

VEGETATED LANDFILL CAP

GEO PRODUCTS, LLC | ENVIROGRID® GEOCELL

Background

The ORDOT landfill started operations in the 1940s as a disposal area for the Japanese during WWII. After the war, it was used by the U.S. Navy and the local community. The unlined, opened dump was placed on the "superfund" list in 1983 and it ceased operations in 2012.

The severe site conditions made typical cover options of an exposed geomembrane or unconfined soil impossible. The objective was to protect the liner system while providing a vegetated solution.



Technical Information

MATERIALS USED:

EnviroGrid® EGA30 6" and 8" 2,100,000 SF (195,096m²)

SITE CONDITIONS:

- Highest seismic activity (zone 4)
- Potential of high winds (175 mph/281 kph)
- Extensive Rainfall (95 in / 241.3 cm per year)



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Design Solutions

The EnviroGrid® cellular confinement system was chosen as the best option as the best option to protect the geomembrane cap as well as the method to confine soils to vegetate the steep slopes. The EnviroGrid® layer also prevents wind uplift and damage to the system during typhoon season.

Construction Overview

The EnviroGrid® panels were installed directly over the geomembrane and geocomposite layers. The use of the tendon insured veneer stability and eliminated the need of anchoring stakes. The slopes in some areas were in excess of 2.5 to 1.

The EnviroGrid® filled with concrete was used to construct the stormwater channels. The EnviroGrid® becomes the form for the concrete and allows for velocities in excess of 23 fps (7 m/s). The concrete filled cells alleviate problems caused by differential settlement that would present on typical larger concrete slabs.

Results

After 70 years of use, this unprotected landfill went from being an environmental disaster on the EPA's "Superfund" list to a safe and properly capped site. The use of geosynthetic materials including the EnviroGrid® Geocell were the perfect solution for this complex problem.

The project earned in 2016 the prestigious Construction Management Association of America's Project Achievement Award.

