

Umaporn Patipanpoomsakul 2010: Improvement of Lateritic Soil using Bottom ash, Lime Powder and Sodium Hydroxide Solution. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Associate Professor Prateep Duangduan, M.Eng. 110 pages.

This research attempted to study the improvement of lateritic soil by bottom ash, lime powder and sodium hydroxide solution, the improvement aimed to use for road embankment construction. The study focuses on the effect of parameters (e.s.) quantity of bottom ash and lime powder and curing times on the engineering properties of lateritic soil. The admixture, proportion by weight of bottom ash and lime powder at ratios of 1:9, 3:7, 5:5, 7:3 and 9:1 by dry weight were mixed 5 molar sodium hydroxide solution. The admixtures were mixed at various proportions including 10, 20, 30, 40 and 50 percents of dry weight with the lateritic soil with B and D gradation lateritic soils according to the subbase and base standard specification of the Department of Highways, Thailand

Experimental results show that the proportion 3:7 and 9:1 is recommended to achieve for mixing with grade B and D grain size distribution. Plasticity index and maximum dry density of the improved lateritic soils with B and D gradation tend to decrease 4-6% when admixture was increased. However, an increase in admixture of the improved lateritic soils were increased the optimum water content. The comparison of the improved lateritic soils with the same proportion of the admixture shows that curing time increased, the soaked and unsoaked CBR values of the improved lateritic soils increased. The coefficient of permeability of the improved lateritic soils with B and D gradation at 28 day curing time test were decrease about 77 times and 33 times respectively.

The admixture at proportions 3:7 and 9:1 can be used to stabilize the lateritic soil grade B and D according to California Bearing Ratio (CBR) of the subbase and base standard specification of the Department of Highways, Thailand.

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