

Effect of geogrid pullout behavior on biopolymer-based soil treatment (BPST)

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ABSTRACT

Pullout resistance and soil-geosynthetic interaction are crucial factors for assessing the internal stability of reinforced retaining walls. Because the pullout resistance of geosynthetics generally considered in these structures is mostly determined by friction resistance, cohesionless sandy soil that passes strict standards is commonly utilized as a backfill material. Guidelines for geosynthetic reinforcement, such as vertical intervals and reinforcement length, are also included. However, if the site is unsuitable for compaction or it is impossible to obtain a sufficient length of reinforcement due to narrow backfill, the stability of the structure is uncertain. According to recent research, biopolymer-based soil treatment (BPST) has proven outstanding improvements in soil strength and interface shear strength, and it is gaining popularity as a sustainable and eco-friendly material. Therefore, the aim of this study is to enhance soil-geogrid interface shear by using BPST, verify BPST and geogrid compatibility, and ensure stability by improving pullout resistance. A laboratory-scale pullout test is performed by embedding BPST-geogrid in a soil tank with compacted soil.

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REFERENCES

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