

Load-Settlement Behaviour of Geogrid-Reinforced Sand Bed over Granular Piles

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Abstract : Granular piles are a popular ground improvement technique in soft cohesive soils as well as for loose non-cohesive soils. The present experimental study has been carried out on granular piles in loose (Relative density = 30%) and medium dense (Relative density = 60%) sands with geogrid reinforcement within the sand bed over the granular piles. A group of five piles were installed in the sand at different spacing, $s = 2d, 3d$ and $4d$, d being the diameter of the pile. The length ($L = 0.4$ m) and diameter ($d = 50$ mm) of the piles were kept constant for all the series of experiments. The load-settlement behavior of reinforced sand bed and granular piles system was studied by applying the load on a square footing. The results show that the effect of reinforcement increases the load bearing capacity of the piles. It is also found that an increase in spacing between piles decreases the settlement for both loose and medium dense soil.

Keywords : granular pile, load-carrying capacity, settlement, geogrid reinforcement, sand

Conference Title : ICECCGE 2018 : International Conference on Earthworks, Civil, Construction and Geotechnical Engineering

Conference Location : New York, United States

Conference Dates : August 27-28, 2018