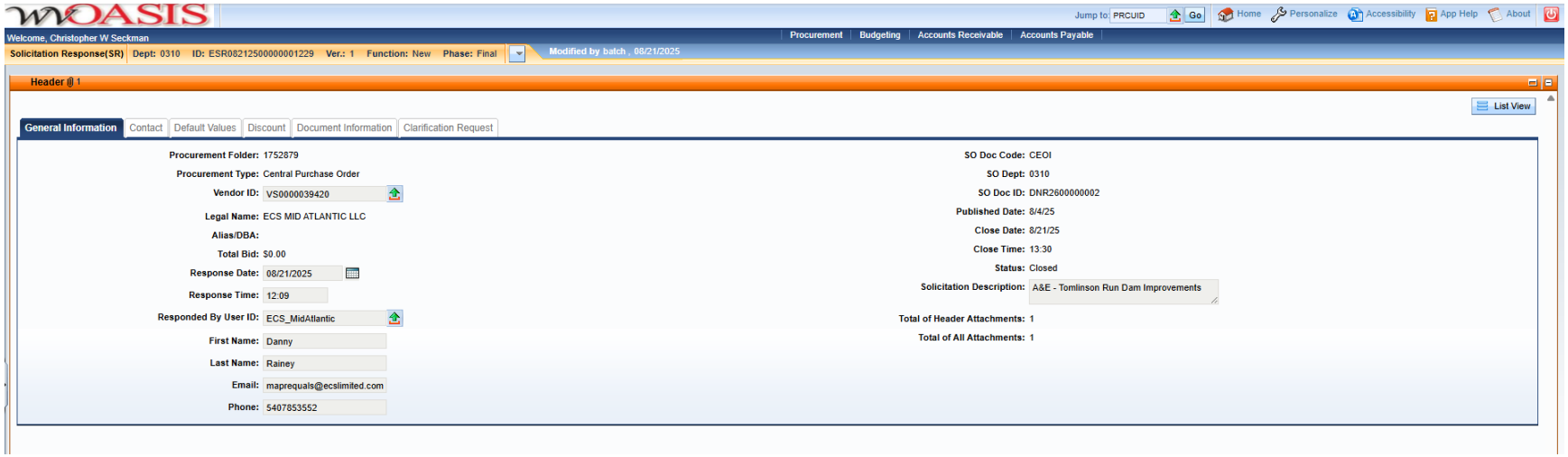
The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.


wvOASIS
Jump to PRCUID Go
Home
Personalize
Accessibility
App Help
About
Welcome, Christopher W Seckman
Procurement | Budgeting | Accounts Receivable | Accounts Payable
Solicitation Response(SR) Dept: 0310 ID: ESR08212500000001229 Ver.: 1 Function: New Phase: Final
Modified by batch , 08/21/2025
Header 1
List View
General Information
Contact
Default Values
Discount
Document Information
Clarification Request
Procurement Folder: 1752879
Procurement Type: Central Purchase Order
Vendor ID: VS0000039420
Legal Name: ECS MID ATLANTIC LLC
Alias/DBA:
Total Bid: $0.00
Response Date: 08/21/2025
Response Time: 12:09
Responded By User ID: ECS_MidAtlantic
First Name: Danny
Last Name: Rainey
Email: maprequals@ecslimited.com
Phone: 5407853552
SO Doc Code: CEOI
SO Dept: 0310
SO Doc ID: DNR2600000002
Published Date: 8/4/25
Close Date: 8/21/25
Close Time: 13:30
Status: Closed
Solicitation Description: A&E - Tomlinson Run Dam Improvements
Total of Header Attachments: 1
Total of All Attachments: 1

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

State of West Virginia
Solicitation Response

Proc Folder:	1752879
Solicitation Description:	A&E - Tomlinson Run Dam Improvements
Proc Type:	Central Purchase Order

Solicitation Closes	Solicitation Response	Version
2025-08-21 13:30	SR 0310 ESR08212500000001229	1

VENDOR

VS0000039420
ECS MID ATLANTIC LLC

Solicitation Number: CEOI 0310 DNR2600000002

Total Bid: 0 **Response Date:** 2025-08-21 **Response Time:** 12:09:22

Comments: No estimate for fees were requested at this time.

FOR INFORMATION CONTACT THE BUYER
Joseph (Josh) E Hager III
(304) 558-2306
joseph.e.hageriii@wv.gov

Vendor
Signature X **FEIN#** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Professional engineering services				0.00

Comm Code	Manufacturer	Specification	Model #
81100000			

Commodity Line Comments: No estimated was requested at this stage.

Extended Description:

Design and contract administration services of dam improvements at Tomlinson Run State Park.

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

State of West Virginia
Centralized Expression of Interest
Architect/Engr

Proc Folder: 1752879 **Doc Description:** A&E - Tomlinson Run Dam Improvements **Proc Type:** Central Purchase Order			**Reason for Modification:**
Date Issued	**Solicitation Closes**	**Solicitation No**	**Version**
2025-08-04	2025-08-21 13:30	CEOI 0310 DNR2600000002	1

BID RECEIVING LOCATION

BID CLERK
DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
2019 WASHINGTON ST E
CHARLESTON WV 25305
US

VENDOR

Vendor Customer Code:

Vendor Name : ECS Mid-Atlantic, LLC

Address : 100 East Kensinger Drive, Suite 300

Street :

City : Cranberry Township

State : PA **Country :** USA **Zip :** 16066

Principal Contact : Vince Humenay, CERP / Environmental Principal

Vendor Contact Phone: 412.206.1470 (o) / 804.591.4048 (c) **Extension:**

FOR INFORMATION CONTACT THE BUYER
Joseph (Josh) E Hager III
(304) 558-2306
joseph.e.hageriii@wv.gov

Vendor Signature X  **FEIN#** 201067637 **DATE** 8/21/25

All offers subject to all terms and conditions contained in this solicitation

ECS COVER LETTER

ECS Mid-Atlantic, LLC
100 East Kensinger Dr. Suite 300
Cranberry Township, PA 16066
412.206.1470
ecslimited.com

August 21, 2025

Joseph (Josh) E Hager III
West Virginia Division of Natural Resources Department of Administration
Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

RE: Expression of Interest West Virginia DNR Wildlife Section, Tomlinson Run State Park Dam Improvements, Hancock County, WV, Solicitation No. CEOI 0310 DNR2600000002

Dear Mr. Hager,

ECS Mid-Atlantic, LLC (ECS) is pleased to submit our Expression of Interest to provide engineering and architectural services for the Tomlinson Run Dam Improvements project. An industry leader since 1988, ECS delivers comprehensive consulting services across environmental, geotechnical, construction and facilities engineering with a national reputation for innovative, compliant and high-quality project delivery.

Our multidisciplinary team brings extensive expertise in dam safety, rehabilitation and compliance projects for public clients, including state and local parks, water resources and public infrastructure. We have a proven track record of managing complex dam improvement projects from feasibility through contract administration, with core strengths in regulatory navigation, technical design, quality construction oversight and stakeholder communications. ECS professionals are skilled in the aspects of dam assessment and remediation, dredging plan design, permitting and construction management making sure every project meets rigorous safety and compliance standards as required by Dam Safety regulations.

ECS is fully committed to supporting the West Virginia Division of Natural Resources in achieving the project's objectives: bringing Tomlinson Run State Park dam into compliance, minimizing disruption to park operations and delivering results within budget and schedule. Our solution-oriented approach, familiarity with park and natural resource values and robust contract administration confirm reliable quality, safety and transparency throughout the project lifecycle.

We understand the critical importance of qualifications, past performance and anticipated concepts of approach and we are ready to deliver the specialized expertise your project requires along with our two teaming partners Aterra Solutions and H.F. Lenz Company. Thank you for considering ECS for this important initiative. We look forward to the opportunity to serve the West Virginia Division of Natural Resources and the visitors of Tomlinson Run State Park.

Respectfully Submitted,

ECS Mid-Atlantic, LLC

Vince Humenay, CERP
Environmental Principal
804.353.6333 (office) | 804.591.4048 (cell)
ameurer@ecslimited.com

1

Background

ABOUT OUR COMPANY

LOCAL: ECS Mid-Atlantic, LLC is a premier provider of geotechnical engineering, construction materials testing, environmental consulting and facilities engineering services across West Virginia, Maryland, Pennsylvania, New Jersey, Delaware and Virginia. With more than 800 employees and over 35 years of experience, ECS is equipped to help clients through the entire project cycle for both the private and public sectors. The office serving this contract will be our Chantilly, VA location.

COMPANY: Founded in Chantilly, VA, ECS Mid-Atlantic, LLC is one of the operating entities of the ECS Group of Companies. ECS operates in 100 locations with 2,800 employees throughout Eastern, Southeastern and Midwestern states. Utilizing the strengths, experience and expertise of staff across the company, ECS is able to save our clients time and money.

25+
locations

35+
years' experience

800+
employees

ECS CORE SERVICES

- Geotechnical
- Construction Materials
- Environmental
- Facilities

OUR VALUE

ECS embodies its philosophy of "Setting the Standard for Service" by using technology and experience to assist clients in the development of cost-effective, practical solutions. For over three decades, our engineering consulting services have helped our clients meet project requirements.

SAFETY PROGRAM

The ECS Safety Program is built on care and concern for our people. Genuine care and concern is the cornerstone of all we do in the name of safety at ECS. Our goal is to implement practical solutions to continually improve our safety processes and demonstrate our commitment to a safe work environment. Processes including near miss reporting, safety observations and employee engagement + feedback sessions have all been created with the goal of sending our people home safely every day.

RELEVANT LICENSES AND CERTIFICATIONS

ECS maintains firm registrations and professional licensure required to perform environmental and engineering services in compliance with state and local regulations. Our teams include licensed Professional Engineers, Registered Architects, Professional Geologists and other certified specialists relevant to dam safety and infrastructure projects. Our personnel managing and overseeing project work hold certifications commensurate with their roles and our technician workforce maintains credentials through a robust in-house training program, external agency certifications (including ACI, NICET, ICC, AWS) and regular continuing education. Our quality management program verifies that field and laboratory operations meet industry and agency requirements; our laboratories are accredited by leading agencies such as AASHTO, CCRL and AMRL and individual personnel qualifications are maintained in accordance with project specifications and regulatory codes. As required for dam and environmental compliance, ECS demonstrates experience with permitting protocols, safety standards (including OSHA and dam safety laws) and is in good standing with many state and local boards. For projects in West Virginia, relevant business registrations, Workers Compensation and insurance requirements are current and compliant with West Virginia statutes, including compliance with West Virginia Code Â§5A-3-62 and Â§5A-3-63 provisions.

2

Project and Goals

EXISTING CONDITIONS EVALUATION

OBTAIN & REVIEW EXISTING DATA AND SITE VISIT

The first step is to review available project data, conduct a visual assessment of the dam to evaluate the condition and historic performance, and develop an appropriate investigation plan. Further evaluations typically require a topographic survey, geotechnical (subsurface) investigation, geologic investigation, geophysical surveys, wetlands delineations, soil and sediment testing, and testing of concrete or other materials. These requirements depend on the condition of the structure. Our Team includes experienced dam engineers who have reviewed existing data and performed dam inspections throughout the country, including WV. Our dam assessment/inspection experience includes dams owned, operated, and maintained by WV municipal authorities and the WV Conservation Agency, most originally constructed by the NRCS. The dam assessment experience in the region also includes hydropower dams regulated by FERC and USACE dams. We also have in-house capability to operate a drone by an FAA Certified UAS pilot, which has been used to assist in performing dam inspections and assessments.

PREPARE PLAN OF WORK

Early in any design project, a detailed work plan is developed to describe the scope and intensity of investigations needed to support the design. This includes reviewing available technical documents and reports from previous work performed on the site. The primary goal of the work plan is to identify what additional work, beyond previous studies and reports, needs to be completed, set schedules to complete the required work, and develop cost estimates for the work.

FIELD SURVEYS AND MAPPING

For a dam rehabilitation project, detailed field survey data of the dam site, auxiliary spillway, borrow areas, access road(s), downstream impact areas, and other associated areas are typically required to support the analysis and design effort. We will use the previously collected data, as well as available LiDAR, supplemented by additional topographic and bathymetric surveying needed to support the rehabilitation design. If needed, the Team will also perform a sediment survey to quantify suspended and aerated sediment accumulation rates.

In addition, the Team has in-house capability to use a drone to obtain high resolution imagery, orthomosaics, 3D Models, point cloud, and preliminary topographic contours using 3DR's Site Scan Technology. UAS flights are used to obtain valuable data integrated into inspections, assessments, monitoring activities, and dam and levee rehabilitation design projects.

HYDROLOGY & HYDRAULICS

A hydrologic and hydraulic analysis will be conducted in accordance with WV DEP Dam Safety Standards, as defined in paragraphs 7.1 and 7.2 of W. Va. Code R. § 47-34-7, required to support permit applications for construction and modifications of dams and reservoirs. Key aspects of the analysis include developing watershed parameters (size, land cover, soil, infiltration/ retention losses, time of concentration, etc.), the Probable Maximum Precipitation (PMP) and frequency precipitation (e.g., 50- and 100-year), stage-storage-discharge functions, hydrologic/hydraulic modeling, and an incremental breach analysis.

While WVDEP Dam Safety current standard involves the use of NOAA's Hydrometeorological Report No. 51 (HMR-51) for PMP data, there appears to be movement in WV to revisit HMR-51 PMP values, given the uncertainties related to the effects of the Appalachian terrain and outdated storm data (since 1978, when HMR-51 was published). It's worth noting that Aterra, in partnership with Applied Weather Associates, completed the state-wide PMP study in PA (2019). The PA PMP tool provides site-specific gridded 1-square-kilometer PMP depths for a range of durations and drainage areas and three storm types (general, tropical, and local). Aterra was responsible for the hydrological and hydraulic analysis of world-record-setting 1942 Smethport storm, which governs PMP values for smaller watershed sizes and short duration storms, that led to adjustments to rainfall accumulation, spatial, and temporal patterns of the storm. These adjustments had significant impact on PMP values along and west of the eastern continental divide in PA. The PA PMP study domain

extends into the northern panhandle of WV, including the Tomlinson Dam watershed. According to the USGS StreamStats program, the drainage area upstream of the dam is approximately 21.4 square miles and extends into western PA. In cooperation with WVDEP, we recommend that the PA PMP be compared to HMR-51 PMP values for the governing storm type, area, and duration. Additional discussion regarding the PMP for WV can be found in a 2024 article by the WV Academy of Science, entitled "Evaluation of Probable Maximum Precipitation (PMP) for West Virginia to Predict Current and Future PMP" (https://pwvas.org/index.php/pwvas/article/view/1031). Precipitation for the frequency storms will be obtained from NOAA's Atlas 14.

We propose using the USACE HEC-RAS 2D (version 6.6) model to conduct the hydrologic analysis of the watershed. The current version of HEC-RAS can perform rain-on-grid modeling and 2D dynamic routing to transform runoff to flow hydrographs, more accurately than using lumped unit hydrograph theory. We will consult with WVDEP prior to implementing this relatively new 2D hydrologic modeling techniques. As an alternative, we will use the USACE HEC-HMS computer program and unit hydrograph theory to complete the hydrologic (runoff and transformation) modeling.

HEC-RAS 2D (version 6.6) will also be used to conduct the hydraulic analysis and downstream routing. The domain of the HEC-RAS 2D model will cover the flood pool upstream of the dam and study reach downstream of the dam, and incorporate the hydraulic characteristics of the dam, spillway, and areas downstream of the dam and spillway systems. The terrain to build the model will be derived from a combination of LiDAR and field-run survey and bathymetric data. Downstream bridge and culvert openings will be measured in the field. The ogee spillway section will be modeled directly in HEC-RAS, which incorporates USBR discharge equations and tailwater submergence adjustments.

Since the dam consists of concrete gravity and earthen spillway sections, the dam breach analysis will be conducted for different failure modes to identify the governing failure model for evaluating downstream consequences. For earthen sections, breach hydrographs will be developed using the NRCS WinDAM computer program, which uses physically based methods to develop breaches in earthen embankments and compute breach hydrographs. We have used WinDAM on other WV dam failure studies. WVDEP has indicated their acceptance of the use of the WinDAM model, under the condition that we can demonstrate that the model is conservative. For the concrete spillway section, the breach is typically based on two full monoliths failing (based on field measurements) with a short breach formation time (i.e., 0.1 hour). If significant sediment accumulation has occurred just upstream of the dam, a complete breach of the two concrete monolith sections could leave behind a "wall" of sediment that will limit the initial flow rate from the breach. An initial breach flow will occur at the head above the sediment level then progress more gradually as the sediment headcuts. To introduce realism into the analysis, without being non-conservative, we will evaluate the use of physical-based overtopping (headcut erosion) methods (SITES, WinDAM, etc.) to compute a material loss rate in the sediment material. Some of these methods are embedded directly in the current version (6.6) of the HEC-RAS model.

According to the USACE's National Inventory of Dams (NID), Tomlinson Lake Dam (WV02902) is a "significant" hazard potential dam. WV regulations specify that Class 2 and Class 3 dams should be designed to safely pass the 50% and 25% 6-hour PMP, respectively. The regulations also allow for an incremental reduction of the design storm, subject to approval by the DEP Secretary.

An incremental breach analysis involves a process that identifies the largest flood event that could pose a threat to life, health, property or the environment should coincidental dam failure occur, more than the threat caused by the same flood event with no dam failure. Depending on the outcome of the initial spillway capacity analysis, an incremental analysis may be warranted to identify the spillway design flood. Aterra has recently conducted several incremental breach analyses to refine the design flood in the region.

GEOTECHNICAL FIELD INVESTIGATION, INTERPRETATION, AND EVALUATION

A thorough geotechnical investigation plan is essential to understanding key elements of the dam as they relate to NRCS and state dam safety criteria. The plan is typically developed based upon existing subsurface data collected during the original design and rehabilitation planning phase, as well as our understanding of the project purposes and stakeholder objectives. In developing the plan, consideration is given to the types of soils expected to be encountered to improve

recovery of soil samples. To clearly communicate the investigation plan components and streamline NRCS approval, we typically have our supervisory geotechnical engineer and field personnel meet with NRCS at the dam to review the plan prior to beginning the field investigation. Drilling and sampling are performed by our drilling subconsultant (the Aterra Team has a network of reputable drillers in the region that we have used over the past several years) under the observation of our engineering field geologists and/or geotechnical engineers, who are intimately familiar with NRCS requirements and the nuances of drilling in embankment dams.

Key geotechnical considerations for the field investigation include characterizing/ confirming subsurface conditions within the auxiliary spillway to evaluate erodibility and to support design of the proposed armored spillway. The investigation will also focus on characterizing embankment and foundation conditions to support slope stability, seepage, settlement, filter compatibility analyses and to support evaluation and design of the proposed embankment modifications, as well as to identify potential borrow materials (if needed). The Aterra Team have also successfully employed geophysical techniques (seismic refraction and electric resistivity surveys) to further define and characterize soil and rock properties.

We typically perform laboratory tests to estimate engineering properties of soil and rock for use in slope stability, settlement, and seepage analyses, filter compatibility analyses, excavation slope stability analyses, global stability analyses at structures, headcut erodibility analyses and other related aspects of design. Particular attention will be paid to the gradation, strength characteristics and dispersivity of the materials within the various embankment zones and foundation, and erodibility of the auxiliary spillway. A laboratory testing plan describing the proposed suite of tests for NRCS approval will be prepared. The testing will be performed by our in-house, certified laboratories in accordance with applicable ASTM standards, and the results of the laboratory testing will be presented in our comprehensive geotechnical report.

This item typically includes either preparing a seepage and slope stability analysis, or updating these analyses considering additional data collected during the geologic and geotechnical investigation and an assessment of the existing embankment to evaluate potential permanent horizontal seismic-induced displacements and settlements utilizing a simplified analysis. Our embankment evaluations also include a functional evaluation of the existing internal drainage system.

The Aterra Team will prepare a comprehensive geotechnical report containing a summary of the field investigation and laboratory test methods and results; descriptions of local and regional geology; and boring location plans, boring logs, boring completion records, rock core photographs, and subsurface profiles, along with other geologic and geotechnical data required to support the rehabilitation designs. The report will also summarize the results of our evaluations (slope stability, seepage, settlement, seismic, liquefaction, dispersivity and erodibility) of geotechnical conditions.

STRUCTURAL CONDITIONS, INVESTIGATION, AND EVALUATION

We will develop a structural investigation plan to assess the condition of the concrete gravity dam structure, including previous structural analyses, boring and geologic data, as-built data, piezometer readings along the concrete-rock interface and lift joints to identify the potential for uplift conditions. A structural stability analysis will be conducted for normal, flood, and seismic loading conditions at the concrete-rock interface and lift joints to compute factors of safety for overturning and sliding. The factors related to the presence of anchors and keyways and judgements regarding cohesion and friction angles will be considered. Seismicity of the region will be considered when making judgements regarding cohesion. Lower nappe pressures (which could exacerbate uplift conditions if sub-atmospheric pressures develop along the spillway profile at the design flood) will be estimated using methods described in FERC's Engineering Guidelines, Chapter 3 (Appendix 3A), or through the development of a CFD model. Aterra recently completed two stability analyses, including nappe pressure analyses, on identical dam types (concrete gravity dams with ogee spillways) in WV.

3

Qualifications, Experience and Past Performance

COMPANY QUALIFICATIONS

With over 35 years of experience, ECS possesses deep expertise in the planning, design and implementation of engineering solutions for critical infrastructure, including dam safety improvements, rehabilitation and compliance projects for public and natural resources clients. Our multidisciplinary teams have designed, evaluated and managed improvements for numerous dams and water infrastructure assets, consistently navigating complex regulatory landscapes to achieve compliance with federal and state Dam Safety regulations and secure project approvals. Our project portfolio includes successful completion of dam rehabilitation projects that addressed key safety and regulatory challenges, such as those encountered on the Egleman's Lower Dam and numerous state park facilities. We have demonstrated the ability to deliver comprehensive engineering assessments including geotechnical analysis, hydraulic and hydrologic modeling and construction oversight verifying the safe, code-compliant and cost-effective improvement of natural and constructed assets. The firm's proven ability to collaborate with state Departments of Natural Resources, obtain expeditious regulatory clearances and execute projects within strict budget and schedule constraints uniquely positions us to meet the objectives set forth for the Tomlinson Run State Park Dam Improvements. Our technical capabilities, depth of personnel qualifications and detailed understanding of West Virginia's regulatory environment confirm the delivery of compliant, high-value solutions that align with the mission and operational needs of the West Virginia Division of Natural Resources.

PROJECT UNDERSTANDING

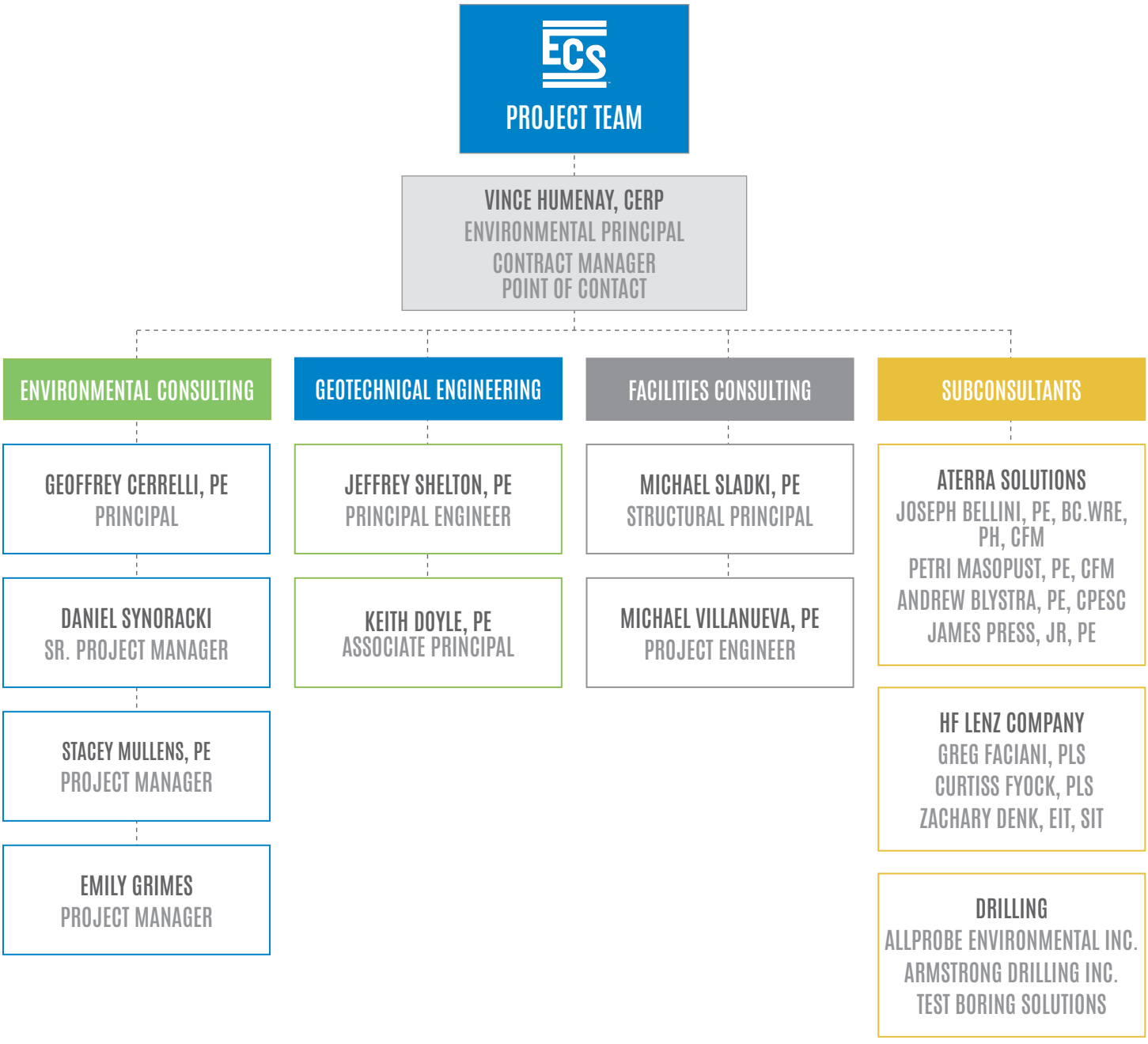
The Tomlinson Run State Park dam improvements project represents a critical investment in public safety, environmental stewardship and operational continuity for the West Virginia Division of Natural Resources (DNR). The existing dam currently does not comply with Dam Safety regulations, presenting both a liability and a risk to public safety. The project's primary objectives include designing comprehensive repairs to the dam structure, developing a sustainable dredging plan and implementing related improvements while securing the necessary regulatory approvals to obtain a Certificate of Approval. This effort extends beyond engineering solutions; it requires an integrated approach that addresses complex permitting, minimizes potential impacts to ongoing park operations, respects budget and schedule constraints and aligns with the DNR's mission and the unique aesthetics of Tomlinson Run State Park. Understanding and efficiently managing these multifaceted requirements is vital to project success.

PROPOSED PROJECT TEAM

The project team proposed for the Tomlinson Run State Park Dam Improvements is composed of highly qualified professionals with extensive experience in dam safety, regulatory compliance and public infrastructure projects. Our team structure is rooted in providing strong project leadership, technical expertise and direct client engagement from project inception through completion. Key personnel include a Principal-in-Charge to provide strategic oversight, a Project Manager responsible for day-to-day management and primary client liaison, senior engineers specializing in dam design and compliance and dedicated field technicians for on-site oversight and testing. This team framework verifies a single point of contact for efficient communication, while offering the resources and flexibility to scale staffing and technical support as project needs evolve.

STAFFING PLAN AND ORGANIZATION CHART

Our staffing plan guarantees the availability of experienced resources throughout the duration of the project. The team is anchored by qualified engineers, technicians and specialists with substantial depth in dam rehabilitation, dredging, permitting and construction contract administration. In addition to the core project staff, we can rapidly draw upon regional and companywide personnel to meet workload demands or accelerate schedules if necessary. The accompanying organization chart outlines our management and control structure, illustrating direct lines of communication and clear reporting relationships for the project phases. The Principal-in-Charge oversees project strategy and quality, while the Project Manager steers project execution, supported by discipline leads for design, permitting and field services, as well as key administrative staff. Our proven approach leverages cross-disciplinary expertise, seamless integration of each area of specialization and continuous collaboration to function as an integrated project team.



VINCENT HUMENAY, CERP

CONTRACT MANAGER
ENVIRONMENTAL PRINCIPAL/POC

PROFESSIONAL CREDENTIALS

PennDOT Environmental Compliance

OSHA: 30 Hour Training

River Morphology and Applications

Bog Turtle Ecology and Habitat

EPA Watershed Management Training

Applied Fluvial Geomorphology

USACE Regulatory IV Wetland Delineation

SKILLS

State/Federal Regulatory Specialist

River morphology/stream restoration

Rosgen stream classification system

Designed/constructed fish habitat

Life cycle and behavior of migratory and resident freshwater fishes

Fish and macroinvertebrates

EDUCATION

M.Env. Pollution Control, 2002, Pollutants in Aquatic Systems/Stream Ecology

BS, 2000, Ecology/Zoology, Juniata College

YEARS OF EXPERIENCE

ECS: 8 Total: 24

PROFESSIONAL PROFILE

Mr. Humenay is a nationally known expert with over 24 years of experience in dam removal, stream restoration and fish passage projects. Mr. Humenay is a state and federal regulatory specialist and has extensive knowledge in fish behavior. Mr. Humenay has been involved in over 300 stream restoration and dam removal projects in the Mid-Atlantic Region. Mr. Humenay has worked with government and non-profit agencies to obtain and administer grant funding on numerous projects across the Mid-Atlantic Region.

PROJECT EXPERIENCE

PA DCNR French Creek State Park, Six Penny Dam Removal and Stream Restoration Project, Berks County, PA – Mr. Humenay served as Senior Project Manager for a dam removal and stream restoration project on this naturally reproducing trout stream. He designed the dam removal and stream restoration plans for a 1940s Civilian Conservation Corps-built historic dam and stone spillway, focusing on preserving the spillway's unique stonework, managing impounded sediment and constructing a stable new 608-foot stream channel with constructed riffles and step pools for fish passage. Plans included earthen dam removal, stone spillway preservation and interpretive wayside sign panel installation to maintain the dam's historical significance. Agency permit application preparation was also part of the project.

Lackawanna County, Dam Rehabilitation #5, Lackawanna County, PA – The project involved comprehensive reconstruction activities including the spillway, repair of rock walls, raising the concrete cutoff wall and installation of a structural pipe liner. This initiative addressed the dam's inability to accommodate the spillway-designed flood, promoting its capability to handle 100% of such events. ECS' expertise in dam engineering and regulatory compliance, combined with their collaborative approach with the Pennsylvania Department of Environmental Protection (PA DEP) and local commissioners positioned them to deliver a robust and compliant rehabilitation plan. With a seasoned team and in partnership with hydraulic and hydrologic analysis expert team, ECS met and surpassed project expectations, promoting the safety and functionality of this essential infrastructure. Mr. Humenay provided Senior Project Management and served as the main contact for the duration of the project.

Egelmans Lower Dam Modifications, Reading, PA – Mr. Humenay served as Senior Project Manager drafting the spillway repair design plans. The purpose of the proposed modification project was to modify the existing dam and impoundment to reduce the hazard class of the dam from a Category 1 High Hazard Dam to a Category 3 Low Hazard Dam through installing an auxiliary spillway and raising the impoundment's bottom elevation to produce a functional reservoir of approximately 4.5 feet deep.

GEOFFREY CERRELLI, PE
HYDRAULIC ENGINEER

PROFESSIONAL CREDENTIALS
Professional Engineer:MD

SKILLS
Dam Rehabilitation

Water Resources Planning

Hydrologic and Hydraulic Analysis

EDUCATION
Bachelor of Science, 1983,
Civil Engineering-Water Resources,
University of Maryland

YEARS OF EXPERIENCE
ECS: 1 Total: 42

PROFESSIONAL PROFILE

Mr. Cerrelli serves as the Environmental Professional for ECS. With 42 years of experience, he has extensive background in various features related to hydrologic and hydraulic analysis including a practical examination of analytical components to verify usefulness and applicability with typical project settings. He authored multiple technical papers and developed new simplified methods to aid in this analysis for various demands in the engineering community. He has experience in various features, phases and alternatives of planning large water resources projects to avert flood damages, save lives and protect natural resource and other resource concerns.

PROJECT EXPERIENCE

Aging Dams, Carlisle, PA – Mr. Cerrelli focused on the hydrologic and hydraulic features related to the safe and proper functioning of the structures in alignment with current safety criteria. A risk analysis was performed on 91 of the PA NRCS high hazard potential dams to verify that they were evaluated in a consistent manner, allowing for the proper ranking of dams with the highest need for rehabilitation.

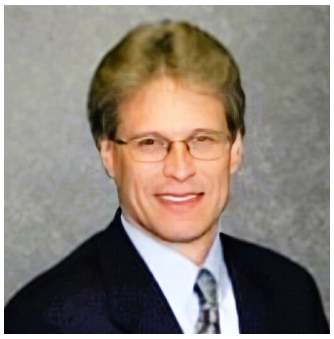
Dam Rehabilitation Assessment, Harrisburg, PA – Mr. Cerrelli performed a dam rehabilitation assessment on eight flood control dams across PA, in an effort to gain a more comprehensive engineer's evaluation of risk with each dam and provide a comparative ranking of which dams to proceed with further analysis.

Brandstville Dam Removal, Brandstville, PA – ECS performed design and permitting for this partially breached dam on Yellow Breeches Creek. Mr. Cerrelli performed H&H analysis to determine if the 100 year flood would pass through the breach section.

Sgobbo Dam Removal, Chestnut Ridge, NY – ECS performed the wetland delineation, sediment sampling and planning, design and permitting of this 13-foot, 300-foot-long structure. Mr. Cerrelli performed H&H analysis of before and after conditions.

Lake Frances Dam, Harrisburg, PA – The subject site is a 73 foot earthen dam that creates the 830 acre reservoir, constructed in 1961 for flood management. Under a design-build contract with the Pennsylvania Department of Conservation and Natural Resources, ECS performed laboratory testing and geotechnical engineering analysis of upgrades to an existing state-regulated dam approximately 25 feet in height. Mr. Cerrelli supported the project as an environmental professional throughout the term of the contract.

77 Engineering Dam Rehabilitation Assessments of agency flood control high hazard potential dams slated for rehabilitation. Initial work entailed the determination of agency Failure Index and Risk Index scores that were then submitted to the National Headquarters of USDA/NRCS to aid in the overall ranking of dams in need of rehabilitation work.



DANIEL SYNORACKI
SENIOR PROJECT MANAGER

PROFESSIONAL CREDENTIALS

Wildland Hydrology: Applied Fluvial Geomorphology - River Morphology & Applications

Watershed Assessment of River Stability & Sediment Supply – Canaan Valley Institute

USFWS: Habitat Evaluation Procedures

WTI: Wetland Delineator Certification

OSHA: 40-Hour HAZWOPER Site Worker Training; Supervisor Training

SKILLS

Stream Restoration Design

Wetland Mitigation Design

Native Plant & Forested Riparian Buffer Planning

Environmental Permitting

Aquatic & Terrestrial Ecology

Watershed Assessment

EDUCATION

BA, 1987, Biology and Environmental Planning, Bloomsburg University

YEARS OF EXPERIENCE

ECS: 3 Total: 38

PROFESSIONAL PROFILE

Mr. Synoracki serves as an Environmental Senior Project Manager with over 38 years of diversified experience in project management, permitting and environmental consulting for governmental and major industrial, energy, utility, construction and non-profit clientele. Daniel has extensive experience in the design and construction oversight of wetland and stream restoration projects and has also completed natural resource inventories for large watershed assessments and river conservation plans.

PROJECT EXPERIENCE

Egelmans Lower Dam Modifications, Reading, PA – Mr. Synoracki served as Senior Project Manager and provided assistance during the dam repair design plans. He also conducted wetlands delineation and prepared the erosion and sediment control plan as well as prepared the dam encroachment permit. The purpose of the proposed modification project was to modify the existing dam and impoundment to reduce the hazard class of the dam from a Category 1 High Hazard Dam to a Category 3 Low Hazard Dam through installing an auxiliary spillway and raising the impoundment's bottom elevation to produce a functional reservoir of approximately 4.5 feet deep.

Miller Stream Restoration, Spring Garden Township, PA – Mr. Synoracki is conducted a wetland and stream delineation, topographic survey and prepared a stream restoration plan and joint permit application and he conducted construction monitoring. This unnamed tributary to Codorus Creek flows through the properties located at 499, 490, and 435 Indian Rock Dam Road. The stream needs restoration and stabilization due to a 109 acres producing significant stormwater runoff.

Ashford Woods Dam, Clarksburg, MD – Project Manager who has been aiding with the design and permitting for the removal of the dam. The property is a 139 acre tract with an existing dam. The owner has decided to remove the dam and restore the impoundment to a stream and wetland complex.

DCNR Dam Repairs, Six Penny Dam Removal – French Creek State Park, Elverson, PA – A 12-foot high and 150-foot-wide stone masonry and earthen structure with a compacted fill core constructed along Six Penny Creek. The dam has a primary stone masonry spillway that is 40 feet wide. The removal of the earthen section of Six Penny Dam will help to restore approximately 600 feet of stream to Six Penny Creek, which is listed as reproducing wild trout waters. While the stone masonry section of the dam will be preserved for historical purposes, the restored channel will include step pools and constructed riffles along a 4% slope to centralize flow, allow fish passage and produce suitable fish habitat. ECS was hired by DCNR to prepare dam removal/ stream restoration design plans and agency permit applications and to perform H&H modeling of the new channel to pass the 100-year storm and construction observations during project construction. Mr. Synoracki designed the stream restoration plans and prepared the dam restoration waiver package for the project.

STACEY MULLENS, PE
STAFF PROJECT MANAGER

PROFESSIONAL CREDENTIALS

Professional Engineer: VA, WV, PA, MD

WACEL: Concrete, Masonry Strength Testing

SKILLS

AutoCAD

Underground mining surveys

Cell Tower Site Plans

Phase I ESAs
Stream Restoration Design

Dam Removal Design

Erosion and Sedimentation Control Design

Construction Management and Oversight

EDUCATION

BS, 2007, Mining Engineering Technology, Bluefield State College

BS, 1995, Civil Engineering Technology, Bluefield State College

YEARS OF EXPERIENCE

ECS: 7 Total: 33

PROFESSIONAL PROFILE

Ms. Mullens is an Environmental Project Manager for ECS Mid-Atlantic, LLC. She holds over 33 years of experience in Phase I Environmental Site Assessments (ESAs), Phase II ESAs, stormwater management, asbestos assessments and other industrial hygiene services. She has project responsibilities that include client contact to identify project requirements and project execution. She has planned, executed and performed asbestos assessments on residential, commercial, municipal and industrial facilities.

PROJECT EXPERIENCE

Camp Peary Boat Dock Replacement Wetland Permitting, Camp Peary, VA – Ms. Mullens served as Staff Task Manager creating the Impact Map and Impact Cross Section for this project. This project proposes to replace an existing recreational boat dock near a military housing neighborhood. The boat dock replacement will include an extension of the existing accessible gangway, along with a boat lift and concrete ramp.

DCNR Dam Repairs - Eastern PA - Various Projects – Ms. Mullens served as the Staff Task Manager assisting with mapping for numerous dam repair and removal projects for multiple State Parks in eastern Pennsylvania.

Fishing Creek Stream Restoration Project, York County, PA – Ms. Mullens served as Task Manager drafting the Stream Restoration design plans. This project proposes to stabilize approximately 325 feet of severely eroded stream bank along Fishing Creek to reduce erosion and improve fish habitat within this stretch of stream. Funding was provided by a grant from the Exelon Habitat Improvement Program.

Egelman's Dam Spillway Repair, Reading, PA – Ms. Mullens served as Task Manager drafting the spillway repair design plans. The purpose of the proposed dam modification project was to modify the existing dam and impoundment to reduce the hazard class of the dam from a Category 1 High Hazard Dam to a Category 3 Low Hazard Dam by installing an auxiliary spillway and raising the impoundment's bottom elevation to produce a functional reservoir of approximately 4.5 feet deep.

Ashford Woods Dam Removal, Clarksburg, MD – ECS aided with the design and permitting for the removal of the dam. The property is a 139 acre tract with an existing dam. The owner has decided to remove the dam and restore the impoundment to a stream and wetland complex. Ms. Mullens served as the Task Manager for the project.

Tamaqua Desilting Basin Dam Removal and Stream/Wetland Restoration, Tamaqua, PA – Designed and managed the removal of the 10-foot-high, 325-foot-long basin to restore natural flow in the Little Schuylkill River and improve fish passage. The project includes restoring 1,650 feet of stream channel and 20 acres of riparian wetlands while coordinating historical and archaeological considerations. Led dam removal design and prepared the permit application for submission to DEP Dam Safety. Ms. Mullens served as the Task Manager for the project.

EMILY GRIMES, PE
PROJECT MANAGER

PROFESSIONAL CREDENTIALS

US Army Corps of Engineers: Wetland Delineation

Certification Erosion and Sediment Control #RPC024130

ROSGEN Stream Restoration Level I

OSHA: 40-Hour HAZWOPER

WACEL: Soils level I

ACI: Concrete level I

Nuclear Gauge Safety

SKILLS

Environmental Site Assessments

Stream and Wetland Delineations

Migratory Bird Evaluations

NEPA

Wetlands Permitting

EDUCATION

BS, Materials Science and Engineering, 2021, Pennsylvania State University

YEARS OF EXPERIENCE

ECS: 4 Total: 4

PROFESSIONAL PROFILE

Ms. Grimes is an Environmental Project Manager for ECS Mid-Atlantic, LLC Environmental Group. Her role includes conducting and managing natural resources studies, wetlands permitting, NEPA and Phase I Environmental Site Assessments throughout the Mid-Atlantic area for the public and private sector. She has performed stream and wetland delineations per national and state regulatory guidance and has utilized various natural resource assessment techniques and methodologies. Ms. Grimes is responsible for writing daily reports on the environmental testing and observation work completed in the field to provide clients, contractors, engineers, architects and code officials a clear audit trail for projects. She also has experience with wetland permitting in Virginia and Maryland. Ms. Grimes is experienced in GPS collection and data manipulation with Trimble products and software. She also has experience with migratory bird evaluations throughout the United States.

PROJECT EXPERIENCE

Project Qualitas, Martinsburg, WV – The site has 180.34 acres and consists of agricultural fields and wooded land. Ms. Grimes managed and conducted a wetland and stream delineation, threatened and endangered species and historic database review.

Cloverly Development, Smithsburg, MD – The site includes approximately 68.07-acres and is being used primarily for agricultural purposes. ECS conducted the wetland, stream and buffer delineation on February 23, 2020. A study was conducted to identify and delineate potentially jurisdictional Waters of the U.S. (WOUS) within the proposed project site.

Hopewell Road, Hagerstown, MD – Emily served as the Environmental Scientist and she conducted a wetland, stream and buffer delineation with the purpose of identifying and delineating potential jurisdictional Waters of the US (WOUS) within the proposed project site. She also assisted with the wetland permitting and planting plan services.

I70 Gateway, Hagerstown, MD – Ms. Grimes served as the environmental scientist who conducted a wetland, stream and buffer delineation of the 118 acres property. The purpose of our study was to identify and delineate potentially jurisdictional WOUS with the proposed project site.

Trammel Community Revitalization, Trammel, VA – As the Deputy Project Manager, Ms. Grimes aided with the analysis of the following resources as part of this EA: Historic and Cultural Resources, Hydrology, Wetlands, Geology and Soils, Fish and Wildlife Resources, Air Quality, Noise, Land Use, Topography, Socioeconomic Impacts, Environmental Justice, Vegetation and Waste. To fulfill agency and tribal outreach requirements she also contacted the necessary local, state and federal agencies to request scoping comments and sent Section 106 Initiation letters to the appropriate Native American Tribes. To accommodate the accelerated project schedule ECS was able to deliver a Preliminary Draft EA to the client within six weeks of contract award.

JEFFREY SHELTON, PE

GEOTECHNICAL PRINCIPAL ENGINEER

PROFESSIONAL CREDENTIALS

Professional Engineer: WV #019788, CT, DC, DE, MD, ME, NC, NH, NJ, NY, OH, PA, RI, VA, VT

The Leadership in Energy and Environmental Design (LEED) Accredited Professional

SKILLS

Subgrade and Pavement Evaluations

Shallow and Deep Foundations

Retaining Wall Design and Construction

Slope Stability and Landslides

Ground Improvement

Geotechnical Instrumentation

Construction Materials Testing

Special Inspections

EDUCATION

Master of Science, 2003, Civil Engineering, University of Maryland

Bachelor of Science, 1995, Civil Engineering, Pennsylvania State University

YEARS OF EXPERIENCE

ECS: 28 Total: 31

PROFESSIONAL PROFILE

Mr. Shelton serves as the Branch Manager and Principal Engineer for ECS in Pittsburgh, Pennsylvania. He is responsible for principal review of geotechnical and materials testing for projects ranging from single and multi-family residential buildings, commercial and industrial buildings, high-rise buildings with below-grade levels and residential land development. He has also served as the Special Inspections Engineer of Record (SIER) on hundreds of projects. Additional responsibilities include managing the day-to-day operations of the office, overseeing profit loss, developing business, marketing to clients and mentoring staff.

Mr. Shelton has extensive experience managing and executing a wide variety of subsurface exploration programs and geotechnical projects. He has performed analyses for deep (piles, caissons, micropiles, auger cast piles) and shallow foundations, retaining walls, slope stability and site seismic classification. Mr. Shelton has broad experience with the use of the pressuremeter to provide economical solutions for foundation design and has also used various site development techniques to reduce foundation costs, including ground improvement and the use of geogrid and geotextile materials..

PROJECT EXPERIENCE

PA Fish and Boat Commission Site - Lake Somerset Dam Rehabilitation, West Meade Township, PA – Mr. Shelton managed the geotechnical instrumentation and monitoring for the site. The site consists of the abandonment of 11 existing instruments and installation of six settlement plates, 17 settlement monuments, 18 Type 1 vibrating wire piezometers, two Type 2 vibrating wire piezometers and associated instrument panels and training of client rep for continued readings.

SWN County Route 89 Realignment, Cameron, WV – Principal Engineer performed a subsurface exploration and geotechnical engineering analysis for the realignment. The project includes realigning the intersection of CR89 and US-250 to bypass an existing switch-back turn and facilitate truck access. To accomplish this bypass, an embankment approximately 49 feet tall needs to be constructed as well as a 36-foot tall retaining wall.

PA Fish and Boat Commission Site - Tamarack Lake - Dam A and B Rehabilitation, West Meade and East Mead Townships, Crawford County, PA – Principal Engineer for contractor-supplied QC testing services for earthfill, drainfill, cast-in-place concrete and riprap observation during construction. Services also included piezometer instrumentation installation. Project consists of renovations to the existing dams including demolition of the existing embankments, outlet structures, auxiliary spillways and installation of new earth embankment dams.

West Virginia Agricultural Sciences Building, Morgantown, WV – Provided recommended systems, design parameters and loading considerations for the permanent support of excavation (SOE) design and construction. ECS also performed shop drawing and submittal review during design.

KEITH DOYLE, PE
GEOTECHNICAL ASSOCIATE
PRINCIPAL ENGINEER

PROFESSIONAL CREDENTIALS

Professional Engineer: WV #026050, MD, PA

SKILLS

Geotechnical Engineering

Construction Materials Testing

Subgrade and Pavement Evaluations

Slope Stability and Landslides

Deep Foundations

Geo-Structural Wall/Slope Design and Construction

Stormwater Infiltration

EDUCATION

Master of Science, 2015, Civil Engineering Geotechnical Focus, Pennsylvania State University

Bachelor of Science, 2003, Civil Engineering, Pennsylvania State University

YEARS OF EXPERIENCE

ECS: 10 Total: 10

PROFESSIONAL PROFILE

Mr. Doyle serves as the Geotechnical Department Manager and Associate Principal for ECS in Pittsburgh, Pennsylvania. He is responsible for review and coordination of geotechnical and construction materials testing for projects ranging from single and multi-family residential buildings, commercial and industrial buildings, oil & gas processing plant, well pad and pipeline projects, landslide repair and land development. Additional responsibilitiees include managing the day-to-day operations of the geotechnical department, revisions/creation of standard operating procedures, overseeing profit/loss, developing business, marketing to clients, training and mentoring staff.

PROJECT EXPERIENCE

PA Fish and Boat Commission Site - Lake Somerset Dam Rehabilitation, West Meade Township, PA – Mr. Doyle coordinated and managed the geotechnical instrumentation and monitoring for the site. The site consists of abandonment of 11 existing instruments and installation of six settlement plates, 17 settlement monuments, 18 Type 1 vibrating wire piezometers, two Type 2 vibrating wire piezometers and associated instrument panels and training of client rep for continued readings.

Miller Well Pad, Green Township, OH – Project Manager: This project consisted of the construction of a natural gas wellpad. I performed slope stability analyses of the proposed cut and fill slopes. One of the proposed fill slopes did not achieve the required factor of safety, so ECS recommended that the proposed slope design be flattened or a geogrid-reinforced soil slope (RSS) be considered. The client elected to proceed with the RSS. ECS then prepared a reinforced soil slope design.

SWN County Road 89 West Switchback Improvements, Proctor, WV – Mr. Doyle managed and coordinated the geotechnical engineering services that included a subsurface exploration, laboratory testing and an engineering analysis. The purpose of this study was to provide geotechnical information pertaining to the earthwork operations. the proposed project consists of the widening of the roadway in both of the switchback areas. In order to facilitate the widening of the roadways, a series of retaining walls has been proposed.

East-West Gate Remodel, Harrison County, WV – A proposed single-story, relatively small, guard shack-type building at the end of the facility and the replacement of the existing asphalt pavement. As Principal Engineer, he oversaw the subsurface exploration, laboratory testing, infiltration testing and engineering analysis to aid in the design.

O'Reilly Auto Parts - Star City, Morgantown, WV – Mr. Doyle managed and coordinated the subsurface exploration, field infiltration testing, laboratory testing and geotechnical engineering analyses for the purpose of providing geotechnical information for the design and construction of the proposed structure, pavements and stormwater management facility. Additionally, Mr. Doyle provided a retaining wall tieback pull test observation services.

MICHAEL SLADKI, PE

STRUCTURAL PRINCIPAL ENGINEER

PROFESSIONAL CREDENTIALS

Professional Engineer: WV #22818, VA, MD, DC, NC, TX, NJ, PA, DE, NY

The Leadership in Energy and Environmental Design (LEED) Green Associate

Certified EIFS Professional (CEP)

International Firestop Council – Inspector

ICC Certified Commercial Building Inspector

SKILLS

Structural Evaluation and Forensics

Seismic Evaluation of Existing Structures

Specialty Testing

Design from Fabrication to Installation

EDUCATION

Master of Science, 1999, Civil Engineering, Virginia Tech

Bachelor of Science, 1998, Civil Engineering, Virginia Tech

YEARS OF EXPERIENCE

ECS: 12 Total: 25

PROFESSIONAL PROFILE

Mr. Sladki serves as Director of Mid-Atlantic Facilities Services. He is a Principal Structural Engineer for the group as well, residing in the Chesapeake office. In addition to being responsible for the overall office management, he is also involved in prescribing and analyzing the structural evaluation and testing aspects of specialty services projects. Mr. Sladki's experience ranges from detailed design and fabrication to installation and through construction and use. Additional engineering experience includes extensive work in analyzing existing structural elements and designing new structures. He is active in the local chapters for IFMA, ICRI and IREM and participates in other professional organizations including AIA and ASCE.

PROJECT EXPERIENCE

PA Dam Repair and Rehabilitation, Eastern PA – ECS is provided repair and rehabilitation design for a series of dams identified by DCNR. Structural work included repair details, pedestrian bridge design, riser design and design of other features at the various dams. Mr. Sladki served as Principal Oversight and Lead Structural Engineer for the contract. Locations of structures include Lackawanna, Frances Slocum, Locust Lake, Nockamixon, Stametz and Marsh Creek.

Wellington Estates Dam Assessment – Newport News, VA – Mr. Sladki provided Principal oversight of a structural assessment for an existing earthen dam at a retention pond. He provided recommendations to be included in the state database.

Weir Wall and Culvert Designs, Loudoun County, VA – Principal Engineer, Mr. Sladki oversaw the design and detailing of weir walls, culverts and dams at a variety of projects including Tall Cedars Parkway, in Loudoun VA, Moorefield Station East and West in Ashburn, VA, Leesburg South Stormwater Pond in Leesburg, VA.

Snowshoe Village Structural Assessment, Dunmore, WV – Mr. Sladki provided principal oversight for the completed structural condition assessment at the project site. The property consisted of a 37,780 sf, four-story, mixed use lodging and retail building with an underground parking garage, reportedly constructed in 1999. Significant cracking was noted in the floor slab in the retail space as well as the parking garage ceiling. Detailed reporting and professional recommendations were provided to the client.

CSX Temporary Bridge Abutment Design, Washington, DC – Principal Structural Engineer, Mr. Sladki provided conceptual design and reviewed the detailed design calculations and drawings for a temporary bridge abutment to be used during a site renovation near the Benning Road yard. ECS provided calculations and signed/sealed drawings for construction.

City of Portsmouth Term, Portsmouth, VA – In 2019 ECS was awarded a five-year Annual Service Structural Engineering Consultant Term contract with the City. Mr. Sladki serves as the Contract manager. completing 27 Task Orders.

MICHAEL VILLANEUVA, PE

STRUCTURAL ASSOCIATE PRINCIPAL

PROFESSIONAL CREDENTIALS

Professional Engineer: MD, NJ, PA, DE, CT

SKILLS

Forensic Engineering

Property Condition Assessments

Foundation Design

Structural Assessments

RISA 3-D

Enercalc

EDUCATION

Bachelor of Science, 2003, Architectural Engineering Structural Concentration, Drexel University

YEARS OF EXPERIENCE

ECS: 5 Total: 22

PROFESSIONAL PROFILE

Mr. Villanueva serves as a Facilities Senior Associate Principal for ECS Mid-Atlantic, LLC Facilities Group. He has extensive experience with structural design of foundations, wood framing and structural steel. He has worked with facility managers, property managers and insurance agents on structural deficiencies to perform analysis or remedy repairs and recommendations. Mr. Villanueva has recent experience with FEMA and local governments as a field inspector and structural consultant.

PROJECT EXPERIENCE

Lake Frances Dam, Harrisburg, PA – Under a design-build contract with the Pennsylvania Department of Conservation and Natural Resources (DCNR), ECS performed laboratory testing and geotechnical engineering analysis of upgrades to an existing state-regulated dam approximately 25 feet in height.

Lackawanna Dam - Structural Assessment & Repairs, Harrisonburg, PA – Under a design-build contract with the Pennsylvania DCNR, Senior Project Engineer and lead Structural Engineer for the subsurface exploration, laboratory testing and geotechnical engineering analysis for the demolition and replacement of the deteriorated section for the right spillway wall near the crest of the dam.

Locust Creek Dam, Tamaqua PA – Under a design-build contract with the Pennsylvania DCNR, he served as the Senior Project Engineer and lead Structural Engineer for the rehabilitation of an existing state-regulated dam approximately 100 feet in height.

Marsh Creek Reservoir Dam-Structural Assessment & Repairs, Harrisonburg, PA – Under a design-build contract with the Pennsylvania DCNR, Senior Project Engineer and lead Structural Engineer for the subsurface exploration, laboratory testing and geotechnical engineering analysis of upgrades to an existing state-regulated dam spillway.

Nockamixon Dam - Structural Assessment & Repairs, Harrisonburg, PA – Under a design-build contract with the Pennsylvania DCNR, Senior Project Engineer and lead Structural Engineer for the subsurface exploration, laboratory testing and geotechnical engineering analysis of upgrades to cantilevered weir wall of cast-in-place concrete construction.

Under Armour Distribution House, Baltimore, MD – The building is a single-story warehouse with approximately 500,000 square feet of racking area. It was reported to ECS that lifts accessing the upper levels of approximately 36-foot tall racks have been striking the top of the racks. Mr. Villanueva performed a general assessment of the warehouse, including observing the floor slab condition and levelness, measuring plumbness of the racks and looking for other signs of structural distress or settlement as an attempt to determine a root cause for the displaced racking and recommend next steps.

SUBCONSULTANTS

Aterra Solutions (Aterra) is a registered small business and provides civil, water resources and geotechnical engineering services, with employees having experience and expertise in dam safety inspections, dam and levee assessment and design, including rehabilitation design, watershed and dam rehabilitation planning, hydrologic and hydraulic (2D and 3D/CFD) modeling, geotechnical and geo-structural engineering, probabilistic flood hazard assessments, dam breach modeling and inundation mapping, incremental analyses, inflow design flood studies, hazard potential classification assessments, emergency action planning and potential failure modes analyses (PFMAs). Their dam and levee experience consists of various types and sizes of water retaining structures and outlet systems including, earthen dams/levees, concrete gravity dams, concrete arch dams, floodwalls, open channel earthen/vegetated spillways, RCC and ACB armored spillways, RCC and concrete chute (straight and stepped) spillways and stilling basins, impact basins, concrete risers, tainter gates, sluice gates, labyrinth spillways, ogee crest spillways, fuse gates and others. Their team of experienced and uniquely qualified engineers and scientists provide consultation, engineering and project management services with uncompromised integrity, delivering cost effective and valued solutions to their clients in a safe and sustainable manner. Aterra employees have experience working with the Natural Resources Conservation Service (NRCS), Federal Energy Regulatory Commission (FERC), US Army Corps of Engineers (USACE), US Forest Service, state dam safety offices, international consulting and engineering companies and higher education institutions.

H.F. Lenz Company (HF Lenz) has experienced consistent growth since their humble beginning. Even during the past five trying years in our industry and the U.S. economy in general, we have continued to grow. They take pride in their consistent management approach and dedicated employees whose average tenure in our organization is 15 years.

The H.F. Lenz Company currently employs approximately 185+ people across five office locations in Johnstown, Pittsburgh and Lancaster, PA, Conneaut, OH and Middletown, CT, which includes 40 Professional Engineers registered in a total of 50 states and the District of Columbia with 15 LEED® Accredited Professionals.

Their company is organized into client-focused multi-discipline teams under which projects are headed by a Principal-in-Charge (PIC), whose talents and experience are matched to the needs of the client. They believe in strong leadership and a team approach to the design process. This creates a dynamic and collaborative environment in which trust and teamwork prevail and a shared understanding of project goals and expectations are developed.

They take pride in the quality and accuracy of our work in all phases of Surveying. Their Surveyors are familiar with standards, procedures, and specifications published by various government and title agencies. HF Lenz crews are equipped with Nikon & Sokkia Total Stations, Wild & Sokkia automatic levels, and Ashtech GPS receivers. Final plans are drawn using the most current version of AutoCAD Civil 3D software and GPS data is processed using GNSS Solutions Software.

ECS has also included three different drilling subcontractors, each having their areas of expertise.

AllProbe Environmental Inc. - AllProbe was established in 2005 as an environmental drilling, geotechnical drilling , direct push, vacuum excavaon and remediation company located in the Pittsburgh area. The company is designed and equipment around the needs of environmental consultants based on my previous experience with a well known engineering and consulting firm.

Armstrong Drilling Inc. - Armstrong Drilling Inc. was founded in 1995 by Vice President of Operations, James I. Armstrong. Mr. Armstrong's drilling experience spans over 35 years of nationwide projects for the federal government, state governments and private entities. Armstrong Drilling is flexible in order to fit the needs of any project and has worked hard to successfully meet the demands of its clients.

Test Boring Solutions - Since 1991, Test Boring Services, Inc. has been providing exceptional soil investigations in Southern Pennsylvania and other locations in the greater tri-state area, such as Pennsylvania, Ohio, and West Virginia. They offer geotechnical and environmental explorations for engineers and consultants.

JOSEPH BELLINI, PE, BC.WRE, PH, CFM

DESIGN ENGINEERING
PRINCIPAL ENGINEER
ATERRA SOLUTIONS

PROFESSIONAL CREDENTIALS

Professional Engineer: PA, IL, LA, MA, MD, ME, NC, NJ, NY, OH, OR, PR, SC, TX, VA, WV

Board Certified, Water Resources Engineer (BC.WRE)

Professional Hydrologist (PH)

Certified Floodplain Manager (CFM)

FERC Independent Consultant (IC)

EDUCATION

BS, Civil Engineering, The Pennsylvania State Un.

MS, Civil Engineering/Hydraulics, Un. of Pittsburgh

Doctoral work in Civil/Hydraulic Engineering, Un. of Pittsburgh

USACE: RMC, DLS-102, USACE Semi-Quantitative Risk Assessment and FERC Level 2 Risk Assessment Process and Guidelines, Dams and Levees; RMC, DLS-113, Fundamentals of Facilitating a Semi-Quantitative Risk Analysis; RMC, DLS-114, Flood Hazard Analysis using RMC-BestFit and RMC-RFA

PROFESSIONAL AFFILIATIONS

Association of State Dam Safety Officials

ASCE American Academy of Water Resources Engineers

American Institute of Hydrology

Association of State Floodplain Managers

YEARS OF EXPERIENCE

Aterra: 12 Total: 36

PROFESSIONAL PROFILE

Mr. Bellini is a civil and water resources engineer with 36 years experience specializing in flooding, dam/levee engineering, hydrologic, hydraulic, sediment transport and dam break analyses, spillway design, probabilistic flood hazard studies and flood control planning and design. He is currently the overall, hydrologic/hydraulic engineering and design lead for the NRCS multi-year engineering contracts (2018 to present), with a focus on dam safety, for the northeast and southeast regions. Services under these NRCS contracts also includes dam safety engineering services for the U.S. Forest Service (USFS). Mr. Bellini is a FERC-approved Independent Consultant (IC), with experience on several Part 12D inspections and Potential Failure Mode Analyses (PFMA) and is designated as a Risk Level 3 Hydraulic Engineer on the USACE DSMMCX Dam Safety Contract. Since 2008, he has been the program and technical leads for the certification evaluations of 18 levee/flood protection systems under FEMA's National Flood Insurance Program in PA, OH, WV and MD. He also was the lead responsible engineer for FEMA/NFIP flood studies, appeals and levee certification projects. From 2011 to 2016, Mr. Bellini supported the U.S. nuclear industry in its regulatory response to the Fukushima Dai-ichi accident as a Subject Matter Expert (SME), particularly Exelon/Constellation's nuclear fleet. He also served as the flooding SME for the NEI Fukushima Flooding Task Force and contributed to development of several guidance documents, including the Dam Failure Assessment guidance. Mr. Bellini is an Adjunct Professor at Villanova University where he has taught "River Mechanics and Engineering" and "Open Channel Hydraulics", graduate-level courses. He is also a former Adjunct Professor at the University of Pennsylvania for the "Surface Water Hydrology" graduate-level course.

PROJECT EXPERIENCE

USDA Natural Resources Conservation Service, Multiple Locations in PA, NJ, MA, WV, VA, OH, SC, TN, KY and FL – Project Administrator and Principal Engineer for two NRCS National 5-year IDIQ/MATOC Design Services Contracts (NE and SE Regions, $20M capacity). Responsibilities include dam rehabilitation design, hydrologic and hydraulic 2D/3D/CFD modeling, dam inspection, spillway analysis and design, dam breach and inundation analyses, mapping, hazard classification, incremental consequences and population-at-risk assessments. Mr. Bellini has led or played a key technical role on task orders for dam and spillway rehabilitation at Beechwood Dam (PA), Hop Brook Dam (MA), Brush Creek Dam Sites 9, 14 and 15 (WV), Pine Creek No. 4 Dam (TN) and Red Lick No. 12 Dam (KY), as well as inspections and risk assessments at five KY dams. Projects included Emergency Action Plan development and designs featuring CFD modeling, armored earthen spillways, RCC and reinforced concrete chutes, labyrinth and ogee weirs, impact and stilling basins, cutoff structures and drainage improvements.

- **USDA Forest Service, Southern Region, Multiple Locations in AL, AR, GA, KY, LA, NC and VA**
- **USACE Engineering Dam Safety Engineering and Design Services IDIQ / Nationwide**

PETRI MASOPUST, PE, CFM

DESIGN ENGINEERING
PRINCIPAL WATER RESOURCE
ATERRA SOLUTIONS

PROFESSIONAL CREDENTIALS

Professional Engineer: PA, NY, MA, CT, NH

Certified Floodplain Manager (CFM)

SKILLS

Hydrologic and Hydraulic Analysis and Design

Dam and Levee Safety Engineering

EDUCATION

MS, 2002, Water Technology & Environmental Engineering

MS, 2005, Civil & Environmental Engineering

PROFESSIONAL AFFILIATIONS

Association of State Floodplain Managers

PUBLICATIONS

Masopust Petr and Bellini Joe. Two-Dimensional Approach to Hydrologic Modeling. Presented at the Dam Safety 2019 Conference in Orlando, Florida, 9/11/19

Masopust, Petr, Bellini, Joe, Kappel, Bill and Hultstrand Doug. Enhancements to rainfall and flood forecasting techniques – a case study. Presented at the 14th IWA/IAHR International Conference on Urban Drainage in Prague, Czech Republic, 9/10-15/17

YEARS OF EXPERIENCE

Aterra: 10 Total: 23

PROFESSIONAL PROFILE

Mr. Masopust has over 23 years of research and consulting experience in the water resources engineering field, specializing in severe flooding; hydrologic, hydraulic and dam break analysis; probabilistic flood hazard studies; flood control planning and design; dam engineering; and levee design and evaluation. Over the course of his career, he has been the lead engineer and project manager on several high-profile projects, managed and mentored technical staff, interacted with clients and regulators and performed business development across multiple market sectors. He is currently senior hydrologic/hydraulic engineer for the NRCS multi-year engineering contracts (2018 to present), with a focus on dam safety, for the northeast and southeast regions. His key responsibilities include hydrologic and hydraulic (2D and 3D/CFD) modeling, watershed planning, dam inspection, spillway hydraulic analysis and design, rehabilitation design and dam breach inundation analyses. Geographic coverage for the NRCS projects he's been involved with encompasses several states, including PA, NJ, MA, WV, OH, FL and AR. He is highly skilled in the use a variety of water resource modeling software and tools, including HEC-RAS, HEC-HMS, HEC-SSP, SITES, WinDAM, RiverFlow2D and SimFlow.

PROJECT EXPERIENCE

NRCS National Regionalized A/E IDIQ Design Services Contract/ Northeast (Region 1) Southeast (Region 2) – Task Manager and Principal Engineer for two NRCS National 5-year IDIQ/MATOC Contracts totaling $20M. Mr. Masopust has led or played a key technical role on several awarded task orders, including Supplemental Watershed Plan-EAs for dams in MA, NJ, WV, PA and OH; dam rehabilitation designs in MA and NJ; dam assessments at over 20 sites in AR; and Wetlands Reserve Plan of Operation projects in Florida. As Aterra lead, Petr has contributed to Watershed Planning projects involving dam site evaluations, geotechnical and hydrologic analyses, dam breach modeling, public engagement, resource analysis, environmental and economic assessments and alternative selection. These efforts support future rehabilitation design projects, an area in which Mr. Masopust has extensive experience.

White Oak and Miller Pond Dam Rehabilitation / Clinton Township and Mt. Pleasant Township, PA – Senior Hydraulic Engineer for the White Oak and Miller Pond Dam Rehabilitation Design Projects for the PA Department of General Services and PA Fish and Boat Commission, responsible for development of the HEC-RAS 2D hydraulic model, flood risk assessments and evaluation of dam rehabilitation alternatives.

Brookfield Renewables – Engineering Services including Part 12D Safety Inspections and PFMA of Various Hydropower Projects / NY and PA – Senior Water Resources Engineer for three Part 12D dam inspections and PFMAs, two in NY and one in PA. Performed review of hydrologic and hydraulic calculations and analyses, reviewed O&M plans, participated in the PFMA sessions and collaborated on development of the inspection and Part 12D reports.

ANDREW BLYSTRA, PE, CPESC

DESIGN ENGINEERING
SENIOR GEOTECHNICAL ENGINEER
ATERRA SOLUTIONS

PROFESSIONAL CREDENTIALS

Professional Engineer: MI, IL, IN, WI, GA, PA

Certified Professional in Erosion and Sedimentation Control

SKILLS

Energy, Geotechnical, Water Resources, Nuclear Power, Environmental; Dam, Levee, & Hydroelectric Power

EDUCATION

BS, Civil Engineering, Michigan Technological Un.

MS, Geotechnical Engineering, Un. of Illinois at Chicago

Doctoral work in Engineering & Geology, Un. of Illinois at Chicago and Western Michigan Un.

PROFESSIONAL AFFILIATIONS

Association of State Floodplain Managers

PUBLICATIONS

Masopust Petr and Bellini Joe. Two-Dimensional Approach to Hydrologic Modeling. Presented at the Dam Safety 2019 Conference in Orlando, Florida, 9/11/19

YEARS OF EXPERIENCE

Aterra: 10 Total: 52

PROFESSIONAL PROFILE

Mr. Blystra brings more than 50 years of experience in energy, geotechnical, water resources, nuclear power and environmental engineering, with a focus on dam, levee and hydroelectric power projects. He has led due diligence and feasibility studies for hydropower installations across the U.S. and Canada, including capacity upgrades at the Hatfield Project (Wisconsin) and Four Mile Project (Michigan) and hydropower additions at sites in Pennsylvania, Michigan, Nevada, Washington, Oregon and Quebec. Mr. Blystra has performed independent reviews for U.S. Army Corps of Engineers projects, worked under the Hydropower Regulatory Efficiency Act and related legislation and served as senior geotechnical engineer on new and rehabilitated dam projects. His expertise includes peer review of erosion and sedimentation control plans, seismic hazard analyses and serving as independent consultant for over 50 FERC Part 12 inspections. He has contributed to more than 150 hydroelectric projects worldwide, including in South America and Afghanistan.

PROJECT EXPERIENCE

KEI (USA) Power Management – Part 12D Dam Safety Inspections, PFMAs and Engineering Assessments, Lakeview, Brasfield and Emporia Project Dams, VA – Performed dam safety inspections/engineering assessments and PFMAs for Lakeview and Brasfield and engineering evaluations for Emporia. The hydroelectric projects have concrete gravity dams with uncontrolled and gated (sluice, stop log, needle beam, tainter/radial and pneumatically actuated gates) spillway systems and a penstock (Lakeview). Andy also oversaw stability analyses for the Emporia concrete gravity dam.

West Canada Creek Project, Trenton and Prospect Developments, Brookfield Renewable Part 12D PFMAs – Participated in the PFMA analysis as the Geostructural Engineer for the two Brookfield Renewable projects in New York. Project features includes concrete gravity and earthen impoundment structures, uncontrolled and gated spillway systems, intake structure, powerhouse, penstocks and the appurtenant features.

U.S. Forest Service - Bear Creek Dam Spillway – Design of new spillway to replace a failed structure. Project included demolition of existing spillway, deep soil mixing ground improvement, design of a new reinforced concrete spillway, construction sequencing, construction dewatering and an erosion and sediment control plan.

NRCS - Brush Creek 9, 14 and 15 – The projects consisted of design measures to bring it into compliance with current dam safety criteria. Embankment measures included new drainage systems to improve stability of the earthen dams. New auxiliary spillways were designed with cutoff walls to prevent headcutting. Existing concrete energy dissipators were demolished and replaced with new reinforced concrete structures. The projects included the preparation of erosion and sediment control plans and establishing a construction sequence for each project. The projects included control of water to maintain the reservoirs in a drained condition during construction.

JAMES PRESS, JR, PE

DESIGN ENGINEERING
SENIOR GEOTECHNICAL ENGINEER
ATERRA SOLUTIONS

PROFESSIONAL CREDENTIALS

Professional Engineer: PA

SKILLS

Seepage and Slope Stability Analysis and Design / Geotechnical Site Characterization / Dam and Levee Safety Engineering

EDUCATION

BS, Civil Engineering, Villanova Un.

MS, Civil Engineering, Villanova Un.

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers, Geo-Institute

PUBLICATIONS

Press, Welker, Sample-Lord, Smith, "Estimation of Rain Garden Field Hydraulic Conductivity Based on Spot Infiltration Tests", Water, MDPI Journals, 2/25.

Press, Blystra, "Unifying Past and Present: Lessons Learned and Future Outlooks from a Career in Dam Rehabilitation", Association of State Dam Safety Officials (ASDSO), Northeast Regional Conference, 5/23.

Press, "Determining the Minimum Number of Single-Ring Infiltration Tests Required to Reliably Predict Performance of a Rain Garden", Villanova Un., Department of Civil and Environmental Engineering, 5/19.

YEARS OF EXPERIENCE

Aterra: 6 Total: 6

PROFESSIONAL PROFILE

Mr. Press is a civil and geotechnical engineer with 6 years experience specializing in seepage and slope stability analyses, dam engineering, levee design and evaluation, foundation design and geotechnical site characterization. He is currently a geotechnical engineer for the NRCS multi-year engineering contracts (2018 to present), with a focus on dam safety, for the northeast and southeast regions. Services under these NRCS contracts also includes dam safety engineering services for the U.S. Forest Service (USFS). His key responsiblities include seepage and slope stability analyses, dam inspections/field investigations and rehabilitation design. Geographic coverage for the NRCS/USFS projects he's been involved with encompasses several states, including PA, NJ, MA, WV, TN, KY and AR.

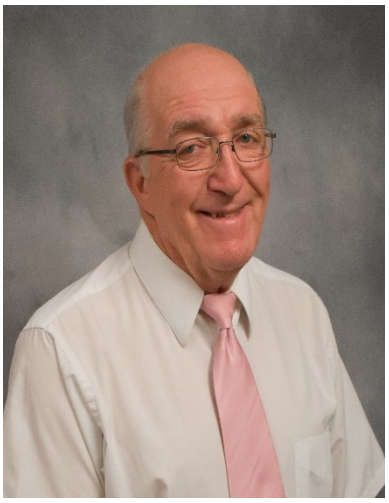
PROJECT EXPERIENCE

NRCS Brush Creek Dams 9, 14, & 15 Rehabilitation / Mercer County, WV – Geotechnical engineer in support of the NRCS rehabilitation of 3 high hazard potential, multi-purpose dams in Mercer County, WV. Responsible for seepage and slope stability analyses; filter compatibility assessment and design; auxiliary spillway headcut erodibility assessment; design of embankment and toe drain features; and auxiliary spillway cutoff wall design (which included a combined-wall system at the Site 9 dam).

NRCS Beechwood Dam Rehabilitation / Tioga County, PA – Geotechnical engineer in support of the NRCS rehabilitation for the high hazard potential Beechwood Dam in Tioga County, PA. Specific responsibilities included seepage and slope stability analyses; design of embankment and toe drain features; sheet pile cutoff wall design; and impact basin design. Also provided analysis of geophysical investigation data to validate rehabilitation design measures for embankment through-seepage.

NRCS Assunpink Dam Rehabilitation / Mercer County, NJ – Geotechnical engineer in support of the NRCS rehabilitation for the high hazard potential Assunpink Dam, located in Hamilton Township, NJ. Responsible for seepage and slope stability analyses; design of embankment and toe drain features; supervision of drilling activities and test pit excavation; and stability analysis of a structural RCC buried cutoff wall in the auxiliary spillway.

NRCS Red Lick FRS 12 Dam Rehabilitation / Madison County, KY – Geotechnical engineer and field investigation representative for the NRCS rehabilitation of Red Lick FRS 12 Dam in Madison County, KY. As field representative, responsible for supervising drilling activities, identifying soil/rock samples, supervising rock permeability packer testing, overseeing installation of piezometer wells and performing slug testing. As geotechnical design engineer, specific tasks included estimating shear strength and permeability parameters based on field investigation data, seepage and slope stability analyses, filter compatibility analyses of existing and proposed materials and construction slope design.



Greg Facciani, P.L.S.

Project Surveyor

Mr. Facciani's duties as Survey Services Manager are as follows: crew chief, supervising surveying crew chiefs, preparing survey cost estimates, and courthouse research and computations. He also reviews and seals final survey plans. Mr. Facciani has extensive experience in the following types of surveys: control surveys, construction surveys for roads, utility lines, small commercial sites and shopping malls; photogrammetric mapping projects; site development surveys for lot subdivisions; volume surveys and all types of private boundary surveys. He has performed innumerable private surveys ranging in size from single lots to acreage (farms and timberland). Mr. Facciani is experienced in writing legal descriptions and has been called upon as an expert witness at trial.

Education
Associate Degree, Forest Technology 1973, Pennsylvania State University

Experience
H.F. Lenz Company 1996-Present

Hinks & Locher Engineers, Inc. 1974-1996

Professional Registration / Certification
Registered Professional Land Surveyor in Pennsylvania

Professional Affiliations
Pennsylvania Society of Land Surveyors (PSLS) • Secretary - Allegheny Heartlands Chapter

Project Experience

UGE Solar Projects, PA
- Surveyor for topography and boundary retracement for three 30-acre solar sites across PA

Scotland Pond Dam, Franklin County, PA
- Topographic surveying, preparation of an existing conditions plan and hydrologic and hydraulic calculations for the Scotland Pond Dam Removal project

Etna Riverfront Park and Trail, Allegheny County, PA
- Project Surveyor for development of a 1-acre park; the Riverfront Park will serve as an important link in the proposed Erie-to-Pittsburgh Trail

Verona/Oakmont/Penn Hills/Plum Boroughs Trail Study, Allegheny County, PA
- Property/deed research for a biking/walking trail to connect Boyce Park with the Allegheny Riverfront in Verona Borough

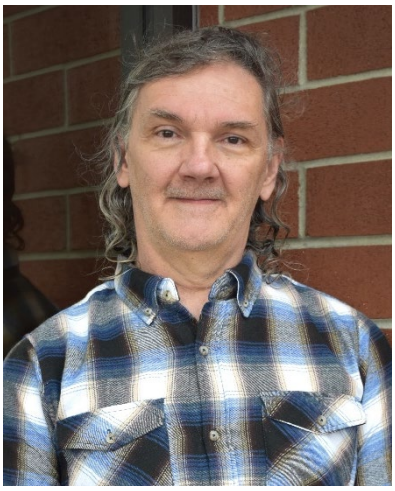
Jim Mayer Riverswalk Trail, Johnstown, PA
- Project Surveyor for four trail segments to improve connectivity throughout the City of Johnstown; the project is a segment of the September 11th National Memorial Trail

Mahanoy Valley Solar and Storage Property, Mahanoy Township, PA
- Surveying services for 280-acre area spanning three parcels

Monongahela Industrial Development Corporation, Washington County, PA
- 325-acre boundary and aerial mapping survey; topographic surveys

Carnegie Mellon University, Pittsburgh, PA
- Topographic survey for underground steam line replacement

H.F. LENZ ENGINEERING



Curtiss M. Fyock, P.L.S

Project Surveyor

Mr. Fyock reviews and seals final survey plans and has extensive experience in the following types of surveys: control surveys, construction surveys for roads, utility lines, small commercial sites and shopping malls; photogrammetric mapping projects; site development surveys for lot subdivisions; volume surveys and all types of private boundary surveys.

Education
Bachelor of Science, Mining Engineering, 1982, Pennsylvania State University

Experience
H.F. Lenz Company
1986 – Present

Professional Registration/Certifications
Registered Professional Land Surveyor in Pennsylvania

Professional Affiliations
Pennsylvania Society of Land Surveyors (PSLS)

President and Alternate State Director - Allegheny Hartlands Chapter

Project Experience

City of Scranton, Lackawanna County, PA
- Bathymetric survey and mapping depicting the perimeter of the area of survey, planimetric features within the survey area, the depth to bottom of water and approximate depth of sediment of Pennsylvania (PA) #5 Reservoir totaling approx. 9 acres

Stump Pond, Susquehanna County, PA
- Bathymetric survey of Stump Pond totaling approx. 15 acres

Treasure Lake, Dubois, PA
- Bathymetric survey and mapping services of underwater features for six separate areas of Treasure Lake

UGE Solar Projects, PA
- Surveyor for topography and boundary retracement for three 30-acre solar sites across PA

Little Pine Creek Connector Trail, Allegheny County, PA
- Project Surveyor for a study to develop a 3-mile bicycle/pedestrian connector trail

Etna Riverfront Park and Trail, Allegheny County, PA
- Project Surveyor for development of a one-acre park including a tiered amphitheater with decorative lighting; stormwater management utilizing Green infrastructure techniques

Hazelwood Green Riverfront Park, Allegheny County, PA
- Project Surveyor responsible for master planning a riverfront park at the 178-acre Hazelwood Green former industrial site, including evaluation of topography, utilities, environmental factors and existing structure

Jim Mayer Riverswalk Trail, Johnstown, PA
- Project Surveyor of civil engineering for four trail segments to improve connectivity throughout the City of Johnstown; the project is a segment of the September 11th National Memorial Trail

H.F. LENZ ENGINEERING

Zachary Denk, E.I.T., S.I.T.

Civil Designer/Surveyor

Mr. Denk holds a Bachelor of Science in civil engineering and has experience in site planning and design for numerous types of municipal, commercial, educational and residential facilities. His responsibilities have included the design of parking lots, site utilities, stormwater management, hydrologic and hydraulic impact reports, roadway design, NPDES permitting, sewage facilities planning, and erosion and sedimentation control plans. Mr. Denk's responsibilities also include preparation and administration of contract documents utilizing AutoCAD Civil 3D.

Education
Bachelor of Science Degree in Civil Engineering, 2023, University of Pittsburgh at Johnstown

Experience
H.F. Lenz Company 2021-Present

Professional Registration / Certification
Qualified Visual Site Inspector (QVSIR)

Land Surveyor in Training (S.I.T.)

Engineer in Training (E.I.T.)

Project Experience

City of Scranton, Lackawanna County, PA
- Bathymetric survey and mapping depicting the perimeter of the area of survey, planimetric features within the survey area, the depth to bottom of water and approximate depth of sediment of Pennsylvania (PA) #5 Reservoir totaling approx. 9 acres

Stump Pond, Susquehanna County, PA
- Bathymetric survey of Stump Pond totaling approx. 15 acres

Meeks Run and Dam Stream Trail, Moon Township, PA
- Topographic survey of a bridge on Meeks Run Trail and a 200-foot section of impoundment upstream of the bridge

Yellow Breeches, Cumberland County, PA
- Bathymetric survey of approx. 0.35 miles of Yellow Breeches Creek as well as topographic survey of a dam and emergency spillway

Chelsea Building Products New Manufacturing Facility, Westmorland County, PA
- Civil Designer for a new 228,000 SF manufacturing and warehouse building with truck courts, rail yard, and stormwater control features.

UGE Solar Projects, PA
- Surveyor for topography and boundary retracement for three 30-acre solar sites across PA

Rutters Convince Store, Johnstown, PA
- Surveyor for as-built survey of newly constructed facility

Seneca Valley High School, Harmony, PA
- Surveyor for as-built survey of new parking lots

Sugarcreek Elementary School, Cowansville, PA
- Surveyor for topography

H.F. LENZ ENGINEERING

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES DAM REHABILITATION AND REMOVAL CONTRACT

EASTERN PENNSYLVANIA

ECS Mid-Atlantic, LLC was contracted by the Department of Conservation and Natural Resources (DCNR) to deliver a comprehensive $5.1 million design-build dam rehabilitation and removal program involving 15 dams across 11 state parks throughout Eastern Pennsylvania. The project aimed to upgrade dam safety, meet Pennsylvania Department of Environmental Protection (DEP) Dam Safety standards and enhance outdoor recreational facilities in affected state parks. Efforts included substantial rehabilitation and maintenance of aging structures, decommissioning and removal of obsolete dams and the complete reconstruction of one dam. The project, launched in Fall 2021, is scheduled for completion in 2024.

Scope of Services

- Engineering design and rehabilitation of 10 dam structures
- Dam decommissioning and removal for 4 sites
- Full dam reconstruction at 1 state park location
- Structural design services (valves, outlet structures, guiderails, access features)
- Comprehensive dam removal design
- Geomorphic stream and watershed assessments
- Preparation and implementation of sediment management plans
- Stream restoration design to improve aquatic and riparian habitats
- Dredging design and studies
- Wetland delineations and natural resource consultation
- Geotechnical investigations, including subsurface exploration and lab testing
- Hydraulic and hydrologic studies to support long-term dam safety and compliance
- Erosion and sediment control planning
- Underwater inspections and structural evaluations
- Cultural and archaeological consultation for state and federal compliance
- Permitting and coordination at local, state (DEP Chapter 105/102/NPDES) and federal (USACE) levels

PROJECT TIMELINE

2021-2024

CLIENT CONTACT

Jack Hill, PE

Department of Conservation and Natural Resources (DCNR)

717.772.0293

jhill@pa.gov

PROJECT ACHIEVEMENTS AND RELEVANCE

Delivered multi-disciplinary dam safety solutions through a streamlined design-build process

Verified compliance with Dam Safety Standards, safeguarding public infrastructure and nearby communities

Established robust permitting strategies, integrating local, state and federal requirements

Successfully navigated complex environmental, geotechnical and hydrological challenges

Demonstrated efficient project management across numerous concurrent sites and services

One of DCNR's pioneering design-build contracts highlighted as the second-ever DCNR design-build

LACKAWANNA COUNTY DAM REHABILITATION #5

LACKAWANNA COUNTY, PA:

The project involved bringing the high hazard into compliance with DEP Dam Safety Regulations. Dam Safety had little information on the existing dam and a full assessment of the dam had to be completed including geotechnical analysis, bathymetry, hydraulic and hydrologic analysis and mapping and underwater inspections. This initiative addressed the dam's inability to pass the spillway-designed flood, promoting its capability to handle 100% of the probable maximum flood (PMF).

ECS' expertise in dam engineering and regulatory compliance, combined with their collaborative approach with the Pennsylvania Department of Environmental Protection (PA DEP), positioned them to deliver a robust and compliant rehabilitation plan. With a seasoned team and in partnership with hydraulic and hydrologic analysis expert team, ECS met and surpassed project expectations, the safety and functionality of this essential infrastructure.

PROJECT TIMELINE

2022-Present

CLIENT CONTACT

Larry Lukasik

County of Lackawanna

540.496.7733

lukasik@lackawannacounty.org

ECS also prepared a dredging plan to remove accumulated silts and sediments from the reservoir and intake tower.

EGELMAN'S LOWER DAM MODIFICATION PROJECT

CITY OF READING, BERKS COUNTY, PA

Egleman's Lower Mill Dam was a 125 year old high hazard dam that did not meet DEP Dam Safety standards due to inadequate spillway size. The first of its kind in Pennsylvania, the purpose of the proposed dam modification project was to modify the existing dam and impoundment to reduce the hazard class of the dam from a Category 1 High Hazard Dam to a Category 3 Low Hazard Dam through installing an auxiliary spillway and raising the impoundment's bottom elevation to produce a functional reservoir of approximately 4.5 feet deep. The proposed design also incorporated a geosynthetic clay liner on the dam embankment's reservoir side and additional armoring to impede any future seepage through the dam breast. The reservoir bottom will be filled and compacted with new structural fill materials along with a clay cap to a final impoundment elevation. In addition, a new drainage riser pipe with a trash rack and antivortex baffle plate with be installed to the existing blowoff pipe. Following its completion, the impoundment will be utilized as a fish nursery to raise largemouth bass by a local sportsman's group.

SERVICES PROVIDED:

- Structural design of outlet and auxiliary spillway structures
- Dam impoundment modification design
- Wetland delineations
- Natural resource consultation for various State and Federal Threatened and Endangered Species
- Bog Turtle Studies
- Geotechnical investigations
- Hydraulic and Hydrologic studies
- Erosion and Sediment Control Plans
- Cultural and Archaeological Consultation
- State and Federal Permitting

PROJECT TIMELINE

2023-Present

CLIENT CONTACT

Dave Anspach III

City of Reading

610.655.6502

lukasik@lackawannacounty.org

ATERRA

PROJECT DURATION

Ongoing

CONTACT INFORMATION

Natural Resources Conservation Service (NRCS)
Lauri Eipp
315.477.6522

NRCS NORTHEAST AND SOUTHEAST REGIONS ENGINEERING SERVICES IDIQ

NATIONWIDE

Aterra-Schnabel JV was awarded two, five-year, $10,000,000 IDIQ A/E contracts for the Natural Resources Conservation Service (NRCS) Northeast and Southeast Regions. Aterra's primary role on these contracts is dam planning and design, geotechnical investigation and design, hydrologic and hydraulic analysis and design, water resources engineering, civil engineering, specification development, construction schedule and cost estimating, and project and contract management.

Services under these contracts are broad and include topographic and bathymetric surveying, geotechnical investigation and engineering, hydrologic and hydraulic modeling and analysis, environmental assessments and studies, dam safety evaluations, watershed planning, dam rehabilitation design, structural design, technical document development and construction management. To date, we have been awarded 27 task orders amounting to nearly $18M. Work under these contracts performed in fourteen states, including Alabama, Arkansas, Florida, Georgia, Massachusetts, New Jersey, North Carolina, South Carolina, Tennessee, Pennsylvania, Kentucky, Ohio, Virginia, and West Virginia. The following provides a summary of a few select projects under these contracts:

Brush Creek Sites 9, 14, and 15: The project involves the rehabilitation design of the Brush Creek Sites 9, 14, and 15, three multi-purpose dams located in Mercer County, West Virginia. ASJV is responsible for the design, including geotechnical and geophysical investigations, hydrologic and hydraulic analysis and modeling, rehabilitation design, construction drawings, specifications, bid schedule, construction cost estimate, inspection plan, and other related documents.

NRCS NORTHEAST AND SOUTHEAST REGIONS ENGINEERING SERVICES IDIQ (CONTINUED)

Slope stability and seepage analyses were performed for the existing and modified embankment/ drainage system. Site 9 was challenging due to the presence of structures near the downstream toe of dam that limited slopes for toe drain installation, seepage and artesian conditions that required a determination if a grout curtain was required, and design of an auxiliary spillway cutoff wall to prevent head cutting in highly variable soils and rock. For Site 15, the rehabilitation measures included the design of an RCC stepped chute spillway and stilling basin, supported by 2D and 3D computational fluid dynamics (CFD) modeling.

Assunpink Dam No. 8 Supplemental Watershed Plan-Environmental Evaluation: Assunpink Creek Dam No. 8 is a high hazard dam located on Pond Run in Hamilton Township, Mercer County. The project included rehabilitation planning assistance that results in the completion of a Supplemental Watershed Work Plan and Environmental Evaluation (EE). ASJV completed geotechnical, seismic, and structural analyses, including implementing a robust geotechnical investigation program. ASJV also developed hydrologic and hydraulic models to support the benefit cost analysis, dam breach modeling and inundation mapping, and evaluation of rehabilitation alternatives. Dam rehabilitation alternatives studied in detail included structural RCC spillway armoring of the existing auxiliary spillway, and straight drop and labyrinth spillways through the existing embankment.

Beechwood Dam Rehabilitation Design: The Beechwood Dam is located in Tioga County, Pennsylvania and was constructed in 1963. The dam is classified as a high hazard Class (C) dam by the NRCS and a Hazard Potential Category 1 dam by the Pennsylvania Department of Environmental Protection (PADEP). Tasks included geotechnical investigation and laboratory testing, slope stability and seepage analyses for the existing and modified embankment/drainage system, structural condition assessment, hydrologic and hydraulic analysis and modeling, rehabilitation design, including roller compacted concrete (RCC) armoring, stilling basin, and a cutoff wall. Due to site limitations and construction sequencing, the auxiliary spillway steel sheet pile cutoff wall, initially designed as a tied-back wall, had to be designed as a cantilever, which required special provisions in the contract for driving sheet piling in dense glacial till.

NRCS NORTHEAST AND SOUTHEAST REGIONS ENGINEERING SERVICES IDIQ (CONTINUED)

Lackawaxen Dam Watershed Plan: ASJV is providing planning-level engineering and environmental analyses to develop a rehabilitation plan for four Lackawaxen Tributaries Dams; PA-413, PA-415, PA-419 and PA-421 ("Lackawaxen Tributaries Dams"), located in Wayne County, Pennsylvania. The four dams are classified as high hazard Class dams. Key projects tasks included topographic, bathymetric and sediment surveys, geologic and geotechnical investigation, inventory of watershed resources, hydrologic and hydraulic analyses (SITES, HEC-HMS, HEC-RAS), flood inundation mapping, dam breach analysis and hazard mapping, identification of resource concerns, and formulation and evaluation of alternatives. Dam rehabilitation alternatives studied in detail included structural roller compacted concrete spillway armoring, articulated concrete block spillway armoring, labyrinth spillways, riser rehabilitation and replacement.

Hop Brook Dam, Northborough, MA: The Hop Brook Floodwater Retarding Dam is one of nine floodwater retarding dams in the watershed of the Sudbury, Assabet, and Concord Rivers in Worcester County, Massachusetts. The dam is categorized as a high hazard Class (C) dam. The proposed rehabilitation design includes a 680-foot-wide ogee crest with RCC stepped chute. Key project tasks include geotechnical investigation and laboratory testing, existing structural condition investigation, stability, integrity, and capacity calculations, 3D computational fluid dynamics (CFD) modeling.

Pine Creek No. 4, TN: The Aterra-Schnabel JV will be preparing and maintaining a plan of work; developing supporting documentation for the design; preparing a preliminary and final design; and providing design support for questions and modifications both during the subsequent pre-construction and construction phases of the rehabilitation effort for Pine Creek No. 4, Town of Oneida.

Red Lick FRS 12, KY: Red Lick Creek FRS 12 was constructed in 1976 and is classified as a high hazard structure. Red Lick is a homogenous earth embankment dam with a pipe-and-riser principal spillway and an earthen auxiliary spillway in the dam's left abutment. ASJV is preparing a rehabilitation design, including geotechnical investigation and analysis, hydrologic and hydraulic analysis and modeling, structural assessment, drawings, specifications, and construction cost estimate.

Powdermill Dam, MA: The Aterra-Schnabel JV team is currently developing a Supplemental Watershed Plan - Environmental Assessment (Plan-EA) for this NRCS-assisted high hazard potential dam located in Westfield, Massachusetts. The dam was constructed in 1965 to provide flood control, wildlife development, and sediment storage for Powdermill Brook. The dam does not meet current NRCS dam safety criteria. The Plan–EA was developed using a multidisciplinary approach in accordance with current NRCS requirements. The project also included geotechnical investigations to support development of SITES and WinDAM material properties and evaluation of the seepage and slope stability of the existing dam. We have developed hydrologic and hydraulic models (HEC-HMS, HEC-RAS, SITES, and WinDAM) to support the benefit cost analysis, dam breach modeling and inundation mapping, and evaluation of rehabilitation alternatives. We have formulated and evaluated alternatives that meet the identified purposes and need of the dam, including a no federal action alternative, a decommissioning alternative, and dam rehabilitation alternatives. Dam rehabilitation alternatives studied in detail included raised dam with structural RCC spillway armoring of the existing auxiliary spillway and different labyrinth weir configurations with structural RCC spillway armoring.

QUALITY CONTROL AND ASSURANCE

QUALITY CONTROL PROCEDURES

ECS implements a robust quality control and assurance (QA/QC) framework applied consistently across dam safety and infrastructure projects. Our Corporate-Sponsored Quality Assurance Program has been in place for over 30 years and is governed by evolving Quality Systems Manuals designed for specific services. Key elements include the training and retention of experienced personnel, the use of regularly calibrated equipment and strict adherence to industry standards to achieve the highest quality results. Quality is integrated at every project phase, from field personnel to senior management. Every team member must understand and apply site safety protocols, quality control methodologies, testing procedures and the expectations for workmanship before mobilizing to the job site. Initial team reviews are conducted at project launch, followed by daily checks throughout execution to maintain compliance with contract requirements and applicable regulations. Each Team Leader is responsible for consistent communication of these procedures and for verifying ongoing adherence by our team members. Our quality control program involves:

- Maintaining an ongoing quality control process that measures and verifies project performance.
- Daily monitoring of operational performance and swift corrective action in response to unforeseen events or nonconformances.
- Tracking and resolving corrective actions with clear documentation and accountability.
- Ensuring data accuracy, precision and completeness through systematic review procedures.
- Retaining comprehensive records of field data, inspections and reports with secure archiving for traceability.
- Providing targeted training for employees and project partners to confirm their understanding of standard operating procedures and individual roles.

Assessments including internal and external audits, peer reviews and participation in proficiency testing are regularly performed to support our commitment to continuous quality improvement and performance accountability.

ENSURING COMPLIANCE WITH CODES AND STANDARDS

Our team has extensive experience supporting clients and regulatory agencies in meeting dam safety, environmental and construction code requirements. ECS directs our projects with registered professional engineers and qualified inspectors, ensuring that engineering design, quality control testing and construction conform to federal, state and local regulations. For projects involving Dam Safety regulations, we conduct comprehensive compliance reviews, facilitate permitting and engage in collaborative communication with regulatory authorities. Project-specific Quality Assurance Documents are developed where needed and project assignments are executed using our QA/QC program to foster consistent code compliance. Our staff remains up to date on evolving state and national codes including the ICC International Energy Conservation Code, ANSI/ASHRAE/IESNA standards and other requirements as specified by governing authorities. ECS' track record includes bringing high-hazard dams into compliance through geotechnical evaluations, hydrological modeling and close coordination with state agencies, thus ensuring public safety and regulatory approval.

> I have worked with ECS on a couple of projects now and have always had great responses and work completed. Will continue to contact you in the future for any relevant projects!."
>
> *- Davon Chambers*
> *Region 10 Community Services Board, Inc*

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 12/4/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Arthur J. Gallagher Risk Management Services, LLC 14026 Thunderbolt Place Ste 200 Chantilly VA 20151	**CONTACT NAME:** **PHONE (A/C, No, Ext):** 703-988-0900 **FAX (A/C, No):** 703-988-9498 **E-MAIL ADDRESS:** Joelle_Cutro@ajg.com
INSURED ECS Mid-Atlantic, LLC 14030 Thunderbolt Place Suite 500 Chantilly VA 20151	**INSURER(S) AFFORDING COVERAGE** / **NAIC #** **INSURER A :** Cincinnati Indemnity Company / 23280 **INSURER B :** Federal Insurance Company / 20281 **INSURER C :** Bankers Standard Insurance Company / 18279 **INSURER D :** ACE American Insurance Company / 22667 **INSURER E :** Cincinnati Insurance Company / 10677 **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 1001418817 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY** [ ] [ ] CLAIMS-MADE [X] OCCUR X Contractual Liab X X C U GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER:	Y	Y	ENP 0558340	12/1/2024	12/1/2025	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG 	$ 1,000,000 $ 500,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
A	**AUTOMOBILE LIABILITY** X ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS X HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY [ ]	Y	Y	EBA 0559217	12/1/2024	12/1/2025	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) 	$ 1,000,000 $ $ $ $
B	X **UMBRELLA LIAB** [X] OCCUR **EXCESS LIAB** [ ] CLAIMS-MADE [ ] DED [X] RETENTION $ 0	Y	Y	79891345	12/1/2024	12/1/2025	EACH OCCURRENCE AGGREGATE 	$ 5,000,000 $ 5,000,000 $
C	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [N] **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	Y	(25) 7176-41-66	12/1/2024	12/1/2025	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
E D	Excess Liability Pollution Liability	Y	Y	EXS 0516086 CPMG28192289	12/1/2024 12/1/2024	12/1/2025 12/1/2025	Occurrence/Aggregate Per Incident/Aggr	$5,000,000 $15,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Re: Proof of Insurance

CERTIFICATE HOLDER

SAMPLE CERTIFICATE

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Frank Anderson

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