



Risk & Liability

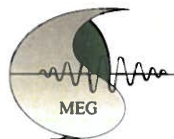
in Geotechnical Engineering

18th Vancouver Geotechnical Society
One-Day Symposium



Friday, May 30, 2008 - 8:00 a.m. - 5:00 p.m.
Renaissance Vancouver Hotel
1133 West Hastings Street, Vancouver

Gold Sponsors



18th VGS One-Day Symposium

Risk and Liability in Geotechnical Engineering

presented by:
The Vancouver Geotechnical Society

Friday, May 30, 2008 – 8:00 a.m. - 5:00 p.m.
Renaissance Vancouver Hotel
1133 West Hastings Street, Vancouver

Table of Contents

Symposium Program _____	2
Gold Sponsors _____	3
Silver Sponsors _____	6
Bronze Sponsors _____	7
Trade Exhibition _____	8
Panel Discussion: Geotechnical Risk Allocation on Design-Build Projects ____	10
Past VGS Symposia _____	11

Papers and Presentations

Keynote Presentation - Risk Assessment and Public Policy:	
The Other Side of the Wall _____	Tab A
Geotechnical Risk from a Public Utility Perspective _____	Tab B
Geotechnical Risks, Liabilities and Mitigative Measures: An Engineer's Perspective _____	Tab C
Geotechnical Risks in the Still Creek Area, Burnaby, British Columbia ____	Tab D
Reliability of Slope Displacements based on Newmark Analyses _____	Tab E
Risk-based Decision Support for Housing Development on Undermined Land _____	Tab F
Legal Liability in Geotechnical Engineering _____	Tab G

The VGS would like to thank our volunteers from this year's symposium organizing committee:

Henrik Kristiansen, AMEC – Chair
Dharma Wijewickreme, UBC – Symposium Technical Advisor
Easton Forcier, Levelton – Secretary
Grant Burns, Golder Associates
Makram Sabbagh, AMEC

Symposium Program

Morning

7:30 – 8:30	Delegate Registration
	Breakfast in the Trade Show Hall
8:30 – 8:45	Opening Remarks: Henrik Kristiansen, P.Eng., Symposium Chair
8:45 – 9:45	Keynote Presentation: Risk Assessment and Public Policy: The Other Side of the Wall, Steven Vick, P.E., Consulting Geotechnical Engineer, Bailey, Colorado, USA
9:45 – 10:00	VGS Award
10:00 – 10:30	Coffee break in the Trade Show Hall
10:30 – 12:00	Technical Presentations
10:30 – 11:00	Geotechnical Risk from a Public Utility Perspective, Frank Huber, P.Eng., Metro Vancouver, Burnaby, BC
11:00 – 11:30	Geotechnical Risks, Liabilities and Mitigative Measures: An Engineer's Perspective, Richard C. Butler, P.Eng., Golder Associates Ltd., Burna- by, BC
11:30 – 12:00	Geotechnical Risks in the Still Creek Area, Burnaby, British Columbia, Mustapha Zergoun, Ph.D., P.Eng., Thurber Engineering Ltd.
12:00 – 1:00	Lunch in the Trade Show Hall

Afternoon

1:00 – 2:30	Technical Presentations
1:00 – 1:30	Reliability of Slope Displacements based on Newmark Analyses, W. D. Liam Finn, Ph.D., UBC Department of Civil Engineering, Vancouver, BC
1:30 – 2:00	Risk-based Decision Support for Housing Development on Undermined Land, Andrew McGoey-Smith, P.Eng., Golder Associates Ltd., Calgary, AB
2:00 – 2:30	Legal Liability in Geotechnical Engineering, J. Mark MacEwing, Shapiro Hankinson & Knutson Law Corporation, Vancouver, BC, Canada
2:30 – 3:00	Coffee break in the Trade Show Hall
3:00 – 4:30	Panel Discussion: Geotechnical Risk Allocation on Design-Build Projects
4:30 – 5:30	End of Day "Attitude Adjustment" in the Trade Show Hall



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ConeTec Investigations is an international site investigation company with offices in Canada and the United States. ConeTec specializes in the design and use of some of the most advanced in situ testing equipment available. ConeTec operates a wide range of CPT equipment, sampling systems and seismic equipment.

In just over 19 years of operation, ConeTec has carried out thousands of site investigations in all types of soils and man made materials. The company is operated by geotechnical engineers with diversified academic and practical backgrounds. Clients include all of the major geotechnical consulting firms, mining companies, oil companies, utilities, government agencies and property owners.



Klohn Crippen Berger is an international engineering and environmental consulting firm. We offer value-added solutions to our industry and government clients in the following sectors: mining, oil sands, oil and gas, hydropower, transportation and water resources. We have a long history of providing quality service. Headquartered in British Columbia, we have offices in Canada, Australia and Peru. Our professional and technical staff includes specialists with broad language, cultural and geographical experience. We are an award-winning firm and our Quality Management System is registered ISO 9001:2000 compliant.

Through our association with the Louis Berger Group, Inc., a leading infrastructure engineering,

Projects have been undertaken from coast to coast in Canada, the United States, the Canadian and American arctic, South and Central America, the Caribbean, and throughout Asia. Specific project references can be supplied upon request.

ConeTec services include: Piezocone penetration testing (CPTu), seismic CPTu, Resistivity CPTu, Ultraviolet Induced Fluorescence CPTu, Natural and Active Gamma CPTu, groundwater, soil and vapour sampling, downhole and crosshole seismic testing, surface wave testing (SASW, CSWS), auger and mud rotary drilling, SPT energy calibration, customized electronic instrumentation, electronic piezometer sales and installation, and specialty data acquisition systems. ConeTec specializes in offering all of these services offshore as well as onshore.

environmental science and economic development consulting operation, we have access to over 100 offices worldwide, and additional technical expertise.

Our employees' involvement in a wide range of challenging projects has enabled us to make a significant contribution to the engineering profession. We are proud to have achieved awards for our services, including awards of excellence from the Association of Consulting Engineers of Canada, the Consulting Engineers of British Columbia and the Consulting Engineers of Alberta.

Excellence, teamwork and innovation building a better world.



Gold Sponsors



At Golder Associates we strive to be the most respected global group specializing in ground engineering and environmental services. With Golder, clients gain the advantage of working with highly skilled engineers, scientists, project managers and other technical specialists who are committed to helping them succeed. By building strong relationships and meeting the needs of clients, our people have created one of the most trusted professional services firms in the world.

Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in enduring relationships and long-term organizational stability. Golder professionals take the time to build an

understanding of client needs and of the specific environments in which they operate. This enables us to help clients achieve their short- and long-term financial, social and environmental goals.

The success of Golder's approach can be seen through our steady growth. We now employ over 6,000 people who operate from more than 150 offices located throughout Africa, Asia, Australasia, Europe, North America and South America. Our knowledge of local cultures, languages and regulatory requirements, combined with our global resources, makes it possible for us to help our clients achieve their business objectives around the world and at home.

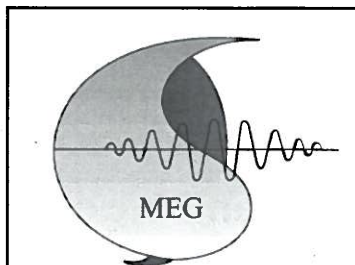


MEG Consulting Limited is a specialist consultant in Marine & Earth Geosciences based in Richmond, BC. The company was established in 1997 and began operation as an independent consultant in 2002. Over the last six years, MEG's involvement in local projects, including design-build projects, has grown rapidly mainly as a result of quality service provided and adherence to engineering schedules and budgets. At present we have a total of about 10 full-time and 5 contract professional and technical staff working on various local and international projects.

MEG has developed a flexible approach to its method of operation to meet client's demands by multi-level partnering. Based on this, we have been

able to participate in many projects that would not normally be within the reach of a company of our size.

MEG Technical Services is a division of MEG that provides a geotechnical testing capability for projects being developed. We are able to offer the full suite of geotechnical testing with automated computer controlled equipment. We also offer state-of-the-practice cyclic/dynamic testing of soil by means of resonant column and cyclic simple shear equipment. The cyclic simple shear equipment is fitted with bender elements for the measurement of both shear (S) and compression (P) wave velocities. MEG also provides PDA testing for driven piles.





Gold Sponsors

AMEC Earth & Environmental is a leading engineering consulting business, providing multi-disciplined solutions covering all aspects of environmental services, geotechnical engineering, infrastructure design and management, materials testing and engineering and water resource services.

AMEC's Burnaby office was established in 1965. The office and laboratory facilities consist of 1300 m2 of office space, and over 500 m2 of laboratory space. With staff of more than 100 people the office provides areas of expertise in geotechnical, environmental, mining, water resources and materials engineering.

The Geotechnical Division provides consulting services on all aspects of geotechnical and geological engineering, including site investigations, foundation design, slope stability, retaining

walls, seismicity, rock mechanics and tunneling, hydrogeology, embankment dams and dam safety, construction monitoring, risk assessment, pipelines, forestry and resource road stability. The Division has a leading mining geotechnology group, which provides services in tailings dam design, mine waste and water management, and open pit and underground rock mechanics.

The Materials Division provides consultation and materials testing expertise to the construction, mining, manufacturing, pulp and paper and property management sectors of industry. Services offered by the Materials Engineering Division cover all aspects of construction materials testing, quality control and product research and development, infrastructure evaluation and rehabilitation.



Geotech Drilling Services is committed to the strictest ethical business practices, we provide industry leading drilling services through implementation of technically advance equipment and skilled operators, consistently exceeding the expectations of our diverse client base; ensuring safe, equitable and empowering employment of our personnel.

Quality Service

Developing relationships with our clients based on mutual respect, honesty and integrity; maintain our relationships through exemplary service, open and honest communication, and a positive, solution focused work ethic. Embrace client

feedback as we continually evolve and adapt our policies and procedures to satisfy changing industry standards.

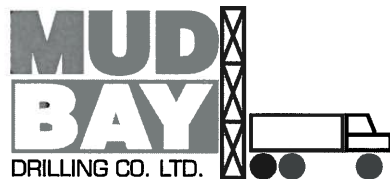
Health & Safety

Implement and continuously improve a positive, behaviour based, safety culture throughout the organization that will encourage personnel to view safety as a way of life, not only a condition of employment. We will encourage and reward a philosophy of reduced risk tolerance as we strive to achieve a corporate objective of zero injuries across our business units. Every member of our company will return home safely to their families at the end of each working day.



Silver Sponsors

Jacques Whitford AXYS is a leader in Geotechnical and Materials Engineering. From field and laboratory testing to construction inspection and performance monitoring for land-based and offshore projects, we've completed thousands of geotechnical investigations throughout North America. Our clients include commercial developers, manufacturers, oil and gas providers and all levels of government. Jacques Whitford AXYS Ltd. also provides consulting services in environmental sciences, regulatory permitting and management disciplines. Jacques Whitford AXYS makes up the western region of the Jacques Whitford organization with nearly 400 staff between offices in Burnaby, Sidney, Fort St. John, Calgary, Edmonton, Fort McMurray, Winnipeg, Inuvik and Yellowknife.



Since 1972, Mud Bay Drilling Co. Ltd. has been proud of the drilling services provided to the geotechnical and environmental consulting markets in BC.

Our experienced staff, utilizing a range of truck or track mounted drill rigs, can provide a range of drilling techniques (mud rotary, auger, insitu testing, air rotary and sonic) and install a variety of geotechnical or environmental monitoring instrumentation. Since 2003, Mud Bay Drilling has partnered with U.S. based sonic drilling company, Boart Longyear, to provide the latest in Roto-sonic drilling systems to our clients.



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Suppliers of Engineered Natural Lightweight Aggregates

Lightweight Advanced Volcanic Aggregates Inc. (formerly Canada Pumice Corporation) has been supplying lightweight aggregates since 1991. The material is described as vesicular basalt and is marketed under the trade name Tephralite™. These closed-cell, post-glacial volcanic aggregates range in size from 3mm to 100mm and in colour from red to black.

LAVA Inc's aggregates meet or exceed all ASTM standards as a lightweight aggregate. Tephralite™ is the right choice where compressive soils, high water table and vertical loads challenge the design of a project. Used as a structural lightweight backfill, Tephralite™ can save time in project completion.

For product & technical information please contact Brian Wear at lavaking@telus.net or call direct at 1-604-852-2710.



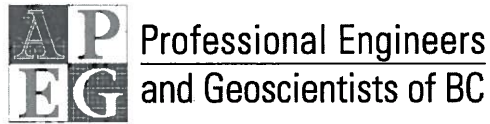
EBA Engineering
Consultants Ltd.



EBA Engineering Consultants Ltd. is a western Canadian employee-owned consulting engineering company specializing in geotechnical and geoenvironmental engineering, environmental planning, GIS and materials engineering. From our start as a specialist geotechnical consulting company in Edmonton over 40 years ago, EBA has grown to include offices in Vancouver, Calgary, Lethbridge, Whitehorse, Yellowknife, Nanaimo, Vernon, Kelowna, and Fort St. John. Our company currently has a total staff of over 600 engineers, scientists, technologists, and support personnel. EBA has a corporate website at www.eba.ca


EBA is pleased to provide continued support of the Vancouver Geotechnical Society.

Bronze Sponsors



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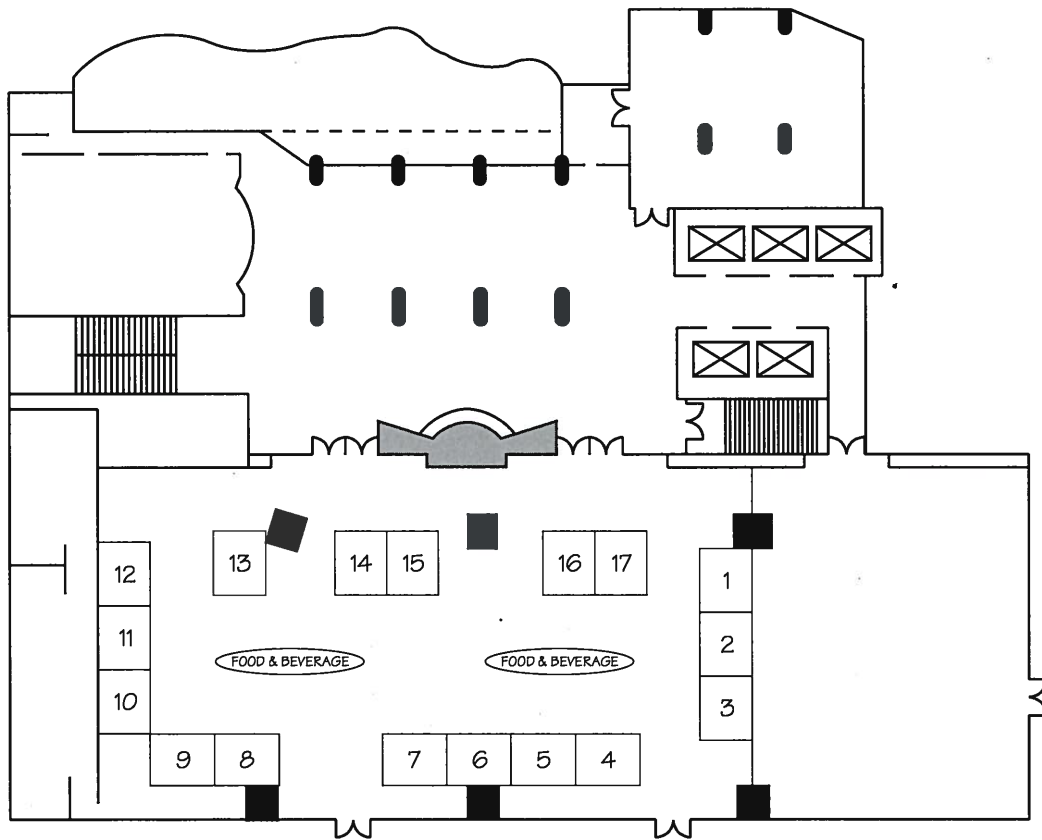




Exhibitors

- 11** Armtec/Mirafi
 - 4** BiTech Publishers Ltd.
 - 10** Checkmate Geosynthetics
 - 7** ConeTec
 - 12** Con-Tech Systems
 - 1** Geokon Inc.
 - 16** Geotech Drilling Services
 - 13** Hayward Baker
 - 8** Layfield Environmental Systems
 - 14** Maccaferri Canada Ltd.
 - 5** Measurand Inc
 - 15** Mud Bay Drilling
 - 2-3** Nilex
 - 6** RST Instruments Ltd.
 - 17** Southwest Contracting
 - 9** Wutec Geotechnical International
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VANCOUVER GEOTECHNICAL SYMPOSIUM
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Panel Discussion: Geotechnical Risk Allocation on Design-Build Projects

Moderator: Bryan Watts, P.Eng.
Panelists: Rodney Chapman, P.Eng.
Karen Martin, LLB
Mike Nightingale
John Nunn, P.Eng.

Design-build or one of its many variants is now the project delivery mode of choice for many types of projects in British Columbia. In the last decade many projects have been delivered or are under construction using this project model including the Golden Ears Bridge, the Sea-to-Sky Highway, the Brilliant powerhouse expansion on the Kootenay River, the RAV line, and the Okanagan Lake Bridge. Design-build separates preliminary engineering design by the Owner's engineering consultant from the final design by the contractor-engineering team. There are many efficiencies in this approach but risk-allocation for design decisions can change from design-bid-construct. Risk allocation and its mitigation with examples will be discussed by a panel comprising a contractor-designer, an owner's engineer, a lawyer, and an owner.

The Owner's perspective will be given by Rodney Chapman, P.Eng., Director of Construction and Maintenance for MOTh. The contractor-designer will be represented by Mike Nightingale of Westshore Constructors. The contracts/insurance perspective will be given by Karen Martin of Bull Houser & Tupper LLP. John Nunn, P.Eng., Principal of Klohn Crippen Berger will represent the designer perspective while the panel will be moderated by Bryan Watts, P.Eng., President of Klohn Crippen Berger.

Past VGS Symposia

Year	Theme
1986	Transportation Geotechnique
1987	Earthquake Engineering
1988	Risk and Liability in Geotechnical Engineering
1989	Geotechnical Aspects of Tailings Disposal and Acid Mine Drainage
1990	Geotechnical Aspects of Contaminated Sites
1991	Geosynthetics: Design and Performance
1992	No Symposium (1st Canadian Symposium on Geotechnique and Natural Hazards)
1993	Ground Improvement
1994	Deep Foundations
1995	Construction on Peat and Soft Soils
1996	Earth Retention Systems
1997	Forestry Geotechnique
1998	Site Characterization
1999	Slope Stability and Landslides
2000	Lifeline Geotechnical Engineering
2001	Land Reclamation Geotechnique
2002	Foundation Engineering
2003	Geotechnical Engineering for Geoenvironmental Application
2004	No Symposium (13th World Conf. on Earthquake Engineering)
2005	No Symposium (Int'l Conf. on Landslide Risk Management)
2006	No Symposium (CGS/IAH Conference)
2007	No Symposium (1st US-Canada Rock Mechanics Symposium)

