

TEMPE TIP REMEDIATION TEMPE, NSW, AUSTRALIA

ENVIRONMENTAL/GEOTECHNICAL ENGINEERING/REINFORCED SOIL WALLS

Product: Maccaferri Green Terramesh, Rock PEC 100, 100/100, 150, 200, Nylex Stripdrain 300

Problem

The remediation of Tempe Tip has been a controversial topic, but Marrickville Council was instructed by the EPA to improve the aesthetics of this area. The site would be reclaimed for recreational and commercial use, with the contaminated soil being capped and the existing ground raised.

Mainland Civil awarded the construction of the reinforced soil slope to Retaining Solutions, designers and builders of retaining walls and slopes.

Solution

The preferred solution was a "green" slope with a maximum height of 7.8m using Maccaferri's Green Terramesh System.

This system utilises an integral face and tail unit made from double-twisted steel mesh, protected by a galvanised and PVC coated layer. The preformed facing enables the wall contractor to install and erect the reinforced slope as fast as possible without the need for additional formwork during soil compaction. The facing has a fixed angle of 70 degrees from the horizontal, however, other angles are possible (e.g. 45 and 60 deg).

The subsurface condition of Tempe Tip was poor and highly variable, so it was necessary to provide additional soil reinforcement for foundation improvement and global stability.

To achieve this objective, Maccaferri also supplied Rock PEC high-strength geotextiles. Rock PEC is a geotextile composite ideal for soil reinforcement in marginal, semi-cohesive, poor draining soils.

Contractor name:

MAINLAND CIVIL

Consultants name:

GHD-LONGMAC & RETAINING SOLUTIONS

Product used:

GREEN TERRAMESH INTEGRAL UNITS (with 4m, 5m & 6m tail lengths) Approx. 3000m² (Total wall face area)

ROCK PEC 100 - 6 rolls (5.2m X 100m)

ROCK PEC 100/100 - 4 rolls (5.2m X 100m)

ROCK PEC 150 - 5 rolls (5.2m X 100m)

ROCK PEC 200 - 27 rolls (5.2m X 100m)

NYLEX STRIPDRAIN 300 - 12 rolls (0.3m X 50m)

Construction date:

AUGUST 2004



Green Terramesh facing (unvegetated)

Date: Aug 2004



Green Terramesh units with pre-formed angle & BioMac

Date: Aug 2004



Rock PEC geotextile composite basal reinforcement

Date: Aug 2004

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The non-woven geotextile allows for rapid inplane pore water dissipation and separation, while the high tenacity polyester yarns provide superior long-term strength.

In addition to the basal reinforcement provided by Rock PEC, Nylex Stripdrain was also used at regular spacings for sub-surface drainage at the rear of the reinforced soil slope block.

Benefits

The Green Terramesh facing has a biodegradable BioMac blanket for erosion protection, allowing new vegetation to establish and mature.

The project was completed in 2005 with local residents to benefit from the converted waste tip.



Nylex Stripdrain 300 for sub-surface drainage

Date: Aug 2004



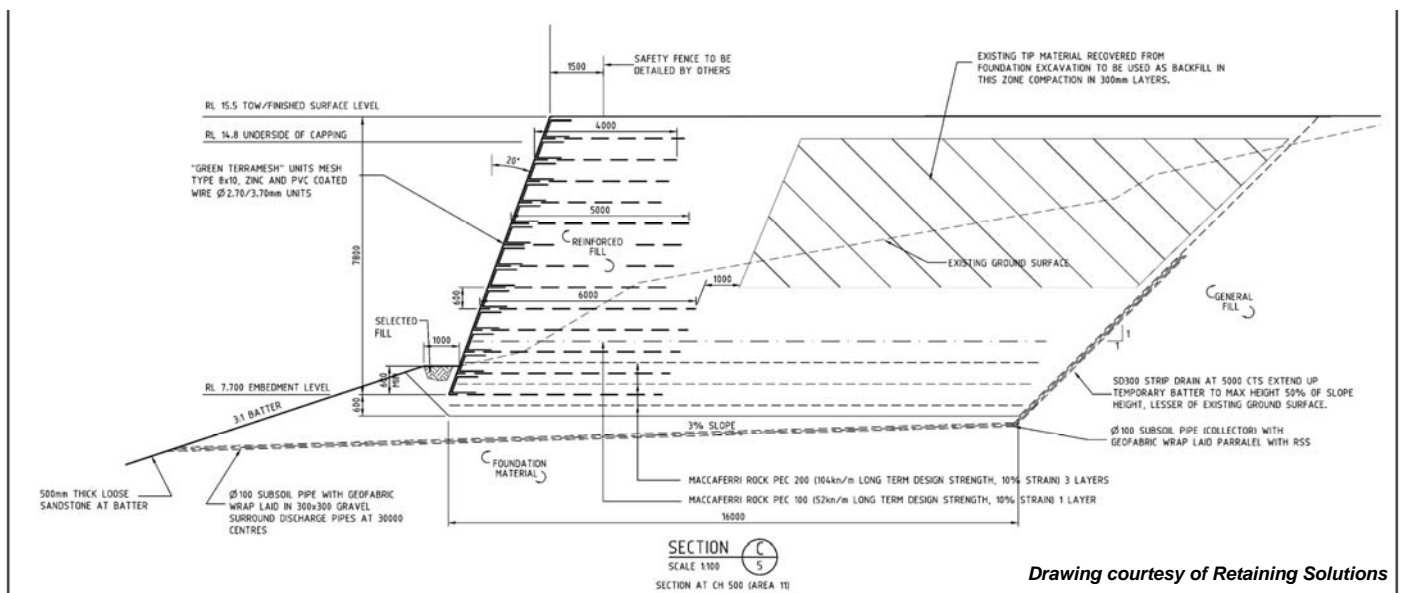
Green Terramesh totally revegetated

Date: Dec 2006



Green Terramesh integral tails (pre-determined lengths)

Date: Aug 2004



Drawing courtesy of Retaining Solutions

Typical Cross Section - 7.8m high showing Green Terramesh integral units and Rock PEC basal reinforcement

Date: Aug 2004

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