

Influence of Shear Parameter on Liquefaction Susceptibility of Ramsar Sand

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Abstract : In this study, undrained triaxial tests under anisotropic consolidation were conducted on the reconstituted samples of Ramsar sand, which underlies a densely populated, seismic region of the southern coast of Caspian Sea in Mazandaran province, Iran. Ramsar costal city is regularly visited by many tourists. Accordingly, many tall building and heavy structures are going to be constructed over this coastal area. This region is overlaid by poorly graded clean sand and because of high water level, is susceptible to liquefaction. The specimens were consolidated anisotropically to simulate initial shear stress which is mobilized due to surface constructions. Different states of soil behavior were obtained by applying different levels of initial relative density, shear stress, and effective stress. It is shown that Ramsar clean sand can experience the whole possible states of liquefiable soils i.e. fully liquefaction, limited liquefaction, and dilation behaviors. It would be shown that by increasing the shear parameter in high confine pressure, the liquefaction susceptibility has increased while for low confine pressure it would be vice versa.

Keywords : anisotropic, triaxial test, shear parameter, static liquefaction

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