Geo-China 2016

Innovative Technologies for Severe Weather and Climate Change

Selected Papers from the Fourth Geo-China International Conference

Geotechnical Special Publication Number 264

Shandong, China 25 – 27 July 2016

Editors:

Sherif El-Badawy DingXin Cheng Mohamed Arab

ISBN: 978-1-5108-2974-9

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© (2016) by American Society of Civil Engineers All rights reserved.

Printed by Curran Associates, Inc. (2016)

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

| Carlos E. M. Maffei and Heloisa H. S. Gonçalves |
|--|
| Experimental Study on the Vertical Bearing Properties of a Rooted Bored Pile |
| Chao Yang, Guoliang Dai, and Weiming Gong |
| Tilting of a Large Apartment Building in Bogota, Colombia, Due to Foundation Failure and the Recuperation of Its Verticality |
| Using the Micropiles Technique as a Settlement Control Tool in the Underpinning of Limited Headroom Cases |
| A Case Study of a Housing Development on Collapsible Alluvium38 Robert W. Thompson and Sandra L. Houston |
| A Performance-Based Approach to the Design of Shallow Foundations Resting on Heterogeneous Subsoil Prone to Liquefaction Hazards47 Ali Pak, Peyman Ayoubi, and Hadi Shahir |
| Study on the Analysis of DX Pile Bearing Capacity and Economic Benefits56 Po Lin Chen, Da-Wei Jian, Dexin He, and Dave Ta-Teh Chang |
| Drag Forces on Drilled Shafts Due to Heavily Loaded Mat Foundations and the Influence of Neighboring Shafts on Drag Forces |
| Introduction to Crack Treatments73 Tim Morris |
| Using Artificial Neural Networks (ANNs) for Hot Mix Asphalt E* Predictions |
| Experimental Study on the Low Temperature Performance of an Epoxy Asphalt Binder and Mixture |

٧

| Maximising the Use of Rubber from End-of-Life Tyres in | |
|---|---|
| Road Construction in Queensland10 | 1 |
| Jeffrey Lee, Erik Denneman, Young Choi, and Christopher Raymond | |
| Measuring the Thermal Properties of Pavement Materials10 | 9 |
| A. P. Wei Geng and Michael Heitzman | |
| Accelerated Damage Testing Method for Evaluating the | |
| Service Performance of Asphalt Pavement Affected by Acid Rain11 | 7 |
| Liang Xue, Kwok-Leung Pun, Gang Li, and Sizeng You | |
| Installation Effect of Controlled Modulus Columns on Nearby Existing | |
| Structures | 5 |
| Huu Hung Nguyen, Hadi Khabbaz, Behzad Fatahi, Roger Santos, | |
| Michael Marix-Evans, and Philippe Vincent | |
| A Study of an Innovative Material Application for Installing Tilt | |
| Monitoring Units on a Bridge Pier13 | 4 |
| Po Lin Chen, Dave Ta Teh Chang, Kai Chun Yang, and Jia Feng Lin | |
| The Use of an Expander Body with Full Displacement Piles in | |
| Medium-Dense Sandy Soils14 | 2 |
| Mario Terceros Arce and Mario A. Terceros Herrera | |
| Passive Lateral Thrust and Deformation Effects of Embankments on | |
| Piled Bridge Abutments on Soft Ground15 | 2 |
| Johannes Aschrafi and Christian Moormann | |
| Choice Criteria for Bridge Foundation Types on Variable Soil Strata15 | 9 |
| M. I. Y. Elzain and M. Dafalla | |
| Three-Dimensional Elastoplastic Analysis on the Stability of | |
| Tunnel Anchorage in Soft Rock16 | 6 |
| Dongliang Li, Xinrong Liu, Xiangchao Wu, and Weishu Li | |