



FIGURE 1

When computing Z_A , it is important for the user to keep in mind that the height of an anti-dune can never exceed one-half the maximum depth of flow ($1/2Y_{MAX}$). Accordingly, if Z_A should exceed $1/2Y_{MAX}$, then Z_A should be set equal to $1/2Y_{MAX}$ (i.e., $Z_A = 1/2Y_{MAX}$).

4.2.3 Low-Flow Thalweg (Z_T):

Updated
June 2013

The low-flow thalweg is a small “inner channel” which forms in the streambed of the main channel. A low-flow thalweg typically develops when the width-to-depth ratio of the main channel of an alluvial watercourse is large in comparison to the ordinary flows which occur on an annual basis. Depending upon the relationship between flow velocity, V , flow depth, Y , and flow width, W , during a 100-year event, the scour depth to account for a low-flow thalweg (Z_T) follows the relationships adopted from the *City of Tucson Standards Manual for Drainage Design* (1989, and revised in 1998), as shown below:

$$Z_T = 0 \quad W/Y \leq 1.15V \quad (\text{Equation 4.2.3.1})$$

$$Z_T = 1 \quad W/Y > 1.15V \quad (DA < 30 \text{ mi}^2) \quad (\text{Equation 4.2.3.2})$$

$$Z_T = 2 \quad W/Y > 1.15V \quad (DA \geq 30 \text{ mi}^2) \quad (\text{Equation 4.2.3.3})$$

Where:

- Z_T = Low-flow thalweg scour depth, in feet;
- W = Flow width, in feet
- Y = Average flow depth of channel, in ft; and
- V = Average velocity of the channel, in ft/s

Note, however, that if a low-flow thalweg is present at the site of a sanitary sewer crossing, the observed thalweg depth should be used in lieu of results generated by the preceding equations.

