

عنوان مقاله:

Influence of Compaction Energy on Cement Stabilized Soil for Road Construction

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خلاصه مقاله:

Compactness is an important feature to ensure subgrade stability where temperature and water infiltration exist in semi-arid areas. Chemical soil stabilization can improve soil properties. This research studies the impact of compaction energy on stabilized subgrade soil and how to improve its geotechnical characteristics in the experimental tests on both unstabilized and stabilized soil samples by adding ordinary Portland cement and sulfate-resistant cement, in percentages by the soil's weight, in order of identification and classification, to the strength properties tests: compaction at multiple energies, CBR, and UCS. A test protocol was followed to assess the relationship between cement soil treatment, mechanical characteristics, and compaction parameters at different energy levels. Findings show that the higher UCS values were recorded with an increase in compaction energy. The MDD of cement stabilized soil increases as compaction energy increases, whereas the OMC decreases, the UCS improves, and the CBR increases. These improvements have a positive influence on the performance of soil used as a subgrade. The combination of cement stabilization and a high compaction level for subgrades using weak soil can improve strength parameters throughout any phase of earthwork construction design that leads to strengthening subgrades, reducing the thickness, and, as a result, low construction cost. Doi: 10.28991/CEJ-2022-08-03-012 Full Text: PDF

کلمات کلیدی:

.Compaction Energy; Subgrade; Soil Stabilization; Cement; Geotechnics; Soil Strength

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