

عنوان مقاله:

(Constriction Scour In Pressurized Flow Condition (RESEARCH NOTE

محل انتشار:

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خلاصه مقاله:

When depth of flow past a river bridge exceeds opening under the bridge, the flow under the bridge becomes pressurized. The water is directed downward and under the bridge deck, causing increase in velocity and shear stress on the bed thereby increasing bed scour. This is termed as Pressure Flow Scour. The present study investigates the phenomenon of pressure flow scour resulting from a submerged bridge deck over an unprotected erodible bed. Velocity of approaching flow, depth of flow, degree of submergence and width of bridge are some of the parameters that are likely to affect the scour under a submerged bridge. The effect of fluctuations in the flow depth on the depth of scour increases with decrease in constriction. The experimental data of Edward et al. has been merged with the present study and a conceptual relation is developed between scour depth and degree of submergence in the form of scour fraction and constriction ratio. For incipient flow conditions on the upstream of a submerged bridge, the final clearance under the bridge is equal to the depth of approaching flow. The study has been extended to include effect of unsteady flow in the form of a hydrograph, Interference of two similar submerged bridges, Interference of a submerged bridge with an un-submerged pier and a submerged bridge in conjunction with a circular bridge pier.

کلمات کلیدی:

Pressurized Flow, Constriction Scour, Submerged Bridge

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