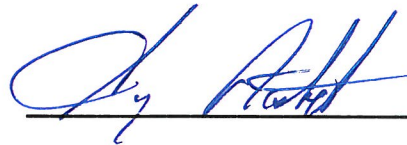


NOTICE

Please note that this bid from Envirosience Inc. for CRFQ_DEP2200000007 was received at the Purchasing Division office prior to the established bid opening date and time on September 15, 2021, but was not read at the public opening because of technical difficulties.



Guy Nisbet

Assistant Purchasing Director



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

Header 5

 List View

General Information

Contact

Default Values


Discount

Document Information

Clarification Request

Procurement Folder: 903973

Procurement Type: Central Master Agreement

Vendor ID: 000000176834 

Legal Name: ENVIROSCIENCE INC

Alias/DBA:

Total Bid: \$198,580.00

Response Date: 09/15/2021 

Response Time: 13:27

Responded By User ID: EnviroScienceInc 

First Name: Greg

Last Name: Zimmerman

Email: gzimmerman@enviroscie

Phone: 3306880111

SO Doc Code: CRFQ

SO Dept: 0313

SO Doc ID: DEP2200000007

Published Date: 9/8/21

Close Date: 9/15/21

Close Time: 13:30

Status: Closed

Solicitation Description: BENTHIC
MACROINVERTEBRATE 

Total of Header Attachments: 5

Total of All Attachments: 5

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Sample Sorting and Identification to Genus Level	500.00000	EA	395.000000	197500.00

Comm Code	Manufacturer	Specification	Model #
81131504			

Commodity Line Comments:

Extended Description:

SORTING AND IDENTIFICATION OF A 200 ORGANISM SUBSAMPLE TO GENUS LEVEL: INCLUDE TRAVEL COST FOR SAMPLE PICKUP AND DELIVERY PER UNIT.
Reference 3.2.1A in specifications

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	Sample Ident to Genus Level Only : Samples Pre-sorted	5.00000	HOUR	99.000000	495.00

Comm Code	Manufacturer	Specification	Model #
81131504			

Commodity Line Comments:

Extended Description:

Sample Identified to Genus Level Only : Samples Pre-sorted
Reference 3.2.1B in specifications

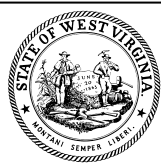
Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	Profession Staff Representation of Data in Legal	5.00000	HOUR	117.000000	585.00

Comm Code	Manufacturer	Specification	Model #
81131504			

Commodity Line Comments:

Extended Description:

PROFESSIONAL STAFF REPRESENTATION OF DATA IN LEGAL
Reference 3.2.2 in specifications
Reference 2.2.1.5 in specifications



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

State of West Virginia
 Centralized Request for Quote
 Laboratory

Proc Folder: 903973		Reason for Modification:	
Doc Description: BENTHIC MACROINVERTEBRATE SAMPLE PROCESSING AND/OR IDENTIFIC		Addendum #1 issued to correct bid close date in Oasis to 9/15/2021 as listed in terms and conditions..... See Page 2 for complete info	
Proc Type: Central Master Agreement			
Date Issued	Solicitation Closes	Solicitation No	Version
2021-09-08	2021-09-15 13:30	CRFQ 0313 DEP2200000007	2

BID RECEIVING LOCATION

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

VENDOR

Vendor Customer Code:

Vendor Name : EnviroScience, Inc.

Address : 5070 Stow Rd.

Street :

City : Stow

State : OH **Country :** USA **Zip :** 44224

Principal Contact : Andrew Zimmerman

Vendor Contact Phone: 800-940-4025 **Extension:**

FOR INFORMATION CONTACT THE BUYER

Joseph E Hager III
 (304) 558-2306
 joseph.e.hageriii@wv.gov

Vendor Signature X **FEIN#** 34-1603505 **DATE** 9/15/2021

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

Reason for Modification:

Addendum #1 issued to correct bid close date in Oasis to 9/15/2021 as listed in terms and conditions originally published.

ADDITIONAL INFORMATION

The West Virginia Purchasing Division is soliciting bids on behalf of The West Virginia Department of Environmental Protection to establish an open-end contract for the processing and identification of benthic macroinvertebrate samples collected from West Virginia waters. Contracts may be awarded to two (2) vendors, who meet all specs, to ensure coverage of and availability for the entire state per the attached specifications and terms and conditions.

INVOICE TO			SHIP TO		
ENVIRONMENTAL PROTECTION DIV OF WASTE AND WATER MGT 601 57TH ST SE CHARLESTON WV US			ENVIRONMENTAL PROTECTION DIVISION OF WATER AND WASTE MGT 601 57TH ST SE CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Sample Sorting and Identification to Genus Level	500.00000	EA	\$395	\$197,500

Comm Code	Manufacturer	Specification	Model #
81131504			

Extended Description:

SORTING AND IDENTIFICATION OF A 200 ORGANISM SUBSAMPLE TO GENUS LEVEL: INCLUDE TRAVEL COST FOR SAMPLE PICKUP AND DELIVERY PER UNIT.

Reference 3.2.1A in specifications

INVOICE TO			SHIP TO		
ENVIRONMENTAL PROTECTION DIV OF WASTE AND WATER MGT 601 57TH ST SE CHARLESTON WV US			ENVIRONMENTAL PROTECTION DIVISION OF WATER AND WASTE MGT 601 57TH ST SE CHARLESTON WV US		

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	Sample Ident to Genus Level Only : Samples Pre-sorted	5.00000	HOUR	\$99	\$495

Comm Code	Manufacturer	Specification	Model #
81131504			

Extended Description:

Sample Identified to Genus Level Only : Samples Pre-sorted

Reference 3.2.1B in specifications

INVOICE TO		SHIP TO	
ENVIRONMENTAL PROTECTION DIV OF WASTE AND WATER MGT 601 57TH ST SE CHARLESTON US	WV	ENVIRONMENTAL PROTECTION DIVISION OF WATER AND WASTE MGT 601 57TH ST SE CHARLESTON US	WV

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	Profession Staff Representation of Data in Legal	5.00000	HOUR	\$117	\$585

Comm Code	Manufacturer	Specification	Model #
81131504			

Extended Description:

PROFESSIONAL STAFF REPRESENTATION OF DATA IN LEGAL
Reference 3.2.2 in specifications

Reference 2.2.1.5 in specifications

SCHEDULE OF EVENTS

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
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SOLICITATION NUMBER:
Addendum Number:

The purpose of this addendum is to modify the solicitation identified as (“Solicitation”) to reflect the change(s) identified and described below.

Applicable Addendum Category:

- Modify bid opening date and time
- Modify specifications of product or service being sought
- Attachment of vendor questions and responses
- Attachment of pre-bid sign-in sheet
- Correction of error
- Other

Description of Modification to Solicitation:

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: _____

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

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

Addendum Numbers Received:

(Check the box next to each addendum received)

- | | |
|--|--|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

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

EnviroScience, Inc.

Company

Authorized Signature

9/15/2021

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.
Revised 6/8/2012

Services Overview



www.EnviroScienceInc.com

info@EnviroScienceInc.com

24-Hour Emergency: 888.866.8540

MIDWEST OPERATIONS

Stow, OH - Headquarters

OFFICE: 800.940.4025

Fax: 330.688.3858

CENTRAL APPALACHIA

Morgantown, WV

Office: 800.940.4025

MID-ATLANTIC

Richmond, VA

Office: 800.940.4025

SOUTHEAST

Nashville, TN

Office: 800.940.4025

ENVIROSCIENCE, INC.

Providing natural resource, environmental compliance, biomonitoring, hazard assessment, design and underwater services to the public and private sector since 1989.

DUNS #: 55-6823359

GSA CONTRACT #: GS-10F-0181U

TOP NAICS CODES:

- 541620 - Environmental Consulting Services
- 541330 - Engineering Services
- 541690 - Other Scientific and Technical Consulting Services

- 561990 - Support Services (including diving)
- 541380 - Testing Laboratories
- 562910 - Remediation Services
- 541370 - Surveying & Mapping

EnviroScience is a Small Business under codes 541620 and 541330.

SERVICES

ECOLOGICAL STUDIES

- Threatened & Endangered Species Surveys
- Freshwater Mussel Surveys
- Fishery Assessments
- Bat, Macroinvertebrate, Mammal, Amphibian, and Plant Surveys
- Phytoplankton, Zooplankton, & Ichthyoplankton Taxonomy
- Watershed & Sediment Studies
- GIS/GPS & Remote Sensing
- Biological Assessments
- Expert Testimony
- Ecological Risk
- Natural Resource Damage Assessments
- Data Analytics & Modeling

WETLAND SERVICES

- Wetland Delineation & Functional Assessments
- 401 & 404 Permitting
- Mitigation & Monitoring
- Invasive Species Control

COMMERCIAL DIVING

- Underwater Inspections
- Underwater Construction
- Underwater Imaging & Modeling
- Intake/Screen Maintenance
- UW Testing/Video/ROV
- Potable Water
- Burning/Welding/Jetting
- Bathymetric & Sidescan Sonar
- P.E. Diver Evaluations

ENVIRONMENTAL SAMPLING

- Environmental Sampling & Analysis Plans
- Surface & Groundwater, Sediment, Soil, & Waste Characterization Sampling
- Regulatory Reporting
- Geochemical Interpretation

LABORATORY & ANALYSIS

- Whole Effluent Toxicity (WET) Testing
- Toxicity Identification & Reduction Evaluations (TIE/TRE)
- Whole Sediment & Elutriate Toxicity Testing
- Water Effect Ratio Studies
- Harmful Algal Bloom Toxin Testing

EMERGENCY RESPONSE

- Emergency Planning & Preparedness
- Emergency Response Plans
- Environmental Unit Leader Staffing & Other Critical ICS Positions
- HAZMAT Response & Site Assessment
- Derailment Response & Assessment
- Ecological Damage Assessment

RESTORATION

- Design-Build (RiverWorks)
- Design & Construction
- Natural Stream Design
- Stream/Wetland/Prairie
- Mitigation & Permitting
- Watershed Restoration
- Grant Writing
- Conservation Real Estate
- Invasive Species Control

STORMWATER MANAGEMENT

- Green Infrastructure
- Industrial MSGP Assistance
- MS4 Permit Assistance
- OEPA/ODNR Stormwater & USACE BMPs

NEPA DOCUMENTATION

- Environmental Assessments
- Environmental Impact Statements
- Categorical Exclusions

ENVIRONMENTAL COMPLIANCE

- Phase I, II, & III Site Assessment & Characterization
- SPCC, Hazardous Waste & Sludge Management Plans
- Environmental Inspection / Auditing
- Chemical Fate & Transport
- NPDES Permitting
- Clean Water Act Assistance including 316(a) & 316(b) Studies
- Erosion & Sediment Control and Post-Construction Design for Construction Sites
- Industrial & Construction SWPPP Inspections & Reporting
- Wastewater Treatment Design Assistance
- MS4 Audits & Assistance

Company Overview



www.EnviroScienceInc.com

info@EnviroScienceInc.com

Office: (800) 940-4025



- EnviroScience has numerous staff members from industry and regulatory agencies, each with over 30 years of experience in environmental regulations and permitting requirements.
- We pride ourselves in our rapid response time during emergencies and having an excellent turnaround for project deliverables.
- Our team provides cost-conscious solutions to every environmental problem.
- We have a national reputation for excellence, providing support for projects such as USEPA's multimillion dollar National Aquatic Resources Surveys and the BP Oil spill.
- EnviroScience's number of technical staff, regional offices, and state-of-the-art equipment allows us to efficiently and effectively service large-volume clients such as utility companies.
- Our project managers have extensive experience with industry and agency regulations, including DOTs, USACE, USFWS, and USEPA.

EnviroScience, Inc. is a team of over 100 expert biologists, commercial divers, environmental scientists, and environmental engineers headquartered in Ohio, with additional offices in Nashville, Tennessee; Richmond, Virginia; and Morgantown, West Virginia. Since 1989, EnviroScience has provided expert technical services to help our clients meet their environmental design and regulatory requirements. Our clients include federal, state, and municipal governments; departments of transportation; the railroad industry; utilities, mining, manufacturing, and engineering firms; and private individuals. Our ecological consulting services are nationally recognized and include restoration and environmental compliance assistance on projects of all sizes for freshwater mussels, bats, fisheries, aquatic surveys, and streams and wetlands. For example, EnviroScience has completed nationwide surveys of streams, rivers, coastal areas, and other aquatic resources under the five-year National Aquatic Resource Surveys (NARS) contract with USEPA.

Few firms in the country retain as many biologists, licensed engineers, divers, and scientists under one roof and most of our staff have over 10 years of experience in their fields. Because of our team's diverse professional background, we are able to provide comprehensive in-house services and an integrated approach to solving environmental challenges, saving clients time, reducing costs, and ensuring high-quality work products. We always put our clients' needs first, by only using resources that are necessary and completing projects on time and within or below budget. Because of this business model, we hold Master Service Agreements with many national transportation, utility companies, and other industry members.



THE ENVIROSCIENCE TEAM

- | | | |
|--------------------------|----------------------------|-------------------------|
| ■ Regulatory Specialists | ■ Engineers | ■ Toxicologists |
| ■ Bat Ecologists | ■ NEPA Specialists | ■ GIS Analysts |
| ■ Herpetologists | ■ Stormwater Inspectors | ■ Wastewater Scientists |
| ■ Botanists | ■ Environmental Planners | ■ Wetland Scientists |
| ■ Commercial Divers | ■ Environmental Scientists | ■ Hydrologists |
| ■ Ichthyologists | ■ Malacologists | ■ Geologists |
| ■ Entomologists | ■ Limnologists | ■ Lake Managers |

REPRESENTATIVE CLIENTS

- | | | | |
|--------------------------|---------------------------------|-----------------------------|-------------------------------|
| ■ USEPA | ■ TimkenSteel | ■ NASA | ■ Carmeuse, Lime & Stone |
| ■ CSX Transportation | ■ USACE | ■ BP | ■ Battelle Memorial Institute |
| ■ Dominion East Ohio Gas | ■ ODOT & PennDOT | ■ Florida Fish & Wildlife | ■ FirstEnergy |
| | ■ NE OH Regional Sewer District | ■ Cleveland Airport Systems | ■ New York State DEC |

Client
USEPA

ES Project No. 8907

Key Services Provided

- Logistics
- Field Sampling
- Site Audits

Contact

Amina Pollard
(202) 566-2360

Project Duration

2016 - 2017

ES Key Staff

Nicole Jordan
Dave Czayka
Jamie Krejsa
Jamie Singer
Paul Anderson
Andrew Zimmerman
Jason Rose
Tim Ator

USEPA National Aquatic Resource Survey: National Lakes Assessment Field Sampling Nationwide



EnviroScience biologist, Andrew Zimmerman, processing a benthic macroinvertebrate sample.

The United States Environmental Protection Agency (USEPA) National Aquatic Resource Survey (NARS) is a five-year probabilistic-based survey of the nation's aquatic resources, which includes the National Lakes Assessment (NLA) survey. The NLA survey is used to assess the nation's lakes and evaluate changes in conditions from previous NLA surveys. It also helps build state and tribal capacity for monitoring and assessment, and promotes collaboration across jurisdictional boundaries.

Federal, state, tribal, and contracted agencies sampled over 1,000 lakes across the country. EnviroScience, Inc. and partner, Great Lakes Environmental Center (GLEC), sampled lakes that state and tribal agencies could not, as part of the NLA Field Sampling Task Order. Additionally, EnviroScience staff completed assistance visits to audit federal and tribal field sampling crews during the sampling season.

In 2017, EnviroScience sampled 103 lakes in Tennessee, Alabama, North Carolina, South Carolina, Ohio, New York, and Massachusetts. The sampling regime included water quality, water chemistry, fish eDNA, bacteria, sediment, zooplankton, benthic macroinvertebrates, and shoreline habitat.

EnviroScience effectively and successfully employed multiple sampling teams across multiple states, completing the NLA Task Order in an accurate and timely manner. In previous years EnviroScience completed similar work for wetlands and coastal waters.

WVDEP NARRATIVE WATER QUALITY (NWQ) MONITORING

Elk and Gauley River Watersheds, WV

Client

Various Mining Companies

Key Services Provided

- Benthic Sampling and ID
- Fisheries Sampling and Assessment
- Habitat Assessment
- Channel Morphology (BEHI, NBS)
- Water Chemistry Sampling
- Data Analysis and Reporting

Project Duration

2012 - 2015

Total Project Cost

\$550,000



EnviroScience, Inc. was contracted by various mining companies to collect baseline and annual biological, physical, and chemical data in accordance with West Virginia's Permitting Guidance for Surface Coal Mining Operations to Protect West Virginia's Narrative Water Quality Standards, 47 C.S.R. 2 §§ 3.2.e and 3.2.i (WVDEP Guidance), issued by the West Virginia Department of Environmental Protection (WVDEP).

Over a four year period, EnviroScience sampled between 30 and 60 sites per year following the WVDEP 2011 SOP. We assessed stream morphology by measuring six individual parameters at each site including longitudinal slope, riffle cross section, discharge, representative reach pebble count, an active bed pebble count at each benthic macroinvertebrate sampling site, and a Bank Erosion Hazard Index (BEHI)/Near Bank Stress (NBS) evaluation for the entire reach. We also sampled 30 of the sites for fish using backpack, double backpack, and tote barge electrofishing sampling techniques.

EnviroScience taxonomists, with over 40 years of combined experience and certified under the taxonomic certification program sponsored by the North American Benthological Society (NABS), identified benthic macroinvertebrate samples. Turnaround time from sampling to data analysis was 60 days.

This project demonstrated EnviroScience's diverse sampling, analysis, and reporting capabilities. Our experienced staff collected a large amount of data within the sampling season window and produce quality reports to the satisfaction of the clients and state of West Virginia.

Client
United States Geological
Survey

E.S. Project No. 2559

Key Services Provided

- Macroinvertebrate
Identifications
- Data Summaries

Contact

Craig Snyder
(304)-724-4486

Charles Kessler
(330) 668-4727

Project Duration

March – October, 2010

ES Project Cost

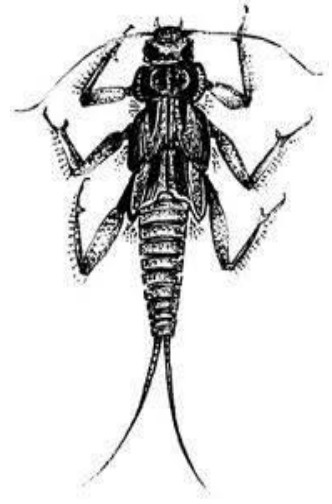
\$6,000.00

ES Key Staff

Rhonda Mendel

TAXONOMIC IDENTIFICATION SERVICES FOR MACROINVERTEBRATES FROM HEADWATER STREAMS

Shenandoah National Forest, VA



The U.S. Geological Survey (USGS) retained EnviroScience, Inc. to perform taxonomic identification services for twenty two headwater streams throughout Shenandoah National Park, Virginia. USGS personnel had previously collected macroinvertebrates using three Surber samples per site.

Preserved samples were sent directly to EnviroScience laboratories for processing. Organisms were identified to genus/species using current dichotomous keys to ensure accurate identifications. Data from the identifications were tabulated on MS Excel spreadsheets and submitted to USGS. A complete reference collection of all species encountered was assembled and returned to USGS at project completion.



EDUCATION

M.S. Aquatic Entomology,
University of Maine at Orono, 1989

B.S. Biology, Grove City College,
1986

CERTIFICATIONS

SFS (NABS) Certified Level 2
Group 1 General Arthropods

SFS (NABS) Certified Level 2
Group 3 Eastern Chironomidae

SFS (NABS) Certified Level 2
Group 3 Eastern Ephemeroptera,
Plecoptera and Trichoptera

SFS (NABS) Certified Level 2
Group 3 Western Chironomidae

SFS (NABS) Certified Level 2
Group 3 Western Ephemeroptera,
Plecoptera and Trichoptera

SFS (NABS) Certified Level 2
Group 1 General
Arthropods/Eastern

Ohio EPA Level 3 QDC
Macroinvertebrates and Chemistry

Trainer for Ohio EPA Level 3 QDC
Macroinvertebrate Sample
Collection, Identification, and Data
Evaluation

YEARS OF EXPERIENCE

EnviroScience, Inc.: 18

Mendel Environmental: 4

Lotic, Inc.: 9

Acheron Engineering: 1

RHONDA MENDEL

Quality Assurance Officer | Senior Aquatic Macroinvertebrate Entomologist

Ms. Mendel's responsibilities at EnviroScience encompass monitoring the ecological integrity of populations of instream biota, as well as evaluating discharges to surface waters. While at EnviroScience, she has been involved with several Work Assignments that involved monitoring aquatic community responses from an ecotoxicological perspective. Ms. Mendel currently performs quarterly internal QA/QC laboratory audits for the toxicity laboratory at EnviroScience. Prior to moving to Ohio, she was employed in Maine with two environmental consulting firms specializing in freshwater and marine toxicity evaluations. She has extensive experience with NPDES discharges, both industrial and municipal, concerning biological integrity, toxicity, data quality, chemistry, and in-stream evaluations of point and non-point source discharges.

As Quality Assurance Officer, Ms. Mendel is ultimately responsible for ensuring that each biomonitoring project's goals and objectives are addressed. Ms. Mendel is responsible for writing scientific reports detailing the findings of ecological investigations. She contacts clients throughout projects as necessary to report progress, as well as to communicate any problems or concerns. Her other responsibilities include fieldwork and habitat assessment associated with collecting macroinvertebrates, identifying all macroinvertebrates to the required level of taxonomic resolution, reviewing all macroinvertebrate data, evaluating and interpreting data in accordance with pre-established protocols (state or federal), generating reports for benthic clients, curating an in-house macroinvertebrate reference collection and tracking and recording changes in taxonomy.

SELECTED PROJECT EXPERIENCE

National Aquatic Resource Surveys (NARS), NCCA Great Lakes Survey, Great Lakes Region, Numerous States. EnviroScience (as a subcontractor to Great Lakes Environmental Center) currently provides freshwater macroinvertebrate taxonomic services for USEPA as a part of the on-going National Coastal Condition Assessment. Ms. Mendel serves as Lead Taxonomist for this effort.

USEPA Region III, Shepherd Creek Watershed Best Management Program, Pennsylvania. EnviroScience Inc. provided taxonomic services for the U.S. Environmental Protection Agency as part of a water quality study focusing on macroinvertebrates as water quality indicators within the Shepherd Creek watershed. As Senior Taxonomist for EnviroScience, Ms. Mendel identified and analyzed aquatic fauna in freshwater stream samples over several seasons. Results were tabulated on excel spreadsheets and submitted to USEPA to evaluate BMPs for the Shepherd Creek watershed.

Rhonda Mendel has over 30 years of experience in monitoring aquatic community responses.

RELEVANT EXPERIENCE

Teaching taxonomic workshops for I.D. of Chironomid midges for use in water quality evaluations

QA/QC of macroinvertebrate sampling at EnviroScience

Responsible for curating an in-house macroinvertebrate reference collection

Expert witness for Ohio Environmental Review Appeals Commission

Water Quality Monitoring

Impact assessments for engineering / construction projects involving streams and wetlands

Expert Witness, Ohio Environmental Review Appeals Commission. Ms. Mendel provided expert testimony for the Ohio Environmental Review Appeals Commission (ERAC). ERAC has statewide jurisdiction in Ohio and is the highest level of appeal for final actions of the Ohio Environmental Protection Agency. Ms. Mendel's testimony addressed total dissolved solids (TDS) as they relate to macroinvertebrate populations. ERAC officially qualified her in the following disciplines: macroinvertebrate aquatic ecology and aquatic biology, water quality, biological monitoring and sampling as they relate to macroinvertebrates, biological criteria associated with macroinvertebrates, and macroinvertebrate identification.

Baseline Ecological Risk Assessment for Superfund Site, Hillsboro, Illinois. Ms. Mendel served as the lead macroinvertebrate taxonomist for an environmental risk assessment, including multi-media environmental and biological sampling and analysis near a former ore processing facility. All work was performed under subcontract to USACE, St. Louis District.

Pickerington WWTP, Pickerington, Ohio. As a Level 3 QDC for the state of Ohio, Ms. Mendel conducted an ecological evaluation of the macroinvertebrate populations in Sycamore Creek, upstream and downstream of the WWTP. Analysis and results of this Level 3 study were presented to the Ohio EPA on behalf of Pickerington WWTP.

Kishwaukee River Macroinvertebrate Study, Illinois. EnviroScience, Inc. completed a benthic macroinvertebrate community assessment on portions of the Kishwaukee River in Illinois. The purpose of this study was to evaluate the biological condition of predetermined sections of the River. Ms. Mendel, a NABS certified taxonomist, was responsible for the identification and enumeration of all macroinvertebrates collected during this sampling. Ms. Mendel also conducted all aspects of data analysis, QA/QC, and reporting.



BRIAN CARLSON

Aquatic Biologist / Senior Scientist

Brian Carlson is an environmental professional specializing in stream and river ecosystems, specifically benthic macroinvertebrates, fish, and freshwater mussels throughout Appalachia, the Midwest, and Mid-Atlantic regions. He has experience managing projects from start to finish, including project budget development, client relations, agency correspondence, leading field crews, mussel surveys and relocations, data management and analysis, and report writing. Brian is an SFS (formerly NABS) certified benthic macroinvertebrate taxonomist for EPT and Chironomidae genera. In addition, Brian holds a Federal Threatened and Endangered Species Recovery Permit (TE41671D-0) for mussels, including *Cumberlandia monodonta*, *Cyprogenia stegaria*, *Epioblasma obliquata perobliqua*, *Epioblasma obliquata obliquata*, *Epioblasma triquetra*, *Lampsilis orbiculata* (= *L. abrupta*), *Obovaria retusa*, *Plethobasus cooperianus*, *Plethobasus cyphus*, *Pleurobema plenum*, *Quadrula cylindrica cylindrica*, and *Villosa fabalis*. He is also a USFWS Approved Surveyor for the federally threatened Big Sandy Crayfish (*Cambarus callainus*) and federally endangered Guyandotte River Crayfish (*Cambarus veteranus*).

EDUCATION

M.S. Wildlife & Fisheries Resources,
West Virginia University, 2013

B.S. Natural Resources
Management & Policy, The Ohio
State University, 2009

YEARS OF EXPERIENCE

EnviroScience, Inc.: 1

Previous Experience: 10

CERTIFICATIONS

Federal Threatened and
Endangered Species Recovery
Permit (TE41671D – 0)

USFWS Approved Surveyor for Big
Sandy Crayfish and Guyandotte
River Crayfish

Society for Freshwater Science
Certified Genus Level Taxonomist
(EPT East & North American
Chironomidae)

State Qualified Freshwater Mussel
Surveyor in West Virginia and Ohio

Certified Benthic Macroinvertebrate
Taxonomist – Maryland Department
of Natural Resources – MBSS

Certified Benthic Macroinvertebrate
Processing – Maryland Department
of Natural Resources – MBSS

Ohio EPA Qualified Data Collector
Level II Qualitative Habitat
Evaluation Index (QHEI)

PADI Certified Open Water,
Advanced Open Water, and
Rescue SCUBA Diver

American Heart Association CPR
and First Aid

Scientific Collection Permits Held in
IL, KY, MD, OH, PA, and WV

SELECTED PROFESSIONAL EXPERIENCE

EnviroScience, Inc. Project Manager / Aquatic Biologist (March 2020-Present). Project manager, biologist, and diver on endangered species surveys throughout the eastern U.S., including threatened and endangered mussels and crayfish. Specializing in benthic macroinvertebrate taxonomy and data analysis as well as reporting and GIS mapping.

AllStar Ecology, LLC., Fairmont, WV Environmental Scientist III/ Aquatic Biologist (2012 – 2020). Benthic macroinvertebrate and stream/river fish identification and reporting for private industry, non-profits, and universities. Freshwater mussel plan development (based on project designs), surveys, relocations, and agency reporting. Long-term stream flow monitoring and data management. Started and managed water supply sampling program, making sure applicable policies and reporting requirements are maintained. He performed marketing and company representation at industry and engineering tradeshow and expos in WV, PA, and OH.

Brian specializes in stream and river ecosystems, specifically benthic macroinvertebrates, fish, and freshwater mussels.

RELEVANT EXPERIENCE

Benthic Macroinvertebrate Sampling, Identification, & Data Analysis

Freshwater Mussel Surveys and Relocations

Geographic Information System Mapping

Fish Community Surveys and Data Analysis

Stream Physical Habitat Assessments

Stream and Wetland Delineations

Surface and Groundwater Resource Sampling & Monitoring

Erosion and Sediment Control Inspections

PROFESSIONAL DEVELOPMENT

Society for Freshwater Science

Freshwater Mollusk Conservation Society

Association of Mid-Atlantic Aquatic Biologists

West Virginia University, Morgantown, WV Biology Teaching Assistant/ Graduate Research Assistant (2011 – 2013). As a biology teaching assistant led four to five labs per semester for undergraduate students in the Biology Department with 25 – 35 students per lab. Executed lesson plans, guided students through labs, developed quizzes, graded assignments, and entered and managed grades within a university database. As a research assistant, identified hundreds of benthic macroinvertebrate samples backlogged each year from 2007, and continued to collect and identify samples for the long-term dataset.

Americorps VISTA, OSMRE, Department of the Interior, Morgantown, WV Watershed Coordinator, Friends of Deckers Creek (2009 – 2011). Watershed-wide benthic macroinvertebrate and fish community surveys and identification, stream physical habitat assessments, water chemistry and bacteria monitoring, fundraiser/event planning and execution, community and donor relations, managing volunteers and volunteer programs, environmental education in public schools, organization outreach at community events, bi-monthly reporting to the board of directors, and quarterly reporting to Americorps VISTA.

Ohio Student Union, The Ohio State University, Columbus, OH Event Production Staff (2007 – 2009). Worked with professional and academic staff, as well as student organizations, to execute university-sponsored events all over campus and Columbus, OH. Elected by professional staff to the “OSU Students Exhibiting Leadership in the Workplace” student staff group.

Glen Helen Outdoor Education Center, Antioch University, Yellow Springs, OH Education Staff (2008). Led benthic macroinvertebrate field trips and collections for 30+ students. Educated youth on the role and value of benthic macroinvertebrates on a watershed scale. Oversaw safety of all youth participating in classes and events.



TIFFANY MOORE

Aquatic Macroinvertebrate Taxonomist

As an aquatic macroinvertebrate taxonomist, Tiffany's duties center around the various aspects of using freshwater macroinvertebrates as indicators of ecological impairment. Tiffany's responsibilities include maintaining chain of custody protocols, processing of quantitative samples, organism identification and maintaining the macroinvertebrate quality control database. Ms. Moore provides technical support in the area of data calculations and interpretation, report generation and quality control. Ms. Moore has extensive knowledge of Ohio Environmental Protection Agency Level 3 Qualified Data Collector protocols for collection and identification of macroinvertebrates and is responsible for maintaining knowledge of the current protocols.

EDUCATION

B.S. Environmental Biology / Water Resources-Biology Track, Heidelberg College, 2002

CERTIFICATIONS

SFS (NABS) Certified Level 2
Group 1 Eastern General
Arthropods

SFS (NABS) Certified Level 2
Group 3 Eastern Chironomidae

SFS (NABS) Certified Level 2
Group 3 Eastern Ephemeroptera,
Plecoptera and Trichoptera

SFS (NABS) Certified Level 2
Group 3 Western Ephemeroptera,
Plecoptera and Trichoptera

Ohio EPA Level 2 QDC Qualitative
Habitat Evaluation Index (QHEI)

YEARS OF EXPERIENCE

EnviroScience, Inc.: 9

Independent Aquatic
Macroinvertebrate Taxonomist: 1

Investigator II (Water Quality): 6

RELEVANT EXPERIENCE

Responsible for in-house
macroinvertebrate quality
assurance/quality control database

Prepared an aquatic
macroinvertebrate database for
each study and a comprehensive
voucher collection for clients

SELECTED PROJECT EXPERIENCE

WVDOH U.S. Route 33 Scott Miller Hill Bypass EA Support, Roane County, West Virginia, 2018. As an aquatic macroinvertebrate taxonomist at EnviroScience, Ms. Moore subsampled and identified macroinvertebrates to the genus level using USEPA's Rapid Bio-Assessment Protocols. These results were then tabulated on excel spreadsheets and used in generating West Virginia Stream and Wetland Valuation Metric forms for the client.

MADELINE SAGE GENCO

EnviroScience, Inc.

EDUCATION

M.S. Department of Plant and Environmental Sciences, Entomology Program, Clemson University, Clemson, SC GPA: 4.0. Graduated May 2018.

B.S. Biology, State University of New York (SUNY) College at Oneonta, Oneonta, NY. Cumulative GPA: 3.70; Major GPA: 3.80. Graduated Magna Cum Laude, Dec. 2014.

North Hunterdon High School, Annandale, NJ. GPA: 3.56. Graduated June 2011.

PROFESSIONAL EXPERIENCE

Environmental Manager II, Indiana Department of Environmental Management (IDEM), Office of Water Quality, Watershed Assessment and Planning Branch, Probabilistic Monitoring Section. Indianapolis, IN (June 2018–Present)

- At IDEM my primary job responsibility is collection and identification of benthic macroinvertebrates to be used as bioindicators to aid in watershed assessments throughout Indiana. I also frequently help with projects in addition to my primary job responsibilities such as: completing landowner data requests, collect fish for tissue or community analysis, collect water chemistry samples, E. coli samples, cyanobacteria sample collection, and site reconnaissance. This work often involves travel and field work in rough terrain and inclement weather conditions. I am also the Safety Coordinator for the Probabilistic Monitoring Section, and a Floor Warden. I am responsible for tasks such as: organizing health and safety training for the branch, CPR certification, managing hazardous waste, monthly eye wash stations and safety showers checks, etc.
- Skills included: Aquatic macroinvertebrate collection, curation, and identification to the lowest feasible taxonomic level; dichotomous key use; Habitat Assessment (QHEI)YSI; winker; D-frame dip nets; slide mounting; compound and dissecting microscopy; data entry and quality control; Trimble GPS Navigation; Ariel and Topographic Map Use; Stream Drainage Area and Gradient Calculation; CPR and 1st aid certified; Technical writing; Microsoft Office Programs.

Research Assistant, Dr. John Morse, Department of Plant and Environmental Sciences, Entomology Program, Clemson University, Clemson, SC (Jan. 2016–May 2018).

- I wrote descriptions for aquatic insects for the gigapixel macroinvertebrates.org project, *Learning to See, Seeing to Learn*. I also mentored three undergraduate research students who aided in my research assistantship. I also helped with hazardous shipping of scientific specimens stored in ethanol, and the return of loaned specimens for the Clemson University Arthropod Collection.
- Skills included: Scientific writing; aquatic macroinvertebrate collection, identification, and curation; D-frame dip nets; kick screens; compound and dissecting microscopy; dichotomous key use; notebook keeping; hazardous shipping; scientific illustration; Adobe Illustrator; Microsoft Office Programs.

Master's Thesis Research (ENT 8910); Dr. John Morse, Department of Plant and Environmental

Sciences, Entomology, Clemson University, Clemson, SC (Jan. 2016–May 2018).

- Less than half of caddisfly larvae in the Southeastern United States are known to species. In the oriental region, almost none are known. For my thesis I used DNA to associate known or unknown adult species with their larvae, and then described and illustrated the morphology of the larvae. This was a field and lab work heavy project. I collected locally in North and South Carolina, as well as abroad, in Vietnam, and have collected in harsh terrains and weather conditions.
- Skills included: Caddisfly collection, identification, and curation (D-frame dip nets, kick screens, YSI, aerial net, sweeping, light trap, malaise trap, pinning, and alcohol preservation); compound and dissecting microscopy; dichotomous key use; habitat assessment; notebook keeping; DNA extraction, polymerase chain reaction (PCR); gel electrophoresis; Scientific Illustration; Adobe Illustrator; Microsoft Office Programs.

Substitute Lecturer/Teaching Assistant, Six Legged Science (ENT 2000), Department of Agriculture and Environmental Sciences, Entomology, Clemson University, Clemson SC (2016 and 2017)

- Gave Lectures on Insect Morphology (26 Jan. 2017) and Aquatic Insects (31. Oct. 2017).
- Assisted with Classroom Activity on Dichotomous Keys (26. Jan 2016, 13 Sep. 2016, and 23. Feb. 2017).

Center for Coastal Studies, Aquatic Invertebrate Technician (Oct.–Dec. 2015), Provincetown, MA.

- I was responsible for identifying and sorting saltwater invertebrates for a seafloor mapping benthic habitat study, as well as mentoring two lab technicians who aided in sorting specimens and data entry.
- Skills include: Brackish/ saltwater aquatic invertebrate identification and curation; data entry; dissecting microscopy; dichotomous key use; Toupcam microscope camera; notebook keeping; hazardous waste disposal; Microsoft Office Programs, Word, and PowerPoint).

National Park Service, Student Conservation Association/ AmeriCorps Intern (June–Oct. 2015), Cape Cod National Seashore, North Atlantic Coastal Lab, North Truro, MA.

- I worked as a lab and field technician for the Herring River Restoration Project. Daily duties included sampling, sorting, and identifying freshwater aquatic invertebrates, water quality analysis, and data entry. I also frequently helped with other monitoring projects involving the local kettle ponds, as well as the salt march.
- Skills included: Freshwater aquatic invertebrate collection, identification and curation; kayak and canoe use; dissecting microscopy; dichotomous key use; Toupcam microscope camera; notebook keeping; GPS; ponar benthic grab, YSI, seine nets, plankton nets, secchi disk, aqua scope, water quality testing (iron, chlorophyll analysis, isotope analysis, color, total suspended solids); photospectrometer; fluorometer; turbidimeter; micropipettes; epindorph pipets; vacuum and gravity filters; Microsoft Office Programs.

Casper Mountain Science School (CMSS), Student Conservation Association/AmeriCorps Intern (Feb.–May 2015), Casper College, Casper, WY.

- Taught k-12 students about ecology on Casper Mountain. Usually this involved taking students out on snowshoes, hiking, and talking to them about the natural history of the mountain.
- Skills included: Hiking; snowshoeing; teaching; Leave No Trace; Microsoft Office Programs.

Biological Field Station Intern (Summer 2014), Biology Department, State University of New York, College at Oneonta, Oneonta, NY.

- I conducted field research on invasive species (zebra mussels and starry stonewort). And completed a report and poster for each, you can see below. I also helped other interns with various projects and field work.
- Skills included: Compound and dissecting microscopy; dichotomous key use; GPS; Aquatic Sampling (D-frame nets, kick screens, ponar benthic grab, YSI, seine nets, plankton nets, secchi disk, Point Induced Rake Toss Relative Abundance Method (PIRTRAM), whirl packs, fish dissections, kayaks, canoe, basic motor boats); chlorophyll analysis; fecal coliform; notebook keeping; Microsoft Office Programs.

Teaching Assistant for General Biology II (Spring 2014), Dr. Annabel Kellam, Biology Department, State University of New York, College at Oneonta, Oneonta, NY.

- Helped answer questions, prep, check notebooks, and run General Biology II laboratory for undergraduate students.
- Skills included: Compound and dissecting microscopy; dichotomous key use; general knowledge of basic plant and animal taxonomy, morphology, and life history; plant and animal dissections.

Independent Study: Trichopteran Survey (Spring 2014), Dr. Jeffery Heilveil, Biology Department, State University of New York, College at Oneonta, Oneonta, NY.

- Survey of caddisfly larvae in the Genesee River watershed. Collected samples from 20 wadable streams in February, and identified to genus.
- Skills included: aquatic macroinvertebrate collection, identification, and curation; d-frame dip nets; kick screen; brass sieve; dichotomous keys; notebook keeping; GPS; Microsoft Office Programs.

Tutoring: Biology, Environmental Science, and Chemistry (Spring 2013), Educational Opportunities Program (EOP), State University of New York, College at Oneonta, Oneonta, NY.

- Tutored students in Environmental Science, Biology, and Chemistry.

L'Oréal USA Intern (Summer 2013), Warehouse, Franklin Manufacturing, Franklin NJ

- Worked on various projects in the warehouse using the computer.

Teaching – Enrichment Program Instructor (Fall 2013 and Fall 2014), State University of New York, College at Oneonta, Oneonta, NY.

- Lead a four-day science course centered on experimental design for 5th-8th graders.

Classroom Experience (Spring–Fall 2012) North Hunterdon High School and Clinton Township Middle School, Annandale, NJ.

- 22+ hours of in classroom observations.

RELEVANT COURSE WORK

➤ Undergraduate:

- General Biology I, II, and III (Biol. 180, 181, and 201)
- Evolution (Biol. 216)
- Vascular Plant Systematics (Biol. 236)
- Natural History of Woody Plants (Biol. 238)
- Population Genetics (Biol. 269)
- Ecology (Biol. 282)
- Tropical Field Biology—Peru (Biol. 321)
- Field Entomology (Biol. 344)
- Aquatic Invertebrate Ecology (Biol. 384)
- Directed Research—Biological Field Station Internship (Biol. 396)
- Independent Study—Trichopteran Survey (Biol. 399)
- General Chemistry I and II (Chem. 111 and 112)
- Organic Chemistry (Chem. 221)
- Biochemistry (Chem. 330)
- General Physics I and II (Phys. 103 and 104)
- Calculus (Math. 173)
- Statistics (Stat. 101)

➤ Graduate:

- Biodiversity and Systematics (ENT 6200)
- Insect Morphology (ENT 6000)
- Insect Taxonomy (ENT 6150)
- Seminar in Entomology (ENT 8090) (This seminar was attended every semester, except for one in which I had a scheduling conflict thus Biological Science Seminar—BIO 8120, was attended instead).
- TrichopteroLOGY (8100)
- Advanced Techniques in Systematics (ENT 8100)
- The Values of Biodiversity (ENT 8100)
- Aquatic Insects (ENT 8100)
- Forensic Entomology (ENT 8100)
- Zoological Nomenclature (ENT 8100)
- Insect Biodiversity (ENT 8100)
- Insect Physiology and Molecular Biology (ENT 8700)
- Southern Appalachian Mayflies, Stoneflies, and Caddisflies (Taught at Highlands Biological Station)
- Master's Thesis Research (ENT 8910)
- Limnology (BIO 6100)
- Statistics (EXST 8010)

PUBLICATIONS

- Genco, M.S.**, J.C. Morse, M.S. Caterino, K.M. Murray, and H.T. Pham (In Review). Larvae and adults of Vietnamese species of *Drepanocentron* and *Hydromanicus* (Trichoptera: Xiphocentronidae, Hydropsychidae). *Zoosymposia: Proceedings of the 15th International Symposium on Trichoptera*.
- Genco, M.S.** 2018. Description and Diagnosis of Associated Larvae and Adults of Vietnamese and South Carolina Caddisflies (Trichoptera). *Master's Thesis*. Clemson University.
https://tigerprints.clemson.edu/all_theses/2839
- Genco, M.S.** and Morse, J.C. Pupae of North American Glossosomatidae (Trichoptera). August 2017. *Freshwater Science*. <http://www.journals.uchicago.edu/doi/full/10.1086/694336>
- Genco, M.** and R. Russell. 2014. The Abundance of Starry Stonewort (*Nitellopsis obtusa*) in Otsego Lake. *47th Annual Report* SUNY Oneonta Biological Field Station, SUNY Oneonta.
<http://www.oneonta.edu/academics/biofld/PUBS/ANNUAL/2014/12%20Otsego%20stonewort%20paper.pdf>
- Russel, R. and **M. Genco**. 2014. Distribution of *Nitellopsis obtusa* (starry stonewort) in Canadarago Lake, NY. *47th Annual Report* SUNY Oneonta Biological Field Station, SUNY Oneonta.
<http://www.oneonta.edu/academics/biofld/PUBS/ANNUAL/2014/15%20Canadarago%20Starry%20stonewort%20paper.pdf>
- Genco, M.**, D. Wong, and M. Albright. 2014. The Effects of Earth Tec[®], a Molluscicide, on Zebra Mussel (*Dreissena polymorpha*) Mortality. *47th Annual Report* SUNY Oneonta Biological Field Station, SUNY Oneonta.
<http://www.oneonta.edu/academics/biofld/PUBS/ANNUAL/2014/27%20Earth%20tec%20Zebra%20Mussel.pdf>

CONFERENCES, WORKSHOPS, AND PRESENTATIONS

- Northwest Conservation Happenings Meeting. June 2019. Indiana University South Bend, South Bend, IN.
- 40th Annual Indiana Water Resource Association Symposium. June 2019. Oakwood Resort, Syracuse, IN.
- Entomological Society of America (ESA), Entomological Society of Canada, And Entomological Society of British Columbia Joint Meeting. 11–14 Nov. 2018. Vancouver, BC, Canada.
- I co-organized and moderated a Member Symposium: *Aquatic Entomology without Borders: A Field That Brings Together All Branches of ESA* .
 - *Poster*: Madeline S. Genco, John C. Morse, Michael S. Caterino, Kelly M. Murray, and Hong Thai Pham. Description and Diagnosis of Associated Larvae and Adults of Two New Trichoptera Species from Bạch Mã National Park Vietnam.
- Trout Unlimited, Insect Workshop. 17 March 2018. Clemson University, Clemson, SC.
- I helped run the workshop and teach a local NC chapter of Trout Unlimited about stoneflies, mayflies, and caddisflies.
- South Carolina Entomological Society Annual Meeting. 5–6 Oct. 2017. Hobcaw Barony, Georgetown, SC.
- *Poster*: Genco, M.S., J.C. Morse, A. Kautz, J. Wenzel, and M. Louw. Learning to See, Seeing to Learn: A web-based macroinvertebrate identification training tool.
- Society for Freshwater Science Annual Meeting 4–9 June 2017. Raleigh, NC.
- *Poster*: Genco, M.S., J.C. Morse, A. Kautz, J. Wenzel, and M. Louw. Learning to See, Seeing to Learn: A web-based macroinvertebrate identification training tool.
- Digital Illustration Workshop lead by Dr. Ralph Holzenthal. 8–10 May 2017. Clemson, SC.

➤ *Participant.*

Macroinvertebrates.org Workshop. 11–13 May 2017. Avondale, PA.

- *Oral Presentation:* Morse, J.C. and M.S. Genco. Entomology, Education, and Invertebrate Identification.

Carolina Area Benthologist's Workshop, Annual Meeting. 25–27 April 2017. Hotsprings, NC.

- *Oral Presentation:* Genco, M.S. and J.C. Morse. Pupae of the North American Glossosomatidae (Trichoptera) Genera.

South Carolina Entomological Society Annual Meeting. 27–28 Oct. 2016. Hickory Knob State Park, McCormick, SC.

- *Oral Presentation:* Genco, M.S. and J.C. Morse. 2017. Pupae of the North American Glossosomatidae (Trichoptera) Genera.

Society for Freshwater Science Annual Meeting. 21–26 May 2016. Sacramento, CA.

- *Poster:* Genco, M.S. and J.C. Morse. 2016. Pupae of the North American Glossosomatidae (Trichoptera) Genera. Society for Freshwater Science Annual Meeting. Sacramento, CA.

SUNY Oneonta Student Research Day. 2014. Oneonta, NY.

- *Poster 1:* Genco, M., R. Russell, and M. Albright. The Abundance of Starry Stonewort (*Nitellopsis obtusa*) in Otsego Lake.
- *Poster 2:* Genco, M., D. Wong, and M. Albright. The Effects of Earth Tec[®], a Molluscicide, on Zebra Mussel (*Dreissena polymorpha*) Mortality.

AWARDS

- Spot Bonus for my help with IDEM's 2020 White River Mainstem Project
- Spot Bonus organizing IDEM's 2019 Health and Safety Field Day
- Best Poster in Applied Research: Society for Freshwater Science Annual Meeting 2017.
- King Grant for Fundamental Research: to support sequencing for my thesis on barcode association of caddisfly larvae and adults. 2017.
- Professional Enrichment Grant (PEG): to support travel to the Society for Freshwater Science Annual Meeting 2017.
- Nettles Travel Award: To support travel to the Society for Freshwater Science Annual Meeting and Caddisfly Collection in Vietnam Summer 2017.
- College Honors Medallion: SUNY Oneonta students with a 3.5 or higher GPA upon graduation receive this award as an honors student. 2014.
- Biology Honors Award: In recognition of outstanding academic performance. 2014.
- Susan Sutton Smith Award: in recognition of superior academic performance in Fall 2011.

PROFESSIONAL MEMBERSHIPS

- Indiana Water Resource Association (2019–Present)
- Society for Freshwater Science (2016–Present)
- Entomological Society of America (2018)
- South Carolina Entomological Society (2016–2018)
- Carolina Area Benthologists Workshop (2017–2018)
- Beta Beta Beta (βββ): Biology National Honors Society (Lifetime Membership)
- Phi Eta Sigma (ΦΗΣ): National Honor Society for Academic Excellence (Lifetime Membership)

Other Volunteer and Extracurricular Activities

Maria Creek IDEM Demo Day (Oct. 14, 2020): I demonstrated Macroinvertebrate identification, showed off live specimens, and answered questions about IDEM sampling of Maria Creek.

Madison County Soil and Water Conservation Virtual Field Day (Oct. 2020): This was a virtual field day geared towards middle and high school students, I gave a recorded demonstration on macroinvertebrates. <https://youtu.be/WfAwdzFy72I>.

SUNY Oneonta Stream Ecology Virtual Career Day Discussion (Apr 16th and July 3, 2020): Meet virtually with SUNY Oneonta students and discussed my journey to become a field biologist.

Indiana State Fair, Pathway to Water Quality Exhibit/ Outreach (Summer 2018 and 2019): Volunteered at state fair, lead a live macroinvertebrate demo, as well as various hands on activities for children.

Clemson University Entomology Society (Secretary and Treasurer: 2016–2017 School Year, Member: Spring 2016 and 2017–2018 School Year)

Greenville Children’s Museum- Girl Scout “Bug Badge” outreach event: Helped Brownies learn about insects using live and pinned specimens (10 Feb. 2018).

Light Up the Night: insect light trap event at the SC Botanical Gardens, to expose kids and members of the general public to entomology (5 Apr. 2016)

Junior Naturalists Event at the SC Botanical Gardens: helped teach kids about insects, build bamboo bee houses, and go on insect collecting (19 April 2016)

Earth Day event at the SC Botanical Gardens: taught visitors about insects, had insect boxes on display, as well as live insects for viewing (15 April 2017)

Nature Center Open House on Insect Discovery at the SC Botanical Gardens: Answered questions about insects, shared books, helped with insect sticker scavenger hunt, make coloring and clay craft activities (6 May 2017)

College of Agriculture, Forestry, and Life Sciences (CAFLS) Tailgate Fundraiser, helped run butter fly house, answer questions about insects on display, and table for t-shirt and merchandise for sale (12 Nov. 2016)

Tate Geological Museum: Fossil preparation. Helped clean dirt and expose dinosaur and fish fossils from rock (Feb.–May 2015)

SUNY Oneonta Orchestra (Spring 2014).

Student Disability Services (SDS): Note taker for students with learning disabilities - General Biology III and Public Speaking (Spring 2013)

Science Seminars-Enrichment Program: Worked with middle school and high school students on science related activities on weekends (2012–2014).

Job Corps Tutor: Tutored students at the Oneonta Job Corps in basic math skills (Fall 2012)

SUNY Oneonta Biology Club: Weekly meetings where we discuss opportunities and ways to get involved in the department and field; e.g., plant sale, camping trips. (2011–2014).

SUNY Oneonta Outing Club: Hiking, rock climbing, horseback riding (2011–2013).

National Honor Society (High School, 2011): Helped run various fundraisers including blood drives and breast cancer awareness month activities.

REFERENCES

Dr. John Morse (Graduate Advisor): (864) 656-5049, jmorse@clemson.edu

Dr. Sophia Fox (National Park Service): (774) 521-7216, sophia_fox@nps.gov

Dr. Jeffrey Heilveil (Undergrad Advisor): (607) 436-3162, jeffrey.heilveil@oneonta.edu

Dr. Mike Caterino (Graduate Co-advisor): (864) 656-3105 mcateri@clemson.edu



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

State of West Virginia
 Centralized Request for Quote
 Laboratory

Proc Folder: 903973		Reason for Modification:	
Doc Description: BENTHIC MACROINVERTEBRATE SAMPLE PROCESSING AND/OR IDENTIFIC		Addendum #1 issued to correct bid close date in Oasis to 9/15/2021 as listed in terms and conditions..... See Page 2 for complete info	
Proc Type: Central Master Agreement			
Date Issued	Solicitation Closes	Solicitation No	Version
2021-09-08	2021-09-15 13:30	CRFQ 0313 DEP2200000007	2

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

VENDOR
Vendor Customer Code: Vendor Name : EnviroScience, Inc. Address : 5070 Stow Rd. Street : City : Stow State : OH Country : USA Zip : 44224 Principal Contact : Andrew Zimmerman Vendor Contact Phone: 800-940-4025 Extension:

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

Vendor Signature X	FEIN# 34-1603505	DATE 9/15/2021
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All offers subject to all terms and conditions contained in this solicitation

Reason for Modification:

Addendum #1 issued to correct bid close date in Oasis to 9/15/2021 as listed in terms and conditions originally published.

ADDITIONAL INFORMATION

The West Virginia Purchasing Division is soliciting bids on behalf of The West Virginia Department of Environmental Protection to establish an open-end contract for the processing and identification of benthic macroinvertebrate samples collected from West Virginia waters. Contracts may be awarded to two (2) vendors, who meet all specs, to ensure coverage of and availability for the entire state per the attached specifications and terms and conditions.

INVOICE TO		SHIP TO	
ENVIRONMENTAL PROTECTION DIV OF WASTE AND WATER MGT 601 57TH ST SE CHARLESTON WV US		ENVIRONMENTAL PROTECTION DIVISION OF WATER AND WASTE MGT 601 57TH ST SE CHARLESTON WV US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Sample Sorting and Identification to Genus Level	500.00000	EA	\$395	\$197.500

Comm Code	Manufacturer	Specification	Model #
81131504			

Extended Description:

SORTING AND IDENTIFICATION OF A 200 ORGANISM SUBSAMPLE TO GENUS LEVEL: INCLUDE TRAVEL COST FOR SAMPLE PICKUP AND DELIVERY PER UNIT.

Reference 3.2.1A in specifications

INVOICE TO		SHIP TO	
ENVIRONMENTAL PROTECTION DIV OF WASTE AND WATER MGT 601 57TH ST SE CHARLESTON WV US		ENVIRONMENTAL PROTECTION DIVISION OF WATER AND WASTE MGT 601 57TH ST SE CHARLESTON WV US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	Sample Ident to Genus Level Only : Samples Pre-sorted	5.00000	HOUR	\$99	\$495

Comm Code	Manufacturer	Specification	Model #
81131504			

Extended Description:

Sample Identified to Genus Level Only : Samples Pre-sorted

Reference 3.2.1B in specifications

INVOICE TO		SHIP TO	
ENVIRONMENTAL PROTECTION DIV OF WASTE AND WATER MGT 601 57TH ST SE CHARLESTON WV US		ENVIRONMENTAL PROTECTION DIVISION OF WATER AND WASTE MGT 601 57TH ST SE CHARLESTON WV US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	Profession Staff Representation of Data in Legal	5.00000	HOUR	\$117	\$585

Comm Code	Manufacturer	Specification	Model #
81131504			

Extended Description:
PROFESSIONAL STAFF REPRESENTATION OF DATA IN LEGAL
Reference 3.2.2 in specifications
Reference 2.2.1.5 in specifications

SCHEDULE OF EVENTS

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
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	Document Phase	Document Description	Page
DEP2200000007	Final	BENTHIC MACROINVERTEBRATE SAMPLE PROCESSING AND/OR IDENTIFIC	4

ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions



Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
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State of West Virginia
 Centralized Request for Quote
 Laboratory

Proc Folder: 903973			Reason for Modification:
Doc Description: BENTHIC MACROINVERTEBRATE SAMPLE PROCESSING AND/OR IDENTIFIC			
Proc Type: Central Master Agreement			
Date Issued	Solicitation Closes	Solicitation No	Version
2021-09-01	2021-09-08 13:30	CRFQ 0313 DEP2200000007	1

BID RECEIVING LOCATION


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

VENDOR

Vendor Customer Code: WVOASIS User ID:EnviroScienceInc
Vendor Name : EnviroScience, Inc.
Address : 129 Greenbag Rd
Street :
City : Morgantown
State : WV **Country :** USA **Zip :** 26501
Principal Contact : Andrew Zimmerman
Vendor Contact Phone: 800-940-4025 **Extension:** 351

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

Greg Zimmerman for EnviroScience, Inc., Vice President

Vendor Signature X  **FEIN#** 34-1603505 **DATE** 9/15/2021

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

ADDITIONAL INFORMATION

The West Virginia Purchasing Division is soliciting bids on behalf of The West Virginia Department of Environmental Protection to establish an open-end contract for the processing and identification of benthic macroinvertebrate samples collected from West Virginia waters. Contracts may be awarded to two (2) vendors, who meet all specs, to ensure coverage of and availability for the entire state per the attached specifications and terms and conditions.

INVOICE TO		SHIP TO	
ENVIRONMENTAL PROTECTION DIV OF WASTE AND WATER MGT 601 57TH ST SE CHARLESTON US	WV	ENVIRONMENTAL PROTECTION DIVISION OF WATER AND WASTE MGT 601 57TH ST SE CHARLESTON US	WV

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Sample Sorting and Identification to Genus Level	500.00000	EA	\$395	\$197,500

Comm Code	Manufacturer	Specification	Model #
81131504			

Extended Description:

SORTING AND IDENTIFICATION OF A 200 ORGANISM SUBSAMPLE TO GENUS LEVEL: INCLUDE TRAVEL COST FOR SAMPLE PICKUP AND DELIVERY PER UNIT.

Reference 3.2.1A in specifications

INVOICE TO		SHIP TO	
ENVIRONMENTAL PROTECTION DIV OF WASTE AND WATER MGT 601 57TH ST SE CHARLESTON US	WV	ENVIRONMENTAL PROTECTION DIVISION OF WATER AND WASTE MGT 601 57TH ST SE CHARLESTON US	WV

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	Sample Ident to Genus Level Only : Samples Pre-sorted	5.00000	HOUR		

Comm Code	Manufacturer	Specification	Model #
81131504			

Extended Description:

Sample Identified to Genus Level Only : Samples Pre-sorted

Reference 3.2.1B in specifications

INVOICE TO		SHIP TO	
ENVIRONMENTAL PROTECTION DIV OF WASTE AND WATER MGT 601 57TH ST SE CHARLESTON WV US		ENVIRONMENTAL PROTECTION DIVISION OF WATER AND WASTE MGT 601 57TH ST SE CHARLESTON WV US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	Profession Staff Representation of Data in Legal	5.00000	HOUR		

Comm Code	Manufacturer	Specification	Model #
81131504			

Extended Description:

PROFESSIONAL STAFF REPRESENTATION OF DATA IN LEGAL
Reference 3.2.2 in specifications

Reference 2.2.1.5 in specifications

SCHEDULE OF EVENTS

<u>Line</u>	<u>Event</u>	<u>Event Date</u>
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INSTRUCTIONS TO VENDORS SUBMITTING BIDS

1. REVIEW DOCUMENTS THOROUGHLY: The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

2. MANDATORY TERMS: The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

3. PREBID MEETING: The item identified below shall apply to this Solicitation.

A pre-bid meeting will not be held prior to bid opening

A **MANDATORY PRE-BID** meeting will be held at the following place and time:

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one individual is permitted to represent more than one vendor at the pre-bid meeting. Any individual that does attempt to represent two or more vendors will be required to select one vendor to which the individual's attendance will be attributed. The vendors not selected will be deemed to have not attended the pre-bid meeting unless another individual attended on their behalf.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing.

Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting
Revised 07/01/2021

are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

4. VENDOR QUESTION DEADLINE: Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are nonbinding.

Submitted e-mails should have solicitation number in the subject line.

Question Submission Deadline:

Submit Questions to:

2019 Washington Street, East

Charleston, WV 25305

Fax: (304) 558-4115 (Vendors should not use this fax number for bid submission)

Email:

5. VERBAL COMMUNICATION: Any verbal communication between the Vendor and any State personnel is not binding, including verbal communication at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.

6. BID SUBMISSION: All bids must be submitted electronically through wvOASIS or signed and delivered by the Vendor to the Purchasing Division at the address listed below on or before the date and time of the bid opening. Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason. The Purchasing Division will not accept bids, modification of bids, or addendum acknowledgment forms via e-mail. Acceptable delivery methods include electronic submission via wvOASIS, hand delivery, delivery by courier, or facsimile.

The bid delivery address is:

Department of Administration, Purchasing Division

2019 Washington Street East

Charleston, WV 25305-0130

A bid that is not submitted electronically through wvOASIS should contain the information listed below on the face of the envelope or the bid may be rejected by the Purchasing Division.:

SEALED BID:

BUYER:

SOLICITATION NO.:

BID OPENING DATE:

BID OPENING TIME:

FAX NUMBER:

The Purchasing Division may prohibit the submission of bids electronically through wvOASIS at its sole discretion. Such a prohibition will be contained and communicated in the wvOASIS system resulting in the Vendor's inability to submit bids through wvOASIS. Submission of a response to a Request for Proposal is not permitted in wvOASIS.

For Request For Proposal (“RFP”) Responses Only: In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal prior to the bid opening date and time identified in Section 7 below, plus _____ convenience copies of each to the Purchasing Division at the address shown above. Additionally, the Vendor should clearly identify and segregate the cost proposal from the technical proposal in a separately sealed envelope.

7. BID OPENING: Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when confirmation of delivery is provided by wvOASIS (in the case of electronic submission) or when the bid is time stamped by the official Purchasing Division time clock (in the case of hand delivery).

Bid Opening Date and Time:

Bid Opening Location: Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

8. ADDENDUM ACKNOWLEDGEMENT: Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

9. BID FORMATTING: Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

10. ALTERNATE MODEL OR BRAND: Unless the box below is checked, any model, brand, or specification listed in this Solicitation establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

[] This Solicitation is based upon a standardized commodity established under W. Va. Code §

5A-3-61. Vendors are expected to bid the standardized commodity identified. Failure to bid the standardized commodity will result in your firm's bid being rejected.

11. EXCEPTIONS AND CLARIFICATIONS: The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

12. COMMUNICATION LIMITATIONS: In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

13. REGISTRATION: Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the \$125 fee, if applicable.

14. UNIT PRICE: Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

15. PREFERENCE: Vendor Preference may be requested in purchases of motor vehicles or construction and maintenance equipment and machinery used in highway and other infrastructure projects. Any request for preference must be submitted in writing with the bid, must specifically identify the preference requested with reference to the applicable subsection of West Virginia Code § 5A-3-37, and must include with the bid any information necessary to evaluate and confirm the applicability of the requested preference. A request form to help facilitate the request can be found at:

<http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf>.

15A. RECIPROCAL PREFERENCE: The State of West Virginia applies a reciprocal preference to all solicitations for commodities and printing in accordance with W. Va. Code § 5A-3-37(b). In effect, non-resident vendors receiving a preference in their home states, will see that same preference granted to West Virginia resident vendors bidding against them in West Virginia. Any request for reciprocal preference must include with the bid any information necessary to evaluate and confirm the applicability of the preference. A request form to help facilitate the request can be found at: <http://www.state.wv.us/admin/purchase/vrc/Venpref.pdf>.

16. SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES: For any solicitations publicly advertised for bid, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to contract award to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in

accordance with W. Va. CSR § 148-22-9.

17. WAIVER OF MINOR IRREGULARITIES: The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.

18. ELECTRONIC FILE ACCESS RESTRICTIONS: Vendor must ensure that its submission in wvOASIS can be accessed and viewed by the Purchasing Division staff immediately upon bid opening. The Purchasing Division will consider any file that cannot be immediately accessed and viewed at the time of the bid opening (such as, encrypted files, password protected files, or incompatible files) to be blank or incomplete as context requires, and are therefore unacceptable. A vendor will not be permitted to unencrypt files, remove password protections, or resubmit documents after bid opening to make a file viewable if those documents are required with the bid. A Vendor may be required to provide document passwords or remove access restrictions to allow the Purchasing Division to print or electronically save documents provided that those documents are viewable by the Purchasing Division prior to obtaining the password or removing the access restriction.

19. NON-RESPONSIBLE: The Purchasing Division Director reserves the right to reject the bid of any vendor as Non-Responsible in accordance with W. Va. Code of State Rules § 148-1-5.3, when the Director determines that the vendor submitting the bid does not have the capability to fully perform or lacks the integrity and reliability to assure good-faith performance.”

20. ACCEPTANCE/REJECTION: The State may accept or reject any bid in whole, or in part in accordance with W. Va. Code of State Rules § 148-1-4.5. and § 148-1-6.4.b.”

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

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

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

22. INTERESTED PARTY DISCLOSURE: West Virginia Code § 6D-1-2 requires that the vendor submit to the Purchasing Division a disclosure of interested parties to the contract for all contracts with an actual or estimated value of at least \$1 Million. That disclosure must occur on the form prescribed and approved by the WV Ethics Commission prior to contract award. A copy of that form is included with this solicitation or can be obtained from the WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national

or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

23. WITH THE BID REQUIREMENTS: In instances where these specifications require documentation or other information with the bid, and a vendor fails to provide it with the bid, the Director of the Purchasing Division reserves the right to request those items after bid opening and prior to contract award pursuant to the authority to waive minor irregularities in bids or specifications under W. Va. CSR § 148-1-4.6. This authority does not apply to instances where state law mandates receipt with the bid.

24. E-MAIL NOTIFICATION OF AWARD: The Purchasing Division will attempt to provide bidders with e-mail notification of contract award when a solicitation that the bidder participated in has been awarded. For notification purposes, bidders must provide the Purchasing Division with a valid email address in the bid response. Bidders may also monitor wvOASIS or the Purchasing Division's website to determine when a contract has been awarded.

GENERAL TERMS AND CONDITIONS:

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

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

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

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

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

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

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

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

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

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

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

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

Term Contract

Initial Contract Term: This Contract becomes effective on _____ and the initial contract term extends until _____.

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

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

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

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

Fixed Period Contract with Renewals: This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within _____ days. Upon completion of the work covered by the preceding sentence, the vendor agrees that maintenance, monitoring, or warranty services will be provided for _____ year(s) thereafter.

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

Other: See attached _____

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

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

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

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

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

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

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

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

BID BOND (Construction Only): Pursuant to the requirements contained in W. Va. Code § 5-22-1(c), All Vendors submitting a bid on a construction project shall furnish a valid bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

PERFORMANCE BOND: The apparent successful Vendor shall provide a performance bond in the amount of 100% of the contract. The performance bond must be received by the Purchasing Division prior to Contract award.

LABOR/MATERIAL PAYMENT BOND: The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be delivered to the Purchasing Division prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under \$100,000. Personal or business checks are not acceptable. Notwithstanding the foregoing, West Virginia Code § 5-22-1 (d) mandates that a vendor provide a performance and labor/material payment bond for construction projects. Accordingly, substitutions for the performance and labor/material payment bonds for construction projects is not permitted.

MAINTENANCE BOND: The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.

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

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

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

Vendor must maintain:

Commercial General Liability Insurance in at least an amount of: _____ per occurrence.

Automobile Liability Insurance in at least an amount of: _____ per occurrence.

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

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

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

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

Pollution Insurance in an amount of: _____ per occurrence.

Aircraft Liability in an amount of: _____ per occurrence.

Notwithstanding anything contained in this section to the contrary, the Director of the Purchasing Division reserves the right to waive the requirement that the State be named as an additional insured on one or more of the Vendor's insurance policies if the Director finds that doing so is in the State's best interest.

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

10. [Reserved]

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

_____ for _____.

Liquidated Damages Contained in the Specifications.

Liquidated Damages Are Not Included in this Contract.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

34. VENDOR CERTIFICATIONS: By signing its bid or entering into this Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this Solicitation in its entirety; understands the requirements, terms and conditions, and other information contained herein.

Vendor's signature on its bid or offer also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

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

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

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

37. PURCHASING AFFIDAVIT: In accordance with West Virginia Code §§ 5A-3-10a and 5-22-1(i), the State is prohibited from awarding a contract to any bidder that owes a debt to the State or a political subdivision of the State, Vendors are required to sign, notarize, and submit the Purchasing Affidavit to the Purchasing Division affirming under oath that it is not in default on any monetary obligation owed to the state or a political subdivision of the state.

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

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

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

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

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

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

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

b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open heath, basic oxygen, electric furnace, Bessemer or other steel making process. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:

c. The cost for each contract item used does not exceed one tenth of one percent (.1%)

of the total contract cost or two thousand five hundred dollars (\$2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or

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

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

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

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

43. INTERESTED PARTY SUPPLEMENTAL DISCLOSURE: W. Va. Code § 6D-1-2 requires that for contracts with an actual or estimated value of at least \$1 million, the vendor must submit to the Agency a supplemental disclosure of interested parties reflecting any new or differing interested parties to the contract, which were not included in the original pre-award interested party disclosure, within 30 days following the completion or termination of the contract. A copy of that form is included with this solicitation or can be obtained from the Revised 07/01/2021

WV Ethics Commission. This requirement does not apply to publicly traded companies listed on a national or international stock exchange. A more detailed definition of interested parties can be obtained from the form referenced above.

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

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

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

[Andrew Zimmerman, Aquatic Biologist / Project Manager](#)

(Name, Title)

(Printed Name and Title)

(Address)

(Phone Number) / (Fax Number)

(email address) AZimmerman@EnviroScienceinc.com

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that: I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

By signing below, I further certify that I understand this Contract is subject to the provisions of West Virginia Code § 5A-3-62, which automatically voids certain contract clauses that violate State law.

[EnviroScience, Inc.](#)

(Company)

(Authorized Signature) (Representative Name, Title)

[Greg Zimmerman, Vice President](#)

(Printed Name and Title of Authorized Representative)

[9/15/2021](#)

(Date)

[800-940-4025 ext. 232 / 330-688-0111](#)

(Phone Number) (Fax Number)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.:

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

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

Addendum Numbers Received:

(Check the box next to each addendum received)

- | | |
|---|--|
| <input type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

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

Company

Authorized Signature

Date

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

REQUEST FOR QUOTATION
Benthic Macroinvertebrate Sample Processing and Identification Services

SPECIFICATIONS

- 1. PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of The West Virginia Department of Environmental Protection to establish an open-end contract for the processing and identification of benthic macroinvertebrate samples collected from West Virginia waters. Contracts may be awarded to two (2) vendors, who meet all specs, to ensure coverage of and availability for the entire state.

Previous Solicitations: This solicitation was previously advertised as CRFQ DEP1700000024 and bid opening was on: 06/13/2017. Bid results may be reviewed at: <http://www.state.wv.us/admin/purchase/Bids/FY2017/BO20170613.html>

Vendors are encouraged to review requirements carefully as some current requirements are different than previous solicitations.

- 2. DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions.
- 2.1 “Contract Item” or “Contract Items”** means the list of items identified in Section 3.1 below and on the Pricing Pages.
- 2.2 “Pricing Pages”** means the schedule of prices, estimated order quantity, and totals contained in wvOASIS or attached hereto as Exhibit A, and used to evaluate the Solicitation responses.
- 2.3 “Solicitation”** means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.
- 2.4 “DEP/DWWM”** means the West Virginia Department of Environmental Protection Division of Water and Waste Management.
- 2.5 “WAB”** means Watershed Assessment Branch of the WV Department of Environmental Protection.
- 2.6 “EDD”** means Electronic Data Deliverables which is any electronic report that includes results of analytical tests performed (e.g., Excel Spreadsheets, PDFs, etc.).
- 2.7 “Macroinvertebrates”** means animals that are large enough to be seen with the naked eye and do not have a backbone.
- 2.8 “Benthic Organisms (Benthos)”** means living organisms that reside on the bottom of streams, rivers, or lakes. Benthos may be vertebrates, invertebrates, or plants.

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- 2.9 “Reference Collections”** means a subset of specimens that are: 1) expertly identified to the lowest appropriate taxonomic level and 2) contain ideal (undamaged) representative specimens of each taxon identified during the duration of the contract. For the purposes of DEP/DWWM’s studies, a reference collection does not have to be limited to a particular watershed. Reference collections should have expert confirmation of each taxon. These collections are used to verify identifications of subsequent samples. The reference collection shall contain identified specimens that will be returned to DEP/DWWM but may also contain specimens that will be retained by the vendor indefinitely (with permission).
- 2.10 “Voucher Collections”** means a collection that consists of the actual sample specimens collected during the contract. Following sorting, identification, and enumeration, all specimens in a sample (except those retained for the Reference Collection) should be maintained in a voucher collection. This collection will be returned to the DEP/DWWM on a set schedule or upon request.
- 2.11 “Materials and Procedures for Sorting”** means the pages upon which the Vendor should refer to for materials and processes, for sorting. The Materials and Procedures for Sorting is attached hereto as Attachment A.
- 2.12 “Materials for Identification of Benthic Macroinvertebrates”** means the pages upon which the Vendor should refer to for material on the identification of benthic macroinvertebrates. The material for identification of Benthic Macroinvertebrates is attached hereto as Attachment A.
- 2.13 “Procedures for Mounting Chironomidae (other small specimens)”** means the pages which the Vendor should refer to for procedures on mounting Chironomidae (and other small specimens) is attached hereto as Attachment A.
- 2.14 “Taxonomic Keys”** means the pages containing the references which the Vendor may use for taxonomic identification if the references are up to date. The Taxonomic Keys are attached hereto as Attachment A.
- 2.15 “WVDEP-WAS Benthic Macroinvertebrate Lab Sheet”** means the pages the Vendor will use to document identification of specimens. The Lab Sheet is attached hereto as Attachment A.

3. GENERAL REQUIREMENTS:

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3.1 QUALIFICATIONS: Vendor must have the following minimum qualifications:

- 3.1.1** Must have degreed taxonomists on staff performing the benthic macroinvertebrate identifications.
- 3.1.2** Must have dedicated taxonomists on staff performing the benthic macroinvertebrate identifications.
- 3.1.3** Must have Society of Freshwater Science (SFS) certified taxonomists on staff and on location performing the benthic macroinvertebrate identifications.
- 3.1.4** Must have at least 2 taxonomists on staff with current SFS certification for EPT East.
- 3.1.5** Must have at least 2 taxonomists on staff with current SFS certification for Chironomidae East.
- 3.1.6** Must have at least 1 taxonomist on staff with current SFS certification for General Arthropods East.
- 3.1.7** Should have staff with a minimum of 5 years of experience with processing and sorting benthic macroinvertebrate samples.
- 3.1.8** Should have a minimum of 5 years experience dealing with large-scale benthic macroinvertebrate processing and identification contracts. The vendor, prior to award, must demonstrate this by submitting the number of samples they have identified and to what taxonomic level in the last 5 years. This number shall be greater than 300 per year.
- 3.1.9** Vendor should provide resumes of taxonomists performing the identifications in the bid package but must submit them prior to award. Resumes must include proof of degree, pertinent work experience, and current SFS taxonomic certifications.
- 3.1.10** Vendor should provide resumes of individuals (if different from taxonomists) who will sort the samples in the bid package but must submit them prior to award. Resumes must include pertinent work experience.
- 3.1.11** Compliance with experience requirements will be determined prior to contract award by the State through references provided

REQUEST FOR QUOTATION
Benthic Macroinvertebrate Sample Processing and Identification Services

by the Vendor with its bid or upon request, through knowledge or documentation of the Vendor's past contracts, or some other method that the State determines to be acceptable. Vendor should provide a current résumé which includes information regarding the number of years of qualification, experience and training, and relevant professional education for each individual that will be assigned to this contract. Vendor must provide any documentation requested by the State to assist in confirmation of compliance with this provision. References, documentation, or other information to confirm compliance with this experience requirement are preferred with the bid submission but may be requested after bid opening and will be required prior to any contract award.

3.2 Contract Items and Mandatory Requirements: Vendor shall provide Agency with the Contract Items listed below on an open-end and continuing basis. Contract Items must meet or exceed the mandatory requirements as shown below.

3.2.1 SAMPLE PROCESSING – Two sample services are required for bid (See Attachment A):

A. SAMPLE SORTING AND IDENTIFICATION TO GENUS LEVEL

B. SAMPLE IDENTIFICATION TO GENUS LEVEL ONLY (SAMPLES PRE-SORTED)

3.2.1.1 Completed results must be delivered to DEP/DWWM according to the following schedule:

- All sample shipments submitted by April 1 are due August 31.
- All sample shipments submitted by August 31 are due December 1.
- All sample shipments submitted by December 31 are due February 28.
- Results of smaller, site-specific projects must be available within one month of sample receipt or within some other negotiated time.
- Each sample shipment may contain prioritization rankings that must be followed unless otherwise directed by DEP/DWWM.

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3.2.1.2 Result batches of completed identifications shall be submitted at least every 6 weeks.

3.2.1.3 All completed result batches shall include the following for each sample:

- A) Benthic macroinvertebrate identifications reported in MS Excel or Access (DEP/DWWM will provide a data template).
- B) PDF copies of bench sheets completed during identifications.
- C) All internal QA/QC information associated with sorting and identification of samples.

3.2.1.4 All organisms identified (i.e., the voucher and DEP/DWWM reference collections) will be returned on a regular basis (e.g., once a year) or when the contract is complete.

3.2.2 PROFESSIONAL STAFF REPRESENTATION OF DATA IN LEGAL – The selected firm or firms may be requested by the DEP/DWWM to testify concerning the validity of the laboratory sorting and identification process (See Attachment A). The firm will only be required to testify to the following areas:

1. Time of notification by the DEP/DWWM of sample shipment and by whom.
2. Condition of sample.
3. How sample was preserved and maintained by the firm.
4. Dates of sorting and identification and by whom.
5. Chain of custody procedures within the laboratory.
6. Methods used for sorting and identification.
7. Results of sorting, identification, and internal QA/QC processes.

At no time will the firm respond to questions concerning the interpretation of results.

3.2.3 The vendors, who are awarded a contract, when performing work under the terms and conditions of the contract, are solely responsible for the satisfactory completion of the work (i.e., no subcontracting).

3.2.4 The vendor agrees that all data, analyses, materials, reports, or other information, oral or written, prepared by the vendor with

REQUEST FOR QUOTATION
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respect to this contract shall, except for information which has been publicly available, be treated as confidential and shall not be utilized, released, published, or disclosed by the vendor at any time for any purpose whatsoever other than to provide consultation or other service to the DEP/DWWM. Vendor may approach DEP/DWWM regarding use of the data for publication (e.g., novel taxa, updating State and County species records, etc.).

- 3.2.5** The vendor must strictly adhere to quality control and analytical procedures as outlined in Attachment A.

4. CONTRACT AWARD:

- 4.1 Contract Award:** The Contract is intended to provide Agencies with a purchase price on all Contract Items. The Contract shall be awarded to the Vendor that provides the Contract Items meeting the required specifications for the lowest overall total cost as shown on the Pricing Pages.
- 4.2 Pricing Pages:** Vendor should complete the Pricing Pages in wvOASIS by entering the unit price for each contract item defined in wvOASIS and multiply by the estimated quantity to get total bid for that item. Vendor should complete the Pricing Pages in their entirety as failure to do so may result in Vendor's bids being disqualified.

The Pricing Pages contain a list of the Contract Items and estimated purchase volume. The estimated purchase volume for each item represents the approximate volume of anticipated purchases only. No future use of the Contract or any individual item is guaranteed or implied.

Vendor should electronically enter the information into the Pricing Pages through wvOASIS, if available, or as an electronic document. In most cases, the Vendor can request an electronic copy of the Pricing Pages for bid purposes by sending an email request to the following address: joseph.e.hageriii@wv.gov

5. ORDERING AND PAYMENT:

- 5.1 Ordering:** Vendor shall accept orders through wvOASIS, regular mail, facsimile, e-mail, or any other written form of communication. Vendor may, but is not required to, accept on-line orders through a secure internet ordering portal/website. If Vendor

REQUEST FOR QUOTATION
Benthic Macroinvertebrate Sample Processing and Identification Services

has the ability to accept on-line orders, it should include in its response a brief description of how Agencies may utilize the on-line ordering system. Vendor shall ensure that its on-line ordering system is properly secured prior to processing Agency orders on-line.

5.2 Payment: Vendor shall accept payment in accordance with the payment procedures of the State of West Virginia.

5.2.1 Vendor shall list the following on each invoice:

5.2.1.1 Vendor shall list individual line-item numbers from the contract.

5.2.1.2 Vendor shall list contract number.

5.2.1.3 Vendor shall list requesting employee or designated employee.

5.2.1.4 Vendor shall list project name submitted with analysis request.

5.2.1.5 Invoices shall be sent to the ordering office stated on the chain of custody form.

5.2.2 Failure to include these items on invoices shall result in delayed payment and possible request for revised invoice.

6. DELIVERY AND RETURN:

6.1 Delivery Time: Vendor shall deliver standard orders as outlined above or in Attachment A.

6.2 Late Delivery: The Agency placing the order under this Contract must be notified in writing if orders will be delayed for any reason. Any delay in delivery that could cause harm to an Agency will be grounds for cancellation of the delayed order, and/or obtaining the items ordered from a third party.

Any Agency seeking to obtain items from a third party under this provision must first obtain approval of the Purchasing Division.

6.3 Delivery Payment/Risk of Loss: Standard order delivery shall be F.O.B. destination to the Agency's location. Vendor shall include the cost of standard order delivery charges in its bid pricing/discount and is not permitted to charge the Agency separately for such delivery. The Agency will pay delivery charges on all emergency orders provided that Vendor invoices those delivery costs as a separate charge with the original freight bill attached to the invoice.

6.4 Return of Unacceptable Items: If the Agency deems the Contract Items to be unacceptable, the Contract Items shall be returned to Vendor at Vendor's expense

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and with no restocking charge. Vendor shall either make arrangements for the return within five (5) days of being notified that items are unacceptable, or permit the Agency to arrange for the return and reimburse Agency for delivery expenses. If the original packaging cannot be utilized for the return, Vendor will supply the Agency with appropriate return packaging upon request. All returns of unacceptable items shall be F.O.B. the Agency's location. The returned product shall either be replaced, or the Agency shall receive a full credit or refund for the purchase price, at the Agency's discretion.

- 6.5 Return Due to Agency Error:** Items ordered in error by the Agency will be returned for credit within 30 days of receipt, F.O.B. Vendor's location. Vendor shall not charge a restocking fee if returned products are in a resalable condition. Items shall be deemed to be in a resalable condition if they are unused and in the original packaging. Any restocking fee for items not in a resalable condition shall be the lower of the Vendor's customary restocking fee or 5% of the total invoiced value of the returned items.

7. VENDOR DEFAULT:

7.1 The following shall be considered a vendor default under this Contract.

- 7.1.1** Failure to provide Contract Items in accordance with the requirements contained herein.
- 7.1.2** Failure to comply with other specifications and requirements contained herein.
- 7.1.3** Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.
- 7.1.4** Failure to remedy deficient performance upon request.

7.2 The following remedies shall be available to Agency upon default.

- 7.2.1** Immediate cancellation of the Contract.
- 7.2.2** Immediate cancellation of one or more release orders issued under this Contract.

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7.2.3 Any other remedies available in law or equity.

8. MISCELLANEOUS:

- 8.1 No Substitutions:** Vendor shall supply only Contract Items submitted in response to the Solicitation unless a contract modification is approved in accordance with the provisions contained in this Contract.
- 8.2 Vendor Supply:** Vendor must carry sufficient inventory of the Contract Items being offered to fulfill its obligations under this Contract. By signing its bid, Vendor certifies that it can supply the Contract Items contained in its bid response.
- 8.3 Reports:** Vendor shall provide quarterly reports and annual summaries to the Agency showing the Agency's items purchased, quantities of items purchased, and total dollar value of the items purchased. Vendor shall also provide reports, upon request, showing the items purchased during the term of this Contract, the quantity purchased for each of those items, and the total value of purchases for each of those items. Failure to supply such reports may be grounds for cancellation of this Contract.
- 8.4 Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

Contract Manager: Andrew Zimmerman
Telephone Number: 800-940-4025
Fax Number: 330-688-0111
Email Address: AZimmerman@EnviroScienceinc.com

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In administering and enforcing most of the pollution control laws of the state, the importance of quality control cannot be overstated. Quality control measures must be strictly adhered to in all phases of sample collection, preservation, transportation, and analysis. The quality control and analytical processes, as they relate to the vendor's responsibility, are divided into six (6) major steps:

- Step 1** - Pickup of benthic samples at specified location.
- Step 2** - Sorting of samples in a timely and professional manner (if applicable).
- Step 3** - Identification of samples in a timely and professional manner.
- Step 4** - Reporting of Results and Return of Materials.
- Step 5** - Establishment of continuing program to ensure the reliability of data (Quality Assurance/Quality Control or QA/QC).
- Step 6** - Legal Testimony

Step 1 - Pickup of Benthic Samples

All Benthic macroinvertebrate samples will be collected by DEP/DWWM personnel.

Pre-sorted samples (vials) will be shipped to the contractor using commercial transport such as UPS or Federal Express at DEP/DWWM's expense. Therefore, the cost of shipping should not be included in the bid for pre-sorted samples.

Due to the size of the sample containers (1-gallon jar) and the total number of samples collected annually (approx. 500), DEP/DWWM will not ship unsorted samples to the contractor using commercial transport such as UPS or Federal Express (except for special projects/surveys that require a quick turnaround in results). Therefore, the vendor shall provide sample pick-up and delivery services. Generally, samples will be housed at DEP/DWWM's office in Charleston, WV. The vendor will bear the cost of sample transport by including sample transport costs as part of the bid package. Typically, there are four to five sample pick-ups per year.

DEP/DWWM will provide Chain-of-Custody forms when the samples are collected by the vendor. The vendor shall be responsible for maintaining preservation of the samples and the internal chain of custody from the time the vendor obtains the samples until the results of benthic macroinvertebrate samples are returned and accepted by the DEP/DWWM. The vendor shall also maintain records of the results of identifications for a minimum of five (5) years.

Step 2 - Requirements for Sorting Benthic Macroinvertebrate Samples

Introduction

1. Benthic macroinvertebrate samples shall be sorted/processed in accordance with the procedures outlined below and taken from the most current version of the WVDEP Watershed Assessment Branch Standard Operating Procedures, Chapter 5. Benthic Macroinvertebrate Collection Protocols, Section B. Laboratory Processing of Benthic Macroinvertebrate Samples. This procedure must be reviewed fully before submitting bids.

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2. For the majority of samples, sorting requires removing a sub-sample consisting of 200 (+/- 20%) benthic macroinvertebrate organisms from the entire sample. Any vertebrates (salamanders, fish) encountered during subsampling should be retained (separately from the benthic macroinvertebrates) by sample, but not identified. Any specimens should be stored in archival quality containers that will prevent loss of preservative through evaporation: glass vials with leak-proof Polyseal screw caps, polypropylene jars with screw caps, etc. (see Step 4 Reporting of Results and Return of Materials for details).
3. Vendor will be responsible for examining sorting efficiency for 5% of all submitted samples for QA/QC purposes and reporting the information with each data submission.
4. Sorting macroinvertebrates from benthic survey samples (a procedure often referred to as "bug sorting") is an extremely important step in the biological research performed by the WV DEP. The quality of the work performed by the "sorter" influences the quality of subsequent processes, such as identification and data analysis. A competent "sorter" must be able to recognize the morphological diversity of aquatic organisms, as well as the various methods these organisms may use to hide themselves from predators. The outcome of the final study may be affected, even if only a few organisms are overlooked during the sorting process. Vendor should have staff with a minimum of 5 years of experience with processing and sorting benthic macroinvertebrate sample.

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Materials for Sorting

1. Sample Jar - contains the unprocessed sample, which consists of benthic organisms and stream debris.
2. Sample vial/bottle/jar - for storage of processed sample. This container may be a plastic/glass vial or a larger plastic bottle. Most samples will fit into a 10 ml or 4 or 6-dram vial, however, large organisms such as crayfish and snails, will require larger vials/bottles/jars.
3. Sorting tray - a homemade plastic or Plexiglas tray used to evenly distribute the sieved sample and for randomly selecting the sub-sample. The internal dimension of the tray is 40 inches x 10 inches and divided into 100 grids, each with a dimension of 2 x 2 inches.
4. White foam board or other schematic - 10 inches x 40 inches and marked with 100-2 x 2-inch grids that are randomly numbered, demarking grids that will be randomly selected for sorting. This is accomplished by placing the Plexiglas tray on top of the white foam board and lining up the grids.
5. White Flat-bottom Pans - used for sorting/picking specimens removed from the 100-grid sorting tray.
6. Denatured Ethanol - preservative used in unprocessed and processed samples.

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7. Sieve - #30 sieves (595 um) are used to separate alcohol and fine debris from the sample prior to sorting.
8. Labels - Archival paper is used to internally label the contents of the sample vials/bottles (i.e., the sorted sample) and self-adhesive labels are used to externally (if necessary) identify the sample vials/bottles. External labels may be omitted for samples stored in transparent glass containers if the internal label is clearly visible.
9. Clear Tape - Used on label as additional external adhesive.
10. Pencil - used to label sample bottle.
11. Small container/vial; used for short term, intermediate storage of the sample during the sorting process (e.g., crucible).
12. Forceps - Fine tipped forceps are used to remove the organisms from the debris.
13. Debris spoon - a thin, square-edged spoon made of plastic that is used to remove material with specimens from 2 x 2-inch grids. May be used as a scoop for sweeping and capturing debris from a selected grid.
14. 10x Illuminated Magnifier - an optical aid to illuminate and magnify the sample during the sorting process. Alternatively, magnifying visors and a desk lamp can be used.
15. Squirt bottle - filled with alcohol, used to rinse organisms into sample vial.
16. Plexiglas - used to cover sample partially sorted overnight to prevent evaporation and desiccation of specimens.
17. Counter - used to count the number of organisms removed from the sample.

Procedures for Sorting

1. Select the sample to be sorted. If a sample is in two or more jars, the contents of the jars must be combined before sorting is initiated. Samples requiring more than one jar will be labeled as "1 of 2" and "2 of 2".
2. Select a vial or small bottle that will hold the organisms after sorting is completed. Usually, a 10 mL or 4 to 6-dram vial is adequate for a 200-organisms subsample. Additional vials/bottles may be needed if the sample contains large organisms such as crayfish. In some cases, it may be necessary to split the sample into multiple bottles or vials.
3. Prepare an *internal* label out of archival paper for the sample using permanent, alcohol-proof, archival ink (e.g., pigma ink; regular ink will run if alcohol is spilled on the label)

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or a pencil.

The label must include the following information:

Stream Name

Station Number (AN-code)

Random Number (if provided)

Lab Sample ID# (Lab's internal ID to link the electronic results to the database)

Sample Date

County

Initials of Sample Collector

Initials of Sample Processor

of grids sorted (the numbers must be kept separate if several iterations of sorting are necessary; see below)

of organisms sorted for final sample

Vial # out of Total Vials (to be added after the sample picking is done if more than one container is used)

If any of this information is missing from the original sample jar label, notify the DEP/DWWM biologists so that the error can be corrected.

External labels may be omitted from samples stored in transparent glass containers if the internal label is clearly visible. External labels should contain the same information as required above. Place the external label on the bottle and apply clear tape over it for additional adhesion to the vial/bottle surface.

4. Prepare the sample for sorting. This step is performed in a sink and should be done under a fume hood or in a well-ventilated area.
 - a. Under a fume hood, open sample jar and pour contents into a #30 sieve (595 micron).
 - b. Rinse sample jar into sieve and examine jar to make sure all detritus and organisms have been removed.
 - c. Rinse the contents of the sieve in tap water to remove remaining ethanol and to rinse out fine sand and sediment.
 - d. Carefully rinse any large detritus (i.e., leaves) or stones, making sure that all organisms on these items are returned to the sieve. Discard large leaves and gravel, or other large materials after rinsing.
 - e. Place the 10 x 40-inch, 100-grid sorting tray on top of 100 grid foam board/schematic with the grids and numbers plainly visible through the Plexiglas bottom.
 - f. Pour the entire contents of the sieve into the gridded sorting tray. Add a small quantity of water and gently swirl or stir the sample materials until the contents

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are evenly distributed in the tray. ***Even distribution is extremely important in this step.*** If debris is clumped, the organisms will not be evenly distributed, and the final subsample may not accurately represent the full sample. If the sample was divided into more than one jar (labeled as “1 of 2” and “2 of 2”), the jars are to be combined at this point. Only when the sample is evenly distributed throughout the gridded sorting tray is it ready for sub-sampling and sorting.

- g. Using a random number generator, select the first grid to be sorted. Using the same concept as a "cookie cutter", isolate the organisms within the chosen grid and using the debris spoon scoop the contents of the grid and place into a white enamel pan. Be careful not to damage any organisms during this step. Organisms with their head inside the grid are to be included within the grid. If you are unable to tell which end is the head, then the organism belongs in the grid that contains the largest portion of the body.
- h. Fill a small container (e.g., crucible) or vial with 75% alcohol for temporary storage of sub-sampled organisms. A properly labeled vial for final storage can be used at this point as well.
- i. Using fine-tipped forceps and 10x illuminated magnifier or magni-visor (sorter should use magnification of at least 2x), remove all macroinvertebrates from the subsample and transfer to the alcohol filled sample container/vial. Keep a running tally of the number of organisms that have been sorted. If there are a significant number of invertebrates that appear to be terrestrial, include them in the sample, but do not include them in the 200-organism count. The taxonomist will verify whether these organisms are terrestrial or semi-aquatic. Do not include empty clam or snail shells, or parts of organisms that are easily disconnected from the specimen (legs, gills, etc.).
- j. If leaves are present, examine both surfaces. Watch for unusual clumps of twigs, leaves, or sand, which may be protective cases for some organisms like caddisflies. If cases are found, both the case and the organism should be sorted. If the organism is in the case, the case and organism should be kept together. If an empty case is found, it should also be removed and placed in the vial but not counted.
- k. If there is any doubt to the identity of an object (is it a seed or a bug?), it should be sorted, but not counted. A senior biologist/taxonomist should be notified if many questionable objects are present.
- l. When all the organisms appear to have been removed from the white enamel pan, agitate its contents again and perform another examination. Often the agitation will reorient or uncover an organism that was previously overlooked.
- m. Have a senior biologist/taxonomist inspect the pan after sorting has been completed. The biologist/taxonomist will point out any organisms that have been

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overlooked or misidentified as detritus. For the pre-determined quantity of QA samples, the number of organisms recovered by the senior biologist/taxonomist should be documented along with the initial number of organisms picked to calculate the percent sorting efficiency (see below).

- n. Discard the contents of the enamel pan by pouring the contents through a "waste sieve" in the sink. The contents of the waste sieve may be emptied into the trash or retained, as necessary.
- o. Continue the Sorting process repeatedly (steps 4-f through 5-e) until a subsample of 200 (+/- 20% is reached) (*see Error! Reference source not found. on page Error! Bookmark not defined.*). Several rules must be observed to get a subsample that is both random and representative of the whole sample:
 1. Once a grid is started - it must be fully picked.
 2. The total organisms in the sample must be between 160 and 240 organisms. If fewer than 160 organisms have been collected, another grid is randomly chosen and steps g through n are repeated until at least 160 organisms are obtained or until the entire sample has been picked. Every attempt should be made to get the final subsample as close to 200 as possible. Therefore, the person conducting the sub-sampling should keep track of the approximate number of organisms per grid to know if one more grid will get the subsample number as close to 200 as possible.
 3. If subsampling should result in **more than 240 organisms** in the subsample, then the subsample should be re-sampled to bring the number of organisms down to the 200 (+/- 20%) organism goal.
 4. A minimum of 4 grids must be sorted to ensure that a representative subsample has been obtained from the sorting tray. Should the 200 (+/- 20%) organism goal be reached in less than 4 grids, then picking should continue until 4 total grids have been picked and then that subsample should be re-sampled to reach the 200 (+/- 20%) organism goal. This step will ensure representativeness of the subsample compared to the total sample.
- p. Place the label made earlier inside the bottle/vial(s). If a second label is prepared for the outside of the bottle/vial, then affix it using tape. Be sure to write down the # of grids picked, # of organisms in final subsample, and if applicable, the Bottle/Vial # out of the Total Bottles/Vials for the subsample before you put the label inside the bottle/vial(s). If required, return the remainder of the unpicked sample to the original sample jar, and preserve with alcohol.
- q. If using a temporary storage container/vial, pour contents of the sub-sample into the labeled bottle/vial. Make sure that all organisms in the bottle are fully submerged in the alcohol. If some remain on the vial sides, use the squirt bottle to rinse them into the alcohol.
- r. After the sample has been sorted, record the date and your initials in the sample logbook or chain of custody. The total number of organisms picked, and the

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number of grids sorted should also be documented for each sample on the vial label and on the bench sheet. If a re-subsampling is necessary (subsampling a subsample that exceeds 240 organisms), record the number of grids sorted for each iteration of the subsampling process separately. This last step is very important as these values are used to estimate organism density and to determine sample comparability.

- s. Sorting efficiency shall be evaluated for 5% of the samples. Recovery errors cannot exceed 10% (i.e., no more than 20 organisms can be missed by the sorter for a given sample) of the total sample (composite of remnants from each grid sorted). If the sorter does not meet this standard, the sorted sample remnants shall be re-checked until the recovery limits are attained. A record of all samples that were sorted, a list of quality control (QC) checks and documentation of any corrective action taken shall be maintained by the vendor to document the process. DEP/DWWM reserves the right to review QA/QC documentation upon request. All QA/QC associated with sorting and identification of each sample shall also be submitted with the corresponding result EDDs (see Step 5 Quality Control).

Step 3 - Requirements for Identification of Benthic Macroinvertebrates

Introduction

1. Benthic macroinvertebrate samples shall be identified in accordance with procedures outlined below and taken from the most current version of the WVDEP Watershed Assessment Branch Standard Operating Procedures, Chapter 5. Benthic Macroinvertebrate Collection Protocols, Section C. Identification of Benthic Macroinvertebrates. This procedure must be reviewed and understood fully before submitting bids.
2. Vendor must have degreed biologists/taxonomists on staff performing the benthic macroinvertebrate identifications. The following up to date SFS (Society for Freshwater Sciences) certifications are required to perform the identifications:
 - a. EPT East (2 certified taxonomists on staff),
 - b. Chironomidae East (2 certified taxonomists on staff),
 - c. General Arthropods East (1 certified taxonomist on staff)

No single individual is required to possess all the certifications if they restrict their work to only those groups for which they have been certified. Identification of organisms by non-professional personnel or those without SFS certification(s) is strictly forbidden. Biologists/taxonomists performing the identifications must be dedicated to the task (i.e., most of their daily work involves the identification of benthic macroinvertebrates).

Because identification by another taxonomist is a mandatory part of the QC process, a total of two different degreed biologists/taxonomists must be on staff and SFS certified,

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covering EPT East, Chironomidae East, and General Arthropods. For Arthropods, it is acceptable for a taxonomist that does not have a General Arthropods East certification to do the initial identifications. However, an SFS certified taxonomist for General Arthropods East must perform the final identifications of arthropods. The taxonomist performing the initial identification of arthropods must be a degreed biologist/taxonomist and have significant experience in the identification of benthic macroinvertebrate samples that have included arthropods.

3. Target Taxonomic Levels:
 - a. All aquatic insects (including all Diptera), Crustaceans, and Mollusca are to be identified to at least the **genus-level** of taxonomy. The samples may include a significant number of chironomid larvae, which **MUST** be identified to at least genus.
 - b. Trichoptera: *Hydropsyche* individuals must be separated into *Hydropsyche* vs. *Ceratopsyche* as found in the older copies of Merritt, Cummins, and Berg (2008).
 - c. Oligochaeta, Turbellaria, and Hirudinea are to be identified to the family-level.
 - d. Macroinvertebrates that do not require family/genus level identification are Nemertea, Nematoda, Hydroida, and Bryozoa. These organisms need only be identified to the taxonomic level (phylum, class, order, etc.) indicated in the previous sentence. However, it would be desirable to report lower taxonomic levels if these organisms are easily identified.
 - e. Vertebrates and terrestrial organisms are not to be identified.
 - f. All individuals that cannot be identified to the target taxonomic levels (e.g., due to damage or immaturity) must be identified to the lowest-possible taxonomic level and the reason why must be documented in the results.
 - g. Any new or revised taxonomic names not provided by DEP/DWWM should be noted in the results with the original taxonomic name. A list of the taxonomic names currently used by DEP/DWWM will be provided to the vendor and updated as needed.
 - h. All active aquatic life stages (i.e., Larvae/Nymph and Adult) of a given taxon should be identified and enumerated. If pupae are present, they should be retained and identified if possible, but not enumerated.
4. Taxonomists are permitted to use taxonomic identification keys other than those listed in the operating procedures if they are current and up to date. The vendor must report to DEP/DWWM the use of any new keys not listed with a citation and reasoning why the key was used. All results submitted to DEP/DWWM shall include a bibliography of publications used in identification of the specimens. Vendor will be responsible for identification and enumeration only; data analysis will not be required.
5. All identification information shall be recorded:
 - a. Manually onto a paper Laboratory Bench sheet using pencil, or
 - b. Directly into a Laboratory Information Management System (LIMS)

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Materials for Identification of Benthic Macroinvertebrates

1. Dissecting Microscope - for examination of gross features.
2. Compound Microscope - for examining minute features. Phase-contrast microscopes are preferable.
3. Fine-tipped forceps and probes - for manipulating specimens.
4. Petri dishes - or other container to hold specimens during identification.
5. Alcohol - 75% ethanol or isopropanol is used to preserve the samples and to prevent desiccation during identification.
6. Wash Bottle - used for alcohol storage.
7. Microscope Slides and glass cover slips - for examination of tiny specimens and/or body parts under a compound microscope. Slides and cover slips should be clean.
8. Mounting Medium - CMC-10 mounting medium or a similar permanent mounting medium is used to prepare permanent mounts of microscopic specimens.
9. Benthic Macroinvertebrate Lab Sheet - or suitable electronic data entry form standard for recording results of identification and enumeration (See Example of the DEP/DWWM Macroinvertebrate Lab Sheet below)
10. Taxonomic Keys (See List of Taxonomic Keys below)

Procedures for Mounting Chironomidae (and other small specimens)

The procedures that follow are summarized from Epler's *Identification Manual for the Larval Chironomidae (Diptera) of North and South Carolina* (2001).

1. Label a clean glass slide. Label should include, at a minimum, the stream name, stream code, collection data and sample ID number.
2. Place 2-5 drops of CMC-10, or another permanent mounting medium, on the slide.
3. Place the specimens in the mounting medium, ventral side up, head pointing down ("south"). Tease out larger bubbles.
4. Gently lower coverslip over the mounting medium at an angle.
5. Use the cover slip to reposition larvae, if desired. Then gently press down the cover slip over the head capsules with pencil eraser to spread the mouthparts and over the anal end to spread the hind pro-legs.

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6. Lay the slide on a flat surface and allow it to cure for 2-3 hours. If air bubbles form, fill them in with fresh medium and allow curing for 1-2 more hours. Then ring the slide with more medium or clear fingernail polish.
7. Add to the label the # of organisms on the slide and a general description of the type of organisms (e.g., Chironomidae, Oligochaeta, Acarina, etc.)

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List of Taxonomic Keys

The primary taxonomic keys are listed below. The contractor may use other taxonomic keys for lower-level identification; however, these references must be current and up to date. The contractor shall provide a list of references used in the identification of all specimens.

General Keys

Brigham, A.R., W.U. Brigham, and A. Gnilka (eds.). 1982. Aquatic Insects and Oligochaetes North and South Carolina. Midwest Aquatic Enterprises, Mahomet, IL.

Jessup, B.K., A. Markowitz, J.B. Stribling, R. Friedman, K. LaBelle, and N. Dziepak. 2003. Family-Level Key to the Stream Invertebrates of Maryland and Surrounding Areas. Third Edition. CBWP-MANTA-EA-99-2. Maryland Department of Natural Resources, Chesapeake Bay and Watershed Programs, Monitoring and Non-Tidal Assessment Division, Annapolis, Maryland. Available on-line at:
http://dnr.maryland.gov/streams/Publications/ea-99-2_rev2003.pdf

Merritt, R.W., and K.W. Cummins (eds.). 1995. An Introduction to the Aquatic Insects of North America. 3rd edition. Kendall/Hunt Publishing Company, Dubuque, Iowa.

Merritt, R.W., K.W. Cummins, and M.B. Berg (eds.). 2008. An Introduction to the Aquatic Insects of North America. 4th edition/revised edition. Kendall/Hunt Publishing Company, Dubuque, Iowa.

Merritt, R.W., K.W. Cummins, and M.B. Berg (eds.). 2019. An Introduction to the Aquatic Insects of North America. 5th edition. Kendall/Hunt Publishing Company, Dubuque, Iowa.

Peckarsky, B.L., P.R. Fraissinet, M.A. Penton, and D.J. Conklin, Jr. 1990. Freshwater Macroinvertebrates of Northeastern North America. Cornell University Press, Ithaca, New York.

Pennack, R.W. 1978. Fresh-water Invertebrates of the United States. 2nd edition. John Wiley & Sons, New York.

Pennack, R.W. 1989. Fresh-water Invertebrates of the United States - Protozoa to Mollusca. 3rd Edition. John Wiley and Sons, Inc., New York, New York. 628 pp.

Pfeiffer, J., Kosnicki, E., Bilger, M., Marshall, B.D. and W. Davis. 2008. Taxonomic Aids for Mid-Atlantic Benthic Macroinvertebrates (Ephemeroptera: Baetidae; Plecoptera: Capniidae/Leuctridae; Diptera: Simuliidae). EPA-260-R-08-014. United States Environmental Protection Agency, Office of Environmental Information, Environmental Analysis Division, Washington, DC. Available on-line at:
<http://www.epa.gov/bioindicators/html/publications.html>

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Smith, D.G. 2001. Pennack's Freshwater Invertebrates of the United States: Porifera to Crustacea. 4th edition. John Wiley & Sons, New York.

Thorp, J.H and D.C. Rogers, Eds. 2016. Keys to Nearctic Fauna: Thorp and Covich's Freshwater Invertebrates-Volume II. Fourth Edition. Academic Press, New York.

Annelida

Brinkhurst, R.O. 1986. Guide to the freshwater aquatic microdile oligochaetes of North America. *Canadian Special Publication of Fisheries and Aquatic Sciences* **84**: 259 pp.

Klemm, D.J. 1973. Biota of Freshwater Ecosystems, Identification Manual No. 8. Freshwater Leeches (Annelida: Hirudinea) of North America. EPA-905-R-72-117. WPCRS No. 18050, ELD04/72. Supt. Doc. No. 5501-0391, United States Environmental Protection Agency, Washington, D.C. 53 pp. Available on-line at:
<http://www.epa.gov/nscep/index.html>

Klemm, D.J. 1982. Leeches (Annelida: Hirudinea) of North America. EPA-600-3-82-025. United States Environmental Protection Agency, Office of Research and Development, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. Available on-line at:
<http://www.epa.gov/nscep/index.html>

Klemm, D.J. (ed.). 1985. A guide to the freshwater Annelida (Polychaeta, nauidid and tubificid Oligochaeta, and Hirudinea) of North America. Kendall/Hunt Publishing Co., Dubuque, Iowa.

Klemm, D.J. 1995. Identification Guide to the Freshwater Leeches (Annelida: Hirudinea) of Florida and Other Southern States. Florida Department of Environmental Protection, Division of Water Facilities, Tallahassee, FL. Available on-line at:
<http://publicfiles.dep.state.fl.us/dear/labs/biology/biokeys/leeches.pdf>

Milligan, M.R. 1997. Identification Manual for the Aquatic Oligochaeta of Florida: Volume I- Freshwater Oligochaetes. Florida Department of Environmental Protection, Division of Water Facilities, Tallahassee, FL. Available on-line at:
<http://publicfiles.dep.state.fl.us/dear/labs/biology/biokeys/oligofw.pdf>

Stimpson, K.S., D.J. Klemm, and J.K. Hiltunen. 1982. A Guide to the Freshwater Tubificidae (Annelida: Clitellata: Oligochaeta) of North America. EPA-600-3-82-033. United States Environmental Protection Agency, Office of Research and Development, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. Available on-line at:
<http://www.epa.gov/nscep/index.html>

Crustacea

Hobbs, H.H., Jr. 1972. Biota of Freshwater Ecosystems, Identification Manual No. 9. Crayfishes (Astacidae) of North and Middle America. EPA-905-R-72-116. WPCRS No. 18050,

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Step 4 - Reporting Results and Return of Materials

1. The results of identifications shall be submitted via EDDs in two formats:
 - a. A laboratory bench sheet report listing (like the provided example) in a pdf format. This could either be in the form of a pdf generated by a LIMS or a pdf scan of the original, handwritten Laboratory Bench sheet.
 - b. A result table in a Microsoft Excel or Access compatible format. A data template will be provided by DEP/DWWM upon award of the contract.

Both EDD formats should contain the following information:

- a. The Sample's Identifying metadata:
 - Stream Name
 - Station Number (AN-code)
 - Random Number (if provided)
 - Lab Sample ID# (Lab's internal ID to link the electronic results to the database)
 - Sample Date
 - County
 - Initials of Sample Collector
 - Initials of Sample Processor
 - # of grids sorted (the numbers must be kept separate if several iterations of sorting are necessary)
 - # of organisms sorted for final sample
 - Initials of Sample Identifiers/Taxonomists
 - Final # of identified organisms
- b. A list of all taxa identified and the counts (enumeration) for each. The list should also include any notes regarding the identification of each taxon (e.g., specimen condition; new or revised taxonomic names with source citations; larvae vs. adult life stage enumeration; number of slide mounted specimens; retention of specimens for reference collection; etc.)

All QA/QC associated with sorting and identification of each sample shall also be submitted with the results in EDDs (see Step 5 - Quality Control below).

2. Vendor will be required to provide sorting and identification services only. No data analysis will be required. The vendor will submit the EDDs containing the completed identification results in both formats every 6 weeks. Deadlines for completion and submission of results are according to the following schedule:
 - All sample shipments submitted by April 1 are due August 31.
 - All sample shipments submitted by August 31 are due Dec. 1.

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- All sample shipments submitted by December 31 are due Feb. 28.
 - Results of smaller, site-specific projects must be available within one month of sample receipt or within some other negotiated time.
3. Identification of samples is not deemed completed until the data (including QA/QC data) has been submitted to and accepted by the DEP/DWWM. Should the DEP/DWWM not provide notice of acceptance within four weeks of the date results were received by DEP/DWWM, the vendor may consider the data to be acceptable by the Division.
 4. The vendor shall be responsible for maintaining preservation of the samples while they are in the vendor's possession.
 5. Vendor shall return all sample jars from unsorted samples on a regular basis to the DEP/DWWM in addition to the results of identification. Unused sample residues (i.e., detritus and unpicked portions) are to be properly disposed by the vendor unless otherwise directed on a small scale, project specific basis.
 6. Vendor will be required to retain all voucher specimens as a Voucher Collection and maintain this collection while it is in the vendor's custody. Voucher specimens are all specimens identified in the 200 (+/- 20%) organism subsample that have not been included in the Reference Collection.
 7. The vendor shall be responsible for creating a Reference Collection of taxa for DEP/DWWM during the contract. A Reference Collection is defined as a set of biological specimens, representing each specific taxon observed in the samples submitted by DEP/DWWM. Reference specimens are those pulled from the Voucher Specimens and retained separately from the purpose of creating a reference collection either for DEP/DWWM's or the vendor's internal use. Reference collections are to be arranged/curated based on taxonomic and/or phylogenetic order. Any specimens removed from the voucher collection for purposes of building the reference collection must be documented in the EDDs. The vendor must pull at least one reference specimen for DEP/DWWM's use from each taxon identified by the vendor during the duration of the contract. The vendor will maintain the DEP/DWWM reference collection for the duration of the contract and/or delivery of the Reference Collection to DEP/DWWM.
 8. The Reference Collection specimens should be of the highest quality (i.e., minimal to no damage) and document any applicable life-stages (e.g., Elmidae larvae and adults), instars or size classes, and phenotypes or variants. The reference specimens should be labeled with the appropriate sample identifiers (e.g., Stream Name, Sample ID, Date, Collector, etc.) and taxonomy (e.g., Class, Order, Family, Genus, etc.). Additionally, the number of reference specimens pulled and destination (i.e., DEP vs. Lab Reference Collection) must be documented in any EDD and paper bench sheet.
 9. A small subset of the reference specimens may be retained by the vendor permanently for internal use if the retained specimens are already represented by an individual or set of individuals in good condition in the DEP/DWWM reference collection. Reference

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specimens retained by the vendor permanently must be documented as retained by the vendor in all result EDDs.

10. All vial-stored Voucher and Reference Collection Specimens must be stored in vials or containers with at least 70% Ethanol. Vials to be used for storage must be Screw Cap Vials with Polyseal Caps (size ranges 1 Dram to 8 Dram) and the equivalent to the following found in the Bioquip Web Catalog and table below

(<http://www.bioquip.com/Search/WebCatalog.asp?category=19000&prodtype=1>):

Bioquip Cat. No.	Capacity	Diameter & Length	Neck Opening (inch)	Note
8801P	1 Dram (4 mL)	15 x 45 mm	0.300	*
8802P	2 Dram (8 mL)	17 x 60 mm	0.360	
8804P	4 Dram (16 mL)	21 x 70 mm	0.440	#
8806P	6 Dram (24 mL)	23 x 85 mm	0.500	
8808P	8 Dram (32 mL)	25 x 95 mm	0.580	

* 1 Dram vials should only be used for Reference Specimens that are small enough to fit into the vial.

For most samples, all the Voucher Specimens will fit comfortably into one 4 Dram vial.

If a voucher specimen (or group of voucher specimens) or reference specimen from a sample will not fit in one of the above screw cap vials, an oversized container may be used for the specimens. The oversized containers must be the equivalent to one of the following:

Supplier	Catalog No.	Size	Diameter & Length	Supplier Website:
Wheaton Redi-Pak® Clear, Straight-Sided Jars with Caps	715740	2 oz (60 mL)/ Cap Size 53-400	55 x 48 mm	http://www.carolina.com/lab-specimen-containers/wheaton-redi-pak-clear-straight-sided-jars-with-caps/FAM_715740.pr
	715741	4 oz (120 mL)/ Cap Size 58-400	60 x 68 mm	
	W216903 W216914	2 oz (60 mL)/ Cap Size 53-400	55 x 48 mm	http://wheaton.com/media/catalogs/WHEATON%20Lab%20Catalog/index.html#18/z
	W216904 W216915	4 oz (120 mL)/ Cap Size 58-400	60 x 68 mm	
Wheaton Leak-Resistant Wide-Mouth Plastic Sample Bottle with PP Screw Cap, Natural Polypropylene	209665	30 mL/ 28-410 Cap	33 x 69 mm	http://wheaton.com/catalogsearch/result/?order=relevance&dir=desc&q=20966
	209666	60 mL/ 28-410 Cap	39 x 88 mm	

Specimen Cups (e.g., Urine Specimen Cups) are not preferred, but acceptable if they are made of Polypropylene with a Polypropylene Screw Cap. Snap top specimen cups are

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not acceptable.

40mL (10 dram) clear glass vials with a closed top cap and silicone liner are also acceptable. Septa top caps are not acceptable.

11. Specimens that are mounted on slides for identification purposes (e.g., Chironomidae and Oligochaetes) ideally should remain mounted on slides. Slide mounted specimens should be labeled to indicate, at a minimum: Lab Sample ID, DEP Sample ID, Count of organisms on slide, general taxonomic grouping of organisms on the slide (e.g., Chironomidae, Oligochaeta, etc.), and slide count (e.g., 1 of 3, etc.). All slides must be documented (with the number mounted from each taxon) in the result EDDs. Reference specimens that are mounted must also be labeled with the appropriate reference taxon name.
12. Except for organisms approved to be used in the vendor's internal reference collection, all specimens identified are to be returned to DEP/DWWM at the cost of the vendor. The voucher and reference collections should be delivered to DEP/DWWM at the end of the contract period, or once a year (e.g., during first pickup of unsorted samples for the new year) unless otherwise directed.

Step 5 - Quality Control

1. Vendor shall evaluate the Percent Sorting Efficiency (PSE) for a minimum of 5% of all samples according to the formula below. Recovery errors may not exceed 10% of the total sample. A record of all samples sorted, a list of quality control checks, and documentation of any corrective action taken shall be maintained by the vendor to document the process.

Percent Sorting Efficiency (PSE)

$$\frac{\text{\# Organisms Originally Sorted}}{\text{\# Organisms Recovered by Checker} + \text{\# Organisms Originally Sorted}} \times 100 = \text{PSE}$$

2. The vendor shall re-identify a minimum of 5% of the samples. A taxonomist other than the original identifier shall perform this check immediately after the initial identification (to reduce the chances of specimens being lost between taxonomists). The two taxa lists should be compared and used to calculate the Percent Difference Enumeration (PDE) and Percent Taxonomic Difference (PTD) according to the formulas below. The PDE and PTD may not exceed 10% and 15%, respectively. Counting errors and differences in identification are brought to the attention of the original taxonomist and reconciled amongst the two taxonomists. Subsequent identifications are subject to scrutiny until errors are resolved. A record of all samples re-identified; a list of quality control (QC) checks; and documentation of any corrective action taken shall be maintained by the vendor to document the process.

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Percent Difference in Enumeration (PDE)

$$\frac{(n_1 - n_2)}{(n_1 + n_2)} \times 100 = \text{PDE}$$

Where:

n_1 = # of organisms counted by taxonomist 1

n_2 = # of organisms counted by taxonomist 2

Percent Taxonomic Difference (PTD)

$$\left[1 - \frac{(\text{comp}_{\text{pos}})}{(N)} \right] \times 100 = \text{PTD}$$

Where:

N = Highest count of organisms from taxonomist 1 or 2

comp_{pos} = Total # of taxonomic agreements from the Taxonomic Comparison Form

3. Individual sample QC information shall be provided with each corresponding result EDDs submission to DEP/DWWM for review. Any additional QC checks done by the laboratory beyond those described here should also be provided.
4. If any significant changes in taxonomy occur during the life of this contract, the vendor shall notify DEP/DWWM and provide supporting references noting the change.
5. DEP/DWWM biologists and/or another contract vendor will verify identifications for a minimum of 2.5% of the samples. Samples subjected to verification are selected randomly and will encompass checks on all taxonomists. The vendor will be advised of the results if significant¹ differences in identification are encountered so that corrective action may be taken. Cancellation of the contract may result if discrepancies continue and/or if misidentifications are particularly concerning.

Step 6 - Legal Testimony

The selected vendor may be requested by the DEP/DWWM to testify concerning the validity of the sample sorting and identification. The vendor will only be required to testify to the following areas:

1. Time of notification by DEP/DWWM of sampling and by whom.
2. When and where samples were received by the vendor's courier and/or facility.
3. Condition of sample upon receipt by the vendor.
4. How sample preservation was maintained by the vendor.
5. Date and time(s) of sample sorting and identification and by whom.
6. Chain of Custody procedures within the laboratory.
7. Sorting and Identification Methods used, including Taxonomic Keys used.

¹ "Significant" differences will include, but will not be limited to, consistent misidentification of an organism(s) during QA/QC checks.

Attachment A
Benthic Macroinvertebrate Sample Processing and Identification Guidelines

8. Sorting and Identification Results (i.e., Taxa List, Enumeration of Taxa and any related notes) including QC checks.

At no time will the firm respond to questions concerning interpretation of results. The Department shall reimburse the vendor for the costs of any such testimony. The vendor must provide a detailed invoice of actual costs incurred.

West Virginia Ethics Commission



Disclosure of Interested Parties to Contracts

Pursuant to *W. Va. Code* § 6D-1-2, a state agency may not enter into a contract, or a series of related contracts, that has/have an actual or estimated value of \$1 million or more until the business entity submits to the contracting state agency a Disclosure of Interested Parties to the applicable contract. In addition, the business entity awarded a contract is obligated to submit a supplemental Disclosure of Interested Parties reflecting any new or differing interested parties to the contract within 30 days following the completion or termination of the applicable contract.

For purposes of complying with these requirements, the following definitions apply:

"Business entity" means any entity recognized by law through which business is conducted, including a sole proprietorship, partnership or corporation, but does not include publicly traded companies listed on a national or international stock exchange.

"Interested party" or *"Interested parties"* means:

- (1) A business entity performing work or service pursuant to, or in furtherance of, the applicable contract, including specifically sub-contractors;
- (2) the person(s) who have an ownership interest equal to or greater than 25% in the business entity performing work or service pursuant to, or in furtherance of, the applicable contract. (This subdivision does not apply to a publicly traded company); and
- (3) the person or business entity, if any, that served as a compensated broker or intermediary to actively facilitate the applicable contract or negotiated the terms of the applicable contract with the state agency. (This subdivision does not apply to persons or business entities performing legal services related to the negotiation or drafting of the applicable contract.)

"State agency" means a board, commission, office, department or other agency in the executive, judicial or legislative branch of state government, including publicly funded institutions of higher education: Provided, that for purposes of *W. Va. Code* § 6D-1-2, the West Virginia Investment Management Board shall not be deemed a state agency nor subject to the requirements of that provision.

The contracting business entity must complete this form and submit it to the contracting state agency prior to contract award and to complete another form within 30 days of contract completion or termination.

This form was created by the State of West Virginia Ethics Commission, 210 Brooks Street, Suite 300, Charleston, WV 25301-1804. Telephone: (304)558-0664; fax: (304)558-2169; e-mail: ethics@wv.gov; website: www.ethics.wv.gov.

West Virginia Ethics Commission
Disclosure of Interested Parties to Contracts

(Required by *W. Va. Code* § 6D-1-2)

Name of Contracting Business Entity: _____ Address: _____

Name of Authorized Agent: _____ Address: _____

Contract Number: _____ Contract Description: _____

Governmental agency awarding contract: _____

Check here if this is a Supplemental Disclosure

List the Names of Interested Parties to the contract which are known or reasonably anticipated by the contracting business entity for each category below (*attach additional pages if necessary*):

1. Subcontractors or other entities performing work or service under the Contract

Check here if none, otherwise list entity/individual names below.

2. Any person or entity who owns 25% or more of contracting entity (not applicable to publicly traded entities)

Check here if none, otherwise list entity/individual names below.

3. Any person or entity that facilitated, or negotiated the terms of, the applicable contract (excluding legal services related to the negotiation or drafting of the applicable contract)

Check here if none, otherwise list entity/individual names below.

Signature: _____ Date Signed: _____

Notary Verification

State of _____, County of _____:

I, _____, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledge that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this _____ day of _____, _____.

Notary Public's Signature

To be completed by State Agency:

Date Received by State Agency: _____

Date submitted to Ethics Commission: _____

Governmental agency submitting Disclosure: _____

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(j), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

ALL CONTRACTS: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code §61-5-3*) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: _____

Authorized Signature: _____ Date: _____

State of _____

County of _____, to-wit:

Taken, subscribed, and sworn to before me this ____ day of _____, 20__.

My Commission expires _____, 20__.

AFFIX SEAL HERE

NOTARY PUBLIC _____

West Virginia Ethics Commission
Disclosure of Interested Parties to Contracts

(Required by W. Va. Code § 6D-1-2)

Name of Contracting Business Entity: EnviroScience, Inc. Address: 129 Greenbag Rd. Morgantown, WV 26501

Name of Authorized Agent: Gregory F. Zimmerman Address: 5070 Stow Road, Stow, OH 44224 (headquarters)

Contract Number: 0313_DEP2200000007 Contract Description: Macroinvert. ID

Governmental agency awarding contract: WVDEP

Check here if this is a Supplemental Disclosure

List the Names of Interested Parties to the contract which are known or reasonably anticipated by the contracting business entity for each category below (attach additional pages if necessary):

1. Subcontractors or other entities performing work or service under the Contract

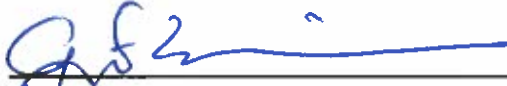
Check here if none, otherwise list entity/individual names below.

2. Any person or entity who owns 25% or more of contracting entity (not applicable to publicly traded entities)

Check here if none, otherwise list entity/individual names below.

3. Any person or entity that facilitated, or negotiated the terms of, the applicable contract (excluding legal services related to the negotiation or drafting of the applicable contract)

Check here if none, otherwise list entity/individual names below.

Signature: 

Date Signed: 9/15/2021

Notary Verification

State of Ohio, County of Summit:

I, Greg Zimmerman, vice President, the authorized agent of the contracting business entity listed above, being duly sworn, acknowledge that the Disclosure herein is being made under oath and under the penalty of perjury.

Taken, sworn to and subscribed before me this 15 day of September, 2021

Rebecca R. Pedone
Notary Public's Signature

To be completed by State Agency:
Date Received by State Agency: _____
Date submitted to Ethics Commission: _____
Governmental agency submitting Disclosure: _____



Rebecca R. Pedone
Resident Summit County
Notary Public, State of Ohio
Commission Expires 5/30/2023

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

CONSTRUCTION CONTRACTS: Under W. Va. Code § 5-22-1(i), the contracting public entity shall not award a construction contract to any bidder that is known to be in default on any monetary obligation owed to the state or a political subdivision of the state, including, but not limited to, obligations related to payroll taxes, property taxes, sales and use taxes, fire service fees, or other fines or fees.

ALL CONTRACTS: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code §61-5-3*) that: (1) for construction contracts, the vendor is not in default on any monetary obligation owed to the state or a political subdivision of the state, and (2) for all other contracts, that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: EnviroScience, Inc.

Authorized Signature: [Signature] Date: 9-15-2021

State of Ohio

County of Summit, to-wit:

Taken, subscribed, and sworn to before me this 15 day of September, 2021.

My Commission expires 5/30, 2023



Rebecca R. Pedone
Resident Summit County
Notary Public, State of Ohio
My Commission Expires:
5/30/2023

NOTARY PUBLIC Rebecca R. Pedone