

Efficiency of Geocell Reinforcement for Using in Expanded Polystyrene Embankments via Numerical Analysis

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Abstract : This paper presents a numerical study for investigating the effectiveness of geocell reinforcement in reducing pressure and settlement over EPS geofoam blocks in road embankments. A 3-D FEM model of soil and geofoam was created in ABAQUS, and geocell was also modeled realistically using membrane elements. The accuracy of the model was tested by comparing its results with previous works. Sensitivity analyses showed that reinforcing the soil cover with geocell has a significant influence on the reduction of imposed stresses over geofoam and consequently decreasing its deformation.

Keywords : EPS geofoam, geocell, reinforcement, road embankments, lightweight fill

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