

## **2002 Spring CGS Cross-Canada Lecture (Apr 15/02)**

TOPIC: The Use of Lime-Fly Ash Piles for Soft Sensitive Clays  
PRESENTATION BY: Professor Tim Law, Carleton University

This lecture describes a method to predict the strength increase of soft sensitive soils by means of lime-fly ash piles. The method is based on an analytical model of soil behaviour and demonstrated by a full-scale experiment involving 56 lime-fly ash piles installed in soft sensitive clay in Ottawa, Ontario. The model uses an elasto-plastic stress strain relationship and the associated physical phenomena related to pore pressure generation and induced horizontal stress. The Menard pressuremeter and a piezocone have been used to evaluate the horizontal stress and the soil strength in the field at different times after the pile installation. Comparison of the predicted and measured results confirms the direct relationship between the increase of in situ effective horizontal stress and the increase of shear strength as described by the proposed method. The comparison also shows that the method predicts successfully the strength increase in the field.

Tim Law received his B.Sc.(Eng) and M.Sc.(Eng) from the University of Hong Kong and his Ph.D. from the University of Western Ontario. He joined the National Research Council of Canada in 1974 where he conducted research in soft soil engineering, slope stability, in-situ testing methods and soil liquefaction. Since 1975, he started his teaching as an Adjunct Professor at Ottawa University and Carleton University. In 1991, he moved to Carleton University as a full time faculty member. Meanwhile he has participated in many projects as a consultant or specialist including the James Bay Hydro Electric project, highway projects in the Maritimes, vibration problems from railway, major landslide investigations, difficult foundation problems and decommissioning of various tailings deposits. He has published more than 140 technical papers in journals and conferences and has been invited keynote speakers at various international conferences.

Tim Law has been active in the engineering profession. Notably, he was Chairman of the Ottawa Geotechnical Group, Regional Director of the Canadian Geotechnical Society, Chairman of the Engineering Material Division of the Canadian Society for Civil Engineering and currently the Vice President of Canadian Foundation for Geotechnique. He has also served in the Hong Kong Institute for Engineers in applying soil-nailing technology in loose fill slopes. Tim has been honored by various organizations. From the Canadian Geotechnical Society, he was recognized with the 1990 Canadian Geotechnical Colloquium Lecture, Best Paper Award (1991 and 2001), and the Stermac Award (1999). He was elected Fellow of the Engineering Institute of Canada in 1995 and Fellow of Hong Kong Institution of Engineers in 1997. He was also the recipient of the Research Achievement Award from Carleton University in 1995.

Venue :Royal Glenora Club (11160 River Valley Road)

Time :12:00 noon

Date :Monday, April 15, 2002

Cost : \$10 GSE Members, \$15 Non-members