

**Project  
Award:  
Civils  
Category**

## SLP Precast – Cleveleys Coastal Defences: Casting the coastline

**Cleveleys in Lancashire is a refined and conventionally British seaside town, just a short distance up the coast from its very famous neighbour, Blackpool. Cleveleys offers a haven for visitors and retirees alike that are looking for a traditional seaside experience.**

IAIN CHRISTIE, SLP PRECAST

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Despite its predominantly tranquil nature, the coastline around Cleveleys can turn into a maelstrom of violent tides with up to a 10m rise and fall. This, in combination with gale force winds, can result in severe storms that dramatically pound the seashore.

The original seawall defences date back to the 1980s and the promenade back even further to the 1920s. Neither the sea wall nor the promenade were in keeping with the modern image that the town wanted to portray and both were in need of replacement. As a result, in 2004, Wyre Borough Council invited design solutions for the redesign of the sea defences and promenade. There were two parameters that had to be satisfied: one was to defend the town against the sea and the second was that the aesthetics had to be in keeping with the requirements of the people of Cleveleys. The project started with a public consultation to find out exactly what the people wanted from their promenade, while at the same time the engineering prerequisites were compiled so that a complete package could be presented to potential designers.

Having chosen the design, Wyre Borough Council had to overcome two more challenges: to find a main contractor with the necessary skills and experience and also to find a precaster with the knowledge, ability and innovative

skills to produce the necessary precast elements, with a high-quality finish. Wyre Borough Council found the necessary experience in Birse Coastal and SLP Precast.

Unlike its neighbour Blackpool, where there is a sandy beach, Cleveleys has gravel on the upper beach and as a result, the action of the sea is much more aggressive. In storm conditions, the sea defences have to withstand a continuous attack, which is very similar to shot blasting. Over 12 months of research and development, in conjunction with the ready-mixed concrete supplier, Tarmac, went into ensuring that the concrete used for the project was of optimum strength and durability. Steel moulds were used to cast the units to ensure the consistently high levels of accuracy required for the job. In order to eliminate the risk of corrosion and eddy damage on the surface, no lifting fixings were used in the revetment units placed closest to the sea. The revetment units were cast inverted to produce the required high-density durable surface.

The absence of lifting fixings brought a series of new challenges; moving the revetment units from their moulds and turning and lifting them into place on the beach. Teaming up with The Netherlands company Moderniek, SLP used existing technology to develop vacuum lifting gear that was capable of easing the 16-tonne units from their moulds. This vacuum lift took away the need for cast-in lifting provisions, which subsequently reduced costs. It also satisfied the engineers as any components cast in the concrete may have been dislodged as the units weathered. When placing the units on-site, a similar method was also adapted to lift on the correct angle of inclination using a number of smaller vacuum pads on a special frame. This system also meant that there were no unsightly socket holes to be filled in at the tidal zone.

Turning the units also called for inspiration; SLP came up with the idea of a ‘giant diablo’. When suspended from a 120-tonne Eiger crawler crane, it was able not only to turn the units but also to present them at the correct angle for transportation on specially designed frames.

Figure 1: [SLPD6279.jpg]





Figure 2 left:  
[SLPD6262.jpg]

Figure 3 below:  
[SLPD6261.jpg]

The design concept of the new promenade was based on waves, open vistas and curves, all are features that are associated with the seaside. During the design stage, SLP Precast felt that there was a compelling case for using precast concrete in the construction, not only for the practical capabilities of the job but also to provide the vital architectural features that the designers demanded.

The shapes of some of the precast elements required more innovation in the design of the moulds, especially the lighting columns. Apart from the revetments rising up from the beach to the promenade, the design called for the precast elements to be cast in white concrete. A white colouring admixture produced by SLP Colourtone was used to enhance the product and by the use of textured finishes such as acid etching, the company was able to deliver a more aesthetic and comfortable finished product, allowing it to blend more easily into its surroundings.

#### Concluding remarks

The final result is that some 9000 properties in and around Cleveleys are protected by a new seawall defence and the



Figure 4 below left:  
[SLPD6751.jpg]

Figure 5 below:  
[Cleveleys.jpg]

people are justifiably pleased and proud of their new promenade and seafront. SLP Precast was the winner of the Project Award Civils Category for Cleveleys Coastal Defences and Associated Promenade Works presented by British Precast as part of its 2007–2008 Best Practice Awards.

Once again the company's philosophy of taking the manufacturing base to the end user's site wherever practical has proved vital, enabling all parties involved in the project to communicate closely ensuring the successful completion of this phase of Cleveleys Coastal Defence. ■

