



## Amr Helal, PH.D., P.E., PMP

Project Manager · Geotechnical and Civil Engineering

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### Professional Profile

Dr. Helal is a licensed civil engineer with over 15 years of experience in civil/geotechnical engineering between academic and industry exposure. He is experienced in geotechnical lab and field testing, soil-structure interaction, foundation performance in expansive and collapsible soils, geophysical testing, slope stability analysis, geotechnical numerical modeling, and risk analysis using probabilistic approaches. As part of his PhD, he performed numerical modeling to study the effect of storm cycles on the performance of embankment structures such as dams and levees. He has worked on several geotechnical projects funded by agencies such as: ALDOT, NC DOT and The Department of Homeland Security.

Dr. Helal's areas of expertise include, but are not limited to, the following areas:

- Geotechnical lab and field testing, preparing proposals and geotechnical reports, and tackling various geotechnical problems.
- Expansive and collapsible soils analysis and mitigation, including foundation performance.
- Geophysical modeling and analysis, including electrical resistivity, ground-penetrating radar, electromagnetic methods, and seismic reflection/refraction.
- Groundwater monitoring, sampling, and modeling.
- Slope stability monitoring and modeling.
- Numerical modeling using PLAXIS 2D, 3D, Slope/w, Apile, Lpile, Slide, Settle3D, MSEW and GRLWEAP.
- Risk analysis and probabilistic approaches.

### Academic Credentials & Professional Honors

Ph.D., Civil Engineering, North Carolina State University, 2017

M.S., Civil Engineering, University of Alabama in Huntsville, 2012

B.S., Civil Engineering, Mansoura University, Egypt, 2008

### Licenses and Certifications

Licensed Professional Engineer, Texas, #135566

Licensed Professional Engineer, Colorado, #0056836

Licensed Professional Engineer, North Carolina, #050408

Licensed Professional Engineer, Washington, #22025962

Licensed Professional Engineer, Utah, #14020824-2202

Licensed Project Management Professional (PMP), #321301

## Prior Experience

Manager of Forensic Engineering – CO, Bryant Consultants, 2023-2024  
Project Engineer, Bryant Consultants, 2021 –2023  
Staff Engineer, Bryant Consultants, 2019 –2021  
Graduate Engineer, Bryant Consultants, 2018-2019  
Staff Geotechnical Engineer, Dulles Geotechnical and Materials Testing Services, 2017-2018  
Graduate Research/Teaching Assistant, Department of Civil, Construction and Environmental Engineering, North Carolina State University, 2013 –2017  
Graduate Research/Teaching Assistant, Department of Civil and Environmental Engineering, University of Alabama in Huntsville, 2011 –2012  
Graduate Research/Teaching Assistant, Department of Civil Engineering, Mansoura University, Egypt, 2008 –2010

## Professional Affiliations

American Society of Civil Engineers (ASCE)  
Geo-Institute (G-I) of the American Society of Civil Engineers  
International Society of Soil Mechanics Geotechnical Engineering (ISSMGE)  
Colorado Association of Geotechnical Engineers (CAGE)  
The Education Committee of ASCE Forensic Engineering Division

## Publications

Amr Helal, Kourosh Tamizdoust, John T. Bryant, Rendon Reith. The Coupled Thermo-Hydro-Mechanical Numerical Analysis for The Estimation of Active Zone and Free-Field Heave in Expansive Natural Clay and Bedrock. DFI 48th Annual Conference 2023.

Mohamed Ashour, Amr Helal. Pre-Liquefaction and Post-Liquefaction Responses of Axially Loaded Piles in Sands. International Journal of Geomechanics, American Society of Civil Engineers, 2017.

Victoria Bennett, Cathleen Jones, David Bekaert, Jason Bond, Amr Helal, Joel Dudas, Mohammed Gabr; and Tarek Abdoun. Deformation Monitoring for the Assessment of Sacramento Delta Levee Performance. Geo-Risk 2017.

Victoria Bennett, Chung Nguyen, Tarek Abdoun, Amr Helal, Mohammed Gabr, Cathleen Jones, David Bekaert and Joel Dudas. Use of remote-sensing deformation monitoring for the assessment of levee section performance limit state. 19th International Conference on Soil Mechanics and Geotechnical Engineering, ICSMGE, Seoul, Korea, 2017.

Amr Helal, Victoria Bennett, Mo Gabr, Roy Borden, and Tarek Abdoun. Monitoring and Modeling of Peat Decomposition in Sacramento Delta Levees. Geotechnical Frontiers, Orlando, Florida, 2017.

Amr Helal. Analysis of Earth Embankment Structures using Performance-based Probabilistic Approach including the Development of Artificial Neural Network Tool. A Ph.D. dissertation, Civil Engineering Department, North Carolina State University, Raleigh, North Carolina, 2017.

Mohammad Hasan, Amr Helal and Mo Gabr. Developing a Graphical User Interface to Automate the Estimation and Prediction of Risk Values for Flood Protective Structures using Artificial Neural Network. American Geophysical Union, Fall Meeting 2014.

Mohamed Ashour, Amr Helal. Contribution of Vertical Skin Friction to the Lateral Resistance of Large Diameter Shafts. Journal of Bridge Engineering, ASCE, 2014.

Mohamed Ashour, Amr Helal and Hamed Ardalan. Upgrade of axially loaded pile-soil modeling with the implementation of LRFD design procedure. Prepared for Alabama. Dept. of Transportation (ALDOT) Contract No. 930-769., 2012.

Amr A Helal. Axially Loaded Pile Behavior in Sand with/without Limited Liquefaction. Thesis submitted for Master Degree of Science in Civil Engineering, The Department of Civil and Environmental Engineering, The University of Alabama in Huntsville, 2012.