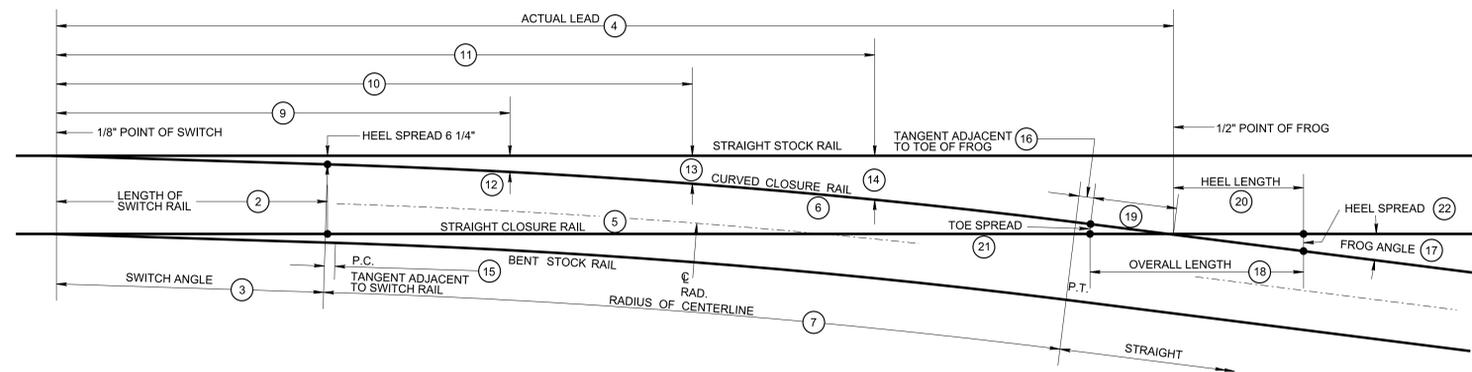


NO. 9 TURNOUT BILL OF SWITCH TIES		
NUMBER	DESCRIPTION	SIZE
2 PCS	NO'S 1 AND 2	7"X9"X15'-0"
7 PCS	3 TO 9 INCL.	7"X9"X9'-0"
14 PCS	10 TO 23 INCL.	7"X9"X10'-0"
7 PCS	24 TO 30 INCL.	7"X9"X11'-0"
7 PCS	31 TO 37 INCL.	7"X9"X12'-0"
6 PCS	38 TO 43 INCL.	7"X9"X13'-0"
5 PCS	44 TO 48 INCL.	7"X9"X14'-0"
6 PCS	49 TO 54 INCL.	7"X9"X15'-0"
6 PCS	55 TO 60 INCL.	7"X9"X16'-0"
3 PCS	61 TO 63 INCL.	7"X9"X17'-0"
63 PCS		

NO. 9 TURNOUT PLAN
NO SCALE



TURNOUT LAYOUT PLAN
NO SCALE

TURNOUT DATA																						
PROPERTIES OF SWITCHES			CLOSURE DISTANCE			LEAD CURVE		GAGE LINE OFFSETS						PROPERTIES OF FROGS								
COL. 1	COL. 2	COL. 3	COL. 4	COL. 5	COL. 6	COL. 7	COL. 8	COL. 9	COL. 10	COL. 11	COL. 12	COL. 13	COL. 14	COL. 15	COL. 16	COL. 17	COL. 18	COL. 19	COL. 20	COL. 21	COL. 22	
FROG NUMBER	LENGTH OF SWITCH RAIL	SWITCH ANGLE	ACTUAL LEAD	STRAIGHT CLOSURE RAIL	CURVED CLOSURE RAIL	RADIUS OF CENTERLINE	DEGREE OF CURVE							TANGENT ADJACENT TO SWITCH RAIL	TANGENT ADJACENT TO TOE OF FROG	FROG NUMBER	FROG ANGLE	OVERALL LENGTH	TOE LENGTH	HEEL LENGTH	TOE SPREAD	HEEL SPREAD
	FT. IN.	DEG. MIN. SEC.	FT. IN.	FT. IN.	FT. IN.	FEET	DEG. MIN. SEC.	FT. IN.	FT. IN.	FT. IN.	INCHES	INCHES	FT. IN.	FEET	FEET		DEG. MIN. SEC.	FT. IN.	FT. IN.	FT. IN.	INCHES	INCHES
9	16-6	1-46-22	72-3 1/2	49-5	49-7 1/4	615.12	9-19-30	28-10 1/4	41-2 1/2	53-6 3/4	12 5/16	21- 3/8	2-9 7/16	0.00	0.17	9	6-21-35	16-0	6-4 1/2	9-7 1/2	8	13 5/16

NOTES:

- AREA PLANS REFERENCED BELOW REFER TO THE AMERICAN RAILWAY ENGINEERING ASSOCIATION'S PORTFOLIO OF TRACKWORK PLANS.
- FOR SOLID MANGANESE FROGS, THE STRAIGHT AND CURVED CLOSURES SHALL BE LENGTHENED TO CONFORM.
- SWITCHES, CLOSURE RAILS, AND STOCK RAILS ADJACENT TO SWITCHES SHALL BE NEW IN TURNOUTS WITH USED RAIL.
- SWITCHES SHALL BE 16'-6" REINFORCED STRAIGHT SPLIT SWITCHES WITH GRADUATED RISERS CONFORMING TO AREA PLAN NO. 112.
- SWITCH POINTS SHALL CONFORM TO AREA PLAN NO. 221, DETAIL 4000 OR 6100. MANGANESE STEEL TIPS ARE NOT REQUIRED.
- RAIL BRACES SHALL BE EITHER FIXED OR ADJUSTABLE TYPE AND SHALL BE OF STANDARD MANUFACTURE. RIGID RAIL BRACES AND SWITCH PLATES SHALL CONFORM TO AREA PLAN NO. 223. ADJUSTABLE RAIL BRACES AND SWITCH PLATES SHALL CONFORM TO AREA PLAN NO. 224.
- FROGS SHALL BE RAILBOUND MANGANESE OR SOLID MANGANESE SELF-GUARDED TYPE. GUARD RAILS SHOWN ARE REQUIRED ONLY IF RAILBOUND MANGANESE FROGS ARE PROVIDED.
- NUMBER AND LOCATION OF HOOK TWIN PLATES SHALL CONFORM TO AREA PLAN NO. 112 AND PLAN NO. 241. HOOK TWIN PLATES SHALL CONFORM TO AREA PLAN NO. 241.
- SETTING FOR GUARD RAILS SHALL CONFORM TO AREA PLAN NO. 502.
- GUARD RAILS SHALL CONFORM TO AREA PLAN NO. 504.
- IN NO CASE MAY THE END OF A SWITCH TIE BE WITHIN 14 INCHES OF A SPIKE.
- A TOTAL OF 130 STANDARD TIE PLATES ARE REQUIRED WITHIN TIE NUMBERS 1-63. SEE THE AMERICAN RAILWAY ENGINEERING ASSOCIATION'S PORTFOLIO OF TRACKWORK PLANS FOR TYPE AND NUMBER OF OTHER TIE PLATES WITHIN TURNOUT.
- A TOTAL OF 652 SPIKES ARE REQUIRED WITHIN TIE NUMBERS 1-63. SEE SHEET C-X FOR TURNOUT SPIKING PATTERN.
- ALL TIES WITHIN TIE NUMBERS 1-63 SHALL BE BOX-ANCHORED TO THE EXTENT POSSIBLE (APPROXIMATELY 316 TOTAL). A TIE SHALL NOT BE ANCHORED UNLESS ANCHORS CAN BE APPLIED TO EACH SIDE OF THE TIE AT ALL RAILS.
- QUANTITIES FOR STANDARD TIE PLATES, SPIKES, AND RAIL ANCHORS ARE APPLICABLE IF A RAILBOUND MANGANESE FROG IS PROVIDED. IF A SOLID MANGANESE SELF-GUARDED TYPE FROG IS PROVIDED, QUANTITIES SHOULD BE ADJUSTED ACCORDINGLY.

\$\$ - THINK VALUE ENGINEERING - \$\$

Revisions			
Symbol	Descriptions	Date	Approved

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA, NEBRASKA

Designed by:	X		X
Drawn by:	X		X
Checked by:	X		X
Reviewed by:	X		X
Submitted by:	X		X
Chief:	X	Section	

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