

IFCEE 2018

Recent Developments in Geotechnical Engineering Practice

Selected Papers from Sessions of the International
Foundation Congress and Equipment Expo 2018

Geotechnical Practice Publication Number 11

Orlando, Florida, USA
5 – 10 March 2018

Editors:

Armin W. Stuedlein
Anne Lemnitzer
Muhannad T. Suleiman

ISBN: 978-1-5108-6519-8

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2018) by American Society of Civil Engineers
All rights reserved.

Printed by Curran Associates, Inc. (2018)

For permission requests, please contact American Society of Civil Engineers
at the address below.

American Society of Civil Engineers
1801 Alexander Bell Drive
Reston, VA 20191
USA

Phone: (800) 548-2723
Fax: (703) 295-6333

www.asce.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Contents

Case Histories and Lessons Learned: Installation, Testing, and Analysis of Deep Foundations

Innovative Approach to Repairs of Deep Anomalies in Drilled Shafts to Restore Structural Integrity	1
Alex Bredikhin	
Drilled Shaft Installation at an Abandoned Underground Mine Site.....	11
Bob Faulhaber, Michael Arnold, Joe Nichols, and Russell Cooper	
Remediation of Anomalous Drilled Shafts—A Case Study	21
Bobby Daita, John P. Turner, and Brannin J. Beeks	
Former Navy Yard Revitalized with Hollow-Stem Grout Cast-In-Place Piles	37
Arthur J. Alzamora Jr., Laurence E. Ford, Tommy Maene, and Alan R. Poeppel	
Benefits of a Pile Testing Program during the Design Phase	52
Marco Fellin	
High Strain Dynamic Testing of SPIN FIN™ Piles.....	64
Steven Halcomb, Sean Sjostedt, and Charles Somerville	
Energy Transfer and Factors of Safety with and without High Strain Dynamic Testing	76
Steven Halcomb and Kenton Braun	
Savings from Testing the Driven-Pile Foundation for a High-Rise Building.....	87
Van E. Komurka and Adam G. Theiss	
Bonner Bridge Replacement Project-Pile Driving Experience	102
Scott Webster and Karen Webster	
Lateral Soil Movements Due to Pile Driving: A Case Study in Soft Clays	113
Antonios Vytiniotis, Brendan Casey, and David W. Sykora	
Micropile Bridge Substructure Replacements: Innovative Approaches to Overcoming Unique Design and Construction Challenges through the Design/Build Process	129
Frank DiSalvo and Stephen Mascia	

Micropile Operated Thermal Energy Storages below the Building	142
Rauli Lautkankare, Nikolas Salomaa, Teppo Arola, and Jouko Lehtonen	
Galata Port Project in Istanbul: Rehabilitation and Restoration Works of the Terminal for Cruise Ship and Historical Surrounding Area	155
Salvatore Miranda, Claudio Asioli, Federico Pagliacci, and Marco Chiarabelli	
Case Study of Using Three Systems for Soil and Bedrock Stabilization	170
Laurence E. Ford, Arthur J. Alzamora Jr., and Andrew J. Ciancia	
Challenges on Sheet piling, Shoring and Underpinning Projects.....	185
Sharon K. Hartley and Morgan A. Eddy	
Combining Secant Piles with a Grouting Program Provides a Value Engineered Alternative for a Critical Support of Excavation.....	198
Sitotaw Y. Fantaye, Dimitrios Iliadelis, David P. Sposito, Andrew Burns, and James C. Myers	
Cutter Soil Mixed Support of Excavation Walls and Deep Foundations for Remodeling of a Hotel Structure.....	213
Justin Simmons, Michael Arnold, and Bob Faulhaber	
A Systematic Approach to Asset Management for Mechanically Stabilized Earth Walls.....	223
Jerry A. DiMaggio and Ashley MacMillan	
Case History: The Estrondo Landslide Stabilization in Encino, California	232
Daniel Pradel	
Highway Embankment on Soft Soils Case Study and Lessons Learned	245
Timothy D. Stark, Perry J. Ricciardi, and Ryan D. Sisk	
Strength and Consolidation Prediction and Field Verification of Two Compacted Clays.....	257
Michael D. Boone and Michael R. Lewis	
Case History: Do Slope Protective Ordinances Protect?	272
Alan J. Esser	
Bank Stabilization Adjacent to the Missouri River Using the Dry Method of Deep Soil Mixing.....	286
David J. Curran Jr., Spring Borchardt, Mark T. Howe, and Edwin A. Ayala	
Buttermilk Creek Bank Stabilization: Retaining Wall Design and Construction.....	301
Andrew C. Brown, Beth A. Gross, and Marty Christman	

San Luis Dam Case History: Seepage and Slope Stability Analyses and Lessons Learned	317
Timothy D. Stark and Navid H. Jafari	
Rock Slope Stabilization Evaluation, Design and Construction Greater Boston, Massachusetts	330
Andrew R. Blaisdell, Christopher L. Snow, and Frank S. Vetere	
Tunnel Foundation Remediation in an Area of Mild Squeezing Conditions.....	345
Chrysanthos Steiakakis, Stamatini Delmadorou, Zacharias Agioutantis, Eleftherios Malandrakis, and Alexandros Athanasiou	
<i>Innovations in Ground Improvement for Soils, Pavements, and Subgrades</i>	
Staged Embankment Construction in Soft Clay and Slope Failure Impacted by Wick Drain Local Kinking: Case Study.....	357
John J. W. Lee, Curt R. Basnett, and Saffraz Muhammad	
Rigid Inclusion System Supports Multi-Story Residential and Parking Garage Structures in Organic Soil Profile	370
Steven R. Kraemer, Robert B. Condon, and Kord Wissmann	
Design Methodology for PVD Installation in Embankments over Soft Soils—A Case Study	380
R. David Espinoza, Lucas de Melo, Chunling Li, and Ranjiv Gupta	
Compaction Grouting for Ground Improvement and Lifting of Foundations on Variable and Voided Fine-Grained Organic Fill	391
Jesse Friel, Michael Remboldt, Joe Amend, and Joe Harris	
Tests and Analytical Model to Predict Geotextile Tube Performance in the Field: A Case Study.....	406
C. R. Ratnayesuraj, Z. B. Kiffle, S. K. Bhatia, G. Lebster, and C. Timpson	
A Case Study and Lessons Learned Loop 1604 Western Extension Subgrade and Pavement Testing and Evaluation.....	422
Hosam Salman, Ravi Vedantham, William Martinez, and Anand J. Puppala	
<i>Other Geotechnical Studies</i>	
Geotechnical Women Faculty from 1989–2017: A U.S. Case Study.....	434
Patricia M. Gallagher, Sharon W. Alestalo, Shobha K. Bhatia, Adda Athanasopoulos-Zekkos, and Sucheta Soundarajan	

**America’s Research-Active, Geotechnical Faculty Members–A
Snapshot of the Community 7 Years On448**
Brittney O’Neill and Debra F. Laefer

**Characterizing the Strength of Tar Sands in Los Angeles,
A Case History458**
R. Travis Deane, Daniel Pradel, and Christopher A. Robertson

Case History: Shallow Foundation for “The Gut” Movable Bridge.....470
R. R. Mankbadi, J. Bade, and A. M. Ramakrishna