

Landfill Drainage

Basal Drainage, Pozidrain Protector, Lean Quarry Landfill, UK



Project Description

Lean Quarry landfill site near Liskeard is an important facility for the residential and commercial waste disposal requirements in Cornwall. It is located in an environmentally sensitive area and therefore subject to close Environment Agency supervision. The site also accepts waste from Devon and this volume of waste meant that additional capacity was required. Viridor Waste Management Ltd approached SLR Consulting to design a new cell for this landfill site.

The Challenge

A new 45m deep landfill cell was to be developed at Lean Quarry landfill site using adequate cost effective geosynthetic materials for this deep application. The requirement was to design a geosynthetic lining solution that would comprise of a composite lining system (GCL and HDPE membranes), geocomposite drainage/protection layer on steep 1 in 2,5 basal side slopes and drainage stone on the cell base (10/20mm layer below the 20/40mm granite). The geocomposite drainage/protection layer would be exposed to sunlight for several months until the waste was placed, so must be highly UV stable. In addition, to demonstrate adequate protection of the geomembrane, the geocomposite would need to pass a cylinder test to Environmental Agency standards. Furthermore, the geocomposite must resist long term compressive creep under the pressure of 45m of waste.

Project Information

Client	Viridor Waste Management
Contractor	Moulding Contracts
Consultant	SLR Consulting
Products	Pozidrain Protector 745
Quantity	10,000m ²
Benefits	<ul style="list-style-type: none">• Excellent geomembrane protection at 1,200kPa loading• High flow capacity in both directions• Replaced 5,000m³ drainage stone• Rapid installation on steep slopes



ABG Pozidrain Protector

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The Solution

The designer SLR Consulting worked with **ABG** to develop a geosynthetic drainage and protection solution that would provide the required puncture resistance and flow capacity to ensure effective geomembrane protection and leachate drainage. **ABG's Pozidrain Protector 745** geocomposite drainage layer with enhanced protection and UV resistance was specified and installed on top of the 2mm HDPE textured geomembrane on steep side slopes. SIM tests confirmed that the compressive creep was less than 20% in 120 years. Environment Agency cylinder test results for the **Pozidrain Protector** and stone material from this site indicated sufficient puncture resistance and protection performance to achieve the required factor of safety for the 45m deep installation and 1,200kPa pressure (2.5 times service loading).



Composite lining system installation
GCL and 2mm textured HDPE geomembrane

The ABG Service

ABG provided technical advice and design assistance. This included cylinder testing and flow capacity calculations.



Pozidrain Protector puncture resistance ensured
adequate geomembrane protection at 45m depth



UV resistant Pozidrain geotextile
tack welding with a hot air gun

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