

**ENGINEERING PROPERTIES
IMPROVEMENT OF CLAYEY SOIL USING
RICE HUSK ASH AND COCONUT SHELL
FOR ROAD SUBGRADE**

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**Bachelor of Engineering (Hons) Civil
(Infrastructure)**

UNIVERSITI TEKNOLOGI MARA

JANUARY 2018

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By

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This report is submitted as a
partial requirement for the degree of
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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Under Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

In our country, the volume of waste generation from various ways has increased over the year. The waste that comes from industrial, agricultural, commercial as well as construction activities are composed of a very wide variety of materials such as food wastes, plastic, paper, construction waste, and other discarded residual items. Due to the large production of wastes, the world is facing serious problem of its handling disposal. To overcome these problems, the waste generation can be used as a stabilizing agent in the subgrade road material. By using the wastes as stabilizing agent, it not only increases the strength of in-situ soil but also turns the environment to be eco-friendly, reducing the construction cost and easy way for waste disposal. Therefore, this study is aimed to investigate the effect of agriculture wastes namely Coconut Shell (CS) and Rice Husk Ash (RHA) on engineering properties of the clayey soil for road subgrade layer. The performance of soft soil mixed with CS and RHA in the proportion of constant 20% RHA content mix with 4, 6, and 8% of corresponding is examined with respect to compaction test and California Bearing Ratio (CBR) tests. The results obtained, indicates an increase in optimum moisture content (OMC) and decrease in the maximum dry density (MDD) with the addition of 20% RHA and increasing amount of CS, CBR value for the sample also increases. Thus a promising and improving result was obtained in stabilizing the clayey soil with Rice Husk Ash and Coconut Shell which benefit in both cost and strength evaluation.

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