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Stabilization of Black Cotton Soil Using Red Mud and Gypsum

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Abstract

This study looks into the best use of a certain Red Mud (RM) sample based on its geotechnical characteristics. The soil known as Black Cotton (BC) was stabilized using RM and gypsum in combination. Gypsum was added at intervals of 0.5%-1% of the dry weight of RM, and the RM content was adjusted between 10% and 20% at a 5% interval. The basic index and engineering properties of the unstabilized RM were examined prior to the main tests, which constitute the core of this study effort. These qualities were referred to as needed in the subsequent experimental works to meet the main goals of the proposed work. To find the ideal mix, every experiment was run on every mix. The California Bearing Ratio (CBR) and Unconfined Compressive Strength (UCS) were used to evaluate the strength characteristics of stabilized British Columbian soil. One-day and seven-day curing periods were used to examine every UCS property. The test results and analysis show that stabilization with appropriate proportioning and curing improves strength and durability properties. As a result, it may be utilized in a variety of geotechnical applications, such as mine filling, road building, embankments, dams, and reservoirs. As a result, it will have a less detrimental effect on the environment and demand less space for the disposal of red mud. © ASCE.

Author keywords

Black Cotton Soil; Red Mud; Stabilization; Unconfined Compressive Strength

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