

# PROJECT: ROKER PIER, SUNDERLAND MAJOR MAINTENANCE WORKS

VALUE: £725,000  
ROLE: MAIN CONTRACTOR  
START DATE: JUNE 2014  
COMPLETION: NOVEMBER 2014

CLIENT: SUNDERLAND CITY COUNCIL  
1.0 CIVIC CENTRE (CC)  
BURDON ROAD, SUNDERLAND,  
TYNE AND WEAR SR2 7DN.

- 750m long pier
- Site open to the public – Considerate Constructors
- 6650m<sup>2</sup> Concrete deck replacement works with imprinted surface cobbled finish.
- Restricted access/egress along Grade II Listed Pier structure
- Diving operations for underwater void filling works.
- Masonry pointing works on both faces of pier.
- Rough sea state conditions which challenged works progress
- Environmentally sensitive working area.

The following listing details the three main facets to the Roker Pier Major Maintenance works project which were designed to enhance the life of the Grade II listed structure for many years to come.

- 1) Break out and remove in excess of 6500m<sup>2</sup> of existing concrete deck and reconstruct a totally new concrete deck using a structural fibre reinforced concrete mix. The new structural deck slab was cast in a series of 15m long x 4.5m wide bays which had a cobbled patterned surface finish, achieved utilising heavy duty latex moulds carefully placed and stamped into the wet concrete at the precise timing during the hydration process so to provide the desired cobbled finish. Finally, an imprinted rail detail was formed to replicate the rail which was once used by a locomotive which travelled along the pier deck.
- 2) Our client Sunderland City Council had commissioned a fully detailed structural report which identified the harsh wave action associated with the North East coastline had scoured out a considerable number of underwater voids at or below pier foundation level. The task therefore was to use specialist divers to install & erect formwork at the void location, in turn marine concrete was pumped in from above to entirely fill the void.
- 3) The detailed report also identified considerable areas of mortar joint loss on the granite block faced walls to the inner & outer faces of the pier. A mobile access platform was erected and by means of a cantilevering cradle controlled by hand operating winches, skilled operatives were lowered directly to the affected areas. The joints were manually raked out and extensively jet washed to clean the face / joint for subsequently filling and recess pointing with Parex marine mortar material.



Roker Pier Major Maintenance works 2014 - various construction activities.

## CHALLENGES

Restricted access with only one way on / off Pier structure, therefore a structured site traffic management plan was implemented to ensure dedicated lanes for safe plant & personnel movement was established along the length of the pier deck working area. At times harsh environmental conditions were experienced with heavy swells hindering the diving operations and at times waves overtopping the pier deck affecting deck slab construction.

## PROGRAMME

A planned duration of 22 weeks was initially set for undertaking the works, however following a robust value engineering exercise early in the project it was completed in 20 weeks.



Roker Pier (North)