



Vancouver Geotechnical Society

A Local Section of the Canadian Geotechnical Society

www.v-g-s.ca

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NOTICE OF UPCOMING DINNER PRESENTATION

WEDNESDAY, JANUARY 22, 2014

SUBJECT: SOUTH FRASER PERIMETER ROAD PROJECT

SPEAKER (Uthaya) M. Uthayakumar, Ph.D., P.Eng.
Principal Specialist, Senior Geotechnical Engineer, Tetra Tech, Vancouver, BC.

Dr. Uthayakumar is a Principal Specialist, Senior Geotechnical Engineer at Tetra Tech, located in Vancouver, BC. Prior to Tetra Tech, he was with exp Services Inc, Burnaby, BC. He joined exp in 1995 after completing graduate studies at the University of British Columbia.

Dr. Uthayakumar was the lead geotechnical engineer for the South Fraser Perimeter Road project. Also, he was the Geotechnical Engineer of Record for the William R. Bennett Bridge and the lead geotechnical engineer for the Canada Line North Arm Bridge. Currently, he is working as a senior geotechnical engineer for the Evergreen Line Rapid Transit Project.

In addition to consulting work, Dr. Uthayakumar has been active at the Vancouver and Canadian Geotechnical Societies, recently completing a three-year term as the Vancouver Regional Director of the CGS.

CONTENT: South Fraser Perimeter Road project includes the design and construction of an approximately 40 km long, 80 km/hr four-lane divided highway along the south side of Fraser River, from Deltaport Way in southwest Delta to Highway 15 and the Golden Ears Bridge Connector in Surrey, BC. The project is delivered through a Design-Build-Finance-Operate contract between the BC MoTI and the Fraser Transportation Group. Poor ground conditions extending to great depths, peat deposits, environmentally sensitive areas, existing municipal landfill sites, existing unstable hill slopes and numerous creek crossings presented challenge to the design and construction of the SFPR project. Preload treatment with a nominal surcharge was used for the embankments on compressible soils. The surcharge thickness varied from a metre to two metres. The design target was to complete primary consolidation settlement prior to the removal of surcharge. Preload treatment duration varied from 4 months to more than 24 months. In addition to preload treatment, light-weight fills were used for embankments in some areas. Light-weight fills included red vesicular basalt pumice and Expanded PolyStyrene (EPS). In areas where the depth to the bottom of the compressible soils was less than 4 m, the compressible soils were excavated and replaced with compacted granular fill. The stability of the existing adjacent hill slopes was improved by providing or upgrading existing drainage systems and with the use of drilled-in horizontal drains. The project also includes construction of a number of bridge structures. The structure foundations consist of mainly driven steel pipe piles. Pile capacities were confirmed by completing dynamic testing. To minimize the effects seismic liquefaction, ground densification was completed.

The presentation will include the following:

- an overview of the project;
- subsurface soil and groundwater conditions;
- description of geotechnical and seismic design criteria;
- geotechnical design and analyses;
- preload treatment, ground densification and embankment design;
- foundation design and tests to verify foundation capacities.

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 or at the door with Robyn Barnett