PERMATHENE NEWS

No 1 November 2000

This is the first issue of PermatheneNews and we have included some of our newest products. Also featured are several projects with case studies.

Permathene Ltd was founded in 1959 by Jose Cosio Snr, a Civil Engineer originally brought to New Zealand for the building of the Tasman Pulp and Paper Mill in Kawerau. Permathene has always specialized in custom manufacture of waterproofing membranes for buildings and liquid storage and since 1983 has also been a supplier of geotextiles.

Today Permathene specializes in the geosynthetics industry from technical assistance to various engineering organizations at planning, design and execution stages to product supply and support. We are the agents for Synthetic Industries Inc of the USA (the worlds second largest producer of geotextiles) for New Zealand, Pacific Islands, India and several other countries. We offer a full range of polyethylene and polypropylene lining membranes, nonwovens, wovens, high strength fabrics, geogrids, modular drainage systems, erosion control products, and wire gabions.

Benau Water Treatment Project Fiji

Client: Public Works Department Fiji

Contractor: Sophora Water Ltd Auckland

Consultants: Harris Consulting Ltd Auckland
Tonkin & Taylor Ltd Fiji

Date: 1999/2000

Products: Syntex 1001 non woven, Permaliner FPA 750mu

Permathene was involved with the designing of this project with Harris Consulting of Auckland. Based on available site soil data 750mu **Permaliner** FPA polypropylene and **Syntex** 1001 nonwoven geotextiles were specified for these backwash ponds. The lining was manufactured at the Permathene factory in Auckland as a single one piece membrane and transported to Fiji for installation.

Yamuna River Bridge Project, New Delhi, India

Client: Noida Toll Bridge Company Ltd, New Delhi

Contractor: Mitsui Marubeni Corporation, Japan

Sub Contractor: Oriental Structural Engineers Ltd, India

Date: 1999/2000

Product: Syntex 801 (250,000m²)

The construction of an 8-lane bridge across Yamuna River was awarded to Mitsui Marubeni Corporation of Japan which subcontracted the approaches to the bridge to Oriental Structural Engineers Ltd, India. They were responsible for the construction of huge sand embankments by dredging from the riverbed. The contract included hydraulic filling, construction of slab culverts, pipe culverts, retaining wall construction of road crust protection works consisting of stone pitching, gabions filled with stone boulders and placed over geotextiles as advised by Permathene Ltd.

Permathene Ltd supplied 250,000m² of **Syntex** 801 nonwoven geotextile and full technical assistance to complete the project on time. This is one of the largest bridge projects ever undertaken in India using geotextiles and gabions.

Permaliner Gas Barrier, Auckland

Client: Fletcher Properties Ltd, Auckland

Consultant: McGuigan Syme Chilcott Ltd, Auckland

Contractor: Fletcher Construction SP & NZ Ltd, Auckland

Date: Sept 1999 - Dec 1999

Products: Syntex 501, Permaliner FPA 500mu

Circle International Warehouse site, located in Penrose, Auckland is adjacent to the Ericson Stadium, which was constructed on an old landfill site. The monitoring indicated that some gas migration continues through the ground substrata in the adjacent areas. Following excavation gas leakage was detected and it was decided by the consultants to install a gas proof membrane. The total area of 4300m² was covered with 8 factory manufactured panels of 500mu **Permaliner** FPApolypropylene liner. The panels were site sealed with **Vulcanseal** 609 by our installation crew. **Syntex** 501 nonwoven geotextile was placed on the prepared site to act as a cushion for the gas membrane.

Rotorua District Sanitary Landfill

Client: Rotorua District Council

Consultant: Worley Consultants Ltd Auckland

Contractor: Phil Rouse Ltd Tokoroa

Date: Feb 1999 - Mar 2000

Product: Syntex 1751

Permathene was involved in designing the geomembrane liner and cusioning fabric with Worley Consultants for this project. We also assisted with project specification and the QC proceedures.

Syntex 1751 nonwoven geotextile was recommended by Permathene to go on top of the 1.5mm HDPE liner. By virtue of its chemical composition, molecular structure and thermodynamic properties, polypropylene is one of the most resistant raw materials known today. **Syntex** 1751 has been specifically designed for use in landfill or waste disposal facilities. United States Environmental Protection Agency (EPA) 9090 accelerated testing performed on this product has demonstrated an excellent chemical compatibility with landfil leachate. It is highly resistant to puncture, impact and abrasion, which greatly reduces the potential damage from sharp objects during and long after the construction process.
In a separate study, properly stabilized and buried **Syntex** polypropylene geotextiles have been estimated to have a functional longevity of nearly 200 years in an oceanic or marine application. At present, nonwoven polypropylene geotextiles are used in more than 80% of all waste containment applications.

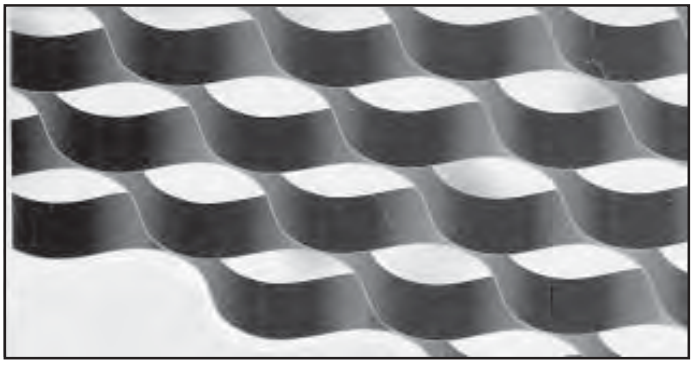
New Products from Permathene

Raugrid Geogrid: a soil reinforcement geogrid for use in soil and foundation engineering. Made from high strength polyester yarns with a high modulus of elasticity, excellent long term properties and a high resistance to chemical and biological attack. The geogrid is polymer coated to enhance mechanical resistance.

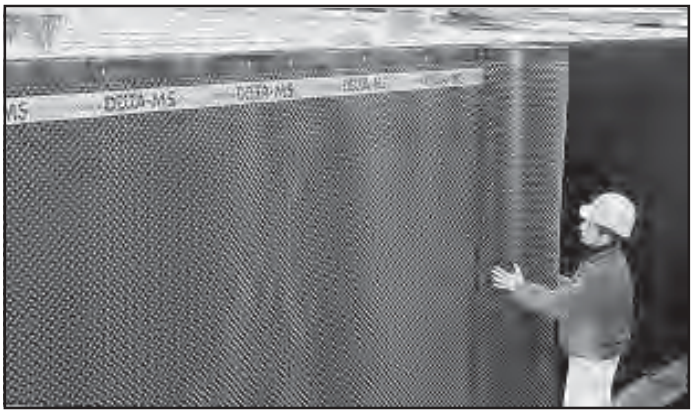
Turf Pave Sub-Surface Paving: A patented lightweight, high density polyethylene grid structure specially designed to stabilize and support turf, grass or decorative gravel. It provides architects and developers with a grassed alternative to unsightly concrete and asphalt pavements. Offering a solution that is practicle, aesthetically pleasing and environmentally friendly, **Turf Pave** allows the creation of stabilized and durable lush lawns which add to the quality and beauty of the environment.

Volta-Cell Cellular Confinement System: A three dimensional light weight and flexible mat, made of high density polyethylene strips, ultrasonically bonded to form a honeycomb system. **Volta-Cell** is highly effective in solving many of the problems of drainage, soil stability and erosion control.

Suitable for channel protection, slope protection, roadbase stabilization, retaining walls, acoustic walls.



Dorken Heavy Duty Drainage Sheeting: For drainage in buildings, underground construction and civil engineering applications. DELTA-MS: Dimpled sheeting for the protection of foundation wall waterproofing against mechanical damage. DELTA-MS20: Dimpled sheeting with a particularly high drainage capacity and compressive strength, suitable for high performance seepage layers in construction. DELTA-DRAIN: Double dimpled sheeting with integral geotextile for the protection of foundation wall waterproofing against mechanical damage and for drainage of stratified and slope water.



Permathene Twisted Wire Gabions & Matresses

- Zinc Gabions 2m x 1m x 1m
- PVC/ Zinc Gabions 2m x 1m x 0.5m
- Zinc Mattress 6m x 2m x 0.3m
- PVC/ Zinc Mattress 6m x 2m x 0.3m

The Permathene product range includes the following:

Civil Egineering

Syntex woven and nonwoven geotextiles, **Landlok** turf reinforcement, **Mudstop**, **Pavedry** asphalt overlay, **Polyjute** erosion control, **Pyramat** erosion/ reinforcement, **Reinforcer**, **Silt Chek** silt fence, **High Strength Tubes**, **Raugrid** geogrid, **Bitutex** composite pavement repair system, **Greenfix** straw/coir, **Dorken** and **Nordrain** drainage products, **Permathene** wire gabions, **Turf Pave**, **Volta** cellular system, **Permaliner FPA** polypropylene lining systems.

Construction

Dampstop reinforced and **Trithene** multi layer concrete underlay/dpc, **Vulcanseal** butyl tape, building films, scaffolding fabrics, protection films.

Horticulture and Agriculture

Graphlon reinforced and **Nikoflex** greenhouse films, hydroponic films, **Noweed** and **Aki** ground cover, **Windstop**, hailnet, birdnet, frost fabric, **Coolaroo** knitted shadecloth, **Permaclip** fasteners.

For any further information on these products and projects, please contact us.