Lime influence for improvement of fine grained soils of Faghireh in Hamadan region

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Abstract
In this study, improvement in geotechnical characteristics of fine grained soils of Faghireh village in Hamadan region has been studied by using lime. Investigated parameters include plasticity characteristics, uniaxial compressive strength, optimum water content and maximum dry density of soil, which were studied by adding lime of 1%, 3%, 5% and 7% of soil weight and providing curing time periods of 7, 15, 30 and 45 days. The aggregation test resulted in increasing the percentage of lime in the soil after 7 days, decreased percentage of fine grains and increased coarse grains. Also the result of the plasticity test shows increasing the percentage of lime, and curing time decreased the plasticity index of samples until finally the soil would be nonplastic. The result of uniaxial compressive test shows that increase in lime percentage and curing time increases resistant properties of improved soil. According to the results, the percentage of optimum lime and curing time to improve fine grained soils in Faghireh village is recommended as 7% and 30 days respectively. Also, in order to investigate the relationship between lime-treated geotechnical properties and lime percentage and curing time, the multivariate regression analysis has been carried out, which demonstrates high regression coefficients for the proposed relationships.

Key words: fine grained soils, geotechnical characteristics, plasticity index, regression coefficients, soil strength, uniaxial compressive strength.