

THE UTILIZATION OF SEA SANDS TO REDUCE EXPANSIVITY AND IMPROVING OF THE CLAY SOIL STRENGTHS THROUGH CBR TEST

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ABSTRACT

The transport infrastructure development projects (roads/highways) growing rapidly, but it is not balanced with the building materials availability in the sand form. People are looking for sand with the exploitation of nature and causing environmental damage, for example: river, sand sucked up fertile ground excavated dredged sand. On the other hand, the damaged are caused due to heavy loads or tonnage because of the layers of the foundation using expansive clay. The way land rescuing are using sand beaches (sand sea) for stabilization/repair sub-grade road that is clays land types.

The research method is the experiment by a repair/stabilization of soil clays by mixing sand beach with the sand variation levels from 0% .10%, 20%, 30%, 40%, 50%. Sand had been taken from Bantul, clays of Lendah and Prambanan. The soil mixture is compacted at the optimum moisture content, and then tested with the powerful support (with Test CBR unsoaked and soaked), and tested Swelling (development) to know the clays development (which could potentially harm the street/building).

The results of the research show that the values of CBR Swelling:

1. The value of the CBR-soil mixed with clays unsoaked sand beach on sand levels are 0%, 10%, 20%, 30%, 40%, 50%, is: With Clays Lendah, CBR-unsoaked consecutively: 11.2%; 12.6%; 14.4%; 16.2%; 16.7%; 17.3% (max rise 6.1%). With Clays Prambanan, the value of the CBR-unsoaked consecutively: 11.0%; 15.9%; 15.0%; 14.0%; 14.5%; 15.0%. (max rise 4.9%).
2. The value of the CBR-soaked soils mixed with clay with sand on sand levels are 0%, 10%, 20%, 30%, 40%, 50%, is: With Clays Lendah, CBR-soaked in a row: 3.6%; 3.7%; 5.3%; 6.8%; 10.1%; 13.3% (max rose 2.1% on the level sand 50%). With Clays Prambanan, the value of the CBR-soaked in a row: 1.0%; 4.2%; 5.7%; 7.4%; 10.3%; 13.4% (max rose 12.4% at levels 50% sand).
3. The value of Swelling (development) of soil mixed with clay and sand beach on sand levels are 0%, 10%, 20%, 30%, 40%, 50% is: With Clays Lendah, Swelling his value in a row: 2.49%; 2.37%; 1.45%; 0.58%; 0.56%; 0.51%. With Clays Prambanan, Swelling his value in a row: 3.58%; 3.20%; 2.09%; 0.97%; 0.70%; 0.42%. For both types of clays, looks: the greater the level of sand then the reduction of swelling also grew.

Keywords: stabilization, clay, sand, CBR.

Kata Kunci: *stabilization, clay, sand, CBR.*