FINAL YEAR PROJECT REPORT

ADVANCED DIPLOMA IN CIVIL ENGINEERING

SCHOOL OF ENGINEERING

MARA INSTITUTE OF TECHNOLOGY

SHAH ALAM, SELANGOR

BEHAVIOUR OF BAKAU PILE : FULL SCALE LOAD TEST

BY

AZHAR IBRAHIM

NOVEMBER 1993

ACKNOWLEDGEMENTS

The author greatfully acknowledged his Project Supervisor, En. Bahardin Baharom for giving the opportunity to carry out the study described in this report and is indebted together with Ir. Hj. Sabri Yusof, the Acedemic Advisor on the helpfull recommendation, suggestion, encouragement and advice for making this study a success.

Thanks also due to En. Mat Som and other Soil Mechanic Laboratory staffs for handling and providing the necessary assistance and equipments required in performing the project and also En. Rosli Mohammad Yunus, the former student who was responsible in preparing the preliminary work for this study.

Lastly the author is gratefull to his project partner, En. Ahmad Fauzi Mohd Yusoff for the ideas and cooperation throughout the project.

Azhar Ibrahim

November 1993

Table of contents **Page**

ABSTRACTS

A study is made on the ultimate bearing capacity of Bakau piles vertically loaded singly and in groups embedded in cohesive soil. The different methods used to determine the ultimate bearing capacity of Bakau piles show that the effect of the groups is significant. Different group spacing adopted were 3d, 6d and 9d.

The calculations also include a well-define shaft resistance of Bakau piles. More important problem in practice is to specify the economical spacing of the Bakau piles. Different methods are used to determine the efficiency of the groups of bakau piles.

From the work carried out, the soil properties for a certain site effect the method of analysing the bearing capacity and efficiency.

CHAPTER ONE

INTRODUCTION

The behaviour of Bakau piles where the caps are in contact with the ground and under submerged condition is reasonably well understood. Bakau piles are widely used as foundations for embankment, highway foundation, stabilizer for banks, culvert foundation, slope protection, and foundation for light structures where ground water table is high.

Bakau piles are used without much dependent on theory but they are undoubtely effective. Johnson noted that he has never experienced failure of building where bakau piles have been properly used (i.e driven so that their heads are kept under dry weather water level).

Experience with Bakau pile as foundation for one of the olderst mosque in Kelang Selangor, over 90 years shows that it still in good working condition.

Some authers, use dynamic formular or rule of thumb to predict the carrying capacity of Bakau pilespreviously to predicting the carrying load capacity of the Bakau piles.