

Secutex® Soft Rock

Coastal protection

Project name
West Links Golf Course in North Berwick, Scotland

Engineering consultancy
EnviroCentre Ltd.

Main contractor
McGowan Environmental Ltd.

Products
Secutex® Soft Rock R 601
Secutex® H 751
Secutex® R 1201





Fig. 1: Eroded coastal section

Challenge

Founded in 1832, the North Berwick Golf Club in Scotland is the 13th oldest golf club in the world.

To secure the future of the club's historic West Links Course against rising sea levels, decreasing sand deposition, and coastal erosion, North Berwick has instituted a multi-year remedial and preventative measures program.

The course follows the coastline on a north-facing land projection, on the south bank of the Firth of Forth estuary. The banks in this area have been threatened by storm surges and accelerated erosion. A fixed point photography system has been in place since 2014 to monitor the effects of coastal erosion on the dunes. That photographic record was used in the site feasibility study prior to the appointment of engineering consultancy to help resolve the coastal threat.

It was the aim to construct a sandbased structure that would replace the lost coastline.

Solution

Sand was initially excavated from the dune and then banked to a natural slope. Lengths of Naue's Secutex® H nonwovens were then rolled out directly onto the sandy slope prior to installation of the sand-filled geotextile containers.

Secutex® H is a UV-stabilised polypropylene geotextile nonwoven engineered for use in hydraulic applications. It provides exceptional resistance to puncture from point loads.

For the heart of the structure, Naue Secutex® Soft Rock sand containers were specified. These large, sand-filled geotextile bags are manufactured from nonwoven, needle-punched Secutex® to provide filter stability and erosion protection for the dune structures.

A total of 850 individual bags were filled on site with imported sand, machine-sewn to seal the open end, and installed in alternate overlapping courses in a 'brick bonding' pattern.

The layered structure was designed to effectively reclaim the land which had been eroded, and to provide protection against future erosion.

To complete the structure, a layer of Secutex® was wrapped around the sand along the crest of the dune before being covered by a top dressing of sand, at least 1m deep, in preparation for planting Marram Grass to re-establish a natural dune environment.

Naue geosynthetics are widely used in the construction of coastal erosion control structures and are designed to allow the passage of water in both directions, but filter fine sand particles. This approach provides a highly effective, robust, and economical method of construction and excellent erosion control performance.

The reputation and history of North Berwick's club and coastal course continue to grow with the support of this innovative coastal protection plan that also permits the restoration of natural ecological processes.



Fig. 2: Installation of the sand containers within the range of vision of the golf club

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