عنوان مقاله:

Weighted Dual Approach to an Equivalent Stiffness-based Load Transfer Model for Jacked Open-ended Pile

محل انتشار:

مجله مکانیک کاربردی و محاسباتی, دوره 7, شماره 3 (سال: 1400)

تعداد صفحات اصل مقاله: 13

نویسندگان:

Nguyen Linh - *Department of Mechanical Engineering, Thuyloi University (TLU), Hanoi, Vietnam*

Ngoc Nguyen - *Department of Mechanical Engineering, University of Transport and Communications (UTC), Hanoi, Vietnam*

Kuu Nguyen - *Department of Mechanical Engineering, Thuyloi University (TLU), Hanoi, Vietnam*

Diem Nguyen - *Department of Mechanical Engineering, University of Transport and Technology (UTT), Hanoi, Vietnam*

خلاصه مقاله:

This paper presents a new equivalent stiffness-based load transfer model for an open-ended pipe pile. The main idea of this model is to replace the sum of unit stiffnesses corresponding with external and internal unit skin frictions in the basic differential equation of load transfer by a weighted average of equivalent unit stiffnesses using a dual approach of equivalent replacement. The contribution of external and internal skin frictions to equivalent unit stiffnesses is evaluated by normalized dimensionless weighting coefficients in the form of average value with the penetration depth. Application of new load transfer model to a jacked open-ended pile concerning semi-empirical models of external and internal unit skin frictions leads to corresponding explicit expressions of weighting coefficient. A computational example of a jacked open-ended pile is carried out. It is shown that the proposed equivalent stiffness-based load transfer model is an effective tool for analyzing behaviors of the open-ended pile in considering the soil plugging .effect

کلمات کلیدی:

jacked open-ended pile, load transfer method, equivalent stiffness, dual approach of equivalent replacement