



Delaware Valley Geo-Institute (DVGI) Board, 2021-22

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January 26, 2022

Ms. Krystina Scott

Geo-Institute of ASCE

1801 Alexander Bell Drive

Reston, VA 20191

Submitted via email to kscott@asce.org.

SUBJECT: Best Chapter Award – Geo-Institute

Dear Ms. Scott:

Delaware Valley Geo-Institute (DVGI) is pleased to submit our application and supporting information for consideration of the Best Chapter Award.

Since our inception in 2000, DVGI has been a very active and well attended chapter located in the Philadelphia Metropolitan Area. The bylaws and organizational structure developed by the inaugural DVGI Board of Directors has been used to guide the development of many other local GI groups across the country. One of the keys to our success in growing and advancing the geotechnical community has been the diversity of our members, which range from design engineers, contractors, material suppliers, university and research groups, and most importantly students. Each of these groups regularly presents at our monthly meetings which keeps members very engaged on the perspectives of our community. Under normal circumstance each session would start with a social hour before a plated dinner and subsequent presentation. The social hour provides an excellent venue for informal discussions and networking. We look forward to getting back to more in-person meetings but have adapted to monthly webinars to maintain engagement with our members during the pandemic.

The attached documents provide additional insights on why we think DVGI is deserving of the Best Chapter Award.

Sincerely,

Delaware Valley Geo-Institute

James M. Beideman, PE
DVGI Chair 2021-2023

Attachments:

Nomination Form

DVGI – Background Information

2021 April DVGI Newsletter

2021 November DVGI Newsletter

2021 DVGI Dinner Announcements (Attendance noted in red text)

G-I Inclusion & Diversity in Geotech Live Stream – Email Announcement

cc: Mr. Brad Keelor, American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA 20191-4400, bkeelor@asce.org (Submitted by email)



OFFICIAL AWARD NOMINATION FORM

Please complete this form for the GeoInstitute Chapter being nominated

Best Chapter Award

Award Name

Chapter Name: Delaware Valley Geo-Institute (DVGI)

Chapter regional location: Greater Philadelphia

Current year Chapter membership: ~400

Previous year Chapter membership: ~400

Number of meetings or events held this year (attach descriptions and attendance): 9

Supporting information should be attached to the application and include how the Chapter performed relative to the below lists:

- Communicating effectively with local Geo-practitioners (emails, web sites, newsletters)
- Holding well-attended regular meetings
- Providing quality presentations on current technical subjects
- Providing relevant ethics presentations
- Interacting with ASCE and other affiliated Organizations
- Interacting with and supporting G-I Graduate Student Organizations
- Providing scholarships to geotechnical students
- Supporting younger members
- Leading or participating in active K-12 outreach programs
- Hosting or participating in regional geotechnical seminars
- Sponsoring public service/awareness activities
- Championing sustainability principles and awareness
- Setting and achieving healthy membership goals

Nominated by: James Beideman

Name

A handwritten signature in blue ink, appearing to read "James Beideman", is written over a horizontal line. Below the line, the word "Signature" is printed.

Signature

jbeideman@kleinfelder.com

Phone: 610-656-4419

Email: _____ Date: 1/26/2022

Submit the completed nomination package in its electronic form to bkeelor@asce.org or by hard copy to: Brad Keelor, American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA 20191-4400

DVGI – Background Information



COMMUNICATING WITH LOCAL GEO-PRACTITIONERS

Newsletters: DVGI electronically distributes eight newsletters per year via email link to keep DVGI members and friends informed about upcoming meetings and events. Distribution is performed through our Google Groups contact list, an extensive list of members and friends taken by our meeting registration lists. Newsletters are also archived and can be viewed on the DVGI website.

Our newsletters also carry special features, including a “Member Spotlight” and published or pre-published articles submitted from our members. The “Member Spotlight” presents a monthly in-depth report in Q&A format on DVGI members who have made significant contributions to the geosciences and DVGI. Two examples of DVGI’s newsletters from April and November 2021 are attached to this application.

Website: DVGI maintains a website separate from ASCE-Philadelphia, however, all our meeting announcements are submitted to ASCE-Philadelphia in a form provided by ASCE for easy transitioning to their website and inclusion on their email blasts to the entire ASCE-Philadelphia membership and affiliate societies. Our standalone section website address is www.dvgi.org. Members can quickly find event registration, meeting schedules, scholarship applications, board member contact details, and other useful information, including the archive of our newsletters.

The DVGI website also includes a listing of past winners of the ASCE Philadelphia Geotechnical Engineer of the Year award which stretches back to 1985 with the inaugural recipient, the late Dr. Robert M. Koerner. In 2020 we started a DVGI Project of the Year, these winners are also highlighted on our website with relevant information about the project.

As the COVID-19 Pandemic continued our monthly meeting presentations continued in a virtual format. We recorded each webinar event and have made them available for viewing and downloading from our website.

Emails: Direct email distribution from DVGI to our members and friends is performed through our Google Groups contact list. All DVGI announcements, including monthly meeting announcements, scholarship solicitations, social and golf outing information, and information requests from our affiliate societies, including ASCE-Philadelphia, ASCE-Lehigh Valley, SEI Philadelphia, ASHE-DeIVal, are transmitted to our members and friends by this list. Each email gives the recipient the option to opt-out of future DVGI emails and the opportunity to request additional recipients be added.

DVGI – Background Information



HOLDING WELL-ATTENDED REGULAR MEETINGS

Under normal circumstances, DVGI hosts dinner meetings each month from September through May at a ballroom in the Valley Forge Casino in King of Prussia, Pennsylvania.

In 2021 as we continued to navigate through the COVID-19 restrictions, our monthly meetings continued virtually using Zoom. The average meeting attendance for 2021 was about 70 people with a high of 118 at our January 2021 webinar. As with our membership, the sessions are attended by a diverse group of design engineers, civil engineering students and professors, geotechnical contractors, and material suppliers. In addition to our monthly meetings, we were able to hold our annual golf outing in June. We had our largest turnout ever, which included 70 golfers who raised over \$4,000 for our student scholarship fund!

We are hopeful that DVGI will get back to in-person meetings to allow for the social hour that supports communication, friendship, and professional relationships. We will continue to look for opportunities for virtual meetings as these have provided an opportunity for others to participate who might not have been available to attend in person in the past.

PROVIDING QUALITY PRESENTATIONS ON CURRENT TECHNICAL SUBJECTS

DVGI provides the opportunity for its members to earn Professional Development Hours (PDHs) through physical and now virtual attendance at the Section's monthly meetings. DVGI carefully selects the topics and speakers to provide engaging technical presentations for our members. Speakers and topics at our recent events have included:

- Invited speakers from other areas of the country, solicited and selected by the DVGI Board.
- Abstracts solicited through our DVGI newsletter, GeoStrata publication, other ASCE Sections, G-I Chapters, other organizations, design, manufacture, and construction related to geotechnical engineering.
- Geo-Institute's 2021 Cross USA Lecture by Liz Smith, DFI's 2021 Travelling Lecturer Tom Richards, Geosynthetic Institutes George Koerner, as well as many other nationally recognized experts in geotechnical related problem-solving.
- DVGI's Project of the Year.
- Student and professional research topics.
- Recent local case histories.

Announcements for our 2021 meetings and presentation topics are attached to this submission.

The DVGI Board, in conjunction with SEI-Philadelphia, is also responsible for selecting the speaker for an annual joint-society meeting, typically held in January or February. This speaker is selected

DVGI – Background Information



based on their ability to discuss a geotechnically relevant topic while also appealing to the structural engineering audience.

Lastly, the DVGI Board is responsible for selecting a breakout session speaker for a joint-society meeting with ASCE-Philadelphia and SEI-Philadelphia typically held in April. The geotechnical-specific breakout session is selected for a topic that is appealing to a broader audience of engineering disciplines as breakout attendance is not restricted and allows cross-society attendance.

PROVIDING RELEVANT ETHICS PRESENTATIONS

Besides our regularly scheduled meetings and short courses, an ethics short course is typically scheduled every two years. Presenters have ranged from engineers to attorneys in the past. In addition to DVGI sponsored events, we look for opportunities related to ethics across other organizations and communicate to our members through our monthly newsletter and other email correspondence.

INTERACTING WITH ASCE AND OTHER AFFILIATED ORGANIZATIONS

As noted in the previous sections, DVGI co-host events with ASCE-Philadelphia, SEI Philadelphia, and approximately every other year, holds a joint meeting with ASCE-Lehigh Valley. These meetings allow our members to interact with other geo-professionals from outside our area to discuss chapter news, industry innovations, and future topics. We have also supported neighboring G-I Chapters by advertising their events to our members and attending them ourselves. On a national Geo-Institute level, many of our officers and members chair technical committees for Geo-Congress, Geo-Extreme, and other G-I national events.

DVGI interacts very closely with ASCE-Philadelphia including a monthly meeting where our ASCE liaison meets with the ASCE-Philadelphia Branch to share updates and discuss how we could assist each other and benefit our members. We provide our meeting information to ASCE-Philadelphia monthly and coordinate its inclusion in their email blasts and listing on their website and upcoming events calendar.

Also, we annually provide our nomination for the ASCE Philadelphia Section Geotechnical Engineer of the Year to the ASCE-Philadelphia awards committee. And this past year, we coordinated the launch, advertisement, and selection of the DVGI Project of the Year with the ASCE-Philadelphia awards committee.

DVGI – Background Information



INTERACTING AND SUPPORTING G-I GRADUATE STUDENT ORGANIZATIONS

DVGI takes pride in working with and supporting its local student geotechnical organizations, - particularly those at Drexel University, Temple University, Villanova University, Lafayette College, Widener University, and Delaware University G-I Chapters. We have provided annual donations supporting ASCE Geo-Wall competitions and scholarship opportunities to each of these student groups and offer DVGI monthly presentations to students at a significantly reduced rate for physical meeting attendance and free for virtual meeting attendance.

Interaction: DVGI provides opportunities for students to present their research at our events, and members also visit student groups to meet and share presentations. Each DVGI Board member acts as a liaison to an individual University Professor to provide information on scholarship applications, solicitation of DVGI Student Night presentations and poster sessions, and DVGI member presentations or talks.

Support: DVGI provides student registration for our in-person events at a significantly reduced cost and no cost at our virtual events. We have supported through donations, aid in the transportation, and materials procurement for our member Universities to attend and compete in the ASCE mid-Atlantic and National Geo-Wall competitions. DVGI awards multiple scholarships annually at our Student Night meeting on the campus of Villanova University, typically in March. Details are in the following section.

PROVIDING SCHOLARSHIPS TO GEOTECHNICAL STUDENTS

DVGI has a long-standing scholarship program that has grown over the years based on new fundraisers as well as supplemental funds from Philadelphia ASCE. DVGI has grown to be less reliant on funding from the ASCE-Philadelphia Section. Recent Fundraisers include chapter sponsors, newsletter advertising, golf outings, and dinner meetings. Our last three years of scholarship totals are:

- 2021 \$8,750
- 2020 \$7,500
- 2019 \$6,000

SUPPORTING YOUNGER MEMBERS

Younger members include recent graduates as well as local University undergraduate and graduate students. In addition to encouraging our younger members to stay active with DVGI events, our Board consists of several younger members.

DVGI – Background Information



ACTIVE K-12 OUTREACH PROGRAM

DVGI has participated in the Girls Exploring Tomorrow's Technology (GETT) Expo every year since 2016. GETT is an initiative of the Innovative Technology Action Group (ITAG), a program under the Chester County Economic Development Council. It is hosted by a K-12 school in the greater Delaware Valley. In previous years, the GETT Expo is an annual day-long event for girls in grades 5 through 10 and their parents to learn about career opportunities in a broad scope of STEM-related industries. The day is filled with exciting, enlightening, and experiential workshops led by successful women in STEM fields. In 2019, there were more than 1,100 people in attendance at the GETT Expo (including over 800 girls in grades 5 through 10 and more than 300 parents and educators). In 2020 and 2021, GETT has gone virtual: participating companies and organizations put together 5 to 10-minute videos that highlighted the exciting opportunities that exist in their organizations.

In previous years, DVGI has provided interactive activities demonstrating types and unit weights of traditional and lightweight fill materials, the effect of earthquakes on the strength of saturated sands, and a demonstration illustrating soil stratigraphy. Our 2020 DVGI's video (<https://www.youtube.com/watch?v=2lrCObelcJ4&t=2s>) featured women's career paths in the geo-industry and an explanation and demonstration of mechanically stabilized earth retaining walls. See www.gettpa.org for more information.

HOSTING OR PARTICIPATING IN REGIONAL GEOTECHNICAL SEMINARS

DVGI members have always been active participants in the ASCE Central PA Geotechnical Conference which was in September in Hershey, Pennsylvania. This event typically held every 18-months has been the long-standing geotechnical event for geotechnical engineers throughout Pennsylvania.

Also, DVGI Board members were active participants at GeoCongress held in Philadelphia in 2018, including members on the organizing committee, sponsors, exhibitors, as well as presenters at the conference. DVGI provided financial support to the conference as the host chapter for the event.

PUBLIC SERVICE/AWARENESS

DVGI collaborates with ASCE-Philadelphia, ASCE Delaware Valley, SEI Philadelphia, and ASCE Lehigh Valley to highlight educational events, including GETT events, golf outings, Geo-Wall competitions in our emails and at our events. Also, DVGI hosts a LinkedIn page to promote meetings and events.

DVGI – Background Information



SUSTAINABILITY

Presentations at monthly meetings have included sustainable materials presentations. Most presentations will highlight the sustainability features of a given design or case study and how it was integrated into a project.

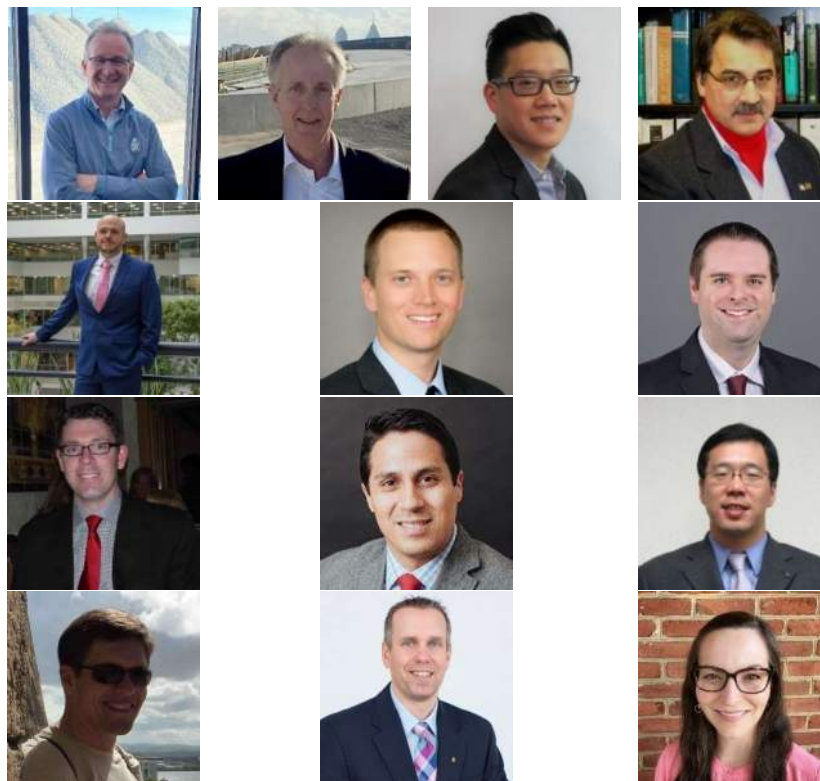
MEMBERSHIP GOALS

It is difficult to know how many members we have at DVGI outside of information we receive from the ASCE Philadelphia Chapter of who checks the G-I box on their application. Our current mailing list of over 400 people, which is about double the number we have from ASCE's count.

Membership and meeting attendance have increased over the years based on the level of technical content provided at each meeting. To increase membership and attendance, DVGI has started using social media (LinkedIn) to promote upcoming meetings and events.

2021-2022 Board of Directors – Delaware Valley Geo-Institute

It has been a while since we have all been together in person for a group photograph, but the current DVGI board of directors is shown below:



Left to right and top to bottom: Archie Filshill, PhD (ASCE Liaison), Bob Crawford, PE (Secretary/Sponsors), Conrad Cho, PE (Treasurer), Craig Calabria, PhD, PE (Board Advisor), Daniel Marano, PE - (Board Advisor), Eric Backlund, PE

DVGI – Background Information



(Scholarships/Student Night), Jeremy Brown, PE (Web Advisor), James Beideman, PE (Chair), Joseph Coe, PhD, PE (Academic Liaison), Lei Gu, PE - (Board Advisor), Neil Scafonas, PE (Newsletter), Russ Preuss, PE (Past Chair), Theresa Andrejack-Loux, PhD, PE (Vice-Chair)

DIVERSITY AND INCLUSION

DVGI is aligned with ASCE which supports and encourages the equitable opportunity for all people to participate within the civil engineering profession without regard to gender or gender identity, race, national origin, ethnicity, religion, age, sexual orientation, disability, political affiliation, or family, marital, or economic status.

In the past year, Conrad Cho, one of our board members participated Geo-Institute's Inclusion & Diversity in Geotech YouTube Live Series with host, Dr. Menzer Pehlivan. Conrad is a Korean American and a steering committee leader for his company's "Asians @ Langan" employee research group. See attached email announcement that provided additional information.



COVID-19 PANDEMIC

The common theme throughout the last year has been DVGI's response to the COVID-19 Pandemic. We were able to continue our monthly meetings in a virtual webinar format. While we miss the personal interaction of the in-person meetings, the webinars have been successful in keeping our group together and spreading technical information throughout the Delaware Valley geotechnical community. In fact, we have spread our knowledge sharing to an expanded footprint because of the digital access and even increased our average attendance. While we hope the pandemic is soon behind us, we have learned new ways to communicate with our members to keep them engaged and informed of the current state of the practice.



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DELAWARE VALLEY GEO-INSTITUTE

DVGI April 2021

Volume 21, Issue 4

Inside this issue:

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APRIL 2021 ASCE Joint Session Virtual Meeting

DVGI Dr. Miguel Pando, Ph.D., Associate Professor
SPEAKER: Drexel University
TOPIC: Geotechnical Aspects of Earthen Construction & Soil Based Construction Materials
DATE: Thursday, April 15, 2021—12:00 PM (Noon) to 1:00 PM
LOCATION: Webinar Format / Link to be Provided to all Registered

2020-2021 Board of Directors

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Past Chair

Archie Filshill, Ph.D.

Vice-Chair

Theresa Loux, Ph.D., P.E.

Treasurer

James M. Beideman, P.E.

Secretary

Eric Backlund, P.E.

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Web Advisor

Robert Crawford, P.E.

Academic Liaison

Joseph Coe, Ph.D.

ASCE Liaison

James A. McKelvey III, P.E.

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Jerry (Tse-Wei) Chen

Conrad Cho, P.E.

Board Advisors

Robert M. Sabanas, P.E.

William K. Petersen, P.E.

Craig Calabria, Ph.D., P.E.

As was our tradition from past years, the April meeting will be a Joint-Session hosted by ASCE and feature breakout sessions from DVGI, T&DI / WTS / CM Tech Group, and SEI. Prior to the breakout sessions, newly inducted ASCE Life Members will be featured and honored by ASCE-Philadelphia. Past-Presidents will also be recognized by the Section in appreciation of their service.

DVGI BREAKOUT PRESENTATION ABSTRACT:

Earthen construction and soil-based construction materials are used worldwide. Earthen construction encapsulates many varied forms of techniques and applications. As a vernacular solution, it has developed over many thousands of years in all inhabited continents of the world. In many rural regions of Africa, Asia, and South America, earthen construction remains the predominant building solution. Recently its popularity has increased as it offers the potential for a low carbon footprint and sustainability benefits through recycling and as an alternative to high energy materials such as fired masonry. The earthen materials including adobe and rammed earth are manufactured using local base soils and empirically based manufacturing techniques. These materials have rarely been studied using a geotechnical approach, and there is a general lack of recognition of the key mechanisms at work mechanically and hydraulically. In this presentation I review the geotechnical aspects of soil-based construction materials and a summary of recent and ongoing research with colleagues from the Structures and Heritage Research Group at the Catholic University, including the case history of an ancient massive earthen heritage structure of the Moche culture in Peru.

ABOUT THE SPEAKER:

Dr. Miguel Pando is an Associate Professor in geotechnical engineering at the Civil, Architectural, and Environmental Engineering Department at Drexel University. His research interests include soil-structure interaction, mitigation of natural hazards, sustainable geomaterials, and the role of geotechnical engineering in preservation of historical structures. Before joining Drexel University he was an associate professor in the Civil and Environmental Engineering Department at the University of North Carolina at Charlotte and prior to that he was a faculty member in the Civil Engineering Department at the University of Puerto Rico at Mayaguez. His academic studies include 3 years of BSCE courses at the National University of Asuncion, Paraguay, BSCE degree from the Javeriana University in Colombia, MSCE from the University of Alberta in Canada, and a PhD from Virginia Tech. Dr. Pando has over 25 years of geotechnical engineering consulting in Canada, Colombia, USA, Paraguay, Peru, and Puerto Rico, and is active in several professional organizations such as the ASCE, TRB, EERI, and the CGS.

We anticipate 1 PDH will be awarded for attendance



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March 2021 DVGI Virtual Meeting

STUDENT NIGHT!!!

Keynote: John J. Peirce III, PE—Peirce Engineering

This year's DVGI Student Night was a virtual event in accordance with public health guidelines in place at Villanova University. The program began at 6:30 PM with access to breakout rooms where attendees could visit and interact with each of the student poster presenters selected by the DVGI scholarship committee. This was followed at 7:00 PM by a keynote address given by Johnny Peirce of Peirce Engineering, Inc. Following the keynote address, there were two student presentations and the DVGI and ASCE Philadelphia Section (Humphrey Fund) Scholarship award presentations.

The Humphrey Fund was established in 1926 to support the Philadelphia Section, which was renamed the Richard L. Humphrey Memorial Fund in 1939. The purpose of this Fund is to promote the objective of the Philadelphia Section with special attention to the long-term health and growth of the Philadelphia Section, to promote educational opportunities on a yearly basis, and to support special activities not of a yearly nature and other special activities based upon long-term planning.

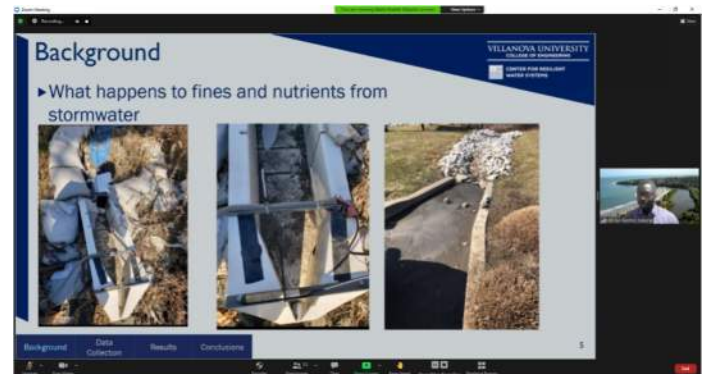
This year's DVGI Scholarship Winners won a total of \$8,750! The ASCE Philadelphia Section Humphrey Fund contributed \$4,000 and DVGI contributed \$4,750.

Scholarship Winners—Humphrey Fund:

- **Zakaria Abdul-Rashid (Villanova)** —\$2,000
- **Elaena Machado (Drexel)** —\$1,000
- **Mary Helen Baudinet (Villanova)** —\$500
- **Halie Every (Villanova)** —\$500

Scholarship Winners—DVGI Funds:

- **Aidy Ung (Lafayette)** —\$2,000
- **Rahaf Hasan (Rowan)** —\$1,000
- **Eric Hunstein (Lafayette)** —\$1,000
- **Timothy Osgood (Rowan)** —\$750



This year's student presenters were:

- **Abdul-Rashid Zakaria** from Villanova University – Green Stormwater Infrastructure
- **Rahaf Hasan** from Rowan University – Electrically Conductive Asphalt Pavement

Poster Presenters:

- **Ali Al Saadi** from University of Delaware—Numerical Study of the Column Spacing Effect on the Performance of the Geosynthetic Encased Stone Column for Embankment Application
- **Celal Alperen Kaya** from University of Delaware—Reducing Excessive Deformations on buried HDPE pipe under earthquake loading by using EPS geofabric: Numerical Study
- **Will Baker** from University of Delaware—Monitoring the Compaction Process Utilizing Custom Fabricated Accelerometers: A Preliminary Study





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ANNOUNCEMENTS

****DVGI PROJECT OF THE YEAR****

2nd Annual DVGI Geotechnical Project of the Year Competition

Submissions accepted now through May 1, 2021

Project of the Year to be selected in May 2021

Projects to be featured in DVGI Newsletters

Visit dvgi.org to apply now!

Submit Applications to Theresa Loux at tloux@aeroaggregates.com

2019-2020 DVGI Project of the Year **PennFirst Patient Pavilion** **Peirce Engineering**



Peirce Engineering was presented with the 2019-2020 Project of the Year Award for PennFirst Patient Pavilion.

(from L to R: John J. Peirce, III, PE; Jennifer Peirce Brandt, PE; John J. Peirce Jr, PE, D.GE.)

(Image Source: Theresa Loux)



ANNOUNCEMENTS

2020-2021 Board of Directors



Top Row (L—R): J. Beideman, R. Crawford, J. McKelvey, A. Filshill, W. Petersen, C. Calabria,
Bottom Row (L—R): R. Preuss, T. Loux, J. Coe, J. Brown, C. Cho, J. Chen. Not Pictured: E. Backlund, R. Sabanas

Chair

Russ Preuss, P.E.
(rpreuss@gfnet.com)

Secretary

Eric Backlund, P.E.
(Eric.Backlund@camposepc.com)

At-Large Directors

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Robert M. Sabanas, P.E.
(bsabanas@gmail.com)

ASCE Liaison

James A. McKelvey III, P.E.
(jaym@earthengineering.com)



ANNOUNCEMENTS

Upcoming Dates for 2021 Virtual Lunch Meetings and events are as follows:

- ♦ April 15, 2021, ASCE Joint Meeting: Miguel Pando, Drexel University
- ♦ May 18, 2021: Joe Krupansky, Gannett Fleming—SR 209 Rock Slope
- ♦ June 17, 2021: DVGI Golf Outing—Kimberton Golf Club, 9am Start

One PDH will be awarded for most meetings that you attend.

If you are interested in presenting at one of our monthly meetings or have ideas about potential speakers, please get in touch with a DVGI board member.



Geosynthetic Institute

Upcoming GSI Webinars for 2021

11:30 AM—1:00 PM (Eastern Time)

April 14	W-20	Geosynthetic Drainage Materials - Description
May 12	W-31	Testing of Geosynthetics - Description
June 9	W-34	Geosynthetics in Roadways - Description

(1.5 PDH each / upon completion of exam)

Topics, Dates and Registration at www.geosynthetic-institute.org/webinar.htm

HAVE DVGI PUBLISH YOUR ARTICLE, ADVERTISEMENT, OR JOB POSTING

- Do you have an interesting article on a project or individual in your organization that you would like to have published in the DVGI newsletter?
- Would you like to get the word out about a job opening, new venture, etc. to our membership via the newsletter?

Please submit your articles or news items for consideration in the next edition of the newsletter or get in touch about our reasonably priced advertising by contacting Jeremy Brown (jbrown@schnabel-eng.com).

ASCE/G-I Members:

Read past and present issues of Geo-Strata magazine online at www.asce.org



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ANNOUNCEMENTS



Save the Date! DVGI Golf Outing Benefitting the Scholarship Fund June 17, 2021

**Kimberton Golf Club
162 Ridge Road
Phoenixville, PA 19460
9:00 am Shotgun Start**

Registration Details to Follow





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PROJECT OF THE YEAR SUBMISSION

Project: I-95 Section BR2 Test Embankment

Client: Pennsylvania Department of Transportation (PennDOT)

Contractors: James J. Anderson Construction Company

Engineers: Sarah McInnes, PE (PennDOT) , Geoff Stryker, PE (STV Incorporated), Seth Mascho, PG (Susquehanna Civil, Inc.), Jason Taylor, PE, PG (Susquehanna Civil, Inc.), Michael Yang, PE (Michael Baker International)

Project Description: PennDOT is presently reconstructing the I-95 Betsy Ross Bridge Interchange in the Bridesburg section of Northeast Philadelphia. This \$880 million reconstruction includes replacement of the existing mainline, roadway and ramps. An innovative measure was undertaken to eliminate structures at several ramps and replace them with roadway on fill. Staged construction, constructability, settlement considerations and existing deep foundations complicated the design. The benefits of replacing these structures with roadway on fill include considerable savings of construction costs and future maintenance efforts. Additionally, the use of on-site regulated fill from the project in the embankments will eliminate the cost of regulated fill disposal.

Evaluation of the elastic settlement from the proposed embankment and retaining walls over the in-situ sandy and non-plastic silty soil is a key factor to determine whether ground improvement measures will be needed. Significantly different elastic modulus values can be obtained using typical estimation methods based on Standard Penetration Test (SPT) N-values, Cone Penetration Testing (CPT) or relative density. To accurately assess the site-specific settlement, an instrumented, ± 30 -foot high test embankment was constructed near a proposed I-95 ramp embankment. Instrumentation included settlement plates, inclinometers, extensometers and

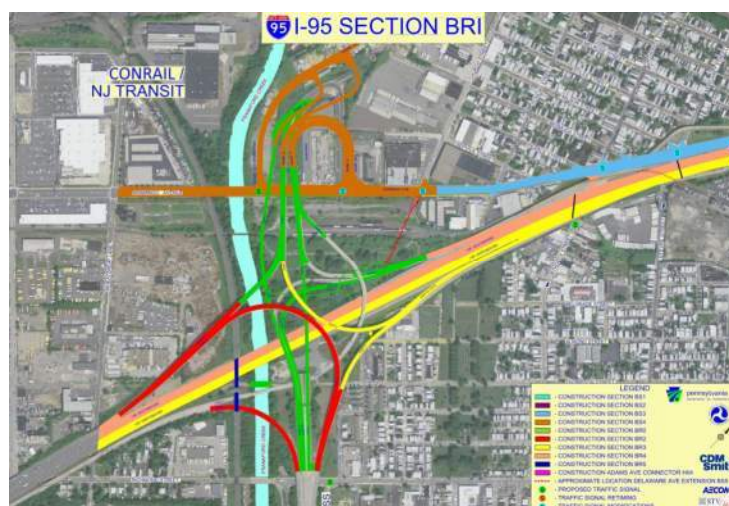


Figure 1—Ramp Locations

piezometers. Vertical settlement at the ground surface of the test embankment at selected locations inside and outside the embankment was monitored with settlement plates and settlement profiles. Inclinometers and extensometers were installed at different locations to identify the vertical and horizontal deflections at different depths. During the installation of the test embankment, the field observed settlement data was compared with the theoretical settlement values, which are calculated using soil moduli estimated from both the SPT and

Continued on the following page...

We will continue to feature Project of the Year Submissions in upcoming issues of the Newsletter. Please contact any of the board members with any general comments or questions. Board member email addresses can be found on Page 4.



PROJECT OF THE YEAR SUBMISSION (Continued)



Figure 2—Test Embankment Construction Adjacent to Proposed Ramp BH

CPT results. Based on the comparison, the estimated soil moduli that yield theoretical settlement results closest to the field data were used at other ramp locations with similar subsurface conditions within the same project corridor.

Geotechnical Challenges: Based on the results of the testing program, the subsurface conditions were found to be generally consistent. The soils are stratified with loose fill near the surface that is underlain by medium dense to very dense alluvium, an approximately 10-foot thick over-consolidated stiff alluvial lean clay, and very dense residuum and saprolite. Bedrock was encountered approximately 70 feet below the existing ground surface. PennDOT practice considers allowable total settlement for retaining wall and bridge structures as limited to one inch. Due to the relatively large loads associated with the embankments and retaining walls, preliminary settlement computations indicated settlements larger than one inch would occur during construction.

Total anticipated settlements larger than one inch may be permitted if settlement mitigation solutions are implemented. Current PennDOT practice requires deep foundations, ground improvement or column supported embankments if the anticipated total settlement is greater than three inches. A test embankment was constructed to determine if the actual settlements would align with the preliminary computations. The data obtained from the instrumented test embankment was used with modeling software to accurately define an elastic modulus of $0.45N_{60}$ to be used in common settlement equations.

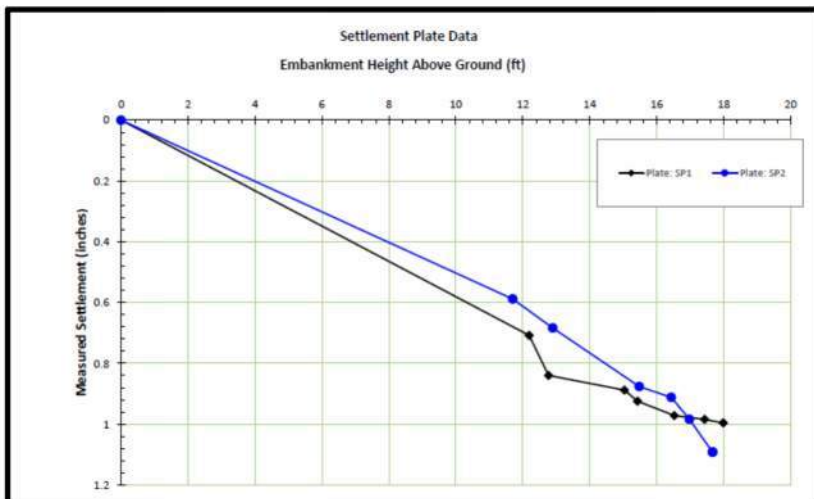


Figure 3—Observed Settlement with the Test Embankment

Continued on the following page...



PROJECT OF THE YEAR SUBMISSION (Continued)

The site-specific elastic modulus results indicated that the initially calculated settlements were much larger than what will occur during construction which allowed the replacement of existing bridge structure with roadway and embankment. Construction and monitoring of the test embankment resulted in a potential construction cost savings of approximately \$20 Million and a schedule savings of 6 months.

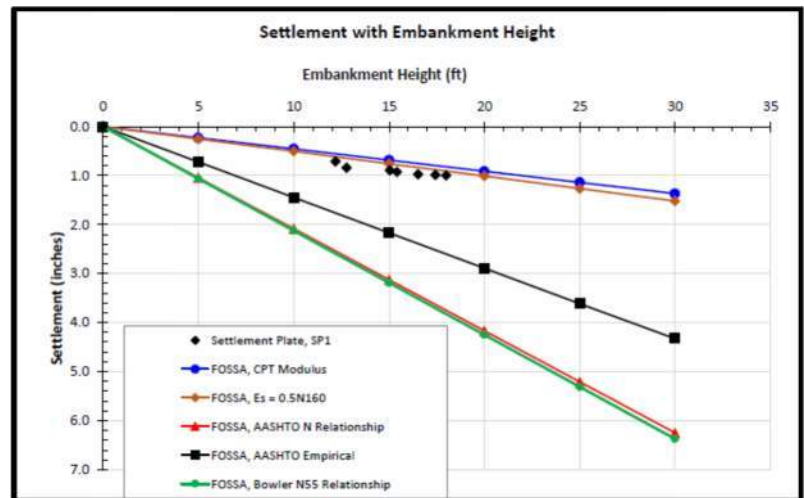


Figure 4—Comparison of Observed and Predicted Settlement at Center of Test Embankment

Soil Layer	Bottom Layer EL. (ft)	Soil Description	Average N Value	Standard Deviation of N	Assumed Unit Weight (pcf)	Poisson's Ratio	Various Modulus Values (ksi)			
							AASHTO N160	AASHTO Soil Type	Bowles N1s	CPT (Robertson)
1	~12.0	Silty Fine Sand	14	6.4	120	0.25	3.1	1.5	2	8
2	0	Sand with Silt and Gravel	43	19.3	125	0.35	11.6	10	6.8	18
3	-10	Lean Clay or Silt	6	5.5	105	0.32	0.5	1	0.7	5
4	-32	Silty Sand	19	1.25	125	0.35	2.3	4	1.6	17.5
5	-50 Bedrock	Silty Sand with Gravel	Split spoon refusal	Not calculated	130	0.4	20	20	20	20

Figure 5—Summary of Subsurface Conditions and Modulus Values from Different Approaches



PROJECT OF THE YEAR SUBMISSION

Project: uCity Square Development

Client: 3700 Lancaster—Villanova Property Group; Powell Elementary Science and Leadership Academy—Drexel with Quadrefoil Consulting (rep); Drexel Academic Tower—Wexford; uCity Square, and 2&3 uCity—Wexford / Quadrefoil Consulting (rep)

Contractors: 3700 Lancaster—C3; Powell Elementary Science and Leadership Academy—BiState Construction; Drexel Academic Tower—Turner; uCity Square, and 2&3 uCity—Turner

Structural Engineers: 3700 Lancaster—Alliance Structural Engineers; Powell Elementary Science and Leadership Academy—CVM; Drexel Academic Tower—Ballinger; uCity Square, and 2&3 uCity—Keast & Hood / David Chou and Associates

Submitted By: Elisha Brinker, Elisabeth Iannetti, Daniel Marano, PE (Pennoni)

Project Description: Wexford was ambitious and began a very large undertaking at 36th and Filbert Streets in Philadelphia. Since 2018, Pennoni has provided Geotechnical, Environmental, Construction Inspection, and Surveying Services for the flagship uCity Square Life Sciences Building (14-story building), the Powell Elementary Science and Leadership Academy (PSLAM) (2-story building), the Drexel Academic Tower (DAT) (14-story building), and 3700 Lancaster Avenue (6-story building). All 4 buildings are currently under construction at the same time with PSLAM being almost complete. DAT and 3700 Lancaster are now out of the ground and caissons are nearly complete at uCity Square. Pennoni has also performed explorations for 2&3 uCity Buildings, but construction has yet to begin.

This is a unique set of projects where we were able to provide services for the 6 structures at the same time and observe the complexity of the subsurface conditions over a relatively short distance, in particularly the variability of the Wissahickon Formation and its own set of unique challenges that it brings to the table.



Figure 1—Extents of the Geotechnical Exploration (Approx. 500,000 sf)

Geotechnical Challenges: We anticipated this project to be a very typical “Philadelphia” project, meaning that we were anticipating encountering approximately 10 feet of variable urban fill, some residual soils, then Mica Schist bedrock associated with the Wissahickon Formation. However, during the site explorations, we encountered the fill as

Continued on the following page...

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PROJECT OF THE YEAR SUBMISSION (Continued)



Figure 2—Conceptual Rendering of the Buildings once Complete (ZGF Architects)

normal, but then a gray clay confining layer, underlain by sands mixed with shells. We reviewed historic maps (1895) and found a creek mapped through the area. Once the confining layer was punctured, the groundwater rose to the approximate Warren Street elevation. The groundwater concern resulted in the performance of a pump test and modification of the buildings (i.e., reducing the number of below grade levels, and raising the basement elevation in several of them).

Another major challenge on the sites was the bedrock. We performed many borings to refusal on the sites and cored a large percentage of borings on the taller structures. With all the information we had regarding top of rock, we felt confident in our top-of-rock contour plan. The Wissahickon Formation was very challenging in that we encountered deep pockets of weathered rock, different variations of rock (Schistose Gneiss, Gneiss, Mica Schist, Chlorite Schist, etc.), thin layers of hard rock underlain by softer more decomposed rock, and near vertical dips.



Figure 3—Observed Settlement Panoramic photography taken from the bottom of uCity Square during caisson installation. In the background 3700 Lancaster (left), PSLAM (center), and DAT (right) are visible.

Continued on the following page...



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PROJECT OF THE YEAR SUBMISSION (Continued)



Figure 4—Panoramic photography of 1uCity site during caisson installation during winter. PSLAM (left) is visible.



Figure 5—PAI inspectors at the completion of the caissons at DAT.



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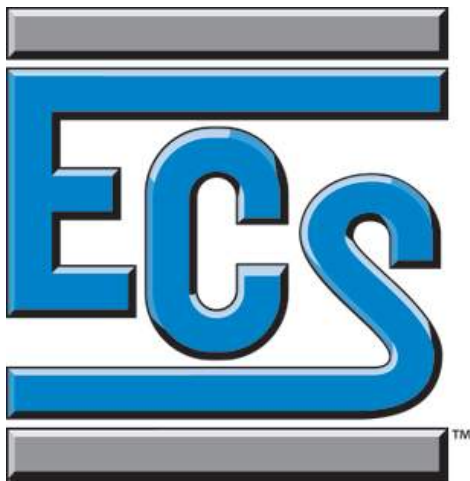
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DVGI November 2021

Volume 21, Issue 8

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November 2021 DVGI Virtual Meeting

SPEAKER: Thomas D. Richards, P.E., D.GE, Retired Chief Engineer and Consultant, Nicholson Construction Company.

TOPIC: The 2021-2022 DFI Traveling Lecturer:
Intro to Diaphragm Walls

DATE: Tuesday, November 16, 2021 – 12 PM (Noon) Presentation

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MEETING ABSTRACT:

Diaphragm walls are a method of creating a cast in-situ reinforced concrete retaining wall using the slurry supported trench method. As such, they are often known as slurry walls. However, the new and better term is "diaphragm walls." Concrete diaphragm slurry walls were first introduced in the United States in the 1960s and have found a niche in urban environments such as San Francisco, Boston, New York City and Washington, DC. Topics of this presentation include the application, construction process and design methods for diaphragm walls.

ABOUT THE SPEAKER:

Tom Richards is retired chief engineer and now consultant at Nicholson Construction Company. For over 30 years at Nicholson, he dealt with technical aspects of a multitude of specialized geotechnical projects using micropiles, anchors, soil nails, diaphragm walls and numerous grouting techniques. Richards' responsibilities included design, quality control, research, testing and instrumentation. He was active in numerous committees of DFI, ADSC, PTI and ASCE, leading to frequent commenting on FHWA and other industry documents. He is a past chair of DFI's Micropile Committee and the Anchored Earth Retention Committee, and remains active on a few DFI and ADSC committees. He is also a member of The Moles. In 2019, Richards was awarded DFI's Distinguished Service Award.



***** Please register through DVGI at www.dvgi.org before **Tuesday, November 16th, 2021**. A link to access the webinar will be provided by email to all registered prior to the meeting date. COST:\$10**

We anticipate 1 PDH will be awarded for attendance



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October 2021 DVGI Virtual Meeting

2021 DVGI PROJECT OF THE YEAR AWARD WINNER: GeoStructures, Inc., FMC Tower at Cira Center South

MEETING ABSTRACT:

Rock-socketed caisson design is governed by the side resistance and end bearing of the rock. In Philadelphia and many other regions, upper limits are set on the allowable design based on presumptive values together with unconfined compressive strength test results on intact rock specimens. When locally assigned upper limits are applied to the Wissahickon mica schist in Philadelphia, the length of the rock socket would be as long as 33 ft under the maximum design load of 19,900 kips for the FMC Tower—a 49-story building. In order to optimize the socket design, an Osterberg cell load test of a rock-socketed caisson was planned and successfully completed during the design phase. As a result, a significant reduction was achieved in the rock socket lengths by increasing the allowable side resistance from 10 to 15 tsf and the end bearing from 50 to 130 tsf. This case study illustrates the importance of understanding the unique aspects of the site geology such as degree of weathering, top of rock and metamorphic texture variations, in terms of local presumptive strengths, and how that justified performing a very expensive test even though the outcome could not be guaranteed. It also highlights the importance of foliation or schistosity and fracture dip angle in characterizing the rock mass, and their influence on the unconfined compressive strength of the rock cores. Without such an understanding, making the case for the load test would have proved very difficult during design.

ABOUT THE SPEAKER:

Bashar is the founder and president of GeoStructures, Inc. He has over 30 years of professional experience in geotechnical engineering for buildings, bridges and sensitive machines. His expertise and research interests are in foundation analysis and design and soil-structure interaction. Bashar served as the chief geotechnical engineer on many transportation and high-rise projects.


GeoStructures

Delaware Valley Chapter


Establishing rock mass parameters (Cont'd)

Unconfined compressive strength


- Average lab values:
 - Schist 1,700 psi
 - Gneiss 5,000 psi (3 times stronger than schist)
- Controlling factors in unconfined compressive strength:
 - Degree and spacing of schistose foliation vs. gneissic banding
 - The well-developed, micaceous foliation planes present a predefined weakness with its natural dip of 30° to 45° aligning with the maximum shear stress at failure.
- UCS is an index test and can be a *poor indicator* of the in situ behavior due to its tendency to exaggerate small scale features such as foliation, hairline cracks, and mineral alignment.




Typical Mica Schist




Failure along Foliation




Typical Mafic Gneiss



Failure across banding







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DVGI PROJECT OF THE YEAR

3rd Annual DVGI Geotechnical Project of the Year Competition
Submissions to be accepted through May 1, 2022
Project of the Year to be selected in May 2022
Projects to be featured in DVGI Newsletters

DVGI GEOTECHNICAL ENGINEER OF THE YEAR

2022 DVGI Geotechnical Engineer of the Year Nomination
Submissions to be accepted through January 15, 2022
Any questions and nomination materials may be directed to Bob
Crawford (bobc@jjaconstruction.com)



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2021-2023 TERM AT-LARGE DIRECTOR ELECTION

The DVGI Board has selected four candidates to fill At-Large Director seats for the upcoming 2021-2023 term. If you are a current ASCE Philadelphia Section member, and wish to participate in the election, please vote for three of the four candidates listed below in the Google Forms link:

<https://forms.gle/BGiyeBhKkf9WX7Bi8>

Please have your ASCE member number ready as you will be asked to provide it with your vote, and complete voting by November 30, 2021. We have included a short bio for each of the candidates list below. The Board will announce the new At-Large Directors at the January 2022 Webinar.

Daniel Marano, PE, Pennoni

Mr. Marano is Pennoni's Geotechnical Practice Leader for their Philadelphia and South Jersey region. He has over 18 years of practical field and design experience which includes: foundation and pavement analysis; forensic investigations, analysis and monitoring of deep foundations; ground modification; MSE wall and reinforced slope design and monitoring; dam exploration and stability analysis, and design and construction in Karst including sinkhole exploration and remediation. Mr. Marano has had the pleasure of assisting design teams launch the Comcast Technology Center, Darien Crossing Stormwater Retrofit, and uCity Square projects off the ground. Obtaining both his BS and MS from Drexel University, Mr. Marano hopes to continue to work collaboratively with the University on a personal interest research project regarding drilled shafts.

Why do you want to be a DVGI Board Member?

It would be an honor for Mr. Marano to join the DVGI Board to further his involvement in the geotechnical community, and help the profession reach new heights.



ANNOUNCEMENTS

2021-2023 TERM AT-LARGE DIRECTOR ELECTION

Lei Gu, PE, PMP, ENV SP, Senior Geotechnical Engineer, Gannett Fleming, Inc.

Lei Gu possesses over a decade of experience on a variety of geotechnical engineering projects throughout the country. Lei's experience includes geotechnical investigations, shallow/deep foundation analyses and testing, slope stability analyses, retaining wall and reinforced slope design, pavement design, and construction monitoring services for buildings, bridges and railroad facilities. Prior to joining Gannett Fleming, Lei worked as a Geotechnical Engineer at Terracon Consultants in North Carolina. While at Terracon Lei gained essential field and design experience with building foundations, retaining walls, and ground improvement techniques. Lei joined the Geotechnical Department in Gannett Fleming's Valley Forge, PA office in 2009. Lei has worked as part of a multidisciplinary team on several major infrastructure projects with Gannett Fleming including the Reconstruction of I-95 Girard Viaduct for PennDOT, the Raritan River Bridge replacement for NJ Transit, the Reconstruction of Northeast Extension and the I-95/I-276 Interchange for the Pennsylvania Turnpike Commission. During his time in Terracon and Gannett, Lei has worked on projects located in Pennsylvania, New Jersey, New York, North Carolina, South Carolina, Virginia, Nevada, California and Canada.

Lei holds Professional Engineer licenses in Pennsylvania and North Carolina. Lei earned his Bachelor's degree in Civil Engineering from Dalian University of Technology (China) and completed his Master's degree in Civil Engineering at the University of Cincinnati and Master's degree in Applied Geosciences at the University of Pennsylvania. Lei is married to a traffic engineer and has two children. In his free time, Lei enjoys traveling, skiing, running, coaching youth sports, and spending quality time with his family.

Why do you want to be a DVGI Board Member?

I have been attending DVGI meetings since 2009 and have always been impressed with the quality of the presentations and activities. I would like to take this opportunity to give back to the institute by joining the board so that I could be more actively involved in this reputable organization. If elected as a board member, I would like to further enhance and provide a dedicated online resource offering different ways to stay connected for our geo-professional community in these unprecedented times. In addition, I think that an annual field tour to a local project would be beneficial to our members to keep abreast of latest geotechnical construction techniques. Thank you for your time and support. I would appreciate the opportunity to contribute to DVGI in the future.



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2021-2023 TERM AT-LARGE DIRECTOR ELECTION

Neil Scafonas, P.E., Project Engineer, Geotechnical Engineering Department, AECOM

I received my engineering degree (B.S. in Engineering) from Drexel University in 2008 and received a degree in Finance from Penn State in 2000. My experience in Geotechnical Engineering includes construction inspection in numerous local refineries, PECO, and geotechnical investigations for local water companies. I am currently managing a nation geotechnical program for Amtrak. My interests and hobbies include Photography, Astronomy, and appreciation of music.

Why do you want to be a DVGI Board Member?

DVGI provides learning experiences to geotechnical engineers of all levels of experience. I learned so much from attending these meetings that I would like to put forth my time and energy to help others in the geotechnical engineering community learn as I have in the past 14 years. I would like to assist the board in any way I can.

Genevieve Smith, Project Engineer, ARM Group LLC

Education: B.S. and M.S. in Civil Engineering with a focus in Geotechnical Engineering from Virginia Tech

Work: Previously worked in the Geotechnical Section at the Corps of Engineers in Portland, OR; worked as a geotechnical engineer at Duffield Associates; worked as adjunct faculty at University of Delaware teaching the Soil Mechanics Laboratory; currently work as a project engineer at ARM Group in Marlton, NJ.

Interests/Hobbies: I enjoy reading to my kids (currently we're on book 4 of Harry Potter), trail running, rowing, and riding motorcycles.

Why do you want to be a DVGI Board Member?

I would like to be on the DVGI Board because I would like to become involved in the local professional community and build working relationships with other engineers. I have enjoyed maintaining the DVGI website for 10 years and enjoyed being a member years ago before I took time off from my career for my family. I would like to become involved with the organization again and would enjoy being able to participate as a Board Member.



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ANNOUNCEMENTS



Geosynthetic Institute

Upcoming GSI Webinars for 2021

11:30 AM—1:00 PM (Eastern Time)

(1.5 PDH each / upon completion of exam)

Topics, Dates and Registration at www.geosynthetic-institute.org/webinar.htm

December 8	W-24	Coal Combustion Residual - Description
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Upcoming Dates for 2021 Virtual Lunch Meetings and events are as follows:

- ♦ **January 18, 2022, Virtual Meeting:** Water Barrier Systems for Flood Protection using Geosynthetics - George R. Koerner, PhD, PE & CQA, Geosynthetic Institute (GSI)
- ♦ **February 15, 2022, Virtual Meeting:** I-95 Express Toll Lanes Landslide Stabilization - John Volk, AECOM
- ♦ **March 29, 2022, Virtual Meeting:** Student Night at Villanova

One PDH will be awarded for most meetings that you attend.

If you are interested in presenting at one of our monthly meetings or have ideas about potential speakers, please get in touch with a DVGI board member.

ASCE/G-I Members:

Read past and present issues of Geo-Strata magazine online at www.asce.org



ANNOUNCEMENTS

HAVE DVGI PUBLISH YOUR ARTICLE, ADVERTISEMENT, OR JOB POSTING

- Do you have an interesting article on a project or individual in your organization that you would like to have published in the DVGI newsletter?
- Would you like to get the word out about a job opening, new venture, etc. to our membership via the newsletter?

Please submit your articles or news items for consideration in the next edition of the newsletter or get in touch about our reasonably priced advertising by contacting Jerry Chen (jerry.chen@wsp.com).



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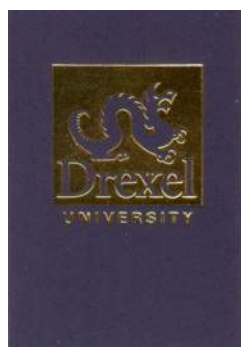
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**DELAWARE VALLEY GEO-INSTITUTE
JANUARY 2021 VIRTUAL MEETING
A JOINT PRESENTATION WITH SEI – PHILA.**



TOPIC: Scudder Falls Bridge Replacement Project

SPEAKER: Kevin M. Skeels, P.E – Assistant Chief Engineer for the DRJTBC

DATE & TIME: Tuesday, January 19th, 2021 @ 12:00 PM (Noon)

LOCATION: Virtual Presentation- A Link Will be Provided To All Registered Prior To The Event & One PDH Will Be Given For Verified Attendance

COST: General Admission \$10; Students Free

MEETING ABSTRACT:

The primary purpose of the Scudder Falls Bridge Project is to improve safety and provide congestion relief in the I-295 (formerly I-95) corridor between S.R. 0332 in Lower Makefield Township, Pennsylvania; and, Bear Tavern Road Exit 75 in Ewing Township, New Jersey. The Project consists of replacing the existing Scudder Falls bridge carrying I-295 over the Delaware River; reconstruction of the flanking I-295 and Taylorsville Road (PA) and Route 29 (NJ) interchanges; widening of approximately 2 miles of approach roadway in both Pennsylvania and New Jersey, including three (3) separate overpass structures carrying I-295 traffic, new noise barriers and ITS improvements. The new bridge consists of two crossing structures with three travel lanes in each direction, flanked by auxiliary lanes to accommodate traffic entering and exiting the highway from the adjacent interchanges; widened left shoulders for future Bus Rapid Transit considerations; and, a pedestrian/bicycle shared-use path contiguous to the upstream structure, which connects to the canal towpaths on either side of the river on separate approaches. Adjacent to the bridge, in Pennsylvania, is a new All Electronic Tolling (AET) facility consisting of a new operations building and overhead gantry to accommodate toll collection at prevailing highway speeds. The construction contract was awarded in January 2017 with substantial completion scheduled for December 2021 and Final completion in May 2022.

Kevin M. Skeels, P.E. is the Assistant Chief Engineer for the Delaware River Joint Toll Bridge Commission. In this role, he coordinates the planning and execution of the engineering activities associated with the design, construction and maintenance of bridges, highways and buildings; and, assists the Chief Engineer in the development and implementation of the Commission's Capital Program to preserve, protect, manage and enhance the Commission's asset base. Kevin has over 32 years of experience in highway and bridge design and construction industry, which includes previous employment at major national consulting engineering firms servicing both public and private sector clients in the planning, design and construction management of bridges, tunnels, highways, railroad and buildings infrastructure. He holds an A.A.S. from Westchester Community College in Valhalla, New York, and a B.S.C.E. from the Northeastern University in Boston, Massachusetts. Mr. Skeels is a member of the Civil Engineering Honor Society Chi Epsilon, and ASCE; and is a Registered Professional Engineer.

Please register through DVGI at www.dvgi.org before Friday, January 15th, 2021. A link to access the webinar will be provided by email to all registered prior to the meeting date.

DELAWARE VALLEY GEO-INSTITUTE

FEB. 2021 WEBINAR PRESENTATION



TOPIC: Soil Consolidation Using Prefabricated Vertical Drains (PVD's)

SPEAKER: George R. Koerner, Ph.D., P.E., Director – Geosynthetic Institute, Folsom, PA.

DATE: Tuesday, February 16th, 2021 – 12 PM (Noon) Presentation

WHERE: Webinar Format / Link Will Be Provided To All Registered Prior To The Webinar Date

COST: \$10 – One PDH Will Be Provided For Attendance

*****To Register Follow The Instructions At The End Of The Announcement*****

MEETING ABSTRACT:

Prefabricated vertical drains or PVDs, consist of a drainage core encapsulated by a geotextile which serves both as a filter and separator. They are typically 100 mm (4.0 in.) wide by 10 mm (3/8 in.) thick and are on spools of up to 300 m (1000 ft.) in length. Their use is to rapidly consolidate saturated fine grained foundation soils. At this point in time, they have completely replaced sand drains for such purposes. Most ground modification contractors are fully aware of the technology. The presentation will begin with calculating the installation stresses during various parts of the procedure. The geotechnical design process insofar as calculating the time for 90% consolidation will be presented transitioning from Terzaghi-to-Barron-to Hansbo methods. This is followed by four issues which are somewhat tenuous and remain to be clarified.

Lastly, a completely new issue of recognizing that PVD's will reinforce foundation soils by virtue of their intrinsic tensile strength is presented. This is illustrated in the context of a major failure which used sand drains. While the increase in FS-value is quite small, there are options presented to enhance the value.

ABOUT THE SPEAKER:

George R. Koerner is Director of the Geosynthetic Institute. He is in charge of laboratory accreditation, field certification and continuing education at the Institute. He also manages several research projects and has published over 350 technical papers in his 35-year association with polymers used in below ground construction. Dr. Koerner's Ph.D. is from Drexel University in Geotechnical Engineering. He is a registered professional engineer and a certified quality auditor. George has received many awards over the years. The most notable being IFAI's Environmental Technologies Award of Excellence 1995, ASCE's DVGI Geotechnical Engineer of the year in 2004, the title of ASTM Fellow in 2013 and GMA's first Koerner lecture in 2017 and named ASCE Fellow in 2020.

*** Please register through DVGI at www.dvgi.org before Friday, February 12th, 2021. A link to access the webinar will be provided by email to all registered prior to the meeting date.

DELAWARE VALLEY GEO-INSTITUTE

MARCH 2021 STUDENT NIGHT



TOPIC: VIRTUAL STUDENT NIGHT 2021 !!

SPEAKER: John J. Peirce, III, P.E. – Peirce Engineering, Inc., Phoenixville, PA.

DATE: Thursday, March 11th, 2021 – 6:30 PM Start

LOCATION: Webinar Format / Link Will Be Provided To All Registered Prior To The Webinar Date

TIME: 6:30 PM to 7:00 PM Poster Breakout Rooms
7:00 PM to 7:20 PM Keynote Address
7:20 PM to Close Student Presentations & Scholarship Awards

COST: Free

MEETING ABSTRACT:

This year's DVGI Student Night will be a virtual event in accordance with public health guidelines in place at Villanova University.

The program will begin on-line at 6:30 PM with access to breakout rooms where you can visit and interact with each of the student poster presenters selected by the DVGI scholarship committee. This will be followed at 7:00 PM by a keynote address given by Johnny Peirce of Peirce Engineering, Inc. Following the keynote address there will be two short student presentations and the DVGI Scholarship award presentations. This year's student presenters will be:

Abdul-Rashid Zakaria from Villanova University – Green Stormwater Infrastructure

Rahaf Hasan from Rowan University – Electrically Conductive Asphalt Pavement

If you wish to attend, please register through DVGI at www.dvgi.org before Tuesday, March 9th, 2021. A link to access the webinar will be provided by email to all registered prior to the meeting date.

DELAWARE VALLEY GEO-INSTITUTE APRIL 2021 VIRTUAL MEETING



DATE: Thursday, April 15th, 2021 – 12 PM (Noon) to 1 PM
WHERE: Webinar Format (Zoom) / Link Will Be Provided To All Registered Prior To The Webinar Date
COST: Free For ASCE Members, \$15 For Non-Members.

*****To Register Follow The Instructions At The End Of The Announcement*****

MEETING ABSTRACT:

As was our tradition from past years, except for it now being a virtual event, the April meeting will be a Joint-Session hosted by ASCE and feature three breakout sessions. Prior to the breakout sessions, newly inducted ASCE Life Members will be featured and honored by ASCE-Philadelphia. Past-Presidents will also be recognized by the Section in appreciation of their service and assistance.

We anticipate 1 PDH will be awarded for attendance at any of the following three technical breakout sessions.

This year's breakout session topics and presenters will be:

DVGI Breakout:

“Geotechnical Aspects of Earthen Construction & Soil-Based Construction Materials” presented by Miguel Pando, Ph.D., Associate Professor in Geotechnical Engineering, Drexel University.

T&DI / WTS/ CM Tech Group Breakout:

“SEPTA Market-Frankford Line 5th Street Station” presented by Jack McElwee, P.E., Senior Program Manager, SEPTA and Erica Antoine, P.E., Engineer-of-Record, Burns Engineering, Inc.

SEI Breakout:

“Toward a Master Plan for the U.S. Capital- The Capitol Visitor Center Construction” presented by Luca Barison, Sr. Vice President of Preconstruction For Major Projects, Nicholson Construction Company and Giovanni Bonita, Ph.D., P.E., P.G., Senior Vice President & Senior Principal, GEI Consultants, Inc.

All registrations should be completed through ASCE-Philadelphia Section by [Clicking Here](#). Current ASCE members can register for FREE, all others are \$15. Registrations must be received by Wednesday, April 14th, 2021.

DELAWARE VALLEY GEO-INSTITUTE

APR. 2021 BREAKOUT DETAILS



TOPIC: Geotechnical Aspects of Earthen Construction & Soil-Based Construction Materials

SPEAKER: Miguel Pando, Ph.D., Associate Professor in Geotechnical Engineering at the Civil, Architectural, and Environmental Engineering Department, Drexel University, Philadelphia, PA

PRESENTATION ABSTRACT:

Earthen construction and soil-based construction materials are widely used worldwide. Earthen construction encapsulates many different and varied forms of techniques and applications. As a vernacular solution, it has developed over many thousands of years in all inhabited continents of the world. In many rural regions of Africa, Asia and South America, earthen construction remains the predominant building solution. Recently their popularity has increased as they offer the potential for a low carbon footprint and sustainability benefits through recycling and as an alternative to high energy materials such as fired masonry. The earthen materials including adobe and rammed earth are manufactured using local base soils and empirically based manufacturing techniques. These materials have rarely been studied using a geotechnical approach, and there is a general lack of recognition of the key mechanisms at work mechanically and hydraulically. In this presentation I present a review geotechnical aspects of soil-based construction materials and a summary of recent and ongoing research with colleagues from the Structures and Heritage Research Group at the Catholic University including the case history of an ancient massive earthen heritage structure of the moche culture in Peru.

ABOUT THE SPEAKER:

Dr. Miguel Pando is an Associate Professor in geotechnical engineering at the Civil, Architectural, and Environmental Engineering Department at Drexel University. His research interests include soil-structure interaction, mitigation of natural hazards, sustainable geomaterials, and the role of geotechnical engineering in preservation of historical structures. Before joining Drexel University he was an associate professor in the Civil and Environmental Engineering Department at the University of North Carolina at Charlotte and prior to that he was a faculty member in the Civil Engineering Department at the University of Puerto Rico at Mayaguez. His academic studies include 3 years of BSCE courses at the National University of Asuncion, Paraguay, BSCE degree from the Javeriana University in Colombia, MSCE from the University of Alberta in Canada, and a PhD from Virginia Tech. Dr. Pando has over 25 years of geotechnical engineering consulting in Canada, Colombia, USA, Paraguay, Peru, and Puerto Rico and is active in several professional organizations such as the ASCE, TRB, EERI, and the CGS.

DELAWARE VALLEY GEO-INSTITUTE MAY 2021 WEBINAR PRESENTATION



TOPIC: Case Study: S.R. 209, Section RSM, Rock Slope Mitigation Project, Jim Thorpe, PA

SPEAKER: Joe Krupansky, P.G., Principal Geologist, Gannett Fleming, Inc., Audubon, PA.

DATE: Tuesday, May 18th, 2021 – 12 PM (Noon) Presentation

WHERE: Webinar Format / Link Will Be Provided To All Registered Prior To The Webinar Date

COST: \$10 – One PDH Will Be Provided For Attendance

*****To Register Follow The Instructions At The End Of The Announcement*****

MEETING ABSTRACT:

U.S. Route 209 traverses the southeast side of a narrow, steep-sided valley carved by the Lehigh River just south of the Borough of Jim Thorpe, Pennsylvania. During original roadway construction, a nearly vertical rock cut was required on the uphill side of the roadway. Weathering and erosion from precipitation events, freeze-thaw cycles, and root prying caused the rock slope to become unstable over time. Consequently, this section of S.R. 209 had experienced regular rockfall events over the past several decades.

To remediate this 2,800-foot-long rockfall-hazard-prone section of roadway, Gannett Fleming evaluated the nature of the failures occurring along the exposed rock cut and designed a stabilization treatment program to protect the traveling public from future rockslide and rockfall events. Stabilization and protective measures included rock slope scaling, pattern rock anchors, high-tensile strength steel wire mesh, a hybrid rockfall barrier and wire mesh drapery system, horizontal drains, and a custom-designed rock netting system for in-place stabilization of a hazardous rock mass located more than 125 feet above the roadway. This presentation will focus on the unique challenges and lessons learned throughout design and construction of this complex project.

ABOUT THE SPEAKER:

Joe serves as a principal geologist in the Valley Forge, Pennsylvania, office of Gannett Fleming. With more than 20 years of geotechnical engineering and engineering geology experience, Joe specializes in the design and remediation of geologic hazards including landslides, rockfalls, and debris flows; and mitigation of cavities and sinkholes associated with karst environments. Joe is a registered professional geologist in Pennsylvania, New York, and North Carolina and holds a Bachelor of Science in applied physics with a concentration in geosciences from Indiana University of Pennsylvania, and a Master of Science degree in geology from West Chester University of Pennsylvania. Joe currently serves on the board of directors for the Association of GeoHazard Professionals (AGHP).



*** Please register through DVGI at www.dvgi.org before Friday, May 14th, 2021. A link to access the webinar will be provided by email to all registered prior to the meeting date.

Total Number of Registrations - 70

ANNUAL DVGI GOLF OUTING



You are invited to participate in the annual Delaware Valley Geo-Institute Golf Outing on June 17, 2021. Proceeds from the outing will benefit the scholarship fund. This event is an excellent opportunity for you to demonstrate your continued support for the DVGI.

Come join us to get some fresh air, network, and have a good time!

Who: ASCE and DVGI Members, Friends, Clients
All Skill Levels Welcome
Prizes for Best and Most Honest Team Scores

Where: Kimberton Golf Club
162 Ridge Road
Phoenixville, PA 19460

When: Thursday, June 17, 2021
9:00 am Shotgun Start

Cost: Golf Registration: \$100/person
Cost includes Cart along with Food and Drink

Sponsorships: Individual Hole \$125
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Registration: Online at www.DVGI.org

DELAWARE VALLEY GEO-INSTITUTE SEPTEMBER 2021 WEBINAR PRESENTATION



TOPIC: ASCE Geo-Institute Cross-USA Lecture Series 2020-2021
"Lessons Learned From Failures"

SPEAKER: Liz Smith, P.E., G.E., D.GE, M. ASCE, Terracon Consultants, Inc.,
Austin, Texas

DATE: Tuesday, September 21, 2021 – 12 PM (Noon) Presentation

WHERE: Webinar Format / Link Will Be Provided To All Registered Prior To The
Webinar Date

COST: \$10 – One PDH Will Be Provided For Attendance

*****To Register Follow The Instructions At The End Of The Announcement*****

MEETING ABSTRACT:

The presenter will briefly review retaining wall design considerations, and then present several case histories of retaining wall and slope failures. From the histories, you will learn:

- Retaining wall basics
- Why construction sequence matters
- What happens when things go wrong
- Why failures happen
- How to prevent failures

ABOUT THE SPEAKER:



Elizabeth (Liz) Smith is a Senior Principal and National Transportation Program Manager at Terracon Consultants Inc. She has over 35 years' experience, including significant expertise related to geotechnical engineering for design-build transportation projects and slope and retaining wall failure evaluations and remediation. She is experienced in developing geotechnical design recommendations using AASHTO LRFD Bridge Design Specifications for foundations and retaining walls, and has successfully managed several complex geotechnical design-build projects with geotechnical fees exceeding \$12 million.

She is a member of ASCE and the G-I's Deep Foundation Committee, ADSC, DFI and its Drilled Shafts Committee, and the TRB and its Committees AFH15 and AFS30. She is also a member and past chair of Virginia Tech's CEE Alumni Board and a member of Virginia Tech's CEE Academy of Distinguished Alumni.

***** Please register through DVGI at www.dvgi.org before Friday, September 17, 2021. A link to access the webinar will be provided by email to all registered prior to the meeting date.**

DELAWARE VALLEY GEO-INSTITUTE

OCTOBER 2021 WEBINAR

PRESENTATION



TOPIC: 2021 DVGI PROJECT OF THE YEAR AWARD WINNER:
GeoStructures, Inc., FMC Tower at Cira Center South

SPEAKER: Bashar S. Qubain, Ph.D., P.E., President & Chief Engineer,
GeoStructures, Inc.

DATE: Tuesday, October 19, 2021 – 12 PM (Noon) Presentation

WHERE: Webinar Format / Link Will Be Provided To All Registered Prior To The
Webinar Date

COST: \$10 – One PDH Will Be Provided For Attendance

*****To Register Follow The Instructions At The End Of The Announcement*****

MEETING ABSTRACT:

Rock-socketed caisson design is governed by the side resistance and end bearing of the rock. In Philadelphia and many other regions, upper limits are set on the allowable design based on presumptive values together with unconfined compressive strength test results on intact rock specimens. When locally assigned upper limits are applied to the Wissahickon mica schist in Philadelphia, the length of the rock socket would be as long as 33 ft under the maximum design load of 19,900 kips for the FMC Tower—a 49-story building. In order to optimize the socket design, an Osterberg cell load test of a rock-socketed caisson was planned and successfully completed during the design phase. As a result, a significant reduction was achieved in the rock socket lengths by increasing the allowable side resistance from 10 to 15 tsf and the end bearing from 50 to 130 tsf. This case study illustrates the importance of understanding the unique aspects of the site geology such as degree of weathering, top of rock and metamorphic texture variations, in terms of local presumptive strengths, and how that justified performing a very expensive test even though the outcome could not be guaranteed. It also highlights the importance of foliation or schistosity and fracture dip angle in characterizing the rock mass, and their influence on the unconfined compressive strength of the rock cores. Without such an understanding, making the case for the load test would have proved very difficult during design.

ABOUT THE SPEAKER:



Bashar is the founder and president of GeoStructures, Inc. He has over 30 years of professional experience in geotechnical engineering for buildings, bridges and sensitive machines. His expertise and research interests are in foundation analysis and design and soil-structure interaction. Bashar served as the chief geotechnical engineer on many transportation and high-rise projects.

***** Please register through DVGI at www.dvgi.org before Friday, October 15, 2021. A link to access the webinar will be provided by email to all registered prior to the meeting date.**

DELAWARE VALLEY GEO-INSTITUTE NOVEMBER 2021 WEBINAR PRESENTATION



- TOPIC:** The 2021-2022 DFI Traveling Lecturer:
Intro to Diaphragm Walls
- SPEAKER:** Thomas D. Richards, P.E., D.GE, Retired Chief Engineer and
Consultant, Nicholson Construction Company.
- DATE:** Tuesday, November 16, 2021 – 12 PM (Noon) Presentation
- WHERE:** Webinar Format / Link Will Be Provided To All Registered Prior To The
Webinar Date
- COST:** \$10 – One PDH Will Be Provided For Attendance

*****To Register Follow The Instructions At The End Of The Announcement*****

MEETING ABSTRACT:

Diaphragm walls are a method of creating a cast in-situ reinforced concrete retaining wall using the slurry supported trench method. As such, they are often known as slurry walls. However, the new and better term is “diaphragm walls.” Concrete diaphragm slurry walls were first introduced in the United States in the 1960s and have found a niche in urban environments such as San Francisco, Boston, New York City and Washington, DC. Topics of this presentation include the application, construction process and design methods for diaphragm walls.

ABOUT THE SPEAKER:



Tom Richards is retired chief engineer and now consultant at Nicholson Construction Company. For over 30 years at Nicholson, he dealt with technical aspects of a multitude of specialized geotechnical projects using micropiles, anchors, soil nails, diaphragm walls and numerous grouting techniques. Richards’ responsibilities included design, quality control, research, testing and instrumentation. He was active in numerous committees of DFI, ADSC, PTI and ASCE, leading to frequent commenting on FHWA and other industry documents. He is a past chair of DFI’s Micropile Committee and the Anchored Earth Retention Committee, and remains active on a few DFI and ADSC committees. He is also a member of The Moles. In 2019, Richards was awarded DFI’s Distinguished Service Award.

***** Please register through DVGI at www.dvgi.org before Friday, November 12, 2021. A link to access the webinar will be provided by email to all registered prior to the meeting date.**

James Beideman

From: 'Robert Crawford' via DVGI ASCE <dvgi-asce@googlegroups.com>
Sent: Thursday, April 15, 2021 8:27 AM
To: dvgi-asce@googlegroups.com
Subject: DVGI Announcement - G-I Inclusion & Diversity In Geotech Live Stream

External Email

Hi DVGI Members & Friends,

DVGI Board member Conrad Cho is joining Dr. Menzer Pehlivan for this month's edition of the Inclusion & Diversity In Geotech series presented by the Geo-Institute of ASCE. The episode will be presented virtually at 2PM on Tuesday, April 20th. If you would like join and watch, or better, be part of the conversation, please register at the event link below.



Please join the Geo-Institute for the next episode of our Inclusion and Diversity LIVE series! Our host Menzer Pehlivan, of Jacobs and Dream Big fame, will be joined by Conrad Cho of Langan- they will discuss topics surrounding inclusion & diversity in the geotechnical field. Join the conversation on April 20th, at 2PM ET by registering here: <https://www.eventbrite.com/e/145891510435>

Conrad Cho is a geotechnical project manager at Langan in Philadelphia, PA. His experience includes projects in New York, New Jersey, Delaware and the Greater Pennsylvania Area. His projects have ranged from large to small, residential developments, city towers, neighborhood retail centers, commercial/industrial warehouses, parking garages, as well as medical and school facilities. He received his undergraduate degree from The Cooper Union and a master's degree from Virginia Tech. He is a licensed professional engineer in the Commonwealth of Pennsylvania.

Conrad is a board member of the Delaware Valley Geo-Institute and serves as an outside industry advisor to the Delaware Valley Association of Structural Engineers Younger Members Group.

Conrad is Korean American and a proud steering committee leader of the newly formed Asians @ Langan employee resource group at his firm.



Robert Crawford, P.E.
Web Site Advisor

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