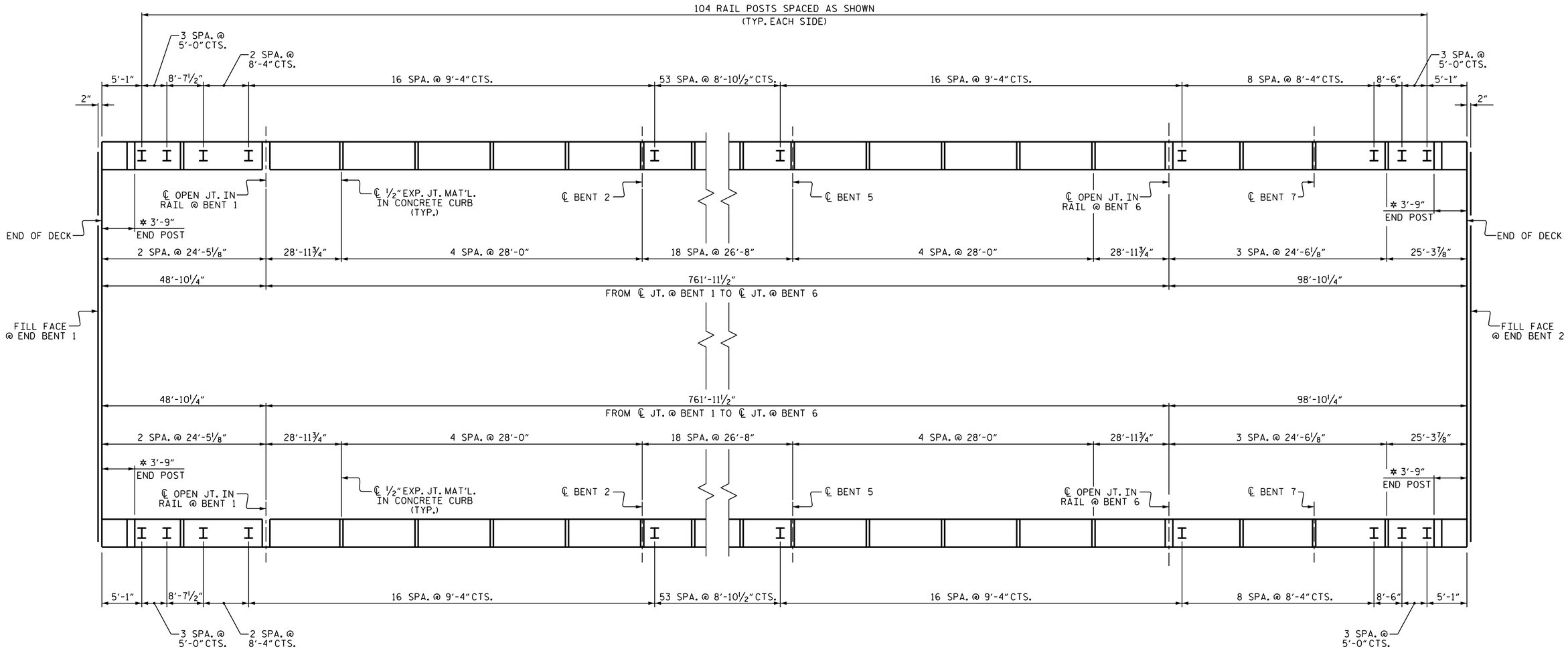
DocuSigned by:
804B544F2FAD484...
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-23
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 6/2017
CHECKED BY : H.A. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_050_4166550_SMU_0R2_110010.dgn
amlee



PLAN OF RAIL POST SPACINGS

FOR #5 A5 BARS AT POST ANCHOR ASSEMBLY LOCATIONS, SEE "1'-9" X 8½" CONCRETE CURB DETAILS" SHEET.

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

RAIL POST SPACINGS
FOR 42" OREGON RAIL

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

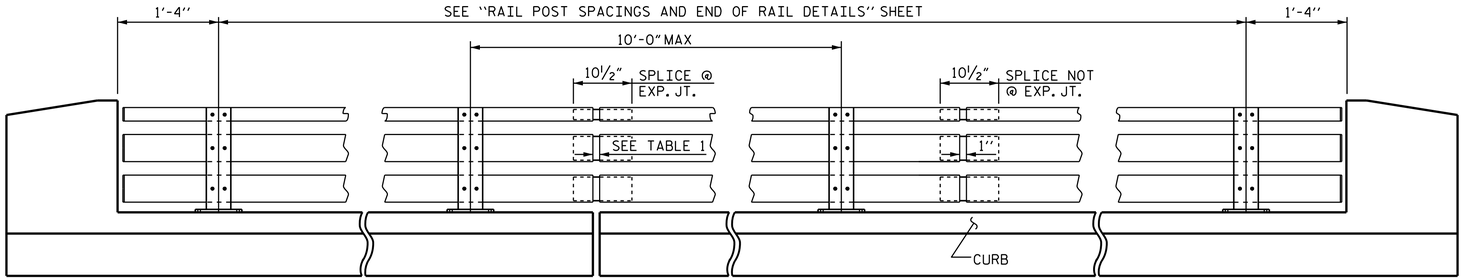
DocuSigned by: Amber Lee
804B5A4F2FAD484...
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-24
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 6/2017
CHECKED BY : H.A. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

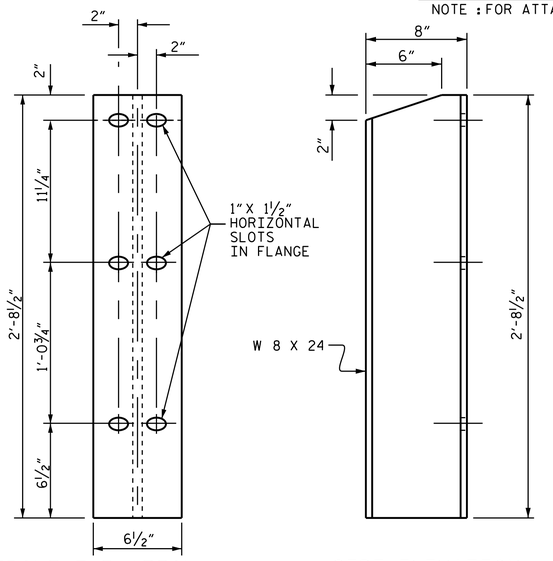
10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_051_416655D_SMU_0R3_110010.dgn
amlee



ELEVATION

NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR11.

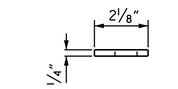
TABLE 1	
℄ EXP. JT. @	RAIL OPENING
BENT 1	3 3/16"
BENT 6	3 3/8"



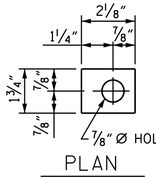
FRONT ELEVATION

SIDE ELEVATION

DETAILS OF POST

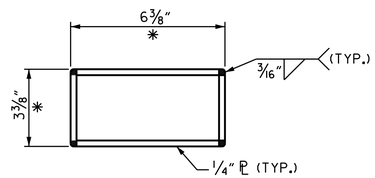


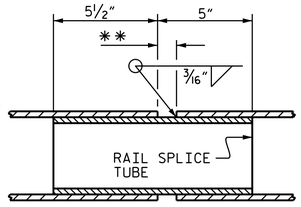
ELEVATION



PLAN

PLATE WASHER

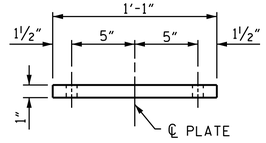




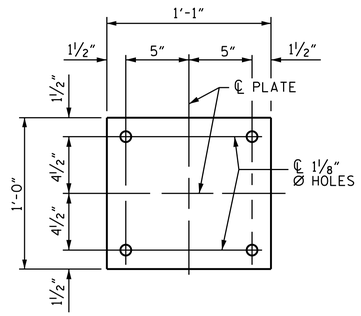
RAIL SPLICE DETAILS

* - DIMENSION AFTER GRINDING RADIUS ON CORNERS TO MATCH INSIDE OF METAL RAIL. GRIND ALL EDGES PRIOR TO GALVANIZING TO ASSURE FIT.

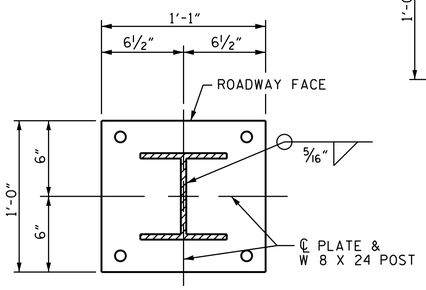
** -1" FOR SPLICE NOT AT EXPANSION JOINT; SEE TABLE 1 FOR OPENING FOR SPLICES AT EXPANSION JOINTS.



FRONT ELEVATION

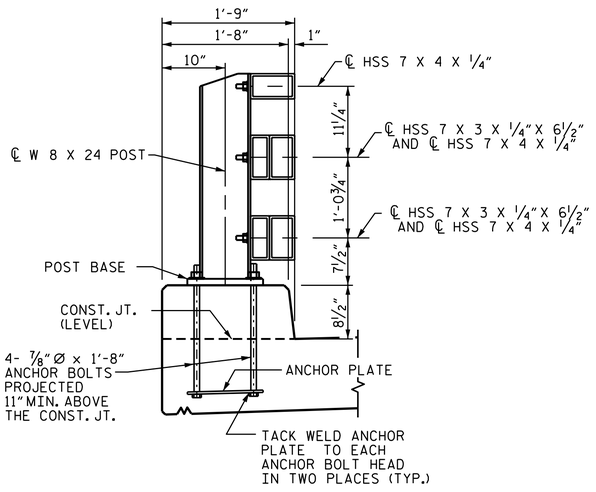


PLAN

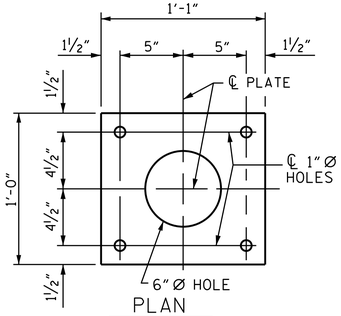


POST ATTACHMENT DETAIL

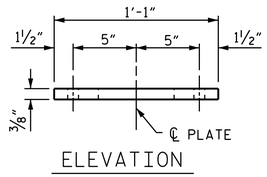
POST BASE DETAILS



SECTION THRU RAIL



PLAN



ELEVATION

ANCHOR PLATE DETAILS

NOTES

METAL RAIL SHALL BE GALVANIZED STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL NOTES AND THE FOLLOWING SPECIFICATIONS. ALUMINUM RAIL WILL NOT BE AN OPTION.

GALVANIZED STEEL RAILS

MATERIAL AND GALVANIZING ARE TO CONFORM TO THE FOLLOWING SPECIFICATIONS:

POST, POST BASES, ANCHOR PLATES, AND RAIL SPLICE TUBES: AASHTO M270 GRADE 36 STRUCTURAL STEEL-GALVANIZED TO AASHTO M111.

THE CUT ENDS OF GALVANIZED STEEL RAILING, AFTER GRINDING SMOOTH SHALL BE GIVEN TWO COATS OF ZINC RICH PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION MIL-P-26915 USAF TYPE 1, OR OF FEDERAL SPECIFICATIONS TT-P-641.

RAILS: ASTM A500 GRADE B - GALVANIZED TO AASHTO M111.

WELDED RAIL STUDS: ASTM A108-GALVANIZED TO AASHTO M111.

HIGH STRENGTH ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 GRADE 105. HEAVY HEX NUTS SHALL CONFORM TO ASTM A563 DH, AND WASHERS TO ASTM F436, TYPE 1. NUTS AND WASHERS SHALL BE GALVANIZED TO AASHTO M111.

GENERAL NOTES

RAILING SHALL BE CONTINUOUS FROM END POST TO END POST OF BRIDGE. EACH JOINT IN RAIL LENGTH SHALL BE SPLICED AS DETAILED. PANEL LENGTHS OF RAIL SHALL BE ATTACHED TO A MINIMUM OF THREE POSTS.

FOR END OF RAIL TO CLEAR FACE OF CONCRETE END POST DIMENSION, SEE STANDARD NO. BMR11.

CERTIFIED MILL REPORTS ARE REQUIRED FOR RAILS AND POSTS. SHOP INSPECTION IS NOT REQUIRED.

METAL RAIL POSTS SHALL BE SET NORMAL TO CURB GRADE.

CURVED RAIL USAGE: WHERE RAILS ARE TO BE USED ON BRIDGES ON HORIZONTAL AND/OR VERTICAL CURVATURE THE CONTRACTOR MAY, AT HIS OPTION, HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. IN EITHER EVENT, THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

TO INSURE FUTURE IDENTIFICATION OF THE FABRICATOR, A PERMANENT IDENTIFYING MARK SHALL BE PLACED ON EACH POST. THE METHOD OF MARKING AND LOCATION SHALL BE SUCH THAT IT DOES NOT DETRACT FROM THE APPEARANCE OF THE POST, BUT REMAINS VISIBLE AFTER RAIL PLACEMENT.

SHIMS SHALL BE USED AS NECESSARY FOR POST ALIGNMENT.

GROOVED CONTRACTION JOINTS, ½" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE CURB AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN CURB EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF CURB SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

THE RAIL SECTIONS SHALL BE ATTACHED TO THE POSTS BY TWO THREADED ¾" Ø WELDED STUDS, PLATE WASHERS, LOCKWASHERS, AND NUTS.

FOR 42" OREGON RAIL, SEE THE SPECIAL PROVISIONS.

PAY LENGTH 1819.33 LIN. FT.

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

42" OREGON RAIL

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber M. Lee 804B5A4F2FAD484...

1/10/2018

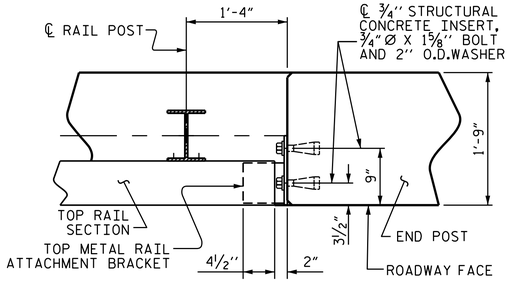
ASSEMBLED BY : T.L. AVERETTE	DATE : 6/2017
CHECKED BY : H.A. LOCKLEAR	DATE : 12/2017
DRAWN BY : RWW 7/14	ADDED 1/15
CHECKED BY : TMG 7/14	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

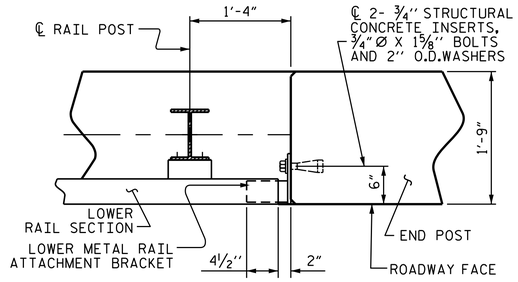
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25
1			3			TOTAL SHEETS
2			4			39

10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_053_416655D_SMU_OR4_110010.dgn
amlee

STD. NO. BMR10



PLAN - TOP RAIL AND END POST



PLAN - LOWER RAIL AND END POST

NOTES

STRUCTURAL CONCRETE INSERT

EACH STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. FERRULE SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1½".

B. 1 - ¾" Ø X 1⅝" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE ¾" Ø X 1⅝" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUT SHOWN IN THE STRUCTURAL CONCRETE INSERT DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI. AS AN OPTION, A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

EACH METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS:

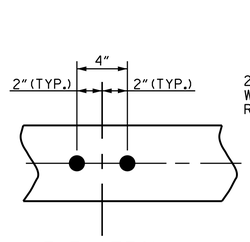
A. ½" METAL BRACKET PLATE AND ¼" METAL RAIL INSERT TUBE SHALL CONFORM TO AASHTO M270 GRADE 36 AND SHALL BE GALVANIZED AFTER FABRICATION TO AASHTO M111.

B. ¾" STRUCTURAL CONCRETE INSERTS SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 4800 LBS. THE FERRULES SHALL ENGAGE A ¾"Ø X 1⅝" BOLT WITH 2" O.D. WASHER IN PLACE. THE ¾"Ø X 1⅝" BOLT SHALL HAVE N. C. THREADS.

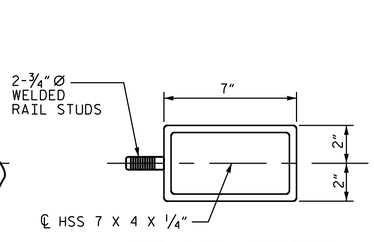
THE ¾" STRUCTURAL CONCRETE INSERTS WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP.

THE COST OF THE ¾" STRUCTURAL CONCRETE INSERT, THE ½" BRACKET PLATES, AND THE RAIL INSERT TUBES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

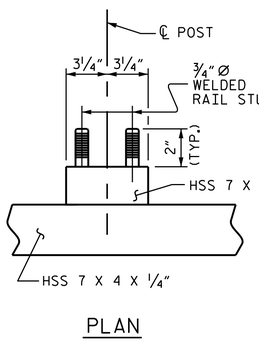
THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE ¾" Ø X 1⅝" BOLTS WITH WASHERS SHALL BE REPLACED WITH ¾" Ø X 6½" BOLTS AND 2" O.D. WASHERS. ALL SPECIFICATIONS THAT APPLY TO THE ¾" Ø X 1⅝" BOLTS SHALL APPLY TO THE ¾" Ø X 6½" BOLTS. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.



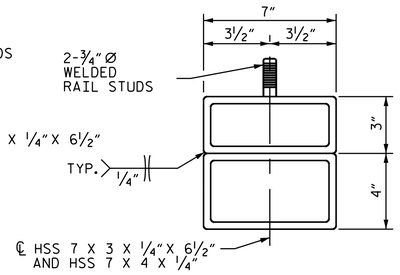
ELEVATION



TOP RAIL SECTION

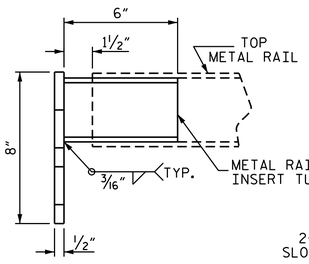


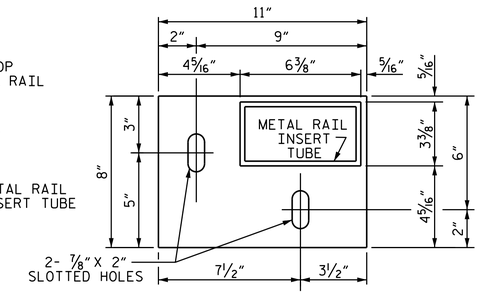
PLAN



SECTION OF LOWER RAILS

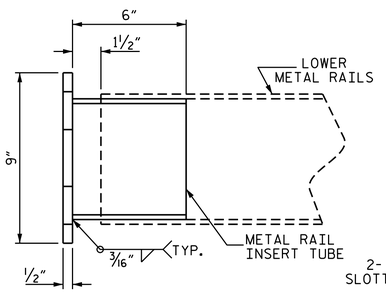
RAIL STUD DETAILS

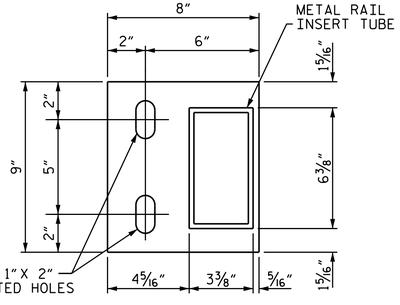




TOP METAL RAIL ATTACHMENT BRACKET

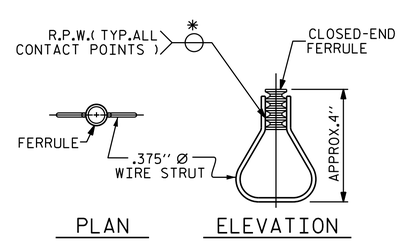
THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM ¼" PLATES.





LOWER METAL RAILS ATTACHMENT BRACKET

THE METAL RAIL INSERT TUBE SHALL BE FABRICATED FROM ¼" PLATES.



STRUCTURAL CONCRETE INSERT

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

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

END OF RAIL DETAILS
FOR 42" OREGON RAIL

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: B04B5A4F2FAD484...

1/10/2018

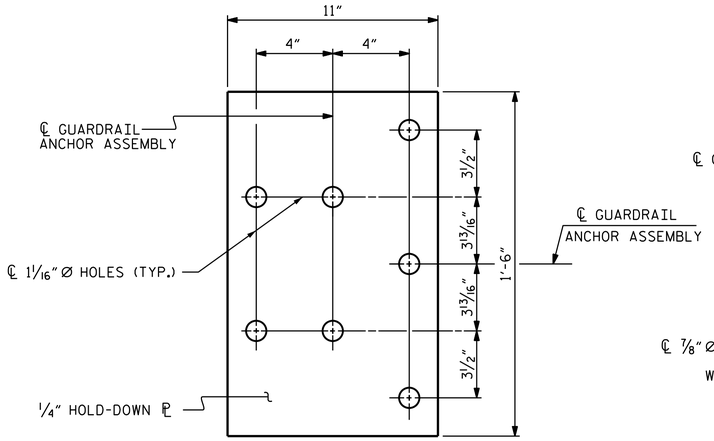
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-26
1			3			TOTAL SHEETS
2			4			39

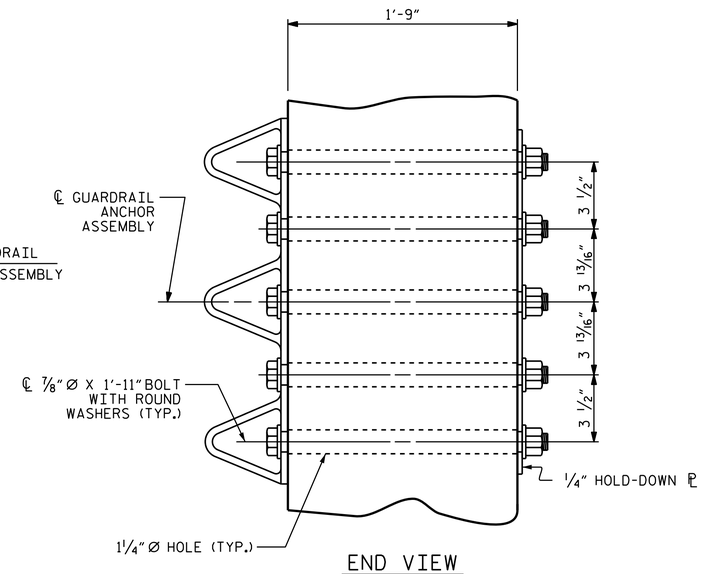
ASSEMBLED BY : T.L. AVERETTE	DATE : 6/2017
CHECKED BY : H.A. LOCKLEAR	DATE : 12/2017
DRAWN BY : RWW 7/14	ADDED 1/15
CHECKED BY : TMG 7/14	

10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_055_416655D_SMU_OR5_110010.dgn
amlee

STD. NO. BMR11



PLAN



END VIEW

GUARDRAIL ANCHOR ASSEMBLY DETAILS

NOTES

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

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

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

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

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

THE COST OF THE GUARDRAIL, GUARDRAIL END UNITS AND GUARDRAIL ANCHOR ASSEMBLIES WITH POSTS, BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

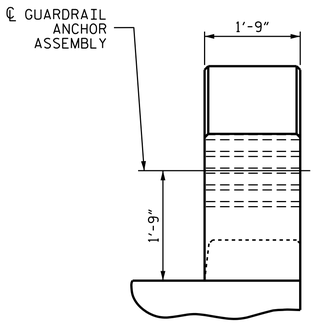
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE END POST TO CLEAR ASSEMBLY BOLTS.

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

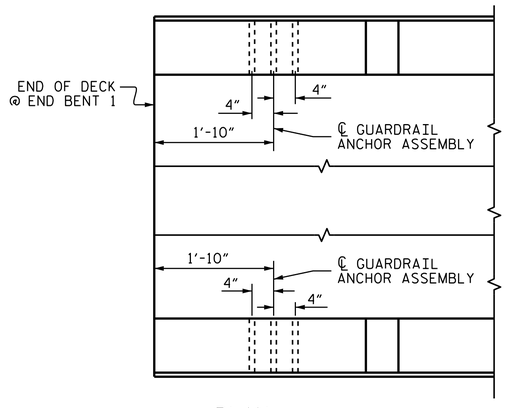
FOR GUARDRAIL DRAWINGS AND DETAILS, SEE THE 2018 ROADWAY STANDARD DRAWINGS.

SKETCH SHOWING POINTS OF ATTACHMENT

* LOCATION OF GUARDRAIL ATTACHMENT



END VIEW
(42" OREGON RAIL)



PLAN

LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. 41665.5D
BURKE COUNTY
BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
GUARDRAIL ANCHORAGE DETAILS FOR METAL TUBE RAILS

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Miller B04B5AAF2FAD484...
1/22/2018

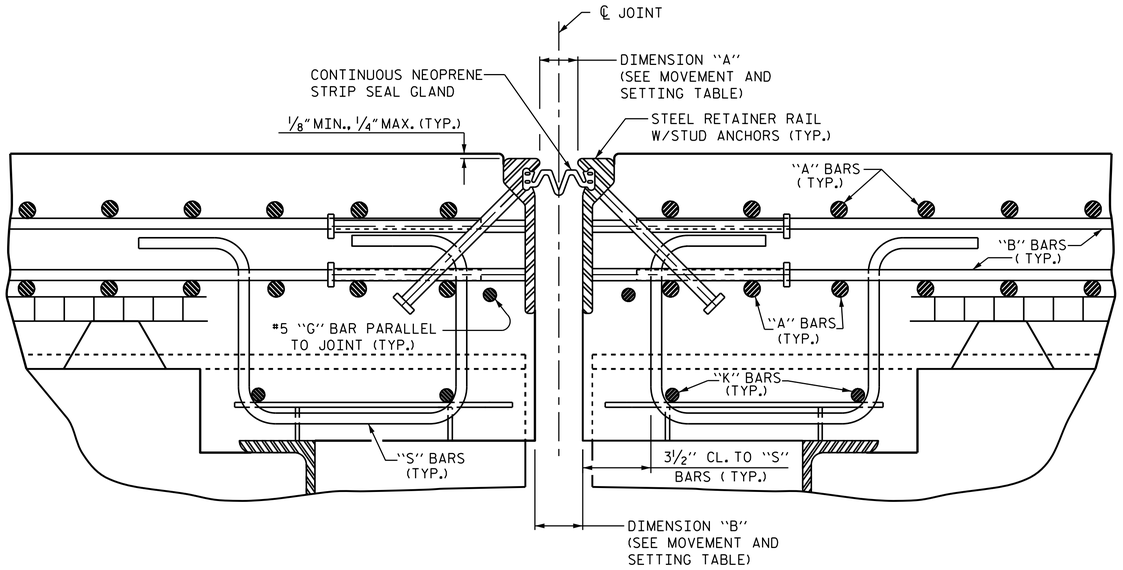
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : T.L. AVERETTE	DATE : 12/2017
CHECKED BY : H.A. LOCKLEAR	DATE : 12/2017
DRAWN BY : MAA 5/10	REV. 12/5/11 MAA/GM
CHECKED BY : GM 5/10	REV. 6/13 MAA/GM
	REV. 1/15 MAA/TMG

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			39

(SHT 3) STD. NO. GRA3

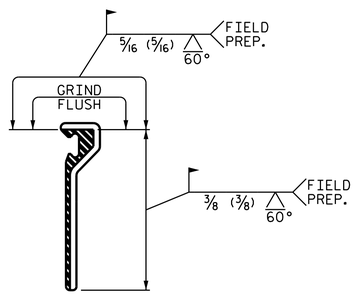
22-JAN-2018 13:29
R:\Structures\Final Plans\NOT STAGED\DGNs\401_057_4166550_SMU_OR6_110010.dgn
amlee



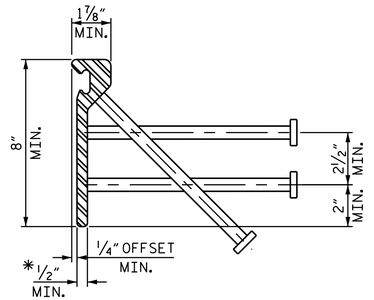
STRIP SEAL EXPANSION JOINT DETAILS

SECTION NORMAL TO JOINT -- STEEL SUPERSTRUCTURE

MOVEMENT AND SETTING TABLE								
LOCATION	SKEW ANGLE	TOTAL MOVEMENT (ALONG ℄ RDWY)	DIMENSION "A"			DIMENSION "B"		
			PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F	PERPENDICULAR JOINT OPENING AT 45° F	PERPENDICULAR JOINT OPENING AT 60° F	PERPENDICULAR JOINT OPENING AT 90° F
BENT 1	90°-00'-00"	3 3/8"	3 3/16"	2 11/16"	1 11/16"	3 11/16"	3 3/16"	2 3/16"
BENT 6	90°-00'-00"	3 3/4"	3 7/16"	2 7/8"	1 3/4"	3 15/16"	3 3/8"	2 1/4"

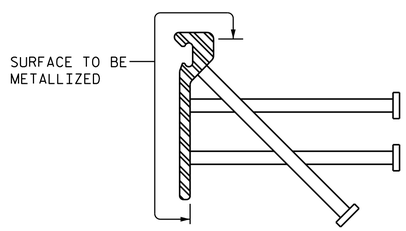


STEEL RETAINER RAIL (FIELD SPLICE DETAIL)



TYPICAL SECTION STEEL RETAINER RAIL

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



METALLIZING DETAIL

JOINT INSTALLATION PROCEDURE:

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

GENERAL NOTES

FOR STRIP SEALS, SEE SPECIAL PROVISIONS.

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

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

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

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

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

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

INSTALLED STEEL RETAINER RAILS SHALL FOLLOW THE ROADWAY SLOPE.

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

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

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

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 1 OF 2

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

Docusigned by: Amber Lee
B04B54AF2FAD484...
1/10/2018

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

STRIP SEAL EXPANSION JOINT DETAILS

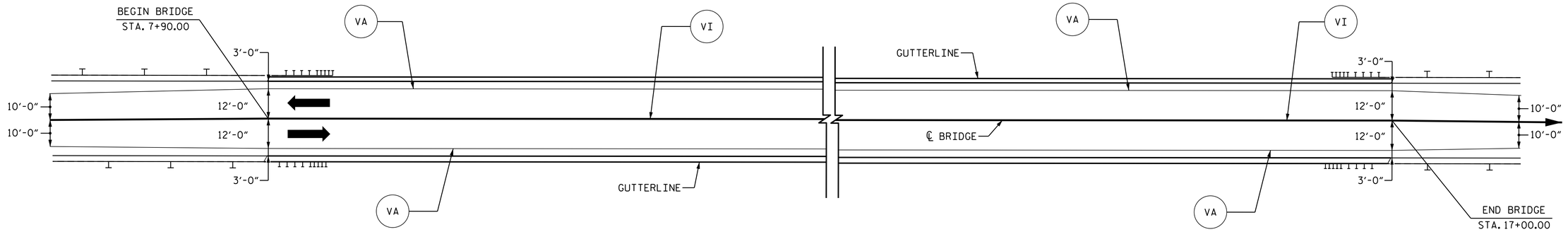
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			TOTAL SHEETS
2			4			39

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY :	HA LOCKLEAR	DATE :	9-2017
CHECKED BY :	A.A. COLE	DATE :	12-2017
DRAWN BY :	MAA 6/17		
CHECKED BY :	BNB 6/17		

10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_059_416655D_SMU_JSI_110010.dgn
amlee

STD. NO. SSEJ1

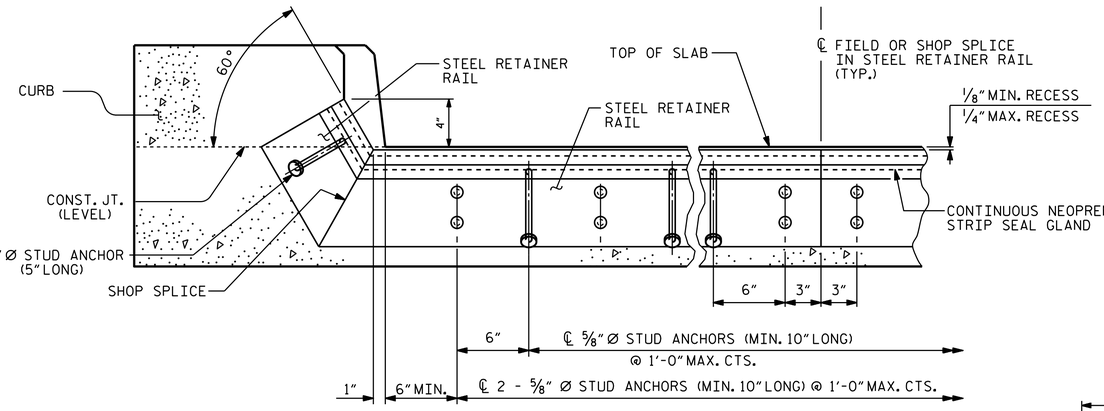


PAVEMENT MARKING ALIGNMENT

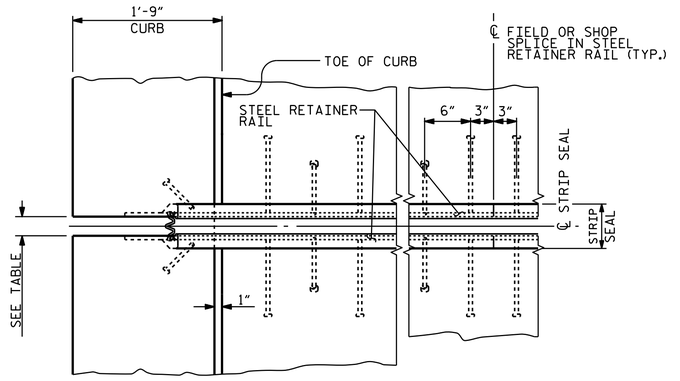
POLYUREA PAVEMENT MARKING
WITH HIGHLY REFLECTIVE MEDIA

(VA) WHITE EDGE LINE (4")

(VI) YELLOW DOUBLE CENTER (4")



SECTION THRU RAIL NORMAL TO JOINT



PLAN OF STRIP SEAL EXPANSION JOINT

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

SHEET 2 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD

STRIP SEAL EXPANSION JOINT DETAILS FOR CONCRETE CURB

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

Docusigned by: Amber Lee B04B54AF2FAD484...

1/10/2018

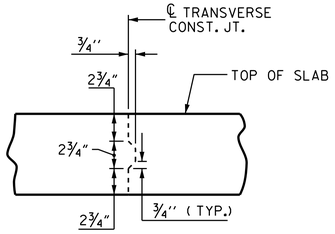
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-29
1			3			TOTAL SHEETS
2			4			39

ASSEMBLED BY :	HA LOCKLEAR	DATE :	9/2017
CHECKED BY :	A.A. COLE	DATE :	10/2017
DRAWN BY :	MAA	6/17	
CHECKED BY :	BNB	6/17	

10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_061_416655D_SMU_JS2_110010.dgn
amlee

STD. NO. SSEJS2



TRANSVERSE CONSTRUCTION JOINT DETAIL

NOTE: REINFORCING STEEL IN SLAB NOT SHOWN. LONGITUDINAL REINFORCING STEEL SHALL BE CONTINUOUS THRU JOINT.

SUPERSTRUCTURE BILL OF MATERIAL

	CLASS AA CONCRETE	REINFORCING STEEL	✱EPOXY COATED REINFORCING STEEL
	(CU. YDS.)	(LBS.)	(LBS.)
POUR #1	152.6		
POUR #2	214.9		
POUR #3	152.4		
POUR #4	159.6		
POUR #5	184.1		
POUR #6	13.4		
TOTAL ✱✱	877.0	96,673	98,922

✱✱QUANTITIES FOR CURB AND END POSTS ARE NOT INCLUDED

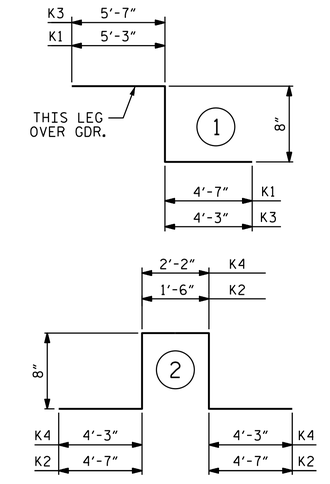
GROOVING BRIDGE FLOOR

BRIDGE DECK	24,505 SQ. FT.
TOTAL	24,505 SQ. FT.

REINFORCING STEEL BAR SCHEDULE

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱A1	1678	#5	STR	33'-2"	58047
A2	1678	#5	STR	33'-2"	58047
✱B1	50	#4	STR	25'-3"	843
✱B2	200	#4	STR	26'-2"	3496
✱B3	292	#5	STR	47'-3"	14390
✱B4	150	#4	STR	25'-0"	2505
✱B5	292	#5	STR	46'-3"	14086
✱B6	75	#4	STR	26'-0"	1303
✱B7	100	#4	STR	18'-10"	1258
✱B8	73	#5	STR	32'-0"	2436
B9	39	#5	STR	48'-0"	1952
B10	546	#5	STR	56'-5"	32128
B11	78	#5	STR	50'-3"	4088
B12	34	#4	STR	3'-2"	72
✱K1	8	#5	1	10'-6"	88
✱K2	8	#5	2	12'-0"	100
✱K3	8	#5	1	10'-6"	88
✱K4	8	#5	2	12'-0"	100
K5	8	#4	STR	17'-6"	187
K6	4	#6	STR	33'-2"	199
✱S1	84	#4	3	3'-3"	182
REINFORCING STEEL				LBS.	96,673
✱ EPOXY COATED REINFORCING STEEL				LBS.	98,922

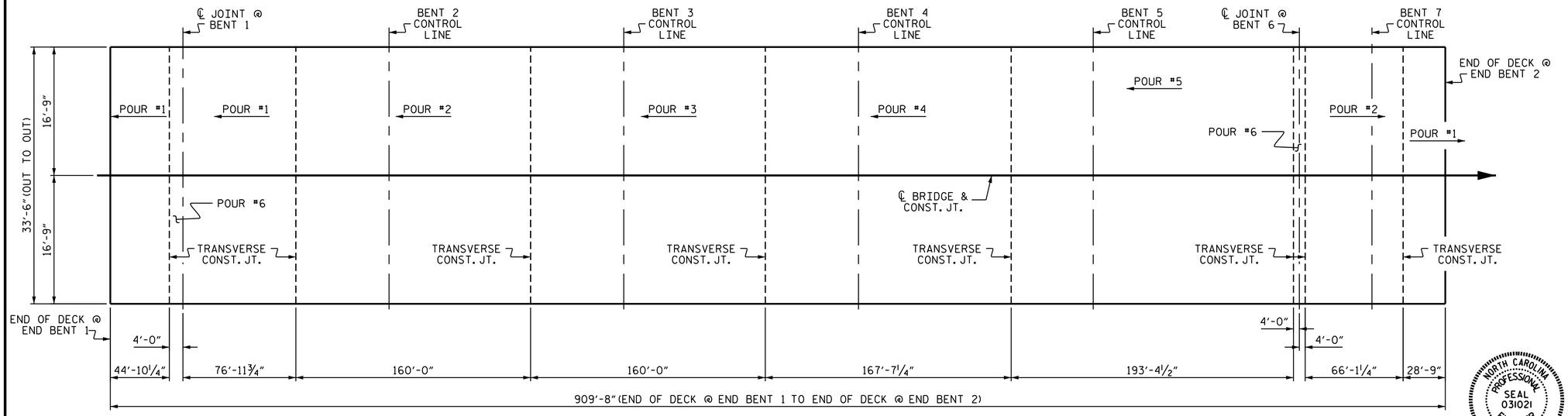
BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

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

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



CONCRETE POURING SEQUENCE AND LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB (SQ. FT. = 30,474)

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
BILL OF MATERIAL

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: 1/10/2018
B0485AAF2FAD484...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

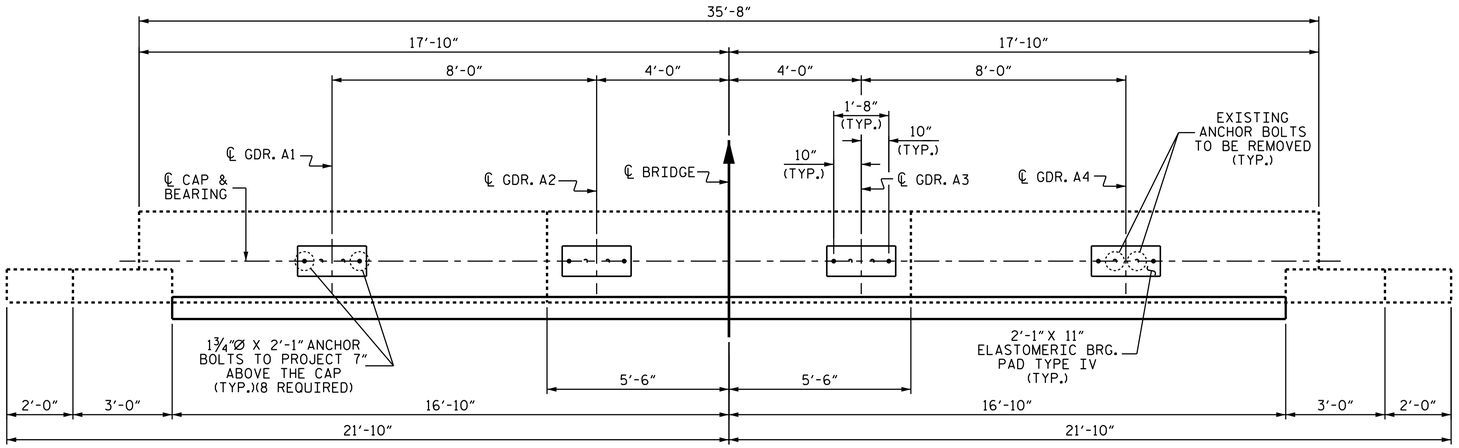
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-30
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : T.L. AVERETTE DATE : 07-17
CHECKED BY : H.A. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H.A. LOCKLEAR DATE : 12/2017

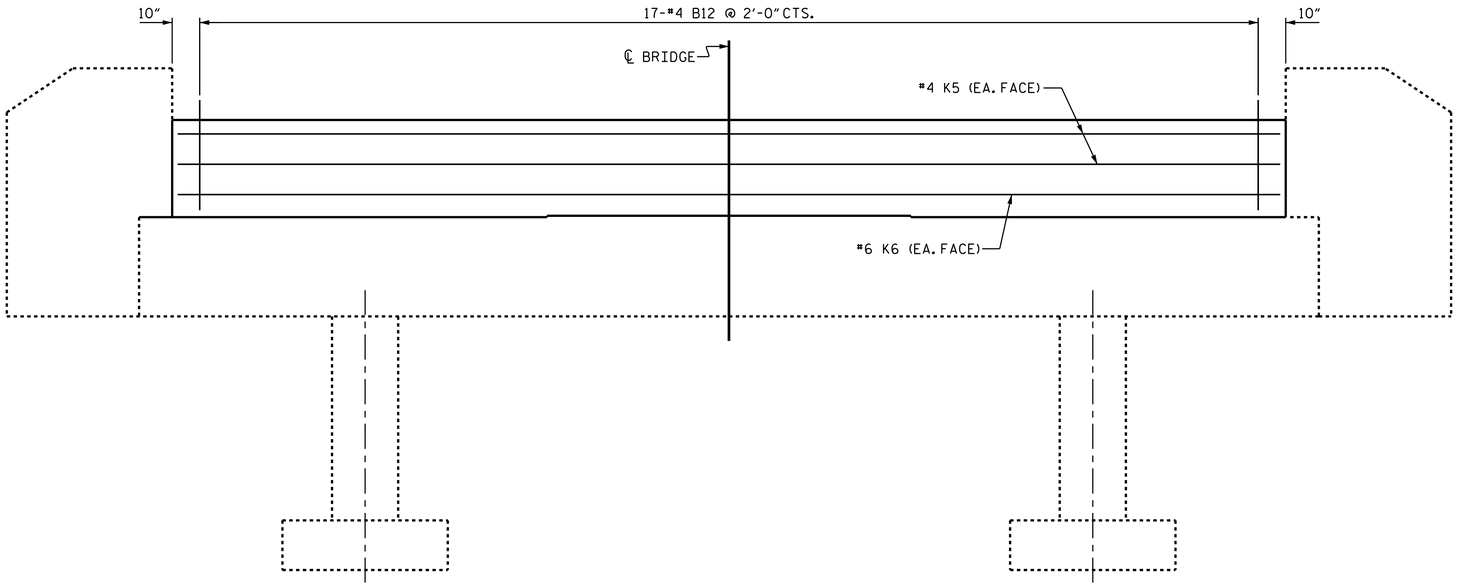
10-JAN-2018 13:21
R:\Structures\FinalPlans\NOT STAGED\DGNs\401_063_416655D_SMU_ BM_110010.dgn
amlee

NOTES

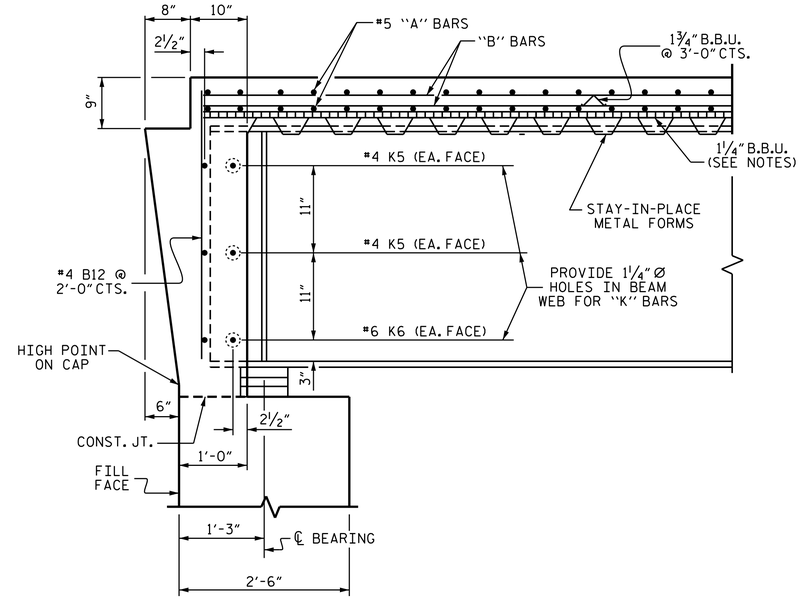
REMOVE EXISTING ANCHOR BOLTS BY CUTTING THEM FLUSH WITH THE TOP OF CAP. APPLY EPOXY PROTECTIVE COATING TO TOP OF CUT ANCHOR BOLTS.



PLAN



ELEVATION



END OF GIRDER DETAIL AT END BENT

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 1

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
B04B5A4F2FAD484...

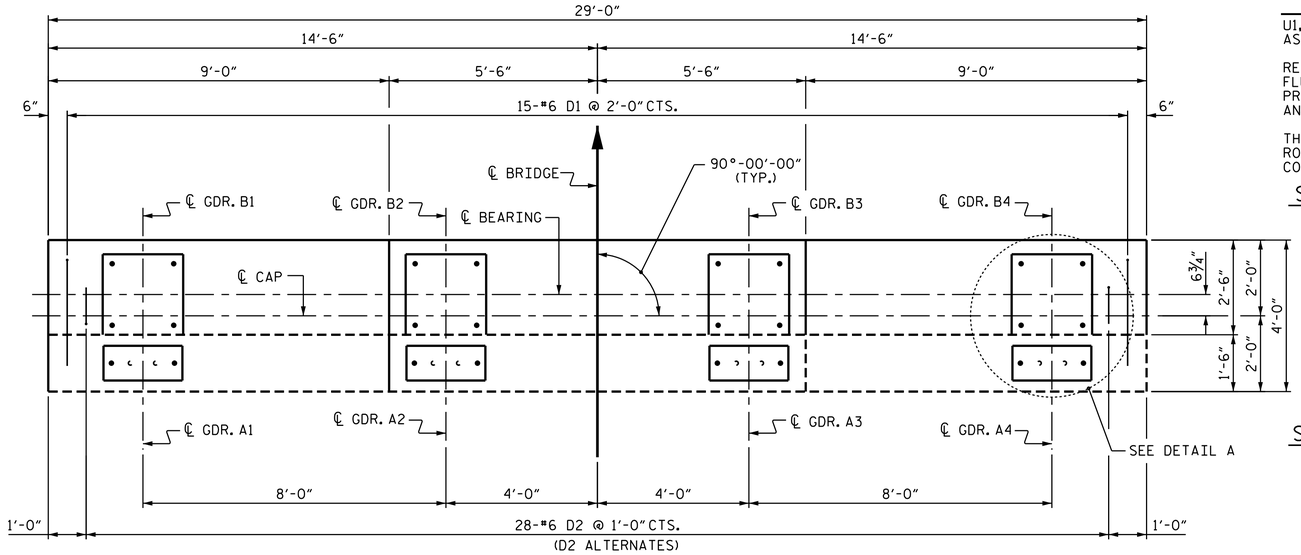
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-31
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : A. SORSENGINH DATE : 12/2017
CHECKED BY : H. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H. LOCKLEAR DATE : 12/2017

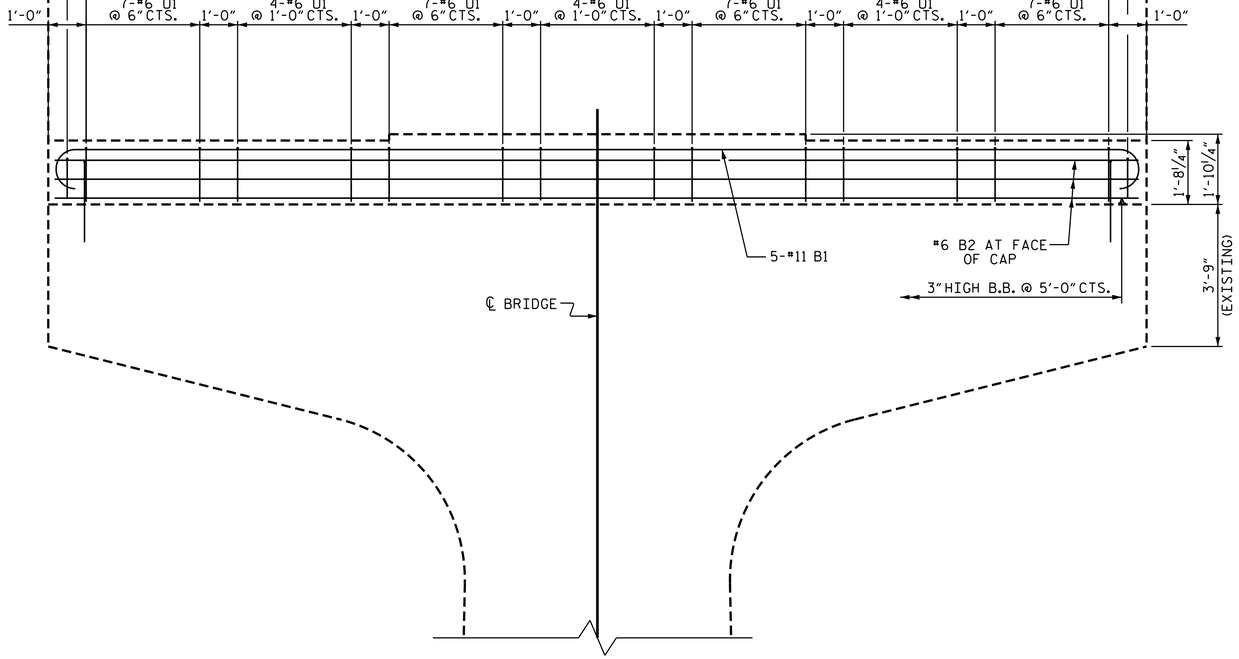
10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_065_416655D_SMU_E1_110010.dgn
amlee



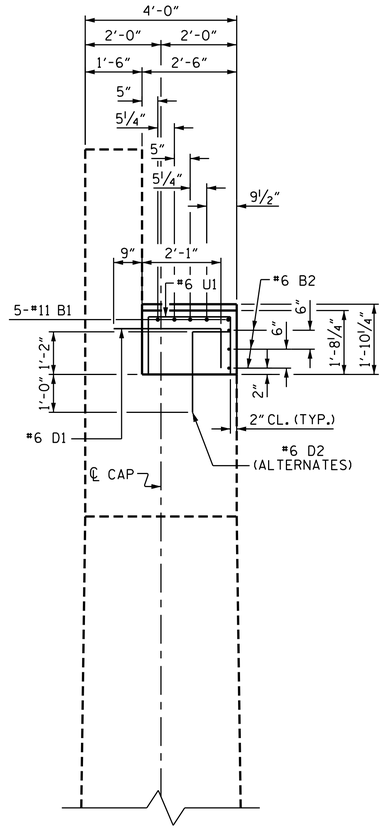
SPAN B

SPAN A

PLAN OF CAP



ELEVATION



END VIEW

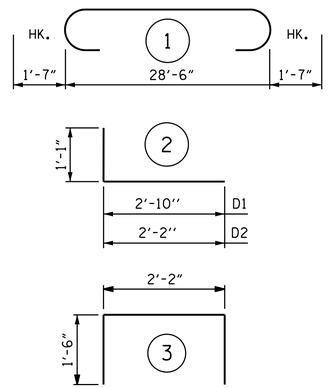
NOTES

U1, D1 AND D2 BARS IN BENT CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

REMOVE EXISTING ANCHOR BOLTS BY CUTTING THEM FLUSH WITH THE TOP OF CAP. APPLY EPOXY PROTECTIVE COATING TO THE TOP OF THE CUT ANCHOR BOLTS.

THE TOP OF THE EXISTING BENT CAP SHALL BE ROUGHENED TO PROMOTE BOND WITH THE NEW CONCRETE.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	5	11	1	31'-8"	841
B2	3	6	STR	28'-7"	129
D1	15	6	2	3'-11"	88
D2	28	6	2	3'-3"	137
U1	40	6	3	5'-2"	310

REINFORCING STEEL 1505 LBS.

CLASS AA CONCRETE BREAKDOWN:

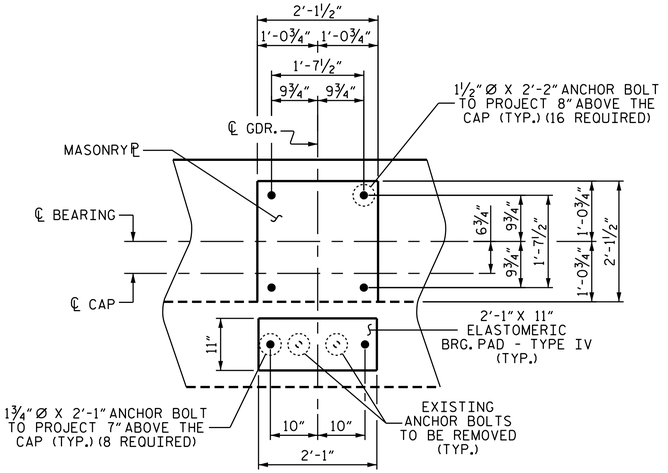
CAP 4.7 C.Y.

TOTAL 4.7 C.Y.

EPOXY COATING AND DEBRIS REMOVAL:

CAP 240.0 SQ. FT.

TOTAL 240.0 SQ. FT.



DETAIL A

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 1

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B54AF2FAD484...

1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-32
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : A. SORSENGINH DATE : 12/2017

CHECKED BY : H. LOCKLEAR DATE : 12/2017

DESIGN ENGINEER OF RECORD: H. LOCKLEAR DATE : 12/2017

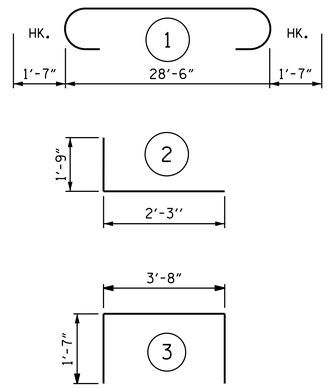
10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_067_4166550_SMU_B1_110010.dgn
amlee

NOTES

U1 AND D1 BARS IN BENT CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

THE TOP OF THE EXISTING BENT CAP SHALL BE ROUGHENED TO PROMOTE BOND WITH THE NEW CONCRETE.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

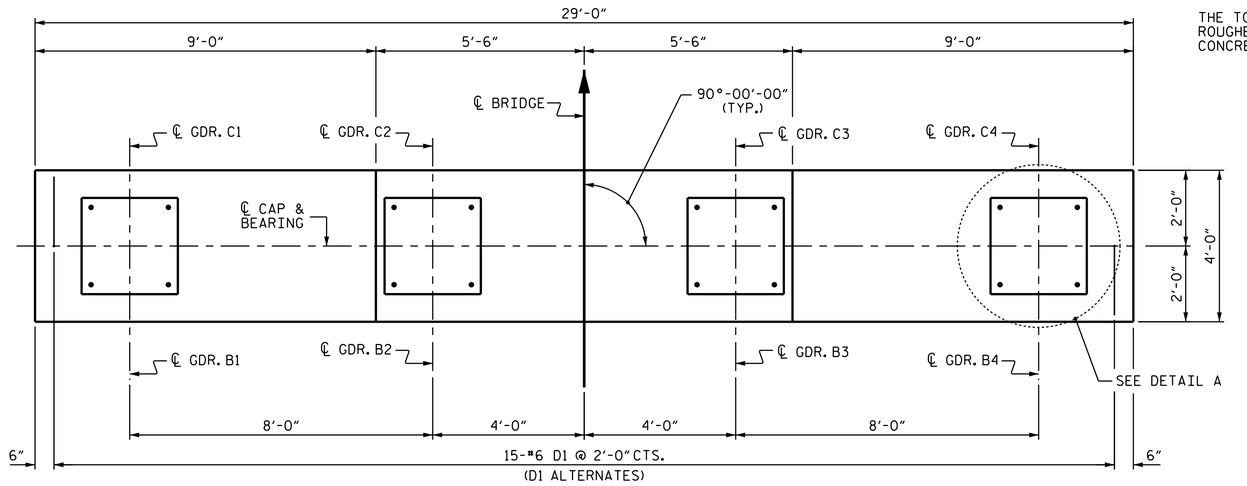
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	9	11	1	31'-8"	1514
B2	6	6	STR	28'-7"	258
D1	15	6	2	4'-0"	90
U1	40	6	3	6'-10"	411

REINFORCING STEEL 2273 LBS.

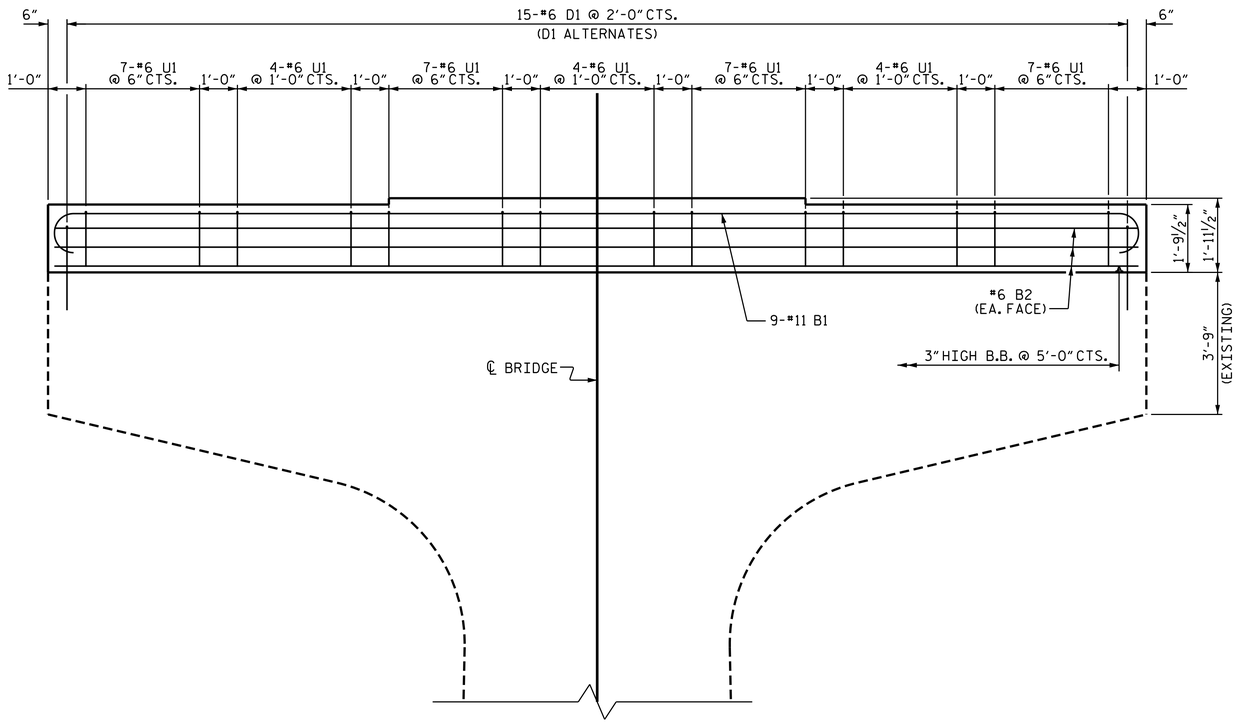
CLASS AA CONCRETE BREAKDOWN:

CAP 8.0 C.Y.

TOTAL 8.0 C.Y.



PLAN OF CAP



ELEVATION

END VIEW

DETAIL A

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 2

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
804B5A4F2FAD484...

1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-33
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : A. SORSENGINH DATE : 12/2017

CHECKED BY : H. LOCKLEAR DATE : 12/2017

DESIGN ENGINEER OF RECORD: H. LOCKLEAR DATE : 12/2017

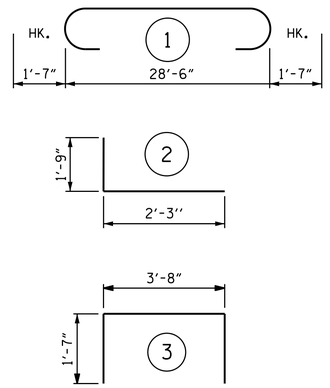
10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_069_416655D_SMU_B2_110010.dgn
amlee

NOTES

U1 AND D1 BARS IN BENT CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

THE TOP OF THE EXISTING BENT CAP SHALL BE ROUGHENED TO PROMOTE BOND WITH THE NEW CONCRETE.

BAR TYPES



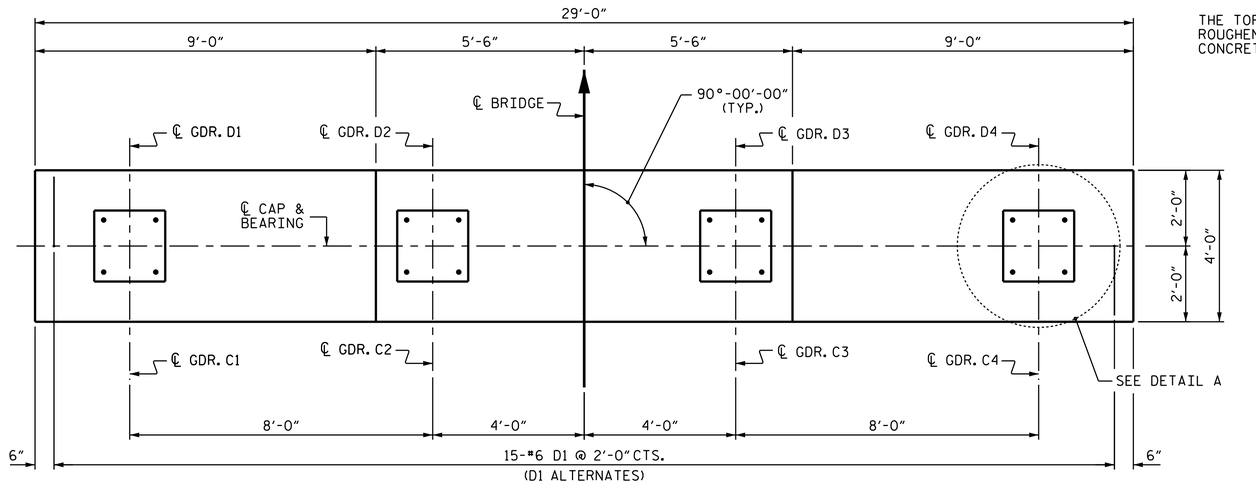
ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

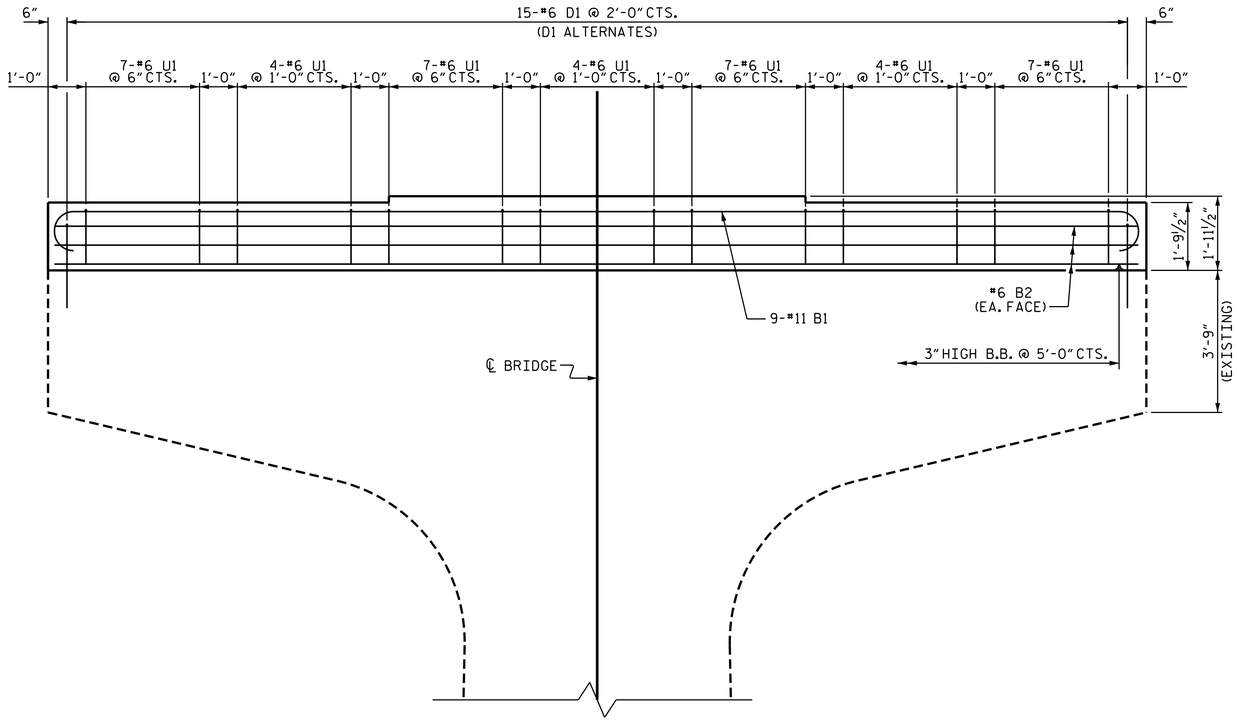
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	9	11	1	31'-8"	1514
B2	6	6	STR	28'-7"	258
D1	15	6	2	4'-0"	90
U1	40	6	3	6'-10"	411
REINFORCING STEEL					2273 LBS.

CLASS AA CONCRETE BREAKDOWN:

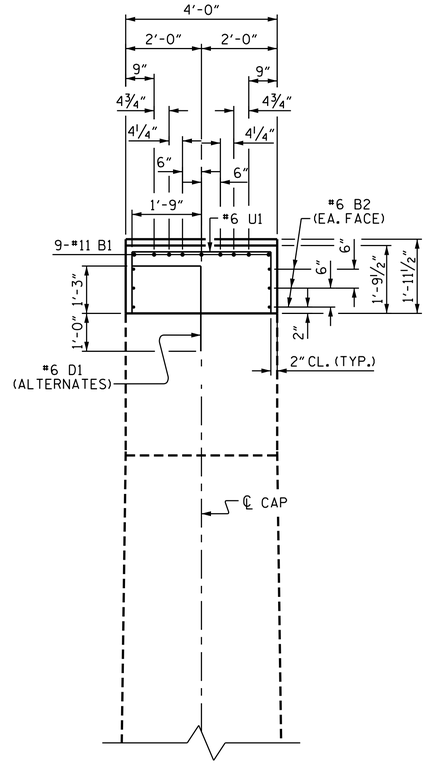
CAP	8.0 C.Y.
TOTAL	8.0 C.Y.



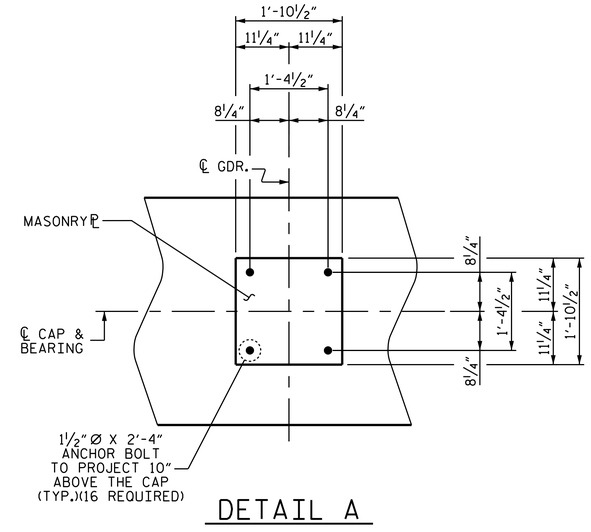
PLAN OF CAP



ELEVATION



END VIEW



DETAIL A

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 3

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
804B5A4F2FAD484...
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-34
1			3			TOTAL SHEETS
2			4			39

DRAWN BY :	A. SORSENGINH	DATE : 12/2017
CHECKED BY :	H. LOCKLEAR	DATE : 12/2017
DESIGN ENGINEER OF RECORD:	H. LOCKLEAR	DATE : 12/2017

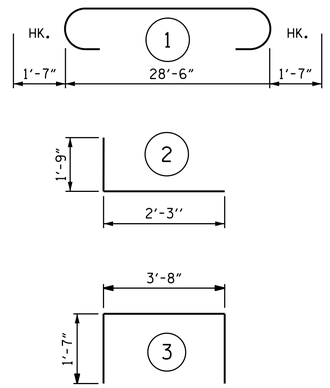
10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_071_416655D_SMU_B3_110010.dgn
amlee

NOTES

U1 AND D1 BARS IN BENT CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

THE TOP OF THE EXISTING BENT CAP SHALL BE ROUGHENED TO PROMOTE BOND WITH THE NEW CONCRETE.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

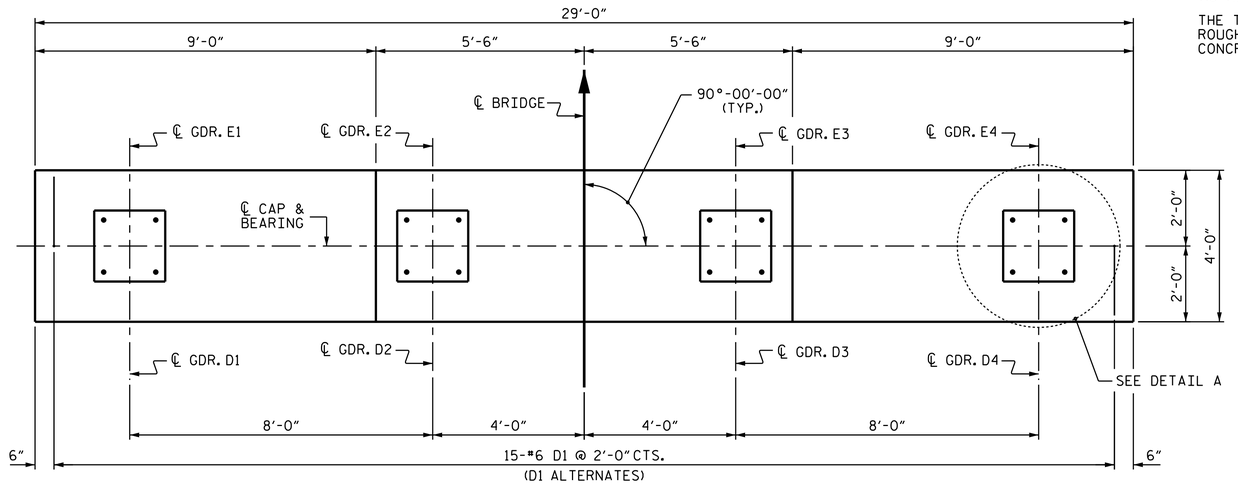
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	9	11	1	31'-8"	1514
B2	6	6	STR	28'-7"	258
D1	15	6	2	4'-0"	90
U1	40	6	3	6'-10"	411

REINFORCING STEEL 2273 LBS.

CLASS AA CONCRETE BREAKDOWN:

CAP 8.0 C.Y.

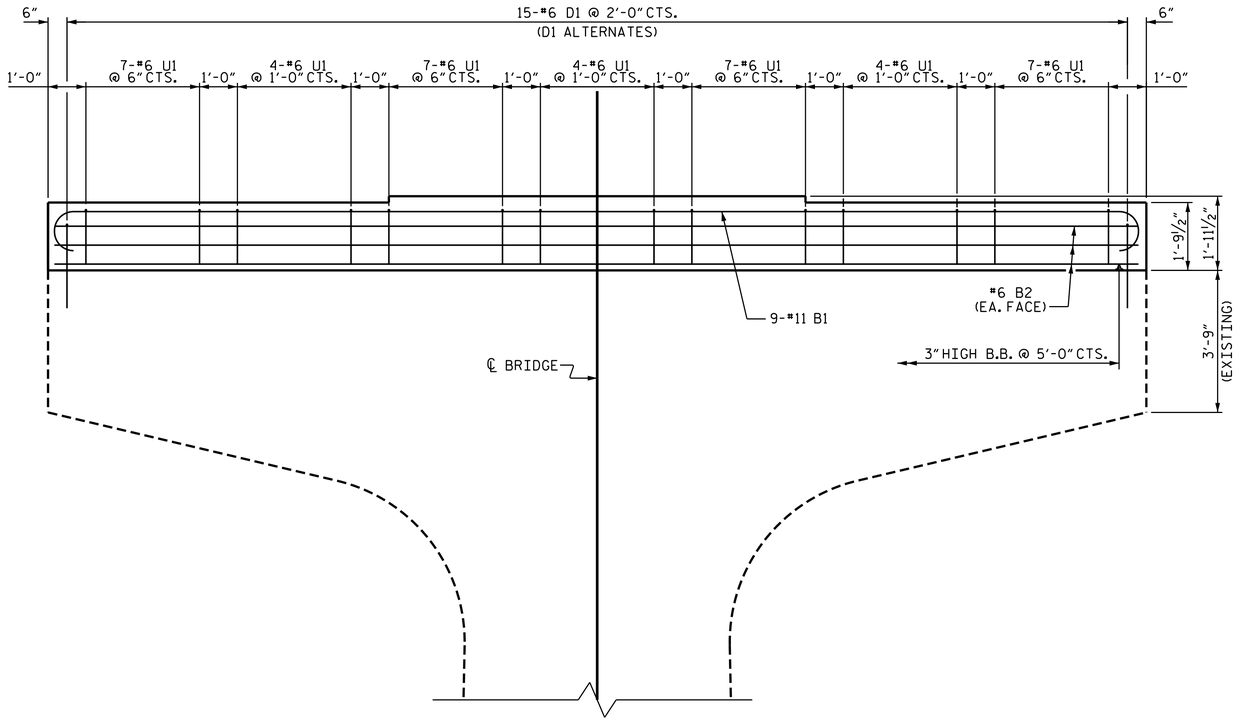
TOTAL 8.0 C.Y.



SPAN E

SPAN D

PLAN OF CAP



ELEVATION

END VIEW

DETAIL A

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 4

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee B04B5A4F2FAD484...

1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			39

DRAWN BY :	A. SORSENGINH	DATE : 12/2017
CHECKED BY :	H. LOCKLEAR	DATE : 12/2017
DESIGN ENGINEER OF RECORD:	H. LOCKLEAR	DATE : 12/2017

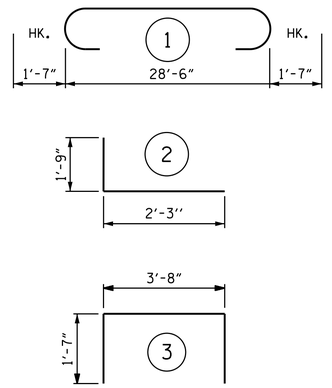
10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_073_416655D_SMU_B4_110010.dgn
amlee

NOTES

U1 AND D1 BARS IN BENT CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

THE TOP OF THE EXISTING BENT CAP SHALL BE ROUGHENED TO PROMOTE BOND WITH THE NEW CONCRETE.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

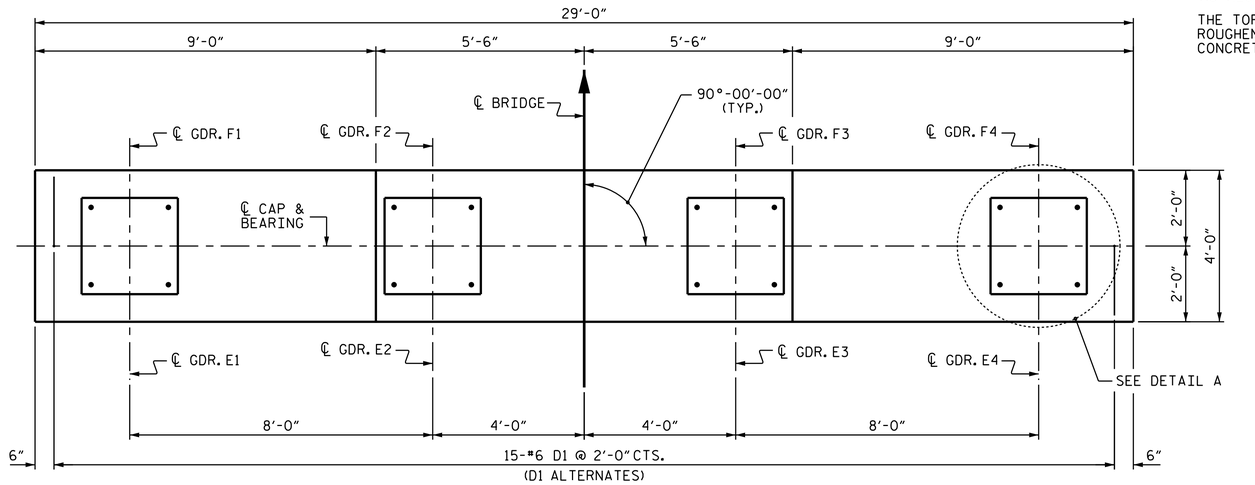
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	9	11	1	31'-8"	1514
B2	6	6	STR	28'-7"	258
D1	15	6	2	4'-0"	90
U1	40	6	3	6'-10"	411

REINFORCING STEEL 2273 LBS.

CLASS AA CONCRETE BREAKDOWN:

CAP 8.0 C.Y.

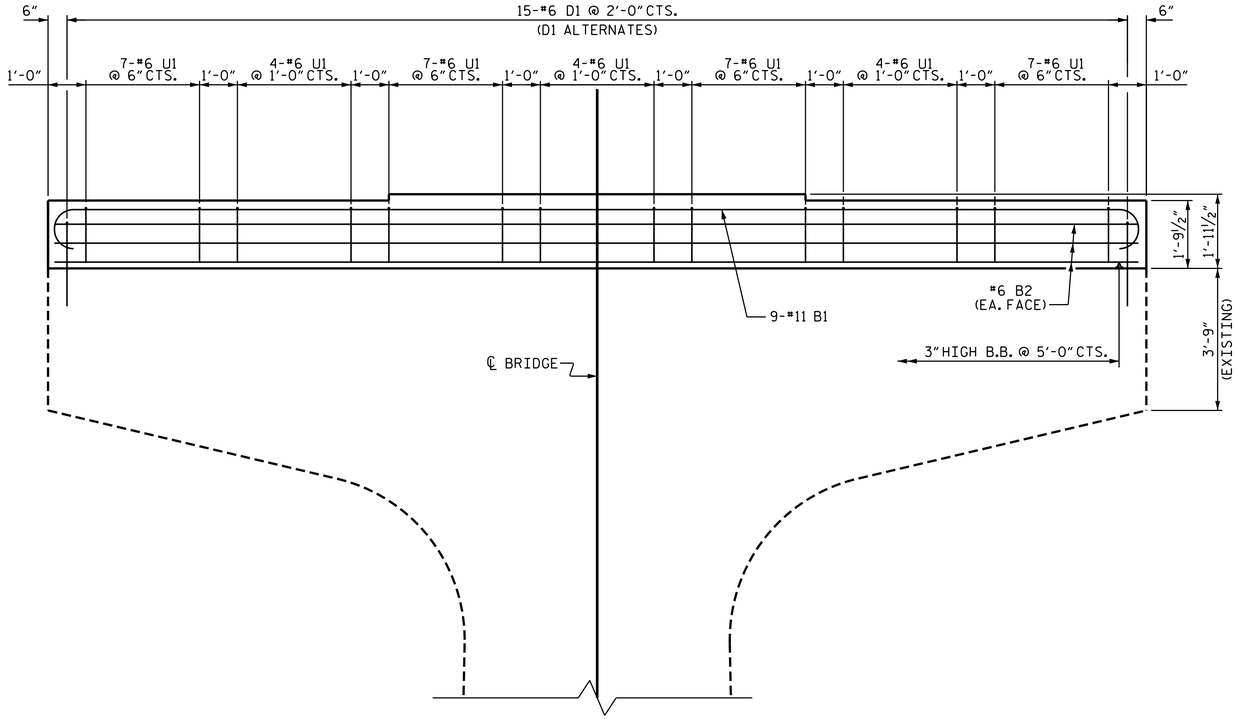
TOTAL 8.0 C.Y.



SPAN F

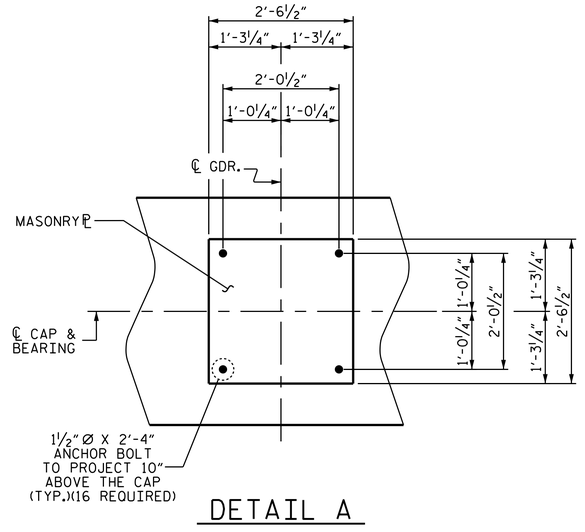
SPAN E

PLAN OF CAP



ELEVATION

END VIEW



DETAIL A

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 5

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
804B5A4F2FAD484...

1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

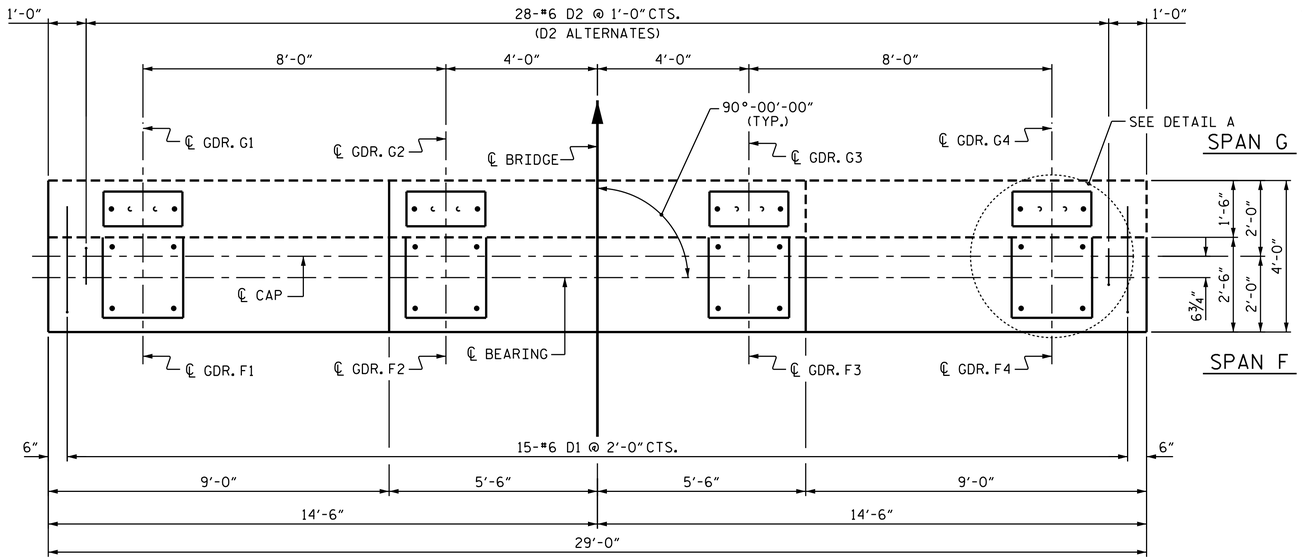
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-36
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : A. SORSENGINH DATE : 12/2017

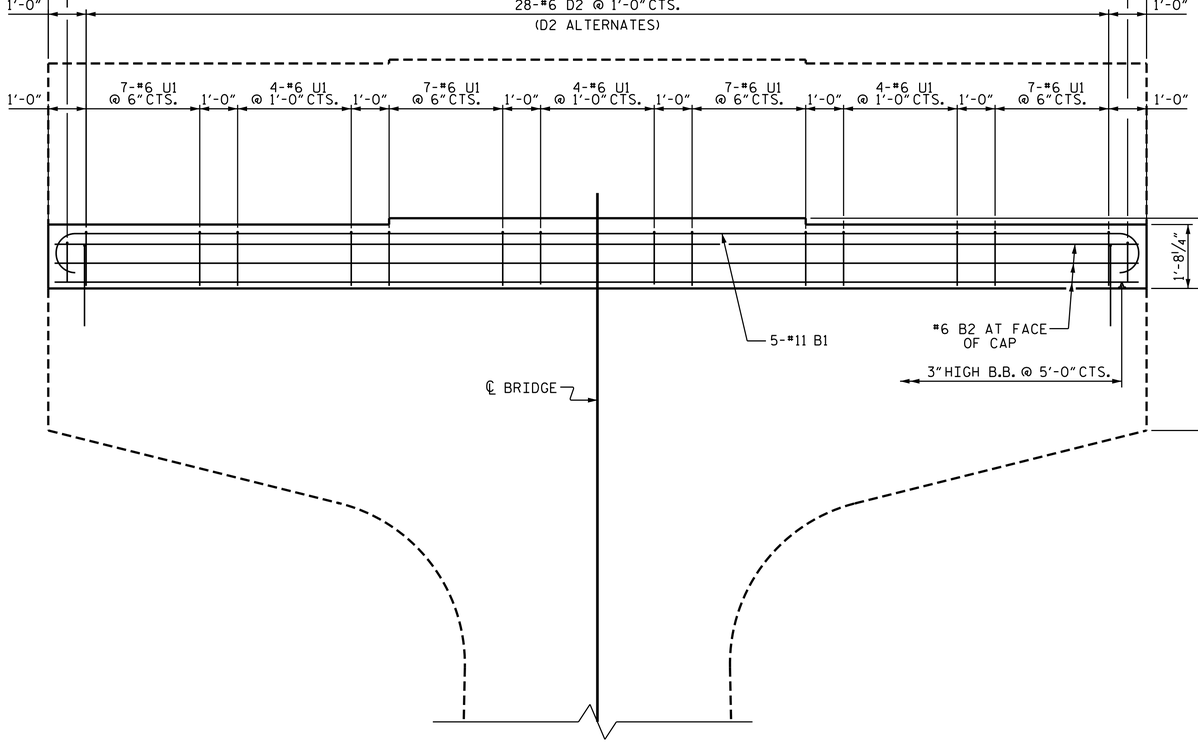
CHECKED BY : H. LOCKLEAR DATE : 12/2017

DESIGN ENGINEER OF RECORD: H. LOCKLEAR DATE : 12/2017

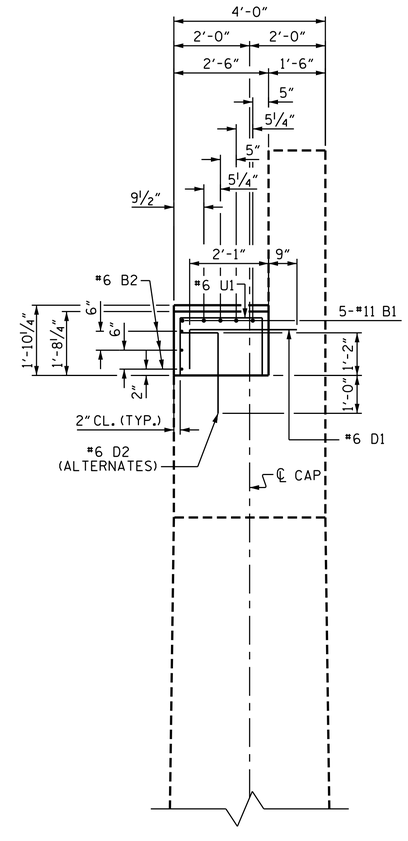
10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_075_416655D_SMU_B5_110010.dgn
amlee



PLAN OF CAP



ELEVATION



END VIEW

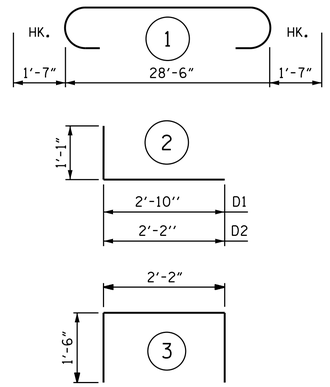
NOTES

U1, D1 AND D2 BARS IN BENT CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

REMOVE EXISTING ANCHOR BOLTS BY CUTTING THEM FLUSH WITH THE TOP OF CAP. APPLY EPOXY PROTECTIVE COATING TO THE TOP OF THE CUT ANCHOR BOLTS.

THE TOP OF THE EXISTING BENT CAP SHALL BE ROUGHENED TO PROMOTE BOND WITH THE NEW CONCRETE.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	5	11	1	31'-8"	841
B2	3	6	STR	28'-7"	129
D1	15	6	2	3'-11"	88
D2	28	6	2	3'-3"	137
U1	40	6	3	5'-2"	310

REINFORCING STEEL 1505 LBS.

CLASS AA CONCRETE BREAKDOWN:

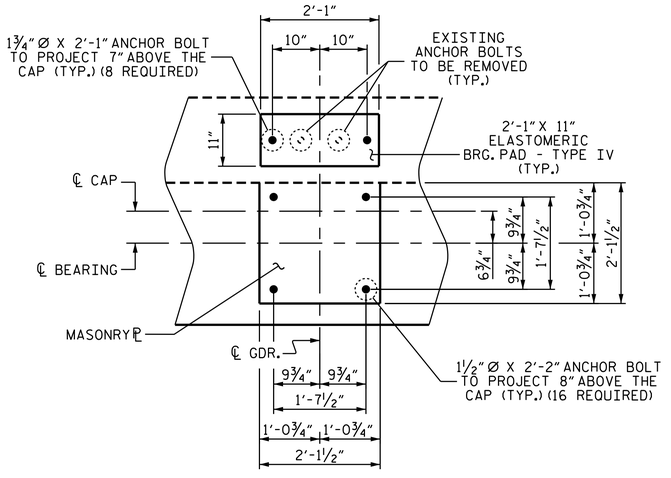
CAP 4.7 C.Y.

TOTAL 4.7 C.Y.

EPOXY COATING AND DEBRIS REMOVAL:

CAP 240.0 SQ. FT.

TOTAL 240.0 SQ. FT.



DETAIL A

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 6

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: Amber Lee
804B544F2FAD484...
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

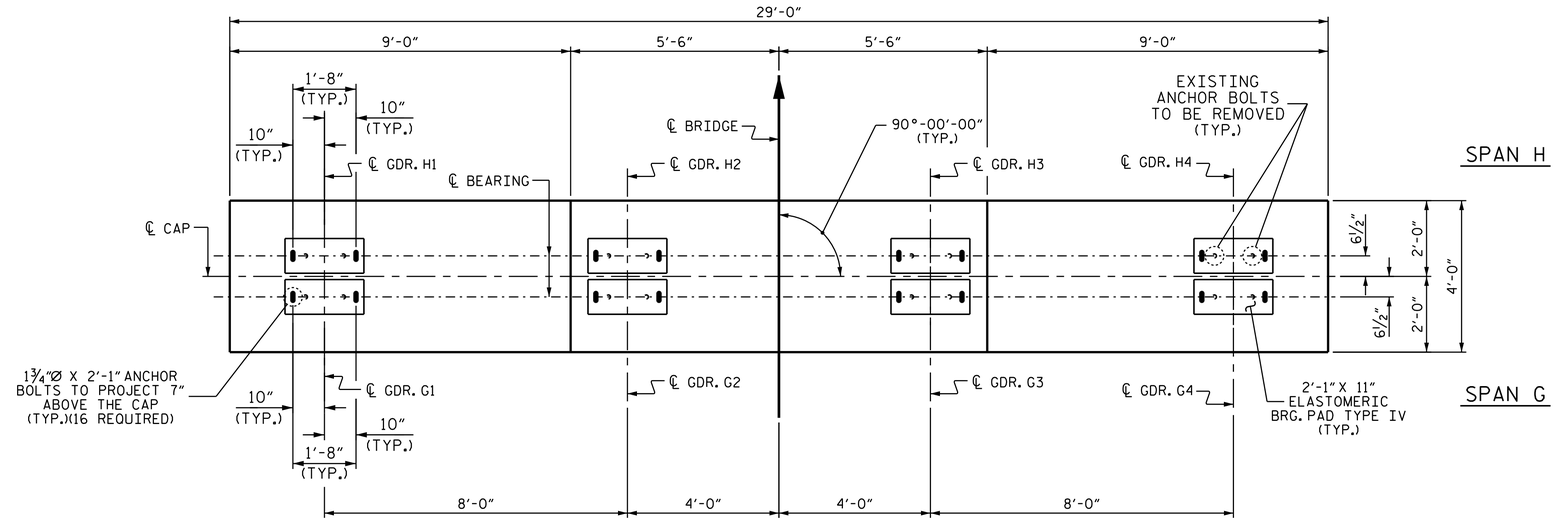
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : A. SORSENGINH DATE : 12/2017
CHECKED BY : H. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_077_416655D_SMU_B6_110010.dgn
amlee

NOTES

REMOVE EXISTING ANCHOR BOLTS BY CUTTING THEM FLUSH WITH THE TOP OF CAP. APPLY EPOXY PROTECTIVE COATING TO TOP OF CUT ANCHOR BOLTS.



PLAN OF CAP

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BENT 7

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by:
B04B5A4F2FAD484...
1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

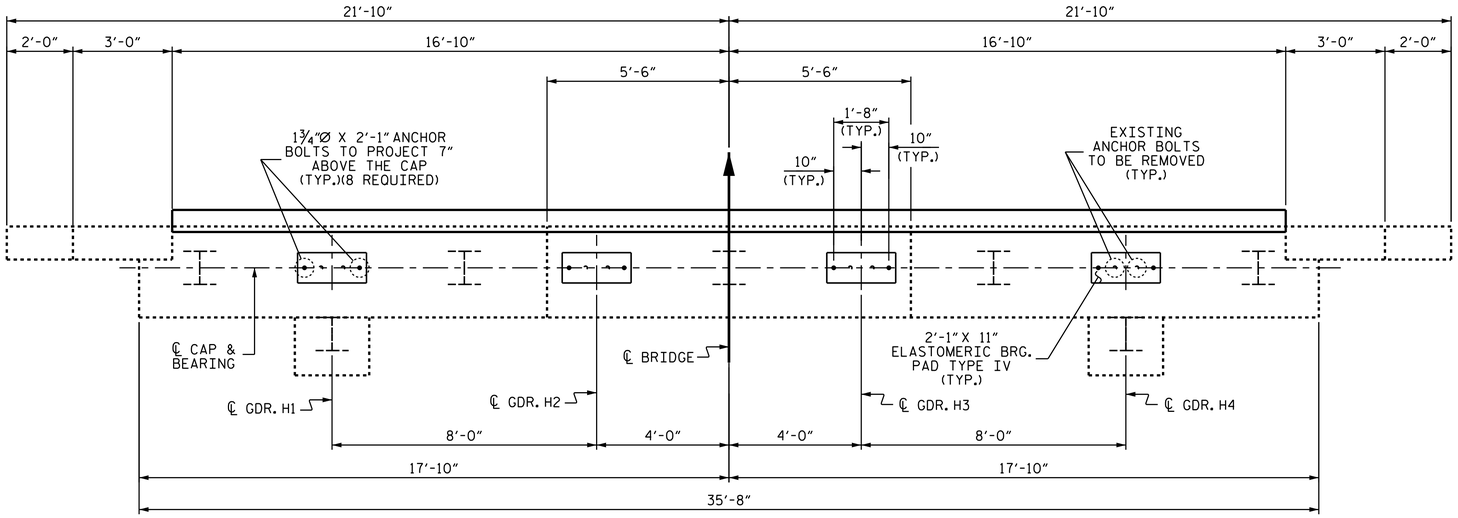
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-38
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : A. SORSENGINH DATE : 12/2017
CHECKED BY : H. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H. LOCKLEAR DATE : 12/2017

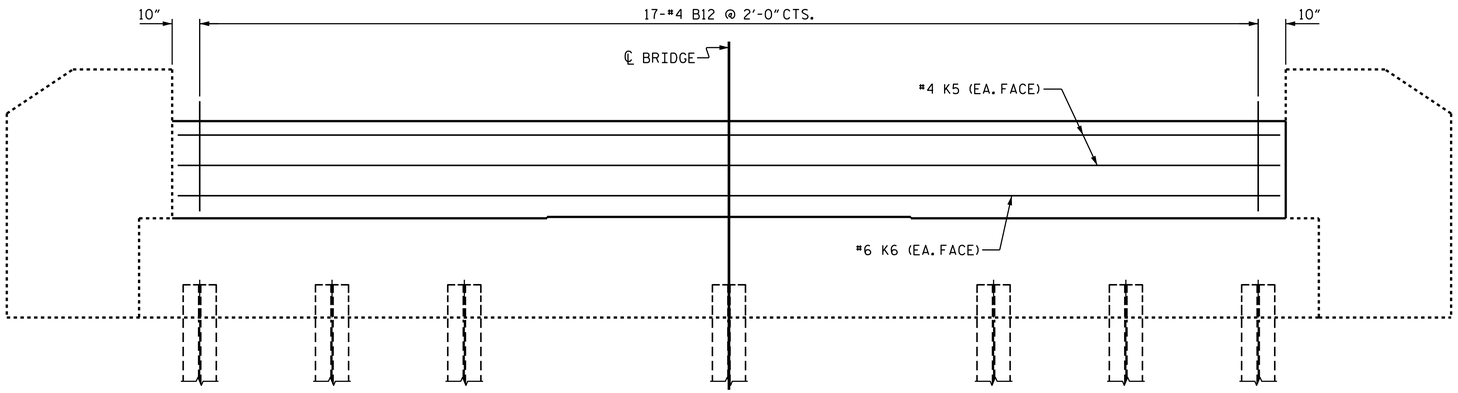
10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_079_416655D_SMU_B7_110010.dgn
amlee

NOTES

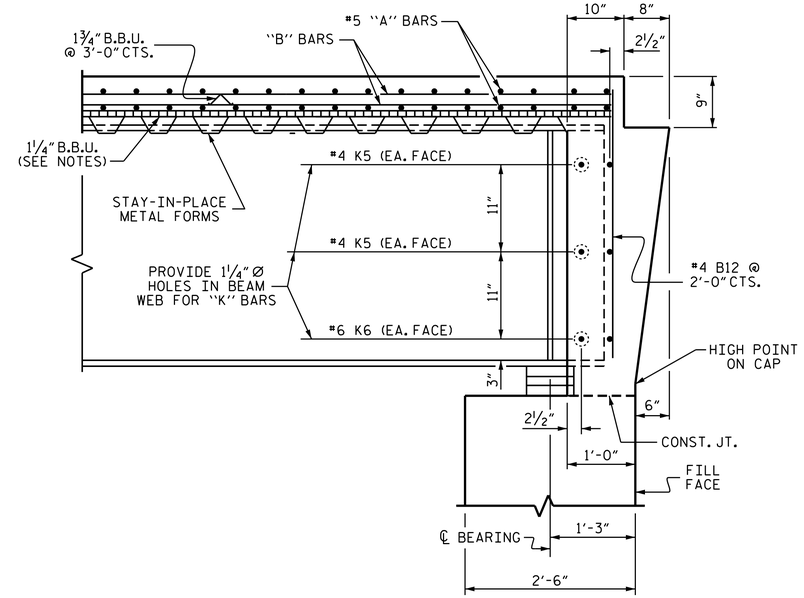
REMOVE EXISTING ANCHOR BOLTS BY CUTTING THEM FLUSH WITH THE TOP OF CAP. APPLY EPOXY PROTECTIVE COATING TO TOP OF CUT ANCHOR BOLTS.



PLAN



ELEVATION



END OF GIRDER DETAIL AT END BENT

PROJECT NO. 41665.5D

BURKE COUNTY

BRIDGE NO. 10

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

END BENT 2

NORTH CAROLINA PROFESSIONAL SEAL 031021 ENGINEER AMBER M. LEE

DocuSigned by: B04B54AF2FAD484...

1/10/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-39
1			3			TOTAL SHEETS
2			4			39

DRAWN BY : A. SORSENGINH DATE : 12/2017
CHECKED BY : H. LOCKLEAR DATE : 12/2017
DESIGN ENGINEER OF RECORD: H. LOCKLEAR DATE : 12/2017

10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_081_416655D_SMU_E2_110010.dgn
amlee

STANDARD NOTES

DESIGN DATA:

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

MATERIAL AND WORKMANSHIP:

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

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

CONCRETE:

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

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" 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. FINS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

REV. 6-16-95 EEM (/) RGW REV. 5-7-03 RWW (/) JTE REV. 10-1-11 MAA (/) GM
REV. 8-16-99 RWW (/) LES REV. 5-1-06 TLA (/) GM

10-JAN-2018 13:21
R:\Structures\Final Plans\NOT STAGED\DGNs\401_083_416655D_SMU_ SN_110010.dgn
amlee