

# Landfill Capping

Steep Slopes, Pozidrain G, Tir John Landfill, Swansea, UK



## Project Description

Tir John has, since the 1960s, fulfilled landfill requirements for residents and commercial contractors in South West Wales. The facility is adjacent to the Crymlyn Bog, which is a designated Special Area of Conservation (SAC). The disposal of residual waste is managed by Swansea City Waste Disposal Company Limited (SCWDCL) who operate Tir John landfill site. The City and County of Swansea approached Jacobs to design a final capping system for this landfill site.

## The Challenge

In 2012 Tir John landfill site was required to be capped with a permanent geosynthetic capping system and 1m of soil cover.

The requirement was to design a capping solution that would enable fast installation on this large area. The geosynthetic capping system required a high performance geocomposite drainage and protection layer, impermeable geomembrane and gas dispersal geocomposite.

A large proportion of the landfill cap was constructed on very steep slopes where it was necessary to ensure slope stability during construction. The challenge was to produce a cost effective design that resulted in adequate stability on steep slopes without the use of geogrid reinforcement.

## Project Information

Client Swansea City Council

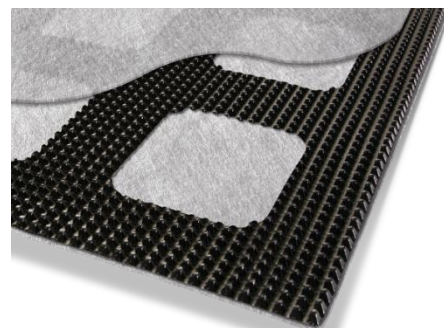
Contractor Walters UK

Consultant Jacobs

Products Pozidrain G4SD

Quantity 120,000m<sup>2</sup>

- Benefits
- High flow capacity in both directions
  - Excellent frictional performance removed the requirement for geogrids
  - Geomembrane protection
  - Wide-width rolls for fast installation



ABG Pozidrain G

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## The Solution

The designer worked with **ABG** to develop a geosynthetic capping solution that would provide the required drainage/gas venting flow capacity and frictional performance to ensure slope stability. **ABG's** unique **Pozidrain G4SD** geocomposite drainage layer with enhanced frictional performance was specified and installed on top of the 1mm LLDPE textured geomembrane for drainage and below for gas dispersal. Shear box test results for the **Pozidrain** vs cover soil interface indicated sufficient frictional performance to achieve the required factor of safety for the 50m long 1 in 3 slope installation.

This landfill cap was completed without any stability problems and drainage performance was reported to be adequate on this 6ha landfill cap.



Wide-width rolls enabled rapid installation

## The ABG Service

**ABG** provided design assistance. This included shear box testing, slope stability and flow capacity calculations.



High flow capacity in both directions



Superior interface friction ensured 1 in 3 slope stability

Contact **ABG** today to discuss your project specific requirements and discover how **ABG** past experience and innovative products can help on your project.