

BILL OF MATERIAL			
QTY	PART #	DESCRIPTION	ASTM DESIGNATION
36	0033.90344	TWO RAIL POST @ 2'-2 3/8" O.A.	A572 Gr. 50
2	0033.91127	4' X 4' X 1/4" RAIL @ 29'-11 1/2"	A500 Gr. B
4	0033.91128	4' X 4' X 1/4" RAIL @ 29'-11"	A500 Gr. B
2	0033.91129	4' X 4' X 1/4" RAIL @ 19'-11 1/2"	A500 Gr. B
1	0033.91130	4' X 4' X 1/4" RAIL @ 20'-7 1/4" W/ PARTIAL 34'-6" R.	A500 Gr. B
1	0033.91131	4' X 4' X 1/4" RAIL @ 20'-5" W/ PARTIAL 15'-0" R.	A500 Gr. B
2	0033.91132	4' X 8' X 1/4" RAIL @ 29'-11 1/2" Confirm	A500 Gr. B
4	0033.91133	4' X 8' X 5/16" RAIL @ 29'-11"	A500 Gr. B
2	0033.91134	4' X 8' X 5/16" RAIL @ 19'-11 1/2"	A500 Gr. B
1	0033.91135	4' X 8' X 5/16" RAIL @ 20'-7 1/4" W/ PARTIAL 34'-6" R.	A500 Gr. B
1	0033.91136	4' X 8' X 5/16" RAIL @ 20'-5" W/ PARTIAL 15'-0" R.	A500 Gr. B
8	0033.90052	3' X 3' X 5/16" FIX. SPL. TUBE @ 1'-8"	A500 Gr. B
8	0033.90033	3' X 7' X 3/8" FIX. TUBE @ 1'-8"	A500 Gr. B, A36
36	0033.00299	3/8" X 9 3/8" X 13" ANCHOR PLATES	A36
36	0033.00052	1/8" FIBER PAD @ 10" X 14" (S-360A)	AASHTO M251
144	0042.21012	Ø 1" X 12" ANCHOR STUDS W/ 2 1/2" THREADED ENDS	A449 Gr. 1
288	0080.18901	Ø 1" HEAVY HEX NUTS	A563
144	0080.18905	Ø 1" HEX JAM NUTS	A325
144	0080.18911	Ø 1" FLAT WASHERS	F436
144	0080.06290	Ø 3/4" X 6" ROUND HEAD BOLT, NUT, FLAT WASHER, L.W.	A449, A563, ASME B18.21.1
64	0080.05045	Ø 5/8" X 1 3/4" HEX BOLT, & F.W.	A307
10	-	ALUMINUM DELINEATORS	SUPPLIED BY FRL

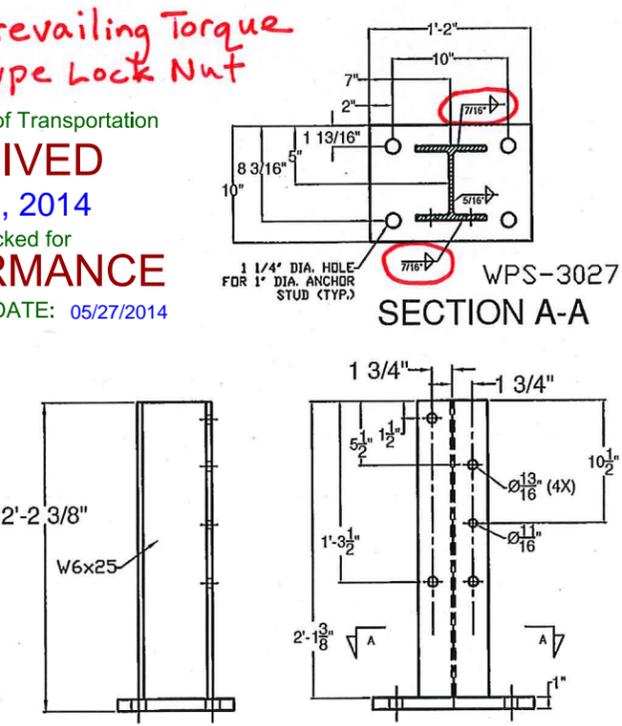
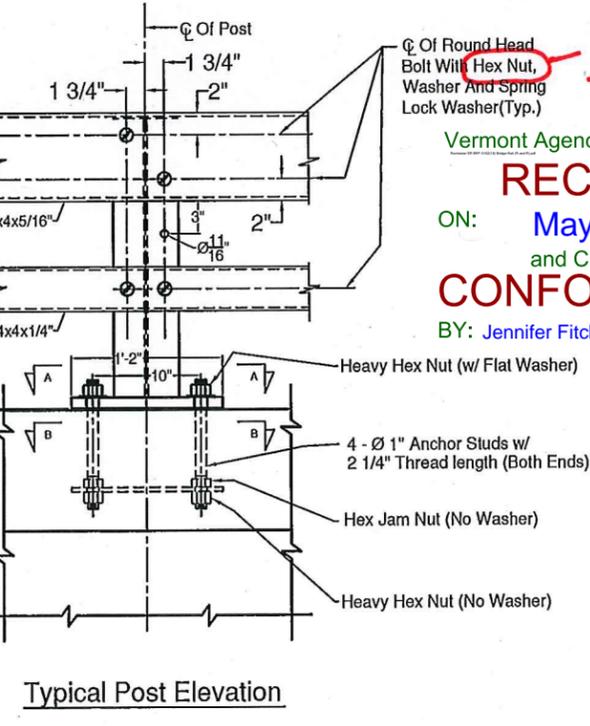
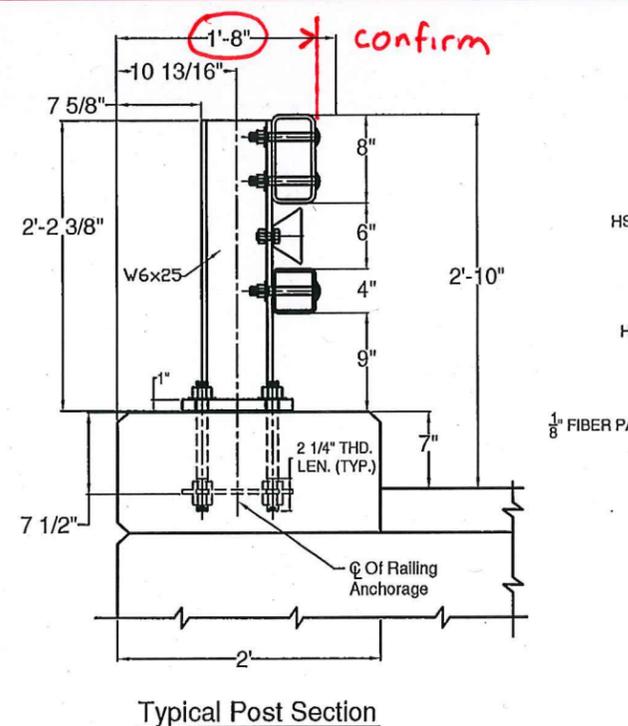
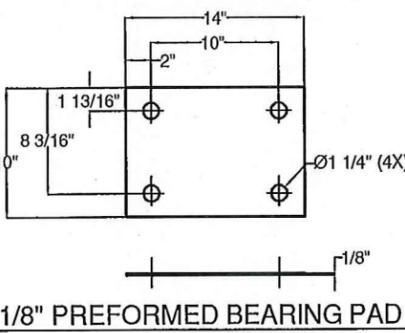
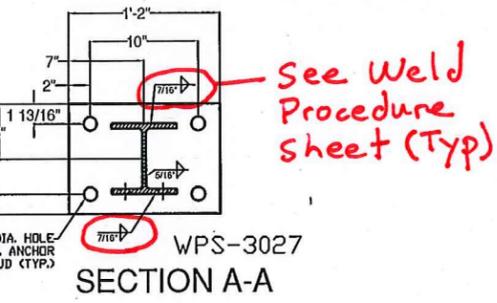
SHOP DRAWING REVIEW

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VHB Job Number: 52517
 Reviewed By: B. Moore
 Date: 5-23-14



RECEIVED
 ON: **May 9, 2014**
 and Checked for
CONFORMANCE
 BY: Jennifer Fitch DATE: 05/27/2014

- NOTES
- ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
 - PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
 - ALL POSTS SHALL BE SET NORMAL TO GRADE.
 - SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE RAIL POSTS AND PREFERABLY TO AT LEAST FOUR POSTS.
 - RAIL TUBE EXPANSION JOINTS SHALL PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" A 45° F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
 - HOLES IN RAILS FOR RAIL TUBE ATTACHMENT WILL BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
 - RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
 - RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY ASTM A 449 (TYPE I) ROUND HEAD BOLTS INSERTED THROUGH THE RACE OF THE TUBE. HOLES IN POSTS SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
 - ANY BENDING OF RAIL SHALL BE DONE AT A FABRICATION PLANT ACCORDING TO A PROCEDURE PROVIDED BY THE FABRICATOR.
 - THE MINIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS FOUR, IF ONE IS USED.
 - SEE STANDARD DRAWING G-I FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT SHALL BE INCIDENTAL TO OTHER ITEMS.
 - THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

ITEM #: 525.33

APPROVED BY: _____

BRIDGE RAIL DETAILS SHEET
 ROCHESTER, BR# 0162 (18) VT RTE 73 (MAJOR COLLECTOR), BRIDGE NO.: 19, OVER WHITE RIVER
 TOWN OF ROCHESTER, COUNTY OF WINDSOR, VT

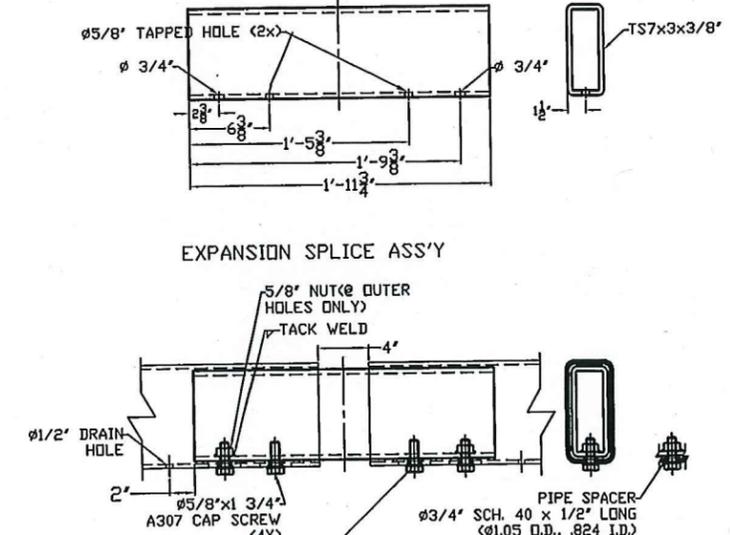
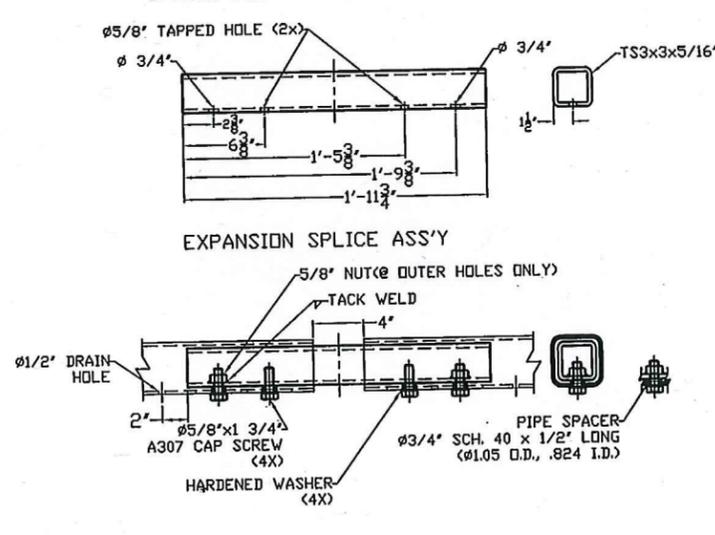
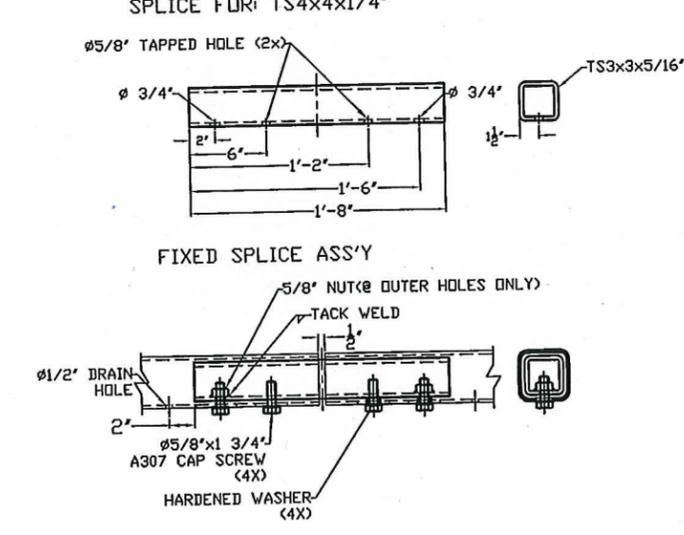
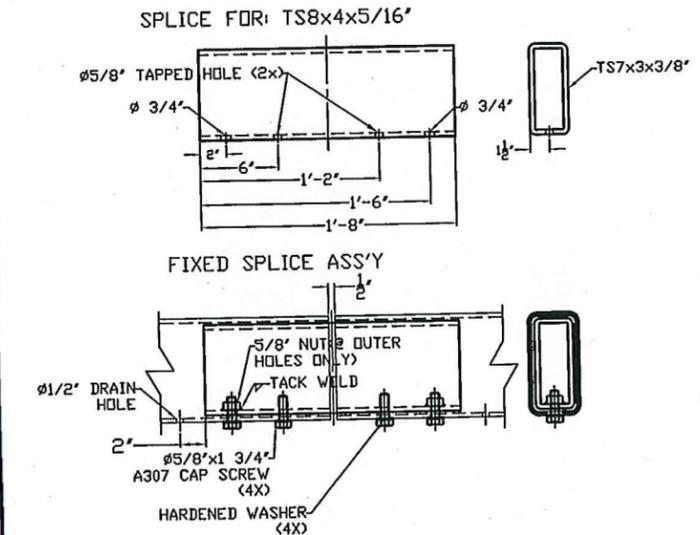
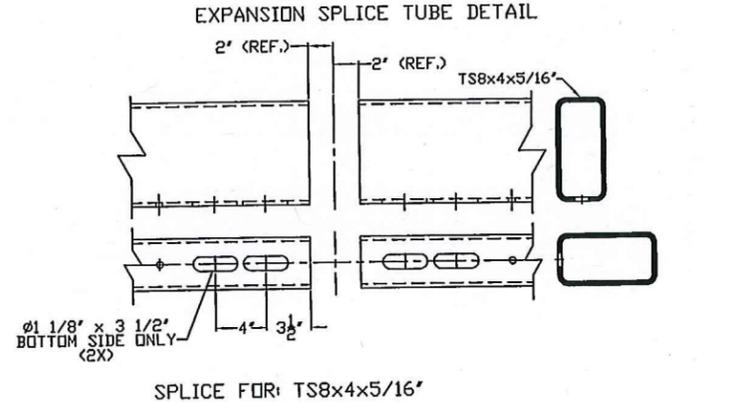
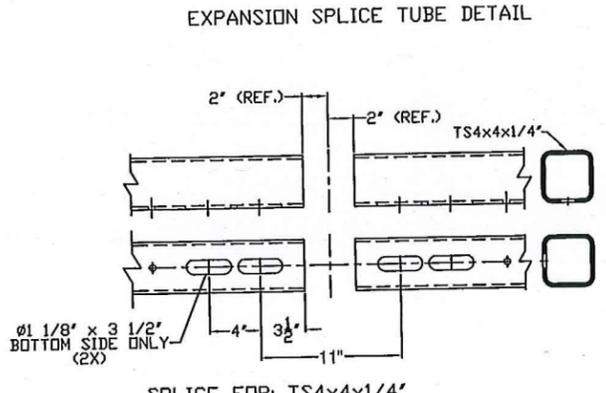
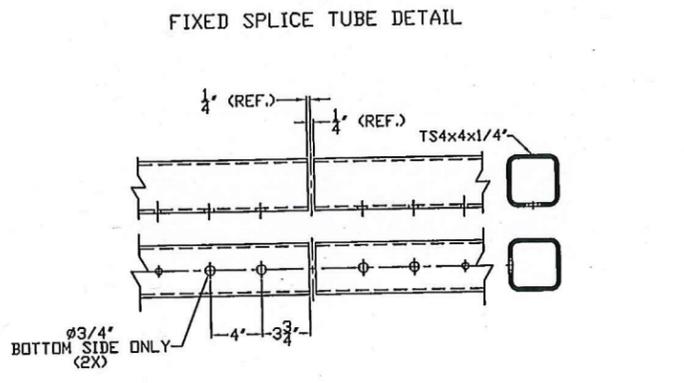
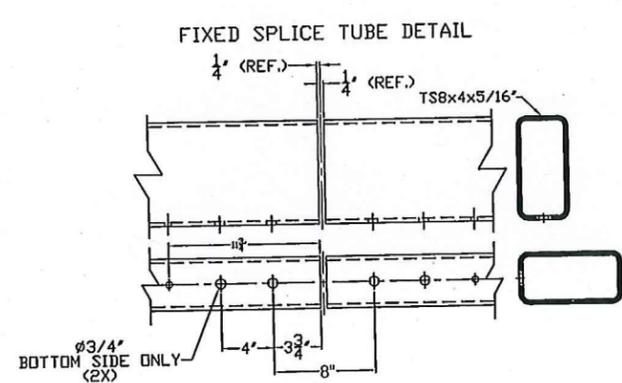
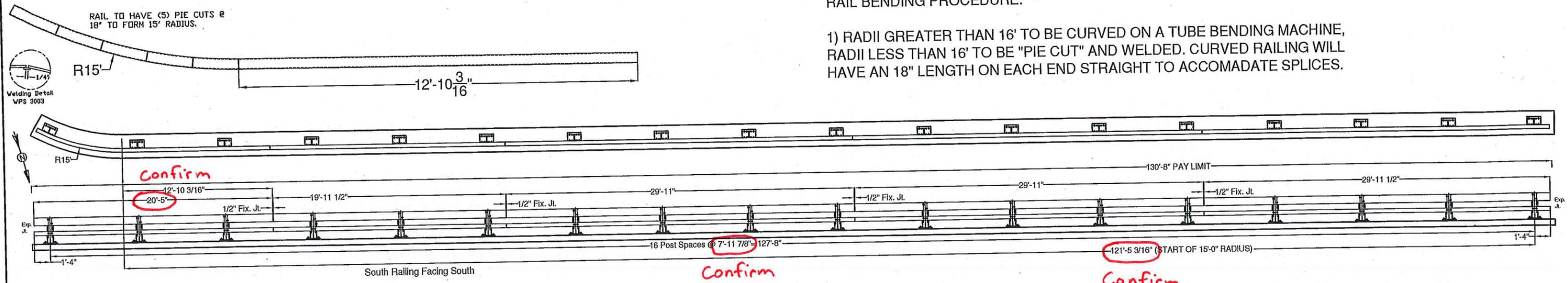
R NO.	DATE	DESCRIPTION	BY	R NO.	DATE	DESCRIPTION	BY

ELDERLEE, INC.
 OAKS CORNERS, NEW YORK 14518
 E-Mail: dlong@elderlee.com / epeek@elderlee.com
 Tel: 315-789-6670 Fax: 315-789-6615

DRAWN: 5/6/14
 CHECKED: D.L. 5/6/14
 APPROVED: _____
 SCALE: SCHEMATIC
 DRAWING NO. FRL-ROCH-BR19

RAIL BENDING PROCEDURE:

1) RADII GREATER THAN 16' TO BE CURVED ON A TUBE BENDING MACHINE, RADII LESS THAN 16' TO BE "PIE CUT" AND WELDED. CURVED RAILING WILL HAVE AN 18" LENGTH ON EACH END STRAIGHT TO ACCOMADATE SPLICES.



Vermont Agency of Transportation
RECEIVED
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 BY: Jennifer Fitch DATE: 05/27/2014

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VHB Job Number: 57517
 Reviewed By: B. Moore
 Date: 5-23-14

ITEM #: 525.33

APPROVED BY:

BRIDGE RAIL DETAILS SHEET
 ROCHESTER, BR# 0162 (18) VT RTE 73 (MAJOR COLLECTOR), BRIDGE NO: 19, OVER WHITE RIVER
 TOWN OF ROCHESTER, COUNTY OF WINDSOR, VT

R NO.	DATE	DESCRIPTION	BY	R NO.	DATE	DESCRIPTION

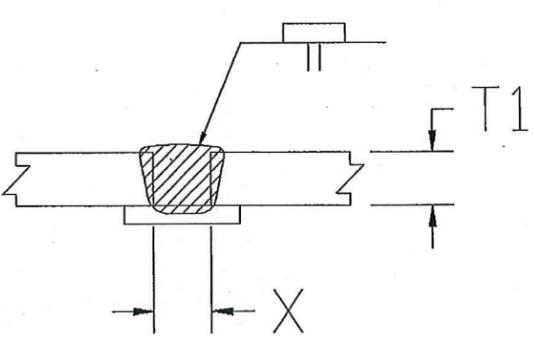
ELDERLEE, INC.
 OAKS CORNERS, NEW YORK 14518
 E-Mail: dlong@elderlee.com / epeek@elderlee.com
 Tel: 315-789-6670 Fax: 315-789-6615

SCALE: SCHEMATIC
 DRAWING NO. FR L - ROCH-BR19

WELDING PROCEDURE SPECIFICATION

Material Specification PQR ELDERLEE#3
 A500 GR B
 Welding Process FCAW
 Manual or Machine SEMAUTOMATIC
 Position of Welding FLAT / HORIZONTAL
 Filler Metal Specification A5.20 - 95
 Filler Metal Classification E81T-Ni1C-JH4
 Flux N/A
 Shielding Gas CO 2 Dew Point -40DEG F Flow Rate 50CFH
 Single or Multiple Pass SINGLE
 Single or Multiple Arc SINGLE
 Welding Current DC
 Polarity REVERSE ELECTRODE POSITIVE
 Welding Progression STRINGER
 Root Treatment PER D1.5
 Preheat and Interpass Temperature PER D1.5
 Postheat Temperature NONE
 Heat Input Min _____ Max _____

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
Variable	LIMITS	310	25	11	 <p>SEQUENCE OF WELD PASSES SHALL BE SHOWN DIAGRAMATICALLY</p>
		341	27	12	
		TO	TO	TO	
		269	23	10	

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in Section 5.

Procedure No. 3003 Contractor Elderlee, Inc.
 Revision No. _____ Authorized By RANDY SCOTT
 Date 5/8/2014

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 Date: 5-23-14

Vermont Agency of Transportation

RECEIVED

ON: May 9, 2014

and Checked for

CONFORMANCE

BY: Jennifer Fitch DATE: 05/27/2014

WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE#1

Material Specification	A572 GRD. 50 /A992-06a	
Welding Process	FCAW	
Manual or Machine	SEMAUTOMATIC	
Position of Welding	FLAT/HORIZONTAL	
Filler Metal Specification	A5.20	
Filler Metal Classification	E70 LINCOLN OUTERSHEILD	
Flux	N/A	
Shielding Gas	CO 2	Dew Point -40DEG F Flow Rate 50 CFM
Single or Multiple Pass	SINGLE (45 TO 63 CFM)	
Single or Multiple Arc	N/A	
Welding Current	DC	
Polarity	DCEP	
Welding Progression	STRINGER	
Root Treatment	PER D1.5	
Preheat and Interpass Temperature	PER D1.5	
Postheat Temperature	NONE	
Heat Input	Min _____	Max _____

WELDING PROCEDURE.

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	3/32	390	27	12	
Variable	LIMITS	351	25	11	
		TO 429	TO 29	TO 13	

This procedure may vary due to fabrication sequence, fit-up, pass size, etc., within the limitation of variables given in Section 5.

Procedure No. 3027
Revision No. _____

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 4/4/2014

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