

**Brent A. Scarbrough, P.E.**

Frontier Environmental Services, LLC.

Master of Science - Civil Engineering, University of Colorado, 1997

**Professional Certifications:**

Principals and Practice of Engineering Exam (PE), State of Colorado. April 2008.

**Fields of Competence:**

- Environmental/Civil Engineering
- Hydrologic/Hydraulic Design
- Natural Stream Channel Design
- Design-Construct Implementation and Oversight
- Project Management
- Site Safety Supervision
- QA/QC aspects of remediation/reclamation projects
- In-situ Hazardous Waste Management
- Regulated Substance Excavation and Relocation
- Hazardous Waste Transportation and Disposal
- Storm Water Management
- Mine Closures
- Heavy Equipment Operations

**Recent Employment History:**

*Frontier Environmental Services, LLC;* May 2016 to present, Partner. A full service design, engineering, construction, and construction management company serving government, industry and the environmental regulated community.

*Frontier Environmental Services, Inc.;* May 1999 to 2016, Vice President, Project Engineer and Project Manager. A full service design, engineering, construction, and construction management company serving government, industry and the environmental regulated community.

**Experience Summary:**

Extensive knowledge and varied experience in the fields of environmental/civil engineering, project management, design-construct implementation and oversight, natural stream channel design and restoration, storm water management and infrastructure, hazardous waste management, quality assurance and quality control for large scale reclamation projects, operations and maintenance of land application systems, turnkey environmental construction and remediation, mine land reclamation and remediation, slope stabilization, high altitude revegetation, heavy equipment operations, soil sampling and analysis, resource allocation, and analytical analysis.

**Key Projects:**

Project Manager for the construction of a 16x8x80 cast-in-place concrete box culvert with associated wing walls and footers. The goal of the project was to replace an undersized culvert crossing that was prone to frequent overtopping with an appropriately sized box culvert. The project included grouted boulder drop structures, soil riprap, riprap toe protection, bank stabilization, and multiple utility relocations. The project required installation of an active by-pass system as well as 24 hour dewatering operations during the box construction.

Project Engineer/Project Manager for a stream and fisheries restoration project on Clear Creek near the confluence of the main stem and the north fork. Project included a reference reach analysis, hydraulic design and modeling using HEC-RAS, multiple agency permitting with full design submittals. The final design included mitigation efforts in a gravel-bed river with the construction of cross vanes, J-hooks, boulder clusters, and toewood to improve fish habitat structure in the stream.

Project Engineer/Project Manager for a stream and fisheries restoration project on Clear Creek in Idaho Springs, Colorado. Project included a reference reach analysis, hydraulic design and modeling using HEC-RAS, multiple agency permitting with full design submittals. The final design included mitigation efforts in a gravel-bed river with construction of grade control features to improve fish habitat structure.

Project Engineer/Project Manager for a stream and fisheries restoration project on Clear Creek in Golden, Colorado. Project included a reference reach analysis, hydraulic design and modeling using HEC-RAS, multiple agency permitting with full design submittals. The final design included mitigation efforts in a gravel-bed river with construction of grade control features to improve fish habitat structure.

Project Engineer/Project Manager for a \$6.5 million multi-year erosion and sediment control project on Pikes Peak Highway in El Paso County. The project included construction of concrete lined storm water channels, rip-rap lined sediment basins, concrete inlet structures, 24" RCP, 36"RCP, 48" RCP, detention ponds, and asphalt paving to the Summit House located at 14,115 feet above sea level.

Project Manager for a Federal Aviation Administration airport expansion project at Jefferson County Airport in Broomfield, CO. Project included the construction of two high speed exit taxiways, storm water infrastructure, 24", 36", 48" RCP, embankment construction, geotextile placement, paving, electrical infrastructure, and revegetation. Project required coordination with multiple agencies and subcontractors, as well as adherence to very stringent specifications.

### **Training:**

Transportation Erosion Control Supervisor Training – July 2014

Designing for Aquatic Organism Passage at Road-Stream Crossings – April 2012

River Restoration and Natural Channel Design – September 2011

River Assessment and Monitoring – July 2010

River Morphology and Applications – March 2010

Applied Fluvial Geomorphology – November 2009

Floodplain Hydraulics and Encroachment Analysis Using HEC-RAS/HEC-GeoRAS, May 2008

Stormwater Planning and Design Using EPA SWMM 5.0, December 2007

AutoCAD Land Development Desktop and Civil Design Training, November 2002

Geosynthetic Clay Liners for Waste Containment Management Systems, January 2000

OSHA 40-hour Hazardous Waste and Safety Training in compliance with 29 CFR 1910.120

MSHA 24-hour New Surface Miner Training in compliance with 30 CFR 46

MSHA 40-hour Underground Miner Training in compliance with 30CFR 46