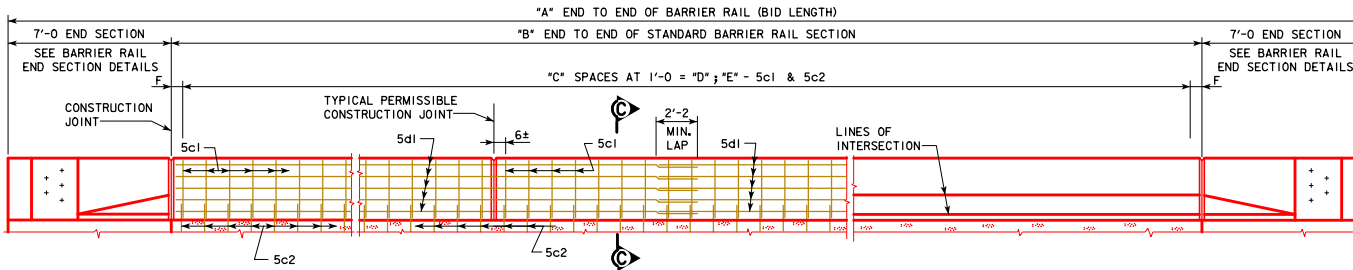
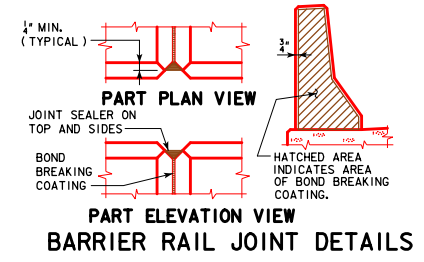


**TABLE OF BARRIER RAIL DIMENSIONS AND NUMBERS**

BRIDGE LENGTH	160'-0"					180'-0"					200'-0"					220'-0"					240'-0"					260'-0"					
	0°	10°	20°	30°	45°	0°	10°	20°	30°	45°	0°	10°	20°	30°	45°	0°	10°	20°	30°	45°	0°	10°	20°	30°	45°	0°	10°	20°	30°	45°	
DIMENSION OF NUMBER	A (FT-IN)	177'-0"	177'-0 <sup>5</sup> / <sub>8</sub> "	177'-2 <sup>1</sup> / <sub>4</sub> "	177'-5 <sup>1</sup> / <sub>2</sub> "	178'-2 <sup>1</sup> / <sub>4</sub> "	197'-0"	197'-0 <sup>5</sup> / <sub>8</sub> "	197'-2 <sup>1</sup> / <sub>4</sub> "	197'-5 <sup>1</sup> / <sub>2</sub> "	198'-2 <sup>1</sup> / <sub>4</sub> "	217'-0"	217'-0 <sup>5</sup> / <sub>8</sub> "	217'-2 <sup>1</sup> / <sub>4</sub> "	217'-5 <sup>1</sup> / <sub>2</sub> "	218'-2 <sup>1</sup> / <sub>4</sub> "	237'-0"	237'-0 <sup>5</sup> / <sub>8</sub> "	237'-2 <sup>1</sup> / <sub>4</sub> "	237'-5 <sup>1</sup> / <sub>2</sub> "	238'-2 <sup>1</sup> / <sub>4</sub> "	257'-0"	257'-0 <sup>5</sup> / <sub>8</sub> "	257'-2 <sup>1</sup> / <sub>4</sub> "	257'-5 <sup>1</sup> / <sub>2</sub> "	258'-2 <sup>1</sup> / <sub>4</sub> "	277'-0"	277'-0 <sup>5</sup> / <sub>8</sub> "	277'-2 <sup>1</sup> / <sub>4</sub> "	277'-5 <sup>1</sup> / <sub>2</sub> "	278'-2 <sup>1</sup> / <sub>4</sub> "
	B (FT-IN)	163'-0"	163'-0 <sup>5</sup> / <sub>8</sub> "	163'-2 <sup>1</sup> / <sub>4</sub> "	163'-5 <sup>1</sup> / <sub>2</sub> "	164'-2 <sup>1</sup> / <sub>4</sub> "	183'-0"	183'-0 <sup>5</sup> / <sub>8</sub> "	183'-2 <sup>1</sup> / <sub>4</sub> "	183'-5 <sup>1</sup> / <sub>2</sub> "	184'-2 <sup>1</sup> / <sub>4</sub> "	203'-0"	203'-0 <sup>5</sup> / <sub>8</sub> "	203'-2 <sup>1</sup> / <sub>4</sub> "	203'-5 <sup>1</sup> / <sub>2</sub> "	204'-2 <sup>1</sup> / <sub>4</sub> "	223'-0"	223'-0 <sup>5</sup> / <sub>8</sub> "	223'-2 <sup>1</sup> / <sub>4</sub> "	223'-5 <sup>1</sup> / <sub>2</sub> "	224'-2 <sup>1</sup> / <sub>4</sub> "	243'-0"	243'-0 <sup>5</sup> / <sub>8</sub> "	243'-2 <sup>1</sup> / <sub>4</sub> "	243'-5 <sup>1</sup> / <sub>2</sub> "	244'-2 <sup>1</sup> / <sub>4</sub> "	263'-0"	263'-0 <sup>5</sup> / <sub>8</sub> "	263'-2 <sup>1</sup> / <sub>4</sub> "	263'-5 <sup>1</sup> / <sub>2</sub> "	264'-2 <sup>1</sup> / <sub>4</sub> "
	C	162	162	162	162	163	182	182	182	182	183	202	202	202	202	203	222	222	222	222	223	242	242	242	242	243	262	262	262	262	263
	D (FT-IN)	162'-0"	162'-0 <sup>5</sup> / <sub>8</sub> "	162'-2 <sup>1</sup> / <sub>4</sub> "	162'-0"	163'-0"	182'-0"	182'-0 <sup>5</sup> / <sub>8</sub> "	182'-2 <sup>1</sup> / <sub>4</sub> "	182'-0"	183'-0"	202'-0"	202'-0 <sup>5</sup> / <sub>8</sub> "	202'-2 <sup>1</sup> / <sub>4</sub> "	202'-0"	203'-0"	222'-0"	222'-0 <sup>5</sup> / <sub>8</sub> "	222'-2 <sup>1</sup> / <sub>4</sub> "	222'-0"	223'-0"	242'-0"	242'-0 <sup>5</sup> / <sub>8</sub> "	242'-2 <sup>1</sup> / <sub>4</sub> "	242'-0"	243'-0"	262'-0"	262'-0 <sup>5</sup> / <sub>8</sub> "	262'-2 <sup>1</sup> / <sub>4</sub> "	262'-0"	263'-0"
	E	163	163	163	163	164	183	183	183	183	184	203	203	203	203	204	223	223	223	223	224	243	243	243	243	244	263	263	263	263	264
	F (IN)	6	6 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>	6	6 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>	6	6 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>	6	6 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>	6	6 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>	6	6 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>

**TABLE OF BARRIER RAIL DIMENSIONS AND NUMBERS - CONT.**

BRIDGE LENGTH	280'-0"					300'-0"					320'-0"					
	0°	10°	20°	30°	45°	0°	10°	20°	30°	45°	0°	10°	20°	30°	45°	
DIMENSION OF NUMBER	A (FT-IN)	297'-0"	297'-0 <sup>5</sup> / <sub>8</sub> "	297'-2 <sup>1</sup> / <sub>4</sub> "	297'-5 <sup>1</sup> / <sub>2</sub> "	298'-2 <sup>1</sup> / <sub>4</sub> "	317'-0"	317'-0 <sup>5</sup> / <sub>8</sub> "	317'-2 <sup>1</sup> / <sub>4</sub> "	317'-5 <sup>1</sup> / <sub>2</sub> "	318'-2 <sup>1</sup> / <sub>4</sub> "	337'-0"	337'-0 <sup>5</sup> / <sub>8</sub> "	337'-2 <sup>1</sup> / <sub>4</sub> "	337'-5 <sup>1</sup> / <sub>2</sub> "	338'-2 <sup>1</sup> / <sub>4</sub> "
	B (FT-IN)	283'-0"	283'-0 <sup>5</sup> / <sub>8</sub> "	283'-2 <sup>1</sup> / <sub>4</sub> "	283'-5 <sup>1</sup> / <sub>2</sub> "	284'-2 <sup>1</sup> / <sub>4</sub> "	303'-0"	303'-0 <sup>5</sup> / <sub>8</sub> "	303'-2 <sup>1</sup> / <sub>4</sub> "	303'-5 <sup>1</sup> / <sub>2</sub> "	304'-2 <sup>1</sup> / <sub>4</sub> "	323'-0"	323'-0 <sup>5</sup> / <sub>8</sub> "	323'-2 <sup>1</sup> / <sub>4</sub> "	323'-5 <sup>1</sup> / <sub>2</sub> "	324'-2 <sup>1</sup> / <sub>4</sub> "
	C	282	282	282	282	283	302	302	302	302	303	322	322	322	322	323
	D (FT-IN)	282'-0"	282'-0 <sup>5</sup> / <sub>8</sub> "	282'-2 <sup>1</sup> / <sub>4</sub> "	282'-0"	283'-0"	302'-0"	302'-0 <sup>5</sup> / <sub>8</sub> "	302'-2 <sup>1</sup> / <sub>4</sub> "	302'-0"	303'-0"	322'-0"	322'-0 <sup>5</sup> / <sub>8</sub> "	322'-2 <sup>1</sup> / <sub>4</sub> "	322'-0"	323'-0"
	E	283	283	283	283	284	303	303	303	303	304	323	323	323	323	324
	F (IN)	6	6 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>	6	6 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>	6	6 <sup>5</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>8</sub>



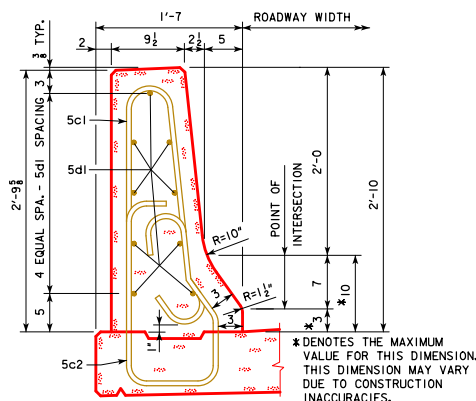
**ELEVATION OF BARRIER RAIL LAYOUT**

**BARRIER RAIL NOTES:**

1. MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.
2. THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.
3. COST OF THE JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.
4. ALL BARRIER RAIL REINFORCING STEEL IS TO BE EPOXY COATED.
5. THE CONCRETE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS. THE NUMBER OF LINEAL FEET OF BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR CONCRETE BARRIER RAILING SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS. IF CONDUIT IS REQUIRED IN THIS PLAN THE RIGID STEEL CONDUIT, JUNCTION BOXES AND FITTINGS INCLUDING LABOR AND ANY ADDITIONAL WORK TO DO THE INSTALLATION IS CONSIDERED INCIDENTAL TO THE COST OF THE RAILING.

**BARRIER RAIL NOTES - CONT.:**

6. ALL BARRIER RAIL REINFORCING STEEL IS TO BE INCLUDED WITH THE SUPERSTRUCTURE REINFORCING STEEL.
7. THE JOINT SEALER SHALL BE LIGHT GRAY NONSAG LATEX CAULKING SEALER MARKETED FOR OUTDOOR USE. NO TESTING OR CERTIFICATION IS REQUIRED.
8. TOP OF THE BARRIER RAIL IS TO BE PARALLEL TO THE THEORETICAL  $\bar{c}$  GRADE.
9. CROSS SECTIONAL AREA OF THE STANDARD SECTION OF THE BARRIER RAIL = 2.84 SQUARE FEET.
10. CONCRETE BARRIER RAILS PLACED USING THE SLIPFORM METHOD WILL REQUIRE THE USE OF A CLASS BR CONCRETE IN ACCORDANCE WITH ARTICLE 2513.03A OF THE STANDARD SPECIFICATION. CAST-IN-PLACE BARRIER RAILS SHALL USE CLASS C MIX. CLASS D CONCRETE IS NOT PERMITTED FOR CONCRETE BARRIER RAILS (CAST-IN-PLACE OR SLIPFORMED METHOD).



**PART SECTION C-C**

LATEST REVISION DATE	APPROVED BY BRIDGE ENGINEER <i>Norman E. McQuinn</i>	<b>IOWADOT</b> Highway Division	
		STANDARD DESIGN - 40' ROADWAY, 3 SPAN BRIDGES	
<b>ROLLED STEEL BEAM BRIDGES</b>			
JUNE, 2010			
<b>BARRIER RAIL DETAILS SHEET I</b>		<b>RS40-087-10</b>	