



**FINAL YEAR PROJECT REPORT  
BACHELOR OF ENGINEERING (HONS.) (CIVIL)  
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MARA INSTITUTE OF TECHNOLOGY**

**CEMENT STABILIZED SOILS:  
STRENGTH BEHAVIOUR**

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## **ABSTRACT**

The project aims at finding the effect of ratio of soil-cement on the basic properties and strength behavior of weak soil (soft clay or peat soil) such as plasticity, permeability, etc. Very often soil improvement techniques are adopted in the area of the soil where the problems pursuing development on soft clay soil is well known.

The project examines engineering properties and strength behaviour of the soil samples of various contents. Triaxial tests due to different percentage of cement from disturbed samples will be conducted in the laboratory. Soil Classification test was also performed on a disturbed samples. Samples were taken at Aur's River, Klang was identified as the soft clay soil samples.

From the work, it was found that the use of cement stabilized or improved the strength of the soil especially when using the poor quality soil such as the 'soft clay'. The percentage increased in the ratio cement : soil sample, improved the soil properties from about 0% to 50%. However, the increase content of cement made by soil less workable.

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# **CHAPTER 1**

## **INTRODUCTION TO THE STABILIZATION BY CEMENT**

### **1.1 General**

This chapter serves as an introduction to the study of cement stabilized soil in civil engineering. "Soil Stabilization" can be defined as the alteration of properties of an existing soil to meet the specified engineering requirements. Stabilization of soils by cement means the mixture of pulverized soil, cement and water, and the compaction of this mix produces a new building material. Soil-cement mixture which due to its strength (favorable deformation characteristics, resistance to water, thermal affects, frost effects, etc.) is well adaptable as a road pavement, road and building foundation, canal lining, etc.

### **1.2 Statement of the problem**

Soft clay is normally located in waterborne areas where the water table is high. This attributes to its low shear strength and poor bearing capacity. Therefore, the problems brought about by the soft clays are :

- high compressibility
- low shear strength
- low permeability
- low bearing capacity
- high plasticity