In August 2006, Excel Paving was hired by the Long Beach Harbor Department to stabilize the base for the Phase 3 container yard expansion at the Pier T Marine Terminal of the Port of Long Beach. The expansion was to take place over a location previously utilized as a drydock.

The Port of Long Beach container storage yard facilities are used daily by cranes, forklifts, and container transport trucks with significant loads and nearly constant traffic. Tight budgets and challenging soil conditions caused the engineers to think outside the box and consider options aside from standard rock fills.

**Technical Information**

**MATERIALS USED:**

- EnviroGrid® EGA 20 8”
- Biaxial Geogrid/8oz non-woven geotextile
- Concrete Layer

**APPLICATION:**

Base Stabilization

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Construction Overview

The storage yard sub-grade was comprised mainly of dark grey sandy silt. After a full on-site geotechnical analysis, the project engineers decided to utilize the 8" EnviroGrid® EGA 208" material. The entire system was finished with a paved layer of concrete.

The sub-grade was prepared and materials were brought on-site. In some sections, a biaxial geogrid was rolled out over the sub-grade for additional stability and an 8oz. non-woven geotextile was used in other sections where lighter traffic was expected. The 8" EnviroGrid® was expanded into place over the rolled out geosynthetics, and then filled with a sand and rock mix. The system was then compacted and overfilled to provide a bond-breaking layer between the flexible stabilization system and rigid pavement above. Initially, the contractors had difficulty testing for compaction as the carbon black for UV stability in the EnviroGrid® caused issues with the standard compaction equipment. Immediately upon switching to a Dynamic Cone Penetrometer (DCP) test, Excel Paving realized that the system was compacted far better than expected.

Results

EnviroGrid® was chosen to reduce infill material needed as well as its ability to provide significant stability to the storage yard. Alternative options would have involved 200%-300% additional aggregate and at least double the time for completion. Daily, the port experiences constant heavy traffic flow and movement of large, multi-level storage areas. 10 years later, nearly zero maintenance has been performed on-site and the concrete wearing surface looks the same as it did upon installation.