



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

# State of West Virginia Purchase Order

Order Date: 09-18-2024

CORRECT ORDER NUMBER MUST APPEAR ON ALL PACKAGES, INVOICES, AND SHIPPING PAPERS. QUESTIONS CONCERNING THIS ORDER SHOULD BE DIRECTED TO THE DEPARTMENT CONTACT.

Order Number:	CPO 0313 9171 DEP2300000032 5	Procurement Folder:	1047664
Document Name:	EOI - 2022 AML Contract 9 Projects - North	Reason for Modification:	Change Order #2 to Increase Contract
Document Description:	EOI - 2022 AML Contract 9 Projects - North		
Procurement Type:	Central Purchase Order		
Buyer Name:	Joseph E Hager III		
Telephone:	(304) 558-2306		
Email:	joseph.e.hageriii@wv.gov		
Shipping Method:	Best Way	Effective Start Date:	2023-07-20
Free on Board:	FOB Dest, Freight Prepaid	Effective End Date:	2026-07-18

VENDOR	DEPARTMENT CONTACT																				
Vendor Customer Code: 000000232671 TETRA TECH INC 1538 KANAWHA BLVD E STE 110  CHARLESTON WV 25311 US Vendor Contact Phone: 304-414-0054 Extension: 103  Discount Details: <table><thead><tr><th></th><th>Discount Allowed</th><th>Discount Percentage</th><th>Discount Days</th></tr></thead><tbody><tr><td>#1</td><td>No</td><td>0.0000</td><td>0</td></tr><tr><td>#2</td><td>Not Entered</td><td></td><td></td></tr><tr><td>#3</td><td>Not Entered</td><td></td><td></td></tr><tr><td>#4</td><td>Not Entered</td><td></td><td></td></tr></tbody></table>		Discount Allowed	Discount Percentage	Discount Days	#1	No	0.0000	0	#2	Not Entered			#3	Not Entered			#4	Not Entered			Requestor Name: Larry T Workman Requestor Phone: (304) 414-1242 Requestor Email: larry.t.workman@wv.gov  <div>2025 FILE LOCATION _____</div>
	Discount Allowed	Discount Percentage	Discount Days																		
#1	No	0.0000	0																		
#2	Not Entered																				
#3	Not Entered																				
#4	Not Entered																				

INVOICE TO	SHIP TO
ENVIRONMENTAL PROTECTION OFFICE OF AML&R 601 57TH ST SE CHARLESTON WV 25304 US	ENVIRONMENTAL PROTECTION OFFICE OF AML&R 601 57TH ST SE CHARLESTON WV 25304 US

CR 10-2-24

Total Order Amount: \$8,112,533.7

Purchasing Division's File Copy

JA 10-1-24

PURCHASING DIVISION AUTHORIZATION DATE: <i>M. R. [Signature]</i> 10/02/2024 ELECTRONIC SIGNATURE ON FILE	ATTORNEY GENERAL APPROVAL AS TO FORM DATE: <i>John S. Gray</i> ELECTRONIC SIGNATURE ON FILE	ENCUMBRANCE CERTIFICATION DATE: <i>[Signature]</i> 10-8-24 ELECTRONIC SIGNATURE ON FILE
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10/7/2024

**Extended Description:**

Change Order

Change Order #2 issued to increase the contract according to all items, conditions and specifications contained in the contract including all authorized change

Original Contract Sum: \$7,862,806.38

Change Order #2 Increase: \$249,727.40

New Contract Total: \$8,112,533.78

Effective Date: 8/21/2024 - 7/18/2026

No other Changes

All provisions of the original contract and the subsequent change orders not modified herein shall remain in full force and effect.

Line	Commodity Code	Quantity	Unit	Unit Price	Total Price
1	81100000	0.00000			
Service From		Service To	Manufacturer	0.000000	3333969.45
			Model No		

Commodity Line Description: Professional Svcs - Three Fork Creek Watershed Restoration

**Extended Description:**

Professional Svcs - Three Fork Creek Watershed Restoration

Line	Commodity Code	Quantity	Unit	Unit Price	Total Price
2	81100000	0.00000			
Service From		Service To	Manufacturer	0.000000	3581469.45
			Model No		

Commodity Line Description: Professional Svcs - Abram Creek AMD Treatment Phase II

**Extended Description:**

Professional Svcs - Abram Creek AMD Treatment Phase II

Line	Commodity Code	Quantity	Unit	Unit Price	Total Price
3	81100000	0.00000			
Service From		Service To	Manufacturer	0.000000	1197094.88
			Model No		

Commodity Line Description: Professional Svcs - Richard (Shaver) Drainage

**Extended Description:**

Professional Svcs - Richard (Shaver) Drainage



APPROVED  
JH/W  
10/1/

west virginia department of environmental protection

Division of Land Restoration  
Office of Abandoned Mines Lands and Reclamation  
1000 Technology Drive, Suite 3220  
Fairmont, WV 26554  
Phone: 304-842-1900  
Fax: 304-842-1928

Harold D. Ward, Cabinet Secretary  
dep.wv.gov

September 11, 2024

TETRA TECH INC  
Attn: Michael S. Kearns, M.S., P.E., P.S.  
1538 Kanawha Blvd E STE 110  
Charleston, WV 25311

Re: Change Order # 2  
Project Name: 2022 AML Contract 9 Projects - North  
Permit Number: N/A  
Contract Number: CPO DEP23\*32

Dear Mr. Kearns:

The WVDEP Office of Abandoned Mine Lands and Reclamation is issuing a change order to increase the original contract according to all terms, conditions, prices, and specifications contained in the original contract including all authorized change orders as shown on Attachment A.

After the award of the original contract, several costs became known that could not have been reasonably anticipated but yet are required to complete the original scope. These include additional Realty / Survey work affecting Commodity Line 2 Abram Creek AMD Treatment Phase II, additional costs associated with MM-109 permits affecting Commodity Line 2 Abram Creek AMD Treatment Phase II, and also additional drilling work affecting Commodity Line 3 Richard (Shaver) Drainage. Backup and further explanation of these costs can be found on the subsequent pages of backup.

The effective date of the change order is August 21, 2024 through July 18, 2026.

Commodity Line 1: NO CHANGE. Commodity Line 2: Increased, \$80,608.90. The expanded project area and additional professional services and associated project works necessary to be provided for each impacted project Task and Sub-Task to perform the additional work stated above have been provided and discretized in the Consultant's attached backup. Additional quantities are necessary as well as additional Sub-Tasks not previously included in the original contract – these are all clearly shown in the following backup. The total price for Commodity Line 2 including this Change Order #2 will be \$3,581,469.45. Commodity Line 3: Increased, \$169,118.50. The expanded project area and additional professional services and associated project works necessary to be provided for each impacted project Task and Sub-Task to perform the additional work stated above have been provided and discretized in the Consultant's attached backup. Additional quantities are necessary as well as additional Sub-Tasks not previously included in the original contract – these are all clearly shown in the following backup. The total price for Commodity Line 3 including this Change Order #2 will be \$1,197,094.88. The total contract sum including this Change Order #2 will be \$8,112,533.78.

Re: Change Order # 2  
Purchase Order No.: CPO DEP23\*32

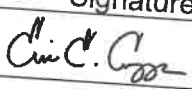
Change Order Approved by WVDEP:

Name	Title	Signature	Date
Troy H. Schell, P.E.	Northern Design Administrator	Troy H. Schell <small>Digitally signed by: Troy H. Schell DN: CN = Troy H. Schell email = troy.h.schell@wv.gov C = US Date: 2024.08.11 15:34:19 -0400</small>	
Eric Simpson, P.E.	AMLR Northern Regional Engineer	Eric Simpson <small>Digitally signed by Eric Simpson Date: 2024.09.12 15:15:58 -04'00'</small>	
Travis Parsons	Deputy Director AMLR		

(signature of Deputy Director or Director is ONLY required when change order(s) total increase exceeds 10% when compared to original contract amount)

- Completion of this change order approval process requires
- ☒ your signature below
  - ☐ a current copy of your contractor's license
  - ☒ a current copy of your insurance certificate
    - WVDEP must be listed as additional insured and the contract number must be listed in the extended description
  - ☐ a Bond Rider in the amount of [Click or tap here to enter text.](#)

I am in agreement with the changes as outlined in this letter and Attachment A.  
(vendor signature required below)

Name	Title	Signature	Date
Eric Cavazza	VP, Legacy Coal Restoration		09/12/2024

Please email the signed documents to [depdlrprocurement@wv.gov](mailto:depdlrprocurement@wv.gov) within 7 days of receipt of this letter.

If a Bond Rider is required, please mail the original to:

WV Dept. of Environmental Protection  
Office of Abandon Mine Lands  
Attn: Melanie Simpson  
601 57th Street SE  
Charleston, WV 25304

cc: Melanie Simpson

## Attachment A

**PURCHASE ORDER NUMBER:** CPO DEP23\*32

CHANGE ORDER NUMBER: 2

PROJECT NAME: 2022 AML Contract 9 Projects - North  
R/ CONTRACTOR: TETRA TECH INC

**VENDOR/ CONTRACTOR:** TETRA TECH INC

The following changes will be implemented as part of this contract change order:

[illegible]

Effective Date:

The original Contract Sum was:

Net change by previous Change Orders:

The Contract Sum prior to this Change Order was:                       
will be Increase by this Change Order:  
Contract Sum including this Change Order:                     

The Contract Sum prior to this Change Order was: \_\_\_\_\_  
The Contract Sum will be Increase \_\_\_\_\_ by this Change Order: \_\_\_\_\_  
The new Contract Sum including this Change Order will be: \_\_\_\_\_  
The Contract Time (Date) \_\_\_\_\_

The new Contract Sum including this Change Order will be:

The Contract Time (Days) will be Unchanged

The Date of Completion as of the date of this Change Order therefore is: Unchanged

August 21, 2024

\$7,862,806.38

\$7,862,806.38

\$249,727.40

\$8,112,533.78

0

July 18, 2026

**Attachment 1**  
**West Virginia Department of Environmental Protection**  
**2022 AML Contract 9 Projects – North**

**WVDEP File No. CEOI 0313 DEP 2300000032**

**Change Order 2**  
**(9-04-24)**

**Change Order 2A – Abram Creek Doser Projects.**

Change Order 2A is required due to the additional realty & surveying services costs associated with additional research required of properties which is more than could have been reasonably anticipated. These additional costs include primarily realty personnel costs, surveyor's research costs and project management. More specifically, examples of these items would include, but not limited to:

- Dealing with corporations and going back and forth with their legal representatives, dealing with lease holder interest owners, and negotiations with corporate terms and conditions of the rights-of entries.
- Dealing with private residential landowners, (on landowner's specific required dates) back and forth with their legal representatives, heirship disputes, negotiations with any renters and negotiations with potential legal representatives.
- Additional time and transportation costs to and from the specific landowners' locations during the negotiations as well as time and transportation to and from court houses performing deed research and meetings with landowners.
- Dealing with undocumented landowners, inaccurate/faulty deed descriptions, or identifying, locating and securing rights of entry of fractional interests.
- Surveyor's costs for retrieval, reviewing, plotting and analyzing deeds for the additional properties required for the change order areas and inaccurate/faulty deed descriptions.
- Additional discussions and communications time among the design team concerning the additional issues related to the change order items.

In addition, coordination efforts will be required to determine the availability, practicality, and cost effectiveness of providing public water to the Abram, Little Creek and Morgan 25 doser sites which will exceed the anticipated scope of these services originally anticipated. The additional hours and costs for this item have been listed and identified under the Task III Design, Item A, "Site Reconnaissance, Investigations and Proposal Preparation" and Task III, Design, Item J "Project Manager/Task Oversight".

More specifically, examples of the required additional Project Management and Engineering items would include, but not limited to:

- Due to the limited infrastructure available in the communities of the project sites, water line extensions for multiple homes become complex projects for the Public Service Districts (PSDs) involved (both in supplying the water and the distribution). Because of this, additional in-house and client communications are required. This includes numerous scheduled meetings (i.e. Team Meetings) among WVDEP, PSDs, and Tetra Tech. Additional in-house and WVDEP communications concerning the potential routes for the

- potential water line connections including potentially numerous scheduled meetings (ie; Team Meetings) among WVDEP, Public Service District (PSD) and Tetra Tech.
- Additional hours to optimize layout based on the number of residential customers served instead of shortest route (which requirement was not established at the proposal stage and did involve rework at WVDEP Management request).
  - Additional hours required for back-and-forth negotiations/discussion with PSD/WVDEP due to lack of PSD manpower and the resulting difficulty in establishing and maintaining PSD contact. This also includes regular follow-up to keep the PSD moving and to head off issues.

The Abram Creek Doser Change Order 2A includes 408 hours at a total cost of \$76,468.90 as detailed in the attached spreadsheet.

#### **Change Order 2B- Richard (Shaver) Drainage Project**

Four (4) borings were previously drilled into the mine to identify the depth to the mine, presence and conditions of mine voids, and the presence of water within the Rock Forge Mine, however the mine pool was only encountered in one of the bore holes.

Per the resulting exploratory drilling report, as prepared by Tetra Tech, additional borings were recommended to be drilled and monitored in order to establish continuity of the mine pool.

Change Order 2B is for the installation of up to six (6) additional exploratory drill holes. Per the drilling report review meeting it was discussed that up to four (4) strata holes be drilled below Ralph Road in the vicinity of the existing seepage areas in order to identify strata irregularities, cracks or fissures which could be allowing the seepage to drain to a lower level in the vicinity of the existing seepage. In addition, two (2) additional monitoring bore holes are proposed in an attempt to establish the mine pool water elevation(s) and continuity.

Tetra Tech recently attained a more detailed Rock Forge mine map (1911) which provides significantly more detailed mine information (coal bed elevations, coal contours, orientation information) than the one originally used. By utilizing the updated mine map, overlain by the recently developed contour map (attached), a more accurate selection for the location of the proposed two (2) monitoring bore holes has been made, increasing the possibility of success of drilling within the mine void. In addition, the coal bed elevations listed within the mine map will allow for the selection of a lower elevation of the coal bed for drilling increasing the potential of success of determining the mine pool water elevation.

The Richard Drainage Project Change Order 2B includes, realty services, geotechnical services and project management services including 468 hours at a total cost of \$169,118.50 as detailed in the attached spreadsheet.

#### **Change Order 2C- WVDOH Route Research Request Fee (Abram Project only)**

As of June 12, 2023, WVDOH has been requiring the submittal of a completed Route Research Request Form and payment of fees when information is requested on any WV route (RW width, road history, abandonments, redesignations, etc.). The reference fees and costs (See attached WVDOH memorandum) associated with the submittal of the Route Research Request Form were

not included within Tetra Tech's survey sub-consultant's or Tetra Tech's Contract 9 proposal fees. This is because Tetra Tech submitted the proposal to the WVDEP on March 10, 2023 - well before this change of WVDOH policy was implemented or made known. This request includes an estimated 52 hours of research by WVDOH for a total cost of \$4,140.

**TOTAL CONTRACT 9 CHANGE ORDER 2 REQUEST:**

Abram Creek AMD Treatment Phase II Project.....	\$76,468.90
• Richard (Shaver) Drainage Project .....	\$169,118.50
• <u>WVDOH Route Research Request Fee (Abram Project).....</u>	<u>\$4,140.00</u>
<u>(Included in Abram Creek Spreadsheet; Lines 20 &amp; 21)</u>	
<b><u>TOTAL CHANGE ORDER .....</u></b>	<b><u>\$249,727.40</u></b>



ABRAM CREEK - Project 2

Project Name:		Abram Creek Total					
CHANGE ORDER 2 COST PROPOSAL SCHEDULE FOR CONTRACT 9							
TASK		DESCRIPTION	UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
TASK I: NEPA & ESA							
A		Agency Coordinations (including Office Work, AMLNET, etc.)					
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	Day		0.00	\$142.60	\$0.00
	10	Mileage	Mile		0.00	\$150.00	\$0.00
	11	Per Diem	Day		0.00	\$0.655	\$0.00
					0.00	\$150.00	\$0.00
B		Public Involvement (Services Not Being Provided)					
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	Day		0.00	\$142.60	\$0.00
	10	Mileage	Mile		0.00	\$150.00	\$0.00
	11	Per Diem	Day		0.00	\$0.655	\$0.00
	12	Fees	Per Fee		0.00	\$150.00	\$0.00
					0.00	\$50.00	\$0.00
C		CATEX / EA / FONSI / EIS					
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	Day		0.00	\$142.60	\$0.00
	10	Mileage	Mile		0.00	\$150.00	\$0.00
	11	Per Diem	Day		0.00	\$0.655	\$0.00
D	1	Project Manager/Task Oversight	HR		0.00	\$150.00	\$0.00
		Task I Sub-Total			0.00	\$247.25	\$0.00
							\$0.00
TASK II: REALTY							
A		Exploratory Rights of Entry (EROE)					
	1	Project Manager / Senior Engineer	HR	24	40.00	\$247.25	\$9,890.00
	2	Senior Engineer	HR		0.00	\$220.80	\$0.00
	3	CADD Designer	HR		0.00	\$142.60	\$0.00
	4	Engineer II	HR		0.00	\$131.10	\$0.00
	5	Realty Agent			0.00	\$131.10	\$0.00
	a	Courthouse Work	HR	94	85.00	\$131.10	\$11,143.50
	b	Field Reconnaissance / Landowner Correspondence	HR	145	95.00	\$131.10	\$12,454.50
	c	Office Work / AMLNET	HR		0.00	\$131.10	\$0.00
	6	Vehicle	Day	13	10.00	\$150.00	\$1,500.00

ABRAM CREEK - Project 2

Project Name:

Abram Creek Total

CHANGE ORDER 2 COST PROPOSAL SCHEDULE FOR CONTRACT 9

TASK	DESCRIPTION	UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
	Mileage	Mile				
	Per Diem	Day	18	0.00	\$0.655	\$0.00
B	Construction Rights of Entry (CROE)			10.00	\$150.00	\$1,500.00
1	Project Manager / Senior Engineer	HR				
2	Senior Engineer	HR		0.00	\$247.25	\$0.00
3	CADD Designer	HR		0.00	\$220.80	\$0.00
4	Engineer II	HR		0.00	\$142.60	\$0.00
5	Realty Agent	HR		0.00	\$131.10	\$0.00
a	Courthouse Work					
b	Field Reconnaissance / Landowner Correspondence	HR		0.00	\$131.10	\$0.00
c	Office Work / AMLNET	HR		0.00	\$131.10	\$0.00
6	Vehicle	Day		0.00	\$131.10	\$0.00
7	Mileage	Mile		0.00	\$150.00	\$0.00
8	Per Diem	Day		0.00	\$0.655	\$0.00
C	Pre-Bid Conference			0.00	\$150.00	\$0.00
1	Project Manager / Senior Engineer	HR				
2	Engineer II	HR		0.00	\$247.25	\$0.00
3	Realty Agent	HR		0.00	\$131.10	\$0.00
4	Vehicle	Day		0.00	\$131.10	\$0.00
5	Mileage	Mile		0.00	\$150.00	\$0.00
6	Per Diem	Day		0.00	\$0.655	\$0.00
D	Pre-Construction Conference			0.00	\$150.00	\$0.00
1	Project Manager / Senior Engineer	HR				
2	Engineer II	HR		0.00	\$247.25	\$0.00
3	Realty Agent	HR		0.00	\$131.10	\$0.00
4	Vehicle	Day		0.00	\$131.10	\$0.00
5	Mileage	Mile		0.00	\$150.00	\$0.00
6	Per Diem	Day		0.00	\$0.655	\$0.00
E	Direct Cost & Fees			0.00	\$150.00	\$0.00
F	Project Manager/Task Oversight	Each		0.00	\$500.00	\$0.00
	<b>Task II Sub-Total</b>	HR	100	32.00	\$247.25	\$7,912.00
						\$44,400.00
<b>TASK III: DESIGN</b>						
A	<b>SITE RECONNAISSANCE, INVESTIGATIONS AND PROPOSAL PREPARATION</b>					
1	Senior Technical Director	HR				
2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
4	Senior Engineer	HR	325	40.00	\$247.25	\$9,890.00
5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
6	Engineer II	HR		0.00	\$150.65	\$0.00
7	Scientist IV	HR		0.00	\$131.10	\$0.00
8	CADD Designer	HR		0.00	\$125.35	\$0.00
9	Vehicle	Day		0.00	\$142.60	\$0.00
10	Mileage	Mile		0.00	\$150.00	\$0.00
11	Per Diem	Day		0.00	\$0.655	\$0.00
12	Water Sampling	Each		0.00	\$150.00	\$0.00
B	<b>SURVEYING &amp; MAPPING</b>					
1	Project Manager / Senior Engineer	HR	40	32.00	\$247.25	\$7,912.00
2	Senior Engineer	HR		0.00	\$220.80	\$0.00
3	CADD Designer	HR		0.00	\$142.60	\$0.00

ABRAM CREEK - Project 2

Project Name:

Abram Creek Total

CHANGE ORDER 2 COST PROPOSAL SCHEDULE FOR CONTRACT 9

TASK	DESCRIPTION	UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
4	Survey Project Manager	HR	19	8.00	\$129.95	\$1,039.6
5	Professional Surveyor	HR	92	34.00	\$129.95	\$4,418.3
6	Surveyor CADD	HR	40	10.00	\$89.70	\$897.0
7	Researcher	HR		0.00	\$87.40	\$0.00
8	Utility Coordinator	HR		0.00	\$89.70	\$0.00
9	R/W and Survey Technician	HR		0.00	\$87.40	\$0.00
10	Survey Crew Chief	HR		0.00	\$85.10	\$0.00
11	Crew Member	HR		0.00	\$59.80	\$0.00
12	Abram Rock Robotic (UAV Registration)	Each		0.00	\$178.54	\$0.00
13	Abram Aerotas (Aerial Photo Stitching)	Each		0.00	\$243.51	\$0.00
14	Abram T3 Global LIDAR Processing	Each		0.00	\$5,239.69	\$0.00
15	Mileage	Mile		0.00	\$0.655	\$0.00
16	Survey Crew Per Diem	Day		0.00	\$172.50	\$0.00
17	Research - Costs - Deeds	Each		0.00	\$4.60	\$0.00
18	Research - Costs - Assessments	Each		0.00	\$1.15	\$0.00
19	Research Costs - Recorded plans	Each		0.00	\$9.20	\$0.00
20	WVDOH Route Realty Fee	Each	0	20.00	\$115.00	\$2,300.00
21	WVDOH Route Realty Research	HR	0	32.00	\$57.50	\$1,840.00
C	GEOTECHNICAL INVESTIGATION					
1	Project Manager / Senior Engineer	HR		0.00	\$247.25	\$0.00
2	Geotechnical Engineer/Geologist	HR		0.00	\$150.65	\$0.00
3	Mobilization / Demobilization per site	Each		0.00	\$7,705.00	\$0.00
4	Soil Augering-Cont SPT	LF		0.00	\$43.70	\$0.00
5	Rock Core Set Up	Each		0.00	\$258.75	\$0.00
6	Rock Coring	LF		0.00	\$51.75	\$0.00
7	Heavy Equipment	HR		0.00	\$0.00	\$0.00
8	Drill Crew Per Diem	Day		0.00	\$575.00	\$0.00
9	Reclamation per site	Each		0.00	\$7,743.33	\$0.00
10	Boring Logs/Geology	HR		0.00	\$150.65	\$0.00
11	Geotechnical Investigation Report per site	Each		0.00	\$12,900.00	\$0.00
12	Vehicle	Day		0.00	\$150.00	\$0.00
13	Mileage	Mile		0.00	\$0.655	\$0.00
14	Per Diem	Day		0.00	\$150.00	\$0.00
D	ANALYSIS AND DESIGN					
1	Senior Technical Director	HR		0.00	\$318.55	\$0.00
2	Engineering Technical Director	HR		0.00	\$286.35	\$0.00
3	Project Manager / Senior Engineer	HR		0.00	\$247.25	\$0.00
4	Senior Engineer	HR		0.00	\$220.80	\$0.00
5	Geologist/Scientist III	HR		0.00	\$150.65	\$0.00
6	Engineer II	HR		0.00	\$131.10	\$0.00
7	Scientist IV	HR		0.00	\$125.35	\$0.00
8	CADD Designer	HR		0.00	\$142.60	\$0.00
9	Vehicle	Day		0.00	\$150.00	\$0.00
10	Mileage	Mile		0.00	\$0.655	\$0.00
11	Per Diem	Day		0.00	\$150.00	\$0.00
E	PREPARATION OF PLANS, SPECIFICATIONS AND ENGINEERS ESTIMATE					
1	Senior Technical Director	HR		0.00	\$318.55	\$0.00

ABRAM CREEK - Project 2

Project Name:		Abram Creek Total					
		CHANGE ORDER 2 COST PROPOSAL SCHEDULE FOR CONTRACT 9					
TASK		DESCRIPTION	UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
	2	Engineering Technical Director	HR				
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	HR		0.00	\$142.60	\$0.00
	10	Mileage	Day		0.00	\$150.00	\$0.00
	11	Per Diem	Mile		0.00	\$0.655	\$0.00
			Day		0.00	\$150.00	\$0.00
F-a		PERMITTING WVDEP Construction Stormwater					
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	HR		0.00	\$142.60	\$0.00
	10	Mileage	Day		0.00	\$150.00	\$0.00
	11	Per Diem	Mile		0.00	\$0.655	\$0.00
			Day		0.00	\$150.00	\$0.00
F-b		PERMITTING USACE					
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	HR		0.00	\$142.60	\$0.00
	10	Mileage	Day		0.00	\$150.00	\$0.00
	11	Per Diem	Mile		0.00	\$0.655	\$0.00
			Day		0.00	\$150.00	\$0.00
F-c		PERMITTING WVDOT					
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	HR		0.00	\$142.60	\$0.00
	10	Mileage	Day		0.00	\$150.00	\$0.00
	11	Per Diem	Mile		0.00	\$0.655	\$0.00
			Day		0.00	\$150.00	\$0.00
F-d		PERMITTING Local Permits					
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
					0.00	\$247.25	\$0.00

ABRAM CREEK - Project 2

Project Name:		Abram Creek Total						
CHANGE ORDER 2 COST PROPOSAL SCHEDULE FOR CONTRACT 9								
TASK			DESCRIPTION	UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
	4		Senior Engineer	HR				
	5		Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6		Engineer II	HR		0.00	\$150.65	\$0.00
	7		Scientist IV	HR		0.00	\$131.10	\$0.00
	8		CADD Designer	HR		0.00	\$125.35	\$0.00
	9		Vehicle	HR		0.00	\$142.60	\$0.00
	10		Mileage	Day		0.00	\$150.00	\$0.00
	11		Per Diem	Mile		0.00	\$0.655	\$0.00
				Day		0.00	\$150.00	\$0.00
F-e			PERMITTING WV Bureau of Health (Water Line)					
	1		Senior Technical Director	HR				
	2		Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3		Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4		Senior Engineer	HR		0.00	\$247.25	\$0.00
	5		Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6		Engineer II	HR		0.00	\$150.65	\$0.00
	7		Scientist IV	HR		0.00	\$131.10	\$0.00
	8		CADD Designer	HR		0.00	\$125.35	\$0.00
	9		Vehicle	Day		0.00	\$142.60	\$0.00
	10		Mileage	Mile		0.00	\$150.00	\$0.00
	11		Per Diem	Day		0.00	\$0.655	\$0.00
						0.00	\$150.00	\$0.00
G			INSTRUMENTATION & MONITORING					
	1		Sub-Project Manager / Senior Engineer	HR				
	2		Sub-Staff Engineer	HR		0.00	\$161.00	\$0.00
	3		Sub-CADD Designer	HR		0.00	\$143.75	\$0.00
	4		Sub-Electrical Technician	HR		0.00	\$97.75	\$0.00
	5		Sub-Mileage	Mile		0.00	\$126.50	\$0.00
	6		Sub-Per Diem	Day		0.00	\$0.860	\$0.00
						0.00	\$69.00	\$0.00



ABRAM CREEK - Project 2

Project Name:			Abram Creek Total					
CHANGE ORDER 2 COST PROPOSAL SCHEDULE FOR CONTRACT 9								
TASK			DESCRIPTION	UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
H			PRE-BID CONFERENCE					
	1		Senior Technical Director	HR		0.00	\$318.55	\$0.00
	2		Engineering Technical Director	HR		0.00	\$286.35	\$0.00
	3		Project Manager / Senior Engineer	HR		0.00	\$247.25	\$0.00
	4		Senior Engineer	HR		0.00	\$220.80	\$0.00
	5		Geologist/Scientist III	HR		0.00	\$150.65	\$0.00
	6		Engineer II	HR		0.00	\$131.10	\$0.00
	7		Scientist IV	HR		0.00	\$125.35	\$0.00
	8		CADD Designer	HR		0.00	\$142.60	\$0.00
	9		Vehicle	Day		0.00	\$150.00	\$0.00
	10		Mileage	Mile		0.00	\$0.655	\$0.00
	11		Per Diem	Day		0.00	\$150.00	\$0.00
I			PRE-CONSTRUCTION CONFERENCE					
	1		Senior Technical Director	HR		0.00	\$318.55	\$0.00
	2		Engineering Technical Director	HR		0.00	\$286.35	\$0.00
	3		Project Manager / Senior Engineer	HR		0.00	\$247.25	\$0.00
	4		Senior Engineer	HR		0.00	\$220.80	\$0.00
	5		Geologist/Scientist III	HR		0.00	\$150.65	\$0.00
	6		Engineer II	HR		0.00	\$131.10	\$0.00
	7		Scientist IV	HR		0.00	\$125.35	\$0.00
	8		CADD Designer	HR		0.00	\$142.60	\$0.00
	9		Vehicle	Day		0.00	\$150.00	\$0.00
	10		Mileage	Mile		0.00	\$0.655	\$0.00
	11		Per Diem	Day		0.00	\$150.00	\$0.00
		Construction Inspectors						
	a	Construction Project Manager	HR		0.00	\$247.25	\$0.00	
	b	Senior Construction Inspector	HR		0.00	\$149.50	\$0.00	
	c	Mid-Level Construction Inspection	HR		0.00	\$132.25	\$0.00	
J	I		Project Manager/Task Oversight	HR	100	32.00	\$247.25	\$7,912.00
			Task III Sub-Total					\$36,208.90
TASK IV: CONSTRUCTION OVERSITE								
A			Construction Observation Services					
	1		Senior Technical Director	HR		0.00	\$318.55	\$0.00
	2		Engineering Technical Director	HR		0.00	\$286.35	\$0.00
	3		Project Manager / Senior Engineer	HR		0.00	\$247.25	\$0.00
	4		Senior Engineer	HR		0.00	\$220.80	\$0.00
	5		Geologist/Scientist III	HR		0.00	\$150.65	\$0.00
	6		Engineer II	HR		0.00	\$131.10	\$0.00
	7		Scientist IV	HR		0.00	\$125.35	\$0.00
	8		CADD Designer	HR		0.00	\$142.60	\$0.00
	9		Vehicle	Day		0.00	\$150.00	\$0.00
	10		Mileage	Mile		0.00	\$0.655	\$0.00
	11		Per Diem	Day		0.00	\$150.00	\$0.00
	12		Arc Flash Study (MVI)	Each		0.00	\$5,324.50	\$0.00
	13		Construction Inspection					
		a	Construction Project Manager	HR		0.00	\$247.25	\$0.00
		b	Senior Construction Inspector	HR		0.00	\$149.50	\$0.00
		c	Mid-Level Construction Inspection	HR		0.00	\$132.25	\$0.00

ABRAM CREEK - Project 2

Project Name: Abram Creek Total								
CHANGE ORDER 2 COST PROPOSAL SCHEDULE FOR CONTRACT 9								
TASK			DESCRIPTION	UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
		d	Dual Certified CWI & NACE	HR				
		e	Office Work / AMLNET	HR		0.00	\$149.50	\$0.00
		f	Vehicle	HR		0.00	\$132.25	\$0.00
		g	Mileage	Day		0.00	\$150.00	\$0.00
		h	Inspector Per Diem	Mile		0.00	\$0.655	\$0.00
B	1		Project Manager/Task Oversight	Day		0.00	\$210.00	\$0.00
			<b>Task IV Sub-Total</b>	HR		0.00	\$247.25	\$0.00
<b>TASK V: POST-CONSTRUCTION OVERSITE</b>								
A			<b>FIELD VISITS / INSPECTIONS</b>					
	1		Senior Technical Director	HR				
	2		Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3		Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4		Senior Engineer	HR		0.00	\$247.25	\$0.00
	5		Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6		Engineer II	HR		0.00	\$150.65	\$0.00
	7		Scientist IV	HR		0.00	\$131.10	\$0.00
	8		CADD Designer	HR		0.00	\$125.35	\$0.00
	9		Vehicle	HR		0.00	\$142.60	\$0.00
	10		Mileage	Day		0.00	\$150.00	\$0.00
	11		Inspector Per Diem	Mile		0.00	\$0.655	\$0.00
	12		Senior Construction Inspector	Day		0.00	\$210.00	\$0.00
			<b>Task V Sub-Total</b>	HR		0.00	\$149.50	\$0.00
			<b>Total Change Order 2</b>					\$80,608.90

RICHARD DRAINAGE - Project 3

Project Name: RICHARD DRAINAGE AREA							
CHANGE ORDER 2 CONTRACT 9							
TASK		DESCRIPTION	UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER 1 QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
TASK I: NEPA & ESA							
A		Agency Coordinations (including Office Work, AMLNET, etc.)					
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	Day		0.00	\$142.60	\$0.00
	10	Mileage	Mile		0.00	\$150.00	\$0.00
	11	Per Diem	Day		0.00	\$0.655	\$0.00
					0.00	\$150.00	\$0.00
B		Public Involvement (Services Not Being Provided)					
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	Day		0.00	\$142.60	\$0.00
	10	Mileage	Mile		0.00	\$150.00	\$0.00
	11	Per Diem	Day		0.00	\$0.655	\$0.00
	12	Fees	Day		0.00	\$150.00	\$0.00
			Per Fee		0.00	\$50.00	\$0.00
C		CATEX / EA / FONSI / EIS					
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	Day		0.00	\$142.60	\$0.00
	10	Mileage	Mile		0.00	\$150.00	\$0.00
	11	Per Diem	Day		0.00	\$0.655	\$0.00
D	1	Program Manager/Task Oversight	Day		0.00	\$150.00	\$0.00
		Task I Sub-Total	HR		0.00	\$247.25	\$0.00
							\$0.00
TASK II: REALTY							
A		Exploratory Rights of Entry (EROE)					
	1	Project Manager / Senior Engineer	HR				
	2	Senior Engineer	HR	0	0.00	\$247.25	\$0.00
	3	CADD Designer	HR	10	0.00	\$220.80	\$2,208.00
	4	Engineer II	HR		0.00	\$142.60	\$0.00
	5	Realty Agent	HR	8	60.00	\$131.10	\$7,866.00
	a	Courthouse Work			0.00		
	b	Field Reconnaissance / Landowner Correspondence	HR		0.00	\$131.10	\$0.00
	c	Office Work / AMLNET	HR	180	80.00	\$131.10	\$10,488.00
	6	Vehicle	Day	64	30.00	\$131.10	\$3,933.00
	7	Mileage	Mile	10	6.00	\$150.00	\$900.00
	8	Per Diem	Mile		0.00	\$0.655	\$0.00
			Day	10	6.00	\$150.00	\$900.00
B		Construction Rights of Entry (CROE)					



RICHARD DRAINAGE - Project 3

Project Name: RICHARD DRAINAGE AREA								
CHANGE ORDER 2 CONTRACT 9								
TASK			DESCRIPTION	UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER 1 QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
	1		Project Manager / Senior Engineer	HR				
	2		Senior Engineer	HR		0.00	\$247.25	\$0.00
	3		CADD Designer	HR			\$220.80	\$0.00
	4		Engineer II	HR		0.00	\$142.60	\$0.00
	5		Realty Agent	HR		0.00	\$131.10	\$0.00
		a	Courthouse Work	HR				\$0.00
		b	Field Reconnaissance / Landowner Correspondence	HR		0.00	\$131.10	\$0.00
		c	Office Work / AMLNET	HR		0.00	\$131.10	\$0.00
	6		Vehicle	Day		0.00	\$131.10	\$0.00
	7		Mileage	Mile		0.00	\$150.00	\$0.00
	8		Per Diem	Day		0.00	\$0.655	\$0.00
						0.00	\$150.00	\$0.00
C			Pre-Bid Conference					
	1		Project Manager / Senior Engineer	HR				
	2		Engineer II	HR		0.00	\$247.25	\$0.00
	3		Realty Agent	HR		0.00	\$131.10	\$0.00
	4		Vehicle	Day		0.00	\$131.10	\$0.00
	5		Mileage	Mile		0.00	\$150.00	\$0.00
	6		Per Diem	Day		0.00	\$0.655	\$0.00
						0.00	\$150.00	\$0.00
D			Pre-Construction Conference					
	1		Project Manager / Senior Engineer	HR				
	2		Engineer II	HR		0.00	\$247.25	\$0.00
	3		Realty Agent	HR		0.00	\$131.10	\$0.00
	4		Vehicle	Day		0.00	\$131.10	\$0.00
	5		Mileage	Mile		0.00	\$150.00	\$0.00
	6		Per Diem	Day		0.00	\$0.655	\$0.00
						0.00	\$150.00	\$0.00
E	1		Direct Cost & Fees(copies, recording)	Each				
F	1		Program Manager/Task Oversight	HR	40	0.00	\$2,600.00	\$0.00
			Task II Sub-Total			30.00	\$247.25	\$7,417.50
								\$33,712.50
TASK III: DESIGN								
A			SITE RECONNAISSANCE, INVESTIGATIONS AND PROPOSAL PREPARATION					
	1		Senior Technical Director	HR	8	8.00	\$318.55	\$2,548.40
	2		Engineering Technical Director	HR	0	8.00	\$286.35	\$2,290.80
	3		Project Manager / Senior Engineer	HR	25	30.00	\$247.25	\$7,417.50
	4		Senior Engineer	HR		0.00	\$220.80	\$0.00
	5		Geologist/Scientist III	HR	0	8.00	\$150.65	\$1,205.20
	6		Engineer II	HR		0.00	\$131.10	\$0.00
	7		Scientist IV	HR	16	8.00	\$125.35	\$1,002.80
	8		CADD Designer	HR		0.00	\$142.60	\$0.00
	9		Vehicle	Day	4	4.00	\$150.00	\$600.00
	10		Mileage	Mile		0.00	\$0.655	\$0.00
	11		Per Diem	Day		0.00	\$150.00	\$0.00
	12		Water Sampling	Per Sample		0.00	\$155.00	\$0.00
	13		Geologist/Scientist II	HR	0	32.00	\$90.25	\$2,888.00
B			SURVEYING & MAPPING					
	1		Project Manager / Senior Engineer	HR				\$0.00
	2		Senior Engineer	HR		0.00	\$247.25	\$0.00
	3		CADD Designer	HR		0.00	\$220.80	\$0.00
	4		Survey Project Manager	HR		0.00	\$142.60	\$0.00
	5		Professional Surveyor	HR		0.00	\$129.95	\$0.00
	6		Surveyor CADD	HR		0.00	\$129.95	\$0.00
	7		Researcher	HR		0.00	\$87.40	\$0.00
	8		Utility Coordinator	HR		0.00	\$89.70	\$0.00
	9		R/W and Survey Technician	HR		0.00	\$89.70	\$0.00
	10		Survey Crew Chief	HR		0.00	\$87.40	\$0.00
						0.00	\$85.10	\$0.00

RICHARD DRAINAGE - Project 3

Project Name:			RICHARD DRAINAGE AREA					
CHANGE ORDER 2 CONTRACT 9								
TASK			DESCRIPTION	UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER 1 QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
	11		Crew Member	HR		0.00	\$59.80	\$0.00
	12		Richard Rock Robotic (UAV Registration	Each		0.00	\$310.50	\$0.00
	13		Richard Aerotas (Aerial Photo Stitching	Each		0.00	\$310.50	\$0.00
	14		Richard T3 Global (Third party LIDAR Processing	Each		0.00	\$7,452.00	\$0.00
	15		Mileage	Mile		0.00	\$0.655	\$0.00
	16		Survey Per Diem	Day		0.00	\$172.50	\$0.00
	17		Research - Costs - Deeds	Each		0.00	\$4.60	\$0.00
	18		Research - Costs - Assessments	Each		0.00	\$1.15	\$0.00
	19		Research Costs - Recorded plans	Each		0.00	\$9.20	\$0.00
C			GEOTECHNICAL INVESTIGATION					
	1		Project Manager / Senior Engineer	HR	24	30.00	\$247.25	\$7,417.50
	2		Geotechnical Engineer/Geologist	HR	100	50.00	\$150.65	\$7,532.50
	3		Mobilization / Demobilization per site	Each		0.00	\$25,875.00	\$0.00
	4		Soil Augering 8"	LF		0.00	\$57.50	\$0.00
	5		Soil Augering 6"	LF		0.00	\$51.75	\$0.00
	6		Rock Coring	LF	0	535.00	\$51.75	\$27,686.25
	7		Air Rotary 6 inch	LF		0.00	\$57.50	\$0.00
	8		Air Rotary 4 inch	LF		0.00	\$51.75	\$0.00
	9		8" Steel Casing	LF		0.00	\$74.75	\$0.00
	10		6" Steel Casing	LF		0.00	\$86.25	\$0.00
	11		Bentonite (50# Bag)	Each		0.00	\$20.70	\$0.00
	12		Grout	LF		0.00	\$23.00	\$0.00
	13		8" Inner Casing (optional)	LF		0.00	\$74.75	\$0.00
	14		6" Inner Casing (optional)	LF		0.00	\$63.25	\$0.00
	15		Grout (Inner Casing optional)	LF		0.00	\$13.80	\$0.00
	16		MW Cap	Each		0.00	\$51.75	\$0.00
	17		Drill Crew Per Diem	Day		0.00	\$575.00	\$0.00
	18		Reclamation per site	Each	4	3.00	\$1,150.00	\$3,450.00
	19		Boring Logs/Geology	HR	30	24.00	\$150.65	\$3,615.60
	20		Geotechnical Investigation Report per site	Each	1	1.00	\$6,000.00	\$6,000.00
	21		Vehicle	Day	15	12.00	\$150.00	\$1,800.00
	22		Mileage	Mile		0.00	\$0.655	\$0.00
	23		Per Diem	Day		0.00	\$150.00	\$0.00
	24		Geologist/Scientist II	HR	0	60.00	\$90.25	\$5,415.00
	25		Transducers (3 units for 4 months)	Month	0	12.00	\$652.05	\$7,824.60
	26		water level meter	Day	0	16.00	\$85.10	\$1,361.60
	27		Mobilization / Demobilization for Core Drilling Rig	Each	0	2.00	\$17,250.00	\$34,500.00
	28		Rock Core Setup	Each	0	7.00	\$258.75	\$1,811.25
	29		6" PVC Riser	LF	0	60.00	\$51.75	\$3,105.00
TASK III: DESIGN (CONTINUED)								
D			ANALYSIS AND DESIGN					
	1		Senior Technical Director	HR		0.00	\$318.55	\$0.00
	2		Engineering Technical Director	HR		0.00	\$286.35	\$0.00
	3		Project Manager / Senior Engineer	HR		0.00	\$247.25	\$0.00
	4		Senior Engineer	HR		0.00	\$220.80	\$0.00
	5		Geologist/Scientist III	HR		0.00	\$150.65	\$0.00
	6		Engineer II	HR		0.00	\$131.10	\$0.00
	7		Scientist IV	HR		0.00	\$125.35	\$0.00
	8		CADD Designer	HR		0.00	\$142.60	\$0.00
	9		Vehicle	Day		0.00	\$150.00	\$0.00
	10		Mileage	Mile		0.00	\$0.655	\$0.00
	11		Per Diem	Day		0.00	\$150.00	\$0.00
E			PREPARATION OF PLANS, SPECIFICATIONS AND ENGINEERS ESTIMATE					
	1		Senior Technical Director	HR		0.00	\$318.55	\$0.00

RICHARD DRAINAGE - Project 3

Project Name: RICHARD DRAINAGE AREA							
CHANGE ORDER 2 CONTRACT 9							
TASK	DESCRIPTION		UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER 1 QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
2	Engineering Technical Director		HR		0.00	\$286.35	\$0.00
3	Project Manager / Senior Engineer		HR		0.00	\$247.25	\$0.00
4	Senior Engineer		HR		0.00	\$220.80	\$0.00
5	Geologist/Scientist III		HR		0.00	\$150.65	\$0.00
6	Engineer II		HR		0.00	\$131.10	\$0.00
7	Scientist IV		HR		0.00	\$125.35	\$0.00
8	CADD Designer		HR		0.00	\$142.60	\$0.00
9	Vehicle		Day		0.00	\$150.00	\$0.00
10	Mileage		Mile		0.00	\$0.655	\$0.00
11	Per Diem		Day		0.00	\$150.00	\$0.00
F-a	PERMITTING WVDEP Construction Stormwater						
1	Senior Technical Director		HR		0.00	\$318.55	\$0.00
2	Engineering Technical Director		HR		0.00	\$286.35	\$0.00
3	Project Manager / Senior Engineer		HR		0.00	\$247.25	\$0.00
4	Senior Engineer		HR		0.00	\$220.80	\$0.00
5	Geologist/Scientist III		HR		0.00	\$150.65	\$0.00
6	Engineer II		HR		0.00	\$131.10	\$0.00
7	Scientist IV		HR		0.00	\$125.35	\$0.00
8	CADD Designer		HR		0.00	\$142.60	\$0.00
9	Vehicle		Day		0.00	\$150.00	\$0.00
10	Mileage		Mile		0.00	\$0.655	\$0.00
11	Per Diem		Day		0.00	\$150.00	\$0.00
F-b	PERMITTING USACE						
1	Senior Technical Director		HR		0.00	\$318.55	\$0.00
2	Engineering Technical Director		HR		0.00	\$286.35	\$0.00
3	Project Manager / Senior Engineer		HR		0.00	\$247.25	\$0.00
4	Senior Engineer		HR		0.00	\$220.80	\$0.00
5	Geologist/Scientist III		HR		0.00	\$150.65	\$0.00
6	Engineer II		HR		0.00	\$131.10	\$0.00
7	Scientist IV		HR		0.00	\$125.35	\$0.00
8	CADD Designer		HR		0.00	\$142.60	\$0.00
9	Vehicle		Day		0.00	\$150.00	\$0.00
10	Mileage		Mile		0.00	\$0.655	\$0.00
11	Per Diem		Day		0.00	\$150.00	\$0.00
F-c	PERMITTING WVDOH						
1	Senior Technical Director		HR		0.00	\$318.55	\$0.00
2	Engineering Technical Director		HR		0.00	\$286.35	\$0.00
3	Project Manager / Senior Engineer		HR		0.00	\$247.25	\$0.00
4	Senior Engineer		HR		0.00	\$220.80	\$0.00
5	Geologist/Scientist III		HR		0.00	\$150.65	\$0.00
6	Engineer II		HR		0.00	\$131.10	\$0.00
7	Scientist IV		HR		0.00	\$125.35	\$0.00
8	CADD Designer		HR		0.00	\$142.60	\$0.00
9	Vehicle		Day		0.00	\$150.00	\$0.00
10	Mileage		Mile		0.00	\$0.655	\$0.00
11	Per Diem		Day		0.00	\$150.00	\$0.00
F-d	PERMITTING Local Permits						
1	Senior Technical Director		HR		0.00	\$318.55	\$0.00
2	Engineering Technical Director		HR		0.00	\$286.35	\$0.00
3	Project Manager / Senior Engineer		HR		0.00	\$247.25	\$0.00
4	Senior Engineer		HR		0.00	\$220.80	\$0.00
5	Geologist/Scientist III		HR		0.00	\$150.65	\$0.00
6	Engineer II		HR		0.00	\$131.10	\$0.00
7	Scientist IV		HR		0.00	\$125.35	\$0.00

RICHARD DRAINAGE - Project 3

Project Name: RICHARD DRAINAGE AREA							
CHANGE ORDER 2 CONTRACT 9							
TASK	DESCRIPTION		UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER 1 QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
	8	CADD Designer	HR				
	9	Vehicle	Day		0.00	\$142.60	\$0.00
	10	Mileage	Mile		0.00	\$150.00	\$0.00
	11	Per Diem	Day		0.00	\$0.655	\$0.00
F-e		PERMITTING WV Bureau of Health (Water Line)			0.00	\$150.00	\$0.00
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	Day		0.00	\$142.60	\$0.00
	10	Mileage	Mile		0.00	\$150.00	\$0.00
	11	Per Diem	Day		0.00	\$0.655	\$0.00
G		INSTRUMENTATION & MONITORING			0.00	\$150.00	\$0.00
	1	Sub-Project Manager / Senior Engineer	HR				
	2	Sub-Staff Engineer	HR		0.00	\$161.00	\$0.00
	3	Sub-CADD Designer	HR		0.00	\$143.75	\$0.00
	4	Sub-Electrical Technician	HR		0.00	\$97.75	\$0.00
	5	Sub-Mileage	Mile		0.00	\$126.50	\$0.00
	6	Sub-Per Diem	Day		0.00	\$0.86	\$0.00
H		PRE-BID CONFERENCE			0.00	\$69.00	\$0.00
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	Day		0.00	\$142.60	\$0.00
	10	Mileage	Mile		0.00	\$150.00	\$0.00
	11	Per Diem	Day		0.00	\$0.655	\$0.00
I		PRE-CONSTRUCTION CONFERENCE			0.00	\$150.00	\$0.00
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	Day		0.00	\$142.60	\$0.00
	10	Mileage	Mile		0.00	\$150.00	\$0.00
	11	Per Diem	Day		0.00	\$0.655	\$0.00
	12	Construction Inspectors	Day		0.00	\$150.00	\$0.00
	a	Construction Project Manager	HR				
	b	Senior Construction Inspector	HR		0.00	\$247.25	\$0.00
	c	Mid-Level Construction Inspection	HR		0.00	\$149.50	\$0.00
J		Program Manager/Task Oversight	HR		0.00	\$132.25	\$0.00
		Task III Sub-Total		40	24.00	\$247.25	\$5,934.00
TASK IV: CONSTRUCTION OVERSITE							\$135,406.00

RICHARD DRAINAGE - Project 3

Project Name: RICHARD DRAINAGE AREA							
CHANGE ORDER 2 CONTRACT 9							
TASK	DESCRIPTION		UNIT	ORIGINAL CONTRACT QUANTITY	CHANGE ORDER 1 QUANTITY	UNIT BID PRICE	TOTAL CHANGE ORDER AMOUNT
A		Construction Observation Services					
	1	Senior Technical Director	HR				
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	HR		0.00	\$142.60	\$0.00
	10	Mileage	Day		0.00	\$150.00	\$0.00
	11	Per Diem	Mile		0.00	\$0.655	\$0.00
	12	Construction Inspection	Day		0.00	\$150.00	\$0.00
	a	Construction Project Manager	HR				
	b	Senior Construction Inspector	HR		0.00	\$247.25	\$0.00
	c	Mid-Level Construction Inspection	HR		0.00	\$149.50	\$0.00
	d	Office Work / AMLNET	HR		0.00	\$132.25	\$0.00
	e	Vehicle	HR		0.00	\$132.25	\$0.00
	f	Mileage	Day		0.00	\$150.00	\$0.00
	g	Inspector Per Diem	Mile		0.00	\$0.655	\$0.00
B	1	Program Manager/Task Oversight	Day		0.00	\$210.00	\$0.00
		Task IV Sub-Total	HR		0.00	\$247.25	\$0.00
TASK V: POST-CONSTRUCTION OVERSITE							
A		FIELD VISITS / INSPECTIONS					
	1	Senior Technical Director			0.00		
	2	Engineering Technical Director	HR		0.00	\$318.55	\$0.00
	3	Project Manager / Senior Engineer	HR		0.00	\$286.35	\$0.00
	4	Senior Engineer	HR		0.00	\$247.25	\$0.00
	5	Geologist/Scientist III	HR		0.00	\$220.80	\$0.00
	6	Engineer II	HR		0.00	\$150.65	\$0.00
	7	Scientist IV	HR		0.00	\$131.10	\$0.00
	8	CADD Designer	HR		0.00	\$125.35	\$0.00
	9	Vehicle	HR		0.00	\$142.60	\$0.00
	10	Mileage	Day		0.00	\$150.00	\$0.00
	11	Inspector Per Diem	Mile		0.00	\$0.655	\$0.00
	12	Senior Construction Inspector	Day		0.00	\$210.00	\$0.00
		Task V Sub-Total	HR		0.00	\$149.50	\$0.00
							\$0.00
		Total Change Order 2					\$169,118.50

CHANGE ORDER SUMMARY

Tetra Tech - Contract 9; Change Order 2; 8-20-24

Change Order	Approved Date	Additions \$+	Deductions \$-
2		\$249,727.40	
TOTAL		\$249,727.40	
NET		\$249,727.40	\$0.00

**Generalized Justification for or Description of Change Order**

Additional tasks and costs which were more than could have been reasonably anticipated and changes to the original scope of services. More specific explanations and justifications have been included in the submitted "Attachment 1 - Change Order 2 "





WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

**Division of Highways**

1900 Kanawha Boulevard East • Building Five • Room 110  
Charleston, West Virginia 25305-0430 • (304) 558-3505

Gregory L. Bailey, P.E.  
Interim  
State Highway Engineer

Jimmy Wriston, P. E.  
Secretary of Transportation  
Commissioner of Highways

July 12, 2023

MEMORANDUM

TO: District Engineers/Managers  
District RW Managers  
District Utility Supervisors

FROM: DR CJT

SUBJECT: Route Research Request Form

Attached is the Route Research Request form that is to be used when the public requests information on any route (RW width, road history, abandonments, redesignations, etc.). The form is available on our website as well.

<https://transportation.wv.gov/highways/right-of-way/Pages/Route-Research-Request.aspx>

Each request is to be submitted with a \$100 payment (currently by check only), and a separate request form is required for each route. The \$100 fee is for up to 2 hours of research time. If a request requires additional research time, the requestor is to pay an additional \$50 per hour for the estimated number of hours required to finish the research prior to completing the request.

All checks are to be deposited with the local bank that you use as one-way deposit. When submitting deposit information to Accounts Receivable, you must include the following:

Program: 2023990022

Phase: OT0001

Revenue Code: 9017-0000-0803-0058-6611-4238

All payroll charges for these Route Research Requests should be charged to the following:

Program: 2023990022

Phase: OT0001

P/NP: N

Activity Code: 166

Org: 0062

Auth: UO2601M

LDPR: 17237

Information Technology Division is in the process of creating a web-based app for the public to use. When it goes live, credit card payments will be accepted at that time.

If you have any questions, please contact Travis Rose at 304-414-6651 or [travis.m.rose@wv.gov](mailto:travis.m.rose@wv.gov).

CJT:R:r

cc: HD, HC, DR(PW)

# WEST VIRGINIA DIVISION OF HIGHWAYS - ROUTE RESEARCH REQUEST FORM

- Research fee \$100.00 for basic requests (up to 2 hours research time)
- \$50.00 for each addition hour required for in-depth requests
- Checks made payable to WVDOH

- Research requests may take up to 12 weeks to complete from payment
- Research will not be done for HARP, Orphaned, Forest Service, Muni or Non-State routes.

HIGHWAY PLANS ARE AVAILABLE TO THE PUBLIC AT:  
[WWW.MAPWV.GOV/DOTPLANS/VIEWER](http://WWW.MAPWV.GOV/DOTPLANS/VIEWER)

Please check this site prior to submitting a request.



## REQUESTER INFORMATION

Company: \_\_\_\_\_  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Email: \_\_\_\_\_  
Phone Number: \_\_\_\_\_  
Check Number: \_\_\_\_\_  
Purpose/Reason: \_\_\_\_\_

## ROUTE INFORMATION

County: \_\_\_\_\_  
Route Type: \_\_\_\_\_ (required)  
Route Number: \_\_\_\_\_ (required)  
Route Name: \_\_\_\_\_ (required)  
Beginning Coordinates: \_\_\_\_\_ (required)  
Ending Coordinates: \_\_\_\_\_ (required)  
Location Map: \_\_\_\_\_ (required)  
Route Section Length: \_\_\_\_\_ (required)  
Information Requested: \_\_\_\_\_ (required)  
Comments/Other Info: \_\_\_\_\_ (required)

FOR DIVISION USE ONLY

Date Received: \_\_\_\_\_

RW Width: \_\_\_\_\_

Other Requested: \_\_\_\_\_

Total Research Time: \_\_\_\_\_  
(only if greater than 2 hrs)

Additional Billing: ☐ yes ☐ no

Amount: \_\_\_\_\_

Date Additional  
Payment Received: \_\_\_\_\_





**TETRA TECH**

April 8, 2024

Mr. John Curry  
West Virginia Department of Environmental Protection  
Division of Land Restoration, Office of Abandoned Mine Lands & Reclamation  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304

Subject: Richard (Shaver) Drainage Project  
Exploratory Drilling in the Rock Forge Mine  
Monongalia County, WV

Dear Mr. Curry,

This letter report presents the results of the subsurface investigations to identify the depth to the mine, presence and conditions of mine voids, and the presence of water within the Rock Forge Mine. The site is located near the village of Richard, Monongalia County, WV. The objective of the Richard (Shaver) Drainage project is to lower the existing water level within the Rock Forge mine to a level that would stop or reduce acid mine drainage (AMD) discharges. It is planned to locate a vertical well pump or horizontal bore into the mine to lower the mine pool and pipe the water to the Richard AMD treatment plant. Exploratory drilling was conducted at four locations, refer to the attached Figure 1. Tetra Tech obtained Exploratory Right-of Entry agreements from property owners for the exploratory activities. Drilling locations were selected based on a review of the mine map, coal elevation, and accessibility of the location by the drill rig. The mine map and coal elevation contours were obtained from West Virginia Geological and Economic Survey.

#### **SITE DESCRIPTION**

The Rock Forge Mine exploratory drilling site B-1 is located off Summer School Road on property owned by Mr. Michael Savage. Drilling site B-2 is located off Earl L Core Road (WV Route 7) on property owned by the Richard Self Storage. Drilling site B-3 is located off Summer School Road on property owned by G1 LLC and leased by Central Supply. Drilling site B-4 is located off Earl L Core Road on property owned by BHK Enterprises.

The project area is within the Allegheny Plateau section of the Appalachian Plateau Province. Bedrock underlying the project area consists of Pennsylvanian Age, Glenshaw Formation followed by the Freeport Formation. Typical rock for the Glenshaw formation consists of cyclic sequences of red and gray shale, siltstone, and sandstone, with thin limestone and coals. The Upper Freeport coal seam marks the transition from the Glenshaw formation and the Freeport Formation. The Rock Forge Mine is located within the Upper Freeport coal seam.

#### **FIELD ACTIVITIES**

Exploratory drilling at site B-1 was conducted from October 25 through October 28, 2023. Drilling at site B-2 was conducted from October 30 through October 31, 2023. Drilling at site B-3 was conducted from March 5 through March 6, 2024, and drilling at site B-4 was conducted from March 11 through March 12, 2024. Tetra Tech subcontracted Core Drilling, LLC of Bentleyville, PA to conduct the drilling activities. A

**Tetra Tech, Inc.**

661 Andersen Drive, Pittsburgh, PA 15220  
Tel 412.921.7090 Fax 412.921.4040 [www.tetratech.com](http://www.tetratech.com)



## TETRA TECH

Tetra Tech field geologist directed, monitored and recorded the activities. Core Drilling utilized air rotary hammer drilling, which employs both rotational down force and impact force provided by a down-hole impact hammer and a rotating drill head. Drill cuttings are removed from the borehole by the injections of high pressure compressed air down the middle of the drill rod, exiting out of the annular space between the drill rod and borehole.

Borings were drilled with an 8-inch diameter drill bit into competent, non-weathered bedrock. A 6-inch diameter PVC casing was then installed, and a 4-inch diameter drill bit was utilized for the remainder of the boring. During the drilling process, a loss of pressure and return was assumed to indicate the presence of a void. If the boring did not encounter a void, the location was off-set and another attempt was made to locate a mine void.

Tetra Tech located the borings using a hand-held GPS unit. Final boring locations were surveyed by Monaloh Basin Engineers, Inc on March 12, 2024. Boring logs, photographs and a summary table of drilling activities are provided in Attachment A.

### **Boring B-1**

Boring B-1 was drilled to a depth of approximately 219 ft below ground surface (bgs). Top of rock (weathered) was encountered at 23 ft bgs. Rock consisted of cyclical sequences of interbedded sandstone and shale. A surface casing was installed to 23 ft bgs. Water returns were considerable during the drilling process.

The mine void was encountered at a depth of 212.5 ft bgs to 219 ft bgs, resulting in an approximate void height of 6.5 feet.

A down hole camera survey was performed on B-1 on October 28, 2023, to review the conditions of the assumed void. The survey of B-1 showed water entering the borehole at a depth of 26.5 ft bgs. Water was not visible in the mine void. Based on the camera survey, the mine void contained approximately four (4) feet of debris, possibly from collapse of the roof of the mine. The boring was abandoned with a cement-bentonite grout.

### **Boring B-2**

Three borings, B-2\_A, B-2\_B, and B-2\_C, were drilled to a depth of approximately 60 ft bgs, 60 ft bgs, and 45.7 ft bgs, respectively. Top of rock was encountered at 3 ft bgs at B-2\_A, 4 ft bgs at B-2\_B, and 3.5 ft bgs at B-2\_C. The overburden consisted of sand with angular gravel. Rock consisted of cyclical sequences of interbedded sandstone and shale. Surface casing was installed to a depth of 3 ft bgs, 4 ft bgs, and 3.5 bgs respectively. Coal was encountered in B-2\_A and B-2\_B at 38 ft bgs and continued to 43 ft bgs. Surface casing was installed in B-2\_C to a depth of 3.5 ft bgs. Water returns were minimal during the drilling process and a dust sock was used to capture dust.

The mine void was encountered in B-2\_C at a depth of 39.5 ft bgs to 45.7 ft bgs, resulting in an approximate void height of 6.2 feet. The mine void was not encountered in B-2\_A or B-2\_B, but the Upper Freeport coal seam was encountered at an approximate depth of 38 ft bgs to 43 ft bgs with an average approximate thickness of five (5) feet.

A down hole camera survey was performed on B-2\_C on October 31, 2023, to review the conditions of the assumed void. Based on the video, the mine void appeared open, no caved material. The camera survey of B-2\_C encountered top of water at 44.1 ft bgs, believed to be the Rock Forge Mine pool. However, this only represents an approximate 1-ft mine pool, so it could just be water accumulating on the mine floor.



All borings were abandoned with cement-bentonite grout from the bottom of the borehole to ground level. The casing installed during drilling was removed for these borings.

#### **Boring B-3**

Boring B-3 was drilled to a depth of approximately 170.5 ft bgs. Top of rock (weathered) was encountered at 10 ft bgs. Rock consisted of sequences of sandstone, claystone, and shale. A surface casing was installed to a depth of 10 ft bgs. Water returns were minimal during the drilling process and a dust sock was used to capture dust until 166 ft bgs where water returns were considerable, and the sock was removed.

The mine void was encountered in B-3 at a depth of 164.5 ft bgs to 170.5 ft bgs, resulting in an approximate void height of 6 feet. The mine void contained approximately six (6) feet of debris, possibly from collapse of the roof of the mine. The water level was measured at 109 ft bgs (941.14 ft msl). A Van Essen micro diver transducer and barometer was installed on March 18, 2024, to monitor water level within the mine pool.

#### **Boring B-4**

Four borings, B-4\_A, B-4\_B, B-4\_C, and B-4\_D were drilled at an approximate depth of 59 ft bgs, 79 ft bgs, 74 ft bgs, and 69 ft bgs, respectively. Top of rock was encountered at 10 ft bgs. The overburden consisted of sandy silt. Rock consisted of claystone and shale. Surface casing was installed to a depth of 10 ft bgs. Coal was encountered approximately between 64 and 68 ft bgs. Water was encountered during drilling.

The mine void was not encountered in B-4 borings, but the Upper Freeport coal seam was encountered at an approximate depth of 64 ft bgs to 68 ft bgs with an average approximate thickness of four (4) feet.

The borings were grouted with cement-bentonite grout from the bottom of the borehole to ground level. The casing installed during drilling was removed for these borings.

#### **MINE POOL**

Tetra Tech sampled and monitored the AMD discharges listed in the OSM 51 document. Tetra Tech obtained water samples of AMD discharges on October 2, 2023, and measured flow from the discharges through December 2023. Samples were obtained from DI#1, DI#2, and CS#4/DI#3 and CS#3. The water quality results were previously provided to WVDEP. Other features noted in the OSM 51 document had no flow or the flow was not enough to sample at the time of the field visit. Tetra Tech also monitored a drainage pipe in front of the American Legion, but there was not flow from the pipe during the site visits. During the dates of monitoring, the highest flow measured was 1.15 gallons per minute (gpm) at DI#1 on December 6, 2023. Flows at the other sampling locations on the dates monitored were all under 1 gpm.

The lowest surface elevation of the AMD discharges (CS #1, 2 and 3) is at 920 ft msl and a minimum of 360 ft horizontally from the mine workings, the mine map does not show workings beneath these discharges. There could be unmapped workings or subsurface fractures that are allowing the discharges at those locations.

Based on the locations of the AMD discharges, the mine pool will need to be lowered to approximately 920 ft msl to stop or reduce the discharges. With an initial mine pool reading of 941 ft, the pool would need to be lowered by approximately 20 ft.

The method to lower the mine pool could be via a vertical extraction well pump or horizontal bore. The advantages of the use of a vertical extraction well pump includes that the pump rate can be adjusted, or pumping stopped during times when the mine pool is below discharge elevation. However, the vertical



well does need to be located over the mine and into an open entry. The advantage of a horizontal bore is that the bore entry does not need to overlie the mine.

Multiple mine pool extraction locations have been evaluated based on the results of the exploratory drilling program, review of environmental impacts and constructability. Once the pump(s) location is selected, we will evaluate route(s) for conveyance pipe(s) from the pump to the Richards AMD treatment facility. It is planned to bury pipe(s) at least 3 feet beneath the ground surface. The routing of the pipeline(s) will be based on environmental impacts, constructability and number of properties crossed.

- The vertical or horizontal extraction location would need to be at coal elevation of 920 ft msl or lower based on the lowest AMD discharge elevation.
- The ideal location for a vertical extraction pump would be near a power line with three-phase power to power the pump.
- It is preferred for the extraction location to be near a road for ease of access and for routing of the pipeline to the Richard AMD treatment plant. Placing the pipeline within a Department of Highway right-of-way would reduce the number of construction rights-of-entry needed.
- A vertical pump location should not be located immediately near residential homes due to the noise from the pump; however, a sound dampening enclosure can be used.

Based on the drilling completed to-date, only boring B-3 meets these requirements. This location is approximately 6,100 feet from the Richard AMD Treatment plant (as measured along Summer School Road and WV Route 7). The extraction location would be downgradient (lower elevation) of the AMD treatment plant, so if chosen as the pump location, the pump would need to be sized for the appropriate head.

#### **CONCLUSIONS / RECOMMENDATIONS**

The mine void was encountered in three borings (B-1, B-2, and B-4). The mine void appeared to be partially collapsed within two of those borings. Water was encountered in borings B-2 and B-4. It is assumed that the water in boring B-2 does not represent the mine pool but could be water accumulating on the mine floor. The water level in B-3 was 941 ft in elevation at the time of drilling and the water levels will be monitored for up to two months to track the mine pool response to storm events. The transducer is set to record water level every 12 hours. It should be noted that this limited amount of mine pool level data will not represent seasonal variations. Also, with only one monitoring well, the mine pool cannot be monitored across the mine to determine the hydrologic connectivity of the mine pool.

It is recommended to evaluate and investigate additional drilling locations in order to attain sufficient mine pool level data to establish and determine hydrologic fluctuations of the mine pool as well as the hydrologic connectivity of the mine pool. Tetra Tech's reality staff had reached out to additional landowners who are located over the mine pool; however, those landowners either did not respond or replied that they were not interested. Due to the steep terrain and limited mine pool location, there are limited alternative drilling locations over the mine pool. We may reach out to properties previously contacted.



**TETRA TECH**

This report summarizes the results of the four (4) exploratory bore holes which were proposed in the original scope of services of the Contract 9 Agreement. Any further evaluations and/or bore hole drilling would require authorization of a Change Order to the Contract 9 Agreement by WVDEP. Should you like to discuss this report, please do not hesitate to contact me at (412) 921-8051 or [heather.trexler@tetrattech.com](mailto:heather.trexler@tetrattech.com).

Respectfully Submitted,

Heather Trexler, PG  
Project Manager

Cc: Mike Kearns, PE – Tetra Tech



**TETRA TECH**

## **ATTACHMENTS**



Drilling Summary Table

Boring ID	Latitude	Longitude	Surface Elevation (ft msl)	Depth to Bottom of Coal (ft bgs)	Bottom of Coal Elevation (ft msl)	Depth to water* (ft bgs)	Water Elevation* (ft msl)
B-1	39° 35' 57.20"N	79° 54' 23.74"W	1262.07	219	1043.07	none	none
B-2	39° 36' 23.39"N	79° 54' 11.34"W	1010.54	45.7	964.84	44.1	966.44
B-3	39° 36' 12.34"N	79° 54' 41.65"W	1050.14	170.5	879.64	109	941.14
B-4	39° 36' 23.27"N	79° 54' 20.31"W	982.71	68	914.71	none	none

msl = mean sea level

bgs = below ground surface

\*water level at the time of drilling





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BORING NUMBER B-  
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CLIENT WVDEP

PROJECT NUMBER 212C-PB-02663

DATE STARTED 10/25/23 COMPLETED 10/28/24

DRILLING CONTRACTOR Core Drilling

DRILLING METHOD Air Rotary

LOGGED BY George Hammond CHECKED BY

NOTES

PROJECT NAME Richard Drainage

PROJECT LOCATION Monongalia

GROUND ELEVATION 1262.07 ft HOLE SIZE 4"

GROUND WATER LEVELS:

AT TIME OF DRILLING ---

AT END OF DRILLING --- Dry

AFTER DRILLING ---

DEPTH  
(ft)

SAMPLE TYPE  
NUMBER

U.S.C.S.

GRAPHIC  
LOG

MATERIAL DESCRIPTION

(SP) SAND with Gravel (Sandstone rock fragments) and clay, damp, medium plastic, angular to subangular, homogeneous, brown, overburden.

SP

19.0': Wet.

23.0

Interbedded SANDSTONE and SHALE rock fragments and dust.

1239.1

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BORING NUMBER B-1  
PAGE 2 OF 2

CLIENT WVDEP

PROJECT NUMBER 212C-PB-02663

PROJECT NAME Richard Drainage

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
35				Interbedded SANDSTONE and SHALE rock fragments and dust. (continued)
40				
45				
50				
55				
60				
65				
70				
75				

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BORING NUMBER B-1  
PAGE 3 OF 5

CLIENT WVDEP

PROJECT NUMBER 212C-PB-02663

PROJECT NAME Richard Drainage

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
75				Interbedded SANDSTONE and SHALE rock fragments and dust. (continued)
80				
85				
90				
95				
100				
105				
110				
115				

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**BORING NUMBER B-1**  
PAGE 4 OF

CLIENT WVDEP

PROJECT NUMBER 212C-PB-02663

PROJECT NAME Richard Drainage

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
115				Interbedded SANDSTONE and SHALE rock fragments and dust. (continued)
120				
125				
130				
135				
140				
145				
150				
155				

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**BORING NUMBER B-1**  
PAGE 5 0

CLIENT WVDEP

PROJECT NUMBER 212C-PB-02663

PROJECT NAME Richard Drainage

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
155				Interbedded SANDSTONE and SHALE rock fragments and dust. (continued)
160				
165				
170				
175				
180				
185				
190				
195				

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BORING NUMBER B-1\_A

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CLIENT WVDEP

PROJECT NAME Richard Drainage

PROJECT NUMBER 212C-PB-02663

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
195				Interbedded SANDSTONE and SHALE rock fragments and dust. (continued)
200				
205				
210				
212.5				212.5': Top of void, tool drop. 1049.6
215				219.0': Bottom of void, auger refusal.
				Bottom of borehole at 219.0 feet.



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BORING NUMBER B-2  
PAGE 1 OF 1

CLIENT WVDEP

PROJECT NUMBER 212C-PB-02663

DATE STARTED 10/30/24

COMPLETED 10/30/24

DRILLING CONTRACTOR Core Drilling

DRILLING METHOD Air Rotary

LOGGED BY George Hammond

CHECKED BY

NOTES

PROJECT NAME Richard Drainage

PROJECT LOCATION Monongalia

GROUND ELEVATION 1010.54 ft



HOLE SIZE 4"

GROUND WATER LEVELS:

AT TIME OF DRILLING ---

AT END OF DRILLING --- Dry

AFTER DRILLING --- Backfilled and grouted

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				
		SP		(SP) SAND with Gravel (Sandstone rock fragments) and silt, dry, low plastic, homogeneous, light gray, overburden.
3.0				
				Interbedded SANDSTONE and SHALE dust and rock fragments, light gray.
5				
10				
15				
20				
25				
30				
35				

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**BORING NUMBER B-2**  
PAGE 2 OF

CLIENT WVDEP

PROJECT NUMBER 212C-PB-02663

PROJECT NAME Richard Drainage

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
35				Interbedded SANDSTONE and SHALE dust and rock fragments, light gray. (continued)	
40				COAL and SHALE dust and rock fragments, black.	97
45				Interbedded SANDSTONE and SHALE dust and rock fragments, light gray.	967
50					
55					
60				Bottom of borehole at 60.0 feet.	950.5





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# BORING NUMBER B-2\_B

PAGE 1 OF 2

CLIENT	WVDEP	PROJECT NAME	Richard Drainage
PROJECT NUMBER	212C-PB-02663	PROJECT LOCATION	Monongalia
DATE STARTED	10/30/24	COMPLETED	10/30/24
DRILLING CONTRACTOR	Core Drilling	GROUND ELEVATION	1010.54 ft
DRILLING METHOD	Air Rotary	HOLE SIZE	4"
LOGGED BY	George Hammond	CHECKED BY	
NOTES			
		GROUND WATER LEVELS:	
		AT TIME OF DRILLING	---
		AT END OF DRILLING	--- Dry
		AFTER DRILLING	--- Backfilled and grouted

## MATERIAL DESCRIPTION

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DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	
0				
		SP		(SP) SAND with Gravel (Sandstone rock fragments) and silt, dry, low plastic, homogeneous, light gray, overburden.
3.0				
				Interbedded SANDSTONE and SHALE dust and rock fragments, light gray.
5				
10				
15				
20				
25				
30				
35				

1007.5

(Continued Next Page)



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**BORING NUMBER B-2\_B**  
PAGE 2 OF 2

CLIENT WVDEP

PROJECT NAME Richard Drainage

PROJECT NUMBER 212C-PB-02663

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
35					
				Interbedded SANDSTONE and SHALE dust and rock fragments, light gray. <i>(continued)</i>	
					972.
				38.0	
				COAL and SHALE dust and rock fragments, black.	
40					
				43.0	
				Interbedded SANDSTONE and SHALE dust and rock fragments, light gray.	967.!
45					
50					
55					
60				60.0	
					950.5

Bottom of borehole at 60.0 feet.



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BORING NUMBER B-2  
PAGE 1 OF 1

CLIENT WVDEP

PROJECT NUMBER 212C-PB-02663

PROJECT NAME Richard Drainage

DATE STARTED 10/31/24

COMPLETED 10/31/24

PROJECT LOCATION Monongalia

DRILLING CONTRACTOR Core Drilling

GROUND ELEVATION 1010.54 ft

HOLE SIZE 4"

DRILLING METHOD Air Rotary

GROUND WATER LEVELS:

LOGGED BY George Hammond

CHECKED BY

AT TIME OF DRILLING ---

▼ AT END OF DRILLING 44.10 ft / Elev 966.44 ft

▼ AFTER DRILLING 43.60 ft / Elev 966.94 ft

NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				
		SP		(SP) SAND with Gravel (Sandstone rock fragments) and silt, dry, low plastic, homogeneous, light gray, overburden.
3.0				
				Interbedded SANDSTONE and SHALE dust and rock fragments, light gray.
5				
10				
15				
20				
25				
30				
35				

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# BORING NUMBER B-2\_C




PAGE 2 OF 2

CLIENT WVDEP

PROJECT NAME Richard Drainage

PROJECT NUMBER 212C-PB-02663

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
35					
				36.0 Interbedded SANDSTONE and SHALE dust and rock fragments, light gray. (continued)	974
				Weathered COAL and SHALE dust and rock fragments, black.	
40				39.5 39.5' Top of void, tool drop.	971
45				45.7' Bottom of void, auger refusal.	
				Bottom of borehole at 45.7 feet.	

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BORING NUMBER B-3 / A

PAGE 1 OF

CLIENT WVDEP

PROJECT NUMBER 212C-PB-02663

DATE STARTED 3/5/24 COMPLETED 3/6/24

DRILLING CONTRACTOR Core Drilling

DRILLING METHOD Air Rotary

LOGGED BY George Hammond CHECKED BY

NOTES

PROJECT NAME Richard Drainage

PROJECT LOCATION Monongalia

GROUND ELEVATION 1050.14 ft HOLE SIZE 4"

GROUND WATER LEVELS:

AT TIME OF DRILLING ---

▼ AT END OF DRILLING 109.00 ft / Elev 941.14 ft

▼ AFTER DRILLING 150.00 ft / Elev 900.14 ft Transducer installed

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0				TOPSOIL.	1049
				(SP) SAND with Silt and Gravel (Mudstone rock fragments), damp, homogeneous, poorly graded, non plastic, tan, residuum.	
5		SP			
10				Weathered MUDSTONE dust and rock fragments, gray.	1040
15					
20				Sandy MUDSTONE dust and rock fragments, light gray.	1030.6
25				23.0': Some water coming up out at beginning of subsequent runs.	
30					
35					

(Continued Next Page)



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BORING NUMBER B-3\_A

PAGE 2 OF 5

CLIENT WVDEP

PROJECT NAME Richard Drainage

PROJECT NUMBER 212C-PB-02663

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
35				Sandy MUDSTONE dust and rock fragments, light gray. (continued)
40				
45				
50				
55				
60				
65				
70				
73.0				Laminated gray SANDSTONE and black SHALE dust and rock fragments, gray.
75				

(Continued Next Page)



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**BORING NUMBER B-3**  
PAGE 3 OF

CLIENT WVDEP

PROJECT NAME Richard Drainage

PROJECT NUMBER 212C-PB-02663

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
75				Laminated gray SANDSTONE and black SHALE dust and rock fragments, gray. (continued)
80				
85				
90				
95				
100				
102				102': Some weathered COAL.
105				
110				
115				

(Continued Next Page)



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BORING NUMBER B-3

PAGE 4 OF

CLIENT WVDEP

PROJECT NAME Richard Drainage

PROJECT NUMBER 212C-PB-02663

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
115				
				Laminated gray SANDSTONE and black SHALE dust and rock fragments, gray. (continued)
120				
				Mudstone dust and rock fragments, light gray. 93C
125				
130				
135				
140				
145				
150				
155				

(Continued Next Page)





PAGE 5 OF 5

**PROJECT NAME** Richard Drainage

**PROJECT LOCATION** Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
155				
				Mudstone dust and rock fragments, light gray. ( <i>continued</i> )
160				
165				
				Void space, COAL rock fragments and water.
170				
				Bottom of borehole at 170.5 feet.

Bottom of borehole at 170.5 feet.

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BORING NUMBER B-4

PAGE 1 (

CLIENT WVDEP

PROJECT NUMBER 212C-PB-02663

DATE STARTED 3/11/24

COMPLETED 3/11/24

DRILLING CONTRACTOR Core Drilling

DRILLING METHOD Air Rotary

LOGGED BY George Hammond

CHECKED BY

NOTES

PROJECT NAME Richard Drainage

PROJECT LOCATION Monongalia

GROUND ELEVATION 982.71 ft

HOLE SIZE 4"

GROUND WATER LEVELS:

AT TIME OF DRILLING ---

AT END OF DRILLING ---

▼ AFTER DRILLING 23.00 ft / Elev 959.71 ft Then backfilled and grc

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				
1.0				TOPSOIL.
5				(SP) SAND with Gravel (Mudstone rock fragments) and Silt, damp, homogeneous, poorly graded, non plastic, tan, residuum (weathered Claystone).
10.0				
10.0				MUDSTONE dust and rock fragments, gray.
15				
20				
25				
30				
34.0'				Some water coming up out at beginning of subsequent runs.

(Continued Next Page)



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BORING NUMBER B-4 A

PAGE 2 OF 2

CLIENT WVDEP

PROJECT NAME Richard Drainage

PROJECT NUMBER 212C-PB-02663

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
35				MUDSTONE dust and rock fragments, gray. (continued)	
40					
45				Weathered COAL dust and rock fragments, dark gray.	938.7
50				MUDSTONE dust and rock fragments, gray.	933.7
55					
				Weathered COAL dust and rock fragments, dark gray to black.	925.7
				Bottom of borehole at 59.0 feet.	923.7

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**BORING NUMBER B-4 B**  
PAGE 1 OF 3

CLIENT WVDEP PROJECT NAME Richard Drainage  
PROJECT NUMBER 212C-PB-02663 PROJECT LOCATION Monongalia  
DATE STARTED 3/11/24 COMPLETED 3/11/24 GROUND ELEVATION 982.71 ft HOLE SIZE 4"  
DRILLING CONTRACTOR Core Drilling GROUND WATER LEVELS:  
DRILLING METHOD Air Rotary AT TIME OF DRILLING ---  
LOGGED BY George Hammond CHECKED BY --- AT END OF DRILLING ---  
NOTES --- AFTER DRILLING 36.00 ft / Elev 946.71 ft Then backfilled and grout

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				
0.5				TOPSOIL.
5		SP		(SP) SAND with Gravel (Mudstone rock fragments) and Silt, damp, non plastic, poorly graded, homogeneous, dark gray, residuum (weathered Mudstone).
10				
10.0				MUDSTONE dust and rock fragments, gray.
15				
20				
25				
30				
35				

(Continued Next Page)



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# BORING NUMBER B-4 B

PAGE 2 OF 3

CLIENT WVDEP

PROJECT NAME Richard Drainage

PROJECT NUMBER 212C-PB-02663

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
35				
				▼ MUDSTONE dust and rock fragments, gray. (continued)
40				
45				
50				
55				
60				
65				
68.0				
				COAL dust and rock fragments, black.
70				
75				

(Continued Next Page)



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# BORING NUMBER B-4 B

PAGE 3 OF 3

CLIENT WVDEP

PROJECT NAME Richard Drainage

PROJECT NUMBER 212C-PB-02663

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
75					
				COAL dust and rock fragments, black. (continued)	
					904.
					903.
				MUDSTONE dust and rock fragments, gray. Bottom of borehole at 79.0 feet.	



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# BORING NUMBER B-4 C

PAGE 1 OF 3

CLIENT WVDEP PROJECT NAME Richard Drainage  
PROJECT NUMBER 212C-PB-02663 PROJECT LOCATION Monongalia  
DATE STARTED 3/12/24 COMPLETED 3/12/24 GROUND ELEVATION 982.71 ft HOLE SIZE 4"  
DRILLING CONTRACTOR Core Drilling GROUND WATER LEVELS:  
DRILLING METHOD Air Rotary AT TIME OF DRILLING ---  
LOGGED BY George Hammond CHECKED BY --- AT END OF DRILLING ---  
NOTES ▽ AFTER DRILLING 5.00 ft / Elev 977.71 ft Then backfilled and grouted

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0					
0.5				TOPSOIL.	982
				(SP) SAND with Gravel (Mudstone rock fragments) and Silt, damp, non plastic, poorly graded, homogeneous, dark gray, residuum (weathered Mudstone).	
5		SP			
10					972.7
10.0				MUDSTONE dust and rock fragments, gray.	
15					
20					
25					
30					
35					

(Continued Next Page)



Tetra tech  
661 Anderson Dr.  
Pittsburgh, PA 15220  
Telephone: 412 921 7090

# BORING NUMBER B-4 C

PAGE 2 OF 3

CLIENT WVDEP

PROJECT NAME Richard Drainage

PROJECT NUMBER 212C-PB-02663

PROJECT LOCATION Monongalia

GENERAL BH / TP / WELL - TT NAVFAC 2018 V1.GDT - 4/8/24 09:08 - C:\USERS\GEORGE HAMMOND\DESKTOP\RICHARD COMBINED\RICHARD 3&4.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
35				MUDSTONE dust and rock fragments, gray. (continued)
40				
45				
50				
55				
60				
65				COAL dust and rock fragments, black.
68.0				MUDSTONE and SHALE dust and rock fragments, gray.
914.7				

(Continued Next Page)





PAGE 3 OF 3

**PROJECT NAME** Richard Drainage

**PROJECT LOCATION** Monongalia

U.S.C.S.

GRAPHIC  
LOG

## MATERIAL DESCRIPTION

MUDSTONE and SHALE dust and rock fragments, gray. (continued)

79.0

Bottom of borehole at 69.0 feet.

903.



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# BORING NUMBER B-4\_D

PAGE 1 OF 3

CLIENT	WVDEP	PROJECT NAME	Richard Drainage
PROJECT NUMBER	212C-PB-02663	PROJECT LOCATION	Monongalia
DATE STARTED	3/12/24	COMPLETED	3/12/24
DRILLING CONTRACTOR	Core Drilling	GROUND ELEVATION	982.71 ft
DRILLING METHOD	Air Rotary	HOLE SIZE	4"
LOGGED BY	George Hammond	CHECKED BY	
NOTES			
		GROUND WATER LEVELS:	
		AT TIME OF DRILLING	---
		AT END OF DRILLING	---
		AFTER DRILLING	0.00 ft / Elev 982.71 ft Then backfilled and groutec

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0					
0.5				TOPSOIL.	982.
				(SP) SAND with Gravel (Mudstone rock fragments) and Silt, damp, non plastic, poorly graded, homogeneous, dark gray, residuum (weathered Mudstone).	
5		SP			
10					972.
				MUDSTONE dust and rock fragments, gray.	
15					
20					
25					
30					
35					

(Continued Next Page)



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# BORING NUMBER B-4\_D

PAGE 2 OF 3

CLIENT WVDEP

PROJECT NAME Richard Drainage

PROJECT NUMBER 212C-PB-02663

PROJECT LOCATION Monongalia

GENERAL BH / TP / WELL - TT NAVFAC 2018 V1.GDT - 4/8/24 09:08 - C:\USERS\GEORGE HAMMOND\DESKTOP\RICHARD COMBINED\RICHARD 3&4.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
35				MUDSTONE dust and rock fragments, gray. (continued)
40				
45				
50				
55				
60				
65				COAL dust and rock fragments, black.
68.0				MUDSTONE and SHALE dust and rock fragments, gray.
70				

914.7

(Continued Next Page)



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# BORING NUMBER B-4\_D

PAGE 3 OF 3

CLIENT WVDEP

PROJECT NAME Richard Drainage

PROJECT NUMBER 212C-PB-02663

PROJECT LOCATION Monongalia

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S. GRAPHIC LOG	MATERIAL DESCRIPTION
			MUDSTONE and SHALE dust and rock fragments, gray. (continued)
79.0			Bottom of borehole at 74.0 feet.
903.			

Richard (Shaver) Drainage Project

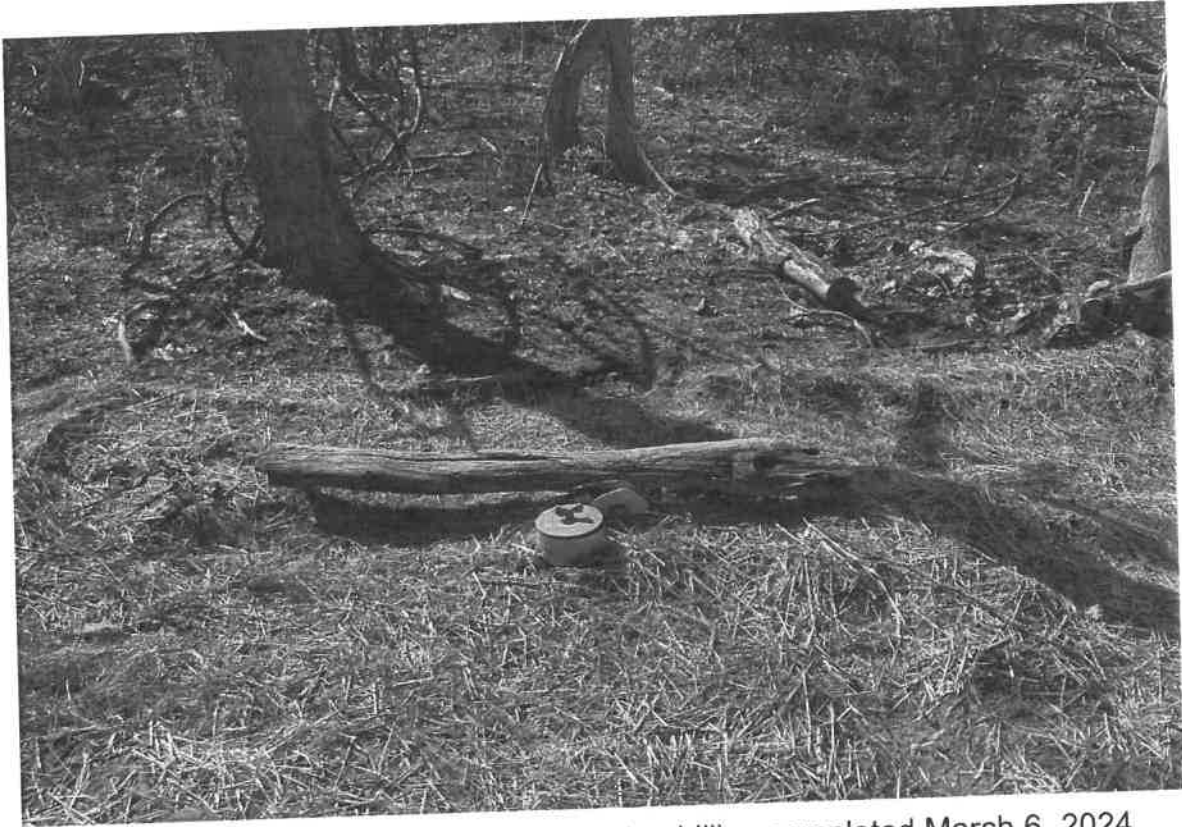


Boring B-1, Michael Savage Property, drilling completed October 28, 2023



Boring B-2, and alternate boring that did not encounter a mine void, Richard Self Storage Property, drilling completed October 31, 2023

Richard (Shaver) Drainage Project

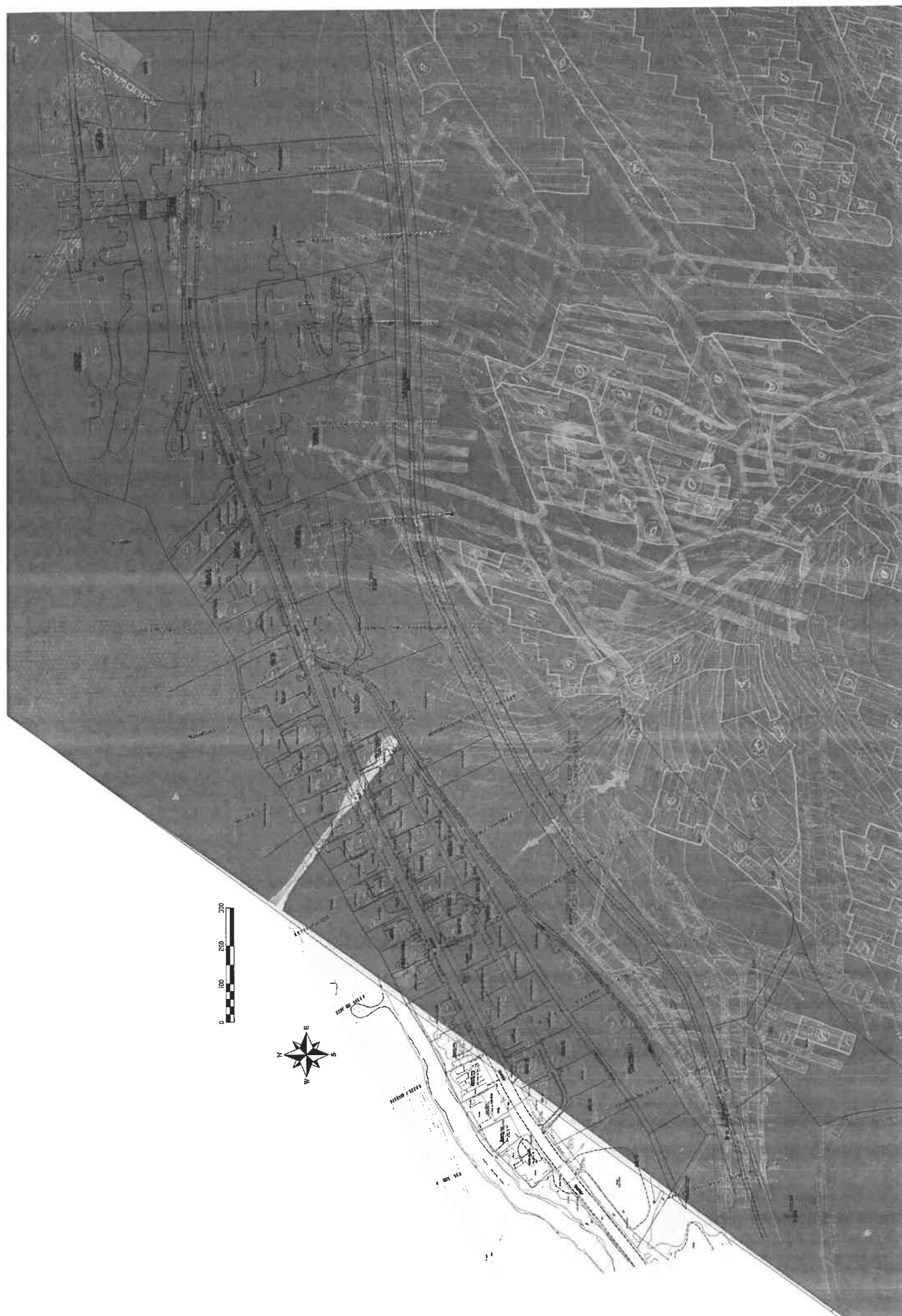


Boring B-3, G1 LLC/Central Supply Property, drilling completed March 6, 2024



Boring B-4, BHK Enterprises/Zellz Enterprises, drilling completed March 12, 2024





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## West Virginia Secretary of State — Online Data Services

### Business and Licensing

Online Data Services Help

### Business Organization Detail

**NOTICE:** The West Virginia Secretary of State's Office makes every reasonable effort to ensure the accuracy of information. However, we make no representation or warranty as to the correctness or completeness of the information. If information is missing from this page, it is not in the The West Virginia Secretary of State's database.

### TETRA TECH, INC.

Organization Information								
Org Type	Effective Date	Established Date	Filing Date	Charter	Class	Sec Type	Termination Date	Termination Reason
C   Corporation	12/13/2002		12/13/2002	Foreign	Profit			

Organization Information			
<b>Business Purpose</b>	5413 - Professional, Scientific and Techincal Servies - Professional, Scientific and Techincal Servies - Architectural, Engineering and Related Services (landscape architects, drafting, geophysical mapping, testing labs)		<b>Capital Stock</b>
<b>Charter County</b>		<b>Control Number</b>	52423
<b>Charter State</b>	DE	<b>Excess Acres</b>	
<b>At Will Term</b>		<b>Member Managed</b>	
<b>At Will Term Years</b>		<b>Par Value</b>	
<b>Authorized Shares</b>		<b>Young Entrepreneur</b>	Not Specified



<b>Addresses</b>	
<b>Type</b>	<b>Address</b>
<b>Local Office Address</b>	1538 KANAWHA BLVD CHARLESTON, WV, 25387
<b>Mailing Address</b>	3475 E. FOOTHILL BLVD. PASADENA, CA, 91107 USA
<b>Notice of Process Address</b>	C T CORPORATION SYSTEM 5098 WASHINGTON ST W STE 407 CHARLESTON, WV, 253131561
<b>Principal Office Address</b>	3475 E. FOOTHILL BLVD. PASADENA, CA, 91107 USA
<b>Type</b>	<b>Address</b>

<b>Officers</b>	
<b>Type</b>	<b>Name/Address</b>
<b>Director</b>	GARY R. BIRKENBEUEL 3475 EAST FOOTHILL BLVD. PASADENA, CA, 91107
<b>Director</b>	PRASHANT GANDHI 3475 E FOOTHILL BLVD PASADENA, CA, 91107
<b>Incorporator</b>	RICHARD A. LEMMON 630 N. ROSEMEAD BLVD. PASADENA, CA, 91107 USA
<b>Secretary</b>	PRESTON HOPSON 3475 EAST FOOTHILL BLVD. PASADENA, CA, 91107
<b>Type</b>	<b>Name/Address</b>

<b>DBA</b>			
<b>DBA Name</b>	<b>Description</b>	<b>Effective Date</b>	<b>Termination Date</b>
MAXIM TECHNOLOGIES	TRADENAME	5/13/2004	10/3/2006
MCNAMEE INDUSTRIAL SERVICES, INC.	TRADENAME	4/4/2003	5/28/2008
<b>DBA Name</b>	<b>Description</b>	<b>Effective Date</b>	<b>Termination Date</b>

# COMPLIANCE VERIFICATION CHECKLIST FOR REQUISITION SUBMISSION

<i>Purchasing Division Use:</i> Buyer: <u>J. Chambers</u> Date: <u>10-1-24</u> Solicitation No. <u>CPO DEP23★07</u> <u>C/O #2</u>	Agency: WV Department of Environmental Protection Procurement Officer Submitting Requisition: <b>Jessica Chambers</b> Requisition No. CPO DEP2300000032 PF No.: 1047664
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This checklist **MUST** be completed by a state agency's designated procurement officer and submitted with the Purchase Requisition to the Purchasing Division. The purpose of the checklist is to verify that an agency procurement officer has obtained and included required documentation necessary for the Purchasing Division to process the requisition without future processing disruptions. At the agency's preference, the agency **MUST** either submit the checklist by attaching it to the requisition's Header **OR** by placing it in the requisition's Procurement Folder.

## FOR ALL SOLICITATION TYPES:

	Compliance Check Type	Required	Provided, if Required	Not Required	Purch. Div. Confirmation
1	Specifications and Pricing Page included	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Use of correct specification template	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Use of correct requisition type [CRQS → CCT or CPO] or [CRQM → CMA]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Use of most current terms and conditions ( <a href="http://www.state.wv.us/admin/purchase/TCP.pdf">www.state.wv.us/admin/purchase/TCP.pdf</a> )	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Maximum budgeted amount in wvOASIS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Suggested vendors in wvOASIS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Capitol Building Commission pre-approval	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Financing (Governor's Office) pre-approval	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Fleet Management Division pre-approval	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Mergers**

<b>Merger Date</b>	<b>Merged</b>	<b>Merged State</b>	<b>Survived</b>	<b>Survived State</b>
3/31/2003	MCNAMEE, PORTER & SEELEY, INC.	MI	TETRA TECH, INC.	DE
3/31/2003	MCNAMEE INDUSTRIAL SERVICES, INC.	MI	TETRA TECH, INC.	DE
1/22/2004	WILLIAMS, HATFIELD & STONER, INC.	FL	TETRA TECH, INC.	DE
4/7/2004	MAXIM TECHNOLOGIES, INC.	DE	TETRA TECH, INC.	DE
7/25/2007	SCIENCES INTERNATIONAL, INC.	DE	TETRA TECH, INC.	DE
1/6/2012	INCA ENGINEERS, INC.	WA	TETRA TECH, INC.	DE
1/6/2012	TETRA TECH NUS, INC.	DE	TETRA TECH, INC.	DE
10/8/2012	TETRA TECH HEI, INC.	TN	TETRA TECH, INC.	DE
2/11/2013	TETRA TECH EM, INC.	DE	TETRA TECH, INC.	DE
2/11/2013	GEOTRANS, INC.	VA	TETRA TECH, INC.	DE
<b>Merger Date</b>	<b>Merged</b>	<b>Merged State</b>	<b>Survived</b>	<b>Survived State</b>

<b>Date</b>	<b>Amendment</b>
<b>2/11/2013</b>	MERGER: MERGING TETRA TECH EM, INC., A QUALIFIED DE CORPORATION, GEOTRANS, INC., A NON-QUALIFIED VA ORGANIZATION WITH AND INTO TETRA TECH, INC., A QUALIFIED DE CORPORATION, THE SURVIVOR
<b>10/8/2012</b>	MERGER: MERGING TETRA TECH HEI, INC., A NON-QUALIFIED TN ORGANIZATION WITH AND INTO TETRA TECH, INC., A QUALIFIED DE CORPORATION, THE SURVIVOR
<b>1/6/2012</b>	MERGER: MERGING INCA ENGINEERS, INC., A NON-QUALIFIED WA ORGANIZATION, TETRA TECH NUS, INC., A QUALIFIED DE CORPORATION WITH AND INTO TETRA TECH, INC., A QUALIFIED DE CORPORATION, THE SURVIVOR
<b>3/13/2009</b>	RESTATED CERTIFICATE FILED
<b>7/25/2007</b>	MERGER: MERGING SCIENCES INTERNATIONAL, INC., A NON-QUALIFIED DE ORGANIZATION WITH AND INTO TETRA TECH, INC., A QUALIFIED DE CORPORATION, THE SURVIVOR
<b>4/7/2004</b>	MERGER: MERGING MAXIM TECHNOLOGIES, INC., A QUALIFIED DE CORPORATION WITH AND INTO TETRA TECH, INC., A QUALIFIED DE CORPORATION, THE SURVIVOR
<b>1/22/2004</b>	MERGER: MERGING WILLIAMS, HATFIELD & STONER, INC., A NON-QUALIFIED FL ORGANIZATION WITH AND INTO TETRA TECH, INC., A QUALIFIED DE CORPORATION, THE SURVIVOR
<b>3/31/2003</b>	MERGER: MERGING MCNAMEE INDUSTRIAL SERVICES, INC., A QUALIFIED MI CORPORATION WITH AND INTO TETRA TECH, INC., A



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Entities

Disaster Response Registry

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**Search Editor**

- ☒ Any Words ⓘ
- ☐ All Words ⓘ
- ☐ Exact Phrase ⓘ

e.g. 123456789, Smith Corp

"Tetra Tech Inc." ×

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- Excluded Individual ✓
- Excluded Entity ✓
- Federal Organizations ✓
- Exclusion Type ✓
- Exclusion Program ✓
- Location ✓
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	Compliance Check Type	Required	Provided, if Required	Not Required	Purch. Div. Confirmation
10	Insurance requirements				
	Commercial General Liability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Automobile Liability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Workers' Compensation/Employer's Liability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Cyber Liability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Builder's Risk/Installation Floater	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Professional Liability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other (specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Office of Technology CIO pre-approval	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Treasurer's Office (banking) pre-approval	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### FOR CHANGE ORDERS/RENEWALS:

1	Two-party agreement	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Standard change order language	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Office of Technology CIO approval	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Justification for price increases/backdating/other	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Bond Rider (Construction)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6	Secretary of State Verification	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	State debarment verification	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Federal debarment verification	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

\*The items pre-checked are required before a Purchase Requisition may be submitted to the Purchasing Division. Failure to complete and verify this documentation may result in rejection of the requisition back to the agency. It is up to the agency procurement officer to determine if pre-approvals, insurance, or other documentation is needed for the purchase. The referenced information below may be used to make this determination.

#### For Purchasing Division Use Only:

I have reviewed the requisition identified above and find that it is sufficient to advertise publicly to the vendor community. My review does not preclude the possibility that the vendor community, or some other entity, will identify an area of concern; however, should such issues or concerns arise, they will be reviewed and addressed as may be appropriate.

Signature: \_\_\_\_\_

