

**GEOTECHNICAL GROUP  
LOS ANGELES SECTION - ASCE**

**MEETING NOTICE**

**Wednesday, June 20, 2012**

**HEADWORKS RESERVOIR**

**Martin B. Hudson, Ph.D., G.E.**

Chief Engineer  
AMEC (formerly MACTEC)

**ABSTRACT**

The proposed Headworks Reservoir is a part of the Silver Lake Reservoir Complex Replacement Project, which will be constructed on approximately 12 acres within the Headworks Spreading Grounds, located between Forest Lawn Drive and State Route 134 in the southeastern San Fernando Valley area of Los Angeles, California. The Headworks Reservoir will consist of two structurally-separate reinforced concrete water storage structures surrounded by earthen embankments, with combined capacity of about 110 million gallons.

The Los Angeles River, prior to concrete channelization in the 1930's, traversed through the site, with resulting upper loose soils potentially subject to liquefaction and seismic settlement. For the geotechnical evaluation of the reservoir, Sonic Core, Rotary Wash, and Continuous Core borings were performed, along with Becker Hammer tests and SASW, suspension, and downhole seismic velocity testing. The data gathered were used to evaluate the liquefaction, seismic settlement, and static settlement characteristics of the site for design of the reservoir. Ground improvement has been performed at the site in preparation for the reservoir, consisting of mass excavation and recompaction. In addition, pre-existing water collection tunnels were present at the site, and rather than fill the entire tunnels beneath the site, an evaluation was performed to assess the potential deformation at the ground surface in the event of the collapse of the tunnels.

Evaluation of the seismic response of the structure was accomplished utilizing a soil-structure interaction model, after initial design based on standard code-based procedures. The soil-structure interaction model evaluated rotations and stresses in the structural elements, with a resulting re-design of the reservoir to produce greater resiliency. In addition, to provide for a system by which cracking in the reservoir can be identified in the future, a water collection system was designed beneath the reservoir, with consideration for the frictional behavior of that collection system and the resulting survivability of the collection system.

## SHORT BIO

Dr. Martin B. Hudson, received his B.S. and M.S. in Civil Engineering from UCLA, and his Ph.D. degree in Geotechnical Engineering from the University of California, Davis. Dr. Hudson is Chief Engineer for AMEC, and is a Registered Geotechnical Engineer in the State of California. Dr. Hudson is a member of the Seismology Committee of the Structural Engineers Association of California (SEAOC). Dr. Hudson is a former board member of the Structural Engineers Association of Southern California, and past president of the American Society of Civil Engineers (ASCE) Los Angeles Section Geotechnical Group. Dr. Hudson specializes in seismic evaluation of soil deposits and soil structures, with extensive experience in evaluation of seismic response and seismic deformation of dams, slopes, and landfills. Dr. Hudson also has extensive experience with the geotechnical aspects of high-rise buildings, deep excavations, tunnels, ports, roadways, and other public works.

SOCIAL HOUR: 5:30 p.m.  
DINNER: 6:30 p.m.  
PROGRAM: 7:30 p.m.  
PLACE: Stevens Steak House  
5332 Stevens Place, City of Commerce  
Southwest Corner of I-5 & Atlantic Boulevard  
PRICE: \$35 with reservation (Free with valid Student ID); \$40 at the door  
RESERVATIONS: Andrew Liu  
By e-mail to ahl\_77@yahoo.com

**Please make reservations by e-mail prior to 12 noon, Friday, June 15, 2012**