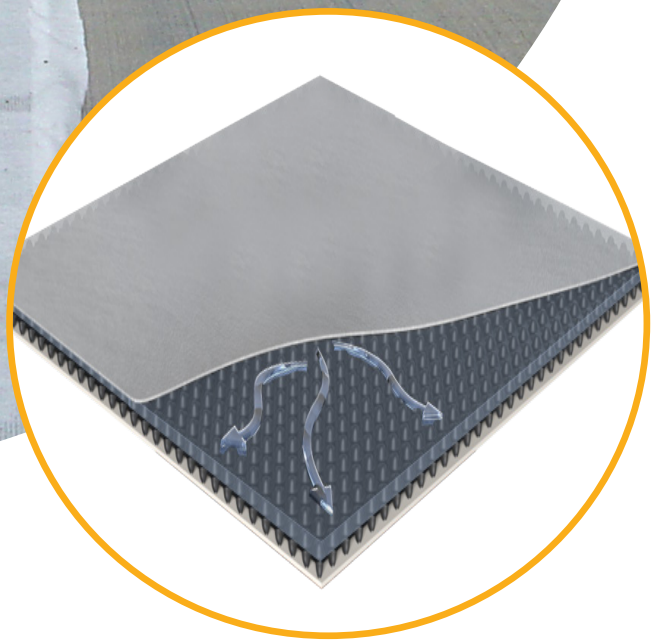

Pozidrain®

A guide to the selection and specification of Pozidrain® drainage geocomposite

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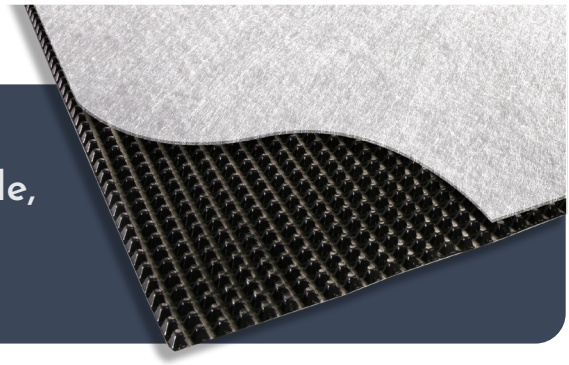
Pozidrain



Pozidrain is the original wide width drainage and gas venting layer and offers a sustainable, environmentally friendly alternative to traditional filter stone drainage.

Pozidrain consists of a high strength flexible polyethylene cuspated core with a nonwoven geotextile bonded to either one or both sides.

The geotextile filters a wide range of materials and is bonded to the core to ensure that it does not deform into the drainage passages under the load of the backfill material. It allows fluids and gases to percolate into the core whilst supporting the backfill material. The collected fluids are then transported along the core to a discharge point.

The single cuspated HDPE core forms a high-performance free draining void, using the spacing between the cuspates. This unique core design offers clear passageways which allows flow in all directions, even in the event of damage or a blockage occurring.

Impressive compressive strength and creep resistance properties ensure that the core maintains drainage capacity under a wide range of compressive loadings.

Pozidrain is durable and sufficiently robust to resist the mechanical stresses imposed during installation and throughout the design life.

Use of Pozidrain may eliminate the requirement for secondary protection of the geomembrane liners; thick Terrex SNW geotextiles may be used in the manufacture of Pozidrain to create a very substantial protection and drainage layer with just one installation cost.

When compared with aggregate drainage, Pozidrain offers superior flow characteristics in a much thinner layer. This reduces the required thickness of the capping and base lining system and results in extra void space and savings. Wide width Pozidrain composites are especially suited for rapid installation on large landfill and restoration projects.

Chemical resistance

Pozidrain has excellent resistance to petrol, oils, acid, alkalis, leachate and all common chemicals.

Supply

Pozidrain is available in 4.4, 2.2 or 1.1 metre wide rolls, 50 or 100 metre in length, manufactured in 4mm, 6mm, 7mm, 12mm & 25mm thickness and a wide range of compressive strengths.

Installation

Pozidrain is easy to handle and is rapidly installed without the need for specialist plant. The 4.4m wide rolls are ideal for coverage of large areas.

Health, Safety & Environment

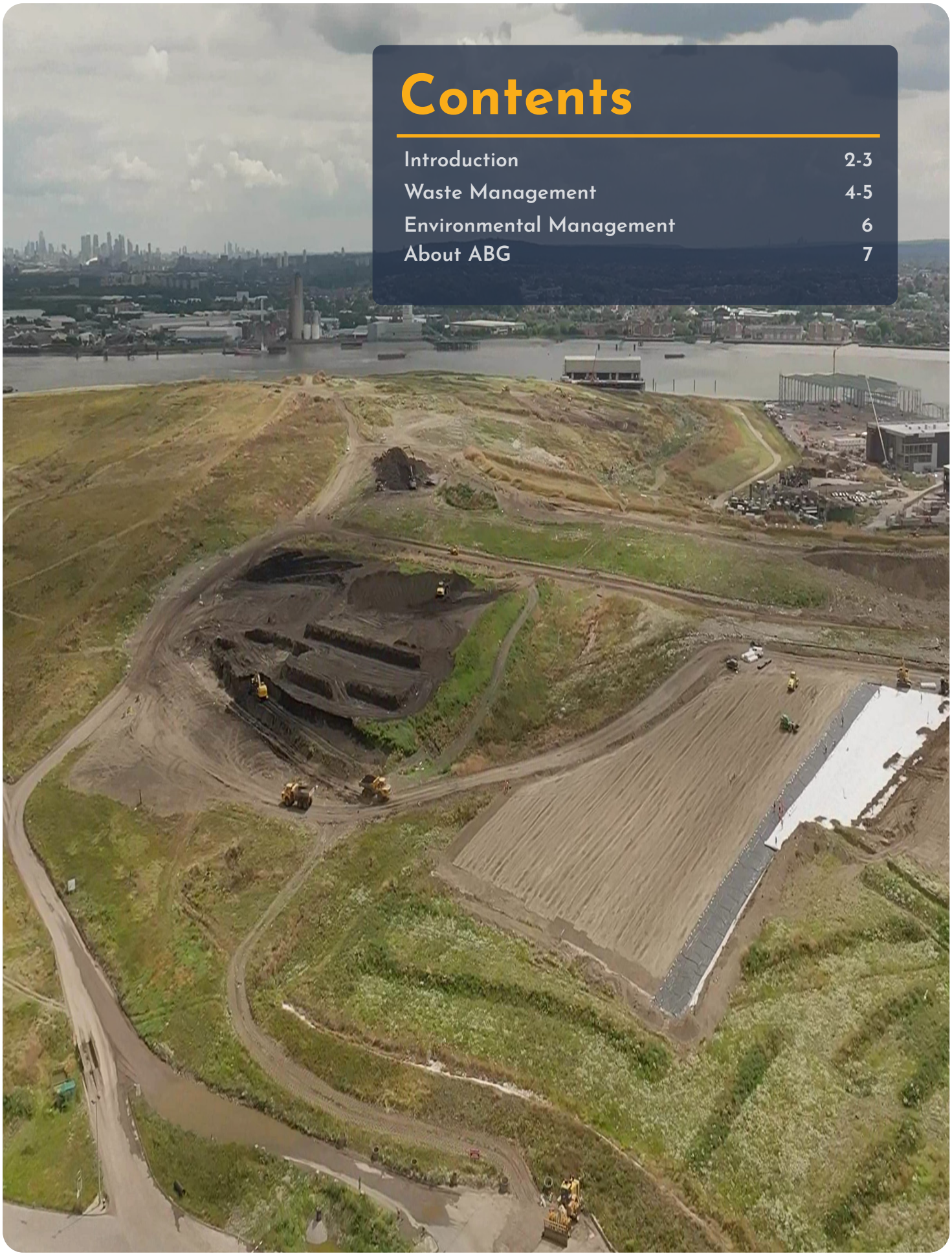
All components of Pozidrain are inert and do not present a hazard to health.

Pozidrain Applications

- A strong, robust drainage layer for collecting leachate or ground water in landfill containments.
- Drainage layer between soil cover and geomembrane of a landfill cap.
- A system of venting methane and other gases from the perimeter of landfills and below the capping layer.
- Leakage detection layer within the landfill base lining.
- Cut-off trenches.
- Embankment drainage and reinforcement.
- Capillary break layer in the restoration of contaminated land.

Pozidrain Benefits

- Sustainable recyclable resource.
- Creates more landfill void.
- Allows use of lower specification backfill materials.
- Reduced excavation and backfill.
- Technically defined filter properties and extremely high impact and crush strength.
- Long life performance and high flow capacity.
- Compatible with geomembrane systems. Acts as the protection layer to geomembrane liners.
- Ease and speed of installation.
- Massively reduced traffic volumes compared to drainage stone.



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Waste Management

Landfill Capping

To guarantee effective cover, landfill caps should incorporate a drainage layer above and a gas collection layer below the lining system. Pozidrain has the properties to provide these functions and offers improved performance with lower costs than using conventional crushed stone filter / drainage layers.

Pozidrain is designed to be compatible with all common lining systems and provides optimum performance over the whole-life of the cap. It enhances the performance of GCL or HDPE liners by providing an additional barrier that prevents the majority of the water or gas from reaching the liner. Pozidrain geocomposite drainage layer has a proven track record in landfill capping and has been used on many projects globally.

Landfill Cap Drainage

Pozidrain installed over a geomembrane, within the geosynthetic landfill cap, will collect and drain rainwater from the soil cover. This prevents saturation, ensuring the capping soil remains stable.

Gas collection & dispersal

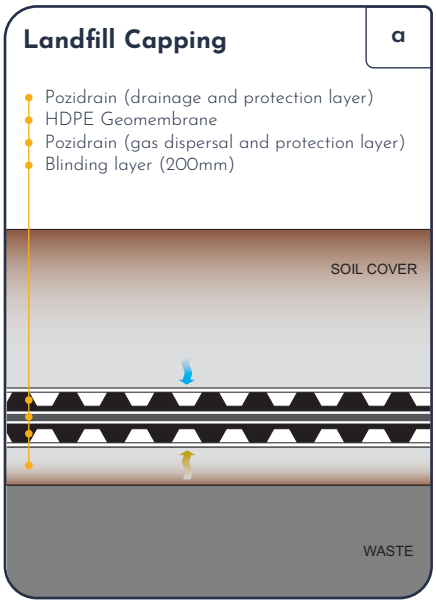
Pozidrain below a capping geomembrane forms the basis of a highly-efficient gas collection and dispersal system by creating a free draining void across the cap area.

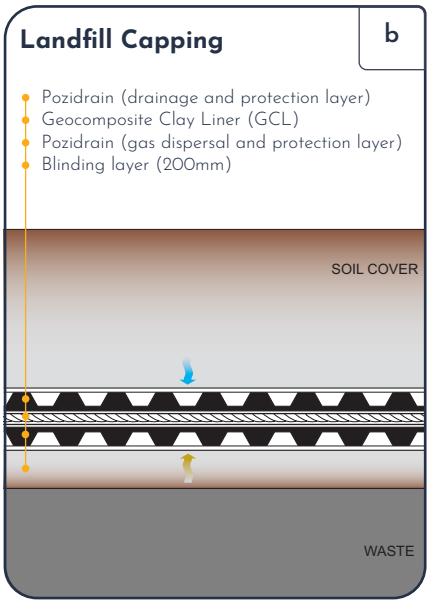
Installed with the flat face of the core against the liner and dimpled face against the waste, Pozidrain also affords a high level of protection to the lining system.

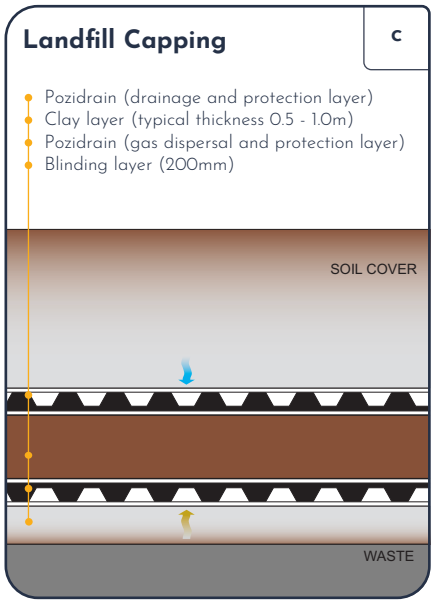
Geomembrane protection

Pozidrain has a smooth flat core that has the optimum design to reduce the contact stress on the geomembrane.

The high CBR puncture resistance of Pozidrain cushions the geomembrane from sharp material in the landfill waste. Site specific protection efficiency tests are readily undertaken.







Landfill Base & Side Slope Lining

The wide width Pozidrain Protector geocomposite drainage layer offers major advantages over conventional drainage stone layers. It creates more landfill volume and has the hydraulic properties for reliable and sustainable performance. In basal applications high strength cores are used, the mechanical resistance of the material is more than sufficient to endure installation stresses and long term loading.

Pozidrain reduces the hydraulic head and physical stress on the geomembrane (as demonstrated by the cylinder test EN13719:2002 Annex B) and provides protection against puncture. A significant number of landfill sites have already utilised the benefits of Pozidrain.

Leakage Detection

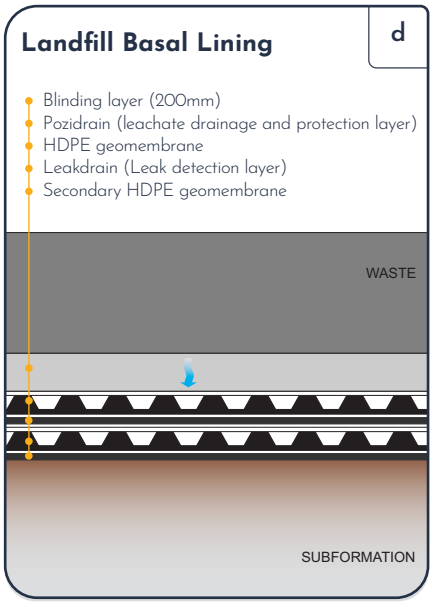
Leakdrain installed between primary and secondary lining systems forms the basis of an efficient leakage detection system. Leakdrain will not only identify the presence of a leak, but also has sufficient capacity to collect the discharge and guide it safely to a collection point until repairs can be made.

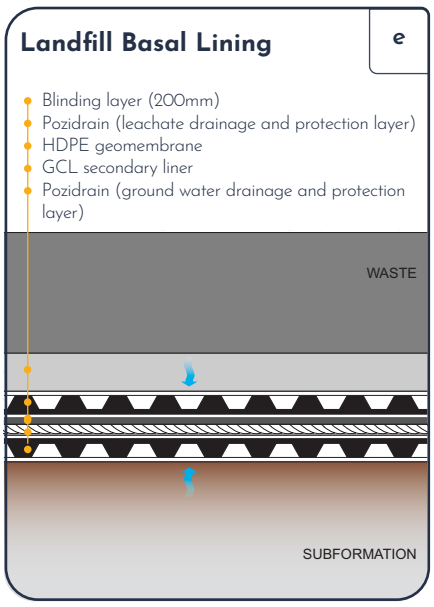
Leachate drainage

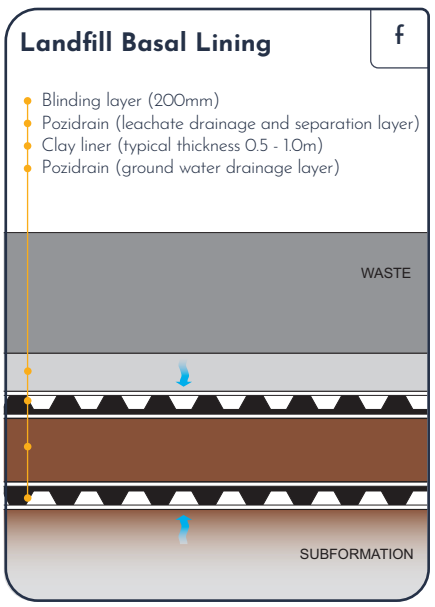
Pozidrain installed over a geomembrane within the geosynthetic landfill base, will collect and drain leachate from the waste body above. The large voids within the Pozidrain core provide high resistance to biological clogging. As with conventional materials a 200mm blinding layer is typically provided above the Pozidrain.

Ground water drainage

Pozidrain below the landfill base geomembrane will act as a ground water drainage system. It is installed with the dimpled drainage face against the sub-formation and the flat face, onto which the geomembrane is laid, uppermost. Pozidrain provides a high level of protection to the lining system.







Environmental Protection

Land Reclamation

Wide width Pozidrain geocomposites are used in soil stabilisation applications where its high tensile strength and flow capacity ensure excellent reinforcement and separation.

Pozidrain provides a more environmentally acceptable solution than crushed stone drainage layers. It is lighter, uses less transport and helps conserve finite natural resources.

As a result of its highly effective drainage properties Pozidrain often enables low grade, recycled material to be used as backfill, saving on material movements.

Environmental Protection

Pozidrain or Pozibreak (see separate brochure) installed over contaminated soil collects and drains rainwater from the clean soil cover as well as providing separation and reinforcement for the backfill material. Pozidrain or Pozibreak forms a capillary break layer preventing contaminated moisture seeping up from below. It can be supplied with a high visibility orange core.

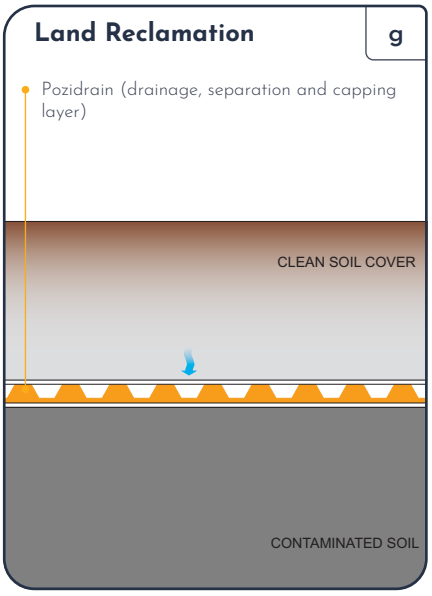
Fill consolidation & Reinforcement

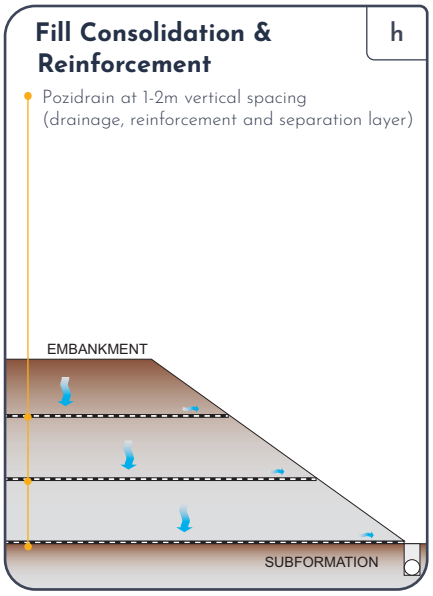
The use of Pozidrain drainage layers in fill consolidation provides a combined drainage and reinforcement function.

It offers a highly effective solution that produces an increase in soil strength and speeds consolidation by efficiently relieving pore pressures within the embankment construction.

Slope Stabilisation

Pozidrain is used conveniently to stabilise the face of embankments or cuttings where ground water seepage is washing away material from the face. Pozidrain laid along the face of the slope enables low grade excavated material to be used to re-profile the slope.





Associated materials

ABG manufacture a complementary range of geosynthetic materials to help provide solutions for other aspects of the project. When contemplating the many aspects of landfill and environmental projects the following products may enhance your overall design:

Abgrid	Biaxial reinforcement geogrids
Abweb	Geocell mattress for sub-base reinforcement
Alphaline	Polyethylene and polypropylene geomembranes
Claymat	Geosynthetic clay liners
Erosamat	Erosion control mats to stabilise exposed soil areas
Erosaweb	Honeycomb web for slope stabilisation
Pozidrain G	The latest development in cost effective high performance geocomposite for steep slope applications
Terrex	Geotextiles for separation, protection and filtration
Webwall	Environmental soil retaining walls

About ABG

ABG is a market leader in the design, development, manufacture and technical support of high performance geosynthetic systems for use in a wide range of waste management and environmental containment applications.

Formed in 1988, based in the UK in Meltham, close to Manchester, ABG has attained an excellent reputation for developing quality products and delivering outstanding service. The ability for rapid product development ensures that the most innovative, up to date and cost effective solution can be found for many engineering challenges including basal lining systems, capping systems, reinforced earth applications and high performance drainage.

ABG's involvement in capping and lining systems goes back over thirty five years and we have a complete range of products developed specifically for use in these technically demanding applications. During this period we have supplied projects globally in excess of 50 million square metres.

Technical support is provided by our trained and experienced staff, many of whom are Chartered Civil Engineers. This extensive support extends to full design, design validation, feasibility studies, cost advice and advice on meeting regulatory requirements.

ABG is active on UK and international technical committees to develop guidance and best practice to increase knowledge of geosynthetics and provide effective codes and regulations.

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