

PROJECT SHEET

EASTBOURNE BEACH MANAGEMENT WORKS
EASTBOURNE, SUSSEX, 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

Due to erosion by wind, waves and rising sea levels, the beach front at Eastbourne needed to be reinforced. The previous campaign to improve coastal defence was carried out in 1998 and in 2011 the shoreline no longer fulfilled the design criteria for safe coastal protection.

Consequently Eastbourne Borough Council (EBC) developed a scheme comprising the recycling of existing material, particularly in environmentally sensitive areas (SSSI – Beachy Head) and the importing of bulk quantities for the rest of the beach frontage.

The sequence of the works was to execute the recycling first and subsequently fill the groyne bays to the required profiles with imported shingle.

The site stretched over a total length of 5.5 km, from Beachy Head in the west, along the whole of Eastbourne front, to Langney Point in the east. The design profile varied over the length of the site, with the aim of achieving a design crest width and height with seaward slopes of approximately 1 in 9.

All dry earth moving was subcontracted to Ovenden who executed the works with up to 3 excavators, 4 bulldozers and 10 dump trucks working at the same time.

The imported shingle was mainly dredged at Owers Bank /Area 435. The material supplied complied with the design requirements, having a D50 in the order of 16m.

As this material had to be pumped ashore via an 1100m long sinker line, a heavy duty dredger with substantial installed power was needed. The Prins der Nederlanden was therefore mobilised, with a total of 19,000 kW installed capacity, every one of which was required during pump ashore.

FEATURES

Project Name	Eastbourne Beach Recharge
Client	Eastbourne Borough Council
Contractor	Pevensey Coastal Defence Ltd
Location	Eastbourne, Sussex, United Kingdom
Execution period	Jan - Mar 2011



A Location map
B Works on the beach
C Aerial View of Works



PROBLEM SOLVING

Westminster Dredging had to overcome the potential difficulties of both sourcing a suitable shingle and providing the correct equipment to bring it ashore over shallow approaches. The shingle required for the beach to perform correctly had to have a grain size between 0.2mm and 80mm, with no more than 50% smaller than 9mm. Westminster Dredging identified a suitable source, at Owers Bank approximately 35 nautical miles from Eastbourne.

In order to efficiently pump the material ashore, a balance had to be achieved between the size of vessel and the pumping capability. The optimum solution involved using the state of the art large trailing suction hopper dredger 'Prins der Nederlanden' pumping through a sinker pipeline approximately 1100m long in two different pipeline locations. Although the 'Prins' has a capacity of almost 16,000 m³, the draft restrictions, due to the shallow approaches, dictated that part cargoes of 6,000-7,000 m³ were delivered. To optimise both the process and material quality, Westminster Dredging monitored and tested the grading of each cargo, to become familiar with the most appropriate dredging lanes, and had a production engineer on the vessel for the first three days of dredging. This approach to continued improvement resulted in providing compliant beach nourishment material and delivering the scheme below award value and within the contract period, despite being completed during January and February.

SUSTAINABILITY AND THE ENVIRONMENT

The western end of the Eastbourne frontage lies within the boundaries of the Seaford to Beachy Head Site of Special Scientific Interest (SSSI), which encompasses the rocky foreshore comprising a series of greensand reefs running roughly parallel to the coast, known as the Holywell Reef. The Prince William Parade Site of Nature Conservation Interest (SNCI) covers a 700m length of beach in the east of the frontage. Due to these environmental restrictions, beach recharge material marine deliveries were restricted to the frontage east of the Wish Tower landmark. The beach fronting the town is of high amenity value.

COMMUNITY

Westminster Dredging adopted a partnership approach with Eastbourne and engaged the services of the project manager from Pevensey Coastal Defence Ltd, in which they have a controlling share, to act as Community Liaison Officer. The knowledge gained of both the local community and the beach processes during the first ten years of the twenty five year adjacent Pevensey contract proved invaluable in delivering the Eastbourne scheme without a single third party complaint.

As the works had to be carried out over the whole site at the same time, almost all the beach had to be closed to the public for several weeks. This required particularly close communication and liaison with the client and the various stakeholders including residents, businesses, tourists, water sports centres and fishermen. All areas were closed off by fencing and marshalls patrolled the beach in order to ensure no members of the public were put at risk.

PROJECT HIGHLIGHTS:

- 30 loads of shingle were imported by the Prins der Nederlanden, bringing a total of gross 195,000 m³ shingle ashore in 15 working days.
- 72,000m³ of recycling on the existing beach front was carried out in 12 working days
- All local shingle vegetation was fenced off prior to commencement of the works to protect this natural habitat.
- All works were started up, executed and closed down completely in less than 2 months despite working in the worst season of the year.



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- E** Prins Der Nederlander
- F** Works on Beach
- G** Eastbourne Pier

Westminster Dredging Company Ltd
Westminster House
4 Crompton Way
Segensworth West
Fareham, Hampshire PO15 5SS
United Kingdom

T +44 1489 885933
F +44 1489 578588

wdco@boskalis.co.uk
www.boskalis.co.uk

