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ANALYSIS OF THE EFFECT OF ADDING SEA SAND (EX. SEA SAND FROM LAMBAKO VILLAGE) ON CLAY SOIL STABILIZATION IN ROAD INFRASTRUCTURE WORKS IN BANGGAI LAUT REGENCY

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ABSTRACT

Road infrastructure development on the Banggai-Lokotoy section in Banggai Laut Regency faces stability challenges due to the subgrade, which is clay soil with high shrinkage and swelling properties and low bearing capacity. This study aims to analyze the effect of adding sea sand from Lambako Village as a stabilizing material on the physical and mechanical characteristics of clay soil. The research method used was a laboratory experiment, testing soil samples mixed with sea sand at proportions of 0%, 15%, and 30%. A series of tests were conducted including physical properties (specific gravity, water content, Atterberg limits) and mechanical tests including modified compaction, California Bearing Ratio (CBR), and Unconfined Compressive Strength (UCT) with varying curing times up to 28 days. The results showed that the characteristics of the original soil at the study site were categorized as clay with high plasticity (CH) according to the USCS classification. The addition of sea sand was proven to be effective in increasing the stability of the subgrade. At the optimal proportion of 30% sea sand, there was an increase in the maximum dry unit weight from 1.623 gr/cm³ to 1.848 gr/cm³, while the optimum water content decreased from 21.15% to 17.35%. Mechanically, the CBR value increased significantly from 11.23% to 24.07%. In addition, the unconfined compressive strength (qu) value of the 30% sea sand mixture also increased with increasing curing time, reaching a maximum value of 6.040 Kg/cm² on the 28th day. The conclusion of this study is that the addition of sea sand effectively improves the consistency and increases the bearing capacity of clay soil in Banggai Laut Regency.

KEYWORDS: *Clay, Sea Sand, Soil Stabilization, CBR, Unconfined Compressive Strength.*

Article History

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