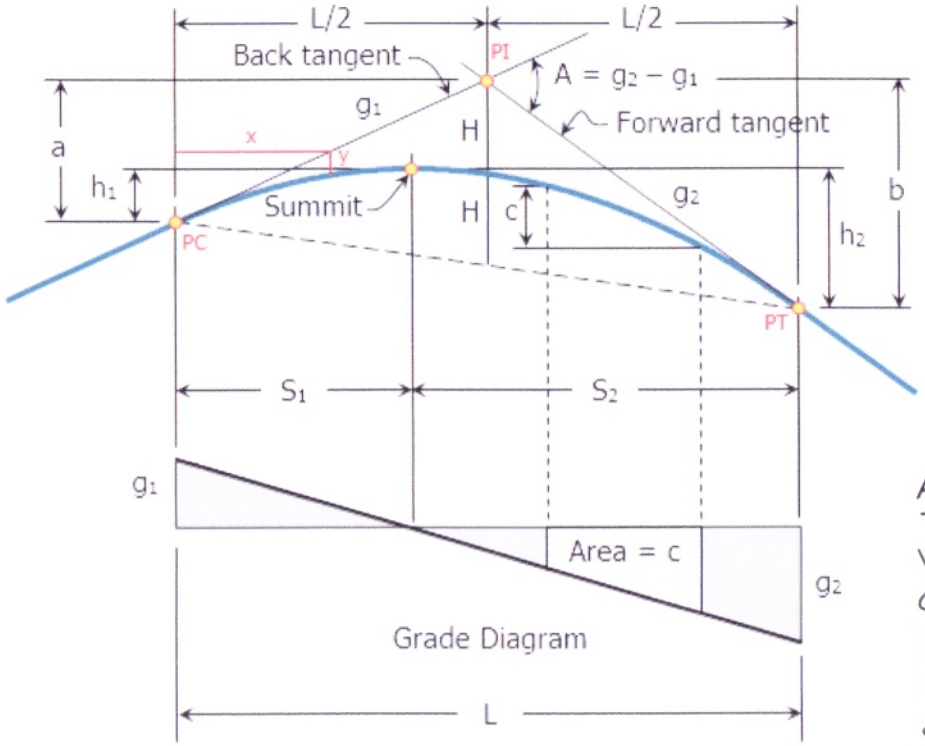

ATTACHMENT 7
VERTICAL CURVE DESIGN

ATTACHMENTS 6, 7, & 8 TO BE APPLIED SIMULTANEOUSLY, VERTICAL CURVE IS COMBINED WITH HORIZONTAL SPIRAL WHILE TRACKS ARE SUPERELEVATED FROM 0" TO 6" WHERE TRAINS TRAVEL AT 220 mph

Properties of Parabolic Curve and its Grade Diagram

1. The length of parabolic curve L is the horizontal distance between PI and PT.
2. PI is midway between PC and PT.
3. The curve is midway between PI and the midpoint of the chord from PC to PT.
4. The vertical distance between any two points on the curve is equal to area under the grade diagram. The vertical distance c = Area.
5. The grade of the curve at a specific point is equal to the offset distance in the grade diagram under that point. The grade at point Q is equal to g_Q.

Formulas for Symmetrical Parabolic Curve

The figure shown above illustrates the following geometric properties of parabolic curve. Note that the principles and formulas can be applied to both summit and sag curves.