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PROJECT: NORTH SHIELDS FISH QUAY WESTERN QUAY

VALUE:	£5.5M
ROLE:	MAIN CONTRACTOR
START DATE:	OCTOBER 2009
COMPLETION:	NOVEMBER 2010

CLIENT: NORTH SHIELDS FISH QUAY CO. LTD
THE MARKET OFFICE
FISH QUAY, NORTH SHIELDS
NE30 1HZ

SCOPE OF WORKS

Design & construct a new quay and frontage to existing quay along a tidal stretch of the River Tyne.

- Installation of 300 no. tubular piles 406mm dia 30m long from a crane located on top of the existing jetty.
- Construction of precast concrete edge units.
- In situ reinforced concrete deck 300m long by 15m wide.
- Demolition of existing quay and disused ice factory structures.
- Provision of rock armour beneath quay.
- Associated lighting and electrical works.
- Repairs to existing concrete piles carried out with dive teams.
- Design and installation of cathodic protection system (in-house).
- Provision of new fuel bunkering facilities.
- Installation of new oil interceptors and quayside drainage system.
- Provision of new bollards, fenders and ladders.

VALUE ENGINEERING

Tenders were issued in May 2009. Southbay reviewed the conforming documents and decided that an alternative design would offer many advantages. All conforming tenders were returned over budget. Southbay's tender was the lowest conforming and the alternative was within the client's budget.

Over the following months extensive work went into detailing the alternative scheme, which included the following:

- Changing the proposed closed quay to an open quay structure therefore eliminating the need to remove contaminated material and its associated risks and hazards.
- Removing the need to demolish the existing quay before constructing the new quay. This innovative idea was the key to the savings. Southbay proposed to core holes in the existing deck to allow installation of the 406mm diameter piles using the existing structure as a piling gate.
- Reducing the pile diameters from 1500mm to 406mm and increasing the number of piles but reducing the overall quantity of steel.
- Installing the piles from a crane located on top of the existing jetty, which removed the conforming proposal of floating plant to install the piles. Large steel mats were designed and fabricated to fit on top of the newly installed 406mm piles that were cut off at existing deck level providing a safe working surface to install the new piles.
- Constructing the new quay deck on top of the existing deck, which saved on falsework, formwork and provided large cost savings.
- Removing the need to do expensive timber repairs to the existing below deck structure. Southbay's alternative allowed the same detail to be used throughout the length of the 300m quay, when previously the conforming design asked for 150m new quay and 150m of repaired quay.
- Southbay's use of our own plant and labour. No requirement for subcontractors, which reduced the overheads and risk.
- No reliance on old timber fenders. Southbay's alternative scheme had sufficient budget for new fendering systems to be installed over the entire length of the quay.
- Certainty of contract programme. By removing the need to do repairs to the existing quay the scope of works was clearly identified.
- The innovation and expertise of Southbay enabled an overall saving of £1.5M on the scheme. If Southbay had not offered an alternative the quay would not have been completely renewed over the 300m length.

406mm dia tubes driven by hydraulic hammer through the existing deck

CHALLENGES

The site is in close proximity to the Northumberland Shore SSSI area that includes the Black Middens an area of ornithological interest. Mitigating measures were agreed with Natural England to minimise the effects of the piling works that has now been satisfactorily completed with no adverse effects to the sea birds.

PROGRAMME

A challenging programme was set by the client to achieve completion by November 2010. The works were complete on programme and to budget.