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2018 CGS-SOS Dinner Lecture

Case History: Liquefaction Mitigation Using Stone Columns for the New Gatineau River Bridge

Wednesday, November 14, 2018

St. Bernard Church, 1789 Lawrence Ave W, Toronto, ON, M6L 1E3 (<https://goo.gl/maps/66Eah9RwiFv>)

Evening Program:

5:30 PM

Cocktails and Socializing

6:30 PM

Dinner

7:00 PM

Lecture

Abstract: This presentation demonstrates a case study involving on-shore and off-shore stone column construction and the particularities of working in these conditions. The purpose of the ground improvement was to mitigate liquefaction in the sandy silt material present in both settings in order to prepare for the reconstruction of a bridge spanning the Gatineau River. In total four discrete areas were treated: the location of three bridge piers and the northern abutment. A dry, bottom-feed vibro replacement method was utilized to construct the stone columns on shore and within the river bed. In both cases the work was completed using a crane fitted with a vibro mast that allows for the placement of aggregate and the compaction of the constructed column. The offshore work was carried out on specifically designed barges while the individual columns were located using a GPS system mounted at the top of the crane. SPT and DSS testing were used following treatment to verify the performance of the improvement and re-evaluate the liquefaction potential of the site. This case history describes the particularities of the project including its geotechnical condition, the design parameters and calculations.

Speaker: Mr. Hubert Guimont, P.Eng., holds a Bachelor in geological Engineering (Université Laval, Quebec, 2003) with a focus on hydrogeology, and completed post graduate studies at Ecole des Mines, Ponts et Chaussées (Paris, France), EPFL (Lausanne, Switzerland), Université de Liège (Liege, Belgium), and further post graduate Research at Polytechnique Montreal (on Tailings liquefaction).

Hubert has worked close to 10 years with consulting engineering firms (Golder, EnGlobe) primarily as a designer and prepared pre-feasibility studies and tender documents. During those years, he has worked on various projects including: environmental remediation, slope stability, tailings dams, dams, dredging, ground improvement. Hubert has joined Menard in 2015 and he is in charge of developing the national business development strategy and supporting Menard's 3 offices (Vancouver, Toronto, Montreal) in their effort of Business Development. He is also responsible for Design Build projects coordination (from conceptual to final design).