

Basal Drainage & Slope Retention

Pozidrain and Erosaweb, Shetland Gas Plant, UK



CASE STUDY

Project Description

The Shetland Gas Plant (SGP) represents a £2.5bn investment by TOTAL in Shetland to service the Laggan and Tormore gas fields, located 125km north-west of the island. The Department of Energy & Climate Change estimated that these fields account for 17% of the remaining UK's oil and gas reserves, and so are essential to the country's future energy security. The site of the SGP was covered by a peat bog totalling 700,000m³ in volume, and which had taken several thousand years to form. It was a condition of the Scottish Environmental Protection Agency, the Scottish Islands Council and Scottish Natural Heritage that the peat be preserved for reinstatement following the end of life decommissioning of the site. The solution was to build a 500,000m³ peat store, and later a second 200,000m³ store, into the terraced slopes of the site.

The Challenge

The design of the peat stores was to mimic as far as possible natural peat conditions. The stores were to be open-topped, to allow rain water to percolate through the peat, with drainage from the side and base, as a peat bog would do naturally. A traditional stone drainage layer would have required the import and placement of many thousands of tonnes of quarried stone, increasing the size of the stores and the extent of excavation requirements to allow for the volume of the stone as well as the peat.

Project Information

Client	TOTAL E&P UK
Contractor	Roadbridge
Product	ABG Pozidrain 12S500/NW8 Erosaweb GWX 150/300
Quantity	40,000m ² & 65,000m ²
Benefits	<ul style="list-style-type: none">• Replaces drainage stone layer, maximising the void space of the cell• Wide width rolls for rapid installation• Simplified construction speeds up installation, reducing costs• 120 year design life for long-term assurance



ABG Pozidrain

ABG LTD

E7 Meltham Mills Road, Meltham, Holmfirth, HD9 4DS • +44 (0)1484 852096 • www.abgltd.com

a Bontexgeo Group company

Basal Drainage & Slope Retention

Pozidrain and Erosaweb, Shetland Gas Plant, UK



The Solution

The designer approached ABG for a drainage solution to be compliant with the development restrictions to facilitate this ambitious project. The inclusion of **Pozidrain 12S500/NW8** in place of a traditional stone drainage layer enabled the maximum void space to be utilised for peat storage rather than drainage stone, and so kept the footprint of the stores to a minimum.

Erosaweb GWX 150/300 was used on the 1:2.5 slopes to reinforce the soil veneer. This used around 10,000m³ of the excavated peat, providing a native environment for local flora and fauna and reducing the quantity placed into storage. **Pozidrain** and **Erosaweb** have a 120 year design life, so performance is assured far beyond the anticipated operational life span of the SGP.

The ABG Service

ABG provided design assistance. This included slope stability and flow capacity calculations.



Peat filled Erosaweb to provide a natural finish on steep slopes



Installation and filling of Erosaweb GWX on 1:2.5 slopes



Peat store lined with Pozidrain being filled

ABG LTD

E7 Meltham Mills Road, Meltham, Holmfirth, HD9 4DS • +44 (0)1484 852096 • www.abgltd.com

a Bontexgeo Group company