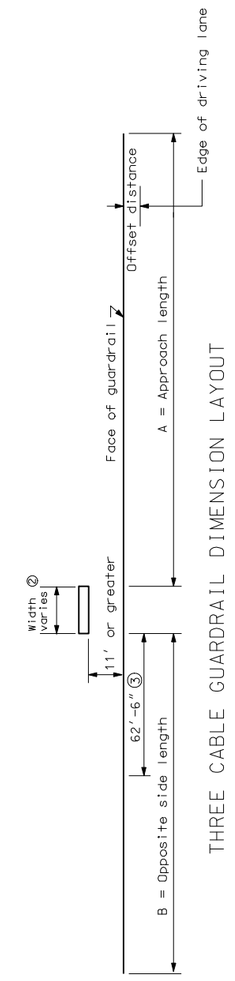
D-764-34

GUARDRAIL AT OBSTRUCTIONS

50 MPH DESIGN
LENGTH OF NEED TABLES

DESIGN TRAFFIC VOLUME	Guardrail offset distance	TWO WAY ROADWAYS										DIVIDED HIGHWAY									
		A	B	Total three cable guardrail obstruction width ②								A	B	Total three cable guardrail obstruction width ②							
				0′ to 12′-6″	12′-6″ to 25′-0″	25′-0″ to 37′-6″	37′-6″ to 50′-0″	50′-0″ to 62′-6″	62′-6″ to 75′-0″	75′-0″ to 87′-6″	87′-6″ to 100′-0″			0′ to 12′-6″	12′-6″ to 25′-0″	25′-0″ to 37′-6″	37′-6″ to 50′-0″	50′-0″ to 62′-6″	62′-6″ to 75′-0″	75′-0″ to 87′-6″	87′-6″ to 100′-0″
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
Under 250 ADT	12	75.0	62.5	150.0	162.5	175.0	187.5	200.0	212.5	225.0	237.5	75.0	62.5	150.0	162.5	175.0	187.5	200.0	212.5	225.0	237.5
	11	87.5		162.5	175.0	187.5	200.0	212.5	225.0	237.5	250.0	87.5		162.5	175.0	187.5	200.0	212.5	225.0	237.5	250.0
	10	100.0		175.0	187.5	200.0	212.5	225.0	237.5	250.0	262.5	100.0		175.0	187.5	200.0	212.5	225.0	237.5	250.0	262.5
	9	112.5		187.5	200.0	212.5	225.0	237.5	250.0	262.5	275.0	112.5		187.5	200.0	212.5	225.0	237.5	250.0	262.5	275.0
	8	125.0		200.0	212.5	225.0	237.5	250.0	262.5	275.0	287.5	125.0		200.0	212.5	225.0	237.5	250.0	262.5	275.0	287.5
	7	137.5		212.5	225.0	237.5	250.0	262.5	275.0	287.5	300.0	137.5		212.5	225.0	237.5	250.0	262.5	275.0	287.5	300.0
	6	150.0		225.0	237.5	250.0	262.5	275.0	287.5	300.0	312.5	150.0		225.0	237.5	250.0	262.5	275.0	287.5	300.0	312.5
	5	162.5		237.5	250.0	262.5	275.0	287.5	300.0	312.5	325.0	162.5		237.5	250.0	262.5	275.0	287.5	300.0	312.5	325.0
	4	175.0		250.0	262.5	275.0	287.5	300.0	312.5	325.0	337.5	175.0		250.0	262.5	275.0	287.5	300.0	312.5	325.0	337.5
	3	187.5		262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0	187.5		262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0
	2	187.5		262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0	187.5		262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0
	1	200.0	62.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0	362.5	200.0		275.0	287.5	300.0	312.5	325.0	337.5	350.0	362.5
	0	212.5	75.0	300.0	312.5	325.0	337.5	350.0	362.5	375.0	387.5	212.5	62.5	287.5	300.0	312.5	325.0	337.5	350.0	362.5	375.0
250 ADT - 800 ADT	12	112.5	62.5	187.5	200.0	212.5	225.0	237.5	250.0	262.5	275.0	112.5	62.5	187.5	200.0	212.5	225.0	237.5	250.0	262.5	275.0
	11	125.0		200.0	212.5	225.0	237.5	250.0	262.5	275.0	287.5	125.0		200.0	212.5	225.0	237.5	250.0	262.5	275.0	287.5
	10	137.5		212.5	225.0	237.5	250.0	262.5	275.0	287.5	300.0	137.5		212.5	225.0	237.5	250.0	262.5	275.0	287.5	300.0
	9	137.5		212.5	225.0	237.5	250.0	262.5	275.0	287.5	300.0	137.5		212.5	225.0	237.5	250.0	262.5	275.0	287.5	300.0
	8	150.0		225.0	237.5	250.0	262.5	275.0	287.5	300.0	312.5	150.0		225.0	237.5	250.0	262.5	275.0	287.5	300.0	312.5
	7	162.5		237.5	250.0	262.5	275.0	287.5	300.0	312.5	325.0	162.5		237.5	250.0	262.5	275.0	287.5	300.0	312.5	325.0
	6	175.0		250.0	262.5	275.0	287.5	300.0	312.5	325.0	337.5	175.0		250.0	262.5	275.0	287.5	300.0	312.5	325.0	337.5
	5	187.5		262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0	187.5		262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0
	4	200.0	62.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0	362.5	200.0		275.0	287.5	300.0	312.5	325.0	337.5	350.0	362.5
	3	212.5	75.0	300.0	312.5	325.0	337.5	350.0	362.5	375.0	387.5	212.5		287.5	300.0	312.5	325.0	337.5	350.0	362.5	375.0
	2	225.0	87.5	325.0	337.5	350.0	362.5	375.0	387.5	400.0	412.5	225.0		300.0	312.5	325.0	337.5	350.0	362.5	375.0	387.5
	1	237.5	100.0	350.0	362.5	375.0	387.5	400.0	412.5	425.0	437.5	237.5		312.5	325.0	337.5	350.0	362.5	375.0	387.5	400.0
	0	250.0	112.5	375.0	387.5	400.0	412.5	425.0	437.5	450.0	462.5	250.0	62.5	325.0	337.5	350.0	362.5	375.0	387.5	400.0	412.5
800 ADT - 2000 ADT	12	125.0	62.5	200.0	212.5	225.0	237.5	250.0	262.5	275.0	287.5	125.0	62.5	200.0	212.5	225.0	237.5	250.0	262.5	275.0	287.5
	11	137.5		212.5	225.0	237.5	250.0	262.5	275.0	287.5	300.0	137.5		212.5	225.0	237.5	250.0	262.5	275.0	287.5	300.0
	10	150.0		225.0	237.5	250.0	262.5	275.0	287.5	300.0	312.5	150.0		225.0	237.5	250.0	262.5	275.0	287.5	300.0	312.5
	9	162.5		237.5	250.0	262.5	275.0	287.5	300.0	312.5	325.0	162.5		237.5	250.0	262.5	275.0	287.5	300.0	312.5	325.0
	8	175.0		250.0	262.5	275.0	287.5	300.0	312.5	325.0	337.5	175.0		250.0	262.5	275.0	287.5	300.0	312.5	325.0	337.5
	7	187.5		262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0	187.5		262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0
	6	200.0		275.0	287.5	300.0	312.5	325.0	337.5	350.0	362.5	200.0		275.0	287.5	300.0	312.5	325.0	337.5	350.0	362.5
	5	212.5	62.5	300.0	312.5	325.0	337.5	350.0	362.5	375.0	387.5	212.5		287.5	300.0	312.5	325.0	337.5	350.0	362.5	375.0
	4	225.0	75.0	325.0	337.5	350.0	362.5	375.0	387.5	400.0	412.5	225.0		300.0	312.5	325.0	337.5	350.0	362.5	375.0	387.5
	3	237.5	87.5	350.0	362.5	375.0	387.5	400.0	412.5	425.0	437.5	237.5		312.5	325.0	337.5	350.0	362.5	375.0	387.5	400.0
	2	237.5	100.0	350.0	362.5	375.0	387.5	400.0	412.5	425.0	437.5	237.5		312.5	325.0	337.5	350.0	362.5	375.0	387.5	400.0
	1	250.0	112.5	375.0	387.5	400.0	412.5	425.0	437.5	450.0	462.5	250.0		325.0	337.5	350.0	362.5	375.0	387.5	400.0	412.5
	0	262.5	125.0	400.0	412.5	425.0	437.5	450.0	462.5	475.0	487.5	262.5	62.5	337.5	350.0	362.5	375.0	387.5	400.0	412.5	425.0
2000 ADT - 6000 ADT	12	162.5	62.5	237.5	250.0	262.5	275.0	287.5	300.0	312.5	325.0	162.5	62.5	237.5	250.0	262.5	275.0	287.5	300.0	312.5	325.0
	11	187.5		262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0	187.5		262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0
	10																				
	9	187.5		262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0	187.5		262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0
	8	200.0	62.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0	362.5	200.0		275.0	287.5	300.0	312.5	325.0	337.5	350.0	362.5
	7	212.5	75.0	300.0	312.5	325.0	337.5	350.0	362.5	375.0	387.5	212.5		287.5	300.0	312.5	325.0	337.5	350.0	362.5	375.0
	6	225.0	87.5	325.0	337.5	350.0	362.5	375.0	387.5	400.0	412.5	225.0		300.0	312.5	325.0	337.5	350.0	362.5	375.0	387.5
	5	237.5	100.0	350.0	362.5	375.0	387.5	400.0	412.5	425.0	437.5	237.5		312.5	325.0	337.5	350.0	362.5	375.0	387.5	400.0
	4	250.0	112.5	375.0	387.5	400.0	412.5	425.0	437.5	450.0	462.5	250.0		325.0	337.5	350.0	362.5	375.0	387.5	400.0	412.5
	3	262.5	125.0	400.0	412.5	425.0	437.5	450.0	462.5	475.0	487.5	262.5		337.5	350.0	362.5	375.0	387.5	400.0	412.5	425.0
	2	275.0	137.5	425.0	437.5	450.0	462.5	475.0	487.5	500.0	512.5	275.0		350.0	362.5	375.0	387.5	400.0	412.5	425.0	437.5
	1	287.5	150.0	450.0	462.5	475.0	487.5	500.0	512.5	525.0	537.5	287.5		362.5	375.0	387.5	400.0	412.5	425.0	437.5	450.0
	0	300.0	162.5	475.0	487.5	500.0	512.5	525.0	537.5	550.0	562.5	300.0	62.5	375.0	387.5	400.0	412.5	425.0	437.5	450.0	462.5
Over 6000 ADT	12	187.5	62.5	262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0	187.5	62.5	262.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0
	11	200.0		275.0	287.5	300.0	312.5	325.0	337.5	350.0	362.5	200.0		275.0	287.5	300.0	312.5	325.0	337.5	350.0	362.5
	10	212.5	62.5	287.5	300.0	312.5	325.0	337.5	350.0	362.5	375.0	212.5		287.5	300.0	312.5	325.0	337.5	350.0	362.5	375.0
	9	225.0	75.0	312.5	325.0	337.5	350.0	362.5	375.0	387.5	400.0	225.0		300.0	312.5	325.0	337.5	350.0	362.5	375.0	387.5
	8	237.5	87.5	337.5	350.0	362.5	375.0	387.5	400.0	412.5	425.0	237.5		312.5	325.0	337.5	350.0	362.5	375.0	387.5	400.0
	7	250.0	100.0	362.5	375.0	387.5	400.0	412.5	425.0	437.5	450.0	250.0		325.0	337.5	350.0	362.5	375.0	387.5	400.0	412.5
	6	262.5	112.5	387.5	400.0	412.5	425.0	437.5	450.0	462.5	475.0	262.5		337.5	350.0	362.5	375.0	387.5	400.0	412.5	425.0
	5	275.0	125.0	412.5	425.0	437.5	450.0	462.5	475.0	487.5	500.0	275.0		350.0	362.5	375.0	387.5	400.0	412.5	425.0	437.5
	4	275.0	137.5	425.0	437.5	450.0	462.5	475.0	487.5	500.0	512.5	275.0		350.0	362.5	375.0	387.5	400.0	412.5	425.0	437.5
	3	287.5	150.0	450.0	462.5	475.0	487.5	500.0	512.5	525.0	537.5	287.5		367.5	375.0	387.5	400.0	412.5	425.0	437.5	450.0
	2	300.0	162.5	475.0	487.5	500.0	512.5	525.0	537.5	550.0	562.5	300.0		375.0	387.5	400.0	412.5	425.0	437.5	450.0	462.5
	1	312.5	175.0	500.0	512.5	525.0	537.5	550.0	562.5	575.0	587.5	312.5		387.5	400.0	412.5	425.0	437.5	450.0	462.5	475.0
	0	325.0	187.5	525.0	537.5	550.0	562.5	575.0	587.5	600.0	612.5	325.0	62.5	400.0	412.5	425.0	437.5	450.0	462.5	475.0	487.5



THREE CABLE GUARDRAIL DIMENSION LAYOUT

NOTES:

② The width of the obstruction shall be rounded up to the nearest 12′-6″ length.

③ The 62′-6″ dimension is the minimum length beyond an obstruction that may be placed.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
06-01-91	
REVISIONS	
DATE	CHANGE
05-01-92	Notes
08-09-01	Change hazard to obstruction
12-01-04	PE Stamp added

This document was originally issued and sealed by MARK S GAYDOS, Registration Number PE-4518, on 12/01/04 and the original document is stored at the North Dakota Department of Transportation