RipRap and Scour Calculator

Stanford Gibson, PhD

DESCRIPTION

We are developing a Rip Rap and Scour calculator in HEC-RAS that computes riprap size and volume based on HEC-RAS hydrodynamics. The tool has three basic components:

1) Compute river and toe scour with a suite of empirical equations.
2) Compute an appropriate d_{30} and select the best available rip rap gradation based on HEC-RAS hydrodynamics.
3) Compute total rock volume required based on the riprap size, thickness, and launchable toe.

STATUS

We have started development of the Scour and RipRap calculators, in the HEC-RAS HD editor including:

- Interface design of the ensemble scour calculator that computes general and bend scour with 9 empirical equations.
- Prototype application of the scour calculator.
- Interface design for the rip rap sizing calculator.
- Pseduo-code of the calculations behind the scour and rip rap calculators

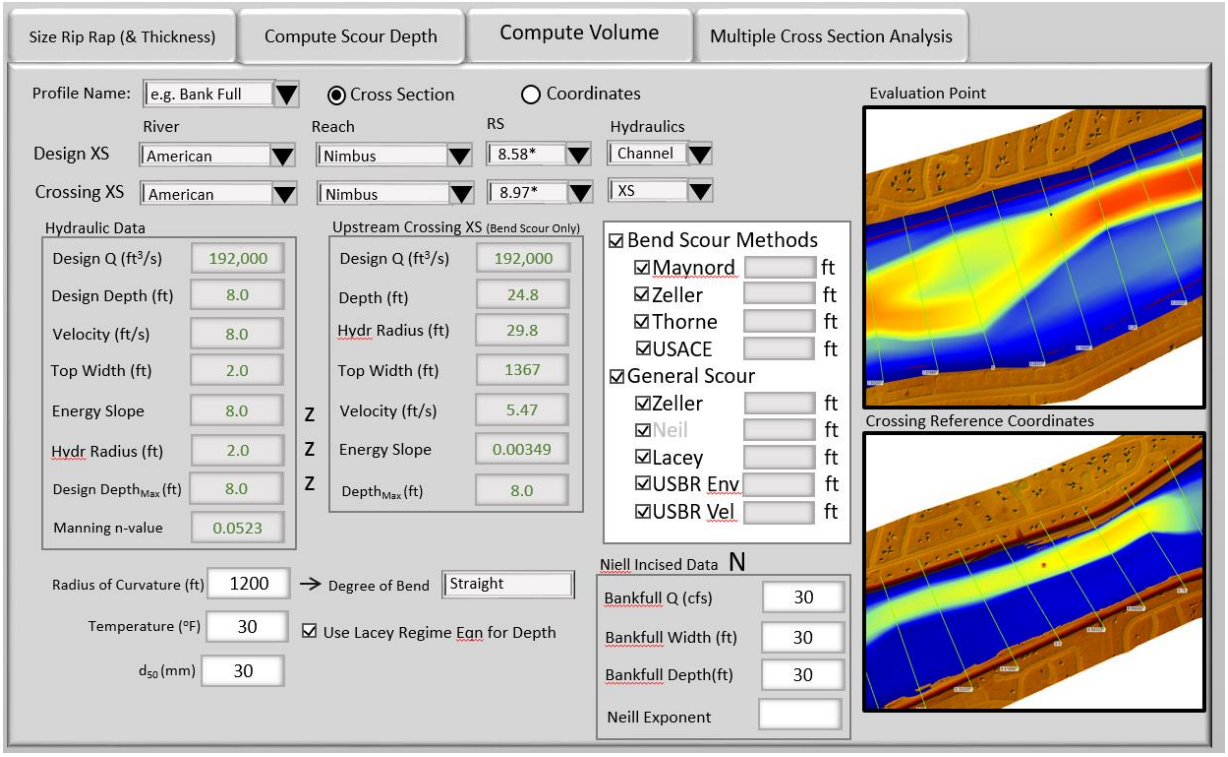

Figure 1: Interface design for the ensemble scour calculator.

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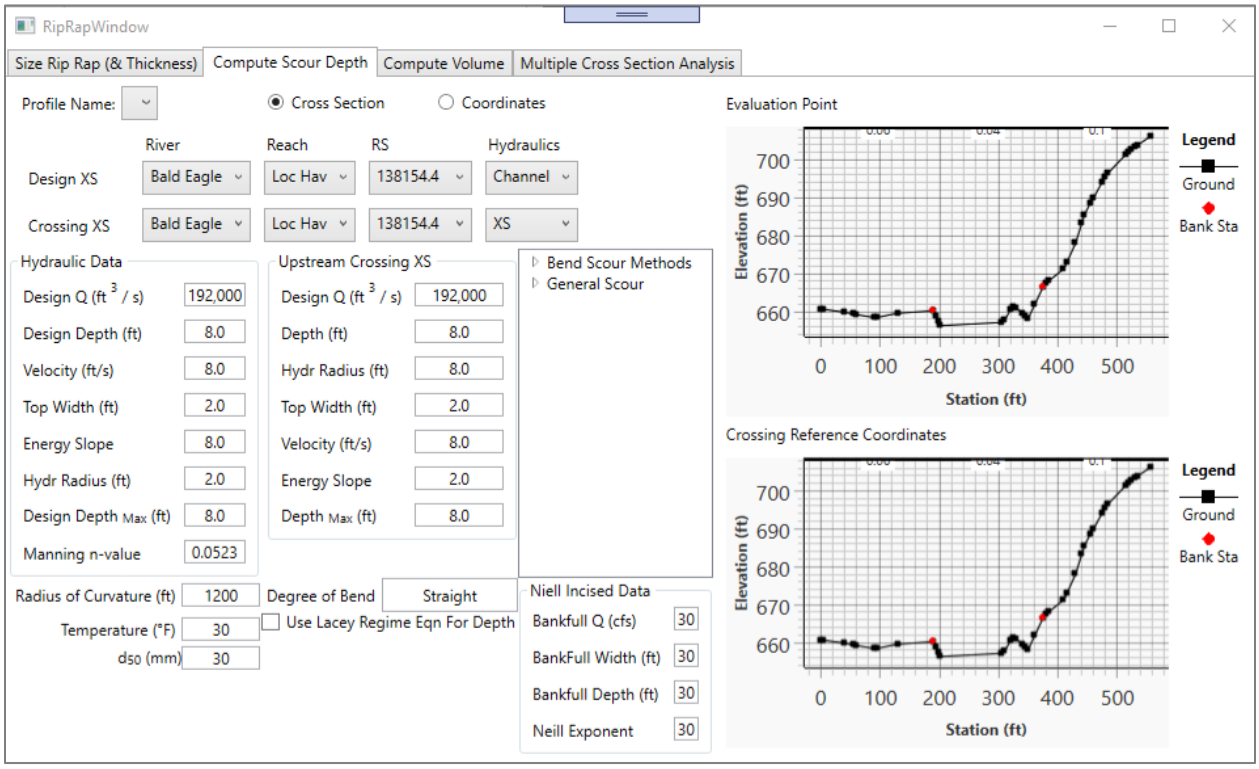

Figure 2: Preliminary prototype application of the ensemble scour calculator.

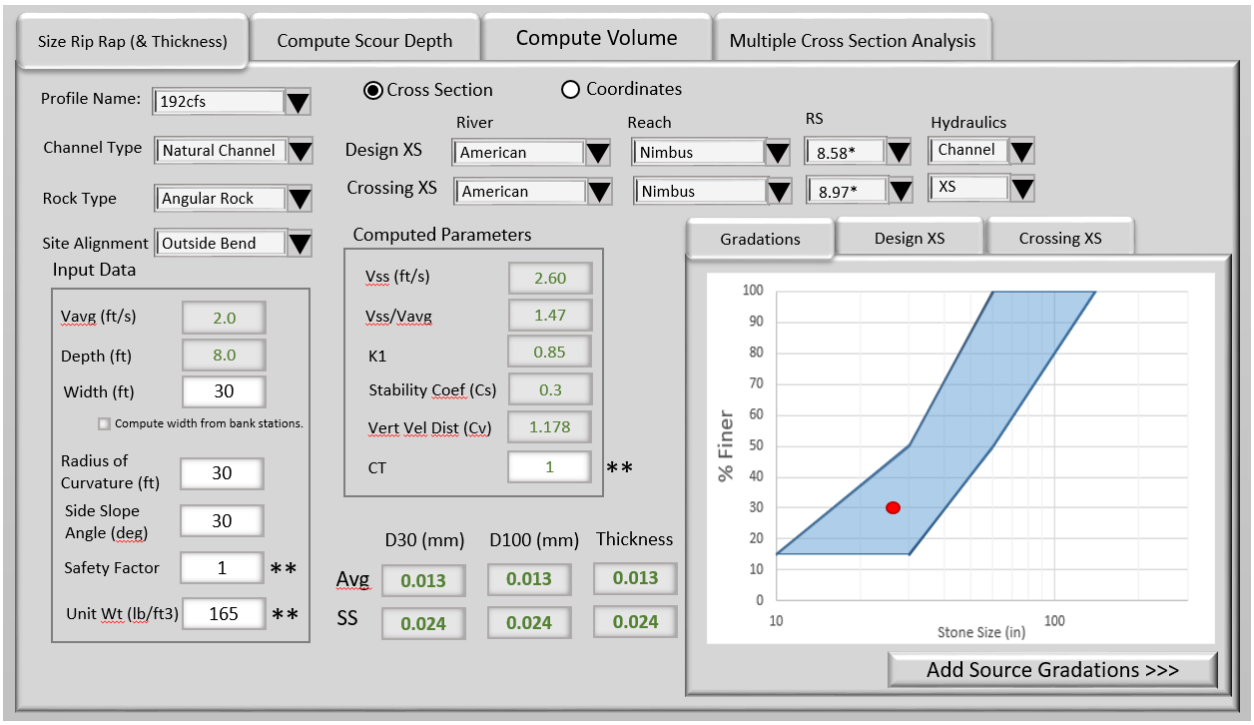

Figure 3: Rip-Rap Calculator Interface Design.