2-Day Seminar
Micropiles and Ground Improvement

E.L. ROBINSON ENGINEERING

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November 8-9, 2016

2-Day Seminar:

Micropiles (Design, Construction, & Inspection) & Ground Improvement Methods

Jerry A. DiMaggio, P.E., D.GE, M.ASCE

Ohio Office Locations

Columbus
1801 Watermark Dr., Ste. 310
Columbus, OH 43215
(614) 586-0642
FAX: (614) 586-0648

Cleveland
1468 West 9th St., Ste. 500
Cleveland, OH 44113
(216) 452-1890
FAX: (216) 452-1894

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415 Center St.
Ironton, OH 45638
(740) 532-2411
FAX: (740) 533-2397

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Course Format:

Mr. DiMaggio will present a logical sequence of topics and activities which allow participants to demonstrate their knowledge and skills. These activities include: Lectures, Example Problems, and Lively Discussion Periods.

Description:

The goal of this course is to provide participants with state-of-the-practice design tools and construction techniques to expand implementation of safe and cost-effective micropile foundations and ground improvement methods. This course addresses the design, construction, testing and inspection of micropile foundations used for support of structures and for slope stability. It also covers the selection of methods used for ground improvement and the advantages and disadvantages of each method (note the ground improvement methods addressed in this course are listed in the agenda below). The Instructor will cover factors that affect technology selection, contracting approaches with an emphasis on required bidding documents for each technique. Class discussions will include design procedures and case studies, and performance of micropiles and ground improvement techniques. Detailed information on subsurface investigation, soil and rock property design parameter selection, load and resistance factor design (LRFD) (for micropiles), and construction monitoring will be provided. Each participant will receive a paper copy of the presentation material.

Outcomes:

Upon completion of the course, participants will be able to:

- Understand Micropile applications
- Use appropriate methods of micropile foundation design
- Calculate single and group capacities of micropiles to resist compression, tension, and lateral loads
- Define key components of micropile and ground improvement technique specifications
- Explain appropriate methods of micropile and ground improvement installation, inspection, and testing
- Select the appropriate ground improvement method based on the site conditions and other project factors
- Evaluate effectiveness of ground improvement methods

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ELR 2016 – Micropile Design and Construction and Ground Improvement Methods Training Course Agenda

Through a combination of lectures, example problems, case studies and discussion, you will obtain a comprehensive understanding of the design, construction, testing and inspection for Micropile Foundations and Ground Improvement Methods including the following:

Day 1: MICROPILES
November 8, 2016 (8:30 a.m. - 5:30 p.m.)

- Welcome and Introductions
  - Review of course objectives, outcomes and agenda
  - Introductions
- Micropile Definitions, Classifications, Applications
- Construction Techniques and Materials
- Design of Micropiles for Structural Foundations
- Micropile Design for Slope Stability
- Load Testing
- Construction Inspection and Contracting Methods
- Discussion of ODOT Micropiles Projects

Day 2: GROUND IMPROVEMENT MTHODS
November 9, 2016 (8:00 a.m. - 5:00 p.m.)

- Introduction to Ground Improvement Methods
- Prefabricated Vertical Drains
- Stone Columns, Geopiers, and Controlled Modular Columns
- Discussion
- MSE Walls and Reinforced Soil Slopes
- Soil Nailing
- Soil Mixing
- SUMMARY, CLOSURE AND EVALUATIONS

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Jerry A. DiMaggio, P.E., D.GE, M.ASCE

Jerry is the Principal at Applied Research Associates, Inc. in Washington D.C. where he provides specialized consulting services to the civil engineering and construction communities related to: strategic planning; innovation; deployment and acceptance; and business development plans. He also is internationally recognized for his work on design, construction, evaluation, forensic assessment and disputes resolution of foundations, earth retaining structures, ground improvement techniques and earthworks. Mr. DiMaggio has served on numerous projects related to limit states design (LRFD), risk assessment and management, innovative contracting and accelerated construction. He is the retired Principal Bridge Engineer – Geotechnical, and National Program Manager with the U.S. DOT-FHWA in Washington D.C. He has a B.S. and M.S. degrees in Civil Engineering from Clarkson University and is a certified Master Trainer and licensed contract arbitrator. He is an experienced meeting and workshop facilitator for business and technology deployment activities and has recognized written and oral communication skills and experience. He has provided consulting services on over 1,000 civil construction and business related projects in all 50 states, throughout the Americas, several Middle Eastern countries, and Australia. He has presented hundreds of seminars and workshops on foundation features for bridges, buildings, energy facilities, retaining structures, and engineered earthworks. Mr. DiMaggio serves on several committees and task forces for professional development and technical guidelines, specifications, and testing standards. He has been a member of the adjunct faculty at the University of Delaware, Johns Hopkins University, The University of Akron, and Columbia University. He has been a Keynote Speaker at over 35 national meetings and conferences. Mr. DiMaggio has authored numerous technical papers and edited three civil engineering books. He has received numerous recognitions and awards including: ASCE's 2016 Opal Award, the U.S. DOT Administrator's Award, the International Geosynthetics Society Achievement Medal, FHWA's "Engineer for the Year", and received special recognition for his career contributions from the ASCE (Opal and Kapp Awards), TRB, Schnabel Engineering, PDCA, and ADSC. Mr. DiMaggio served on the ASCE Geo-Institute National Board of Governors (2005-2007) and is a member of the Academy for Geotechnical Professionals.

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General Information

- ✓ **Program Fee: $500.00** covers handout, materials, continental breakfast and lunch on *two days (November 8th and 9th).*
- ✓ **Registration is Limited** due to the highly interactive nature of this course.
- ✓ **Professional Development Hours:** A certificate with **16** Hours will be offered upon completion of this Seminar.
- ✓ **Enrollment Deadline** is October 28, 2016. Seminar will be held at E.L. Robinson's Columbus, Ohio office (see address below).
- ✓ **Cancellations and Substitutions:** Refunds will be granted if the request to cancel is received in writing by November 2, 2016. Substitutions are permitted up through the first day of the course.
- ✓ **Registration Confirmation:** A letter of confirmation will be e-mailed to you before November 4, 2016.

Mail or fax the attached Registration Form to E.L. Robinson Engineering at 614.586.0648 or scan and e-mail to cwaller@elrobinson.com.

Please make checks or Purchase Orders payable to **E.L. Robinson Engineering** and mail to:

E.L. Robinson Engineering
Attn: Chrissy Waller
1801 Watermark Drive, Suite 310
Columbus, Ohio 43215

For more information about the course, contact Dr. Jamal Nusairat at 614.586.0642 or jamal@elrobinson.com.

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Registration Form

Registration is due Friday, October 28th.

Name_____

Mailing Address_____

City_____

State_____ Zip Code_____

Employer_____

Position_____

Daytime Phone_____ Fax_____

Email_____

YES, reserve my place for the 2-Day Micropiles and Ground Improvement Seminar on November 8th and 9th at E.L. Robinson Engineering's Columbus Office. I understand that a refund will be granted if a request is made in writing and received by November 2, 2016. If I am unable to attend, a substitute may attend in my place.