



CONFERENCE

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San Francisco, CA



**Thursday, June 4, 2015 at 11:00am**

**FEATURED SPEAKER**

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**WET SOIL MIXING FOR SUPPORTING BRIDGE ABUTMENTS  
ON SPREAD FOOTINGS**

Foundation soils of a proposed single-span bridge over a busy railroad in Anchorage, Alaska included a layer of sensitive, non-plastic to low-plasticity silt. Slope stability analyses showed that, without ground improvement, the proposed abutments would not be stable immediately following the design earthquake due to the liquefaction of the sensitive silt. Wet soil mixing was selected to mitigate the liquefiable soils and assure abutment stability because: (i) it is a non-vibratory method and can be used for areas adjacent to the railroad tracks and underground utilities, as well as in areas not sensitive to vibration; and (ii) pre- and post-ground improvement testing, such as SPT or CPT, is not required. Eliminating the liquefaction hazard at the site also allowed for the abutments to be economically supported on shallow spread footings. A total of 511 soil-cement columns were constructed at the two abutments, each with a diameter of 8 feet (2.4 m) and an average length of 20 feet (6.1 m), extending from about 30 to 10 feet (9.1 to 3.0 m) below finished ground elevation. The columns were laid out in a shear wall pattern (in the longitudinal direction of the bridge) to increase stability under the loading by approach embankments.

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