عنوان مقاله:

Kinematic Response of Batter Pile under Vertical Earthquake Excitation

محل انتشار:

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خلاصه مقاله:

This paper develops analytical solution to investigate the kinematic response of a batter pile subjected to vertical earthquake component. The pile is assumed to have a circular cross section and perfectly attached to the soil. In addition, the soil layer is assumed to be homogenous and elastic. The governing differential equation of the soil-pile system is first derived and solved using appropriate boundary conditions. The kinematic response of the batter pile is obtained considering stress free condition at the pile head and the ground surface. The effects of contributing parameters on the pile response such as batter, pile geometry, and soil profile properties are considered and the results will be presented. It will be shown that the bending moment and axial force will be induced in the pile due to the vertical earthquake excitation. In addition, the pile kinematic response increases with decreasing the batter angle.

کلمات کلیدی:

Batter pile, kinematic response, vertical earthquake excitation, elasto-dynamic

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