



project profile

Project

Middleton Sea Wall

Hartlepool

UK

System

Leromur

Quantity

700 m²

Application

Sea wall face



This tranquil photo perhaps does little to explain the circumstances around constructing this wall, but then it would be difficult to capture such a picture at high tide. The focus of this project was to armour an existing Larsen piled sea wall that had become badly holed by the effects of two tides per day in a bay where the aggressive wave action caused significant drift of beach material and debris much of it being infill from failing up-shore gabion defences that was being thrown against the face.

The high level building was at that time being used for repair work to oil platforms and the vibration along the steel pile wall was such that sensitive welding work had to cease at high tide.

The solution was found with Leromur units beginning with a 1000mm wide lower structure featuring a smooth face, this being reduced after 1 metre to split faced sections of 750mm and 500mm width with a face angle of 15°. The gap between was infilled with low fines re-cycled aggregate reinforced laterally with Betonap geo-grids, the face of the piles being lined with a non-woven geo-textile. As the wall met the piles at the top level a pre-cast rollover coping was bonded in place.

The temporary works phase was a testing time with water inundation on two tides and a 1 metre shift in beach level. The solution was found by using Pecafil permanent shutters with a two stage concrete footing this firstly created an even bearing and then provided the reinforced base for the Leromur blocks. By using rapid hardening concrete it was possible to work between tides with a set achieved before vacating the beach. As the wall continued in height the dry laid structure came into its own by enabling tidal wash to over-top the structure but at the same time allowing water to permeate and then seep back through the dry joints on withdrawal.

Over 10 years have passed since the Betocalcul designed wall was completed, the welding that was then able to continue throughout the tides has now been completed, leaving the Leromur as a lasting monument to an engineering challenge that was successfully beaten.

