

Table 1. Midwest Guardrail System (MGS) Design Variations with Pickup Truck Impact Performance

System Description	Post Spacing	Post Type ^{1,2}	Post Length	Test Designation	Test Criteria	Dynamic Deflection	Working Width	Maximum Vehicle Roll
Standard Post Spacing	6 ft - 3 in.	Steel W6x9	6 ft	Test 3-11	350	43.1 in.	49.6 in.	-4.8 deg
	6 ft - 3 in.	Steel W6x9	6 ft	Test 3-11	MASH-08	43.9 in.	48.6 in.	-6.3 deg
	6 ft - 3 in.	Steel W6x9	6 ft	Test 3-11	MASH-08 ⁴	57.0 in.	57.3 in.	-4.8 deg
	6 ft - 3 in.	Round DF	5 ft 9 in.	Test 3-11	350	60.2 in.	60.3 in.	14.2 deg
	6 ft - 3 in.	Round PP	5 ft 9 in.	Test 3-11	350	37.6 in.	48.6 in.	10.7 deg
Half Post Spacing	3 ft - 1 1/2 in.	Steel W6x9	6 ft	BARRIER VII Simulation	350	27.8 in.	43.1 in.	NA
Quarter Post Spacing	1 ft - 8 3/4 in.	Steel W6x9	6 ft	Test 3-11	350	17.6 in.	36.7 in.	4.7 deg
2:1 Fill Slope	6 ft - 3 in.	Steel W6x9	9 ft	Test 3-11	MASH-08	57.5 in.	62.6 in.	8.3 deg
8:1 Approach Slope	6 ft - 3 in.	Steel W6x9	6 ft	Test 3-11	350	57.6 in.	82.8 in.	38.1 deg
Long-Span Over Culvert	25-ft Unsupported Length with 6 ft - 3 in.	CRTs ³ CRTs ³	6 ft	Test 3-11	MASH-08	92.2 in.	93.4 in.	9.9 deg
			6 ft	Test 3-11	MASH-08	77.5 in.	84.0 in.	-10.7 deg
5:1 Flare Rate	6 ft - 3 in.	Steel W6x9	6 ft	Test 3-11	350	75.6 in.	97.4 in.	-10.1 deg
7:1 Flare Rate	6 ft - 3 in.	Steel W6x9	6 ft	Test 3-11	350	75.8 in.	87.9 in.	-19.9 deg
13:1 Flare Rate	6 ft - 3 in.	Steel W6x9	6 ft	Test 3-11	350	66.3 in.	70.6 in.	-16.2 deg
MGS Over 6-in. Curb	6 ft - 3 in.	Steel W6x9	6 ft	Test 3-11	350	40.3 in.	57.2 in.	-18.8 deg

¹ - Steel W6x8.5 sections can be substituted for W6x9 sections.

² - Round Southern Yellow Pine (SYP) timber posts were also crash tested and evaluated with the standard MGS.

³ - Three timber CRT posts are installed on each side of the unsupported length measuring 25 ft or less.

⁴ - 2270P GMC 2500 3/4-ton, 2-Door, Pickup Truck.