Tuesday, November 13, 2012

7:00 am - 8:00 am	Breakfast
8:00 am - 8:15 am	Introduction and Welcome Dan Thome P.E., Nicholson Construction Company
8:15 am - 9:15 am	Keynote: Development of Apparent Earth Pressure Diagrams Dave Weatherby, Schnabel Foundation

Apparent earth pressure (AEP) diagrams are used for the design of excavation support systems and permanent tieback earth retaining walls. Published and commonly used AEP diagrams were developed from measured strut loads, and do not fit classical earth pressure theory. This presentation will focus on the development and the use of AEP diagrams.

9:15 am - 10:15 am	Current Design and Performance of Anchored Earth Retention Systems Daren J. Zywicki Ph.D., P.E., GEI Consultants, Inc.

The design and performance of anchored earth retention systems have undergone significant advances because of the desire and need to achieve deeper excavations, while simultaneously reducing wall deflections and ground settlement. The increased availability and practicality of numerical software packages and measurement systems have allowed earth retention system performance to be predicted and monitored more thoroughly than in the past. This presentation will discuss the current anchored earth retention design procedures, performance criterion, and performance monitoring systems. The presentation will include consideration of design lateral earth pressures, numerical methods for

analyzing the structural system and soil-structure interaction, and innovations in sensors and information systems. The presentation will also consider the numerical and analytical methods utilized to estimate deflection and settlement, as well as the methods utilized to estimate potential structural damage of adjacent structures.

10:15 am - 10:45 am

Networking Break in Exhibit Area

10:45 am - 11:30 am

Case History: Construction of Deep On-line Temporary Excavation Support for the Reston Station Project, Reston, Virginia
Robert Jakiel, Berkel & Company Contractors

The construction of a deep on-line temporary excavation support system for the Reston Station project in Reston, VA will be presented. The challenges for this project include the construction of an economical and accurate system of excavation support that could be used as the back form for the foundation walls of the 7-story below ground parking structure. Using pre-bored soldier piles, lagging, and tiebacks, the excavation support system was successfully installed to depths of about 85 feet around the perimeter (2,200 lineal feet) of this below ground structure (725'x350').

11:30 am - 12:15 pm

Testing of Soil Nails and Ground Anchors
Thomas Richards Jr., P.E., D.GE, Nicholson Construction Company

This presentation will address many questions concerning the testing of anchors and soil nails including: Why do we do it? What are we supposed to do? What are we stressing? How do we do it in the field? What about wall movement? How do we judge if an anchor is acceptable? What is the apparent tendon length?

12:15 pm - 1:15 pm

Lunch in Exhibit Area

1:15 pm - 1:55 pm

Case History: Comparison between the Deep Soil Mix & Soldier Pile and Lagging SOE
Rich Pratt P.E., Schnabel Foundation

Schnabel Foundation Company was the preferred bidder for the Square 537 Phase II project providing over 68,000 ft2 support of excavation with heights of up to 68 feet' below four heavily traveled CSX railway lines. The design also supported a cut of 25feet below the adjacent 16-floor Marriott Residence Inn and included a water pressure surcharge which extended 28feet above sub-grade. Specialized equipment was necessary to install a water-tight earth retention system, which included deep mixing, jet-grouting and a secant wall in difficult soils. The earth retention system also included soil nailing, bracket piles, corner diagonal braces, and 539 tiebacks, 270 of which were located below the water table. Despite setbacks due to difficult soil conditions and buried man-made obstructions this project was completed in 8 months. The presentation will highlight construction challenges and system performance.

1:55 pm - 2:40 pm

Case History: Diaphragm Wall for a Waterfront Property at Harbor East in Baltimore
Fred Tarquinio P.E., Nicholson Construction Company

Since the project site was approximately 20 feet from the edge of Harbor, structural support for this five-star waterfront resort with a five-story parking garage below the water table, required an anchored diaphragm wall for both excavation support and protection from seawater infiltration. The diaphragm wall was designed using fast-track project methods, meaning the design could not wait until test borings were drilled along the proposed wall alignment. Consequently, typical soil properties were selected for the Fill, Silty Organics, Cretaceous Sediments, and varying depth of Decomposed Rock for the design of the diaphragm wall. The construction schedule required the diaphragm wall contractor to complete the construction of the approximately 90,000 square ft wall and installation of over 600 tiebacks in 10 months.

2:40 pm - 3:20 pm

Networking Break in Exhibit Area

3:20 pm - 3:50 pm

Case History: Challenges of the Unknown in Anchored Earth Retention
Morgan Eddy P.E., Steele Foundation

Several cases of anchored earth retention will be presented to highlight challenges of the unknown. These challenges include adjacent construction, bad ground, dewatering, and undercutting. Clients and owners are typically unaware of these challenges and of the

associated delays and costs that can accrue getting to the bottom of the excavation.

3:50 pm - 4:20 pm

Instrumentation of Anchored Earth Retention Projects
Boris Caro Vargas, SolData Northern America

The performance of anchored walls needs to be monitored precisely. This can be achieved in several ways including by monitoring the performance of anchors themselves (load, strain), or by monitoring the deflection/movements of the actual wall (AMTS, inclinometers). This presentation will mainly focus on the automatic monitoring systems currently used on several projects all over the world, will compare monitoring data with calculated values, and will show that instrumentation can be used to optimize project designs.

4:20 pm - 5:00 pm

Case History: City Center – Washington, D.C.
Irvin J. Ragsdale P.E., Clark Foundations

City Center is a 10 acre mixed-use development located at the former site of the old DC convention center. The first phase of the project will deliver more than 185,000 sf of retail space, 458 rental apartments, 216 condominiums, 520,000 sf of office space, and 1,555 below grade parking spaces. For this 60 feet deep excavation, over 400 driven soldier beams and more than 700 drilled tiebacks were installed as more than 500,000 cy of soil was excavated.

5:00 pm - 5:30 pm

Panel Discussion

5:30 pm - 6:45 pm

Welcome Cocktail Reception

Sponsored by:
Brayman Construction Corporation & TEI Rock Drills

Wednesday, November 14, 2012

7:00 am - 8:00 am

Breakfast

8:00 am - 8:15 am

Introduction and Welcome
Jonathan Bennett P.E., D.GE, Brayman Construction Corporation

8:15 am - 9:00 am

Keynote: Micropiles, Where is the Industry Headed?
Allen Cadden P.E., D.GE, Schnabel Engineering, Inc.

The micropile industry continues its advancement based on project experience, research, and code development. This growth occurs locally and around the world. This presentation will review some recent evolutions in the industry and provide a brief recap of the new trends or interesting experiences reported at the International Workshop on Micropile in Milan, Italy that will have recently completed.

9:00 am - 10:00 am

Structural and Geotechnical Design of Micropiles – Special Considerations and New Advancements
Terence Holman Ph.D., P.E., Geosyntec Consultants

This presentation focuses on special considerations related to the geo-structural design and performance of micropiles subjected to axial and lateral loading. Fundamental structural design of the micropile cross section, special characteristics of micropile materials, structure connections, and application of building codes will be discussed. Basic geotechnical design principles will be discussed and supplemented with real load transfer data obtained from instrumented micropile load tests.

10:00 am - 10:30 am

Networking Break in Exhibit Area

10:30 am - 11:20 am

LRFD for Micropiles
Jonathan Bennett P.E., D.GE, Brayman Construction Corporation

Load and Resistance Factor Design (LRFD) is the predominant design method utilized today for reinforced concrete and structural steel, and is the primary focus of the relatively new AASHTO LRFD Bridge Design Specifications. Historically, micropile design has been performed mainly with Allowable Stress Design (ASD) methodologies, and most of the design manuals and specifications in existence prior to 2008 were based on ASD. In recent ADSC / DFI Micropile Seminars, there have been a number of questions regarding

	the proper use of LRFD for micropiles. This presentation will cover the fundamentals of LRFD as it applies to micropiles, and will provide a comparison with ASD methodology.
11:20 am - 12:00 pm	Micropile Load Testing and Acceptance Criteria Thomas Richards Jr., P.E., D.GE, Nicholson Construction Company
	Load testing is an important part of almost every micropile project. Topics covered will include: typical procedures and equipment, new ASTM rules, strain gauges, acceptance criteria, and what is apparent elastic length?
12:00 pm - 1:00 pm	Lunch in Exhibit Area
1:00 pm - 1:40 pm	Design and Analysis of Micropiles for Lateral Loads Carlos Englert, Schnabel Engineering
	Micropiles must often be designed for lateral loading due to seismic loads, wind loading, or stabilization of existing slopes. This presentation will explain the procedure for analysis and design of micropiles for lateral loading. It will discuss practical procedures and important considerations and include several design examples.
1:40 pm - 2:30 pm	Seismic Mitigation Applications Morgan Eddy P.E., Steele Foundation
	Micropiles can be used to minimize the harmful effects of earthquakes and strong ground shaking. This presentation illustrates how micropiles can be implemented to control seismic related damage, summarizes seismic design procedures, and touches on the recent August 23, 2011 Virginia EQ and implications of current building codes.
2:30 pm - 3:00 pm	Networking Break in Exhibit Area

3:00 pm - 3:30 pm

Case History: Compton Creek Micropile Installation
Scott Dodds, Brayman Construction

Seven inch micropiles were installed to support a new bridge along Rt. 340 over Compton Creek in Rileyville, VA. During micropile installation and testing, extreme karstic conditions were encountered resulting in bond stress variations and installation difficulties. This presentation will discuss the design/site conditions encountered along with the efforts made to overcome these obstacles.

3:30 pm - 4:00 pm

Case History: Instant Micropiles - Just Add Water
Michael J. Marasa P.E., BDM, Hayward Baker Inc.

Micropiles are frequently used in low headroom or lightly loaded conditions, and their use through rock fills or water-borne applications is often overlooked. These three short case studies illustrate the adaptive use of micropiles in applications deemed too difficult for other techniques used under a variety of unique loading conditions with the common denominator of shallow groundwater or open water.

4:00 pm - 4:30 pm

Micropile Support of Three Undermined Buildings in Washington, D.C.
Fabian Lehmann Ph.D., P.E., Schnabel Foundation

In the early summer of 2008, construction began on a unique project close to the Capitol in Washington, DC. The project owner’s desire to increase its office space had to meet the strict requirements of the local regulations. Three buildings occupied the site, with two being designated as historic structures. By demolishing only non-historic buildings, one less floor level would have resulted, which was unacceptable to the owners. The solution was to preserve all three buildings, and excavate underneath them. The three buildings were supported with micropiles, allowing the below grade excavation and construction of a two level parking garage. To accomplish this task, in addition to a perimeter excavation support system, sixty micropiles and needle beams were installed in limited headroom and tight space conditions.

4:30 pm - 5:00 pm

Panel Discussion