



Expression of Interest

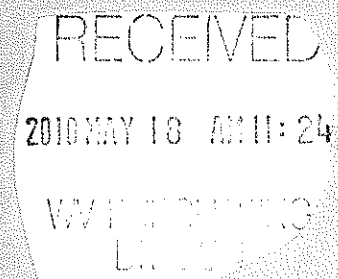
West Virginia
Department of Environmental Protection
Division of Abandoned Mine Lands

DEP Request for Quotation
Reynoldsville Refuse Design
#DEP14992

May 18, 2010

Prepared For:

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Charleston, WV 25305



Submitted By:

SUMMIT ENGINEERING, INC.

Serving West Virginia with offices in
Chapmanville, Charleston and Bridgeport.

*West Virginia Department for Environmental Protection
Division of Abandoned Mine Lands
DEP 14992– Reynoldsville Refuse Design RFP*

Table of Contents

REQUEST FOR QUOTATION
PURCHASING AFFIDAVIT

SECTION I

Executive Summary
General Statement of Qualifications
Additional Company Information:

- Qualifications of Personnel
- Management & Work Plan
- Experience with AML Projects
- Office Locations
- Project Team Chart

SECTION II

Project Discussion

- Site Photographs

SECTION III

Attachments

- Consultant Confidential Qualification Questionnaire
- Related Project Experience Matrix (Attachment "C")





State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER
DEP14992

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF
CHUCK BOWMAN
304-558-2157

RFQ COPY
 TYPE NAME/ADDRESS HERE

VENDOR

SHIP TO

ENVIRONMENTAL PROTECTION
 DEPARTMENT OF
 OFFICE OF AML&R
 601 57TH STREET SE
 CHARLESTON, WV
 25304 304-926-0499

DATE PRINTED 03/17/2010	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
-----------------------------------	---------------	----------	--------	---------------

BID OPENING DATE: **05/18/2010** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	JB		906-29		
<p>REYNOLDSVILLE REFUSE DESIGN</p> <p>EXPRESSION OF INTEREST</p> <p>THE WEST VIRGINIA PURCHASING DIVISION, FOR THE AGENCY, THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, IS SOLICITING EXPRESSIONS OF INTEREST FOR PROFESSIONAL ENGINEERING DESIGN SERVICES AND CONSTRUCTION MONITORING SERVICES AT THE REYNOLDSVILLE REFUSE PROJECT IN HARRISON COUNTY, WEST VIRGINIA, PER THE FOLLOWING BID REQUIREMENTS AND ATTACHED SPECIFICATIONS.</p> <p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THIS CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE: *James C. Anderson* TELEPHONE: (304) 342-1342 DATE: 5/18/10
 TITLE: Vice President FEIN: 61-0991104 ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (*West Virginia Code* §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: Summit Engineering, Inc.

Authorized Signature: *[Signature]* Date: May 18, 2010

State of West Virginia

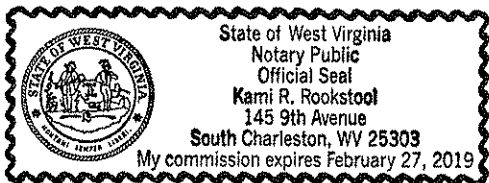
County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 18th day of May, 2010.

My Commission expires February 27, 2019.

AFFIX SEAL HERE

NOTARY PUBLIC *[Signature]*



Executive Summary

Summit Engineering, Inc. proposes to provide design and specification services, surveying and mapping, and any required laboratory or subsurface investigation, in support of the Department of Environmental Protection's (DEP) effort to reclaim lands and water affected by coal mining which occurred prior to the promulgation of the Surface Mining Control and Reclamation Act of 1977. We also propose to offer the service of construction contract document preparation and contract administration to these projects.

Summit Engineering, Inc. is a large, diverse mining and civil engineering firm with seven regional offices strategically located in the Appalachian Coalfields and in close proximity to the anticipated projects requested by the Department for the required scope of work. Our three West Virginia offices are located in Charleston, Chapmanville and Bridgeport, West Virginia. We have combined our individual talents and expertise to benefit many post mining projects in the region. Being a mining *and* civil engineering firm, we have many corporate attributes that uniquely qualify our firm to provide services for abandoned mine lands reclamation projects in the state of West Virginia.

These attributes include:

- Strategically located offices in West Virginia coalfields (Charleston, Chapmanville and Bridgeport)
- Successful working relationship with West Virginia DEP
- Award-winning post mining land use projects
- Extensive background in coal mine design
- Experienced and available professional staff
- Vast amount of existing data in areas of potential projects

Summit has taken the opportunity to conduct field investigations of this project and has an understanding of the project scope.





SUMMIT ENGINEERING, INC.

400 Allen Drive, Ste 100
Charleston, WV 25302
(304) 342-1342

Principal Contact:
Jim Canterbury, PE
jcanterbury@summit-engr.com

Firm Highlights

- Founded in 1977
- Over 30 years experience in engineering and architectural services
- Combined experience of more than 110 highly trained employees
- Professionals registered in multiple states:

<i>Kentucky</i>	<i>Virginia</i>
<i>West Virginia</i>	<i>Indiana</i>
<i>Tennessee</i>	<i>Ohio</i>
<i>Pennsylvania</i>	<i>Arkansas</i>

Firm History

Summit Engineering, Inc. is a Pikeville, Kentucky based firm. Established in 1977, we have rapidly expanded to meet the growing civil, architectural and mining engineering needs of Kentucky, western Virginia and West Virginia. Summit opened its second office in 1980 which is now located in Big Rock, VA. In 1981, Summit's Civil Engineering Design Headquarters opened in Lexington, KY. A fourth branch opened in 1985 in Chapmanville, West Virginia. Summit Architectural Services was created in April 1995 and operates out of the Pikeville office. Our second West Virginia office was opened in Charleston in 1996. Summit's sixth office opened in Hazard, Kentucky in 1998. In February 2008, Summit opened its third West Virginia office in Bridgeport, West Virginia.

Summit's experience and expertise offers a wide range of civil & mining engineering, surveying, architecture and environmental assessment consultation and design services.

Mining Engineering Services

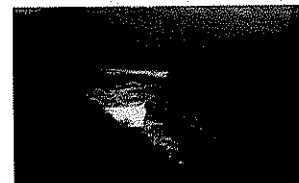
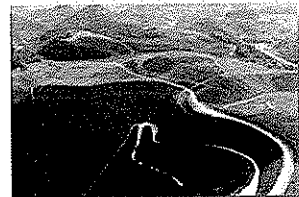
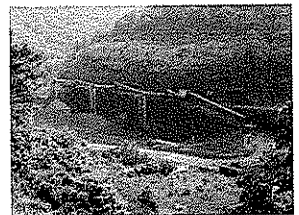
Our firm has decades of combined experience in the mining and reclamation projects. Summit is proud to have accumulated an enormous amount of experience, which ensures our clients of high quality services at very competitive fees. Projects include:

- ➔ Plan Design
- ➔ Surveying and Mapping
- ➔ Hydrologic Investigation
- ➔ Geologic Investigation
- ➔ Permitting
- ➔ Environmental Monitoring and Testing
- ➔ Technical Report Preparation

Summit's most valuable asset is the experience of our staff. Our staff has over of 100 years of cumulative experience in the mining industry. The experience, knowledge, and skills of our staff enable us to assist with the planning and permitting needs of the coal industry in order to overcome the obstacles faced in today's market. Summit has also been instrumental in the development of unique post mining land uses. We have been involved in developing golf courses, residential subdivisions, commercial developments and recreational facilities on previously mined sites, thus illustrating our capacity to combine different disciplines of engineering for the benefit of industry, community, and the environment.



Charleston, West Virginia
Office



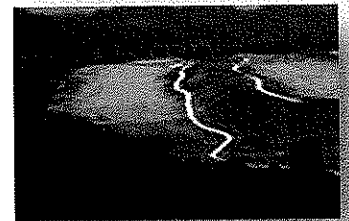
Civil Engineering Services

For over 30 years, Summit's staff of experienced civil engineers has provided civil engineering services for several municipalities as well as water and sewer districts. It is Summit's mission to provide cost-effective solutions to meeting the needs of our clients. Summit's services range from project design and management to bidding and construction administration. As municipal engineers for various communities and projects, Summit has worked extensively with local, state and federal regulations that may be encountered during project development.

Services provided by our Civil Engineering division include:

- Roadways and Bridges
- Urban planning
- Water supply systems
- Sanitary and storm sewer systems
- Utilities/Infrastructure Needs Studies
- Regional Facilities Planning
- Industrial & Commercial site development
- Sanitary landfills
- Residential communities

It is our goal to be a full-service provider for your project. Summit also provides additional services to our civil engineering clients, including project administration, construction inspection and funding assistance.



Environmental Services

Summit has developed an in-depth understanding of environmental situations, investigations, and mitigation plans. Our staff of highly trained and experienced personnel enables Summit to provide quality, efficient results on projects ranging in size and sensitivity. Project owners have utilized Summit's services for both mining and civil engineering projects requiring:

- Environmental site assessments
- Reclamation liability studies
- Aquatic biologic surveys
- Stream and wetland mitigation
- Wetland delineation
- Corps of Engineers permits
- Toxic release inventory reporting
- Water quality studies
- Land reclamation cost analysis
- Stream benthic surveys
- KPDES permit applications
- Air quality permits and reporting
- Spill prevention control and countermeasures plans



- EPA underground injection permits

Surveying

Summit Engineering's field staff offers more than 100 years of combined experience in both conventional and global positioning (GPS) survey methods. Our survey staff is comprised of six qualified field personnel who have accumulated an impressive depth of experience on jobs, both large and small, the majority of which are in challenging terrain.

Our projects are held to the highest standards of accuracy by utilizing state of the art equipment, software and support vehicles. Summit's experience has been gained on a wide array of survey projects including:

- Planimetric
- Reconnaissance
- Terrain
- Boundary
- Property and subdivision
- Roadway surveys
- Cross-sections
- Construction staking
- Control surveys for aerial photography
- Mine Surveys
- Underground
- Quarries
- Stockpiles
- GPS Capability
- ALTA Plat Standards



Summit's organization combines fieldwork experience with superior project management.



Experience & Capabilities

CORPORATE EXPERIENCE WITH ABANDONED MINE LAND PROJECTS

Summit Engineering has been involved in AML reclamation projects since 1983. We have provided services to the West Virginia Department of Environmental Protection – Division of Abandoned Mine Lands, the Virginia Division of Mined Land Reclamation, the Kentucky Division of Abandoned Mine Lands and directly to the Office of Surface Mining. Projects in all three states have included some or all of the following: study, planning, permitting, design and construction oversight on varied types of projects including landslide and other soil and rock stability problems, mine and refuse fire abatement, sealing of hazardous shafts and other portals, mine subsidence problems, channel restoration, acid mine drainage mitigation and facility demolition, water studies and infrastructure projects. Our projects completed for West Virginia's Division of Abandoned Mine Lands include the Godby Branch Project and the Twin Branch Portal Closings Project.

The following exhibit of Abandoned Mine Lands and Reclamation Experience, which briefly describes prior and on-going AML&R projects by Summit, is a quick reference guide to our experience and expertise with AML projects. You will note that most of these projects have been successfully built and have dealt with a variety of issues that might be encountered when dealing with a reclamation project.

Our most recent experience has been obtained in the area of ground water contamination studies. Consequently, many of our studies have resulted in the funding of multiple water supply projects. As an illustration of this success, Summit is proud to have several water supply projects in the region fully funded and in various stages of final design and construction.

Summit maintains the experienced staff and other in-house and/or sub-contracted capabilities for all phases of Abandoned Mine Land projects which require services in surveying and mapping, geotechnical investigation, design engineering, contract drawings and specifications, contract document preparation and administration. Thus we are expertly qualified to provide these services for the abatement of problems resulting from abandoned mine lands.



*State of West Virginia
Reynoldsville Refuse RFP*

QUALIFICATIONS OF PERSONNEL

Today, Summit Engineering employs approximately 125 highly-trained staff members representing a diverse range of professional backgrounds and technical expertise. Our employees include engineers, geologists, environmental scientists, hydrologists, surveyors and resident inspectors who are complemented by a dedicated support staff.

These individuals have worked on many projects that have addressed both mining and civil engineering concerns. Many of those projects have dealt with post-mining land use or abandoned mine lands. Several of these projects have uniquely integrated all of our engineering disciplines. One similar project is the Stone Crest Golf Course, where previously mined lands were developed into an 18-hole championship golf course in Prestonsburg, Kentucky. Another of these projects is the Grant's Branch Park, where a community facility along with a fishing lake was developed on post-mining lands.

PROJECT TEAM ORGANIZATION

Summit Engineering utilizes an interdisciplinary team approach to develop realistic, cost-effective solutions to the environmental issues associated with abandoned mine lands. This approach allows for the collective input of ideas and expertise and gives the client and the project the "best of both worlds" utilizing our mining and civil engineering departments.

The Principal-in-Charge will ultimately be responsible for the entire scope of the project. **Jim Canterbury, PE**, who will serve as the Principal-in-Charge and is a legally authorized official of our firm, is authorized to sign all contractual documents related to AML work. Mr. Canterbury serves as the Office Manager of our Charleston office where he will have direct, hands-on control of any awarded project. Mr. Canterbury has worked for years as an advocate of the coal mining industry and continues to serve on many panels and in industry organizations.

The Project Manager will be responsible for the overall management of each project assigned. **Donald Bailey, PE** will serve as project manager on all WV DEP AML projects. Mr. Bailey is a professional engineer with an intimate familiarity with the DEP on many levels. A portion of his responsibilities as project manager will be as the official project liaison with the DEP. Mr. Bailey and/or key members of his staff will review the work directive, visit the site(s) and develop and execute a work plan.

Additional project engineers may be assigned by the project manager. The majority of the Project Manager's work will involve the technical aspects of the project (i.e., design of engineering plans, detailed review of



*State of West Virginia
Reynoldsville Refuse RFP*

calculations and drawings, preparation of technical reports and construction documents), however he will also assume some managerial duties. Particularly, he will coordinate the technical efforts and field work of the team members and will be responsible for any subcontractors regarding their specific assignments as well as regular monitoring of the design process.

Summit Engineering's survey team is led by **Steve Haywood, LS (WV)**. Topographic and control surveying are integral parts of the services we provide. Our survey staff offers specialized expertise in various types of field surveys including boundary surveys, topographic surveys, control surveys for aerial mapping, construction surveys and spad setting in underground mine works. We have performed surveying and mapping on projects ranging from mine reclamation projects to water and wastewater lines and from underground mine layouts to construction layout for major projects including roadways, golf courses and industrial sites. Our survey staff is equipped with the latest technology including the use of GPS Systems and other precision instruments for making extremely accurate measurements in the rugged terrain of the Appalachian coalfields.

CAD Technicians dedicated to this project include staff from the Charleston office as well as the Bridgeport and Chapmanville offices, based on the office most readily available to the project site and DEP personnel. Utilizing state of the art equipment and software, we are able to offer a spectacular product of mapping, exhibits and illustrations in a clear and concise format.

PROJECT MANAGEMENT PLAN

Project management is focused on the commitment of resources – physical, fiscal, and personnel – to ensure completion of assigned projects within the specified time and budgetary constraints. The management function encompasses the basic tasks of organizing, staffing, deciding, directing, monitoring, controlling and evaluating all aspects of project formulation and implementation. Summit's West Virginia offices have both the technical capabilities and qualified staff, to efficiently and effectively implement a work plan that has been proven successful on previous AML projects in West Virginia, Kentucky and Virginia.

The team assigned to your projects has worked together on previous occasions, many of which are similar in scope to the upcoming DEP projects. Summit is committed to the allocation of additional personnel and any other required resources that may be necessary to successfully complete your projects in an efficient, timely, professional and cost effective manner.



AML AND RECLAMATION PROJECT EXPERIENCE

Project Name	Location	Owner
<u>Twin Branch Portal</u> Abandoned deep mine reclamation, portal/shaft closure, hydrologic/hydraulic design/evaluation, mine/refuse fire abatement, project specifications, stream restoration. <i>Jim Canterbury, PE Project Manager</i>	Mingo County, WV	WV DEP 601 57 th Street, S.E. Charleston, WV 25304
<u>Godby Branch Portal AML Project Drainage Phase II</u> Abandoned deep mine reclamation, portal/shaft closure, hydrologic/hydraulic design/evaluation, project specifications, stream restoration. <i>Jim Canterbury, PE Project Manager</i>	Logan, WV	WV DEP 601 57 th Street, S.E. Charleston, WV 25304
<u>Dent's Run Bridge</u> Hydrologic/hydraulic design/evaluation, equipment/structure removal. <i>Jim Canterbury, PE Principle in Charge</i> <i>Mike Hill, PE, Project Manager</i>	Monongalia County, WV	William Henrich, ROW Division WV Dept. of Transportation, Bldg. 5 Charleston, WV 25305
<u>Vanita Stanley Group AML Project</u> Design of Remediation Project <i>Kevin Howard, PE, Project Manager</i>	Pike County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<u>Feds creek-Mouthcard AML Water Supply Project</u> Phase I & II contracts: Design, bid documents and construction admin for AML water supply project. Funding supplemented with RD,DWSRF & Coal severance funds. 48 miles of 4,6,8,10 & 12" line, 2. MGD plant, 1.0mg tank, 300,000 gal. tank 2 skid tanks over 20,000 gal, 3 booster pump stations and telemetry. <i>Kevin Howard, PE, Project Manager</i>	Pike County, KY	Mountain Water District P.O. Box 3157 Pikeville, KY 41501 (606) 631-9162
<u>Ferrell's Creek AML Groundwater Contamination Study</u> Ground water study of multiple watersheds in Pike Co., KY. Organized as 4 MOAs covering Woodman, PawPaw, Shelby Valley, Straight Hollow and Ferrells Creek. Included 294 AML eligible households. <i>Kevin Howard, PE, Project Manager</i>	Pike County, KY	Mountain Water District P.O. Box 3157 Pikeville, KY 41501 (606) 631-9162
<u>Lula Neece</u> Survey for volume calculations. <i>Steve Haywood, LS, Project Manager</i>	Perry County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 502) 564-2141
<u>Garrett Refuse</u> Survey for volume calculations <i>Steve Haywood, LS, Project Manager</i>	Floyd County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<u>Redwine</u> Inspection of remediation project. Includes 64,500 CY earthwork on 22 acre site, 1,100 tons of soil additive, 3,200 CY of gabion and 3,215 tons of rip rap. <i>Mike Hill, PE, Project Manager</i>	Morgan County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<u>Carter Slide</u> Design of remediation project. 100 LF of pile and lagging wall to protect Frank Carter residence from landslide. <i>Mike Hill, PE, Project Manager</i>	Pike County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141



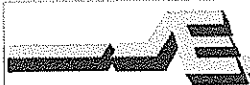
AML AND RECLAMATION PROJECT EXPERIENCE

<p><u>Chloe Group</u> Design of remediation project. Includes reclamation of 10 acres of disturbance at 7 sites. Work includes 36,000CY earthwork, 125 LF pile and lagging wall, 17 portal closures, 1,320 CY gabion ditch, and 130 CY gabion wall. <i>Kevin Howard, PE, Project Manager</i></p>	<p>Pike County, KY</p>	<p>KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141</p>
<p><u>Fouch Drainage</u> Design of remediation project. Two acre slide behind Fouch and Tiller residences. Includes 1,100 CY earthwork, 500 CY gabion retaining wall, and 300 LF storm drain system. <i>Kevin Howard, PE, Project Manager</i></p>	<p>Pike County, KY</p>	<p>KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141</p>
<p><u>Stanley Slide</u> Design and inspection of remediation project. Project involved 400 CY of gabion retaining wall and 2,000 CY earthwork behind Stanley home. <i>Kevin Howard, PE, Project Manager</i></p>	<p>Pike County, KY</p>	<p>KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141</p>
<p><u>Davella Slide II</u> Design of remediation project. Project consisted of stabilizing a half-acre landslide threatening a grave by material removal. <i>Kevin Howard, PE, Project Manager</i></p>	<p>Martin County, KY</p>	<p>KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141</p>
<p><u>Job Project</u> Design of remediation project. Project included three sites. The project involved silt pond elimination, slide stabilization by restraint and slide stabilization by removal. <i>Kevin Howard, PE, Project Manager</i></p>	<p>Martin County, KY</p>	<p>KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141</p>
<p><u>Manton II</u> Design of remediation project. Project consisted of stabilizing and re-vegetating three abandoned coal refuse piles. The project involved approximately 10 acres of disturbance. <i>Kevin Howard, PE, Project Manager</i></p>	<p>Floyd County, KY</p>	<p>KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141</p>
<p><u>Little Fork Project-Phase I</u> Design of remediation project that included a two-acre landslide behind Turner Robinson home to be stripped to rock. Work includes 33, 677 CY earthwork, 250 LF pipe, 1,000 CY gabion ditch, and seven (7) mine portal closures. <i>Kevin Howard, PE, Project Manager</i></p>	<p>Pike County, KY</p>	<p>KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141</p>
<p><u>Ashcamp Project</u> Design and resident inspection of remediation project. Includes 200 LF of 6" RCP, 500 LF lined ditch, and silt pond removal. <i>Jack Sykes, PE, CEO, Project Manager</i></p>	<p>Pike County, KY</p>	<p>KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141</p>
<p><u>Winns Branch Project</u> Design and resident inspection of remediation project. Project stabilization of 0.5 acre slide adjacent to a home. <i>Kevin Howard, PE, Project Manager</i></p>	<p>Pike County, KY</p>	<p>KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141</p>



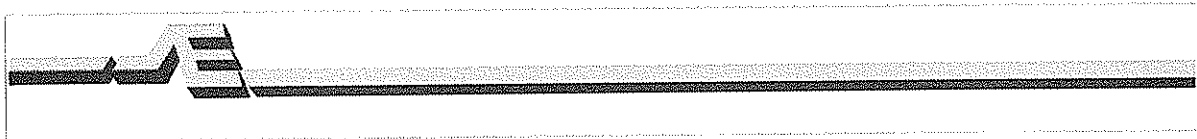
AML AND RECLAMATION PROJECT EXPERIENCE

<p><u>Johns Creek Silt Pond</u> Design for correcting a 10 acre slide, removal of a silt pond and associated diversion channels. <i>Mike Hill, PE, Project Manager</i></p>	Morgan County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<p><u>Ferguson Slide Project</u> Design of remediation project. Includes 1 acre of general reclamation and a gabion retaining wall. <i>Jack Sykes, PE, CEO, Project Manager</i></p>	Pike County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<p><u>Pike / Floyd Project</u> Design of remediation project. <i>Jack Sykes, PE, CEO, Project Manager</i></p>	Pike County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<p><u>McDowell Slides Project</u> Design of remediation project. Three slides corrected by combination of re-grading and material removal. <i>Mike Hill, PE, Project Manager</i></p>	Floyd County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<p><u>Lane Branch Slide Project</u> Design of remediation project. Thirteen-acre slide was stabilized by material removal. <i>Mike Hill, PE, Project Manager</i></p>	Floyd County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<p><u>Hellier Refuse Phase III</u> Design and resident inspection of remediation project involving twenty acres of coal refuse reclaims. Twelve portals were also closed. <i>Mark Sanders, PE, Project Manager</i></p>	Pike County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<p><u>B J & C</u> Design and resident inspection of remediation project. Ten -acre slide was stabilized by re-grading. <i>Kevin Howard, PE, Project Manager</i></p>	Pike County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<p><u>460 Portals</u> Project included closing of six (6) abandoned mine openings. <i>Jack Sykes, PE, CEO, Project Manager</i></p>	Buchanan County, VA	Virginia Div. Of Mined Land Reclamation
<p><u>Lee Mining</u> Design and resident inspection for abandoned contour mine site with steep and eroding outcrops. <i>Kevin Howard, PE, Project Manager</i></p>	Martin County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<p><u>Ashland M & D</u> Design and resident inspection for three (3) abandoned mountaintop removal sites totaling approximately 112 acres. Includes 10 separate slides totaling 33 acres <i>Jack Sykes, PE, CEO, Project Manager</i></p>	Martin County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<p><u>Fletcher Ridge Subsidence Project</u> Evaluation and determination of the extent of potential subsidence on a residence. Initiation of plans and specifications to correct and stabilize problem. <i>Jack Sykes, PE, CEO, Project Manager</i></p>	Russell County, VA	Virginia Division of Mined Land Reclamation



AML AND RECLAMATION PROJECT EXPERIENCE

<u>Sizemore Landslide Project</u> Initiation of preparation of plans & specifications to correct 2 landslides covering approximately 4 acres Jack Sykes, PE, CEO, Project Manager	Russell County, VA	Virginia Division of Mined Land Reclamation
<u>Hellier Refuse</u> Developed plans & specifications for restoring approximately 2900 feet of Marrowbone Creek, & correct AMD from refuse area. Kevin Howard, PE, Project Manager	Pike County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<u>Roadrunner Mine</u> Developed plans for restoration of approximately 600 feet of Fords Branch. Kevin Howard, PE, Project Manager	Pike County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141
<u>Virginia Dept. of Mines, Minerals & Energy</u> Work involved analysis of surface & groundwater samples collected by Dept. to document water quality Jack Sykes, PE, CEO, Project Manager	Big Stone Gap, VA	Virginia Dept. of Mines, Minerals & Energy P.O. Drawer 900 Big Stone Gap, VA 24219
<u>Dry Hollow Sedimentation Project</u> Restored 1930 feet of Conaway Creek near Conaway, VA. Jack Sykes, PE, CEO, Project Manager	Buchanan County, VA	Virginia Division of Mined Land Reclamation
<u>Hellier Refuse</u> Project included demolition of abandoned tipple & removal of abandoned equipment. Mike Hill, PE, Project Manager	Pike County, KY	KY Division of Abandoned Mine Lands 2521 Lawrenceburg Road Frankfort, KY 40601 (502) 564-2141



*State of West Virginia
Reynoldsville Refuse RFP*

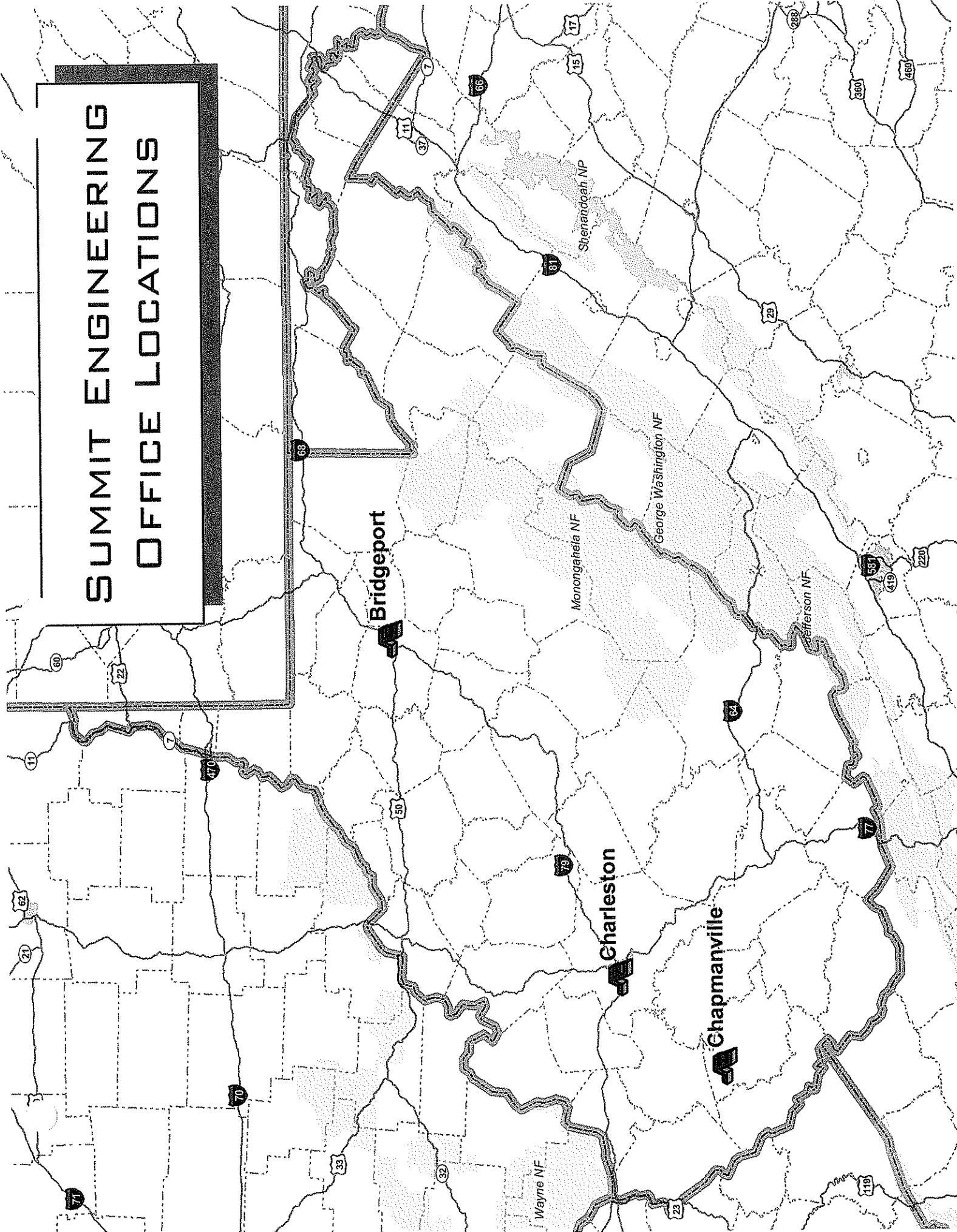
This project would be completed at Summit's Charleston office. The Charleston office has successfully completed two (2) WVAML projects, but at the present time does not have a WVAML project they are designing. The Twin Branch Portals project that Summit's Charleston office designed is very similar in scope as this project. Summit currently has three (3) WV Registered Professional Engineers at the Charleston Office with over thirty five (35) years of coal mining reclamation engineering experience. Mr. Canterbury has personally been involved in the design, bidding and/or construction of over one hundred WV Abandon Mine Lands Projects. This project would be an excellent size project for Summit to complete and show the WV Abandon Mine Lands Section Summit's capabilities.

If a US Army Corps of Engineers permit is required to complete this project, Summit has the experience to complete an Army Corps of Engineers permit application and has worked with the Huntington Corps on several mining permit applications.

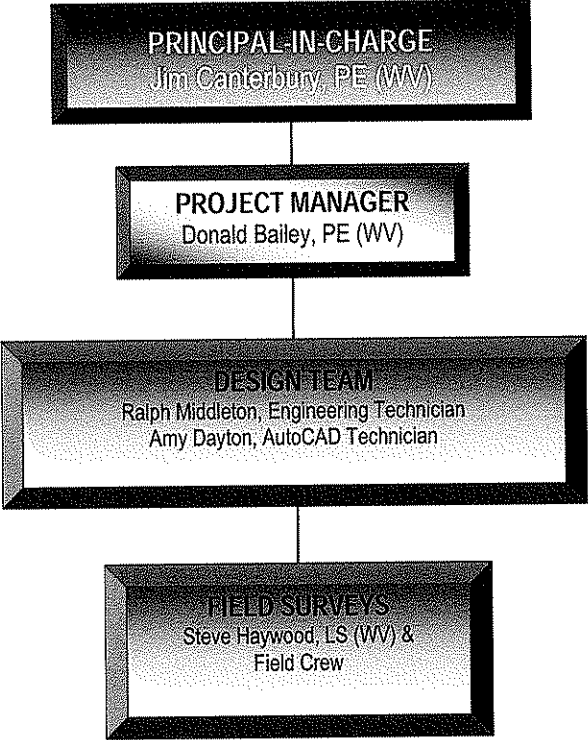
If awarded this project Mr. Jim Canterbury (PE) will oversee the project with Mr. Don Bailey (PE) being the Project Engineer with Mr. Ralph Middleton (Engineering Technician) and Ms. Amy Dayton (Auto Cad Technician) providing support. Any surveying required will be completed by Summit Engineering. Therefore, Summit will be able to commit qualified resources to completing this project within the required time frame.



SUMMIT ENGINEERING OFFICE LOCATIONS



Project Team Chart



Project Discussion

The Reynoldsville Refuse project is comprised of 11 different sites. These sites are all in and around the town of Reynoldsville in Harrison County. These locations are approximately two (2) hours from Summit's Charleston office and approximately 20 minutes from Summit's Bridgeport office.

Mr. Don Bailey from our Charleston office visited several of the refuse areas to become familiar with the sites along with the design and construction issues associated with this project. Regarding the sites visited, access will be via gravel roads one to one and a half lanes wide.

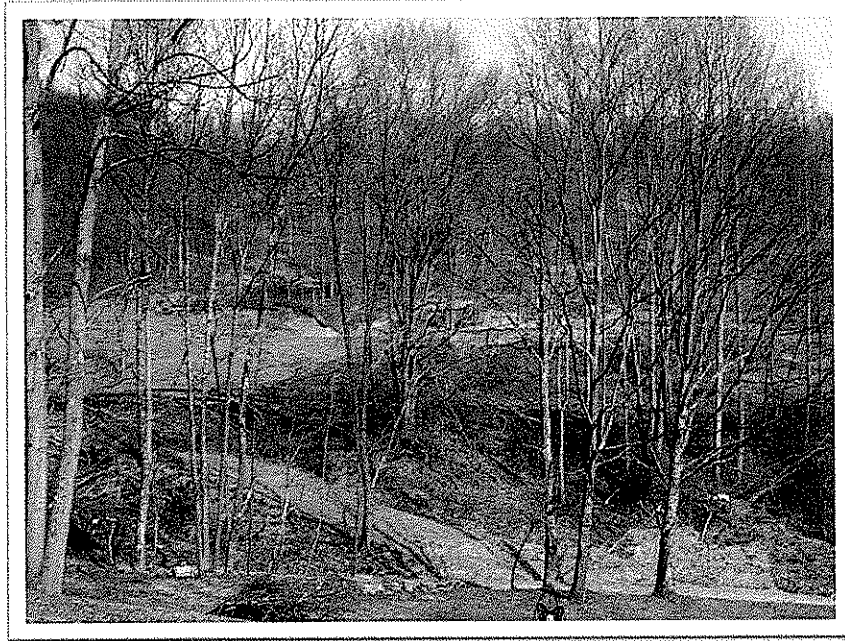
Site 1 is located approximately 0.6 miles up a gravel road after leaving the main paved road. The site is elevated above the gravel road and a creek. It is in close proximity to the Hardman cemetery but should be far enough away for no infringement on the cemetery by construction activities. Site 1 is covered in light growth in spots but is largely open. It appeared to be largely free of foreign materials on the surface. While walking the site, Mr. Bailey observed a gas well approximately 200-300 feet from the center of the site.

Site 2 is located just off of the main road with the base being approximately 100 feet away. This site is a sizeable refuse area located in a valley. The top can be accessed by a single lane gravel road around the side and back of the site. Site 2 is largely uncovered and exposed. Mr. Bailey observed power lines running across the face approximately 1/3 the way up. This will require provisions for and coordination with the local power company during work activities. There is also a gas line near the hard turn in the road on the side of the site. The face of the refuse pile revealed some trees and stumps contained within. Mr. Bailey also noticed coloration in some of the runoff from the back side of the refuse pile that ranged from largely orange to brown with swirls indicating a potential need for water quality control on this site.

Site 3 is located approximately one-half mile off the main road up a hill that transitions from a one and a half lane paved road to a gravel road of similar width. Access to this site passes two residential structures and a cemetery within close proximity to the road. A gate currently blocks access to the site. Mr. Bailey sited a gas meter within 30' of the toe of the refuse pile and a gas well immediately at the top of the face. It appears that the gas line runs through the middle of the face and will require coordination with the owning gas company prior to and during work phases. This site contains foreign materials (e.g. concrete and steel) and four (4) structures of varying size that will require demolition and removal. Mr. Bailey noticed a small marshy area at the top of the fill and seepage from the toe indicating drainage could be an issue throughout the project possibly requiring a series of channels and/or underdrains to divert surface water and mine drainage safely off site. Access to the top is sufficiently provided by an earthen road which appears to wide enough for heavy equipment and trucks.

As detailed from Mr. Bailey's site visits and the information provided in the "Expression of Interest" packet, this project will require a detailed set of plans specific to each site. Summit understands the major components of engineering for these sites will include 1) providing design plans and specifications for the project areas; 2) designing for regrading and stability of the refuse areas; 3) designing drainage channels and/or underdrains to divert surface water and mine drainage safely off site; 4) providing design for soil cover over the regraded refuse area and other disturbed areas; 5) designing wet mine seals and/or bat gates for the open deep mine portals; 6) designing for demolition and removal of existing structures, garbage, and debris; 7) designing for stream bank protection; 8) providing revegetation standards for all disturbed areas; 9) providing estimated quantities; 10) preparing cost estimates; and 11) having the preliminary design documents ready within 60 days from issuance of a Purchase Order.





SITE 1



SITE 1





SITE 1

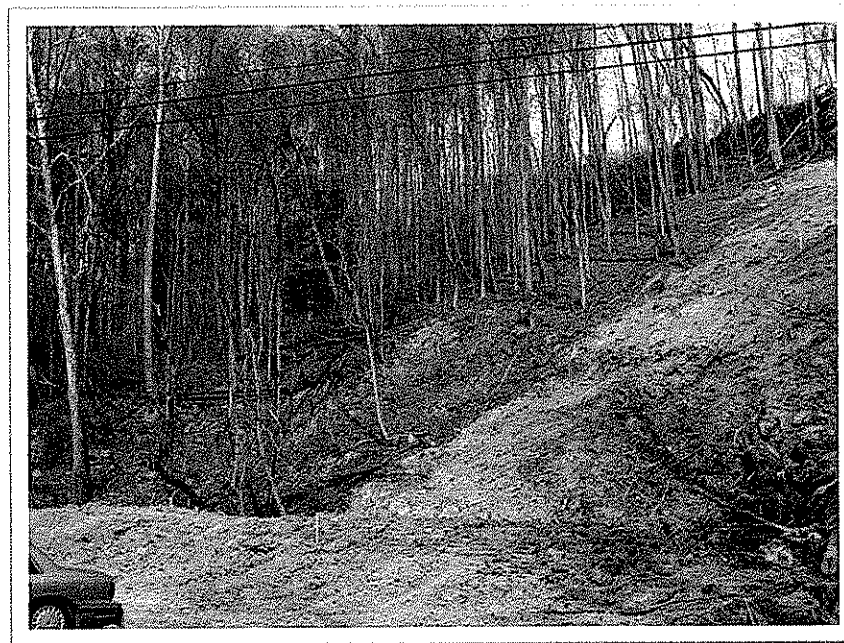


SITE 1





SITE 2



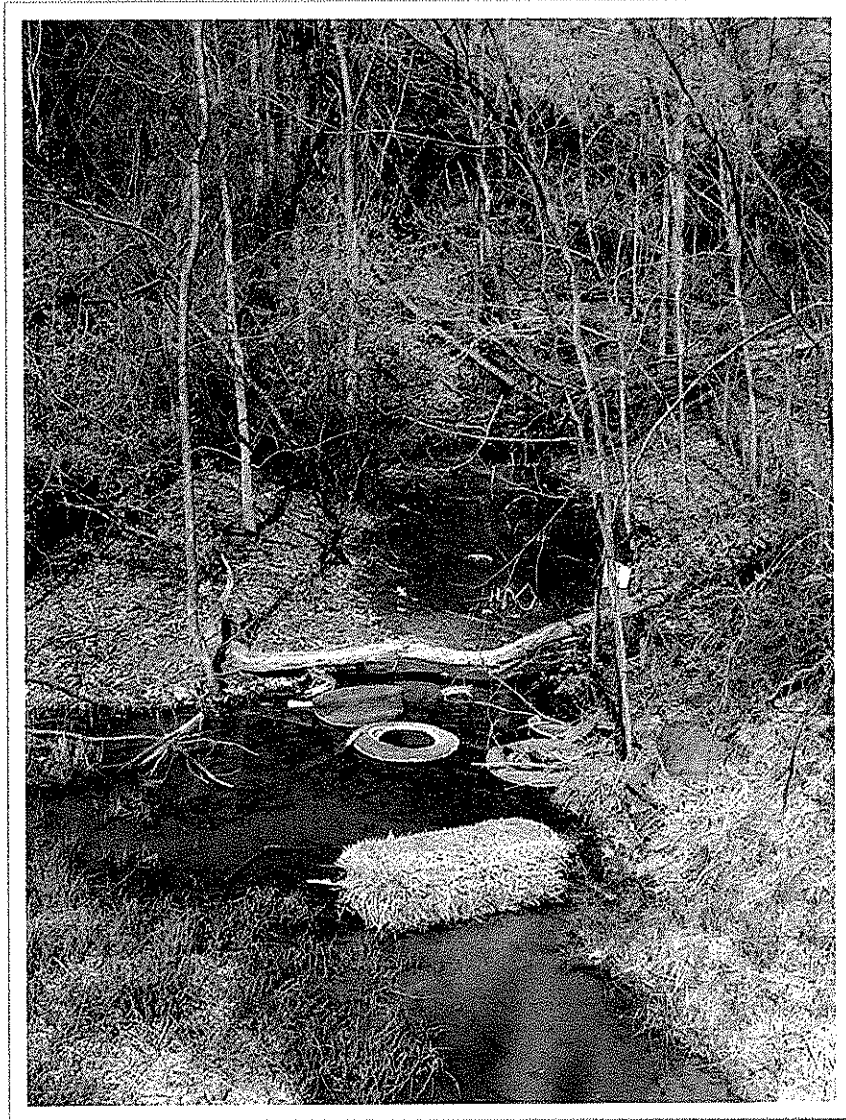
SITE 2





SITE 2





SITE 2





SITE 2





SITE 3



SITE 3





SITE 3



SITE 3





SITE 3



SITE 3






SITE 3



SITE 3





**CONFIDENTIAL CONSULTANT
QUALIFICATION QUESTIONNAIRE**

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AML CONSULTANT CONFIDENTIAL QUALIFICATION QUESTIONNAIRE**

PROJECT NAME: DEP14992 - Reynoldsville Refuse Design
 DATE (DAY, MONTH, YEAR): 18 May 2010
 FEIN: 61-0991104

1. FIRM NAME: Summit Engineering, Inc.
 2. HOME OFFICE BUSINESS ADDRESS: 400 Allen Drive, Suite 100 Charleston, WV 25302
 3. FORMER FIRM NAME: N/A

4. HOME OFFICE TELEPHONE: (304) 342-1342
 5. ESTABLISHED (YEAR): 1977
 6. TYPE OWNERSHIP: Individual Corporation Partnership Joint-Venture
 6a. WV REGISTERED DBE (Disadvantaged Business Enterprise): YES NO

7. PRIMARY AML DESIGN OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. AML DESIGN PERSONNEL EACH OFFICE
 400 Allen Drive, Suite 100, Charleston, WV 25302/(304) 342-1342/ James Canterbury, PE/10 Personnel

8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM
 Jack C. Sykes, P.E., L.S. Phillip Lucas, P.E., L.S.
 David Rasnick, P.E., L.S. Kevin M. Howard, P.E., L.S.
 Mark David Sanders, P.E. Mike Hill, P.E., L.S.I.T.
 Steve Tackett, P.E. Tracy Goff, P.E.
 James S. Canterbury, PE
 8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS
 J.D. Elkins, Office Manager (304) 855-5691
 Byrd Copley, Office Manager (276) 530-7220

9. PERSONNEL BY DISCIPLINE
- | | | | | | | | |
|----------------------------|-----|----------------------|-----|---------------------------|-----|----------------------|----------------------|
| 5. ADMINISTRATIVE | ___ | ECOLOGISTS | ___ | LANDSCAPE ARCHITECTS | ___ | STRUCTURAL ENGINEERS | ___ |
| 2. ARCHITECTS | ___ | ECONOMISTS | ___ | MECHANICAL ENGINEERS | ___ | 9. SURVEYORS | ___ |
| 3. BIOLOGIST | ___ | ELECTRICAL ENGINEERS | ___ | 20. MINING ENGINEERS | ___ | TRAFFIC ENGINEERS | ___ |
| 14. CADD OPERATORS | ___ | ENVIRONMENTALISTS | ___ | PHOTOGRAMMETRISTS | ___ | 47. OTHER | ___ |
| 1. CHEMICAL ENGINEERS | ___ | ESTIMATORS | ___ | PLANNERS - URBAN/REGIONAL | ___ | | |
| 11. CIVIL ENGINEERS | ___ | 5. GEOLOGISTS | ___ | SANITARY ENGINEERS | ___ | | |
| 1. CONSTRUCTION INSPECTORS | ___ | ___ | ___ | SOILS ENGINEERS | ___ | | |
| 7. DESIGNERS | ___ | ___ | ___ | SPECIFICATION WRITERS | ___ | | |
| ___ DRAFTSMEN | ___ | ___ | ___ | | ___ | | 111. TOTAL PERSONNEL |

TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: 3
 *RPEs other than Civil and Mining must provide supporting documentation that qualifies them to supervise and perform this type of work.

Not Applicable

10. HAS THIS JOINT VENTURE WORKED TOGETHER BEFORE? YES NO

11. OUTLINE KEY CONSULTANTS/SUB-CONSULTANTS ANTICIPATED TO BE USED. Attach "AML Consultant Confidential Qualification Questionnaire".

NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE Yes ___ No ___
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE Yes ___ No ___
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE Yes ___ No ___
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE Yes ___ No ___
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE Yes ___ No ___
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE Yes ___ No ___
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE Yes ___ No ___
NAME AND ADDRESS:	SPECIALTY:	WORKED WITH BEFORE Yes ___ No ___

A. Is your firm experienced in Abandoned Mine Lands Remediation/Mine Reclamation engineering?

YES Description and Number of Projects:

Our services include mining permits, reclamation projects and AML water line projects through our civil, mining, surveying and environmental divisions. The number of projects is well over 100 due to our 29 years of service to the various industries, public and private clients we serve.

NO

B. Is your firm experienced in Soil Analysis?

YES Description and Number of Projects:

We perform routine services such as slope stability analyses and small retaining wall design. We utilize sub-consultants for exploration and detailed analysis such as consolidation, liquefaction, etc. Number of Projects is well over 100 as we do soil analysis for many of our mining clients as well as for stream bank stabilization and environmental projects.

NO

C. Is your firm experienced in hydrology and hydraulics?

YES Description and Number of Projects:

Summit designs have primarily addressed the control, treatment, and diversion of surface and ground water. Summit has designed well over 100 projects involving hydrology and hydraulics.

NO

D. Does your firm produce its own Aerial Photography and Develop Contour Mapping?

YES Description and Number of Projects:

We develop contour maps by field survey for sites up to 50 acres. We utilize sub-consultants for mapping by aerial photogrammetry for sites larger than 50 acres. Number of projects is well over 100 as we do mapping for all mining and civil engineering and surveying clients.

NO

E. Is your firm experienced in domestic waterline design? (Include any experience your firm has in evaluation of aquifer degradation as a result of mining.)

YES Description and Number of Projects:

Summit's civil engineering division has over 30 years of experience with domestic waterline design.

NO

F. Is your firm experienced in Acid Mine Drainage Evaluation and Abatement Design?

YES Description and Number of Projects:

Summit Engineering has been doing mining permits for 30 years and has addressed acid mine drainage in each of those. As a firm we have only completed one project that directly mitigated acid mine drainage.

NO

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN (Furnish complete data, but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)		YEARS OF EXPERIENCE	
James S. Canterbury, Partner/Office Manager		YEARS OF AML RELATED DESIGN EXPERIENCE: 22	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 0
Brief Explanation of Responsibilities Partner, Branch Office Manager Mr. Canterbury's responsibilities include managing day-to-day activities of the office and staff. Responsibilities also include obtaining and assisting in the preparation of coal-mining permits, invoicing, performing accounts receivable, assisting clients, and working with regulatory agencies.			
EDUCATION (Degree, Year, Specialization) B.S. - (1975) Civil Engineering - West Virginia Institute of Technology M.S. - (1979) Business Administration - Marshall University			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS REGISTRATION (Type, Year, State) P.E.: WV (1977), KY (1979), PA (1998)			

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN (Furnish complete data, but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)		YEARS OF EXPERIENCE	
Phillip Lucas, Vice President		YEARS OF AML RELATED DESIGN EXPERIENCE: 19	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 0
Brief Explanation of Responsibilities Mr. Lucas joined Summit Engineering in 1992 and presently serves as Vice-President and Partner in the firm. Mr. Lucas has oversight responsibility in the Pikeville, KY, Hazard, KY, and Charleston, WV Offices. He is presently responsible for design and design supervision of deep mines, surface mines, refuse impoundments, and construction related projects.			
EDUCATION (Degree, Year, Specialization) B.S. - (1976)- Civil Engineering, Mining Option - University of Kentucky M.S. - (1997) - Mining Engineering - University of Kentucky			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS Kentucky Society of Professional Engineers National Society of Professional Engineers American Institute of Mining Engineers REGISTRATION (Type, Year, State) P.E. (1991) KY, (1991) VA, (1991) WV L.S. (1993) KY, (1996) VA, (1996) WV			

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN (Furnish complete data, but keep to essentials)

NAME & TITLE (Last, First, Middle Int.) J.D. Elkins, Partner/Office Manager	YEARS OF AML DESIGN EXPERIENCE: 4	YEARS OF AML RELATED DESIGN EXPERIENCE: 4	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 2
	YEARS OF EXPERIENCE		

Brief Explanation of Responsibilities
Mr. Elkins has over twelve years experience in the layout, design, and implementation of surface and underground mining and reclamation projects. Experience includes mine planning; reserve/depletion studies; design of dams, roadways, and fill areas; reclamation plans; re-vegetation/forestation schedules; feasibility/forecast studies; construction and reclamation supervision; and property management. Mr. Elkins' duties include supervision of a complete office staff of project engineers, technicians, draftsmen, and clerical personnel.

EDUCATION (Degree, Year, Specialization)
B.S. (1990) Industrial Engineering Technology
Undergraduate Courses (1986/1987) Mining Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
REGISTRATION (Type, Year, State)

13 PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.) David F. Rasnick, Vice President/Partner	YEARS OF AML DESIGN EXPERIENCE: 22	YEARS OF AML RELATED DESIGN EXPERIENCE: 22	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 0
	YEARS OF EXPERIENCE		

Brief Explanation of Responsibilities
Mr. Rasnick joined Summit Engineering after graduation from the University of Kentucky in 1978. He is currently Vice-President of the firm and oversees projects in West Virginia, Kentucky and Virginia. He has been responsible for the design of surface mine operations, deep mine layouts, mineral reserve studies, mine reclamation projects, railroad design and layout, refuse fill design, property surveys, the layout of water monitoring programs, topographic mapping projects, construction supervision and Geotechnical exploration projects.

EDUCATION (Degree, Year, Specialization)
B.S.- (1977)- Civil Engineering - University of Kentucky

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
National Society of Professional Engineers
American Institute of Mining Engineers
Kentucky Society of Professional Engineers
REGISTRATION (Type, Year, State)
P.E.: (1981) KY, (1982) VA, (1985) WV,
(1986) OH, (1985) IN
L.S. (1983) KY, (1995) WV

13 PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Int.)
YEARS OF EXPERIENCE

<p>Michael J. Akers, Jr., P.E.</p>	<p>YEARS OF AML DESIGN EXPERIENCE: 4</p>	<p>YEARS OF AML RELATED DESIGN EXPERIENCE: 4</p>	<p>YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 0</p>
<p>Brief Explanation of Responsibilities Mr. Akers' responsibilities include interacting with mining clients, the WVDEP and Summit staff to prepare and obtain approval of all types of Article 3 and NPDES permits.</p>			
<p>EDUCATION (Degree, Year, Specialization) B.S. Mathematics, West Virginia Institute of Technology (1975) M.S. Petroleum Engineering, West Virginia University (1978) M.B.A., West Virginia College of Graduate Studies (1980)</p>			
<p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS Society of Petroleum Engineers Virginia Oil and Gas Association Kentucky Oil and Gas Association</p>			
<p>REGISTRATION (Type, Year, State) P.E.: KY (1982), WV (1982)</p>			
<p>13 PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN (Furnish complete data but keep to essentials)</p>			
<p>NAME & TITLE (Last, First, Middle Init.) Donald Bailey, P.E.</p>	<p>YEARS OF AML DESIGN EXPERIENCE: 1</p>	<p>YEARS OF EXPERIENCE YEARS OF AML RELATED DESIGN EXPERIENCE: 1</p>	<p>YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 0</p>
<p>Brief Explanation of Responsibilities Mr. Bailey's responsibilities include interacting with mining clients, the WVDEP and Summit staff to prepare and obtain approval of all types of Article 3 and NPDES permits</p>			
<p>EDUCATION (Degree, Year, Specialization) B.S.: Civil Engineering, West Virginia University Institute of Technology (2003)</p>			
<p>MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS REGISTRATION (Type, Year, State) P.E. WV (2009)</p>			

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE	
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:
Kevin M. Howard, Vice President/Partner	12	12
Brief Explanation of Responsibilities Mr. Howard is responsible for most of Summit's civil engineering related design projects. Mr. Howard's projects have included roadways, shopping centers, hydrologic impact statements, sanitary and storm sewers, lift stations, municipal water system and channel change designs.		
EDUCATION (Degree, Year, Specialization) B.S. - (1979) - Civil Engineering - University of Kentucky M.S. - (1982) - Civil Engineering - University of Kentucky		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS National Society of Professional Engineers American Society of Professional Engineers Kentucky Society of Professional Engineers		
REGISTRATION (Type, Year, State) P.E. (1992) WV, (1983) KY L.S. (1985) KY		

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES RESPONSIBLE FOR AML PROJECT DESIGN (Furnish complete data but keep to essentials)

NAME & TITLE (Last, First, Middle Init.)	YEARS OF EXPERIENCE	
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:
Jack C. Sykes, P.E., L.S.	14	14
Brief Explanation of Responsibilities Mr. Sykes has been a principal and President of Summit Engineering, Inc. since its establishment in October 1977. He has performed technical review and been in the position of responsible person in charge for many projects handled by the firm. Some of the projects Mr. Sykes has been associated with have included forecasts and feasibility studies, residential and commercial development, construction supervision, roadway design, design of water and wastewater handling and treatment facilities, control surveying and mapping, earth fill designs, mineral reserve evaluation, preparation of mine plans, design of coal handling facilities, mine permitting, mine land reclamation, land surveying, and golf course design.		
EDUCATION (Degree, Year, Specialization) B.S. (1973) Civil Engineering, University of Kentucky M.S. (1975) Civil Engineering, University of Kentucky		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS Kentucky Society of Professional Engineers National Society Professional Engineers Institute of Transportation Engineers Coal Operators and Associates		
REGISTRATION (Type, Year, State) P.E.: WV (1978), KY (1977), VA (1977), TN (1979), IN (1985), OH (1986) L.S.: WV (1995), KY (1980)		

Computers

Dell Optiplex GX280 with Dell 19" fp monitor
Dell Optiplex GX620 with Dell 19" monitor
Dell Optiplex GX620 with HannG 19" fp monitor
Dell Optiplex GX620 with HannG 19" fp monitor
Dell Precision 490 Workstation with 1907 fp monitor
Dell Optiplex PC with HannG 19" fp monitor
Dell Precision 490 Workstation with 1907 fp monitor
Dell Optiplex 320 with e197 fp monitor
Gateway e-series pc with HannG 19" fp monitor
Dell Dimension 4100
Dell Dimension 4100

Printers / Peripherals

Canon Network/Workgroup Printer/Copier/Fax
HP LaserJet 4050N Network Printer
HP DeskJet 855 Cse Printer
HP DesignJet 1050C Network Plotter
CalComp Digitizer
HP Scanjet 4470 Scanner
HP Officejet Pro 8500 Printer
HP LaserJet 1200 Printer
Xerox Phaser 3160 Color Network Printer

Engineering Software:

Reame 2004
Sedcad
Autodesk Map2007
Autodesk AutoCad 2007

15. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED ENGINEER OF RECORD (BE SURE TO LIST ALL WVDEP PROJECTS)

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
Antietam Mine Article 3, 401 & NPDES Permits Webster County, WV	Brooks Run Mining Company, LLC 25 Little Birch Road Sutton, WV 26601	Design, submit, make corrections to and obtain approval of all the permit applications.	Design and Permitting Only	75%
Coal Mountain No. 1 Surface Mine Amendment No.1 Article 3 & NPDES Permits Wyoming county, WV	Dynamic Energy Corporation P.O. Box 1085 Beckley, WV 25801	Dynamic Energy Corporation P.O. Box 1085 Beckley, WV 25801	Design and Permitting Only	85%
Coal Mountain No. 1 Surface Mine Amendment No.2 Article 3 & NPDES Permits Wyoming county, WV	Dynamic Energy Corporation P.O. Box 1085 Beckley, WV 25801	Dynamic Energy Corporation P.O. Box 1085 Beckley, WV 25801	Design and Permitting Only	30%
Ramp Run Haul Road Article 3 & NPDES Permits Nicholas County, WV	Terry Eagle Coal Company P. O. Box 180 Bickmore, WV 25019	Design, submit, make corrections to and obtain approval of all the permit applications.	Design and Permitting Only	90%
Beartown Surface Mine Article 3, 401 & NPDES Permits Wyoming County, WV	Kentucky Fuel Corporation P. O. Box 2178 Beaver, WV 25813	Design, submit, make corrections to and obtain approval of all the permit applications.	Design and Permitting Only	65%
Barkers Ridge Surface Mine Article 3, 401 & NPDES Permits Wyoming County, WV	Kentucky Fuel Corporation P. O. Box 2178 Beaver, WV 25813	Design, submit, make corrections to and obtain approval of all the permit applications.	Design and Permitting Only	30%
Clear Fork No. 1 Surface Mine Article 3 & NPDES Permits Nicholas County, WV	Atlantic Leaseco, LLC 702 Professional Park Drive, Suite D Summersville, WV 26651	Design, submit, make corrections to and obtain approval of all the permit applications.	Design and Permitting Only	80%
Sumter Deep Mine Article 3, 401 & NPDES Permits Braxton, County, WV	Brooks Run Mining Company, LLC 25 Little Birch Road Sutton, WV 26601	Design, submit, make corrections to and obtain approval of all the permit applications.	Design and Permitting Only	95%
TOTAL NUMBER OF PROJECTS:			TOTAL ESTIMATED CONSTRUCTION COSTS:	
9 (this page)			N/A	

15. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED ENGINEER OF RECORD (BE SURE TO LIST ALL WVDEP PROJECTS)

PROJL NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURL YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT CC	LETE
Birch River Operation Facilities Article 3 & NPDES Permits Webster County, WV	ICG Eastern, LLC P.O. Box 1019 Cowen, WV 26206	Design, submit, make corrections to and obtain approval of all the permit applications.	Design and Permitting Only	35%	
McDonald Fork Surface Mine Article 3 & NPDES Permits Wyoming County, WV	Dynamic Energy Corporation P.O. Box 1085 Beckley, WV 25801	Design, submit, make corrections to and obtain approval of all the permit applications.	Design and Permitting Only	55%	
Ramp Run No. 2 Amendment Article 3 & NPDES Permits Nicholas County, WV	Terry Eagle Coal Company P. O. Box 180 Bickmore, WV 25019	Design, submit, make corrections to and obtain approval of all the permit applications.	Design and Permitting Only	90%	
Jackson Bridge No.2 Deep Mine Article 3 & NPDES Permits Webster County, WV	Brooks Run Mining Company, LLC 25 Little Birch Road Sutton, WV 26601	Design, submit, make corrections to and obtain approval of all the permit applications.	Design and Permitting Only	25%	
McDonald Fork Surface Mine Article 3 & NPDES Permits Wyoming Co., WV	Justice Highwall Mining, Inc. PO BOX 1085 Beckley, WV 25801	Design, submit, make corrections to and obtain approval of all the permit applications.	Design and Permitting Only	50%	
Antietam Mine US Army Corps of Engineers 404 Individual Permit Webster County, WV	Brooks Run Mining Company, LLC 25 Little Birch Road Sutton, WV 26601	Design, submit, make corrections to and obtain approval of USACE 404 IP Permit and Stream Mitigation Plan	Design and Permitting Only	50%	
Sumter Deep Mine US Army Corps of Engineers 404 Individual Permit Braxton, County, WV	Brooks Run Mining Company, LLC 25 Little Birch Road Sutton, WV 26601	Design, submit, make corrections to and obtain approval of USACE 404 IP Permit and Stream Mitigation Plan	Design and Permitting Only	50%	
Barkers Ridge Surface Mine US Army Corps of Engineers 404 Individual Permit Wyoming County, WV	Kentucky Fuel Corporation P. O. Box 2178 Beaver, WV 25813	Design, submit, make corrections to and obtain approval of USACE 404 IP Permit and Stream Mitigation Plan	Design and Permitting Only	80%	
TOTAL NUMBER OF PROJECTS:		TOTAL ESTIMATED CONSTRUCTION COSTS:		N/A	
8 (this page)					

15. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS THE DESIGNATED ENGINEER OF RECORD

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	NATURE OF YOUR FIRM'S RESPONSIBILITY	ESTIMATED CONSTRUCTION COST	PERCENT COMPLETE
Beartown Surface Mine US Army Corps of Engineers 404 Individual Permit Wyoming County, WV	Kentucky Fuel Corporation P. O. Box 2178 Beaver, WV 25813	Design, submit, make corrections to and obtain approval of USACE 404 IP Permit and Stream Mitigation Plan	Design and Permitting Only	50%
Boone County Schools Stormwater Permit Boone, County, WV	Boone County Schools 69 Avenue B Madison, WV 25130	Design stormwater runoff and obtain permit for school bus parking area	Design and Permitting Only	75%
TOTAL NUMBER OF PROJECTS: 2 (this page)/19 Total Projects			TOTAL ESTIMATED CONSTRUCTION COSTS: \$ N/A	

17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
Twin Branch Portal - AML Project Mingo County, WV	WV DEP 601 57 th Street, S.E. Charleston, WV 25304	\$512,000	2005	Yes
Godby Branch Portal AML Project Drainage Phase II Logan, WV	WV DEP 601 57 th Street, S.E. Charleston, WV 25304	\$75,000	2005	Yes
Georges Creeks Surface Mine US Army Corps of Engineers 404 Individual Permit Logan County, WV	Highland Mining Company P. O. Box 1097 Holden, WV 25625	Design and Permitting Only	2005	Yes
Camp Branch Surface Mine US Army Corps of Engineers 404 Individual Permit Logan County, WV	Aracoma Coal Company P. O. Box 1120 Holden, WV 25625	Design and Permitting Only	2005	Yes
O'Brien No. 2 Surface Mine Article 3 and NPDES Permits Webster County, WV	ICG Eastern, LLC P. O. Box 1019, Rt. 82 West Cowen, WV 26206	Design and Permitting Only	2005	Yes
Brandy Station Mine Article 3 and NPDES Permits USACOE 404 IP Webster County, WV	Brooks Run Mining Company, LLC 25 Little Birch Road Sutton, WV 26601	Design and Permitting Only	2005	No
Cove Mountain Deep Mine Article 3 and NPDES Permits USACOE 404 IP Webster County, WV	Brooks Run Mining Company, LLC 25 Little Birch Road Sutton, WV 26601	Design and Permitting Only	2005	No
Big Creek No. 2 Amendment Article 3 and NPDES Permits Fayette County, WV	Appalachian Fuels, LLC 1500 N. Big Run Rd. Ashland, KY 41102	Design and Permitting Only	2005	Yes
Berkeley County Industrial Park Access Road Road Design Berkeley County, WV	WV Dept. of Transportation Bldg. 5, Room 603 1900 Kanawha Blvd., E Charleston, WV 25305-0430	Design Only	2005	Yes

17 COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
Horsepen Alma "C" Deep Mine Article 3 and NPDES Permits Logan County, WV	Mingo Logan Coal Company P. O. Box 40 L Wharncliffe, WV 25651	Design and Permitting Only	2005	Yes
Guyandotte Slope Mine Article 3 and NPDES Permits Wyoming County, WV	Road Fork Development Company, Inc. P. O. Box 565 Matewan, WV 25678	Design and Permitting Only	2005	Yes
Casey Creek No. 1 Surface Mine Article 3 and NPDES Permits USACOE 404 IP Boone County, WV	Hillside Mining Company P. O. Box 1189 Charleston, WV 25324	Design and Permitting Only	2006	No
Saylors A & B Deep Mines Article 3 and NPDES Permits Webster County, WV	Brooks Run Mining Company, LLC 25 Little Birch Road Sutton, WV 26601	Design and Permitting Only	2006	Yes
Boone North No. 3 Surface Mine Article 3 and NPDES Permits Boone County, WV	Raven Crest Contracting, LLC P. O. Box 1200 Robinson Creek, KY 41560	Design and Permitting Only	2006	Yes
Mountain Laurel Complex US Army Corps of Engineers 404 Individual Permit Logan County, WV	Mingo Logan Coal Company 1000 Mingo Logan Avenue Wharncliffe, WV 25657	Design and Permitting Only	2006	Yes
Guyandotte Slope Mine - SCP Article 3 and NPDES Permits Wyoming County, WV	Road Fork Development Company, Inc. P. O. Box 565 Matewan, WV 25678	Design and Permitting Only	2006	Yes
Mountain Laurel Upper Coalburg Deep Mine Article 3 and NPDES Permits Boone & Logan Counties, WV	Mingo Logan Coal Company P. O. Box E Sharples, WV 25651	Design and Permitting Only	2006	Yes
Highland Middle Coalburg Deep Mine Article 3 and NPDES Permits Logan County, WV	Highland Mining Company P. O. Box 1097 Holden, WV 25625	Design and Permitting Only	2006	Yes

17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
Calvin Branch Surface Mine Article 3 and NPDES Permits Logan County, WV	Apogee Coal Company, LLC HC61 Box 156 Yolyn, WV 25654	Design and Permitting Only	2006	Yes
Moccasin Hollow Deep Mine Article 3 and NPDES Permits Boone County, WV	Catenary Coal Company, LLC 5914 Cabin Creek Rd Eskdale, WV 25075	Design and Permitting Only	2007	No
Tennile Fork Deep Mine Article 3 and NPDES Permits Kanawha County, WV	Catenary Coal Company, LLC 5914 Cabin Creek Rd Eskdale, WV 25075	Design and Permitting Only	2007	No
Bridge Fork West Amendment Article 3 and NPDES Permits Fayette County, WV	Powellton Coal Company P. O. Box 158 Bickmore, WV 25019	Design and Permitting Only	2007	No
Falling Rock Deep Mine Article 3 & NPDES Permits Boone County, WV	Raven Crest Contracting, LLC P.O. Box 1200 Robinson Creek, KY 41560	Design and Permitting Only	2007	No
Mountaineer II Deep Mine SCP Article 3 and NPDES Permits Logan County, WV	Mingo Logan Coal Company P. O. Box E Sharples, WV 25651	Design and Permitting Only	2007	Yes
Rich Fork Surface Mine Article 3 & NPDES Permits Boone County, WV	Raven Crest Contracting, LLC P.O. Box 1200 Robinson Creek, KY 41560	Design and Permitting Only	2007	No
Seven Pines Amendment Article 3 & NPDES Permit Webster County, WV	Brooks Run Mining Company, LLC 25 Little Birch Road Sutton, WV 26601	Design and Permitting Only	2007	No
Rich Fork Surface Mine US Army Corps of Engineers 404 Individual Permit Boone County, WV	Raven Crest Contracting, LLC P.O. Box 1200 Robinson Creek, KY 41560	Design and Permitting Only	2008	No

17. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM WAS THE DESIGNATED ENGINEER OF RECORD

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST	YEAR	CONSTRUCTED (YES OR NO)
Boone North No. 5 Surface Mine Article 3 & NPDES Permits Boone County, WV	Raven Crest Contracting, LLC P.O. Box 1200 Robinson Creek, KY 41560	Design and Permitting Only	2009	No
Jackson Bridge Deep Mine Article 3 & NPDES Permits Webster County, WV	Brooks Run Mining Company, LLC 25 Little Birch Road Sutton, WV 26601	Design, submit, make corrections to and obtain approval of all the permit applications.	2009	NO
Martinsburg Baptist Church Site Layouts and Permits Martinsburg, WV	Martinsburg Baptist Church 315 W. King Street Martinsburg, WV 25401	\$250,000.00	2009	Yes

18. COMPLETED WORK WITHIN LAST 5 YEARS ON WHICH YOUR FIRM HAS BEEN A SUB-CONSULTANT TO OTHER FIRMS (INDICATE PHASE OF WORK FOR WHICH YOUR FIRM WAS RESPONSIBLE)

PROJECT NAME, TYPE AND LOCATION	NAME AND ADDRESS OF OWNER	ESTIMATED CONSTRUCTION COST OF YOUR FIRM'S PORTION	YEAR	CONSTRUCTED (YES OR NO)	FIRM ASSOCIATED WITH
N/A					

19. Use this space to provide any additional information or description of resources supporting your firm's qualifications to perform work for the West Virginia Abandoned Mine Lands Program.

20. The foregoing is a statement of facts.

Signature: James S. Canterbury Title: Partner

Printed Name: James S. Canterbury, PE

Date: May 18, 2010

AML and RELATED PROJECT EXPERIENCE MATRIX		PROJECT EXPERIENCE REQUIREMENTS														PRIMARY STAFF PARTICIPATION/CAPACITY ** M=Management, P=Professional							
PROJECT	Exp. Basis Corp Professional	Additional Info Provided in Section(s)	Abandoned Surface Mine	Abandoned Deep Mine	Reclamation	Portal/Shaft Closure	Hydrologic/Hydraulic Design/Evaluation	Remining Evaluation	Mine/Refuse Fire Abatement	Subsidence Investigation Mitigation	Hazardous Waste Disposal	Project Specifications	Water Quality Evaluation/ Mitigation/Replacement	Construction Inspection/Management	Water Treatment/ Equipment/Structure Removal	Stream Restoration	Geotechnical/Stability	Jim Canterbury	Mike Akers	Don Bailey	Ralph Middleton	J D Elms	Mike Ray
			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	M, P				
Page 1 of 2 Previous 5 Years Projects																							
	Both		X	X	X	X	X	X			X	X		X		X	X						
	Both		X	X	X	X	X	X				X	X	X		X	X						
	Both					X	X	X	X			X					X	X					
	Both					X	X	X		X		X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X		X		X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X				X					X	X					
	Both					X	X	X															

AML and RELATED PROJECT EXPERIENCE MATRIX		PROJECT EXPERIENCE REQUIREMENTS														PRIMARY STAFF PARTICIPATION/CAPACITY ** M=Management P=Professional							
PROJECT	Exp. Basis C-Corp. P-Parental	Additional Info Provided in Section (b)	Abandoned Surface Mine Reclamation	Abandoned Deep Mine Reclamation	Portal/Shaft Closure	Hydrologic/Hydraulic Design/Eval	Reming Evaluation	Mine/Refuse Fire Abatement	Subsidence Investigation/Mitigation	Hazardous Waste Disposal	Project Specifications	Water Quality Evaluation/Nitrogen/Replacement	Construction Inspection/Management	Water Treatment	Equipment/Structure Removal	Stream Restoration	Geotechnical/Stability	Jim Canterbury	Mike Akers	Don Bailey	Ralph Middleton	J D Ekins	Mike Ray
																			M, P	P	P	P	P
Page 2 of 2 Previous 5 Years Projects																							
						X				X			X				X	M, P	P	P			
			X			X				X							X	M, P	P	P			
						X										X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X			X							X							
					X	X																	