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Second Charles C. Ladd Memorial Lecture *Selected Case Histories of Ground Characterization and Performance: SHANSEP and Beyond*



Demetrious C. Koutsoftas, PE, GE
Geotechnical Consultant
DKGC, Inc.

Monday, November 6, 2017

Northeastern University

Registration and Social: Alumni Center, 716 Columbus Ave, 6th Floor, Boston, MA

**Presentation: Auditorium of the Interdisciplinary Science and Engineering Complex Building
805 Columbus Ave, Room 102 ISEC, Boston, MA**

5:30 PM Registration and Social; 6:30 PM Presentation

The lecture highlights important lessons learned from several case histories involving projects for which Professor Ladd served as a consultant and made important contributions in the development of the site investigation/ground characterization programs, development of design parameters and, where applicable, in the evaluation of the performance of the completed structures. The lecture presents information from investigations for the following: (1) an offshore nuclear power plant that was planned to be constructed three miles off the coast of New Jersey, known as the Atlantic Generating Station (AGS) project; (2) the investigations for the new Hong Kong Airport and the prototype test fill constructed to evaluate issues of slope stability and ground improvement involving vertical drains with and without surcharge; (3) characterization of the San Francisco Bay Mud and lessons learned from a prototype test fill; a deep excavation in downtown San Francisco; and an excavation failure in soft Bay Mud; (4) the investigation and the results of a special testing program focused on the determination of the drained strength properties (effective-stress-strength parameters) of a variety of different clays at low effective stresses.

The common thread to all these projects is the application of the SHANSEP method in the test procedures and interpretation of field and laboratory test results in order to characterize the different clay formations involved in each project, to solve problems of stability and deformation analysis. The other common characteristic is that the case histories involve complex and high profile projects which required extensive investigations, laboratory testing, and, in special cases, prototype field tests to properly characterize the soils and develop design and construction recommendations.

The lecture concludes with some personal observations on current practice involving “soft” ground construction, strength characterization, and the state of application of numerical analysis techniques in practice.

Speaker

Demetrious holds a BS degree in Agricultural Engineering from the Technion Israel Institute of Technology, and MS and CE degrees in geotechnical engineering from MIT. He had been practicing geotechnical engineering for 45 years and during that period he held a number of key positions including Vice President of Dames & Moore, where he practiced for 30 years; Vice President of URS for 3 years; and Associate Principal/Principal at Arup where he practiced for 7 years. At Arup he was responsible for the establishment and development of the Geotechnical Group at the San Francisco office. In 2009 he established his own firm, Demetrious Koutsoftas Geotechnical Consultants, Inc., in San Francisco, to provide advisory services to project owners and other geotechnical consulting firms, on technical issues involving complex and difficult ground conditions particularly on major and high profile projects. His experience covers the full range of geotechnical applications but most importantly on: (1) soft ground construction and coastal reclamations; (2) deep excavations, shoring, dewatering, control of excavation-induced deformations and evaluation of potential impacts on existing adjacent structures; (3) deep foundations for high rise buildings, and major industrial facilities; (4) ground stabilization, particularly involving cement deep soil mixing (CDSM), and jet-grouting; (5) design and evaluation of levees, embankments and slope stabilization; (6) construction services, including the planning, implementation and monitoring of geotechnical instrumentation, as well as data analysis and interpretation; and (7) site characterization and specialized laboratory testing and interpretation.

He has completed successfully a large number of diverse and unique projects throughout the United States and overseas, including projects in: Hong Kong, Indonesia, Iraq, Angola, Nigeria, Trinidad, Panama, and Cyprus. His work has been recognized nationwide and locally with a number of engineering excellence awards including: (1) the Thomas Middlebrooks Award (1988) from ASCE for the paper: "Test Fill at Chek Lap Kok, Hong Kong"; (2) The Martin S. Kapp Foundation Engineering Award (2000) from ASCE: "for his numerous contributions through innovative solutions to foundation engineering problems, particularly those with soft and weak ground"; and (3) the Ralph B. Peck (2004) Award, also from ASCE: for his insightful discussion of the complex behavior of soft soils entitled: "Post-Preload settlements of a soft Bay Mud Site."

A number of his projects have been recognized with nine engineering excellence awards, including the "The Grand Conceptor Award" (1998) from the American Consulting Engineers Council for the MUNI Metro Turnback project in San Francisco. He is the author/co-author of over 40 technical publications. He was elected to the National Academy of Engineering in 2006.

Charles C. Ladd Memorial Fund

Professor Charles C. Ladd was renowned as a gifted teacher (with a style emulated by many former students who became faculty members) and innovative researcher on advanced technical topics. He was internationally sought after as a consultant working on large, complex and difficult civil projects. Among his numerous professional achievements, Professor Ladd was elected in 1983 to the US National Academy of Engineering and was the recipient of many research awards from the American Society of Civil Engineers (ASCE) including the Walter L. Huber Civil Engineering Research Prize, the Croes Medal, the Norman Medal and the Terzaghi Lecture Award. In 1995, he was elected as a distinguished member of ASCE and received the Hogentogler Award from the American Society for Testing and Materials. In 2012, Professor Ladd was awarded the ASCE Outstanding Project and Leaders lifetime achievement award for his contributions to engineering education. Professor Ladd leaves a lasting legacy and tribute to his life's work with his commitment to his students at M.I.T. and significant contributions to geotechnical engineering.

The Charles C. Ladd Memorial Fund was established in 2015 to support a lecture presented biennially by an eminent academic or practitioner on a topic related to soil behavior and construction on soft ground. Donations to the fund can be made with check payable to BSCES with Charles C. Ladd Fund noted in the memo line. Check should be mailed to BSCES, Charles C. Ladd Fund, The Engineering Center, One Walnut Street, Boston, MA 02108-3616.

Registration Deadline: Monday, 30 October 2017

Free to Members and Non-Members

Register to attend this lecture at <https://www.surveymonkey.com/r/2017Ladd>. You can also register for this event by mail or email. To do so, download and complete a [BSCES Event Registration Form](#) and follow the submission instructions. If you have questions about registration, please call The Engineering Center at 617-227-5551. If you have questions regarding this event, please contact Lucy Jen at lcjen@comcast.net or 617-642-0502.