

Abstract

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Experimental study on reinforced sand dune beds Under strip footings

This paper presents the effect of reinforcement inclusions (geogrids) on the sand dunes bearing capacity under strip footings. In this study the effect of the first geogrid reinforcement depth (u/B) and its length (L/B) on the bearing capacity will be investigated. Unreinforced bases will also be tested for comparison purposes and determining the bearing capacity ratio (BCR). The results are analyzed to find relationships between the bearing capacity and the geogrid parameters. Laboratory model tests will be carried out on the soil (Sand Dunes) and the inclusion material (geogrid). Experimental work will be carried out on reinforced soil mass to study the interaction between the soil and the geogrid. The results show that the bearing capacity of rigid strip footings on sand dunes can be intensively increased by the inclusion of geogrid layers in the ground, and that the magnitude of bearing capacity increase depends greatly on the geogrid depth (u/B) and length (L/B). It is also shown that the load-settlement behavior and bearing capacity of the rigid footing can be considerably improved by the inclusion of geogrid at the appropriate location. Keywords: Reinforced soil, Geogrids, Sand Dunes, Bearing Capacity improvement.