Finite Element Method of the Internal friction angle and Saturation Degree with the groundwater levels variations

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Abstract

Finite Element Method “the numerical model” of the internal friction angle and saturation variations was determined carefully by the Viet Nam Standard. The difference between experimental values and simulation of the PLAXIS 3D software (Finite Element Method) was shown remarkably as the maximum value was shown in $0.01975$ m ($z = -36.9$m) depth with $\theta = 29^\circ$; whereas the minimum value is $0.002844$ m ($z = 0$m) depth with $\theta = 2^\circ$. The mean value at the center of the Clay layer (from 0.0m to 27.0m) depth was obtained at $0.0577$m whereas compared with $0.0156$ m at the Sand layer (from 27.0 to 39.6m) depths. Moreover, water content (W%) and porosity (P%) were calculated particularly at the maximum value of 94.35% (borehole “HK 2”) with 4.8m depth, whereas the minimum value is 18.22% at 39.3m depth (borehole “HK3”); which compared with porosity (P%) of 71.9% (borehole “HK2”) at 4.8m depth, and 40.4% (borehole “HK3”) at 4.8m depth. On the other hand, Saturation results presented a relatively low mean value of 88.09% and 86.79% at the center of the ground (from 4.3m to 15.3m). The increase of 23% and 75.42% (from 18.3m to 39.3m).

Conflict of Interest

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