

Effects of Seepage on Local Scour Estimation

Ayush Vashisth

Assistant Professor

Department of Civil Engineering

Central University of Haryana

Email:avashisthiitkgp@gmail.com

Abstract:

In the present study it shows that the effect of seepage on local scour estimation play a vital role for analysis its effect at downstream of the hydraulic. Many investigators suggest that the use of seepage at upstream and downstream part influence the role of scouring action in an alluvial stream. In this research paper, the recommendation of various researchers is concluded based on the various factors which influence the scour phenomenon.

Introduction:

In the literature, it seems that the effect of local scour on seepage around a hydraulic structure is quite important for the researcher now a day. In general, the difference of seepage from main stream flow to the branched stream flow was quite changes the flow altering system. However, the scouring action sometimes becomes very dangerous cause turbulent flow and hence loss of energy was not up to desired limits. If there is existing of high seepage, then there is a change in the flow boundary conditions. The seepage factor basically involves the interference problem between the bed of the sediments and the flow altering phenomenon in an open channel flow system. It is also noticed that the in some of the researchers finding the results are quite contracting in terms of basic fundamentals system and hence need to repeat the same.

Effect of Seepage on Local Scour:

The suction of bed is increases the shear stress should also be increases due to which armouring bed may also distorted as discussed by various investigators like Maclean (1991), Bagnold RA (1966), Chen and Chiew (2004) and Lu Y and Cheng NS (2008). If the rate of flow regime with increases or decreases in exponentially. The different investigator performed various experiments to analysis the flow behaviour around and circular or other shapes of pier using experimental results and computed the same in to numerical modelling. It is also concluded that the width and types of pier also play a great role for estimation of scour around the pier. Not, only but also the other parameters were also involved to calculate the scour phenomenon at downstream of bridge pier. The scouring phenomenon is depends upon the type of material, width of bed level and also effects the seepage at downstream. In this study, it shows that the inflow seepage affect an alluvial stream system has also effects results as numerically analysis sound as scour prediction phenomenon.

Conclusions:

It is concluded that if the Froude number of the approaching streams is less than one than the inflow seepage is directly affects the scour hole and the inflow seepage velocity is close to the critical. The increase in scour hole may be increased up to certain extend over the no flow seepage zone. The ratio of increase in scour hole may also cause reduction or degradation of scour bed.

References:

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