عنوان مقاله:

Assessment of slope stabilization using waste tire by a physical model under static loading

محل انتشار:

سیزدهمین کنگره بین المللی مهندسی عمران (سال: 1402)

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خلاصه مقاله:

In this research, optimization of shredded tire content in sand for increasing its shear strength parameters and also its effects on force-displacement curve has been investigated. These parameters have been studied using direct shear tests. Sand and tire shred-sand mixtures (by volume percentage of ۲۰, ۲۵, ۳۰, ۳۵ and ۴۰ percent), using two sizes for tire particles has been examined and optimized percentage of shredded tire has been found to be ۳۰ percent by volume. Shear strength of samples consisting ۱.۵ to ۳ mm tire shreds were increased up to ۲۶.۱%. A physical model of a soil slope has been studied with pure sand and shredded tire-sand mixture in two series of tests, one with strip footing located in ۰.۵B (B is foundations width) and second one ۱.۱۵B from slope's edge. The results show that adding shredded tire results in ۳۵% increase in bearing capacity for foundation placed ۰.۵B from slope's edge and ۳۹% increase for samples with ۱.۱۵B loading from slope's edge. In last section of this study materials movement patterns after failure in physical model were studied and the results showed that adding shredded tire to sand, makes moving materials volume less than slopes with pure sand material.

کلمات کلیدی:

Waste management, Shredded tire, Direct shear test, Physical model