



This 1.2km steel-composite cable stayed bridge carries Route 3 over the busy Rambler Channel. The unusual design has two main spans of 448m and 475m and three single leg slender concrete pylons stabilised laterally by stays similar to masts on a sailing ship. On the North West side, 1.3km of pre-stressed concrete box girder approach viaducts carry the highway at high level over difficult terrain requiring complex geotechnical, embankment and slope work.

The scope of F&N's design check work included not only the main bridge structure but also the reclamations and ship impact protection, the extensive cut slopes and embankments, and the electrical and mechanical services. Construction supervision also included full time inspection of off-site fabrication and assembly of pre-fabricated elements, and witnessing of stay cable manufacture and testing.

Full independent structural analysis and checking was carried out in the UK, with a liaison team in Hong Kong, including a special post of Independent Checking Engineer's Representative resident on site. This facilitated rapid and efficient handling of the large number of separate design packages submitted in stages by the contractor.

Verifying the satisfactory aerodynamic performance of the bridge was of particular importance, particularly because of the extreme wind conditions of the site, and F&N provided specialist expert advice, working closely with an independent wind tunnel laboratory performing section and aeroelastic model tests.

F&N also developed a sophisticated full scale wind and structural health monitoring system for the bridge, as part of a wider inspection and maintenance strategy for the Tsing Ma Control Area. The bridge was completed in 1998.

Client:
Highways Department Hong Kong

Location:
Lantau Link, Hong Kong

Service Dates:
1993

Services:
Category III Check
Structural analysis
Development of Structural Health Monitoring System
Expert Supervision of Construction Works On Site

