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Updating the contents of the manual is a continued process, and revisions/replacements are issued periodically. Questions, comments, and proposed recommendations for changes may be sent to SCRRA at 279 E. Arrow Highway, Suite A, San Dimas, CA 91773.

SCRRRA NO 10 TURNOUT
 BILL OF MATERIALS & DRAWING NUMBERS

FROG NUMBER
 HAND
 WSM OR RBM
 CONCRETE OR TIMBER TIES
 HST OR STANDARD TIES
 POWER OR MANUAL
 ML OR TO SIDE SW MACHINE OPERATION

NO 10															
LH								RH							
WSM						RBM		WSM						RBM	
CONCRETE						TIMBER		CONCRETE						TIMBER	
HST		STD						HST		STD					
POWER				MANUAL				POWER				MANUAL			
MLSIDE	TOSIDE	MLSIDE	TOSIDE	MLSIDE	TOSIDE	MLSIDE	TOSIDE	MLSIDE	TOSIDE	MLSIDE	TOSIDE	MLSIDE	TOSIDE	MLSIDE	TOSIDE

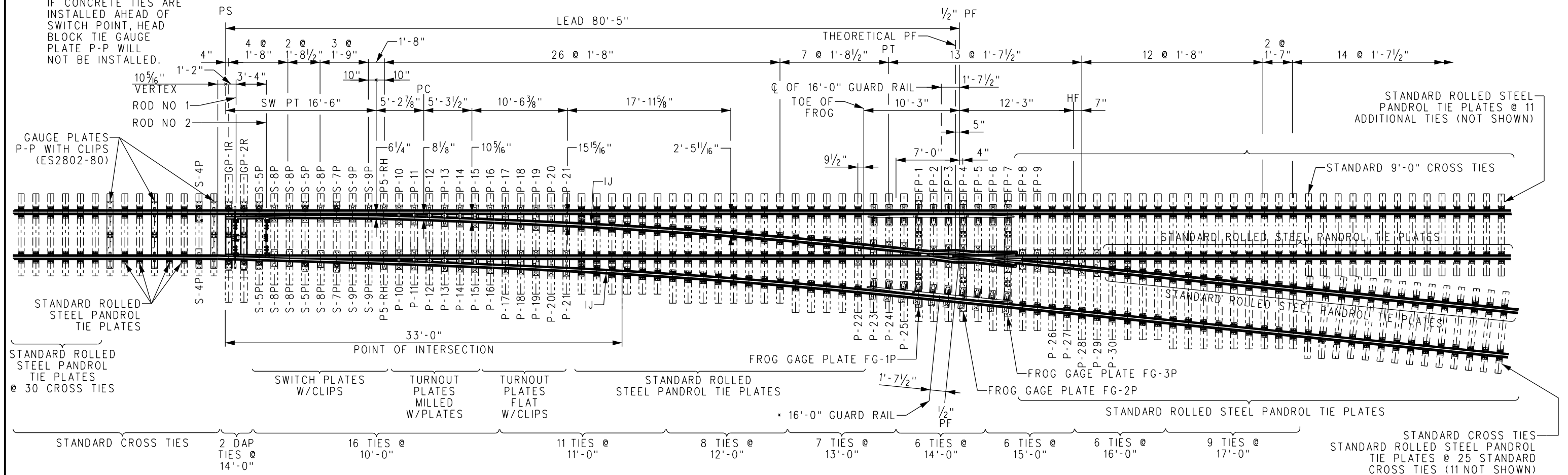
TURNOUT LAYOUT	DRAWING NO	2803-01	2803-03	2803-05	2803-07	2803-09	2803-11	2802-01	2802-01	2803-02	2803-04	2803-06	2803-08	2803-10	2803-12	2802-02	2802-02
SWITCH PACK	DRAWING NO	2803-13	2803-15	2803-17	2803-19	2803-17	2803-19	2802-11	2802-11	2803-14	2803-16	2803-18	2803-20	2803-18	2803-20	2802-12	2802-12
TIE LAYOUT	DRAWING NO	2803-31	2803-31	2803-31	2803-31	2803-31	2803-31	2802-31	2802-31	2803-30	2803-30	2803-30	2803-30	2803-30	2803-30	2802-32	2802-32
HST/CONC HEADBLOCK TIE LAYOUT	DRAWING NO	2803-33	2803-35	2803-37	2803-39	2803-37	2803-39	-	-	2803-32	2803-34	2803-36	2803-38	2803-36	2803-38	-	-
FROG PACK	DRAWING NO	2803-41	2803-41	2803-41	2803-41	2803-41	2803-41	2802-41	2802-41	2803-40	2803-40	2803-40	2803-40	2803-40	2803-40	2802-40	2802-40
GUARD RAIL MAINLINE	DRAWING NO	2800-50	2800-50	2800-50	2800-50	2800-50	2800-50	2802-50	2802-50	2800-50	2800-50	2800-50	2800-50	2800-50	2800-50	2802-50	2802-50
GUARD RAIL TURNOUT	DRAWING NO	2803-51	2803-51	2803-51	2803-51	2803-51	2803-51	2802-50	2802-50	2803-52	2803-52	2803-52	2803-52	2803-52	2803-52	2802-50	2802-50
INSULATED RAIL ASSEMBLY	LENGTH	29'-6¾"	29'-6¾"	29'-6¾"	29'-6¾"	29'-6¾"	29'-6¾"	28'-8"	28'-8"	29'-6¾"	29'-6¾"	29'-6¾"	29'-6¾"	29'-6¾"	29'-6¾"	28'-8"	28'-8"
INSULATED RAIL ASSEMBLY	LENGTH	29'-11¼"	29'-11¼"	29'-11¼"	29'-11¼"	29'-11¼"	29'-11¼"	46'-6"	46'-6"	29'-11¼"	29'-11¼"	29'-11¼"	29'-11¼"	29'-11¼"	29'-11¼"	46'-6"	46'-6"
RAIL	LENGTH	2@26'-0"	2@26'-0"	2@26'-0"	2@26'-0"	2@26'-0"	2@26'-0"	19'-6"	19'-6"	2@26'-0"	2@26'-0"	2@26'-0"	2@26'-0"	2@26'-0"	2@26'-0"	19'-6"	19'-6"
RAIL	LENGTH	2@28'-0"	2@28'-0"	2@28'-0"	2@28'-0"	2@28'-0"	2@28'-0"	23'-6"	23'-6"	2@28'-0"	2@28'-0"	2@28'-0"	2@28'-0"	2@28'-0"	2@28'-0"	23'-6"	23'-6"
RAIL	LENGTH	29'-4½"	29'-4½"	29'-4½"	29'-4½"	29'-4½"	29'-4½"	28'-6"	28'-6"	29'-4½"	29'-4½"	29'-4½"	29'-4½"	29'-4½"	29'-4½"	28'-6"	28'-6"
RAIL	LENGTH	29'-9¾"	29'-9¾"	29'-9¾"	29'-9¾"	29'-9¾"	29'-9¾"	23'-0"	23'-0"	29'-9¾"	29'-9¾"	29'-9¾"	29'-9¾"	29'-9¾"	29'-9¾"	23'-0"	23'-0"
RAIL	LENGTH	40'-0"	40'-0"	40'-0"	40'-0"	40'-0"	40'-0"	28'-0"	28'-0"	40'-0"	40'-0"	40'-0"	40'-0"	40'-0"	40'-0"	28'-0"	28'-0"
RAIL	LENGTH	40'-4"	40'-4"	40'-4"	40'-4"	40'-4"	40'-4"	32'-0"	32'-0"	40'-4"	40'-4"	40'-4"	40'-4"	40'-4"	40'-4"	32'-0"	32'-0"
RAIL	LENGTH	-	-	-	-	-	-	4@39'-0"	4@39'-0"	-	-	-	-	-	-	4@39'-0"	4@39'-0"
TIE SCREWS CONCRETE	ES 2356	QUANTITY	276	276	300	300	300	300	-	-	276	276	300	300	300	300	-
TIE SCREWS TIMBER	ES 2355	QUANTITY	-	-	-	-	-	-	552	552	-	-	-	-	-	-	552
WASHER FLAT	ES 2356	QUANTITY	276	276	300	300	300	300	-	-	276	276	300	300	300	300	-
SPRING WASHER DOUBLE COIL	ES 2356	QUANTITY	276	276	300	300	300	300	-	-	276	276	300	300	300	300	-
TIE PLATE PANDROL	ES 2454	QUANTITY	-	-	-	-	-	-	138	138	-	-	-	-	-	-	138
E-CLIP PANDROL E2055	ES 2362	QUANTITY	224	224	224	224	224	224	276	276	224	224	224	224	224	224	276
INSULATOR PANDROL NYLON HD10	-	QUANTITY	224	224	224	224	224	224	-	-	224	224	224	224	224	224	-
PANDROL JOINT CLIP E2063	ES 2361	QUANTITY	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
INSULATION PANDROL NYLON 6790	-	QUANTITY	8	8	8	8	8	8	-	-	8	8	8	8	8	8	-
TIE PAD PANDROL 69935R	-	QUANTITY	116	116	116	116	116	116	-	-	116	116	116	116	116	116	-
SHIM TO REDUCE PLATE FLEXURE	-	QUANTITY	138	138	150	150	150	150	-	-	138	138	150	150	150	150	-



						DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES: SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.		 METROLINK® SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012		ENGINEERING STANDARDS NO 10 TURNOUT		STANDARD 2800 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2800-10	
X	XX-XX-XX	REVISION	XX	XX	 ASSISTANT DIRECTOR: STANDARDS & DESIGN		 DIRECTOR OF ENGINEERING AND CONSTRUCTION								
REV.	DATE	DESCRIPTION	DES.	ENG.											

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO
1	2	16'-6" EXTENDED FIELD WELDED TYPE SWITCH POINTS (40'-0" RAIL)	ES2802-24		24	2	DIRAIL HOLD DOWN CLIPS E-3708	-	
2	1	RH SAMSON STOCK RAILS 40'-0"	ES2802-25		25	138	TIE PLATES	ES2454	
3	1	LH SAMSON STOCK RAILS 40'-0"	ES2802-25		26	552	PANDROL OR EQUAL SCREW SPIKES ¹⁵ / ₁₆ " DIA x 6" NO 2355	-	
4	1	NO 1 SMJ TYPE SWITCH ROD WITH BASKET	ES2802-26		27	276	PANDROL OR EQUAL E-CLIP TYPE E-2055	-	
5	1	VERTICAL SWITCH ROD WITH SMJ CLIPS	ES2802-26		28	8	PANDROL OR EQUAL E-CLIP TYPE E-2063	-	
6	3	GAUGE PLATE P-P	ES2802-80		29	12	BOLTLESS ADJUSTABLE BRACE ASSEMBLY	-	
7	1	GAUGE PLATE GP-1R	ES2802-81		30	1	DRILLED RAIL, 136 LB RE, 19'-6" LONG	-	
8	1	GAUGE PLATE GP-2R	ES2802-82		31	1	DRILLED RAIL, 136 LB RE, 23'-0" LONG	-	
9	6	SLIDE PLATE S-8P	ES2802-86		32	1	DRILLED RAIL, 136 LB RE, 23'-6" LONG	-	
10	4	SLIDE PLATE S-9P	ES2802-86		33	1	DRILLED RAIL, 136 LB RE, 28'-0" LONG	-	
11	4	BRACE SLIDE PLATE S-5P	ES2802-85		34	1	DRILLED RAIL, 136 LB RE, 28'-6" LONG	-	
12	2	BRACE SLIDE PLATE S-7P	ES2802-85		35	1	DRILLED RAIL, 136 LB RE, 32'-0" LONG	-	
13	2	BRACE SLIDE PLATE S-4P	ES2802-88		36	4	DRILLED RAIL, 136 LB RE, 39'-0" LONG	-	
14	2	HEEL PLATE P5-RH	ES2802-84		37	1	EPOXY BONDED PREFABRICATED MITRE CUT INSULATED JOINT (28'-8")	-	
15	2	TURNOUT PLATES P-10 THROUGH P-23	ES2802-92		38	1	EPOXY BONDED PREFABRICATED MITRE CUT INSULATED JOINT (46'-6")	-	
16	1	PLATES P-29 AND P-30	ES2802-92		39	16	TIE, HARDWOOD, TREATED, 7" x 9" x 10'-0"	-	
17	1	NO 10 RBM FROG 22'-6"	ES2802-42		40	11	TIE, HARDWOOD, TREATED, 7" x 9" x 11'-0"	-	
18	1	FROG PLATES NO FP-1 THROUGH FP-9	ES2802-44		41	8	TIE, HARDWOOD, TREATED, 7" x 9" x 12'-0"	-	
19	-	-	-		42	7	TIE, HARDWOOD, TREATED, 7" x 9" x 13'-0"	-	
20	1	FROG GAUGE PLATES FG-1P THROUGH FG-3P	ES2802-45		43	6	TIE, HARDWOOD, TREATED, 7" x 9" x 14'-0"	-	
21	2	16'-0" U-69 ADJUSTABLE GUARD RAIL WITH PLATES	ES2802-52		44	2	TIE, HARDWOOD, TREATED, 10" x 9" x 14'-0", DAP	-	
22	5	DIRAIL HOLD DOWN CLIPS E-3706	-		45	6	TIE, HARDWOOD, TREATED, 7" x 9" x 15'-0"	-	
23	2	DIRAIL HOLD DOWN CLIPS E-3707	-		46	6	TIE, HARDWOOD, TREATED, 7" x 9" x 16'-0"	-	
					47	9	TIE, HARDWOOD, TREATED, 7" x 9" x 17'-0"	-	

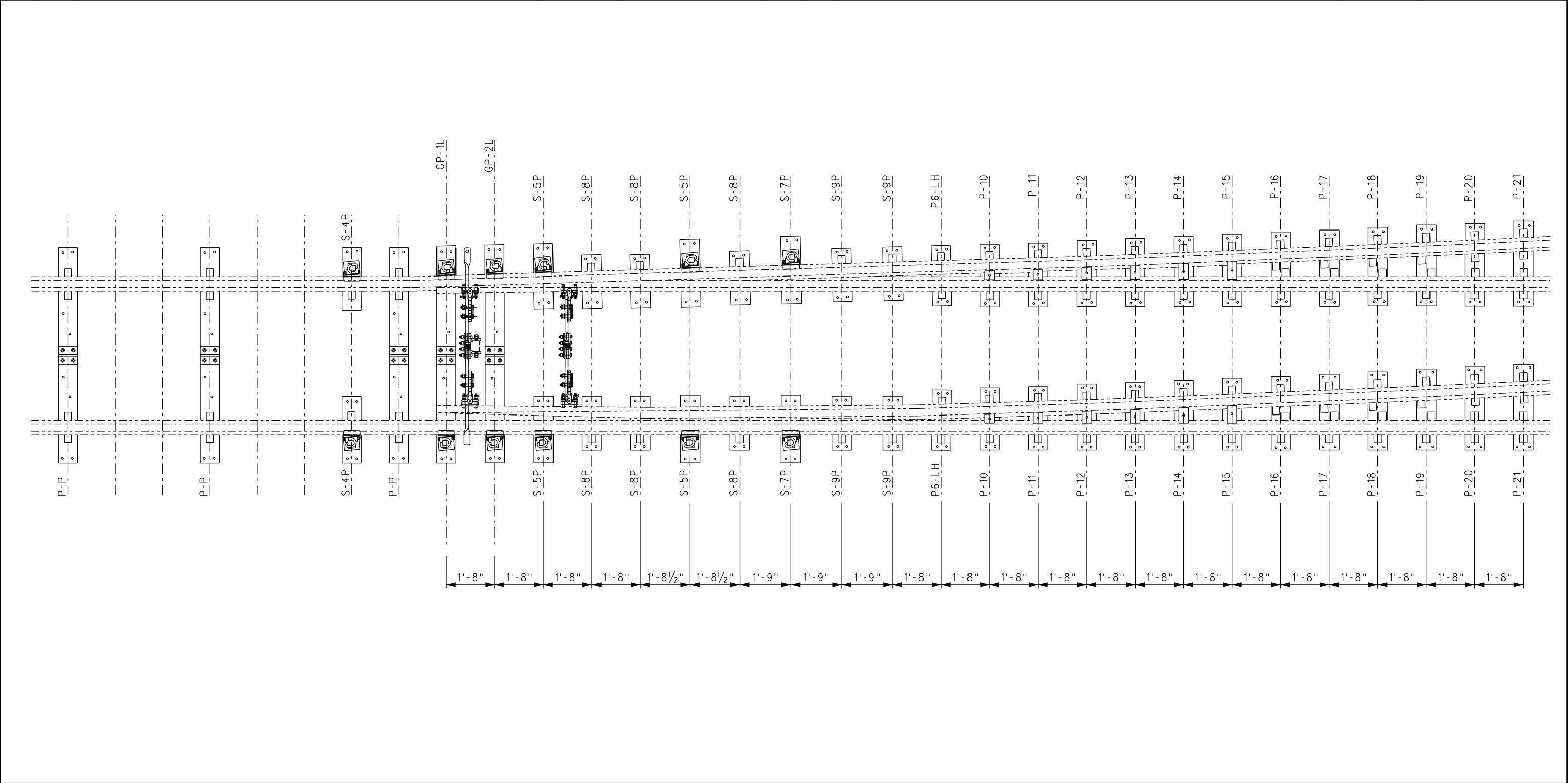
NOTE:

IF CONCRETE TIES ARE
INSTALLED AHEAD OF
SWITCH POINT, HEAD
BLOCK TIE GAUGE
PLATE P-P WILL
NOT BE INSTALLED.



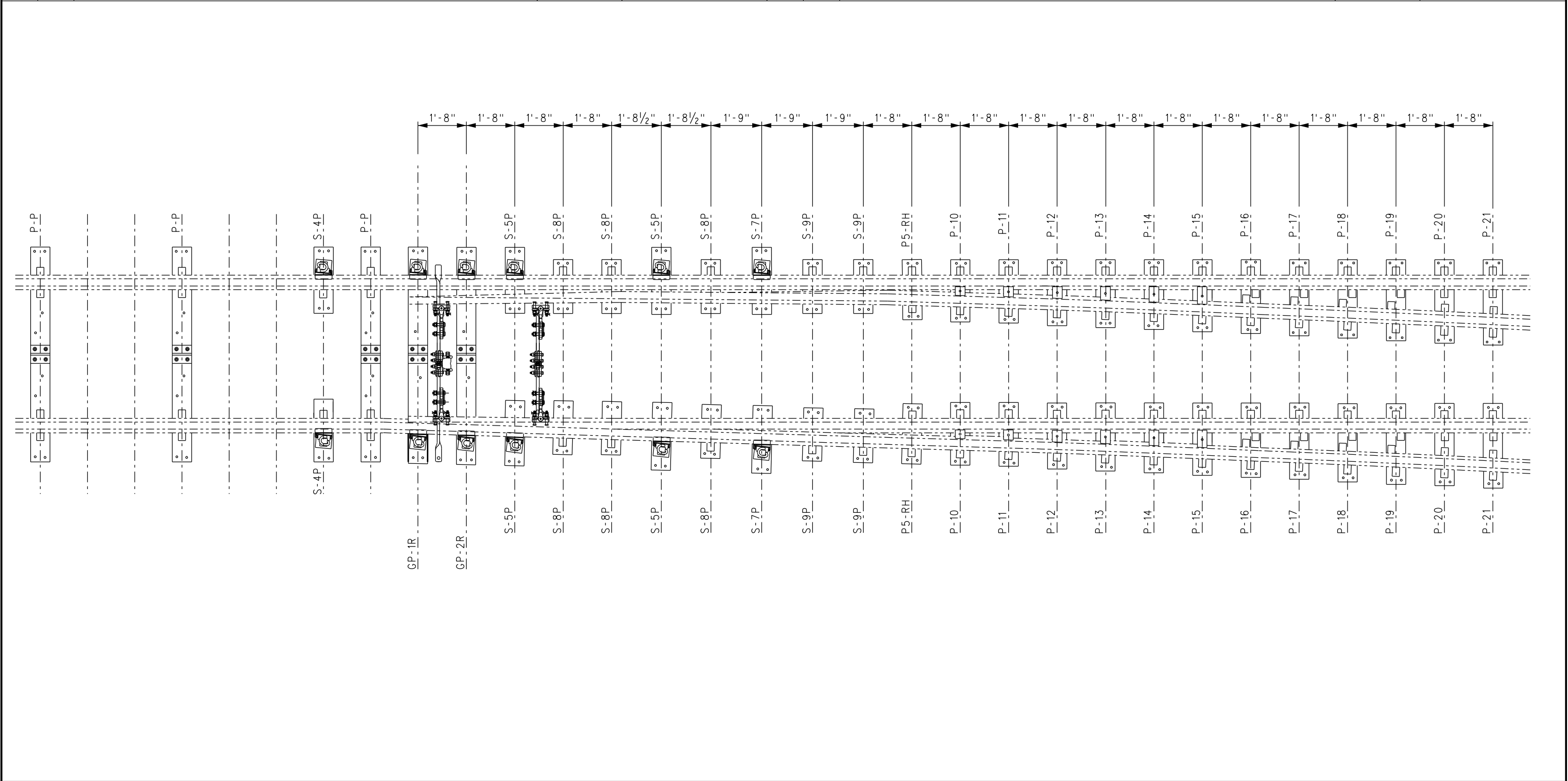
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				 ASSISTANT DIRECTOR: STANDARDS & DESIGN						SCALE: NTS			
				 DIRECTOR OF ENGINEERING AND CONSTRUCTION						TURNOUT LAYOUT			
										NO 10-136 LB RE RH RBM FROG TURNOUT			
										TIMBER TIES, SWITCH STAND ON EITHER SIDE			
												REVISION SHEET - 1 OF 1 CADD FILE: ES2802-02	
X XX-XX-XX		REVISION		XX XX									
REV. DATE		DESCRIPTION		DES. ENG.									

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	3	GAUGE PLATES P-P	ES2802-80		7	4	S-9P	ES2802-86	
2	1	GP-1L	ES2802-81		8	2	P6-LH	ES2802-83	
3	1	GP-2L	ES2802-82		9	2	PLATES P-10 THROUGH P-21	ES2802-91	
4	4	S-5P	ES2802-85		10	2	S-4P	ES2802-88	
5	6	S-8P	ES2802-86		11	-	-	-	
6	2	S-7P	ES2802-85		12	-	-	-	

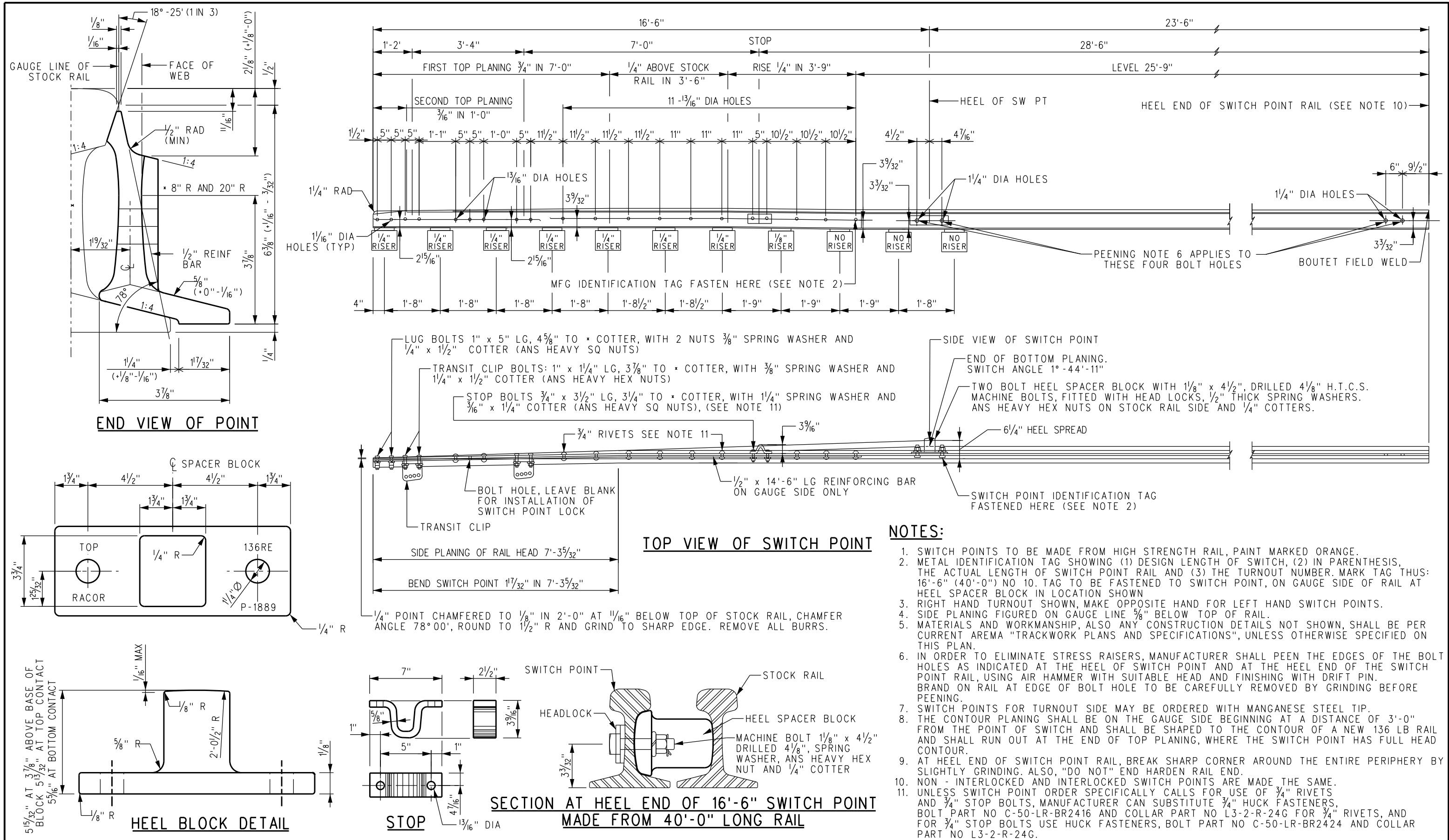


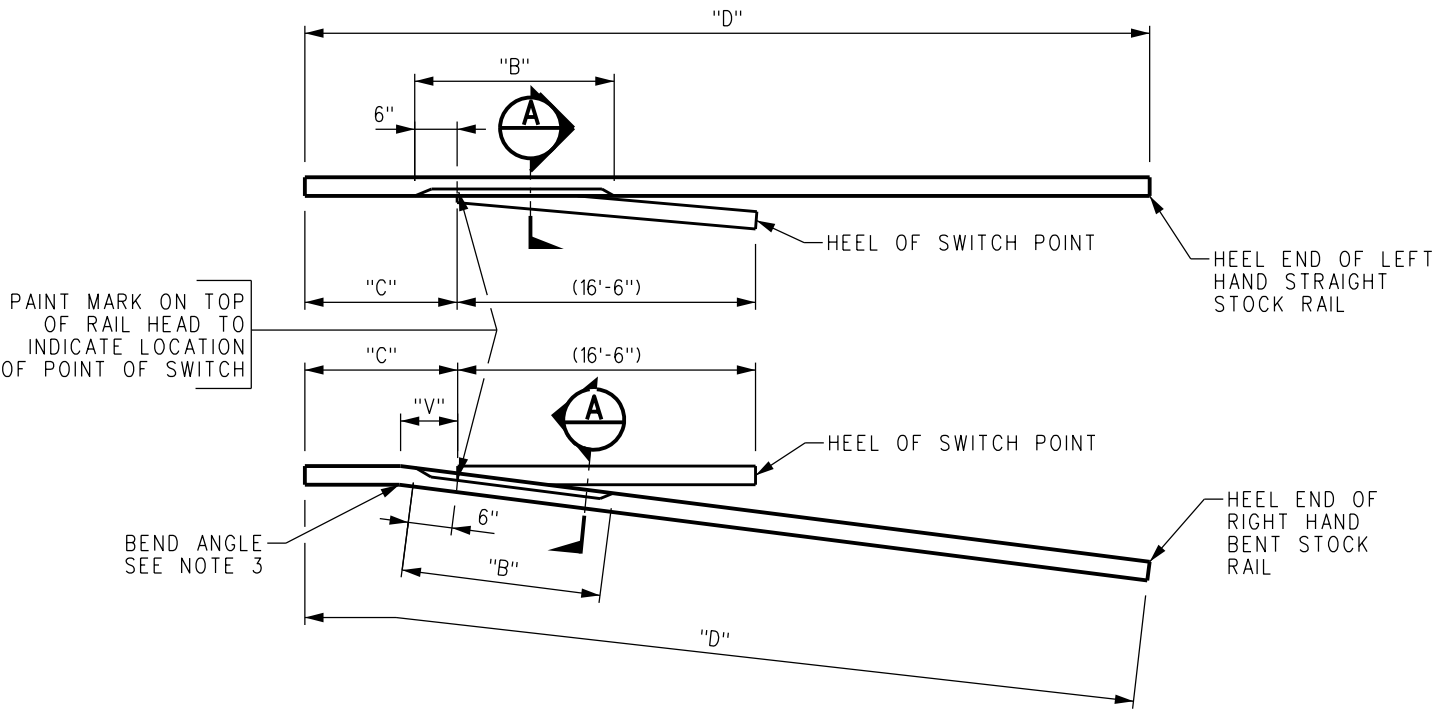
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X	XX-XX-XX	REVISION	XX	XX				NO 10-136 LB RE LH SWITCH PACK, TIMBER TIES, SWITCH CONTROL ON EITHER SIDE		2802
REV.	DATE	DESCRIPTION	DES.	ENG.						SCALE: NTS
					DIRECTOR OF ENGINEERING AND CONSTRUCTION				SHEET 1 OF 1	
									CADD FILE: ES2802-11	

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	3	GAUGE PLATES P-P	ES2802-80		7	4	S-9P	ES2802-86	
2	1	GP-1R	ES2802-81		8	2	P5-RH	ES2802-84	
3	1	GP-2R	ES2802-82		9	2	PLATES P-10 THROUGH P-21	ES2802-92	
4	4	S-5P	ES2802-85		10	2	S-4P	ES2802-88	
5	6	S-8P	ES2802-86		11	-	-	-	
6	2	S-7P	ES2802-85		12	-	-	-	

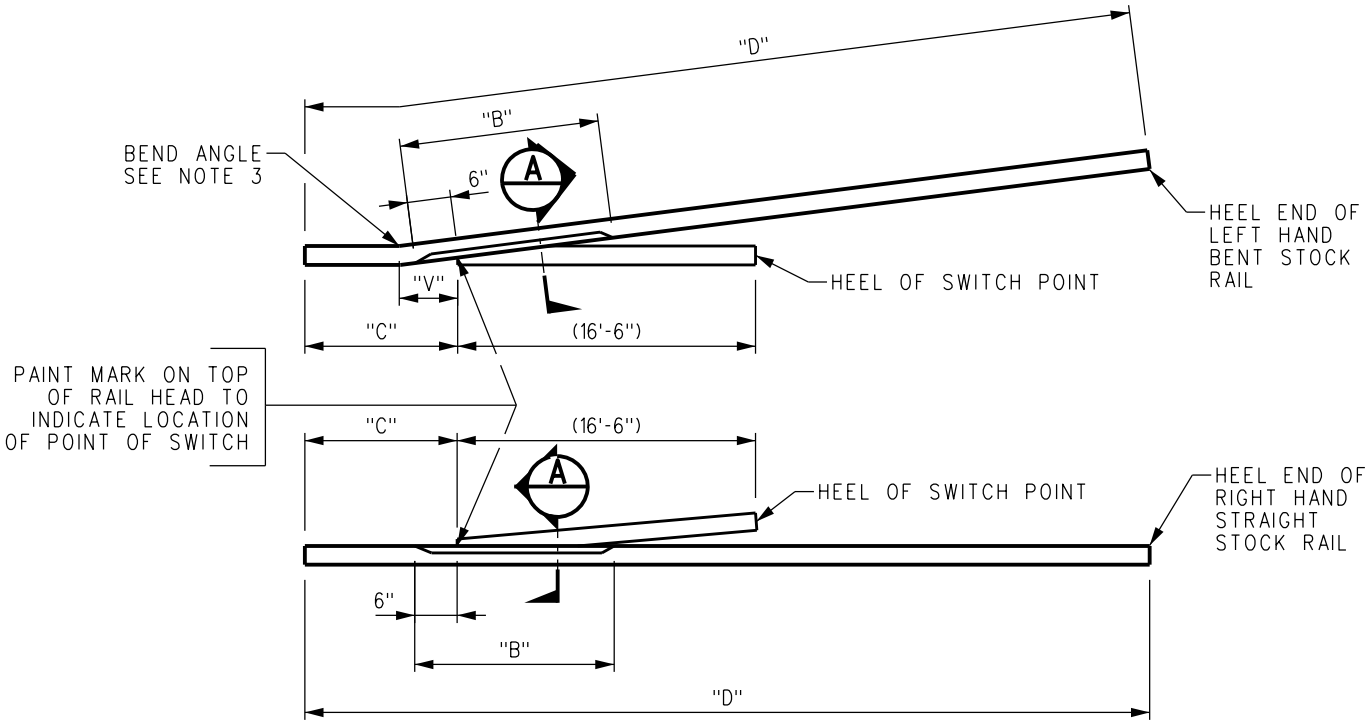


		DRAWN BY: HDR DATE: 03/31/2011		<div>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</div> <div> METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>		ENGINEERING STANDARDS		STANDARD 2802	
						NO 10-136 LB RE RH SWITCH PACK, TIMBER TIES, SWITCH CONTROL ON EITHER SIDE		SCALE: NTS	
X XX-XX-XX		REVISION XX XX						REVISION SHEET 1 OF 1	
REV. DATE		DESCRIPTION DES. ENG.				CADD FILE: ES2802-12			





STOCK RAILS SHOWN ARE FOR "RIGHT HAND TURNOUT"



STOCK RAILS SHOWN ARE FOR "LEFT HAND TURNOUT"

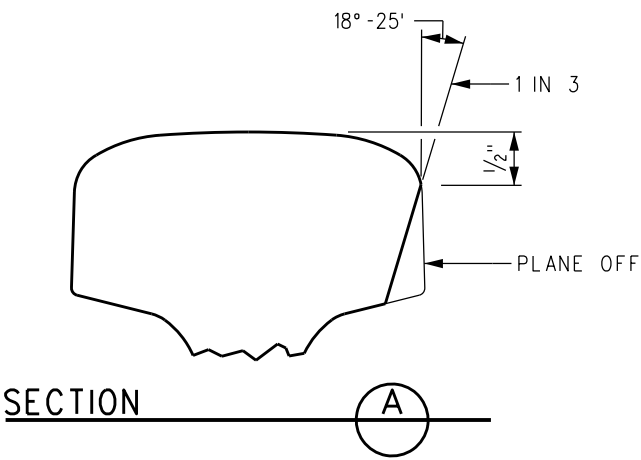
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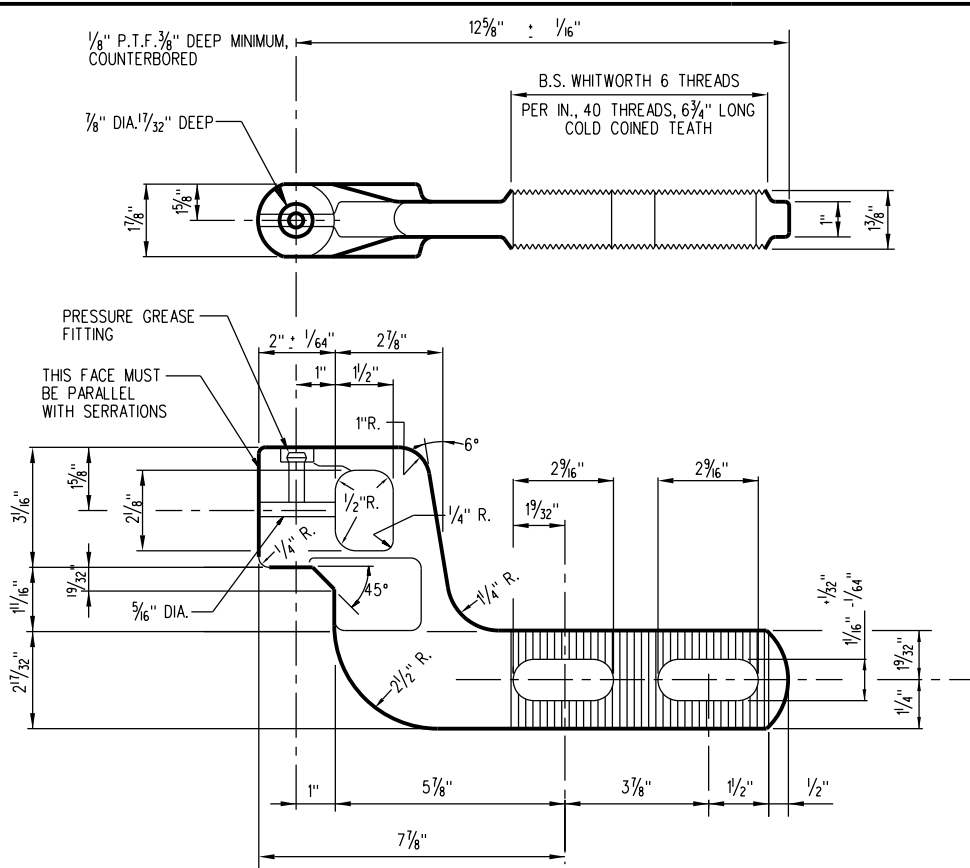
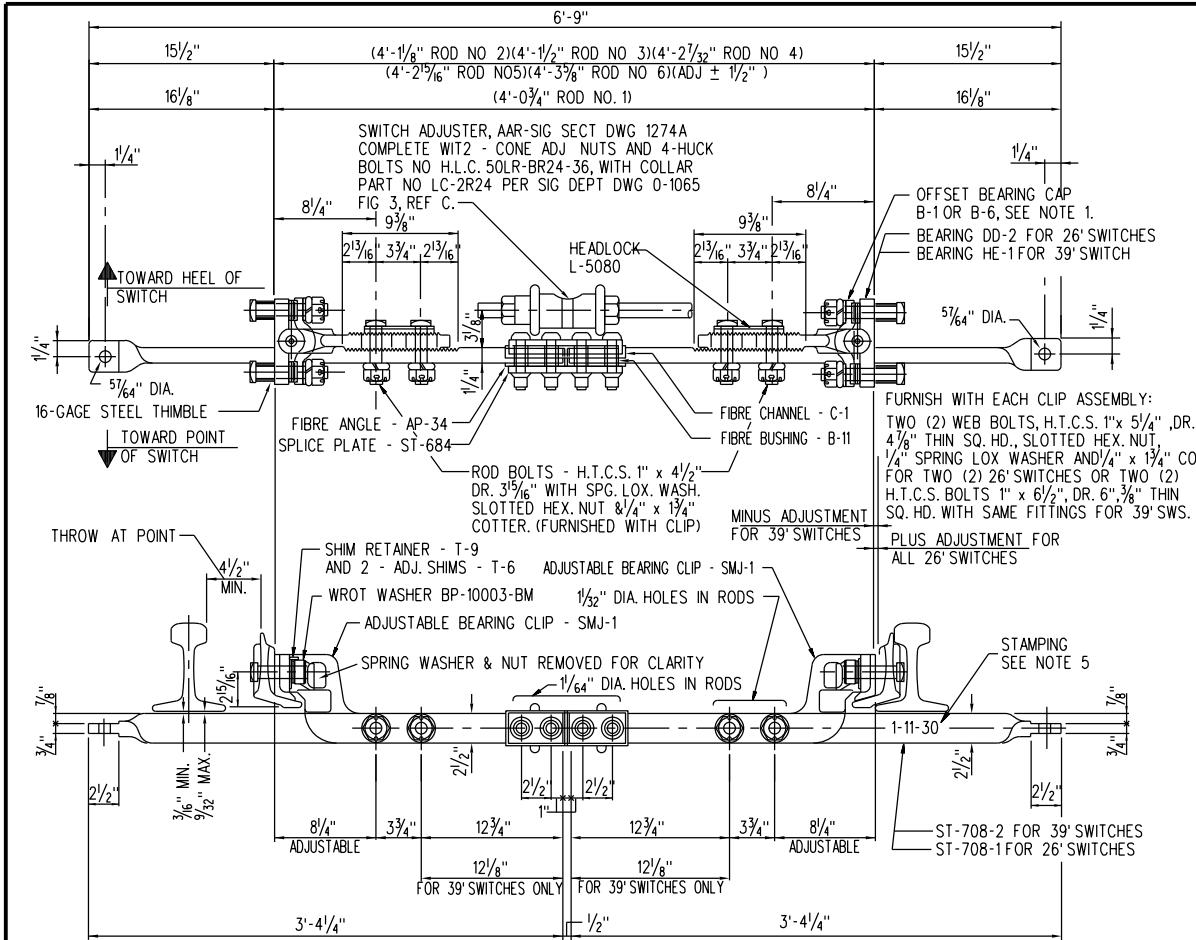
- 1. UNDERCUT STOCK RAILS TO BE MADE OF HIGH STRENGTH RAIL WITH ENDS BEVELED PER CURRENT AREMA PLAN NO 1005.
- 2. FOR STOCK RAIL UNDERCUT LENGTH "B", PER SECTION "A", LENGTH "C" AND LENGTH "D" FOR NEW SAMSON SWITCH INSTALLATIONS OR REPLACEMENT ORDERS SEE TABLE BELOW.

LENGTHS B, C, & D FOR 136 LB RAIL									
SW PT LENGTH	TO NO	STOCK RAIL	B	FOR FIRST (NEW) INSTALL			FOR REPLACEMENT ORDERS ONLY		
				C	D	END DRILL SEE NO 10	C	D	END DRILL SEE NO 10
16'-6"	10	STR	9'-6"	10'-0"	40'-0"	NONE	10'-0"	52'-0"	NONE
16'-6"	10	BENT	9'-6"	10'-0"	40'-0"	HEEL END ONLY	10'-0"	52'-0"	HEEL END ONLY

- 3. BEND ANGLE IN BENT STOCK RAIL TO BE AS FOLLOWS:

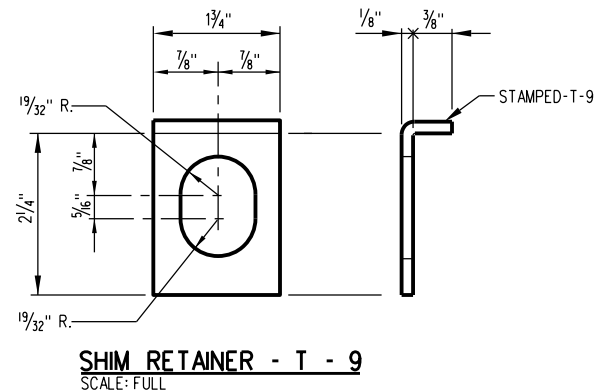
SW LENGTH	BEND ANGLE	V (VERTEX DIST)
16'-6"	1° - 4 4'-11" OR 1" IN 2'-9"	10 5/16"





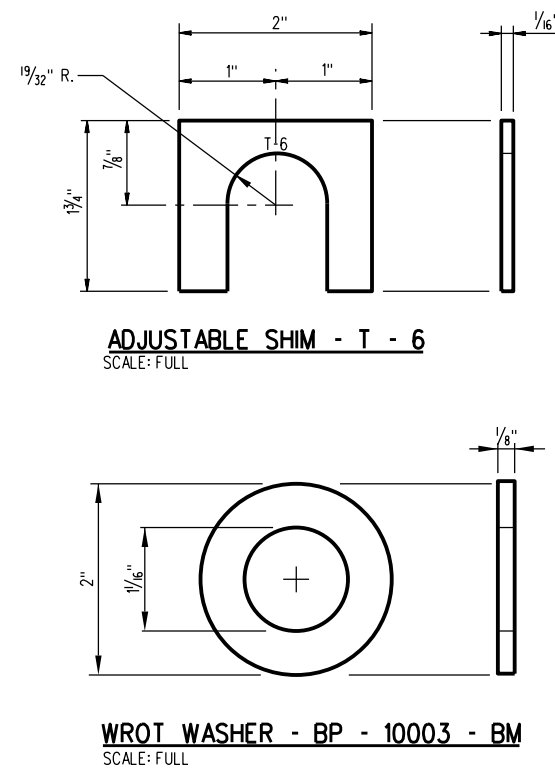
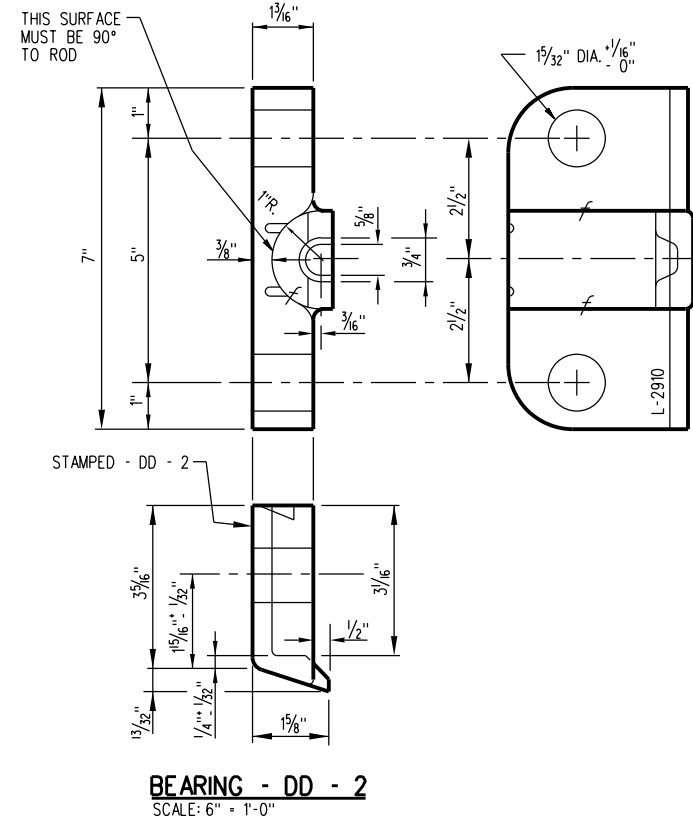
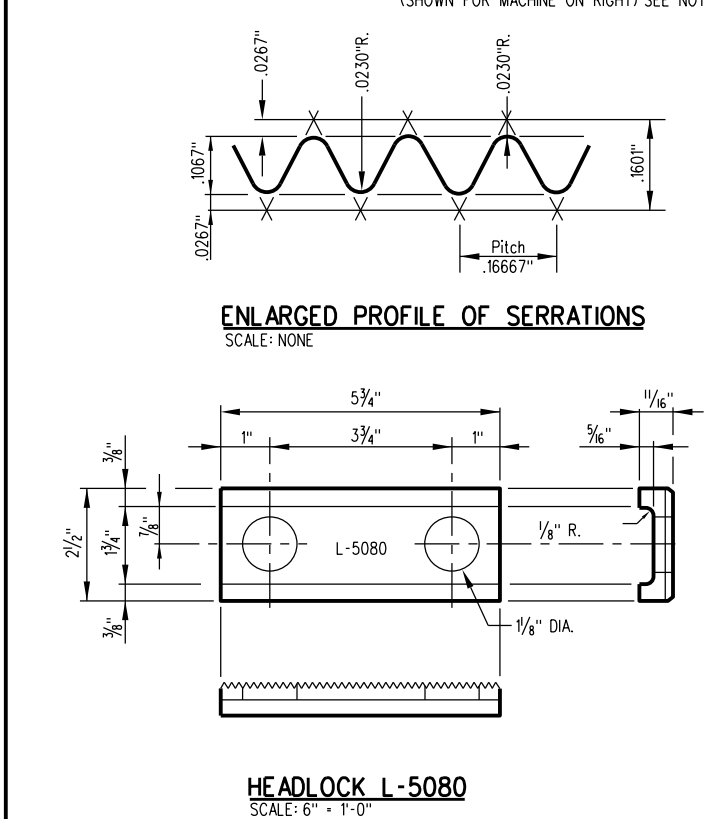
LENGTH OF SWITCH	BILL OF MATERIAL FOR 1 TYPE "SMJ" SWITCH ROD ASSEMBLY				
	QTY.	PART NUMBER	MATERIAL SPECIF.	DESCRIPTION	DETAIL REMARKS
All	2	SMJ-1	S.A.E.1020-For.Stl.	Bearing Clip	MACHINED PER DETAIL
All	4		H.T.C.S.	Web Bolt	SEE NOTE
26'	2	DD-2	Malleable Iron	Bearing	PAT. NO. L-2910, MACHINED PER DETAIL
39'	2	HE-1	Malleable Iron	Bearing	PAT. NO. L-2915, MACHINED PER DETAIL
26'	2	B-1	S.A.E.1045-For.Stl.	Offset Bearing Cap	HEAT TREATED - BRINELL -.225 to .250
39'	2	B-6	S.A.E.1045-For.Stl.	Offset Bearing Cap	HEAT TREATED - BRINELL -.225 to .250
26'	2	B-6	S.A.E.1045-For.Stl.	Offset Bearing Cap	HEAT TREATED - BRINELL -.225 to .250
All	4	T-9	S.A.E.1020	Shim Retainer	1/8" x 1 1/4" x 2 1/4"
All	12	T-6	Stainless Steel	Adjustment Shim	1/16" x 2" x 1 1/8"
All	4	BP-10003-BM	Wrot Iron	Wrot Washer	1 1/16" I.D. x 2" O.D. x 1/8" THICK
All	4		H.T.C.S.	Rod Bolt	1" x 4 1/2" DR. 3 3/16" REG. SQ. HD. SLOTTED HEX NUT
All	4		Steel	Spg. Lox Washer	For 1" Rod Bolts
All	4		Steel	Cotter	1/4" x 1 1/4" FOR ROD BOLTS
All	2		Steel	Grease Fitting	PRESSURE - FOR BEARING CLIP
All	2	L-5080	Malleable Iron	Headlock	FOR ROD BOLTS
26'	2		16-Gage Steel	Thimble	1 1/2" LONG - FOR SHIPPING
39'	2		16-Gage Steel	Thimble	2 1/2" LONG - FOR SHIPPING

Material for Vertical Rod				
16'-6"	1		Vertical Rod	Use one-ST-708-1
39'	1		Vertical Rod	Use one-ST-708-1 TWIST, MACHINE AND DRILL END HOLE
				Use one-ST-708-2
				Use one-ST-708-2 TWIST, MACHINE AND DRILL END HOLE
All	4		High Strength Steel	Conn. & Insul. Bolt
All	4		Low Carbon Steel	Collar
All	1	ST-684	H.R. Mild Steel	Splice Plate
All	2	AP-34	AAR-Sig. Sec. 13-52	Angle
All	4	B-11	AAR-Sig. Sec. 13-52	Bushing
All	1	C-1	AAR-Sig. Sec. 13-52	Channel
All	1		Malleable Iron	Switch Adjuster
All	2		Malleable Iron	Cone Adj. Nut

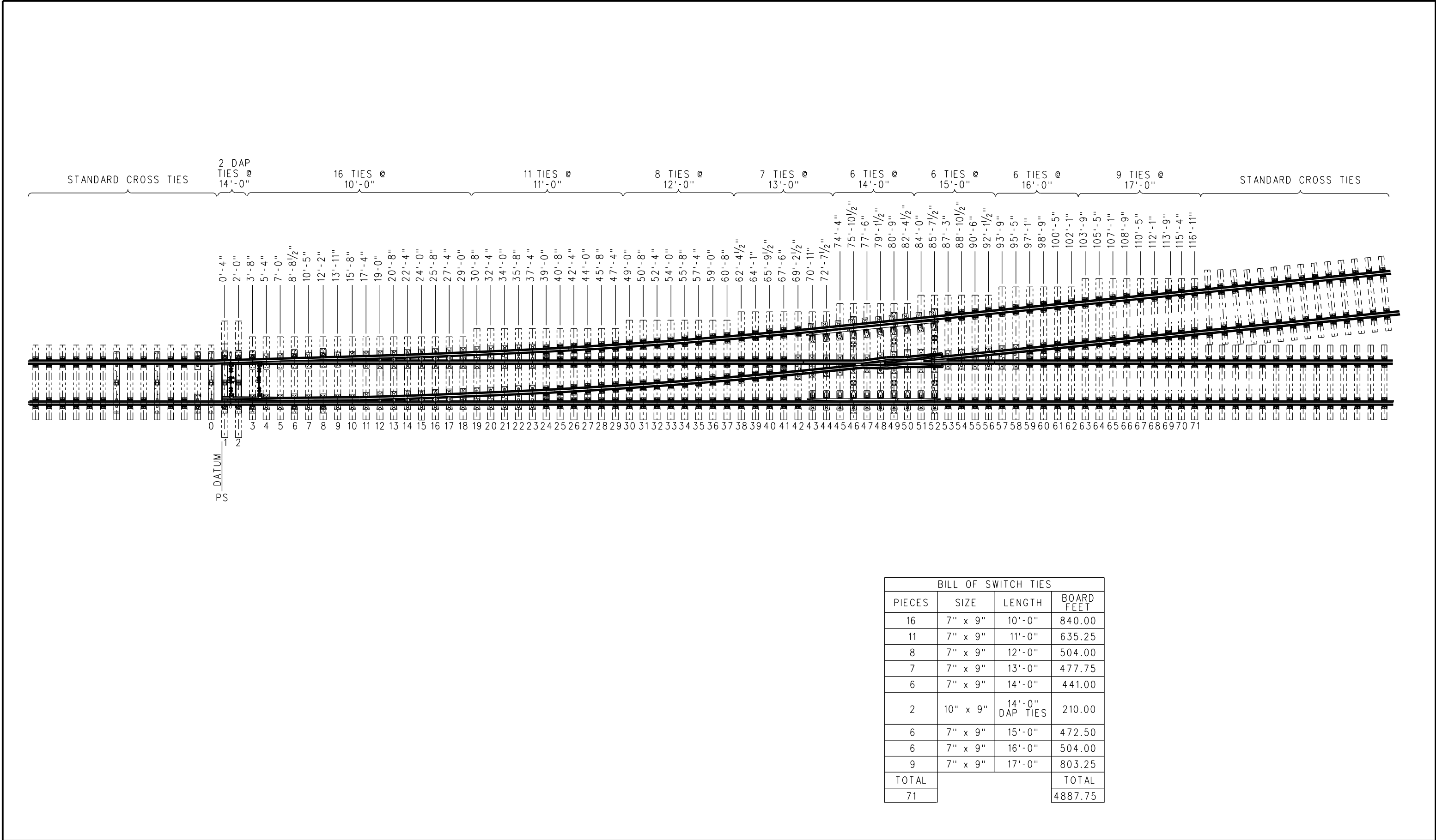


NOTES:

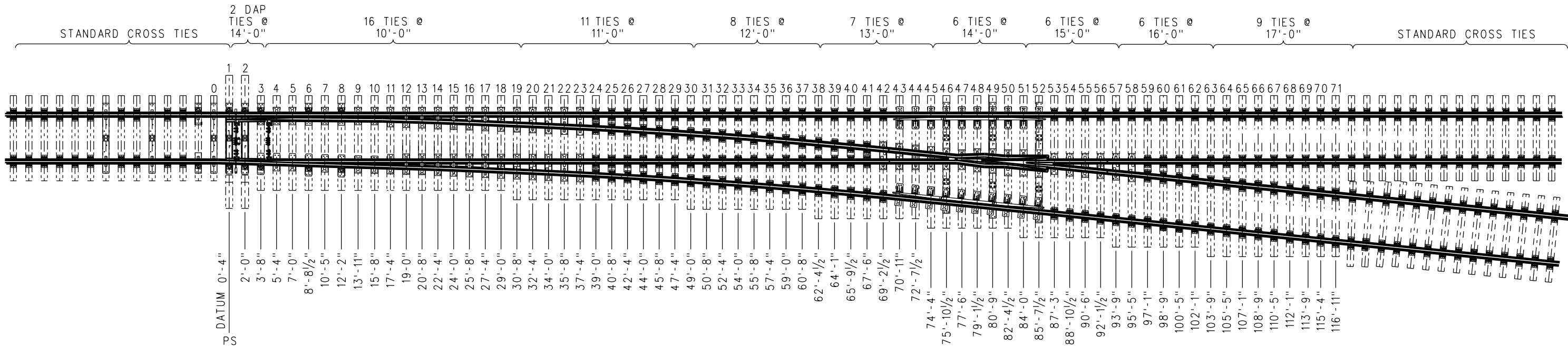
- WHILE THIS PLAN SHOWS BEARING CLIPS ASSEMBLED TO SWITCH ROD, THIS CLIP ASSEMBLY MAY BE REQUISITIONED AND ORDERED SEPARATELY. WHEN A BEARING CLIP ASSEMBLY ONLY IS WANTED, REQUISITIONS AND ORDERS SHALL SPECIFY RAIL SECTION AND LENGTH OF SWITCH. ALL PARTS SHOWN IN BILL OF MATERIAL SHALL BE FURNISHED WITH THESE CLIP ASSEMBLIES. WHEN AN INDIVIDUAL PART IS REQUIRED IT SHALL BE ORDERED BY PART NUMBER.
- WHEN COMPLETED RODS ARE ORDERED THEY SHALL BE ASSEMBLED AND INCLUDE ALL PARTS SHOWN IN BILL OF MATERIAL. REQUISITIONS AND ORDERS SHALL SPECIFY RAIL SECTION AND LENGTH OF SWITCH. ON INTERLOCKED SWITCHES WITH AUXILIARY THROW ROD, MACHINE SIDE (RIGHT OF LEFT) SHOULD ALSO BE SPECIFIED.
- TWO WEB BOLTS SHALL BE FURNISHED WITH EACH CLIP ASSEMBLY AS CALLED FOR BY NOTE IN TOP VIEW OF ROD ASSEMBLY. WHEN ROD IS USED ON 11'-0" AND 16'-6" SWITCHES THE 1/4" THICK SPRING WASHER SHOULD BE REPLACED WITH A 3/8" THICK SPRING WASHER BY THE STOREKEEPER OR FIELD FORCES, TO BRING COTTER WITHIN THE LIMITS OF SLOT IN WEB BOLT NUTS.
- MATERIALS AND WORKMANSHIP SHALL MEET CURRENT AREMA SPECIFICATIONS FOR SPECIAL TRACKWORK UNLESS OTHERWISE SPECIFIED.
- VERTICAL SWITCH ROD SHALL BE PLAINLY STAMPED TO INDICATE SWITCH THAT ROD ASSEMBLY CAN BE USED UPON. IDENTIFICATION MARKING WILL BE AS FOLLOWS:
1-39 FOR USE ON 39'-0" SWITCHES, 132 LB. AND 136 LB. RE RAIL SECTIONS.
1-11-30 FOR USE ON 11'-0" TO 30'-0" SWITCHES, 115 LB., 119 LB., 131 LB., 132 LB. AND 136 LB. RE RAIL SECTIONS.



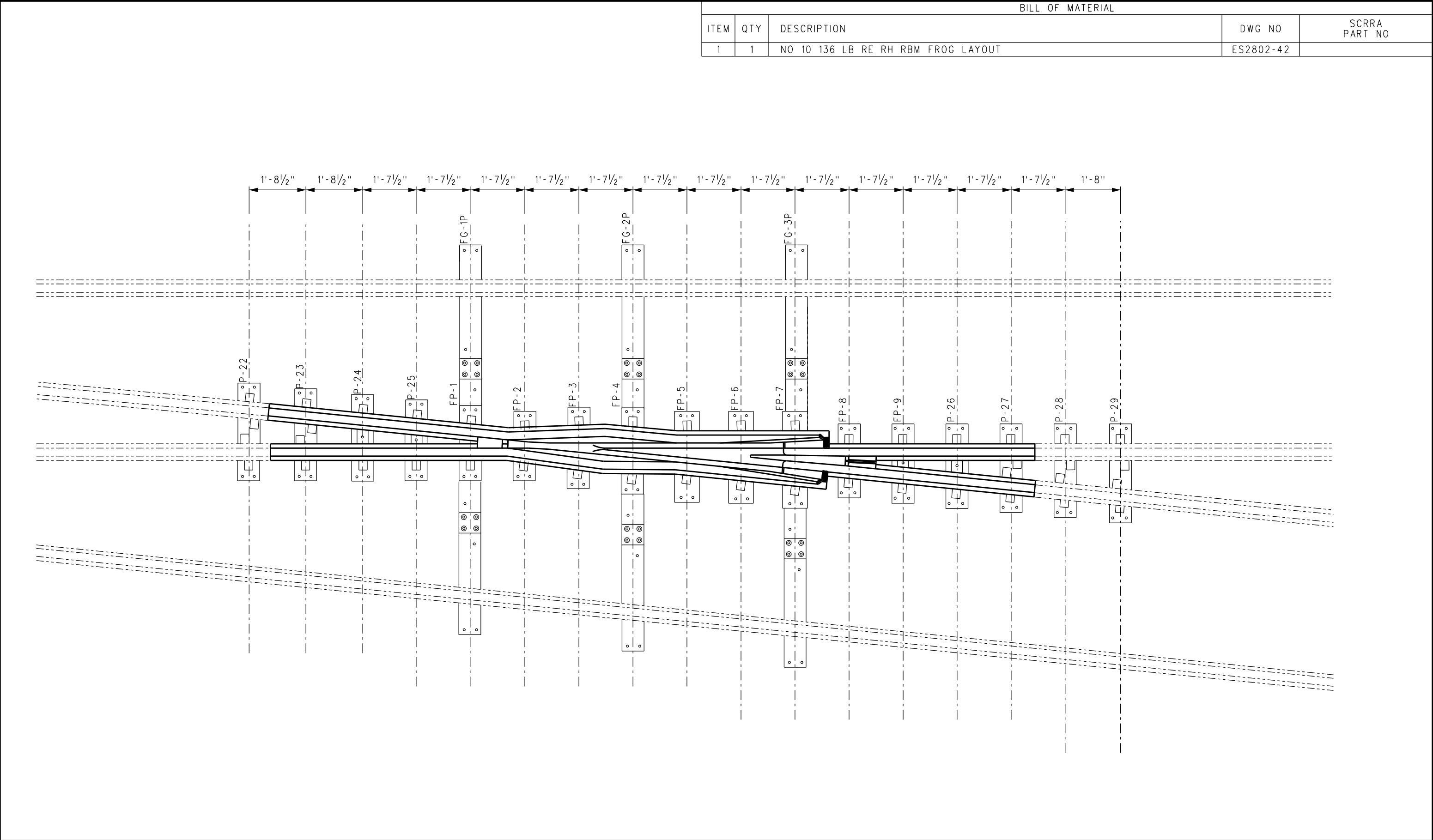
DRAWN BY: A. CARLOS DATE: 03/31/2011				SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.			
ASSISTANT DIRECTOR: STANDARDS & DESIGN				METROLINK®			
DIRECTOR OF ENGINEERING AND CONSTRUCTION				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY			
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				ENGINEERING STANDARDS			
NO 10 SWITCH ROD DETAILS				2802			
REVISION				SCALE: NTS			
REV. DATE DESCRIPTION DES. ENG.				REVISION SHEET			
				1 OF 1			
				CADD FILE: ES2802-26			



BILL OF SWITCH TIES			
PIECES	SIZE	LENGTH	BOARD FEET
16	7" x 9"	10'-0"	840.00
11	7" x 9"	11'-0"	635.25
8	7" x 9"	12'-0"	504.00
7	7" x 9"	13'-0"	477.75
6	7" x 9"	14'-0"	441.00
2	10" x 9"	14'-0" DAP TIES	210.00
6	7" x 9"	15'-0"	472.50
6	7" x 9"	16'-0"	504.00
9	7" x 9"	17'-0"	803.25
TOTAL			TOTAL
71			4887.75

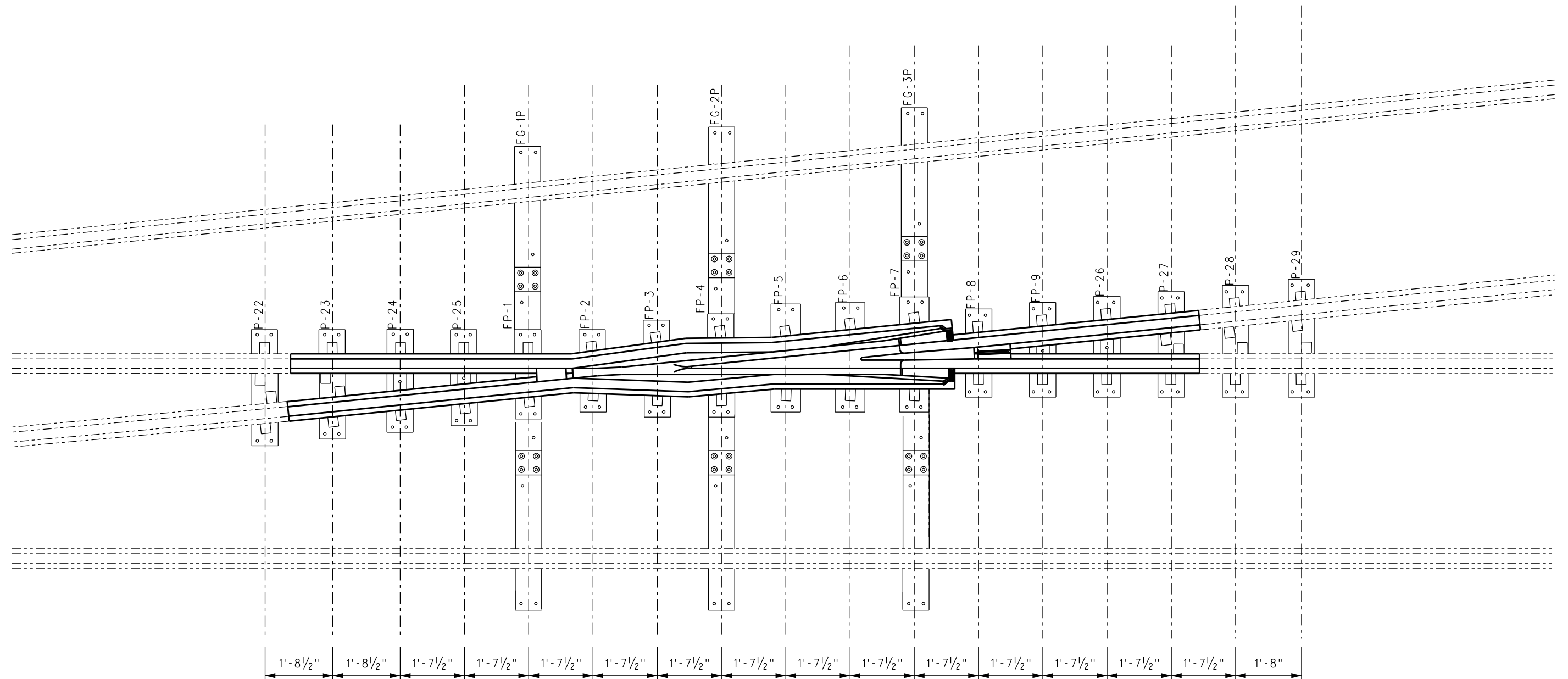


BILL OF SWITCH TIES			
PIECES	SIZE	LENGTH	BOARD FEET
16	7" x 9"	10'-0"	840.00
11	7" x 9"	11'-0"	635.25
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6	7" x 9"	16'-0"	504.00
9	7" x 9"	17'-0"	803.25
TOTAL			TOTAL
71			4887.75



		DRAWN BY: HDR DATE: 03/31/2011		<div>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES: SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</div>		STANDARD 2802		
		<div> ASSISTANT DIRECTOR: STANDARDS & DESIGN</div>				SCALE: NTS		
		<div> DIRECTOR OF ENGINEERING AND CONSTRUCTION</div>				REVISION SHEET - 1 OF 1 CADD FILE: ES2802-40		
X	XX-XX-XX	REVISION	XX	XX	<div>METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>		ENGINEERING STANDARDS	
REV.	DATE	DESCRIPTION	DES.	ENG.			NO 10 RBM FROG RH FROG ASSEMBLY PLAN VIEW AND FROG PACK TIMBER TIES-136 LB RE RAIL	

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	NO 10 136 LB RE LH RBM FROG LAYOUT	ES2802-42	

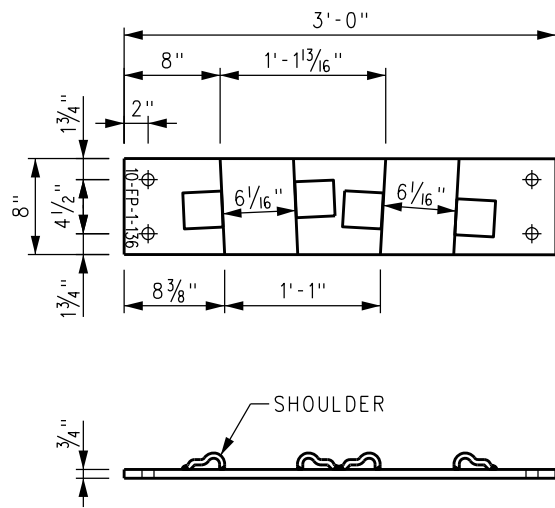


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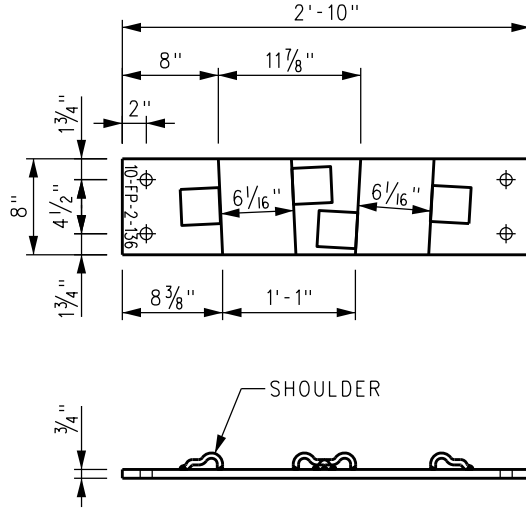


DETAIL OF FROG CASTING/RAIL FIT

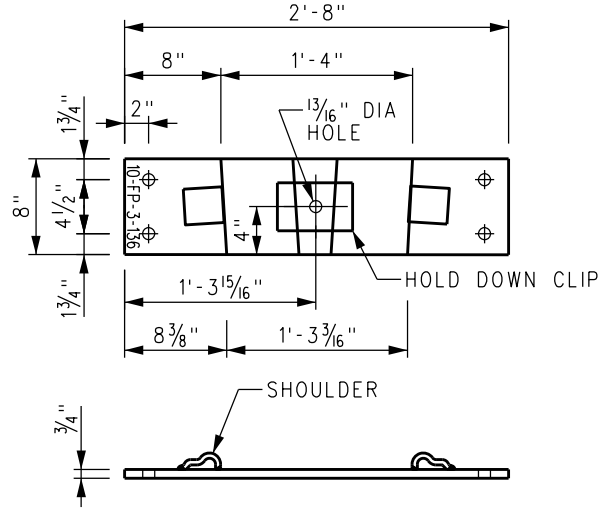
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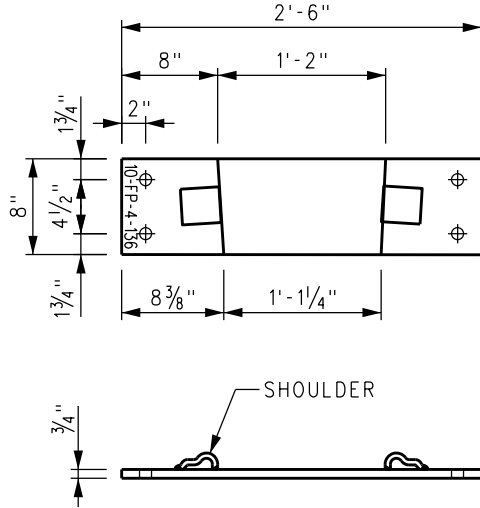
FROG PLATE - FP-1
3/4" x 8" x 3'-0" - FLAT
(2 REQUIRED)



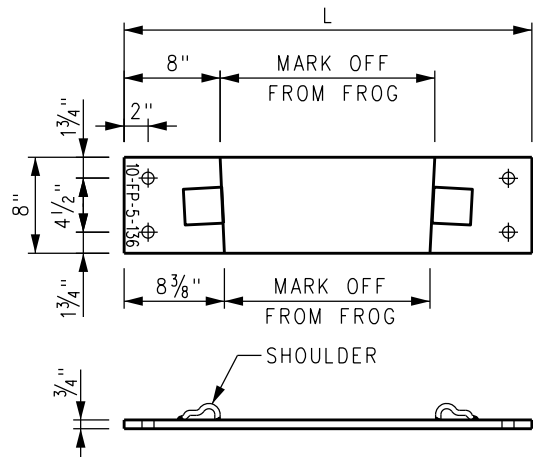
FROG PLATE - FP-2
3/4" x 8" x 2'-10" - FLAT
(2 REQUIRED)



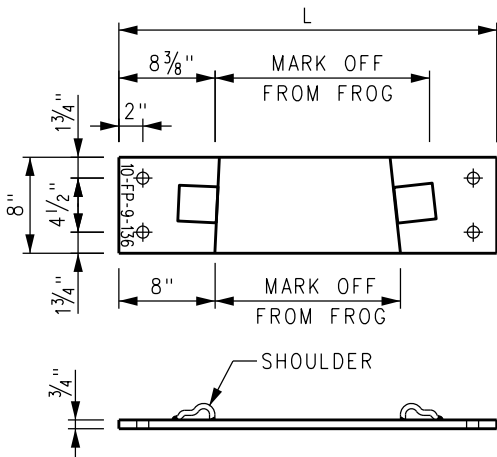
FROG PLATE - FP-3
3/4" x 8" x 2'-8" - FLAT
(2 REQUIRED)



FROG PLATE - FP-4
3/4" x 8" x 2'-6" - FLAT
(2 REQUIRED)



FROG PLATE - FP-5 THRU FP-7

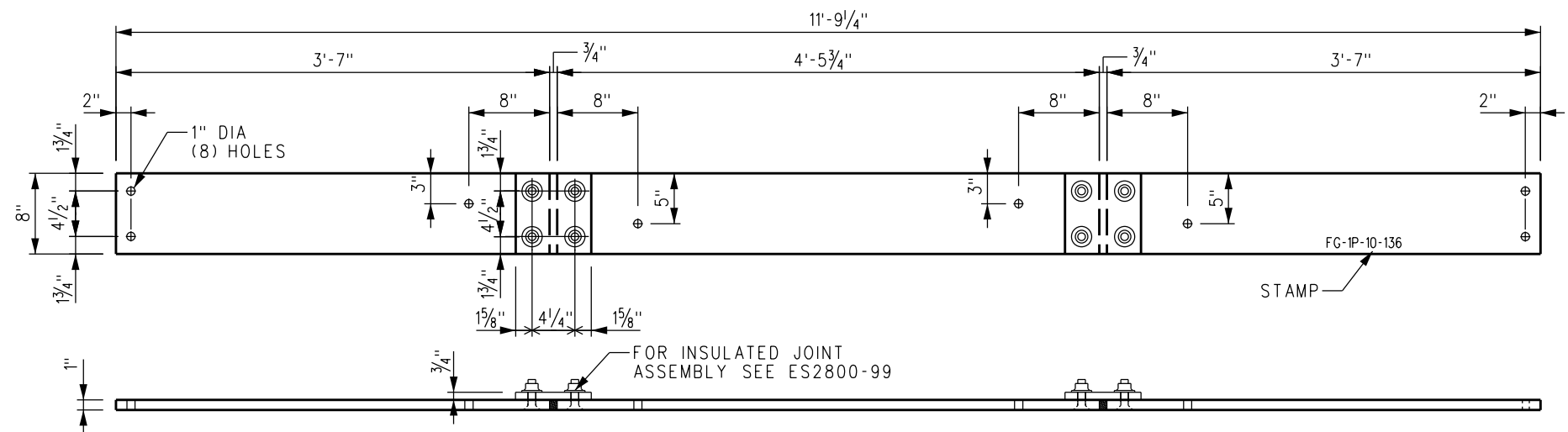


FROG PLATE - FP-8 AND FP-9
3/4" x 8" - FLAT (SEE TABLE FOR LENGTHS)

DIMENSION TABLE		
PLATE	L	NO REQ'D
FP-5	3'-0 3/4"	2
FP-6	2'-11 3/4"	2
FP-7	2'-9 3/4"	2

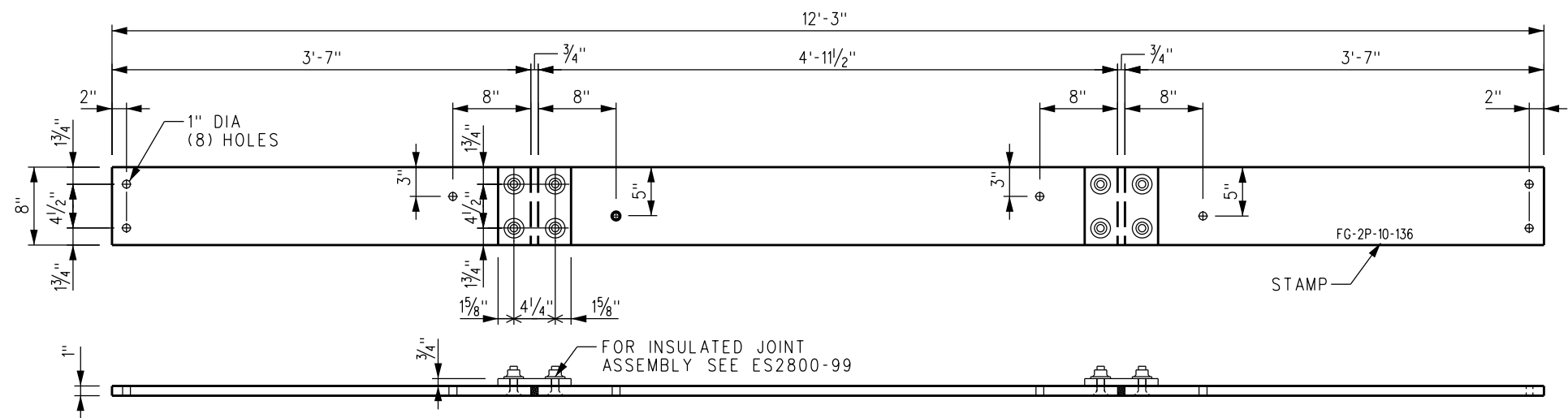
DIMENSION TABLE		
PLATE	L	NO REQ'D
FP-8	2'-8 1/2"	2
FP-9	2'-10"	2

- NOTES:**
1. STAMP PLATE WITH PROPER PLATE NUMBER AND WEIGHT OF RAIL.
 2. HOLES IN PLATES ARE 1" IN DIA UNLESS OTHERWISE NOTED.
 3. ALL SHOULDERS ARE PANDROL TYPE 1 FORGED.



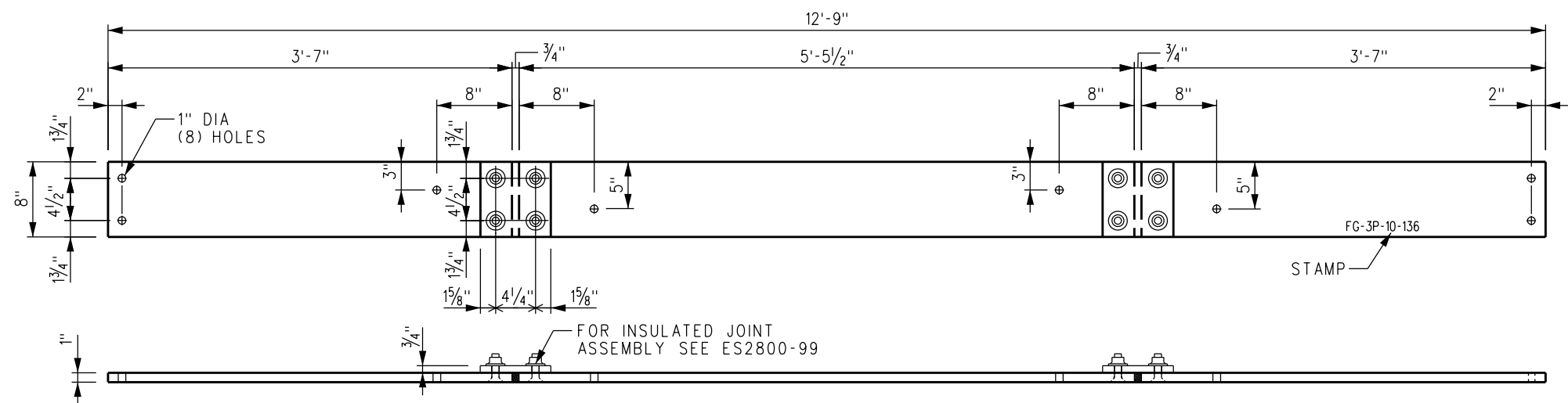
INSULATED FROG GAUGE PLATE FG-1P

1" x 8" - FLAT



INSULATED FROG GAUGE PLATE FG-2P

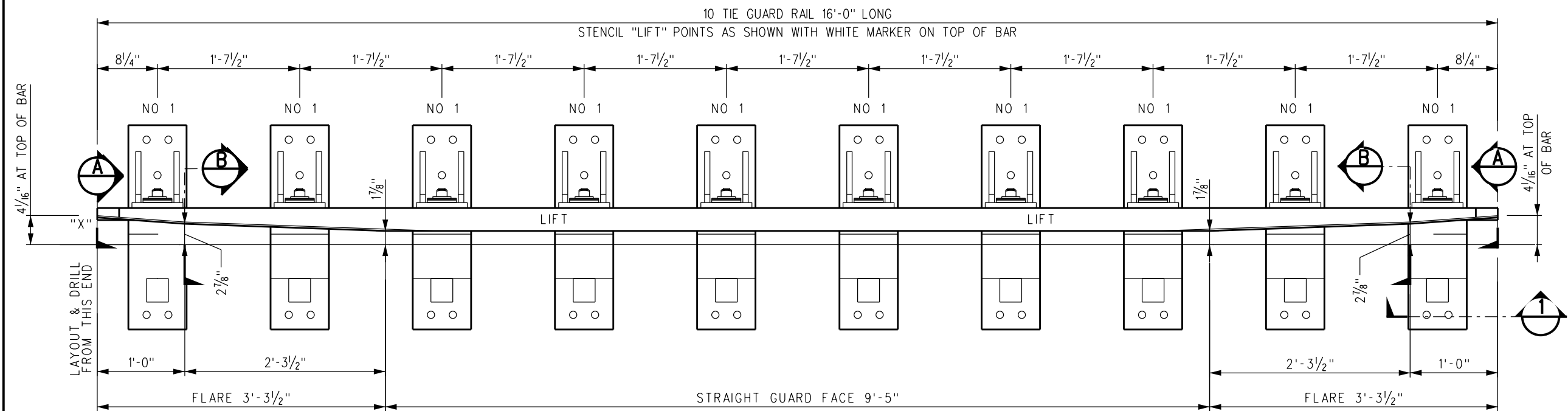
1" x 8" - FLAT



INSULATED FROG GAUGE PLATE FG-3P

1" x 8" - FLAT

				DRAWN BY: A. CARLOS		DATE: 03/31/2011	<p>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</p>	 <p>METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</p>	ENGINEERING STANDARDS		STANDARD
											2802
											NTS
											1 OF 1
											ES2802-45



ASSEMBLED 16'-0" GUARD RAIL

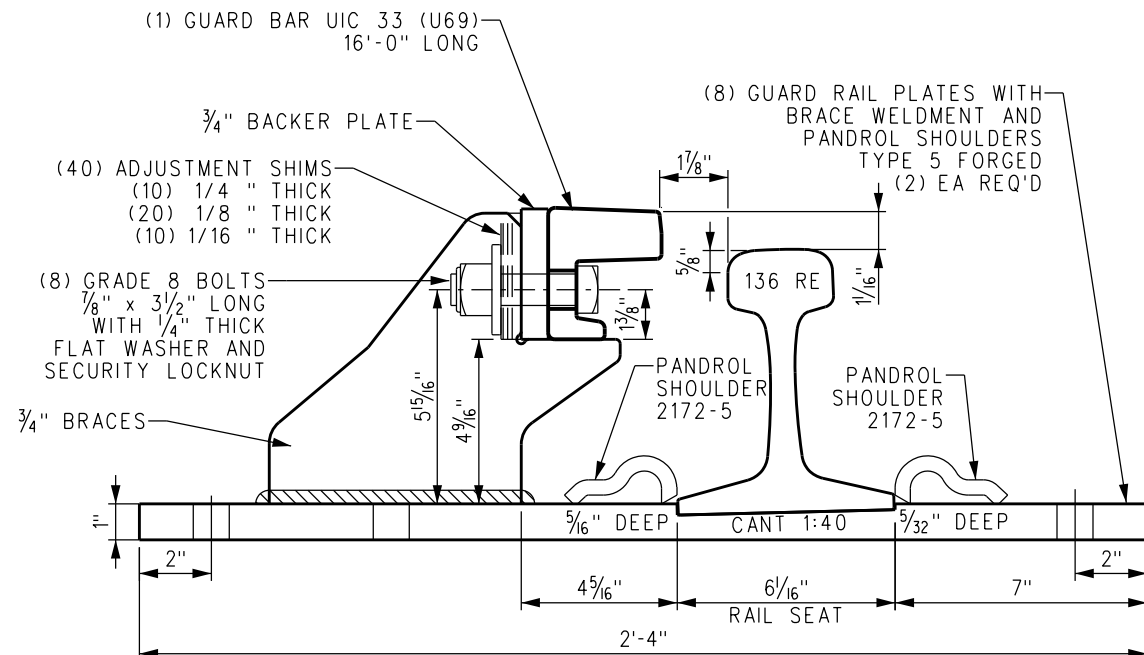
COLLECTIVE DRILLING FROM END OF GUARD BAR MARKED "X"

"X" 8 1/4" x 2'-3 3/4" x 3'-11 1/4" x 5'-6 3/4" x 7'-2 1/4" x 8'-9 3/4" x 10'-5 1/4" x 12'-0 3/4" x 13'-8 1/4" x 15'-3 3/4"

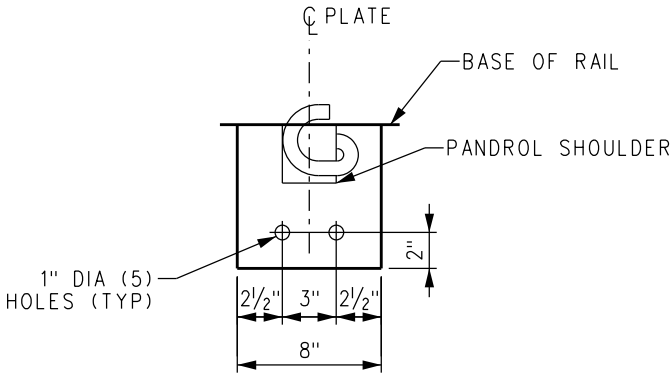
HOLES 1" DIA - 1 3/8" ABOVE BASE

NOTES:

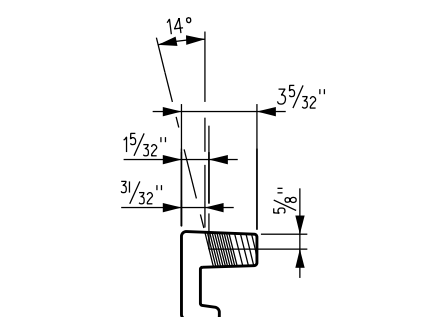
1. GUARD RAIL SECTION U.I.C. 33: (U69) UIC 860.0 GRADE 90A (GUARD FACE BRINELL 319 MIN)
2. BASE PLATE, BRACKET AND SHIMS MILD STEEL PER AREMA SPECIFICATION M7.
3. GUARD RAIL BOLT AND NUT PER AREMA SPECIFICATION M11. EXCEPT BOLT TO GRADE 8 AND NUT TO BE SECURITY LOCKNUT.
4. WORKMANSHIP AND TOLERANCES PER AREMA SPECIFICATIONS FOR SPECIAL TRACKWORK.
5. WELDING PER ANSINO AWS D1.1-92 OR LATEST REVISION.



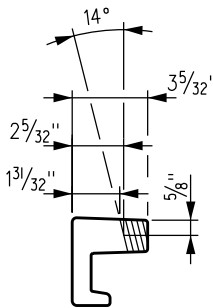
TYPICAL PLATE DETAIL



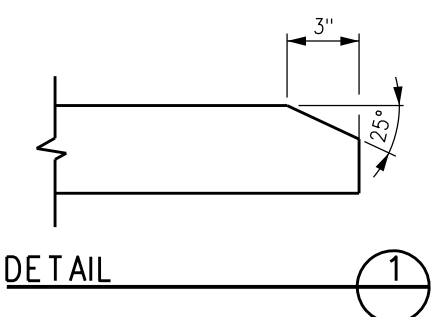
TYPICAL PLATE PUNCHING DETAIL



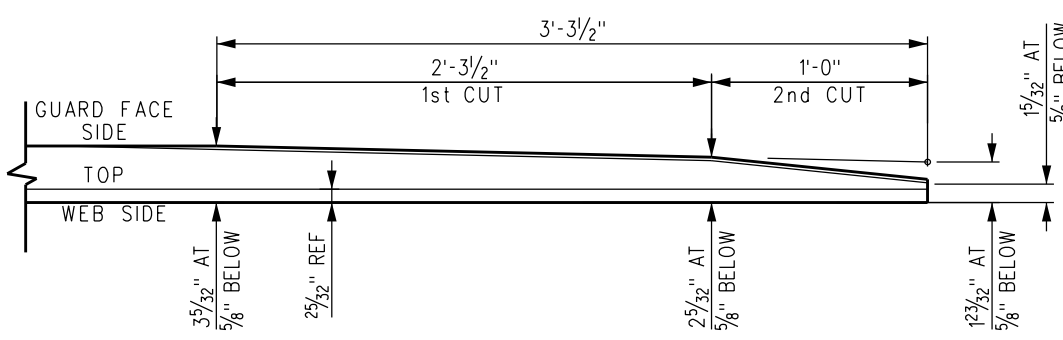
SECTION A



SECTION B

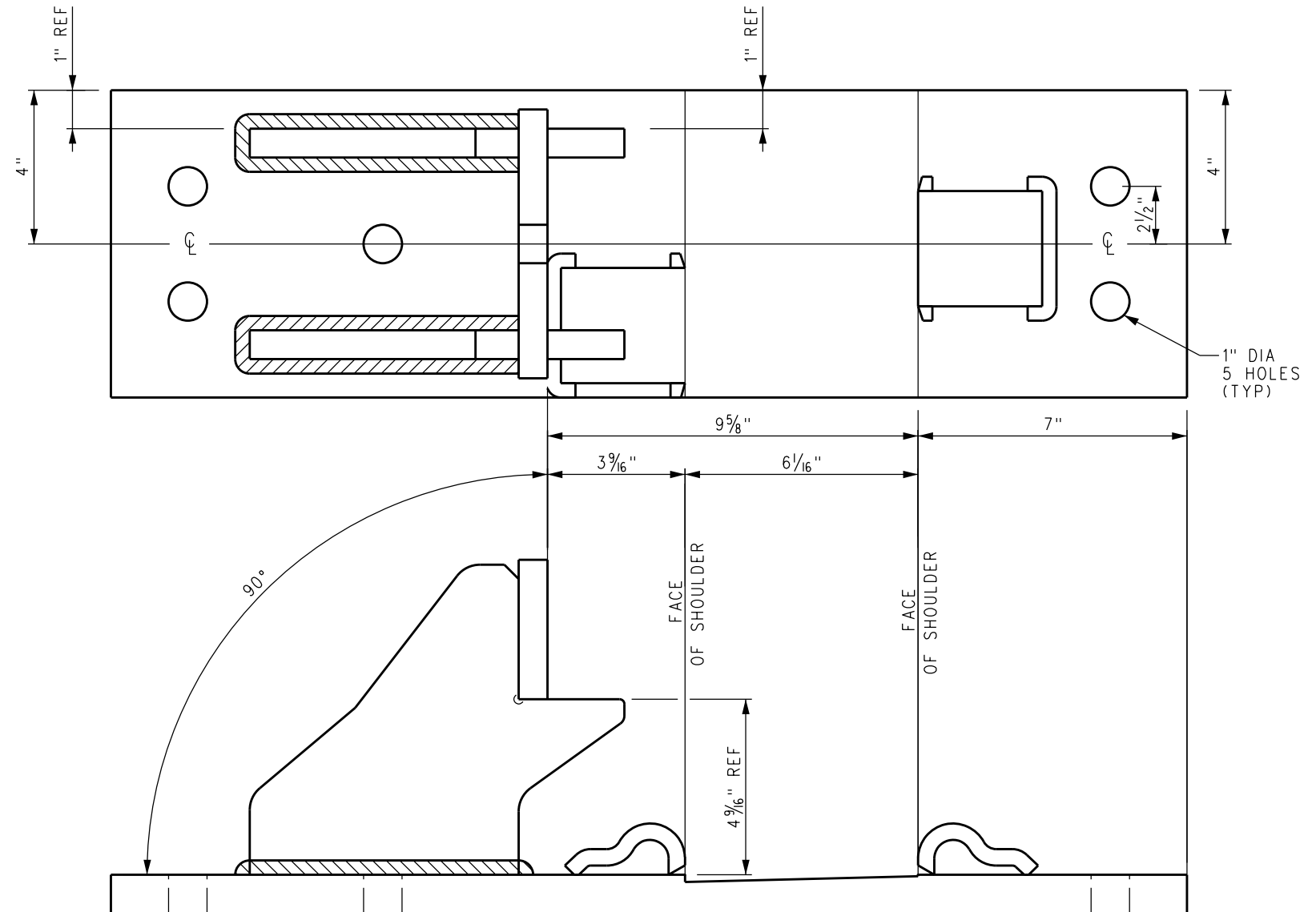
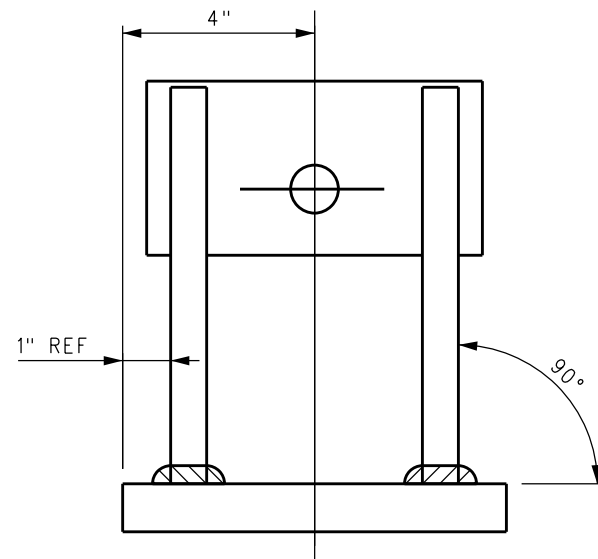


DETAIL 1



FLARE DETAIL
BREAK SHARP CORNERS
OF ALL MACHINED SURFACES

DRAWN BY: A. CARLOS DATE: 03/31/2011				SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS				STANDARD
NO 10 136 LB RE RBM FROG				GUARD RAIL DETAILS				2802				SCALE:
NO 10 136 LB RE RBM FROG				GUARD RAIL DETAILS				NTS				REVISION
1 OF 1				1 OF 1				1 OF 1				SHEET
ES2802-50				ES2802-50				ES2802-50				CADD FILE:

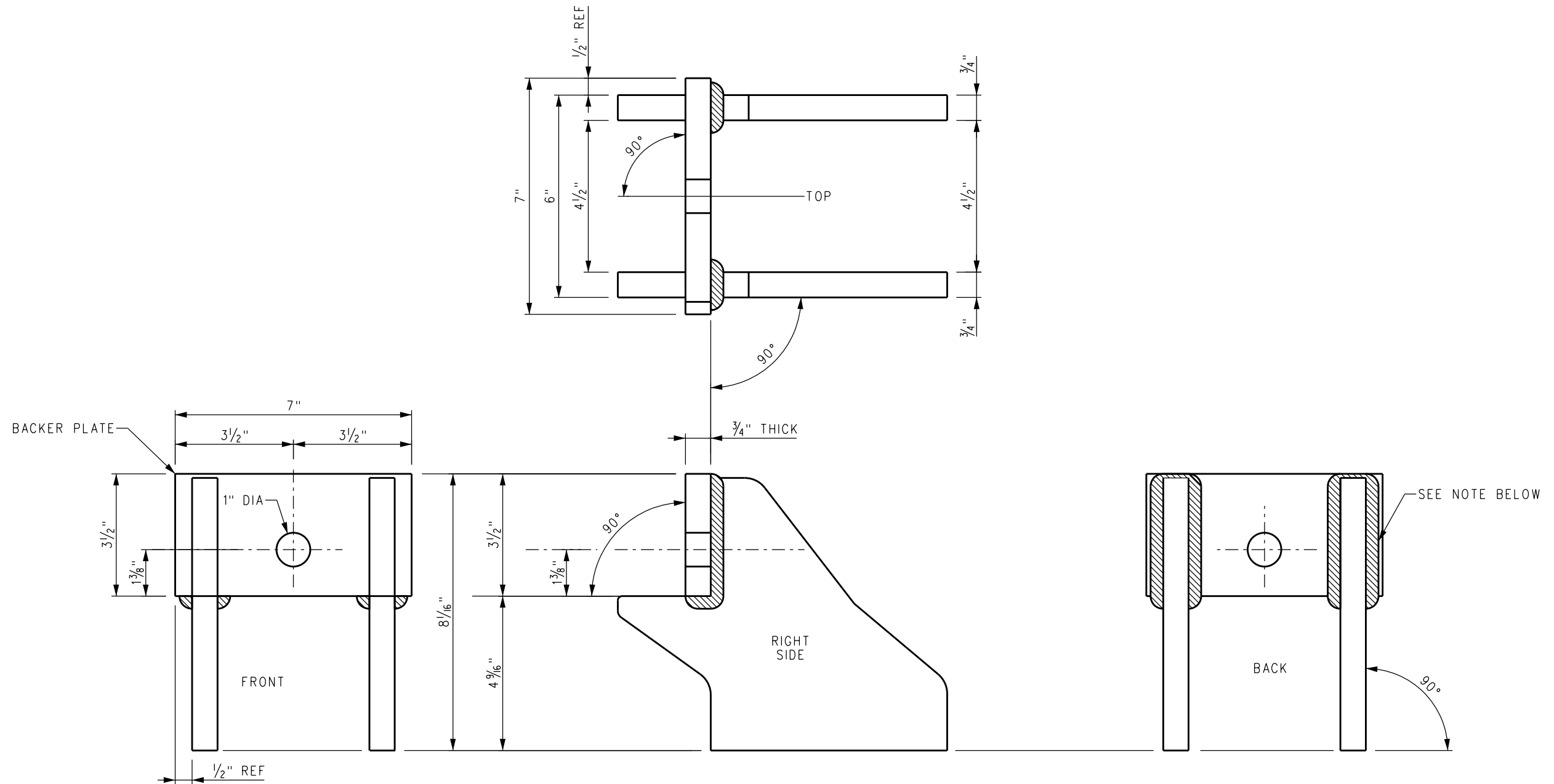


GUARD RAIL PLATE NO 1

NOTES:

1. TACK WELD BRACE WELDMENT IN PLACE ON PLATE
FIXTURED TO DIMENSIONS SHOWN.
2. SHOULDERS ARE PANDROL TYPE 1 FORGED.

				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES: SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS		STANDARD
X	XX-XX-XX	REVISION	XX	XX				NO 10-136 LB RE 1:40 CANTED PLATE WELDMENT FOR RAISED U69 GUARD RAIL		2802
REV.	DATE	DESCRIPTION	DES.	ENG.	DIRECTOR OF ENGINEERING AND CONSTRUCTION					SCALE: NTS
										REVISION SHEET - 1 OF 1 CADD FILE: ES2802-53

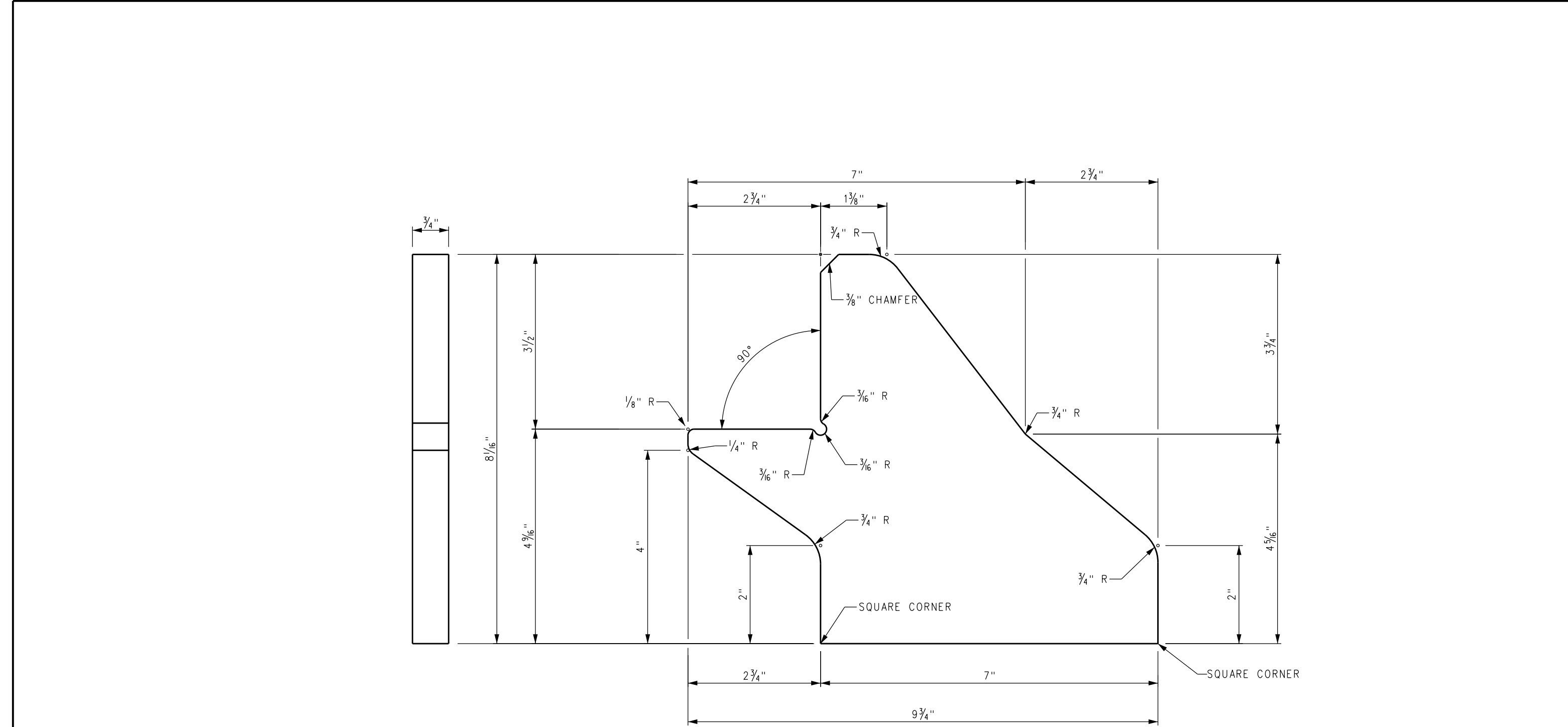


BRACE WELDMENT ASSEMBLY
BRACE WELDMENT ASSEMBLY

BRACE BOTTOMS TO BE STRAIGHT AND TRUE
AND MUST BE ALIGNED

- NOTES:**
- 1. SEE ES2802-55 FOR BRACE DETAIL DIMENSIONS.
 - 2. BACKER PLATE MATERIAL: HR STEEL ASTM A663 GRADE 60 (GRADE A-36 ACCEPTABLE)

				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS		STANDARD
				 ASSISTANT DIRECTOR: STANDARDS & DESIGN  DIRECTOR OF ENGINEERING AND CONSTRUCTION				NO 10-136 LB RE 1:40 CANTED, BACKER PLATE AND BRACE WELDMENT FOR RAISED U69 GUARD RAIL		2802
X	XX-XX-XX	REVISION	XX	XX				SCALE: NTS		
REV.	DATE	DESCRIPTION	DES.	ENG.				REVISION SHEET 1 OF 1		
									CADD FILE: ES2802-54	

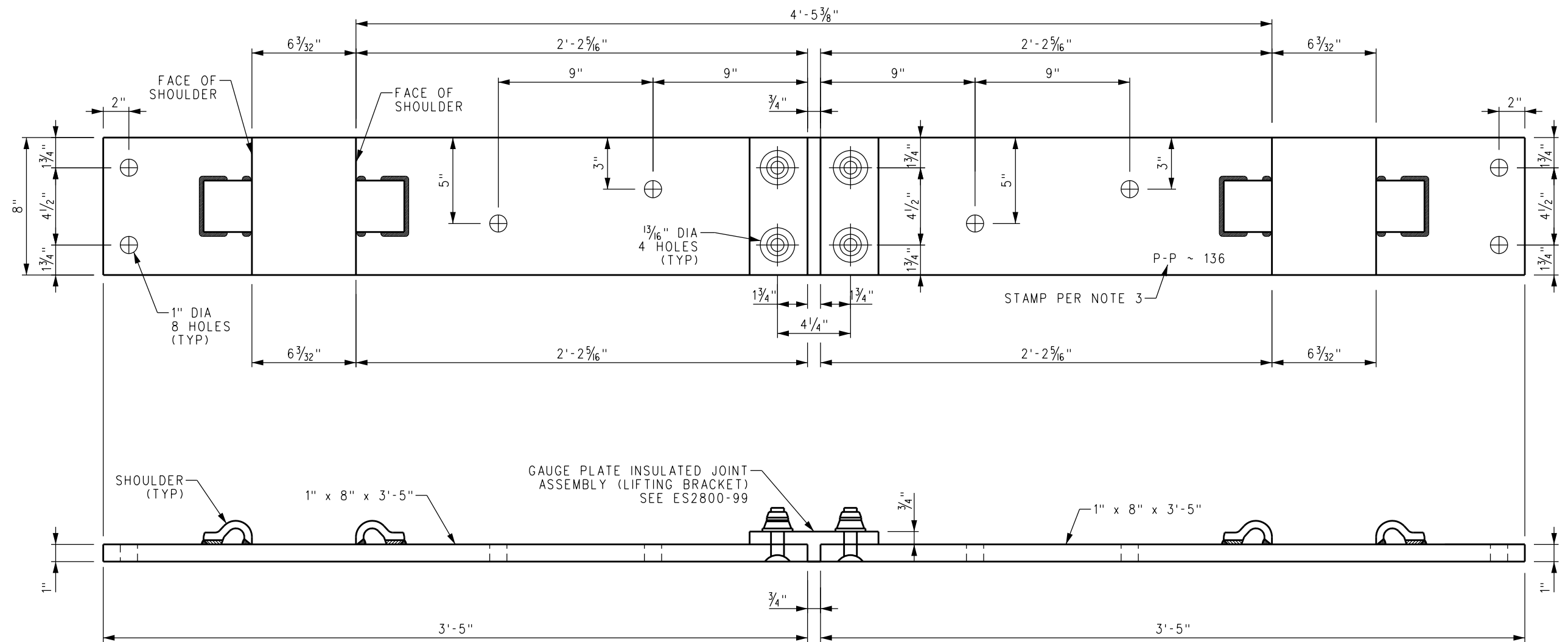


BRACE DETAIL
(2) PIECES REQ'D PER PLATE ASSEMBLY

NOTES:

1. MATERIAL: HR STEEL ASTM A663 GRADE 60 (GRADE A-36 ACCEPTABLE).

				DRAWN BY: HDR DATE: 03/31/2011		<div>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES: SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</div>		<div> METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>		ENGINEERING STANDARDS		STANDARD 2802							
				<div> ASSISTANT DIRECTOR: STANDARDS & DESIGN</div> <div> DIRECTOR OF ENGINEERING AND CONSTRUCTION</div>						NO 10-136 LB RE 1:40 CANTED, BRACE DETAIL FOR RAISED U69 GUARD RAIL		SCALE: NTS							
X XX-XX-XX		REVISION								REVISION SHEET		1 OF 1							
REV. DATE		DESCRIPTION								CADD FILE:		ES2802-55							

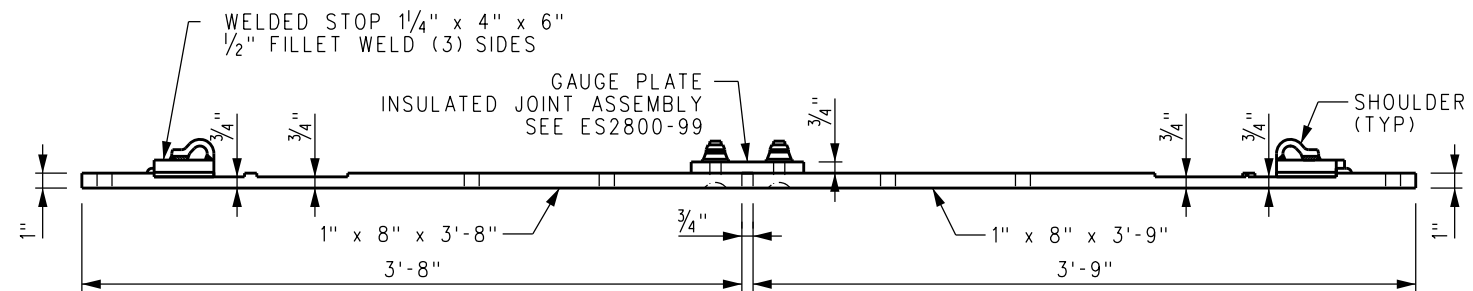
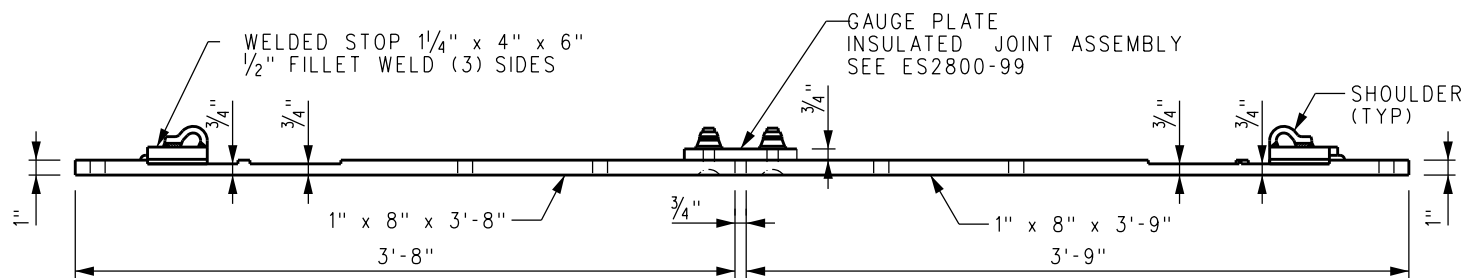
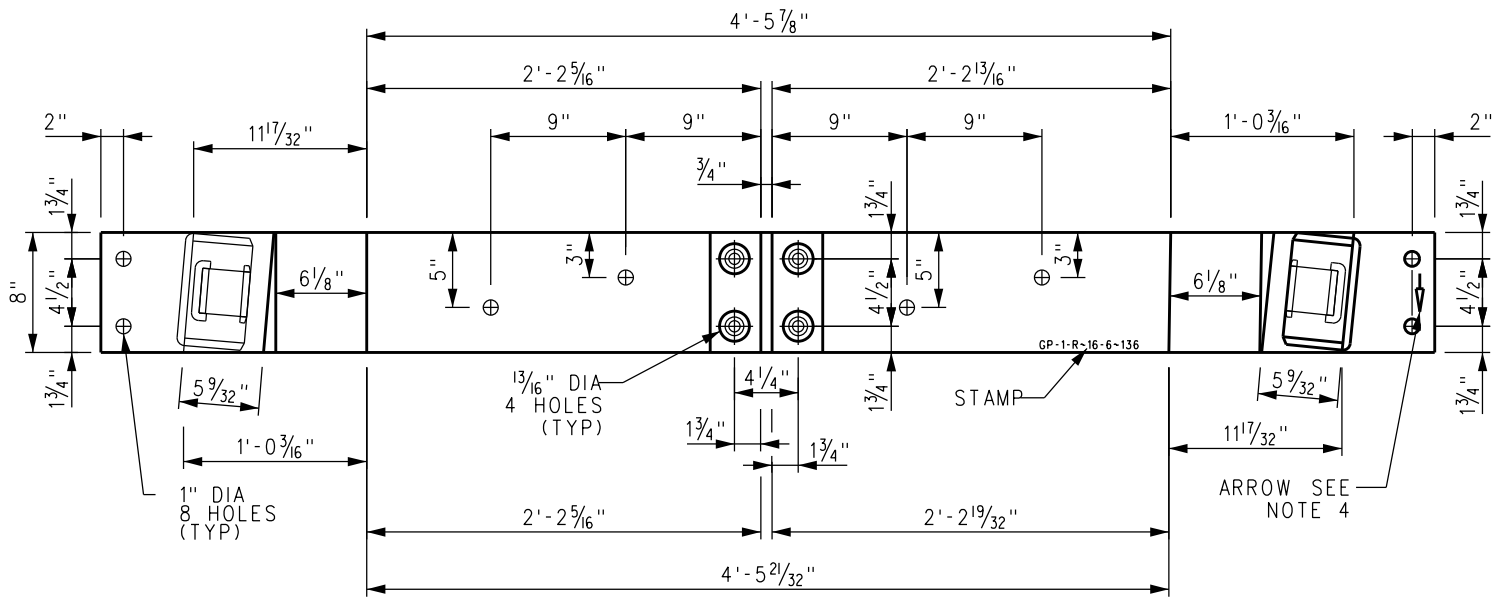
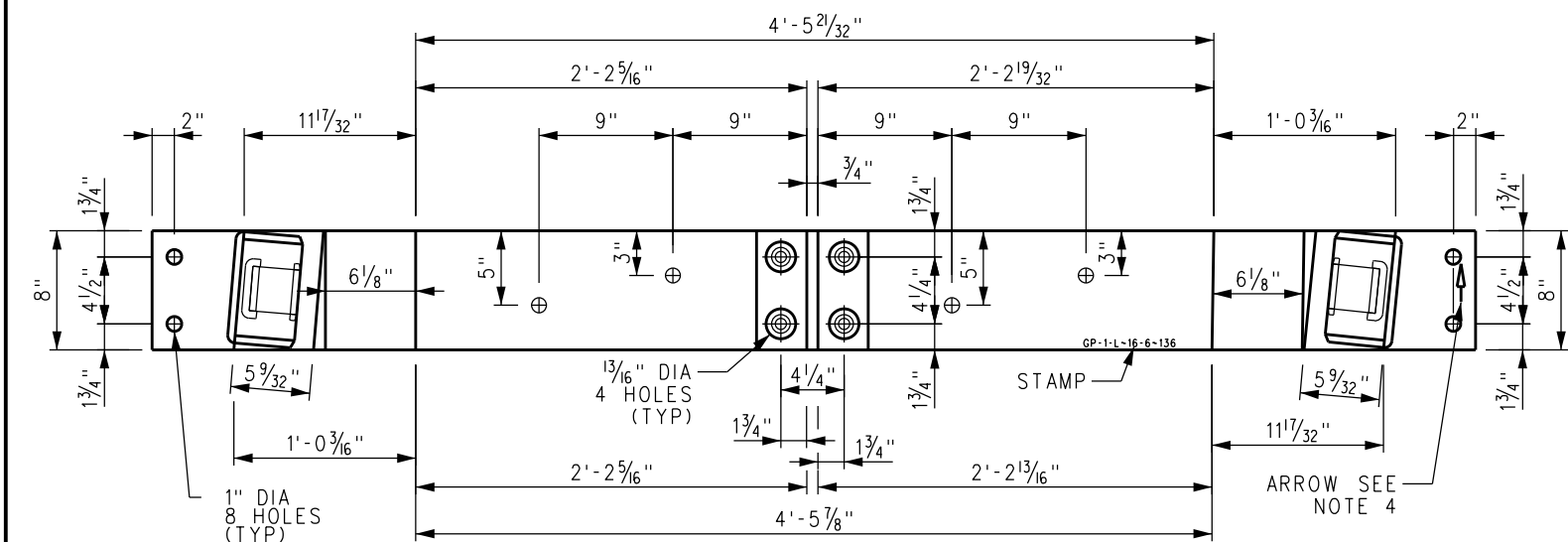


INSULATED GAUGE PLATE P-P ~ 1" x 8" ~ FLAT

NOTES:

1. METAL AREAS TO BE PAINTED MUST BE CLEANED OF ALL IMPURITIES.
2. ANCHOR HOLE SIZE IS 1" DIA $\pm \frac{1}{32}$ ".
3. STAMP PLATE AS SHOWN W/ PROPER PL NUMBER AND WEIGHT OF RAIL.
4. ALL SHOULDERS ARE PANDROL TYPE 1 FORGED.

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**INSULATED SLIDE GAUGE PLATE GP-1L ~ 1" x 8" ~ MILLED,
W/ BETHLEHEM BOLTLESS BRACES**


GAUGE AT PT = 4'-8 1/2", HEEL SPREAD = 6 1/4", PT = 0"
GAUGE PLATE INSULATED JOINT TO BE "3M" TYPE, HUCKED TO PLATE.

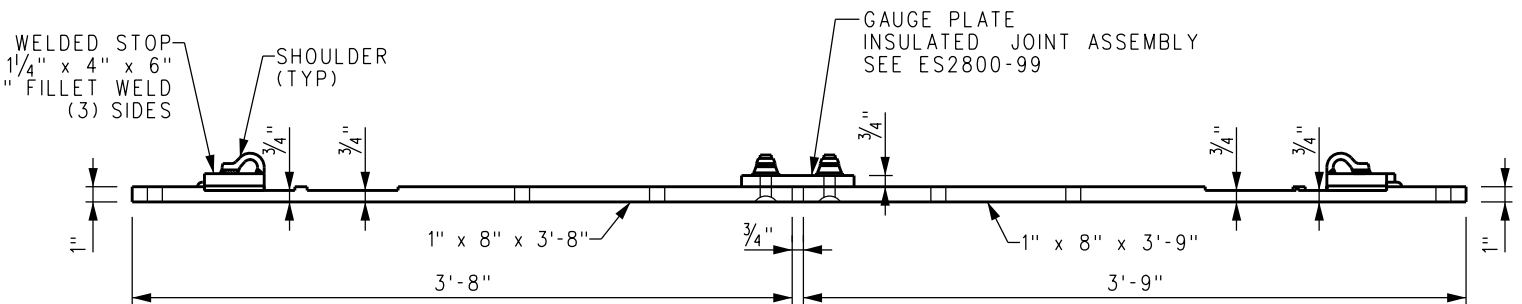
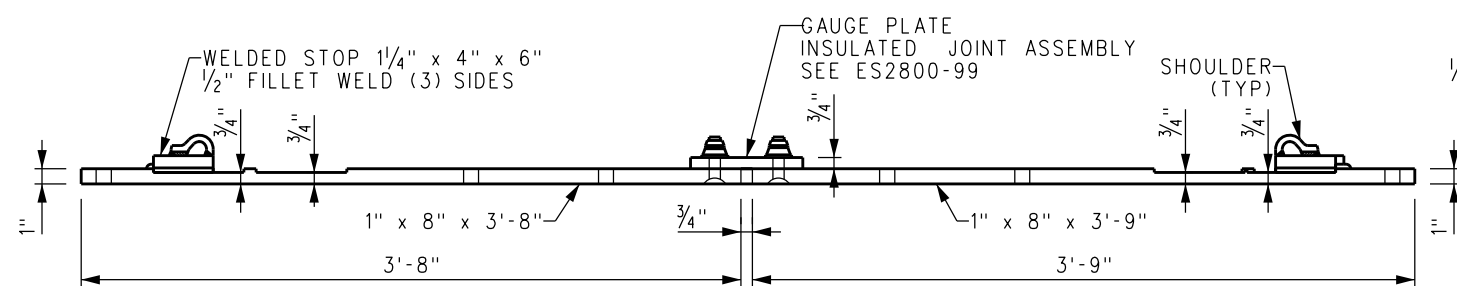
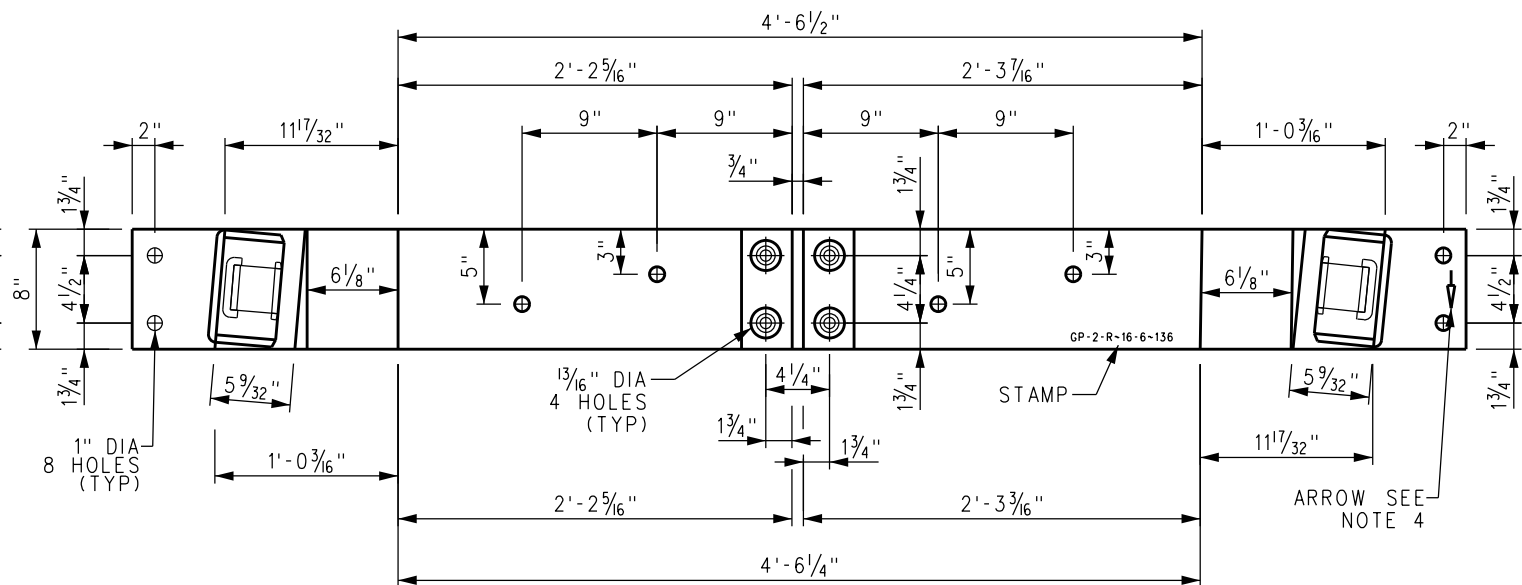
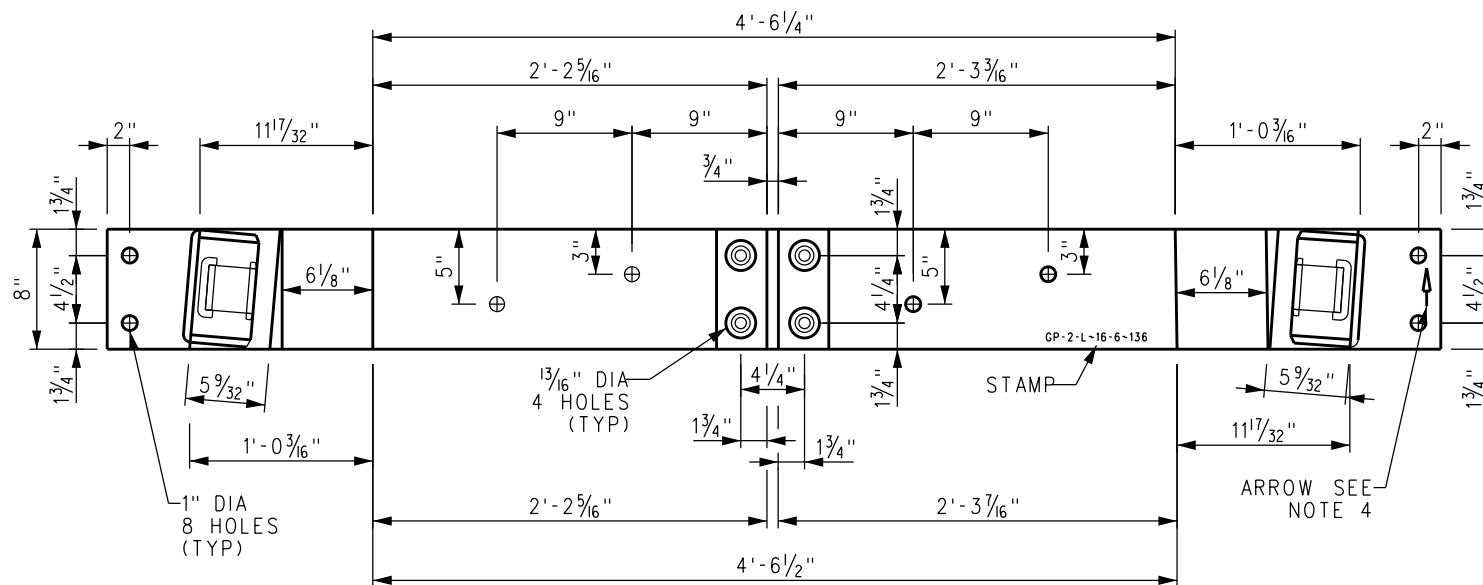
**INSULATED SLIDE GAGE PLATE GP-1R ~ 1" x 8" ~ MILLED
W/ BETHLEHEM BOLTLESS BRACES**

GAUGE AT PT = 4'-8 1/2", HEEL SPREAD = 6 1/4", PT = 0"
GAUGE PLATE INSULATED JOINT TO BE "3M" TYPE, HUCKED TO PLATE.

NOTES:

1. METAL AREAS TO BE PAINTED MUST BE CLEANED OF ALL IMPURITIES.
2. ANCHOR HOLE SIZE IS 1" DIA \pm 1/32".
3. STAMP PLATE AS SHOWN W/ PROPER PL NO ~ SWITCH LENGTH & WEIGHT OF RAIL.
4. PAINT MARK EACH PLATE WITH AN ARROW POINTING TOWARDS SWITCH POINT.
5. ALL SHOULDERS ARE PANDROL TYPE 1 FORGED.
6. FURNISH THE FOLLOWING WITH EACH PLATE:
 - (2) BETHLEHEM BRACES
 - (2) BETHLEHEM SERRATED WASHERS
 - (2) PANDROL CLIP ES2362.

				DRAWN BY: A. CARLOS		DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES: SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.		 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012		ENGINEERING STANDARDS		STANDARD 2802	
				ASSISTANT DIRECTOR: STANDARDS & DESIGN								NO 10-136 LB RE INSULATED GAUGE PLATE GP-1L AND GP-1R		SCALE: NTS	
				DIRECTOR OF ENGINEERING AND CONSTRUCTION										REVISION SHEET 1 OF 1	
														CADD FILE: ES2802-81	



**INSULATED SLIDE GAUGE PLATE GP-2L ~ 1" x 8" ~ MILLED,
W/ BETHLEHEM BOLTLESS BRACES**

GAUGE AT PT = 4'-8 1/2", HEEL SPREAD = 6 1/4", PT = 1/4"
GAUGE PLATE INSULATED JOINT TO BE "3M" TYPE, HUCKED TO PLATE

**INSULATED SLIDE GAUGE PLATE GP-2R ~ 1" x 8" ~ MILLED,
W/ BETHLEHEM BOLTLESS BRACES**

GAUGE AT PT = 4'-8 1/2", HEEL SPREAD = 6 1/4", PT = 1/4"
GAUGE PLATE INSULATED JOINT TO BE "3M" TYPE, HUCKED TO PLATE

NOTES:

1. METAL AREAS TO BE PAINTED MUST BE CLEANED OF ALL IMPURITIES.
2. ANCHOR HOLE SIZE IS 1" DIA \pm 1/32".
3. STAMP PLATE AS SHOWN W/ PROPER PL NO ~ SWITCH LENGTH & WEIGHT OF RAIL.
4. PAINT MARK EACH PLATE WITH AN ARROW POINTING TOWARDS SWITCH POINT.
5. FURNISH THE FOLLOWING WITH EACH PLATE:
 - (2) BETHLEHEM BRACES
 - (2) BETHLEHEM SERRATED WASHERS
 - (2) PANDROL CLIP ES2362.
6. SHOULDERS TO PANDROL TYPE 1 FORGED.

						DRAWN BY:	A. CARLOS	DATE:	03/31/2011
X	XX-XX-XX		REVISION		XX	XX			
REV.	DATE		DESCRIPTION		DES.	ENG.			

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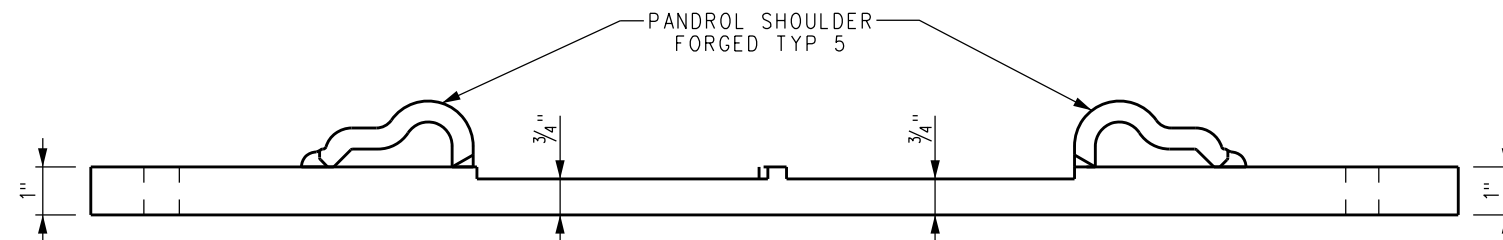
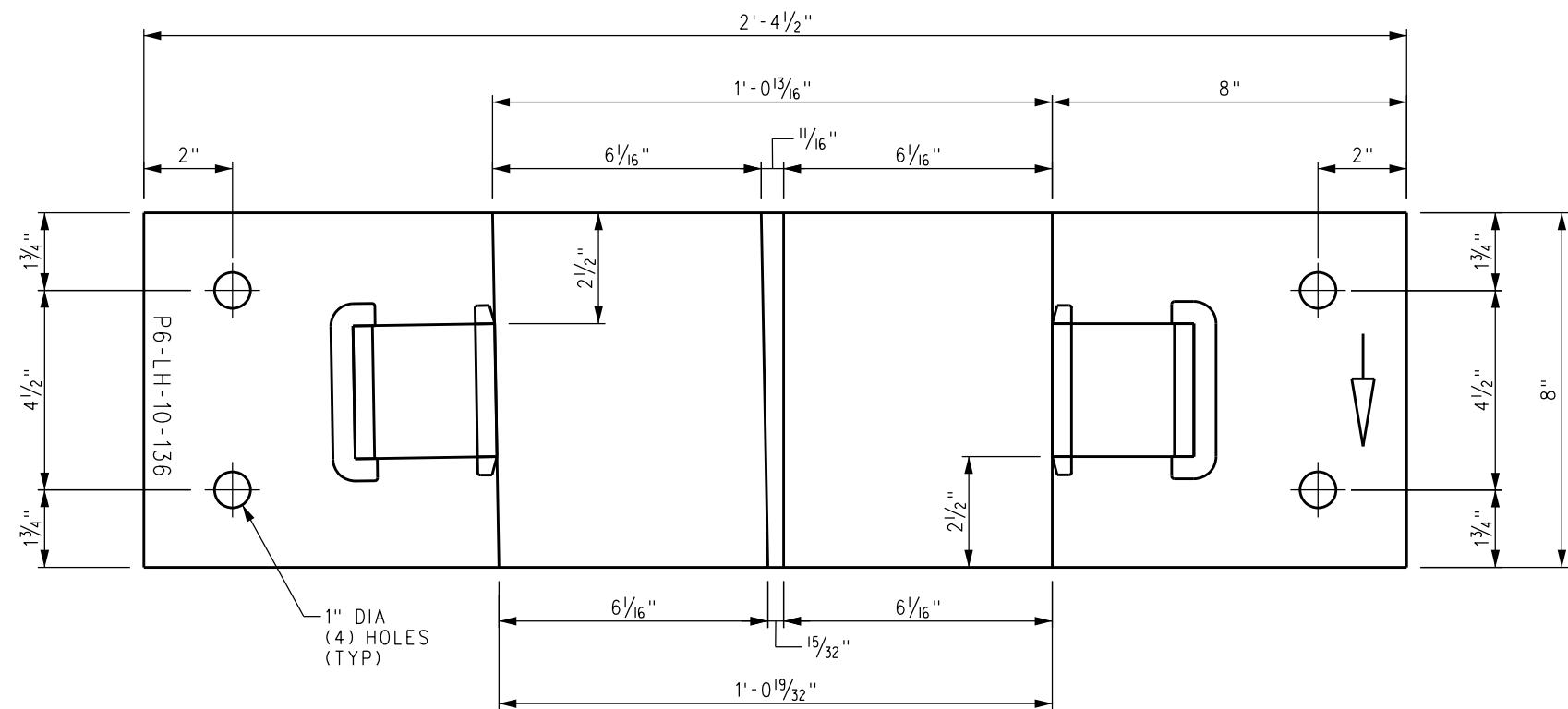
METROLINK

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS

NO 10-136 LB RE
INSULATED GAUGE PLATE GP-2L AND GP-2R

STANDARD	2802
SCALE:	NTS
REVISION	SHEET
-	1 OF 2
CADD FILE:	ES2802-82



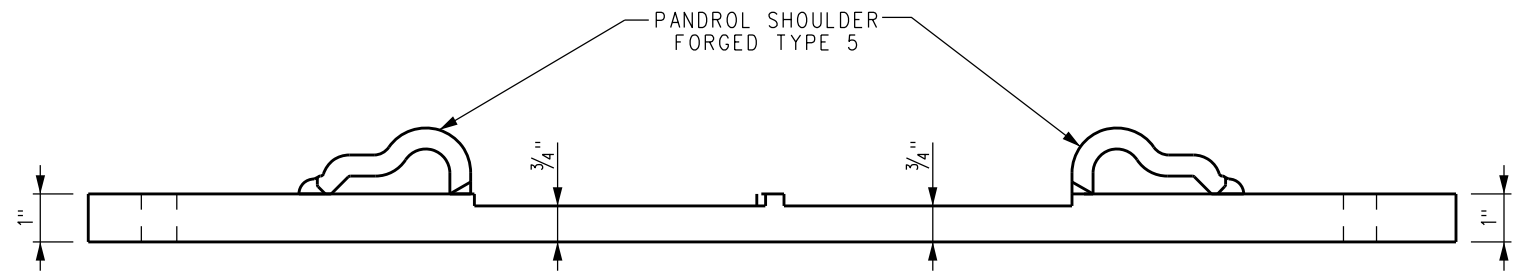
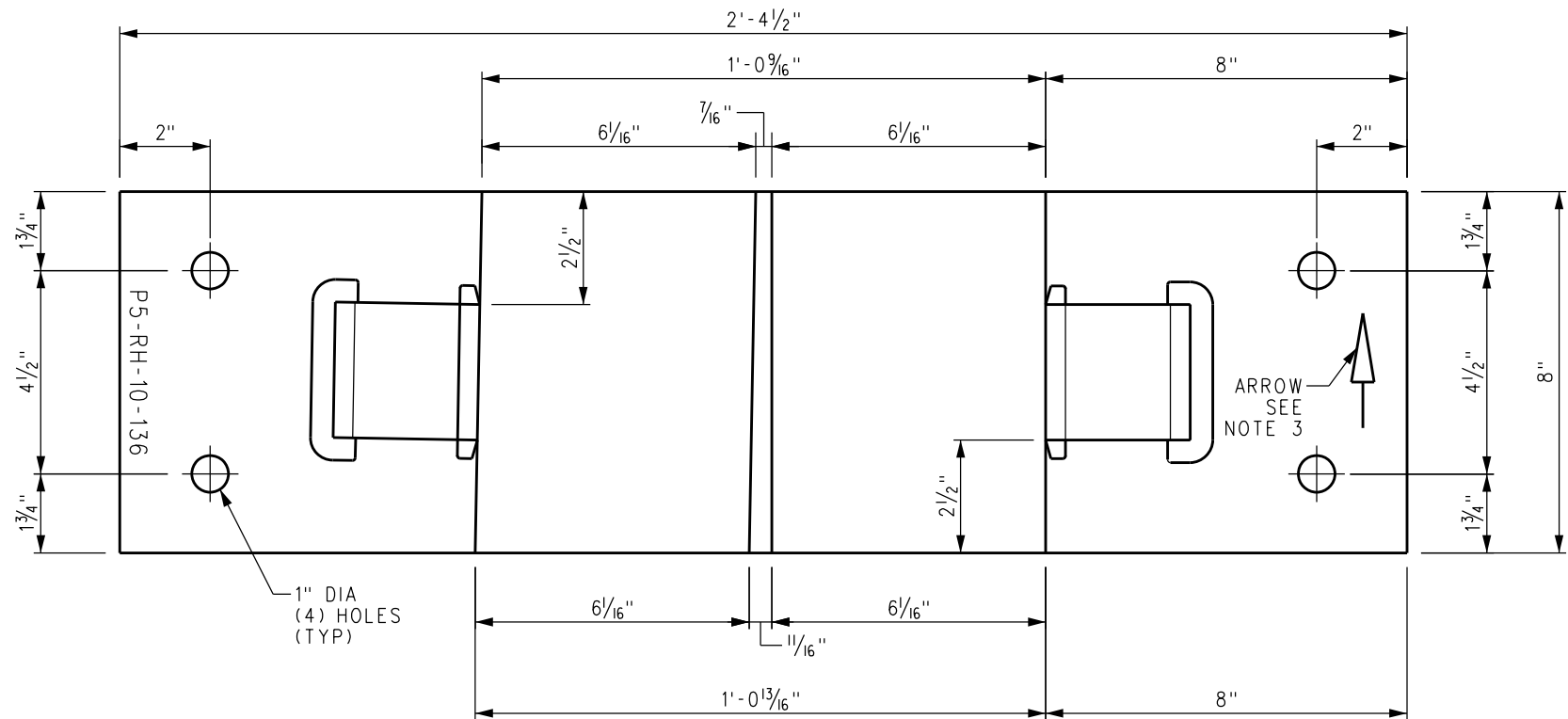
HEEL PLATE P6-LH

1" x 8" x 2'-4 1/2" (MILLED) ~ W/ PANDROLS
(2 EA) FOR LEFT HAND TURNOUT

NOTES:

1. STAMP PLATE: "RESPECTIVE PLATE NUMBER, NO 10, 136".
2. ANCHOR HOLE SIZE IS 1" DIA \pm 1/32".
3. PAINT MARK EACH PLATE WITH ARROW POINTING TOWARDS SWITCH POINT.

				DRAWN BY: A. CARLOS		DATE: 03/31/2011		<div>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES: SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</div>	<div>METROLINK[®]</div> <div>SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>	ENGINEERING STANDARDS		STANDARD	
										2802			
										NTS			
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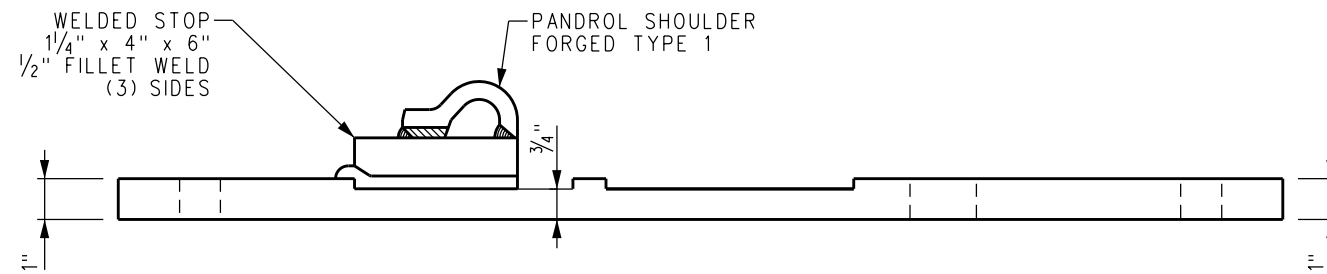
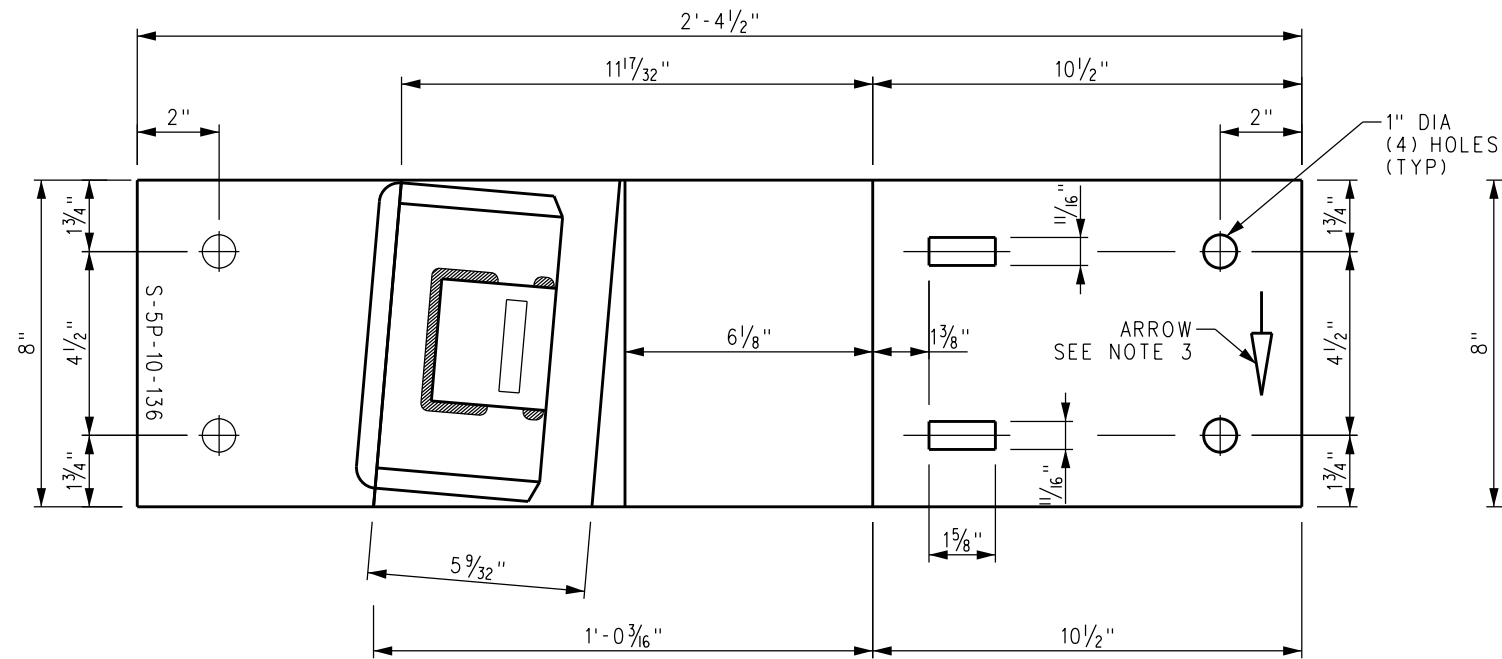


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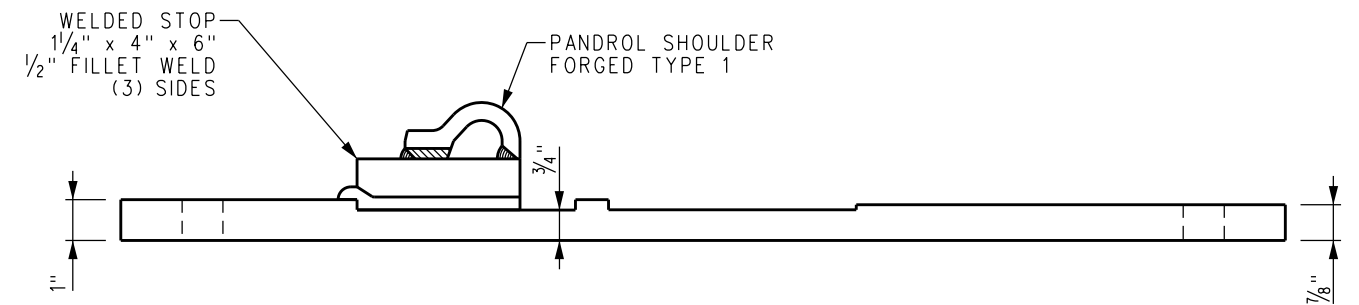
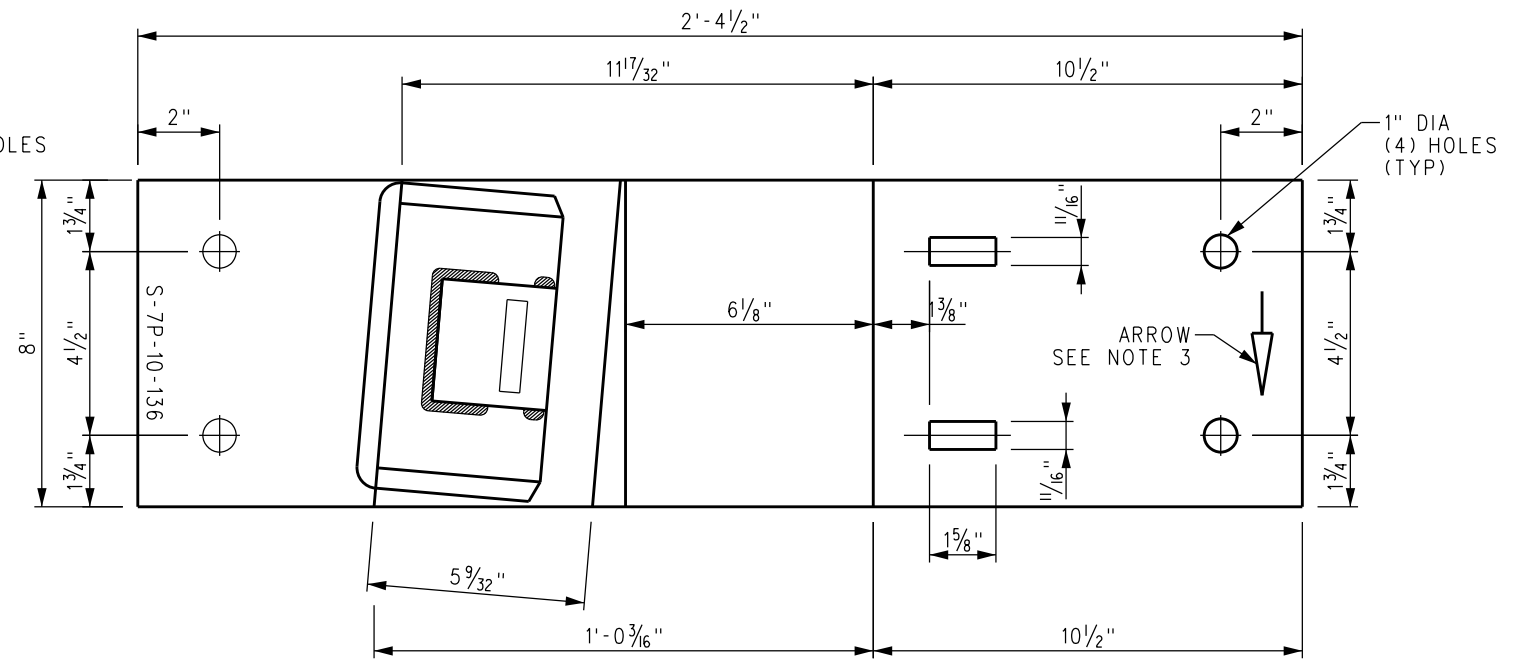
NOTES:

1. STAMP PLATE: "RESPECTIVE PLATE NUMBER, NO 10, 136".
2. ANCHOR HOLE SIZE IS 1" DIA \pm 1/32".
3. PAINT MARK EACH PLATE WITH ARROW POINTING TOWARDS SWITCH POINT.

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BRACE SLIDE PLATE S-5P
1" x 8" x 2'-4 1/2" (MILLED)
1/8" RISER



BRACE SLIDE PLATE S-7P
1" x 8" x 2'-4 1/2" (MILLED)
1/8" RISER

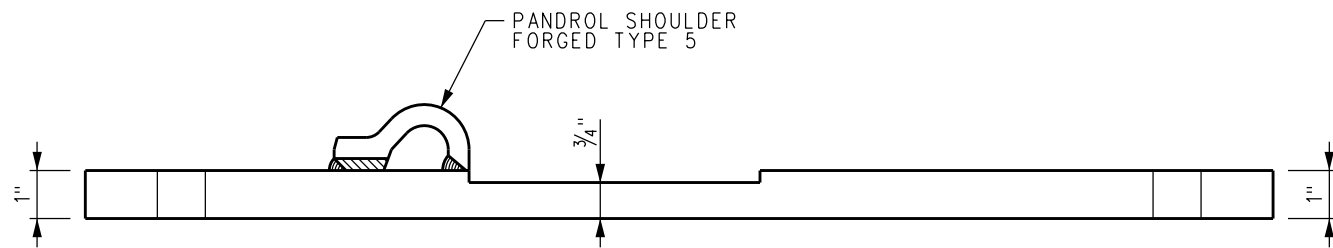
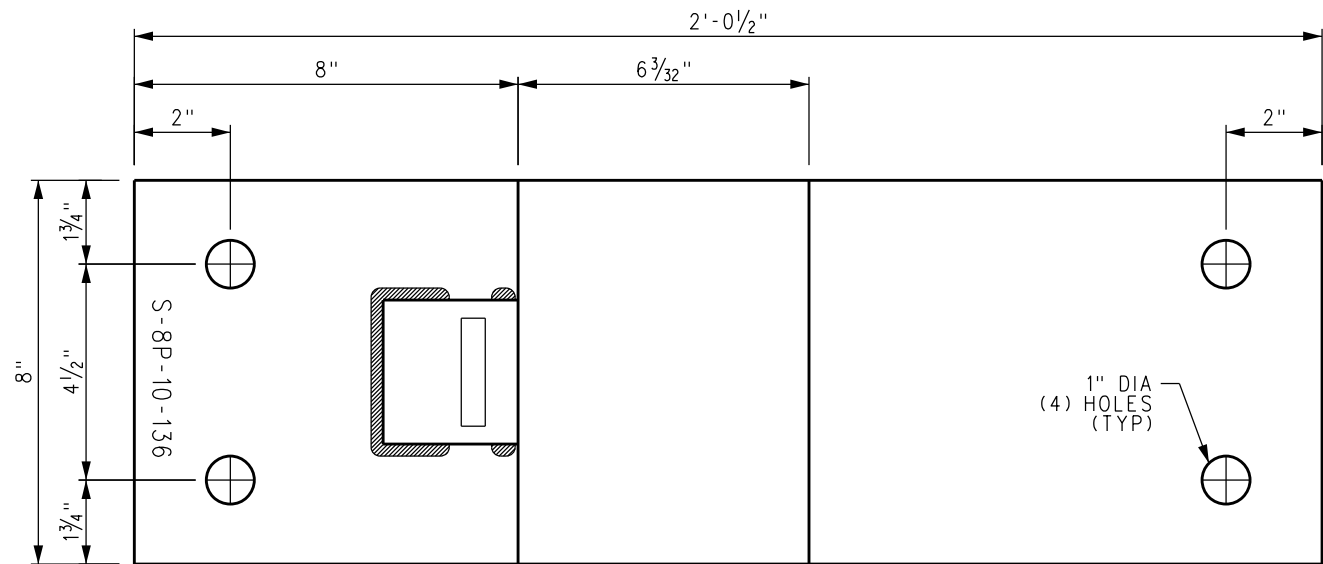
FURNISH:

BETHLEHEM BOLTLESS ADJUSTABLE BRACE, CONSISTING OF:
(1) BETHLEHEM BRACE.
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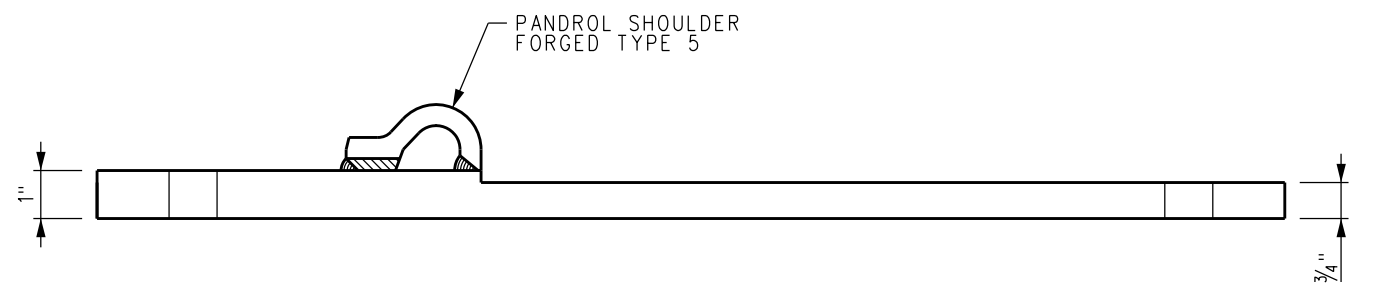
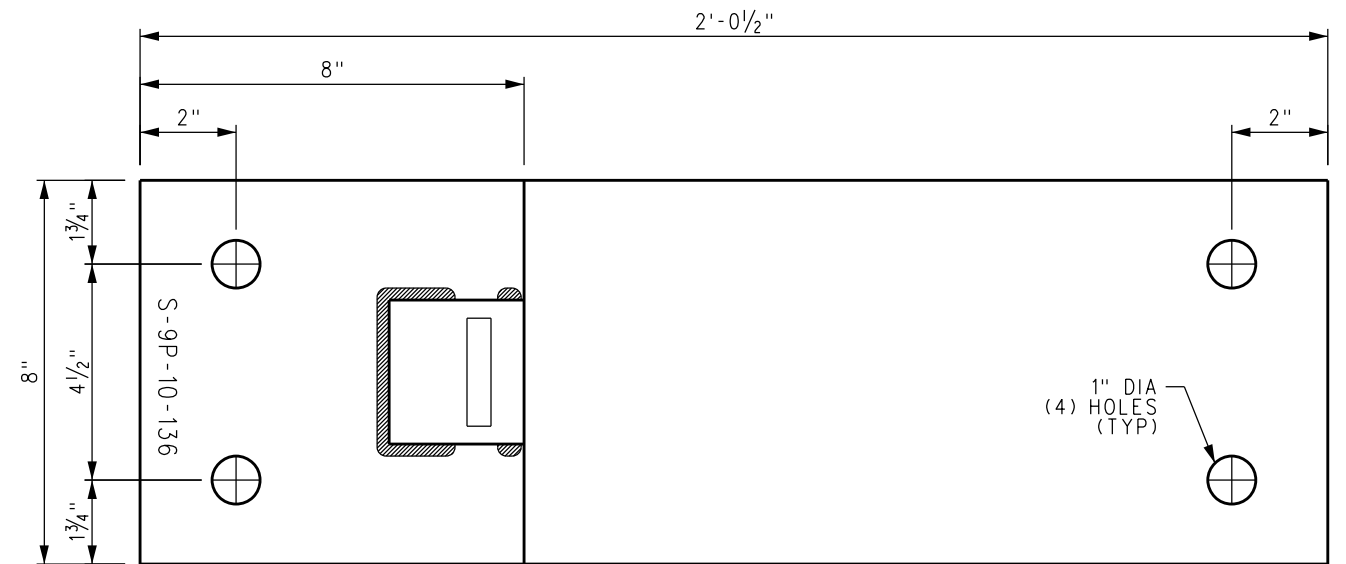
NOTES:

1. STAMP PLATE: "RESPECTIVE PLATE NUMBER, NO 10, 136".
2. ANCHOR HOLE SIZE IS 1" DIA \pm 1/32".
3. PAINT MARK EACH PLATE WITH ARROW POINTING TOWARDS SWITCH POINT.

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SLIDE PLATE S-8P
1" x 8" x 2'-0 1/2" (MILLED)
0" RISER

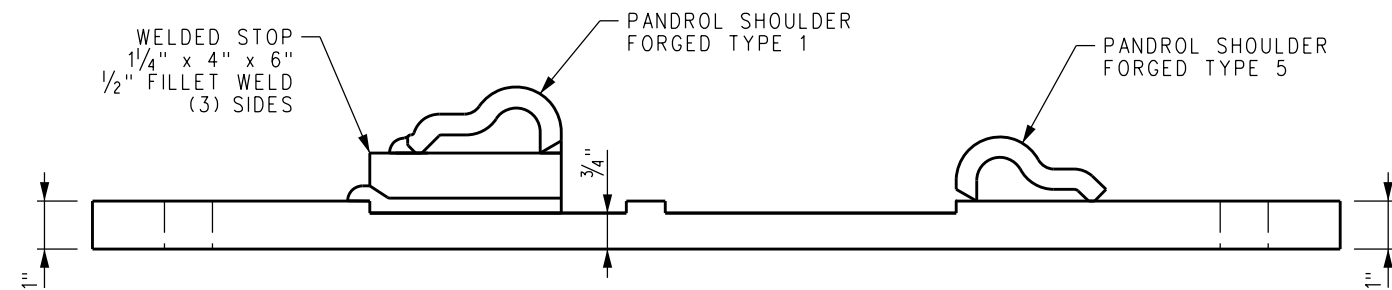
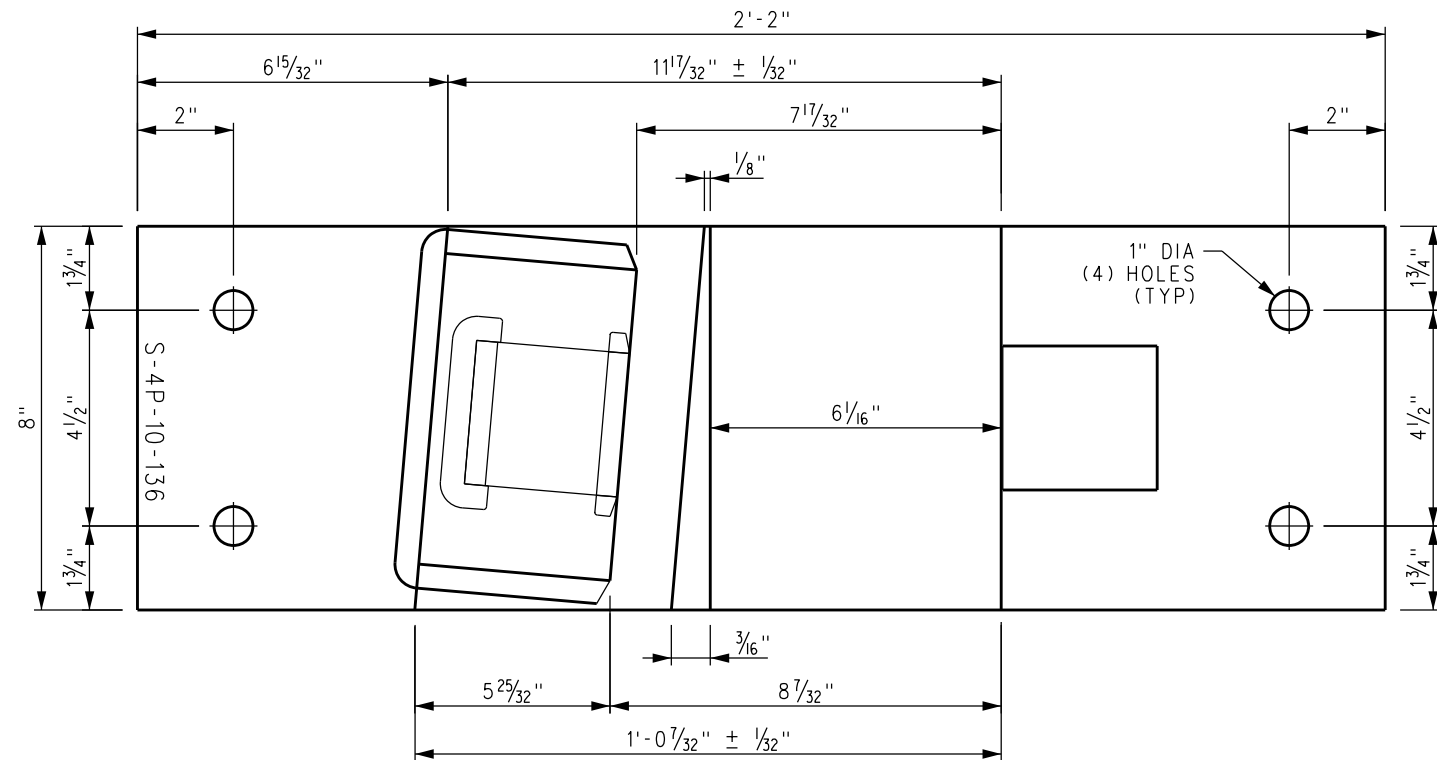


SLIDE PLATE S-9P
1" x 8" x 2'-0 1/2" (MILLED)
0" RISER

NOTES:

1. STAMP PLATE: "RESPECTIVE PLATE NUMBER, NO 10, 136".
2. ANCHOR HOLE SIZE IS 1" DIA \pm 1/32".

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BRACE PLATE S-4P
1" x 8" x 2'-2" (MILLED)
FOR RIGHT & LEFT HAND TURNOUTS

NOTES:

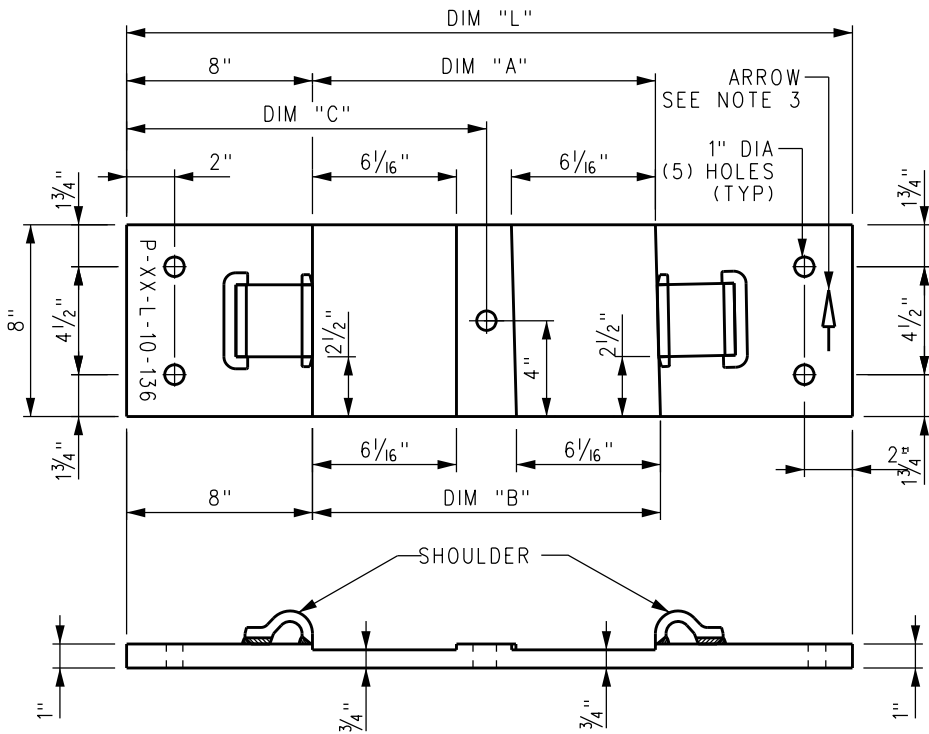
1. STAMP PLATE: "RESPECTIVE PLATE NUMBER, NO 10, 136"
2. ANCHOR HOLE SIZE IS 1" DIA ± 1/32".

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DIMENSION TABLE					
PLATE	DIM "A"	DIM "B"	DIM "C"	DIM "L"	PL REQ'D
P-10-L	1'-1 ¹ / ₈ "	1'-1 ³ / ₈ "	1'-2 ¹⁹ / ₃₂ "	2'-5"	2 EA
P-11-L	1'-1 ²³ / ₃₂ "	1'-1 ¹⁵ / ₁₆ "	1'-2 ⁷ / ₈ "	2'-6"	2 EA
P-12-L	1'-2 ¹¹ / ₃₂ "	1'-2 ¹⁹ / ₃₂ "	1'-3 ³ / ₁₆ "	2'-6 ¹ / ₂ "	2 EA
P-13-L	1'-3"	1'-3 ¹ / ₄ "	1'-3 ¹ / ₂ "	2'-7 ¹ / ₂ "	2 EA
P-14-L	1'-3 ¹¹ / ₁₆ "	1'-3 ³¹ / ₃₂ "	1'-3 ²⁷ / ₃₂ "	2'-8"	2 EA
P-15-L	1'-3 ¹³ / ₃₂ "	1'-4 ²³ / ₃₂ "	1'-4 ⁷ / ₃₂ "	2'-8 ¹ / ₂ "	2 EA

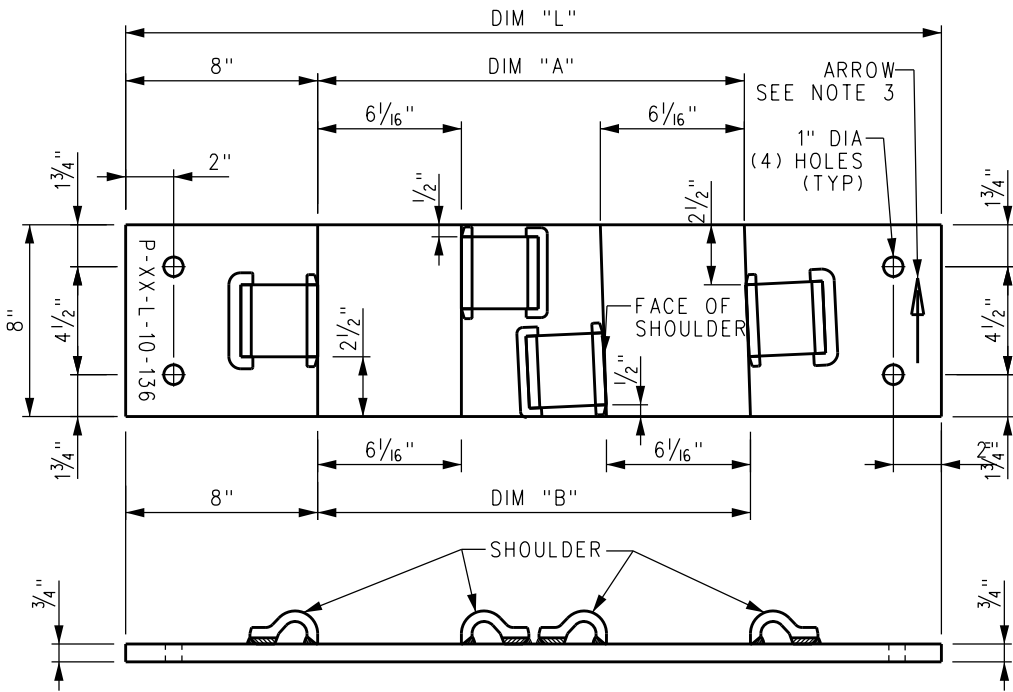
DIMENSION TABLE				
PLATE	DIM "A"	DIM "B"	DIM "L"	PL REQ'D
P-16-L	1'-5 ¹ / ₈ "	1'-5 ⁷ / ₁₆ "	2'-9 ¹ / ₂ "	2 EA
P-17-L	1'-5 ¹⁵ / ₁₆ "	1'-6 ¹ / ₄ "	2'-10"	2 EA
P-18-L	1'-6 ²⁵ / ₃₂ "	1'-7 ⁵ / ₃₂ "	2'-11"	2 EA
P-23-L	1'-7 ⁷ / ₁₆ "	1'-8 ⁷ / ₃₂ "	2'-11"	1 EA
P-29-L	1'-7 ¹¹ / ₃₂ "	1'-8 ¹ / ₈ "	3'-0"	1 EA

DIMENSION TABLE				
PLATE	DIM "A"	DIM "B"	DIM "L"	PL REQ'D
P-19-L	1'-8 ⁵ / ₃₂ "	1'-7 ²⁵ / ₃₂ "	3'-0"	2 EA
P-20-L	1'-9 ¹ / ₈ "	1'-8 ³ / ₄ "	3'-1"	2 EA
P-21-L	1'-10 ⁵ / ₃₂ "	1'-9 ³ / ₄ "	3'-2"	2 EA
P-22-L	1'-10 ³ / ₁₆ "	1'-9 ⁷ / ₁₆ "	3'-2"	1 EA
P-30-L	1'-10 ⁵ / ₃₂ "	1'-9 ¹¹ / ₃₂ "	3'-2"	1 EA



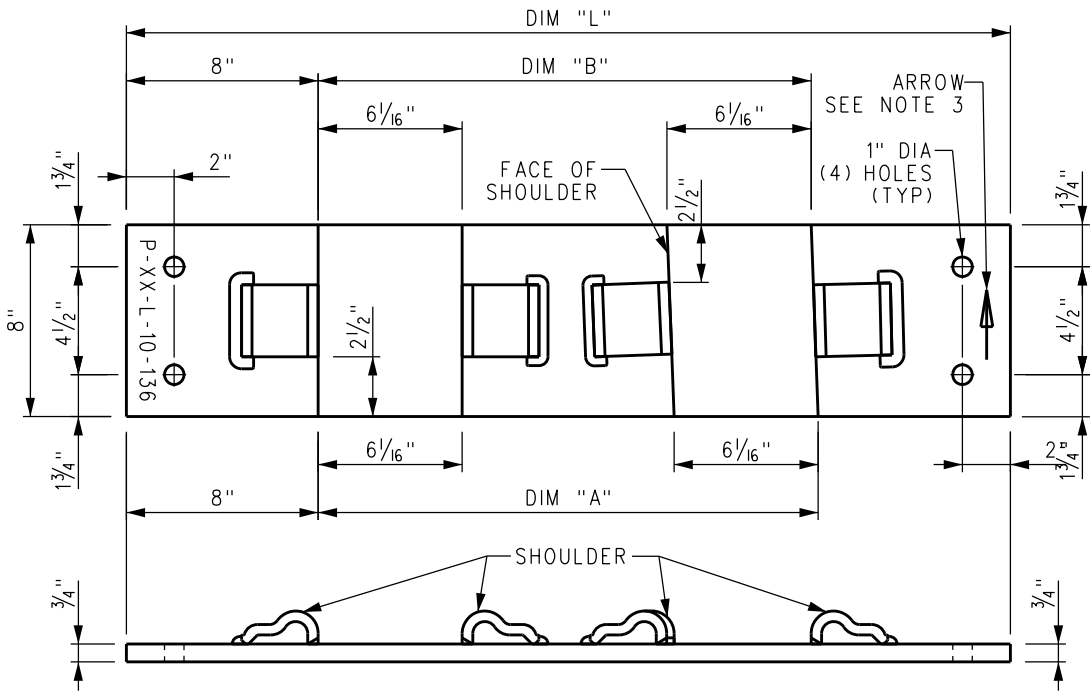
TURNOUT PLATES
P-10-L THRU P-15-L
1" x 8" x DIM "L" (MILLED) ~ W/PANDROLS
FOR LEFT HAND TURNOUT ONLY

NOTE: FURNISH WITH EACH PLATE
(2) PANDROL SHOULDER TYPE 5 FORGED
(2) PANDROL CLIP ES2362
(1) DIRAIL HOLD-DOWN CLIP (SEE CLIP TABLE)



TURNOUT PLATES
P-16-L THRU P-18-L & P-23-L & P-29-L
3/4" x 8" x DIM "L" (FLAT) ~ W/ PANDROLS
FOR LEFT HAND TURNOUT ONLY

NOTE: FURNISH WITH EACH PLATE
(4) PANDROL SHOULDER TYPE 1 FORGED
(4) PANDROL CLIP ES2362



TURNOUT PLATES
P-19-L THRU P-22-L & P-30-L
3/4" x 8" x DIM "L" (FLAT) ~ W/ PANDROLS
FOR LEFT HAND TURNOUT ONLY

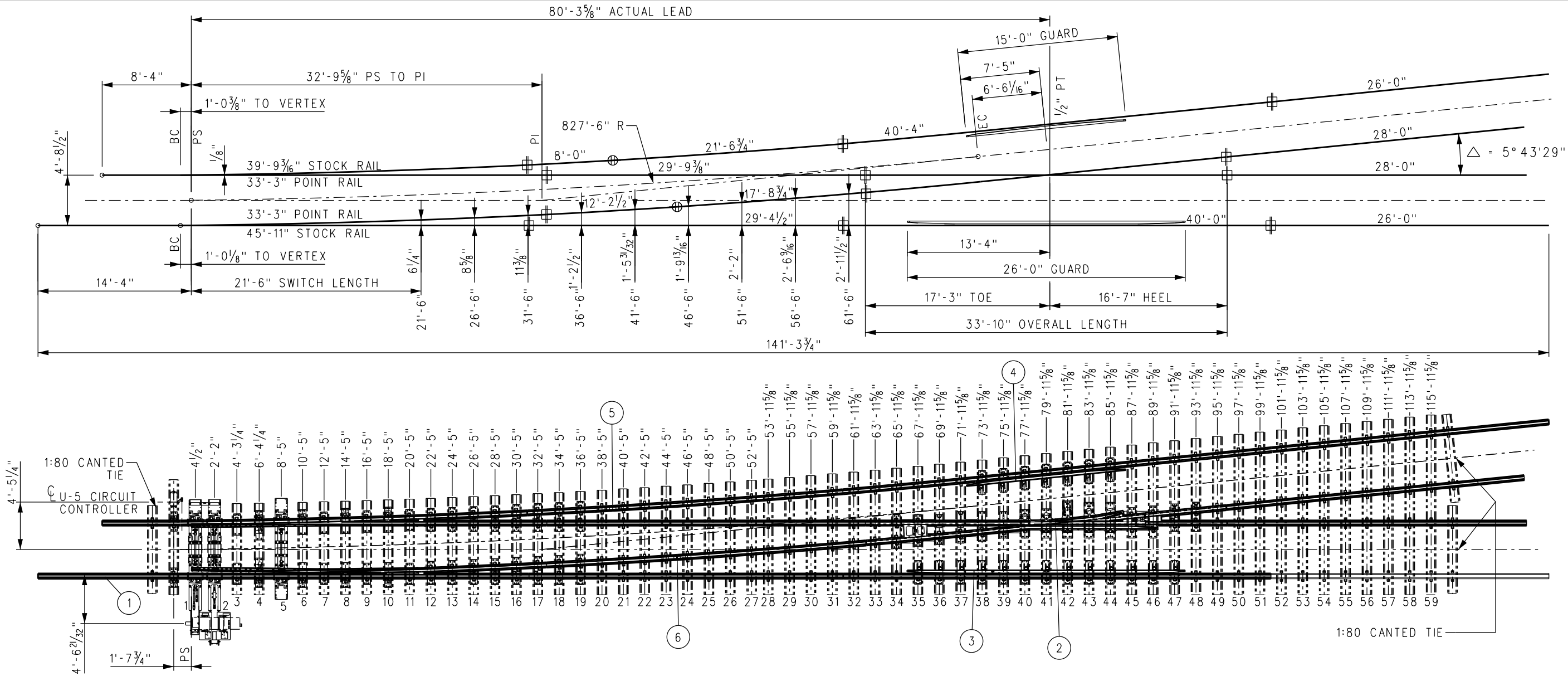
NOTE: FURNISH WITH EACH PLATE
(4) PANDROL SHOULDER TYPE 1 FORGED
(4) PANDROL CLIP ES2362

NOTES:

1. STAMP PLATE: "RESPECTIVE PLATE NO, NO 10, 136 RE".
2. ANCHOR HOLE SIZE IS 1" DIA ± 1/32".
3. PAINT MARK EACH PLATE WITH ARROW POINTING TOWARDS SWITCH POINT.

				DRAWN BY: A. CARLOS		DATE: 03/31/2011	<div>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES: SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</div>	<div>METROLINK[®] SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>	ENGINEERING STANDARDS		STANDARD			
									2802					
									SCALE: NTS					
									REVISION SHEET					
									- 1 OF 1					
									CADD FILE: ES2802-91					
X	XX-XX-XX	REVISION	XX	XX										
REV.	DATE	DESCRIPTION	DES.	ENG.										

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH PACK, NO 10-136 LB RE MODIFIED TANGENTIAL, LH, HST	ES2803-13		12	1	DRILLED RAIL, 136 LB RE, 40'-4" LONG	-	
2	1	FROG PACK, NO 10-136 LB RE WSM, LH	ES2803-41		13	276	TIE SCREW, CONCRETE 7/8" DIAMETER x 6" HEX HEAD	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LG, 136 LB RE RAISED 1", STRAIGHT	ES2800-50		14	276	WASHER FLAT 7/8" TYPE A NARROW 15/16" x 13/4" x 0.134"	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 15'-0" LG, 136 LB RE RAISED 1", LH	ES2803-51		15	276	SPRING WASHER, DOUBLE COIL (Fe6)	-	
5	1	INSULATED RAIL ASSEMBLY, 29'-63/4" C/W BONDED INSULATED JOINT	-		16	1	CONCRETE TIE SET, 0-59 + (3) 1:80 TIES, PLATE PADS, LH	-	
6	1	INSULATED RAIL ASSEMBLY, 29'-111/4" C/W BONDED INSULATED JOINT	-		17	224	CLIP PANDROL E2055	-	
7	2	DRILLED RAIL, 136 LB RE, 26'-0" LONG	-		18	224	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
8	2	DRILLED RAIL, 136 LB RE, 28'-0" LONG	-		19	8	CLIP PANDROL E2063	-	
9	1	DRILLED RAIL, 136 LB RE, 29'-41/2" LONG	-		20	8	INSULATION, PANDROL NYLON 6790	-	
10	1	DRILLED RAIL, 136 LB RE, 29'-93/8" LONG	-		21	116	TIE PAD PANDROL 6993SR	-	
11	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		22	138	SHIM, TO REDUCE PLATE FLEXURE	-	

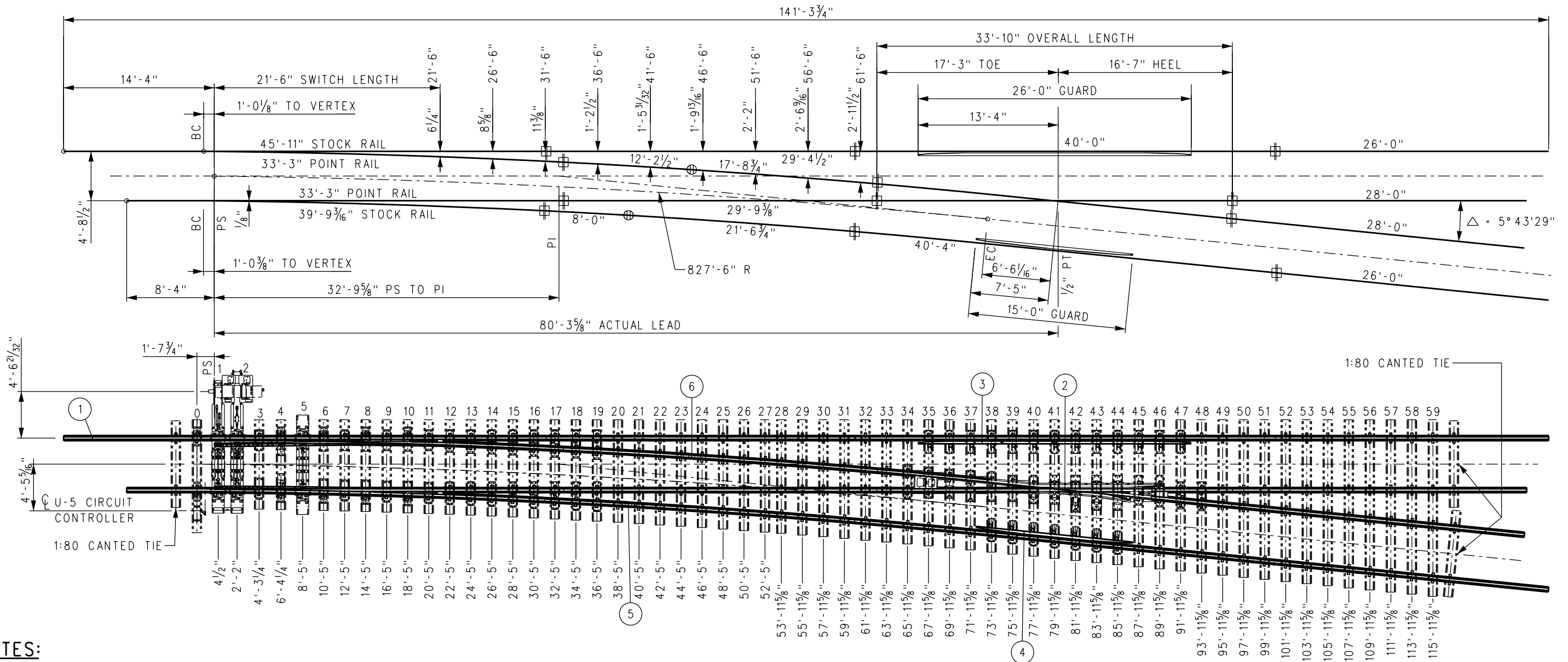


TURNOUT DATA:



FROG	NO 10	△ = 5° 43' 29"	LENGTH OF POINTS:	21'-6" / 33'-3"	ACTUAL LEAD:	80'-3 5/8"
TOE LENGTH:	17'-3"		ENTRY ANGLE:	0° 37' 11"	CLOSURE AREA	
HEEL LENGTH:	16'-7"		VERTEX DISTANCE:	VARIES PER SIDE	CENTERLINE RADIUS:	827'-6"
TOTAL LENGTH:	33'-10"		THICKNESS AT POINT:	1/8"	DEGREE OF CURVE:	6° 55' 41"
			CENTERLINE RADIUS:	827'-6"	DESIGN SPEEDS	25 MPH PASSENGER @ 3" UNBALANCE
			THROW AT ROD #1:	4 3/4"	15 MPH FREIGHT @ 2" UNBALANCE	

DRAWN BY: HDR DATE: 03/31/2011				SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS				STANDARD	2803
Narek D. Bhe				METROLINK®				TURNOUT LAYOUT				SCALE:	NTS
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY				ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				NO 10-136 LB RE LH WSM FROG TURNOUT				REVISION	SHEET
DIRECTOR OF ENGINEERING AND CONSTRUCTION								HST, SWITCH MACHINE ON MAINLINE SIDE				-	1 OF 1
CADD FILE:				ES2803-01									

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	SWITCH PACK, NO 10-136 LB RE MODIFIED TANGENTIAL, RH, HST	ES2803-14		12	1	DRILLED RAIL, 136 LB RE, 40'-4" LONG	-	
2	1	FROG PACK, NO 10-136 LB RE WSM, RH	ES2803-40		13	276	TIE SCREW, CONCRETE 7/8" DIAMETER x 6" HEX HEAD	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LG, 136 LB RE RAISED 1", STRAIGHT	ES2800-50		14	276	WASHER FLAT 7/8" TYPE A NARROW 15/16" x 1 3/4" x 0.134"	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 15'-0" LG, 136 LB RE RAISED 1", RH	ES2803-52		15	276	SPRING WASHER, DOUBLE COIL (Fe6)	-	
5	1	INSULATED RAIL ASSEMBLY, 29'-6 3/4" C/W BONDED INSULATED JOINT	-		16	1	CONCRETE TIE SET, 0-59 + (3) 1:80 TIES, PLATE PADS, RH	-	
6	1	INSULATED RAIL ASSEMBLY, 29'-11 1/4" C/W BONDED INSULATED JOINT	-		17	224	CLIP PANDROL E2055	-	
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9	1	DRILLED RAIL, 136 LB RE, 29'-4 1/2" LONG	-		20	8	INSULATION, PANDROL NYLON 6790	-	
10	1	DRILLED RAIL, 136 LB RE, 29'-9 3/8" LONG	-		21	116	TIE PAD PANDROL 6993SR	-	
11	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		22	138	SHIM, TO REDUCE PLATE FLEXURE	-	



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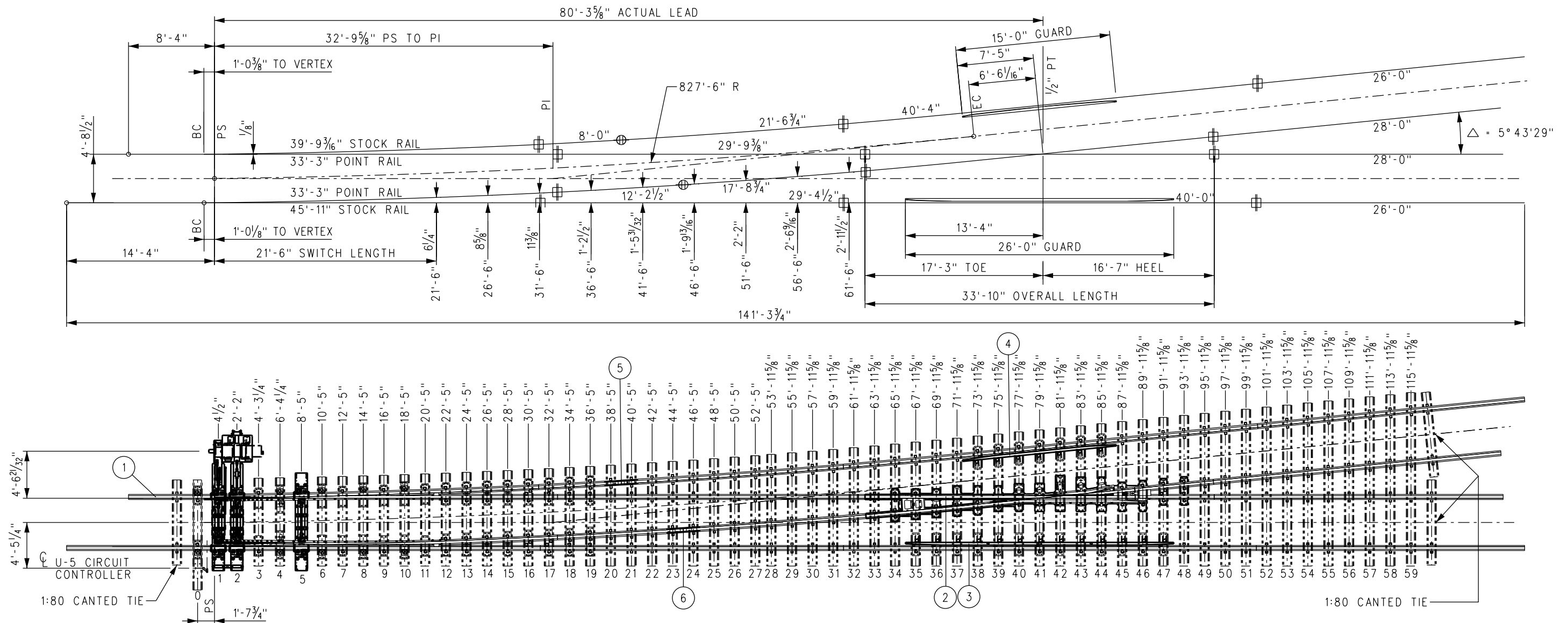
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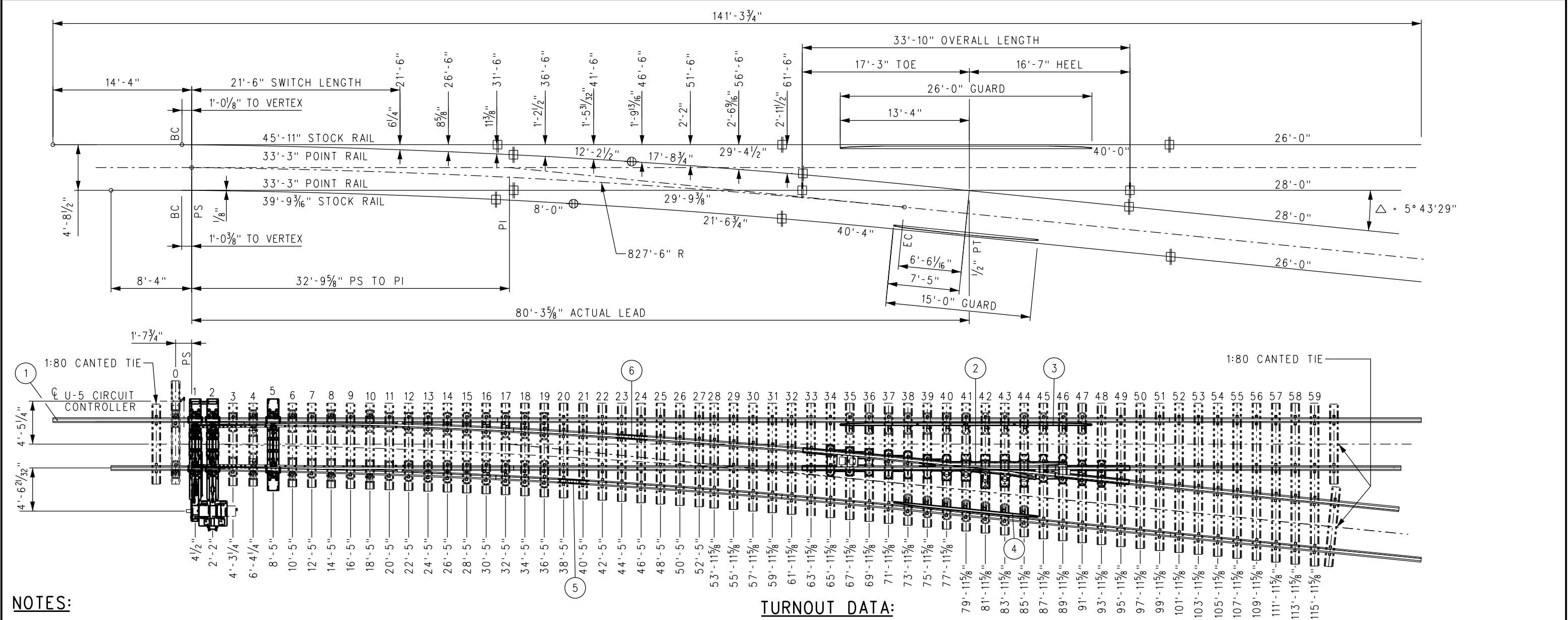
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		CENTERLINE RADIUS:	827'-6"	25 MPH PASSENGER @ 3" UNBALANCE	
		THROW AT ROD 1:	4 3/4"	15 MPH FREIGHT @ 2" UNBALANCE	

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BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	SWITCH PACK, NO 10-136 LB RE MODIFIED TANGENTIAL, RH, HST	ES2803-16		12	1	DRILLED RAIL, 136 LB RE, 40'-4" LONG	-	
2	1	FROG PACK, NO 10-136 LB RE WSM, RH	ES2803-40		13	276	TIE SCREW, CONCRETE 7/8" DIAMETER x 6" HEX HEAD	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LG, 136 LB RE RAISED 1", STRAIGHT	ES2800-50		14	276	WASHER FLAT 7/8" TYPE A NARROW 15/16" x 13/4" x 0.134"	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 15'-0" LG, 136 LB RE RAISED 1", RH	ES2803-52		15	276	SPRING WASHER, DOUBLE COIL (Fe6)	-	
5	1	INSULATED RAIL ASSEMBLY, 29'-63/4" C/W BONDED INSULATED JOINT	-		16	1	CONCRETE TIE SET, 0-59 + (3) 1:80 TIES, PLATE PADS, RH	-	
6	1	INSULATED RAIL ASSEMBLY, 29'-111/4" C/W BONDED INSULATED JOINT	-		17	224	CLIP PANDROL E2055	-	
7	2	DRILLED RAIL, 136 LB RE, 26'-0" LONG	-		18	224	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
8	2	DRILLED RAIL, 136 LB RE, 28'-0" LONG	-		19	8	CLIP PANDROL E2063	-	
9	1	DRILLED RAIL, 136 LB RE, 29'-41/2" LONG	-		20	8	INSULATION, PANDROL NYLON 6790	-	
10	1	DRILLED RAIL, 136 LB RE, 29'-93/8" LONG	-		21	116	TIE PAD PANDROL 6993SR	-	
11	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		22	138	SHIM, TO REDUCE PLATE FLEXURE	-	



NOTES:

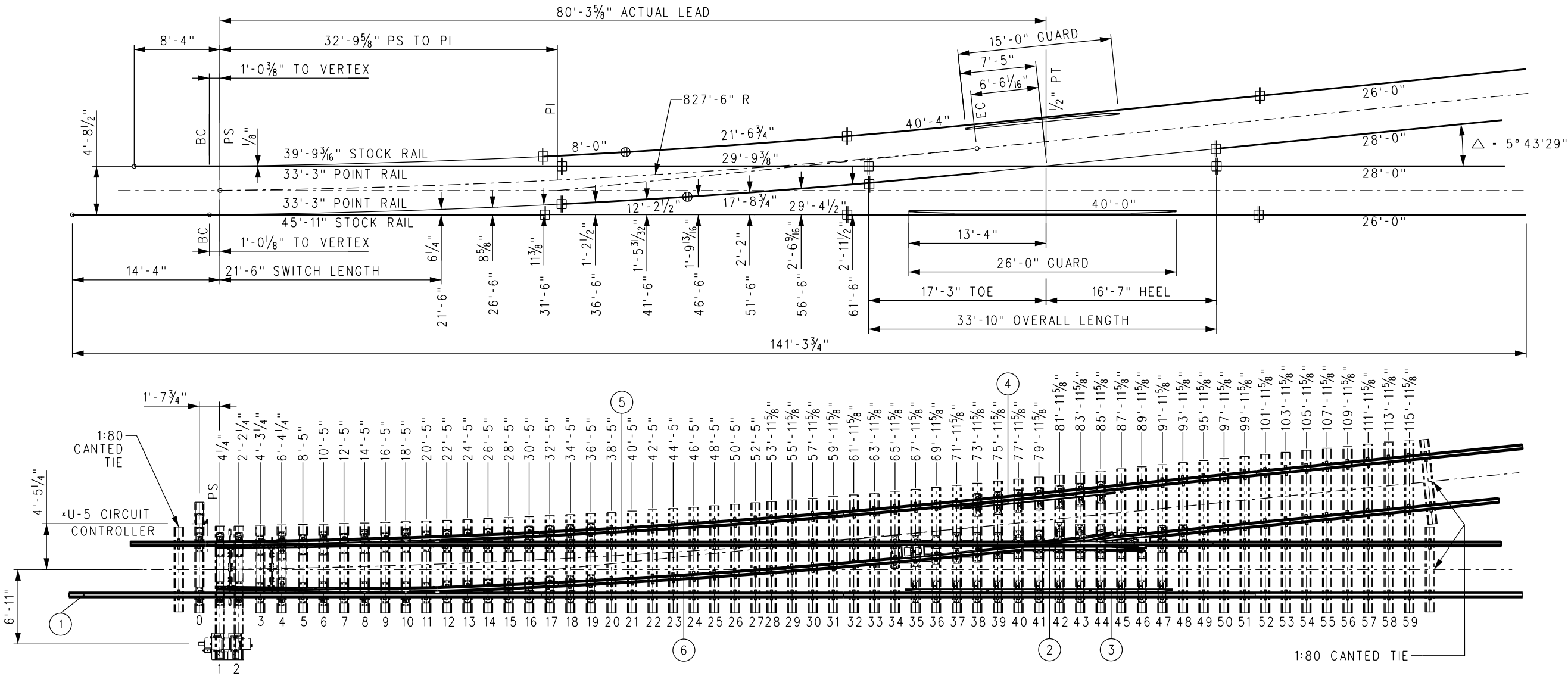
1. ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
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4. SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRR.
5. ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
6. TIGHTEN TIE SCREW WITH DOUBLE COIL SPRING WASHER IN PLACE.
7. ⊕ = INSULATED JOINT ⊞ = WELDED JOINT

TURNOUT DATA:

FROG NO 10	Δ = 5° 43' 29"	SWITCH LENGTH OF POINTS: 21'-6" / 33'-3"	ACTUAL LEAD: 80'-3 5/8"
TOE LENGTH: 17'-3"		ENTRY ANGLE: 0° 37' 11"	CLOSURE AREA
HEEL LENGTH: 16'-7"		VERTEX DISTANCE: VARIES PER SIDE	CENTERLINE RADIUS: 827'-6"
TOTAL LENGTH: 33'-10"		THICKNESS AT POINT: 1/8"	DEGREE OF CURVE: 6° 55' 41"
		CENTERLINE RADIUS: 827'-6"	DESIGN SPEEDS
		THROW AT ROD *1: 4 3/4"	25 MPH PASSENGER @ 3" UNBALANCE
			15 MPH FREIGHT @ 2" UNBALANCE

				DRAWN BY: HDR DATE: 03/31/2011				SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.				 METROLINK®				ENGINEERING STANDARDS				STANDARD 2803	
				 ASSISTANT DIRECTOR: STANDARDS & DESIGN												SCALE: NTS					
X XX-XX-XX				REVISION				XX XX								REVISION SHEET - 1 OF 1					
REV. DATE				DESCRIPTION				DES. ENG.				DIRECTOR OF ENGINEERING AND CONSTRUCTION				CADD FILE: ES2803-04					
												SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				TURNOUT LAYOUT NO 10-136 LB RE RH WSM FROG TURNOUT HST, SWITCH MACHINE ON TURNOUT SIDE					

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH PACK, NO 10-136 LB RE MODIFIED TANGENTIAL, LH	ES2803-17		12	1	DRILLED RAIL, 136 LB RE, 40'-4" LONG	-	
2	1	FROG PACK, NO 10-136 LB RE WSM, LH	ES2803-41		13	300	TIE SCREW, CONCRETE 7/8" DIAMETER x 6" HEX HEAD	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LG, 136 LB RE RAISED 1", STRAIGHT	ES2800-50		14	300	WASHER FLAT 7/8" TYPE A NARROW 15/16" x 13/4" x 0.134"	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 15'-0" LG, 136 LB RE RAISED 1", LH	ES2803-51		15	300	SPRING WASHER, DOUBLE COIL (Fe6)	-	
5	1	INSULATED RAIL ASSEMBLY, 29'-63/4" C/W BONDED INSULATED JOINT	-		16	1	CONCRETE TIE SET, 0-59 + (3) 1:80 TIES, PLATE PADS, LH	-	
6	1	INSULATED RAIL ASSEMBLY, 29'-111/4" C/W BONDED INSULATED JOINT	-		17	1	HEADBLOCK TIE LAYOUT	-	
7	2	DRILLED RAIL, 136 LB RE, 26'-0" LONG	-		18	224	CLIP PANDROL E2055	-	
8	2	DRILLED RAIL, 136 LB RE, 28'-0" LONG	-		19	224	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
9	1	DRILLED RAIL, 136 LB RE, 29'-41/2" LONG	-		20	8	CLIP PANDROL E2063	-	
10	1	DRILLED RAIL, 136 LB RE, 29'-93/8" LONG	-		21	8	INSULATION, PANDROL NYLON 6790	-	
11	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		22	116	TIE PAD PANDROL 6993SR	-	
					23	150	SHIM, TO REDUCE PLATE FLEXURE	-	



NOTES:

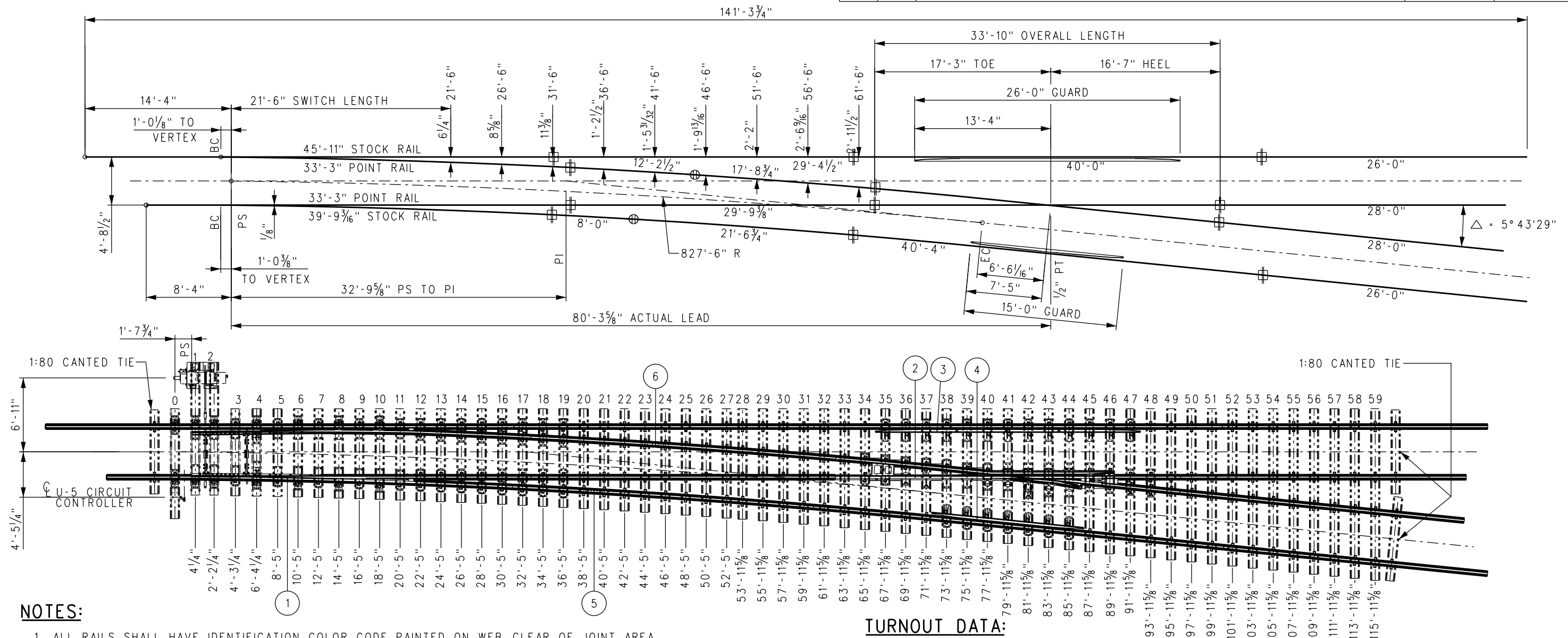
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TURNOUT DATA:



FROG	NO 10	△ = 5° 43' 29"	SWITCH	LENGTH OF POINTS:	21'-6" / 33'-3"	ACTUAL LEAD:	80'-3 5/8"
	TOE LENGTH:	17'-3"		ENTRY ANGLE:	0° 37' 11"	CLOSURE AREA	
	HEEL LENGTH:	16'-7"		VERTEX DISTANCE:	VARIES PER SIDE	CENTERLINE RADIUS:	827'-6"
	TOTAL LENGTH:	33'-10"		THICKNESS AT POINT:	1/8"	DEGREE OF CURVE:	6° 55' 41"
				CENTERLINE RADIUS:	827'-6"	DESIGN SPEEDS	
				THROW AT ROD #1:	4 3/4"	25 MPH PASSENGER @ 3" UNBALANCE	
						15 MPH FREIGHT @ 2" UNBALANCE	

				DRAWN BY: HDR DATE: 03/31/2011		<div>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</div> <div> METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>	ENGINEERING STANDARDS		STANDARD 2803		
				<div> ASSISTANT DIRECTOR: STANDARDS & DESIGN</div>			TURNOUT LAYOUT		SCALE: NTS		
				<div> DIRECTOR OF ENGINEERING AND CONSTRUCTION</div>			NO 10-136 LB RE LH WSM FROG TURNOUT		SHEET 1 OF 1		
							CONCRETE TIES, SWITCH MACHINE ON MAINLINE SIDE		CADD FILE: ES2803-05		
X	XX-XX-XX	REVISION	XX	XX							
REV.	DATE	DESCRIPTION	DES.	ENG.							

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	SWITCH PACK, NO 10-136 LB RE MODIFIED TANGENTIAL, RH	ES2803-18		12	1	DRILLED RAIL, 136 LB RE, 40'-4" LONG	-	
2	1	FROG PACK, NO 10-136 LB RE WSM, RH	ES2803-40		13	300	TIE SCREW, CONCRETE $\frac{7}{8}$ " DIAMETER x 6" HEX HEAD	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LG, 136 LB RE RAISED 1", STRAIGHT	ES2800-50		14	300	WASHER FLAT $\frac{7}{8}$ " TYPE A NARROW $\frac{15}{16}$ " x $1\frac{3}{4}$ " x 0.134"	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 15'-0" LG, 136 LB RE RAISED 1", RH	ES2803-52		15	300	SPRING WASHER, DOUBLE COIL (Fe6)	-	
5	1	INSULATED RAIL ASSEMBLY, 29'-6 $\frac{3}{4}$ " C/W BONDED INSULATED JOINT	-		16	1	CONCRETE TIE SET, 0-59 + (3) 1:80 TIES, PLATE PADS, RH	-	
6	1	INSULATED RAIL ASSEMBLY, 29'-11 $\frac{1}{4}$ " C/W BONDED INSULATED JOINT	-		17	1	HEADBLOCK TIE LAYOUT	-	
7	2	DRILLED RAIL, 136 LB RE, 26'-0" LONG	-		18	224	CLIP PANDROL E2055	-	
8	2	DRILLED RAIL, 136 LB RE, 28'-0" LONG	-		19	224	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
9	1	DRILLED RAIL, 136 LB RE, 29'-4 $\frac{1}{2}$ " LONG	-		20	8	CLIP PANDROL E2063	-	
10	1	DRILLED RAIL, 136 LB RE, 29'-9 $\frac{3}{8}$ " LONG	-		21	8	INSULATION, PANDROL NYLON 6790	-	
11	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		22	116	TIE PAD PANDROL 6993SR	-	
					23	150	SHIM, TO REDUCE PLATE FLEXURE	-	





NOTES:

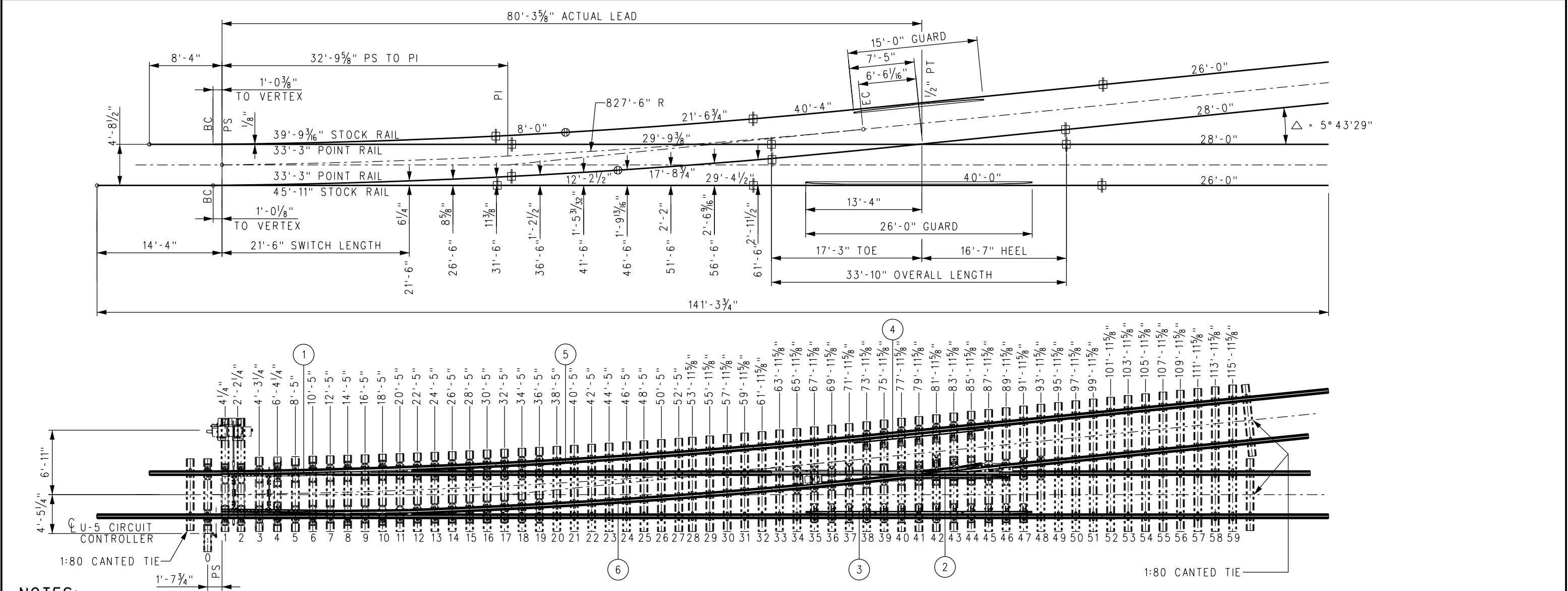
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7.  = INSULATED JOINT  = WELDED JOINT

TURNOUT DATA:

FROG	SWITCH	ACTUAL LEAD:	80'-3 5/8"
NO 10 Δ = 5° 43'29"	LENGTH OF POINTS:	CLOSURE AREA	
TOE LENGTH: 17'-3"	ENTRY ANGLE:	CENTERLINE RADIUS:	827'-6"
HEEL LENGTH: 16'-7"	VERTEX DISTANCE:	DEGREE OF CURVE:	6° 55'41"
TOTAL LENGTH: 33'-10"	THICKNESS AT POINT:	DESIGN SPEEDS	
	CENTERLINE RADIUS:	25 MPH PASSENGER @ 3" UNBALANCE	
	THROW AT ROD #1:	15 MPH FREIGHT @ 2" UNBALANCE	

				DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES: SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES TO THE LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.		 METROLINK®		ENGINEERING STANDARDS		STANDARD 2803	
		 ASSISTANT DIRECTOR: STANDARDS & DESIGN								SCALE: NTS			
		 DIRECTOR OF ENGINEERING AND CONSTRUCTION						 METROLINK®		TURNOUT LAYOUT			
								SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY		NO 10-136 LB RE RH WSM FROG TURNOUT			
								ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012		CONCRETE TIES, SWITCH MACHINE ON MAINLINE SIDE			
X XX-XX-XX		REVISION		XX XX									
REV. DATE		DESCRIPTION		DES. ENG.								REVISION SHEET - 1 OF 1 CADD FILE: ES2803-06	

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH PACK, NO 10-136 LB RE MODIFIED TANGENTIAL, LH	ES2803-19		12	1	DRILLED RAIL, 136 LB RE, 40'-4" LONG	-	
2	1	FROG PACK, NO 10-136 LB RE WSM, LH	ES2803-41		13	300	TIE SCREW, CONCRETE 7/8" DIAMETER x 6" HEX HEAD	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LG, 136 LB RE RAISED 1", STRAIGHT	ES2800-50		14	300	WASHER FLAT 7/8" TYPE A NARROW 15/16" x 13/4" x 0.134"	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 15'-0" LG, 136 LB RE RAISED 1", LH	ES2803-51		15	300	SPRING WASHER, DOUBLE COIL (Fe6)	-	
5	1	INSULATED RAIL ASSEMBLY, 29'-63/4" C/W BONDED INSULATED JOINT	-		16	1	CONCRETE TIE SET, 0-59 + (3) 1:80 TIES, PLATE PADS, LH	-	
6	1	INSULATED RAIL ASSEMBLY, 29'-111/4" C/W BONDED INSULATED JOINT	-		17	224	CLIP PANDROL E2055	-	
7	2	DRILLED RAIL, 136 LB RE, 26'-0" LONG	-		18	224	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
8	2	DRILLED RAIL, 136 LB RE, 28'-0" LONG	-		19	8	CLIP PANDROL E2063	-	
9	1	DRILLED RAIL, 136 LB RE, 29'-41/2" LONG	-		20	8	INSULATION, PANDROL NYLON 6790	-	
10	1	DRILLED RAIL, 136 LB RE, 29'-93/8" LONG	-		21	116	TIE PAD PANDROL 6993SR	-	
11	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		22	150	SHIM, TO REDUCE PLATE FLEXURE	-	



NOTES:

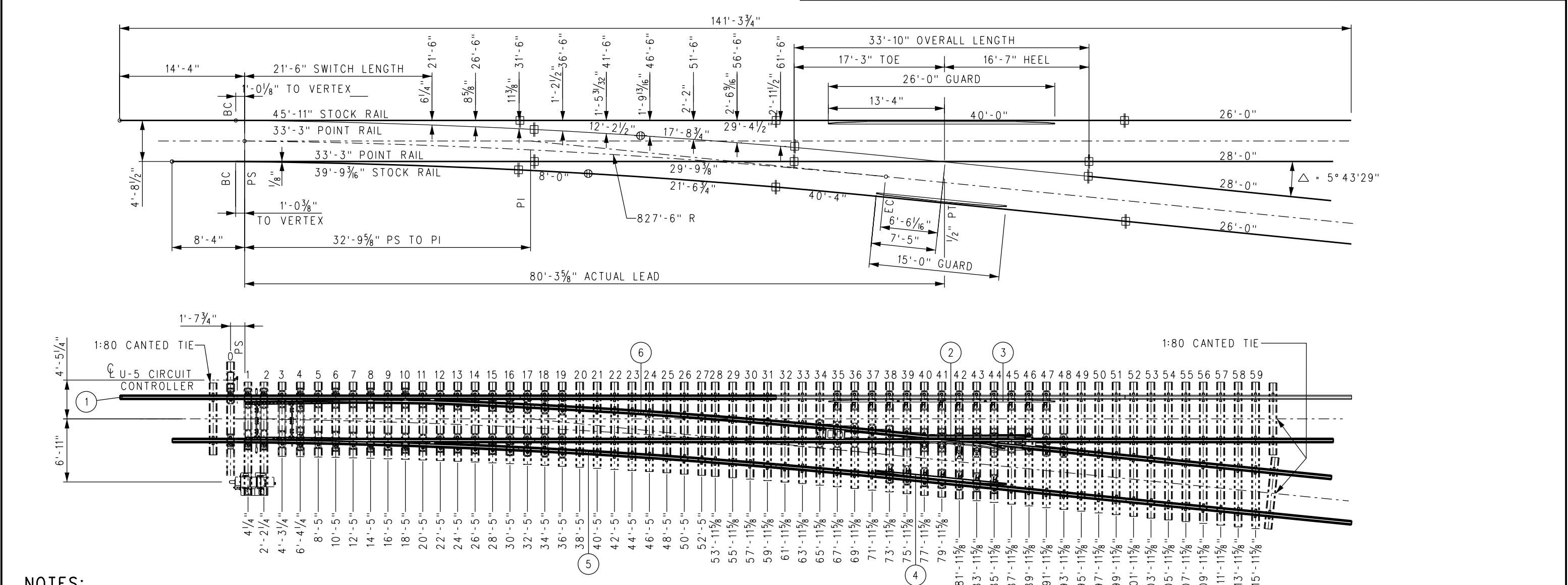
- ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
- RAIL LENGTHS ALLOW 1/8" GAP BETWEEN RAIL JOINTS FOR WELDING.
- GUARD RAILS ARE RAISED 1" AND FORM A 1/8" FLANGEWAY.
- SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRRRA.
- ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
- TIGHTEN TIE SCREW WITH DOUBLE COIL SPRING WASHER IN PLACE.
- ⊕ = INSULATED JOINT ⊕ = WELDED JOINT

TURNOUT DATA:

FROG NO 10	△ = 5° 43' 29"	SWITCH LENGTH OF POINTS:	21'-6" / 33'-3"	ACTUAL LEAD:	80'-3 5/8"
TOE LENGTH:	17'-3"	ENTRY ANGLE:	0° 37' 11"	CLOSURE AREA	
HEEL LENGTH:	16'-7"	VERTEX DISTANCE:	VARIES PER SIDE	CENTERLINE RADIUS:	827'-6"
TOTAL LENGTH:	33'-10"	THICKNESS AT POINT:	1/8"	DEGREE OF CURVE:	6° 55' 41"
		CENTERLINE RADIUS:	827'-6"	DESIGN SPEEDS	
		THROW AT ROD #1:	4 3/4"	25 MPH PASSENGER @ 3" UNBALANCE	
				15 MPH FREIGHT @ 2" UNBALANCE	

DRAWN BY: HDR DATE: 03/31/2011					SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.				
X XX-XX-XX REVISION XX XX					METROLINK® SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				
REV. DATE DESCRIPTION DES. ENG.					ENGINEERING STANDARDS TURNOUT LAYOUT NO 10-136 LB RE LH WSM FROG TURNOUT CONCRETE TIES, SWITCH MACHINE ON TURNOUT SIDE				
					STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-07				

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH PACK, NO 10-136 LB RE MODIFIED TANGENTIAL, RH	ES2803-20		12	1	DRILLED RAIL, 136 LB RE, 40'-4" LONG	-	
2	1	FROG PACK, NO 10-136 LB RE WSM, RH	ES2803-40		13	300	TIE SCREW, CONCRETE 7/8" DIAMETER x 6" HEX HEAD	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LG, 136 LB RE RAISED 1", STRAIGHT	ES2800-50		14	300	WASHER FLAT 7/8" TYPE A NARROW 15/16" x 13/4" x 0.134"	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 15'-0" LG, 136 LB RE RAISED 1", RH	ES2803-52		15	300	SPRING WASHER, DOUBLE COIL (Fe6)	-	
5	1	INSULATED RAIL ASSEMBLY, 29'-63/4" C/W BONDED INSULATED JOINT	-		16	1	CONCRETE TIE SET, 0-59 + (3) 1:80 TIES, PLATE PADS, RH	-	
6	1	INSULATED RAIL ASSEMBLY, 29'-111/4" C/W BONDED INSULATED JOINT	-		17	1	HEADBLOCK TIE LAYOUT	-	
7	2	DRILLED RAIL, 136 LB RE, 26'-0" LONG	-		18	224	CLIP PANDROL E2055	-	
8	2	DRILLED RAIL, 136 LB RE, 28'-0" LONG	-		19	224	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
9	1	DRILLED RAIL, 136 LB RE, 29'-41/2" LONG	-		20	8	CLIP PANDROL E2063	-	
10	1	DRILLED RAIL, 136 LB RE, 29'-93/8" LONG	-		21	8	INSULATION, PANDROL NYLON 6790	-	
11	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		22	116	TIE PAD PANDROL 6993SR	-	
					23	150	SHIM, TO REDUCE PLATE FLEXURE	-	



NOTES:

1. ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
2. RAIL LENGTHS ALLOW 1/8" GAP BETWEEN RAIL JOINTS FOR WELDING.
3. GUARD RAILS ARE RAISED 1" AND FORM A 1 7/8" FLANGWAY.
4. SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRRRA.
5. ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
6. TIGHTEN TIE SCREW WITH DOUBLE COIL SPRING WASHER IN PLACE.
7. ⊕ = INSULATED JOINT ⊞ = WELDED JOINT

TURNOUT DATA:

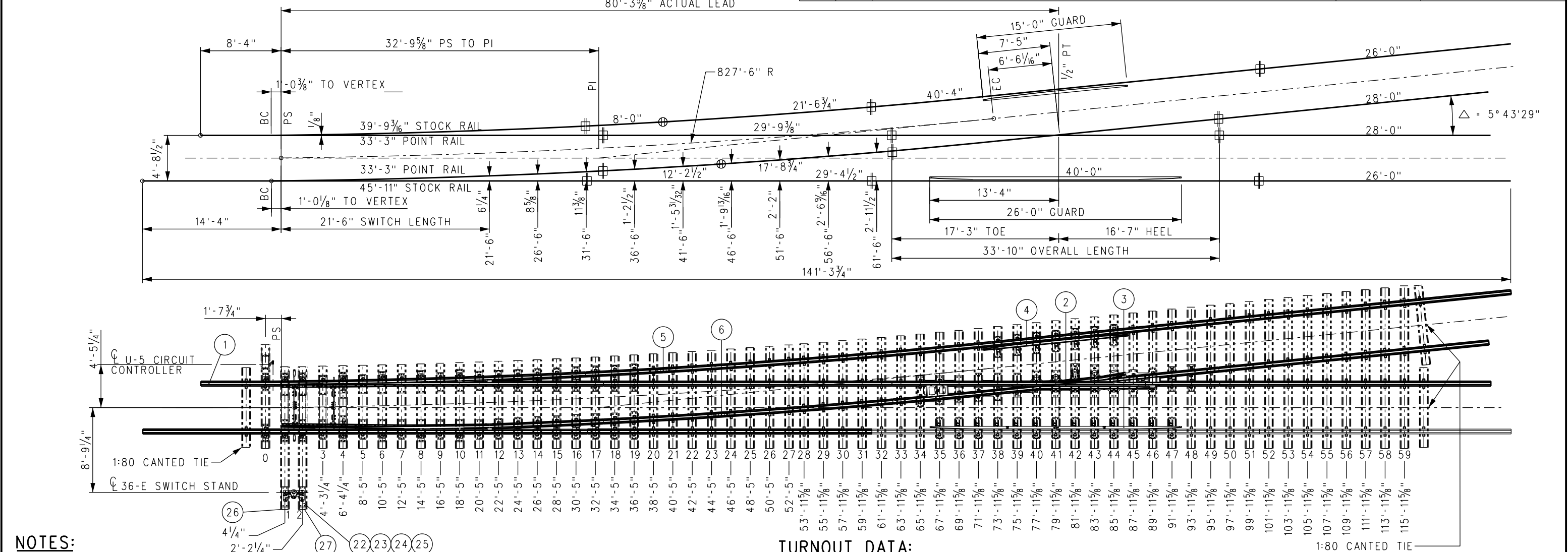
FROG
NO 10 Δ = 5° 43' 29"
TOE LENGTH: 17'-3"
HEEL LENGTH: 16'-7"
TOTAL LENGTH: 33'-10"

SWITCH
LENGTH OF POINTS: 21'-6" / 33'-3"
ENTRY ANGLE: 0° 37' 11"
VERTEX DISTANCE: VARIES PER SIDE
THICKNESS AT POINT: 1/8"
CENTERLINE RADIUS: 827'-6"
THROW AT ROD #1: 4 3/4"

ACTUAL LEAD: 80'-3 5/8"
CLOSURE AREA
CENTERLINE RADIUS: 827'-6"
DEGREE OF CURVE: 6° 55' 41"
DESIGN SPEEDS
25 MPH PASSENGER @ 3" UNBALANCE
15 MPH FREIGHT @ 2" UNBALANCE

				DRAWN BY: DRAFTER DATE: 08X30X20M		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS TURNOUT LAYOUT NO 10-136 LB RE RH WSM FROG TURNOUT CONCRETE TIES, SWITCH MACHINE ON TURNOUT SIDE	STANDARD ES2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-08
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	SWITCH PACK, NO 10-136 LB RE MODIFIED TANGENTIAL, LH	ES2803-17		15	300	SPRING WASHER, DOUBLE COIL (Fe6)	-	
2	1	FROG PACK, NO 10-136 LB RE WSM, LH	ES2803-41		16	1	CONCRETE TIE SET, 0-59 + (3) 1:80 TIES, PLATE PADS, LH	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LG, 136 LB RE RAISED 1", STRAIGHT	ES2800-50		17	224	CLIP PANDROL E2055	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 15'-0" LG, 136 LB RE RAISED 1", LH	ES2803-51		18	224	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
5	1	INSULATED RAIL ASSEMBLY, 29'-6 ³ / ₄ " C/W BONDED INSULATED JOINT	-		19	8	CLIP PANDROL E2063	-	
6	1	INSULATED RAIL ASSEMBLY, 29'-11 ¹ / ₄ " C/W BONDED INSULATED JOINT	-		20	8	INSULATION, PANDROL NYLON 6790	-	
7	2	DRILLED RAIL, 136 LB RE, 26'-0" LONG	-		21	116	TIE PAD PANDROL 6993SR	-	
8	2	DRILLED RAIL, 136 LB RE, 28'-0" LONG	-		22	10	PLOW BOLT, ³ / ₄ " DIA x 3 ¹ / ₂ " LONG, ROUND HEAD, SQ NECK, GR 8	-	
9	1	DRILLED RAIL, 136 LB RE, 29'-4 ¹ / ₂ " LONG	-		23	10	WASHER, ³ / ₄ " DIA, PLAIN, TYPE 'A' WIDE, ¹³ / ₁₆ " x 2" x 0.148" THICK	-	
10	1	DRILLED RAIL, 136 LB RE, 29'-9 ³ / ₈ " LONG	-		24	10	SPRING WASHER, ³ / ₄ " DIA, ⁷ / ₁₆ " THICK	-	
11	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		25	10	NUT, ³ / ₄ " DIA, HEAVY HEX, GR 8	-	
12	1	DRILLED RAIL, 136 LB RE, 40'-4" LONG	-		26	1	SWITCH STAND MOUNTING PLATE, LOCK1-RH	-	
13	300	TIE SCREW, CONCRETE ⁷ / ₈ " DIAMETER x 6" HEX HEAD	-		27	1	SWITCH STAND MOUNTING PLATE, LOCK2-RH	-	
14	300	WASHER FLAT ⁷ / ₈ " TYPE A NARROW ¹⁵ / ₁₆ " x 1 ³ / ₄ " x 0.134"	-		28	150	SHIM, TO REDUCE PLATE FLEXURE	-	
					29	1	SWITCH STAND ASSY NO 36E WITH ROD, TARGET AND BALL HANDLE	-	



NOTES:

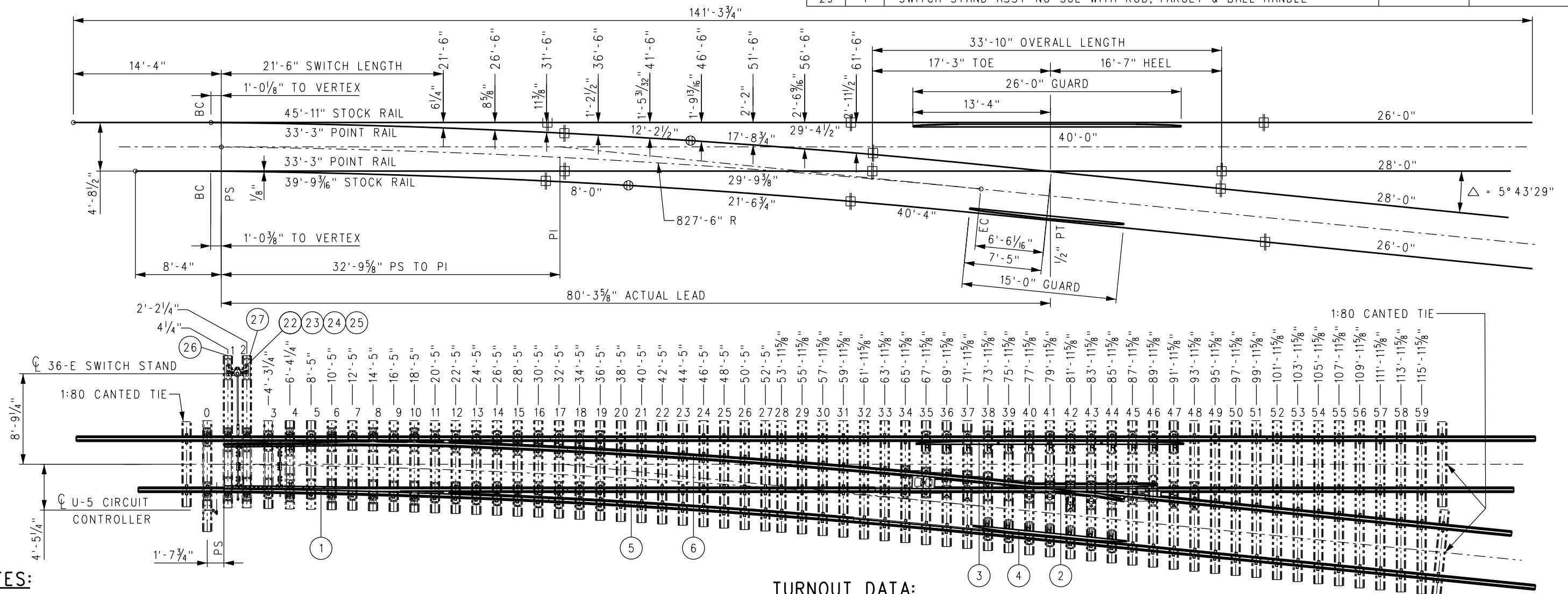
- ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
- RAIL LENGTHS ALLOW ¹/₈" GAP BETWEEN RAIL JOINTS FOR WELDING.
- GUARD RAILS ARE RAISED 1" AND FORM A ¹/₈" FLANGWAY.
- SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRR.
- ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
- TIGHTEN TIE SCREW WITH DOUBLE COIL SPRING WASHER IN PLACE.
- ⊕ = INSULATED JOINT ⊞ = WELDED JOINT

TURNOUT DATA:



FROG NO 10	△ = 5° 43' 29"	SWITCH LENGTH OF POINTS:	21'-6" / 33'-3"	ACTUAL LEAD:	80'-3 ⁵ / ₈ "
TOE LENGTH:	17'-3"	ENTRY ANGLE:	0° 37' 11"	CLOSURE AREA	
HEEL LENGTH:	16'-7"	VERTEX DISTANCE:	VARIABLE PER SIDE	CENTERLINE RADIUS:	827'-6"
TOTAL LENGTH:	33'-10"	THICKNESS AT POINT:	¹ / ₈ "	DEGREE OF CURVE:	6° 55' 41"
		CENTERLINE RADIUS:	827'-6"	DESIGN SPEEDS	
		THROW AT ROD #1:	4 ³ / ₄ "	25 MPH PASSENGER @ 3" UNBALANCE	
				15 MPH FREIGHT @ 2" UNBALANCE	

DRAWN BY: HDR DATE: 03/31/2011				SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS				STANDARD	2803
REVISION				METROLINK				TURNOUT LAYOUT				SCALE:	NTS
REV. DATE DESCRIPTION DES. ENG.				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY				NO 10-136 LB RE LH WSM FROG TURNOUT				REVISION SHEET	1 OF 1
				ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				CONCRETE TIES, SWITCH STAND ON MAINLINE SIDE				CADD FILE:	ES2803-09

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	SWITCH PACK, NO 10-136 LB RE MODIFIED TANGENTIAL, RH	ES2803-18		15	300	SPRING WASHER, DOUBLE COIL (Fe6)	-	
2	1	FROG PACK, NO 10-136 LB RE WSM, RH	ES2803-40		16	1	CONCRETE TIE SET, 0-59 + (3) 1:80 TIES, PLATE PADS, RH	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LG, 136 LB RE RAISED 1", STRAIGHT	ES2800-50		17	224	CLIP PANDROL E2055	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 15'-0" LG, 136 LB RE RAISED 1", RH	ES2803-52		18	224	INSULATOR PANDROL FEATURES BASE HOLDDOWN NYLON HD-10	-	
5	1	INSULATED RAIL ASSEMBLY, 29'-6 ³ / ₄ " C/W BONDED INSULATED JOINT	-		19	8	CLIP PANDROL E2063	-	
6	1	INSULATED RAIL ASSEMBLY, 29'-11 ¹ / ₄ " C/W BONDED INSULATED JOINT	-		20	8	INSULATION, PANDROL NYLON 6790	-	
7	2	DRILLED RAIL, 136 LB RE, 26'-0" LONG	-		21	116	TIE PAD PANDROL 6993SR	-	
8	2	DRILLED RAIL, 136 LB RE, 28'-0" LONG	-		22	10	PLOW BOLT, ³ / ₄ " DIA x 3 ¹ / ₂ " LG, ROUND HEAD, SQ NECK, GR 8	-	
9	1	DRILLED RAIL, 136 LB RE, 29'-4 ¹ / ₂ " LONG	-		23	10	WASHER, ³ / ₄ " DIA, PLAIN, TYPE 'A' WIDE, ¹³ / ₁₆ " x 2" x 0.148" THICK	-	
10	1	DRILLED RAIL, 136 LB RE, 29'-9 ³ / ₈ " LONG	-		24	10	SPRING WASHER, ³ / ₄ " DIA, ⁷ / ₁₆ " THICK	-	
11	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		25	10	NUT, ³ / ₄ " DIA, HEAVY HEX, GR 8	-	
12	1	DRILLED RAIL, 136 LB RE, 40'-4" LONG	-		26	1	SWITCH STAND MOUNTING PLATE, LOCK1-LH	-	
13	300	TIE SCREW, CONCRETE ⁷ / ₈ " DIAMETER x 6" HEX HEAD	-		27	1	SWITCH STAND MOUNTING PLATE, LOCK2-LH	-	
14	300	WASHER FLAT ⁷ / ₈ " TYPE A NARROW ¹⁵ / ₁₆ " x 1 ³ / ₄ " x 0.134"	-		28	150	SHIM, TO REDUCE PLATE FLEXURE	-	
					29	1	SWITCH STAND ASSY NO 36E WITH ROD, TARGET & BALL HANDLE	-	



NOTES:

1. ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
2. RAIL LENGTHS ALLOW $\frac{1}{8}$ " GAP BETWEEN RAIL JOINTS FOR WELDING.
3. GUARD RAILS ARE RAISED 1" AND FORM A $\frac{1}{8}$ " FLANGEWAY.
4. SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRR.
5. ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
6. TIGHTEN TIE SCREW WITH DOUBLE COIL SPRING WASHER IN PLACE.
7.  = INSULATED JOINT  = WELDED JOINT

TURNOUT DATA:

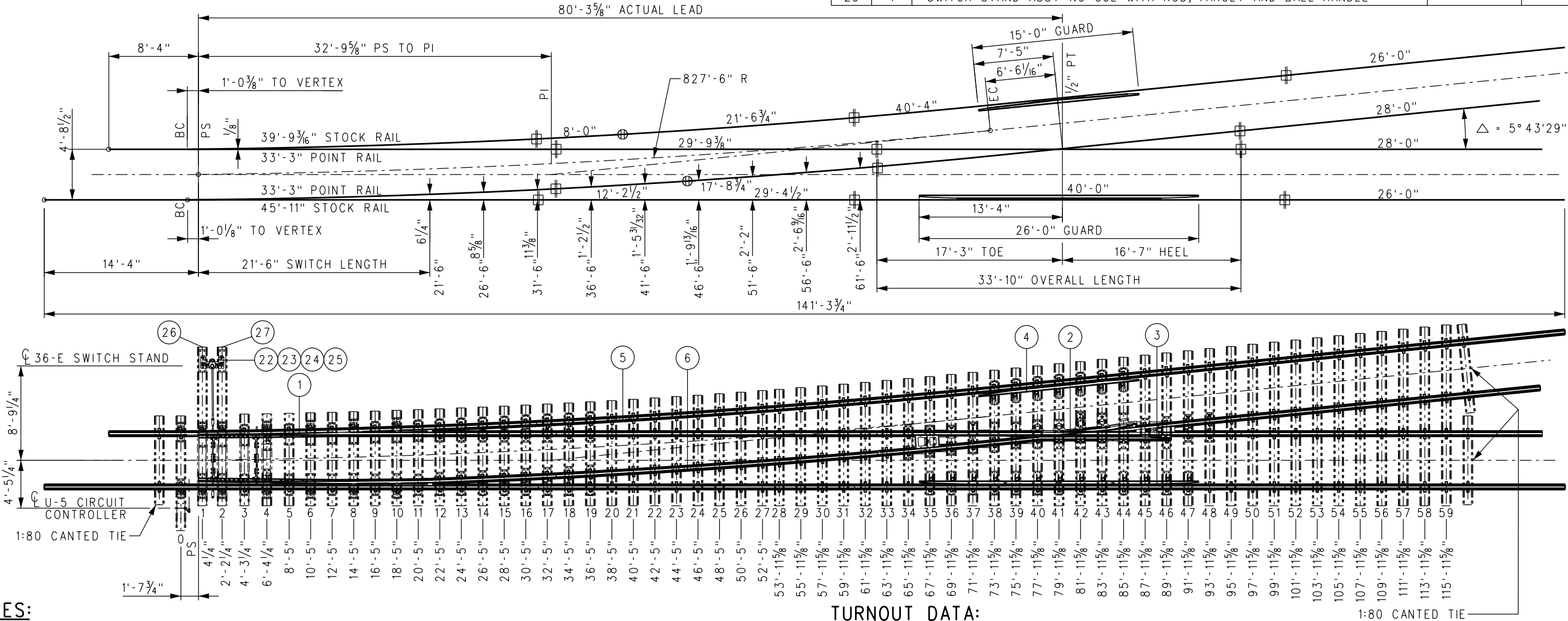
FROG
NO 10 $\Delta = 5^{\circ} 43' 29''$
TOE LENGTH: 17'-3"
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TOTAL LENGTH: 33'-10"

SWITCH
 LENGTH OF POINTS: 21'-6"/33'-3"
 ENTRY ANGLE: 0° 37'11"
 VERTEX DISTANCE: VARIES PER SIDE
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 CENTERLINE RADIUS: 827'-6"
 THROW AT ROD #1: 4 3/4"

ACTUAL LEAD: 80'-3⁵/₈"
CLOSURE AREA
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15 MPH FREIGHT @ 2" UNBALANCE

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BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	SWITCH PACK, NO 10-136 LB RE MODIFIED TANGENTIAL, LH	ES2803-19		15	300	SPRING WASHER, DOUBLE COIL (Fe6)	-	
2	1	FROG PACK, NO 10-136 LB RE WSM, LH	ES2803-41		16	1	CONCRETE TIE SET, 0-59 + (3) 1:80 TIES, PLATE PADS, LH	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LG, 136 LB RE RAISED 1", STRAIGHT	ES2800-50		17	224	CLIP PANDROL E2055	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 15'-0" LG, 136 LB RE RAISED 1", LH	ES2803-51		18	224	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
5	1	INSULATED RAIL ASSEMBLY, 29'-6 ³ / ₄ " C/W BONDED INSULATED JOINT	-		19	8	CLIP PANDROL E2063	-	
6	1	INSULATED RAIL ASSEMBLY, 29'-11 ¹ / ₄ " C/W BONDED INSULATED JOINT	-		20	8	INSULATION, PANDROL NYLON 6790	-	
7	2	DRILLED RAIL, 136 LB RE, 26'-0" LONG	-		21	116	TIE PAD PANDROL 6993SR	-	
8	2	DRILLED RAIL, 136 LB RE, 28'-0" LONG	-		22	10	PLOW BOLT, ³ / ₄ " DIA x 3 ¹ / ₂ " LONG, ROUND HEAD, SQ NECK, GR 8	-	
9	1	DRILLED RAIL, 136 LB RE, 29'-4 ¹ / ₂ " LONG	-		23	10	WASHER, ³ / ₄ " DIA, PLAIN, TYPE 'A' WIDE, ¹³ / ₁₆ " x 2" x 0.148" THICK	-	
10	1	DRILLED RAIL, 136 LB RE, 29'-9 ³ / ₈ " LONG	-		24	10	SPRING WASHER, ³ / ₄ " DIA, ⁷ / ₁₆ " THICK	-	
11	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		25	10	NUT, ³ / ₄ " DIA, HEAVY HEX, GR 8	-	
12	1	DRILLED RAIL, 136 LB RE, 40'-4" LONG	-		26	1	SWITCH STAND MOUNTING PLATE, LOCK1-LH	-	
13	300	TIE SCREW, CONCRETE ⁷ / ₈ " DIAMETER x 6" HEX HEAD	-		27	1	SWITCH STAND MOUNTING PLATE, LOCK2-LH	-	
14	300	WASHER FLAT ⁷ / ₈ " TYPE A NARROW ¹⁵ / ₁₆ " x 1 ³ / ₄ " x 0.134"	-		28	150	SHIM, TO REDUCE PLATE FLEXURE	-	
					29	1	SWITCH STAND ASSY NO 36E WITH ROD, TARGET AND BALL HANDLE	-	



NOTES:

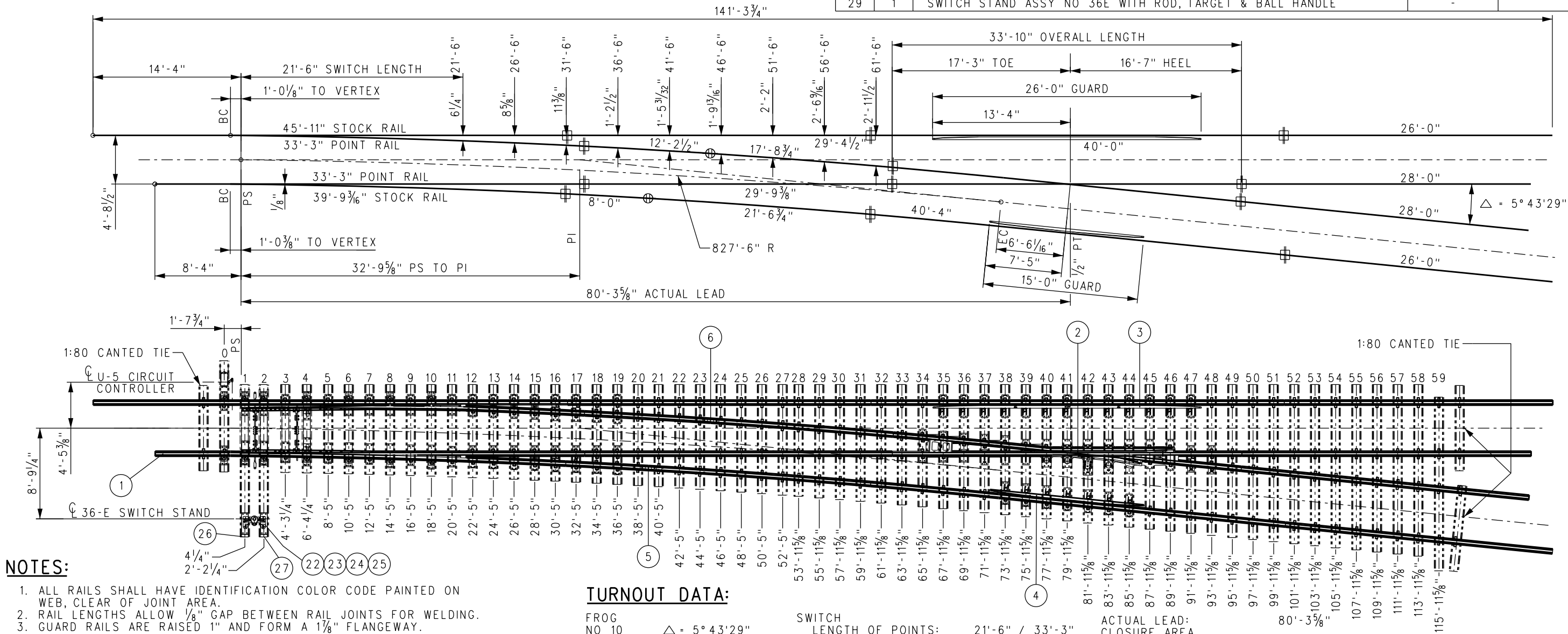
- ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
- RAIL LENGTHS ALLOW ¹/₈" GAP BETWEEN RAIL JOINTS FOR WELDING.
- GUARD RAILS ARE RAISED 1" AND FORM A 1⁷/₈" FLANGEWAY.
- SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRR.
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- TIGHTEN TIE SCREW WITH DOUBLE COIL SPRING WASHER IN PLACE.
- ⊕ = INSULATED JOINT ⊕ = WELDED JOINT

TURNOUT DATA:

FROG NO 10	Δ = 5° 43' 29"	SWITCH LENGTH OF POINTS:	21'-6" / 33'-3"	ACTUAL LEAD:	80'-3 ⁵ / ₈ "
TOE LENGTH:	17'-3"	ENTRY ANGLE:	0° 37' 11"	CLOSURE AREA:	
HEEL LENGTH:	16'-7"	VERTEX DISTANCE:	VARIES PER SIDE	CENTERLINE RADIUS:	827'-6"
TOTAL LENGTH:	33'-10"	THICKNESS AT POINT:	¹ / ₈ "	DEGREE OF CURVE:	6° 55' 41"
		CENTERLINE RADIUS:	827'-6"	DESIGN SPEEDS:	25 MPH PASSENGER @ 3" UNBALANCE 15 MPH FREIGHT @ 2" UNBALANCE
		THROW AT ROD #1:	4 ³ / ₄ "		

DRAWN BY: HDR DATE: 03/31/2011					SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY.					ENGINEERING STANDARDS				
Narek D. Bae					FOR NON-SCRR APPROVED USES:					2803				
ASSISTANT DIRECTOR: STANDARDS & DESIGN					SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.					SCALE: NTS				
Wilton Davis					METROLINK®					TURNOUT LAYOUT				
DIRECTOR OF ENGINEERING AND CONSTRUCTION					SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY					NO 10-136 LB RE LH WSM FROG TURNOUT				
					ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012					CONCRETE TIES, SWITCH STAND ON TURNOUT SIDE				
REV. DATE DESCRIPTION DES. ENG.					CADD FILE: ES2803-11					1 OF 1				

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH PACK, NO 10-136 LB RE MODIFIED TANGENTIAL, RH	ES2803-20		15	300	SPRING WASHER, DOUBLE COIL (Fe6)	-	
2	1	FROG PACK, NO 10-136 LB RE WSM, RH	ES2803-40		16	1	CONCRETE TIE SET, 0-59 + (3) 1:80 TIES, PLATE PADS, RH	-	
3	1	GUARD RAIL ASSEMBLY BOLTLESS, 26'-0" LG, 136 LB RE RAISED 1", STRAIGHT	ES2800-50		17	224	CLIP PANDROL E2055	-	
4	1	GUARD RAIL ASSEMBLY BOLTLESS, 15'-0" LG, 136 LB RE RAISED 1", RH	ES2803-52		18	224	INSULATOR PANDROL FEATURES BASE HOLDOWN NYLON HD-10	-	
5	1	INSULATED RAIL ASSEMBLY, 29'-6 ³ / ₄ " C/W BONDED INSULATED JOINT	-		19	8	CLIP PANDROL E2063	-	
6	1	INSULATED RAIL ASSEMBLY, 29'-11 ¹ / ₄ " C/W BONDED INSULATED JOINT	-		20	8	INSULATION, PANDROL NYLON 6790	-	
7	2	DRILLED RAIL, 136 LB RE, 26'-0" LONG	-		21	116	TIE PAD PANDROL 6993SR	-	
8	2	DRILLED RAIL, 136 LB RE, 28'-0" LONG	-		22	10	PLOW BOLT, ³ / ₄ " DIA x 3 ¹ / ₂ " LG, ROUND HEAD, SQ NECK, GR 8	-	
9	1	DRILLED RAIL, 136 LB RE, 29'-4 ¹ / ₂ " LONG	-		23	10	WASHER, ³ / ₄ " DIA, PLAIN, TYPE 'A' WIDE, ¹³ / ₁₆ " x 2" x 0.148" THICK	-	
10	1	DRILLED RAIL, 136 LB RE, 29'-9 ³ / ₈ " LONG	-		24	10	SPRING WASHER, ³ / ₄ " DIA, ⁷ / ₁₆ " THICK	-	
11	1	DRILLED RAIL, 136 LB RE, 40'-0" LONG	-		25	10	NUT, ³ / ₄ " DIA, HEAVY HEX, GR 8	-	
12	1	DRILLED RAIL, 136 LB RE, 40'-4" LONG	-		26	1	SWITCH STAND MOUNTING PLATE, LOCK1-RH	-	
13	300	TIE SCREW, CONCRETE ⁷ / ₈ " DIAMETER x 6" HEX HEAD	-		27	1	SWITCH STAND MOUNTING PLATE, LOCK2-RH	-	
14	300	WASHER FLAT ⁷ / ₈ " TYPE A NARROW ¹⁵ / ₁₆ " x 1 ³ / ₄ " x 0.134"	-		28	150	SHIM, TO REDUCE PLATE FLEXURE	-	
					29	1	SWITCH STAND ASSY NO 36E WITH ROD, TARGET & BALL HANDLE	-	



NOTES:

- ALL RAILS SHALL HAVE IDENTIFICATION COLOR CODE PAINTED ON WEB, CLEAR OF JOINT AREA.
- RAIL LENGTHS ALLOW 1/8" GAP BETWEEN RAIL JOINTS FOR WELDING.
- GUARD RAILS ARE RAISED 1" AND FORM A 1/8" FLANGEWAY.
- SWITCH MACHINE AND MACHINE PLATE (NIC) MUST BE COORDINATED WITH SCRRRA.
- ALL LENGTHS SHALL INCLUDE 1'-9" FROM TIE ENDS TO RAIL CENTERLINE, EXCEPT AS NOTED AND 1:80 CANTED TIES.
- TIGHTEN TIE SCREW WITH DOUBLE COIL SPRING WASHER IN PLACE.
- ⊕ = INSULATED JOINT, ⊕ = WELDED JOINT

TURNOUT DATA:

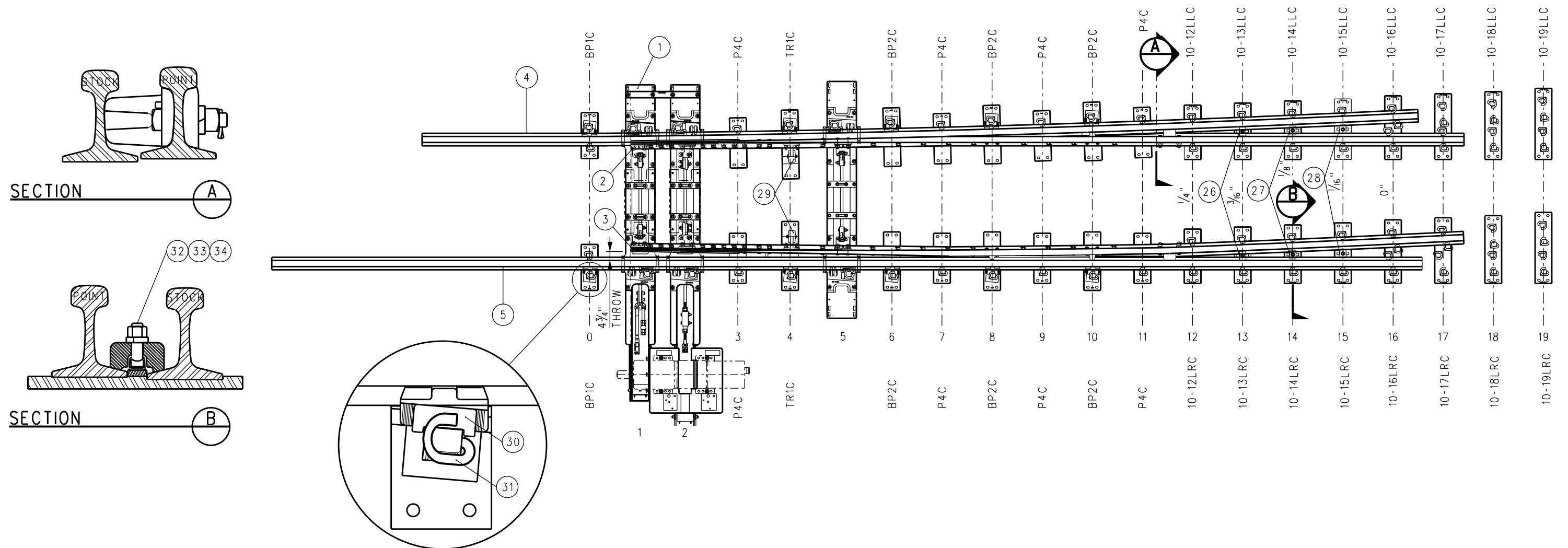
FROG NO 10 Δ = 5° 43' 29"
TOE LENGTH: 17'-3"
HEEL LENGTH: 16'-7"
TOTAL LENGTH: 33'-10"


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ENTRY ANGLE: 0° 37' 11"
VERTEX DISTANCE: VARIES PER SIDE
THICKNESS AT POINT: 1/8"
CENTERLINE RADIUS: 827'-6"
THROW AT ROD #1: 4 3/4"

ACTUAL LEAD: 80'-3⁵/₈"
CLOSURE AREA
CENTERLINE RADIUS: 827'-6"
DEGREE OF CURVE: 6° 55' 41"
DESIGN SPEEDS
25 MPH PASSENGER @ 3" UNBALANCE
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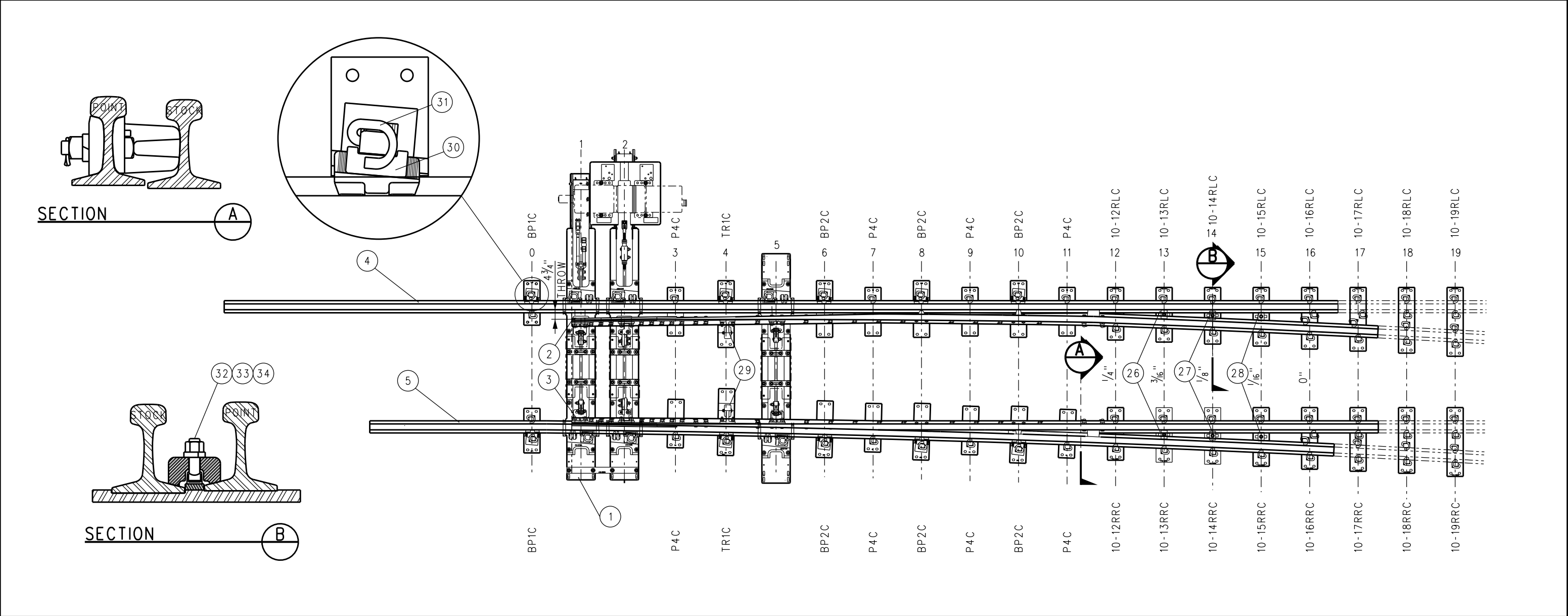
				DRAWN BY: HDR DATE: 03/31/2011				SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS				STANDARD 2803			
				Narek D. Bhe				METROLINK®				TURNOUT LAYOUT				SCALE: NTS			
				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY				ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				NO 10-136 LB RE RH WSM FROG TURNOUT				REVISION SHEET 1 OF 1			
				CADD FILE: ES2803-12															

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO
1	1	HOLLOW SWITCH TIE & RODDING ASSEMBLY	ES2803-72		18	1	SWITCH PLATE (10-16LLC)	ES2803-82	
2	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, STR, LH	ES2803-21		19	1	SWITCH PLATE (10-16LRC)	ES2803-82	
3	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, CVD, RH	ES2803-22		20	1	SWITCH PLATE (10-17LLC)	ES2803-82	
4	1	SAMSON STOCK RAIL, 39'-9 ³ / ₁₆ " LONG, CURVED, LH	ES2803-25		21	1	SWITCH PLATE (10-17LRC)	ES2803-82	
5	1	SAMSON STOCK RAIL, 45'-11" LONG, STRAIGHT, RH	ES2803-26		22	1	SWITCH PLATE (10-18LLC)	ES2803-83	
6	2	SWITCH PLATE, BRACE (BP1C-136)	ES2800-80		23	1	SWITCH PLATE (10-18LRC)	ES2803-83	
7	6	SWITCH PLATE, BRACE (BP2C-136)	ES2800-80		24	1	SWITCH PLATE (10-19LLC)	ES2803-83	
8	8	SWITCH PLATE (P4C-136)	ES2800-80		25	1	SWITCH PLATE (10-19LRC)	ES2803-83	
9	2	SWITCH PLATE, ROLLER (10-TR1C)	ES2800-80		26	2	HOLD DOWN CLIP (PC37A) "K" STYLE	-	
10	1	SWITCH PLATE (10-12LLC)	ES2803-81		27	2	HOLD DOWN CLIP (PC38A) "K" STYLE	-	
11	1	SWITCH PLATE (10-12LRC)	ES2803-81		28	2	HOLD DOWN CLIP (PC39A) "K" STYLE	-	
12	1	SWITCH PLATE (10-13LLC)	ES2803-81		29	2	POINT ROLLER ASSEMBLY, FLAT BACK C/W DOUBLE REINFORCED HARDWARE	-	
13	1	SWITCH PLATE (10-13LRC)	ES2803-81		30	10	BOLTLESS BRACE ASSEMBLY, SUREFIT, 136 LB RE C/W SERRATED WASHER	-	
14	1	SWITCH PLATE (10-14LLC)	ES2803-81		31	68	CLIP, PANDROL, E2055	-	
15	1	SWITCH PLATE (10-14LRC)	ES2803-81		32	6	T-BOLT, 7/8" DIAMETER 3 3/4" LONG, GR 8	-	
16	1	SWITCH PLATE (10-15LLC)	ES2803-82		33	6	SPRING WASHER 7/8" DIAMETER	-	
17	1	SWITCH PLATE (10-15LRC)	ES2803-82		34	6	NUT, 7/8" DIAMETER HEAVY HEX, GR 8	-	



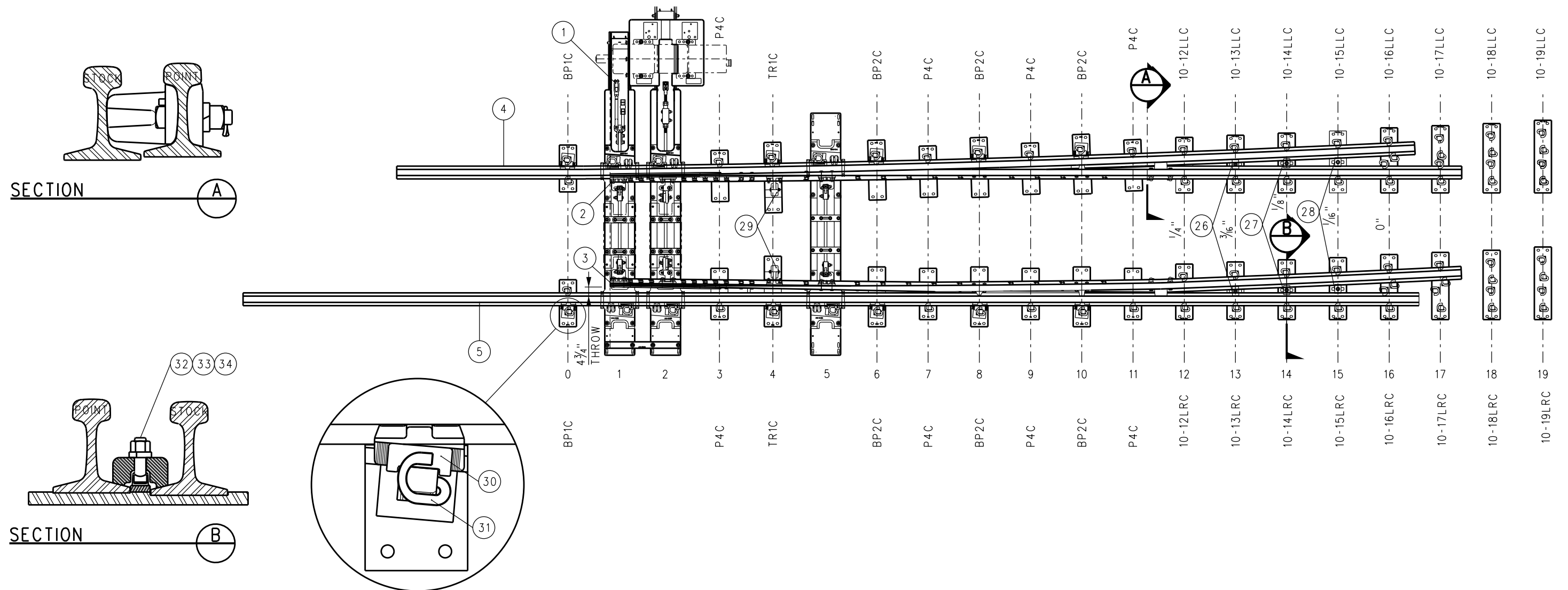
				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT LIABILITY ARISING FROM SUCH USE, NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.		 METROLINK®		ENGINEERING STANDARDS		STANDARD 2803	
				 ASSISTANT DIRECTOR: STANDARDS & DESIGN						NO 10-136 LB RE LH SWITCH PACK, HOLLOW STEEL TIES, SWITCH MACHINE ON MAINLINE SIDE		SCALE: NTS	
X	XX-XX-XX	REVISION	XX	XX							REVISION SHEET - 1 OF 1		
REV.	DATE	DESCRIPTION	DES.	ENG.	 DIRECTOR OF ENGINEERING AND CONSTRUCTION						CADD FILE: ES2803-13		



BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	HOLLOW SWITCH TIE & RODDING ASSEMBLY	ES2803-71		18	1	SWITCH PLATE (10-16RLC)	ES2803-85	
2	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, CVD, LH	ES2803-23		19	1	SWITCH PLATE (10-16RRC)	ES2803-85	
3	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, STR, RH	ES2803-24		20	1	SWITCH PLATE (10-17RLC)	ES2803-85	
4	1	SAMSON STOCK RAIL, 45'-11" LONG, STRAIGHT, LH	ES2803-27		21	1	SWITCH PLATE (10-17RRC)	ES2803-85	
5	1	SAMSON STOCK RAIL, 39'-9 ³ / ₁₆ " LONG, CURVED, RH	ES2803-28		22	1	SWITCH PLATE (10-18RLC)	ES2803-86	
6	2	SWITCH PLATE, BRACE (BP1C-136)	ES2800-80		23	1	SWITCH PLATE (10-18RRC)	ES2803-86	
7	6	SWITCH PLATE, BRACE (BP2C-136)	ES2800-80		24	1	SWITCH PLATE (10-19RLC)	ES2803-86	
8	8	SWITCH PLATE (P4C-136)	ES2800-80		25	1	SWITCH PLATE (10-19RRC)	ES2803-86	
9	2	SWITCH PLATE, ROLLER (10-TR1C)	ES2800-80		26	2	HOLD DOWN CLIP (PC37A) "K" STYLE	-	
10	1	SWITCH PLATE (10-12RLC)	ES2803-84		27	2	HOLD DOWN CLIP (PC38A) "K" STYLE	-	
11	1	SWITCH PLATE (10-12RRC)	ES2803-84		28	2	HOLD DOWN CLIP (PC39A) "K" STYLE	-	
12	1	SWITCH PLATE (10-13RLC)	ES2803-84		29	2	POINT ROLLER ASSEMBLY, FLAT BACK C/W DOUBLE REINFORCED HARDWARE	-	
13	1	SWITCH PLATE (10-13RRC)	ES2803-84		30	10	BOLTLESS BRACE ASSEMBLY, SUREFIT, 136 LB RE C/W SERRATED WASHER	-	
14	1	SWITCH PLATE (10-14RLC)	ES2803-84		31	68	CLIP, PANDROL, E2055	-	
15	1	SWITCH PLATE (10-14RRC)	ES2803-84		32	6	T-BOLT ⁷ / ₈ " DIAMETER 3 ³ / ₄ " LONG, GR 8	-	
16	1	SWITCH PLATE (10-15RLC)	ES2803-85		33	6	SPRING WASHER ⁷ / ₈ " DIAMETER	-	
17	1	SWITCH PLATE (10-15RRC)	ES2803-85		34	6	NUT, ⁷ / ₈ " DIAMETER HEAVY HEX GR 8	-	



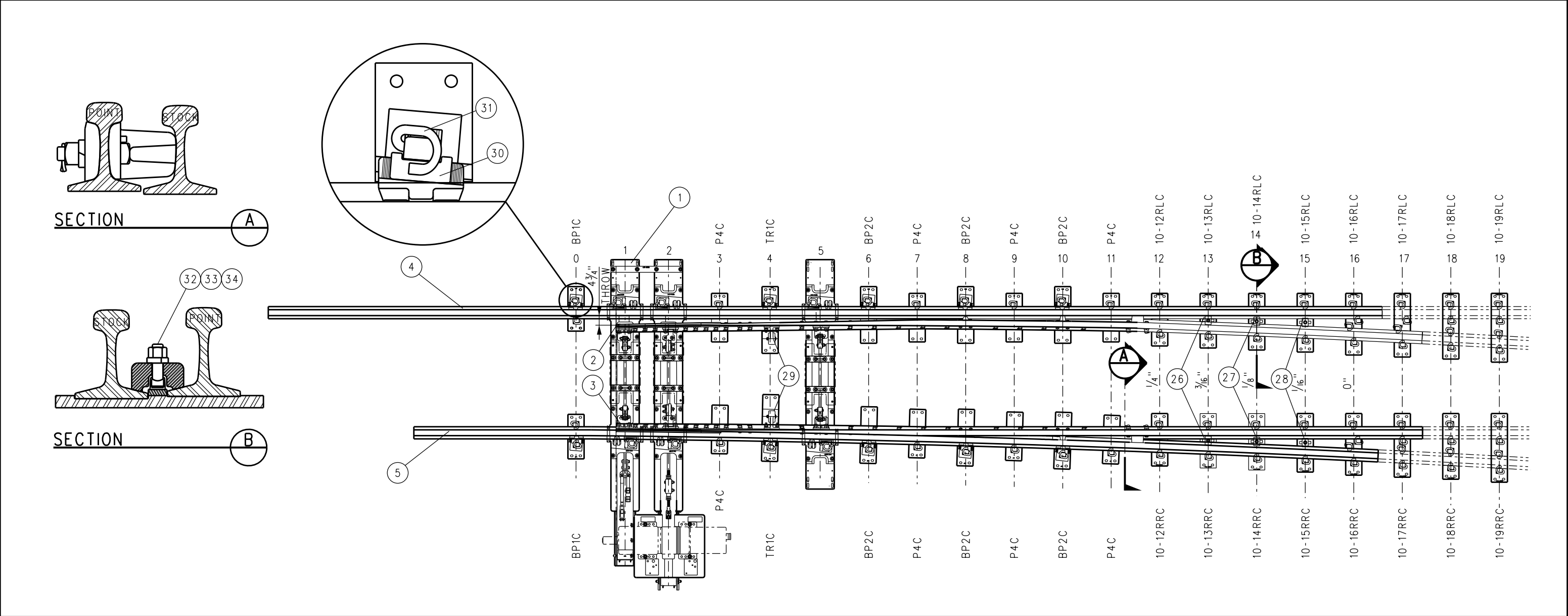
				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 10-136 LB RE RH SWITCH PACK, HOLLOW STEEL TIES, SWITCH MACHINE ON MAINLINE SIDE	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-14
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO
1	1	HOLLOW SWITCH TIE & RODDING ASSEMBLY	ES2803-71		18	1	SWITCH PLATE (10-16LLC)	ES2803-82	
2	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, STR, LH	ES2803-21		19	1	SWITCH PLATE (10-16LRC)	ES2803-82	
3	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, CVD, RH	ES2803-22		20	1	SWITCH PLATE (10-17LLC)	ES2803-82	
4	1	SAMSON STOCK RAIL, 39'-9 ³ / ₁₆ " LONG, CURVED, LH	ES2803-25		21	1	SWITCH PLATE (10-17LRC)	ES2803-82	
5	1	SAMSON STOCK RAIL, 45'-11" LONG, STRAIGHT, RH	ES2803-26		22	1	SWITCH PLATE (10-18LLC)	ES2803-83	
6	2	SWITCH PLATE, BRACE (BP1C-136)	ES2800-80		23	1	SWITCH PLATE (10-18LRC)	ES2803-83	
7	6	SWITCH PLATE, BRACE (BP2C-136)	ES2800-80		24	1	SWITCH PLATE (10-19LLC)	ES2803-83	
8	8	SWITCH PLATE (P4C-136)	ES2800-80		25	1	SWITCH PLATE (10-19LRC)	ES2803-83	
9	2	SWITCH PLATE, ROLLER (10-TR1C)	ES2800-80		26	2	HOLD DOWN CLIP (PC37A) "K" STYLE	-	
10	1	SWITCH PLATE (10-12LLC)	ES2803-81		27	2	HOLD DOWN CLIP (PC38A) "K" STYLE	-	
11	1	SWITCH PLATE (10-12LRC)	ES2803-81		28	2	HOLD DOWN CLIP (PC39A) "K" STYLE	-	
12	1	SWITCH PLATE (10-13LLC)	ES2803-81		29	2	POINT ROLLER ASSEMBLY, FLAT BACK C/W DOUBLE REINFORCED HARDWARE	-	
13	1	SWITCH PLATE (10-13LRC)	ES2803-81		30	10	BOLTLESS BRACE ASSEMBLY, SUREFIT, 136 LB RE C/W SERRATED WASHER	-	
14	1	SWITCH PLATE (10-14LLC)	ES2803-81		31	68	CLIP, PANDROL, E2055	-	
15	1	SWITCH PLATE (10-14LRC)	ES2803-81		32	6	T-BOLT, ⁷ / ₈ " DIAMETER 3 ³ / ₄ " LONG, GR 8	-	
16	1	SWITCH PLATE (10-15LLC)	ES2803-82		33	6	SPRING WASHER ⁷ / ₈ " DIAMETER	-	
17	1	SWITCH PLATE (10-15LRC)	ES2803-82		34	6	NUT, ⁷ / ₈ " DIAMETER HEAVY HEX, GR 8	-	



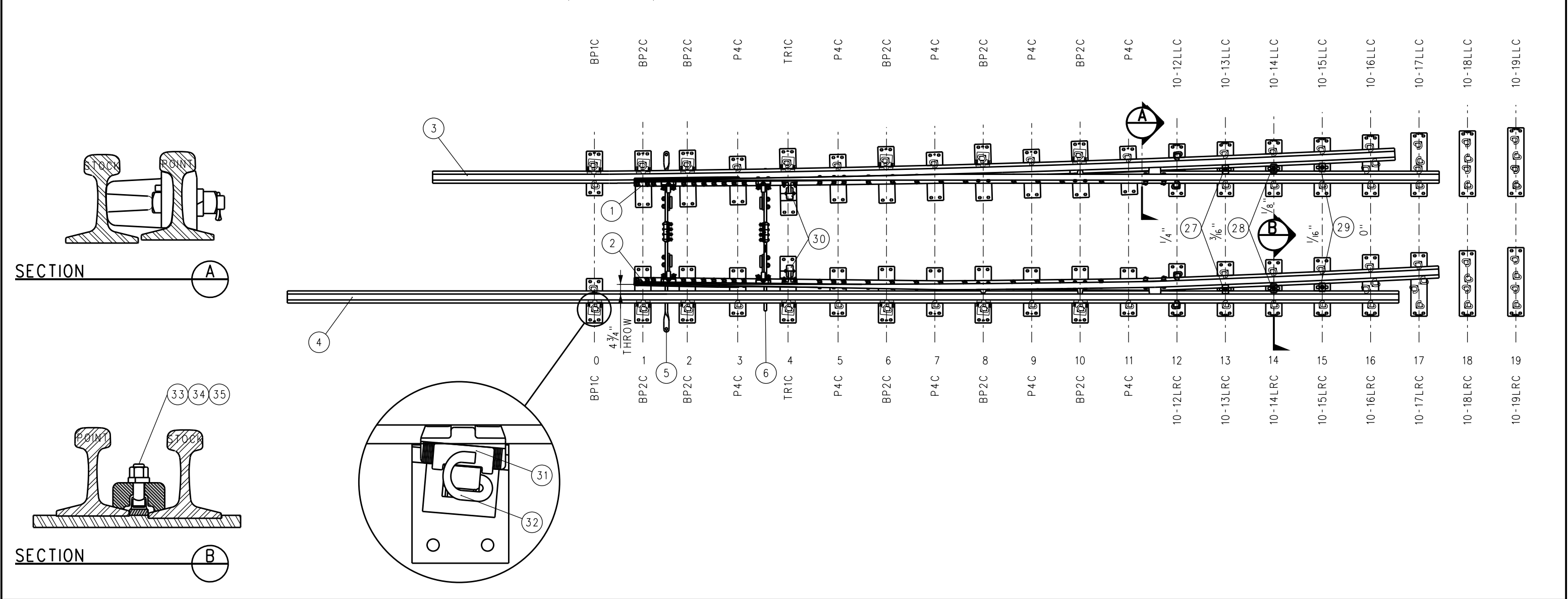
				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES: SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.		 METROLINK® SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012		ENGINEERING STANDARDS NO 10-136 LB RE LH SWITCH PACK, HOLLOW STEEL TIES, SWITCH MACHINE ON TURNOUT SIDE		STANDARD 2803 SCALE: NTS REVISION SHEET - 1 OF 1 CADD FILE: ES2803-15	
				Assistant Director: Standards & Design  William Davis Director of Engineering and Construction									
X	XX-XX-XX	REVISION	XX	XX									
REV.	DATE	DESCRIPTION	DES.	ENG.									

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	HOLLOW SWITCH TIE & RODDING ASSEMBLY	ES2803-72		18	1	SWITCH PLATE (10-16RLC)	ES2803-85	
2	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, CVD, LH	ES2803-23		19	1	SWITCH PLATE (10-16RRC)	ES2803-85	
3	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, STR, RH	ES2803-24		20	1	SWITCH PLATE (10-17RLC)	ES2803-85	
4	1	SAMSON STOCK RAIL, 45'-11" LONG, STRAIGHT, LH	ES2803-27		21	1	SWITCH PLATE (10-17RRC)	ES2803-85	
5	1	SAMSON STOCK RAIL, 39'-9 ³ / ₁₆ " LONG, CURVED, RH	ES2803-28		22	1	SWITCH PLATE (10-18RLC)	ES2803-86	
6	2	SWITCH PLATE, BRACE (BP1C-136)	ES2800-80		23	1	SWITCH PLATE (10-18RRC)	ES2803-86	
7	6	SWITCH PLATE, BRACE (BP2C-136)	ES2800-80		24	1	SWITCH PLATE (10-19RLC)	ES2803-86	
8	8	SWITCH PLATE (P4C-136)	ES2800-80		25	1	SWITCH PLATE (10-19RRC)	ES2803-86	
9	2	SWITCH PLATE, ROLLER (10-TR1C)	ES2800-80		26	2	HOLD DOWN CLIP (PC37A) "K" STYLE	-	
10	1	SWITCH PLATE (10-12RLC)	ES2803-84		27	2	HOLD DOWN CLIP (PC38A) "K" STYLE	-	
11	1	SWITCH PLATE (10-12RRC)	ES2803-84		28	2	HOLD DOWN CLIP (PC39A) "K" STYLE	-	
12	1	SWITCH PLATE (10-13RLC)	ES2803-84		29	2	POINT ROLLER ASSEMBLY, FLAT BACK C/W DOUBLE REINFORCED HARDWARE	-	
13	1	SWITCH PLATE (10-13RRC)	ES2803-84		30	10	BOLTLESS BRACE ASSEMBLY, SUREFIT, 136 LB RE C/W SERRATED WASHER	-	
14	1	SWITCH PLATE (10-14RLC)	ES2803-84		31	68	CLIP, PANDROL, E2055	-	
15	1	SWITCH PLATE (10-14RRC)	ES2803-84		32	6	T-BOLT ⁷ / ₈ " DIAMETER 3 ³ / ₄ " LONG, GR 8	-	
16	1	SWITCH PLATE (10-15RLC)	ES2803-85		33	6	SPRING WASHER ⁷ / ₈ " DIAMETER	-	
17	1	SWITCH PLATE (10-15RRC)	ES2803-85		34	6	NUT, ⁷ / ₈ " DIAMETER HEAVY HEX GR 8	-	



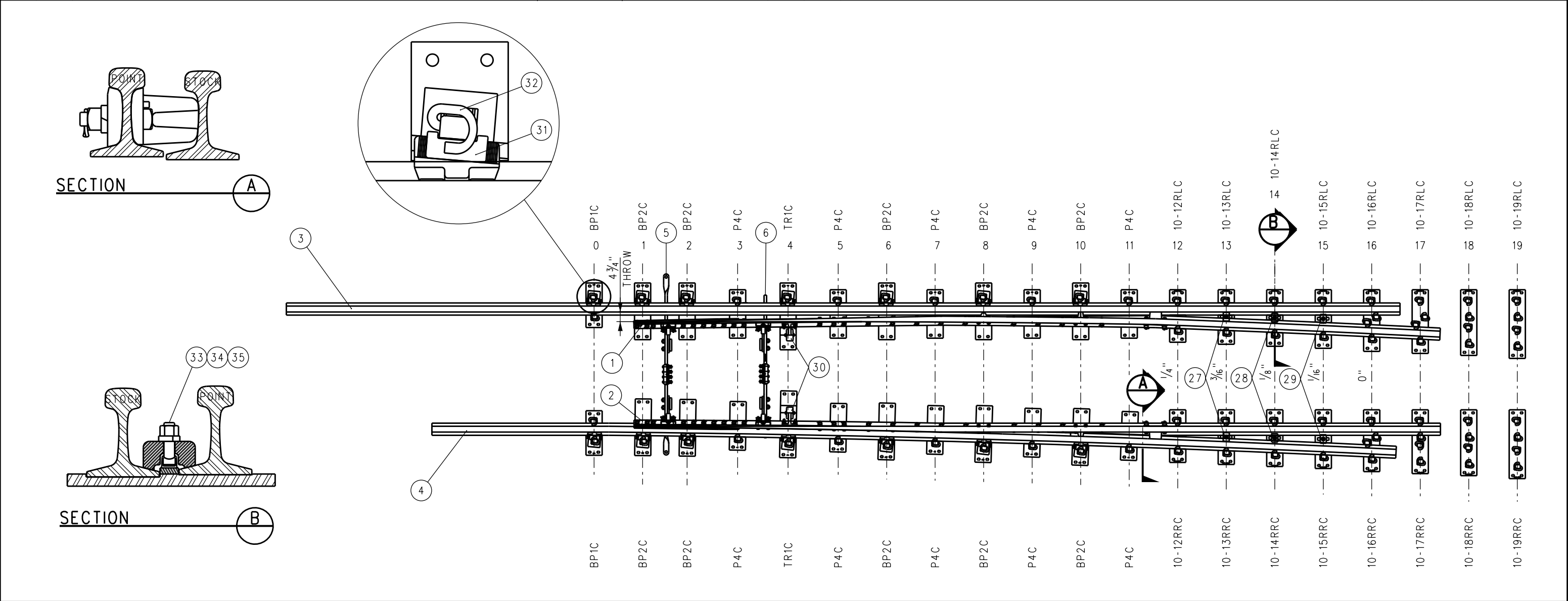
DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.		 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012		ENGINEERING STANDARDS NO 10-136 LB RE RH SWITCH PACK, HOLLOW STEEL TIES, SWITCH MACHINE ON TURNOUT SIDE		STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-16	
X XX-XX-XX	REVISION	XX XX	XX XX	NARESH D. BHE		ASSISTANT DIRECTOR: STANDARDS & DESIGN		WILLIAM D. DAVIS	
REV. DATE	DESCRIPTION	DES.	ENG.	DIRECTOR OF ENGINEERING AND CONSTRUCTION					

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, STR, LH	ES2803-21		19	1	SWITCH PLATE (10-16LLC)	ES2803-82	
2	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, CVD, RH	ES2803-22		20	1	SWITCH PLATE (10-16LRC)	ES2803-82	
3	1	SAMSON STOCK RAIL, 39'-9 ³ / ₆ " LONG, CURVED, LH	ES2803-25		21	1	SWITCH PLATE (10-17LLC)	ES2803-82	
4	1	SAMSON STOCK RAIL, 45'-11" LONG, STRAIGHT, RH	ES2803-26		22	1	SWITCH PLATE (10-17LRC)	ES2803-82	
5	1	SWITCH ROD NO 1	-		23	1	SWITCH PLATE (10-18LLC)	ES2803-83	
6	1	SWITCH ROD NO 2	-		24	1	SWITCH PLATE (10-18LRC)	ES2803-83	
7	2	SWITCH PLATE, BRACE (BP1C-136)	ES2800-80		25	1	SWITCH PLATE (10-19LLC)	ES2803-83	
8	10	SWITCH PLATE, BRACE (BP2C-136)	ES2800-80		26	1	SWITCH PLATE (10-19LRC)	ES2803-83	
9	10	SWITCH PLATE (P4C-136)	ES2800-80		27	2	HOLD DOWN CLIP (PC37A) "K" STYLE	-	
10	2	SWITCH PLATE, ROLLER (10-TR1C)	ES2800-80		28	2	HOLD DOWN CLIP (PC38A) "K" STYLE	-	
11	1	SWITCH PLATE (10-12LLC)	ES2803-81		29	2	HOLD DOWN CLIP (PC39A) "K" STYLE	-	
12	1	SWITCH PLATE (10-12LRC)	ES2803-81		30	2	POINT ROLLER ASSEMBLY, FLAT BACK C/W DOUBLE REINFORCED HARDWARE	-	
13	1	SWITCH PLATE (10-13LLC)	ES2803-81		31	10	BOLTLESS BRACE ASSEMBLY, SUREFIT, 136 LB RE C/W SERRATED WASHER	-	
14	1	SWITCH PLATE (10-13LRC)	ES2803-81		32	68	CLIP, PANDROL, E2055	-	
15	1	SWITCH PLATE (10-14LLC)	ES2803-81		33	6	T-BOLT, 7/8" DIAMETER 3 3/4" LONG, GR 8	-	
16	1	SWITCH PLATE (10-14LRC)	ES2803-81		34	6	SPRING WASHER 7/8" DIAMETER	-	
17	1	SWITCH PLATE (10-15LLC)	ES2803-82		35	6	NUT, 7/8" DIAMETER HEAVY HEX GR 8	-	
18	1	SWITCH PLATE (10-15LRC)	ES2803-82						



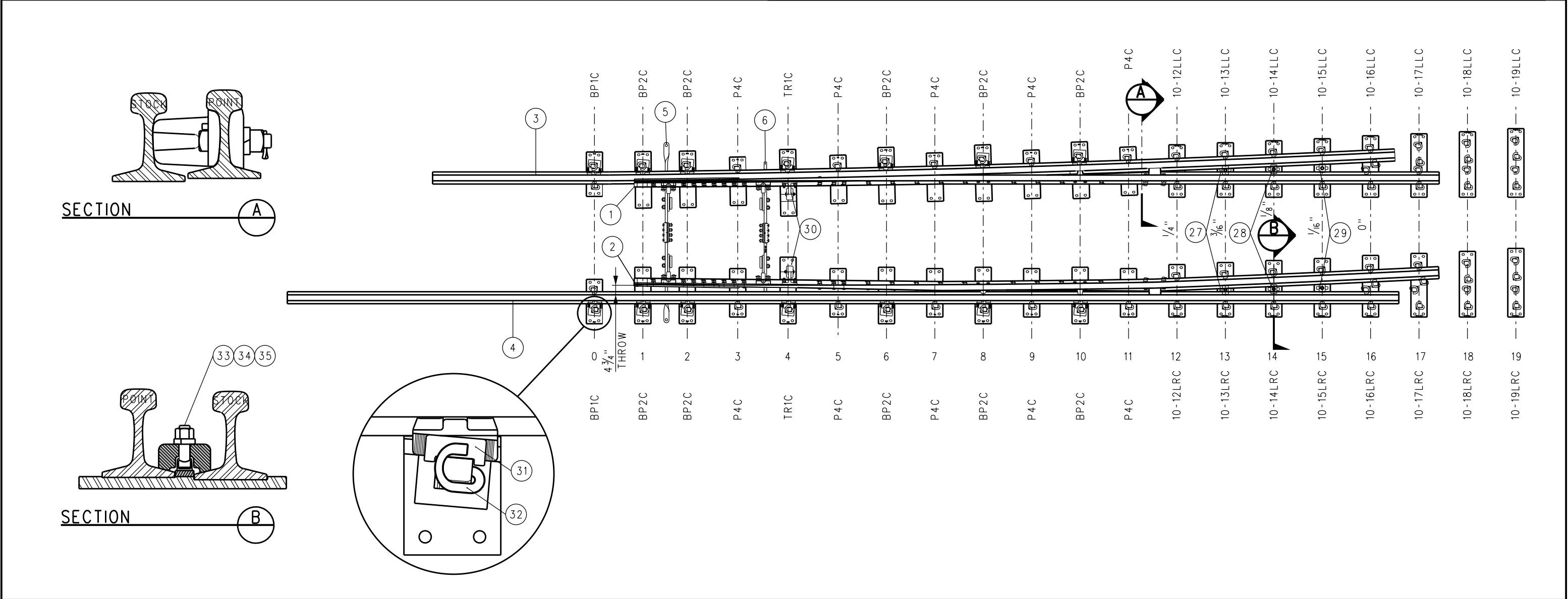
				DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 10-136 LB RE LH SWITCH PACK, CONCRETE TIES, SWITCH CONTROL ON MAINLINE SIDE	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-17
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRA PART NO
1	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, CVD, LH	ES2803-23		19	1	SWITCH PLATE (10-16RLC)	ES2803-85	
2	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, STR, RH	ES2803-24		20	1	SWITCH PLATE (10-16RRC)	ES2803-85	
3	1	SAMSON STOCK RAIL, 45'-11" LONG, STRAIGHT, LH	ES2803-27		21	1	SWITCH PLATE (10-17RLC)	ES2803-85	
4	1	SAMSON STOCK RAIL, 39'-9 ³ / ₁₆ " LONG, CURVED, RH	ES2803-28		22	1	SWITCH PLATE (10-17RRC)	ES2803-85	
5	1	SWITCH ROD NO 1	-		23	1	SWITCH PLATE (10-18RLC)	ES2803-86	
6	1	SWITCH ROD NO 2	-		24	1	SWITCH PLATE (10-18RRC)	ES2803-86	
7	2	SWITCH PLATE, BRACE (BP1C-136)	ES2800-80		25	1	SWITCH PLATE (10-19RLC)	ES2803-86	
8	10	SWITCH PLATE, BRACE (BP2C-136)	ES2800-80		26	1	SWITCH PLATE (10-19RRC)	ES2803-86	
9	10	SWITCH PLATE (P4C-136)	ES2800-80		27	2	HOLD DOWN CLIP (PC37A) "K" STYLE	-	
10	2	SWITCH PLATE, ROLLER (10-TR1C)	ES2800-80		28	2	HOLD DOWN CLIP (PC38A) "K" STYLE	-	
11	1	SWITCH PLATE (10-12RLC)	ES2803-84		29	2	HOLD DOWN CLIP (PC39A) "K" STYLE	-	
12	1	SWITCH PLATE (10-12RRC)	ES2803-84		30	2	POINT ROLLER ASSEMBLY, FLAT BACK C/W DOUBLE REINFORCED HARDWARE	-	
13	1	SWITCH PLATE (10-13RLC)	ES2803-84		31	10	BOLTLESS BRACE ASSEMBLY, SUREFIT, 136 LB RE C/W SERRATED WASHER	-	
14	1	SWITCH PLATE (10-13RRC)	ES2803-84		32	68	CLIP, PANDROL, E2055	-	
15	1	SWITCH PLATE (10-14RLC)	ES2803-84		33	6	T-BOLT, 7/8" DIAMETER 3 ³ / ₄ " LONG, GR 8	-	
16	1	SWITCH PLATE (10-14RRC)	ES2803-84		34	6	SPRING WASHER 7/8" DIAMETER	-	
17	1	SWITCH PLATE (10-15RLC)	ES2803-85		35	6	NUT, 7/8" DIAMETER HEAVY HEX GR 8	-	
18	1	SWITCH PLATE (10-15RRC)	ES2803-85						



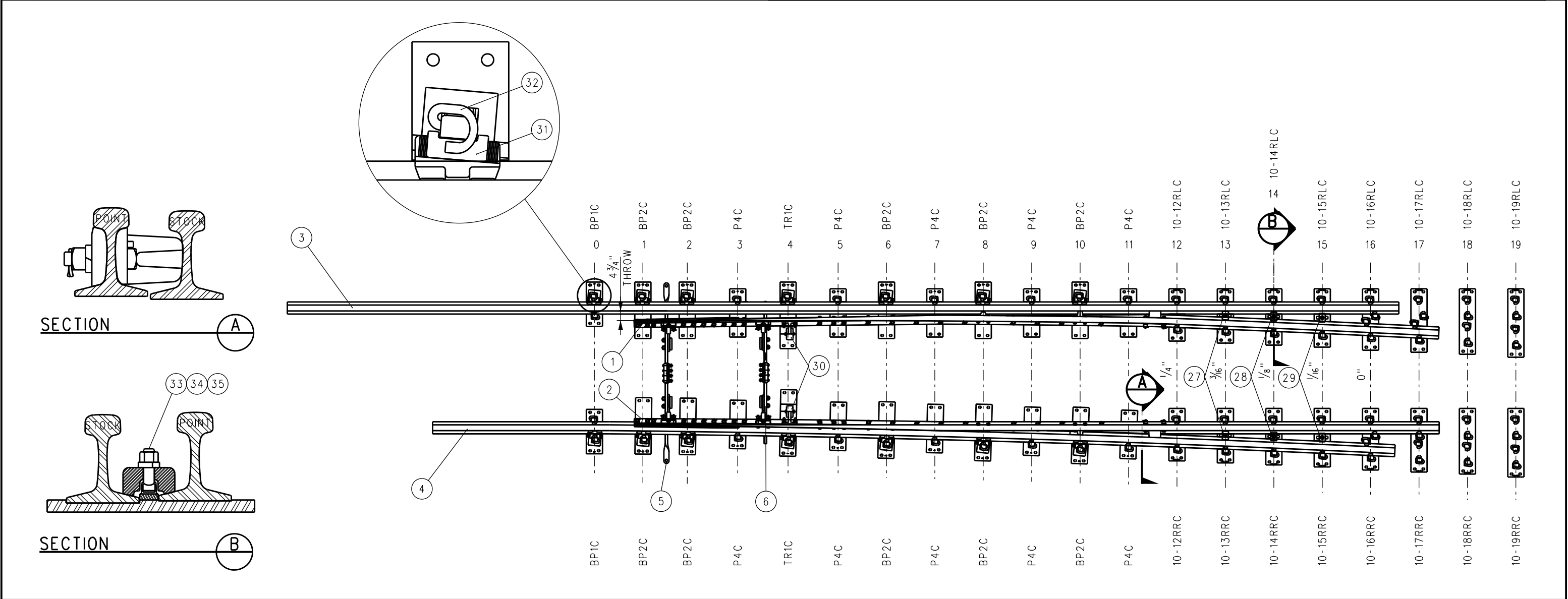
				DRAWN BY: HDR DATE: 03/31/2011		SCRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRA APPROVED USES ONLY. FOR NON-SCRRA APPROVED USES, SCRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 10-136 LB RE RH SWITCH PACK, CONCRETE TIES, SWITCH CONTROL ON MAINLINE SIDE	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-18
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, STR, LH	ES2803-21		19	1	SWITCH PLATE (10-16LLC)	ES2803-82	
2	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, CVD, RH	ES2803-22		20	1	SWITCH PLATE (10-16LRC)	ES2803-82	
3	1	SAMSON STOCK RAIL, 39'-9 ³ / ₆ " LONG, CURVED, LH	ES2803-25		21	1	SWITCH PLATE (10-17LLC)	ES2803-82	
4	1	SAMSON STOCK RAIL, 45'-11" LONG, STRAIGHT, RH	ES2803-26		22	1	SWITCH PLATE (10-17LRC)	ES2803-82	
5	1	SWITCH ROD NO 1	-		23	1	SWITCH PLATE (10-18LLC)	ES2803-83	
6	1	SWITCH ROD NO 2	-		24	1	SWITCH PLATE (10-18LRC)	ES2803-83	
7	2	SWITCH PLATE, BRACE (BP1C-136)	ES2800-80		25	1	SWITCH PLATE (10-19LLC)	ES2803-83	
8	10	SWITCH PLATE, BRACE (BP2C-136)	ES2800-80		26	1	SWITCH PLATE (10-19LRC)	ES2803-83	
9	10	SWITCH PLATE (P4C-136)	ES2800-80		27	2	HOLD DOWN CLIP (PC37A) "K" STYLE	-	
10	2	SWITCH PLATE, ROLLER (10-TR1C)	ES2800-80		28	2	HOLD DOWN CLIP (PC38A) "K" STYLE	-	
11	1	SWITCH PLATE (10-12LLC)	ES2803-81		29	2	HOLD DOWN CLIP (PC39A) "K" STYLE	-	
12	1	SWITCH PLATE (10-12LRC)	ES2803-81		30	2	POINT ROLLER ASSEMBLY, FLAT BACK C/W DOUBLE REINFORCED HARDWARE	-	
13	1	SWITCH PLATE (10-13LLC)	ES2803-81		31	10	BOLTLESS BRACE ASSEMBLY, SUREFIT, 136 LB RE C/W SERRATED WASHER	-	
14	1	SWITCH PLATE (10-13LRC)	ES2803-81		32	68	CLIP, PANDROL, E2055	-	
15	1	SWITCH PLATE (10-14LLC)	ES2803-81		33	6	T-BOLT, 7/8" DIAMETER 3 ³ / ₄ " LONG, GR 8	-	
16	1	SWITCH PLATE (10-14LRC)	ES2803-81		34	6	SPRING WASHER 7/8" DIAMETER	-	
17	1	SWITCH PLATE (10-15LLC)	ES2803-82		35	6	NUT, 7/8" DIAMETER HEAVY HEX GR 8	-	
18	1	SWITCH PLATE (10-15LRC)	ES2803-82						



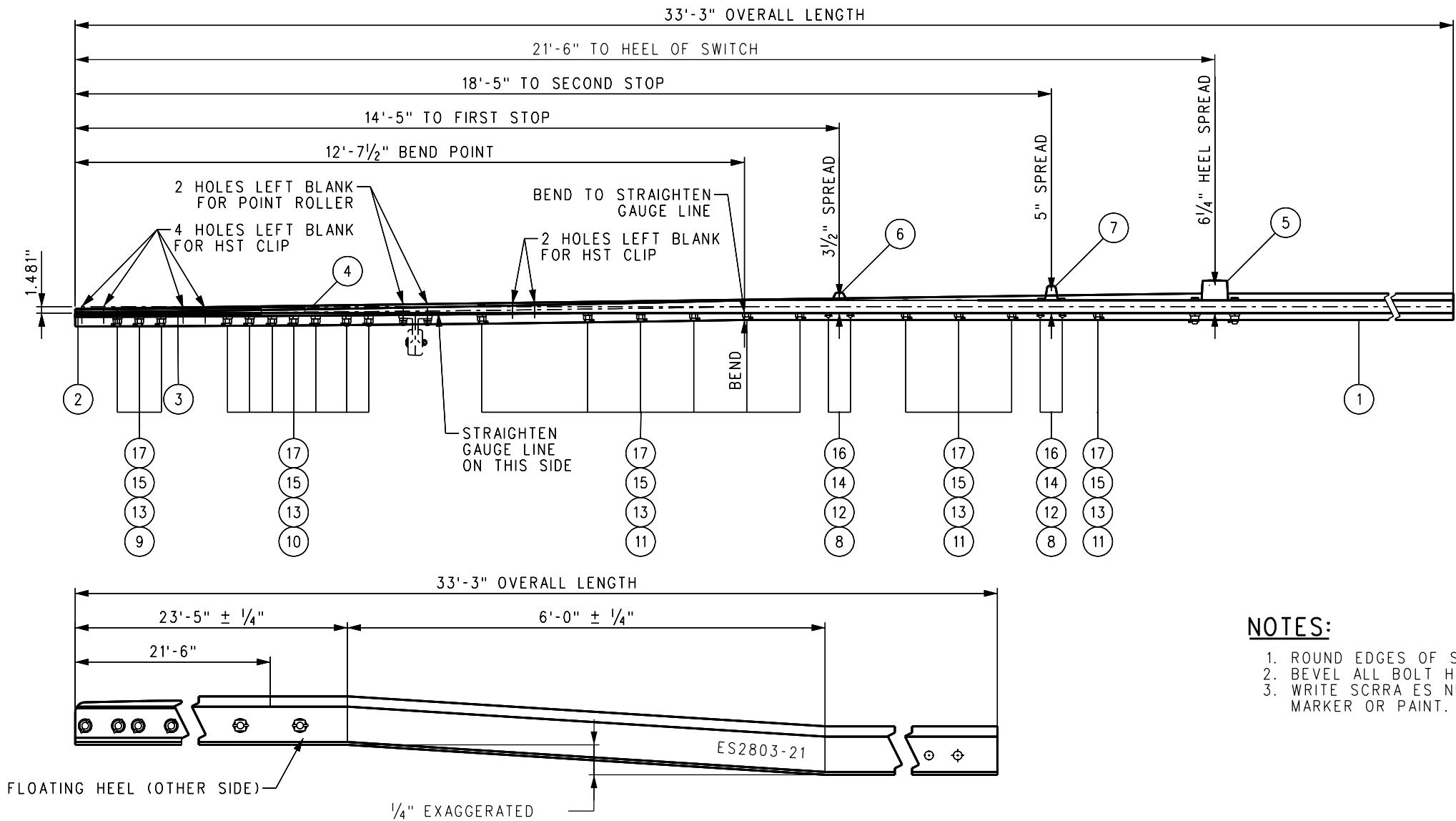
				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 10-136 LB RE LH SWITCH PACK, CONCRETE TIES, SWITCH CONTROL ON TURNOUT SIDE	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-19
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

BILL OF MATERIAL					BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, CVD, LH	ES2803-23		19	1	SWITCH PLATE (10-16RLC)	ES2803-85	
2	1	SAMSON POINT, 33'-3" LONG, DOUBLE REINFORCED, UR MANG TIP, STR, RH	ES2803-24		20	1	SWITCH PLATE (10-16RRC)	ES2803-85	
3	1	SAMSON STOCK RAIL, 45'-11" LONG, STRAIGHT, LH	ES2803-27		21	1	SWITCH PLATE (10-17RLC)	ES2803-85	
4	1	SAMSON STOCK RAIL, 39'-9 ³ / ₆ " LONG, CURVED, RH	ES2803-28		22	1	SWITCH PLATE (10-17RRC)	ES2803-85	
5	1	SWITCH ROD NO 1	-		23	1	SWITCH PLATE (10-18RLC)	ES2803-86	
6	1	SWITCH ROD NO 2	-		24	1	SWITCH PLATE (10-18RRC)	ES2803-86	
7	2	SWITCH PLATE, BRACE (BP1C-136)	ES2800-80		25	1	SWITCH PLATE (10-19RLC)	ES2803-86	
8	10	SWITCH PLATE, BRACE (BP2C-136)	ES2800-80		26	1	SWITCH PLATE (10-19RRC)	ES2803-86	
9	10	SWITCH PLATE (P4C-136)	ES2800-80		27	2	HOLD DOWN CLIP (PC37A) "K" STYLE	-	
10	2	SWITCH PLATE, ROLLER (10-TR1C)	ES2800-80		28	2	HOLD DOWN CLIP (PC38A) "K" STYLE	-	
11	1	SWITCH PLATE (10-12RLC)	ES2803-84		29	2	HOLD DOWN CLIP (PC39A) "K" STYLE	-	
12	1	SWITCH PLATE (10-12RRC)	ES2803-84		30	2	POINT ROLLER ASSEMBLY, FLAT BACK C/W DOUBLE REINFORCED HARDWARE	-	
13	1	SWITCH PLATE (10-13RLC)	ES2803-84		31	10	BOLTLESS BRACE ASSEMBLY, SUREFIT, 136 LB RE C/W SERRATED WASHER	-	
14	1	SWITCH PLATE (10-13RRC)	ES2803-84		32	68	CLIP, PANDROL, E2055	-	
15	1	SWITCH PLATE (10-14RLC)	ES2803-84		33	6	T-BOLT, 7/8" DIAMETER 3 ³ / ₄ " LONG, GR 8	-	
16	1	SWITCH PLATE (10-14RRC)	ES2803-84		34	6	SPRING WASHER 7/8" DIAMETER	-	
17	1	SWITCH PLATE (10-15RLC)	ES2803-85		35	6	NUT, 7/8" DIAMETER HEAVY HEX GR 8	-	
18	1	SWITCH PLATE (10-15RRC)	ES2803-85						



				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 10-136 LB RE RH SWITCH PACK, CONCRETE TIES, SWITCH CONTROL ON TURNOUT SIDE	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-20
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

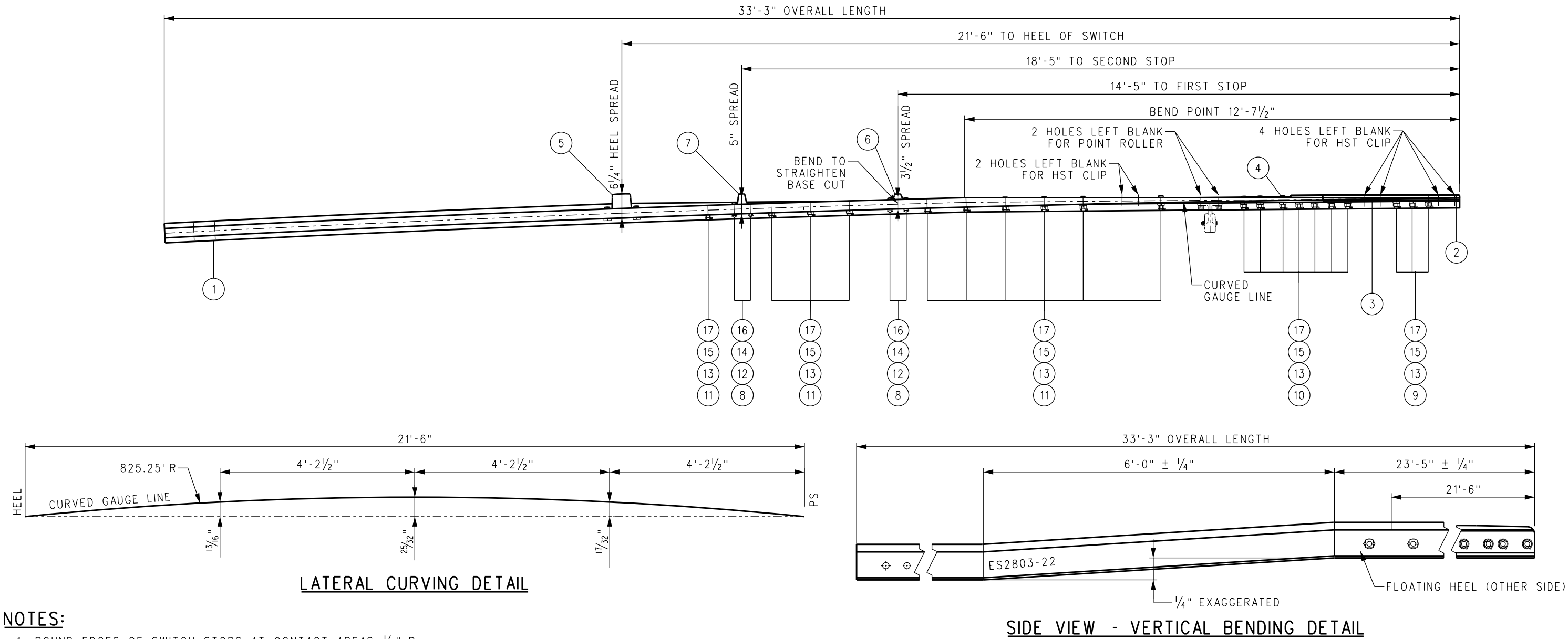
BILL OF MATERIAL				BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	SCRR PART NO	ITEM	QTY	DESCRIPTION	SCRR PART NO
1	1	SWITCH POINT RAIL, 33'-3" LONG, UR MANG TIP, STRAIGHT, LH		10	7	BOLT, 1" DIA x 4" LONG, THIN SQUARE HEAD DRILLED @ 3 1/2" GR 5	
2	1	MANGANESE TIP, 21'-6" LONG, 136 LB RE SAMSON SWITCH POINT, LH		11	10	BOLT, 1" DIA x 4" LONG, SQUARE HEAD DRILLED @ 3 7/16" GR 5	
3	1	REINFORCING BAR, GAUGE SIDE, 1/2" x 19'-6" LONG, SAMSON, LH POINT		12	4	NUT, 3/4" DIA HEAVY HEX, GR 5	
4	1	REINFORCING BAR, STOCK SIDE, 1/2" x 15'-1 1/2" LONG, SAMSON, LH POINT		13	20	NUT, 1" DIA HEAVY HEX, GR 5	
5	1	HEEL BLOCK ASSEMBLY, FLOATING C/W HARDWARE		14	4	SPRING WASHER, 3/4" DIA	
6	1	POINT STOP 2 5/16" HIGH		15	20	SPRING WASHER, 1" DIA	
7	1	POINT STOP 3 13/16" HIGH		16	4	COTTER PIN, 3/16" DIA x 1 3/4" LONG	
8	4	BOLT, 3/4" DIA x 4" LONG, SQUARE HEAD DRILLED @ 3 9/16" GR 5		17	20	COTTER PIN, 1/4" DIA x 2" LONG	
9	3	BOLT, 1" DIA x 3 3/4" LONG, THIN SQUARE HEAD DRILLED @ 3 3/32" GR 5					



- NOTES:
- 1. ROUND EDGES OF SWITCH STOPS AT CONTACT AREAS, 1/2" R.
 - 2. BEVEL ALL BOLT HOLES.
 - 3. WRITE SCRR ES NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT.

				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES: SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS SWITCH POINT ASSEMBLY, 136 LB RE SAMSON, STRAIGHT, LH NO 10 LH TURNOUT 33'-3" OVERALL LENGTH MANGANESE TIP	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-21
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

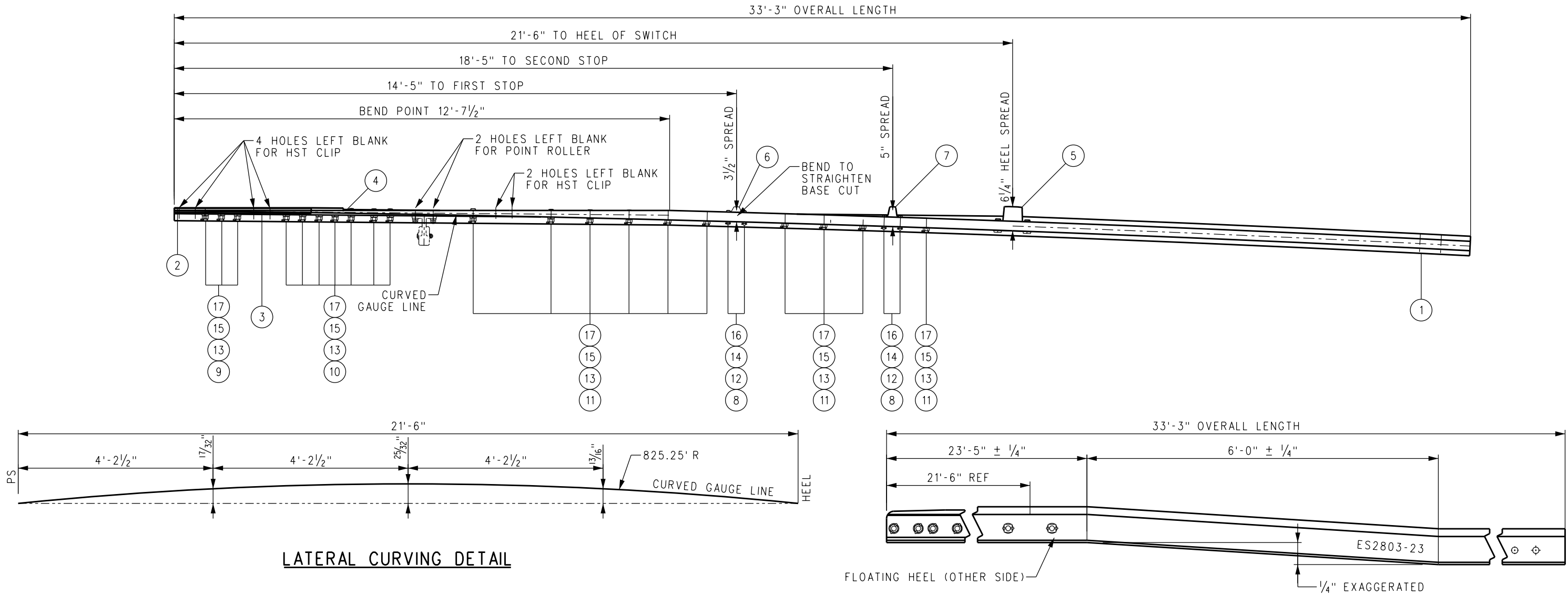
BILL OF MATERIAL				BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	SCRR PART NO	ITEM	QTY	DESCRIPTION	SCRR PART NO
1	1	SWITCH POINT RAIL, 33'-3" LONG, UR MANG TIP, CURVED, RH		10	7	BOLT, 1" DIA x 4" LONG, THIN SQUARE HEAD DRILLED @ 3½" GR 5	
2	1	MANGANESE TIP, 21'-6" LONG, 136 LB RE SAMSON SWITCH POINT, RH		11	10	BOLT, 1" DIA x 4" LONG, SQUARE HEAD DRILLED @ 3⅞" GR 5	
3	1	REINFORCING BAR, GAUGE SIDE, ½" x 19'-6" LONG, SAMSON, RH POINT		12	4	NUT, ¾" DIA HEAVY HEX, GR 5	
4	1	REINFORCING BAR, STOCK SIDE, ½" x 15'-1⅞" LONG, SAMSON, RH POINT		13	20	NUT, 1" DIA HEAVY HEX, GR 5	
5	1	HEEL BLOCK ASSEMBLY, FLOATING C/W HARDWARE		14	4	SPRING WASHER, ¾" DIA	
6	1	POINT STOP 2⅝" HIGH		15	20	SPRING WASHER, 1" DIA	
7	1	POINT STOP 3⅓" HIGH		16	4	COTTER PIN, ⅜" DIA x 1¾" LONG	
8	4	BOLT, ¾" DIA x 4" LONG, SQUARE HEAD DRILLED @ 3⅞" GR 5		17	20	COTTER PIN, ¼" DIA x 2" LONG	
9	3	BOLT, 1" DIA x 3¾" LONG, THIN SQUARE HEAD DRILLED @ 3⅞" GR 5					



- NOTES:**
1. ROUND EDGES OF SWITCH STOPS AT CONTACT AREAS, ½" R.
 2. BEVEL ALL BOLT HOLES.
 3. WRITE SCRR ES NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT.

				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS		STANDARD 2803	
				ASSISTANT DIRECTOR: STANDARDS & DESIGN DIRECTOR OF ENGINEERING AND CONSTRUCTION				SWITCH POINT ASSEMBLY, 136 LB RE SAMSON, CURVED, RH NO 10 LH TURNOUT 33'-3" OVERALL LENGTH MANGANESE TIP		SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-22	
X	XX-XX-XX	REVISION	XX	XX							
REV.	DATE	DESCRIPTION	DES.	ENG.							

BILL OF MATERIAL				BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	SCRRA PART NO	ITEM	QTY	DESCRIPTION	SCRRA PART NO
1	1	SWITCH POINT RAIL, 33'-3" LONG, UR MANG TIP, CURVED, LH		10	7	BOLT, 1" DIA x 4" LONG, THIN SQ HEAD DRILLED @ 3 1/2" GRADE 5	
2	1	MANGANESE TIP, 21'-6" LONG, 136 LB RE SAMSON SWITCH POINT, LH		11	10	BOLT, 1" DIA x 4" LONG, SQ HEAD DRILLED @ 3 7/16" GRADE 5	
3	1	REINFORCING BAR, GAUGE SIDE, 1/2" x 19'-6" LONG, SAMSON, LH POINT		12	4	NUT, 3/4" DIA HEAVY HEX, GRADE 5	
4	1	REINFORCING BAR, STOCK SIDE, 1/2" x 15'-1 1/2" LONG, SAMSON, LH POINT		13	20	NUT, 1" DIA HEAVY HEX, GRADE 5	
5	1	HEEL BLOCK ASSEMBLY, FLOATING C/W HARDWARE		14	4	SPRING WASHER, 3/4" DIA	
6	1	POINT STOP 2 5/16" HIGH		15	20	SPRING WASHER, 1" DIA	
7	1	POINT STOP 3 13/16" HIGH		16	4	COTTER PIN, 3/16" DIA x 1 3/4" LONG	
8	4	BOLT, 3/4" DIA x 4" LONG, SQUARE HEAD DRILLED @ 3 9/16" GRADE 5		17	20	COTTER PIN, 1/4" DIA x 2" LONG	
9	3	BOLT, 1" DIA x 3 3/4" LONG, THIN SQUARE HEAD DRILLED @ 3 7/32" GRADE 5					

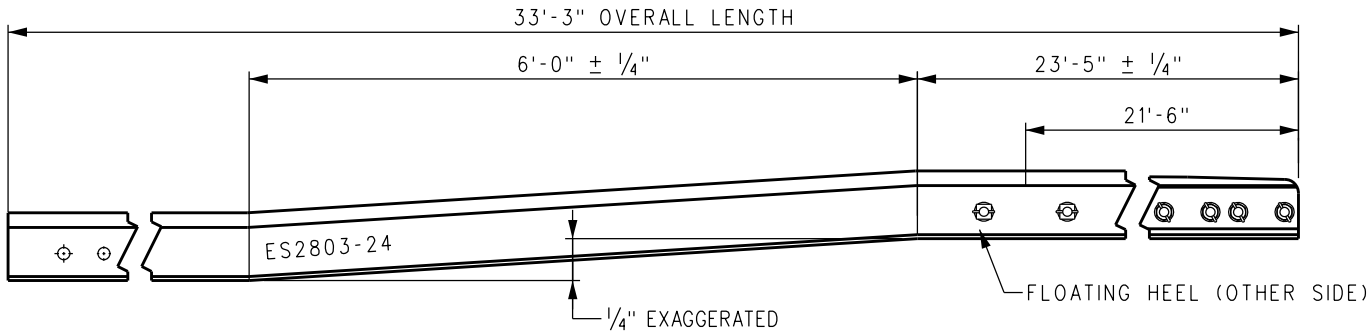
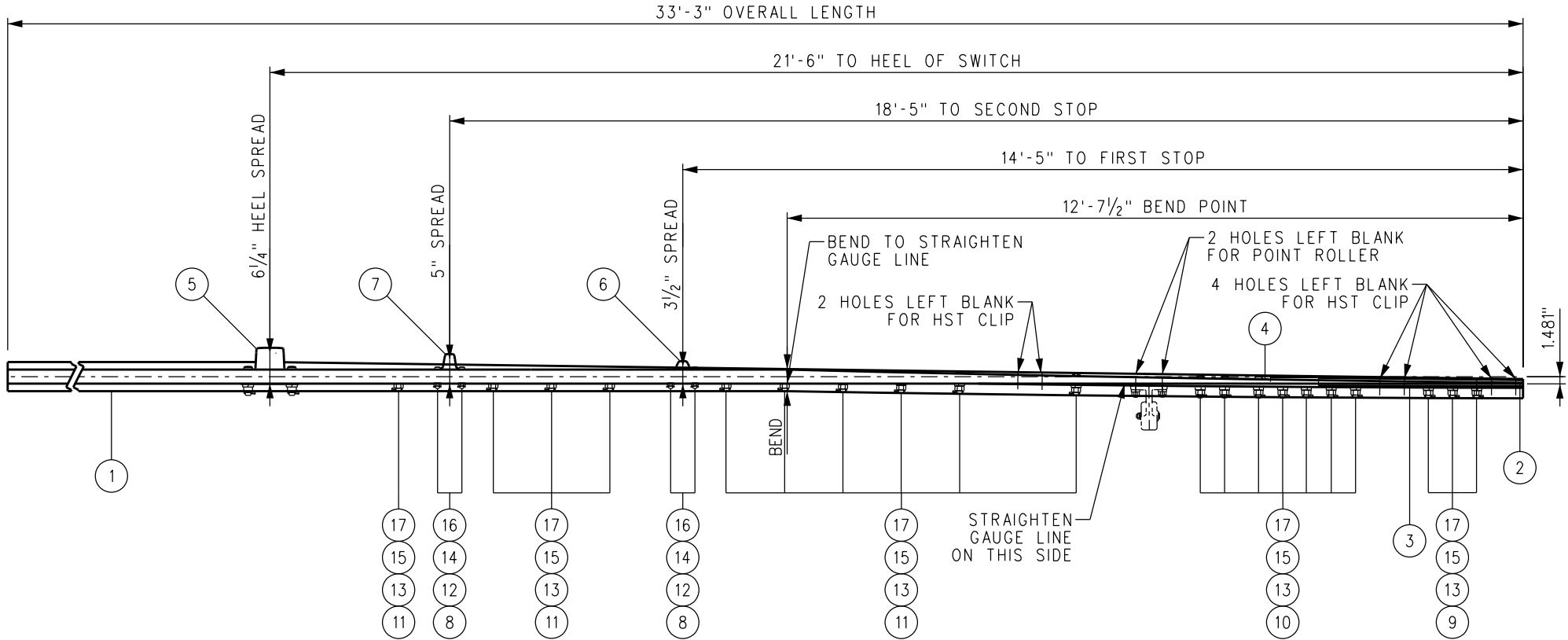


- NOTES:**
1. ROUND EDGES OF SWITCH STOPS AT CONTACT AREAS, 1/2" R.
 2. BEVEL ALL BOLT HOLES.
 3. WRITE SCRRA ES NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT.

SIDE VIEW - VERTICAL BENDING DETAIL

				DRAWN BY: HDR DATE: 03/31/2011		SCRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRA APPROVED USES ONLY. SCRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS SWITCH POINT ASSEMBLY, 136 LB RE SAMSON, CURVED, LH NO 10 RH TURNOUT 33'-3" OVERALL LENGTH MANGANESE TIP	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-23
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

BILL OF MATERIAL				BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	SCRRRA PART NO
1	1	SWITCH POINT RAIL, 33'-3" LONG, UR MANG TIP, STRAIGHT, RH		10	7	BOLT, 1" DIA x 4" LONG, THIN SQ HEAD DRILLED @ 3½" GRADE 5	
2	1	MANGANESE TIP, 21'-6" LONG, 136 LB RE SAMSON SWITCH POINT, RH		11	10	BOLT, 1" DIA x 4" LONG, SQ HEAD DRILLED @ 3⅞" GRADE 5	
3	1	REINFORCING BAR, GAUGE SIDE, ½" x 19'-6" LONG, SAMSON, RH POINT		12	4	NUT, ¾" DIA HEAVY HEX, GRADE 5	
4	1	REINFORCING BAR, STOCK SIDE, ½" x 15'-1⅞" LONG, SAMSON, RH POINT		13	20	NUT, 1" DIA HEAVY HEX, GRADE 5	
5	1	HEEL BLOCK ASSEMBLY, FLOATING C/W HARDWARE		14	4	SPRING WASHER, ¾" DIA	
6	1	POINT STOP 2⅝" HIGH		15	20	SPRING WASHER, 1" DIA	
7	1	POINT STOP 3⅓" HIGH		16	4	COTTER PIN, ⅜" DIA x 1¾" LONG	
8	4	BOLT, ¾" DIA x 4" LONG, SQUARE HEAD DRILLED @ 3⅞" GRADE 5		17	20	COTTER PIN, ¼" DIA x 2" LONG	
9	3	BOLT, 1" DIA x 3¾" LONG, THIN SQUARE HEAD DRILLED @ 3⅞" GRADE 5					



- NOTES:**
- 1. ROUND EDGES OF SWITCH STOPS AT CONTACT AREAS, ½" R.
 - 2. BEVEL ALL BOLT HOLES.
 - 3. WRITE SCRRRA ES NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT.

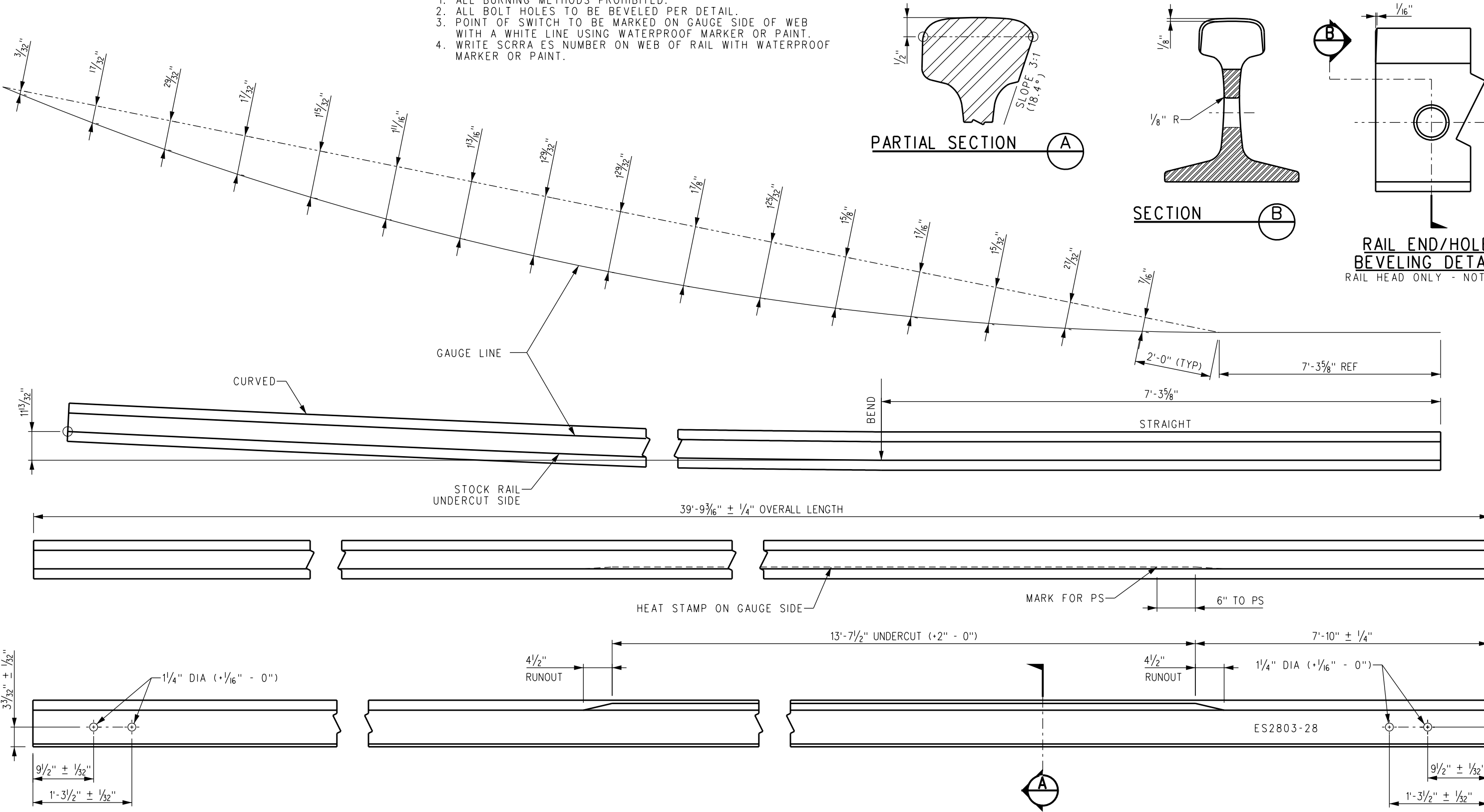
SIDE VIEW - VERTICAL BENDING DETAIL

				DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES: SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS SWITCH POINT ASSEMBLY, 136 LB RE SAMSON, STRAIGHT, RH NO 10 RH TURNOUT 33'-3" OVERALL LENGTH MANGANESE TIP	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-24
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

NOTES:

- 1. ALL BURNING METHODS PROHIBITED.
- 2. ALL BOLT HOLES TO BE BEVELED PER DETAIL.
- 3. POINT OF SWITCH TO BE MARKED ON GAUGE SIDE OF WEB WITH A WHITE LINE USING WATERPROOF MARKER OR PAINT.
- 4. WRITE SCRRRA ES NUMBER ON WEB OF RAIL WITH WATERPROOF MARKER OR PAINT.

BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	SCRRRA PART NO
1	1	RAIL, 136 LB RE 39'-9 ³ / ₁₆ " LONG	

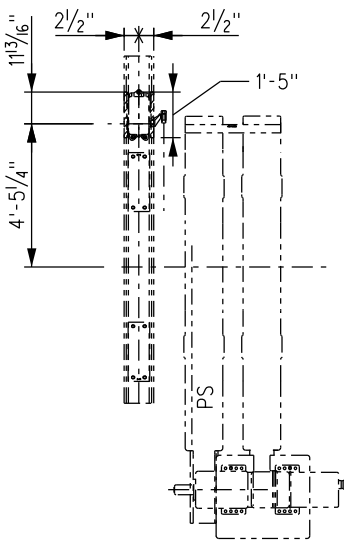


DRAWN BY: HDR DATE: 03/31/2011				SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS				STANDARD 2803	
REVISION				METROLINK®				SAMSON STOCK RAIL, CURVED, RH				SCALE: NTS	
REV. DATE DESCRIPTION DES. ENG.				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY				136 LB RE 39'-9 3/16" LONG				REVISION SHEET 1 OF 1	
				ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				FOR NO 10 136 LB RE RH SWITCH PACK				CADD FILE: ES2803-28	

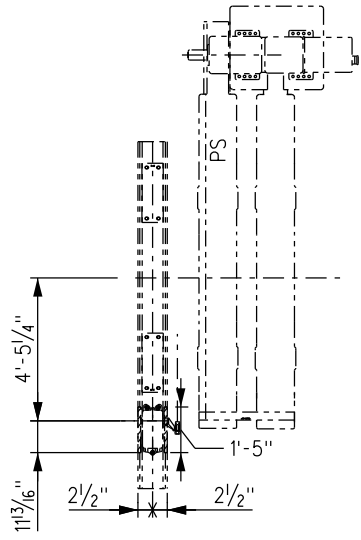
BILL OF MATERIALS			
ITEM	QTY	DESCRIPTION	DWG NO
1	3	TIES 1,2, AND 5, POWER SWITCH MACHINE ON MAINLINE SIDE FOR RH TURNOUT (HOLLOW STEEL)	ES2803-32
2	3	TIES 1,2, AND 5, POWER SWITCH MACHINE ON TURNOUT SIDE FOR RH TURNOUT (HOLLOW STEEL)	ES2803-34
3	3	TIES 1,2, AND 5, MANUAL OR POWER SWITCH MACHINE ON MAINLINE SIDE FOR RH TURNOUT (CONCRETE)	ES2803-36
4	3	TIES 1,2, AND 5, MANUAL OR POWER SWITCH MACHINE ON TURNOUT SIDE FOR RH TURNOUT (CONCRETE)	ES2803-38

NOTES:

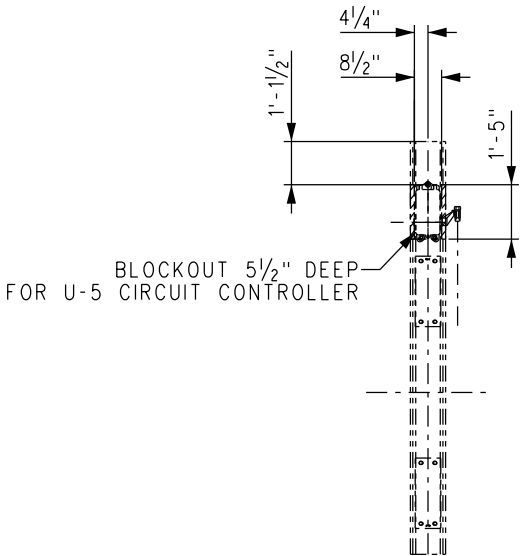
1. SET TO INCLUDE TIES 0, 3, 4, 6 THROUGH 59, THREE 1:80 CANTED TIES, PLATE TIE PADS AND PIM INSERTS.
2. TIE LENGTHS ARE DETERMINED BY ADDING 1'-10⁷/₁₆" FROM RAIL GAUGE LINE OR (1'-9" FROM RAIL CENTERLINE) PER SIDE AT THE CENTERLINE OF EACH TIE LOCATION.
3. ALL TIES ARE FLAT (NON-CANTED) EXCEPT 1:80 CANTED TIES.
4. TRANSITION TIES (QUANTITY 3) SHALL INCORPORATE 1:80 CANTED RAIL SEATS AND USE 4'-8¹/₂" BETWEEN STRAIGHT RAIL SEAT GAUGES. LENGTH SHALL BE 8'-3".
5. THIS DRAWING SHOWS TIE "0" PLACEMENT FOR SWITCH MACHINE ON RH/TURNOUT SIDE. USE OPPOSITE HAND FOR SWITCH MACHINE ON THE LH/MAINLINE SIDE.
6. SEE BILL OF MATERIALS ABOVE FOR TIES 1,2, AND 5.



TIE "0" PLACEMENT
SWITCH MACHINE
ON TURNOUT (RH) SIDE

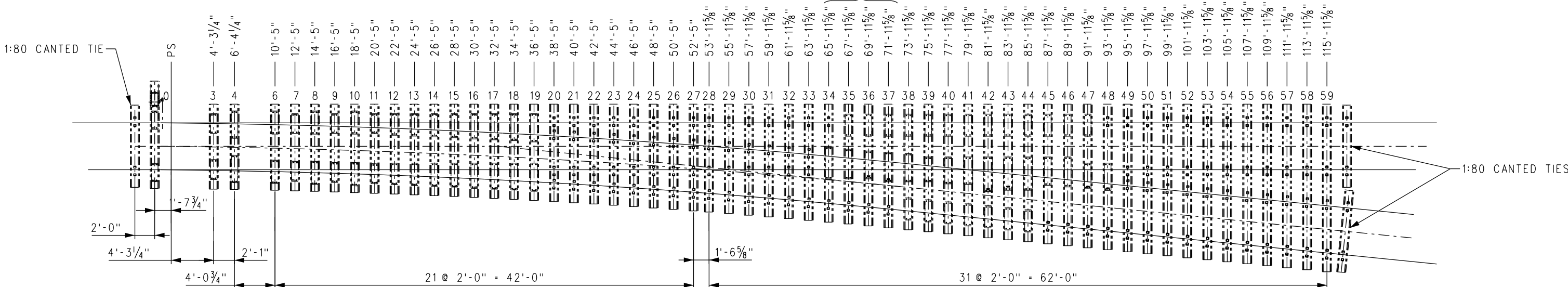


TIE "0" PLACEMENT
SWITCH MACHINE
ON MAINLINE (LH) SIDE



TIE "0" BLOCKOUT DETAIL

PLATING IS ³/₄" THICK. RAISE OUTSIDE RAIL SEATS ACCORDINGLY. ALL RAIL SEATS ARE FLAT.



DRAWN BY: HDR		DATE: 03/31/2011	
X		XX-XX-XX	
REV.		DATE	
REVISION		DESCRIPTION	
XX		XX	
DES.		ENG.	

ASSISTANT DIRECTOR: STANDARDS & DESIGN
DIRECTOR OF ENGINEERING AND CONSTRUCTION

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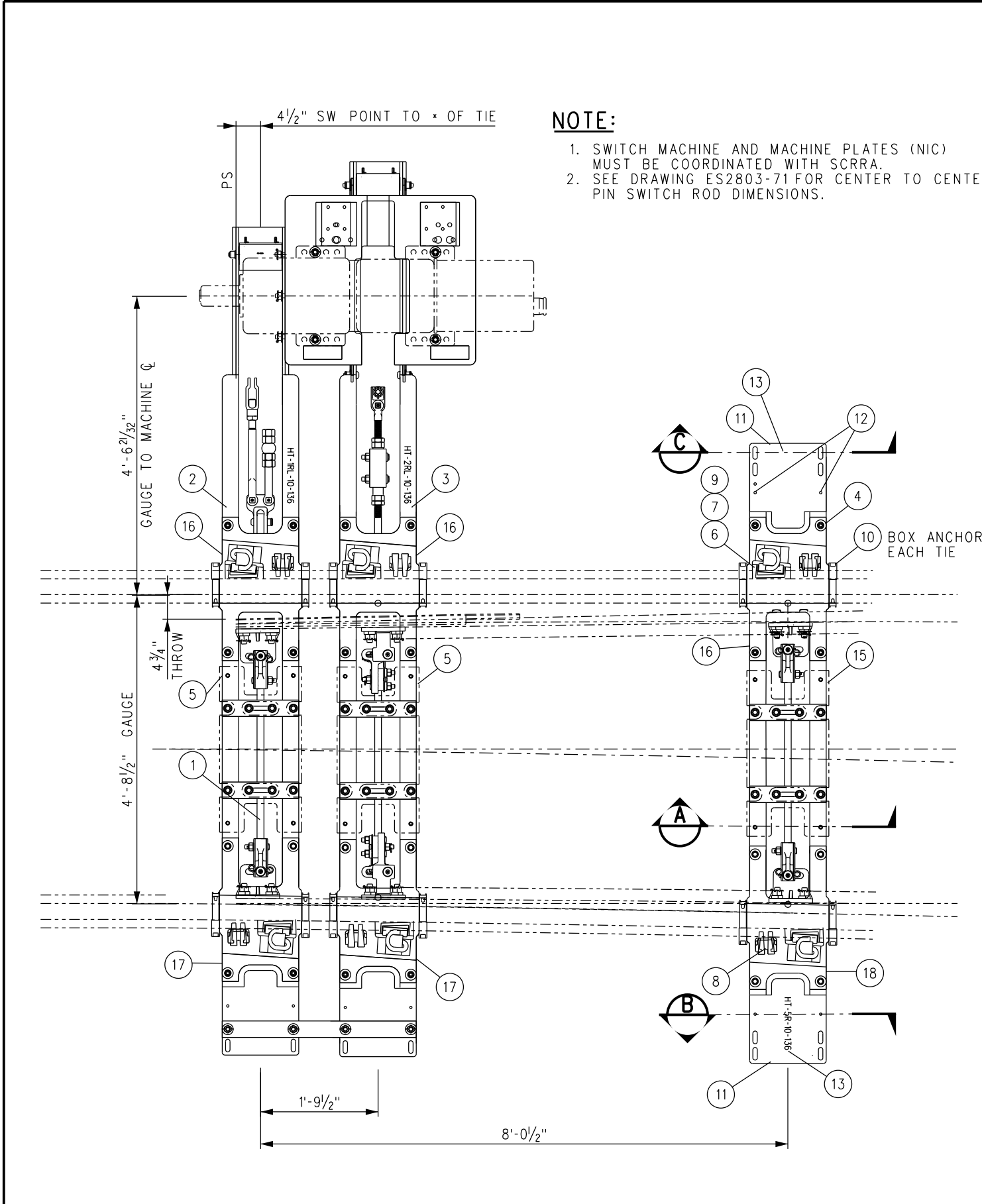
METROLINK®

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS

CONCRETE TIE LAYOUT
NO 10-136 LB RE SPRING FROG TURNOUT, RH

STANDARD		2803	
SCALE:		NTS	
REVISION		SHEET	
-		1 OF 1	
CADD FILE:		ES2803-30	



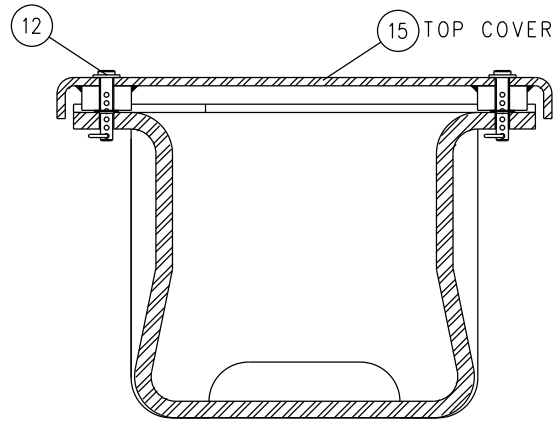
NOTE:

1. SWITCH MACHINE AND MACHINE PLATES (NIC) MUST BE COORDINATED WITH SCRRRA.

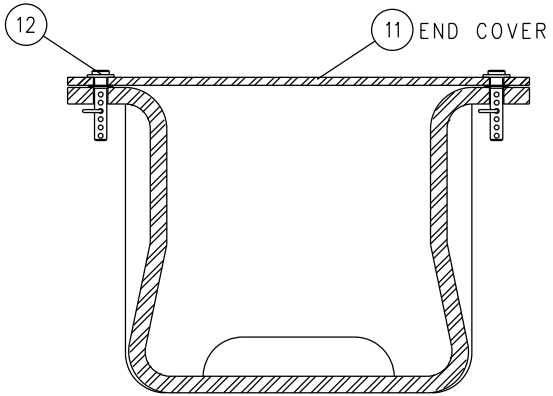
2. SEE DRAWING ES2803-71 FOR CENTER TO CENTER PIN SWITCH ROD DIMENSIONS.

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	RODDING ASSEMBLY FOR NO 10-136 LB RE, SWITCH MACHINE ON LEFT SIDE	ES2803-71	
2	1	HOLLOW TIE ASSEMBLY (HT-1RL-10-136)	-	
3	1	HOLLOW TIE ASSEMBLY (HT-2RL-10-136)	-	
4	1	HOLLOW TIE ASSEMBLY (HT-5R-10-136)	-	
5*	2	COVER PLATE NO 1, HOLLOW SWITCH TIE	-	
6	6	LV BRACE FOR 136 LB RE	-	
7	6	SERRATED WASHER FOR LV BRACE	-	
8	6	CLIP, SAFELOK AB 2000	-	
9	6	CLIP, PANDROL, E2055	-	
10	12	RAIL ANCHOR UNIT DRIVE-ON TYPE 5	-	
11	2	STEEL COVER PLATE FOR HST TIE, TOP END	-	
12	20	PUSH PIN ASSEMBLY FOR HST COVERS	-	
13	2	STEEL SIDE END COVER PLATE ASSEMBLY FOR HST TIE	-	
14	4	COVER SUPPORT BRACKET	-	
15*	1	COVER PLATE NO 2, HOLLOW SWITCH TIE	-	
16	3	HST SWITCH PLATE HTP-206-STR	ES2800-90	
17	2	HST SWITCH PLATE HTP-201-R	ES2800-93	
18	1	HST SWITCH PLATE HTP-205-R	ES2800-95	

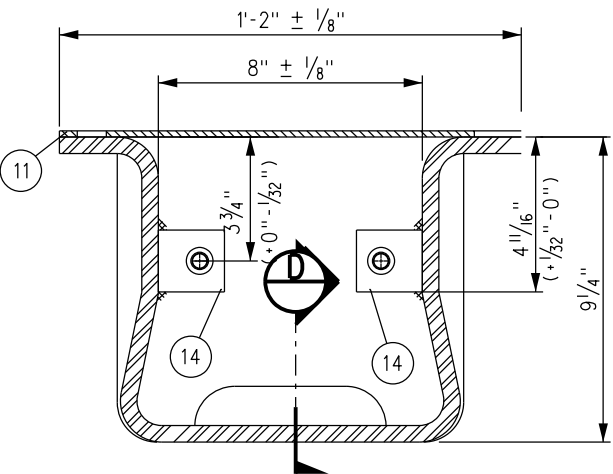
* NOT SHOWN ON ASSEMBLY FOR CLARITY



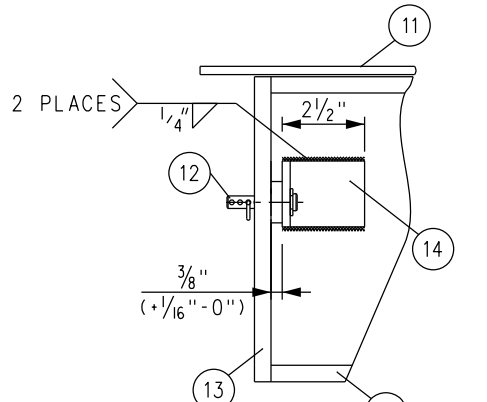
SECTION A
HOLLOW TIE TOP COVER DETAIL



SECTION B
END COVER PLATE

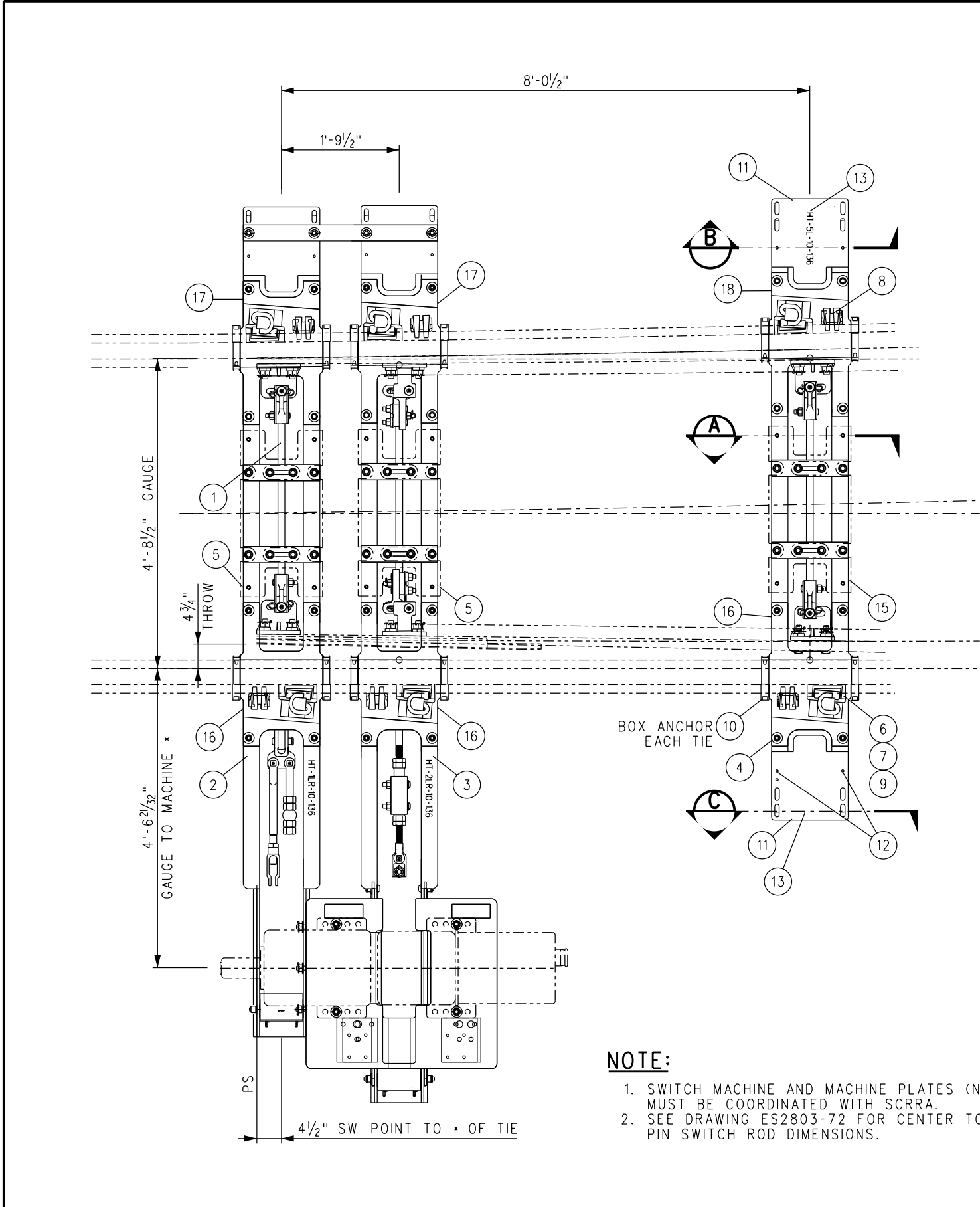


SECTION C
HOLLOW TIE SIDE END COVER DETAIL



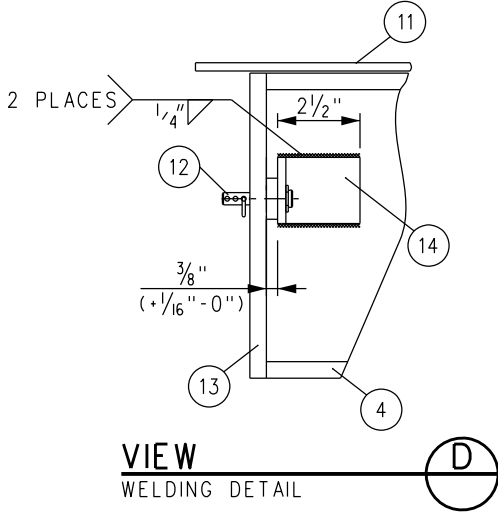
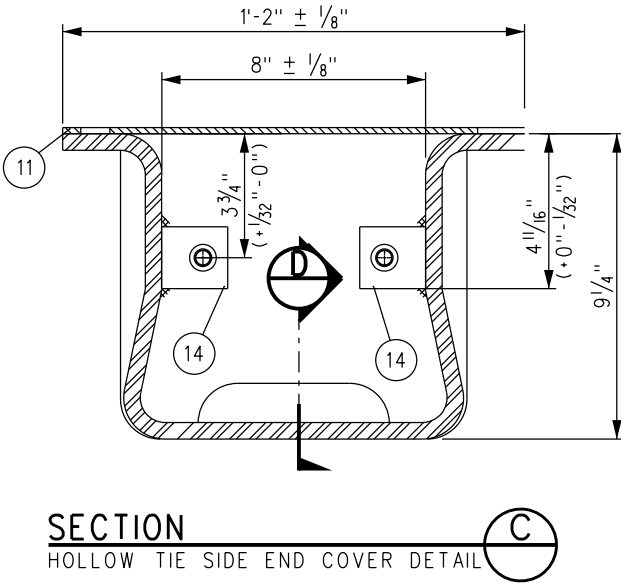
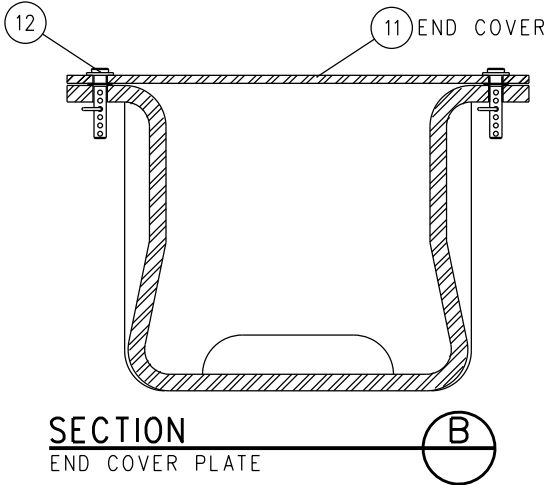
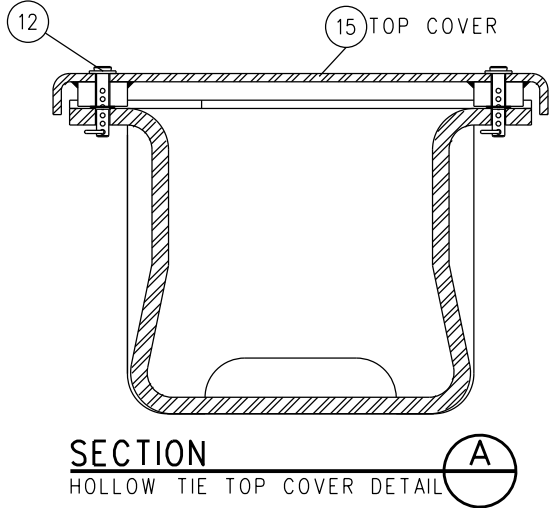
VIEW D
WELDING DETAIL

				DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS HOLLOW STEEL TIE LAYOUT SWITCH MACHINE ON MAINLINE SIDE NO 10-136 LB RE RH	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-32
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

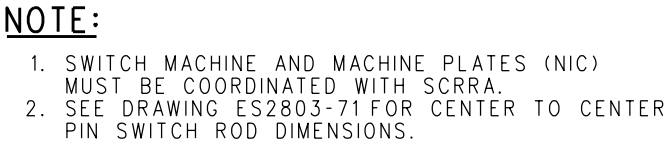


BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	RODDING ASSEMBLY FOR NO 10-136 LB RE, SWITCH MACHINE ON RH SIDE	ES2803-72	
2	1	HOLLOW TIE ASSEMBLY (HT-1LR-10-136)	-	
3	1	HOLLOW TIE ASSEMBLY (HT-2LR-10-136)	-	
4	1	HOLLOW TIE ASSEMBLY (HT-5L-10-136)	-	
5*	2	COVER PLATE NO 1, HOLLOW SWITCH TIE	-	
6	6	LV BRACE FOR 136 LB RE	-	
7	6	SERRATED WASHER FOR LV BRACE	-	
8	6	CLIP, SAFELOK AB 2000	-	
9	6	CLIP, PANDROL, E2055	-	
10	12	RAIL ANCHOR, UNIT DRIVE-ON TYPE 5	-	
11	2	STEEL COVER PLATE FOR HST TIE, TOP END	-	
12	20	PUSH PIN ASSEMBLY FOR HST COVERS	-	
13	2	STEEL SIDE END COVER PLATE ASSEMBLY FOR HST TIE	-	
14	4	COVER SUPPORT BRACKET	-	
15*	1	COVER PLATE NO 2, HOLLOW SWITCH TIE	-	
16	3	HST SWITCH PLATE HTP-206-STR	ES2800-90	
17	2	HST SWITCH PLATE HTP-200-L	ES2800-93	
18	1	HST SWITCH PLATE HTP-204-L	ES2800-95	

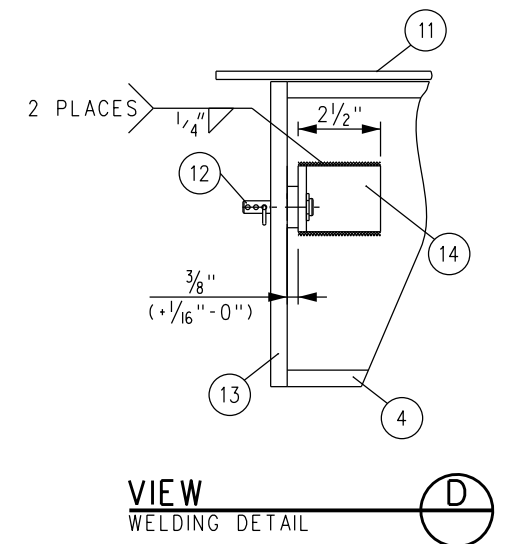
* NOT SHOWN ON ASSEMBLY FOR CLARITY





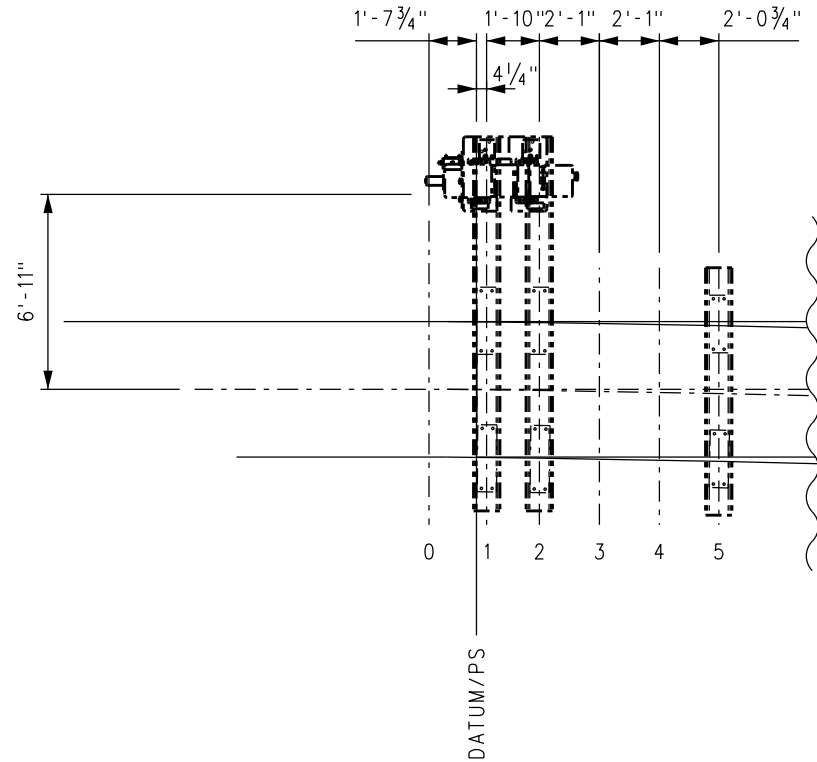
				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS HOLLOW STEEL TIE LAYOUT SWITCH MACHINE ON MAINLINE SIDE NO 10-136 LB RE LH	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-33
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					



* NOT SHOWN ON ASSEMBLY FOR CLARITY



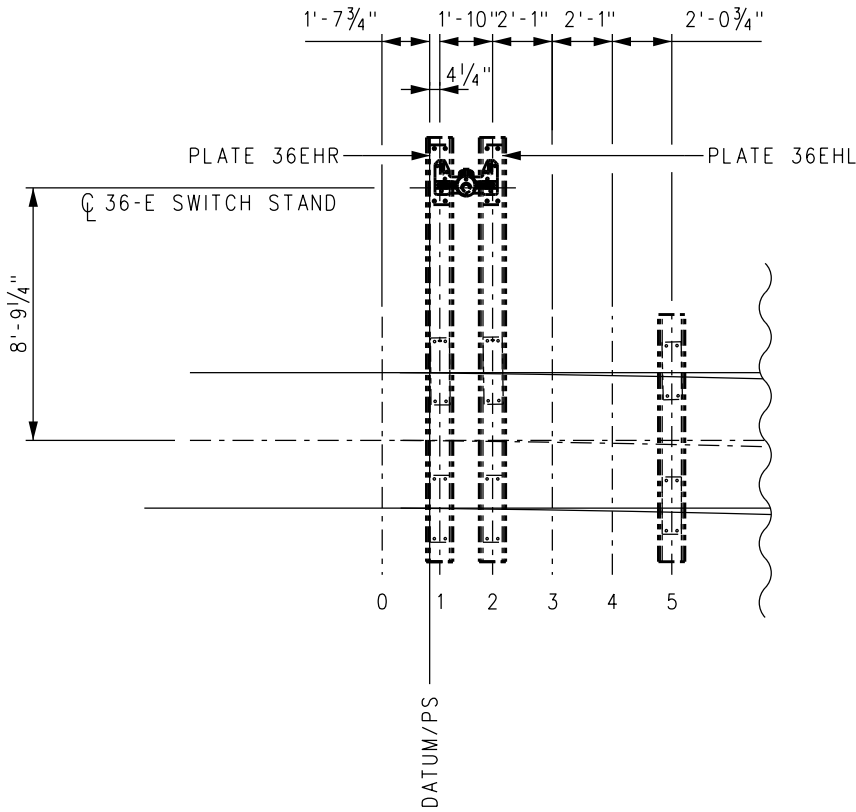
		DRAWN BY: HDR		DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES: SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT ALL LIABILITY ARISING FROM SUCH USE, NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.		 METROLINK®		STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CAD FILE: ES2803-35	
		 ASSISTANT DIRECTOR: STANDARDS & DESIGN				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012		ENGINEERING STANDARDS HOLLOW STEEL TIE LAYOUT SWITCH MACHINE ON TURNOUT SIDE NO 10-136 LB RE LH			
		 DIRECTOR OF ENGINEERING AND CONSTRUCTION									
X	XX-XX-XX	REVISION		XX	XX						
REV.	DATE	DESCRIPTION		DES.	ENG.						



POWER-OPERATED

NOTES:

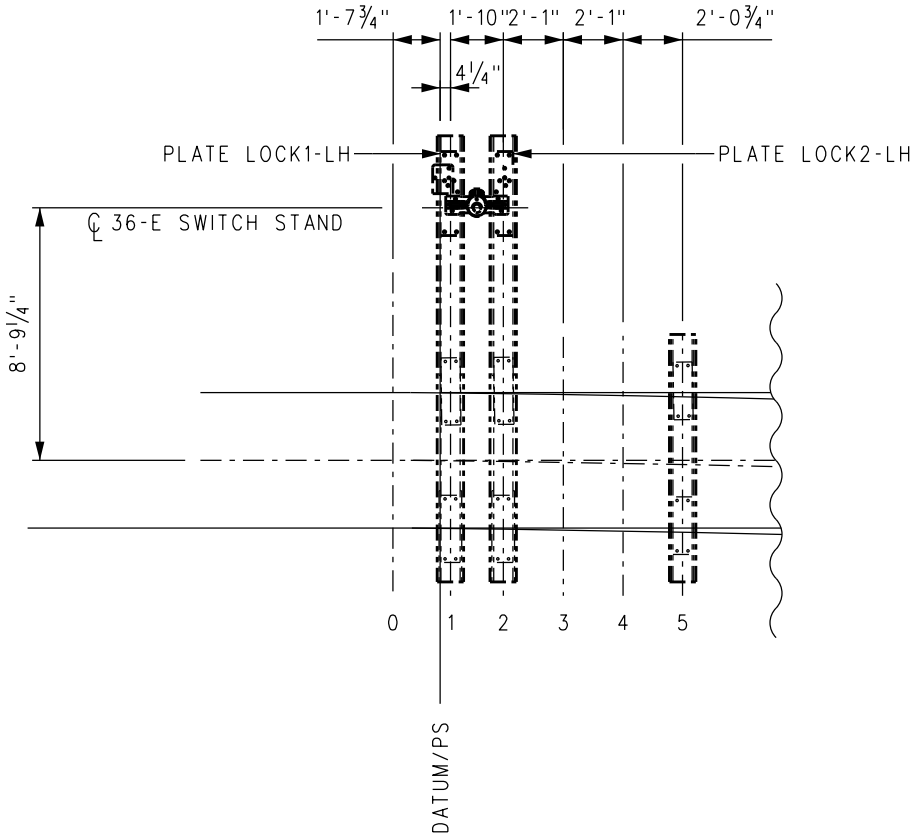
- 1. SWITCH MACHINE AND MACHINE PLATES (NIC) MUST BE COORDINATED WITH SCRR.
- 2. LENGTH OF TIES 1 AND 2 ARE 13'-0".
- 3. LENGTH OF TIE 5 IS 8'-7".



MANUAL THROW-WITHOUT ELECTRIC LOCK

NOTES:

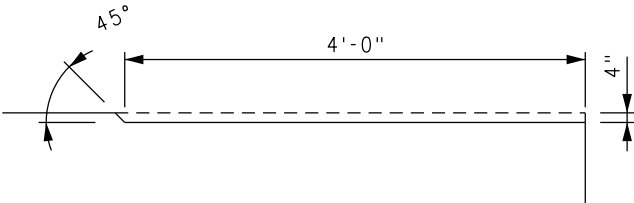
- 1. LENGTH OF TIES 1 AND 2 ARE 14'-9".
- 2. LENGTH OF TIE 5 IS 8'-7".



MANUAL THROW-WITH ELECTRIC LOCK

NOTES:

- 1. SEE ES2803-56 FOR DETAILS OF PLATES LOCK1-LH AND LOCK2-LH.
- 2. LENGTH OF TIES 1 AND 2 ARE 15'-6".
- 3. LENGTH OF TIE 5 IS 8'-7".
- 4. TIES 1 AND 2 ARE DAPPED DOWN 1" @ 45° PER DETAIL BELOW.



DAP FOR SWITCH STAND TIES 1 AND 2

						DRAWN BY:	HDR	DATE:	03/31/2011
X	XX-XX-XX		REVISION	XX	XX				
REV.	DATE		DESCRIPTION	DES.	ENG.				

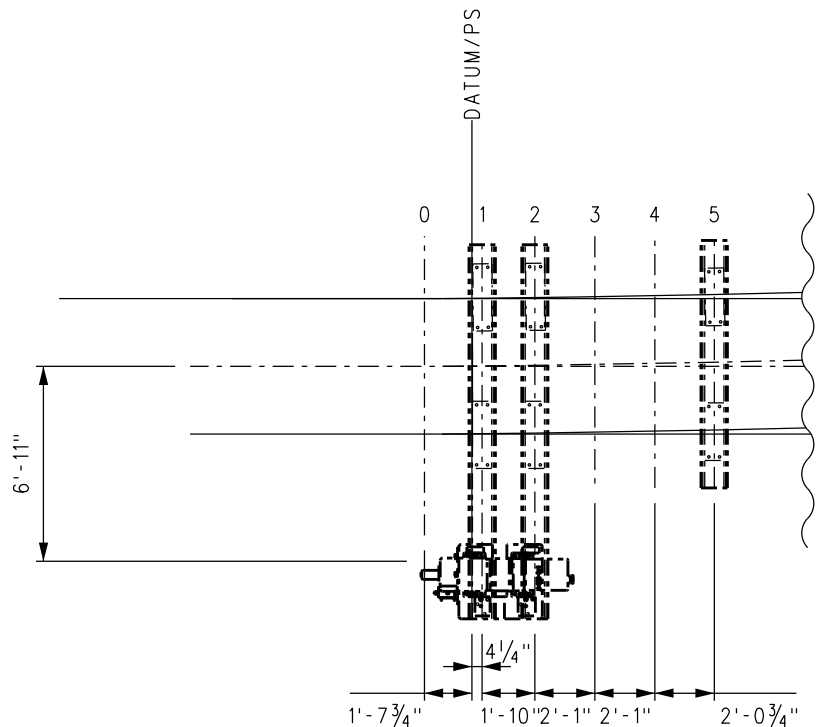
SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY.
FOR NON-SCRR APPROVED USES:
SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.



METROLINK

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

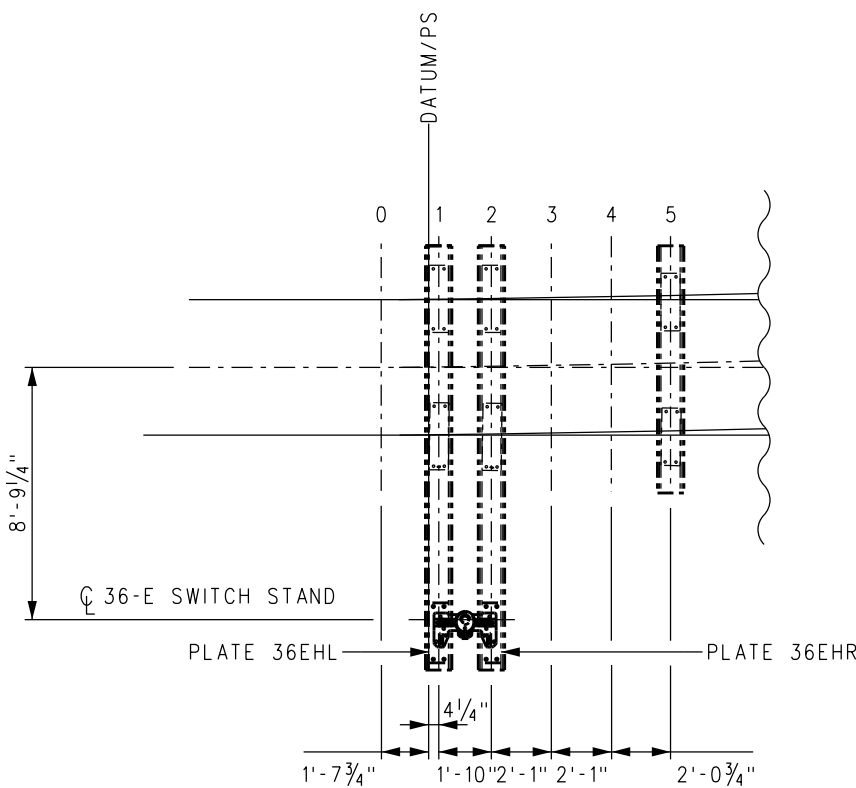
ENGINEERING STANDARDS		STANDARD	2803
CONCRETE HEADBLOCK TIE LAYOUT		SCALE:	NTS
SWITCH STAND SWITCH MACHINE ON MAINLINE SIDE		REVISION	SHEET
NO 10-136 LB RE RH		-	1 OF 1
		CADD FILE:	ES2803-36



POWER-OPERATED

NOTES:

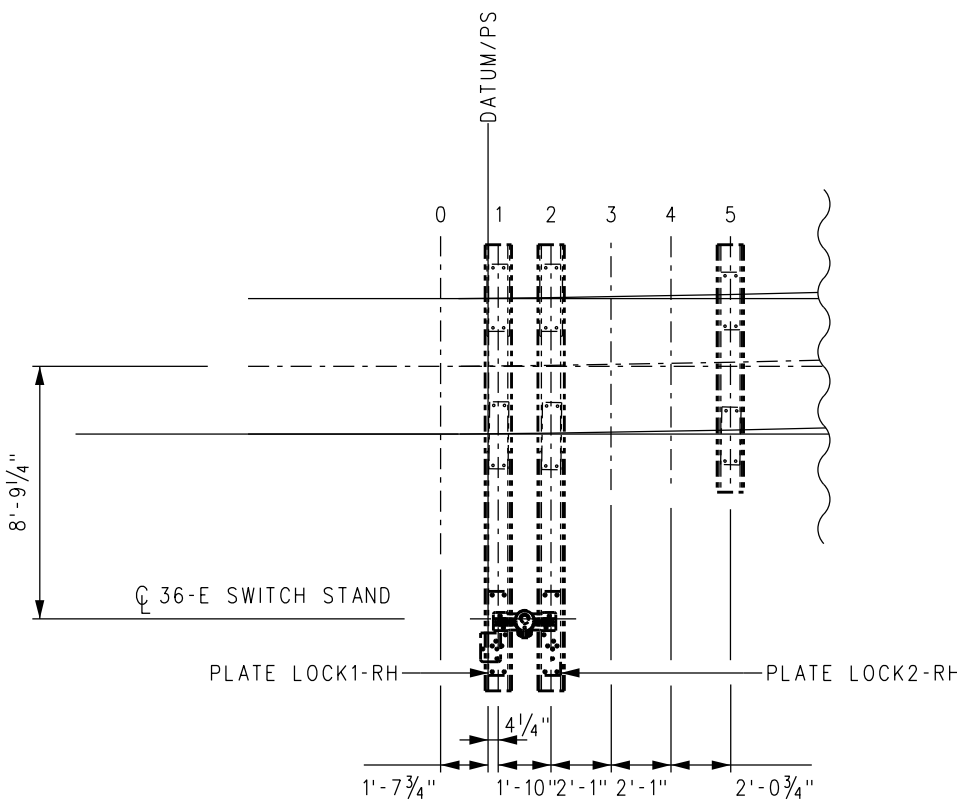
1. SWITCH MACHINE AND MACHINE PLATES (NIC) MUST BE COORDINATED WITH SCRRRA.
2. LENGTH OF TIES 1 AND 2 ARE 13'-0".
3. LENGTH OF TIE 5 IS 8'-7".



MANUAL THROW-WITHOUT ELECTRIC LOCK

NOTES:

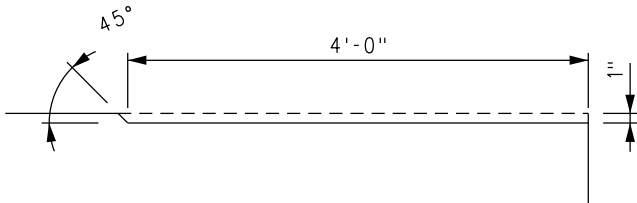
1. LENGTH OF TIES 1 AND 2 ARE 14'-9".
2. LENGTH OF TIE 5 IS 8'-7".



MANUAL THROW-WITH ELECTRIC LOCK

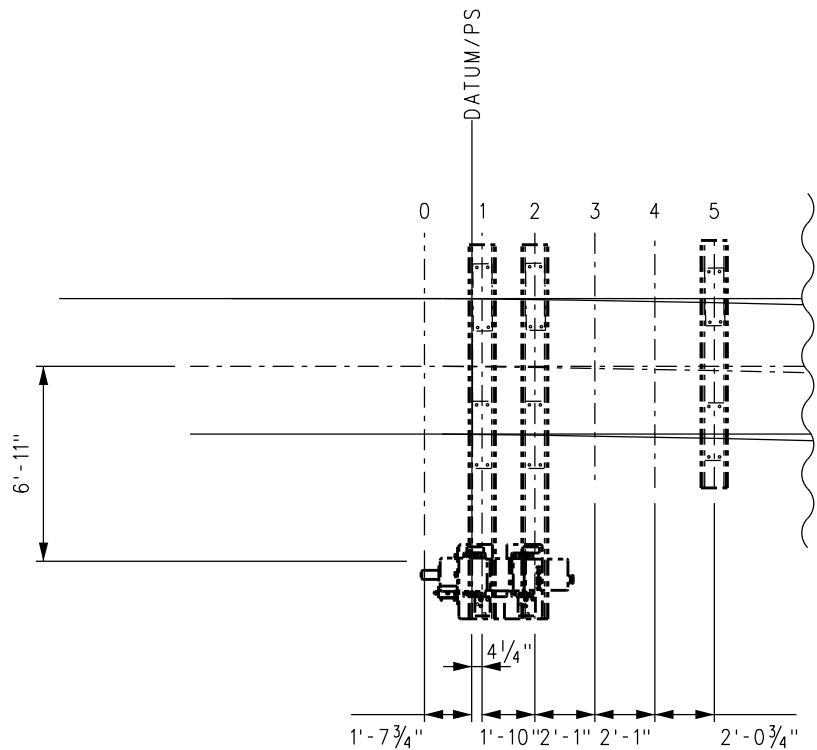
NOTES:

1. SEE ES2803-57 FOR DETAILS OF PLATES LOCK1-RH AND LOCK2-RH.
2. LENGTH OF TIES 1 AND 2 ARE 15'-6".
3. LENGTH OF TIE 5 IS 8'-7".
4. TIES 1 AND 2 ARE DAPPED DOWN 1" @ 45° PER DETAIL BELOW.



DAP FOR SWITCH STAND TIES 1 AND 2

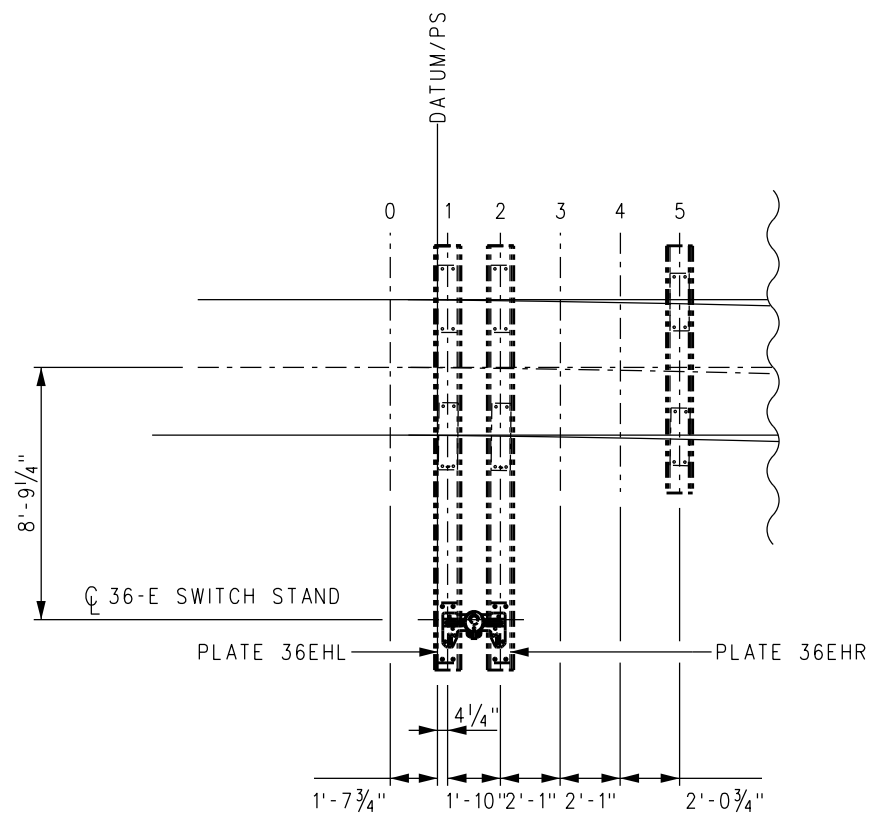
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POWER-OPERATED

NOTES:

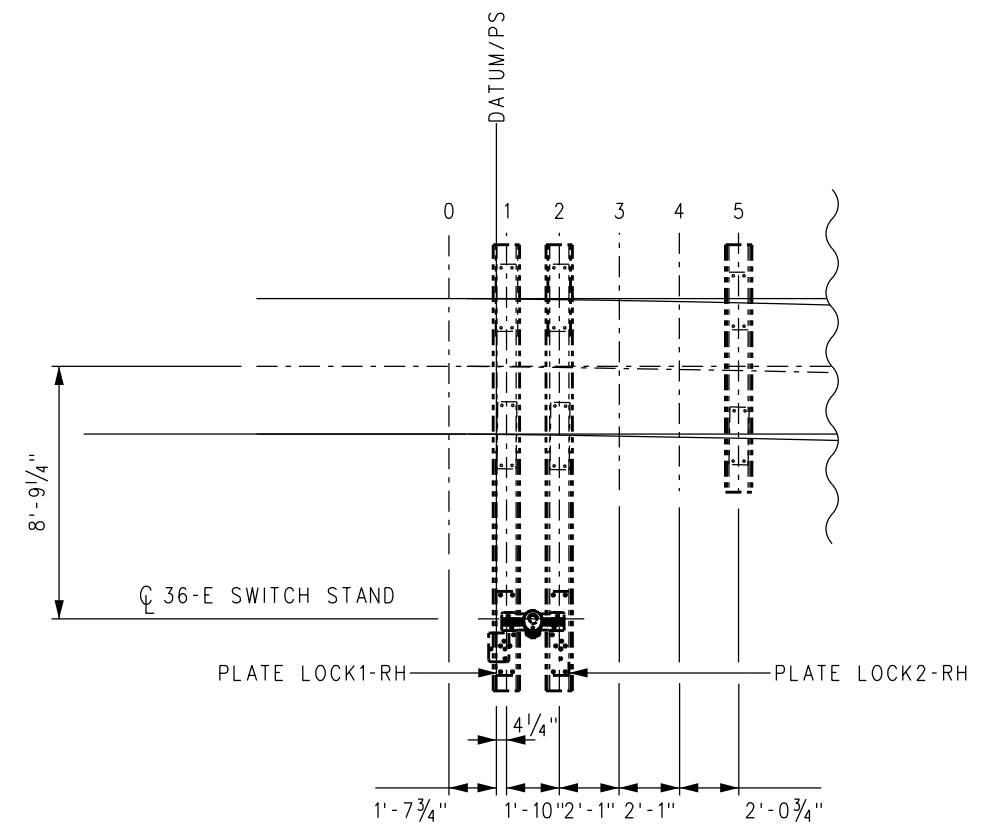
1. SWITCH MACHINE AND MACHINE PLATES (NIC) MUST BE COORDINATED WITH SCRR.
2. LENGTH OF TIES 1 AND 2 ARE 13'-0".
3. LENGTH OF TIE 5 IS 8'-7".



MANUAL THROW-WITHOUT ELECTRIC LOCK

NOTES:

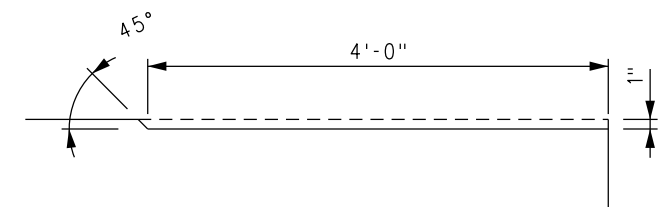
1. LENGTH OF TIES 1 AND 2 ARE 14'-9".
2. LENGTH OF TIE 5 IS 8'-7".



MANUAL THROW-WITH ELECTRIC LOCK

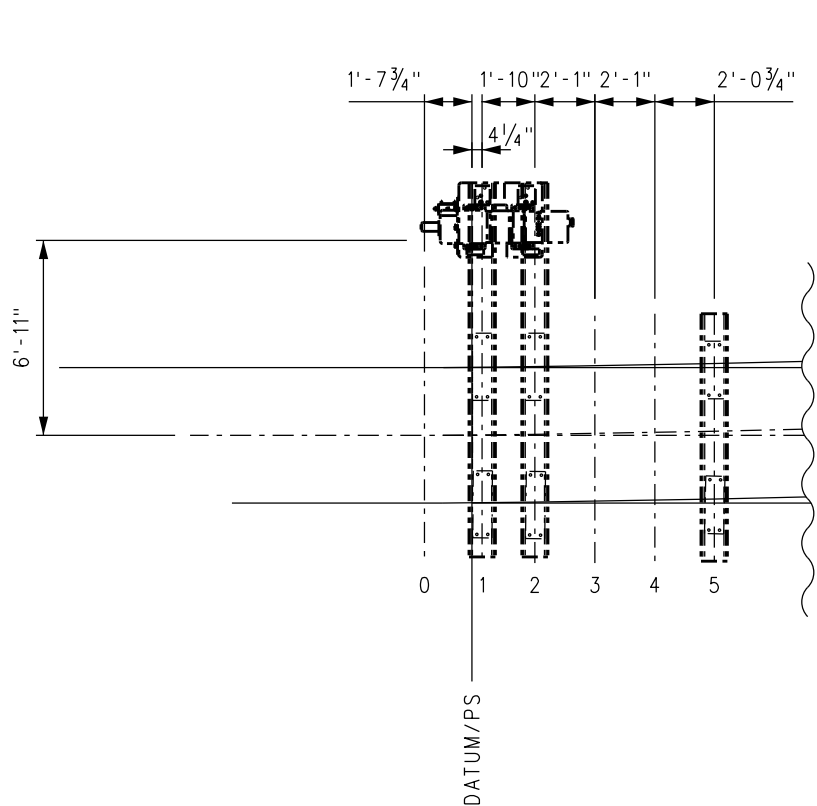
NOTES:

1. SEE ES2803-57 FOR DETAILS OF PLATES LOCK1-RH AND LOCK2-RH.
2. LENGTH OF TIES 1 AND 2 ARE 15'-6".
3. LENGTH OF TIE 5 IS 8'-7".
4. TIES 1 AND 2 ARE DAPPED DOWN 1" @ 45° PER DETAIL BELOW.



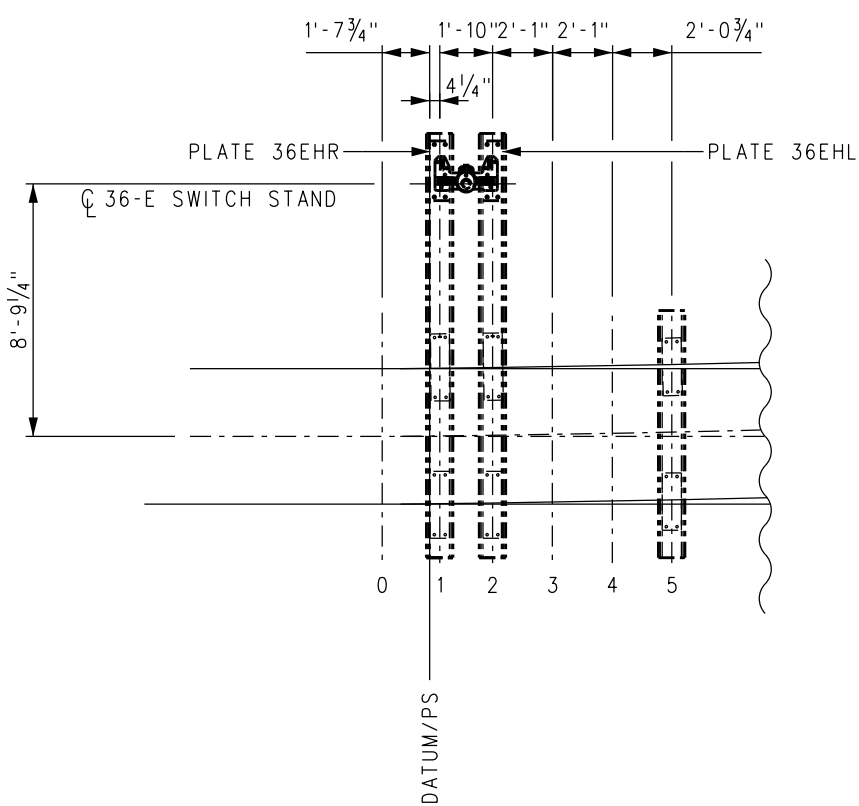
DAP FOR SWITCH STAND TIES 1 AND 2

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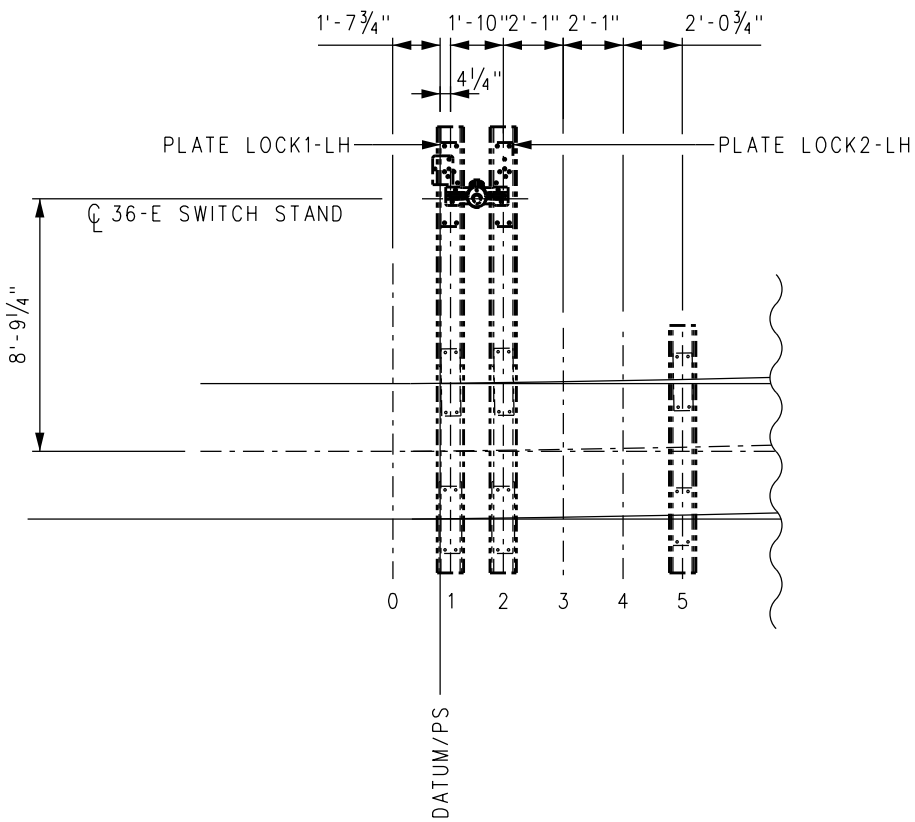
POWER-OPERATED

- NOTES:
- 1. SWITCH MACHINE AND MACHINE PLATES (NIC) MUST BE COORDINATED WITH SCRRRA.
 - 2. LENGTH OF TIES 1 AND 2 ARE 13'-0".
 - 3. LENGTH OF TIE 5 IS 8'-7".



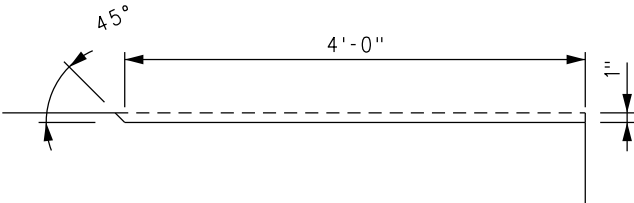
MANUAL THROW-WITHOUT ELECTRIC LOCK

- NOTES:
- 1. LENGTH OF TIES 1 AND 2 ARE 14'-9".
 - 2. LENGTH OF TIE 5 IS 8'-7".



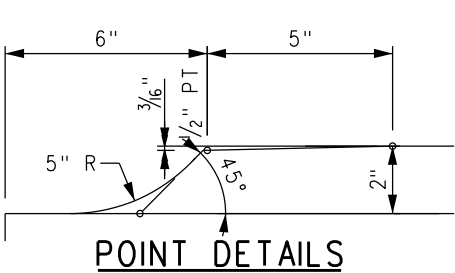
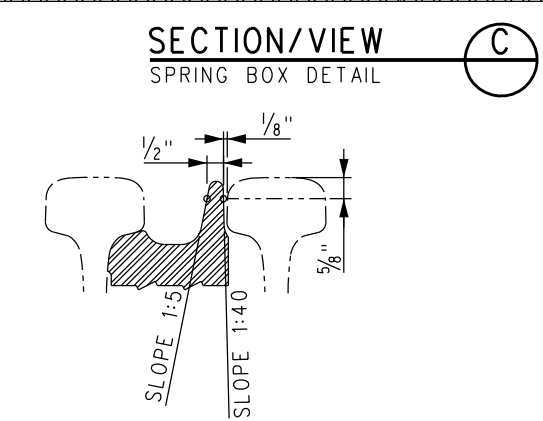
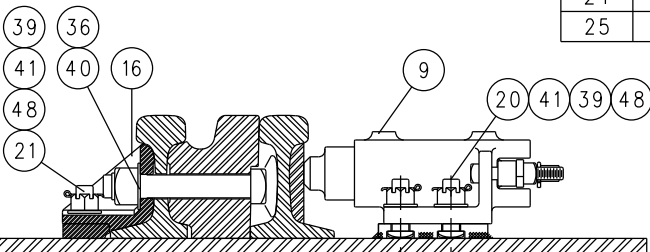
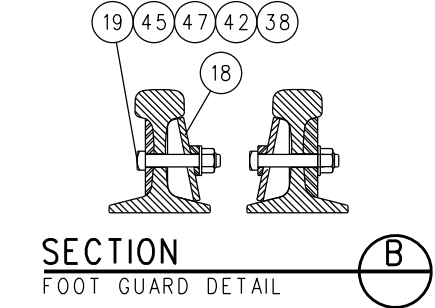
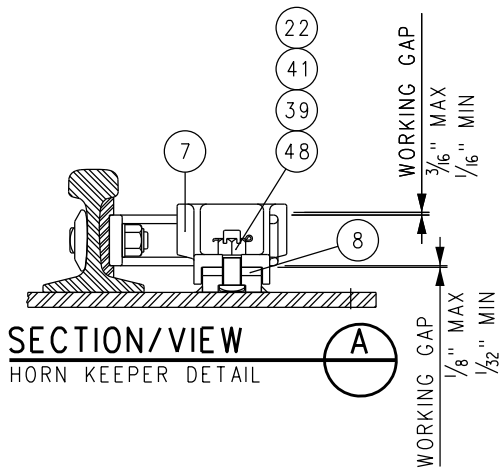
MANUAL THROW-WITH ELECTRIC LOCK

- NOTES:
- 1. SEE ES2803-56 FOR DETAILS OF PLATES LOCK1-LH AND LOCK2-LH.
 - 2. LENGTH OF TIES 1 AND 2 ARE 15'-6".
 - 3. LENGTH OF TIE 5 IS 8'-7".
 - 4. TIES 1 AND 2 ARE DAPPED DOWN 1" @ 45° PER DETAIL BELOW.



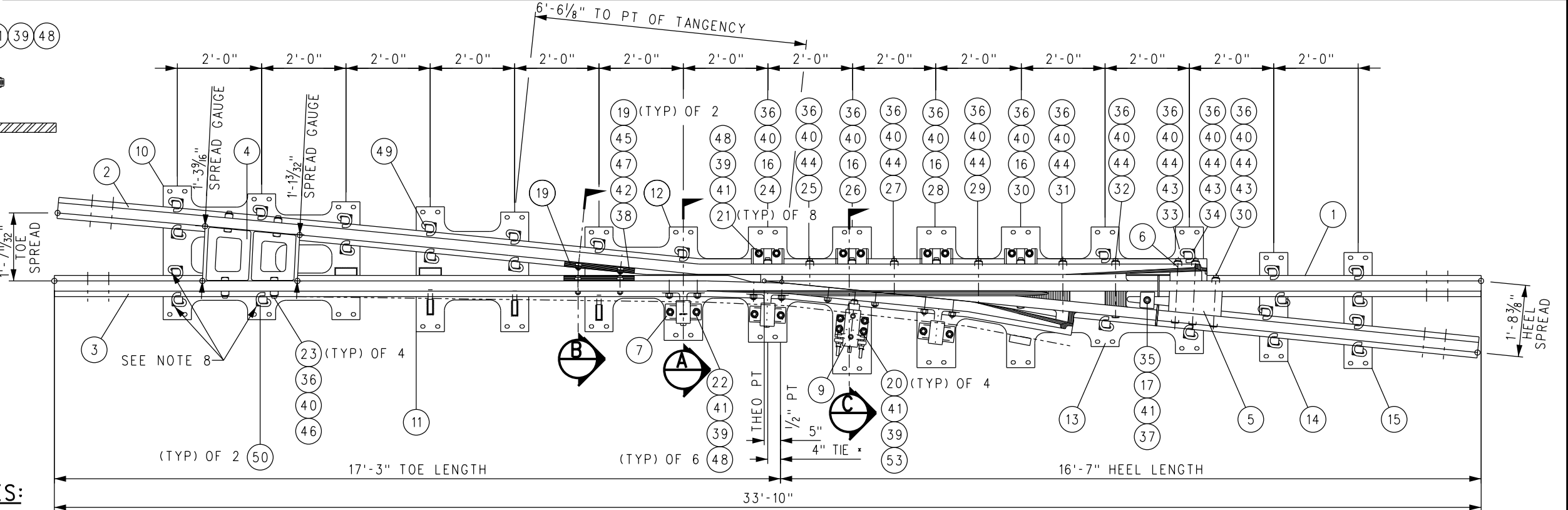
DAP FOR SWITCH STAND TIES 1 AND 2

				DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS CONCRETE HEADBLOCK TIE LAYOUT SWITCH STAND SWITCH MACHINE ON TURNOUT SIDE NO 10-136 LB RE LH	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-39
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					



BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	NO 10-136 LB RE SPRING FROG, RH POINT ASSEMBLY	-	
2	1	SPRING WING RAIL, NO 10-136 LB RE, RIGID, RH	-	
3	1	SPRING WING RAIL, NO 10-136 LB RE, RH, C/W HARDWARE	-	
4	1	TOE BLOCK (SFTB136RE-10A)	-	
5	1	HEEL BLOCK (SFHB136RE-10A)	-	
6	1	FLARE FILLER BLOCK (FB136WHM-LCR)	-	
7	3	HORN KEEPER, REVERSIBLE	-	
8	3	HORN KEEPER WEAR PLATE, REVERSIBLE	-	
9	1	SPRING BOX ASSEMBLY	-	
10	1	FROG BASE PLATE (10-136-34RC)	ES2803-42	
11	1	FROG BASE PLATE (10-136-37RC)	ES2803-42	
12	1	FROG BASE PLATE (10-136-39RC)	ES2803-44	
13	1	FROG BASE PLATE (10-136-43RC)	ES2803-46	
14	1	FROG PLATE (10-136-47RC)	ES2803-48	
15	1	FROG PLATE (10-136-48RC)	ES2803-48	
16	4	PLATE CLIP, 136 LB RE	-	
17	1	HOLD-DOWN CLIP (10A1)	-	
18	1	FOOT GUARD, 136 LB RE x 1'-8" LONG	-	
19	2	BOLT, 3/4" DIA x 4 1/2" SQ HEAD, GR 8	-	
20	4	BOLT, 1" DIA x 3", THIN SQ HEAD, DRILLED 2 1/2", GR 5	-	
21	8	BOLT, 1" DIA x 3", THIN SQ HEAD, DRILLED 2 3/32", GR 5	-	
22	6	BOLT, 1" DIA x 3 1/2", THIN SQ HEAD, DRILLED 2 1/16", GR 5	-	
23	4	BOLT, 1 3/8" DIA x 5" SQ HEAD, GR 8	-	
24	1	BOLT, 1 3/8" DIA x 6 1/2" SQ HEAD, GR 8	-	
25	1	BOLT, 1 3/8" DIA x 7 1/2" SQ HEAD, GR 8	-	

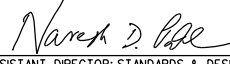
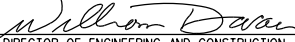
BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
26	1	BOLT, 1 3/8" DIA x 9" SQ HEAD, GR 8	-	
27	1	BOLT, 1 3/8" DIA x 9 1/2" SQ HEAD, GR 8	-	
28	1	BOLT, 1 3/8" DIA x 11" SQ HEAD, GR 8	-	
29	1	BOLT, 1 3/8" DIA x 1'-0" SQ HEAD, GR 8	-	
30	2	BOLT, 1 3/8" DIA x 1'-1 1/2" SQ HEAD, GR 8	-	
31	1	BOLT, 1 3/8" DIA x 1'-2 1/2" SQ HEAD, GR 8	-	
32	1	BOLT, 1 3/8" DIA x 1'-4" SQ HEAD, GR 8	-	
33	1	BOLT, 1 3/8" DIA x 1'-5 1/2" SQ HEAD, GR 8	-	
34	1	BOLT, 1 3/8" DIA x 1'-6" SQ HEAD, GR 8	-	
35	1	PLOW BOLT, 1" DIA x 4" ROUND HD, SQ NECK, GR 8	-	
36	16	NUT, SECURITY LOCK, 1 3/8" DIA HEAVY HEX	-	
37	1	NUT, SECURITY LOCK, 1" DIA HEAVY HEX	-	
38	2	NUT, SECURITY LOCK, 3/4" DIA HEAVY HEX	-	
39	18	NUT, SLOTTED, 1" DIA HEAVY HEX	-	
40	16	WASHER, HARDENED, 1 3/8" DIA x 5/32" THICK	-	
41	11	WASHER, HARDENED, 1" DIA x 5/32" THICK	-	
42	2	WASHER, HARDENED, 3/4" DIA x 3/16" THICK	-	
43	3	WASHER, HEADLOCK	-	
44	8	WASHER, TAIL	-	
45	2	WASHER, TAIL, 1/2" x 3" FOR 3/4" BOLT	-	
46	4	WASHER, TAIL	-	
47	2	WASHER, BEVELED, FOR 3/4" BOLT	-	
48	18	COTTER PIN, 1/4" DIA x 2" LONG	-	
49	26	CLIP, PANDROL E2055	-	
50	3	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	



NOTES:

- RETARDER CLOSING TIME RANGES FROM 1 TO 3 MINUTES.
- SPRING BOX LOAD IS 300 LBS/IN.
- SPRING WING SHALL BE THROWN TO A 1/8" FLANGWAY AT THE 3/4" POINT TO DETERMINE THE SPRING WING THROWN POSITION.
- RAIL END DRILLING SHALL BE @ 9" AND 1'-3 1/2", 3 3/32" ABOVE RAIL BASE, 1 5/16" DIA AT ALL 4 RAIL ENDS. ALL RAIL HOLE EDGES SHALL BE ROUNDED WITH A 7/8" R.
- RETARDER BRACKET SHALL BE WELDED ADJACENT TO SPRING BOX ASSEMBLY.
- FROG SHALL BE CONSTRUCTED TO TOLERANCES GIVEN ON LATEST AREMA PLAN 1010, PERMISSIBLE VARIATIONS IN COMPLETED FROGS.
- INSERT TO BE EXPLOSIVE DEPTH HARDENED TO 352 BRINELL PER AREMA.
- NAME TAG TO BE AFFIXED TO RIGID WING RAIL NEAR 1/2" PT WITH INFORMATION SHOWN.
- SCRRRA WILL CONSIDER A TAPERED HEEL SPRING OF SAME ALIGNMENT AND DIMENSIONS TO REPLACE WSM.

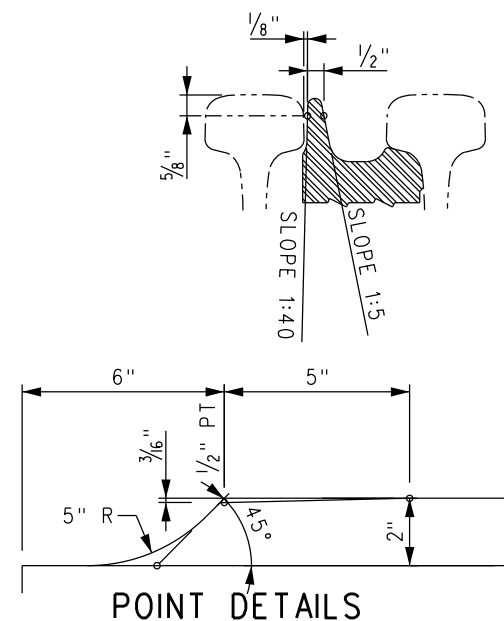
X	XX-XX-XX	REVISION	XX	XX	
REV.	DATE	DESCRIPTION	DES.	ENG.	

DRAWN BY:	HDR	DATE:	03/31/2011
			
ASSISTANT DIRECTOR: STANDARDS & DESIGN			
			
DIRECTOR OF ENGINEERING AND CONSTRUCTION			

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**METROLINK**
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS		STANDARD
NO 10 WSM FROG RH FROG ASSEMBLY PLAN VIEW AND FROG PACK CONCRETE TIES-136 LB RE RAIL		2803
		SCALE: NTS
		REVISION SHEET
		- 1 OF 1
		CADD FILE: ES2803-40



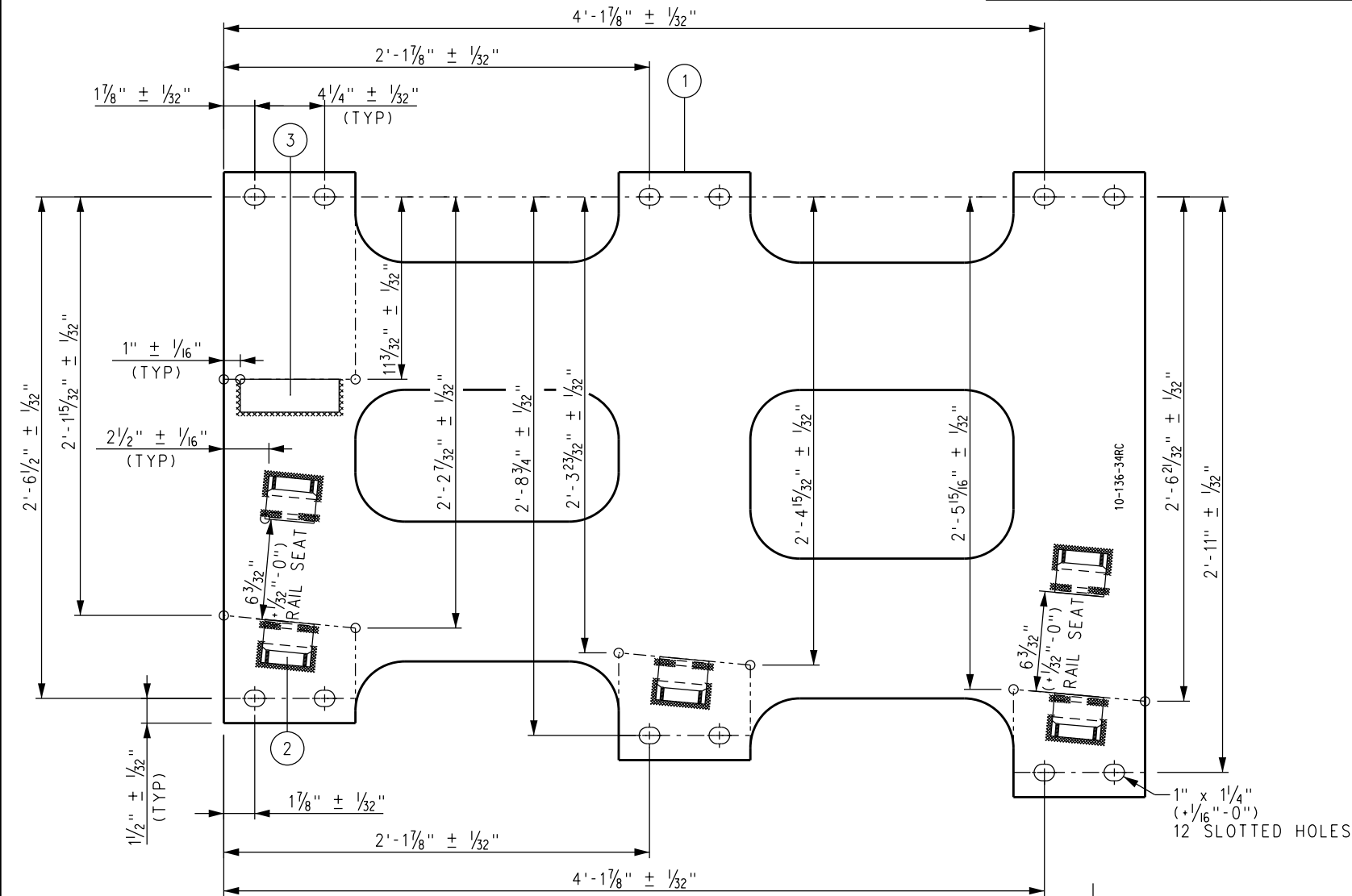
The diagram illustrates a cross-section of a bridge deck assembly. Key features include:

- Dimensions:**
 - Total length: 33'-10"
 - Toe Length: 17'-3"
 - Heel Length: 16'-7"
 - Toe Spread: 1'-7 1/32"
 - Heel Spread: 1'-8 3/8"
 - Vertical dimensions for spread gauges: 1'-3 9/16" and 1'-13/32"
 - Horizontal dimensions for component placement: 2'-0" intervals.
- Callouts and Components:**
 - (TYP) OF 2, (TYP) OF 4, (TYP) OF 6, (TYP) OF 8, (TYP) OF 20, (TYP) OF 19, (TYP) OF 43, (TYP) OF 36.
 - Labels: SEE NOTE 8, THEO PT, 1/2" PT, TIE, SPREAD GAUGE, TOE, HEEL, POINT OF TANGENCY.
 - Section markers A, B, C.
- Notes:**
 - RETARDER CLOSING TIME RANGES FROM 1 TO 3 MINUTES
 - EPOC SHALL BE CONSTRUCTED TO TOLERANCES GIVEN ON LATEST AREMA PLAN 1010

1. RETARDER CLOSING TIME RANGES FROM 1 TO 3 MINUTES.
2. SPRING BOX LOAD IS 300 LBS/IN.
3. SPRING WING SHALL BE THROWN TO A 1 $\frac{7}{8}$ " FLANGEWAY AT THE $\frac{3}{4}$ " POINT TO DETERMINE THE SPRING WING THROWN POSITION.
4. RAIL END DRILLING SHALL BE @ 9" AND 1'-3 $\frac{1}{2}$ ", 3 $\frac{3}{32}$ " ABOVE RAIL BASE, 1 $\frac{5}{16}$ " DIA AT ALL 4 RAIL ENDS. ALL RAIL HOLE EDGES SHALL BE ROUNDED WITH A $\frac{3}{8}$ " R.
5. RETARDER BRACKET SHALL BE WELDED ADJACENT TO SPRING BOX ASSEMBLY.
6. FROG SHALL BE CONSTRUCTED TO TOLERANCES GIVEN ON LATEST AREMA PLAN 1010, PERMISSIBLE VARIATIONS IN COMPLETED FROGS.
7. INSERT TO BE EXPLOSIVE DEPTH HARDENED TO 352 BRINELL PER AREMA.
8. NAME TAG TO BE AFFIXED TO RIGID WING RAIL NEAR $\frac{1}{2}$ " PT WITH INFORMATION SHOWN.
9. SCRRRA WILL CONSIDER A TAPERED HEEL SPRING OF SAME ALIGNMENT AND DIMENSIONS TO REPLACE WSM.

				DRAWN BY: <i>Naveh D. Patel</i>		HDR: DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES: SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES TO HOLD THE ENGINEER AND FIRM HARMLESS FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.		 METROLINK® SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012		STANDARD 2803 SCALE: NTS REVISION SHEET - 1 OF 1 CADD FILE: ES2803-41	
				ASSISTANT DIRECTOR: STANDARDS & DESIGN <i>William D. Davis</i> DIRECTOR OF ENGINEERING AND CONSTRUCTION						ENGINEERING STANDARDS NO 10 WSM FROG LH FROG ASSEMBLY PLAN VIEW AND FROG PACK CONCRETE TIES-136 LB RE RAIL		STANDARD 2803 SCALE: NTS REVISION SHEET - 1 OF 1 CADD FILE: ES2803-41	
X	XX-XX-XX	REVISION		XX	XX								
REV.	DATE	DESCRIPTION		DES.	ENG.								

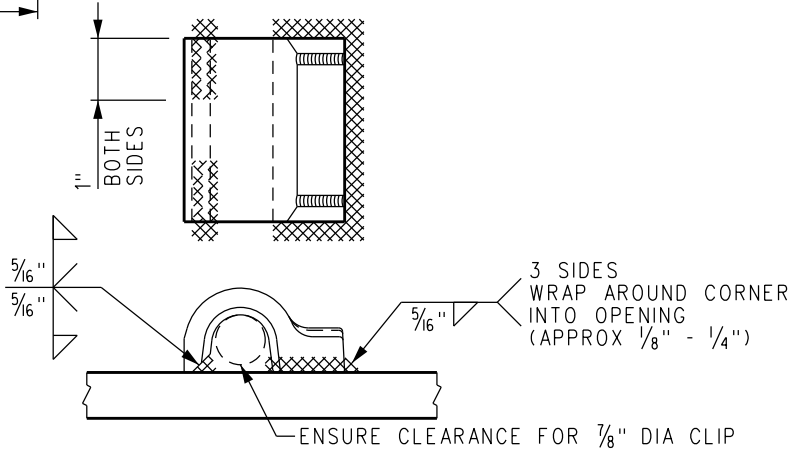
BILL OF MATERIAL				
ITEM	QTY FOR 10-34RC	QTY FOR 10-37RC	DESCRIPTION	DWG NO
1	1	1	BURNED PLATE, 3/4" THICK	-
2	5	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-
3	1	1	FLAT BAR, ASTM A36, 2" x 6" x 1/2" THICK	-
4	0	2	BURNED BRACE, 132/136 LB RE, ASTM A36, 7/16" x 1 1/4" x 1/2" THICK	-



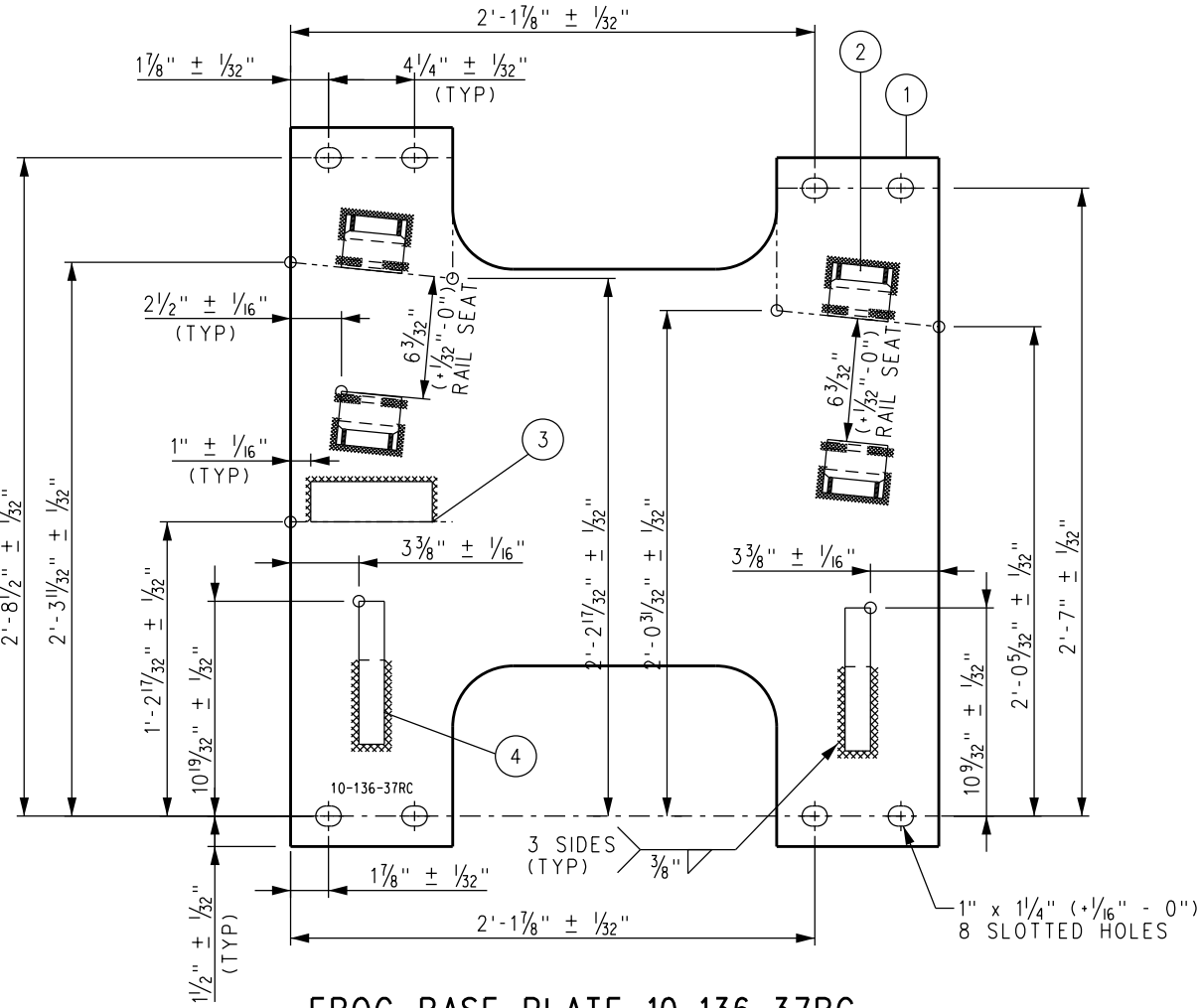
FROG BASE PLATE 10-136-34RC

NOTES:

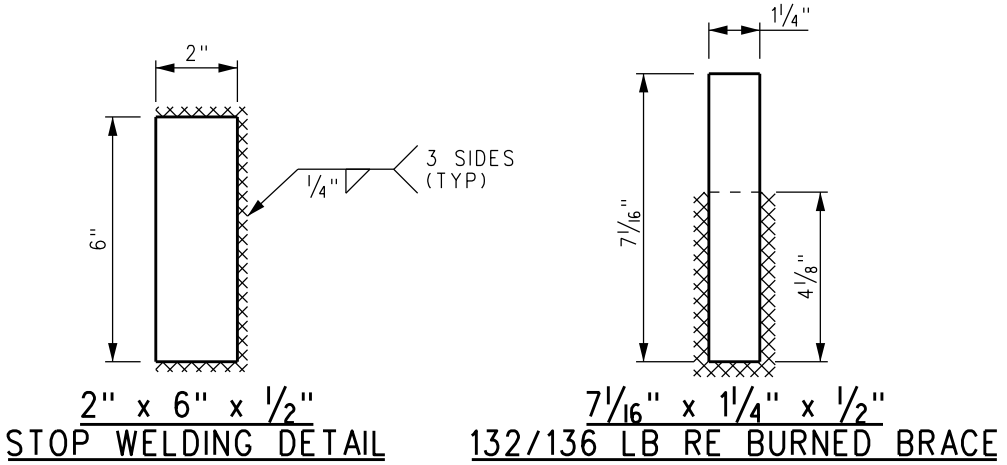
1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDERS AND STOPS AND NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.



FORGED SHOULDER WELDING DETAIL



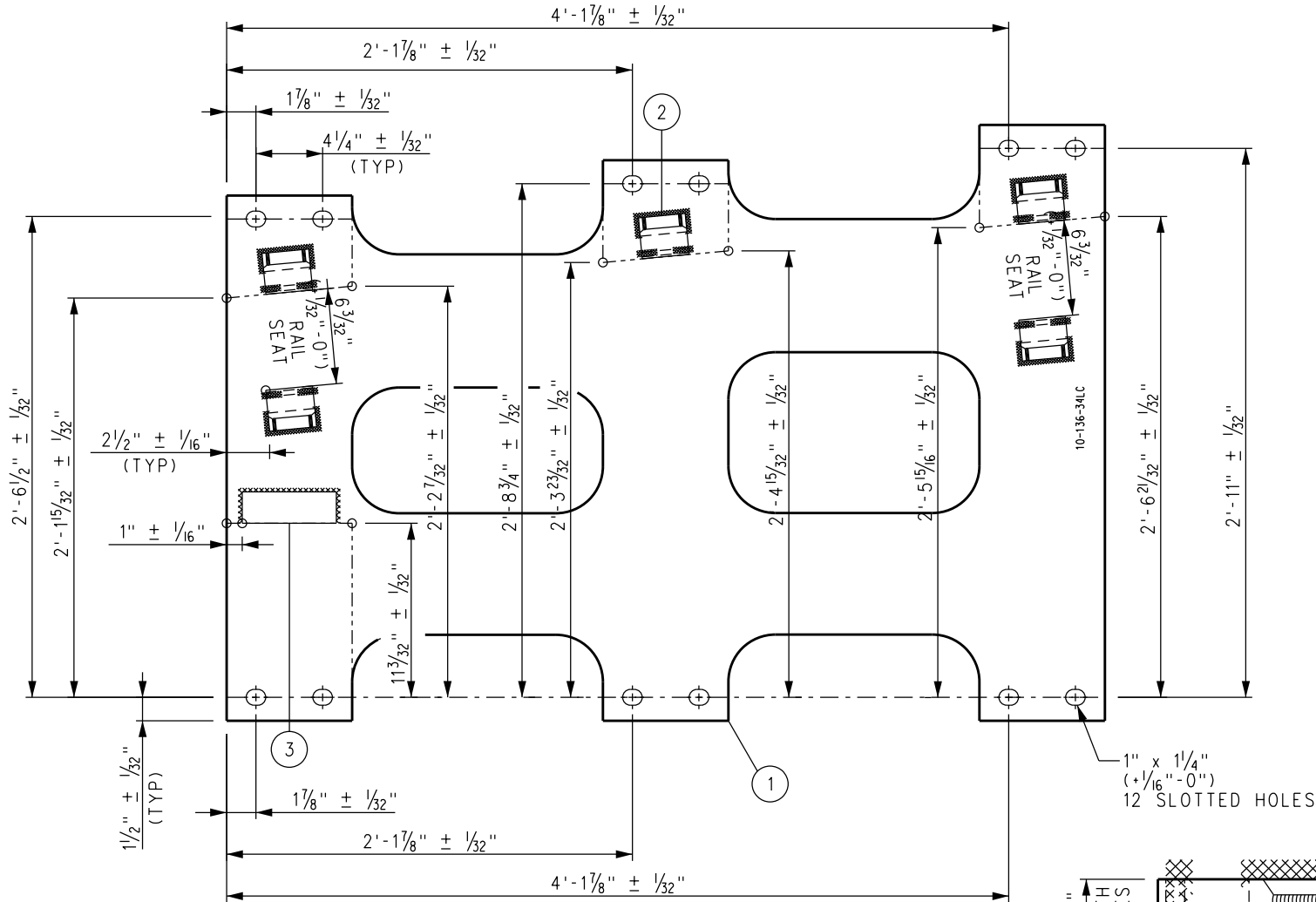
FROG BASE PLATE 10-136-37RC



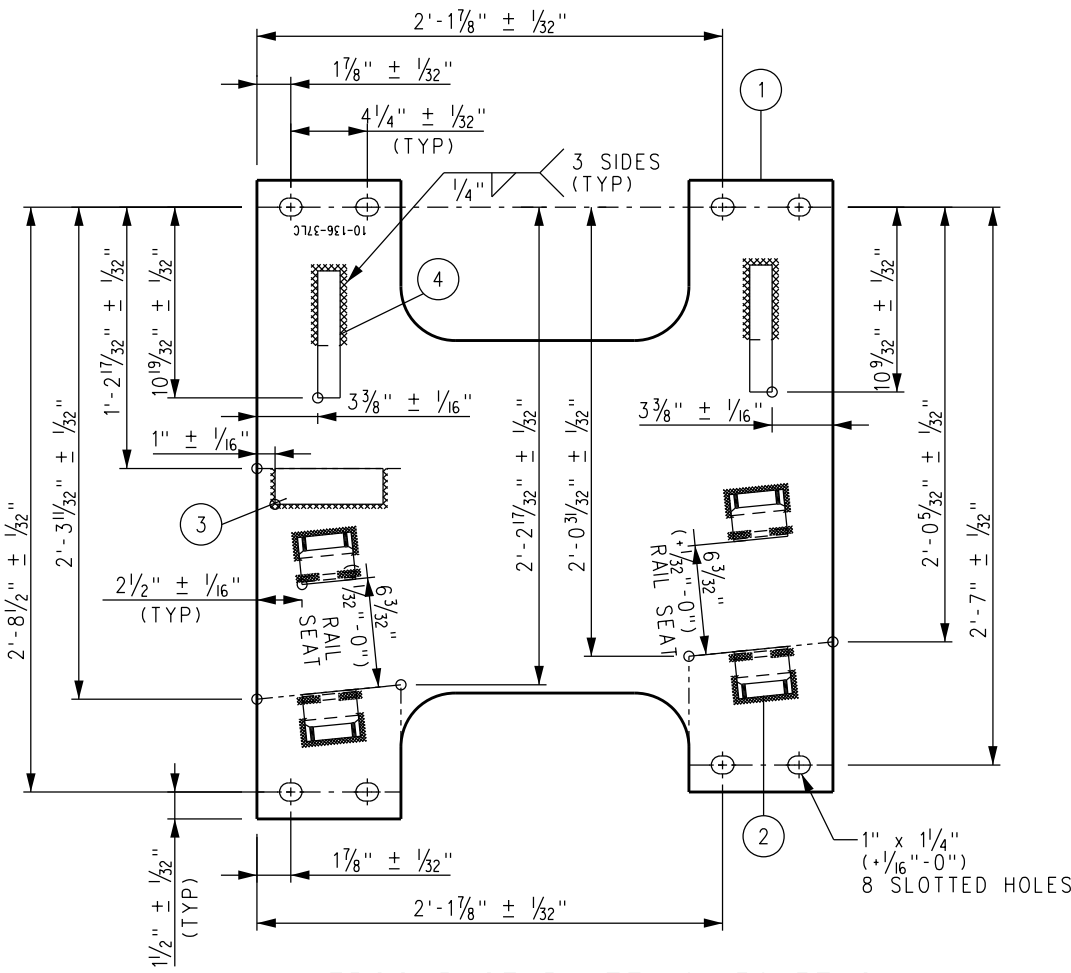
STOP WELDING DETAIL 132/136 LB RE BURNED BRACE

DRAWN BY: <i>Narek D. Bze</i>		HDR: <i>Narek D. Bze</i>	DATE: 03/31/2011	SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.		 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012		ENGINEERING STANDARDS NO 10 WSM FROG RH FROG BASE PLATES 10-34RC AND 10-37RC CONCRETE TIES-136 LB RE RAIL		STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-42
X	XX-XX-XX	REVISION	XX	XX						
REV.	DATE	DESCRIPTION	DES.	ENG.						

BILL OF MATERIAL				
ITEM	QTY FOR 10-34LC	QTY FOR 10-37LC	DESCRIPTION	DWG NO
1	1	1	BURNED PLATE, 3/4" THICK	-
2	5	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-
3	1	1	FLAT BAR, ASTM A36, 2" x 6" x 1/2" THICK	-
4	0	2	BURNED BRACE, 132/136 LB RE, ASTM A36, 7/16" x 1 1/4" x 1/2" THICK	-



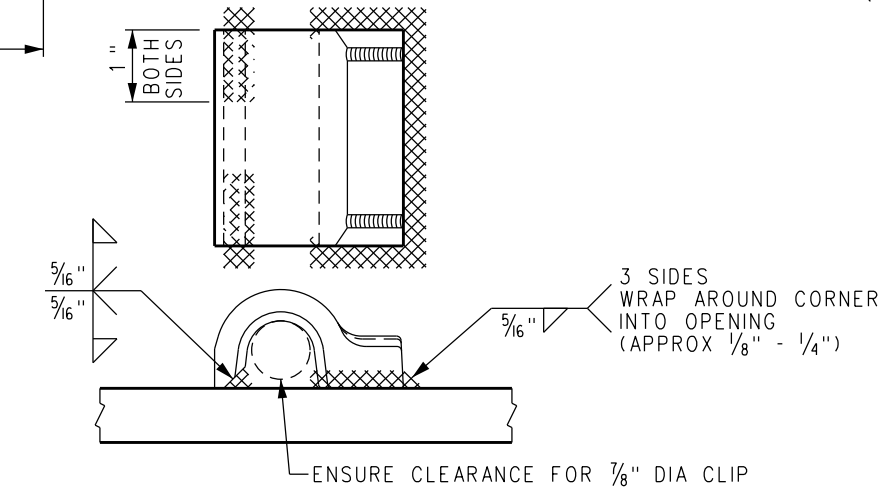
FROG BASE PLATE 10-136-34LC



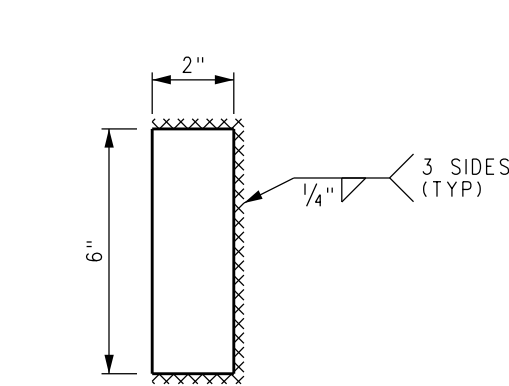
FROG BASE PLATE 10-136-37LC

NOTES:

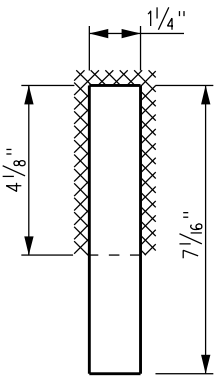
1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDERS AND STOPS AND NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.
4. SHOULDERS TO BE WELDED ON AFTER FITTING TOE BLOCK.



FORGED SHOULDER WELDING DETAIL



2" x 6" x 1/2"
STOP WELDING DETAIL



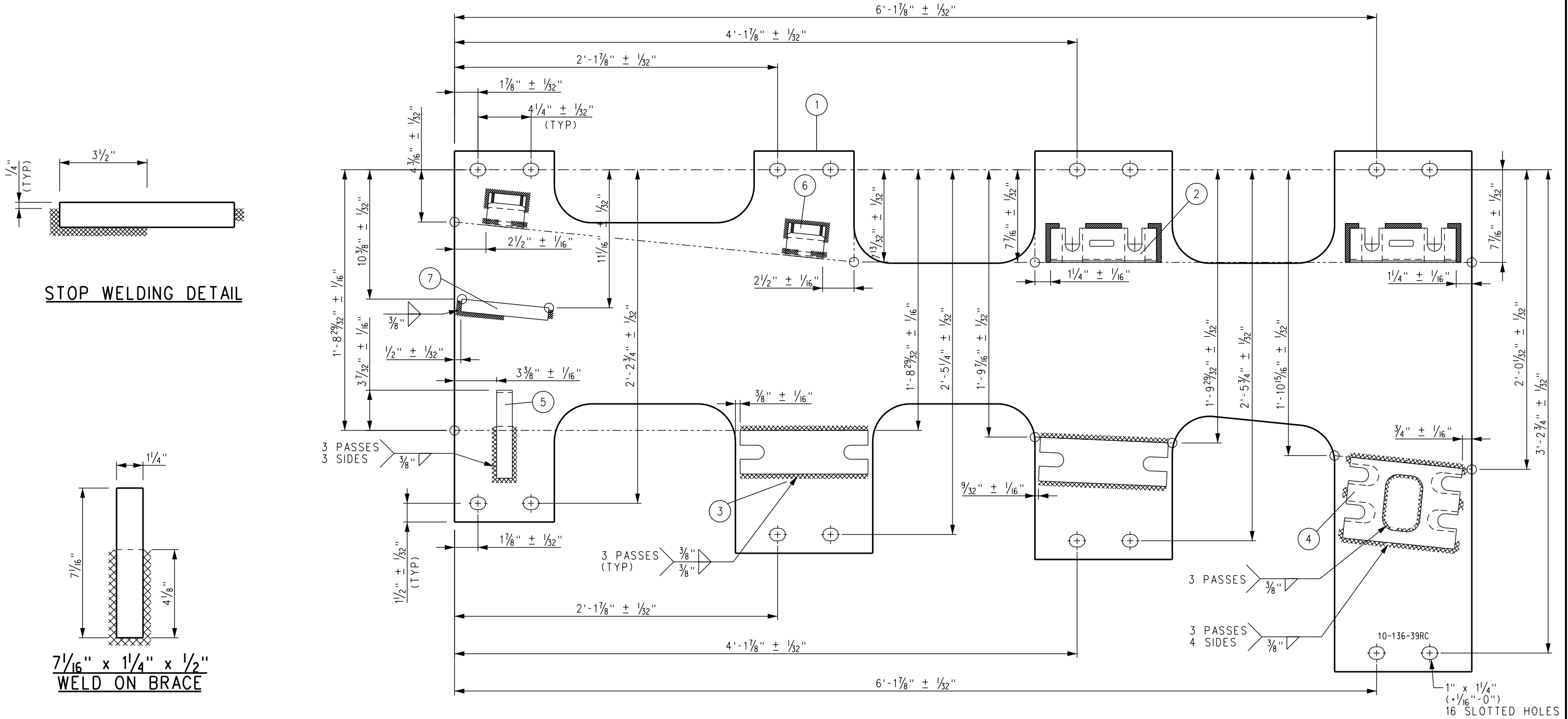
7/16" x 1 1/4" x 1/2"
132/136 LB RE BURNED BRACE

DRAWN BY: HDR DATE: 03/31/2011				SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.				ENGINEERING STANDARDS				STANDARD
Narek D. Bze				METROLINK				NO 10 WSM FROG LH				2803
ASSISTANT DIRECTOR: STANDARDS & DESIGN				SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY				FROG BASE PLATES 10-34LC AND 10-37LC				SCALE: NTS
Wilton Davis				ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012				CONCRETE TIES-136 LB RE RAIL				REVISION SHEET
DIRECTOR OF ENGINEERING AND CONSTRUCTION												1 OF 1
REV. DATE DESCRIPTION DES. ENG.												CADD FILE: ES2803-43

NOTES:

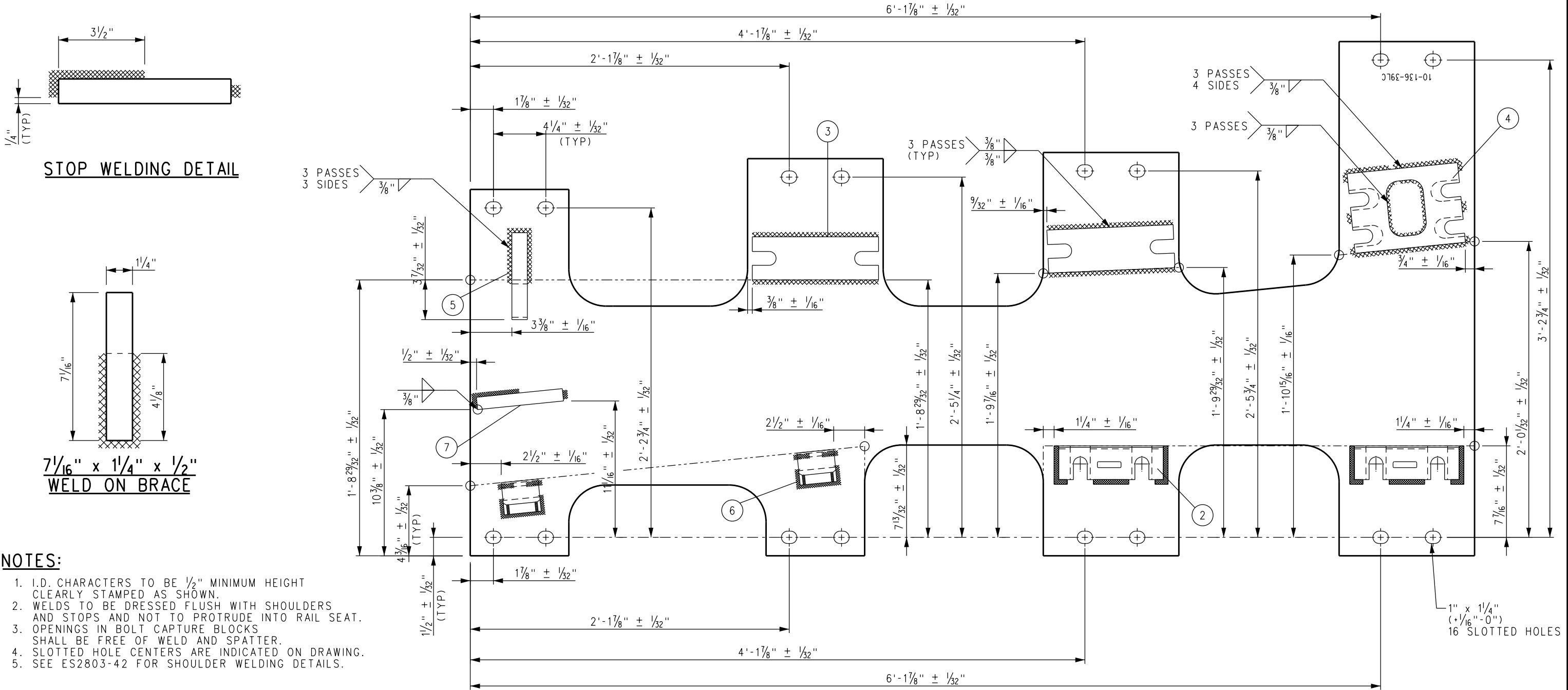
1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDERS AND STOPS AND NOT TO PROTRUDE INTO RAIL SEAT.
3. OPENINGS IN BOLT CAPTURE BLOCKS SHALL BE FREE OF WELD AND SPATTER.
4. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.
5. SEE ES2803-42 FOR SHOULDER WELDING DETAIL.

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	BURNED PLATE, 3/4" THICK	-	
2	2	CAPTURE BLOCK FOR PLATE CLIP	-	
3	2	CAPTURE BLOCK FOR HORN KEEPER	-	
4	1	CAPTURE BLOCK FOR SPRING BOX	-	
5	1	WELD ON BRACE, 7/16" x 1/4" x 1/2" THICK	-	
6	2	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	
7	1	FLAT BAR, ASTM A36, 1/2" x 7" x 1"	-	



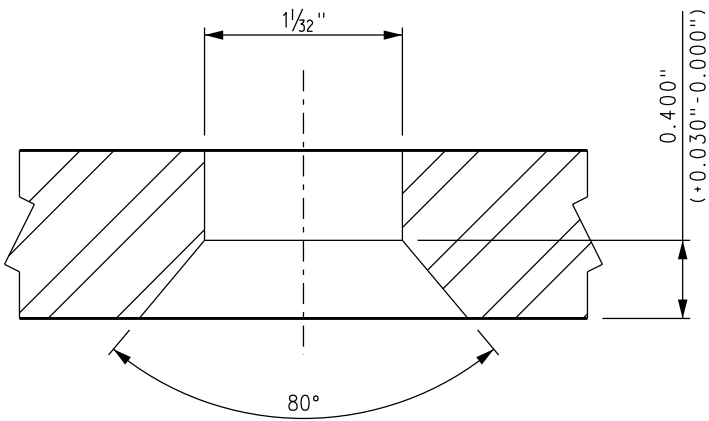
				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 10 WSM FROG RH FROG BASE PLATE 10-39RC CONCRETE TIES-136 LB RE RAIL	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-44
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	BURNED PLATE, $\frac{3}{4}$ " THICK	-	
2	2	CAPTURE BLOCK FOR PLATE CLIP	-	
3	2	CAPTURE BLOCK FOR HORN KEEPER	-	
4	1	CAPTURE BLOCK FOR SPRING BOX	-	
5	1	WELD ON BRACE $\frac{7}{16}$ " x $\frac{1}{4}$ " x $\frac{1}{2}$ " THICK	-	
6	2	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	
7	1	FLAT BAR, ASTM A36, $\frac{1}{2}$ " x 7" x 1"	-	



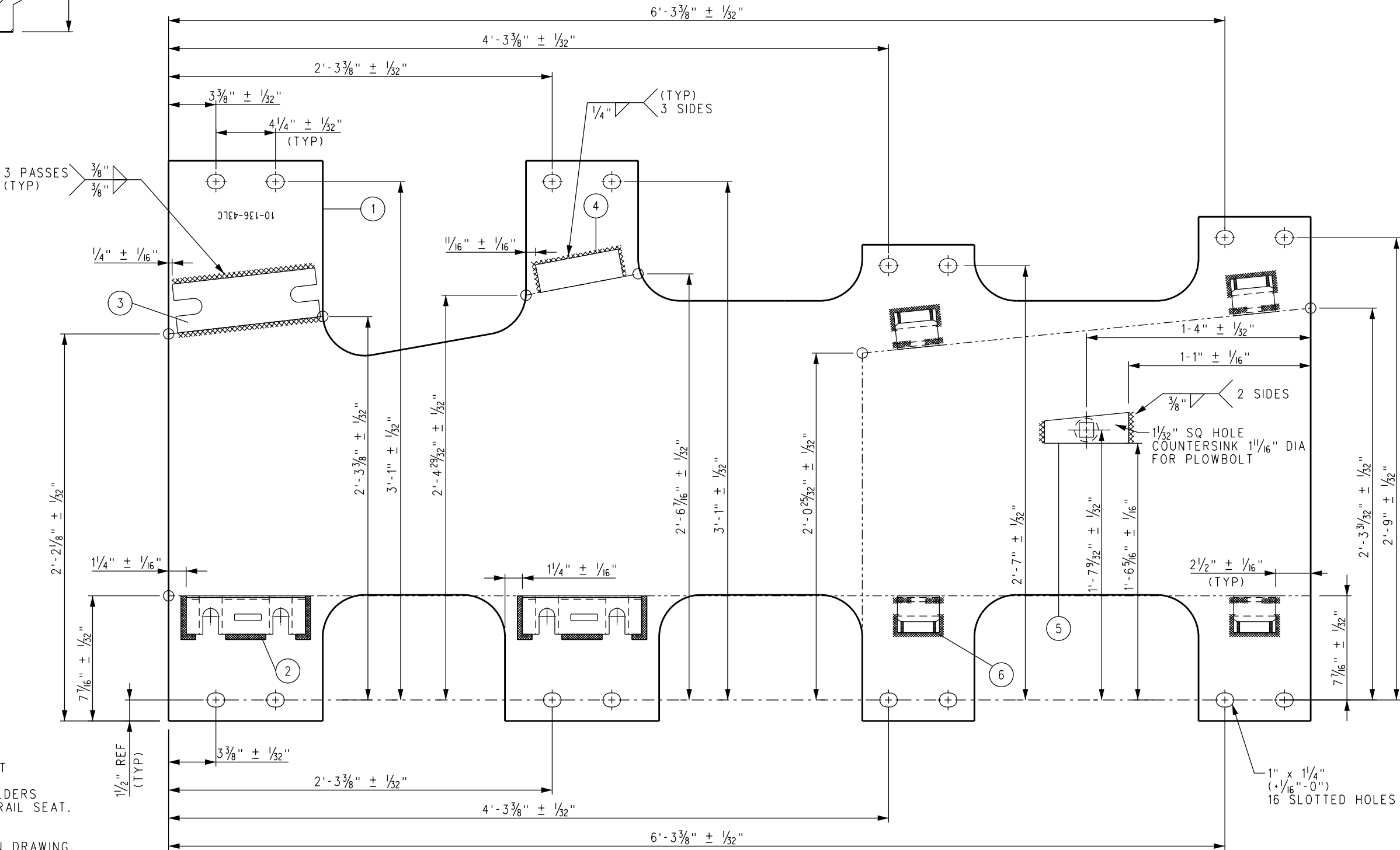
- NOTES:**
1. I.D. CHARACTERS TO BE $\frac{1}{2}"$ MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
 2. WELDS TO BE DRESSED FLUSH WITH SHOULDERS AND STOPS AND NOT TO PROTRUDE INTO RAIL SEAT.
 3. OPENINGS IN BOLT CAPTURE BLOCKS SHALL BE FREE OF WELD AND SPATTER.
 4. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.
 5. SEE ES2803-42 FOR SHOULDER WELDING DETAILS.

				DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 10 WSM FROG LH FROG BASE PLATE 10-39LC CONCRETE TIES-136 LB RE RAIL	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-45
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					



COUNTERSINK DETAIL
(PLOW BOLT)

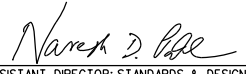
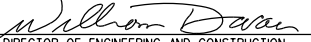
BILL OF MATERIAL					DWG NO	SCRRA PART NO
ITEM	QTY	DESCRIPTION				
1	1	BURNED PLATE, 3/4" THICK			-	
2	2	CAPTURE BLOCK FOR PLATE CLIP			-	
3	1	CAPTURE BLOCK FOR HORN KEEPER			-	
4	1	FLAT BAR, ASTM A36, 1/2" THICK x 2" x 6" LONG			-	
5	1	STOP 6" x 1 19/32" x 2 7/32" x 7/16" THICK			-	
6	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1			-	



NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDERS AND STOPS AND NOT TO PROTRUDE INTO RAIL SEAT.
3. OPENINGS IN BOLT CAPTURE BLOCKS SHALL BE FREE OF WELD AND SPATTER.
4. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.
5. SEE ES2803-42 FOR SHOULDER WELDING DETAIL.

REV.	DATE	DESCRIPTION	DES.	ENG.
X	XX-XX-XX	REVISION	XX	XX

DRAWN BY:	HDR	DATE:	03/31/2011
			
ASSISTANT DIRECTOR: STANDARDS & DESIGN			
			
DIRECTOR OF ENGINEERING AND CONSTRUCTION			

SCRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRA APPROVED USES ONLY. FOR NON-SCRRA APPROVED USES, SCRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRA. ALL RIGHTS RESERVED.



METROLINK

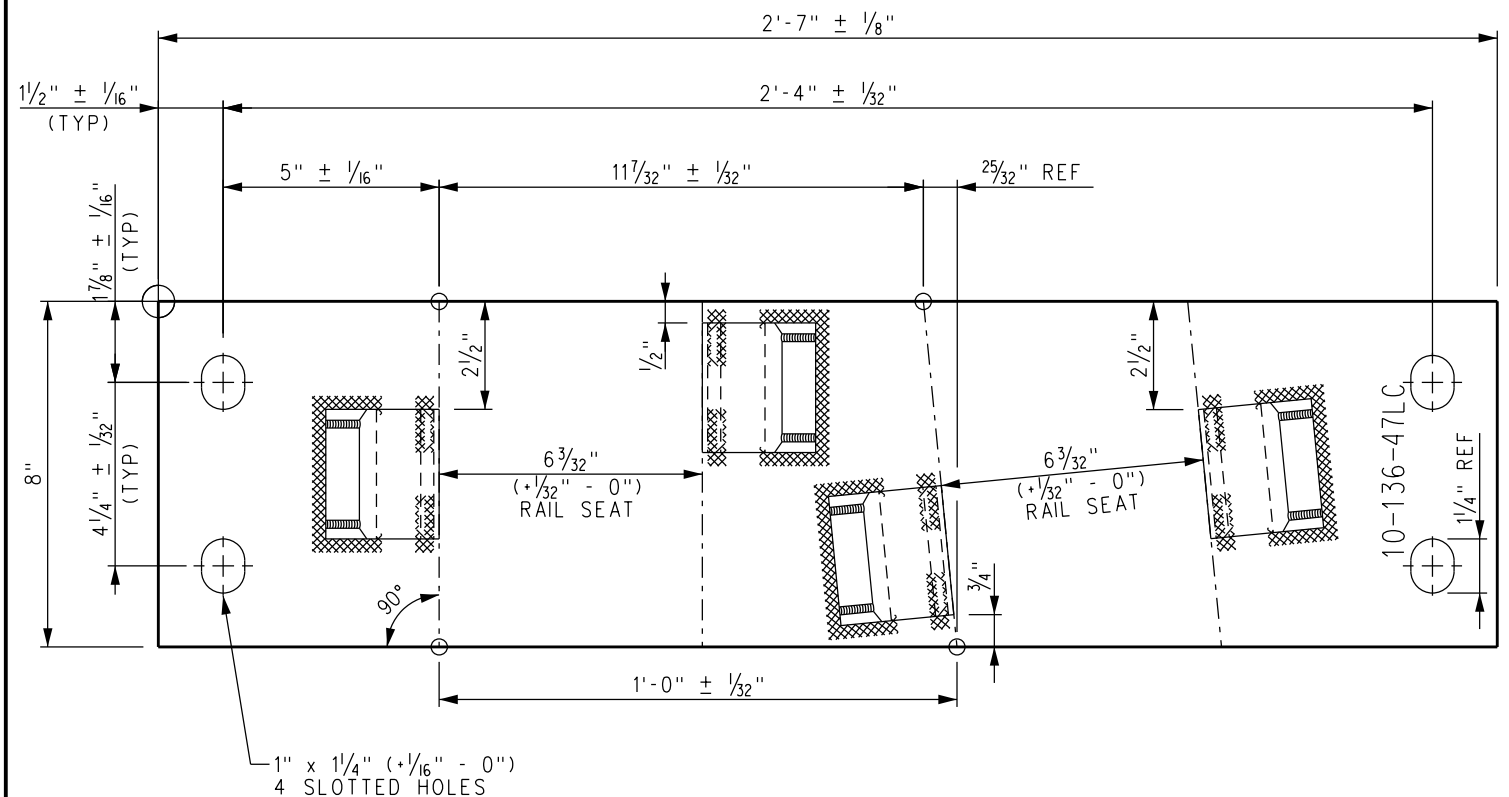
SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS

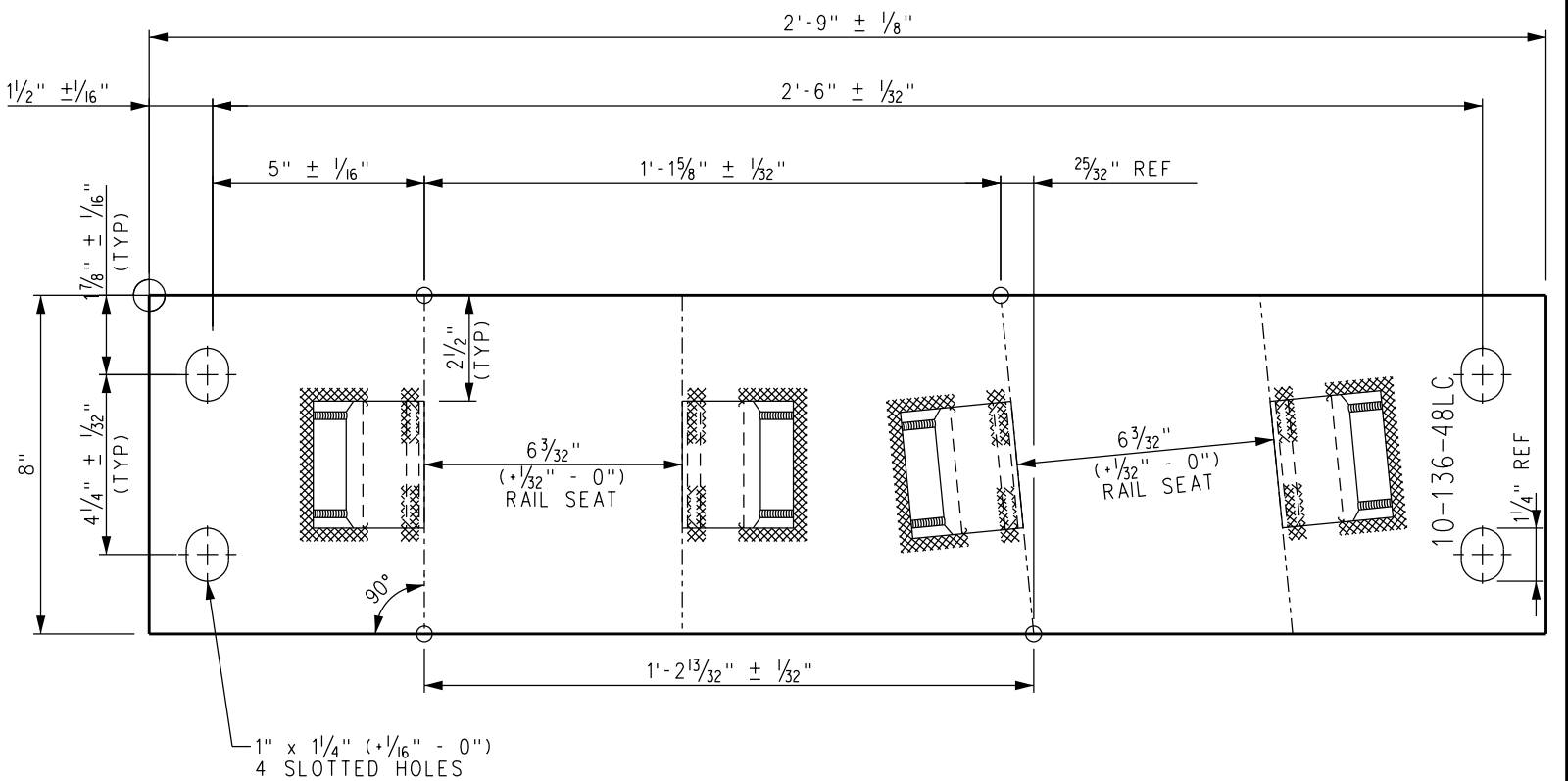
NO 10 WSM FROG LH
FROG BASE PLATE 10-43LC
CONCRETE TIES-136 LB RE RAIL

STANDARD	2803
SCALE:	NTS
REVISION	SHEET
-	1 OF 1
CADD FILE:	ES2803-47

BILL OF MATERIAL					
ITEM	QTY FOR 10-47LC	QTY FOR 10-48LC	DESCRIPTION	DWG NO	SCRRRA PART NO
1	0	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-9" LONG	-	
2	4	4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1	-	
3	1	0	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-7" LONG	-	



FROG BASE PLATE 10-136-47LC

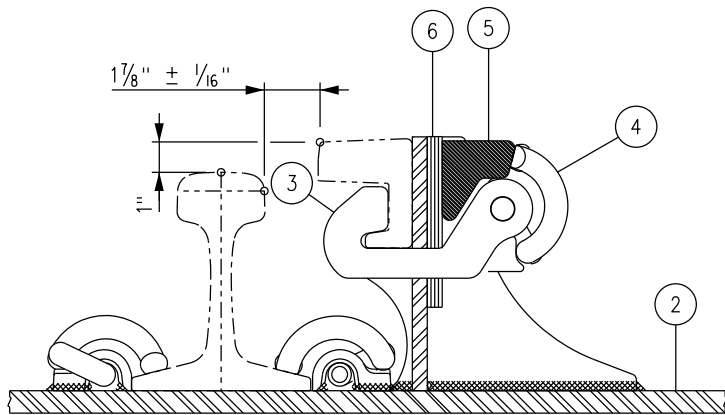


FROG BASE PLATE 10-136-48LC

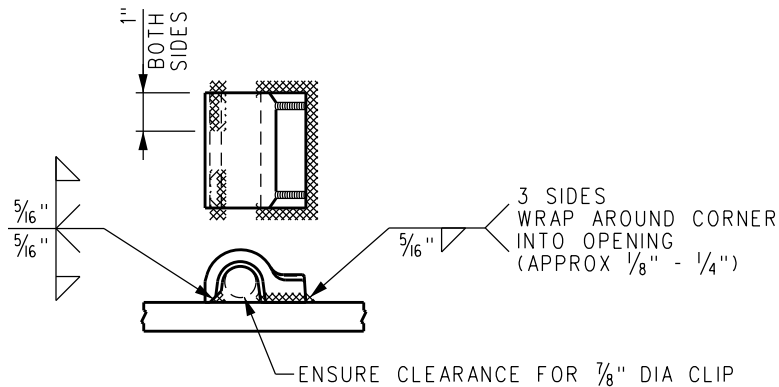
NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER & NOT TO PROTRUDE INTO RAIL SEAT.
3. SEE ES2803-42 FOR SHOULDER WELDING DETAILS.

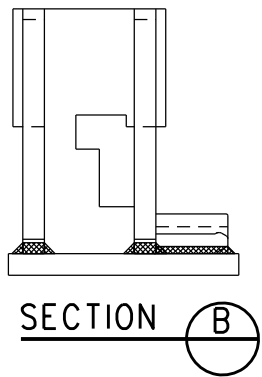
				DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 10 WSM FROG LH FROG BASE PLATES 10-47LC AND 10-48LC CONCRETE TIES-136 LB RE RAIL	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-49
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					



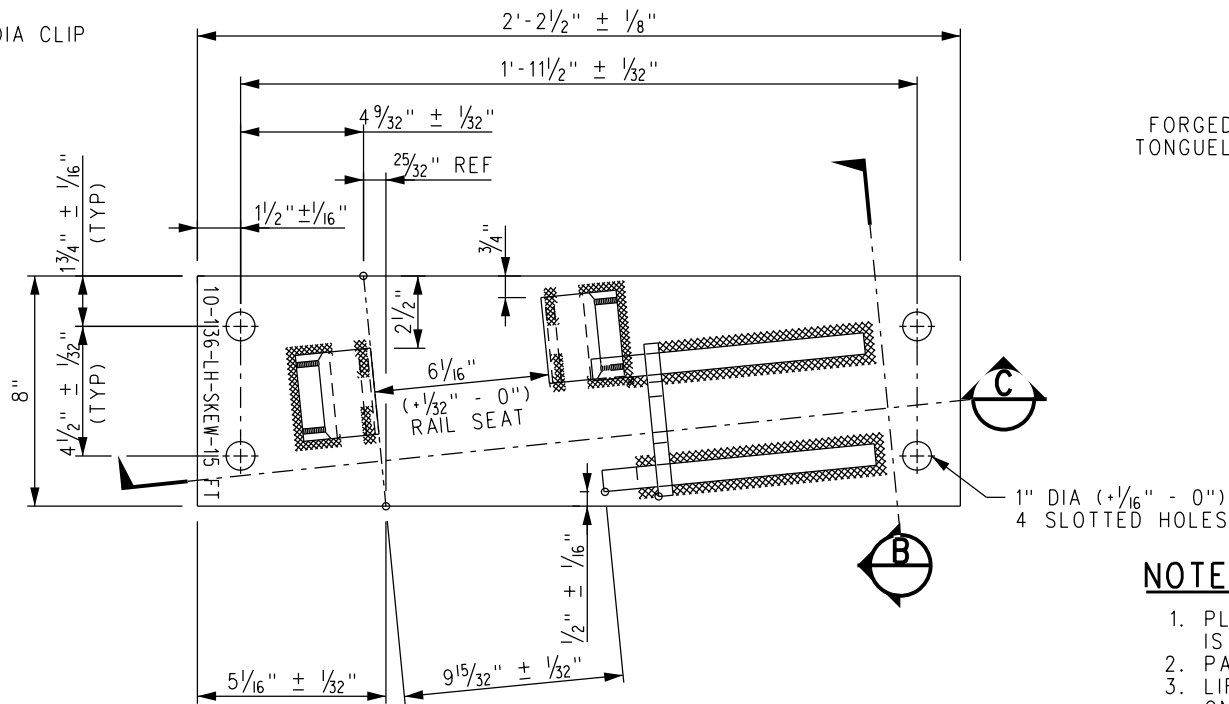
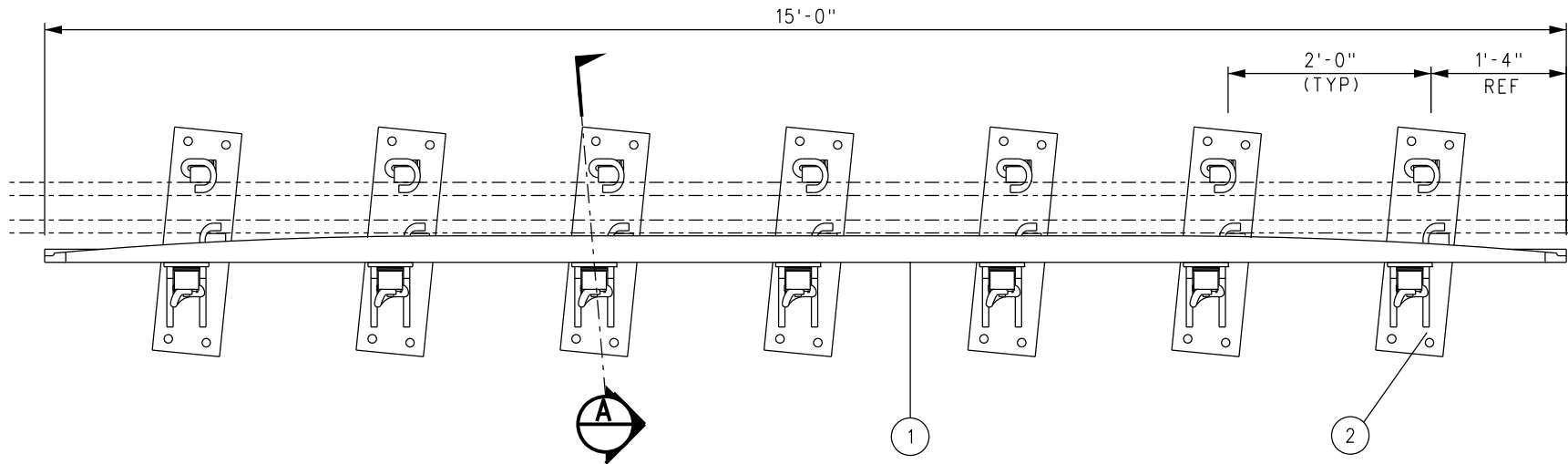
PARTIAL SECTION
GUARD RAIL HARDWARE ASSEMBLY



FORGED SHOULDER WELDING DETAIL

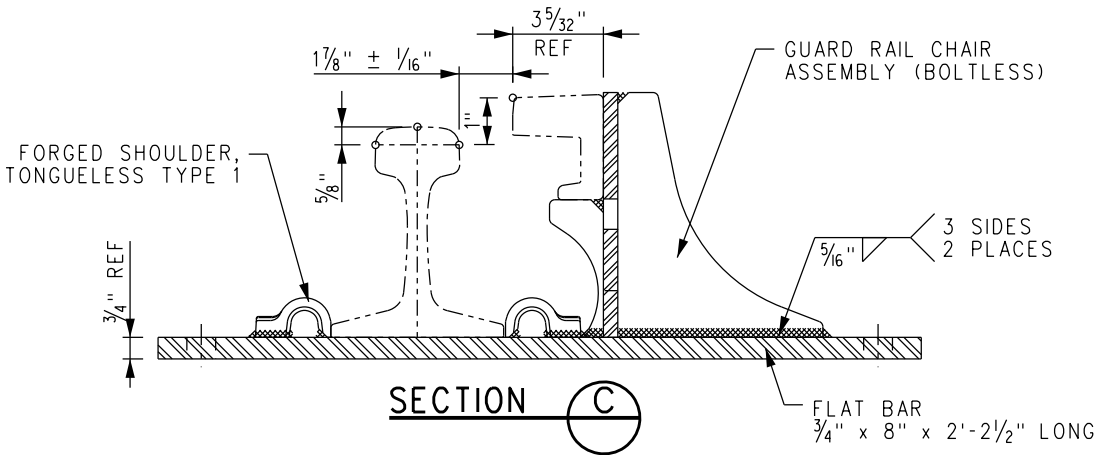


SECTION B



GUARD RAIL PLATE ASSEMBLY

BILL OF MATERIAL				DWG NO	SCRR PART NO
ITEM	QTY	DESCRIPTION			
1	1	GUARD BAR, UIC33 1200 SERIES x 15'-0" LONG		-	
2	7	GUARD RAIL PLATE ASSEMBLY, RAISED 1", LH SKEWED		-	
3	7	H-CLAMP		-	
4	21	CLIP, PANDROL, E2055		-	
5	7	LOCKING BLOCK		-	
6	28	SHIM, 1/8" x 3" x 6"		-	

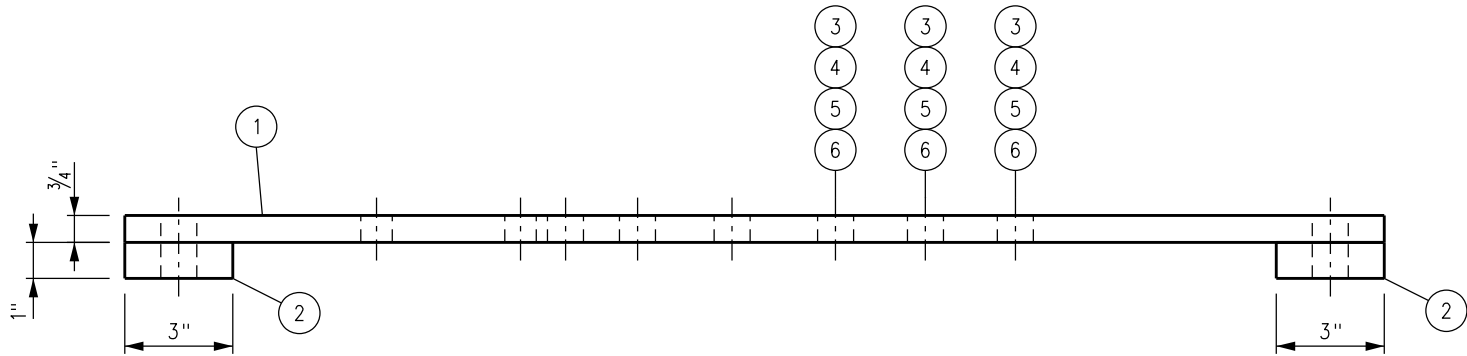
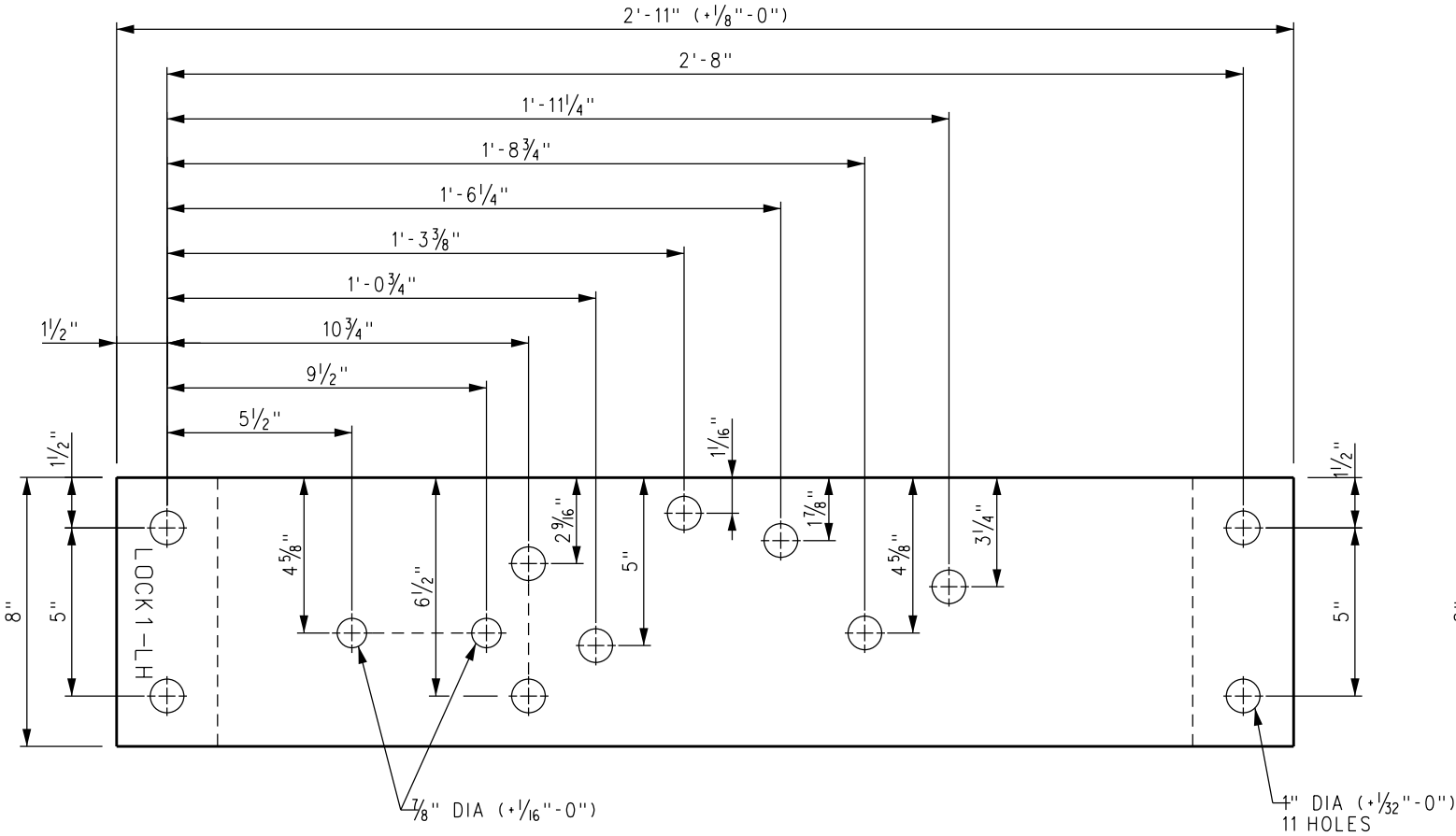


NOTES:

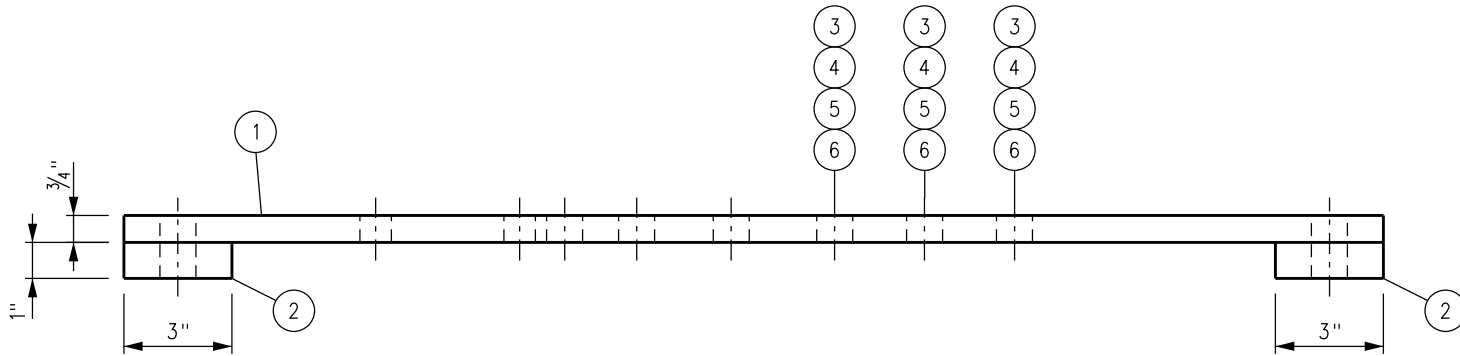
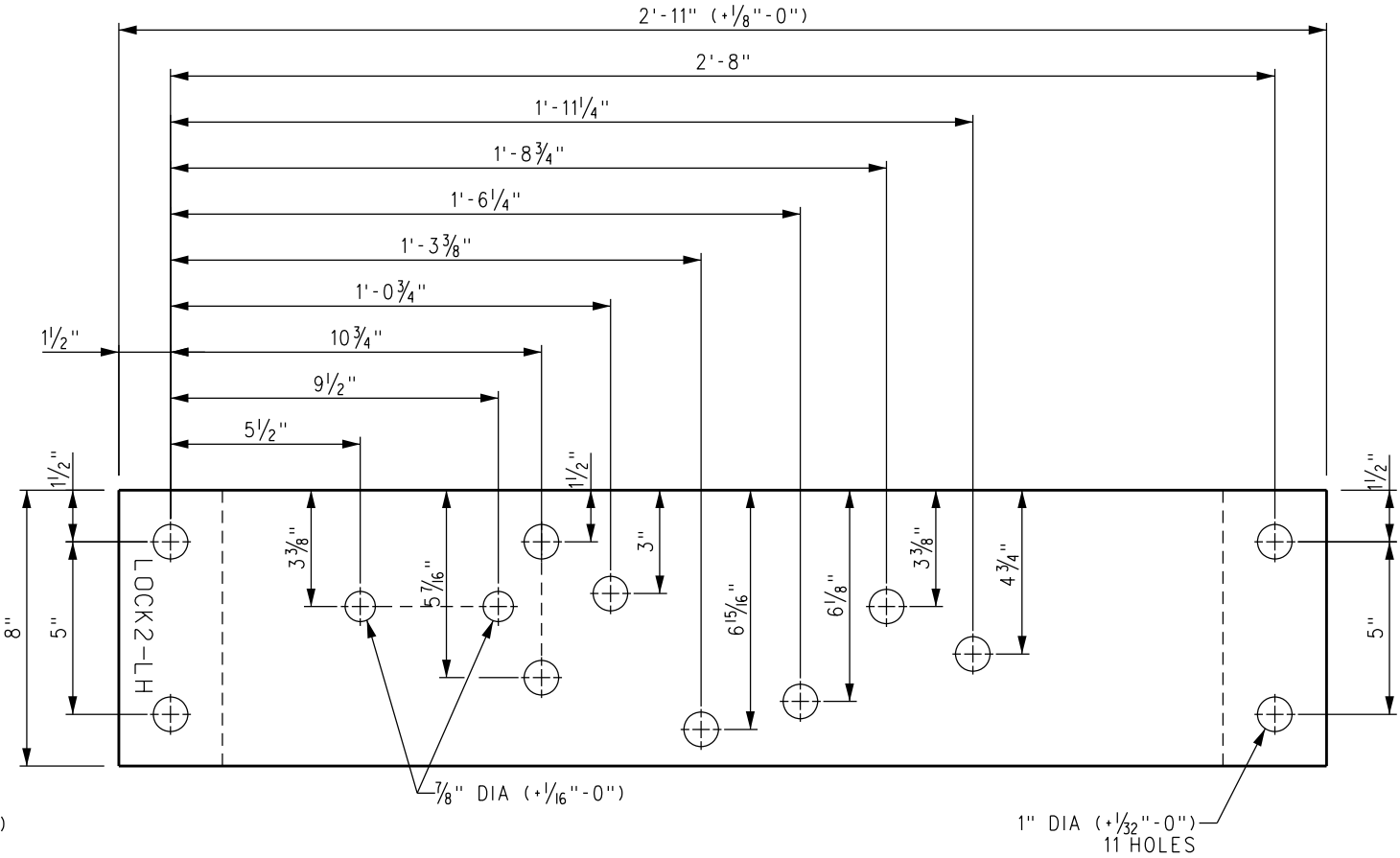
1. PLATE SPACING IS SET FOR SHIPPING ONLY. FINAL PLATE SPACING IS TO BE DETERMINED BY TIE SPACING AT TIME OF INSTALLATION.
2. PANDROL SPRING CLIPS (E2055) TO BE INCLUDED IN ASSEMBLY.
3. LIFT POINTS AND WEIGHT OF ASSEMBLY TO BE MARKED ON HEAD OF WEAR BAR WITH WHITE PAINT.
4. PLATE IS TO BE STAMPED WITH PLATE I.D. WITH 1/2" HIGH CHARACTERS AS SHOWN.
5. GRIND AWAY CORNER OF PANDROL SHOULDER TO CLEAR FOOT OF CHAIR ASSEMBLY.
6. SEE ES2800-50 FOR STRAIGHT SIDE GUARD RAIL.

				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS NO 10 GUARD RAIL ASSEMBLY, LH SKEWED WITH PLATES 15'-0" LONG, BOLTLESS, RAISED 1" CONCRETE TIES - 136 LB RE RAIL, 1-7/8" FLANGEWAY	STANDARD 2803 SCALE: NTS REVISION SHEET 1 OF 1 CADD FILE: ES2803-51
X	XX-XX-XX	REVISION	XX	XX					
REV.	DATE	DESCRIPTION	DES.	ENG.					

BILL OF MATERIAL					
ITEM	QTY FOR LOCK1-LH	QTY FOR LOCK2-LH	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-11" LONG	-	
2	2	2	FILLER PLATE - 1" x 8" x 3"	-	
3	3	3	BOLT HEX 7/8"-9UNC-2A x 3 1/2" LONG	-	
4	3	3	NUT HEAVY HEX 7/8" UNC J995-GR8	-	
5	3	3	WASHER FLAT 7/8" DIA BOLT	-	
6	3	3	WASHER SPRING 7/8" SQ EDGE	-	



LOCK1-LH



LOCK2-LH

NOTES:

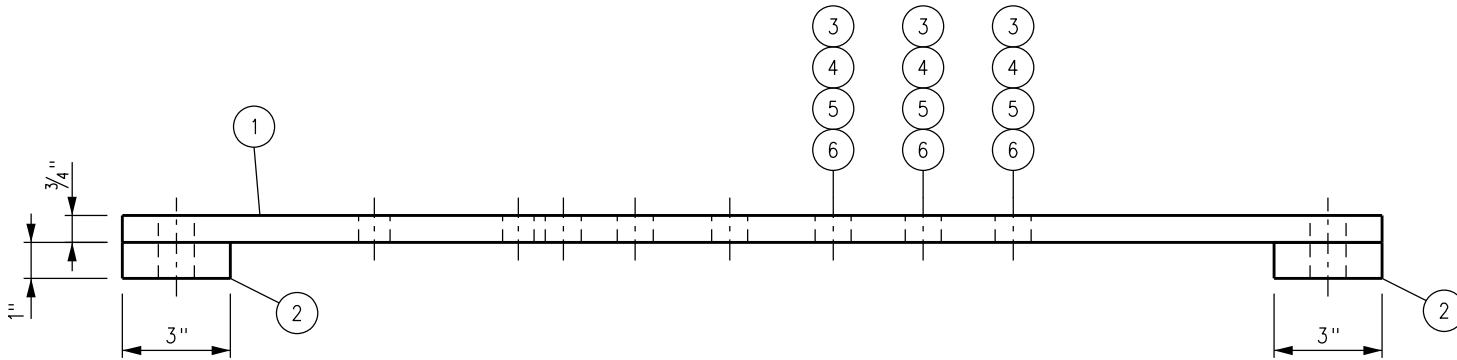
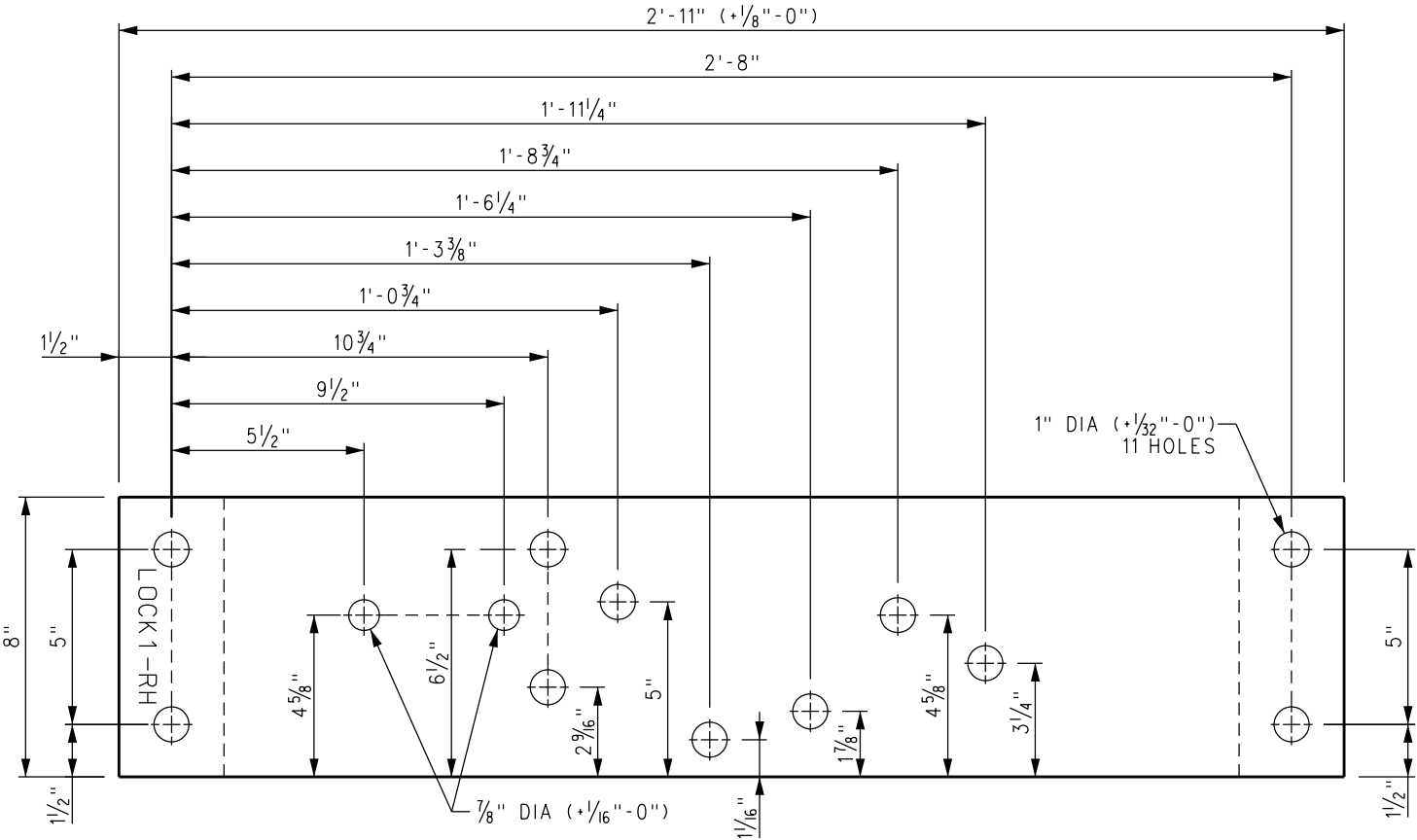
1. ALL TOLERANCES $\pm \frac{1}{32}$ " UNLESS OTHERWISE SPECIFIED.
2. STAMP PLATE I.D. CLEARLY AS SHOWN.
3. HARDWARE TO COME FULL ATTACHED TO PLATE.

				DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES, SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS LH SWITCH STAND ADAPTER PLATES FOR 36E SWITCH STAND NO 10-136 LB RE SPRING FROG FOR TURNOUT WITH ELECTRIC LOCK		STANDARD 2803
X	XX-XX-XX	REVISION	XX	XX						SCALE: NTS
REV.	DATE	DESCRIPTION	DES.	ENG.						REVISION SHEET - 1 OF 1 CADD FILE: ES2803-56

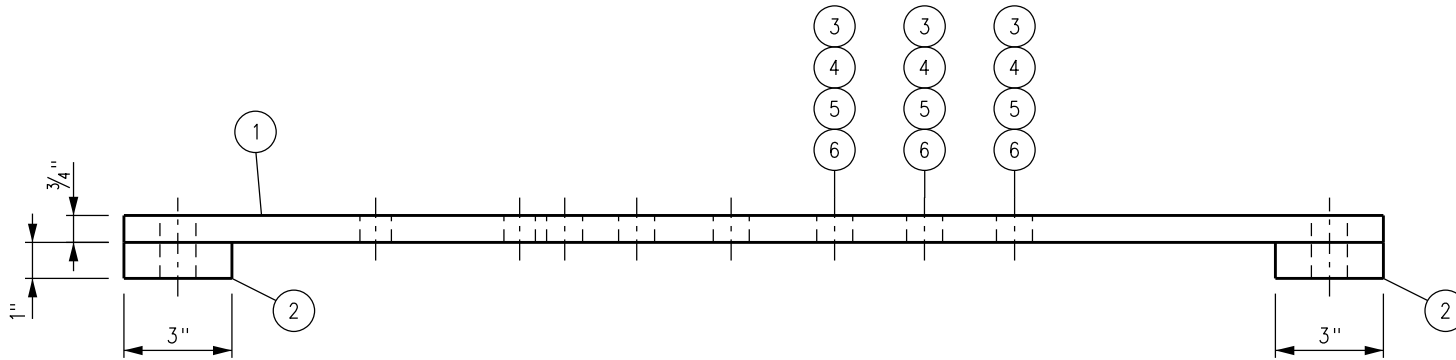
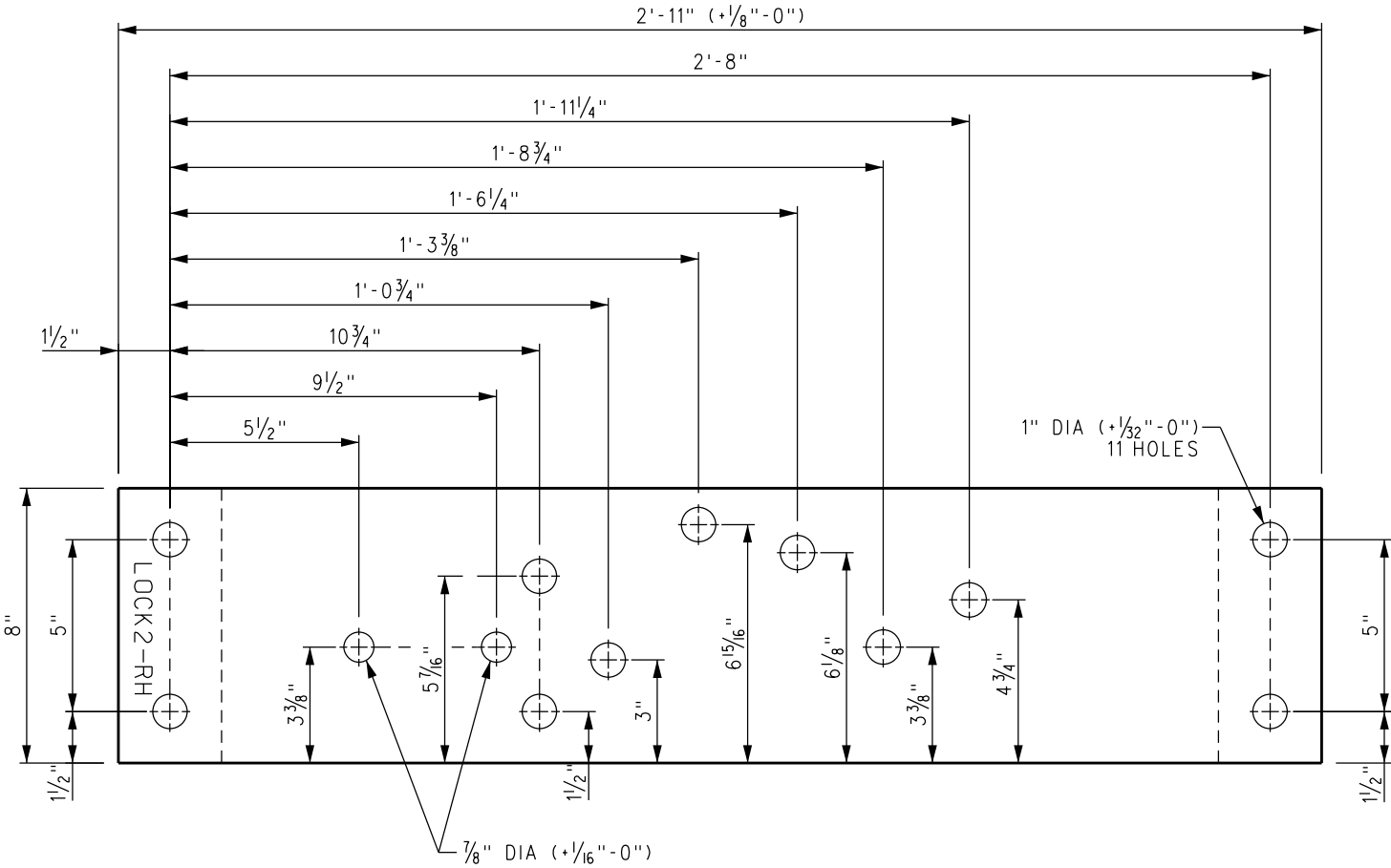
NOTES:

1. ALL TOLERANCES $\pm \frac{1}{32}$ " UNLESS OTHERWISE SPECIFIED.
2. STAMP PLATE I.D. CLEARLY AS SHOWN.
3. HARDWARE TO COME FULL ATTACHED TO PLATE.

BILL OF MATERIAL					
ITEM	QTY FOR LOCK1-RH	QTY FOR LOCK2-RH	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	1	FLAT BAR, ASTM A36, $\frac{3}{4}$ " x 8" x 2'-11" LONG	-	
2	2	2	FILLER PLATE - 1" x 8" x 3"	-	
3	3	3	BOLT HEX $\frac{7}{8}$ "-9UNC-2A x $3\frac{1}{2}$ " LONG	-	
4	3	3	NUT HEAVY HEX $\frac{7}{8}$ " UNC J995-GR8	-	
5	3	3	WASHER FLAT $\frac{7}{8}$ " DIA BOLT	-	
6	3	3	WASHER SPRING $\frac{7}{8}$ " SQ EDGE	-	



LOCK1-RH



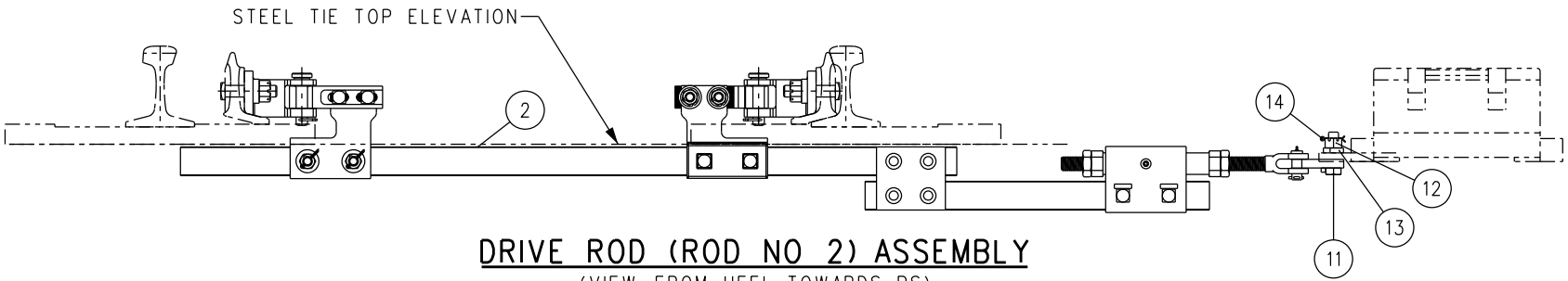
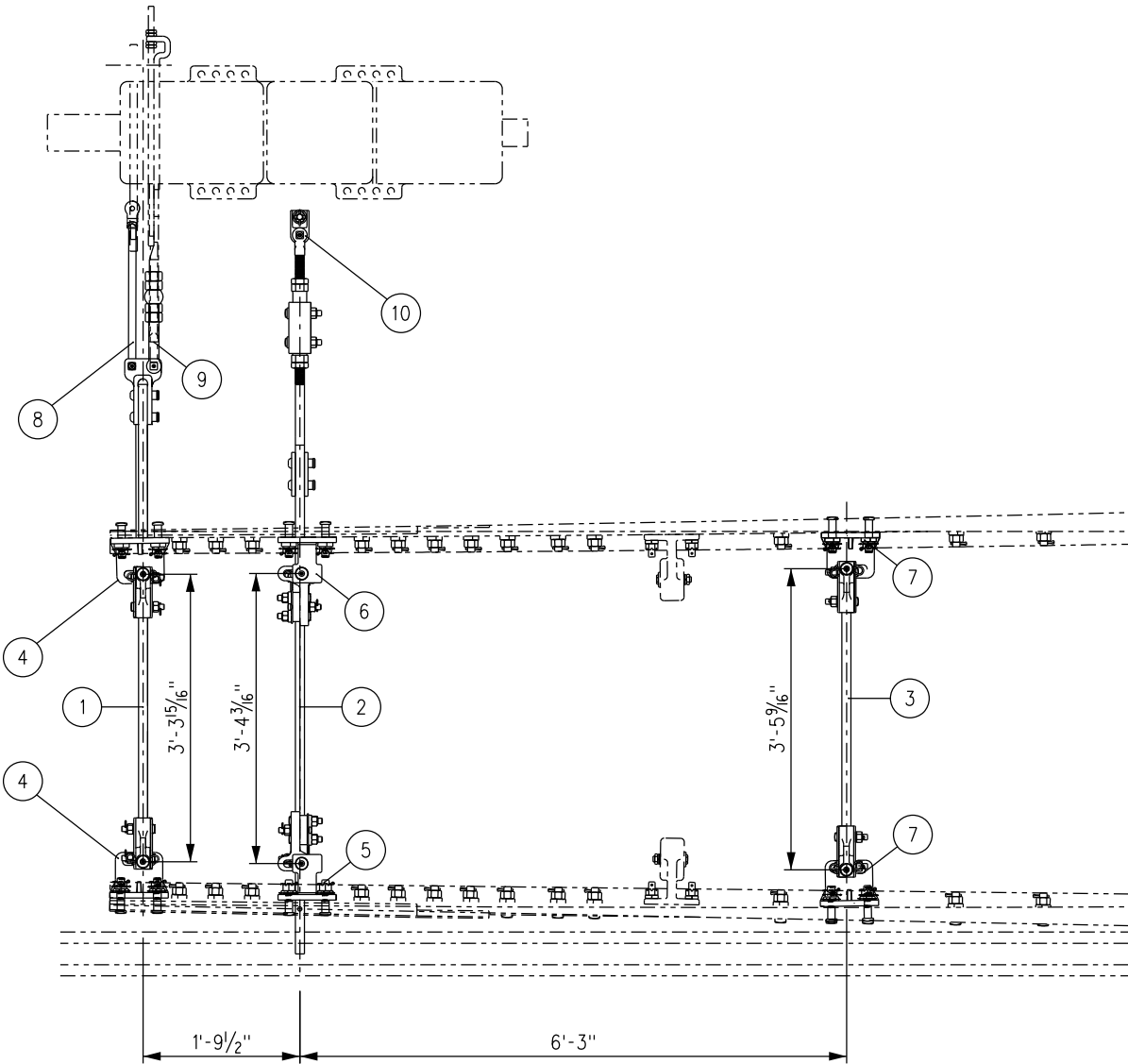
LOCK2-RH

				DRAWN BY: HDR DATE: 03/31/2011		<div>SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.</div> <div> METROLINK[®]</div> <div>SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012</div>	ENGINEERING STANDARDS RH SWITCH STAND ADAPTER PLATES FOR 36E SWITCH STAND NO 10-136 LB RE SPRING FROG FOR TURNOUT WITH ELECTRIC LOCK		STANDARD 2803 SCALE: NTS REVISION SHEET - 1 OF 1 CADD FILE: ES2803-57			
X	XX-XX-XX	REVISION	XX	XX								
REV.	DATE	DESCRIPTION	DES.	ENG.								

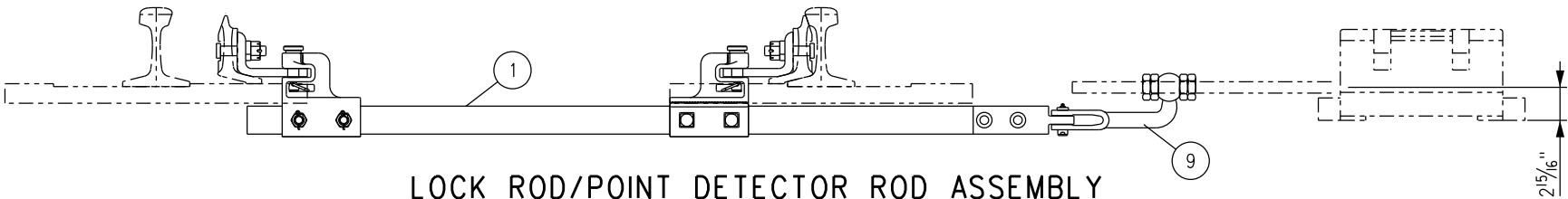
NOTE: CENTER TO CENTER PIN
DIMENSION REQUIRED FOR
4 3/4" THROW

ROD #	C-C PIN DEMINSION
1	3'-3 15/16"
2	3'-4 3/16"
3	3'-5 9/16"

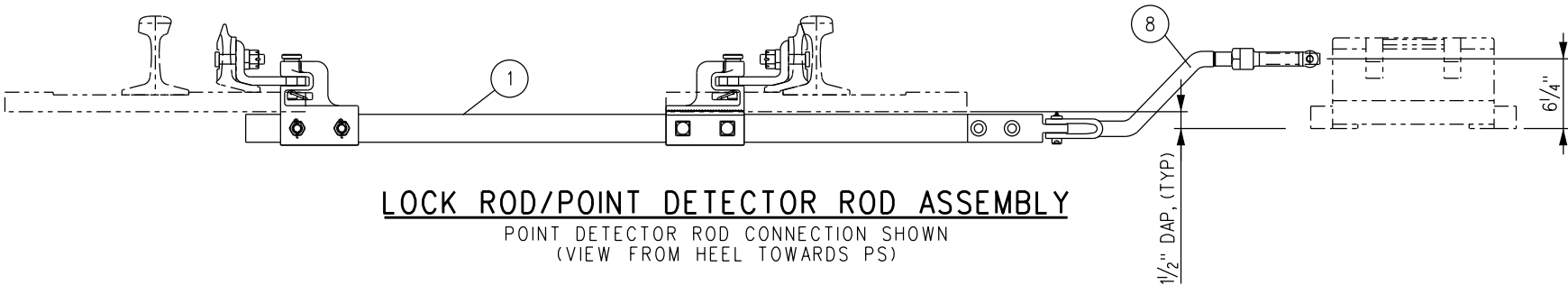
BILL OF MATERIAL				
ITEM	QTY	DESCRIPTION	DWG NO	SCRR PART NO
1	1	FRONT ROD FOR POINT DETECTOR/LOCK RODS NO 10-136-1	ES2803-73	
2	1	SWITCH ROD NO 10-136-2	ES2803-73	
3	1	SWITCH ROD NO 10-136-3	ES2803-73	
4	2	ROD POINT BRACKET ASSEMBLY, 136 LB RE HOLES @ 2 7/8" ABOVE RAIL BASE	-	
5	1	ROD POINT BRACKET FOR HST, ANTI-ROLL, HOLES @ 2 7/8" ABOVE RAIL BASE, LH	-	
6	1	ROD POINT BRACKET FOR HST, ANTI-ROLL, HOLES @ 2 7/8" ABOVE RAIL BASE, RH	-	
7	2	ROD POINT BRACKET ASSY	-	
8	1	POINT DETECTOR	-	
9	1	LOCK ROD, CONNECTOR, FOR US&S M23 SWITCH MACHINE	-	
10	1	DROP LUG FOR US&S M23 SWITCH MACHINE DRIVE BAR	-	
11	1	BOLT, 7/8" DIA x 3" LONG, DRILLED 2 9/16" BELOW HEAD, HEAVY HEX, GR 5	-	
12	1	NUT, 7/8" DIA SLOTTED HEAVY HEX, GR 8	-	
13	1	SPRING WASHER, 7/8" DIA	-	
14	1	COTTER PIN, 3/16" DIA x 1 3/4" LONG	-	



DRIVE ROD (ROD NO 2) ASSEMBLY
(VIEW FROM HEEL TOWARDS PS)



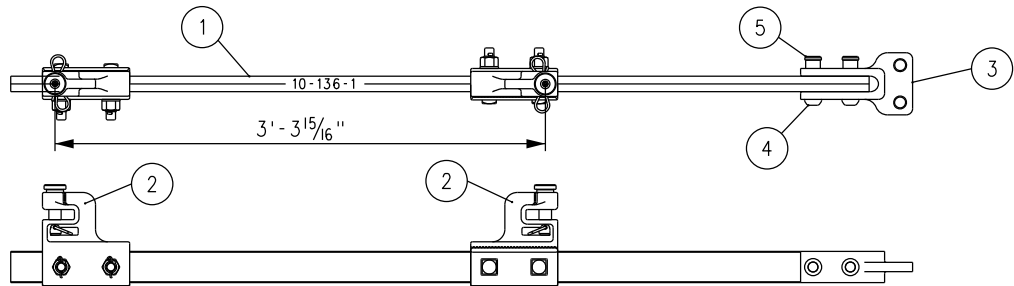
LOCK ROD/POINT DETECTOR ROD ASSEMBLY
LOCK ROD CONNECTION SHOWN
(VIEW FROM HEEL TOWARDS PS)



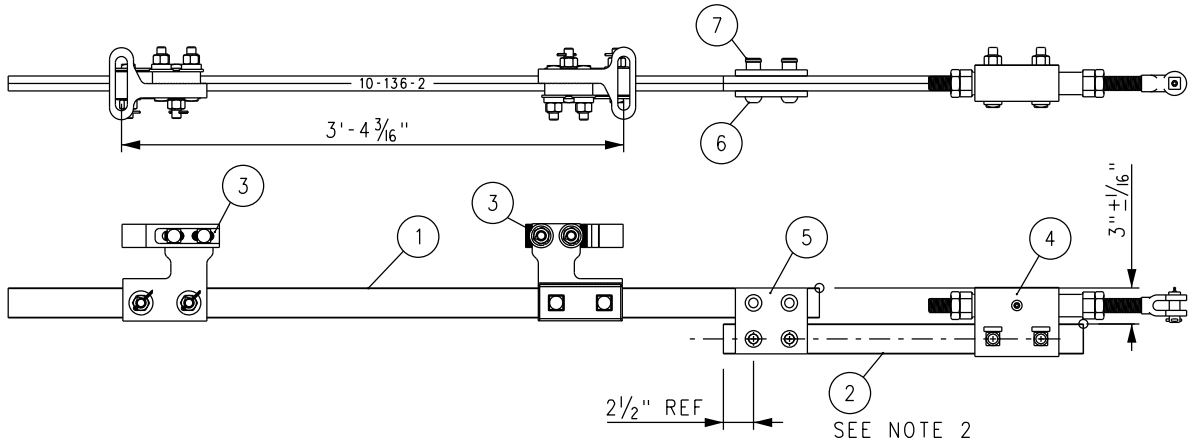
LOCK ROD/POINT DETECTOR ROD ASSEMBLY
POINT DETECTOR ROD CONNECTION SHOWN
(VIEW FROM HEEL TOWARDS PS)

				DRAWN BY: HDR DATE: 03/31/2011		SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS		STANDARD
X	XX-XX-XX	REVISION	XX	XX				HOLLOW STEEL TIE RODDING ASSEMBLY SWITCH MACHINE ON LEFT HAND SIDE NO 10-136 LB RE SPRING FROG TURNOUT		2803
REV.	DATE	DESCRIPTION	DES.	ENG.						SCALE: NTS
				Narek D. Bae ASSISTANT DIRECTOR: STANDARDS & DESIGN		Nelson Davis DIRECTOR OF ENGINEERING AND CONSTRUCTION				REVISION SHEET
										1 OF 1
										CADD FILE: ES2803-71

BILL OF MATERIAL FOR SWITCH ROD 10-136-1					BILL OF MATERIAL FOR SWITCH ROD 10-136-2				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO	ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH ROD 10-136-1	-		1	1	SWITCH ROD HALF 10-136-2A	-	
2	2	SWITCH CLIP ASSEMBLY, ADJUSTABLE, FOR HOLLOW TIE COMPOSITE RODS	-		2	1	SWITCH ROD HALF 2-B	-	
3	1	CONNECTOR LUG FOR POINT DETECTOR/LOCK RODS	-		3	2	CLIP/LUG ASSEMBLY, HST SWITCH, ANTI-ROLLOVER DESIGN	-	
4	2	HUCK BOLT, 3/4" DIA (C50LR-BR24-36)	-		4	1	ROD THROW FRONT AND BASKET ASSY, FOR HOLLOW TIE	-	
5	2	HUCK COLLAR, 3/4" DIA (LC-2R24B)	-		5	2	SPLICE PLATE	-	
					6	4	HUCK BOLT, 3/4" DIA (C50LR-BR24-36)	-	
					7	4	HUCK COLLAR, 3/4" DIA (LC-2R24B)	-	

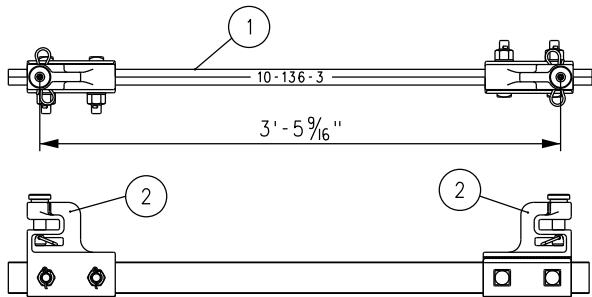


SWITCH ROD ASSEMBLY 10-136-1



SWITCH ROD ASSEMBLY 10-136-2

BILL OF MATERIAL FOR SWITCH ROD 10-136-3				
ITEM	QTY	DESCRIPTION	DWG NO	SCRRRA PART NO
1	1	SWITCH ROD 10-136-3	-	
2	2	SWITCH CLIP ASSEMBLY, ADJUSTABLE, FOR HOLLOW TIE	-	

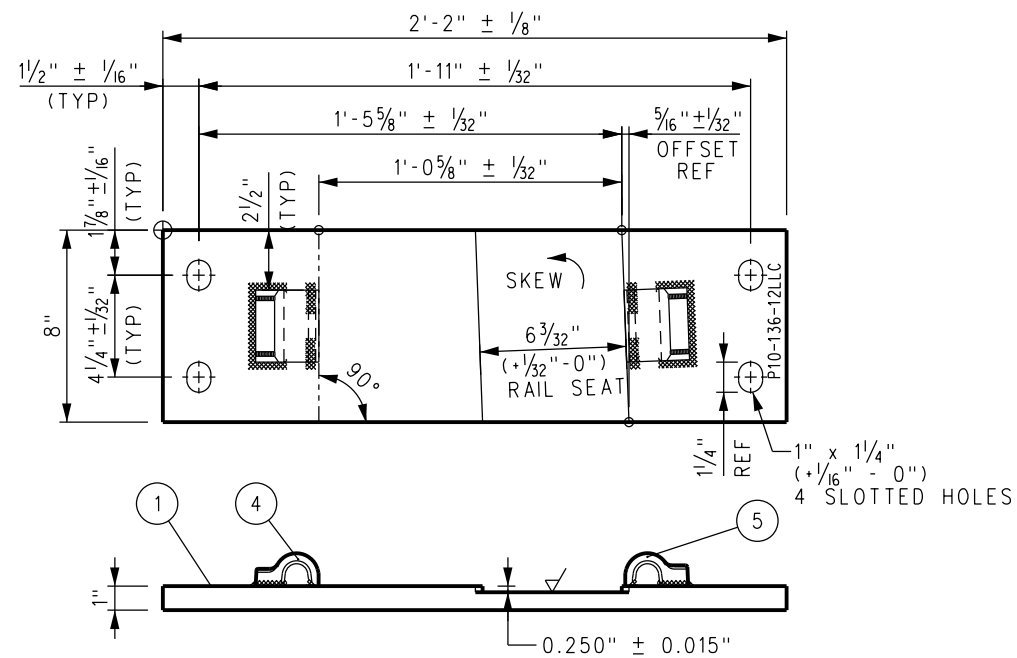


SWITCH ROD ASSEMBLY 10-136-3

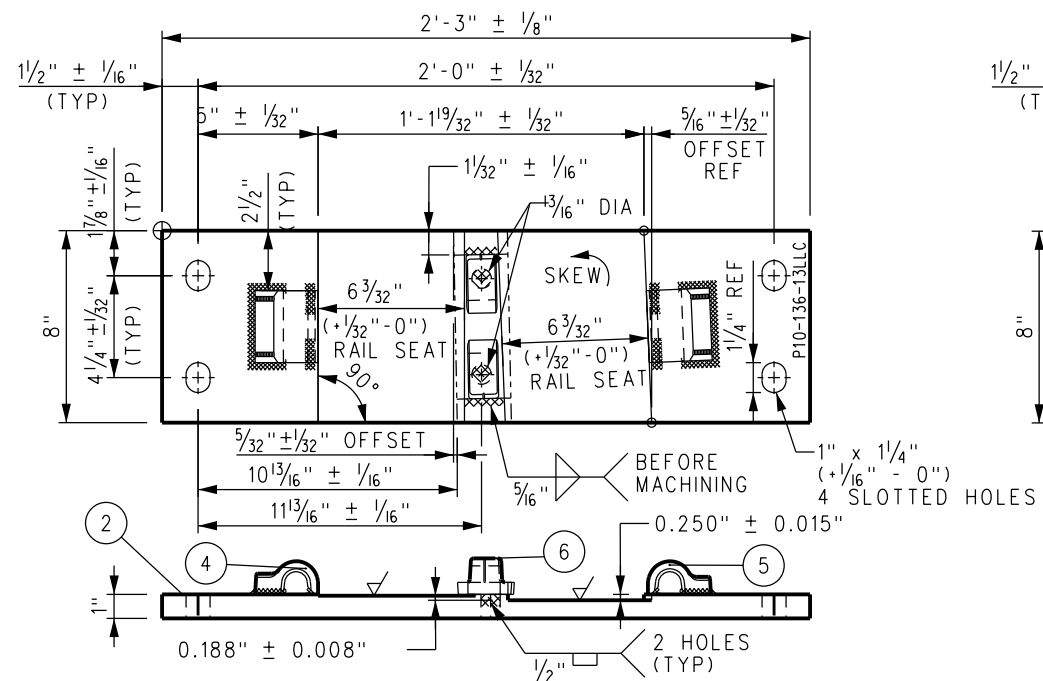
NOTES:

1. ROD IDENTIFICATION TO BE ENGRAVED ON ROD CLEARLY AS SHOWN, 3/8" MIN HEIGHT.
2. SWITCH RODS MUST BE PARALLEL WITHIN 1/16" OVER LENGTH OF 2-B ROD.

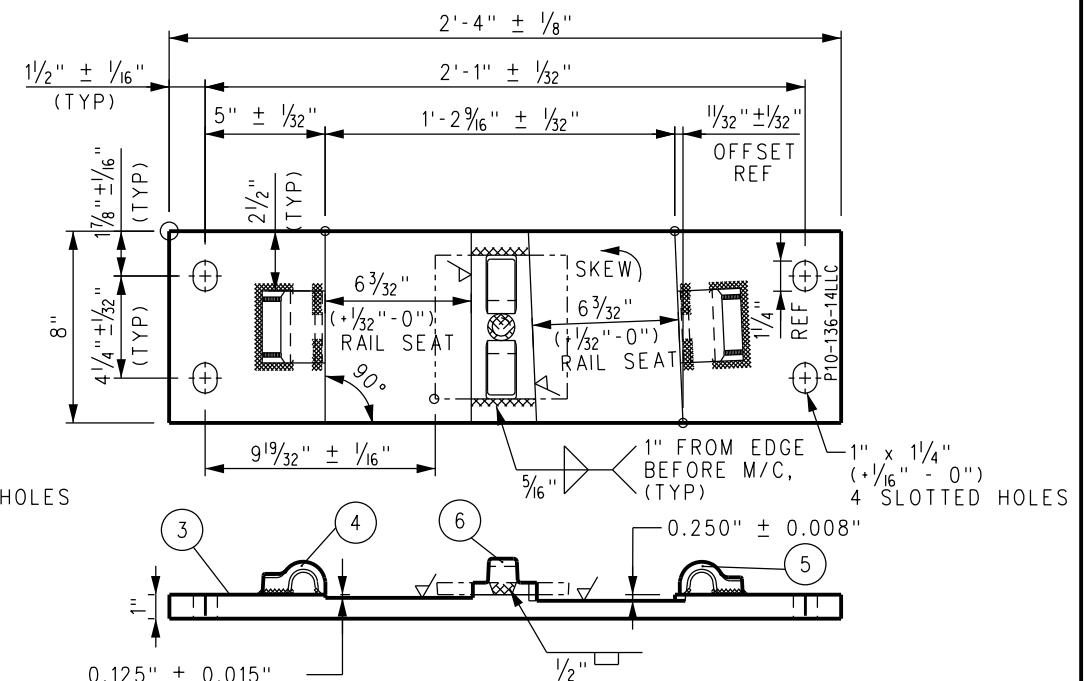
				DRAWN BY: HDR DATE: 03/31/2011		SCRRRA ENGINEERING STANDARDS ARE INTENDED FOR SCRRRA APPROVED USES ONLY. FOR NON-SCRRRA APPROVED USES: SCRRRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRRRA. ALL RIGHTS RESERVED.	 METROLINK SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012	ENGINEERING STANDARDS		STANDARD
X	XX-XX-XX	REVISION	XX	XX				HOLLOW STEEL TIE SWITCH RODS 10-1, 10-2 AND 10-3 NO 10-136 LB RE		2803
REV.	DATE	DESCRIPTION	DES.	ENG.						SCALE: NTS
										REVISION SHEET - 1 OF 1
										CADD FILE: ES2803-73



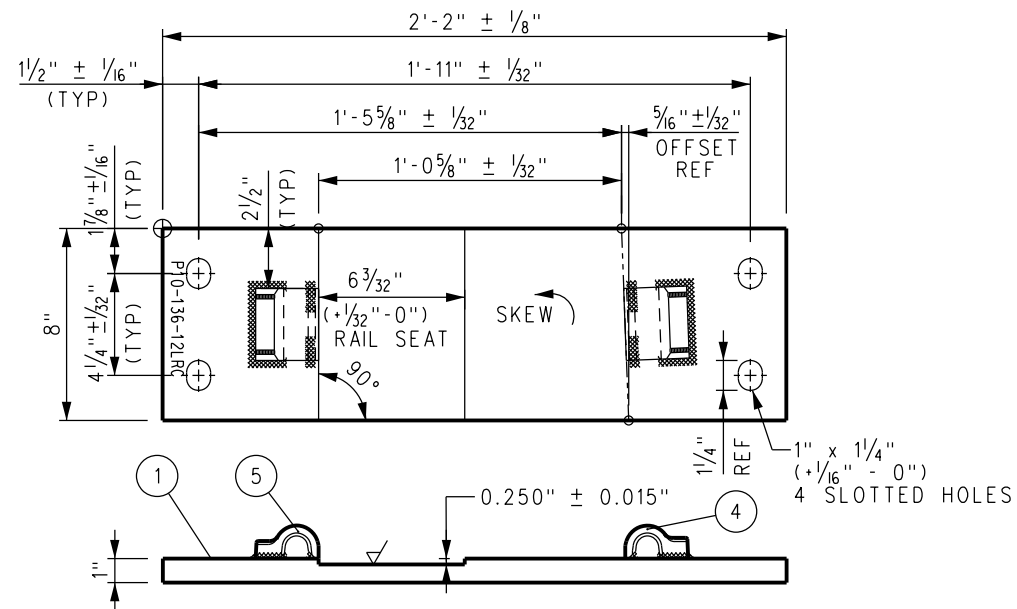
SWITCH PLATE P10-136-12LLC



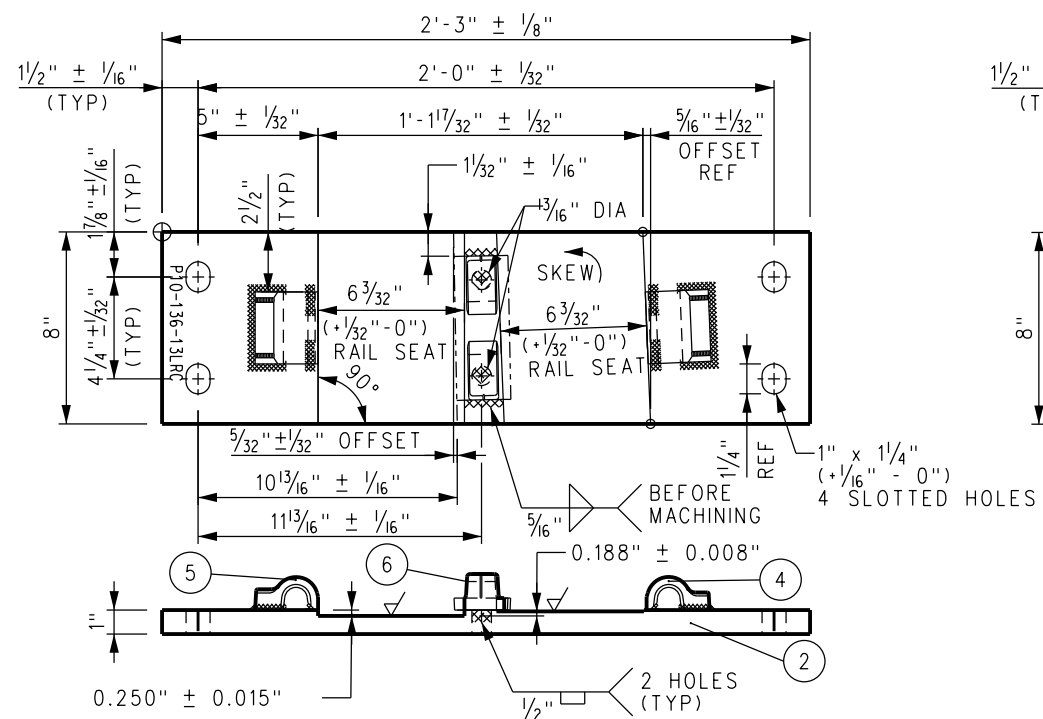
SWITCH PLATE P10-136-13LLC



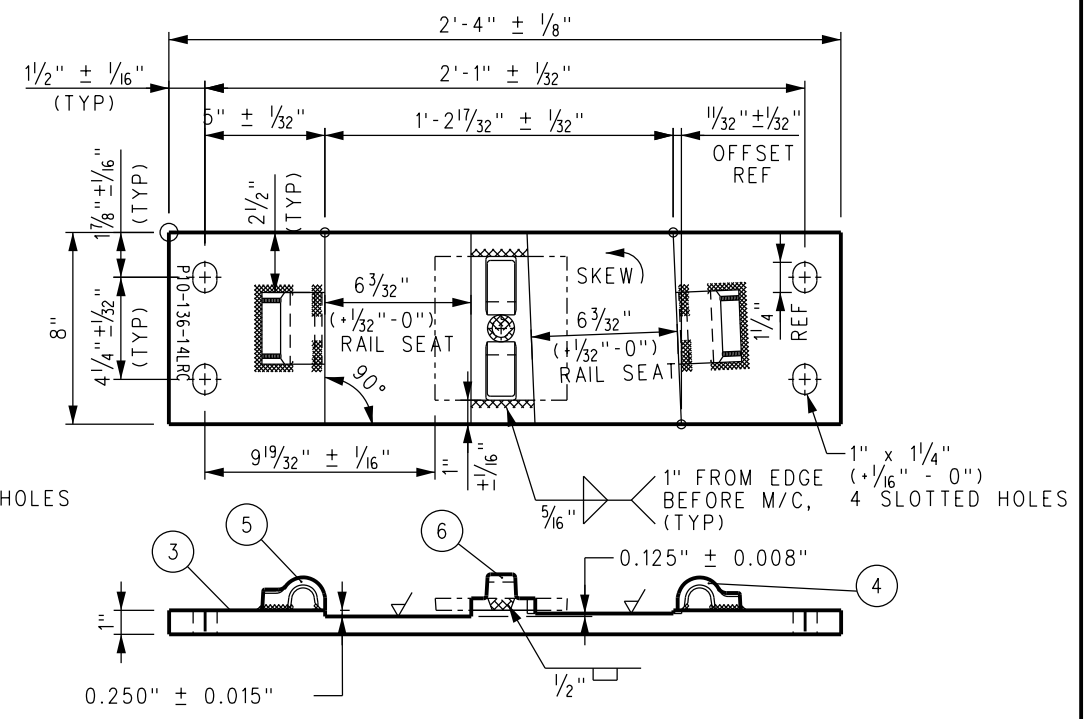
SWITCH PLATE P10-136-14LLC



SWITCH PLATE P10-136-12LRC



SWITCH PLATE P10-136-13LRC



SWITCH PLATE P10-136-14LRC

BILL OF MATERIALS				
ITEM	DESCRIPTION			
1	FLAT BAR, ASTM A36, 1" x 8" x 2'-2" LONG			
2	FLAT BAR, ASTM A36, 1" x 8" x 2'-3" LONG			
3	FLAT BAR, ASTM A36, 1" x 8" x 2'-4" LONG			
4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1			
5	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 5			
6	STOP WITH INTEGRAL T-BOLT HOLD DOWN			

NOTES:

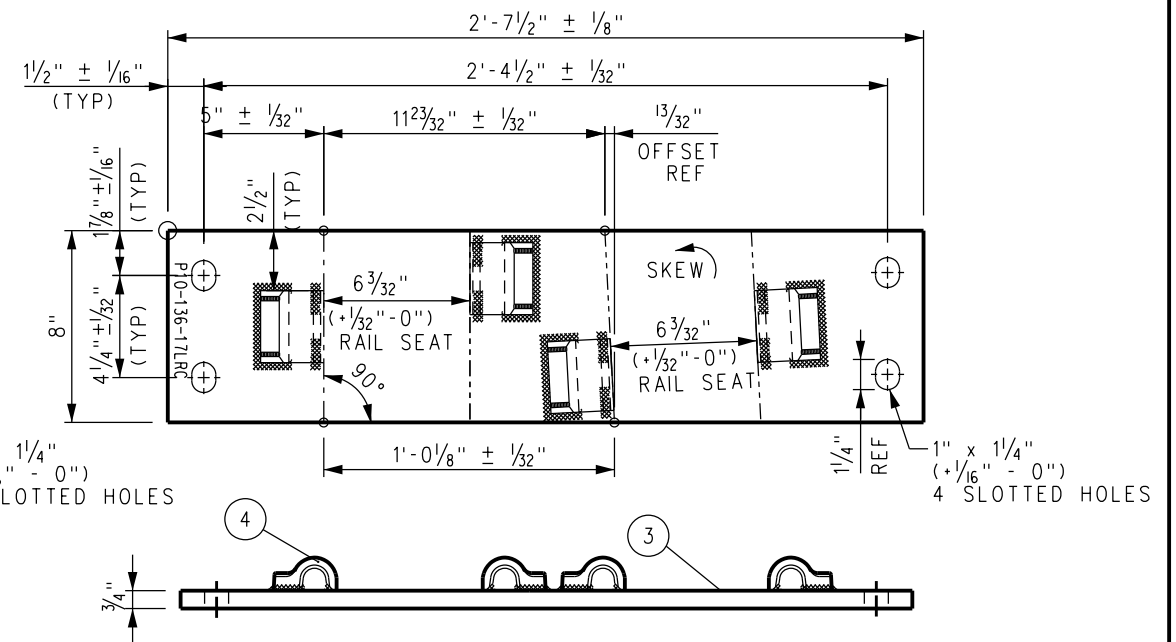
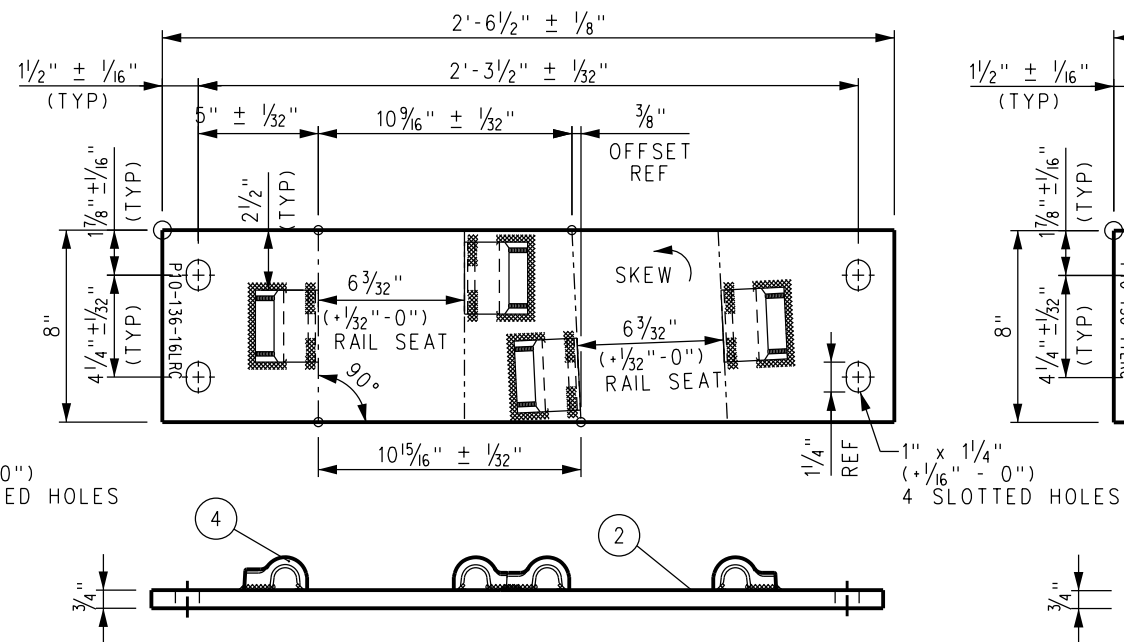
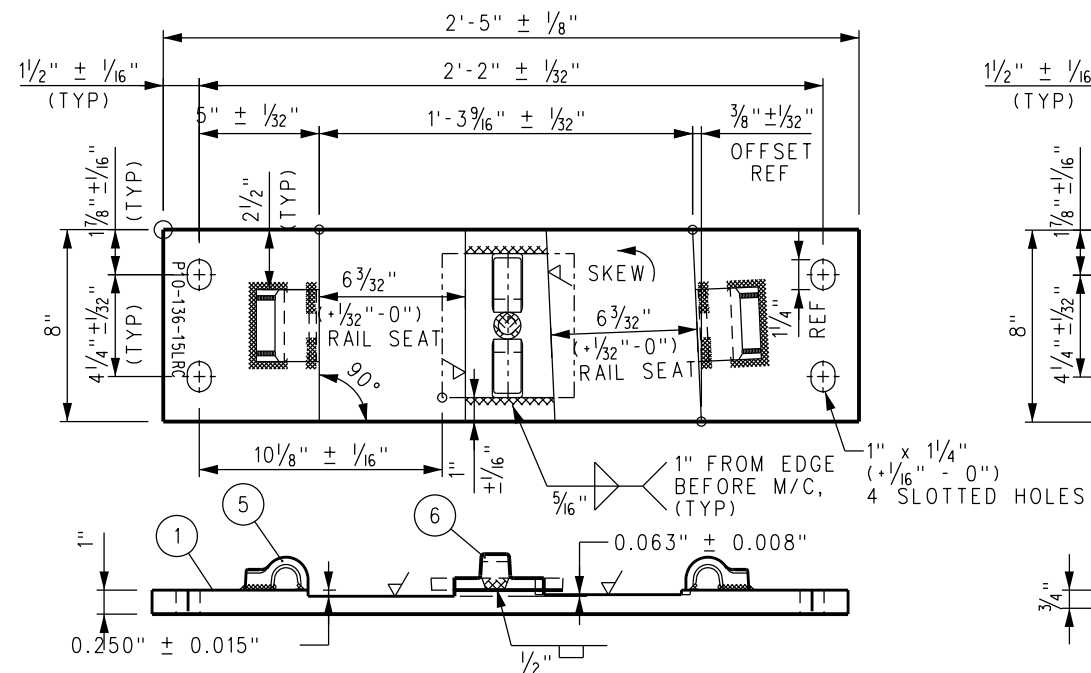
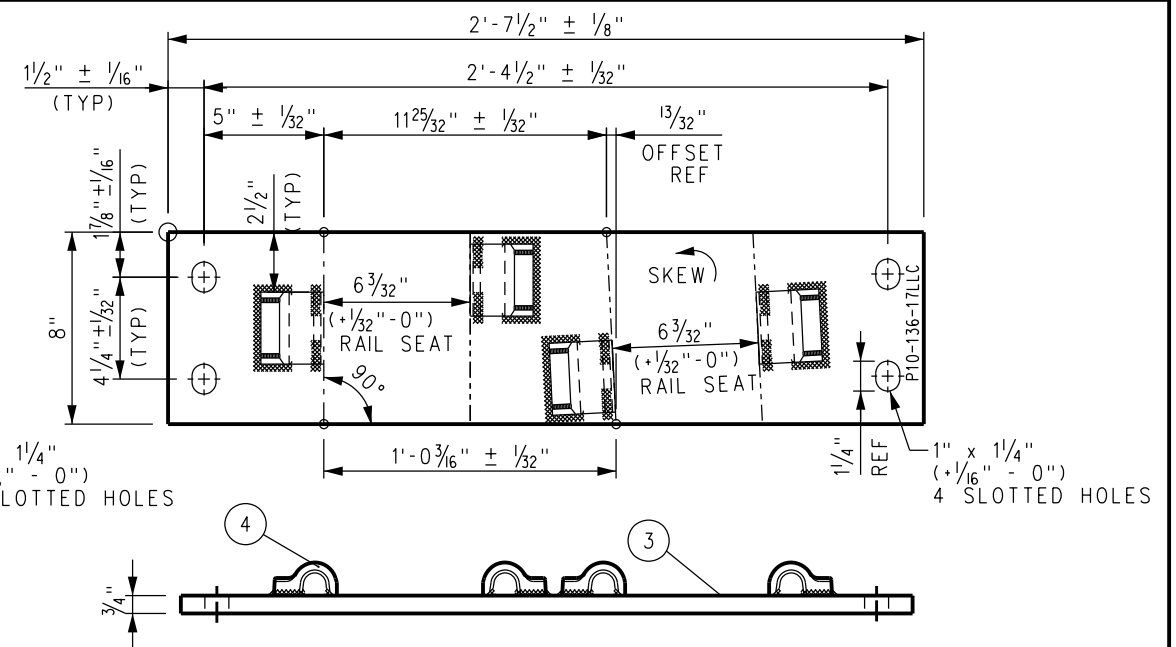
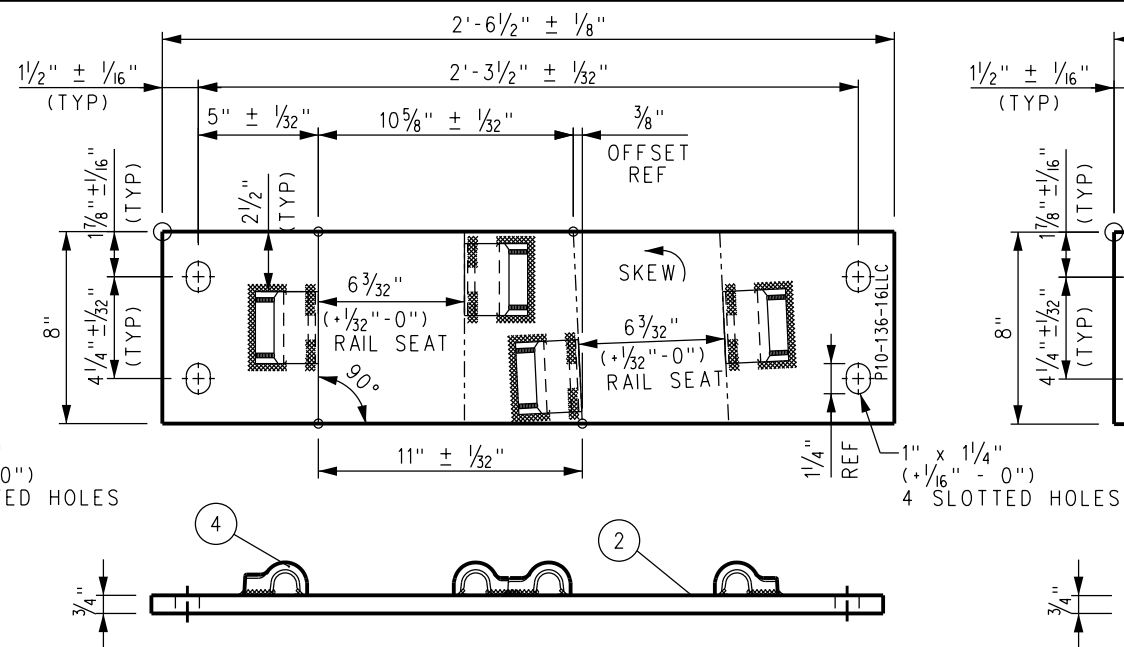
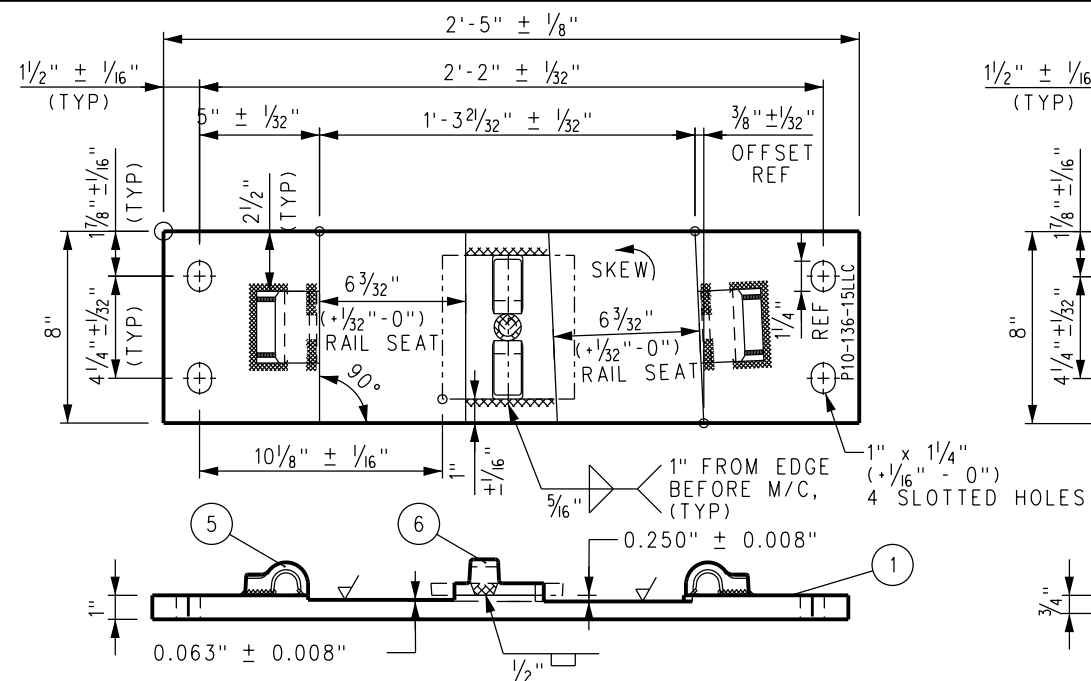
- I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
- WELDS TO BE DRESSED FLUSH WITH SHOULDER & NOT TO PROTRUDE INTO RAIL SEAT.
- SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

DRAWN BY: HDR		DATE: 03/31/2011	
Narek D. Bae		ASSISTANT DIRECTOR: STANDARDS & DESIGN	
REV.		DES. ENG.	
XX-XX-XX	REVISION	XX	XX
DATE	DESCRIPTION	DES.	ENG.

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ENGINEERING STANDARDS		STANDARD
SWITCH PLATES		2803
(10-12LLC / LRC THROUGH 10-14LLC / LRC)		SCALE: NTS
FOR NO 10 136 LB RE LH CONCRETE TIE TURNOUT		REVISION SHEET
		1 OF 1
		CADD FILE: ES2803-81





BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 1" x 8" x 2'-5" LONG
2	FLAT BAR, ASTM A36, $\frac{3}{4}$ " x 8" x 2'-6 $\frac{1}{2}$ " LONG
3	FLAT BAR, ASTM A36, $\frac{3}{4}$ " x 8" x 2'-7 $\frac{1}{2}$ " LONG
4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1
5	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 5
6	STOP WITH INTEGRAL T-BOLT HOLD DOWN

NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT
CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER
& NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

						DRAWN BY:	HDR	DATE:	03/31/2011
						 ASSISTANT DIRECTOR OF STANDARDS & DESIGN			
X	XX-XX-XX		REVISION	XX	XX	 DIRECTOR OF ENGINEERING AND CONSTRUCTION			
REV.	DATE		DESCRIPTION	DES.	ENG.				

DRAWN BY:	HDR	DATE:	03/31/2011
 ASSISTANT DIRECTOR: STANDARDS & DESIGN			
 DIRECTOR OF ENGINEERING AND CONSTRUCTION			

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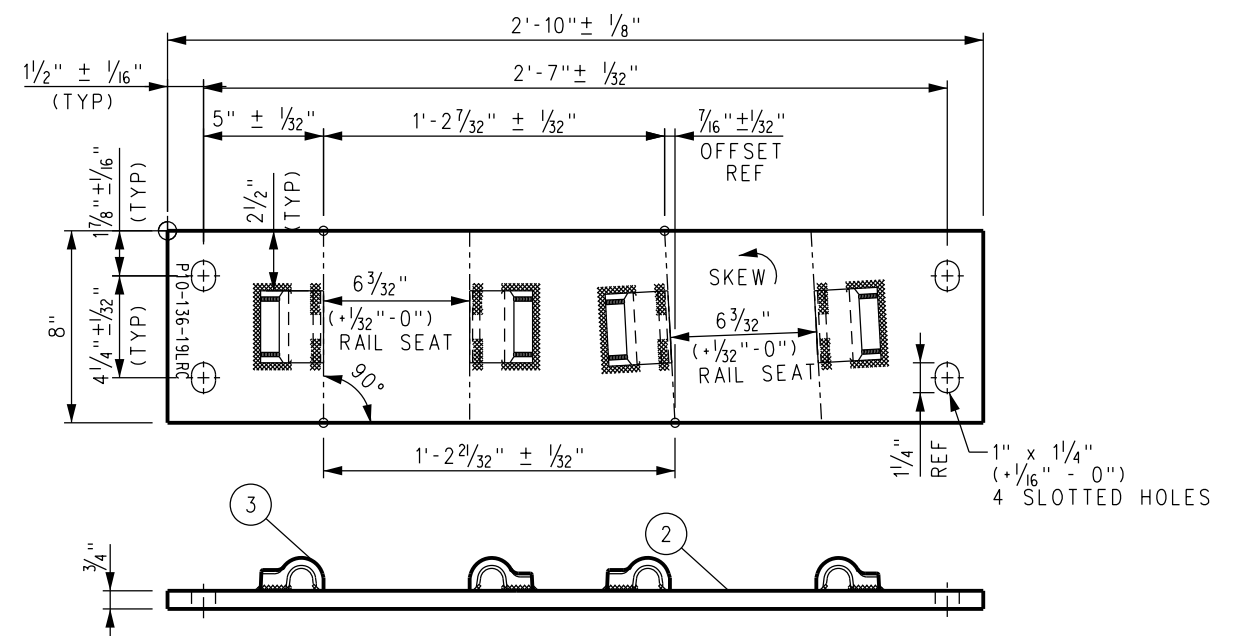
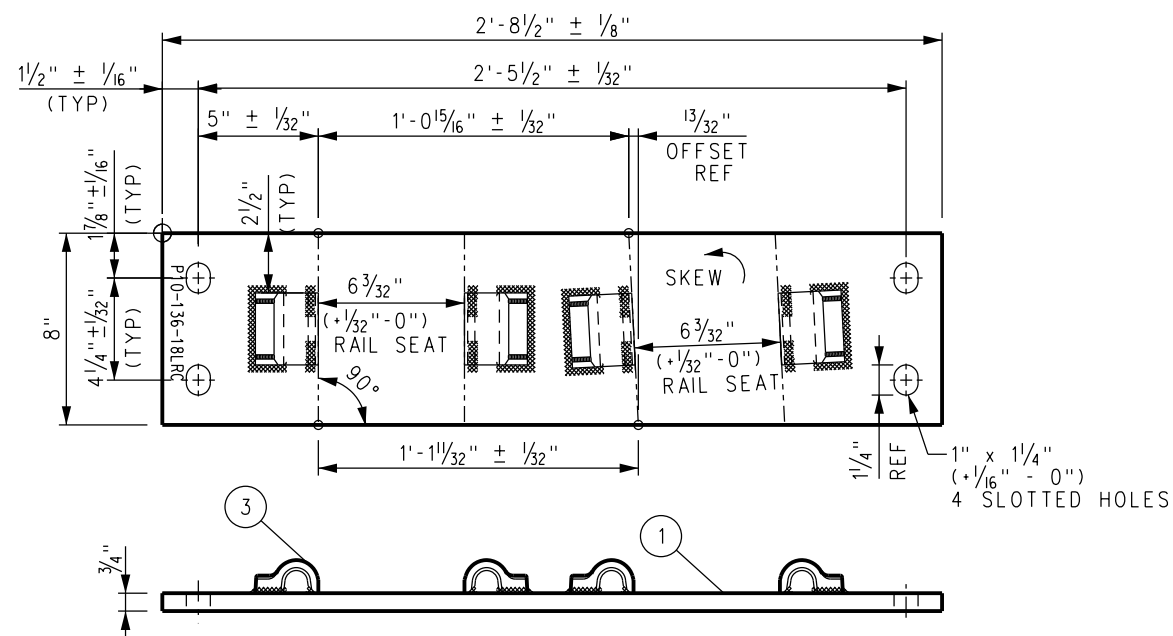
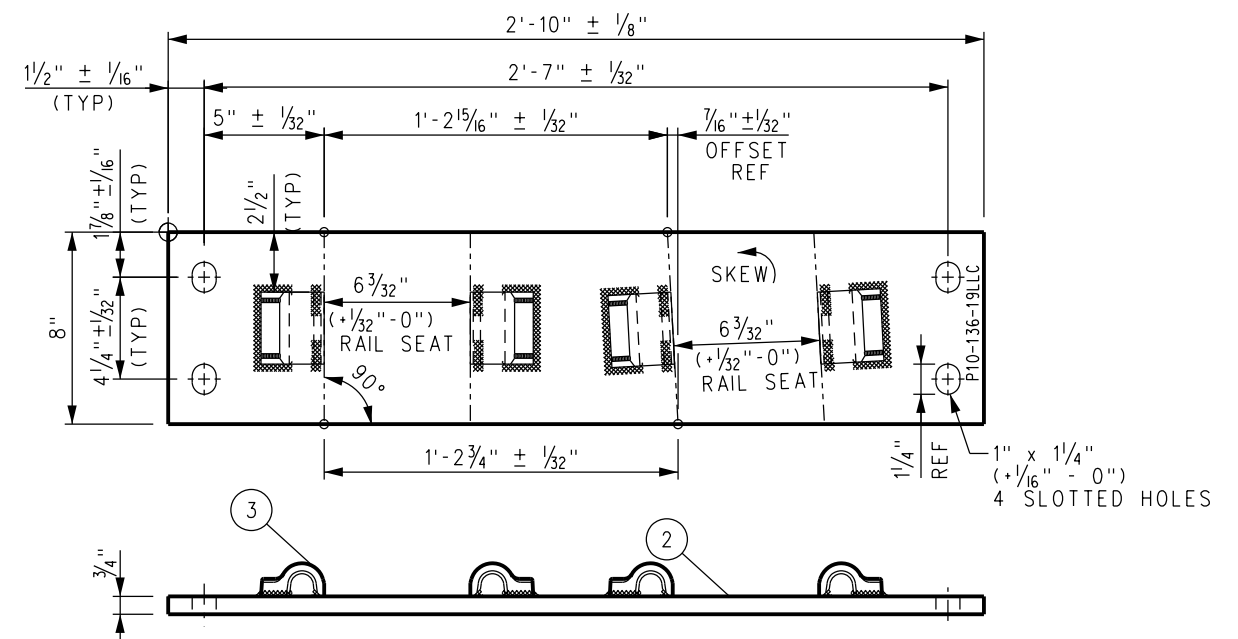
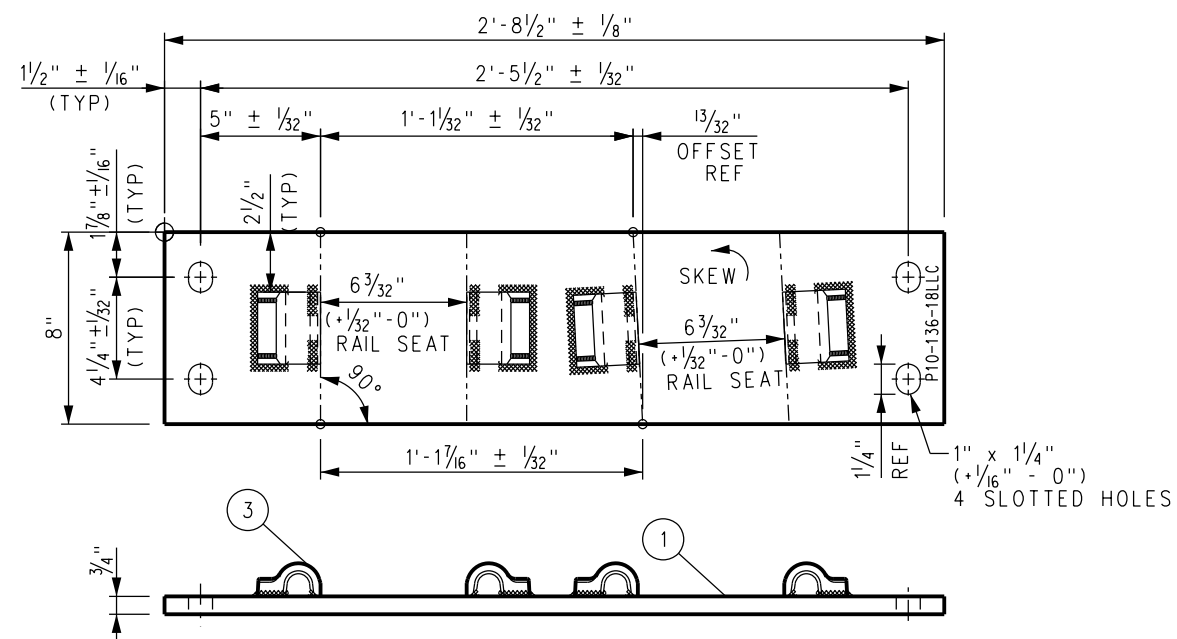
METROLINK®

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L.A., CA. 90012

ENGINEERING STANDARDS

SWITCH PLATES
(10-15LLC /LRC THROUGH 10-17LLC /LRC)
FOR NO 10 136 LB RE LH CONCRETE TIE TURNOUT

STANDARD		2803
SCALE:		NTS
REVISION	SHEET	
-	1 OF 1	
ADD FILE:		ES2803-82

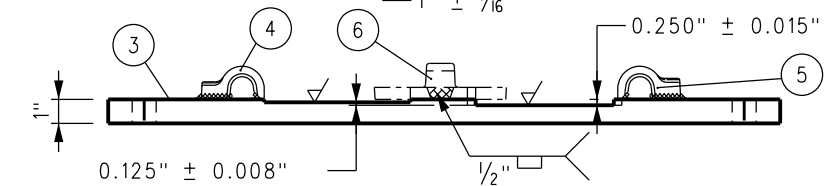
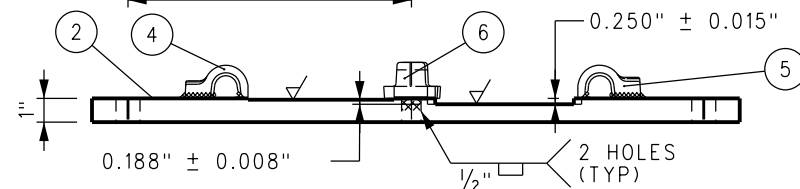
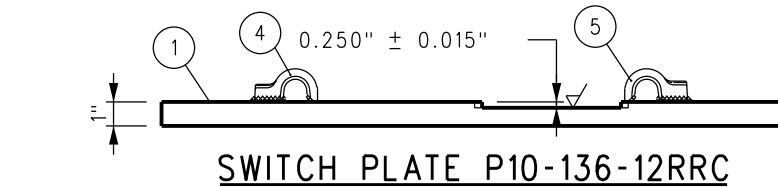
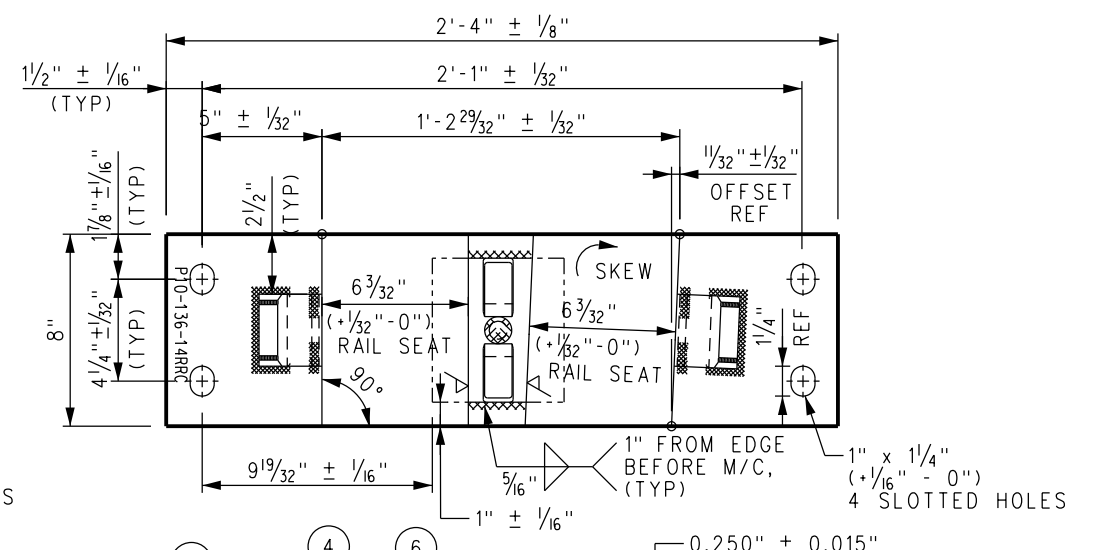
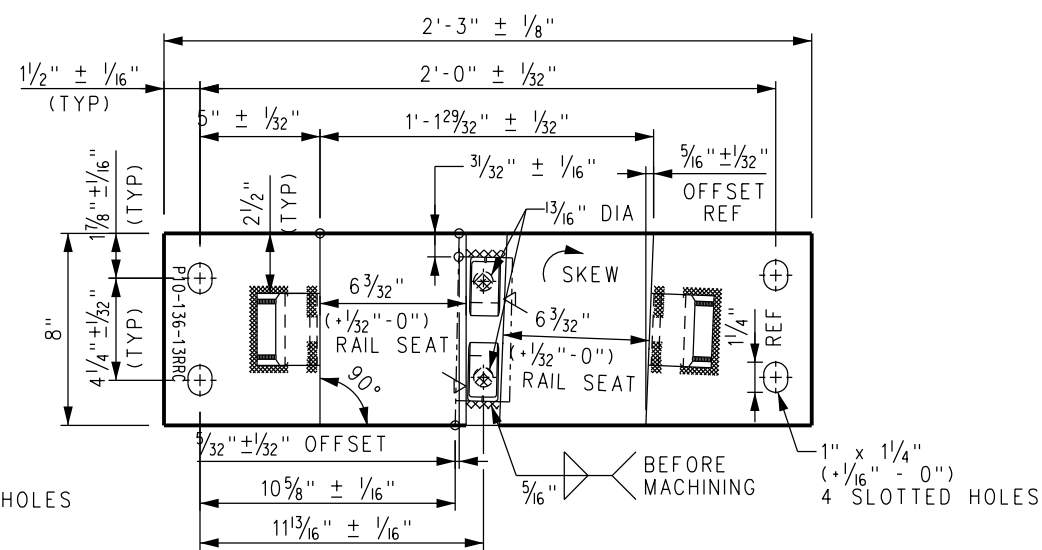
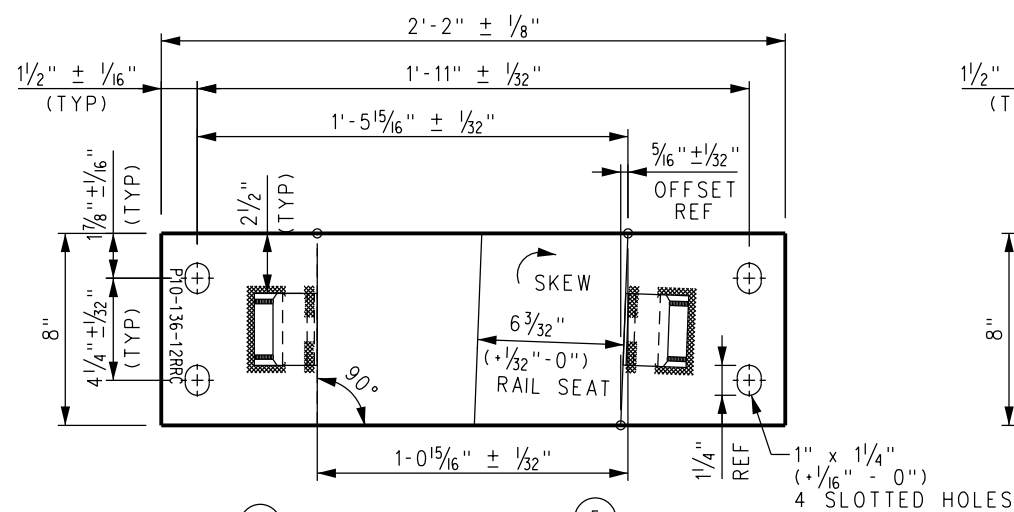
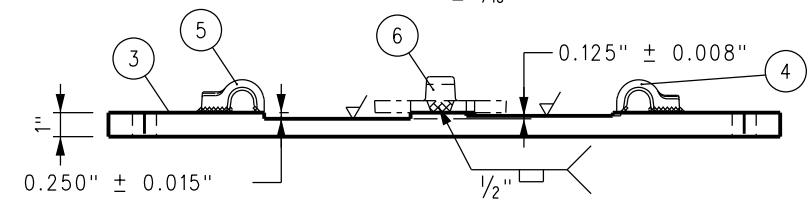
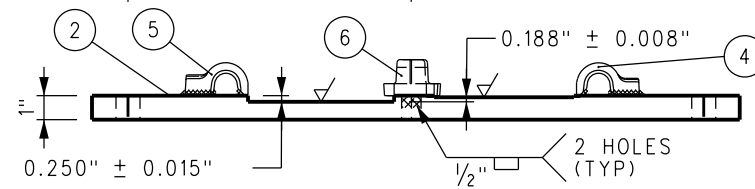
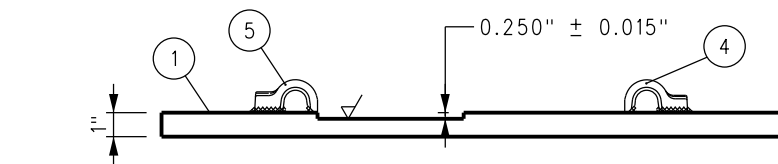
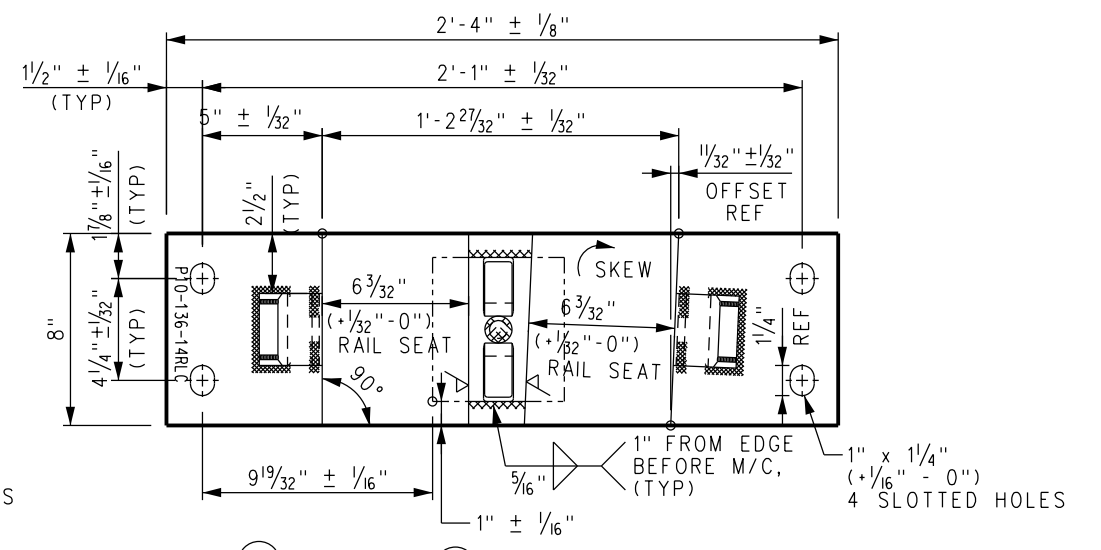
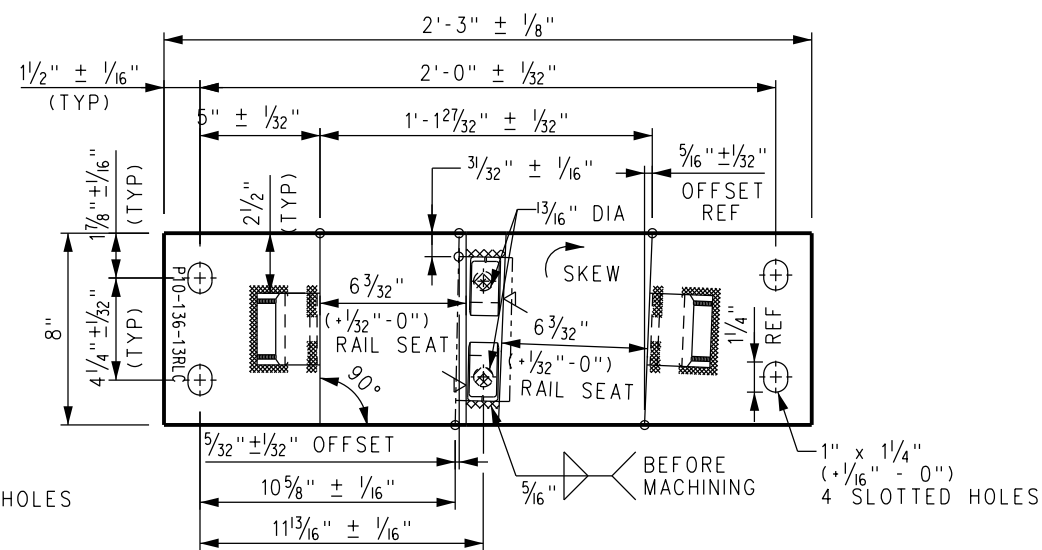
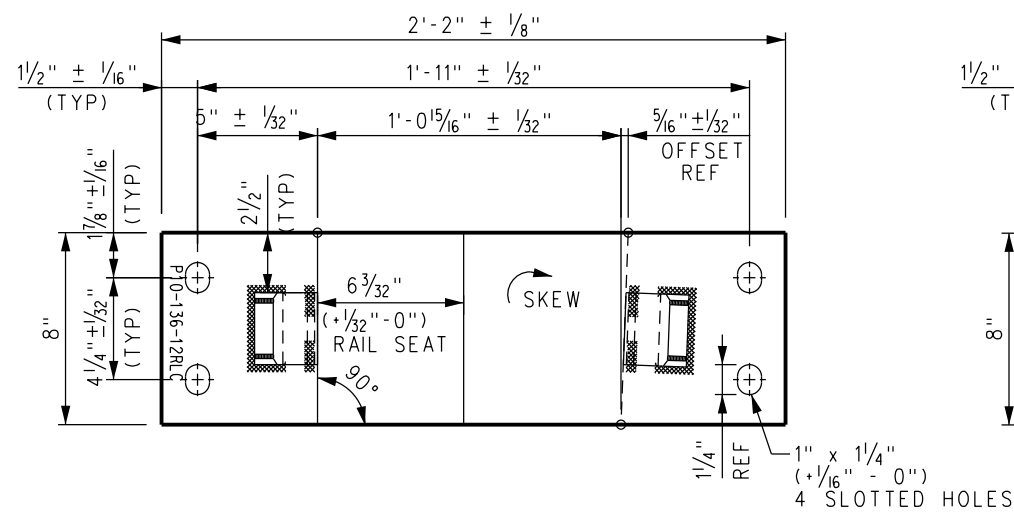


BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-8 1/2" LONG
2	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-10" LONG
3	SHOULDER. PANDROL. FORGED TONGUELESS. TYPE 1

NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT
CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER
& NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.



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BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 1" x 8" x 2'-2" LONG
2	FLAT BAR, ASTM A36, 1" x 8" x 2'-3" LONG
3	FLAT BAR, ASTM A36, 1" x 8" x 2'-4" LONG
4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1
5	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 5
6	STOP WITH INTEGRAL T-BOLT HOLD DOWN

NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT
CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER
& NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

						DRAWN BY:	HDR	DATE:	03/31/2011
						 ASSISTANT DIRECTOR OF STANDARDS & DESIGN			
X	XX-XX-XX		REVISION	XX	XX	 DIRECTOR OF ENGINEERING AND CONSTRUCTION			
REV.	DATE		DESCRIPTION	DES.	ENG.				

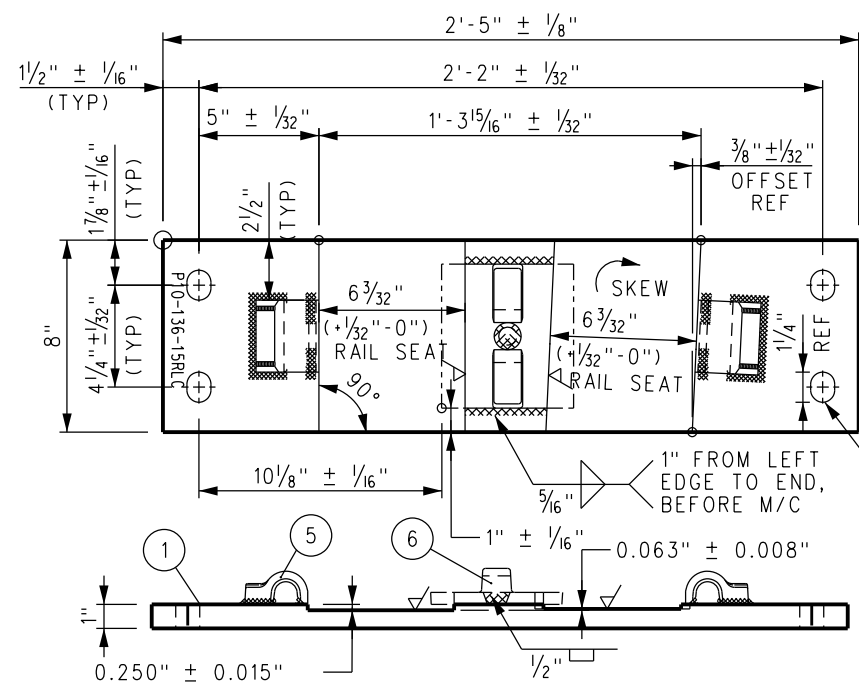
1 SCRA ENGINEERING STANDARDS ARE INTENDED FOR SCRA APPROVED USES ONLY.
2 FOR NON-SCRA APPROVED USES
3 SCRA SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF
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6 WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES
7 AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF
8 THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH
9 USE. USE OF THESE STANDARDS SHOULD BE REDUCED OR DISTRIBUTED IN
10 ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRA.
11 ALL RIGHTS RESERVED.


METROLINK®
 SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
 ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

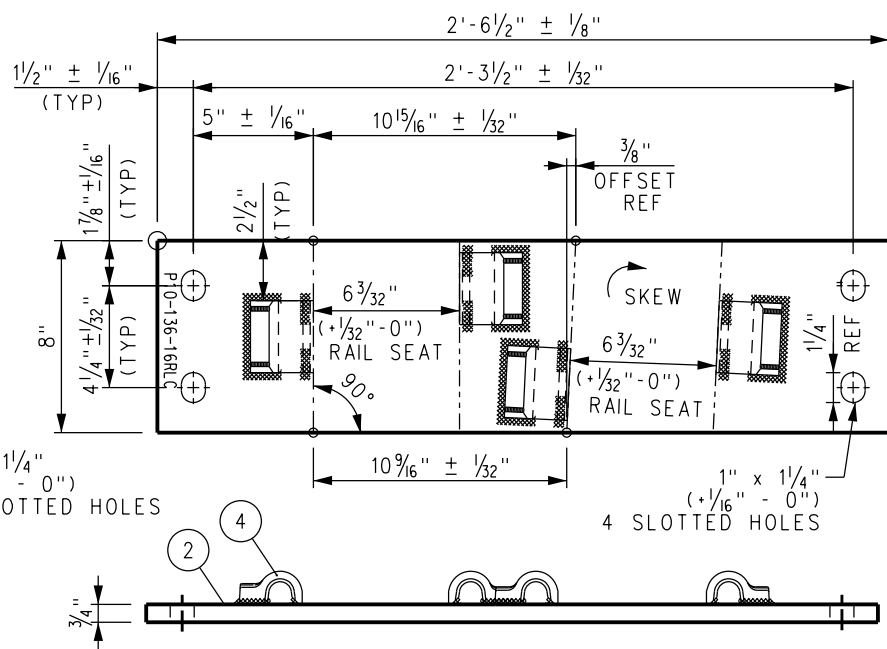
ENGINEERING STANDARDS

SWITCH PLATES
(10-12RLC / RRC THROUGH 10-14RLC / RRC)
FOR NO 10 136 LB RE RH CONCRETE TIE TURNOUT

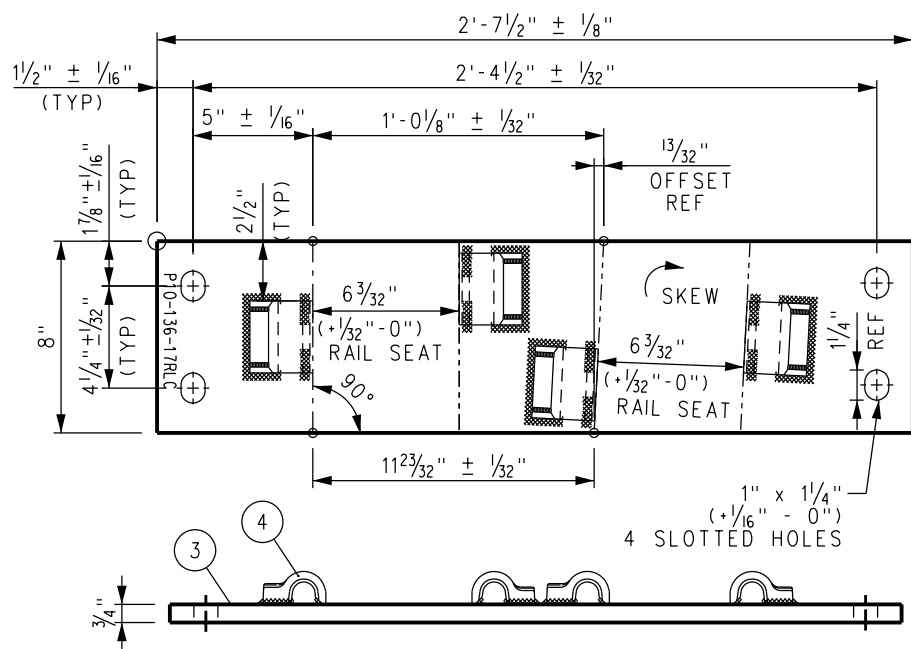
STANDARD		2803
SCALE:		NTS
REVISION	SHEET	
-	1 OF 1	
ADD FILE:		ES2803-84



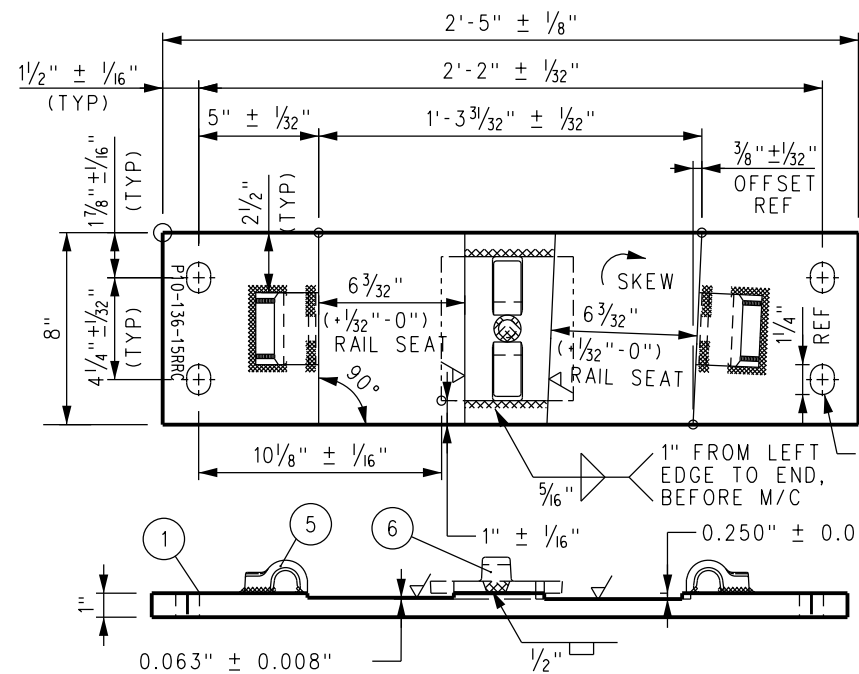
SWITCH PLATE P10-136-15RLC



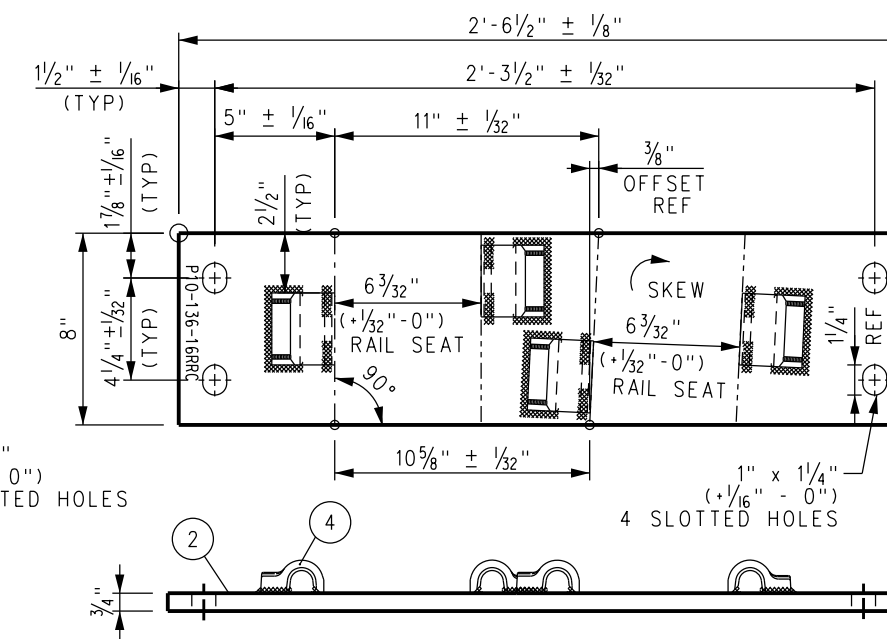
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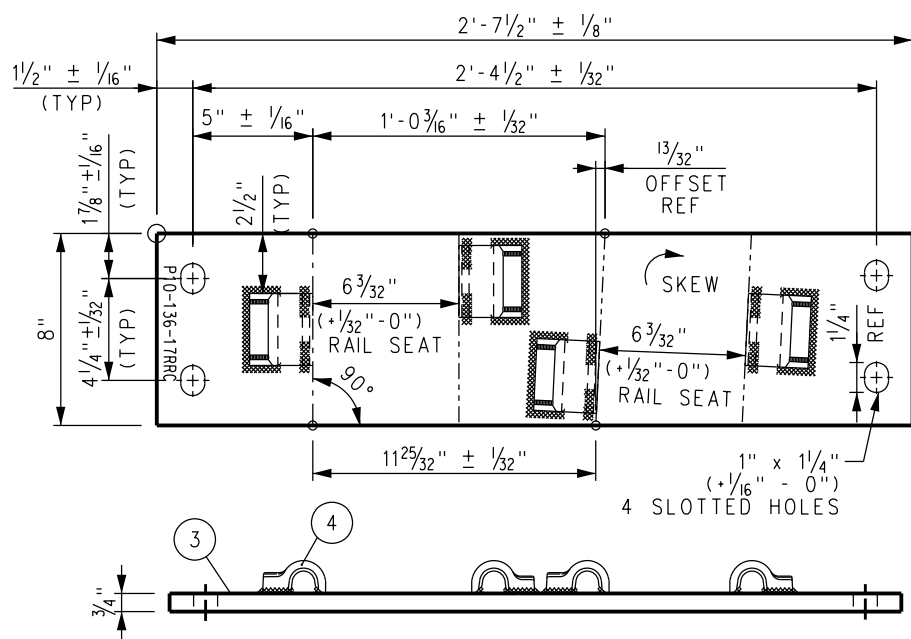
SWITCH PLATE P10-136-17RLC



SWITCH PLATE P10-136-15RRC



SWITCH PLATE P10-136-16RRC



SWITCH PLATE P10-136-17RRC

NOTES:

- I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT CLEARLY STAMPED AS SHOWN.
- WELDS TO BE DRESSED FLUSH WITH SHOULDER & NOT TO PROTRUDE INTO RAIL SEAT.
- SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 1" x 8" x 2'-5" LONG
2	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-6 1/2" LONG
3	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-7 1/2" LONG
4	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 1
5	SHOULDER, PANDROL, FORGED TONGUELESS, TYPE 5
6	STOP WITH INTEGRAL T-BOLT HOLD DOWN

DRAWN BY: HDR DATE: 03/31/2011	
ASSISTANT DIRECTOR: STANDARDS & DESIGN	
DIRECTOR OF ENGINEERING AND CONSTRUCTION	
XX	XX
REV.	DATE
DESCRIPTION	DES.
ENG.	ENG.

SCRR ENGINEERING STANDARDS ARE INTENDED FOR SCRR APPROVED USES ONLY. FOR NON-SCRR APPROVED USES, SCRR SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE DATA OR INFORMATION CONTAINED HEREIN. THE SELECTION AND USE OF THESE STANDARDS IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER. ALL WARRANTIES AND REPRESENTATIONS OF ANY KIND ARE DISCLAIMED. ANYONE MAKING USE OF THIS INFORMATION AGREES THAT IT ASSUMES ALL LIABILITY ARISING FROM SUCH USE. NO PART OF THESE STANDARDS SHOULD BE REPRODUCED OR DISTRIBUTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN PERMISSION OF SCRR. ALL RIGHTS RESERVED.



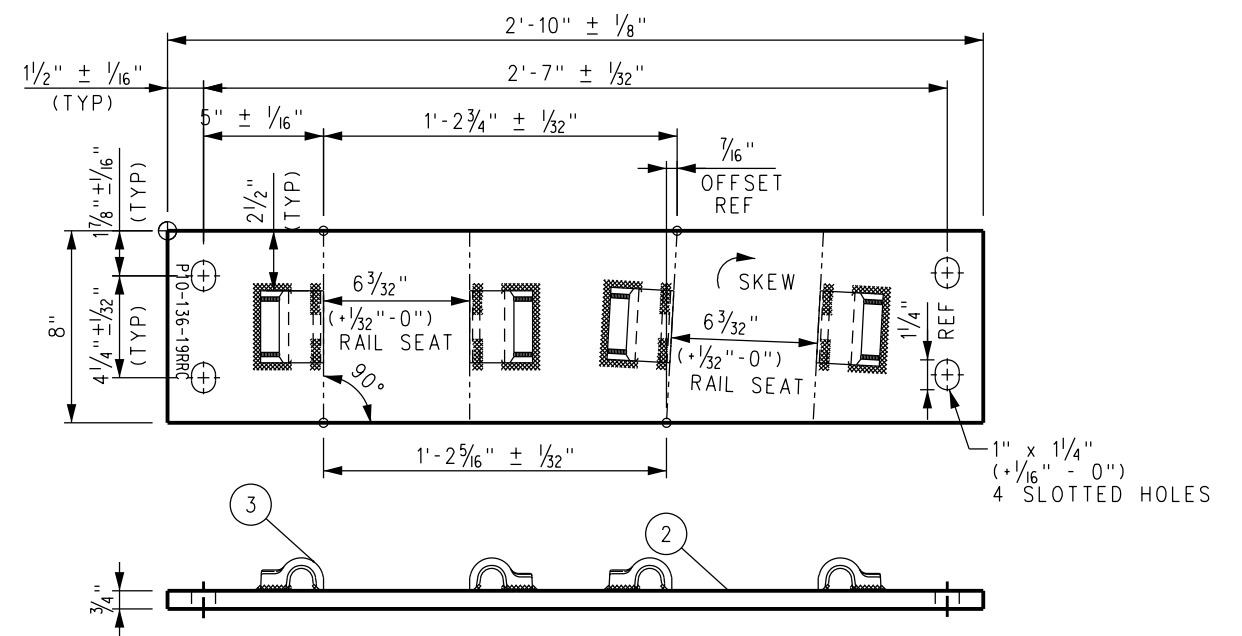
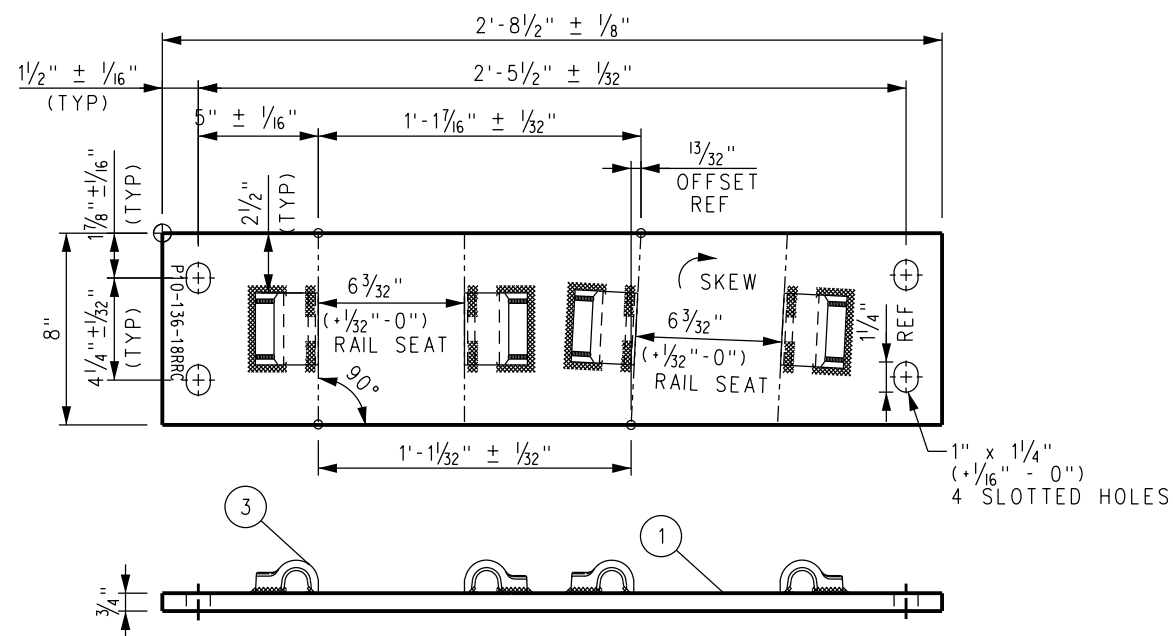
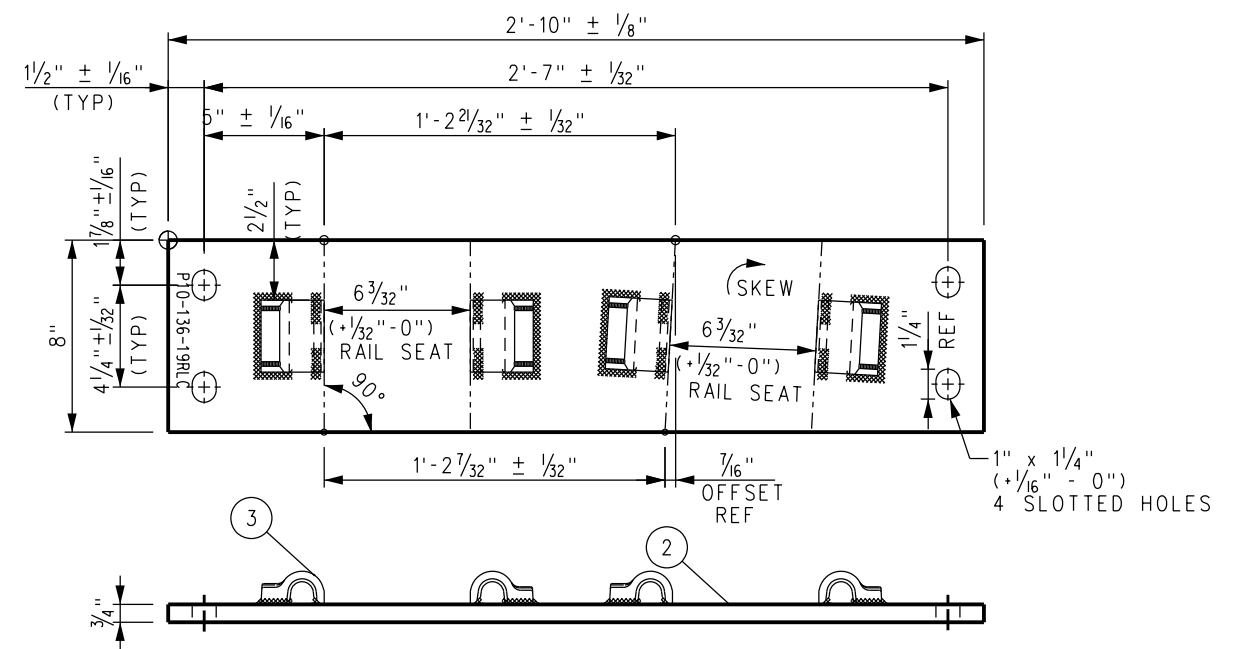
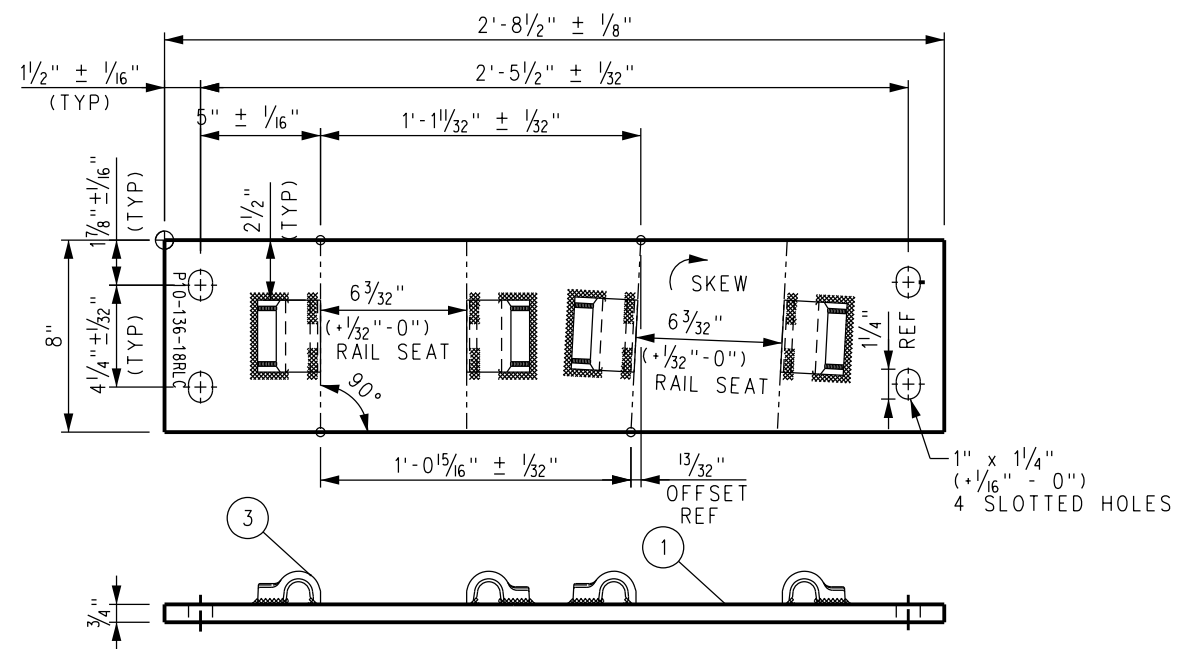
METROLINK

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY
ONE GATEWAY PLAZA, 12TH FLOOR, L. A., CA. 90012

ENGINEERING STANDARDS

SWITCH PLATES
(10-15RLC / RRC THROUGH 10-17RLC / RRC)
FOR NO 10 136 LB RE RH CONCRETE TIE TURNOUT

STANDARD	2803
SCALE:	NTS
REVISION	SHEET
-	1 OF 1
CADD FILE:	ES2803-85



BILL OF MATERIALS	
ITEM	DESCRIPTION
1	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-8 1/2" LONG
2	FLAT BAR, ASTM A36, 3/4" x 8" x 2'-10" LONG
3	SHOULDER. PANDROL. FORGED TONGUELESS. TYPE 1

NOTES:

1. I.D. CHARACTERS TO BE 1/2" MINIMUM HEIGHT
CLEARLY STAMPED AS SHOWN.
2. WELDS TO BE DRESSED FLUSH WITH SHOULDER
& NOT TO PROTRUDE INTO RAIL SEAT.
3. SLOTTED HOLE CENTERS ARE INDICATED ON DRAWING.

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