PHYSICAL CHARACTERISTICS OF MARINE CLAY STABILIZED WITH COCKLE SHELL POWDER

By

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DECLARATION BY THE CANDIDATE

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

Subgrade soil is important for design of both flexible and rigid pavement structures. The difference between flexible pavement and rigid pavement is the method of which the load is transfer to subgrade. The quality of flexible pavement depends on the strength and stabilization of subgrade layer. The main function of subgrade is to be foundation for pavement and supporting the load that is transmitted from the overlying layers. The marine clay is a problematic soil which low in strength and do not suitable for road embankment for highway. Therefore, the objective of this study is to determine the physical properties of marine clay stabilize with cockle shell powder by conduct preliminary test and investigate the potential of CSP as soil stabilizer based on percentage added for CBR test. Based on previous research cockle shell contains calcium carbonate ($CaCO_3$) and Calcium oxide (CaO) which similar to cement additives. Furthermore, CSP will be added in the subgrade layer to boost the strength of soil. Besides that, by using cockle shell as materials it will reduce the overall environmental impact of the stabilization process. The performance of soil mixed with CSP in the proportion of constant 2.5%, 5%, 7.5% and 10% of CSP correspondingly is examined with respect to physical properties test and California Bearing Ratio (CBR) tests. The results obtained indicates an increase in specific gravity and decrease in the plastic index (PI) with the addition of 2.5% of CSP.

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