5. Additional Information: HECRAS Model-Obstruction Design Methods and Techniques

Part One: Design Methods

Adam Collins Engineering, Inc. uses one of two known methods to account for blocked obstructions in HECRAS:

1. Incorporate the structure representing the blocked obstruction into the station elevations corresponding to the structure's station location within the HECRAS cross section existing condition model.

    a. At the existing condition model bank station (this station should represent the existing grade and its elevation at this location within the cross section) where the proposed structure will be located, add a new station (station is referring to the numerical value representing the x-axis of the cross section) directly adjacent in the proper direction that is .01 units different.

    ex. If the proposed project exists on the left side of the river channel in the HECRAS model cross section and you locate the first station of your structure (beginning with the landward side of the structure), you would add .01 to the new adjacent station and. Then locate the waterward side of the structure and corresponding existing grade station and elevation and add.01 units to the station

    b. For each new station added to the cross section, an elevation representing the y-axis of the cross section must be input as well. For the elevation, input the structure's highest point of elevation or the 100 year flood elevation for the cross section, whichever of the two is greater.

2. Use HECRAS's Blocked Obstruction feature in the Cross Section Editor and follow instructions given in the input dialog box to model the structure as a blocked obstruction within the cross section.

Part Two: Design Techniques

Dependent upon the specific project, site, and structure conditions, several techniques to model the obstructions created by structures may be used. These techniques are most often used to simplify the model in a conservative manner. The techniques written in this section do not represent all possible techniques used within the industry, nor do they suggest any technique is more accurate or a better representation of an obstruction than the others

1. Combining Structures-Combining two or more structures to create a single cumulative structure in the HECRAS model. This could be for reasons such as the structures overlap each other in their relation to location within a one-dimensional cross section, or they