

Wutthinan Laomalor 2011: Improvement of Bottom Ash-Marine Clay Mixture by using Fly Ash and Lime Powder. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Associate Professor Prateep Duangdeun, M.Eng. 86 pages.

This research aims to study improvement of bottom ash and marine clay by using lime powder and fly ash mixed with lime powder for using in road embankment construction. The study involved the engineering property of the above materials, such as grain size distribution, the amount of bottom ash, marine clay, fly ash and lime powder, with relation to curing time. All specimens obtained from the BLCP power plant which is located in Maptaphut industrial estate in Rayong province. The main objective was to find the best proportion between bottom ash and marine clay, for the admixture percentage of 5,10,20,30,40 by dry weight. Then the specimens were tested to find out modified proctor compaction, California bearing ratio, plasticity index and coefficient of permeability.

The results showed that the best proportion between bottom ash and marine clay was 80:20% by dry weight and when increasing lime powder and fly ash mixed with lime powder, the maximum dry density increased, while optimum moisture content and plasticity index decreased. For mixed lime powder the maximum values CBR of soaked and unsoaked were greatest for 10% by dry weight and when mix fly ash mixed lime powder. The maximum values CBR of soaked and unsoaked happened when 30% by dry weight. If the mixture were greater than this value will not increase. Soaked and unsoaked CBR values increased with increasing curing time. The coefficient of permeability increased when mixed lime powder were test immediately after compaction compare with tested 28 days the values. However the coefficient of permeability decreased when mix fly ash mixed lime powder were tested immediately after compaction compare with tested 28 days.

It can conclude that bottom ash and marine clay improved by using lime powder and fly ash mixed with lime powder is suitable for using in road embankment construction when considering only %CBR and plasticity index.

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