

Fealko Information CC44 Design Criteria

At bankfull events (1.25-1.5 year flood event) velocities are approximately 5.5 ft/sec, this relates to a shear stress of approximately 1.1 lb/sq.ft and Froude numbers at riffles are 0.6.

At baseflow events (40 cfs) the channel at a riffle is 30 feet wide, with an average depth of 0.4 feet with a max depth of 0.75 ft. Velocities are 3.5 ft/sec, shear stress is 0.5 lb/sq.ft. and the Froude number is 1.0.

Pools will be wider than the bankfull riffle at bankfull flows and will be much narrower at baseflow events (approximately 10-20 feet wide).

I just wanted to run by you approximate typical sections for the riffles on the CC-44 project. I think we will be designing between the 1.25 and 1.5 year flow events (565 and 659 cfs, respectively). I envision us somewhere between a W/D ratio of 15 to 20. Our slopes will vary from 0.005 up to 0.008. At a W/D ration of approximately 17 and these slopes my bankfull widths are in the range of 41 to 46 feet wide, average depths range from 2.4 to 2.7 feet while max depths range from 3.2 to 3.5 feet at a riffle section.

If the width-depth ratio increases toward 20, bankfull widths start increasing to 50 feet, while decreasing the width-depth ratio to 15 decreases widths to approximately 40 feet.

From our existing conditions hydraulic model the average width, average depth and average max depth for the entire reach (includes riffles and pools) are 73, 2.9, and 1.7 feet respectively.

Let me know what your thoughts are on these proposed widths and depths and how you think we might want to adjust them.

I can send you a graphical representation of the typical cross section if you want to see it, but it basically has 1.5H:1V side slopes with a 20H:1V bottom channel slope.