

The Effect of Jet Grouting on the Behavior of Strip Footing Adjacent to Slope Crest

Authors : Ahmed M. El-Tuhami, Ahmed A. Mohamed

Abstract : This paper studies the behavior of strip footing adjacent to slope crest and the effect of jet grouting under the footing. This problem is investigated numerically in the present study. Two dimensional plane strain program PLAXIS is used in this study. 15 nodes triangular element is used to idealize soil with hardening soil model. Five nodes isoperimetric beam element is used to idealize stripe footing. Interface element is used to represent the contact between beam element and soil. Two parameters were studied, the first is the foundation depth and the second is the Stripe footing distance from the slope crest. Settlement and horizontal displacement of strip footing were obtained and studied from the analyzed finite element model results. The reduction influence of jet grouting on footing displacement were studied and investigated. The results indicate that the inclusion of jet grouting under strip footing adjacent to slope crest has significant effect in improving the response of the strip footing and the slope.

Keywords : strip footing, jet grouting, slope, PLAXIS, relative distance

Conference Title : ICSMGE 2014 : International Conference on Soil Mechanics and Geotechnical Engineering

Conference Location : New York, United States

Conference Dates : June 05-06, 2014