



South Quay Footbridge

The Project

At a cost of £2.5m the new South Quay footbridge in the heart of Canary Wharf will provide an innovative solution to a complex brief set by the London Docklands Development Corporation. The brief required a footbridge that would initially span the full width of South Quay. Because of long-term development proposals to reduce the width of South Quay, half of the bridge needed to be designed so that it could be relocated downstream at a later date leaving the remaining half to span the smaller gap. In addition the client required a bridge that could be opened to allow navigation of the upper reaches of the Quay.



The Design Concept

Essentially, the problems posed required a solution that provided two bridges for the price of one. The resulting 180 metre long bridge is an asymmetric cable stay structure in two halves, the southern half of which can slew horizontally to allow passage of boats. When the northern half of the bridge is relocated, that too will be able to be converted into a slewing bridge.

The 'S' shaped deck in plan injects a new dimension into the traditional perception of a cable stay bridge as a two dimensional structure. The 215 tonne steel structure rests on 35 metre long precast piles. The decking is made up of European oak with an extruded aluminium handrail, which will neatly conceal the bridge lighting. It is already turning passengers' heads as trains pass by on the Docklands Light Railway.

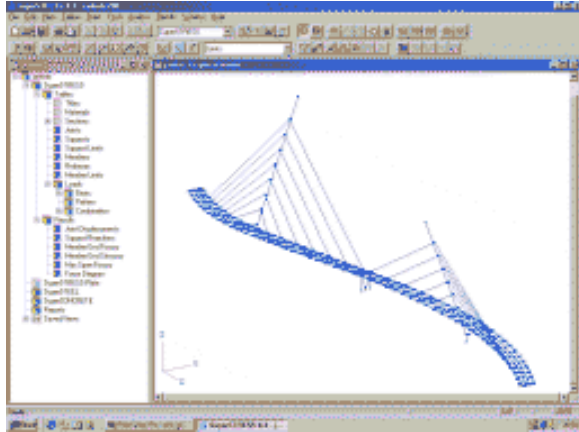
The contract was awarded following a design competition run by the London Quayland Development Corporation. Jan Bobrowski and Partners, working with architects Chris Wilkinson were awarded the contract over six other competitors. Founded in 1963 Jan Bobrowski and Partners specialise in analysis and design of advanced structures and bridges.

"They were looking for an innovative solution," comments Partner John Cutlack. "In the end I think it was our ability to think laterally that won it for us."

The Solution

Following the LDDC's acceptance of the concept, work began on the fabrication. The pile caps for the first section were constructed at the beginning of December 1996.

SuperSTRESS's graphical modelling facilities including the stretching and intersecting functions were used to the full during the modelling process. "SuperSTRESS was a valuable tool and used in the early design stage even before the contract was won," adds Cutlack. "We found that we could use it easily for altering the geometry of the structure without having to constantly re-enter data."



A challenging structure such as this required 3D software up to the task of handling highly complex geometry that was constantly being refined.

The Partnership has used Graitec UK's SuperSTRESS and SuperSTEEL software in several major sports design projects including those at Cheltenham and Kempton Park race courses and Tottenham Hotspur's ground at White Hart Lane.

Regular use of SuperSTRESS improves the Partnership's performance at tender stage. "When we tendered for a bridge contract in Bedford along with 68 other entries, SuperSTRESS's graphical plots were used to assist our presentation" says Cutlack. "It helped our winning bid."

Jan Bobrowski and Partners has been involved with Graitec UK for many years. "We are always impressed with the level of technical support offered by Graitec UK," says Cutlack, "as well as the quality of enhancements offered as part of the maintenance contract." "SuperSTRESS was a valuable tool and used in the early design stage even before the contract was won...We found that we could use it easily for altering the geometry of the structure without having to constantly re-enter data." John Cutlack Partner, NRM Bobrowski