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Section No # B.

Assignment No # 02.

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uni = iqra National University peshawar.

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⊛ Loads on bridge foundation due to scour and their Mechanisms ⊛

Critical Scour effects on bridge performance helps to predict the bridge load carrying capacity and as a result may help prevent unnecessary losses.

Scour is one of the greatest reason that leads to bridge failure. In the United States more than 60% of bridge failure happen due to Scour. Scour causes complex effects on bridge foundation and on the etire bridge structure.

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pile foundation capacities
are greatly reduced
due removal of
material by scour,
which affects the
capacity of the overall stability
of bridge
system.

Mostly of Studies have
investigated the Substructure
and Superstructure
separately. There are a
few cases where
the effect of
scour is analyzed
entirely with bridge
structure. Analyzing
the behaviour of
bridge due to
scour is very
complex study, which
is why most
of the researchers study
the effect of scour
on substructure and

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them predict the effect of that on superstructure. Them has been done so much work on effect of scour on substructure. Mainly them's been investigated the load carry capacity of piles, buckling risk and additional moment on piles due to increasing water high heights as effect of scour.

Some of accidents caused bridge foundations by the stream is the most significant contribution factor for bridge failure. The scour failures tend to occur without prior warning & have led to fatalities & economic loss every year. A significant amount of work has been conducted on bridge

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such efforts can be broadly classified into two major categories, namely science driven & engineering driven. The science-driven research focuses on understanding the scour mechanism & aims to explain the cause of scour due to different factors. Meanwhile, engineering-driven research focuses on the estimation, monitoring & countermeasures of bridge scour. This paper provides a comprehensive & up-to-date literature review of bridge scour research and practices. Firstly a brief introduction is given which includes most cases of failures caused by bridge scour. Then, both scientific and technical research on bridge scour is reviewed, which are categorized into four aspects, macroscopic & microscopic mechanisms.

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scour depth prediction carried out by experimental & field data, direct & remote monitoring method and active & passive counter measures. Finally a summary is provided covering both experimental & computational method for scour research. Discussion is also provided on emerging ideas to investigate bridge scour from both science & engineering perspectives.