

EVALUATED THE LOCAL SCOUR AT PIERS OF AL - HINDYIA SECOND BRIDGE

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ABSTRACT

In this paper, the local scour around the piers of al-Hindiya second bridge during the period (15/6/2013-16/12/2013) was studied. From field surveys at the bridge site it was observed that there is a scour hole with depth about 4 m around the 4th pier from left bank of the river. The field scour depth was compared with depths calculated from the five empirical equations using hydraulic characteristics of the stream flow (water depths, velocities and critical shear velocity) at approach channel for seven months and with average grain size of the bed material ($d_{50}=0.27$ mm). Results showed that Melville and Sutherland equation had a good agreement with the field scour depth. The max scour depth obtained from this equation was about 3.6 m when the $V/V_c \leq 1$. Depending on Melville and Sutherland equation anew formula was proposed for al-Hindiya second bridge to predicate the pier local scour within limitations and conditions similar to that at time of study.

KEYWORDS: Al- Hindiya Second Bridge, Deposition, Empirical Equations, Field Data, Local Scour, Pier