

**PATRIOT ENGINEERING  
and Environmental, Inc.**

*Engineering Value for Project Success*



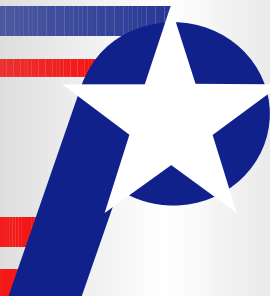
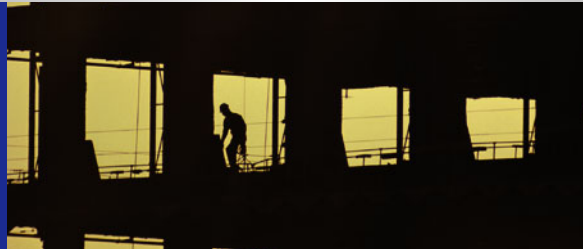
***GEOTECHNICAL***



***ENVIRONMENTAL***



***CONSTRUCTION  
MATERIALS  
TESTING***





**PATRIOT ENGINEERING  
and Environmental, Inc.**  
Engineering Value for Project Success

## THE PHILOSOPHY

A company with very experienced **People**.  
Professionals with fresh **Attitudes**.  
Using modern **Technology**.  
Committed to being **Responsive**.  
Offering solutions that are **Innovative**.  
Extremely client **Oriented**.  
Ready to join your project **Team**.

## THE COMPANY

Patriot Engineering and Environmental, Inc. is a diverse engineering firm providing geotechnical, environmental, and construction materials testing services and consultation to commercial, industrial and governmental clients. Patriot provides the specific information you need to make informed, cost-effective business decisions, which will help you reduce net cost, decrease risk and improve the quality of your organization's project outcomes.

## THE PEOPLE

The men and women employed by Patriot have first-hand knowledge of the business environment and regulatory climate. Our professional staff is comprised of engineers, scientists, technical specialists and support personnel. With decades of experience, our staff has the technical expertise needed to address most environmental, geotechnical or construction material testing issues. In addition, Patriot is exceptional in that our senior engineers and technical professionals serve as actual project managers, and not just as advisors (which is the common practice with most consulting companies). Our project managers have full responsibility for getting the job done, and possess the authority and resources necessary to ensure that assignments are completed quickly, correctly and cost-efficiently, making Patriot a genuine value to your project team.

## THE COMMITMENT

To provide our clients with superior value by delivering technical services in a timely fashion, at a reasonable cost, and with the highest quality outcomes attainable.

## THE GUARANTEE

Patriot Engineering and Environmental, Inc. guarantees our technical services to meet applicable professional standards and requirements.

- Landfill Siting
- Mining Studies
- Subsurface Exploration
- Foundation Engineering
- Erosion Control Design
- Earth Dam and Levee Assessment
- Pavement Subgrade Design
- Specification Preparation or Review
- Embankment Design
- Fill Material Evaluation



- Top Soil Surveys
- Slope Stability Analysis
- Geophysical Surveys

### SOIL LABORATORY:

- Atterberg Limits
- Shrinkage Limits

*During construction, what is under a piece of property can be just as important as what is being built on top of it. Contaminated soil, "old fill", groundwater, karst topography, and more unknowns can be disastrous for a construction project. The following benefits make Patriot Engineers invaluable members of your engineering and design team. Patriot's geotechnical engineering services can:*

- *improve foundation design*
- *reduce construction delays*
- *minimize expensive over-design.*

- Moisture Content
- Grain Size Analysis
- Organic Content
- Density
- Proctors (Standard and Modified)
- California Bearing Ratio (CBR)
- Specific Gravity
- Hydraulic Conductivity
- Consolidation
- Unconfined Compressive Strength
- Triaxial Shear

## GEOTECHNICAL ENGINEERING SERVICES

### FEASIBILITY/PLANNING:

- Site Suitability Evaluation
- Preliminary Subsurface Investigation
- Project Feasibility Studies

### DESIGN DEVELOPMENT:

- Geotechnical Investigations
- Landfill
- Landfill Engineering Construction
- QA/QC Landfill Testing

### CONSTRUCTION:

- Earthwork Monitoring
- Pile Driving Monitoring
- Foundation Installation Monitoring
- Construction Dewatering Evaluation
- Design and Installation of Instrumentation
- Review of Excavation Bracing
- Ground Water Monitoring

### POST-CONSTRUCTION:

- Failure Investigation
- Expert Testimony
- Instrumentation Program Development
- Foundation Underpinning Consulting
- Landslide Remediation.



# ENVIRONMENTAL

A number of legal and financial concerns have created a new social awareness regarding wellness and our environment. Public demand for a clean environment and safe workplace manifests the need for environmental consulting services that maintain a realistic balance between business operations and environmental stewardship.

Since 1975, Patriot's professional environmental managers have been cost-effectively helping companies more appropriately deal with their environmental concerns.

Patriot personnel are ready to provide a business approach to your environmental projects. Most companies are more than willing to address environmental issues; however, they do prefer:

- accurate information
- a plan of action with realistic options
- and minimal cost.

## ENVIRONMENTAL SERVICES

### CONSULTING:

#### *Regulatory Review and Interpretation:*

- Federal, State and Local Regulations
- Strategy Planning
- Client Agency Representation
- Expert Testimony

#### *Permitting:*

- Air Quality
- NPDES, Stormwater
- POTW-Pretreatment
- RCRA

#### *Environmental Property Assessments:*

- Phase I Environmental Site Assessments
- Transaction Screens

- Data Management
- Health and Safety Training
- Monitoring
- Reporting
- OSHA
- Waste Handling
- Process Evaluations
- Waste Minimizations
- Recycling Programs
- Material Substitution
- Brownfields
- Voluntary Remediation Program
- Excess Liability Fund

#### *Training:*

- Hazard Communications
- Asbestos
- Confined Space
- Spill Response
- Hazwoper

### SITE INSPECTION AND CHARACTERIZATION

#### *Soil and Groundwater:*

- Hydrogeologic Assessments
- Soil Vapor Surveys
- Monitoring Well Sampling
- Geophysical Surveys
- Soil Sampling
- Modeling
- Plume Delineation

#### *Wastewater:*

Sampling and monitoring  
Mixing zone studies

#### *Air:*

- Source Emission Testing
- Fugitive Emission Monitoring
- Ambient Air Monitoring
- Dispersion Modeling

### REMEDIAL DESIGN AND ENGINEERING:

- Conceptual Design
- System Specifications
- Economic Analysis
- Bid Evaluations
- Project Management

- Site Reconnaissance
- Environmental Impact Statements
- Wetland Delineation

#### *Compliance*

#### *Auditing:*

- Facility Review

- Risk Based Closure

### AIR QUALITY SERVICES

#### *Permitting:*

- New Source Review
- Prevention of Significant Deterioration
- FESOP
- Title V

#### *Ambient Air Monitoring:*

- Fenceline Studies
- Odor Surveys
- Fugitive Emissions
- Dispersion Modeling
- Records Review
- Process Determinations
- Mass Balance Emission Inventory
- AP-42

### INDUSTRIAL HYGIENE:

#### *Asbestos, Lead-Based Paint and Mold:*

- Building Surveys
- Bulk Sampling
- Air Monitoring
- Abatement Specifications
- Operations and Maintenance Plans

#### *Indoor Air Quality:*

- Complaint Investigations
- Sampling
- Source Determination
- Employee Exposure Monitoring

#### *Training:*

- Hazard Communications
- Spill Response
- Hazwoper
- OSHA Construction
- OSHA Generic Industry
- Asbestos, Mold and Lead Awareness.





During a construction project, quality control of construction materials and methods is crucial to the success of the project. Owners and project participants have a need for precise and timely testing and inspection of construction materials and techniques. Patriot provides dedicated full-time project engineers and support staff to provide on-site information whenever needed. The benefits of Patriot project testing and inspection go beyond collecting and reporting data. They include:

- construction recommendations
- laboratory testing
- professional engineering consultation

## MATERIALS ENGINEERING AND TESTING SERVICES

### CONSTRUCTION PHASE

#### Soil:

- Field Density Tests
- Proctors (Standard and Modified)
- California Bearing Ratios (CBR)
- Sieve Analysis
- Moisture Content
- Atterberg Limits
- Spread Footing Excavation Inspection
- Pile Load Tests
- Tie Back Inspections
- Auger-cast Pile Inspections
- Pile Installation Analysis
- Caisson Inspection
- Proofrolling Inspection
- Dynamic Cone Penetrometry

#### Concrete:

- Slump Test
- Air Test
- Yield Test
- Molding Cylinders and Beams
- Testing Cylinders and Beams
- LA Abrasion
- Mix Designs
- Shrinkage Evaluation
- Post Tensioned Testing and Inspection
- Precast Testing and Inspection
- Floor Flatness and Levelness
- Surveys Reinforcing Steel
- Placement Inspections
- Unit Weight
- Windsor Probe
- Swiss Hammer
- Coring
- Petrographic Analysis
- Batch Plant Inspection
- Sodium Sulfate Analysis
- Maturity Analysis
- Pull Out Strength
- Moisture Emission Testing

#### Steel:

- Anchor Bolt Pull Out Tests
- Weld Inspection
- Bolt Tightness Testing
- Ultra Sonic Testing
- Magnetic Particle
- X-Ray Inspection
- AWS-Certified Welding Inspection
- Ground Penetrating Radar

#### Roofing:

- Infrared Moisture Surveys
- Electrical Capacitance Moisture Survey
- Nuclear Moisture Survey
- Warranty Inspection
- Condition Surveys
- Failure Investigation
- Installation Inspection

#### Asphalt:

- Thickness
- Density In Place
- Coring
- Temperature Monitoring
- Bitumen Content
- Aggregate Gradation
- Aggregate Soundness

#### Masonry:

- ICBO Masonry Inspection
- Mortar/Grout Trial Batch
- Mortar Compressive Test

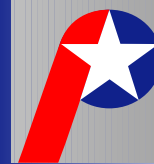
- Mortar Autoclave Expansion
- Mortar Density
- Block Prism Test
- Block Compressive Strength
- Block Absorption/Moisture
- Content Block Weight/Fire Resistance Rating
- Brick Compressive Strength
- Brick Modulus of Rupture
- Brick Absorption
- Brick Freeze/Thaw
- Brick Puncture Resistance

### PRE-CONSTRUCTION PHASE:

- Materials Locations, Evaluation and Selection
- Materials Evaluation for Renovation
- Structural Testing for Renovation
- Roof Testing and Evaluation
- Specification Review
- Concrete Specifications
- Aggregate Evaluation
- Quality Control Parameters
- Testing Services Cost Estimate
- Assistance in Vendor and Contractor Selection.

### POST CONSTRUCTION AND OPERATIONS PHASE:

- Building Observation Surveys
- Grounds and Landscaping
- Parking and Pavements
- Building Exteriors/Windows and Doors
- Structural System/Framing and Roofing
- Structural Load Tests.



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**Offices in Indianapolis, Evansville,  
Fort Wayne, Terre Haute, Lafayette,  
South Bend, Louisville, Dayton,  
Paducah and Charleston**

#### Accreditations:

US Army Corp of Engineers  
AASHTO  
AMRL  
ACL