

ABSTRACT

Civil engineering construction, especially roads, are often encountered with several problems caused by clay, including bumpy or cracked roads. Clay is considered to have a low carrying capacity if its affected by variations in water content and easy to expand and shrink by increasing water content. This study aims to determine the effect of lime addition and variation of sugarcane ash on CBR values and swelling values from clay soil of Duren Hamlet, RT 05 RW 04, Bandungan District, Semarang Regency, Central Java.

In this research, testing of the physical properties of origin soil tested in the laboratory, testing the California Bearing Ratio (CBR) laboratory using the addition of 6% constant lime as stabilization material, and sugarcane ash content of 4%, 8% and 12% with curing period 0, 2 and 4 days. CBR test that performed was unsoaked CBR and soaked CBR and swelling tests on soil samples soaked for 4 days.

The results of the research found that soil classification based on USCS belonged to the OH group namely organic clay with medium to high plasticity and based on the AASHTO classification of soils classified as A-7-5 namely clay with a general assessment as ordinary subgrade to poor soil. The results of unsoaked CBR testing of orogin soil was 4,092% and the original soaked CBR was 3.30%. The effect of adding lime and bagasse ash on the unsoaked CBR value obtained the highest percentage increase in CBR value at 12% sugarcane ash content with a 4 day curing period was 271.59% with an unsoaked CBR value of 15,21%. The highest percentage increase in the soaked CBR value was 12% sugarcane ash content with a 4 day curing period was 265,53% with a CBR value of 12.06%. Based on the original soil swelling test, the swelling value was 1,6884%. The effect of adding lime and bagasse ash to the swelling value obtained the smallest swelling value on the addition of 12% sugarcane ash with a 4 day curing period was 0,0183%.

Keywords: *Clay, Stabilization, Sugarcane ash, CBR, Swelling*