

Numerical Analysis of Seepage under Two Hydraulic Structures Founded on Anisotropic Soil

mohamed saleni, Abel Azim M. Negm, AbdelRahim A. Ibrahim

Abstract

. Finite element analyses have been performed on the problem of two-dimensional confined seepage flow beneath two water retaining structures in series. The two structures separated by intermediate filter with concrete blocks and founded on anisotropic pervious layer. The objective of this study is to determine the effect of anisotropic soil permeability on the seepage characteristics such as uplift pressures, exit gradients and seepage discharge. It's found that nearly no effect on the uplift pressures under the two floors. Considerable increases in downstream exit gradient, i_2 and in relative discharge for the increase in relative permeability, k_x/k_y . On the other hand, considerable decreases in the intermediate exit gradient, i_{ei} , for the increase in relative permeability,