LAPORAN PROJECT TAHUN AKHIR
KURSUS DIPLOMA LANJUTAN KEJURUTERAAN AWAM
KAJIAN KEJURUTERAAN, ITM, SHAH ALAM

DEVELOPMENT OF COMPUTER PROGRAMS IN SOIL TESTING

BY:

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NOVEMBER 1982

ACKNOWLEDGEMENT

I wish to take this opportunity to express my deepest appreciation to PUAN HANIZAH ABD. HAMID and EN. SAHOL HAMID ABU BAKAR for their constructive advice, guidance and particular interest on the topic especially with the computer problems and manuscript writing.

My gratitude also goes to my colleagues who are involved in geotechnical projects for contributing the results of their soil test and the feed back to improve the computer programs. Special mention to En. Salleh and En. Safie for their invaluable constribution in one way or another.

Last but not least to Cik Zaharah and Cik Rohani for their patient typing, without which the manuscript would not be completed.

(Mokhtar Abdullah)

PREFACE

Geotechnical engineering or widely known as soil engineering deals with analysis of soil behaviour design and construction of sub-structure into the earth. Soil engineering also involves necessary treatment of underlying material to ensure adequate load-carrying capacity without undesirable deformations. In addition, grotechnical engineering deals with measures for execution of construction below or at grade level without damage to adjacent properties or injury to persons engaged in the work or present in the vicinity. Thus, a thorough knowledge of soils and their behaviour, geology and soil mechanics is a must for any practicing engineer. By knowing the soil behaviour then only an engineer can determine the suitable materials and constructions for sub-structures.

Soils may consist of rock, rock particles, mineral derived from rock, organic matter, clay or a mixture of two or more of these materials. Each of these soil constituents give their own characteristics such as strength, density, the ability to deform, volume change and so forth. The normal way to determine the soil properties is by investigation and testing. Field investigation are to determine the surface and sub-surface condition at site. They may reveal foundation conditions undesirable for the type of structure to be erected. Laboratory tests are most important to identify the soils because from the test, only can the properties be known. This prediction can be made from their behaviour under a proposed structure.

Often in soil testing, the results have to be computed as soon and accurately as possible so that they can be used by foundation engineers to design the substructures. Some of the results can be computed easily and some need patience and concentration to produce reliable and accurate results. One of the method to perform this task is by computerising the problems. Therefore, the results can be determined within a short period of time without much effort.

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