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(57) Abstract :

The present invention relates to a method of building geocell reinforced ballasted railway track. The method includes material collection, laboratory testing, model testing, 3D FEM analysis and method of preparing design charts. For preparing geocell reinforced railway track, recycled coal overburden is used as subballast over weak subgrade. To confirm the feasibility of recycling the overburden (OB) as an alternate track subballast material, a series of tests are conducted considering its shape, chemical composition, strength-deformation characteristics, load deformation behavior and durability. The load deformation behavior observed in the track model tests indicates that provision of geocell reinforcement enhances the performance of OB as subballast material. The model test set up is prepared approximately one-fourth representation of the prototype. The applied load is scaled down to 1/16 times that of the prototype. The model track is prepared by introducing ballast below the railway track and then OB-subballast below it which is embedded with geocell reinforcement. The present study has attempted to evolve a design methodology for ballasted track beds.

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