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Advances in Ground Improvement

Research to Practice in the United States and China

Proceedings of the U.S.–China Workshop on Ground Improvement Technologies

ASCE

Edited by Jie Han, Gang Zheng, Vernon R. Schaefer, and Maosong Huang

GEO INSTITUTE

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RESEARCH TO PRACTICE IN THE UNITED STATES AND CHINA

PROCEEDINGS OF THE US–CHINA WORKSHOP ON GROUND IMPROVEMENT TECHNOLOGIES

March 14, 2009
Orlando, Florida

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of The Geo-Institute of the American Society of Civil Engineers

Chinese Institution of Soil Mechanics and Geotechnical Engineering

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Preface

This special publication contains 33 technical papers which cover recent advances in research and practical applications in ground improvement technologies including column-supported embankments, column technologies for ground improvement, and ground modification and accelerated consolidation. The first invited keynote paper by Professor V. Schaefer (co-authored with Professor G.M. Filz, and Mr. L.S. Vanzler) summarizes technical and non-technical issues and project development pros and cons for ground improvement technologies used in the United States for highway renewal. The second invited keynote paper by Professor G. Zheng (co-authored with Professors. S.Y. Liu, and R.P. Chen) summarizes recent advances in column-type reinforcement element and its applications in China. Eighteen technical papers in the slope stability section present technologies for stabilizing, monitoring, and analyzing slope movement and stability. Ten technical papers in the "column-supported embankments" section focus on analytical or numerical analysis and experimental evaluation of column-supported embankments. The "column technologies for ground improvement" section contains ten technical papers presenting stone columns, deep mixed columns, jet grouted columns, and piles used to mitigate the issues related to bearing capacity, deformation, stability, and liquefaction. Eleven technical papers in the "ground modification and accelerated consolidation" section present recent research findings on chemical, mechanical, and biological modification of soil and accelerated consolidation of soil by vertical drains, vacuum preloading, and explosion.

Each paper published in this ASCE Geotechnical Special Publication (GSP) was evaluated by at least two reviewers including the editors. The authors of the accepted papers have addressed all the reviewers' comments to the satisfaction of the editors. All published papers are eligible for discussion in the Journal of Geotechnical and Geoevironmental Engineering and are also eligible for ASCE awards.

The papers in this publication were presented during the U.S.-China Workshop on Ground Improvement Technologies held in Orlando, Florida on March 14, 2009. This workshop was jointly organized by ASCE Geo-Institute Soil Improvement Committee and the Chinese Institution of Soil Mechanics and Geotechnical Engineering.

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