



**CHARLES NG, P.Eng. (BC)**  
*Geotechnical Engineer and Associate*

B.A.Sc. Civil Engineering, University of British Columbia, 2000  
M.Eng. Civil Engineering, University of British Columbia, 2001

## PROFILE

Mr. Ng has completed the geotechnical investigation, analysis, design and construction inspection for a wide variety of geotechnical projects including transportation infrastructure, commercial and residential buildings, retaining structures and slope stability. A selection of his experience is presented below.

### Transportation

- Geotechnical investigation, preliminary and detailed geotechnical design and construction monitoring for a 650 m long elevated structure between Clark and Victoria Drives on Stewart Street, Vancouver.
- Owner's engineer for various grade separation projects over CN Rail including Powell Street in Vancouver and Dahlie Road in Smithers.
- Detailed geotechnical design for various new and retrofit bridges and retaining structures between 1<sup>st</sup> Avenue (Vancouver) and Gaglardi Way (Burnaby), 156<sup>th</sup> Street retaining walls (Surrey) and 202<sup>nd</sup> Street Overpass (Surrey) for the Port Mann Highway 1 Improvement Project.
- Geotechnical assessment and detailed design for road widening, retaining structures and bridge foundations for various projects on Highway 99 including Shoulder Bus Lane Project between Sea Island Way and Steveston Highway in Richmond, Serpentine River Bridge and BNR Overpass for Northbound Shoulder Bus Lane Project in Surrey and Matthews Interchange Safety Improvement Project in Delta.
- Detailed design, seismic assessment and construction monitoring for widening of the Seymour Parkway Bridge over Seymour River, replacement/widening of the Keith Road Bridge over Lynn Creek and widening of railroad bridges over Brooksbank Avenue and Lynn Creek in North Vancouver.
- Geotechnical input for Design-Build (D-B) projects in the Lower Mainland including South Fraser River Perimeter Road, Golden Ears Bridge and Coast Meridian Overpass to various D-B proponents.
- Foundation design, seismic assessment, ground improvement evaluation and construction monitoring for the Stawamus River Bridge on the Sea to Sky Highway in Squamish.
- Seismic assessment for existing transportation infrastructure including Moody Street Overpass in Port Moody, Cambie Street Bridge in Vancouver and Skytrain elevated guideway between Main Street and Glen Drive in Vancouver.
- Geotechnical investigation, detailed design and construction monitoring for various municipal bridge replacement projects including 240<sup>th</sup> Street Bridge over Kanaka Creek in Maple Ridge, Whatcom Road bridge over Sumas River in Abbotsford, Noons Creek bridge in Port Moody, Tsussie Road bridge in Chemainus, Bewicke Avenue bridge over Mosquito Creek in North Vancouver, Hollybridge Way Canal Crossing in Richmond and Kawkawa Lake Road and Suckers Creek bridges in Hope.
- Geotechnical investigation and foundation design for bridge crossings of Dority, Edna and Callaghan Creeks for the Whistler Nordic Access Road in Whistler.
- Geotechnical investigation, detailed design, seismic assessment and/or construction monitoring for various pedestrian bridge projects including Winston Street pedestrian overpass in Burnaby, Tynehead pedestrian bridge over Highway 1 in Surrey, Pioneer pedestrian bridge over Highway 99 in Surrey, 19 Mile pedestrian bridge in Whistler,

Bon Accord Creek pedestrian bridge in Surrey, 4<sup>th</sup> Street pedestrian bridge in New Westminster, Victoria Street pedestrian bridge over CP Rail in Vancouver and Parkinson Recreation Centre Pedestrian Overpass in Kelowna.

- Preliminary design and seismic assessment for various proposed CN Rail bridges including Ewen Branch Mile 5.4 and No. 7 Road Canal in Richmond and the Murray-Clarke Connector in Port Moody.
- Desktop review and preliminary geotechnical assessment for the proposed Western Lower Level Route in North Vancouver.
- Geotechnical investigation and preliminary and detailed design for Highland Valley Copper (Teck)'s overpass structure over Highway 97C, Logan Lake.

### **Foundation Engineering**

- Preload and foundation design for the Olympic Speed Skating Oval in Richmond.
- Preliminary and/or detailed seismic assessment and foundation design of various waterfront structures including the Tsawwassen Ferry Terminal (Delta), Nicomekl and Serpentine Sea Dams (Surrey) and the LaPointe Pier (Vancouver), Seaspans' loadout structure (North Vancouver), BCMEA ship-to-shore crane (Richmond) and a proposed grain export terminal (North Vancouver).
- Development of generic guide sign foundation design for the Port Mann Highway Improvement Project.
- Foundation design, settlement assessment and/or construction inspection for various industrial facilities including the Wolverine Coal Mine plant site in Tumbler Ridge and Teck Coal's Line Creek Selenium Water Treatment Plant in Sparwood and Newalta plant expansion in North Vancouver.
- Preliminary foundation design for the BC Place Stadium Seismic Upgrade Project, Vancouver.
- Foundation design, preload, wick drains and temporary retaining structure design, and settlement and seismic assessment for the Riverway Golf Clubhouse in Burnaby.
- Geotechnical investigation and design for the proposed Vancouver Landfill Weigh Scale in Delta.
- Geotechnical input for foundation design of various structures including wingwalls, fenders, dolphins and towers in Denman Island, Hornby Island, Swartz Bay for BC Ferries.
- Design and construction monitoring for a flood protection dike and floodwall, and an associated emergency access road and multi-plate culvert crossing of Maryhill Bypass for the Forensic Psychiatric Hospital in Coquitlam.

### **Land Development**

- Preliminary geotechnical input for initial phase of about 40 ha of Tsawwassen First Nation (TFN) industrial land development and detailed design, including ground improvement, for a container examination facility within the TFN site.
- Preliminary and/or detailed analyses for site preparation, foundation design and seismic assessment using FLAC for development adjacent to Fraser River including the Celtic Shipyard Redevelopment Project in Vancouver, Fraser Mills Residential Project in Coquitlam, Hamilton Transit Centre in Richmond and various commercial and industrial developments in Mitchell Island, Richmond.
- Geotechnical input for site preparation, preload design and settlement review, foundation design and seismic assessment for various warehouses for the Vancouver Fraser Port Authorities in the Fraser-Richmond area, as well as the Kingswood Industrial Park.
- Geotechnical investigation, foundation design, seismic assessment and settlement assessment for various commercial structures in the Panorama and Cloverdale Business Parks in Surrey.



- Geotechnical investigation, preload design and review and foundation design for the Holiday Inn, Toyota Dealership and various mini storage facilities in Squamish and a residential development in Pemberton.

#### **Retaining Structures, Shoring and Excavation, Slope Stability**

- Detailed design and preparation of specifications for a shotcrete anchor retaining wall for the Woodland Drive bridge rehabilitation in Vancouver.
- FLAC analysis of concrete faced MSE walls under seismic loading for a proprietary wall supplier.
- Geotechnical design for various MSE walls and shotcrete anchor walls including evaluation of soil-structure interaction under seismic loading using FLAC for the Sea to Sky Improvement Project.
- Foundation design for culverts and MSE walls for a haul road crossing McLeod River in Alberta.
- Slope stability analysis for various geogrid-reinforced Lock Block walls up to 18 m high in Chilliwack.
- Shotcrete anchor wall design for the Vancouver Chinese Evangelical Free Church, Vancouver.
- Geotechnical investigation, design and preparation of plans and specifications for various reinforced soil slopes and walls, and cantilever soldier pile walls in Seattle, WA.

#### **EMPLOYMENT HISTORY**

2011 - Present	Associate – Thurber Engineering Ltd., Vancouver, BC
2005 - 2011	Geotechnical Engineer – Thurber Engineering Ltd., Vancouver, BC
2002 - 2005	Staff Geotechnical Engineer – Shannon & Wilson Inc., Seattle, WA
2001 - 2002	Junior Geotechnical Engineer – Thurber Engineering Ltd., Vancouver, BC