James Fisher and Sons plc
Marine Services Worldwide

Strainstall

Forth Replacement Crossing

Case Study

Strainstall wins contract to provide structural health monitoring to new Forth Replacement Crossing.

The new Forth Replacement Crossing is to be a cable-stayed bridge carrying a motorway with two general lanes of traffic plus hard shoulder in either direction.

Supported by three slender single column towers, the completed structure will be 2.7km long including its approach viaducts.

Designed to complement the existing road and rail crossings over the Firth of Forth, the new bridge is the result of extensive studies commissioned by Transport Scotland since 2006, involving international teams of engineers.

“Strainstall is extremely proud to have been asked to partner with FCBC in providing the structural health monitoring package of services and technology for the new Forth Replacement Crossing,” commented Richard Burmeister, Managing Director at Strainstall.

A key aspect of structural health monitoring is in data processing and analysis, and Strainstall will supply its highly advanced **BridgeWatch™** software for this purpose. This integrated package provides a comprehensive suite of web-accessible tools providing real-time information on the structure as well as archiving of data recording throughout its service life.

Who

Scottish Government

Summary

- Multi-million pound contract involves the provision of crucial monitoring technology and engineering support to this very significant Scottish transport infrastructure project
- Builds upon Strainstall’s acknowledged skills and expertise in the structural monitoring of key UK and international civil engineering developments

Services provided

- Package of technology and services comprising a comprehensive structural health monitoring system for the new cable-stayed bridge
- Range of sophisticated monitoring technologies to the structure, allowing its precise movements to be monitored in real time—during the construction phase and after
- Includes tri-axial strain gauges and accelerometers, load cells, temperature sensors, displacement transducers and automated monitoring and analysis

Benefits delivered

- In-house multi-disciplinary team, including specialist staff with extensive civil engineering construction experience as well as skilled mechanical and electronic engineers
- Application of previous experience including the structural monitoring of bridges such as the Jiangyin Yangtze Bridge in China and Golden Jubilee footbridges of London’s Hungerford railway bridge

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