IJARSCT
International Journal of Advanced Research in Science, Communication and Technology
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
ISSN: 2581-9429
Volume 5, Issue 1, April 2025
Impact Factor: 7.67

Hydraulic Bridge

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Abstract: *Bridge construction requires careful planning and in-depth study as no undue risk should be taken in its design and construction. Constructing a bridge across braided river is still a Challenging task. Hydraulic aspects of bridge design mainly consists of selection of site, optimum orientation and waterway, location of abutments, design of guide banks, approach banks, and design of piers.. Hydraulic model studies were carried out at CW&PRS for the Rail and Road Bridges across river Kosi near Nirmali, Bihar, (about 38 km. Upstream/downstream of kosi Barrage). Various alternatives were analyzed on physical model to arrive at optimum waterway, guide bunds and afflux bunds. Studies were undertaken under existing conditions as well as with proposed bridges for discharges of 22375 m3/s and 26900 m3/s. For waterway of 1.875 km. An afflux of 1.35 m was observed at the bridge site.For a discharge of 22375 m3/s. various trials on the physical model to improve the flow conditions at the bridges and distribute the flow more uniformly through the spans of the bridges by adjusting both guide bund. Construction of Road Bridge has been completed and functioning very well. Construction of Rail Bridge is under progress. The present paper describes the hydraulic aspect of various components of the bridges.*

Keywords: Design flood, bridge waterway. Afflux; bed & water surface profile, flood mbankment, backwater, discharge distribution, guide bunds, alignment, and location