



Vancouver Geotechnical Society

A Local Section of the Canadian Geotechnical Society

Visit : www.v-g-s.ca

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NOTICE OF UPCOMING DINNER PRESENTATION

TUESDAY, NOVEMBER 20, 2012

SUBJECT: **Influence of Ex-Solved Gases on Slope Performance at the Sarnia Approach Cut to the St. Clair Tunnel**

SPEAKER: Dr. Paul Dittrich, P.Eng.
Golder Associates, Principal and Senior Geotechnical Engineer

J. Paul Dittrich, Ph.D., P.Eng. is a Principal and Senior Geotechnical Engineer with Golder's Mississauga office in the Greater Toronto Area and has 15 years of experience on a variety of local and international projects in the transportation, mining and heavy industry fields.

He has experience with many aspects of geotechnical engineering and is technical head of specialized laboratory and in situ geotechnical testing services in Golder's Mississauga office. His main areas of expertise include site characterization, foundation design, settlement analysis, stability of slopes, embankments and excavations, specialized geotechnical analysis/modelling, geotechnical monitoring and ground improvement.

Paul is active in the Canadian Geotechnical Society (CGS), having served on CGS-Southern Ontario Section – Toronto Group executive committee from 2005 to 2009 in the roles of Secretary, Treasurer, Chair and then Past-Chair. He recently rejoined the CGS-SOS executive committee in 2012 in the role of Regional Director. Paul is the recipient of the 2010 Casimir Gzowski Medal from the Canadian Society of Civil Engineers (CSCE), the 2011 R.M. Quigley Award (Honorable Mention) from the CGS and Golder Associates' 2011 Victor Milligan Award for Ground Engineering.

CONTENT: In 1993, over 100 years after completion of the original St. Clair Tunnel and its approach cuts, work commenced on the new St. Clair Tunnel. The new tunnel used the existing approaches but required additional excavation to widen and deepen the original cuts. In Sarnia, the new work initiated unusual deep-seated deformations on the south slope of the approach. Effective stress finite element analysis (FEA) utilizing an elliptical cap soil model coupled with Biot consolidation theory is used to model the 1993 construction but initial predictions are unable to capture the trend of deformations noted in the field. Naturally occurring gases are frequently encountered near the base of the overburden in the Sarnia area and this phenomenon was observed during drilling investigations in the Sarnia approach cut. Including the effects of the presence of ex-solved natural gases in fine grained soils subjected to unloading in the FEA results in substantially better predictions in the trend of deformations on the slopes of the approach cut.

DETAILS **Executive Inn**, 4201 Lougheed Highway, Burnaby, BC V5C 3Y6 (Phone: 604-298-2010)
Social Hour: 5:30 to 6:30 pm (drinks available at the hotel bar)
Technical Presentation: 6:30 to 7:30 pm
Dinner: 7:45 pm (\$30 will be charged for dinner)
RSVP: Dinner reservation to ali.amini@shaw.ca by Monday, November 19, 2012.