



# Deltaport Container Terminal; Caisson Wharf Geotechnical Design and Construction

## Geographical location

Delta, British Columbia

## When it began or was completed

Berths 1 and 2 for the Deltaport Container Terminal were constructed between 1994 and 1996. Berth 3 was expanded between 2007 and 2010.

## Why a Canadian geotechnical achievement?

The Deltaport Container Terminal comprises a state-of-the-art container handling facility and a three berth caisson wharf.

The combined three-berth project is a major geotechnical engineering achievement because it required the dredging of approximately 1 million m<sup>3</sup> of existing Fraser River silty sand, placement of 1.5 million m<sup>3</sup> of marine rockfill and shore armour, and over 2 million m<sup>3</sup> of general land reclamation fill. Ground improvement by underwater vibro-densification and dynamic compaction on land was required to densify approximately 830,000 m<sup>3</sup> of native soils and granular fills offshore, and approximately 1.5 million m<sup>3</sup> of native soil and granular fills on land.

A major consideration, and a topic of much research, was the seismic stability of the delta front at the site, and the seismic stability and settlement characteristics of the caisson wharf foundation and reclamation fills.

The terminal is owned by the Port of Vancouver.

## Submitted by

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## Key References

Cooper, G, Ahlfield, S and Szabo, V. 2016. **Deltaport Berth 3 Design and Construction Challenges**. Proceedings American Society of Civil Engineers Ports'16, New Orleans, LA, USA.

Rokeby, I, Maranda, L and Cooper, G. 1995. **Caisson Wharf Design at Deltaport Container Terminal**. Proceedings American Society of Civil Engineers Ports'95, Tampa, FL, USA.

## Photographs



Deltaport Container Terminal looking west.



Deltaport Berth 3 expansion.