



Alex Fraser Bridge

Geotechnical Investigation and Design

Geographical location

Connects Richmond and New Westminster at the north end with Delta at the south end, all in Greater Vancouver, British Columbia

When it began or was completed

Construction began in 1984; the bridge was opened in September 1986.

Why a Canadian geotechnical achievement?

When opened, the six-lane Alex Fraser Bridge was the longest cable-stayed bridge in the world. Its overall length is 2,525 m, with a main span of 465 m and towers 154 m tall.

The bridge is founded on weak deltaic and alluvial materials. At the time of the design, the concept of assessing for seismic liquefaction and performing ground improvement to prevent seismic liquefaction had just started to be included in new bridge designs. The techniques adopted by Crippen Engineering for geotechnical investigation, liquefaction assessment, ground improvement design, and pile design for the north main pier were similar to those being used today, and represented a major advance in the state of bridge foundation design practice.

The Alex Fraser Bridge is owned by the BC Ministry of Transportation and Infrastructure.

Submitted by

Klohn Crippen Berger

Key Reference

Bazett, DJ and McCammon, NR. 1986. **Foundations of the Annacis Cable-stayed Bridge.** Canadian Geotechnical Journal, Vol 23, pp 458-471.

Photographs



Aerial view looking north



View looking south.