

Influence of Pier Modification Techniques for Reducing Scour around Bridge Piers

Authors : Rashid Farooq, Abdul Razzaq Ghumman, Hashim Nisar Hashmi

Abstract : Bridge piers often fail all over the world and the whole structure may be endangered due to scouring phenomena. Scouring has been linked to catastrophic failures that lead into the loss of human lives. Various techniques have been employed to extenuate the scouring process in order to assist the bridge designs. Pier modifications plays vital role to control scouring at the vicinity of the pier. This experimental study aims at monitoring the effectiveness of pier modification and temporal development of scour depth around a bridge pier by providing a collar, a cable or openings under the same flow conditions. Provision of a collar around the octagonal pier reduced more scour depth than that for other two configurations. Providing a collar around the octagonal pier found to be the best in reducing scour. The scour depth in front of pier was found to be 19.5% less than that at the octagonal pier without any modifications. Similarly, the scour depth around the octagonal pier having provision of a cable was less than that at pier with provision of openings. The scour depth around an octagonal pier was also compared with a plain circular pier and found to be 9.1% less.

Keywords : Scour, octagonal pier, collar, cable

Conference Title : ICCBE 2017 : International Conference on Civil and Building Engineering

Conference Location : Boston, United States

Conference Dates : April 24-25, 2017