

Effect of Moisture on Engineering Properties of Soil Slopes from Melange in Sandakan Sabah, Malaysia

ABSTRACT

A total of five soil samples were collected from mélange weathered material in order to analysis the effect of moisture on engineering properties of the soils. The soil samples were collected along the main road in Sandakan, Sabah. The result of analysis shows that the soil moisture content was in the range of 15.26% to 22.10%. The average liquid limit of soil samples was from 45.1% to 59.8%, while the plasticity indexes were in the range of 23.25% to 33.91%. The plasticity chart plot of soil found that S1 and S5 were classified as low plasticity soil, while S2, S3 and S4 soil were classified as high plasticity. The result shows that the optimum moisture contents ranged from 13.0% to 28.9%, while the maximum dry density is within a range from 1.43Mg/m³ to 1.82Mg/m³. The unconfined compression strength indicated that S3 is classified as very soft soil, S1 and S4 soft soil, S2 moderate soft soil and s5 strong soil. Additional of moisture above optimum content in to the soil resulted in lower strength for all soil samples, whereas higher strength value range were observed when the moisture content is reduced below the optimum content. As conclusion, additional moisture contents influenced the engineering properties of soil samples due to its high adsorption of water in clayey soil as identified from the XRD and SEM analysis.