

عنوان مقاله:

Influence of the soil shear strength parameters on safety factor of slopes in layered slopes by numerical analysis

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خلاصه مقاله:

Slope stability analysis is one of the most important topics in geotechnical engineering . Slope stability can be analyzed using one or more methods . Analytical and numerical methods are available but numerical methods are quickly , reliable , accurately and so we are able to perform parametric and comprehensive study of slope stability with complex boundary conditions . We know that the soil shear strength parameters play an important role in slope stability analysis but which parameters play an important role , cohesion or friction angle or slope angle ? . These topics investigated in this article. Two of three parameters assumed constant while the others is variable. Therefore we performed analysis in three cases for the cohesion , friction angle and slope angle . Numerical analysis by finite difference software FLAC/SLOPE showed that the relation of the slope angle and safety factor is not as the linear form so this parameter has the most influence in the safety factor analysis . For 2 layered slope with variable parameter ratio (variable cohesion or friction angle for each layer) safety factor analysis performed by FLAC/SLOPE software too . The results showed the decrease of safety factor with the increase of the shear strength ratio until unit ratio but the constant values for the ratio more than unit value for slope angle equal to 90 degree . This means that when the upper soil layer is weaker than the lower layer , the safety factor has the variable value while for the inverse conditions we have the constant safety factor value .

کلمات کلیدی:

Analytical method , Numerical method , Complex boundary condition , 2 layered slope , Finite difference method

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