

## 3-Day Seminar Driven Piles



May 12-14, 2015



### 3-Day Seminar: Driven Piles Design, Construction, & Inspection

Jerry A. DiMaggio, P.E., D.GE, M.ASCE  
&  
Jamal Nusairat, Ph.D., P.E.

#### Ohio Office Locations

##### Columbus

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

##### Cleveland

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

##### Ironton

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

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### Course Format:

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

### Description:

The goal of this course is to provide agencies with state-of-the-practice design tools and construction techniques to expand implementation of safe and cost-effective driven pile foundations. This course addresses the selection, design, construction, and performance of driven pile foundations used for support of structures. Instructors cover factors that affect pile selection, including contracting approaches with an emphasis on required bidding documents for each approach. Class discussions will include design procedures and case histories, demonstrating the selection, design, and performance of driven piles. Detailed information on subsurface investigation, soil and rock property design parameter selection, load and resistance factor design (LRFD), and construction monitoring for driven piles are provided.

### Outcomes:

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

- Select appropriate subsurface exploration procedures and laboratory tests to provide design soil parameters for pile foundation design.
- Choose the appropriate pile type in a given soil profile based on the advantages and disadvantages of common driven pile types.
- Use appropriate methods of pile foundation design in applicable subsurface conditions.
- Calculate single and group capacities of driven piles to resist compression, tension, and lateral loads.
- Define key components of driven pile specifications.
- Use wave equation analyses, dynamic pile testing and static load testing correctly and effectively.
- Identify pile hammer types, their operational characteristics, and key pile hammer and pile hammer accessory inspection issues.
- Select pile toe accessories, pile splicing methods, and pile installation aids applicable to the pile type and subsurface conditions.
- Explain appropriate methods of pile installation monitoring and inspection.

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## **ELR 2015 - Driven Piles Training Course Agenda**

Through a combination of lectures, example problems, student exercises, case histories and discussion, you will obtain a comprehensive understanding of the selection, design, construction and inspection for Driven Pile Foundations including the following:

### **Day 1: May 12, 2015 (8:30 a.m. - 5:30 p.m.)**

- Introduction and Course Objectives
- Overview of Design and Construction
- Geotechnical Parameters with emphasis on LRFD requirements for subsurface investigation
- Pile Types
- Introduction to Static Analysis Methods
- Example Projects
- Static Analysis - Single Pile under Axial Loading
- Static Analysis - Single Pile under Lateral Loading
- WORKSHOP PROBLEM

### **Day 2: May 13, 2015 (8:00 a.m. - 5:00 p.m.)**

- Static Analysis - Pile Groups
- Special Design Considerations
- Construction Effects of Design
- Structural Aspects of Driven Pile Foundations
- Pile Driving Equipment
- Accessories for Pile Installation
- WORKSHOP PROBLEM
- Specifications and Contract Documents

### **Day 3: May 14, 2015 (8:00 a.m. - 2:30 p.m.)**

- Pile Inspection
- Aspects of Pile Driving, Wave Mechanics and Applications
- Basic Wave Equation Input, Output and Examples
- WORKSHOP PROBLEM
- Dynamic Testing
- Static Pile Testing, O-Cell, and Rapid Pulse
- Construction Monitoring
- Hammer Inspection
- SUMMARY, CLOSURE AND EVALUATIONS

## 3-Day Seminar Driven Piles



### **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: 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, 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.

## 3-Day Seminar Driven Piles



**Dr. Jamal Nusairat, Ph.D., P.E.**

Dr. Nusairat received his Ph.D. from The University of Akron in 1999. Dr. Nusairat has 25 years of experience in geotechnical engineering, and experience in foundation engineering and subsurface investigation for highway and bridge projects. Dr. Nusairat has been a Project Manager for several ODOT research projects, and one CDOT project utilizing instrumentation for full-scale testing or long-term monitoring of deep foundations. He has extensive geotechnical and structural expertise in design, testing, and long term monitoring of structures and foundations. Areas of expertise include: design of spread footings; piles and drilled shafts; bridge foundations; tieback walls and rock anchors; laboratory testing of soils; and analysis and design for earthquake loading as well as preparation of soils and foundation reports. Dr. Nusairat has experience in value engineering and design build for projects including bridge foundations, embankments, and retaining structures. He has extensive experience in bearing capacity analysis and design, settlement analysis, analysis and design of earth and rock fill dams, and stability analysis of slopes. Dr. Nusairat served on the review teams for FHWA GEC-9 and the updated FHWA Drilled Shafts Manual, in addition to serving on the TRB Committee on Bridge Substructures (AFS 30) which started in January 2009. He is also a member of the TRB Committee for Soil and Rock Properties (AFP30) which began in July 2012.

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### General Information

- ✓ **Program Fee: \$750.00** covers handout, materials, continental breakfast and lunch on all three days (May 12<sup>th</sup> -14<sup>th</sup>).
- ✓ **Registration is Limited** due to the highly interactive nature of this course.
- ✓ **Professional Development Hours:** A certificate with **20** Hours will be offered upon completion of this Seminar.
- ✓ **Enrollment Deadline** is May 8, 2015. Seminar will be held at E.L. Robinson's Columbus, Ohio office (see address below).
- ✓ **Early Registration Discount:** Register by April 25, 2015 to save \$50.00.
- ✓ **Cancellations and Substitutions:** Refunds will be granted if the request to cancel is received in writing by May 6, 2015. Substitutions are permitted up through the first day of the course.
- ✓ **Registration Confirmation:** A letter of confirmation will be e-mailed to you before May 8, 2015.

Mail or fax the attached Registration Form to E.L. Robinson Engineering at 614.586.0648 or scan and e-mail to [rsmith@elrobinson.com](mailto:rsmith@elrobinson.com).

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

**E.L. Robinson Engineering**  
**Attn: Ryan Smith**  
**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](mailto:jamal@elrobinson.com).

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### Registration Form

Registration is due Friday, May 8<sup>th</sup>. Register by April 25<sup>th</sup> and deduct \$50.00.

Name \_\_\_\_\_

Mailing Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip Code \_\_\_\_\_

Employer \_\_\_\_\_

Position \_\_\_\_\_

Daytime Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

**YES**, reserve my place for the 3-Day Driven Piles Seminar on May 12<sup>th</sup>-14<sup>th</sup> 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 May 6, 2015. If I am unable to attend, a substitute may attend in my place.