

E'Grid® 3030 Biaxial Geogrid

Green Organics Processing Facility

Project: Green Organics Processing Facility

Location: Anakie, VIC

Client: City of Greater Geelong

Product: E'Grid® 3030 Biaxial Geogrid

Project Overview

The Green Organics Processing Facility is a new greenwaste composting facility set up by the Geelong Council in Anakie, Geelong. It is estimated to process up to 35,000 tonnes of green organic materials per year. Polyfabrics Australasia were contracted to provide a solution that would assist with sub-grade reinforcement, load distribution and lateral restraint prior to construction of the facility. The product needed to withstand up to 35,000 tons of green organics composting material as well as movement of heavy trucks and mobile equipment.

Geosynthetics made of polypropylene were used to carry the static composite load on a crushed rock pavement.

Key Challenges

The project's location was a key challenge in itself as the site was based on grassland consisting of alluvium which comprises of sand, gravel and clays. Its presence makes the terrain unstable and unsafe for construction, slowing down the building process.

The Solution

Polyfabrics recommended the E'Grid® 3030 biaxial strength geogrids to provide sub-grade reinforcement under the crushed rock pavement. First, the design called for the removal of existing native top soil and clay soil. A stabilised, reinforced geogrid platform was designed using the E'Grid® 3030, which was placed directly over the weak subgrade. A nominal 20mm, Class 3 crushed rock was placed and compacted over it to ensure the stabilisation of the subgrade.

The apertures of the geogrid provided a high degree of interlock with the granular material, which created a laterally stiff platform. Consequently, the E'Grid® 3030 geogrid layer with the first lift of fill acted as a firm working platform facilitating speedy construction. The confinement provided by this product allowed the capping layer to be compacted to a high density. The reinforced granular foundation distributed the heavy dynamic loads evenly and widely to provide a high degree of lateral restraint. This enabled the weak subgrade to resist the repeated loads of the trucks and mobile equipment without experiencing progressive shear failure and undergoing excessive plastic strains.

The Outcome

Polyfabrics' E'Grid® 3030 biaxial strength geogrid was accepted as the optimal solution for the site and was approved by the project's design engineer. The work was executed successfully, and as expected the product performed very well. It provided a simple, easy-to-install, effective, environmentally friendly and economic solution to a challenging problem.

