Service Profile

Geotechnical Engineering

Since 1958, GAI Consultants has been a leader in addressing the broad spectrum of engineering issues associated with the behavior of earth materials—soil, rock, mining refuse, coal combustion residuals (CCR), slag from steel-making processes, slurry, and others—that impact projects within the civil, mining, transportation, petroleum, natural gas, transmission, and power-generation economy sectors.

GAI's services encompass the entire breadth of geology and geotechnical engineering.

Our geotechnical engineers and geologists are highly proficient in the fundamentals of engineering, soil and rock mechanics, foundation and slope engineering, seismic analyses, underground and surface mining, mine fires, and mine subsidence.

Operating out of office locations throughout the U.S., these specialists bring with them a wealth of knowledge from years of academic training, research, and practical field experience—knowledge that is bolstered by expertise from GAI staff members in other disciplines such as structural engineering, groundwater engineering, and hydrologic/hydraulic engineering.

GAI's services encompass the entire breadth of geology and geotechnical engineering. Studies typically begin with subsurface characterization of the site and culminate in a report, often accompanied by the preparation of technical drawings and specifications, and monitoring during construction to verify project compliance with design specifications.

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Transforming ideas into reality® since 1958, GAI Consultants is an engineering, planning, and environmental consulting firm providing customized solutions and local expertise to worldwide clients in the energy, transportation, development, government, and industrial markets.

Service Profile

Geotechnical Engineering Services

- Geologic studies using aerial photographs, topographic maps, and mine maps
- Subsurface and ground-surface investigations
- Instrumentation programs to monitor ground movements
- Mine fire mitigation studies
- Mine subsidence studies
- Blasting plans and vibration monitoring reviews
- Mine waste and CCR management and land reclamation
- Design studies for earth- and rock-fill dams and appurtenances
- Seismic evaluation of earth works
- Earth and rock slope stability evaluation, recommendations, and design
- Forensic studies for attorneys including reports, depositions, and testimony
- Design of shallow and deep foundations
- Design of specialty foundations such as micropiles and metal-finned pipe piles
- Retaining wall support analysis and design
- QA/QC construction observation and testing
- Soil improvement design to reduce settlement and increase bearing capacity
- Ground support development of mine grouting plans and specifications
- Karst investigations and sinkhole remediation

GAI Services Summary

- Airport Planning and Design
- Bridge and Structure Inspection and Design
- Coal Combustion Residuals Management
- Construction Inspection and Management
- Cultural Resources Management
- Economic Analyses and Strategies
- Electric Transmission Design and Siting
- Environmental Engineering
- Environmental Studies, Species Studies, Permitting
- Gas Pipeline Surveying and Mapping
- Geographic Information Systems (GIS)
- Geotechnical Engineering and Geology
- Impoundment and Landfill Permitting and Design
- Land Development Engineering
- Landscape Architecture and Design
- Master Planning and Urban Design
- Mechanical, Electrical, Structural Engineering
- Natural Gas FERC Certification and Permitting
- Nuclear Energy Engineering Support
- Right of Way and Appraisal Support
- Land Surveying and Mapping
- Transportation Planning and Design
- Utility Management Consulting
- Water, Stormwater, Wastewater Management

The scope of professional services that are provided by or offered out of each GAI office including, but not limited to, engineering and surveying services, is governed by the professional and business licensing requirements of each individual State or jurisdiction in which the GAI office is located and whether GAI has the requisite professional and business licenses for that State or jurisdiction. Nothing on GAI's Web Site or marketing materials is intended to be interpreted or construed as offering to perform professional licensed services where prohibited unless the licensing requirements have been met. Engineering services are not offered out of GAI's Northern Kentucky (Florence) office location. Surveying services are not offered out of GAI's Illinois location or by our New York subsidiary.

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