

HMB Professional Engineers, Inc.

Statement of Qualifications to the

West Virginia Department of Environmental Protection

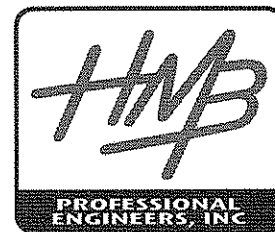
Barker Portals & Strip Design
DEP 14513

January 22, 2009

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WV PURCHASING
DIVISION





January 22, 2009

3 HMB Circle
Frankfort, KY
40601

Office: (502) 695-9800
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Mr. Chuck Bowman, Buyer
Purchasing Division
2019 Washington Street, East
P.O. Box 50130
Charleston, WV 25305-0130

RE: DEP14513 – Barker Portals & Strip Design

Dear Mr. Bowman,

HMB Professional Engineers, Inc. (HMB) is pleased to submit our Expression of Interest for the Barker Portals & Strip project. As our submittal clearly demonstrates, HMB draws upon an extensive list of AML project experience, most of which has been done for the West Virginia Office of Abandoned Mine Lands. HMB has recently added Bob Jones, P.E. to our AML staff, which shows our commitment towards providing the most experienced and qualified AML design staff possible. Bob recently retired from the KY Division of AML, where he completed 115 AML projects, many which involved re-grade / re-vegetating work, highwall elimination, mining debris disposal, mine refuse, sealing portals and designing drainage controls (surface channels & underdrains.)

HMB has long been a multi-disciplined firm, with a staff of over twenty (20) civil, structural, water and wastewater engineers capable of designing quality solutions for a wide variety of projects. State and Federal government agencies now place a large emphasis on environmental analysis and design. HMB has responded by expanding our staff to include environmental engineers, environmental technicians, geologists, biologists and a chemist. This additional staff has expertise in stream restoration, wetlands delineation, wetlands creation and mitigation, 401 and 404 permits, biological assessment, and all environmental analysis required to prepare NEPA documents.

As our proposal clearly demonstrates, HMB has an experienced staff that is dedicated to making this project a success. We hope that you consider using HMB's professional engineering services for this project.

Sincerely,
HMB PROFESSIONAL ENGINEERS, INC.

Joe Grider, PE
Principal-In-Charge, Mine Permitting and Reclamation Division

- Abandoned Mine Reclamation
- Mine Permitting
- Stream Restoration
- Construction Inspection
- Environmental Planning
- Environmental Remediation
- Surveying
- Highway Engineering
- Structural Engineering
- Water & Wastewater
- Site Development
- Right-of-Way
- Master Planning
- Project Management
- Cost Estimation
- Aviation Services

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

Attachment "B"

PROJECT NAME - DEP14513 Barker Portals & Strip Design	DATE (DAY, MONTH, YEAR) 1/22/09	FEIN 61-0968333
1. FIRM NAME - Haworth-Meyer-Boleyn Professional Engineers, Inc. d.b.a. HMB Professional Engineers, Inc.	2. HOME OFFICE BUSINESS ADDRESS 3 HMB Circle Frankfort, KY 40601	3. FORMER FIRM NAME N/A
4. HOME OFFICE TELEPHONE 502-695-9800	5. ESTABLISHED (YEAR) 1979	6. TYPE OWNERSHIP Individual <u>Corporation</u> Partnership Joint-Venture
6a. WV REGISTERED DBE (Disadvantaged Business Enterprise) YES <u>NO</u>		

7. PRIMARY AML DESIGN OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. AML DESIGN PERSONNEL EACH OFFICE
3 HMB Circle Frankfort, KY / 502-695-9800 / Joe Grider, P.E. / 5

8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM
 Brad Meyer, President Karen Wood, CFO
 Bob Blankenship, Principal-in-Charge

9. PERSONNEL BY DISCIPLINE

5 ADMINISTRATIVE ARCHITECTS	—	ECOLOGISTS	—	LANDSCAPE ARCHITECTS	2	STRUCTURAL ENGINEERS
3 BIOLOGIST	—	ECONOMISTS	—	MECHANICAL ENGINEERS	2	SURVEYORS
7 CADD OPERATORS	3	ELECTRICAL ENGINEERS	—	MINING ENGINEERS	2	TRAFFIC ENGINEERS
CHEMICAL ENGINEERS	(8)	ENVIRONMENTALISTS	—	PHOTOGRAMMETRISTS	2	OTHER (R/W acquisition)
17 CIVIL ENGINEERS	1	ESTIMATORS	—	PLANNERS: URBAN/REGIONAL		
3 CONSTRUCTION INSPECTORS	(8)	GEOLOGISTS	3	SANITARY ENGINEERS		
DESIGNERS		HISTORIANS	—	SOILS ENGINEERS		
(3) DRAFTSMEN		HYDROLOGISTS	—	(8) SPECIFICATION WRITERS		48 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.

Numbers shown in parenthesis indicate staff with multiple areas of experience and responsibilities. Those numbers are not included in the total personnel figure.

All AML design work will be done by our civil engineering staff. HMB's staff includes Sanitary and Structural engineers that will not be working on any AML projects, unless a specific need arises for their expertise.

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

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

<p>NAME AND ADDRESS: Novel Geo-environmental 806 B Street St. Albans, WV 25177</p>	<p>SPECIALTY: Subsurface investigations and geotechnical engineering See attached CCQQ forms.</p>	<p>WORKED WITH BEFORE <input checked="" type="checkbox"/> Yes No</p>
<p>NAME AND ADDRESS: Photo Science 2670 Wilhite Drive Lexington, KY 40503</p>	<p>SPECIALTY: Photogrammetry and digital mapping services See attached CCQQ forms.</p>	<p>WORKED WITH BEFORE <input checked="" type="checkbox"/> Yes No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE _____ Yes No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE _____ Yes No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE _____ Yes No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE _____ Yes No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE _____ Yes No</p>

12. A. Is your firm experienced in Abandoned Mine Lands Remediation/Mine Reclamation Engineering?
YES - HMB has completed over 80 AML projects in WV, KY, VA and IN. Several of those projects involved regrading refuse piles, stabilizing stream banks, and designing drainage channels. See Schedule "A" for a list of HMB's past AML projects.

NO

B. Is your firm experienced in Soil Analysis?
YES Description and Number of Projects:

NO - HMB is teaming with Novel Geo-Environmental, who will be providing subsurface investigations, geotechnical testing and geotechnical design. Their CCQQ is attached to this submittal.

C. Is your firm experienced in hydrology and hydraulics?

YES - Most of our past AML projects require hydrologic and hydraulic analysis. The attached Schedule "A" indicates which AML projects required hydrologic and hydraulic analysis.

NO

D. Does your firm produce its own Aerial Photography and Develop Contour Mapping?
YES Description and Number of Projects:

NO - HMB is teaming with Photo Science, who will be providing photogrammetry and digital mapping services. Their CCQQ is attached to this submittal.

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

YES - HMB has an extensive list of past projects where the feasibility of extending water lines was analyzed and documented. HMB also has completed numerous water line extension projects in WV, KY, IN & TN. See the Similar Projects Section of this submittal for a list of past water line feasibility projects.

NO

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

YES - HMB has completed several projects where AMD was a problem. See the Similar Projects Section of this submittal for a list of past AML projects that involved AMD.

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		YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 12 years
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	
Grider, Joe PE, PLS - Principal-in-charge - AML, Construction Inspection and Surveying Divisions	4 years	25+ years	

Brief Explanation of Responsibilities

Joe's responsibility will be quality control, quality assurance, and project scheduling. See Joe's resume' for AML project experience.

EDUCATION (Degree, Year, Specialization)
 • B.S.C.E. University of Kentucky, 1982

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS / TRAINING
 Highway Capacity Workshop Lessons in Professional Liability
 Contract Review & Revisions Preparation of Survey Reports
 Fundamentals of GPS Research techniques for boundary surveys

REGISTRATION (Type, Year, State)
 Professional Engineer # 14,752, KY 1986
 Land Surveyor # 2889, KY 1987
 Professional Engineer # 10,266 WV (Currently seeking re-instatement)

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		YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 0 years
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	
Jones, Robert D. PE, PLS Mine Permitting and Reclamation Division Manager	23 years	23 years	

Brief Explanation of Responsibilities

Bob is currently the Mine Permitting and Reclamation Division Manger for HMB. Bob's primary responsibility is to manage and oversee all AML and Mine Permitting design projects for HMB. Bob has twenty-three years of progressive AML design experience working in numerous capacities on Kentucky Abandoned Mine Lands (AML) Projects and will be using his background in this area for AML design and mine permitting work. **Bob's AML experience includes successfully completing 115 projects** involving either landslide abatement, refuse fires extinguishment, acid mine drainage treatment, coal refuse revegetation, corrective drainage measures, hazardous equipment and facilities demolition, and portal closures. See Bob's resume' for AML project experience.

EDUCATION (Degree, Year, Specialization)
 • BS/Civil Engineering/University of Kentucky/1996

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS / TRAINING

- **Tau Beta Pi**
- REGISTRATION (Type, Year, State)
 - Kentucky/Civil/P.E. #22044/2001
 - Kentucky/Land Surveyor/P.L.S. 3346
 - Currently Seeking WV P.E.

Joe Grider, PE, PLS

Principal-in-Charge

AML, Construction Inspection and Surveying Divisions

Education

- BS/Civil Engineer/University of Kentucky/1982

Registrations

- Kentucky P.E. # 14752/1986
- Kentucky PLS # 2889/1987
- WV P.E. # 10266 (seeking reinstatement)

Professional Development

- Minimum Standards for Land Surveying
- Land Surveying Ethics
- Lessons in Professional Liability
- Contract Review & Revisions
- Preparation of Survey Reports
- Fundamentals of GPS
- Research techniques for boundary surveys
- Public Lands Surveying

Employment

- HMB Professional Engineers, Inc./2007-present
- Grider Engineers/1994-2007
- HMB Professional Engineers, Inc./1984-1994
- U.S. Army Corps of Engineers/1982-1984

Joe has over 25 years of engineering and land surveying experience that he has gained while designing AML, highway, airport and land development projects throughout Kentucky. Joe began his career at the U.S. Army Corps of Engineers in the Louisville District, where he worked from 1982 to 1984. Joe continued his career at HMB, where he worked from 1984 to 1994. From 1987 to 1991, Joe worked in the AML design section of HMB, where he was design engineer or project manager on the AML projects listed below. In 1994, Joe left HMB and started Zimmerman-Grider, Inc., which he owned and operated for nearly 14 years. During that time, Joe designed numerous residential and commercial land development projects. Services provided for these projects included project planning, conceptual design, final design, construction staking and contract administration. In addition to the land development design, Joe also completed numerous surveying projects, both large and small. Those surveys included boundary, control, topographic and construction staking surveys for major highway projects, airport projects, commercial land development and residential land development projects.

In October 2007, Joe rejoined HMB, and is currently serving as Principal-in-Charge of the AML, Construction Inspection and Surveying Divisions.

Joe's Past AML Project Experience

Each of the projects listed below involved coordinating and supervising the land surveys, coordinating the geotechnical drilling, gathering water and material samples, designing a grading plan, performing hydrologic analysis, performing hydraulic calculations, preparing an erosion control plan, designing construction details, writing contract specifications and attending pre-bid and pre-construction meetings.

Ike's Branch Seam Fire, Harlan County, KY
Fords Run # 1, Barbour County, WV
Skitter Creek Refuse Dam, Fayette County, WV
Iroquois Refuse Pile, Wyoming County, WV
Raleigh Refuse Pile, Raleigh County, WV
Accoville Refuse Pile, Logan County, WV
Buck Run, Taylor County, WV
Pecks Run, Upshur County, WV
Ream Refuse Pile, McDowell County, WV
Clifton "C" Portals, Mason County, WV

Robert D. Jones, PE, PLS

Education

- BS Civil Engineer/University of Kentucky/1996

Registrations

- Kentucky P.E. # 22044/2000
- Kentucky PLS # 3346/1987

Education and Training

- AutoCadd at KSU
- OSM sponsored training - Numerous courses pertaining to mine reclamation

Awards

- Tau Beta Pi - Engineering Honor Society
- 1988 NREPC Outstanding Employee Award

Employment

- HMB Professional Engineers, Inc - Starting 12/8/2008
- November 1984 - August 2008
KY Division of Abandoned Mine Lands

Experience Summary:

Bob has over twenty-three years of progressive civil design experience working in numerous capacities on Kentucky Abandoned Mine Lands (AML) Projects. Since late 1999, Bob was responsible for approximately 115 AML projects worth \$47 million of construction expenditures. Design work included reclamation projects in both Eastern & Western Kentucky for landslide abatement, refuse fires extinguishment, acid mine drainage treatment, coal refuse revegetation, corrective drainage measures, and portal closures. Experience related strengths:

- Extensive earthwork, drainage, and retaining wall design experience
- Procurement of engineering consultant services & obtaining permits from governing agencies
- Proficient with AutoCAD (19 year's experience) & Carlson SurvCadd engineering software (15 year's experience)
- Proficient with Total Station surveying equipment

Design Branch Manager (August 2005 - August 2008): Responsible for conceptual oversight and approval of all AML reclamation design plans and drawings generated by branch. Two four-person design teams along with realty and GIS personnel were under the direction of this position. Other duties included routine use of AutoCAD, SurvCadd, and Microsoft Excel along with other software as needed. Responsible for procurement of permits and geotechnical/photogrammetric consultant services on a case-by-case basis for design needs. Directed and oversaw the posting of AML's standard specifications (2006 & 2008) and standard details on website.

Design Section II Supervisor (October 1999 - July 2005): Managed a 3-person design team, which generated AML reclamation design plans, cost estimates and technical specifications. Extensive use of AutoCAD, Survcadd, Microsoft Excel along with other software during this period. Oversaw and performed land surveying utilizing total station equipment for construction layout, topographic mapping, and earthwork payment purposes. Strongly involved with the procurement of permitting and geotechnical/photogrammetric consultant services on a case-by-case basis for design needs.

Environmental Engineer Assistant Chief (March 1997 - September 1999): Responsible for generating AML reclamation plans and cost estimates under supervisory personnel. Extensive use of AutoCAD, Survcadd, and Microsoft Excel was performed along with other software as needed. CAD standardization (quasi CAD manager) efforts were performed and implemented by this position. Performed land surveying utilizing total station equipment for construction layout, topographic mapping, and earthwork payment purposes.

Environmental & Design Technician (April 1987 - February 1997): Advancing responsibilities in AML design work— performed and participated in land surveying work to support design and earthwork payments. During the late 1980's began utilizing AutoCAD as a drafting tool with migration to a design tool (e.g. cross sectioning and topographic map generation) by mid 1990's. Educational leave taken from Fall 1994 to Summer 1996 to attend University of Kentucky.

Environmental Engineering Assistant (November 1984 - March 1987): Board drafting work and other supporting work as needed was performed for numerous AML projects. Routine member of surveying crew with duties that included instrument person, rod person, and note man duties, as called upon.

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.) Blankenship, Bob PE, Principal In Charge	YEARS OF EXPERIENCE	
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE: WATERLINE DESIGN EXPERIENCE: 29 years

Brief Explanation of Responsibilities
 Bob joined HMB in 1989 as Manager of the Water and Wastewater Division. Currently, he is Principal-In-Charge of this division, as well as Vice President in charge of contracting, scheduling and production for HMB's Water and Wastewater, Construction and Environmental Remediation Divisions in Kentucky, Indiana, West Virginia, Tennessee and Alabama. As Vice President, Bob has direct oversight of these divisions to ensure professional and timely delivery of services to our clients. With over 29 years of experience as a Consulting Engineer, he has served as Project Manager on numerous projects from Ohio to Florida. In addition, he served as an Engineer Officer in the U.S. Marine Corps for eight years and then for an additional six years in the Marine Corps Reserves. He is Vice Chairman of the Versailles/Woodford Co. Planning & Zoning Commission, having served on this Commission since 1993. Bob currently serves on the HMB Board of Directors.

EDUCATION (Degree, Year, Specialization) • BS/Civil Engineering/University of Kentucky/1970	REGISTRATION (Type, Year, State) • Kentucky/Civil/P.E. #11972 • W Virginia/Surveying/ P.S. #1362 • Indiana/Civil/P.E. #60890487 • W Virginia/Civil/P.E. 010801 • Ohio/Civil/ P.E. #E60154 • Tennessee/Civil/P.E. #00021081 • N Carolina/Civil/P.E. #016115
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS National Society of Professional Engineers Kentucky Rural Water Association Kentucky Society of Professional Engineers American Water Works Association American Council of Engineering Companies Society of American Military Engineers	

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.) Stewart, Chris PE, Division Manager	YEARS OF EXPERIENCE	
	YEARS OF AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE: WATERLINE DESIGN EXPERIENCE: 8 years

Brief Explanation of Responsibilities
 Chris' experience as a consulting engineer includes design of water and wastewater treatment facilities, water distribution systems, water booster stations, sewage collection/transmission systems and force mains. He is also experienced in all aspects of water and wastewater related project management including system analysis and recommendation, preliminary engineering and study, funding procurement, cost estimating, project budgeting, detailed technical design, preparation of project specifications and bidding documents, advertising and bidding, construction administration, construction observation coordination and project close out.

EDUCATION (Degree, Year, Specialization) BS/Civil Engineering/University of Kentucky/1999	REGISTRATION (Type, Year, State) • Kentucky/Civil/P.E. #23423
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MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS / TRAINING National Society of Professional Engineers PSMJ Project Manager Bootcamp/2002 American Society of Civil Engineers ACEC-KY Retreat/2005 Order of the Engineer Fundamentals of Erosion Protection and Sediment Control/2005	
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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	
Stopper, Bryan Structural Engineer Division Manager	YEARS OF AML DESIGN EXPERIENCE: 0 years	YEARS OF AML RELATED DESIGN EXPERIENCE: 5 years	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 0 years

Brief Explanation of Responsibilities
 Bryan joined HMB in 1982, after working for five years with the Kentucky Department of Transportation, Division of Bridges. He has served as engineering manager for a range of designs including bridges, structural plate arches, toll plazas and storm sewer systems. He has performed in-depth structural inspections and hydraulic analyses encompassing complex floodway designs and has performed studies and evaluations of unusual design problems for the purpose of incorporating new design techniques as office practice. Bryan served as Highway Division Manager for five years prior to his current position as the Structures Division Manager.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS / TRAINING	REGISTRATION (Type, Year, State)
<ul style="list-style-type: none"> National Society of Professional Engineers American Concrete Institute Association of Drilled Shaft Contractors PSMJ Marketing Workshop/2005 LFRD Bridge Design Training – Beyond the Basics/2003 Thinking Beyond the Pavement/1999 KYTC/Constructability Review Process Workshop/1996 KYTC/Consultant Industry Partnering Workshop/1996 University of Wisconsin-Madison/Improving Bridge Inspections & Safety Evaluations Workshop/1987 	<ul style="list-style-type: none"> Kentucky/Civil/P.E. #12531/1981 West Virginia/Civil/P.E. #9898/1986 Ohio/Civil/P.E. #E-53735/1990 Indiana/Civil/P.E. #60910203/1991 Tennessee/Civil/P.E. #108534/2003 Georgia/Civil/P.E. #029403/2004 Alabama/Civil/P.E. #25355/2002

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	
Brown, Sandi Technician	YEARS OF AML DESIGN EXPERIENCE: 2 years	YEARS OF AML RELATED DESIGN EXPERIENCE: 3 years	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 8 years

Brief Explanation of Responsibilities
 Sandi brings 8 years of technical experience to HMB's Water/Wastewater Division. She possesses a broad range of knowledge in AutoCAD, Micro Station, and Eagle Point engineering design software programs. In addition to her 8 years of water line design experience, Sandi also has hands on design experience in residential street design, sanitary sewer gravity line design, sanitary pump station and force main design and structural detailing.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS / TRAINING	REGISTRATION (Type, Year, State)
<ul style="list-style-type: none"> University of Wisconsin-Madison/Improving Bridge Inspections & Safety Evaluations Workshop/1987 Franklin County High School, Diploma 1984 	

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 AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Howard, Craig Survey Crew Chief	0 years	15+ years	0 years
Brief Explanation of Responsibilities Supervises field crew for boundary, control, topographic and construction staking projects. Also acts as primary contact for property owners, clients and contractors at project sites.			
EDUCATION (Degree, Year, Specialization)			
<ul style="list-style-type: none"> • Lees Junior College, 1986-87 • Mayo State Vocational Technical School, 1988-1990 			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS / TRAINING			
<ul style="list-style-type: none"> • HAZWOPER Trained – OSHA 40 hour course, 2007 • CPR, First Aid and Bloodborne Pathogens Training-American Red Cross, 2007 			
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 AML DESIGN EXPERIENCE:	YEARS OF AML RELATED DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Perry, Patrick Survey Instrumentman & Rodman	0 years	0 years	0 years
Brief Explanation of Responsibilities Survey instrumentman and rodman for boundary, control, topographic and construction staking projects. Also acts as primary contact for property owners, clients and contractors at project sites.			
EDUCATION (Degree, Year, Specialization)			
<ul style="list-style-type: none"> • BS/Civil Engineering/University of Kentucky/2006 • AS/Lexington Community College/2003 			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS / TRAINING			
<ul style="list-style-type: none"> • American Society of Civil Engineers • Order of the Engineer • Association of General Contractors 			
REGISTRATION (Type, Year, State)			REGISTRATION (Type, Year, State)
			<ul style="list-style-type: none"> • Kentucky/Civil/EIT #12938/2006

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	
Rice, Steve Biologist, Project Manager	0 years	YEARS OF AML DESIGN EXPERIENCE: 20+ years	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 0 years

Brief Explanation of Responsibilities

Steve joined HMB in 2003 and serves as a Project Manager and Biologist in our Highway Environmental Division. He is experienced in stream restoration assessment, design, and monitoring; field sampling and identification of aquatic and terrestrial animals and plants; wetland delineation and design; environmental impact analyses; and 404 and 401 Water Quality Certification permit applications including design of stream mitigation. During his 28 year career with the Kentucky Transportation Cabinet, Division of Environmental Analysis, Steve wrote over 50 ecological impact analysis documents and numerous biological assessments for federally endangered animals and plants. He conducted biological field surveys throughout Kentucky, identified animals and plants, managed the Aquatic Ecology Section and directed the 401 Water Quality Certification program. In the final four years of his career, he was a member of the 404 Permits Section, where he partnered on the assessment and design of several natural channel design projects.

EDUCATION (Degree, Year, Specialization)

- BS/Biology/Eastern Kentucky University/1973
- Graduate Studies in Biology/Eastern Kentucky University/44 hours

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS / TRAINING

- PSMJ Marketing Workshop/2005
- Natural Channel Design Construction Workshop-Canaan Valley Institute & American Council of Engineering Companies of WV/2003
- Soil Bioengineering Workshop-Big Sandy Resource Conservation & Development Area Inc. & Kentucky Waterways Alliance/2003
- Stream Classification Using Natural Channel Design (N.C. State University--Buck Engineering/2002

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	
		YEARS OF AML DESIGN EXPERIENCE:	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:

Brief Explanation of Responsibilities

EDUCATION (Degree, Year, Specialization)

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS / TRAINING

REGISTRATION (Type, Year, State)

14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE AML DESIGN SERVICES

Surveying Equipment: Trimble 5700 GPS Receivers; (3) Trimble 5600 Fully Robotic Total Stations; Nikon DTM 550 Total Station; Leica 800 Total Station; Range TDS Survey Pro Data Collector; TSC1 Tribble Survey Controller; HP 48 with SMI Construction 5 Robotic Software; Lietz Automatic Level; CADD-AUTOCADD, LDD2 & Microstation; Star*Net; Trimble Geomatics Office Software; GPS Vector Analysis; (3) Ziess Levels; (1) Wild Level; (1) Paulin Altimeter; (2) Survey Trucks; Trimble GEOXH; Trimble Pathfinder Office

Testing Equipment: (4) Concrete Air Meters; (1) Concrete Cylinder Breaker; (5) Slump Cones; (3) Speedy Moisture Testers; (1) Asphalt Extractor & 2 Sieve Shakers; (3) Nuclear Density Meters

Drilling Equipment: Mobile Sounding Rig

Noise Equipment: Bruel & Kjaer 2236A Type I Sound Level Meter; Skymate Anemometer; FHWA TNM 1.1/2.5 Noise Prediction (Computer Program); RION NL-20 Sound Level Meter

Air Equipment: Computer programs- Mobile 6.0/6.2; CAL3QHC (Carbon Monoxide Prediction Model); Microstation V8 and Descartes V8

Aquatic & Water Quality Equipment: Olympus LMS225R Bi-ocular Dissecting Microscope; HACH pH meter; Hach DREL/2010 Aquaculture Laboratory; Zoon Stereo Microscope w/Fiber Optic Light Sources; Seine & Dip Nets-Portable Lab Kits; HACH TDS/Conductivity Meter; HACH Spectrophotometer

Terrestrial Equipment: TRX 1000S Radio Receiver; Plant Presses; Holohill Systems, Ltd; LB2N Radio Transmitter; LTM Radio Transmitters, Soil Augers; Anabat II Bat Detector, Bat Nets & Poles; Soil Sieves

Hardware: (100) Engineering/CADD workstation; (20) Administrative workstation; (19) Laptop computers; (10) Large Format Plotters; VPN between Main Office and Regional Offices; Corporate Intranet and Internet e-mail; (6) Novell 5 Servers; (3) Color Laser Printers; (7) Linux Servers; (1) Linux Mail Server; (1) Color Copier/Scanner/Printer; (4) Window Servers

Software: Bentley; Microstation; Descartes InRoads, InRoads Survey, Geopak, Geopak Survey, SewerCad and Watercad, Integraph InXpress Roadway Design, EaglePoint Hydraulic/Site Development/Storm & Sanitary Sewer Design/Roadway Design, CAL3QHC/Mobile6/TNM 2.5 Air Quality/Noise, KyHydro, KyPipe, HEC - 2 HC-RAS, WSPRO - Highway and Environmental Hydraulic Design, HCM - Highway Traffic Analysis, Passer 2 - Highway Traffic Analysis, MSTRUDL, STAAD3, CONSPAN, TRAPS, Merlin DASH - RC Pier Structural Design, MATHCAD - general mathematical modeling software, Microstation Office Office Suite; Word, Excel, Outlook, PowerPoint, Project, Publisher, Front Page

CorelDraw - graphic/presentation, Adobe, Acrobat, Photoshop E S R I - ARCGIS - ARC Editor, Deltek Vision (Accounting and CRM), Acutate e.Report Designer Professional, Trend Micro Client/Server Anti-Virus, HAESTAD: Watercad, Stormcad, Culvertmaster, Pondpack and Flowmaster, Hydrain for Windows: Hydrologic & Hydraulic Modeling,

Anabat - Env. Bat Echolocation species identification hardware/software package.

Global Mapper 8, Visualization: Autodesk 3DS Max, Visual Nature Studio, Adobe Creative Suite

Auto Desk; Auto Cad, Civil 3-D, Civil 3 P Pro, Survey

KyCOGO - Coordinate geometry / highway design

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
West Virginia Rt 10 Upgrade to 4 lanes Cabell County, WV	WV Department of Transportation Charleston, WV	Highway Design	\$12,000,000 (Placed on hold October 2000)	95%
Corridor H Design new 4-lane highway Grant County, WV	WV Department of Transportation Charleston, WV	Highway Design	\$12,000,000	95%
Burner Mountain Upgrade to 2 lanes Pocahontas County, WV	WV Department of Transportation Charleston, WV	Highway Design	\$1,500,000	Not Scoped
Mt Gay Bridge Bridge Replacement Logan County, WV	WV Department of Transportation Charleston, WV	Structural Design	\$5,600,000	85%
Midkiff Bridge Bridge Replacement Lincoln County, WV	WV Department of Transportation Charleston, WV	Structural Design	\$2,100,000	30%
Barren County I-65 5.1 Miles	KY Transportation Cabinet Frankfort, KY	Highway Design	\$6,250,000	60%
US 127, Relocation, 4.3 Miles Clinton County, KY	KY Transportation Cabinet Frankfort, KY	Highway Design	\$26,600,000	90%

TOTAL NUMBER OF PROJECTS: 7

TOTAL ESTIMATED CONSTRUCTION COSTS: \$66,050,000

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
US 460/KY 80 at Draffin 0.5 Miles Pike County	KY Transportation Cabinet Frankfort, KY	Highway Design	\$7,100,000	90%
I-66 London to Somerset Env. and Prem. Design 20 miles Laurel and Pulaski Counties	KY Transportation Cabinet Frankfort, KY	Highway Design	\$60,000,000	98%
Scott County US 460 0.9 Mile	KY Transportation Cabinet Frankfort, KY	Highway Design	\$3,200,000	75%
Hart County 1.0 Miles	KY Transportation Cabinet Frankfort, KY	Highway Design	\$14,000,000	40%
KY 80 Over CSRR & Russell Fork 0.4 Miles Pike County, KY	KY Transportation Cabinet Frankfort, KY	Highway Design	\$4,000,000	95%
KY 22 Over Licking River 0.5 Miles Pendleton County, KY	KY Transportation Cabinet Frankfort, KY	Highway Design	\$4,500,000	75%
Hal Rodgers Parkway Safety Improvements 2.2 miles Leslie County, KY	KY Transportation Cabinet Frankfort, KY	Highway Design	\$15,000,000	30%

TOTAL NUMBER OF PROJECTS: 7

TOTAL ESTIMATED CONSTRUCTION COSTS: \$107,800,000

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
Widen KY 1848 to 5 lanes 0.9 Miles Shelby County, KY	KY Transportation Cabinet Frankfort, KY	Highway Design	\$3,700,000	90%
Marion County KY 1231	KY Transportation Cabinet Frankfort, KY	Highway Design	\$7,500,000	40%
Laurel County US 25 0.8 Miles	KY Transportation Cabinet Frankfort, KY	Highway Design	\$3,500,000	40%
Knott County KY 1231	KY Transportation Cabinet Frankfort, KY	Highway Design	\$5,500,000	25%
Owsley County US 25	KY Transportation Cabinet Frankfort, KY	Highway Design	\$20,000,000	10%
Pine Mountain Settlement School Restoration Harlan Co, KY	KY Transportation Cabinet Frankfort, KY	Highway Design	\$900,000	50%

TOTAL NUMBER OF PROJECTS: 6

TOTAL ESTIMATED CONSTRUCTION COSTS: \$41,100,000

16. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS SERVING AS A SUB-CONSULTANT TO OTHERS

PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRMS RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				ENTIRE PROJECT	YOUR FIRMS RESPONSIBILITY
I-64 7 Miles Widening and Rehabilitation Jefferson-Shelby County	Final Design	KY Transportation Cabinet Frankfort, KY	2008	\$45,000,000	
Whitley County Welcome Center	Final Design	KY Transportation Cabinet Frankfort, KY	2008	\$10,000,000	
Carter Co I-64	Scoping Study	KY Transportation Cabinet Frankfort, KY	2008	N/A	
I-69/I-66 Spur Daviess County	Scoping Study	KY Transportation Cabinet Frankfort, KY	2008	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)
SR-10 Melissa Huntington Rd Demolition Plans Cabell County, WV	WV Department of Transportation Charleston, WV	\$300,000	2004	YES
I-71 4-mile widening to 6 Lanes and entrance to Nascar Race Track Roadway/Bridge Design Gallatin County, KY	KY Transportation Cabinet Frankfort, KY	\$35,000,000	2003	NO
Rowlesburg Bridge & Approaches (CR 1) Roadway/Bridge Plans Preston County, WV	WV Department of Transportation Charleston, WV	\$3,000,000	2003	YES
Robertson County KY 165 4 miles 2-lane on new Location Roadway and Bridge	KY Transportation Cabinet Frankfort, KY	\$6,000,000	2004	YES
Sullivan County SR357	Tennessee Department Of Transportation Nashville, TN		2005	NO
Grays Run Natural Channel Design Cynthiana Bypass, KY	KY Transportation Cabinet Frankfort, KY	\$210,000	2004	NO
Kess Creek Natural Channel Design KY 121 Graves Co, KY	KY Transportation Cabinet Frankfort, KY	\$300,000	2005	NO
Parks Branch Natural Channel Design Whitley Co, KY	KY Transportation Cabinet Frankfort, KY	\$360,000	2005	NO

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
Locust Creek Stream Mitigation and Monitoring KY 19 Bracken Co, KY	KY Transportation Cabinet Frankfort, KY	\$160,000	2002	YES	
Rush Fork Creek Stream Restoration US 23 Johnson Co, KY	KY Transportation Cabinet Frankfort, KY	\$340,000	2001	YES	
Dix River Tributary Stream Mitigation and Monitoring US 150 Lincoln Co, KY	KY Transportation Cabinet Frankfort, KY	\$540,000	2000	YES	
Lick Fork Stream Mitigation and Monitoring KY 7 Morgan Co, KY	KY Transportation Cabinet Frankfort, KY	\$220,000	2001	YES	
Reed Fork Creek Stream Restoration US 119 Pike Co, KY	KY Transportation Cabinet Frankfort, KY	\$240,000	2002	YES	
Roundstone Creek Tributary Stream Mitigation and Monitoring I-75 Rockcastle Co, KY	KY Transportation Cabinet Frankfort, KY	\$500,000	2002	YES	

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.

The projects listed on this page only are Steve Rice's personal experience that he gained with a previous employer.

20. The foregoing is a statement of facts.

Signature: Joe Grider

Title: Principal in Charge Date: 1/14/09

Printed Name: Joe Grider

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

PROJECT NAME: DEP 14513 Barker Portals & Strip Design		DATE: January 22, 2009	FEIN: 52-2365940
1. FIRM NAME: Novel Geo-Environmental, LLC		3. FORMER FIRM NAME: NA	
4. HOME OFFICE TELEPHONE: (412) 722-1970	5. ESTABLISHED: 2002	6. TYPE OWNERSHIP Limited Liability Corporation	6a. WV REGISTERED DBE: YES
7. PRIMARY AML DESIGN OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. AML DESIGN PERSONNEL EACH OFFICE: 806 B Street St. Albans, WV 25177 304-201-5180 Office Manager: John E. Nottingham, P.E. No. AML Design Personnel in St. Albans, WV: 5 No. AML Design Personnel in Moon Township, PA : 5			
8. NAMES OF PRINCIPAL OFFICERS OR MEMBERS OF FIRM: 8a. NAME, TITLE, & TELEPHONE NUMBER - OTHER PRINCIPALS Amy L. Veltri - President John E. Nottingham - Vice President			
9. PERSONNEL BY DISCIPLINE (Bold Lettering Indicates Minimum Design Team Members)			
— ADMINISTRATIVE	— ECOLOGISTS	— LANDSCAPE ARCHITECTS	— STRUCTURAL ENGINEERS
— ARCHITECTS	— ECONOMISTS	— MECHANICAL ENGINEERS	— SURVEYORS
— BIOLOGIST	— ELECTRICAL ENGINEERS	— MINING ENGINEERS	— TRAFFIC ENGINEERS
1 CADD OPERATORS	4 ENVIRONMENTALISTS	— PHOTOGRAMMETRISTS	4 DRILLERS & HELPERS
— CHEMICAL ENGINEERS	— ESTIMATORS	— PLANNERS: URBAN/REGIONAL	5 OTHER PERSONNEL
2 CIVIL ENGINEERS	2 GEOLOGISTS	— SANITARY ENGINEERS	
4 CONSTRUCTION INSPECTORS	— HISTORIANS	2 SOILS ENGINEERS	
— DESIGNERS	— HYDROLOGISTS	— SPECIFICATION WRITERS	20 TOTAL PERSONNEL
— DRAFTSMEN			
TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: <u>2</u>			
*RPEs other than Civil and Mining must provide supporting documentation that qualifies them to supervise and perform this type of work.			
10. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE? YES			

11. OUTSIDE KEY CONSULTANTS/SUB-CONSULTANTS ANTICIPATED TO BE USED. Attach "AML Consultant Confidential Qualification Questionnaire" for each if copy is not on file with AML.

<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE</p> <p>_____ Yes</p> <p>_____ No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE</p> <p>_____ Yes</p> <p>_____ No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE</p> <p>_____ Yes</p> <p>_____ No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE</p> <p>_____ Yes</p> <p>_____ No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE</p> <p>_____ Yes</p> <p>_____ No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE</p> <p>_____ Yes</p> <p>_____ No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE</p> <p>_____ Yes</p> <p>_____ No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE</p> <p>_____ Yes</p> <p>_____ No</p>
<p>NAME AND ADDRESS:</p>	<p>SPECIALTY:</p>	<p>WORKED WITH BEFORE</p> <p>_____ Yes</p> <p>_____ No</p>

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

NO: Note that Novel Geo-Environmental (NGE) has not performed any AML design work to date, but our WV Office Manager (John E. Nottingham) and project geologist (Chuck Montgomery) have extensive AML experience with their former firm. Additionally, NGE currently holds a contract with WVDEP-AML for geotechnical drilling for the northern district of WV and has completed several drilling projects under this contract.

B. Is your firm experienced in Soil Analysis?

YES: NGE specializes in Geotechnical Engineering including foundation investigations, subsurface investigations, cut slope design, fill embankment analysis and design, slope stability analysis, landslide analysis and corrective design, mine subsidence investigations, geologic studies, groundwater seepage analysis, foundation design, retaining wall design, pavement design, subsurface drilling and monitoring well installation. NGE has performed a total of several hundred geotechnical engineering related projects since the company was formed in 2002.

C. Is your firm experienced in hydrology and hydraulics?

NO: While our firm has not performed any hydrology/hydraulics projects to date, our personnel have experience with former employers.

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

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.)

NO

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

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		YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Nottingham, John, E. Principal Engineer, Vice President	12	4	0
Brief Explanation of Responsibilities			
Mr. Nottingham was responsible for supervising field and design work for numerous AML related landslide abatement projects for the WVDEP while under the employment of Triad Engineering, Inc. In addition to landslide abatement projects, Mr. Nottingham was involved in subsidence determination investigations and subsidence abatement projects. Mr. Nottingham worked extensively on "emergency" projects which required quick field investigations and corrective designs.			
EDUCATION (Degree, Year, Specialization)			
Bachelor of Science in Civil Engineering, 1987, WVU, Specialization - Civil and Geotechnical Engineering Masters of Science in Civil Engineering, 1995, WVU, Specialization - Geotechnical Engineering			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS			
American Society of Civil Engineering (ASCE) West Virginia Chapter of AIA			
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		YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE:
Montgomery, Charles, E. Project Manager	10	4	0
Brief Explanation of Responsibilities			
Mr. Montgomery was responsible for coordinating field activities for AML landslide abatement projects for the WVDEP while employed with Triad Engineering, Inc. Mr. Montgomery has also participated in all project phases for other AML work involving subsidence determinations/abatement and impounded mine pools.			
EDUCATION (Degree, Year, Specialization)			
Bachelor of Science, Geology, 1991, Marshall University			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS			
Association of Engineering Geologists Geological Society of America			
REGISTRATION (Type, Year, State)			
Professional Geologist, 1999, Kentucky			

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.) Nottingham, Larry C. Senior Engineer	YEARS OF AML DESIGN EXPERIENCE: 15	YEARS OF AML RELATED DESIGN EXPERIENCE: 5	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 0
	YEARS OF EXPERIENCE		
Brief Explanation of Responsibilities			
Dr. Nottingham planned and supervised several AML investigation and reclamation projects for WVDEP while employed by Triad Engineering. Projects included burning refuse pile investigations, unstable refuse pile investigations and remedial designs, landslide investigations and remedial designs, subsidence investigations, and underground mine fire investigations.			
EDUCATION (Degree, Year, Specialization) Bachelor of Science in Civil Engineering, 1965, Civil Engineering, West Virginia Institute of Technology Master of Science in Civil Engineering, 1966, Geotechnical Engineering, University of Pittsburgh Doctor of Philosophy, 1975, Geotechnical Engineering, University of Florida			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS Member, American Society of Civil Engineers Member, National Society of Professional Engineers			
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.) Christopher Dunlap Engineering Technician	YEARS OF AML DESIGN EXPERIENCE: 0	YEARS OF AML RELATED DESIGN EXPERIENCE: 0	YEARS OF DOMESTIC WATERLINE DESIGN EXPERIENCE: 0
	YEARS OF EXPERIENCE		
Brief Explanation of Responsibilities Mr. Dunlap has served as an engineering technician/field inspector on numerous government and commercial construction projects. His duties on these projects have included quality assurance/quality control (QA/QC), construction oversight and testing, coordination of field activities, liaison between general contractor and engineer, and project reporting.			
EDUCATION (Degree, Year, Specialization): A.S., Mechanical Engineering Technology, WVUIT; American Concrete Institute (ACI) Certified; WVDOH Certification for Fill Compaction Technician; WVDOH Certification for Concrete Technician; WVDOH Certification for Asphalt Inspector.			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS: NA			
REGISTRATION (Type, Year, State): NA			

14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE AML DESIGN SERVICES

Three rotary drill rigs, one mounted on a four wheel drive one-ton truck, and two track-mounted rigs. Drills are equipped with hollow stem augers, split-spoon soil sampling equipment, and rock coring tools.
Portable dynamic cone penetrometer.

Electric concrete coring drill.

Two equipment hauling trailers.

Software includes: Word processing, PCSTABL - Slope Stability Analysis, LPILE Plus 4.0 - Pile Foundation Analysis, PYWALL 2.0 - Retaining Wall Analysis, ReSSA 2.0 - Reinforced Soil Slope Analysis, Reslope 3.0 - Reinforced Soil Slope Design

Soil Laboratory Equipment: Soil Oven, Scales, Sieves, Liquid and Plastic Limits Machine

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
Chesapeake Energy Office & Shop Complex, Geotechnical Investigation, Inez, KY	Chesapeake Energy Corporation, 6100 N. Western Avenue, Oklahoma City, OK 73154	Perform subsurface investigation, develop and provide recommendations for building foundation design	Unknown, Fee = \$6600.00	5
Annual Geotechnical Drilling Contract, Northern West Virginia	West Virginia Department of Environmental Protection	Perform geotechnical (drilling) investigations of abandoned mine land sites as directed by WVDEP/AML personnel.	Unknown	30
TOTAL NUMBER OF PROJECTS: 2			TOTAL ESTIMATED CONSTRUCTION COSTS: \$ Unknown	

16. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS SERVING AS A SUB-CONSULTANT TO OTHERS

PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRMS RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				ENTIRE PROJECT	YOUR FIRMS RESPONSIBILITY
Ten Cell Tower Sites, Geotechnical Investigations, Various Locations Throughout WV	Determine Site Subsurface Conditions, Provide Foundation Design Recommendations.	Terradon Corp. Nitro, WV	March, 2008	Unknown	Fee \$33,000
Six Cell Tower Sites, Geotechnical Investigations, Various Locations Throughout WV	Determine Site Subsurface Conditions	PSI, Inc. 153 Williams Hwy Parkersburg, WV	March, 2008	Unknown	Fee ≈ \$12,000
Toyota Meeting Room, Geotechnical Investigation, Buffalo, WV	Geotechnical Investigation for New Building Structure	Toyota Corp. Buffalo, WV	March, 2008	Unknown	Fee \$4000
I-64 Over Hal Greer Blvd. Bridge, CSL Testing, Huntington, WV	Perform Cross-Hole Sonic Logging of New Foundation Drilled Piers	West Virginia Dept. of Highways, Charleston, WV	August, 2008	Unknown	Fee ≈ \$17,000
Harrison Co. EMS Station, Geotechnical Investigation, Clarksburg, WV	Determine Site Subsurface Conditions, Provide Foundation Design Recommendations	Harrison Co. EMS Clarksburg, WV	February, 2008	Unknown	Fee \$4000
Corridor H Highway Construction, Quality Control Testing, Grant Co., WV	Perform soil compaction and concrete quality control tests.	West Virginia Dept. of Highways, Charleston, WV	November, 2008	Unknown	Fee ≈ \$75,000
Water Storage Tank, Subsurface Investigation, Gilbert, WV	Determine Site Subsurface Conditions	Gilbert PSD Gilbert, WV	March, 2008	Unknown	Fee \$3000

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
S. Mineral Wells Interchange, Geotechnical Study, Mineral Wells, WV	WV Department of Highways Charleston, WV	\$5,000,000	2007	In Process	L. A. Gates Co.
Winfrede RR Overpass Bridge, Geotechnical Investigation, Winfrede, WV	WV Department of Highways Charleston, WV	\$1,500,000	2005	Yes	HNTB Corporation
Performing Arts Center. Geotechnical Investigation, Buckhannon, WV	West Virginia Wesleyan College, Buckhannon, WV	\$500,000	2007	Yes	R. D. Zande & Associates, Inc.
Mt. Gay Overpass Bridge, Geotechnical Investigation, Logan, WV	WV Department of Highways Charleston, WV	\$1,000,000	2004	Yes	HMB Professional Engineers, Inc.
Water Tanks, Geotechnical Investigation, Iager, WV	Iager PSD Iager, WV	\$100,000	2006	Yes	Stafford Consultants
5 th Avenue Bridge, Geotechnical Investigation, Huntington, WV	WV Department of Highways Charleston, WV	\$2,500,000	2003	Yes	Modjeski & Masters, Charleston, WV

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.

John E. Nottingham

Signature: _____

Printed Name: John E. Nottingham

Title: Vice President

Date: January 22, 2009

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AML CONSULTANT CONFIDENTIAL QUALIFICATION QUESTIONNAIRE

Attachment "B"

PROJECT NAME DEP14513 - Barker Portals & Strip Design	DATE (DAY, MONTH, YEAR) 1/22/09	FEIN 61-1183895	
1. FIRM NAME GMR Aerial Surveys, Inc. dba Photo Science	2. HOME OFFICE BUSINESS ADDRESS 2670 Wilhite Drive Lexington, KY 40503	3. FORMER FIRM NAME Photo Science of Kentucky, Inc.	
4. HOME OFFICE TELEPHONE 859-277-8700	5. ESTABLISHED (YEAR) 1974	6. TYPE OWNERSHIP Individual <input type="checkbox"/> Partnership <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Joint-Venture <input type="checkbox"/>	6a. WV REGISTERED DBE YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
7. PRIMARY AML DESIGN OFFICE: ADDRESS/ TELEPHONE/ PERSON IN CHARGE/ NO. PERSONNEL EACH OFFICE 2670 Wilhite Drive / Lexington, KY 40503 / 859-277-8700 / G. Michael Ritchie / 75 1410 Indian Trail Road / Norcross, GA 30093 / 770-564-9843 / Jeffrey S. Simmons / 46 67 Pine Street, Suite 2 / Bangor, ME 04401 / 207-262-3232 / Kristina Ivey / 1 6200 Metrowest Boulevard, Suite 206 / Orlando, FL 32835 / 407-521-2262 / Nickolas R. Fusco / 2 10033 MLK Street N, Suite 200 / St. Petersburg, FL 33716 / 727-576-9500 / Gary R. Florence / 35 4801 Telsa Drive, Suite J / Bowie, MD 20715 / 301-262-9400 / Kurt W. Allen / 17 104 South Church Street / West Chester, PA 19382 / 610-344-0890 / Robert J. Hickey / 2			
8. NAMES OF PRINCIPAL OFFICIALS OR MEMBERS OF FIRM G. Michael Ritchie / President / 859-277-8700 Mark E. Meade / Vice President / 859-277-8700 Jeffrey S. Simmons / Vice President / 770-564-9843 Kurt W. Allen / Vice President / 301-262-9400 Robert J. Hickey / Vice President / 610-344-0890			
9. PERSONNEL BY DISCIPLINE ADMINISTRATIVE _____ ARCHITECTS _____ BIOLOGIST _____ 18 CAD OPERATORS CHEMICAL ENGINEERS _____ CIVIL ENGINEERS _____ CONSTRUCTION INSPECTORS _____ DESIGNERS _____ DRAFTSMEN _____ ECOLOGISTS _____ ECONOMISTS _____ ELECTRICAL ENGINEERS _____ ENVIRONMENTALISTS _____ ESTIMATORS _____ GEOLOGISTS _____ HISTORIANS _____ HYDROLOGISTS _____ LANDSCAPE ARCHITECTS _____ MECHANICAL ENGINEERS _____ MINING ENGINEERS _____ 15 PHOTOGRAMMETRISTS PLANNERS: URBAN/REGIONAL _____ SANITARY ENGINEERS _____ SOILS ENGINEERS _____ SPECIFICATION WRITERS _____ STRUCTURAL ENGINEERS _____ 17 SURVEYORS TRAFFIC ENGINEERS _____ OTHER _____ 178 TOTAL PERSONNEL			
10. HAS THIS JOINT-VENTURE WORKED TOGETHER BEFORE? YES NO TOTAL NUMBER OF WV REGISTERED PROFESSIONAL ENGINEERS IN PRIMARY OFFICE: <u>2</u> *RPEs other than Civil and Mining must provide supporting documentation that qualifies them to supervise and perform this type of work			

11. OUTSIDE KEY CONSULTANTS/ASSOCIATES ANTICIPATED TO BE USED. Attach "Consultant Confidential Qualification Questionnaire" for each if copy is not on with the Division.

NAME AND ADDRESS	SPECIALITY	WORKED WITH BEFORE
	SPECIALITY	WORKED WITH BEFORE <input type="checkbox"/> YES <input type="checkbox"/> NO
	SPECIALITY	WORKED WITH BEFORE <input type="checkbox"/> YES <input type="checkbox"/> NO
	SPECIALITY	WORKED WITH BEFORE <input type="checkbox"/> YES <input type="checkbox"/> NO
	SPECIALITY	WORKED WITH BEFORE <input type="checkbox"/> YES <input type="checkbox"/> NO
	SPECIALITY	WORKED WITH BEFORE <input type="checkbox"/> YES <input type="checkbox"/> NO
	SPECIALITY	WORKED WITH BEFORE <input type="checkbox"/> YES <input type="checkbox"/> NO

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

YES Description and Number of Projects: _____

NO

B. Is your firm experienced in Soil Analysis?

YES Description and Number of Projects: _____

NO

C. Is your firm experienced in Hydrology and hydraulics?

YES Description and Number of Projects: _____

NO

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

YES Description and Number of Projects: See description of services on following pages.

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: _____

NO

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

YES Description and Number of Projects: _____

NO

COMPANY BACKGROUND

Founded in 1974, Photo Science is a *Geospatial Services* firm, specializing in aerial imaging and data collection, photogrammetric mapping, GIS, remote sensing, and surveying services.

Initially, the company consisted of one (1) aircraft, ten (10) employees, and offered aerial photography and photogrammetric mapping services, predominantly to local area engineers and the coalfields of eastern Kentucky and throughout West Virginia. Through decades of planning and disciplined growth, Photo Science currently owns and operates nine (9) aircraft, employs more than 170 professional and technical staff in seven (7) production facilities across the country, and provides full-service geospatial solutions to our diversified client base.

The firm is currently registered to conduct business in 22 states, including West Virginia since 1998. We are registered in West Virginia to offer and provide engineering services (C01583) and land surveying services (6-5358). In addition, our staff consists of West Virginia registered Professional Engineers and registered Professional Land Surveyors.

We currently have a strong group of professionals, including 15 Certified Photogrammetrists, 18 Professional Land Surveyors, 3 Professional Surveyor and Mappers, 2 Professional Engineers, and 2 Certified Planners with many years of experience in all facets of geospatial solutions.

We have invested millions of dollars in state-of-the-art equipment over the past decade to stay current with the ever changing geospatial industry. Our aircraft are equipped with conventional precision film cameras; large-format Z/I Imaging Digital Mapping Cameras (DMC) — *being only one of five firms in the country to own this high-end large-format digital imaging capability*; medium-format Applix Digital Sensor System (DSS) 322, and Leica ALS-50 LIDAR sensors. These sensors are integrated with our flight management systems, airborne GPS, and Inertial Measurement Unit technology. Additionally, we maintain a diversified platform of photogrammetric workstations and production resources that enables efficient, multi-task-order operations.

Photo Science has the equipment, staffing, and experience to meet the needs of the West Virginia Office of Abandoned Mine Lands. We offer:

- ✦ aircraft, sensors, and processors that are the most innovative equipment in the photogrammetric arena today;
- ✦ mapping and GIS professionals totaling more than 180 with a total of over 1,300 years of combined work experience and an average of over 10 years of experience working together;
- ✦ 30+ years of experience providing the same services as requested to various municipal, county, state, and federal agencies.

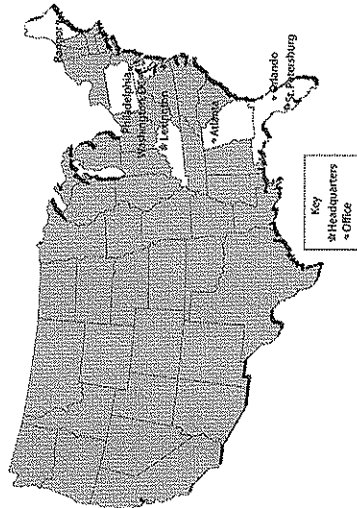
LOCATION

The corporate headquarters of Photo Science is located in Lexington, Kentucky. Our principal offices are located at:

Address:	2670 Wilhite Drive Lexington, Kentucky 40503	Phone:	859-277-8700
		FAX:	859-277-8901
		Web Page:	www.photoscience.com

Our corporate headquarters' facilities currently occupy over 21,000 square feet with some of the most modern equipment used in photogrammetry. We now have seven (7) branch offices, located in Bangor, Maine; Colorado Springs, Colorado; Norcross, Georgia; Orlando and St. Petersburg, Florida; and Bowie, Maryland; and Exton, Pennsylvania.

CORE SERVICES
Aerial Imaging and Data Collection
Aerial Photography
Digital Aerial Imaging
LIDAR Terrain Mapping
Photogrammetric Mapping
Aerotriangulation
Stereocompilation / Feature Extraction
Digital Orthophotography
Photographic Laboratory / Scanning
Geographic Information Systems
Data Capture / Conversion
Database Design
Application Software Development
Training
3-D Visualization
Remote Sensing
Thematic Mapping
Image Processing / Analysis
Photointerpretation
Change Detection
Surveys
Airborne GPS / IMU
GPS Surveys / Geodetic Control
Conventional Surveys



PROJECT STAFFING

G. Michael Ritchie, PE, PLS, PSM, CP is Principal-In-Charge and President of Photo Science. He has over 30 years of transportation engineering, surveying, and computer mapping experience. He has been responsible for many presentations and papers regarding digital base mapping and information mapping for various communities. He is qualified in all areas of technical expertise required for this project. He is a licensed civil engineer in 15 states, a licensed land surveyor in 7 states, and he is a nationally recognized Certified Photogrammetrist. **He is currently licensed in West Virginia as a Professional Engineer (8679) and as a Professional Land Surveyor (1163).**

Other key staff members include:

1. Jack L. Mitchell, PLS, CP Project Manager
2. Marcus G. Penrod, CP Assistant Project Manager
3. Mark E. Meade, PE, PLS, CP Survey Manager
4. Clay D. Smith, PLS, CP Production Manager
5. William R. Mitchell, CP QA/QC Manager
6. Forrest E. Godby, PLS Flight Coordinator

EXPERIENCE

Photo Science has been completing aerial photography and mapping projects since it opened 30 years ago. Our staff has vast experience completing projects with similar requirements to yours. We currently have nine statewide open-end contracts with various Departments of Transportation utilizing the same type services as those requested by the West Virginia Department of Transportation. The table below highlights those contracts and illustrates relative services being provided.

EQUIPMENT

Airworthy Aircraft. Photo Science owns and operates nine FAA-certified aircraft to provide aerial photo missions. Each aircraft is capable of supporting virtually any type of traditional and digital aerial photogrammetric mission and is equipped with airborne Global Positioning Systems (GPS) receivers, Inertial Measurement Units (IMU), Forward-Motion Compensation (FMC), and gyro-stabilized camera mounts.

Traditional and Digital Aerial Photography Acquisition. In support of traditional aerial photo missions, Photo Science offers four USGS tested and calibrated analog photogrammetric cameras. Additionally, Photo Science's state-of-the-art Z/I DMC provides for the direct capture of high-resolution, large-format, multispectral (R,G,B, NIR) aerial imagery. The DMC is the industry's most innovative and precise turnkey digital camera system supporting aerial photogrammetric missions for the broadest range of GIS and remote sensing applications. Photo Science is only one of five firms in the country to own this high-end, large-format digital imaging capability.

	SERVICES										
	Aerial Photography	Mapping & DTMs	Ground Control	Digitized U.S.G.S Quad Maps and DTM	Raster Images	Quality Control	LIDAR	Digital Mapping	Cameras		
Relative Statewide Contracts	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
West Virginia DOT (2 contracts)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Florida DOT/Turnpike Commission	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Georgia DOT	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Kentucky Transportation Cabinet	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Maine DOT	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Maryland DOT	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
South Carolina DOT	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Tennessee DOT	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆

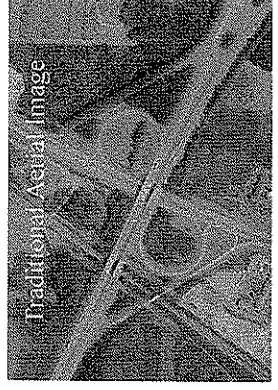
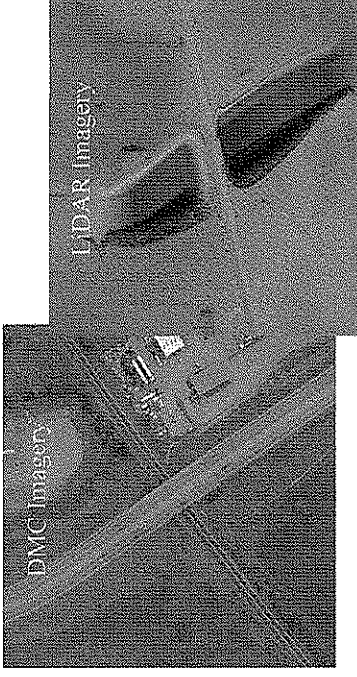


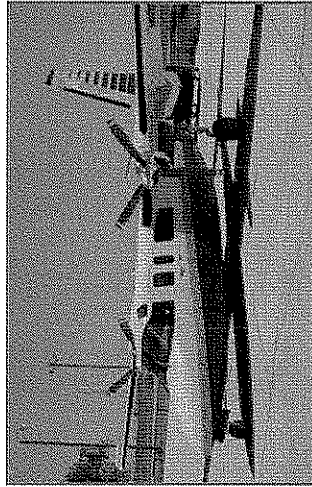
Photo Science's most recent acquisition is the latest in aerial imaging – the Applinix DSS 322. The DSS 322 system is technology engineered to maximize the system's capability in generating high-quality color and color infrared (CIR) digital geospatial imaging products. The DSS is a ready-to-use, directly georeferenced, medium-format, airborne digital camera system.

LIDAR Data Acquisition. Photo Science is an industry leader in the collection and processing of airborne Light Detection and Ranging (LIDAR) information. LIDAR is an active remote sensing system that uses airborne laser scanning technology to emit pulses of light to illuminate the terrain. Photo Science utilizes the latest in LIDAR technology, employing the Leica Geosystems ALS50 II sensor. In addition to acquisition, Photo Science utilizes a variety of technologies to process the acquired, raw LIDAR information—converting ASCII point samplings to finished digital elevation models, surface terrain models, and digital contour products.



Aircraft

Tail Number	1. Engine	2. Manufacturer	3. Model	4. Cessna	5. Cessna	6. Cessna	7. Cessna	8. Cessna	9. Cessna
N910FC	340 Turbine Commander	690B Turbine Commander	P/A-31 Navajo	I-310R	I-210N	I-210W	U-208C	U-208G	U-288H
N101UF	N910FC	N167R	N101UF	N2737U	N6479Y	N5425A	N7320G	N9471R	N2448G
Manufacturer	Gulfstream	Rockwell International	Piper	Cessna	Cessna	Cessna	Cessna	Cessna	Cessna
Engine Configuration	Twin	Twin	Twin	Twin	Single	Single	Single	Single	Single
Turbo Charged	Turbine	Turbine	Turbine	Yes	Yes	Yes	No	No	No
Cruise Speed (knots)	300	270	180	185	160	160	130	130	140
Airborne GPS Equipped	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Flight-Management System	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Service Ceiling (feet)	34,500	31,000	26,300	27,400	28,500	28,500	16,700	16,700	15,700



Cameras

Serial Number	1. Zeiss RMK-TOP 15	2. Zeiss RMK-TOP 15	3. Zeiss LMK-2000	4. Zeiss LMK-1000D	5. Z/I Imaging DMC	6. Z/I Imaging DMC	7. Z/I Imaging DMC	8. Applanix DSS-322
14417	145843	272302C	269155D	13	33	33	78	
IMU Unit	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Forward-Motion Compensation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A
Gyro-Stabilized Mount	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Azimuth Mount
Dual Magazine	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A
Calibration Date	08/28/07	09/30/06	06/21/06	01/03/07	10/04	06/06	01/06	
AWAR	107	100	97	97	N/A	N/A	N/A	
Format	Large	Large	Large	Large	Large	Large	Medium	

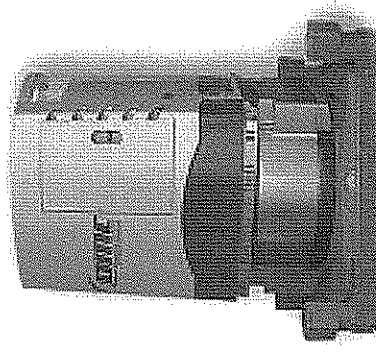


Photo Lab. Photo Science maintains two full-service photographic laboratories for film processing, precision photographic reproductions, enlargements, and color proofing. We own two state-of-the-art Vexcel 4000 high-resolution image scanners, as well as a Z/I PhotoScan 2000 roll-feed, high-resolution image scanner. These scanners represent two of the top scanners in the photogrammetric marketplace today. They are capable of bearing multiple resolutions up to 7.5 microns including 14 microns as specified. Additionally, these scanners can operate as roll-feed or with single or dual film diapositives. In addition, by staffing the lab 24 hours per day during the peak flying seasons (spring and fall), Photo Science is able to maintain direct control of project schedules.

Field Control Surveys. Photo Science performs aerial photography and photogrammetric services over the eastern United States and as such, has completed survey requirements of all types in a variety of locations. We have worked with hundreds of consulting engineers who perform their own control surveys. We have 20 Trimble GPS receivers available immediately for this project including RTK capability. We have complete software including the GeoSurv software for better vertical adjustments and Trimble GP Survey.

Aerotriangulation. Photo Science has complete in-house facilities for analytical triangulation control extension. Our team has performed in-house aerotriangulation to support photogrammetric compilation and orthophoto production for many years. Intergraph ISAT aerotriangulation software is the software package most often utilized by our staff to determine the position and rotation angles of each of the acquired aerial photos and to establish their relationship to the ground.

Stereo Compilation (Digital Data Capture). Photo Science has 34 stereo plotters with experienced staff and computers to assign to this project. We utilize KORK and Atlas mapping software to insure exact project specifications and formatting of data. Our stereo compilation experts are highly experienced providing both large scale (1"=20') and small scale (1"=2,000') planimetric and terrain feature extraction in support of topographic mapping. The scope of our project experience ranges from small, engineering level survey and mapping projects to comprehensive and extensive statewide mapping initiatives. We have performed hundreds of DTM corridor-type projects including CEAL translations for the West Virginia Department of Transportation as well as for a wide variety of consultants.

Interactive Graphics - Photo Science utilizes the latest equipment for data processing and formatting to clients' needs. We utilize software capable of delivery in the several formats. Final ink-on-mylar drawings are produced on Hewlett Packard inkjet drum plotters. Services are available for laser or electrostatic plots.

Digital Terrain Modeling. DTM experience is an everyday occurrence at Photo Science; all of our projects are compiled using DTM techniques. Photo Science uses a combination of breaklines and mass points for a true and accurate Triangulation Irregular Network (TIN) file for contour generation. Photo Science uses the Plus III Terramodel software for contour generation at every stereoplotter for instant on-line quality control checks. In addition, our raw data is easily loaded into our Intergraph "select" system for processing in the "In Roads," "Road Works", or "Engineering Site Package" and "In-Roads Select" as well. We routinely provide this data to clients who use ArcInfo, AutoCAD, Intergraph, and other modeling software systems. We also produce TTN files on our Intergraph Imagestations and have produced this data in ArcInfo, ASCII, CEAL, GeoPak, and Calce formats.

Metric Data. Photo Science has completed several hundred projects requiring data in metric units. All of our equipment can readily fulfill this requirement.

Airborne GPS. Photo Science is a leader in airborne GPS services, using our considerable knowledge and experience to make effective use of this new technology. All of our aircraft are equipped for airborne GPS (ABGPS) and Inertial Measurement Unit (IMU) missions and have undergone rigorous testing to ensure accurate determination of the three-dimensional position of each photographic exposure.

TIME SCHEDULE

Photo Science is committed to assign adequate resources to complete the West Virginia Department of Transportation projects in a timely manner. We would recommend progressive delivery of specific priority projects so as to allow you and your consultants to meet design schedules.

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)			
NAME (Last, First, Middle Initial) Adkins, Lonnal Photogrammetrist Photo Lab Manager	YEARS OF EXPERIENCE		
	AS PRINCIPAL IN THIS FIRM 0	AS PRINCIPAL IN OTHER FIRMS 0	OTHER THAN PRINCIPAL >30
EDUCATION (Degree, Year, Specialization) Engineering Studies, 1.5 Years			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS ASPRS		REGISTRATION (Type, Year, State) Certified Photogrammetrist: 1985 National	
13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)			
NAME (Last, First, Middle Initial) Brock, Allen Photogrammetrist Project Manager	YEARS OF EXPERIENCE		
	AS PRINCIPAL IN THIS FIRM 0	AS PRINCIPAL IN OTHER FIRMS 0	OTHER THAN PRINCIPAL 23
EDUCATION (Degree, Year, Specialization)			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS ASPRS		REGISTRATION (Type, Year, State) Photogrammetric Surveyor: 2005 SC Certified Photogrammetrist: 1996 National	
13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)			
NAME (Last, First, Middle Initial) Florence, Gary Photogrammetrist Project Manager	YEARS OF EXPERIENCE		
	AS PRINCIPAL IN THIS FIRM 0	AS PRINCIPAL IN OTHER FIRMS 0	OTHER THAN PRINCIPAL 27
EDUCATION (Degree, Year, Specialization) MS 1980 Remote Sensing / Vegetation Survey; BS 1975 Geography			
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS N/A		REGISTRATION (Type, Year, State) Photogrammetric Surveyor: 2005 SC Certified Photogrammetrist: 2005 National	

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)		
NAME (Last, First, Middle Initial) Hickey, Robert	YEARS OF EXPERIENCE	
Vice President Photogrammetrist	AS PRINCIPAL IN THIS FIRM 1	AS PRINCIPAL IN OTHER FIRMS 0
		OTHER THAN PRINCIPAL 19
EDUCATION (Degree, Year, Specialization) MS 2001 Business Administration; BS 1983 MIS		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS ASPRS		
REGISTRATION (Type, Year, State) Certified Photogrammetrist: 1997 National		
13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)		
NAME (Last, First, Middle Initial) Logan, Douglas	YEARS OF EXPERIENCE	
Photogrammetrist Digital Orthophoto Specialist	AS PRINCIPAL IN THIS FIRM 0	AS PRINCIPAL IN OTHER FIRMS 0
		OTHER THAN PRINCIPAL 25
EDUCATION (Degree, Year, Specialization) AS 1982 Electronic Engineering		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS ACSM, ASPRS		
REGISTRATION (Type, Year, State) Professional Land Surveyor: 1999 NC Photogrammetric Surveyor: 2005 SC Certified Photogrammetrist: 1997 National		
13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)		
NAME (Last, First, Middle Initial) Meade, Mark	YEARS OF EXPERIENCE	
Vice President Photogrammetrist	AS PRINCIPAL IN THIS FIRM 10	AS PRINCIPAL IN OTHER FIRMS 0
		OTHER THAN PRINCIPAL 14
EDUCATION (Degree, Year, Specialization) MS 1987 Business Administration; BS 1983 Civil Engineering		
MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS ACEC, ASPRS, Kentucky Engineering Foundation		
REGISTRATION (Type, Year, State) Professional Engineer: 1987 KY; 1988 WV Professional Land Surveyor: 1989 KY; 1995 WV; 1997 GA Photogrammetric Surveyor: 2005 SC Certified Photogrammetrist: 1997 National		

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)

NAME (Last, First, Middle Initial)
 Mitchell, Jack

YEARS OF EXPERIENCE

AS PRINCIPAL IN THIS FIRM

0

AS PRINCIPAL IN OTHER FIRMS

0

OTHER THAN PRINCIPAL

>30

EDUCATION (Degree, Year, Specialization)
 N/A

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
 ASPRS

REGISTRATION (Type, Year, State)
 Professional Land Surveyor: 1999 NC
 Photogrammetric Surveyor: 2005 SC
 Certified Photogrammetrist: 1991 National

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)

NAME (Last, First, Middle Initial)
 Mitchell, William

YEARS OF EXPERIENCE

AS PRINCIPAL IN THIS FIRM

0

AS PRINCIPAL IN OTHER FIRMS

0

OTHER THAN PRINCIPAL

>30

EDUCATION (Degree, Year, Specialization)
 1972 Principles of Photogrammetry; 1967 Advanced Photogrammetry; 1958 - 1960 Civil Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
 ASPRS

REGISTRATION (Type, Year, State)
 Certified Photogrammetrist: 1992 National

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)

NAME (Last, First, Middle Initial)
 Penrod, Marcus

YEARS OF EXPERIENCE

AS PRINCIPAL IN THIS FIRM

0

AS PRINCIPAL IN OTHER FIRMS

0

OTHER THAN PRINCIPAL

>30

EDUCATION (Degree, Year, Specialization)
 N/A

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
 ASPRS

REGISTRATION (Type, Year, State)
 Certified Photogrammetrist: 1998 National

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)

NAME (Last, First, Middle Initial) Ricks, Keith	YEARS OF EXPERIENCE		
AS PRINCIPAL IN THIS FIRM 0	AS PRINCIPAL IN OTHER FIRMS 0	OTHER THAN PRINCIPAL 28	
EDUCATION (Degree, Year, Specialization) N/A			

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
ASPRS
 REGISTRATION (Type, Year, State)
Professional Land Surveyor: 1999 NC
Certified Photogrammetrist: 1997 National

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)

NAME (Last, First, Middle Initial) Ritchie, G. Michael	YEARS OF EXPERIENCE		
AS PRINCIPAL IN THIS FIRM 17	AS PRINCIPAL IN OTHER FIRMS 13	OTHER THAN PRINCIPAL 8	
EDUCATION (Degree, Year, Specialization) BS 1972 Civil Engineering			

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
ACEC, ACSM, ASCE, ASPRS, GITA, KSPE, MAPPS, NSPE, PEPP, SAME, TAPS
 REGISTRATION (Type, Year, State)
Professional Engineer: 1979 AL; 2000 CO; 1998 FL; 1999 GA; 2000 IL; 1974 KY; 1979 LA; 1979 MS; 1980 MO; 1978 NC; 2000 OH; 2000 PA; 1998 SC; 1979 TN; 1974 WV
Professional Land Surveyor: 1981 AL; 1974 KY; 1979 MS; 1979 NC; 1995 WV; 2001 FL-PSM
Certified Photogrammetrist: 1997 National

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)

NAME (Last, First, Middle Initial) Shillenn, Michael	YEARS OF EXPERIENCE		
AS PRINCIPAL IN THIS FIRM 0	AS PRINCIPAL IN OTHER FIRMS 0	OTHER THAN PRINCIPAL 20	
EDUCATION (Degree, Year, Specialization) BS 1987 Geography			

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
ASPRS
 REGISTRATION (Type, Year, State)
Certified Photogrammetrist: 1997 National

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)

NAME (Last, First, Middle Initial) Smith, Clay Photogrammetrist Production Manager	YEARS OF EXPERIENCE		
	AS PRINCIPAL IN THIS FIRM 0	AS PRINCIPAL IN OTHER FIRMS 0	OTHER THAN PRINCIPAL 29

EDUCATION (Degree, Year, Specialization)
AS 1986 Photogrammetry

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
ASPRS

REGISTRATION (Type, Year, State)
Professional Land Surveyor: 1999 NC
Photogrammetric Surveyor: 2005 SC
Certified Photogrammetrist: 1994 National

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)

NAME (Last, First, Middle Initial) Smothers, Jerry Photogrammetrist Flight Coordinator	YEARS OF EXPERIENCE		
	AS PRINCIPAL IN THIS FIRM 0	AS PRINCIPAL IN OTHER FIRMS 0	OTHER THAN PRINCIPAL >30

EDUCATION (Degree, Year, Specialization)
1989 Pre-Engineering

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
ASPRS

REGISTRATION (Type, Year, State)
Certified Photogrammetrist: 1991 National

13. PERSONAL HISTORY STATEMENT OF PRINCIPALS AND ASSOCIATES (Furnish complete data but keep to essentials)

NAME (Last, First, Middle Initial) Veit, Jacob Photogrammetrist	YEARS OF EXPERIENCE		
	AS PRINCIPAL IN THIS FIRM 0	AS PRINCIPAL IN OTHER FIRMS 0	OTHER THAN PRINCIPAL >30

EDUCATION (Degree, Year, Specialization)
N/A

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS
ASPRS

REGISTRATION (Type, Year, State)
Certified Photogrammetrist: 1984 National

14. PROVIDE A LIST OF SOFTWARE AND EQUIPMENT AVAILABLE IN THE PRIMARY OFFICE WHICH WILL BE USED TO COMPLETE AML DESIGN SERVICES

SEE ENCLOSED EQUIPMENT LIST.

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

PROJECT NAME, TYPE AND LOCATION & NATURE OF RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED FEES (as of 11/30/07)	PERCENT COMPLETE
<ul style="list-style-type: none"> ➤ Aerial Photography for Photogrammetric Mapping ➤ Mapping Services & Related Svcs Statewide - West Virginia 	West Virginia Department of Transportation 1900 Kanawha Boulevard, East Charleston, WV 25305	\$246,811.00	On-Going
Aerial Photography & Related Svcs Statewide - Florida	Florida Department of Transportation 605 Suwannee Street Tallahassee, FL 32399	\$374,712.00	On-Going
Photogrammetric Mapping Statewide - Florida	Florida Turnpike Enterprise PO Box 9828 Ft. Lauderdale, FL 33310	\$159,033.00	On-Going
Aerial Photography & Related Svcs Various Counties	Florida Department of Revenue 725 South Calhoun Street Tallahassee, FL 32399	\$153,359.00	On-Going
Aerial & Photogrammetric Svcs Statewide - Kentucky	Kentucky Transportation Cabinet 501 High Street, Room 908 Frankfort, KY 40622	\$856,718.00	On-Going
Aerial Photography & Related Svcs Statewide - Maine	Maine Department of Transportation 16 State House Station Augusta, ME 04333	\$47,406.00	On-Going
Photogrammetric Services Statewide - South Carolina	South Carolina Department of Transportation 955 Park Street, Room 425 Columbia, SC 29216	\$19,800.00	On-Going
Aerial Photogrammetry, Reconnaissance, Mapping, & Related Services Statewide - Tennessee	Tennessee Department of Transportation 521 Olen Tayler Drive Nashville, TN 37217	\$40,202.00	On-Going
Photogrammetric Mapping And Aerial Photography Huntington District Boundaries	USACE Huntington District 502 Eighth Street Huntington, WV 25701	\$30,727.00	On-Going
Photogrammetric Mapping And Aerial Photography Nashville District Boundaries	USACE Nashville District 801 Broadway Nashville, TN 37202	\$150,000.00	On-Going
Photogrammetric Mapping And Aerial Photography Pittsburgh District Boundaries	USACE Pittsburgh District 1000 Liberty Avenue Pittsburgh, PA 15222	\$313,867.00	On-Going

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

PROJECT NAME, TYPE AND LOCATION & NATURE OF RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED FEES (as of 11/30/07)	PERCENT COMPLETE
NAIP & PSU Services Various Locations	USDA Farm Service Agency 2222 W. 2300 Street Salt Lake City, UT 84119	\$1,619,421.00	On-Going
GIS Services Various Locations	USDA Forest Service 2222 W. 2300 Street Salt Lake City, UT 84119	\$494,303.00	On-Going
Photogrammetric & Mapping Sciences Various Locations	USGS 1400 Independence Road Rolla, MO 65401	\$821,581.00	On-Going
Aerial Photography & Related Svcs Charleston, West Virginia	Charleston Sanitary Board 208 26 th Street Charleston, WV 25324	\$219,790.00	On-Going
Aerial Photography & Related Svcs Cherokee County, Georgia	Cherokee County Government 90 North Street Canton, GA 30114	\$43,950.00	On-Going
Aerial Photography & Related Svcs Coweta County, Georgia	Coweta County Board of Commissioners 22 East Broad Street Newnan, GA 30263	\$249,500.00	On-Going
Aerial Photography & Related Svcs Henry County, Georgia	Henry County Board of Commissioners 140 Henry Parkway McDonough, GA 30523	\$245,000.00	On-Going
Miscellaneous Surveying & Mapping Hillsborough County, Florida	Hillsborough County Board of Commissioners P. O. Box 1110 Tampa, FL 33601	\$68,195.00	On-Going
Digital Orthophotography Newton County, Georgia	Newton County Board of Commissioners 113 Usher Street Covington, GA 30014	\$103,300.00	On-Going
Aerial Photography & Related Svcs Campbell & Kenton Counties, Kentucky	Northern KY Area Planning Commission 2332 Royal Drive Ft. Mitchell, KY 41017	\$103,090.00	On-Going
Aerial Photography & Related Svcs Various Locations	R.J. Corman Railroad Group, LLC P.O. Box 788 Nicholasville, KY 40340	\$171,260.00	On-Going

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

PROJECT NAME, TYPE AND LOCATION & NATURE OF RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED FEES (as of 11/30/07)	PERCENT COMPLETE
Aerial Seagrass Mapping Tarpon Springs south to Boca Grande, Florida	Southwest Florida Water Management District 2379 Broad Street Brooksville, FL 34604	\$132,855.00	On-Going
Aerial Photography & Related Svcs Various Locations	Colonial Pipeline Company 945 East Paces Ferry Rd Atlanta, GA 30326	\$134,023.00	On-Going
Aerial Photography & Related Svcs Various Locations	Columbia Gas Transmission Corporation 1700 MacCorkle Avenue Charleston, WV 25314	\$491,395.00	On-Going
GIS Program Various Locations	Dalton Utilities 1200 VD Parrott Jr Pkwy Dalton, GA 30722	\$8,990.00	On-Going
Aerial Photography & Related Svcs Various Locations	Duke Energy 5400 Westheimer Court Houston, TX 77056	\$219,338.00	On-Going
Aerial Photography & Related Svcs Kentucky	East Kentucky Power Cooperative 4775 Lexington Road Winchester, KY 40391	\$19,445.00	On-Going
Aerial Photography & Related Svcs Various Locations	El Paso Energy 1001 Louisiana Street Houston, TX 77002	\$962,320.00	On-Going
Aerial Photography & Related Svcs Thomas Ranch Mapping	Fourth Quarter Properties 211 N. Main Street, Suite 201 Alpharetta, GA 30004	\$224,800.00	On-Going
Aerial Photography & Related Svcs Various Locations	Georgia Power Company 241 Ralph McGill Boulevard NE Atlanta, GA 30308	\$279,200.00	On-Going
GIS Program Various Locations	Georgia Transmission Corporation 2100 East Exchange Place Tucker, GA 30084	\$5,361,140.00	On-Going
Aerial Photography & Related Svcs Lexington, Kentucky	Kentucky Utilities One Quality Street Lexington, KY 40507	\$55,508.00	On-Going

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

PROJECT NAME, TYPE AND LOCATION & NATURE OF RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED FEES (as of 11/30/07)	PERCENT COMPLETE
Aerial Photography & Related Svcs Various Locations	Southern Union Panhandle 5444 Westheimer Road Houston, TX 77056	\$160,945.00	On-Going
Aerial Photography & Related Svcs Various Locations	Texas Gas Transmission, LLC 3800 Frederica Street Owensboro, KY 42301	\$321,529.00	On-Going
TOTAL NUMBER PROJECTS: 38		TOTAL ESTIMATED FEES: \$17,164,542.00	

NOTE: These are various projects Photo Science is currently working on; we perform services for hundreds of projects at a given time.

16. CURRENT ACTIVITIES ON WHICH YOUR FIRM IS SERVING AS A SUB-CONSULTANT TO OTHERS

PROJECT NAME, TYPE AND LOCATION	NATURE OF FIRMS RESPONSIBILITY	NAME AND ADDRESS OF OWNER	ESTIMATED COMPLETION DATE	ESTIMATED CONSTRUCTION COST	
				ENTIRE PROJECT	YOUR FIRMS RESPONSIBILITY
Various Projects & Locations	Aerial Photography & Related Svcs	Various, Sub to: American Engineers, PLC	Unknown	Unknown	\$14,575.00
Various Projects & Locations	Aerial Photography & Related Svcs	Various, Sub to: Arcadis Geraghty & Miller	Unknown	Unknown	\$100,541.00
Various Projects & Locations	Aerial Photography & Related Svcs	Various, Sub to: Carter & Burgess	Unknown	Unknown	\$51,793.00
Various Projects & Locations	Aerial Photography & Related Svcs	Various, Sub to: Carter & Sloope Consulting Engineers	Unknown	Unknown	\$37,455.00
Various Projects & Locations	Aerial Photography & Related Svcs	Various, Sub to: Hatch Mott MacDonald	Unknown	Unknown	\$64,635.00
Various Projects & Locations	Aerial Photography & Related Svcs	Various, Sub to: HNTB Corporation	Unknown	Unknown	\$25,290.00
Various Projects & Locations	Aerial Photography and Related Services	Various, Sub to: Infotech Enterprises America	Unknown	Unknown	\$76,252.00
Various Projects & Locations	Aerial Photography & Related Svcs	Various, Sub to: Kisinger Campo & Associates	Unknown	Unknown	\$70,962.00
Various Projects & Locations	Aerial Photography & Related Svcs	Various, Sub to: SAM, Inc.	Unknown	Unknown	\$89,037.00
Various Projects & Locations	Aerial Photography & Related Svcs	Various, Sub to: Thomas & Hutton Engineering	Unknown	Unknown	\$60,780.00
TOTAL NUMBER PROJECTS: 10				TOTAL ESTIMATED FEES: \$591,320.00	

NOTE: These are various projects Photo Science is currently working on; we perform services for hundreds of projects at a given time.

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 FEE	YEAR	CONSTRUCTED (YES OR NO)
<ul style="list-style-type: none"> ➤ Aerial Photography for Photogrammetric Mapping ➤ Mapping Services & Related Svcs Statewide - West Virginia Statewide Since 1992 	West Virginia Department of Transportation 1900 Kanawha Boulevard, East Charleston, WV 25305	\$432,292.00 \$229,473.00 \$305,000.00 \$184,000.00 \$676,000.00	2006 2005 2004 2003 2002	Unknown
Photogrammetric Mapping Statewide - Florida	Florida DOT 605 Suwannee Street, MS 20 Tallahassee, FL 32399-6544	\$106,925.00 \$42,718.00	2006 2005	Unknown
Aerial & Photogrammetric Services Statewide - Kentucky Since 1981	Kentucky Transportation Cabinet 501 High Street, Room 908 Frankfort, KY 40622	\$484,846.00 \$135,445.00 \$101,000.00 \$681,000.00 \$1,921,000.00	2006 2005 2004 2003 2002	Unknown
Survey & Mapping Services Statewide - Maine Since 2000	Maine DOT 16 State House Station Augusta, ME 04333	\$96,899.00 \$57,150.00 \$13,000.00 \$3,000.00	2006 2005 2003 2002	Unknown
Photogrammetric Services Statewide - South Carolina Since 2002	South Carolina DOT 955 Park Street, Room 425 Columbia, SC 29216	\$192,364.00 \$77,550.00 \$243,000.00 \$150,000.00	2006 2005 2004 2003	Unknown
Aerial Photogrammetry, Reconnaissance, Mapping, & Related Services Statewide - Tennessee Since 1996	Tennessee DOT 521 Olen Taylor Drive Nashville, TN 37217	\$60,003.00 \$163,625.00 \$44,000.00 \$25,000.00 \$64,000.00	2006 2005 2004 2003 2002	Unknown
Aerial Photography & Related Svcs Baldwin County, Alabama	Baldwin County Government 175 Courthouse Square Bay Minette, AL 36507	\$71,213.00 \$112,828.44	2006 2005	Unknown
Photogrammetric Base Mapping Bartow County, Georgia	Bartow County Government 135 West Cherokee Avenue Cartersville, GA 30120	\$97,750.00 \$392,250.00	2006 2005	Unknown
Aerial Photography & Related Svcs Charleston, West Virginia	Charleston Sanitary Board 208 26 th Street Charleston, WV 25324	\$109,479.00	2006	Unknown
Aerial Photography & Related Svcs Reading, Pennsylvania	City of Reading, PA 815 Washington Street Reading, PA 19601	\$128,321.00 \$157,939.00	2006 2005	Unknown

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 FEE	YEAR	CONSTRUCTED (YES OR NO)
Aerial Photography & Related Svcs Various Locations	Colonial Pipeline Company 945 East Paces Ferry Rd Atlanta, GA 30326	\$719,032.00 \$872,562.00 \$250,000.00 \$76,000.00	2006 2005 2004 2002	Unknown
Aerial Photography & Related Svcs Various Locations	Columbia Gas Transmission Corporation 1700 MacCorkle Avenue Charleston, WV 25314	\$1,295,577.00 \$414,799.00 \$487,000.00 \$373,000.00 \$481,000.00	2006 2005 2004 2003 2002	Unknown
Aerial Photography & Related Svcs Various Locations	Dalton Utilities 1200 VD Parrott Jr Pkwy Dalton, GA 30722	\$30,000.00 \$283,704.00 \$147,000.00 \$118,000.00 \$152,000.00	2006 2005 2004 2003 2002	Unknown
Aerial Photography & Related Svcs Various Locations	Duke Energy 5400 Westheimer Court Houston, TX 77056	\$309,222.00 \$30,130.00 \$334,000.00 \$468,000.00 \$861,000.00	2006 2005 2004 2003 2002	Unknown
Aerial Photography & Related Svcs Kentucky	East Kentucky Power Cooperative 4775 Lexington Road Winchester, KY 40391	\$205,365.00 \$344,894.00	2006 2005	Unknown
Aerial Photography & Related Svcs Various Locations	El Paso Energy 1001 Louisiana Street Houston, TX 77002	\$839,640.00 \$1,046,359.00 \$249,000.00 \$640,000.00 \$917,000.00	2006 2005 2004 2003 2002	Unknown
Aerial Photography & Related Svcs Various Locations	Georgia Transmission Corporation 2100 East Exchange Place Tucker, Georgia 30084	\$3,890,620.00 \$2,976,417.00 \$4,597,000.00 \$3,212,000.00 \$4,881,000.00	2006 2005 2004 2003 2002	Unknown
Miscellaneous Surveying & Mapping Hillsborough County, Florida	Hillsborough County Board of Commissioners P. O. Box 1110 Tampa, FL 33601	\$76,605.00 \$223,496.00 \$261,000.00 \$204,000.00	2006 2005 2004 2003	Unknown

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 FEE	YEAR	CONSTRUCTED (YES OR NO)
Aerial Photography & Related Svcs Lexington, Kentucky	Kentucky Utilities One Quality Street Lexington, KY 40507	\$337,814.00 \$562,852.00	2006 2005	Unknown
Digital Orthophotography Newton County, Georgia	Newton County Board of Commissioners 113 Usher Street Covington, GA 30014	\$167,330.00 \$62,000.00 \$89,000.00 \$566,000.00	2006 2005 2004 2003	Unknown
Science & Technology Contract Miami-Dade and Broward County, Florida	South Florida Water Management District 3301 Gun Club Road West Palm Beach, FL 33406	\$294,976.00 \$317,911.00	2006 2005	Unknown
Aerial Photography & Related Svcs Various Sites	Southern Star Central Gas Pipeline, Inc. 3800 Frederica Street Owensboro, KY 42301	\$233,009.00 \$220,745.00 \$184,000.00 \$232,000.00	2006 2005 2004 2003	Unknown
Aerial Photography & Related Svcs Various Sites	Texas Gas Transmission LLC 3800 Frederica Street Owensboro, KY 42302	\$315,440.00 \$213,694.00 \$148,000.00	2006 2005 2003	Unknown
IDC Contract for Photogrammetric Mapping And Aerial Photography St. Louis District Boundaries	USACE St. Louis District 1222 Spruce Street St. Louis, MO 63103-2833	\$302,941.00 \$290,000.00	2006 2005	Unknown
NAIP and PSU Services Various Sites	USDA Farm Service Agency 2222 W. 2300 Street Salt Lake City, UT 84119	\$1,490,605.00 \$1,017,663.00 \$917,000.00 \$470,000.00	2006 2005 2004 2003	Unknown
GIS Services Various Sites	USDA Forest Service 2222 W. 2300 Street Salt Lake City, UT 84119	\$588,894.00 \$958,381.00 \$3,462,000.00	2006 2005 2004	Unknown
Photogrammetric & Mapping Sciences Svcs Various Sites	USGS 1400 Independence Road Rolla, MO 65401	\$1,635,019.00 \$1,412,078.00	2006 2005	Unknown
Aerial Photography & Related Svcs Georgia and Florida Sites	Florida Rock Industries 700 Palmetto Street Jacksonville, FL 32202	\$195,443.00 \$127,000.00 \$157,000.00	2005 2004 2003	Unknown

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 FEE	YEAR	CONSTRUCTED (YES OR NO)
Aerial Photography & Related Svcs Georgetown, Kentucky	Georgetown / Scott County Planning Commission 101 E. Main Street Georgetown, KY 40324	\$220,708.00	2005	Unknown
Mapping Program Orange County, Florida	Orange County Government 4200 South John Young Parkway Orlando, FL 32839	\$376,667.00	2005	Unknown
Aerial Photography & Related Svcs Roanoke County, Virginia	Roanoke County Government P.O. Box 29800 Roanoke, VA 24018-0798	\$290,142.00 \$364,510.00	2005 2004	Unknown
Aerial Photography & Related Svcs Various Locations	Tennessee Valley Authority 1101 Market Street Chattanooga, TN 37402	\$9,944.00 \$111,000.00	2005 2003	Unknown
IDC Contract for Photogrammetry and Related Services Huntington District Boundaries	USACE Huntington District 502 Eighth Street Huntington, WV 25701	\$479,055.00 \$577,000.00 \$176,000.00 \$81,000.00	2005 2004 2003 2002	Unknown
IDC for Surveying and Mapping Louisville District Boundaries	USACE Louisville District 600 M.L. King, Jr., Pl., Room 821 Louisville, KY 40202-2230	\$2,064.00 \$243,000.00 \$454,000.00 \$777,000.00	2005 2004 2003 2002	Unknown
Developing & Populating a Graphical Interactive Database, Survey Engineering, Mapping, & Related Svcs Memphis District Boundaries	USACE Memphis District 167 N. Main Street, B202 Memphis, TN 38103-1894	\$122,791.00	2005	Unknown
Aerial Photography & Related Svcs City of Paducah and McCracken County, Kentucky	City of Paducah, Kentucky 300 South Fifth Street Paducah, KY 42002	\$29,000.00 \$482,000.00	2004 2003	Unknown
Digital Orthophotography Henry County, Georgia	Henry County Purchasing Department 140 Henry Parkway McDonough, GA 30253	\$18,000.00 \$206,000.00	2004 2003	Unknown
Surveying and Mapping Services Wilmington District Boundaries	USACE Wilmington District 69 Darlington Avenue Wilmington, NC 28403	\$15,000.00 \$180,000.00 \$296,000.00	2004 2003 2002	Unknown
Aerial Photography & Related Svcs Various Locations	Williams Natural Gas Company One Williams Center Tulsa, OK 74101	\$364,000.00	2002	Unknown

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 FEE	YEAR	CONSTRUCTED (YES OR NO)
Aerial Photography & Related Svcs Elizabethtown, Kentucky	City of Elizabethtown, Kentucky 200 West Dixie Avenue Elizabethtown, KY 42701	\$86,000.00 \$61,000.00 \$20,000.00 \$1,000.00 \$18,000.00	2003 2002 2001 1998 1997	Unknown
Aerial Photography & Related Svcs Jasper, Indiana and Surrounding Area	City of Jasper, Indiana 610 Main Street Jasper, IN 47547	\$30,000.00 \$7,000.00	2003 2002	Unknown

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
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$10,526.00	2006	Unknown	Aero-Metric
		10,610.00	2004		
		12,920.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$12,885.00	2006	Unknown	Alpha Associates, Inc.
		\$14,019.00	2005		
		\$7,540.00	2004		
		\$1,200.00	2003		
		\$19,735.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$10,244.00	2006	Unknown	American Consulting Engineers
		\$152,431.00	2004		
		\$1,572.00	2003		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$9,852.00	2006	Unknown	American Engineers
		\$21,620.00	2005		
		\$8,635.00	2004		
		\$30,235.00	2003		
		\$5,823.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$276,134.00	2006	Unknown	Arcadis Geraghty & Miller
		\$387,787.00	2005		
		\$145,531.00	2004		
		\$141,104.00	2003		
		\$156,767.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$1,003,105.00	2006	Unknown	Autometric
		\$494,813.00	2005		
		\$2,187,183.00	2004		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$2,066,545.00	2006	Unknown	BAE Systems ADR
		\$739,320.00	2005		
		\$304,826.00	2004		
		\$349,550.00	2003		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$5,605.00	2006	Unknown	Burgess & Niple
		\$99,613.00	2003		
		\$14,493.00	2002		

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
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$27,870.00	2006	Unknown	Carter & Sloope Consulting Eng
		\$20,500.00	2005		
		\$188,700.00	2004		
		\$50,450.00	2003		
		\$49,650.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$20,955.00	2006	Unknown	CDP Engineers, Inc.
		\$59,641.00	2005		
		\$32,740.00	2004		
		\$7,222.00	2003		
		\$395.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$21,069.00	2006	Unknown	CH2M Hill
		\$7,250.00	2005		
		\$3,700.00	2004		
		\$7,478.00	2003		
		\$10,600.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$16,012.00	2006	Unknown	Day Wilburn Associates
		\$4,100.00	2005		
		\$60,083.00	2004		
		\$25,938.00	2003		
			2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$30,973.00	2006	Unknown	Dunn Engineers
		\$9,797.00	2005		
		\$77,495.00	2004		
		\$41,021.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$22,900.00	2006	Unknown	E. L. Robinson Engineering
		\$21,307.00	2005		
		\$19,343.00	2004		
		\$16,368.00	2003		
		\$40,372.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$17,610.00	2006	Unknown	Eagle Engineers
		\$8,400.00	2005		
		\$5,220.00	2004		
		\$8,205.00	2003		
		\$11,285.00	2002		

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
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$18,991.00	2006	Unknown	Fuller Mossbarger Scott & May Eng
		\$2,720.00	2005		
		\$1,970.00	2004		
		\$2,125.00	2003		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$74,581.00	2006	Unknown	Gresham Smith & Partners
		\$7,000.00	2005		
		\$18,000.00	2004		
		\$5,450.00	2003		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$120,492.00	2002	Unknown	H.W. Lochner Engineers
		\$14,529.00	2006		
		\$130,758.00	2005		
		\$14,779.00	2003		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$118,596.00	2000	Unknown	Hatch Mott MacDonald
		\$77,086.00	1997		
		\$85,500.00	2006		
		\$20,100.00	2005		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$182,573.00	2004	Unknown	HDR Engineering
		\$49,860.00	2003		
		\$19,822.00	2006		
		\$1,187.00	2005		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$19,951.00	2003	Unknown	Highland Engineering
		\$45,300.00	2006		
		\$13,200.00	2005		
		\$700.00	2004		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$13,250.00	2003	Unknown	HMB, Inc.
		\$20,050.00	2002		
		\$13,588.00	2006		
		\$13,200.00	2005		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$213,105.00	2006	Unknown	HNTB Corporation
		\$28,333.00	2005		
		\$41,298.00	2004		
		\$12,254.00	2006		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$89,260.00	2005	Unknown	J.B. Trimble & Associates
		\$121,083.00	2006		
		\$180,246.21	2005		
		\$344,069.00	2004		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$17,400.00	2002	Unknown	Jordan Jones & Goulding
			2006		
			2005		
			2004		

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
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$12,555.00	2006	Unknown	KBM, Inc.
		\$7,040.00	2005		
		\$8,160.00	2004		
		\$50,352.00	2003		
		\$42,300.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$255,782.00	2006	Unknown	Keck & Wood, Inc.
		\$62,800.00	2005		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$54,865.00	2006	Unknown	Kenviorns, Inc.
		\$52,161.00	2005		
		\$41,972.00	2004		
		\$49,261.00	2003		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$68,482.00	2002	Unknown	Leo Miller & Associates
		\$2,825.00	2006		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$15,879.00	2004	Unknown	Lowe Engineers
		\$6,687.00	2002		
		\$13,777.00	2006		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$28,209.00	2005	Unknown	McGee Partners
		\$74,471.00	2004		
		\$58,074.00	2002		
		\$3,681.00	2006		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$159,254.00	2004	Unknown	Michael Baker Jr., Inc.
		\$24,600.00	2006		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$262,307.00	2005	Unknown	Monarch Engineering
		\$96,082.00	2002		
		\$24,499.00	2006		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$9,972.00	2005	Unknown	Morgan Worldwide Mining Consul
		\$10,248.00	2004		
		\$18,773.00	2003		
		\$11,125.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$76,541.00	2006	Unknown	Qk4
		\$15,719.00	2005		
		\$23,998.00	2004		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$13,908.00	2003	Unknown	
		\$30,303.00	2002		
		\$33,739.00	2006		
		\$216,174.00	2004		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$34,177.00	2003	Unknown	
		\$72,581.00	2002		

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
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$38,918.00	2006	Unknown	Quest Engineers
		\$65,938.00	2005		
		\$19,683.00	2004		
		\$28,932.00	2003		
		\$22,585.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$34,617.00	2006	Unknown	Rettew Associates, Inc.
		\$27,536.00	2005		
		\$5,571.00	2004		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$3,640.00	2006	Unknown	Sherman Carter Barnhart Architects
		\$7,815.00	2005		
		\$45,565.00	2004		
		\$9,290.00	2003		
		\$21,780.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$15,515.00	2006	Unknown	Sisler Maggard Engineering
		\$27,125.00	2005		
		\$9,059.00	2004		
		\$9,154.00	2003		
		\$6,020.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$30,300.00	2006	Unknown	Thomas & Hutton Engineering
		\$111,101.00	2005		
		\$30,100.00	2004		
		\$2,600.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$225,212.00	2006	Unknown	Vaughn & Melton Consulting Eng
		\$157,654.00	2004		
		\$8,685.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$34,443.00	2006	Unknown	Volkert & Associates
		\$61,962.00	2005		
		\$69,798.00	2004		
		\$184,767.00	2003		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$11,898.00	2006	Unknown	Wilbur Smith & Associates
		\$25,345.00	2005		
		\$3,503.00	2004		
		\$12,372.00	2002		
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$29,808.00	2006	Unknown	Woolpert Consultants
		\$43,648.00	2005		

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
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$10,227.00	2005	Unknown	A/E Associates
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$51,700.00 \$42,800.00 \$35,650.00	2005 2004 2002	Unknown	Arundel Corporation
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$46,205.00 \$25,366.00 \$1,500.00 \$30,427.00	2005 2004 2003 2002	Unknown	Chapman Technical Group
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$2,525.00 \$42,227.00	2005 2002	Unknown	H.A. Spalding Engineers
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$38,584.00 \$17,574.00 \$58,405.00 \$5,255.00	2005 2004 2003 2002	Unknown	Haworth Meyer & Boleyn
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$1,175.00 \$16,384.00 \$23,118.00 \$30,268.00	2005 2004 2003 2002	Unknown	Howard K Bell Consulting Eng
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$12,976.00 \$43,066.00	2005 2003	Unknown	L.A. Gates
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$118,900.00 \$159,700.00 \$150,305.00 \$111,652.00	2005 2004 2003 2002	Unknown	LaFarge
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$6,553.00 \$18,121.00 \$104,624.00	2005 2004 2002	Unknown	Palmer Engineers
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$550.00 \$3,920.00	2005 2003	Unknown	The Gateway Engineers
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$136,069.00 \$60,552.00 \$5,200.00	2005 2004 2003	Unknown	Wolverton Associates
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$1,624,711.00	2004	Unknown	BAE Systems Mission Solutions
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$42,204.00 \$42,204.00 \$16,722.00	2004 2003 2002	Unknown	Coleman Aerial Imaging

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
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$10,727.00 \$51,060.00	2004 2003	Unknown	CTE Engineers
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$6,367.00 \$4,993.00 \$5,114.00	2004 2003 2002	Unknown	Parsons Brinckerhoff Quade Douglas
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$38,100.00 \$28,262.00	2003 2002	Unknown	HDR / WL Jordan
Aerial Photography & Related Svcs Various Projects and Locations	Various Projects	\$44,753.00 \$97,378.00	2003 2002	Unknown	Hoffman & Company

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 Division of Highways.

20. The foregoing is a statement of facts.



Signature: _____

Printed Name: G. Michael Ritchie, PE, PLS, PSM, CP

Title: President

Date: January 22, 2009

Spewing Camp Refuse – Floyd Co. KY

State:
Kentucky

Agency:
KY Division of Abandoned Mine Lands

Construction Period:
October 2002 – September 2004

Design Engineer:
Robert D. Jones PE, PLS

Approx. Construction Cost:
\$2.9 million (Spewing Camp only)
\$3.6 million (including Hoods Fork &
Curtis Johnson Slides)

The Spewing Camp Refuse AML project consisted of approximately 7 million cubic yards of un-vegetated refuse, which encompassed approximately 60 acres. For decades this material was eroding and depositing large amounts of coal waste into Left Fork of Beaver Creek.

The conceptual design included refuse grade-work which provided a stable and positive drainage configuration. Once grade-work was complete, it was followed by placement of an agricultural limestone barrier and lastly cover material capable of supporting vegetation. Required cover material was generated on site and was excavated & transported from two nearby AML slide “satellite projects”, Hoods Fork and Curtis Johnson as designed. This helped reduce the overall cost of reclamation for Spewing Camp and provided for successful slide reclamation efforts at the satellite projects.

Twenty-five diversion benches were an integral part of the grading which was designed to properly move runoff to receiving aggregate lined side drains / rock toe buttresses. Nearly one mile of rock toe buttresses were designed and installed to ensure long-term stability and erosion control. All disturbed areas were revegetated and have successfully sustained vegetative growth.



For this project, the Kentucky Division of Abandoned Mine Lands received 3 awards as presented by the Federal Office of Surface Mining: National Award for Outstanding Reclamation, the Appalachian Regional Award for Outstanding Reclamation and the People’s Choice Award. All design plans were generated utilizing AutoCAD 2000 & Carlson SurvCADD.



Above Picture: This aerial was taken in May 2000 approximately two years & half years before construction activities started. As depicted, the refuse material was highly erosive and unable to support vegetation.

Left Picture: This shot was taken in November 2004 just after project completion.

Brian Prater Slide – Pike Co. KY

State:
Kentucky

Agency:
KY Division of Abandoned Mine Lands

Construction Period:
April 2005 – October 2005

Design Engineer:
Robert D. Jones PE, PLS

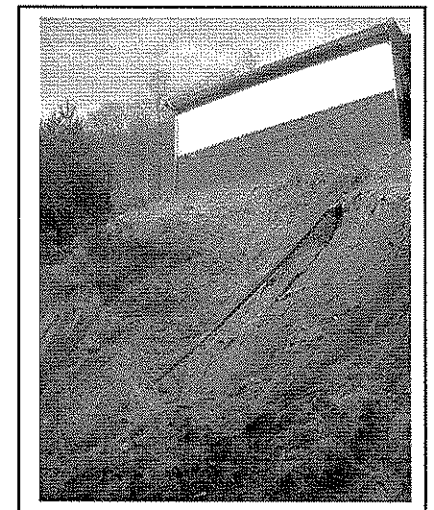
Approx. Construction Cost:
\$461,000

This project addressed a dangerous slide which was undercutting a foundation of a house. The slide was heavily saturated with further movement most likely without reclamation efforts. Numerous open mine portals on a nearby mine bench along with mine drainage problems were part of the reclamation scope.

A pile and lagging wall system was determined to be best suited to correct the slide and ensure long term stability of the house. Benefits of this design wall design virtually eliminated the need for excavation work to be performed at the house seat level as compared to other types of wall systems (e.g. gabion, concrete). The piles were seated into competent bedrock and tied together with a reinforced concrete footing; reinforced concrete lagging panels were installed atop footing. Lastly, aggregate was placed behind the wall to provide a long term free draining stable

medium. A secondary reinforced concrete wall was constructed to address more localize slope failure effecting the driveway. Three existing portals were closed with wildlife access. Mine drainage problems were addressed with pipes and surface ditches lined with gabion/erosion control blanket as designed.

All design plans were generated utilizing AutoCAD 2005 & Carlson SurvCADD.



Above Picture: This shows the slide under cutting the foundation of the residential structure. The toe of the slide was severely saturated with mine water which greatly increased the likelihood of further movement.



Left Picture: This shot shows the completed pile and lagging wall protecting the house foundation.

Elkhorn City Portals Group – Pike Co. KY

State:
Kentucky

Agency:
KY Division of Abandoned Mine Lands

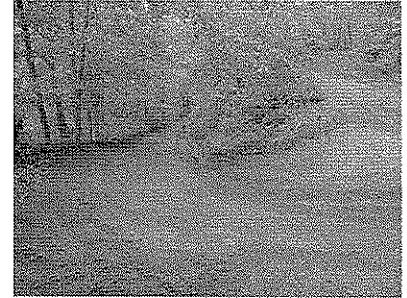
Dates: April 2006 – February 2007

Design Engineer: Robert D. Jones PE,
PLS.

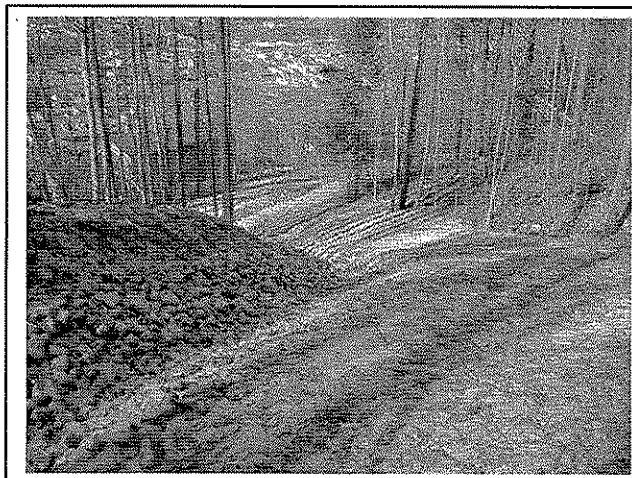
Approx. Construction Cost: \$177,000

The Elkhorn City Portals Group project consisted of four sites: Elkhorn City, Randy Lester, Weddington Fork, and Randolph Watson. The project addressed a variety of AML type problems as further discussed. The

Elkhorn City Portals site consisted of 14 mine openings which were located just above a heavily populated residential area of Elkhorn City. Several of the portals were draining and posed a risk to the residential properties below. Furthermore, the road leading to seven of the portals as well as the



bench itself, served as access to both gas and water utilities for the city. Reclamation efforts consisted of portal closures with wildlife access and/or wet seals. A series of pipes and surface drains were also constructed to channel mine drainage safely to an existing inlet and ensure long-term access would be available to the utilities. The Randy Lester site consisted of installation of a deep seated subdrain to eliminate drainage problems; a rock toe buttress was also installed to provide for slope stability at the property. Work at Weddington Fork concerned repair of an existing gabion ditch and to provide shoulder stability for the county road. Randolph Watson site consisted of surface drainage work around a residential area.



Above Picture (Elkhorn City Site):
This shot depicts uncontrolled mine drainage prior to construction efforts leading from the bench down the access road leading to Elkhorn City.

Left Picture (Elkhorn City Site):
This is shot shows a constructed ditch designed to move drainage mine drainage to an existing inlet located within the residential area (top left of photo.)

East Pike County Group – Pike Co. KY

*State:
Kentucky*

*Agency:
KY Division of Abandoned Mine Lands*

Dates: September 2005 – June 2006

*Design Engineer: Robert D. Jones PE,
PLS.*

Approx. Construction Cost: \$250,000

The East Pike County Group project consisted of five sites: Larry Daniels, Ray Justice, Anderson, Crystal Blair/Verda Smith and Ervin Francis. The project addressed a variety of AML problems which included small slides, uncontrolled mine drainage and mine portals. In all 7 small slides and 18 portals closures were abated along with numerous drainage problems as discussed further.

The Larry Daniels site included design and construction of a concrete gravity wall to ensure proper drainage around the residential area. Ray Justice included excavation of four small slides, mine drainage problems and portal closures. The Anderson site consisted of a geo grid reinforced road embankment design, installation of a grouted gabion ditch and portal closures. Slide abatement work at Crystal Blair/Verda Smith included rock toe buttressing and excavation work on three small slides; portal closures and drainage controls were constructed. The Ervin Francis site addressed numerous portals which were draining heavily. The portals were closed using a combination of wildlife closures / wet seals. Drainage controls including road side ditches and pipes were installed/ upgraded along the county road. All disturbed areas were revegetated as standard practice.

Hima Tipple Group – Whitley, Laurel, & Clay Co. KY

*State:
Kentucky*

*Agency:
KY Division of Abandoned Mine Lands*

Dates: February 2007 – June 2007

*Design Engineer: Robert D. Jones PE,
PLS.*

Approx. Construction Cost: \$81,000

The Hima Tipple Group project consisted of five sites: Hima Tipple, Ann Hail, Larry Parker, Wendell Ball and Verna Jones. The project addressed a variety of AML type problems as further discussed. Hima Tipple site consisted of demolition / disposal of a dangerous abandoned tipple that included a metal silo, tram system and other structural components typically found with industrial mining operations. **Ann Hail** site consisted of four mine opening closures with wildlife access. These portals were located near a heavily populated residential area in Corbin KY. Larry Parker site abated numerous areas of sub subsidence and surface drainage problem. Wendell Ball site corrected severe mine drainage issues affecting a residential area. Verna Jones site corrected drainage and a small slide behind home.



This picture shows one of the completed closures at the Ann Hail site being inspected with Office of Surface Mining (OSM) personnel in June 2007. Access to the portals was heavily wooded therefore special emphasis for access was scoped during design reconnaissance to ensure disturbance would be minimal.

Shirley Haynes Slides – Knott Co. KY

State:
Kentucky

Agency:
KY Division of Abandoned Mine Lands

Construction Period:
April 2006 – August 2008

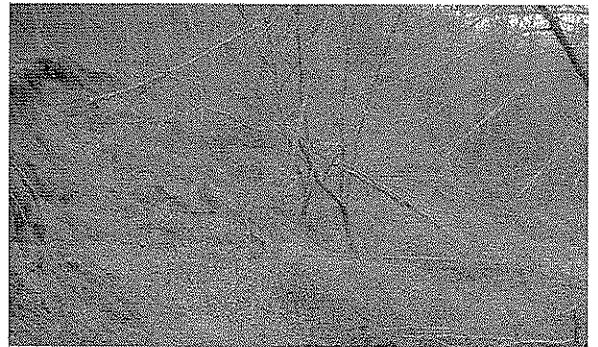
Design Engineer:
Robert D. Jones PE, PLS

Approx. Construction Cost:
\$1.7 million

This project included three dangerous slide areas A, B, & C (11 acres approx.) which were threatening several residences below. During one occurrence mud and silt (3 feet deep approx.) was deposited on the back of a single family dwelling. Preliminary design reconnaissance work was conducted in 2005 to generate design alternatives and conceptual plans.

Ultimately correction for these slides included excavation efforts whereby two of the slides were excavated to bedrock with the third area excavated & re-graded to a stable and positive drainage configuration—over 200,000 C.Y of unstable material was excavated. All excavated material was transported to four areas which were identified and delineated during the conceptual design phase. All material placed in these areas was graded and compacted to ensure long term stability of the fill material. Drainage work was also designed and installed within the residential areas to ensure surface water runoff from the excavation work above would safely move runoff to a nearby receiving stream. Drainage work designs included pipes, gabion channels, aggregate lined channels, and concrete channels. Erosion control measures included silt traps and silt bales located to prevent silt and other debris from entering the nearby streams. Utility relocation was an integral part of the project as an active gas line intersected slide area B and was subsequently addressed to ensure no disruption of service

occurred. All disturbed areas were revegetated to ensure long term stability and erosion control. All design plans were generated utilizing AutoCAD 2005 & Carlson SurvCADD.



Above Picture: This shows the top of Slide Area A including the scarp line—approximately 100,000 C.Y. of unstable slide material was removed from this area. This shot was taken during design reconnaissance work in December 2005.



Left Picture: This shows Slide Areas A & B (in the distance) with all unstable slide materials successfully removed and properly placed in the designated waste areas. This shot was taken nearing the completion of the project in March 2008.

Coiltown Mines / Pits – Hopkins Co. KY

State:
Kentucky

Agency:
KY Division of Abandoned Mine Lands

Construction Period:
November 2002 – November 2003

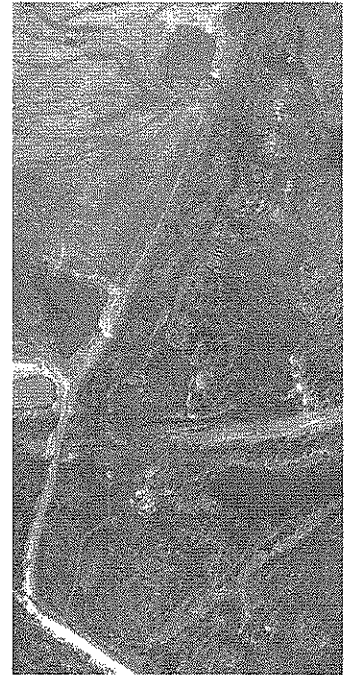
Design Engineer:
Robert D. Jones PE, PLS

Approx. Construction Cost:
\$1.35 million

The Coiltown Mines / Pits AML project consisted of 120 acres of un-vegetated, eroding acid bearing mine refuse, which was located on four distinct sites (A, B, C, & E) and one designated 35 acre off-site borrow area. For decades this eroding material severely affected downstream water quality.

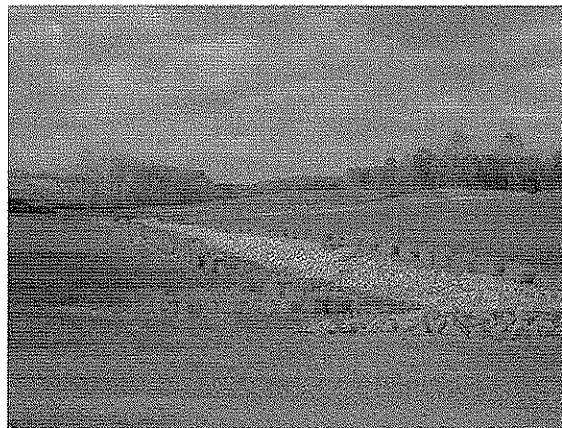
The conceptual design included refuse grade-work to provide for a positive drainage configuration. Once grade-work was complete, it was followed by placement of an agricultural limestone barrier and lastly cover material capable of supporting vegetation—approximately 150,000 C.Y. of cover material was uniformly placed on the four sites. The grading design called for slopes typical (3.5 horizontal: 1 vertical or less) of the topography in this region. The grading plan also eliminated numerous acid mine water pits which were significant contributors to the acid mine drainage problems. Suitable borrow material was generated within the site areas and from the offsite borrow area as designed. Approximately 10,000 linear feet of aggregate lined channels were designed to treat acid mine drainage along with 2,500 linear feet of stream restoration performed. Pipes were designed and installed beneath John Lansden road to convey surface flow between sites A and B. Other significant aspects addressed existing utilities, water treatment, mine debris removal, and traffic control. All areas were successfully re-vegetated as defined in the contract specifications.

All design plans were generated utilizing AutoCAD 2000 & Carlson SurvCADD.



Above Picture: This is an aerial of Site A which consisted of 44 acres of coal refuse. Sites B, C & E (not shown) were “very similar” to Site A with un-vegetated, eroding acid bearing materials.

Left Picture: This shot is looking up drain at Site A. It was taken at the end of construction activities. This site along with the other sites has sustained strong vegetative growth.



BOB JONES AML PROJECT EXPERIENCE

Project #	Project Name	County	Construction Completed
1	Logan Gap Slides	Knott	2001
2	John Paul Newsome Slides	Boyd	2001
3	Clayton Napier Landslide	Leslie	2001
4	Jasons Branch Slide	Leslie	2002
5	Bennett Stewart Slide	Pike	2001
6	Henry Clay Refuse Fire	Pike	2002
7	Hurricane Creek Drainage	Pike	2002
8	Myrtle McCoy Slide	Pike	2001
9	Bear Branch Site C	Leslie	2000
10	Vulcan Mines	Ohio	2001
11	Hitchens-Leon	Carter	2002
12	Ward Hale Slide	Floyd	2001
13	Combs Branch Slides	Perry	2003
14	Wayne Ramsey Slide	Pike	2003
15	Kettle Island/Blanche Road	Bell	2002
16	Norris Thomas Slide	Carter	2002
17	Prillman Drainage	Clay	2003
18	Coiltown Mines/Pits	Hopkins	2003
19	Doug Portwood Landslide	Knott	2004
20	Eddie Likins Highwall	Laurel	2002
21	Cool Springs Road Slide	Ohio	2002
22	Bates,Johnson,Mullins	Letcher/Knott	2003
23	Hances Ridge Slide	Bell	2004
24	Curtis Johnson Slide	Floyd	2004
25	Hoods Fork Slide	Floyd	2004
26	Spewing Camp Branch	Floyd	2004
27	Homestead Refuse	Hopkins	2004
28	Mousie Reclamation Project	Knott	2004
29	Ted Bargo Applecore	Knox	2003
30	Eddie Tapp Refuse	Hopkins	2004
31	Brian Prater	Pike	2005
32	Charles Dotson Drainage	Pike	2005
33	Dorothy Fields Refuse Fire	Pike	2005
34	Hecla Tipple	Hopkins	2005
35	Hubert Hicks Landslide	Floyd	2005
36	Ratliff Drainage	Johnson	2005
37	William Hackworth Landslide	Floyd	2005
38	Big Run Refuse	Boyd	2005
39	Buretta Moore Landslide	Floyd	2006
40	East McDowell Portals	Floyd	2005
41	Eli Campbell	Perry	2006
42	Emalene Steele Landslide	Pike	2005
43	Elkhorn City Portals (ECP)	Pike	2007
44	Frank Thacker Jr.	Pike	2006
45	Gerald Hitchcock	Johnson	2005
46	Harold Sparks - T10	Jackson	2006
47	Jerry Mullins Slide	Pike	2005

BOB JONES AML PROJECT EXPERIENCE

Project #	Project Name	County	Construction Completed
48	Store / House Hollow Landslide	Johnson	2005
49	Al Beck Landslide (SOSA)	Clay	2007
50	East Pike County Group	Pike	2006
51	Edgar Hall (bid with Shelvie Boyd)	Floyd	2008
52	Edgar Williamson	Martin	2006
53	Mike Lesueur	Hopkins	2008
54	Nancy Rowe	Pike	2007
55	Omaha Landslide	Knott	2006
56	Robert Boggs Slide	Pike	2007
57	Shelvie Boyd	Floyd	2008
58	Shirley Haynes	Knott	2008
59	Silas Miller	Perry	2007
60	Teddy Spencer	Perry	2007
61	Bryan - Piper Highwalls	Muhlenburg	Pending
62	BMW J ST	Floyd	Pending
63	Cynthia Fugate Slide	Perry	2008
64	Kenny Ledford Slide	Perry	Pending
65	Bobby Sturgill	Pike	2007
66	Floyd Davis Cemetery	Floyd	2008
67	Frank Davis Jr.	Johnson	2007
68	Hima Tipple Group	Clay, Whitley,	2007
69	Jason Cordial	Johnson	2007
70	Johnny Harrison	Pike	2007
71	Mark Coleman Slide	Pike	2008
72	Nortonville Refuse (& Pleasant Run)	Hopkins	2007
73	Phyllis Cornett	Pike	2007
74	Potter Fork Refuse	Letcher/Knott	2006
75	Robert Raines	Pike	2007
76	Van Turner	Floyd	2008
77	Wayne Sapp Slide	Perry/Knott	2007
78	William Turner Jr. Drainage	Johnson	2007
79	Dennis Pinson Drainage	Pike	Pending
80	Glen Blackburn Slide Group	Pike	Pending
81	Josh Feltner Slide	Knott	Pending
82	Kelvin Adams and Percy Spencer Slides	Knott	Pending
83	Chris Collins & Herman Mullins Slides	Knott	2007
84	Deborah Baker Slide	Whitley	2008
85	Glen Dixon	Floyd	2007
86	Henrietta Adams II	Letcher	2008
87	Marie Feltner & Sue Combs Slides	Perry	2008
88	Matt Fields Drainage	Leslie	2008
89	Upper Boyd Branch Drainage	Johnson	2008
90	Boggs & Callahan Slides Group	Leslie	Pending
91	Bunt Sisk Hills AMD (Site C, E & U)	Hopkins	Pending
92	Bush Cemetery Rd Slide	Perry	Pending
93	Dan King - II Landslide	Perry	Pending
94	David Campbell III Slide	Perry	Pending

BOB JONES AML PROJECT EXPERIENCE

Project #	Project Name	County	Construction Completed
95	Estill Mullins and Vickie Bevins Drainage	Pike	Pending
96	Ernest McCown Slides	Pike	Pending
97	Frank Moore Jr Slide	Perry	Pending
98	James Miller Slide	Perry	Pending
99	Jim Humphrey Drainage	Floyd	Pending
100	Log Cabin Slide	Pike	Pending
101	Mearl Clark Group	Floyd	Pending
102	Sam Salyers Slide Group	Perry	Pending
103	West KY Shafts Multi Site Project III	various	Pending
104	Willaimsburg NG Armory Drainage	Laurel	Pending
105	Noble / Baker Group	Leslie	Pending
106	Woody Mullins Slide	Floyd	Pending
107	Billy Martin Group	Floyd	Pending
108	Elin Campbell Slide	Perry	Pending
109	Grover Stamper Slide	Perry	Pending
110	J.P. Smith Group	Floyd	Pending
111	Tim Burnett Slide	Knox	Pending
112	Truman Dorton Slide	Pike	Pending
113	Lois Smith Slide Group	Perry	Pending
114	Bobby Smallwood Slide	Perry	Pending
115	Ebenezer Refuse (Phase 1)	Muhlenburg	Pending
116	Greg Thacker Slide Group	Pike	Pending

HMB Professional Engineers, Inc.
Past AML Projects

Project #	Project Name	County	State	Year Completed	Design Drainage Control Channels	Seal Portals	Eliminate High Walls	Regrade Refuse Piles	Restore Damaged Streams	Correct Slope Stability Problems	Structure Demolition	Impoundment Removal
4-4A	Osborne Slide	Johnson	KY	1981-82						X		
4-5A	Dorton Orphan Reclamation	Pike	KY	1980-81						X		
603	Hunter Branch	Floyd	KY	1982-84		X				X		
604	Bent Mountain	Pike	KY	1982-85						X		
605	Straight Creek	Bell	KY	1983-86		X				X	X	
606	Martins Creek	Harlan	KY	1984-86	X			X		X	X	
607	Brushy Fork	Pike	KY	1985-90		X	X			X		
608	Smith Chapel	Harrison	WV	1985-88		X				X		X
609	Buckhorn Sites	Leslie	KY	1986-89	X	X		X		X		X
610	Sun Valley	Harrison	WV	1986-89		X	X					
611	Oneida Area Water Study	Clay	KY	1986-89								
612	Cabin Creek	Kanawha	WV	1987-88		X						
613	Cannel City Water Study	Morgan	KY	1987-91								
614	Cliff Top Refuse Pile	Fayette	WV	1987-89	X			X			X	
615	Mingo Run	Brooke	WV	1987-93		X	X			X	X	
616	Upper Whitman Mine	Logan	WV	1987-89	X			X				X
617	Berry Branch Refuse	Raleigh	WV	1987-89	X			X			X	
618	Ilkes Branch Seam Fire	Harlan	KY	1987-89		X						
619	Martins Fork Phase	Harlan	KY	1987-89	X	X		X				
620	Ford's Run #1	Barbour	WV	1988-89	X	X		X				
621	Skitter Creek Dam	Fayette	WV	1988-89	X			X				
622	West V.A. Water Feasibility Study	Mercer	WV	1988-93								
623	Iroquois Refuse Pile	Wyoming	WV	1988-89	X			X				
624	Raleigh Refuse Pile	Raleigh	WV	1988-92	X			X				X
625	Vancleve Water Study	Breathitt	KY	1988-89								
626	Buchanan Co. Water Study	Buchanan	VA	1988-90								
627	Accoville Refuse Pile	Logan	WV	1988-89	X			X				
628	Cassity Fork Water Feasibility Study	Randolph	WV	1988-89					X			
629	Kellys Creek Water Feasibility Study	Kanawha	WV	1988-95								
630	Buck Run	Taylor	WV	1988-90		X				X	X	
631	Peck's Run Specs	Upshur	WV	1988-90	X	X		X			X	
632	Ream Refuse Pile	McDowell	WV	1988-90	X	X		X				X

