











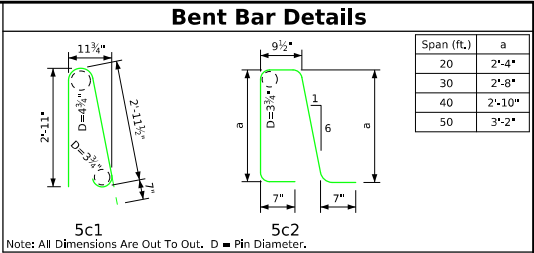


Epoxy Coated Reinf. Steel - Two Standard Section Rails - Integral Abut.															
Skew (°)	Bar	Location	Shape	20'-0" Span			30'-0" Span			40'-0" Span			50'-0" Span		
				No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight
0°	5c1	Rail, Vertical		24	6'-8"	167	44	6'-8"	306	64	6'-8"	445	84	6'-8"	584
	5c2	Rail, Vertical		24	6'-4"	159	44	7'-0"	322	64	7'-4"	491	84	8'-0"	703
	5d1	Rail, Longitudinal		18	18'-10"	354	18	28'-10"	541	18	38'-10"	729	36	26'-0"	976
	0° Skew Epoxy-Coated Total - LBS.					680			1,169			1,665			2,263
15°	5c1	Rail, Vertical		24	6'-8"	167	44	6'-8"	306	64	6'-8"	445	84	6'-8"	584
	5c2	Rail, Vertical		24	6'-4"	159	44	7'-0"	322	64	7'-4"	491	84	8'-0"	703
	5d1	Rail, Longitudinal		18	18'-11"	356	18	28'-11"	543	18	38'-11"	731	36	26'-1"	978
	15° Skew Epoxy-Coated Total - LBS.					682			1,171			1,667			2,265
30°	5c1	Rail, Vertical		26	6'-8"	181	46	6'-8"	320	66	6'-8"	459	86	6'-8"	598
	5c2	Rail, Vertical		26	6'-4"	172	46	7'-0"	337	66	7'-4"	506	86	8'-0"	720
	5d1	Rail, Longitudinal		18	19'-4"	362	18	29'-4"	550	18	39'-4"	738	36	26'-3"	985
	30° Skew Epoxy-Coated Total - LBS.					715			1,207			1,703			2,303
45°	5c1	Rail, Vertical		28	6'-8"	195	48	6'-8"	334	68	6'-8"	473	88	6'-8"	612
	5c2	Rail, Vertical		28	6'-4"	185	48	7'-0"	351	68	7'-4"	521	88	8'-0"	736
	5d1	Rail, Longitudinal		18	20'-1"	377	18	30'-1"	565	36	21'-8"	815	36	26'-8"	1003
	45° Skew Epoxy-Coated Total - LBS.					757			1,250			1,809			2,351

Epoxy Coated Reinf. Steel - Two Standard Section Rails - High Abut.															
Skew (°)	Bar	Location	Shape	20'-0" Span			30'-0" Span			40'-0" Span			50'-0" Span		
				No.	Length	Weight	No.	Length	Weight	No.	Length	Weight	No.	Length	Weight
0°	5c1	Rail, Vertical		8	6'-8"	56	28	6'-8"	195	48	6'-8"	334	68	6'-8"	473
	5c2	Rail, Vertical		8	6'-4"	53	28	7'-0"	205	48	7'-4"	368	68	8'-0"	569
	5d1	Rail, Longitudinal		18	10'-10"	203	18	20'-10"	391	18	30'-10"	579	36	22'-0"	826
	0° Skew Epoxy-Coated Total • LBS.					312			791			1,281		1,868	
	15°	5c1	Rail, Vertical		8	6'-8"	56	28	6'-8"	195	48	6'-8"	334	68	6'-8"
5c2		Rail, Vertical	8		6'-4"	53	28	7'-0"	205	48	7'-4"	368	68	8'-0"	569
5d1		Rail, Longitudinal		18	10'-6"	198	18	20'-6"	385	18	30'-6"	573	36	21'-10"	820
15° Skew Epoxy-Coated Total • LBS.						307			785			1,275		1,862	

Concrete Placement Summary												
Skew (°)	Section	Abutment Type	Integral Abutment				High Abutment				Span	20'-0"
			20'-0"	30'-0"	40'-0"	50'-0"	20'-0"	30'-0"	40'-0"	50'-0"		
0°	Standard Section (Cu, Yds.)		3.2	5.7	8.3	10.9	1.1	3.7	6.3	8.9		
	End Section 4 @ 0.96 Cu, Yds.		3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8		
	0° Total Cu, Yds.		7.0	9.5	12.1	14.7	4.9	7.5	10.1	12.7		
15°	Standard Section (Cu, Yds.)		3.2	5.8	8.4	11.0	1.0	3.6	6.2	8.8		
	End Section 4 @ 0.96 Cu, Yds.		3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8		
	15° Total Cu, Yds.		7.0	9.6	12.2	14.8	4.8	7.4	10.0	12.6		
30°	Standard Section (Cu, Yds.)		3.3	5.9	8.5	11.1	-	-	-	-		
	End Section 4 @ 0.96 Cu, Yds.		3.8	3.8	3.8	3.8	-	-	-	-		
	30° Total Cu, Yds.		7.1	9.7	12.3	14.9	-	-	-	-		
45°	Standard Section (Cu, Yds.)		3.5	6.1	8.7	11.3	-	-	-	-		
	End Section 4 @ 0.96 Cu, Yds.		3.8	3.8	3.8	3.8	-	-	-	-		
	45° Total Cu, Yds.		7.3	9.9	12.5	15.1	-	-	-	-		

Concrete Barrier Rail Quantities												
Skew (°)	Item	Abutment Type	Integral Abutment				High Abutment				Unit/Span	20'-0"
			20'-0"	30'-0"	40'-0"	50'-0"	20'-0"	30'-0"	40'-0"	50'-0"		
0°	Concrete Barrier Rail	L.F.	62.0	82.0	102.0	122.0	46.0	66.0	86.0	106.0		
15°	Concrete Barrier Rail	L.F.	62.2	82.2	102.2	122.2	45.4	65.4	85.4	105.4		
30°	Concrete Barrier Rail	L.F.	62.9	82.9	102.9	122.9	-	-	-	-		
45°	Concrete Barrier Rail	L.F.	64.5	84.5	104.5	124.5	-	-	-	-		



Barrier Rail Notes:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise noted or shown.

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.

Cost of the joint sealer and bond breaker shall be considered incidental to other construction.

All barrier rail reinforcing steel is to be epoxy coated as shown. Stainless steel bars may be substituted at the designer's discretion. Lap and development lengths were determined from epoxy-coated steel.

The concrete barrier rail is to be bid on a lineal foot basis. The number of linear 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.

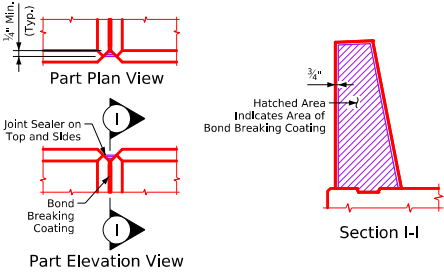
If conduit is required in this plan the rigid steel conduit, junction boxes and fittings including labor and any additional work to do the installation is considered incidental to the cost of the railing.

The joint sealer shall be light gray nonsag latex caulking sealer marketed for outdoor use. No testing or certification is required.



Top of the barrier rail is to be parallel to the theoretical C_g grade.

All exposed corners 90° or sharper are to be filleted with a 3/4" dressed and beveled strip.

Cross sectional area of the Standard Sections of the barrier rail = 3.50 square feet.



Barrier Rail Joint Details

Latest Revision Date	 Approved By Bridge Engineer		
		Standard Design - 30'-0" Roadway, Single Span Bridge	
		Single Span Concrete Slab Bridges	
		July, 2025	
		Single Slope Rail Details	J30S-31-25

Note:
See Barrier Rail Details on Sheet J30S-30-25 for details and sections.