

Lessons Learned Using Stream Morphology and Simple Erosion Control Structures from the Past Decade that Improve Longevity and Project Performance

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The use of simple erosion control structures, one-rock-dams, rock sills, trincheras, etc have gained great popularity in recent years. Ease of construction, relative cost and effectiveness are driving increased and widespread use. While generally effective, failure rates can be high if hydrology, hydraulics and basic channel morphology are not incorporated into the design of the structures. The type of practice and design should be appropriate for the goals of the project rather than using a one size fits all approach. The shape, dimensions and spacing of the structures should be adapted to provide for simple grade control, management of channel aggradation, or complete obliteration of the channel as appropriate to the project goals. Even when channels are relatively small, attention to appropriate channel dimensions, planimetrics, riffle and pool spacing can greatly enhance the longevity and success of the structures. Additionally, a simple method for estimating hydraulic forces and appropriate rock size is provided using stream competency techniques.

These methods are offered as a relatively simple and accessible field techniques that can enhance the success of erosion control projects without the need for full scale engineering analysis. They are not meant to replace engineering analysis in areas where the consequences of structure failure can lead to the loss of infrastructure or the compromise of human safety.

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