

MILLER CONSTRUCTION, INC.

P.O. BOX 86 ASCUTNEY BLVD WINDSOR, VERMONT 05089-0086
 TELEPHONE (802) 674-5525 / FAX (802) 674-5245

TRANSMITTAL

TO: Jennifer Fitch, PE Project Manager Vermont Agency of Transportation	DATE	PROJECT NO.
	6/20/2014	Brookfield BRF FLBR (2)

XX WE ENCLOSE THE FOLLOWING: _____ UNDER SEPARATE COVER WE ARE SENDING THE FOLLOWING

COPIES	NUMBER	DESCRIPTION	CODE
1		Expansion Device, Hinged Sliding Plate Assembly Shop Drawing	H
		Rev 1	
1		WPS	H

- CODE:
- | | |
|---|----------------------------|
| A FOR INITIAL APPROVAL | H FOR APPROVAL |
| B FOR FINAL APPROVAL | I AS REQUESTED OR REQUIRED |
| C APPROVED AS NOTED-RESUBMISSION REQUIRED | J FOR USE IN ERECTION |
| D APPROVED AS NOTED-RESUBMISSION NOT REQUIRED | K LETTER FOLLOWS |
| E DISAPPROVED-RESUBMIT | L FOR FIELD CHECK |
| F QUOTATION REQUESTED | M FOR YOUR USE |
| G APPROVED | |

BY: Paul J. Anthony

GENERAL NOTES

1.0 GENERAL

1.1 THE CONTRACTOR MUST VERIFY ALL DIMENSIONS PRIOR TO FABRICATION TO ENSURE ACCURACY OF THE EXPANSION JOINT.

DIMENSIONS VERIFIED: _____

△ 1.2 ALL WORK SHALL COMPLY WITH THE VERMONT AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AND ITS LATEST REVISIONS AND THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, 3rd EDITION AND ITS LATEST REVISIONS, EXCEPT AS NOTED HEREIN.

1.3 ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.

1.4 IN CASE OF DIFFERENCE ON THE CONTRACT PLANS BETWEEN SCALE DIMENSIONS AND FIGURES, THE FIGURES SHALL BE FOLLOWED.

2.0 STANDARD SPECIFICATION CRITERIA

3.0 SPECIAL PROVISION CRITERIA

4.0 MATERIALS

4.1 ALL STRUCTURAL AND PERMANENT MATERIALS SHALL BE OF DOMESTIC ORIGIN, AND MATERIAL CERTIFICATION STATING ALL SUCH MATERIALS ARE "MELTED AND MANUFACTURED" IN THE UNITED STATES OF AMERICA SHALL BE SUBMITTED.

△ 4.2 STEEL BARS, PLATES AND SHAPES SHALL BE STAINLESS STEEL CONFORMING TO ASTM A240/A. 240M, OR 312, WITH MINIMUM YIELD OF 30ksi AND MINIMUM TENSILE OF 75ksi.

△ 4.3 THE CONCRETE ANCHOR STUDS SHALL BE STAINLESS STEEL IN ACCORDANCE WITH ASTM A-108.

△ 4.4 HARDWARE SHALL BE STAINLESS STEEL CONFORMING TO ASTM F593 WITH MINIMUM YIELD OF 43ksi AND MINIMUM TENSILE OF 75ksi.

5.0 INSPECTION REQUIREMENTS

5.1 QUALITY CONTROL INSPECTION

5.1.1 DURING FABRICATION OF THE EXPANSION JOINT, WATSON BOWMAN ACME SHALL PROVIDE FULL TIME QUALITY CONTROL INSPECTION TO INSURE THAT THE MATERIALS AND WORKMANSHIP MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THE CONTRACT.

6.0 FABRICATION

6.1 FABRICATION SHALL BE IN ACCORDANCE WITH WATSON BOWMAN ACME'S QUALITY CONTROL MANUAL AND MANUFACTURING TOLERANCE.

6.2 ALL WELDING SHALL BE IN ACCORDANCE WITH AWS D1.6 WELDING SPECIFICATIONS.

△ 6.3 ALL WELDING SHALL BE EXECUTED USING FCAW PROCESSES.

6.4 STUDS SHALL BE INSPECTED VISUALLY AND SHALL BE GIVEN A LIGHT BLOW WITH A HAMMER. ANY STUD WHICH DOES NOT HAVE A COMPLETE END WELD OR DOES NOT EMIT A RINGING SOUND WHEN STRUCK WITH A LIGHT BLOW WITH A HAMMER SHALL BE REPLACED.

6.5 STUDS SHALL NOT BE LOCATED MORE THAN 1" FROM THE LOCATION SHOWN ON THESE SHOP DRAWINGS.

6.6 STUDS MAY BE BENT TO AN ANGLE OF 30° TO AVOID INTERFERENCE WITH DECK REINFORCEMENT, OR TO PROVIDE PROPER CONCRETE COVER.

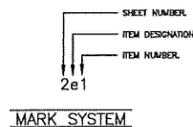
6.7 AFTER FABRICATION, BUT BEFORE SHIPPING, STRAIGHTEN STEEL SHAPES SO THAT THEY ARE FREE FROM WARP, TWIST AND SWEEP.

△ 6.8 FOR PAYMENT PURPOSES THE LENGTH OF THE JOINT PAID FOR WILL BE THE NUMBER OF LINEAR FEET OF JOINT SYSTEM INSTALLED, MEASURED HORIZONTALLY ALONG THE CENTERLINE OF THE JOINT SYSTEM BETWEEN THE OUTER LIMITS OF THE BRIDGE FASCIA UNLESS OTHERWISE SHOWN ON THE PLANS.

7.0 COATINGS

7.1 THE RIDING SURFACES OF THE STAINLESS STEEL SHALL BE COATED WITH A SLIP RESISTANT MATERIAL. HIGH PURITY NICKEL CHROME WIRE (Ni20Cr) SHALL BE SPRAY APPLIED. THE ALLOY SHALL HAVE A ROCKWELL HARDNESS SCALE OF HRB 90. SUPPLIER SHALL BE HUBBELL GALVANIZING INC. PRODUCT SHALL BE "GALVAGRIT" FINE.

STATE: VERMONT
 COUNTY: ORANGE
 PROJECT NO.: BRF FLBR(2)
 REFERENCE NO.: XXXXXXXXX
 DISTRICT: XXX ROUTE: 65
 WBA PRODUCT NO.: EMB15476BAA-AF



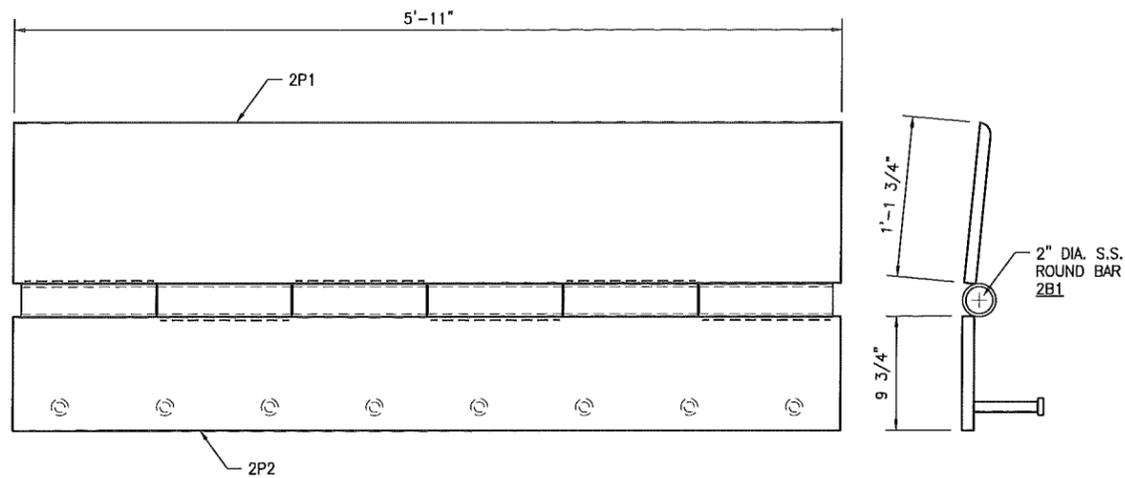
DRAWING ACTION:
 SUBMITTED FOR APPROVAL
 DATE: 6/5/14

NO.	DESCRIPTION	NAME	DATE
△	REVISED PER REVIEWERS COMMENTS	TEB	6/4/14
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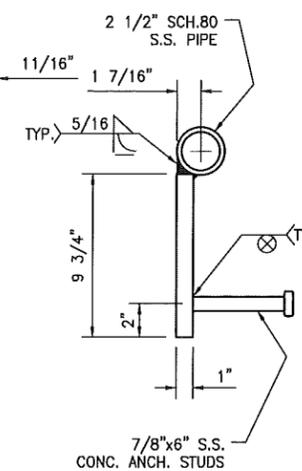
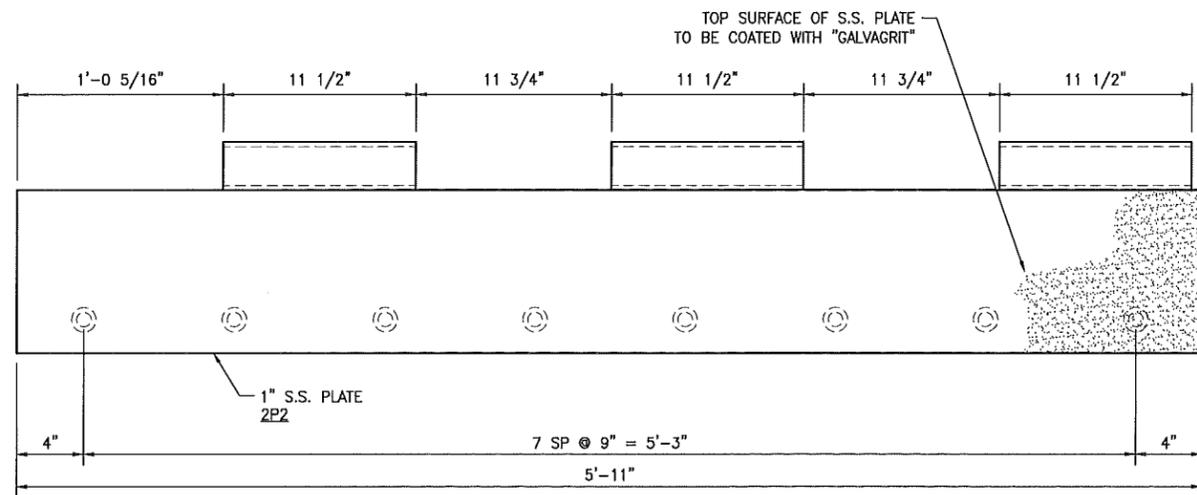
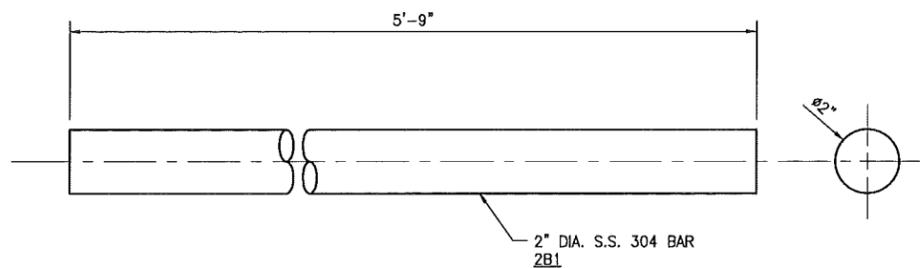
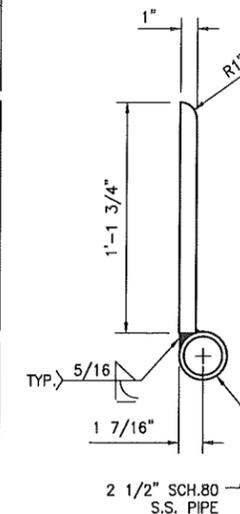
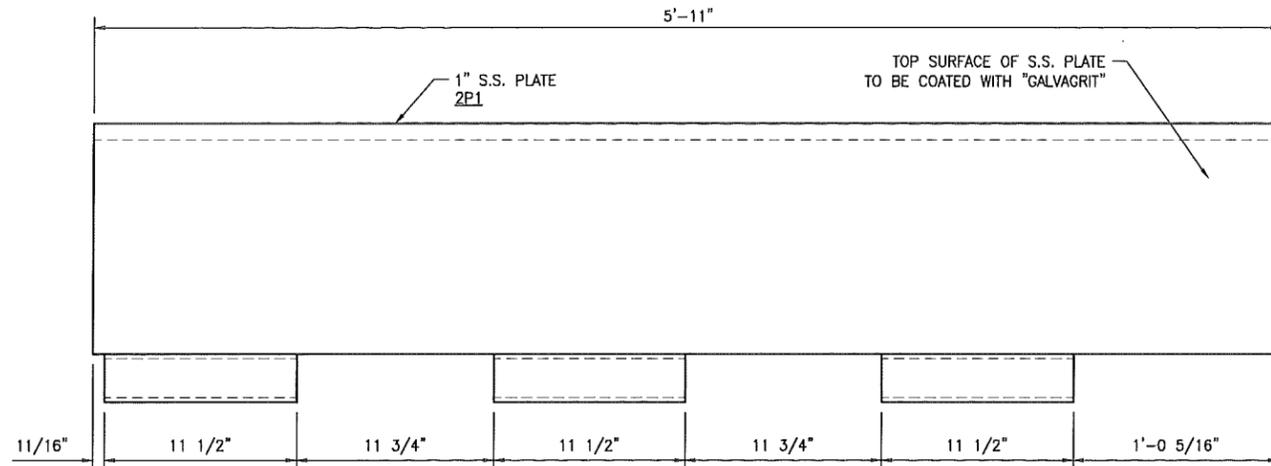


DETAILED BY:	DATE:
TEB	6/4/14
CHECKED BY:	DATE:
TPL	6/6/14
SCALE:	WBA JOB NO.:
NONE	154768
SHEET NO.:	DRAWING NO.:
1 OF 6	D-31790

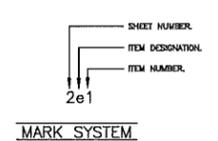
PROJECT:
 VERMONT RTE 65
 REPLACEMENT OF FLOATING BRIDGE
 WABO EMB HINGED SLIDING PLATE JOINT DETAILS



(4) - EMB154768AA
 ABUTMENT / RAMP - ROADWAY ASSEMBLY



LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AA	1.00	EA	EMB; ABUT/RAMP - ROADWAY ASSY., 5.92'	UNCOATED	
					SHIPPING LENGTH = 6'±	
				GALVAGRIT (FINE) COATING ON TOP SURFACES OF 1" PLATES	APPROX. SHIPPING WEIGHT = 650 lb	
1	NTS154768A	520.00	LB	STNLS STL 1" TYPE 304 NO FIN	2P1, 2P2	
1	NTS154768B	6.00	FT	2 1/2" SCH.80 S.S. PIPE (A)		
1	NTS154768C	8.00	EA	7/8"x6" CONC. ANCH. STUDS S.S. ASTM F593 (A)		
1	NTS154768D	5.75	FT	ROUND BAR 2" S.S. 304 (A)	2B1	
			#N/A	#N/A		



STATE: VERMONT
 COUNTY: ORANGE
 PROJECT NO.: BRFLBR(2)
 REFERENCE NO.: XXXXXXXXX
 DISTRICT: XXX ROUTE: 65
 WBA PRODUCT NO.: EMB154768AA-AF

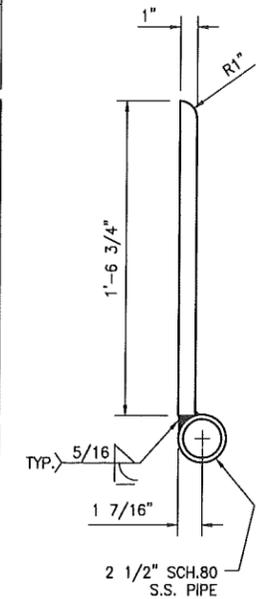
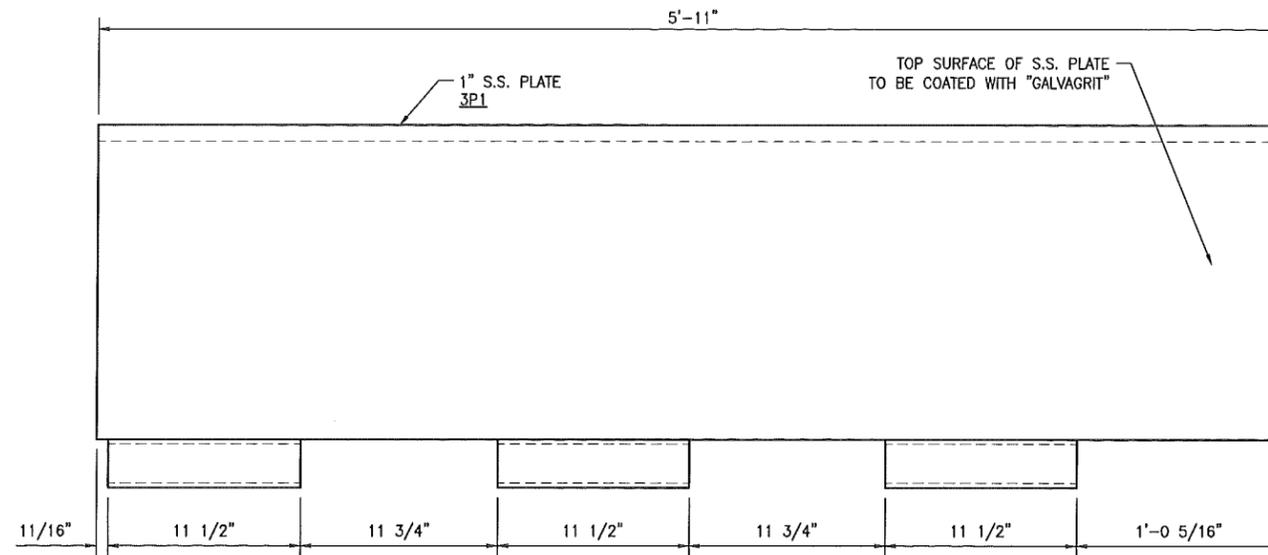
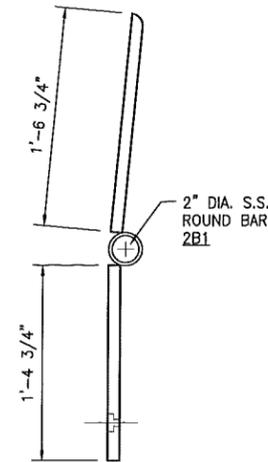
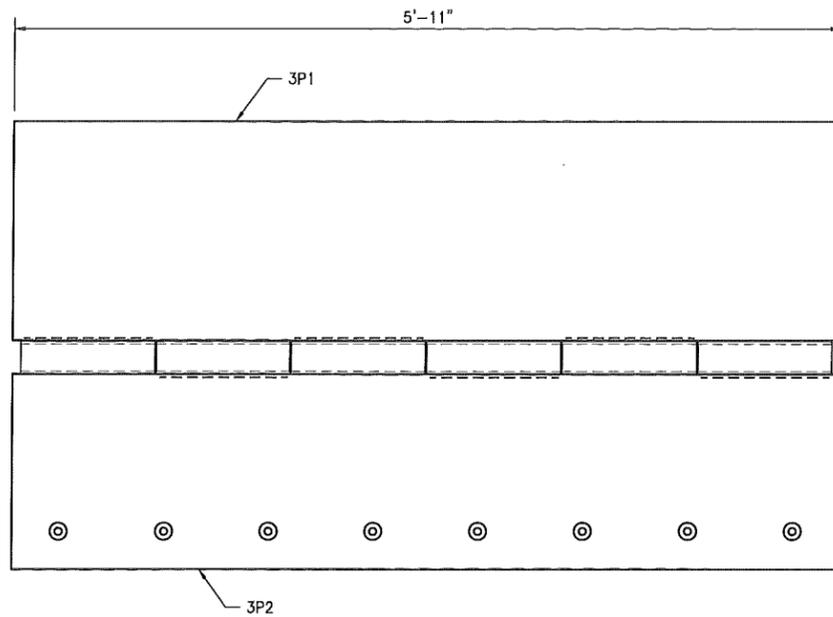
DRAWING ACTION:
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 DATE: 6/5/14

NO.	DESCRIPTION	NAME	DATE
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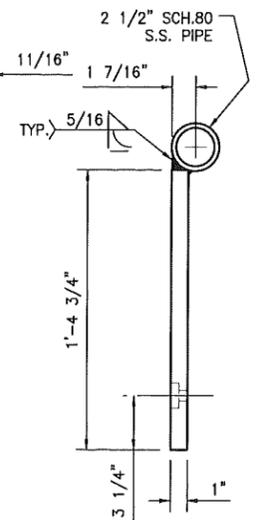
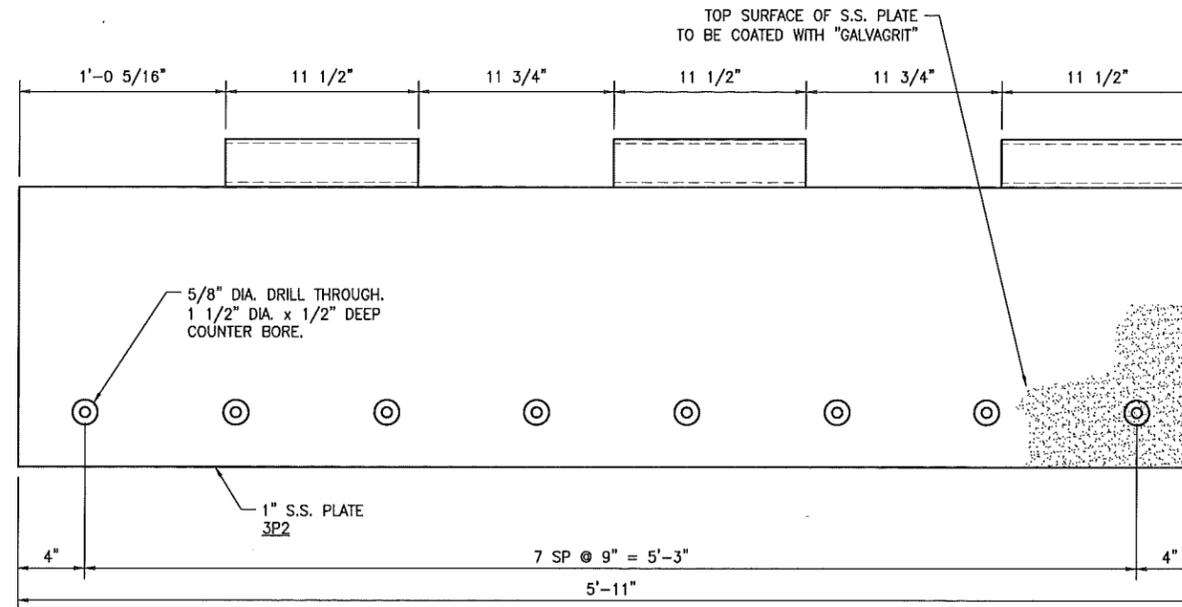
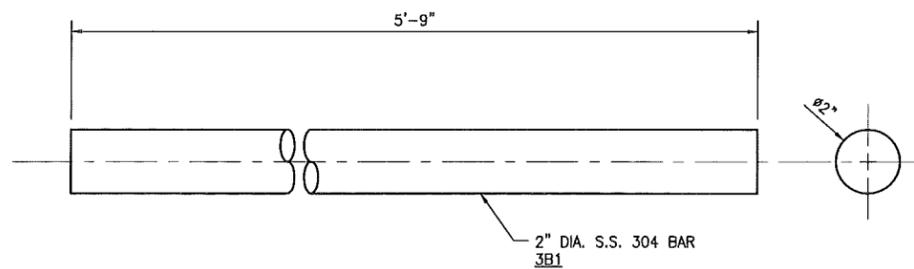


DETAILED BY:	TEB	DATE:	6/4/14
CHECKED BY:	TPL	DATE:	6/6/14
SCALE:	NONE	WBA JOB NO.:	154768
SHEET NO.:	2 OF 6	DRAWING NO.:	D-31790

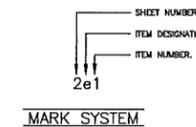
PROJECT:
 VERMONT RTE 65
 REPLACEMENT OF FLOATING BRIDGE
 WABO EMB HINGED SLIDING PLATE JOINT DETAILS



(4) - EMB154768AB
RAMP / FLOAT - ROADWAY ASSEMBLY



LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AB	1.00	EA	EMB; RAMP/FLOAT - ROADWAY ASSY.; 5.92'	UNCOATED	
					SHIPPING LENGTH = 6±	
				GALVAGRIT (FINE) COATING ON TOP SURFACES OF 1" PLATES	APPROX. SHIPPING WEIGHT = 870 lb	
1	NTS154768A	760.00	LB	STNLS STL 1" TYPE 304 NO FIN	3P1, 3P2	
1	NTS154768B	6.00	FT	2 1/2" SCH.80 S.S. PIPE (A)		
1	NTS154768D	5.75	FT	ROUND BAR 2" S.S. 304 (A)	3B1	
			#N/A	#N/A		



STATE: VERMONT
 COUNTY: ORANGE
 PROJECT NO.: BRF FLBR(2)
 REFERENCE NO.: XXXXXXXXX
 DISTRICT: XXX ROUTE: 65
 WBA PRODUCT NO.: EMB154768AA-AF

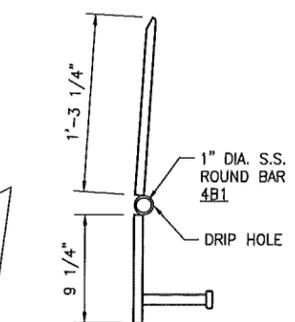
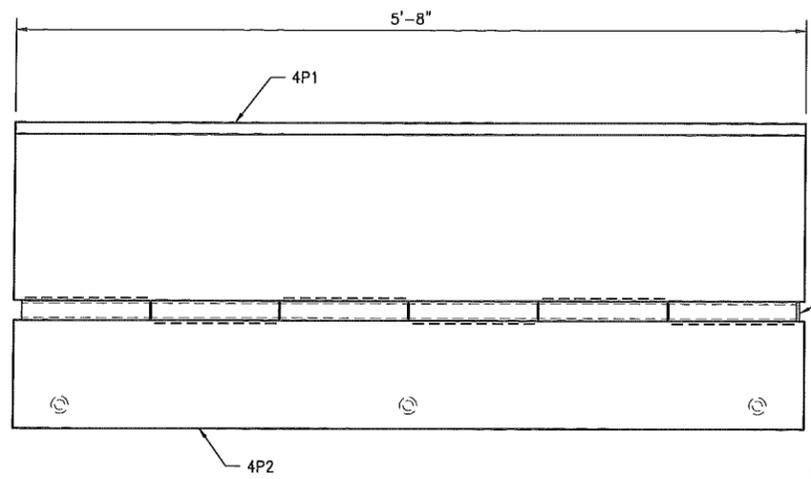
DRAWING ACTION:
 SUBMITTED FOR APPROVAL
 DATE: 6/5/14

NO.	DESCRIPTION	DATE
1	REVISD PER REVIEWERS COMMENTS	TEB/2/14

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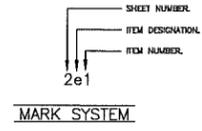
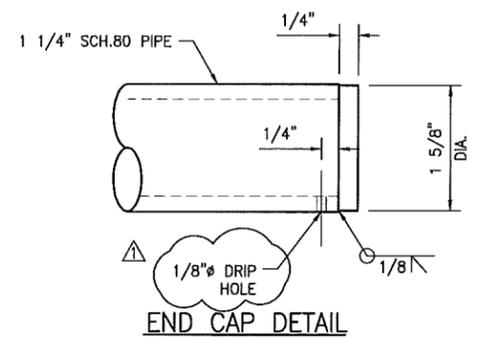
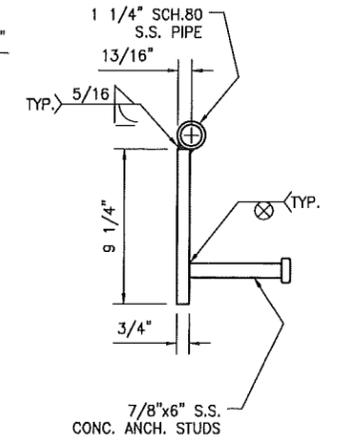
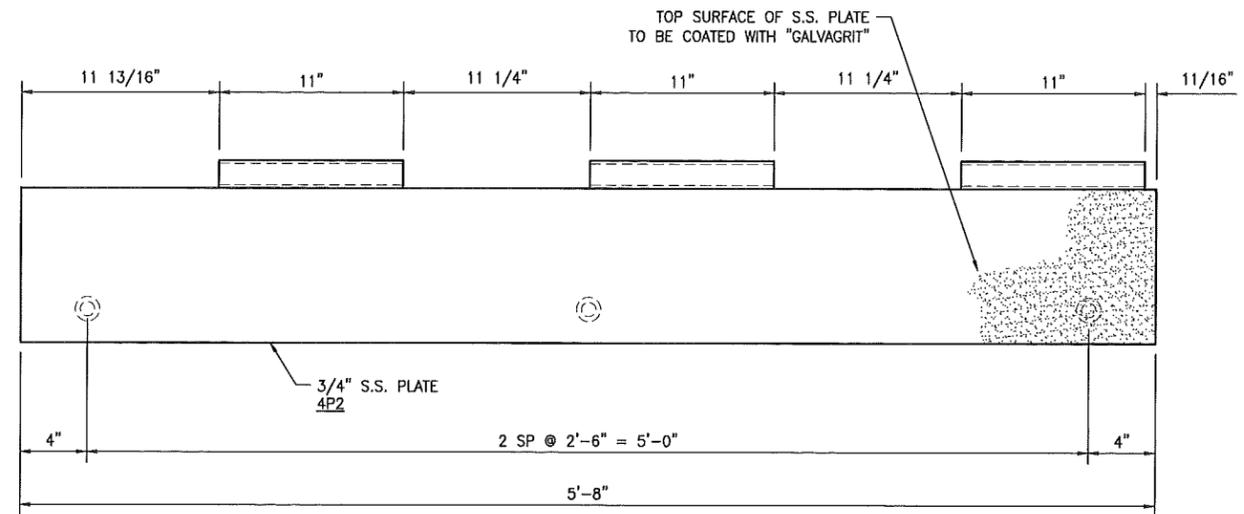
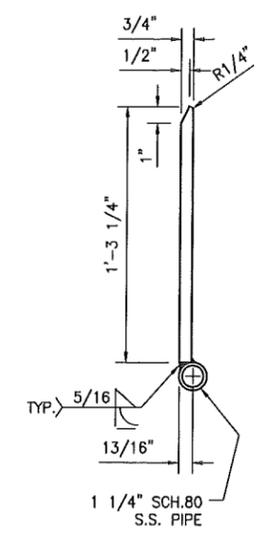
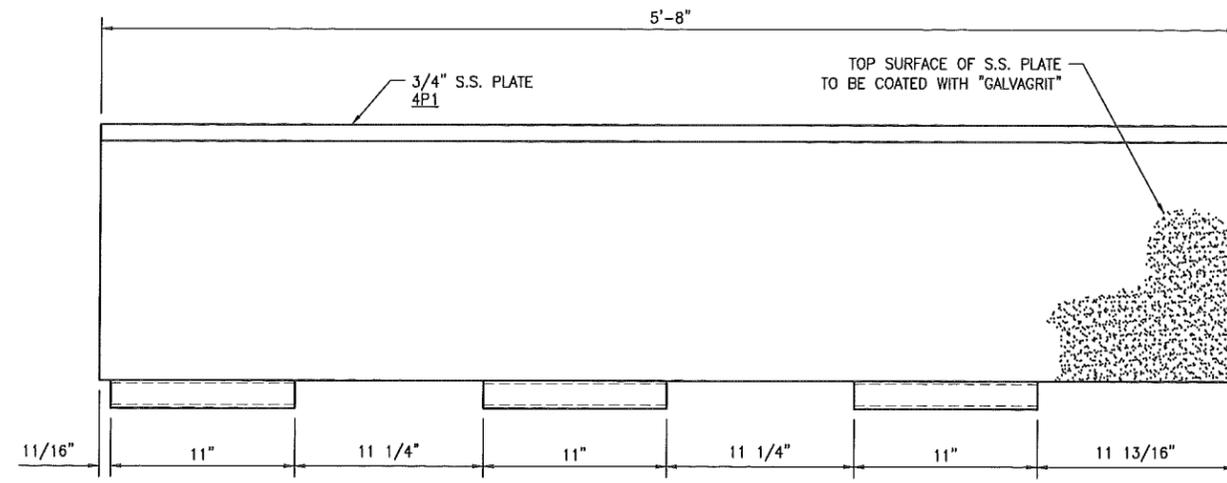
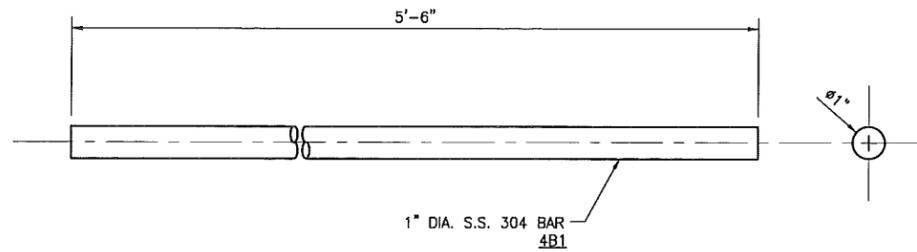
DETAILED BY: TEB DATE: 6/4/14
 CHECKED BY: TPL DATE: 6/6/14
 SCALE: NONE WBA JOB NO.: 154768
 SHEET NO.: 3 OF 6 DRAWING NO.: D-31790

PROJECT:
 VERMONT RTE 65
 REPLACEMENT OF FLOATING BRIDGE
 WABO EMB HINGED SLIDING PLATE JOINT DETAILS



CAP END OF 1 1/4" PIPE
THIS END AC. OPP. END AD.
SEE DETAIL BELOW.

(2) - EMB154768AC - AS SHOWN
(2) - EMB154768AD - AS NOTED
ABUTMENT / RAMP - SIDEWALK ASSEMBLY



EMB154768AC QTY: 2 REQD. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AC	1.00	EA	EMB, ABUT/RAMP - SIDEWALK ASSY; 5.67'	UNCOATED	
					SHIPPING LENGTH = 6±	
					APPROX. SHIPPING WEIGHT = 420 lb	
1	NTS154768E	375.00	LB	STNLS STL 3/4" TYPE 304 NO FIN	4P1, 4P2	
1	NTS154768F	6.00	FT	1 1/4" SCH.80 S.S. PIPE (A)		
1	NTS154768C	3.00	EA	7/8"x6" CONC. ANCH. STUDS S.S. ASTM F593 (A)		
1	NTS154768G	5.75	FT	ROUND BAR 1" S.S. 304 (A)	4B1	
1	8595	0.50	LB	STNLS STL 1/4 TYPE 304 2B FIN		
				#N/A #N/A		

EMB154768AD QTY: 2 REQD. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AD	1.00	EA	EMB, ABUT/RAMP - SIDEWALK ASSY; 5.67'	UNCOATED	
					SHIPPING LENGTH = 6±	
					APPROX. SHIPPING WEIGHT = 420 lb	
1	NTS154768E	375.00	LB	STNLS STL 3/4" TYPE 304 NO FIN	4P1, 4P2	
1	NTS154768F	6.00	FT	1 1/4" SCH.80 S.S. PIPE (A)		
1	NTS154768C	3.00	EA	7/8"x6" CONC. ANCH. STUDS S.S. ASTM F593 (A)		
1	NTS154768G	5.75	FT	ROUND BAR 1" S.S. 304 (A)	4B1	
1	8595	0.50	LB	STNLS STL 1/4 TYPE 304 2B FIN		
				#N/A #N/A		

DRAWING ACTION:
SUBMITTED FOR APPROVAL
DATE: 6/5/14

REVISION	DATE
1	TEB 6/2/14
REVISED PER REVIEWERS COMMENTS	
NO.	DESCRIPTION

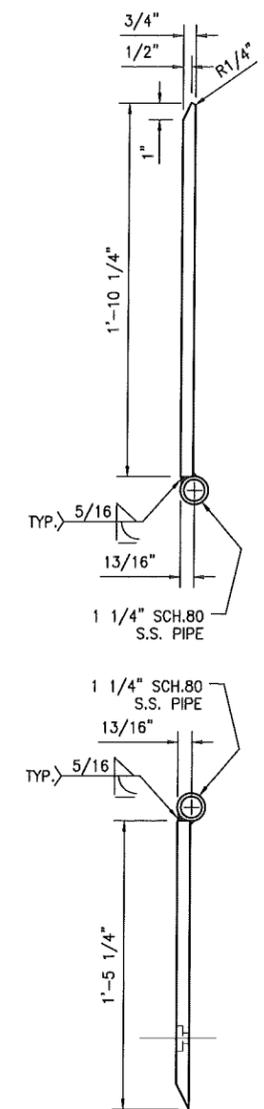
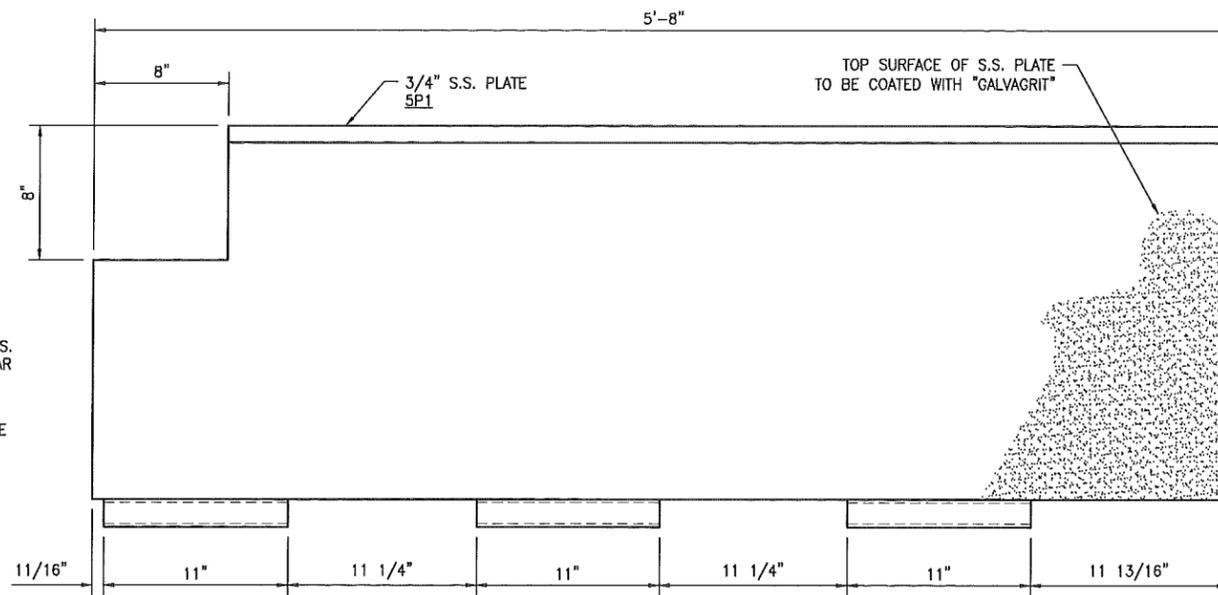
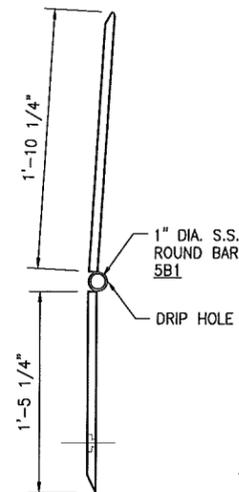
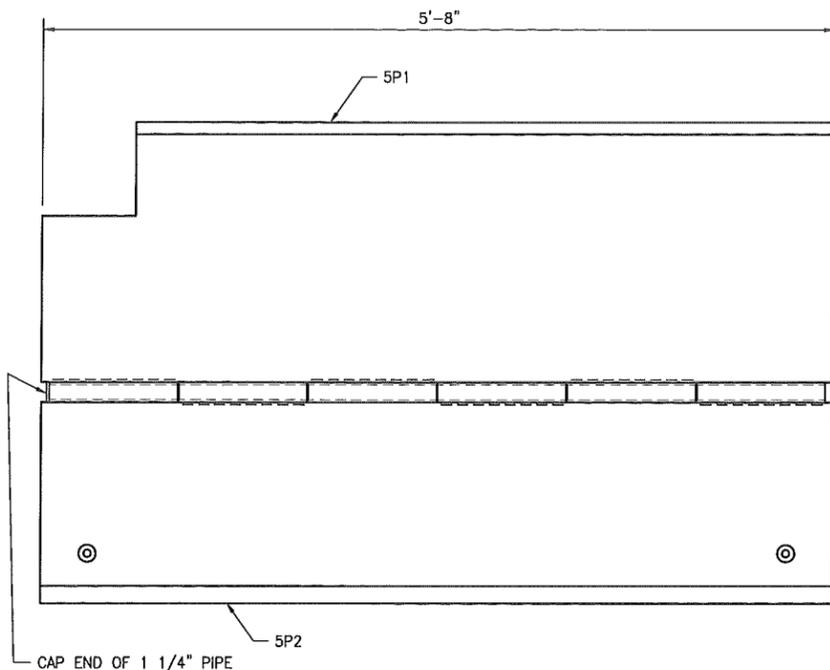
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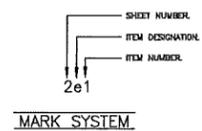
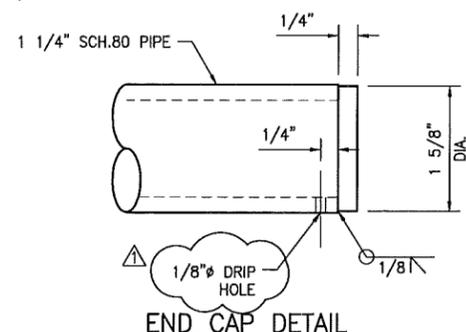
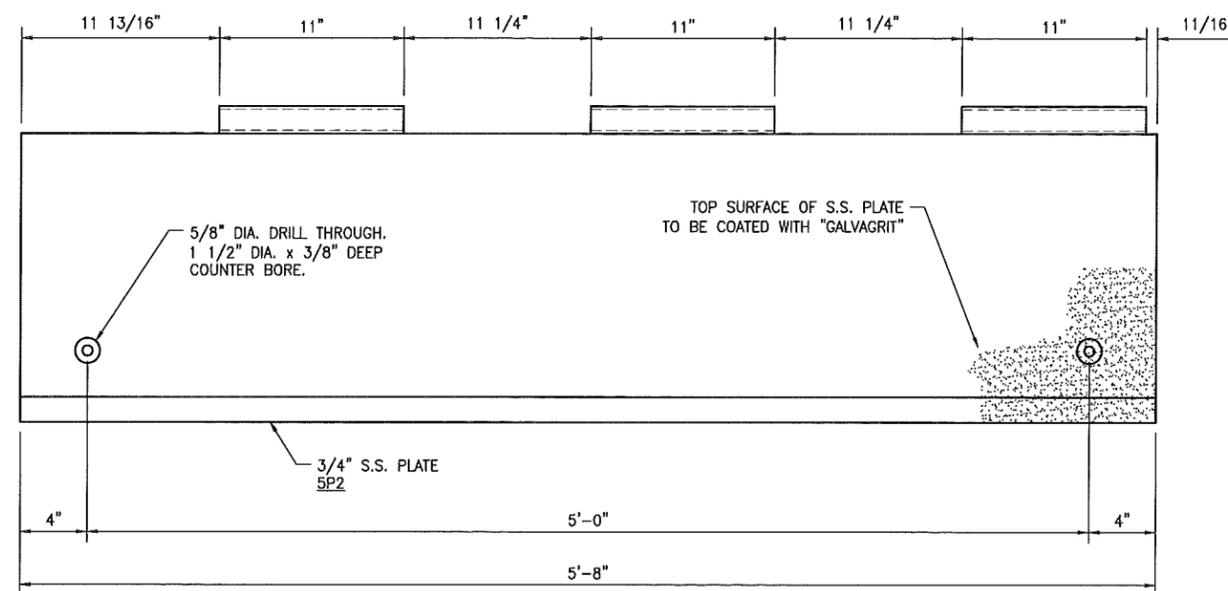
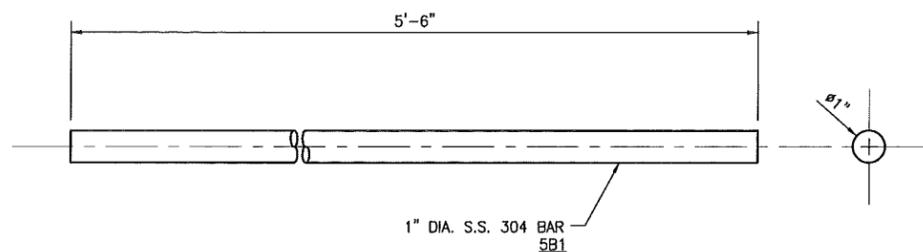
PROJECT:
VERMONT RTE 65
REPLACEMENT OF FLOATING BRIDGE
WABO EMB HINGED SLIDING PLATE JOINT DETAILS

DATE:	6/4/14
DRAWING NO.:	D-31790
WBA JOB NO.:	154768
SCALE:	NONE
SHEET NO.:	4 OF 6
CHECKED BY:	TPL
DATE:	6/6/14
DETAILED BY:	TEB

STATE: VERMONT
COUNTY: ORANGE
PROJECT NO.: BRF FLBR(2)
REFERENCE NO.: XXXXXXXXX
DISTRICT: XXX ROUTE: 65
WBA PRODUCT NO.: EMB154768AA-AF



(2) - EMB154768AE - AS SHOWN
 (2) - EMB154768AF - OPP. HAND
 RAMP / FLOAT - SIDEWALK ASSEMBLY



EMB154768AE QTY: 2 REQD. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AE	1.00	EA	EMB, RAMP/FLOAT - SIDEWALK ASSY.; 5.67'	UNCOATED	
					SHIPPING LENGTH = 6±	
				GALVAGRIT (FINE) COATING ON TOP SURFACES OF 3/4" PLATES	APPROX. SHIPPING WEIGHT = 650 lb	
1	NTS154768E	600.00	LB	STNLS STL 3/4" TYPE 304 NO FIN	5P1, 5P2	
1	NTS154768F	6.00	FT	1 1/4" SCH.80 S.S. PIPE (A)		
1	NTS154768G	5.75	FT	ROUND BAR 1" S.S. 304 (A)	5B1	
1	8595	0.50	LB	STNLS STL 1/4 TYPE 304 2B FIN		
			#N/A	#N/A		

EMB154768AF QTY: 2 REQD. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AF	1.00	EA	EMB, RAMP/FLOAT - SIDEWALK ASSY.; 5.67'	UNCOATED	
					SHIPPING LENGTH = 6±	
				GALVAGRIT (FINE) COATING ON TOP SURFACES OF 3/4" PLATES	APPROX. SHIPPING WEIGHT = 650 lb	
1	NTS154768E	600.00	LB	STNLS STL 3/4" TYPE 304 NO FIN	5P1, 5P2	
1	NTS154768F	6.00	FT	1 1/4" SCH.80 S.S. PIPE (A)		
1	NTS154768G	5.75	FT	ROUND BAR 1" S.S. 304 (A)	5B1	
1	8595	0.50	LB	STNLS STL 1/4 TYPE 304 2B FIN		
			#N/A	#N/A		

STATE: VERMONT
 COUNTY: ORANGE
 PROJECT NO.: BRF FLBR(2)
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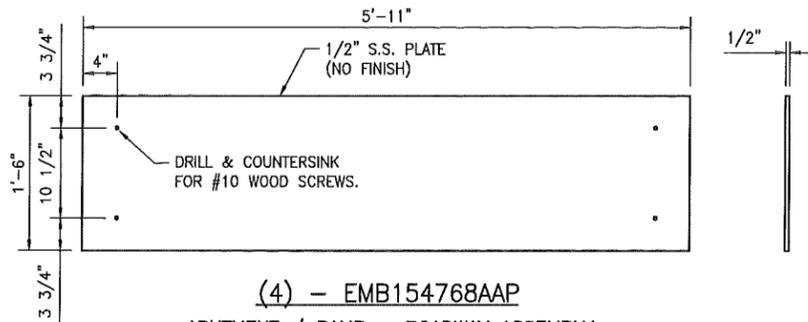
DRAWING ACTION:
 SUBMITTED FOR APPROVAL

NO.	DESCRIPTION	NAME	DATE
1	REVISD PER REVIEWERS COMMENTS	TEB	6/6/14

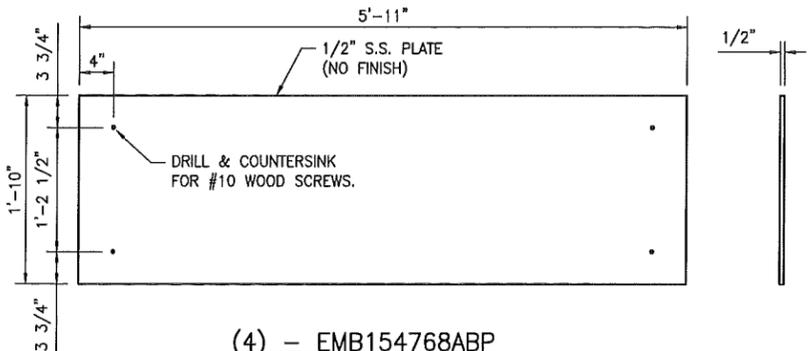


PROJECT: VERMONT RTE 65 REPLACEMENT OF FLOATING BRIDGE
 WABO EMB HINGED SLIDING PLATE JOINT DETAILS

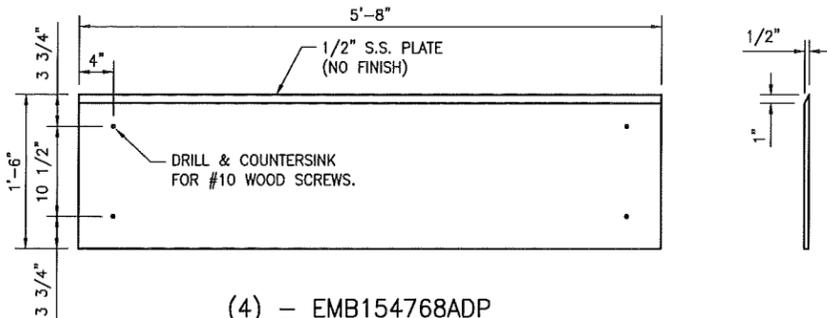
DETAILED BY: TEB	DATE: 6/4/14
CHECKED BY: TPL	DATE: 6/6/14
SCALE: NONE	WBA JOB NO.: 154768
SHEET NO.: 5 OF 6	DRAWING NO.: D-31790



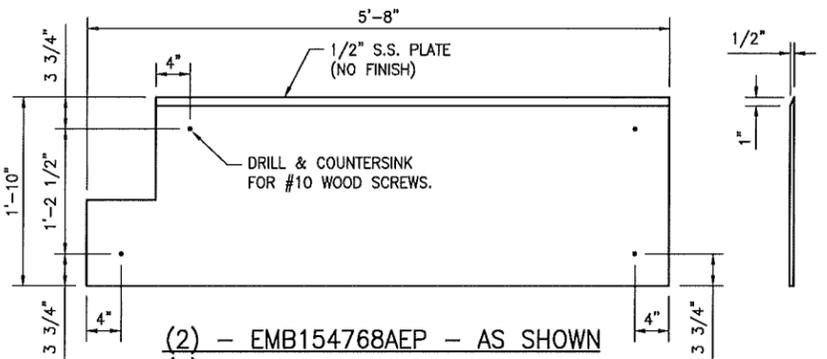
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ABUTMENT / RAMP - ROADWAY ASSEMBLY



(4) - EMB154768ABP
RAMP / FLOAT - ROADWAY ASSEMBLY



(4) - EMB154768ADP
ABUTMENT / RAMP - SIDEWALK ASSEMBLY



(2) - EMB154768AEP - AS SHOWN
(2) - EMB154768AFP - OPP. HAND
RAMP / FLOAT - SIDEWALK ASSEMBLY

EMB154768AAP QTY: 4 REQ'D. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AAP	1.00	EA	EMB; ABUT/RAMP - ROADWAY BEARING PLATE.	UNCOATED	
					SHIPPING LENGTH = 6±	
					APPROX. SHIPPING WEIGHT = 195 lb	
1	8591	195.00	LB	STNLS STL 1/2 TYPE 304 NO FIN		

EMB154768ABP QTY: 4 REQ'D. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768ABP	1.00	EA	EMB; RAMP/FLOAT - ROADWAY BEARING PLATE.	UNCOATED	
					SHIPPING LENGTH = 6±	
					APPROX. SHIPPING WEIGHT = 240 lb	
1	8591	240.00	LB	STNLS STL 1/2 TYPE 304 NO FIN		

EMB154768ADP QTY: 4 REQ'D. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768ADP	1.00	EA	EMB; ABUT/RAMP - SIDEWALK BEARING PLATE.	UNCOATED	
					SHIPPING LENGTH = 6±	
					APPROX. SHIPPING WEIGHT = 185 lb	
1	8591	185.00	LB	STNLS STL 1/2 TYPE 304 NO FIN		

EMB154768AEP QTY: 2 REQ'D. STRUCTURED BILL OF MATERIALS

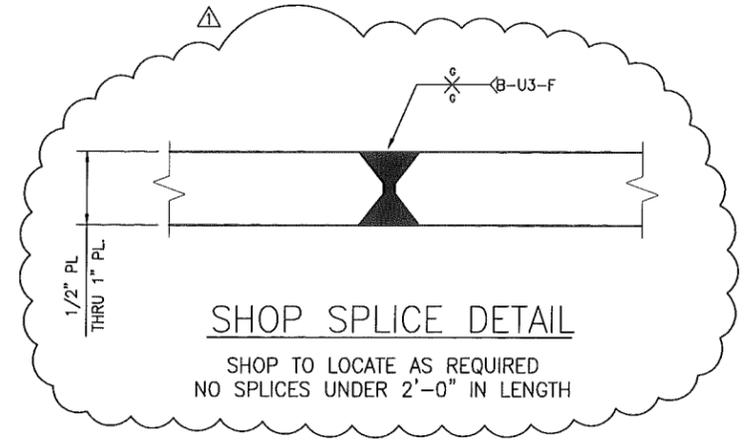
LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AEP	1.00	EA	EMB; RAMP/FLOAT - SIDEWALK BEARING PLATE.	UNCOATED	
					SHIPPING LENGTH = 6±	
					APPROX. SHIPPING WEIGHT = 225 lb	
1	8591	225.00	LB	STNLS STL 1/2 TYPE 304 NO FIN		

EMB154768AFP QTY: 2 REQ'D. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768AFP	1.00	EA	EMB; RAMP/FLOAT - SIDEWALK BEARING PLATE.	UNCOATED	
					SHIPPING LENGTH = 6±	
					APPROX. SHIPPING WEIGHT = 225 lb	
1	8591	225.00	LB	STNLS STL 1/2 TYPE 304 NO FIN		

EMB154768PS1 QTY: 1 REQ'D. STRUCTURED BILL OF MATERIALS

LV	PART NO.	QTY	UM	DESCRIPTION	MATERIAL	REVISION
0	EMB154768PS1	1.00	EA	PARTS FOR SHIPPING (V)		
1	NTS154768H	32.00	EA	LAG BOLT 1/2"x5" S.S. (A)		
1	NTS154768J	8.00	EA	LAG BOLT 1/2"x8" S.S. (A)		
1	NTS154768K	75.00	EA	WOOD SCREW #10x3 1/2" S.S. (A)		
1	7540	45.00	EA	WASHER 1/2 (A) STAINLESS STEEL		



MARK SYSTEM

STATE: VERMONT
 COUNTY: ORANGE
 PROJECT NO.: BRF FLBR(2)
 REFERENCE NO.: XXXXXXXXX
 DISTRICT: XXX ROUTE: 65
 WBA PRODUCT NO.: EMB154768AA-AF

DRAWING ACTION:

REVISOR: [Signature]

DATE: 6/5/14

DESCRIPTION: SUBMITTED FOR APPROVAL

NO.	DESCRIPTION	DATE
1	REVISOR'S COMMENTS	TEB 6/2/14

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 www.wbacorp.com

BAS F
 The Chemical Company

DATE: 6/4/14	REVISION: 1
DATE: 6/6/14	REVISION: 2
DATE: 6/6/14	REVISION: 3

PROJECT: VERMONT RTE 65 REPLACEMENT OF FLOATING BRIDGE

WABO EMB HINGED SLIDING PLATE JOINT DETAILS

6 OF 6

D-31790

AWS D1.6
WELDING PROCEDURE SPECIFICATION

MATERIAL SPECIFICATION:	ASTM: A-240 TYPE 304 / 316 to ASTM A-36 ,A709 250,345 A572, A588 (also ref. AWS D1.5:2002 par. 5.4.1)
WELDING PROCESS:	FCAW
MANUAL OR MACHINE:	Semi-Automatic
POSITION OF WELDING:	Flat
FILLER METAL SPECIFICATION:	A5.22
FILLER METAL CLASSIFICATION:	ER 309 LT-4
FILLER METAL MANUFACTURER:	ESAB
SHIELDING GAS: CO₂ 100%	DEW POINT: -40°F min FLOW RATE: 32 - 43 CFH
SINGLE OR MULTIPLE PASS:	Multiple
SINGLE OR MULTIPLE ARC:	Single ELECTRODE STICKOUT: 3/4" ± 1/4"
WELDING CURRENT:	DC+
POLARITY:	Reverse
WELDING PROGRESSION:	Forward
ROOT TREATMENT:	Surfaces to be clean and free of dirt, rust, oil, etc. Before welding opposite side, back-gouge/grind to sound metal and grind weld prep. contour.
PREHEAT AND INTERPASS TEMP.	≤ 3/4" = 50°F; over 3/4" to 1-1/2" = 70°F; over 1-1/2" to 2-1/2" = 150°F; over 2-1/2" = 225°F (Minimums)
POSTHEAT TREATMENT:	N/A

WELDING PROCEDURE

Weld Size -# of Passes	Electrode Size	Welding Current		Travel Speed "/Min	Joint Detail TC-P4-GF
		Amps	Volts		
All	.045"	180 - 220	29 - 32	10 - 12	
				T ₁ = 1/4" min. T ₂ = Unlimited R = 0 α = 60° f = 1/8" min	

*** This procedure may vary within the limitations identified in AWS D1.5:2002 "Bridge Welding Code". ***

PROCEDURE NO: <u>FCAWCS-SS-09</u>	REVISION NO.: <u>2 (1011/07)</u>
QUALIFYING PQR: <u>FCAW-CS-SS-PQR-2007</u>	PQR REQUAL DATE: <u>10/11/2012</u>
MANUFACTURER: <u>Watson Bowman Acme Corp.</u>	AUTHORIZED BY: J. Miller - Quality Control Supervisor



JOHN L. MILLER
CWI 01090711
QC1 EXP. 9/31/10



AWS D 1.6
WELDING PROCEDURE SPECIFICATION

MATERIAL SPECIFICATION:	ASTM: A-240 TYPE 304 / 316 to ASTM A-36 ,A709 250,345 A572, A588 (also ref. AWS D1.5:2002 par. 5.4.1)
WELDING PROCESS:	FCAW
MANUAL OR MACHINE:	Semi-Automatic
POSITION OF WELDING:	Flat
FILLER METAL SPECIFICATION:	A5.22
FILLER METAL CLASSIFICATION:	ER 309 LT-4
FILLER METAL MANUFACTURER:	ESAB
SHIELDING GAS: CO₂ 100%	DEW POINT: -40°F min FLOW RATE: 32 - 43 CFH
SINGLE OR MULTIPLE PASS:	Multiple
SINGLE OR MULTIPLE ARC:	Single ELECTRODE STICKOUT: 3/4" ± 1/4"
WELDING CURRENT:	DC+
POLARITY:	Reverse
WELDING PROGRESSION:	Forward
ROOT TREATMENT:	Surfaces to be clean and free of dirt, rust, oil, etc. Before welding opposite side, back-gouge/grind to sound metal and grind weld prep. contour.
PREHEAT AND INTERPASS TEMP.	≤ 3/4" = 50°F; over 3/4" to 1-1/2" = 70°F; over 1-1/2" to 2-1/2" = 150°F; over 2-1/2" = 225°F (Minimums)
POSTHEAT TREATMENT:	N/A

WELDING PROCEDURE

Weld Size -# of Passes	Electrode Size	Welding Current		Travel Speed "/Min	Joint Detail B-U3-GF
		Amps	Volts		
All	.045"	180 - 220	29 - 32	10 - 12	
				T ₁ = Unlimited α = β = 60° R = 0" to 1/8" f = 0" to 1/8"	

*** This procedure may vary within the limitations identified in AWS D1.5:2002 "Bridge Welding Code". ***

PROCEDURE NO:	<u>FCAW CS-SS-02</u>	REVISION NO.:	<u>2 (11/10/07)</u>
QUALIFYING PQR:	<u>FCAW-CSSS-PQR-2006</u>	PQR REQUAL DATE:	<u>11/11/2012</u>
MANUFACTURER:	<u>Watson Bowman Acme Corp.</u>	AUTHORIZED BY:	 J. Miller - Quality Control Supervisor



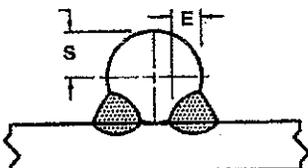
JOHN L. MILLER
CWI 61090111
OCT EXP. 8/31/10



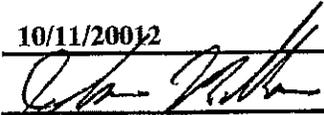
AWS D 1.6
WELDING PROCEDURE SPECIFICATION

MATERIAL SPECIFICATION:	ASTM: A-240 TYPE 304 / 316 to ASTM A-36 ,A709 250,345 A572, A588 (also ref. AWS D1.5:2002 par. 5.4.1)
WELDING PROCESS:	FCAW
MANUAL OR MACHINE:	Semi-Automatic
POSITION OF WELDING:	Flat
FILLER METAL SPECIFICATION:	A5.22
FILLER METAL CLASSIFICATION:	ER 309-LT4
FILLER METAL MANUFACTURER:	ESAB
SHIELDING GAS: CO₂ 100%	DEW POINT: -40°F min FLOW RATE: 32 - 43 CFH
SINGLE OR MULTIPLE PASS:	Multiple
SINGLE OR MULTIPLE ARC:	Single ELECTRODE STICKOUT: 3/4" ± 1/4"
WELDING CURRENT:	DC+
POLARITY:	Reverse
WELDING PROGRESSION:	Forward
ROOT TREATMENT:	Surfaces to be clean and free of dirt, rust, oil, etc.
PREHEAT AND INTERPASS TEMP.	≤ 3/4" = 50°F; over 3/4" to 1-1/2" = 70°F; over 1-1/2" to 2-1/2" = 150°F; over 2-1/2" = 225°F (Minimums)
POSTHEAT TREATMENT:	N/A

WELDING PROCEDURE

Bar Radius (S)	Electrode Size	Welding Current		Travel Speed "/Min	Joint Detail Double Flare Bevel Groove
		Amps	Volts		
3/16	.045"	180 - 220	29 - 32	10 - 12	 <p>E (Effective Throat) = .4(S) S = Bar Radius</p>
1/4	.045"	180 - 220	29 - 32	10 - 12	
5/16	.045"	180 - 220	29 - 32	10 - 12	

*** This procedure may vary within the limitations identified in AWS D1.5:2002 "Bridge Welding Code". ***

PROCEDURE NO: <u>FCAW CS-SS-10</u>	REVISION NO.: <u>1 (10/11/07)</u>
QUALIFYING PQR: <u>FCAW CS-SS 2007</u>	PQR REQUAL DATE: <u>10/11/2007</u>
MANUFACTURER: <u>Watson Bowman Acme Corp.</u>	AUTHORIZED BY: 



J. Miller - WBA Quality Control
 JOHN L. MILLER
 CWI 01090211
 RC-1 EXP. 9/23/08



AWS D 1.6
WELDING PROCEDURE SPECIFICATION

MATERIAL SPECIFICATION:	ASTM: A-240 TYPE 304 / 316 to ASTM A-36 A-572 A709 250,345 A588 (also ref. AWS D1.5:2002 par. 5.4.1)
WELDING PROCESS:	FCAW
MANUAL OR MACHINE:	Semi-Automatic
POSITION OF WELDING:	Flat & Horizontal
FILLER METAL SPECIFICATION:	A5.22
FILLER METAL CLASSIFICATION:	ER 309LT-4
FILLER METAL MANUFACTURER:	ESAB
SHIELDING GAS: CO₂ 100%	DEW POINT: -40°F min FLOW RATE: 32 - 43 CFH
SINGLE OR MULTIPLE PASS:	Multiple
SINGLE OR MULTIPLE ARC:	Single ELECTRODE STICKOUT: 3/4" ± 1/4"
WELDING CURRENT:	DC+
POLARITY:	Reverse
WELDING PROGRESSION:	Forward
ROOT TREATMENT:	Surfaces to be clean and free of dirt, rust, oil, etc.
PREHEAT AND INTERPASS TEMP.	≤ 3/4"= 50°F; over 3/4" to 1-1/2"= 70°F; over 1-1/2" to 2-1/2"= 150°F; over 2-1/2"= 225°F (Minimums)
POSTHEAT TREATMENT:	N/A

WELDING PROCEDURE

Weld Size	Electrode Size	Welding Current		Travel Speed "/Min	Joint Detail Fillet
		Amps	Volts		
3/16	.045"	180 - 220	29 - 32	10 - 12	
1/4	.045"	180 - 220	29 - 32	10 - 12	
5/16	.045"	180 - 220	29 - 32	10 - 12	
>5/16 (S ₂)	.045"	180 - 220	29 - 32	10 - 12	

*** This procedure may vary within the limitations identified in AWS D1.5:2002 "Bridge Welding Code". ***

PROCEDURE NO:	<u>FCAWCS-SS-11</u>	REVISION NO.:	<u>1 (11/10/07)</u>
QUALIFYING PQR:	<u>FCAW-CS-SS-PQR-2007</u> <u>PQR CS-SS 2007 FILLET WELD</u> <u>SOUNDNESS TEST</u>	PQR REQUAL DATE:	<u>10/11/2012</u>
MANUFACTURER:	<u>Watson Bowman Acme Corp.</u>	AUTHORIZED BY:	<u></u> Miller - Quality Control Supervisor



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