SECTION 5.0 – ENGINEERING METHODS

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM.

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 12. Roughness coefficients are provided in Table 13. Roughness coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

The Base Level Engineering (BLE) analysis performed for the North Concho HUC-8 watershed was performed using 2-Dimensional Hydraulic modeling techniques utilizing HEC-RAS 6.3.1, as detailed in the BLE study documentation.

Table 12: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
North Concho HUC-8 and Zone A Tributaries	At HUC-8 boundary limits	At HUC-8 boundary limits	HEC-RAS 6.3.1 (2D)	HEC-RAS 6.3.1 (2D)	August 2025	A	• Effects of hydraulic structures were not considered in the model. • Other considerations reported in the following report: North Concho Watershed, Texas 2D Base Level Engineering and Mapping Methods and Results TWDB Contract No. 2101792542, Task Order 4 (MAS No. 32), dated August 2025

Table 13: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
North Concho HUC-8 and all Zone A Tributaries	0.03-0.06	0.03-0.16