CLEAR WATER SCOUR
AROUND BRIDGE PIER GROUP

by

SHAHARUDDIN BIN AB GHANI

A Report Submitted to the School Of Civil Engineering

MARA Institute of Technology, Shah Alam

In Partial Fulfilment of the Requirements for a degree in

Bachelor Of Engineering (Hons) (Civil)

November 1996

ACKNOWLEDGEMENT

The author would like to convey his heartiest thanks to his supervisors Encik Mohamad Shani Bin Awalluddin and Encik Hamidon Bin Ahmad, lecturers in School of Civil Engineering, Mara Institute of Technology for their able supervisions, careful guidances, patience and kind advices which very invaluable towards the accomplishment of this study.

The author also like to express his deepest appreciation to all the technicians of the School of Civil Engineering for providing him with the necessary facilities required and the patience shown by them during the preparation of this thesis.

Last but not least, the author wishes to express his special gratitude to his parents and others for giving him much encouragement, understanding and support .

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SYNOPSIS

The objective of this study is to make a comparison of scour hole for two different shapes of model pier ie solid circular pier and pier group.This study also try to compare the scour hole for different various of approach flow for the pier group.

Tests are carried out on the models of different shape piers using wave flume situated at the Hydraulics Laboratory School of Civil Engineering, Mara Institute of Technology, 40450 Shah Alam, Selangor Darul Ehsan.

During the experiments, Scour depth, scour width and depth of flow were measured. The equilibrium scour depth for solid pier can be determined using the theoretical design equation from the data and for pier group, the equilibrium scour depth can be determined by getting the scour reduction due to pier group. .

Chapter One

INTRODUCTION

1.1 INTRODUCTION

Scour holes created by flowing water around bridge piers are a major cause of brige pier foundation failure. Bridge piers are normally supported by friction piles. If the scour depth is great enough to under cover the supporting piles, friction between the piles and the surrounding soil will be reduced and piers may settle.

The following four interrelated factors may cause a change in the bed elevation under a bridge;

a) **Local scour**

Scour caused directly by the flow disturbance of the pier.It occurs adjacent to the pier, and its magnitude varies according to flow, sediment and pier condition.

b) **Scour due to contractions**

The reduction of the flow areas by any combination of ;

i) converging river cross-sections

ii) presence of bridge piers