

عنوان مقاله:

Numerical analysis and design of a high rise reinforced soil wall

محل انتشار:

چهارمین کنفرانس ملی مهندسی ژئوتکنیک ایران (سال: 1398)

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خلاصه مقاله:

A 40-meter-high reinforced soil wall was numerically analyzed and designed. Strip elements were used as the reinforcement. Different parameters affecting the wall lateral displacement including reinforcement stiffness, reinforcement spacing, reinforcement length, and reinforcement arrangement were changed to achieve an optimal design and minimum lateral displacement. A base model was first assumed and then the parameters were changed. Totally ten wall models were simulated numerically. A linear elastic-perfectly plastic model and a nonlinear elastic-plastic constitutive model were applied to the reinforcement and soil, respectively. An interface model was assumed between the reinforcements and soil. It was shown that the ratio of reinforcement length to the wall height (L/H) is the most effective parameter to decrease the lateral displacement of high rise walls. Moreover, a non-uniform arrangement for reinforcements with the same reinforcement materials showed a substantial decrease in lateral displacements for high rise walls.

کلمات کلیدی:

high rise reinforced soil wall, numerical modeling, optimal design, lateral displacement, ratio of reinforcement length to the wall height

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