Geoweb® Cellular Confinement

CASE STUDY

Victorian Desalination Plant
Roof Garden 26,000m2

The Victorian Desalination Plant, located in Wonthaggi Victoria, was commissioned to supply an additional 150 billion litres/ year of drinking water to Victoria's water system. One of the highlights of the desalination plant is the living green roof, which is the largest in Australia.

Fytogreen was awarded the contract for the 26,000m2 living green roof, which consisted of various plant species, all indigenous to the local environment. The majority of the living green roof was constructed on slopes less than 15°, and did not require any specialised construction techniques for veneer stability. However, approximately 650m2 of the roof was to be constructed on a 20° slope, which required additional consideration for the stability of the growing media.

The Geoweb® Cellular Confinement System was selected for use on the 20° slope, as the unique tendon anchoring system resists sliding forces on steep slopes, which would otherwise be subject to veneer failure.

The Geoweb® Cellular Confinement System is available in cell depths ranging from 75mm to 200mm. Selection of the cell depth and anchorage requirement is related to the steepness of the slope, angle of repose, depth and density of the infill material. A cell depth of 150mm with 10kN/m tendons running down the slope, placed in every second cell across the slope was selected for the living green roof application.

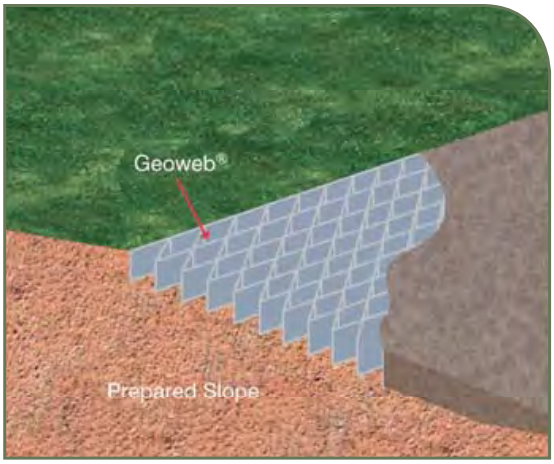
Geofabrics also offers additional technical support for the selection of the cell depth and anchoring system, based on the conditions of the application.

A four person crew from Fytogreen was able to install the Geoweb® Cellular Confinement System within four working days. The crew divided the tasks into two separate components.

Two workers ran the tendons through the cells, whilst the additional two workers installed the ATRA® keys to secure the adjoining panels to each other along their longitudinal edges.

The growing media was stored in bulk bags, and lifted above the system by a mobile crane for installation. The Fytogreen installation team was then able to spread and foot compact the growing media, as the slope was considered too steep for the use of compaction equipment.

The Geoweb® Cellular Confinement System's unique design provides resistance to sliding for thin soil veneers on steep slopes, which ultimately allowed for the construction of a previously unfeasible, living green roof on a 20° slope.



The Geoweb® system is the most advanced soil stabilization technology available on the market today. Initially developed by the US army to allow trafficking of heavy vehicles over very soft ground.

The Geoweb® system consists of a flexible, high-strength network of interconnected cells that confine and stabilize soil. Geoweb® is widely used around Australia as a support platform in unsealed roads, on slopes and in low velocity channels.

A variety of infill materials can be used depending on the problem, including topsoil with selected vegetation, sand and gravel, larger rock and stone and concrete.

The system is made from high quality polyethylene in collapsed, lightweight panels that are easily and safely handled on-site. Geoweb® has a solid reputation for quality and innovation and is manufactured to the highest international standard with ISO9001:2008 accreditation.

Geofabrics supports the Geoweb® system with design and support and installation tools.

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