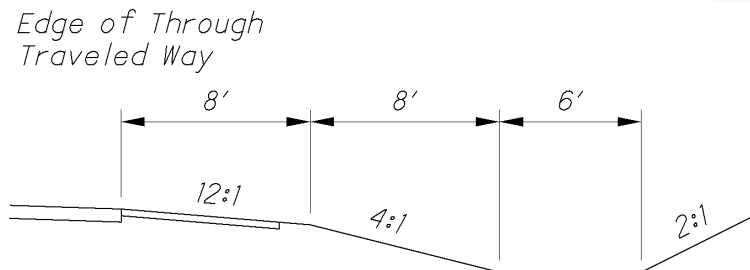


SAMPLE CALCULATIONS

Ex. 600-2

Clear Zone Measurement For a
Non-Traversable Ditch

- Problem 2:**
- Determine the required clear zone distance for the following location on a project with a tangent alignment, a design speed of 55 mph, and a design year traffic volume of 1,700 ADT.
 - Assuming this cross section occurs on the outside of a 2-Degree curve, how would this change the above results?
 - Determine the clear zone distance for a Degree of Curve of 3 degrees.



- Solution 2:**
- The required clear zone distance (for foreslopes steeper than 6:1 up to 4:1, 55 mph design speed, and $1,501 \leq \text{ADT} \leq 6,000$) is 27 feet. 19 feet of clear distance is available up to the center of the ditch. A trapezoidal ditch with a 4:1 foreslope, 2:1 backslope, and a width equal to or greater than 4 feet is a non-traversable design (see **Figure 307-11**) and generally should not be located within the clear zone. However, if the probability of encroachment is low, no additional improvement may be needed.
 - Since this location is on the outside of a curve where the probability of encroachment is high, the designer should consider reshaping the ditch or installing guardrail.
 - The required clear zone distance determined above for a tangent alignment needs to be increased by a factor of 1.2 for locations on the outside of curves with a curvature of 3 degrees and a design speed of 55 mph. (See **Figure 600-1**). The adjusted clear zone distance is $27(1.23) = 33.2'$. Since the adjusted value is greater than 30', use 30'.

Since 19 feet or only 63% of the required clear zone distance exists on the outside of the curve, the designer should consider reshaping the ditch or installing guardrail.