

Landfill Drainage

Capping, Pozidrain, Lamby Way Landfill, Cardiff, UK



Project Description

Cardiff Council's Lamby Way landfill site is located on land bordering the mouth of the Rhydney River and the Severn Estuary foreshore, in the southeast of the city. For more than three decades, Lamby Way was the main landfill site for the Cardiff area, not only for the Authority's residential and business waste but also external commercial and industrial waste. There were more than 35 local companies that utilised the landfill site for disposal of waste. The Authority approached Parsons Brinckerhoff to design a final capping system for this environmentally sensitive location.

The Challenge

Over 20 years, each filled landfill cell was required to be capped with a permanent geosynthetic capping system and 1m of soil cover. The first capping phase was completed in 1997 and the site needed to be permanently capped and closed by October 2017. The requirement was to minimise or eliminate the use of the expensive drainage stone and design a capping solution that would enable fast installation on this large area that was exposed to strong winds. The geosynthetic capping system comprised a geocomposite drainage and protection layer, impermeable geomembrane and protection geotextile. A large proportion of each capping phase was required to be constructed on steep slopes where it was necessary to ensure slope stability during construction.

Project Information

Client	Cardiff Council
Contractor	Walters UK/Ascot/VHE
Consultant	Parsons Brinckerhoff/Cardiff Council
Products	Pozidrain 4S250D/NW8
Quantity	1,200,000m ²
Benefits	<ul style="list-style-type: none">• High flow capacity in both directions• Geomembrane protection• Adequate frictional performance for slope stability• Rapid installation• Replaced 250,000m³ drainage stone increasing available void space



ABG Pozidrain Geocomposite

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The Solution

The designer worked with ABG to develop a geosynthetic capping solution that would provide adequate drainage and frictional performance to ensure slope stability. Pozidrain 4S250D/NW8 geocomposite drainage layer was specified and installed on top of the 1mm LLDPE textured geomembrane with 1m of soil cover on all capping phases. The Environment Agency approved the design following a successful Pozidrain protection efficiency site trial on the first capping phase in 1997 where the geomembrane was excavated and inspected.

The ABG Service

ABG provided technical advice and design assistance on all capping phases. This included shear box testing, slope stability and flow capacity calculations. In 2012 Pozidrain samples were taken from the first capping phase to review the long term performance. The test results on Pozidrain that has been buried for 14 years show less than 5% reduction in performance on any of the properties.



Wide-width rolls enabled rapid installation



Pozidrain installed on top of 1mm LLDPE textured liner



Superior interface friction ensured 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.