

عنوان مقاله:

Evaluation of Dynamic Probing Testing Effect in Hand Excavated Pit on Test Results Using Numerical Modeling

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خلاصه مقاله:

In Iran, using the hand excavated pits (wells) have been more common compared to other countries. As a matter of fact, recent years, utilizing the dynamic probing test (DPT) in these types of pits has been significantly developed in Iran. This is while the standard state of doing this test is from the ground level. In this work, the dynamic probing test is carried out in two similar wells with diameter of 1 m and the depth of 10 m in two areas in city of Qom in Iran; one has silty sand soil and the other is clay. Then, both tests are simulated using numerical modeling in Abaqus software and the results are compared and calibrated with the values obtained at the mentioned sites. The results show a good agreement between the simulation data and tests done in the sites. After calibrating the simulated values with the values obtained from the site, we perform another simulation, this time, for the standard state (It means that the test is done from the ground level or with the assumption without well), as deep as 10 m and for both areas and with the mentioned soils specifications. The results show 35 and 22 percent difference in the dynamic resistance of cone's tip between the testing in standard state and hand excavated pit, for silty sand and clay soils, respectively. Finally, using the simulation, we present the relations between the depth of the test point and dynamic resistance of cone's tip for both states and both types of the soils studied in this paper.

کلمات کلیدی:

ABAQUS, Dynamic probing test, Dynamic resistance of cone's tip, Hand excavated pit, Numerical modeling

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