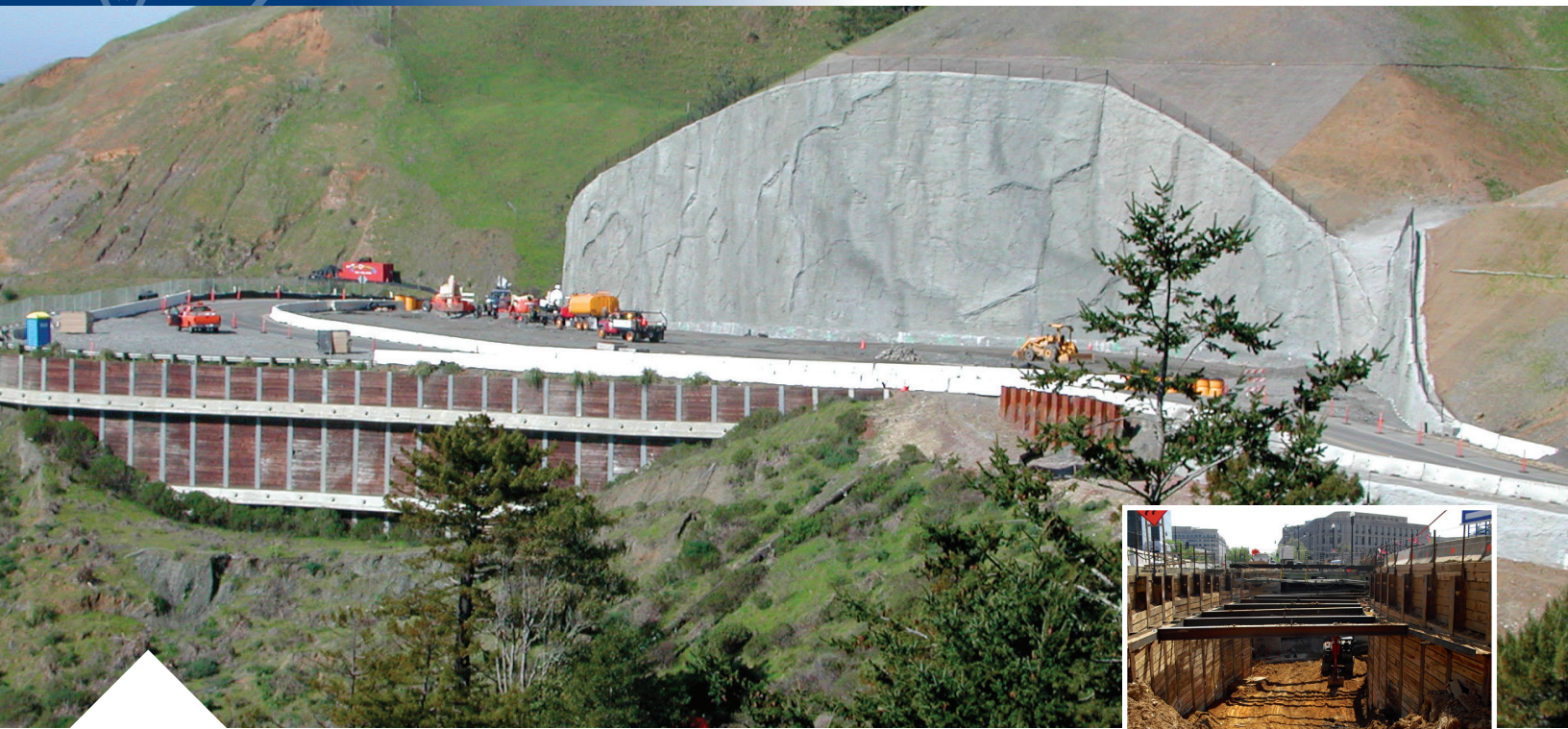


Geotechnical Infrastructure Services



Geotechnical features have a strong presence in all infrastructure sections; transportation, buildings, and energy facilities. ARA's team of nationally and international known experts and strategic teaming partners have deep experience and knowledge on the following geotechnical features including:

- Structural Foundations (shallow and deep)
- Engineering Earthworks (fills and cuts in soil and rock)
- Earth Retaining Structures (cut, fill and hybrid)
- Tunnels (TBM, sunken tube and cut and cover)
- Ground Improvement materials and technologies (a majority of the 60 available techniques)
- Geotechnical Aspects of Pavements (unbound pavement courses, subgrades and drainage)
- Subsurface Site Characterization (planning, execution, summarization and interpretation)

Specific Geotechnical Services include:

- Design and analysis of new, existing and re-built geotechnical features.
- Peer reviews
- Development of specification and plan notes and details
- Development and implementation of Quality Control and Assurance programs
- Review of project and program submittals
- Geotechnical Asset Management (inventories, inspection/ monitoring plans, risk based management and remaining service assessments)
- Forensic evaluations (planning and implementation)
- Dispute Resolution Services (DRBs, Mediations, Arbitrations and Trials)
- Research (analytical and experimental) and Innovation Deployment plans (development and implementation)
- Technical Training Development and Delivery





The AA Geotechnical Services Approach

We strive for using factual information, statistical and engineering models in project challenges and solutions. We routinely Team with local strategic partners who have local knowledge and experience.

We help owners, contractors, consultants and material suppliers to meet project goals on time and on schedule for the most challenges projects.

ARA's subject matter experts use a wide range of techniques and tools, from simple state of practice to complex state of art methods appropriately scaled and developed from national-level research and honed on both large and small complex projects and programs. The key to successful geotechnical feature service projects is to be flexible to address local client culture, geology and experience, be knowledgeable and tailoring the work process, and application of tools to accommodate the unique project and program needs and outcomes. Most of all it is important to follow lessons learned by both ARA and other professionals. One size and approach does not fit all.

The ARA Added Value

Our success is based on our proven approach, assigning project staff based on the appropriate subject matter experts within the company, and strategic partnerships. ARA provides full Geotechnical Infrastructure services leading to measurable and traceable results that can capture and communicate the value added and return on investment with factual content at different stages of project or program at development, and execution.

We know the obstacles and risks to application of successful proven geotechnical infrastructure projects and work closely with local geotechnical teaming partners to develop appropriate process, procedures and details to demonstrate value of the project outcomes tailored to the project owner needs and goals and the client's traditional business and technical culture.

ARA understands the dynamic and changing nature of infrastructure projects and programs and has the depth of experience and knowledge to produce the desired results regardless of the project complexity, size and scope.

ARA's Risk Management Experience

- ARA has developed and presented over one dozen unique geotechnical engineering courses for FHWA
- ARA personnel have extensive experience in alternative project delivery projects representing owners, engineering firms, design-builders, and financiers. This experience gives our expert staff a comprehensive view from all perspectives—no matter your role and needs, we add value.
- ARA personnel have provided geotechnical services on over 1000 infrastructure projects in all 50 states, several Central and South American countries and the Middle East. These projects have been in the transportation (highway, rail), buildings and energy infrastructure sections.
- ARA personnel have provided technical training on geotechnical features and topics to USA Corps of Engineers, the American Society of Civil Engineers private sector consultants and contractors.
- ARA experts are providing geotechnical assistance and risk management services for the civil works elements of the California High-Speed Rail project.
- ARA experts have served on over two dozen national and international forensic and dispute resolution projects for all facets of dispute resolution.
- ARA personnel have assisted several infrastructure owners to develop and implement geotechnical asset management (GAM) programs.
- ARA experts have authored and co-authors on numerous national geotechnical publications which provide recommended guidance for design, construction and performance of geotechnical features.
- ARA staff have served on several national task forces, panels and committees for the development of geotechnical test methods, standards, specifications and design and construction guidance.