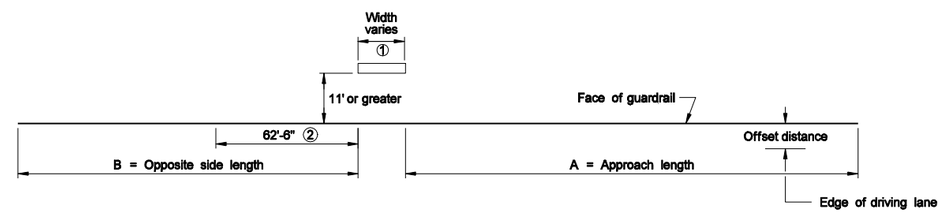
THREE CABLE GUARDRAIL AT OBSTRUCTIONS
75 MPH DESIGN
LENGTH OF NEED TABLES

D-764-37

LENGTH OF NEED TABLE 75 MPH DESIGN SPEED

DESIGN TRAFFIC VOLUME	GUARDRAIL OFFSET DISTANCE	TWO WAY ROADWAYS										DIVIDED HIGHWAY									
				TOTAL THREE CABLE LENGTH ①										TOTAL THREE CABLE LENGTH ①							
		A	B	0' - 12.5' Obstruction width	12.5' - 25' Obstruction width	25' - 37.5' Obstruction width	37.5' - 50' Obstruction width	50' - 62.5' Obstruction width	62.5' - 75' Obstruction width	75' - 87.5' Obstruction width	87.5' - 100' Obstruction width	A	B	0' - 12.5' Obstruction width	12.5' - 25' Obstruction width	25' - 37.5' Obstruction width	37.5' - 50' Obstruction width	50' - 62.5' Obstruction width	62.5' - 75' Obstruction width	75' - 87.5' Obstruction width	87.5' - 100' Obstruction width
		FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT	FT
Under 750 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	62.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0	362.5	200.0	62.5	275.0	287.5	300.0	312.5	325.0	337.5	350.0	362.5
	10	225.0	62.5	300.0	312.5	325.0	337.5	350.0	362.5	375.0	387.5	225.0	62.5	300.0	312.5	325.0	337.5	350.0	362.5	375.0	387.5
	9	237.5	62.5	312.5	325.0	337.5	350.0	362.5	375.0	387.5	400.0	237.5	62.5	312.5	325.0	337.5	350.0	362.5	375.0	387.5	400.0
	8	262.5	62.5	337.5	350.0	362.5	375.0	387.5	400.0	412.5	425.0	262.5	62.5	337.5	350.0	362.5	375.0	387.5	400.0	412.5	425.0
	7	275.0	62.5	350.0	362.5	375.0	387.5	400.0	412.5	425.0	437.5	275.0	62.5	350.0	362.5	375.0	387.5	400.0	412.5	425.0	437.5
	6	287.5	75.0	375.0	387.5	400.0	412.5	425.0	437.5	450.0	462.5	287.5	62.5	362.5	375.0	387.5	400.0	412.5	425.0	437.5	450.0
	5	312.5	100.0	425.0	437.5	450.0	462.5	475.0	487.5	500.0	512.5	312.5	62.5	387.5	400.0	412.5	425.0	437.5	450.0	462.5	475.0
	4	325.0	112.5	450.0	462.5	475.0	487.5	500.0	512.5	525.0	537.5	325.0	62.5	400.0	412.5	425.0	437.5	450.0	462.5	475.0	487.5
	3	350.0	137.5	500.0	512.5	525.0	537.5	550.0	562.5	575.0	587.5	350.0	62.5	425.0	437.5	450.0	462.5	475.0	487.5	500.0	512.5
	2	362.5	150.0	525.0	537.5	550.0	562.5	575.0	587.5	600.0	612.5	362.5	62.5	437.5	450.0	462.5	475.0	487.5	500.0	512.5	525.0
	1	387.5	162.5	562.5	575.0	587.5	600.0	612.5	625.0	637.5	650.0	387.5	62.5	462.5	475.0	487.5	500.0	512.5	525.0	537.5	550.0
	0	400.0	187.5	600.0	612.5	625.0	637.5	650.0	662.5	675.0	687.5	400.0	62.5	475.0	487.5	500.0	512.5	525.0	537.5	550.0	562.5
750 - 1500 ADT	12	262.5	87.5	362.5	375.0	387.5	400.0	412.5	425.0	437.5	450.0	262.5	62.5	337.5	350.0	362.5	375.0	387.5	400.0	412.5	425.0
	11	275.0	112.5	400.0	412.5	425.0	437.5	450.0	462.5	475.0	487.5	275.0	62.5	350.0	362.5	375.0	387.5	400.0	412.5	425.0	437.5
	10	287.5	125.0	425.0	437.5	450.0	462.5	475.0	487.5	500.0	512.5	287.5	62.5	362.5	375.0	387.5	400.0	412.5	425.0	437.5	450.0
	9	312.5	137.5	462.5	475.0	487.5	500.0	512.5	525.0	537.5	550.0	312.5	62.5	387.5	400.0	412.5	425.0	437.5	450.0	462.5	475.0
	8	325.0	150.0	487.5	500.0	512.5	525.0	537.5	550.0	562.5	575.0	325.0	62.5	400.0	412.5	425.0	437.5	450.0	462.5	475.0	487.5
	7	337.5	162.5	512.5	525.0	537.5	550.0	562.5	575.0	587.5	600.0	337.5	62.5	412.5	425.0	437.5	450.0	462.5	475.0	487.5	500.0
	6	350.0	175.0	537.5	550.0	562.5	575.0	587.5	600.0	612.5	625.0	350.0	62.5	425.0	437.5	450.0	462.5	475.0	487.5	500.0	512.5
	5	362.5	187.5	562.5	575.0	587.5	600.0	612.5	625.0	637.5	650.0	362.5	62.5	437.5	450.0	462.5	475.0	487.5	500.0	512.5	525.0
	4	375.0	212.5	600.0	612.5	625.0	637.5	650.0	662.5	675.0	687.5	375.0	62.5	450.0	462.5	475.0	487.5	500.0	512.5	525.0	537.5
	3	387.5	225.0	625.0	637.5	650.0	662.5	675.0	687.5	700.0	712.5	387.5	62.5	462.5	475.0	487.5	500.0	512.5	525.0	537.5	550.0
	2	412.5	237.5	662.5	675.0	687.5	700.0	712.5	725.0	737.5	750.0	412.5	62.5	487.5	500.0	512.5	525.0	537.5	550.0	562.5	575.0
	1	425.0	250.0	687.5	700.0	712.5	725.0	737.5	750.0	762.5	775.0	425.0	62.5	500.0	512.5	525.0	537.5	550.0	562.5	575.0	587.5
	0	437.5	262.5	712.5	725.0	737.5	750.0	762.5	775.0	787.5	800.0	437.5	62.5	512.5	525.0	537.5	550.0	562.5	575.0	587.5	600.0
1500 - 2000 ADT	12	287.5	150.0	450.0	462.5	475.0	487.5	500.0	512.5	525.0	537.5	287.5	62.5	362.5	375.0	387.5	400.0	412.5	425.0	437.5	450.0
	11	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
	10	312.5	175.0	500.0	512.5	525.0	537.5	550.0	562.5	575.0	587.5	312.5	62.5	387.5	400.0	412.5	425.0	437.5	450.0	462.5	475.0
	9	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
	8	337.5	200.0	550.0	562.5	575.0	587.5	600.0	612.5	625.0	637.5	337.5	62.5	412.5	425.0	437.5	450.0	462.5	475.0	487.5	500.0
	7	350.0	212.5	575.0	587.5	600.0	612.5	625.0	637.5	650.0	662.5	350.0	62.5	425.0	437.5	450.0	462.5	475.0	487.5	500.0	512.5
	6	362.5	225.0	600.0	612.5	625.0	637.5	650.0	662.5	675.0	687.5	362.5	62.5	437.5	450.0	462.5	475.0	487.5	500.0	512.5	525.0
	5	375.0	237.5	625.0	637.5	650.0	662.5	675.0	687.5	700.0	712.5	375.0	62.5	450.0	462.5	475.0	487.5	500.0	512.5	525.0	537.5
	4	387.5	250.0	650.0	662.5	675.0	687.5	700.0	712.5	725.0	737.5	387.5	62.5	462.5	475.0	487.5	500.0	512.5	525.0	537.5	550.0
	3	400.0	262.5	675.0	687.5	700.0	712.5	725.0	737.5	750.0	762.5	400.0	62.5	475.0	487.5	500.0	512.5	525.0	537.5	550.0	562.5
	2	412.5	275.0	700.0	712.5	725.0	737.5	750.0	762.5	775.0	787.5	412.5	62.5	487.5	500.0	512.5	525.0	537.5	550.0	562.5	575.0
	1	425.0	275.0	712.5	725.0	737.5	750.0	762.5	775.0	787.5	800.0	425.0	62.5	500.0	512.5	525.0	537.5	550.0	562.5	575.0	587.5
	0	437.5	287.5	737.5	750.0	762.5	775.0	787.5	800.0	812.5	825.0	437.5	62.5	512.5	525.0	537.5	550.0	562.5	575.0	587.5	600.0
2000 - 6000 ADT	12	325.0	162.5	500.0	512.5	525.0	537.5	550.0	562.5	575.0	587.5	325.0	62.5	400.0	412.5	425.0	437.5	450.0	462.5	475.0	487.5
	11	337.5	187.5	537.5	550.0	562.5	575.0	587.5	600.0	612.5	625.0	337.5	62.5	412.5	425.0	437.5	450.0	462.5	475.0	487.5	500.0
	10	362.5	200.0	575.0	587.5	600.0	612.5	625.0	637.5	650.0	662.5	362.5	62.5	437.5	450.0	462.5	475.0	487.5	500.0	512.5	525.0
	9	375.0	212.5	600.0	612.5	625.0	637.5	650.0	662.5	675.0	687.5	375.0	62.5	450.0	462.5	475.0	487.5	500.0	512.5	525.0	537.5
	8	387.5	225.0	625.0	637.5	650.0	662.5	675.0	687.5	700.0	712.5	387.5	62.5	462.5	475.0	487.5	500.0	512.5	525.0	537.5	550.0
	7	400.0	237.5	650.0	662.5	675.0	687.5	700.0	712.5	725.0	737.5	400.0	62.5	475.0	487.5	500.0	512.5	525.0	537.5	550.0	562.5
	6	412.5	250.0	675.0	687.5	700.0	712.5	725.0	737.5	750.0	762.5	412.5	62.5	487.5	500.0	512.5	525.0	537.5	550.0	562.5	575.0
	5	425.0	262.5	700.0	712.5	725.0	737.5	750.0	762.5	775.0	787.5	425.0	62.5	500.0	512.5	525.0	537.5	550.0	562.5	575.0	587.5
	4	437.5	275.0	725.0	737.5	750.0	762.5	775.0	787.5	800.0	812.5	437.5	62.5	512.5	525.0	537.5	550.0	562.5	575.0	587.5	600.0
	3	450.0	287.5	750.0	762.5	775.0	787.5	800.0	812.5	825.0	837.5	450.0	62.5	525.0	537.5	550.0	562.5	575.0	587.5	600.0	612.5
	2	462.5	300.0	775.0	787.5	800.0	812.5	825.0	837.5	850.0	862.5	462.5	62.5	537.5	550.0	562.5	575.0	587.5	600.0	612.5	625.0
	1	475.0	312.5	800.0	812.5	825.0	837.5	850.0	862.5	875.0	887.5	475.0	62.5	550.0	562.5	575.0	587.5	600.0	612.5	625.0	637.5
	0	487.5	325.0	825.0	837.5	850.0	862.5	875.0	887.5	900.0	912.5	487.5	62.5	562.5	575.0	587.5	600.0	612.5	625.0	637.5	650.0
OVER 6000 ADT	12	362.5	212.5	587.5	600.0	612.5	625.0	637.5	650.0	662.5	675.0	362.5	62.5	437.5	450.0	462.5	475.0	487.5	500.0	512.5	525.0
	11	375.0	225.0	612.5	625.0	637.5	650.0	662.5	675.0	687.5	700.0	375.0	62.5	450.0	462.5	475.0	487.5	500.0	512.5	525.0	537.5
	10	387.5	237.5	637.5	650.0	662.5	675.0	687.5	700.0	712.5	725.0	387.5	62.5	462.5	475.0	487.5	500.0	512.5	525.0	537.5	550.0
	9	412.5	250.0	675.0	687.5	700.0	712.5	725.0	737.5	750.0	762.5	412.5	62.5	487.5	500.0	512.5	525.0	537.5	550.0	562.5	575.0
	8	425.0	262.5	700.0	712.5	725.0	737.5	750.0	762.5	775.0	787.5	425.0	62.5	500.0	512.5	525.0	537.5	550.0	562.5	575.0	587.5
	7	437.5	275.0	725.0	737.5	750.0	762.5	775.0	787.5	800.0	812.5	437.5	62.5	512.5	525.0	537.5	550.0	562.5	575.0	587.5	600.0
	6	450.0	287.5	750.0	762.5	775.0	787.5	800.0	812.5	825.0	837.5	450.0	62.5	525.0	537.5	550.0	562.5	575.0	587.5	600.0	612.5
	5	462.5	300.0	775.0	787.5	800.0	812.5	825.0	837.5	850.0	862.5	462.5	62.5	537.5	550.0	562.5	575.0	587.5	600.0	612.5	625.0
	4	475.0	312.5	800.0	812.5	825.0	837.5	850.0	862.5	875.0	887.5	475.0	62.5	550.0	562.5	575.0	587.5	600.0	612.5	625.0	637.5
	3	487.5	325.0	825.0	837.5	850.0	862.5	875.0	887.5	900.0	912.5	487.5	62.5	562.5	575.0	587.5	600.0	612.5	625.0	637.5	650.0
	2	500.0	337.5	850.0	862.5	875.0	887.5	900.0	912.5	925.0	937.5	500.0	62.5	575.0	587.5	600.0	612.5	625.0	637.5	650.0	662.5
	1	512.5	350.0	875.0	887.5	900.0	912.5	925.0	937.5	950.0	962.5	512.5	62.5	587.5	600.0	612.5	625.0	637.5	650.0	662.5	675.0
	0	525.0	362.5	900.0	912.5	925.0	937.5	950.0	962.5	975.0	987.5	525.0	62.5	600.0	612.5	625.0	637.5	650.0	662.5	675.0	687.5



THREE CABLE GUARDRAIL DIMENSION LAYOUT

NOTES:

① The width of the obstruction shall be rounded up to the nearest 12'-6" length.

② The 62'-6" dimension is the minimum length beyond an obstruction that may be placed.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
08-09-01	
REVISIONS	
DATE	CHANGE
12-01-04	PE Stamp added
01-04-07	Revised table and layout
02-16-07	Revised table

This document was originally issued and sealed by MARK S GAYDOS Registration Number PE- 4518 , on 02/16/2007 and the original document is stored at the North Dakota Department of Transportation