

**BRINGING ALL THE RIGHT THINGS TOGETHER**

**ENVIROPROBE**

**INTEGRATED SOLUTIONS, INC.**

DRILLING ♦ ENGINEERING ♦ ENVIRONMENTAL PROFESSIONALS

**SERVICE BRIEF**

*Civil and Environmental Site*

*Development*

*Geotechnical Engineering*

**Civil and Environmental Site Development**

EnviroProbe is a woman-owned small business headquartered in Nitro, West Virginia. Our experienced operators have provided direct-push, environmental and geotechnical drilling services since 1995. Today's regulatory and risk management framework requires a seasoned multi-disciplinary team of professionals that have integrated experience in engineering, permitting, environmental compliance, cost concerns, and a variety of project parameters. Although our engineers are grounded in the basic engineering principles, we are very aware and abreast of current trends in analysis and design. EnviroProbe's professionals have provided solutions for a number of projects.

- **Site Development**
  - Commercial
  - Residential
  - Industrial
- **Geographical Information Systems (GIS)**
- **Stormwater Management and Erosion Control**
- **Geotechnical Analysis**
  - Subsurface Investigations and Sampling
  - Drilling and Rock Coring
  - Sample collection and classification
  - Borehole logging (soil and rock)
  - Piezometers and Inclinometers
  - Foundation Recommendations
- **Ground Movement**
  - Retaining Walls
  - Piles and Micro-Piles
  - Sheet Piling
  - Landslide/Slope Stability Analysis
- **Earthwork Design/Excavation Evaluations**
- **Landfills**
- **Construction Monitoring**
- **Expert Witness and Support Services**



PEC Premiere ♦ PICS Auditing ♦ ISNetworld ♦ WV OM&GA ♦ WV IOGA ♦ WVONGA

[www.enviroprobeinc.com](http://www.enviroprobeinc.com)

Headquarters 304.776.6717 ♦ Morgantown Office 304.381.4460

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## **Civil and Environmental Site Development**

Our multidisciplinary approach allows us to offer complete turnkey services for successful project development. EnviroProbe has the experience and knowledge in the oil and gas industry and the regulatory relationships to provide timely, cost effective solutions. EnviroProbe services for Marcellus Shale natural gas development include:

### **SITE ENGINEERING**

- Site/civil design for access roadways, well site layout, and impoundments.
- Grading plans with balanced earthwork on site.
- Geotechnical engineering for subsurface explorations, slope stability analysis and remedial design, and foundation design recommendations.
- Well impoundment design, permitting, certification, and construction monitoring.
- Stormwater management plans including E&S control.

### **SLOPE STABILITY ANALYSIS AND REMEDIAL DESIGN**

Only recently has slope stability become prominent during the design and construction phases of many projects, especially those located in the Appalachian terrain. EnviroProbe's engineers are familiar with the various methods utilized to evaluate a site and predict slope stability and related analyses. Slope stability is critical for many projects such as analysis of existing or proposed soil embankments, rock fills, dam analysis and design, landfill design and operation, estimating the causation of slope failure, and designing remedial measures. Analyses can involve circular or sliding block methods, interface friction angles, and estimation of the strength parameters of the soil or rock. Slope stability analyses are performed on one of the most technologically advanced computer programs available and can be modified using site specific data.

EnviroProbe's engineers can develop preventive measures during initial project design or recommendations to repair slope failures. Based upon the project circumstances, our engineers will consider various remedial measures such as re-grading the site to obtain more suitable conditions, management of groundwater, and design of retaining structures. Our staff is familiar with a wide variety of retaining structures, including gabion baskets, soldier beam and lagging walls, sheet piles, reinforced concrete, and reinforced earth slopes.

### **FOUNDATION DESIGN RECOMMENDATIONS**

EnviroProbe's staff has experience with various types of foundations and will recommend the appropriate type of foundation given the anticipated application and site conditions. Some of the different types of foundations with which our staff is familiar are spread and strip footings, steel piles, auger-cast concrete piles, drilled piers, and reinforced mats.

Preliminary foundation design recommendations and cost analyses are commonly performed during the initial phases of a project to assist in determining project feasibility. The final recommendation can include construction drawings, technical specifications, recommendations for allowable bearing capacity, engineer's construction cost estimate, and contractor's bid sheet.

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