

Application of scrap tires as earth reinforcement for repair of tropical residual soil slope

ABSTRACT

The need to recycle scrap tires and to design a more environmental friendly, cost effective slope repairs, prompted the study to look into the possibility of using scrap tires as earth reinforcement for slope repair. This paper describes work done on testing for tensile strength of scrap tires where currently there appeared to be no test standard available, design and test of suitable attachment to tie the tire together, and the construction and performance of field trial of the propose scrap tire reinforced earth system. The study showed that scrap tires could easily carry tensile load of 20 kN. Polypropylene rope of 12 mm in diameter could provide the required (matching) strength as joint. Scrap tire reinforced earth system comprising whole tires tied with polypropylene rope s tacked on top of each other and backfilled with in-situ cohesive tropical residual soil fill showed excellent performance for repairing slope of up to 5 m high.

Keyword: Recycle material; Reinforced earth; Residual soil; Scrap tires; Slope failures; Slope repair