CASE STUDY

Penrhyn Bay Coastal Defence
Coastal Protection – HPS12c Coastal

Geofabrics HPS12C has been successfully installed below the T-shaped rock groyne at Penrhyn Bay.

The purpose of the works was to protect the beach against further erosion and to mitigate any potential future storm damage. In addition to the main groyne structure, shingle was imported and placed in areas to replenish and assist the rock groyne in protecting the existing stepped defences. The project has cost approximately £7.5million and has been predominantly funded through the Welsh Coast Risk Management Scheme.

GEOfabrics HPS12c is a thick needle punched non-woven geotextile manufactured from 100% virgin polypropylene high tenacity fibres containing 1% active carbon black. The main function of HPS12c is to prevent loss of the sub-soil from below the Rock Groyne. With subsoils comprising challenging low particle sizes the HPS12c was ideal with its combined filtration and permeability characteristics. To ensure survivability high tensile elongation and CBR puncture resistance provided a robust solution capable of withstanding the rock impact during installation.

Main Contractor Jones Bros Civil Engineering UK was appointed by Conwy County Borough Council to carry out the groyne placement and associated works. The Ruthin-based firm's activity was rated 'excellent for site practices' by the Considerate Constructors Scheme (CCS). Project Manager Sam Roberts (photographed above with his team) liaised with Geofabric's Chris Daykin to schedule the HPS12c deliveries in accordance with the projects programme.

Project Information	
Location	Penrhyn Bay, near Llandudno, Conwy, North Wales
Owner	Conwy County Borough Council
Engineer	Arup
Contractor	Jones Bros Civil Engineering UK
Products	HPS12c Geotextile

Jones Bros successfully procured and imported 60,000 tonnes of rock armour, sourced from North Wales quarries, in addition to beach shingle replenishment to protect the existing defence structures. Sourcing material, plant and labour locally helped reduce the carbon footprint of delivering this crucial project.

The **benefits** of using Geofabrics HPS12c:

Easy installation – 6m wide rolls

Manufactured for performance – high tenacity fibre

Bespoke roll length – minimising joints

Isotropic properties – strength in all directions

High tensile elongation – sufficient stretch during rock placement

Puncture resistance – manufactured to CBR value taking into account rock weight, drop height and factor of safety

UV Stabilised – active carbon black

100% virgin polymer Fibres – 100 years durability

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