

Revised:

B-March 1978  
C-Sept, 1983

DIMENSIONS OF RAISED GUARDS						
RAIL SEC.	ANGLE-b	ANGLE-a	D	C	L	B
119	0°-34'-40"	7°-43'-50"	5'-0 <sup>25</sup> / <sub>32</sub> "	22 <sup>5</sup> / <sub>16</sub> "	2'-7"	7 <sup>15</sup> / <sub>32</sub> "
132						
140 RE						

STRAIGHT CROSS RIBS  
SPACED APPROXIMATELY  
18" CENTER TO CENTER.

**FORMULA FOR VARIABLE RADIUS  
OF RAISED GUARDS**

$$\text{TAN ANGLE } b = \frac{5\frac{1}{16}}{L}$$

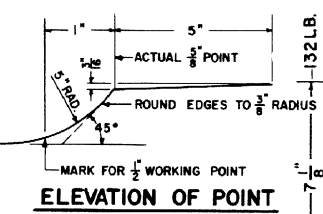
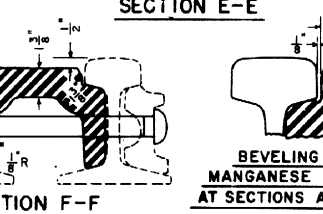
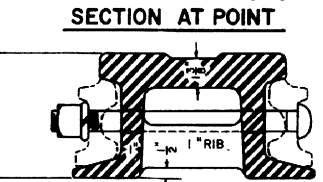
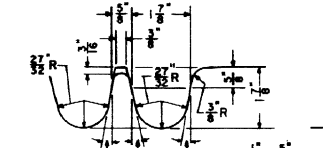
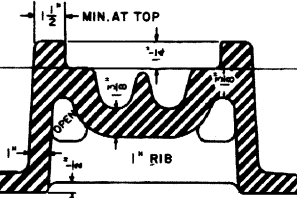
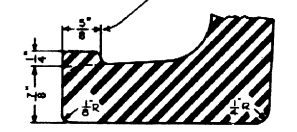
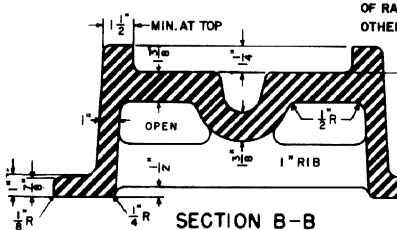
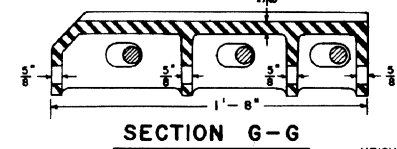
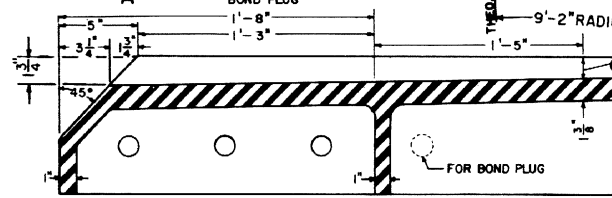
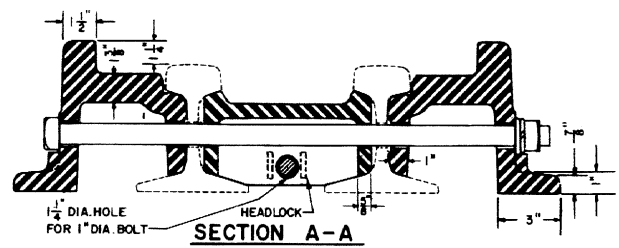
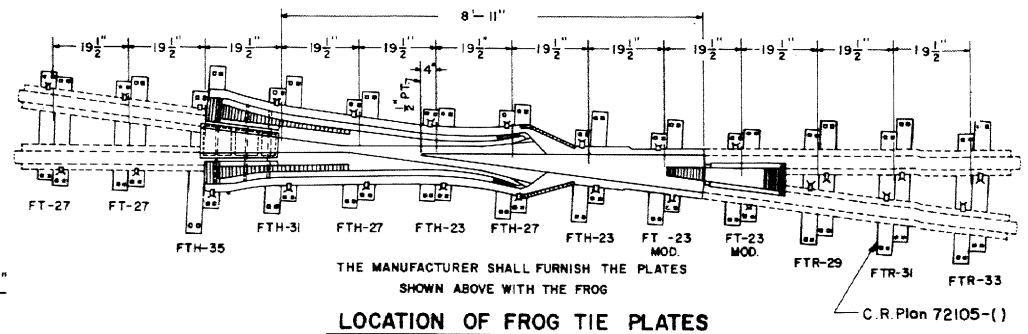
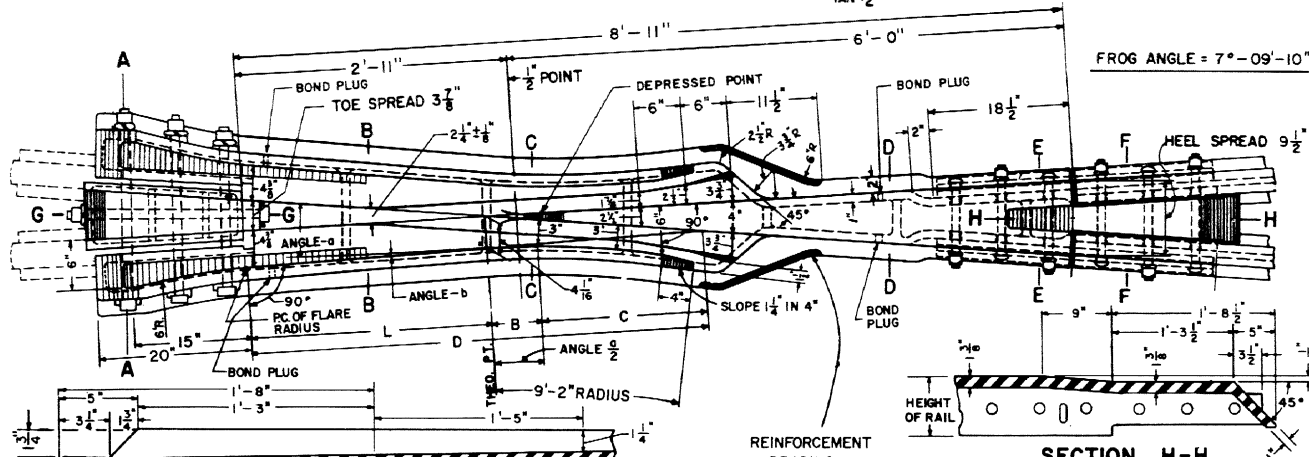
$$\text{ANGLE } a = \text{ANGLE } b + \text{FROG ANGLE}$$

$$D = \frac{\text{TOE SPREAD} + 4\frac{3}{8}}{\text{TAN } a}$$

$$C = \frac{3\frac{3}{8}}{\text{SIN } a}$$

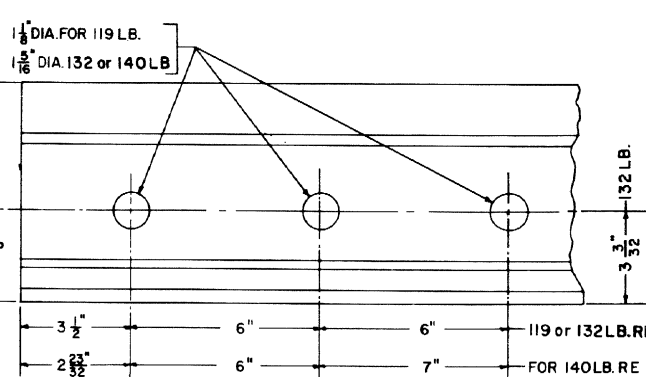
$$B = D - (L + C)$$

$$\text{RADIUS} = \frac{B}{\text{TAN}^2 \frac{a}{2}}$$



**FROG TIE PLATES REQUIRED**

- 4 - FT-23 MOD. FROG TIE PLATES
- 4 - FTH-23 FROG TIE PLATES
- 4 - FT-27 FROG TIE PLATES
- 4 - FTH-27 FROG TIE PLATES
- 2 - FTR-29 FROG TIE PLATES
- 2 - FTH-31 FROG TIE PLATES
- 2 - FTR-31 FROG TIE PLATES
- 2 - FTR-33 FROG TIE PLATES
- 2 - FTH-35 FROG TIE PLATES



**RAIL END DRILLINGS**

- NOTES**
- 1- THIS PLAN IS FOR USE WITH A.R.E.A. RECOMMENDED STANDARDS FOR 119 R.E., 132 R.E. or 140 R.E. RAIL.
  - 2- WORKMANSHIP AND MATERIALS SHALL BE PER CURRENT "A.R.E.A. SPECIFICATIONS."
  - 3- BOND PLUGS TO BE PROVIDED BY MANUFACTURER.

- 4- ALL BOLTS SHALL BE DIPPED IMMEDIATELY BEFORE APPLYING (SO THAT ALL THREADS ARE THOROUGHLY COATED) IN NO-OX-ID "GG" GREASE, MANUFACTURED BY THE DEARBORN CHEMICAL COMPANY.
- 5- ALL FROG TIE PLATES MUST BE CLEARLY MARKED TO SHOW PLATE DESIGNATION, AS SHOWN ON C.R. PLAN NO. 72105-(-).

**CONRAIL 74153-C**

STANDARD

**No. 8 SOLID SELF-GUARDED  
MANGANESE STEEL FROG**

119 RE, 132 RE and 140 RE RAIL

JANUARY, 1977

*R.H. Smith*  
Chief Engineer - Maintenance of Way

*A.J. Gordon*  
Chief Engineering Officer