

# PROJECT SHEET

**CLACTON AND HOLLAND ON SEA COASTAL DEFENCE SCHEME**  
CLACTON, ESSEX, UNITED KINGDOM

## BOSKALIS WESTMINSTER: SKILLS, RESOURCES, EXPERIENCE

Boskalis Westminster provides clients with tailored, project-specific solutions for dredge related services, as illustrated by the following project summary.

## PROJECT DESCRIPTION

This coastal protection project for Tendring District Council was awarded to VBA JV Ltd in May 2014. VBA is a consortium comprising VolkerStevin, Boskalis Westminster and Atkins that was established to secure works through the Water and Environmental Management Framework (WEM).

WEM is the third generation framework for the delivery of Environment Agency projects, and is also available to other Flood and Coastal Risk Management Authorities such as Tendring District Council.

As the lead coastal partner within VBA, the works at Clacton and Holland on Sea were undertaken entirely by Boskalis Westminster on behalf of VBA.

The frontage at Clacton and Holland-on-Sea is located on a south-easterly facing section of the Essex coastline with exposure to the North Sea. The frontage included within the project is approximately 5 kilometres in length, stretching from Clacton Pier at the southern end to Holland on Sea to the north. Prior to the scheme, the existing frontage had a promenade with a multitude of sea defence schemes providing protection, including concrete wave walker units, stepped sea walls, rock armour, timber and concrete planked groynes and mass concrete groynes. The existing defences were in a poor condition with a severely depleted beach and therefore offered little protection. The low beach levels also limited the amenity value of the seafront. The new scheme provides long term sea defences to Clacton and Holland on Sea, but also encourages regeneration in the district.

Designed by Mott MacDonald, the works comprise:

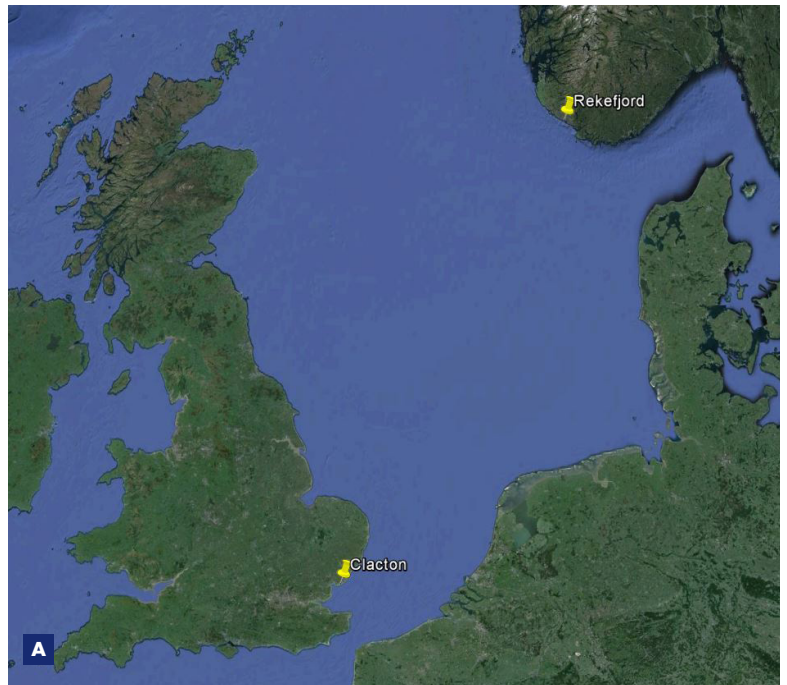
- Demolition of the existing groynes
- Construction of twenty two fishtail rock groynes and one terminal rock groyne
- Capital beach recharge along the whole frontage
- New promenade handrailing

The approximate principal quantities were:

- 300,000 tonnes of rock armour
- 1,000,000 m<sup>3</sup> of beach recharge

## FEATURES

Project Name	Clacton and Holland on Sea Coastal Defence Scheme
Client	Tendring District Council
Contractor	VBA JV Ltd
Location	Clacton, Essex, United Kingdom
Execution Period	June 2014 - October 2015



- A** Location map  
**B** Rock groyne construction  
**C** Sospan Dau rainbowing beach material



## PROBLEM SOLVING

The beach along the frontage was severely depleted, providing very short, or non-existent, working windows around low water. Boskalis Westminster therefore commenced by providing working platforms (known on site as 'pancakes') formed by rainbowing beach material from our small trailing suction hopper dredger 'Sospan Dau'. The material, from licensed winning area 447, was the same as that used for the capital recharge, so was ultimately incorporated into the permanent works. By locally raising the beach levels, the sand and shingle pancakes gave sufficient access for the demolition of the old timber and concrete groynes, and construction of the new rock fishtail groynes.

## SUSTAINABILITY AND THE ENVIRONMENT

The timber groynes were carefully dismantled in order to provide Tendring District Council with a stockpile of timber suitable for repairs on other stretches of their frontage and the concrete is broken up for re-use within the core of the new rock groynes.

In order to allow the communities of Clacton and Holland on Sea to continue with their normal activities with minimal change, the bulk materials of armour rock and beach material were delivered by sea. The project therefore had negligible effect on local traffic movements.

Boskalis Westminster sourced the armour rock from Rekefjord in Norway. The rock was transported by self discharging coasters to a trans-shipping area off the coast of Clacton. It was then loaded on to the Boskalis Bolle 8 flat top barge and towed to the beach for offloading over high tides. This process commenced at the northern end of the frontage with the rock being discharged adjacent to the footprint of each new groyne.

On completion of the first eight groynes, the Boskalis 4,500m<sup>3</sup> trailing suction hopper dredger 'Causeway' was deployed to complete the Phase 1 capital recharge. Dredging material from winning area 447, approximately 19 nautical miles from the site, it was then pumped ashore through an 800m long sinkerline pipe on the seabed to each of the inter-groyne bays.

## COMMUNITY

Tendring District Council fully appreciated the risks of undertaking such works within the winter periods and, after extensive stakeholder liaison, gained approval for construction work throughout the summer periods. A period of three summers, from 2014 to 2016, was permitted for the works, however VBA completed Phase 1 in 2014 and are planning to complete both Phases 2 & 3 in 2015.

Construction on this scale throughout the summer periods in a busy coastal resort requires the project team to be particularly vigilant with respect to health and safety of all stakeholders. An information centre is established on the cliff top providing regularly updated news on progress, deliveries and beach closures. In addition a community liaison officer has been provided. Online time lapse photography, updated every 15 minutes, is available to anyone wishing to view project progress via the client's web site.

## PROJECT HIGHLIGHTS:

During the first phase, the project was visited by the Prime Minister, David Cameron, to observe first hand the process and benefits of the government funding provided for the scheme.

The first phase at Holland on Sea was completed and handed to the client by the end of 2014 and in February 2015 demolition of the groynes commenced next to Clacton Pier to start Phases 2 and 3.



- E** Bolle 8 unloading rock
- F** Pump ashore works
- G** Rock groyne construction



## PHASE 2 & 3

VBA commenced Phases 2 and 3 simultaneously in early March 2015, to construct groynes 1 to 15 and complete the capital recharge in the inter groyne bays. The works were completed by October 2015, two months ahead of the tender programme and fourteen months ahead of the original contract period. An additional milestone was to open groyne bays 1 to 3, closest to the pier, before the summer holidays and the Clacton beach festival.

To achieve these milestones, the subcontractor for the groyne construction, Jones Brothers, mobilised additional equipment, Rekeford quarry increased rock deliveries and the programming was optimised with the main shingle recharge immediately following the groyne construction.

Phase 2 & 3 have had their own challenges such as crossing over an existing outfall and allowing periodic safe access for the members of the Gunfleet Sailing Club.

For the final phases, Boskalis deployed the most recent addition to the trailing suction hopper fleet, the 'Freeway', the last of the 'Causeway' class. VBA completed the works in October 2015, reducing the programme by 1 year.



- H** Completed section of the beach
- I** Completed groyne
- J** The beach during renourishment works

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