STATE OF MICHIGAN

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET

This contract authorizes the professional services contractor to provide professional services.
(Authority: 1984 PA 431)

CONTRACT FOR PROFESSIONAL ENVIRONMENTAL SERVICES: Indefinite Scope-Indefinite Delivery

THIS CONTRACT, authorized this 17th day of February the year two-thousand and twenty-three (2023), by the Director, Department of Technology, Management and Budget, BETWEEN the STATE OF MICHIGAN acting through the STATE FACILITIES ADMINISTRATION, DESIGN AND CONSTRUCTION DIVISION of the DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET, 3111 W. St. Joseph Street, Lansing, Michigan, 48917, hereinafter called the Department, and

Fishbeck
1515 Arboretum Dr., SE
Grand Rapids, MI 49546

the Prime Professional Services Contractor, hereinafter called the

Professional. WHEREAS the Department proposes securing

professional services for:

Indefinite-Scope, Indefinite-Delivery Contract No. 00930
Index No. (To Be Established)
Contract Order No. Y (To Be Assigned)
File No. (To Be Assigned)

Department of Technology, Management and Budget, State Facilities Administration, Design and Construction Division, Professional Environmental Services Indefinite-Scope, Indefinite-Delivery Contract (ISID) for Minor Projects –

2023 Environmental ISID Services
Various State Departments and Facilities
Various Site Locations, Michigan

NOW THEREFORE, the Department and the Professional in consideration of the covenants of this Contract agree as follows:

I. The Professional shall provide primary environmental investigation/assessment/design/construction oversight services for the assigned projects to the extent authorized by the Department of Technology, Management and Budget State Facilities Administration (SFA), Design and Construction Division (DCD) [The Department] and be solely responsible for such professional services. The Professional's services shall be performed in strict accordance with the assigned Project scope of work.

II. If authorized, the Professional shall provide environmental services for the regions and project types identified below.

Regions							
Western UP	Eastern UP	Northern LP	Saginaw Bay	Western LP	Central LP	Southwestern LP	Southeastern LP
x	x	x	x	x	x	x	x

Project Types and Services Offered	
Asbestos/Lead/Mold/Biohazard/Free Product Regulated Waste Survey/Abatement	x
Brownfield Development	x
Ecological Risk Assessment / Forestry and Land Management / Wetland Mitigation / Streams and Lakes Restoration	x
Environmental Investigation / Characterization / Pilot Tests / Feasibility Study	x
Environmental Roto Sonic Drilling / Well Abandonment	x
Ground Penetrating Radar (GPR) / Laser-Induced Fluorescence (LIF) Field Screening	x
Landfill Maintenance / Monitoring	x
Nuclear Waste Management / Disposal / Remediation	
Per-& Polyfluoroalkyl Substances (PFAS) Sampling / Mitigation / Remediation	x
Phase I / Phase II / Baseline Environmental Assessments	x
Remediation Systems Design / Construction Oversight / O & M / Decommissioning	x
Specialty Sub-Surface / Utility Inspection / Sewer Camera / Cleaning	
Underground / Abovegound Storage Tank (UST / AST) Removal / Demolition/ Soil Excavation / Closure	x
Vapor Intrusion Assessments / Risk Mitigation / Design / Installation / O & M Services	x

NOTE: Blackened box(es) indicate a service that the committee did not select for your firm.

III. The State of Michigan shall compensate the Professional for providing their professional services for the Project in accordance with the conditions of this Professional Services Contract.

IN WITNESS, WHEREOF, each of the parties has caused this Professional Services Contract to be executed by its duly authorized representatives on the dates shown beside their respective signatures, with the Contract to be effective upon the date on which the Professional received a copy executed by the authorized State of Michigan representative(s) by regular, registered, or certified mail or by delivery in person.

FOR THE PROFESSIONAL:

Fishbeck
Firm Name

CV0021627
SIGMA Vendor ID Number

Signature

February 23, 2023
Date

Senior Vice President/Principal
Title

FOR THE STATE OF MICHIGAN:

Director, DTMB | SFA | Design and Construction

March 6, 2023
Date

WHEREAS this Professional Services Contract constitutes the entire agreement as to the Project between the parties, any Contract Modification of this Contract and the Department's approved and attached Project/Program Statement scope of work requirements must be in writing, signed by duly authorized representatives of the parties, and shall be in such format and detail as the State may require. No Contract Modification may be entered into to compensate the Professional for correcting, or for responding to claims or litigation for, the Professional firm's final design Contract Documents/architectural and engineering design errors, omissions, or neglect on the part of the Professional.

ARTICLE I
PROFESSIONAL SERVICES SCOPE OF WORK

Provide professional environmental services, technical staff, and support personnel for ISID minor projects on an as-needed basis at various State/Client Agencies within the various site location areas as defined by the State of Michigan.

This Contract is for professional environmental investigation and/or design services for an unspecified number of ISID projects ("Assignment"). The scope of work for each assigned project will be defined at the time the project is awarded by the State to the Professional firm. The professional environmental services required for each of these assigned projects requested by the Department may include any or all of the Tasks included in the Phase 100 – Study through the Phase 900 – Operation and Maintenance Management.

The Professional firm's environmental services shall be performed in strict accordance with this Professional Services Contract and be in compliance with the Department's approved and attached Appendix I– Project/Program Statement.

This Contract does not warrant or imply to the Professional environmental firm, entitlement to perform any specific percentage (%) amount of environmental work during the life of this Contract.

This Contract will remain in effect for **three (3) years** from the date of this Contract award but may be unilaterally terminated by the State of Michigan at any time, for cause or its convenience, by written notification of the State, to the Professional. Furthermore, this Contract may be extended for **one (1) additional year**, at the sole option and discretion of the State upon the Department providing written notice to the Professional prior to the expiration of the original Contract time period. Any such time extension shall be subject to the terms and conditions of this Contract, including, but not limited to, the existing hourly billing rates included in this Contract for the Professional, their Consultant, and their employees or agents.

Please note that the Professional Services Contract ISID Contract No., as noted on page 1, must be provided on all Project correspondence and documents. Also, services are not to be provided or expenses incurred until individual ISID Projects are assigned to this Contract (see the Article II – Compensation and the Appendix 1 – Project/Program Statement).

Upon award of this Contract and each subsequent assignment, the Professional understands and agrees that time is of the essence. Failure to adhere to timely completion will be grounds for the Department, at its sole discretion, to terminate or limit future work under this Contract.

The Professional shall provide all professional services, technical staff, and support personnel necessary to complete the Project as described in its Project/Program Statement, in the best interest of the State, and within the Professional's fee(s) herein authorized by the State. Assigned project services shall comprise, without exception, every professional discipline and expertise necessary to meet all the requirements as described in the Project/Program Statement and in accordance with the accepted industry standards for professional practice and services. The Professional's services include attendance at all Project related meetings and conferences. Professional services for the assigned projects under this contract shall be provided in the Phase/Task sequence shown below and shall be rendered in accordance with the Professional's proposed and approved Project Study, Design, and Proposed Construction Schedule. The Professional's study, design, and proposed construction schedule shall be detailed, undated, and time sequence related for all Phase/Task services appropriate for the Project. The Professional shall field-check and verify the accuracy of all study/drawing and any data furnished by the Department, the State/Client Agency or any other Project related source. The Professional shall not employ or consult with any firms in completing the Professional's obligations herein who it anticipates will be a construction Bidder for the Project or any part thereof, unless specifically authorized, in writing, by the Department.

The Professional acknowledges that the Department is the first interpreter of the Professional's performance under this Contract.

The Professional acknowledges by signing this Professional Services Contract having a clear understanding of the requested professional environmental services required by the Department, and further agrees that the terms and conditions of this Professional Services Contract provide adequate professional fee(s) for the Professional to provide the requested Project scope of work requirements for each assigned project. No increase in compensation to the Professional will be allowed unless there is a material change made to the scope of work of the Assignment/Program Statement and the change is accepted and approved, in writing, by the State. Professional services shall not be performed, and no Project expenses shall be incurred by the Professional prior to the issuance of a written and signed Professional Services Contract and a Contract Order authorizing the Professional to start the Project work. Compensation for Department directed changes to the Project will be provided to the Professional by a Contract Modification and/or Contract Change Order signed by the Department and the Professional. The preparation of Bulletins and Contract Change Orders resulting from changes in the Project scope of work or previously unknown on-site field conditions will be compensated to the Professional, as approved by the Project Director/Agency Project Manager, on an hourly billing rate basis in accordance with this article. This compensation shall not exceed seven and half percent (7.5%) of the Construction Contractor's quotation for the Bulletin or Contract Change Order or an amount mutually agreed upon by the Professional and the Project Director/Agency Project Manager.

The Professional shall immediately inform the Department whenever it is indicated that the Professional's authorized not-to-exceed Budget for any of the assigned Projects may be exceeded. The Professional shall make recommendations to the Department for revisions to be implemented in order to not exceed the original authorized Budget. Any revision to the Project must be accepted and approved by the Department in writing.

The professional services may also include participation in legislative presentations as described in the "Major Project Design Manual for Professional Services Contractors and State/Client Agencies" and as the legislature or the Department may prescribe.

No substitution of any "Key Personnel/Employee" essential for the successful completion of the Project and identified in the Professional's Organizational Chart will be allowed by the Professional for this Contract without the prior written consent from the Project Director/Agency Project Manager. Before any "Key Personnel/Employee" substitution takes place, the Professional shall submit a written request to the Project Director/Agency Project Manager, and this substitution request shall include the following information: (1) A request in writing for a No Cost Contract Modification; (2) Detailed written justification for this substitution; (3) The Professional's qualifications of any proposed "Key Principal Personnel/Employee" replacement; and (4) A written statement from the Professional assuring the Department that the Project scope of work will not be adversely affected by this substitution. This request to modify their Professional Services Contract must be accepted and approved in writing by the Project Director/Agency Project Manager and the Director of the Department.

The Department will designate individuals to serve as the Project Director and Agency Project Manager for the Project scope of work who shall be fully acquainted with the Project/Program Statement and have the authority to render Project decisions and furnish information promptly. Except in connection with issues under the Article XII - Contract Claims and Disputes text, the Project Director/Agency Project Manager will exercise general management and administration for the Professional's services in so far as they affect the interest of the State. The Professional shall indemnify, defend, and hold harmless the State against exposure to claims arising from delays, negligence, or delinquencies by the Professional for the professional services of this Contract.

During the Construction Administration Services Phase of the Project, the Professional is required to complete and submit, the on-site inspection record form, "DTMB-0452, The Professional's Inspection Record," for all on-site inspection visits to the Project site. The Inspection Record shall be completed and signed by the Professional and submitted monthly, with the original document sent to the Project Director/Agency Project Manager and copies sent to the Construction Contractor. The Inspection Record shall accompany the Professional's monthly payment request.

The "DTMB-0460, Project Procedures" contains Department forms which shall be used during the Construction Administration Phase of this Contract. All professional services will be consistent with the Department's current "Major Project Design Manual for Professional Services Contractors and State/Client Agencies" unless otherwise approved in writing by the Department.

The professional services required for each Phase of this Contract shall be performed by the Prime Professional and their Consultants in accordance with service descriptions in this article. The following service descriptions outlined in this Contract represent the Department's standard of care for the Professional's responsibilities for providing the professional services of this Contract; but by inclusion, or omission, the descriptions do not limit or exclude any regular or normal professional services necessary to accomplish the Project in accordance with the approved Project Budget and the industries accepted practice and standards for professional services. All of the services outlined in this Contract may not be applicable to the Project/Program Statement. The Professional shall determine and coordinate the interface of the services required for the Project and is responsible for identifying any additional services necessary to successfully complete the Project.

The professional shall execute the following PHASES upon written authorization from the Project Director.

PHASE 100 - ENVIRONMENTAL INVESTIGATION/STUDY SERVICES

Provide complete and comprehensive Environmental Investigation/Study Deliverables to meet the requirements of the Project/Program Statement. Upon completion of all field investigation, assessment, research, review and/or oversight, prepare a complete report with an executive summary, and in such detail, as the Project Director may prescribe. The services under this phase may include but not be limited to coordination, environmental assessments, drilling, field sampling/oversight, data/document review/management, feasibility study, and reporting as described in the Project/Program Statement. Project reports must be in accordance with Department/Client/Agency requirements and as outlined in the Project/Program Statement but shall include, as a minimum and as appropriate, the following items: (1) Problem; (2) Conclusion; (3) Recommendations; and (4) Discussion, details, and documentation.

PHASE 300–SCHEMATIC DESIGN

Prepare Schematic Design Deliverables consistent with the Project/Program Statement. The deliverables shall consist of conceptual remediation system, drawings, outline specifications, a Schematic Construction Cost Estimate, other related documentation, and shall diagrammatically depict the areas, scales, and relationships of the functions. The services under this phase may include but not be limited to coordination, construction codes and design reviews, civil/site staging investigation, schematic design and utilities review, drafting, and project cost/proposed construction schedule, as required by the Department/Client/Agency and as outlined in the Project/Program Statement. Acceptance of the Schematic Design by the Department/Client/Agency does not limit subsequent inclusion of minor, but essential, schematic or design details whose necessity and arrangement may best become apparent during subsequent Phases of the Project design. Revise design as necessary and obtain approval from the Department/Client/Agency.

PHASE 400–DESIGN DEVELOPMENT

Prepare Design Development Deliverables based on the Owner-accepted Schematic Design to depict the intent of the designed remediation system(s). The deliverables shall consist of draft drawings and specifications, Construction Cost Estimates and other related documentation to clearly establish the complete basis for further detail into final design drawings/specifications. The deliverables shall further define the Project by fixing and describing the Project size, character, site relationships, and other appropriate elements including the environmental, civil, structural, architectural, mechanical, electrical, and safety systems. The services under this phase may include but not be limited to coordination, draft drawings/specifications, site specific staging investigation, structural calculations and preliminary environmental/architectural/engineering design development/reviews of drawings/specifications, as required by the Department/Client/Agency and as outlined in the Project/Program Statement.

PHASE 500–CONSTRUCTION DOCUMENTS AND BIDDING DOCUMENTS

Prepare Construction Documents that revise, refine, amplify, and depict, in detail, the Project. The documents shall set forth, in detail, quality levels of and requirements for the construction, and shall consist of final drawings/specifications that comply with applicable regulatory and construction code requirements, enacted at the time of completion of the one hundred percent (100%) Construction Documents. Prepare Bidding Documents in Phases/Bid packages appropriate to the Project requirements and funding. Incorporate the current edition of DTMB “MICHSPEC”, “DCSPEC” or “50KSPEC”, as adopted and modified by the State of Michigan. The Construction Documents shall contain all information necessary to bid and construct the Project. The services under this phase may include but not be limited to coordination, final drawings/specifications and bidding documents, civil/site staging design, final structural calculations, final environmental/architectural/engineering design development/reviews of drawings/specifications, construction testing program, hazardous materials, health and safety risks, final design correction procedures, design and construction budget, construction codes/permits and construction schedule, as required by the Department/Client/Agency and as outlined in the Project/Program Statement.

PHASE 600 - CONSTRUCTION ADMINISTRATION - OFFICE SERVICES

Provide all required construction oversight administration and timely professional review and administrative services, as the circumstances of the Construction may require, allowing the successful review/implementation of the Construction Documents into a completed remedial actions/abatement measures and/or for the use intended by the Department/Client/Agency. The services under this phase may include but not be limited to coordination, review and approval of shop drawings and submittals, reporting of construction progress, construction quality testing, construction contractor performance review, punch list procedures, claims, establishing close-out procedures and developing/review of as-built documents, as required by the Department/Client/Agency requirements and as outlined in the Project/Program Statement.

PHASE 700 - CONSTRUCTION ADMINISTRATION - FIELD SERVICES

Provide all required Construction Oversight and Field Services, including timely inspection and professional services, as the circumstances of the Construction may require, allowing the successful review/implementation of the Construction Documents into a completed remedial action/abatement measures and/or for the use intended by the Department/Client/Agency. The services under this phase may include but not be limited to coordination, field inspections, progress meetings and final project inspection, as required by the Department/Client/Agency requirements and as outlined in the Project/Program Statement.

PHASE 900 – OPERATION AND MAINTENANCE SERVICES – REMEDIATION FACILITY

Provide all required Operation and Maintenance (O&M) Services and perform, in a safe and secure environment, all functions, including timely inspection, sampling and professional services, necessary to maintain uninterrupted, effective and efficient facility/system components for the use intended by the Department/Client/Agency. The services under this phase may include but not be limited to coordination, general system operation/inspections, routine system/building/ground maintenance, sampling, spare replacement parts, consumable supplies, utilities, waste materials removal/treatment/disposal, non-routine emergency services, progress meetings and reporting, as required by the Department/Client/Agency requirements and as outlined in the Project/Program Statement.

ARTICLE II
COMPENSATION

In consideration of the performance of this Contract, the Department agrees to pay the Professional, as compensation for professional services, an hourly billing rate for each employee providing a direct service to this Project, on a not-to-exceed basis as specified herein, subject to subsequent modifications mutually agreeable to the parties hereto; provided, however, the Professional may not incur costs, or bill the Department, for professional services in excess of the estimates established for this Project without the prior written agreement of the Department. The attached proposal prepared by the Professional in response to the Request for Proposal, by the Owner, may describe methodology, services, schedule, and other aspects of the work to be performed under the Contract but does not supersede the Contract.

Compensation to the Professional shall be on an hourly billing rate basis for professional services rendered by salaried and non-salaried professional, technical, and technical support employees, except for any authorized reimbursable expenses provided for in this Contract. Total compensation for any Phase shall not exceed the amount authorized for that Phase, unless authorized in writing by the Department’s approved Contract Change Order. Professional services shall not be performed, and no Project expense shall be incurred by the Professional firm prior to the issuance of a written and signed Professional Services Contract and a DTMB Form 0402 - Contract Order by the Department to the Professional, authorizing the Professional to start the Project.

Compensation to the Professional for services and authorized technical and technical support employees performing a direct service for this Project shall be determined using the Professional firm's billing rates. The Professional firm's hourly billing rate shall be the actual amount paid for the employee services on the Project including fringe benefits, vacations, sick leave, other indirect costs, and profit. The Professional firm's hourly billing rates shall not change during the life of this Contract without written approval by the Department. See attached Appendix**, Overhead Items Allowed for the Professional Services Contractor Firm's Hourly Billing Rate Calculation**, for the guide to overhead items allowed for the professional services contractor firm's hourly billing rate calculation. Reimbursement for the Project/Program Statement scope of work requirements will be provided only for Department approved items authorized for reimbursement compensation in this Contract. The State will not reimburse the Professional for downtime, or for personnel involved in downtime due to mechanical problems or failure of Professional's or Subcontractor equipment.

The preparation of Bulletins and Contract Change Orders resulting from changes to the Project scope of work or previously unknown on-site field conditions will be compensated to the Professional, as approved by the Department on an hourly billing rate basis in accordance with this article. This compensation shall not exceed seven and one- half percent (7.5%) of the Construction Contractor's quotation for the Bulletin or Contract Change Order or an amount mutually agreed upon by the Professional and the Project Director/Agency Project Manager.

The Professional shall provide, but no additional monetary compensation shall be allowed for the services necessary to respond to and resolve all claims arising wholly or in part from the Professional's errors and/or omissions or other aspects of the Project's design or the Professional firm's performance which is inconsistent with the Professional or Construction Contract.

2.1 PREMIUM TIME/OVERTIME: This Contract anticipates that no premium or overtime is required to achieve the Project's scope of work. No compensation will be allowed to the Professional for any premium or overtime cost incurred to achieve the Project schedule of this Contract, unless directed in writing by the Project Director/Agency Project Manager and approved by the Department.

2.2 EMPLOYEE HOURLY BILLING RATES: Hourly billing rates will include all direct and indirect monetary costs to the State for the Professional's services under this Contract other than the authorized and approved reimbursements. Hourly billing rates shall be based on the Professional's documented historical operating expenses and adjusted for Project specific costs. In no case shall this documentation period include more than eighteen (18) months prior to the date of award of this Contract.

Lump-sum payments to employees are not allowed under this Contract. Billing rates for employees who perform professional services of a subordinate or of a position classification having a lower classification/pay range shall be accounted and paid for at the lower hourly billing pay rate. The hourly billing rate charge of any employee may be changed by the Professional with a written and Department approved Contract Modification to account for normal personnel pay increases.

Hourly billing rates include, but are not limited to: Overhead items such as employee fringe benefits, vacations, sick leave, insurance, taxes, pension funds, retirement plans, meals, lodging, and all Project related travel expenses for Projects **less than** one-hundred (100) miles in each direction from the Professional's nearest Michigan office, computer costs/operating costs, data entry, and time, telephone, telephone- related services, and all reproduction services (except Contract Bidding Documents/Deliverables).

The hourly billing rate also includes all reproduction costs for design interpretations, study/design clarifications and Bulletins related to design errors or omissions, construction code compliance (precipitating either from design code compliance and plan review, design interpretations, or construction on-site/field inspections), and all similar, or avoidable costs.

All incidental postage, mail, or other shipping or delivery services, acquisition, bad debts, previous business losses, employment fees, depreciation, and operating costs for equipment, including computer design and/or computer drafting systems, and any specialized testing equipment are to be included. The hourly billing rate shall include, without exception, secretarial, computer/typing/word processing, editing, and clerical services utilized in any way for the Project as well as other non-technical and/or employees providing indirect services. The hourly billing rate also includes all profit without regard to its form or distribution.

Items not allowable as part of the Professional's calculated hourly billing rate include but are not limited to: Any costs associated with litigation and settlements for the Professional, other liability suits, out-of-state offices and associated travel, bonuses, profit sharing, premium/overtime costs, public relations, entertainment, business promotion, contributions, and various speculative allowances.

The hourly billing rate for the Professional may not be applied to the work of the Professional's Sub- Consultant's staff. Each Sub-Consultant firm must submit a separate hourly billing rate with proper documentation for Sub-Consultant services provided as part of the Proposal. The hourly billing rate of the respective Consultant firm shall be used for that Consultant firm's personnel only. No mark-up to Consultant firm's charges will be allowed.

2.3 RANGE OF EMPLOYEE HOURLY BILLING RATES: The Professional shall identify the service being provided and include the Professional's or Consultant's employee(s) full names and position classifications for the Project and their current hourly billing rates at the beginning and at the anticipated end of the Project. This hourly billing rate range shall reflect any anticipated pay increases over the life of the Contract. The range of hourly billing rates for any employee position or classification may not be changed without an approved Contract Modification.

2.4 DIRECT COST REIMBURSEMENT ITEMS: The Professional's Consultant services and authorized reimbursable expenses shall be treated as an authorized reimbursable expense item at a direct cost. The Professional shall be responsible for the selection of the supplier of the professional services or materials; the coordination, adequacy, and application of the professional services, whether provided by the Professional's staff or provided by their Consultant, and any Project costs that exceed the budget for each Phase.

Project related travel expenses (mileage, meals, lodging) for Projects **more than** one-hundred (100) miles in one- way from the Professional's nearest office shall be treated as an authorized reimbursable expense at the State of Michigan's current travel rates.

Unless authorized elsewhere in this Contract, direct cost reimbursement items shall be limited to the actual cost of printing and reproduction of project deliverables such as Final Study Reports, Surveys, Bidding Documents, and U. S. Mail regular shipping postage of the project deliverables listed above. In addition, direct cost reimbursement items may include soil borings, site surveys and any required laboratory testing, Design Code Compliance and Plan Review Approval Fees by the licensing agency; reproduction of documents for legislative presentation, artistic productions, mobilization of testing equipment, laboratory costs for testing samples, per-linear-foot cost of soil borings and specialized inspections of the structural, mechanical, electrical, chemical or other essential components of the Project.

Compensation for this Contract shall not exceed the budget per Project Phase identified in the attached Contract Order unless authorized by a Department approved Contract Modification. It shall be the Professional's responsibility to carefully monitor Project costs, activities, and progress and to provide the Project Director/Agency Project Manager timely notification of any justifiable need to increase the authorized budget. The Professional may not proceed with professional services that have not been authorized by the Project Director/Agency Project Manager and shall immediately notify the Project Director/Agency Project Manager if such services have been requested or have become necessary.

Professional/Sub-Consultant staff and hourly billable rates are identified in the attached Professional's proposal.

ARTICLE III
PAYMENTS

Payment for the professional services shall be based on the Professional's performance of authorized professional service(s) performed prior to the date of each submitted payment request. Payment requests shall be submitted monthly to the Project Director/Agency Project Manager on a payment request form (DTMB-440). Payment for each monthly submitted payment request shall be made within thirty (30) consecutive calendar days following the Department's approval of the payment request. Payment requests shall include signed certification by the Professional of the actual percentage of work completed as of the date of invoicing for each Phase and summarize the amounts authorized, earned, previously paid, and currently due for each Project Phase.

Payment requests shall be supported by itemized records or documentation in such form and detail as the Department may require.

Each of the Professional's Consultant's submitted payment request applications shall include similar information. This includes, but is not limited to:

- Phase Numbers for the professional services provided.
- Professional's personnel and position/classification providing service and hours worked. Current hourly billing rate charges for each individual position/classification.
- Copy of certified on-site visitation log or site visit report showing time on-site.
- Itemized invoices from each of the Professional's Consultant's documenting that firm's professional services charge and the Project work related services provided.
- Authorized reimbursable expense items provided with receipts and invoices.

The State has the right to withhold payment of any disputed amounts until the parties agree as to the validity of the disputed amount. The State will notify the Professional of any dispute within a reasonable time. Payment by the State will not constitute a waiver of any rights as to the Professional's continuing obligations, including claims for deficiencies or substandard Contract Activities. The Professional's acceptance of final payment by the State constitutes a waiver of all claims by the Professional against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still disputed.

The State will only disburse payments under the Contract through Electronic Funds Transfer (EFT). Contractor must register with the State at http://www.michigan.gov/SIGMAVSS to receive electronic funds transfer payments. If Contractor does not register, the State is not liable for failure to provide payment. Without prejudice to any other right or remedy if may have, the State reserves the right to set off at any time any amount then due and owing to it by Contractor against any amount payable by the State to Contractor under this Contract

ARTICLE IV
ACCOUNTING

The Professional shall keep current and accurate records of Project costs and expenses, hourly billing rates, authorized reimbursable expense items, and all other Project related accounting documents to support the Professional's monthly application for payment. Project records shall be kept on a generally recognized accounting basis. Such records shall be available to the Department for a period of ten (10) years after the Department's final payment to the Professional. The State of Michigan reserves the right to conduct, or have conducted, an audit and inspection of these Project records at any time during the Project or following its completion.

ARTICLE V
INSURANCE

The Professional shall purchase, maintain and require such insurance that will provide protection from claims set forth below which may arise out of or result from the Professional firm's services under this Contract, whether such service is performed by the Professional or performed by any of the Professional firm's Consultant's or by anyone directly or indirectly employed by them, or by anyone for whose acts they may be liable. The following insurance policy limits described below are intended to be the minimum coverage acceptable by the State:

For the purpose of this Section, "State" includes its departments, divisions, agencies, offices, commissions, officers, employees, and agents.

(a) The Contractor must provide proof that it has obtained the minimum levels of insurance coverage indicated or required by law, whichever is greater. The insurance must protect the State from claims that may arise out of or result from or are alleged to arise out of or result from the Contractor's or a Subcontractor's performance, including any person directly or indirectly employed by the Contractor or a Subcontractor, or any person for whose acts the Contractor or a Subcontractor may be liable.

(b) The Contractor waives all rights against the State for the recovery of damages that are covered by the insurance policies the Contractor is required to maintain under this Section. The Contractor's failure to obtain and maintain the required insurance will not limit this waiver.

(c) All insurance coverage provided relative to this Contract is primary and non-contributing to any comparable liability insurance (including self-insurance) carried by the State.

(d) The State, in its sole discretion, may approve the use of a fully-funded self-insurance program in place of any specified insurance identified in this Section.

(e) Unless the State approves, any insurer must have an A.M. Best rating of "A" or better and a financial size of VII or better, or if those ratings are not available, a comparable rating from an insurance rating agency approved by the State. All policies of insurance must be issued by companies that have been approved to do business in the State. To view the latest A.M. Best's Key Ratings Guide and the A.M. Best's Company Reports (which include the A.M. Best's Ratings) visit the A.M. Best Company internet web site at http://www.ambest.com.

(f) Where specific coverage limits are listed in this Section, they represent the minimum acceptable limits. If the Contractor's policy contains higher limits, the State is entitled to coverage to the extent of the higher limits.

(g) The Contractor must maintain all required insurance coverage throughout the term of this Contract and any extensions. However, in the case of claims-made Commercial General Liability policies, the Contractor must secure tail coverage for at least three (3) years following the termination of this Contract.

(h) The minimum limits of coverage specified are not intended and may not be construed; to limit any liability or indemnity of the Contractor to any indemnified party or other persons.

(i) The Contractor is responsible for the payment of all deductibles.

(j) If the Contractor fails to pay any premium for a required insurance policy, or if any insurer cancels or significantly reduces any required insurance without the State's approval, the State may, after giving the Contractor at least 30 days' notice, pay the premium or procure similar insurance coverage from another company or companies. The State may deduct any part of the cost from any payment due the Contractor or require the Contractor to pay that cost upon demand.

(k) In the event the State approves the representation of the State by the insurer's attorney, the attorney may be required to be designated as a Special Assistant Attorney General by the Michigan Attorney General.

The Professional firm's Errors and Omissions coverage shall include coverage for claims resulting from acts of forbearance that cause or exacerbate pollution and claims of bodily injury and property damage in the amount of $1,000,000 minimum coverage per occurrence, $3,000,000 annual aggregate. This insurance is required of all professional firms who conduct professional environmental services including, but not limited to, any of the following services:

(i) Remedial System Design.

(ii) Remediation Management.

(iii) Feasibility Development and Implementation.

(iv) Hydrogeological Evaluat ion .

(v) Media Testing and Analysis.

(vi) Subsurface and Geophysical Investigation.

(vii) Other related activities as determined by the Department.

Required Limits	Additional Requirements
Commercial General Liability Insurance	
Minimum Limits: $1,000,000 Each Occurrence Limit $1,000,000 Personal & Advertising Injury Limit $2,000,000 General Aggregate Limit $2,000,000 Products/Completed Operations	Professional must have their policy endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds using endorsement CG 20 10 11 85, or both CG 20 10 12 19 and CG 20 37 12 19.
Umbrella or Excess Liability Insurance	
Minimum Limits: $2,000,000 General Aggregate	Professional must have their policy follow form.
Automobile Liability Insurance	
Minimum Limits: $1,000,000 Per Accident	Professional must have their policy: (1) endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds; and (2) include Hired and Non-Owned Automobile coverage.
Workers' Compensation Insurance	
Minimum Limits: Coverage according to applicable laws governing work activities.	Waiver of subrogation, except where waiver is prohibited by law.
Employers Liability Insurance	
Minimum Limits: $500,000 Each Accident $500,000 Each Employee by Disease $500,000 Aggregate Disease.	
Professional Liability (Errors and Omissions) Insurance	
Minimum Limits: $1,000,000 Each Occurrence $2,000,000 Annual Aggregate Deductible Maximum: $50,000 Per Loss	

Environmental and Pollution Liability (Errors and Omissions) ***	
Minimum Limits: $1,000,000 Each Occurrence $2,000,000 Annual Aggregate	Professional must have their policy: (1) be applicable to the work being performed, including completed operations equal to or exceeding statute of repose; (2) not have exclusions or limitations related to Transportation (upset overturn, spills during loading or unloading, Hazardous Materials Handling, and Non-Owned disposal site liability; and (3) endorsed to add "the State of Michigan, its departments, division, agencies, offices, commissions, officers, employees, and agents" as additional insured.

C

Contractual Liability insurance for claims for damages that may arise from the Professional's assumption of liability on behalf of the State under Article VI concerning indemnification for errors, omissions, or negligent acts in the course of the professional service or other provision within this Contract to the extent that such kinds of contractual liability are insurable in connection with and subject to limits of liability not less than for the general liability insurance and the professional liability insurance and set forth in subsections (c) and (d) above.

Except where the State has approved a subcontract with other insurance provisions, the Professional must require any Consultant/Subcontractor to purchase and maintain the insurance coverage required in this Article. Alternatively, the Contractor may include a Consultant/Subcontractor under the Professional's insurance on the coverage required in that Section. The failure of a Consultant/Subcontractor to comply with insurance requirements does not limit the Professional's liability or responsibility.

Certificate of Insurance documents, acceptable to the State, shall be provided and filed with the Department prior to commencement of the Professional's Project services, unless otherwise approved in writing, and not less than 20 days before the insurance expiration date every year thereafter. Facsimile copies of the Certificate of Insurance will not be accepted. Certificate of Insurance documents must be either submitted hard copy or portable document file (.pdf). The Certificate of Insurance documents must specify on the certificate in the oblong rectangle space labeled "Description of Operations/Locations/Vehicles/Exclusions Added By Endorsement/Special Provisions/Special Items" the following items: **(1) The ISID Title; (2) The ISID Contract Number; and (3) The State of Michigan must be named as an "Additional Insured on the General Liability and Automobile Insurance Policy."** The Certificate of Insurance documents shall contain a provision that the Project insurance coverage afforded under the insurance policies for this Contract will not be modified or canceled without at least thirty (30) consecutive calendar days prior written notice, except for 10 days for non-payment of premium, to the State of Michigan, Department.

This Section is not intended to and is not to be construed in any manner as waiving, restricting, or limiting the liability of either party for any obligations under this Contract (including any provisions hereof requiring Professional to indemnify, defend and hold harmless the State).

The attached, Certificates of Insurance documents required for this Project shall be in force for this Project until the final payment by the State to the Professional is made and shall be written for not less than any limits of liability specified above. The Professional has the responsibility for having their consultant firms comply with these insurance requirements.

ARTICLE VI
INDEMNIFICATION

(a) To the extent permitted by law, the Professional shall indemnify, defend and hold harmless the State from liability, including all claims and losses, and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest, and penalties), accruing or resulting to any person, firm or corporation that may be injured or damaged by the Professional in the performance of this Contract and that are attributable to the negligence or tortious acts of the Professional or any of its Subcontractors/Consultants, or by anyone else for whose acts any of them maybe liable.

(b) Employee Indemnification: In any and all claims against the State of Michigan, its departments, divisions, agencies, boards, sections, commissions, officers, employees and agents, by any employee of the Professional or any of its Subcontractors/Consultants, the indemnification obligation under this Contract shall not be limited in any way by the amount or type of damages, compensation or benefits payable by or for the Professional or any of its Subcontractors/Consultants under worker's disability compensation acts, disability benefit acts or other employee benefit acts. This indemnification clause is intended to be comprehensive. Any overlap in provisions, or the fact that greater specificity is provided as to some categories of risk, is not intended to limit the scope of indemnification under any other provisions.

(c) Patent/Copyright Infringement Indemnification: To the extent permitted by law, the Professional shall indemnify, defend and hold harmless the State from and against all losses, liabilities, damages (including taxes), and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest, and penalties) incurred in connection with any action or proceeding threatened or brought against the State to the extent that such action or proceeding is based on a claim that any piece of equipment, software, commodity or service supplied by the Professional or its Subcontractors/Consultants, or the operation of such equipment, software, commodity or service, or the use of reproduction of any documentation provided with such equipment, software, commodity or service infringes any United States patent, copyright, trademark or trade secret of any person or entity, which is enforceable under the laws of the United States.

In addition, should the equipment, software, commodity, or services, or its operation, become or in the State's or Professional's opinion be likely to become the subject of a claim of infringement, the Professional shall at the Professional's sole expense (i) procure for the State the right to continue using the equipment, software, commodity or service or, if such option is not reasonably available to the Professional, (ii) replace or modify to the State's satisfaction the same with equipment, software, commodity or service of equivalent function and performance so that it becomes non-infringing, or, if such option is not reasonably available to Professional, (iii) accept its return by the State with appropriate credits to the State against the Professional's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

Notwithstanding the foregoing, the Professional shall have no obligation to indemnify or defend the State for, or to pay any costs, damages or attorneys' fees related to, any claim based upon (i) equipment developed based on written specifications of the State; or (ii) use of the equipment in a configuration other than implemented or approved in writing by the Professional, including, but not limited to, any modification of the equipment by the State; or (iii) the combination, operation, or use of the equipment with equipment or software not supplied by the Professional under this Contract.

ARTICLE VII
OWNERSHIP OF DOCUMENTS

All Project deliverables, including but not limited to: reports, Bidding Documents, Contract Documents, electronic documents and data, and other Project related documents, including the copyrights, prepared and furnished by the Professional shall become the property of the State of Michigan upon completion of the Project, completion and acceptance of the professional's work, or upon termination of the Contract. Project deliverables shall be delivered to the Department upon their request. The Professional shall have no claim for further employment or additional compensation as a result of this Contract requirement. The Professional may retain a copy of all Project documents for their files.

If the Professional is in default or breach of its obligations under this Contract, the State shall have full ownership rights of the Project deliverables, including Bidding Documents and Contract Documents, including all electronic data. If the Professional is in default or this Contract Agreement is terminated, the State shall not use the Contract Documents and deliverables of this Contract for completion of the Project by others without the involvement of other qualified Professionals who shall assume the professional obligations and liability for the Project work not completed by the Professional.

To the fullest extent allowed by law, the State releases the Professional, the Professionals Consultant(s) and the agents and employees of any of them from and against legal claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of the State's use of the Contract Documents other than in accordance with this Contract Agreement.

All Contract deliverables listed may be published or issued for informational purposes without additional compensation to the Professional. The Professional may not use any of the Contract Documents and Contract deliverables for any purpose that may misrepresent the professional services they provided.

The Professional shall retain full rights to the Contract Documents and deliverables and the right to reuse component information contained in them in the normal course of the Professional's professional activities.

The Contract deliverables, Contract Documents, or other documents produced under this Contract may be used by the Department, or others employed by the Department or State of Michigan, for reference in any completion, correction, remodeling, renovation, reconstruction, alteration, modification of or addition to the Project, without monetary compensation to the Professional.

The State of Michigan will not construct additional Projects or buildings based on the work of this Contract without notice to the Professional. Whenever renderings, photographs of renderings, photographs or models, or photographs of the Project are released by the State of Michigan for publicity, proper credit for design shall be given to the Professional, provided the giving of such credit is without cost to the State of Michigan.

ARTICLE VIII
TERMINATION

The State may, by written notice to the Professional, terminate this Contract and/or any Assignments, in whole or in part at any time, either for the State's convenience or because of the failure of the Professional to fulfill their Contract obligations. Upon receipt of such notice, the Professional shall:

a) Immediately discontinue all professional services affected (unless the notice directs otherwise), and

b) Deliver to the State all data, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have been accumulated by the Professional in performing this Contract, whether completed or in process.

8.1 If the termination is for the convenience of the State, an equitable adjustment in the Contract price shall be made, but no amount shall be allowed for anticipated profit on unperformed professional services.

8.2 If the termination is due to the failure of the Professional to fulfill their Contract obligations, the State may take over the work and prosecute the same to completion by Contract or otherwise. In such case, the Professional shall be liable to the State for any additional cost occasioned to the State thereby.

8.3 If, after notice of termination for failure to fulfill Contract obligations, it is determined that the Professional had not so failed, the termination shall be deemed to have been affected for the convenience of the State. In such event, adjustment in the Contract price shall be made as provided in Section 8.1 of this article.

8.4 The rights and remedies of the State provided in this article are in addition to any other rights and remedies provided by law or under this Contract.

ARTICLE IX
SUCCESSORS AND ASSIGNS

This Contract shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns; provided, however, that neither of the parties hereto shall assign this Contract without the prior written consent of the other.

ARTICLE X
GOVERNING LAWS

This Contract shall be construed in accordance with the current laws of the State of Michigan. Some Assignments to this Contract will be funded wholly or in part by the Federal Government through grant agreements and/or federal programs. The Professional must comply with such funding requirements along with any current applicable federal regulations in performing the tasks described in the Scope of Work, including but not limited to the following current federal regulations. The absence of reference to any law or regulation does not preclude its applicability to this Contract.

1. The Comprehensive Environmental Response Compensation and Liability Act of 1980 as amended CERCLA (The Superfund Act);

2. Section 306 of the Clean Air Act (42 U.S.C. 1857 (h));

3. Section 508 of the Clean Water Act (33 U.S.C. 1368);

4. Public Law 98-473 as implemented in the Department of the Interior, Bureau of Indian Affairs;

5. Executive Order 11738; Office of Management and Budget Circular A-87, "Cost Principles for State, Local, and Indian Tribal Governments."

6. 25 CFR Part 20; Financial Assistance and Social Services Programs

7. 40 CFR Part 31; Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments

8. 40 CFR Part 32 Subpart F; Drug-Free Workplace

9. 40 CFR Part 33; Participation by Disadvantaged Business Enterprises in United States Environmental Protection Agency Programs

10. 40 CFR Part 35; State and Local Assistance

11. 40 CFR Part 35 Subpart 0; Cooperative Agreements and Superfund State Contracts for Superfund Response Actions

12. 48 CFR Chapter 1 Part 31 Subpart 31.2; Contracts with Commercial Organizations.

ARTICLE XI
NONDISCRIMINATION

In connection with the performance of the Project under this, the Professional agrees as follows:

a) The Professional will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, age, sex *(as defined in Executive Directive 2019-09)*, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position. The Professional will provide equal employment opportunities to ensure that applicants are employed and that employees are treated during employment, without regard to their race, color, religion, national origin, age, sex, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position.

Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

b) The Professional will, in all solicitations or advertisements for employees placed by or on behalf of the Professional, state that all qualified applicants will receive equal employment opportunity consideration for employment without regard to race, color, religion, national origin, age, sex, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position.

c) The Professional or their collective bargaining representative will send to each labor union or representative of workers with which is held a collective bargaining agreement or other Contract or understanding, a notice advising the said labor union or workers' representative of the Professional's nondiscrimination commitments under this article.

d) The Professional will comply with the Elliot-Larsen Civil Rights Act, 1976 PA 453, as amended, MCL 37.2201 et seq; the Michigan Persons with Disabilities Civil Rights Act, 1976 PA 220, as amended, MCL 37.1101 et seq; *Executive Directive 2019-09*; and all published rules, regulations, directives and orders of the Michigan Civil Rights Commission which may be in effect on or before the date of award of this Contract.

e) The Professional will furnish and file nondiscrimination compliance reports within such time and upon such forms as provided by the Michigan Civil Rights

Commission; said forms may also elicit information as to the practices, policies, program, and employment statistics of the Professional and of each of their Consultant firms. The Professional will permit access to all books, records, and accounts by the Michigan Civil Rights Commission, and/or its agent, for purposes of investigation to ascertain nondiscrimination compliance with this Contract and with rules, regulations, and orders of the Michigan Civil Rights Commission relevant to Article 6, 1976 PA 453, as amended.

f) In the event that the Michigan Civil Rights Commission finds, after a hearing held pursuant to its rules, that the Professional has not complied with the contractual nondiscrimination obligations under this Contract, the Michigan Civil Rights Commission may, as part of its order based upon such findings, certify said findings to the State Administrative Board of the State of Michigan, which the State Administrative Board may order the cancellation of the Contract found to have been violated, and/or declare the Professional ineligible for future Contracts with the State and its political and civil subdivisions, departments, and officers, and including the governing boards of institutions of higher education, until the Professional complies with said order of the Michigan Civil Rights Commission.

   Notice of said declaration of future ineligibility may be given to any or all of the persons with whom the Professional is declared ineligible to Contract as a contracting party in future Contracts. In any case before the Michigan Civil Rights Commission in which cancellation of an existing Contract is a possibility, the State shall be notified of such possible remedy and shall be given the option by the Michigan Civil Rights Commission to participate in such proceedings.

g) The Professional shall also comply with the nondiscrimination provisions of 1976 PA 220, as amended, concerning the civil rights of persons with physical or mental disabilities.

h) The Professional will include, or incorporate by reference, the nondiscrimination provisions of the foregoing paragraphs a) through g) in every subcontract or Contract Order unless exempted by the rules, regulations or orders of the Michigan Civil Rights Commission, and will provide in every subcontract or Contract Order that said nondiscrimination provisions will be binding upon each of the Professional's Consultant's or seller.

ARTICLE XII
CONTRACT CLAIMS AND DISPUTES

In any claim or dispute by the Professional which cannot be resolved by negotiation, the Professional shall submit the claim or dispute for an administrative decision by the Department of Technology, Management and Budget, Director of State Facilities Administration within thirty (30) consecutive calendar days of the end of the disputed negotiations, and any decision of the Director of State Facilities Administration may be appealed to the Michigan Court of Claims within one (1) year of the issuance of the Director's decision.

The Professional agrees that the Department's appeal procedure to the Director of State Facilities Administration is a prerequisite to filing a suit in the Michigan Court of Claims.

ARTICLE XIII
DEFINITION OF TERMS

The definition of terms and conditions of this Contract are described and outlined in the following Articles I through XIV and attached appendices. The capitalized defined terms used in this Professional Services Contract shall have the following definitions:

ADDENDA: Written or graphic numbered documents issued by the Department and/or the Professional prior to the execution of the Construction Contract which modify or interpret the Project Bidding Documents, including drawings, and specifications, by additions, deletions, clarifications or corrections. The Addenda shall: (1) Be identified specifically with a standardized format; (2) Be sequentially numbered; (3) Include the name of the Project; (4) Specify the Project Index No., Project File No., the Contract Order No. Y, and a description of the proposed Addenda; and (5) Specify the date of Addenda issuance. As such, the Addenda are intended to become part of the Project Contract Documents when the Construction Contract is executed by the Professional's recommended lowest responsive, responsible qualified Construction Contractor.

An Addendum issued after the competitive construction Bid opening to those construction Bidders who actually submitted a Bid, for the purpose of rebidding the Project work without re-advertising, is referred to as a post-Bid Addendum.

AGENCY PROJECT MANAGER: The assigned staff of the Department or the State/client Agency authorized by the State to represent and act on behalf of the Project Director on a given Project and to thereby provide direction and assistance to the Construction Contractor. The Agency Project Manager may designate in writing a person to act on behalf of the Agency Project Manager when they are unable to perform their required duties or is away from the office. In such cases, the Agency Project Manager must notify the Construction Contractor and the Project Director.

AGENCY FIELD INSPECTOR: An employee of the State of Michigan under the direction of the State/client Agency who provides the on-site, Inspection of construction Projects for compliance with the study/design intent of the Professional firm's Contract Documents/drawings and specification requirements and the building construction codes. The Agency Field Inspector is the liaison between the Construction Contractor, the Professional, and the Agency Project Manager. The Agency Project Manager, or their Agency Field Inspector, has the authority to require the Professional to respond to and resolve study/design related problems, construction on-site field problems and to attend Project related meetings.

BID: A written offer by a construction Bidder for the Department. Project construction work, as specified, which designates the construction Bidder's base Bid and Bid price for all alternates.

BIDDER: The person acting directly, or through an authorized representative, who submits a competitive construction Bid directly to the Department.

BIDDING DOCUMENTS: The Professional's Project Contract Documents as advertised, and all Addenda issued before the construction Bid opening, and after the construction Bid opening, if the Project construction work is rebid without re-advertising. Bidding Documents shall consist of the Phase 500 - Final Design drawings and specifications, any Addenda issued, special, general, and supplemental conditions of the Construction Contract, and modifications, if any, to standard forms provided by the Department. Such forms consist of the Project advertisement, the instructions to Bidders, the proposal forms, general, supplemental, and any special conditions of the Construction Contract, and the form of agreement between the Department and the Construction Contractor for the Project work requirements.

BID SECURITY: The monetary security serving as guarantee that the Bidder will execute the offered Construction Contract or as liquidated damages in the event of failure or refusal to execute the Construction Contract.

BUDGET: The maximum legislatively authorized Budget amount to be provided by the State of Michigan and available for a specific purpose or combination of purposes to accomplish the Project for this Contract.

BULLETIN: A standard document form (DTMB-0485, Bulletin Authorization No. and the DTMB-0489, Instructions to Construction Contractors for Preparation of Bulletin Cost Quotations for Contract Change Orders) used by the Department to describe a sequentially numbered change in the Project under consideration by the Department and the Professional and to request the Construction Contractor to submit a proposal for the corresponding adjustment in the Contract price and/or Contract time, if any. These standard document forms are a part of the "DTMB-0460, Project Procedures" documents package.

CONSTRUCTION CONTRACT: A separate written Contract agreement between the Construction Contractor and the Department for the construction, alteration, demolition, repair, or rebuilding of a State/Client Agency building or other State property.

CONSTRUCTION CONTRACTOR: Any construction firm under a separate Contract to the Department for construction services.

CONSTRUCTION INSPECTION SERVICES: The Professional's field Inspections of the Project during the construction Phase of this Contract which includes but is not limited to: (1) Documenting the quantity and quality of all Project construction work and verifying that the Project construction work is properly completed; (2) Resolve Project problems that are affecting the Project construction work, certify payment requests, process Bulletins, Contract Change Order recommendations, and requests for information (RFI's) in a timely manner as prescribed in the Department's, "MICHSPEC 2001 Edition of The Owner and Contractor Standard Construction Contract and General Conditions for Construction (Long Form)" or the current Department, DTMB Short Form 401 - Proposal and Contract/Front-End Package for Small Projects for Professional Services Contractors (PSC) with General Conditions for Construction and Instructions to Bidders" as adopted and modified by the State of Michigan and incorporated into the Construction Contract; and the (3) Inspection of Project construction work completed or in progress by the Construction Contractor to determine and verify to the Department's Project

Director/Agency Project Manager and their Department Field Representative that the Project construction work is in compliance with the Professional's design intent and that the Project has been completed by the Construction Contractor in accordance with the Professional's Phase 500 - Contract Documents/drawings and specifications requirements.

The Professional shall provide sufficient Inspections of the Project during the construction Phase to administer the construction Phase field and office services as directly related to the degree of Project complexity, up to and including full-time field Inspections. Construction field Inspections shall occur as the construction field conditions and the Project may require and during the regularly scheduled monthly progress and payment meetings.

The Professional shall use for their construction field Inspection services, only personnel having professional expertise, experience, authority, and compatibility with departmental procedures as the Department may approve. The Professional agrees that such characteristics are essential for the successful completion of the Project. Such individuals shall be replaced for cause where the Department determines and notifies the Professional, in writing, of their unacceptable performance.

CONSULTANT: Any individual, firm, or employee thereof, not a part of the Professional's staff, but employed by the Professional and whose professional service cost is ultimately paid by the State of Michigan, either as a direct cost or authorized reimbursement. This includes the recipient(s) of Contract Orders for material, support, and/or technical services. Also, included are persons and firms whose management and/or direction of services are assigned to the Prime Professional as may be provided elsewhere in this Contract.

CONTRACT CHANGE ORDER: A standard document form (DTMB-0403) issued and signed by the State of Michigan and signed by the Professional which amends the Project Design Professional's Contract Documents for changes in the Project/Program Statement or an adjustment in Contract price and/or Contract time, or both.

CONTRACT DOCUMENTS: The Professional's Phase 100 – Study, Final Report and Phase 500 - Final Design plans/drawings, specifications, Construction Contract, instructions to construction Bidders, proposal, Bidding Documents, agreement, conditions of the Contract, payment bond, performance/labor and material bond, prevailing wages, all Addenda, and attachments as may be necessary to comprise a Construction Contract for the Project. Specifications for this Contract will be prepared for Division 00 through 49, in the current version MasterFormat Outline by the Construction Specifications Institute (C.S.I.), as appropriate for the Project.

CONTRACT MODIFICATION: A form (DTMB-0410) amending the Contract signed by the Department and the Professional. The preparation of Bulletins and Contract Change Orders resulting from changes in the Project/Program Statement or previously unknown on-site field conditions as approved by the Department will be compensated to the Professional by way of the Contract Modification in accordance with the Article II, Compensation text of this Contract.

Any Contract Modification of this Professional Services Contract must be in writing, signed by duly authorized representatives of the parties, and shall be in such format and detail as the Department may require. No Contract Modification will be approved to compensate the Professional for correcting, or for responding to claims or litigation for, the Professional's Phase 100 – Study, Final Report and Phase 500 - Contract Documents study/design errors, omissions or neglect on the part of the Professional.

CONTRACT ORDER: A form (DTMB-0402) issued and signed by the State of Michigan authorizing a Professional to: (1) Begin to incur Project expenses and proceed with the Project on-site; and (2) Provide professional services for the fee amount designated in the Phases of the Contract Order. Issuance of the DTMB-0402 certifies that: (1) The State will enter into a Professional Services Contract for the professional services described in the various Phases of this Contract; and that (2) The proper three (3) sets of Certificate of Insurance documents have been received and accepted by the State along with the approval and signing of the Professional's Professional Services Contract by the SFA, DCD Director.

DEPARTMENT: The Department of Technology, Management and Budget, Facilities and Business Administration, Design and Construction Division. The Department will represent the State of Michigan in all matters pertaining to this Project. This Professional Services Contract will be administered through the Department on behalf of the State of Michigan and The State/Client Agency.

DESIGN MANUAL: Provides the Professional with information regarding the Department's current "Major Project Design Manual for Professional Services Contractors and State/Client Agencies" review process requirements regarding the uniformity in Contract materials presented to it by the Professional and the State/Client Agency(ies). This manual contains the following noted standards, instructions, and procedures information for: (1) General instructions for planning documents from Phase 100-Study through Phase 500-Final Design; (2) Net and gross area/volume; (3) Project cost format; (4) Outline architectural and engineering specifications; (5) Specifications in documentation Phase; (6) Instructions for proposal; (7) Bidders questionnaire; and the (8) Project job sign.

DIRECTOR: The Director of the Department of Technology, Management and Budget or their authorized State of Michigan representative.

DIRECTOR-SFA: The Director of the Department of Technology, Management and Budget, State Facilities Administration or their authorized State of Michigan representative.

DEPARTMENT FIELD REPRESENTATIVE: An employee of the State under the direction of the Department who provides the Inspection of construction Projects for compliance with the design intent of the Professional's Phase 500 - Contract Documents/ architectural and/or engineering drawings and specification requirements and the building construction codes. The Department Field Representative is the liaison between the Construction Contractor, the Professional, and the Project Director/Agency Project Manager. The Project Director/Agency Project Manager, or their Department Field Representative, has the authority to require the Professional to respond to and resolve study/design related problems, construction field problems and to attend Project

meetings. Unless delegated by specific written notice from the Department, the Department Field Representative has no authority to order any changes in the Project scope of work or authorize any adjustments in Contract price or Contract time.

INSPECTION: The Professional and their Consultant firm's on-site and/or off-site examination of the Project construction work completed or in progress by the Construction Contractor to determine and verify to the Department's, Project Director/Agency Project Manager and their Department Field Representative that the quantity and quality of all Project construction work is in accordance with the design intent of the Professional's Phase 500 - Contract Documents/ drawings and specifications requirements.

KEY PRINCIPAL PERSONNEL/EMPLOYEE: An individual employee of a Professional who is essential for the successful completion of the Project.

NOTICE OF INTENT TO AWARD: A written notice to the Construction Contractor, by the Department accepting the Professional's written recommendation to award the construction Bid to the lowest responsive, responsible qualified construction Bidder. The Notice of Intent to Award letter will also designate the Contract price and itemize the alternates that the Department, at its sole discretion has accepted.

PHASE: A discretely distinguishable step necessary to produce the Project in the course of the Professional providing study, design and construction administration services.

PRIME PROFESSIONAL SERVICES CONTRACTOR/PROFESSIONAL: An individual, firm, partnership, corporation, association, or other legal entity who is legally permitted by law to sign and seal final design construction Contract Documents and licensed under the State of Michigan's professional licensing and regulation provisions of the Occupational Code (State Licensing Law), Act 299 of the Public Acts of 1980, Article 20, as amended, to practice architecture, engineering, environmental engineering, geology, civil, land surveying, or landscape architecture services in the State of Michigan.

The Prime Professional Services Contractor/Professional is also legally permitted by the State of Michigan's regulation provisions of the State Construction Code, Act 230 of the Public Acts of 1972, as amended, and designated in a Construction Contract by the Department to recommend construction progress payments to the Construction Contractor.

PROJECT: Any new construction, existing site, new utilities, existing building renovation, roof repairs and/or removal and replacement, additions, alteration, repair, installation, construction quality control and material testing services, painting, decorating, demolition, conditioning, reconditioning or improvement of public buildings, works, bridges, highways or roads authorized by the Department that requires professional study/design services as part of this Contract.

PROJECT COST: The total Project cost including, but not limited to, site purchase, site survey and investigation, hazardous material abatement, construction, site development, new utilities, telecommunications (voice and data), professional fees, construction quality control and material testing services, testing and balancing services, furnishings, equipment, plan(s)/drawing(s) design code compliance and plan review approval fees and all other costs associated with the Project.

PROJECT DIRECTOR: The professional licensed employee of the Department who is responsible for directing and supervising the Professional's services during the life of this Contract. The Project Director, or their Department Field Representative, has the authority to require the Professional to respond to and resolve study/design related problems, construction field problems and to attend Project related meetings.

PROJECT/PROGRAM STATEMENT: The Project/Program Statement is provided by the Department and defines the scope of the problem, describes why this Project is desirable, and provides a preferred resolution of the problem.

PROJECT TEAM: The Professional, the Project Director/Agency Project Manager, Department Field Representative, a representative of the State/Client Agency, and others as considered appropriate by the Department.

PUNCH LIST: A list of minor construction Project items to be completed or corrected by the Construction Contractor, any one of which do not materially impair the use of the Project work, or the portion of the Project work inspected, for its intended purpose. A Punch List shall be prepared by the Professional upon having made a determination that the Project work, or a portion of the Project construction work inspected, in concert with the Professional, the Construction Contractor, the Department, the Project Director/Agency Project Manager and their Department Field Representative, and any construction manager, is substantially complete and shall be attached to the respective DTMB-0455, Certificate of Substantial Completion form. This standard document form is a part of the "DTMB-0460, Project Procedures" documents package.

SOIL EROSION AND SEDIMENTATION CONTROL: The planning, design and installation of appropriate Best Management Practices (as defined by the most current version of the Department's Soil Erosion and Sedimentation Control Guidebook) designed and engineered specifically to reduce or eliminate the off-site migration of soils via water runoff, wind, vehicle tracking, etc. and comply with the Soil Erosion and Sedimentation Control in the State of Michigan as regulated under the 1994 Public Act 451, as amended – The Natural Resources Environmental Protection Act, Part 91 – Soil Erosion and Sedimentation Control. Soil Erosion and Sedimentation Control associated with this Contract will be monitored and enforced by the Department of Technology, Management and Budget, State Facilities Administration, Soil Erosion and Sedimentation Control Program.

STATE: The State of Michigan in its governmental capacity, including its departments, agencies, boards, commissions, officers, employees, and agents. Non-capitalized references to a state refer to a state other than the State of Michigan.

STATE/CLIENT AGENCY: A Department of the State of Michigan, for whose use the Project will ultimately serve, which requires professional design services.

SUBSTANTIAL COMPLETION: The form (DTMB-0445) stating that the Project work, or a portion of the Project work eligible for separate Substantial Completion, has been completed in accordance with the design intent of the Professional's Contract Documents to the extent that the Department and the State/Client Agency can use or occupy the entire Project work, or the designated portion of the Project work, for the use intended without any outstanding, concurrent work at the Project work site, except as may be required to complete or correct the Project work Punch List items.

SUSTAINABLE DESIGN: The Professional's use of a balance of appropriate materials, products and design methods that reduce the impact to the natural ecosystems and be within the Budget constraints of the Project. Sustainable Design shall be used wherever possible by the Professional in their Project design and an itemized list shall be provided with the Professional's Contract Documents that identifies the processes and products.

TASK: Shall mean the following: (1) A quantifiable component of design related professional study/design Task services required to achieve a Phase of the Project; (2) The most manageable sub-element within a study/design Phase; (3) A unique item of work within a study/design Phase for which primary responsibility can be assigned; and (4) Has a time related duration and a cost that can be estimated within a study, design, and construction Phase.

ARTICLE XIV
COMPLETE AGREEMENT / MODIFICATION

This Professional Services Contract constitutes the entire agreement as to the Project between the parties. Any Contract Modification of this Contract and the Project/Program Statement scope of work requirements must be in writing, signed by duly authorized representatives of the parties, and shall be in such format and detail as the State may require. No Contract Modification may be entered into to compensate the Professional for correcting, or for responding to claims or litigation for the Professional firm's final design Contract Documents/study/design errors, omissions or neglect on the part of the Professional.

APPENDIX 1

PROJECT/PROGRAM STATEMENT

PROJECT STATEMENT

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design and Construction Division
3111 West St. Joseph Street
Lansing, Michigan 48909

FILE NUMBER Various		**PROPOSAL DUE DATE** Thursday, January 12.2023, at 2:00 p.m., EASTERN
CLIENT AGENCY Department of Environment, Great Lakes, and Energy (EGLE)		
PROJECT NAME AND LOCATION 2023 Environmental Indefinite Services Indefinite Delivery (ISID)		
PROJECT ADDRESS (if applicable) Various		
CLIENT AGENCY CONTACT Bridget Walsh		**TELEPHONE NUMBER** (517) 420-6379
DTMB - DCD PROJECT DIRECTOR Indumathy Jayamani		**TELEPHONE NUMBER** (517) 582-1089

WALK-THROUGH INSPECTION DATE, TIME, AND LOCATION:
There is no Pre-Proposal Meeting required.

☐ **MANDATORY** (Check box if Mandatory)

☐ **LEIN Check** (Department of Corrections ONLY) All contractor / vendor representatives attending Preproposal Walk Through Meeting must submit a Vendor / Contractor LEIN Request form five business days prior to the meeting date (See the attached Vendor/Contractor LEIN Request Form). Send the LEIN Request form, filled and signed, by email to Daniel T. Smith at email address: smithD76@michigan.gov . The email "Subject" must include (facility name, project name, date, and time of Pre-Proposal Walk Through Meeting).

PROJECT DESCRIPTION/SERVICES REQUESTED

Provide professional environmental ISID services for a variety of State or Federally funded cleanup sites. The professional will be required to effectively perform tasks at assigned contaminated and/or hazardous waste sites through appropriate screening/investigation and/or remedial/corrective action plan to abate human health or environmental risks or bring an assigned site to an acceptable closure in accordance with the applicable Part 201 or Part 213 of the Michigan Natural Resources and Environmental Protection Act (NREPA) Public Act 451 of 1994, as amended and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and other relevant state and federal statutes and requirements. The Professional is required to refer to State and Federal statutes, procedures, guidelines, and the administration rules when providing the services or entering contracts with sub-consultants / subcontractors to provide the services. The Professional MUST upload their proposal to the State of Michigan Procurement website (SIGMA VSS). The Professional must use the attached appropriate forms to indicate the billing rates and questionnaires. The Professional may check one or more of the project types that they are interested in providing services. The State of Michigan reserves the right not to award the contract(s) or award the contract(s) to one or more firms.

Please NOTE:

- Proposal responses MUST be uploaded to SIGMA VSS. Please enter the total cost for all phases as the bid amount.
- Firms should only submit one (1) attachment (being less than 6 MB) for proposal submission. The attachment is to be the technical and cost proposal combined.
- Do not wait until just before the 2:00 p.m. solicitation deadline to submit your proposal response. SIGMA VSS will not allow a proposal to be submitted after 2:00 p.m., even if a portion of the

proposal response has been uploaded.

- If you experience issues or have questions regarding your electronic submission, you must contact the SIGMA Help Desk for assistance prior to the 2:00 p.m., solicitation deadline. You may contact the SIGMA Help Desk by telephone at 517.284.0540 or toll-free at 888.734.9749. You may also email the SIGMA Help Desk at sigma-procurement-helpdesk@michigan.gov
- Please email the Design and Construction Contract Specialists if you are having SIGMA VSS issues. Please include your SIGMA ticket number and any supporting documentation (i.e., screenshots) to Anne Watros (WatrosA@michigan.gov) and Don Klein (KleinD4@michigan.gov).
- You may be asked by our contract specialists to email your proposal. Emailed submissions will require DCD approval and will be handled on a case-by-case basis.
- Approved emailed submissions MUST be received prior to 2:00 p.m. deadline to be considered responsive and responsible.
- Responses should not be emailed to the Project Director.

NIGP CODES

90629; 91842; 91843; 92535; 92577; 92615; 92623; 92629; 92630; 92645; 92652; 92658; 92678; 92683; 92685; 92690; 92691; 92693; 92696; and 96273

DESIRED SCHEDULE OF WORK

Dependent on the assigned project

ACCEPTING RFP QUESTIONS UNTIL:

Please do not submit online questions via SIGMA VSS. ALL questions should be emailed to Indumathy Jayamani at jayamanii1@michigan.gov address no later than 2:00 p.m., Eastern on December 16, 2022.

REFERENCE STANDARDS: This project will comply with all codes, standards, regulations, and workers' safety rules that are administered by federal agencies (EPA, OSHA, and DOT), state agencies (DHHS, EGLE, DNR, and MIOSHA), and any other local regulations and standards that may apply.

This form is required to be a part of the professional service contract. (Authority: 1984 PA 431)

MINOR STATE CAPITAL OUTLAY PROJECTS

REQUEST FOR PROPOSALS
FROM
PROFESSIONAL SERVICE CONTRACTORS

(Authority PA 431 of 1984)

For Indefinite Scope Indefinite Delivery
Not-to-Exceed Fee, Billable-Rate

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
Request for Proposal for
2023 Indefinite Scope Indefinite Delivery (ISID) for Environmental Services
Various Locations, Michigan

PROPOSAL DUE DATE: Thursday, January 12, 2023, 2:00 p.m., Eastern Time

ISSUING OFFICE

Department of Technology, Management & Budget
State Facilities Administration
Design and Construction Division

Minor State Capital Outlay Projects
REQUEST FOR PROPOSALS

Part I - Technical Proposal
Part II – Cost Proposal

Professional Services for
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
2023 Indefinite Scope Indefinite Delivery (ISID) Contract
for Environmental Services
Various Locations, Michigan

SECTION I GENERAL INFORMATION

I-1 Purpose

This Request for Proposals invites the prospective professional service contractor (Professional) to prepare a qualifications statement and proposal for an Indefinite Scope Indefinite Delivery (ISID) contract. ISID contracts provide the State of Michigan with a simple and streamlined qualifications-based selection process for obtaining professional environmental services for minor, emergency and / or routine investigation and remediation projects. Professionals holding an ISID contract may be contacted by a Department of Technology, Management and Budget (DTMB), State Facilities Administration (SFA), Design and Construction (DCD) Project Director to provide a specific proposal of services and fees for a particular project, which, if found acceptable, will then be assigned to that Professional under their ISID contract. Services requested may include, but not be limited to investigate, evaluate, design and supervise the implementation of abatements / remedies at assigned sites of environmental contamination under Parts 201 and 213 of the Michigan Natural Resources and Environmental Protection Act (NREPA) Public Act 451 of 1994, as amended, Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 (42 U. S. C. Chapter 103) and other relevant state / federal statutes and requirements. The services to be completed should encompass as a minimum the following phase(s) from DTMB's Sample Standard ISID Contract for Professional Environmental Services.

Projects will be located statewide, within both developed and undeveloped areas. Proposing firms must indicate regions and service areas in which they are willing to provide services, (refer to Questionnaire Articles 2 and 3, Project Types and Service Offered and Project Location, respectively).

The ISID contracts will supplement, but not replace, standard requests for proposals or qualifications as a method for obtaining professional services.

The 2023 Professional Environmental Services ISID contract will be limited to a term of three base years and one option year for assignments. A firm holding an ISID contract may not re-propose until their contract term is exhausted.

Firms with ISID contracts are eligible to participate in MIDeal, a cooperative purchasing program, local units of government, K-12 schools, state colleges and universities, and not for profit hospitals, may, if the firm agrees to participate, contract with an ISID contract holder at the billable rates specified in the ISID contract.

Please Note:

1. FIRMS HOLDING ISID CONTRACTS ARE NOT GUARANTEED ANY ASSIGNMENTS

If DTMB, Design and Construction Division (DCD) determines that a particular project is suited to the ISID contracting method, The DCD Project Director will select an ISID Professional to provide a specific proposal of services and fee for that project. If the proposal is acceptable, the project will be assigned to that Professional under their ISID contract.

DCD reserves the option of requesting such proposals from more than one professional for a particular project.

ISID contracts may include, but not be limited to, the following phase(s) from DTMB's attached Sample Standard ISID Contract for Professional Environmental services.

Phase–

100 Study
300 Schematic Design
400 Preliminary Design
500 Final Design
600 Construction Administration - Office Services
700 Construction Administration - Field Services
900 Operation and Maintenance Management – Remediation Facility

The minimum professional qualifications to complete the scope of work for this project are demonstrated experience in the successful planning and execution of similar projects in full accordance with all applicable Local, State, and Federal regulations.

I-2 Project/Program Statement

See attached project/program statement for more detailed information. The Professional, by submitting a Technical (Part I) and Cost (Part II) Proposal to DTMB for evaluation, states that they can and will provide complete services when an individual project is assigned to them.

No increase in compensation to the Professional will be allowed unless there is a material change made to the scope of work of the project/program statement and the change to the project/program statement is approved in writing by DTMB, State Facilities Administration (SFA), Design and Construction Division (DCD).

I-3 Issuing Office

This RFP is issued by the Department of Technology, Management and Budget (DTMB), on behalf of the State of Michigan and its Client Agencies. PROPOSALS SHALL BE RETURNED TO THE ISSUING OFFICE via State of Michigan Procurement website – SIGMA VSS.

The point of contact for all other items in this Request for Proposal is:

Indumathy Jayamani, Project Director
Department of Technology, Management and Budget
State Facilities Administration, Design and Construction Division
Telephone Number: (517) 582-1089
Email: jayamanii1@michigan.gov

I-4 Contract Award

Professionals are requested to submit a two-part proposal, Technical Proposal - Part I, including a Qualifications Questionnaire, and Cost Proposal - Part II. Proposals will be evaluated by an Ad Hoc Advisory Committee based on the Technical Portion - Part I eighty percent (80%) and the Cost Proposal - Part II twenty percent (20%) with the following tentative percentage breakdown:

The Technical Portion will include the following breakdown:

Capacity and Quality	30%
Experience	30%
Personnel Staffing	30%
Business Organization and Contract Understanding	5%
Special Factors	5%

The Cost Portion will include the following breakdown:

Professional Billing Rates	75%
Billing Rate Increase	25%

The professional firm must complete the Professional Questionnaire (Appendix III) and select the Project Types and Project Locations they wish to be considered for. Provide attachments illustrating a minimum of three (3) examples, with references, of successful projects performed in the last five years for each item selected. Please include all the submitted resumes for all Project Types under one (1) appendix.

DTMB will offer a contract to several professional firms recommended by the Ad Hoc Advisory Committee after evaluation of the proposals. Recommendation is expected within forty-five (45) days following the due date of the proposal.

The Professional must include signed PSC Certification forms and the Addendum Acknowledgment form located at the end of this RFP as part of your proposal response.

I-5 Rejection of Proposals

The State of Michigan reserves the right to reject any or all proposals, in whole or in part, received because of this Request for Proposals.

I-6 Incurring Costs

The State of Michigan is not liable for any cost incurred by the Professional prior to acceptance of a proposal and the award and execution of a contract and issuance of the state's contract order.

I-7 Mandatory Pre- Proposal Meeting

NO MANDATORY PRE-PROPOSAL MEETING will be conducted by the Issuing Office for this Request for Proposal.

Questions that arise because of this RFP **MUST BE EMAILED to Indumathy Jayamani at jayamanii1@michigan.gov** to the issuing office no later than **Friday, December 16, 2022,** at **2:00 p.m.,** Eastern time (ET). If it becomes necessary to amend any part of this RFP, addenda will be posted on the SIGMA VSS website.

I-8 Responsibilities of Professional

The Professional will be required to assume responsibility for all professional services offered in their proposal whether they possess them within their organization or not. Further, the State of Michigan will consider the Professional to be the sole point of contact regarding contractual matters, including payment of all charges resulting from the contract. The prime professional shall possess a license to practice in the State of Michigan pursuant to the Occupational Code (PA 299 of 1980).

I-9 Proposals

The professional must submit a complete, straightforward response to this Request for Proposal. The proposal should describe the professional's ability to meet the requirements of the Request for Proposal.

The proposal must be submitted electronically through the State of Michigan Procurement System (SIGMA VSS). No other distribution of proposals will be made by the Professional. To be considered responsible and responsive, proposals must be uploaded to SIGMA VSS **on or before 2:00 p.m., Eastern time (ET), on Thursday, January 12, 2022.** The proposal must be signed by an official authorized to bind the professional firm to its provisions. NO FACSIMILES OR E-MAILS OF THE REQUEST FOR PROPOSAL WILL BE ACCEPTED.

The proposal and attachments must be fully uploaded and submitted prior to the proposal deadline. **Please do not wait until the last minute to submit a proposal**, as the SIGMA VSS system **will not** allow a proposal to be submitted after the proposal deadline identified in the solicitation, even if a portion of the proposal has been uploaded.

SIGMA has a maximum size limit on file uploads. When uploading, your attachment(s) the attachment must be 6mb or less.

Also, when entering proposal amount, please enter the total cost amount as $1.00. Bidder's failure to submit a proposal as required may result in being deemed nonresponsive.

Questions on vendor registration, proposal submissions, or navigation in the SIGMA VSS system can be answered by contacting the SIGMA Help Desk either by telephone at 517.284.0540 or toll free at 888.734.9749 or by email at sigma-procurement-helpdesk@michigan.gov

SECTION II PROPOSAL FORMAT - PART I – TECHNICAL

The proposal must be submitted in the format outlined below. Paginate proposals and ensure that the proposals refer specifically to the project at hand. Proofread proposals for language and mathematical errors. The items shown below are considered in the Ad Hoc Committee proposal review of technical qualifications.

II-l General Information and Project Team

State the full name, address, and SIGMA Vendor Number of the organization and, if applicable, the branch office, consultants or other subordinate elements that will provide or assist in providing the service. Indicate whether you operate as an individual, partnership, or corporation. If a corporation, include the state in which you are incorporated. State whether you are licensed to operate and practice in the State of Michigan.

II-2 Understanding of Project and Tasks

The professional must demonstrate an understanding of the project being considered and the professional services needed to achieve the state's goal. State your understanding of the project requirements and summarize your plan for accomplishing the project. Outline your experience with similar projects, sites, and clients as examples.

Explain how your firm or project team is the best suited to provide the services required for this project and would provide the best value to the State of Michigan for this work.

II-3 Personnel

The professional must be able to staff a project team which has the qualifications and expertise necessary to undertake the project. Include the full names of all personnel by classification that will be employed in the project.

Indicate which of these individuals you consider to be "Key Personnel" for the successful completion of these project types, identify them by position and classification and provide their resumes.

The Professional must identify all Key Personnel that will be assigned to this contract in the table below which includes the following:

a. Name and title of staff that will be designated as Key Personnel.
b. Key Personnel years of experience in the current classification.

c. Key Personnel's roles and responsibilities, as they relate to this RFP, if the Professional is successful in being awarded the Contract. Descriptions of roles should be functional and not just by title.

d. Identify if each Key Personnel is a direct, or consultant employee.

e. Identify where each Key Personnel staff member will be physically located (city and state) during the Contract performance.

The Professional must provide detailed, chronological resumes of all proposed Key Personnel, including a description of their work experience relevant to their proposed role as it relates to the RFP. Qualifications will be measured by education and experience with particular emphasis to experience on projects similar to that described in the RFP.

Provide an organization chart outlining authority and communication lines for each professional firm, including Key Personnel, including sub-consultants, client agency, and DTMB.

II-4 Management Summary, Work Plan, and Schedule

This is for reference only and will be required for future assignments, but not required at this time. The professional must outline their work plan and methodology so that it is understood what services and deliverables will be provided, and the quality of the services and deliverables as well. Describe in detailed narrative form your plan for accomplishing the project. Describe clearly and concisely each professional task, event, and deliverable required for project completion. Do not simply reiterate language and tasks from the DTMB Professional Services Contract. Describe your constructability review and quality control plan. Include a detailed time sequenced – related but undated schedule, showing each event, task, and phase in your work plan. Allow time in the assignment schedule for the Owner's review.

II-5 Questionnaire

The professional firm submitting a proposal must complete the Professional Questionnaire (refer to attached fillable form in Microsoft Word format). This questionnaire must be accompanied by a narrative addressing the items above.

NOTE: Any information provided in one location can be referenced as needed in other locations

II-6 References

Provide references, with contact information of previous clients, particularly for similar projects. Outline your experience with similar projects, sites, and contacts.

SECTION III PROPOSAL FORMAT - PART II - COST

III-1 Instructions and Information – Billable Rate

Outline the billable rates for the Professional's staff members who may be assigned to these projects. Specific proposals for individual projects will be obtained at the time of individual project assignment and shall correspond to all phases/tasks of the work plan requested at that time.

If sub-consultants are used for a particular assigned project, their fees shall be provided. **No mark-up** of the sub- consultants' fees or billing rates will be allowed.

Reimbursable Expenses: The State will reimburse the Professional for the actual cost of printing and reproduction of project deliverables such as surveys, reports, and bidding documents (drawings and specifications).

The State will also reimburse for U.S. Mail regular shipping or postage, soil borings, and any required laboratory testing. **No mark-up** of reimbursable expenses will be allowed.

The Professional firm's hourly billing rate shall be the actual amount paid for the employee services on the Project including fringe benefits, vacations, sick leave, other indirect costs, and profit. The Professional firm's hourly billing rates shall not change during the life of this Contract without written approval by the Department. See attached**, Overhead Items Allowed for the Professional Services Contractor Firm's Hourly Billing Rate Calculation**, for the guide to overhead items allowed for the professional services contractor firm's hourly billing rate calculation. Reimbursement for the Project/Program Statement scope of work requirements will be provided only for Department approved items authorized for reimbursement compensation in this Contract. The State will not reimburse the Professional for downtime, or for personnel involved in downtime due to mechanical problems or failure of Professional's or sub-consultant/subcontractor equipment.

Project related travel expenses (mileage, meals, lodging) for Projects **more than** one hundred (100) miles in one-way from the Professional's nearest office shall be treated as an authorized reimbursable expense at the State of Michigan's current travel rates based on DTMB's Vehicle and Travel Services Travel Rate.

III-2 *Identification of Personnel and Estimated Compensation*

Provide compensation information for the Professional as well as any Sub-consultants. Note that employees of a separate professional firm or consultant, if proposed, should also be included, and noted.

A. Primary Professional and Sub-consultant(s) – Position, Classification and Employee Billable Rate Information

Using the format of Form II-2-A (attached), identify the service being provided and the Professional's or Sub-consultant's employee(s) names and position classifications.

See Appendix II for guidelines for position classifications. For each employee, list the current hourly billable rate for each year covered under this proposal, Hourly billing rates shall include any anticipated pay increases over the life of the Professional's three-year ISID contract duration. Sub-consultant fees will be included in individually assigned project contracts as not-to-exceed reimbursable amounts.

For individual assigned projects, the proposal will identify the estimated cost for each task.

The total of all phases/tasks shall become the Professional's maximum not-to-exceed cost for the assigned project. Compensation for each phase will be in accordance with the attached sample contract Article II – Compensation.

The following items B, C, and D will be required only at the time a proposal for an individual assigned project is requested.

Forms II-2-B, II-2-C, and II-2-D are for reference only and will be required for future assignments. These forms are not required for this proposal at this time.

A. Fee with Anticipated Hours by Phase – for Individual Assigned Projects

Using the format of Form II-2-B, identify for each phase the estimated hours for each employee and include the billable rate for each employee. Provide totals.

B. Reimbursable Expenses – for Individual Assigned Projects

Using the format of Form II-2-C, identify the phase number, firm name, and description of sub-consulting services, and/or description of all reimbursable direct expenses expressed as a not-to-exceed amount (travel over 100 miles one-way, printing, tests, etc.). Provide totals.

C. Total, Summarized by Phase – for Individual Assigned Projects

Using the format of Form II-2-D, provide a total of the fees and reimbursable expenses, by phase, as outlined in items B and C above. The total of all phases shall become the Professional's maximum not-to-exceed contract for all design services. Compensation for each phase will be in accordance with the "Sample Standard ISID – Environmental Contract for Professional Services."

Use the attached forms to establish your total compensation and trade contract reimbursables.

The following instructions are to be used by the Professional Services Contractor firms to determine the hourly billing rate to use on State of Michigan Projects.

The Professional's Consultant must submit a separate hourly billing rate for the professional consultant services they will provide for State of Michigan Projects. No mark – up of the Professional's Consultant services hourly billing rates will be allowed.

The Department will reimburse the Professional for the actual cost of printing and reproduction of the Contract Bidding Documents, soil borings, surveys and any required laboratory testing services and use of field equipment. **No mark-up of these Project costs will be allowed if services are performed in house.**

2023 HOURLY BILLING RATE
Based on 2022 Expenses

OVERHEAD ITEMS ALLOWED FOR THE PROFESSIONAL SERVICES CONTRACTOR FIRM'S HOURLY BILLING RATE CALCULATION

SALARIES:	**EMPLOYEE BENEFITS:**	**INSURANCE:**
Principals (Not Project Related)	Hospitalization	Professional Liability Insurance
Clerical / Secretarial	Employer's Federal Insurance Contributions Act (FICA)Tax	Flight and Commercial Vehicle
Technical (Not Project Related)	Unemployment Insurance	Valuable Papers
Temporary Help Tax	Federal Unemployment	Office Liability
Technical Training	Disability	Office Theft
Recruiting Expenses	Worker's Compensation	Premises Insurance
	Vacation	Key – Personnel Insurance
	Holidays	Professional Liability Insurance
	Sick Pay	
	Medical Payments	
	Pension Funds	
	Insurance - Life	
	Retirement Plans	

TAXES:	**SERVICES (PROFESSIONAL)**	**EQUIPMENT RENTALS:**
Franchise Taxes	Accounting	Computers
Occupancy Tax	Legal	Typewriter
Unincorporated Business Tax	Employment Fees	Bookkeeping
Single Business Tax	Computer Services Bond)	Dictating
Property Tax	Research	Printing
Income Tax	Project / Contract Bond	Furniture and Fixtures
		Instruments

OFFICE FACILITIES:

Rents and Related Expenses
Utilities
Cleaning and Repair

LOSSES:

Bad Debts (net)

Uncollectible Fee
Thefts (not covered by Project / Contract)
Forgeries (not covered by Project / Contract)

FINANCIAL:

Depreciation

SUPPLIES:

Postage

Drafting Room Supplies
General Office Supplies
Library
Maps and Charts
Magazine Subscriptions

PRINTING AND DUPLICATION:

Specifications (other than Contract Bidding documents)
Drawings (other than Contract Bidding documents)
Xerox / Reproduction

Photographs

SERVICES (NONPROFESSIONAL):

Telephone and Telegram

Messenger Services

TRAVEL:

All Project – Related Travel*

MISCELLANEOUS:

Professional Organization Dues for Principals and Employees
Licensing Fees

II-2-A. Position, Classification and Employee Billing Rate Information

Firm Name **XYZ, Inc.**

Yearly Hourly Billing Rate Increase **≈2%**

Position/Classification	Year 2023	Year 2024	Year 2025	Year 2026
Principal/Project Manager**	$100.00	$105.00	$110.00	$116.00
Senior Architect	$100.00	$105.00	$110.00	$116.00
Quality Control/Assurance	$100.00	$105.00	$110.00	$116.00
Licensed Surveyor**	$90.00	$95.00	$99.00	$104.00
Project Engineer**	$90.00	$95.00	$99.00	$104.00
Mechanical Engineer**	$90.00	$95.00	$99.00	$104.00
Sr. Structural Engineer	$80.00	$84.00	$88.00	$92.00
Electrical Engineer	$80.00	$84.00	$88.00	$92.00
Scientist/Surveyor	$65.00	$68.00	$71.00	$75.00
Staff Engineer	$65.00	$68.00	$71.00	$75.00
Staff geologist	$65.00	$68.00	$71.00	$75.00
CAD Operator	$75.00	$79.00	$83.00	$87.00
Technician	$65.00	$68.00	$71.00	$75.00
Field Technician	$50.00	$53.00	$56.00	$59.00
Technical Support	$35.00	$37.00	$39.00	$41.00

*Billing Rate will be in accordance with the attached guideline page for instructions regarding the "Overhead Items used for Professional Billing Rate Calculation," and the "Sample Standard Contract for Professional Services," Article 5, Compensation Text.

** Key Project Personnel

II-2-B. Fee with Anticipated Hours and Billing Rate

	POSITION/ CLASSIFICATION	TOTAL HOURS	BILLING RATE	TOTAL
	Principal/Project Manager	30	100.00	3,000.00
	Senior Architect	17	100.00	1,700.00
	Licensed Surveyor	9	90.00	810.00
	Project Engineer	8	90.00	720.00
	Mech. Engineer.	8	90.00	720.00
	Sr. Structural Engineer	8	80.00	640.00
	Electrical Engineer	22	80.00	1,760.00
	Draftsperson	40	35.00	1,400.00
	Quality Control	2	100.00	200.00
	CAD Operator	42	35.00	1,470.00
	SUBTOTAL	186		$10,667.50

II-2C. Authorized Reimbursables -- Sub-consultants, Testing and Expenses

***Firm's Mark-Up Percentage:_____**

PHASE	NAME OF FIRM	DESCRIPTION OF SERVICES PROVIDED	TOTAL AMOUNT* (Including mark-up)
Phase 400	Forrest T. Arrea, Landscape Architect, Howell, Michigan	Design of Stormwater Management Rain Garden	500.00
Phase 500	XYZ Productions, Inc. Lansing, Michigan	Printing and reproduction of bidding documents	500.00
Phase 500	Forrest T. Arrea, Landscape Architect, Howell, Michigan	Design of Stormwater Management Rain Garden	500.00
	SUBTOTAL		$ 1,500.00

III-2D. Total, Summarized by Phase

PHASE	Phase 300	Phase 400	Phase 500	Phase 600	Phase 700	TOTAL
Professional Fee	1,597.50	2,820.00	3,970.00	1,120.00	1,160.00	10,667.50
Reimbursable Expenses	0.00	750.00	1,250.00	0.00	500.00	1,500.00
SUB-TOTAL	1,597.50	3,570.00	5,220.00	1,120.00	1,660.00	
TOTAL CONTRACT AMOUNT						$ 12,167.50

R 08/20

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Certification of a Michigan Based Business

(Information Required Prior to Contract Award for Application
of State Preference/Reciprocity Provisions)

To qualify as a Michigan business:

Vendor must have, during the 12 months immediately preceding this bid deadline:
or
If the business is newly established, for the period the business has been in existence, it has:

(Check all that apply):

- ☐ Filed a Michigan single business tax return showing a portion, or all the income tax base allocated or apportioned to the State of Michigan pursuant to the Michigan Single Business Tax Act, 1975 PA 228, MCL • ˜208.1 – 208.145: or

- ☐ Filed a Michigan income tax return showing income generated in or attributed to the State of Michigan; or

- ☐ Withheld Michigan income tax from compensation paid to the bidder's owners and remitted the tax to the Department of Treasury; or

I certify that **I have personal knowledge** of such filing or withholding, that it was more than a nominal filing for the purpose of gaining the status of a Michigan business, and that it indicates a significant business presence in the state, considering the size of the business and the nature of its activities.

I authorize the Michigan Department of Treasury to verify that the business has or has not met the criteria for a Michigan business indicated above and to disclose the verifying information to the procuring agency.

Bidder shall also indicate one of the following:

- ☐ Bidder qualifies as a Michigan business (provide zip code: _____)

- ☐ Bidder does not qualify as a Michigan business (provide name of State: _____).

- ☐ Principal place of business is outside the State of Michigan, however service/commodity provided by a location within the State of Michigan (provide zip code: _____)

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Bidder: _____

_____
Authorized Agent Name (print or type)

_____
Authorized Agent Signature & Date

Fraudulent Certification as a Michigan business is prohibited by MCL 18.1268 § 268. A BUSINESS THAT PURPOSELY OR WILLFULLY SUBMITS A FALSE CERTIFICATION THAT IT IS A MICHIGAN BUSINESS OR FALSELY INDICATES THE STATE IN WHICH IT HAS ITS PRINCIPAL PLACE OF BUSINESS IS GUILTY OF A FELONY, PUNISHABLE BY A FINE OF NOT LESS THAN $25,000 and subject to debarment under MCL 18.264.

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Responsibility Certification

The bidder certifies to the best of its knowledge and belief that, within the past three (3) years, the bidder, an officer of the bidder, or an owner of a 25% or greater interest in the bidder:

(a) Has not been convicted of a criminal offense incident to the application for or performance of a contract or subcontract with the State of Michigan or any of its agencies, authorities, boards, commissions, or departments.

(b) Has not had a felony conviction in any state (including the State of Michigan).

(c) Has not been convicted of a criminal offense which negatively reflects on the bidder's business integrity, including but not limited to, embezzlement, theft, forgery, bribery, falsification, or destruction of records, receiving stolen property, negligent misrepresentation, price-fixing, bid rigging, or a violation of state or federal anti-trust statutes.

(d) Has not had a loss or suspension of a license or the right to do business or practice a profession, the loss or suspension of which indicates dishonesty, a lack of integrity, or a failure or refusal to perform in accordance with the ethical standards of the business or profession in question.

(e) Has not been terminated for cause by the Owner.

(f) Has not failed to pay any federal, state, or local taxes.

(g) Has not failed to comply with all requirements for foreign corporations.

(h) Has not been debarred from participation in the bid process pursuant to Section 264 of 1984 PA 431, as amended, MCL 18.1264, or debarred or suspended from consideration for award of contracts by any other State or any federal Agency.

(i) Has not been convicted of a criminal offense or other violation of other state or federal law, as determined by a court of competent jurisdiction or an administrative proceeding, which in the opinion of DTMB indicates that the bidder is unable to perform responsibly or which reflects a lack of integrity that could negatively impact or reflect upon the State of Michigan, including but not limited to, any of the following offenses under or violations of:

   i. The Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.101 to 324.90106.
   ii. A persistent and knowing violation of the Michigan Consumer Protection Act, 1976 PA 331, MCL 445.901 to 445.922.

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iii. 1965 PA 166, MCL 408.551 to 408.558 (law relating to prevailing wages on state projects) and a finding that the bidder failed to pay the wages and/or fringe benefits due within the period required.

iv. Repeated or flagrant violations of 1978 PA 390 MCL 408.471 to 408.490 (law relating to payment of wages and fringe benefits).

v. A willful or persistent violation of the Michigan Occupational Health and Safety Act, 1974, PA 154, MCL 408.10001 to 408.1094, including: a criminal conviction, repeated willful violations that are final orders, repeated violations that are final orders, and failure to abate notices that are final orders.

vi. A violation of federal or state civil rights, equal rights, or non-discrimination laws, rules, or regulations.

vii. Been found in contempt of court by a Federal Court of Appeals for failure to correct an unfair labor practice as prohibited by Section 8 of Chapter 372 of the National Labor Relations Act, 29 U. s. C. 158 (1980 PA 278, as amended, MCL 423.321 et seq).

(j) Is NOT an Iran linked business as defined in MCL 129.312.

I understand that a false statement, misrepresentation, or concealment of material facts on this certification may be grounds for rejection of this proposal or termination of the award and may be grounds for debarment.

Bidder: _____ _____
Authorized Agent Name (print or type)

_____
Authorized Agent Signature & Date

☐ I am unable to certify to the above statements. My explanation is attached.

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ACKNOWLEDGMENT OF ADDENDUMS

PSC acknowledges receipt of Addenda: No. ___ dated: _____,

No. ___ dated: _____ No. ___ dated: _____

2023 Indefinite Scope Indefinite Delivery (ISID) Contract for Professional Environmental Consulting Services Scope of Work

SUMMARY

The State of Michigan is requesting the services of Professional Services Contractor(s) to provide high-quality environmental services to investigate, evaluate, design, and supervise the implementation of abatements/remedies at assigned sites of environmental contamination under Parts 201 and 213 of the Michigan Natural Resources and Environmental Protection Act (NREPA), 1994 P.A. 451, as amended; Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); and other relevant federal statutes and requirements. The State intends to form a list of firms for several project types. If the professional chooses to be considered for one or more of the project types, the Professionals must be able to perform tasks required by each checked project type to bring the assigned site(s) into compliance with current state and federal environmental requirements.

For the list, preference will be given to firms, in the State of Michigan, generally meeting the following requirements.

- Experience working at Parts 201 and 213 of NREPA 1994 P.A. 451, as amended sites.
- Experience working at CERCLA regulated sites.
- Experience in conducting effective environmental assessment, RI, and FS services.
- Experience in conducting effective vapor intrusion to indoor air assessments and mitigation of vapor intrusion risks to both residential and non-residential structures.
- Experience with the development of human health and ecological risk assessments.
- Experience with database development and management.
- Ability to perform sampling and provide technical review and Quality Assurance/Quality Control (QA/QC) of provided laboratory data.
- Ability to provide comprehensive professional services for the assigned projects.
- Accounting systems with capability to provide detailed cost documentation.

- Consideration will be given to the number and location of the satellite offices, record of past performance, and financial and technical resources.
- Expertise with the selected project type(s).

A number of contaminated sites have been identified in Michigan. This includes sites appearing on the list of contaminated sites authorized by Part 213 and Part 201 of the NREPA 1994 PA 451, as amended. Major steps in resolving the contamination problems at these sites are environmental assessment/investigation and abatement. The State, through review and evaluation of the responses to this RFP, anticipates selecting one or more Professionals to place on a list to provide environmental services on small, urgent, and simple projects. The professional will be required to provide professional environmental services, technical staff, and support personnel for the ISID minor projects on an as- needed basis for various State/Client Agencies within the State of Michigan.

The executed contract will be for professional environmental services for an unspecified number of ISID projects. The scope of work for each assigned project will be defined at the time the project is awarded by the State to the Professional. The professional environmental services required for each of these assigned projects requested by the Department may include any or all the Tasks included in the Phase 100 – Study through the Phase 900 – Operation and Maintenance Management as detailed in the attached SAMPLE contract.

SCOPE OF WORK

The typical environmental services to be performed at these sites under these ISID contracts may include but not be limited to:

1. Asbestos / Lead / Mold / Biohazard / Free Product / Regulated Waste Survey / Abatement
2. Brownfield Development
3. Ecological Risk Assessment / Forestry and Land Management / Wetland Mitigation / Streams and Lakes Restoration
4. Environmental Investigation / Characterization / Pilot Tests / Feasibility Study
5. Environmental/ Roto Sonic Drilling / Well Abandonment
6. Ground Penetrating Radar (GPR) / Laser-Induced Fluorescence (LIF) Field Screening
7. Landfill Maintenance / Monitoring
8. Nuclear Waste Management / Disposal / Remediation
9. Per-& Polyfluoroalkyl Substances (PFAS) Sampling / Mitigation / Remediation
10. Phase I / Phase II / Baseline Environmental Assessments
11. Remediation Systems Design / Construction Oversight / O&M / Decommissioning
12. Specialty Sub-Surface / Utility Inspection / Sewer Camera / Cleaning

13. Underground / Aboveground Storage Tank (UST/AST) Removal / Demolition / Soil Excavation / Closure

14. Vapor Intrusion Assessments / Risk Mitigation / Design / Installation / O&M Services

While performing this work, the consultant may be required to develop site specific project work plans, health, and safety plans (HASPs), quality assurance/quality control plans, bid specifications, and community relations plans.

In addition to these activities, the State may request the Professional to perform the following additional tasks, including but not limited to: assisting the State in acquiring site access; professional assistance for assessing potential uncontrolled hazardous material sites; obtain any permits which are required for the performance of the work; conduct work in a timely manner; ensure security of the site and equipment; comply with the State Environmental Policy Act and local, State and Federal permit requirements prior to conducting remedial actions; provide enforcement support, such as documentation of facts and information about a site and expert testimony during enforcement proceedings; and provide other program development and management assistance for the State departments/agencies. This assistance may include review of plans, drawings, specifications, proposals, technical reports, and other work products associated with a hazardous substance/contaminated site where a release has occurred or is likely to occur; the assessment of environmental and public health risks; record searches; historical reviews; research on technical issues; and personnel training.

ASSIGNMENTS

Services will be requested for an assigned project and will be in accordance with a cost proposal submitted and approved at that time. The professional is expected to have the costs of all required activities needed to complete the assignment.

Individual project assignments will be based on a written Statement of Objectives provided by the State and a proposal from the Professional to perform the scope of work. It is anticipated the assigned work will be completed before the expiration date of the Contract. However, assignments made during the period of the Contract may include work that will continue after the end date of the Contract period. If the State determines there is an imminent endangerment of human health or the environment, design of an emergency abatement system may be assigned under the Contract.

DISPOSAL OF WASTE

Any wastes generated during the performance of work under this Contract must be disposed of in conformance with all applicable state and federal laws, rules, and/or regulations. For all wastes being disposed under this Contract, it is the responsibility of the Professional to ensure compliance with this directive.

The Professional shall sign waste manifests on behalf of the State attesting to the accuracy and completeness of the manifest, when requested, at sites for which they are performing oversight. The State will retain generator status for these wastes. If necessary, the State will provide a letter to the Professional conveying this authority.

The Professional shall properly dispose of any samples they retain during site work upon written permission from the Agency Project Manager. Disposal of samples is not a billable expense but may be included in the Professional's overhead.

ENVIRONMENTAL DRILLING

The Professional shall competitively bid environmental drilling work to at least three (3) drilling contractors for each drilling assignment unless the Professional can demonstrate to the Agency Project Manager's satisfaction that there is only one qualified firm who can adequately perform the work as specified. If the Professional determines the services of a specific drilling firm are required, the Professional must state those reasons in writing to the Agency Project Manager for concurrence. The written request will address cost effectiveness, time constraints, geologic situations, and drilling methodologies.

The format and process used for bidding will be in accordance with industry standards and based upon a method chosen by the Professional that is most advantageous to the State. The frequency of bidding necessary within one project assignment will be decided upon between the Professional and the Agency Project Manager. Copies of all bid documents will be provided to the Agency Project Manager. Costs incurred by the subcontractor for environmental drilling shall be billed to the State as a reimbursement.

Ineligible Costs - The Professional cannot bill the State for the drilling subcontractor's time to develop work plans, prepare bid specifications for work plans, or to attend site safety meetings.

Billing Rates - If a drilling subcontractor provides other technical services such as geophysical testing, then the Professional must submit billing rates, fees, resumes, wages, and salary ranges for that Subcontractor.

Downtime for Equipment and Supplies - The Agency Project Manager has the option to purchase supplies and equipment. If the State purchases equipment for use at a site, the State is responsible for that equipment and may need to compensate the Professional for downtime or demobilization costs if the equipment does not function properly. If the Professional furnishes supplies and equipment that do not function properly and causes downtime, the State will not compensate the Professional for the downtime. Also, the State will not reimburse the Professional for backup supplies and equipment. The State will only reimburse the Professional for supplies and equipment used at the site or that must be available as indicated specifically by the health and safety or work plan.

LABORATORIES

The Professional may be required to obtain samples, prepare them for shipping, ship, and pick up samples or any other activity associated with sample collection and interpretation as determined necessary by the Agency Project Manager.

All laboratory analyses shall be performed by the EGLE lab, unless the Agency Project Manager approves use of a current ISID Environmental Laboratory contract holder, an EPA - CLP lab, or another lab as deemed necessary by the State. If a private lab, other than an ISID State Contract Lab, is to be used to perform the analyses, prior written permission by the Agency Project Manager is required.

The private lab must report data in a format consistent with the format used by the State and must include the same level of detail regarding QA/QC documentation and chain of custody records.

EQUIPMENT AND SUPPLY PURCHASES AND RENTAL PROCEDURES

Certain Agency procedures may apply to equipment, supplies, surveys, and other items as specified by the Project Director/Agency Project Manager and will be treated as reimbursements or Other Direct Costs (ODCs). Computers and computer related materials may be included as part of such procedures; however, prior written approval from the Department regarding computers and software must be secured.

If an item will be consumed or would be expected to be rendered unusable during the project assignment, then renting is not a viable alternative and purchasing the item is necessary. Examples of consumption are bags of cement and installed casing. Examples of items expected to be rendered unusable are tyveks and disposable bailers. If the rental price or price of using the Professional's equipment exceeds the purchase price the item shall be purchased.

If renting is an option, the cost shall be based upon the expected time of usage of that service or equipment or supply. The rental charge or charge for the Professional's equipment shall include maintenance, calibration, parts replacement, and service charges for the equipment. A table recording the costs incurred to date to rent equipment, or to use the Professional's equipment, shall be included in each monthly progress report. This table shall also include the purchase price for each piece of equipment. Each item required for the project shall be listed separately.

At the end of the project, the State has the OPTION to accept ownership of a purchased piece of equipment.

If an assignment must be modified to provide for additional scope of work, the cost effectiveness of purchasing, renting, or using the Professional's equipment must be determined for the additional work.

All deposit charges will be paid by the Professional and will not be reimbursed by the State.

HEALTH AND SAFETY PLANS (HASP)

The nature of the work to be performed under this Contract is hazardous.

In addition to Health and Safety Plan requirements noted in the Phase/Task section of the Contract the following will also apply:

The Professional shall satisfy **29 CFR 1910.120** and Section 24 of Act 154 PA 1974 as amended and corresponding rules and all federal, state, and local statutes, regulations, ordinances, etc., regarding health and safety **(40 CFR 35.6055(b)).**

Prior to executing any work at the assigned site, the Professional shall develop and submit all HASPs for the site to the Agency Project Manager for review, acceptance, and inclusion into the work plan.

The Professional shall arrange for all its employees that will be working on a contaminated site to attend a health and safety training course, and/or a personnel protection course. The Professional is responsible for all costs related to the training. When requested by the State, the Professional must provide proof of completion of health and safety training for each employee working on a site prior to the employee entering the site for any purpose.

The Professional will ensure that employees and sub-consultant's/subcontractor's employees wear protective clothing and use equipment specified in the site Health and Safety Plan at all times the employee is on the site.

Health and Safety Training and Medical Monitoring are not considered reimbursable items under this Contract. When working in any level of safety equipment, the level itself does not dictate additional costs, but the equipment costs above Level D are reimbursable.

INVOICING AND PAYMENT PROCEDURES

Documentation for payment will be submitted monthly per the requirements in the Contract. Project costs will be reimbursed to the Professional on an as-incurred basis in accordance with the terms of the Contract for Professional Services. Invoices received covering service periods for which the progress reports have not been received by the State will not be processed until the progress reports are received. These will be considered incomplete invoices.

Each invoice that includes labor will include a one-page summary sheet that lists by date the name of the individual providing the professional service, the individual's position/classification, hours worked that day, and hourly billing charge. Each invoice that includes reimbursable expenses will include a one-page summary with the following categories: *Meals, Lodging, Travel, Shipping, Equipment Rental, Field Supplies/Equipment Purchase, sub-consultants, and Miscellaneous*. Under Meals and Lodging categories, the date, name of the individual and total daily cost will be included. Under Travel category, the Professional will include the date, name of the individual, total mileage (above the allowed amount specified in the Contract), mileage rate, and total daily cost. Under Shipping, the Professional will include the date shipped, description of item shipped (e.g., tech memo, etc.) and the cost to ship the item. Under Equipment Rental, the Professional will include the range of dates equipment rented, description of equipment rented and rental cost. Under Field Supplies/Equipment Purchase and Miscellaneous categories, the Professional will include the date purchased, description and purpose of the item purchased and the cost. Under sub-consultants/subcontractors, the Professional will list the date of the sub-consultant/subcontractor work, name of the sub-consultant/subcontractor, description of work conducted, and the cost. The cost for each category will be totaled.

Contract Close-Out – Final payment shall be withheld until all deliverables have been received and accepted by the State. In addition, the Professional will be required to submit to the Agency Project Manager, an unconditional waiver, signed by an authorized representative of each sub-consulting/subcontracting firm, used on the project, indicating that they have been paid in-full by the Professional for all work performed.

LITIGATION SUPPORT

The Professional's personnel and the personnel of its sub-consultants/subcontractors will be required, if requested by the Agency Project Manager on behalf of EGLE's attorneys, to provide assistance to the State in the form of participation in legal actions against alleged responsible parties for violation of state and/or federal environmental law or the recovery of public expenditures regarding any of the operations the Professional or its sub-consultants/subcontractors are involved in under this Contract. This assistance may include, but is not limited, to the preparation of reports and assisting state and/or federal attorneys in preparation of the government's case, including the preparation and execution of interrogatories, affidavits, and testimony as a fact witness.

The State will reimburse the Professional for such assistance as described above at the contractually approved rates for the Professional's personnel at the time services are required. The Professional shall insert an identical obligation to provide such assistance in all sub-consultants/subcontractor agreements to perform work under this Contract. Failure to meet the requirement of this section shall be considered a breach of this Contract.

In addition, the Professional agrees that upon the Agency Project Manager request on behalf of the State attorney, that the Professional's personnel or the personnel of its sub-consultants/subcontractor will appear at trial as an expert witness. If expert testimony is requested, the Professional and State mutually agree while the State cannot, due to Section 2164 of the Revised Judicature Act, guarantee to pay the Professional's personnel any sum in excess of the current per day expert witness fee, the State attorney may ask the court to permit the State to pay the Professional's personnel for the appearance as an expert witness on behalf of the State, at a rate equal to the rate of the employee's contractually approved rates at the time services are required, for the actual time of court appearance plus travel time and standard expenses as defined in the Contract. To the extent that the court grants such a request, the Professional agrees to reimbursement at such rates.

1. If the Professional receives a subpoena or if an Assistant Attorney General assigned to the site requests information regarding one of the Professional's assignments, the Professional may release that information without the Agency Project Manager's prior written permission. However, the Professional must provide, in writing, to the Agency Project Manager a letter documenting what information has been released, to whom and when. Any other requests to release information continue to require the Agency Project Manager prior written permission. The party requesting the information has an obligation to pay for any copying costs. If the State requests duplicate copies, the State will reimburse the Professional for copying costs.

2. If a party other than the State requests the Professional provide testimony regarding an assignment for which they have performed work under this Contract, either through deposition or testimony in court, the State will NOT reimburse the Professional for that testimony. Depositions or testimony requested by parties other than the State are not covered by this Contract, and payment for a deposition or testimony may be prohibited by MCL 600.2164.

3. If a State Assistant Attorney General requests the Professional assist in preparation for litigation, i.e., answering interrogatories, preparing for trial via interviews, and discussions concerning the site, this time is reimbursable under this Contract.

PROJECT CONTROL REPORTS AND DELIVERABLES

1. Deliverables

The Professional shall provide electronic copies of all final reports, plans, specifications, drawings, and other significant deliverables in Microsoft Word, Excel, AutoCAD, and ArcGIS as applicable, as well as in separate PDF format, provided on one (1) portable media device. Reports that require submittal into RIDE shall be submitted by the Professional as applicable. In addition, the Professional shall provide one unbound, reproducible copy of each deliverable for each of the assigned projects or as specified in the assigned project scope of work. The Department/Agency will be responsible for obtaining access to the assigned sites, providing a map for the assigned sites, and where applicable, previous investigation/analytical results for work conducted at the assigned sites.

2. Project Control

A. The Professional will carry out the assignments under this Contract under the direction of the Project Director and/or the Agency Project Manager.

B. The Professional will submit brief written monthly (or any other interval deemed necessary by the State) progress reports that outline: the work accomplished during the reporting period including basis for significant decisions; work to be accomplished during the subsequent reporting period; daily field activity logs; problems, encountered or anticipated; notification of any significant deviation from the approved work plans; and budget/expenditure information including: project budget, cumulative expenses, projected expenses, and explanations of budget deviations for each major task. Staff time and costs to correct errors, omissions, and deficiencies in the work are not reimbursable. The Agency Project Manager may adjust the frequency of reports depending upon the nature of the project or phase of a particular project.

3. Reports

All project reports required as deliverables to this Contract will begin with an Executive Summary.

This will briefly outline the conditions encountered at the site, work performed at the site, conclusions drawn from this work, a list of the recommended alternatives for site remediation (where applicable), and a short description of any specifications prescribed by the report. The Executive Summary will be a synopsis of all information presented in the report and organized in logical manner to present an overview of the specific report. Each assignment will require specific reporting requirements.

The following are examples of reports that may be required from the Professional:

A. Monthly progress reports.

B. Draft and Final Preliminary Site Investigation Work Plans and assessment reports

C. Draft and Final FS/RI Work Plans and reports

D. RI technical memoranda for groundwater sampling, surface water sampling, soil/sediment sampling, air quality sampling, and site hazards assessment. The technical memoranda should summarize the data and collection techniques and include an evaluation of the data.

E. Daily field logs which include equipment and supply charges and personnel on site. These shall be maintained and attached to the corresponding monthly-progress reports.

The following tasks may be required to produce reports/work products listed above:

- Community Relations
- FS (including Risk Assessment)
- Natural Resource Damage Assessment (NRDA)
- UST removal/closure and other Related Work
- Potentially Responsible Party (PRP) Identification
- Preliminary Site Investigation
- Risk-Based-Corrective-Action Activities
- RI and recommendations
- Baseline Environmental Assessments Review
- Contract Transition Tasks

All draft documents and communications with the State regarding guidance, input, acceptance, and approval shall be marked “DRAFT” and “Deliberative Process – FOIA Exempt”. Information so designated shall not be provided in response to a Freedom of Information Act (FOIA) request.

4. The Professional and/or its sub-consultants/subcontractors shall follow the current edition of ASTM Standard D 5299-92 (Standard Guide for Decommissioning Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities) and other guidance as provided by the State as a performance standard for monitoring well, soil boring, and vadose zone monitoring device abandonment.

SELECTION CRITERIA

Responses to this RFP will be evaluated based upon the technical merit, conciseness, clarity, creativity, thoroughness of the proposal, understanding of the assignments and contract requirements. Also, evaluations of qualifications and experience will be conducted for each of the project types checked in the proposal.

Depending on available funding for cleanup activities, the State anticipates awarding contracts to one or more professionals meeting the requirements of the RFP and receiving the highest scores in the evaluation. The State reserves the right not to award the contract(s) or award contract(s) to one or more firms for the submitted proposals. The State may reject proposals in whole or in part and may waive any informality or technical defects if, in the judgment of the selection committee, the best interest of the State will be served.

Department of Technology, Management and Budget
2023 Indefinite-Scope Indefinite-Delivery – Request for Qualifications
Professional Environmental Consulting Services Questionnaire
Various Locations, Michigan

INSTRUCTIONS: Firms shall complete the following information in the form provided. A separate sheet may be used if additional space is needed; please key the continuation paragraphs to the questionnaire. Answer questions completely and concisely to streamline the review process. If you provide information in this questionnaire that is relevant to any other parts of the proposal, please reference the article numbers to avoid repetition.

ARTICLE 1: BUSINESS ORGANIZATION

1. Full Name: Click or tap here to enter text.
   Address: Click or tap here to enter text.
   Telephone and Fax: Click or tap here to enter text.
   Website: Click or tap here to enter text. E-Mail: Click or tap here to enter text.
   SIGMA Vendor ID: Click or tap here to enter text.

   If applicable, state the branch office(s), partnering organization or other subordinate element(s) that will perform, or assist in performing, the work: Click or tap here to enter text.

   If awarded a contract and / or subsequent assignment(s), state the specific SIGMA business address which you would like associated for all communication (Contracts, Contract Order, Contract Modifications and Payments)? Click or tap here to enter text.

   Please list all person(s) authorized to receive and sign a resulting contract and / or subsequent assignment(s). Please include persons name, title, address, email and phone number. Click or tap here to enter text.

2. Check the appropriate status:

   ☐ Individual firm ☐ Association☐ Partnership☐ Corporation, or ☐ Combination –

   Explain: Click or tap here to enter text.

   If you operate as a corporation, include the state in which you are incorporated and the date of incorporation: Click or tap here to enter text.

   Include a brief history of the Professional's firm: Click or tap here to enter text.

3. Provide an organization chart depicting key personnel and their roles for a typical assigned project. Include generic supporting staff positions.

4. Has there been a recent change in organizational structure (e.g., management team) or control (e.g. merger or acquisition) of your company? If the answer is yes: (a) explain why the change occurred and (b) how this change affected your company. Click or tap here to enter text.

5. Provide a four year rate schedule per position.

ARTICLE 2: PROJECT TYPES AND SERVICES OFFERED

Identify the project types and professional services for which your firm is exceptionally qualified and experienced. Contractor should have the capability to form potential teams with adequate experience in environmental investigation and remediation services. Provide attachments illustrating a minimum of three examples, with references, of successful projects performed in the last five years for each item checked. Identification of specialties will assist the State project directors/managers in matching firms with projects.

☐ Asbestos / Lead / Mold / Biohazard / Free Product / Regulated Waste Survey / Abatement

☐ Brownfield Development

☐ Ecological Risk Assessment / Forestry and Land Management / Wetland Mitigation / Streams and Lakes Restoration

☐ Environmental Investigation / Characterization / Pilot Tests / Feasibility Study

☐ Environmental/ Roto Sonic Drilling / Well Abandonment

☐ Ground Penetrating Radar (GPR) / Laser-Induced Fluorescence (LIF) Field Screening

☐ Landfill Maintenance / Monitoring

☐ Nuclear Waste Management / Disposal / Remediation

☐ Per-& Polyfluoroalkyl Substances (PFAS) Sampling / Mitigation / Remediation

☐ Phase I / Phase II / Baseline Environmental Assessments

☐ Remediation Systems Design / Construction Oversight / O&M / Decommissioning

☐ Specialty Sub-Surface / Utility Inspection / Sewer Camera / Cleaning

☐ Underground / Aboveground Storage Tank (UST/AST) Removal / Demolition / Soil Excavation / Closure

☐ Vapor Intrusion Assessments / Risk Mitigation / Design / Installation / O&M Services

ARTICLE 3: PROJECT LOCATION

Identify the regions where your firm can most efficiently provide services. Assignments may vary from the regions checked, depending on the specialties and services required.

☐ Western Upper Peninsula (west of Marquette)

☐ Eastern Upper Peninsula (east of Marquette)

☐ Northern Lower Peninsula (north of Grayling)

☐ Saginaw Bay area (east of 127, north of I-69 and M 57, south of Grayling)

☐ Western Lower Peninsula (west of 127, north of Muskegon, south of Grayling)

☐ Central Lower Peninsula (east of Battle Creek, west of Chelsea, south of M 46 and M 57)

☐ Southwestern Lower Peninsula (west of Battle Creek, south of Muskegon)

☐ Southeastern Lower Peninsula (east of Chelsea, south of I-69)

ARTICLE 4: CONTRACT UNDERSTANDING

The following items should be addressed on the assumption that your firm is awarded an Indefinite-Scope, Indefinite-Delivery contract. (See attached sample contract).

4.1 Is it understood that your firm is required to respond to small projects (less than $25,000) as well as larger projects?

Yes ☐ No ☐

4.2 Is it understood that there is no guarantee of any work under this contract?

Yes ☐ No ☐

4.3 Is it understood that your firm will be required to execute the attached standard State of Michigan contract language for professional services?

Yes ☐ No ☐

4.4 Is it clearly understood that professional liability insurance is required at the time of execution of the ISID contract? (See Article 5 of the attached Sample Contract.)

Yes ☐ No ☐

4.5 Is it understood that your firm must comply with State of Michigan law as it applies to your services?

Yes ☐ No ☐

4.6 Does your firm have prior experience working with the State of Michigan?

Yes ☐ No ☐

If yes, explain: Click or tap here to enter text.

ARTICLE 5: CAPACITY AND QUALITY

5.1 Briefly describe your firm's methods and procedures for quality control for your deliverables and services.

Click or tap here to enter text.

5.2 Has your firm been involved in claims or suits associated with professional services errors and / or omissions?

Yes ☐ No ☐

If yes, explain: Click or tap here to enter text.

5.3 Will there be a key person who is assigned to a project for its duration?

Yes ☐ No ☐

5.4 Please present your understanding of the relationship between your firm, the DTMB Design and Construction Division, and the State Agency for whom a project will be completed.

Click or tap here to enter text.

5.5 Describe your approach if a bidder proposes a substitution of a specified material during bidding.

Click or tap here to enter text.

5.6 Describe your approach if a contractor proposes a substitution of a specified material or detail with shop drawing submittals or in construction.

Click or tap here to enter text.

5.7 How will your firm provide consistent and continuous communication pertaining to project activities and project status to the State of Michigan during the progress of projects?

Click or tap here to enter text.

5.8 Does your company have an FTP or similar site for quick posting and distribution of information, drawings, field inspection reports, and other communications?
Yes ☐ No ☐

5.9 Describe your method of estimating construction costs and demonstrate the validity of that method.

Click or tap here to enter text.

5.10 Describe your approach to minimizing construction cost over-runs.

Click or tap here to enter text.

5.11 What percentage of the construction cost should be devoted to construction administration (office and field)?

Click or tap here to enter text. %

5.12 What portion of the assigned work will be performed with your staff and what portion will be provided by sub-consultants?

Click or tap here to enter text. %

5.13 On a typical project, what would be your response time, from the time receive a project assignment to starting investigation and design work? A typical project might be one involving several disciplines and in the neighborhood of a $25,000 fee.)

Click or tap here to enter text. Days/Weeks

5.14 How do you assess whether a construction bidder is responsive and responsible?

Click or tap here to enter text.

5.15 Describe your experience with similar ISID contracts.

Click or tap here to enter text.

5.16 Describe your approach to a construction contractor's request for additional compensation for a change in the project scope.

Click or tap here to enter text.

5.17 Is a sample of field activity logs detailing a 1-week period (from one of the three (3) prior experience sites) and a weekly report provided?

☐Yes ☐No

ARTICLE 6: PERSONNEL STAFFING

6.1 Is an organizational chart that includes each person on your project team and their identified roles for a typical assigned project provided?

☐Yes ☐No

6.2 Please fill out the following information regarding the personnel your firm considers key to the successful completion of the study or project scope of work:

Key Personnel 1

Name: Click or tap to enter text

Job Title: Click or tap to enter text

Labor Classification: Click or tap to enter text

College Degree(s): Click or tap to enter text

Has this individual successfully completed 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training with an up to date 8 hour HAZWOPER refresher training?

☐Yes ☐No

Key Personnel 2

Name: Click or tap to enter text

Job Title: Click or tap to enter text

Labor Classification: Click or tap to enter text

College Degree(s): Click or tap to enter text

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☐Yes ☐No

Key Personnel 3

Name: Click or tap to enter text

Job Title: Click or tap to enter text

Labor Classification: Click or tap to enter text

College Degree(s): Click or tap to enter text

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☐Yes ☐No

Key Personnel 4

Name: Click or tap to enter text

Job Title: Click or tap to enter text

Labor Classification: Click or tap to enter text

College Degree(s): Click or tap to enter text

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☐Yes ☐No

Key Personnel 5

Name: Click or tap to enter text

Job Title: Click or tap to enter text

Labor Classification: Click or tap to enter text

College Degree(s): Click or tap to enter text

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☐Yes ☐No

6.3 Does the Professional Project Manager (PM) have at least three years' experience as a PM? ☐Yes ☐No

6.4 Does the Professional PM have a minimum of 10 years' experience with similar projects? ☐Yes ☐No

6.5 Are the resumes for the key personnel provided? ☐Yes ☐No

ARTICLE 7: SPECIAL FACTORS

Include a brief description of your firm's special qualifications such as awards, recognitions, innovations, etc. that would pertain to this RFP. (As examples: any awards or recognition received by the firm or individuals for similar work, special approaches or concepts developed by the firm appropriate to this project, financial capacity, etc. Respondents may say anything they wish in support of their qualifications). Click or tap here to enter text.

ARTICLE 8: EXPERIENCE

8.1 Provide a client reference and brief descriptions of **at least three (3) projects in the last five years closely related to each of the project types** and professional services requested in this RFP. Emphasis shall be placed on recent work at sites of environmental contamination:

Project 1 Reference Information

Project Name: Click or tap to enter text

Project Address: Click or tap to enter text

Key Personnel: Click or tap to enter text

Project City / State / Zip: Click or tap to enter text

Contact Name / Phone Number / Email Address: Click or tap to enter text

Project Description: Click or tap to enter text

Project 2 Reference Information

Project Name: Click or tap to enter text

Project Address: Click or tap to enter text

Key Personnel: Click or tap to enter text

Project City / State / Zip: Click or tap to enter text

Contact Name / Phone Number / Email Address: Click or tap to enter text

Project Description: Click or tap to enter text

Project 3 Reference Information

Project Name: Click or tap to enter text

Project Address: Click or tap to enter text

Key Personnel: Click or tap to enter text

Project City / State / Zip: Click or tap to enter text

Contact Name / Phone Number / Email Address: Click or tap to enter text

Project Description: Click or tap to enter text

GUIDELINES FOR POSITION CLASSIFICATIONS

The Professionals are required to use the following guidelines as the basis for classification of personnel to be assigned under their contracts. Changes in the key personnel under the contract must be done by Contract Modification. In addition, the Professionals must provide with their modification requests the names, hourly billing rates, and resumes for the new **Key Personnel** to be added to the contracts. A Key Personnel is any staff member of the Professional who is essential for the successful completion of the Project scope of work and authorized to make decisions affecting the work at the sites under the contracts.

1. PROFESSIONAL KEY PERSONNEL

A. **Level 4** (P4) - Plans, conducts, and supervises projects of major significance, necessitating proven managerial skills and knowledge of hazardous waste sites. Must demonstrate ability to originate and apply new and/or unique methods and procedures. Supplies technical advice and council to other professionals. Generally, operates with wide latitude for independent action.

Typical Title:

National Manager, Project Leader, Chief Engineer, or Scientist.

Qualifications and Experience:

Ph.D. degree with 10 years or more experience.

MS degree with 12 years or more experience.

BS degree with 14 years or more experience.

Experience Factors:

Technical experience in discipline directly related to the requirements of this contract. Minimum of 4 years' experience in supervising multidisciplinary professionals and general office management including budgetary requirements.

B. **Level 3** (P3) - Under general supervision of P4 Manager, plans, conducts and supervises assignments on a project- by-project basis. Estimates and schedules work to meet completion dates. Directs assistance, reviews progress and evaluates results; makes changes in methods, design or equipment are made where necessary. Responsible for safe and cost-effective approaches to achieve the objectives of the project.

Typical Title:

Regional Team Leader, Project Engineer.

Qualifications and Experience:

Ph.D. degree with 4 to 10 years' experience

MS degree with 6 to 12 years' experience

BS degree with 8 to 14 years' experience

Experience Factors:

Technical experience in disciplines directly related to the requirements of this contract. Minimum of 4 years' experience or equivalent. Must have demonstrated ability to manage group of interdisciplinary professionals.

2. PROFESSIONAL NON-KEY PERSONNEL

A. **Level 2** (P2) - Under supervision of a senior or project leader, carries out assignments associated with projects. Work assignments are varied and require some originality and ingenuity. Applies training of professional discipline to assigned projects and translates technical guidance and training received into usable data products and reports. Evaluates data associated with various watersheds for use in developing digital flood insurance map production and development of updated flood data.

Typical Title:

Surveyor, Engineer, Construction Manager, Project Manager, Scientist, Analyst

Qualifications and Experience:

MS degree with 2 to 6 years' experience.

BS degree with 3 to 8 years' experience.

Experience Factors:

Minimum of 2 years in area directly related to contract requirements.

B. **Level 1** (P1) - Entry level for professional classification; works under supervision of team or project leader. Gathers and correlates basic data and performs routine tasks and other duties as assigned. Makes recommendations on work assignments and on variables which affect field operations. Assists field operations as directed, including manual tasks of equipment setup and maintenance. Performs other duties as assigned.

Typical title:

Junior Associate (Surveyor, Engineer, Scientist, Geologist, etc.)

Qualifications and Experience:

MS degree with 0 to 2 years' experience.

BS degree with 0 to 3 years' experience.

Experience Factor: None

3. TECHNICIAN NON-KEY PERSONNEL

A. **Level 3** (T3) - Performs non-routine and complex assignments. Works under general supervision of a surveyor, scientist or engineer. Performs experiments or tests which may require non-standard procedures and complex instrumentation. Records, computes and analyzes test data, prepares test reports. May supervise lower level technicians or trades personnel.

Typical Title:

Senior Technician

Qualifications and Experience:

6 years or more experience.

Experience Factor:

Related to scope of contract.

B. **Level 2** (T2) - Performs non-routine and complex tasks in addition to routine assignments. Works at the direction of the team or project leader. Gathers and correlates basic data and performs routine analyses. May also perform experiments or tests which may require non-standard procedures and complex instrumentation. May construct components or sub-assemblies or prototype models. May troubleshoot malfunctioning equipment and make simple repairs as authorized by team or project leader.

Typical Title:

Senior Technician

Qualifications and Experience:

Two to six years' experience or equivalent

Experience Factor:

Related to scope of contract.

C. **Level 1** (T1) - Entry level; performs simple, routine tasks under supervision as established in chain-of- command procedures. Performs routine maintenance and may install, set up or operate field equipment of moderate complexity. Provides a wide variety of support functions during field operations.

Typical Title:

Junior Technician (field technician)

Qualifications and Experience:

0 to 2 years' experience.

Experience Factor:

None

4. TECHNICAL SUPPORT (TS) NON-KEY PERSONNEL

Performs project specific technical support work such as spreadsheet preparation, data entry, etc.

Typical Title:

Project Assistant, Data Entry Clerk, etc.

Qualifications and Experience:

0 to 2 years or more

POSITION, CLASSIFICATION AND EMPLOYEE BILLING RATE INFORMATION

PROFESSIONAL SERVICES - 2023 ENVIRONMENTAL ISID

Firm Name _____
Yearly Percentage Billing Rate Increase_____

LEVEL CLASSIFICATION	Year 2023	Year 2024	Year 2025	Year 2026	Year 2027

*Billing Rate will be in accordance with the attached guideline page for instructions regarding the "Overhead Items used for Professional Billing Rate Calculation," and the attached "Sample Standard Contract for Professional Services," Article II, Compensation.

** Key Project Personnel

EPA

COST OR PRICE SUMMARY

(see accompanying instructions before completing this form)

Form approved
OMB No. 2030-0011
Approval expires 10-31-86

PART I - GENERAL

1. RECIPIENT	2. ASSISTANCE IDENTIFICATION NO.
3. NAME CONTRACTOR OR SUBCONTRACTOR	4. DATE OF PROPOSAL
5. ADDRESS OF CONTRACTOR OR SUBCONTRACTOR *(Include ZIP Code)*	6. TYPE OF SERVICE TO BE FURNISHED
TELEPHONE NUMBER*(Include Area Code)*	

PART II - COST SUMMARY

7. DIRECT LABOR *(specify labor categories)*	ESTIMATED HOURS	HOURLY RATE	ESTIMATED COST	**TOTALS**
		$	$	
DIRECT LABOR TOTAL:				$
8. INDIRECT COSTS *(Specify indirect cost pool)*	RATE	x BASE =	ESTIMATED COST	
		$	$	
INDIRECT COSTS TOTAL:				$
9. OTHER DIRECT COSTS				
a. TRAVEL			ESTIMATED COST	
(1) TRANSPORTATION			$	
(2) PER DIEM			$	
TRAVEL SUBTOTAL:			$	
b. EQUIPMENT, MATERIALS, SUPPLIES *(Specify categories)*	QTY	COST	ESTIMATED COST	
		$	$	
EQUIPMENT SUBTOTAL:				
c. SUBCONTRACTS			ESTIMATED COST	
			$	
SUBCONTRACTS SUBTOTAL:			$	
d. OTHER *(Specify categories)*			ESTIMATED COST	
			$	
OTHER SUBTOTAL:			$	
e. OTHER DIRECT COSTS TOTAL:				$
10.TOTAL ESTIMATED COST				$
11. PROFIT				$
12. TOTAL PRICE				$

PART III - PRICE SUMMARY

13. COMPETITOR'S CATALOG LISTINGS, IN-HOUSE ESTIMATES, PRIOR QUOTES *(Indicate basis for price comparison)*	MARKET PRICE(S)	PROPOSED PRICE
		$

PART IV - CERTIFICATIONS

14 CONTRACTOR

14a. HAS A FEDERAL AGENCY OR FEDERALLY CERTIFIED STATE OR LOCAL AGENCY PERFORMED ANY REVIEW OF YOUR ACCOUNTS OR RECORDS IN CONNECTION WITH ANY OTHER FEDERAL ASSISTANCE AGREEMENT OR CONTRACT WITHIN THE PAST 12 MONTHS?

☐ YES ☐ NO *(If "Yes" give name, address, and telephone number of reviewing office)*

14b. THIS SUMMARY CONFORMS WITH THE FOLLOWING COST PRINCIPLES

14c. This proposal is submitted for use in connection with and in response to:

(1)

This is to certify to the best of my knowledge and belief that the cost and pricing data summarized herein are complete, current, and accurate as of:	(2) DATE

I futher certify that a finacial management capability exists to fully accurately account for the finacial transactions under this project. I further certify that I understand that the subagreement price may be subject to downward renegotiation and/or recoupment where the above cost and pricing data have been determined, as a result of audit, not to have been complete, current, and accurate as of the date above.

(3) TITLE OF PROPOSER	SIGNATURE OF REVIEWER	DATE OF EXECUTION

15. RECIPIENT REVIEWER

I certify that I have reviewed the cost/price summary set forth herein and the proposed cost/price appear acceptable for subagreement award.

TITLE OF PROPOSER	SIGNATURE OF REVIEWER	DATE OF EXECUTION

16. EPA REVIEWER

TITLE OF PROPOSER	SIGNATURE OF REVIEWER	DATE OF EXECUTION

PURPOSE AND APPLICABILITY

The purpose of this form is to provide a simple form for the display of cost and price data. 40 CFR 33.290 requires the recipient to perform cost or price analysis for every procurement action, including subagreement modifications. This form is not required by EPA, but may be used at the recipient's option. If the recipient currently uses a cost and price analysis form which accomplishes the same objectives as this form, the recipient may use its own form.

INSTRUCTIONS

If this form is used, CAREFULLY READ AND FOLLOW ALL INSTRUCTIONS. Many items are not self-explanatory. Attach additional sheets if necessary.

Use only the applicable portion of this form:

Part I is applicable to all subagreements.
Part II is applicable to all subagreements requiring a cost analysis pursuant to EPA procurement regulations.
Part III is applicable to all subagreements where review is based on price comparison (i.e., price analysis).
Part IV certification will be executed as required by the instructions for each block.

PART I - GENERAL

Item 1 - Enter the name of the of the recipient as shown on the assistance agreement.
Item 2 - Enter the assistance identification number shown on the assistance agreement (or assigned to the project, if no assistance agreement has yet been executed).
Item 3 - Enter the name of the contractor or subcontractor with whom the subagreement is proposed to be executed.
Item 4 - Enter the date of the contractor's or subcontractor's proposal to the recipient.
Item 5 - Enter the full mailing address of the contractor or subcontractor.
Item 6 - Give a brief description of the work to be performed under the proposed subagreement.

Part II - COST SUMMARY

This portion of the form is to be completed by the contractor (or his/her subcontractor) with whom a subagreement is a formally advertised, competitively bid, fixed price subagreement.

Nothing in the following discussion should be interpreted as recommending the inclusion as direct costs any items normally treated as overhead costs in the firm's accounting or estimating system. 40 CFR Part 30 identifies general cost principles applicable to subagreements under EPA assistance. Pursuant to that Part, all subagreements awarded to profit-making organizations are subject to cost principles of 48 CFR 31.2. Architect engineer and construction contracts are also subject to 48 CFR 31.105.

Item 7 - Direct Labor

Direct labor costs normally include salaries at a regular time rate. Overtime premiums should be identified separately on an attachment. Incurrence of unanticipated overtime costs requires the approval of the recipient at the time of incurrence. If significant overtime is known to be needed at the time of completion of the cost review form, the reasons therefore, labor categories, rates and hours should be identified on the attachment. Also included is the cost of partners' or principals' time when they are directly engaged in services to be rendered under the subagreement. In case the full time of any employee is not to be devoted to work to be performed under the subagreement, only the cost of actual time to be applied should be included. The compensation of a partner or principal shall be included as direct cost only for the time that she/he is expected to be engaged directly in the performance of work under the subagreement and only if it is the firm's normal practice to charge such time directly to all jobs. The rate of compensation of a partner or principal shall be commensurate with the cost of employing another qualified person to do such work, but the salary portion shall not exceed the actual salary rate of the individual concerned. Distribution of profits shall not be included in the rate of compensation.

Enter in block 7 the categories of professional or technical personnel necessary to perform each major element of work under the subagreement scope of services. Estimate hours worked for each category and extend them by the wage rates to be paid during the actual performance of the work. Current rates, adjusted for projected increases, if any should be useful for the actual categories of labor contemplated. All projected increases should be supported by recent experience or established personnel policy. Enter in the far right column the total estimated direct labor cost.

Supporting records to be maintained by the contractor and which must be submitted or made available to the recipient or EPA upon request include:
a. The method of estimating proposed hours worked.
b. The computation techniques used in arriving at proposed labor rates.
c. The specific documents, books or other records used as factual source material to develop proposed hours worked and labor rates.
d. Detailed rate computations which were used in computing the information submitted on the form.

If in block 14a, the contractor has checked "No," a brief narrative description of the methods used in arriving at items a though d above shall be included on an attached sheet.

Item 8- Indirect Costs
Indirect cost may consist of one or more pools of expenses which are grouped on the basis of the benefits accruing to the cost objectives represented by the distribution base or bases to which they are allocated. Since accounting practices vary, the use of particular groupings is not required. Neither is the use of any particular allocation base mandatory. However, it is mandatory that the method used results in an equitable allocation of indirect costs objectives which they support.

Normally, the firm's accounting system and estimating practices will determine the method used to allocate overhead costs. The firm's established practices, if in accord with generally accepted accounting principles and PROVIDED THEY PRODUCE EQUITABLE RESULTS IN THE CIRCUMSTANCES, will generally be accepted. Proposed overhead rates should represent the firm's best estimate of the rates to be experienced during the subagreement period. They should be based upon recent experience and be adjusted for known factors which will influence experienced trends.

Common overhead groupings are overhead on direct labor and general and administrative expenses. The first groupings usually include employment taxes, fringe benefits, holidays, vacation idle time, bonuses, applicable and direct labor, etc. The second generally includes the remaining costs, which, because of their incurrence for common or joint objectives, are not readily subject to treatment as direct costs. It is expected, however, that proposal groupings will correspond with the firm's normal method for accumulating indirect costs. (Under some accounting systems, the first grouping would be included instead under item 7.) No special categorization is required, provided the results are realistic and equitable.

Direct salaries are the normal distribution base for overhead cost but in some circumstances other bases produce more equitable results. As in the case of overhead cost groupings, the method to be used will depend upon the firm's normal practices and the equity of the results produced in the circumstances.

In the case of multibranch firms, joint ventures, or affiliates, it is expected that overhead costs applicable to specific location(s) where

work is to be based on cost data from the most recent fiscal periods updated to reflect changes in volume of business or operations.

Enter in block 8 the indirect cost pools normally used by the firm for allocation of indirect costs. Enter indirect cost rate for each pool and extend each one by the rate base to which it applies to arrive at the estimated indirect costs to be incurred during the actual performance of the work. If the indirect labor total from block 7 is not used as the rate base for any of the indirect cost pools, the rate base used must be explained on an attached sheet.

A brief narrative statement outlining the firm's policies and practices for accumulating indirect costs. Enter the indirect cost rate costs and the method used to compute the proposed rate or rates shall accompany the form. Include comment on the firm's policies regarding the pricing and costing of principals' time. The normal accounting treatment of principals' salaries, the annual amounts, and the hourly charge rate, if used, should be discussed.

Enter in the far right column the total estimated indirect costs.

Supporting records to be maintained by the contractor and which must be submitted or made available to the recipient or EPA upon request include:

a. Detailed cost data showing overhead accounts, allocation bases, and rate computations for the preceding fiscal period. If more than six months of the current fiscal period have elapsed, cost data for this period should be included as one of the three period(s).

b. Company budgets, budgetary cost data and overhead rates computations for future period(s).

Item 9 - Other Direct Costs

The following items are illustrative of costs normally included in this category of costs:

a. Travel cost, including transportation, lodging, subsistence, and incidental expenses incurred by personnel or consultants while in travel status in connection with the performance of services required by the contract. The cost principles generally require the use of less than first class air accommodations and also limit the cost of private aircraft.

b. Equipment, Materials, and Supplies

(1) Long distance telephone calls, telegraph and cable expenses to be incurred in connection with the performance of services required in connection the subagreement.

(2) Reproduction costs, including blueprints, black and white prints, ozalid prints, photographs, photostats, negatives; and express charges.

(3) Commercial printing, binding, artwork, and models.

(4) Special equipment.

c. Subcontractors

d. Other Direct costs, if any, not included above.

Enter in blocks 9a-d all other direct costs proposed. Travel costs entered must be supported by an attachment which identifies the number of staff trips proposed and the estimated cost per staff trip for both local and long distance transportation. The number of days and the rate per day must be provided to support the per diem shown. Each subcontract and consultant agreement must be identified separately in block 9c.

Enter in the far right column on line 9e the total of all other direct costs (9a-d).

Supporting data to be maintained by the contractor and which must be submitted or made available to the recipient or EPA upon request include:

a. basis for other direct costs proposed.

b. factual sources of costs, rates, etc., used in computing proposed amount of each cost element.

Item 10 - Total Estimated Cost

Enter the total of all direct labor, indirect costs and other direct costs from items 7, 8, and 9.

Item 11 - Profit

A fair and reasonable provision for profit cannot be made by simply applying a certain predetermined percentage to the total estimated cost. Rather, profit will be estimated as a dollar amount after considering:

a. degree of risk.

b. nature of the work to be performed.

c. extent of firm's investment.

d. subcontracting of work, and

e. other criteria.

The Federal Acquisition Regulation cost principles applicable to subagreements with profit-making organizations (40 CFR 31.2 and 31.105) disallow certain types of costs which are sometimes incurred by firms in the normal conduct of their business. Examples of costs which are not allowable under these costs principles include, but are not limited to, entertainment, interest on borrowed capital, and bad debits. Because the Government considers "profit" to be the excess of price over allowable costs, such computation can indicate a higher profit estimate that the firm's experienced profit as it customarily computes it. The contractor may separately disclose to the recipient its customary computations.

Enter the dollar amount of profit in block 11.

Item 12 - Total Price

Enter the total of items 10 and 11.

Part III - PRICE SUMMARY

This portion of the form is for use by a recipient when price comparison, i.e., price analysis, is used subagreement review. It may also be used by a contractor when price comparison is used as a basis for award of a subcontract.

Item 13 - Competitor's Catalog Listings, In-House Estimates, Price Quotes

Enter sources of all competitive bids or quotes received, or catalogs used and their prices, or in-house estimates made, if appropriate, for comparison. Attach additional sheets if necessary, particularly for purchases of several different items.

Enter in the far right column the proposed price for the subagreement.

Part IV - CERTIFICATIONS

Item 14 - Contractor - FOR USE BY CONTRACTOR OR SUBCONTRACTOR ONLY.

Complete this block only if part II has been completed.

Enter the specific cost principles with which the costs summary of Part II conforms. Cost principles applicable to subagreements with various types or organizations are identified in 40 CFR Part 30.4010. Cost principles applicable to subagreements with profit-making organizations are those at 48 CFR 31.2 and, for architect-engineer or construction contracts, 48 CFR 31.105.

c. (1) **Describe** the proposal, quotation, request for price adjustment, or other submission involved, giving appropriate identifying number (e.g., RFP No. _____).

(2) **Enter** the date when the price negotiations were concluded and the contract price was agreed to. The responsibility of the subagreement is not limited by the personal knowledge of the contractor's negotiator if the time of agreement, showing that the negotiated price is not based on complete, current, and accurate data.

(3) **Enter** the date of signature. This date should be as close as practicable to the date when the price negotiations were concluded and the subagreement price was agreed to (not to exceed 30 days).

Item 15 - Recipient Reviewer - FOR USE BY RECIPIENT ONLY.

If required by applicable assistance regulations, the recipient must submit the signed form for EPA review prior to execution of the subagreement.

Item 16 - EPA Reviewer - FOR USE BY EPA ONLY.

STATE OF MICHIGAN

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET

This contract authorizes the professional services contractor to provide professional services.
(Authority: 1984 PA 431)

CONTRACT FOR PROFESSIONAL ENVIRONMENTAL SERVICES:
Indefinite Scope-Indefinite Delivery

THIS CONTRACT, authorized this DATE day of MONTH the year two-thousand and twenty-three (2023), by the Director, Department of Technology, Management and Budget, BETWEEN the STATE OF MICHIGAN acting through the STATE FACILITIES ADMINISTRATION, DESIGN AND CONSTRUCTION DIVISION of the DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET, 3111 W. St. Joseph Street, Lansing, Michigan, 48917, hereinafter called the Department, and

PSC NAME
MAILING ADDRESS
CITY, STATE, ZIP

the Prime Professional Services Contractor, hereinafter called the

Professional. WHEREAS, the Department proposes securing

professional services for:

Indefinite-Scope, Indefinite-Delivery Contract No. 00XXX
Index No. (To Be Established)
Contract Order No. Y (To Be Assigned)
File No. (To Be Assigned)

Department of Technology, Management and Budget, State Facilities Administration, Design and Construction Division, Professional Environmental Services Indefinite-Scope, Indefinite-Delivery Contract (ISID) for Minor Projects –

2023 Environmental ISID Services
Various State Departments and Facilities
Various Site Locations, Michigan

NOW THEREFORE, the Department and the Professional in consideration of the covenants of this Contract agree as follows:

I. The Professional shall provide primary environmental investigation/assessment/design/construction oversight services for the assigned projects to the extent authorized by the Department of Technology, Management and Budget State Facilities Administration (SFA), Design and Construction Division (DCD) [The Department] and be solely responsible for such professional services. The Professional's services shall be performed in strict accordance with the assigned Project scope of work.

II. If authorized, the Professional shall provide environmental services for the identified project types.

Regions								Project Types and Services Offered													
Western UP	**Eastern UP**	**Northern LP**	**Saginaw Bay**	**Western LP**	**Central LP**	**Southwestern LP**	**Southeastern LP**	**Regulated Waste Survey/Abatement**	**Utility Inspection/Cleaning**	**Nuclear Waste Mgmt./Disposal/Remediation**	**GPR/LIF Field Screening**	**Phase I/Phase II/BEA**	**Well Drilling/Abandonment**	**Env Investigation/Pilot Tests/Feasibility Study**	**UST & AST removal/Demolition/Excavation**	**Remediation Sys Design/O&M/Decommissioning**	**Vapor Intrusion Mitigation Design and O&M**	**Ecological RA/Forestry/Wetland/Streams/Lakes Rest**	**Landfill Maintenance/Monitoring**	**Brownfield Development**	**Per-& Polyfluoroalkyl Substances (PFAS) Sampling**
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x

NOTE: Blackened box(es) indicate a service that the committee did not select for your firm.

III. The State of Michigan shall compensate the Professional for providing their professional services for the Project in accordance with the conditions of this Professional Services Contract.

IN WITNESS, WHEREOF, each of the parties has caused this Professional Services Contract to be executed by its duly authorized representatives on the dates shown beside their respective signatures, with the Contract to be effective upon the date on which the Professional received a copy executed by the authorized State of Michigan representative(s) by regular, registered, or certified mail or by delivery in person.

FOR THE PROFESSIONAL:

Firm Name	SIGMA Vendor ID Number
Signature	Date
Title	

FOR THE STATE OF MICHIGAN:

Director, DTMB | SFA | Design and Construction	Date

WHEREAS, this Professional Services Contract constitutes the entire agreement as to the Project between the parties, any Contract Modification of this Contract and the Department's approved and attached Project/Program Statement scope of work requirements must be in writing, signed by duly authorized representatives of the parties, and shall be in such format and detail as the State may require. No Contract Modification may be entered into to compensate the Professional for correcting, or for responding to claims or litigation for, the Professional firm's final design Contract Documents/architectural and engineering design errors, omissions or neglect on the part of the Professional.

ARTICLE I
PROFESSIONAL SERVICES SCOPE OF WORK

Provide professional environmental services, technical staff, and support personnel for ISID minor projects on an as-needed basis at various State/Client Agencies within the various site location areas as defined by the State of Michigan.

This Contract is for professional environmental investigation and/or design services for an unspecified number of ISID projects ("Assignment"). The scope of work for each assigned project will be defined at the time the project is awarded by the State to the Professional firm. The professional environmental services required for each of these assigned projects requested by the Department may include any or all of the Tasks included in the Phase 100 – Study through the Phase 900 – Operation and Maintenance Management.

The Professional firm's environmental services shall be performed in strict accordance with this Professional Services Contract and be in compliance with the Department's approved and attached Appendix I– Project/Program Statement.

This Contract does not warrant or imply to the Professional environmental firm, entitlement to perform any specific percentage (%) amount of environmental work during the life of this Contract.

This Contract will remain in effect for **three (3) years** from the date of this Contract award but may be unilaterally terminated by the State of Michigan at any time, for cause or its convenience, by written notification of the State, to the Professional. Furthermore, this Contract may be extended for **one (1) additional year**, at the sole option and discretion of the State upon the Department providing written notice to the Professional prior to the expiration of the original Contract time period. Any such time extension shall be subject to the terms and conditions of this Contract, including, but not limited to, the existing hourly billing rates included in this Contract for the Professional, their Consultant, and their employees or agents.

Please note that the Professional Services Contract ISID Contract No., as noted on page 1, must be provided on all Project correspondence and documents. Also, services are not to be provided or expenses incurred until individual ISID Projects are assigned to this Contract (see the Article II – Compensation and the Appendix 1 – Project/Program Statement).

Upon award of this Contract and each subsequent assignment, the Professional understands and agrees that time is of the essence. Failure to adhere to timely completion will be grounds for the Department, at its sole discretion, to terminate or limit future work under this Contract.

The Professional shall provide all professional services, technical staff, and support personnel necessary to complete the Project as described in its Project/Program Statement, in the best interest of the State, and within the Professional's fee(s) herein authorized by the State. Assigned project services shall comprise, without exception, every professional discipline and expertise necessary to meet all the requirements as described in the Project/Program Statement and in accordance with the accepted industry standards for professional practice and services. The Professional's services include attendance at all Project related meetings and conferences. Professional services for the assigned projects under this contract shall be provided in the Phase/Task sequence shown below and shall be rendered in accordance with the Professional's proposed and approved Project Study, Design, and Proposed Construction Schedule. The Professional's study, design, and proposed construction schedule shall be detailed, undated, and time sequence related for all Phase/Task services appropriate for the Project. The Professional shall field-check and verify the accuracy of all study/drawing and any data furnished by the Department, the State/Client Agency or any other Project related source. The Professional shall not employ or consult with any firms in completing the Professional's obligations herein who it anticipates will be a construction Bidder for the Project or any part thereof, unless specifically authorized, in writing, by the Department.

The Professional acknowledges that the Department is the first interpreter of the Professional's performance under this Contract.

The Professional acknowledges by signing this Professional Services Contract having a clear understanding of the requested professional environmental services required by the Department, and further agrees that the terms and conditions of this Professional Services Contract provide adequate professional fee(s) for the Professional to provide the requested Project scope of work requirements for each assigned project. No increase in compensation to the Professional will be allowed unless there is a material change made to the scope of work of the Assignment/Program Statement and the change is accepted and approved, in writing, by the State. Professional services shall not be performed, and no Project expenses shall be incurred by the Professional prior to the issuance of a written and signed Professional Services Contract and a Contract Order authorizing the Professional to start the Project work. Compensation for Department directed changes to the Project will be provided to the Professional by a Contract Modification and/or Contract Change Order signed by the Department and the Professional. The preparation of Bulletins and Contract Change Orders resulting from changes in the Project scope of work or previously unknown on-site field conditions will be compensated to the Professional, as approved by the Project Director/Agency Project Manager, on an hourly billing rate basis in accordance with this article. This compensation shall not exceed seven and half percent (7.5%) of the Construction Contractor's quotation for the Bulletin or Contract Change Order or an amount mutually agreed upon by the Professional and the Project Director/Agency Project Manager.

The Professional shall immediately inform the Department whenever it is indicated that the Professional's authorized not-to-exceed Budget for any of the assigned Projects may be exceeded. The Professional shall make recommendations to the Department for revisions to be implemented in order to not exceed the original authorized Budget. Any revision to the Project must be accepted and approved by the Department in writing.

The professional services may also include participation in legislative presentations as described in the "Major Project Design Manual for Professional Services Contractors and State/Client Agencies" and as the legislature or the Department may prescribe.

No substitution of any "Key Personnel/Employee" essential for the successful completion of the Project and identified in the Professional's Organizational Chart will be allowed by the Professional for this Contract without the prior written consent from the Project Director/Agency Project Manager. Before any "Key Personnel/Employee" substitution takes place, the Professional shall submit a written request to the Project Director/Agency Project Manager, and this substitution request shall include the following information: (1) A request in writing for a No Cost Contract Modification; (2) Detailed written justification for this substitution; (3) The Professional's qualifications of any proposed "Key Principal Personnel/Employee" replacement; and (4) A written statement from the Professional assuring the Department that the Project scope of work will not be adversely affected by this substitution. This request to modify their Professional Services Contract must be accepted and approved in writing by the Project Director/Agency Project Manager and the Director of the Department.

The Department will designate individuals to serve as the Project Director and Agency Project Manager for the Project scope of work who shall be fully acquainted with the Project/Program Statement and have the authority to render Project decisions and furnish information promptly. Except in connection with issues under the Article XII - Contract Claims and Disputes text, the Project Director/Agency Project Manager will exercise general management and administration for the Professional's services in so far as they affect the interest of the State. The Professional shall indemnify, defend, and hold harmless the State against exposure to claims arising from delays, negligence, or delinquencies by the Professional for the professional services of this Contract.

During the Construction Administration Services Phase of the Project, the Professional is required to complete and submit, the on-site inspection record form, "DTMB-0452, The Professional's Inspection Record," for all on-site inspection visits to the Project site. The Inspection Record shall be completed and signed by the Professional and submitted monthly, with the original document sent to the Project Director/Agency Project Manager and copies sent to the Construction Contractor. The Inspection Record shall accompany the Professional's monthly payment request.

The "DTMB-0460, Project Procedures" contains Department forms which shall be used during the Construction Administration Phase of this Contract. All professional services will be consistent with the Department's current "Major Project Design Manual for Professional Services Contractors and State/Client Agencies" unless otherwise approved in writing by the Department.

The professional services required for each Phase of this Contract shall be performed by the Prime Professional and their Consultants in accordance with service descriptions in this article. The following service descriptions outlined in this Contract represent the Department's standard of care for the Professional's responsibilities for providing the professional services of this Contract; but by inclusion, or omission, the descriptions do not limit or exclude any regular or normal professional services necessary to accomplish the Project in accordance with the approved Project Budget and the industries accepted practice and standards for professional services. All of the services outlined in this Contract may not be applicable to the Project/Program Statement. The Professional shall determine and coordinate the interface of the services required for the Project and is responsible for identifying any additional services necessary to successfully complete the Project.

The professional shall execute the following PHASES upon written authorization from the Project Director.

PHASE 100 - ENVIRONMENTAL INVESTIGATION/STUDY SERVICES

Provide complete and comprehensive Environmental Investigation/Study Deliverables to meet the requirements of the Project/Program Statement. Upon completion of all field investigation, assessment, research, review and/or oversight, prepare a complete report with an executive summary, and in such detail, as the Project Director may prescribe. The services under this phase may include but not be limited to coordination, environmental assessments, drilling, field sampling/oversight, data/document review/management, feasibility study, and reporting as described in the Project/Program Statement. Project reports must be in accordance with Department/Client/Agency requirements and as outlined in the Project/Program Statement but shall include, as a minimum and as appropriate, the following items: (1) Problem; (2) Conclusion; (3) Recommendations; and (4) Discussion, details, and documentation.

PHASE 300–SCHEMATIC DESIGN

Prepare Schematic Design Deliverables consistent with the Project/Program Statement. The deliverables shall consist of conceptual remediation system, drawings, outline specifications, a Schematic Construction Cost Estimate, other related documentation, and shall diagrammatically depict the areas, scales, and relationships of the functions. The services under this phase may include but not be limited to coordination, construction codes and design reviews, civil/site staging investigation, schematic design and utilities review, drafting, and project cost/proposed construction schedule, as required by the Department/Client/Agency and as outlined in the Project/Program Statement. Acceptance of the Schematic Design by the Department/Client/Agency does not limit subsequent inclusion of minor, but essential, schematic or design details whose necessity and arrangement may best become apparent during subsequent Phases of the Project design. Revise design as necessary and obtain approval from the Department/Client/Agency.

PHASE 400–DESIGN DEVELOPMENT

Prepare Design Development Deliverables based on the Owner-accepted Schematic Design to depict the intent of the designed remediation system(s). The deliverables shall consist of draft drawings and specifications, Construction Cost Estimates and other related documentation to clearly establish the complete basis for further detail into final design drawings/specifications. The deliverables shall further define the Project by fixing and describing the Project size, character, site relationships, and other appropriate elements including the environmental, civil, structural, architectural, mechanical, electrical, and safety systems. The services under this phase may include but not be limited to coordination, draft drawings/specifications, site specific staging investigation, structural calculations and preliminary environmental/architectural/engineering design development/reviews of drawings/specifications, as required by the Department/Client/Agency and as outlined in the Project/Program Statement.

PHASE 500–CONSTRUCTION DOCUMENTS AND BIDDING DOCUMENTS

Prepare Construction Documents that revise, refine, amplify, and depict, in detail, the Project. The documents shall set forth, in detail, quality levels of and requirements for the construction, and shall consist of final drawings/specifications that comply with applicable regulatory and construction code requirements, enacted at the time of completion of the one hundred percent (100%) Construction Documents. Prepare Bidding Documents in Phases/Bid packages appropriate to the Project requirements and funding. Incorporate the current edition of DTMB “MICHSPEC”, “DCSPEC” or “50KSPEC”, as adopted and modified by the State of Michigan. The Construction Documents shall contain all information necessary to bid and construct the Project. The services under this phase may include but not be limited to coordination, final drawings/specifications and bidding documents, civil/site staging design, final structural calculations, final environmental/architectural/engineering design development/reviews of drawings/specifications, construction testing program, hazardous materials, health and safety risks, final design correction procedures, design and construction budget, construction codes/permits and construction schedule, as required by the Department/Client/Agency and as outlined in the Project/Program Statement.

PHASE 600 - CONSTRUCTION ADMINISTRATION - OFFICE SERVICES

Provide all required construction oversight administration and timely professional review and administrative services, as the circumstances of the Construction may require, allowing the successful review/implementation of the Construction Documents into a completed remedial actions/abatement measures and/or for the use intended by the Department/Client/Agency. The services under this phase may include but not be limited to coordination, review and approval of shop drawings and submittals, reporting of construction progress, construction quality testing, construction contractor performance review, punch list procedures, claims, establishing close-out procedures and developing/review of as-built documents, as required by the Department/Client/Agency requirements and as outlined in the Project/Program Statement.

PHASE 700 - CONSTRUCTION ADMINISTRATION - FIELD SERVICES

Provide all required Construction Oversight and Field Services, including timely inspection and professional services, as the circumstances of the Construction may require, allowing the successful review/implementation of the Construction Documents into a completed remedial action/abatement measures and/or for the use intended by the Department/Client/Agency. The services under this phase may include but not be limited to coordination, field inspections, progress meetings and final project inspection, as required by the Department/Client/Agency requirements and as outlined in the Project/Program Statement.

PHASE 900 – OPERATION AND MAINTENANCE SERVICES – REMEDIATION FACILITY

Provide all required Operation and Maintenance (O&M) Services and perform, in a safe and secure environment, all functions, including timely inspection, sampling and professional services, necessary to maintain uninterrupted, effective and efficient facility/system components for the use intended by the Department/Client/Agency. The services under this phase may include but not be limited to coordination, general system operation/inspections, routine system/building/ground maintenance, sampling, spare replacement parts, consumable supplies, utilities, waste materials removal/treatment/disposal, non-routine emergency services, progress meetings and reporting, as required by the Department/Client/Agency requirements and as outlined in the Project/Program Statement.

ARTICLE II
COMPENSATION

In consideration of the performance of this Contract, the Department agrees to pay the Professional, as compensation for professional services, an hourly billing rate for each employee providing a direct service to this Project, on a not-to-exceed basis as specified herein, subject to subsequent modifications mutually agreeable to the parties hereto; provided, however, the Professional may not incur costs, or bill the Department, for professional services in excess of the estimates established for this Project without the prior written agreement of the Department. The attached proposal prepared by the Professional in response to the Request for Proposal, by the Owner, may describe methodology, services, schedule, and other aspects of the work to be performed under the Contract but does not supersede the Contract.

Compensation to the Professional shall be on an hourly billing rate basis for professional services rendered by salaried and non-salaried professional, technical, and technical support employees, except for any authorized reimbursable expenses provided for in this Contract. Total compensation for any Phase shall not exceed the amount authorized for that Phase, unless authorized in writing by the Department's approved Contract Change Order. Professional services shall not be performed, and no Project expense shall be incurred by the Professional firm prior to the issuance of a written and signed Professional Services Contract and a DTMB Form 0402 - Contract Order by the Department to the Professional, authorizing the Professional to start the Project.

Compensation to the Professional for services and authorized technical and technical support employees performing a direct service for this Project shall be determined using the Professional firm's billing rates. The Professional firm's hourly billing rate shall be the actual amount paid for the employee services on the Project including fringe benefits, vacations, sick leave, other indirect costs, and profit. The Professional firm's hourly billing rates shall not change during the life of this Contract without written approval by the Department. See attached Appendix**, Overhead Items Allowed for the Professional Services Contractor Firm's Hourly Billing Rate Calculation**, for the guide to overhead items allowed for the professional services contractor firm's hourly billing rate calculation. Reimbursement for the Project/Program Statement scope of work requirements will be provided only for Department approved items authorized for reimbursement compensation in this Contract. The State will not reimburse the Professional for downtime, or for personnel involved in downtime due to mechanical problems or failure of Professional's or Subcontractor equipment.

The preparation of Bulletins and Contract Change Orders resulting from changes to the Project scope of work or previously unknown on-site field conditions will be compensated to the Professional, as approved by the Department on an hourly billing rate basis in accordance with this article. This compensation shall not exceed seven and one- half percent (7.5%) of the Construction Contractor's quotation for the Bulletin or Contract Change Order or an amount mutually agreed upon by the Professional and the Project Director/Agency Project Manager.

The Professional shall provide, but no additional monetary compensation shall be allowed for the services necessary to respond to and resolve all claims arising wholly or in part from the Professional's errors and/or omissions or other aspects of the Project's design or the Professional firm's performance which is inconsistent with the Professional or Construction Contract.

2.1 PREMIUM TIME/OVERTIME: This Contract anticipates that no premium or overtime is required to achieve the Project's scope of work. No compensation will be allowed to the Professional for any premium or overtime cost incurred to achieve the Project schedule of this Contract, unless directed in writing by the Project Director/Agency Project Manager and approved by the Department.

2.2 EMPLOYEE HOURLY BILLING RATES: Hourly billing rates will include all direct and indirect monetary costs to the State for the Professional's services under this Contract other than the authorized and approved reimbursements. Hourly billing rates shall be based on the Professional's documented historical operating expenses and adjusted for Project specific costs. In no case shall this documentation period include more than eighteen (18) months prior to the date of award of this Contract.

Lump-sum payments to employees are not allowed under this Contract. Billing rates for employees who perform professional services of a subordinate or of a position classification having a lower classification/pay range shall be accounted and paid for at the lower hourly billing pay rate. The hourly billing rate charge of any employee may be changed by the Professional with a written and Department approved Contract Modification to account for normal personnel pay increases.

Hourly billing rates include, but are not limited to: Overhead items such as employee fringe benefits, vacations, sick leave, insurance, taxes, pension funds, retirement plans, meals, lodging, and all Project related travel expenses for Projects **less than** one-hundred (100) miles in each direction from the Professional's nearest Michigan office, computer costs/operating costs, data entry, and time, telephone, telephone- related services, and all reproduction services (except Contract Bidding Documents/Deliverables).

The hourly billing rate also includes all reproduction costs for design interpretations, study/design clarifications and Bulletins related to design errors or omissions, construction code compliance (precipitating either from design code compliance and plan review, design interpretations, or construction on-site/field inspections), and all similar, or avoidable costs.

All incidental postage, mail, or other shipping or delivery services, acquisition, bad debts, previous business losses, employment fees, depreciation, and operating costs for equipment, including computer design and/or computer drafting systems, and any specialized testing equipment are to be included. The hourly billing rate shall include, without exception, secretarial, computer/typing/word processing, editing, and clerical services utilized in any way for the Project as well as other non-technical and/or employees providing indirect services. The hourly billing rate also includes all profit without regard to its form or distribution.

Items not allowable as part of the Professional's calculated hourly billing rate include but are not limited to: Any costs associated with litigation and settlements for the Professional, other liability suits, out-of-state offices and associated travel, bonuses, profit sharing, premium/overtime costs, public relations, entertainment, business promotion, contributions, and various speculative allowances.

The hourly billing rate for the Professional may not be applied to the work of the Professional's Sub- Consultant's staff. Each Sub-Consultant firm must submit a separate hourly billing rate with proper documentation for Sub-Consultant services provided as part of the Proposal. The hourly billing rate of the respective Consultant firm shall be used for that Consultant firm's personnel only. No mark-up to Consultant firm's charges will be allowed.

2.3 RANGE OF EMPLOYEE HOURLY BILLING RATES: The Professional shall identify the service being provided and include the Professional's or Consultant's employee(s) full names and position classifications for the Project and their current hourly billing rates at the beginning and at the anticipated end of the Project. This hourly billing rate range shall reflect any anticipated pay increases over the life of the Contract. The range of hourly billing rates for any employee position or classification may not be changed without an approved Contract Modification.

2.4 DIRECT COST REIMBURSEMENT ITEMS: The Professional's Consultant services and authorized reimbursable expenses shall be treated as an authorized reimbursable expense item at a direct cost. The Professional shall be responsible for the selection of the supplier of the professional services or materials; the coordination, adequacy, and application of the professional services, whether provided by the Professional's staff or provided by their Consultant, and any Project costs that exceed the budget for each Phase.

Project related travel expenses (mileage, meals, lodging) for Projects **more than** one-hundred (100) miles in one- way from the Professional's nearest office shall be treated as an authorized reimbursable expense at the State of Michigan's current travel rates.

Unless authorized elsewhere in this Contract, direct cost reimbursement items shall be limited to the actual cost of printing and reproduction of project deliverables such as Final Study Reports, Surveys, Bidding Documents, and U. S. Mail regular shipping postage of the project deliverables listed above. In addition, direct cost reimbursement items may include soil borings, site surveys and any required laboratory testing, Design Code Compliance and Plan Review Approval Fees by the licensing agency; reproduction of documents for legislative presentation, artistic productions, mobilization of testing equipment, laboratory costs for testing samples, per-linear-foot cost of soil borings and specialized inspections of the structural, mechanical, electrical, chemical or other essential components of the Project.

Compensation for this Contract shall not exceed the budget per Project Phase identified in the attached Contract Order unless authorized by a Department approved Contract Modification. It shall be the Professional's responsibility to carefully monitor Project costs, activities, and progress and to provide the Project Director/Agency Project Manager timely notification of any justifiable need to increase the authorized budget. The Professional may not proceed with professional services that have not been authorized by the Project Director/Agency Project Manager and shall immediately notify the Project Director/Agency Project Manager if such services have been requested or have become necessary.

Professional/Sub-Consultant staff and hourly billable rates are identified in the attached Professional's proposal.

ARTICLE III
PAYMENTS

Payment for the professional services shall be based on the Professional's performance of authorized professional service(s) performed prior to the date of each submitted payment request. Payment requests shall be submitted monthly to the Project Director/Agency Project Manager on a payment request form (DTMB-440). Payment for each monthly submitted payment request shall be made within thirty (30) consecutive calendar days following the Department's approval of the payment request. Payment requests shall include signed certification by the Professional of the actual percentage of work completed as of the date of invoicing for each Phase and summarize the amounts authorized, earned, previously paid, and currently due for each Project Phase.

Payment requests shall be supported by itemized records or documentation in such form and detail as the Department may require.

Each of the Professional's Consultant's submitted payment request applications shall include similar information. This includes, but is not limited to:

- Phase Numbers for the professional services provided.
- Professional's personnel and position/classification providing service and hours worked. Current hourly billing rate charges for each individual position/classification.
- Copy of certified on-site visitation log or site visit report showing time on-site.
- Itemized invoices from each of the Professional's Consultant's documenting that firm's professional services charge and the Project work related services provided.
- Authorized reimbursable expense items provided with receipts and invoices.

The State has the right to withhold payment of any disputed amounts until the parties agree as to the validity of the disputed amount. The State will notify the Professional of any dispute within a reasonable time. Payment by the State will not constitute a waiver of any rights as to the Professional's continuing obligations, including claims for deficiencies or substandard Contract Activities. The Professional's acceptance of final payment by the State constitutes a waiver of all claims by the Professional against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still disputed.

The State will only disburse payments under the Contract through Electronic Funds Transfer (EFT). Contractor must register with the State at http://www.michigan.gov/SIGMAVSS to receive electronic funds transfer payments. If Contractor does not register, the State is not liable for failure to provide payment. Without prejudice to any other right or remedy if may have, the State reserves the right to set off at any time any amount then due and owing to it by Contractor against any amount payable by the State to Contractor under this Contract

ARTICLE IV
ACCOUNTING

The Professional shall keep current and accurate records of Project costs and expenses, hourly billing rates, authorized reimbursable expense items, and all other Project related accounting documents to support the Professional's monthly application for payment. Project records shall be kept on a generally recognized accounting basis. Such records shall be available to the Department for a period of ten (10) years after the Department's final payment to the Professional. The State of Michigan reserves the right to conduct, or have conducted, an audit and inspection of these Project records at any time during the Project or following its completion.

ARTICLE V
INSURANCE

The Professional shall purchase, maintain and require such insurance that will provide protection from claims set forth below which may arise out of or result from the Professional firm's services under this Contract, whether such service is performed by the Professional or performed by any of the Professional firm's Consultant's or by anyone directly or indirectly employed by them, or by anyone for whose acts they may be liable. The following insurance policy limits described below are intended to be the minimum coverage acceptable by the State:

For the purpose of this Section, "State" includes its departments, divisions, agencies, offices, commissions, officers, employees, and agents.

(a) The Contractor must provide proof that it has obtained the minimum levels of insurance coverage indicated or required by law, whichever is greater. The insurance must protect the State from claims that may arise out of or result from or are alleged to arise out of or result from the Contractor's or a Subcontractor's performance, including any person directly or indirectly employed by the Contractor or a Subcontractor, or any person for whose acts the Contractor or a Subcontractor may be liable.

(b) The Contractor waives all rights against the State for the recovery of damages that are covered by the insurance policies the Contractor is required to maintain under this Section. The Contractor's failure to obtain and maintain the required insurance will not limit this waiver.

(c) All insurance coverage provided relative to this Contract is primary and non-contributing to any comparable liability insurance (including self-insurance) carried by the State.

(d) The State, in its sole discretion, may approve the use of a fully-funded self-insurance program in place of any specified insurance identified in this Section.

(e) Unless the State approves, any insurer must have an A.M. Best rating of "A" or better and a financial size of VII or better, or if those ratings are not available, a comparable rating from an insurance rating agency approved by the State. All policies of insurance must be issued by companies that have been approved to do business in the State. To view the latest A.M. Best's Key Ratings Guide and the A.M. Best's Company Reports (which include the A.M. Best's Ratings) visit the A.M. Best Company internet web site at http://www.ambest.com.

(f) Where specific coverage limits are listed in this Section, they represent the minimum acceptable limits. If the Contractor's policy contains higher limits, the State is entitled to coverage to the extent of the higher limits.

(g) The Contractor must maintain all required insurance coverage throughout the term of this Contract and any extensions. However, in the case of claims-made Commercial General Liability policies, the Contractor must secure tail coverage for at least three (3) years following the termination of this Contract.

(h) The minimum limits of coverage specified are not intended and may not be construed; to limit any liability or indemnity of the Contractor to any indemnified party or other persons.

(i) The Contractor is responsible for the payment of all deductibles.

(j) If the Contractor fails to pay any premium for a required insurance policy, or if any insurer cancels or significantly reduces any required insurance without the State's approval, the State may, after giving the Contractor at least 30 days' notice, pay the premium or procure similar insurance coverage from another company or companies. The State may deduct any part of the cost from any payment due the Contractor or require the Contractor to pay that cost upon demand.

(k) In the event the State approves the representation of the State by the insurer's attorney, the attorney may be required to be designated as a Special Assistant Attorney General by the Michigan Attorney General.

The Professional firm's Errors and Omissions coverage shall include coverage for claims resulting from acts of forbearance that cause or exacerbate pollution and claims of bodily injury and property damage in the amount of $1,000,000 minimum coverage per occurrence, $3,000,000 annual aggregate. This insurance is required of all professional firms who conduct professional environmental services including, but not limited to, any of the following services:

(i) Remedial System Design.

(ii) Remediation Management.

(iii) Feasibility Development and Implementation.

(iv) Hydrogeological Evaluation.

(v) Media Testing and Analysis.

(vi) Subsurface and Geophysical Investigation.

(vii) Other related activities as determined by the Department.

Required Limits	Additional Requirements
Commercial General Liability Insurance	
Minimum Limits: $1,000,000 Each Occurrence Limit $1,000,000 Personal & Advertising Injury Limit $2,000,000 General Aggregate Limit $2,000,000 Products/Completed Operations	Professional must have their policy endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds using endorsement CG 20 10 11 85, or both CG 20 10 12 19 and CG 20 37 12 19.
Umbrella or Excess Liability Insurance	
Minimum Limits: $2,000,000 General Aggregate	Professional must have their policy follow form.
Automobile Liability Insurance	
Minimum Limits: $1,000,000 Per Accident	Professional must have their policy: (1) endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds; and (2) include Hired and Non-Owned Automobile coverage.
Workers' Compensation Insurance	
Minimum Limits: Coverage according to applicable laws governing work activities.	Waiver of subrogation, except where waiver is prohibited by law.
Employers Liability Insurance	
Minimum Limits: $500,000 Each Accident $500,000 Each Employee by Disease $500,000 Aggregate Disease.	
Professional Liability (Errors and Omissions) Insurance	
Minimum Limits: $1,000,000 Each Occurrence $2,000,000 Annual Aggregate Deductible Maximum: $50,000 Per Loss	

Environmental and Pollution Liability (Errors and Omissions) ***	
Minimum Limits: $1,000,000 Each Occurrence $2,000,000 Annual Aggregate	Professional must have their policy: (1) be applicable to the work being performed, including completed operations equal to or exceeding statute of repose; (2) not have exclusions or limitations related to Transportation (upset overturn, spills during loading or unloading, Hazardous Materials Handling, and Non-Owned disposal site liability; and (3) endorsed to add "the State of Michigan, its departments, division, agencies, offices, commissions, officers, employees, and agents" as additional insured.

C

Contractual Liability insurance for claims for damages that may arise from the Professional's assumption of liability on behalf of the State under Article VI concerning indemnification for errors, omissions, or negligent acts in the course of the professional service or other provision within this Contract to the extent that such kinds of contractual liability are insurable in connection with and subject to limits of liability not less than for the general liability insurance and the professional liability insurance and set forth in subsections (c) and (d) above.

Except where the State has approved a subcontract with other insurance provisions, the Professional must require any Consultant/Subcontractor to purchase and maintain the insurance coverage required in this Article. Alternatively, the Contractor may include a Consultant/Subcontractor under the Professional's insurance on the coverage required in that Section. The failure of a Consultant/Subcontractor to comply with insurance requirements does not limit the Professional's liability or responsibility.

Certificate of Insurance documents, acceptable to the State, shall be provided and filed with the Department prior to commencement of the Professional's Project services, unless otherwise approved in writing, and not less than 20 days before the insurance expiration date every year thereafter. Facsimile copies of the Certificate of Insurance will not be accepted. Certificate of Insurance documents must be either submitted hard copy or portable document file (.pdf). The Certificate of Insurance documents must specify on the certificate in the oblong rectangle space labeled "Description of Operations/Locations/Vehicles/Exclusions Added By Endorsement/Special Provisions/Special Items" the following items: **(1) The ISID Title; (2) The ISID Contract Number; and (3) The State of Michigan must be named as an "Additional Insured on the General Liability and Automobile Insurance Policy."** The Certificate of Insurance documents shall contain a provision that the Project insurance coverage afforded under the insurance policies for this Contract will not be modified or canceled without at least thirty (30) consecutive calendar days prior written notice, except for 10 days for non-payment of premium, to the State of Michigan, Department.

This Section is not intended to and is not to be construed in any manner as waiving, restricting, or limiting the liability of either party for any obligations under this Contract (including any provisions hereof requiring Professional to indemnify, defend and hold harmless the State).

The attached, Certificates of Insurance documents required for this Project shall be in force for this Project until the final payment by the State to the Professional is made and shall be written for not less than any limits of liability specified above. The Professional has the responsibility for having their consultant firms comply with these insurance requirements.

ARTICLE VI
INDEMNIFICATION

(a) To the extent permitted by law, the Professional shall indemnify, defend and hold harmless the State from liability, including all claims and losses, and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest, and penalties), accruing or resulting to any person, firm or corporation that may be injured or damaged by the Professional in the performance of this Contract and that are attributable to the negligence or tortious acts of the Professional or any of its Subcontractors/Consultants, or by anyone else for whose acts any of them may be liable.

(b) Employee Indemnification: In any and all claims against the State of Michigan, its departments, divisions, agencies, boards, sections, commissions, officers, employees and agents, by any employee of the Professional or any of its Subcontractors/Consultants, the indemnification obligation under this Contract shall not be limited in any way by the amount or type of damages, compensation or benefits payable by or for the Professional or any of its Subcontractors/Consultants under worker's disability compensation acts, disability benefit acts or other employee benefit acts. This indemnification clause is intended to be comprehensive. Any overlap in provisions, or the fact that greater specificity is provided as to some categories of risk, is not intended to limit the scope of indemnification under any other provisions.

(c) Patent/Copyright Infringement Indemnification: To the extent permitted by law, the Professional shall indemnify, defend and hold harmless the State from and against all losses, liabilities, damages (including taxes), and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest, and penalties) incurred in connection with any action or proceeding threatened or brought against the State to the extent that such action or proceeding is based on a claim that any piece of equipment, software, commodity or service supplied by the Professional or its Subcontractors/Consultants, or the operation of such equipment, software, commodity or service, or the use of reproduction of any documentation provided with such equipment, software, commodity or service infringes any United States patent, copyright, trademark or trade secret of any person or entity, which is enforceable under the laws of the United States.

In addition, should the equipment, software, commodity, or services, or its operation, become or in the State's or Professional's opinion be likely to become the subject of a claim of infringement, the Professional shall at the Professional's sole expense (i) procure for the State the right to continue using the equipment, software, commodity or service or, if such option is not reasonably available to the Professional, (ii) replace or modify to the State's satisfaction the same with equipment, software, commodity or service of equivalent function and performance so that it becomes non-infringing, or, if such option is not reasonably available to Professional, (iii) accept its return by the State with appropriate credits to the State against the Professional's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

Notwithstanding the foregoing, the Professional shall have no obligation to indemnify or defend the State for, or to pay any costs, damages or attorneys' fees related to, any claim based upon (i) equipment developed based on written specifications of the State; or (ii) use of the equipment in a configuration other than implemented or approved in writing by the Professional, including, but not limited to, any modification of the equipment by the State; or (iii) the combination, operation, or use of the equipment with equipment or software not supplied by the Professional under this Contract.

ARTICLE VII
OWNERSHIP OF DOCUMENTS

All Project deliverables, including but not limited to: reports, Bidding Documents, Contract Documents, electronic documents and data, and other Project related documents, including the copyrights, prepared and furnished by the Professional shall become the property of the State of Michigan upon completion of the Project, completion and acceptance of the professional's work, or upon termination of the Contract. Project deliverables shall be delivered to the Department upon their request. The Professional shall have no claim for further employment or additional compensation as a result of this Contract requirement. The Professional may retain a copy of all Project documents for their files.

If the Professional is in default or breach of its obligations under this Contract, the State shall have full ownership rights of the Project deliverables, including Bidding Documents and Contract Documents, including all electronic data. If the Professional is in default or this Contract Agreement is terminated, the State shall not use the Contract Documents and deliverables of this Contract for completion of the Project by others without the involvement of other qualified Professionals who shall assume the professional obligations and liability for the Project work not completed by the Professional.

To the fullest extent allowed by law, the State releases the Professional, the Professionals Consultant(s) and the agents and employees of any of them from and against legal claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of the State's use of the Contract Documents other than in accordance with this Contract Agreement.

All Contract deliverables listed may be published or issued for informational purposes without additional compensation to the Professional. The Professional may not use any of the Contract Documents and Contract deliverables for any purpose that may misrepresent the professional services they provided.

The Professional shall retain full rights to the Contract Documents and deliverables and the right to reuse component information contained in them in the normal course of the Professional's professional activities.

The Contract deliverables, Contract Documents, or other documents produced under this Contract may be used by the Department, or others employed by the Department or State of Michigan, for reference in any completion, correction, remodeling, renovation, reconstruction, alteration, modification of or addition to the Project, without monetary compensation to the Professional.

The State of Michigan will not construct additional Projects or buildings based on the work of this Contract without notice to the Professional. Whenever renderings, photographs of renderings, photographs or models, or photographs of the Project are released by the State of Michigan for publicity, proper credit for design shall be given to the Professional, provided the giving of such credit is without cost to the State of Michigan.

ARTICLE VIII
TERMINATION

The State may, by written notice to the Professional, terminate this Contract and/or any Assignments, in whole or in part at any time, either for the State's convenience or because of the failure of the Professional to fulfill their Contract obligations. Upon receipt of such notice, the Professional shall:

a) Immediately discontinue all professional services affected (unless the notice directs otherwise), and

b) Deliver to the State all data, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have been accumulated by the Professional in performing this Contract, whether completed or in process.

8.1 If the termination is for the convenience of the State, an equitable adjustment in the Contract price shall be made, but no amount shall be allowed for anticipated profit on unperformed professional services.

8.2 If the termination is due to the failure of the Professional to fulfill their Contract obligations, the State may take over the work and prosecute the same to completion by Contract or otherwise. In such case, the Professional shall be liable to the State for any additional cost occasioned to the State thereby.

8.3 If, after notice of termination for failure to fulfill Contract obligations, it is determined that the Professional had not so failed, the termination shall be deemed to have been affected for the convenience of the State. In such event, adjustment in the Contract price shall be made as provided in Section 8.1 of this article.

8.4 The rights and remedies of the State provided in this article are in addition to any other rights and remedies provided by law or under this Contract.

ARTICLE IX
SUCCESSORS AND ASSIGNS

This Contract shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns; provided, however, that neither of the parties hereto shall assign this Contract without the prior written consent of the other.

ARTICLE X
GOVERNING LAWS

This Contract shall be construed in accordance with the current laws of the State of Michigan. Some Assignments to this Contract will be funded wholly or in part by the Federal Government through grant agreements and/or federal programs. The Professional must comply with such funding requirements along with any current applicable federal regulations in performing the tasks described in the Scope of Work, including but not limited to the following current federal regulations. The absence of reference to any law or regulation does not preclude its applicability to this Contract.

1. The Comprehensive Environmental Response Compensation and Liability Act of 1980 as amended CERCLA (The Superfund Act);

2. Section 306 of the Clean Air Act (42 U.S.C. 1857 (h));

3. Section 508 of the Clean Water Act (33 U.S.C. 1368);

4. Public Law 98-473 as implemented in the Department of the Interior, Bureau of Indian Affairs;

5. Executive Order 11738; Office of Management and Budget Circular A-87, "Cost Principles for State, Local, and Indian Tribal Governments."

6. 25 CFR Part 20; Financial Assistance and Social Services Programs

7. 40 CFR Part 31; Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments

8. 40 CFR Part 32 Subpart F; Drug-Free Workplace

9. 40 CFR Part 33; Participation by Disadvantaged Business Enterprises in United States Environmental Protection Agency Programs

10. 40 CFR Part 35; State and Local Assistance

11. 40 CFR Part 35 Subpart 0; Cooperative Agreements and Superfund State Contracts for Superfund Response Actions

12. 48 CFR Chapter 1 Part 31 Subpart 31.2; Contracts with Commercial Organizations.

ARTICLE XI
NONDISCRIMINATION

In connection with the performance of the Project under this, the Professional agrees as follows:

a) The Professional will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, age, sex *(as defined in Executive Directive 2019-09)*, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position. The Professional will provide equal employment opportunities to ensure that applicants are employed and that employees are treated during employment, without regard to their race, color, religion, national origin, age, sex, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position.

Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

b) The Professional will, in all solicitations or advertisements for employees placed by or on behalf of the Professional, state that all qualified applicants will receive equal employment opportunity consideration for employment without regard to race, color, religion, national origin, age, sex, height, weight, marital status, or a physical or mental disability that is unrelated to the individual's ability to perform the duties of the particular job or position.

c) The Professional or their collective bargaining representative will send to each labor union or representative of workers with which is held a collective bargaining agreement or other Contract or understanding, a notice advising the said labor union or workers' representative of the Professional's nondiscrimination commitments under this article.

d) The Professional will comply with the Elliot-Larsen Civil Rights Act, 1976 PA 453, as amended, MCL 37.2201 et seq; the Michigan Persons with Disabilities Civil Rights Act, 1976 PA 220, as amended, MCL 37.1101 et seq; *Executive Directive 2019-09*; and all published rules, regulations, directives and orders of the Michigan Civil Rights Commission which may be in effect on or before the date of award of this Contract.

e) The Professional will furnish and file nondiscrimination compliance reports within such time and upon such forms as provided by the Michigan Civil Rights

Commission; said forms may also elicit information as to the practices, policies, program, and employment statistics of the Professional and of each of their Consultant firms. The Professional will permit access to all books, records, and accounts by the Michigan Civil Rights Commission, and/or its agent, for purposes of investigation to ascertain nondiscrimination compliance with this Contract and with rules, regulations, and orders of the Michigan Civil Rights Commission relevant to Article 6, 1976 PA 453, as amended.

f) In the event that the Michigan Civil Rights Commission finds, after a hearing held pursuant to its rules, that the Professional has not complied with the contractual nondiscrimination obligations under this Contract, the Michigan Civil Rights Commission may, as part of its order based upon such findings, certify said findings to the State Administrative Board of the State of Michigan, which the State Administrative Board may order the cancellation of the Contract found to have been violated, and/or declare the Professional ineligible for future Contracts with the State and its political and civil subdivisions, departments, and officers, and including the governing boards of institutions of higher education, until the Professional complies with said order of the Michigan Civil Rights Commission.

   Notice of said declaration of future ineligibility may be given to any or all of the persons with whom the Professional is declared ineligible to Contract as a contracting party in future Contracts. In any case before the Michigan Civil Rights Commission in which cancellation of an existing Contract is a possibility, the State shall be notified of such possible remedy and shall be given the option by the Michigan Civil Rights Commission to participate in such proceedings.

g) The Professional shall also comply with the nondiscrimination provisions of 1976 PA 220, as amended, concerning the civil rights of persons with physical or mental disabilities.

h) The Professional will include, or incorporate by reference, the nondiscrimination provisions of the foregoing paragraphs a) through g) in every subcontract or Contract Order unless exempted by the rules, regulations or orders of the Michigan Civil Rights Commission, and will provide in every subcontract or Contract Order that said nondiscrimination provisions will be binding upon each of the Professional's Consultant's or seller.

ARTICLE XII
CONTRACT CLAIMS AND DISPUTES

In any claim or dispute by the Professional which cannot be resolved by negotiation, the Professional shall submit the claim or dispute for an administrative decision by the Department of Technology, Management and Budget, Director of State Facilities Administration within thirty (30) consecutive calendar days of the end of the disputed negotiations, and any decision of the Director of State Facilities Administration may be appealed to the Michigan Court of Claims within one (1) year of the issuance of the Director's decision.

The Professional agrees that the Department's appeal procedure to the Director of State Facilities Administration is a prerequisite to filing a suit in the Michigan Court of Claims.

ARTICLE XIII
DEFINITION OF TERMS

The definition of terms and conditions of this Contract are described and outlined in the following Articles I through XIV and attached appendices. The capitalized defined terms used in this Professional Services Contract shall have the following definitions:

ADDENDA: Written or graphic numbered documents issued by the Department and/or the Professional prior to the execution of the Construction Contract which modify or interpret the Project Bidding Documents, including drawings, and specifications, by additions, deletions, clarifications or corrections. The Addenda shall: (1) Be identified specifically with a standardized format; (2) Be sequentially numbered; (3) Include the name of the Project; (4) Specify the Project Index No., Project File No., the Contract Order No. Y, and a description of the proposed Addenda; and (5) Specify the date of Addenda issuance. As such, the Addenda are intended to become part of the Project Contract Documents when the Construction Contract is executed by the Professional's recommended lowest responsive, responsible qualified Construction Contractor.

An Addendum issued after the competitive construction Bid opening to those construction Bidders who actually submitted a Bid, for the purpose of rebidding the Project work without re-advertising, is referred to as a post-Bid Addendum.

AGENCY PROJECT MANAGER: The assigned staff of the Department or the State/client Agency authorized by the State to represent and act on behalf of the Project Director on a given Project and to thereby provide direction and assistance to the Construction Contractor. The Agency Project Manager may designate in writing a person to act on behalf of the Agency Project Manager when they are unable to perform their required duties or is away from the office. In such cases, the Agency Project Manager must notify the Construction Contractor and the Project Director.

AGENCY FIELD INSPECTOR: An employee of the State of Michigan under the direction of the State/client Agency who provides the on-site, Inspection of construction Projects for compliance with the study/design intent of the Professional firm's Contract Documents/drawings and specification requirements and the building construction codes. The Agency Field Inspector is the liaison between the Construction Contractor, the Professional, and the Agency Project Manager. The Agency Project Manager, or their Agency Field Inspector, has the authority to require the Professional to respond to and resolve study/design related problems, construction on-site field problems and to attend Project related meetings.

BID: A written offer by a construction Bidder for the Department. Project construction work, as specified, which designates the construction Bidder's base Bid and Bid price for all alternates.

BIDDER: The person acting directly, or through an authorized representative, who submits a competitive construction Bid directly to the Department.

BIDDING DOCUMENTS: The Professional's Project Contract Documents as advertised, and all Addenda issued before the construction Bid opening, and after the construction Bid opening, if the Project construction work is rebid without re-advertising. Bidding Documents shall consist of the Phase 500 - Final Design drawings and specifications, any Addenda issued, special, general, and supplemental conditions of the Construction Contract, and modifications, if any, to standard forms provided by the Department. Such forms consist of the Project advertisement, the instructions to Bidders, the proposal forms, general, supplemental, and any special conditions of the Construction Contract, and the form of agreement between the Department and the Construction Contractor for the Project work requirements.

BID SECURITY: The monetary security serving as guarantee that the Bidder will execute the offered Construction Contract or as liquidated damages in the event of failure or refusal to execute the Construction Contract.

BUDGET: The maximum legislatively authorized Budget amount to be provided by the State of Michigan and available for a specific purpose or combination of purposes to accomplish the Project for this Contract.

BULLETIN: A standard document form (DTMB-0485, Bulletin Authorization No. and the DTMB-0489, Instructions to Construction Contractors for Preparation of Bulletin Cost Quotations for Contract Change Orders) used by the Department to describe a sequentially numbered change in the Project under consideration by the Department and the Professional and to request the Construction Contractor to submit a proposal for the corresponding adjustment in the Contract price and/or Contract time, if any. These standard document forms are a part of the "DTMB-0460, Project Procedures" documents package.

CONSTRUCTION CONTRACT: A separate written Contract agreement between the Construction Contractor and the Department for the construction, alteration, demolition, repair, or rebuilding of a State/Client Agency building or other State property.

CONSTRUCTION CONTRACTOR: Any construction firm under a separate Contract to the Department for construction services.

CONSTRUCTION INSPECTION SERVICES: The Professional's field Inspections of the Project during the construction Phase of this Contract which includes but is not limited to: (1) Documenting the quantity and quality of all Project construction work and verifying that the Project construction work is properly completed; (2) Resolve Project problems that are affecting the Project construction work, certify payment requests, process Bulletins, Contract Change Order recommendations, and requests for information (RFI's) in a timely manner as prescribed in the Department's, "MICHSPEC 2001 Edition of The Owner and Contractor Standard Construction Contract and General Conditions for Construction (Long Form)" or the current Department, DTMB Short Form 401 - Proposal and Contract/Front-End Package for Small Projects for Professional Services Contractors (PSC) with General Conditions for Construction and Instructions to Bidders" as adopted and modified by the State of Michigan and incorporated into the Construction Contract; and the (3) Inspection of Project construction work completed or in progress by the Construction Contractor to determine and verify to the Department's Project

Director/Agency Project Manager and their Department Field Representative that the Project construction work is in compliance with the Professional's design intent and that the Project has been completed by the Construction Contractor in accordance with the Professional's Phase 500 - Contract Documents/drawings and specifications requirements.

The Professional shall provide sufficient Inspections of the Project during the construction Phase to administer the construction Phase field and office services as directly related to the degree of Project complexity, up to and including full-time field Inspections. Construction field Inspections shall occur as the construction field conditions and the Project may require and during the regularly scheduled monthly progress and payment meetings.

The Professional shall use for their construction field Inspection services, only personnel having professional expertise, experience, authority, and compatibility with departmental procedures as the Department may approve. The Professional agrees that such characteristics are essential for the successful completion of the Project. Such individuals shall be replaced for cause where the Department determines and notifies the Professional, in writing, of their unacceptable performance.

CONSULTANT: Any individual, firm, or employee thereof, not a part of the Professional's staff, but employed by the Professional and whose professional service cost is ultimately paid by the State of Michigan, either as a direct cost or authorized reimbursement. This includes the recipient(s) of Contract Orders for material, support, and/or technical services. Also, included are persons and firms whose management and/or direction of services are assigned to the Prime Professional as may be provided elsewhere in this Contract.

CONTRACT CHANGE ORDER: A standard document form (DTMB-0403) issued and signed by the State of Michigan and signed by the Professional which amends the Project Design Professional's Contract Documents for changes in the Project/Program Statement or an adjustment in Contract price and/or Contract time, or both.

CONTRACT DOCUMENTS: The Professional's Phase 100 – Study, Final Report and Phase 500 - Final Design plans/drawings, specifications, Construction Contract, instructions to construction Bidders, proposal, Bidding Documents, agreement, conditions of the Contract, payment bond, performance/labor and material bond, prevailing wages, all Addenda, and attachments as may be necessary to comprise a Construction Contract for the Project. Specifications for this Contract will be prepared for Division 00 through 49, in the current version MasterFormat Outline by the Construction Specifications Institute (C.S.I.), as appropriate for the Project.

CONTRACT MODIFICATION: A form (DTMB-0410) amending the Contract signed by the Department and the Professional. The preparation of Bulletins and Contract Change Orders resulting from changes in the Project/Program Statement or previously unknown on-site field conditions as approved by the Department will be compensated to the Professional by way of the Contract Modification in accordance with the Article II, Compensation text of this Contract.

Any Contract Modification of this Professional Services Contract must be in writing, signed by duly authorized representatives of the parties, and shall be in such format and detail as the Department may require. No Contract Modification will be approved to compensate the Professional for correcting, or for responding to claims or litigation for, the Professional's Phase 100 – Study, Final Report and Phase 500 - Contract Documents study/design errors, omissions or neglect on the part of the Professional.

CONTRACT ORDER: A form (DTMB-0402) issued and signed by the State of Michigan authorizing a Professional to: (1) Begin to incur Project expenses and proceed with the Project on-site; and (2) Provide professional services for the fee amount designated in the Phases of the Contract Order. Issuance of the DTMB-0402 certifies that: (1) The State will enter into a Professional Services Contract for the professional services described in the various Phases of this Contract; and that (2) The proper three (3) sets of Certificate of Insurance documents have been received and accepted by the State along with the approval and signing of the Professional's Professional Services Contract by the SFA, DCD Director.

DEPARTMENT: The Department of Technology, Management and Budget, Facilities and Business Administration, Design and Construction Division. The Department will represent the State of Michigan in all matters pertaining to this Project. This Professional Services Contract will be administered through the Department on behalf of the State of Michigan and The State/Client Agency.

DESIGN MANUAL: Provides the Professional with information regarding the Department's current "Major Project Design Manual for Professional Services Contractors and State/Client Agencies" review process requirements regarding the uniformity in Contract materials presented to it by the Professional and the State/Client Agency(ies). This manual contains the following noted standards, instructions, and procedures information for: (1) General instructions for planning documents from Phase 100-Study through Phase 500-Final Design; (2) Net and gross area/volume; (3) Project cost format; (4) Outline architectural and engineering specifications; (5) Specifications in documentation Phase; (6) Instructions for proposal; (7) Bidders questionnaire; and the (8) Project job sign.

DIRECTOR: The Director of the Department of Technology, Management and Budget or their authorized State of Michigan representative.

DIRECTOR-SFA: The Director of the Department of Technology, Management and Budget, State Facilities Administration or their authorized State of Michigan representative.

DEPARTMENT FIELD REPRESENTATIVE: An employee of the State under the direction of the Department who provides the Inspection of construction Projects for compliance with the design intent of the Professional's Phase 500 - Contract Documents/ architectural and/or engineering drawings and specification requirements and the building construction codes. The Department Field Representative is the liaison between the Construction Contractor, the Professional, and the Project Director/Agency Project Manager. The Project Director/Agency Project Manager, or their Department Field Representative, has the authority to require the Professional to respond to and resolve study/design related problems, construction field problems and to attend Project

meetings. Unless delegated by specific written notice from the Department, the Department Field Representative has no authority to order any changes in the Project scope of work or authorize any adjustments in Contract price or Contract time.

INSPECTION: The Professional and their Consultant firm's on-site and/or off-site examination of the Project construction work completed or in progress by the Construction Contractor to determine and verify to the Department's, Project Director/Agency Project Manager and their Department Field Representative that the quantity and quality of all Project construction work is in accordance with the design intent of the Professional's Phase 500 - Contract Documents/ drawings and specifications requirements.

KEY PRINCIPAL PERSONNEL/EMPLOYEE: An individual employee of a Professional who is essential for the successful completion of the Project.

NOTICE OF INTENT TO AWARD: A written notice to the Construction Contractor, by the Department accepting the Professional's written recommendation to award the construction Bid to the lowest responsive, responsible qualified construction Bidder. The Notice of Intent to Award letter will also designate the Contract price and itemize the alternates that the Department, at its sole discretion has accepted.

PHASE: A discretely distinguishable step necessary to produce the Project in the course of the Professional providing study, design and construction administration services.

PRIME PROFESSIONAL SERVICES CONTRACTOR/PROFESSIONAL: An individual, firm, partnership, corporation, association, or other legal entity who is legally permitted by law to sign and seal final design construction Contract Documents and licensed under the State of Michigan's professional licensing and regulation provisions of the Occupational Code (State Licensing Law), Act 299 of the Public Acts of 1980, Article 20, as amended, to practice architecture, engineering, environmental engineering, geology, civil, land surveying, or landscape architecture services in the State of Michigan.

The Prime Professional Services Contractor/Professional is also legally permitted by the State of Michigan's regulation provisions of the State Construction Code, Act 230 of the Public Acts of 1972, as amended, and designated in a Construction Contract by the Department to recommend construction progress payments to the Construction Contractor.

PROJECT: Any new construction, existing site, new utilities, existing building renovation, roof repairs and/or removal and replacement, additions, alteration, repair, installation, construction quality control and material testing services, painting, decorating, demolition, conditioning, reconditioning or improvement of public buildings, works, bridges, highways or roads authorized by the Department that requires professional study/design services as part of this Contract.

PROJECT COST: The total Project cost including, but not limited to, site purchase, site survey and investigation, hazardous material abatement, construction, site development, new utilities, telecommunications (voice and data), professional fees, construction quality control and material testing services, testing and balancing services, furnishings, equipment, plan(s)/drawing(s) design code compliance and plan review approval fees and all other costs associated with the Project.

PROJECT DIRECTOR: The professional licensed employee of the Department who is responsible for directing and supervising the Professional's services during the life of this Contract. The Project Director, or their Department Field Representative, has the authority to require the Professional to respond to and resolve study/design related problems, construction field problems and to attend Project related meetings.

PROJECT/PROGRAM STATEMENT: The Project/Program Statement is provided by the Department and defines the scope of the problem, describes why this Project is desirable, and provides a preferred resolution of the problem.

PROJECT TEAM: The Professional, the Project Director/Agency Project Manager, Department Field Representative, a representative of the State/Client Agency, and others as considered appropriate by the Department.

PUNCH LIST: A list of minor construction Project items to be completed or corrected by the Construction Contractor, any one of which do not materially impair the use of the Project work, or the portion of the Project work inspected, for its intended purpose. A Punch List shall be prepared by the Professional upon having made a determination that the Project work, or a portion of the Project construction work inspected, in concert with the Professional, the Construction Contractor, the Department, the Project Director/Agency Project Manager and their Department Field Representative, and any construction manager, is substantially complete and shall be attached to the respective DTMB-0455, Certificate of Substantial Completion form. This standard document form is a part of the "DTMB-0460, Project Procedures" documents package.

SOIL EROSION AND SEDIMENTATION CONTROL: The planning, design and installation of appropriate Best Management Practices (as defined by the most current version of the Department's Soil Erosion and Sedimentation Control Guidebook) designed and engineered specifically to reduce or eliminate the off-site migration of soils via water runoff, wind, vehicle tracking, etc. and comply with the Soil Erosion and Sedimentation Control in the State of Michigan as regulated under the 1994 Public Act 451, as amended – The Natural Resources Environmental Protection Act, Part 91 – Soil Erosion and Sedimentation Control. Soil Erosion and Sedimentation Control associated with this Contract will be monitored and enforced by the Department of Technology, Management and Budget, State Facilities Administration, Soil Erosion and Sedimentation Control Program.

STATE: The State of Michigan in its governmental capacity, including its departments, agencies, boards, commissions, officers, employees, and agents. Non-capitalized references to a state refer to a state other than the State of Michigan.

STATE/CLIENT AGENCY: A Department of the State of Michigan, for whose use the Project will ultimately serve, which requires professional design services.

SUBSTANTIAL COMPLETION: The form (DTMB-0445) stating that the Project work, or a portion of the Project work eligible for separate Substantial Completion, has been completed in accordance with the design intent of the Professional's Contract Documents to the extent that the Department and the State/Client Agency can use or occupy the entire Project work, or the designated portion of the Project work, for the use intended without any outstanding, concurrent work at the Project work site, except as may be required to complete or correct the Project work Punch List items.

SUSTAINABLE DESIGN: The Professional's use of a balance of appropriate materials, products and design methods that reduce the impact to the natural ecosystems and be within the Budget constraints of the Project. Sustainable Design shall be used wherever possible by the Professional in their Project design and an itemized list shall be provided with the Professional's Contract Documents that identifies the processes and products.

TASK: Shall mean the following: (1) A quantifiable component of design related professional study/design Task services required to achieve a Phase of the Project; (2) The most manageable sub-element within a study/design Phase; (3) A unique item of work within a study/design Phase for which primary responsibility can be assigned; and (4) Has a time related duration and a cost that can be estimated within a study, design, and construction Phase.

ARTICLE XIV
COMPLETE AGREEMENT / MODIFICATION

This Professional Services Contract constitutes the entire agreement as to the Project between the parties. Any Contract Modification of this Contract and the Project/Program Statement scope of work requirements must be in writing, signed by duly authorized representatives of the parties, and shall be in such format and detail as the State may require. No Contract Modification may be entered into to compensate the Professional for correcting, or for responding to claims or litigation for the Professional firm's final design Contract Documents/study/design errors, omissions or neglect on the part of the Professional.

APPENDIX 1

PROJECT/PROGRAM STATEMENT

APPENDIX 2

PROFESSIONAL'S PROPOSAL

APPENDIX 3

PROFESSIONAL CERTIFICATION FORMS

APPENDIX 4

OVERHEAD ITEMS ALLOWED FOR THE PROFESSIONAL SERVICES CONTRACTOR FIRM'S HOURLY BILLING RATE CALCULATION

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APPENDIX 5

CERTIFICATES OF INSURANCE

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design and Construction Division

REQUEST FOR PROPOSAL
ADDENDUM NO. 01

This form identifies an Addendum to a Request for Proposal for Professional Services, and incorporates interpretations or clarifications, modifications, and other information into the Request for Proposals. Addenda will be numbered by the Project Director and distributed through SIGMA Vendor VSS as an attachment.

TO: ALL PROPOSERS	DATE ISSUED December 7, 2022
PROJECT NAME 2023 Environmental Services ISID	FILE NUMBER N/A
PROJECT DIRECTOR Indumathy Jayamani	PROPOSAL DUE DATE: Thursday, January 12, 2023

ADDENDUM ITEMS: (attach additional sheets and drawings if required)

This addendum is to clarify the date for questions.

Questions are to be emailed to Indumathy Jayamani at jaymanii1@michigan.gov, no later 2:00 p.m., EASTERN than on Friday, December 16, 2022

APPROVED BY:

PROJECT DIRECTOR Indumathy Jayamani

DATE December 6, 2022

STATE OF MICHIGAN

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
3111 W. St. Joseph Street
Lansing, Michigan 48917

ADDENDUM NO. 2

To: **All applicants and interested parties** Date: December 21, 2022

Subject: **Department of Technology, Management and Budget (DTMB)**
2023 Environmental Remediation ISID RFP
Professional Environmental Consulting Services
Various Locations, Michigan
Request for Proposal

Please acknowledge receipt of this Addendum in your proposal.

Questions and Answers:

The following questions have been compiled to clarify answers to questions regarding portions of the RFP package:

Q1. Please confirm only one sample 1-week period of field activity logs and a sample weekly report must be provided with the proposal and not under each scope area.

A1. Confirmed.

Q2. Based on the RFP text that Section II-4 is “not required at this time.” Please confirm DTMB is not expecting the consultant to provide an outline or any response to this requirement in the proposal at this time and it will only be “required at the time of future assignments”?

A2. Confirmed.

Q3. Please confirm which format is required for a proposal response: A) Only one questionnaire is required for the entire submission with the appropriate scope categories checked, regions checked, and applicable references/personnel for each desired scope; or B) A questionnaire is required for each scope category checked with applicable references/personnel for that desired scope (understanding there likely will be repetition across multiple questionnaires from a single company)?

A3. Only one questionnaire is required for the submission.

Q4. Please confirm whether or not a standalone document addressing Sections II-1 through II-6 of the RFP is required with the Questionnaire as part of this document (II-5) OR can just the Qualifications Questionnaire be submitted as the primary headings of Sections II-1 through II-6 are addressed within the Questionnaire?

A4. Yes, a written narrative addressing Section II-1 through Section II-6 (Section II-4 is for reference only, see A2), must accompany the questionnaire.

Q5. The RFP asks the respondent to provide "…at least three (3) projects in the last five years closely related to each of the project types". Is it acceptable for the respondent to provide a project example(s) that was completed while under the employ of another company?

A5. No, the project's provided as example should have been completed by the company responding to the RFP.

Q6. The Questionnaire and Proposal Format Part I – Technical, appear redundant. The RFP includes, "NOTE: Any information provided in one location can be referenced as needed in other locations." Please confirm that statements such as, "Refer to Questionnaire Response 5.1." or "Refer to Proposal Response II-4." is sufficient if a response is provided in one of the two documents. Or is the format intentionally redundant and EGLE requires a response in both locations, with a more expansive response provided in the proposal response narrative?

A6. For any information that is already provided in the questionnaire, referring that information is sufficient.

Q7. The billing rate document example provided as II-2-A. Position, Classification and Employee Billing Rate Information is similar, but differs from the MS Word document 2023 Environmental Fillable Position Class Billing Rate Worksheet (rev 221205). Please confirm the MS Word document is the format to include in the submittal.

A7. Confirmed.

Q8. Will EGLE include a list of sites and project types that will be included in the ISID contract in Year 1?

A8. No.

Q9. Is there a limit or targeted number of vendors the Department/Advisory Committee will offer a contract?

A9. No.

Q10. May respondents modify the 2023 Environmental Questionnaire to include additional project reference information (i.e., Project 4 Reference Information, Project 5 Reference Information)?

A10. Yes.

Q11. Page 9 of the proposal states, “The following items B, C, and D will be required only at the time a proposal for an individual assigned project is requested.”; however, the statement is followed by bulleted items A, B, C. Please clarify.

A11. Typo noted. The Bullets should have been named B, C, and D.

Q12. Section I-9 of the RFP (“Proposals”) states “when uploading, your attachment(s) the attachment must be 6mb or less.” Can a bidder’s proposal consist of more than one attachment, each being less then 6mb?

A12. Yes.

Q13. RFP, Section II, Part 1 Technical; Section II-3 Personnel. Please provide further detail regarding what is meant by chronological.

A13. Resumes of all proposed Key Personnel should include the period the experience occurred.

Q14. RFP, Section II, Part 1 Technical; II-5 Questionnaire? Please clarify what is meant by “narrative addressing the items above”.

A14. See A4.

Q15. Questionnaire, Article 1, subsections 3, requests an organization chart depicting key personnel and their roles for a typical assigned project. The projects under this contract are anticipated to include a wide range of scopes and required skill sets. Please provide additional detail on what constitutes a typical assigned project for use in developing the requested organizational chart.

A15. The organizational chart should note the Key Personnel and staff needed for the project types and services identified in the questionnaire.

Q16. Questionnaire, Article 1, subsections 5, states “provide a four-year rate schedule per position”. What is being asked for here? Is this different from II-2-A Position, Classification and Employee Billing Rate Information?

A16. The same information is being requested in both places.

Q17. Page 6 of the RFP states “when entering the proposal amount, please enter the total cost amount as $1.00”, but the Project Statement states, “please enter the total cost for all phases as the bid amount.” Which method is preferred?

A17. Discrepancy noted. Please enter the bid amount as “$1.00” as stated in the RFP.

Q18. In section II-2 of the RFP (page 6) states that the bidder should “Indicate which of these individuals you consider to be “Key Personnel” for the successful completion of these project types, identify them by position and classification and provide their resumes.” Should resumes only be included for individuals that meet the “Professional Key Personnel” criteria in the “Guidelines for Position Classifications” or can we include resumes for personnel we consider key, but may be considered non-key in the position classification criteria?

A18. Yes.

Q19. Section II of the RFP (proposal format) states that the proposal must be submitted in the format outlined. However, in subsection II-4 “Management Summary, Work Plan, and Schedule,” it is noted that this section is for reference only. May we omit this section heading from our proposal?

A19. See A2.

Q20. Question 4 in Article 1 of the questionnaire asks about recent changes in organizational structure (e.g., management team) or control of your company. Please define recent.

A20. Any changes within the past 12 months.

Q21. Several of the questionnaire questions, especially in Article 5, appear to request a singular number answer (as a percentage or number of days/weeks). We believe it may be helpful to provide more context for several of these questions. Will that type of response be accepted, or shall we limit our response to the singular, numerical answer only?

A21. At a minimum the percentage is required.

Q22. Article 6 of the questionnaire includes 5 Key Personnel. Should these include only the “Level 4” key personnel as described in the Guidelines for Position Classification or all Level 3 and Level 4 Key Personnel. If the latter, may we add an attachment for additional Key Personnel beyond the 5 spaces included in the questionnaire?

A22. See A18. Additional spaces can be added as needed.

Q23. In Article 6 of the questionnaire, questions 6.3 and 6.4 refer to the Professional Project Manager. Can you define “Professional Project Manager.” Can this be more than one person?

A23. Please refer to the Guidelines for Position Classifications. Yes, Project Manager, can be more than one person.

Q24. The RFP asks in II-2 for an “Outline your experience with similar projects, sites, and clients as examples.” The ask for similar project descriptions is repeated in II-6 and in Article 8 of the questionnaire. Is there a preference for which section includes the project examples?

A24. Responses are required for both parts. Also, see A6.

Q25. Page 6 of the Scope of Work document indicates that the Professional shall arrange for all its employees that will be working on a contaminated site to attend a health and safety training course, and/or a personnel protection course. Can you specifically identify which safety training courses are required?

A25. The professional, needs to identify all training required by State and Federal laws for personal working on a particular site type, and ensure that their employees working on that project/site have the necessary training.

Q26. RFP Page 8 and 12, Table II-2-A: Do we input employee names on this table? And classification (from “Guidelines for Position Classifications”)?

A26. Yes.

Q27. Under Article 8 of the Questionnaire, is it expected we provide three references overall that encompass all the service areas we select or three references per service area.

A27. Please ensure you provide a minimum of three references per service area.

Q28. Please clarify the preference provisions for Michigan-based firms. Preference is not stated in the RFP document, but it is stated in the Scope of Work, and a certification form is attached to the RFP. If there is a preference, how is it applied?

A28. None.

Q29. Are there any preference provisions for Small Business Enterprises or Disadvantaged Business Enterprises?

A29. None.

Q30. The RFP states that “The ISID contracts will supplement, but not replace, standard requests for proposals or qualifications as a method for obtaining professional services.” Please clarify how this contract will be used to supplement other methods for obtaining professional services.

A30. ISID contract is a standalone method in addition to the standard request for proposal process.

Q31. The RFP states that “DCD reserves the option of requesting …proposals from more than one professional for a particular project.” Please clarify the conditions, metrics or process for how the DCD decides whether to ask multiple ISID contract-holders to submit proposals for the same project.

A31. This will be decided on a case-by-case basis.

Q32. Are any terms of this (sample) contract negotiable, including, but not limited to, subjects of Indemnification, defend and hold harmless, and limitation of liability?

A32. No.

Q33. The scope of work states “The Professional’s personnel and the personnel of its sub-consultants/subcontractors will be required, if requested by the Agency Project Manager on behalf of EGLE's attorneys, to provide assistance to the State in the form of participation in legal actions against alleged responsible parties… including the preparation and execution of interrogatories, affidavits, and testimony as a fact witness… “The State will reimburse the Professional for such assistance as described above at the contractually approved rates for the Professional’s personnel at the time services are required.” May respondents submit classification-based labor rates for litigation support with the schedule of Position, Classification, and Employee Billing Rate Information, to be approved in the contract? And similarly, for Expert Witness Fees?

A33. The hourly billing rates for these types of services can be included.

Q34. Are subcontractors bound to contract rates (provided in the rate sheet)?

A34. No.

Q35. Can a sub (contractor) do lumpsum on the task orders?

A35. Payment of subcontractors is determined between the contractor and subcontractor.

Q36. Experience (questionnaire) – Do project examples need to be Michigan-specific (extra points?) or countrywide?

A36. Can be either.

Q37. Personnel (questionnaire) - Michigan based personnel required or given extra points?

A37. No.

Q38. Do sub-consultants need to complete the Environmental questionnaire?

A38. No.

APPENDIX 2

PROFESSIONAL'S PROPOSAL

2023 Environmental ISID

Michigan Department of Technology, Management and Budget

January 12, 2023

fishbeck

Engineers | Architects | Scientists | Constructors

R 08/20

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Certification of a Michigan Based Business

(Information Required Prior to Contract Award for Application
of State Preference/Reciprocity Provisions)

To qualify as a Michigan business:

Vendor must have, during the 12 months immediately preceding this bid deadline:
or
If the business is newly established, for the period the business has been in existence, it has:

(Check all that apply):

☐ Filed a Michigan single business tax return showing a portion, or all the income tax base allocated or apportioned to the State of Michigan pursuant to the Michigan Single Business Tax Act, 1975 PA 228, MCL • ˜208.1 – 208.145: or

☐ Filed a Michigan income tax return showing income generated in or attributed to the State of Michigan; or

☒ Withheld Michigan income tax from compensation paid to the bidder's owners and remitted the tax to the Department of Treasury; or

I certify that **I have personal knowledge** of such filing or withholding, that it was more than a nominal filing for the purpose of gaining the status of a Michigan business, and that it indicates a significant business presence in the state, considering the size of the business and the nature of its activities.

I authorize the Michigan Department of Treasury to verify that the business has or has not met the criteria for a Michigan business indicated above and to disclose the verifying information to the procuring agency.

Bidder shall also indicate one of the following:

☒ Bidder qualifies as a Michigan business (provide zip code: 49546)

☐ Bidder does not qualify as a Michigan business (provide name of State: _____).

☐ Principal place of business is outside the State of Michigan, however service/commodity provided by a location within the State of Michigan (provide zip code: _____)

R 08/20

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Bidder: Fishbeck

Aaron R. Steele, CPA
Authorized Agent Name (print or type)

Authorized Agent Signature & Date

Fraudulent Certification as a Michigan business is prohibited by MCL 18.1268 § 268. A BUSINESS THAT PURPOSELY OR WILLFULLY SUBMITS A FALSE CERTIFICATION THAT IT IS A MICHIGAN BUSINESS OR FALSELY INDICATES THE STATE IN WHICH IT HAS ITS PRINCIPAL PLACE OF BUSINESS IS GUILTY OF A FELONY, PUNISHABLE BY A FINE OF NOT LESS THAN $25,000 and subject to debarment under MCL 18.264.

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

Responsibility Certification

The bidder certifies to the best of its knowledge and belief that, within the past three (3) years, the bidder, an officer of the bidder, or an owner of a 25% or greater interest in the bidder:

(a) Has not been convicted of a criminal offense incident to the application for or performance of a contract or subcontract with the State of Michigan or any of its agencies, authorities, boards, commissions, or departments.

(b) Has not had a felony conviction in any state (including the State of Michigan).

(c) Has not been convicted of a criminal offense which negatively reflects on the bidder's business integrity, including but not limited to, embezzlement, theft, forgery, bribery, falsification, or destruction of records, receiving stolen property, negligent misrepresentation, price-fixing, bid rigging, or a violation of state or federal anti-trust statutes.

(d) Has not had a loss or suspension of a license or the right to do business or practice a profession, the loss or suspension of which indicates dishonesty, a lack of integrity, or a failure or refusal to perform in accordance with the ethical standards of the business or profession in question.

(e) Has not been terminated for cause by the Owner.

(f) Has not failed to pay any federal, state, or local taxes.

(g) Has not failed to comply with all requirements for foreign corporations.

(h) Has not been debarred from participation in the bid process pursuant to Section 264 of 1984 PA 431, as amended, MCL 18.1264, or debarred or suspended from consideration for award of contracts by any other State or any federal Agency.

(i) Has not been convicted of a criminal offense or other violation of other state or federal law, as determined by a court of competent jurisdiction or an administrative proceeding, which in the opinion of DTMB indicates that the bidder is unable to perform responsibly or which reflects a lack of integrity that could negatively impact or reflect upon the State of Michigan, including but not limited to, any of the following offenses under or violations of:

   i. The Natural Resources and Environmental Protection Act, 1994 PA 451, MCL 324.101 to 324.90106.
   ii. A persistent and knowing violation of the Michigan Consumer Protection Act, 1976 PA 331, MCL 445.901 to 445.922.

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State Facilities Administration
Design & Construction Division

iii. 1965 PA 166, MCL 408.551 to 408.558 (law relating to prevailing wages on state projects) and a finding that the bidder failed to pay the wages and/or fringe benefits due within the period required.

iv. Repeated or flagrant violations of 1978 PA 390 MCL 408.471 to 408.490 (law relating to payment of wages and fringe benefits).

v. A willful or persistent violation of the Michigan Occupational Health and Safety Act, 1974, PA 154, MCL 408.10001 to 408.1094, including: a criminal conviction, repeated willful violations that are final orders, repeated violations that are final orders, and failure to abate notices that are final orders.

vi. A violation of federal or state civil rights, equal rights, or non-discrimination laws, rules, or regulations.

vii. Been found in contempt of court by a Federal Court of Appeals for failure to correct an unfair labor practice as prohibited by Section 8 of Chapter 372 of the National Labor Relations Act, 29 U. s. C. 158 (1980 PA 278, as amended, MCL 423.321 et seq).

(j) Is NOT an Iran linked business as defined in MCL 129.312.

I understand that a false statement, misrepresentation, or concealment of material facts on this certification may be grounds for rejection of this proposal or termination of the award and may be grounds for debarment.

Bidder: Fishbeck

Aaron R. Steele, CPA
Authorized Agent Name (print or type)

Authorized Agent Signature & Date

☐ I am unable to certify to the above statements. My explanation is attached.

DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
State Facilities Administration
Design & Construction Division

ACKNOWLEDGMENT OF ADDENDUMS

PSC acknowledges receipt of Addenda: No. 1 dated: 12/7/2022,

No. 2 dated: 12/21/2022 No. ___ dated: _____

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Part I – Technical

General Information and Project Team

Fishbeck is a professional architectural/engineering, civil engineering, environmental, and construction services consulting firm that serves governmental, educational, healthcare, commercial, industrial, and private clients. Our range of services and integrated project approach provides our clients with specifically suited, innovative designs. We are committed to delivering exceptional service, outstanding technical quality, and establishing long-term client relationships.

Our projects range from small feasibility, planning, and regulatory studies to very large design and construction projects. The environmental division is a mix of environmental engineers, chemists, biologists, chemical engineers, air quality experts, compliance/regulatory specialists, geologists, hydrogeologists, certified safety professionals, and wetland experts. Our architectural/engineering division has complete building design capabilities with architects and structural, mechanical, and electrical engineers. Our civil engineering division consists of experienced civil engineers, surveyors, stormwater/drainage experts, and landscape architects. Our construction division offers construction management and design/build services.

Company Type
Employee-owned Corporation

Established
1956

Total Personnel
575+

SIGMA Vendor Number
CV0021627

Website
www.fishbeck.com

Fishbeck is a corporation licensed to operate and practice in the State of Michigan. We are a legal entity permitted by law to sign and seal final design construction contract documents, and licensed under Michigan's professional licensing and regulation provisions of the Occupational Code (State Licensing Law), Act 299 of the Public Acts of 1980, Article 20, as amended, to practice architecture, engineering, environmental engineering, and land surveying services in the State of Michigan.

Locations

MICHIGAN

Grand Rapids (Headquarters) | 1515 Arboretum Drive, SE, Grand Rapids, MI 49546 | 616.575.3824
Ann Arbor | 2001 Commonwealth Boulevard, Suite 200, Ann Arbor, MI 48105 | 734.864.7700
Canton | 44978 Ford Road, Suite A, Canton, MI 48187 | 734.454.7566
Detroit | 1001 Woodward Avenue, Suite 860, Detroit, MI 48226 | 313.293.3550
Kalamazoo | 4775 Campus Drive, Kalamazoo, MI 49008 | 269.375.3824
Kalamazoo East | 2960 Interstate Pkwy, Kalamazoo, MI 49048 | 269.342.1100
Lansing | 5913 Executive Drive, Suite 100. Lansing, MI 48911 | 517.882.0383
Macomb | 45200 Card Road, Suite 128, Macomb Township, MI 48044 | 586.412.1406
Novi | 39500 MacKenzie Drive, Suite 100, Novi, MI 48377 | 248.324.2090
Traverse City | 821 South Elmwood Avenue, Unit D, Traverse City, MI 49684 | 231.714.9060

OHIO

Cincinnati | 10856 Reed Hartman Hwy, Suite 175, Cincinnati, OH 45242 | 513.469.2370
Columbus | One East Campus View Boulevard, Columbus, OH 43235 | 614.363.1001
Dayton | 7887 Washington Village Drive, Suite 135, Dayton, OH 45459 | 937.291.9092
Toledo | 28366 Kensington Lane, Suite 3, Perrysburg, OH 43551 | 419.841.4704

INDIANA

Indianapolis | 8520 Allison Pointe Boulevard, Suite 100, Indianapolis, IN 46250 | 317.577.9050

Project Team

Fishbeck is submitting this proposal as the lead professional to assist with all potential tasks, as specified in the request for proposal (RFP). Our expertise includes, but is not limited to, regulatory knowledge, remedial investigation (RI), feasibility studies (FS), risk-based-corrective-action (RBCA), remedial design and implementation, bid specifications, construction oversight, community relations needs assessments, and environmental media monitoring. Fishbeck has subcontractor agreements in place to assist with the completion of environmental drilling, laboratory services, waste disposal, and geophysical studies.

Understanding of Projects and Tasks

Fishbeck has extensive experience with completing remedial investigations (RIs), feasibility studies (FSs), remedial design services, and other related tasks as described in the RFP. We have a positive history of working successfully with numerous government and institutional clients including, but not limited to, the MDTMB; Michigan Department of Transportation (MDOT); Michigan Environment, Great Lakes, and Energy (EGLE); Michigan Department of Natural Resources (MDNR); and many state institutions of higher education. Our goal with each project is to provide a work product and recommendations that are in the best interest of the State and provide the best value for the available budget.

As documented in the Professional Questionnaire, our staff is well versed in both State of Michigan and federal environmental regulations and programs and has abundant experience working under Parts 111, 211, 201, and 213 of NREPA, 1994, PA 451, as amended; as well as Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA).

We understand the MDTMB is seeking to select a professional firm who can complete the following activities:

- RIs
- FSs
- RBCAs
- Design
- Bid specifications
- Construction oversight or management services
- Community relations
- Natural resource damages assessments
- Groundwater monitoring
- Remedial actions
- Geophysical studies
- Hydrogeological investigations
- Sampling and analysis of hazardous materials and containers
- Other environmental media sampling – soil, sediment, flora, fauna, water, and air samples
- Evaluation of sample data
- Evaluation and development of disposal and remedial alternatives
- Preparation of environmental impact statements
- Remediation system operation and maintenance (O&M)
- Underground storage tank (UST) removal/closure
- Assessing potential uncontrolled hazardous materials sites
- Construction oversight
- Database development and management
- Groundwater sampling and laboratory quality assurance/quality control (QA/QC)
- Provide enforcement support, such as documentation of facts and information about a site and expert testimony during enforcement procedures.
- Provide other program development and management assistance for the state departments/agencies: review of plans, drawings, specifications, proposals, technical reports and other work products associated with a hazardous substance site where a release has occurred or is likely to occur; the assessment of environmental and public health risks; record searches, historical reviews; research on technical issues; and personnel training.

As detailed in the Professional Questionnaire and resumes of key personnel, our project team has completed all aforementioned activities through the tenure of the firm.

Furthermore, our staff routinely works with government and institutional clients and assists them through all phases of design and construction services. We have abundant experience completing all levels of remediation system design from schematics and preliminary designs to final designs. As part of this process, we coordinate all of our efforts with the state/client agency in accordance with the project contract. We execute project tasks paying particular attention to scheduling and project budget constraints. We routinely analyze and document information on behalf of our state/client agency and make professional recommendations.

Upon completing a final design, which meets the project goals and the approval of the state/client agency, Fishbeck routinely completes both office and field construction administration services. We have assisted the state/client agency through the preparation of bidding documents, review and recommendations, completed oversight, claims analysis, constructability review, and errors and omissions analysis. We understand that in such a capacity we are an extension of the state/client agency and responsible for keeping projects on schedule and within budget.

We have read and agree to comply with all aspects of the 2023 Environmental ISID. We will abide by the cost and compensation section of the RFP, provide the required deliverables in accordance with a pre-approved project schedule, submit invoices as per the terms of the contract, and follow the terms of the equipment and supply purchase and rental procedures.

We are confident that our professionalism and experience will provide unsurpassed services to the various state agencies we may work with. Moreover, with nine office locations in Michigan, we are well positioned to assist with project work throughout the state.

Personnel

Fishbeck realizes the importance of evaluating and assigning appropriate members of our staff to each project. The team of professionals we assemble is uniquely qualified to provide the full range of professional services necessary and is available to commit the time needed to see the project through. The team assigned to your project will be supplemented by additional members of our technical and clerical support staff of over 575 to ensure schedules are met efficiently and effectively.

- The program manager is responsible for the overall implementation of the ISID master contract and ISID contract assignments. The program manager ensuring that all work in performed in accordance with the ISID contract requirements and will communicate with MDTMB and EGLE, as needed. The program manager will also ensure that Fishbeck and ISID contract health and safety and quality control/quality assurance (QA/QC) processes are followed. The program manager will work with all program managers and EGLE to verify that adequate and appropriate resources and expertise are available for each ISID contract assignment, so that each project can be successfully performed efficiently and with high quality.
- Project managers will be responsible for project scoping and work plan development with EGLE, to define project objectives and scope for each contract assignment. The project manager will be responsible for day-to-day project activities, budget tracking, and project progress. The project manager will also be responsible for project QA/QC and health and safety, and will work with program QA/QC and health and safety personnel, respectively. The project manager will the primary point of contact for the client, and will be responsible for identification and coordinate of project personnel and subcontractors.
- Professional staff will be selected for each contract assignments dependent on project scope, complexity, and objectives. Considerations for project team selection includes, but will not be limited to, staff expertise, experience, workload, and location. Professional staff will be responsible for the execution of assigned project tasks pursuant to the project work plan.

Resumes for key staff members have been included for your review and an organizational chart is included on the following page. The organization chart also reflect the general communications lines, which will be more specifically defined for each contract assignment. Please reference the matrix at the end of this section for individual key personnel experience and physical location during the performance of this contract. All key personnel are direct employees of Fishbeck. Personnel positions and classifications are provided on the Position, Classification, and Employee Billing Rate Information table in Part II – Cost.

Organizational Chart

MDTMB/EGLE

Program Manager
Alisa Lindsay, PE*

Corporate Health & Safety Manager
Cody Green

Project Managers
David Bohan
Chris Carew*
Courtney Dunaj*
Rick Dunkin, CPG, LPG*
Paul French*
Bruce Gillett, CPG*
Derrick Lingle, CPG*
Adam Near, CPG*
Erik Peterson*
Mike Ranck, PG*
David Stegink*
Elise Hansen Tripp, PWS*
Jess Watterson*
Chad Weber, PE*
Fernanda Wilson, PhD*
Roman Wilson*

Principal-in-Charge
Kerri Miller, PE, LEED AP*

QA/QC
Peter Lepczyk, CPG*
Penni Mahler*
David Warwick*
Chad Weber, PE*

Professional Staff
Jacob Abair
Mike Apgar*
Brenda Bailey
Tony Bartol, PS
Nick Battjes
Michelle Bell
Aaron Bigler*
Tom Budge, CHMM*
Todd Campbell, CPG*
Therese Cotter
Zachary Curry*
Ali Dahlbacka*
Alex Frye
Dawn Grates
Bryana Guevara
Stephanie Hanes
Bailey Hannah
Audrey Havens
Jeffrey Hawkins
Joel Henry
Melissa Hunter
Leanne Jeannot
Alan Jennings
Kyle Knaub
Ryan Krozek
Justin Levande
Hailey Lyczynski
Liz Marsh, PE, CHMM
Logan Maser
Logan Mulholland
Brian McKissen, PE, CFM
Marley McVey
Kyle Murray, PhD
Ryan Musch, PE*
Alyssa Olson
Kirk Perschbacher*
Brad Peuler, CPG*
Cheryl Pitchford
Kayla Rooney*
Alex Sackett
Mahta Naziri Saeed
Madison Schrader
Josh Schroedter
Andrew Schwallier*
Claire Schwartz, PE
Therese Searles*
Shelbey Senkewitz
Regina Shettler
Lynn Spurr
Nicole Stewart
Alex Struble
Judy Van Putten
Ryohei Wakabayashi
Robert Webster*
Susan Wenzlick
Brad Yocum*

SUBCONTRACTOR SUPPORT		
Laboratory Services	Risk Assessment	Geophysical
Drilling Services	Toxicology	Construction
Statistical Services	Utility Locate	Survey

STATE OF MICHIGAN LABORATORY

Key Personnel

ALISA LINDSAY, PE

SENIOR ENVIRONMENTAL ENGINEER

Alisa has expertise in Part 213 leaking USTs, Part 201 NREPA, and 1994 PA 451, as amended. She also provides technical support for work under Part 215 Underground Storage Tank Corrective Action Funding of NREPA and Brownfield Redevelopment Financing Act of 381 of 1996.

YEARS OF EXPERIENCE

2 years — Fishbeck

25 years — total

EDUCATION

BS in Civil and Environmental Engineering, University of Michigan

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer – Michigan

EGLE Storm Water Management – Construction Sites (A-1j)

EGLE Waste Treatment Plant Operator – Industrial and Commercial, A-2b, B-2c, B-3b

HAZWOPER Site Worker

TRAINING

Great Lakes PFAS Summit

Integration of Resiliency and Sustainability into Remedy Evaluation, Design, and O&M

ITRC Petroleum Vapor Intrusion Workshop

ASTM Risk-Based Corrective Action Applied at Petroleum Release Sites

EXPERIENCE

- Management and engineering experience in state government, environmental consulting, nuclear energy, and the automotive industry.
- Provide engineering review and consultation support to EGLE Remediation and Redevelopment Division personnel.
- Oversaw and managed all leaking UST sites in Kalamazoo and Van Buren Counties regulated under Part 213.
- Investigated over 45 properties through the Part 213 Statewide Expanded Triage program.
- Review Brownfield plans and provided technical support to Brownfield coordinators.
- Perform technical reviews ranging from proposals and sampling plans to construction specifications and institutional controls.
- Manage projects under EGLE's ISID environmental services contract.
- Develop and review specifications and bid documents (construction, performance, and demolition), status reports, pilot tests, remedial investigations, feasibility studies, remedial action plans, initial assessment reports, final assessment reports, closure reports, no further action reports, health and safety plans, SWP3, SPCC/PIPP, integrated contingency plans, data quality objectives, sampling and analysis plans, Phase I and II ESAs, BEAs, and documentation of due care compliance.
- Design treatment systems and remedial actions for sediment, soil, and groundwater remediation.
- Perform contractor oversight and project management.
- Oversee and perform treatment system operation and maintenance.
- Provide technical expertise for the use of incremental sampling methodology.

PRESENTATIONS/PUBLICATIONS

Co-presenter, Incremental Sampling Methodology – Evaluating Risk by Design: The Importance of Representative Sampling for Managing Environmental Risk, Michigan Environmental Compliance Conference, 2016 and 6th Annual AIPG Michigan Technical Workshop, 2016.

Co-presenter, Schipper's Crossing – Case Study: Incremental Sampling for a Former Small Arms Practice Range, Environmental Remediation and Risk Management Conference, 2015.

Lead author and presenter, Overview of Sediment Remediation of Tannery Waste Contamination in Tannery Bay, White Lake, Michigan, 20th Annual International Conference on Contaminated Soil, Sediment and Water, 2004.

KERRI MILLER, PE, LEED AP

SENIOR VICE PRESIDENT | PRINCIPAL

After starting as a civil engineer, Kerri has been instrumental to the growth and development of Fishbeck as one of ENR's Top 400 Engineering and Design Firms in the nation. Kerri's experience includes building site designs, utility master planning, stormwater planning, road and parking lot design, utility design, and sustainability planning. She has managed large site projects, major developments, and the infrastructure needs for numerous types of clients.

Becoming a Principal in 2014, Kerri leads the firm's Business Development Committee, strategic direction, and market growth. In 2016, Kerri was named one of the 50 Most Influential Women in Grand Rapids by *GRBJ* and a Tribute Award winner by the YWCA West Central Michigan.

YEARS OF EXPERIENCE

23 years — Fishbeck
25 years — total

EDUCATION

BS in Civil Engineering,
Michigan State University

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer – Michigan

LEED Accredited Professional

MEMBERSHIPS

American Society of Civil Engineers

Society of American Military Engineers

Society for College and University Planning

International Council of Shopping Centers

US Green Building Council/ West Michigan Chapter

EXPERIENCE

- Oversees all Environmental Department staff as the Principal-in-Charge.
- Performs quality assurance/quality control reviews.
- Provides firm oversight ensuring projects are delivered to the highest standards.
- Over 25 years' experience in civil engineering and site design, including site utilities, grading plans, stormwater management plans, permits, LEED documentation, construction administration.
- Worked to include sustainable site plans and features, such as rain gardens, green roof surfaces, porous concrete sidewalks, porous asphalt parking lots, native plantings, swales, and underground retention within storm sewer pipes.
- Created stormwater master plans, including analysis of systems and hydraulic modeling, evaluations of potential improvements, and recommendations of alternatives.
- Design of new stormwater drainage systems, which included evaluating design alternatives and concepts, stormwater sizing and layout, reestablishing existing slope failures, coordinating with EGLE and clients, preparation of contract documents, and construction oversight.
- Streetscape design including sidewalks, street lighting, landscaping, and irrigation. Required coordination with MDOT and local authorities.
- Completed several USDA Rural Development funded projects that included water main replacements, site layouts for well houses and elevated storage tanks, sanitary sewers, pump houses, and force mains.
- LEED consulting and third-party reviews.

PETER LEPCZYK, CPG

VICE PRESIDENT | SENIOR HYDROGEOLOGIST

Peter is the GeoSciences/Remediation Department Director. Peter focuses on hydrogeological and remedial investigations, design of conceptual site models, feasibility studies, groundwater flow and fate and transport models, and remedial designs. He has attained an abundance of experience in the environmental field, office, and laboratory, including project management, budget tracking, work plan preparation, conducting remedial investigations, analyzing and interpreting environmental data, conducting and analyzing aquifer tests, directing day to day field activities, overseeing support staff, and authoring various client and regulatory reports. He has managed projects impacted with a variety of compounds of concern under state authority, RCRA, and CERCLA.

YEARS OF EXPERIENCE

12 years — Fishbeck

23 years — total

EDUCATION

MS in Environmental Geosciences, Michigan State University

BS in Geology, Hope College

REGISTRATIONS/ CERTIFICATIONS

Certified Professional Geologist – American Institute of Professional Geologists

HAZWOPER Site Worker, Site Manager, and Supervisor Training

Confined Space Entry Training

FEMA ICS-100 Introduction to Incident Command System (ICS)

FEMA ICS-200 ICS for Single Resources and Initial Action Incidents

MEMBERSHIPS

American Institute of Professional Geologists

National Groundwater Association

TRAINING

EGLE – Environmental Remediation and Risk Management Conference, 2015

EXPERIENCE

- Oversees Fishbeck's portfolio of twelve significant environmental projects managed for an industrial client with legacy sites across the United States. Actively manages four of the projects in California (two), Michigan, and Virginia involving investigations and remedial activities of various environmental media and contaminants of concern.
- Manages MDOT's Preliminary Site Investigation program for Fishbeck.
- Designed remedial investigations to characterize the nature and extent of various contaminants of concern (e.g., chlorinated solvents, non-aqueous phase liquids, metals, volatile and semi-volatile organic compounds, polychlorinated biphenyls, cyanide, per- and poly-fluoroalkyl substances, etc.) in all environmental media (e.g., soil, sediment, groundwater, vapor, and surface water).
- Performed traditional characterization methods, including drilling with direct push, hollow-stem auger, rotary, and roto-sonic drilling techniques; groundwater sampling with push ahead; drop screen; and temporary wells using various sample collection methods.
- Performed high-resolution site characterization techniques using a membrane interface, hydraulic profiling tool (MiHPT), and laser-induced fluorescence.
- Utilized advanced laboratory techniques to evaluate remediation performance and fate and transport of chemicals (e.g., compound specific isotope analysis, biological testing, magnetite analysis, etc.)
- Designed and implemented remedial actions, including excavations, soil capping, air sparging, soil vapor extraction, groundwater extraction and treatment, enhanced reductive dechlorination, monitored natural attenuation, *in situ* chemical oxidation, and *in situ* chemical reduction.
- Prepared analytical and numerical groundwater and chemical reactive fate and transport models.
- Authored and performed reviews of technical work (e.g., proposals, reports, presentations, and analysis).

PUBLICATIONS/PRESENTATIONS

Lepczyk, P., Colvin, M., and Green, D., "Development and Testing of Three Alternate CSMs: Things Are Not Always What They First Seem," Platform presentation at the Twelfth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Palm Springs, California, May 24, 2022.

Lepczyk, P., and Weber, C, "A Novel Approach to Characterize a Chlorinated Solvent Plume Beneath an Extensive Wetland System," Platform presentation at the Michigan AIPG 10th Annual Environmental Risk Management Workshop, June 16, 2021.

fishbeck

PENNI MAHLER

ENVIRONMENTAL DATA SPECIALIST

Penni's data management experience includes compiling and reviewing analytical data, both from laboratory and client perspectives. Her responsibilities include field data review, laboratory data review, data validation, maintaining Access databases, creating boring logs formatted for reports, creating and reviewing tables for reports, and creating figure data.

YEARS OF EXPERIENCE

8 years — Fishbeck
21 years — total

EDUCATION

BS in Geology with Geochemistry Focus, Michigan Technological University

EXPERIENCE

- 12 years of laboratory experience, which included preparation of all levels of analytical reports for all types of clients.
- Quality control reviewing of field data.
- Receiving, reviewing, and validating laboratory data.
- Reviewing and editing California State EDF files for upload to GeoTracker.
- Preparation and submittal of EPA EDD files.
- Preparation of tables, charts, and figure data for reporting purposes.
- Digitizing boring logs.
- Maintaining Access databases.

DAVID WARWICK

VICE PRESIDENT/SENIOR HYDROGEOLOGIST

David's experience is in environmental investigations of industrial, commercial, and municipal facilities including contaminant investigations, risk assessments, RBCA, and UST activities; due diligence/ESAs; solid waste characterizations; general environmental permitting including air quality permits; and environmental compliance audits.

YEARS OF EXPERIENCE

33 years — Fishbeck
36 years — total

EDUCATION

MS in Geology/
Emphasis on Hydrogeology,
Western Michigan University

BS in Geology,
Eastern Kentucky University

REGISTRATIONS/ CERTIFICATIONS

HAZWOPER Site Worker

Vapor Barrier Inspector,
Certified Land Science
Technologies, Inc.

MEMBERSHIPS

National Ground
Water Association

Michigan Association of
Environmental Professionals

Air & Waste Management
Association

American Institute
of Professional Geologists

EXPERIENCE

- Prepare remedial investigations and risk assessment protocols applied to varying contaminant situations including organics, metals, and PCBs; design and implement groundwater monitoring systems at industrial facilities and solid waste disposal areas to monitor site activities and/or investigate alleged contamination.
- Experience with Part 111 and 115 waste characterization and disposal, and RCRA Part B permit closures and closure assessments.
- Prepare hydrogeologic characterization of prospective landfill sites and groundwater monitoring at landfills.
- Perform Part 201 design and remedial investigation implementation, feasibility studies, response activity plans, remedial action plans, and generic and restricted residential and non-residential no further action designations.
- Complete vapor intrusion assessments and mitigation system design and operation.
- Prepare incremental sampling methodology work plan design and implementation.
- Develop and implement quality management plans.
- Develop and implement QAPPs to support USEPA-funded Brownfield assessment grants.
- Conduct Part 213 leaking UST investigations, remedial activities, and compliance report preparation.
- Perform ESAs and due diligence activities to establish property conditions for real estate transactions.
- Design and implement sampling programs for determining characteristics of solid waste for appropriate waste designation.
- Prepare groundwater/surface water discharge permit applications, air use permit applications, monitoring reports, and continued compliance reports (PIPP, SPCC).
- Complete environmental compliance audits to establish compliance status of industrial/commercial facilities with environmental regulations.
- Prepare statistical analyses of groundwater data and environmental quality data.
- Conducted State of Michigan air use permits to install developmental and compliance recordkeeping, and applied and implemented Rule 290 recordkeeping to industrial and remediation processes.

CHAD WEBER, PE

SENIOR ENVIRONMENTAL ENGINEER

Chad has extensive experience working on the assessment, cleanup, and redevelopment of contaminated sites for both private and government clients. He has expertise with Michigan's environmental regulations (e.g., Part 201, 213, 111), due care compliance evaluations, vapor intrusion assessment and mitigation, remedial design/construction, feasibility studies, operation and maintenance of remediation systems, decontamination/demolition, and management of risks posed by contamination encountered on construction/excavation projects.

YEARS OF EXPERIENCE

4 years — Fishbeck
29 years — total

EDUCATION

MS in Environmental Engineering, University of Michigan

BS in Civil Engineering, University of Michigan

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer – Michigan, Indiana, Kentucky

Certified Underground Storage Tank Professional

OSHA 40-hour HAZWOPER

MEMBERSHIPS

Association of Vapor Intrusion Professionals

EXPERIENCE

- Performed design, construction specifications, bidding, construction oversight, and O&M for remediation systems including soil vapor extraction, LNAPL recovery, in-situ chemical oxidation, in-situ thermal, enhanced reductive dechlorination, air sparging, direct contact exposure barrier, vapor intrusion mitigation systems, and contaminated soil excavation.
- Directed multiple high resolution site characterization (HRSC) investigations using laser-induced fluorescence (LIF), membrane interface probe/hydraulic profiling tool (MiHPT), and rotary sonic drilling approaches to improve the understanding of source mass distribution and allow for refinement of the conceptual site model.
- Performed environmental assessment and implemented mitigation/remediation activities to address due care obligations during construction of various public infrastructure and commercial/residential redevelopment projects.
- Designed and constructed passive and active (sub-slab/sub-membrane depressurization) mitigation systems to address vapor intrusion risks in numerous residential and commercial/industrial buildings.
- Prepared work plans and implemented incremental sampling methodology (ISM) approach to characterize exposure risks and determine disposal options for contaminated soils.
- Prepared construction specifications and assisted with the design of a thermal remediation system on behalf of EGLE/MDEQ utilizing resistive heating coupled with soil vapor extraction to treat a chlorinated solvent plume in a residential setting.
- Completed a detailed remedial investigation on behalf of EGLE/MDEQ at a former chemical plant to evaluate the integrity of a confining layer beneath a slurry wall containment system.
- Prepared a feasibility study on behalf of EGLE/MDEQ for remediation of a chlorinated solvent (PCE) plume at a superfund site located in central Michigan.
- Designed and implemented an enhanced reductive dechlorination/zero valent iron approach to treat a chlorinated solvent plume; project also involved RCRA permitting and inspection/maintenance of a waste pile cap to comply with permit requirements.

PUBLICATIONS

Lepczyk, P., and Weber, C., "A Novel Approach to Characterize a Chlorinated Solvents Plume Beneath an Extensive Wetland System" Poster presentation at the Twelfth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Palm Springs, California May 25, 2022.

Lepczyk, P., Weber, C., and Colvin, M., "High-Resolution Characterization of a Source Area and its Downgradient Plume to Optimize Full-Scale ERD Design" Poster presentation at the Twelfth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Palm Springs, California May 25, 2022.

fishbeck

CHRISTOPHER CAREW

SENIOR GEOLOGIST

Chris is a Project Manager in the GeoSciences/Remediation Department. His consulting and management experience is focused on contaminated sites regulated under the Michigan Part 201 Program, Superfund (CERCLA) sites, brownfield redevelopment, Phase II ESAs, and remedial investigations. He has extensive experience in investigative field methods for contaminated groundwater, surface water, soil, soil gas, and wastewater. Chris also has a variety of industrial hygiene experience, including includes OSHA exposure monitoring and indoor air quality assessments.

YEARS OF EXPERIENCE

16 years — Fishbeck
17 years — total

EDUCATION

BS in Geology,
Western Michigan University

REGISTRATIONS/ CERTIFICATIONS

Certified Asbestos Inspector – Michigan

Certified Industrial/Commercial Wastewater Operator

Industrial Carbon Absorption Certification

HAZWOPER Site Worker

Certified Asbestos Contractor/ Supervisor – Michigan, Florida

TAPPISAFE – Graphic Packaging

TAPPISAFE Basic Orientation

MEMBERSHIP

Kalamazoo County Brownfield Redevelopment Authority/ Economic Development

TRAINING

OSHA 10-hour Construction Awareness

Blood Borne Pathogens

NIOSH 582

EXPERIENCE

- Certified Operator (A-1g, A-2d) and project manager for groundwater remediation systems and groundwater discharge permits. Coordination of operations and maintenance, area wide groundwater monitoring, data analysis, and compliance reporting.
- Superfund/CERCLA site experience, including plume fate and transport analysis, groundwater attenuation analysis, groundwater/surface water monitoring programs, landfill cap inspections, institutional controls update, operation, and maintenance activities at source and surrounding areas.
- Remedial investigations and contaminated source area delineation using direct imaging MIHPT drilling methods. Managed indoor air sampling, sub-slab soil gas sampling, and completion of a pilot test for the installation of a sub-slab depressurization system.
- Comprehensive PFAS investigations of impacted groundwater, surface water, soil, and sludge. Pilot study for the *in-situ* sequestration of PFAS in soils and sludges in former infiltration lagoons.
- Technical reporting for CERCLA sites, conceptual site models (CSM) development, and response activity plans.
- Designed investigations to evaluate various geological (both unconsolidated and bedrock) and hydrogeological data including lithology and aquifer characteristics.
- Drilling oversight (Geoprobe, hollow-stem auger, rotosonic) during installation of production, monitoring, injection, soil gas, and SVE wells.
- *In-situ* enhanced anaerobic bioremediation of chlorinated solvent impacted groundwater using emulsified oil substrate.
- Direct injection of potassium permanganate used for *in-situ* chlorinated solvent remediation. Oversight of drilling activities during installation of the SVE system.
- Manages site investigations using incremental sampling methodology (ISM).
- Secured site assessment grant funding through the Kalamazoo County Brownfield Redevelopment Authority to complete due diligence activities.
- Oversight during drilling activities related to UST assessment investigations and closure activities.
- Aboveground storage tank and associated secondary containment inspections in compliance with SPCC plan. Oversees AST and vault inspections as confined space entry supervisor.
- Mann-Kendall data analysis of contaminate concentration trends over time.
- Hazardous building material inspection surveys for public schools, manufacturing facilities, universities, etc.
- NESHAP compliance inspections for pre-demolition.
- OSHA exposure monitoring and negative exposure assessments in manufacturing facilities; demolition and abatement oversight.

COURTNEY DUNAJ

HYDROGEOLOGIST

Courtney has experience in environmental due diligence, including Phase I and II ESAs, BEAs, and due care documents; hydrogeology; proposal development and client communications; and project management.

YEARS OF EXPERIENCE

1 year — Fishbeck
6 years — total

EDUCATION

BS in Hydrogeology and Environmental Studies, Western Michigan University

2016 Presidential Scholar for Geoscience Department

REGISTRATIONS/ CERTIFICATIONS

HAZWOPER Site Worker

MEMBERSHIPS

Michigan Association of Environmental Professionals

Women Among Women Networking Group

EXPERIENCE

- Conducted hundreds of Phase I ESAs for a variety of vacant, agricultural, residential, commercial, and industrial properties.
- Researched site-specific history, reviewed public government agency files and risk assessment of nearby properties, and inspected the property to identify any current or historical environmental risks.
- Perform project management for relevant projects and write Phase II ESA reports, BEAs, and due care documents.
- Review and edit ESA reports to maintain deadlines and high standards for report quality.
- Generate project proposals and guide clients through their unique due diligence needs.
- Prepared documents for Michigan and Indiana gasoline station sites including IARs, FARs, QMRs, exposure assessment evaluations, and closure reports.
- Performed aquifer characteristic evaluations, calculated site-specific parameters (hydraulic gradient, hydraulic conductivity, and groundwater velocity), and determined plume stability using Mann-Kendall Trend Tests for Michigan and Indiana sites.
- Evaluate and monitor hydrogeological data to support project decision-making (e.g., determining remediation techniques/corrective action plans, determining effectiveness of current corrective action plan, and site closure requests).
- Evaluated, implemented, and trained employees on soil boring log program, statistical analysis program, and groundwater modeling software.
- Develop soil boring logs and data tables to perform technical analysis of soil, groundwater, and soil-gas data.
- Experience with and understanding of ProUCL, Aqtesolv, Strater, Surfer, ArcGIS, AutoCAD, and groundwater monitoring software.

RICK DUNKIN, CPG, LPG

SENIOR GEOLOGIST

Rick has a wide range of environmental consulting and environmental risk management experience. His project experience includes developing conceptual site models (CSMs), hydrogeologic investigations, site characterization, interim response actions, soil and groundwater remediation, and underground storage tank activities. He excels in problem solving, data interpretation, report writing, technical project management, navigating environmental regulations, and working collaboratively with multidisciplinary groups. Rick is particularly adept in water resources related to environmental legacy contamination, groundwater/surface water interaction (GSI) assessments, and the remediation of industrial sites.

YEARS OF EXPERIENCE

4 years — Fishbeck
41 years — total

EDUCATION

MBA in Finance, Walsh College

MS in Geology, University of Toledo

BA in Geology/Environmental Studies, Susquehanna University

REGISTRATIONS/ CERTIFICATIONS

Certified Professional Geologist – American Institute of Professional Geologists

Licensed Professional Geologist – Indiana

Residential Builders License – Michigan

HAZWOPER Site Worker, Supervisor

MEMBERSHIPS

National Groundwater Association

American Institute of Professional Geologists/Michigan Section

Michigan Association of Environmental Professionals

EXPERIENCE

- Prepared detailed conceptual site models (CSMs) that identify contaminant sources, transport pathways, and potential receptors; and provided an accurate understanding of their contribution to environmental risk management.
- Relationship building, collaboration, and negotiation with regulators; including state, local, and federal government environmental agencies.
- Part 213 leaking UST investigations, remedial activities, and compliance report preparation.
- Vapor intrusion and methane gas assessments and response activity planning.
- Prepared site investigation work plans/proposals, direct day to day field activities, analyze and interpret environmental data, and prepare technical environmental reports.
- Conducted high resolution site characterization (HRSC) investigations using a membrane interface, hydraulic profiling tool and an optical interface, and hydraulic profiling tool to identify organic compounds and methane gas in the subsurface.
- Assembled, managed, and led teams of scientists/engineers and subcontractors to safely perform Part 201 RI/FS work, design and install remedial systems, and provide contractor management and oversight services at environmental contamination legacy sites.
- Remedial investigations and risk assessment protocols applied to varying contaminant situations including organics, metals, PCBs, pesticides, and radioactive materials.
- Designed and implemented groundwater monitoring systems at industrial facilities and solid waste disposal areas to monitor site activities and/or investigate contamination.
- Hydrogeologic characterization of landfill sites, installation of methane venting systems, and groundwater monitoring at landfills.
- Pre-demolition site characterization, waste characterization, asbestos and structural assessments, preparation of biddable specifications documents, trade contractor procurement assistance, management of staff providing oversight of demolition contractor activities, and post-demolition soil and groundwater sampling to facilitate property redevelopment.
- ESAs and due diligence activities to establish property conditions for real estate transactions.

PAUL FRENCH

SENIOR HYDROGEOLOGIST

Paul is an expert in vapor intrusion assessment and mitigation; hydrogeologic investigation; UST closure; soil, groundwater, and NAPL remediation; Phase I and II ESAs, BEAs, and documentation of due care compliance; regulator/client liaison; data analysis; technical writing and report preparation; and risk assessment.

EXPERIENCE

- Vapor intrusion assessment/design, installation, and operation of vapor intrusion mitigation systems.
- Manage leaking UST remedial investigations and funding programs, and various hydrogeologic and remedial investigations under Parts 201 and 213 of Michigan's NREPA.
- Prepare site investigation work plans and proposals.
- Plan, coordinate, implement, and document cleanup operations at numerous spill/release sites including roadside spills, USTs, and industrial sites.
- Implement hydrogeologic investigations and remedial activities.
- Assess hydrogeologic and contaminant conditions.
- Perform risk assessments.
- Oversee UST removals and complete UST site assessments. Oversee source removal activities including dewatering, excavation of contaminated soils, and remedial verification sampling.
- Perform LNAPL monitoring, baildown testing, and recovery assessment.
- Complete groundwater sampling using low-flow sampling techniques.
- Design, construct, operate, and maintain remedial systems involving groundwater pumping, LNAPL dual-phase pumping, vapor extraction, and enhanced bioremediation.
- Prepare hydrogeologic reports and remedial feasibility studies, initial assessment, final assessment, corrective action plans, and facility closure reports.
- Prepare and complete property transaction due diligence activities including Phase I and II ESAs, BEAs, and documentation of due care compliance.
- Perform hazardous building material surveys (asbestos, lead-based paint, hazardous materials).
- Complete aquifer performance and vapor transmission testing and analysis.
- Plan and coordinate investigative and remedial projects including oversight and management of field personnel and remedial contractors.
- Manage Brownfield redevelopment projects.

YEARS OF EXPERIENCE

30 years — Fishbeck
36 years — total

EDUCATION

BS in Geology,
Murray State University

Graduate Certificate
in Applied Hydrogeology,
Western Michigan University

REGISTRATIONS/ CERTIFICATIONS

Licensed Wastewater Treatment Plant Operator (Carbon + Oil Water Separation)

EGLE Storm Water Management Operator

Licensed Asbestos Inspector

HAZWOPER Site Worker

MEMBERSHIPS

Association of Ground Water Scientists and Engineers, Division of the National Groundwater Association

Michigan Petroleum Association, Environmental Issues Committee

American Institute of Professional Geologists/Michigan

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BRUCE GILLETT, CPG

SENIOR HYDROGEOLOGIST

Bruce has experience in environmental hydrogeology and chemical fate and transport projects from the investigation phases through feasibility study, design, remedial action implementation, and O&M. His project experience includes groundwater discharge permits, hydrogeologic investigations, wastewater land application studies, RAPs, feasibility studies, site closure reports, no further action reports, WHPPs, Phase I and II ESAs, UST investigations, PFAS investigations, inland lakes and streams permitting, *in situ* remediation projects, vapor intrusion evaluations, and groundwater resource investigations. As a hydrogeologist, Bruce has experience in a wide range of problem-solving methods including geophysics, geostatistics, GIS, and chemical hydrogeology with a strong emphasis on physical hydrogeology. He is particularly specialized in groundwater flow and contaminant transport modeling. As a team leader in the GeoSciences and Remediation Department, he is responsible for project manager accountability in addition to matching staff talents and abilities with the needs of each project.

YEARS OF EXPERIENCE

25 years — Fishbeck

33 years — total

EDUCATION

MS in Hydrogeology,
Wright State University

BS in Earth Science Education,
Western Michigan University

REGISTRATIONS/ CERTIFICATIONS

Certified Professional Geologist, American Institute of Professional Geologists – Michigan

HAZWOPER Site Worker

MEMBERSHIPS

American Institute of Professional Geologists

National Ground Water Association

AWMA

TRAINING

Calibration, Uncertainty Analysis, and Optimization, Environmental Simulations Inc., Short Course for Groundwater Vistas and MODFLOW

MODFLOW and More Conference, Golden, Colorado

EXPERIENCE

- Client manager for an international automotive industry supplier with multiple sites involving various contaminants of concern including hexavalent chromium, chlorinated solvents, petroleum hydrocarbons, per- and polyfluoroalkyl substances (PFAS), and various other metals impacts. Responsible for coordinating project teams to address the various impacts in all environmental media including soil, sediment, groundwater, vapor, and surface water.
- Designed, conducted, and evaluated numerous aquifer pumping tests for various clients including municipalities, remediation projects, and private water supply projects.
- Managed and conducted hydrogeological investigations for two large-scale wastewater spray irrigation sites for the food processing industry. The investigations included soil borings, monitoring wells, permeameter testing, hydraulic conductivity testing, groundwater and soil sampling, mounding analyses, and residential well inventory and sampling. The investigations were conducted for groundwater discharge permits in compliance with EGLE regulations for land application of wastewater disposal.
- Designed and implemented long-term monitored natural attenuation groundwater sampling and analysis plans.
- Designed and managed hydrogeological investigations and groundwater modeling studies for multiple sites to evaluate and assist in the engineering design of groundwater underdrain systems to alleviate flooding conditions in residential neighborhoods. Analytical or numerical groundwater flow modeling was used to evaluate the best design layouts to eliminate basement flooding while not adversely impacting nearby wetlands.
- Client manager for a local industry with environmental cleanup activities related to chlorinated solvents released beneath the active production facility. Environmental response activities include enhanced reductive dechlorination (ERD) in the source area (including both biotic and abiotic pathways), vapor intrusion mitigation system investigation, design, operation, and maintenance, ongoing source area and downgradient groundwater monitoring, extraction trench and extraction well for groundwater plume capture, groundwater air stripping and associated NPDES permitting/monitoring, mixing zone determination and compliance monitoring, constructed wetland mitigation monitoring and maintenance, and preparation of a groundwater use restriction ordinance.

fishbeck

DERRICK LINGLE, CPG

SENIOR HYDROGEOLOGIST

Derrick has experience in vapor intrusion evaluation; remedial investigation; hydrogeologic investigation; groundwater, soil, soil gas, and pore water sampling; statistical analysis; monitoring well installation; and vapor mitigation system installation.

YEARS OF EXPERIENCE

9 years — Fishbeck

10 years — total

EDUCATION

MS in Geology,
Western Michigan University

BS in Environmental Geoscience,
Michigan State University

REGISTRATIONS/ CERTIFICATIONS

Certified Professional Geologist,
American Institute of Professional Geologists – Michigan

MEMBERSHIPS

Michigan Association of Environmental Professionals

American Institute of Professional Geologists

TRAINING

Light Non-Aqueous-Phase Liquids (LNAPL) Science, Management, and Technology, Interstate Technology & Regulatory Compliance

ASTM Risk-Based Corrective Action (RBCA) Training

AIPG Technical Workshop: GSI Characterization

AIPG Technical Workshop: Environmental Risk Management

EXPERIENCE

- Managed and implemented hydrogeologic and remedial investigations at facilities such as power plants, oil terminals, solvent recovery sites, and retail petroleum distribution centers under Michigan Parts 111, 201, and 213 and EPA RCRA Program.
- Perform sampling, removal, and oversight of USTs, coal storage area, coal ash pond, and landfill projects.
- Conduct conceptual site model development and prepare closure/NFA reports.
- Perform statistical analysis of soil data for decommissioned, coal-fired power plants.
- Interpret groundwater isotope data.
- Design and install sub-slab vapor mitigation systems.
- Conduct LNAPL monitoring and recovery assessment.
- Develop and implement incremental sampling methodology plans.
- Implement and interpret MiHpt technology to characterize chlorinated plumes.

PRESENTATIONS/PUBLICATIONS

Warwick, D. B. and Lingle, D. A.; Remedial investigation and remediation of the former Marysville Power Plant complex. Presented at an AIPG Michigan Section Technical Workshop, Roscommon, Michigan, June 13, 2017.

Lingle, D. A., Kehew, A. E., and Krishnamurthy, R.V.; Use of nitrogen isotopes and other geochemical tools to evaluate the source of ammonium in a confined glacial drift aquifer, Ottawa County, Michigan, 2017, USA. Applied Geochemistry, 78, 334–342.

fishbeck

ADAM NEAR, CPG

SENIOR GEOLOGIST

Adam has expertise in site environmental investigation, characterization, and remediation of industrial, commercial, and municipal facilities under Part 201. Adam also has extensive experience in managing hydrogeologic monitoring and compliance reporting for solid waste facilities under Part 115.

YEARS OF EXPERIENCE
14 years — total

EDUCATION
BS in Geology,
Central Michigan University

REGISTRATIONS/ CERTIFICATIONS
Certified Professional Geologist – Michigan

OSHA 40-hour HAZWOPER

MEMBERSHIPS
American Institute of Professional Geologists

EXPERIENCE

- Preparation of site investigation work plans and proposals.
- Implementing hydrogeologic investigations and remedial activities.
- LNAPL monitoring, baildown testing, and recovery assessment.
- Groundwater sampling using low-flow sampling techniques.
- Preparation of hydrogeologic reports.
- Aquifer performance testing and analysis.
- Hydrogeologic monitoring plan preparation.
- Hydrogeologic characterization of prospective landfill sites and groundwater monitoring at landfills.
- Vapor intrusion assessments.
- Statistical analysis of groundwater and environmental quality data.
- Preparation of initial and final assessment and corrective action plans.
- Design, construction, operation, and maintenance of remedial systems involving groundwater treatment.
- Quality management plan development and implementation.
- Sampling of leachate, surface water, and soil gas.

ERIK PETERSON

SENIOR HYDROGEOLOGIST

Erik's experience includes environmental due diligence and Brownfield redevelopment, including preparation of Phase I and II ESAs, BEAs, documentation of due care compliance, Brownfield plans, and Act 381 work plans.

EXPERIENCE

- Conduct ESAs using ASTM standards to determine environmental conditions of property for real estate transaction and financing activities.
- Perform BEAs and documentation of due care compliance for the transfer of contaminated property.
- Complete site characterization activities, hydrogeologic investigations, soil and groundwater sampling, soil-gas and sub-slab vapor sampling, groundwater monitoring well installation, initial assessments, quarterly reporting, and final assessments.
- Conduct Part 213 leaking UST investigations, remedial activities, and compliance report preparation.
- Prepare Brownfield redevelopment including property use evaluation, risk evaluation, development of liability protection strategies, Brownfield plans, Act 381 work plans, grant writing, EGLE/USEPA grant and loans administration and implementation, funding resources, and community interaction.
- Conduct RBCA implementation, vapor intrusion assessment, and mitigation.

YEARS OF EXPERIENCE

22 years — Fishbeck
22 years — total

EDUCATION

BS in Hydrogeology,
Western Michigan University

REGISTRATIONS/ CERTIFICATIONS

Accredited Asbestos Inspector

HAZWOPER Site Worker

MEMBERSHIPS

Michigan Association of Environmental Professionals

Michigan Economic Developers Association

National Brownfield Association

Southwest Michigan First

TRAINING

National Brownfield Conventions, 2006–2019

HUD Environmental Review Process (24 CFR PART 58) Training

MSHDA Group B
NEPA Training, 2017

J. MICHAEL RANCK, PG

SENIOR HYDROGEOLOGIST

Mike has over 20 years' experience in both consulting and state government overseeing groundwater resources and water quality programs and working with state and federal grants, such as EPA 106 and USGS funds. He has focused on groundwater assessment and groundwater quality monitoring, including emerging contaminants such as PFAS; soil assessment and remediation, surface water quality, vapor intrusion assessment and mitigation; and acted as the project manager and technical expert for a portfolio of dry-cleaning sites under the North Carolina DEQ Dry-Cleaning Solvent Cleanup Act Program.

Mike will be responsible for groundwater assessment, monitoring, remediation, vapor intrusion assessment and mitigation, and PFAS response.

YEARS OF EXPERIENCE

20 years — total

EDUCATION

MS in Hydrology, New Mexico Institute of Mining and Technology

BS in Environmental Geology, Michigan State University

REGISTRATIONS/ CERTIFICATIONS

Professional Geologist – North Carolina

HAZWOPER

OSHA 8-hour Site Supervisor Training

OSHA 10-Hour Construction Safety & Health

EXPERIENCE

- Senior project manager and technical expert for assessment of soil, groundwater, surface water, and vapor intrusion; risk assessment; corrective action; and risk-based closure at a statewide portfolio of more than 100 dry-cleaning project sites managed under the North Carolina DEQ Dry-Cleaning Solvent Cleanup Act Program.
- Project manager overseeing groundwater sampling and corrective action, landfill gas monitoring, maintenance of landfill gas extraction system, air quality permit compliance, stormwater and erosion control permitting and compliance, and streambank restoration for a closed municipal solid-waste landfill facility.
- Principal investigator and project geologist responsible for directing geoenvironmental site assessments for the North Carolina Department of Transportation. Projects include environmental site assessments for hazardous waste and materials, underground storage tank assessments and removal, and remedial actions.
- Project manager and geologist overseeing injection of 25,000 gallons of Hydrogen Release Compound (HRC®) slurry to facilitate remediation of chlorinated solvents in a shallow aquifer at a manufacturing facility.
- Oversaw implementation of goals, policies, and procedures; ensured compliance with state and federal regulations; and managed groundwater and water quality programs for the North Carolina DEQ. Projects included emerging contaminants, underground injection control permitting, coal ash management, groundwater quality monitoring and groundwater withdrawal permitting, NPDES and non-discharge wastewater permitting, municipal pretreatment, and collection systems; 401 and buffer program implementation; animal feeding operations; groundwater incident management; response to citizen complaints and incidents such as spills, fish kills, and sewer overflows; emergency response actions; ambient water quality monitoring program activities; and the provision of customer service and technical assistance to the general public, industry, and government agencies.

DAVID STEGINK

VICE PRESIDENT/BROWNFIELD PROGRAM MANAGER

David's experience lies in Brownfield redevelopment; ESAs; BEAs; environmental regulations; hazardous waste management; environmental permitting and reporting; RCRA closure activities and corrective action; USTs; and safety and health.

EXPERIENCE

- Manage daily operations at a hazardous waste disposal facility (TSDF) and hazardous waste transportation operations.
- Manage RCRA closure activities.
- Conduct ESAs to determine environmental conditions of property for real estate and financing activities.
- Prepare successful grant applications for federal and state Brownfield grants.
- Implement multiple USEPA Brownfield assessment, cleanup, and revolving loan fund grants.
- Implement numerous Brownfield redevelopment projects using various funding sources.
- Prepare BEAs and due care evaluation analyses for the transfer of contaminated properties.
- Prepare Brownfield plans and Act 381 work plans for Brownfield sites.
- Managed liability protection for property transfers in multiple states.
- Develop and implement safety and health programs.
- HAZWOPER instructor at the Western Michigan University Hydrogeological Field Camp since 1996.

YEARS OF EXPERIENCE
31 years — Fishbeck
37 years — total

EDUCATION
BS in Chemistry and Biology,
Hope College

REGISTRATIONS/ CERTIFICATIONS
EGLE Storm Water Operator – Industrial Sites

Accredited Asbestos Inspector

MEMBERSHIPS
Air & Waste Management Association/West Michigan Chapter, Board Member

UST Legislative Work Group

DELEG Green Jobs Initiative Visioning Process, Contributor

City of Portage Environmental Board

TRAINING
Lead Hazard Awareness Training

Hazardous Materials Emergency Response, Michigan State University

Emergency Planning and Communications, Tricil Environmental, Inc.

Implementation of Environmental Management Systems

fishbeck

ELISE HANSEN TRIPP, PWS

SENIOR WETLAND SCIENTIST/ECOLOGIST

Elise has expertise in Part 303 (wetlands protection) of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). She also provides technical support for work under Part 301 (inland lakes and streams) and Part 365 (endangered species) of NREPA. Elise's expertise includes wetland consulting and permitting, threatened and endangered species evaluation, natural feature assessment, invasive species management, NEPA evaluation, and landscape design.

YEARS OF EXPERIENCE

31 years — Fishbeck

35 years — total

EDUCATION

MA in Environmental Design,
Michigan State University

MS in Soil Science,
University of California/Davis

BS in Biology,
Wheaton College, Illinois

REGISTRATIONS/ CERTIFICATIONS

Professional Wetland Scientist No. 2369, Society of Wetland Scientists

HAZWOPER Site Worker

MEMBERSHIPS

Land Conservancy of West Michigan, Board Member

Michigan Wetlands Association, Education Committee Member, Webinar Committee Member

Society of Wetland Scientists

EXPERIENCE

- Wetland delineation and permitting.
- Wetland design, construction oversight, and monitoring.
- As a Township's contracted wetland consultant, provides regulatory oversight of the township wetland ordinance, including wetland boundary delineations, confirmation of previously delineated boundaries, and recommendations for permit decisions. Completes wetland determinations of essentiality.
- Established a 47-acre wetland preserve which serves as mitigation for wetland impacts at a developed site and completed short-term preserve monitoring.
- Michigan Rapid Assessment Method for Wetlands and Ohio Rapid Assessment Method for Wetlands evaluation to assess wetland function.
- Stream restoration and monitoring plans.
- Natural features inventories.
- Threatened and endangered species evaluation.
- Tree surveys.
- Invasive species control, including:
  - Invasive species site surveys and mapping.
  - Preparation of invasive species management plans.
  - Manage subcontractors for herbicide treatment of invasive species.
  - Obtain Certificates of Coverage under General Permit Number ANC9410000 for aquatic nuisance control activities and submit yearly treatment reports to the Michigan Department of Environment, Great Lakes and Energy.
- National Environmental Policy Act (NEPA) site evaluations to evaluate the impact of a project upon sensitive features, including wetlands, water bodies, protected species, health and human safety, and historic and cultural resources. NEPA reviews were completed for the Federal Highway Administration through MDOT's Local Agency Program, the US Economic Development Administration, and US Department of Commerce.
- Rain garden, bioinfiltration basin, and native landscape planting plans.

JESS WATTERSON

SENIOR ENVIRONMENTAL SCIENTIST

Jess has over 23 years of experience in environmental due diligence, remediation, demolition, decommissioning, and project management. He has focused on corrective action option analysis; assessing regulatory requirements; budget oversight; laboratory bench studies; onsite pilot studies; system design and construction oversight; operations, maintenance, and compliance permitting; supervision of hydrogeological assessments; soils characterization; and vapor intrusion investigations. He has managed projects impacted with a variety of compounds of concern, including petroleum hydrocarbons, chlorinated solvents, and metals regulated under state authority; and is adept with assessing site conditions, determining appropriate actions, and creating executable strategies to meet the needs of his clients.

YEARS OF EXPERIENCE

23 years — total

EDUCATION

BS in Environmental Science, Grand Valley State University

REGISTRATIONS/ CERTIFICATIONS

HAZWOPER

MSHA Part 46 and 48

OSHA Construction Supervisor Training

Construction Safety Training System

Workplace Hazardous Materials Information System

EGLE Industrial Storm Water Management A1i

EXPERIENCE

- Client relationship management for a North American automotive manufacturing company. Projects include Phase I ESAs, Phase II investigations, Phase III remediation, and demolition and decommissioning in excess of five million dollars annually.
- Planning, coordination, implementation, and documentation of cleanup operations at numerous spill/release sites including underground storage tanks and industrial sites.
- Oversee the execution of corrective actions options planning and regulatory requirement assessment.
- Oversaw and conducted multiple pilot tests for the following: *In-situ* chemical oxidation, enhanced anerobic bioremediation, soil vapor extract, groundwater pump and treat, electro-coagulation, reverse osmosis, coagulant pre-treatment and absorption, and evaporation.
- Written multiple groundwater discharge exemption permits that were submitted and approved by EGLE.
- Oversaw and conducted multiple vapor intrusion assessments, sampling events, pilot tests, and system designs.
- Managed, oversaw and conducted the implementation of multiple laser-induced florescence for Phase II LNAPL investigations in industrial settings.
- Managed, oversaw, and conducted the implementation of multiple hydraulic profile and membrane interface probe for Phase II DNAPL investigations in industrial settings.
- Experienced successful implementation of remedial technologies such as *in-situ* metals reduction, *in-situ* enhanced anerobic bioremediation, *in-situ* chemical oxidation, *in-situ* bio augmentation, air sparging, air stripping, activated carbon treatment, and soil vapor extraction.
- Conducted pilot tests and reduced data to determine radius of influence, well efficiency, intrinsic permeability, conductivity, transmissivity, and storage calculations.
- Supervised and wrote operations and maintenance programs for remedial and industrial water treatment programs.
- Fulfilled groundwater and vapor discharge permit requirements as implemented by EGLE. Performed O&M on remediation systems and managed field team members in weekly routine and non-routine O&M activities.
- Served as the full-time Owner's Representative to provide monitoring of the environmental aspects of decommissioning and demolition of multiple manufacturing facilities and mining facilities.
- Managed and prepared site use history assessments, regulated material surveys, and sampling plans for multiple decommissioning and demolition projects.

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FERNANDA WILSON, PhD

ENVIRONMENTAL ENGINEER

Fernanda has experience in environmental microbiology and contaminant remediation. She is involved in all aspects of groundwater and soil remediation, especially in the design and data analysis of remediation projects related to chlorinated solvents and PFAS. She is a member of the Interstate Technology and Regulatory Council (ITRC) PFAS team and has directly contributed to developing fact sheets and the technical documents related to the Aqueous Film Forming Foam (AFFF) chapter.

YEARS OF EXPERIENCE

5 years — Fishbeck
8 years — total

EDUCATION

PhD in Environmental Engineering, Michigan State University

MS in Environmental Engineering, Michigan State University

MS in Marine Science, Federal University of Ceara, Fortaleza, Brazil

Bachelor of Biology Science, Federal University of Ceara, Fortaleza, Brazil

REGISTRATIONS/ CERTIFICATION

OSHA 40-hour HAZWOPER

OSHA Certified Environmental Specialist (ongoing)

Technical Report Writing for Engineers

D5 EGLE Operator

EXPERIENCE

- Management and engineering experience in environmental consulting.
- Design of treatment systems and *in situ* remediation actions for chlorinated solvents in groundwater, including injection of emulsified vegetable oil and ZVI.
- Data analysis, management, and reporting of groundwater ERD performance monitoring data. Assessment of ERD performance completion and natural attenuation monitoring data.
- Data visualization and statistical skills.
- Sampling and PFAS investigation in drinking water, groundwater, soil, sediments, wastewater, oil, and sludge.
- Support client management of PFAS-impacted water and solids, including WWTPs, landfills, and industrial clients.
- Design of PFAS remediation in groundwater and sediment (GAC and other sorption media).
- Drinking water PFAS treatment system (ion exchange) design, installation, performance monitoring, operation and maintenance, reporting, and project management.
- Development of technical documents including SOPs, work plans, reports, permits, CMS, health and safety plans, landfill gas monitoring plans, and other documentation necessary for client compliance with regulatory agencies.
- Development of outreach technical documents including SERDP and NSF grants, ITRC factsheets and tech reg, presentations, abstracts, white papers, and peer reviewed articles.
- Delivered various presentations related to PFAS and chlorinated solvents. Latest include 2022 AIPG workshop, 2021 MI-AWWA webinar, 2019 Battelle Conference, 2018 West Michigan Water and Wastewater Operators Workshop.

PUBLICATIONS

Alison M. Cupples, Zheng Li, Fernanda Paes Wilson, Vidhya Ramalingam, Allison Kelly "In silico analysis of soil, sediment and groundwater microbial communities to predict biodegradation potential". Journal of Microbiological Methods, Volume 202, November 2022 106595

Kim Jinha, Mei Ran, Wilson Fernanda P., Yuan Heyang, Bocher Benjamin T. W., Liu Wen- Tso. Ecogenomics-Based Mass Balance Model Reveals the Effects of Fermentation Conditions on Microbial Activity. Frontiers in Microbiology 11, 3115 (2020).

Mei, R., Kim, J., Wilson, F.P. et al. Coupling growth kinetics modeling with machine learning reveals microbial immigration impacts and identifies key environmental parameters in a biological wastewater treatment process. Microbiome 7, 65 (2019).

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ROMAN WILSON

VICE PRESIDENT | BROWNFIELD PROGRAM MANAGER

Roman works with local government, developers, attorneys, realtors, lending institutions, and state and federal agencies to identify and secure incentives to facilitate complex property transactions and redevelopment of properties compromised by brownfield conditions. Areas of expertise include tax increment financing (TIF), EGLE brownfield redevelopment grants and loans, local brownfield revolving funds (LBRF), Brownfield and Act 381 Work Plans, brownfield strategic planning, Michigan Economic Development Corporation (MEDC) grants and loans, USEPA assessment grants, Phase I and II ESAs, BEAs, due care, and response activities.

YEARS OF EXPERIENCE

5 years — Fishbeck
25 years — total

EDUCATION

BS in Environmental Biology, Taylor University

REGISTRATIONS/ CERTIFICATIONS

OSHA 40-Hour HAZWOPER & Annual 8-Hour Refresher

MEMBERSHIPS

Air & Waste Management Association/West Michigan

Michigan Economic Developers Association

Commercial Alliance of Realtors

EXPERIENCE

- Preparation and implementation of Brownfield Plans and Act 381 Work Plans, including tax increment financing to support reimbursement of eligible EGLE and MEDC activities.
- EGLE/MEDC/USEPA brownfield grant and loan applications.
- Implementation of EGLE brownfield grants and loans, including technical work plans, oversight of eligible activities, quarterly and final reports, payment requests, and administration.
- MEDC community revitalization, brownfield TIF, and enhancement grant programs.
- USEPA brownfield assessment grant QAPPs, SAPs, HASPs, determination requests, ACRES, and quarterly and final reports.
- EGLE brownfield indefinite scope-indefinite delivery projects.
- Strategic brownfield planning with communities, developers, and funding agencies.
- Assisting communities with establishing and operating Brownfield Redevelopment Authorities.
- Working with local and state land bank authorities to repurpose brownfield properties utilizing incentives such as TIF, grants, and low-interest loans.
- ESAs and BEAs using ASTM Standards and AAI.
- Oversight of pre-demolition surveys, asbestos/lead paint/mold abatement, and demolition.
- Evaluation of soil, groundwater, and soil-gas contamination concerns, development of exposure risk mitigation plans, and implementation of engineering and institutional controls.
- Management of vapor intrusion exposure risks through passive and active mitigation.
- Contaminated soil and groundwater removal and disposal to eliminate unacceptable exposures and support brownfield redevelopment.

MICHAEL APGAR

SENIOR ENVIRONMENTAL ENGINEER

Mike has expertise in biologically mediated and chemical oxidative/reductive *in-situ* remediation (chlorinated compounds, metals, BTEX) and physical remediation processes (SVE, air sparging, and excavation). Other experience includes PFAS impacted soil and groundwater treatment using binding agents and GAC and has recent worked with two drinking water distribution pipe corrosion issues. Mike has performed pilot tests for the design of SVE systems, ERD systems, and sub-slab depressurization systems. Mike provides NPDES guidance and reporting for a multinational consumer products firm in California and drinking water distribution system consulting services for several local institutions.

YEARS OF EXPERIENCE

26 years — Fishbeck
28 years — total

EDUCATION

MS in Environmental Engineering, Michigan State University

BS in Science/Biology, University of Michigan/Flint

REGISTRATIONS/ CERTIFICATIONS

OSHA 40-hour HAZWOPER

TRAINING

Great Lakes PFAS Summit

AIPG Workshop, Higgins Lake, Michigan

RemTEC Technology Summit

Battelle Recalcitrant Compounds Conference

EXPERIENCE

- Over 26 years of experience designing, building, deploying, and operating various *in-situ* remedies in Michigan, Ohio, Florida, Missouri, Virginia, and California.
- Construction management for a fuel distribution center remediation project.
- Sampling and data management for a municipal lagoon rehabilitation project.
- Construction manager for a PCB remediation project in the Grand Rapids area.
- Management and reporting for two 1,000 gpm granular activated carbon groundwater extraction treatment systems discharging to the WRRF in Grand Rapids.
- Design (pilot testing), acquisition, construction, and installation of a sub-floor depressurization system at an elementary school in Lowell, Michigan.
- Design, construction, implementation, and operation of an extraction system to recover and treat 1-4 dioxin impacted groundwater.
- Design, construction, implementation, operation, and field management of multiple treatment systems for a multi-year in-situ remediation of several TCE impacted groundwater sources and associated plumes in Pinellas Park, Florida.
- Design, construction, implementation, operation, and field management of a mobile recirculation treatment system for a multi-year *in situ* remediation of chlorinated solvents in Mountain View California.
- Design, acquisition, installation, and operation of multiple air sparging applications in Missouri and Michigan.
- Performed contractor oversight at multiple demolition projects.

PRESENTATIONS/PUBLICATIONS

Annual AIPG Michigan Technical Workshop, 2022. Presenter. Combining Biotic and Abiotic Enhanced Reduction approaches to Optimize the Remediation of a Chlorinated Solvent Source Area.

Annual AIPG Michigan Technical Workshop, 2019. Presenter. Installation of a Sub-Slab Depressurization System to Facilitate a Property Transaction in Western Michigan.

Annual AIPG Michigan Technical Workshop, 2016. Presenter. TCE-A New Challenge in Remedial Work.

AARON BIGLER

ENVIRONMENTAL SCIENTIST

Aaron has experience in environmental due diligence, including Phase I and II ESAs, BEAs, and documentation of due care compliance; field operations; groundwater, soil, and soil vapor sampling; and asbestos surveys and inspections.

EXPERIENCE

- Conduct Phase I ESAs for residential, commercial, and industrial properties.
- Research site-specific history, review public government agency files and risk assessment of nearby properties, and inspect the property to identify any current or historical environmental risks.
- Assist with Phase II ESAs by working with field/drilling team to manage site assessments, analyze and compare data to applicable cleanup criteria, and write technical reports.
- Conduct groundwater, soil, and soil vapor sampling.
- Complete asbestos/HAZMAT inspections in residential, commercial, and industrial buildings.
- Compose industrial SWP3.

YEARS OF EXPERIENCE

4 years — Fishbeck
8 years — total

EDUCATION

BS in Environmental Science and Planning/Minor in Geographic Information Science, University of Michigan-Flint

REGISTRATIONS/ CERTIFICATIONS

EGLE Storm Water Management Operator

Accredited Asbestos Inspector

Asbestos Contractor Supervisor

HAZWOPER Site Worker

THOMAS BUDGE, EP

SENIOR ENVIRONMENTAL SPECIALIST

Tom's experience includes environmental due diligence and brownfield redevelopment, including preparation of Phase I and Phase II ESAs, BEAs, and documentation of due care compliance. Tom also has experience in providing environmental regulatory consulting services for industrial clients.

EXPERIENCE

- Conduct ESAs using ASTM standards to determine environmental conditions of property for real estate transactions and financing activities.
- Perform site-specific historic research, review public government agency files, risk assessment of nearby properties, and inspect properties to identify potential current or historical environmental risks.
- Perform BEAs and documentation of due care compliance for the transfer of contaminated property.
- Provide managerial oversight and staff mentoring for numerous environmental due diligence projects.
- Develop and implement sampling analysis plans on behalf of EGLE.
- Perform low-flow groundwater sampling and soil sampling.
- Prepare PIPPs, SPCC, HWCPs, and SWP3.
- Completion of annual environmental reporting requirements including MAERS, Tier II reporting, and TRI reporting.
- Provide onsite environmental regulatory assistance for several industrial clients.

YEARS OF EXPERIENCE

23 years — Fishbeck
25 years — total

EDUCATION

BS in Business Administration,
Central Michigan University

BS in Biology,
Grand Valley State University

REGISTRATIONS/ CERTIFICATIONS

HAZWOPER Site Worker

EGLE Stormwater Management Operator – Industrial Site A-1

Michigan Class A
UST System Operator

Michigan Class B
UST System Operator

USDOT HAZMAT

MEMBERSHIPS

Air and Waste Management Association/West Michigan Chapter

Montcalm County Brownfield Redevelopment Authority

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TODD CAMPBELL, CPG

SENIOR GEOLOGIST

Todd's environmental consulting and project management experience includes due diligence, aquifer pumping tests, slug tests, surveying, UST closures, Geoprobe® drilling, and soil logging utilizing the following drilling methods: Geoprobe®, hollow stem augers, sonic, and mud/air rotary. Todd has over two decades of experience in soil, groundwater, and soil gas sampling, and has assisted with both low-level sampling methods for mercury and PFAS.

His responsibilities include proposal generation, scheduling, field oversight, project management, Phase I and II ESAs, BEAs, due care plans, LUST projects, groundwater monitoring reports, RAPs, hydrogeological investigations, and no further action reports (NFAs).

YEARS OF EXPERIENCE

23 years — Fishbeck
29 years — total

EDUCATION

BS in Geophysics,
Western Michigan University

REGISTRATIONS/ CERTIFICATIONS

Certified Professional Geologist – American Institute of Professional Geologists

Certified UST Professional

HAZWOPER Site Worker

HAZWOPER Supervisor

TAPPISAFE Basic Orientation

TAPPISAFE Graphic Packaging

MEMBERSHIPS

American Institute of Professional Geologists

National Groundwater Association

Portage Economic Development Corporation/Tax Increment Finance Authority and Brownfield Redevelopment Authority

TRAINING

The Groundwater Sampling Field Course, Nielsen Environmental Field School, Inc.

EXPERIENCE

- Phase I and Phase II ESAs throughout United States.
- Baseline environmental assessments and due care plans.
- Site investigations of releases to soil and groundwater utilizing various drilling and direct push methodologies and techniques.
- Oversight of excavation/remediation projects.
- Extensive groundwater, surface water, and soil sampling experience using various methods.
- Performed and managed site investigations using incremental sampling methodology (ISM).
- Free phase product investigation and remediation including monitoring, recovery well installation, and free phase product recovery system installation.
- UST removal, soil sampling, initial and final assessment reporting, and closure report preparation.
- Oversight of water supply well installations and aquifer testing.
- Implementation of *in-situ* remediation projects including Fenton's reagent, potassium permanganate, and emulsified vegetable oil using direct push technologies and permanent treatment wells.
- Air sparge and soil vapor extraction (AS/SVE) system installation, monitoring, and operation and maintenance (O&M).
- Superfund Sites/CERCLA: long-term groundwater monitoring program, landfill cap inspections, institutional controls, operation, and maintenance activities.

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ZACH CURRY

GEOLOGIST

Zachary has experience with vapor intrusion assessments, vapor intrusion mitigations systems, environmental due diligence including Phase I and II ESAs, and field operations.

YEARS OF EXPERIENCE

5 years — Fishbeck
5 years — total

EDUCATION

BS in Geology,
Grand Valley State University

Precambrian Research
Field Camp, University
of Minnesota-Duluth

REGISTRATIONS/ CERTIFICATIONS

HAZWOPER Site Worker

Land Science™ Certified
Vapor Barrier Inspector

MEMBERSHIPS

American Institute
of Professional Geologists

TRAINING

ASTM RBCA Training

EXPERIENCE

- Conduct Phase I ESAs for residential, commercial, and industrial properties using ASTM standards to determine environmental conditions of property for real estate and financing activities.
- Perform site-specific historic research, review public government agency files, risk assessment of nearby properties, and inspect properties to identify any current or historical environmental risks.
- Conduct Phase II ESAs. Work with field/drilling team to manage site assessments, analyze data, and compare to applicable cleanup criteria; and write technical reports.
- Prepare BEAs and documentation of due care compliance for the transfer of contaminated property.
- Develop and implement USEPA sampling and analysis plans for Brownfield redevelopment projects.
- Employ drilling techniques (e.g., hollow-stem auger, hand auger, geoprobe, mud and air rotary, sonic drill rig) for site investigations.
- Preform groundwater sampling and monitoring including low-flow and PFAS sampling.
- Oversee UST removals and complete UST site assessments. Oversee source removal activities including dewatering, excavation of contaminated soils, and remedial verification sampling.
- Conduct professional oversight for installation of various Land Science™ vapor barrier systems and other vapor intrusion mitigation systems.
- Perform vapor intrusion risk evaluations including soil gas sample collection and pressure field extension testing.
- Conduct vapor intrusion mitigation system installation, operation, maintenance, and sampling.
- Perform soil, groundwater, and soil gas sample collection.

ALI DAHLBACKA

ENVIRONMENTAL ENGINEER

Ali's responsibilities include an array of field engineering and project management activities. Her field experience includes vapor intrusion, soil, groundwater, and waste characterization sampling; well and soil boring installation; construction oversight for remedial projects; and enhanced reductive dechlorination (ERD) implementation. Ali has experience with the design, operation, and management of soil vapor extraction (SVE) systems, vapor mitigation systems, and ERD projects. As a project engineer/manager on multiple projects, she is responsible for data interpretation and reporting as well as proposal and work plan preparation, field work coordination, budget control, and communications.

YEARS OF EXPERIENCE

7 years — Fishbeck
7 years — total

EDUCATION

BS in Environmental Engineering, Michigan Technological University

REGISTRATIONS/ CERTIFICATIONS

Engineer-in-Training – Michigan

OSHA 40-hour HAZWOPER

Confined Space Entry Training

EXPERIENCE

- Implementation of *in situ* remediation projects including the injection of emulsified vegetable oil and zero valent iron using both direct push technology and permanent injection/extraction wells.
- Low-flow groundwater sampling for remedial investigations and performance monitoring.
- Performed site investigations using incremental sampling methodology to estimate mean contaminant concentrations.
- Vapor Pin® installation and sampling.
- Sub-slab soil gas and indoor air monitoring to evaluate the vapor intrusion pathway.
- Vapor intrusion assessment and mitigation system design, installation, and operation including pressure field extension testing and data evaluation.
- SVE system design, installation, performance monitoring, operation and maintenance, reporting, and project management.
- Operation and maintenance of a mitigation system installed to control methane generated as a by-product of ERD in underlying groundwater.
- Collection, tabularization, management, and reporting of SVE and bioventing system field data.
- Collection, tabularization, management, and reporting of groundwater ERD performance monitoring data.
- Assessment of ERD performance and natural attenuation monitoring data.
- Development of a monitored natural attenuation remedial strategy.
- Perform reviews of technical work (e.g., proposals, reports, presentations, and data analyses).

PRESENTATIONS/PUBLICATIONS

Co-presenter, Vapor Intrusion: What is Seeping into the Workplace? Western Michigan Industrial Hygiene Society Webinar, 2021.

Presenter (poster), Remediation of Chlorinated Solvents in Harsh Environments: Enhanced Reductive Dechlorination in a Low pH, High Dissolved Oxygen Concentration Surficial Aquifer, Twelfth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, 2022.

RYAN MUSCH, PE, LEED AP, SITES AP

VICE PRESIDENT | SENIOR CIVIL ENGINEER

Ryan is a senior civil engineer and leads the Site Development group at Fishbeck. His roles include team leader, client manager, project manager, and lead designer on site development and civil engineering projects. These projects involve site/civil engineering design, marketing, due diligence studies, underground utility design, and sustainable/LEED projects. He has provided site analysis, planning, and design for governmental, university, commercial, and residential projects.

YEARS OF EXPERIENCE
16 years — Fishbeck
19 years — total

EDUCATION
MBA, Grand Valley State University

BS in Civil Engineering, Calvin College

REGISTRATIONS/ CERTIFICATIONS
Professional Engineer – Michigan, Indiana, Florida

LEED Accredited Professional

SITES Accredited Professional

MEMBERSHIPS
Green Building Certification Institute

US Green Building Council/ West Michigan Chapter

Society for College and University Planning

National Council of Examiners for Engineering and Surveying

EXPERIENCE

- Oversees Fishbeck's Site Development team, which includes civil/site engineers, landscape architects, CAD technicians, and graphics specialists.
- Project manager for site development projects for governmental, industrial, residential, commercial, and education projects.
- Facilitates site plan approval through cities and townships for public and private development projects.
- Coordinates staff and design expertise for multidiscipline projects including water and wastewater projects.
- Provides engineering review and consultation for property and infrastructure related issues on brownfield developments.
- Perform technical reviews of infrastructure development plans ranging from brownfield developments to wetland impacts.
- Prepares and reviews technical work (e.g. proposals, reports, presentation, construction documents, and specifications).

PRESENTATIONS

- MiAPPA/MAPPA conference presentations
  - Campus Placemaking: Filling a gap in properties with Partnerships, Pedestrians, and Art (2022)
  - Staying Ahead of the Sustainability Curve (2018)
  - Campus Athletic Fields: Planning, Design, and Maintenance (2015)
- MSPE: Civil + Sustainability: Current Strategies and Certification Options
- Michigan State University: CE 495 Lecture Series: Sustainability (2014 through 2018)
- USGBC Greenbuild: Case Study: Grand Valley State University – Student Recreation Fields (2015)
- Michigan Infrastructure Conference: "Sustainable Development: Balancing Environment and Economy at WMU's BTR Park" (2016)

KIRK PERSCHBACHER

SENIOR BROWNFIELD SPECIALIST

Kirk has an extensive background in environmental due diligence and brownfield incentive planning. He works with numerous attorneys, lending institutions, realtors, developers, and municipalities on a wide variety of projects ranging from small-scale residences to large-scale industrial manufacturing facilities. The ability to work on projects of all sizes has allowed Kirk to be well-rounded and have the skillset to take projects from start to full completion. Areas of expertise include Phase I and II ESAs, BEAs, due care planning/response activity implementation, volatilization to indoor air sampling/mitigation, EGLE grants/loans, MEDC grants/loans, Act 381 Work Plans, local and state TIF, and USEPA brownfield assessment grants.

YEARS OF EXPERIENCE

2 year — Fishbeck

15 years — total

EDUCATION

BS in Geology,
Grand Valley State University

REGISTRATIONS/ CERTIFICATIONS

ASTM Qualified Environmental Professional

40-hour HAZWOPER Certified with Annual 8-hour Refresher

Certified Vapor Barrier Inspector

Certified Gas Vapor Barrier Inspector

MEMBERSHIPS

Michigan Association of Environmental Professionals

American Institute of Professional Geologists

Ottawa County Planning Commission

Ottawa County Brownfield Redevelopment Authority

Ottawa County Economic Development Corporation

Grand Valley State University Alumni Board of Directors

Commercial Alliance of Realtors

EXPERIENCE

- Preparation and implementation of Brownfield Plans and Act 381 Work Plans, including tax increment financing to support reimbursement of eligible EGLE and MEDC activities.
- EGLE/MEDC/USEPA brownfield grant and loan applications.
- Implementation of EGLE brownfield grants and loans, including technical work plans, oversight of eligible activities, quarterly and final reports, payment requests, and administration.
- MEDC proforma and brownfield TIF.
- USEPA brownfield assessment grant QAPPs, SAPs, HASPs, and final reports.
- Phase I and II ESAs using ASTM standards and AAI.
- Baseline environmental assessment (BEA) and documentation of due care compliance (DDCCR) preparation.
- Proficient in SOI, groundwater, and soil gas (interior and exterior sampling).
- Oversight of pre-demolition surveys, asbestos/lead paint/mold abatement, and demolition.
- Design, installation, and monitoring of vapor intrusion mitigation systems.
- Contaminated soil and groundwater removal and disposal to eliminate unacceptable exposures and support brownfield redevelopment.

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BRADLEY PEULER, CPG

SENIOR GEOLOGIST

Brad works in the GeoSciences/Remediation department where his environmental consulting and project management experience includes site investigations, monitoring and production well installations, groundwater sampling, verification of soil remediation sampling, surface water sampling, and soil sampling. He also has field experience related to *in-situ* remediation projects and remedial systems.

His responsibilities include data interpretation, work plans, UST closures, no further action reports, groundwater monitoring reports, RAPs, restrictive covenants, hydrogeological reports, and proposal writing. As a project geologist/manager on many projects, he is responsible for schedule, budget control, communication, sampling, and reporting.

YEARS OF EXPERIENCE

22 years — Fishbeck
22 years — total

EDUCATION

BS in Geology, Hope College

REGISTRATIONS/ CERTIFICATIONS

Certified Professional Geologist, American Institute of Professional Geologists

HAZWOPER Site Worker

MEMBERSHIPS

American Institute of Professional Geologists

TRAINING

Groundwater Sampling Field Course, Nielson Environmental Field School, Inc.

EXPERIENCE

- Site investigations of releases to soil and groundwater utilizing various drilling and direct push methodologies and techniques.
- Oversight of excavation/remediation projects.
- Extensive groundwater, surface water, and soil sampling experience using various methods.
- Performed and managed site investigations using incremental sampling methodology (ISM).
- Free phase product investigation and remediation including monitoring, recovery well installation, and free phase product recovery system installation.
- UST removal, soil sampling, initial and final assessment reporting, and closure report preparation.
- Oversight of water supply well installations and aquifer testing.
- Implementation of *in-situ* remediation projects including Fenton's reagent, potassium permanganate, and emulsified vegetable oil using direct push technologies and permanent treatment wells.
- Air sparge and soil vapor extraction (AS/SVE) system installation, monitoring, and operation and maintenance (O&M).
- Superfund Sites/CERCLA: long-term groundwater monitoring program, landfill cap inspections, institutional controls, operation, and maintenance activities.
- Project manager for ongoing RCRA corrective actions, site spill investigations and remediation, and groundwater monitoring.
- Data review and interpretation including Mann-Kendall concentration trend analysis.
- Preparation of no further action and closure reports, including restrictive covenants.

KAYLA ROONEY

GEOLOGIST

Kayla has an understanding of subsurface geophysics, drilling and well installation methods, Phase I and II ESAs, remediation technologies, aquifer testing, soil and groundwater sampling, and statistical analyses.

EXPERIENCE

- Field experience related to sampling, remediation, drilling and well installation, aquifer testing, and vapor mitigation systems.
- Oversees monitoring well installation projects.
- Low-flow groundwater sampling techniques for remedial investigation projects.
- Conducts analyses of soil/sediment cores.
- Understanding of ArcGIS, PHREEQC, AQTESOLV, and Surfer15.
- Managed and/or assisted on multiple projects for EGLE and the DNR, related to state inspections, GIS mapping, and data collection.

YEARS OF EXPERIENCE

2 years — Fishbeck
2 years — total

EDUCATION

BS in Geology/
Environmental Emphasis,
Grand Valley State University

Hydrogeology Field Course,
Western Michigan University

Bachelor of Fine Arts
in Photography,
Kendall College of Art & Design

REGISTRATIONS/ CERTIFICATIONS

HAZWOPER Site Worker

EGLE Storm Water Management – Industrial Site (A1i)

TRAINING

ASTM RBCA at
Petroleum Release Sites

ANDY SCHWALLIER, sUAS REMOTE PILOT

SENIOR GIS SPECIALIST

Andy has experience in the fields of geographical research, collection, management, and cartographic presentation for environmental/hydrogeological projects. He has worked on diverse projects including remediation/investigation analyses; hydrogeologic investigations; wastewater treatment; UST initial and final assessment; closure reports; GIS applications related to land use and planning; contaminant source inventories; environmental assessments; wetland delineations; WHPPs; and ESAs. Andy's area of expertise is graphic representation and data management and analysis.

EXPERIENCE

- Data management and graphic representation utilizing GIS and CAD software applications
- Wellhead protection plans
- Contaminant source inventory reports
- Environmental programs reports, including storm water pollution prevention plans, spill prevention control and countermeasure reports, and permit to install applications
- Air dispersion modeling
- Hydrogeologic investigation/remediation and groundwater monitoring reports
- Environmental assessments, to include Phase I and Phase II ESA, baseline assessments, and due care compliance
- Wetland delineation, threatened and endangered species, and tree survey reports

YEARS OF EXPERIENCE
26 years — Fishbeck
31 years — total

EDUCATION
BS in Geography,
Western Michigan University

Graduate course
work in Geography,
Western Michigan University

REGISTRATIONS/ CERTIFICATIONS
Geographic Information
Systems Professional

FAA sUAS Remote Pilot

MEMBERSHIPS
American Association
of Geographers

MiCAMP

Improving Michigan's Access
to Geographic Information
Networks (IMAGIN)

fishbeck

THERESE SEARLES

SENIOR GEOLOGIST

Therese has experience with Brownfield redevelopment, including preparation of Brownfield plans, Act 381 work plans, tax increment tracking systems, and USEPA assessment grant reporting requirements; environmental due diligence, including Phase I and II ESAs, BEAs, and due care evaluations; air monitoring, asbestos surveys, and abatement oversight; lead inspections and lead risk assessments; and radon measurement and reporting.

YEARS OF EXPERIENCE

6 years — Fishbeck
12 years — total

EDUCATION

BS in Geology and Environmental Studies, Western Michigan University

REGISTRATIONS/ CERTIFICATIONS

HAZWOPER Site Worker

Accredited Asbestos Inspector

Asbestos Contractor Supervisor

Lead Inspector

Lead Risk Assessor

NIOSH 582 Certified

TRAINING

NITON XRF Spectrum Analyzer Training

NRPP Residential Measurement Provider for Radon

EXPERIENCE

- Manage Brownfield redevelopment including preparation of Brownfield plans and Act 381 work plans, working with Brownfield redevelopment authorities and developers, assessing funding resources, reimbursement tracking and implementation, EGLE/USEPA grant and loan administration and implementation, and community relations.
- Work with Brownfield authorities, local governmental units, and developers.
- Conduct Phase I ESAs for residential, commercial, and industrial properties.
- Conduct site-specific historic research, review public government agency files, perform risk assessment of nearby properties, and inspect properties to identify any current or historical environmental risks.
- Assist with Phase II ESAs. Work with field/drilling team to manage site assessments, analyze data, and compare to applicable cleanup criteria; and write technical reports.
- Perform BEAs/due care plans. Write technical reports to provide liability protection for clients' recently purchased properties and provide due care documentation of client responsibility to protect the public from any unacceptable health exposures.
- Complete Part 213 leaking UST investigations, remedial activities, and compliance report preparation.
- Design and implement ambient air exposure monitoring at construction sites.
- Conduct construction site soil management and characterization.
- Complete abandoned container characterization and evaluation for due care compliance.
- Perform asbestos inspections.
- Complete air monitoring and oversight for asbestos removal projects.
- Analyze asbestos air samples using NIOSH 7400 method.
- Perform lead inspections and risk assessments.
- Train individuals for various lead-based training programs.
- Conduct radon monitoring and reporting.

fishbeck

BOB WEBSTER

SENIOR GEOLOGIST

Bob has experience in soil and water sample collection, installation of monitoring wells, overseeing UST removal projects, and conducting building inspections for asbestos-containing materials. He has past experience with lead inspection and monitoring projects, and other chemical monitoring.

YEARS OF EXPERIENCE
23 years — Fishbeck
30 years — total

EDUCATION
BS in Geology,
Western Michigan University

REGISTRATIONS/ CERTIFICATIONS
HAZWOPER Site Worker

Accredited Asbestos Inspector

Confined Space Training

NIOSH 582 Certified

TRAINING
Polarized Light Microscopy Training for Asbestos Identification

XRF User Training (for RMD's LPA-1 system and Niton XL systems)

EXPERIENCE

- Conduct numerous soil and water sampling projects.
- Experience in conducting soil and water sampling under USEPA approved QAPPs.
- Significant expertise in conducting groundwater sampling using low-flow methods including PFAS sampling.
- Participated in several monitoring well installation projects.
- Conduct sampling for and supervision of UST removal projects.
- Conducted asbestos inspection for approximately 150 government buildings; 80 school districts in Michigan, including writing management plan updates; nuclear facilities; and numerous other commercial, industrial, and residential sites.
- Conducted lead monitoring and/or inspections on approximately 150 government buildings in Michigan.
- Conduct air monitoring and sampling for numerous hazardous substances.
- Assist with Phase I ESAs.
- Conduct Phase II ESAs.
- Soil gas testing and Vapor Pin® installation and sampling.

BRAD YOCUM

WETLAND SPECIALIST/BIOLOGIST

Brad has experience in environmental due diligence, including Phase I and II ESAs and BEAs; environmental permitting and reporting; wetland delineations; and endangered species surveys.

EXPERIENCE

- Conduct ESAs to determine environmental conditions of property for real estate and financing activities.
- Conduct BEAs for the transfer of contaminated properties.
- Perform wetland identification, delineation, and mitigation.
- Perform environmental permitting for aggregate mining, wetlands, landfills, and transportation agencies.
- Prepare endangered species surveys.
- Experienced in floristic quality assessment surveys.
- Completed a land condition trend analysis for an active National Guard base.
- Completed wetland survey along 35 miles of a petroleum pipeline right-of-way, including field delineation of wetland boundaries using handheld GPS and GIS mapping.

YEARS OF EXPERIENCE

14 years — Fishbeck
18 years — total

EDUCATION

MS in Conservation Biology, Central Michigan University

BS in Natural Resource Ecology and Management, University of Michigan

REGISTRATIONS/ CERTIFICATIONS

EGLE Storm Water Management Operator

Accredited Asbestos Inspector

Wetland Delineation Certification

HAZWOPER Site Worker

TRAINING

Lead Hazard Awareness Training

fishbeck

Key Personnel Expertise Matrix

KEY PERSONNEL			SERVICE AREAS											
Name	Title	Location	Asbestos/Lead/Mold/ Biohazard/ Free Product/ Regulated Waste/Survey/ Abatement	Brownfield Development	Ecological Risk Assessment/ Forestry and Land Management/ Wetland Mitigation/Streams and Lakes Restoration	Environmental Investigation/ Characterization/Pilot Tests/ Feasibility Study	Environmental/Rotosonic Drilling/ Well Abandonment	GPR/LIF Field Screening	Landfill Maintenance/ Monitoring	Per- & Polyfluoroalkyl Substances (PFAS) Sampling/Mitigation/ Remediation	Phase I/Phase II/BEA	Remediation Systems Design/ Construction Oversight/O&M/ Decommissioning	UST/AST Removal/ Demolition/Soil Excavation	Vapor Intrusion Assessments/Risk Mitigation/Design/ Installation/O&M Services
Mike Apgar	Senior Environmental Engineer	Grand Rapids, MI	■			■			■	■		■	■	■
Aaron Bigler	Environmental Scientist	Kalamazoo, MI	■			■					■			■
Tom Budge, CHMM	Senior Environmental Specialist	Grand Rapids, MI	■	■							■		■	■
Todd Campbell, CPG	Senior Geologist	Kalamazoo, MI				■	■	■			■		■	
Chris Carew	Senior Geologist	Kalamazoo, MI	■			■	■				■	■	■	■
Zachary Curry	Geologist	Kalamazoo, MI				■	■			■	■		■	■
Ali Dahlbacka	Environmental Engineer	Grand Rapids, MI				■						■		■
Courtney Dunaj	Hydrogeologist	Kalamazoo, MI		■							■			■
Rick Dunkin, CPG, LPG	Senior Geologist	Novi, MI				■	■	■				■	■	■
Paul French	Senior Hydrogeologist	Kalamazoo, MI	■	■		■	■				■	■	■	■
Bruce Gillett, CPG	Senior Hydrogeologist	Grand Rapids, MI				■	■			■				■
Peter Lepczyk, CPG	Vice President/Senior Hydrogeologist	Traverse City, MI				■	■	■		■		■	■	
Alisa Lindsay, PE	Senior Environmental Engineer	Kalamazoo, MI		■		■				■	■	■	■	
Derrick Lingle, CPG	Senior Hydrogeologist	Kalamazoo, MI				■	■	■				■	■	■
Penni Mahler	Environmental Data Specialist	Grand Rapids, MI				■								
Kerri Miller, PE, LEED AP	Senior Vice President/Principal	Grand Rapids, MI			■									
Ryan Musch, PE, LEED AP	Vice President/Senior Civil Engineer	Grand Rapids, MI			■									
Adam Near, CPG	Senior Geologist	Novi, MI				■	■	■	■			■	■	■
Kirk Perschbacher	Senior Brownfield Specialist	Grand Rapids, MI	■	■		■					■	■	■	■
Erik Peterson	Senior Hydrogeologist	Kalamazoo, MI	■	■		■					■			■
Brad Peuler, CPG	Senior Geologist	Kalamazoo, MI				■	■	■	■			■	■	■
Michael Ranck, PG	Senior Hydrogeologist	Raleigh, NC (Remote)				■	■	■		■		■	■	■
Kayla Rooney	Geologist	Kalamazoo, MI				■	■				■		■	■
Andrew Schwallier	Senior GIS Specialist	Grand Rapids, MI				■								
Therese Searles	Senior Geologist	Kalamazoo, MI	■	■		■					■		■	
David Stegink	Brownfield Program Manager	Kalamazoo, MI		■		■					■		■	
Elise Hansen Tripp, PWS	Senior Wetland Scientist/Ecologist	Grand Rapids, MI			■									
David Warwick	Senior Hydrogeologist	Kalamazoo, MI				■	■		■	■	■	■	■	■
Jessie Watterson	Senior Environmental Scientist	Novi, MI	■			■	■	■		■	■	■	■	■
Chad Weber, PE	Senior Environmental Engineer	Traverse City, MI		■		■	■	■		■	■	■	■	■
Robert Webster	Senior Geologist	Kalamazoo, MI	■			■	■	■		■	■		■	■
Roman Wilson	Vice President/Brownfield Program Manager	Grand Rapids, MI	■	■		■					■		■	■
Fernanda Wilson, PhD	Environmental Engineer	Lansing, MI				■			■	■		■		
Brad Yocum	Wetland Scientist/Biologist	Kalamazoo, MI			■						■			

Department of Technology, Management and Budget
2023 Indefinite-Scope Indefinite-Delivery – Request for Qualifications
Professional Environmental Consulting Services Questionnaire
Various Locations, Michigan

INSTRUCTIONS: Firms shall complete the following information in the form provided. A separate sheet may be used if additional space is needed; please key the continuation paragraphs to the questionnaire. Answer questions completely and concisely to streamline the review process. If you provide information in this questionnaire that is relevant to any other parts of the proposal, please reference the article numbers to avoid repetition.

ARTICLE 1: BUSINESS ORGANIZATION

1. Full Name: Fishbeck
   Address: 1515 Arboretum Drive SE, Grand Rapids, MI 49546
   Telephone and Fax: T: 616.575.3824 | F: n/a
   Website: www.fishbeck.com E-Mail: info@fishbeck.com
   SIGMA Vendor ID: CV0021627

   If applicable, state the branch office(s), partnering organization or other subordinate element(s) that will perform, or assist in performing, the work: Fishbeck branch offices: 39500 MacKenzie Drive, Suite 100, Novi, MI 48377; 5913 Executive Drive, Suite 100, Lansing, MI 48911; 4775 Campus Drive, Kalamazoo, MI 49008; 2960 Interstate Parkway, Kalamazoo, MI 49048; 821 South Elmwood Avenue, Unit D, Traverse City, MI 49684; 45200 Card Road, Suite 128, Macomb Township, MI 48044; 1001 Woodward Avenue, Suite 860, Detroit, MI 48226; 44978 Ford Road, Suite A, Canton, MI 48187; 2001 Commonwealth Boulevard, Suite 200, Ann Arbor, MI 48105.

   If awarded a contract and / or subsequent assignment(s), state the specific SIGMA business address which you would like associated for all communication (Contracts, Contract Order, Contract Modifications and Payments)? 1515 Arboretum Drive SE, Grand Rapids, MI 49546

   Please list all person(s) authorized to receive and sign a resulting contract and / or subsequent assignment(s). Please include persons name, title, address, email and phone number.
   Kerri A. Miller, PE, LEED AP, Senior Vice President/Principal | 1515 Arboretum Dr. SE, Grand Rapids, MI 49534 | kamiller@fishbeck.com | 616.464.3933

   Peter A. Lepczyk, CPG, Vice President/Senior Hydrogeologist, 821 South Elmwood Ave., Unit D, Traverse City, MI 49684 | palepczyk@fishbeck.com | 616.464.6238

   Aaron R. Steele, Vice President/Treasurer, 1515 Arboretum Dr. SE, Grand Rapids, MI 49534 | arsteele@fishbeck.com | 616.464.3705

Roman A. Wilson, Vice President/Brownfield Program Manager, 1515 Arboretum Dr. SE, Grand Rapids, MI 49534 | rwilson@fishbeck.com | 616.464.3876

2. Check the appropriate status:

   ☐ Individual firm ☐ Association ☐ Partnership ☒ Corporation, or ☐ Combination –

   Explain: Click or tap here to enter text.

   If you operate as a corporation, include the state in which you are incorporated and the date of incorporation: Michigan, January 3, 1967

   Include a brief history of the Professional's firm: Fishbeck is a full-service architectural/engineering, civil engineering, environmental, and construction services consulting firm. Since 1956, we have provided our clients with innovative designs, technical quality, and exceptional service. We help people realize their visions while benefiting society. Fishbeck has provided environmental consulting services for a wide range of industries including land development, transportation, agriculture, paper, plastics, plating, metal fabricating, foundries, pharmaceuticals, utilities, former power plants, manufacturing, and waste disposal facilities. We are able to effectively serve our clients in all regions of the State of Michigan with our various locations throughout the state.

3. Provide an organization chart depicting key personnel and their roles for a typical assigned project. Include generic supporting staff positions. The organizational chart is included in the Personnel Section and depicts the Fishbeck staff who will service the EGLE State Project Managers under this 2023 Environmental ISID contract.

4. Has there been a recent change in organizational structure (e.g., management team) or control (e.g. merger or acquisition) of your company? If the answer is yes: (a) explain why the change occurred and (b) how this change affected your company.
   Fishbeck acquired Envirologic Technologies, Inc (Envirologic) on January 1, 2023, resulting in the assimilation of 25 new highly experienced environmental professionals. This acquisition enhances Fishbeck's already robust staff of environmental professionals and ability to better support the needs of EGLE's ISID contract assignments. With this acquisition, Fishbeck has also enhanced its geographic reach with staffing in most major Michigan metropolitan areas: Grand Rapids, Kalamazoo, Ann Arbor, Novi, Lansing, Midland, Alpena, Traverse City, and Grand Haven/Muskegon. Fishbeck also has extensive experience serving clients in all regions of the Upper Peninsula. Fishbeck will be assigned the existing ISID contract assignments previously held by Envirologic to bring Fishbeck's total assignments to approximately 20 active projects. The ISID assignment contract modifications are in process.

5. Provide a four year rate schedule per position. Position, Classification and Employee Billing Rate Information is included in Part II.

ARTICLE 2: PROJECT TYPES AND SERVICES OFFERED

Identify the project types and professional services for which your firm is exceptionally qualified and experienced. Contractor should have the capability to form potential teams with adequate

experience in environmental investigation and remediation services. Provide attachments illustrating a minimum of three examples, with references, of successful projects performed in the last five years for each item checked (See also Article 8). Identification of specialties will assist the State project directors/managers in matching firms with projects.

☒ Asbestos / Lead / Mold / Biohazard / Free Product / Regulated Waste Survey / Abatement

☒ Brownfield Development

☒ Ecological Risk Assessment / Forestry and Land Management / Wetland Mitigation / Streams and Lakes Restoration

☒ Environmental Investigation / Characterization / Pilot Tests / Feasibility Study

☒ Environmental/ Roto Sonic Drilling / Well Abandonment

☒ Ground Penetrating Radar (GPR) / Laser-Induced Fluorescence (LIF) Field Screening

☒ Landfill Maintenance / Monitoring

☐ Nuclear Waste Management / Disposal / Remediation

☒ Per-& Polyfluoroalkyl Substances (PFAS) Sampling / Mitigation / Remediation

☒ Phase I / Phase II / Baseline Environmental Assessments

☒ Remediation Systems Design / Construction Oversight / O&M / Decommissioning

☐ Specialty Sub-Surface / Utility Inspection / Sewer Camera / Cleaning

☒ Underground / Aboveground Storage Tank (UST/AST) Removal / Demolition / Soil Excavation / Closure

☒ Vapor Intrusion Assessments / Risk Mitigation / Design / Installation / O&M Service

ARTICLE 3: PROJECT LOCATION

Identify the regions where your firm can most efficiently provide services. Assignments may vary from the regions checked, depending on the specialties and services required.

☒ Western Upper Peninsula (west of Marquette)

☒ Eastern Upper Peninsula (east of Marquette)

☒ Northern Lower Peninsula (north of Grayling)

☒ Saginaw Bay area (east of 127, north of I-69 and M 57, south of Grayling)

☒ Western Lower Peninsula (west of 127, north of Muskegon, south of Grayling)

☒ Central Lower Peninsula (east of Battle Creek, west of Chelsea, south of M 46 and M 57)

☒ Southwestern Lower Peninsula (west of Battle Creek, south of Muskegon)

☒ Southeastern Lower Peninsula (east of Chelsea, south of I-69)

ARTICLE 4: CONTRACT UNDERSTANDING

The following items should be addressed on the assumption that your firm is awarded an Indefinite-Scope, Indefinite-Delivery contract. (See attached sample contract).

4.1 Is it understood that your firm is required to respond to small projects (less than $25,000) as well as larger projects?

Yes ☒ No ☐

4.2 Is it understood that there is no guarantee of any work under this contract?

Yes ☒ No ☐

4.3 Is it understood that your firm will be required to execute the attached standard State of Michigan contract language for professional services?

Yes ☒ No ☐

4.4 Is it clearly understood that professional liability insurance is required at the time of execution of the ISID contract? (See Article 5 of the attached Sample Contract.)

Yes ☒ No ☐

4.5 Is it understood that your firm must comply with State of Michigan law as it applies to your services?

Yes ☒ No ☐

4.6 Does your firm have prior experience working with the State of Michigan?

Yes ☒ No ☐

If yes, explain: Fishbeck was awarded the 2019 Environmental ISID Contract. Taking into account the organizational changes described in Article 1, Item 4, Fishbeck has increased its ISID staffing and knowledge base and is the professional consultant for approximately 20 ISID assignments.

ARTICLE 5: CAPACITY AND QUALITY

5.1 Briefly describe your firm's methods and procedures for quality control for your deliverables and services.

The mission of Fishbeck's Environmental Services Department (ESD) is to provide services that meet or exceed our client's expectations for completeness and quality, in a manner that conforms to the client's standards and requirements. We work to provide our clients with technically sound and complete project deliverables that are cost-effective and delivered on schedule.

Almost everything we do directly depends on collection and use of environmental information. This information includes not only environmental data, but also less quantitative descriptions of the environment and processes involving it. The ESD's policy is to conduct environmental information operations in accordance with our quality management plan (QMP) so the information collected is of known quality and adequate for the intended use. QA/QC activities are conducted for all projects and are commensurate with each project's size and complexity.

To that effect, we have processes and standard operating procedures (SOPs) in place that address:

- Environmental information operations conducted by ESD staff.
- Project management and project planning.
- Data collection and analysis.
- Documents and records.
- Assessment and response.
- Quality improvement.

Personnel training is critical to providing high quality service. Fishbeck personnel are trained on the QMP and SOPs, and ongoing technical and safety training are also conducted. Various internal and external training opportunities are provided, to foster a culture of continuous improvement.

Effective communication is the primary control for providing high-quality service on schedule and within budget. Fishbeck provides an atmosphere supportive of open communication between project managers and clients to ensure excellent service.

Our firm uses a computer-based project control system. This system helps us track a project's progress and schedule, allowing us to know at any given time, from investigation through design and construction phases, the manpower associated with a project and the critical path needed for its completion. This system helps the project manager provide proper staffing to maintain a project's schedule and budget. We will commit the necessary staff and resources to see your project through. Allowances for critical checks and quality

control reviews are programmed into specific tasks. It is the project manager's responsibility to continually maintain the project control system and ensure quality work products that meet the specified schedule and budget.

Project quality documentation is accomplished through the use of various plans such as quality assurance project plans (QAPPs), data quality objectives (DQOs), work plans, sampling and analysis plans, response activity plans, and data validation reports. Fishbeck project managers and team members play an integral role in project quality and implementation of these project quality plans. Our QA/QC program provides rigorous reviews at critical points. Fishbeck staff provide peer reviews of all critical decisions. With this proven quality management program, we achieve the technical excellence required to deliver projects within budget and schedule constraints, while meeting or exceeding high industry standards and client needs.

As the firm has grown, it has been necessary to develop more standards, procedures, and structure — yet we have attempted to simplify decision making and avoid hierarchy. It is far more than providing quality projects. It is a philosophy that covers everything we do, be it management, accounting, human resources, marketing, or projects.

5.2 Has your firm been involved in claims or suits associated with professional services errors and / or omissions?

Yes ☐ No ☒

If yes, explain: N/A

5.3 Will there be a key person who is assigned to a project for its duration?

Yes ☒ No ☐

5.4 Please present your understanding of the relationship between your firm, the DTMB Design and Construction Division, and the State Agency for whom a project will be completed.

Fishbeck has worked successfully with MDTMB on numerous State of Michigan projects under various types of contracts and has experience working with multiple state agencies such as the EGLE, Michigan Department of Corrections, Michigan Department of Military and Veteran Affairs, Michigan Economic Development Corporation, Michigan State Housing Development Authority, Michigan Department of Transportation, and Michigan Department of Agriculture. Fishbeck's experience is that the relationship between Fishbeck, MDTMB, and the client agency varies depending on the project type and the client agency's desires. Fishbeck understands the MDTMB is the administrator of and holds the contracts for state-funded projects, handling aspects of contracting, budgeting, funding and change order management, and documentation. For ISID projects, scope and contractual changes are discussed and approved by the EGLE project manager and processed through the EGLE contract administrator. Project invoices are submitted to EGLE for processing and approval, and contract budget tracking is coordinated with MDTMB. As such, both MDTMB and EGLE are Fishbeck's clients.

For the ISID contract, EGLE provides the technical review of professional work products, with support from MDTMB, as needed. This relationship, and roles and responsibilities,

are defined at project commencement to ensure common understanding of project scope and objectives and proper coordination and communication.

Fishbeck understands that many of the projects assigned under the ISID contract are conducted under Phase 100 – Environmental Investigation/Study Services. These services may include, but are not limited to, environmental site assessments, due diligence activities, baseline environmental assessments, due care activities, sampling design, site investigations, interim response, exposure pathway evaluations, pilot testing, feasibility studies, site assessments, corrective action planning, response activity planning, and closure reporting.

Phase 300 Schematic Design, Phase 400 Design Development, Phase 500 Construction Documentation, Phase 600 Construction Administration, office services, Phase 700 Construction Administration, and field services may be utilized for conceptual designs, remedial designs, constructions specifications development, construction project management, and construction field oversight, respectively.

During all these efforts, Fishbeck will take our direction from and work with EGLE and MDTMB to ensure all contract and project requirements are met.

5.5 Describe your approach if a bidder proposes a substitution of a specified material during bidding.

Provided the bid specifications allow for substitutions or approved equivalent products and the request is made in a timely manner as enumerated in the bid specification, all proposed product substitutions are reviewed by the appropriate design team member(s) to ensure the proposed product or material complies with the design intent and is equal to or better than the specified product or material. If the product is determined to be acceptable, it is added to the specifications by an addendum issued to all bidders. This process ensures that only approved products and materials are used on the project while allowing the State to have the benefit of competitive bidding on appropriate products and materials.

5.6 Describe your approach if a contractor proposes a substitution of a specified material or detail with shop drawing submittals or in construction.

Proposed substitutions of a specified material subsequent to bid award and prior to implementation would be addressed similarly to what is described above in Item 5.5. Minor and inconsequential substitutions would generally be allowed, and the contractor would retain responsibility for those changes. Substantive proposed changes would require engineer and/or design professional reviews. If the proposed material and/or design change is determined to be equal or better than that originally specified, Fishbeck will discuss the proposed change with the appropriate State Project Manager, provide any change in cost (if applicable), and make the appropriate recommendation for review and approval.

5.7 How will your firm provide consistent and continuous communication pertaining to project activities and project status to the State of Michigan during the progress of projects?

Fishbeck structures our project teams to provide quality, responsive services. Our project managers provide overall project direction and act as the primary contact for our clients. Our experience has shown mutual communication results in client participation and leads to successful projects.

The project manager at Fishbeck has the primary responsibility to ensure the project communication plan is established at the onset of the project and is effectively implemented.

Depending on the nature and size of the project, the communication plan may include daily reports (generally for field activities), weekly summary reports, and/or monthly progress reports. The communication plan may also include periodic project status meeting with the State Project Manager and other stakeholders.

Fishbeck's communication platform is common across all of our offices. This includes a secure, centralized electronic document storage system, which is accessible remotely by team members. All offices are equipped with videoconferencing systems and Zoom to improve team communication and eliminate unnecessary travel. Our e-mail and telephone systems are integrated to allow secure access to all messages through the telephone or computer. Fishbeck team members are readily available via land-line, cell phone, and/or e-mail.

5.8 Does your company have an FTP or similar site for quick posting and distribution of information, drawings, field inspection reports, and other communications?
Yes ☒ No ☐

5.9 Describe your method of estimating construction costs and demonstrate the validity of that method.

Fishbeck estimates construction costs based on our past experience, regional construction cost estimating rates and guides, and previous actual costs for projects or similar scope. Detailed construction estimates are developed that break the project down into its various components and pricing each line item based on material, equipment, and labor costs. These costs are location factored, based on regional or national pricing service data. This method allows us to develop project pricing scopes early in the design, in conjunction with the designers, and more readily evaluate the impact of changes to the design as the project evolves from a concept to construction documents.

Contingencies and allowances are included in all estimates and adjusted as the project evolves and more unknowns are defined and quantified. Our computerized estimating system has the flexibility to compare estimates at various stages or options based on integral and customizable coding structures.

Concurrent with our estimating, we can generate detailed construction schedules that allow us to consider the effects of weather, delivery, or client completion and access constraints that can be factored into the pricing of the estimates. The concurrent scheduling aspects of our estimating gives us a better overall view of the project and allows us to price the overhead and general conditions based on actual time on the project, just like a general contractor, rather than on a percentage basis. The validity of this method can be verified in how we were able to anticipate the notable variations in the costs we have seen on projects of similar type and allowed us to be near the average of the submitted bids with our estimates.

5.10 Describe your approach to minimizing construction cost over-runs.

Fishbeck minimizes construction cost overruns using a combination of methods. First, we conduct a thorough investigation, analysis, and documentation of existing conditions to be modified. Second, we use senior-level, experienced staff to oversee the design and

ensure detailed and sound bid specifications. Third, each project is subjected to our thorough quality control program. Fourth, accurate cost estimating from our in-house cost estimators is designed to include contingencies and allowance. Finally, experienced project managers oversee each project from beginning to end, allowing for prompt identification and resolution of potential changes and deviations from the bid specifications.

5.11 What percentage of the construction cost should be devoted to construction administration (office and field)?

+/- 10 %

Construction administration costs expressed as a percentage of construction costs vary greatly depending on the overall value of the project, type of project, complexity, and extent of professional service required. Small projects with stringent oversight requirements including specialized services, such as sampling services, may require administration services more than 15% of the construction costs. For larger projects, administrative fees would typically be less than 10%.

5.12 What portion of the assigned work will be performed with your staff and what portion will be provided by sub-consultants?

90+ % performed by Fishbeck staff.

For most projects, Fishbeck will provide 100% of the required professional services. When specialized services are required that Fishbeck does not provide in-house, Fishbeck would partner with well-qualified subconsultant(s) with a proven record of high-quality service.

5.13 On a typical project, what would be your response time, from the time receive a project assignment to starting investigation and design work? A typical project might be one involving several disciplines and in the neighborhood of a $25,000 fee.)

Typically, within one to two weeks for all project types.

5.14 How do you assess whether a construction bidder is responsive and responsible?

When Fishbeck receives copies of bids from construction contractors, the entire bid is reviewed for completeness and accuracy against the bid specifications. Unit rates and totals are checked to determine if mathematical errors were made during the completion of the bid form. Any supplemental information is reviewed for compliance with the project's contractual requirements. Fishbeck routinely checks all references for the prospective low bidder. Depending on the complexity and scale of the project, Fishbeck may propose to MDTMB that post-bid interviews be scheduled with two or three of the apparent low bidders. Fishbeck will participate in the interview process and provide input to MDTMB. Recommendations are made based on determination of the contractor or bid that is in the best interest of the State of Michigan.

5.15 Describe your experience with similar ISID contracts.

Fishbeck has performed numerous projects under similar ISID contracts and currently holds a 2019 Environmental ISID contract. Over the past 25+ years, Fishbeck has performed work for the MDTMB on over 55 contract assignments. The projects performed under these contracts ranged across numerous professional services and project types. The services ranged from study and investigation phases through design and construction phases of projects. We believe our overall experience has been good for Fishbeck, MDTMB, EGLE, and other state agencies that have participated in our projects.

Fishbeck also performs work for the Michigan Department of Transportation under similar contracts. These services have included environmental investigation and remediation, studies, design, and construction engineering phases of work. In addition, Fishbeck holds numerous master services agreements with private sector clients for most services Fishbeck offers. Many of the contracts operate in a similar fashion to the MDTMB ISID contracts.

5.16 Describe your approach to a construction contractor's request for additional compensation for a change in the project scope.

Fishbeck requires and change order request to be submitted for review and approval prior to implementation, including a description of the change, reason for the change, change to contract cost, and impact to project timeline. When reviewing a contractor's request for additional compensation, Fishbeck reviews the request in terms of contract document requirements. If it is determined that the contractor has a legitimate claim and the proposed change meets the project objectives, Fishbeck provides a written summary to the State Project Manager for approval, detailing the basis of the change. If the contractor's contract is with MDTMB, once the proposed change is approved by the State Project Manager, Fishbeck would prepare and submit the appropriate contract modification documentation to the EGLE contract administrator, who would then process the contract modification with MDTMB.

5.17 Is a sample of field activity logs detailing a 1-week period (from one of the three (3) prior experience sites) and a weekly report provided?

☒Yes ☐No

ARTICLE 6: PERSONNEL STAFFING

6.1 Is an organizational chart that includes each person on your project team and their identified roles for a typical assigned project provided?

☒Yes ☐No

6.2 Please fill out the following information regarding the personnel your firm considers key to the successful completion of the study or project scope of work:

Key Personnel 1

Name: Alisa Lindsay, PE

Job Title: Senior Environmental Engineer

Labor Classification: P4

College Degree(s): BS in Civil and Environmental Engineering, University of Michigan

Has this individual successfully completed 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training with an up to date 8 hour HAZWOPER refresher training? ☒Yes☐No

Key Personnel 2

Name: Kerri Miller, PE, LEED AP

Job Title: Senior Vice President/Principal

Labor Classification: P4

College Degree(s): BS in Civil Engineering, Michigan State University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☐Yes ☒No

Key Personnel 3

Name: Peter Lepczyk, CPG

Job Title: Vice President/Senior Hydrogeologist

Labor Classification: P4

College Degree(s): MS in Environmental Geosciences, Michigan State University; BS in Geology, Hope College

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 4

Name: Penni Mahler

Job Title: Environmental Data Specialist

Labor Classification: P2

College Degree(s): BS in Geology with Geochemistry Focus, Michigan Technological University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☐Yes ☒No

Key Personnel 5

Name: David Warwick

Job Title: Vice President/Senior Hydrogeologist

Labor Classification: P4

College Degree(s): MS in Geology/Emphasis on Hydrogeology, Western Michigan University; BS in Geology, Eastern Kentucky University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 6

Name: Chad Weber, PE

Job Title: Senior Environmental Engineer

Labor Classification: P4

College Degree(s): MS in Environmental Engineering and BS in Civil Engineering, University of Michigan

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 7

Name: Chris Carew

Job Title: Senior Geologist

Labor Classification: P3

College Degree(s): BS in Geology, Western Michigan University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 8

Name: Courtney Dunaj

Job Title: Hydrogeologist

Labor Classification: P3

College Degree(s): BS in Hydrogeology and Environmental Studies, Western Michigan University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 9

Name: Rick Dunkin, CPG, LPG

Job Title: Senior Geologist

Labor Classification: P4

College Degree(s): MBA in Finance, Walsh College; MS in Geology, University of Toledo; BA in Geology/Environmental Studies, Susquehanna University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 10

Name: Paul French

Job Title: Senior Hydrogeologist

Labor Classification: P4

College Degree(s): BS in Geology, Murray State University; Graduate Certificate in Applied Hydrogeology, Western Michigan University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 11

Name: Bruce Gillett, CPG

Job Title: Senior Hydrogeologist

Labor Classification: P4

College Degree(s): MS in Hydrogeology, Wright State University; BS in Earth Science Education, Western Michigan University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 12

Name: Derrick Lingle, CPG

Job Title: Senior Hydrogeologist

Labor Classification: P3

College Degree(s): MS in Geology, Western Michigan University; BS in Environmental Geoscience, Michigan State University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 13

Name: Adam Near, CPG

Job Title: Senior Geologist

Labor Classification: P3

College Degree(s): BS in Geology, Central Michigan University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 14

Name: Erik Peterson

Job Title: Senior Hydrogeologist

Labor Classification: P4

College Degree(s): BS in Hydrogeology, Western Michigan University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 15

Name: Mike Ranck

Job Title: Senior Hydrogeologist

Labor Classification: P4

College Degree(s): MS in Hydrogeology, New Mexico Institute of Mining and Technology; BS in Environmental Geology, Michigan State University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 16

Name: David Stegink

Job Title: Vice President/Brownfield Program Manager

Labor Classification: P4

College Degree(s): BS in Chemistry and Biology, Hope College

Has this individual successfully completed 40-hour HAZWOPER training with an up to

date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 17

Name: Elise Hansen Tripp, PWS

Job Title: Senior Wetland Scientist/Ecologist

Labor Classification: P4

College Degree(s): MA in Environmental Design, Michigan State University; MS in Soil Science, University of California, Davis; BS in Biology, Wheaton College, Illinois

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 18

Name: Jess Watterson

Job Title: Senior Environmental Scientist

Labor Classification: P4

College Degree(s): BS in Environmental Science, Grand Valley State University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 19

Name: Fernanda Wilson, PhD

Job Title: Environmental Engineer

Labor Classification: P3

College Degree(s): PhD and MS in Environmental Engineering, Michigan State University; Bachelor of Biology Science, Federal University of Ceara, Brazil

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 20

Name: Roman Wilson

Job Title: Vice President/Brownfield Program Manager

Labor Classification: P4

College Degree(s): BS in Environmental Biology, Taylor University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 21

Name: Mike Apgar

Job Title: Senior Environmental Engineer

Labor Classification: P4

College Degree(s): MS in Environmental Engineering, Michigan State University; Secondary Education Certification and Chemistry Minor, Western Michigan University; BS in Science/Biology, University of Michigan Flint

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 22

Name: Aaron Bigler

Job Title: Environmental Scientist

Labor Classification: P3

College Degree(s): BS in Environmental Science and Planning and Minor in Geographic Information Science, University of Michigan-Flint

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 23

Name: Tom Budge

Job Title: Senior Environmental Specialist

Labor Classification: P4

College Degree(s): BS in Business Administration, Central Michigan University; BS in Biology, Grand Valley State University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 24

Name: Todd Campbell, CPG

Job Title: Senior Geologist

Labor Classification: P4

College Degree(s): BS in Geophysics, Western Michigan University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 25

Name: Zachary Curry

Job Title: Geologist

Labor Classification: P2

College Degree(s): BS in Geology, Grand Valley State University; Precambrian Research Field Camp, University of Minnesota-Duluth

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 26

Name: Ali Dahlbacka

Job Title: Environmental Engineer

Labor Classification: P2

College Degree(s): BS in Environmental Engineering, Michigan Technological University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 27

Name: Ryan Musch, PE, LEED AP, SITES AP

Job Title: Vice President/Senior Civil Engineer

Labor Classification: P4

College Degree(s): MBA, Grand Valley State University; BS in Civil Engineering, Calvin University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☐Yes ☒No

Key Personnel 28

Name: Kirk Perschbacher

Job Title: Senior Brownfield Specialist

Labor Classification: P3

College Degree(s): BS in Geology, Grand Valley State University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 29

Name: Brad Peuler, CPG

Job Title: Senior Geologist

Labor Classification: P4

College Degree(s): BS in Geology, Hope College

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 30

Name: Kayla Rooney

Job Title: Geologist

Labor Classification: P2

College Degree(s): BS in Geology and Environmental Emphasis, Grand Valley State University; Hydrogeology Field Course, Western Michigan University; Bachelor of Fine Arts in Photography, Kendall College of Art & Design

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 31

Name: Andy Schwallier

Job Title: Senior GIS Specialist

Labor Classification: P4

College Degree(s): BS in Geography, Western Michigan University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☐Yes ☒No

Key Personnel 32

Name: Therese Searles

Job Title: Senior Geologist

Labor Classification: P3

College Degree(s): BS in Geology and Environmental Studies, Western Michigan University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 33

Name: Bob Webster

Job Title: Senior Geologist

Labor Classification: P4

College Degree(s): BS in Geology, Western Michigan University

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

Key Personnel 34

Name: Brad Yocum

Job Title: Wetland Specialist/Biologist

Labor Classification: P4

College Degree(s): MS in Conservation Biology, Central Michigan University; BS in Natural Resource Ecology and Management, University of Michigan

Has this individual successfully completed 40-hour HAZWOPER training with an up to date 8-hour HAZWOPER refresher training? ☒Yes ☐No

6.3 Does the Professional Project Manager (PM) have at least three years' experience as a PM? ☒Yes ☐No

6.4 Does the Professional PM have a minimum of 10 years' experience with similar projects? ☒Yes ☐No

6.5 Are the resumes for the key personnel provided? ☒Yes ☐No

ARTICLE 7: SPECIAL FACTORS

Include a brief description of your firm's special qualifications such as awards, recognitions, innovations, etc. that would pertain to this RFP. (As examples: any awards or recognition received by the firm or individuals for similar work, special approaches or concepts developed by the firm appropriate to this project, financial capacity, etc. Respondents may say anything they wish in support of their qualifications).

Fishbeck provides high-end, innovative, technical solutions for projects that have included active remediation, hazardous condition abatement, risk mitigation of potential exposure to human health or the environment, and site closures. We couple this innovation with a customer service centered approach. It is this innovation, commitment to meeting client's needs, and consistency of delivering quality work products that has led some of our largest clients to invite us to work at sites throughout the country.

Specialized Experience and Technical Competence
Fishbeck has a well-rounded staff in all the major disciplines required to perform the services that would fall under this contract. The staff includes specialized expertise and competencies in the necessary areas of practice. Specifically, the project team depicted in Section 2 includes hydrogeologists and engineers that specialize in developing DQOs, sampling and analyses planning, complex site investigations and characterization, aquifer hydraulics, groundwater modeling, extraction well and aquifer performance analysis, groundwater surface water interactions, and fate and transport of contamination. Fishbeck is especially experienced with *in situ* remediation technologies; natural attenuation evaluation; groundwater monitoring; volatilization to indoor air assessments and mitigation; vapor mitigation system design, installation, and operation maintenance; and cost benefit analysis for assessing available options to address environmental issues.

Fishbeck also has extensive experience on brownfield projects, having worked with EGLE, various local units of governments, brownfield redevelopment authorities, and developers to transform underutilized, blighted, and contaminated sites into functional properties that provide jobs and value to communities. Fishbeck assists with all aspects of brownfield redevelopment, including concept and identification of potential redevelopment properties; Brownfield Plan and Act 381 Work Plan development; due diligence activities to support property transactions; determination of due care obligations; demolition specifications and oversight; design and implementation of solutions to ensure safe property reuse; and identification, acquisition, and administration of funding sources (such as grants, loans, and tax increment financing) to support redevelopment. Because of their expertise, various entities have requested Fishbeck personnel speak and provide brownfield training to their staff and stakeholders, including EGLE, professional organizations, and various local units of government.

Project Team and Qualifications
We intentionally seek out and hire well-qualified staff and support them with training, education, and research to be knowledgeable and experienced in the state of the industry for innovative technology applications and best management practices. We have a dedicated staff of scientists, geologists, hydrogeologists, engineers, geographers, and regulatory specialists that help us evaluate the many facets to solving environmental problems in a cost-effective manner that ultimately deliver value to our clients and improves the environment and its benefit to the community. Please see the matrix in the Personnel section for individual key personnel experience and expertise. Staff in our Environmental Services Division hold the following credentials:

- Certified Professional Geologists, American Institute of Professional Geologists – Michigan
- Licensed Professional Geologist – Indiana
- Professional Engineers – Michigan, Indiana, Kentucky, and Florida
- Professional Wetland Scientists, Society of Wetland Scientists
- Environmental professionals as defined by USEPA All Appropriate
- Inquiry (AAI) Rule
- ASTM Risk Based Training program required by the State of Michigan
- HAZWOPER, First Aid, and CPR
- Accredited Asbestos Building Inspectors, Michigan Department of Licensing and Regulatory Affairs
- Certified Lead Inspectors and Risk Accessors, Michigan Department of Health and Human Services
- Certified Stormwater Operators (Industrial and Construction sites), certified in Stormwater Management and Soil Erosion, and Sedimentation Control
- Certified Industrial/Commercial Wastewater Operators – Various processes
- Certified Vapor Barrier Inspector
- Certified Gas Vapor Barrier Inspector
- PhD in Environmental Engineering
- PhD in Geological Engineering
- LEED Accredited Professionals
- Residential Builder License – Michigan
- Michigan Class A and B UST System Operator

Many circumstances arise during the completion of environmental and remediation projects that require the assistance of other experts and specialists. Fishbeck's Environmental Services Division is fortunate to be supplemented by other in-house experts. These other areas of expertise include:

- Electrical engineers
- Civil engineers
- Mechanical engineers
- Regulatory program specialists
- Structural engineers
- Industrial hygienists
- Construction estimators
- Construction managers
- Financial specialist
- Information technologists/specialists
- GIS specialists
- Professional surveyors

Fishbeck has, and currently holds, ISID contracts for environmental and architectural projects. We are familiar with the contracting process and are excited by the prospect of continuing to provide environmental services to MDTMB and EGLE.

ARTICLE 8: EXPERIENCE

8.1 Provide a client reference and brief descriptions of at least three (3) projects in the last five years closely related to each of the project types and professional services requested in this RFP. Emphasis shall be placed on recent work at sites of environmental contamination:

Because of the multi-faceted nature of Fishbeck's work, many of our project examples included work in multiple service areas. To reduce redundancy, please reference the attached Projects Matrix for additional projects that include this service area.

ASBESTOS/LEAD/MOLD/BIOHAZARD/FREE PRODUCT/REGULATED WASTE SURVEY/ABATEMENT

Project 1 Reference Information:

Project Name: City of South Haven 2019 HOME Grant
Project Address: 535 Bailey Avenue and 719 South Haven Place
Key Personnel: Erik Peterson and Therese Searles
Project City/State/Zip: South Haven, Michigan 49090
Owner/Client Contact Name and Telephone #: Marilyn Smith — Smith Housing, 734.341.1866; and Wayne Nelson — Van Buren County, 269.657.8200, ext. 1299

Project 1 Description:

In 2019, this project was completed to assist the City of South Haven in implementing a HUD HOME grant from MSHDA for two owner-occupied residential structures at 535 Bailey Avenue and 719 South Haven Place within the City of South Haven. Lead inspection and lead risk assessments were conducted at both locations in compliance with Chapter 7 of the HUD Guidelines. Work involved collection and analysis of paint, dust, and soil samples at the property, an evaluation of potential exposures and associated hazards, and recommendations. An asbestos-containing building materials survey was also completed for the 719 South Haven Place property consistent with NESHAP inspection requirements. The project successfully leveraged $10,000 in home repairs from the HOME grant funds plus additional private investment from the landowner.

Project 2 Reference Information:

Project Name: Leestma Management Building Assessments
Project Address: 1148 & 1204 W. Western Avenue
Key Personnel: Roman Wilson and Ryan Krozek
Project City/State/Zip: Muskegon, Michigan, 49441
Owner/Client Contact Name and Telephone #: Mr. Ryan Leestma, 616.633.6020

Project 2 Description:

In 2021, Leestma Management retained Fishbeck to perform a comprehensive hazardous materials inspection (HMI) of two old industrial buildings, totaling more than 200,000 square feet, for the purpose of evaluating potential environmental concerns related to future demolition, brownfield redevelopment, and reuse. The buildings were inspected for asbestos, lead paint, mold, PCB oil-containing equipment, fluorescent light tubes and bulbs, refrigerators, mercury vapor bulbs, thermostats, and storage of hazardous materials in 55-gallon drums or other containers. Findings revealed the presence of asbestos, lead-based paint, mold, and universal waste. Based on proposed redevelopment and reuse of the buildings, Fishbeck was able to recommend specific abatement and disposal measures protective of human health and the environment. In 2022, the buildings were repurposed for professional office space, boat storage, and light manufacturing.

Project 3 Reference Information:

Project Name: Metea Court Senior Apartments
Project Address: 809 Rynearson Road
Key Personnel: Therese Searles
Project City/State/Zip: Buchanan, Michigan 49107
Owner/Client Contact Name and Telephone #: Matt Hollander — Hollander Development Corporation, 269.338.4677

Project 3 Description:

Hollander Development Corporation made development-wide renovations to the Metea Court Senior Apartments, a low-income senior living housing development built in two separate phases. The first phase of buildings (Phase I) was constructed in 1972 and included 15 buildings with 76 apartment units and one community building. The Phase II buildings were constructed in 1975 and include four buildings with 24 apartment units. To support the renovations, Hollander Development received outside funding including a $3.4 million Low Income Housing Tax Credit investment from Cinnaire, a $1.8 million Fannie Mae immediate permanent loan, and a $1.5 million construction loan.

Before renovations began, it was necessary to identify and mitigate hazards associated with tenants' potential exposure to asbestos, radon, and lead. Portions of the Phase I buildings had previously been evaluated for these materials. Envirologic (now Fishbeck) was retained to assess the Phase II buildings, as well as the Phase I units that were not previously assessed. Additionally, at the start of the project, we coordinated with the renovation architects to develop renovation sequencing and to determine how potential radon, asbestos, and lead exposures would be eliminated. Our staff then coordinated with the client's general contractor and construction manager throughout the entire renovation process to ensure these plans were correctly implemented and the resulting renovated units were safe and in compliance.

Our team performed a radon survey of the previously un-assessed Phase II units. Test results indicated eight of the units contained radon at levels above the U.S. EPA's action level of 4 pCi/L. To reduce concentrations to nonhazardous levels, we recommended that radon mitigation systems be installed in all eight units. After these systems were installed, we conducted a site visit to inspect the systems and reaffirm post-mitigation maintenance protocol.

Our team also completed an asbestos survey of the Phase I and Phase II buildings and oversaw the subsequent asbestos abatement activities. Only asbestos-containing materials (ACMs) with the potential to be impacted by the planned renovation activities were abated. An Operation and Maintenance Plan was created to manage ACMs left in place. Following the surveys, our staff reviewed the planned renovation tasks and determined the appropriate level of training and required work practices.

A combined lead inspection and risk assessment of the Phase II buildings was also conducted; however, no lead-based paint or lead-based paint hazards (paint, dust, soil) were identified. Asbestos, lead, and radon closeout documentation were prepared in compliance with MSHDA requirements.

Project 4 Reference Information:

Project Name: Sawyer International Airport
Project Address: 125 Ave G
Key Personnel: Jeff Hawkins, David Stegink, Erik Peterson, and Brad Yocum
Project City/State/Zip: Gwinn, MI 49841
Owner/Client Contact Name and Telephone #: Steven Schenden — Director of Operations, 906.346.3308, sschenden@mqtco.org

Project 4 Description:

Envirologic (now Fishbeck) has been working with the Marquette County Brownfield Redevelopment

Authority and the Sawyer Airport since 2015 on various projects on the base. With a 12,000-foot-long runway (one of the longest in North America), it has attracted several high tech, aviation, and commercial developments and is home to companies such as Telkite Enterprises, Superior Extrusion, Noble Men Heating, and more.

Our work has included Phase I ESAs to support the acquisition of properties for private development, completion of a brownfield/blight survey of over 500 residential single-family and multifamily housing units, and completion of a hazardous materials building survey in preparation for the demolition of a former air force engine test facility, which is supporting the expansion of a manufacturing facility at the airport.

Currently we are providing hazardous materials surveys for three buildings to allow for renovation or demolition of the blighted buildings. Based upon the initial construction date for the structures, the potential presence of asbestos-containing materials has been identified as a concern for renovation. Our work is being completed under a U.S. EPA Brownfield Assessment Grant administered through the Marquette County Brownfield Redevelopment Authority.

ARTICLE 8: EXPERIENCE

8.1 Provide a client reference and brief descriptions of at least three (3) projects in the last five years closely related to each of the project types and professional services requested in this RFP. Emphasis shall be placed on recent work at sites of environmental contamination:\

Because of the multi-faceted nature of Fishbeck's work, many of our project examples included work in multiple service areas. To reduce redundancy, please reference the attached Projects Matrix for additional projects that include this service area.

BROWNFIELD DEVELOPMENT

Project 1 Reference Information:

Project Name: Borough Ish
Project Address: N/A
Key Personnel: Therese Searles, David Stegink, Jeff Hawkins, David Bohan
Project City/State/Zip: Ishpeming, Michigan 49849
Contact Name and Telephone #: Anne Giroux — Executive Director, Marquette County Land Bank Authority, 906.225.8177, agiroux@mqtco.org)

Project 1 Description:

This redevelopment project was funded with a $200,000 EGLE Refined Petroleum Fund Grant provided to the Marquette County Land Bank Authority (MCLBA) to help a local business in the City of Ishpeming acquire a former gasoline service station and construct a new coffee shop and bakery. The Marquette County Brownfield Redevelopment Authority utilized its U.S. EPA Brownfield Assessment Grant to fund Phase I and II ESAs and a BEA, all of which were completed by Envirologic (now Fishbeck). Securing the site was challenging and required the MCLBA to acquire the site, conduct demolition and cleanup activities using the grant, and then transfer the property to the ultimate developer.

Our team worked directly with the MCLBA, EGLE, developer, and various subcontractors to effectively manage this project through all phases of project work. Our work included preparation of the grant proposal, application, and work plans. Work activities involved removal of three underground storage tanks (USTs), an asbestos survey and abatement, building demolition, removal of contaminated soil, site investigations, and preparation of documentation to achieve regulatory closure of petroleum releases discovered at the site. It was the intent of the grant to have a clean site for which no further due care obligations would apply. We also prepared work plans, bidding documents, site access agreements including city right-of-way, progress reports, budget spreadsheets, and grant closeout documentation to aid in the MCLBA's administration of the grant and loan.

Project 2 Reference Information:

Project Name: Consumers Energy Solar Garden (Former Mitchell Bentley Site)
Project Address: 514 W. Wright Street
Key Personnel: Roman Wilson and Susan Wenzlick
Project City/State/Zip: Cadillac, Michigan 49601
Contact Name and Telephone #: Marcus Peccia; 231.779.7344

Project 2 Description:

The former Mitchell Bentley site is an 11-acre parcel that was developed in the late 1800s with a factory that made wood flooring and broom handles. In the 1940s, it was converted to boat building, which eventually transitioned to an auto parts manufacturing facility in the 1970s. When manufacturing ceased in 1989, the

blighted factory buildings were abandoned. In 2013, a fire destroyed much of the buildings leaving behind large piles of asbestos-containing debris. In addition to the environmental risks associated with the debris, previous soil and groundwater investigations revealed the presence of PCE on the site.

The Cadillac Industrial Fund partnered with the City of Cadillac, Wolverine Power Supply and Consumers Energy to redevelop 4 acres of the site with solar panels. Fishbeck was retained by the City of Cadillac to secure EGLE funding for environmental cleanup and demolition activities that would facilitate site reuse. Working with EGLE officials through the application and approval process, Fishbeck was able to obtain $949,000 and $300,000 in grant and loan funds, respectively. After the grant and loan were awarded, Fishbeck staff oversaw the demolition, debris removal, environmental investigation and cleanup, and grant and loan reporting which ended in 2020.

Project 3 Reference Information:

Project Name: Inn on Water Street
Project Address: 560 S. Water Street
Key Personnel: David Stegink, Jeffrey Hawkins, Paul French
Project City/State/Zip: Marine City, Michigan 48039
Contact Name and Telephone #: Geoff Donaldson — Senior Planner, St. Clair County Metropolitan Planning Commission, 810.989.6999, ext. 6228, gdonaldson@stclaircounty.org

Project 3 Description:

This urban brownfield redevelopment project, a 24-room boutique hotel with condominium units on the top floor, was completed in the spring of 2018. The development supports the existing traditional downtown by promoting walkability in the community, providing additional housing for Marine City residents, and supporting tourism in the area. As the contracted environmental consultant for the St. Clair County Brownfield Redevelopment Authority (SCCBRA), Envirologic (now Fishbeck) was involved in the initial environmental assessment of the property. The site was formerly a car dealership, service center, and gas station on the St. Clair River. Prior to the project, two underground storage tanks (USTs) were used and subsequently removed. While residual contamination was expected to remain onsite, the release from the former USTs had achieved regulatory closure. Other concerns included an in-use waste oil tank, a former waste oil tank, drains, and hydraulic lifts.

Through our leadership, various environmental due diligence and brownfield redevelopment planning activities were financed by several parties, including the SCCBRA, the St. Clair County Economic Development Alliance, the City of Marine City Tax Increment Finance Authority, and the Community Foundation of St. Clair County. The SCCBRA initially funded the environmental assessment activities (Phase I and II ESAs conducted our team) using their U.S. EPA Assessment Grant, which allowed the developer to acquire the property. The Phase I and II ESAs demonstrated that the site was contaminated and that various brownfield eligible activities would be necessary to redevelop the site. These costs created a gap in financing related to the overall development. To help address this financial gap, we utilized the SCCBRA's U.S. EPA Brownfield Assessment Grant to prepare a Brownfield Plan and Act 381 Work Plan. The project included both environmental and non-environmental activities and required review and approval by both the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the Michigan Economic Development Corporation (MEDC)/Michigan Strategic Fund (MSF). The brownfield plan is rather complicated, involving a Commercial Redevelopment Exemption, which freezes certain taxes over a period of time, and residential property—some of which meets the Principal Residence Exemption, thereby limiting certain school tax revenues available for tax capture. Our team additionally helped secure a Brownfield Redevelopment Grant ($249,000) and Loan ($280,000) for the City of Marine City, as well as MEDC/MSF Community Revitalization Program support ($642,000), to address environmental and project development concerns.

We also prepared a Baseline Environmental Assessment (BEA) and Due Care Document in support of acquisition of the site. Other activities we completed included oversight of asbestos abatement and building demolition activities, removal of a used oil UST, and soil remediation excavations, which resulted in the

removal of 7,258 tons of contaminated soil. After soil removal, we conducted verification of soil remediation (VSR) sampling to demonstrate contaminant concentrations had been reduced to levels where mitigation measures and/or engineering controls relative to vapor intrusion were no longer warranted.

Project 4 Reference Information:

Project Name: Vicksburg Mill
Project Address: 300 W Hwy Street
Key Personnel: David Stegink, Jeffrey Hawkins, Paul French
Project City/State/Zip: Vicksburg, Michigan 49097
Contact Name and Telephone #: Mary Balkema, Kalamazoo County Land Bank, 269.384.8124

Project 4 Description:

The site is a former paper mill in downtown Vicksburg, Michigan. The paper mill is a complex of several building additions, some nearly 100 years old. The buildings encompass 484,000 sf on 21 acres of land. The Kalamazoo County Treasurer acquired the property through tax reversion. Envirologic (now Fishbeck) also assisted the County Land Bank with the acquisition of portions of the property by conducting a Phase I ESA and BEA. A developer approached the community, interested in acquiring the site for a mixed-use development including apartments, a food business incubator center, a restaurant, a new home for the local museum, a malting operation, and a community event center.

Because of the condition of the building and the long-documented environmental condition of the property, significant hurdles to development existed. Portions of the building complex had caught on fire, roofing had collapsed, several abandoned containers of hazardous materials were present, and asbestos was present, in addition to contaminated soils, groundwater, and sediments.

Our team was engaged in this project since its inception. Our work included demolition of former wastewater treatment structures that posed an immediate safety risk, a complete asbestos survey of the 20 buildings that made up this industrial complex, inventory of hazardous materials and coordinating their removal, oversight of the asbestos abatement process, a review of environmental data, and coordination of a Brownfield Assessment completed by EGLE. Currently, we are the environmental oversight consultant for the County Brownfield Redevelopment Authority with respect to an EGLE grant and loan.

This project exemplifies our team’s ability to manage large and complex projects that have many stakeholders and funding sources. This project will be ongoing for several years but is currently very active.

ARTICLE 8: EXPERIENCE

8.1 Provide a client reference and brief descriptions of at least three (3) projects in the last five years closely related to each of the project types and professional services requested in this RFP. Emphasis shall be placed on recent work at sites of environmental contamination:

Because of the multi-faceted nature of Fishbeck's work, many of our project examples included work in multiple service areas. To reduce redundancy, please reference the attached Projects Matrix for additional projects that include this service area.

ECOLOGICAL RISK ASSESSMENT/FORESTRY & LAND MANAGEMENT/WETLAND MITIGATION/STREAMS & LAKES RESTORATION

Project 1 Reference Information:

Project Name: Avionics Specialties, Inc. Facility
Project Address: 3367 Earlysville Road
Key Personnel: Peter Lepczyk, Michael Apgar, Chris Carew, Mike Ranck, Brad Peuler, Fernanda Wilson, Penni Mahler, Chad Weber, Andy Schwallier, Ali Dahlbacka
Project City/State/Zip: Earlysville, Virginia 22936
Contact Name and Telephone #: Mark Thomasen, 302.368.7350

Project 1 Description:

During 2017, a screening level ecological risk assessment (SLERA) was prepared in support of a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for the Avionics Specialties, Inc. Fishbeck worked alongside CH2M HILL, Inc. (CH2M) to complete the field activities and support the SLERA efforts.

The SLERA was prepared in accordance with the relevant USEPA guidance documents. The SLERA was based on analytical data derived from pore water, sediment, and surface water samples collected at 28 sampling locations within two separate surface water systems. The analytical data were screened relative to published ecological screening values (ESVs); the majority of the ESVs were derived from USEPA Region 3 Biological Technical Assistance Group (2006).

The findings from the SLERA identified exceedances of ESVs in the headwaters of one of the drainage streams for 1,1,1-TCA, 1,1-DCA, 1,1-DCE, chloroform, PCE, and TCE. Most of the exceedances were from pore water and sediment samples; only two surface water sample concentrations exceeded ESVs. Within the second surface water system, only one pore water sample and one surface water sample (which were co-located) exceeded an ESV for CVOCs.

The SLERA concluded that the nature and extent of VOC releases had been adequately delineated for the purposes of conducting the SLERA. Because of the ESV exceedances, some potential risks for biota in the aquatic habitats exist. However, the potential risk was quite limited in extent relative to the overall size of the aquatic habitats and, the field surveys indicated there is a functioning and relatively diverse aquatic community throughout the evaluated areas. Based on the evaluation, the SLERA recommended that no further ecological risk assessment steps, nor additional remedial actions to address ecological risks beyond those already completed under interim measures activities, were necessary.

Project 2 Reference Information:

Project Name: Fort Custer Training Center
Project Address: 2501 26th Street
Key Personnel: Brad Yocum
Project City/State/Zip: Augusta, MI 49012

Contact Name and Telephone #: Michele Richards - Michigan Department of Military and Veterans Affairs, Environmental Office, 269.731.6570

Project 2 Description:

Envirologic (now Fishbeck) has provided numerous services to the environmental staff at the Fort Custer Training Center (FCTC) since 1998 in order to assist with efforts to manage and monitor natural resources. The FCTC encompasses approximately 7,500 acres, of which about 2,500 acres are semi-improved and about 5,000 acres are unimproved. The Range and Training Land Assessment (RTLA) is used to collect and analyze land conditions to support sustainable land management decisions related to training mission requirements.

Thirty RTLA plots are scattered throughout the FCTC. Our team helped establish the permanent plots and samples each plot on a regular basis. Most plot locations were selected at random to provide an unbiased assessment in the different habitat types found on the base. Other plots were specifically located to provide data near sensitive or unique habitats like fens and prairies. At each 100-meter-long plot a variety of attributes are measured and recorded. Photo-monitoring is used to provide qualitative observations at each plot over time. Other simple observations of land use or land management efforts and the impact they may have on vegetation or soil erosion are noted. Fine-scale data include point intercept vegetation. Floristic Quality Assessments (FQAs) are conducted either as meander surveys of an area or discrete subplots on a transect. The data collected are periodically summarized and provided to FCTC environmental staff in brief reports.

We developed a modified sampling method in 2013 that still collected similar data but allowed for a more detailed level of assessment. With the modified data collection, details like vegetation regrowth in the understory and recruitment of seedling and sapling trees to the overstory can be tracked over time and in response to environmental conditions or habitat management efforts. The FQA 1-m2 subplots along each transect were new and allow for a better grasp of the plant diversity around each plot that was not previously being tracked.

FQAs have also been conducted on several timber harvest areas at FCTC. The purpose of the surveys was to evaluate the response of vegetation after a timber harvest was complete. Data we collected demonstrated that the biodiversity after the harvest returned to levels similar to those before the harvest but that invasive species like multiflora rose (*Rosa multiflora*) and common buckthorn (*Rhamnus cathartica*) often increased to a density that negatively affects training.

The FCTC environmental staff also use prescribed burns as a tool to manage habitat at the base. Some burns are conducted with specific goals such as controlling vegetation succession at prairie restoration sites or recreating prairie habitat suitable for training purposes. The prescribed burns can also be used for more general purposes such as control of non-native invasive species. The efficacy of these burns to achieve the desired goals can be evaluated using the data our team collects at a separate set of plots established in 2014. The purpose of the plots is to track the response of problematic vegetation, both native and non-native, to prescribed burns. Several thorny species have been identified by military trainers as a problem for a variety of training uses. Our team makes recommendations to the FCTC staff regarding habitat management based on the data collected and observations made.

Project 3 Reference Information:

Project Name: Meijer, Inc.
Project Address: Multiple locations throughout Michigan
Key Personnel: Elise Tripp
Project City/State/Zip: South Haven, Sault Ste. Marie, Fremont, Manistee, Alpena,

Georgetown Township, Macomb, Lyon Township, Dearborn
Contact Name and Telephone #: Mr. Erik Petrovskis, PhD, PE, Director of Environmental Compliance and Sustainability, 616.735.7101

Project 3 Description:

Fishbeck has provided Meijer, Inc. with ecological services at multiple sites throughout Michigan. Our typical services for a new project include wetland delineation, threatened and endangered species assessment, and securing permits for wetland impacts. Additional services have included establishment of a 47-acre wetland preserve (Sault Ste. Marie, MI) including short term preserve monitoring, designing two mitigation wetlands (South Haven, MI), wetland mitigation monitoring, preparing a stream restoration planting plan, and managing invasive species control measures.

Project 4 Reference Information:

Project Name: Mystic Heights
Project Address: 3839 Van Kal Street
Key Personnel: Brad Yocum (Project Biologist)
Project City/State/Zip: Mattawan, Michigan 49071
Contact Name and Telephone #: Mike Seelye, Van Kal Partnership, LLC (888.342.1634)

Project 4 Description:

Van Kal Partnership was proposing to develop a 38-unit condominium development on a 40-acre parcel it owned in Oshtemo Township in Kalamazoo County. However, the township board denied the approval due to concerns that it would be detrimental to the natural resources. Van Kal Partnership contacted Envirologic (now Fishbeck) to provide a survey of the property and an evaluation of the habitat for threatened or endangered species.

Our team began by utilizing the available data on threatened and endangered species and rare habitats reported to Michigan Natural Features Inventory (MNFI). After summarizing the database records, it was possible to ascertain which element occurrences (rare plants or animals) were most likely to occur at the property based on proximity or habitat type. The database report included 117 records of 33 plant species, six reptiles, six insects, four birds, two amphibians, one mammal, and one snail within a four-mile radius from the site. This list was pared down based on the known habitat requirements of the listed species so that potential species targets were identified. Twenty-four of the species were listed as Special Concern, which does not have the legal protection that a Threatened or Endangered status carries. Several species were ruled out because they are aquatic or require wetland habitat, and these habitat types were not identified on the property during a review of the wetland inventory maps published by the U.S. Fish & Wildlife Service or the EGLE. A critical component of the process was obtaining and reviewing aerial photos to assess historic property uses and the potential for remnants of suitable habitat to exist at the site.

With a list of potential target species in mind, our team evaluated the best or most appropriate time of year to conduct a survey in an efficient manner. Many of the plants would be identifiable in the growing season and most easily located/identified when in flower. Some species, like the federally listed Indiana Bat, would be difficult to detect, but the habitat could be suitability evaluated. The most appropriate survey method would be a meander survey through the site to assess the potential for threatened or endangered species to be present based on a comparison of available habitat with the preferred or required habitat of potential target species. Upon completing the survey, it was apparent that a second survey during the flowering period of some of the listed plants was not necessary because the habitat at the site had been historically disturbed and was not likely to contain such rare plants. Our work demonstrated that there were no threatened or endangered species or rare habitats that would be impacted by the proposed development.

ARTICLE 8: EXPERIENCE

ENVIRONMENTAL INVESTIGATION/CHARACTERIZATION/PILOT TESTS/FEASIBILITY STUDY

8.1 Provide a client reference and brief descriptions of at least three (3) projects in the last five years closely related to each of the project types and professional services requested in this RFP. Emphasis shall be placed on recent work at sites of environmental contamination:

Because of the multi-faceted nature of Fishbeck's work, many of our project examples included work in multiple service areas. To reduce redundancy, please reference the attached Projects Matrix for additional projects that include this service area.

Project 1 Reference Information:

Project Name: 213 Closure Pilot
Project Address: Various locations statewide
Key Personnel: Alisa Lindsay PE, Mahta Naziri Saaed, Kayla Rooney, and Madison Schrader Project City/State/Zip: See list in project profile
Contact Name and Telephone #: Steven Beukema, PhD, EGLE – Remediation and Redevelopment Division, 269.547.0125

Project 1 Description:

Through a competitive ISID contract bid process, Envirologic (now Fishbeck) was selected by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for this Part 213 Closure Pilot program. This desktop project includes multiple Part 213 Leaking Underground Storage Tank (LUST) sites located statewide. The overall purpose of this pilot program is to assist EGLE District staff in evaluating site conditions, conducting risk assessment, and facilitating closures of Part 213 sites with open releases. This pilot program includes the following scope for each site:

- Virtual kick off meeting with EGLE contract administration team
- Review of EGLE's site file and other publicly available information and databases
- Conceptual site model development
- Risk based corrective action (RBCA) analysis, including exposure pathway assessment and identification of data gaps that need to be addressed for proper RBCA evaluation.
- Site closure plan development for achieving Part 213 closure, similar to a corrective action plan. As applicable, the closure strategy includes corrective actions to address RBCA assessment data gaps, active remediation, monitoring, institutional controls, data evaluation, and risk mitigation. Each site closure plan includes figures to support recommended actions, such as proposed soil boring and sampling locations, proposed restricted area(s) for institutional controls, etc. Each site closure plan also includes estimated costs and timeline for implementation.
- Detailed tracking of time and costs per site reviewed

Since the award of this contract assignment in March 2021, we have been assigned the following 15 open LUST sites under this Part 213 Closure Pilot, located in Central, Southeastern, and Southwestern Lower Peninsula:

- Ann Arbor Trans Authority (Washtenaw Co.)
- Battle Creek (City of) Police Dept. (Calhoun Co.)
- Bedford Schools Bus Garage (Monroe Co.)
- City of Allegan (Allegan Co.)
- Former Gas Station (Leonidas, St. Joseph Co.)
- Green Oak Fire Dept./Police Dept. (Livingston Co.)
- HCS Bus Garage (Calhoun Co.)
- Lincoln School Bus Garage (Washtenaw Co.)

- Martin Public Schools (Allegan Co.)
- MDOT ROW Vandalia 114+30 (Cass Co.)
- Monroe Alliance Church (Monroe)
- Parks & Recreation Building (Washtenaw Co.)
- Service Oil – Edwardsburg (Cass Co.)
- Sunoco Station (Berrien Co.)
- Twp of Somerset (Hillsdale Co.)

Project 2 Reference Information:

Project Name: Former DTE Marysville Power Plant
Project Address: 301 Gratiot Avenue
Key Personnel: Alisa Lindsay PE, David Warwick, Robert Webster, Mahta Naziri Saeed, Kayla Rooney
Project City/State/Zip: Marysville, MI 48040
Contact Name and Telephone #: Geoff Donaldson — Senior Planner, St. Clair County Metropolitan Planning Commission, 810.989.6999, ext. 6228, gdonaldson@stclaircounty.org

Project 2 Description:

To support potential mixed-use residential/commercial redevelopment and provide additional options for uses of the Former DTE Marysville Power Plant property, Envirologic (now Fishbeck) assisted the St. Clair County Brownfield Redevelopment Authority in obtaining a Michigan Department of Environment, Great Lakes, and Energy (EGLE) Brownfield Field Grant. Built in the 1920s, the 30-acre decommissioned power plant complex is prime waterfront real estate for revitalization. Three No Further Action (NFA) reports for non-residential closure have been previously approved by EGLE for this property. The EGLE Brownfield Grant is being used for additional site investigation and assessment of the former power plant property, which is necessary to pursue EGLE approval to allow for potential mixed-use residential and commercial redevelopment. To facilitate redevelopment, the City of Marysville changed the property zoning to Planned Unit Development.

The project objectives are to remove the non-residential land use only restrictions on the property and determine future due care obligations for safe reuse. To accomplish this, more robust data is required to reevaluate potential exposure pathways from a residential use perspective. Of particular concern are the direct contact and volatilization to indoor air pathways. To address these concern, extensive soil sampling was conducted in March through May 2021 to comprehensively investigate the site for comparison to EGLE Part 201 Generic Residential Cleanup Criteria and Residential Volatilization to Indoor Air Pathway Screening Levels. Soil sampling included the use of incremental sample methodology (ISM) for shallow soils (representative sampling for defined soil volumes) and discrete sampling (collection of soil samples at greater depths). ISM sampling was performed for 75 decision units, encompassing 25 decision areas with three sample depth intervals each. Based on investigation results, new and/or revised NFA report(s) are planned for submittal to EGLE to support reclassification of applicable portion(s) of the site from non-residential closure to unlimited or limited residential closures. In addition, our team will assist with determining due care obligations for any future development to properly manage soil, groundwater, and other potential exposure risks depending on the proposed use of the site.

Project 3 Reference Information:

Project Name: Lamont Street Fueling
Project Address: 1226 Lamont Street
Key Personnel: Alisa Lindsay PE, Robert Webster, Zachary Curry, Mahta Naziri Saeed
Project City/State/Zip: Kalamazoo, MI 49048Contact Name and Telephone #: Ron Kuivenhoven — Kalamazoo County Government, 269.383.8954

Project 3 Description:

Kalamazoo County Buildings and Grounds Department contracted Envirologic (now Fishbeck) to manage underground storage tank (UST) removal and closure activities at their vehicle maintenance garage. Our team managed the UST closure activities, including LARA UST closure notification (30-day notice), field oversight of UST system removal (dispenser island and USTs) and UST basin backfilling, site assessment, and release reporting. During UST system removal activities, we observed odors in soil and detected organic vapors with a photoionization detector (PID) below a former dispenser. We prepared a Confirmed Release (C-0213-19) with a September 24, 2019, release date.

Our team began the initial phase of investigation around the source areas with soil borings and installation of monitoring wells. Oil-in-Soil® shake tests for light non-aqueous phase liquid (LNAPL) were also performed for some soil samples based on field observations. Discrete soil samples were collected for laboratory analysis of gasoline indicator parameters, including gasoline range organics. Groundwater sampling was performed, using low-flow sampling protocol. Our team prepared an Initial Assessment Report, which was submitted to the Michigan Department of Environment, Great Lakes, and Energy (EGLE).

Based on the results from the initial assessment, the final assessment investigation included the installation of three additional shallow permanent monitoring wells and one double deep permanent monitoring well in June 2020. These monitoring wells were installed to further delineate the vertical and downgradient extent of the groundwater contaminant plume.

Twelve sub-slab vapor monitoring pins were also installed to evaluate the vapor intrusion pathway. Field monitoring was performed with a PID and 4-gas meter (oxygen, carbon dioxide, hydrogen sulfide, and % lower explosive level). Vapor samples were collected into Bottle Vac® containers. The samples were submitted for analysis of volatile organic compounds (VOCs), including naphthalene and 2-methylnapthalene, using EPA TO-15 (modified).

In order to establish points of compliance and assess the volatilization to indoor air pathway (VIAP) in accordance with EGLE's May 2013 Guidance Document for the Vapor Intrusion Pathway, as modified, additional permanent monitoring wells and vapor monitoring pins were installed in late 2020.

Site data was compiled into a conceptual site model, and the extent of soil, groundwater, and LNAPL impacts was fully delineated. The groundwater monitoring well network was sampled quarterly to approximate the extent of groundwater contamination, assess concentration trends, seasonal fluctuations, and compare results to Part 213 Risk-Based Screening Levels and VIAP site-specific target levels issued by EGLE. The vapor monitoring pins were also monitored quarterly, in accordance with EGLE guidance for Scenario 1: Source of vapors is confirmed to be adjacent to but not in contact or beneath a structure within the lateral inclusion zone. Exposure pathway risk assessment determined that exposure via ingestion of contaminated groundwater, inhalation of volatilized contaminants to indoor air, and exposure to potential residual LNAPL near the groundwater table are relevant. Groundwater monitoring indicated plume stability, and vapor monitoring demonstrated that there are no current VIAP risks.

A Restrictive Covenant was implemented to include LNAPL notification, VIAP provisions, groundwater use restriction, and restriction of land use to non-residential only. The property is also subject to an existing Kalamazoo County Sanitary Code groundwater use restriction ordinance. Restricted non-residential closure under Part 213 is being pursued.

Project 4 Reference Information:

Project Name: MAHLE Industries Harvey Street Facility Remediation
Project Address: 2051 South Harvey Street
Key Personnel: Bruce Gillett, Michael Apgar, Stephen MacDonald
Project City/State/Zip: Muskegon, Michigan 49444
Contact Name and Telephone #: C. Philip Lawrence, 423.318.3164

Project 4 Description:

This project included hexavalent chromium and TCE remediation in source area soils and groundwater. Site manufacturing included piston rings. Hexavalent chromium was released to the soil (14-foot-thick vadose zone) and groundwater (60-foot-thick aquifer) under a plating bath area that included 14 plating lines. The TCE was released in the same general area from multiple degreasing operations.

Fishbeck performed all investigative studies, feasibility study, remediation design, construction, and performance monitoring of the remedial activities, including development of all associated work plans and reporting. The hexavalent chromium remediation was accomplished using *in situ* injection of calcium polysulfide to reduce the chromium to an immobile form. The prescribed amount and locations of injectant were accomplished based on field investigation, and pilot and bench scale testing. The calcium polysulfide injections were completed in November 2009, and by December 2010, there was no detectable hexavalent chromium remaining in the source area. Chromium concentrations in the downgradient plume area have declined to the extent that offsite migration of concentrations above drinking water criteria are not anticipated.

TCE remediation was accomplished using an aggressive air sparging and SVE system. The system was installed and operated initially from February 2006, through most of 2007. Most of the TCE was remediated during this time frame. The system was modified in 2008, to address a more localized area and was operated through January 2009. Soil and groundwater sampling verification was performed, and all results indicated closure criteria were met. A closure report was submitted to the MDEQ for final closure, and a no further action status for TCE was granted.

ARTICLE 8: EXPERIENCE

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ENVIRONMENTAL/ ROTOSONIC DRILLING/WELL ABANDONMENT

Project 1 Reference Information:

Project Name: Confidential client
Project Address: Confidential
Key Personnel: Peter Lepczyk, Jessie Watterson, Mike Ranck
Project City/State/Zip: West Michigan
Contact Name and Telephone #: Available upon request

Project 1 Description:

Fishbeck is working on behalf of a confidential client to investigate the nature and extent of Per- and Polyfluoroalkyl Substances (PFAS) impacts in groundwater associated with the communities' former wastewater lagoon. The generalized hydrostratigraphy of the site consists of the following:

- A laterally extensive sequence of sand beginning near the ground surface and extending to approximately 30 feet below ground surface (bgs). The water table is located approximately 10 feet bgs. The resulting approximately 20-foot thick saturated zone exhibits unconfined aquifer properties. Groundwater in this water bearing zone is towards the west.
- A 40- to 70-foot thick clay confining layer is present beneath the unconfined aquifer and extends to a depth of approximately 70 to 100 feet bgs.
- A lower confined aquifer is present beneath the clay confining layer beginning at a depth estimated at 70 to 100 feet bgs. The physical characteristics of this water bearing zone have not been locally documented.

In September 2022, Fishbeck began implementing the approved Remedial Investigation Work Plan for the site. Delineation activities are being performed using the rotosonic method of drilling to install four monitoring wells and perform one vertical aquifer profile (VAP). To further minimize potential hydraulic communication between the unconfined and confined aquifers, at each location a temporary 8-inch diameter override casing was advanced approximately five feet into the clay confining layer. Drilling then continued through the temporary override casing via a 4-inch diameter inner core barrel and 6-inch diameter outer drive casing. Continuous soil samples were obtained at each location for geological logging. To date, three monitoring wells have been installed in the confined aquifer.

Project 2 Reference Information:

Project Name: Former Detrex Facility
Project Address: N/A
Key Personnel: Derrick Lingle CPG, Paul French, David Warwick,
Project City/State/Zip: Grand Rapids, Michigan
Contact Name and Telephone #: David Craig and Elizabeth Schlager, EnviroAnalytics Group (314.835.2802, dcraig@enviroanalyticsgroup.com, Schlaeger@enviroanalyticsgroup.com)

Project 2 Description:

Beginning in 2015, Envirologic (now Fishbeck) has supported a private, liable party through a complex remedial investigation at a former solvent recovery facility. The remedial investigation has utilized various characterization methods to define the distribution of chlorinated volatile organic compounds (CVOCs) and evaluate exposure pathways. Investigative work, initially conducted under EGLE, is now monitored by the U.S. EPA. During the remedial investigation, we have maintained an EPA-approved Health and Safety Plan under supervision of the EPA Superfund Technical Assessment and Response Team contractor with zero recorded incidences to date.

The subject site served as a solvent waste recovery and distribution facility for multiple decades. The facility closed in the mid-1990s and was later redeveloped for nonresidential use. As part of ongoing site investigation requirements under Part 111, our team conducted sub-slab soil gas sampling at the facility to evaluate the volatilization to indoor air pathway (VIAP). Based on concentrations of trichloroethene (TCE) in the soil gas samples that presented an immediate exposure risk, the liable party entered into an agreement with the U.S. EPA to conduct a thorough remedial investigation at the facility. As part of the agreement, the U.S. EPA requested that the remedial investigation define the extent of impact in soil, soil gas, and groundwater, as well as evaluate the VIAP and groundwater to surface water interface (GSI) pathway.

We assisted the liable party by drafting a site-specific work plan. The work plan outlined the framework for the remedial investigation and was subsequently approved by the U.S. EPA. Prior to implementation of the investigation, our team worked with offsite owners to gain property access and the City of Grand Rapids to locate the numerous public utilities across the study area.

Given the lack of analytical data collected at depth during previous site investigations, complex glacial geology, and extensive distribution of CVOCs in the subsurface, high resolution site characterization was conducted using a Membrane Interface Hydraulic Profiling Tool (MiHpt) to define the extent of CVOCs and identify preferential migration zones in soils. The MiHpt data was used to maximize site characterization while allowing for the strategic collection of soil analytical samples and placement of permanent monitoring wells. In early 2018, we oversaw the advancement of 22 MiHpt borings and interpreted over 1,300 feet of data for future guidance of the investigation. Over the same period, we oversaw a second geoprobe during the advancement of nine co-located soil confirmation borings. Our team characterized the soil cores and collected soil analytical samples for comparison to the MiHpt data. After completion of the MiHpt borings and confirmation soil borings, we directed the installation of 37 permanent monitoring wells and four vapor extraction wells (over 2,000 feet total) using a Rotosonic drill rig. Following the collection of groundwater samples from the monitoring well network via traditional low-flow sampling, our team provided the liable party and U.S. EPA with interpretation of the extensive geologic, hydrogeologic, and contaminant distribution dataset.

In addition to delineating CVOCs in soil and groundwater, the remedial investigation was also implemented to evaluate exposure risk associated with the VIAP and GSI pathways. Based on the distribution of CVOCs, we worked with property owners to collect sub-slab soil gas and indoor air samples from the subject site and three offsite buildings in 2018. We also coordinated with the City of Grand Rapids to inspect an 84-inch storm main for groundwater infiltration and collect samples at several access points.

In July 2018, our team conducted a soil vapor extraction (SVE) pilot test in the source area to evaluate the feasibility of using an SVE system to treat source area material in the vadose zone. Using nearby monitoring wells and soil gas points to monitor vacuum levels, the pilot test was conducted to establish the radius of influence for the four vapor extraction wells. Various vacuum levels were applied to the extraction wells in a series of steps, using regenerative-type and claw-type blowers. Our staff presented an interpretation of the pilot test results to the liable party and U.S. EPA.

Results of the high-resolution remedial investigation have led to a thorough understanding of the distribution of CVOCs, as well as an assessment of pertinent exposure risks. Interpretation of the data collected during the investigation has been used to select the remedial technologies for treatment of source-area CVOCs in the vadose and saturated zone.

Project 3 Reference Information:

Project Name: Save Time #5
Project Address: 5900 Spring Arbor Road
Key Personnel: Derrick Lingle CPG, Alisa Lindsay PE, Robert Webster, Kayla Rooney
Project City/State/Zip: Jackson, MI 49201
Contact Name and Telephone #: Rich Tallman — Kelly Fuels, 517.787.1210, rich@kellyfuels.com

Project 3 Description:

The subject property was developed into a retail gasoline filling station and auto service garage in the mid-1980s. A release was reported at the facility from three separate source areas in 2016 during a Phase II Environmental Site Assessment (ESA) associated with a property transaction. Source areas were identified around the gasoline underground storage tanks (USTs), kerosene UST, and former dispenser island. Further site characterization work has been conducted to define the vertical and lateral extent of nonaqueous phase liquid (NAPL) and dissolved-phase contaminants around the source areas. The primary source area was identified around the gasoline USTs. Gasoline-related contaminants, mainly MTBE, have been identified in multiple zones of saturation in the glacial drift and underlying bedrock aquifer (interbedded sandstone and shale). The bedrock aquifer is used as a source of potable water for nearby private supply wells.

Given the heterogeneous nature of the glacial drift (interbedded sand, silt, and clay), the initial investigation phase consisted of a rapid assessment approach. Using direct push technology, soil borings and temporary monitoring wells were installed at various intervals to evaluate the NAPL bodies and understand the appropriate setting for permanent monitoring wells in the glacial drift. Based on data from the rapid assessment investigation, permanent monitoring wells were installed via a Geoprobe equipped with HSA to characterize the distribution of dissolved contaminants, determine groundwater flow patterns, and evaluate for the presence of mobile NAPL. As MTBE was identified in the deep drift monitoring wells and onsite supply well, which is set in bedrock (well was no longer in use—subject site had access to municipal water), additional monitoring wells were installed at differing intervals in bedrock via a Rotosonic drill rig. As part of activities to characterize the extent of MTBE in the bedrock aquifer, packers were used while vertically profiling the open borehole of the on-site supply well.

Due to the presence of petroleum volatile organic compounds, assessment of the volatilization to indoor air pathway was also conducted. Sub-slab vapor pins were installed and monitored on a quarterly basis. Monitoring results indicated that there is no current risk via VIAP.

Groundwater data suggests that most gasoline-related contaminants in the glacial drift are limited to the subject site and adjacent road right-of-ways; however, MTBE extends offsite to the south. As a corrective action measure, Envirologic (now Fishbeck) has been sampling and will continue to sample nearby private supply wells. To date, no gasoline-related contaminants have been detected in offsite supply wells. Installation of additional bedrock monitoring wells via rotosonic drilling methods has resulted in fully delineation of the MTBE plume.

ARTICLE 8: EXPERIENCE

8.1 Provide a client reference and brief descriptions of at least three (3) projects in the last five years closely related to each of the project types and professional services requested in this RFP. Emphasis shall be placed on recent work at sites of environmental contamination:

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GROUND PENETRATING RADAR (GPR)/LASER-INDUCED FLUORESCENCE (LIF) FIELD SCREENING

Project 1 Reference Information:
Project Name: Military Equipment Manufacturing Facility Environmental Services
Project Address: 76 South Getty Street
Key Personnel: Peter Lepczyk, Chad Weber, Brad Peuler, Michael Apgar, Chris Carew, Fernanda Wilson
Project City/State/Zip: Muskegon, Michigan 49442
Owner/Client Contact Name and Telephone #: Mark Thomasen, REM, CHMM, 302.368.7350

Project 1 Description:

Fishbeck is implementing investigative and remedial activities at a legacy site in Michigan used for the manufacturing of military equipment. Fishbeck was retained by the performing defendants established under a Consent Decree (CD) to implement a complex Statement of Work to address volatile organic compounds (VOCs), chlorinated volatile organic compounds (CVOCs), light nonaqueous phase liquids (LNAPLs), metals, polychlorinated biphenyls (PCBs), cyanide, and per- and polyfluoroalkyl substances (PFAS). Activities are being performed consistent with Part 111 of Michigan's Natural Resources and Environmental Protection Act (NREPA), which is patterned after the federal Resource Conservation and Recovery Act (RCRA) program.

The following tasks are outlined in the CD and noteworthy aspects of the project are described in detail below:

- Characterization of the hydrogeology, including hydrostratigraphy, groundwater velocities, position of groundwater divide, temporal variation, and groundwater/surface water interface (GSI).
- Determination of the spatial distribution of dissolved-phase impacts within the aquifer and the location of areas of elevated CVOC mass.
- Determination of the spatial distribution of soil impacts within the unsaturated zone.
- Designing, constructing, and operating a Soil Vapor Extraction (SVE) system to reduce CVOCs in the unsaturated zone.
- Designing, constructing, and operating an Enhanced Reductive Dechlorination (ERD) treatment system with the objective of rapidly reducing CVOC concentrations in the groundwater.
- Excavation of metals-impacted soil.
- Designing and constructing exposure barriers to prevent contact with VOC, cyanide, and PCB-impacted soil.
- Placement of restrictions and environmental license agreements to ensure future uses are protective of human health and the environment.
- Performance of a risk assessment.

Fishbeck utilized both conventional and high-resolution site characterization (HRSC) technologies to perform much of the hydrogeological and remedial investigative work. The HRSC included advancement of 110 membrane interface probe/hydraulic profiling tool (MiHPT) borings to characterize the spatial distribution of VOCs and hydrostratigraphy throughout the multiple areas of concern (AOCs). These data

were used to develop conceptual site models (CSMs) for the AOCs. The approved CSM for the GSI pathway demonstrated that the current monitoring well network was inappropriate to assess concentrations of VOCs venting to the wetland. Fishbeck determined that CVOCs remaining within the lower portion of the aquifer were transported parallel beneath a creek/wetland system, instead of venting vertically to the wetland adjacent to where the groundwater migrates beneath the surface water feature. A new shallow monitoring well network is scheduled for installation in 2023.

Following HRSC, Fishbeck designed an ERD system in one of the AOCs established in the CD with the objective of rapidly reducing CVOC concentrations in groundwater. The ERD system was comprised of 40 permanent injection/extraction wells (IEWs) and select existing wells from a previous ERD effort. The IEWs were installed via rotosonic drilling method using temporary 8-inch-diameter tooling. The IEWs were constructed with 4-inch-diameter, Schedule 40 polyvinyl chloride (PVC) well casing and factory slotted 0.010-inch well screen. The filter pack consists of Flat Rock Bagging Filter Sand No. 12 x 40 placed from the bottom of the well to approximately 2 feet above the top of the well screen. An approximately 2 foot-thick hydrated bentonite seal was placed above the filter pack and the remainder of the borehole was filled with high solids bentonite grout. Each well was finished at the surface with a flush-mounted protective cover set in concrete. Following well installation, the surface locations of the wells were surveyed.

IEWs were positioned in three separate treatment areas; the HRSC work refined the ERD design that was conceptually included in the CD. The first emulsified vegetable oil (EVO) injection occurred in 2020. In total, approximately 13,000 gallons of EOSPro were distributed and over 4,000,000 gallons of groundwater were recirculated to distribute the EVO and BAC-9 (a proprietary bioaugmentation culture of dehalogenating organisms). Performance monitoring data collected to date indicate that ERD is effectively remediating CVOCs throughout the three treatment zones. A second EVO injection event will be performed in 2023.

Fishbeck designed and oversaw the construction of an SVE system consisting of 11 SVE wells, underground conveyance piping, a flow distribution manifold, an SVE blower, and a vapor treatment system. Extracted vapors were treated using three granulated activated carbon adsorbers plumbed in series. The system was constructed in November 2019, and full-time operation started on December 2, 2019. Fishbeck maintained and operated the SVE system for 2 years (until November 30, 2021), as specified in the CD. During that time, the system removed an estimated 734 pounds of CVOCs from the vadose zone. Though the SVE system operated for the specified duration, treatment may be resumed in the future. The persistence of relatively high VOC mass removal by the SVE system during its 2-year operating period is attributed to the presence of LNAPL within the SVE treatment area. An LNAPL investigation is currently underway (handled by others) to further characterize the nature and extent of the LNAPL and to inform the selection of a comprehensive LNAPL management approach. Additional operation of the SVE system will be considered in conjunction with the selected LNAPL remediation approach.

Project 2 Reference Information:

Project Name: Tuscola County Road Commission (TCRC) – Cain #1 Brine Field Release
Project Address: 4330 Swaffer Road
Key Personnel: Paul French, David Warwick, Alisa Lindsay PE
Project City/State/Zip: Vassar, Michigan 48768
Contact Name and Telephone #: Jeff LeValley — Tuscola County Road Commission, 989.763.2128, ext. 106

Project 2 Description:

A brine spill was discovered at the Tuscola County Road Commission (TCRC) – Cain #1 Brine Field site in October 2011. Brine production and storage at the facility was terminated, and source removal was promptly conducted in the source area following identification of the spill. The results of initial environmental investigations by a previous consultant indicated that groundwater impacts from the site extended onto two adjacent rural properties, which included a residence, as well as low-lying crop, wooded, and overgrown areas. The environmental impacts discovered at the facility were determined to be the result of an accumulation of historic brine spills at the facility.

By 2016, following the installation of numerous soil borings and monitoring wells and the collection of multiple soil and groundwater samples, groundwater contamination had not been fully defined and a remedial action plan had not been developed for the site. Envirologic (now Fishbeck) was retained by TCRC in 2017 to evaluate the site conditions, complete contaminant delineation, and develop a remedial action plan.

Because chloride was the contaminant of concern, we recommended the use of high-resolution site characterization to define the extent of groundwater impacts with minimal additional well installations. Site characterization was conducted utilizing the Geoprobe™ Direct Image™ Electrical Conductivity (EC) and Hydraulic Profiling Tool (HPT). The investigation included the installation of 18 ECHPT borings. Following field assessment of the ECHPT data, 13 additional monitoring wells were installed at select locations across the site to define the vertical and lateral extent of groundwater contamination. ECHPT boring and monitoring well installations and well development were completed within six days.

A groundwater sampling program was implemented to verify the extent of groundwater impacts and to monitor trends in groundwater quality over time. The results of the environmental investigations indicated a chloride plume that extended more than 300 feet from the source and encompassed an area greater than four acres in size; the plume did not extend greater than approximately 20 feet below ground level. The recent monitoring results indicate that the contaminant plume is stable. The water supply well for the adjacent residence was situated upgradient and outside of the chloride plume; the well was not impacted as a result of the brine release.

The results of a risk evaluation indicated that chloride is present on the source and adjacent properties at concentrations in excess of the aesthetic drinking water value. Our team met with the adjacent property owners to discuss groundwater use restrictions. Once authorized, we obtained restrictive covenants (RCs) for the impacted properties, which presents notification of aesthetic impact and prevents the installation of new water supply wells in the shallow drift aquifer at depths less than 60 feet.

Analytical data indicated that total dissolved solids met acceptable de minimus presence at the nearest outfall for the tile fields and ephemeral surface water; thus, there is no unacceptable discharge to the receiving surface water. A No Further Action Report was submitted to EGLE based on elimination of the contaminant source, the source removal activities, trends demonstrating that the plume is stable, and filing of RCs. The NFA was approved in April 2022, and all project-related monitoring wells were subsequently abandoned.

ARTICLE 8: EXPERIENCE

8.1 Provide a client reference and brief descriptions of at least three (3) projects in the last five years closely related to each of the project types and professional services requested in this RFP. Emphasis shall be placed on recent work at sites of environmental contamination:

Because of the multi-faceted nature of Fishbeck's work, many of our project examples included work in multiple service areas. To reduce redundancy, please reference the attached Projects Matrix for additional projects that include this service area.

LANDFILL MAINTENANCE/MONITORING

Project 1 Reference Information

Project Name: Harrison Landfill
Project Address: Harrison, Hamilton County, Ohio
Key Personnel: Al Aspacher, Fernanda Wilson, Andy Schwallier, Chad Weber
Project City/State/Zip: Harrison, Ohio 45030
Contact Name and Telephone #: Jim Leslie, 513.367.2111, ext. 4117

Project 1 Description:

The City of Harrison, Ohio retained Fishbeck to prepare an updated Explosive Gas Monitoring Plan (EGMP) consistent with Ohio Administrative Code (OAC) Rule 3745-27-12, promulgated July 1, 2021, for the former City of Harrison Municipal Landfill. The explosive gas monitoring network present at the Site is configured to detect explosive gas concentrations using strategically placed probes. Each probe is located adjacent to historically placed waste material and between the waste and potential receptors. This network has been used historically to monitor fugitive landfill gas emissions to ensure that gas concentrations do not exceed established regulatory limits (5% by volume or 100% of the lower explosive limit (LEL) at the facility boundary). The network is composed of both permanent and temporary probes. For the City of Harrison Municipal Landfill to continue using the temporary probes and comply with Rule 3745-27-12, Fishbeck prepared a "Temporary Probe Alternative Monitoring Device Demonstration" concomitant to the EGMP.

In 2022, the final updated EGMP was submitted to Ohio EPA for review and approval and included:

- Description of the current explosive gas monitoring network present at the site.
- Property information and records review complying with OAC Rule 3745-27-12(F)(2)(b).
- Description of the geologic information of the site
- Description of the landfill characteristics
- A narrative of all explosive gas investigation performed at the site to date
- Details of the explosive gas monitoring probes and alternative monitoring devices
- Additional documentation such as letters sent to entities, notifications, boring logs, certification reports and most recent deed for each parcel of the site, and emergency contact list
- Various map figures detailing boundaries, structures, properties, manmade explosive gas migration pathways or any other potential sources of explosive gas within 200ft and 1000ft zone of the center of the landfill
- The "Temporary Probe Alternative Monitoring Device Demonstration"

Project 2 Reference Information:

Project Name: Ionia Landfill
Project Address: Cleveland Street
Key Personnel: Brad Peuler
Project City/State/Zip: Ionia, Michigan 48846
Contact Name and Telephone #: City of Ionia, Precia Garland, 616.527.5776

Project 2 Description:

The Ionia City Landfill is a CERCLA (Superfund), multiple potentially responsible party site. It occupies 27 acres within the floodplain of the Grand River in Ionia, Michigan. Waste disposed of at the Site included residential, commercial, and industrial, with drums containing both liquids and solids. Degradation of the drums allowed paint thinners and industrial solvents, including TCE, methylene chloride, styrene, toluene, and xylenes, to impact the soil and groundwater.

Following the removal of drums, surface filling and grading, and fence construction, a RI/FS was completed, and a point-source removal action was performed. A November 2001 consent decree specified two remedial actions for the groundwater, in which only chlorinated solvents and their daughter compounds (trichloroethene, cis-1,2-dichloroethene, and vinyl chloride) exceed their remedial goals.

- Groundwater from that portion of the plume with >500 µg/L total VOC would be recovered through three wells, passed through an air stripper, and discharged to the City of Ionia sanitary sewer.
- The remainder of the VOC plume would be evaluated for the presence and rate of monitored natural attenuation. Fishbeck value engineered a change to the existing remedial system in 2003. Through a POTW headworks analysis, system reconfiguration, and follow-up monitoring, the air stripper use prior to discharge of recovered groundwater to the sanitary system was eliminated, significantly reducing operation and maintenance costs.

Fishbeck negotiated with the USEPA and EGLE for an amendment to the Record of Decision. The agencies agreed to the following changes:

- Monitored natural attenuation for the entire Superfund site.
- Cessation of the pump and treat system based on the results of a USEPA-approved pilot test.
- Alternate concentration limits for the contaminated portion of the aquifer.

Groundwater monitoring is now conducted on a five-year frequency to assess the source area COC contribution to groundwater, monitor the effects of natural attenuation, and monitor MCL and GSI compliance. Quarterly site inspections are completed to evaluate condition of the site fencing and landfill cap and slope.

Project 3 Reference Information:

Project Name: Jackson County Landfill
Project Address: Dalton Road
Key Personnel: Todd Campbell, Ali Dahlbacka, Bruce Gillett, Fernanda Wilson
Project City/State/Zip: Jackson, Michigan 49201
Contact Name and Telephone #: Ric Scheele, 517.788.4331

Project 3 Description:

Jackson County required assistance obtaining a Part 115 (formerly Act 641) operating license for the active and closed areas of the Dalton Road Landfill. Groundwater monitoring was required to comply with the operating license. Fishbeck provided the following services:

- Required information.
- Hydrogeological investigation.
- Obtained monitoring plan approval.
- Monitoring plan implementation, including:
    - Water quality monitoring.
    - Leachate sampling.
    - Replacement of leachate lagoons with underground storage tanks after leachate production rate diminished.
    - Statistical data evaluation.
    - Regulatory reporting.
- Updated Phase I and II water quality monitoring plans to meet new Part 115 regulations.

- Stormwater management plan.
- Soil erosion and sedimentation control.

Project 4 Reference Information:

Project Name: Pactiv/Red Bluff Landfill
Project Address: 1000 Diamond Avenue
Key Personnel: Mike Apgar, Peter Lepczyk
Project City/State/Zip: Red Bluff, California 96080
Owner/Client Contact Name and Telephone #: Pactiv LLC, Glenn Rogers, 704.658.0186

Project 4 Description:

Fishbeck was retained by Pactiv to provide technical assistance for their active landfill located in Red Bluff. The landfill is no longer operating; however, the landfill has historically received PCB and heavy metal containing wastes.

As an unlined landfill, the landfill leachate communicates directly with site groundwater. This issue is further complicated by the presence of an agricultural water supply dam adjacent to the site on the Sacramento River, an identified sensitive fish habitat. Fishbeck has been the engineer/geologist of record for over 10 years studying the impact of landfill leachate on groundwater and surface water quality. Fishbeck's work was instrumental in developing a clear understanding of the site's hydrogeologic dynamics which demonstrated that the leachate impact was minimal. This work also facilitated remediation of a portion of the landfill and sale of the property to the United States Bureau of Reclamation for redevelopment of their irrigation system and restoration of critical fish habitat.

Fishbeck provides as-needed special project work for the landfill. These projects have included design and development of bid specifications for transferring waste from the sites settling basins to the landfill, preliminary and final cap design services, capacity assessment and waste management planning, testing for methane generation within and adjacent to the landfill, development of post-closure methane management plans, design, implementation and reporting for a one year temperature study of the Sacramento River adjacent to the site, and management of the Site's NPDES permit. Fishbeck has also provided specialized services including securing US Fish and Wildlife valley elderberry longhorn beetle (an identified threatened species) credits from a conservation bank to compensate for habitat loss and removal of rattle snakes to allow for safe survey of waste deposition areas. Fishbeck's work has resulted in a reduction in the landfill footprint, improved stormwater management, and development of a coordinated cost-effective approach for management of waste deposition.

Fishbeck's work on the landfill also includes routine reporting of groundwater/leachate sampling results and development of the State of California required Preliminary Closure and Post-Closure Maintenance Plan including annual financial assurance reporting.

ARTICLE 8: EXPERIENCE

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PER-& POLYFLUOROALKYL SUBSTANCES (PFAS) SAMPLING

Project 1 Reference Information:

Project Name: Former City of Manistee Landfill — PFAS Groundwater Investigation at a landfill site
Project Address: Adamczak Road, Manistee County, MI
Key Personnel: Peter Lepczyk, Jessie Watterson, Mike Ranck
Project City/State/Zip: Manistee, Michigan 49660
Contact Name and Telephone #: Bill Gambill, 231.398.2801

Project 1 Description:

After EGLE identified PFAS concentrations in excess of Part 201 drinking water criteria at a closed municipal solid waste landfill, Fishbeck was retained by the City to further evaluate the nature and extent of PFAS in the groundwater. Fishbeck prepared a Remedial Investigation Work Plan to assess PFAS impacts in a phased approach at multiple depth intervals throughout an aquifer located in thick glacial drift deposits. After review of the Work Plan and approval by EGLE, Fishbeck initially conducted a shallow groundwater investigation utilizing temporary groundwater wells installed in the upper portion of the aquifer. Following receipt of the initial data and approval from the City and EGLE, Fishbeck anticipates continuance of the assessment to complete the definition of the shallow groundwater PFAS impacts. Following completion of the delineation of shallow groundwater impacts, Fishbeck will further implement the Remedial Investigation Work Plan including vertical aquifer profiling and subsequent installation of nested shallow/deep monitoring wells at strategically selected locations based on earlier results to identify the extent of the groundwater impacts throughout the entire aquifer. At the present time, the initial shallow groundwater investigation including installation and sampling of temporary monitoring wells is in progress.

Project 2 Reference Information:

Project Name: Lacks Airlane Facility
Project Address: 4221 Airlane Drive SE
Key Personnel: Peter Lepczyk, Jessie Watterson, Mike Ranck, Adam Near
Project City/State/Zip: Kentwood, Michigan, 49512
Contact Name and Telephone #: Karen Homrich, 616.956.7259

Project 2 Description:

During April 2021, Cr and PFAS were identified in water that accumulated in a retention pond located north of the facility buildings. Upon identification of the chemicals, EGLE was notified and requested that a limited groundwater investigation be conducted. Lacks contracted Fishbeck to assist them with characterizing the nature and extent of impacts. The initial investigation was performed in October 2021. COCs were identified in the groundwater immediately adjacent to the west and northeast of the storm water retention pond at concentrations greater than Part 201 Generic Residential Cleanup Criteria (GRCC). Concentrations of three PFAS compounds were identified in groundwater and surface water at concentrations greater than their

respective GRCC.

During the fall of 2022, additional remedial investigative activities were performed which consisted of monitoring well installation and development; historical sample location site assessment; groundwater, porewater, surface water, and stormwater sampling; and surveying. Inorganic and PFAS impacts were identified in groundwater, surface water, and soil at concentrations exceeding Part 201 GRCC in all lateral directions at the Site. In groundwater, Cr6, Cr3, Cu, Ni, chloride, sulfate, and PFAS (PFBS, PFOS, PFNA, and PFHxS) concentrations exceed Part 201 DWC and/or GSIC. Surface water samples contained chloride at concentrations exceeding the Rule 57 FCV and PFAS (specifically PFOS) at concentrations exceeding the Rule 57 HNV. Soil samples collected during the investigative activities exhibited concentrations of Cr6, Cr3, Cu, Ni, chloride, and PFAS (specifically PFOS) exceeding Part 201 GSIC and/or DWPC.

In November 2022, a Remedial Investigation Report was submitted to EGLE for review and a request was made to hold a stakeholder meeting to discuss the path forward. Due to the concentrations of PFOS and Chloride exceeding the groundwater GRCC and the Rule 57 Water Quality Values for surface water along the western and southern property boundaries, in accordance with the NREPA 451 of 1994 Section 324.20107a; R 299.51017(1) and Michigan Compiled Laws 324.20114(1)(b)(ii) and (iii), notice of migration of contamination was provided to EGLE and the affected property owners.

Project 3 Reference Information:

Project Name: Robinson Elementary School — Drinking Water PFAS Treatment and Monitoring
Project Address: 11801 120th Ave, Grand Haven, MI 49417
Key Personnel: Fernanda Wilson, Mike Apgar
Project City/State/Zip: Grand Haven, Michigan 49417
Contact Name and Telephone #: Jason MacKay, 616.850.5185

Project 3 Description:

In 2018, MPART executed a statewide sampling effort of communities, schools, childcare providers, and tribal water supplies for PFAS. Three sites had test results exceeding the USEPA Lifetime Health Advisory (LHA) of 70 ng/L for PFOA and PFOS – criteria used as reference at the time. Robinson Elementary School, part of the Grand Haven Area Public Schools (GHAPS) was one of these sites. Fishbeck assisted GHAPS to select, design, install, and test a treatment system to remove PFAS to concentrations to below current state PFAs MCLs. Fishbeck also helped GHAPS to obtain a Drinking Water Contamination Remediation Grant from EGLE to offset a portion of the cost for installation of the PFAS treatment system and other improvements. Through coordination between Fishbeck, GHAPS, Ottawa County and EGLE state agents, an Ion Exchange (IX) system was approved and installed at the school. After installation, an extensive program of sampling and analysis of both untreated and treated water for PFAS was executed following the permit requirements on a monthly and quarterly basis. This was necessary because this was the first IX system installed to treat PFAS in drinking water for the state of Michigan. Data accumulated over the nearly one-year PFAS testing period indicated a removal efficiency of 100% for all 18 PFAS telomers included in EPA Method 537.1. As a result of the successful demonstration period, on January 11, 2021, Ottawa County issued a letter to GHAPS approving the use of the treated water for human consumption. To date, PFAS has not been detected in treated water at the school. Fishbeck continues to operate, monitor, and assist GHAPS with the IX PFAS system.

ARTICLE 8: EXPERIENCE

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PHASE I / PHASE II/ BASELINE ENVIRONMENTAL SITE ASSESSMENT

Fishbeck has performed hundreds of Phase I and Phase II environmental site assessments over the past five years as part of our Brownfield redevelopment initiatives and for select commercial and industrial clients. Following are just a few representative project descriptions.

Project 1 Reference Information:

Project Name: 815 Verhoeks Redevelopment
Project Address: 815 Verhoeks
Key Personnel: Kirk Perschbacher, Roman Wilson, Melissa Hunter
Project City/State/Zip: Grand Haven, Michigan, 49417
Contact Name and Telephone #: Ms. Becky Huttenga; 616.738.4852

Project 1 Description:

In 2021, Fishbeck was retained by a prospective purchaser/developer to perform Phase I and II Environmental Site Assessments (ESAs) at a suspect abandoned gasoline service station. Funds obtained to offset the costs to perform the ESAs were obtained through Ottawa County's Brownfield Redevelopment Authority - USEPA Brownfield Assessment Grant Program. Fishbeck prepared the application, determination request, and sampling and analysis plan that were required to secure funds and execute the work. The Phase I ESA identified past gasoline station operations and the presence of known soil and groundwater contamination as recognized environmental conditions. Phase II ESA efforts verified soil and groundwater contamination through the collection of soil and groundwater samples from soil borings located in suspect areas of concern. Based on the known contamination, the site was determined to be a facility as defined under Part 201. Fishbeck recommended due care activities to properly execute soil management efforts related to site redevelopment and prepared a vapor intrusion risk management plan specific to proposed redevelopment plans. To protect the new owner from cleanup liability, a Baseline Environmental Assessment was completed by Fishbeck and filed with EGLE. In 2022, Fishbeck worked with EGLE to leverage a $300,000 brownfield grant to cover costs relating to contaminated soil disposal and design and implementation of vapor intrusion mitigation systems beneath newly constructed buildings.

Project 2 Reference Information:

Project Name: Hungry Howie's Redevelopment
Project Address: 300 N. Beacon Boulevard
Key Personnel: Tom Budge, Roman Wilson, Susan Wenzlick
Project City/State/Zip: Grand Haven, Michigan, 49417
Contact Name and Telephone #: Ms. Emily Greene; 616.847.4893

Project 2 Description:

From 2020 to 2022, Fishbeck worked with the City of Grand Haven and Ottawa County to help facilitate the purchase and redevelopment of an abandoned gasoline station site along the busy US-31 corridor in Grand

Haven. On behalf of a potential developer, Fishbeck secured funds through Ottawa County's Brownfield Redevelopment Authority to perform a Phase I ESA, which revealed the presence of soil and groundwater contamination from underground storage tanks and dispensers formerly utilized on the site. Working through EGLE's Brownfield Assessment ISID Program, Fishbeck completed a Phase II ESA involving collection of soil and groundwater samples from target locations on the site to assess current environmental conditions. Based on the results of the Phase II ESA, the presence of petroleum contaminated soil and groundwater was confirmed. Fishbeck completed a Baseline Environmental Assessment which was filed with EGLE to protect the new owner/developer from cleanup liability. To assist with site redevelopment, Fishbeck obtained a $110,000 EGLE Brownfield Grant that was used for demolition and due care assessment and planning activities.

Project 3 Reference Information:

Project Name: Stryker R&D Project
Project Address: 1941 Stryker Way
Key Personnel: David Stegink, Erik Peterson
Project City/State/Zip: Portage, Michigan, 49002
Contact Name and Telephone #: Rachael Grover — Director, Kalamazoo County Planning & Development Department, 269.384.8115; ragrov@kalcounty.com

Project 3 Description:

Stryker Instruments developed a 485,000 sq. ft. research and development complex on former agricultural land. The new corporate campus features a customer experience center, a functioning showroom, a state-of-the-art R&D test lab, a bio-skills lab for research and new product development, and office space for their sales, marketing, and support functions. In addition to the new structure, this redevelopment will include new and improved roads, new sanitary and storm sewer mains, a new water main, and other improvements that will benefit the project and community.

Environmental Site Assessments and a Baseline Environmental Assessment were completed to support Stryker's purchase of the property and secure protection from environmental cleanup liabilities. During the site assessments, soil and water contamination was identified at concentrations above cleanup criteria. The property was therefore designated as a "facility" and qualified for the completion of a Brownfield Plan.

Envirologic (now Fishbeck) was contracted to implement applicable brownfield incentives to support development of the site; specifically, we prepared a Brownfield Plan and Act 381 Work Plan. These plans allow reimbursement of eligible activities (i.e., due diligence activities, public infrastructure, site preparation, etc.) through tax increment capture for Stryker and the City of Portage. Additionally, the plans provide limited capture of tax increment for Kalamazoo County's Local Brownfield Revolving Fund, which helps fund various redevelopment projects throughout the county. Total capture during the term of the plan (approximately six years) will be over $11 million.

This project is an important success for the City of Portage and surrounding communities. Reusing this former brownfield site transforms contaminated land with limited use into a new development that will benefit the area by providing an anticipated 105 new jobs, improved infrastructure, and a healthier environment. Construction of the new facility is complete and represents a $215 million investment by Stryker.

ARTICLE 8: EXPERIENCE

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REMEDIATION SYSTEMS DESIGN/CONSTRUCTION OVERSIGHT/O&M/DECOMMISSIONING

Project 1 Reference Information:

Project Name: Former Teledyne Howell Penncraft Facility
Project Address: 3333 West Grand River Avenue
Key Personnel: Michael Apgar, Ali Dahlbacka
Project City/State/Zip: Howell, Michigan 48855
Owner/Client Contact Name and Telephone #: Mark Thomasen, REM, CHMM, 302.368.7350

Project 1 Description:

Fishbeck is conducting interim response actions at this site with the objectives of 1) reducing the mass of dissolved chlorinated volatile organic compounds (CVOCs) in groundwater using enhanced reductive dechlorination (ERD) and 2) reducing residual CVOC concentrations present in vadose zone soils and perched water using a combination of excavation, ERD, and soil vapor extraction (SVE).

The last ERD injection event into the aquifer was performed in 2010. Based on performance monitoring results, aquifer remediation is essentially complete; nearly 99% of the trichloroethene (TCE) mass within the aquifer has been destroyed, and dehalogenation is proceeding to the generation of ethane and ethene. Source removal of shallow impacted soils (0 to 10 feet bgs) was performed in 2011. To address TCE impacts in the lower vadose zone (10 to 40 feet below ground surface [bgs]), Fishbeck designed and installed a 34-well SVE system. Fishbeck maintained and operated the system from 2010 to 2015. During that time, the SVE system removed an estimated 1,660 pounds of CVOCs from the vadose zone. Due to the persistent presence of perched water within the lower vadose zone, an alternative ERD injection event was performed to target residual CVOCs zone beneath the former source area. In 2018, Fishbeck proposed expanding the area of ERD treatment within the lower vadose zone and supplementing ERD with limited SVE remediation of impacted unsaturated soils primarily beneath the southwestern corner of the site building. In early 2019, the ERD expansion was completed through direct injection of emulsified vegetable oil (EVO), and the SVE system was reconstructed. Several new SVE wells were installed in and around the southwestern corner of the site building to address elevated concentrations of TCE detected in vadose soil and sub-slab soil gas in that area in 2017. Elevated perched groundwater levels facilitated highly successful ERD in the vadose zone and, conversely, prevented SVE in deeper vadose zone soils (20 to 40 feet below floor level) beneath the building. Elevated perched groundwater levels increased the vacuum required to move soil vapors through the treatment area, which ultimately led to blower failure in late 2019. Based on the success of the March 2019 injections and an even greater presence of perched water afterwards, Fishbeck proposed a combination of expanded perched groundwater ERD and limited SVE beneath the building to address the remaining vadose zone source. Injection activities were completed in January 2020. The SVE blower was replaced in March 2020 and the system returned to service, restoring vacuum beneath the floor in the southwestern corner of the building. The system has operated since to mitigate the potential accumulation of CVOC vapors and/or methane generated by ERD. Based on ERD performance monitoring results, the injections performed during the periodic presence of perched water have dramatically reduced CVOC concentrations in the perched water zone; remediation of lower vadose zone is essentially complete. In November 2022, EGLE provided conditional approval of Fishbeck's proposed plan for reducing groundwater monitoring at the site from semiannual sitewide events to alternating between focused annual monitoring events and sitewide biennial events.

In 2023, Fishbeck will evaluate CVOC mass removal from the SVE wells in the southwestern corner of the site building to determine whether CVOC mass in vadose zone soils in that area has been removed to the extent practicable. Based on the results of that assessment, the SVE system may be shut down or converted to a sub-slab depressurization system with EGLE approval.

Project 2 Reference Information:
Project Name: PS Food Mart (Folk Oil Company)
Project Address: 27 East Carleton Road
Key Personnel: Paul French
Project City/State/Zip: Hillsdale, Michigan 49242
Contact Name and Telephone #: Jim Linton — Folk Oil Company, 517.568.4114

Project 2 Description:

The subject property has operated as a gasoline filling station and/or petroleum storage facility since the mid-1940s. A release was reported at the facility in 2004 during the removal of underground storage tanks (USTs). Source removal was conducted during the UST removals. Subsequent environmental investigations indicated that a resulting groundwater contaminant plume extended beneath the adjacent state highway/street and an adjacent MDOT-controlled rail yard. The toe of the groundwater plume from the PS Food Mart site also extended to the source area of an adjacent leaking underground storage tank (LUST) facility and comingled with the downgradient groundwater plume. Groundwater impacts from the downgradient release were significantly higher than impacts associated with the subject release and resulted in unacceptable volatilization to indoor air exceedances on properties further downgradient. As there was no distinct boundary between the contaminant plumes, it could not be determined that impacts from PS Food Mart did not contribute to the downgradient impacts.

Due to the source removal activities and a decreasing trend in groundwater contaminant concentrations, monitored natural attenuation was initially selected as the remedial approach for the site; final closure was to be accomplished utilizing institutional controls once the groundwater plume had receded to the property boundary. Following several years of groundwater monitoring, an alternative remedial approach (Enhanced Bioremediation utilizing Oxygen Release Compound [ORC]) was initiated at the site to minimize long-term monitoring costs and to facilitate attenuation of the groundwater contaminants and retreat of the groundwater plume.

ORC installation was initiated in April 2014. The activity included the injection of 5,785 pounds of ORC-Advanced across the impacted area on the subject property. A 30% ORC slurry mixture was injected from a depth of 7 and 15 feet below ground level into 74 vertical soil borings across the former (unpaved) tank location area. A 10% ORC slurry mixture was injected into six horizontal borings beneath the west (paved) portion of the site. The injection zones for the horizontal borings were at 9 and 11 feet below ground level; the horizontal injection zones were designed to intersect the zone of water table fluctuation.

Post ORC injection groundwater performance monitoring was continued following the ORC injections. In addition to contaminants of concern, groundwater sampling included analysis of total iron (Fe), manganese (Mn), dissolved methane, chemical oxygen demand (COD), and biological oxygen demand (BOD) to monitor the effects of ORC on the aquifer system. Monitoring also included the installation of Vapor Pins® and quarterly soil gas sampling to evaluate potential vapor intrusion (VI) exposures on the downgradient property.

The groundwater performance monitoring results indicated an 85% decrease in overall contaminant concentrations in the first sampling event following ORC installation. Contaminant concentrations at the toe of the PS Food Mart groundwater plume decreased to the Tier 1 RBSLs within one year following installation, allowing adequate separation of the two groundwater plumes. Furthermore, the results of quarterly soil gas monitoring indicated that there is no unacceptable VI exposure on the downgradient

property.

Envirologic (now Fishbeck) has submitted technical summary reports to obtain Environmental License Agreements (ELAs) for the adjacent impacted MDOT rights-of-way. Our team also completed an EGLE-approved restrictive covenant for the subject and adjacent source property; the documents have been submitted to the local register of deeds for recording. The restrictive covenants include groundwater use and VI exposure barrier (no new buildings) restrictions. The ELAs and restrictive covenants were designed to incorporate the areas impacted by the downgradient release in order to avoid duplication of efforts when the downgradient property is closed. A closure report has been prepared for the facility and will be submitted upon receipt of the ELAs and execution of the restrictive covenants.

Project 3 Reference Information:

Project Name: Raymond Road Project
Project Address: 924 N. Raymond Road
Key Personnel: Paul French
Project City/State/Zip: Battle Creek, MI 49014
Owner/Client Contact Name and Telephone #: Jim Davis — Davis Oil, 269.965.2201

Project 3 Description:

A release from a former service station and bulk plant at this facility resulted in a groundwater/ non-aqueous phase liquid (NAPL) plume that extended beneath an adjacent road and onto a downgradient property owned by a major distribution center. Soil borings and monitoring wells were installed to delineate the extent of soil and groundwater contamination. Envirologic (now Fishbeck) utilized LIF-UVOST to delineate the extent of the NAPL body; confirmation sampling was conducted with soil laboratory analyses and Oil-In-Soil screening kits.

The NAPL and groundwater plume at this site was determined to intersect a shallow storm sewer system on the downgradient property. Upon discovery, our team coordinated with the adjacent property owner to implement a plan to remove grossly impacted materials near the storm sewer. During the process, we designed and installed a new watertight storm sewer system across the impacted area. Concurrently, we designed, constructed, and operated a remedial system to contain and treat groundwater and NAPL impacts in the source area. The remedial system included dual phase groundwater/NAPL extraction and treatment, as well as soil vapor extraction. A total of 1,021 gallons of NAPL was recovered and disposed offsite; 2.8 million gallons of contaminated groundwater was treated via aqueous phase carbon and discharged under permit to the local municipal sanitary sewer. Soil vapors were initially treated via a catalytic oxidizer and discharged under an air discharge permit; vapors were subsequently treated via vapor phase carbon once soil gas concentrations subsided.

Subsequent monitoring results indicate that all recoverable NAPL has been removed from the site and that the groundwater plume is undergoing attenuation and receding. The Michigan Department of Environment, Great Lakes, and Energy (EGLE) has concurred with a closure plan that will include an alternative mechanism for the adjacent roadway, as well as groundwater use and vapor intrusion building restrictions on the impacted properties. Our team is negotiating with property owners regarding the offsite restrictions and expects to issue a closure report once the restrictions are in place.

ARTICLE 8: EXPERIENCE

8.1 Provide a client reference and brief descriptions of at least three (3) projects in the last five years closely related to each of the project types and professional services requested in this RFP. Emphasis shall be placed on recent work at sites of environmental contamination:

Because of the multi-faceted nature of Fishbeck's work, many of our project examples included work in multiple service areas. To reduce redundancy, please reference the attached Projects Matrix for additional projects that include this service area.

UNDERGROUND/ABOVEGROUND STORAGE TANK REMOVAL/DEMOLITION/SOIL EXCAVATION

Project 1 Reference Information:

Project Name: Kalamazoo County Road Commission
Project Address: 3801 E Kilgore Road
Key Personnel: Chris Carew, Todd Campbell, Kirk Perschbacher
Project City/State/Zip: Kalamazoo Michigan, 49001
Contact Name and Telephone #: Travis Bartholomew, Operations Director, 269.381.3170, ext. 240

Project 1 Description:

The Site is an operational service, equipment storage, and maintenance garage for the Road Commission of Kalamazoo County. A geophysical survey was completed using ground penetrating radar (GPR) to evaluate current and former USTs, drywells, septic systems, and buried debris. The GPR detected a suspected abandoned bitumen (i.e., asphalt) UST and associated heating oil UST.

Fishbeck contracted an excavation company to dig test pits to determine the exact location of the USTs, and to determine any visual or olfactory evidence of contamination. The tops of the USTs were removed, and the contents of the fuel oil tank was cleaned using an industrial vacuum truck. The contents of the larger bitumen UST were removed, mixed with clean fill sand to increase viscosity, and transported to an asphalt production facility for recycling. The soils of the excavation surrounding the USTs at the bottom of the excavation were sampled following State of Michigan Department of Licensing and Regulatory Affairs (MDLARA) procedures. The samples were submitted to an analytical laboratory to be tested for heating oil indicator parameters. The results of the analysis confirmed volatile organic compounds (VOCs) in the soil beneath the fuel oil tank and the site is documented as a "facility" under Part 201.

Project 2 Reference Information:

Project Name: MDOT Mio Garage
Project Address: 1163 Highway M-72
Key Personnel: Peter Lepczyk, Chad Weber
Project City/State/Zip: Mio, Michigan 48647
Contact Name and Telephone #: Amanda Smith, MDOT Environmental Quality Specialist, 517.241.9114

Project 2 Description:

In 2021, Fishbeck was awarded a contract by MDOT to provide as-needed UST removal services for the northern lower and upper peninsula of Michigan. In August 2022, MDOT requested Fishbeck's assistance with disposal of a previously removed UST located at MDOT's Mio garage that was formerly used for containment of truck wash water from the facility's maintenance garage. Fishbeck's services for the project included coordination with MDOT, bidding/selection of a qualified environmental contractor to decommission and remove the tank, performance of waste characterization sampling, and disposal of sludge/solids from the tank at the Montmorency-Oscoda-Alpena Solid Waste Management Authority landfill.

Project 3 Reference Information:

Project Name: UST Removal at Toyota Motor North America
Project Address: 1588 Woodridge Avenue
Key Personnel: Rick Dunkin
Project City/State/Zip: Ann Arbor, Michigan 48105
Contact Name and Telephone #: Ebonye-Rosa Allen, Manager, 502.642.2268

Project 3 Description:

The Site is an operational automotive powertrain facility for Toyota Motor North America. In December 2021, Fishbeck oversaw the removal and disposal of two double steel-walled, fiberglass wrapped USTs from the southern side of the Powertrain Building. One gasoline UST was permitted and regulated whereas the other UST was used for collection of spent fire suppression water in case of a fire emergency inside the Powertrain facility. This fire water holding tank was not regulated though it was co-located with the gasoline UST. A release of volatile organic compounds to soil from the gasoline UST system was discovered by Fishbeck during its site assessment soil and groundwater sampling performed during the UST removal activities. All detections were well below Part 213 Tier I Risk Based Screening Levels (RBSLs) and Michigan Department of Environment, Great Lakes, and Energy (EGLE) Volatilization to Indoor Air Pathway Screening Levels (VIAP SLs). Based on the detection of VOCs in soil, a confirmed release was reported to the MDLARA and Bureau of Fire Services, Storage Tank Division (BFS-STD).

In compliance with EGLE Part 213 sampling requirements, Fishbeck collected additional soil and perched groundwater samples for further site characterization. All detections were well below Part 213 Tier I RBSLs and EGLE VIAP SLs. Site activities conducted both during the Initial Assessment Phase (IAP) and the Excavation Phase of the project included UST system removal, excavation and offsite disposal of impacted soil, and removal of perched groundwater.

These rapid corrective action activities resulted in the completed remediation of the release. Fishbeck prepared a Closure Report in place of an Initial Assessment Report and a Final Assessment Report, as no soil or groundwater remained onsite at concentrations exceeding Part 213 RBSLs or EGLE VIAP SLs. After the backfilling of the former UST cavity and associated refill ports and piping trenches, the gasoline UST system was replaced with an aboveground storage tank (AST) system; the fire water holding tank was replaced with a UST.

ARTICLE 8: EXPERIENCE

8.1 Provide a client reference and brief descriptions of at least three (3) projects in the last five years closely related to each of the project types and professional services requested in this RFP. Emphasis shall be placed on recent work at sites of environmental contamination:

Because of the multi-faceted nature of Fishbeck's work, many of our project examples included work in multiple service areas. To reduce redundancy, please reference the attached Projects Matrix for additional projects that include this service area.

VAPOR INTRUSION MITIGATION DESIGN AND O&M

Project 1 Reference Information:

Project Name: 615 Holdings
Project Address: 615 W. Kalamazoo Avenue
Key Personnel: David Stegink, Erik Peterson, Paul French, Therese Searles, Alisa Lindsay PE
Project City/State/Zip: Kalamazoo, Michigan 49009
Contact Name and Telephone #: William Murphy – Partner, 615 Holdings, LLC, 269.342.9900 and Phil Reed – Partner, 615 Holdings, LLC, 269.216.9976

Project 1 Description:

The property was a former automotive service station in the midst of a historic district residential neighborhood. The site had fallen into significant disrepair. Utilizing the Kalamazoo County Brownfield Redevelopment Authority's U.S. EPA Brownfield Assessment Grant funds, Envirologic (now Fishbeck) completed Phase I and II ESAs and a hazardous building materials survey for the site. Petroleum contamination was identified in portions of the property in excess of various cleanup criteria including criteria protective of indoor air inhalation exposures.

Our team helped the City of Kalamazoo secure a State Brownfield Redevelopment Grant to support various activities necessary to redevelop the property into a mixed-use development. The grant funds were used to complete asbestos abatement activities, demolition, soil removals, vapor intrusion mitigation, and a final soil cover. We developed the demolition specifications and coordinated all aspects of the project bidding process. Demolition was completed in 2020. We also developed specifications and a work plan for the installation of a vapor barrier for the planned new construction of two buildings—both are three-story, mixed-use structures with nine apartments each. Construction of the vapor barrier and buildings was completed in Spring 2021. The vapor barrier is a spray-applied liner with passive ventilation and includes remote sampling ports to verify vapor mitigation system performance. A robust operation, monitoring, and maintenance plan was developed for state approval.

Project 2 Reference Information:

Project Name: Clark Logic
Project Address: 555 E. Eliza Street
Key Personnel: David Stegink, Paul French
Project City/State/Zip: Schoolcraft, MI 49087
Contact Name and Telephone #: Rachael Grover, Director, Kalamazoo County Planning & Development Department, 269.384.8305, ragrov@kalcounty.com

Project 2 Description:

This brownfield property was purchased for redevelopment to include extensive renovations to a former manufacturing facility. In its prior condition, the building detracted from investment and improvement in the

neighborhood. The improved, clean, modern-looking building will ultimately remove that disincentive to neighborhood improvement and community development.

Clark Logic, a local warehousing and trucking company, desired to acquire and redevelop a dilapidated former industrial property. The site had been previously identified as a source of chlorinated solvent contamination that had impacted a large area within the Village of Schoolcraft. Although extensive renovation investments were anticipated, the investment did not correlate with significant tax increment. Initially, Envirologic (now Fishbeck) completed Phase I and II ESAs and a BEA utilizing the Kalamazoo County Brownfield Redevelopment Authority's (KCBRA's) U.S. EPA Grant funds. We focused on ensuring that contamination remaining beneath the building slab would not pose a risk to future building occupants. The investigation revealed that in order to address this risk, a sub-slab depressurization system sufficiently large enough to address the full 102,000-sf building would be needed. Although our team developed a Brownfield plan/Act 381 work plan for the site, it was determined that additional funding would be necessary to cover the mitigation system. We successfully applied to EGLE on behalf of the KCBRA, resulting in a $200,000 EGLE grant and a $150,000 EGLE loan. We also helped the county negotiate an agreement with the developer to provide repayment guarantees for the EGLE loan, not covered by tax increment through the Brownfield plan, which was secured through a bank letter of credit.

Our team subsequently designed and installed the sub-slab depressurization system. The mitigation system involved multiple suction points, five blower units, alarm systems, and other components, which allowed us to demonstrate that a negative pressure differential is continuously in place beneath the entire 102,000-sf building slab.

Our team, working with the KCBRA, successfully proposed, secured, and implemented an EGLE grant and loan to fund the design and installation of the mitigation system, manage contaminated soil disturbed during redevelopment, remove abandoned hazardous substances, and ultimately provide Clark Logic with documentation of compliance with their due care obligations. Our work also included preparation of a Brownfield plan, progress reports and work plans for EGLE approval, budget spreadsheets, etc. to aid in the County's administration of the grant and loan. This site was used by EGLE for training staff related to vapor intrusion issues.

Project 3 Reference Information:

Project Name: Crown Industrial Services, Inc.
Project Address: 2070 Brooklyn Road
Key Personnel: Paul French, David Stegink, Alisa Lindsay PE
Project City/State/Zip: Jackson, Michigan 49203
Contact Name and Telephone #: Upon request

Project 3 Description:

The results of previous due diligence activities indicate that the site had operated as an industrial facility since the early 1950s with onsite use and storage of hazardous materials. Soil analytical data for the site indicated the presence of hazardous compounds beneath a portion of the industrial complex at concentrations that could result in an unacceptable indoor air inhalation exposure. While not liable to remediate the contaminants, the current owner elected to take preventative measures to preclude unacceptable vapor intrusion exposures in the structure.

Initially, Envirologic (now Fishbeck) installed Vapor Pins® across the impacted structure and collected soil gas samples to evaluate the sub-slab conditions. Sample results indicated the presence of chlorinated compounds in excess of the 2013 Vapor Intrusion Screening Levels (VISLs) in soil gas across an area of approximately 8,500 sf of the 47,500-sf structure.

Our team conducted pressure field extension testing (PFE) at several locations in the impacted area to evaluate sub-slab depressurization (SSD) as a technology to mitigate the vapor intrusion concerns. Initial test results indicated that the base course materials directly beneath the concrete slab were too tight and/or

compacted for effective depressurization. Depressurization from suction pits in the base course materials would have required a considerable blower system or a typical (more economical) blower system with more than 15 suction points.

Additional site evaluation indicated that a lower sand layer (2–3 feet bgl) was conducive to vapor extraction, and the effects of depressurization of the sand layer extended upward through the overlying soils and base course materials, resulting in a suitable pressure field below the concrete slab.

Based on the results from the PFE testing, we designed an SSD system that included three suction (vapor extraction) points across the impacted portion of the facility. The suction points were constructed with 0.20 slot well screens positioned to intersect the underlying sand layer. Three-inch-diameter suction piping was extended from each vapor extraction point through a sub-surface trench to a piping manifold along the outer wall of the structure, and then to an OBAR SOE-76 Compact Radial Blower mounted on the exterior wall. Performance monitoring results from vapor pin and test point locations in the impacted area indicated that system had induced a sub-slab vacuum (> -0.02” water column - WC) across the impacted area.

Following the rescission of the 2013 VISLs and introduction of Volatilization to Indoor Air Criteria (VIAC), it became necessary to expand the mitigation system. Subsequently, our team installed six additional suction points across the facility and installed an additional fan (an OBAR GBR 89 HA Compact Radial Blower) to expand depressurization beneath the entire 47,500-sf structure. The system was completed with visible gauges to alert occupants and the designated system operator of a malfunction; the system was designed to operate continuously with limited inspections or maintenance.

The blower systems are currently operating at a pre-fan vacuum between 9 to 14 inches of WC and flow rates ranging from 60 to 80 cubic feet per minute per fan. Performance monitoring results indicate that the mitigation system has generated a negative pressure in excess of the industry standard sub-slab vacuum of a -0.02” WC across the footprint of the structure. The results of effluent testing indicated that the off-gas meets discharge limitations of Michigan’s Air Pollution Control Rules; thus, off gas treatment is not required.

Performance monitoring results indicated a significant decrease in contaminant concentrations in soil gas beneath the structure. At the request of the EGLE, our team completed an addendum to the initial documentation of due care compliance report for the facility inclusive of system installation and performance documentation, and monitoring plan with schedules for inspections and required actions. Crown Industrial has since taken control and is performing all operation and maintenance of the system.

Project Matrix

• Service area included in project scope
Project profile in Questionnaire
Article 8 under this service area

PROJECTS			SERVICE AREAS												
Article 8 Project #	Project Name	City/Region	Asbestos/Lead/ Mold/Biohazard/ Free Product/ Regulated Waste/Survey/ Abatement	Brownfield Development	Ecological Risk Assessment/ Forestry and Land Management/ Wetland Mitigation/ Streams and Lakes Restoration	Environmental Investigation/ Characterization/ Pilot Tests/ Feasibility Study	Environmental/ Rotosonic Drilling/ Well Abandonment	GPR/LIF Field Screening	Landfill Maintenance/ Monitoring	Per- & Polyfluoroalkyl Substances (PFAS) Sampling/ Mitigation/ Remediation	Phase I/Phase II/ BEA	Remediation Systems Design/ Construction Oversight/O&M/ Decommissioning	UST/AST Removal/ Demolition/Soil Excavation	Vapor Intrusion Assessments/ Risk Mitigation/ Design/ Installation/O&M Services
1	City of South Haven 2019 HOME Grant	South Haven/Southwestern LP	•											
2	Leestma Management Building Assessments	Muskegon/Western LP	•											
3	Metea Court Senior Apartments	Buchanan/Southwestern LP	•											
4	Sawyer International Airport	Gwinn/Eastern UP	•	•							•			
1	Borough Ish	Ishpeming/Western UP	•	•		•					•		•	
2	Consumers Energy Solar Garden	Cadillac/Northern LP		•										
3	Inn on Water Street	Marine City/Saginaw Bay	•	•							•		•	
4	Vicksburg Mill	Vicksburg/Southwestern LP	•	•									•	
1	Avionics Specialties, Inc. Facility	Earlysville, VA			•									
2	Fort Custer Training Center	Battle Creek/Southwestern LP			•									
3	Meijer, Inc.	Various/Northern, Southeastern, and Southwestern LP; and Eastern UP			•									
4	Mystic Heights	Mattawan/Southwestern LP			•									
1	213 Closure Pilot (15 sites)	Various/Central, Southeastern, and Southwestern LP				•								
2	Former DTE Marysville Power Plant	Marysville/Saginaw Bay		•		•								
3	Lamont Street Fueling	Kalamazoo/Southwestern LP				•							•	•
4	MAHLE Industries Harvey Street Facility Remediation	Muskegon/Western LP				•						•		
1	Confidential Client	Western LP				•	•			•				
2	Former Detrex Facility	Grand Rapids/Southwestern LP				•	•	•						•
3	Save Time #5 – Kelly Fuels	Jackson/Central LP				•	•						•	•
1	Military Equipment Manufacturing Facility (76 S. Getty Street)	Muskegon/Western LP			•	•	•	•		•		•		
2	Tuscola Co. Road Comm. – Cain #1 Brine Field Release	Vassar/Saginaw Bay				•	•	•						
1	Harrison Landfill	Harrison, OH							•					
2	Ionia Landfill	Ionia/Central LP							•					
3	Jackson County Landfill	Jackson/Central LP							•					
4	Pactiv/Red Bluff Landfill (Reynolds)	Red Bluff, CA							•					
1	Former City of Manistee Landfill	Manistee/Western LP				•				•				
2	Lacks Airlane Facility	Kentwood/Southwestern LP				•				•				
3	Robinson Elementary School	Grand Haven/Southwestern LP								•				
1	815 Verhoeks Redevelopment	Grand Haven/Southwestern LP		•							•			
2	Hungry Howie's Redevelopment	Grand Haven/Southwestern LP		•							•			
3	Stryker R&D	Portage/Southwestern LP		•							•			
1	Former Teledyne Howell Penncraft Facility	Howell/Southeastern LP										•		
2	PS Food Mart – Folk Oil	Hillsdale/Central LP				•						•	•	•
3	Raymond Road Project – Davis Oil	Battle Creek/Southwestern LP				•		•				•	•	
1	Kalamazoo County Road Commission	Kalamazoo/Southwestern LP											•	
2	MDOT Mio Garage	Mio/Northern LP											•	
3	Toyota Motor North America	Ann Arbor/Southeastern LP				•							•	
1	615 Holdings	Kalamazoo/Southwestern LP	•	•							•		•	•
2	Clark Logic	Schoolcraft/Southwestern LP	•	•							•			•
3	Crown Industrial Services, Inc.	Jackson/Central LP												•

QC Documentation - Field Records
Environmental Division

Section 1

Project Name	MDTMB / Grand Haven Clark
Project Number	200303
Project Manager	TMB
Field Personnel	APS
Field Date(s)	2/20/20 & 2/25/20

Section 2 — *Check items included for review:*

Field notes (narratives)	☑	Air sample analysis tables	☐
Boring/well logs	☑	Daily checklist	☐
Soil gas probe installation forms	☑	Fungal assessment form	☐
SWL measurement forms	☐	Fungal assessment form	☐
Equipment calibration forms	☑	Flow measurement forms	☐
Sample location map	☑	ISM soil description log	☐
Sample collection forms	☑	ISM collection checklist	☐
QC sample collection forms	☑	Other:	☐
Chain-of-custody forms	☑	Other:	☐

Section 3 — *Compiled by:*

Signature: APS

Date: 2/25/20

Section 4 — *Review comments:*

2/20: No mid cal ver (>5 hours); Beg. cal & end cal ver OK for all but SC(147), see cal. sheet for notes.

Section 5 — *Reviewed by:*

Signature: Penni Mahler

Date: 2/27/2020

Section 6 — *Action Taken:*

Section 7 — *Field Record Review Complete:*

Signature: _____

Date: _____

2020-0220a0225 - Ph2-Soil+GW+SoilGasSampling

FIELD NOTES

Project Name: MDTMB/Grand Haven Clark

Project Number: 200303

Site Location: Grand Haven, MI

Date: 2/20/20

Weather Conditions: MOSTLY CLOUDY, 19° @ 0900

Purpose: PHASE II

0900: FISHBECK & ROSENDALL ONSITE.
0920: POSITIONED SB/TW-05 ~ 20' S/SE OF EXISTING BUILDING.
0930: CAL'D MINI RAE #677. BEGAN DRILLING SB/TW-05.
1000: ENCOUNTERING 7+' OF HEAVE INTO RODS ~ 25' bgs. WILL BLIND DRILL TO 35' & SET TW.
1020: SANDS ARE VERY TIGHT ~ 30' bgs. AFFRAID OF LOCKING UP RODS IN GROUND IF WE PUSH TO 35'. WILL SET TW-05 FROM 25-30' bgs.
1040: FINISHED SETTING TW-05, SEE LOG FOR DETAILS.
1045: BEGAN DEVELOPING TW-05.
1100: " DRILLING @ SB/TW-01 LOCATION.
1125: FINISHED SETTING TW-01, SEE LOG FOR DETAILS. DRILLER TAILS LUNCH.
1210: SAMPLED TW-05 / BEGAN DEVELOPING TW-01.
1225: ROSENDALL PULLED TW-05, BACKFILLED W/ CUTTINGS & BENTONITE.
1240: BEGAN DRILLING SB-04.
1255: FINISHED DRILLING SB-04, SAMPLED 6-7' bgs. SEE FORM/LOG FOR DETAILS.
1300: BEGAN DRILLING SB-02.
1325: FINISHED DRILLING AND SETTING SB/TW-02, SCREEN SET 8-13' bgs BASED ON IMPACTED SOILS @ SB-04 (W OF 02).
1340: FINISHED SAMPLING TW-01
1350: BEGAN DEVELOPING TW-02.

Completed by: _____ (signature)

2/20/20 (date)

FIELD NOTES

Project Name: MDTMB/Grand Haven Clark

Project Number: 200303

Site Location: Grand Haven, MI

Date: 2/20/20

Weather Conditions: PARTLY SUNNY, 17° @ 1630

Purpose: PHASE II

1440: TW-02 PURGED DRY DURING DEVELOPMENT. WILL LET RECOVER AND TRY TO LOW FLOW. ROSENDAHL IS DRILLING TO 5' bgs @ 3 LOCATIONS FOR VP INSTALL.

1445: EGLE (PAUL) ONSITE. DISCUSSED MOVING VP LOCATION BEHIND THE BUILDING DUE TO CONCRETE & LIMITED RIG ALLEYS. MOVED LOCATION ~20 E OF PROPOSED LOCATION.

1510: BEGAN DRILLING @ SB/TW-03 LOCATION.

1520: FINISHED SETTING TW-03. SEE LOG FOR DETAILS.

1525: FINISHED SAMPLING TW-02. ROSENDAHL IS LOADING UP RIG.

1540: BEGAN DEVELOPING TW-03. ROSENDAHL & EGLE OFFSITE.

1620: COLLECTED SO-03 SOIL SAMPLE FROM 6.5-7.5' bgs, SEE FORM FOR DETAILS. BEGAN PURGING (LOW FLOW) ON TW-03.

1700: FINISHED COLLECTING TW-03 SAMPLE. EOD CAL ✓ @ 1715.

1730-1815: INSTALLED 3 SOIL VAPOR POINTS (VP-01, 02 & 03). HAD TO SHIFT NORTHERN MOST VP LOCATION (VP-03) EAST DUE TO CONCRETE @ PROPOSED LOCATION (NEAR SHED). ALL 3 VP's WERE INSTALLED 4.5-5.0' bgs. SEE LOG FOR MORE DETAIL.

1815: FISHBECK OFFSITE.

1910: SIGNED OVER SAMPLES TO FISHBECK HOLD (STORAGE) FRIDGE TO BE SHIPPED 2/21/20.

Completed by: _____ (signature)

2/20/20 (date)

FIELD NOTES

Project Name: MDTMB/Grand Haven Clark

Project Number: 200303

Site Location: Grand Haven, MI

Date: 2/25/20

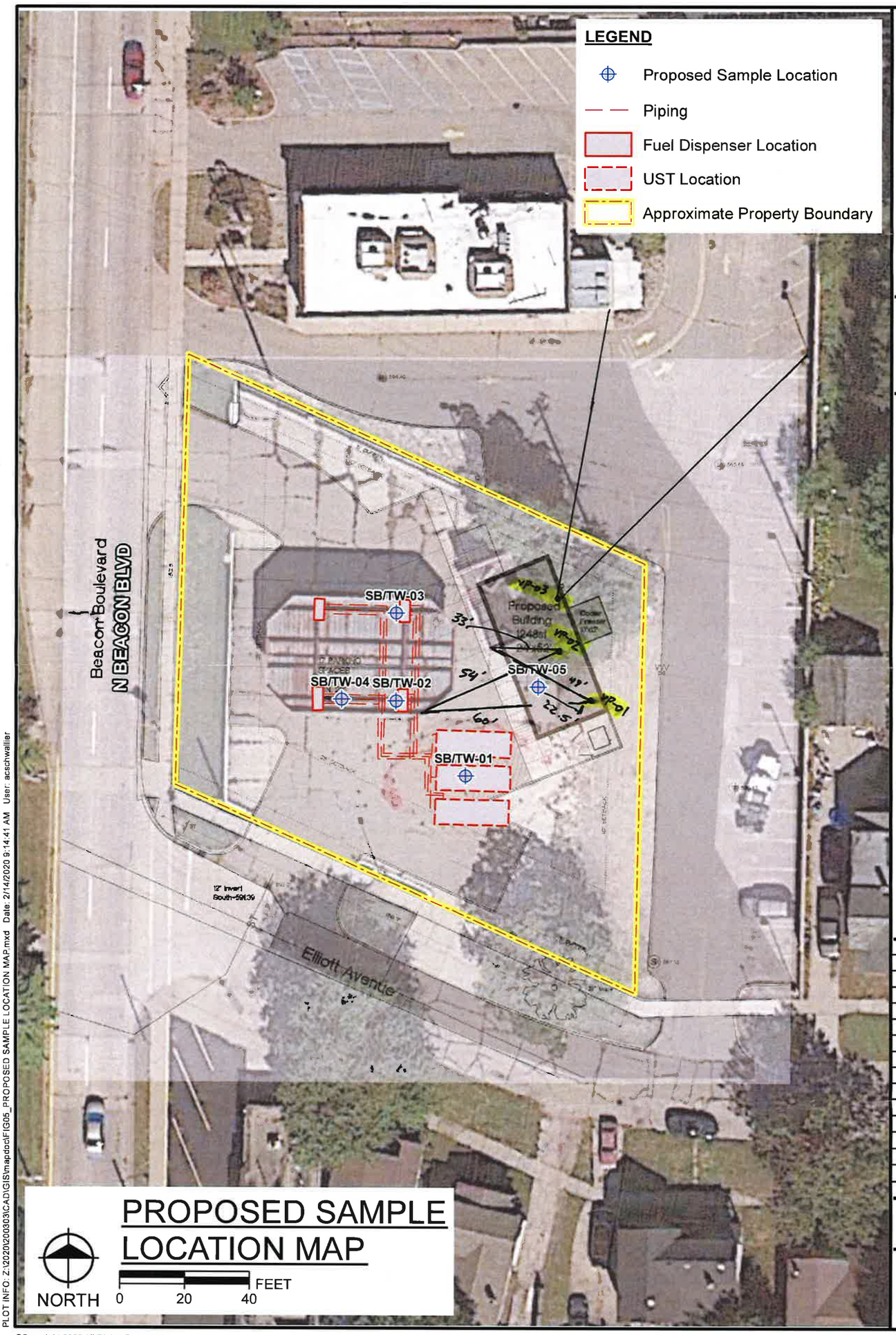
Weather Conditions: PARTLY SUNNY, 35° @ 0950

Purpose: PHASE II (VP SAMPLING)

0820: CALIBRATED 4-GAS (EAGLE) & PID @ OFFICE.
0950: ARS (FISHBECK) ONSITE.
1000-1120: SAMPLED VP-01, 02, & 03.
1120-1145: ABANDONED VPs AND TRIANGULATED LOCATIONS.
1145: ARS OFFSITE.
1630: AT OFFICE TO PREP SAMPLES FOR SHIPMENT.

Completed by: [signature] (signature)

2/25/20 (date)



PROPOSED SAMPLE LOCATION MAP

NORTH

0 20 40 FEET

fishbeck
Engineers | Architects | Scientists | Constructors

Hard copy is intended to be 8.5"x11" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

Grand Haven Clark

300 N Beacon Blvd., Grand Haven, Ottawa County, Michigan

Sampling and Analysis Plan

PROJECT NO.
200303

FIGURE NO.
5

PLOT INFO: Z:\2020\200303\CAD\GIS\mapdoc\FIG05_PROPOSED SAMPLE LOCATION MAP.mxd Date: 2/14/2020 9:14:41 AM User: acschwaller

SOIL GAS FIELD INSTRUMENT CALIBRATION FORM

Project Name: MDTMB/Grand Haven Clark
Project Number: 200303
Date: 2/25/20
Completed by: APS

He/H_2 Multigas Detector MGD-2002	**ID Number:**	
Compressed He source:	Purity Gas UHP	
Initial check - response >25 ppm	YES NO	Time:
Verification - response >25 ppm	YES NO	Time:
Verification - response >25 ppm	YES NO	Time:

Multigas Meter - RKI Eagle 2	**ID Number:** #604				
Initial Calibration Check		Time: 0820			
Calibration Gas	Lot Number	Concentration (%)	Measured Value (%)	Time	QC Limits
Methane	*SEE BELOW	5000 ppm	5500 ppm	0825	±10%
CO_2		20%	19.4%	0826	±20%
O_2 (ambient air)	NA	20.9	20.9	0823	19.5 - 21%
Calibration Verification		Time:			
Calibration Gas	Lot Number	Concentration (%)	Measured Value (%)	Time	QC Limits
Methane					±10%
CO_2					±20%
O_2 (ambient air)	NA				19.5 - 21%
Calibration Verification		Time:			
Calibration Gas	Lot Number	Concentration (%)	Measured Value (%)	Time	QC Limits
Methane					±10%
CO_2					±20%
O_2 (ambient air)	NA				19.5 - 21%

H_2S: 24.5 ppm (25 ppm)

PID							
Initial Calibration Check (±10%)			Time: 0830				
Meter	ID Number	Lamp (eV)	"Fresh" Air Cal Value (ppm)	Span Gas	Lot Number/ Exp Date	Span Gas (ppm)	Reading (ppm)
MINI RAE 3000	677	10.6	0.0	ISOBUTYLENE	9-168-86 10/2022	100.0	100.0
Calibration Verification (±10%)			Time:				
Meter	ID Number	Lamp (eV)	"Fresh" Air Cal Value (ppm)	Span Gas	Lot Number/ Exp Date	Span Gas (ppm)	Reading (ppm)
Calibration Verification (±10%)			Time:				
Meter	ID Number	Lamp (eV)	"Fresh" Air Cal Value (ppm)	Span Gas	Lot Number/ Exp Date	Span Gas (ppm)	Reading (ppm)

CH_4/CO_2 LOT #: HBS-409X-CO2-0.5-1 ; EXP: 7/24/21

PID CALIBRATION LOG

Project Name: MDTMB/Grand Haven Clark

Project Number: 200303

Date	Time	Initials	Instrument ID Number	Lamp (eV)	"Fresh" Air Calibration Value (ppm)	Span Gas	Lot number/ Expiration Date	Span Gas Value (ppm)	Span Gas Reading (ppm)
2/20/20	0930	APS	#677	10.6	0.0	ISOBUTYLENE	9-168-86 10/2022	100.0	100.3
	1630	"	"	"	0.0	"	" "	100.0	99.9 (BUMP)

SOIL GAS PROBE INSTALLATION LOG

Project Name:	MDTMB/Grand Haven Clark	Vapor Probe ID:	VP-01
Project Number:	200303	Location:	SE OF TW-05
Project Manager:	TMB	Installation Date:	2/20/2020
Site Location:	Grand Haven, MI	Rig Type:	7822 DT
Contractor:	Rosendall	Drilling Method:	Direct Push
Driller/Helper:	Jason / Dick	Logged By:	APS

PAGE 1 OF 1

Depth (ft bgs)	Sample Description	PID (ppm)	Probe Installation Details
1	* SEE TW-05 LOG FOR LITHOLOGY *	NM	Tubing diameter: 1/4" interval: 0-4.5 material: HDPE TOTAL: 6.0' Vapor Implant Type: diameter: interval: 4.5-5.0 material: STAINLESS slot size: MESH Seal type: HOLE PLUG interval: 0-4.0 SAND: 4.0-5.0
2			
3			
4			
5	SAND W/ SILT: F-GRAINED, SOME SILT (15%), SOME MED GRAIN SAND, MED. BROWN, LOOSE, DRY.		
	EOB = 5' BGS		

Comments: INSTALLED 1730-1740 ON 2/20/20.

SOIL GAS PROBE INSTALLATION LOG

Project Name:	MDTMB/Grand Haven Clark	Vapor Probe ID:	VP-02
Project Number:	200303	Location:	N/NE of TW-05
Project Manager:	TMB	Installation Date:	2/20/2020
Site Location:	Grand Haven, MI	Rig Type:	7822 DT
Contractor:	Rosendall	Drilling Method:	Direct Push
Driller/Helper:	Jason / Dick	Logged By:	APS

PAGE 1 OF 1

Depth (ft bgs)	Sample Description	PID (ppm)	Probe Installation Details
1	* SEE TW-05 LOG FOR LITHOLOGY *	NM	**Tubing** diameter: 1/4"
2			interval: 0 - 4.5
3			material: HDPE
4			TOTAL: 6.0'
5	SAND W/SILT: F-M GRAINED, SOME SILT (15%), LIGHT BROWN, LOOSE, DRY.		**Vapor Implant Type:** diameter:
	EOB = 5' bgs		interval: 4.5-5.0
			material: STAINLESS
			slot size: MESH
			Seal type: HOLE PLUG
			interval: 0-4.0
			SAND: 4.0-5.0'

Comments: INSTALLED 1745-1800 ON 2/20/20.

SOIL GAS PROBE INSTALLATION LOG

Project Name:	MDTMB/Grand Haven Clark	Vapor Probe ID:	VP-03
Project Number:	200303	Location:	NE OF TW-05
Project Manager:	TMB	Installation Date:	2/20/2020
Site Location:	Grand Haven, MI	Rig Type:	7822 DT
Contractor:	Rosendall	Drilling Method:	Direct Push
Driller/Helper:	Jason / Dick	Logged By:	APS

PAGE 1 OF 1

Depth (ft bgs)	Sample Description	PID (ppm)	Probe Installation Details
	* SEE TW-05 LOG FOR LITHOLOGY *	N/A	**Tubing** diameter: 1/4" interval: 0-4.5' material: HDPE TOTAL: 6.0'
1			**Vapor Implant Type:** diameter:
2			interval: 4.5-5.0 material: STAINLESS slot size: MESH
3			**Seal** type: HOLE PLUG
4			interval: 0-4.0' SAND: 4.0-5.0'
	SAND: F-M GRAINED, TR. SILT (10%), MED BROWN, LOOSE, DRY.		
5	EOB = 5' bgs		

Comments: INSTALLED 1800-1815 ON 2/20/20. HAD TO SHIFT E FROM PROPED LOCATION DUE TO CONCRETE.

SOIL GAS SAMPLING FORM - BOTTLE VAC

PROJECT:	MDTMB/Grand Haven Clark	**VAPOR POINT ID:**	20-VP-01
PROJECT #:	200303	**SAMPLE ID:**	MDTMB-20-02-20-VP-01(I)
LOCATION:	Grand Haven, MI	**DATE:**	2/25/20 ✓

SAMPLING DEVICE INFORMATION

Bottle Vac ID:	~~NA~~ 30923 ✓	COA ID:	926
Gauge ID:	MDEQ-229 ✓	Equipment/Supplied by:	EGLE 1L Bottle Vac with COA 100-200 ml/minute

PURGE VOLUME CALCULATIONS (circle one): Cox Colvin Vapor Pin (Stainless Steel Screen) Porous Stone

Vapor point depth:	5 ft (4.75' TO MID SCREEN)	Length to purge:	5.5 ft
Tubing Diameter:	0.25 in	Estimated volume: *(Purge volume for 0.25 in tubing = 10 cc/ft)*	55 cc
Purge method:	60 cc syringe	Purge volume (3x):	165 cc

BACKGROUND CONCENTRATION MEASUREMENTS (through COA)

	Test #1 (AMBIENT AIR)		Test #2 (AT VP)	
Carbon Dioxide:	0.0	%	0.3	%
Oxygen:	21.1	%	20.9	%
Methane:	15	~~ppm~~	200	ppm
PID:	0.0	ppm	0.8	ppm
Helium:	NM	%	NM	%

SHUT-IN TEST (Check of sampling assembly integrity) *Connect COA to Bottle Vac and seal inlet.*

	Test #1		Test #2	
Initial Gauge Vacuum:	30	"Hg		"Hg
Final Gauge Vacuum:	30	"Hg		"Hg
Leak Test Duration:	1	min		min

LEAK TEST (Check of surface seal integrity)

	Test #1		Test #2	
Purge 3 volumes:	165	cc		cc
He conc in shroud pre-leak test:	80 ~~%~~	%		%
Purged He concentration:	0	%		%
He conc in shroud post-leak test:	44	%		%

SAMPLE COLLECTION

Start time:	1025	Moisture identified:	YES (NO)
Initial Bottle Vac pressure:	29.5 ✓ "Hg	Barometric pressure:	30.00 "Hg
Pressure reading @ 2 min	19.0 "Hg	Temperature:	37 °F
Pressure reading @ 4 min	9.5 "Hg	Differential Pressure:	NA "H_2O
Pressure reading @ 6 min	4.5 ✓ "Hg		
Stop time:	1032 ✓	Test parameters:	Volatiles by USEPA TO-15 full list
Final Bottle Vac pressure:	3.0 "Hg		

ADDITIONAL NOTES

22.5' SE OF TW-05

SAMPLING PERSONNEL	**COC NUMBER**
Name (SIGNATURE):	0225-2020-02 ✓

SOIL GAS SAMPLING FORM - BOTTLE VAC

PROJECT:	MDTMB/Grand Haven Clark	**VAPOR POINT ID:**	20-VP-02
PROJECT #:	200303	**SAMPLE ID:**	MDTMB-20-02-20-VP-02(I)
LOCATION:	Grand Haven, MI	**DATE:**	2/28/20 ✓

SAMPLING DEVICE INFORMATION

Bottle Vac ID:	19264 ✓	COA ID:	NA
Gauge ID:	MDEQ-288 ✓	Equipment/Supplied by:	EGLE 1L Bottle Vac with COA 100-200 ml/minute

PURGE VOLUME CALCULATIONS (circle one): Cox Colvin Vapor Pin (Stainless Steel Screen) Porous Stone

Vapor point depth:	5 ft (4.75' TO MID SCREEN)	Length to purge:	5.5 ft
Tubing Diameter:	0.25 in	Estimated volume: *(Purge volume for 0.25 in tubing = 10 cc/ft)*	55 cc
Purge method:	60 cc syringe	Purge volume (3x):	165 cc

BACKGROUND CONCENTRATION MEASUREMENTS (through COA)

	Test #1 (AMBIENT AIR)	Test #2 (AT VP)
Carbon Dioxide:	0.0 %	0.4 %
Oxygen:	20.9 %	20.9 %
Methane:	0 ppm	140 ppm
PID:	0.0 ppm	0.2 ppm
Helium:	NM %	NM %

SHUT-IN TEST (Check of sampling assembly integrity) *Connect COA to Bottle Vac and seal inlet.*

	Test #1	Test #2
Initial Gauge Vacuum:	30 "Hg	"Hg
Final Gauge Vacuum:	30 "Hg	"Hg
Leak Test Duration:	1 min	min

LEAK TEST (Check of surface seal integrity)

	Test #1	Test #2
Purge 3 volumes:	165 cc	cc
He conc in shroud pre-leak test:	85 %	%
Purged He concentration:	0 %	%
He conc in shroud post-leak test:	32 %	%

SAMPLE COLLECTION

Start time:	1048	Moisture identified:	YES (NO)
Initial Bottle Vac pressure:	28.0 ✓ "Hg	Barometric pressure:	30.00 "Hg
Pressure reading @ 2 min	19.5 "Hg	Temperature:	37 °F
Pressure reading @ 4 min	11.5 "Hg	Differential Pressure:	NA "H_2O
Pressure reading @ 6 min	6.0 ✓ "Hg		
Stop time:	1055 ✓	Test parameters:	Volatiles by USEPA TO-15 full list
Final Bottle Vac pressure:	4.0 "Hg		

ADDITIONAL NOTES

15' N/NE OF TW-05

SAMPLING PERSONNEL	**COC NUMBER**
Name (SIGNATURE):	0225-2020-02 ✓

SOIL GAS SAMPLING FORM - BOTTLE VAC

PROJECT:	MDTMB/Grand Haven Clark	**VAPOR POINT ID:**	20-VP-03
PROJECT #:	200303	**SAMPLE ID:**	MDTMG-20-02-20-VP-03(I)
LOCATION:	Grand Haven, MI	**DATE:**	2/26/2020

SAMPLING DEVICE INFORMATION

Bottle Vac ID:	1339 ✓	COA ID:	NA
Gauge ID:	MDEQ-235 ✓	Equipment/Supplied by:	EGLE 1L Bottle Vac with COA 100-200 ml/minute

PURGE VOLUME CALCULATIONS (circle one): Cox Colvin Vapor Pin (Stainless Steel Screen) Porous Stone

Vapor point depth:	5 ft (4.75' TO MID SCREEN)	Length to purge:	5.5 ft
Tubing Diameter:	0.25 in	Estimated volume: *(Purge volume for 0.25 in tubing = 10 cc/ft)*	55 cc
Purge method:	60 cc syringe	Purge volume (3x):	165 cc

BACKGROUND CONCENTRATION MEASUREMENTS (through COA)

	Test #1 (AMBIENT AIR)		Test #2 (AT VP)
Carbon Dioxide:	0.0 %	Carbon Dioxide:	0.5 %
Oxygen:	20.9 %	Oxygen:	20.9 %
Methane:	45 ~~ppm~~	Methane:	145 ~~%~~ ppm
PID:	0.0 ppm	PID:	0.3 ppm
Helium:	NM %	Helium:	NM %

SHUT-IN TEST (Check of sampling assembly integrity) *Connect COA to Bottle Vac and seal inlet.*

	Test #1		Test #2
Initial Gauge Vacuum:	30 "Hg	Initial Gauge Vacuum:	"Hg
Final Gauge Vacuum:	30 "Hg	Final Gauge Vacuum:	"Hg
Leak Test Duration:	7 min	Leak Test Duration:	min

LEAK TEST (Check of surface seal integrity)

	Test #1		Test #2
Purge 3 volumes:	165 cc	Purge 3 volumes:	cc
He conc in shroud pre-leak test:	88 %	He conc in shroud pre-leak test:	%
Purged He concentration:	0 %	Purged He concentration	%
He conc in shroud post-leak test:	80 %	He conc in shroud post-leak test:	%

SAMPLE COLLECTION

Start time:	1110	Moisture identified:	YES (NO)
Initial Bottle Vac pressure:	28.0 ✓ "Hg	Barometric pressure:	30.00 "Hg
Pressure reading @ 2 min	19.5 "Hg	Temperature:	37 °F
Pressure reading @ 4 min	9.0 "Hg	Differential Pressure:	NA "H_2O
Pressure reading @ 6 min	4.0 ✓ "Hg		
Stop time:	1117 ✓	Test parameters:	Volatiles by USEPA TO-15 full list
Final Bottle Vac pressure:	2.5 "Hg		

ADDITIONAL NOTES

~37' N OF TW-05.

SAMPLING PERSONNEL	COC NUMBER
Name (SIGNATURE):	0225-2020-02 ✓

BORING LOG

Project Name:	MDTMB/Grand Haven Clark	**Boring/Well Number:**	20-SB-01 / TW-01
Project Number:	200303	**Start/End Date:**	2/20/20
Project Manager:	Tom Budge	**Logged By:**	APS
Site Location:	Grand Haven, MI	**Ground Elevation:**	NA
Contractor:	RISENDAL	**Static Water Level :**	~8' bgs
Driller/Helper:	JASON / DICK	**Abandonment Method:**	CUTTINGS & BENTONITE
Rig Type:	7822 DT	**Development Method:**	PERI PUMP
Drilling Method:	DIRECT PUSH	**Sampling Methods:**	5' MACRO CORE
Borehole Purpose:	TW INSTALL	PAGE 1 OF 1	

Blows per 6"	Recovery (feet)	Depth (ft bgs)	Sample Description	PID (ppm)
NA	3.8		SAND: F-M GRAINED, LIGHT BROWN, LOOSE, SLIGHTLY MOIST.	2.9
			- SAA - .	2.1
			- SAA -	1.5
		5	- SAA - LIGHT OLIVE BROWN.	2.5
	3.5		SILTY SAND W/ GRAV: F-M, SILT (35%), F-GRAV (20%). DARK BROWN, WELL SORTED, MOIST.	5.5
			- SAA - WET	0.7
		10	SAND: VF-F, BROWN, DENSE, WET.	NA
	4.2		GRAVEL: MED, SUB ROUNDED, POORLY SORTED, WET.	
			- SAA WET @ 10.2' bgs. DARK BROWN.	
			- SAA - TR. C SAND (10%).	
			- SAA @ 12' bgs.	
		15	- SAA -	
			EOB = 15' bgs.	

Well Construction Details

- Stick-up: 0.61'
- Casing: diameter: 1" | interval: 0-10 | material: PVC
- Screen: diameter: 1" | interval: 10-15 | material: PVC | slot size: 0.010
- Sand Pack: type: NAT. COLLAPSE | interval: 9.5-15
- Seal: type: | interval: 8.5-9.5
- Grout: type: NA | interval: NA

Density - Sands (blow counts per foot)

very loose:	5 or less
loose:	6-11
med dense:	11-30
dense:	31-50
very dense:	> 50

Density - Clays/Silts (blow counts per foot)

very soft:	<2
soft:	2-4
medium stiff:	4-8
stiff:	8-15
very stiff:	15-30
hard:	>30

Comments: START: 1100 END: 1125

BORING LOG

Project Name:	MDTMB/Grand Haven Clark	**Boring/Well Number:**	20-SB-02 / TW-02
Project Number:	200303	**Start/End Date:**	2/20/20
Project Manager:	Tom Budge	**Logged By:**	APS
Site Location:	Grand Haven, MI	**Ground Elevation:**	NA
Contractor:	ROSENDAHL	**Static Water Level :**	~7.5' bgs
Driller/Helper:	JASON / DILK	**Abandonment Method:**	CUTTINGS + BENTONITE.
Rig Type:	7822 DT.	**Development Method:**	PERI PUMP
Drilling Method:	DIRECT PUSH	**Sampling Methods:**	5' MACRO CORE LINER
Borehole Purpose:	SOIL SAMPLE / TW INSTALL		PAGE 1 OF 1

Blows per 6"	Recovery (feet)	Depth (ft bgs)	Sample Description	PID (ppm)	Well Construction Details
NA	3.0'	0	6" OF CONCRETE		Stick-up: 2.50'
			SAND w/ SILT: F-GRAINED, SILT (20%), ~~MED DENSE~~ LOOSE, BROWN, SLIGHTLY MOIST. (APS)	1.6	Casing diameter: 1"
			SILTY SAND: F-GRAINED, SILT (35%), DARK GREY BROWN, MED. DENSE, SLIGHTLY MOIST.	0.0	interval: 0-8
			SAND: SOME SILT (15%), FINE, DARK ORANGE BROWN, MED DENSE, DRY - SLIGHTLY MOIST.		material: PVC
		5	SAA.. TR. SILT (10%), DRY, BROWN.		Screen diameter: 1"
	3.2'		SAA.. F-M. MOIST.	910.1	interval: 8-13
			SAA.. TR C-SAND (10%), NO SILT. GREY BROWN, WET	1128	material: PVC
			SAA - DARK GREY, TR. SILT (5%), SLIGHT H.C. ODOR.	266.6	slot size: 0.010
			SILTY SAND: F-GRAINED, SILT (40%), DARK OLIVE GREY, LOOSE - MED DENSE, ~~SLIGHT~~ STRONG H.C ODOR, MOIST.	NA	Sand Pack type: MAT COLLAPSE
		10	SAND: SAA.. @ 7' bgs, WET.		Interval: 7-13
			SAND: F-C [40/40/20], BROWN, WELL SORTED, WET.		Seal type: HOLE PLUG
	4.5		SAA.. F-M,		Interval: 5-7
			SAA.. F-C, TR. F-GRAN (10%).		Grout type: NA
			SAA.. NO F-GRAN.		Interval: NA
		15	EOB = 15' bgs		

Density - **Sands** (blow counts per foot)

very loose:	5 or less
loose:	6-11
med dense:	11-30
dense:	31-50
very dense:	> 50

Density - **Clays/Silts** (blow counts per foot)

very soft:	<2
soft:	2-4
medium stiff:	4-8
stiff:	8-15
very stiff:	15-30
hard:	>30

Comments: START: 1300 END: 1325

SAMPLED 6.5-7.0' bgs INTERVAL ✓

BORING LOG

Project Name:	MDTMB/Grand Haven Clark	**Boring/Well Number:**	20-SB-03 / TW-03
Project Number:	200303	**Start/End Date:**	2/20/20
Project Manager:	Tom Budge	**Logged By:**	APS
Site Location:	Grand Haven, MI	**Ground Elevation:**	NA
Contractor:	ROSENDAL	**Static Water Level :**	~8' bgs
Driller/Helper:	JASON / DICK	**Abandonment Method:**	CUTTINGS & BENTONITE
Rig Type:	7822 DT	**Development Method:**	PERI PUMP
Drilling Method:	DIRECT PUSH	**Sampling Methods:**	5' MACRO CORE LINER
Borehole Purpose:	SOIL SAMPLE & TW INSTALL		PAGE 1 OF 1

Blows per 6"	Recovery (feet)	Depth (ft bgs)	Sample Description	PID (ppm)	Well Construction Details
NA	3.0	0	6" OF CONCRETE	0.6	Stick-up: 0.50'
			SILTY SAND: F-GRAINED, SILT (30%), GREY BROWN, LOOSE, DRY.		Casing
			SAA.. DARK GREY BROWN.	0.0	diameter: 1"
			SAA.. SILT (25%), MED DENSE, ORANGE BROWN.		interval: 0-10
			SAND: F-GRAINED, TR. SILT (10%), BROWN LIGHT BROWN, LOOSE, DRY.		material: PVC
	3.5	5	SAA.. F-M		Screen
			SAA.. TR. C-SAND (10%). MOIST.	0.0	diameter: 1"
			SAA.. NO C-SAND, SOME SILT (15%), MED DENSE, DARK GREY W/ SLIGHT HC ODOR.	530.0	interval: 10-15'
			SAA.. TR SILT (10%), F-M GRAINED LIGHT GREY BROWN.	113.1	material: PVC
			SAA.. GREY, WET @ 8' bgs	NA	slot size: 0.010
	4.8	10	SAA.. @ 5.5' bgs		Sand Pack
			SAA.. F-M		type: NAT COLLAPSE
			SAA.. @ 5.5' bgs.		Interval: 7.5-15
		15	EOB = 15' bgs.		Seal
					type: HOLE PLUG
					interval: 2-7.5
					Grout
					type: NA
					interval: NA

Density - Sands (blow counts per foot)	
very loose:	5 or less
loose:	6-11
med dense:	11-30
dense:	31-50
very dense:	> 50

Density - Clays/Silts (blow counts per foot)	
very soft:	<2
soft:	2-4
medium stiff:	4-8
stiff:	8-15
very stiff:	15-30
hard:	>30

Comments: START: 1510 END: 1525

SAMPLED 6.5-7.5' INTERVAL @ 1620. ✓

BORING LOG

Project Name:	MDTMB/Grand Haven Clark	**Boring/Well Number:**	20-SB-04
Project Number:	200303	**Start/End Date:**	2/20/20
Project Manager:	Tom Budge	**Logged By:**	APS
Site Location:	Grand Haven, MI	**Ground Elevation:**	NA
Contractor:	ROSENDALL	**Static Water Level :**	~8.2' bgs.
Driller/Helper:	JASON / DICK	**Abandonment Method:**	CUTTINGS & BENTONITE
Rig Type:	7822 DT	**Development Method:**	NA
Drilling Method:	DIRECT PUSH	**Sampling Methods:**	5' MACRO CORE LINER
Borehole Purpose:	SOIL SAMPLE	PAGE 1 OF 1	

Blows per 6"	Recovery (feet)	Depth (ft bgs)	Sample Description	PID (ppm)
NA			6" OF CONCRETE.	
	3.1		SAND W/ SILT: F. SAND, SILT (15%), LIGHT BROWN, LOOSE, SLIGHTLY MOIST.	2.1
			SAA.. DARK OLIVE BROWN W/ TAN BANDING.	2.4
			SAA.. VERY DARK GREY BROWN, NO BANDING, SILT (20%).	2.2
			SAND: FINE, ORANGE BROWN, LOOSE, SLIGHTLY MOIST.	
		5		
			SAA..	0.6
	3.5		SAA.. TR SILT (10%), DARK GREY, M.C. ODOR, MOIST.	1,312
			SAA.. SILT (5%), BLACK STAINING, STRONG MC. ODOR, MOIST.	1,219
			SAA.. @ 2.5' bgs, WET, MED BROWN.	NA
		10	EOB = 10' bgs	
		15		

Well Construction Details

- Stick-up:
- Casing: diameter: / interval: / material:
- Screen: diameter: / interval: / material: / slot size:
- Sand Pack: type: / interval:
- Seal: type: / interval:
- Grout: type: / interval:

Density - Sands (blow counts per foot)

very loose:	5 or less
loose:	6-11
med dense:	11-30
dense:	31-50
very dense:	> 50

Density - Clays/Silts (blow counts per foot)

very soft:	<2
soft:	2-4
medium stiff:	4-8
stiff:	8-15
very stiff:	15-30
hard:	>30

Comments: START: 1240 END: 1255

SAMPLED 6-7' bgs INTERVAL. ✓

BORING LOG

Project Name:	MDTMB/Grand Haven Clark	**Boring/Well Number:**	20-SB-05 / TW-05
Project Number:	200303	**Start/End Date:**	2/20/20
Project Manager:	Tom Budge	**Logged By:**	APS
Site Location:	Grand Haven, MI	**Ground Elevation:**	NA
Contractor:	ROSENDALL	**Static Water Level :**	~10.5 btoc
Driller/Helper:	JASON / DICK	**Abandonment Method:**	CUTTINGS & BENTONITE
Rig Type:	7822 DT	**Development Method:**	PERI PUMP
Drilling Method:	DIRECT PUSH	**Sampling Methods:**	5' MACRO CORE
Borehole Purpose:	TW INSTALL	PAGE	1 OF 2

Blows per 6"	Recovery (feet)	Depth (ft bgs)	Sample Description	PID (ppm)	Well Construction Details
NA	3.4	0	SAND: F-M, TR- F GRAV. (10%), BROWN, LOOSE, DRY.	1.9	Stick-up: 0.80 Casing diameter: 1" interval: 0-25 material: PVC
			SILTY SAND: F GRAINED, SILT (35%), OLIVE BROWN, MED. DENSE, DRY.	0.6	
			SAA.. DARK GREY BROWN.	0.7	
			SAA.. DARK YELLOW BROWN.		
			SAA.. TR. M GRAINS, SILT (20%).		
		5			Screen diameter: 1" interval: 25-30 material: PVC slot size: 0.010
	4.0		SAND: F-M, TR. VF SAND (10%). LIGHT BROWN, LOOSE, MOIST.	0.7	
			SAA.. MOIST	0.8	Sand Pack type: NAT COLLAPSE interval: 10-30
			SAA..	NA	
					Seal type: HOLE PLUG interval: 8-10
		10	SAA.. BROWN, WET.		Grout type: NA interval: NA
			SAA.. VF-F GRAINED		
	4.6		SAA.. F-C GRAINED [40/40/20]		
			SAA.. @ 11.5' bgs.		
		15	SAA.. @ 13.0' bgs.		
			SAA.. VF-F		
	5.0		GRAVELLY SAND: F-M, F GRAV (25%), ROUNDED, BROWN, LOOSE, WET. (2")		
			SAND: F-M, MED DENSE, BROWN, WET.		
		20	SAA..		

Density - **Sands** (blow counts per foot)

very loose:	5 or less
loose:	6-11
med dense:	11-30
dense:	31-50
very dense:	> 50

Density - **Clays/Silts** (blow counts per foot)

very soft:	<2
soft:	2-4
medium stiff:	4-8
stiff:	8-15
very stiff:	15-30
hard:	>30

Comments: START: 0930 END: 1040

BORING LOG

Project Name:	MDTMB/Grand Haven Clark	**Boring/Well Number:**	20-SB-05 / TW-05
Project Number:	200303	**Start/End Date:**	2/20/20
Project Manager:	Tom Budge	**Logged By:**	ABS
Site Location:	Grand Haven, MI	**Ground Elevation:**	NA
Contractor:	ROSENCRANS	**Static Water Level :**	~10.5' btoc
Driller/Helper:	JASON / DICK	**Abandonment Method:**	CUTTINGS + BENTONITE
Rig Type:	7822 DT.	**Development Method:**	PERI PUMP
Drilling Method:	DIRECT PUSH	**Sampling Methods:**	5' MACRO CORE
Borehole Purpose:	TO INSTALL	PAGE	2 OF 2

Blows per 6"	Recovery (feet)	Depth (ft bgs)	Sample Description	PID (ppm)
NA			- SAA..	NA
	4.8		- SAA..	
		25	— HEAVING SANDS (7'), BLIND DRILLED.	
	NA			
		30	EOB (REFUSAL): 30' bgs	

Well Construction Details

Stick-up: _____

Casing
- diameter: _____
- interval: _____
- material: _____

Screen * SEE P. 1
- diameter: _____
- interval: _____
- material: _____
- slot size: _____

Sand Pack
- type: _____
- interval: _____

Seal
- type: _____
- interval: _____

Grout
- type: _____
- interval: _____

Density - Sands (blow counts per foot)

very loose:	5 or less
loose:	6-11
med dense:	11-30
dense:	31-50
very dense:	> 50

Density - Clays/Silts (blow counts per foot)

very soft:	<2
soft:	2-4
medium stiff:	4-8
stiff:	8-15
very stiff:	15-30
hard:	>30

Comments: ENCOUNTERED TIGHT SANDS @ 30' bgs. AFFRAID OF LOCKING UP RODS IN GROUND. SET TO FROM 25-30' bgs.

SOIL SAMPLE COLLECTION FORM

Project Name:	MDTMB/Grand Haven Clark	**Sampling Location:**	20-SB-02
Project Number:	200303	**Sample ID:**	MDTMG-20-02-20-SB-02(6.5-7.0)I
Site Location:	Grand Haven, MI		
Weather/Temp:	CLOUDY, 18°		

SAMPLING EQUIPMENT/PROCEDURE (if different from work plan)

5' MACRO CORE LINER

SAMPLE DESCRIPTION

SAND: F-M GRAINED, TR-C SAND (10%), TR-SILT (5%), GREY BROWN W/ H.C. ODOR, MED. DENSE, MOIST-WET.

PID: 1,128 ppm

SAMPLE COLLECTION **DATE:** 2/20/20 **TIME:** 1445 ✓

Duplicate sample collected? YES / (NO)

MS/MSD sample collected? YES / (NO)

Chain of Custody Number: 0220-2020-02 ✓

Quantity	Size	Type	Preservative	Parameters
1	8 oz	Glass	None	PNAs (EPA 8270), MI 10, % solids ✓
1	40 mL	Glass Vial	MeOH	VOCs (EPA 8260+) ✓
			None MeOH	
			None MeOH	
			None MeOH	
			None MeOH	

SOIL VOC PREPARATION **DATE:** 2/20/20 **TIME:** 1445

Sample wt. + tare	35.90 g	Sample wt. + tare	g
Bottle tare wt.	25.40 g	Bottle tare wt.	g
Sample wt.	10.50 ✓ g	Sample wt.	g
Volume MeOH	10 mL	Volume MeOH	mL
MeOH Lot #	378236	MeOH Lot #	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature] Name (SIGNATURE):

SOIL SAMPLE COLLECTION FORM

Project Name:	MDTMB/Grand Haven Clark	**Sampling Location:**	20-SB-03
Project Number:	200303	**Sample ID:**	MDTMB-20-02-20-SB-03(6.5-7.5)I
Site Location:	Grand Haven, MI		
Weather/Temp:	PARTLY SUNNY, 18°		

SAMPLING EQUIPMENT/PROCEDURE (if different from work plan)

5' MACRO CORE LINER

SAMPLE DESCRIPTION

SAND: F-M GRAINED, SOME SILT (15%), DARK GREY W/ H.C. ODOR, MED. DENSE, MOIST.

PID = 530.0 ppm

SAMPLE COLLECTION DATE: 2/20/20 TIME: ~~1620~~ 1640 per COC 8am 2/21/2020

Duplicate sample collected? YES / (NO)

MS/MSD sample collected? YES (NO)

Chain of Custody Number: 0220-2020-02 ✓

Quantity	Size	Type	Preservative	Parameters
1	8 oz	Glass	None	PNAs (EPA 8270), MI 10, % solids ✓
1	40 mL	Glass Vial	MeOH	VOCs (EPA 8260+) ✓
			None MeOH	
			None MeOH	
			None MeOH	
			None MeOH	

SOIL VOC PREPARATION DATE: 2/20/20 TIME: 1620

Sample wt. + tare	36.18 g	Sample wt. + tare	g
Bottle tare wt.	25.38 g	Bottle tare wt.	g
Sample wt.	10.80 ✓ g	Sample wt.	g
Volume MeOH	10 mL	Volume MeOH	mL
MeOH Lot #	378236	MeOH Lot #	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature] Name (SIGNATURE):

SOIL SAMPLE COLLECTION FORM

Project Name: MDTMB/Grand Haven Clark
Project Number: 200303
Site Location: Grand Haven, MI
Weather/Temp: MOSTLY CLOUDY, 20°

Sampling Location: 20-SB-04
Sample ID: MDTMG-20-02-20-SB-04(6-7)

SAMPLING EQUIPMENT/PROCEDURE (if different from work plan)

5' MACRO CORE LINER

SAMPLE DESCRIPTION

SAND: FINE GRAINED, TR-SILT (10%), DARK GRAY W/ H.C. ODOR, MOIST.

PID = 1,312 PPM

SAMPLE COLLECTION DATE: 2/20/20 TIME: 1320 ✓

Duplicate sample collected? YES / (NO)

MS/MSD sample collected? YES / (NO)

Chain of Custody Number: 0220-2020-02 ✓

Quantity	Size	Type	Preservative	Parameters
1	8 oz	Glass	None	PNAs (EPA 8270), MI 10, % solids ✓
1	40 mL	Glass Vial	MeOH	VOCs (EPA 8260+) ✓
			None MeOH	
			None MeOH	
			None MeOH	
			None MeOH	

SOIL VOC PREPARATION DATE: 2/20/20 TIME: 1320

Sample wt. + tare 36.13 g
Bottle tare wt. ~~25.5~~ 25.43 g
Sample wt. 10.7 ✓ g
Volume MeOH 10 mL
MeOH Lot # 378236

Sample wt. + tare ____ g
Bottle tare wt. ____ g
Sample wt. ____ g
Volume MeOH ____ mL
MeOH Lot # ____

SAMPLING PERSONNEL

Name (SIGNATURE): [signature]

Name (SIGNATURE):

SOIL FIELD BLANK FORM

Project Name: MDTMB/Grand Haven Clark

Project Number: 200303

Site Location: Grand Haven, MI

Field ID: MDTMG-20-02-QCFB

COC Number: 0220-2020-02 ✓

Date/Time: 2/20/20 1640 ✓ MeOH Lot #: 378236

Quantity	Size	Type	Filtered	Preservative	Parameters
1	40 mL	Glass Vial	No	MeOH	VOCs (EPA 8260+) ✓

Field ID:

COC Number:

Date/Time: MeOH Lot #:

Quantity	Size	Type	Filtered	Preservative	Parameters
			No	MeOH	

Field ID:

COC Number:

Date/Time: MeOH Lot #:

Quantity	Size	Type	Filtered	Preservative	Parameters
			No	MeOH	

Field ID:

COC Number:

Date/Time: MeOH Lot #:

Quantity	Size	Type	Filtered	Preservative	Parameters
			No	MeOH	

Field ID:

COC Number:

Date/Time: MeOH Lot #:

Quantity	Size	Type	Filtered	Preservative	Parameters
			No	MeOH	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature] Name (SIGNATURE):

EQUIPMENT CALIBRATION FORM

Project Name: MDTMB/Grand Haven Clark

Project Number: 200303

Date/Time: 2/20/20 1000

Initials: APS

NA = Not Applicable

Parameter	Standard	Lot Number	Units	Measured Value	Measurement Temperature (°C)	Calibration Verification Acceptance Window	Instrument Model/ID Number
pH	4.00	480BE14-0925IB	S.U.	3.93	17.3	3.9 - 4.1	YSI P.P. #513
	7.00	480BE64-0925IB	S.U.	7.01		6.9 - 7.1	
	10.00	4617804-01117	S.U.	9.95		9.9 - 10.1	
Specific Conductance	147	SCB0219-1B	µmhos/cm	470 **	18-1	132 - 162	
	1412	SC190715-2A	µmhos/cm	~~1480~~ * 1412		1342 - 1484	
	2765	SC190715-3A	µmhos/cm	2725		2628 - 2905	
Eh	Zobell's solution	20BZ18528-4	mV	426.0	17.7	421.1 - 447.1	
Dissolved Oxygen	NA	NA	mg/L	10.84	12.1	±10% Theoretical: 10.78	pDm 2/27/2020 L-2020 LE #6
Turbidity	10 NTU	A0272	NTU	9.93	—	9 - 11	

Notes:

* CAL'D 1412 (S.C.)

** SC 147 OUT OF RANGE, HIGH. NOT CAL'D B/C 1412 HAS CAL'D. LIKELY BAD STANDARD. (EXPIRED)

EQUIPMENT CALIBRATION VERIFICATION FORM

Project Name: MDTMB/Grand Haven Clark
Project Number: 200303
Date/Time: 2/20/20 1715
Initials: APS

NA = Not Applicable

Parameter	Standard	Lot Number	Units	Measured Value	Measurement Temperature (°C)	Calibration Verification Acceptance Window	Instrument Model/ ID Number
pH	7.00	SAME AS INITIAL	S.U.	7.00	6.2	6.9 - 7.1	YSI P-P. #513
Specific Conductance	1412	CAL.	µmhos/cm	1391	11.4	1342 - 1484	↓
Eh	Zobell's solution	↓	mV	446.5	5.6	442.7 - 462.7	↓
Dissolved Oxygen	NA	NA	mg/L	12.54	6.9	±10% Theoretical: 12.14	↓
Turbidity	10 NTU	↓	NTU	10.30	NA	9 - 11	2-2020 WE #6

Notes:

GROUNDWATER SAMPLE COLLECTION FORM - LOW FLOW

Project Name:	MDTMB/Grand Haven Clark	**Monitoring Location:**	20-TW-01
Project Number:	200303	**Sample ID:**	MDTMG-20-02-20-TW-01(I)
Site Location:	Grand Haven, MI	**Well Type:**	1" PVC TW
Weather/Temp:		**Key Number:**	NONE

INSPECTION

Label on well?	(NA) YES / NO / REMEDIED	Is cement pad in good repair?	(NA) YES / NO / REMEDIED
Is reference mark visible?	(NA) YES / NO / REMEDIED	Is protective casing locked and in good repair?	(NA) YES / NO / REMEDIED
Standing water present?	YES / (NO) / REMEDIED	Is inner cap in place and properly sealing well?	(NA) YES / NO / REMEDIED
Indication of surface runoff in well?	YES / (NO) / REMEDIED	Is well casing in visibly good repair?	(YES) / NO / REMEDIED

Repair Notes: ADDED ~20 LF PERI TUBING & 6" OF M.F. DEVELOPED 5 GALLONS PRIOR TO LOW-FLOW SAMPLING. (0.12' OF SED IN WELL PRIOR TO DEVELOPMENT).

STATIC WATER LEVEL DATE: 2/20/20 TIME: 1152

Top of Casing Elevation:	— ft	Measured with:	(Electronic tape) / Chalked tape / Other:
Depth to Water:	8.52 ft BTOC	Well depth verified?	(YES) NO
Elevation of Water:	— ft	STICK-UP= 0.61'	

WELL PURGING DATE: 2/20/20 TIME: 1245

Purge Method: (PERISTALTIC) / BLADDER / MICRO BLADDER / OTHER: Pump intake @ 2.5 ft from ___ TOC or ✓ bottom

Equipment No.: 552

Measured well depth: 15.10 ft BTOC Screen length: 5 ft Depth to screen midpoint: ___ ft

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (mL/min)	pH (S.U.)	Temp (°C)	Spec Cond (µmhos/cm)	Turbidity (NTU)	Eh (mV)	D.O. (mg/L)
1328	8.52	0.00	500	7.12	8.0	712	11.79	149	0.16
1331	8.52	0.00	500	7.12	8.0	712	7.38	148	0.16
1334	8.52	0.00	500	7.13	8.0	708	7.39	147	0.16
Volume: ~6	(Gallons)		Stabilization Criteria:	±0.1	±3%	±3%	±10% for values >20	±10 mV	±10% ✓

FIELD ANALYSES DATE: 2/20/20 TIME: 1335

Temperature:	8.10 °C	Carbon Dioxide:	NA mg/L	HACH CA-DT (RL = 10 mg/L)	
pH:	7.13 S.U.	Sulfide (S^{-2}):	NA mg/L	HACH HS-WR (RL = 0.05 mg/L)	
Specific Conductance:	712 µmhos/cm	Ferrous Iron (Fe^{+2}):	NA mg/L	HACH IR-18C (RL = 0.2 mg/L)	
Eh:	147 mV				
Dissolved Oxygen:	0.15 mg/L				
Turbidity:	6.70 NTU				

SAMPLE COLLECTION DATE: 2/20/20 TIME: 1336 ✓

Sample appearance:	CLEAR W/ SLIGHT YELLOW TINT.	Duplicate sample collected?	YES (NO)
Collection method:	(PERISTALTIC) / BLADDER / MICRO BLADDER / OTHER:	MS/MSD sample collected?	YES (NO)
Equipment No.:	552	Chain of Custody Number:	0220-2020-01 ✓
Filter used:	0.45 µm (8100) / 0.45 µm (8200) / (NONE)		

Quantity	Size	Type	Filtered	Preservative	Parameters
3	40 mL	Glass	No	HCl	VOCs (EPA 8260+) ✓
	125 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
	250 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
	250 mL	Glass	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
1	500 mL	Plastic	No	HNO_3	Total MI 10 ✓
	500 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
	1000 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
1	1000 mL	Glass	No	None	PNAs (EPA 8270) ✓

SAMPLING PERSONNEL

Name (SIGNATURE): [signature] Name (SIGNATURE):

GROUNDWATER SAMPLE COLLECTION FORM - LOW FLOW

Project Name:	MDTMB/Grand Haven Clark	**Monitoring Location:**	20-TW-02
Project Number:	200303	**Sample ID:**	MDTMG-20-02-20-TW-02(I)
Site Location:	Grand Haven, MI	**Well Type:**	1" PVC TW
Weather/Temp:	FLURRIES, 20°	**Key Number:**	NONE

INSPECTION

Label on well?	(NA) YES / NO / REMEDIED	Is cement pad in good repair?	(NA) YES / NO / REMEDIED
Is reference mark visible?	(NA) YES / NO / REMEDIED	Is protective casing locked and in good repair?	(NA) YES / NO / REMEDIED
Standing water present?	YES / (NO) / REMEDIED	Is inner cap in place and properly sealing well?	(NA) YES / NO / REMEDIED
Indication of surface runoff in well?	YES / (NO) / REMEDIED	Is well casing in visibly good repair?	(YES) / NO / REMEDIED

Repair Notes: ADDED ~16' OF PERI TUBING & 12" OF MIC. DEVELOPED 7 GALLONS PRIOR TO FIRST LOW-FLOW SAMPLING.

STATIC WATER LEVEL DATE: 2/20/20 TIME: 1458

Top of Casing Elevation:	— ft	Measured with:	(Electronic tape) / Chalked tape / Other:
Depth to Water: (APP)	9.9-63 ft	Well depth verified?	(YES) / NO
Elevation of Water:	— ft	STICK-UP =	2.50'

WELL PURGING DATE: 2/20/20 TIME: 1459

Purge Method: (PERISTALTIC) / BLADDER / MICRO BLADDER / OTHER: Pump intake @ 2.5 ft from ____ TOC or ✓ bottom

Equipment No.: 552

Measured well depth: 15.08 ft BTOC Screen length: 5 ft Depth to screen midpoint: ____ ft

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (mL/min)	pH (S.U.)	Temp (°C)	Spec Cond (µmhos/cm)	Turbidity (NTU)	Eh (mV)	D.O. (mg/L)
1516	9.90	0.07	420	7.07	7.7	582	11.10	126	0.24
1519	9.90	0.07	420	7.06	7.8	582	11.75	121	0.22
1522	9.90	0.07	420	7.05	7.6	583	11.10	117	0.22
Volume: 2 (Gallons)			Stabilization Criteria:	±0.1	±3%	±3%	±10% for values >20	±10 mV	±10% ✓

FIELD ANALYSES DATE: 2/20/20 TIME: 1523

Temperature:	7.5 °C	Carbon Dioxide:	NA mg/L	HACH CA-DT (RL = 10 mg/L)	
pH:	7.04 S.U.	Sulfide (S^{-2}):	NA mg/L	HACH HS-WR (RL = 0.05 mg/L)	
Specific Conductance:	583 µmhos/cm	Ferrous Iron (Fe^{+2}):	NA mg/L	HACH IR-18C (RL = 0.2 mg/L)	
Eh:	116 mV				
Dissolved Oxygen:	0.21 mg/L				
Turbidity:	11.49 NTU				

SAMPLE COLLECTION DATE: 2/20/20 TIME: 1524 ✓

Sample appearance:	CLEAR W/ SLIGHT YELLOW TINT.	Duplicate sample collected?	YES (NO)
Collection method:	(PERISTALTIC) / BLADDER / MICRO BLADDER / OTHER:	MS/MSD sample collected?	YES (NO)
Equipment No.:	552	Chain of Custody Number:	0220-2020-01 ✓
Filter used:	0.45 µm (8100) / 0.45 µm (8200) / (NONE)		

Quantity	Size	Type	Filtered	Preservative	Parameters
3	40 mL	Glass	No	HCl	VOCs (EPA 8260+) ✓
	125 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
	250 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
	250 mL	Glass	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
1	500 mL	Plastic	No	HNO_3	Total MI 10 ✓
	500 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
	1000 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
1	1000 mL	Glass	No	None	PNAs (EPA 8270) ✓

SAMPLING PERSONNEL

Name (SIGNATURE): Name (SIGNATURE):

GROUNDWATER SAMPLE COLLECTION FORM - LOW FLOW

Project Name:	MDTMB/Grand Haven Clark	**Monitoring Location:**	20-TW-03
Project Number:	200303	**Sample ID:**	MDTMG-20-02-20-TW-03(I)
Site Location:	Grand Haven, MI	**Well Type:**	1" PVC TW
Weather/Temp:	MOSTLY CLOUDY, 16°	**Key Number:**	NONE

INSPECTION

Label on well?	(NA) YES / NO / REMEDIED	Is cement pad in good repair?	(NA) YES / NO / REMEDIED
Is reference mark visible?	(NA) YES / NO / REMEDIED	Is protective casing locked and in good repair?	(NA) YES / NO / REMEDIED
Standing water present?	YES / (NO) / REMEDIED	Is inner cap in place and properly sealing well?	(NA) YES / NO / REMEDIED
Indication of surface runoff in well?	YES / (NO) / REMEDIED	Is well casing in visibly good repair?	(YES) NO / REMEDIED

Repair Notes: ADDED ~1' OF PERI TUBING & 12" OF M.F. DEVELOPED ~5 GALLONS PRIOR TO LOW-FLOW SAMPLING.

STATIC WATER LEVEL DATE: 2/20/20 TIME: 1537

Top of Casing Elevation:	— ft	Measured with:	(Electronic tape) / Chalked tape / Other:
Depth to Water:	7.80 ft BTOC	Well depth verified?	(YES) NO
Elevation of Water:	— ft	STICK-UP = 0.50'	

WELL PURGING DATE: 2/20/20 TIME: 1612

Purge Method: (PERISTALTIC) / BLADDER / MICRO BLADDER / OTHER: Pump intake @ 2.5 ft from ____ TOC or ✓ bottom

Equipment No.: 552

Measured well depth: ____ ft Screen length: 5 ft Depth to screen midpoint: ____ ft

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (mL/min)	pH (S.U.)	Temp (°C)	Spec Cond (µmhos/cm)	Turbidity (NTU)	Eh (mV)	D.O. (mg/L)
1653	7.81	0.01	500	7.20	9.3	616	5.46	43	0.16
1656	7.81	0.01	500	7.19	9.3	615	4.97	41	0.17
1659	7.81	0.01	500	7.19	9.2	617	2.92	39	0.22
Volume: ~6 (Gallons)			Stabilization Criteria:	±0.1	±3%	±3%	±10% for values >20	±10 mV	±10% ✓

FIELD ANALYSES DATE: 2/20/20 TIME: 1700

Temperature:	9.2 °C	Carbon Dioxide:	NA mg/L	HACH CA-DT (RL = 10 mg/L)	
pH:	7.19 S.U.	Sulfide (S^{-2}):	NA mg/L	HACH HS-WR (RL = 0.05 mg/L)	
Specific Conductance:	614 µmhos/cm	Ferrous Iron (Fe^{+2}):	NA mg/L	HACH IR-18C (RL = 0.2 mg/L)	
Eh:	38 mV				
Dissolved Oxygen:	0.19 mg/L				
Turbidity:	1.64 NTU				

SAMPLE COLLECTION DATE: 2/20/20 TIME: 1701 ✓

Sample appearance: CLEAR Duplicate sample collected? YES / (NO)

Collection method: (PERISTALTIC) / BLADDER / MICRO BLADDER / OTHER: MS/MSD sample collected? YES / (NO)

Equipment No.: 552 Chain of Custody Number: 0220-2020-01 ✓

Filter used: 0.45 µm (8100) / 0.45 µm (8200) / (NONE)

Quantity	Size	Type	Filtered	Preservative	Parameters
3	40 mL	Glass	No	HCl	VOCs (EPA 8260+) ✓
	125 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
	250 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
	250 mL	Glass	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
1	500 mL	Plastic	No	HNO_3	Total MI 10 ✓
	500 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
	1000 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
1	1000 mL	Glass	No	None	PNAs (EPA 8270) ✓

SAMPLING PERSONNEL

Name (SIGNATURE): Name (SIGNATURE):

GROUNDWATER SAMPLE COLLECTION FORM - LOW FLOW

Project Name:	MDTMB/Grand Haven Clark	**Monitoring Location:**	20-TW-05
Project Number:	200303	**Sample ID:**	MDTMG-20-02-20-TW-05(I)
Site Location:	Grand Haven, MI	**Well Type:**	1" PVC TW
Weather/Temp:	MOSTLY CLOUDY, 20°	**Key Number:**	NONE

INSPECTION

Label on well?	(NA) YES / NO / REMEDIED	Is cement pad in good repair?	(NA) YES / NO / REMEDIED
Is reference mark visible?	(NA) YES / NO / REMEDIED	Is protective casing locked and in good repair?	(NA) YES / NO / REMEDIED
Standing water present?	YES (NO) REMEDIED	Is inner cap in place and properly sealing well?	(NA) YES / NO / REMEDIED
Indication of surface runoff in well?	YES (NO) / REMEDIED	Is well casing in visibly good repair?	(YES) NO / REMEDIED

Repair Notes: ADDED ~32' OF PERI TUBING & 6" OF M.F. DEVELOPED 5 GALLONS PRIOR TO SAMPLING.

STATIC WATER LEVEL DATE: 2/20/20 TIME: 1045

Top of Casing Elevation:	— ft	Measured with:	(Electronic tape) / Chalked tape / Other:
Depth to Water:	12.41 ft BTOC	Well depth verified?	(YES) / NO
Elevation of Water:	— ft	T.D. = 29.97'	STICK-UP = 0.80'

WELL PURGING DATE: 2/20/20 TIME: 1125

Purge Method: (PERISTALTIC) / BLADDER / MICRO BLADDER / OTHER: Pump intake @ 2-5 ft from ____ TOC or ✓ bottom

Equipment No.: 552

Measured well depth: 29.97 ft BTOC Screen length: 5 ft Depth to screen midpoint: _____ ft

Time	Water Level (feet)	Drawdown (feet)	Pumping Rate (mL/min)	pH (S.U.)	Temp (°C)	Spec Cond (µmhos/cm)	Turbidity (NTU)	Eh (mV)	D.O. (mg/L)
1148	9.21	+3.20	500	7.28	11.7	1128	1386 AU	77	0.24
1202	9.20	+3.21	500	7.29	11.6	1124	1458 AU	65	0.24
1205	9.20	+3.21	500	7.30	11.6	1126	1466 AU	64	0.24
1208	9.20	+3.21	500	7.30	11.7	1121	1399 AU	63	0.26
Volume: 4.2 (Gallons)			Stabilization Criteria:	±0.1	±3%	±3%	±10% for values >20	±10 mV	±10%

✓

FIELD ANALYSES DATE: 2/20/20 TIME: 1209

Temperature:	11.7 °C	Carbon Dioxide:	NA mg/L	HACH CA-DT (RL = 10 mg/L)	
pH:	7.30 S.U.	Sulfide (S^{-2}):	NA mg/L	HACH HS-WR (RL = 0.05 mg/L)	
Specific Conductance:	1121 µmhos/cm	Ferrous Iron (Fe^{+2}):	NA mg/L	HACH IR-18C (RL = 0.2 mg/L)	
Eh:	62 mV				
Dissolved Oxygen:	0.26 mg/L				
Turbidity:	1405 ~~NTU~~ AU (DISCONNECTED FROM FLOW CELL)				

SAMPLE COLLECTION DATE: 2/20/20 TIME: 1210 ✓

Sample appearance:	OPAQUE W/GREY TINT, SILTY.	Duplicate sample collected?	YES (NO)
Collection method:	(PERISTALTIC) / BLADDER / MICRO BLADDER / OTHER:	MS/MSD sample collected?	YES (NO)
Equipment No.:	552	Chain of Custody Number:	0220-2020-01 ✓
Filter used:	0.45 µm (8100) / 0.45 µm (8200) (NONE)		

Quantity	Size	Type	Filtered	Preservative	Parameters
3	40 mL	Glass	No	HCl	VOCs (EPA 8260+) ✓
	125 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
	250 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
	250 mL	Glass	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
1	500 mL	Plastic	No	HNO_3	Total MI 10 ✓
	500 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
	1000 mL	Plastic	Yes No	None HCl HNO_3 H_2SO_4 NaOH	
1	1000 mL	Glass	No	None	PNAs (EPA 8270) ✓

SAMPLING PERSONNEL

Name (SIGNATURE): Name (SIGNATURE):

WATER FIELD BLANK FORM

Project Name: MDTMB/Grand Haven Clark

Project Number: 200303

Site Location: Grand Haven, MI

TRIP BLANKS

Field ID: MDTMG-20-02-QCTB

COC No. : 0220-2020-01 ✓

Date: 2/20/20 ✓

Quantity	Size	Type	Preservative	Parameters
1	40 mL	Glass vial	HCl	VOCs (EPA 8260+) ✓

Field ID: _____

COC No. : _____

Date: _____

Quantity	Size	Type	Preservative	Parameters
	40 mL	Glass vial	None HCl	

EQUIPMENT BLANKS

Field ID: _____ Collection method: Bailer / Grundfos / Peristaltic / Bladder / Whale / Other:

COC No. : _____ Equipment #: _____

Date/Time: _____ Filter used: 0.45 µm (8100) / 0.45µm (8200) / NONE

Quantity	Size	Type	Filtered	Preservative	Parameters
			Yes No	None HCl HNO_3 H_2SO_4 NaOH	
			Yes No	None HCl HNO_3 H_2SO_4 NaOH	
			Yes No	None HCl HNO_3 H_2SO_4 NaOH	
			Yes No	None HCl HNO_3 H_2SO_4 NaOH	
			Yes No	None HCl HNO_3 H_2SO_4 NaOH	
			Yes No	None HCl HNO_3 H_2SO_4 NaOH	

Field ID: _____ Collection Method: Bailer / Grundfos / Peristaltic / Bladder / Whale / Other:

COC No. : _____ Equipment #:

Date/Time: _____ Filter used: 0.45 µm (8100) / 0.45µm (8200) / NONE

Quantity	Size	Type	Filtered	Preservative	Parameters
			Yes No	None HCl HNO_3 H_2SO_4 NaOH	
			Yes No	None HCl HNO_3 H_2SO_4 NaOH	
			Yes No	None HCl HNO_3 H_2SO_4 NaOH	
			Yes No	None HCl HNO_3 H_2SO_4 NaOH	
			Yes No	None HCl HNO_3 H_2SO_4 NaOH	
			Yes No	None HCl HNO_3 H_2SO_4 NaOH	

SAMPLING PERSONNEL

Name (SIGNATURE): [signature] Name (SIGNATURE):

EGLE

Department of Environment, Great Lakes, and Energy
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
	MDTMB/Grand Haven Clark	WATER

Location ID: 12336	Program:	CC Email 1: pdmahler@fishbeck.com	Project TAT Days:	Sample Collector: Alex Sackett	
Dept-Division-District: RRD - Grand Rapids	Activity:	CC Email 2: tmbudge@fishbeck.com	Project Due Date:	Sample Collector Phone: 616-464-3844	
State Project Manager: Paul Knoerr	Funding Source:	CC Email 3:		Contract Firm: fishbeck	
State Project Manager Email: knoerrp@michigan.gov	Location Code:	Overflow Lab Choice 1:	Accept Analysis hold time codes	Contract Firm Primary Contact: Tom Budge	
State Project Manager Phone: 616-840-2131	SUD Location Code:	Overflow Lab Choice 2:		Primary Contact Phone: 616-464-3745	

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Bottle Count	Comments
1		✓MDTMG-20-02-20-TW-01(10-15)I	2/20/20	1336	6	
2		✓MDTMG-20-02-20-TW-02(8-13)I	2/20/20	1524	6	
3		✓MDTMG-20-02-20-TW-03(10-15)I	2/20/20	1701	6	
4		✓MDTMG-20-02-20-TW-05(25-30)I	2/20/20	1210	6	
5		✓MDTMG-20-02-QCTB	2/20/20	-	3	
6						*COC #: 0220-2020-01
7						
8						
9						
10						

ORGANIC CHEMISTRY

VOA - Volatile Organic Acidic	
Volatiles - Full List	(1) (2) (3) (4) (5) 6 7 8 9 10
BTEX/MTBE/TMB only	1 2 3 4 5 6 7 8 9 10
Chlorinated only	1 2 3 4 5 6 7 8 9 10
GRO	1 2 3 4 5 6 7 8 9 10
1,4 Dioxane	1 2 3 4 5 6 7 8 9 10
METH - Methane, Ethane, Ethene	
Methane, Ethane, Ethene	1 2 3 4 5 6 7 8 9 10
ON - Pesticides, PCBs	
Pesticides & PCBs	1 2 3 4 5 6 7 8 9 10
Pesticides only	1 2 3 4 5 6 7 8 9 10
PCBs only	1 2 3 4 5 6 7 8 9 10
Toxaphene	1 2 3 4 5 6 7 8 9 10
Chlordane	1 2 3 4 5 6 7 8 9 10
BNA - Base Neutral Acids	
BNAs	1 2 3 4 5 6 7 8 9 10
Benzidines	1 2 3 4 5 6 7 8 9 10
PNAs only	(1) (2) (3) (4) 5 6 7 8 9 10
BNs only	1 2 3 4 5 6 7 8 9 10
Acids only	1 2 3 4 5 6 7 8 9 10
Organic Specialty Requests	
Library search - Volatiles	1 2 3 4 5 6 7 8 9 10
Library search - SemiVols	1 2 3 4 5 6 7 8 9 10
Finger Print	1 2 3 4 5 6 7 8 9 10
DRO / ORO	1 2 3 4 5 6 7 8 9 10

METALS CHEMISTRY PACKAGES

OpMemo2 - Total	1 2 3 4 5 6 7 8 9 10
OpMemo2 - Dissolved	1 2 3 4 5 6 7 8 9 10
(Sb,As,Ba,Be,Cd,Cr,Cu,Co,Fe,Pb,Mn,Hg,Mo,Ni,Se,Ag,Tl,V,Zn)	
Michigan10 - Total	(1) (2) (3) (4) 5 6 7 8 9 10
Michigan10 - Dissolved	1 2 3 4 5 6 7 8 9 10
(As,Ba,Cd,Cr,Cu,Pb,Hg,Se,Ag,Zn)	

MAD - DISSOLVED METALS

Diss - Silver - Ag	1 2 3 4 5 6 7 8 9 10
Diss - Aluminum - Al	1 2 3 4 5 6 7 8 9 10
Diss - Arsenic - As	1 2 3 4 5 6 7 8 9 10
Diss - Boron - B	1 2 3 4 5 6 7 8 9 10
Diss - Barium - Ba	1 2 3 4 5 6 7 8 9 10
Diss - Beryllium - Be	1 2 3 4 5 6 7 8 9 10
Diss - Cadmium - Cd	1 2 3 4 5 6 7 8 9 10
Diss - Cobalt - Co	1 2 3 4 5 6 7 8 9 10
Diss - Chromium - Cr	1 2 3 4 5 6 7 8 9 10
Diss - Copper - Cu	1 2 3 4 5 6 7 8 9 10
Diss - Iron - Fe	1 2 3 4 5 6 7 8 9 10
Diss - Mercury - Hg	1 2 3 4 5 6 7 8 9 10
Diss - Lithium - Li	1 2 3 4 5 6 7 8 9 10
Diss - Manganese - Mn	1 2 3 4 5 6 7 8 9 10
Diss - Molybdenum - Mo	1 2 3 4 5 6 7 8 9 10
Diss - Nickel - Ni	1 2 3 4 5 6 7 8 9 10
Diss - Lead - Pb	1 2 3 4 5 6 7 8 9 10
Diss - Antimony - Sb	1 2 3 4 5 6 7 8 9 10
Diss - Selenium - Se	1 2 3 4 5 6 7 8 9 10
Diss - Strontium - Sr	1 2 3 4 5 6 7 8 9 10
Diss - Titanium - Ti	1 2 3 4 5 6 7 8 9 10
Diss - Thallium - Tl	1 2 3 4 5 6 7 8 9 10
Diss - Uranium - U	1 2 3 4 5 6 7 8 9 10
Diss - Vanadium - V	1 2 3 4 5 6 7 8 9 10
Diss - Zinc - Zn	1 2 3 4 5 6 7 8 9 10
Diss - Calcium - Ca	1 2 3 4 5 6 7 8 9 10
Diss - Potassium - K	1 2 3 4 5 6 7 8 9 10
Diss - Magnesium - Mg	1 2 3 4 5 6 7 8 9 10
Diss - Sodium - Na	1 2 3 4 5 6 7 8 9 10
Diss - Hardness - Ca, Mg	1 2 3 4 5 6 7 8 9 10
MD - Metals Dissolved	
Lab Filtration	1 2 3 4 5 6 7 8 9 10

MA - TOTAL METALS

Silver - Ag	1 2 3 4 5 6 7 8 9 10
Aluminum - Al	1 2 3 4 5 6 7 8 9 10
Arsenic - As	1 2 3 4 5 6 7 8 9 10
Boron - B	1 2 3 4 5 6 7 8 9 10
Barium - Ba	1 2 3 4 5 6 7 8 9 10
Beryllium - Be	1 2 3 4 5 6 7 8 9 10
Cadmium - Cd	1 2 3 4 5 6 7 8 9 10
Cobalt - Co	1 2 3 4 5 6 7 8 9 10
Chromium - Cr	1 2 3 4 5 6 7 8 9 10
Copper - Cu	1 2 3 4 5 6 7 8 9 10
Iron - Fe	1 2 3 4 5 6 7 8 9 10
Mercury - Hg	1 2 3 4 5 6 7 8 9 10
Lithium - Li	1 2 3 4 5 6 7 8 9 10
Manganese - Mn	1 2 3 4 5 6 7 8 9 10
Molybdenum - Mo	1 2 3 4 5 6 7 8 9 10
Nickel - Ni	1 2 3 4 5 6 7 8 9 10
Lead - Pb	1 2 3 4 5 6 7 8 9 10
Antimony - Sb	1 2 3 4 5 6 7 8 9 10
Selenium - Se	1 2 3 4 5 6 7 8 9 10
Strontium - Sr	1 2 3 4 5 6 7 8 9 10
Titanium - Ti	1 2 3 4 5 6 7 8 9 10
Thallium - Tl	1 2 3 4 5 6 7 8 9 10
Uranium - U	1 2 3 4 5 6 7 8 9 10
Vanadium - V	1 2 3 4 5 6 7 8 9 10
Zinc - Zn	1 2 3 4 5 6 7 8 9 10
Calcium - Ca	1 2 3 4 5 6 7 8 9 10
Potassium - K	1 2 3 4 5 6 7 8 9 10
Magnesium - Mg	1 2 3 4 5 6 7 8 9 10
Sodium - Na	1 2 3 4 5 6 7 8 9 10
Hardness - Ca, Mg	1 2 3 4 5 6 7 8 9 10
LHG - Low Level Mercury	
Mercury Low Level - Hg	1 2 3 4 5 6 7 8 9 10

GENERAL CHEMISTRY

GB	Total Cyanide - CN	1 2 3 4 5 6 7 8 9 10
GCN	Available Cyanide - CN (Amenable / Weak Acid Dissociable)	1 2 3 4 5 6 7 8 9 10
CA	Chlorophyll	1 2 3 4 5 6 7 8 9 10
GN	Ortho Phosphate - OP	1 2 3 4 5 6 7 8 9 10
GN	Diss Ortho Phosphate -*FF	1 2 3 4 5 6 7 8 9 10
GN	Nitrite - NO_2	1 2 3 4 5 6 7 8 9 10
GN	Nitrate - NO_3 (Calc.)	1 2 3 4 5 6 7 8 9 10
GN	Suspended Solids - SS	1 2 3 4 5 6 7 8 9 10
GN	Dissolved Solids - TDS	1 2 3 4 5 6 7 8 9 10
MN	Diss Solids - TDS (Calc.)	1 2 3 4 5 6 7 8 9 10
GN	Turbidity	1 2 3 4 5 6 7 8 9 10
MN	Total Alkalinity	1 2 3 4 5 6 7 8 9 10
MN	Bicarb/Carb Alkalinity (includes Total Alkalinity)	1 2 3 4 5 6 7 8 9 10
MN	Chloride - Cl	1 2 3 4 5 6 7 8 9 10
MN	Fluoride - F	1 2 3 4 5 6 7 8 9 10
MN	Sulfate - SO4	1 2 3 4 5 6 7 8 9 10
MN	Diss Chromium 6 -*FF	1 2 3 4 5 6 7 8 9 10
MN	Conductivity	1 2 3 4 5 6 7 8 9 10
MN	pH	1 2 3 4 5 6 7 8 9 10
GA	Chem Oxyg Dem - COD	1 2 3 4 5 6 7 8 9 10
GA	Diss Org Carbon - DOC-*FF	1 2 3 4 5 6 7 8 9 10
GN	Diss Org Carbon - DOC (LF) (Lab - Filtered & Preserved)	1 2 3 4 5 6 7 8 9 10
GA	Total Org Carbon - TOC	1 2 3 4 5 6 7 8 9 10
GA	Ammonia - NH3	1 2 3 4 5 6 7 8 9 10
GA	Nitrate+Nitrite - NO3+NO2	1 2 3 4 5 6 7 8 9 10
GA	Kjeldahl Nitrogen - KN	1 2 3 4 5 6 7 8 9 10
GA	Total Phosphorus - TP	1 2 3 4 5 6 7 8 9 10

* (FF)-Field Filtered

Chain of Custody

	Relinquished by	Received By	Date / Time
Print Name & Org.	ALEX SACKETT, TO FISHBECK STORAGE	From Storage J. VanPutten / fishbeck	2/20/20 19:10
Signature:		2/24/20 16:30	
Print Name & Org.	J. VanPutten / fishbeck		
Signature:	2/24/20 16:30		
Print Name & Org.			
Signature:			

UPS# 1Z3066W201 0920 4292

EGLE

Department of Environment, Great Lakes, and Energy
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
	MDTMB/Grand Haven Clark	SOIL/SEDIMENT

Location ID: 12336	Program:	CC Email 1: pdmahler@fishbeck.com	Project TAT Days:	Sample Collector: Alex Sackett
Dept-Division-District: RRD - Grand Rapids	Activity:	CC Email 2: tmbudge@fishbeck.com	Project Due Date:	Sample Collector Phone: 616-464-3844
State Project Manager: Paul Knoerr	Funding Source:	CC Email 3:		Contract Firm: fishbeck
State Project Manager Email: knoerrp@michigan.gov	Location Code:	Overflow Lab Choice 1:	Accept Analysis hold time codes:	Contract Firm Primary Contact: Tom Budge
State Project Manager Phone: 616-840-2131	SUD Location Code:	Overflow Lab Choice 2:		Primary Contact Phone: 616-464-3745

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Bottle Count	Comments
1		MDTMG-20-02-20-SB-02(6.5-7.0)|	2/20/20	1445	2	SAMPLE = 10.5g, PID = 1,128 PPM
2		MDTMG-20-02-20-SB-03(6.5-7.5)|	2/20/20	1640	2	SAMPLE = 10.8g, PID = 530.0 PPM
3		MDTMG-20-02-20-SB-04(6.0-7.0)|	2/20/20	1320	2	SAMPLE = 10.7g, PID = 1,312 PPM
4		MDTM6-20-02-QCFB	2/20/20	1640	1	
5						
6						
7						*COC #: 0220-2020-02
8						
9						
10						

ORGANIC CHEMISTRY

VOA - Volatile Organic Acidic

Volatiles - Full List	(1) (2) (3) (4) 5 6 7 8 9 10
BTEX/MTBE/TMB only	1 2 3 4 5 6 7 8 9 10
Chlorinated only	1 2 3 4 5 6 7 8 9 10
GRO	1 2 3 4 5 6 7 8 9 10
1,4 Dioxane	1 2 3 4 5 6 7 8 9 10

OS - Pesticides, PCBs

Pesticides & PCBs	1 2 3 4 5 6 7 8 9 10
Pesticides only	1 2 3 4 5 6 7 8 9 10
PCBs only	1 2 3 4 5 6 7 8 9 10
Toxaphene	1 2 3 4 5 6 7 8 9 10

BNA - Base Neutral Acids

BNAs	1 2 3 4 5 6 7 8 9 10
PNAs only	(1) (2) (3) 4 5 6 7 8 9 10
BNs only	1 2 3 4 5 6 7 8 9 10
%solids	(1) (2) (3)

Organic Specialty Requests

Library search - Volatiles	1 2 3 4 5 6 7 8 9 10
Library search - SemiVols	1 2 3 4 5 6 7 8 9 10
Finger Print	1 2 3 4 5 6 7 8 9 10
DRO / ORO	1 2 3 4 5 6 7 8 9 10

METALS CHEMISTRY PACKAGES

OpMemo2 - Total (Sb,As,Ba,Be,Cd,Cr,Cu,Co,Fe,Pb,Mn,Hg,Mo,Ni,Se,Ag,Tl,V,Zn)	1 2 3 4 5 6 7 8 9 10
Michigan10 - Total (As,Ba,Cd,Cr,Cu,Pb,Hg,Se,Ag,Zn)	(1) (2) (3) 4 5 6 7 8 9 10

MS - TOTAL METALS

Silver - Ag	1 2 3 4 5 6 7 8 9 10
Aluminum - Al	1 2 3 4 5 6 7 8 9 10
Arsenic - As	1 2 3 4 5 6 7 8 9 10
Barium - Ba	1 2 3 4 5 6 7 8 9 10
Beryllium - Be	1 2 3 4 5 6 7 8 9 10
Cadmium - Cd	1 2 3 4 5 6 7 8 9 10
Cobalt - Co	1 2 3 4 5 6 7 8 9 10
Chromium - Cr	1 2 3 4 5 6 7 8 9 10
Copper - Cu	1 2 3 4 5 6 7 8 9 10
Iron - Fe	1 2 3 4 5 6 7 8 9 10
Mercury - Hg	1 2 3 4 5 6 7 8 9 10
Lithium - Li	1 2 3 4 5 6 7 8 9 10
Manganese - Mn	1 2 3 4 5 6 7 8 9 10
Molybdenum - Mo	1 2 3 4 5 6 7 8 9 10
Nickel - Ni	1 2 3 4 5 6 7 8 9 10
Lead - Pb	1 2 3 4 5 6 7 8 9 10
Antimony - Sb	1 2 3 4 5 6 7 8 9 10
Selenium - Se	1 2 3 4 5 6 7 8 9 10
Strontium - Sr	1 2 3 4 5 6 7 8 9 10
Titanium - Ti	1 2 3 4 5 6 7 8 9 10
Thallium - Tl	1 2 3 4 5 6 7 8 9 10
Uranium - U	1 2 3 4 5 6 7 8 9 10
Vanadium - V	1 2 3 4 5 6 7 8 9 10
Zinc - Zn	1 2 3 4 5 6 7 8 9 10
Calcium - Ca	1 2 3 4 5 6 7 8 9 10
Potassium - K	1 2 3 4 5 6 7 8 9 10
Magnesium - Mg	1 2 3 4 5 6 7 8 9 10
Sodium - Na	1 2 3 4 5 6 7 8 9 10

GENERAL CHEMISTRY

GS - General Chemistry

Total Cyanide - CN	1 2 3 4 5 6 7 8 9 10
Available Cyanide - CN	1 2 3 4 5 6 7 8 9 10

Chain of Custody

	Relinquished by	Received By	Date / Time
Print Name & Org.	ALEX SACKETT, TO FISHBECK STORAGE	From Storage J. VanMutten / Fishbeck	2/20/20
Signature:		2/24/20 16:30	19:10
Print Name & Org.	J. VanMutten / Fishbeck		
Signature:	2/24/20		
Print Name & Org.			
Signature:			

EGLE

Department of Environment, Great Lakes, and Energy
Laboratory Services Section

Analysis Request Sheet

Lab Work Order Number	Project Name	Matrix
	MDTMB/Grand Haven Clark	AIR

Location ID: 12336	Program:	CC Email 1: pdmahler@fishbeck.com	Project TAT Days:	Sample Collector: Alex Sackett
Dept-Division-District: RRD - Grand Rapids	Activity:	CC Email 2: tmbudge@fishbeck.com	Project Due Date:	Sample Collector Phone: 616-464-3844
State Project Manager: Paul Knoerr	Funding Source:	CC Email 3:		Contract Firm: fishbeck
State Project Manager Email: knoerrp@michigan.gov	Location Code:	Overflow Lab Choice 1:	Accept Analysis hold time codes:	Contract Firm Primary Contact: Tom Budge
State Project Manager Phone: 616-840-2131	SUD Location Code:	Overflow Lab Choice 2:		Primary Contact Phone: 616-464-3745

	Lab Use Only	Field Sample Identification	Collection Date	Collection Time	Bottle Count	Comments	Regulator ID	Canister/Bottle Vac Number
1		MDTMG-20-02-VP-01(I)	2/25/20	1032	1	P.I.: 29.5 P.F.: 4.5	MDEQ-229	30923
2		MDTMG-20-02-VP-02(I)	2/25/20	1055	1	P.I.: 28.0 P.F.: 6.0	MDEQ-288	19264
3		MDTMG-20-02-VP-03(I)	2/25/20	1117	1	P.I.: 28.0 P.F.: 4.0	MDEQ-235	1339
4						(P = "Hg)		
5								
6						↳ COC #: 0225-2020-02		
7								
8								
9								
10								

ORGANIC CHEMISTRY

VOA - Volatile Organic Analysis

Bottlevac	1 2 3 4 5 6 7 8 9 10
Canister - AQD	1 2 3 4 5 6 7 8 9 10
Canister - RRD	1 2 3 4 5 6 7 8 9 10
Tedlar - Volatiles	1 2 3 4 5 6 7 8 9 10

METH - Methane, Ethane, Ethene

Methane, Ethane, Ethene	1 2 3 4 5 6 7 8 9 10

Chain of Custody

Relinquished by	Received By	Date / Time
Print Name & Org.: ALEX SACKETT, FISHBECK Signature:		2/25/20; 1640
Print Name & Org. Signature:		
Print Name & Org. Signature:		

UPS# 1Z 3066W2 03 1062 3127

References

Fishbeck is proud of our client relationships and approximately 85 percent of our annual revenue is derived from repeat clients. We have developed ongoing associations with the representative list of past and current clients and encourage you to contact them for their impressions of our services.

City of Manistee, Michigan
Bill Gambill, City Manager
231.398.2801 | bgambill@manisteemi.gov

Kelly Fuels, Inc.
Rich Tallman, President
517.787.1210 | rich@kellyfuels

Enviro Analytics Group (EAG)
Elizabeth Schlaeger, PE
314.307.1734 | eschlaeger@enviroanalyticsgroup.com

Alro Steel Corporation
John Rumler
517.788.3286 | jrumler@alro.com

Michigan Department of Environment, Great Lakes, and Energy
Ron Smedley
517.242.9048 | smedleyr@michigan.gov

Michigan Department of Environment, Great Lakes, and Energy
Steven Beukema, Ph.D
269.547.0125 | beukemas@michigan.gov

Marquette County Brownfield Redevelopment Authority
Anne Giroux
906.225.8432 | agiroux@mqtco.org

Part II – Cost

Billing Rate Information

This cost proposal outlines the billing rates (from 2023 to 2027) of key personnel and other employees whose involvement on projects is anticipated. Since we have worked under these contracts before, we are familiar with the fee structure and reimbursable expenses.

Subcontractor fees have not been included, since these costs depend on individual tasks on specific projects and will be provided once the scope of services for a project is determined.

POSITION, CLASSIFICATION AND EMPLOYEE BILLING RATE INFORMATION

PROFESSIONAL SERVICES - 2023 ENVIRONMENTAL ISID

Firm Name __Fishbeck_____
Yearly Percentage Billing Rate Increase__3%

LEVEL CLASSIFICATION	Year 2023	Year 2024	Year 2025	Year 2026	Year 2027
P4 - Mike Apgar, Senior Environmental Engineer**	$165	$169.95	$176.75	$183.82	$189.33
P4 - David Bohan, Senior Hydrogeologist	$140	$144.20	$149.97	$155.97	$160.65
P4 - Tom Budge, CHMM, Senior Environmental Specialist**	$163	$167.89	$174.61	$181.59	$187.04
P4 - Todd Campbell, CPG, Senior Geologist**	$165	$169.95	$176.75	$183.82	$189.33
P4 - Rick Dunkin, CPG, LPG, Senior Geologist**	$165	$169.95	$176.75	$183.82	$189.33
P4 - Paul French, Senior Hydrogeologist**	$140	$144.20	$149.97	$155.97	$160.65
P4 - Bruce Gillett, CPG, Senior Hydrogeologist**	$165	$169.95	$176.75	$183.82	$189.33
P4 - Jeffrey Hawkins, Senior Hydrogeologist	$180	$185.40	$192.82	$200.53	$206.54
P4 - Peter Lepczyk, CPG, Senior Hydrogeologist**	$180	$185.40	$192.82	$200.53	$206.54
P4 - Alisa Lindsay, PE, Senior Environmental Engineer**	$165	$169.95	$176.75	$183.82	$189.33
P4 - Liz Marsh, PE, CHMM, Senior Environmental Engineer	$165	$169.95	$176.75	$183.82	$189.33
P4 - Brian McKissen, PE, CFM, Senior Civil Engineer	$165	$169.95	$176.75	$183.82	$189.33
P4 - Kerri Miller, PE, LEED AP, Principal**	$195	$200.85	$208.88	$217.24	$223.76
P4 - Kyle Murray, PhD, Senior Hydrogeologist	$165	$169.95	$176.75	$183.82	$189.33
P4 - Ryan Musch, PE, Senior Civil Engineer**	$165	$169.95	$176.75	$183.82	$189.33
P4 - Erik Peterson, Senior Hydrogeologist**	$132	$135.96	$141.40	$147.05	$151.47
P4 - Brad Peuler, CPG, Senior Geologist**	$140	$144.20	$149.97	$155.97	$160.65
P4 - Mike Ranck, PG, Senior Hydrogeologist**	$165	$169.95	$176.75	$183.82	$189.33
P4 - Andrew Schwallier, Senior GIS Specialist**	$127	$130.81	$136.04	$141.48	$145.73
P4 - Claire Schwartz, PE, Senior Civil Engineer	$165	$169.95	$176.75	$183.82	$189.33
P4 - Lynn Spurr, Senior Environmental Specialist	$165	$169.95	$176.75	$183.82	$189.33
P4 - David Stegink, Brownfield Program Manager**	$165	$169.95	$176.75	$183.82	$189.33
P4 - Elise Hansen Tripp, PWS, Senior Wetland Scientist/Ecologist**	$165	$169.95	$176.75	$183.82	$189.33
P4 - David Warwick, Senior Hydrogeologist**	$180	$185.40	$192.82	$200.53	$206.54

POSITION, CLASSIFICATION AND EMPLOYEE BILLING RATE INFORMATION

PROFESSIONAL SERVICES - 2023 ENVIRONMENTAL ISID

Firm Name __Fishbeck_____
Yearly Percentage Billing Rate Increase__3%

LEVEL CLASSIFICATION	Year 2023	Year 2024	Year 2025	Year 2026	Year 2027
P4 - Jess Watterson, Senior Environmental Scientist**	$165	$169.95	$176.75	$183.82	$189.33
P4 - Chad Weber, PE, Senior Environmental Engineer**	$165	$169.95	$176.75	$183.82	$189.33
P4 - Robert Webster, Senior Geologist**	$104	$107.12	$111.40	$115.86	$119.34
P4 - Susan Wenzlick, Senior Brownfield Specialist	$146	$150.38	$156.40	$162.65	$167.53
P4 - Roman Wilson, Brownfield Program Manager**	$180	$185.40	$192.82	$200.53	$206.54
P4 - Brad Yocum, Wetland Scientist/Biologist**	$92	$94.76	$98.55	$102.49	$105.57
P3 - Jacob Abair, Senior Chemical Engineer	$140	$144.20	$149.97	$155.97	$160.65
P3 - Aaron Bigler, Environmental Scientist**	$92	$94.76	$98.55	$102.49	$105.57
P3 - Chris Carew, Senior Geologist**	$122	$125.66	$130.69	$135.91	$139.99
P3 - Courtney Dunaj, Hydrogeologist**	$118	$121.54	$126.40	$131.46	$135.40
P3 - Cody Green, Health and Safety Manager	$152	$156.56	$162.82	$169.34	$174.42
P3 - Joel Henry, Senior Hydrogeologist	$202	$208.06	$216.38	$225.04	$231.79
P3 - Melissa Hunter, Geologist	$103	$106.09	$110.33	$114.75	$118.19
P3 - Alan Jennings, Occupational Safety and Health Services	$84	$86.52	$89.98	$93.58	$96.39
P3 - Derrick Lingle, CPG, Senior Hydrogeologist**	$140	$144.20	$149.97	$155.97	$160.65
P3 - Adam Near, CPG, Senior Geologist**	$127	$130.81	$136.04	$141.48	$145.73
P3 - Alyssa Olson, Hydrogeologist	$122	$125.66	$130.69	$135.91	$139.99
P3 - Kirk Perschbacher, Senior Brownfield Specialist**	$146	$150.38	$156.40	$162.65	$167.53
P3 - Cheryl Pitchford, Senior Civil Engineering Specialist	$136	$140.08	$145.68	$151.51	$156.06
P3 - Josh Schroedter, Industrial Hygienist	$103	$106.09	$110.33	$114.75	$118.19
P3 - Therese Searles, Senior Geologist**	$118	$121.54	$126.40	$131.46	$135.40
P3 - Fernanda Wilson, PhD, Environmental Engineer**	$122	$125.66	$130.69	$135.91	$139.99
P2 - Zachary Curry, Geologist**	$84	$86.52	$89.98	$93.58	$96.39

POSITION, CLASSIFICATION AND EMPLOYEE BILLING RATE INFORMATION

PROFESSIONAL SERVICES - 2023 ENVIRONMENTAL ISID

Firm Name __Fishbeck_____
Yearly Percentage Billing Rate Increase __3%__

LEVEL CLASSIFICATION	Year 2023	Year 2024	Year 2025	Year 2026	Year 2027
P2 - Ali Dahlbacka, Environmental Engineer**	$114	$117.42	$122.12	$127.00	$130.81
P2 - Alex Frye, Geologist	$98	$100.94	$104.98	$109.18	$112.45
P2 - Bryana Guevara, Wetland Scientist/Arborist	$122	$125.66	$130.69	$135.91	$139.99
P2 - Stephanie Hanes, Environmental Engineer	$109	$112.27	$116.76	$121.43	$125.07
P2 - Bailey Hannah, Hydrogeologist	$98	$100.94	$104.98	$109.18	$112.45
P2 - Ryan Krozek, Occupational Safety and Health Services	$84	$86.52	$89.98	$93.58	$96.39
P2 - Justin Levande, Chemical Engineer	$122	$125.66	$130.69	$135.91	$139.99
P2 - Penni Mahler, Environmental Data Specialist**	$98	$100.94	$104.98	$109.18	$112.45
P2 - Marley McVey, Environmental Engineer	$109	$112.27	$116.76	$121.43	$125.07
P2 - Kayla Rooney, Geologist**	$84	$86.52	$89.98	$93.58	$96.39
P2 - Alex Sackett, Geologist	$98	$100.94	$104.98	$109.18	$112.45
P2 - Nicole Stewart, Wetland Scientist/Ecologist	$88	$90.64	$94.27	$98.04	$100.98
P2 - Alex Struble, Hydrogeologist	$114	$117.42	$122.12	$127.00	$130.81
P1 - Nick Battjes, Hydrogeologist	$84	$86.52	$89.98	$93.58	$96.39
P1 - Audrey Havens, GIS Specialist	$68	$70.04	$72.84	$75.76	$78.03
P1 - Kyle Knaub, Hydrogeologist	$84	$86.52	$89.98	$93.58	$96.39
P1 - Hailey Lyczynski, GIS Specialist	$84	$86.52	$89.98	$93.58	$96.39
P1 - Logan Maser, Environmental Engineer	$92	$94.76	$98.55	$102.49	$105.57
P1 - Logan Mulholland, Brownfield Project Analyst	$84	$86.52	$89.98	$93.58	$96.39
P1 - Mahta Naziri Saeed, Environmental Engineer	$84	$86.52	$89.98	$93.58	$96.39
P1 - Regina Shettler, Environmental Scientist	$80	$82.40	$85.70	$89.12	$91.80
P1 - Ryohei Wakabayashi, Hydrogeologist	$84	$86.52	$89.98	$93.58	$96.39
TS - Brenda Bailey, Office Assistant	$80	$82.40	$85.70	$89.12	$91.80
TS - Therese Cotter, Administrative Assistant	$92	$94.76	$98.55	$102.49	$105.57

POSITION, CLASSIFICATION AND EMPLOYEE BILLING RATE INFORMATION

PROFESSIONAL SERVICES - 2023 ENVIRONMENTAL ISID

Firm Name __Fishbeck_____
Yearly Percentage Billing Rate Increase __3%__

LEVEL CLASSIFICATION	Year 2023	Year 2024	Year 2025	Year 2026	Year 2027
TS - Dawn Grates, Administrative Assistant	$98	$100.94	$104.98	$109.18	$112.45
TS - Leanne Jeannot, Administrative Assistant	$84	$86.52	$89.98	$93.58	$96.39
TS - Shelbey Senkewitz, Environmental Technician	$84	$86.52	$89.98	$93.58	$96.39
T1 - Madison Schrader, Seasonal Technician	$68	$70.04	$72.84	$75.76	$78.03
T3 - Michelle Bell, CAD Technician	$80	$82.40	$85.70	$89.12	$91.80
T3 - Judy Van Putten, Technician	$84	$86.52	$89.98	$93.58	$96.39

*Billing Rate will be in accordance with the attached guideline page for instructions regarding the "Overhead Items used for Professional Billing Rate Calculation," and the attached "Sample Standard Contract for Professional Services," Article II, Compensation.

** Key Project Personnel

APPENDIX 3

PROFESSIONAL CERTIFICATION

FORMS

(See pages 128 - 131)

APPENDIX 4

OVERHEAD ITEMS ALLOWED FOR THE PROFESSIONAL SERVICES CONTRACTOR FIRM'S HOURLY BILLING RATE CALCULATION

DEPARTMENT OF TECHNOLOGY, MANAGEMENT & BUDGET,
VEHICLE AND TRAVEL SERVICES
SCHEDULE OF TRAVEL RATES FOR CLASSIFIED AND UNCLASSIFIED EMPLOYEES
Effective January 1, 2023

MICHIGAN SELECT CITIES*

	Individual	Group Meeting (pre-arranged and approved)
Lodging**	$85.00	
Breakfast	$11.75	$14.75
Lunch	$11.75	$14.75
Dinner	$28.00	$31.00

MICHIGAN IN-STATE ALL OTHER

	Individual	Group Meeting (pre-arranged and approved)
Lodging**	$85.00	
Breakfast	$9.75	$12.75
Lunch	$9.75	$12.75
Dinner	$22.00	$25.00

Lodging	$51.00
Breakfast	$9.75
Lunch	$9.75
Dinner	$22.00
Per Diem Total	**$92.50**

OUT-OF-STATE SELECT CITIES*

	Individual	Group Meeting (pre-arranged and approved)
Lodging**	Contact Conlin Travel	
Breakfast	$15.00	$18.00
Lunch	$15.00	$18.00
Dinner	$29.00	$32.00

OUT-OF-STATE ALL OTHER

	Individual	Group Meeting (pre-arranged and approved)
Lodging**	Contact Conlin Travel	
Breakfast	$11.75	$14.75
Lunch	$11.75	$14.75
Dinner	$27.00	$30.00

Lodging	$51.00
Breakfast	$11.75
Lunch	$11.75
Dinner	$27.00
Per Diem Total	**$101.50**

Incidental Costs Per Day (with overnight stay) $5.00

Mileage Rates	**Current**
Premium Rate	$0.655 per mile
Standard Rate	$0.440 per mile

* See Select Cities Listing
** Lodging available at State rate, or call Conlin Travel at 877-654-2179 or www.somtravel.com

SELECT CITY LIST
SCHEDULE OF TRAVEL RATES FOR CLASSIFIED AND UNCLASSIFIED EMPLOYEES
Effective January 1, 2023

Michigan Select Cities/Counties		
	CITIES	**COUNTIES**
	Ann Arbor, Auburn Hills, Beaver Island, Detroit, Grand Rapids, Holland, Leland, Mackinac Island, Petoskey, Pontiac, South Haven, Traverse City	Grand Traverse, Oakland, Wayne
Out of State Select Cities/Counties		
STATE	**CITIES**	**COUNTIES**
Alaska	All locations	
Arizona	Phoenix, Scottsdale, Sedona	
California	Arcata, Edwards AFB, Eureka, Los Angeles, Mammoth Lakes, McKinleyville, Mill Valley, Monterey, Novato, Palm Springs, San Diego, San Francisco, San Rafael, Santa Barbara, Santa Monica, South Lake Tahoe, Truckee, Yosemite National Park	Los Angeles, Mendocino, Orange, Ventura
Colorado	Aspen, Breckenridge, Grand Lake, Silverthorne, Steamboat Springs, Telluride, Vail	
Connecticut	Bridgeport, Danbury	
District of Columbia	Washington DC (See also Maryland & Virginia)	
Florida	Boca Raton, Delray Beach, Fort Lauderdale, Jupiter, Key West, Miami	
Georgia	Brunswick, Jekyll Island	
Hawaii	All locations	
Idaho	Ketchum, Sun Valley	
Illinois	Chicago	Cook, Lake
Kentucky	Kenton	
Louisiana	New Orleans	
Maine	Bar Harbor, Kennebunk, Kittery, Rockport, Sandford	
Maryland	Baltimore City, Ocean City	Montgomery, Prince George
Massachusetts	Boston, Burlington, Cambridge, Martha's Vineyard, Woburn	Suffolk
Minnesota	Duluth, Minneapolis, St. Paul	Hennepin, Ramsey
Nevada	Las Vegas	
New Mexico	Santa Fe	
New York	Bronx, Brooklyn, Lake Placid, Manhattan, Melville, New Rochelle, Queens, Riverhead, Ronkonkoma, Staten Island, Tarrytown, White Plaines	Suffolk
Ohio	Cincinnati	
Pennsylvania	Pittsburgh	Bucks
Puerto Rico	All locations	
Rhode Island	Bristol, Jamestown, Middletown, Newport, Providence	Newport
Texas	Austin, Dallas, Houston, L.B. Johnson Space Center	
Utah	Park City	Summit
Vermont	Manchester, Montpelier, Stowe	Lamoille
Virginia	Alexandria, Fairfax, Falls Church	Arlington, Fairfax
Washington	Port Angeles, Port Townsend, Seattle	
Wyoming	Jackson, Pinedale	

.

APPENDIX 5

CERTIFICATES OF INSURANCE

FISHB-1 OP ID: KJ

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 03/03/2023

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

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

PRODUCER Collins & Associates Corp. 5075 Cascade Rd. SE Grand Rapids, MI 49546 R. Parke Collins II 616-942-0957	CONTACT NAME: K.Jakubiak PHONE (A/C, No, Ext): 616-942-0957 FAX (A/C, No): 616-942-1118 E-MAIL ADDRESS: kjakubiak@insuredwithcollins.com
	INSURER(S) AFFORDING COVERAGE — NAIC #
	INSURER A : Old Republic Ins Co — 24147
INSURED Fishbeck, Thompson, Carr & Huber Inc DBA Fishbeck 1515 Arboretum Dr SE Grand Rapids, MI 49546	INSURER B : Continental Casualty Company
	INSURER C :
	INSURER D :
	INSURER E :
	INSURER F :

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

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			MWZY317013 23	02/01/2023	02/01/2024	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 500,000
							MED EXP (Any one person)	$ 5,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:						Emp Ben.	$ 1,000,000
A	AUTOMOBILE LIABILITY			MWTB317014 23	02/01/2023	02/01/2024	COMBINED SINGLE LIMIT (Ea accident)	$ 2,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
B	X UMBRELLA LIAB X OCCUR			7034241134	02/01/2023	02/01/2024	EACH OCCURRENCE	$ 10,000,000
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$ 10,000,000
	DED X RETENTION $ 10000							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N	N / A		MWC317012 23	02/01/2023	02/01/2024	X PER STATUTE / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)						E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000

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

RE: 2023 Environmental Services ISID Number 930
The State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents are listed as additional insureds as respects General Liability & Autombile Liability when required by written contract. Waiver of Subrogation is provided as respects General

CERTIFICATE HOLDER

DTMB-01

DTMB - SFA - Design and Construction
3111 West St. Joseph Street
Lansing, MI 48917

CANCELLATION

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

AUTHORIZED REPRESENTATIVE

Liability, Automobile Liability & Workers' Compensation when required by written contract, except where prohibited by law.

FISHTHO-01 CJOHNSON

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 3/2/2023

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

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

PRODUCER	CONTACT NAME:	
Ames & Gough 859 Willard Street Suite 320 Quincy, MA 02169	PHONE (A/C, No, Ext): (617) 328-6555	FAX (A/C, No): (617) 328-6888
	E-MAIL ADDRESS: boston@amesgough.com	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Continental Insurance Company A(XV)	35289
INSURED Fishbeck , Thompson, Carr, & Huber, Inc. Dba Fishbeck 1515 Arboretum Drive SE Grand Rapids, MI 49546	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

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

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
	☐ OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	☐ UMBRELLA LIAB ☐ OCCUR						EACH OCCURRENCE	$
	☐ EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						☐ PER STATUTE ☐ OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ (Mandatory in NH)	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	Professional Liab.			AEH254038073	10/31/2022	2/1/2024	Per Claim Limit	5,000,000
A				AEH254038073	10/31/2022	2/1/2024	Annual Agg. Limit	10,000,000

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

All Coverages are in accordance with policy terms and conditions.

Pollution coverage is included under the Professional Liability policy. Professional Liability Policy includes Contractors Pollution per limits above and the State of Michigan its departments, division agencies, offices, commissions, officers, employees and agents are included as additional insureds with respect to the Pollution Liability coverage where required by written contract. A waiver of subrogation will be issued in accordance with policy terms and conditions.

CERTIFICATE HOLDER

DTMB – SFA – Design and Construction
3111 West St. Joseph Street
Lansing, MI 48917

CANCELLATION

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

AUTHORIZED REPRESENTATIVE

Jared Maxwell