



Global Synthetics
Australian Company – Global Expertise

AUSTRALIAN COMPANY // GLOBAL EXPERTISE

In this Issue:

- PACIFIC HIGHWAY SOFT SOIL TREATMENTS
- BRISBANE LANDFILL CELL GEOMEMBRANE PROTECTION
- BENTOFIX® GEOSYNTHETIC CLAY LINER SAFEGUARDING ROEBUCK
- SEGMENTAL MASONRY BLOCK SOIL REINFORCED RETAINING WALL AND ACEGRID® GEOGRID ANOTHER SUCCESSFUL S.E QLD PROJECT

geonews

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WELCOME

Global Synthetics is a 100% Australian owned company staffed by engineers with extensive experience in geosynthetics in Australian conditions. Large stock supplies are held throughout Australia to service your requirements efficiently.

This newsletter showcases some recent projects with which Global Synthetics has been proud to be associated.

Trusted Quality with Global Products

Global Synthetics has formed distribution partnerships with some of the largest geosynthetics companies in their respective market areas.

Global Synthetics has taken a strategic position in ensuring that our manufacturing laboratories and audit laboratories are mutually accredited to NATA. This means that the certificates on product quality are relevant to local test methods, specifications and conditions prevailing in Australia.

From North America, Asia and European sources we will ensure that our products are the best that we can make and that our clients have minimal audit compliance issues.

When you supply three million square metres of geosynthetics to a single project without a single noncompliance report then you know that we care about our product quality and our clients piece of mind.



Pacific Highway Soft Soil Treatments

Construction activity continues to be in full force to complete the Pacific Highway upgrade.

The construction of the Highway through Northern NSW passes over deep soft soils which are contained within the floodplains. Soft soils are an important design consideration for the project and require special attention by the design team.

Soft soils include high water content, low capacity for allowing water to pass through and low strength. Without soft soil treatment there is the potential for the highway to sink and crack.

As part of the design for these treatments, engineered materials are utilised to help achieve the intended construction and design requirements.

The engineered materials include – **ACETex**® High Strength reinforcement geotextiles, **Ceteau**® Prefabricated vertical drains and **Geofirma**® nonwoven geotextiles.

All of the geosynthetic materials supplied by Global Synthetics have undergone independent laboratory testing and rigorous review by the RMS, to ensure that compliance is met in accordance with the related specifications.

Global Synthetics demonstrated they are the technical leader in the market and partner of choice for assisting in the successful design, supply and construction of the treatments.

Global Synthetics has recently supplied:

- 650,000m² of **ACETex**® High Strength Reinforcement Geotextile
- 3,200,000lin. m of **Ceteau**® Prefabricated vertical drains
- 2,600,000m² of **Geofirma**® nonwoven geotextiles

For further information please contact chris@globalsynthetics.com.au

Brisbane Landfill Cell Geomembrane Protection



As part of the ongoing waste disposal requirements of the Brisbane City Council an additional landfill cell needed to be constructed to provide additional storage volume. The design required that a compacted clay layer was covered with a 1.5mm thick HDPE secondary lining system to seal the cell. A HDPE geomembrane is susceptible to puncture by materials that may contain granular material. A heavyweight (thick) nonwoven geotextile was required to protect the HDPE liner from puncture by the adjacent drainage aggregate as a technical and cost effective solution to ensure the liner was not damaged. A damaged geomembrane can compromise the integrity of the landfill cell at great cost to the client and the environment.

Perry O'Brien Engineering was engaged as the civil contractor to construct the new cell by **Remondis** (the operators of the Brisbane landfill) for the client **Brisbane City Council**.

Global Synthetics communicated with Perry O'Brien to obtain an understanding of the correct nonwoven geotextiles required to provide the necessary geomembrane protection.

A review was done of the technical specification by the client and the **Geofirma® AS540E** nonwoven geotextile was accepted as meeting the design requirements to protect the geomembrane liner.

Geofirma® nonwoven geotextile is manufactured from a continuous filament process and then heavily needle punched to produce a nonwoven geotextile that allows over 40% elongation to conform to undulating ground conditions. **Geofirma®** is manufactured in different grades to satisfy a very wide range of strength, drainage, filtration and protection requirements. Of particular importance in this specific landfill application is a cushioning function of the nonwoven geotextile to protect the geomembrane.

Global Synthetics can assist in selecting the most appropriate grade, suited to your situation, through our engineering experience that will provide sound suggestions for our clients based on the necessary separation, filtration and cushioning functions.

Geofirma® AS540 nonwoven geotextile was placed over the HDPE geomembrane liner and then been covered with a 400mm layer of leachate drainage aggregate plus a system of leachate drainage pipes. Once all the drainage aggregate/drainage pipes have been installed a layer of a lighter geotextile **Geofirma® AS200B** filtration/separation geotextile was placed over the drainage aggregate so landfill waste could start to be placed into the cell.

For further information please contact greg@globalsynthetics.com.au



Bentofix® Geosynthetic Clay Liner Safeguarding Roebuck Bay

Situated on the southern coastline of the Broome peninsula in Western Australia, the Water Corporation's southern wastewater facility has been under the spotlight in recent years following reports of contamination of the sensitive Roebuck Bay Marine Park. Outbreaks of blue-green algae in the bay have been linked to excessive nutrient levels, possibly caused by groundwater pollution in the vicinity of the waste water treatment ponds (WWTPs). The Water Corporation has taken progressive steps to mitigate any risk associated with the WWTPs including environmental studies under the direction of the Department of Water and Environmental Regulation (DWER), modification of Broome's wastewater processing, and relining one of the main waste ponds.

Utilising Geosynthetic Clay Liners (GCLs) as a barrier system for WWTPs is nothing new to the Water Corporation, but Broome South presented concerns in regards to pre-existing groundwater chemistry. Water Corp engineers insisted on utilising a GCL capable of providing uncompromised sealing capabilities in the presence of calcites (with high electrical conductivity). GCLs carrying low grade sodium bentonite generally suffer elevated ionic exchange in such soil conditions which in turn leads to high permeability (or poor sealing potential).

Bentofix® GCLs carry high grade sodium bentonite which have been tested in chemical solutions with electric conductivities of up to 10,000 $\mu\text{S/s}$ (much higher than those levels found at the Broome site) without any significant increase in permeability. It is widely recognized that GCLs with 'enhanced or altered' bentonites have no track-record of long term performance in benign environments let alone those exhibited at Broome WWTP. Standards and regulatory bodies such as GRI and EPA publish warnings in relation to the use of such modified bentonites in applications requiring long term performance.

Installation of approx. 30,000m² of **Bentofix® NSP 5100** was completed at Broome South by lining experts Jaylon, under a subcontract arrangement to energy services group Valmec. Third party testing of the **Bentofix® GCL** was completed by BTTG. All rolls passed independent quality assurance & were approved for installation by quality auditors Bowman & Associates.

For further information please contact sean@globalsynthetics.com.au



Segmental Masonry Block Soil Reinforced Retaining Wall and ACEGrid® Geogrid Another successful S.E Qld Project

With large parcels of land now becoming a premium for companies looking to build within the Brisbane area, land is being acquired by developers North, South, East and West of the CBD to accommodate the industrial growth happening within the South East Qld corner of the state.

Not all parcels of land acquired are perfect, which means a significant amount of earthworks for shaping the land and retaining the land, is required, prior to building works commencing.

One area of land, to the West of the Brisbane CBD, in the suburb of Heathwood, required retaining structures to be constructed to accommodate the client's large warehousing facility.

In this instance a segmental masonry **ACEGrid®** polyester geogrid soil reinforced block wall was adopted. The use of soil reinforced retaining walls is a very economical and effective solution.

ACEGrid® is manufactured from high tenacity polyester (PET) yarn and is an approved product for State Road Authorities in Australia and a wide variety of consulting engineers and contractors.

Global Synthetics can supply **ACEGrid®** geogrid in a range of 40kN/m to 900kN/m ultimate tensile strength.

The design life for the structure was to be 120 years. The **ACEGrid®** selected for this wall was able to meet and achieve the 120 years design life as requested by the designers. **ACEGrid®** GG60 and **ACEGrid®** GG120 were selected for the wall reinforcement to achieve the required long term design strengths of this design.

The segmental block wall on this project had a maximum height of 4.4m. With a total 15,000m² of **ACEGrid®** GG60 and **ACEGrid®** GG120 supplied and 1422m² of wall face constructed.

The wall was designed by Geoinventions Consulting Services and constructed by Concrib Pty Ltd.

For further information please contact paul@globalsynthetics.com.au



Product Listing

PRODUCT TYPE	PRODUCT
Geotextiles - Nonwoven	ProFab®
Geotextiles - Nonwoven	Geofirma®
Geotextiles - Woven	ProFab®
Geotextiles - Reinforcement	ACETex®
Geogrids - Pavement	Secugrid®
Geogrids - Reinforcement	ACEGrid®
Rock Mattress	Link Mattress
Gabions	Link Gabions
Geosynthetic Clay Liners	Bentofix®
Geocells	Miracell®
Geomembranes	Carbofol® & ProLiner®
Geonet	Transnet®
Sheet Drains	ProDrain®
Drainage Cells	Hydrocell™
Water Tanks Modular	ProTank®
Erosion Blankets - TRM	Landlok®
Erosion Blankets - TRM High Performance	Pyramat®
Erosion Blankets - Biodegradable	JuteLok™
Silt Fences	Global
Floating Silt Curtains	Global
Dewatering Tubes	ProTube®
Wick Drains	CeTeau®
Geosynthetic Sand Container	GeoRock™

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For a comprehensive product catalogue, please email info@globalsynthetics.com.au

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