

Study of the Behavior of Geogrid Mechanically Stabilized Earth Walls Under Cyclic Loading

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Abstract : The soil behind retaining wall is normally subjected to cyclic loading, for example traffic loading. Geotextile has been widely used to reinforce the soil for the purpose of reducing the settlement of the soil. A series of physical model tests were performed to investigate the settlement of footing under cyclic loading. The settlement of the footing, ground deformation and the vertical earth pressure in subsoil were presented and discussed under different types of geotextiles. The results indicate that including geotextiles significantly decreases the footing settlement and the stiffer the geotextile, the less the settlement. Under cyclic loading, the soil below the footing shows dilation within certain depths and beyond that it experiences contraction. The location of footing relative to the retaining wall has important effects on the deformation behavior of the soil in the ground, and the closer the footing to the retaining wall, the greater the contraction soil shows. This is because the retaining wall experienced greater lateral displacement.

Keywords : physical model tests, reinforced retaining wall, cyclic loading, footing

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