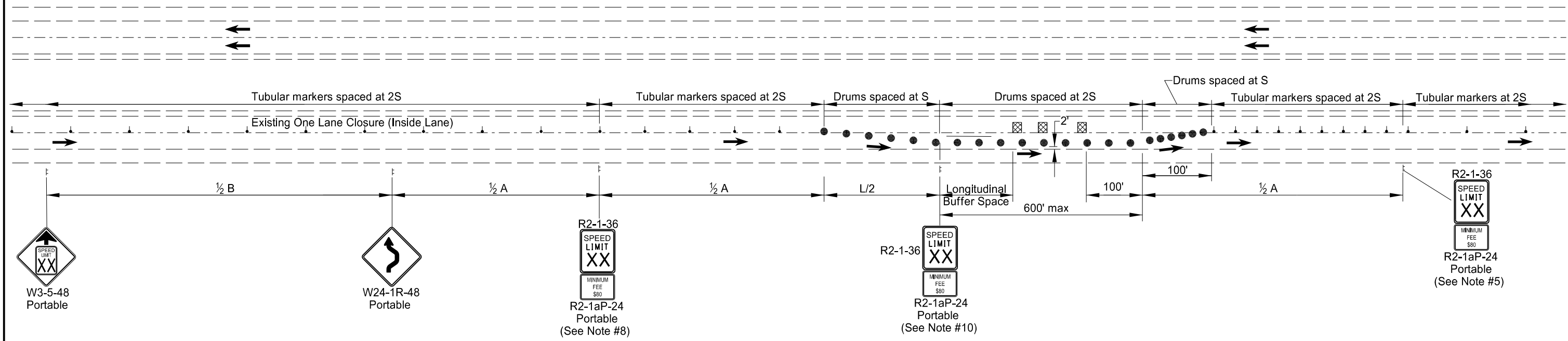


# SIGN LAYOUT TO MOVE TRAFFIC TO OUTSIDE SHOULDER ON FOUR LANE DIVIDED HIGHWAY

D-704-35A



KEY	
	Work area
	Tubular marker
	Sign
	Delineator drum
	Traffic Direction

- Notes**
1. Install advance signs for flagging when flaggers are flagging.
  2. Return traffic to the driving lane during non working hours (change this layout back to a one lane closure and cover or remove the signs.)
  3. Variables:  
 S = Numerical value of speed limit or 85th percentile.  
 W = Width of taper.  
 L = Minimum length of taper, (S x W for freeways, expressways, and roads with speeds of 45 mph or greater, or  $W \times S^2 / 60$  for streets with speeds of 40 mph or less.)
  4. Space delineator drums, and tubular markers for tapering traffic at dimension "S". Space tubular markers for tangents at 2 times dimension "S".
  5. Re-establish the speed limit. Recommend using speed limit 10 mph below preconstruction speed limit. Determine the exact speed limit in the field, dependent on location and conditions.
  6. Cover existing speed limit signs within a reduced speed zone.
  7. Install flags on warning signs in urban areas where signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
  8. Recommend using 45 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.
  9. Determine the reduced speed limit dependent on the in place speed limit before construction. When speed limits are to be reduced more than 30 mph, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at  $1/2 B$ .
  10. Recommend using 25 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.

ADVANCE WARNING SIGN SPACING			
Road Type	Distance Between Signs Min (ft)		
	A	B	C
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

LONGITUDINAL BUFFER SPACE	
*Speed (mph)	Length (ft)
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335
60	415
65	485
70	585

\*Posted speed, off-peak 85th percentile speed prior to work starting, or the anticipated operating speed in mph.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-26-12	
REVISIONS	
DATE	CHANGE
8-17-17 11-01-19	Updated notes & sign size & nos. Added notes & updated sign nos.

This document was originally issued and sealed by  
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 Registration Number  
 PE- 4683,  
 on 11/1/19 and the original document is stored at the North Dakota Department of Transportation