Vancouver Geotechnical Society
A Local Section of the Canadian Geotechnical Society

www.v-g-s.ca

2022-2023 Executive Committee:

Chair	Aran Thurairajah, WSP
Past-Chair	Olga Kosarewicz, Rio Tinto
Program Director	Intisar Ahmed, Thurber
	Tyler Southam, Tetra Tech
Treasurer	Jared Whitehead, Kontur
Secretary	Muin Ahmed Alif, AECON
Registrar	Thushara Jayasinghe, UBC
	Ali Jahanfar, Stantec
Web Manager	Tajinder Singh, Hatch
CGS Director	Marc Bossé, Thurber
Symposium Co-chair	Mahdi Shahrabi, WSP
Student Representative	Yulia Hung, UBC
Member-at-Large	Eryn Alexander, BGC
	Emir Hot, Arya Engineering

NOTICE OF TECHNICAL PRESENTATION
Wednesday, 17 May 2023

TOPIC: **Tailings-Specific Liquefaction Assessment**

SPEAKER: **Mason Ghafghazi, PhD, PEng. – Professor, University of Toronto**
Mason is an assistant professor at the Department of Civil & Mineral Engineering at University of Toronto. His career includes working as a post-doctoral scholar, lecturer, and project scientist at the University of California Davis, and a geotechnical engineer at BC Hydro. His PhD work at the University of British Columbia focused on estimating the in-situ state parameter by modelling the CPT. Evaluation of seismic performance, liquefaction consequences, and internal erosion susceptibility in embankment dams and their foundations, development of the instrumented Becker Penetration Test, and numerical modelling of mining activities are some of Mason's past experiences. Mason's areas of research are liquefaction assessment in tailings and gravelly soils, CPT modelling and interpretation, and advanced constitutive modelling of soil behaviour.

CONTENT: Tailings dams are man-made earth structures used for storing mining waste, comprised of water and fine minerals left behind from the extraction process. Tailings are usually non-plastic fine sand-and-silt-sized soils with angular particles that are often deposited in a loose state. The current practice mostly ignores the important differences among soils and how these differences influence CPT interpretation and calculation of residual shear strengths. Advances in CPT interpretation though still rely on CPT calibration chamber data on clean quartz sands. Case history based residual strength correlations do not account for differences among soils, how liquefaction was triggered, or system level differences.
Research done on various aspects of liquefaction assessment in tailings over the past few years at University of Toronto will be presented. This includes a new state parameter interpretation technique that provides soil-specific correlations by taking in Norsand's parameters as input. It will be shown that this method estimates the in-situ state parameter more accurately than existing screening methods. Correlations between residual strength and state parameter are then presented based on laboratory tests on various gradations of tailings and natural soils. It will be shown that residual strength is soil-specific, and laboratory tests can be used in conjunction with case-histories to inform the level of conservatism in choosing residual strengths for design.

DETAILS: **Location:** Centennial Room, Executive Hotel, 4201 Lougheed Highway, Burnaby, BC V5C 3Y6
Social Hour: 5:30 to 6:30 pm (drinks available at the hotel bar)
Technical Presentation: 6:30 to 7:30 pm (No need to RSVP)
Dinner: 8:00 pm ($20 will be charged for dinner). If you would like to stay for dinner, please RSVP to Ali Jahanfar via email (ali.jahanfar@stantec.com) or at the door.