GEO-ENVIRO ENGINEERS

Major Ground Improvement/Stabilization Projects Completed

- ***Kakinada Seaport, Andhra Pradesh***

  Approx. 65 Ha cargo stacking area on land reclaimed from the sea at Kakinada Seaport, Andhra Pradesh was stabilized with PVD and pre-loading. PVD had to be installed through about 4-5m of sand fill into very soft marine clay more than 14m thick. in approx. Pre-drilling had to be carried out within approx. 70% of the area for a depth up to 7m from ground level as the reclaimed coarse sand was found very dense. Special pre-drilling machinery was deployed to drill the top 6-7m of dense sand prior to installation of PVD in the soft clay. Work had to proceed round-the-clock to complete the work expeditiously. Total about 3 million meters of PVD was installed for the project.

- ***Kozhikode Bypass NH Project, Kerala***

  More than 18m thick very soft clay deposits along low-lying abandoned paddy fields and swamps required ground improvement in the form of PVD installation prior to the construction of a 7m high embankment for this National Highway project in Kerala. A very short construction period, prolonged heavy monsoon season and stage construction of the high embankment as the soft clay was very weak made the planning and execution of this project very challenging. Extensive geotechnical instrumentation and regular monitoring of settlement and pore pressure dissipation was part of the project. Woven Geotextile basal reinforcement was employed for enhanced lateral stability of the high embankment during and after construction. The project was completed successfully 6 months ahead of schedule by careful planning and execution of all activities including the ground improvement.

- ***Soil Stabilization for Rail track doubling project, Southern Railway, Kerala***

  Ground improvement with PVD for new railway embankment under construction was necessary as geotechnical investigation revealed presence of soft clay at many locations along the new rail track alignment. Woven geotextile basal reinforcement was installed for additional embankment stability during construction and later during railway operation. Geotechnical instrumentation was carried out to monitor settlement and pore pressure dissipation to assess the performance of the ground stabilization work. Working close to existing operating rail track and locating and re-aligning existing railway signal cables posed challenges for implementation of the project.

- ***Ground Improvement for Gypsum Stack yard, Odisha***

  PVD was installed within the stack yard area as well as the bund around it for a major fertilizer company. PVD was installed at pre-determined locations and depth as required for the project. Strip drains were laid at ground level between installed PVD for easy drainage of pore water. Location accuracy of PVD installation points and control of PVD depths were major challenges.

- ***Ground Improvement for a new Seaport at Karanja, Mumbai, Maharashtra***

  A new seaport at Karanja, Navi Mumbai is under construction over land reclaimed from shallow coastal area. Ground stabilization was necessary to accelerate consolidation of underlying soft clay up to 20m thick. PVD at close centers were installed for the ground stabilization. Daily average PVD installation was up to 10,000 RM in order to complete the work before the monsoon.