

Stable Channel Evaluation with Design Constraints in Cheongmi Stream, South Korea

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Abstract. Stable channel design program with various sediment transport equations has been used to calculate a unique solution considering design constraints such as fixed width and depth as well as various solutions for stable channel condition with a wide range. The study reach the abandoned channel restoration at the Cheongmi Stream of South Korea has been selected for the application. The stable channel analysis results of the current section in the Cheongmi Stream using various sediment transport equations indicated that the current section had deeper depth and milder bed slope compared to the stable channel prediction results. This could be represented in relation to the formation of sandbar around the current section in the Cheongmi Stream. With the fixed base width, the predicted slope was steeper and the predicted depth was shallower than the current condition. In the case of the application with the fixed depth, for Yang's and Ackers and White's equations, the predicted slopes were milder than the current section; while for Brownlie's and Engelund and Hansen's equations, the predicted slopes were steeper than the current section. For all sediment transport equations, the predicted base width was narrower than the corresponding section.

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