

عنوان مقاله:

The Necessity of The Consideration of Permeability Modifier in Simulations of Clay Treatment Systems Incorporating PVDs and Surcharge

محل انتشار:

مجله مهندسی عمران و مصالح کاربردی، دوره 7، شماره 2 (سال: 1402)

تعداد صفحات اصل مقاله: 14

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خلاصه مقاله:

Three trial embankments as TS₁, TS₂, and TS₃ that were built for the investigation of a soil treatment project in Bangkok were modeled and verified based on the reported data. To clarify the importance of integration of the hydraulic modifier function vs stress, in the verified models, the modifier functions were omitted and the FEM models were run in the absence of the function. It was shown that after the omission of the hydraulic modifier, the results were overestimated especially for the TS₁ and TS₂, which had smaller PVDs (prefabricated vertical drains) distance. For the TS₁ embankment, the settlement increased from 0.78 m to 0.87 m in 210 days. In 365 days, the settlement increased from 1.27 m to 1.44 m. For the TS₂ embankment, the settlement increased from 0.93 m to 1.67 m in 230 days. In 410 days, the settlement increased from 1.36 m to 2.27 m. For the TS₃ embankment, the settlement increased from 1.15 m to 1.79 m in 230 days. In 410 days, the settlement increased from 1.52 m to 2.24 m. The inclusion of the hydraulic function that calibrates the model for every step of loading is essential in the modelling such problems. For the design phase, this function should be calculated from lab tests, preferably undisturbed samples that were bored from the site, and the resultant function be used as an inseparable part of modeling and calculations

کلمات کلیدی:

PVD, Consolidation, Soil treatment, Hydraulic modifier, surcharge

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<https://civilica.com/doc/1781716>



