

STRENGTH IMPROVEMENT OF CLAYEY SOIL BY USING LIME AND WASTE PAPER SLUDGE ASH

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Mode of Study : F. Time

ABSTRACT

In this report an experimental study has been done on the clay soil stabilized using lime and waste paper sludge ash. Waste paper sludge ash is finally waste product resulting from the combustion of waste paper sludge in paper recycling industries. WPSA classified as class-c fly ash because it containing more than 20% lime (Cao) and having cementitious properties and pozzolanic properties that resulting in the self-cementing characteristics. In this class-c fly ash (WPSA) is self-cementing activators such as, lime and cement. First objective of study is to determine the optimum concentration percentage of lime as additives based on the compressive strength. Second objective is to determine the strength development of clay soil stabilized at the optimum percentage of lime at 0 days, 7 of curing periods. Third objective is to determine optimum concentration percentage of WPSA in the lime, soil and WPSA mix sample at the percentage of 0 days, 7 days. This study involved the testing of unconfined compressive strength test to determine the optimum percentage of lime and strength development clay soil stabilized at the optimum percentage of lime. The second test is tri-axial test to determine the shear strength value for clay- lime and WPSA stabilized with optimum percentage of WPSA. Result shows that the optimum concentration of lime to stabilize the clay soil is about 8% at the maximum compressive strength of 601.43kN/m². Addition of 6% WPSA has increased the value of shear strength compared to the control from 0 days to 7 days of curing periods respectively. This study shows that the clay soil can stabilized using lime and WPSA effective to enhance clay soil strength for long period of time.