ORIGINAL

STATEMENT OF QUALIFICATIONS
ENGINEERING SERVICES
CACAPON RESORT STATE PARK DAMS
ENGINEERING INVESTIGATION AND CERTIFICATE OF APPROVAL
MORGAN COUNTY, WEST VIRGINIA
DNR# 211007

Submitted To:

Department of Administration
Purchasing Division
Building 15
2019 Washington Street, East
Charleston, West Virginia 25305-0130

By:

GAI Consultants, Inc.
500 Summers Street, 3rd Floor
Charleston, West Virginia 25301
(304) 926-8100

Project 100979

August 24. 2010

gai consultants

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transforming ideas into reality

August 24, 2010

Project E100979

Mr. Frank Whitaker
WV Department of Administration
Purchasing Division
Building 15
2019 Washington Street, East
Charleston, West Virginia 25305-0130

Re: **Statement of Qualifications**
Cacapon Resort State Park Dams
Engineering Investigation and Certificate of Approval
Morgan County, West Virginia
DNR211007

Dear Mr. Whitaker:

GAI Consultants, Inc. (GAI) is pleased to submit an original and three copies of our statement of qualifications for professional engineering services for the West Virginia Division of Natural Resources, Parks and Recreation's project. GAI offers its clients a broad scope of engineering services including civil and environmental projects. In particular, this submission presents our capabilities in the area of design and preparation of construction and bid documents and preparing certificate of approvals for dams.

GAI is a full-service multi disciplinary engineering consulting firm devoted to serving the needs of our clients. Our staff consists of over 700 technically skilled engineers, scientists, biologists, archaeologists, technicians, designers, and administrators. We offer an outstanding combination of design and engineering expertise, including transportation, geotechnical, hydraulic, and environmental engineering design; archaeological studies; and construction monitoring.

The engineering services for this project will be performed by our Charleston office. Mr. Charles F. Straley, P.E., P.L.S., has been assigned as Project Manager, and he will be the main contact between GAI and the West Virginia Division of Natural Resources, Parks and Recreation. Mr. Straley has previously performed a dam safety inspection on these dams.

GAI is currently designing multiple civil and environmental engineering including dam evaluation and design projects, be it for developers, state and federal government, utilities, and local governments. We have the ability to assign dedicated project engineers to the West Virginia Division of Natural Resources, Parks and Recreation's project. As you will see, our design staff is particularly well qualified to perform these engineering services for you.

Thank you for the opportunity to present our qualifications, and we look forward to the prospect of working with you on this most interesting project. You can also view our further qualifications at www.gaiconsultants.com.

Sincerely,
GAI Consultants, Inc.

Charles F. Straley, P.E., P.L.S.
Engineering Manager

CFS:

Enclosure

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

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ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER
304-558-2316

VENDOR
RFQ COPY
TYPE NAME/ADDRESS HERE
GAI Consultants, Inc.
500 Summers Street
3rd Floor
Charleston, WV 25301

SHIP TO
DIVISION OF NATURAL RESOURCES
PARKS & RECREATION SECTION

324 4TH AVENUE
SOUTH CHARLESTON, WV
25303-1228 304-558-3397

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
07/23/2010				

BID OPENING DATE: 08/24/2010 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
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AE SERVICES

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JUL 26 2010
GAI CONSULTANTS INC.
NO

EXPRESSION OF INTEREST
(EOI)

THE WEST VIRGINIA STATE PURCHASING DIVISION FOR THE AGENCY, THE WEST VIRGINIA DIVISION OF NATURAL RESOURCES IS SOLICITING EXPRESSIONS OF INTEREST FOR ENGINEERING SERVICES TO PREPARE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS TO BRING CACAPON UPPER AND LOWER DAMS, AT CACAPON STATE PARK, INTO COMPLIANCE WITH DAM SAFETY REGULATIONS PER THE ATTACHED.

TECHNICAL QUESTIONS CONCERNING THIS PROJECT MUST BE SUBMITTED IN WRITING TO FRANK WHITTAKER IN THE WV STATE PURCHASING DIVISION VIA MAIL AT THE ADDRESS SHOWN IN THE BODY OF THIS EOI, VIA FAX AT 304-558-4115, OR VIA EMAIL AT FRANK.M.WHITTAKER@WV.GOV. DEADLINE FOR ALL TECHNICAL QUESTIONS IS 08/03/2010 AT THE CLOSE OF BUSINESS. ALL TECHNICAL QUESTIONS RECEIVED WILL BE ANSWERED BY ADDENDUM AFTER THE DEADLINE HAS LAPSED.

QUESTIONS CONCERNING THE ACTUAL PROCESS BY WHICH A FIRM MAY SUBMIT AN EXPRESSION OF INTEREST TO THE STATE OF WEST VIRGINIA ARE NOT CONSIDERED TO BE TECHNICAL QUESTIONS AND MAY BE SUBMITTED AT ANY TIME PRIOR TO THE BID OPENING AND IN ANY FORMAT.

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
Charles Straley	304-926-8100	Aug 24, 2010
TITLE: Engineering Manager	FEIN: 25-1260999	ADDRESS CHANGES TO BE NOTED ABOVE

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

State of West Virginia
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07/23/2010				

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LINE	QUANTITY	UOP	CAT. NO	ITEM NUMBER	UNIT PRICE	AMOUNT

EXHIBIT 10

REQUISITION NO.: .....

ADDENDUM ACKNOWLEDGEMENT

I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.

ADDENDUM NO.'S:

NO. 1 ..CFS...

NO. 2 .....

NO. 3 .....

NO. 4 .....

NO. 5 .....

I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF PROPOASLS.

VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.

Charles Straley
SIGNATURE

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URE	TELEPHONE	DATE
LE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

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GAI Consultants, Inc.
COMPANY

Aug. 24, 2010
DATE

NOTE: THIS ADDENDUM ACKNOWLEDGEMENT SHOULD BE SUBMITTED WITH THE PROPOSAL.

REV. 09/21/2009

BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.

NOTICE

A SIGNED EOI MUST BE SUBMITTED TO:

DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
BUILDING 15
2019 WASHINGTON STREET, EAST
CHARLESTON, WV 25305-0130

THE EOI SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE EOI MAY NOT BE CONSIDERED:

SEALED EOI

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

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State of West Virginia
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Purchasing Division
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ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER
304-558-2316

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SHIP TO
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PARKS & RECREATION SECTION

324 4TH AVENUE
SOUTH CHARLESTON, WV
25303-1228 304-558-3397

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07/23/2010				

BID OPENING DATE: 08/24/2010 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO	ITEM NUMBER	UNIT PRICE	AMOUNT

BUYER: 44

EOI. NO.: DNRB11007

BID OPENING DATE: 08/24/2010

EOI OPENING TIME: 1:30 PM

PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR PROPOSAL:

304-926-8180

CONTACT PERSON (PLEASE PRINT CLEARLY):

Charles F. Straley, P.E., P.L.S.

****** THIS IS THE END OF RFQ DNRB11007 ****** TOTAL:

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE | TELEPHONE | DATE

TITLE | FEIN | ADDRESS CHANGES TO BE NOTED ABOVE

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

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

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ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER
304-558-2316

VENDOR
*709015504 304-926-8100
GAI CONSULTANTS INC
500 SUMMERS ST 3RD FLR

CHARLESTON WV 25301

SHIP TO
DIVISION OF NATURAL RESOURCES
PARKS & RECREATION SECTION

324 4TH AVENUE
SOUTH CHARLESTON, WV
25303-1228 304-558-3397

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B	FREIGHT TERMS
08/10/2010				

BID OPENING DATE: 08/24/2010 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
				********** ADDENDUM NO. 1 **********		
				THIS ADDENDUM IS ISSUED TO PROVIDE THE ATTACHED TECHNICAL QUESTION,AGENCY RESPONSE AMD INSPECTION REPORTS.		
				THE BID OPENING DATE AND TIME HAVE NOT CHANGED.		
				********** END ADDENDUM NO. 1 **********		
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				AE ERVICES		
				****** THIS IS THE END OF RFQ DNRB11007 ****** TOTAL:		

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AUG 12 2010
GAI CONSULTANTS INC.
NO

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE Charles Straley TELEPHONE 304-926-8100 DATE Aug 24, 2010

TITLE Engineering Manager FEIN 25-1260999 ADDRESS CHANGES TO BE NOTED ABOVE

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

INTRODUCTION

GAI Consultants, Inc., (GAI) understands that the West Virginia Division of Natural Resources, Parks and Recreation is seeking consulting services from qualified firms to provide professional architect and engineering services. The work is to update both Cacapon Upper and Lower Dams into compliance with current dam safety regulations. The services will include preparation of construction plans and specifications; preparation of project bidding and contract documents; and performing construction monitoring. Following the completion of the construction, the "Certificate of Approval" will be prepared and submitted.

Given GAI's understanding of this project's basic issues and concerns, the following briefly describes how well qualified GAI is to perform engineering services for the West Virginia Division of Natural Resources, Parks and Recreation.

GAI provides specialized services to clients in civil engineering and the related areas of soil and rock mechanics, engineering geology, hydrology and hydraulics, structural engineering, seismic analysis, and environmental planning. Our professional staff has extensive experience in all areas of dam design, construction and instrumentation, rehabilitation, maintenance, inspection, and safety. GAI has worked with the West Virginia Department of Environmental Protection Dam Control Section on several projects. GAI will follow the guidelines of West Virginia State Code of State Regulations Title 47, Series 34, Dam Safety Rules in the evaluation, design, and construction of dam structures.

The following presents a list of our Dam Engineering Services:

- Design and Rehabilitation of Soil, Rock, Mine Tailings, and Concrete Dams
- Site, Economic, and Hydraulic Feasibility Studies
- Geotechnical Investigations
- Structural Design and Analysis
- Hydraulic Design and Analysis
- Spillway Hydraulic Design and Remediation
- Seismic Analysis
- Materials Testing
- Instrumentation Design, Installation, and Monitoring
- Construction Monitoring
- Inspection
- Inspection and Safety Training
- Emergency Warning Plans
- Maintenance and Operation Plans

Extensive Geotechnical and Environmental Engineering Experience

GAI provides engineering services for a wide array of civil and environmental projects. These projects vary from dam design and evaluations; hazardous waste evaluations and disposal; site development and restoration including utility relocation; surveying and related activities; and subsurface investigations and design. GAI has provided these services to a variety of private and government clients for several years. GAI's construction monitoring staff is currently in the field at multiple sites in West Virginia observing the construction of channels, culverts, and other aspects of projects.

Extensive Hydraulic Engineering Expertise

GAI provides hydraulic engineering services for all phases of a project from planning through design and construction. Our services include feasibility studies, detailed design drawings and specifications, and construction management/administration/observation. GAI's hydraulic services are provided by an experienced staff of hydrologists, hydraulic and civil engineers, structural engineers, and construction management / administration / observation personnel. GAI's Charleston office is currently preparing construction documents encompassing hydraulic engineering projects at several sites in West Virginia.

Large Highly Qualified Staff

This project will be completed by GAI's Charleston office staff, with the additional resources of GAI's Pittsburgh office staff, if necessary. GAI's staff has considerable experience with the procedures, specifications, and requirements of civil, environmental, geotechnical, and hydraulic projects such as those described. GAI's staff has the depth, flexibility, and experience to produce a high quality product for bidding purposes.

Current Workload

Our current workload and available staff are such that we will supply the experienced qualified personnel for each project requested by the West Virginia Division of Natural Resources, Parks and Recreation. GAI is prepared to begin work on the project immediately upon receipt of any Notice to Proceed.

QUALIFICATIONS

GAI Consultants, Inc., provides consulting services in civil engineering, environmental engineering, geotechnical engineering, mining-related design engineering, geology, hydrogeology, environmental science, economics, transportation systems and land-use planning, urban and site engineering, structural engineering, engineering mechanics, agronomy, anthropology and archaeology, and various related professional disciplines. The firm has experienced steady growth in both size and capabilities; and for the past fifteen years has been **rated among the top 200 engineering** and environmental firms in the nation by Engineering News Record (ENR).

GAI Consultants, Inc., is a full service civil, environmental engineering firm with offices in Charleston, West Virginia; Pittsburgh, Pennsylvania; Philadelphia, Pennsylvania; Ft. Wayne, Indiana; Cincinnati, Ohio; Orlando and Jacksonville, Florida; and Richmond, Virginia. Established in 1958, GAI and its subsidiaries comprise an organization of over 700 engineers, scientists, and support personnel. With our surveying services and competent staff of professionals, GAI offers a comprehensive approach to engineering problems requiring a wide range of interdisciplinary skills. In the past 50 years, we have designed and monitored the construction of numerous facilities and have conducted thousands of related geotechnical and hydrological investigations including quality assurance and quality control of construction. By successfully completing so many projects, GAI has obtained "expertise" status on an international basis for many types of projects.

GAI's Charleston, West Virginia office opened in 1985. Since opening, our Charleston office has experienced steady growth. Currently, the Charleston office has four registered professional engineers and other experienced disciplines on staff. Clients served by the Charleston office include mining and industrial companies; federal, state, and local governmental agencies; engineers and architects; and private developers.

MANAGEMENT AND STAFFING

The keys to successfully completing the planning and design for projects are to understand the scope of the project, assemble a good design team, and establish and maintain a solid working relationship with the sponsoring agency. GAI, with a long history of service to both public and private clients, has proven experience in civil works systems design and has a versatile dedicated staff.

The GAI Team organization and assignment of key staff are designed to ensure cost-effective and competent technical services, efficient project scheduling, and on-time delivery of quality technical documents within a framework of close liaison with the West Virginia Division of Natural Resources, Parks and Recreation. The size and qualifications of the GAI Team provide us with the flexibility to complete the work within the predetermined schedules. The GAI Team brings together an excellent experience record in the management of multifaceted projects. The GAI Team Project Manager will establish detailed management and communication procedures during the first week of the project, and will coordinate the project directly with the West Virginia Division of Natural Resources, Parks and Recreation. Such communication will continue through the construction management/administration/observation portion of the project.

Project Team Organization

It is the objective of GAI to present a project team comprising of experienced engineers and designers capable of fulfilling the needs of this project. Our goal is to provide staff with similar and intimate knowledge of the type of work required for this project.

Technical and administrative personnel have been selected from GAI's engineering disciplines, and from the subconsultants, to meet the project needs. The Project Organization Chart (located at the end of this section) depicts the project organization and key personnel we have selected for this project. Resumes of the project team members are included in Section 5.

Overall project management responsibility for this project will be performed by **Mr. Charles F. Straley, P.E., P.L.S.** Mr. Straley's 23 years of experience in both public and private sector work has enabled him to focus keenly on issues of concern to the client. In the role of project manager, he will serve the West Virginia Division of Natural Resources, Parks and Recreation's interest by coordinating and managing all fiscal and personnel aspects of the project. Mr. Straley has a Masters Degree in geotechnical engineering and is a Professional Land Surveyor in West Virginia. Mr. Straley has previously perfomed a dam safety inspection on these dams.

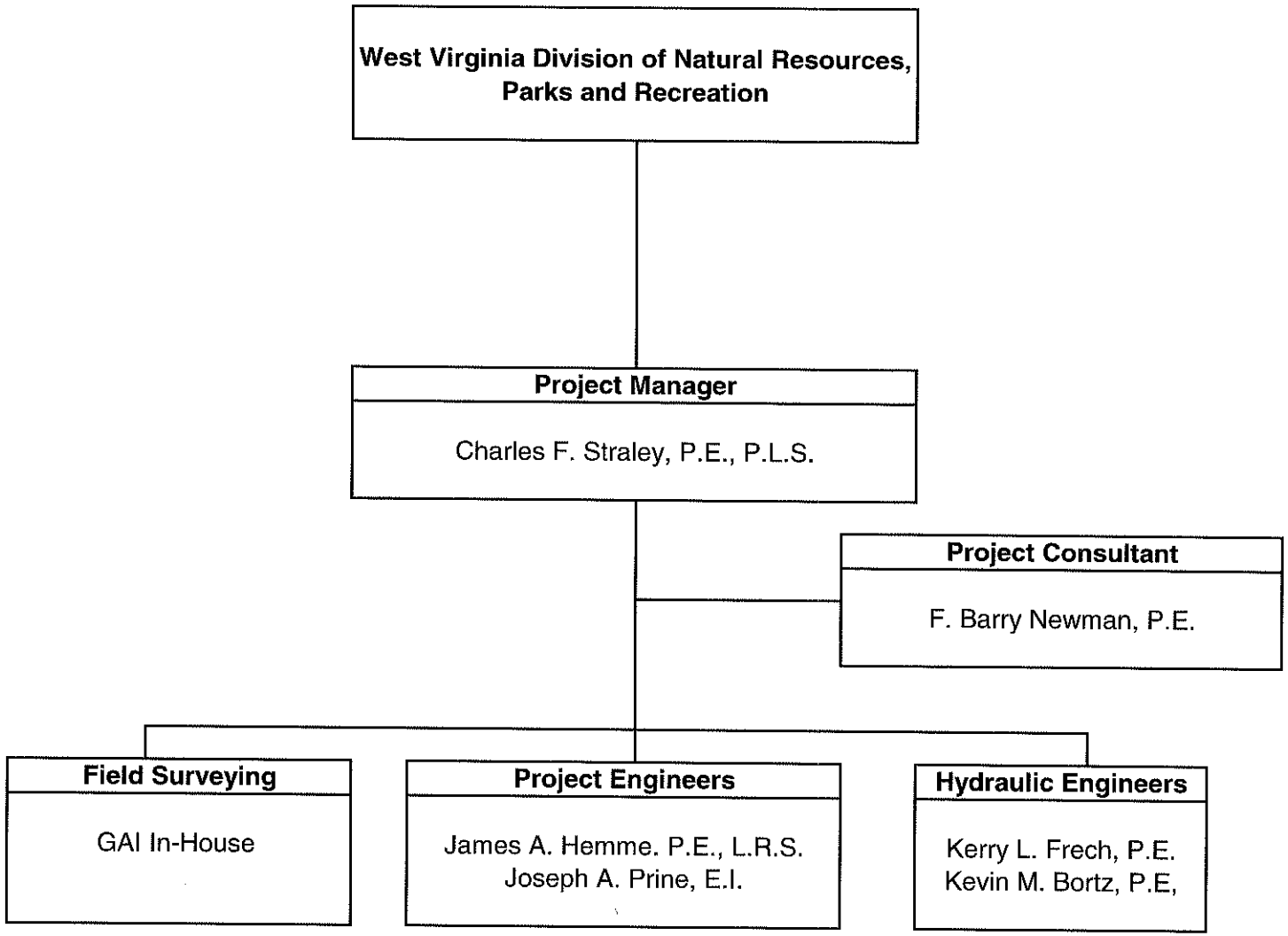
Mr. F. Barry Newman, P.E., will serve as a project consultant for the project. Mr. Newman has over 35 years of experience, and is GAI's Geotechnical and Structure Group Manager. He has performed and managed numerous projects involving dam designs and inspections. Mr. Newman's undergraduate and graduate degrees are from West Virginia University.

Mr. James A. Hemme, P.E. will serve as a project engineer. Mr. Hemme has over 20 years of experience in site development, storm water management, and other civil engineering projects. He is an expert in preparing construction and bid documents for various projects.

Mr. Joseph Prine, E.I. will serve as a project engineer. Mr. Prine has over 6 years of experience in civil engineering projects. Mr. Prine has a complete understanding of the project guidelines and expectations.

Messrs. Kerry Frech, P.E. and **Kevin Bortz, P.E.** will perform the hydraulic engineering aspects of the project. They have performed numerous projects with hydraulic engineering considerations. They have a complete understanding of the project guidelines and expectations.

PROJECT ORGANIZATION CHART



PRIOR EXPERIENCE

GAI's staff is particularly well qualified to perform the services required for this type of project. GAI is a full service organization with a large workload in dam design projects. GAI's staff is capable of completing a wide range of design projects.

GAI has performed over 50 projects concerning dam design, rehabilitations and other related services to water retention structures. The following table presents a list of projects and noting which projects have been in concurrence with West Virginia Division of Environmental Protection's Dam Safety Section and other agencies.

PROJECT	REGULATIONS
Lake Chaweva Dam	WVDEP - Dam Safety
Spruce Island Dam	WVDEP - Dam Safety
Sand Run Dam	WVDEP - Dam Safety
City of Thomas Dam	WVDEP - Dam Safety
Crystal Lake Dam	WVDEP - Dam Safety
Cacapon State Park Dams	WVDEP - Dam Safety
Blackwater Falls State Park Dam	WVDEP - Dam Safety
Tomlinson Run State Park Dam	WVDEP - Dam Safety
Lemley Siding A.M.D. Impoundment Dam	WVDEP - Mining & Reclamation
Superior Impoundment	WVDEP - Mining & Reclamation
Ned's Branch Refuse Impoundment	WVDEP - Abandoned Mine Lands
Tomlinson Run State Park Lake Dredging	
Kanawha State Forest Lake Dredging	
Lake Lynn Dam	FERC
Piney Creek Dam	Pennsylvania DEP – Dam Safety
Marilla Dam (Bradford No. 3)	Pennsylvania DEP – Dam Safety
Brookeville Waterworks Dam	Pennsylvania DEP – Dam Safety
H.B. Norton Dam	Pennsylvania DEP - Dam Safety
Colver Dam	Pennsylvania DEP - Dam Safety
Warren Ohl Dam	Pennsylvania DEP - Dam Safety
Bluestone, John W Flannagan, Haysi and North Fork of Pound Dams	Corps Of Engineers
Landfill Closure Assistance Program	

The following pages include a selection of related projects that GAI has recently completed or is currently performing.

Project: **Lake Chaweva Dam**
Client: **Lake Chaweva Club**
Location: **Kanawha County, West Virginia**

The project consists of constructing a replacement dam. The previous dam was ordered to be removed by the West Virginia Dam Safety Office except for the concrete cutoff wall. A replacement dam meeting the requirements of the West Virginia Dam Safety Regulations is to be constructed in approximately the same location as the previous dam.

The design consisted of a new earthen embankment placed against the existing cutoff wall to the level of the previous dam. A combined principal and emergency spillway consisting of a concrete channel and weir was provided. An emergency drawdown system was installed. For overtopping protection, the downstream slope was covered with rock. The dam was designed in accordance with West Virginia Dam Safety Regulations. The permit application for construction was prepared and submitted to the West Virginia Department of Environmental Protection, Dam Safety Section.

Project: **Spruce Island and Sand Run Dams Rehabilitations**
Client: **Timberline Homeowners Association**
Location: **Tucker County, West Virginia**

The project consists of performing rehabilitation of two earthen dam embankments in Tucker County, West Virginia. Both dams were out of compliance with the requirements of the West Virginia Dam Safety Regulations. The area of main concern were the down stream slopes potential of instability. These downstream slopes were constructed with a factor of safety below the current minimum requirements.

For Spruce Island Dam, the rehabilitation consisted of providing a buttress and replacement of the principal spillway. The buttress consisted of a stone drainage blanket and soil from a borrow area. A stone blanket was utilized to maintain the phreatic surface at the current level, and the soil provided weight for the downstream slope. The replacement of the principal spillway consisted of sliplining the existing CMP pipe through the embankment with an HDPE pipe, an HDPE drop inlet with trash rack, and emergency drawdown piping and valve extending into lake.

For Sand Run Dam, the project consisted of a buttress, extending the principal spillway, and modification to the emergency spillway. The buttress consisted of a stone drainage blanket and soil. The stone blanket was to maintain the phreatic surface at the current level, and the soil provided weight for the downstream slope. The existing spillway was extended using CMP pipe. A dike was constructed on the dam side of the emergency spillway to prevent inundation of the toe of the downstream slope during events through this spillway.

The contract administration services were provided to evaluate submittals and progress of the construction. The construction monitoring activities provided on-site personnel to evaluate the construction process. Following completion of the project, the certification of construction was completed and submitted to West Virginia Dam Safety.

Project: **City of Thomas Dam**
Client: **City of Thomas**
Location: **Thomas, West Virginia**

A dam safety inspection was performed on a concrete dam in Thomas, West Virginia. Preliminary stability analyses and possible stability improvements to the dam were evaluated. Preliminary hydraulic calculations were also performed. Rehabilitation recommendations were developed to bring the dam into compliance with the West Virginia Dam Safety Regulations.

Project: **Crystal Lake Dam**
Client: **Crystal Lake Dam Club, Inc.**
Location: **Doddridge County, West Virginia**

GAI Consultants was retained to analyze the condition of the 16-feet high earthen embankment. A field reconnaissance was conducted to evaluate the existing condition of the dam and determine compliance with West Virginia Division of Environmental Protection, Office of Water Resources, Dam Safety regulations. "As-built" drawings for the dam were developed by survey. The existing features of the dam were evaluated for hydraulic capacity, using DAMBRK to model overtopping and failure, and for geotechnical stability. A report was prepared to summarize the observations, analyses, and recommendations.

During the course of the project, GAI also performed the periodic state-mandated inspection of the dam including evaluation of operational features and maintenance status, analysis of spillway characteristics, and preparation of an inspection summary report.

Project: **Inspection of Three Dams**
Client: **West Virginia Division of Natural Resources, Parks and Recreation**
Location: **Tucker and Morgan Counties, West Virginia**

GAI Consultants performed the periodic state-mandated inspections for three earthen embankment dams, a 27-feet high recreation facility at Blackwater Falls State Park, and 25-feet high recreational and 36-high irrigation facilities at Cacapon State Park. The inspections required site visits, evaluation of operational features and maintenance status, and preparation of summary reports including recommendations such ash removing spillway obstructions, clearing vegetation from embankments, and repairing spillway channels. The inspection intervals and criteria vary according to the size of the dam.

Project: **Tomlinson Run State Park Dam Project**
Client: **West Virginia Division of Natural Resources - Parks and Recreation**
Location: **Hancock County, West Virginia**

The West Virginia Division of Natural Resources, Parks and Recreation retained GAI Consultants, Inc. to perform an inspection and evaluation for Tomlinson Run State Park Dam.

A written report and application addressing the existing condition of the dam, necessary improvements and a detailed cost estimate in order to certify the dam with West Virginia Dam Safety Regulations were developed. The application included a dam break analysis, stability analyses, and hydrology and hydraulic analyses.

Project: **Lemley Siding Acid Mine Drainage Impoundment**
Client: **Consolidation Coal Company**
Location: **Monongalia County, West Virginia**

GAI Consultants, Inc. (GAI) was retained by Consolidation Coal Company (CONSOL) to evaluate the removal of the impounding capability of the site. CONSOL was in the process of grade release in accordance with West Virginia Department of Environmental Protection (WVDEP) Surface Mine Reclamation Regulations.

GAI developed the design report, technical specifications, and construction drawings. The procedure followed the requirements of the WVDEP Dam Safety Regulations.

Project: **Superior Impoundment**
Client: **Cannelton Industries**
Location: **McDowell County, West Virginia**

GAI Consultants, Inc. (GAI) was originally retained to develop a decant system and address potential subsidence impacts of an existing slurry impoundment. These procedures were completed in accordance with the West Virginia Surface Mining Reclamation Regulations and in accordance with U.S. Department of Labor's Mine Safety and Health Administration (MSHA) requirements. A plan was developed to decant the impoundment using a series of pumps.

GAI was then retained to increase the capacity and design life of the impoundment including future decanting and subsidence effects as well as other aspects of dam design. Permit applications were completed for West Virginia Department of Environmental Protection, Office of Mining and Reclamation (WVDEP) and MSHA. Approval was obtained from both agencies.

Cannelton then decided to eliminate the retention capability of the impoundment. GAI designed the process to eliminate the retention capacity by filling the impoundment with coarse refuse. The permit applications were completed for both WVDEP and MSHA. Approval was obtained from both agencies.

Project: **Tomlinson Run State Park Lake Dredging Project**
Client: **West Virginia Division of Natural Resources - Parks and Recreation**
Location: **Hancock County, West Virginia**

The project consisted of developing the excavation of sediment from Tomlinson Run Lake in Hancock County, West Virginia. Over time sediment has deposited within the lake limiting the volume of water present and use of the lake for recreation.

The investigation included a sounding of the depth of water and a subsurface exploration program to establish thickness of the sediment. The sounding of the depth of water was determined by establishing a grid along the lake and measuring the depth with a sonic depth finder. The subsurface investigation consisted of using a water jet to insert a hole in the sediment until a hard layer was encountered. Samples of the sediment were collected for testing. The testing included physical make-up, water content and presence of heavy metals, herbicides and pesticides.

A design package consisting of site layout plans, cross sections, quantities, details, and technical specifications was developed. A bid package was completed to excavate approximately 70,000 cubic yards of sediment from the lake. In addition, three gabion rock basket dams were designed to be placed upstream of the lake in the Left Fork of Tomlinson Run to limit sediment being deposited within the lake. In addition, permits were obtained from the West Virginia Public Lands Corporation, U. S. Army Corps of Engineers, and West Virginia Division of Environmental Protection.

GAI was retained to provide the construction administration including review of shop drawings, applications for payment, submittals, change order requests, and final acceptance. Construction monitoring consisted of a person on-site to document the daily activities of the contractor.

Project: **Kanawha State Forest Lake Dredging Project**
Client: **West Virginia Division of Natural Resources - Parks and Recreation**
Location: **Kanawha County, West Virginia**

The West Virginia Division of Natural Resources, Parks and Recreation retained GAI Consultants, Inc. to develop a dredging and disposal plan for Kanawha State Forest Lake. The project included performing a preliminary investigation, preliminary exploration, preliminary and final design, and obtaining all required permits.

The preliminary investigation consisted of researching available methods and expected results for dredging of the lake. Based on cost and effectiveness of each of these dredging methods, recommendations were made on which dredging method to utilize. An investigation of the existing watershed was also performed to identify the source of the sediment load and to recommend measures that could be taken to slow the infiltration of sediment into the lake.

A preliminary exploration was performed to determine the physical conditions of the lake and disposal site. This consisted of performing soundings of the water depth, drilling to determine the bottom of the lake and taking samples of the sediment for moisture content and physical make-up. The sounding and drilling were performed on a grid system and the results inputted into the computer to develop contours depicting the top of sediment and lake bottom.
Upon the completion of both the preliminary investigation and exploration, GAI calculated the volume of the sediments and developed a dredging scheme and grading plan for the disposal site. Approximately 30,000 cubic yards was determined to be disposed. Both the dredging scheme and disposal site required a sediment control plan be developed to ensure constant flow of the stream and compliance with all state and federal regulations.

GAI also prepared and obtained permits from the Army Corp. of Engineers and Public Land Corporation.

Project: **Landfill Closure Assistance Program**
Client: **West Virginia Department of Environmental Protection, Landfill Closure Assistance**
Location: **Various throughout West Virginia**

Since 1996, GAI Consultants, Inc. (GAI) has been providing engineering services to the West Virginia Department of Protection, Landfill Closure Assistance Program. Engineering services

have included background investigations of landfills, hydraulic and hydrologic studies, hydrogeologic investigations, gas monitoring plans, landfill closure design with preparation of technical specifications and construction drawings, and obtaining various permits. GAI also provides contract administration and construction monitoring services for the landfill closure construction. GAI has performed these services for Kanawha Western Landfill, Fayette County Landfill, Central Landfill, Mingo County Landfill, and Berkeley County Landfill.

Landfill closure designs include the collection and disposal of leachate; capping the landfill, surface water collection and diversion, movement of waste, and other incidental items. Surface water collection has entailed the requirement of numerous water retention structures.

Environmental
Mine Reclamation & Stream Restoration

gai consultants
transforming ideas into reality

Ned's Branch Impoundment, Phase II
Mingo County, West Virginia

GAI Project Manager:
Contact: Charles F. Straley

Project Team:
GAI Consultants, Inc. (Prime)

Client:
West Virginia Department of Environmental Protection, Division of Land Restoration - AML

Client Contact:
Michael Richardson and Charles J. Miller
304.926.0499

Completion Date:
2003

#E030174

Brief Project Description

Ned's Branch impoundment is an approximate 5-acre abandoned, coal refuse slurry dam near Gilbert, West Virginia, that failed due to heavy rains. The failure sent approximately 1 million cubic yards of slurry, coal refuse, and debris into the Right Fork of Ned's Branch. The displaced material blocked main Ned's Branch and Ned's Branch Road, stranding numerous families in a nearby hollow. Divided into two phases, the project encompassed removing the debris to clear the roadway and Ned's Branch, and reconstructing the slurry embankment. Work on both phases followed a 24-hour, 7-day week work schedule.

GAI Consultants, Inc. (GAI) met with the West Virginia Department of Environmental Protection (WVDEP) two days after the event to discuss a Work Directive from the Department issued under their Emergency Guidelines. Within a month, GAI completed the challenging task of developing engineering plans, drawings, and specifications for emergency stabilization of the embankment. The plans addressed excavating and regrading the refuse to establish stable slopes, locating mine portals on the site, and demolishing any remaining structures and foundations. GAI also provided periodic construction monitoring, and the project was successfully completed within eight months.

Work Tasks/Services

- Reclamation plan to stabilize the impoundment
- Survey and topographic mapping
- Site reconnaissance to locate and identify structures and features
- Subsurface investigation plan to evaluate site conditions
- Slope stability analysis
- Stream relocation and County road design
- Construction monitoring and testing

Value Added Innovations

GAI completed the investigation and planning process for the second phase of the project while the first phase of the project was under way. Embracing the urgency requested by the WVDEP, GAI provided solutions that re-established the integrity of the impoundment and restored the natural beauty of the site under an accelerated work schedule.

Lasting Benefits

The rock toe buttress was designed to withstand time and future failure.

Major Accomplishments

The project was awarded the National Award for Most Outstanding Abandoned Mine Lands Reclamation.

Geotechnical & Structural
Rock Anchor Stabilization Services

gai consultants
transforming ideas into reality

Lake Lynn Dam - Rock Anchor Stabilization and Emergency Action Plan
Monongalia County, West Virginia

GAI Project Manager:
Contact: F. Barry Newman, P.E.

Project Team:
GAI Consultants, Inc. (Prime)

Client:
Allegheny Power Service
(Allegheny Energy)

Client Contact:
Robert Collins (Ret.)
412.837.3000

Completion Date:
1990

#C840197

Brief Project Description

Lake Lynn Dam, completed in 1926, is on the Cheat River just upstream of the West Virginia-Pennsylvania state line. When stability analysis indicated that remedial measures were required, GAI Consultants, Inc. (GAI) designed rock anchors to improve stability under Probable Maximum Flood (PMF) conditions, and prepared an emergency action plan in conjunction with FERC safety evaluations for the 125-foot-high, 1,000-foot-long concrete Lake Lynn Dam.

Seventy-five rock anchors were needed to increase the required effective weight of the dam. The anchor loads and spacing across the dam were adjusted to achieve stability and provide a relatively uniform load distribution over the length of monoliths between construction joints in the dam.

In the spillway, anchor holes were drilled from the spillway bridge deck, and from platforms at each gate opening at the spillway crest, which also allowed anchor holes to be drilled where the gatehouse covered part of the spillway bridge deck.

Work Tasks/Services

- FERC Inspections
- Stability analyses for various floods
- Rock anchors designed for 500 to 2000 Kip loads
- Field reconnaissance of downstream areas
- Hydrologic analyses and modeling using HMR-52 and HEC-1
- Hydraulic modeling using DAMBRK and dimensionless graphs
- Inundation mapping and technical reports

Value Added Innovations

A specially constructed, low-overhead drill rig adapted for the narrow spillway bays made it possible to drill the anchor holes without dismantling any portion of the gatehouse.

Charles F. Straley, P.E., P.L.S.

Engineering Manager / Geotechnical & CMS Services Manager

Education

B.S. Civil Engineering 1986 University of Akron
M.S. Geotechnical Engineering 1988 University of Akron

Professional Affiliations

Society of American Military Engineers

Registrations

Professional Engineer, West Virginia, Ohio, Kentucky, Indiana
Professional Licensed Surveyor, West Virginia

Certifications

Troxler Certified
10-Hour OSHA Trained
40-hour Health and Safety Trained
8-hour Supervisor Health and Safety Trained

Professional Experience

- Project manager for an economic impact study on the effect of the State's 35 parks, eight state forests, and four wildlife management areas and two rail tracts. The study provided an analysis on the impact of the state park system on local, regional, and state economics. WVNDR - Parks and Recreation Section

Dam Design and Inspection

- Performed periodic dam inspection and certification for three earthen dams at Blackwater Falls and Cacapon State Parks in West Virginia. WVDNR - Parks and Recreation
- Project manager for the preparation of construction documents for a earthen dam. Project includes evaluation of existing drainage structures, stormwater routing analysis, design of earth embankment, and design of an principle and emergency spillway. Lake Chaweva Homeowners Association
- Inspected, evaluated and designed repair alternatives for Spruce Island and Sand Run Dams in Tucker County, West Virginia. Design included evaluation and improvement of slope stability for both earthen embankments, improvements to inlet and outlet works, and the geometry of the spillways. Permit applications for both dams were prepared. Timberline Association
- Evaluated, inspected, and designed the rehabilitation for a concrete hydroelectric dam in Luray, Virginia. Dam rehabilitation included the replacement for a fish ladder.
- Evaluation of stability and rehabilitation of an existing water retention structure located adjacent to the Ohio River. Arco Chemical Corporation
- Performed annual dam inspection and certification for a 15-foot high earthen dam in Monroeville, Pennsylvania. Belmont Ridge Development
- Performed inspection of galleys of the concrete Lake Lynn Dam in Lake Lynn, Pennsylvania. Allegheny Power Systems
- Project manager for the preparation of a floodplain permit for a pond constructed within the 100-year floodplain of the Ohio River. Preparation of permit consisted of preparing hydrology/hydraulic calculations to determine if the pond altered the routing of a 100-year storm.

- Project manager for the preparation of construction documents for two lake dredging projects in West Virginia. Design included providing a dredging scheme, disposal site design, a water handling plan to maintain stream flow, and providing a sediment control plan for both the dredging operations and the disposal site. Provided construction administration service and oversight of construction monitoring service. WVDNR - Parks and Recreation Division

Coal Related Impoundments

- Design of and preparation of construction documents for a 600,000 cubic yard failed coal slurry impoundment. Activities included site grading, subsurface investigation, hydraulics and hydrology analysis, road re-design, preparation of drawings and technical specifications, engineering cost estimate and pre-bid meeting presentation. West Virginia Department of Environmental Protection, Abandoned Mine Lands, Ned's Branch Emergency Reclamation
- Project manager for the modification of a slurry impoundment to a coal coarse refuse pile. Project consisted of an abandonment of a dam and extending the life of the pile in accordance with West Virginia Surface Mining Regulations. Cannelton Industries
- Project manager for a stream relocation project in Grant County, West Virginia. The project involves crossing an existing stream channel over an acid mine drainage channel to a water treatment facility. The design consists of a combination of relocated channels, spillways and box culverts.
- Evaluated the stability for the "as-built" configuration of the 200-foot high embankment for a coal slurry impoundment in Century, West Virginia. BethEnergy.
- Preparation of construction drawings and specifications for reclamation of an AMD Impoundment. CONSOL
- Project designer of Nile Stone Slurry Impoundment in Mingo County, West Virginia. Design consisted of grading channels, culverts, and roads. Old Ben Coal Company

Landfill Impoundments

- Closure design for an eleven acre municipal solid waste landfill. Grading, slope stability analyses, cap design, leachate collection, leachate treatment, and construction document preparation were major aspects of the project. WVDEP - Office of Waste Management

Geotechnical Engineering

- Design of foundations for the Williamstown-Marietta Bridge over the Ohio River in Wood County and Tygart Valley River Bridge on Corridor H in Barbour and Randolph Counties. West Virginia Division of Highways
- Design of geotechnical concerns for a railroad alignment in Nicholas County, West Virginia. Design included recommendations for alignment, cut and fill slopes and retaining walls. The railroad included three stream crossings and foundation recommendations were prepared for each.
- Design of geotechnical concerns for highways in Pennsylvania, S.R. 6060-15 and S.R. 837 and City of Pittsburgh, Harpen Road and haulroads for Rhone-Poulenc Ag Corporation and Allegheny Power Systems.
- Design of shallow and deep foundations (i.e. steel H piles, steel pipe piles, timber piles, auger cast piles, and drilled piers) for several industrial and commercial structures in West Virginia, Pennsylvania, Ohio, Kentucky, Indiana and North Carolina.
- Developed plans and specifications for undermined sites by injecting the abandoned workings with cement grout and concrete. Hayes Large Architects - NASA Center; Valley Landfill; Taylor Landfill; and West Virginia High Technology Consortium Center
- Evaluation and analyses of stability of slopes. WVDOE - Omar AML Coal Refuse Pile; UGI - Fly Ash Refuse Pile; Koppers - Mine Spoil Pile; BethEnergy - Century Coal Refuse Dike; Rhone-Poulenc Ag Corporation - Solid Waste Landfill; The Omni Associates - Soil Slope Steepening; Leckie Smokeless - Coal Refuse Pile; Allegheny Power Service - Soil Disposal Area

Charles F. Straley, P.E., P.L.S.

Engineering Manager / Geotechnical & CMS Services Manager

- Geotechnical project engineer and assisting in the design of 3.85 kilometer of the Mon-Fayette Expressway in Monongalia County. The roadway is interstate type and has two major bridge structure crossings. Responsibilities include cut/fill design, drainage structures and bridge foundations. West Virginia Division of Highways
- Geotechnical project engineer for the replacement of Easley Bridge in Mercer County. Responsibilities included management of subsurface investigation and foundation design. West Virginia Division of Highways

Construction Management / Monitoring

- Construction monitoring, and construction administration for two lake dredging projects. Activities included subsurface investigation, regulatory approvals, construction drawings, technical specifications, construction troubleshooting, cost estimating, daily reports, and client interaction. West Virginia Division of Natural Resources: Tomlinson Run State Park and Kanawha State Forest
- Construction monitoring for excavation and backfill of contaminated soils under health and safety conditions. Arco Chemical Corporation and ITT
- Construction monitoring of a fly ash disposal area, an emergency exit from a reclaim hopper and an artificial wetlands. Pennsylvania Electric Company
- Construction monitoring, moisture testing and density testing of a 250,000-cu-yd fly ash highway embankment. Installation and monitoring of pneumatic piezometers, horizontal slope inclinometers, and vertical settlement stations. Duquesne Light Company

Summary

Civil engineering with an emphasis in geotechnical engineering, including all aspects of subsurface exploration, laboratory testing, foundation and embankment design, slope stability, material and construction specifications, and construction monitoring.

F. Barry Newman, P.E.

Vice President and Geotechnical/Structural Group Manager

Education

B.S. Civil Engineering 1968, West Virginia University
M.S. Geotechnical Engineering 1970, West Virginia University

Registrations/Certifications

Professional Engineer - PA, WV, CO, IN, MD, NY, TX
Approved by Federal Energy Regulatory Commission (FERC) for 1997 Inspection of Lake Lynn Dam
40-hour HAZWOPER Trained

Relevant Training/Courses

Harvard Leadership Development Training, GAI Consultants, Inc., June 2008
Advanced Project Management Training, GAI Consultants, Inc., 2008
ASFE Fundamentals of Professional Practice, 1992

Affiliations

American Society of Civil Engineers (ASCE), Member, Pittsburgh Geotechnical Group, Chairman 1982-1983
National Drilled Shaft Standards Committee, Member 1993-1995
American Society of Civil Engineers (ASCE), Pittsburgh Section, Director 1994-1997
Association of State Dam Safety Officials, Member
Deep Foundations Institute, Member
National Micropile Committee, Member 2003-2009

Previous Employment

Officer, U.S. Army Corps of Engineers, Fort Belvoir, Virginia, 1970
U.S. Department of Agriculture, Soil Conservation Service, West Virginia, Utah, 1967-1968

Summary

Mr. Newman specializes in directing geotechnical and structural engineering for power stations, electrical transmission lines, dams, steel mills, highways and bridges, commercial development, and material disposal areas. Several of his projects have resulted in innovative designs to solve difficult technical challenges. He has extensive experience in slope stability and landslide repair, earth retaining structures, soil and rock anchors, grouting and subsurface stabilization, ground-water and seepage, mitigation of expansive materials, field load testing, instrumentation, and foundation research. Mr. Newman has published approximately 50 technical papers and research reports on topics in geotechnical and structural engineering.

Professional Experience

Energy

- Project manager for foundation investigations, geotechnical engineering, and earthwork and foundation construction monitoring for over a dozen large power generating stations in Pennsylvania, West Virginia, Ohio, and Kentucky. Projects have included construction of major facilities on structural fills up to 80 feet deep, on natural soils, on soils with ground improvement, on drilled shafts, and on many types of piles.
- Consultant for foundation designs and retrofits for wind turbine farms in Texas and New York.
- Group manager for several open-end contracts for overhead and underground electrical transmission line design in the eastern US. Project manager or project engineer responsible for geotechnical explorations and foundation engineering for several electric transmission lines including 75 miles of 500 kV line on drilled

shafts in Virginia, 90 miles of 765 kV line on grillages from Virginia to West Virginia, and 60 miles of 230 kV line having several foundation types in Irian Jaya, Indonesia.

- Group manager for foundation research conducted for design of laterally loaded rock-socketed drilled shaft foundations and direct embedded poles for transmission line structures. The research included full-scale lateral load testing and resulted in the refinement of the computer code, "MFAD," used by EPRI utilities for the design of laterally loaded drilled shaft transmission line foundations and direct embedded pole structures.
- Project manager responsible for establishing dynamic soil properties for the design of large rotating and vibrating equipment for several facilities. Established blast and construction vibration criteria for protection of existing metastable slopes and sensitive equipment.
- Project manager for evaluating and monitoring of deep dynamic compaction of a fly ash site in Ohio.
- Designed and directed subsurface stabilization programs to prevent coal mine subsidence on several projects in Pennsylvania and West Virginia.

Dams

- Project manager or consultant for geotechnical engineering for over 30 earth, concrete, and tailings dams or impoundments ranging in height from 20 to 400 feet in Pennsylvania, West Virginia, Virginia, Ohio, Indiana and Oklahoma. Directed and/or conducted geotechnical explorations, testing, instrumentation, stability and seepage analyses, designs, and design of repairs.
- Project manager for the design and construction of repairs to the concrete emergency spillway and for the remedial foundation grouting to reduce seepage for a 55-foot high earthen water supply dam in central Pennsylvania.
- Project manager for the design of repairs for a reinforced concrete intake structure damaged by ice loads at a 100-foot high earthen dam in western Pennsylvania.
- Project manager or engineer responsible for performing over 70 formal inspections of dams for structural defects, including visually observing the above-water portions of the dams, galleries within the dams, surface defects, seepage, evaluating diver inspections of below-water portions of the dam, and the condition of concrete and steel.
- Director of laboratory testing for dams in Virginia and Ohio, including foundation rock tests, dam concrete tests, and contact zone tests for strength and deformability; and triaxial, classification, dispersion, permeability, and consolidation testing.
- Project engineer responsible for quality control monitoring for installation of 104 piezometers to depths as great as 400 feet in three dams in West Virginia, and for drilling and sampling to evaluate locks and dams.

Industry

- Manager for foundation investigations and analyses at about a dozen heavy industrial steel mill facilities including: US Steel in Pennsylvania, LTV Steel in Pennsylvania and Ohio, WCI Steel and Republic Engineered Steel in Ohio, Armco and AK Steel in Pennsylvania, Kobe Steel in Venezuela, and NISIC in Iran.
- Consultant for design of underpinning using compaction grouting and micropiles in Colorado, Pennsylvania, and Virginia.
- Project manager for the investigation of the massive failure in the 130-foot high slope beside Lake Michigan in the Clark Landfill on LTV Steel in East Chicago, Indiana. Designed the repairs of the landslide and the IDNR-approved closure of the facility.
- Manager for geotechnical testing, analyses, and design for disposal site remediations and closures, including: Bruin Lagoon Superfund Site for the U.S. Army Corps of Engineers, Chisman Creek Superfund Site for Virginia Power Company, hazardous waste lagoon for Koppers Company, sludge lagoon for Armco Steel Corporation, and a hazardous waste site in Samut Prakan, Thailand.
- Project manager and project engineer for failure analyses and repair designs for numerous projects involving landslides, foundation settlement and heaving problems due to expansive subgrades, a cofferdam collapse, an unstable bridge abutment, and a 120-ft. high reinforced earth wall in Irian Jaya, Indonesia.

Transportation

- Project manager for two $2M open-end contracts for geotechnical design and review services for the Pennsylvania Department of Transportation, District 11-0. Projects included geotechnical exploration,

retaining wall design, foundation investigations, slope and landslide stabilization, geotechnical reviews, instrumentation and monitoring, mine and subsurface drainage, geologic evaluations and reconnaissance, and permit preparation and review.

- Project manager for Pennsylvania Department of Transportation funded foundation research for dynamic pile monitoring, flowable backfills, and karst foundation conditions.
- Project manager for the development of design software and full-scale load testing of laterally loaded metal finned-pipe foundations that have been installed for support of pole and sign structures on many sites across the United States.
- Manager for geotechnical explorations and engineering for many large bridges, retaining walls, and deck structures over four-lane highways, and several miles of interstate highways in Pennsylvania, Ohio, and West Virginia.

  Highway projects include: SR 6060, Section 15, the Airport Expressway; Interstate 79, Section 5; and SR 0837, Section 055, in Allegheny County; and the addition of a climbing lane on the Pennsylvania Turnpike in Beaver County, Pennsylvania.

  Bridge projects include: the 365'-long Church Avenue Bridge; the 2,400'-long Fort Pitt Boulevard Bridge Relocation, two replacement bridges on Mosside Boulevard (SR 48), and the 300'-long Washington's Landing Bridge in Pittsburgh, Pennsylvania; and the 2,500'-long Williamstown-Marietta Bridge over the Ohio River, the 1,300'-long Tygart River Bridge (US 33), and the 612'-long Ash Haul Road Bridge over West Fork River and 456'-long Ash Haul Road Overpass Bridge, in West Virginia.

  Retaining Wall projects include the 1,000'-long, 50'-high counterfort concrete wall adjacent to West Fork River at Harrison Power Station in West Virginia; a 700'-long, 35'-high tied-back wall to stabilize a landslide on S.R. 279, Section 17 in Pennsylvania; and the 264'long 24'high tied back wall to stabilize a landslide on S.R. 48 in Pennsylvania.

Real Estate

- Manager responsible for geotechnical engineering and construction monitoring for commercial development projects in Pittsburgh including: 3-story Mobay Headquarters Building, 5-story ExpoMart on adjustable columns at the Monroeville Mall, 7-story addition to the Radisson Hotel in Monroeville, 10-story LK Comstock Building, 10-story Firstside Garage, 32-story Liberty Center, new buildings at Veteran's Administration Oakland and Heinz Campuses, Washington's Landing, the Allegheny Riverfront Park, and PNC Park Baseball Stadium Bulkhead Wall.

Publications and Presentations

2009 Ruffolo, R.M., Dershem, J.M., Marcinkevage, R.W., and Newman, F.B., *Seepage Issues at Warren Ohl Dam*, Presented at the ASDSO Annual Conference on Dam Safety, Hollywood, FL, September 27-30, 2009

2006 Bledsoe, J.K., Williams, D.M., Steigerwald, C.W., and Newman, F.B. *AEP 765 kV Transmission Line - Testing of AEP Anchors for Guyed-V Towers*, Presented at the 2006 ASCE Electrical Transmission Conference on Structural Reliability, Birmingham, Alabama, October 15-19, 2006.

2006 Bazán, E., Williams, D.M., Bledsoe, J.K., Pugh, A.D., and Newman, F.B. *AEP 765 kV Transmission Line –Uplift Capacity of Shallow Foundations in Sloping Ground*, Presented at the 2006 ASCE Electrical Transmission Conference on Structural Reliability, Birmingham, Alabama, October 15-19, 2006.

2006 Bazán, E., Williams, D.M., Bledsoe, J.K., Pugh, A.D., Newman, F.B., Mozer, J.D. and DiGioia, A.M., *LRFD Approach for Foundations of the AEP 765 kV Transmission Line Structures*, Presented at the 2006 ASCE Electrical Transmission Conference on Structural Reliability, Birmingham, Alabama, October 15-19, 2006.

2006 Schultz, J. W., Schutte, R. W., and Newman, F. B. *SR 48 Landslide Repair*, Published in the Proceedings of the 57'th Annual Highway Geology Symposium, Breckenridge, Colorado, September 26-29, 2006.

2005 Newman, F. B., et. al., *Structural Repairs for Ice Damage to Intake Tower*. Presented at the Association of State Dam Safety Officials Annual Conference, Orlando, Florida, September 23-27, 2005.

2004 Scarborough, J. A., and Newman, F. B. *Compressive Strength Testing of Micropile Grout*. In Foundation Drilling, ADSC, the International Association of Foundation Drilling. September/October, 2004.

2003 Newman, F. B., *Upgrading Geotechnical Strength of Existing Transmission Line Foundations.* Presented at ESMO 2003, Orlando, FL, April 7, 2003.

2002 Reinert, Sr., G. J. and Newman, F. B. *Field Testing of Finned Steel Pipe Pile Foundations.* Presented at the ASCE Specialty Conference 2002, Omaha, Nebraska, September 9-12, 2002.

2002 Bazán, E, Newman, F. B.,. and DiGioia, Jr., A. M. *Direct Embedded Poles in Soil and Rock.* Presented at the ASCE Specialty Conference 2002, Omaha, Nebraska, September 9-12, 2002.

2002 Gray, T. A., Gray, R. E. and Newman, F. B. *Utilization of Coal Combustion By-Projects in Tailing Dams.* Presented at the Tailing Dams 2002 meeting in Las Vegas, Nevada, May 1, 2002.

2001 DiGioia, A. M. and Newman, F. B. *Reliability-Based Design of Foundations.* Presented at the ESWP International Bridge Conference, June 5, 2001, Pittsburgh, PA.

2001 Drnevich, V. and Newman, F. B. *Purdue TDR Soil Density Testing Method.* Presentation made at the Transportation Research Board Annual Meeting in Washington, D.C., January 9, 2001.

2000 Newman, F. B., Curtiss, R. E., Gower, T. R., and Roth, B. L. *Stabilization of Landslide at McElroy's Run Impoundment Using Auger Cast Grout Columns.* Presented at the Tailing Dams 2000 Conference, March 28-30, 2000 in Las Vegas, Nevada.

2000 Newman, F. B. Design of Drilled Shaft Foundations - *VEPCO Colver Transmission Line* presented on October 11, 2000 at the IEEE Engineering, Safety and Maintenance of Transmission Lines Conference, October 9-11, 2000 in Montreal, Canada.

1999 Newman, F. B. and Mazzella, S. G., *Compaction Control to Minimize Settlement of Fill Supporting a Shopping Center.* Presented at the symposium on Constructing and Controlling Compaction of Earth Fills, ASTM STP 1384, D.W. Shanklin, K.R. Rademacher, and J.R. Talbot, Eds., American Society for Testing and Materials, West Conshohocken, Pa., July 1-2, 1999.

1999 Newman, F.B. and Adams, W. R., Jr., *I-279 Landslide Repair*, In Proceedings of the 50th U.S. Highway Geology Symposium, Pages 254-263, Roanoke, Va., May 20-23, 1999.

1998 DiGioia, A.M., Jr.; Hirany, A.; Newman, F.B.; and Rose, A.T. *Rock-Socketed Drilled Shaft Design for Lateral Loads.* Presented at the ESMO 1998 Meeting in Orlando, Fla., April 26-30, 1998.

1998 DiGioia, A.M., Jr.; Hirany, A.; Newman, F.B.; and Rose, A.T. *Granular Backfill Selection for Direct Embedded Poles.* Presented at the ESMO 1998 Meeting in Orlando, Fla., April 26-30, 1998.

1997 Newman, F. B.; Snyder, M. D.; Roth, B. L.; Sanger, D. B.; and Fails, C. J. *Stability of H. B. North Dam with Artestian Pressures.* Presented at the ASDSO Annual Conference in Pittsburgh, Pa., September 7-10, 1997.

1996 Newman, F. B. *Load Tests on Steel Finned Foundation.* Presentation at the PEA T&D Committee in Greensburg, Pa., January 18, 1996.

1995 Newman, F. B. and Williams, K. *Steel Finned-Pipe Foundation.* Presentation at the 17th Annual APC/PennDOT Fall Seminar, Lancaster, Pa., November 14-15, 1995.

1995 Newman, F. B.; DiGioia, A. M., Jr.; and Reinert, G. J. *Field Testing of S.A.F.E. Foundations.* In Proceedings of the Annual Meeting of the Canadian Electrical Association, held in Vancouver, British Columbia, March 1995.

1995 Michalski, S. R.; Szwed, D. F.; Kay, G. P.; Knott, D. L.; and Newman, F. B. *Closure of a Pickle Liquor Sludge Bed.* In GeoEnvironmental 2000, Geotechnical Special Publication No. 46, American Society of Civil Engineers, 1750-1764, New Orleans, La., February 24-26, 1995.

1995 Newman, F.B.; DiGioia, A. M., Jr.; and Rojas-Gonzalez, L. F. *CLSM Backfills for Bridge Abutments.* In Proceedings of the Eleventh International Symposium on Coal Ash Use and Management, January 15-19, 1995.

1994 Rojas-Gonzalez, L. F.; DiGioia, A. M., Jr.; and Newman, F. B. *Flowable Backfills for Highways.* In Proceedings of the 1994 ASCE/PennDOT Geotechnical Seminar, Hershey, Pa., September 12-14, 1994.

1994 Wimberly, Percy M., III; Newman, F. B.; Andramalos, K. B.; and Ryan, C. R. *Compaction Grouting Stops Settlement of an Operating Water Treatment Plant.* In Proceedings of Settlement '94: Vertical and

Horizontal Deformations of Foundations and Embankments, the American Society of Civil Engineers specialty conference, 1176-1192, College Station, Texas, June 16 18, 1994.

1994 Wimberly, Percy M., III; Mazzella, S. G.; and Newman, F. B. *Settlement of a 15-Meter-Deep Fill Below a Building.* In Proceedings of Settlement '94: Vertical and Horizontal Deformation of Foundations and Embankments, the American Society of Civil Engineers specialty conference, 398-416, College Station, Texas, June 16-18, 1994.

1994 DiGioia, A. M., Jr.; Newman, F. B.; and Rojas-Gonzalez, L. F. *Reliability Based Design of Transmission Line Structure Foundations.* In Proceedings of the Annual Meeting of the Canadian Electrical Association, Engineering and Operation Division, Transmission Section, Line Design and Security Subsection, Toronto, Ontario, Canada, March 1994.

1993 Rojas-Gonzalez, L. F; Knott, D. L.; and Newman, F. B. *Current Practice for Dynamic Pile Monitoring in the United States.* Pennsylvania Department of Transportation Research Project 90-12, August 1993.

1993 Rojas-Gonzalez, L. F.; Knott, D. L.; and Newman, F. B. *Demonstration Applications in the Use of Dynamic Pile Monitoring.* Pennsylvania Department of Transportation Research Project 90-12, August 1993.

1993 Knott, D. L.; Rojas-Gonzalez, L. F.; and Newman, F. B. *Current Foundation Engineering Practice for Structures in Karst Areas.* Pennsylvania Department of Transportation Research Project 90-12, August 1993.

1993 Knott, D. L.; Rojas-Gonzalez, L. F.; and Newman, F. B. *Guide for Foundation Engineering in Pennsylvania Karst.* Pennsylvania Department of Transportation Research Project 90-12, August 1993.

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1993 Rojas-Gonzalez, L. F.; Knott, D. L.; Newman, F. B.; and Majoris, P. *Use of Flowable Backfill for Bridge Abutments.* In Proceedings of the Tenth Annual International Bridge Conference, Pittsburgh, Pa., June 14-16, 1993.

1993 Wimberly, P. M., III; Mazzella, S. G.; and Newman, F. B. *Bond Stress Test on Rock Anchor in Clayey Siltstone.* In Geotechnical Practice in Dam Rehabilitation, 333-350. New York: American Society of Civil Engineers, 1993.

1993 Wimberly, P. M., III; Mazzella, S. G.; and Newman, F. B. *Testing and Evaluation of High Capacity, Multi-Strand Rock Anchors for Lake Lynn Dam.* In Geotechnical Practice in Dam Rehabilitation, 584-600. New York: American Society of Civil Engineers, 1993.

1993 Wimberly, P. M., III; Newman, F. B.; Mazzella, S. G.; and Racketa, S. J. *Conversion of a Concrete Slab and Buttress Dam to a Gravity Dam.* In Geotechnical Practice in Dam Rehabilitation, 850-864. New York: American Society of Civil Engineers, 1993.

1993 Knott, D. L.; Newman, F. B.; Rojas-Gonzalez, L. F.; and Gray, R. E. *Foundation Engineering Practice for Bridges in Karst Areas in Pennsylvania.* In Proceedings of the Fourth Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst, Panama City, Fla. Rotterdam: A. A. Balkema, 1993.

1992 Newman, F. B.; Rojas-Gonzalez; L. F.; and Knott, D. L. *Current Practice in Design and Use of Flowable Backfills for Highway and Bridge Construction.* Harrisburg: Pennsylvania Department of Transportation, September 1992.

1990 Turka, R. J.; Gray, R. E.; and Newman, F. B. *Use of Concrete for Stabilization of Abandoned Coal Mines.* In Proceedings of the Association of Engineering Geologists - Mine Subsidence - Prediction and Control, Thirty-Third Annual Meeting, Pittsburgh, Pennsylvania, October 1-5, 1990.

1989 DiGioia, A. M., Jr., Rojas Gonzalez, L. F., and Newman, F. B. *Statistical Analyses of Drilled Shaft and Embedded Pole Models.* Foundation Engineering: Current Principles and Practices. Edited by F. H. Kulhawy. Vol 2, 1338-1352. New York: ASCE, 1989.

1987 Newman, F. B.; McGee, J.; and Burns, D. *Reclamation of Existing Ash Pond at Portsmouth Power Station.* In Proceedings of the Conference on Geotechnical Practice for Waste Disposal, Ann Arbor, Mich., June 1987.

1987 Newman, F. B.; and Gower, T. R. *Geotechnical Hazards Along Dorcon Road and L.R. 1099.* In Proceedings of the 38th Annual Highway Geology Symposium, Pittsburgh, Pa., May 11 13, 1987

1984 Newman, F. B.; and DiGioia, A. M., Jr. *Adjustable Columns Control Settlement of Structure.* In Proceedings of the International Conference on Case Histories in Geotechnical Engineering, St. Louis, Mo., May 6 11, 1984.

1981 Newman, F. B.; Salver, H. A.; and Turka, R. J. *1000 Ton Drilled Pier Load Test at Sammis Plant.* In Proceedings of the 1981 National Convention and Exposition of the American Society of Civil Engineers, St. Louis, Mo., October 1981.

1974 Seals, R. K.; Kirkpatrick, W. M.; and Newman, F. B. *Stress Distribution in Triaxial Compression Samples.* Technical Note, Journal of the ASCE Geotechnical Engineering Division 100, no. GT2 (February 1974).

1970 Newman, F. B. *Normal Stress Distributions for Triaxial Test.* Master's thesis, West Virginia University, 1970.

James A. Hemme, P.E., L.R.S.

Senior Engineering Manager

Education

B.S. Civil Engineering 1989, West Virginia University Institute of Technology
Marshall University Graduate College, Environmental Engineering Coursework

Registrations/Certifications

West Virginia Professional Engineer No. 12195
Kentucky Professional Engineer No. 25437
Ohio Professional Engineer No. 72851
Indiana Professional Engineer No. 10809277
Pennsylvania Professional Engineer No. 75494
New York Professional Engineer No. 85794
West Virginia Licensed Remediation Specialist No. 003

Relevant Training/Courses

Harvard Leadership Development Training, GAI Consultants, Inc. (In Progress)
Advanced Project Management Training, GAI Consultants, Inc., 2009
Leaders to Watch Program, GAI Consultants, Inc., May 2008
OSHA 40 hour HAZWOPER Training
NICET 1 Geosynthetics Installation Inspection (expired)
Nuclear Density Gage Training, DOT and NRC (expired)
MSHA Safety Training (expired)

Previous Employment

Environmental Design Group (now Floyd Browne Group), 2000-2006
Potesta and Associates, 1997-2000
Terradon Corporation, 1995-1997
Joyce Engineering, 1990-1995
Dewberry and Davis, 1989-1990

Summary

Mr. Hemme specializes in site engineering, including planning, permitting and stormwater management, with emphasis on parks and recreation areas and streetscapes. He brings a multi-disciplinary background to projects and this enables him to see the "big picture" of what will be needed to take a project from start to finish. Mr. Hemme is also competent in geotechnical engineering, environmental disciplines including NEPA compliance, and transportation services. He has worked extensively with private developers, architects, municipalities and government agencies.

Mr. Hemme has worked on landfills, quarries, mines, industrial and commercial sites and facilities. He has performed numerous Phase 1 Environmental Site Assessments (ESAs) providing solid waste, industrial waste, and Erosion and Sediment (E&S) control permitting. Mr. Hemme designs storm water management systems, site developments ranging from 1 acre to over 60 acres in size, and wetland mitigation areas. He prepares geotechnical reports, flood plain modeling, highway and roadway designs, right-of-way plans, detailed construction plans, and cost estimates for projects ranging from $10,000 to over $2 million in construction cost.

Mr. Hemme volunteered his time and knowledge to assist with preparation of the Greater Charleston Greenway Initiative by the West Virginia Land Trust Company in Charleston, West Virginia. He authored the analysis section of the report and peer-reviewed the entire document. Mr. Hemme is a current volunteer with the Riverside

South Committee, which is working with the Charleston Land Trust to beautify and possibly promote pedestrian access on the south side of the Kanawha River. He has developed schematic plans and reviewed narratives for inclusion into several progress updates to the Land Trust.

Professional Experience

Civil Engineering and Permitting

- Site Design for over 100 different projects throughout West Virginia, Ohio, Kentucky and Pennsylvania. NEPA compliance for wetlands, streams, cultural resources, and endangered species. Phase 1 Environmental Site Assessments for a wide range of facilities.
- Designed over 50 stormwater management systems including run-on and run-off control utilizing ditches, berms, sumps, sediment ditches, storm sewers, culverts, drop structures, ponds, energy dissipaters, etc. Work included technical specifications, cross sections, profiles, site grading detail development and hydrologic and hydraulic modeling.
- Developed detailed designs for over 100 different ponds at multiple sites throughout West Virginia and other states, including sediment ponds, treatment ponds, leachate storage ponds, and stormwater detention ponds. Work included hydrologic and hydraulic routing calculations, volume estimates, embankment design, treatment efficiency, dewatering calculations, etc.
- Prepared over 50 detailed Erosion and Sediment (E&S) Control Plans for various sites throughout West Virginia, including coal mines, quarries, highways, landfills and site developments. Work included technical specifications, re-vegetation plans, temporary control details and sequencing plans.
- Prepared numerous National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit Applications for sites throughout West Virginia and Ohio.
- Prepared a complete set of construction plans and specifications consisting of a detailed grading plan, a storm sewer system consisting of 34 drop inlets and over 3,800 feet of piping, and parking lot layout.
- West Virginia State College. Design of a revised stormwater system around the student union to help alleviate basement flooding issues.
- Town of Buffalo. Phase I storm sewer design and construction administration for over 2,000 ft. of storm sewer with discharge to the Kanawha River, that included permitting work with the Corps of Engineers.
- Analyzed various culvert scenarios consisting of modeling existing culverts and potential new corrugated metal pipe, steel pipe, concrete pipe and concrete box culverts to prevent upstream flooding from fill placement for Marietta Industrial Enterprises, Parkersburg, West Virginia.
- Designed an extensive stormwater management system consisting of several thousand feet of ditch and storm sewers, and two sediment ponds designed to limit inflow to pre-existing conditions for the 2-, 10-, 50-, and 100-year storm events for Hanover County Sanitary Landfill, Virginia.
- Melinda Street Stormwater Improvements. Underground stormwater detention system and storm sewer improvements design for the City of Parkersburg, West Virginia.

Site Development and Planning

- Coldwater Creek Distribution Center in Parkersburg, West Virginia. Wetland mitigation for a 7.5-acre area that required a detailed planting plan, pavement design and an engineers' cost estimate.
- Ft. Boreman Development in Parkersburg, West Virginia. Utility master planning, site preparation, roadway design, permitting, and stormwater management for the proposed 170-acre Fort Boreman mixed-use development near Martown Road interchange off U.S. Route 50 in Parkersburg.
- Chesapeake Energy Regional Headquarters in Charleston, West Virginia (LEED Project). Chesapeake Energy Field Offices in Jane Lew, West Virginia; Mount Morris, Pennsylvania; and Honey Branch, Kentucky.
- The Pines Country Club in Morgantown, West Virginia.
- Dow Chemical South Charleston Plant Entrance, Parking and Pedestrian Improvements in West Virginia.
- Tamarack Phase 2 Expansion in Beckley, West Virginia.
- Morgan County Courthouse Replacement in Berkeley Springs, West Virginia. Greenbrier County Courthouse Annex and Expansion in Lewisburg, West Virginia.
- Marshall University Clinical Outreach and Education Center, Huntington, West Virginia.

- Cheat Landing Office Park in Morgantown, West Virginia. The Villages at Cheat Landing in Morgantown, West Virginia
- Almost Heaven Habitat for Humanity, South Fork Crossing Subdivision, Pendleton County, West Virginia.
- Stonegate at Cranberry Development in Cranberry Township, Pennsylvania.

Parks and Recreation Areas

- April Dawn Sprayground and Park in Huntington, West Virginia. Lead Engineer for the continued development of the park consisting of an in-ground computer controlled fountain covered by suspended concrete pavers, a unique "Teays Valley Monster" concrete dragon over 8'-tall integrated into the design with slide and cool steam nostrils and a special soft surface design. The project won awards from the West Virginia Sections of the American Society of Landscape Architects and the American Consulting Engineers Council.
- Rotary Park Improvements Project in Huntington, West Virginia. Lead Engineer responsible for new parking areas, unique picnic shelter, utilities, and a new entrance that blended with existing facilities.
- Reviewed multiple playground components for compliance with the "Handbook for Public Playground Safety" published by the U.S. Consumer Product Safety Commission.
- Assisted with designing ballfields, park facilities, and a large parking lot incorporating Bio-Retention/Treatment swales for treatment of stormwater in Stark County, Ohio.
- Golf Club House and Lodge Site Development at Stonewall Jackson State Park in West Virginia. Project Manager for infrastructure including site design of the 100+-room lodge, parking, sewage lift station, extensive landscaping, and all aspects of construction administration.
- Cedar Creek State Park Camp Ground Expansion, Glenville, West Virginia. Dow Heritage Park in Charleston, West Virginia. Fort Boreman Historic Park in Parkersburg, West Virginia.
- Dupont 'Hyper' Plaza in Belle, West Virginia.

Streetscape and Trails

- Kanawha Trestle and Rail Trail Master Plan. Project Manager and Lead Engineer responsible for development. The plan covered the existing CSX trestle crossing the Kanawha River in Charleston and approximately 2 miles of Norfolk and Southern rail corridor through the West Side of Charleston.
- Project Manager or Design Engineer on multiple streetscape projects throughout West Virginia including Phase 1 Florida Street Streetscape, and Washington Street East Phase 2 and Pennsylvania Avenue streetscapes in Charleston, West Virginia.
- North Bend Rail Trail. Prepared construction documents to repair flood damage to almost 50 miles of trail.
- Florida Street Master Plan for the City of Charleston, West Side Neighborhood Association.
- City of Richwood, West Virginia Streetscape Master Plan and Phase 1 Construction.
- City of Charleston East End Design Cheret and "Think Tank" Design Cheret.

Solid Waste Management and Engineering

- Design and permitting for 50 different solid waste facilities in West Virginia, Virginia, and Ohio.
- Berkeley County Solid Waste Authority. Siting Study regarding suitability of property.
- North Fork Landfill. 50-acre landfill over previously deep mined area.
- Nicholas County Landfill. Small rural landfill expansion with special steep slope design.
- Disposal Service Landfill. Unique multi-stage expansion of a landfill including steep slope design.
- Boone County Commission. Permitting of various solid waste transfer stations.
- Page County, Virginia comprehensive countywide search for a regional landfill.
- Anker Energy Conceptual Study to determine feasibility of fly ash disposal facility.
- Elkem Metals fly ash landfill utilizing a geosynthetic clay liner and special slope design.

Waste Water and Potable Water Design

- National Radio Astronomy Observatory. Designed unique, non-mechanical, award-winning treatment system that uses no electricity and treats the entire campus wastewater load.
- Manufactured Housing Development Waterline Replacement. Designed over 5 miles of water line within an existing 1000+-unit manufactured housing development.
- Huttonsville Correctional Facility. Provided retrofit design for temperature, grease and trash issues.
- Anthony Correctional Center. Designed package water treatment plant for correctional facility.
- St. Mary's Correctional Facility. Retrofit design to address trash and grease issues.
- Pocahontas County Landfill. Modular trickling sand filters with aeration pond and polishing wetland.
- Multiple Landfills. Pre-treatment system design to remove high BOD levels prior to WWTP.
- Storage Tank Design. Multiple bolted or welded steel tanks primarily for leachate storage.

Abandoned Mine Land (AML) Reclamation and Acid Mine Drainage (AMD) Treatment

- Richard Mine Acid Mine Drainage. Treatment Alternatives Report, Monongalia County, West Virginia.
- Richard Mine Flow Monitoring Study. Design, installation, full time flow monitoring and reporting for a 1 year period on drainage from a substantial AMD discharge.
- East Branch Raccoon Creek Acid Mine Drainage (AMD) Treatment Design for the Ohio Department of Natural Resources.
- Vens Run Landslide Reclamation No. 2 Design and Permitting in Harrison County, West Virginia.
- Whites Run Reclamation Permitting in Randolph County, West Virginia.

Project Awards

National Radio Astronomy Observatory (NRAO) Wastewater Treatment Plant Design, West Virginia ACEC Gold Award, Project Manager

Florida Street Streetscape Masterplan, West Virginia ASLA Honor Award, Senior Engineer

Dupont Hyper Plaza Design, West Virginia ASLA Honor Award, Senior Engineer

Kanawha Trestle Rail Trail Masterplan, West Virginia ASLA Merit Award and West Virginia ACEC Silver Award, Project Manager

April Dawn Park Sprayground "Teays Valley Monster," West Virginia ASLA Honor Award and West Virginia ACEC Gold Award, Senior Engineer

Coldwater Creek Distribution Center Site Preparation, West Virginia ACEC Gold Award, Project Manager

Joseph A. Prine, EI

Senior Engineering Intern

Education

A.S. Drafting and Design, 2001 West Virginia University Institute of Technology
A.S. Civil Engineering Technology, 2001 West Virginia University Institute of Technology
B.S. Engineering Technology w/ Civil Emphasis, 2001 West Virginia University Institute of Technology
M.S. Various Courses in Engineering Management, Currently Attending Marshall University

Registrations

E.I. # 8334
NICET Certified, Engineering Technology, #103538

Professional Development

OSHA 40 hour Hazwopper Training
OSHA 10 hour Construction Industry Training Program

Awards

First Coalition Force Design Team - Commander, Tallil Air Base, Iraq

Professional Experience

Mr. Prine has a wide variety of experience in environmental engineering, civil engineering, site development, streetscape, and planning projects while at GAI and through previous employments. He has worked with private developers, architects, municipalities and governmental agencies. He has substantial experience in site engineering, and stormwater management. He has worked on various construction project sites including landfills, abandoned mines, and industrial and commercial facilities. Some of his environmental engineering projects include; Phase 1 reports, environmental monitoring, permitting, and design. Some of his civil engineering/site design projects include; design of stormwater management systems, earth work estimating, water and sewer line extensions, design of both large and small sites ranging in size 1 to 40 plus acres, assisting in the preparation of design/construction plans, reports, and cost estimates for projects, and highway/roadway design. He has also contributed to planning and design in several community improvement and streetscape projects.

Representative Project Experience:

Environmental Engineering

- American Electric Power – John Amos FGD Landfill Construction Monitoring, Winfield, WV
- WVAML – Wolfpen Landslide, Charleston, WV
- WVAML – Heizer Creek Landslide, Poca, WV
- WVDOC - Anthony Correctional Center – Package Water Treatment Plant, Neola, WV
- WVDOC - Huttonsville Correctional Center – Waste Water Treatment Plant, Huttonsville, WV
- Richard Mine AMD Flow Monitoring Study, Morgantown, WV
- WVDOH – Romney Bridge, Romney, WV
- WVDOH – King Coal Highway (US 52), Logan County, WV
- Spill Prevention Control and Containment (SPCC) Plans, CSX Railroad National Contract
- Facility Response Plans (FRP) Plans, CSX Railroad National Contract
- Rockport Terminal Tampa, FL Storm Water Management Redesign, CSX Railroad
- Oil Discharge Contingency Plans for State of Virginia, CSX Railroad National Contract
- Facilities upgrade design for Homeland Security, CSX Railroad National Contract
- Redesign of CSX Railroad Waster Water Treatment Plant, Clifton Forge, VA
- Environmental Emergency Responder to Train Derailment, Handley, WV
- Site Monitoring and Cap Design for Remediation Site, Huntington, WV

- QA/QC for Installation of New Groundwater Monitoring Wells, Scary Creek, WV
- Brownfield Way Ground Water Monitoring Reports, South Charleston, WV
- Nicholas County Landfill- Design and Permitting New Landfill Cells, and General Site Engineering
- Melinda Street Storm Water Improvements, Parkersburg, WV

Land Development / Site Planning

- Chesapeake Energy Field Office, Mansfield, Pennsylvania
- Huttonsville Work Release Camp – Site Design & Permitting, Huttonsville, WV
- Chesapeake Energy Regional Headquarters, Charleston, West Virginia (**LEED Project**)
- Chesapeake Energy Field Office, Mount Morris, Pennsylvania
- Chesapeake Energy Field Office, Honey Branch, Kentucky
- Detailed Site Design Aspen Village, Davis, WV
- Ft. Boreman Development–Master Plan Site Preparation and Roadway Design, Parkersburg, WV
- Golf Club House and Lodge Site Development, Stonewall Jackson State Park, WV
- Family Carpet Plaza-Site Design & Permitting, Parkersburg, WV
- Storm Water Detention System – Melinda St., Parkersburg, WV
- Site Design for Schools Hannan, Wahama, New Haven, and Pt. Pleasant, Mason County, WV
- Design of Storm Water Management System, Western Management, Parkersburg, WV
- Preparation of Detailed Erosion and Sediment Control Plans
- Preparation of NPDES Construction Stormwater Permit Applications
- Sugar Grove Site Design, Habitat for Humanity, WV
- Starlite Industrial Park, OH
- Great Lakes Truckland Site Improvements, Cross Lanes, WV

Streetscape and Trails

- City of Mount Hope Streetscape, WV
- City of Charleston, East End Design Charrette, WV
- Florida Street Master Plan for the City of Charleston, West Side Neighborhood Association, WV
- City of Richwood, West Virginia Streetscape Master Plan and Phase 1 Construction

Correctional and Judicial Facilities:

- Huttonsville Work Camp, Huttonsville, WV
- Huttonsville Correctional Facility, Huttonsville, WV
- Anthony Correctional Center, Neola, WV
- Morgan County Courthouse Replacement, Berkeley Springs, WV

Kerry L. Frech, P.E.

Assistant Engineering Manager

Education

B.S. Civil Engineering 1977, Cornell University

M.Eng. Environmental Engineering 1978, Cornel University

Registrations/Certifications

Professional Engineer, PA 1983

Affiliations

American Society of Civil Engineers (ASCE), Member

American Water Resources Association (AWRA)

Summary

Mr. Frech specializes in applying hydrologic and hydraulic principles to the development of water and land related resources. He has prepared numerous state and federal permit applications in Pennsylvania, West Virginia, Maryland, Virginia, and New Jersey, for public and governmental entities and for private industry. His project experience ranges from planning and feasibility-level studies to design and the preparation of construction documents. His experience with hydrologic and hydraulic modeling includes HEC-RAS, HEC-HMS, HEC 1, HEC 2, DAMBRK, PSRM, SCS TR 20 and TR 55, RIVER2, WSPRO, and the Water Resources Council's Bulletin 17B.

Professional Experience

Stormwater Management

- Clair Boyce Office Center in Upper St. Clair, Pennsylvania for The Rubinoff Company. Site development project for a two-phase office center zoned in a Special Business District. Project engineer responsible for stormwater management and the Joint 106/404 permit application.
- Allegheny County Watersheds in Allegheny County, Pennsylvania for the Allegheny County Department of Economic Development. Stormwater management plans review for Act 167 and Non-Act 167 watershed compliance. Project Manager as Consultant to Allegheny County responsible for reviewing site stormwater management plans within Act 167 watersheds.
- Flaugherty Run Watershed in Allegheny and Beaver Counties for Allegheny County Department of Economic Development. Act 167 Stormwater Management Plan project for the Flaugherty Run Watershed, an 8.9 square-mile tributary of the Ohio River. Project Manager responsible for preparing the Act 167 Watershed Stormwater Management Plan for the watershed.
- Pittsburgh City Sewers in Pittsburgh, Pennsylvania for the City of Pittsburgh, Department of Engineering and Construction. Sewer rehabilitation / reconstruction project for eight storm, sanitary, and combination sewers requiring site investigations and alternative corrective action plans: California Avenue brick combination sewer, Ellsworth Avenue-Morewood Street relief clay combination sewer, Carnegie Mellon combination sewer, Merchant Street inlaid stone arch sewer and brick sewer, Dinwiddie Street storm sewer and water line, South Eleventh Street storm sewer, Strachan Avenue storm sewer, and Kentor Way sewer line.
- Montour Run Watershed Allegheny County, Pennsylvania for the Allegheny County Dept. of Planning. Act 167 Stormwater Management Plan project for Montour Run, a 36.6 sq. mile tributary of the Ohio River, which includes the Pittsburgh International Airport. Project engineer for the Stormwater Management Plan (PA Act 167) for the watershed, responsible for establishing basin wide stormwater management controls.
- Chemical Plant Facility for Rhone Poulenc. Project engineer responsible for the stormwater and process sewer evaluation study for the 40-acre chemical plant. Activities were performed in conjunction with the NPDES permitting of the plant's discharges.
- Chemical Plant Facility for Hercules, Inc. Project engineer responsible for the stormwater management plan for the 40-acre chemical plant facility.

Hydrologic and Hydraulic Studies & Permitting

- RRI Energy, Inc., Keystone Generating Station. Project engineer responsible for hydraulic design and preparation of construction documents for a 0.6 mgd pump house and 15-mile pipeline. Design included transient analyses; hydrotesting of components; hydropneumatic bladder tanks; air release valves; jockey pump and pressure-sustaining valve; and flow monitoring and sampling capabilities. Assistance in commissioning and start-up of the pipeline.
- SR 0051 and SR 0088 Intersection in Allegheny County, Pennsylvania for SAI Consultants, Inc. / Pennsylvania Department of Transportation District 11-0. Intersection improvements project requiring environmental, traffic, geotechnical, and hydrologic studies. Project engineer responsible for hydrologic and hydraulic studies for Saw Mill Run.
- County-Owned Bridges in McCandless and Forward Townships, Allegheny County for the Allegheny County Department of Public Works. Bridge replacement project for three short span bridges and rehabilitation project for one simple-span bridge. Project engineer responsible for hydrologic and hydraulic analyses, permits, and reports.
- Romney Bridge Replacement (US 50) over the Potomac River in Hampshire County, West Virginia for West Virginia Department of Transportation, Division of Highways. Hydrologic and hydraulic analyses for the proposed bridge replacement.
- Northshore Riverfront Park along Allegheny River in Pittsburgh, Pennsylvania for EDAW, Inc. Project engineer for hydrologic and hydraulic river modeling with permit submission.
- SR 0048, Sections A11 and A16, Mosside Boulevard in Allegheny County for Pennsylvania Department of Transportation, District 11-0. Bridge and roadway designs to replace two bridges and approach roadway over Turtle Creek, Norfolk Southern Railroad, and a local service road, including designs for relocation of 1,000 feet of natural stream channel. Project engineer responsible for Hydrology and Hydraulics (H&H) analyses, stormwater management, and assistance with stream restoration using geomorphological principles. Preparation of Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) to FEMA.
- Project engineer responsible for preparation of hydrologic and hydraulic reports and permit documents for projects in multiple districts of the Pennsylvania Department of Transportation and for the Pennsylvania Turnpike Commission.
- Harrison Power Station CCB Landfill Site in Shinnston, West Virginia for Allegheny Energy. Coal Combustion Byproduct (CCB) landfill site project. Hydraulic design of drainage facilities.
- Honduras Line Route and Power Plant Site from Puerto Cortes, Honduras to Apopa, El Salvador, Central America for AES Aurora. Environmental documentation and clearance project for a new LNG import terminal and 765 MW power plant, and transmission line route; and feasibility study project for 234 miles of double-circuit 230 kV transmission line from the northern coast of Honduras to southern El Salvador requiring an Environmental Impact Assessment (EIA) for approval by the Honduras government.
- David L. Lawrence Convention Center Expansion in Pittsburgh, Pennsylvania for the Sports and Exhibition Authority of Pittsburgh and Allegheny County. Project engineer for permitting for the new convention center. Project engineer responsible for hydraulic river modeling and environmental permitting for the David L. Lawrence Convention Center Riverfront Park.
- Allegheny Energy Gans Units 8 and 9 in Gans, Pennsylvania for Allegheny Energy Supply, Inc. Spill prevention project to develop a Spill Prevention Response (SPR) plan and Spill Prevention Control and Countermeasures (SPCC) plan. Project engineer responsible for the SPCC Plan.
- Pine Creek Flood Area in Etna Borough, Allegheny County, Pennsylvania for the Allegheny County Department of Economic Development. Flood stage control project along Pine Creek requiring engineering, final design, and construction monitoring services. Included PaDEP study review, field reconnaissance, sediment sampling/analysis, environmental assessment, wetlands identification and delineation, endangered species survey, aquatic habitat assessment, survey and mapping, utility coordination with the Borough of Etna, bridge structural assessments, hydraulic analyses, plan formulation and assessment (dredging, levees, channel improvements, debris boom, interior drainage), environmental permitting, plans and specifications.
- PNC Park Baseball Stadium in Pittsburgh, Pennsylvania for Hellmuth, Obata + Kassabaum, Inc., Sports Facilities Group, and L.D. Astorino & Associates, Ltd. Comprehensive site planning, design development, and construction project to develop a 39,000-seat baseball park for the Pittsburgh Pirates Baseball Club. Project Engineer responsible for preparing environmental permitting documents, and for designing and

preparing construction documents for a flood protection system and stormwater management for the park. The flood protection system provided 100-year protection from both riverine flooding and elevated ground water levels, due to the ballpark's proximity to the Allegheny River.

- Pennsylvania Abandoned Mine Lands in Southwestern Pennsylvania for Duquesne Light Company. Siting and design project for beneficial use fills using Coal Combustion By-products (CCBs) at abandoned mine lands (AMLs). Project engineer assisting with the Elrama siting study.
- Mon/Fayette Expressway (Section 52J) South Park Township and Jefferson Borough, in Washington and Allegheny Counties, Pennsylvania for the Pennsylvania Turnpike Commission. Highway and roadway design project for 1.7 miles of 4-lane limited access expressway, and 1.2 miles of local road with a multi-use trail. Awarded: 2002 ESWP Awards Distinction for Transportation Category Project of the Year, 2002 ASHE Outstanding Highway Engineering Award, and 2003 Pennsylvania Turnpike Commission Pennsylvania Partnership Award in the Highway Quality Project Recognition Category. Project engineer responsible for hydrology and hydraulics analyses and reports, and preparation of a Conditional Letter of Map Revision (CLOMR) to FEMA, for mainline and Peters Creek Road Ext.
- Bridge Street Bridge, Westmoreland County, Pennsylvania for Glenn Engineering. Bridge and roadway designs to replace a three-span truss structure with a 224'-long, two-span continuous multi-girder bridge with mechanically stabilized earth fill approaches. Project engineer for hydrologic and hydraulic reports.
- Interstate 79, Sections S10 and S11 in Washington County for Pennsylvania Department of Transportation, District 12-0. 4-R interstate highway rehabilitation project for six miles of mainline highway with two full interchanges, 12 structures, three pipe culverts, and approximately one mile of adjacent roadways. Project engineer assisting with the hydraulic and permit submissions for rehabilitation of a dual, 3-span, 360' continuous steel bridge on I-79 spanning Chartiers Creek in Canonsburg.
- Pleasants Power Station, McElroy's Run Disposal Site in Willow Island, Pleasants County, West Virginia for Allegheny Energy. Disposal site design for a 250'-high sludge disposal impoundment at the power station, including an Emergency Action Plan. Project Engineer responsible for developing a reservoir management plan for the 300-acre residual waste impoundment. The plan included design of a siphon discharge system, and modifications to the principal spillway and to the operation of the emergency spillway. Project engineer responsible for emergency action plan technical analyses and inundation studies to satisfy state requirements for a solid waste (wet) disposal facility. Project engineer for landfill expansions, including extension of the reservoir spillway pipe and design of pump station for landfill discharges to the station's treatment plant.
- Keystone Dam, Keystone Generating Station, Penelec. Project engineer assisting in the preparation of the emergency action plan for the Keystone Dam. Responsibilities included overview of field reconnaissance and technical analyses, including DAMBRK.
- Abandoned Mines in Ohio, Pennsylvania, and West Virginia for the Office of Surface Mining. Project Engineer responsible for the design and preparation of construction documents for the mitigation of failing and abandoned mine drainage structures in Pennsylvania, West Virginia, and Ohio.
- Piney Dam Emergency Action Plan, for the Pennsylvania Electric Company. Project engineer for preparation of the technical analyses and inundation mapping for the emergency action plan, under FERC criteria.
- Seneca Project Emergency Action Plan, for the Pennsylvania Electric Company. Project engineer for preparation of the technical analyses and inundation mapping for the emergency action plan, under FERC criteria. Support for the FERC Functional Exercise.
- Mitchell Power Station in Courtney, Pennsylvania for Allegheny Energy Supply Assessment of the effects of future normal pool lowering of the river by more than 3 feet on existing water intake and discharge facilities. Project engineer responsible for preparing an Emergency Action Plan for the 55'-high, 16.7 acre-foot dam at the ash disposal landfill at the Mitchell Power Station.
- Two Lick Creek Reservoir in Homer City, Pennsylvania. Project engineer responsible for preparing the Emergency Action Plan for Two Lick Creek Reservoir, a 90'-high 16,200 acre-foot water supply reservoir for the Homer City Steam Generating Station.
- Gwynns Falls Watershed near Baltimore, Maryland for the U.S. Army Corps of Engineers, Baltimore District. Project engineer responsible for reconnaissance and feasibility level flood protection studies of the watershed. The study included detailed hydrologic simulation of the highly urbanized watershed near Baltimore.
- Little Blue Run Dam on the Ohio River in Beaver County, Pennsylvania for Pennsylvania Power Company. Dam project to modify the outlet works for a 420'-high earth and rockfill embankment dam (the highest non-

federal dam east of the Mississippi River) designed to impound coal combustion residual waste, including revisions to the Emergency Action Plan (EAP). Project engineer responsible for inundation studies were to satisfy state requirements for a solid waste (wet) disposal facility.

- Moorefield Community on the Potomac River in Moorefield, West Virginia for the U.S. Army Corps of Engineers, Baltimore District. Reconnaissance studies at the confluence of the South Branch and the South Fork of the South Branch of the Potomac River for a community that incurred $23M in damages in a 400-year flood. Project engineer responsible for reconnaissance and feasibility level flood protection studies including field reconnaissance, survey, two-river system HEC 2 modeling, interior drainage, cost estimates, and reports. Development of an economically feasible and implementable flood protection plan.
- Petersburg Community on the South Branch of the Potomac River in Grant County, Petersburg, West Virginia for the U.S. Army Corps of Engineers, Baltimore District. Reconnaissance study project requiring engineering analysis for flood protection for local community that incurred $18M in damages in a 400-year flood event.
- Project engineer responsible for the re-evaluation study for Ottawa, OH, including hydraulic analyses and report preparation. Recommended a flood control project consisting of a combination of structural and non structural measures for the U.S. Army Corps of Engineers, Buffalo District.
- Project engineer responsible for preparing a detailed project report for Hyndman, Pennsylvania, including hydrologic analyses, field survey, flood damage analysis, and report preparation for the U.S. Army Corps of Engineers, Baltimore District.
- Upper St. Johns River Basin for the U.S. Army Corps of Engineers, Jacksonville District. Project engineer responsible for preparing plans and specifications for the construction of 11 miles of levee and a drainage structure in central Florida as part of the Central and Southern Florida project.
- Lake Lynn Dam in Monongalia County, West Virginia for Allegheny Power Service Corporation. Dam analysis project to perform downstream routing procedures using HEC-1 and DAMBRK models. Project engineer responsible for hydrologic and hydraulic analyses and inundation studies performed as part of the FERC safety evaluations. Preparation of technical analyses and inundation mapping for the emergency action plan. Calibration of hydrologic and hydraulic analyses based on the November 1985 flood. Preparation of updates to the inundation mapping caused by modifications to lock and dam installations on the Monongahela River.
- Project manager responsible for preparing the Drought Management Plan for the water supply reservoir of a 1700-MW electric generating station for the Pennsylvania Electric Company.
- Colver Dam in Cambria County, Pennsylvania for Inter-Power/AhlCon Partners, LP and Cambria Township Water Authority. Hydrologic investigations to modify and design a 53'-high embankment dam for a municipal water supply and cooling water for a cogeneration power plant. Technical and economic issues indicated replacement would be more effective than enlarging and rehabilitating the existing structure. Project engineer assisting with water yield analyses and hydrologic and hydraulic designs for proposed water supply reservoir to serve municipal and industrial water supplies for the Cambria Township Water Authority.
- Pennsylvania Game Commission. Project engineer for providing design analyses for rehabilitation of several Commission dams.

Water Quality

- Fishing Creek Restoration and Maude Mine Reclamation Project, for the South Fayette Conservation Group and PaDEP Bureau of Abandoned Mine Reclamation. Project engineer for design and preparation of construction documents for the reclamation of a mining site. The site included several highwalls, a stream channel that discharged to an open mine portal, and abandoned coal processing structures. Restoration included diversion and restoration of stream channels, mine portal sealing, highwall elimination, and general site cleanup, drainage improvements, and restoration. The project was awarded the 2008 Appalachian Region AMR award.
- Webster Mine Ecosystem in Nanty Glo for U.S. Army Corps of Engineers, Pittsburgh District. Ecosystem restoration project to treat acid mine discharge from the mine to improve overall water quality in the Blacklick Creek drainage basin. Project engineer for final design and preparation of construction documents.
- Project Engineer for Allegheny Energy Supply for the CORMIX modeling and subsequent design of a multi-port outfall to the Ohio River for effluent flows from a residual waste impoundment. Activities included preparing the report for submission to the regulatory agency for approvals.
- Summerset at Frick Park Residential Development at Nine Mile Run in Pittsburgh, Pennsylvania for the Urban Redevelopment Authority of Pittsburgh. Residential development project for a 238-acre brownfield site

located on an abandoned riverside slag dump bordering the main access highway to Pittsburgh's eastern suburbs. Awarded: the 2002 ESWP Award of Distinction in the Environmental Reclamation Category; 2003 Governor's Award for Environmental Excellence in the Land Use Category; and 2003 PA ACED Diamond Award for Engineering Excellence. Project Engineer responsible for preparing the NPDES permits for industrial discharges. Activities included design and preparation of construction documents for a system to eliminate pre-existing pipe and seep discharges by collecting and conveying the flows to public sewers.

- Westmoreland Business and Research Park in Upper Burrell and Washington Townships, Westmoreland County, Pennsylvania for the Westmoreland County Industrial Development Corporation. Project engineer responsible for conducting water quality analyses to assess Water Effects Ratio for Copper associated with operation of the sewage treatment plant.
- Hercules Chemical, Jefferson Heights, Pennsylvania. Project engineer responsible for preparation of the NPDES for Industrial Discharges permit application at the chemical plant.
- Project engineer responsible for preparing the Engineer Design Report for the stormwater and wastewater treatment system of an electric power generation plant in Pennsylvania, owned by Duquesne Light Company, as part of the NPDES permit.
- Electric Power Generation Plant in South Carolina for Carolina Power & Light Company. Project engineer responsible for preparing the Best Management Practices Plan and the Stormwater Pollution Prevention Plan for the electric power generation plant, as part of the NPDES permit.
- Keystone Generating Station in Pennsylvania for Pennsylvania Electric Company. Project engineer responsible for implementing a water quality assurance program at the Station including analyzing thermal discharges from plant to receiving stream, and evaluating existing monitoring systems and procedures.
- Fly Ash and Coal Refuse Disposal Facilities for the Pennsylvania Electric Company. Project engineer assisting with the preparation of a groundwater manual for the planning, implementation, and operation of groundwater sampling and monitoring activities at several facilities.

Water Resources Planning

- Westmoreland Heritage Trail, Westmoreland County Department of Parks and Recreation. Design and preparation of construction documents for an 8.2-mile segment of the Westmoreland Heritage Trail in Loyalhanna and Salem Townships. Phase 1 completed and constructed in 2008-2009. Phase 2 scheduled for completion in 2010-2011. Work completed in accordance with PennDOT guidelines.
- Extension to the Five Star Trail, Westmoreland County Department of Parks and Recreation. Design of an 11 mile extension of a rail-trail along an active rail line, from Youngwood to Scottdale.
- South Hills Flood Area in Allegheny County, Pittsburgh, Pennsylvania for the South Hills Area Council of Governments (SHACOG). GIS-assisted flood hazard study project to develop a flood mitigation plan for the 75-sq.-mile project area south of Pittsburgh subject to recurring flooding. Task leader responsible for developing a Flood Mitigation Plan for the South Hills Council of Governments, a 15-municipality council of government. Tasks included specific responsibilities for identifying and compiling flood mitigation measures and developing a procedure for their application and evaluation to specific flood-prone areas.
- Cambria County Rails to Trails in Cambria County, Pennsylvania for Cambria County Conservation and Recreation Authority. Rails to Trails project. Project Engineer responsible for design and preparation of construction documents for the nine-mile Corman Extension of the Ghost Town Trail, and the 20-mile Cambria and Indiana (CandI) rails-to-trails, in Cambria County. The work was performed in accordance with Pennsylvania Department of Transportation specifications.
- Johnston Urban Greenway in Johnstown, Pennsylvania for the U.S. Army Corps of Engineers, Pittsburgh District. Project engineer responsible for preparing the Master Plan for a multi-use trail through Johnstown. The master plan was prepared for as part of the Conemaugh River Scenic Corridor Project.
- Monongahela Riverfront Development Sites in Marion and Monongalia Counties, West Virginia for the U.S. Army Corps of Engineers, Pittsburgh District. Comprehensive studies for potential development along 37 miles of the Monongahela River (700+ sites) from Fairmont, West Virginia to the West Virginia/Pennsylvania state line.
- Vermilion River Watershed in Vermilion, Ohio for the U.S. Army Corps of Engineers, Buffalo District. Reconnaissance study project to determine the location, extent, and severity of flooding in the river basin due to free flow and ice jams. Project engineer responsible for a reconnaissance level water resources study of

the Vermilion River basin. The study included field survey, and hydrologic, hydraulic, and flood damage analyses; and report and public meeting preparation.

- Project engineer for navigability and headwater determination studies for six river basins, including field survey, hydrologic analyses, and reports for the U.S. Army Corps of Engineers, Jacksonville District.
- Lower Kanawha River Basin in West Virginia for the U.S. Army Corps of Engineers, Huntington District. Project engineer responsible for water supply survey investigations in the lower Kanawha River Basin. Identified and characterized potential water supply reservoir sites, including development of low flow frequency duration relationships and economic relationships for further evaluation of the sites.
- Monongahela and Ohio Rivers in Southwestern Pennsylvania for the U.S. Army Corps of Engineers, Pittsburgh District. Project engineer responsible for assessing the hydroelectric generation potential of nine navigation locks on the Monongahela, Allegheny, and Ohio Rivers.

Solid, Residual, Hazardous, and Coal Waste

- Kempton Mine in Western Maryland for Mettiki Coal Corporation. Mine drainage study to determine the feasibility of eliminating acid mine drainage (AMD) flowing from an abandoned mine into the headwaters of the Potomac River by siphoning water from the pool into an adjacent active underground mine. Project engineer assisting with ditch redesign and the refuse area.
- Cheswick Power Station in Springdale, Pennsylvania for Duquesne Light Co. System design project to redesign a wastewater treatment system.
- Project Engineer responsible for the remediation cleanup and monitoring at an uncontrolled dump site containing lead and PCBs.
- Project engineer responsible for design of and/or permit preparation for solid waste, residual waste, and coal refuse areas in Pennsylvania and West Virginia.

  Kitt Energy Corporation

  BethEnergy Mines, Inc.

  Consolidation Coal Company

  Duquesne Light Company

  Pennsylvania Electric Company

  Allegheny Power Service Corporation

Kevin M. Bortz, P.E.

Senior Staff Engineer

Education

B.S. Civil Engineering 1987, University of Pittsburgh
M.S. Civil Engineering 1989, University of Pittsburgh

Registrations/Certifications

Professional Engineer, PA 1995, No. PE048726E
Certified Open Water Scuba Diver, PADI

Relevant Training/Courses

Countermeasure Design for Bridge Scour and Stream Instability Training Course, National Highway Institute
4-week training course on Natural Stream Restoration, West Virginia University/WV Dept of Transportation
HEC-RAS Continuing Education Training

Summary

Mr. Bortz specializes in hydrology and hydraulics, natural stream restoration, erosion and sedimentation control, and stormwater management, as well as general civil engineering and surveying. He provides hydrologic and hydraulic design and analysis for natural stream restorations, culverts, channels, ponds, dams, stream encroachments, and impoundments in Pennsylvania, West Virginia, Maryland, Ohio, and Virginia. Mr. Bortz prepares State of Pennsylvania and U.S. Army Corps of Engineers joint permit applications, including dam, culvert, and general permits, and develops Erosion and Sedimentation (E&S) Control Plans for construction activities in Pennsylvania, Maryland, and West Virginia.

Mr. Bortz has extensive experience with hydrologic/hydraulic computer models including: HEC-RAS, HEC-HMS, Storm CAD, DAMBRK, PSRM, SCS TR-20, SCS TR-55, HEC-1, HEC-2, CYBERNET, and WSPRO.

Professional Experience

Stream Restoration

- Cove Point Expansion Project for Dominion Transmission, Inc. to increase natural gas storage and transmission capacity. Environmental services for 150+ miles of natural gas pipeline through Maryland, West Virginia, Pennsylvania, and New York at the LNG Terminal in Cove Point, Maryland. Project engineer responsible for stream restoration design and construction package preparation.
- Hardy Storage Facility and Virginia Looping in Hardy and Hampshire Counties, West Virginia and Shenandoah, Rockingham, Page, Green, and Louisa Counties, Virginia for Columbia Gas Transmission Corp. Environmental studies and permitting project to meet Federal Energy Regulatory Commission (FERC) requirements for 62 miles of natural gas pipelines, one new compressor station, and construction or enhancement of 18 storage wells. Project engineer for a stream relocation project, designed, permitted and built using natural stream design techniques.
- Interstate 99 in Blair and Centre Counties for the Pennsylvania Department of Transportation, Bureau of Planning and Research and Engineering District 2-0. Research project, teamed with the University of Pittsburgh to, among other tasks, study the impacts of highway construction and evaluate the post-construction stability of natural stream restoration sites along a 10-mile study corridor of the interstate, including a Web Page for public and project team use. Project engineer responsible for planning, implementing, and evaluating the restoration monitoring.
- S.R. 0048, Sections A11 and A16, Mosside Boulevard, in Allegheny County for the Pennsylvania Department of Transportation, District 11-0. Bridge and roadway design project to replace two bridges and approach roadway over Turtle Creek, Norfolk Southern Railroad, and a local service road. Engineer responsible for a successful stream restoration permit approval, and for designs to relocate 1,000 feet of natural stream channel.

- Keystone Power Station, West Valley Disposal Site in Pennsylvania for Genco/GPU Generation, Inc. Coal ash/mine refuse disposal facility expansion project requiring wetland replacement and stream restoration design, and environmental site selection and permitting mitigation for 1,900+ feet of stream and associated habitat enhancement design and 3 acres of replacement wetlands design. Project engineer responsible for stream modeling using HEC-2 to assess the effects of streambank rehabilitation and wetland construction.

Hydrology and Hydraulics

- Leetown Science Center, United States Geological Survey in Jefferson County, West Virginia. Project Engineer responsible for the conceptual design and cost estimate of a low-level impoundment to improve hydraulic conditions at a fishery research facility. The impoundment was to be used as a replacement for beaver impoundments that had improved ground water supplies at the facility.
- Fort Martin Power Station and CCB Landfill in Monongalia County, West Virginia for Allegheny Energy. Task Manager for the design, permitting, and construction package preparation of a settling pond and associated stormwater runoff collection system for the site Haul Road
- Curley Hollow in Wise County, Virginia for Dominion Virginia Power. Design and permitting of a coal combustion byproducts (CCB) landfill. Project Engineer responsible for design and permit application process for two dams to be used at the facility.
- Culvert Extension in Westmoreland County for the Pennsylvania Department of Transportation. GAI provided preliminary and final design for reconstruction of 1.5 miles of Interstate 70, including realignment of Smithton Interchange (Section A01). Project Engineer responsible for submission of a Hydrologic and Hydraulics report.
- SR 0119 Bridge over Big Run Creek Replacement in Indiana, Pennsylvania for the Pennsylvania Department of Transportation. Preliminary engineering for bridge replacement. Project Engineer responsible for submission of a Hydrologic and Hydraulics report.
- Sedwick Mills SR 0038 Bridge Replacement over Scrubgrass Creek in Butler Pennsylvania for the Pennsylvania Department of Transportation. Project Engineer responsible for submission of a Hydrologic and Hydraulics report.
- Coal-Fired Project in Southwest Virginia for Dominion Virginia Power to design and permit a Coal Combustion Byproduct (CCB) landfill. Project engineer responsible for Hydrologic & Hydraulic (H&H) design and analysis for a Virginia Solid Waste Part B Permit application.
- Bradford City Water Authority Dam Evaluations in Bradford, Pennsylvania for Bankson Engineers. Geotechnical engineering services to evaluate the stability of Dam Nos. 2, 3 and 5, ranging in size from 44-feet to 68-feet high, in accordance with the Pennsylvania Division of Dam Safety standards. The project includes developing rehabilitation measures for Dam No. 3. Project engineer responsible for obtaining the necessary permits for maintenance dredging at Bradford Dam No. 3.
- Mine Water Use Study in the Susquehanna River Basin for the Pennsylvania Department of Environmental Protection to study mine water use in the Susquehanna River Basin. Responsible for installing and monitoring a continuous flow metering system and determining base flow discharge from the mine, average discharge from the mine, and available water volume to use for supplemental flow. The final report was titled Susquehanna River Basin Low Flow Mine Storage and Treatment Project Evaluation.
- Saw Mill Run in Pittsburgh, Pennsylvania for the City of Pittsburgh, Department of Planning. Flood mitigation project to review, analyze, assess and summarize hydrologic conditions and associated flooding along Saw Mill Run. Project engineer responsible for documenting previous flood studies, summarizing the state of the practice in flood mitigation and prevention, providing recommendations for the City of Pittsburgh, and producing a comprehensive study report.
- Romney Bridge Replacement in Romney, West Virginia. Project engineer responsible for hydraulic evaluation of numerous alternative alignments and preparation of final bridge hydraulics report.
- Harrison Power Station CCB Landfill Site in Shinnston, West Virginia for Allegheny Energy. Coal Combustion Byproduct (CCB) landfill site project requiring assistance in complying with West Virginia Department of Environmental Protection regulations, including a comprehensive study of site development alternatives, dam and haul road design, reservoir expansion, mine subsidence investigation and remedial design, and construction monitoring. Project engineer responsible for complete hydrologic and hydraulic design, analysis, and report preparation as part of a successful dam permit application process.

- Brookville Water Works Dam in Jefferson County, Pennsylvania for the Brookville Municipal Authority. Dam rehabilitation project to repair damages incurred by flood-induced overtopping of the dam, including environmental permitting, breach analyses, flood wave propagation, inundation mapping, and an emergency action plan. Project engineer responsible for hydrologic and hydraulic analyses, preparing inundation mapping, and successful completion of a dam permit application.
- Piney Dam in Clarion County, Pennsylvania for the Pennsylvania Electric Company. Structural investigation project for a hydroelectric project requiring dam-break analysis and inundation mapping using the National Weather Service's DAMBRK computer model.
- Colver Power Plant in Colver, Pennsylvania for Inter-Power/AhlCon Partners, LP. Project engineer responsible for hydraulic layout and design of the reservoir intake tower and water distribution system, and hydraulic analysis and modeling of the reservoir for successful application for a water allocation permit. Flows simulation was accomplished using extensive historical records and reservoir operation modeling including inflows, conservation releases, consumptive uses, and losses such as seepage and evaporation. Allowable reservoir yield was also determined.
- Mon/Fayette Expressway, Section 52J, in South Park Township and Jefferson Borough, in Washington and Allegheny Counties for the Pennsylvania Turnpike Commission. Highway and roadway design project for 1.7 miles of 4-lane limited access expressway, and 1.2 miles of local road (Peters Creek Road extension) with a multi-use trail. This project was awarded the following: 2002 ESWP Awards Distinction, Transportation Category Project of the Year; 2002 ASHE Outstanding Highway Engineering Award; 2003 PTC Pennsylvania Partnership for Highway Quality in the Project Recognition Award Category. Engineer assisting with hydrologic and hydraulic report preparation, including FEMA map revisions.
- Keystone Power Station Reservoir in Pennsylvania for Pennsylvania Electric Company. Drought management plan modeling. Engineer assisting with reservoir operations simulation and drought management plan modeling and preparation, including variable conservation releases.
- Little Blue Run Dam on the Ohio River in Beaver County, Pennsylvania for Pennsylvania Power Company. Dam project to modify the outlet works for a 420'-high earth and rockfill embankment dam (the highest non-federal dam east of the Mississippi River) designed to impound coal combustion residual waste. Project engineer responsible for complete design and construction package preparation for secondary service spillway installation at the existing dam and modifications to the discharge lines and emergency spillway. Also responsible for inundation studies associated with failure of the Saddle Dam Embankment located along the perimeter of the Little Blue Run Dam reservoir.
- Flood Stage Reduction Project to alleviate flooding along Pine Creek for the Allegheny County Department of Economic Development, in the Borough of Etna. Project Engineer responsible for hydraulic modeling, assessment of inundated areas, flood damage estimates, cost estimates for construction of flood alleviation projects, and preparation of cost-benefit ratios.
- Bridges in Florida for the Florida Department of Transportation. Project engineer preparing hydraulic reports for bridge projects in Florida, including modeling using WSPRO.

Stormwater Management

- Pennsylvania Turnpike Newville Maintenance Facility for the Pennsylvania Turnpike Commission. Drainage improvements project consisting of modifying surface drainage features around the maintenance facility underground storage tank area as part of a 2004 Storage Tank Program project for the Commission, GAI's most recent in a series of open-end contracts for Turnpike environmental services. Project engineer responsible for construction package and permit application preparation.
- Allegheny County Watersheds in Allegheny County, Pennsylvania for the Allegheny County Department of Economic Development. Stormwater management plans review for Act 167 and Non-Act 167 watershed compliance. Project engineer responsible for reviewing proposed stormwater management plans.

Water and Waste Water Systems

- Harrison Power Station Wastewater Treatment Plant in Haywood and Shinnston, West Virginia for Allegheny Energy Supply. Wastewater treatment plant conceptual design project to evaluate a wastewater collection system and recommend a treatment process. Project engineer responsible for preparing conceptual cost estimates.

- Water Distribution System in West Virginia for Short Line Public Service District. Water distribution system upgrade project for additions to an existing water distribution system. Project engineer responsible for design and analysis using CYBERNET. The model was calibrated to the existing system and the new system was added, producing capabilities for serving a total of 1,000 customers.
- Chemical Plant in Charleston, West Virginia for Rhone Poulenc Ag, Inc. Sewer flow modeling project. Project engineer responsible for processing sewer flow models of various return intervals for a large chemical plant using PSRM.

Erosion and Sedimentation Control

- Penn Crossing Commercial Development in Harrison City, Westmoreland County, Pennsylvania for Lorasen Holdings, Inc. Site development project for a commercial and residential development including 5+ acres of new and mitigated wetlands, and relocating the existing Erosion and Sedimentation (E&S) control and stormwater detention pond. Engineer responsible for E&S control layout, design, and permitting.
- Harrison Power Station Rock Fill in Harrison County, West Virginia. Project engineer responsible for preparing an Erosion and Sedimentation (E&S) Control Plan for an engineered rock fill.
- Armstrong Power Station Landfill in Armstrong County, West Virginia. Project engineer responsible for preparing Erosion and Sedimentation (E&S) control plans and Hydrologic and Hydraulics (H&H) analyses necessary for solid waste disposal permitting.

Mine Fires and Abandoned Mine Lands

- Jharia Mine Fire in Dhanbad, State of Bihar, India Bharat Coking Coal Limited. Mine fire study project to develop an extinguishment plan for the world's largest complex of above-ground and underground mine fires, including database development, and remedial measures development and prioritization. Project engineer responsible for quantity estimates for cost-benefit analyses.
- Pennsylvania Abandoned Mine Lands in Southwestern Pennsylvania for Duquesne Light Company. Siting and design project for beneficial use fills using Coal Combustion By-products (CCBs) at abandoned mine lands (AMLs). Engineer responsible for tabulating potential sites and providing cost estimates of site development, including escalation and present worth analyses.

Publications

2003 Spaeder, D.J. and Bortz, K. M. Streambank Restoration/Stabilization and Natural Channel Design presented at the Washington County Watershed Alliance meeting, Washington, Pennsylvania, January 15, 2003.