

# CASE STUDY

Geosynthetic Clay Liner

Project: Ormiston Town Centre Pond  
Date: May 2015  
Client: Hick Bros Construction Ltd  
Location: Flatbush Auckland



## ELCOSEAL®

Auckland Council, the Howick Local Board and other partners are currently developing the Ormiston Town Centre. This town centre is part of the transformation of the South East Auckland Flat Bush area which is destined to become the country's largest and most comprehensively planned new town. By 2025, it is expected that the area will be home to at least 35,000 people. The development includes five neighbourhood centres and has a strong focus on open space, high urban design standards and environmental sustainability.

As part of the Ormiston Town Centre Development Stormwater Management Plan a stormwater pond was required. This pond will also serve as a recreational feature for residents and visitors alike along with surrounding walkways and wet land viewing areas.

**ELCOSEAL®** Geosynthetic Clay Liner (GCL) was specified as the pond liner. **ELCOSEAL®** is a proven and cost effective method for lining the base of ponds and other water storage structures where a certain minimum depth of water has to be maintained all year round.

**ELCOSEAL®** is easy to install and doesn't require specialist installation equipment apart from the Geofabrics supplied lifting beam and spreader bar assembly kit. These kits are certified for safe handling and deployment of **ELCOSEAL®** and are readily available from Geofabrics for supply to GCL installation projects.

Geofabrics also supplied on-site installation guidance/training for the contractor. A team of 5 to 6 workers were able to install up 500m<sup>2</sup> of **ELCOSEAL®** per day including the 300mm depth of cover material. The construction Project Manager was very pleased with ease of construction and efficiency of the install process.



Site map of area to be developed



Overall site view



Laying of ELCOSEAL®

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Completed pond

## How ELCOSEAL® Works

ELCOSEAL® Geosynthetic Clay Liners (GCLs) are needle-punched reinforced composites which combine two durable geotextile outer layers with a uniform core of premium quality sodium bentonite clay to form a hydraulic barrier.

The sodium bentonite clay utilised in ELCOSEAL® GCL's is a high grade clay mineral that swells as water enters between its clay platelets. When hydrated under confinement, the bentonite swells to form a low permeability clay layer with the equivalent hydraulic protection of approximately 1 metre of compacted clay.

ELCOSEAL® GCL's are produced by distributing a uniform layer of the sodium bentonite between two geotextiles. High-tenacity fibres from the upper nonwoven geotextile are then needle-punched through the layer of bentonite and incorporated into the lower geotextile (either a woven or a non-woven/woven composite) to provide consistent reinforcement and transfer of shear stresses to the geotextiles.

This process results in a strong mechanical bond between the geotextiles. A proprietary heat treating process - the 'Thermal Lock' process - is used to lock the needle-punched fibres into place. Unique properties, including increased internal shear resistance and long term creep resistance, result from this process

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