Abstract

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Stabilization of loose fine sand deposits as a foundation layer-numerical modeling

The research is carried out numerically using finite element package PLAXIS version 8.2. The ultimate bearing capacity obtained from the numerical model test program has been compared with the experimental model tests for the validation purposes. A parametric study were carried out and was found that the efficiency of the sand-polypropylene needles -geogrid system increased with increasing geogrid embedment depth u/B, the tensional distributed needles content of (0.125%, 0.150%, 0.175% and 0.2%) by weight. Through the analysis of the output data, including the shaded contour maps of vertical displacement, horizontal displacements and effective horizontal stresses, the conclusions could be derived for all the studied cases unreinforced sand, reinforced with needle elements and reinforced with (geogrid-needles)