METHODS FOR STRENGTHENING OF RAILWAY EMBANKMENTSIN BULGARIA

1VARBANOV, R. V., 1FRANGOV, G. I. Geological Institute “Str. Dimitrov”, Sofia, Bulgaria.

A considerable amount of the transport services in Bulgaria are realised by means of the railway transport. The predominating part of the railway network had been designed and constructed for low speeds - less than 100 km/h. The existing embankments are built very often of a mixture of waste material from steam engines (slag) and humus clays. The coefficient of compaction of these embankments does not meet the present requirements for the soil base of high-speed main lines. The presented paper considers the complex approach applied for the geotechnical investigation, design and reconstruction of an existing railway section. The railway route passes on a 3-3.5 m high embankment constructed on a steep river bank slope. The base of the embankment is periodically flooded by the river water. The geotechnical investigations were performed by borehole and geophysical methods and the density of the embankment was determined in situ. The low bearing capacity of the embankment was proved and the corresponding to it safety coefficient not meeting the standard requirements. The design work for the reconstruction of the embankment envisages two variants - use of geofabric or application of waste material from rock quarries. The results for the bearing capacity of the embankment after the reconstruction have been presented.