

KARL W. MYERS, P.E.
Piedmont Geotechnical Consultants, Inc.
Senior Consultant

FIELDS OF EXPERTISE:

Earth dam design and construction; pile foundation systems; friction drilled piers (caissons); dam safety evaluations; Menard Pressuremeter testing and settlement evaluations; evaluation of shallow foundations for high structural loads; slope stability analyses; ground modification methods; excavation bracing/earth retaining systems; groundwater control.

REGISTRATIONS:

Professional Engineer: Georgia, South Carolina, Alabama

EDUCATION:

B.S., Civil Engineering (Cooperative Plan) with High Honors, Georgia Institute of Technology, 1974.

M.S., Civil Engineering (Geotechnical Engineering Major), Georgia Institute of Technology, 1980.

Twenty-fourth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Austin, Texas, 2007

Twenty-third Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Boston, Massachusetts, 2006

Twenty-second Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Orlando, Florida, 2005.

Twenty-first Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Phoenix, Arizona, 2004.

Twentieth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Minneapolis, Minnesota, 2003

Nineteenth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Tampa, Florida, 2002

Eighteenth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Salt Lake City, Utah, 2001.

Seventeenth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Providence, Rhode Island, 2000.

Sixteenth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, St. Louis, Missouri, 1999.

Fifteenth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Las Vegas, Nevada, 1998.

Fourteenth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Pittsburgh, Pennsylvania, 1997.

Thirteenth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Seattle, Washington, 1996.

Twelfth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Atlanta, Georgia, 1995.

Eleventh Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Boston, Massachusetts, 1994.

Tenth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Kansas City, Missouri, 1993.

Southeastern States Dam Safety Conference, Atlanta, Georgia, 1992. Co-Authored and presented paper titled, "Problems Associated with Construction of Dams by Inexperienced Contractors".

Eighth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, San Diego, California, 1991.

Seventh Annual National Conference on Dam Safety, Association of State Dam Safety Officials, New Orleans, Louisiana, 1990.

Southeastern States Dam Safety Conference and Public Awareness Workshop, Williamsburg, Virginia, 1990.

Sixth Annual National Conference on Dam Safety, Association of State Dam Safety Officials, Albuquerque, New Mexico, 1989.

Southeastern States Dam Safety Conference and Public Awareness Workshop, Jackson, Mississippi, 1988.

Safe Dams Workshop, Georgia Department of Natural Resources, Smyrna, Georgia, 1988.

Dam Safety in the States, Fourth Annual Conference, Association of State Dam Safety Officials, Columbus, Ohio, 1987.

Dams, Embankments, and Facilities Design, In-House Senior Engineers Conference, Charlotte, North Carolina, 1987.

Drilled Foundation Seminar, Atlanta, Georgia, 1986.

Grouting and Geotechnical Engineering, American Society of Civil Engineers, New Orleans, Louisiana, 1982.

Remedial and Deferred Grouting as Related to Dam Safety and Repair, American Society of Civil Engineers, New Orleans, Louisiana, 1982.

Southeastern Dam Safety Conference, Charlotte, North Carolina, 1982.

Deep Foundation Seminar, Auburn University, Birmingham, Alabama, 1981.

Tri-State Dams and Reservoirs Safety Conference, Greenville, South Carolina, 1980.

Rapid Excavation and Tunneling Conference, Atlanta, Georgia, 1979.

PROFESSIONAL SUMMARY:

Mr. Myers is a senior consultant at Piedmont Geotechnical Consultants, Inc. in Roswell, Georgia. He is responsible for overall technical operation of the Geotechnical Services Division and has over 30 years of experience in the field of geotechnical engineering. Mr. Myers has developed a key area of expertise in dam design and construction over the last 26 years. He served as a member of the Geotechnical (Chairman), Construction Monitoring, Plan and Specification, and Rules and Law Change Committees assisting the Safe Dams Program of the Georgia Department of Natural Resources with developing specific guidelines for the evaluation of high hazard dams.

PROFESSIONAL AFFILIATIONS:

Association of State Dam Safety Officials (ASDSO), Affiliate Member, Affiliate Member Advisory Committee (AMAC)
American Society of Civil Engineers (ASCE), Member

TECHNICAL PUBLICATIONS/PAPERS:

“WAK and Full-Scale Load Tests on Granular Fill”, Settlement ‘94 ASCE Geotechnical Division Specialty Conference, Texas A&M, June 1994.
“Stone Mountain Lake Spillway Replacement”, ASDSO Annual Conference, St. Louis, Missouri, October, 1999.

SELECTED PROJECT EXPERIENCE:

- * Senior Project Engineer/Project Manager in charge of geotechnical design phase and construction monitoring services for a new municipal water supply reservoir dam; the Tussahaw Dam for HCWSA located in Butts County, Georgia. The earthen embankment dam will be about 75 feet in height, and will impound runoff from a large drainage basin. A comprehensive geotechnical design study was completed and included the evaluation of shallow rock in the floodplain area, and an extensive borrow search in the reservoir area. The project, which is currently under construction, will include a 78-inch diameter primary spillway and a 250-foot wide labyrinth/chute secondary spillway located along a narrow abutment ridgeline. Construction challenges include diversion of the fairly active stream and dewatering of unsuitable alluvial materials being undercut from the footprint of the dam.
- * Senior Project Engineer/Project Manager for geotechnical services in conjunction with the rehabilitation evaluation of the NRCS Y-15 dam located in Gwinnett County, Georgia. At the time of original construction the dam was primarily a flood control structure in a rural setting. Urban development over the many years since has resulted in this dam being re-classified as a high-hazard structure, and in need of upgrading due primarily to deficient spillway capacity. Geotechnical studies were performed for a potential labyrinth spillway over the existing dam, or possible RCC overtopping protection. In addition, the existing vegetated earth emergency spillway was evaluated with borings, sampling and laboratory testing to develop appropriate index parameters for use in the relatively new NRCS SITES program that evaluates spillway erosion potential.
- * Senior Project Engineer/Project Manager in charge of geotechnical design phase and construction monitoring services for a new regional water supply reservoir dam; the Griffin Regional Reservoir in Pike County, Georgia. The earthen embankment dam is about 90 feet in height, and will be impacted by tailwater conditions from flooding of the nearby Flint River. A comprehensive geotechnical design study included the evaluation of shallow rock in one abutment to determine the potential need for grouting, and an extensive borrow search due to predominantly sandy materials in the reservoir area.

- * Senior Project Engineer/Project Manager in charge of geotechnical design phase and construction monitoring services for a new raw water storage basin in Augusta, Georgia. To create the basin, a Category I (high hazard) dam was required along a portion of the perimeter of the basin. A significant portion of the geotechnical design study for the synthetic lined impoundment involved seismic slope stability in a relatively high seismic potential area, and coordinating with the owner in a pseudo-risk assessment considering the potential for groundwater rises above the basin bottom, and the design seismic event occurring and triggering potential slope failures, relative to a lowered pool level. This is the first design/build Category I dam in the state involving the Georgia Safe Dams Program. The construction of the project is currently nearing completion.
- * Senior Project Engineer/Project Manager in charge of geotechnical design and construction evaluation for the Big Haynes Creek Water Supply Reservoir dam in Rockdale County, Georgia. The dam is a Category I (high hazard) dam with a height of approximately 60 feet. The project was initially planned as a conventional earthen embankment dam. Based on preliminary subsurface data obtained, Mr. Myers spearheaded consideration for a roller compacted concrete (RCC) dam. The owner/design team considered the information available and a decision was made to proceed with the detailed evaluation for the RCC dam. The dam is the second new RCC dam in the state of Georgia evaluated by the Safe Dams Program. The project included an extensive RCC mix design program, foundation preparation and rock grouting, and seepage collection system.
- * Senior Project Engineer/Project Manager in charge of geotechnical design phase and construction monitoring services for a new public fishing lake dam in Laurens County, Georgia for the Georgia Department of Natural Resources. The consideration of potential seepage losses through and beneath the dam was critical at this site due to the limited to non-existent drainage basin flows during drought and dry weather conditions. The long, low height earthen dam included a concrete labyrinth spillway section near the mid-point of the dam.
- * Senior Project Engineer in charge of geotechnical design evaluation and construction monitoring for Category I (high hazard) dam in conjunction with water supply reservoir. Project includes an earthen embankment dam approximately 45 feet in height for the City of Monroe, Georgia. The design includes slurry cutoff walls to penetrate the extensive depths of permeable alluvial foundation materials.
- * Senior Project Engineer/Project Manager for design and construction phase services on a new 80-foot high water supply reservoir dam for Henry County, Georgia. Long Branch Dam created a primarily pumped storage reservoir. The dam is an earthen embankment dam with an extensive internal drainage system, with portions of the dam founded on shallow rock. Project also included a significant saddle dam and a remote emergency spillway location.
- * Senior Project Engineer/Project Manager for design and construction phase services on a new water supply reservoir dam on the Upper Towaliga River in Henry County, Georgia. This water supply reservoir involved construction of a dam, possibly in two phases, over an extensive floodplain. Extensive seepage reduction and seepage control techniques were planned for this project.

- * Senior Project Engineer/Project Manager in charge of geotechnical design evaluation for High Head Branch dam in Burke County, Georgia. This project will create a reservoir for the Georgia Department of Natural Resources, Game and Fish Division. The site is situated in the Coastal Plain geologic province of Georgia and is underlain by extensive deposits of relatively clean sand. The innovative design includes utilization of sand for the shells of the dam with a clayey core. Water budget evaluations for the reservoir indicated that the significant seepage that may occur can be tolerated without a significant loss in reservoir pool during dry periods. Therefore, removal and/or penetration of the sands beneath the dam with a slurry wall or conventional rolled earth keyway was not recommended. The downstream sand shell will serve as the chimney zone for the internal drainage system.
- * Senior Project Engineer/Project Manager in charge of geotechnical design evaluation for proposed 50-foot high, 3400-foot long Category I water supply reservoir. The project is located on Horton Creek in Fayette County, Georgia. Extensive foundation treatment in a broad floodplain was required. This involved partial undercutting of alluvial materials, extensive dewatering, and the use of a slurry wall to penetrate remaining permeable zones. The dam design also incorporates an extensive internal drainage system including an alternative of utilizing a geocomposite drain material for the chimney drain. Construction phase monitoring services were also provided
- * Senior Project Engineer/Project Manager for 75-foot high Category I (high hazard) earth dam for the North Fulton County, Georgia Raw Water Supply Reservoir. In charge of geotechnical design study, plan and specification review, and construction monitoring activities. Project included slurry wall cutoff, an elaborate drainage system, and installation and monitoring of instrumentation to detect settlements and piezometric levels.
- * Senior Project Engineer in charge of geotechnical design study for Soil Conservation Service (SCS) flood control/water supply reservoir in White County, Georgia. The project is designated Tesatee Structure M11 and includes a 70-foot high earthen embankment dam. The \$1.8 million project required extensive geotechnical design studies to meet the stringent requirements of the SCS.
- * Senior Project Engineer/Project Manager for remediation study and construction monitoring of existing 50-foot high Category I (high hazard) earth dam in Athens, Georgia. Study required by Georgia Safe Dams Program as a result of past seepage and stability problems with this water supply reservoir dam. Remediation recommendations included slurry cutoff wall, an extensive internal drainage system, modification of existing steep slopes, and remediation of the downstream toe area.
- * Senior Project Engineer in charge of preliminary geotechnical study for proposed concrete gravity dam on Drakes Creek in Franklin, Kentucky. Site located in karst geology, exhibiting considerable solution activity. Project will impound municipal water supply reservoir.

- * Senior Project Engineer/Project Manager for the geotechnical design evaluation and construction monitoring of a new Category I (high hazard) earth dam in DeKalb County, Georgia. The project involved construction of a 25-foot high earthen embankment dam and elaborate protected channel spillway, and created a 125-acre lake with an 18.6 square mile drainage basin. The reservoir is utilized for storm water retention and recreation as part of the Arvida Water's Edge Subdivision. Grouting of the foundation rock was required in one abutment.
- * Senior Project Engineer/Project Manager for geotechnical design evaluation, construction monitoring, instrumentation installation, and monitoring during initial reservoir filling of water supply reservoir for the City of Carrollton, Georgia. Proposed earthen dam is a 40-foot high Category I (high hazard) structure founded on a highly fractured rock formation.
- * Senior Project Engineer/Project Manager in charge of geotechnical design study for replacement of existing low-head sill structure across Chattahoochee River. Sill raises water level for water intake structure associated with City of Atlanta Chattahoochee complex. Project included assessment of existing inadequate structure with focus on remediation or replacement with new design. Challenges included placement of low-head structure across a major river; study focused on stability and integrity of the structure during flood flows.
- * Senior Project Engineer/Project Manager in charge of design phase geotechnical evaluation of 70-foot high Category I (high hazard) dam for water supply reservoir. Project is located on Flat Creek in Fayette County, Georgia. In addition to the routine stability and seepage evaluations, the design involved extensive preparation of rock foundation areas.
- * Senior Project Engineer/Project Manager in charge of geotechnical design evaluation and construction monitoring for renovation to existing 45-foot high earthen dam at Fort Mountain State Park, Georgia. Project performed for Georgia Department of Natural Resources, Environmental Protection Division, Safe Dams Program. Renovation cost of approximately \$250,000 included removal of unsuitable core material and extensive cement-based grouting of fractured foundation rock to control underseepage. Slope stability evaluation indicated need to flatten existing slopes. Also provided construction management services for the Parks & Recreation Division of Georgia DNR.
- * Senior Project Engineer/Project Manager for design and construction of 45-foot high earthen dam in Madison, Georgia. Lake provides a regional water source for the City of Madison and surrounding Morgan County. Design included extensive subgrade preparation, an elaborate internal drainage system, and the assessment of slope stability and seepage through a shallow fractured rock foundation.