

Evaluation of Liquefaction Potential of Fine Grained Soil: Kerman Case Study

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Abstract : This research aims to investigate and evaluate the liquefaction potential in a project in Kerman city based on different methods for fine-grained soils. Examining the previous damages caused by recent earthquakes, it has been observed that fine-grained soils play an essential role in the level of damage caused by soil liquefaction. But, based on previous investigations related to liquefaction, there is limited attention to evaluating the cyclic resistance ratio for fine-grain soils, especially with the SPT method. Although using a standard penetration test (SPT) to find the liquefaction potential of fine-grain soil is not common, it can be a helpful method based on its rapidness, serviceability, and availability. In the present study, the liquefaction potential has been first determined by the soil's physical properties obtained from laboratory tests. Then, using the SPT test and its available criterion for evaluating the cyclic resistance ratio and safety factor of liquefaction, the correction of effecting fine-grained soils is made, and then the results are compared. The results show that using the SPT test for liquefaction is more accurate than using laboratory tests in most cases due to the contribution of different physical parameters of soil, which leads to an increase in the ultimate $N_1(60,cs)$.

Keywords : liquefaction, cyclic resistance ratio, SPT test, clay soil, cohesion soils

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