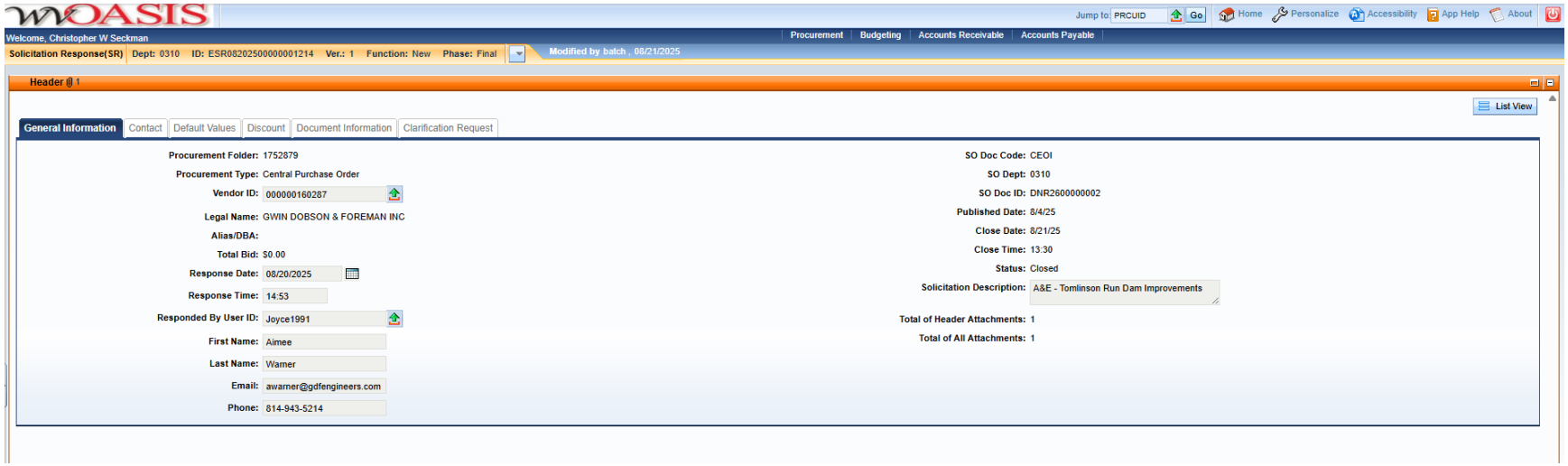
The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency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


wvOASIS
Jump to PRCUID Go
Home
Personalize
Accessibility
App Help
About
Welcome, Christopher W Seckman
Procurement
Budgeting
Accounts Receivable
Accounts Payable
Solicitation Response(SR) Dept: 0310 ID: ESR08202500000001214 Ver.: 1 Function: New Phase: Final
Modified by batch , 08/21/2025
Header # 1
List View
General Information
Contact
Default Values
Discount
Document Information
Clarification Request
Procurement Folder: 1752879
Procurement Type: Central Purchase Order
Vendor ID: 000000160287
Legal Name: GWIN DOBSON & FOREMAN INC
Alias/DBA:
Total Bid: $0.00
Response Date: 08/20/2025
Response Time: 14:53
Responded By User ID: Joyce1991
First Name: Aimee
Last Name: Warner
Email: awarner@gdfengineers.com
Phone: 814-943-5214
SO Doc Code: CEOI
SO Dept: 0310
SO Doc ID: DNR2600000002
Published Date: 8/4/25
Close Date: 8/21/25
Close Time: 13:30
Status: Closed
Solicitation Description: A&E - Tomlinson Run Dam Improvements
Total of Header Attachments: 1
Total of All Attachments: 1

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

State of West Virginia
Solicitation Response

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

Solicitation Closes	Solicitation Response	Version
2025-08-21 13:30	SR 0310 ESR08202500000001214	1

VENDOR

000000160287
GWIN DOBSON & FOREMAN INC

Solicitation Number: CEOI 0310 DNR2600000002

Total Bid: 0 **Response Date:** 2025-08-20 **Response Time:** 14:53:01

Comments:

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

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

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

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

Comm Code	Manufacturer	Specification	Model #
81100000			

Commodity Line Comments:

Extended Description:

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

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

State of West Virginia
Centralized Expression of Interest
Architect/Engr

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

BID RECEIVING LOCATION

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

VENDOR

Vendor Customer Code:	000000160287				
Vendor Name :	Gwin, Dobson & Foreman, Inc				
Address :	3121 Fairway Drive				
Street :					
City :	Altoona				
State :	PA	**Country :**	USA	**Zip :**	16602
Principal Contact :	Mark Glenn, P.E.				
Vendor Contact Phone:	(814) 943-5214	**Extension:**			

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

Vendor Signature X  **FEIN#** 25-1209285 **DATE** 08/18/2025

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

ADDITIONAL INFORMATION

The Purchasing Division is soliciting Expression(s) of Interest for The West Virginia Division of Natural Resources, from qualified firms to provide architectural/engineering services to provide necessary engineering, architectural, and other professional services to design repairs and improvements to the dam, design a dredging plan, and design other related improvements at Tomlinson Run State Park, in Hancock County, WV. Services will also include permitting, contract administration through construction, and other work necessary to bring the dam into compliance with Dam Safety regulations and obtain a Certificate of Approval per the attached specifications and terms and conditions.

INVOICE TO	SHIP TO
DIVISION OF NATURAL RESOURCES	DIVISION OF NATURAL RESOURCES
112 CALIFORNIA AVENUE	TOMLINSON RUN STATE PARK
BLDG 4	84 OSAGE RD
CHARLESTON WV 25305	NEW MANCHESTER WV 26056
US	US

Line	Comm Ln Desc	Qty	Unit Issue
1	Professional engineering services		

Comm Code	Manufacturer	Specification	Model #
81100000			

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

SCHEDULE OF EVENTS

Line	Event	Event Date

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: CEOI 0310 DNR2600000002

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.

Gwin, Dobson & Foreman, Inc.
Company


Authorized Signature

August 18, 2025 - No Addendum Issued
Date

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

EXPRESSION OF INTEREST

West Virginia DNR Wildlife Section
Tomlinson Run State Park
Dam Improvements

SECTION FIVE: TERMS AND CONDITIONS

Terms and conditions begin on the next page.

GENERAL TERMS AND CONDITIONS:

1. CONTRACTUAL AGREEMENT: Issuance of an Award Document signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance by the State of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid, or on the Contract if the Contract is not the result of a bid solicitation, signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. DEFINITIONS: As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

2.1. "Agency" or **"Agencies"** means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

2.2. "Bid" or **"Proposal"** means the vendors submitted response to this solicitation.

2.3. "Contract" means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

2.4. "Director" means the Director of the West Virginia Department of Administration, Purchasing Division.

2.5. "Purchasing Division" means the West Virginia Department of Administration, Purchasing Division.

2.6. "Award Document" means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the contract holder.

2.7. "Solicitation" means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

2.8. "State" means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

2.9. "Vendor" or **"Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. CONTRACT TERM; RENEWAL; EXTENSION: The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

☐ **Term Contract**

Initial Contract Term: The Initial Contract Term will be for a period of _____ _____. The Initial Contract Term becomes effective on the effective start date listed on the first page of this Contract, identified as the State of West Virginia contract cover page containing the signatures of the Purchasing Division, Attorney General, and Encumbrance clerk (or another page identified as _____), and the Initial Contract Term ends on the effective end date also shown on the first page of this Contract.

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal should be delivered to the Agency and then submitted to the Purchasing Division thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Unless otherwise specified below, renewal of this Contract is limited to _____ successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed the total number of months available in all renewal years combined. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

> ☐ **Alternate Renewal Term** – This contract may be renewed for _____ successive _____ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's office (Attorney General approval is as to form only)

Delivery Order Limitations: In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

☐ **Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within _____days.

☐ **Fixed Period Contract with Renewals:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within _____ days. Upon completion of the work covered by the preceding sentence, the vendor agrees that:

☐ the contract will continue for _____ years;

☐ the contract may be renewed for _____ successive _____ year periods or shorter periods provided that they do not exceed the total number of months contained in all available renewals. Automatic renewal of this Contract is prohibited. Renewals must be approved by the Vendor, Agency, Purchasing Division and Attorney General's Office (Attorney General approval is as to form only).

☐ **One-Time Purchase:** The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one fiscal year.

☑ **Construction/Project Oversight:** This Contract becomes effective on the effective start date listed on the first page of this Contract, identified as the State of West Virginia contract cover page containing the signatures of the Purchasing Division, Attorney General, and Encumbrance clerk (or another page identified as _____), and continues until the project for which the vendor is providing oversight is complete.

☐ **Other:** Contract Term specified in _____

4. AUTHORITY TO PROCEED: Vendor is authorized to begin performance of this contract on the date of encumbrance listed on the front page of the Award Document unless either the box for "Fixed Period Contract" or "Fixed Period Contract with Renewals" has been checked in Section 3 above. If either "Fixed Period Contract" or "Fixed Period Contract with Renewals" has been checked, Vendor must not begin work until it receives a separate notice to proceed from the State. The notice to proceed will then be incorporated into the Contract via change order to memorialize the official date that work commenced.

5. QUANTITIES: The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

☐ **Open End Contract:** Quantities listed in this Solicitation/Award Document are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☑ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☐ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☐ **One-Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

☐ **Construction:** This Contract is for construction activity more fully defined in the specifications.

6. EMERGENCY PURCHASES: The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute of breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One-Time Purchase contract.

7. REQUIRED DOCUMENTS: All of the items checked in this section must be provided to the Purchasing Division by the Vendor as specified:

☐ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section of the General Terms and Conditions entitled Licensing, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits upon request and in a form acceptable to the State. The request may be prior to or after contract award at the State's sole discretion.

☐

☐

☐

☐

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications regardless of whether or not that requirement is listed above.

8. INSURANCE: The apparent successful Vendor shall furnish proof of the insurance identified by a checkmark below prior to Contract award. The insurance coverages identified below must be maintained throughout the life of this contract. Thirty (30) days prior to the expiration of the insurance policies, Vendor shall provide the Agency with proof that the insurance mandated herein has been continued. Vendor must also provide Agency with immediate notice of any changes in its insurance policies, including but not limited to, policy cancelation, policy reduction, or change in insurers. The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether that insurance requirement is listed in this section.

Vendor must maintain:

☑ **Commercial General Liability Insurance** in at least an amount of: $1,000,000.00 per occurrence.

☑ **Automobile Liability Insurance** in at least an amount of: $500,000.00 per occurrence.

☑ **Professional/Malpractice/Errors and Omission Insurance** in at least an amount of: $1,000,000.00 per occurrence. Notwithstanding the forgoing, Vendor's are not required to list the State as an additional insured for this type of policy.

☐ **Commercial Crime and Third Party Fidelity Insurance** in an amount of: _____ per occurrence.

☐ **Cyber Liability Insurance** in an amount of: _____ per occurrence.

☐ **Builders Risk Insurance** in an amount equal to 100% of the amount of the Contract.

☐ **Pollution Insurance** in an amount of: _____ per occurrence.

☐ **Aircraft Liability** in an amount of: _____ per occurrence.

☐

☐

☐

☐

9. WORKERS' COMPENSATION INSURANCE: Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

10. VENUE: All legal actions for damages brought by Vendor against the State shall be brought in the West Virginia Claims Commission. Other causes of action must be brought in the West Virginia court authorized by statute to exercise jurisdiction over it.

11. LIQUIDATED DAMAGES: This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy. Vendor shall pay liquidated damages in the amount specified below or as described in the specifications:

☐ _____ for _____.

☐ Liquidated Damages Contained in the Specifications.

☑ Liquidated Damages Are Not Included in this Contract.

12. ACCEPTANCE: Vendor's signature on its bid, or on the certification and signature page, constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

13. PRICING: The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification. Notwithstanding the foregoing, Vendor must extend any publicly advertised sale price to the State and invoice at the lower of the contract price or the publicly advertised sale price.

14. PAYMENT IN ARREARS: Payments for goods/services will be made in arrears only upon receipt of a proper invoice, detailing the goods/services provided or receipt of the goods/services, whichever is later. Notwithstanding the foregoing, payments for software maintenance, licenses, or subscriptions may be paid annually in advance.

15. PAYMENT METHODS: Vendor must accept payment by electronic funds transfer and P-Card. (The State of West Virginia's Purchasing Card program, administered under contract by a banking institution, processes payment for goods and services through state designated credit cards.)

16. TAXES: The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

17. ADDITIONAL FEES: Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly provided for in the solicitation published by the State of West Virginia, included in the Contract, or included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Including such fees or charges as notes to the solicitation may result in rejection of vendor's bid. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract.

18. FUNDING: This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available. If that occurs, the State may notify the Vendor that an alternative source of funding has been obtained and thereby avoid the automatic termination. Non-appropriation or non-funding shall not be considered an event of default.

19. CANCELLATION: The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-5.2.b.

20. TIME: Time is of the essence regarding all matters of time and performance in this Contract.

21. APPLICABLE LAW: This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code, or West Virginia Code of State Rules is void and of no effect.

22. COMPLIANCE WITH LAWS: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances.

> **SUBCONTRACTOR COMPLIANCE:** Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to comply with all applicable laws, regulations, and ordinances. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

23. ARBITRATION: Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

24. MODIFICATIONS: This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any change to existing contracts that adds work or changes contract cost, and were not included in the original contract, must be approved by the Purchasing Division and the Attorney General's Office (as to form) prior to the implementation of the change or commencement of work affected by the change.

25. WAIVER: The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

26. SUBSEQUENT FORMS: The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

27. ASSIGNMENT: Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments.

28. WARRANTY: The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

29. STATE EMPLOYEES: State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

30. PRIVACY, SECURITY, AND CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in www.state.wv.us/admin/purchase/privacy.

31. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

32. LICENSING: In accordance with West Virginia Code of State Rules § 148-1-6.1.e, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

SUBCONTRACTOR COMPLIANCE: Vendor shall notify all subcontractors providing commodities or services related to this Contract that as subcontractors, they too are required to be licensed, in good standing, and up-to-date on all state and local obligations as described in this section. Obligations related to political subdivisions may include, but are not limited to, business licensing, business and occupation taxes, inspection compliance, permitting, etc. Notification under this provision must occur prior to the performance of any work under the contract by the subcontractor.

33. ANTITRUST: In submitting a bid to, signing a contract with, or accepting a Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

34. VENDOR NON-CONFLICT: Neither Vendor nor its representatives are permitted to have any interest, nor shall they acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency.

35. VENDOR RELATIONSHIP: The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing.

Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

36. INDEMNIFICATION: The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

37. NO DEBT CERTIFICATION: In accordance with West Virginia Code §§ 5A-3-10a and 5-22-1(i), the State is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State. By submitting a bid, or entering into a contract with the State, Vendor is affirming that (1) for construction contracts, the Vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, neither the Vendor nor any related party owe a debt as defined above, and neither the Vendor nor any related party are in employer default as defined in the statute cited above unless the debt or employer default is permitted under the statute.

38. CONFLICT OF INTEREST: Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

39. REPORTS: Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

☑ Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at purchasing.division@wv.gov.

40. BACKGROUND CHECK: In accordance with W. Va. Code § 15-2D-3, the State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check. Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

41. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS: Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.

b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open heath, basic oxygen, electric furnace, Bessemer or other steel making process.

c. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:

    1. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars ($2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or

    2. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

42. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL: In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars ($50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a "substantial labor surplus area", as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products. This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

43. INTERESTED PARTY SUPPLEMENTAL DISCLOSURE: W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least $1 million, the Vendor must submit to the Agency a disclosure of interested parties prior to beginning work under this Contract. Additionally, the Vendor must submit a supplemental disclosure of interested parties reflecting any new or differing interested parties to the contract, which were not included in the original pre-work interested party disclosure, within 30 days following the completion or termination of the contract. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

44. PROHIBITION AGAINST USED OR REFURBISHED: Unless expressly permitted in the solicitation published by the State, Vendor must provide new, unused commodities, and is prohibited from supplying used or refurbished commodities, in fulfilling its responsibilities under this Contract.

45. VOID CONTRACT CLAUSES: This Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law.

46. ISRAEL BOYCOTT: Bidder understands and agrees that, pursuant to W. Va. Code § 5A-3-63, it is prohibited from engaging in a boycott of Israel during the term of this contract.

ADDITIONAL TERMS AND CONDITIONS
(Architectural and Engineering Contracts Only)

1. PLAN AND DRAWING DISTRIBUTION: All plans and drawings must be completed and available for distribution at least five business days prior to a scheduled pre-bid meeting for the construction or other work related to the plans and drawings.

2. PROJECT ADDENDA REQUIREMENTS: The Architect/Engineer and/or Agency shall be required to abide by the following schedule in issuing construction project addenda. The Architect/Engineer shall prepare any addendum materials for which it is responsible, and a list of all vendors that have obtained drawings and specifications for the project. The Architect/Engineer shall then send a copy of the addendum materials and the list of vendors to the State Agency for which the contract is issued to allow the Agency to make any necessary modifications. The addendum and list shall then be forwarded to the Purchasing Division buyer by the Agency. The Purchasing Division buyer shall send the addendum to all interested vendors and, if necessary, extend the bid opening date. Any addendum should be received by the Purchasing Division at least fourteen (14) days prior to the bid opening date.

3. PRE-BID MEETING RESPONSIBILITIES: The Architect/Engineer shall be available to attend any pre-bid meeting for the construction or other work resulting from the plans, drawings, or specifications prepared by the Architect/Engineer.

4. AIA DOCUMENTS: All construction contracts that will be completed in conjunction with architectural services procured under Chapter 5G of the West Virginia Code will be governed by the attached AIA documents, as amended by the Supplementary Conditions for the State of West Virginia, in addition to the terms and conditions contained herein. The terms and conditions of this document shall prevail over anything contained in the AIA Documents or the Supplementary Conditions.

5. GREEN BUILDINGS MINIMUM ENERGY STANDARDS: In accordance with West Virginia Code § 22-29-4, all new building construction projects of public agencies that have not entered the schematic design phase prior to July 1, 2012, or any building construction project receiving state grant funds and appropriations, including public schools, that have not entered the schematic design phase prior to July1, 2012, shall be designed and constructed complying with the ICC International Energy Conservation Code, adopted by the State Fire Commission, and the ANSI/ASHRAE/IESNA Standard 90.1-2007: Provided, That if any construction project has a commitment of federal funds to pay for a portion of such project, this provision shall only apply to the extent such standards are consistent with the federal standards.

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) Mark Glenn, P.E., President

(Address) 3121 Fairway Drive, Altoona, PA 16602

(Phone Number) / (Fax Number) (814) 943-5214

(email address) mglenn@gdfengineers.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.

Gwin, Dobson & Foreman, Inc.

(Company)

(Signature of Authorized Representative)

Mark Glenn, P.E., President 8/18/25

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

(814) 943-5214

(Phone Number) (Fax Number)

mglenn@gdfengineers.com

(Email Address)

EXPRESSION OF INTEREST

WV DNR WILDLIFE SECTION
TOMLINSON RUN STATE PARK DAM IMPROVEMENTS

WV PURCHASING DIVISION
SOLICITATION NO. CEOI 0310DNR2600000002

AUGUST 21, 2025

SUBMITTED BY:
VENDOR NAME: GWIN, DOBSON & FOREMAN, INC.
VENDOR CUSTOMER CODE: 000000160287

ALTOONA, BLAIR CO., PA

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1. QUALIFICATIONS, EXPERIENCE & PAST PERFORMANCE

Team Organizational Plan

Work Plan

GD&F has assembled a proven Dam Rehabilitation Team of highly skilled engineers, landscape architects, dredging specialists, environmental scientists, and permitting experts that will provide PADGS with our best technical team. This team has successfully completed dam-related projects including concrete rehabilitation; overtopping protection; intake structures, spillways; abutment repairs; dredging and sediment disposal plans; and facility amenities.

GD&F has established a proven Dam Rehabilitation Team that will be committed to WV DNR Wildlife Section. Our Team has the qualifications, project experience, and resources to complete the project and meet aggressive schedules

Our Team has successfully provided the services detailed in the Project Program Statements, including hydraulic, structural, and geotechnical analysis; dam breach and hazard classification evaluations; spillway removal and replacement designs; embankment improvements; control tower designs; approvals and permitting; and construction administration and oversight using PADGS' eBuilder system.

Team Organization

As our team has the qualifications, project experience, resources, and dedication to meet aggressive schedules, all of which will be critical to making this project a success for WV DNR. To supplement its capabilities, GD&F has teamed with AK Hydro who have experience working on numerous dam projects in Pennsylvania and Ohio.

Additional information about our Team, including the anticipated services by each team member is included under the Key Team Personnel Section of our proposal.

Gwin Dobson and Foreman, Inc. (GD&F) will be the lead consultant and will be responsible for the overall contract and performance of the team. GD&F was established in 1971 as a consulting engineering firm located in Altoona, Pennsylvania. It was an outgrowth of the predecessor firms of Gwin Engineers, Inc. and Lewis L. Gwin, Consulting Engineers dating to 1954. The firm has provided continuous environmental and civil engineering services over its history to clients in the mid-Atlantic region of Pennsylvania, West Virginia and Maryland. GD&F is a major dam design firm with dozens of new and rehabilitated dams over its history.

GD&F has designed over 30 major new dam and dam rehabilitation/upgrade projects including spillways, earth embankments, stability improvements, seepage control, and geotechnical systems,

AK Hydro LLC (AK Hydro) will provide specialized expertise in dam rehabilitation and design. AK Hydro was established with a focus on the assessment and rehabilitation of dams, levees, and water resource structures. AK Hydro brings this expertise across the entire spectrum of dams, from initial inspections, detailed engineering analyses and design, to navigating permitting processes and providing construction support.

Qualifications and Experience

General - Gwin, Dobson & Foreman, Inc. (GD&F) is one of the leading dam designers in the region with full experience and qualifications in all aspects of new and existing dam upgrade projects. The following are recent project examples. Please note that the key GD&F project design engineers listed herein were intimately involved with the design and construction management of these projects. Project summaries for selected projects are included in this section.

New Cobun Creek Dam No. 2, Morgantown Utility Board, Monongalia County, WV
Contact: Richard Rogers, Chief Engineer - Morgantown Utility Board, (304) 292-8443, rrogers@mub.org

GD&F was the design and construction engineer for a new $40 million water supply dam and 375 million gallon reservoir for the Morgantown regional water supply system. Project elements included a 75 ft. high, zoned earth embankment (500,000 CY), internal seepage collection and drainage system, ogee-weir concrete spillway, intake tower, road relocation, drilling and grouting work, ground anchors, 66-inch prestressed concrete cylinder pipe outlet conduit and 36-inch raw water transmission main. Cobun Creek Dam No. 2 was the largest dam constructed in West Virginia and one of the largest built in the Mid-Atlantic region from 2018 to 2022. Refer to the attached project summary for additional information.

City of Cumberland (MD), Evitts Creek Water Co. Lake Koon and Lake Gordon Gravity Concrete Dam, Annual Dam Inspections, Bedford County, PA
Contact: Robert Smith, City Engineer, (301) 759-6600, robert.smith@cumberlandmd.gov

GD&F is the City Consulting Engineer for the City of Cumberland, MD and Consulting Engineer for the Evitts Creek Water Co. (subsidiary) water supply dams and water treatment facilities. This work includes annual dam inspectors of two (2) of the highest gravity dam in Pennsylvania. Constructed in 1932, Lake Koon Dam is a 92-high, 726 ft. long dam with a storage capacity of 4.1 billion gallons. Just downstream is the Lake Gordon gravity dam with a height of 84-feet with a capacity of 1.7 billion gallons.

GD&F recently completed the installation of an intake fine screens with air burst cleaning system at Lake Gordon recently. Refer to the attached project summary for additional information.

Warren H. Ohl Dam Modifications, Phase 1, City of Lock Haven, Clinton County, PA
Contact: Greg Wilson, City of Lock Haven City Manager, (570) 893-5807, gwilson@lockhavenpa.gov

Gwin, Dobson & Foreman designed upgrades for the Warren H. Ohl dam to increase spillway capacity. Operated by the City of Lock Haven, Ohl reservoir is the largest municipal water supply reservoir in the Northern Tier Region with a capacity of 576 million gallons. GD&F designed a spillway compliance project which included a "dam raise" using a crest parapet wall to increase the available flow depth over the spillway. Spillway chute walls were raised and a portion of the chute floor replaced to minimize abrupt flow transitions and ensure structural integrity. A USBR Type III stilling basin was chosen as the spillway terminal structure to create a "hydraulic jump" basin for energy dissipation. The spillway work was done in Nov. 2023. Cost: $5.3 million. Refer to the attached project summary for additional information.

Cobun Creek Dam No. 1 Improvements, Morgantown Utility Board, Monongalia County, WV
Contact: Richard Rogers, P.E., Chief Engineer - Morgantown Utility Board, (304) 225-3672, rrogers@mub.org

GD&F designed major improvements to Cobun Creek Dam No. 1 which included a new spillway overflow weir, embankment improvements, intake tower valve replacement, spray applied, cementitious (gunite) infill of eroded rock channel spillway, and rock armor placement. The dam is the main hydraulic feed to the regional water treatment facility for the Greater Morgantown service area. Cost: $1.5 million. Refer to the attached project summary for additional information.

Scotts Run Hopewell Dams Rehabilitation, PA DCNR Engineering and Construction Division, French Creek State Park, Berks County, PA
Contact: Edward Raptosh, P.E., Civil Engineer, Department of Conservation and Natural Resources; Bureau of Facility Design & Construction, (717) 783-3329, eraptosh@pa.gov.

Gwin, Dobson & Foreman designed repairs and improvements for recreation dams at French Creek State Park. Under the direction of the PA Department of Natural Resources, GD&F performed feasibility studies, preliminary engineering and final design documents for dam upgrades.

Bellwood Dam Modifications, Altoona Water Authority, Blair County, PA
Contact: Mark A. Perry, General Manager (814) 949-2222, Authority Engineer, mperry@altoonawater.gov

GD&F designed major modifications to Bellwood Dam to comply with PA DEP high-hazard dam spillway requirements (PMF) along with a new intake tower, embankment fill, seepage and stability system, dam raise (parapet wall), lighting, reservoir hypolimnion aeration system, removal of 195,000 CY of reservoir sediment and design/permitting of sediment storage site. Originally constructed in 1904 and expanded in 1947 by the Pennsylvania Railroad, the 55-foot zoned earth embankment and 380 MG reservoir were upgraded to all recent dam safety requirements. Cost: $25 million. Refer to the attached project summary for additional information.

Bakerton Dam Modifications, W. Carroll Township Water Authority, Cambria County, PA
Contact: John Domingo, Plant Operator, (814) 948-5003/(814) 615-1599

Bakerton Dam, constructed in 1922, was a composite earthen/Amberson concrete slab and buttress dam. Inspections revealed significant concrete buttress deterioration with resulting leakage and instability. In fact, the PADEP Division of Dam Safety considered Bakerton Dam as the most unsafe high-hazard dam in the state and ordered a partial breach of the structure. GD&F designed unique solutions that achieved dam safety compliance that resulted in significant savings while retaining the dam as a valuable water supply source. The existing concrete slabs/buttresses were incorporated in the new compacted earth dam, thus combining structural and waterproofing elements with a more stable and durable earth embankment. Cost: $1.15 million. Refer to the attached project summary for additional information.

Robinson Run Intake Dam Modifications, Alexandria Borough Water Authority, Huntingdon Co., PA
Contact: Brian Hetrick, System Operator, (814) 386-4442, brianhetrick4442@gmail.com

GD&F designed improvements included a new multi-port intake tower and level control structure, spillway box culvert, clay bentonite perimeter slurry wall for seepage abatement, replacement of water intake line (12") to the treatment plant, new left abutment retaining wall, select fill, embankment fill and silt removal. A new intake with screen, weir and bypass structure is necessary to improve raw water characteristics and better regulate intake operations. A new multi-port reservoir intake will be constructed to allow water to be withdrawn from different pool levels. This will allow for better water quality to be released to the downstream water treatment facility. Cost: $2.3 Million. Refer to the attached project summary for additional information.

Cobun Creek Dam No. 2

Client: **Morgantown Utility Board**
Monongalia Co., WV

Year: **2023** Cost: **$40,000,000**

To address contaminant vulnerabilities of its sole water source (Monongahela River), the Morgantown Utility Board commissioned Gwin, Dobson & Foreman to perform a supplemental source evaluation. GD&F recommended a 375 million gallon reservoir on Cobun Creek (now known as Flegal Reservoir) that would provide for a safe yield of 3.5 MGD, 33-day supply at current demand and a 15-day supply at the 24 MGD maximum demand condition. GD&F performed a dam feasibility study including geotechnical, hydrologic and hydraulic design components. The project included the following elements:

- GD&F planned, designed, and supervised a new 75-ft. high zoned-earth embankment dam.
- Embankment earthwork consisting of 500,000 cubic yards (CY) of various grades of earth fill processed from site excavations and adjacent borrow areas.
- Internal filter drain system comprised of an inclined chimney drain, horizontal drainage blanket, seepage collection system and toe drain.
- Rock excavation of the dam foundation, abutments and spillway using pre-split drilling and blasting techniques and mechanical rock removal methods.
- Installation of 400 rock anchors for reinforced concrete panel walls, spillway slabs, ogee weir and terminal structure.
- Reinforced concrete hydraulic structures including 79-ft. intake tower, spillway chute and mass concrete structures (ogee weir and terminal structure) with a total placement amount of 8,300 CY.
- Drilling and pressure grouting of a 36,000 SF foundation/abutment grout curtain.
- Outlet conduit consisting of 550 LF of 48” and 66” diameter pre-stressed concrete cylinder pipe (PCCP) with concrete cradle, controlled backfill and filter drains.
- Raw water main consisting of 720-ft. of 36-in. diameter ductile iron pipe, valves, and fittings.
- Intake tower comprised of a 79-ft. high by 15-ft. square concrete structure with sluice gates, knife gate valves, intake ports, valve operators and access ladders/platforms.
- Roadway construction including the relocation of Upper Cobun Creek Road (according to WVDOH standards) and various stabilized access roads.
- Route alignment and hydraulic design of 22,600 LF of 30-in. raw water transmission main (with I-68 directional boring) to water treatment plant.

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Cobun Creek Dam No. 2

Client: **Morgantown Utility Board**
Monongalia Co., WV

Year: **2023** Cost: **$40,000,000**

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New Intake Screens – Lake Gordon Dam

Client: City of Cumberland, MD - Evitts Creek Water Treatment Plant

Cumberland Valley Twp., Bedford Co., PA

Year: 2020 Cost: $900,000

Gwin, Dobson & Foreman designed a new screen system for Lake Gordon Dam, a water supply reservoir for the City of Cumberland. GD&F proposed a passive fine screen system with air-burst cleaning to replace the 100-year old bar screens. The project included the following work elements:

- Installation of two (2) 36-in. dia. x 12.5 ft. long stainless steel fine screens in a "T" configuration.
- Since the reservoir could not be lowered, underwater construction involved core drilling and installation of watertight bulkhead fittings, knife gate valves and T-screens.
- Replacement of lake aeration system (while furnishing air to the pulsed air-burst system) consisting of new air compressors, 4-in. air supply lines and 500-gallon air receiver tank.
- Gate house renovations, including electrical work, to accommodate air receiver tank, automated valves and air burst control panel.

GD&F provided all required design phase services, permit acquisitions and bidding and construction administration services. GD&F observed the successful startup and commissioning of the screen operation and air-burst cleaning system.

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Warren H. Ohl Dam Modifications, Phase I

Client: City of Lock Haven
Clinton Co., PA

Year: 2024 Cost: $5,300,000

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To address PA DEP Dam Safety deficiencies, Gwin, Dobson & Foreman designed upgrades to increase spillway capacity for the Warren H. Ohl dam. Operated by the City of Lock Haven, Ohl reservoir is one of the largest municipal water supply reservoirs in the region with a capacity of 576 million gallons. A dam failure could result in widespread property damage and loss of life.

Warren H. Ohl Dam Modifications, Phase I

Client: **City of Lock Haven**
Clinton Co., PA

Year: **2024** Cost: **$5,300,000**

The project included a “dam raise” using a crest parapet wall to increase the available flow depth over the spillway. Spillway chute walls were raised and a portion of the chute floor was replaced to minimize abrupt flow transitions. A USBR Type III stilling basin was chosen as the spillway terminal structure to create a “hydraulic jump” for energy dissipation. Downstream training walls and retaining structures were constructed to protect the toe of dam. Additional work included concrete spillway rehabilitation and a seepage collection system with filter drain material.

A future Phase II project includes reconstruction of the intake tower with new mechanical components, spillway access bridge with pier and abutment and intake tower control building. The cost of this project is estimated to be $4 million.

GD&F’s dam design for regulatory compliance was very economical considering the size and capacity of the dam. Existing spillway facilities were utilized to the maximum extent feasible while integrating the necessary modifications.

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Cobun Creek Dam No.1 Improvements

Client: Morgantown Utility Board
Monongalia Co., WV

Year: 2023 Cost: $1,000,000

The Morgantown Utility Board, the largest publicly-owned water supplier in the state, maintains Cobun Creek No. 1 dam and reservoir. Built in 1957, the dam is a 58-ft. high, 270-ft. long zoned earth/rockfill embankment with reinforced concrete intake structure; 24-in. outlet conduit and 142-ft. overflow weir with rock spillway channel. The reservoir has a capacity of 39 million gallons.

The Utility Board retained Gwin, Dobson & Foreman to address dam deficiencies including severe erosion of rock spillway, broken and weathered overflow weir, rock slope instability and old control gates.

Improvements included demolition of the existing concrete overflow sill and placement of reinforced concrete overflow weir, application of reinforced shotcrete infill of eroded rock spillway chute, leveling dam crest, rock/riprap slope protection on downstream dam embankment and underwater retrofitting of intake tower inlet and outlet sluice gates.

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Cobun Creek Dam No.1 Improvements

Client: Morgantown Utility Board
Monongalia Co., WV

Year: 2023 Cost: $1,000,000

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Repairs to Scotts Run & Hopewell Dams, French Creek State Park

Client: PA Department of Conservation and Natural Resources, Engineering & Construction Div.

Berks Co., PA

Year: 2020 Cost: $1,250,000

Gwin, Dobson & Foreman designed repairs and improvements for the recreation dams at French Creek State Park. Under the direction of the PA Department of Natural Resources, GD&F performed feasibility studies, preliminary engineering and final design documents for the Scotts Run Dam and Hopewell Dam.
A description of the rehabilitation work is as follows.

Built in 1953, Scotts Run Dam is 35 feet high with a crest width of 625 feet and classified as a High Hazard dam. Field investigations revealed widespread downstream seepage and spillway deterioration.

- Installation of new toe drain system, including manholes, perforated piping and drain fill material to safely collect and convey seepage below the dam
- Replacement of the upper concrete intake gate chamber, installation of new handrail and access hatch and new valve operator and stem guides for the 24" intake valve
- Stone restoration and repointing joints of spillway walls and channel floor; wood access stairs at the emergency spillway and new reinforced concrete spillway wall with stone facing

A High Hazard dam, Hopewell Dam is comprised of a zoned-earth embankment with a height of 30 feet and length of 1,000 feet. Constructed in 1938, the dam has a masonry primary spillway and a concrete emergency spillway built in 1990.
Stone masonry showed significant deterioration and displacement.

- Removal and replacement of the existing 30" sluice gate, stem guides and operator at the primary spillway intake structure
- Installation of wood stairs and fence adjacent to the emergency spillway and primary spillway
- Repair of spalled concrete at the emergency spillway and removal of loose mortar, injection grouting of voids and repointing of the masonry at the primary spillway

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Bellwood Dam Modifications

Client: **Altoona Water Authority**
Blair County, PA

Year: **2024** Cost: **$25,000,000**

Originally built in 1904, Bellwood Dam was expanded in 1947 by the Pennsylvania Railroad to furnish water to its Juniata Shops complex in Altoona. Over time, the dam has significantly deteriorated, with a seriously inadequate spillway, embankment stability and seepage concerns, excessive reservoir siltation and no reservoir intake structure. The spillway could only pass 33% of the mandated spillway design flood. The Altoona Water Authority turned to its engineer, Gwin, Dobson & Foreman, to plan, design, and inspect construction of the following improvements:

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- To improve stability and control seepage, the downstream embankment was extended and an inclined filter drain and seepage collection system were constructed.
- Drilling and grouting to seal leakage pathways at the right dam abutment.
- Reinforced concrete hydraulic structures including intake tower, spillway and parapet (12,000 CY).
- 5-cycle labyrinth weir spillway with a primary cycle used for controlling flow up to the 100-year flow.
- Dam raise consisting of a 2-ft. parapet wall across dam crest to increase spillway capacity.
- The dam raise and the labyrinth weir spillway can pass the regulatory design flood of 45,645 cfs.
- Outlet control vault for water treatment plant intake line, dam drain outlet conduit and conservation release.
- Intake tower comprised of a 75-ft. high by 15-ft. square intake structure with sluice gates, knife gate valves, intake ports, valve operators and access ladders/platforms.
- Access road construction including entrance roadway and access roads to dam crest along both abutments.
- Finished water 16-in. transmission main relocation.
- Removal of 165,000 cubic yards of sediment with construction of adjacent sediment storage area adjacent to reservoir. A 10% increase in reservoir capacity to 375 million gallons was achieved.

Bellwood Dam Modifications

Client: Altoona Water Authority
Blair County, PA

Year: 2024 Cost: $25,000,000

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Project Summary

Project: Bakerton Dam Modifications

Client: West Carroll Twp. Water & Sewer Authority
Cambria County, PA

Year Completed: 2005

Project Cost: $1,150,000

Faced with the prospect of either losing its main water supply or building an unaffordable project, the West Carroll Township Water and Sewer Authority (which operates on severely limited financial resources) turned to Gwin, Dobson & Foreman, Inc. to design a cost effective solution for the deteriorated Bakerton Dam. The dam, 455 feet long and 25 feet high, is located at the headwaters of the W. Branch of the Susquehanna River.

Bakerton Dam, constructed in 1922, was a composite earthen/Amberson concrete slab and buttress dam. Inspections revealed significant concrete buttress deterioration with resulting leakage and instability. In fact, the PADEP Division of Dam Safety considered Bakerton Dam as the most unsafe and highest hazard dam in the state and ordered a partial breach of the structure. Unique features of the project included the following:

- The existing concrete slabs/buttresses were incorporated in the new compacted earth dam, thus combining structural and waterproofing elements with a more stable and durable earth embankment.
- It is believed that the Bakerton Dam represents the first Pennsylvania application of incorporating an existing slab and buttress structure into a new earth embankment dam.
- The new concrete spillway and crest cap provide overtopping protection during the probable maximum flood. Since the normal pool was lowered for these purposes, the reservoir basin was dredged (20,000 cubic yards) to compensate for loss of reservoir storage capacity.
- A low cost alternative was devised to provide upstream intake control. Precast concrete culvert boxes were inverted and stacked for a multi-port intake tower.
- Pressure mortar surfacing was applied to the upstream concrete deck.

The project was constructed well within budget and on schedule while achieving full compliance with state dam safety rules.

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Robinson Run Intake Dam Improvements

Client: **Alexandria Borough Water Authority**
Huntingdon Co., PA

Year: **2023** Cost: **$2,300,000**

Gwin, Dobson & Foreman designed improvements to the Robinson Run intake dam to address PADEP Dam Safety problems and provide better operation and control of the reservoir for water supply purposes. Constructed in 1903, the intake dam had the following deficiencies: significant embankment leakage, poor condition of stone masonry spillway and embankment stability concerns.

GD&F design improvements included a new multi-port intake tower and level control structure, spillway box culvert, new stream intake, clay bentonite perimeter slurry wall (seepage abatement), replacement of raw water intake line from dam to treatment plant, new left abutment reservoir retaining wall, select fill, embankment fill and silt removal.

The intake dam improvements were part of a larger $13 million improvement project for the Alexandria water system. The project was funded by a $2.3 million grant from the PA Infrastructure Investment Authority.

GD&F
GWIN
DOBSON &
FOREMAN
ENGINEERS

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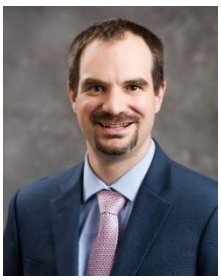
GD&F
GWIN
DOBSON &
FOREMAN
ENGINEERS

Key Team Personnel

Mark Glenn, PE will serve as the Project Principal and as a QA/QC Lead will provide overall technical guidance and oversight for the project. Mark has decades of experience in the design of new dams and dam rehabilitation projects. He holds MSCE, MSEnvE and BSCET degrees from the New Jersey Institute of Technology, Worcester (MA) Polytechnic Institute and University of Pittsburgh, respectively. More recently, he was the Engineer-of-Record for $75 million of dam construction.

- Engineer of Record for over 30 dam projects in Pennsylvania
- Rehab/Upgrade Projects – Spillways, Intakes, Seepage Control, Stability
- Experience with Dam Regulatory Agencies (Dam Safety, DEP-, USACE)
- Hydraulic/Hydrology/Geotechnical Dam Specialist
- Will Oversee Costs/Project Schedule
- Will Ensure Quality Deliverables



Garret Hargenrader, PE will serve as Point-of-Contact, Project Manager and Hydrology-Hydraulics Engineer for the project. Garret has extensive design and project management experience in civil and dam engineering. He has comprehensive experience in dam design and analysis, hydraulic, hydrologic and reservoir depletion modeling, heavy civil works planning, and design of numerous spillways, terminal structures, reservoir intakes, water transmission mains and pumping systems. Garret earned a BSCE degree from the University of Pittsburgh.

- Over 15 years of Project Management Experience
- Dam Engr - Designer/Const Mgmt
- Hydrology/Hydraulics/Reservoir Depletion Modeling - HMS, ResSim
- Indepth DEP Dam Safety Design & Permitting Requirements
- Will Manage GDF/Consultants Project Design & Construction

W. Andrew Arnold, PE will serve as the Structural Lead for the project. Mr. Arnold oversees the GDF structures department and provides design and construction direction for major dam-related structures including spillways, water intakes structures, foundations, earth-support and ground anchor systems, and heavy-civil related projects. He has 25 years of design experience for the full range of structural, architectural and heavy civil projects. Mr. Arnold is a graduate of Penn State University with a BSAE degree (Structural Emphasis).

- Over 25 years of Structural Design of Dam-Related Structures
- Spillways, Weirs, Intake Towers, Ground Anchors & Foundations
- Very Familiar with Dam Safety Structural Design Details, Reqmt's
- Will Direct Design, Layout and Coordinate All Structure Elements
- Will Review Cost Estimates

Graham Smith, P. Eng. will serve as a Geotechnical Design Lead for the project. A foremost authority on geotechnical systems, Graham has performed on projects both internationally and throughout North America. He has over 30 years of project management and design, contracting and geotechnical consulting experience involving all aspects of heavy civil-works. These include earth and tailings dams, tunnels, ground-stabilization systems, soil and rock anchors, jet, grout curtains, micropiles, seepage control and related geotechnical systems. A graduate of Queens College, Kingston, ON with a Bachelor of Geological Engineering, Graham is a professional engineer and coauthor of peer-reviewed papers.

- Extensive Geological Exploration and Reconnaissance Experience
- Site Specific Solutions of Geotechnical Systems
- Review Geotechnical Reconnaissance Report
- Assist in Subsurface Exploration
- Extensive Knowledge of Glacial Sites; Related Geotech Problems
- Develop and Assist in Design of Project Seepage Control Systems

Joseph Kudritz, PE (AK Hydro) will serve as a Dam Safety Design Lead and Hydrologic and Hydraulic Lead and will coordinate with the other technical and design leads. Joe is the co-founder and principal of AK Hydro and has diverse background in the dam safety engineering practice and water resource engineering for the majority of his 17-year professional career. Joe has served as the project manager for the assessment and/or rehabilitation design of 13 dams and has served as a design lead on more than 20 dams across Pennsylvania, Ohio, and West Virginia. Will at his previous employer, Joe was the Project Manager assigned to the rehabilitation of Kahle Lake Dam and Hemlock Lake Dam for PFBC. He is an expert on the design of replacement principal and auxiliary spillways, lake drain systems, earthen embankments, and dam removal and dam modifications to remove dams from jurisdiction.

- Design lead or project manager for over 20 dams in the Region
- Project Manager for Kahle and Hemlock Lake Dam PFBC Rehabilitation Projects with previous employer
- Rehabilitation Projects
- Experience with Pennsylvania Regulatory Agencies
- Experience with full range of services required

Brian Afek, P.E. (AK Hydro) will serve as a Dam Safety Design Lead and will be responsible for coordinating the technical design with the various design leads and will work closely with the project manger. Brian is the co-founder and principal of AK Hydro, bringing over 17 years of diverse experience in managing and executing projects related to dams, levees, canals and flood control structures. Brian has successfully led more than 15 projects across the Great Lakes region, overseeing inspections, analysis, design, construction oversight, and emergency response efforts. He has performed assessments, evaluations, and designs for high hazard dam embankments, spillways, emergency spillways, and lake drains. His background serving as a manager, engineer, materials laboratory supervisor, and construction inspector allows him the ability to deliver comprehensive solutions to complex projects.

- Project Manager for over 15 projects in Great Lakes Region
- Senior Management Lead for PFBC Projects with previous employer
- Experience with Pennsylvania Regulatory Agencies
- Experience with full range of services required

Donald Green, P.E. (AK Hydro) will serve as a Geotechnical Expert and QA/QC Lead. Don brings over 45 years of experience as Geotechnical Engineer and has served as the lead geotechnical engineer for the rehabilitation design of over two dozen high-hazard dams and is one of six Engineers of Record for the design of the first USACE float-in dam (Braddock Dam). Don has also contributed his expertise by serving on a panel of experts that was assembled by FEMA to assess overtopping protection for non-accredited levee systems. He is also a certified instructor for the FHWA National Highway Institute (NHI). Don's experience spans the full berth of the geotechnical field from investigator, to lead design engineer, to lead foundation engineer on Design-Build projects worth more than $500 million, to forensic investigator and expert witness for litigation of multi-million dollar structure failures, to resident engineer for structures with complex soil-structure interaction.

- Extensive experience with PADGS, PFBC, and DCNR
- Completed over 50 Dam Assessments / Inspections
- Geotechnical Analysis Expertise
- Embankment Stability Expertise
- Seepage Expertise
- Experience with Pennsylvania Regulatory Agencies

Detailed Resumes

The Gwin, Dobson & Foreman (GD&F) Team is comprised of technical personnel with comprehensive design expertise, educational backgrounds, professional credentials and construction experience tailored for the specific requirements of the Tomlinson Run Dam Improvements. These attributes are no better shown than in the detailed resumes of key project personnel. Specific duties and roles for each individual are presented in greater detail in the Organization Chart and Work Plan section of this proposal.

Gwin, Dobson & Foreman, Inc.

- **Mark Glenn, P.E. - Project Principal & QA/QC Lead**
- **James L. Balliet - Environmental Lead**
- **Garret Hargenrader, P.E. - Project Manager & Hydrology/Hydraulics**
- **W. Andrew Arnold, P.E. - Structural Lead**
- **Graham Smith, P.Eng. - Geotechnical Lead**
- **Skyler Eckenrode, P.E. - Structural Engineer**
- **Kenneth Beldin, P.E., LEED - Civil Design Lead**
- **Maggie K. Weitzel, CEP-IT - Senior Environmental Scientist**
- **Evan Zhang - Hydrology/Hydraulics Engineer**

AK Hydro

- **Joseph Kudritz, P.E. - Dam Safety Design Lead & Hydrologic/Hydraulic Lead**
- **Brian Afek, P.E. - Dam Safety Design Lead**
- **Donald Green, P.E. - Geotechnical Engineering & QA/QC Lead**

Availability of Staff:

- **Experienced Professionals.** Our team allows WV DNR access to highly skilled staff across multiple disciplines, ready to address all project needs.
- **Dam Safety Expertise.** Our team has extensive experience in dam rehabilitation projects, ensuring proven solutions and regulatory understanding including gravity dams.
- **Environmental Expertise.** Our team includes engineers with a specialized knowledge of environmental considerations, helping to minimize impacts and timeframes to secure permits from the regulatory agencies.
- **Surveying Capabilities**. Our team comes equipped with advanced surveying capabilities, to perform topographic and bathymetric surveys in house, from conventional GPS surveys and robotic total stations.
- **Structural Design Expertise**. Our team includes specialists in structural, geotechnical and environmental design for water resource structures, providing safe and efficient solutions on all structural components.
- **Geotechnical and Heavy-Civil Design Expertise.** Our team brings significant experience in geotechnical engineering and heavy-civil design allowing a collaborative approach to the some of the most challenging aspects of the project.

Cost Containment:

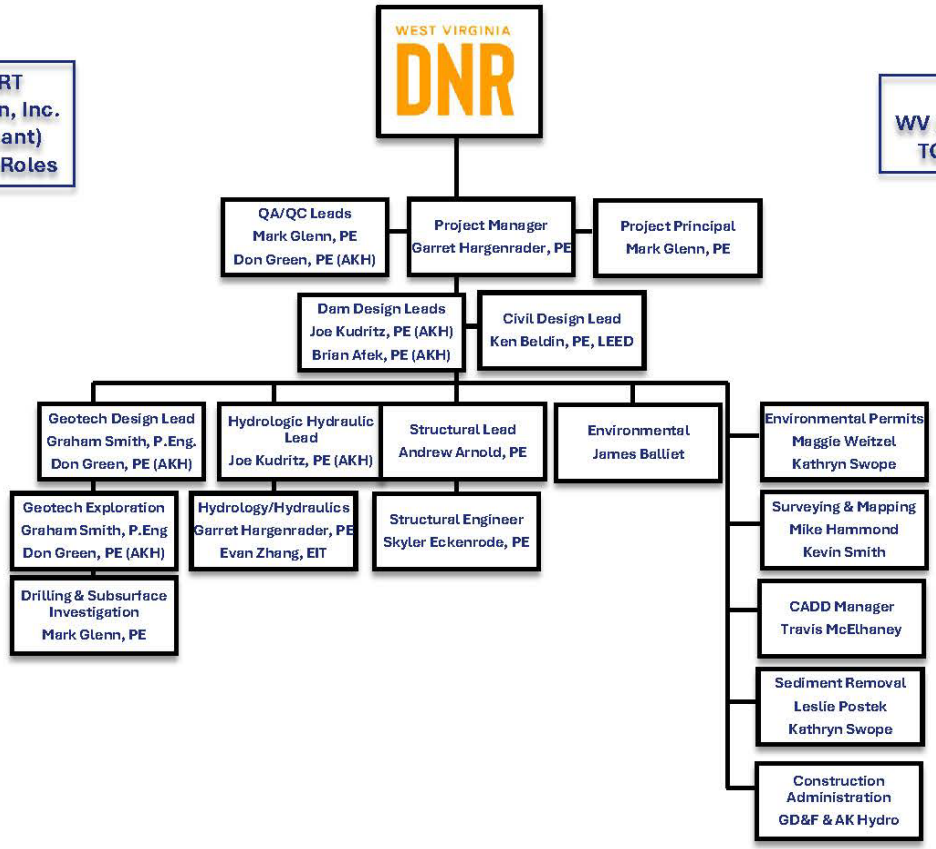
- **Continuous Cost Estimating**. As the project evolves, continue to provide updated cost estimates so that the most efficient design is selected.
- **Implementing Quality Assurance and Control (QA/QC)**. Perform periodic reviews of design results to maintain accuracy and mitigate risks. Provide quality assurance during construction to ensure project is being constructed in accordance with documents.
- **Budget Conscience Solutions.** Offer practical solutions that align with the project budget without compromising quality of work or reducing the ability to incorporate other aspects of the project. Think outside the box approach.

Organizational Chart:

- Refer to the organizational chart on the following page.

ORGANIZATION CHART
Gwin, Dobson & Foreman, Inc.
AK Hydro, LLC (consultant)
Key Personnel & Project Roles

WV CEOI-0310-DNR2600000002-1
WV DEPARTMENT OF NATURAL RESOURCES
TOMLINSON RUN DAM IMPROVEMENTS



Mark Glenn, P.E.

PRESIDENT AND PRINCIPAL-IN-CHARGE

President and principal-in-charge of a full-service consulting engineering firm. Design director for heavy-civil works, environmental engineering and infrastructure-related projects. Engineer-of-Record for hundreds of regional projects with a current construction value exceeding $2 billion.

Experience in advanced water/wastewater treatment facilities; water transmission, distribution, storage and pumping systems; wastewater collection, conveyance and pumping systems; hydraulic/hydrologic modeling; combined sewer overflow (CSO) analysis modeling, storage and pumping systems, dams and reservoirs; spillways and intake structures; groundwater hydrology and well field development; stormwater management; bridge, transportation, building and structure design.

Significant planning experience includes water/wastewater capital improvements plans, regionalization studies and reports; research projects; valuation and rate studies; infrastructure analysis and development facilities planning; capital project financing; and municipal operations consultation.

Key Projects - Dams

New Cobun Creek Dam No. 2, Morgantown Utility Board, Monongalia County, WV. Engineer-of-Record for a new water supply dam and 375 MG reservoir for the largest WV public water supplier. Project consists of a 75-ft high zoned earth embankment dam, foundation preparation, drilling and grouting, reinforced concrete intake tower, ogee overflow weir, concrete spillway, rock anchors, internal drainage system, road relocation, 24,000 LF of 30" raw water transmission main and environmental mitigation measures. Cost: $40 million.

Cobun Creek Dam No. 1 Modifications, Morgantown Utility Board, Monongalia County, WV. Engineer-of-Record for upgrades and improvements to a 1956 earth dam including a new 132-ft. spillway overflow weir, rock spillway gunite infill stabilization, rock anchor system, embankment material, rock armor slope protection and replacement of intake valves. Cost: $1 million.

Bellwood Dam Modifications, Altoona Water Authority, Blair County, PA. Engineer-of Record for Bellwood dam modifications including staged 5-cycle labyrinth weir spillway (designed for PMF), new intake tower, parapet wall (dam raise), 200,000 CY sediment removal/storage area and embankment/filter drain improvements. Construction Cost: $25 million.

Warren H. Ohl Dam Improvements - Phase I, City of Lock Haven, Clinton County, PA. Engineer-of-Record for mandatory upgrades to a 70-ft. high earth embankment dam including PMF-compliant dam raise (parapet wall), USBR Type II terminal structure (stilling basin), spillway chute replacement and spillway rehabilitation. Cost: $5.3 million.

continued

Education

University of Pittsburgh
BS - Civil Engineering Technology

New Jersey Institute of Technology
MS - Civil Engineering

Worcester Polytechnic Institute
MS - Environmental Engineering

Manhattan College
IWPC Biological Treatment Certificate

Credentials

Pennsylvania, P.E. (30528)
West Virginia, P.E. (13375)
Maryland, P.E. (22577)
Virginia, P.E. (31894)
New York, P.E. (74992)
Delaware, P.E. (11160)
Ohio, P.E. (61312)
New Jersey, P.E. (40844)

Honors & Awards

American Academy of Environmental Engineers - 2013 Superior Achievement Award (Altoona BNR)

American Society of Civil Engineers (Pittsburgh Chapter) - 2014 Award of Merit (Altoona BNR)

Engineering News Record (ENR) 2014 Mid-Atlantic Region Honor Award (Water/Wastewater)

ACEC/PA Diamond Award - Water Resources, 2001, 2006, 2013, 2023

PA Governor's Award for Environmental Excellence - 1999

Association of State Dam Safety Officials - 1996 Regional Award of Merit (Altoona Dams Upgrades)

Affiliations

American Academy of Water Resources Engineers, Diplomate

American Academy of Environmental Engineers, Diplomate

American Society of Civil Engineers

Water Environment Federation

American Water Works Association

Association of State Dam Safety Officials

United States Society of Dams

Publications/Presentations

"Altoona Reservoir System - The Making of an American Water Landmark," 2017 (Author)

AWWA-PA - "Clearfield Water System Improvements," 2014

ASDSO - "Bakerton Dam Rehabilitation," 2006

ASDSO - "Tipton/Blair Gap Gravity Dams Rehab," 2005 (Co-Author)

ASDSO - "Lake Altoona Dam Rehabilitation," 2001

ASDSO - "Rehabilitation of Singer's Gap Dam," 1999 (Co-Author)

ASCE Water Resources - "State College Water Distribution System Modeling," 1998 (Co-Author)

ASCE Geotechnical Division - "Rehabilitation of Plane Nine Dam," 1993 (Co-Author)

Instruction

St. Francis University, Adjunct Instructor - Environmental Engineering

DAM PROJECTS (CONT.)

Boyd R. Keller Dam Improvements, City of Lock Haven, Clinton County, PA. Engineer-of-Record for design of upgrades to a 55-ft. high earth embankment dam including PMF-compliant labyrinth weir overflow, side channel spillway, terminal structure, intake tower modifications and embankment/filter drain improvements. Cost: $18 million.

Grant Street Dam Rehabilitation, City of Lock Haven, Clinton County, PA. Engineer-of-Record for concrete rehabilitation and repairs to an 800-ft. low head dam (slab-and-buttress type) across West Branch of the Susquehanna River. Cost: $500,000.

Upper Castanea Dam Removal and Stream Restoration, City of Lock Haven, Clinton County, PA. Project Principal for removal of 35-ft. high-hazard earth dam, spillway and intake structure demolition, sediment removal and stream restoration for Exceptional Valve designation. FEMA High-Hazard Potential Dam mitigation grant provided funding. Cost: $1.75 million.

Modifications to Lake Altoona Dam, Altoona Water Authority, Blair County, PA. Engineer-of-Record for new PMF side channel spillway, dam raise (floodwall), bypass channels, bridges, access roads, and intake tower for 80-ft high-hazard earth dam and 835 MG reservoir to comply with Division of Dam Safety design flood (PMF) criteria. Cost: $8 million. ACEC/2001 PA Diamond Award for Water Resources.

Lake Mokoma Dam Modifications, Lake Mokoma Association, Sullivan County, PA. Engineer-of-Record for upgrades to Lake Mokoma recreational dam including new 36" outlet pipe, valve vault, interlocking articulated, concrete block (ACB) overtopping protection, spillway upgrades and foot bridge. Cost: $2.5 million.

Montgomery Dam Spillway Evaluation, Clearfield Municipal Authority, Clearfield County, PA. Project Engineer for hydrologic and hydraulic evaluation of Montgomery Run dam spillway with a PMF alternatives evaluation (side channel spillway, RCC overtopping protection) for increasing spillway capacity. Project includes new intake tower for 65-ft. high earth embankment dam. Cost: $15 million.

Robinson Run Intake Dam Modifications, Alexandria Borough Water Authority, Huntingdon County, PA. Engineer-of Record for upgrades to an early 1900's intake dam including perimeter bentonite slurry trench for seepage control, intake structure, outlet conduit and raw water intake main, culvert/overflow structure, basin sediment removal, new stream intake and related work. Cost: $2.5 million.

Homer Gap No. 1 Intake Dam Removal, Altoona Water Authority, Blair County, PA. Engineer-of-Record for removal of an early 1900's intake dam and reservoir including structure demolition, basin fill, grading, stream restoration, stream erosion protection and related erosion and sedimentation control. Project included DEP (restoration waiver) and US Army Corps of Engineers permits. Cost: $100,000.

James L. Balliet

FACILITIES PLANNING DIRECTOR, SENIOR PROJECT MANAGER, CORPORATE SECRETARY

Comprehensive environmental engineering experience in wastewater, drinking water, stormwater, solid waste, hazardous waste and environmental assessments. Extensive experience in water and wastewater facilities planning and process design. Significant experience including planning, design, funding, construction administration and facility start-up and operation. Capital project experience exceeds $600 million in construction value. Member of Board of Directors and Corporate Secretary since 1996.

Key Projects

Pilot Study of Potomac River Water Treatment Facility, Berkeley County Public Service Water District, Berkeley County, WV. Project manager for pilot study, process design, permitting, commissioning and operational assistance of a water treatment facility using conventional clarification, submerged membrane filtration and UV/chlorine disinfection.

Feasibility Study of Water Treatment Facility, Town of Moorefield, Hardy County, WV. Project principal for feasibility study (8 MGD), pilot testing and the design and permitting of a new membrane filtration facility including surface water intake, water main and 1.5 MG storage tank.

Moundsville Water System, City of Moundsville, Marshall County, WV. Project manager for pilot study program, process design and permitting of a 3.5 MGD ozonation, direct filtration and nanofiltration treatment facility.

Plane Nine Water Treatment Facility, Altoona Water Authority, Blair County, PA. Project manager for implementation of a 3-month membrane filtration pilot study. Project manager for the upgrade of an existing 4.0 MGD water treatment facility featuring a new ozonation system via liquid oxygen (LOX) and 0.1 micron membrane filtration system with automatic chemical cleaning system, upgraded chemical feed systems, piping modifications, instrumentation and SCADA upgrades, pump replacements, etc.

Evitts Creek Water Treatment Facility, City of Cumberland, MD. Project manager responsible for performing an evaluation and assessment of their existing 15 MGD water treatment facility which includes an intake tower, aeration system, dissolved air flotation (DAF), conventional filters, clearwells, gaseous and liquid chemical feed systems including chloramination, sludge holding tank, settling basins and a belt filter press.

Education

Penn State University,
University Park, PA

B.S. - Environmental Resources Management

M.S. - Water Resources (Hydrology)

Credentials

Pennsylvania State Board of Certification of Waterworks Operators License - Water Class A, E SubClass 1-14, Wastewater Class A, E Subclass 1-3, 40-Hour Health and Safety Training Certification

Honors

PA Rural Water Association
Lifetime Achievement Award - 2024
Pennsylvania Governor's Award - 1999
Environmental Excellence
Penn State University - 1988
BS Highest Distinction
Penn State University - 1990
MS-Highest Distinction

Affiliations

American Waterworks Association
Waterworks Operator Association
Pennsylvania Rural Water Association
West Virginia Rural Water Association
Pennsylvania Water Environment Association - Central Section

Publications/Presentations

"Strategies to Meet the Chesapeake Bay Limits", 2023 Annual Conference, Pennsylvania Rural Water Association

"Treatment Plant Design for Emerging Contaminants", 2023 Annual Conference, Pennsylvania Rural Water Association

Garret J. Hargenrader, P.E.

SENIOR PROJECT ENGINEER

Fifteen (15) years of project design experience for dams and reservoirs including intakes, spillways, breach analysis and EAP preparation; hydraulic and hydrologic modeling; wastewater collection, conveyance and pumping; water transmission, distribution, storage and pumping systems; E&S control; general permitting and stormwater design.

Construction management and administration experience includes construction cost estimation; quantity take-offs; development of contract documents and specifications; bid phase management; project meetings, coordination and construction supervision; shop drawing review; directing field changes; payment application review and approval; and performing project close-out procedures. Experience and interaction with funding agencies including PennVEST, RUS/USDA and CDBG.

Key Projects

DAM PROJECTS

Evaluation of Cherry Valley Dam, Cherry Valley Lake Development Company, Washington County, PA. Project Engineer for the evaluation of Cherry Valley Dam including hydrologic and hydraulic analysis, spillway evaluations and condition assessment. Alternatives considered include Fusegate staged release system, labyrinth overflow weir spillway and overtopping protection. Cost: $3.5 million.

Cobun Creek Dam No. 2, Morgantown Utility Board, Monongalia County, WV. Project Engineer for the design of a new water supply dam and 375 MG reservoir for Morgantown regional water system. Project consisted of a 75-high zoned earth embankment dam, foundation preparation drilling and grouting, reinforced concrete intake tower, ogee overflow weir and concrete spillway, internal drainage system, road relocations and environmental mitigation measures. Cost: $40 million.

Warren H. Ohl Dam Improvements, City of Lock Haven, Clinton County, PA. Project Engineer and Hydraulic Design Engineer for mandated upgrades to a 70-ft. high earth dam including dam raise (parapet wall), spillway chute replacement, concrete rehab, intake tower modifications and Type II USBR terminal structure. Cost: $5.3 million.

Lakemont Park Dam Updated Breach Analysis and Emergency Action Plan (EAP), Blair County Commissioners, Blair County, PA. Staff engineer responsible for performing an updated breach analysis and hydrological data using U.S. Army Corps of Engineers Hydraulic Modeling System (COE-HMS) software and preparing the downstream inundation map and Emergency Action Plan per PADEP.

continued

Education

University of Pittsburgh, Pittsburgh, PA

B.S. - Civil and Environmental Engineering

Credentials

Pennsylvania, P.E. (083778)

West Virginia, P.E. (22023)

Maryland, P.E. (5958959)

Affiliations

Association of State Dam Safety Officials (ASDSO)

American Water Works Association (AWWA)

Continuing Education

Concrete Repair and Maintenance for Dams, 2020, ASDSO

The State of Practice and Future of Dam Breach Modeling, 2020, ASDSO

Dam Overtopping Protection Systems - Part 2, 2019, ASDSO

Introduction to Addressing Inadequate Conveyance Capacity at Dams, 2017, ASDSO

Spillway Conduits, More Than Just a Pipe Through a Dam, 2016, ASDSO

Inspection and Assessment of Dams, 2015, ASDSO

Infiltrating Stormwater Workshop, 2015

Membrane Filtration-Process, Products & Materials, Red Vector, 2012

Wastewater Treatment-Nutrient Removal, Red Vector, 2012

Fundamentals of Reinforced Concrete Design of Hydraulic Structures, 2011, ASDSO

DAM PROJECTS (CONT.)

Dry Run Detention Dam Emergency Action Plan Update, City of Cumberland, Allegany County, PA. Project Engineer responsible for the emergency action plan update including updated hydraulic and hydrologic analysis, breach analysis and downstream inundation mapping.

Bakerton Dam Emergency Action Plan Update, West Carroll Township Water and Sewer Authority, Cambria County, PA. Staff engineer responsible for assisting the project engineer with updating the existing Emergency Action Plan (EAP) for Bakerton Dam as required by the PADEP.

Rehabilitation of Scotts Run and Hopewell Dams, Department of Conservation and Natural Resources, Berks County, PA. Project Engineer for the rehabilitation of two Pennsylvania state park recreational dams including seepage collection and structure rehab. Cost: $1 million.

Hydrologic/Hydraulic Evaluation of Water Supply Dams, City of Lock Haven, Clinton County, PA. Project engineer for the evaluation of Warren H. Ohl, Boyd R. Keller and Upper Castenea dams including hydrologic and hydraulic analysis and condition assessment. Final reports included recommendations for dam breach (Castenea); spillway/intake rehabilitation (Ohl) and spillway replacement (Keller). Cost: $30 million.

Bellwood Dam Modifications, Altoona Water Authority, Blair County, PA. Project engineer for the hydraulic design of dam modifications including a new staged 5-cycle labyrinth weir spillway, intake tower, dam raise (parapet wall) and embankment filter drain and seepage collection improvements.

Laurel Run Dam, Pine Run Dam & Olyphant Dams, PA Department of Conservation and Natural Resources, Luzerne County, PA. Project manager for field inspection, cost and options analysis, and dam breach analysis with inundation mapping and 2D HEC RAS Modeling for three existing dams.

W. Andrew Arnold, P.E.

DESIGN OPERATIONS DIRECTOR

Design Operations Director responsible for management of design engineering staff, and leading the coordination and technical support services, collaborates with the facilities planning director, construction management director and office services coordinator for project oversight. Over 25 years of experience in structural analysis, structural & architectural design for commercial and institutional buildings, water & wastewater treatment facilities, dams, bridges/roadways and other structural rehabilitation projects.

Extensive technical capabilities in preparation of contract documents, specifications, construction management, cost estimating, quality control review and coordination of all design disciplines from conceptual design through completion of construction.

Comprehensive experience in compilation of construction cost estimating. Familiar with IBC, ACI, ASD, LRFD, AISC, AASHTO, PennDOT regulations & procedures, Quest CDN electronic bidding and e-Builder.

Key Projects

WATER TREATMENT PROJECTS

Potomac River Water Treatment Plant Submerged Membrane Upgrade, Berkeley County Public Service Water District, Berkeley County, WV. Structural engineer for design of a plant expansion from 6.0 to 10.0 MGD with process unit redundancy. Project featured construction of two (2) new submerged membrane units and replacement of existing membrane system components such as new modules, racks, piping, valves, instrumentation, pre-strainers and CIP system modifications. Project also featured new raw water pumps, new airburst system, an additional sedimentation basin, new chlorine gas feed system, new liquid chemical feed systems, new UV disinfection unit, new finish water pumps and instrumentation.

Larry's Creek Water Treatment Plant, Jersey Shore Area Joint Water Authority, Lycoming County, PA. Structural engineer for design of a new 1.5 MGD water treatment plant to replace the existing conventional plant. Project featured a new automatic pressure membrane microfiltration system including module racks, backwash pumps, piping, valves, instrumentation, pre-strainers and a clean-in-place system. Project also featured new valve and meter vaults, feed pumps, mixers, liquid chemical feed systems, control building, and instrumentation.

continued

Education

The Pennsylvania State University
University Park, PA (2000)

B.S. - Architectural Engineering-Structural Emphasis

Credentials

Pennsylvania, P.E. (074827)
West Virginia, P.E. (21202)
Maryland, P.E. (50166)
Delaware, P.E. (21205)
Virginia, P.E. (57550)
Ohio, P.E. (82167)
New York, P.E. (098611)
Indiana, P.E. (11800685)

Certified Bridge Safety Inspector

Affiliations

National Society of Professional Engineers (NSPE)

American Society of Civil Engineers (ASCE)

Construction Specification Institute (CSI)

American Concrete Institute (ACI)

Association of State Dam Safety Officials (ASDSO)

Deep Foundations Institute (DFI)

American Society for Highway Engineers (ASHE)

American Institute of Steel Construction (ASCI)

WATER TREATMENT PROJECTS (CONT.)

Water Treatment Facility, Irvona Municipal Authority, Clearfield County, PA. Architectural and structural designer for a water treatment facility which included masonry, steel and aluminum design and detailing. Architectural design included office/staff space and a treatment facility in one structure. Structural design accounted for water treatment operations and storage including a 10' deep, 2,000 SF clearwell area below finished floor elevations supported by a mat foundation.

Alexandria Area Water System Improvements, Alexandria Borough Water Authority, Huntingdon County, PA. Structural Engineer-of-Record for a water system improvements project including modifications to Robinson Run Reservoir consisting of a slurry trench, new overflow-outlet structure, retaining wall, intake tower and site improvements.

Water Treatment Facility, Alexandria Borough Water Authority, Huntingdon County, PA. Architectural and structural designer for the water treatment facility upgrade including masonry, steel & aluminum design and detailing. Architectural design included office/staff space and a treatment facility in one structure. Project included preparation of a subsurface report based on excavated test pits and the associated structural design based on the poor soil conditions uncovered during that subsurface investigation.

Electric Generator Building, State College Borough Water Authority, Centre County, PA. Structural and architectural designer for a 320 SF pre-engineered metal building addition to a High Service Pump Station.

3.0 MG Water Storage Tank, State College Borough Water Authority, Centre County, PA. Designer of a 140' diameter, 3 million gallon steel water storage tank and related site modifications.

Water Treatment Facility Evaluation, City of Cumberland, Allegany County, MD. Performed architectural, structural, and mechanical field reconnaissance and summary report preparation for the existing 15 MGD water treatment plant. Project included cost estimation, construction planning summary, alternatives analysis and overall recommendations to address potential future modifications and upgrades.

Water Main Extension, Hollidaysburg Veterans Home, Altoona Water Authority, Blair County, PA. Project Engineer and manager for the construction of 800 LF of transmission line, meter and vault, site modifications and landscaping.

WASTEWATER TREATMENT PROJECTS

Wastewater Treatment Facility Evaluation, City of Cumberland, Allegany County, MD. Structural Engineer responsible for overall comprehensive evaluation and assessment of the existing 25 MGD wastewater treatment facility structural components. Project included cost estimation, construction planning summary, alternatives analysis and overall recommendations to address potential future modifications and upgrades.

Graham Smith, P.Eng.

SENIOR PROJECT GEOTECHNICAL ENGINEER

A foremost authority on geotechnical construction and grouting systems, Mr. Smith has performed projects internationally and throughout North America. He has over 30 years of construction management, project design, contracting and geotechnical consulting experience involving all aspects of heavy civil-works including earth dams, tailings dams, tunnels, ground-stabilization systems, soil/rock anchors, jet, permeation and chemical grouting, grout curtains, micropiles, seepage control and related geotechnical systems. Mr. Smith is a professional engineer and coauthor of peer-reviewed geotechnical papers.

Key Projects

GEOTECHNICAL-RELATED PROJECTS

Cobon Creek Dam No. 2, Morgantown Utility Board, Monongalia County, WV. Resident Engineer for new Cobun Creek Dam No. 2, an 82-ft. high, 1,000-ft. long water supply dam with 400 million gallon reservoir for the Morgantown Utility Board, the largest publicly-owned water supplier in West Virginia. Duties included observation and supervision of all contractor operations including dam foundation preparation, grouting curtain work, rock drilling for spillway and abutments, embankment material preparation & placement (450,000 CY), internal seepage collection system (inclined chimney drain & horizontal drainage blanket), 82-ft. high multiport intake tower and ogee-weir spillway construction. Project cost - $40 million.

Cobun Creek Dam No. 1, Morgantown Utility Board, Monongalia Co., WV. Built in 1957, Cobun Creek Dam No. 1 is a 58-ft. high, 270-ft. long zoned earth/rockfill embankment with reinforced concrete intake structure; 24-in. outlet conduit and 142-ft. overflow weir with rock spillway channel. Gwin, Dobson & Foreman was retained to address dam deficiencies including severe erosion of rock spillway, broken and weathered overflow weir, rock slope instability and old control gates. Improvements included demolition of the existing concrete overflow sill and placement of reinforced concrete overflow weir, application of reinforced shotcrete infill of eroded rock spillway chute, leveling dam crest, rock/riprap slope protection on downstream dam embankment and underwater retrofitting of intake tower inlet and outlet sluice gates. Project cost - $1 million.

Bellwood Dam Abutment Grouting, Altoona Water Authority, Blair County, PA. Resident Engineer for oversight of drilling and grouting work at right abutment of 61-ft. high earth embankment dam. Project cost - $750,000.

Plane Nine Dam Spillway Void Grouting, Altoona Water Authority, Blair County, PA. Geotechnical Engineer for development of a grouting program to fill voids at the spillway approach channel/ogee weir area of Plane Nine Dam including development of detailed grouting plans and procedures and supervision of grouting operations.

continued

Education

Bachelor of Applied Science in Geological Engineering
Queen's University at Kingston, Ontario

Credentials

Professional Engineer (90459967)
Peterborough, Eastern Region
Province of Ontario

Professional Development

Member of Association of Professional Engineers of Ontario

Organizing Committee Member, 4th International Conference on Grouting and Deep Mixing, New Orleans 2012

International Workshop on Micropiles: Seattle 2003, Toronto 2007, London 2009

ASCE NY "Golden Apple" Award Geotechnical Metropolitan Section, 2009

ASCE Grouting Short Course Instructor, Austin, TX 2005

ASCE Central Pennsylvania Geotechnical Conference. Presenter, 2005

Publications

Darrell Wilder, P.E., Graham C. G. Smith, P.Eng., and Jesús Gómez, Ph.D., P.E. (2005). "Issues in Design and Evaluation of Compaction Grouting for Foundation Repair," Geo3 GEO Construction Quality Assurance/Quality Control Conference Proceedings.

A. Cadden, J. Gomez, G. Smith, R. Traylor. (2003) "Flexibility in Grouting: Solutions for Old Dams," Grouting and Ground Treatment, Proceedings of the Third International Conference, Geotechnical Special Publication No. 120.

Graham Smith. (1994) "Pressure Grouting of Ottawa Locks #6, #7 and #8," Department of Geological Science, Queen's University at Kingston.

GEOTECHNICAL AND EARTH DAM PROJECTS (CONT.)

Winnipeg Aqueduct Leakage Grouting Program, City of Winnipeg, Manitoba Province, Canada. Multi-year program of drilling and grouting of leak prone 100-year old concrete parabolic-shape conduit; main water supply aqueduct for City of Winnipeg.

Noranda Geco Mine - Tailings Dams Construction, North Bay Area, Ontario, CA. Full-time Geotechnical Construction Inspector for the construction of two tailings dams at the Noranda's Geco Mine in Manitouwadge, Ontario. Work involved bedrock grouting operations; inspection of bedrock foundation and dental concrete; placement of engineered fill; total station surveying; installation and monitoring of observation wells; field and laboratory soil testing and reporting.

Williams Gold Mine - Tailings Dams, Marathon Area, Ontario, CA. Full-time Construction Inspection and Gold Materials Testing for construction of three tailing dams at the Williams gold mine near Marathon, Ontario. Preparation of reports involving spillway design, tailings pond planning and water balance calculations.

Millbrook Dam Replacement, Otonabee Conservation, Peterborough, Ontario, CA. Project Engineer for Millbrook dam modifications including cofferdam construction, flow diversion, steel sheet piling, new reinforced concrete weir, spillway and stilling basin and earth embankment.

Rideau Canal Ottawa Locks 7, 8 & 9 Rehabilitation, Cheltenham, CA.On-Site Geotechnical Engineer for the rehabilitation of Ottawa Locks 7, 8 and 9, including supervision of in-situ hydraulic conductivity test, calculation of permeability factors, quality control of the grouting operation, assessment of amenability, borehole logging and reporting.

Trent-Severn Waterway - Lock and Dam No. 37 Replacement, Otonabee Conservation, Peterborough, Ontario, Canada. Geotechnical engineer consultant on lock and dam replacement project.

Casecnan Concrete Diversion Dam (ECO Grouting), East Luzon, Philippines. Project Engineer for Peter Kiewit, Contractor, for the construction of a grout curtain in bedrock beneath a large concrete diversion dam.

Structural Group - Geotechnical, Hawthorne, New Jersey. Geotechnical Division Manager for Manhattan, Brooklyn and New York City-area projects totalling $58 million including specialty geotechnical design and construction for dams, aqueducts, tunnels, historic structures, mines, quarries, canals, excavation support, bridges, tanks and foundation stabilization of buildings. Geotechnical systems and techniques included: pressure grouting, permeation, compaction, jet, chemical, karst grouting, mine backfill, ground anchors (rock and soil) and micropiles (conventional and hollow bar). Geotechnical Project Manager for micropile and grouting projects in Baltimore, MD.

San Rafael Mine S.A., Antauta, Peru. Project On-Site Geotechnical Engineer for the on-site review of the testing program and development of the QA/QC program for a large jet grouting project.

Skyler J. Eckenrode, P.E.

SENIOR CIVIL ENGINEER

Design experience working on civil/site projects. Duties including wastewater collection and conveyance system design, water distribution system design, erosion & sedimentation control, DEP permitting, stormwater design, pump design, mechanical piping layout design, structural design, and stability analysis of dams using GSTABL7 software.

Project/construction management experience gained through various water and wastewater projects as well as structural projects. Specific experience includes construction cost estimation, quantity take-offs, development of contract documents and specifications, and project meetings.

Key Projects

Cherry Valley Dam PMF Evaluation, Cherry Valley Lake Development Company, Washington County, PA. Staff Engineer for the evaluation of Cherry Valley Dam. Responsibilities included performing stability and seepage analysis utilizing Rocscience Slide2 program, spillway evaluations and condition assessment.

Bellwood Dam Modifications, Altoona Water Authority, Blair County, PA. Staff engineer responsible for the design of dam modifications including a new staged labyrinth weir spillway, intake tower, crest parapet wall and embankment improvements.

Dry Run Detention Dam Emergency Action Plan Update, City of Cumberland, Allegany County, PA. Staff engineer responsible for the emergency action plan update including updated hydraulic and hydrologic analysis, breach analysis and downstream inundation mapping.

Lakemont Park Dam Updated Breach Analysis and Emergency Action Plan (EAP), Blair County Commissioners, Blair County, PA. Staff engineer responsible for performing an updated breach analysis and hydrological data using U.S. Army Corps of Engineers Hydraulic Modeling System (COE-HMS) software and preparing the downstream inundation map and Emergency Action Plan as required by the PADEP.

Laurel Run Dam, Pine Run Dam, and Olyphant Dams, PA Department of Conservation and Natural Resources, Luzerne County, PA. Staff engineer responsible for field inspection, cost and options analysis, and dam breach analysis with inundation mapping and 2D HEC RAS Modeling for three existing dams.

New Cobun Creek Dam No. 2, Morgantown Utility Board, Monongalia County, WV. Staff Engineer responsible for performing stability analysis, structural design and material quantity take-offs for 75-foot high, zoned earth embankment dam including an ogee-weir concrete spillway, multi-port intake structure, intake access bridge, internal chimney drain, drainage blanket system, and road relocation.

continued

Education

University of Pittsburgh
Johnstown, PA

B.S. - Civil Engineering Technology (2015)

Credentials

Pennsylvania, P.E. (093309)

Certified Bridge Safety Inspector

National Bridge Inspection Standards

Continuing Education

Infiltrating Stormwater (2017)

Updating Emergency Action Plans (2018)

Affiliations

American Society of Civil Engineers

American Institute of Steel Construction

Butler Water Treatment Plant LT2 and Electrical Improvements, PA-American Water Company, Butler County, PA. Assisted Project engineer/manager for the design of an upgrade to an existing 11.0 MGD water treatment facility. Project featured updating to a 10,000 gallon bulk caustic soda chemical feed system including building expansion, chemical truck delivery and tank secondary containment, filter-to-waste improvements, new wastewater holding tank and piping upgrades, SCADA/instrumentation upgrades and electrical improvements.

New Castle Water Treatment Plant Liquid Lime Improvements, PA-American Water Company, Lawrence County, PA. Assisted Project engineer/manager for the design and construction of a new bulk liquid lime chemical feed building and delivery containment area. Project featured replacement of existing pebble lime feed system with new Cal-Flo bulk liquid lime system including two (2) 8,000 gallon bulk tanks, transfer pump, chemical feed pumps, instrumentation and control panel and existing SCADA system interfacing. Also featured a new enclosed, reinforced concrete chemical delivery area for chemical delivery tanker trucks.

Two Lick Creek Water Treatment Plant Chemical Facilities and Intake Improvements, PA-American Water Company, Indiana County, PA. Assisted Project engineer/manager for the design and construction of an upgrade to an existing 6.0 MGD water treatment facility. Project featured updating to a bulk sodium hypochlorite, bulk caustic soda and bulk liquid lime chemical feed systems including building expansion, delivery and tank secondary containment, new half-screen automatic backwashing raw water intake system, new water softening system, new powdered activated carbon feed system, miscellaneous chemical feed system and piping upgrades, SCADA upgrades, etc.

Findlay Township Water System Improvements, PA-American Water Company, Washington County, PA. Assisted Project Engineer for a water system improvement project including a new sodium hypochlorite feed building, a new packaged booster pump station, renovations to an existing station and 20,500 LF of 24" and 12" waterline. Duties included design, specification preparation and permitting.

Eldora Booster Pump Station and Pressure Reducing Vault, PA-American Water Company, Washington County, PA. Assisted Project Engineer for a new packaged water booster station consisting of three (3) pumps rated at 400 gpm each as well as a pressure reducing valve vault. Duties included design, cost estimation, specification preparation and permitting.

McHenry Hill Water Storage Tank, PA-American Water Company, Indiana County, PA. Assisted Project Engineer for a new 0.75 glass lined to steel bolted storage tank. The project also included a new valve vault, access road improvements, interconnecting water main, telemetry and all required site work. Duties included design, cost estimation, specification preparation and permitting.

Eldora Water Storage Tank, PA-American Water Company, Washington County, PA. Assisted Project Engineer for a new 0.5 MG 120-ft high elevated steel spheroid tank. The project also included a new access road, 1,000 LF of 12" diameter interconnecting water main, telemetry and all required site work. Duties included design, cost estimation, specification preparation and permitting.

Kenneth W. Beldin, Jr., PE, LEED AP BD+C

SENIOR PROJECT ENGINEER

Twenty (20) years experience in municipal engineering, land planning and roadway design. Expertise in stormwater management and civil/site engineering design services for residential, commercial and institutional projects of various size and scope. Experience includes: erosion and sediment control (ESC) design, site grading and layout, ADA accessibility design, LEED project design, hydrologic and hydraulic (H&H) analyses, culvert and precast bridge design and analysis, floodplain analysis, stormwater management (SWM) design and implementation, storm drain design, roadway and utility layout and design, project cost estimating and project permitting. Additional engineering experience includes: municipal engineering and review, utility and facility design, water system analysis and design, water storage tank design, specifications and project management.

Key Projects

Cobun Creek Dam No. 2, Morgantown Utility Board, Monongalia County, WV. Civil Engineer for the design of a new water supply dam and 375 MG reservoir for Morgantown regional water system. Project consisted of a 75-ft. high zoned earth embankment dam, foundation preparation drilling and grouting, reinforced concrete intake tower, ogee overflow weir and concrete spillway, internal drainage system, road relocations and environmental mitigation measures.

Bellwood Dam Modifications, Altoona Water Authority, Blair County, PA. Civil Engineer for the design of dam modifications including a new staged labyrinth weir spillway, intake tower, crest parapet wall and embankment improvements.

Grant Street Dam Rehabilitation, City of Lock Haven, Clinton County, PA. Civil Engineer for concrete rehabilitation and repairs to an 800-ft. low head dam (slab-and-buttress type) across the West Branch of the Susquehanna River.

Rehabilitation of Scotts Run and Hopewell Dams, Department of Conservation and Natural Resources, Berks County, PA. Civil Engineer for the rehabilitation of two Pennsylvania state park recreational dams including seepage collection and structure rehab.

Water Distribution System Upgrades, Town of Moorefield, Hardy County, WV. Project engineer for design of the installation of 10,000 LF of 12" water distribution main. Responsibilities include plan and profile construction drawings, technical specifications, WVDOH Encroachment Permit, WV State Rail Authority Railroad Crossing Permit, Erosion and Sediment Control (ESC) Plans and Traffic Control Plans.

continued

Education

Pennsylvania State University, State College, PA

B.S. - Civil Engineering (Water Resources)

Credentials

Pennsylvania, P.E. (081568)

Maryland, P.E. (39911)

West Virginia, P.E. (21049)

LEED Accredited Professional

LEED Accredited Professional, Building Design and Construction

(LEED AP BD+C) #10425346

Affiliations

National Society of Professional Engineers (NSPE)

American Society of Civil Engineers (ASCE)

Chi Epsilon - The Civil Engineering Honor Society

Water Transmission Main Replacement, Sykesville Borough, Jefferson County, PA. Project engineer for design of the installation of 26,000 LF of 8" and 12" waterline, chlorine injection and metering station and water storage tank inlet piping modifications. Responsibilities included plan and profile drawings, technical specifications, Erosion and Sediment Control (ESC) Plans, General Permit 5-Stream Crossing, NPDES Stormwater Construction Permit and PennDOT Highway Occupancy Permit.

Glen Haven and Cavaland Water System Replacement, Jefferson County Public Service District, Jefferson County, WV. Project engineer responsible for design of the installation of approximately 10,500 LF of 4" PVC water main, 3,750 LF of 2" HDPE water main, 123 water service connections and well house improvements. Well house improvements included minor structural repairs, new monitoring and control systems (SCADA), new chemical feed pumps, new well pumps, new hydropneumatic tanks, new 17,500 gallon water clearwell tank, chlorine/turbidity/production analyzers and meter and new mechanical piping systems. Responsibilities included plan and profile construction drawings, bidding documents, construction administration services and Erosion and Sediment Control (ESC) Plans and Traffic Control Plans.

Two Lick Creek Water Treatment Plant, PA-American Water Company, Indiana County, PA. Design engineer for new raw water intake and site improvements. Design tasks included hydrologic and hydraulic (H&H) analysis of on-site floodplain, local, state and environmental permitting for construction within a regulated waterway. Project also required coordination of local permits for building construction and site improvements.

High Street Booster Station Improvements, PA-American Water Company, Fayette County, PA. Design engineer for site improvements associated with the installation of pre-packaged booster pump station and connections to existing water mains. Project required land development and subdivision plan for client land acquisition and permitting through local municipal and county planning agencies.

Franklin-Malone Storage Tank, PA-American Water Company, Washington County, PA. Design engineer for site and access improvements for a 200,000 gallon elevated spheroid finished water storage tank and rechloramination station. Design tasks included access improvements from a state maintained right-of-way, grading and site improvements for a pre-packaged rechloramination station and storage tank. Development also required stormwater management (SWM) and other Best Management Practices to comply with state and local requirements.

New Castle Water Treatment Plant, PA-American Water Company, Lawrence County, PA. Project engineer for construction of new chemical addition building (pH adjustment) and chemical delivery area. Project tasks included site and grading improvements, stormwater conveyance design and delivery truck turning analysis. Tasks also included project coordination with local and county planning agencies for obtaining construction permits.

Maggie K. Weitzel, CEP-IT

SENIOR ENVIRONMENTAL SCIENTIST

Environmental Scientist with over 16 years experience in completing advanced technical tasks for natural environmental and ecological investigations. Extensive experience in the preparation of documents related to and required for environmental and ecological studies. Provides assistance for water and wastewater projects, environmental assessments, wetland delineation and permitting. Technical tasks performed to develop environmental management plans and designs for the implementation of best management practices (BMPs) for water, wastewater and other environmental restoration projects. Other responsibilities include: client coordination, sub-consultant coordination, grant writing and approval processing through governing agencies.

Key Projects

NPDES Wastewater Treatment Facility Discharges Permitting, Various Boroughs and Authorities, Bedford, Cambria, Clearfield, Jefferson, Mifflin and Snyder Counties, PA. Environmental Scientist responsible for wastewater treatment facility National Pollution Discharge Elimination System Permit Renewals and Amendments for the continued discharge of treated wastewater.

Various Boroughs and Authorities, Annual DEP Chapter 94 Wasteload Management Reports, Bedford, Blair, Centre, Clarion, Clearfield, Clinton, Huntingdon, Jefferson, Mifflin and Snyder Counties, PA. Environmental Scientist responsible for preparation of reports for various municipalities/authorities summarizing and detailing the status of each facility and any changes to the system in the previous year. Reports detail the current status and projected status for each of the facilities hydraulic and organic loading.

Evitts Creek Water Treatment Plant Membrane Filtration/GAC/Treatment System, Preliminary Engineering Report, City of Cumberland, Bedford County, PA. Environmental Scientist responsible for site environmental feasibility assessment.

Surface Water Intake and Water Treatment Plant, Northrop Grumman Corporation, Mineral County, PA. Environmental Scientist responsible for site environmental feasibility assessment.

Walnut Spring Park Pedestrian Bridge Replacement, Borough of State College, Centre County, PA. Environmental Scientist responsible for Chapter 105 Joint Permit Application and environmental assessment for demolition of existing pedestrian bridge and construction of new 120' pedestrian bridge.

continued

Education

Juniata College,
Huntingdon, PA

B.S. - Environmental Science

Credentials

Academy of Board Certified Professionals, Certified Environmental Professional-In Training, CEP-IT

Army Corp of Engineers,
Certified Wetland Delineator

PA Department of Environmental Protection, Certified in Land Application of Biosolids Course 101

PA State Board of Certification of Wastewater Works Operator's License (344891) - Class A, E, Subclass 1, 3, 4

Continuing Education

PA Native Plant Society, Identification of Grasses, Sedges & Rushes

PA Highlands Community College, Fundamentals of Technical Writing

PA Association of Professional Soil Scientist, Field Seminar on Regional Supplement, Hydric Soil & New Data Forms

Stormwater & Drainage System Evaluation, Dudley Borough, Huntingdon County, PA. Environmental Scientist responsible for assisting Project Manager's evaluation of existing stormwater conveyance system within Dudley Borough via GIS data collection, analyze drainage patterns, and existing conveyance system inventory. Preparation of summary report identifying fines, suggested improvements and general costs.

Wastewater Treatment Facility, Muddy Run Regional Authority, Clearfield County, PA. Environmental Scientist responsible for conducting review and assessments of wetland mitigation as part of overall PADEP requirements for wetland mitigation monitoring.

Rose Siding Bridge Replacement, Borough of Brookville, Jefferson County, PA. Environmental Scientist for bridge replacement tasked with wetland delineation.

39th Street Stormwater Drainage Improvements, City of Altoona, Blair County, PA. Environmental Scientist responsible for wetland delineation and aquatic resource analysis for drainage improvements along the 39th Street corridor.

Warren H. Ohl Dam Improvements, City of Lock Haven, Clinton County, PA. Environmental Scientist for upgrades to a 70-ft. high earth embankment dam including floodwall, intake tower modifications and spillway rehabilitation. Tasks include planning, site evaluation, environmental assessment.

Bottom Road (T-899) Bridge Replacement, Union Township Supervisors, Clearfield County, PA. Environmental Scientist for the replacement of a deteriorated concrete bridge over the Laborde Branch. The replacement structure consisted of aluminum, structural-plate box culvert with aluminum wing walls and full invert bottom. Project also included roadway approach widening and intersection improvements for enhanced traffic safety. Additional culvert capacity and improved stream hydraulics were added benefits. Project funding by PennDOT Multimodal Transportation Fund (MTF). The bridge replacement was completed and open to traffic in less than four weeks from the start of construction.

Exit 81 Jefferson County Business Park Infrastructure Development, Nine Star Capital, LP, Jefferson County, PA . Environmental Scientist tasked with wetland delineation (Jurisdictional Determination), aquatic resource inventory, environmental assessment, wetland mitigation design and associated permitting of the 150 acre, 34 commercial lot project site.

Evan Zhang

JUNIOR ENGINEER

Junior Engineer with one (1) year of experience in the water/wastewater industry. Duties include performing the following tasks under supervision: stream water quality monitoring and modeling, environmental permitting, storm water analysis and related tasks, hydrologic and hydraulic analysis of dams.

Key Projects

DAM PROJECTS

Lake Gordon and Lake Koon Dams, City of Cumberland, Bedford County, PA. Junior Engineer assisting with Annual Dam Safety Inspections.

Montgomery Dam & Moose Creek Dam, Clearfield Municipal Authority, Clearfield County, PA. Junior Engineer assisting with Annual Dam Safety Inspections and responsible for the hydrologic evaluation and determination of Probable Maximum Flood for Montgomery Dam spillway using HEC-HMS and PA DEP Probable Maximum Precipitation tools.

Upgrades and Improvements to Keller & Castanea Dams, City of Lock Haven, Clinton County, PA. Junior Engineer assisting with Annual Dam Safety Inspections, hydrologic and hydraulic evaluations, determination of peak discharge flows in the event of a dam breach and emergency action plans.

WATER PROJECTS

Local Limits Evaluation, City of Lock Haven, Clinton County, PA. Junior Engineer responsible for development and implementation of local controls or limits on discharges to publicly owned treatment works (POTWs).

Evitts Creek Interceptor Sewer Rehabilitation, City of Cumberland, Allegany County, MD. Junior Engineer responsible for hydraulic modeling of interceptor to determine probable flows.

Lead Service Line Inventory, Alexandria Borough Water Authority, Huntingdon County, PA. Junior Engineer Responsible for developing an inventory of water service line materials to identify potential leaded lines that need to be replaced.

Kittanning Water Treatment Plant Tracer Study, PA-American Water Company, Armstrong County, PA. Junior Engineer assisting with fluoride tracer study at Kittanning WTP to calculate baffling factors of Clearwell and accompanying written report.

continued

Education

Penn State University,
University Park, PA

B.S. - Civil Engineering (2022)

M.Eng - Civil Engineering (2023)

Affiliations

American Society of Civil Engineers (ASCE)

American Concrete Institute (ACI)

Credentials

National Honors Society

WATER PROJECTS (CONTINUED)...

Avella Road Waterline Extension, PA-American Water Company, Washington County, PA. Junior Engineer responsible for NPDES permit applications, soil reports, and municipal notifications.

Duquesne Waste Water Treatment Plant Disinfection Conversion and Clarifier Rehabilitation, PA-American Water Company, Allegheny County, PA. Junior Engineer responsible for drafting design memorandums, taking necessary measurements during site visitations, and research to assist in evaluation of disinfection methods.

City of Washington Waterline Replacement, PA-American Water Company, Washington County, PA. Junior Engineer responsible for NPDES permit applications, soil reports, and municipal notifications.

Hemlock, B, F & D Streets Waterline Replacement, PA-American Water Company, Centre County, PA. Junior Engineer responsible for NPDES permit applications, soil reports, and municipal notifications.

Nixon-Kocher Water Treatment Facility, State College Borough Water Authority, Centre County, PA. Junior Engineer responsible for reviewing spare parts inventory in the plant, creating standard operating procedures manual for plant operations.

Altoona Combined Sewer Overflow (CSO) Long Term Control Plan Update, Altoona Water Authority, Blair County, PA. Junior Engineer responsible for hydraulic storm water and receiving waters modeling for the Altoona Area CSO. Continuous water quality monitoring during both storm and dry weather events to ensure compliance. Assist in developing wet weather capacity study for waste water treatment plant.

Calder Way Improvement Project (Phase I), Borough of State College, Centre County, PA. Junior Engineer responsible for assisting with development of engineering report for utility and infrastructure improvements in the area.

PREVIOUS WORK EXPERIENCE

Student Intern, Penn State University (Soil Mechanics Laboratory), Centre County, PA. Student responsible for gradation of aggregates using sieve and hydrometer analysis (ASTM); concrete mix design (AASHTO Standards); soil compaction using the standard proctor test to determine optimum moisture; and tension testing of metals.

Student Intern, Penn State University (Topographic Mapping/Surveying), Centre County, PA. Student responsible for utilizing precision surveying equipment to collect elevation differences between points; and creating topographic map based with collected data points with stormwater analysis (Civil 3D).

Joseph Kudritz

CONTACT INFORMATION

Office: (216) 340-0983
Mobile: (724) 944-0994
joe.kudritz@akhydro.com

TOTAL YEARS' EXPERIENCE

17 Years

EDUCATION

Geneva College, Beaver Falls, Pennsylvania
Bachelor of Science, Civil Engineering, December 2007

CERTIFICATIONS

Professional Engineer
Pennsylvania (2013)
Idaho (2015)
Ohio (2019)

PROFESSIONAL ORGANIZATIONS

Association of State Dam Safety Officials (ASDSO)
Member Since 2013

SUMMARY OF QUALIFICATIONS

Mr. Kudritz is the co-founder and principal of AK Hydro. Mr. Kudritz has a diverse experience background and has practiced in the dam safety engineering practice for the majority of his 17 year professional career. Early in his career, Mr. Kudritz led hydrologic and hydraulic (H&H) analyses for various water resources projects, where a majority of the projects focused on dam and levee projects. While serving as the H&H lead for multiple water resources projects, Mr. Kudritz transitioned to the assessment and technical design of dam rehabilitation projects; where he has worked on the design of replacement principal and auxiliary spillways, lake drain systems, earthen embankments. Most recently in his career, Mr. Kudritz has served as the project manager for the assessment and/or rehabilitation design of 13 dams across Ohio, Pennsylvania, and West Virginia.

Mr. Kudritz is passionate about dam safety engineering and has been active in Association of State Dam Safety Officials (ASDSO) since 2013. Mr. Kudritz has authored or co-authored and has presented seven technical proceedings at National and Regional Conferences about dam construction case studies, control of water planning and reporting, and probabilistic dam breach analyses.

RELEVANT PROJECT EXPERIENCE

Lake Alma and Adams Lake Dam Rehabilitation, Vinton and Adams County, Ohio. *Ultimate Client: Ohio Department of Natural Resources.* **AK Hydro Role: Technical Design Lead (Subconsultant under Michael Baker International).** AK Hydro is responsible for the civil design of the dam rehabilitation projects to get the structures in compliance with dam safety regulations. Both structures currently have insufficient capacity to convey the 1.0 PMF design event without overtopping the embankment. AK Hydro's scope of work includes the finalization of the preliminary design report and final design to support the rehabilitation of the dams. Alternatives developed included the increasing spillway capacity, increasing storage capacity within the reservoir, and armoring the embankments with RCC overtopping protection. For Lake Alma, AK Hydro developed a floodplain study of the receiving stream to support the spillway rehabilitations that may involve increasing spillway discharges. AK Hydro will prepare final design construction documents for the civil and spillway components and will peer review geotechnical and structural designs developed by Michael Baker. **AK Hydro Design Fee (through 50% Design): $139,730, Anticipated Construction Budget: $14.2M**

Bellwood Dam Modifications, Blair County, Pennsylvania. Client: Altoona Water Authority. **AK Hydro Role: General Consultation Services (as a subconsultant to Gwin, Dobson and Foreman (GD&F)).** AK Hydro staff was responsible to peer review and provide necessary comments for a reservoir first fill plan developed by GD&F for the Bellwood Dam. In addition to peer review, AK Hydro staff reviewed regulatory comments from PA DEP and provided best practices to monitor the dam during the commissioning process. Bellwood Dam is owned and operated by Altoona Water Authority has a water supply capacity of approximately 350 MG. Major modifications were made to the structure including the construction of a replacement labyrinth spillway, construction of a multi-orifice control tower, and embankment improvements. **Construction Cost: $21M**

Kahle Lake Dam Rehabilitation, Venango County, Pennsylvania. *Client: Pennsylvania Fish and Boat Commission.* **Role: Project Manager (Michael Baker).** Responsible for the technical and fiscal management of the Kahle Lake Dam Rehabilitation Project from notice to proceed into final design. Mr. Kudritz was responsible for establishing the scope and budget for each project and was responsible for all project deliverables. Mr. Kudritz was responsible for overseeing the technical direction of the project and made it a priority to continuously coordinate with the discipline leads and subconsultants throughout the life cycle of the project. During the

PUBLICATIONS & PRESENTATIONS

Association of Dam Safety Officials

"Putting the STOP in Waterstops," 2017 National and 2018 Northeast Regional Conferences

"Leveraging 3D Modeling to Enhance Dam Design and Construction Management," 2017 National Conference

"Practical Experience with Development and Implementation of Effective Construction Monitoring Plans," 2018 National Conference

"Repair or Replace? Considerations for Dam Rehabilitations," 2019 National Conference

"Best Management Practices of Waterstop Selection, Installation and Inspection,"(Instructional Webinar) June 2019

"Probabilistic Dam Breach Analysis for Pennsylvania's Largest Dam Breach Inundation Limits," 2022 National Conference

"Small Dams, Big Problems: A Case Study on a Complete Dam Reconstruction," 2023 National Conference

Ohio Dam Safety Organization (ODSO)

Co-Author. "Mt. Gilead State Park – Upper and Lower Dam Improvements: Assessment, Design, & Construction" 2017

Schematic Design Phase, a dam breach analysis was performed, which resulted in the re-classification of the structure. A new labyrinth spillway structure was designed to replace the existing structure and pass the design flood through the structure without overtopping the dam. **Anticipated Construction Cost: $5.4M**

Hemlock Lake Dam Rehabilitation, Indiana County, Pennsylvania. *Client: Pennsylvania Fish and Boat Commission.* **Role: Project Manager (Michael Baker).** Responsible for the management of all aspects of the design through the entire life cycle of the Hemlock Lake Dam rehabilitation project. In addition to tracking the deliverables and budgets, Mr. Kudritz oversaw the technical direction of the project that included the design of a new labyrinth spillway that would replace the existing structure that is structural deficient. **Anticipated Construction Cost: $5.3M**

Little Schuylkill River Dams Plan Environmental Assessments, Schuylkill County, Pennsylvania. *Client: Natural Resource Conservation Service (NRCS).* **Role: Project Manager (Michael Baker).** This project included the assessment of five dams within the Little Schuylkill River watershed and development of a Plan Environmental Document for each structure. This project was being performed under a Joint Venture agreement with North Wind and Mr. Kudritz was the point of contact between Michael Baker International and North Wind. Mr. Kudritz was responsible for developing the scope, budget and schedule for scope items to be performed by Michael Baker International. Mr. Kudritz coordinated with the H&H and geotechnical design technical leads and was responsible for the quality and timely submission of all deliverables. Mr. Kudritz was also responsible for coordinating the field investigation, survey, geotechnical investigation and lab testing, and hydrologic and hydraulic analysis scope items that are being performed by Michael Baker International.

Lake Katharine Dam Rehabilitation, Jackson County, Ohio. *Client: Ohio Department of Natural Resources.* **Role: Project Manager (Michael Baker).** Responsible for managing the entire life cycle of the project from notice to proceed through construction. Lake Katharine Dam is situated within Lake Katharine State Nature Preserve. The rehabilitation design had to be tailored to space constraints, ecologically sensitive areas, difficult site access, and owner/public input. Mr. Kudritz oversaw the field activities and technical evaluations required to evaluate the structure. The selected alternative included roller compacted concrete (RCC) overtopping protection to armor the embankment for overtopping flows. During the construction of the RCC overtopping protection system, the contractor experienced significant issues with elevated groundwater levels and boils along the toe. Mr. Kudritz coordinated a dewatering system, site inspection protocols, and geotechnical evaluations to allow for a safe excavation for the placement of RCC. Mr. Kudritz provided construction administration services that included: coordination with the contractor and site inspector, review of submittals, RFIs, and pay applications, and review of change orders and claims. **Construction Cost: $4M**

Somerset Lake Dam Rehabilitation, Somerset County, Pennsylvania. *Client: Pennsylvania Fish and Boat Commission.* **Role: Technical Design Lead (Michael Baker).** Responsible for the hydrologic and hydraulic analysis, labyrinth spillway design, and technical design of the project in coordination with the structural and geotechnical leads. The existing spillway at Somerset Lake had insufficient capacity to convey the PMF design event without overtopping the embankment. To convey the PMF design event, a new labyrinth spillway was constructed and the embankment crest was raised to provide additional storage capacity. Mr. Kudritz was one of the engineers of records responsible for the H&H design of the spillway system and the civil components of the dam. Mr. Kudritz also supported the team by providing construction administration support throughout construction.

Brian Afek

CONTACT INFORMATION

Office: (216) 340-0981
Mobile: (740) 317-5726
brian.afek@akhydro.com

TOTAL YEARS' EXPERIENCE

18 Years

EDUCATION

Ohio State University, Columbus, Ohio
Bachelor of Science in Civil Engineering, Geotechnical Engineering Specialization, December 2006

CERTIFICATIONS

Professional Engineer
Ohio (2011)
Pennsylvania (2015)
Louisiana (2022)

PROFESSIONAL ORGANIZATIONS

Association of State Dam Safety Officials (ASDSO)
Member Since 2013

Water Management Association of Ohio
Member Since 2020

SUMMARY OF QUALIFICATIONS

Brian Afek is the co-owner and principal of AK Hydro, bringing over 18 years of diverse experience in managing and executing projects related to dams, levees, and flood control structures. He has performed assessments, evaluations, and designs for high hazard embankments, spillways, emergency spillways, and lake drains. His background serving as am owner, department manager, project manager, geotechnical engineer, lab manager, and construction inspector allows him the ability to deliver comprehensive solutions to complex projects. Brian is dedicated to ensuring client satisfaction, adhering to schedules, and delivering projects within budget.

RELEVANT PROJECT EXPERIENCE

Lake Alma and Adams Lake Dam Rehabilitation, Vinton and Adams County, Ohio. *Ultimate Client: Ohio Department of Natural Resources.* **AK Hydro Role: Technical Design Lead (Subconsultant under Michael Baker International).** AK Hydro is responsible for the civil design of the dam rehabilitation projects to get the structures in compliance with dam safety regulations. Both structures currently have insufficient capacity to convey the 1.0 PMF design event without overtopping the embankment. AK Hydro's scope of work includes the finalization of the preliminary design report and final design to support the rehabilitation of the dams. Alternatives developed included the increasing spillway capacity, increasing storage capacity within the reservoir, and armoring the embankments with RCC overtopping protection. For Lake Alma, AK Hydro developed a floodplain study of the receiving stream to support the spillway rehabilitations that may involve increasing spillway discharges. AK Hydro will prepare final design construction documents for the civil and spillway components and will peer review geotechnical and structural designs developed by Michael Baker. **AK Hydro Design Fee (through 50% Design): $139,730, Anticipated Construction Budget: $14.2M**

Conneaut Creek Dam Removal, Ashtabula County, Ohio. *Client: Ohio Department of Natural Resources.* ***Role: Project Manager.*** Mr. Afek is currently serving as project manager to oversee the removal of dam remnants within Conneaut Creek. The project is located within a Scenic River and requires ecological permitting and construction phasing to minimize impacts to the environment. AK Hydro is developing final design documents for the removal of the dam and stabilization of the river. **Anticipated Construction Cost: $150,000**

Muskingum Lock and Dam No. 7, Morgan County, Ohio. *Client: Ohio Department of Natural Resources (Subconsultant under Michael Baker International).* **Role: Project Manager/Deputy Project Manager.** Mr. Afek served as deputy project manager to support Michael Baker in the design and preconstruction services for the dam replacement at McConnelsville. While employed at Michael Baker, Brian served as the project manager for the project through 90% design. After the projects switched delivery methods from Design Build to CMR, Brian led the Michael Baker team to take over the project as engineer of record and to deliver a new design that would be feasible to build and requiring less budget. Improvements to the dam include reconstruction of a new in-river dam downstream of the existing dam, installation of a floodwall, and energy dissipation features to reduce rollers and erosion at the site. The dam is currently in construction. **AK Hydro Design Fee: $21,898; Michael Baker Design Fee: $1,247,245 Anticipated Construction Cost: $25M**

Bellwood Dam Modifications, Blair County, Pennsylvania. Client: Altoona Water Authority. **AK Hydro Role: General Consultation Services (as a subconsultant to Gwin, Dobson and Foreman (GD&F)).** AK Hydro staff was responsible to peer review and provide necessary comments for a reservoir first fill plan developed by GD&F for the Bellwood Dam. In addition to peer review, AK Hydro staff reviewed regulatory comments from PA DEP and provided best practices to monitor the dam during the

PUBLICATIONS & PRESENTATIONS

Association of Dam Safety Officials

"Putting the STOP in Waterstops," 2018 Northeast Regional Conference

"Practical Experience with Development and Implementation of Effective Construction Monitoring Plans," 2018 National Conference

"Repair or Replace? Considerations for Dam Rehabilitations," 2019 National Conference

"Best Management Practices of Waterstop Selection, Installation and Inspection,"(Instructional Webinar) June 2019

"Small Dams, Big Problems: A Case Study on a Complete Dam Reconstruction," 2023 National Conference

Ohio Dam Safety Organization (ODSO)

Co-Author. "Mt. Gilead State Park – Upper and Lower Dam Improvements: Assessment, Design, & Construction" 2017

commissioning process. Bellwood Dam is owned and operated by Altoona Water Authority has a water supply capacity of approximately 350 MG. Major modifications were made to the structure including the construction of a replacement labyrinth spillway, construction of a multi-orifice control tower, and embankment improvements. **Construction Cost: $21M**

Blue Rock State Park Cutler Dam Rehabilitation, Muskingum County, Ohio. *Ohio Department of Natural Resources.* Project Manager (Michael Baker). Responsible for acceptance of all parts of the design and management of the project from start to finish, including budget, schedule, coordination, task management, investigation, permitting, final design, and construction management. Improvements to the dam include replacement of the deteriorated spillway, repairs to the lake drain system and outlet channel, and modifications to the dam embankment. Mr. Afek worked diligently with ODNR to ensure the transition to a new contractor was successful. This included multiple meetings, coordination with multiple agencies, and inspection of the project site while it was abandoned. **Construction Cost: $3.5M**

Mount Gilead Lake Upper and Lower Dam Rehabilitation, Morrow County, Ohio. *Ohio Department of Natural Resources.* Project Manager (Michael Baker). Responsible for project management during construction and the geotechnical design aspects of the replacement spillway, earthen embankment, and stability of the existing and proposed structures to ensure compliance with Ohio's dam safety regulations. A new Lower Dam was constructed downstream of the existing dam and the embankment and spillway of the Upper Dam was modified to act as a sediment forebay for the lake. Mr. Afek played a key role in the design and analysis of ODNR's first labyrinth in a state park. During construction, Mr. Afek worked directly with the contractor to resolve issues or questions in the field which kept change orders to a minimum for the project and allowed the owner to reallocate the remaining budget for other park improvements. **Construction Cost: $6.7M**

Rehabilitation of Five Pennsylvania Dams, Various Locations, Pennsylvania. *Pennsylvania Fish & Boat Commission.* **Role: Senior Management Lead (Michael Baker).** Responsible for assisting project managers in contracting, design development, and quality assurance for the rehabilitation of Kahle Lake, Hemlock Lake, High Point Lake, Virgin Run Lake, and Cloe Lake, which are owned by the Pennsylvania Fish and Boat Commission. The intent of the project was to rehabilitate the dams to ensure compliance with Pennsylvania Department of Environmental Protection regulations. The project deliverables included a Schematic Design, Detailed Design, and Construction Document Submission. Michael Baker's services include dam inspections, hydrologic and hydraulic evaluations, geotechnical investigations, structural assessments, alternatives analyses, dam-break modeling, inundation mapping, permitting, agency coordination, and construction services.

Hinckley Lake Dam Modifications, Medina County, Ohio. *Client: Cleveland Metroparks.* **Role: Project Manager/Engineer of Record (Michael Baker).** Responsible for acceptance of the design and management of the project from start to finish, including budget, schedule, coordination, task management, inspections, assessments, subsurface investigations, environmental testing, permitting, and final design. Mr. Afek led efforts to develop dam rehabilitation alternatives that met the parks vision while also staying within budget. The project included raising the existing embankment, incorporating new drainage features, stabilizing the existing spillway with an overlay and raised walls, and dredging of the lake. The project is to be completed in 2025. **Anticipated Construction Cost: $9-10M**

Don Green

CONTACT INFORMATION

Office: (216) 340-0827
Mobile: (412) 715-9048
don.green@akhydro.com

TOTAL YEARS' EXPERIENCE

46 Years

EDUCATION

University of Pittsburgh, Pittsburgh, Pennsylvania
Master of Science, Civil Engineering, 2004
Bachelor of Science, Civil Engineering, 1978

CERTIFICATIONS

Professional Engineer
Pennsylvania (1985)
NS Roadway Worker Protection Certification (2021)
NHI Certified Instructor for FHWA

PROFESSIONAL ORGANIZATIONS

Association of State Dam Safety Officials (ASDSO)
Deep Foundations Institute
FHWA National Highways Institute

SUMMARY OF QUALIFICATIONS

Mr. Green is AK Hydro's Senior Technical Advisor and Geotechnical Specialist, bringing over 46 years of experience as Geotechnical Engineer. He has served as the lead geotechnical engineer for the rehabilitation design of over two dozen high-hazard dams and is one of six Engineers of Record for the design of the first USACE float-in dam (Braddock Dam). Don has also contributed his expertise by serving on a panel of experts that was assembled by FEMA to assess overtopping protection for non-accredited levee systems. He is also a certified instructor for the FHWA National Highway Institute (NHI). Don's experience spans the full berth of the geotechnical field from investigator, to lead design engineer, to lead foundation engineer on Design-Build projects worth more than $500 million, to forensic investigator and expert witness for litigation of multi-million dollar structure failures, to resident engineer for structures with complex soil-structure interaction. Don graduated with BSCE and MSCE degrees at the University of Pittsburgh.

RELEVANT PROJECT EXPERIENCE

Muskingum Lock and Dam No. 7, Morgan County, Ohio. *Client: Ohio Department of Natural Resources (Subconsultant under Michael Baker International).* **Role: Geotechnical Design Lead (Michael Baker).** Mr. Green supported Michael Baker in the design, preconstruction, and construction services for the dam replacement at McConnelsville. Don is an expert in post tension anchor designs to stabilize concrete structures. The stepped dam design required post tension anchors to be installed along the crest to anchor the structure into the underlying bedrock. In addition to the design of the structure, Don also provided technical reviews and assisted with the development of the construction documents. The result of his coordination with Michael Baker and CMR helped reduce project costs. Improvements to the dam include reconstruction of a new in-river dam downstream of the existing dam, installation of a floodwall, and energy dissipation features to reduce rollers and erosion at the site.

Rehabilitation of Five Pennsylvania Dams, Various Locations, Pennsylvania. *Pennsylvania Fish & Boat Commission.* **Role: Geotechnical Lead (Michael Baker).** Responsible for overseeing all of the geotechnical engineering aspects for the rehabilitation of Kahle Lake, Hemlock Lake, High Point Lake, Virgin Run Lake, and Cloe Lake, which are owned by the Pennsylvania Fish and Boat Commission. Mr. Green oversaw the geotechnical investigation, laboratory testing, and geotechnical evaluations to assess the existing dam and rehabilitation alternatives. The intent of the project was to rehabilitate the dams to ensure compliance with Pennsylvania Department of Environmental Protection regulations. The project deliverables included a Schematic Design, Detailed Design, and Construction Document Submission. Michael Baker's services include dam inspections, hydrologic and hydraulic evaluations, geotechnical investigations, structural assessments, alternatives analyses, dam-break modeling, inundation mapping, permitting, agency coordination, and construction services.

Somerset Lake Dam Rehabilitation, Somerset County, Pennsylvania. *Client: Pennsylvania Fish and Boat Commission.* **Role: Geotechnical Design Lead (Michael Baker).** Responsible for completing a geotechnical investigation and provided design recommendations for collection of seepage and other drainage improvements, replacement of spillway, and stability of embankment. Michael Baker is providing engineering services for the Somerset Lake Dam, owned by the Pennsylvania Fish and Boat Commission, to ensure compliance with Pennsylvania Department of Environmental Protection regulations. Somerset Lake Dam was constructed in 1956 and creates Somerset Lake, which is a heavily used recreational facility. Michael Baker's tasks include reviewing drawings and reports to evaluate current conditions; identifying and analyzing rehabilitation alternatives; field-inspecting all elements, including the spillway and gatehouse structure; performing a hydrologic and hydraulic

PRESENTATIONS

Association of Dam Safety Officials

"Lessons Learned – Artesian Head at Earth Dams in Glacial Country," 2023 National Conference

"Keeping an Aging Dam Upright," 2012 National Conference

"Pins and Needles - Keeping an Aging Dam Upright," 2011 Northeast Regional Conference

PUBLICATIONS

Green, Donald; Ciloglu, Fatma; and Dorn, Stacey. 2023. *Landslide Best Practices Handbook*. University of Pittsburgh Center of Impactful Resilient Infrastructure Science and Engineering.

Ng, Kam; Green, Don; Sritharan, Sri; and Nop, Michael. 2017. *LRFD Guides for Driven Piles Considering Pile Setup Phenomenon*. Institution of Civil Engineers, Geotechnical Research Volume 4 Issue GR2. Paper 16.00016.

Green, Donald; Ng, Kam; Dunker, Kenneth; Sritharan, Sri; and Nop, Michael. 2012. *Development of LRFD Procedures for Bridge Pile Foundations in Iowa – Volume IV: Design Guide and Track Examples.* Iowa Highway Research Board. IHRB TR-573, TR-583 & TR-584.

Green, Donald; Schaffer, Andrew; and Green, Brian. June 2000. *Testing the Load*. ASCE Civil Engineering, Volume 70: No. 6: A2-A9.

analysis; performing a topographical survey, geotechnical investigation, and structural analysis and providing construction management services.

PA DCNR Dam Safety Projects, Various locations, PA. *Client: PA DCNR.* **Role: Geotechnical Specialist (Michael Baker).** Responsible for completing the geotechnical assessment and design of mitigation measures for Interim Risk Reduction Measures (IRRM) to control excessive dike seepage associated with the restoration and rehabilitation of a water reservoir at the Laurel Mountain State Park and the Pymatuning Dam. Responsible for completing geotechnical investigations, seepage and stability analyses, rehabilitation design, and construction support. Results from an electromagnetic (EM) geophysical survey, Normalized Difference Vegetation Index (NDVI) multi-spectral analysis of 4-band high-resolution satellite imagery, and site reconnaissance were used to discern the source of the water seepage.

Chapman Dam Rehabilitation, Warren County, PA. *Client: PA DCNR.* **Role: Geotechnical Engineer (Michael Baker).** Responsible for conducting a subsurface investigation and geotechnical-related parts of the rehabilitation design that included a roller compacted concrete armoring, graded filter, mitigation against adverse embankment settlement, primary spillway repair with new approach slab, internal drains and concrete lining, a grout curtain, and a graded-filter sand diaphragm.

S. R. 0080 over S.R. 4006 and Canoe Creek, P3 Major Bridges Project, Knox, PA. *Client: Bridging Pennsylvania Constructors.* **Role: Geotechnical Task Manager (Michael Baker).** Responsible for geotechnical engineering on behalf of the Design-Build Team for the final design of about a 3-mile section of I-80 EB/WB near the Knox Interchange in PennDOT District 10-0 which included, but was not limited to, replacement of twin multi-span bridges to carry I-80 over S.R. 4006 and Canoe Creek, an extension of a large arch culvert, earthwork cuts and fills to realign roadway to change curve geometry to increase the design speed, and an in-depth investigation/characterization of Acid Producing Rock and Soil (APR), and design of several 5-story tall encapsulation mounds.

Open-End Engineering Agreement, Allegheny County, PA. (multiple contracts). *Client: Allegheny County DPW.* **Role: Project Manager & Geotechnical Specialist (Michael Baker).** Responsible for overseeing investigation, assessment, and design to repair landslides using a variety of methods including slope buttresses, retaining walls, slope reconstruction, ground improvement, drainage enhancement, geotextile and geogrid reinforcement, soil nails, soil and rock anchors, revegetation, and unloading.

Riverfront Canal Repair, Columbia, SC. *City of Columbia.* **Role: Project Manager (Michael Baker).** Responsible for leading a Multi-Discipline Team to repair flood damage and restore the Columbia Canal to provide a safe reliable water supply for a 10 MW hydroelectric plant and an 84 MGD rated water treatment plant for the City of Columbia, SC that serves over 200,000 customers, including the Army's largest initial training site. The project started with a Phase 1 Alternatives Analysis to develop a clear vision for the City of Columbia and 14 regulatory agencies and major stakeholders. Project elements included the development of alternatives to repair the hydroelectric plant, headworks, diversion dam, canal spillway, pedestrian bridge, and over a three-mile-long earthen dike. The entire project is listed on the National Register of Historic Places. Work ranged from the development of NEPA environmental documents and extensive pre-civil war era cultural resource documentation including the oldest hydro-powered cotton mill in the United States, HEC-RAS modeling at the confluence of three major rivers and a power canal, geotechnical studies along the Atlantic Seaboard Fall line in a seismically active region, structural analyses to enhance stability of several hydraulic structures and powerhouse, recreational enhancement, and extensive public relations. This high-profile project required extensive coordination with government and regulatory agencies including FEMA and FERC.

2. GOALS & OBJECTIVES: ANTICIPATED CONCEPTS & METHODS OF APPROACH

Project Goals and Understanding:

Our team recognizes the West Virginia Division of Natural Resources' goals to bring the existing Tomlinson Run Lake Dam into compliance with current dam safety regulations, develop a dredging plan for the reservoir, and design improvements to other pertinent features within the project area. We understand the importance of minimizing impacts to the facility, delivering cost-effective designs, and meeting the needs of the public. To better inform our approach, key team members visited the site on August 11, 2025, to gain an understanding of the current site conditions. A summary of our key observations and project understanding is presented below.

Project Overview:

The Tomlinson Run Lake Dam is a 190-foot-long gravity dam with a maximum height of 38 feet, as recorded in the National Inventory of Dams. The dam features an ogee weir overflow section that is flanked by concrete non-overflow sections. Constructed in the early 1940s, the dam impounds Tomlinson Run and creates a reservoir with a normal pool capacity of approximately 325 acre-feet.

The lake serves as recreational resource for activities such as fishing and kayaking. Over time, the reservoir has experienced significant siltation, resulting in shallow water conditions that have affected usability and habitat quality. While recent upstream restoration projects have been implemented to enhance habitat and help reduce sediment load, the accumulated sediment in the lake remains a concern. Dredging of the reservoir is needed to restore depth, improve water quality, and address the concerns voiced by park users regarding sediment impacts on fishing and boating.

Figure 1: Tomlinson Run Lake Dam (August 2025)

Figure 2: Aerial View of Tomlinson Run Lake Dam and Reservoir (August 2025)

Spillway Structure and Dam: The current concrete dam structure is exhibiting significant deterioration and is generally in fair to poor condition, which is consistent with structures of similar age. The concrete shows widespread signs of deterioration, including spalling, cracking, section loss, and leaking joints. A substantial volume of seepage was observed flowing from the left wall near the lake drain tower, with an estimated leakage rate estimated to be approximately 50 gallons per minute. Seepage and wet areas were observed along the left downstream abutment (further evaluation required to identify the source). Although the spillway and adjacent walls show no immediate signs of instability, the ongoing deterioration and seepage require attention.

Figure 3: View of Spillway from Right Abutment (Left Photo)
and Seepage at Left Spillway Wall (Right Photo)

Lake Drain Structure: A lake drain structure is located on the left abutment of the spillway. The gate actuator is positioned at the top the left spillway wall and the outlet discharges into the stilling basin near the base of the left spillway wall. The operational status of the gate is unknown; however, the tower may be the potential source of the ongoing leak observed on the downstream face. The interior of the lake drain conduit was not visible during the inspection.

Figure 4: View of Actuator at Top of Dam (Left Photo) and Lake Drain Outlet (Right Photo)

Reservoir: The reservoir serves as a recreational resource to the public, supporting activities such as fishing and kayaking. A boat launch is located immediately upstream of the dam, supplemented by a boathouse offering paddleboat and kayak rentals. Observations during the site visit identified significant sediment accumulation within the reservoir at the stream inlets, indicating ongoing sedimentation transport and deposition. Additionally, an algae bloom was noted in the vicinity of the spillway structure, which may be accelerated due to shallow waters, relatively dry weather during the summer, and excess nutrients entering the lake.

Project Approach:

The GD&F team recognizes the critical issues and risks that must be addressed to ensure the project achieves its goals, stays on schedule, and maintains the established budget. We are committed to working closely with the owner, Dam Safety, and project stakeholders to develop a design that meets all objectives, minimizes environmental impacts, and delivers efficient, practical solutions.

Goal/Objective 1: Field Services and Preliminary Design

During the preliminary design and field services phase of work, the GD&F team would propose the following approach:

- **Kickoff Meetings and Partnering Sessions**. Conduct partnering sessions to establish a shared understanding of the project goals and stakeholder needs, including the owner and Dam Safety.
- **File Review and Background Research.** Review existing drawings, reports, data and documentation regarding the existing dam.

- **Detailed Site Inspections**. Perform a formal site inspection with structural, geotechnical, and civil engineers from our dam safety team to identify the critical deficiencies and site constraints. An experienced diver will perform targeted underwater inspections of the upstream face, gates, and lake drain conduit. Concrete coring of the walls and ogee spillway may also be performed to verify strength and durability to support rehabilitation options.
- **Subsurface Exploration.** Conduct a subsurface exploration program to evaluate the foundation conditions at the project site. This information will be used to analyze the existing dam's stability and inform the development of design alternatives.
- **Topographic and Bathymetric Survey.** Traditional topographic surveys, using total stations and/or GPS rover equipment, will be conducted to capture detailed information on the dam structure, including the spillway crest, training walls, boring locations, edges of roadways and trails, utilities, and other significant surface features. Bathymetric surveys will be performed within the reservoir to map the top of sediment and estimate sediment thickness and volume.
- **Environmental Delineations.** Perform environmental surveys to support permitting and regulatory compliance, including wetland delineations, protected species habitat assessments, and cultural resource reviews. Sediment sampling may also be performed to determine the characteristics of the dredge material to be removed from the site.
- **Evaluation and Preliminary Design Alternatives.** Following completion of field investigations, the team will perform a comprehensive analysis of the dam and reservoir to identify critical deficiencies and evaluate potential improvements required to bring the structure into compliance with current dam safety regulations. Multiple design alternatives will be developed for the owner's consideration, each accompanied by conceptual sketches and preliminary cost estimates. Findings and recommendations will be compiled into a Preliminary Design Report, which will serve as a key project deliverable.

Goal/Objective 2: Final Design Services

The GD&F team has extensive experience in final design, development of construction documents, and permitting for dam rehabilitation projects. During this phase, our team anticipates the following deliverables:

- **Final Design Analysis and Report.** Report summarizing all investigations, evaluations, and final design analyses. This report would be submitted to WV DEP for review and acceptance as part of the dam safety permitting process.
- **Construction Drawings.** Complete and coordinate drawings covering dam rehabilitation, dredging activities, and any additional improvements selected for Tomlinson Run State Park.
- **Project Specifications.** Development of technical specifications to support the construction of all improvements.
- **Cost Estimates.** Prepare engineer's estimate of probable construction cost, developed using RSMeans, past bid results, contractor input, and supplier quotes.
- **Schedule.** Maintain an up-to-date engineer's design schedule, along with a proposed construction schedule for the selected improvements.
- **Permitting.** Preparation and submission of all required permits, including but not limited to the WV DEP Dam Safety permit, USACE Section 404 permit, West Virginia DNR, and applicable environmental permits.
- **Advertising and Bidding Support.** Assistance to the owner during project advertisement and bidding, including participation in the pre-bid meeting, responding to RFIs, and preparing addenda as needed.

Goal/Objective 3: Construction Administration Services

The GD&F team brings proven experience in providing construction administration services for dam rehabilitation projects, ensuring that design intent, regulatory requirements, and quality standards are met throughout construction. During this phase, our team anticipates the following services:

- **Project Meeting**. Facilitate a pre-construction meeting with the contractor, owner, Dam Safety, and key stakeholders to review project requirements, schedules, safety protocols, and communication procedures. Participate in scheduled progress meetings throughout construction.
- **Submittal and RFI Review**. Review contractor submittals, shop drawings, and requests for information (RFIs) to verify compliance with design specifications and regulatory standards.
- **Site Observations and Reporting**. Perform regular site visits to observe construction progress, verify adherence to plans, and document conditions through detailed field reports and photographs.
- **Pay Application Review**. Review and recommend approval or adjustment of contractor pay applications to ensure work is completed to specifications.
- **Change Orders.** Evaluate and respond to change order requests, providing recommendations that maintain budget and schedule integrity.
- **Final Inspection and Closeout**. Conduct final inspection of the completed work, prepare punch lists, and assist in obtaining the Certificate of Approval from WV DEP Dam Safety.
- **Record Drawings**. Prepare as-built record drawings based on contractor markups and field observations, ensuring accurate project documentation for future maintenance and operations.

Potential Remediation Options for Tomlinson Run Lake Dam:

Information regarding the specific deficiencies at Tomlinson Run Lake Dam is limited at this time. The following potential remediation measures are based on site observations and our team's experience with similar gravity dam structures of comparable age and configuration. Actual remediation recommendations will be determined through detailed evaluations, field investigations, and identified deficiencies.

Concrete Overlay and Stabilization

To address the deteriorated condition of the existing concrete, the design may incorporate a reinforced concrete overlay with new facing, waterstops, and adequate anchoring connections into the existing structure. Where stability concerns are identified during evaluations, the design could include passive dowels into bedrock or high-capacity post-tensioned rock anchors to improve overall dam stability. Rock treatment can also be added to locations adjacent to the structure to protect the rock as needed. This approach leverages the use of existing sound concrete, while introducing modern reinforcement and durability measures.

Benefits of this approach include:

- **Retain Existing Concrete and Install Concrete Overlay**. The overlay allows intact portions of the original concrete to remain in place and be integrated into the rehabilitation, reducing the volume of new materials and associated costs. Keeping the structure in-place could potentially allow the structure to be repaired in sections while the pool is maintained at or near normal operational levels, which could minimize impacts to lake levels during construction if desired.
- **Integrated Anchoring and Improved Aesthetics**. If post tensioned rock anchors are required, the anchors can be installed through the existing structure and concealed within the new concrete facing, providing both structural benefit and a uniform finished surface. The rehabilitated spillway and dam components will present the appearance of a new structure.
- **Improved Energy Dissipation and Flow Containment**. Stilling basin improvements can be incorporated into the overlay design if needed to dissipate energy. Training walls can be raised or extended to contain flood flow over the dam.
- **Improved Durability and Reduced Maintenance.** The combination of new facing, waterstops, and anchoring will reduce infiltration, protect against freeze-thaw damage, and extend the operational life of the structure.

Example of this approach:

Knox Lake Dam. Our key team members Brian Afek and Joe Kudritz served as the engineers of record for the rehabilitation of Knox Lake Dam in Knox County, Ohio (through previous employer). The dam was owned by the Ohio Department of Natural Resources, Division of Wildlife and had several similar project characteristics to the Tomlinson Run Lake Dam project and included the following improvements:

- Concrete overlay to a deteriorating concrete ogee spillway
- Addition of rock anchors for stabilization of the spillway (including monolith joints)
- Concrete overlay and raising of the training wall to contain design flood flows over the spillway
- Improvements to lake drain tower and replacement of gates located near the left training wall
- New stilling basin for energy dissipation
- Constructed with a pool maintained behind the structure (flows passed through a bank of siphons)

Photo of Concrete Overlay Project at Knox Lake Dam. Photo Before Construction (left), During Construction (middle) and After Construction (right).

Improve Spillway Capacity/Storage

If evaluations determine that the existing spillway capacity is inadequate to safely pass the required design flood in accordance with WV Dam Safety regulations, several modifications could be considered without reducing the current normal pool levels established by the ogee weir. One option is to raise the concrete non-overflow sections of the dam to increase reservoir storage. Another approach is the addition of an auxiliary spillway constructed to pass excess flows over one of the abutments or through a separate let down channel. These modifications would be evaluated for hydraulic efficiency, constructability, and potential environmental impacts to ensure a balanced solution that meets regulatory requirements and maintains public safety. Concrete repairs could be made to sections of the dam that are needed and anchors could be installed to further support the new loading.

Example of this approach:

Cobun Creek No. 1 Dam Rehabilitation. Most recently, GD&F was the engineer responsible for improvements to Cobun Creek Dam No. 1 water supply dam for the Morgantown Utility Board. Updates included:

- New concrete overflow weir and intake tower access
- Spray-on cement (gunite) infill of eroded rock spillway
- Rock anchor system
- Rock armor slope protection and replacement of intake gate

Photo of Rock Spillway Improvements at Cobun Creek No. 1 in Monongalia County, WV. New Overflow Weir (left) and Gunite Rock Protection (right).

Concrete Repair with Anchor Stabilization

If budget constraints limit the ability to perform a full rehabilitation, efforts could be focused on targeted stabilization measures (if deemed appropriate) and select concrete repairs. Potential improvements may include installing post-tensioned rock anchors, passive dowels, and repairing concrete cracks and spalls. Seepage at the downstream face could be mitigated by installing a new lining at the leak source in conjunction with grouting and/or concrete repairs. While this approach would not provide the durability of a full overlay, it would extend the structure's service life.

Example of this approach:

Canonsburg Dam. Our key team member, Don Green, served as lead geotechnical engineer and rock anchor design lead (through previous employer) for the Canonsburg Dam, a high hazard gravity dam in Washington County, Pennsylvania. **The project earned recognition for its environmentally sensitive approach, and Mr. Green was invited to present the project at the Association of State Dam Safety Officials (ASDSO) National Dam Safety Conference.** The project included:

- Installation of high-capacity rock anchors into bedrock for stabilization of a concrete gravity dam
- Installation of passive dowels to secure the concrete monolith joints
- Construction while maintaining a full reservoir pool (repairs were performed using half-width construction techniques)
- Partial training wall replacement
- Crack and spall repairs

Photo of Canonsburg Dam After Stability Improvements and Select Concrete Repairs (left) and a Figure of the Rock Anchors Installed in the Concrete Gravity Dam (right)

Dredging Options for Tomlinson Run Lake:

To address the accumulated sediment within Tomlinson Run Lake, several dredging approaches may be considered. Hydraulic dredging, using cutterhead or auger dredges, can remove sediment while minimizing disturbance to surrounding areas; material can then be pumped to on-site dewatering basins or geotextile tubes for drying prior to disposal. Mechanical dredging, such as the use of excavators on barges or matting, may be suitable for targeted sediment removal in shallow zones or, if the reservoir is dewatered, directly from land. Where feasible, a phased dredging plan could be implemented to maintain partial public access and reduce impacts to aquatic life. To address long-term sedimentation, a sediment forebay system could be considered at the inlets from the north and south forks of Tomlinson Run to help trap larger sediment from entering the reservoir.

Sediment characterization will help determine disposal options, which may include reuse in the park or off-site placement at an approved disposal site. At the disposal site, the topsoil would be stripped to create berms on the down gradient side of the area to create a detention area from the sediment to be placed and dewatered. Once the sediment is dewatered, the topsoil from the berms will be respread across the area to decompact and intermix the sediment with native topsoil. This area can then be stabilized with native vegetation to further enhance the wildlife habitat and appeal to the park.

3. DESIGN PHILOSOPHY

Gwin, Dobson & Foreman, Inc. has assembled one of the most experienced and integrated project teams for the evaluation and design of the Tomlinson Run Dam Improvement project. Together with our multi-disciplined partners, our team is unmatched in terms of technical expertise, evaluations, and a hands-on approach to projects similar to the Tomlinson Run Dam Improvement project. Our team includes specialists in dam safety, landscape architecture, dredging, civil & environmental engineering, permitting, and facility improvements. With a proven track record of successful projects as demonstrated in our relevant project profiles, we understand the importance of delivering a project that is technically sound, cost-effective, and attentive to the needs and goals of the WV DNR, WV Division of Dam Safety and greater outdoor recreation community.

We are dedicated to working closely with WV DNR, WV Division of Dam Safety and project stakeholders to develop a design that meets project goals, minimizes environmental impacts, and delivers efficient, practical solutions. Our commitment to project success begins with proactive planning and is guided by the following approach.

Clear Communication and Partnering:

- **Facilitate Partnering Sessions**. Conduct partnering sessions, progress meetings, and submission meetings, to maintain clear communication and establish a shared understanding of the project goals and needs of the owner, constituents, and stakeholders.
- **Engage Dam Safety Early**. Invite WV Dam Safety to submission meetings to gather initial feedback and address critical considerations early in the design process.
- **Collaborate with Permit Agencies.** Work proactively with permitting agencies to streamline approvals and minimize mitigation requirements. Since the impoundment has been drawn down for many years, minimizing impacts to wetlands will be important to maintain budget and schedule.
- **Support Construction Activities.** Partner with the contractor during the construction stage to address challenges immediately before they become major issues.

Responsiveness:

- **Maintain Accessibility.** Be readily available to meet and present to the project team and public as needed to address issues and provide updates.
- **Provide Emergency Response.** Respond promptly to emergencies, both at times when the design is progressing (existing site emergency) or when the project is being constructed (high water events and unexpected conditions)
- **Schedule Adherence.** Act decisively and proactively during all stages of the project to maintain the project schedule and avoid delays.

Geographic Proximity

Our close proximity to Tomlinson Run Dam provides us not only easy access, but also allows our staff to quickly mobilize to the site if needed. AK Hydro design personnel are located within 20 miles of the project site.

GD&F is located 133 miles from the project site accessible by I-99, I-76 (PA Turnpike) and I-70 or about 2 hours drive time.

4. REFERENCES

City of Cumberland
Address: 57 North Liberty Street, City Hall
Cumberland, MD 21502
Contact: Robert Smith, P.E., Director of Engineering
Phone: (301) 759-6600
Email: robert.smith@cumberlandmd.gov

Altoona Water Authority
Address: 900 Chestnut Avenue
Altoona, PA 16602
Contact: Mark Perry, General Manager
Phone: (814) 949-2222
Email: mperry@altoonawater.com

City of Lock Haven
Address: City Hall, 2nd Floor
20 East Church Street
Lock Haven, PA 17745
Contact: Gregory Wilson, City Manager
Phone: (570) 893-5904
Email: gwilson@lockhavenpa.gov

Town of Moorefield
Address: 206 Winchester Avenue
Moorefield, WV 26836
Contact: Lucas Gagnon, P.E., Public Works
Phone: (304) 530-6142
Email: lucas.gagnon@townofmoorefield.com

Moundsville Water Board
Address: 819 Lafayette Avenue
Moundsville, WV 26041
Contact: Terry Roberts, Superintendent
Phone: (304) 845-3583
Email: troberts.water@aol.com

Morgantown Utility Board
Address: 278 Greenbag Road
Morgantown, WV 26507
Contact: Rich Rogers, P.E., Chief Engineer
Phone: (304) 292-8443
Email: rrogers@mub.org

State College Borough Water Authority
Address: 1201 West Branch Road
State College, PA 16801
Contact: Brian Heiser, Asst. Executive Director
Phone: (814) 238-6766
Email: brian@scbwa.org

Town of Harpers Ferry Water Commission
Address: P.O. Box 217
Harpers Ferry, WV 25425
Contact: Deborah Kelly, Financial Officer
Phone: (304) 535-2206, ext. 3
Email: dkelly@harpersferrywv.us

3121 Fairway Drive, Altoona, PA 16602
gdfengineers.com