

عنوان مقاله:

Investigation into Effect of Liquefaction on Behavior of Retaining Wall

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نویسندگان:

Amir Yaghouti Lighvan - *Department of Geotechnical Engineering, Faculty of Civil Engineering*

Masoud Hajjalilu Bonab - *Department of Geotechnical Engineering, Faculty of Civil Engineering*

خلاصه مقاله:

Retaining walls constructed adjacent to underground water are the structures which may be influenced by liquefaction. The design of these structures under vibration involves determining their displacements and forces caused by earthquake and liquefaction phenomena. In this study, it is attempted to assess the effect of liquefaction on the behavior of retaining walls using finite element method (FEM). The OPENSEES software is used for this purpose, which can simulate the behavior of saturated porous media using the u-P correlation formulation. Moreover, the Dafalias-Manzari critical state two-surface plasticity behavioral model is applied to simulate the behavior of sand, which can model a variety of behaviors of saturated sand in various uniaxial and cyclic loadings under drained and undrained conditions for different relative densities. The results of this study suggest that the OPENSEES software and Dafalias-Manzar behavioral model possess essential capabilities for numerical modeling of behavior of retaining walls under liquefaction conditions. The presence of retaining walls also changes the pattern of development of excess pore water pressure, particularly at middle depths of the wall.

کلمات کلیدی:

Retaining wall, Liquefaction, Saturated sand, Critical state

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