

Ground Improvement with Basal Reinforcement with High Strength Geogrids and PVDs for Embankment over Soft Soils

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Abstract : Ground improvement is a very important aspect of infrastructure development, especially when it comes to deep-ground improvement. The use of various geosynthetic applications is very common these days for ground improvement. This paper presents a case study where the combination of two geosynthetic applications was used in order to optimize the design as well as to control the settlements through uniform load distribution. The Agartala-Akaura rail project was made to help increase railway connectivity between India and Bangladesh. Both countries have started the construction of the same. The project requires high railway embankments to be built for the rail link. However, the challenge was to design a proper ground improvement solution as the entire area comprises very soft soil for an average depth of 15m. After due diligence, a combination of two methods was worked out by Maccaferri. PVDs were provided for the consolidation, and on top of that, a layer of high-strength geogrids (Paralink) was proposed as a basal reinforcement. The design approach was followed as described in Indian standards as well as British standards. By introducing a basal reinforcement, the spacing of PVDs could be increased, which allowed quick installation and less material consumption while keeping the consolidation time within the project duration.

Keywords : ground improvement, basal reinforcement, PVDs, high strength geogrids, Paralink

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