Sea defences and shingle recharge

The Environment Agency embarked on an eleven year programme to improve the defences on Pett Levels between Cliff End and Rye Harbour entrance. The project forms part of a greater strategy for the Sussex and Kent coastline.

Availability of funding for the project has determined the rate and sequence of works. Bird breeding season in Rye Harbour Nature Reserve which limited working time to the winter months also had to be taken into account. Mackley Construction, an Environment Agency Framework contractor through the Team Van Oord joint venture, was awarded the first 4 years work on this project under Framework 1 and years 5 & 6 under Framework 2.

The whole of this area is protected and one section of the frontage, from Dogs Hill to Nook Point, is being left undisturbed. Part of the Rye Harbour Nature Reserve will be allowed to flood and turn into salt marsh. To maintain the defences Mackley have constructed a 3.2 km secondary flood defence bund. The Environment Agency haul road has been protected by a gabion wall in the area of likely breach.
The main works included:

**Year 1**
Additional Sheet Steel Piles to the existing Training Wall on the River Rother adjacent to the proposed Terminal Groyne. Sheet Steel Piles to form the Extraction Pocket Groyne.

**Year 2**
Construction of a new mass concrete Terminal Groyne at Nook Point. – which also serves as a harbour arm. This was constructed within a temporary Sheet Steel Pile cofferdam and replaced part of the existing 40 year old one. The new groyne prevents shingle blocking the harbour entrance. A rock revetment was constructed on the western side of the groyne. Construction of groynes 10 to 28 at Cliff End including planking and shingle recharge.

**Year 3**
Construction of groynes 1 to 9 at Cliff End including planking and shingle recharge. Construction of slipway at Cliff End. Construction of part of the Secondary Flood Defence Bund between Dogs Hill and Rye Harbour including erection and maintenance of 5,500m of temporary...
fence to restrict access to the ancient shingle ridges.

Year 4
Completion of Secondary Flood Defence Bund. This bund connects onto the next section of flood defences between Rye Harbour and Rye Town.

Year 5
Construction of groynes 1 to 10 at Dogs Hill including planking and shingle recharge.

Year 6
Construction of groynes 29 to 33 at Cliff End including planking and shingle recharge. These groynes were shorter and lower than groynes 10 to 28 in order to “taper off” the now complete groyne field at Cliff End. Future works Shingle recharge over and above annual reactive maintenance is required to complete the works. The new groynes are retaining most of the shingle that used to migrate from West to East and cliff stabilisation works at Cliff End have cut off the supply of shingle from Hastings. Planning restraints mean that shingle cannot be imported and an alternative solution is being sought. Planning permission has already granted for additional groynes 11 to 16 at Dogs Hill if erosion of shingle to the east of groyne 10 continues to be a problem. These groynes would be in a protected area.

Team Van Oord is a Joint Venture between Van Oord, May Gurney and Mackley Construction, serving the Environment Agency’s National Contractor Framework on a regional basis.

Additional information
Compensatory habitat – Rye Harbour Farm was purchased by the Environment Agency to compensate for the area of land at Nook Point required to carry out the works and ongoing shingle recharge.