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.

Header 1

List View

General Information | Contact | Default Values | Discount | Document Information | Clarification Request

Procurement Folder: 1337601
Procurement Type: Central Purchase Order
Vendor ID: 000000160928
Legal Name: CIVIL & ENVIRONMENTAL CONSULTANTS INC
Alias/DBA:
Total Bid: $0.00
Response Date: 01/30/2024
Response Time: 12:16
Responded By User ID: kevinhanks
First Name: Kevin
Last Name: Hanks
Email: khanks@cecinc.com
Phone: 304-933-3119

SO Doc Code: CEOI
SO Dept: 0313
SO Doc ID: DEP2400000010
Published Date: 1/12/24
Close Date: 1/30/24
Close Time: 13:30
Status: Closed
Solicitation Description: DLR - Design-Build Owner Advisor Services
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:	1337601
Solicitation Description:	DLR - Design-Build Owner Advisor Services
Proc Type:	Central Purchase Order

Solicitation Closes	Solicitation Response	Version
2024-01-30 13:30	SR 0313 ESR01302400000003626	1

VENDOR

000000160928
CIVIL & ENVIRONMENTAL CONSULTANTS INC

Solicitation Number: CEOI 0313 DEP2400000010

Total Bid: 0 **Response Date:** 2024-01-30 **Response Time:** 12:16:26

Comments:

FOR INFORMATION CONTACT THE BUYER
Joseph 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	Owner Advisor Services				0.00

Comm Code	Manufacturer	Specification	Model #
80101600			

Commodity Line Comments:

Extended Description:

Owner Advisor Services

January 30, 2024

Joseph E. Hager III
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, West Virginia 25305-0130

Dear Mr. Hager:

Subject: Statement of Qualifications
West Virginia Department of Environmental Protection
Division of Land Restoration
Owner Advisor Design-Build Services
Multi-County, West Virginia
CEC Project #: 340-669

Civil & Environmental Consultants, Inc. (CEC) is pleased to submit this Statement of Qualifications (SOQ) to the West Virginia Department of Environmental Protection (WVDEP) Division of Land Restoration (Owner) for Owner Advisor (OA) services for design-build projects. CEC understands the OA's role is to provide technical expertise for the development of reclamation projects, coordination for procurement, contracting, and execution of those projects, and permitting and construction oversight for each project on behalf of the Owner and stakeholders. Preparation of this SOQ is based on the Centralized Expression of Interest (CEOI) dated January 12, 2024.

1.0 GENERAL INFORMATION

1.1 General Information

1.1.1 Date, state and type of business organization (close, general, or S corporation; LLC or PLLC; sole proprietorship).

April 17, 1989, Pennsylvania, S Corporation

1.1.2 Federal and state tax ID numbers.

Federal Tax ID Number: 25-1599565
West Virginia State Tax ID Number: 251599565

1.1.3 Names of Owners, Principals and/or Officers.

Dustin Kuhlman, PE – Chief Executive Officer (CEO), President
Harry Dravecky, PE – Chief Operating Officer (COO)
Rick Richardson – Chief Financial Officer (CFO)

1.1.4 The name, title, email address, mailing address, fax and telephone number of the officer authorized to represent the consultant in any correspondence, negotiations and sign any contract that may result.

Erasmo Rizo
Principal
Email: erizo@cecinc.com
120 Genesis Blvd,
Bridgeport, West Virginia 26330
Fax: (304) 933-3327
Mobile: (304) 931-0814

1.1.5 The project manager's name, title, email address, mailing address, fax and telephone number.

Timothy A. Denicola, PG, CFM
Project Manager III
Email: tdenicola@cecinc.com
120 Genesis Blvd,
Bridgeport, West Virginia 26330
Fax: (304) 933-3327
Mobile: (304) 838-8475

1.1.6 Describe the firm's current staffing, workload and ability to competently and expeditiously provide OA services for the Agency.

The depth of our bench strength results in immediate access to personnel across various market sectors and disciplines. Team members included in this SOQ are primary contacts for project execution and will be available to communicate, coordinate, and execute project functions competently and expeditiously.

1.1.7 Describe the firm's contingency plan to respond with appropriate back-up staff in the case of death, disability, illness, or separation.

Various personnel across CEC, including in the Bridgeport, Martinsburg, and Charleston West Virginia offices, and Pittsburgh and Monroeville, Pennsylvania, offices possess the capability to fulfill these project roles. At any time the primary personnel become unavailable to fulfill these roles, a pre-established backup sequence of personnel apprised of their potential need to fulfill these roles and responsibilities will be implemented.

2.0 PROJECT UNDERSTANDING AND APPROACH

2.1 Project Understanding and Approach

As OA, CEC will adhere to the Design-Build Institute of America (DBIA) principles and will establish with Owner and stakeholders the desired procurement, contracting, and execution methodologies. The discussion will include self-assessment and market research to determine whether the desired approach is appropriate or whether a modified approach has greater potential for success. CEC understands the necessity of a supportive senior leadership team across all project stakeholders who understand trust and collaboration are critical to successful project implementation and who exercise the mental shift toward collaboration required to address the demands of design-build projects. CEC has a designated and experienced design-build coordinator to consult throughout design-build project implementation.

The guiding principles of DBIA align with those of CEC. Fundamental to DBIA principles is the Code of Professional Conduct, technical competence, professional development, and diversity equity and inclusion. CEC is an employee-owned company that successfully grows because of the honesty, transparency, and integrity regarding all business operations with all company personnel. Competence of technical and managerial personnel is evident at CEC through employer sponsored continuing education, training, and professional certifications for any who desires. CEC hosts numerous employee resource groups including CEC Community, CEC Women, CEC Idea, CEC Ignite, and CEC Fit, all which support employee and community personal and emotional health.

The benefit of DBIA best practices is their applicability across project markets, types, sizes, and industries. Implementing best practices helps avoid compromised project delivery related to schedules, budgets, or the program itself. CEC will strategically discuss with Owner and stakeholders the specific criteria of their program goals, desired approach, and constraints to successfully set and meet expectations.

Owners' needs vary across industries and CEC's 1,400+ person strong team is professionally experienced across market sectors, clients, contract types. Our deep bench strength includes experts in air quality, civil engineering, cultural resources, ecological resources, environmental engineering, manufacturing, survey and geospatial, waste management and water resources. Industries include mining, oil and gas, power, public sector, real estate, solid waste, and manufacturing. The diversity of markets and industries served by CEC personnel results in a highly skilled team personally committed to the clientele which allows us to bring experience to all scenarios and contingencies that may arise. It also allows us to carefully discuss with Owner their strategic choices for project delivery by understanding their desires and constraints.

2.1.1. *Describe how you will organize and perform project tasks.*

Preliminary coordination meetings will be held between the Agency, stakeholders, and OA for each individual project to establish goals and objectives. CEC will visit each project location to collect relevant data for preparation of the design-build expression of interest (EOI) and will prepare the EOI. The EOI will contain a 10% conceptual design, contractual obligations, timelines, and required information as confirmed by the Agency during coordination. Documents prepared by the OA will be discussed with the Agency and stakeholders for input prior to public issuance. CEC will prepare Independent Cost Estimates for design-build projects based on decades of experience within similar industries and projects, review of market research, and coordination with trusted partners developed through extensive project experience. CEC will develop a rubric of evaluation factors having a standardized format and numerical scoring to assess design-build bids received from engineer/contractor teams.

Public notification of project opportunities will make the details of the project, submittal, and contract components clear to knowledgeable partners. Based upon the Owner's desired approach, CEC will prioritize qualifications and partnerships with design/build teams that have documented communication and disadvantage business enterprise (DBE) strategies. When implementing procurement CEC will be prepared and organized to address the diversity of proposals received.

The approach will limit deliverables until qualifications based shortlisted firms have been selected, at which point those shortlisted teams may be consulted to guide the next project steps. Including shortlisted firms in request for proposal (RFP) development could reduce design and construction phase conflicts, budget overruns, and lost time. CEC will prioritize design-build teams that have preliminarily coordinated with trade and subcontractor partners and have done so in a clear and transparent manner related to anticipated scope, budgets, timelines, incentives, performance requirements, and contractual obligations.

CEC will evaluate post-award engineering phases having measurable milestones including but not limited to delivery of existing site conditions, preliminary design drawings, permit drawings, final issued for construction drawings, and technical specifications. CEC will evaluate construction phase tasks including but not limited to mobilization, site preparation, erosion and sediment controls, materials, initial grading and stockpiling, construction of best management practices (BMPs), final grading, revegetation, notice of substantial completion, and demobilization. CEC will provide full-time construction quality assurance (CQA) utilizing a team equipped with modern equipment and personally experienced in CQA for stream restoration and land reclamation projects.

CEC will exercise principles such as assessing conflict of interest, disclosing performance requirements, facilitating project commission clarity, and performing front-end due diligence. We will develop and adhere to shortlisting strategies, validation of project components, and exercising the standard of care throughout the project life, including clearly understood partnership off-ramp for engineer/contractor teams if required. Ultimately, we will advise projects from conceptual coordination with the Owner and stakeholders through identifying obligations at project completion and turnover for long-term management.

2.1.2. *Describe how you will identify critical milestones and ensure progress.*

Critical milestones will be established during project kick-off and will be presented through use of a Ghantt chart. Clearly communicated milestones will establish the implementation path for successful project delivery by the OA, engineer, and construction contractor. Identifying appropriate critical milestones will be based on personal industry experience gained through implementation of phases on similar projects. Progress will benefit from establishing clear roles and responsibilities, effective team communication, and flow down provisions of tasks through engineering firms, contractors, subcontractors, and trade partners.

2.1.3. *Describe how you will address contingencies that may arise during the project.*

Contingencies will be addressed through clear and effective communication. As the OA, CEC will notify the designated Agency point of contact to debrief immediately upon receiving notification of occurrences that deviate from the previously accepted sequence. At the direction of the Agency, CEC will schedule a meeting including in attendance the Agency, stakeholders, engineers, contractors, and relevant parties impacted by the occurrence to discuss, resolve, and develop a forward-looking response. A collaborative resolution agreed upon by all parties and adhering to a methodology established during the initial project commencement will be implemented.

2.1.4. *Describe how you will manage the project budget, schedule, and scope.*

Project budgets and schedules will have defined values and milestones, creating a mechanism to evaluate whether project goals and objectives are being met efficiently. Cost incentives and performance guarantees will be established as agreed-upon, measurable contractual components to prevent these items from affecting successful delivery. Effective preliminary establishment of milestones and consideration of joint risk assessment and risk allocation will facilitate project effectiveness related to meeting budgets, schedules, and scopes. Additionally, established communication protocols, expedient change processes, and proactive dispute resolution prevent the compounding of setbacks.

2.1.5. *Describe how you will ensure quality control.*

Management of quality control is based on CEC's experience performing design-build projects as the engineer of record on prior engineer/contractor teams. CEC is familiar with each project component and has personal experience with execution. We have extensive experience with stream restoration and abandoned mine land (AML) reclamation projects and have gained valuable esoteric insights through prior project implementation. We have built trusting relationships with project stakeholders, prepared documentation for and coordinated with clients, subconsultants, and subcontractors, and continue to have existing professional relationships with restoration and reclamation-oriented firms. Throughout the project, CEC will act as the Agency liaison between the Engineer of Record and their partnering subcontractors. This experience with similar projects and the CEC professionals who championed them positions CEC as a valuable OA to the Agency and a trustworthy liaison to the engineer/contractor team.

During execution of design-build projects, CEC will focus on the right people and will utilize a senior management team identified herein. Technology within the organization allows co-location meeting collaboration simultaneously with all stakeholders to facilitate effective administration. Design review and conformance to codes and standards of care are primary to our capability and were honed through thousands of opportunities as design Engineer of Record. Accessibility to technically competent personnel drove the success that perpetually grows our company. Integrated design and construction are core to the company culture we pride ourselves on, and we regularly train management personnel in the tasks required for successful execution of technical engineering and design-build projects.

2.2 Permitting

CEC personnel routinely prepare and submit application packages to obtain regulatory clearances and permits. Communication with regulators and responses to comments will be managed by CEC

acting as OA to the Agency and will communicate with the Agency and stakeholder at each major milestone. Regulatory components often include:

- United States Army Corps of Engineers (USACE) Section 404 Permits
  - Nationwide 27
  - Regional General for abandoned mine lands (AML)
- United States Fish and Wildlife Service (USFWS)
  - Section 7 Consultations
  - Section 10 (if necessary)
- West Virginia State Historic Preservation Office (SHPO)
  - Section 106 Clearance
- West Virginia Division of Natural Resources (WVDNR) Office of Land and Streams
  - Stream Activity Permit
  - Spawning Waiver
- West Virginia Department of Environmental Protection
  - National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permitting
- West Virginia Department of Transportation
  - MM-109 Encroachment Permit
- Federal Emergency Management Agency (FEMA) and County Floodplain Coordination
- Regional, county, and local requirements as identified during project planning

2.3 Construction Oversight

CEC is experienced in performing continuous construction inspection, documentation, and office management services during design-build projects. CEC will provide a construction inspector to observe and document construction activities to facilitate conformance with project plans and specifications. CEC's construction inspector and project manager will maintain and distribute daily records of the work performed, including daily logs, material delivery tickets, and a cumulative deviation report describing specific items and their locations that are observed not to be in compliance with project documents. Electronic copies of daily field reports, site photographs, and deviation lists will be provided to the Owner along the format and timelines established during project initiation. CEC will provide construction inspection and management services during the project acting as a representative for the Owner.

CEC's project manager will provide oversight of the construction inspector, review the results of field reports and photographs, and communicate with the Owner regarding construction and inspection results and progress regularly. CEC will track and review the project construction

submittals and pay applications provided by the contractor and provide commentary. CEC will have its inspector and project manager schedule and attend a substantial completion walkthrough upon receiving the substantial completion notification from the contractor. After the project, CEC will review the final cross-sections and as-built plans provided by the contractor. If found to be acceptable, CEC's engineer in charge of responsibility will prepare a final certification of the project and submit it to the owner.

CEC's construction oversight will also have administrative support to collect contractor-certified payroll statements with each pay application showing the contractor's implementation of Davis-Bacon Prevailing Wages. CEC will prepare and collect an additional certified statement from the contractor declaring if they have employed or dismissed from this contract former or current employees of the coal industry to be submitted with each pay application. CEC will lastly consider the country of manufacture for specific products submitted for shop drawing review and construction material submittals when performing these reviews. If, upon desktop review, a product is found to be manufactured outside of the United States of America, it will be rejected unless extenuating circumstances require a different action.

CEC understands that records drawing preparation, construction survey and staking, and quality control material testing services such as concrete testing and nuclear density gauge testing are to be performed by the awarded engineering/construction contractor team.

3.0 STAFFING

3.1 Staffing

CEC is committed to seeing these projects through to completion by collaborating with the Agency, regulators, and stakeholders to communicate, clarify, and overcome unforeseen circumstances. CEC personnel have extensive experience assessing, designing, and overseeing the construction of stream restoration and AML projects. The Project Manager, Mr. Timothy Denicola, studied and practiced natural channel design for over a decade and has completed Rosgen Wildland Hydrology courses I-IV, is a licensed professional geologist (PG) and certified floodplain manager (CFM). He designed thousands of feet of stream restoration projects and continues to manage and monitor stream and wetland mitigation banks consisting of hundreds of thousands of feet of constructed streams and tens of acres of established wetlands. As a geochemist and hydrogeologist, Mr. Denicola has played a critical role in engineering acid mine drainage (AMD) remediation and AML land reclamation projects.

During this time, Mr. Denicola personally oversaw the construction of tens of thousands of feet of stream construction, millions of gallons of mine water remediation, and extensive grading and

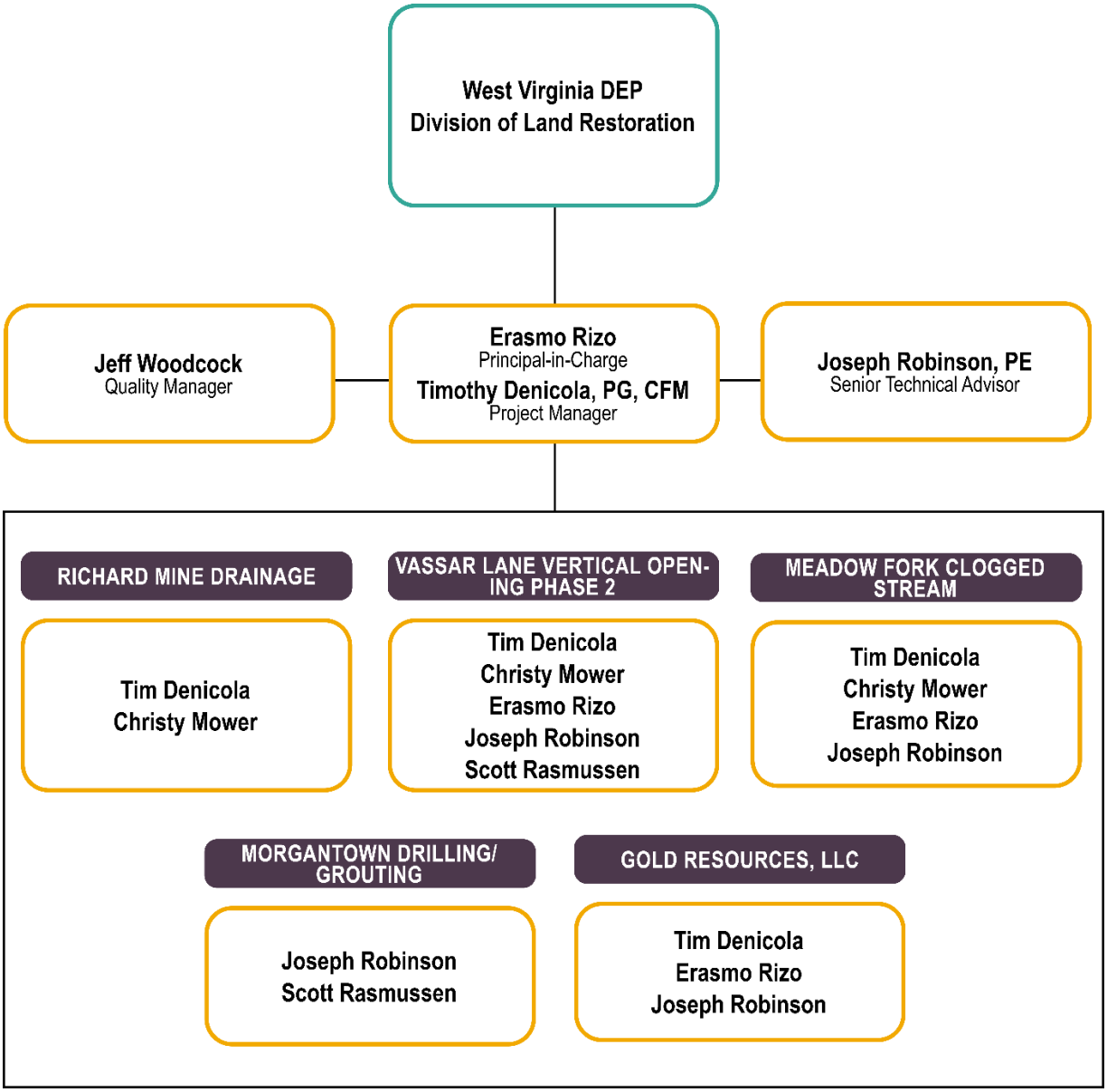
earthwork projects, all while working directly with contractors from the tracks of their excavators. He acted, and continues to act, as Owners Advisor relating to technical components. He personally designed projects, composed technical specifications, prepared bidding and contractual documents, directed pre-bid and preconstruction meetings, and performed construction oversight, notice of substantial completion, and final walkthroughs. He'll be committed to the Owner to ensure successful procurement, contracting, and execution of these design-build projects.

Mr. Erasmo Rizo is a Principal at CEC leading design and construction projects over 19 years. He has led a wide range of projects that include initial site selection, grading and layout, permitting, quantities, bidding documents, construction administration, as-built and project closeout. The projects range from large earth work site design that require significant infrastructure improvement such as utilities and access to linear projects. Mr. Rizo has experience with West Virginia State procurement process 5-G-1-3. Project permitting experience involves one or many of the respective governing body listed below:

- U.S. Fish and Wildlife Service's (USFWS);
- National Historic Preservation Act (NHPA);
- West Virginia Division of Natural Resources (WVDNR);
- U.S. Army Corps of Engineers (USACE);
- West Virginia Department of Environmental Protection (WVDEP), Division of Water and Water Management;
- West Virginia Division of Highways (DOH)

Additional personnel as well as company experience can be found in Appendix A.

3.1.1 Identify personnel responsible for leading and staffing each phase of the project. Including but not limited to:



3.1.2 Key personnel résumés including name, title, education, experience, references, professional affiliations, certifications, licenses and registrations.

Appendix A

3.1.3 Key personnel's office location(s) and the number of other staff in each office. Identify any external sub-consultants and describe their roles and responsibilities.

Civil & Environmental Consultants, Inc.

- Timothy Denicola, PG, CFM
  - Project Manager III
  - Bridgeport, WV
- Erasmo Rizo
  - Principal
  - Bridgeport, WV
- Joeseph Robinson, PE
  - Vice President
  - Bridgeport WV
- Jeff Woodcock, PE
  - Vice President
  - Pittsburgh, PA
- Additional Staff
  - Bridgeport – 125 employees
  - Charleston – 2 employees
  - Martinsburg – 9 employees
  - Pittsburgh – 252 employees
  - Monroeville – 66 employee

4.0 SIMILAR PROJECT EXPERIENCE AND REFERENCES

4.1 Describe the firm's current and recent experience representing owners on similar projects as an OA. Descriptions must include: Brief descriptions, Owner name, design Consultant, Prime Contractor(s), owner reference including name, title, phone number and email address, and name of the proposed project team member (from this proposal) who was assigned to the project and their role, size of the project and when it was completed. The time durations of similar projects that best characterize experience with schedule and cost control should be for projects completed within the last five (5) years.

Appendix B

4.2 Describe how successful the firm was in managing the recent similar projects on time and within budget (schedule and cost parameter examples). If there were schedule delays or cost deviations from the original project commencement, explain if these items were the result of Owner-directed changes, unforeseen conditions, permit delays, or other factors.

4.3 Describe the roles and responsibilities of the key personnel in your staffing proposal.

See 3.1.1

4.4 Information that deviates from the requested information listed above may be grounds for disqualification.

5.0 PROXIMITY TO THE PROJECT SITE

5.1 Proximity to the Project Site

5.1.1 Key personnel's office location(s) and the number of other staff in each office.

Key personnel including the Principal, Project Manager, technical advisor, regulatory team, and construction oversight team are located in the Bridgeport, West Virginia, office. The Corporate Design-Build Coordinator is located in the Pittsburgh, Pennsylvania, office. Additional qualified personnel who will be apprised of their potential need to substitute on this project are located in the Martinsburg and Charleston, West Virginia offices, and the Pittsburgh and Monroeville, Pennsylvania offices and are within a distance that will permit for day-trips to project locations with limited advanced notice. The Bridgeport office is the second largest of 33 CEC offices nationwide, having a headcount of 125 professional personnel. Pittsburgh has the largest office with 252 personnel, and Monroeville has a headcount of 66 personnel, creating a substantial pool of personnel to make available for project execution. The Martinsburg and Charleston offices were recently founded and have head counts of 9 and 2 personnel, respectively.

Various personnel across 33 CEC offices possess the capability to fulfill these project roles. At any time the primary personnel become unavailable to fulfill these roles, a pre-established backup sequence of personnel apprised of their potential need to fulfill these roles and responsibilities will be implemented.

5.1.2 Key personnel's current project location(s).

The bulk of current projects under the direction of the Principal, Project Manager, and both Vice Presidents are in West Virginia and Pennsylvania. While we contribute to project execution

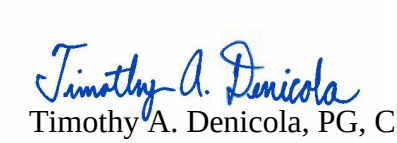
nationwide, our geographic focus is on where we work and live, where we recreate, shop, and raise our children.

6.0 CLOSING

CEC appreciates the opportunity to work with WVDEP-DLR in the OA role, and we look forward to future opportunities with you. If you have any questions regarding this SOQ, please call the project Point-of-Contact (Tim Denicola, 304-838-8475) or Principal (Erasmo Rizo, 304-931-0814) for further discussion.

Very truly yours,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.



Timothy A. Denicola, PG, CFM
Project Manager

Erasmo Rizo
Principal

RESUMES

Timothy A. Denicola, PG, CFM

Project Manager III

16 YEARS OF EXPERIENCE

EDUCATION

M.S., Geology, West Virginia University, 2013

B.S., Chemistry, Clarion University of Pennsylvania, 2006

Licensed geologist and project manager whose multi-disciplined background includes emphasis in geochemistry and hydrogeology. Experience ranges from mine water remediation and stream/wetland restoration design to geotechnical soil and rock analysis, soil and water sampling, monitoring well installation, aquifer analysis, gas well plugging, and survey/construction layout. Diverse background with sound knowledge of fundamentals of geology.

PROJECT EXPERIENCE

2022 AML Contract 8 Project North, Harrison County, WV

The Brownton site in Harrison County, West Virginia, was extensively contour mined creating priority 1 & 2 health and safety issues, disrupting natural drainage patterns, and placing volumes of spoil material on the valley walls and valley bottom. Mr. Denicola has made recommendations throughout the design process as it relates to engineered drainage patterns and contaminated refuse handling. Mr. Denicola collected baseline water quality data and reviewed soil geochemical data obtained from the geotechnical investigation to assess properties of acid-base accounting.

Francis AMD Remediation, Harrison County, WV

In the mid-1990's a series of passive AMD treatment practices were constructed to remediate hundreds of gallons per minute of contaminated mine water. After 20+ years of operation the system required refurbishment. Mr. Denicola performed calculations to assess heterogeneous iron oxidization rates under fluctuating temperature, pH, and dissolved oxygen conditions. Calculations also estimated volume of precipitated sludge as suspended solids. The detailed calculations allowed Mr. Denicola and the project team to appropriately size a series of alkalinity generating and oxidation inducing treatment practices in series while managing precipitated solids along the treatment path, and provided the client an estimate of treatment performance under varying climatic and site conditions.

Lyons Run AMD Remediation, Westmoreland County, PA

The Lyons Run watershed is severely impaired by acidic, iron and aluminum contaminated mine water. Mr. Denicola completed baseline water quality sampling, remediation design, and developed a mitigation banking prospectus. Mr. Denicola managed site delineations and baseline biological monitoring, high resolution LiDAR topographic UAV flights, geotechnical site assessment, and regulatory components including USACE, PADEP, and local requirements. Mr. Denicola performed calculations for alkalinity generation rates, chemical oxygen demand, heterogeneous iron oxidation rates, precipitated sludge volumes, and best management practice sizing and retention. The project will ultimately utilize a successive alkalinity producing system (SAPS) to

EXPERTISE

Abandoned Mine Drainage (AMD)

AML Reclamation

Ecosystem Restoration

Stream and Wetland Design

Mitigation Banking

Water Quality and Flow Monitoring

Soil Chemical Sampling

Monitoring Well Installation

Soil Boring Advancement

Rock Coring Exploration

Aquifer Analysis

Contaminant Tracking

Survey / Construction Layout / CQA

REGISTRATIONS

Professional Geologist

- PA PG005483

CERTIFICATIONS

Certified Floodplain Manager, Association of State Floodplain Managers

Level I Applied Fluvial Geomorphology, Wildland Hydrology

Level II River Morphology and Applications, Wildland Hydrology

Level III River Assessment and Monitoring, Wildland Hydrology

Level IV River Assessment and Monitoring, Wildland Hydrology

Advanced AMDtreat Mine Drainage Cost Calculation Software, U.S. Office of Surface Mining Reclamation and Enforcement (15-Hour)

PEC/Safeland Training, 8-Hour Course, ID# PEC 100784550

neutralize acid, collect precipitated solids, and improve watershed aesthetic and ecological function while limiting long-term operations and maintenance costs.

Snake Run Stream Restoration, Greenbrier County, WV
The Snake Run Stream Restoration project addressed a 1,000 foot stream corridor displaying extensive aggradation and lateral migration across agricultural land. Mr. Denicola completed a geomorphic and topographic survey to collect bankfull, channel, berm, and thalweg data. From empirical data, Mr. Denicola produced a longitudinal profile and cross-sections, calculated appropriate bankfull area, shear stress, and stream power, and designed a restoration corridor including hydraulic structures and floodplain to return Snake Run to proper pattern, profile, and dimension.

Oxbow Mitigation Bank, Stream / Wetland Restoration, Ritchie County, WV
The Oxbow Mitigation Bank restored approximately 26,000 feet and enhanced approximately 48,000 feet of heavily degraded stream corridor. The property has been heavily timbered and traversed with access routes resulting in excess sedimentation, disconnected stream channels, and reduced biological diversity. Off road vehicle traffic and the county right-of-ways utilize the stream corridor resulting in substantial geomorphic degradation. Mr. Denicola managed and completed stream restoration designs, geotechnical rock drilling exploration, oil & gas infrastructure relocations, county right-of-way decommissioning, contractor coordination, and full-time construction quality assurance (CQA) to facilitate successful project completion.

Brushy Fork Mitigation Bank, Stream / Wetland Restoration, Harrison County, WV
The Brushy Fork Mitigation Bank restored approximately 95,000 feet of streams and 9.5 acres of wetland. Portions of the property were extensively coal mined and streams were constructed into poor quality spoil with the potential for acid generation and iron precipitation. Mr. Denicola managed and completed stream restoration designs and conducted extensive chemical and hydrologic data collection to characterize the construction material and selected various mitigation techniques to prevent negative spoil influences on water quality. A combination of alkaline reagent, organic compost, aerobic wetlands, impermeable liners, and spoil excavation were utilized to ensure acceptable water quality beneficial to establishment of aquatic habitat post-construction.

Export AMD Assessment and Treatment Plant Design, Westmoreland County, PA
Two mine water discharges near Export, PA, convey a combined 3,000 gallons per minute of severely acidic, iron and aluminum contaminated mine water into a watershed having fishery potential. Mr. Denicola completed a historic water quality review, baseline water quality sampling, chemical loading and treatment calculations, site surveying, and developed a conceptual engineering design utilizing pre-aeration, quicklime slurry system, rapid mix chamber, center flocculating clarifiers, and sludge pumping and disposal. The source water conveyance system utilizes vertical turbine pumps for mine-pool drawdown. The design includes an innovative approach to working within site constraints while ensuring sufficient carbon dioxide off-gassing, reagent mixing, precipitated solids handling, onsite solids disposal, and simplified operations and maintenance. Additionally, greenspace development includes trails, pavilions, and playgrounds centered around fishing ponds replenished by treated mine water effluent.

Beaver Creek at Auman Road Passive AMD Treatment, Preston County, WV
A tributary to a cold-water fishery (CWF) was impacted by acidic, aluminum contaminated water discharging from an abandoned coal surface mine. Mr. Denicola designed two passive mine water treatment systems consisting of flushing limestone beds (FLB), settling ponds, and aerobic polishing wetlands. Each FLB utilized an automatic dosing siphon, large diameter limestone, and large diameter flush plumbing to reduce loss of substrate porosity and increase alkalinity generation and flushing velocities. Settling ponds utilize perforated stand-pipes and rock baffles to achieve particle settling velocities. Aerobic wetlands were designed with thick, native, non-invasive grasses, woody shrubs and wetland trees to facilitate final polishing while increasing ecological habitat. Extensive chemical, hydrologic, and volumetric calculations were utilized to ensure optimal cost-effective performance.

Herods Run Passive AMD Treatment Project, Upshur County, WV*
Herods Run is impacted by acidic, iron contaminated water emanating from an abandoned coal surface mine. Mr. Denicola developed the preliminary and final engineering design drawings for a successive alkalinity producing system (SAPS), and prepared the construction specifications, cost estimates, and bid package. Mr. Denicola prepared permit application packages for the U.S. Army Corps of Engineers (USACE) Regional General for AML permit and WV Department of Natural Resources (WVDNR) Stream Activity permit. Throughout the project Mr. Denicola facilitated open communication between a non-profit watershed association, various landowners, and a private energy company owning easements.

Timothy A. Denicola, CFM

Project Manager III

Water Quality Monitoring, Antero Treatment, LLC, Doddridge County, WV

Antero Treatment, LLC, as a requirement of federal, state, and local regulation requires environmental monitoring. Mr. Denicola performed stream and site-specific water quality and hydrologic monitoring in support of company operations. Monitoring included collection of field chemical parameters and laboratory samples for analysis of RCRA and non-RCRA volatile and semi-volatile organic compounds, poly-nuclear aromatic hydrocarbons, phthalate esters, petroleum related hydrocarbons, metals, anions, and radionuclides. Monitoring required analysis of gases including methane and dihydrogen sulfide. Flow data was collected using a USGS Wading Rod with FlowTracker Acoustic Doppler flow meter and the cross-sectional area method.

Soil Quality Monitoring, Antero Resources Corporation, Multi-County, WV

Mr. Denicola routinely performed soil sampling in support of company operations. Sampling adhered to EPA Method 5035A for volatile organic compounds in soil and assessed pre-construction and post-construction soil quality at production facilities.

Lehigh River Basin Watershed Assessment*

Mr. Denicola was provided chemical data from approximately two dozen abandoned mine discharges (AMD) in several impaired subwatersheds of the Lehigh River. Utilizing spatial and statistical software, Mr. Denicola prepared an assessment and recommendations report identifying priority AMDs and priority subwatersheds for remediation. Statistical methods utilized univariate statistical data and multivariate data including principal component and hierarchal cluster analysis. Based on geochemical calculations, site-specific treatment options were recommended including associated engineering and construction costs.

Regulated Mining Property AMD Treatment and Refuse Research Study, TN*

An extensively reclaimed, regulated mining property treats acidic groundwater emanating from various locations. Mr. Denicola conducted an assessment of various treatment options ultimately identifying the most cost-effective method of meeting NPDES compliance at several discharge points. Mr. Denicola completed a treatment test cell study to assess techniques for mitigating acid production in mining refuse to research eliminating the need for long-term AMD treatment.

Technical Assistance Grants Program, Trout Unlimited, PA Statewide*

Mr. Denicola participated as one of several on-call consultants for the Trout Unlimited (T.U.) Technical Assistance Grants (TAG) Program. Each year various entities request assistance from T.U. to complete existing abandoned mine water (AMD) treatment system assessments with recommendations for improvements, rapid AMD characterizations, and rapid watershed snapshots, develop conceptual designs for AMD treatment systems, conduct construction oversight of AMD treatment systems, develop monitoring plans. Mr. Denicola completed all tasks associated with each request totaling approximately six per year.

Kanawha Mitigation Banks (Sapsucker Run and Yeager Fork), Stream / Wetland Restoration, Mason County, WV

The Kanawha Mitigation Banks restored, enhanced, and preserved a combined 61,000 feet of stream and 1.1 acre of wetlands. The properties were heavily timbered and traversed by access routes. Surface disturbances heavily altered hydrology and impacted stream corridor geomorphology, floodplain, vegetation, and ecological function. Mr. Denicola completed geotechnical rock drilling exploration to identify suitable material for stream restoration hydraulic structures, composed site SWPPPs and filed the application paperwork for the NPDES Construction Stormwater Permit, and coordinated county right-of-way decommissioning.

Indian Creek Mitigation Bank, Stream / Wetland Restoration, Ritchie County, WV

The Indian Creek Mitigation Bank restored 12,000 feet of stream and 0.66 acre of wetlands. Mr. Denicola reviewed the USACE Section 404 Permit Application and managed completion of credit projections and associated supporting information to ensure conformance to 33 CFR 332.

Howards Creek Stream Restoration, Greenbrier County, WV

The Howards Creek Stream Restoration addressed a 4,000 foot stream corridor displaying impacts from urban development and channelization. Mr. Denicola oversaw aerial mapping to collect high resolution LIDAR and orthoimagery, and personally completed a geomorphic survey to collect water surface and thalweg data. LIDAR imagery identified bankfull and berm features. Empirical data was utilized to calculate bankfull area, shear stress, and stream power, and to compose a stream restoration plan. The proposed restoration approach achieved greater flood management where standard restoration techniques were restricted by development.

Timothy A. Denicola, CFM

Project Manager III

Protection Plan Development, Ecosystem Investment Partners, Multi-County, WV

Mr. Denicola prepared detailed Groundwater Protection Plans (GPP) and Stormwater Pollution Protection Plans (SWPPP) in support of stream and wetland restoration projects requiring extensive earthwork. Plan preparation was a component of successfully obtaining National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permits for various projects in northern West Virginia.

Regulatory Compliance, Antero Treatment, LLC., Doddridge County, WV

Antero Treatment, LLC, operates a water treatment facility that requires onsite storage and handling of industry wastewater and regulated reagents. Mr. Denicola became intimately familiar with site-specific processes and oversaw completion of Aboveground Storage Tank (AST) fit-for-service inspections. Mr. Denicola personally developed the Spill Prevention Response Plan (SPRP) and Spill Prevention Control and Countermeasure (SPCC) Plan in conformance with 47 CSR 63 and 40 CFR 112, respectively. Mr. Denicola prepared spill compliance training documentation and administered training to Antero personnel.

Regulatory Environmental Compliance Audits, Private Coal Client, PA, WV, KY*

Via EPA Consent Decree, a southern West Virginia coal company required periodic environmental compliance audits. Audits consisted of reviewing toxic waste inventories and hazardous materials handling, verifying that proper pond and fill certification protocols were met, and ensuring that NPDES daily monitoring and compliance was met. Mr. Denicola conducted dozens of audits focused specifically on verifying SPRP and SPCC Plan accuracy and ensuring compliance with TSCA, SWDA, SARA, EPCRA, and CERCLA. Additional services included review of NPDES Daily Monitoring Reports (DMR) and verifying compliance with earthen ponds and valley fill engineering inspections.

Well Plugging and OG Infrastructure Modifications, Ritchie County, WV

To facilitate successful stream restoration for a mitigation banking client, various components of traditional oil & gas operations required abandonment or modification. Mr. Denicola pulled historic production records for several conventional wells then proceeded to coordinate with infrastructure owners, subconsultants, and regulatory inspectors. Tasks included preparation of plugging / modification agreements, permit packages, and onsite construction quality assurance. Mr. Denicola acted as site geologist coordinating with contractors and reviewing daily reports to ensure appropriate well bore preparation, plugging materials and intervals, and completion methods. Additionally, thousands of feet of small diameter conveyance pipelines were rerouted and appropriately trenched, backfilled, and as-built surveyed.

Kanes Creek South Site #3, AMD Remediation, Preston County, WV*

Several acid mine discharges impairing Dills Run, required development of a passive remediation system. Mr. Denicola oversaw the final stages of system design, construction stormwater permitting, and West Virginia Non-Point Source (NPS) 319 and Office of Surface Mining (OSM) Watershed Cooperative Agreement (WCAP) grants management, as well as conducted construction oversight and completion of pre- and post-construction monitoring. The final system ultimately consists of a flushing limestone bed followed by two settling ponds in series. The system is successfully neutralizing all acidity, introducing residual alkalinity, and is removing all metals to analytical minimum detection limits.

AMD Treatment, Broad Top Township, Bedford County, PA*

Various active and passive AMD treatment systems currently operate within Broad Top Township. Mr. Denicola conducted geochemical calculations that directly translated into several passive system designs, conducted chemical and hydrological sampling as part of an assessment and recommendations study, and conducted the post-construction final inspection AMD treatment systems.

Semi-Active AMD Treatment Conceptual Design, Brubaker, Clearfield County, PA*

Mr. Denicola developed the winning conceptual design for semi-active treatment at the abandoned Dean Clay Mine discharge in the Brubaker Run watershed. The design utilized calculations for acid neutralization and sludge production rates. The design included active treatment BMPs, surface water diversion and high flow bypasses, and a proposal for an on-site sludge disposal assessment requiring a geotechnical study of the nearby mine workings.

AMD Assessments and Recommendations,, Buck Mountain #2 and Lausanne Tunnel, Eastern Pennsylvania*

Several passive AMD treatment systems required an assessment and recommendations report to evaluate treatment efficacy. Mr. Denicola conducted chemical and hydrological sampling and completed an assessment of each location including recommendations

and associated costs. Development of the recommendations required calculations of acid and metal loads, alkalinity generation and acid neutralization rates, ferrous iron oxidation rate, sludge volume, and BMP sizing for necessary hydrologic retention time.

Semi-Active AMD Treatment, Sewickley Creek, Brinkerton, Westmoreland County, PA*
The Brinkerton Semi-Active AMD Treatment project was affected by a high volume of alkaline mine water discharge and the existing passive treatment system required refurbishment. Mr. Denicola assisted in redesign of a Maelstrom Oxidizer, pond berm stabilization, incorporation of top flow weirs to allow collection of chemical and hydrological data, and conversion of a smaller acidic mine water collection area into an anoxic limestone drain. Mr. Denicola also performed construction oversight at various stages of project completion.

Severe AMD Characterized by High Acidity, Iron, and Aluminum, Satcher Pre-Treatment Pond (SPTP)*
The SPTP was constructed to handle severe AMD characterized by high acidity, iron, and aluminum. In 2013, the system required refurbishment. Chemical and hydrologic assessment, funding acquisition, design, and construction were completed by Mr. Denicola and the landowner. The resulting system is an improved flushing limestone bed with improved hydrologic capacity, acid neutralization, and metals removal.

Slabcamp Tributary, AMD Remediation, Preston County, WV*
Four severe AMDs are impairing a tributary to Slabcamp Run and a 5.4-acre wetland. Mr. Denicola completed pre-construction monitoring, execution of landowner right-of-entry agreements, acquisition of an environmental consulting firm, communication with the U.S. Army Corps of Engineers (USACE) regarding wetland and waterways permitting, communication with the State Historic Preservation Office (SHPO) to complete a Section 106 review, communication with West Virginia Department of Natural Resources (WVDNR) to complete a National Environmental Policy Act (NEPA) review and composed an Environmental Assessment (EA), communicated with Region VI Planning and Development Council for the necessary consultation letter, and assisted development of a conceptual design.

Ingrand Mine, AMD Remediation, Preston County, WV*
Two severe AMDs impairing Dills Run required development of a passive remediation system. Mr. Denicola oversaw pre-construction monitoring, completion of land purchase through execution of a subdivided land deed, acquisition of an environmental consulting firm, communication with the USACE, SHPO, NEPA, and Region VI, and assisted development of a final design with associated specifications, bid, and contract documents. The passive treatment system utilizes a flushing limestone leach bed, two settling ponds, an anaerobic vertical flow wetland (AVFW), and a polishing wetland and is successfully reducing contaminant loads to Dills Run and Kanes Creek.

Valley Point #12 Refurbishment, Kanes Creek South Site #1 and Valley Highwall #3 Upgrades, Deckers Creek Watershed*
After years of successful acid neutralization and metals load reductions at numerous systems within the Deckers Creek Watershed, system efficacy had reduced at several systems and refurbishments were necessary. Mr. Denicola oversaw extensive system assessments and coordinated with landowners and the Deckers Creek Restoration team to facilitate improvements. The result was award of funding for two projects, a completed design for one, and a funding request for the final system.

Successive Alkalinity Producing System and Active Lime Doser Assessments, Deckers Creek Watershed*
As a responsibility of project management, Mr. Denicola thoroughly audited all existing systems within the Deckers Creek watershed. The most extensive audits were conducted at a successive alkalinity producing system (SAPS) that utilizes flushing limestone leach beds, settling ponds, and an AVFW. Chemical, hydrologic, and redox potential data were collected, and geochemical software was utilized to evaluate the iron reducing capability of the AVFW, which ultimately proved to be highly successful. The SAPS was receiving AMD with pH=2.6 and high ferric iron and aluminum concentrations and was discharging water of circum-neutral pH with metals below minimum detection limits. The AVFW alone displayed a redox potential of -0.093 V and conversion of all ferric iron into the ferrous form. In addition, the Deckers Creek watershed utilizes two active tipping bucket lime dosers for neutralization of severely degrading AMD. Mr. Denicola thoroughly audited both active systems through a series of geochemical sampling and evaluation techniques. The results of the audits substantiated the necessity of future funding for refurbishment.

Mine Pool Water Quality Study, Richard Mine*
The Richard Mine discharges 400 gallons per minute of water characterized by pH=4.0 and high iron and aluminum concentrations. The discharge emanates from a partially flooded mine pool within a 2,300-acre mining complex. Treatment will require a full-scale

active facility. To assess the design requirements, Mr. Denicola oversaw acquisition of an environmental consulting firm for successful installation of a 342-foot-deep monitoring well. To facilitate the project Mr. Denicola executed a notarized landowner entry agreement, obtained and evaluated mine maps, and utilized field pumps and transducers to monitor water level and chemistry of the Richard Mine pool.

Clean Creek Program, Friends of Deckers Creek*
Since 2002, the Friends of Deckers Creek has participated in the Clean Creek Program (CCP) which consists of quarterly chemical, biological, and flow sampling at 13 key locations along the 24-mile length of Deckers Creek. In addition, collected data are compiled into an annual State of the Creek Report for distribution to community members and funding agencies. Mr. Denicola took an active role in performing CCP duties, funding acquisition, and report writing.

Watershed Based Plan and Quality Assurance Protection Plan*
As a responsibility of project management, Mr. Denicola composed a Watershed Based Plan (WBP) and Quality Assurance Protection Plan (QAPP) for approval by the United States Environmental Protection Agency (U.S. EPA). The WBP identifies priority remediation sites to meet compliance with West Virginia Department of Environmental Protection (WVDEP) Total Maximum Daily Loads (TMDL) requirements for the WV 303(d) list of impaired streams. In addition, Mr. Denicola composed a QAPP to ensure that the U.S. EPA-accepted sampling and data handling protocols were being utilized universally across all staff members and sampling events within the watershed.

Coalfields Expressway Habitat Assessment, WV*
Mr. Denicola obtained and interpreted mine maps from four coal beds to assist the ecological team. Dozens of historic mine openings were identified, thereby directing the ecological team to potential Indiana Bat hibernacula.

ATV Trail System Development, VA*
Mr. Denicola assisted in conducting the design and geospatial mapping of a recreational ATV trail system. Trail design followed a specific set of protocols to manage stormwater, thereby reducing erosion and sedimentation impacts and long-term operations and maintenance costs. The protocols required that Mr. Denicola conduct soil studies utilizing the Natural Resources Conservation Service soils database.

Gas Well Abandonment, PA*
A Pennsylvania highway expansion required the plugging and abandonment of a relic gas well. Mr. Denicola acted as the Health and Safety Officer, oversaw all on-site activities, reviewed daily site activities with the contracted driller, and ensured that all required state approvals and paperwork were diligently submitted.

Watershed Based Plan and Quality Assurance Protection Plan, WV*
As a responsibility of project management, Mr. Denicola composed a Watershed Based Plan (WBP) and Quality Assurance Protection Plan (QAPP) for approval by the United States Environmental Protection Agency (U.S. EPA). The WBP identifies priority remediation sites to meet compliance with West Virginia Department of Environmental Protection (WVDEP) Total Maximum Daily Loads (TMDL) requirements for the WV 303(d) list of impaired streams. In addition, Mr. Denicola composed a QAPP to ensure that the U.S. EPA-accepted sampling and data handling protocols were being utilized universally across all staff members and sampling events within the watershed.

ArcGIS Online Mapping, Westmoreland County, PA
In support of client operations, Mr. Denicola acquired publicly available data for a given watershed and developed ArcGIS mapping, ultimately launched on the ArcGIS Online platform. The client can access data via a password protected online account. Mr. Denicola routinely adds both public and proprietary data to the mapping at the client's request, allowing the client the reduce the use of hardcopy mapping that becomes obsolete upon the addition of any new data.

* *Work performed prior to joining CEC*

PUBLICATIONS

Updates to Deckers Creek Watershed Based Plan. Friends of Deckers Creek, Monongalia County, West Virginia. November 2014.

Quality Assurance Protection Plan, Deckers Creek Watershed, West Virginia. Friends of Deckers Creek, Monongalia County, West Virginia. November 2013.

Geochemistry of Mine Pool Discharges in the Pittsburgh Coal Basin. West Virginia University Electronic Thesis and Dissertation. August, 2013.

PRESENTATIONS

In Proceedings, Geological Society of America, Denver, Colorado; October 2013: Geochemistry of Mine Pool Discharges in the Pittsburgh Coal Basin. Paper No. 245-9. Denicola, T. 2013.

Mid-Atlantic Stream Restoration Conference, Baltimore, Maryland; September 2017: Stream Restoration on Coal Mining Impacted Properties, West Virginia. Civil & Environmental Consultants, Inc., Bridgeport, WV.

West Virginia Mine Drainage Task Force Symposium, Morgantown, West Virginia; March 2018: Stream Restoration of Coal Mining Impacted Properties, West Virginia. Civil & Environmental Consultants, Inc., Bridgeport, WV.

EcoStream Stream Ecology & Restoration Conference, Asheville, North Carolina; August 2018: Stream Restoration of Coal Mining Impacted Properties, West Virginia. Civil & Environmental Consultants, Inc., Bridgeport, WV.

Mid-Atlantic Stream Restoration Conference, Baltimore, Maryland; September 2019: Floodway Improvements & Habitat Restoration Post-Disaster, Howards Creek, Greenbrier County, West Virginia. Civil & Environmental Consultants, Inc., Bridgeport, WV.

National Mitigation and Ecosystem Banking Conference, Raleigh, North Carolina; July 2021: Post-Construction AMD Mitigation Results for Stream Restoration on Mining Impacted Properties, West Virginia. Civil & Environmental Consultants, Inc., Bridgeport, WV.

Erasmo Rizo
Principal

19 YEARS OF EXPERIENCE

EDUCATION

B.S., Civil Engineering Technology, West Virginia Institute of Technology, 2005

CERTIFICATIONS

10-hour Construction Safety, Occupational Safety & Health Administration

Nuclear Gauge, Troxler Electronic Laboratories, Inc.

Certified Wastewater Treatment Plant Operator Class II, State of West Virginia

Adult and Pediatric First Aid/CPR/AED, Red Cross

SafeLand USA - Basic Orientation, PEC Safety

Mr. Rizo, Project Manager, has 18 years of experience in urban land, transportation engineering, oil and gas, and public utilities. He has performed site layout, profiles, cross sections, grading, earthwork analysis, drainage, water lines, hydraulic analysis, and erosion and sediment control for numerous projects. Mr. Rizo's project experience for the Oil and Gas industry includes design and quality assurance of pipelines, well pads and associated pits & impoundments, and ASTs. He has permitting experience for Army Corp of Engineers, state DOH and environmental permits. His water and wastewater project experience includes emergency action plan review, HEC-RAS modeling, stormwater detention and retention modeling and analysis, dam observation and inspections. Mr. Rizo has also directed a sanitary sewer department which include the wastewater treatment plant, the collections system for sanitary sewer and stromwater, and the maintenance section. Mr. Rizo also served in the Army National Guard as a part of the maintenance and recovery section. He held first-line leader responsibilities, and served in Operation Iraqi Freedom II.

PROJECT EXPERIENCE

Waste Water Clarifier Upgrade*

Rehabilitation construction management of two 300,000 gallon concrete and steel wastewater clarifiers/settling tanks. The project included evaluation of steel components to be replaced and refabricated, Selection of blaster media and appropriate paints to withstand a corrosive wastewater environment.

Civil & Site Development Engineering

Building 100, Sterile Manufacturing Facility, Becton and Dickinson & Company, Wilson, NC*

Project consisted of a new pharmaceutical facility installation on 60-acre site, Duties included: Site design, grading, stormwater management, erosion and sediment control, BMP design, and utility design for a 114,000 square foot sterile syringe plant for BD. Procurement of NCDENR permits, and Civil LEED accredited designs.

On Lake Wylie Phase 1, The Vineyards, Charlotte, NC*

Project consisted of 327 single family homes and 105 town homes on 243 plus acres of residential development. Great measures were taken to ensure plenty of undisturbed common open space and tree save. Duties included: Profile over 26,000 linear feet of road, Fine grade all lots, Storm design with Storm water Best Management Practices (BMP), Organize Construction documents for submittal.

The Pringle House, WODA Group, Buckhannon*

Project Consisted of a two story senior citizen living facility with associated parking and access drive. The site development is situated on five acres, site duties included: Site design, grading, stormwater management, erosion and sediment control. Procurement of WVDEP, city of Buckhannon and county permits.

Erasmo Rizo
Principal

Power Generation Facilities

John Sevier Fossil Plant, Rodgersville, Tennessee Valley Authority, TN*
Project consisted of embankment grading, a seepage collection, toe drain system with over 2,800 LF of perforated pipe, 8,400 LF of forcemain and 3 pump stations to intercept and convey fly ash leachate water to the stilling ponds within the plant area. Duties included: Toe collection system, Forcemain, equalization pipes design, embankment grading, pump station placement, Specification and a Storm Water Pollution Prevention Plan.

Cumberland Fossil Plant, Tennessee Valley Authority, Stewart County, TN*
Project consisted of construction documents for a slurry diversion system, settling ponds, water quality ponds, and hydraulic structures. Duties included: Site design, grading, and erosion and sedimentation control for the proposed facility improvements. Independent submittals were developed for the Storm Water Pollution Prevention plan, 1 To 7 Year Operations plan for the gypsum, and Ash stacks.

Marathon Petroleum, Catlettsburg Refinery Site Work, Marathon Petroleum Company, LLC, Catlettsburg, KY*
Project included civil/site design that involved aspects of site grading, Refinery Drainage and Oily Sewer water analysis and re-routing, construction plan and specification preparation.

Public Sector

Boggess Street Sewer and Stormwater Project*
Design, permitting, and construction management of 300 Linear feet of eight inch SDR 35 PVC pipe, to address old and badly configured existing clay system. Installation of new 300 Linear feet of 12 inch HDPE corrugated pipe to provide stormwater relief in a low lying area. This project allowed the removal of downspouts from the sewer system from homes along project limits.

Wood Street Sewer Upgrade, The City*
Design, permitting, and construction management of 1,800 Linear feet of various size SDR 35 PVC pipe. The Sanitary Sewer main upgrade and associated collection system was constructed while maintaining service to 40 customers.

Brushy Fork Road Sewer Extension, Various*
Design, permitting, and Right of Away acquisition of 2,500 Linear feet of eight- inch SDR 35 PVC pipe, three-Jack and bore locations, all manholes and apparatus, and associated creek crossings to serve 45 new sewer customers.

Swisher Street Culvert Replacement, The City*
Design, Permitting, and construction management of the relocation of an existing eight-inch Sewer to control elevation for the replacement of the Swisher Street Culvert. Relocated 380 Linear feet of existing vitrified clay line with 8” SDR-35 PVC pipe. Installed a 60 inch HDPE Corrugated culvert and associated traffic rated decking, reinforced grouted rip rap wing walls and aprons.
* *Work performed prior to joining CEC*

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers

Joseph D. Robinson, P.E.
Vice President

20 YEARS OF EXPERIENCE

EDUCATION

B.S., Civil Engineering, West Virginia University, 2004

EXPERTISE

Project planning, coordination and permitting of Oil &Gas projects in WV

Diverse experience in civil, geotechnical, water resources, structural engineering, and site design

REGISTRATIONS

Professional Engineer
- WV 19756
- OH 77637
- MD 45171
- VA 0402053304
- PA 083558
- TX 139413

Mr. Robinson is a Vice President with seventeen years of diverse experience in civil, geotechnical, water resources, structural engineering, Oil & Gas site & pipeline design and residential/commercial site design. He has designed various projects including site layouts, grading plans, sanitary sewer, storm water management, impoundments, roads, sediment control measures, segmental retaining walls, flood plain analyses and concrete design projects. Mr. Robinson has currently been responsible for Marcellus/Utica gas site design including drill pads, fracture pits, freshwater impoundments, grading, permitting and management associated with these sites and oversight of West Virginia Oil & Gas projects for CEC.

PROJECT EXPERIENCE

Site Development Projects, Clarksburg Firing Range*
Responsible for grading, quantities, design plan production, survey stakeout and construction.

Gastar Oil & Gas, Gastar
Responsible for existing site evaluations and cost estimates for site remediation in company sell off.

Oil & Gas Experience, Williams
Responsible for site evaluation of six potential compressor station locations and design and management of one compressor site project

Oil & Gas, XTO Energy
Responsible for management, design coordination and permitting on a descent decree site mitigation and slip repair project in Upshur County, WV

Civil Site Design Experience

Site Development Projects, Timberbrook Condos*
Responsible for grading, quantities and design plan production.

Site Development Projects, Bridgeport BUMC Parking Lot, Bridgeport, WV*
Responsible for grading, quantities, design plans and construction.

Site Development Projects, Energy Plaza Partners, WV*
Site Grading Project along Rt 50 Responsible for grading, quantities, design plan production and survey stakeout.

EPP Experience, Energy Plaza Partners, WV
Project management and design of one site for future development. Project included civil site design for rough grading, E&S controls, surveying, as-built and concept site layouts.

Joseph D. Robinson, P.E.
Vice President

Site Development Projects, 200 Orchard Street*
Segmental Retaining Wall Project Responsible for site layout, segmental retaining wall design, design plan production, survey stakeout and construction.

Site Development Projects, Mon General*
Segmental Retaining Wall Redesign Project Responsible for segmental retaining wall design, design plan production and construction.

Health Care Facility Design*
UHC Project - Jerry Dove Drive, Bridgeport, WV Responsible for final site grading, drafting and segmental retaining wall design & construction. Physicians Office Building - Jerry Dove Drive, Bridgeport, WV Responsible for final site grading, drafting and construction oversight.

Site Development Projects, GAL Land Company, Bridgeport, WV*
Oversaw site grading, quantities, storm water management, permitting, survey stakeout, final grading for individual lots and construction.

City Development Projects, Clarksburg*
Clarksburg Safe Routes Project. Responsible for design layout, quantities, plan production and construction. Clarksburg Streetscape Project 2010 Responsible for site layout, quantities, design plan production and survey stakeout.

Federal/State Tactical Infrastructure Projects

TFC, Texas Facilities Commission, Texas
Role: Special Inspector of Record (SIOR)
Provided oversight of Construction Quality Assurance for Quality Control (QC) and Special Inspections (SI) for approximately 1.7 miles of border wall infrastructure.

DESIGN-BUILD OF RGV 08 , FENCE SEGMENT, Starr County, TX
Role: Design Manager/Special Inspector of Record
Construction of 20.69 miles of wall, roads, drainage, and lighting for providing border security.

DESIGN-BUILD OF RGV 09, FENCE SEGMENT, Starr and Hidalgo Counties, TX
Role: Design Manager/Special Inspector of Record
Construction of 20.69 miles of wall, roads, drainage, and lighting for providing border security.

Floodplain Analyses & Inundation Studies Experience

Floodplain Analysis Designs, Antero*
Foreman FWI Responsible for inundation study

Floodplain Analysis Designs, McIntyre FWI*
Responsible for inundation study.

Floodplain Analysis Designs, Indian Creek FWI*
Responsible for inundation study.

Floodplain Analysis Designs, EQT*
Saturn Compressor Station Phase VI Responsible for floodplain study

Floodplain Analysis Designs, PDC*
Gamelli Pad Responsible for floodplain study .

Floodplain Analysis Designs, Antero*
Annie Horizontal FWI Responsible for inundation study.

Layout Projetcs & Railroad Projects

Joseph D. Robinson, P.E.
Vice President

HDD Kanawha River Crossing, Mountaineer Gas Company , Kanawha County, WV
Role: Principal
Mountaineer plans to construct a pipeline near Charleston, Kanawha County WV. A Horizontal Directional Drilling (HDD) crossing is proposed along the Kanawha River. The gas pipe will be a 12-inch HDPE and the approximate length of the pipeline crossings is 1,400 feet.

CSX Railroad Permit Application, South Charleston, Kanawha County, WV
Role: Principal
This proposal includes labor, travel and expenses necessary to perform the tasks listed below and complete engineering design and permit preparation of a gas line inside of steel casing underneath of CSX railroad tracks in South Charleston, West Virginia.

North Pinch Road River Crossing HDD, Elk River, Mountaineer Gas Company , Kanawha County, WV
Role: Principal
CEC will conduct an on-site field delineation within an approximately 2-acre area to identify streams and delineate wetland boundaries. CEC's wetland delineation services will be performed in accordance with the 1987 U.S. Army Corps of Engineers Manual, supplemented by the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0, the National Wetland Plant List (Lichvar, 2016), and the U.S. Department of Agriculture's Hydric Soils of the United States. CEC will identify wetlands using the three (3) criteria described in the Corps Manual: hydrophytic vegetation, hydric soils, and hydrology.
** Work performed prior to joining CEC*

TRAINING

PEC SafelandUSA Training

CNX Gas Hazard Training

Antero Resources Field HSE Orientation

SWN (TAP) 2015 - Core

EQT Contractor Safety Orientation

PROFESSIONAL AFFILIATIONS

American Concrete Institute

American Society of Civil Engineers

National Council of Examiners for Engineers and Surveyors

Ohio Oil & Gas Association

West Virginia Oil and Natural Gas Association

ARCHITECT EXPERIENCE

WYN Projects

PRESENTATIONS

CEC Corporate PM Training

Jeffrey C. Woodcock, P.E.

Vice President

REGISTRATIONS

Professional Engineer

- OH E-59090
- DE 10377
- PA 036882

42 YEARS OF EXPERIENCE

EDUCATION

B.S., Civil Engineering, The Pennsylvania State University, 1982

Mr. Woodcock has over 40 years of consulting environmental, civil, and geotechnical engineering experience. Mr. Woodcock has managed numerous large projects from initial design through construction. He has managed the permitting, surveying, civil design, and geotechnical engineering for several large natural gas treatment plants in Pennsylvania and West Virginia and over 300 geotechnical investigations for commercial, industrial and institutional clients. He has managed numerous geohazard assessments and landslide remedial designs on right-of-ways in Pennsylvania, West Virginia and Ohio. Mr. Woodcock has made presentations on landslides and mitigation at Marcellus Shale Coalition, Interstate Natural Gas Association of America, Appalachian Pipeliners Association and others. He has managed design-build geotechnical projects such as mine grouting, deep foundations, landslide repairs, retaining wall construction and soil remediation. Mr. Woodcock is responsible for the geotechnical and construction monitoring services provided by CEC.

PROJECT EXPERIENCE

Design-Build Services

Gas-Fired Electric Generating Facility, Fayette County, PA

Managed the design-build grouting and installation of deep foundations at a new peaking power station in southwestern Pennsylvania. The proposed site was deep mined and strip mine spoil had been placed over the ground surface. The mine voids were filled under footprint of the proposed plant and adjacent area. Small diameter pipe piles were installed using air rotary equipment to penetrate the boulders present in the mine spoil and hard overburden bedrock. After the piles reached the design depth the pile and annulus were grouted. A pile load test confirmed the 100-ton capacity of the piles. The project value was $2.0 million.

Groundwater Extraction and Treatment System, Olean, NY

Managed the installation of a groundwater extraction and treatment system in Olean, New York. The system was designed to prevent further migration of groundwater contaminated by an industrial facility. The groundwater was extracted from two wells and pumped to an air stripper contained in a treatment plant. After stripping the water was pumped to an injection well that formed a hydraulic barrier that further reduced offsite migration of contamination.

Groundwater Remediation, Northwestern Kentucky

Managed the remediation of hydrocarbon contaminated soil and groundwater at an industrial facility in northwestern Kentucky. CEC was contracted to provide design-build services for remediation at the facility. The project included investigating, designing, and constructing a system to remediate the contaminated soil and groundwater. Groundwater was shallow to an underground oil-water separator. Bioremediation was selected to address the contaminated soil.

Industrial Landfill Closure, Pittsburgh Corning, Port Allegany, PA

Managed a $1.1 million design-build closure of an industrial waste landfill for Pittsburgh Corning in Port Allegany, Pennsylvania. The landfill was located on a steep hillside. Waste was dumped from the top, creating steep waste slopes that could not be capped. Closure included installing a leachate collection system, including a holding pond and regrading the waste to construct stable slopes that could be capped. A soil buttress was constructed along a portion of the slope to provide additional stability.

Jeffrey C. Woodcock, P.E.
Vice President

Mine Grouting for Retail Development, West Mifflin, PA
Managed the grouting of the deep mined Pittsburgh Coal seam beneath the site of a new Eckerd drug store constructed in West Mifflin, Pennsylvania. Mr. Woodcock was responsible for designing the grouting program, selecting the design-build team, and negotiating contracts with both subcontractors and the client.

Oil-Water Separator, Northern Pennsylvania
Managed the design-build installation of two belowground oil-water separators for an industrial facility in Northern Pennsylvania. The design included identifying the existing piping network, sizing and location the tanks. Construction included installing the two large oil-water separator tanks without interrupting operation of the plant.

Staples and Eckerd Drug Store, City of Pittsburgh, PA
Managed a $0.6 million design-build project for the construction of new Staples and Eckerd stores in Pittsburgh, Pennsylvania. The project included design and construction of a 7,300 square foot soil-nail retaining wall and design and deep mine grouting beneath the Staples building pad and soil-nail retaining wall.

Construction Management/Oversight

Broadhead Manor Demolition, City of Pittsburgh, PA
Managed engineering and construction oversight services for the demolition of 48 two-story masonry apartment buildings in a Section 8 housing plan in the City of Pittsburgh. The project involved an extensive utility investigation and relocation design, an asbestos survey, and environmental assessment. Technical specifications and contract documents were developed. During demolition, Mr. Woodcock managed the onsite oversight staff. Oversight responsibilities included monitoring asbestos abatement, collecting air samples, verifying quantities, approving invoices, attending progress meetings, maintaining comprehensive field records, and verifying the work was completed in accordance with the project specifications.

CERCLA Closure of Industrial Waste Landfill, Northwestern Pennsylvania
Managed the pre-design investigation, remedial design, preparation of technical specifications and contract documents, bidding, and construction oversight of a $10 million construction and remediation project in northwestern Pennsylvania. The entire CERCLA project from initial design through construction was performed with oversight from EPA, U.S. Army Corps of Engineers, and DEP. The project included construction of a $1 million waste water treatment plant and encapsulation of an uncontrolled industrial landfill adjacent to a deep mine. The design and construction included grouting the mine adjacent to the landfill, constructing a 50-foot deep slurry wall around the landfill, and capping the site. Construction oversight was accomplished with a staff of up to three technicians and included maintaining written and photographic daily records, performing quality assurance testing, managing field and laboratory testing, maintaining as-built records and drawings, and confirming the work was completed in accordance with the project specifications. Also managed the remedial investigation and feasibility study for the offsite operable unit, which included groundwater contaminated with low levels of vinyl chloride.

CERCLA Response Action Plan and Remediation Oversight for a Scrap Steel Recycling Facility, Northwestern Pennsylvania
Managed the development of a Response Action Plan and oversight of a $3 million CERCLA remediation project in northwestern Pennsylvania. The site was an abandoned scrap steel recycling facility. Past operations resulted in soil contaminated with elevated levels of cadmium and low level radiation. In addition, the building contained dust with elevated levels of cadmium. The project included developing fast track plans, detailed specifications, and contract documents. The project bidding included a pre-bid meeting, several site visits with bidders, and preparation of addenda to address bidders questions. Interviews were also conducted with four contractors. Based on a review of the technical proposals, a review and sensitivity analysis of the bids, and the interviews with the bidders, a recommendation was presented for selection of a contractor. Complete construction management services were provided during demolition/remediation, including field oversight by a staff of four technicians and a supervisor. Dust containing hazardous levels of cadmium was removed from the entire office and industrial building using high-efficiency particulate vacuuming. Low level radioactive mixed waste was removed from areas outside the buildings.

Hazardous Waste Impoundment Closure, Western Pennsylvania
Functioned as the CQA Engineer during the initial phase of closure of a hazardous waste impoundment in western Pennsylvania. The closure included removing cover soil from a portion of the impoundment, processing the soil, and reusing it to cover half of the impoundment. After the area was graded, a synthetic cap was installed. The balance of the impoundment will be closed in 2002.

CQA activities included density testing the soil used to grade the cap subgrade, monitoring and material testing of the synthetic cap during installation, and observing placement of the cover soil and vegetating the cap.

RCRA and TSCA Waste Site Remediation, Beaver County, PA
Managed the development of specifications, plans, and contract documents for the removal of 20,000 tons of residual RCRA and TSCA waste from the side of a stream valley in Beaver County, Pennsylvania. Construction management included negotiating with bidders and presenting a recommendation for the selection of a contractor, conducting progress meetings, approving invoices, and negotiating change orders. During remediation, oversight was provided and included sampling for disposal, documenting the remediation, and verifying the work was performed in accordance with the project specifications.

UST Removal, U.S. Air Force 911th Tactical Airlift Group Base, Moon Township, PA
Managed the development of bid documents and drawings for upgrading, modifying, and removing numerous storage tanks for the Air Force at the 911th Tactical Airlift Group, Greater Pittsburgh International Airport. Preparation of the bid documents included the design of automatic overfill shutoffs for two bulk aboveground storage tanks. Specifications and drawings were prepared for the construction of the automatic shutoffs for the two bulk tanks, in-place closure of one underground storage tank, leak detection and spill protection for five underground storage tanks, and removal of seven underground storage tanks. The specifications addressed all Federal and State regulations, safety considerations, and site remediation.

Geotechnical Engineering

Allegheny County Airport Authority Coal Assessment, Moon Township, PA
Managed the Assessment of Coal-Related Issues for the Allegheny County Airport Authority. The project involved the research of available mining information, reviewing aerial photography and topographic maps and observing field conditions. The information was compiled into a bound document containing maps of the airport property showing mining with respect to developable areas.

Baum Boulevard Hyatt House Hotel, City of Pittsburgh, Pittsburgh, PA
Principal In Charge of the geotechnical investigation for a 24,575 square-foot six-story Hyatt hotel at the intersection of Baum Boulevard and South Aiken Avenue in the City of Pittsburgh, Pennsylvania. CEC presented recommendations for retaining walls, foundations, floor slabs and site earthwork. The original recommended foundation system consisted of Augered Cast-In-Place Pile, but were changed during construction to driven H-Piles. CEC provided inspection services during pile driving. CEC was also engaged by Sierra Associates to provide surveying, civil engineering and landscape architectural services.

Building Foundation Evaluation over Former Landfill
Managed a geotechnical investigation for the construction of two structures over a municipal landfill. A deep mined coal seam underlaid the landfill. The thickness of the refuse and depth to the mine had been previously determined. The investigation included drilling test borings to determine the thickness and condition of the soil cover, tabulating four years of vertical and horizontal movement monitoring data, and performing an analysis. The analysis included estimating future horizontal and vertical movement of foundations to support the structures and presenting recommendations for foundations that could tolerate the movements and allow re-leveling of the structures. Recommendations were also presented for a monitoring program and site development considerations.

Cement Terminals Silo Foundations, Pittsburgh, PA
Managed a project to select and monitor the installation of a foundation system to support three 150-foot high concrete silos at a cement terminal along the Ohio River. As a result of poor subsurface conditions and design requirements, H-piles were determined to be the most feasible alternative. The project included developing a monitoring and testing program for the installation of the pile foundations.

Church Landslide Remediation, Peters Township, PA
Managed the investigation and remedial design of a landslide at a church in Peters Township, Washington County Pennsylvania. CEC was retained by the church to develop an approach to stabilize the landslide because it was threatening an adjacent property. CEC developed an approach to regrade and construct a buttress to stabilize the slope.

Cutler-Hammer Building Addition, Moon Township, PA
Managed the geotechnical investigation and construction quality control monitoring for a 120,000 s.f. addition to the former Cutler-Hammer building in the Cherrington Office Park, Moon Township.

Jeffrey C. Woodcock, P.E.
Vice President

Foundation Investigations
Planned and supervised the test drilling programs for numerous foundation investigations in West Virginia, Ohio and Pennsylvania. Developed foundation requirements based on the findings of the investigations and the structural tolerances.

GE Office Building Landslide Remediation, Upper St. Clair, PA
Managed the design-build investigation and repair of a landslide at a GE office building located in Upper St. Clair Township, Allegheny County, Pennsylvania. A landslide above a rock cut was sliding into the parking lot. CEC was retained by GE to remediate the landslide. CEC investigated the landslide and developed an approach to regrade the slope to stabilize the landslide. CEC retained an earthwork contractor and completed the work for GE.

Giant Eagle Grocery Store Floor Slab Repair
Managed the investigation and design of a repair for a heaving floor slab in a Giant Eagle. The floor was heaving due to expansive slag used as backfill. The repair included the installation of micro piles and a structural floor slab.

Harding Road Retaining Wall Stabilization, O'Hara Township, PA
Managed the design of a solider pile and concrete lagging retaining wall to stabilize Harding Road in O'Hara Township, Allegheny County. The road embankment was sliding due to heavy rains. CEC was retained by O'Hara Township to design the wall. CEC was also retained by O'Hara Township to stabilize a slope along Brownshill Road. The design included drilling small diameter soil nails using a drill mounted on an excavator and shotcreting the face of the slope. The innovative approach saved the township money and allowed the work to be completed within their budget.

High School Additions, Central Greene School District
Managed the geotechnical and construction phase services provided to the Central Greene School District. The geotechnical services included an investigation for proposed additions to the high school. During the investigation, it was discovered that deep mining had occurred below the school. A mine investigation was performed to determine the limits of mining and a mine stabilization program was developed. During construction of the additions, CEC was retained to provide construction monitoring and special inspections during the mine grouting and construction of the additions.

Indian Creek School District Middle School
Managed the geotechnical for a new middle school for the Indian Creek School District. The investigation included researching the status of surface and deep mining in the area and addressing potentially expansive carbonaceous shale at the floor level of the proposed building. During construction, CEC was retained to provide construction monitoring during mine grouting, earthwork construction and deep foundation installation.

Landslide Remediation at Coal Surface Mine Site
Currently managing the investigation of a large landslide at a surface mine site. The Lower Kittanning Coal seam was surface mined and the area reclaimed. An existing clay deep mine was located about 20 feet below the surface mine. A large landslide, extending through the surface mined area and clay mine recently developed. The Pennsylvania Department of Environmental Protection is requiring the repair of the slide. CEC was retained by the surface mining company to investigate the landslide and develop a method to stabilize the slide.

Laural Alley and Seventh Street Landslide Remediation, Freedom Borough, PA
Principal-in-Charge for the investigation of the Laural Alley and Seventh Street landslide investigations for Freedom Borough. CEC was retained by the borough to investigate the landslides and develop an approach to stabilize the landslides. CEC investigated the landslides and presented the repair options to the township.

LeMont Expansion Foundation Recommendations and Mine Stabilization, Mt. Washington Realty, City of Pittsburgh, PA
Principal in charge of a geotechnical investigation to confirm the occurrence of deep mining of the Pittsburgh Coal seam below the site. The owner elected to undertake a mine stabilization program to reduce the risk of future subsidence. Prepared a mine stabilization plan and specifications for the work, and provided full-time construction monitoring during the project.

Lincoln Elementary School Addition, Pittsburgh Public Schools, City of Pittsburgh, PA
Managed the geotechnical investigation for a 7,000 s.f. addition to the existing school including foundation analyses and design recommendations. CEC also designed erosion and sedimentation control and grading for the school addition and designed a stormwater management plan, including an underground detention facility, and provided construction monitoring of caisson construction and fill placement.

Mine Subsidence Risk Assessment for Commercial Development
Managed an assessment to evaluate the risks associated with commercially developing a 26-acre site that was previously deep mined. The project included developing methods to reduce the risks associated with construction over the abandoned deep mine workings and associated cost estimates.

Moon Area High School, Moon Township, PA
Managed the investigation for the new Moon Area High School. The project included an investigation for the new building and addressing steep slopes in accordance with the township ordinance.

Morrow Park City Apartments, City of Pittsburgh, Pittsburgh, PA
Principal In Charge of the geotechnical investigation for a new 6-story rental apartment building, a courtyard area, and a pool building to be constructed west of the intersection of Baum Boulevard and Liberty Avenue in the City of Pittsburgh, Pennsylvania. A 2-story below-grade parking garage beneath the 6-story building is also proposed. Geotechnical issues associated with the site included a shallow water table, design requirements for shoring adjacent to city streets, and determining an economical foundation system. CEC was also retained to provide surveying and civil engineering services.

Newbury Development, Bridgeville, PA
Currently providing design consultation and managing construction monitoring for the Newbury site development in Bridgeville, Pennsylvania. The site is an Act 2 site and CEC is also providing environmental consulting and field monitoring and sampling during construction. Construction will include a commercial area, single family development and multi-family development. Because the site was previously occupied by industry and has challenging subsurface conditions, CEC provided recommendations for developing the site and for foundations that included deep dynamic compaction and geo piers.

Ohio Valley Hospital Surgical Center Addition, Kennedy Township, PA
Managed the geotechnical investigation, pavement evaluation and construction monitoring for the new Surgical Center addition at Ohio Valley Hospital. The construction included the use of precast block gravity retaining wall to allow construction of structures and parking lots on the sloping hillside. CEC provided design assistance and construction monitoring of the retaining walls at the site. CEC was also retained by Ohio Valley Hospital to perform a geotechnical investigation for the recently constructed medical office building.

Pioneer Elementary School Addition, Pittsburgh Public Schools, City of Pittsburgh, PA
Managed the geotechnical investigation and construction monitoring for the additions to the Pioneer School for the Pittsburgh Public Schools. The project included an investigation for a large addition to the existing school. Because the site was also deep-mined, construction included grouting the mine. CEC performed a geotechnical investigation, prepared the design and specifications for grouting, and monitored the construction. Construction monitoring included earthwork, caisson installation, and mine grouting.

Residential Area Landslide Remediation, WV
Managed the investigation and design to repair a landslide induced by drainage from an abandon deep mine in West Virginia. The landslide was partially blocking a stream and threatening to cause flooding of adjacent houses. During construction managed the construction oversight.

Restaurant Depot Brownfield Redevelopment Services/VI Mitigation System Design, Restaurant Depot and Oliver/Hatcher Construction, City of Pittsburgh, PA
Principal in charge of the geotechnical services for a wholesale food & beverage equipment supplier who planned to construct an 82,000 s.f. commercial store at a former heavy industrial site that had been issued a Release of Liability under Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2). The investigation focused on developing foundation and

construction recommendations for building in an area of previous development and poor soil conditions. Also responsible for the construction quality assurance (CQA) and code-mandated Special Inspections during construction.

Retaining Wall Failure
Investigated several existing retaining walls exhibiting signs of failure. The investigations included determining the cause of failure or performing an analysis to determine the wall's stability. The retaining walls included bin-type and cantilevered walls.

Right-of-Way Landslide Repair , Several Natural Gas Midstream Companies
Managed the investigation and remedial design of numerous landslides on pipeline rights-of-ways in Ohio, Pennsylvania, and West Virginia with total costs for construction of up to $3.5 million. The repairs ranged from regarding, geo-grid reinforced slopes, micro-pile walls, soil nailing and plate piles.

Rivers Casino, City of Pittsburgh, PA
Managed the geotechnical investigation and construction monitoring for a Rivers Casino in Pittsburgh. Construction of the casino and associated parking garage included augered cast-in-place concrete piles and an overexcavation to remove unsuitable soils associated with past development at the site. The site was an Act 2 site and special handling and disposal procedures were required for onsite soils. CEC's knowledge of Act 2 and the city allowed the arrangement to dispose of soil during construction at the Hazelwood Act 2 site.

Route 68 Landslide Remediation, Beaver County, PA
Managed the investigation and remediation of a landslide along a major highway in Beaver County, Pennsylvania. CEC was retained by an electric utility company to investigate a large landside that was sliding onto Route 68 in Industry. The landside was occurring above a rock outcrop along the road. The outcrop was over 150 feet high. Access to the slide above the outcrop was difficult. CEC investigated the landslide and developed an approach to regrade the slope to stabilize the landslide. The work also included scaling the rock outcrop to remove overhanging rock. CEC provided drawings and specifications for the work and assisted with the selection of a contractor. During the work CEC provided oversight.

Schenley Gardens Assisted Living Center & Mariott Hotel, City of Pittsburgh, PA
Managed the geotechnical investigation, preparation of technical specifications and field oversight of a combined 8-story hotel, parking garage, and 3-story assisted living center in Pittsburgh, Pennsylvania. Construction of the complex included grouting of coal mine voids and extensive use of soil nail retaining walls to develop the hillside site.

Science and Technology Center, Clarion University of Pennsylvania, Clarion, PA
Managed the geotechnical investigation and construction monitoring for a new 26,500 square foot Science and Technology Center at Clarion University of Pennsylvania. The project was one of the few LEED certified science buildings in the country. Construction monitoring included inspection of the building pad preparation, caisson installation, reinforcing and density testing of backfill.

Seneca Valley High School, Jackson Township, PA
Managed the geotechnical investigation and construction monitoring for the new Seneca Valley High School. During the geotechnical investigation for the new high school an unmapped deep mine was encountered. CEC expanded the investigation to delineate the extent of the mining at the site. After the test drilling was completed CEC prepared a geotechnical report that included a design and specifications to grout the mine. Construction monitoring included monitoring earthwork, mine grouting, and foundation construction.

Shopping Center Floor Slab Repair
Managed the investigation and repair of a floor slab in a shopping center damaged due to expansive shale. The investigation included a survey of the floor slab to determine the impacted area, drilling and laboratory testing. Repairs included removing the floor slab and expansive material.

Shopping Mall Geotechnical Investigations, Western Pennsylvania
Managed the geotechnical investigation for two regional malls in western Pennsylvania. The projects included developing drilling and testing programs to determine earthwork and foundation requirements for construction of the malls. Due to the topography of the sites, extensive cuts and fills were required to grade the sites. Design considerations included stability of large cuts and fills,

settlement of deep fills constructed predominantly of rock, differential settlement of foundations, and proper drainage of subsurface water.

South Side Works City Apartments and Open Hearth Garage, Village Green, Pittsburgh, PA
Principal In Charge of the geotechnical investigation for 6-story multi-family building and 5-story retail building/parking garage structure northeast of the intersection of South 26th Street and Sidney Street in the Southside Works, Pittsburgh, Pennsylvania. CEC was retained by Village Green to perform a geotechnical subsurface investigation for the proposed development and develop conclusions and recommendations for foundations, on-grade slabs, pavements, subgrade preparation, seismic site class, earthwork, and other geotechnical issues. Geotechnical issues associated with this site included the type of deep foundation to use considering the subsurface obstructions present as a result of historic site use. CEC was also contracted to provide surveying and civil engineering services for the development.

Spring Water Collection System
Managed the design and construction of a spring collection system. CEC was selected by an electric utility company to develop an approach to collect a large spring on a steep hillside that was threatening the stability of the slope. CEC designed a collection and piping system to collect the spring. Construction drawings and specifications were developed. CEC assisted with the selection of a contractor and provided construction monitoring during the work.

Starpoint Business Park, Phase 1B Expansion, Hanover Township, PA
Principal-in-Charge of the geotechnical engineering for the Starpointe Business Park, Phase 1B in Hanover Township, Washington County. The project involves providing grading recommendations to develop the previously strip mined site. Recommendations developed for grading the site saved the county over a million dollars.

Structural Integrity Assessments
Participated in numerous investigations to determine the extent of structural damage to commercial and private buildings resulting from expansive subgrade materials. The projects involved verifying the cause of damage, determining the extent of the underlying expansive material, and presenting remedial measures.

Student Union, Slippery Rock University of Pennsylvania, Slippery Rock, PA
Served as Principal for the geotechnical investigation of a new Student Union Building at Slippery Rock University of Pennsylvania. Recommendations of the building included a combination of shallow and deep foundations to address the variable soil conditions. Retaining wall design parameters were also developed.

Tanger Outlets, South Strabane Township, PA
Managed the geotechnical investigation and construction monitoring for the Tanger mixed use site in South Strabane Township, Washington County. The site included large cuts and fills to grade the site and assessing the impacts due to past mining. Additionally, the presence of landslide prone soils had to be addressed as part of the site grading. Development of the mall site also included moving a large electric transmission line and retaining wall construction.

University of Pittsburgh Recreation and Wellness Center, City of Pittsburgh, PA
Principal In Charge of the preliminary geotechnical investigation for a new 300,000 square-foot Recreation and Wellness Center to be located from O'Hara Street to north of University Drive A. The project will also include a new parking garage. The project will be constructed into the hillside and require multiple levels of retaining walls.

Verizon Parking Lot Rock Protection Fence
Managed the design and construction of a rock protection fence to protect a parking area. CEC was retained by Verizon to remediate a steep slope at one of their facilities. Rock from the slope was falling into the parking area. Because of property constraints the slope could not be flattened. CEC developed an approach that included removing overhanging areas and constructing a rock protection fence along the toe of the slope. Construction drawings and specifications for the project were provided.

Jeffrey C. Woodcock, P.E.
Vice President

Wal-Mart Supercenter, Moon Township, PA
Principal-in Charge for the geotechnical investigation for the proposed 150,000 square foot Wal-Mart Supercenter Store with retail shops and outparcels in the former West Hills Shopping Center site. CEC provided recommendations for rammed aggregate piers as the most effective and economical way to improve the existing fill beneath the proposed Wal-Mart. Rammed aggregate piers are open-graded stone aggregate columns, which reduce settlement and increase allowable bearing capacity. Rammed aggregate piers are suitable in areas where a high water table is present.

Warehouse Addition Foundation
Managed an investigation to determine foundation requirements for additions to an existing warehouse. Due to poor subsurface conditions, it was estimated excessive settlement with respect to the existing building would occur if shallow foundations were utilized. A deep foundation system that could be installed without damaging the existing building was developed.

Woodvalley Road Landslide Remediation, O?Hara Township, PA
Managed the investigation and repair of the Woodvalley Road landslide in O'Hara Township, Allegheny, County. The large landslide threatened three large homes in O'Hara Township. CEC investigated the landslide, installed inclinometers and modeled the landslide to develop several options to repair the landslide. The options were presented to the home owners and an option was selected. An option consisting of regarding and constructing a buttress was selected. During the repairs CEC provided monitoring of the earthwork.

Environmental Engineering

Gas Stations Groundwater Water Quality Assessments, Various Locations
Supervised an assessment of groundwater quality at 31 gasoline stations. The projects included the installation of monitoring wells at each station to determine the risk of contamination to public or private drinking water resulting from leaking underground gasoline storage tanks or spills.

Phase I ESA of Abandoned Steel Mill
Managed a Phase I environmental assessment of an abandoned steel mill. Project included investigations of groundwater and soils to determine whether the former steel-making operations had caused environmental degradation.

UST Removal, Pittsburgh, PA
Managed the investigation, closure, and remediation of two underground storage tanks for a Pittsburgh-based non-profit organization. During a Phase I environmental assessment, two underground storage tanks were located. One tank was located outside the building, while the second tank was located inside the building. The potential for contamination associated with a release was investigated at both tanks. The investigation concluded a release had occurred at both tanks. A program was developed to remove the tanks and remediate soil contamination. A tank removal contractor was selected, and the two tanks were removed with special equipment and care required for the removal of the tank located inside. Approximately 500 tons of contaminated soils were removed, and approval was obtained from the DEP to leave low levels of contamination in place.

UST Removal, Cleveland, OH
Managed the closure of 26 underground storage tanks at an industrial facility in Cleveland, Ohio. The project included sampling and inventorying the contents of the tanks, conducting a geophysical survey to confirm the presence of additional tanks, preparing bid documents (including technical specifications), and selecting a qualified tank removal and remediation contractor.

UST Site Remediation, Confidential Site, OH
Managed the investigation and remediation of a site contaminated by a past release from underground storage tanks. During a Phase I environmental assessment, soil contamination was discovered resulting from a past gasoline station. A site assessment was then performed in accordance with Ohio Bureau of Underground Storage Tank Regulations (BUSTR). The investigation included estimating the extent of soil contamination and investigating groundwater contamination. Plans and specifications were developed to remediate the contaminated soil and groundwater. The work included addressing remediation alternatives and selecting the most feasible method. Soil remediation included removing about 1,000 tons of contaminated soil and installing a cut-off trench with pumping well. Implementation of the groundwater extraction and treatment system is ongoing.

Expert Witness

Jeffrey C. Woodcock, P.E.

Vice President

Landslide Case, WV

Provided expert testimony as a registered professional engineer in a case before the West Virginia Surface Mine Reclamation Board. Mr. Woodcock provided testimony regarding the stability of a previously repaired landslide in a case between a coal mining company and a local resident.

PROFESSIONAL AFFILIATIONS

Appalachian Basin Gas Processors Association

Appalachian Pipeliners Association

American Society of Civil Engineers

PUBLICATIONS

Landfill Closure Utilizing Slurry Wall Construction in Deep Mined Area, Technical Proceedings from Waste Tech 97, February 1997, Tempe, Arizona (with Kenneth R. Miller).

ACERCLA Landfill Closure Utilizing Slurry Wall Construction in Deep Mined Area, Proceedings of the 19th International Madison Waste Conference, September 1996, Madison, Wisconsin (with Richard J. Weinzierl and Kenneth R. Miller).

Christy M. Mower, CERP
Principal

24 YEARS OF EXPERIENCE

EDUCATION

M.S., Biology, Clarion University of Pennsylvania, 2001

B.S., Biology/Applied Ecology, Clarion University of Pennsylvania, 1999

0, Psychology, Clarion University of Pennsylvania, 1999

EXPERTISE

Rosgen Level I - IV Trained

Natural Channel Design

Low-Tech Process Based Restoration (Beaver Dam Analogs)

Stage Zero Restoration

Floodplain Restoration

Wetland Restoration

Stream & Wetland Delineations

Benthic Macroinvertebrate Sampling & Identification

Fisheries Resource Sampling and Identification

Water Quality Sampling

CERTIFICATIONS

10-Hour OSHA Construction Safety (Occupational Safety & Health Administration), OSHA

SafeLand USA - Basic Orientation, PEC Safety

Heartsaver CPR AED, American Heart Association

Certified Ecological Restoration Practitioner, Society of Ecological Restoration

Certified Ecologist, Ecological Society of America

Certified Fisheries Professional, American Fisheries Society

Ms. Mower has over 22 years specializing in resource restoration in both the public and private sectors. She volunteered and worked directly with the USACE Norfolk District conducting stream and wetland delineations and determinations. Being a certified ecological restoration practitioner (CERP), she has designed and restored over 35 miles of stream and over 120 acres of wetland during her career working with a multi-discipline team. Managing design, permitting, implementation, and monitoring projects, Ms. Mower has worked across U.S.; her expertise includes natural channel design, stream assessment, permitting, species habitat plans, mitigation crediting, construction oversight, and monitoring.

PROJECT EXPERIENCE

McMillan Marsh In-Lieu Fee (ILF) Wetland Restoration Project, Marathon County, WI*

Role: Project Manager/Designer

Development of an ILF mitigation site approved by the WDNR. Ms. Mower's team was responsible for site identification, drafting, and finalizing a prospectus (i.e., Conceptual Mitigation Plan) for approximately 40 acres of wetland restoration. Prior to sending to the IRT for approval, hydrologist installed groundwater monitoring wells for additional hydrology assessments. Upon IRT approval, baseline condition data collection, H&H assessments and modeling, permitting, and design services were conducted. As part of the contract, Ms. Mower's team will be responsible for construction management and implementation. Full time construction quality assurance was conducted during a two-month period and as-built surveys were conducted via LiDAR in the fall of 2020. Monitoring is currently being conducted for a five-year period.

Turkey Pen Creek Stream Restoration, Greenwood, IN*

Role: Task Manager/Designer

Approximately 400-feet of stream restoration and new alignment was required along a right-of-way to protect a large utility tower that was being jeopardized as a result of streambank erosion near the structure. Working with several stakeholders to meet and allow for current above and below ground utilities and maintenance associated with existing easements, a natural channel design approach was developed to protect the tower and exist the project area under an existing box culvert as part of a county road. Permits have been submitted and construction is anticipated for fall 2021.

Lower Miami River Bank Stabilization Project, Milford, OH*

Role: Task Manager/Designer

Ms. Mower worked with state and federal agencies to conduct and implement bank stabilization along a navigable waterway, which was scoped for development. Bioengineering techniques were designed to provide long-term bank stability, as well as

aesthetics along the river that would be accessed and seen by local residences. An extensive planting plan was developed for the structure, as well, as the floodplain and terraces along the proposed development.

Big-Slough In-Lieu Fee Wetland Restoration Project, Columbia County, WI*
Role: Project Manager/Designer
Development of an ILF mitigation site approved by the WDNR. Ms. Mower's team was responsible for site identification, drafting, and finalizing a prospectus (i.e., Conceptual Mitigation Plan) for approximately 40 acres of wetland restoration. Prior to sending to the IRT for approval, hydrologist installed groundwater monitoring wells for additional hydrology assessments. Upon IRT approval, baseline condition data collection, H&H assessments and modeling, permitting, and design services were conducted. As part of the contract, Ms. Mower's team will be responsible for construction management and implementation anticipated to occur in the fall of 2021, working cohesively with a specialized wetland restoration contractor. After construction, as-built surveys, maintenance involving extensive invasive species control, and monitoring will occur for up to five years through 2025 up through project closure.

Multi-State & Species Habitat Conservation Plan Monitoring, Throughout U.S.*
Role: Project Manager
Managed a multi-state monitoring and stream inspection effort across the U.S. extending from PA, OH, WV, VA, KY, TN, and MS. Three years of annual monitoring was conducted across an approved pipeline system as part of a multi-species habitat conservation plan, evaluating pipeline crossings to determine potential effects on threatened and endangered species including freshwater mussels and crayfish. Annual reports were prepared for the USFWS presenting data via technical reports evaluating conditions, providing adaptive management plans, and recommendations. Data was also prepared and delivered using a custom built interactive GIS database to view yearly photographs and compare data.

Upper Cane Creek & Schultz Creek ILF Project, Menifee & Greenup Counties, KY*
Role: Designer
As part of a novice ILF program, Ms. Mower's team was selected after a multi-round interview process with the Kentucky Department of Fish and Wildlife Resources to implement two stream and wetland restoration projects. As part of the projects, baseline data collection, reference data collection, and habitat assessments were conducted. Local, state, and federal permitting and approximately 60% design plans were prepared. As the projects progressed, however, the ILF program realized they were unable to secure conservation easements to permanently protect the restoration sites, thus the projects were, unfortunately, terminated.

UNT #1 of Teter Creek ILF Project, Barbour County, WV *
Role: Designer/Project Manager
Ms. Mower and her team were responsible for the implementation of Phase I (Site Acquisition) and Phase II (Pre-Construction Design) of an approved ILF Mitigation Site. Ms. Mower was responsible for land acquisition, easement, preparation/recording, survey, environmental baseline assessments, mitigation plan and design, permitting, and bidding document preparation for over 15,000 feet of stream restoration and over 5 acres of wetland restoration. The project involved extensive local, state, and federal permitting coordinating with several private and public stakeholders. The project is scoped to start construction in the spring of 2022.

Crooked Creek Refuse Pile and Mitigation Sites, Rosebud Mining, Indiana County, PA
Role: Design Task Manager
Collected geomorphic data and baseline assessments applying and measuring bank erosion hazard index (BEHI) and near bank stress (NBS), USEPA's rapid bioassessment protocols, and hydrogeomporphic approach (HGM) for measuring potential impairment and impacts from project development. Ms. Mower and her team prepared design criteria and 100%complete design plan sheets for permit submittals on approximately 11,000 linear feet of stream to be used for compensatory mitigation. Permit approval is anticipated to be in 2022 with construction scheduled for 2023.

Tyger River Mitigation Bank, Palustrine Group, Spartanburg County, SC
Role: Design Task Manager
Development of a large stream and wetland mitigation bank near Spartanburg, SC, which included 71,310 linear feet of stream and 12.3 acres of wetlands. Ms. Mower assisted with design modifications, working with the client on addressing agency comments,

and conducted pre-construction site visits with the selected contractor. Permit approval is anticipated in 2022 and construction is scheduled for 2023.

Lick Run and Unnamed Tributary of Tarklin Run Stream & Wetland Restoration Project, Doddridge County, WV
Role: Project Manager/Designer
Led stream and restoration design for over 2,500 linear feet of stream and approximately 5 acres of floodplain wetlands. The project was a mitigation project to off-set impacts to stream and wetlands associated with a shallow well gas pad. The headwaters of Tarklin Run were restored into a step-pool cascade stream and Lick Run was restored to a sinuous and meandering stream re-establishing a disconnected floodplain. Local, state, and federal permitting were conducted for approval. Construction began in 2020 and is ongoing expected to conclude in September 2021. As-built surveys and monitoring will be conducted by CEC.

Heize ILF Project, Wetland Restoration Project, WDNR, Columbia County, WI*
Role: Project Manager/Designer
Development of an ILF mitigation site approved by the WDNR. Ms. Mower's team was responsible for site identification, drafting, and finalizing a prospectus (Conceptual Mitigation Plan). Prior to sending to the IRT, a team of contractors and ecologists installed groundwater monitoring wells for additional hydrology assessments to gain IRT approval. Upon IRT approval, baseline condition data collection, H&H assessments and modeling, permitting, and design services were conducted. After construction, Ms. Mower's team proceeded with permit development, approval, and development of construction bids. Construction was completed in 2021 and annual monitoring is being conducted for a five-year period.

Buffalo Fork Mitigation Bank Project, Buffalo Creek Preserve, Guernsey County, OH *
Environmental Manager responsible for evaluating existing stream resources throughout the project site for the purposes of determining mitigation potential. GAI is responsible for collecting physical, chemical, and biological data necessary for calculation of Ohio Stream and Wetland Valuation Metric and preparation of the Conceptual Mitigation Plan.

Confidential Mitigation Bank Projects, located throughout OH, WV, and PA*
Environmental Manager to assist mitigation bankers across the region in site identification, market assessments, and preliminary site assessments to determine viability and credit production to further determine overall potential for development. Developed conceptual mitigation plans for internal, landowner, and agency review.

Confidential Mitigation Project, located in Susquehanna County, PA*
Environmental Manager to support design and permitting services associated with this mitigation project. GAI's tasks included: Desktop Conceptual Mitigation; Preliminary Site Visit; Preliminary Conceptual Mitigation Plan; Stream and Wetland Delineation; Refined Conceptual Mitigation Plan; Pennsylvania Department of Environmental Protection (PaDEP) / USACE Site Visit; Piezometer Installation and Monitoring; Hydrology and Hydraulic Analysis and Design; Civil Survey; Final Design; Permitting; and Construction Phase Services. GAI is currently involved in pre-construction services and will be assisting with construction implementation.

West Virginia Department of Environmental Protection (WVDEP) Narrative Water Quality (NWQ) Sampling Project, Southeastern Land (Booth Energy) and Bluestone Coal Corporation, Multiple Locations in West Virginia*
Environmental Manager for collection of data at approved Biological Sampling Stations per the WV National Pollutant Discharge Elimination System (NPDES) Narrative Water Quality (NWQ) guidance on thirteen (13) permits. Tasks included: In-Stream Biological Monitoring; Chemical Monitoring; and NWQ Reports for each NPDES permits.

On- and Off-Site Restoration Plan Project, Waco Oil & Gas Co., Inc. , Doddridge County, WV*
Environmental Manager for an on- and off-site stream restoration plan for design and permitting services involving restoration, construction, and monitoring of approximately 3,000 linear feet of stream and over 1 acre of wetland. GAI's tasks included an Initial Site Assessment; Baseline/Existing Conditions Analysis; Design and Mitigation Plan; Permitting; Construction Documents, Construction Observation, Monitoring; and Project Coordination and Management.

Christy M. Mower, CERP
Principal

Prince George's County and District of Columbia Reliability and Reinforcement Project, Washington Gas and Light Company, Prince George's County, MD*
Environmental Manager for wetland and stream impact mitigation site selection, planning and permitting for a 16 mile, 24-inch diameter pipeline project. Coordination services working directly with an outside mitigation banker to provide a mitigation solution for the Project.

Habitat Conservation Plan (HCP) Monitoring Project, TransCanada, Appalachian Region extending from northern Pennsylvania down to Mississippi *
Environmental Manager for stream inspection services conducted annually across TransCanada's pipeline system evaluating pipeline crossings to determine potential effects on threatened and endangered species including freshwater mussels and the Nashville crayfish. Annual reports are prepared for the U.S. Fish & Wildlife Service (USFWS).

Bank Stabilization Projects, Various Gas and Pipeline Clients, Pennsylvania and West Virginia*
Environmental Manager for site evaluation, survey, H&H assessments and modeling, permitting, design services, construction implementation, and monitoring services.

Ft. Beeler Gas Processing Plan Environmental Services Project, Williams Ohio Valley Midstream LLC, Marshall County, WV*
Environmental Manager for an on- and off-site field reconnaissance and SWVM and restoration plan to determine if suitable reference reach data is available for the purposes of quantifying impact resources from construction activities. Identified and calculated required mitigation for several options for client review. Worked directly with an outside mitigation banker to provide a mitigation solution to facilitate permit approvals.

Laurel Run Complex Delineation of Aquatic Resources Project, Confidential Client, Grant County, WV*
Environmental Manager for field assessments of aquatic resource delineations, stream and wetland valuation metric (SWVM), and hydrogeomorphic methodology assessments comprising approximately 43.5 acres south of Mt. Storm, WV, in Grant County. As part of a separate contract, worked with the client developing mitigation options involving up to 1,500-linear feet of stream restoration with supplemental and offline in-stream treatment systems.

Ohio Valley Connector Environmental and Civil Survey and Alignment Project, Equitrans, West Virginia and Ohio*
Environmental Manager for the Federal Energy Regulatory Commission (FERC)-regulated environmental, civil, survey, and alignment associated with approximately 30 miles of pipeline in WV and OH.

Trap Ridge and Brown Creek Surface Mine Project, Greenbrier Minerals, LLC, Greenbrier County, WV*
Environmental Manager to complete stream and wetland identification fieldwork; stream and wetland delineation reports; and United States Army Corps of Engineers (USACE) Field Verification.

Wetland Restoration Project, Westervelt Ecological Services, Summit County, CO
Role: Project Manager/Designer
CEC will implement a low-tech process based approach of restoration by designing beaver dam analog and post-assisted log structures throughout the entrenched stream system. By installing structures to the top of the banks, the stream channels will passively increase groundwater levels and flood over banks to the historic floodplain. Water will naturally be retained on the floodplain creating wetland habitat from valley wall to valley wall.
* *Work performed prior to joining CEC*

TRAINING

Rosgen IV, River Restoration/Natural Channel Design, CO, 2007

Rosgen III, River Assessment and Monitoring, NC, 2007

Rosgen II, River Morphology and Applications, WV, 2006

Rosgen I, Applied Fluvial Geomorphology, WV, 2005

Mine Safety & Hazard Training (MSHA-24 hour/ Annual Refreshers), 2010-2019

Annual CONSOL Energy Safety and Drivers Safety Training, 2010-2014

Connectivity to Waters of the U.S. Training, 8-hour Training, The Swamp School, 2013

W. Harman's Stream Restoration Workshop, Stream Mechanics, PLLC, Canonsburg PA, 2012

Annual CONSOL Energy Safety and Drivers Safety Training, 2010-2014

38-hr Wetland Delineation/Regional Supplement Trained, 2011

Wetland Delineation and Regional Supplement Updates, 40-hour Training; The Swamp School, 2011

USEPA Region 5 Webinar, Laboratory Culturing & Testing of Freshwater Mussels & Use of Mussel Data for Water Quality Management, 2011

WVDEP Protocols for Benthic Macroinvertebrate Sampling & Access Database Demonstration, Charleston, WV, April 2011

EPA's Rules on Compensatory Mitigation for Impact on Wetlands, Streams and Other Waters; Lorman Education Services, January 2011

WVDNR Fish & Benthic Certification, 2010-2011

WVDEP Scientific Collecting Permit Workshop, Benthic Macroinvertebrates/Fisheries Resources, Elkins, WV, 2010

A. Simon's Process-Based Geomorphic Analysis of Disturbed Fluvial Systems: Implication & Tools for Stream Restoration, 2007

W. Harman's Geomorphic Assessment Workshop, Buck Engineering, 2006

Boating Basics Safety Course-Achievement Award, VA, Department of Game and Inland Fisheries, 2002

PROFESSIONAL AFFILIATIONS

Society for Ecological Restoration

American Fisheries Society

Ecological Society of America

Pennsylvania Association of Environmental Professionals

Women's Energy Network- Greater Pittsburgh

Maryland Stream Restoration Association

Wisconsin Wetlands Science Assocation

PUBLICATIONS

Mower, C. M and Turner, A. M. "Behavior, morphology, and the coexistence of two pulmonate snails with molluscivorous fish: A comparative approach." American Malacological Bulletin. 2004.

Turner A. M., R.J. Bernot, & Boes-Mower, C. "Chemical cues modify species interactions: The ecological consequences of predator avoidance by freshwater snails." Oikos, 2000.

Mower, C.M., Ewing, R.A., & Nuttle, T.J. "Holistic Evaluation of Habitat and Water Quality Effects on Stream Macroinvertebrate Communities: Implications for Industry & Stream Restoration." Frontiers in Ecology & the Environment, Draft Manuscript. In Review, 2016.

Snider, A. "Marcellus Drillers Feel Heat as EPA Mulls Expanded Clean Water Act Oversight." Mower, C.M quoted and main source in an article written by Greenwire and published through E&E Publishing, Inc., February 2014.

Mower, C.M. "Preliminary Results of a Watershed Based Restoration Project on Lukey Fork of the Mud River", Acid Mine Drainage Task Force Symposium Program, 4-07, 2007.

Mower, C.M. "What is CLIP?" Virginia Department of Game & Inland Fisheries V64:9, 2003.

Boes (Mower), C.M.* "Non-lethal Effects of Predators on Species Interactions." M.S. Thesis: Clarion University of Pennsylvania, 2001.

Turner, A.M., R.J. Bernot, & Boes (Mower), C.M. "Chemical Cues Modify Species Interactions: The Ecological Consequences of Predator Avoidance by Freshwater Snails" Oikos, 88:148-158, 2000.

PRESENTATIONS

Mower, C.M. “Glade Run Lake Conservancy – Committee Meeting, Mitigation Banking Introduction”, Glade Run Lake Conservancy, March 2022.

Mower, C.M, “Introduction to CEC & Restoration Systems – Dam Removals and Mitigation”, Pennsylvania Department of Environmental Protection, November 2021.

Mower, C.M. “Office Leads Meeting – Ecological Restoration & Background”, Pittsburgh Corporate Office, June 2021.

Mower, C.M. “UNT#1 of Teter Creek In-Lieu Fee Mitigation Project”, WV Department of Environmental Protection, Interagency Review Team (IRT), February 2017.

Mower, C.M. “Specific Project Goals Directly Related to Benthic Colonization Demonstrate Increased Rates of Recovery,” Mid-Atlantic Stream Restoration Conference, Baltimore, MD, September 2015 (Accepted Abstract).

Mower, C.M. “Mitigation Overview,” Invited Speaker with PADEP General Counsel, 20th Annual Environmental Law Forum, Harrisburg, PA, April 2015.

Mower, C.M. “Jurisdictional Waters of the U.S, AKA: Streams & Wetlands,” CONSOL Energy Coal & Gas Environmental Meeting, Canonsburg, PA, March 2015.

Mower, C.M. “Wetland & Stream Mitigation Banking,” Invited Keynote Speaker, Water Management in Mining Summit, Denver, Colorado, July 2014.

Mower, C.M. “Mitigation Challenges Across the Appalachian Region,” Invited Panelist – Industry Representative with USACE, PADEP, Land Conservation Group, & Environmental Consultant Representatives, U.S. Water Alliance Forum, Pittsburgh PA, March 2014.

Mower, C.M. “A Holistic Evaluation of Physical & Chemical Influences on West Virginia’s Stream Condition Index (WVSCI) in the Appalachian Mine Region and How the Results can Re-Focus Stream Restoration Goals for Faster Benthic Colonization,” Mid-Atlantic Stream Restoration Conference, Baltimore MD, October 2013.

Mower, C.M. “Introduction to Streams & Wetlands: Are they Good or Bad?!” CONSOL Energy Land Summit, Canonsburg, PA, October 2013

Mower, C.M. & Goodballet, K. “Stream & Wetland Mitigation Banking,” CONSOL Water Operations Meeting w/ President/CEO, Canonsburg, PA, January 2013.

Scott Rasmussen
Principal

41 YEARS OF EXPERIENCE

EDUCATION

B.S., Environmental Sciences & Resources/ Chemistry, State University of New York College of Environmental Science & Forestry, 1981

B.S., Chemistry, Syracuse University, 1981

M.S., Environmental Pollution Control, The Pennsylvania State University, 1983

EXPERTISE

waste water management CCR unit closures and re-permitting water chemistry

CCR unit closures and re-permitting

water chemistry

Mr. Rasmussen is a Principal with Civil & Environmental Consultants, Inc.'s Environmental Group. He has more than 37 years of experience in conducting and managing environmental assessment and compliance projects at mining, industrial, commercial, and residential properties in the eastern United States. Mr. Rasmussen has 12 years of experience in the coal mining and oil and gas fields in a number of positions from Corporate Environmental Auditor to Director of Environmental Resources Management to General Manager of Perpetual Care & Legacy Operations. Mr. Rasmussen's expertise includes managing water treatment and mine closure projects, USEPA consent order negotiations, state and federal lawsuit defense preparation including expert witness testimony, environmental assessments and facility audits, and developing remediation and permit compliance programs. He has prepared spill prevention and control plans for the paper, plastics, and cement industries, and managed large-scale site assessments for highway expansions. Mr. Rasmussen also has experience in air emission source permit preparation, wetland soils delineation, and strip mine revegetation. He has managed hazardous waste remediation projects involving contaminated asbestos, ignitable wastes, and PCBs. He has also prepared expert witness testimony regarding environmental concerns with a proposed coal-fired co-generation facility.

PROJECT EXPERIENCE

Dunkard Creek Fish Kill Monitoring and Mitigation, CONSOL Energy, Blacksville, WV*

Design and construction of five real time water flow management systems and siting and design review of $100 Million Advanced Water Treatment Plant and associated 34-mile pipeline

EPA Consent Order,Bailey Deep Mine Complex, CONSOL Energy, PA*

Negotiation of USEPA Consent Order for all NPDES Outfalls and Water Management , including the preparation of a complete water balance for both the underground and surface portions of the mine complex

Mathews Mine, CONSOL Energy, TN*

Design and Construction of a Passive Manganese Treatment System

84 Mine, CONSOL, PA*

Design and Construction of a Passive Manganese Treatment System

Fola Mines, CONSOL Energy, WV*

Design and Construction of Water Management Alternatives to Advanced Water Treatment Systems for streams impacted by valley fills in West Virginia

Scott Rasmussen
Principal

Meigs Mine, CONSOL Energy, OH*
Negotiation and Planning of the Closure of the Closed Meigs, Ohio Slurry Impoundments to Avoid Full Cost Bonding

Legacy AMD Treatment Sites, CONSOL Energy, PA
Oversight of Treatment Cost Reduction Program for Legacy Mine Water Treatment Systems Leading to a 30% Reduction in Annual Costs

Buchanan Mine, CONSOL Energy, VA
Siting and design of the Buchanan Diffuser System in Grundy, VA allowing for the managed discharge of deep mine discharges to the Levisa River using only conventional AMD treatment

Buchanan Mine, CONSOL Energy, VA*
Re-analysis and increased utilization of the Buchanan Diffuser System in Grundy, VA allowing for the shutdown of a captive Reverse Osmosis Treatment Plant

Armstrong Cork, Private Developer, Pittsburgh, PA
Management of the Pennsylvania Act 2 Release from Liability for the former Armstrong Cork Building in the Strip District, Pittsburgh, Pennsylvania

Flxible Bus, Industrial Development Corp, Delaware
Management of the Ohio Voluntary Action investigation and preparation of a release from liability of the former Flxible Bus Manufacturing Facility in Delaware, Ohio

New Castle Powerplant, First Energy, New Castle, PA
Management of the re-permitting of the New Castle Power plant flyash and bottom ash disposal facilities under the Pennsylvania Residual Waste regulations

Little Blue Run, First Energy, PA
Management of the re-permitting of the Little Blue Run sulfur dioxide scrubber sludge and flyash disposal impoundment, Bruce Mansfield Power Plant, Beaver County, Pennsylvania
** Work performed prior to joining CEC*

PRESENTATIONS

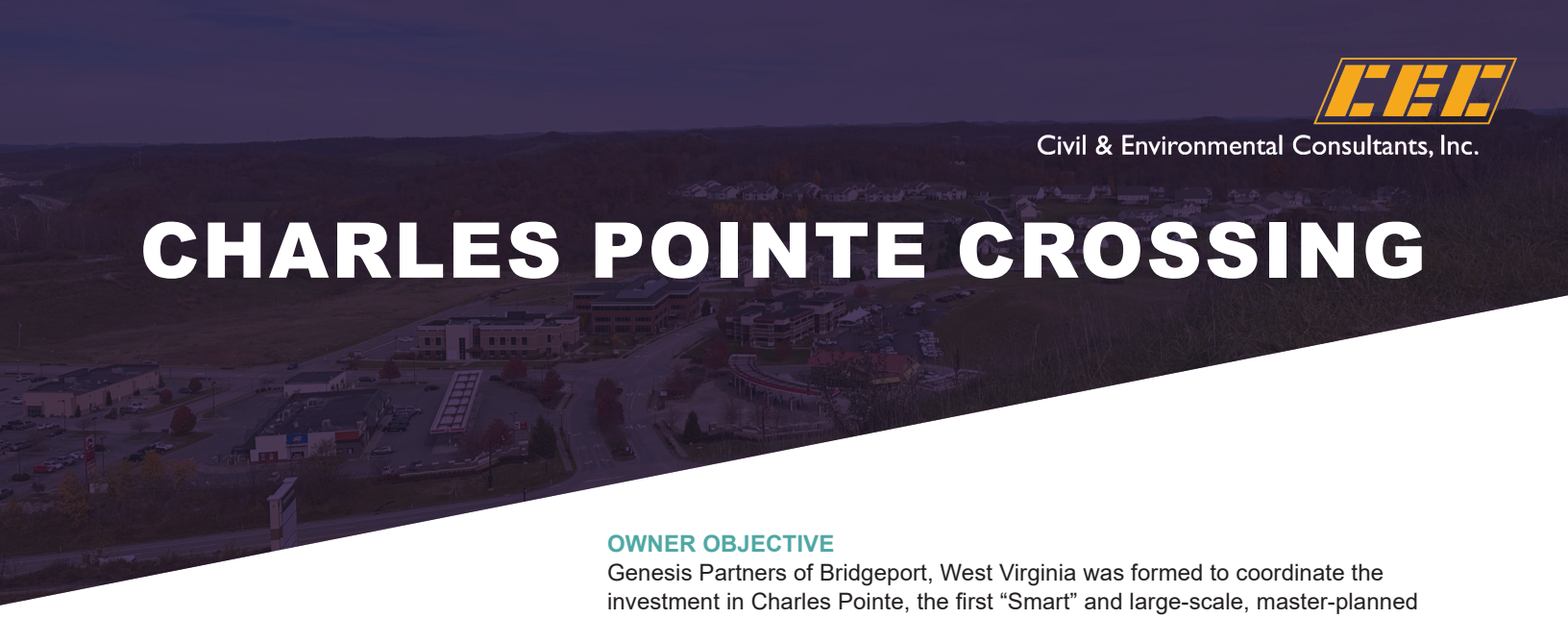
Rasmussen, S. "Sulfate Issues Facing the Coal Mining Industry - What We're Doing and Where We're Headed" INAP Sulfate Treatment Workshop,Salt Lake City, UT February 27-28, 2014

Rasmussen, S. "Siting, Design, Installation and Operation of a Submerged Diffuser for the Managed Discharge of Mine Water" 2019 SME Annual Conference & Expo and CMA 121st National Western Mining Conference, Denver, CO February 26-28, 2019

PROJECT EXPERIENCE

Civil & Environmental Consultants, Inc.

CHARLES POINTE CROSSING



OWNER/CLIENT

Genesis Partners, Limited Partnership

LOCATION

Bridgeport, WV

CEC SERVICES

NEPA Documentation Assistance

Survey

Site Development

Erosion & Sedimentation Control/NPDES Permitting

Geotechnical Engineering

Landscape Architecture/Land Planning

Site Grading/Earthwork Analysis

Slope Stability/Retaining Structure Design

Stormwater Management/BMP Design

Traffic Engineering

Transportation Engineering

Utility Design

Clean Water Act, Section 401/404 Permitting

Ecosystem Restoration

Threatened & Endangered Species Surveys/Wildlife Surveys

Wetland & Stream Mitigation Design

Wetlands and Waters Delineations

NPDES Permitting Support

Stormwater BMP Design and Inspections

Highway R/W Surveys

Horizontal and Vertical Control Surveys

Architectural History Investigations

Construction Management

Design/Build Services

Unmanned Aerial Services

OWNER OBJECTIVE

Genesis Partners of Bridgeport, West Virginia was formed to coordinate the investment in Charles Pointe, the first “Smart” and large-scale, master-planned community in West Virginia. Charles Pointe Crossing, located at the southeast quadrant of the I-79 and Route 279 Interchange, exit 124, is immediately accessible from Route 279.

The project consisted of the initial site development of approximately 104 total acres to yield approximately 67 pad-ready acres that will support an estimated 650,000 square feet of sales tax generating uses, an estimated $80 million of new construction, an estimated annual excise sales tax of $9.75 million, and an estimated annual property tax of $1.5 to $2 million.

CEC APPROACH

CEC was hired to provide the civil/site engineering, geotechnical engineering, surveying, and construction management for the Charles Pointe Crossing commercial development project. CEC also performed stream and wetland delineations and ecosystem restoration work as a precursor to the Charles Pointe Crossing project.

This project required significant coordination by CEC between the developer, utility providers, the Federal Aviation Administration, the West Virginia Department of Highways, and other state and local entities.

To date, the commitment of a 220,000 square foot anchor tenant has been secured and the remaining 430,000 square feet is being actively marketed. All site related construction for the pad development, including the access road and site utilities, was completed in 2022.

CEC was initially retained for the following services:

- Preparation of an ALTA/NSPS survey
- Delineation of jurisdictional wetlands and waters
- Threatened and endangered species surveys
- Site planning studies
- Preliminary civil engineering services
- Preliminary geotechnical engineering

CEC’s final design and land development approval services included:

- Civil engineering design and preparation of construction documents
- Site design for an overhead electric transmission power line relocation
- NPDES stormwater permitting
- Sanitary sewer trunk line, force main, and pump station coordination
- Technical assistance, surveying, and geotechnical engineering for offiside roadway improvements
- Landscape architecture
- Site plan and zoning approval
- Federal and state permits and mitigation approval for development impacts to wetlands and streams, and assistance with NEPA documentation
- Construction monitoring and quality control testing
- Design-build construction of mitigation wetlands and about 1,000 linear feet of stream restoration

Civil & Environmental Consultants, Inc.

FRANCIS DRAINAGE MAINTENANCE

OWNER/CLIENT

West Virginia Department of Environmental Protection, Abandoned Mine Lands

West Virginia Department of Environmental Protection Agency

LOCATION

Harrison County, WV

CEC SERVICES

Erosion & Sedimentation Control/NPDES Permitting

Site Grading/Earthwork Analysis

Site Infrastructure Maintenance/ Rehabilitation

Wetland AMD Treatment

Wetlands & Waters Delineations

Detailed Design

Hydrogeologic Site Investigations

Stormwater Piping and Culvert Inspections

LiDAR Surveys – Short and Long Range

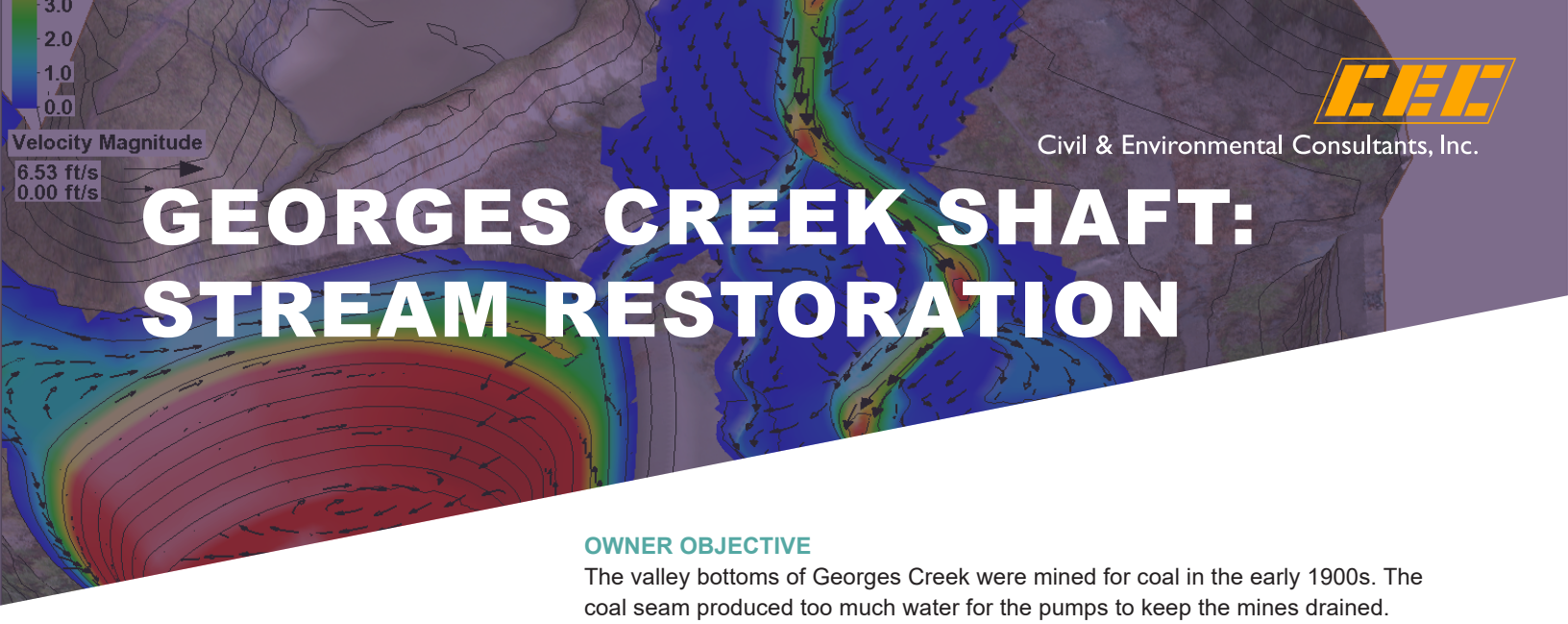
OWNER OBJECTIVE

This project was on the site of a relic Acid Mine Discharge (AMD) remediation project previously designed and constructed in the 1990's. This passive AMD treatment project was originally constructed to mitigate AMD coming from the old Francis Mine which was previously abandoned, resulting in unstable coal refuse, erodible soils with poor vegetation, and problematic mine drainage from acid-producing materials. The passive treatment facility was coming to the end of its useful service life and required significant maintenance to continue use. Additionally, a change in land ownership resulted in the new property owner expressing a desire to completely remove the large facility and repurpose the land for agricultural purposes. The West Virginia department of Environmental Protection, Abandoned Mine Lands (WVDEP-AML) saw an opportunity to re-design the existing AMD treatment facility using modern day analysis and design techniques to significantly reduce footprint of the passive treatment facility while maintaining a satisfactory level of AMD treatment efficacy.

CEC APPROACH

Civil & Environmental Consultants, Inc. (CEC) was contracted by the WVDEP-AML to evaluate the existing treatment facility and make recommendations for re-design while reducing the overall treatment footprint. CEC performed a forensic evaluation of the historic data provided by the WVDEP-AML to determine the in-situ treatment efficacy of the system to be re-designed. CEC's geochemists also performed field testing to validate the findings from the historical data. Armed with this baseline data, CEC prepared several rounds of conceptual designs informed by the treatment parameters to provide to both the WVDEP-AML and the landowner for consideration. The final design was composed of a series of stepped, long, and narrow treatment cells consisting of oxidation beds, polishing wetlands, and a flushable limestone bed. A Fluid Dynamics siphon encased in a concrete vault was utilized to provide a completely passive and automated flushing limestone bed component to the system. The proposed treatment facility was designed against the side of the landowner's property to maximize the space available for livestock grazing. A construction sequencing plan was prepared that allowed the contractor to divert the constant inflow of AMD around the site while construction on the proposed system was taking place. A demolition plan was developed that allowed that provided detail as to how to decommission the existing treatment system during construction of the new system. A revegetation/ seeding plan was tailored to the landowner's desire to have a meadow to graze livestock. CEC also provided a balanced site in such a manner that the contractor could utilize multiple sources of borrow material depending on the WVDEP-AML's and Landowners desires during construction.

CEC delivered preliminary design plans complete with survey and subsurface investigation under an accelerated timeline of 60 days from receiving Notice to Proceed. This project is anticipated to be constructed in Fall of 2023.



Civil & Environmental Consultants, Inc.

GEORGES CREEK SHAFT: STREAM RESTORATION

OWNER/CLIENT

Allegany County, MD

LOCATION

Frostburg, MD

CEC SERVICES

Erosion & Sedimentation Control/NPDES Permitting

Geotechnical Engineering

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design and Inspections

Clean Water Act, Section 401/404 Permitting

Ecosystem Restoration

Wetland & Stream Mitigation Design

Wetland AMD Treatment

Flood Routing and FEMA Map Revisions

Aerial Photography/Videography

Bathymetric/Hydrographic Surveys

LiDAR Surveys – Short and Long Range

Mapping-grade Data Collection

Ortho-Rectified Imagery

Photogrammetric and 3D LiDAR Topography

Topographic Surveys

Tree and Stream Surveys

Unmanned Aerial Services

OWNER OBJECTIVE

The valley bottoms of Georges Creek were mined for coal in the early 1900s. The coal seam produced too much water for the pumps to keep the mines drained. In 1903 through 1906, mining engineers constructed the two-mile-long Hoffman tunnel to drain water from the mines. The tunnel currently drains portions of Georges Creek.

Allegany County received funding from the Maryland Department of the Environment's Abandoned Mine Lands Division, the Chesapeake Bay Foundation, and the Chesapeake and Atlantic Coastal Bays Trust Fund to restore the creek and the area surrounding the abandoned open-pit shaft mine. This project had multiple objectives:

- Keep water in Georges Creek by reducing flow into the underlying mine workings and the Hoffman mine drainage tunnel;
- Improve water quality by reducing streambank erosion and create frequently inundated floodplains to trap fine sediment and create wetland habitat;
- Provide recreational opportunities by moving and improving the existing ponds; and
- Remediate open mine pits and high walls from historic surface mining.

CEC APPROACH

CEC was contracted to design and permit approximately 2,000 feet of stream restoration. CEC designed geosynthetic liners under the Georges Creek and a small unnamed tributary and specified clay-amended soil under the ponds to reduce flow in the underground mine workings that transport water and pollutants to a neighboring watershed. CEC's design relocated the previously ditched Georges Creek to the low point in the center of the valley and created a low floodplain to reduce streambank erosion, restore riparian wetlands, and remove sediments and nutrients from stormwater. CEC used floodplain restoration and geomorphic channel design techniques to create a stream channel capable of transporting coarse sediment and frequently inundated floodplain wetlands capable of removing and storing fine sediment and nutrients.

The mine reclamation objectives of the project required CEC to fill two deep abandoned mine pits and several dangerous high walls and to seal surface waters from infiltrating into underground mine workings.

CEC designed three fishing ponds for public recreation to address the County's public use objectives.

Construction will begin in the summer of 2021.

Civil & Environmental Consultants, Inc.

GEOTECHNICAL INVESTIGATION FOR FIRST EXCHANGE BANK

OWNER

First Exchange Bank

CLIENT

Omni Associates

LOCATION

Fairmont, WV

CEC SERVICES

Geotechnical Engineering

Deep Mine Stabilization Plan

OWNER OBJECTIVE

First Exchange Bank is a commercial bank with six branch offices in the local region. It was planning a new headquarters building and needed a geotechnical investigation to be performed, as the site is situated on a steeply sloping hillside. First Exchange Bank engaged Omni Associates for the project, and Omni Associates engaged CEC to perform a geotechnical investigation for the proposed structure.

CEC APPROACH

CEC performed a deep mine map and coal research through readily available web sources to investigate the occurrence of deep mining in the area, as nearby structures were known to have had subsidence prevention efforts undertaken prior to construction. Research confirmed that Pittsburgh Coal had outcropped near the front property boundary and that deep mines were present beneath much of the site. CEC planned a boring program to confirm coal seam depths across the site as well as to check for signs of past subsidence events. CEC presented recommendations to First Exchange Bank to reduce the risk of future structural damage to the planned structures (building and retaining walls) by offering an over-excavation and replacement option along with a mine grout option.

First Exchange Bank elected over-excavation and removal for the planned building, as it was to be placed in a location near the coal outcrop where old mine works are shallow. Remaining portions of the site, where the depth to old mines is greater, are to be stabilized by a mine stabilization program. CEC prepared a mine stabilization plan and specifications for the work. The project was constructed and is complete.

Civil & Environmental Consultants, Inc.

CRAFTS CREEK STREAM FLOW RESTORATION PROJECT

OWNER/CLIENT

CNX Resources Corporation

LOCATION

Morris Township, Washington County, PA

CEC SERVICES

Natural Stream Channel Design

Liner Design

Hydrology and Hydraulic Analysis

Erosion and Sediment Control Design

Construction Monitoring

Construction Quality Assurance

OWNER OBJECTIVE

CNX Resources Corporation was looking to restore and maintain flow of Crafts Creek, overlaying the E18 Enlow Fork Mine longwall mining panel, to a stable and ecologically functional stream channel. The Pennsylvania Department of Environmental Protection (PADEP) is requiring flow be restored to the streams' pre-mining condition.

CEC APPROACH

CEC was hired to perform a stream flow restoration project on an approximately 1,000 feet section of Crafts Creek. A stable stream channel was designed utilizing geosynthetics, geotextiles, an alluvial amendment method, and natural stream channel design principles to seal the underlying fractured bedrock and thus help restore and maintain stream flow.

The stream channel grading plan was designed with reference reach data collected along Sawhill Run in East Finley Township, Washington County, Pennsylvania as well as using regional curve equations for stable stream channel characteristics such as drainage area; bankfull depth, width, and cross-sectional area; meander length; radius of curvature; and floodprone area width. The stream bankfull capacity was designed for a 2-year storm event.

The geosynthetic stream liner system utilized a geosynthetic clay liner (GCL) overlain by a Geoweb cellular confinement system to provide a barrier to infiltration into the underlying fractured bedrock. The stream liner system was designed to resist erosion from a 100-yr storm event and was installed in the upstream section of the stream restoration reach. A detailed hydrologic and hydraulic analysis was performed to determine the velocities, shear stress and stream power in order to confirm the natural channel and stream liner design geometry and stability.

The alluvial amendment method used the addition of bentonite to the subsurface alluvium and soils to create a more cohesive and lower permeable substrate soil that can improve stream flow conveyance. This method was used in the downstream section of the stream restoration reach.

An erosion and sediment control design, that minimized the impacts to water quality during construction, was provided in compliance with PADEP Chapter 102 requirements for the project. Construction monitoring and quality assurance was performed to ensure the restoration activities were built in accordance with the construction drawings and specifications. Final planting was completed in 2013.

A detailed stream restoration compliance monitoring program, which included regular field visits for five years to document the progression of the stream back to a naturally functioning and stable stream channel, was performed for the stream restoration reach following construction.

Civil & Environmental Consultants, Inc.

FOUR MILE RUN STREAM RESTORATION AND GREEN INFRASTRUCTURE

OWNER/CLIENT

Pittsburgh Water and Sewer Authority

LOCATION

Pittsburgh, PA

CEC SERVICES

Erosion & Sedimentation Control/ NPDES Permitting

Geotechnical Engineering

Integrated Project Delivery

Landscape Architecture/Land Planning

Landslide Assessment/ Remediation

Predevelopment Site Investigations

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design

Sustainability Planning/Design

Utility Design

Aquatic & Terrestrial Habitat Surveys

Clean Water Act, Section 401/ 404 Permitting

Ecosystem Restoration

Invasive Plant Management

Water Quality & Sediment Surveys

Wetlands & Waters Delineations and Assessments

Groundwater Monitoring and Assessment

LiDAR Surveys

Topographic Surveys

Unmanned Aerial Services

Web & Mobile Application Development

OWNER OBJECTIVE

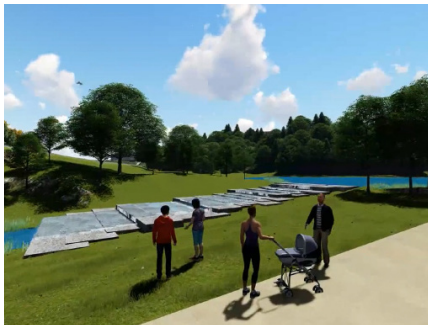
One of the focal sewersheds in Pittsburgh's Citywide Green First Plan for stormwater management is M29, which largely coincides with the historic Four Mile Run watershed. M29/Four Mile Run (4MR) has a contributing drainage area of approximately 2,400 acres and includes flow from the Squirrel Hill, Greenfield, Oakland, and Hazelwood neighborhoods that converge within Schenley Park. It is the third largest combined sewage overflow (CSO) contributor in the city, contributing approximately 400 million gallons of CSO annually to the Monongahela River, as well as chronic basement backup and neighborhood flooding in the Four Mile Run neighborhood. PWSA selected CEC as the prime consultant to provide professional engineering, landscape architecture, ecological, and hydrology services for a sewershed scale project to address these issues.

CEC APPROACH

The primary feature of the proposed solution is to separate and daylight approximately one mile of buried stream that is currently captured in the combined sewer system. CEC recognized that controlling erosion and sedimentation was key to creating a sustainable stormwater conveyance system with a naturalized stream. This sewershed has several historic streams were evaluated as part of the project as well as Panther Hollow Lake. The design intent is to find a cost-effective, resilient, and low-maintenance solution to permanently remove approximately 100 million gallons of stream baseflow from the combined sewer system and to plan for integration of future green infrastructure and stormwater separation in the sewershed.

The new stream channel will use geological and ecological processes to maintain a stable channel that conveys base and storm flows. The stream will effectively handle hydrology from Panther Hollow Lake in the short term, and additional sources of hydrology from surrounding neighborhoods over the long term, thus dramatically reducing M29's CSOs. Its planned riparian vegetation will reduce runoff, promote infiltration, and provide habitat, recreation, and spiritual renewal for residents and visitors.

Field work for the wetlands and streams along with other man-made and natural features started May 2018. Design is projected to continue to mid-2019 with construction scheduled for 2020.



Civil & Environmental Consultants, Inc.

LOWER DEMPSEY STREAM MITIGATION BANK

OWNER/CLIENT

Ecosystem Investment Partners, LLC

Canaan Valley Institute, Inc.

LOCATION

Logan County, WV

CEC SERVICES

Stream & Wetland Delineation

Stream Assessment and Valuation Metric Computation

Mitigation Prospectus, Banking Instrument, Plan, and Permit

Construction Drawings and Specifications

Construction Oversight

DATES OF SERVICE

2013 to 2016

ENGINEERING FEES

$568K

CONSTRUCTION FEES

$6.1M

CONTACT

Mr. Nick Dilks

Ecosystem Investment Partners, LLC

5550 Newbury Street, Suite B

Baltimore, MD 21209

443-921-9441

OWNER OBJECTIVE

The Lower Dempsey Stream Mitigation Bank is located in Logan, West Virginia and demonstrates an innovative approach to restoration of abandoned mine lands and silvicultural practices. With over 700 acres of conservation and 8 miles of streams, Ecosystem Investment Partners, LLC (EIP) sponsored this stream mitigation bank to provide mitigation credits for unavoidable impacts in the Upper and Lower Guyandotte, Coal, Twelvepole, Tug, and Upper and Lower New watersheds. This stream mitigation bank was developed by EIP in partnership with Canaan Valley Institute (CVI) and Civil & Environmental Consultants, Inc. (CEC).

The restoration at Lower Dempsey Stream Mitigation Bank includes: restoration of streams across highwall mine benches; mine access roads built in the stream or its floodplain; failing or “hanging” pipe culverts; and severe erosion and down-cutting. Some project challenges included restoration of steeply sloping headwater streams, reclamation of mined landscapes and valleys, the construction of alluvial fans, and surface and subsurface hydrological improvement.

CEC APPROACH

CEC was retained to provide ecological planning, assessment, plan production, and permitting services. CEC performed the stream and wetland delineations and conducted a jurisdictional determination site visit with the Interagency Review Team (IRT). CEC also performed water quality, benthic macroinvertebrate sampling and habitat scoring of streams to determine baseline conditions for credit computations using the WV Stream and Wetland Valuation Metric. CEC produced construction-level design drawings (with support from CVI) for the mitigation plans with its custom stream design application using AutoCAD® Civil 3D® software, which enables rapid design adjustments to stream grading plans. CEC assisted EIP and CVI in preparing the prospectus, MBI, and mitigation plans and with agency negotiations for the Clean Water Act 404 and 401 permits.

The Lower Dempsey Stream Mitigation Bank was completed in 2016 and is exceeding the goals and objectives of the project.

After Restoration

Civil & Environmental Consultants, Inc.

MARYTOWN STREAM MITIGATION BANK

OWNER/CLIENT

Ecosystem Investment Partners, LLC

LOCATION

McDowell County, WV

CEC SERVICES

Stream & Wetland Delineation

Stream Assessment and Valuation Metric Computation

Geomorphic Assessment

Natural Channel Design

Mitigation Prospectus, Banking Instrument, Plan, and Permit

Construction Drawings and Specifications

Construction Oversight

Before stream restoration

After stream restoration

OWNER OBJECTIVE

The Marytown Stream Mitigation Bank is one of West Virginia's largest stream mitigation banks, spanning 4,508 acres with a little over 28 miles of streams. This stream mitigation bank was developed by Ecosystem Investment Partners, LLC (EIP) in partnership with Canaan Valley Institute (CVI) and CEC. The Marytown Stream Mitigation Bank provides credits for unavoidable impacts in the Upper Guyandotte, Twelvepole, Big Sandy, Upper New, and Tug Fork watersheds of West Virginia's McDowell and Logan Counties.

The restoration objectives of this mitigation bank are to reconnect, reestablish, and enhance ephemeral, intermittent, and perennial streams disturbed and disconnected by mine benches, road crossings, logging, and pipeline infrastructure. Some project challenges included the reclamation of abandoned mine lands and the restoration of headwater streams with bankfull slopes reaching 70 percent.

CEC APPROACH

CEC was retained to provide ecological planning, assessment, stream design, and permitting services. CEC performed the stream and wetland delineations and conducted a jurisdictional determination site visit with the Interagency Review Team (IRT). CEC also performed water quality, benthic macroinvertebrate sampling and habitat scoring of streams to determine baseline conditions for credit computations using the WV Stream and Wetland Valuation Metric. Geomorphic survey data was collected for stream restoration reaches to determine appropriate natural channel design approaches for restoration. CEC prepared construction-level design drawings for the mitigation plans with its custom stream design application using AutoCAD® Civil 3D® software, which enables rapid design adjustments to stream grading plans. CEC also assisted EIP and CVI in preparing the prospectus, MBI, and mitigation plans and with agency negotiations for the Clean Water Act 404 and 401 permits.

The project team developed innovative mitigation credit options for re-forested, steeply sloped sites and presented the options to the USACE and IRT. The IRT is currently considering these options as a model for mitigation projects on other similar sites. The project was completed in 2016 and all mitigation credits have been released to date.

Civil & Environmental Consultants, Inc.

BEAVER CREEK PASSIVE AMD TREATMENT

OWNER/CLIENT

Friends of the Cheat, Inc.

LOCATION

Kingwood, WV

CEC SERVICES

Site Grading/Earthwork Analysis

Clean Water Act, Section 401/404 Permitting

Ecosystem Restoration

Water Quality & Sediment Surveys

Wetland AMD Treatment

Wetlands & Waters Delineations

NPDES Permitting Support

Construction Quality Assurance

Erosion & Sediment Control Design and Inspection

Watershed Planning and Restoration

Horizontal & Vertical Control Surveys

Topographic Surveys

Construction Management

GPS/GIS Services

Existing acid-iron conditions of UNT to Beaver Creek.

OWNER OBJECTIVE

Friends of the Cheat, Inc. (FOC) is a non-profit watershed association with the mission to restore, preserve, and promote the outstanding natural qualities of the Cheat Watershed. FOC has been recognized repeatedly over the years for unrelenting dedication and measurable success to improve the Cheat Watershed. FOC works with community stakeholders and technical experts to understand and revitalize brownfields in the lower Cheat River watershed to spur economic growth, protect public health, and promote environmentally-friendly redevelopment. Since 1995, FOC and its partners have implemented 15 acid mine drainage (AMD) treatment systems on abandoned mine lands in the lower Cheat River watershed.

The Beaver Creek AMD project site resides on pre-Surface Mining Control and Reclamation Act (SMCRA) Abandoned Mine Land (AML) of the upper Appalachian plateau. Pre-SMCRA mining had no reclamation requirements and extraction of high sulfur coal has contaminated a local watershed with high acidity, iron, and aluminum concentrations. The contaminants absolutely inhibit establishment of aquatic ecosystem and associated riparian buffer.

CEC APPROACH

The engineering design utilizes an existing, but ecologically barren delineated waterway under the jurisdiction of the United States Army Corps of Engineers (USACE). The bulk of construction will utilize onsite fill material requiring appropriate geotechnical engineering methods. Treatment system components will utilize bell siphons and plumbing requiring tight tolerances on elevations.

CEC completed topographic surveying and biological assessment of the terrestrial and aquatic species at the site. Water quality and hydrologic data was collected specifically to drive the engineering design. Calculations and bench testing were utilized to assess contaminant loads, acid neutralization rates, metal oxidation rates, appropriate reagent tonnages, and best management practice (BMP) sizing. CEC made substantial contributions to surface stabilization and erosion and sediment (E&S) control design including the use of fill compaction keys and turf reinforcement materials.

CEC balanced a combination of treatment efficacy with BMP sizing to determine the optimal cost-benefit scenario. Reduced contaminant loads will elicit establishment of aquatic habitat and benefit a downstream trout fishery. A diverse planting plan of native grasses, hardwoods, and evergreens will stabilize the site and provide healthy riparian ecosystem. Overall the project will work toward achieving Total Maximum Daily Load (TMDL) thresholds, which is a Clean Water Act Title 319 funding objective.

Header Photo: Existing acid-aluminum AMD seep discharging into pond

Civil & Environmental Consultants, Inc.

RECLAMATION OF FOUR BOND FORFEITURE SITES

OWNER/CLIENT

Stantec, Inc.

LOCATION

Northern West Virginia

CEC SERVICES

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design

Hydrogeology and Groundwater Modeling

Groundwater/Surface Water Remediation Systems

Coal Refuse and Pavement Neutralization

Landowner Negotiations

Topographic Surveys

Calculation Brief

Construction Plans and Specifications

Bid Estimate and Engineer's Cost Estimate

OWNER OBJECTIVE

Stantec, Inc. is an international professional services company in the design and consulting industry that has more than 400 locations in North America and 7 locations internationally. Stantec was seeking assistance with reclamation projects at five bond forfeited sites in northern West Virginia. The sites include three RobLee Coal Company mines, one Energy Marking Company mine and one Buffalo Coal Company mine.

CEC APPROACH

Stantec awarded CEC the contract to develop reclamation plans for the five bond forfeited sites. CEC began the project by obtaining rights-of-entry from 12 different landowners as well as having those landowners sign waivers for access roads and ponds constructed by the mine operations. In addition, CEC was tasked with developing and implementing subsurface investigations, obtaining aerial photography with field control surveys, supplementing aerial photography with onsite field surveys, obtaining soil and refuse analyses, and reclamation design.

CEC performed topographic surveying and generated construction plans and specifications for the five project sites prior to construction. Improvements to 2.5 miles of access roads also had to take place before construction could begin.

The projects involved the design of approximately 1,080,000 cubic yards of balanced earthwork, three mine seals, rock toe drains, and approximately 3,500 feet of subsurface drains. During remediation, approximately 23,500 feet of ditches were constructed, 13 sediment control ponds with outlet structures were re-constructed, and approximately 830 feet of piping was installed. CEC also managed the revegetation of approximately 165 acres.

Three of the sites have been built successfully. The fourth site is currently under construction.

Civil & Environmental Consultants, Inc.

SHINNS RUN PORTAL

OWNER/CLIENT

West Virginia Department
of Environmental Protection

LOCATION

Shinnston, WV

CEC SERVICES

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design

Hydrogeology and Groundwater Modeling

Groundwater/Surface Water
Remediation Systems

Topographic Surveys

Calculation Brief

Construction Plans and Specifications

Bid Estimate and Engineer's Cost Estimate

OWNER OBJECTIVE

The West Virginia Department of Environmental Protection (WVDEP) was seeking assistance with the reclamation design of the Shinns Run Portals Abandoned Mine Lands located near Shinnston in Harrison County, West Virginia. Past deep mining operations have captured stream flows, impacted Harrison County Route 13, and resulted in the formation of fifteen open, partially collapsed, or totally collapsed mine openings. The deep mined Pittsburgh coal seam is located in close proximity to several area homes, within the right-of-way of Harrison County Route 13, and within four vertical feet of Shinns Run Stream.

CEC APPROACH

CEC was awarded the contract to perform engineering services for the reclamation design of the Shinns Run Portals project. CEC performed field surveying tasks to complement aerial mapping supplied by the WVDEP; developed and implemented a subsurface investigation to quantify and qualify impounded mine pools; and performed a detailed preliminary investigation to include public and private records. The preliminary investigation obtained available deep mine maps, interviewed affected landowners, evaluated construction and drill access, and evaluated sources for materials to be used in reclamation of the project.

The project involved submittal and approval of an Army Corps of Engineers permit and a Hydraulic Engineering Center-River Analysis System (HEC-RAS) hydrologic evaluation of Shinns Run to determine potential flood impacts to residents' homes from installation of low water crossings in order to successfully seal all mine openings. CEC developed plans to seal two streambeds now flowing into the abandoned mine works through subsidence features. In addition, CEC led boring and jacking operations to place a pipe beneath Harrison County Route 13 and provide hydraulic relief to an area home. Approximately 900 linear feet of ditches, 1,000 linear feet of subsurface drains, 450 linear feet of stream bank protection, and 75 feet of roadbed protection were designed by CEC.

CEC performed topographic surveying; generated construction mapping; analyzed soil test results to determine soil amendments for vigorous vegetative growth; performed hydraulic and hydrologic studies and designed ditches and pipes; developed preliminary and final design construction plans and specifications; designed mine pool dewatering operations and mine drainage treatment plans; developed an engineer's cost estimate, bid schedule, and calculation brief; attended initial on-site, preliminary design, and final design meetings.

This project is currently under construction.

Civil & Environmental Consultants, Inc.

ARLINGTON (GAIN) HIGHWALL

OWNER/CLIENT

West Virginia Department of Environmental Protection

LOCATION

Arlington, West Virginia

CEC SERVICES

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design

Hydrogeology and Groundwater Modeling

Groundwater/Surface Water Remediation Systems

Topographic Surveys

Calculation Brief

Construction Plans and Specifications

Bid Estimate and Engineer's Cost Estimate

OWNER OBJECTIVE

The West Virginia Department of Environmental Protection (WVDEP), Office of Abandoned Mine Lands oversees and facilitates the resolving of public safety issues as mine fires & subsidence, hazardous highwalls, mining-impacted water supplies, open shafts and portals, and other dangers resulting from mining before 1977. Such practices were established by the Surface Mining and Control Act and the creation of the Office of AML&R in 1981. The Office of Surface Mining provides oversight to the Office of AML&R.

The WVDEP, Office of Abandoned Mine Lands requested proposals to provide design services to eliminate falling/entrapment hazard from a previous reclamation operation.

CEC APPROACH

CEC performed a field visit to identify the problem area and make recommendations for elimination of the hazard. CEC provided GPS field survey tasks to map the problem area.

The project involved 570 linear feet of sediment control; 210 feet of ditches; 260 feet of pipes; 130 linear feet of subsurface drains; one manhole; one drop inlet; one headwall; one acre of Revegetation; topographic surveying to generate project mapping; hydraulic studies and design for ditches and pipes; sediment control design; revegetation plan; preliminary and final design; construction plans and specifications; engineers cost estimate, bid schedule, and calculation brief; initial on-site, preliminary design, pre-bid meeting; monthly reports and invoicing.

The project was completed in June 2015.

Civil & Environmental Consultants, Inc.

McALPIN PORTALS

OWNER/CLIENT

West Virginia Department of Environmental Protection

LOCATION

Bridgeport, WV

CEC SERVICES

Geotechnical Engineering

Site Grading/Earthwork Analysis

Slope Stability/Retaining Structure Design

Stormwater Management/BMP Design

Hydrogeology and Groundwater Modeling

Soil/Groundwater Remediation Systems

Topographic Surveys

Calculation Brief

Construction Plans and Specifications

Bid Estimate and Engineer's Cost Estimate

Landslide Remediation

OWNER OBJECTIVE

The McAlpin Portals Abandoned Mine Lands, located near Bridgeport in Harrison County, West Virginia, consisted of approximately 3,400 linear feet of high wall ranging from 30 to 50 feet in height, and ten collapsed mine entries, five of which were discharging acid mine drainage. The uncontrolled mine drainage runs over the hill causing further slope instability and threatening five homes located downhill.

CEC APPROACH

CEC was awarded a contract by the West Virginia Department of Environmental Protection (WVDEP) to perform engineering services for the reclamation design of the abandoned mine lands. CEC designed and implemented a drilling program to define slip limits and testing of spoil properties for slope stability. CEC also supplemented WVDEP mapping with field surveys of important project features such as seep, slip, coal refuse boundaries, and collapsed portal locations.

CEC provided Retaining Wall/Earth Moving Design Alternatives for four slips; reclamation design with 42,000 cubic yards of excavation; 9,200 linear feet of erosion and sediment control; 5,325 linear feet of ditches; 247 linear feet of pipes; 1,317 linear feet of subsurface drains; one manhole; a Gabion Basket Retaining Wall; subsidence hole mitigation; stream bank protection; five mine seals; 23 acres of revegetation; topographic surveying to supplement existing mapping; soil physical properties testing for slope stability; hydraulic studies and design for ditches and pipes; sediment control design; revegetation plan; preliminary and final design; construction plans and specifications; dewatering and AMD Treatment Plan.

This project is currently in the final review/approval stage with the WVDEP and will be let for bid in 2018.

Civil & Environmental Consultants, Inc.

HODGESVILLE (WRIGHT) MINE BLOW-OUT

OWNER/CLIENT

West Virginia Department of Environmental Protection

LOCATION

Hodgesville, WV

CEC SERVICES

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design

Hydrogeology and Groundwater Modeling

Groundwater/Surface Water Remediation Systems

Topographic Surveys

Calculation Brief

Construction Plans and Specifications

Bid Estimate and Engineer's Cost Estimate

OWNER OBJECTIVE

The West Virginia Department of Environmental Protection (WVDEP), Office of Abandoned Mine Lands oversees and facilitates the resolving of public safety issues as mine fires & subsidence, hazardous highwalls, mining-impacted water supplies, open shafts and portals, and other dangers resulting from mining before 1977. Such practices were established by the Surface Mining and Control Act and the creation of the Office of AML&R in 1981. The Office of Surface Mining provides oversight to the Office of AML&R.

The WVDEP, Office of Abandoned Mine Lands requested proposals to provide design services to mitigate problems associated with an unexpected mine blow-out. This project was deemed an emergency project with a very short time frame for document submittal and awarding of the construction contract. The problem area was located approximately 300 feet behind a residence. On or about March 17, 2015 a mine blowout sent uncontrolled high flows of mine water down an existing ditchline. The uncontrolled flow sent mud, debris, and sediment down the ditchline plugging an existing drop inlet and pipe beneath US Route 20 and submerging US Route 20 beneath 10 inches of water for a period of time causing the road to be closed to traffic. After the initial surge, a 25-foot diameter pool approximately three feet deep developed directly adjacent to US Route 20 with the overflow directed down the east road ditchline. The West Virginia Department of Highways had removed debris from atop the drop inlet and re-established flow though the road pipe. The outlet end of the road pipe is submerged with mud and debris with water conveyed by the road pipe welling-up out of the ground and sheet flowing into nearby ditches.

CEC APPROACH

CEC's reclamation design included 12,500 cubic yards of excavation; two wet mine seals; 1,900 linear feet of sediment control; 531 linear feet of ditches; 116 feet of pipes; 355 linear feet of subsurface drains; one manhole; four acres of revegetation; topographic surveying to develop project mapping; soil testing; hydraulic studies and design for ditches and pipes; sediment control design; revegetation plan; preliminary and final design; construction plans and specifications; dewatering and AMD Treatment Plan; engineers cost estimate, bid schedule, and calculation brief; initial on-site, preliminary design, pre-bid meeting; monthly reports and invoicing.

The project was completed in November 2015.

Civil & Environmental Consultants, Inc.

ARKWRIGHT SLURRY IMPOUNDMENT

OWNER/CLIENT

CONSOL Energy, LLC/CNX Land Resources (Owner)

Mon-View LLC. (Client)

LOCATION

Monongalia County, WV

CEC SERVICES

Cone Penetrometer Testing

Geotechnical Investigation

Settlement Evaluation

Flood Routing

Site Grading Analysis

Closure Plan

Revegetation

Construction Support

OWNER OBJECTIVE

After the closure of the Arkwright mining complex near Morgantown, West Virginia, CONSOL Energy, LLC (CONSOL) opted to develop the site for commercial use. CONSOL contracted CEC to generate a closure plan for an inactive fine coal refuse (FCR) slurry impoundment. FCR is material contained within a slurry generated by the coal preparation process that settles and consolidates over time.

CEC APPROACH

CEC performed a geotechnical investigation and analysis, and provided a closure plan for the inactive FCR slurry impoundment. Piezo-Cone Penetrometer Testing (CPTU) was performed in the impoundment to assess the stability and compressibility of the FCR materials, and piezometers were installed within the impoundment and embankment.

CEC's investigation and analysis of the CPTU data determined that the impoundment and FCR was well-drained and that the FCR materials would compress up to 3.5 feet under the backfill placed during the closure of the impoundment. Consequently, no specialized treatments (such as grouting or wick drains) were needed to stabilize the FCR materials prior to development. Some areas, depending on the postdevelopment use, received fill surcharges to induce settlements prior to development. Settlement monitoring data was collected and analyzed in these areas prior to surcharge removal and final site development activities.

Closure of the impoundment entailed a complete breach of the embankment, and excavation and placement of approximately 1,300,000 cubic yards of fill. At completion, the site provided approximately 40 acres of level development area within the former mine waste disposal facility, of which approximately 30 acres were purchased by Wal-Mart Stores, Inc. for the construction of a new Wal-Mart Supercenter and Sam's Club.

Civil & Environmental Consultants, Inc.

HOWARDS CREEK STREAM RESTORATION

LOCATION

White Sulphur Springs, WV

OWNER/CLIENT

West Virginia Conservation Agency

CEC SERVICES

Ecosystem Restoration

Stream Assessments and Restoration

As-built Surveys

Construction Surveys/Staking

Horizontal & Vertical Control Surveys

LiDAR Surveys—Short and Long Range

Construction Management

OWNER OBJECTIVE

The West Virginia Conservation Agency (WVCA) is a state-funded agency whose mission is to provide for and promote the protection and conservation of West Virginia's air, soil, land, water, and related resources for the health, safety, and general welfare of the state's citizens.

In the late 1980s, Howards Creek, located near White Sulphur Springs, West Virginia, was improved and stabilized to accommodate stormwater. In June of 2016, the Howards Creek watershed was impacted by a flood event that deposited debris along the banks and caused lateral migration of the active stream channel. After the 2016 impacts, a phase I cleanup was completed. As part of the phase II flood recovery efforts, WVCA and the Greenbrier Valley Conservation District, funded by the EPA 319 Nonpoint Source Management program, began working to restore a stream reach approximately 4,000 linear feet on Howards Creek. Efforts focused on providing a stable dimension, pattern, and profile. During this process, habitat enhancement and in-stream habitat creation will be a focus for the trout fishery.

CEC APPROACH

CEC was hired to provide aerial mapping, geomorphic surveying, geomorphic design and construction drawings for the restoration project. CEC's design addressed and optimized the stormwater transport capabilities and resolved channel instabilities apparent in this reach of Howards Creek. The design was based on morphological data from reference reach conditions within the physiographic region.

Natural channel design was used to improve these waters of the United States and provide ecological and functional uplift to Howards Creek. Installation of rock-constructed riffles and various boulder and log structures, floodplain grading, and revegetation using native seed mix and live stakes all took place to accomplish the objectives of the design.

All activities have been completed and project has moved into permit review with construction occurring summer/fall of 2018.

Civil & Environmental Consultants, Inc.

HOWARDS CREEK STREAM RESTORATION

OWNER/CLIENT

West Virginia Conservation Agency

LOCATION

White Sulphur Springs, WV

CEC SERVICES

Ecosystem Restoration

Stream Assessments and Restoration

As-built Surveys

Construction Surveys/Staking

Horizontal & Vertical Control Surveys

LiDAR Surveys—Short and Long Range

Construction Management

OWNER OBJECTIVE

The West Virginia Conservation Agency (WVCA) is a state-funded agency whose mission is to provide for and promote the protection and conservation of West Virginia's air, soil, land, water, and related resources for the health, safety, and general welfare of the state's citizens.

In the late 1980s, Howards Creek, located near White Sulphur Springs, West Virginia, was improved and stabilized to accommodate stormwater. In June of 2016, the Howards Creek watershed was impacted by a flood event that deposited debris along the banks and caused lateral migration of the active stream channel. After the 2016 impacts, a phase I cleanup was completed. As part of the phase II flood recovery efforts, WVCA and the Greenbrier Valley Conservation District, funded by the EPA 319 Nonpoint Source Management program, began working to restore a stream reach approximately 4,000 linear feet on Howards Creek. Efforts focused on providing a stable dimension, pattern, and profile. During this process, habitat enhancement and in-stream habitat creation will be a focus for the trout fishery.

CEC APPROACH

CEC was hired to provide aerial mapping, geomorphic surveying, geomorphic design and construction drawings for the restoration project. CEC's design addressed and optimized the stormwater transport capabilities and resolved channel instabilities apparent in this reach of Howards Creek. The design was based on morphological data from reference reach conditions within the physiographic region.

Natural channel design was used to improve these waters of the United States and provide ecological and functional uplift to Howards Creek. Installation of rock-constructed riffles and various boulder and log structures, floodplain grading, and revegetation using native seed mix and live stakes all took place to accomplish the objectives of the design.

All activities have been completed and project has moved into permit review with construction occurring summer/fall of 2018.

Civil & Environmental Consultants, Inc.

MARRIOTT HOTEL MINE GROUTING

OWNER/CLIENT

Marriott International, Inc.

LOCATION

Morgantown, WV

CEC SERVICES

ADA Accessibility Analysis

Erosion & Sedimentation Control/NPDES Permitting

Landscape Architecture/Land Planning

Predevelopment Site Investigations

Site Grading/Earthwork Analysis

Stormwater Management/BMP Design

Sustainability Planning/Design

Utility Design

NPDES Permitting Support

Low Impact Development Design

Stormwater BMP Design and Inspections

OWNER OBJECTIVE

Marriott International, Inc. is a public, worldwide hospitality corporation with more than 6,500 properties. Marriott was looking to construct a new hotel at the University Town Center in Morgantown, West Virginia. However, since underground coal mining was previously performed beneath the site, Marriott wanted to ensure the site was stable for construction of the new building.

CEC APPROACH

To decrease the risk of mine subsidence, Marriott decided to grout the mine present beneath the site. CEC was selected to provide a mine grouting plan, mine grouting stabilization specifications, and construction quality control services for the grouting operations. CEC's mine grouting plan showed the drilling and grouting locations, and specifications included requirements for the materials, procedures, and testing.

CEC also provided on-site daily inspection of the grouting and testing of the materials used. A summary letter was provided, after the grouting was complete, stating that the project was performed in general accordance with CEC's plans and specifications.

This work was completed in 2015.

ADDITIONAL FORMS

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: 1337601			**Reason for Modification:**
Doc Description: DLR - Design-Build Owner Advisor Services			
Proc Type: Central Purchase Order			
Date Issued	**Solicitation Closes**	**Solicitation No**	**Version**
2024-01-12	2024-01-30 13:30	CEOI 0313 DEP2400000010	1

BID RECEIVING LOCATION

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

VENDOR

Vendor Customer Code: 000000160928
Vendor Name : Civil & Environmental Consultants, Inc.
Address : 120 Genesis Boulevard
Street :
City : Bridgeport
State : WV **Country :** USA **Zip :** 26330
Principal Contact : Erasmo Rizo
Vendor Contact Phone: 304-933-3119 **Extension:**

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

Vendor Signature X  **FEIN#** 25-1599565 **DATE** 1/30/2024

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

CERTIFICATE OF Authorization

STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS

The West Virginia State Board of Registration for Professional Engineers having verified the person in responsible charge is registered in West Virginia as a professional engineer for the noted firm, hereby certifies

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
C02231-00

Engineer in Responsible Charge: STEVEN A. CAIN - WV PE 015264

has complied with section §30-13-17 of the West Virginia Code governing the issuance of a Certificate of Authorization. The Board hereby notifies you of its certification with issuance of this Certification of Authorization for the period of:

January 1, 2024 - December 31, 2025

providing for the practice of engineering services in the State of West Virginia.

IF YOU ARE REQUIRED TO REGISTER WITH THE SECRETARY OF STATE'S OFFICE, PLEASE SUBMIT THIS CERTIFICATE WITH YOUR APPLICATION.

IN TESTIMONY WHEREOF, THE WEST VIRGINIA STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS HAS ISSUED THIS COA UNDER ITS SEAL, AND SIGNED BY THE PRESIDENT OF SAID BOARD.

Scott E. Thomas Jr.

BOARD PRESIDENT

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Printed Name and Title) Erasmo Rizo - Principal

(Address) 120 Genesis Boulevard, Bridgeport, WV 26330

(Phone Number) / (Fax Number) 304-933-3119

(email address) erizo@cecinc.com

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through *wv*OASIS, I certify that: I have reviewed this Solicitation/Contract in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation/Contract for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that this bid or offer was made without prior understanding, agreement, or connection with any entity submitting a bid or offer for the same material, supplies, equipment or services; that this bid or offer is in all respects fair and without collusion or fraud; that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; that I am authorized by the Vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on Vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law; and that pursuant to W. Va. Code 5A-3-63, the entity entering into this contract is prohibited from engaging in a boycott against Israel.

Civil & Environmental Consultants, Inc.

(Company)

Erasmo Rizo

(Signature of Authorized Representative)

Erasmo Rizo - Principal

(Printed Name and Title of Authorized Representative) (Date)

304-933-3113

(Phone Number) (Fax Number)

erizo@cecinc.com

(Email Address)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CEOI 0313 DEP2400000010

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

☐ Addendum No. 1	☐ Addendum No. 6
☐ Addendum No. 2	☐ Addendum No. 7
☐ Addendum No. 3	☐ Addendum No. 8
☐ Addendum No. 4	☐ Addendum No. 9
☐ Addendum No. 5	☐ Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Civil & Environmental Consultants, Inc.

Company

Authorized Signature

1-30-2024

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

OMB # 1029-0119
Expiration Date:
10/31/2024

ABANDONED MINE LANDS (AML) CONTRACTOR INFORMATION FORM

You must complete this form for your AML contracting officer to request an eligibility evaluation from the Office of Surface Mining Reclamation and Enforcement (OSMRE) to determine if you are eligible to receive an AML contract. This requirement can be found under OSMRE's regulations at 30 CFR 874.16. **NOTE:** This form must be signed and **dated within 30 days** of submission to be considered for a current bid.

Part A: General Information

Business Name:	Civil & Environmental Consultants, Inc.
Tax ID #:	25-1599565
Address:	120 Genesis Boulevard
City, State, & Zip:	Bridgeport, WV 26330
Phone Number:	304-933-3119
Email Address:	erizo@cecinc.com

Part B: Obtain an Organizational Family Tree (OFT) from the Applicant Violator System (AVS)

If you plan to certify the existing AVS information or submit updates under Part C, you must include an OFT. Instructions for downloading an OFT from the AVS can be found at: https://www.osmre.gov/sites/default/files/2022-02/OMB%201029-0119%20instructions.pdf. If you require assistance you may contact the AVS Office by phone at: 800-643-9748, or by email at: avshelp@osmre.gov.

Part C: Certifying and updating information in the AVS

Select one of the options, follow the instructions for the selected option, sign, and date below.

I, Erasmo Rizo , have express authority to certify that:
(Print Name)

- [x] 1. Our business is listed in the AVS. The information is accurate, complete, and up to date. (If you select this option, you must attach an Entity OFT from the AVS to this form). Do not complete Part D.
- [ ] 2. Our business is in the AVS. The information needs to be updated. (If you select this option, you must attach an Entity OFT from the AVS to this form). Complete Part D to provide the missing or corrected information.
- [ ] 3. Our business is not listed in the AVS. The information needs to be added. Complete Part D to provide the information.

1-30-2024		Principal
Date	Signature	Title