

**IDENTIFYING THE PARAMETERS
WHICH AFFECT THE BRIDGE PIER SCOUR
AND
METHOD OF PROTECTION**

by

FAUZI CHE MOHAMAD



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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	i
TABLE OF CONTENTS	ii
SYNOPSIS	v
LIST OF FIGURES	vi
LIST OF TABLES	viii
LIST OF PLATES	ix
LIST OF SYMBOLS	x
CHAPTER ONE : INTRODUCTION	
1.0 INTRODUCTION	1
1.2 STATEMENT OF PROBLEM	1
1.3 OBJECTIVE	2
CHAPTER TWO : LITERATURE REVIEW	
2.1 GENERAL	4
2.2 DEFINITIONS	4
2.2.1 General Scour	4
2.2.2 Localised Scour	5
2.2.2.1 Constriction Scour	5
2.2.2.2 Local Scour	5
2.3 GENERAL SCOUR	6
2.3.1 Long-Term General Scour	6
2.3.2 Short-Term General Scour	7
2.4 CONSTRICTION SCOUR	8

SYNOPSIS

Bridge failures due to flood are becoming very common nowadays. For the Malaysian, the Greg Storm on Keningau, Sabah which had caused a few number of bridges to fail was the most practical example. Therefore, the study of the factors leading to the failure of a bridge would become necessary.

This paper would present the basic concept of soil erosion and sediment transport as well as the parameters affecting the local scour which become the most causing factor to the failure of a bridge.

On the other hand, various techniques of protection against the local scour would also be highlighted as part of the guide and control the process of scouring so as to minimise the risk of failure.

CHAPTER ONE

INTRODUCTION

1.0 **INTRODUCTION**

The disturbance occasioned by the presence of a pier in the river flow can be seen when the current runs fast. The water rises up in front of the pier and flows away sideways as being shown in Figure 1.1. The presence of a bridge or the bridge pier in particular will definitely results in a reduction in the cross sectional area available for the flow. This would leads to the various head loss and backwater problems. Along with the other effects of the bridge, there is often an increased velocity at then bridge section. This contraction of area and the velocity produces a greater transport capacity at the bridge. Thus, there is tendency for the bed to scour at the bridge, enlarging the opening and reducing the transport capacity until it is more in line with that of the rest of the river.

1.1 **STATEMENT OF PROBLEM**

With the nation Gross Domestic Product sustained at average of eight percent for the past few years, the need to the construction of the bridge is anticipated to be on the rise in line with the Government policy to provide and upgrade the present transportation system throughout the country.

The recent Greg Storm on Sabah had caused few number of bridges to fail and it is part of the responsibility of an engineer to find ways in order to minimise