



SPECIALISTS IN GEOTECHNICAL & FOUNDATION ENGINEERING

# Statement of Qualifications

May 2021



JOHN JAMES AUDUBON BRIDGE - New Roads, Louisiana



CHRISTOPHER S. BOND BRIDGE - Kansas City, Missouri

## GEOTECHNICAL



Columbus Crew Stadium Entrance

## INNOVATIVE



PTTP TRANSMISSION LINE - Salt Lake City, Utah

## SOLUTIONS

## ***DBA Technical Capabilities***

Dan Brown and Associates specializes in geotechnical and foundation engineering, with emphasis on problem solving relating to Deep Foundations, Earth Retention Systems, Slope Stabilization Methods, and Earthquake Engineering as discussed below and included on the Experience Summaries.

Our services for **Deep Foundations** include design and construction recommendations for:

- Drilled Shafts (Conventional and Base Grouted)
- Auger Cast-in-Situ Piles (Conventional CFA and Drilled Displacement Piles)
- Micropiles
- Driven Piles

Deep foundation expertise includes design and evaluation of load test programs, and evaluation of foundation installation issues that may require repair or redesign of the deep foundation system.

DBA's **Earth Retention System** expertise includes design and construction recommendations for different types of earth retention structures including:

- Mechanically stabilized earth (MSE) walls
- Sheet pile walls
- Soldier pile and lagging walls
- Secant and tangent pile walls
- Soil-nail walls

Stabilizing a slope generally requires a solution unique to the given site conditions since all slopes are inherently different. DBA has evaluated numerous unstable slopes requiring stabilization We utilizing the following methods:

- Soil nails
- Micropiles
- Geosynthetics

In some cases, slope stabilization can be achieved by reconfiguring the slopes, improving surface and subsurface drainage, and buttressing.

Our knowledge of **Earthquake Engineering** to evaluate site seismicity and potential seismic hazards requires the following capabilities:

- Site-specific characterization of design ground motions including PSHA, site response analysis, and development of motions for dynamic structural analyses.
- Analysis and characterization of geo-seismic hazards such as liquefaction and lateral spreading.

- Seismic soil-structure interaction analyses for foundation design and evaluating combined foundation-superstructure demands and performance.

We also provide the following geotechnical services:

- Soil stabilization and ground improvement
- Value engineering of foundation systems
- Construction problem resolution
- Foundation failure investigations and remediation design
- Dynamic foundation analysis and design
- Peer review for general geotechnical practitioners
- Owner review of geotechnical services
- Expert witness
- Short Courses, Seminars, Technical Presentations

The following Company Officers, Board Members, and Principal Engineers are all registered professional engineers and participate in the firm's projects.

## ***Company Officers***



**Mr. Tim Siegel, MSCE, P.E., G.E., D.GE (CEO)** has a broad background in consulting on geotechnical site characterization, deep foundations, ground improvement, and slope stability with over 27 years of experience in the industry. During his 12 years with S&ME, he advanced from staff geotechnical engineer to technical principal and chief engineer while developing expertise in construction in karst, seismic design, numerical modeling, and specialty foundations and retaining systems. After leaving S&ME, he was a full-time geotechnical consultant with Berkel & Company Contractors, Inc., where he was involved in large deep foundation projects throughout the United States. While at Berkel, he led the development of the ground improvement technique using Berkel's ground displacement technology. He has specialized expertise in geotechnical earthquake engineering and site response analysis, foundations in karst terrain, continuous flight auger piles and numerical modeling. His experience with geotechnical earthquake engineering includes site characterization and liquefaction analysis for the HAZUS earthquake preparedness study for the state of South Carolina as well as seismic studies and site response analyses at the Oak Ridge National Laboratories in Tennessee. He has developed foundation designs and sinkhole mitigation strategies for several large projects where karst conditions were present and has published extensively on his experience with ground improvement using drilled displacement piles and other technologies. He is past-chair of the Geo-Institute (formerly ASCE) Computational Geotechnics Committee and is a current member of the GI Award and Soil Improvement committees. He also serves on DFI's Ground Improvement and Seismic and Lateral Loads committees. He was on the faculty of the University of Tennessee, Knoxville between 2002 and 2014. Mr. Siegel obtained bachelor and master degrees from Georgia Tech, and is a registered professional engineer in 30 states.



**Mr. Paul Axtell, MSCE, P.E., D.GE (COO)** has over 19 years of experience focusing primarily on foundation engineering and slope stability for large infrastructure projects. Past projects include design and construction of seismic retrofit strategies for large earthen dams involving ground improvement as well as design, construction, and testing of large foundations for major river bridge crossings throughout the United States. His recent work with DBA includes deep foundation design, testing, and construction of large diameter open-ended pipe piles and large diameter drilled shafts for the Christopher Bond Bridge in Kansas City, Missouri, a cable-stayed crossing of the Missouri River; the Lafayette Bridge in St. Paul, Minnesota, a steel box crossing of the Mississippi River; the Stan Musial Veterans Memorial Bridge in St. Louis,

Missouri, a cable-stayed crossing of the Mississippi River; the Hastings Bridge in Hastings, Minnesota, a free-standing tied-arch crossing of the Mississippi River; the Hurricane Deck Bridge near Camdenton, Missouri, a major crossing of the Lake of the Ozarks; the St. Croix Bridge near Stillwater, Minnesota, an extradosed bridge over the St. Croix River; and Sellwood Bridge over the Willamette river near Portland, Oregon. Commensurate with his broad geotechnical experience and background, Mr. Axtell has published nearly two dozen peer reviewed articles on a vast array of geotechnical topics ranging from soil dynamics to full-scale foundation load testing. He currently serves as Committee Chairman of the Deep Foundations Institute (DFI) Drilled Shaft Committee and is active within the organization. Mr. Axtell is a graduate of the University of Missouri and the University of Texas, and is a licensed professional engineer in Kansas, Missouri, Minnesota, and Wisconsin.



**Mr. Robert Thompson, MSCE, P.E., D.GE (CFO)** has a broad base of practical experience in geotechnical and foundation engineering and construction. Mr. Thompson received B.S. and M.S. Degrees in civil engineering from Auburn University. His experience includes over 27 years in consulting practice with Law Engineering, TTL, Inc., and Dan Brown and Associates. He has a wide variety of experience in geotechnical investigations and foundation design for a variety of projects. Since joining DBA his focus has been primarily transportation structures. Major projects include the Maryland Purple Line, Christopher S. Bond Bridge in Kansas City, Missouri, the Biloxi Bay Bridge in Biloxi, Mississippi, the Cumberland River Pedestrian Bridge in Nashville, Tennessee, and the I-15 Beck St. Bridge in Salt Lake City, Utah. Other projects include the GIWW West Closure Project and the LPV-145 project in New Orleans, Louisiana, the Hyundai manufacturing facility in Alabama, and the award-winning Riverwalk Stadium in Montgomery, Alabama. He has also taught soil mechanics and foundation engineering courses as an adjunct instructor at Auburn University and the University of Alabama at Birmingham. Mr. Thompson is licensed in nine states, He was a co-author of the FHWA Geotechnical Engineering Circular 8, *Design and Construction of Continuous Flight Auger Pile (2007)*, and has published both peer-reviewed and general publication articles on foundation engineering topics.

## Senior Principal Engineers



**Dr. Dan Brown, Ph.D., P.E., P.Eng., D.GE (Chairman of the Board)** has a distinguished career of practice, research, and instruction in the field of deep foundations with over 43 years of experience. Dr. Brown is a graduate of Georgia Tech (1977) and the University of Texas (PhD, 1985). He is considered an expert in deep foundation design for lateral and axial loading, load testing, and construction. He is the co-author (with Dr. Turner) of *Drilled Shafts: Construction Procedures and LRFD Design Methods* (2019), the FHWA manual on the design and construction of drilled shafts. He was also the co-developer and an instructor for the NHI drilled shaft design and construction course based on the manual. In addition to the drilled shaft manual, Dr. Brown was the lead author of FHWA Geotechnical Engineering Circular 8, *Design and Construction of Continuous Flight Auger Piles* (2007). He is a member emeritus and past chairman of the Geo-Institute (formerly ASCE) Deep Foundations Committee, a Past-President of the Deep Foundations Institute, an honorary member of ADSC: The International Association of Foundation Drilling and of the Pile Driving Contractors Association. Dr. Brown has received numerous awards, including the ASCE Martin Kapp Foundation Engineering Award for “improvements in the design and quality of drilled shaft construction,” the ASCE Huber Prize for Research for his work with pile groups and bridge foundations, the ADSC Outstanding Service Award, the Auburn University Gottlieb Professorship, the 2011 DFI Distinguished Service Award, and induction into the Moles Society. He is an active consultant on many large projects involving deep foundations, and known for his work in pile group behavior and in construction and testing of deep foundations. Dr. Brown was a member of the Civil Engineering faculty at Auburn University from 1987 - 2009 and is a licensed professional engineer in numerous states.



**Dr. Erik Loehr, Ph.D., P.E. (Board Member)** is an Associate Professor at the University of Missouri (MU) and Senior Principal Engineer with Dan Brown and Associates. He specializes in research and professional practice associated with complex soil-structure interaction problems and with development of practical and innovative design and analysis methods. He has conducted extensive research to evaluate use of structural elements for stabilization of earth slopes with funding from the National Science Foundation, the Missouri Department of Transportation, and the Deep Foundations Institute, among other sources. This work culminated in development of the so-called “Missouri Method” for design of deep foundations for slope stabilization, which provides a practical means to effectively and accurately account for the complex load transfer between structural elements and moving soil. He has also conducted extensive

research involving post-grouted drilled shafts, tremie concrete, foundation reliability, and geotechnical site characterization. He has authored numerous publications including FHWA Design Manuals for post-grouted drilled shafts, geotechnical site characterization, and slope stabilization, and has contributed to development of several state and national geotechnical design codes. He actively participates in professional organizations including the ASCE Geo-Institute, the Deep Foundations Institute, the International Association of Foundation Drilling, and the Transportation Research Board. He is former Chair of the ASCE Geo-Institute's Committee on Embankments, Dams, and Slopes and was Conference Chair for the 2013 ASCE Geo-Institute Annual Congress in San Diego. He was the founding chairman of the Deep Foundations Institute (DFI) Committee on Deep Foundations for Landslides and Slope Stabilization and currently serves as Secretary of the Board of Trustees for DFI. He has been an invited speaker at seminars and conferences both nationally and internationally and is a recipient numerous awards including the Harry Schnabel Jr. Award from the ASCE Geo-Institute, the ADSC Outstanding Service Award, and the K.B. Woods Award from TRB among other honors. He received his B.S., M.S., and Ph.D. degrees from The University of Texas at Austin.



**Mr. Barry Meyer, MSCE, P.E. (Board Member)** has over 42 years of geotechnical engineering experience. Prior to joining Dan Brown and Associates in 2012, Mr. Meyer served in various engineering roles at McClelland Engineering, Marathon Oil Company, Leighton and Associates, Law Engineering, and HDR. A recognized expert in design and construction of deep foundations, he has designed large diameter high capacity piles for major offshore structures, including the Steelhead oil production platform in Cook Inlet, Alaska. This challenging project required the installation of driven and drilled pipe piles into dense glacial till. Mr. Meyer's drilled shaft experience includes the H-3 Windward Viaduct on the Hawaiian island of Oahu. This was the first use of drilled shafts to support a major bridge structure in Hawaii, where drilled shafts are now the foundation of choice. Following the devastating 1994 Northridge earthquake, Mr. Meyer used the Osterberg-Cell in a novel manner to accelerate repair of the Los Angeles Coliseum. Working on both domestic and international projects, Mr. Meyer's broad project experience includes geotechnical consulting for the Confederate Bridge connecting New Brunswick to Prince Edward Island over the ice filled Northumberland Straits; the 55 km elevated Bang Na Expressway Project in Bangkok, Thailand; the 3,000 acre C-44 Reservoir and Pump Station in South Florida; the Vancouver Skytrain Millennium Line; the Sheikh Jaber Al Ahmed Al Sabah Causeway in Kuwait; and the Puente de la Unidad cable-stayed bridge

over the Santa Catarina River in Monterey, Mexico. He also has considerable knowledge and experience in the areas of seismic engineering and earthen levee and dam engineering.



**Dr. John Turner, Ph.D., P.E., P.G., D.GE** has been a practitioner, researcher, and educator in the field of geotechnical engineering for over 44 years. He has B.S. degrees in geology and civil engineering, an M.S. degree in structural engineering, and received his Ph.D. in geotechnical engineering from Cornell University. Dr. Turner is Emeritus Professor of Civil Engineering at the University of Wyoming where he served on the faculty from 1986 until joining DBA full time in 2011. During his academic career, he was engaged in research and consulting on drilled shaft foundations, anchored retaining walls, and landslide stabilization, much of which has been published in 100+ technical papers and reports. Since joining DBA Dr. Turner has been engaged as a design engineer and consultant on major projects including foundations for the Fore River Bridge (MA), Goethals Bridge (NY-NJ), the TH-53 Bridge (MN), and others. He is the co-author (with Dr. Brown) of *Drilled Shafts: Construction Procedures and LRFD Design Methods* (2019) and an instructor for the NHI drilled shaft course. Dr. Turner is the author of NCHRP Synthesis 360, *Rock-Socketed Shafts for Highway Structure Foundations*. He is a past chairman of the Geo-Institute Committee on Deep Foundations and is a recipient of the Outstanding Service Award (1992) and the President's Award (2000) from the ADSC: International Association of Foundation Drilling.

## **Senior Engineers**



**Dr. Andrew Boeckmann, Ph.D, P.E.** is a senior engineer at Dan Brown and Associates with over 13 years of experience. Prior to joining DBA, Dr. Boeckmann was a research engineer at the University of Missouri, where he performed field and applied research on topics including foundation reuse, post-grouted drilled shafts, reliability of geotechnical designs, and geotechnical asset management. Dr. Boeckmann is the lead author of two NCHRP Synthesis reports, including *Current Practices and Guidelines for the Reuse of Bridge Foundations*. Prior to working at MU, Dr. Boeckmann was a consulting geotechnical engineer for URS Corp. in St. Louis, Missouri, where he performed design and analysis for large projects, including the I-64 rebuild in St. Louis and post-Hurricane Katrina levee design in New Orleans, Louisiana. Dr. Boeckmann is an active member of the Deep Foundations Institute, including serving as the vice-chair of the Subsurface Characterization Committee, and a registered professional engineer in Missouri.





**Mr. David Graham, MSCE, P.E.** holds a bachelor's and a master's degree in civil engineering from Auburn University. His thesis research focused on a novel method of soil liquefaction hazard mitigation. Mr. Graham has over 15 years of experience as a geotechnical and foundation engineering consultant. He is a licensed engineer in three states. He has consulted on many major bridge projects throughout the United States, including several Mississippi River crossings and the St. Croix Crossing between Minnesota and Wisconsin. He was also on the Owner's design review team for the Gordie Howe International Bridge between Detroit, Michigan, and Windsor, Ontario, which will be the longest cable stayed bridge in North America upon completion. Mr. Graham is an active member of the Deep Foundations Institute (DFI) and its testing and evaluation technical committee. He is the lead or contributing author of nine peer reviewed conference papers and journal articles.



**Mr. Mark Madgett, MSCE, P.E.** received a BS and MS degree in Civil Engineering at the University of Tennessee. His thesis research focused on improving pavement design methods for TDOT. He has worked in both consulting and construction for the last 26 years, focusing primarily on deep foundations in the Southeastern US. As a consultant, Mr. Madgett gained extensive field experience with deep foundation construction techniques and the impacts on design. In 2006, he began working for Seaboard Foundations, opening a green field office in Tri-Cities, Tennessee, as the district manager. In his role as design engineer for Seaboard Foundations, Mr. Madgett has implemented design-build techniques in many markets (energy, institutional, commercial, transportation, and healthcare) that vastly improved the constructability and reduced the costs of deep foundation systems.



**Mr. Robert Saunders, MSCE, P.E.** has a wide range of experience in geotechnical engineering and design of geotechnical structures. His experience includes over 17 years in consulting practice with S&ME, GEOServices, and DBA. Mr. Saunders received B.S. and M.S. degrees in Civil Engineering from the University of Tennessee. His consulting experience includes geotechnical investigations, construction in karst, and slope remediation. He has a broad design background specializing in analysis and design of earth retention systems and deep foundations. His experience with earth retention systems includes soldier pile walls, anchored systems, soil nail walls, and mechanically stabilized earth walls. His experience with deep foundations includes micro piles, drilled shafts, cast-in-place piles, and design of deep foundation in karst geology. He is a member of the Deep Foundations Institute (DFI) Micro pile Committee and is a licensed Professional Engineer in Tennessee, Indiana, Florida, New York, and Washington D.C.



**Mr. Sam Sternberg III, MSCE, P.E., D.GE** has over 18 years of geotechnical engineering experience. He received a B.S. and M.S. degree in Civil Engineering from the University of Kentucky and University of South Alabama, M.Div. degree from New Orleans Baptist Theological Seminary. He has worked in consulting on numerous private and public projects with the primary focus on department of transportation projects around the southeastern US. He has a broad design background including geotechnical site characterization, bridge foundation designs (shallow and deep), soft soil remediation, retaining walls (including cantilever, and mechanically stabilized earth walls), bulkheads and relieving platforms. Mr. Sternberg has expertise in planning, engineering, and managing field explorations for transportation projects, including in-situ testing, field instrumentation, laboratory testing, and foundation load testing. Mr. Sternberg is licensed in eight states.



**Dr. Benjamin Turner, Ph.D, P.E., G.E.** is a geotechnical engineer specializing in seismic design aspects of geo-structural systems including foundations, excavations, and slopes, as well as advanced modeling. He holds Bachelor's and Master's degrees in civil engineering from California Polytechnic State University, San Luis Obispo, where he also serves as an adjunct lecturer for the Civil Engineering Graduate program, and a Ph.D. in geotechnical earthquake engineering with a minor in seismic structural reinforced concrete design from the University of California, Los Angeles. He continues to remain actively involved in research projects related to deep foundations and earthquake engineering, and serves on the Seismic and Lateral Loads and Drilled Shafts Committees of the Deep Foundations Institute. Dr. Turner's previous research experience and publications cover the topics of seismic deep foundation design including the effects of liquefaction and lateral spreading, kinematic soil-structure interaction and foundation input motions for structural design, repair of defective reinforced concrete foundations, and landslide stabilization. His consulting experience includes a wide variety of bridge, building, retaining system, and slope designs throughout North America. Prior to joining DBA he worked for the Los Angeles office of Shannon and Wilson.