



CASE STUDY:

**ANGLESEA LANDFILL
CELL 3C SIDELINER
EXTENSION**

ANGLESEA, VICTORIA, AUGUST 2018

CLIENT: SURF COAST SHIRE COUNCIL

DESIGNER: MACKENZIE ENVIRONMENTAL

CONTRACTOR: ERTECH

Maccaferri Green Terramesh®

Maccaferri Terramesh is a versatile, modular system for reinforced slope systems and mechanically stabilised earth walls that can be a more cost-effective solution than a mass gravity Gabion wall because of the speed of installation and reduced rock fill requirements.

For mechanically stabilised earth slopes and embankments that require vegetation, the front face of Maccaferri Green Terramesh can be filled with soil and planted, creating a green slope.

Green Terramesh soil reinforced slope structures can exceed 50m in height and can be used in a wide range of engineered soil types. Green Terramesh structures allow for geogrid (when required) to be terminated at the face minimising the risk of exposure of the geogrid to UV, fire or vandalism.

The Green Terramesh® main unit is fabricated from heavily galvanized GalMac® and polymer coated steel wire.

GEOFABRICS®
Smarter Infrastructure

Anglesea Landfill, operating since 1974, is a Type 2 'valley fill' landfill accepting approximately 20,000 tonnes of waste including putrescible waste, solid inert waste and fill material.

The site comprises the Original Cell, Cell 1 and Cell 2. The Original Cell has been filled to capacity. The eastern side of the Original Cell has been rehabilitated with a soil cover and southern part of Cell 1 has been rehabilitated under Stage 2 rehabilitation works. Cell 3, which is piggybacking Cell 2 (Stages A and B) has been constructed up to Stage C and is currently receiving waste.

A civil works contractor with experience in waste projects, particularly landfill rehabilitation and construction, was appointed to construct a new cell liner (Cell 3 Stage D – Liner) plus completion of the Stage C Sideliner (Bund Wall) Extension. To increase the height of the bund wall, a retaining structure was required. The Reinforced Soil Structure (RSS) specified for the Bund Wall height extension is up to 5 m high and 105 m long.

For the RSS, Geofabrics proposed the Maccaferri Green Terramesh® system by highlighting the advantages i.e. unmatched speed of installation, cost effectiveness and proven performance. Based on these key benefits and using previous project case studies, the Geofabrics' proposed solution was selected. The Green Terramesh® solution is an environmentally friendly option typically used to form vegetated faced reinforced soil slopes (also known as Mechanically Stabilised Earth) and embankments.



Soon after the Reinforced Soil Structure was completed. Note how the Green Terramesh® System can be used to create curves in the alignment.



ParaLink geogrids comprise of an open network of integrally connected straps of high tenacity polyester yarn coated with polyethylene.



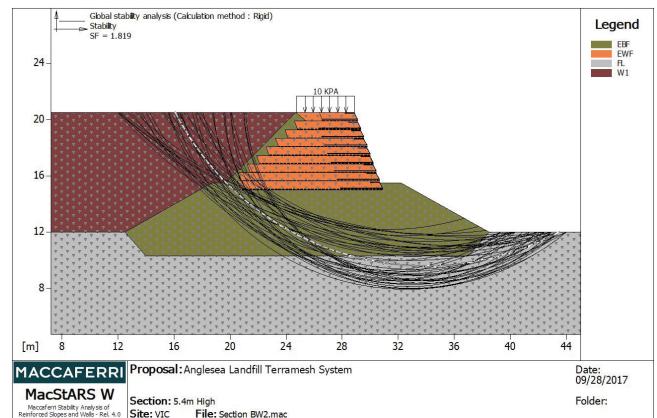
The Completed 105 m Long Reinforced Soil Structure.

The system consisted of pre-fabricated units of double twisted wire mesh stiffened with a welded mesh panel. Two integral pre-formed steel braces maintain the unit to the required slope angle, which in this case was 70 degrees.

Paralink 200 (200 kN/m) geogrid was included at each Green Terramesh® layer to augment the strength of the double twist wire mesh. As per the Paralink British Board of Agrément certificate 03/4065, creep reduction factors are available for design temperatures up to 40°C, installation damage factors for a D₉₀ particle size up to 150 mm and chemical effects for pH of soil up to 11. This makes Paralink geogrids particularly suited to landfill and tailings dam applications.

As all components are factory fitted, Green Terramesh® was rapid to install. The unit was simply erected on site with the bracing angles supporting the face at the designated angle without the need for any external formwork or shuttering. Structural backfill was placed upon the soil reinforcement geogrids, and a loose rock veneer was stacked on the inside face of the Green Terramesh® which negated the use of topsoil or an erosion control blanket.

Included in the initial proposal to the contractor, Geofabrics supplied a comprehensive installation manual. The contractor said the system was quick and easy to install.



The preliminary stability analysis utilising Maccaferri's MacStARS design software